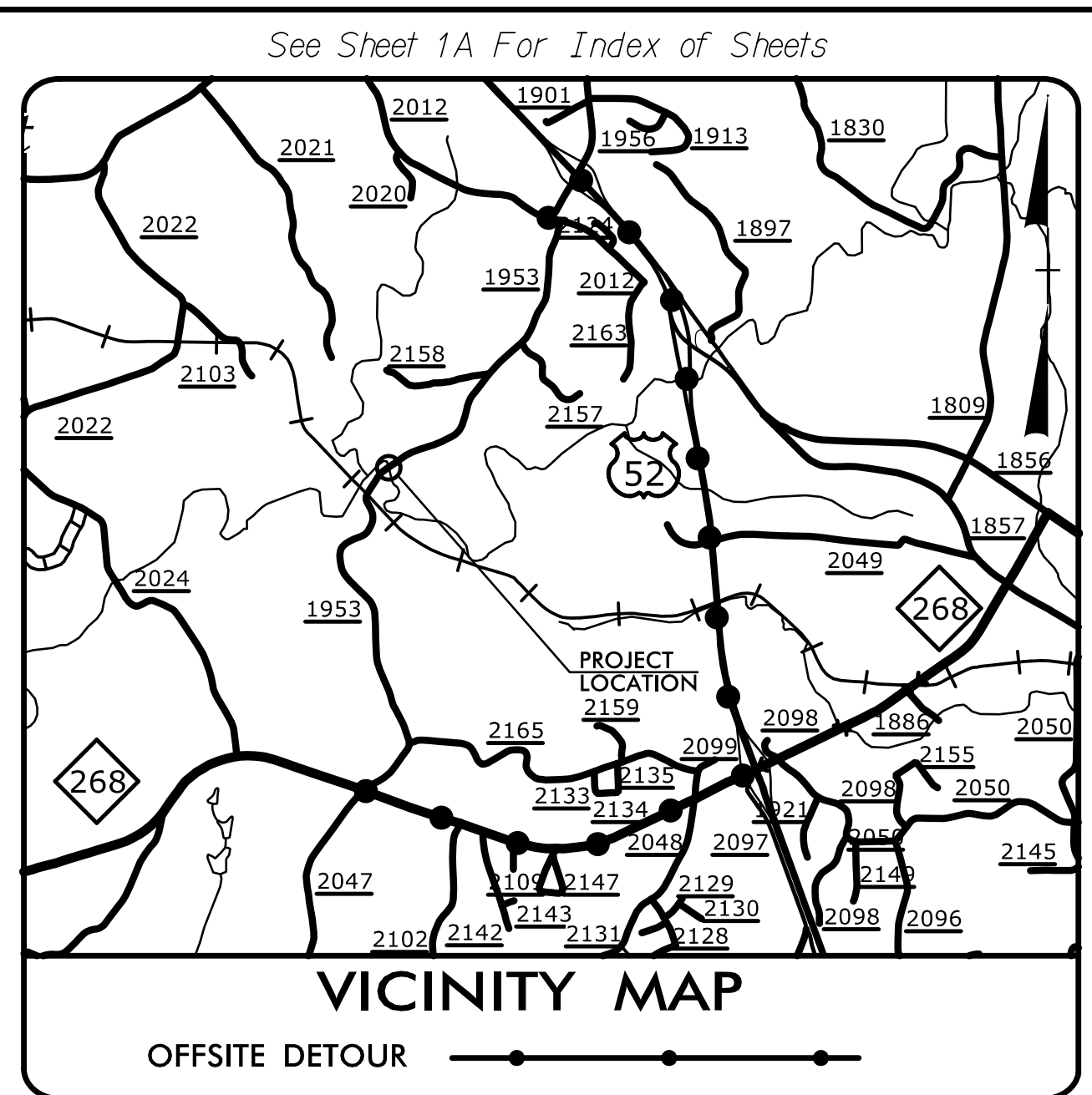


09_08/2011

PROJECT: BP11.R022

CONTRACT: DK00392



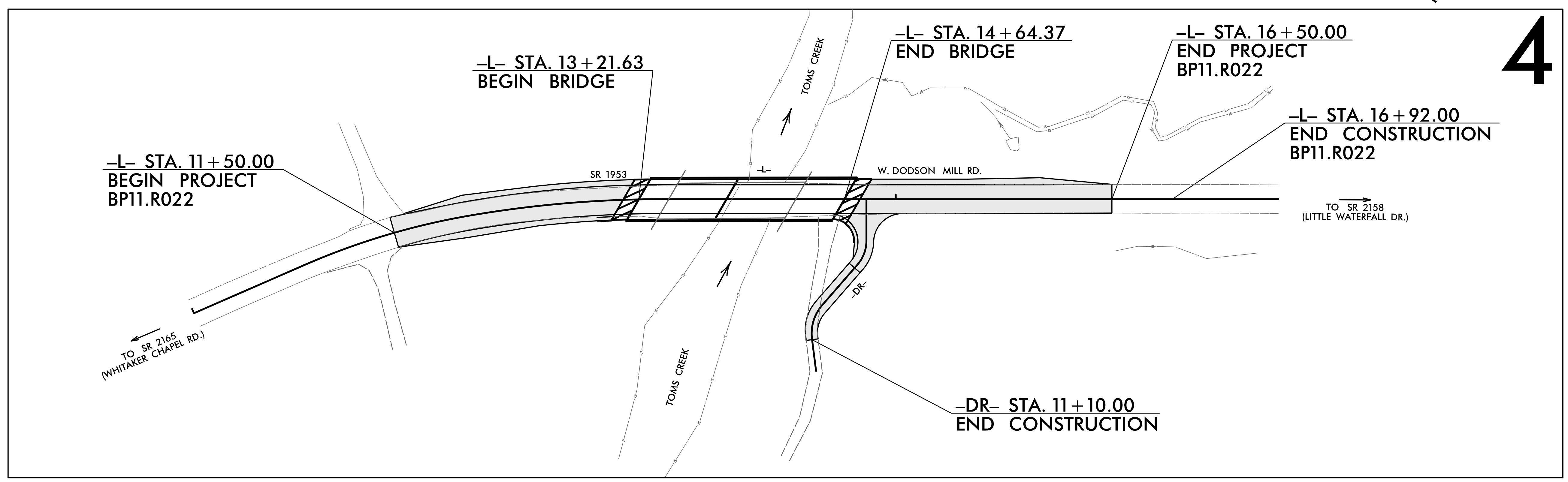
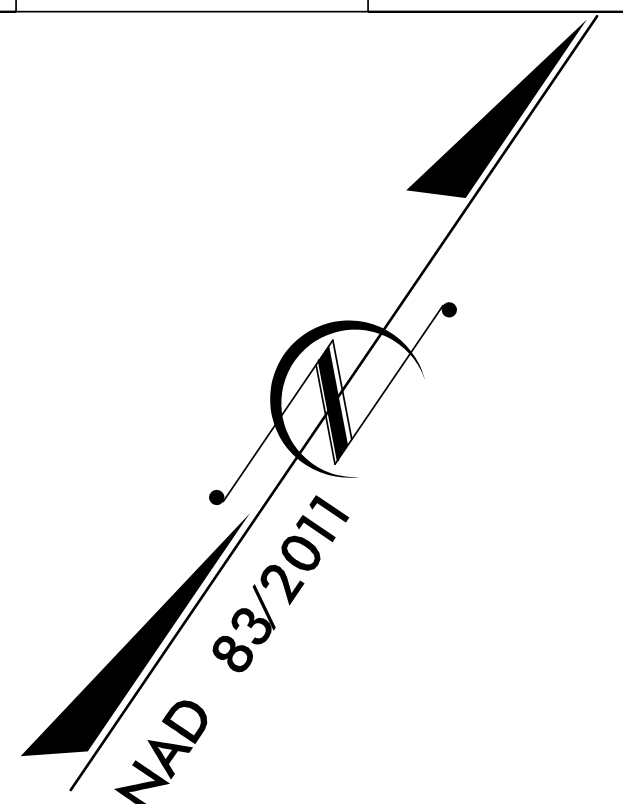
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURRY COUNTY

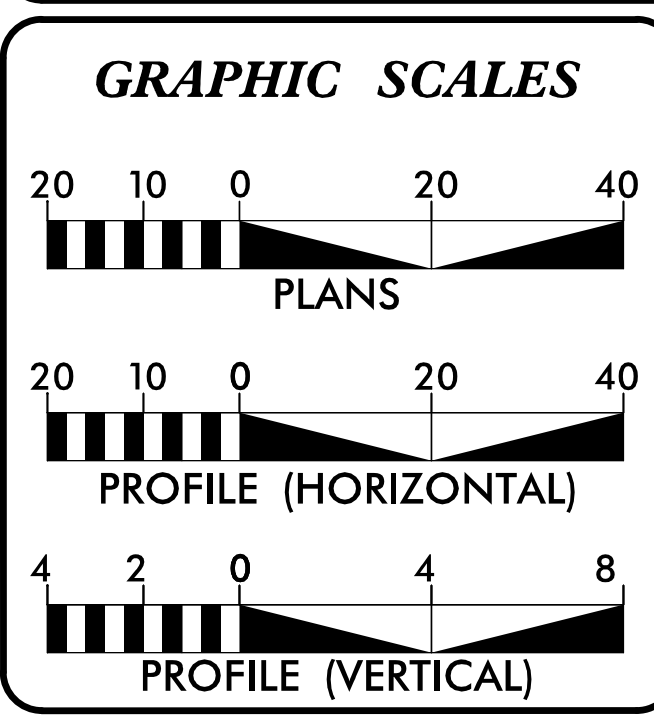
LOCATION: BRIDGE #850180 OVER TOMS CREEK
ON SR 1953 (W. DODSON MILL RD.)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP11.R022	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP11.R022.1	N/A	PE	
BP11.R022.2	N/A	RW & UTIL.	
BP11.R022.3	N/A	CONST.	



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2024 = 600
T = 6 % *
V = 45 MPH
* TTST = 3% DUAL 3%
FUNC CLASS = LOCAL, RURAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT #BP11.R022	= 0.068 MILES
LENGTH STRUCTURE PROJECT #BP11.R022	= 0.027 MILES
TOTAL LENGTH PROJECT #BP11.R022	= 0.095 MILES

NC DOT CONTACT: ROB WEISZ, PE

PLANS PREPARED BY: TGS ENGINEERS 201 W. MARION ST. SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	PLANS PREPARED FOR: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION 11 801 STATESVILLE RD NORTH WILKESBORO, NC 28659
RIGHT OF WAY DATE: JUNE 13, 2023	JIMMY L. TERRY, PE PROJECT ENGINEER
LETTING DATE: MAR 21, 2024	AUSTIN R. TURNER, PE PROJECT DESIGN ENGINEER

2024 STANDARD SPECIFICATIONS

HYDRAULICS ENGINEER

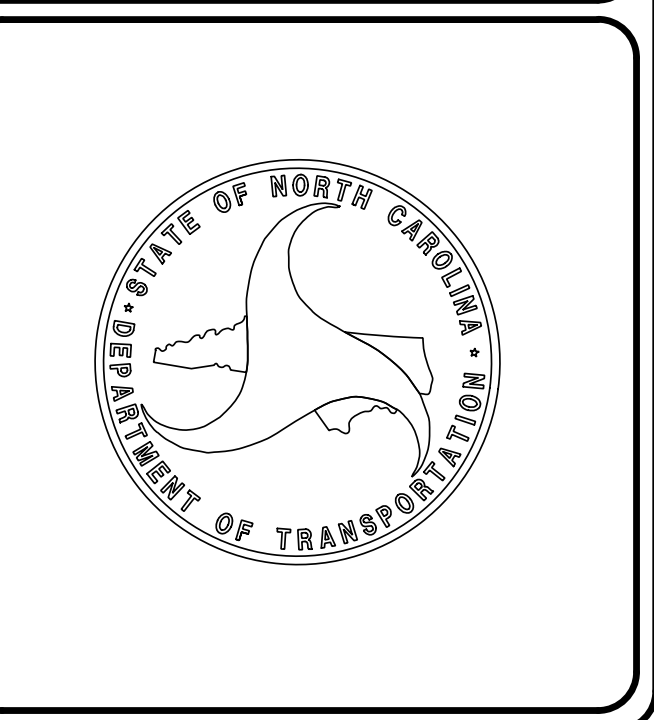
1/26/2024

DocuSigned by:
Benjamin J. Henegar
SIGNATURE

ROADWAY DESIGN ENGINEER

1/26/2024

DocuSigned by:
Jimmy Terry
SIGNATURE



8/17/99

TGS ENGINEERS
 201 W. MARION ST., STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

PROJECT REFERENCE NO. <i>BPII.R022</i>	SHEET NO. <i>1A</i>
ROADWAY DESIGN ENGINEER	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES

STANDARD DRAWINGS

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
3B-1	ROADWAY AND DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN SHEET
5	PROFILE SHEET
RW-1 THRU RW-4	SURVEY CONTROL SHEETS
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION INDEX
X-1B	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-6	CROSS-SECTIONS
S-1 THRU S-24	STRUCTURE PLANS
STRUCTURE STANDARD 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 II.

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

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

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 ENGINEER 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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY AND SPECTRUM.

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.

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 II
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
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type 1 Approach Fill for Bridge Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
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
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets

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STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

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	(123)
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	_____
Proposed Temporary Drainage Easement	_____
Proposed Permanent Drainage Easement	_____
Proposed Permanent Drainage/Utility Easement	_____
Proposed Permanent Utility Easement	_____
Proposed Temporary Utility Easement	_____
Proposed Aerial Utility Easement	_____

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	_____
Existing Curb	_____
Proposed Slope Stakes Cut	_____
Proposed Slope Stakes Fill	_____
Proposed Curb Ramp	_____
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	_____
Bridge Wing Wall, Head Wall and End Wall	_____
MINOR:	
Head and End Wall	_____
Pipe Culvert	_____
Footbridge	_____
Drainage Box: Catch Basin, DI or JB	_____
Paved Ditch Gutter	_____
Storm Sewer Manhole	_____
Storm Sewer	_____

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	_____

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	_____


SANITARY SEWER:

Sanitary Sewer Manhole	_____
Sanitary Sewer Cleanout	_____
U/G Sanitary Sewer Line	_____
Above Ground 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:

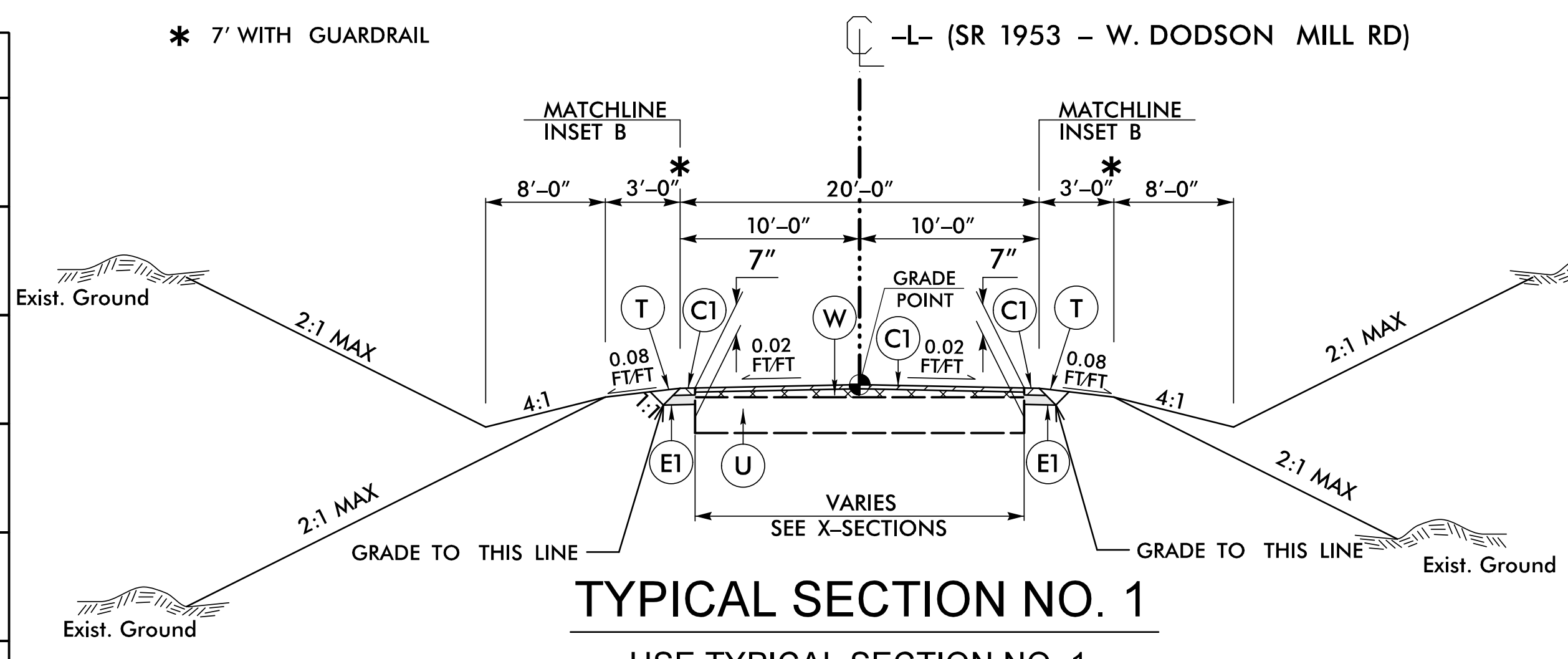
Utility Pole	_____
Utility Pole with Base	_____
Utility Located Object	_____
Utility Traffic Signal Box	_____
Utility Unknown U/G Line (SUE - LOS B)*	_____
U/G Tank; Water, Gas, Oil	_____
Underground Storage Tank, Approx. Loc.	_____
A/G Tank; Water, Gas, Oil	_____
Geoenvironmental Boring	_____
Abandoned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

6/2/2024

PROJECT REFERENCE NO. BP11.R022	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER JAMES L. TERRY 1/26/2024	PAVEMENT DESIGN ENGINEER RAMIE A. SHAW 1/26/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST. SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

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 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1 1/2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J	6" AGGREGATE BASE COURSE
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING (SEE MILLING DETAIL THIS SHEET)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS THIS SHEET)

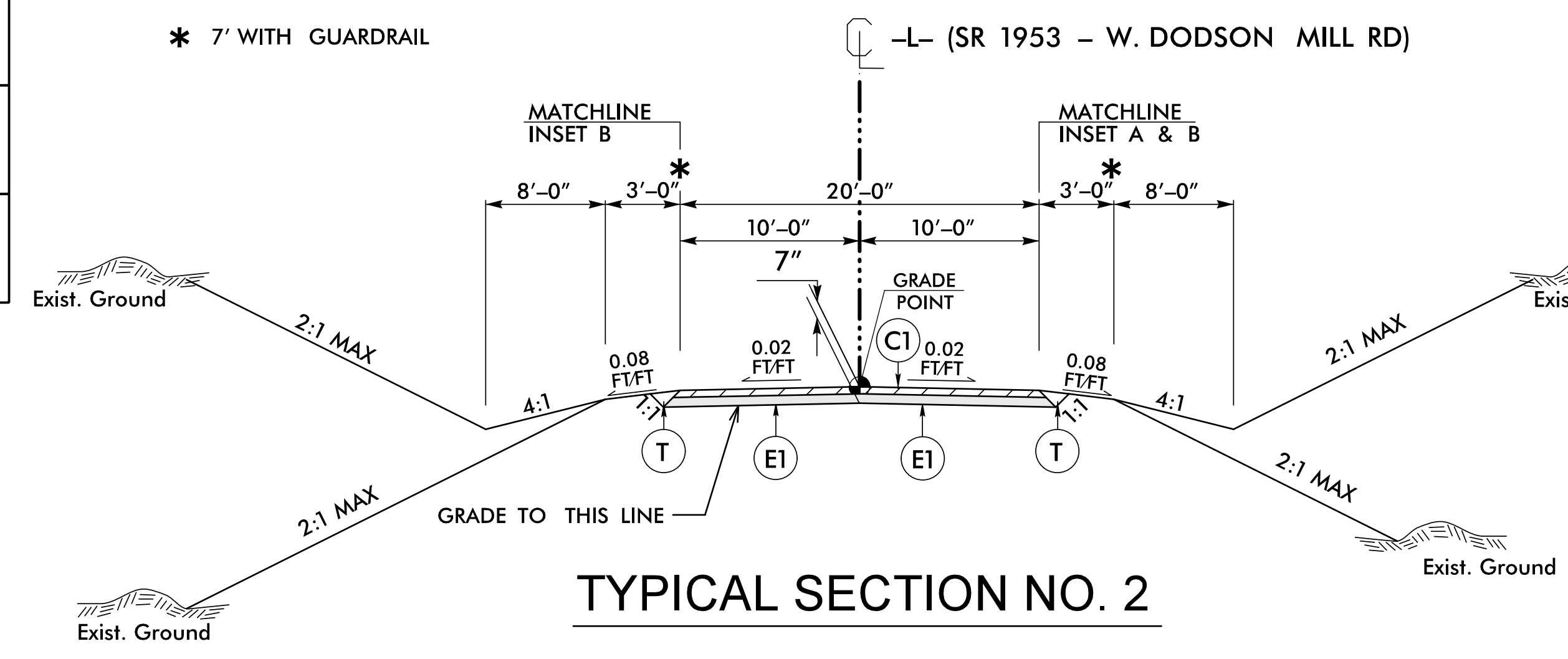
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SHOWN.



TYPICAL SECTION NO. 1

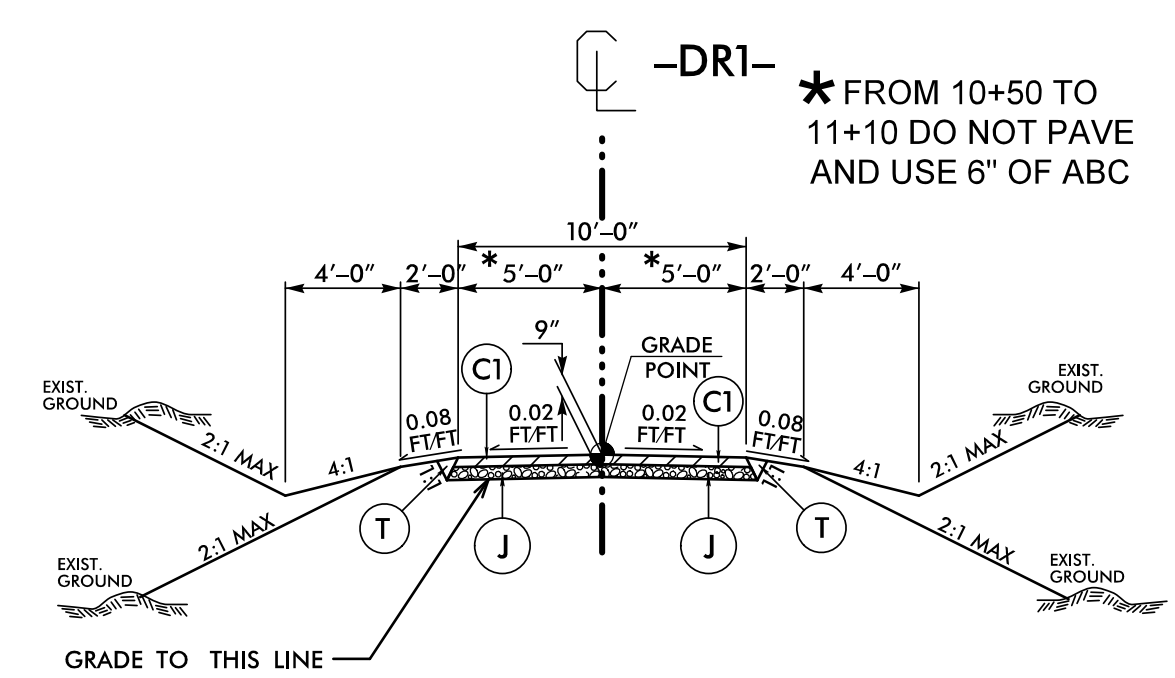
USE TYPICAL SECTION NO. 1
 -L- STA. 12+00.00 TO -L- STA. 12+60.00
 -L- STA. 15+25.00 TO -L- STA. 16+00.00

NOTE: TRANSITION BETWEEN EXISTING AND TYP. SECT. NO.1 AS FOLLOWS:
 -L- STA. 11+50.00 TO -L- STA. 12+00.00
 -L- STA. 16+00.00 TO -L- STA. 16+50.00



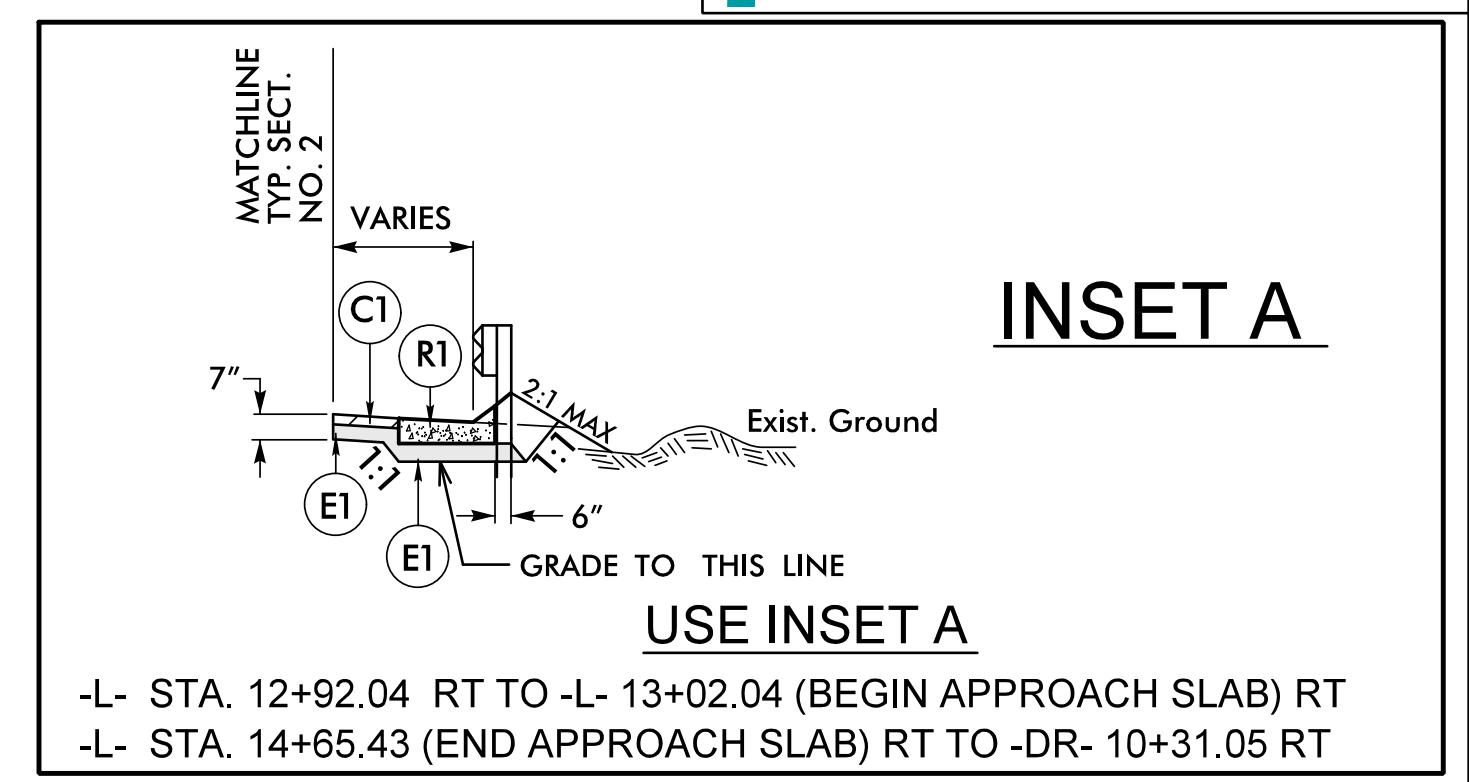
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
 -L- STA. 12+60.00 TO -L- STA. 13+21.63 (BEGIN BRIDGE)
 -L- STA. 14+64.37 (END BRIDGE) TO -L- STA. 15+25.00



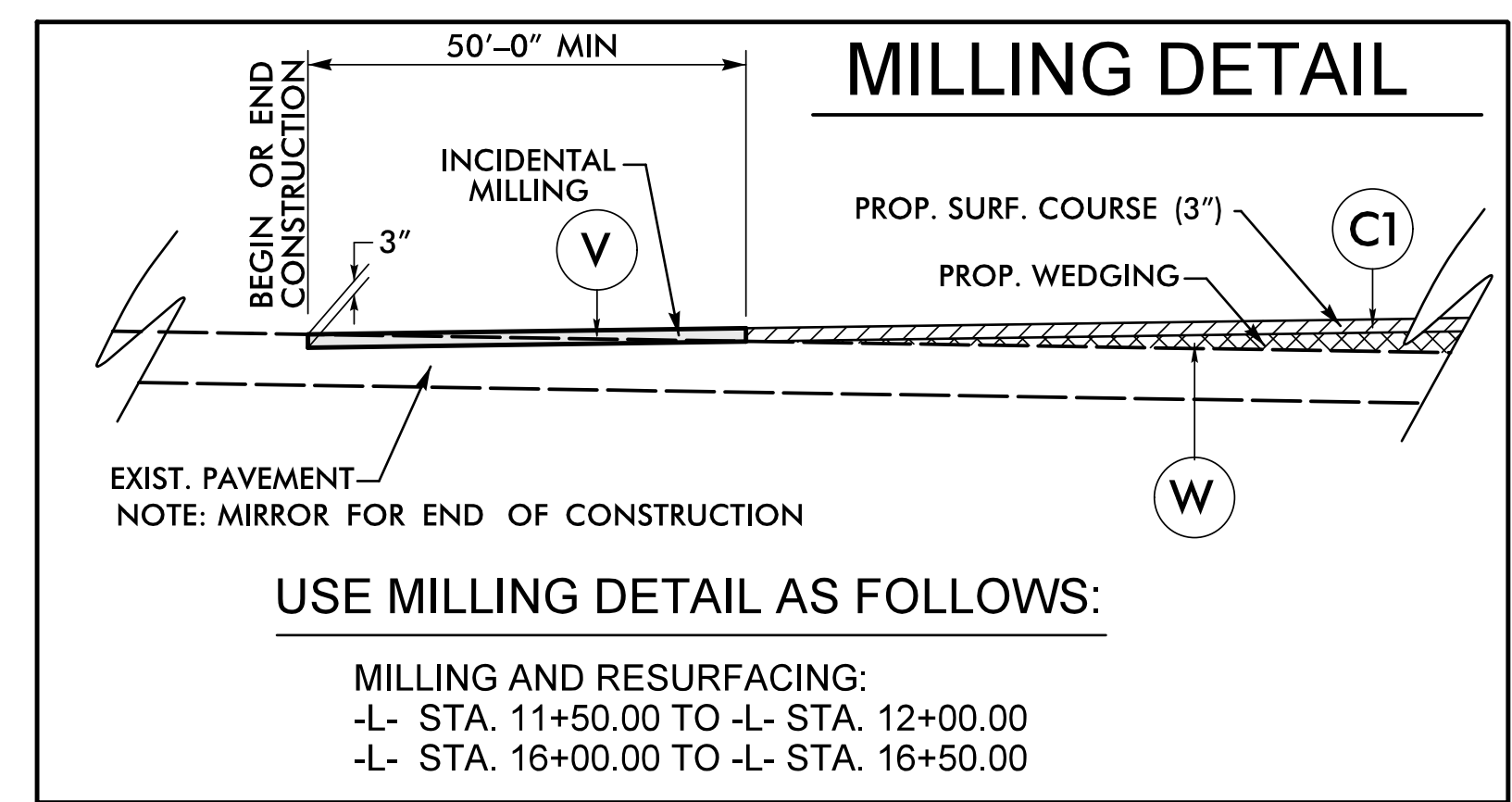
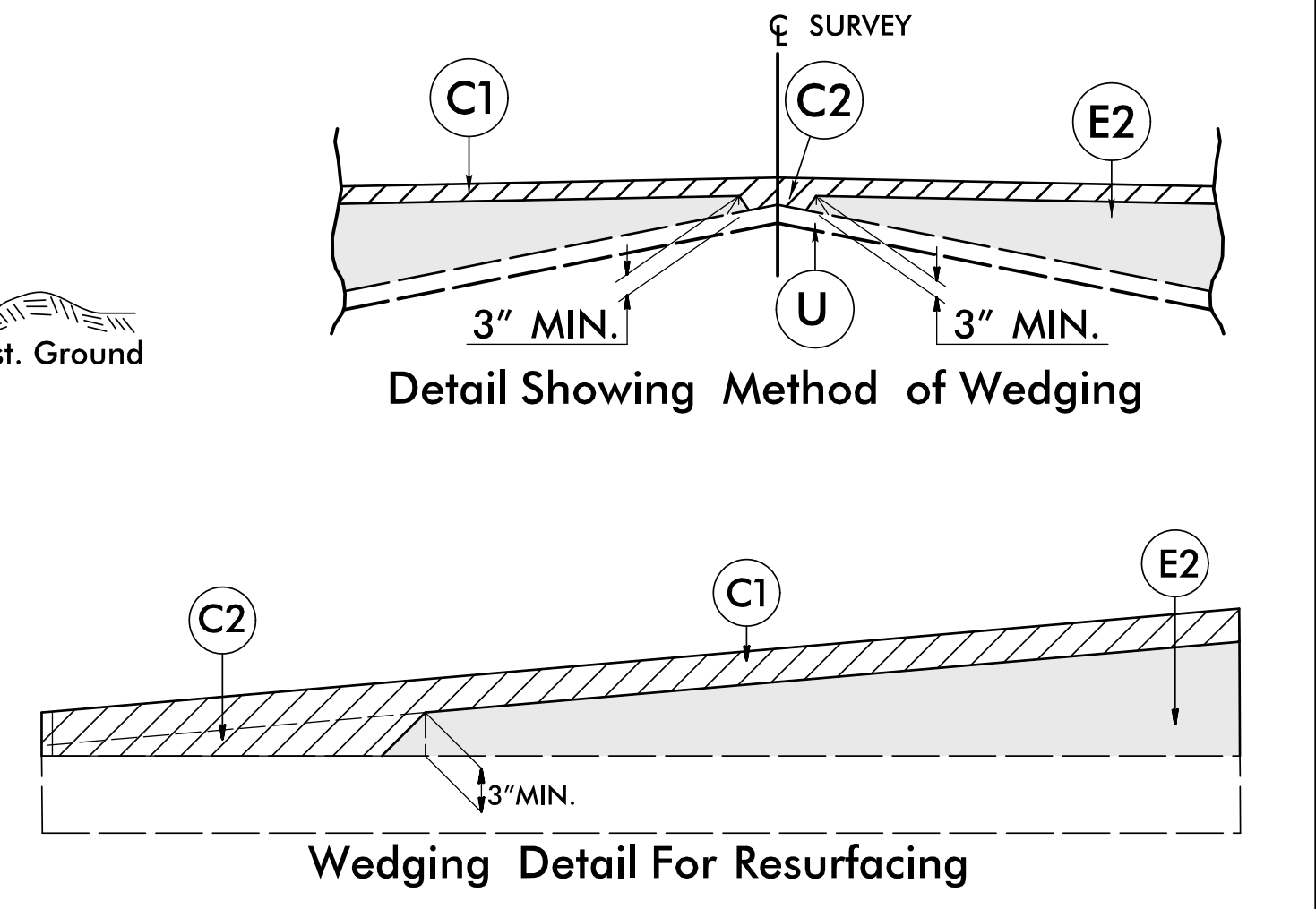
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
 -DR- STA. 10+10.00 TO -DR- STA. 10+50.00 (ASPHALT & ABC)
 -DR- STA. 10+50.00 TO -DR- STA. 10+85.00 (ABC ONLY)
 NOTE: TRANSITION EXISTING TO TYP. SECT. NO.4 AS FOLLOWS:
 -DR1- STA. 10+85.00 TO -DR1- STA. 11+10.00 (ABC ONLY)

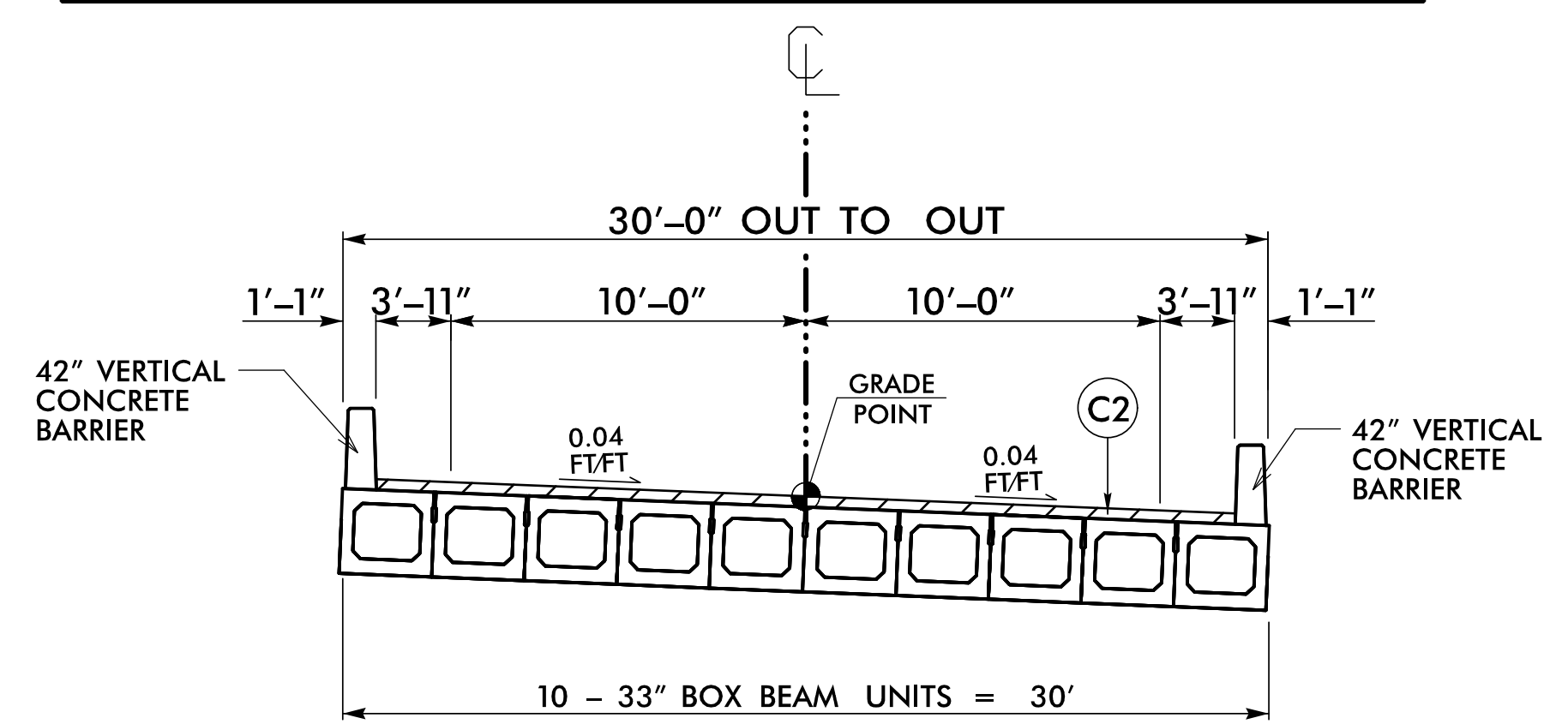


INSET A

USE INSET A
 -L- STA. 12+92.04 RT TO -L- 13+02.04 (BEGIN APPROACH SLAB) RT
 -L- STA. 14+65.43 (END APPROACH SLAB) RT TO -DR- 10+31.05 RT

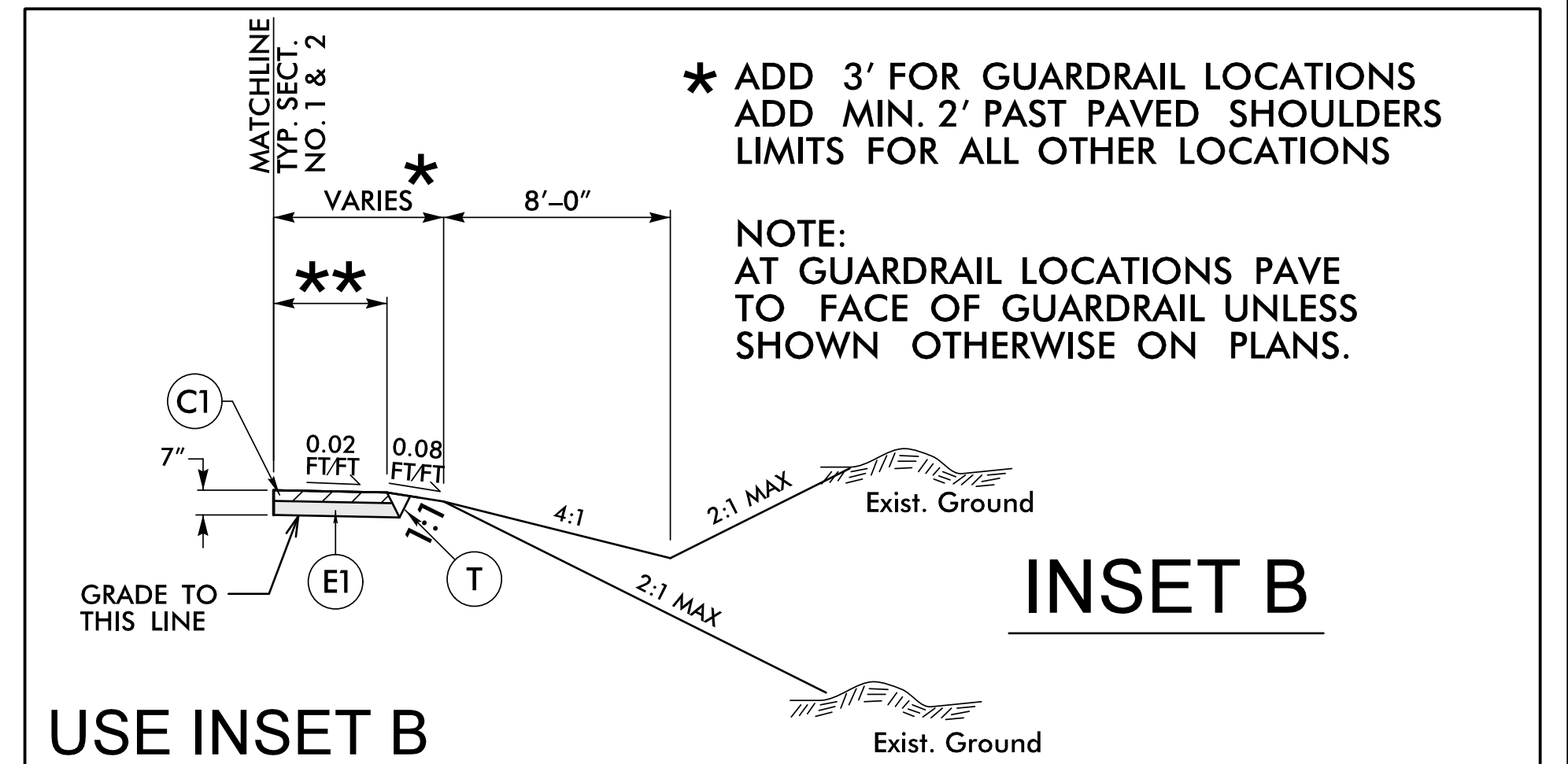


USE MILLING DETAIL AS FOLLOWS:
 MILLING AND RESURFACING:
 -L- STA. 11+50.00 TO -L- STA. 12+00.00
 -L- STA. 16+00.00 TO -L- STA. 16+50.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
 -L- STA. 13+21.63 TO -L- STA. 14+64.37



INSET B

USE INSET B

** FDPS WIDTH	
0'-0" TO 4'-10"	-L- STA. 11+50.00 LT TO -L- STA. 13+19.17 (BEGIN APPROACH SLAB) LT
0'-0" TO 4'-9"	-L- STA. 11+50.00 RT TO -L- STA. 12+92.04 (BEGIN SBG) RT
0'-0" TO 4'-11"	-L- STA. 14+83.22 LT (END APPROACH SLAB) TO -L- STA. 16+50.00 LT
2'-10" TO 0'-0"	-DR- STA. 10+31.05 (END SBG) RT TO -DR- STA. 10+45.57 RT

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COMPUTED BY: REK DATE: 7/7/2023
 CHECKED BY: DMB DATE: 7/7/2023

(2-3-23)

PROJECT NO.	SHEET NO.
BP11.R022	3G-1

**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
			CONTINGENCY	SD	200
				TOTAL LF:	200

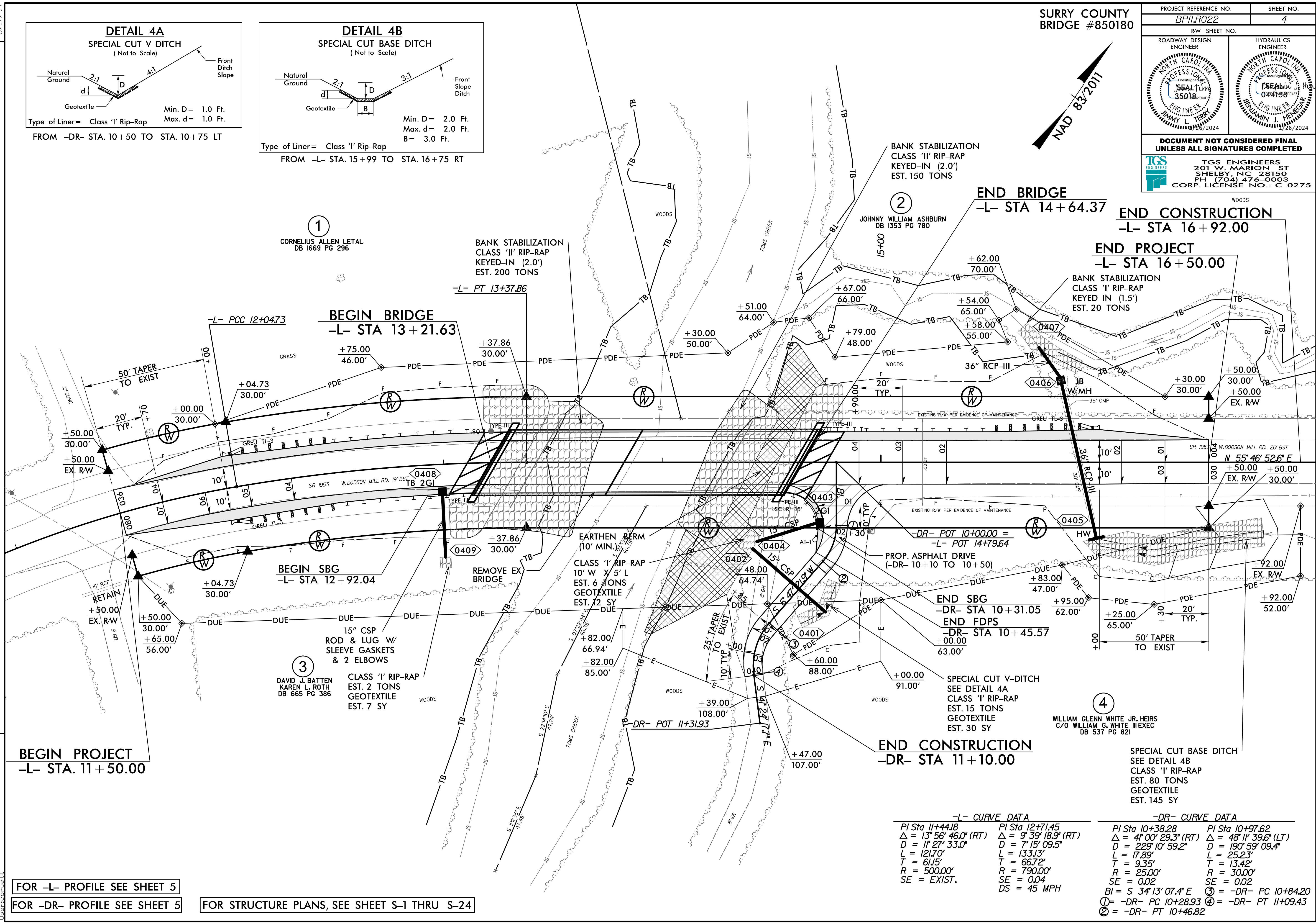
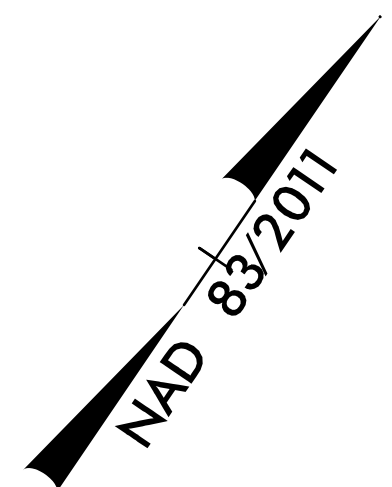
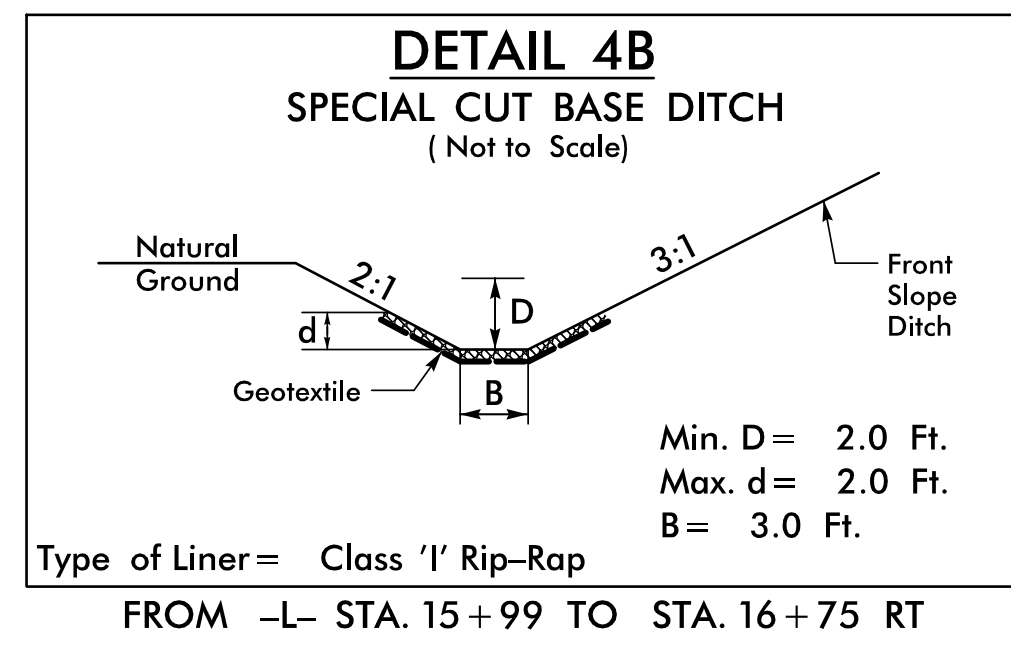
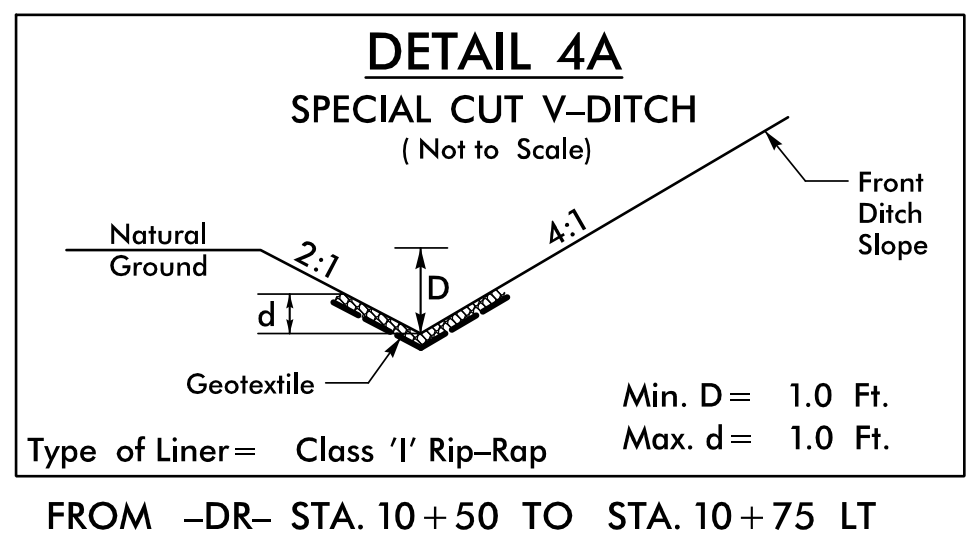
*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
			CONTINGENCY	ASU(1)	12	100	200	300	
				TOTAL CY/TONS/SY:		100	200**	300**	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
 *AST = Aggregate Stabilization
 **Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

PROJECT REFERENCE NO. BP11.R022	SHEET NO. 4
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER JIMMY L. TERRY 12/26/2024	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER BENJAMIN J. PHELAN 12/26/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	



BEGIN PROJECT
-L- STA. 11+50.00

BEGIN SBG
-L- STA 12+92.04

BEGIN BRIDGE
-L- STA 13+21.63

END BRIDGE
-L- STA 14+64.37

END CONSTRUCTION
-L- STA 16+92.00

END PROJECT
-L- STA 16+50.00

END CONSTRUCTION
-DR- STA 11+10.00

END SBG
-DR- STA 10+31.05

END FDPS
-DR- STA 10+45.57

-DR- POT 10+00.00 =
-L- POT 14+79.64

SPECIAL CUT V-DITCH
SEE DETAIL 4A
CLASS 'I' RIP-RAP
EST. 15 TONS
GEOTEXTILE
EST. 30 SY

SPECIAL CUT BASE DITCH
SEE DETAIL 4B
CLASS 'I' RIP-RAP
EST. 80 TONS
GEOTEXTILE
EST. 145 SY

-L- CURVE DATA

PI Sta 11+44.18	PI Sta 12+71.45
$\Delta = 13^{\circ} 56' 46.0''$ (RT)	$\Delta = 9^{\circ} 39' 18.9''$ (RT)
$D = 11^{\circ} 27' 33.0''$	$D = 7^{\circ} 15' 09.5''$
$L = 121.70'$	$L = 133.13'$
$T = 61.15'$	$T = 66.72'$
$R = 500.00'$	$R = 790.00'$
$SE = EXIST.$	$SE = 0.04$
	$DS = 45$ MPH

-DR- CURVE DATA

PI Sta 10+38.28	PI Sta 10+97.62
$\Delta = 41^{\circ} 00' 29.3''$ (RT)	$\Delta = 48^{\circ} 11' 39.6''$ (LT)
$D = 229^{\circ} 10' 59.2''$	$D = 190^{\circ} 59' 09.4''$
$L = 17.89'$	$L = 25.23'$
$T = 9.35'$	$T = 13.42'$
$R = 25.00'$	$R = 30.00'$
$SE = 0.02$	$SE = 0.02$
$BI = S 34^{\circ} 13' 07.4'' E$	$\textcircled{2} = -DR- PC 10+84.20$
	$\textcircled{1} = -DR- PC 10+28.93$
	$\textcircled{3} = -DR- PT 11+09.43$
	$\textcircled{4} = -DR- PT 10+46.82$

FOR -L- PROFILE SEE SHEET 5

FOR -DR- PROFILE SEE SHEET 5

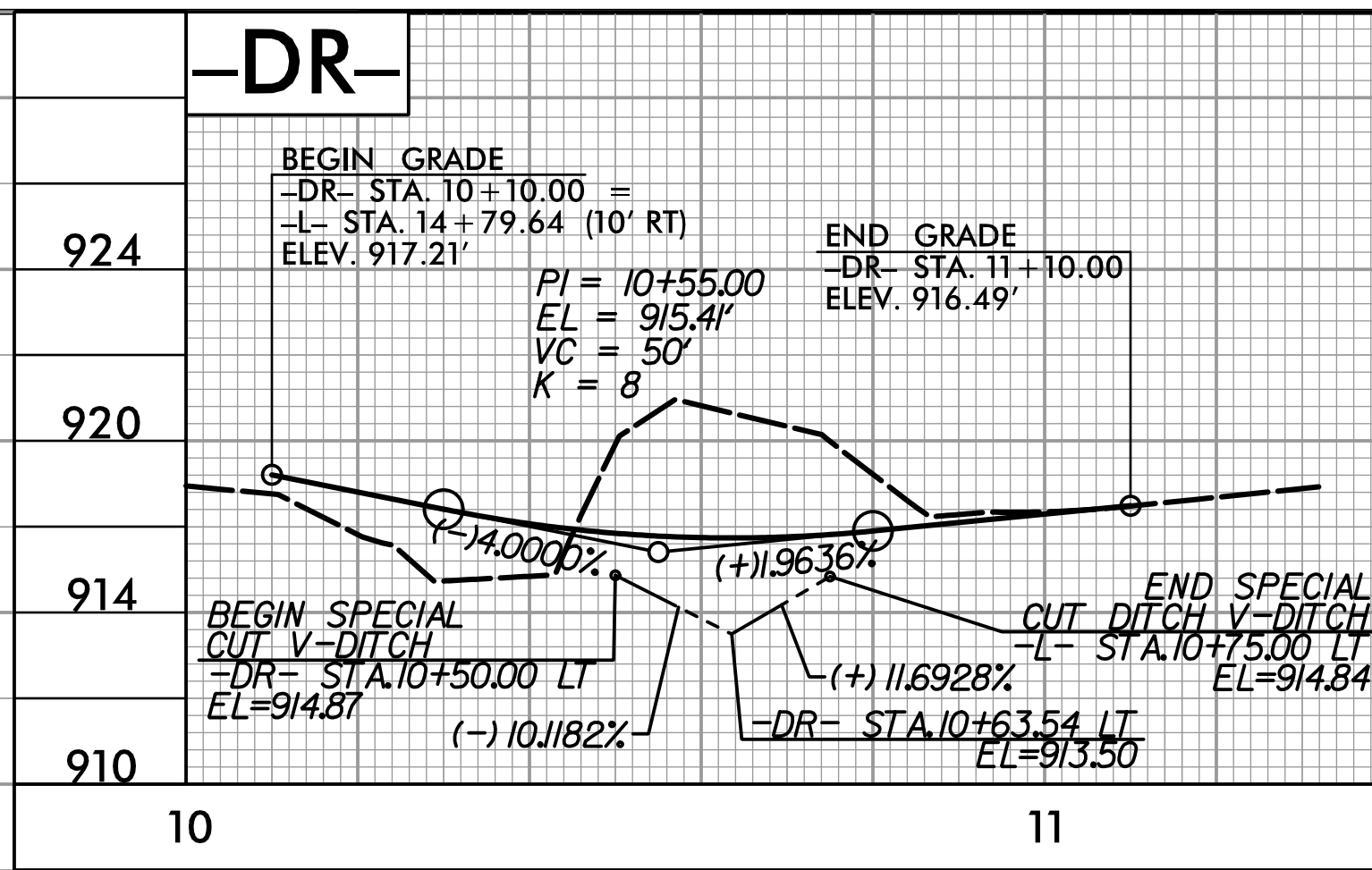
FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-24

REVISIONS

8/17/99
1/26/2024
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lic:sc000001

5/14/99

PROJECT REFERENCE NO. BP11.R022	SHEET NO. 5
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

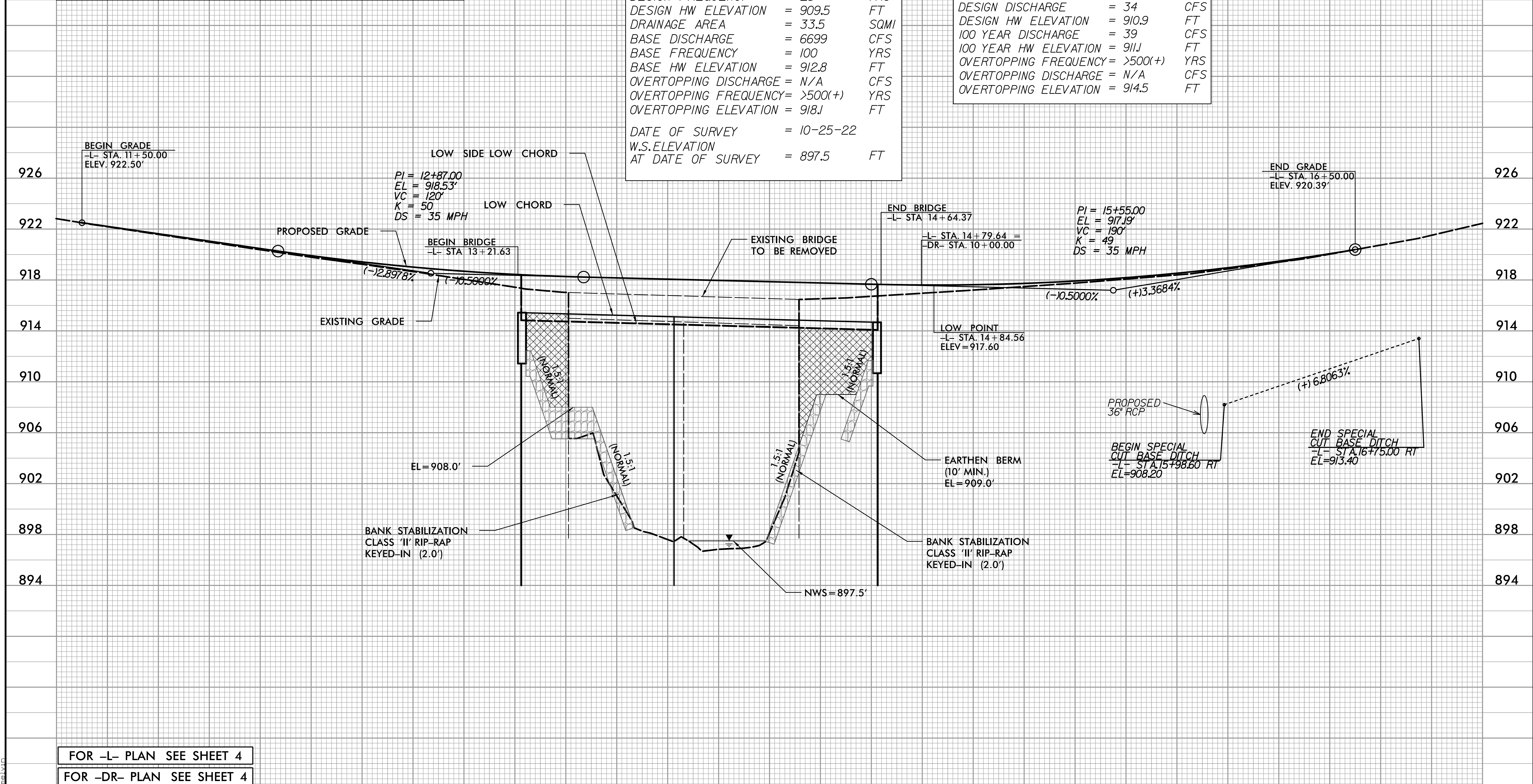


BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 4500	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 909.5	FT
DRAINAGE AREA	= 33.5	SQMI
BASE DISCHARGE	= 6699	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 912.8	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING ELEVATION	= 918.1	FT
DATE OF SURVEY	= 10-25-22	
W.S. ELEVATION		
AT DATE OF SURVEY	= 897.5	FT

PIPE HYDRAULIC DATA
*0405-L- Sta.15+90

DRAINAGE AREA	= 13.8	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 34	CFS
DESIGN HW ELEVATION	= 910.9	FT
100 YEAR DISCHARGE	= 39	CFS
100 YEAR HW ELEVATION	= 911.1	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 914.5	FT



FOR -L- PLAN SEE SHEET 4
FOR -DR- PLAN SEE SHEET 4

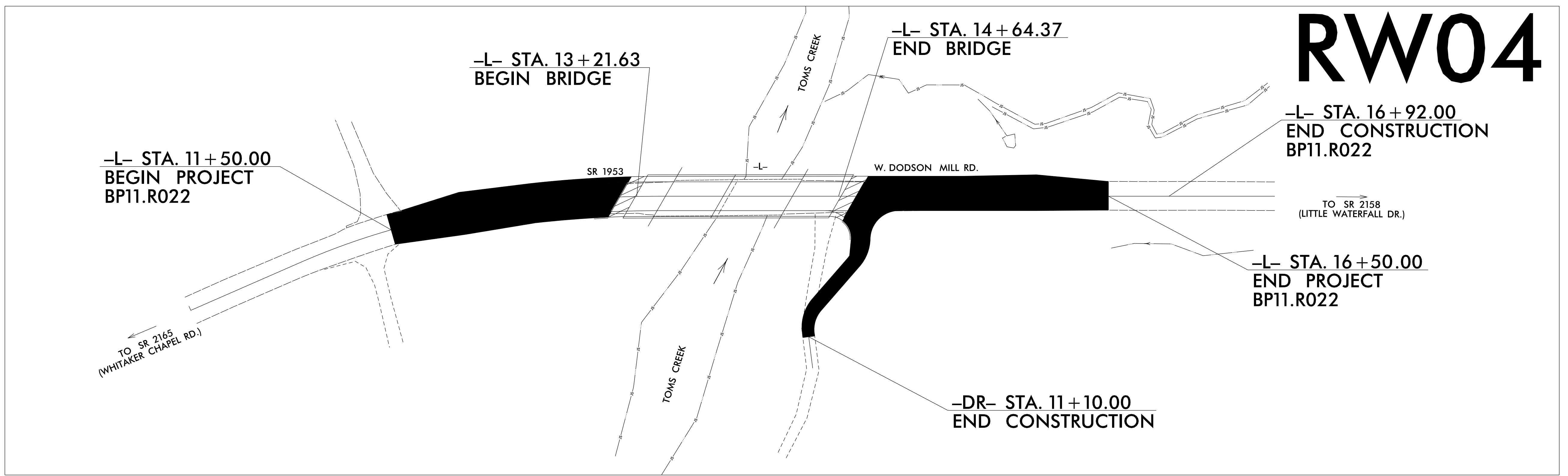
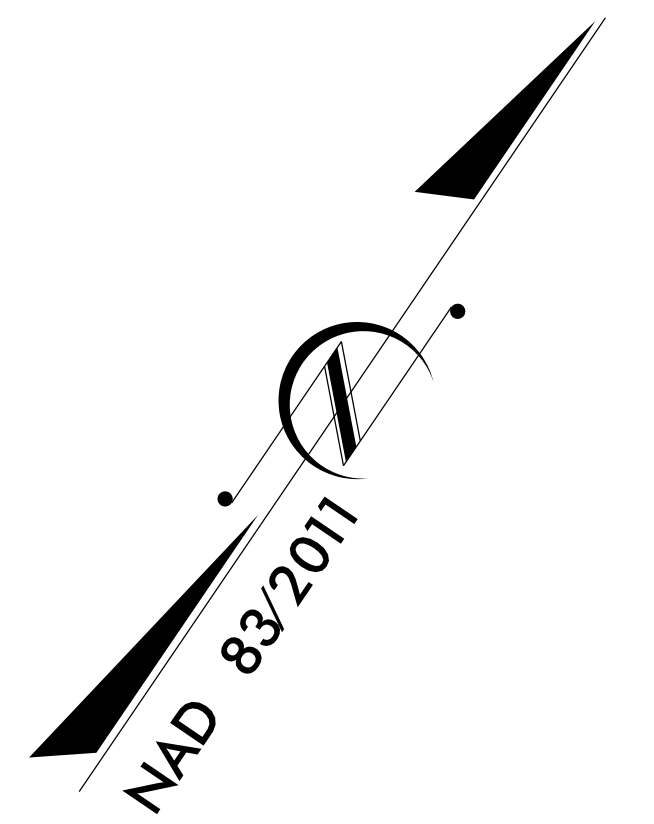
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9/2023

PROJECT: BP11.R022

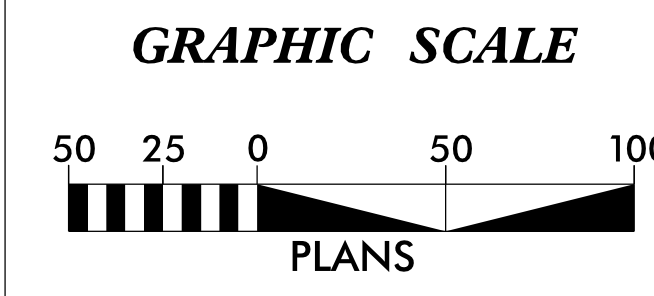
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP11.R022	RW01	5

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 SURVEY CONTROL, EXISTING CENTERLINES,
 RIGHT OF WAY, EASEMENTS AND PROPERTY TIES
SURRY COUNTY



RW04

15-SEP-2023 10:55 SA:\surveyors\projects\LIB\850180\2023 RW Staking\MTC\850180.ls_rw01.dgn mcornewell AT MORNWELL\PTOP



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "180-1" WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 965,063.296(ft) EASTING: 1,554,915.500(ft) ELEVATION: 916.70(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00003215

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "180-1" TO -L- STATION 10+00.00 IS S 38°57'35.25" W 322.500(ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

TGS ENGINEERS
 TGS ENGINEERS
 201 WEST MARION STREET
 SUITE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
6/13/2023

LETTING DATE:
3/21/2024

PROFESSIONAL LAND SURVEYOR

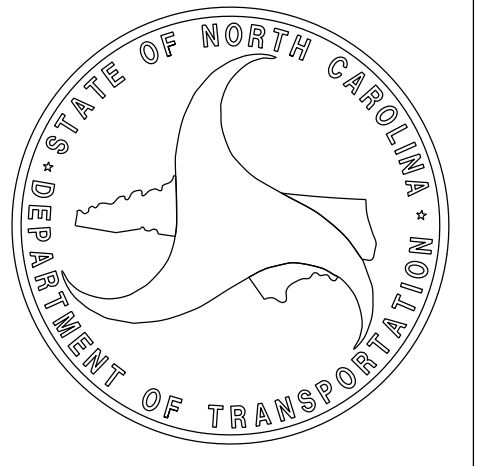
DocuSigned by:
 Matthew Cornewell
 EBD36F11479E475...

9/15/2023

SIGNATURE:



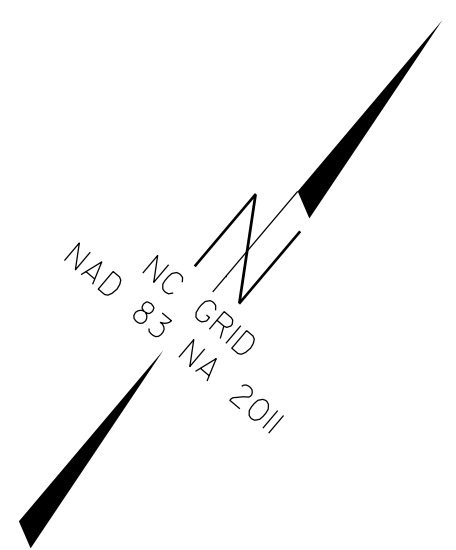
Date:



SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. 850180	SHEET NO. RW02C-1
Location and Surveys	
TGS ENGINEERS 201 WEST MARION STREET SUITE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	
PROJECT SURVEYOR	
DocuSigned by: Matthew Cornwell EBD09F11473E475...	
SEAL L-4775 MATTHEW T. CORNWELL LAND SURVEYOR	
5/13/2022	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



BASELINE

BL	POINT	DESC.	NORTH	EAST	ELEVATION
3		BL-3	964828.2149	1554740.4985	926.24
1		180-1	965063.2960	1554915.5000	916.70
2		180-2	965519.5190	1555750.5740	960.78

BENCHMARK

.....
 BM1 ELEVATION = 925.43
 N 964814 E 1554768
 BL STATION 5+05.00 30 RIGHT
 RR SPIKE IN BASE OF 12" WATER OAK

I, Matthew T. Cornwell, PLS, certify that the Project Control was performed 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: RTN
 Dates of survey: April 2022
 Datum/Epoch: NAD83/2011
 Published/Fixed-control use: N/A
 Localized around: 180-1
 Northing: 965063.296
 Easting: 1554915.500
 Combined grid factor: 1.00003215
 Geoid model: GEOID18
 Units: US Survey Feet

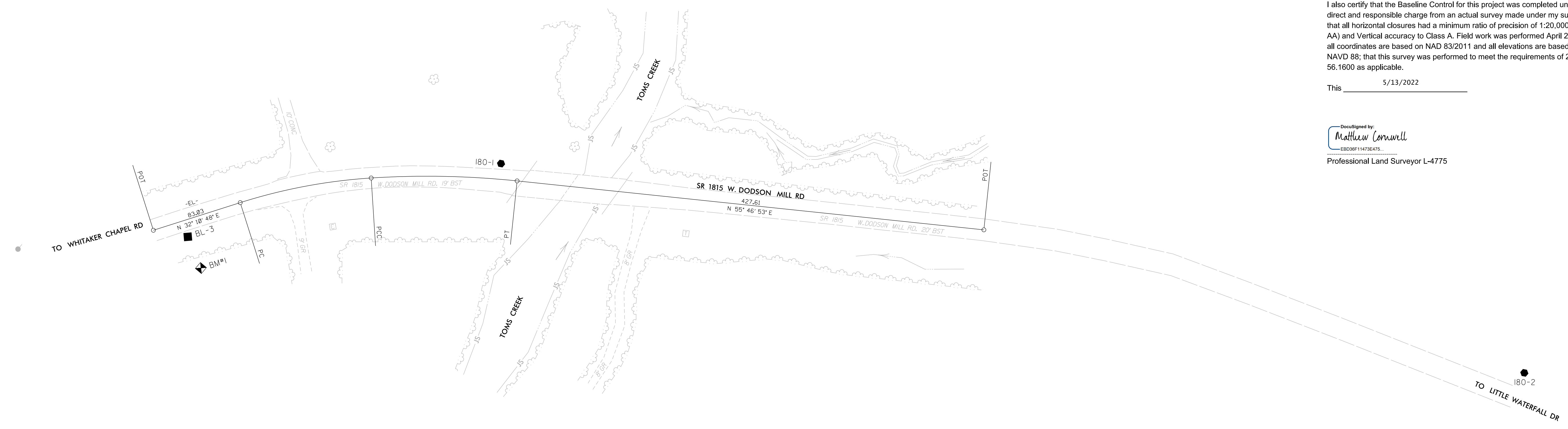
I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed April 2022, 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 5/13/2022

DocuSigned by:

 Matthew Cornwell
 EBD09F11473E475...
 Professional Land Surveyor L-4775

REVISIONS



EXISTING CENTERLINE ALIGNMENT

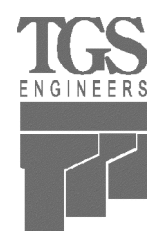


EL	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
	POT	964812.524	1554712.720							
	LINE			N 32°10'47.7" E	83.03					
	PC	964882.796	1554756.938	N 39°09'10.7" E	121.40	13°56'46.0"(RT)	11°27'33.0"	121.70	61.15	500.00
	CURVE									
	PCC	964976.939	1554833.591	N 50°57'13.1" E	132.97	09°39'18.9"(RT)	07°15'09.5"	133.13	66.72	790.00
	CURVE									
	PT	965060.703	1554936.860							
	LINE			N 55°46'52.6" E	427.61					
	POF	965301.173	1555290.453							

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.

13-MAY-2022 15:53
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 mcornwell AT MTCORNWELL.LAP.FDP

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO. BP11.R022	SHEET NO. RW02D-1
Location and Surveys	
 TGS ENGINEERS 201 WEST MARION STREET SUITE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	
PROJECT SURVEYOR	
DocuSigned by:  EBD036F11473E475	
9/15/2023	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Matthew T. Cornwell, 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 9/15/2023
 DocuSigned by:

 EBD036F11473E475
 Professional Land Surveyor L-4775

REVISIONS

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	964812.5240	1554712.7200
PC	10+83.03	964882.7955	1554756.9380
PCC	12+04.73	964976.9387	1554833.5907
PT	13+37.86	965060.7030	1554936.8601
POT	17+65.47	965301.1734	1555290.4529

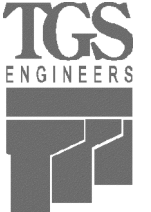


DR

TYPE	STATION	NORTH	EAST
POT	10+00.00	965140.4369	1555054.1025
PC	10+28.93	965116.5163	1555070.3704
PT	10+46.82	965099.5020	1555074.5226
PC	10+84.20	965062.3856	1555070.1037
PT	11+09.43	965038.9977	1555077.3917
POT	11+31.93	965022.1223	1555092.2719

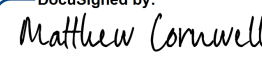
NOTES:

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.

RIGHT OF WAY & PERMANENT EASEMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP11.R022	RW03E-1
Location and Surveys	
 TGS ENGINEERS 201 WEST MARION STREET SUITE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	
PROJECT SURVEYOR	
DocuSigned by:  E8D36F11473E475	
9/15/2023	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Matthew T. Cornwell, 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 from 9/13/2023 to 9/14/2023, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 9/15/2023
 DocuSigned by:

 Matthew Cornwell
 Professional Land Surveyor L-4775

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST	
L	11+50.00	-20.00	964949.7431	1554780.9377	PUNCHED AND PAINTED 'X' IN CONC
L	11+50.00	-30.00	964956.1515	1554773.2610	PUNCHED AND PAINTED 'X' IN CONC
L	11+50.00	20.00	964924.1095	1554811.6447	
L	11+50.00	30.00	964917.7011	1554819.3214	
L	12+04.73	30.00	964955.3127	1554854.3830	
L	12+04.73	-30.00	964998.5647	1554812.7985	
L	13+37.86	-30.00	965085.5099	1554919.9895	
L	13+37.86	30.00	965035.8961	1554953.7307	
L	16+50.00	30.00	965211.4313	1555211.8414	
L	16+50.00	20.00	965219.7003	1555206.2179	BRIDGE SPIKE SET
L	16+50.00	-30.00	965261.0451	1555178.1002	
L	16+50.00	-20.00	965252.7762	1555183.7237	

ROW MARKER PERMANENT EASEMENT

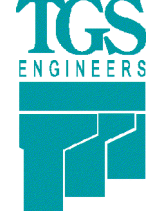


ALIGN	STATION	OFFSET	NORTH	EAST	
L	11+65.00	56.00	964911.1350	1554847.9690	
L	12+00.00	-30.00	964995.0736	1554809.2016	
L	12+75.00	-46.00	965059.1871	1554857.5351	
L	14+30.00	-50.00	965153.8653	1554984.9358	NOT SET - FALLS IN CREEK
L	14+48.00	64.74	965069.1109	1555064.3434	
L	14+51.00	-64.00	965177.2512	1554994.4277	NOT SET - FALLS IN CREEK
L	14+60.00	88.00	965056.6241	1555087.3475	
L	14+67.00	-66.00	965187.9027	1555006.5333	
L	14+79.00	-48.00	965179.7668	1555026.5785	
L	15+00.00	63.00	965099.7907	1555106.3645	
L	15+54.00	-65.00	965236.0006	1555079.0357	
L	15+58.00	-55.00	965229.9810	1555087.9668	
L	15+62.00	-70.00	965244.6339	1555082.8391	
L	15+83.00	47.00	965159.6964	1555165.9993	
L	15+95.00	62.00	965154.0412	1555184.3574	NOT SET - FALLS IN TREE
L	16+25.00	65.00	965168.4311	1555210.8514	
L	16+30.00	-30.00	965249.7981	1555161.5622	
L	16+92.00	52.00	965216.8584	1555258.9428	
L	16+92.00	20.00	965243.3191	1555240.9475	

REVISIONS

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NOTES:

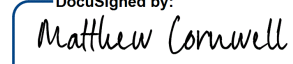
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 9/13/2023 TO 9/14/2023.

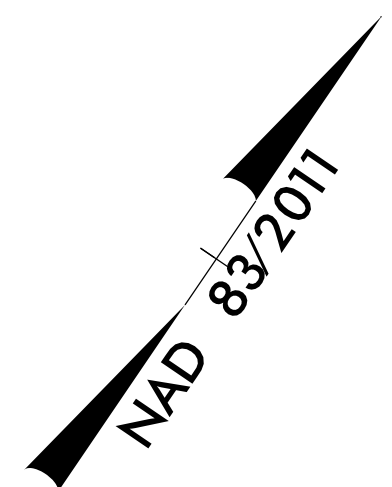
PROJECT REFERENCE NO.	SHEET NO.
BP11.R022	RW04
Location and Surveys	
 TGS ENGINEERS 201 WEST MARION STREET SUITE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	
PROJECT SURVEYOR	
DocuSigned by:  EBD06F11473E475...	
	
9/15/2023	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

NOTES:

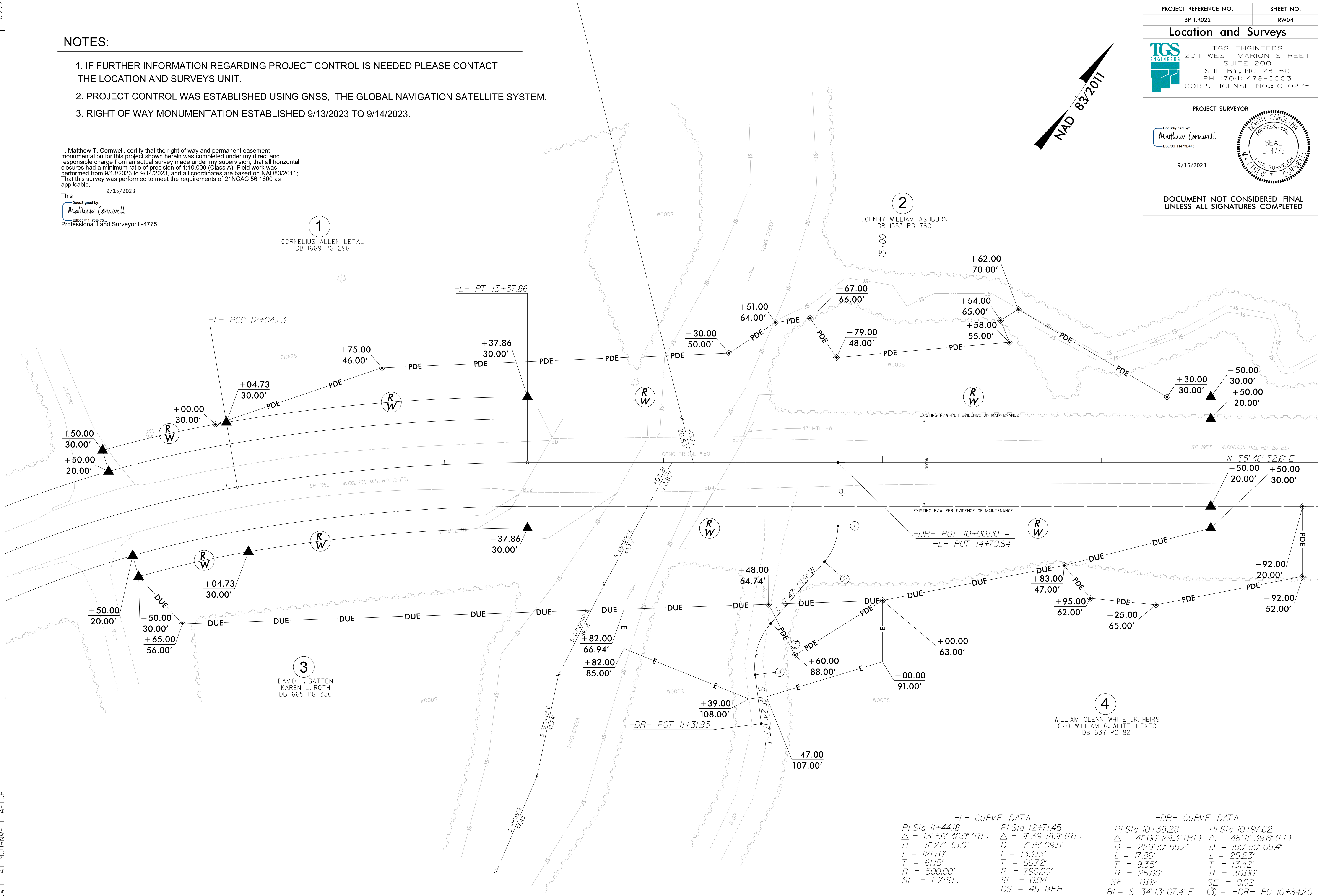
- IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
- RIGHT OF WAY MONUMENTATION ESTABLISHED 9/13/2023 TO 9/14/2023.

I, Matthew T. Cornwell, 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 from 9/13/2023 to 9/14/2023, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 9/15/2023
 DocuSigned by:

 EBD06F11473E475...
 Professional Land Surveyor L-4775



REVISIONS



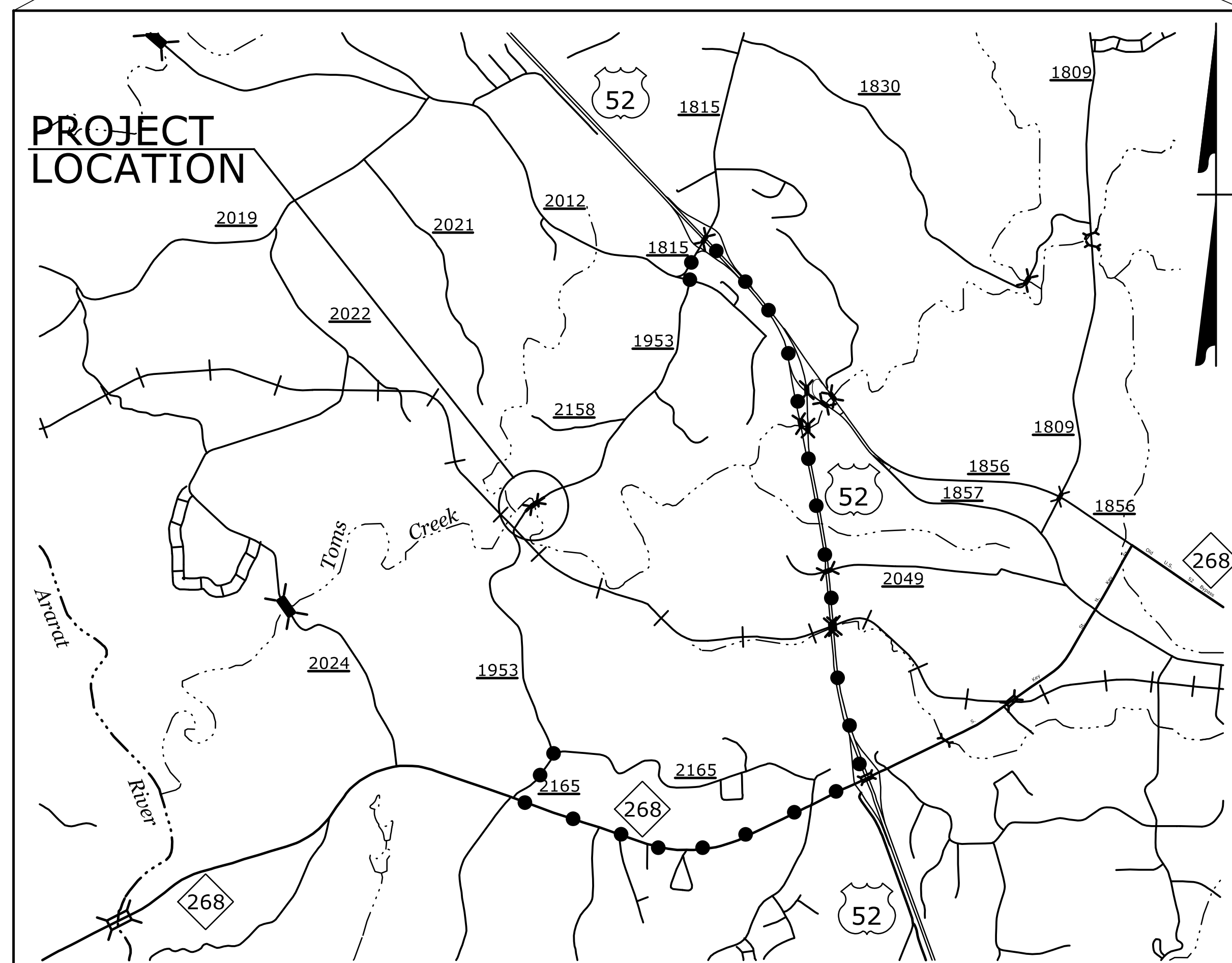
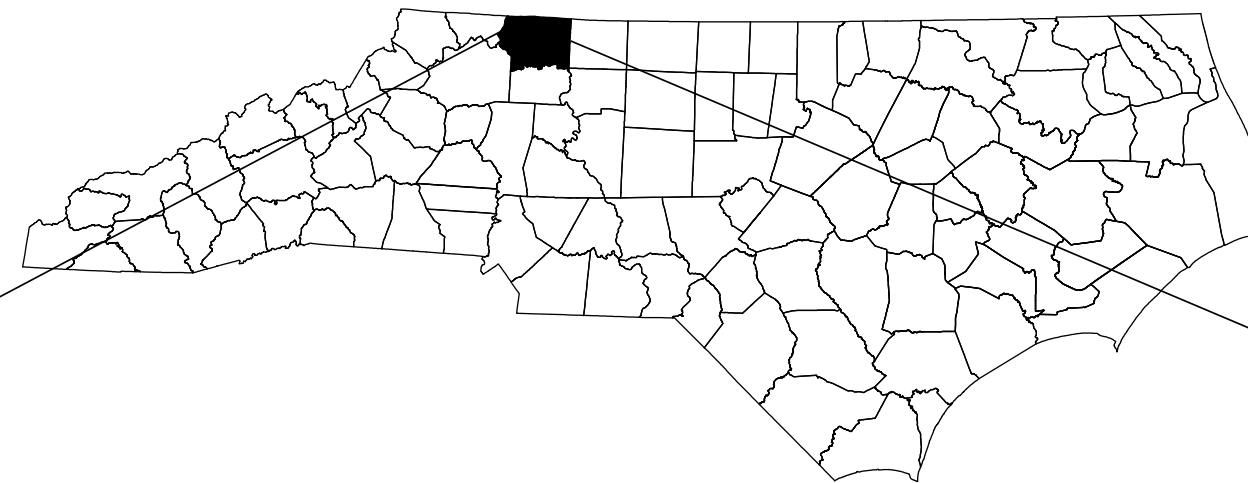
-L- CURVE DATA		-DR- CURVE DATA	
PI Sta 11+44.18	PI Sta 12+71.45	PI Sta 10+38.28	PI Sta 10+97.62
$\Delta = 13^{\circ} 56' 46.0''$ (RT)	$\Delta = 9^{\circ} 39' 18.9''$ (RT)	$\Delta = 41^{\circ} 00' 29.3''$ (RT)	$\Delta = 48^{\circ} 11' 39.6''$ (LT)
D = 11' 27' 33.0"	D = 7' 15' 09.5"	D = 229' 10' 59.2"	D = 190' 59' 09.4"
L = 121.70'	L = 133.13'	L = 17.89'	L = 25.23'
T = 61.15'	T = 66.72'	T = 9.35'	T = 13.42'
R = 500.00'	R = 790.00'	R = 25.00'	R = 30.00'
SE = EXIST.	SE = 0.04	SE = 0.02	SE = 0.02
	DS = 45 MPH	BI = S 34' 13' 07.4" E	③ = -DR- PC 10+84.20
		① = -DR- PC 10+28.93	④ = -DR- PT 11+09.43
		② = -DR- PT 10+46.82	

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 moornwell

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

SURRY COUNTY
LOCATION: BRIDGE #850180 OVER TOMS CREEK
ON SR 1953 (W.DODSON MILL RD)



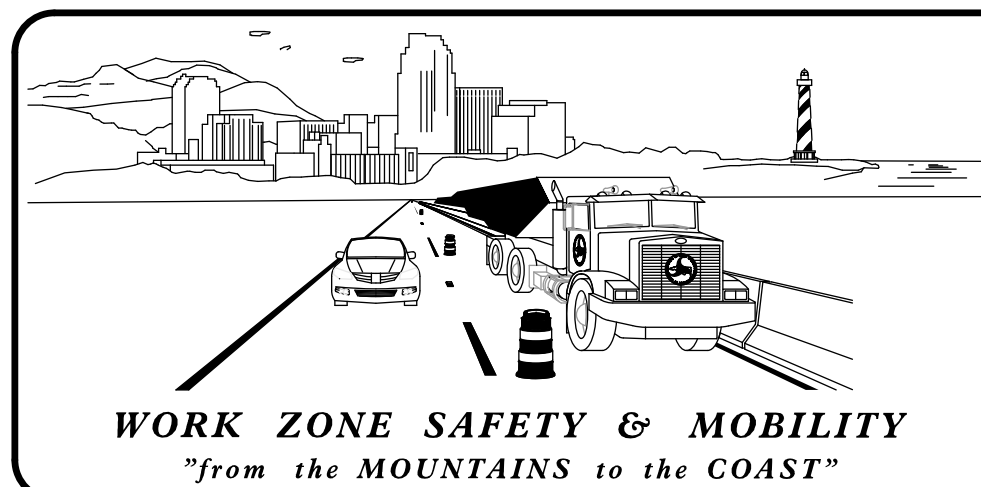
VICINITY MAP
OFFSITE DETOUR

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND LOCAL NOTES)
TMP-2	SPECIAL SIGN DESIGN
TMP-3	OVERVIEW AND PHASING
TMP-4	OFFSITE DETOUR LOCATIN AND BARRICADE PLACEMENT

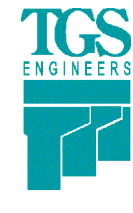
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TMP-1

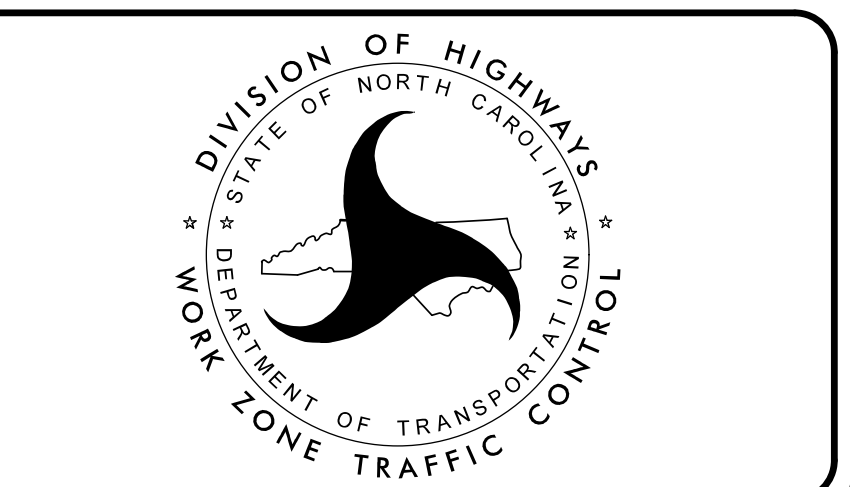
PROJECT: BPII.R022

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

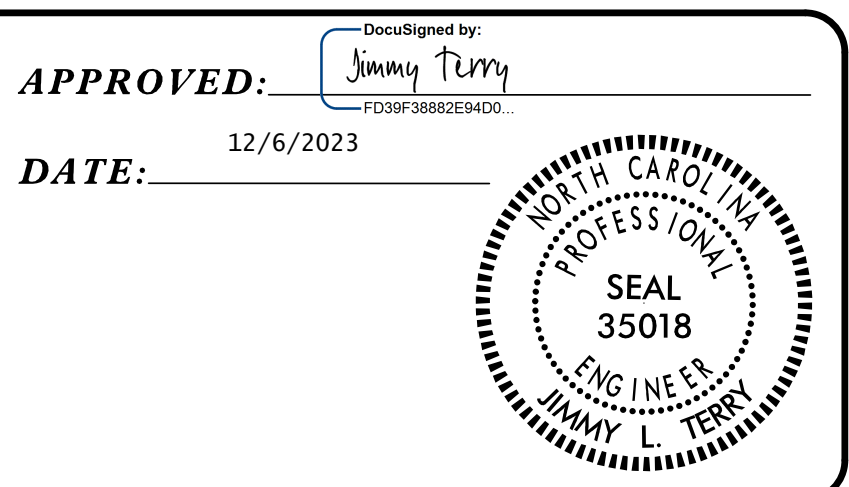


PLAN PREPARED FOR N.C.D.O.T. BY:

 TGS ENGINEERS 201 W. MARION ST. STE. 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	JIMMY TERRY, PE PROJECT ENGINEER SANDRA MELVIN DESIGN ENGINEER
--	---



APPROVED: 
DATE: 12/6/2023



I:\16\2023\1616\1616\Div 11\Surry 180\Traffic\TrafficControl\TCP\Surry 180_TC_TMP_01.dgn
User: smelvin

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

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.

TRAFFIC PATTERN ALTERATIONS

- A) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- B) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

- C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

- D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

- E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

- F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

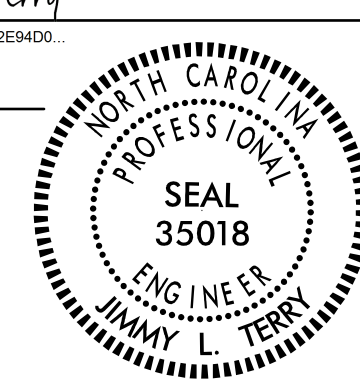
- G) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE.
- H) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

MANAGEMENT STRATEGIES

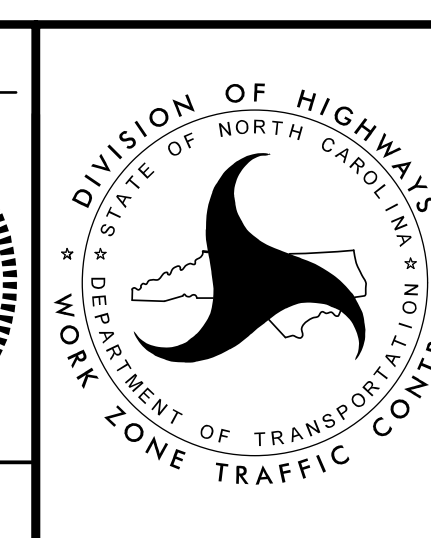
DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, SR 1953 (W. DODSON MILL RD) WILL BE CLOSED TO THROUGH TRAFFIC. SR 1953 (W. DODSON MILL RD) TRAFFIC WILL BE MAINTAINED ON THE FOLLOWING DETOUR:
SOUTHBOUND: FROM SR 2012 (OLD US 52S) TO SR 1815 (COOK SCHOOL RD) TO US 52 SOUTH TO NC 268 WEST TO SR 2165 (WHITAKER CHAPEL RD) BACK TO SR 1953 (W. DODSON MILL RD).
NORTHBOUND: SR 2165 (WHITAKER CHAPEL RD) TO NC 268 EAST TO US 52 NORTH TO SR 1815 (COOK SCHOOL RD) TO SR 2012 (OLD US 52S) BACK TO SR 1953 (W DODSON MILL RD)

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User: jsmelvin

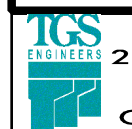
APPROVED: Jimmy Terry
DATE: 12/6/2023

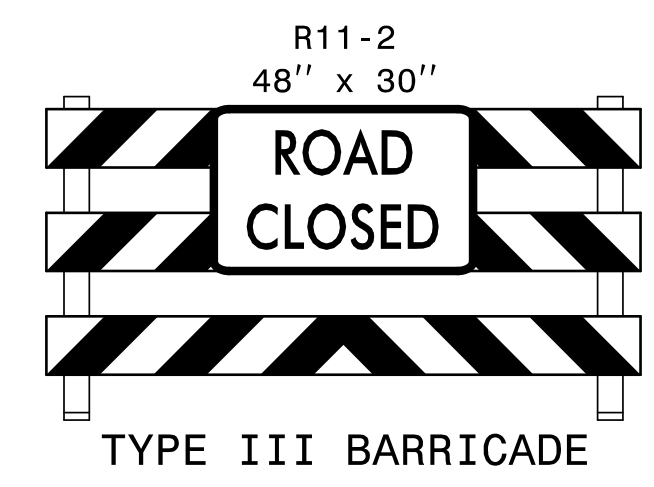
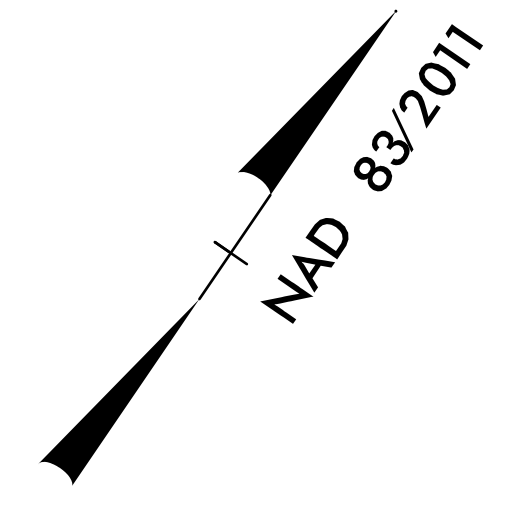


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



TRANSPORTATION
OPERATIONS
PLAN

PROJ. REFERENCE NO.	SHEET NO.
BP11.R022	TMP-3
 TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO. C-0275	



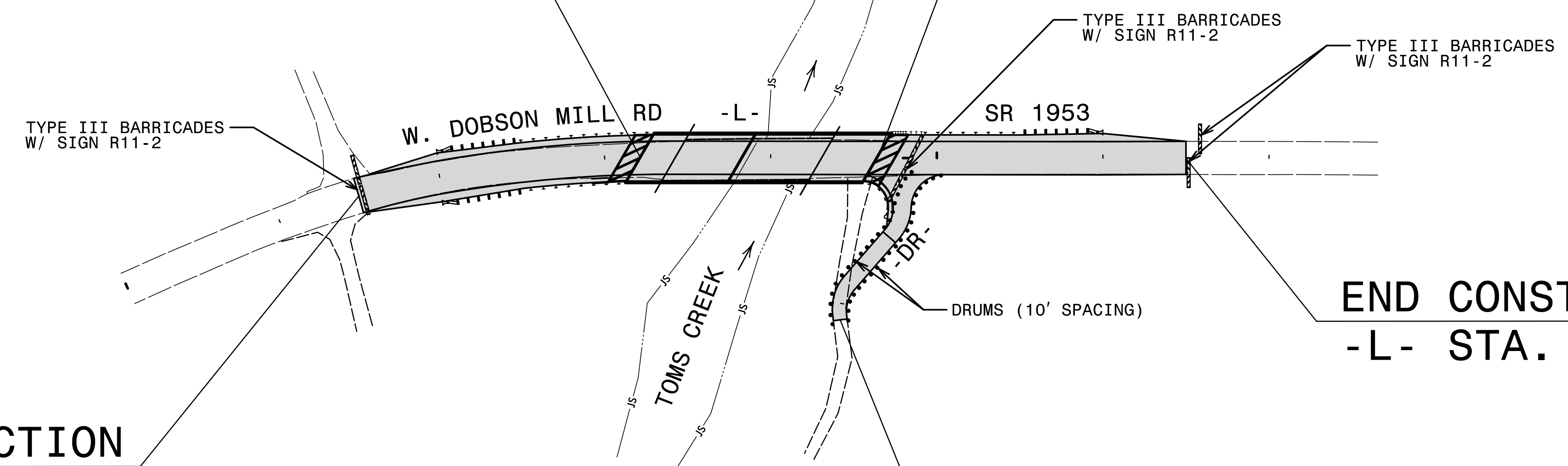
BEGIN BRIDGE
-L- STA. 13+21.63

END BRIDGE
-L- STA. 14+64.37

BEGIN CONSTRUCTION
-L- STA. 11+50.00

END CONSTRUCTION
-DR- STA. 11+10.00

END CONSTRUCTION
-L- STA. 16+50.00

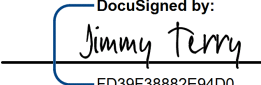
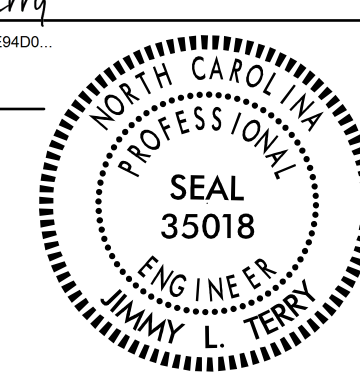



PHASING NOTES

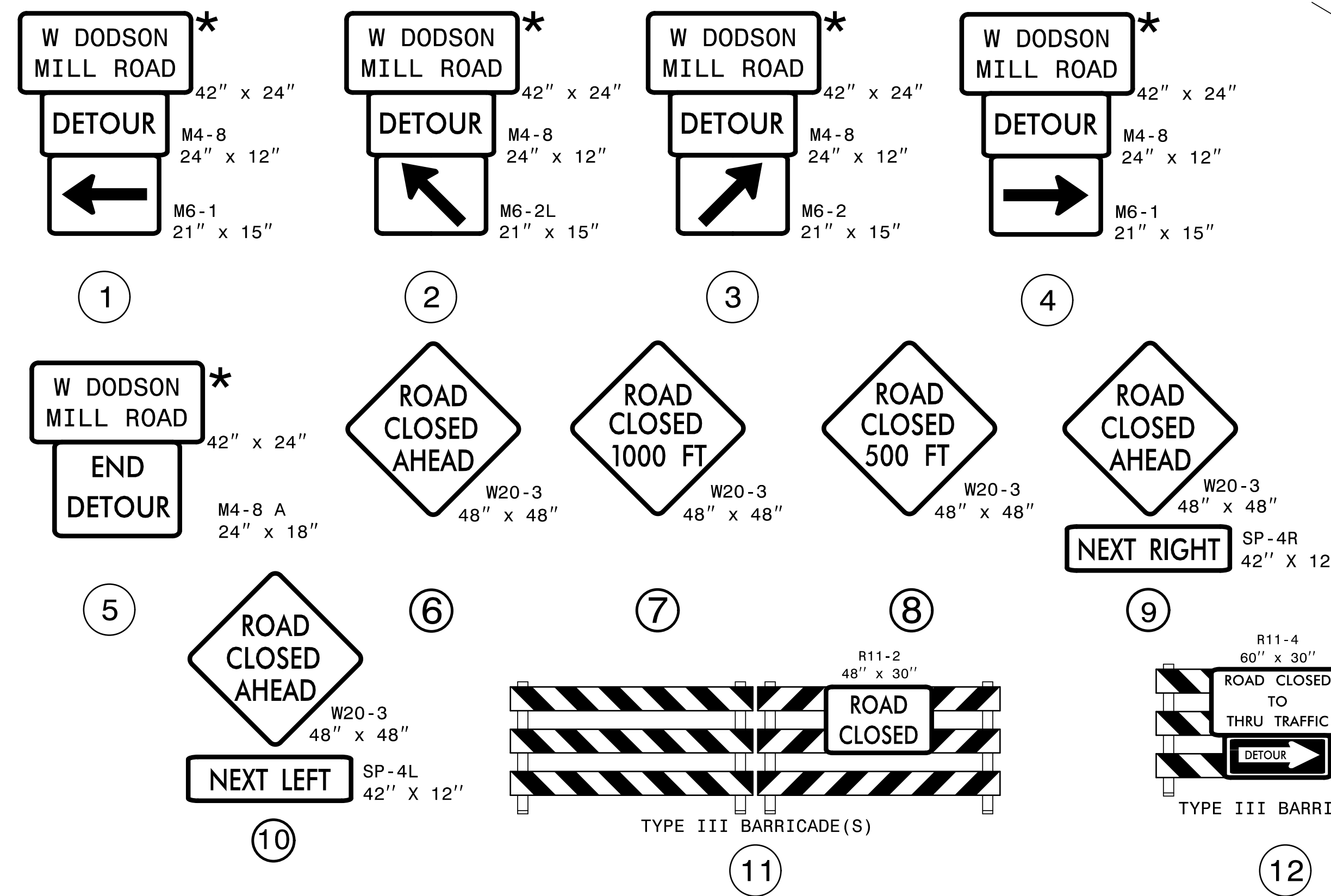
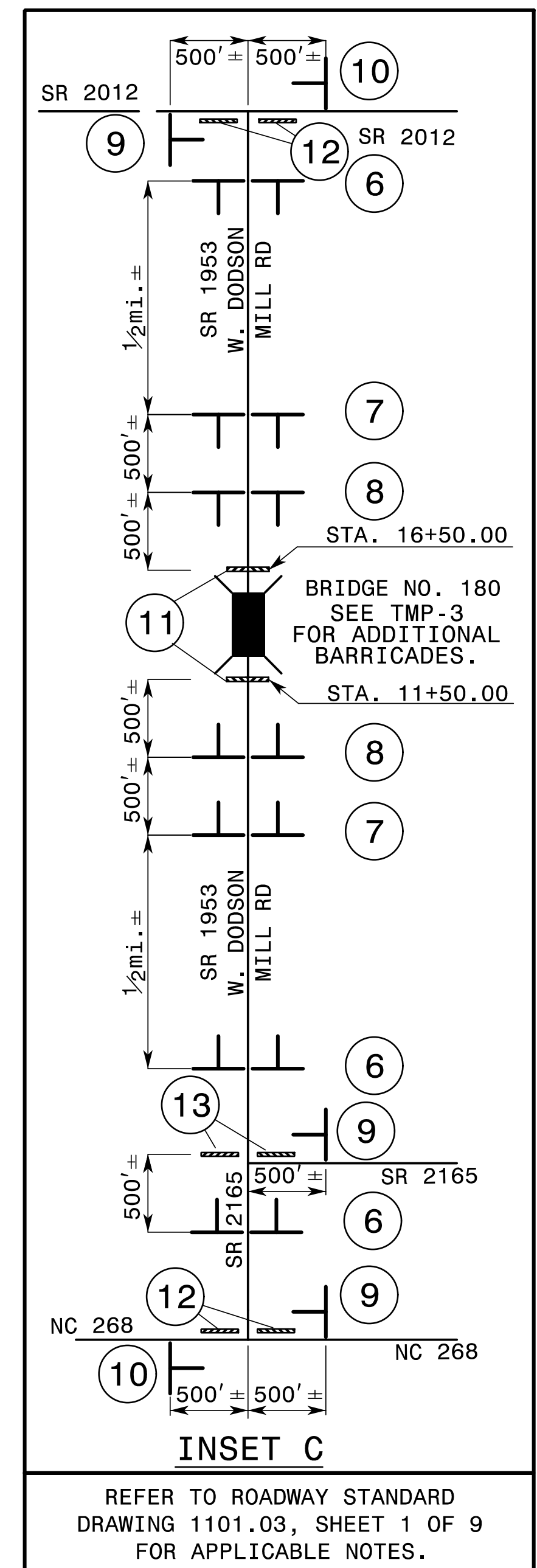
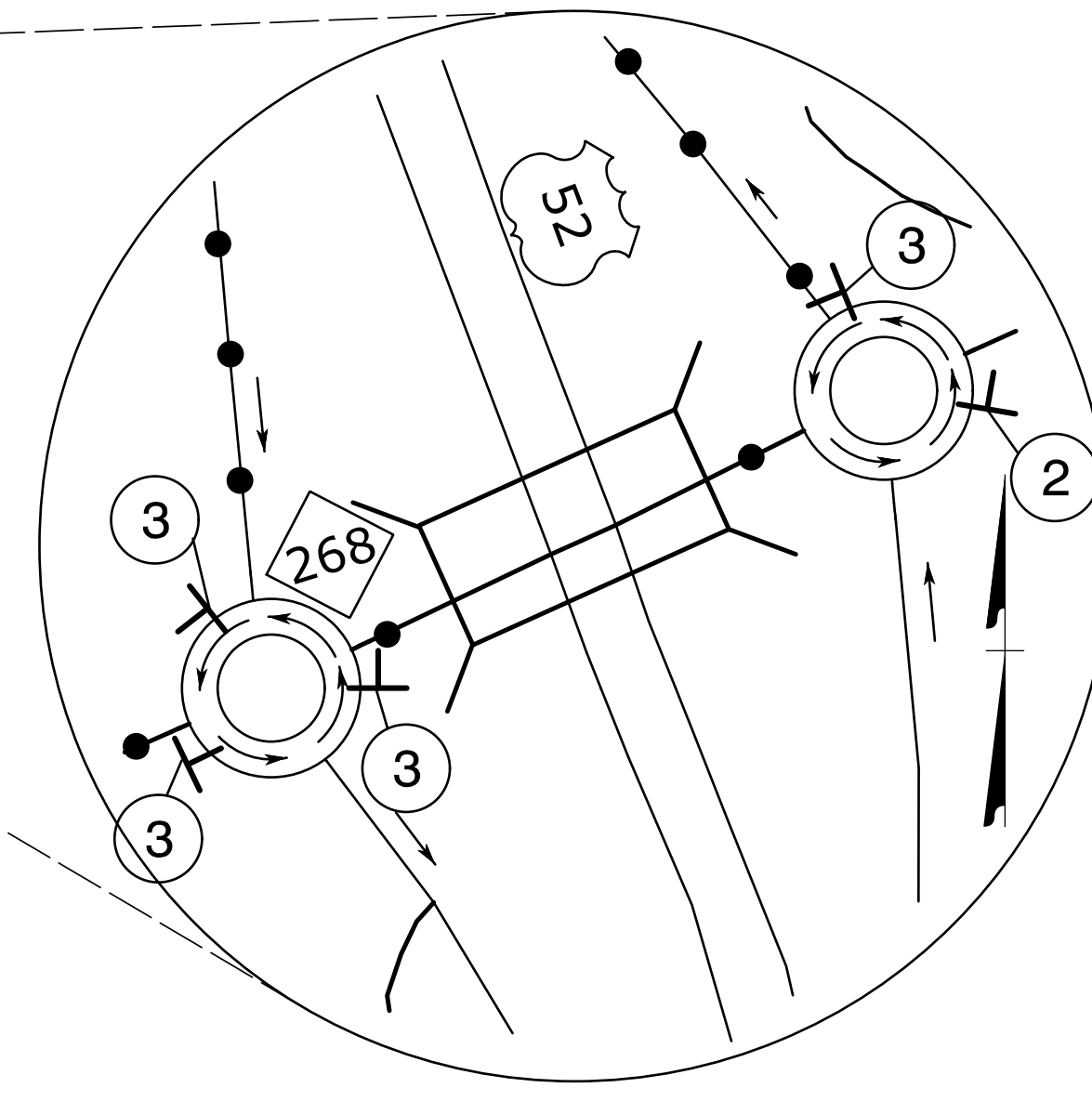
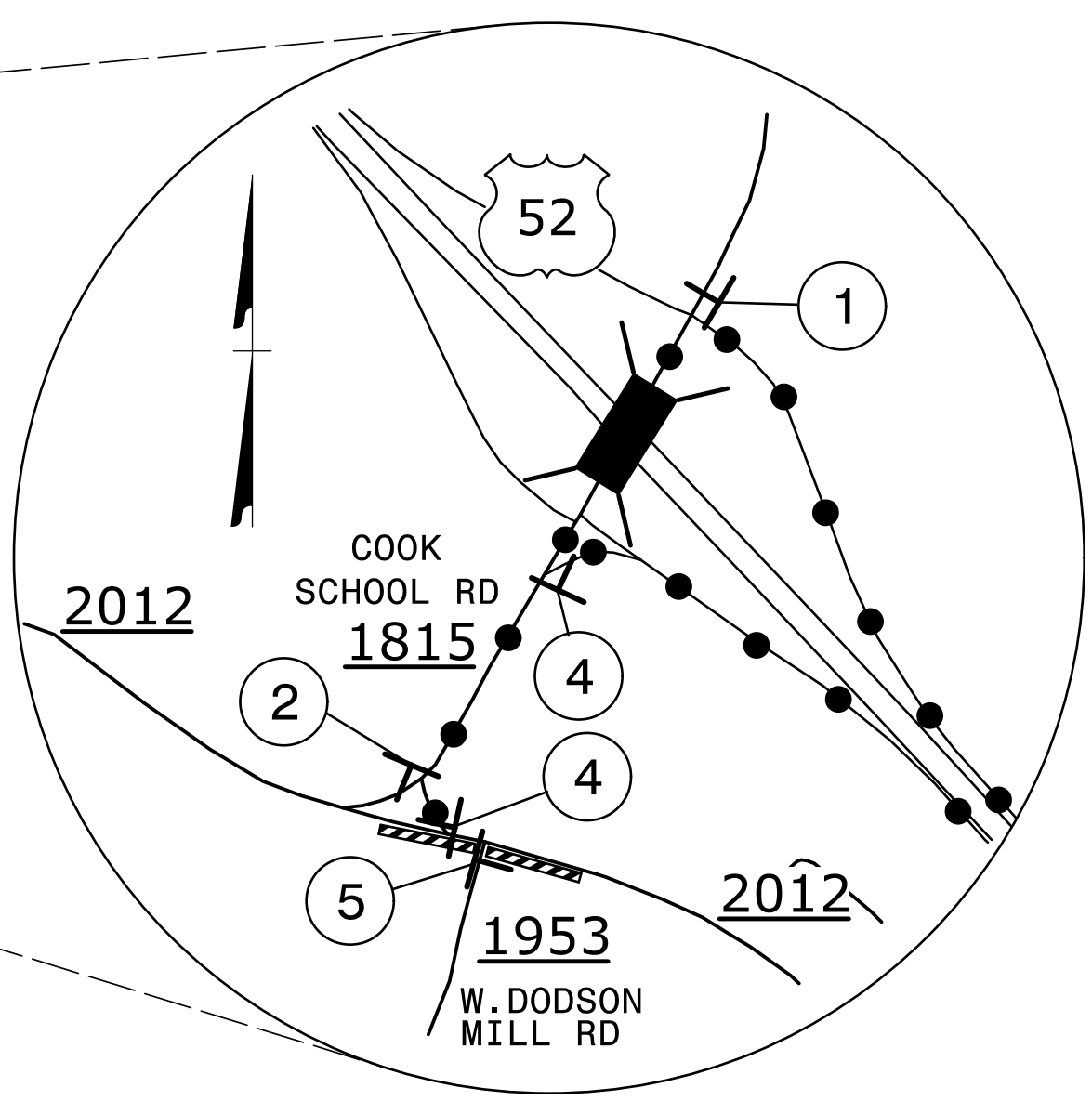
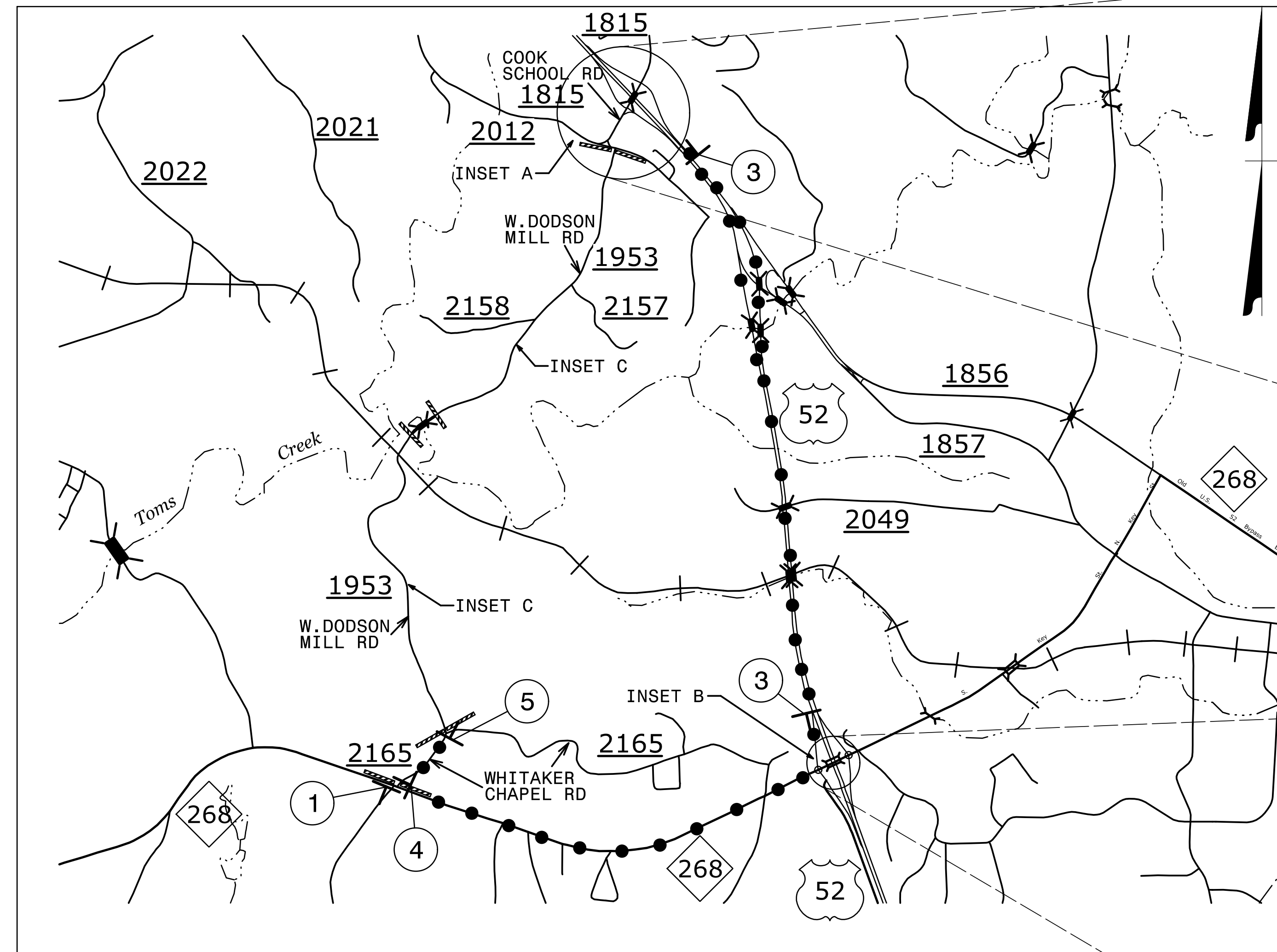
NOTE: MAINTAIN ACCESS TO LOCAL DRIVES INSIDE CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

- STEP 1: INSTALL ALL ADVANCE WARNING SIGNS USING RSD 1101.01 SHEET 3 OF 3.
- STEP 2: INSTALL TYPE III BARRICADES AND DETOUR SIGNS, AND CLOSE SR 1953 (W. DOBSON RD) TO TRAFFIC AS SHOWN IN ROADWAY STANDARD DRAWING 1101.03 (SHEET 1 OF 9) AND TMP-3 AND TMP-4.
PLACE TRAFFIC ON DETOUR.
- STEP 3: CONSTRUCT THE DRIVE FROM -DR- STA 10+10± TO 11+10.
DEMOLISH AND REMOVE THE EXISTING BRIDGE OVER TOMS CREEK.
CONSTRUCT THE NEW BRIDGE OVER TOMS CREEK FROM -L- STA. 13+21.63 TO 14+64.37.
CONSTRUCT THE ROADWAY ON SR 1953 (W. DODSON RD) FROM -L- STA. 11+50.00 TO -L- STA. 13+21.63 (BEGIN BRIDGE) AND FROM -L- STA. 14+64.37 (END BRIDGE) TO 16+50.00 UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.
PLACE FINAL LAYER OF SURFACE COURSE FROM -L- STA 11+50.00 TO -L- STA. 16+50.00
- STEP 4: REFERRING TO PAVEMENT MARKING PLANS, PLACE FINAL PAVEMENT MARKINGS ON THE FOLLOWING:
SR 1953 (W. DODSON RD) FROM STA. 11+50.00 TO STA. 16+50.00.
- STEP 5: REMOVE BARRICADES, SIGNS, AND ALL OTHER TRAFFIC CONTROL DEVICES AND OPEN SR 1953 (W. DODSON RD) TO TRAFFIC IN FINAL PATTERN.

NOTE: SEE SHEETS TMP-2 AND TMP-4 FOR DETOUR LOCATION AND SIGNING.

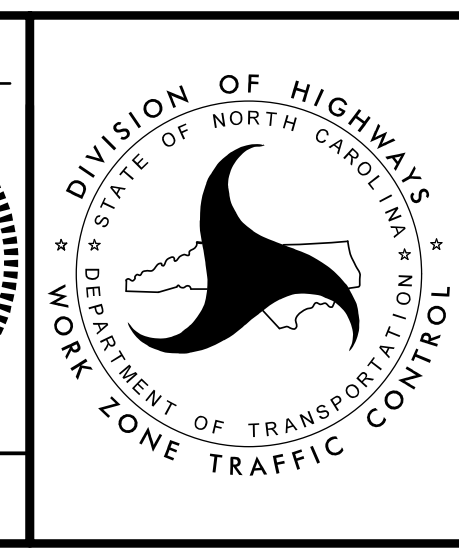
APPROVED:  DATE: 12/6/2023			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

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 User: jsmelvin



OFFSITE DETOUR ●●●●●
* SEE TMP-2 FOR SIGN DESIGN

APPROVED: *Jimmy Terry*
DATE: 12/6/2023
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 35018
JIMMY L. TERRY



OFFSITE DETOUR LOCATION
AND BARRICADE PLACEMENT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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User: jsmelvin

PROJECT: BP11.R022

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING PLAN
SURRY COUNTY**

**LOCATION: BRIDGE #850180 OVER TOMS CREEK
ON SR 1953 (W.DODSON MILL RD)**

<small>PROJECT NO.</small> BP11.R022	<small>SHEET NO.</small> PMP - 1
<small>APPROVED:</small> <small>F039F3882E64D0</small>	
<small>DATE:</small> 12/6/2023	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

<u>STD. NO.</u>	<u>TITLE</u>
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

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 ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
W. DODSON MILL RD (-L-)	THERMOPLASTIC	NONE
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

INDEX

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
PMP-1	PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET
PMP-2	PAVEMENT MARKING DETAIL

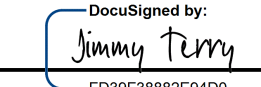

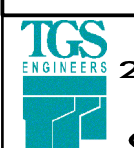
FINAL PAVEMENT MARKING SCHEDULE

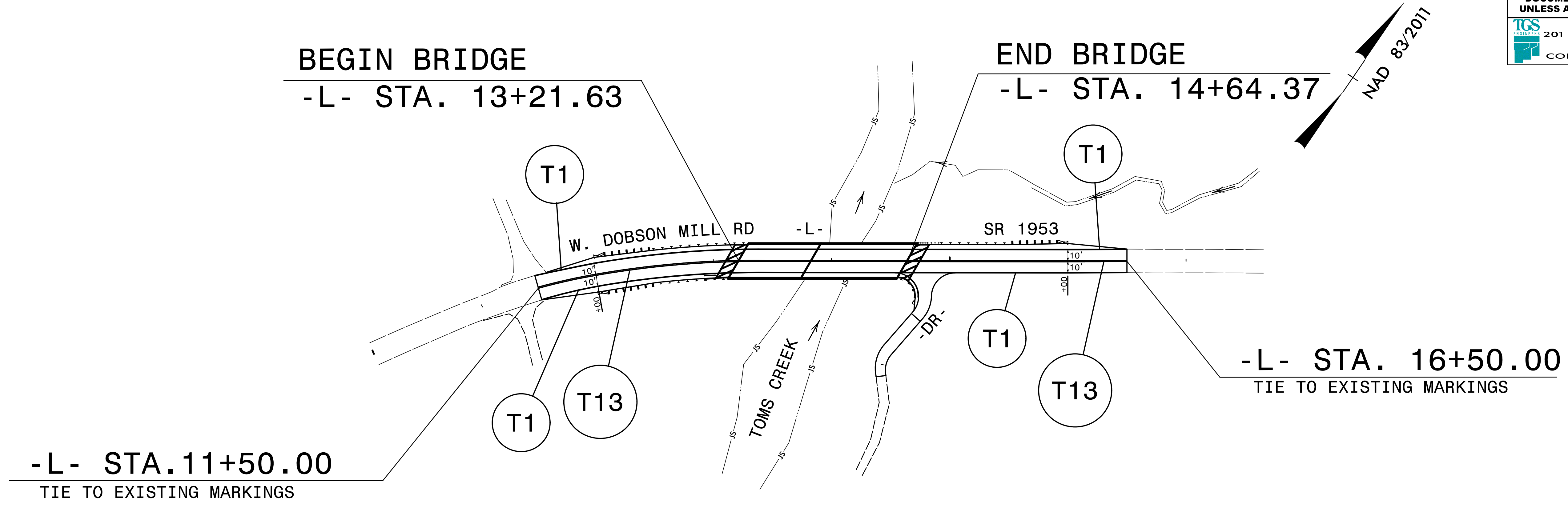
SYMBOL	DESCRIPTION
	PAVEMENT MARKINGS
	THERMOPLASTIC (4", 90 MILS)
T1	(4") WHITE EDGELINE
T13	(4") YELLOW DOUBLE CENTER

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS 201 W. MARION ST. STE. 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><u>JIMMY TERRY, PE</u></td> <td>PROJECT ENGINEER</td> </tr> <tr> <td><u>SANDRA MELVIN</u></td> <td>DESIGN TECHNICIAN</td> </tr> </table>	<u>JIMMY TERRY, PE</u>	PROJECT ENGINEER	<u>SANDRA MELVIN</u>	DESIGN TECHNICIAN
<u>JIMMY TERRY, PE</u>	PROJECT ENGINEER				
<u>SANDRA MELVIN</u>	DESIGN TECHNICIAN				

SURRY COUNTY
BRIDGE #850180

TIP NO. BP11.R022	SHEET NO. PMP-2
APPROVED: 	
DATE: 12/6/2023	
SEAL	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	

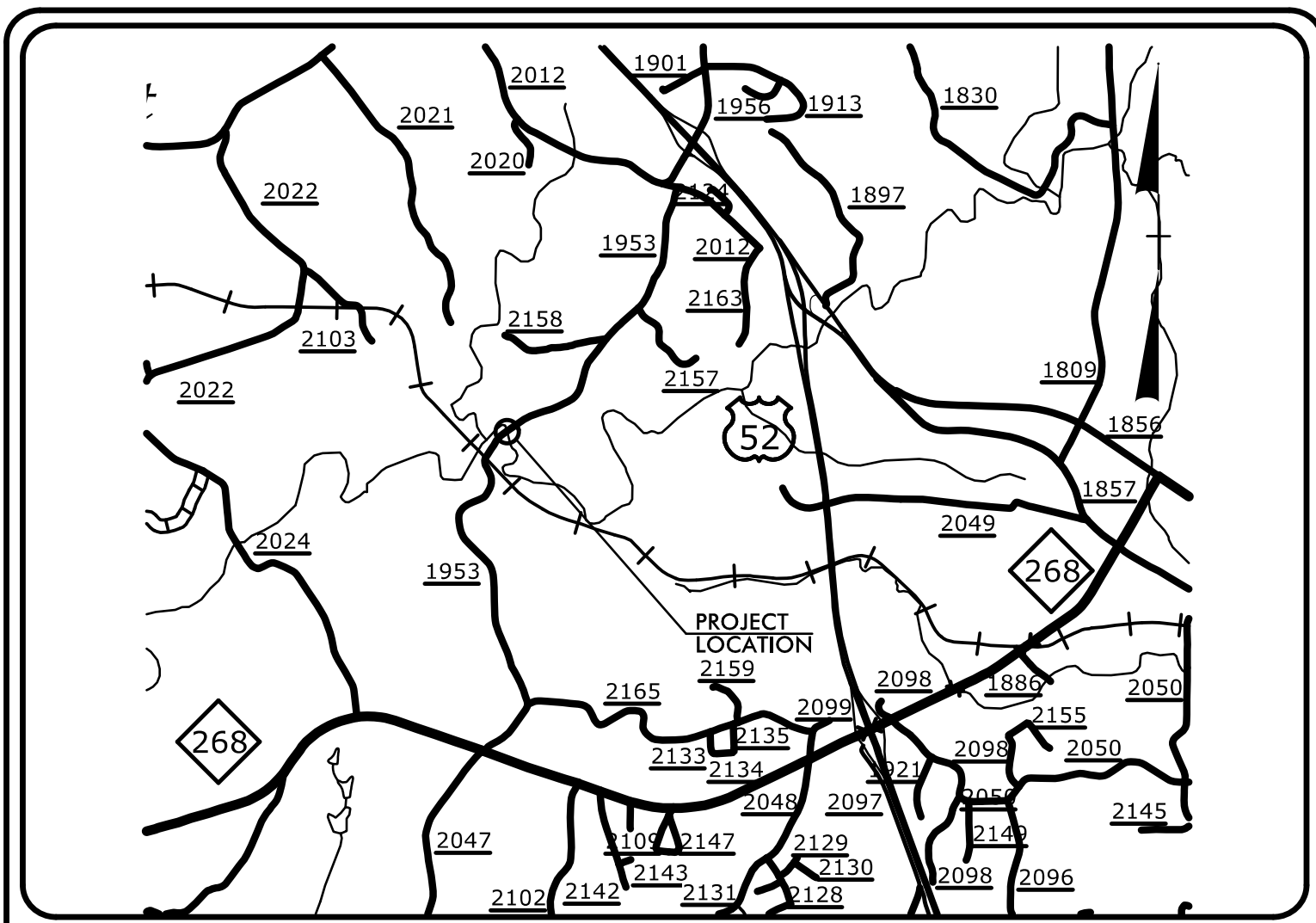


11/16/2023 11:11:11 X:\nc001\Div 11_Surry_180\Traffic\Pavement Markings\Surry_180_Sgn_PMP_02.dgn User:smelvin

SEE SHEET PMP-1 FOR PAVEMENT MARKING SCHEDULE

PAVEMENT MARKING DETAIL

PROJECT: BP11.R022



VICINITY MAP
NOT TO SCALE

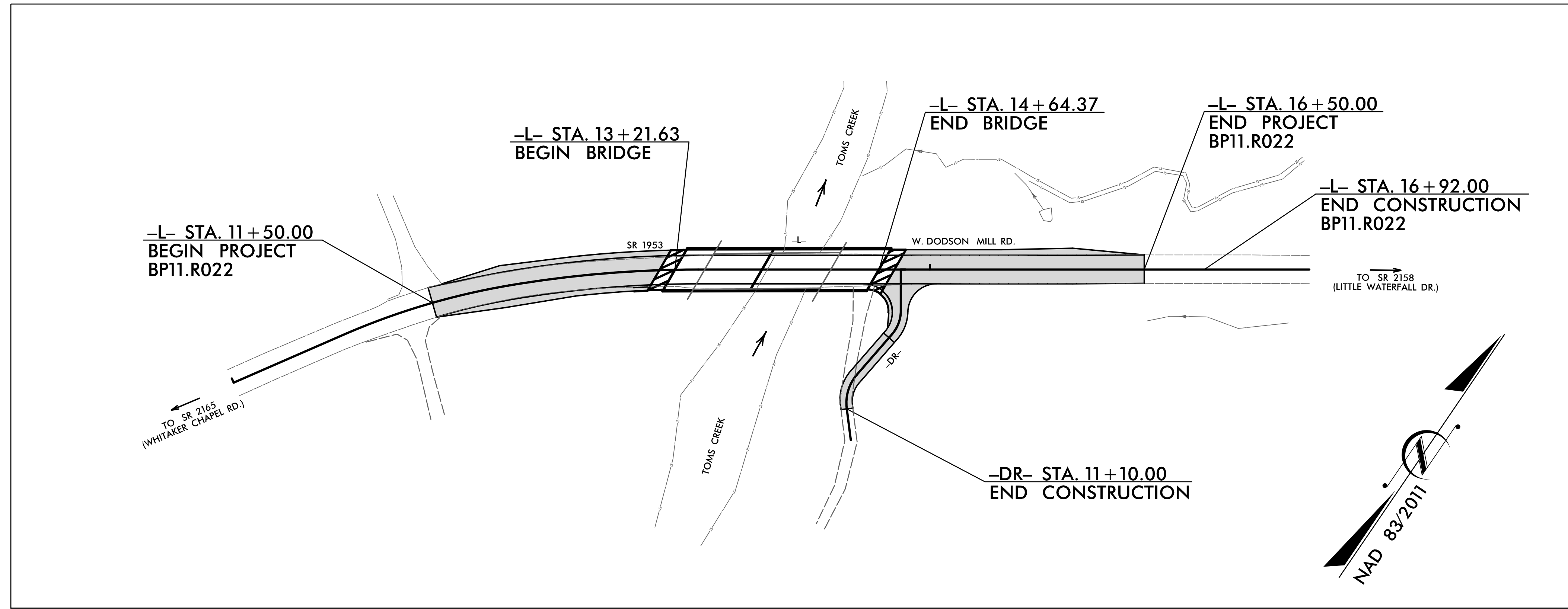
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
**PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL**

SURRY COUNTY

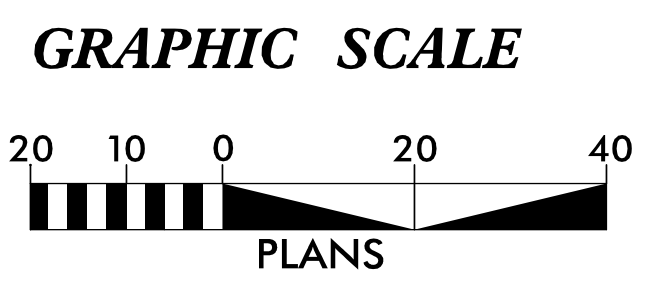
**LOCATION: BRIDGE NO. 850180 OVER TOMS CREEK
ON SR 1953 (W. DODSON MILL ROAD)**

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

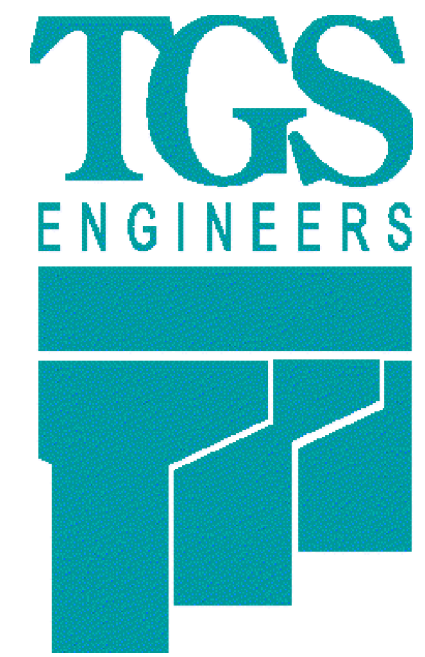
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP11.R022	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP11.R022.1	N/A	PE	
BP11.R022.2	N/A	RE & UTIL.	
BP11.R022.3	N/A	CONST.	



THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.



**THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH
THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000
GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019
AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF
ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.**



Prepared In the Office of:
TGS ENGINEERS
201 W. MARION ST-STE 200
SHELBY, NC 28150

Designed by:
Andrew H. Cochran, PE **3015**
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. BP11.R022	SHEET NO. EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EROSION & SEDIMENT CONTROL LEGEND

<u>Std. #</u>	<u>Description</u>	<u>Symbol</u>	<u>Std. #</u>	<u>Description</u>	<u>Symbol</u>
1605.01	Temporary Silt Fence		1633.01	Temporary Rock Silt Check Type A	
1606.01	Special Sediment Control Fence		1633.02	Temporary Rock Silt Check Type B	
1622.01	Temporary Berms and Slope Drains		1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1630.02	Silt Basin Type B		1634.01	Temporary Rock Sediment Dam Type A	
1630.03	Temporary Silt Ditch		1634.02	Temporary Rock Sediment Dam Type B	
1630.04	Stilling Basin		1635.01	Rock Pipe Inlet Sediment Trap Type A	
1630.05	Temporary Diversion		1635.02	Rock Pipe Inlet Sediment Trap Type B	
1630.06	Special Stilling Basin		1636.01	Excelsior Wattle Check	
1630.07	Skimmer Basin		1636.01	Excelsior Wattle Check with Flocculant	
1630.08	Tiered Skimmer Basin		1636.01	Coir Fiber Wattle Check	
1630.09	Earthen Dam with Skimmer		1636.01	Coir Fiber Wattle Check with Flocculant	
	Infiltration Basin		1636.02	Silt Fence Excelsior Wattle Break	
	Rock Inlet Sediment Trap:			Silt Fence Coir Fiber Wattle Break	
1632.01	Type A		1636.03	Excelsior Wattle Barrier	
1632.02	Type B		1636.03	Coir Fiber Wattle Barrier	
1632.03	Type C				


DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

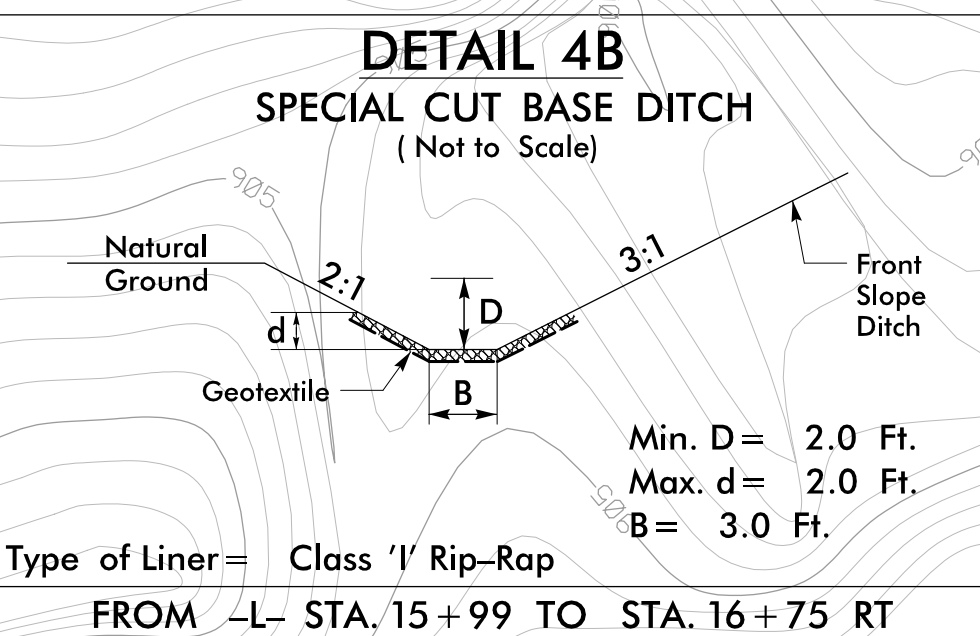
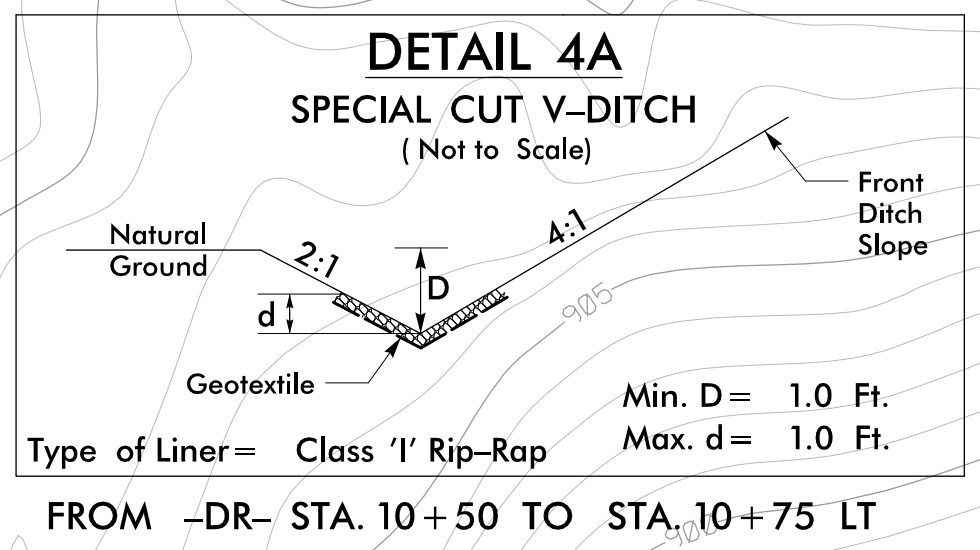
PROJECT REFERENCE NO. <i>BPII.R022</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES

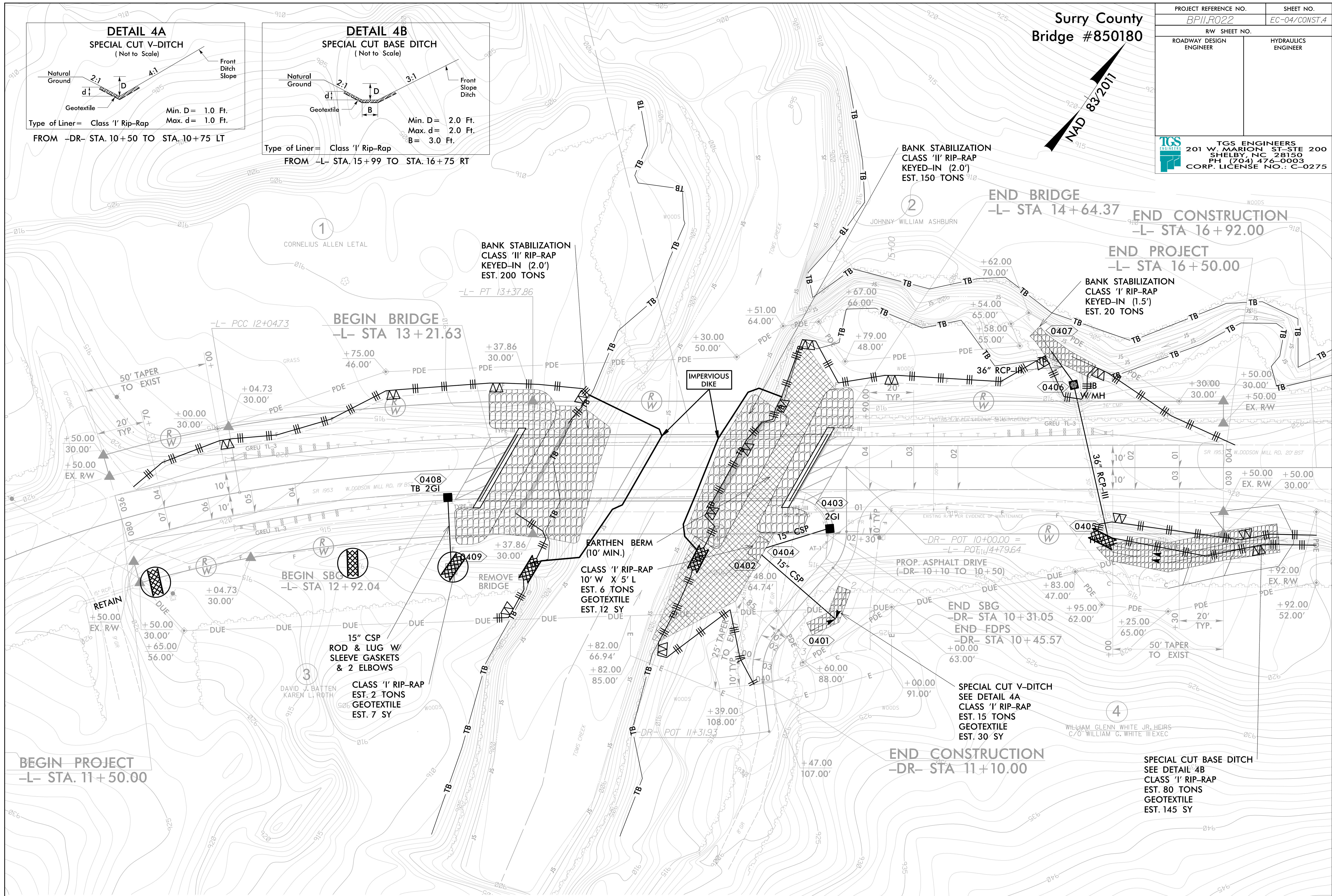
Surry County Bridge #850180

PROJECT REFERENCE NO. BP11.R022	SHEET NO. EC-04/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



FROM -DR- STA. 10+50 TO STA. 10+75 LT

FROM -L- STA. 15+99 TO STA. 16+75 RT



NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

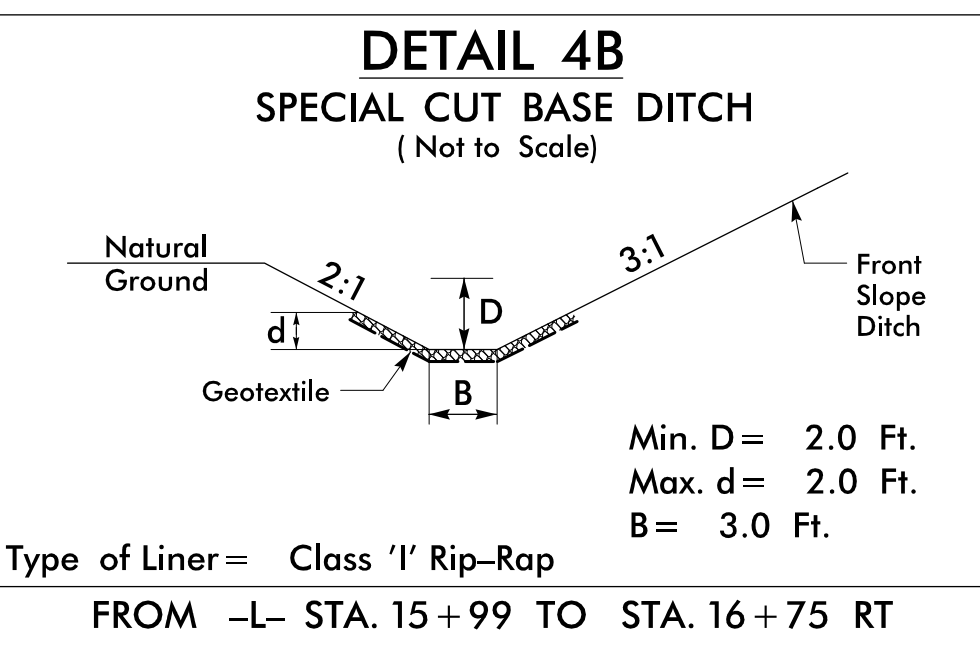
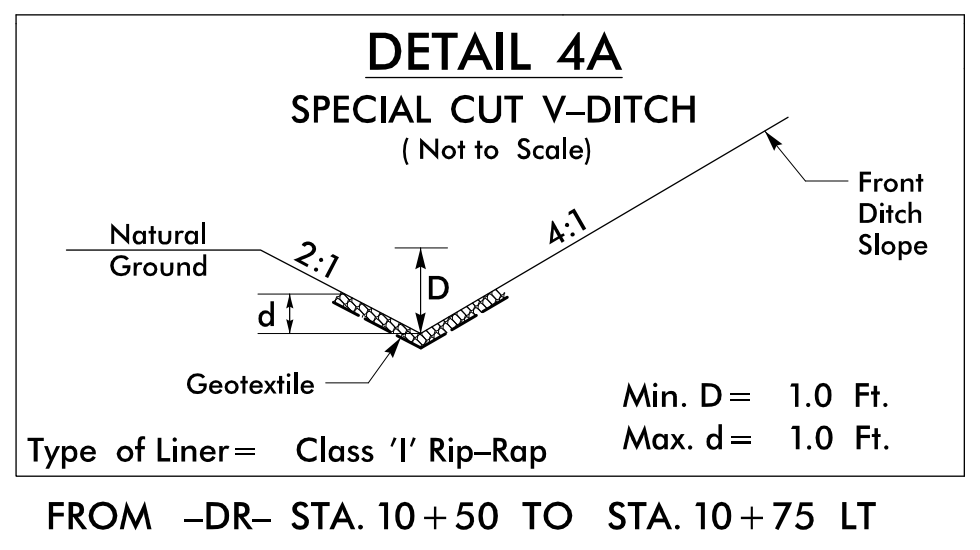
INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

PROJECT REFERENCE NO. BP11.R022	SHEET NO. EC-05/CONST.4
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
TGS ENGINEERS 201 W. MARION ST-STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

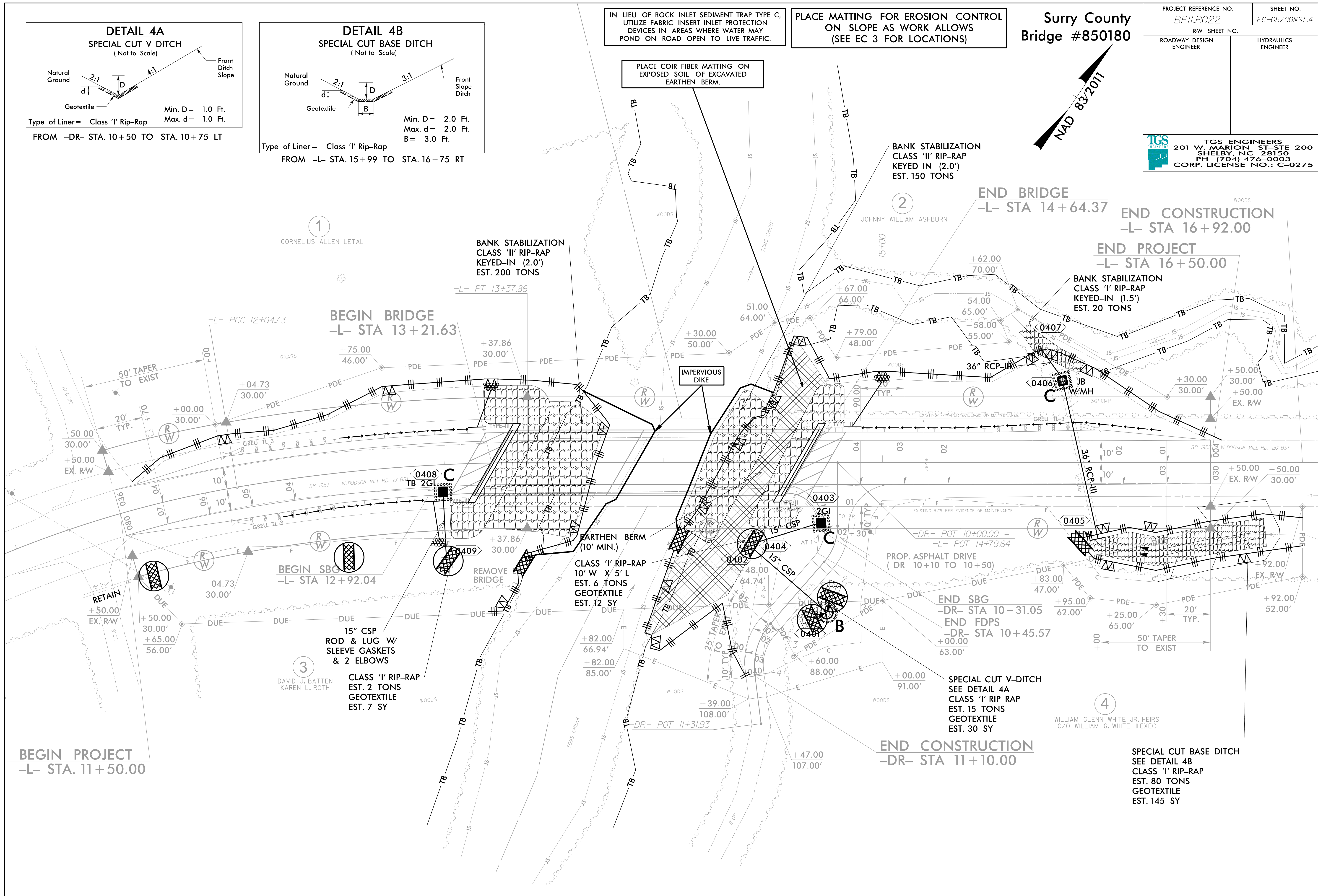
Surry County
Bridge #850180
 NAD 83/2011



IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C, UTILIZE FABRIC INSERT PROTECTION DEVICES IN AREAS WHERE WATER MAY POND ON ROAD OPEN TO LIVE TRAFFIC.

PLACE MATTING FOR EROSION CONTROL ON SLOPE AS WORK ALLOWS (SEE EC-3 FOR LOCATIONS)

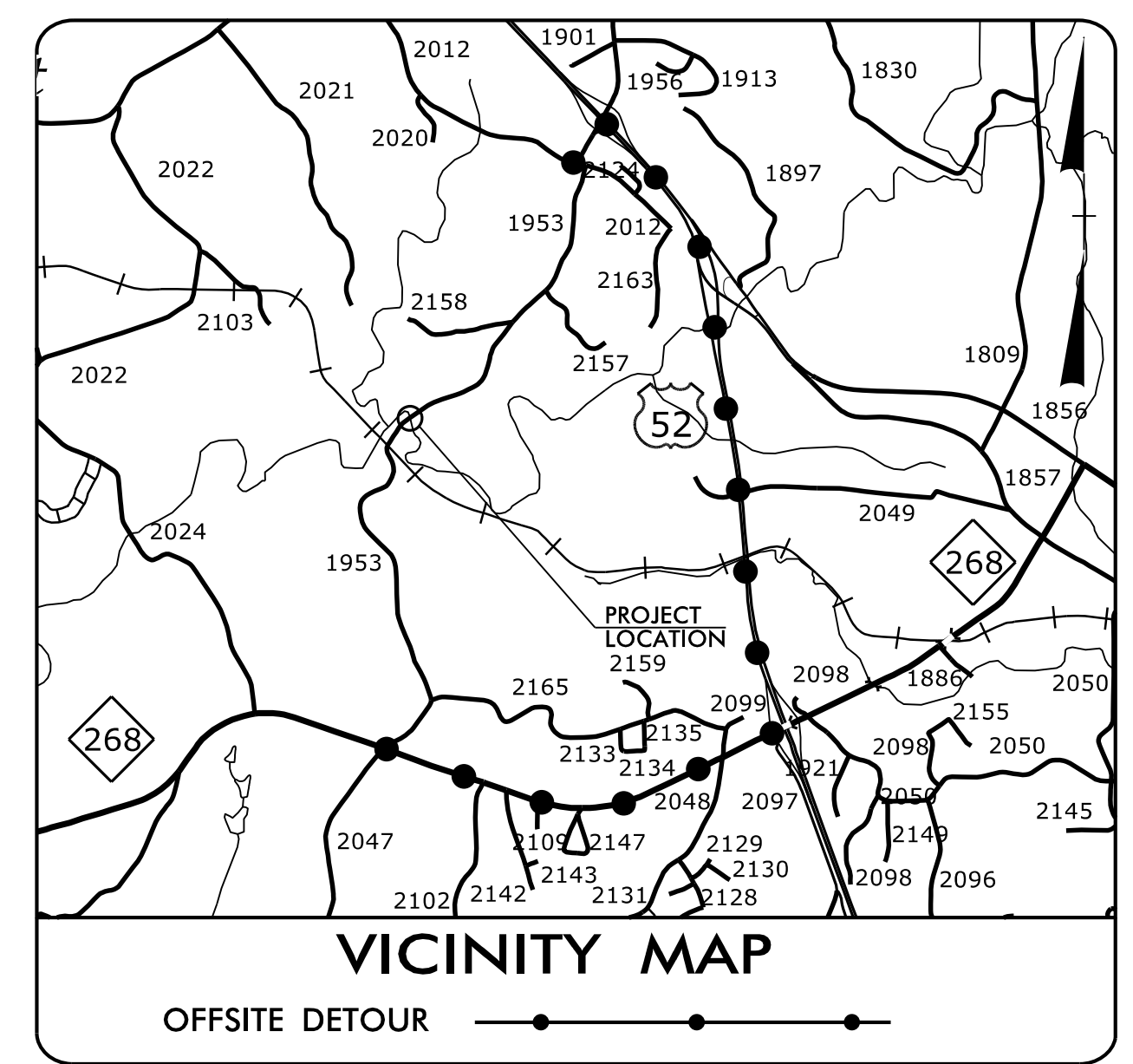
PLACE COIR FIBER MATTING ON EXPOSED SOIL OF EXCAVATED EARTHEN BERM.



NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

09/28/99

PROJECT: BP11.R022

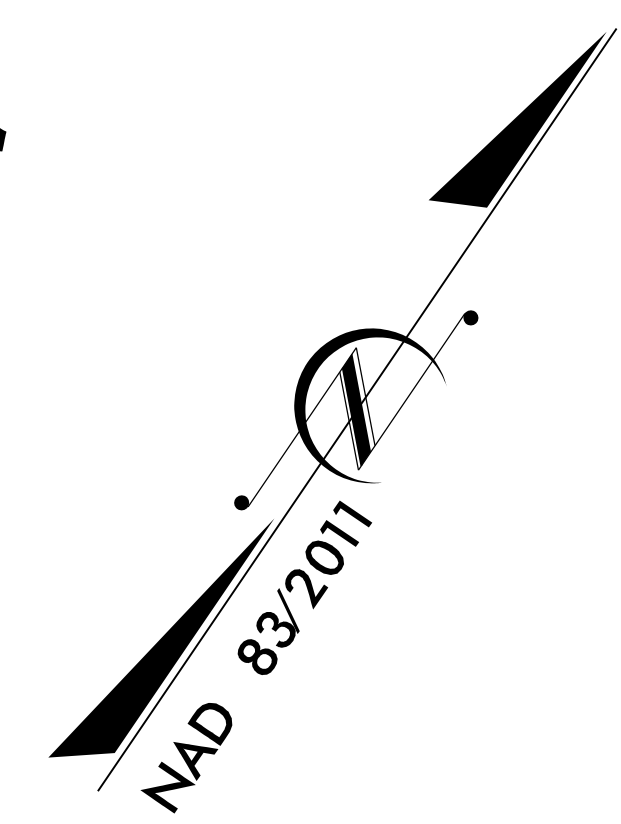


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS
SURRY COUNTY**

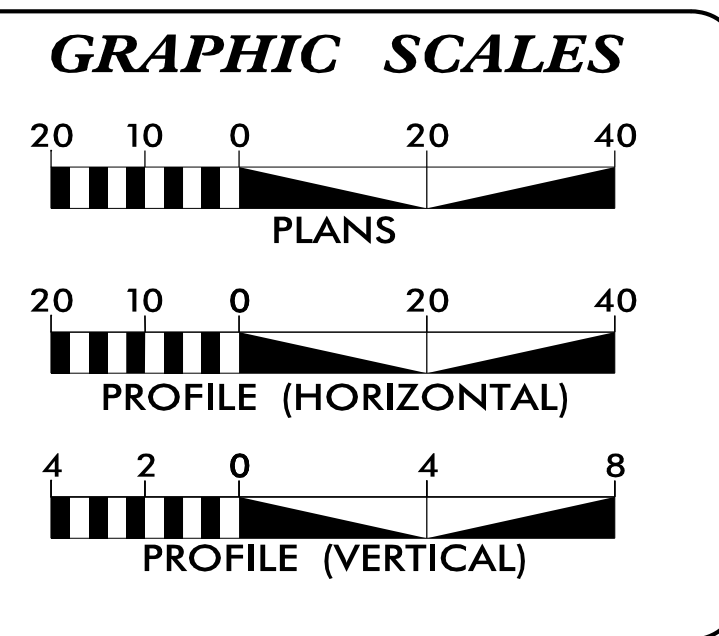
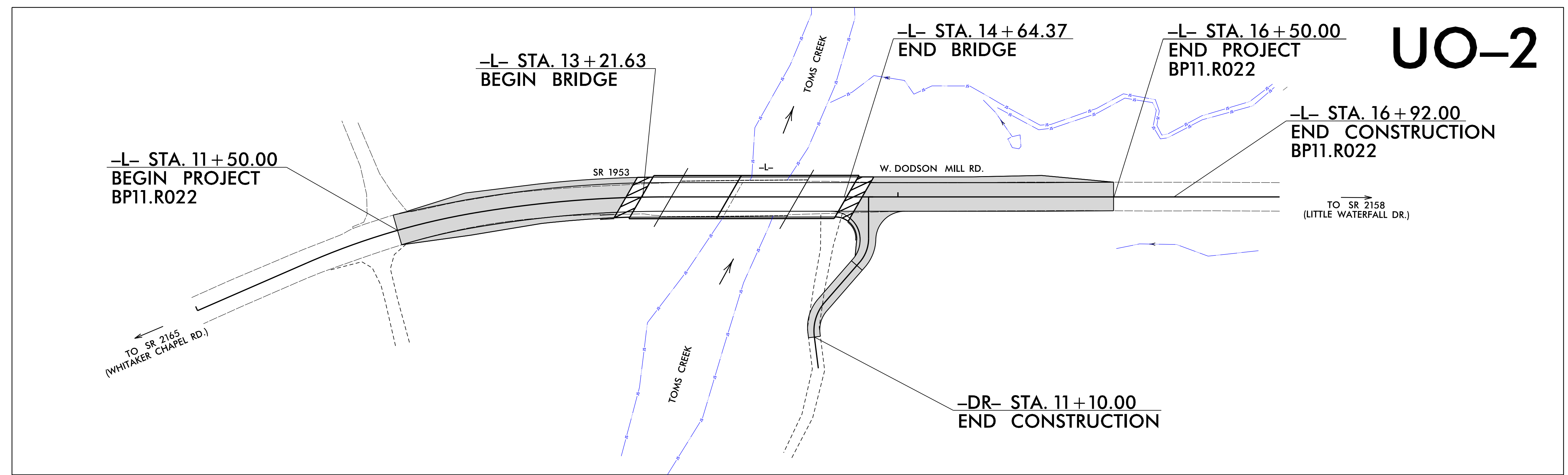
**LOCATION: BRIDGE #850180 OVER TOMS CREEK
ON SR 1953 (W.DODSON MILL RD.)**

**TYPE OF WORK: DISTRIBUTION POWER,
COMMUNICATIONS/CATV**



T.I.P. NO.	SHEET NO.
BP11.R022	UO-1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-2	UBO PLAN SHEET

UTILITY OWNERS WITH CONFLICTS

(A) DISTRIBUTION POWER - DUKE ENERGY
(B) COMMUNICATIONS/CATV - SPECTRUM

PREPARED IN THE OFFICE OF:

TELICS
1598 WESTBROOK PLAZA DR.
SUITE 202
WINSTON-SALEM, NC 27103
(336) 705-8844

CORY WOOD UTILITY PROJECT MANAGER
CORY WOOD PROJECT UTILITY COORDINATOR

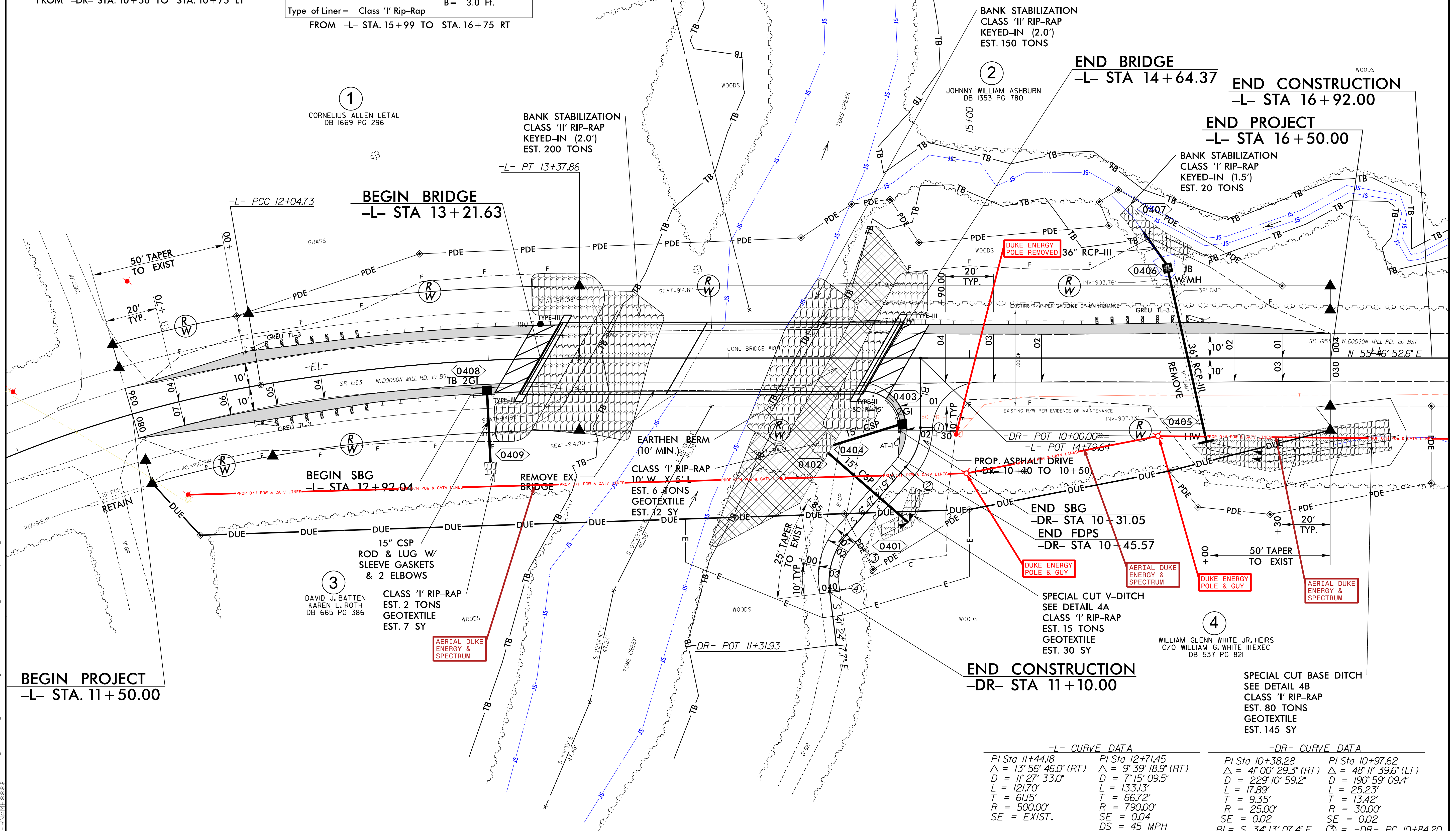
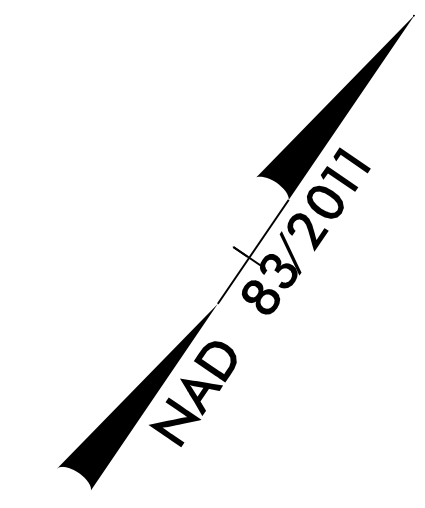
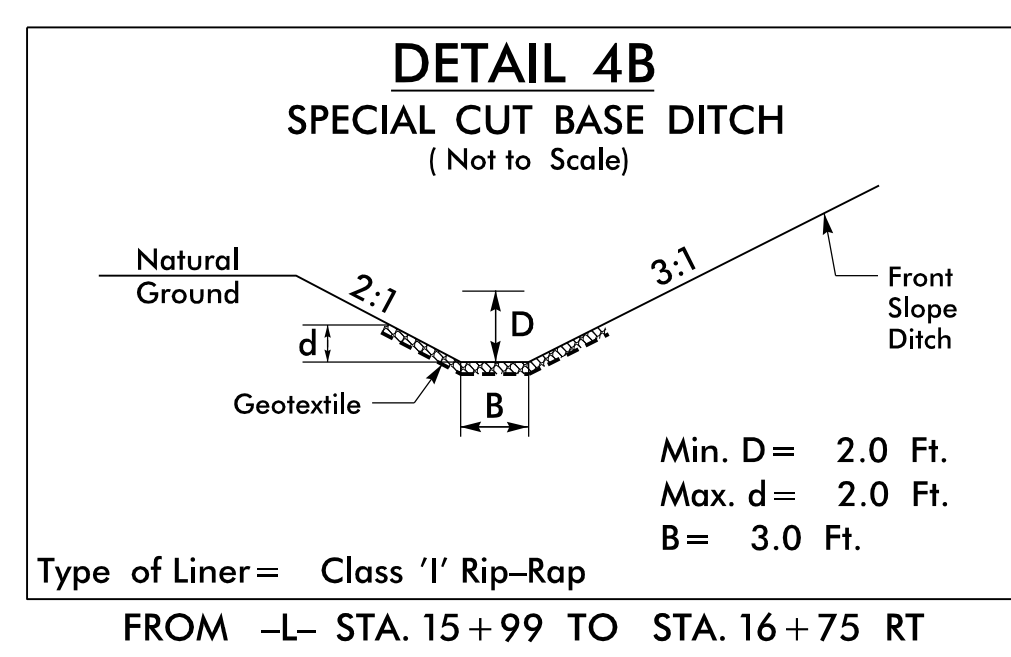
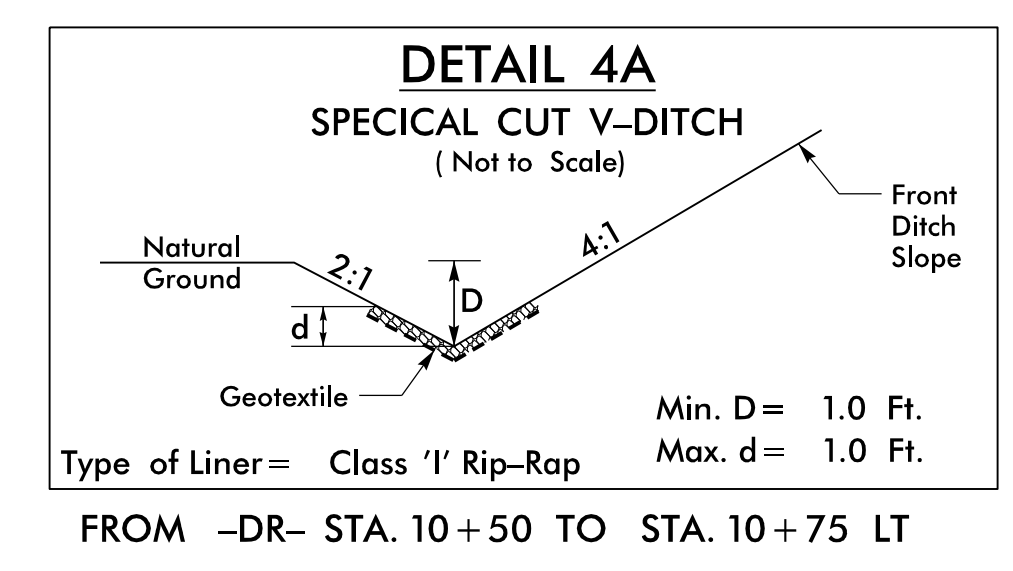
**DIVISION OF HIGHWAYS
DIVISION II**
801 STATESVILLE RD
NORTH WILKESBORO, NC 28659

BRANDON GREER DIVISION UTILITY ENGINEER
SUSIE HUFFMAN DIVISION UTILITY COORDINATOR

17-OCT-2023 20:37
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\$\$\$\$\$SERNAME\$\$\$\$\$

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.



-L- CURVE DATA		-DR- CURVE DATA	
PI Sta 11+44.8	PI Sta 12+71.45	PI Sta 10+38.28	PI Sta 10+97.62
$\Delta = 13^\circ 56' 46.0''$ (RT)	$\Delta = 9^\circ 39' 18.9''$ (RT)	$\Delta = 41^\circ 00' 29.3''$ (RT)	$\Delta = 48^\circ 11' 39.6''$ (LT)
D = 11' 27' 33.0"	D = 7' 15' 09.5"	D = 229' 10' 59.2"	D = 190' 59' 09.4"
L = 121.70'	L = 133.13'	L = 17.89'	L = 25.23'
T = 61.5'	T = 66.72'	T = 9.35'	T = 13.42'
R = 500.00'	R = 790.00'	R = 25.00'	R = 30.00'
SE = EXIST.	SE = 0.04	SE = 0.02	SE = 0.02
	DS = 45 MPH		

- ① = -DR- PC 10+28.93
- ② = -DR- PT 10+46.82
- ③ = -DR- PC 10+84.20
- ④ = -DR- PT 11+09.43

5/14/2011
 20130
 1600
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PROJECT REFERENCE NO.	SHEET NO.
BP11.R022	X-1A
RW SHEET NO.	

BP11.R022 CROSS-SECTION INDEX

XS - INDEX	X - 1A
XS - SUMMARY	X - 1B
- L -	X - 1 THRU X - 5
- DR -	X - 6

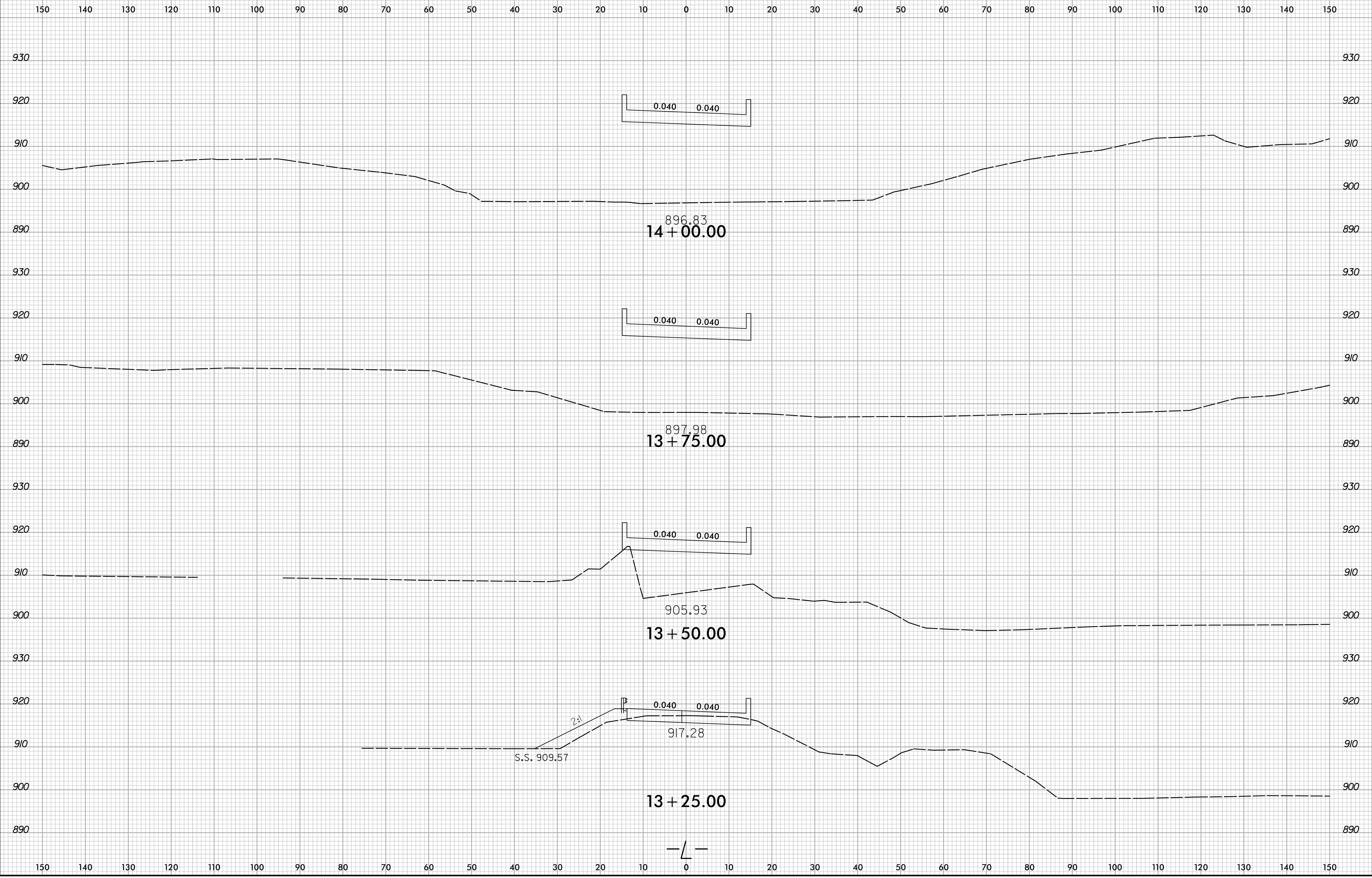
REVISIONS

8/17/99

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11:50:00 AM
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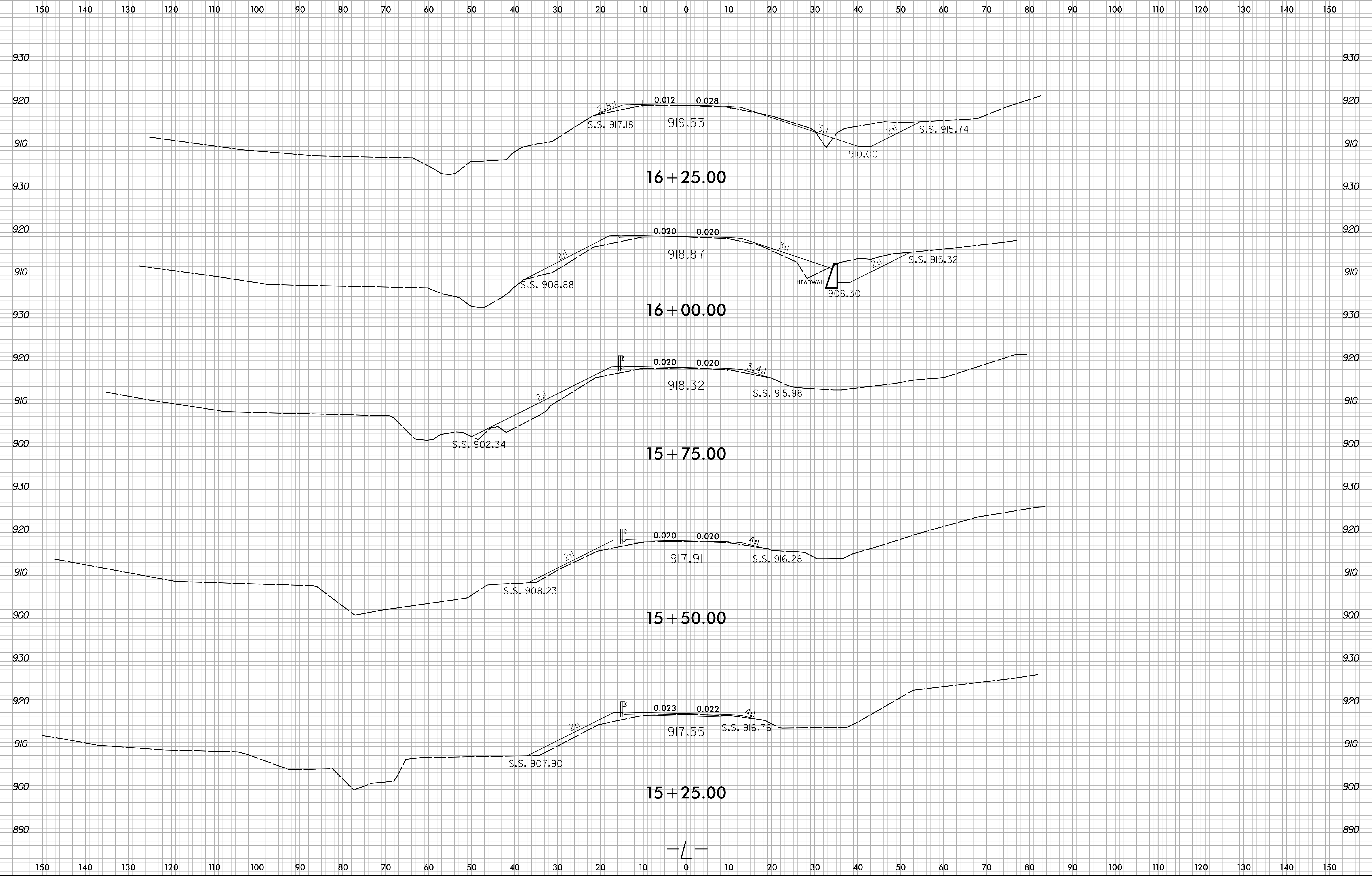
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	BP11.R022	X-2



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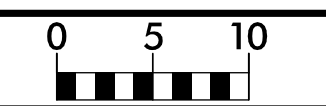
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	BP11.R022	X-4



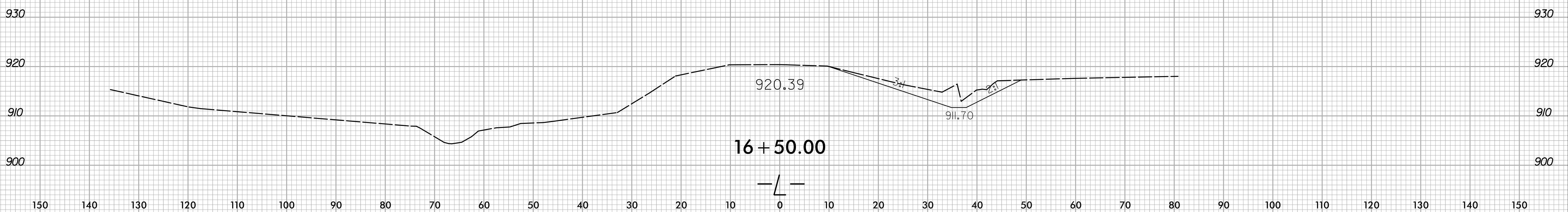
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
BP11.R022	X-5

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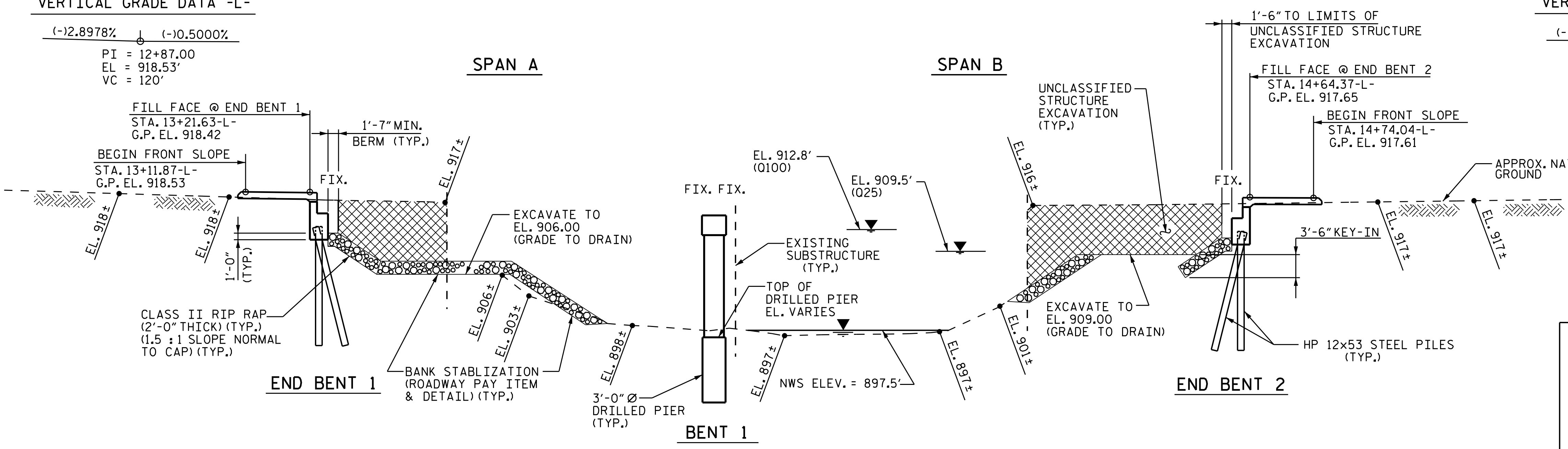
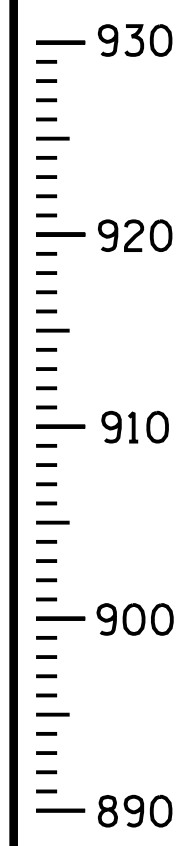
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VERTICAL GRADE DATA -L-

(-)-2.8978% (-)-0.5000%
 PI = 12+87.00
 EL = 918.53'
 VC = 120'

VERTICAL GRADE DATA -L-

(-)-0.5000% (+)-3.3684%
 PI = 15+55.00
 EL = 917.19'
 VC = 190'



SECTION ALONG -L-

SECTION THRU END BENTS AND BENT ARE TAKEN AT RIGHT ANGLES

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

SEAL

HYDRAULIC DATA:

DESIGN DISCHARGE	4500 CFS
FREQUENCY OF DESIGN DISCHARGE	25 YRS.
DESIGN HIGH WATER ELEVATION	909.5'
DRAINAGE AREA	33.5 SQ. MI.
BASE DISCHARGE (Q100)	6699 CFS
BASE HIGH WATER ELEVATION	912.8'

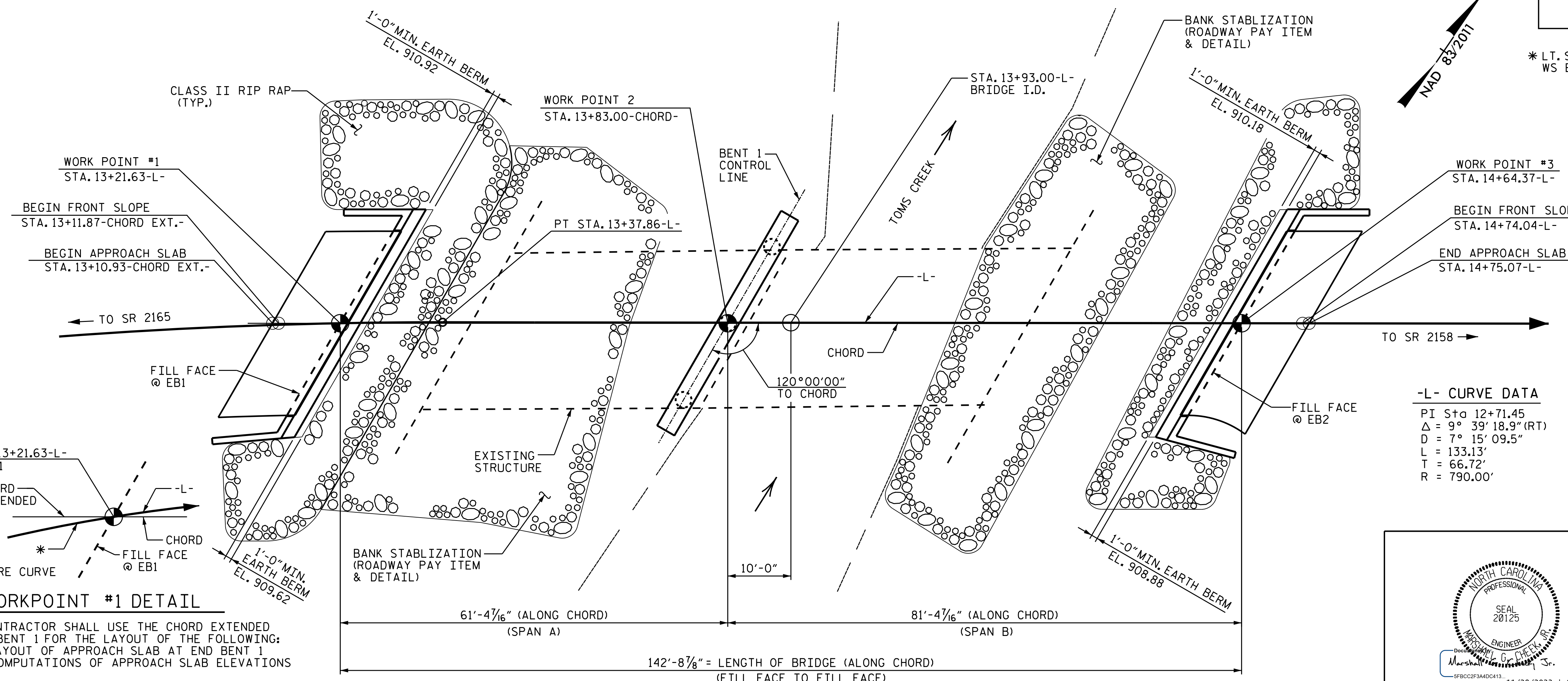
OVERTOPPING FLOOD DATA:

OVERTOPPING DISCHARGE	N/A CFS
FREQUENCY OF OVERTOPPING FLOOD	500(+) YRS.
OVERTOPPING FLOOD ELEVATION	918.1' *

* LT. SHOULDER @ SAG -L- STA. 14+84.6
 WS EL. TAKEN @ RIVER STATION 17845 (US TOE)

LOW CHORD ELEVATION

EB1	914.82' RT.	EB2	914.07' RT.
-----	-------------	-----	-------------



PLAN

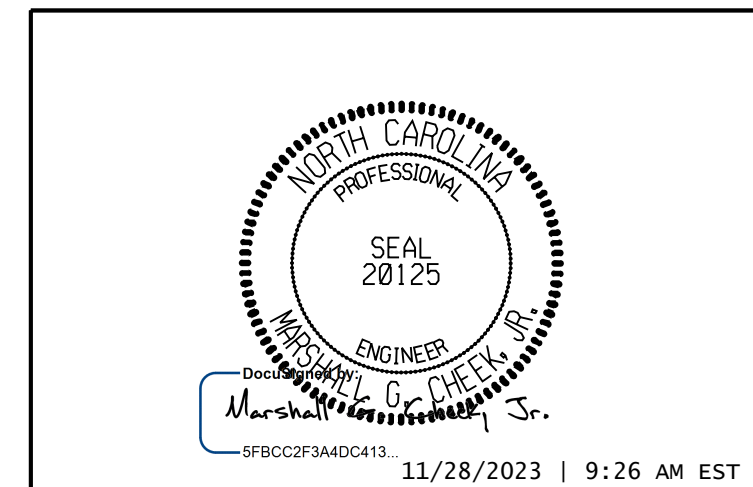
PILES NOT SHOWN IN PLAN VIEW FOR CLARITY.

-L- CURVE DATA

PI Sta 12+71.45
 $\Delta = 9^\circ 39' 18.9''$ (RT)
 $D = 7^\circ 15' 09.5''$
 $L = 133.13'$
 $T = 66.72'$
 $R = 790.00'$

PROJECT NO. BP11.R022
 SURRY COUNTY
 STATION: 13+93.00-L-

SHEET 1 OF 5 REPLACES BRIDGE NO. 850180



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER TOMS CREEK
 ON SR 2165 AND SR 2158

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

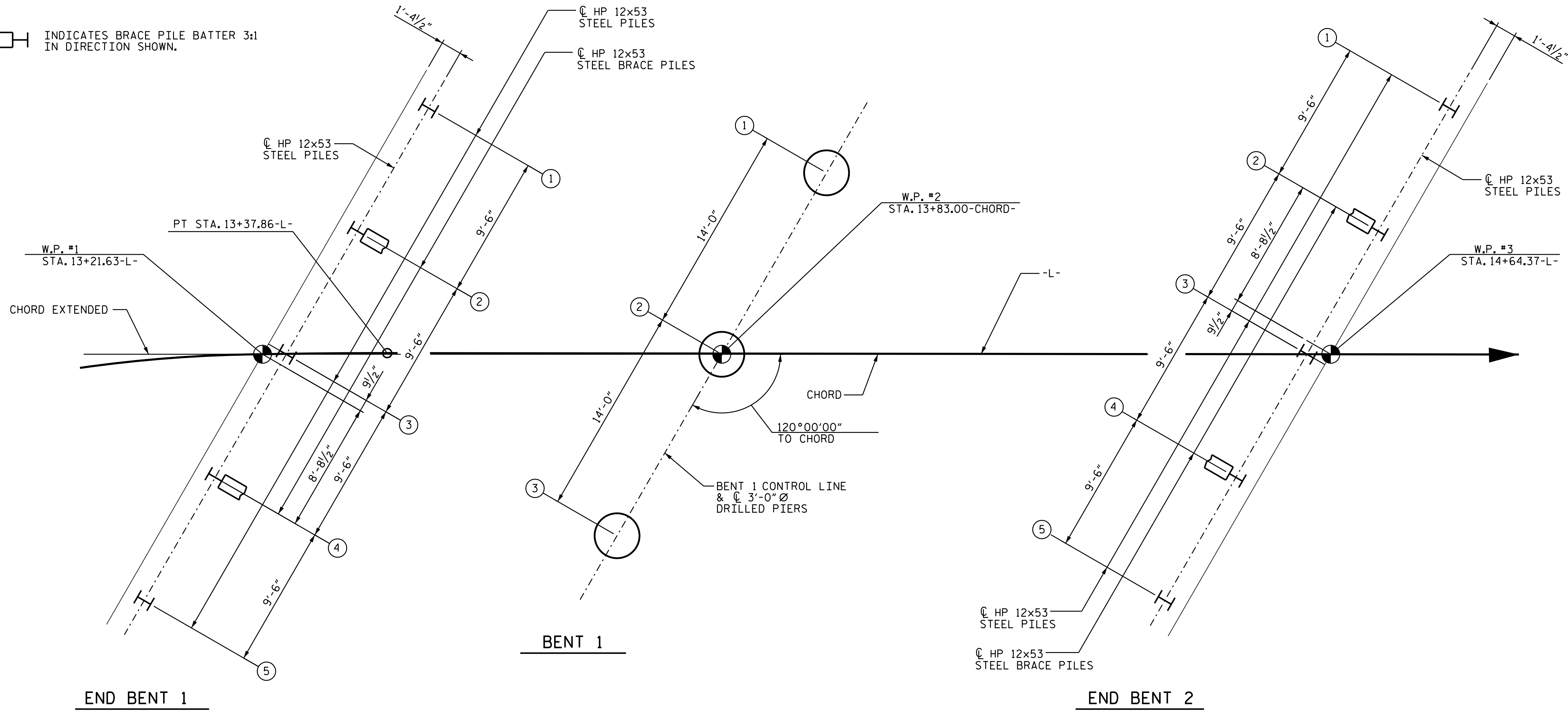
TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : NMW DATE : 12/22
 CHECKED BY : MGC DATE : 6/23

WORKPOINT #1 DETAIL
 THE CONTRACTOR SHALL USE THE CHORD EXTENDED @ END BENT 1 FOR THE LAYOUT OF THE FOLLOWING:
 1. LAYOUT OF APPROACH SLAB AT END BENT 1
 2. COMPUTATIONS OF APPROACH SLAB ELEVATIONS
 IN ADDITION, THE CONTRACTOR SHALL ASSUME THAT ALL STATIONING OCCURS ALONG THE CHORD EXTENDED.

INDICATES BRACE PILE BATTER 3:1
IN DIRECTION SHOWN.



FOUNDATION LAYOUT PLAN

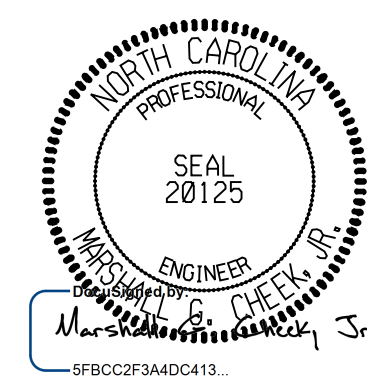
ALL END BENT PILES ARE HP12x53 STEEL PILES. DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES. ORIENT PILES AS SHOWN. DIMENSIONS LOCATING DRILLED PIERS ARE SHOWN TO THE CENTERLINE OF THE DRILLED PIER.

PROJECT NO. BP11.R022

SURRY COUNTY

STATION: 13+93.00-L-

SHEET 2 OF 5



11/28/2023 | 9:26 AM EST

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TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER TOMS CREEK
ON SR 1953 BETWEEN
SR 2165 AND SR 2158

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : NMW DATE : 12/22
CHECKED BY : MGC DATE : 1/23

SUMMARY OF PILE INFORMATION/INSTALLATION

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

End Bent/ Bent No. Pile(s) #-* (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling For Piles *			Drilled-in-Piles		
					Min. Pile Tip (Tip No Higher Than) Elev. FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Exc Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile LIN FT	Pile Exc In Soil per Pile LIN FT
End Bent 1, Piles 1-2	114	SEE END BENT SHEETS	30			190							
End Bent 1, Piles 3-5	114		40			190							
End Bent 2, Piles 1-3	118		50			200							
End Bent 2, Piles 4-5	118		45			200							

* Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

**RDR = $\frac{\text{Factored Resistance} + \text{Factored Downdrag Load} + \text{Factored Dead Load}}{\text{Dynamic Resistance Factor}} + \text{Nominal Downdrag Resistance} + \frac{\text{Nominal Scour Resistance}}{\text{Scour Resistance Factor}}$

PILE DESIGN INFORMATION

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

End Bent/ Bent No. Pile(s) #-* (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent 1, Piles 1-5	114			0.60			1.00
End Bent 2, Piles 1-5	118			0.60			1.00

* Factored Dead Load is factored weight of pile above the ground.

SUMMARY OF DRILLED PIER INFORMATION/INSTALLATION

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

End Bent/ Bent No. Pier(s) #-* (e.g., "Bent 1, Piers 1-3")	Factored Resistance per Pier TONS	Minimum Pier Tip (Tip No Higher Than) Elevation FT	Required Tip Resistance Per Pier TSF	Scour Critical Elevation FT	Minimum Drilled Pier Penetration Into Rock per Pier LIN FT	Drilled Pier Length per Pier LIN FT	Drilled Pier Length Not In Soil per Pier LIN FT	Drilled Pier Length In Soil per Pier LIN FT	Permanent Steel Casing Required? YES or MAYBE	Permanent Steel Casing Tip Elevation (Elev Not To Extend Casing Below) FT	Permanent Steel Casing Length* per Pier LIN FT
Bent 1, Pier 1	420	861.00	5	887.00	11.0		11.0	24.35	YES	880.00	16.35
Bent 1, Pier 2	420	861.00	5	887.00	11.0		11.0	24.34	YES	880.00	16.34
Bent 1, Pier 3	420	861.00	5	887.00	11.0		11.0	24.32	YES	880.00	16.32

* Permanent Steel Casing Length equals the difference between the ground line or top of drilled pier elevation, whichever is higher, and the permanent casing tip elevation.

NOTES:

- The Pile and Drilled Pier Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Robert E. Kral, P.E. 042642) on 7/7/2023.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, ie., the number of piles with a Required Driving Resistance.
- The Engineer will determine the need for Dynamic Pile Testing, SPTs, CSL Testing, and SID Inspections when these items may be required.
- For Drilled Piers, see Section 411 of the Standard Specifications.
- Install Permanent Steel Casing at Bent No. 1 by Vibrating, Screwing or Driving Permanent Casing before excavating or disturbing any material below Elevation 890.0 ft.
- For Piles, see Section 450 of the Standard Specifications.

DRAWN BY : NMW DATE : 12/22
CHECKED BY : MGC DATE : 8/23

SUMMARY OF DRILLED PIER TESTING

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

End Bent/ Bent No. PIER(s) #-* (e.g., "Bent 1, Piers 1-3")	Standard Penetration Test (SPT) Required? YES or MAYBE	Crosshole Sonic Logging (CSL) Required? * YES or MAYBE	Total CSL Tube Length (For All Tubes) per Pier LIN FT	Shaft Inspection Device (SID) Required? YES or MAYBE	Pile Integrity Test (PIT) Required? MAYBE
Bent 1, Piers 1-3		MAYBE	148.00		
TOTAL QUANTITY:		1	444.00		

* CSL Tubes are required if CSL Testing is or may be required. The number of CSL Tubes per drilled pier is equal to one tube per foot of design pier diameter with at least 4 tubes per pier. The length of each CSL Tube is equal to the drilled pier length plus 1.5 ft.

PROJECT NO. BP11.R022

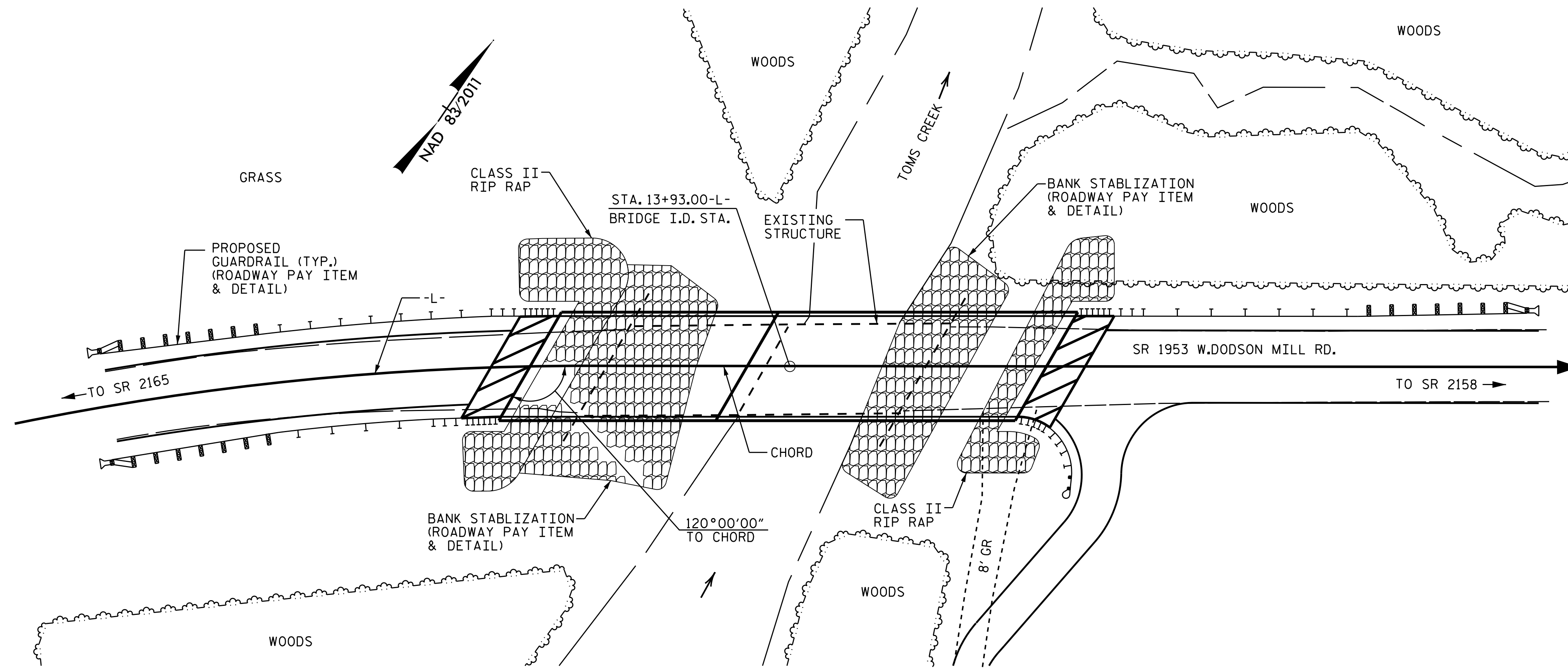
SURRY COUNTY

STATION: 13+93.00-L-

SHEET 3 OF 5

		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH PILE AND DRILLED PIER FOUNDATION TABLES			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					
TGS ENGINEERS 201 W. MARION ST STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275		REVISIONS			
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-3 TOTAL SHEETS 24					

BENCH MARK BL-3: REBAR WITH ALUMINUM CAP 15.15 RT. OF STA. 10+28.07-L-; ELEV. = 926.24'



FOR UTILITY INFORMATION SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING 2-SPAN BRIDGE (2 @ 45'-3") CONSISTING OF A PRESTRESSED CONCRETE CORED SLAB WITH A CLEAR ROADWAY WIDTH OF 23'-9" AND A 2" ASPHALT WEARING SURFACE AND A SUBSTRUCTURE CONSISTING OF PRECAST PRESTRESSED CONCRETE CAPS/ STEEL H PILES AND LOCATED AT THE SITE OF THE PROPOSED BRIDGE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE INTEGRITY OF THE BRIDGE DETERIORATE, A LOAD LIMIT MAY BE POSTED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO WATER, THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA (SHEET 1 OF 5) SHALL BE EXCAVATED FOR A DISTANCE OF 30' (LT.) AND 30' (RT.) OF -L- AT END BENT 1 AND 55' (LT.) AND 80' (RT.) OF -L- AT END BENT 2. AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION, SEE SECTION 412 OF THE SPECIAL PROVISIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES."

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESMENT, SEE SPECIAL PROVISIONS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITIES ON ROADWAY PLANS.

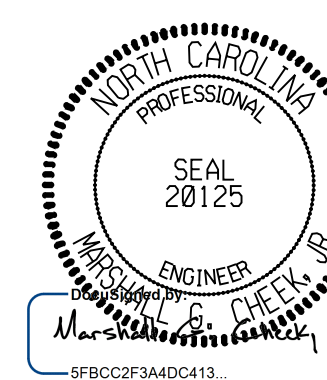
INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 16+75.00-L-."

PROJECT NO. BP11.R022

SURRY COUNTY

STATION: 13+93.00-L-

SHEET 4 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER TOMS CREEK
ON SR 1953 BETWEEN
SR 2165 AND SR 2158

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : NMW DATE : 12/22
CHECKED BY : MGC DATE : 1/23

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(InV)	N/A	1	1.75	--	1.75	0.26	1.75	60'	EL	29.14	0.62	2.25	60'	EL	5.14	0.80	0.26	2.13	60'	EL	29.14		
	HL-93(OpR)	N/A	--	2.26	--	1.35	0.26	2.26	60'	EL	29.14	0.62	2.95	60'	EL	5.14	N/A	--	--	--	--	--		
	HS-20(InV)	36.000	2	2.21	79.560	1.75	0.26	2.21	60'	EL	29.14	0.62	2.76	60'	EL	5.14	0.80	0.26	2.69	60'	EL	29.14		
	HS-20(OpR)	36.000	--	2.87	103.320	1.35	0.26	2.87	60'	EL	29.14	0.62	3.62	60'	EL	5.14	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13,500	--	5.78	78.030	1.4	0.26	5.93	60'	EL	29.14	0.62	8.22	60'	EL	5.14	0.80	0.26	5.78	60'	EL	29.14	
		SNGARBS2	20,000	--	4.43	88.600	1.4	0.26	4.55	60'	EL	29.14	0.62	5.89	60'	EL	5.14	0.80	0.26	4.43	60'	EL	29.14	
		SNAGRIS2	22,000	--	4.25	93.500	1.4	0.26	4.36	60'	EL	29.14	0.62	5.49	60'	EL	5.14	0.80	0.26	4.25	60'	EL	29.14	
		SNCOTTS3	27,250	--	2.88	78.480	1.4	0.26	2.95	60'	EL	29.14	0.62	4.04	60'	EL	5.14	0.80	0.26	2.88	60'	EL	29.14	
		SNAGGRS4	34,925	--	2.45	85.566	1.4	0.26	2.52	60'	EL	29.14	0.62	3.39	60'	EL	5.14	0.80	0.26	2.45	60'	EL	29.14	
		SNS5A	35,550	--	2.39	84.965	1.4	0.26	2.46	60'	EL	29.14	0.62	3.44	60'	EL	5.14	0.80	0.26	2.39	60'	EL	29.14	
		SNS6A	39,950	--	2.22	88.689	1.4	0.26	2.28	60'	EL	29.14	0.62	3.15	60'	EL	5.14	0.80	0.26	2.22	60'	EL	29.14	
	TTST	TNAGRIT3	33,000	--	2.71	89.430	1.4	0.26	2.78	60'	EL	29.14	0.62	3.74	60'	EL	5.14	0.80	0.26	2.71	60'	EL	29.14	
		TNT4A	33,075	--	2.73	90.295	1.4	0.26	2.80	60'	EL	29.14	0.62	3.66	60'	EL	5.14	0.80	0.26	2.73	60'	EL	29.14	
		TNT6A	41,600	--	2.25	93.600	1.4	0.26	2.31	60'	EL	29.14	0.62	3.43	60'	EL	5.14	0.80	0.26	2.25	60'	EL	29.14	
		TNT7A	42,000	--	2.27	95.340	1.4	0.26	2.33	60'	EL	29.14	0.62	3.25	60'	EL	5.14	0.80	0.26	2.27	60'	EL	29.14	
		TNT7B	42,000	--	2.37	99.540	1.4	0.26	2.44	60'	EL	29.14	0.62	3.02	60'	EL	5.14	0.80	0.26	2.37	60'	EL	29.14	
		TNAGRIT4	43,000	--	2.24	96.320	1.4	0.26	2.30	60'	EL	29.14	0.62	2.94	60'	EL	5.14	0.80	0.26	2.24	60'	EL	29.14	
		TNAGT5A	45,000	--	2.11	94.950	1.4	0.26	2.16	60'	EL	29.14	0.62	2.96	60'	EL	5.14	0.80	0.26	2.11	60'	EL	29.14	
EV2	28,750	--	3.15	90.563	1.3	0.26	3.48	60'	EL	29.14	0.62	4.42	60'	EL	5.14	0.80	0.26	3.15	60'	EL	29.14			
EV3	43,000	4	2.05	88.150	1.3	0.26	2.26	60'	EL	29.14	0.62	2.94	60'	EL	5.14	0.80	0.26	2.05	60'	EL	29.14			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

-
-
-
-

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

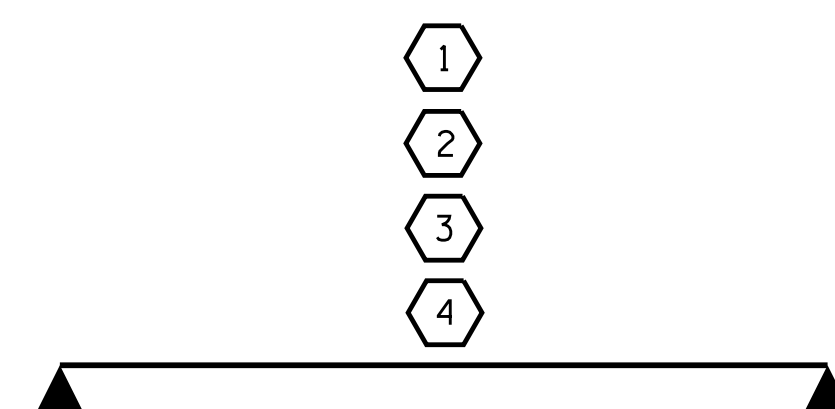
3 LEGAL LOAD RATING **

4 EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
 EL - EXTERIOR LEFT GIRDER
 ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY
FOR SPAN 'A'

PROJECT NO. BP11.R022
SURRY COUNTY
 STATION: 13+93.00-L-

ASSEMBLED BY: ZCS DATE: 7/23
 CHECKED BY: MGC DATE: 7/23
 DESIGN ENGINEER OF RECORD: ZCS DATE: 7/23

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**LRFR SUMMARY FOR
 60' BOX BEAM UNIT
 120° SKEW
 (NON-INTERSTATE TRAFFIC)**

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-6
2			4			TOTAL SHEETS 24

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(InV)	N/A	1	1.162	--	1.75	0.247	1.91	80'	EL	39.134	0.623	1.16	80'	EL	7.827	0.80	0.247	1.29	80'	EL	39.134		
	HL-93(OPr)	N/A	--	1.507	--	1.35	0.247	2.48	80'	EL	39.134	0.623	1.51	80'	EL	7.827	N/A	--	--	--	--	--		
	HS-20(InV)	36.000	2	1.469	52.874	1.75	0.247	2.53	80'	EL	39.134	0.623	1.47	80'	EL	7.827	0.80	0.247	1.71	80'	EL	39.134		
	HS-20(OPr)	36.000	--	1.904	68.541	1.35	0.247	3.29	80'	EL	39.134	0.623	1.90	80'	EL	7.827	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13,500	--	3.905	52.721	1.4	0.247	7.25	80'	EL	39.134	0.623	4.41	80'	EL	7.827	0.80	0.247	3.91	80'	EL	39.134	
		SNGARBS2	20,000	--	2.888	57.75	1.4	0.247	5.36	80'	EL	39.134	0.623	3.12	80'	EL	7.827	0.80	0.247	2.89	80'	EL	39.134	
		SNAGRIS2	22,000	--	2.725	59.952	1.4	0.247	5.06	80'	EL	39.134	0.623	2.89	80'	EL	7.827	0.80	0.247	2.73	80'	EL	39.134	
		SNCOTTS3	27,250	--	1.943	52.939	1.4	0.247	3.61	80'	EL	39.134	0.623	2.20	80'	EL	7.827	0.80	0.247	1.94	80'	EL	39.134	
		SNAGGRS4	34,925	--	1.615	56.395	1.4	0.247	3.00	80'	EL	39.134	0.623	1.82	80'	EL	7.827	0.80	0.247	1.61	80'	EL	39.134	
		SNS5A	35,550	--	1.580	56.157	1.4	0.247	2.93	80'	EL	39.134	0.623	1.84	80'	EL	7.827	0.80	0.247	1.58	80'	EL	39.134	
		SNS6A	39,950	--	1.446	57.756	1.4	0.247	2.68	80'	EL	39.134	0.623	1.67	80'	EL	7.827	0.80	0.247	1.45	80'	EL	39.134	
	SNS7B	42,000	--	1.377	57.818	1.4	0.247	2.56	80'	EL	39.134	0.623	1.64	80'	EL	7.827	0.80	0.247	1.38	80'	EL	39.134		
	TTST	TNAGRIT3	33,000	--	1.762	58.142	1.4	0.247	3.27	80'	EL	39.134	0.623	1.99	80'	EL	7.827	0.80	0.247	1.76	80'	EL	39.134	
		TNT4A	33,075	--	1.769	58.499	1.4	0.247	3.28	80'	EL	39.134	0.623	1.95	80'	EL	7.827	0.80	0.247	1.77	80'	EL	39.134	
		TNT6A	41,600	--	1.443	60.014	1.4	0.247	2.68	80'	EL	39.134	0.623	1.74	80'	EL	7.827	0.80	0.247	1.44	80'	EL	39.134	
		TNT7A	42,000	--	1.448	60.817	1.4	0.247	2.69	80'	EL	39.134	0.623	1.70	80'	EL	7.827	0.80	0.247	1.45	80'	EL	39.134	
		TNT7B	42,000	--	1.493	62.726	1.4	0.247	2.77	80'	EL	39.134	0.623	1.60	80'	EL	7.827	0.80	0.247	1.49	80'	EL	39.134	
		TNAGRIT4	43,000	--	1.424	61.237	1.4	0.247	2.64	80'	EL	39.134	0.623	1.55	80'	EL	7.827	0.80	0.247	1.42	80'	EL	39.134	
TNAGT5A		45,000	--	1.344	60.496	1.4	0.247	2.50	80'	EL	39.134	0.623	1.54	80'	EL	7.827	0.80	0.247	1.34	80'	EL	39.134		
TNAGT5B	45,000	3	1.330	59.828	1.4	0.247	2.47	80'	EL	39.134	0.623	1.48	80'	EL	7.827	0.80	0.247	1.33	80'	EL	39.134			
EMERGENCY VEHICLE (EV)	EV2	28,750	--	2.280	65.550	1.3	0.247	4.14	80'	EL	39.134	0.623	2.28	80'	EL	7.827	0.80	0.247	2.46	80'	EL	39.134		
	EV3	43,000	4	1.536	66.034	1.3	0.247	2.72	80'	EL	39.134	0.623	1.54	80'	EL	7.827	0.80	0.247	1.62	80'	EL	39.134		

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

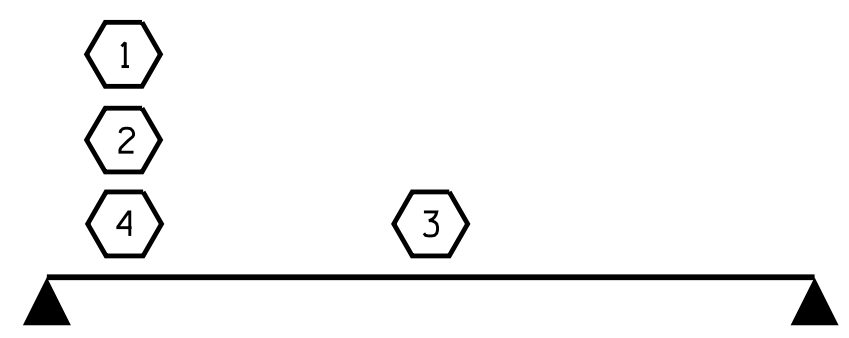
3 LEGAL LOAD RATING **

4 EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
 EL - EXTERIOR LEFT GIRDER
 ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

FOR SPAN 'B'

PROJECT NO. BP11.R022
SURRY COUNTY
 STATION: 13+93.00-L-

ASSEMBLED BY : ZCS DATE : 7/23
 CHECKED BY : MGC DATE : 7/23
 DRAWN BY : TMG II/II REV. BY : BNB/AKP 06/23
 CHECKED BY : AAC II/II

NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 20125
 M. S. CHEEK, JR.
 11/28/2023 | 9:26 AM EST

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 LRFR SUMMARY FOR
 80' BOX BEAM UNIT
 120° SKEW
 (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			24

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH TABLE" (SHEET 7 OF 7).

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

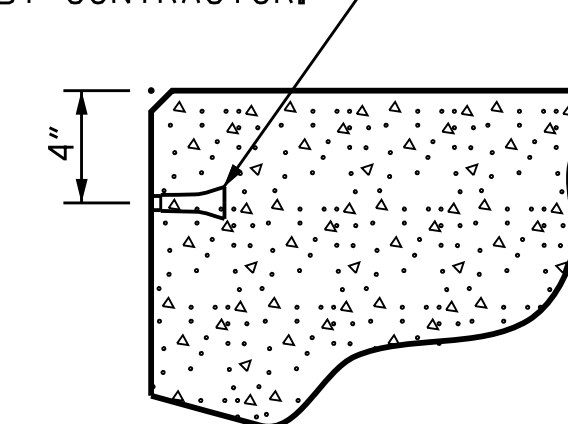
THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

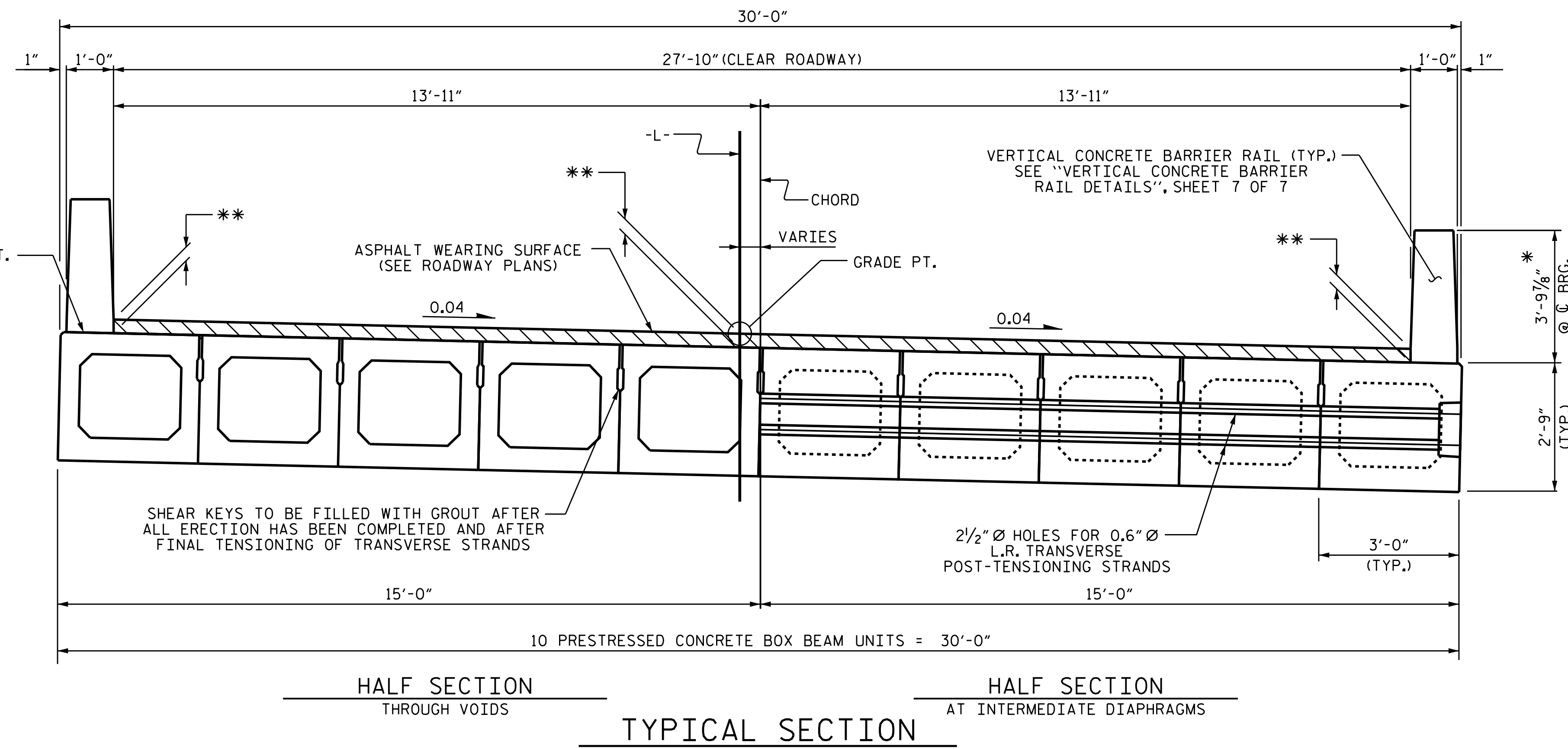
THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



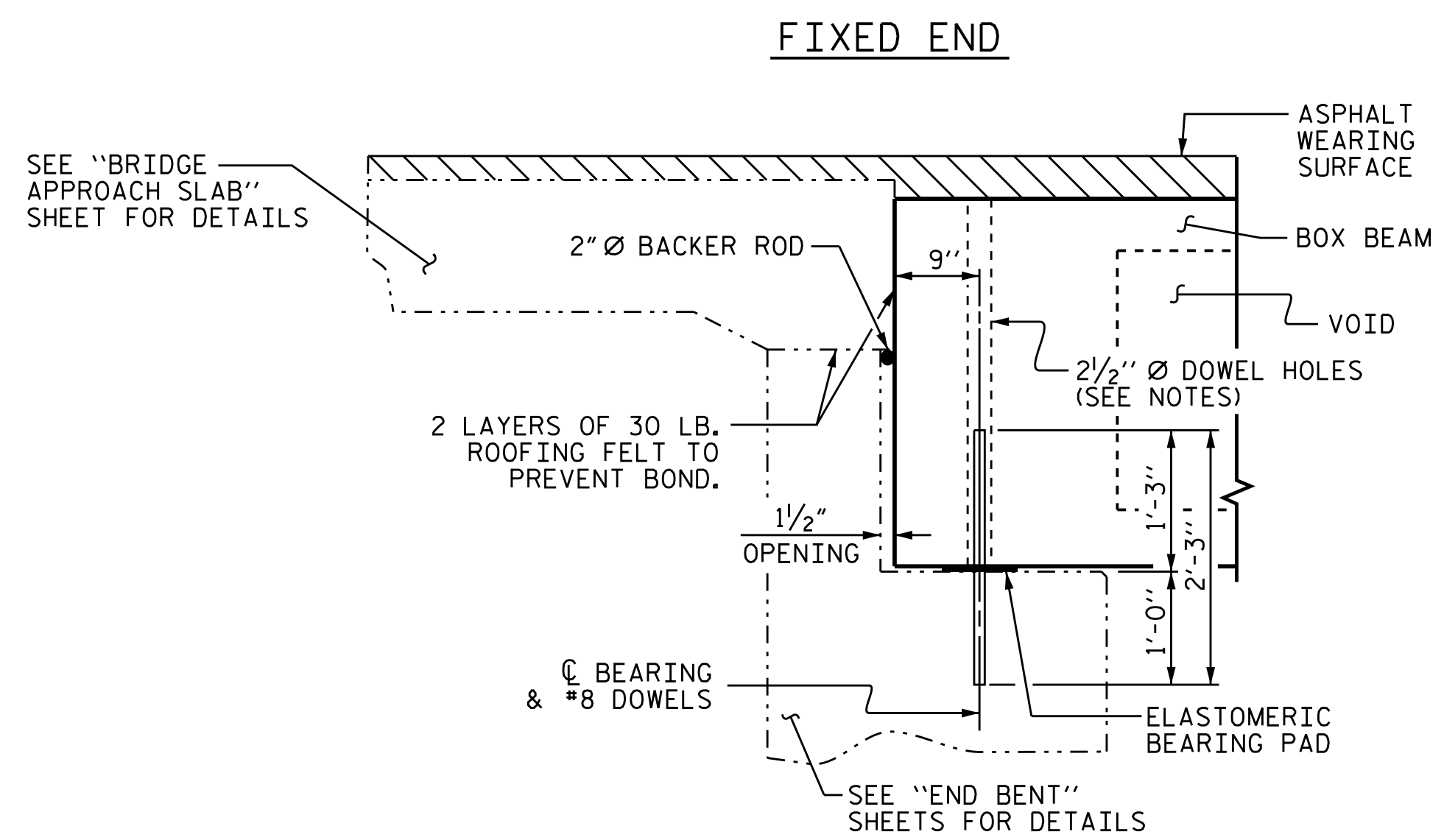
THREADED INSERT DETAIL



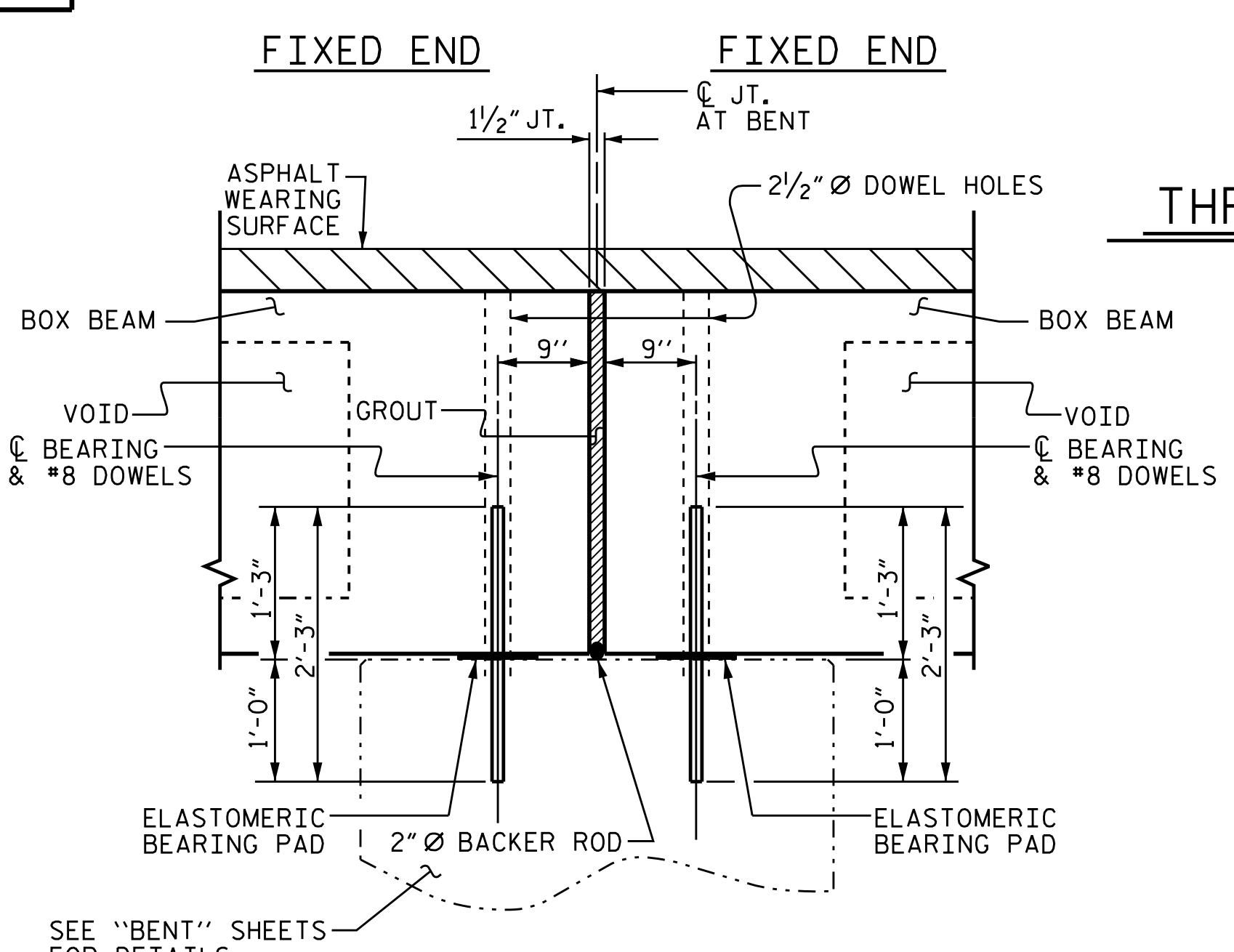
HALF SECTION THROUGH VOIDS
TYPICAL SECTION
 HALF SECTION AT INTERMEDIATE DIAPHRAGMS

* THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

ASPHALT WEARING SURFACE THICKNESS				
SPAN		** LEFT GUTTERLINE	** -L-	** RIGHT GUTTERLINE
A	CL BRG. @ END BENT 1	3 3/8"	3 1/2"	3 3/4"
	CL BRG. @ BENT 1	3 3/4"	3 1/2"	3 1/4"
B	CL BRG. @ BENT 1	3 3/4"	3 1/2"	3 1/4"
	CL BRG. @ END BENT 2	3 3/8"	3 1/2"	3 1/4"



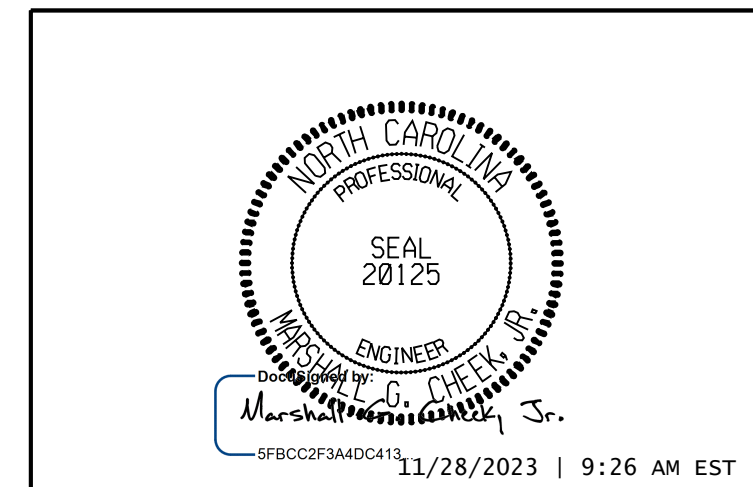
SECTION AT END BENTS



SECTION AT BENT 1

PROJECT NO. BP11.R022
 SURRY COUNTY
 STATION: 13+93.00-L-

SHEET 1 OF 7



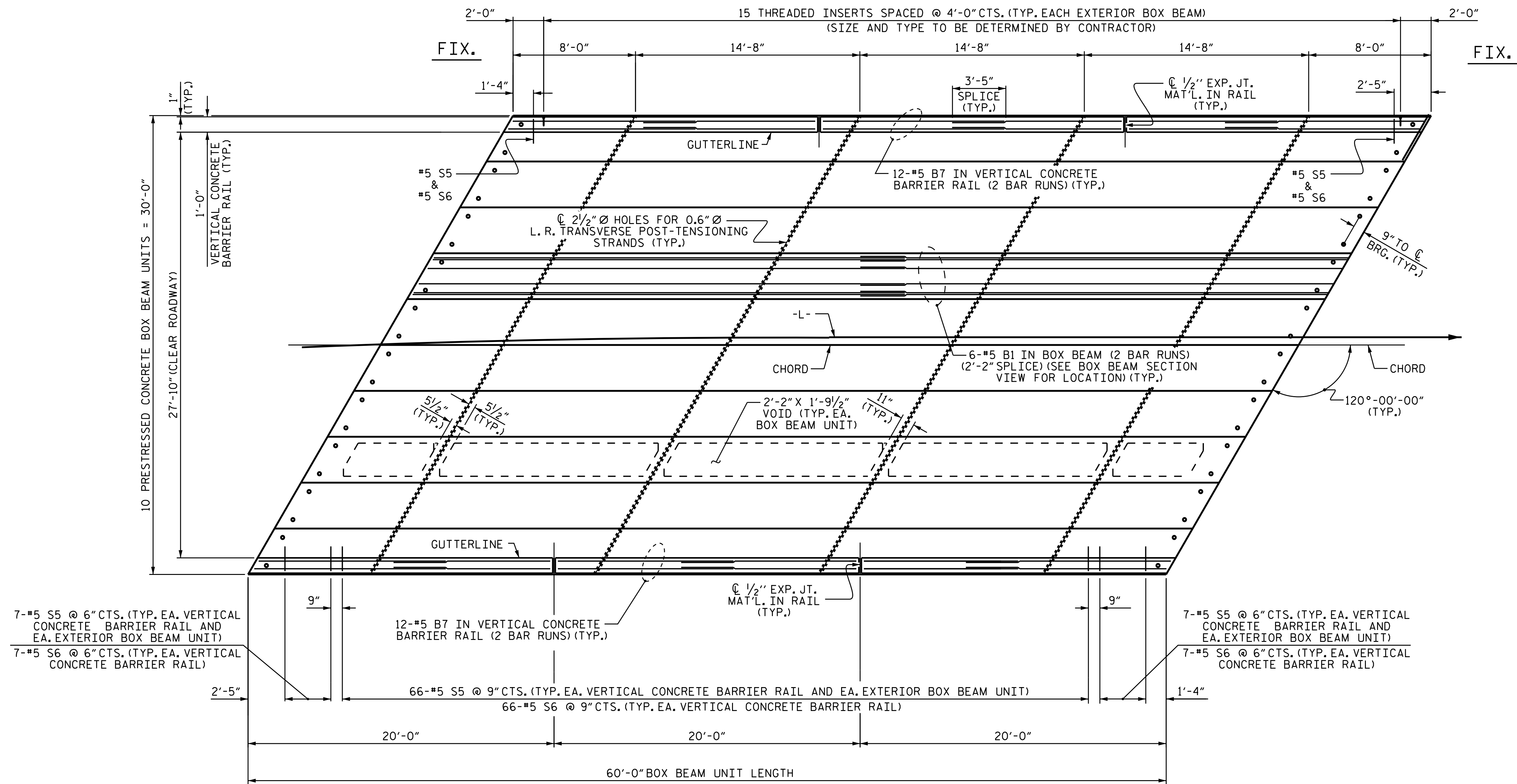
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
PRESTRESSED CONCRETE BOX BEAM UNIT

ASSEMBLED BY : NMW DATE : 12/22
 CHECKED BY : MGC DATE : 1/23
 DRAWN BY : DGE 8/11
 CHECKED BY : TMG 11/11

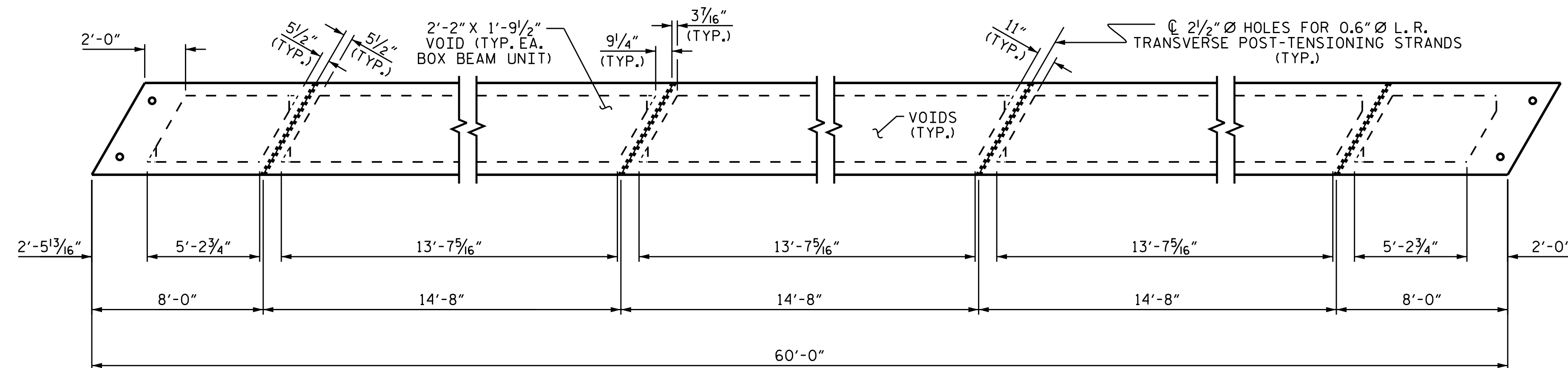
REV. 8/14 MAA/TMG

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
 TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-8
1			3			TOTAL SHEETS 24
2			4			



PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

PROJECT NO. BP11.R022
SURRY COUNTY
 STATION: 13+93.00-L-
 SHEET 2 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF 60' UNIT
 27'-10" CLEAR ROADWAY
 120° SKEW
 SPAN A

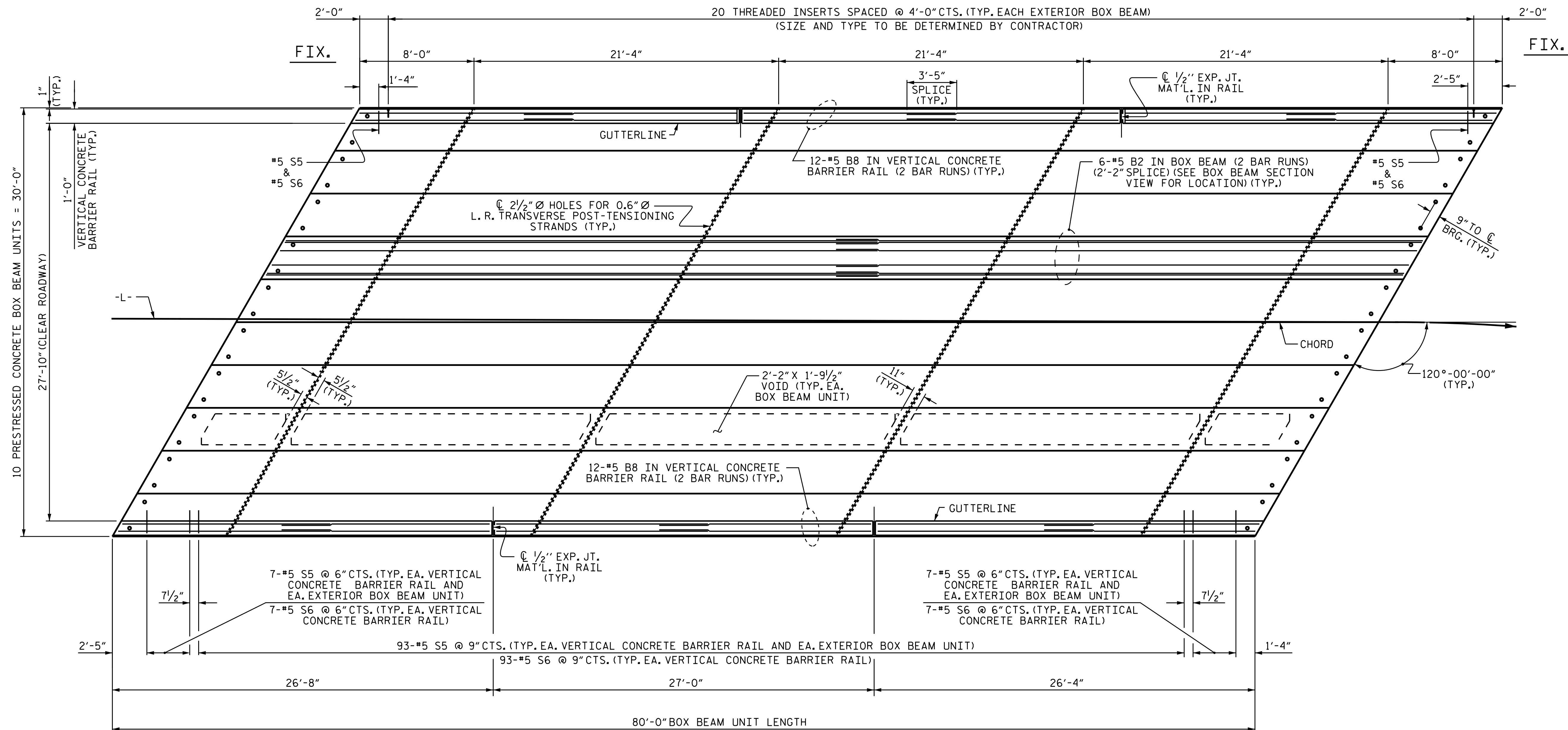
11/28/2023 | 9:26 AM EST

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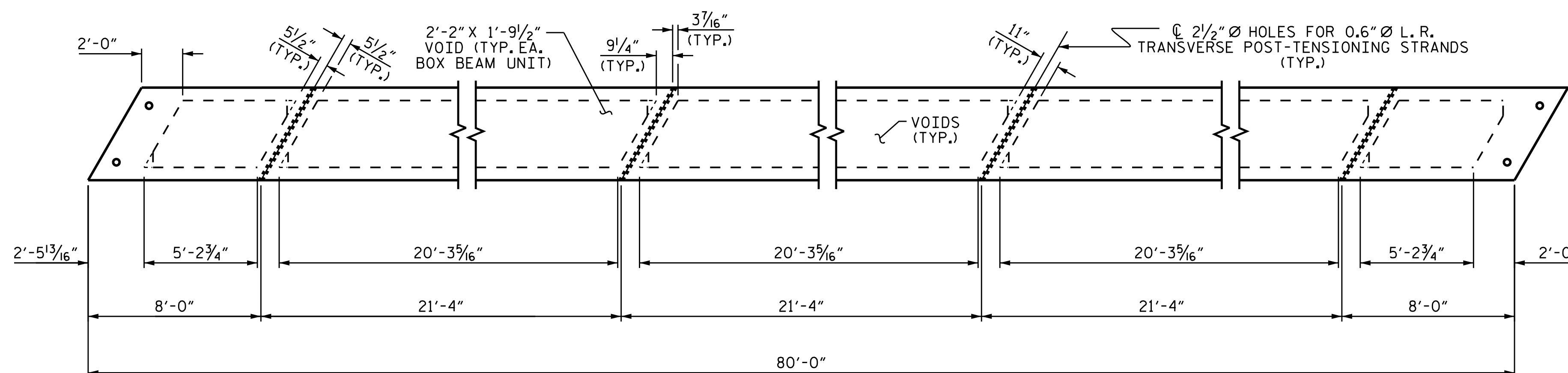
TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : NMW DATE : 12/22
 CHECKED BY : MGC DATE : 1/23
 DESIGN ENGINEER OF RECORD : ZCS DATE : 6/23



PLAN OF UNIT



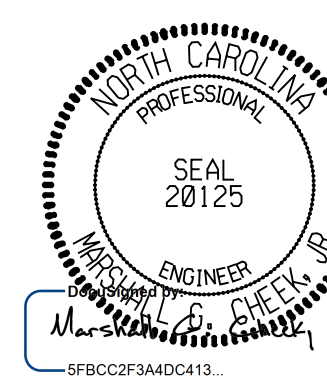
DIAPHRAGM AND VOID LAYOUT

PROJECT NO. BP11.R022

SURRY COUNTY

STATION: 13+93.00-L-

SHEET 3 OF 7



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

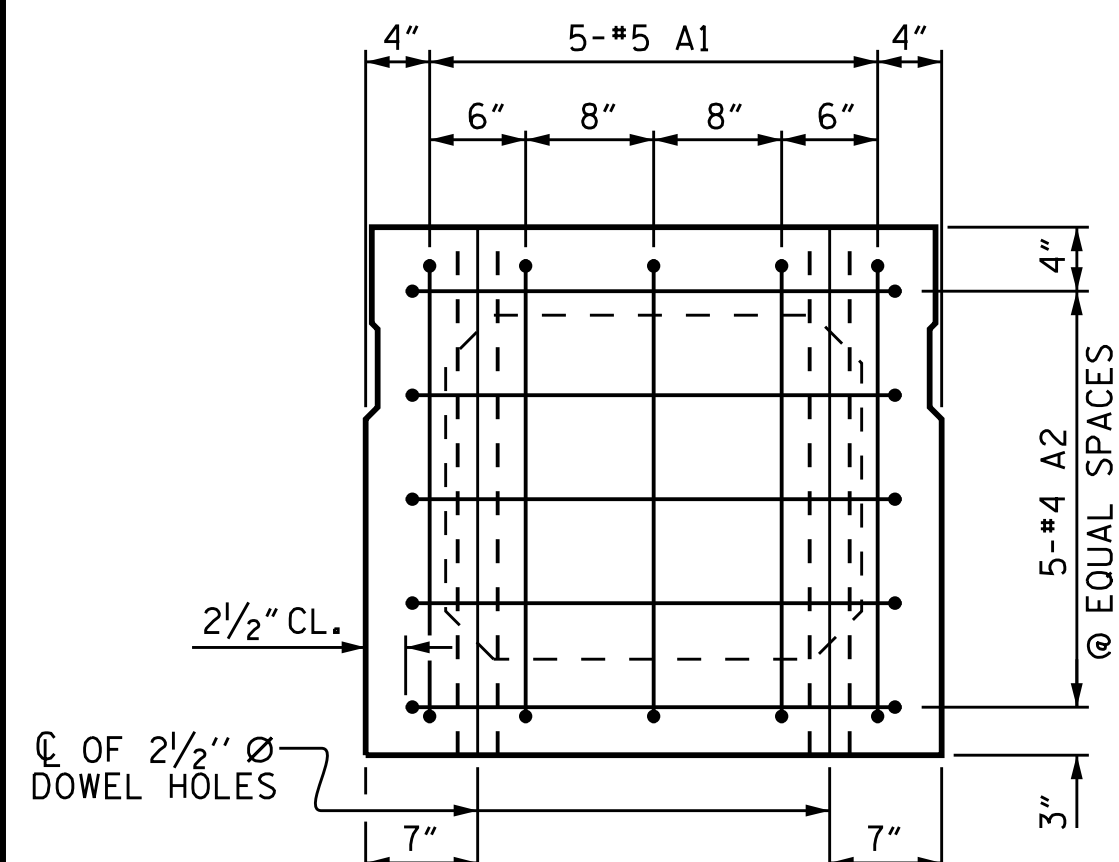
TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
PLAN OF 80' UNIT
27'-10" CLEAR ROADWAY
120° SKEW
SPAN B

ASSEMBLED BY : NMW DATE : 12/22
CHECKED BY : MGC DATE : 1/23
DRAWN BY : DGE 8/11 REV. 8/14 MAA/TMG
CHECKED BY : TMG 11/11

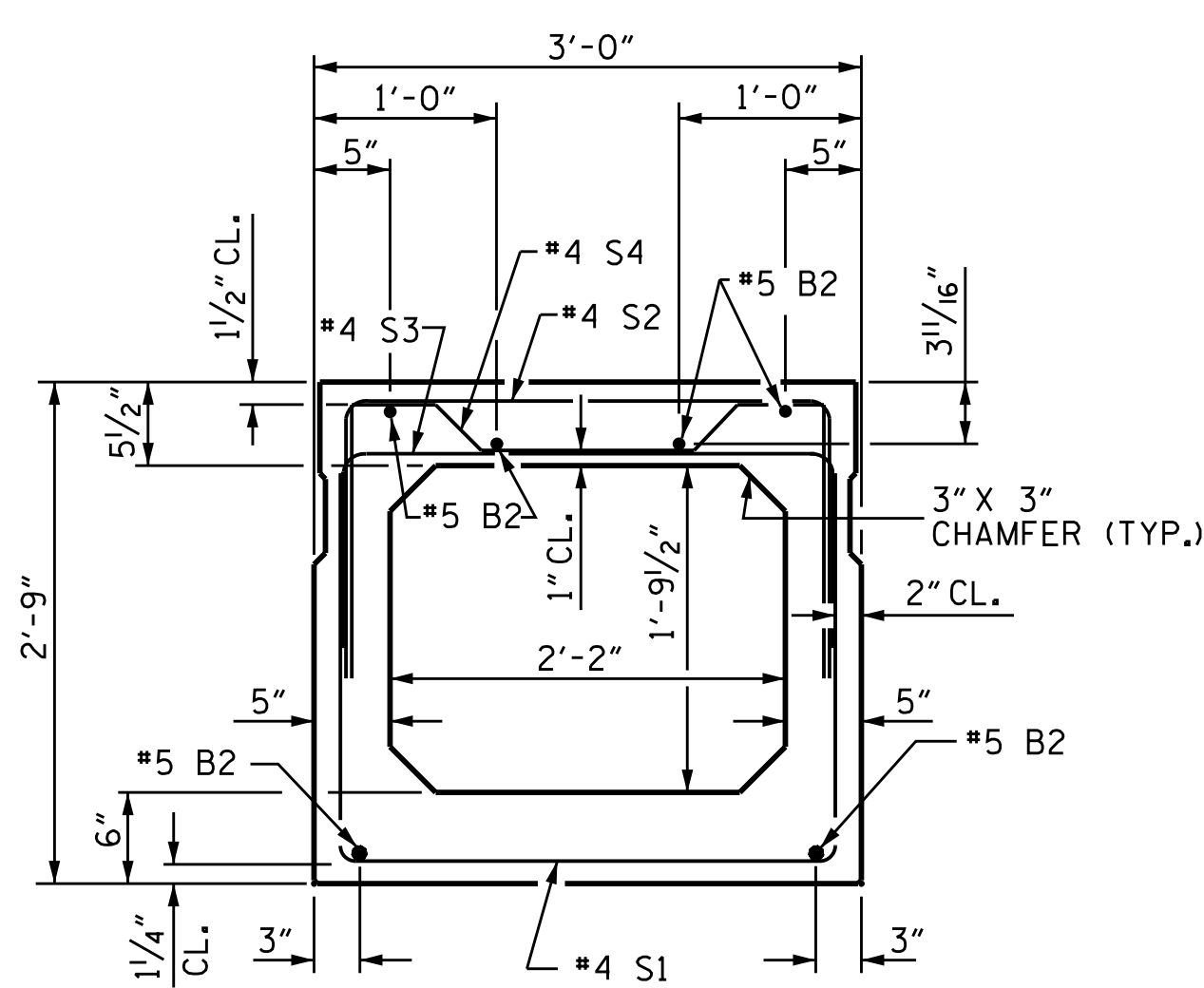
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			24

STD.NO.33PCBB_30_120S_80L



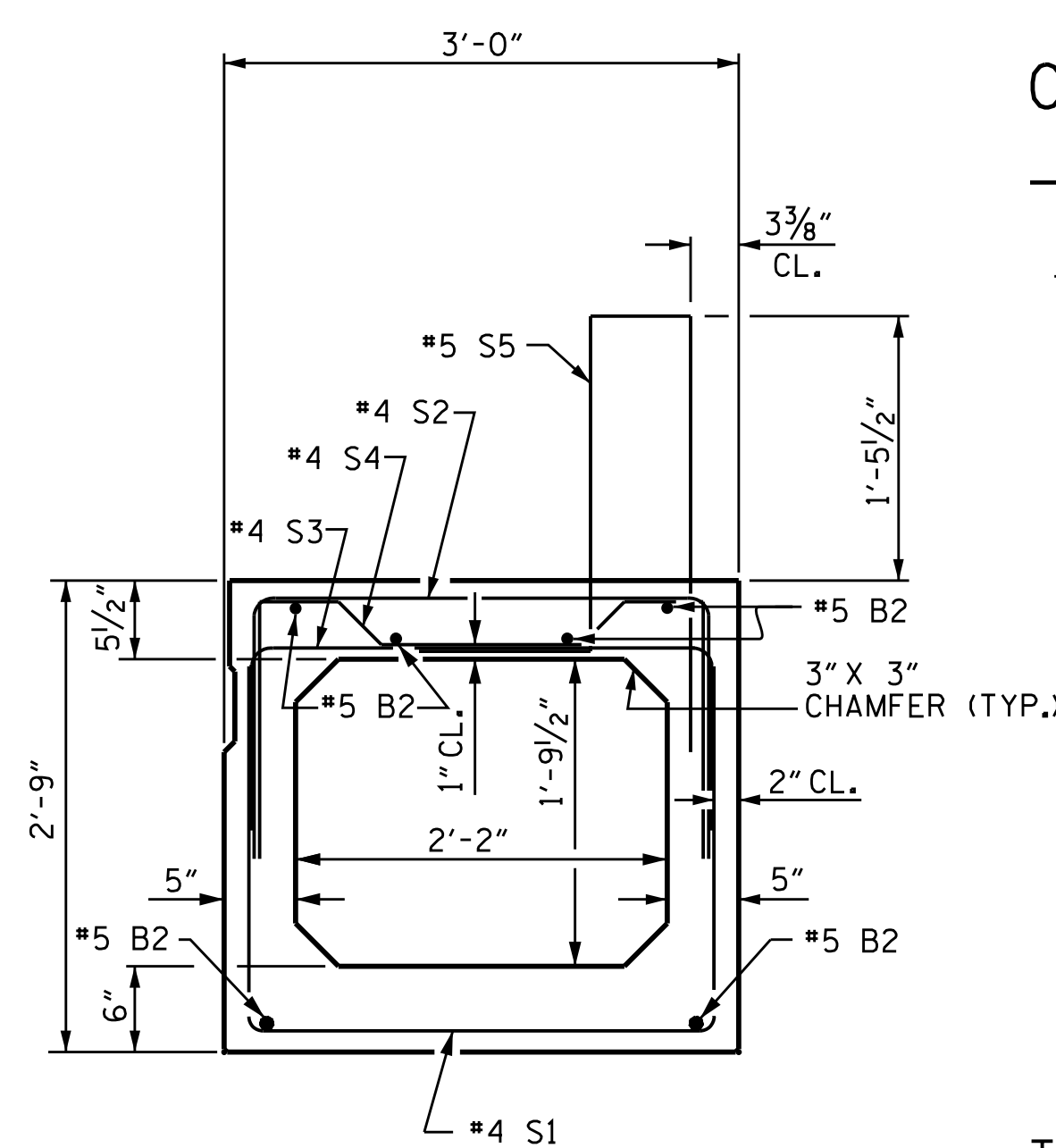
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION, STRAND LAYOUT NOT SHOWN.)



INTERIOR BOX BEAM SECTION

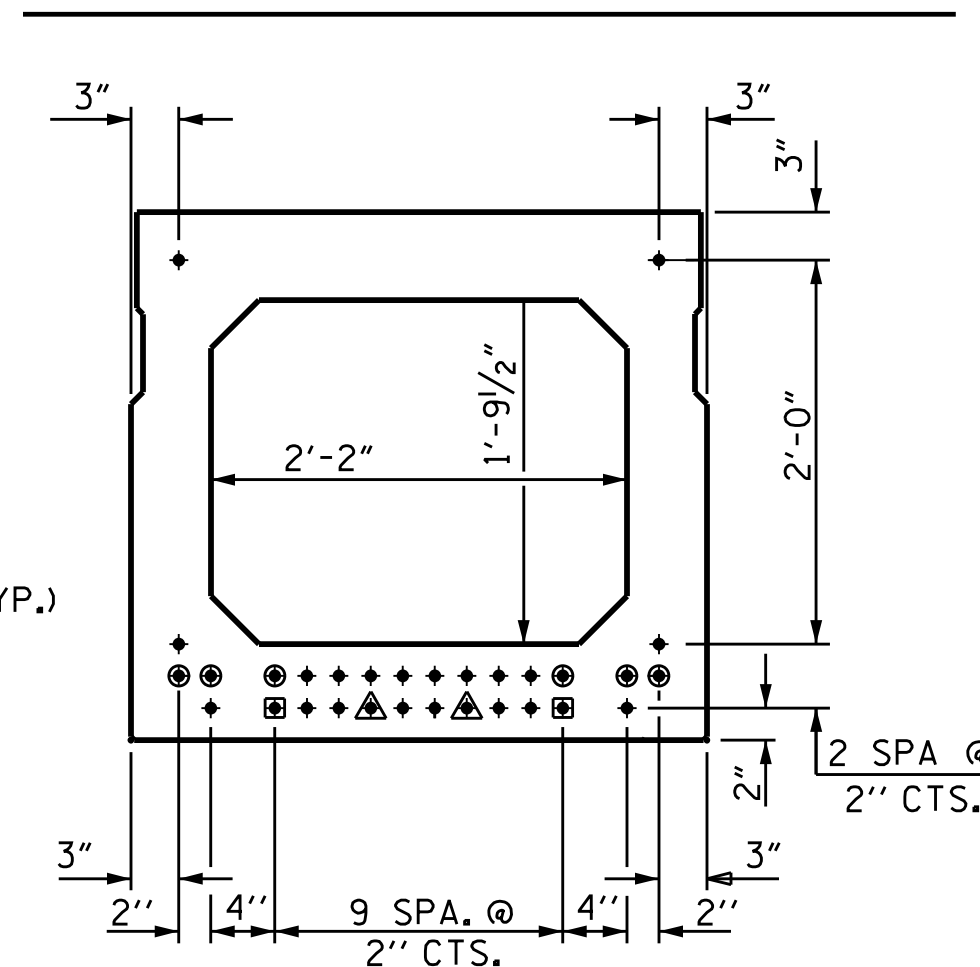
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

(24 STRANDS REQUIRED)

DEBONDING LEGEND

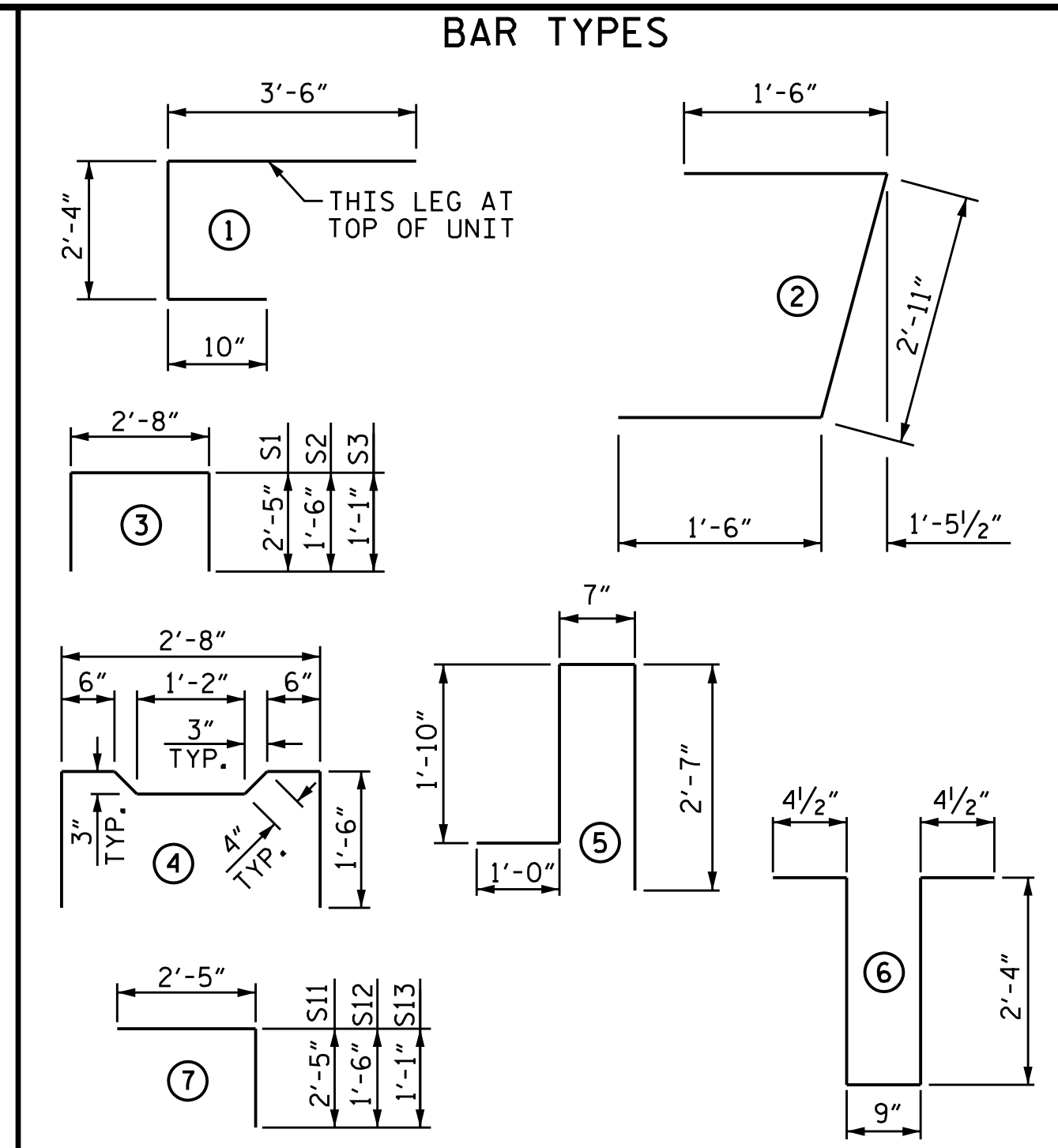
- FULLY BONDED STRANDS
- ◐ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- ◑ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- ◒ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE BOX BEAM UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST.

BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

CHAMFER DETAIL

SHOWING 6" VOID CHAMFER

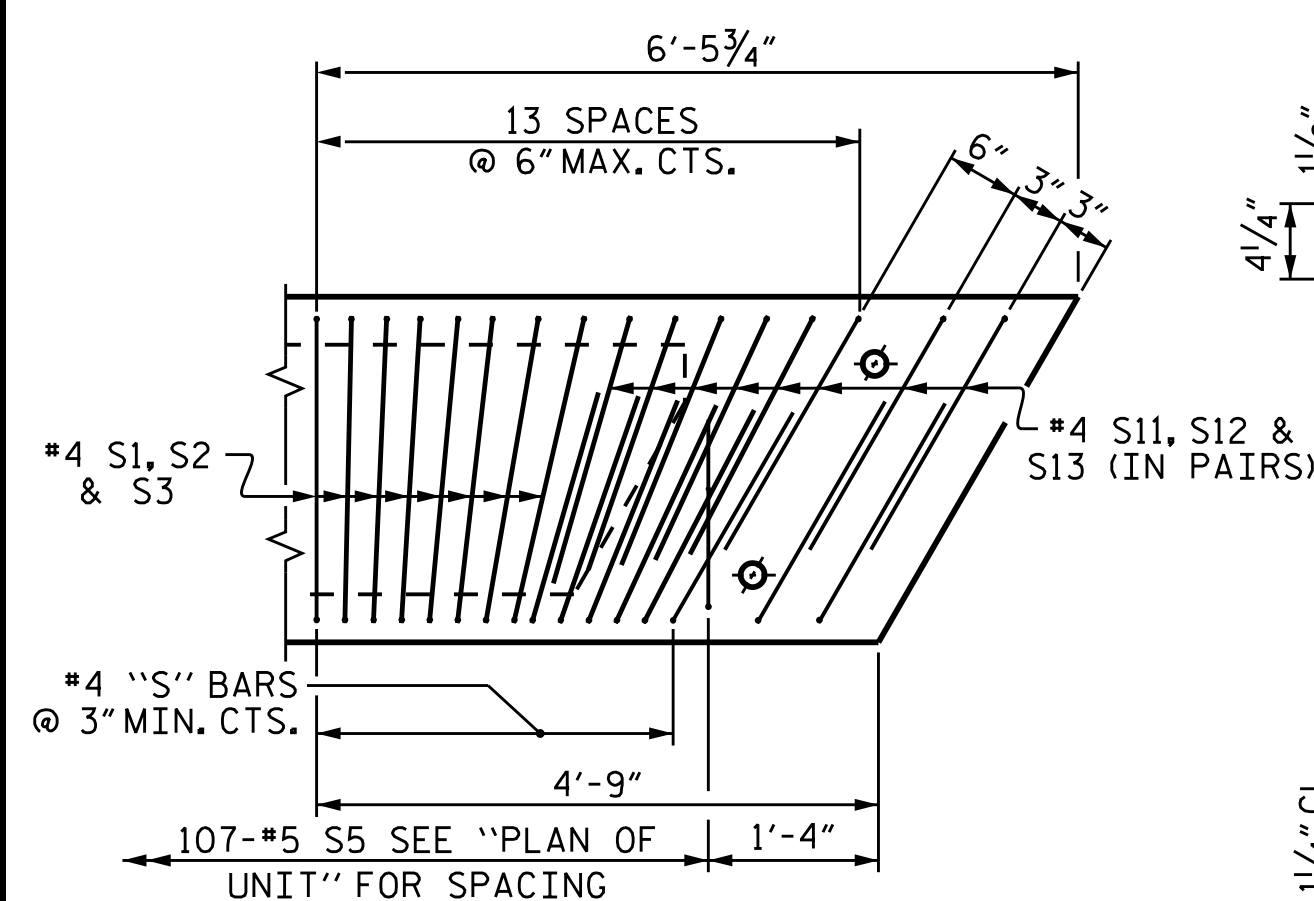
GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



ALL BAR DIMENSIONS ARE OUT TO OUT

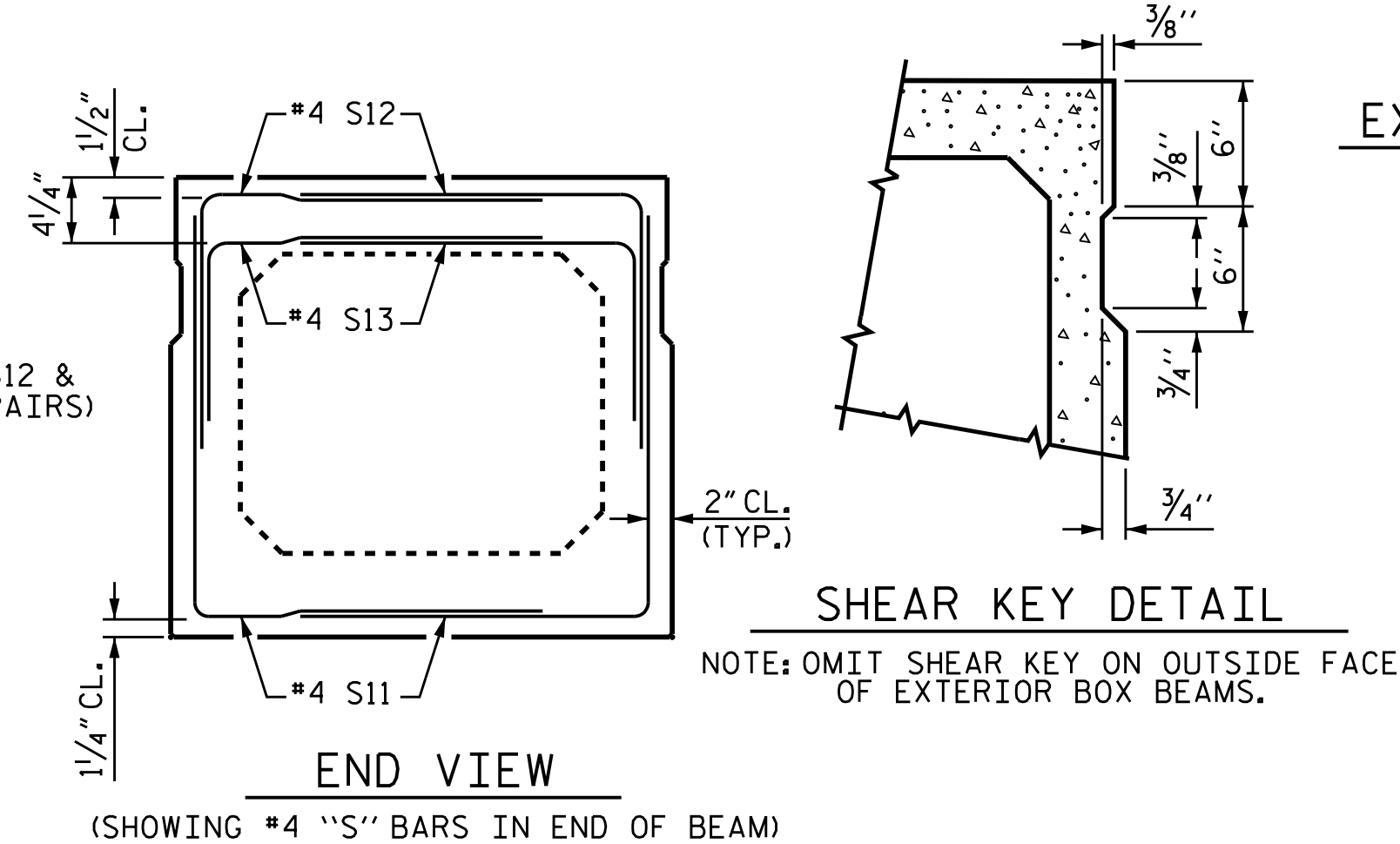
BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
			LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	6'-8"	70	6'-8"	70
A2	34	#4	5'-11"	134	5'-11"	134
B2	12	#5	40'-11"	512	40'-11"	512
K1	12	#4	6'-2"	49	6'-2"	49
K2	8	#4	2'-10"	15	2'-10"	15
S1	62	#4	7'-6"	311	7'-6"	311
S2	62	#4	5'-8"	235	5'-8"	235
S3	107	#4	4'-10"	345	4'-10"	345
S4	45	#4	5'-10"	175	5'-10"	175
S11	32	#4	4'-10"	103	4'-10"	103
S12	32	#4	3'-11"	84	3'-11"	84
S13	32	#4	3'-6"	75	3'-6"	75
* S5	107	#5	6'-0"	670		
REINFORCING STEEL			2108	LBS.	2108	LBS.
* EPOXY COATED REINF. STEEL			670	LBS.		
8000 P.S.I. CONCRETE			14.3	CU. YDS.	14.2	CU. YDS.
0.6" Ø L.R. STRANDS			No.	24	No.	24



DETAIL "B"

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. "B" BARS AND "A" BARS NOT SHOWN.

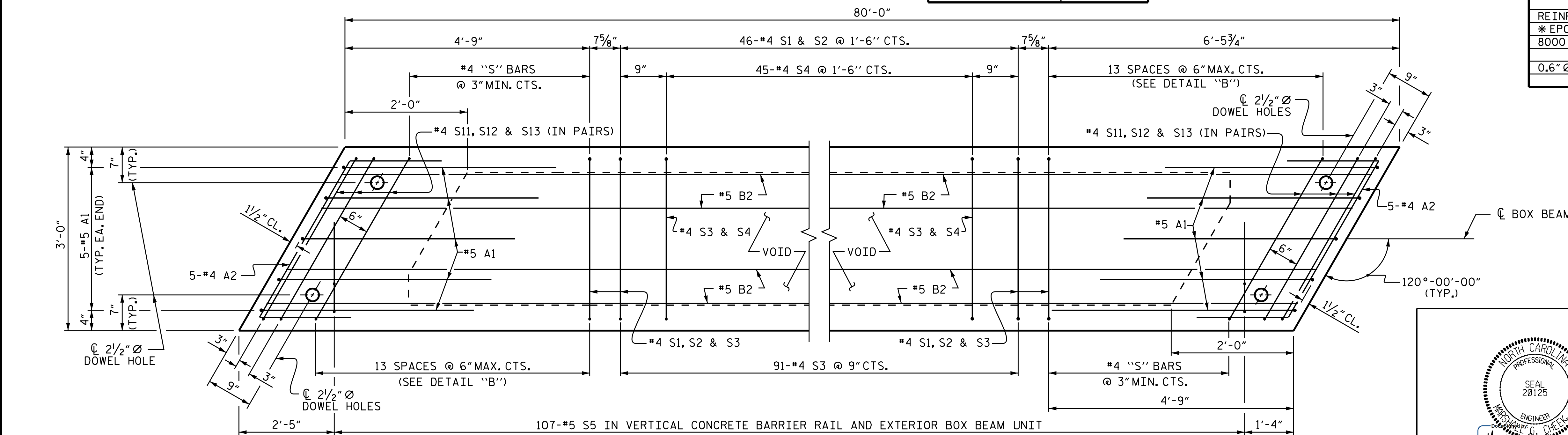


END VIEW

(SHOWING #4 "S" BARS IN END OF BEAM)

SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.



PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE "PLAN OF UNIT". FOR THREADED INSERTS, SEE "THREADED INSERT DETAIL". FOR REINFORCING STEEL IN DIAPHRAGMS, SEE "DOUBLE DIAPHRAGM DETAILS".

ASSEMBLED BY : NMW	DATE : 12/22
CHECKED BY : MGC	DATE : 1/23
DRAWN BY : DGE II/II	REV. 4/15
CHECKED BY : TMC II/II	MAA/TMG

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 SPAN B

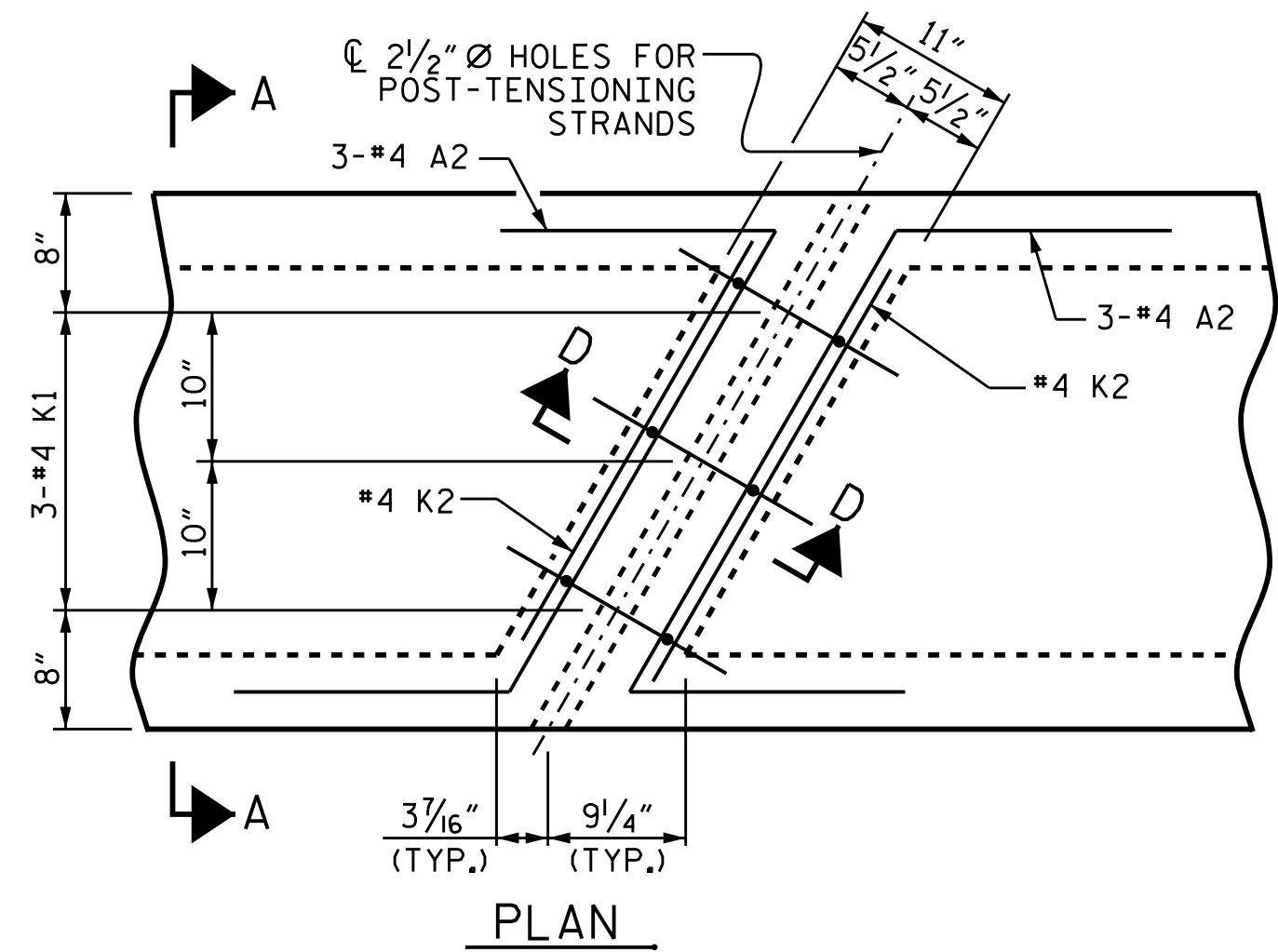
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

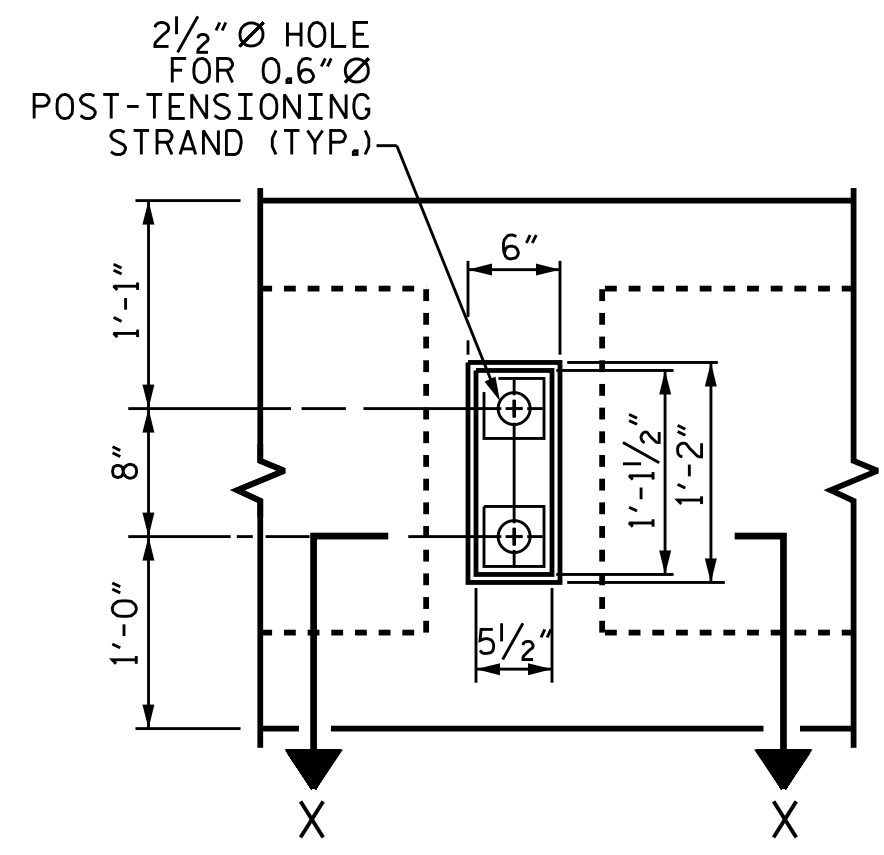
TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

PROJECT NO. BP11.R022
 SURRY COUNTY
 STATION: 13+93.00-L-
 SHEET 5 OF 7

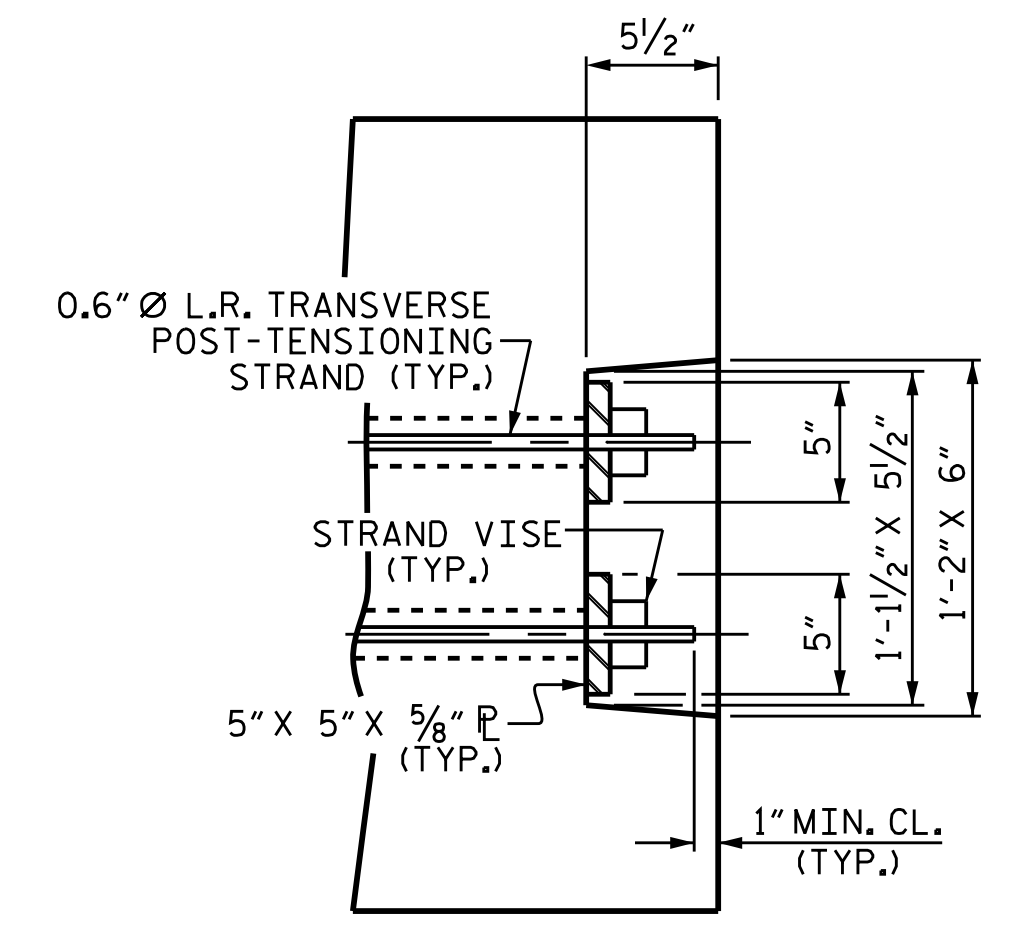
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-12
2			4			TOTAL SHEETS 24



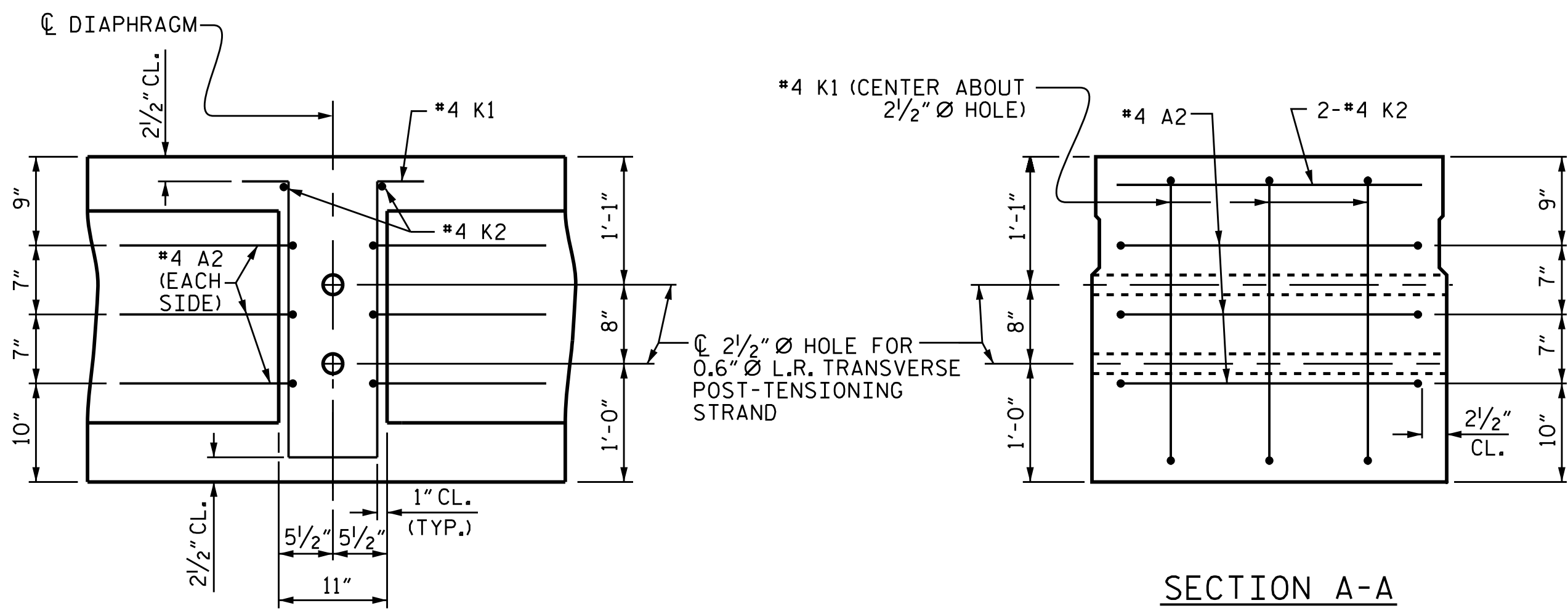
PLAN



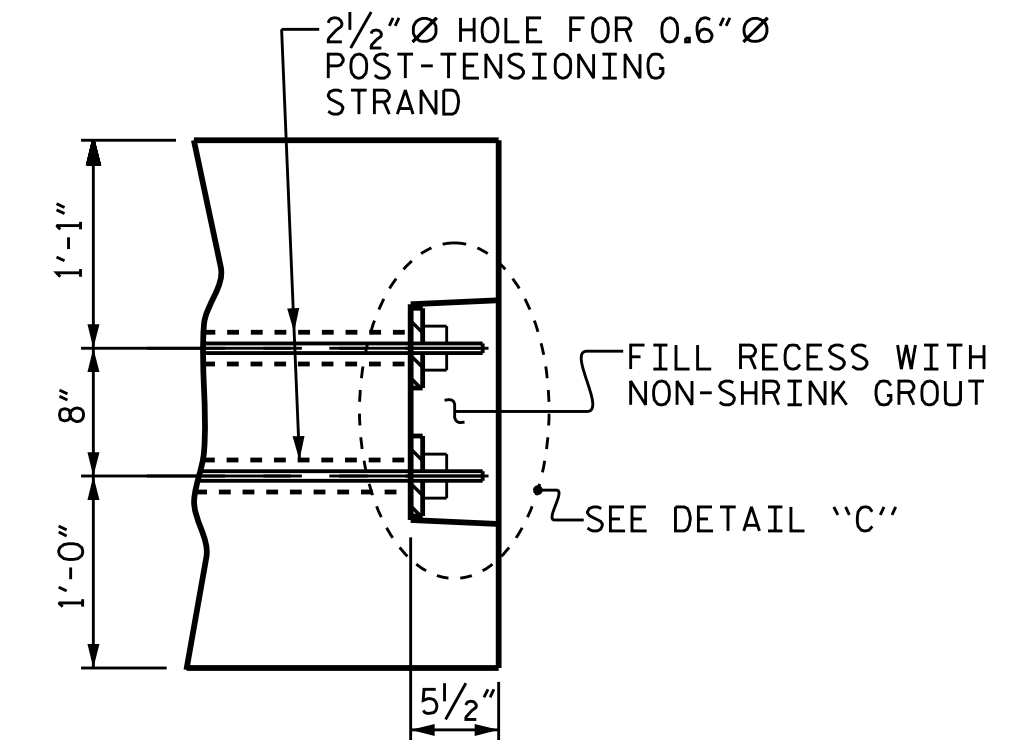
VIEW Y-Y
SHOWING ELEVATION VIEW OF GROUDED RECESS



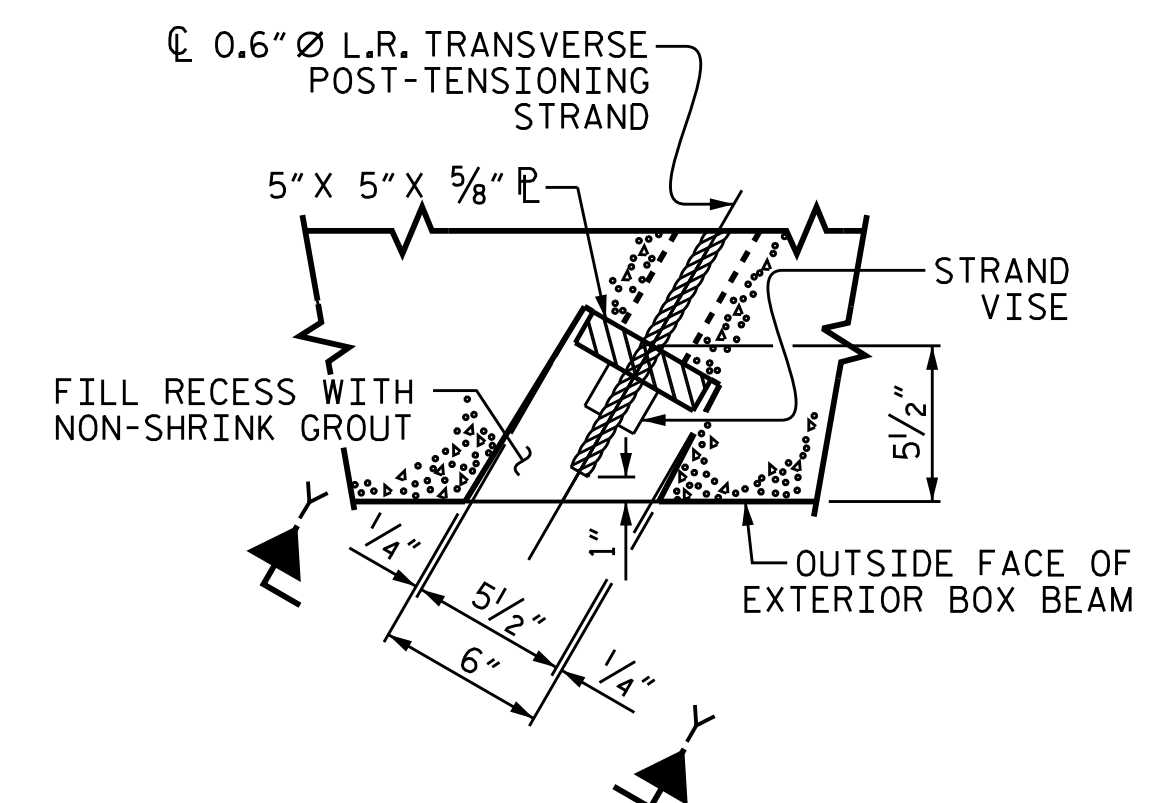
DETAIL "C"



SECTION A-A
VOIDS NOT SHOWN



PART SECTION AT RECESS

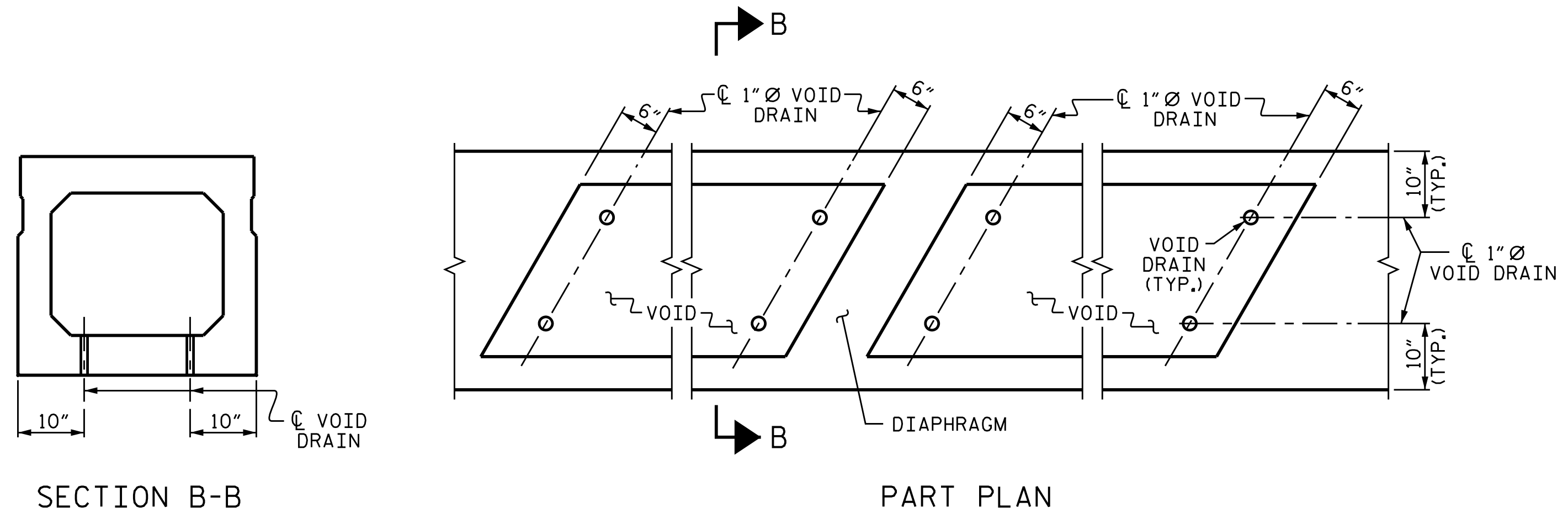


SECTION X-X
SHOWING PLAN VIEW OF GROUDED RECESS

DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.

GROUDED RECESS DETAIL AT
END OF POST-TENSIONED STRANDS
OF EXTERIOR BOX BEAM



VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

DEAD LOAD DEFLECTION AND CAMBER	
60' BOX BEAM UNIT	3'-0" x 2'-9"
	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3/16" ↓
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/16" ↓
FINAL CAMBER	3/8" ↑

** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER	
80' BOX BEAM UNIT	3'-0" x 2'-9"
	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 3/4" ↓
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/2" ↓
FINAL CAMBER	1 1/4" ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. BP11.R022
SURRY COUNTY
 STATION: 13+93.00-L-

SHEET 6 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

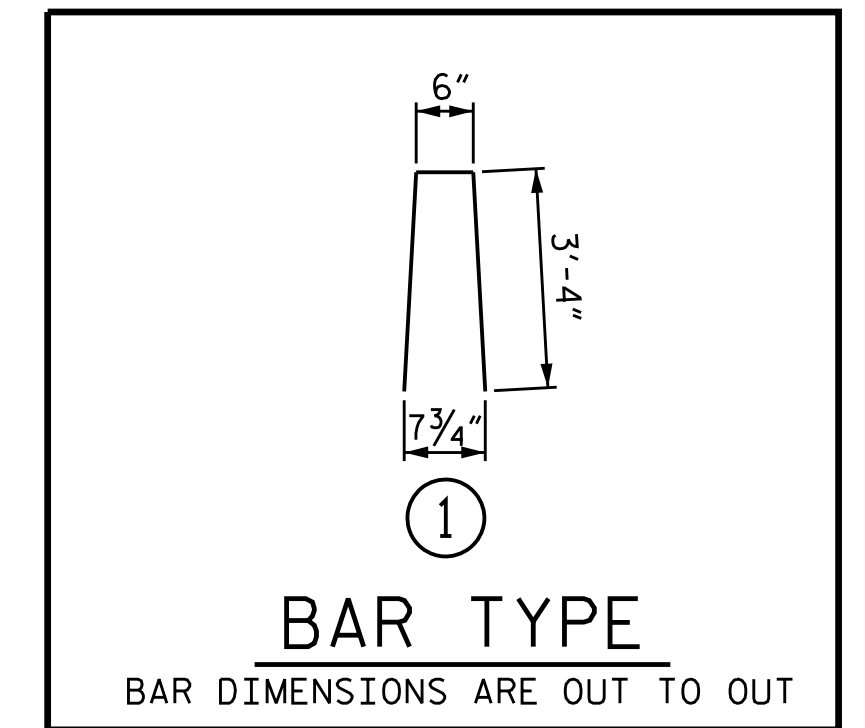
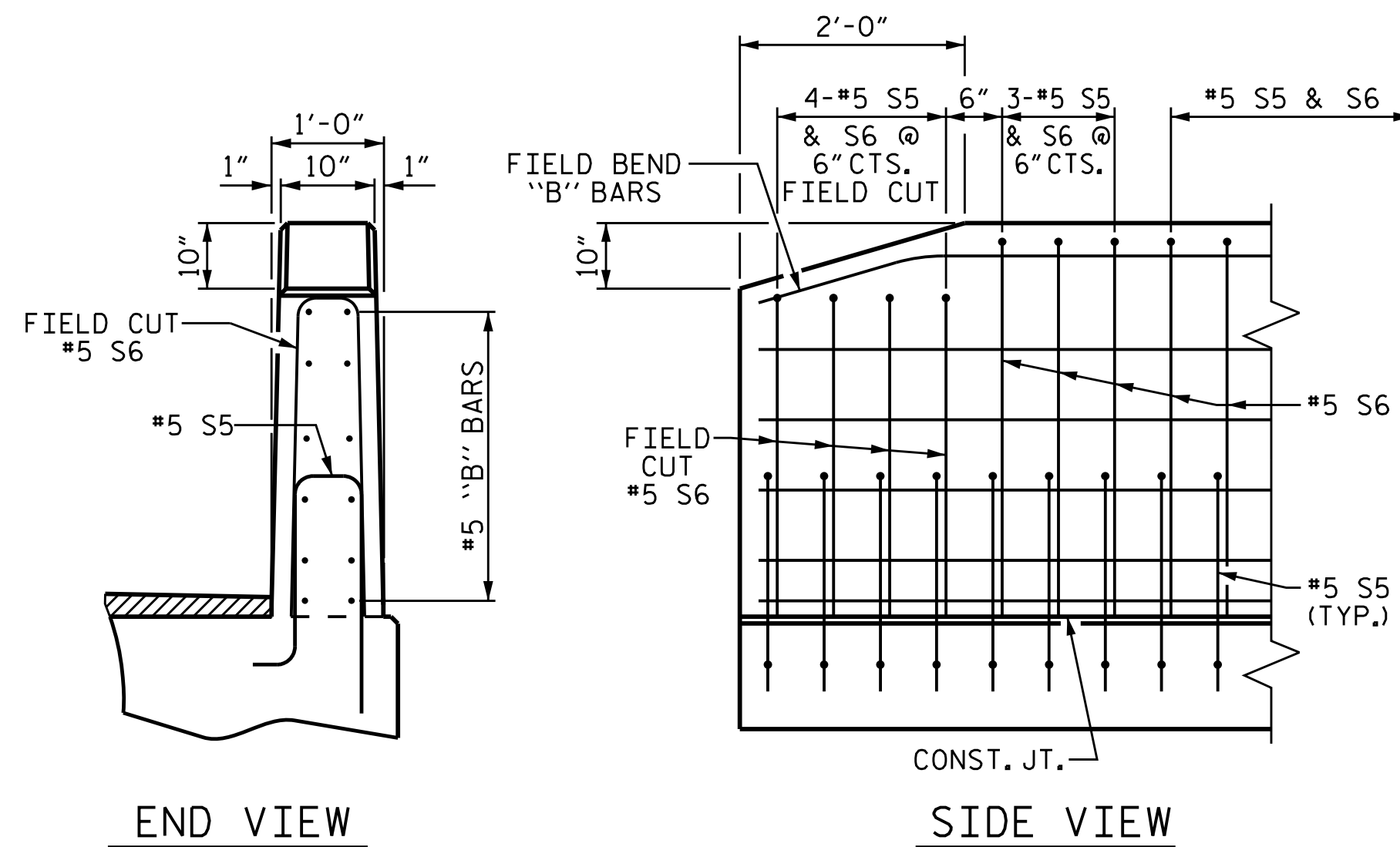
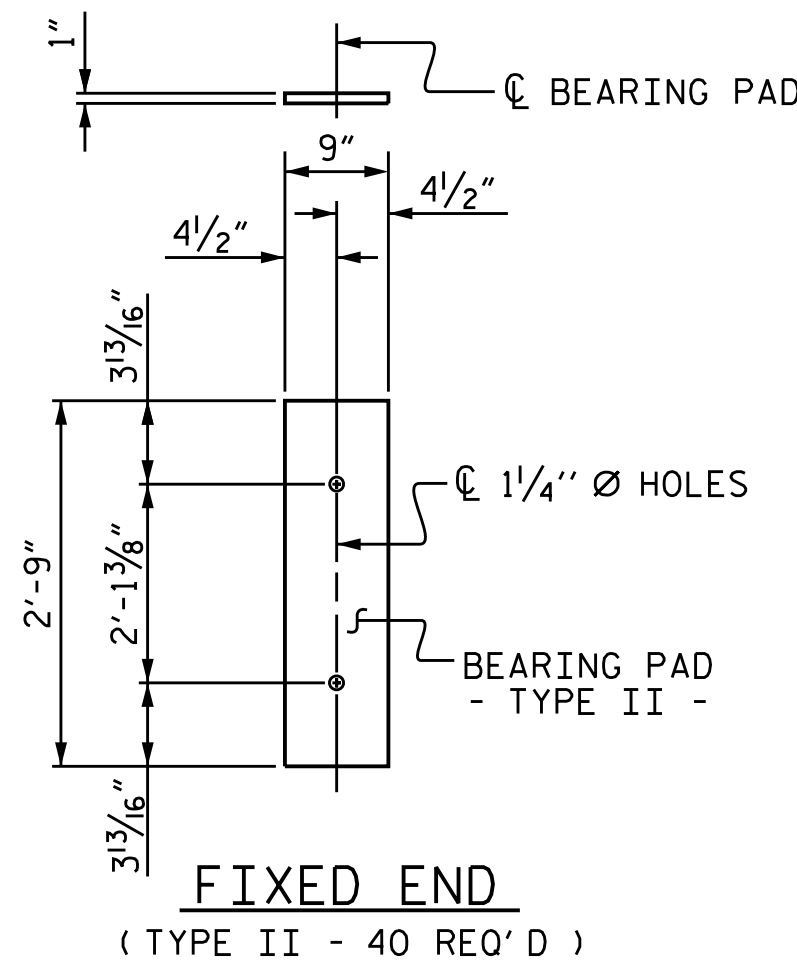
DOCUMENT NOT CONSIDERED FINAL
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TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
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 CORP. LICENSE NO.: C-0275

11/28/2023 | 9:26 AM EST

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : NMW	DATE : 12/22
CHECKED BY : MGC	DATE : 1/23
DRAWN BY : DGE II/II	REV. 8/14
CHECKED BY : TMC II/II	MAA/TMG



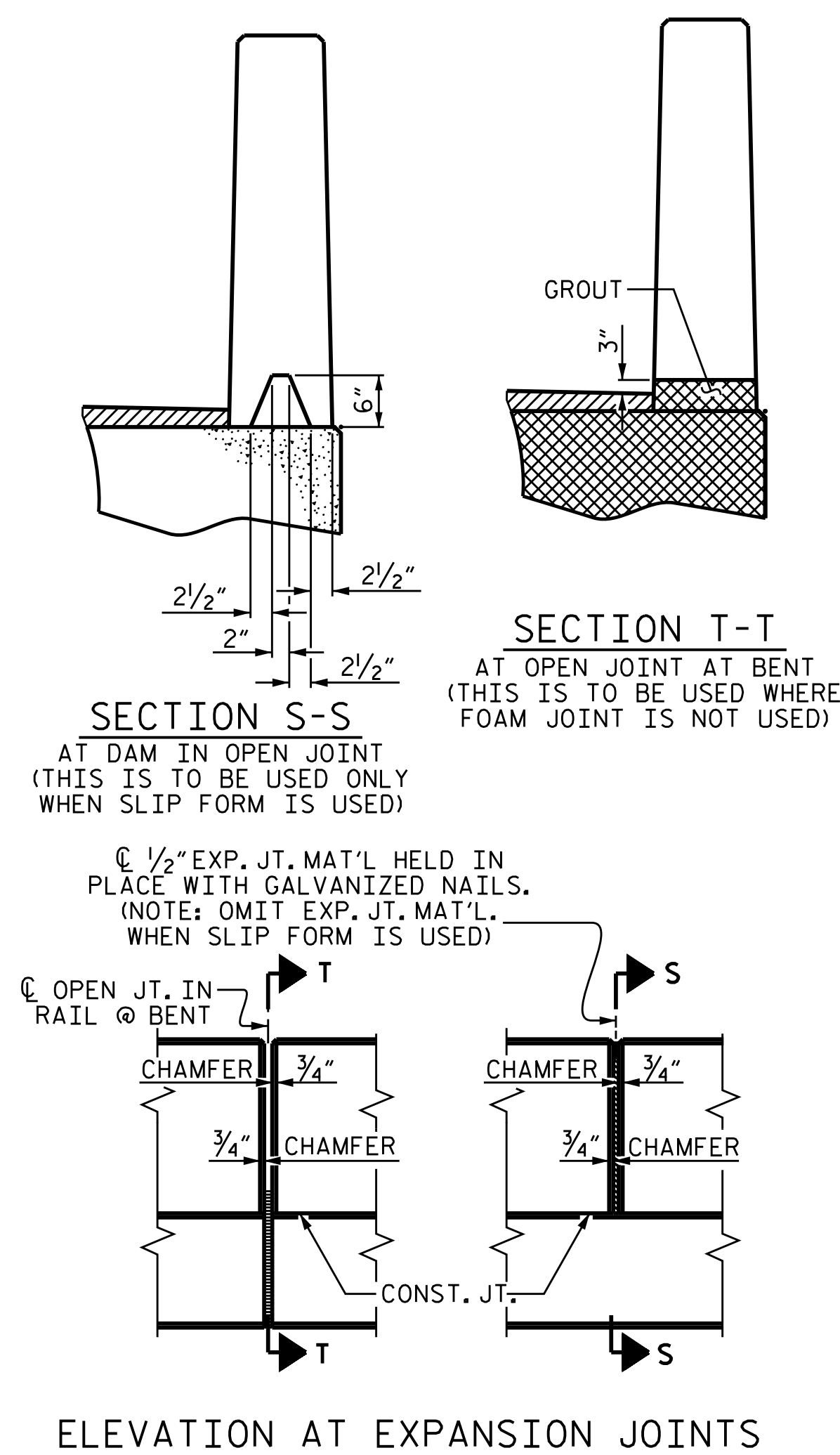
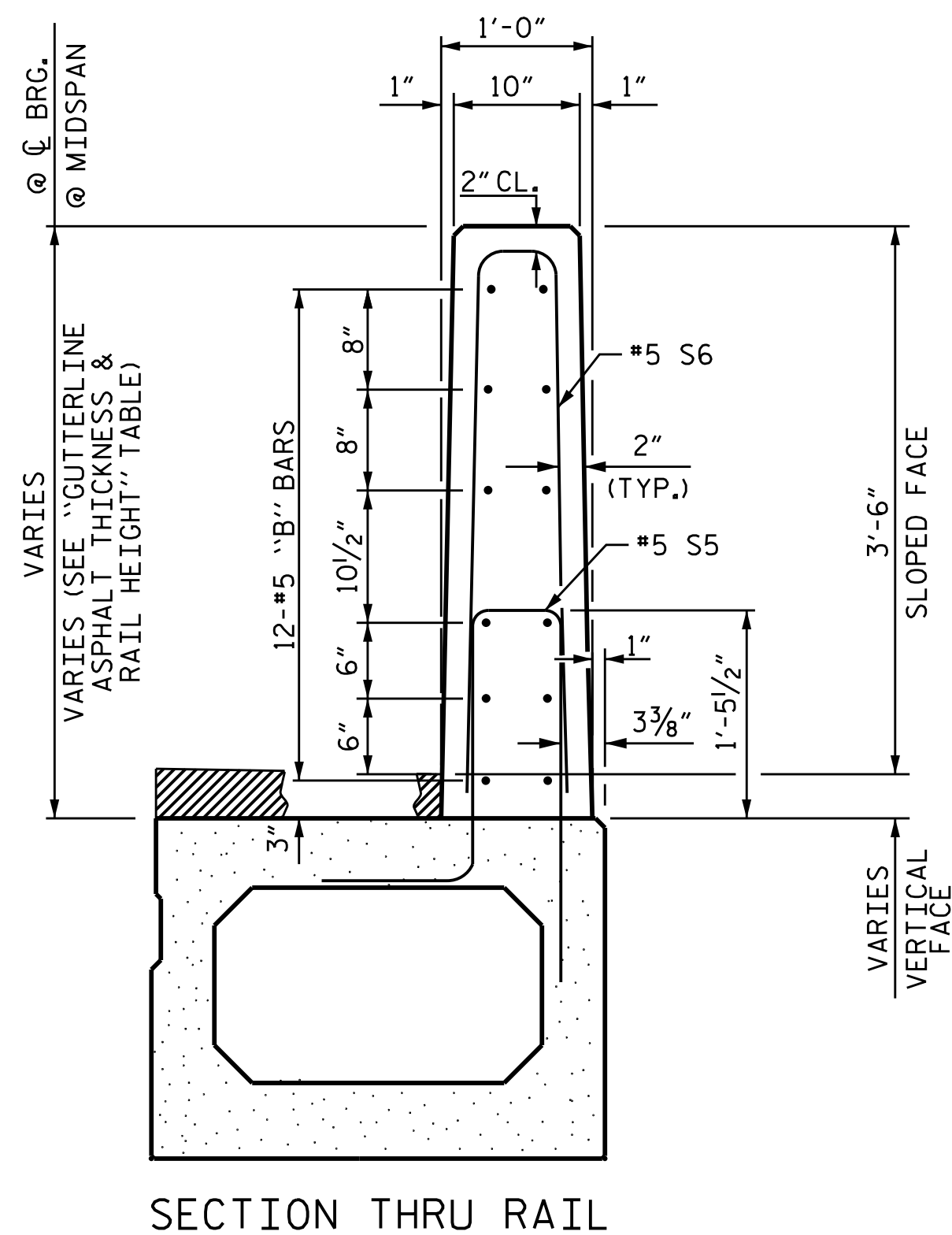
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

CONCRETE RELEASE STRENGTH	
UNIT	PSI
60' UNITS	5000
80' UNITS	6000

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL								
BAR	BARS PER PAIR OF EXTERIOR UNITS		TOTAL	SIZE	TYPE	LENGTH	WEIGHT	
	60' UNIT	80' UNIT						
* B7	144		144	#5	STR	11'-10"	1777	
* B8		144	144	#5	STR	15'-1"	2265	
* S6	160	214	374	#5	I	7'-2"	2796	
* EPOXY COATED REINFORCING STEEL							LBS.	6838
CLASS AA CONCRETE							CU.YDS.	36.4
TOTAL VERTICAL CONCRETE BARRIER RAIL							LN. FT.	280.29

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT				
SPAN	ASPHALT OVERLAY THICKNESS @ MID-SPAN		RAIL HEIGHT @ MID-SPAN	
	LEFT	RIGHT	LEFT	RIGHT
SPAN A	3"	2 1/2"	3'-9"	3'-8 1/2"
SPAN B	2 1/2"	2"	3'-8 1/2"	3'-8"



BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	60'-0"	120'-0"
INTERIOR B.B.	8	60'-0"	480'-0"
TOTAL	10		600'-0"

BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	80'-0"	160'-0"
INTERIOR B.B.	8	80'-0"	640'-0"
TOTAL	10		800'-0"

PROJECT NO. BP11.R022
SURRY COUNTY
 STATION: 13+93.00-L-

SHEET 7 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

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 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-14
2			4			TOTAL SHEETS 24

ASSEMBLED BY : NMW	DATE : 12/22
CHECKED BY : MGC	DATE : 1/23
DRAWN BY : DGE 10/11	REV. 5/18
CHECKED BY : TMC 11/11	MAA/THC

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

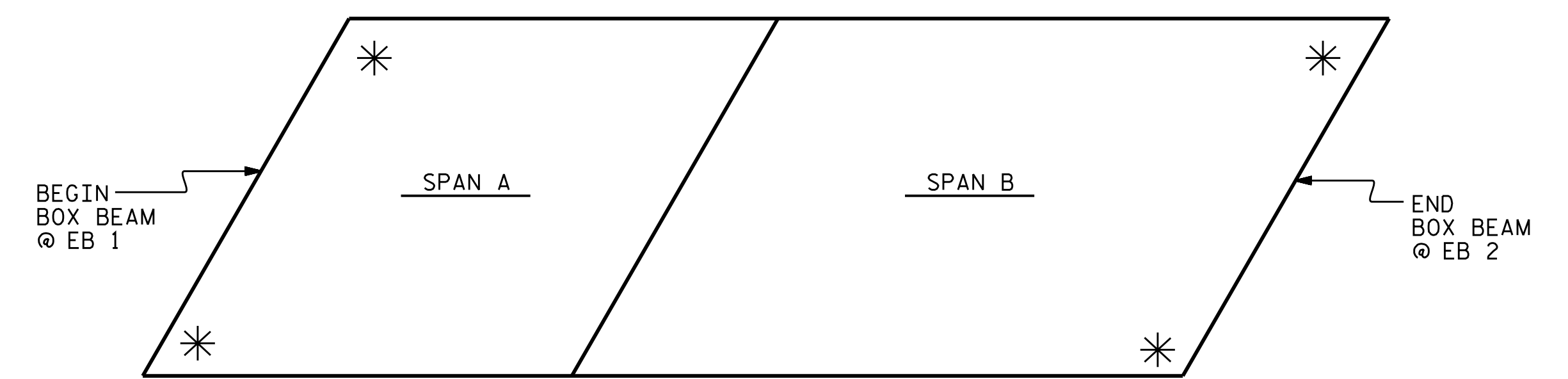
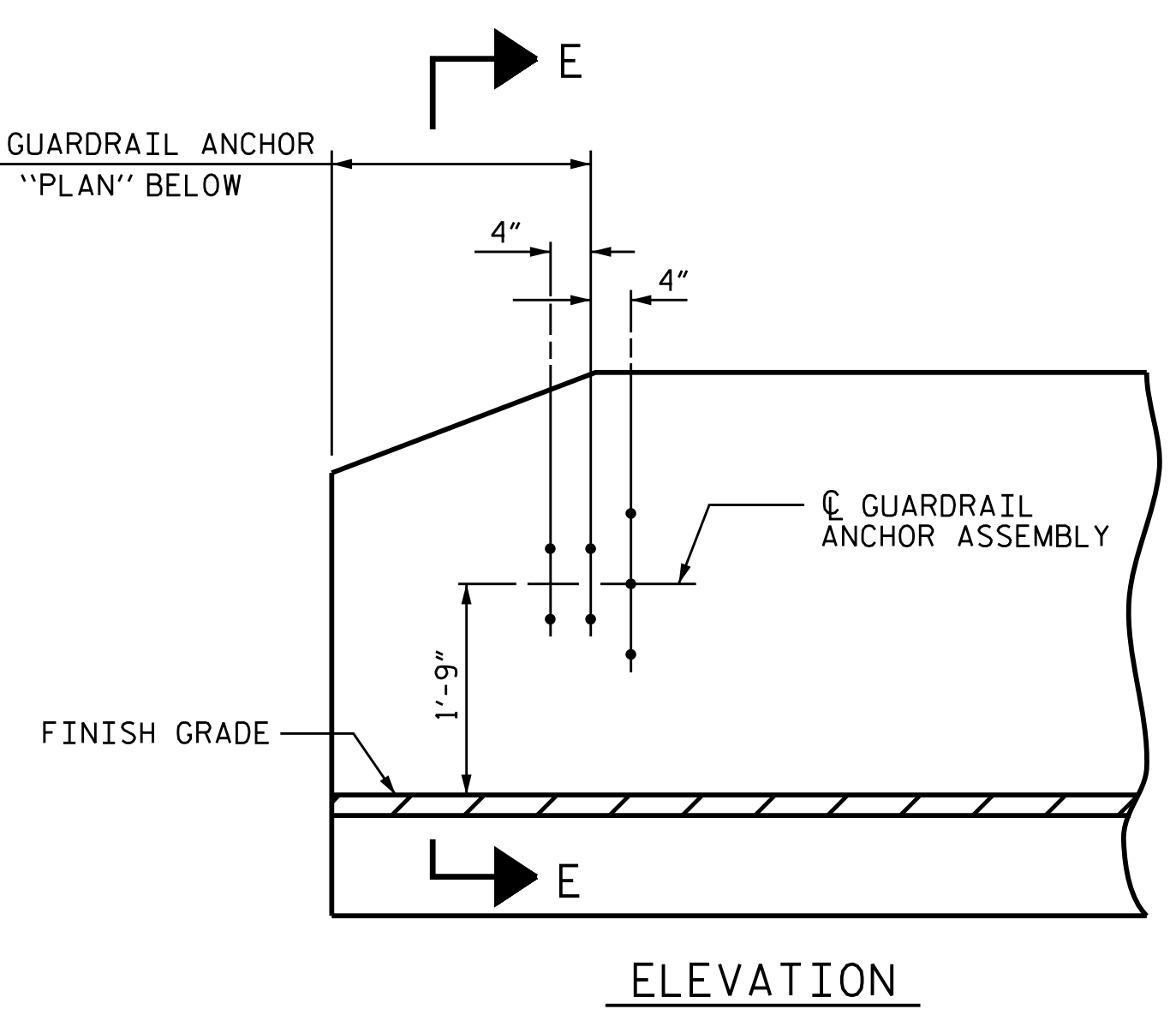
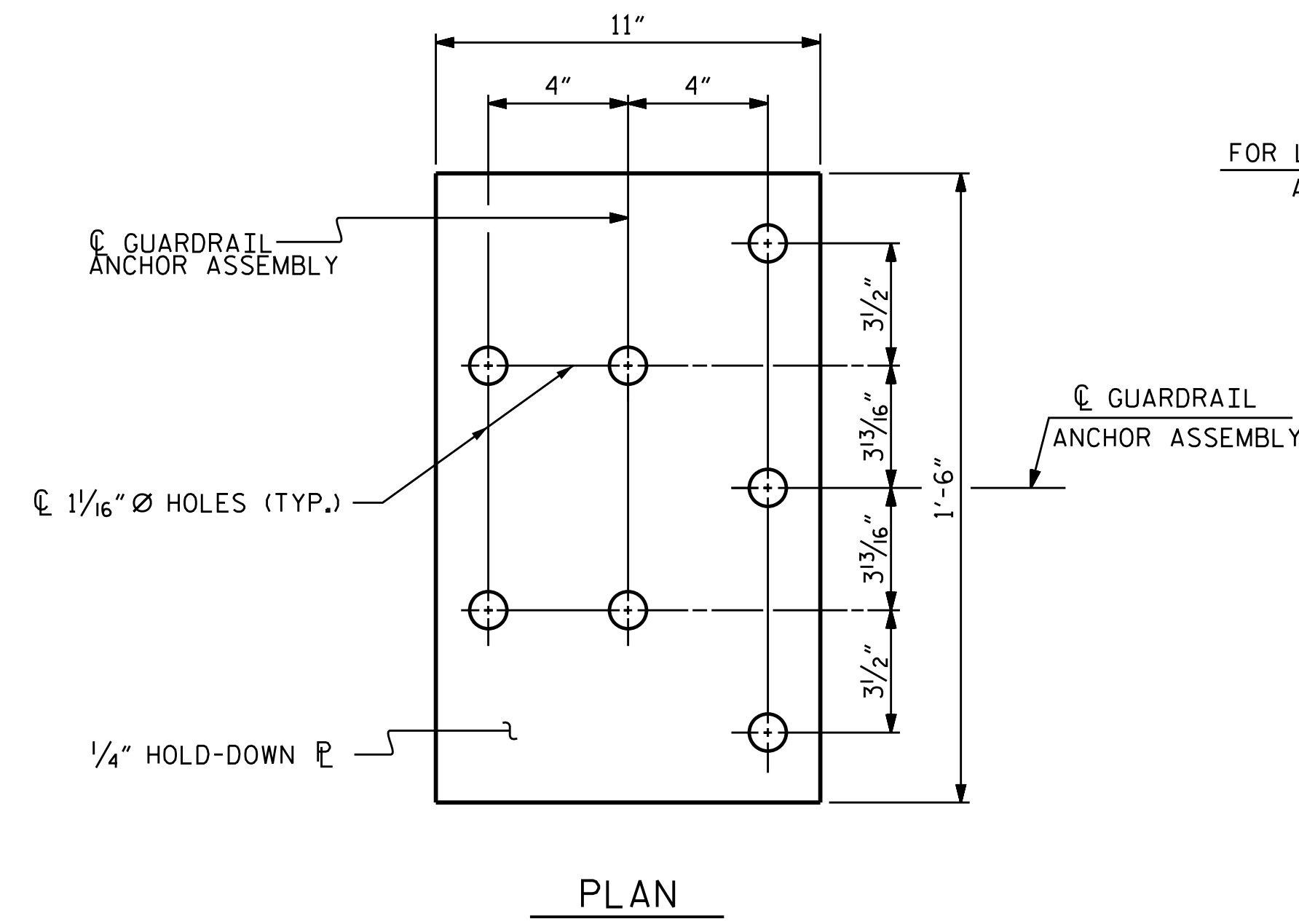
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

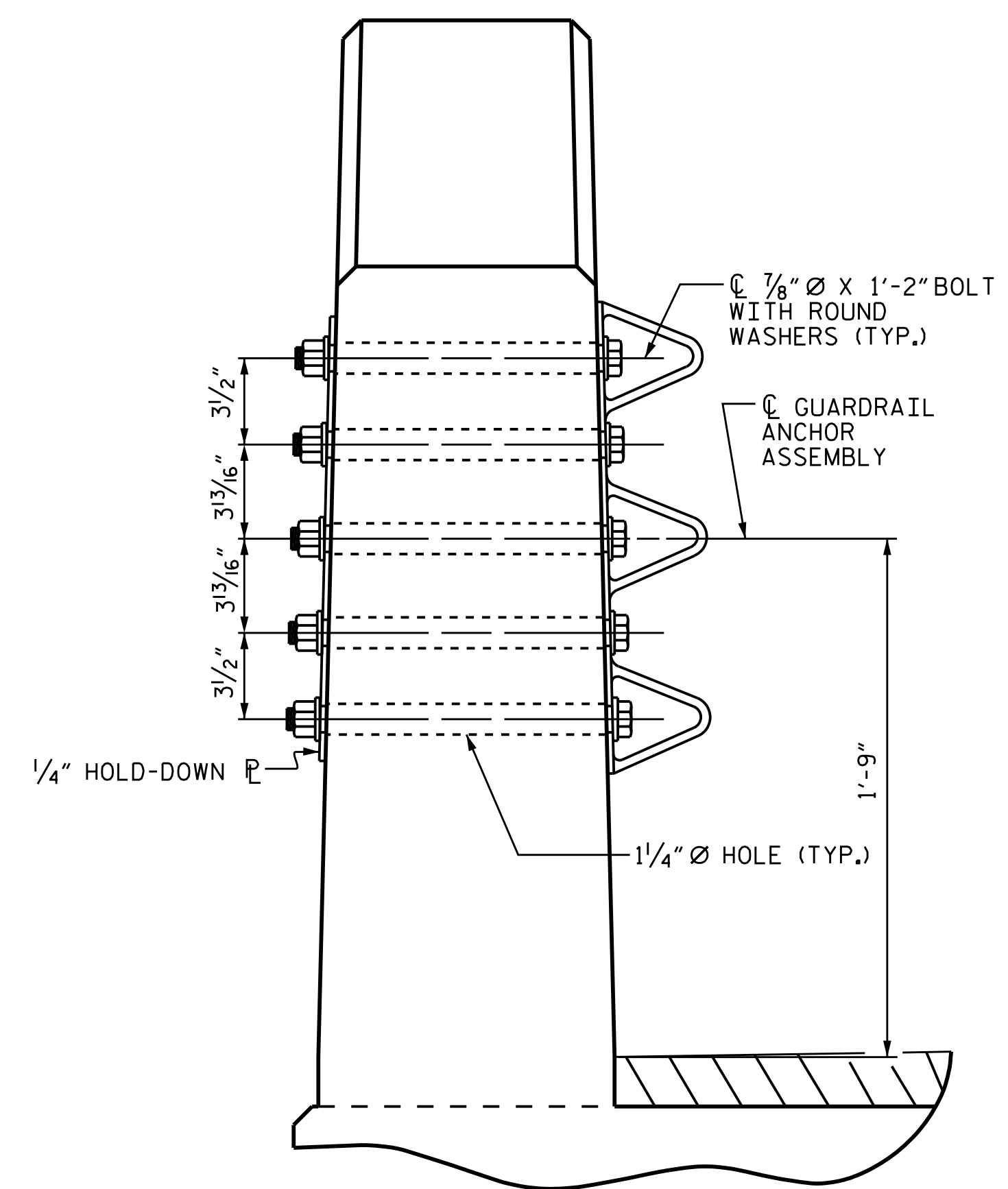
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

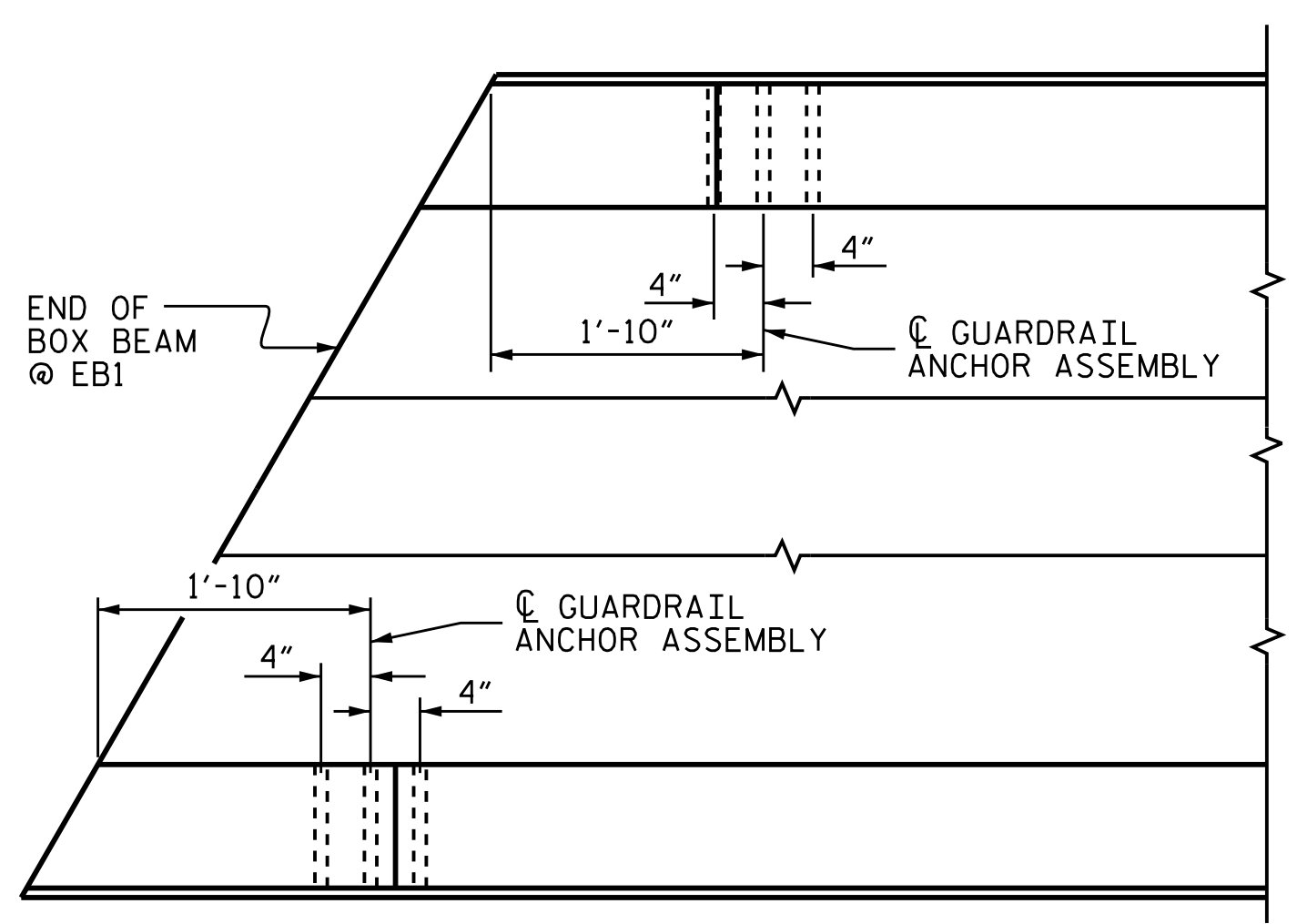
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SKETCH SHOWING POINTS OF ATTACHMENT
* LOCATION OF GUARDRAIL ATTACHMENT



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN
LOCATION OF ANCHORS FOR GUARDRAIL
END BENT 1 SHOWN, END BENT 2 SIMILAR.

PROJECT NO. BP11.R022
SURRY COUNTY
 STATION: 13+93.00-L-

ASSEMBLED BY : NMW	DATE : 12/22
CHECKED BY : MGC	DATE : 1/23
DRAWN BY : MAA 5/10	REV. 1/15 MAA/TMG
CHECKED BY : GM 5/10	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

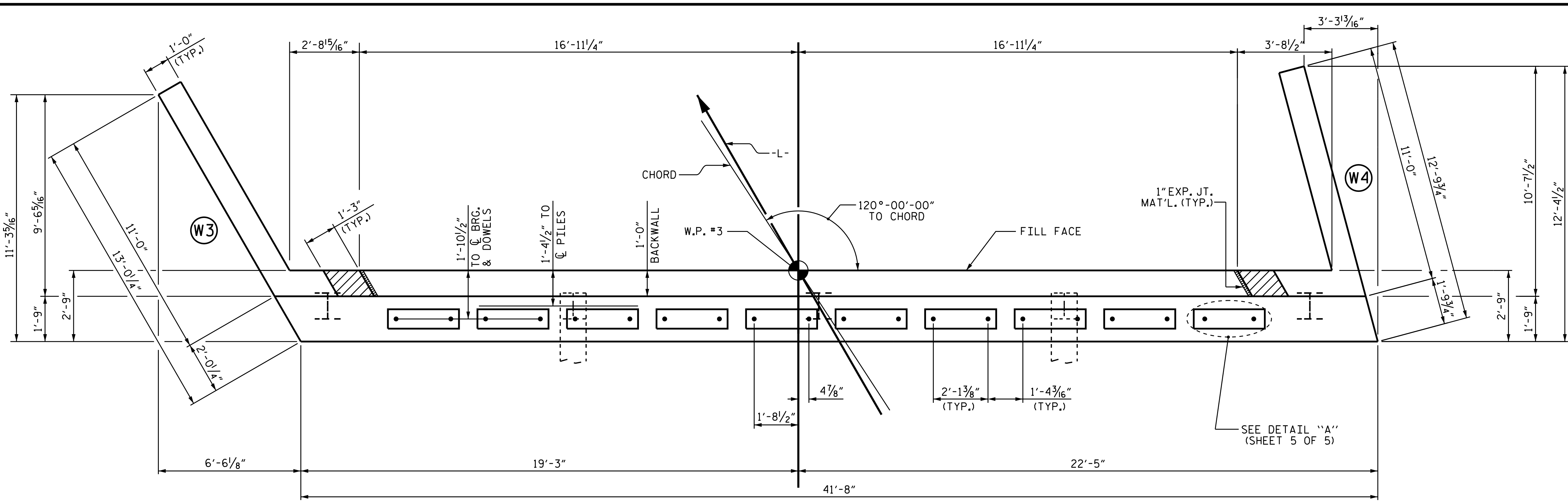
STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR VERTICAL CONCRETE
 BARRIER RAIL

11/28/2023 | 9:26 AM EST

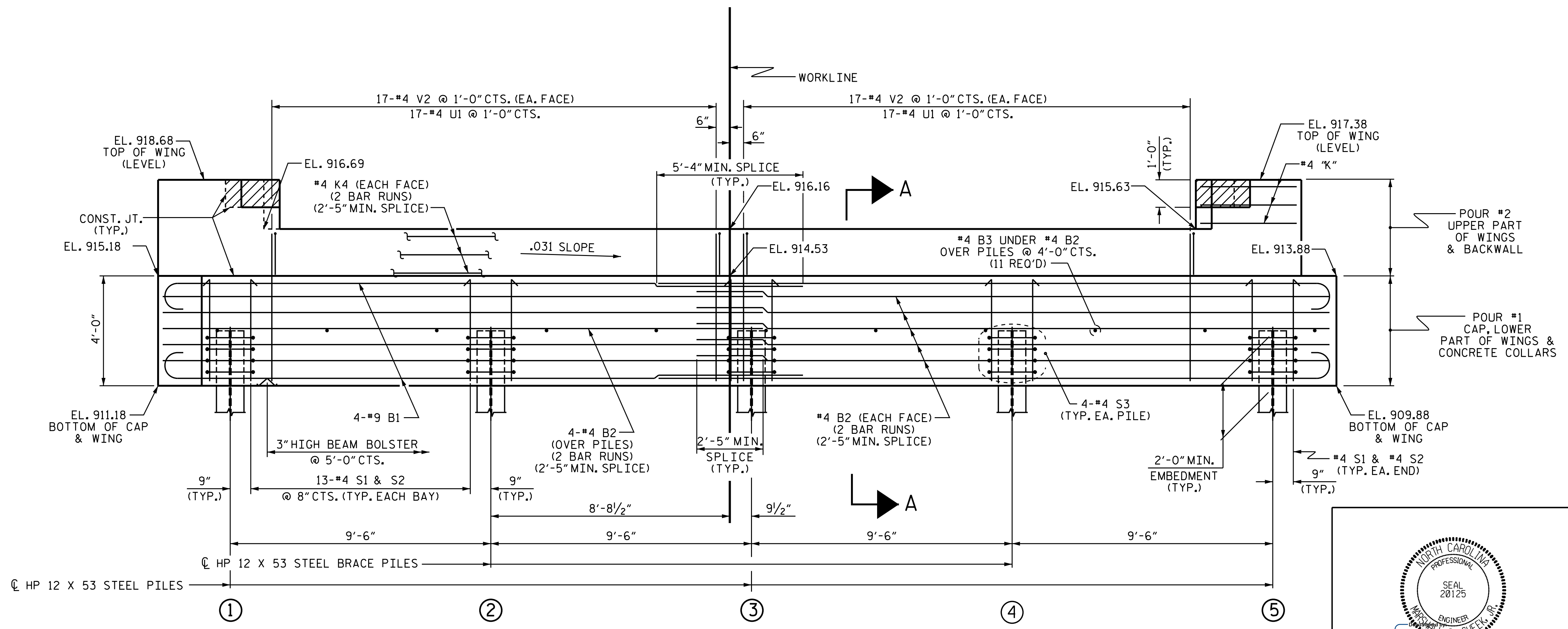
DOCUMENT NOT CONSIDERED FINAL
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TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-15
1			3			TOTAL SHEETS 24
2			4			



PLAN



ELEVATION

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
 FOR PILE SPLICE DETAILS, SEE SHEET 5 OF 5.
 FOR WING DETAILS, SEE SHEET 4 OF 5.

TOP OF PILE ELEVATIONS	
①	913.14
②	912.84
③	912.55
④	912.26
⑤	911.96

PROJECT NO. BP11.R022
 SURRY COUNTY
 STATION: 13+93.00-L-
 SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ENGINEER
 M. STEVEN BEEBE, JR.
 11/28/2023 | 9:26 AM EST

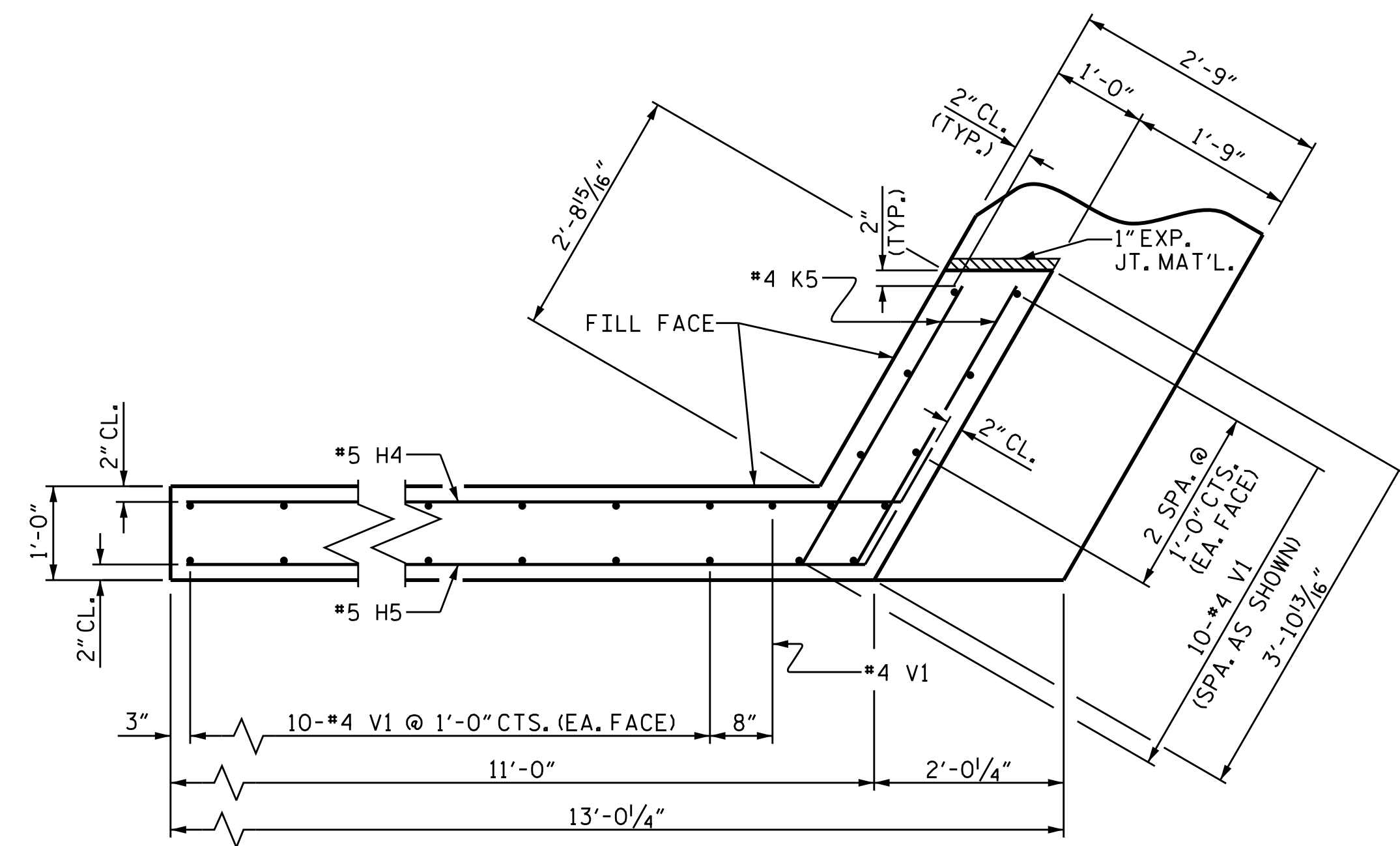
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 CORP. LICENSE NO.: C-0275

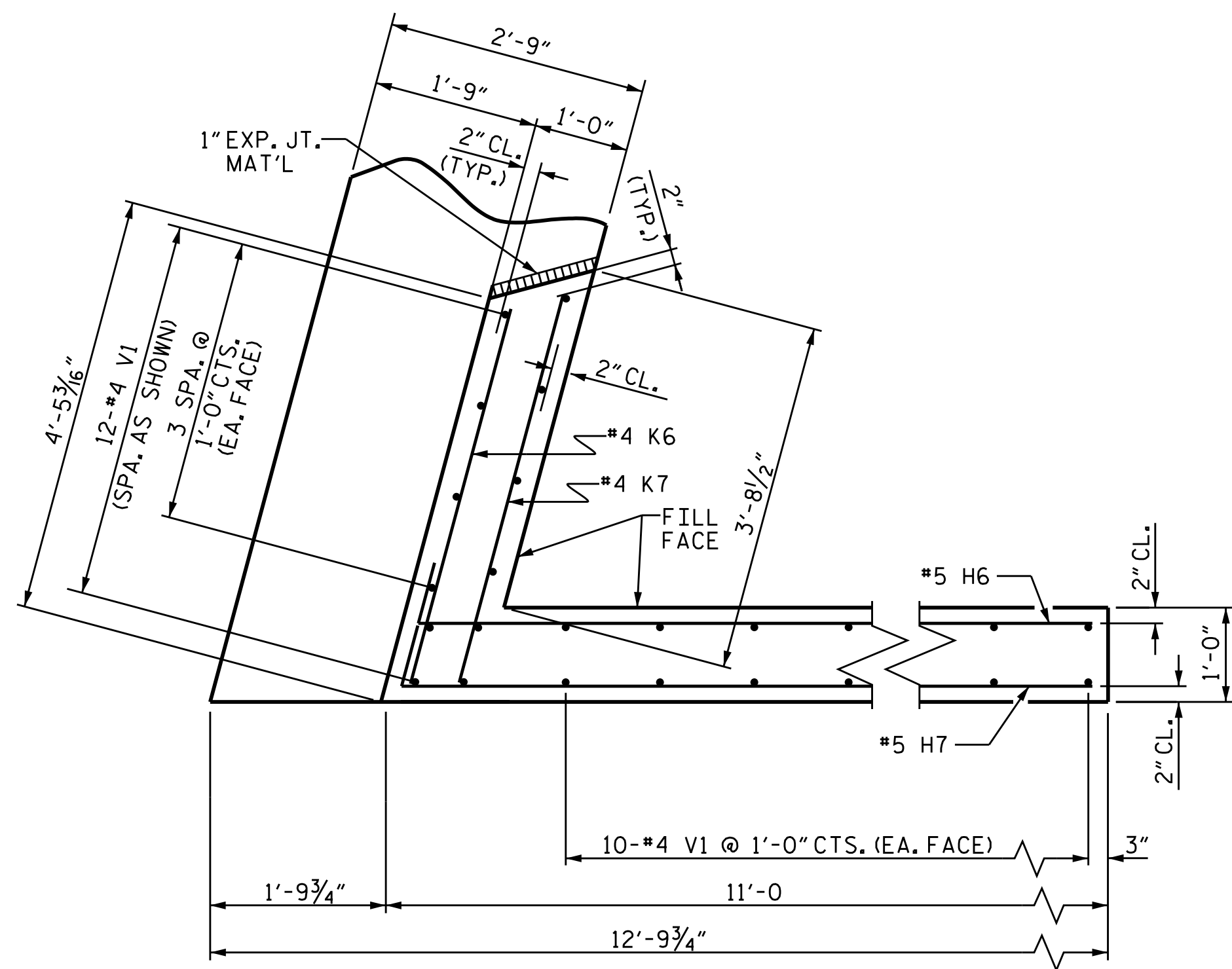
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-17
2			4			24

ASSEMBLED BY : NMW	DATE : 12/22
CHECKED BY : MGC	DATE : 1/23
DRAWN BY : WJH 12/11	REV. 4/15
CHECKED BY : AAC 12/11	MAA/TMG

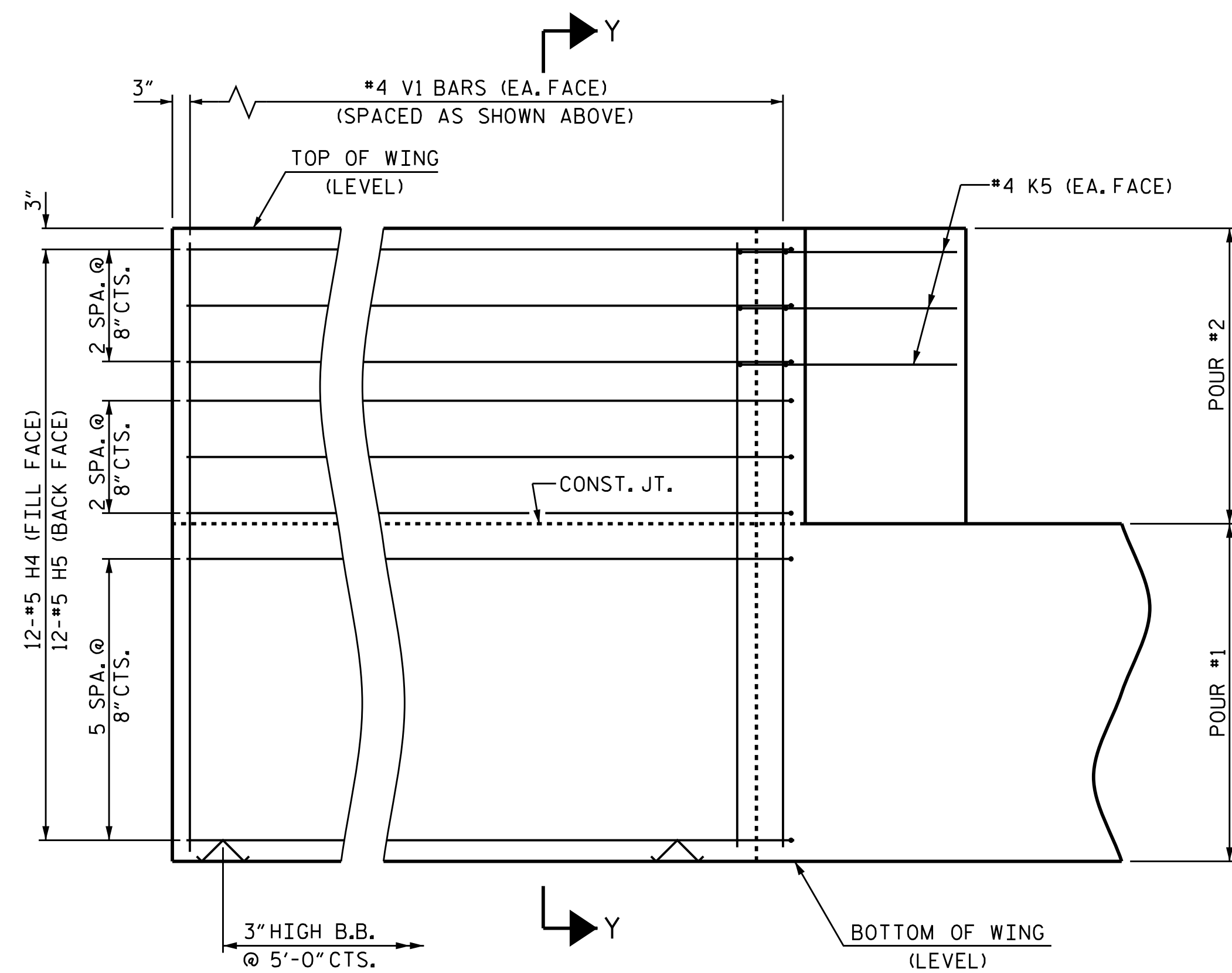
WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 5 OF 5.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 5 OF 5.



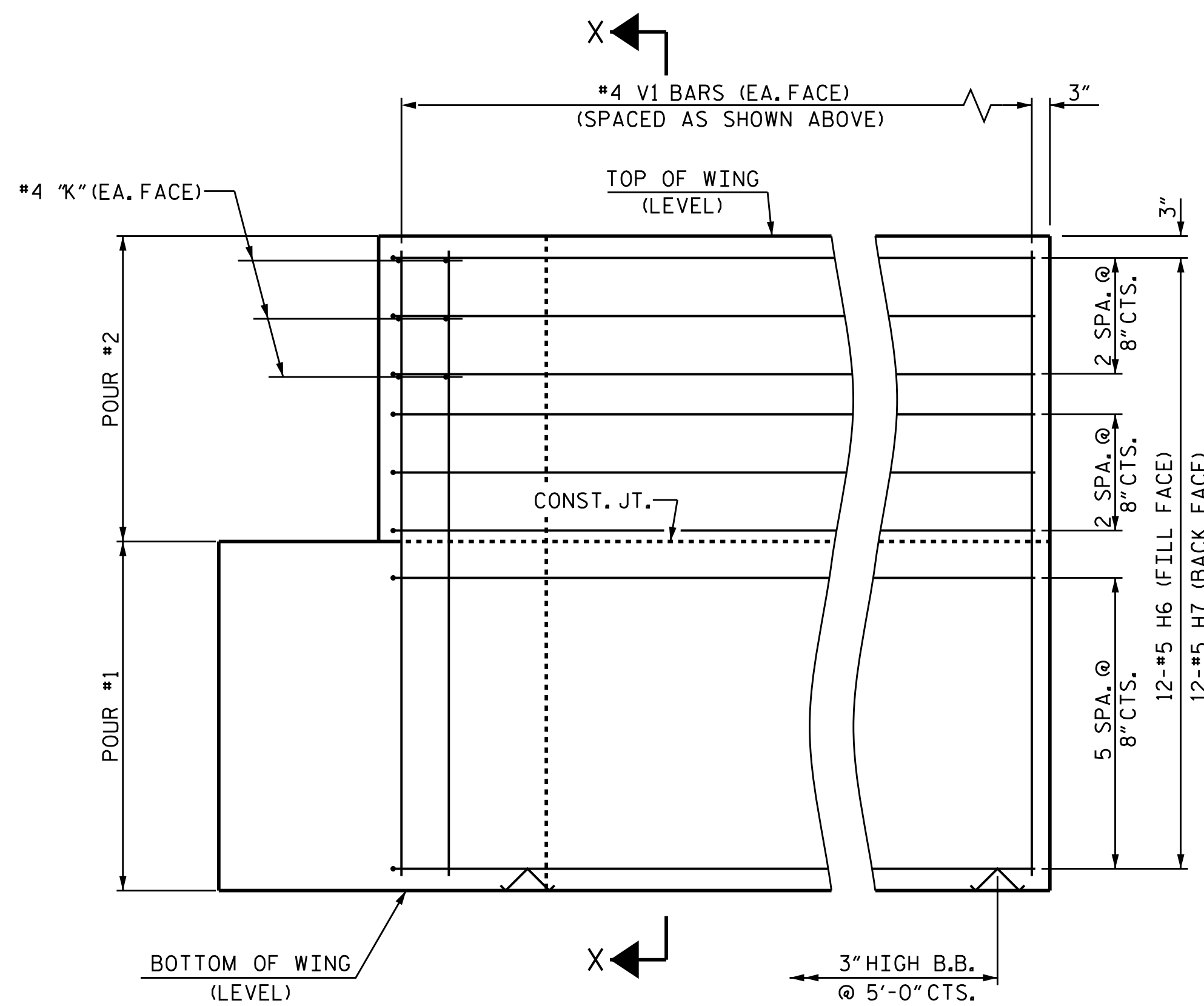
PLAN OF WING (W3)



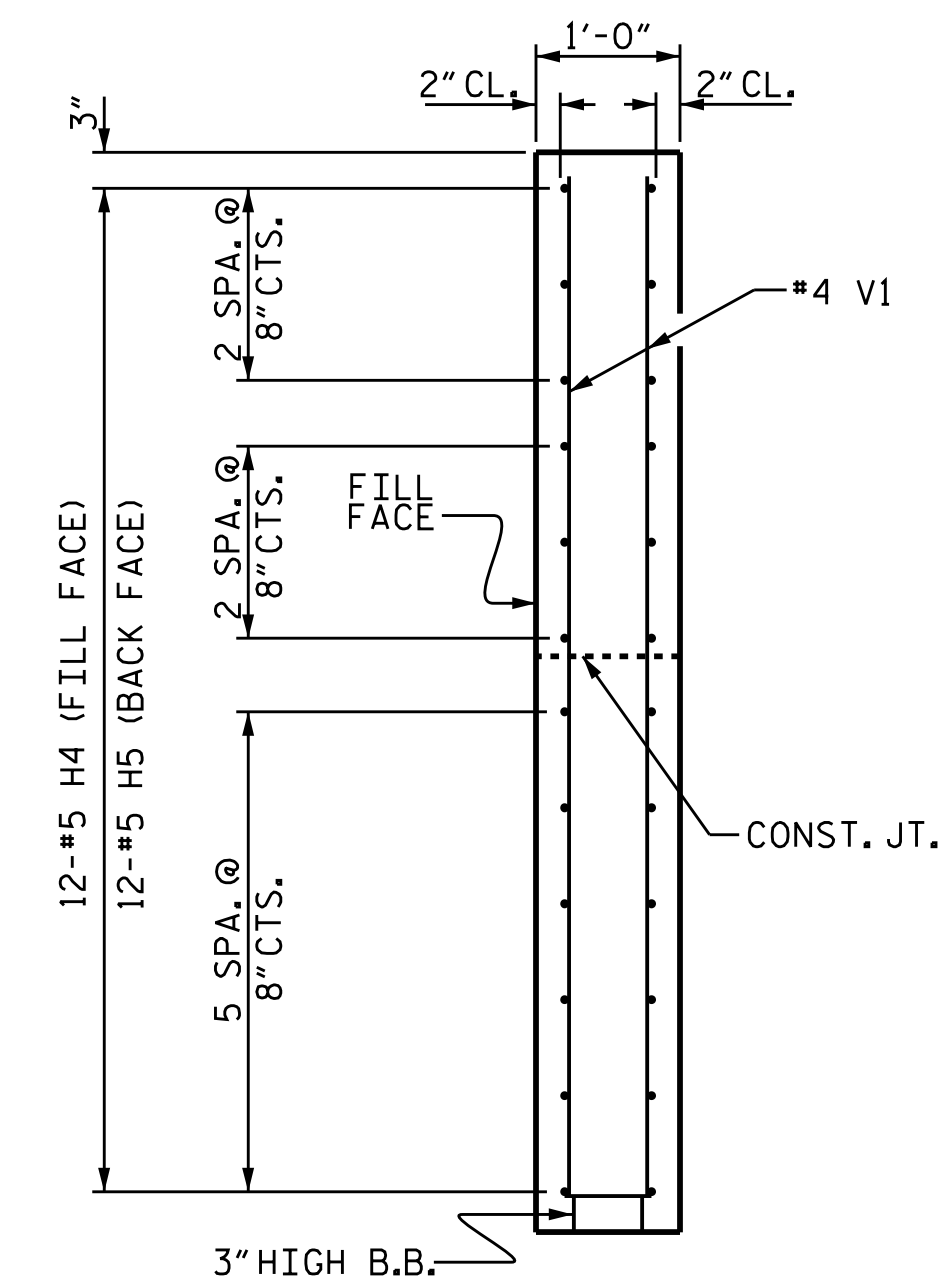
PLAN OF WING (W4)



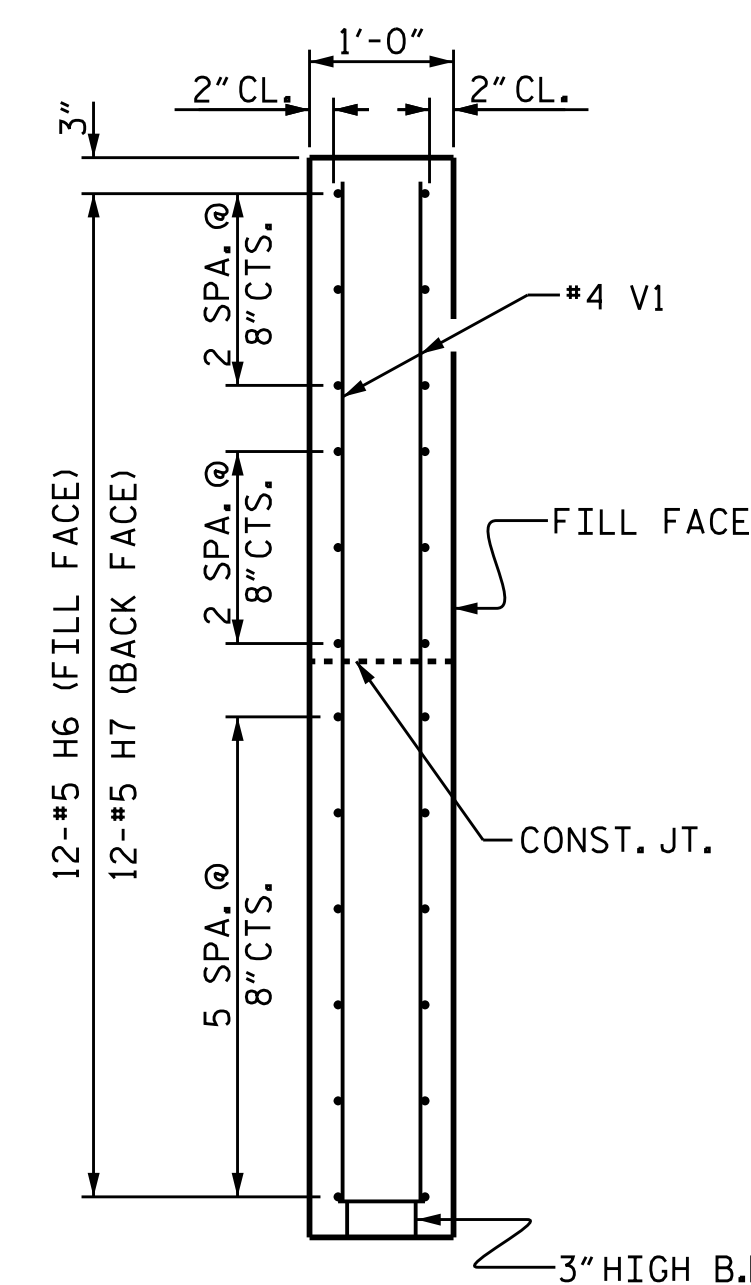
ELEVATION OF WING (W3)



ELEVATION OF WING (W4)



SECTION Y-Y



SECTION X-X

PROJECT NO. BP11.R022
 SURRY COUNTY
 STATION: 13+93.00-L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

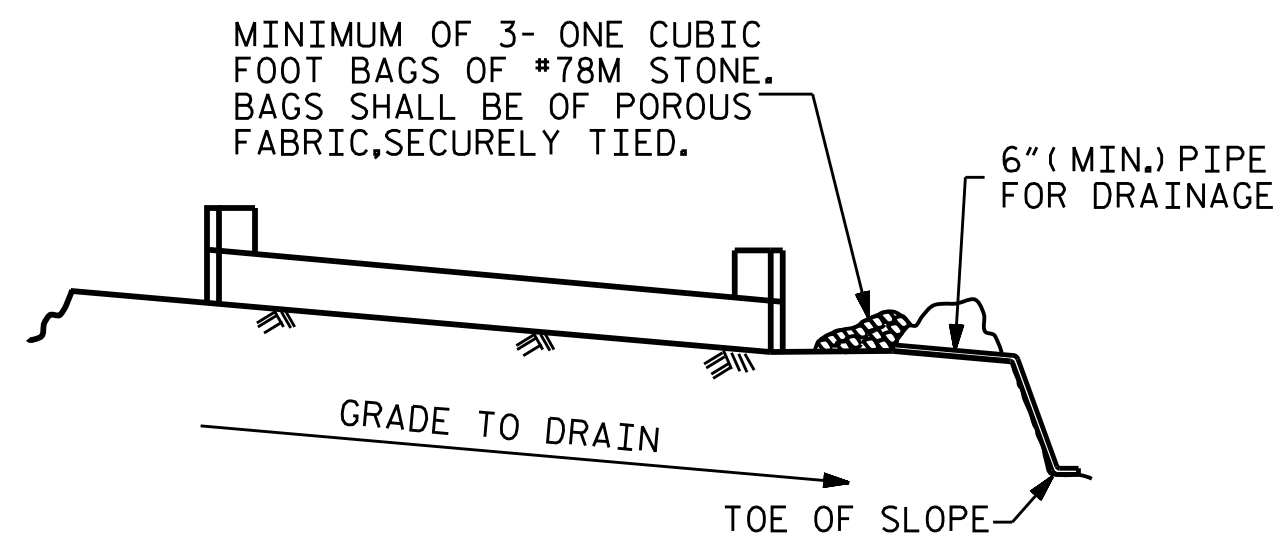
PROFESSIONAL ENGINEER
 SEAL 20125
 M. STEPHEN BERRY, JR.
 11/28/2023 | 9:26 AM EST

TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : NMW	DATE : 12/22
CHECKED BY : MGC	DATE : 1/23
DRAWN BY : WJH 12/11	REV. 4/15
CHECKED BY : AAC 12/11	MAA/TMG

WING DETAILS

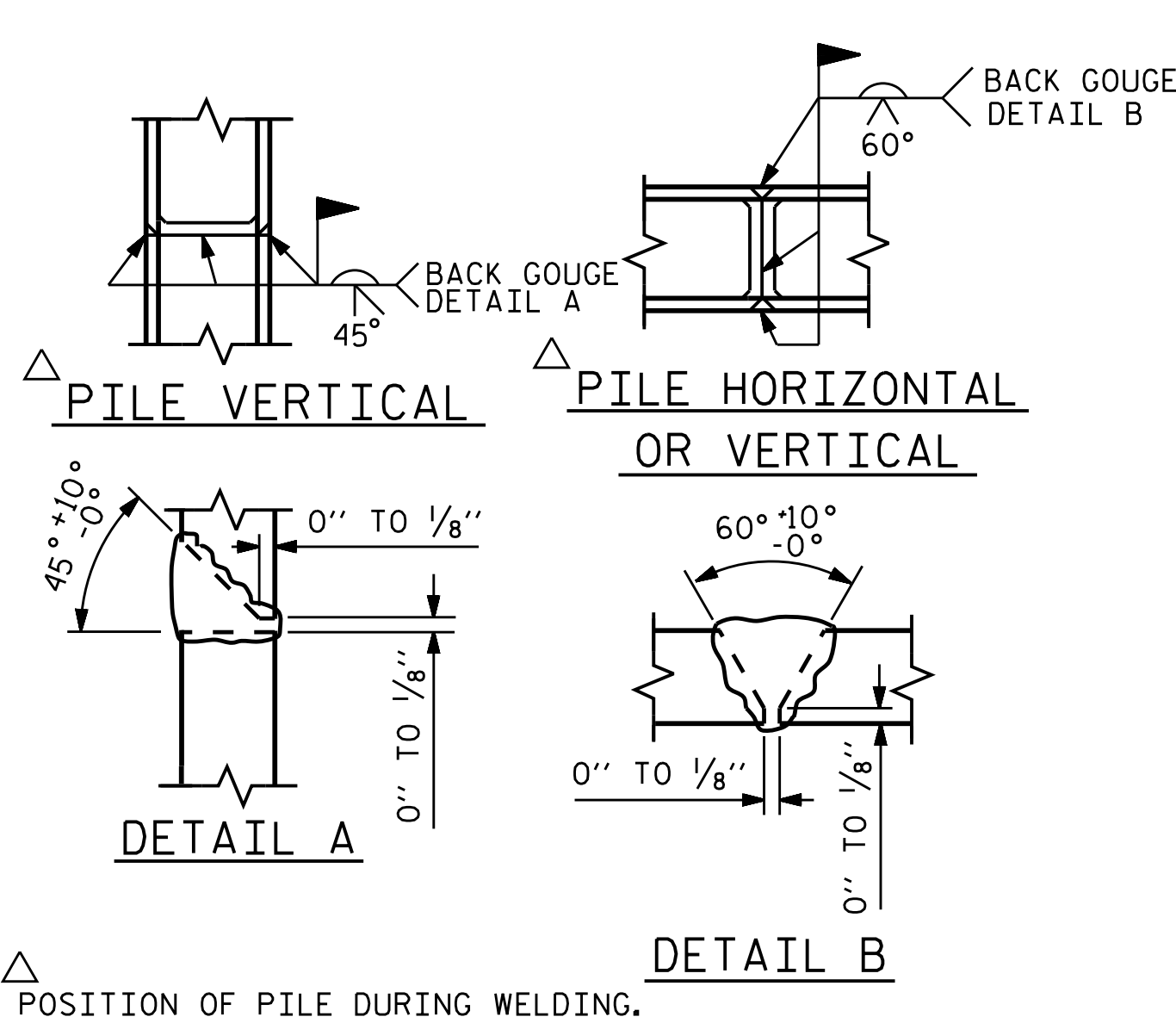


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

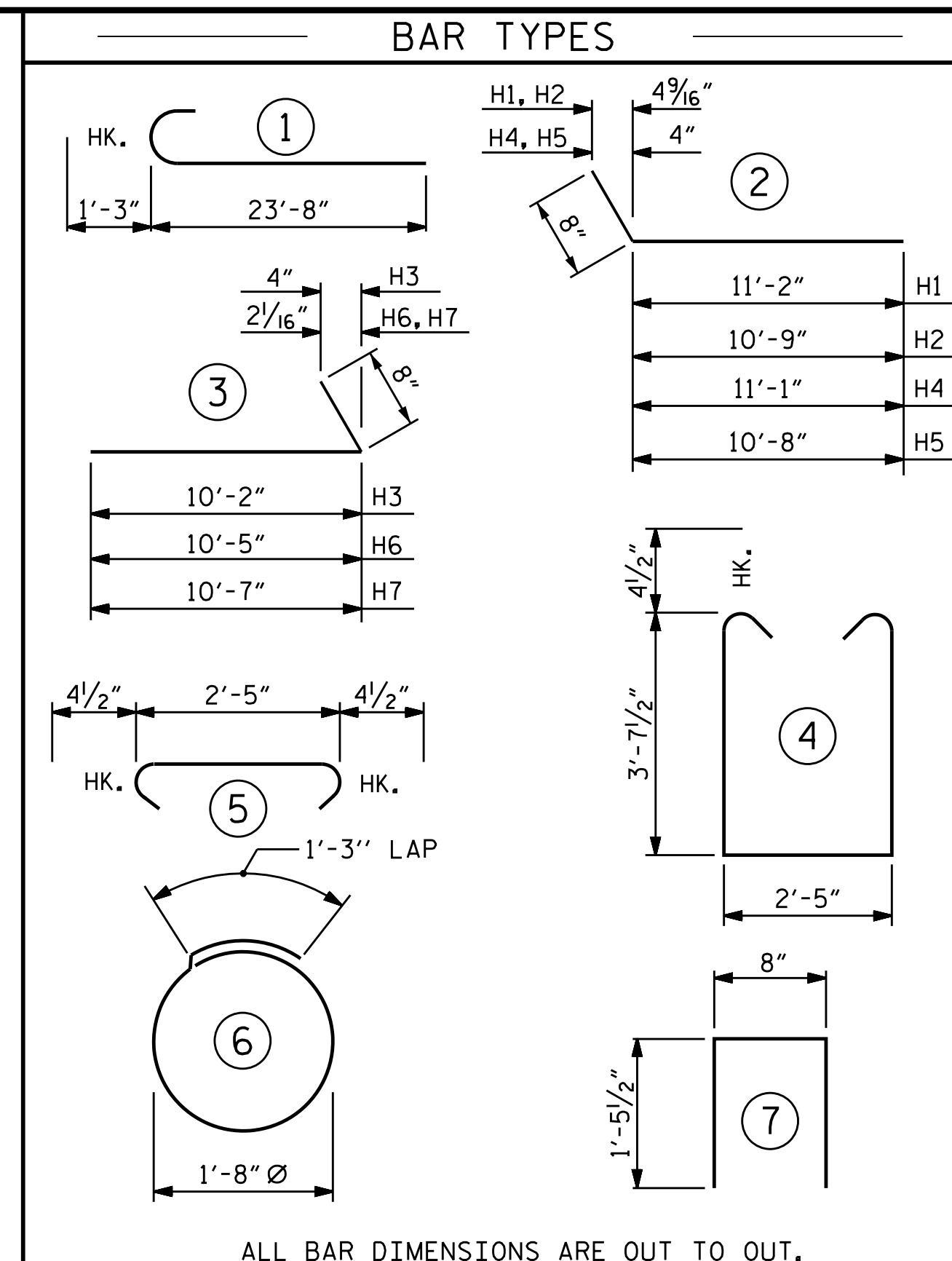
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

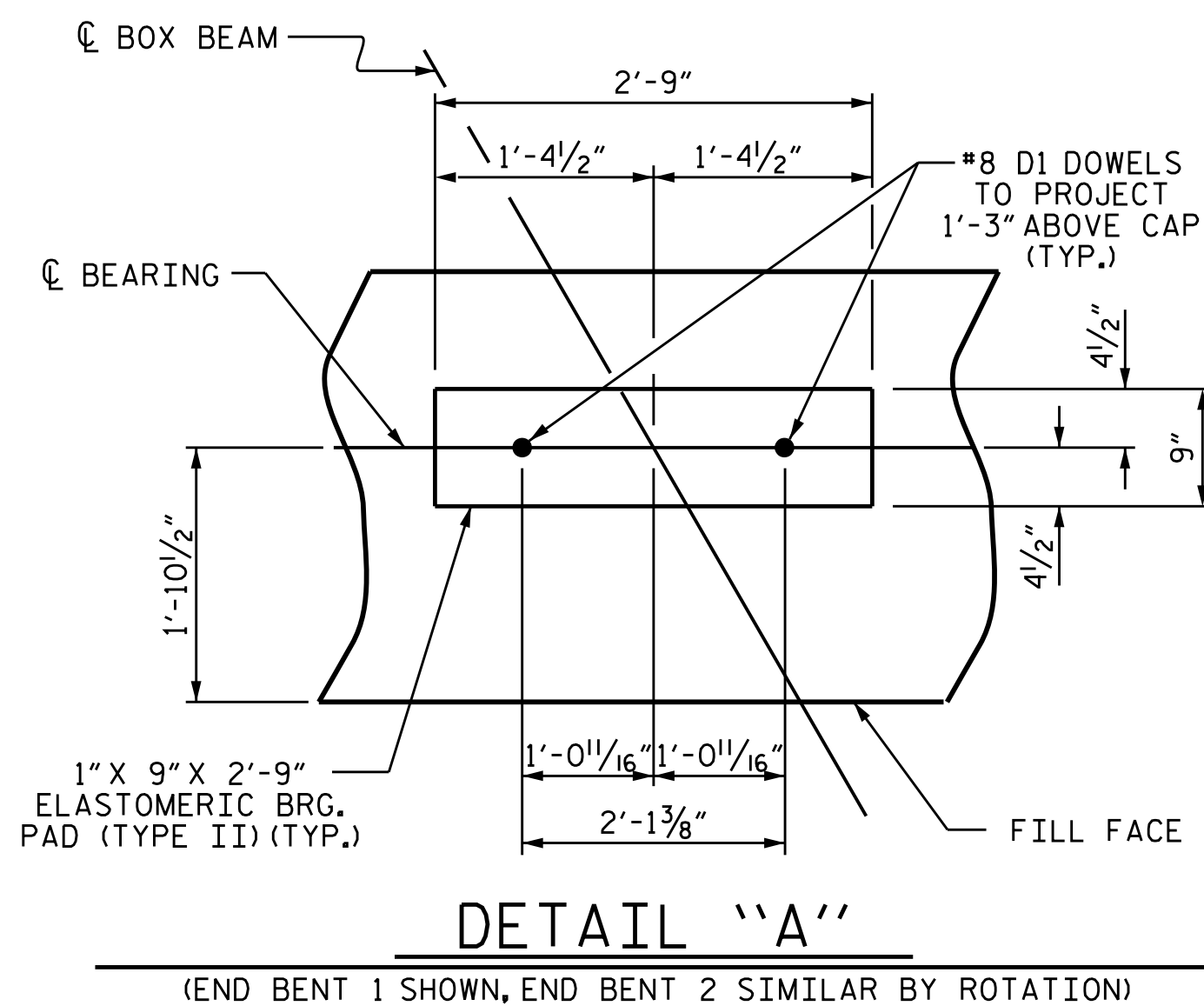


PILE SPLICE DETAILS



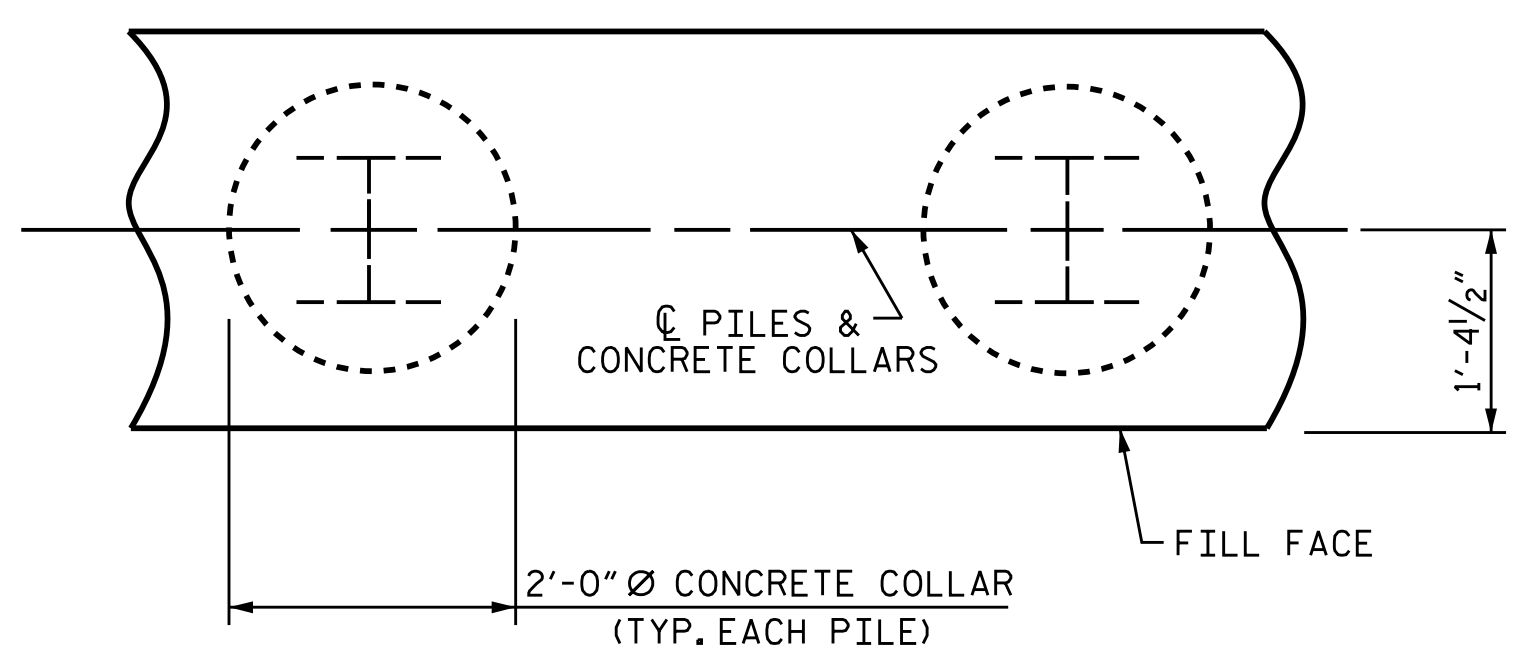
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR END BENT 1					BILL OF MATERIAL FOR END BENT 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#9	1	24'-11"	1355	B1	16	#9	1	24'-11"	1355
B2	28	#4	STR	22'-3"	416	B2	28	#4	STR	22'-3"	416
B3	11	#4	STR	2'-5"	18	B3	11	#4	STR	2'-5"	18
D1	20	#8	STR	2'-3"	120	D1	20	#8	STR	2'-3"	120
H1	12	#5	2	11'-10"	148	H4	12	#5	2	11'-9"	147
H2	12	#5	2	11'-5"	143	H5	12	#5	2	11'-4"	142
H3	24	#5	3	10'-10"	271	H6	12	#5	3	11'-1"	139
						H7	12	#5	3	11'-3"	141
K1	6	#4	STR	3'-3"	13						
K2	3	#4	STR	3'-10"	8	K4	12	#4	STR	22'-3"	178
K3	3	#4	STR	3'-9"	8	K5	6	#4	STR	3'-5"	14
K4	12	#4	STR	22'-3"	178	K6	3	#4	STR	4'-1"	8
						K7	3	#4	STR	4'-3"	9
S1	54	#4	4	10'-5"	376						
S2	54	#4	5	3'-2"	114	S1	54	#4	4	10'-5"	376
S3	20	#4	6	6'-6"	87	S2	54	#4	5	3'-2"	114
						S3	20	#4	6	6'-6"	87
U1	34	#4	7	3'-7"	81						
						U1	34	#4	7	3'-7"	81
V1	61	#4	STR	7'-2"	292						
V2	68	#4	STR	5'-3"	238	V1	63	#4	STR	7'-2"	302
						V2	68	#4	STR	5'-3"	238
REINFORCING STEEL 3866 LBS.					REINFORCING STEEL 3885 LBS.						
CLASS A CONCRETE BREAKDOWN					CLASS A CONCRETE BREAKDOWN						
POUR #1 CAP, LOWER PART OF WINGS & COLLARS 20.8 C.Y.					POUR #1 CAP, LOWER PART OF WINGS & COLLARS 20.9 C.Y.						
POUR #2 UPPER PART OF WINGS 5.6 C.Y.					POUR #2 UPPER PART OF WINGS 5.7 C.Y.						
TOTAL CLASS A CONCRETE 26.4 C.Y.					TOTAL CLASS A CONCRETE 26.6 C.Y.						



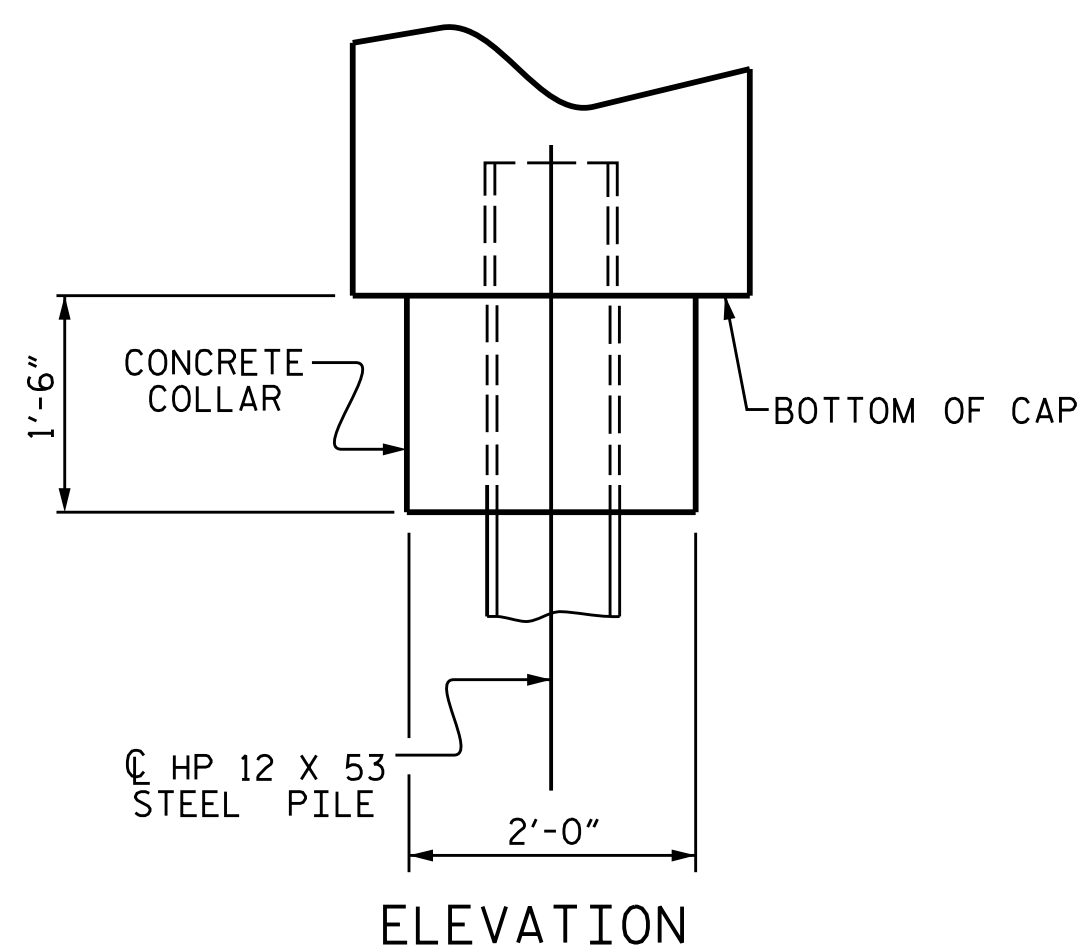
DETAIL "A"

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)

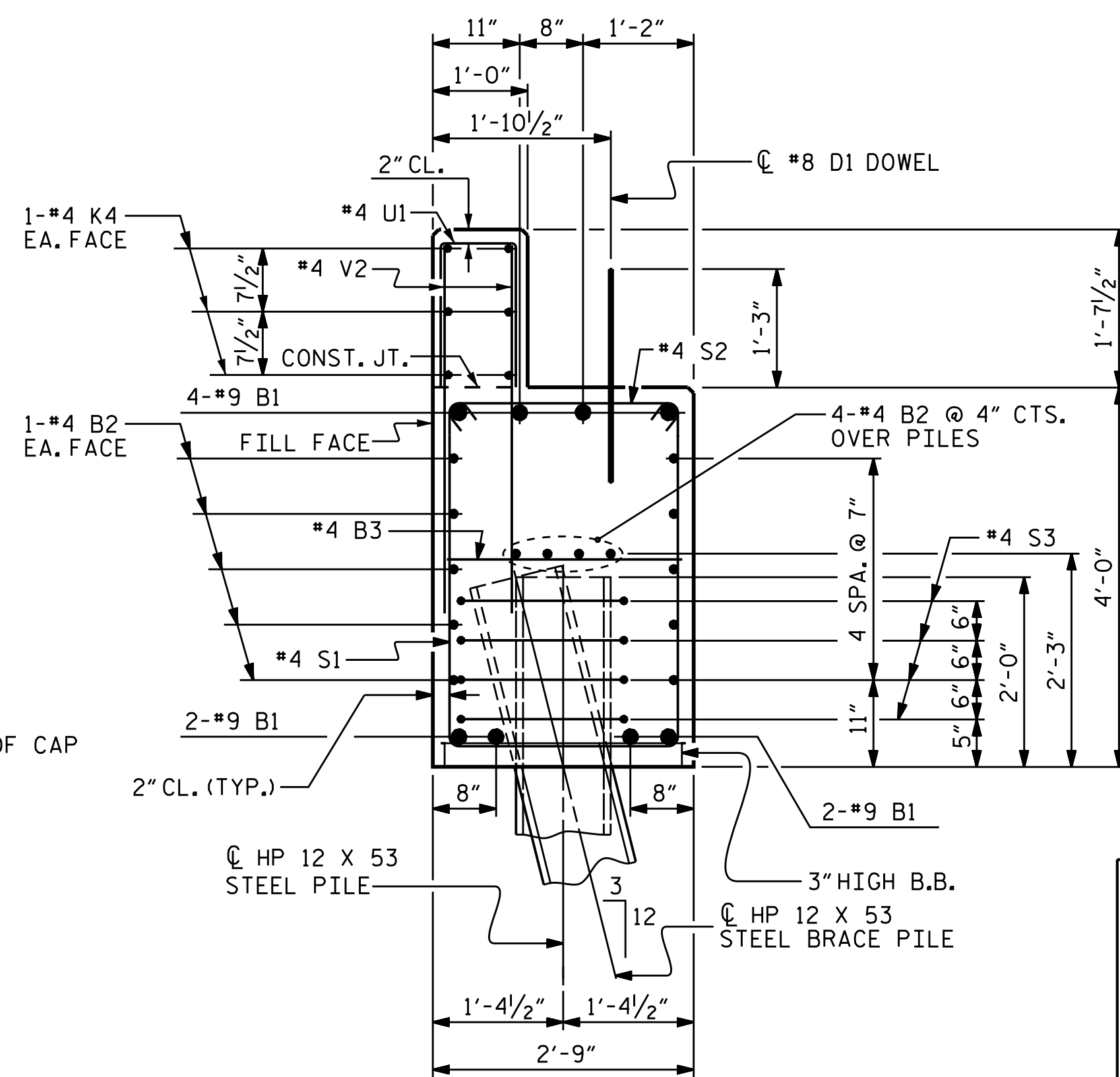


CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



ELEVATION



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

PROJECT NO. BP11.R022
 SURRY COUNTY
 STATION: 13+93.00-L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PROFESSIONAL ENGINEER
 SEAL 20125
 M. G. CHEEK, JR.
 11/28/2023 | 9:26 AM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS 24
2			4			

ASSEMBLED BY :	NMW	DATE :	12/22
CHECKED BY :	MGC	DATE :	1/23
DRAWN BY :	WJH 12/11	REV. 4/17	MAA/THC
CHECKED BY :	AAC 12/11		

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

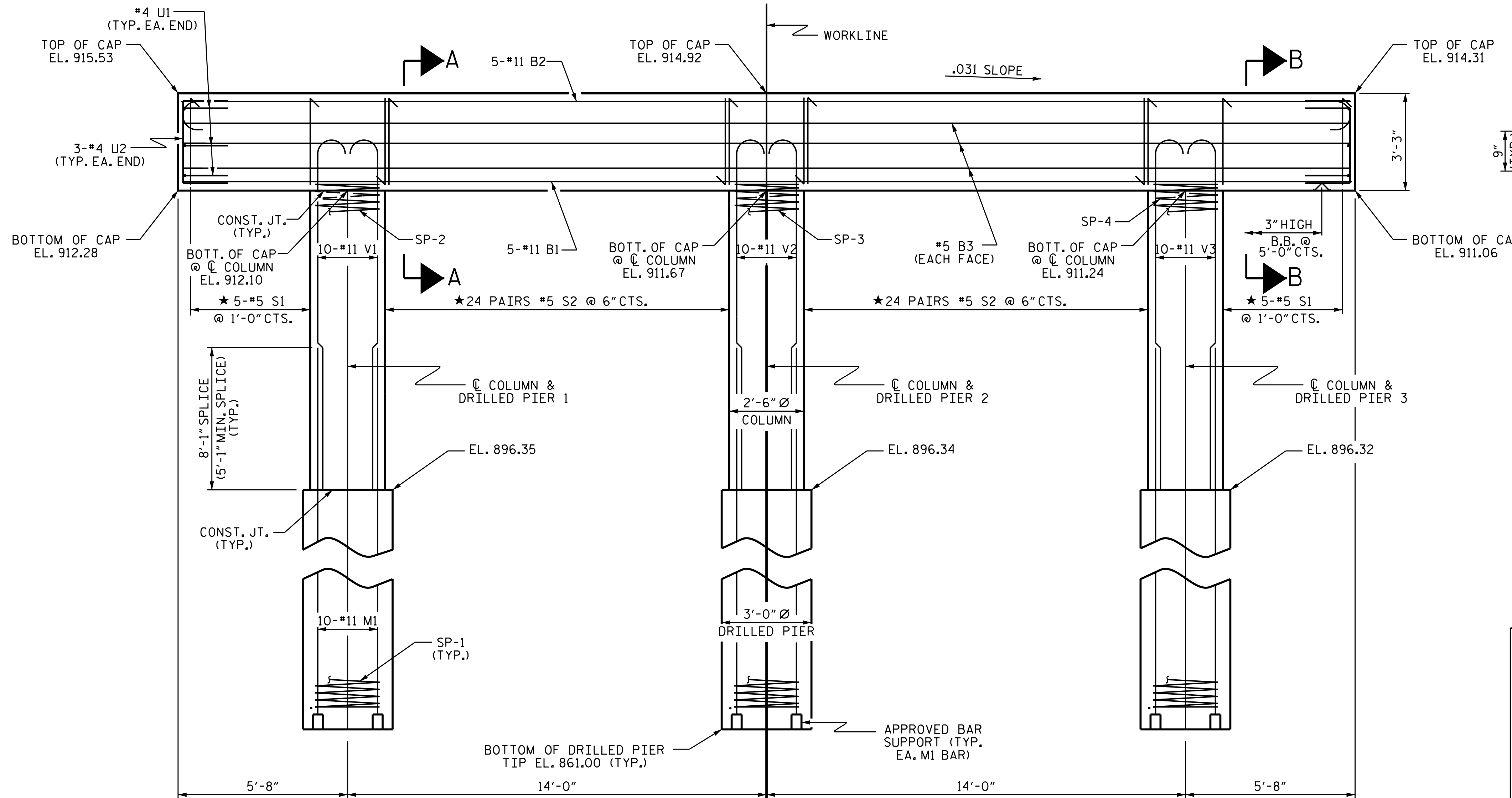
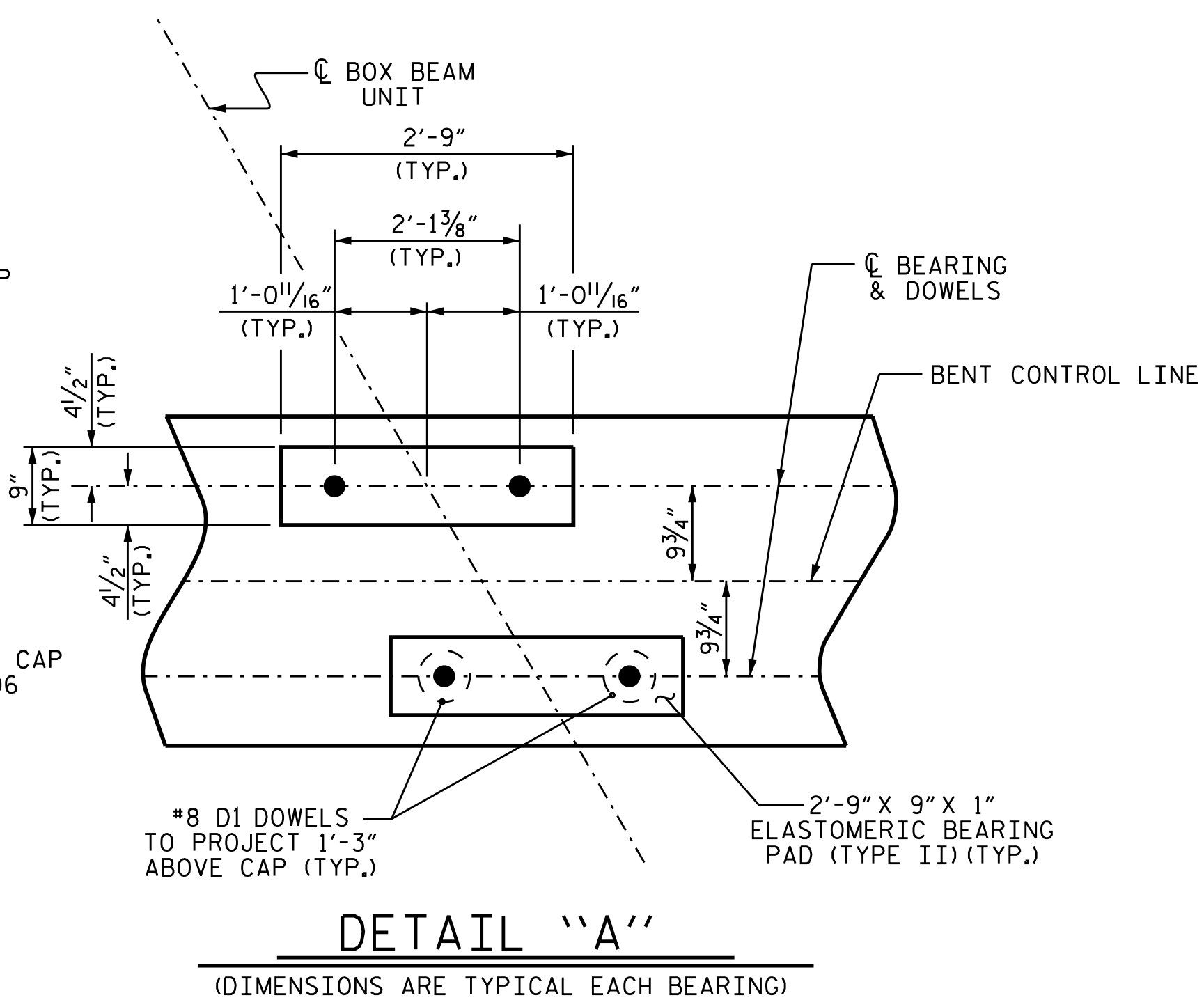
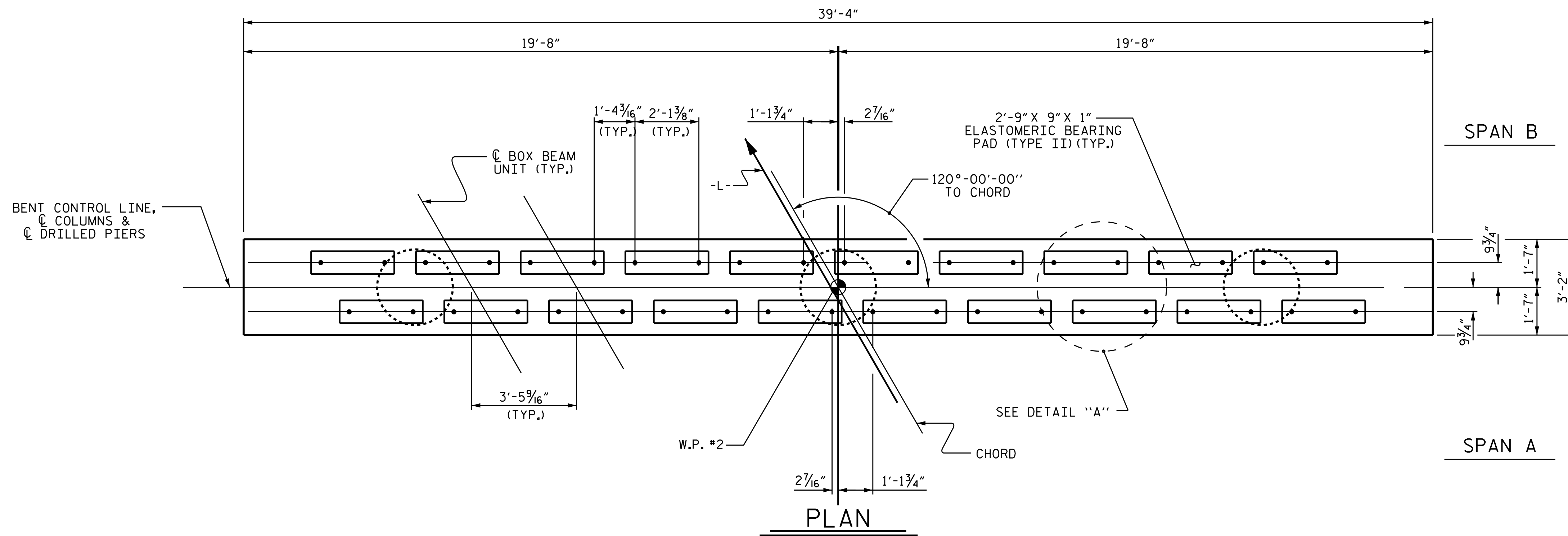
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

★ INVERT ALTERNATE STIRRUPS.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

FOR SECTION A-A & B-B, SEE SHEET 2 OF 2.



DETAIL "A"
(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. BP11.R022
SURRY COUNTY
 STATION: 13+93.00-L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SEAL
 20125
 ENGINEER
 M. S. ...
 11/28/2023 | 9:26 AM EST

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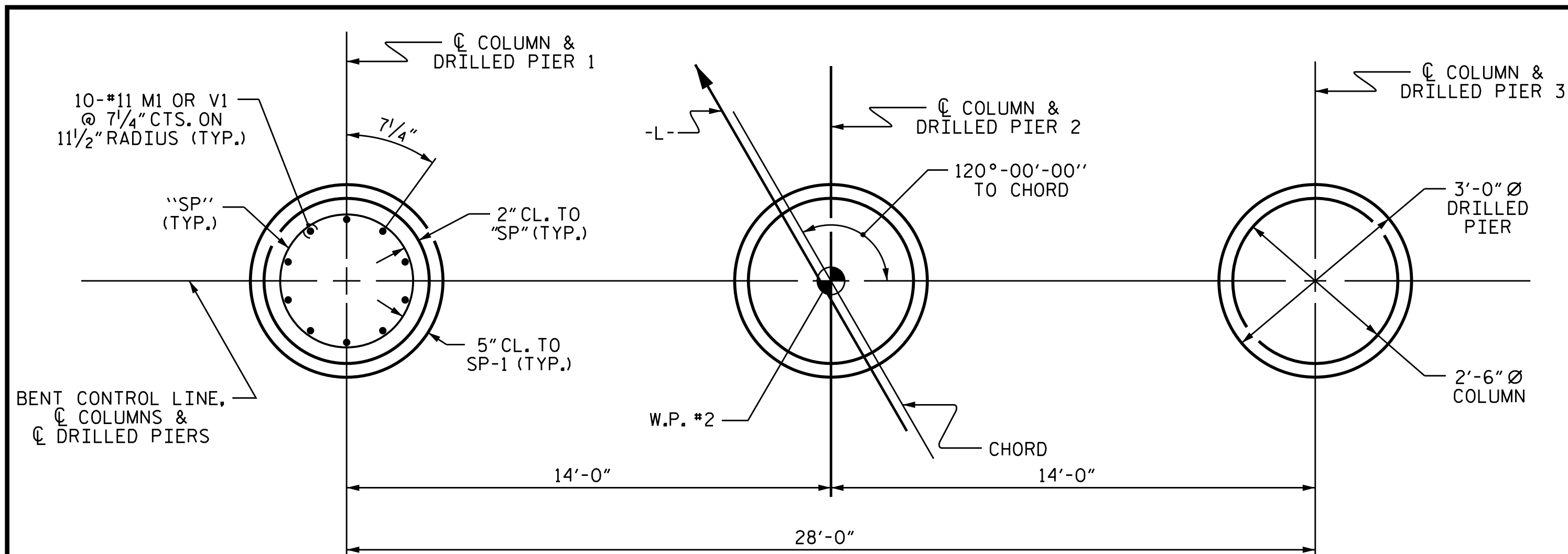
SUBSTRUCTURE BENT 1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-21
1			3			TOTAL SHEETS
2			4			24

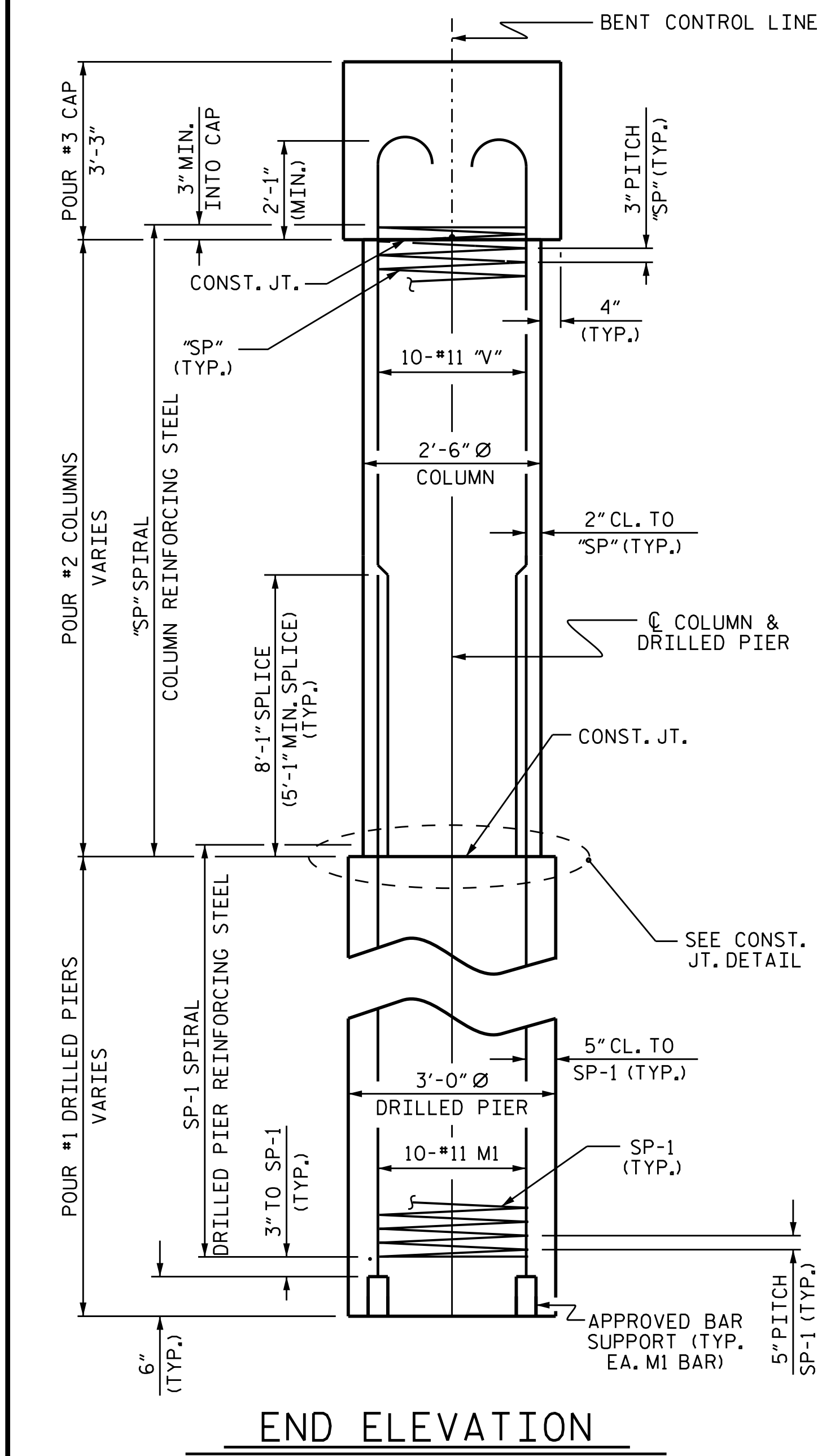
DRAWN BY : NMW DATE : 1/23
 CHECKED BY : MGC DATE : 6/23
 DESIGN ENGINEER OF RECORD : STM DATE : 6/23

DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.

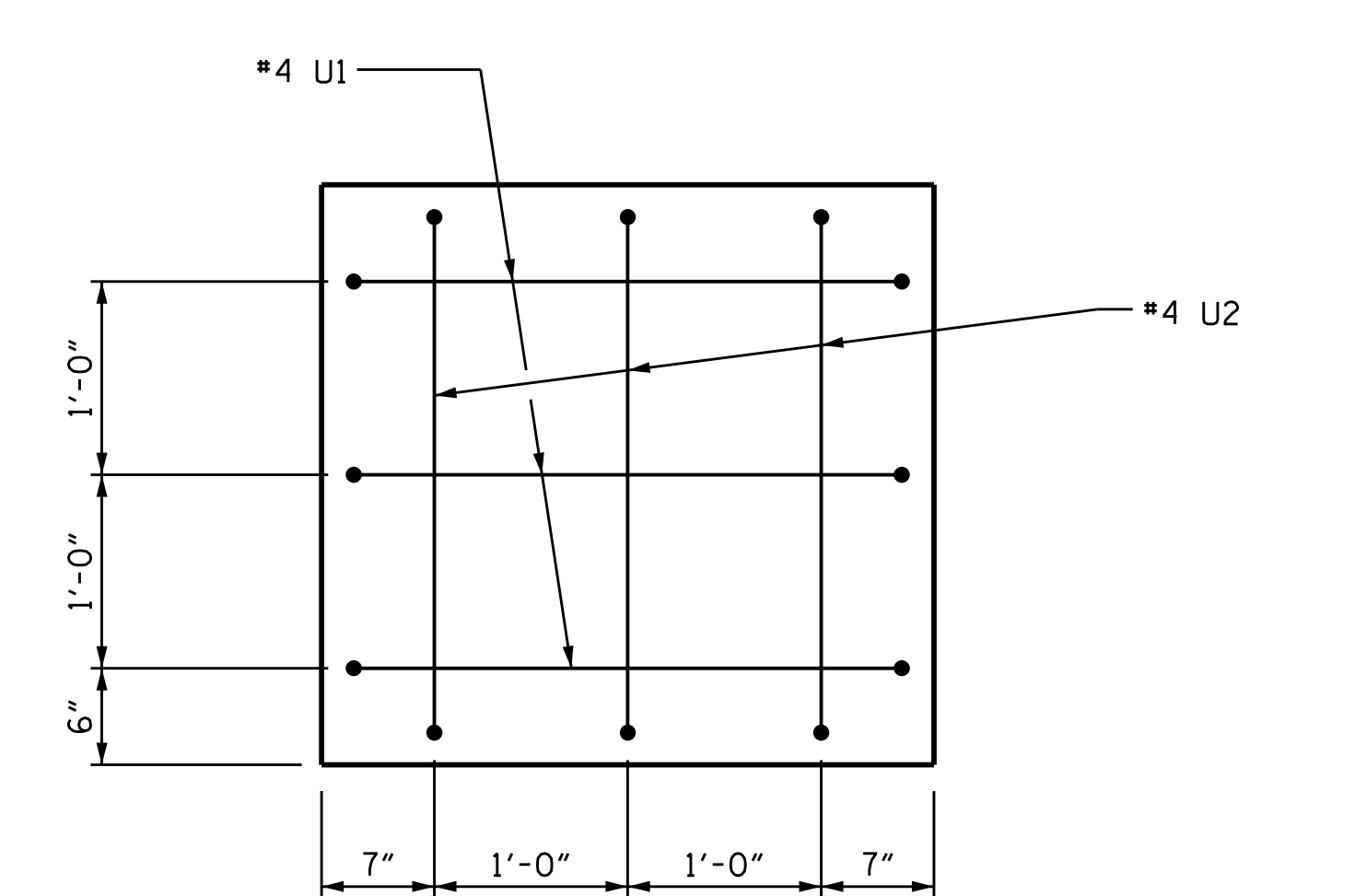
ELEVATION



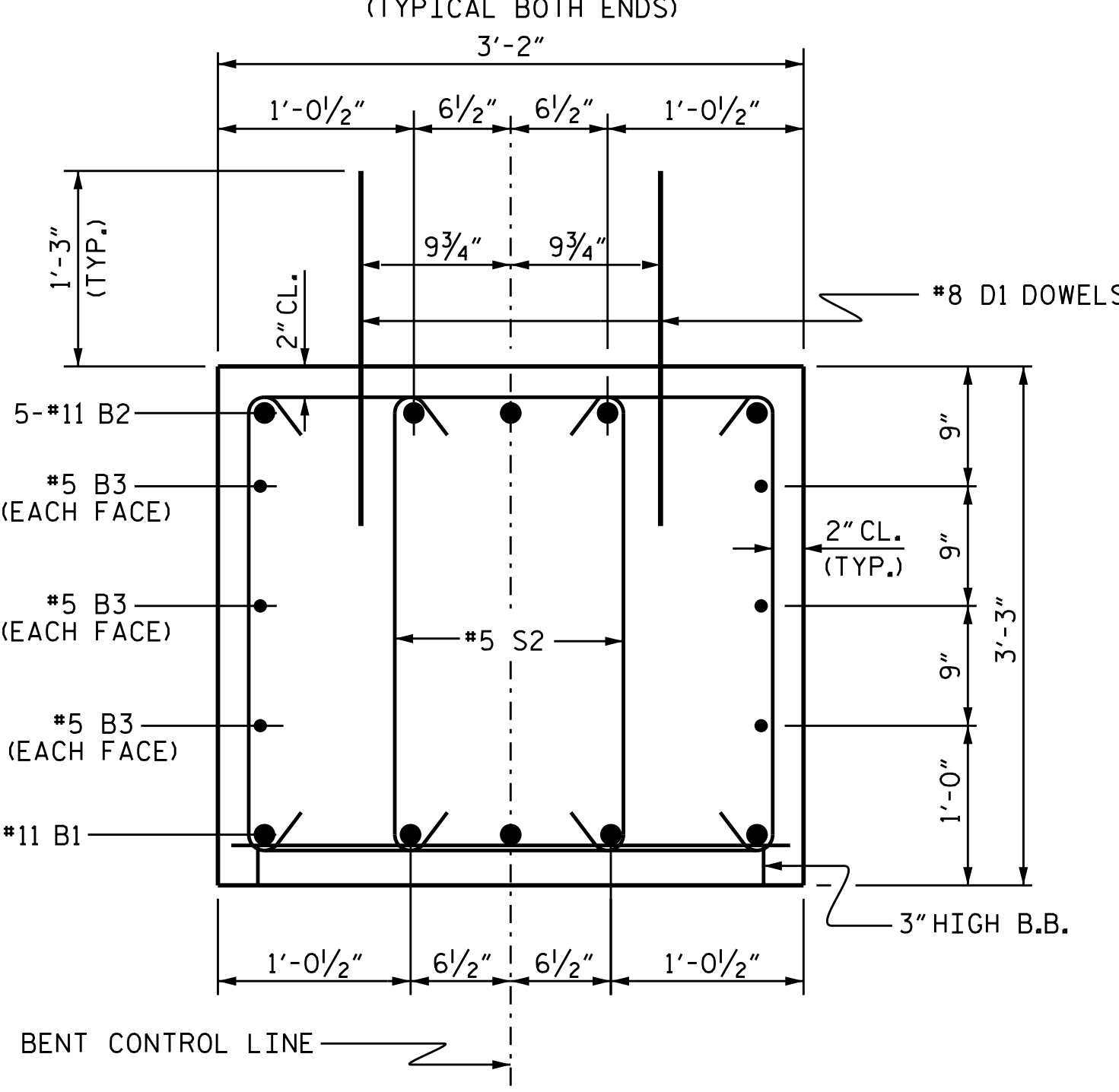
PLAN OF DRILLED PIERS & COLUMNS



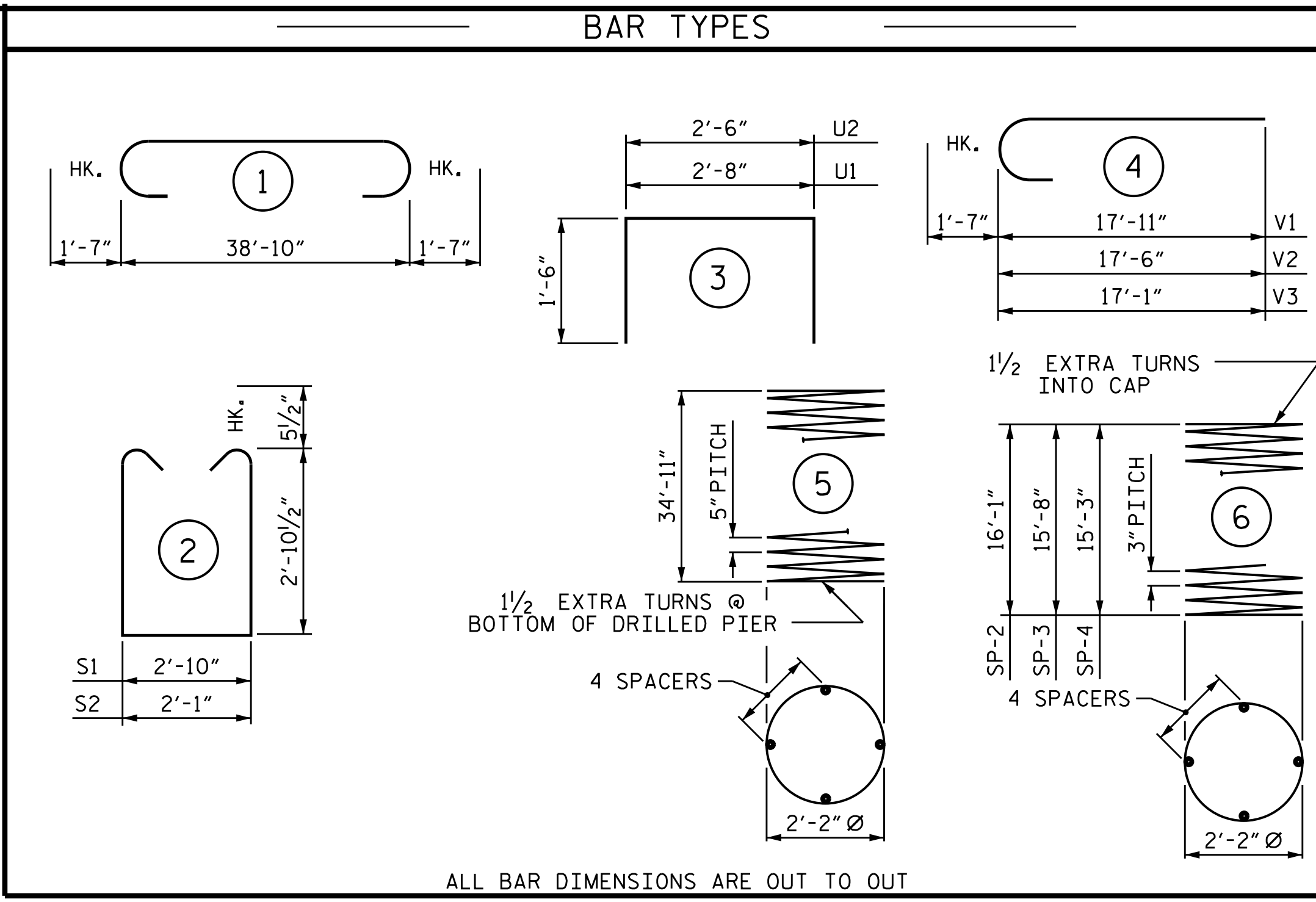
END ELEVATION



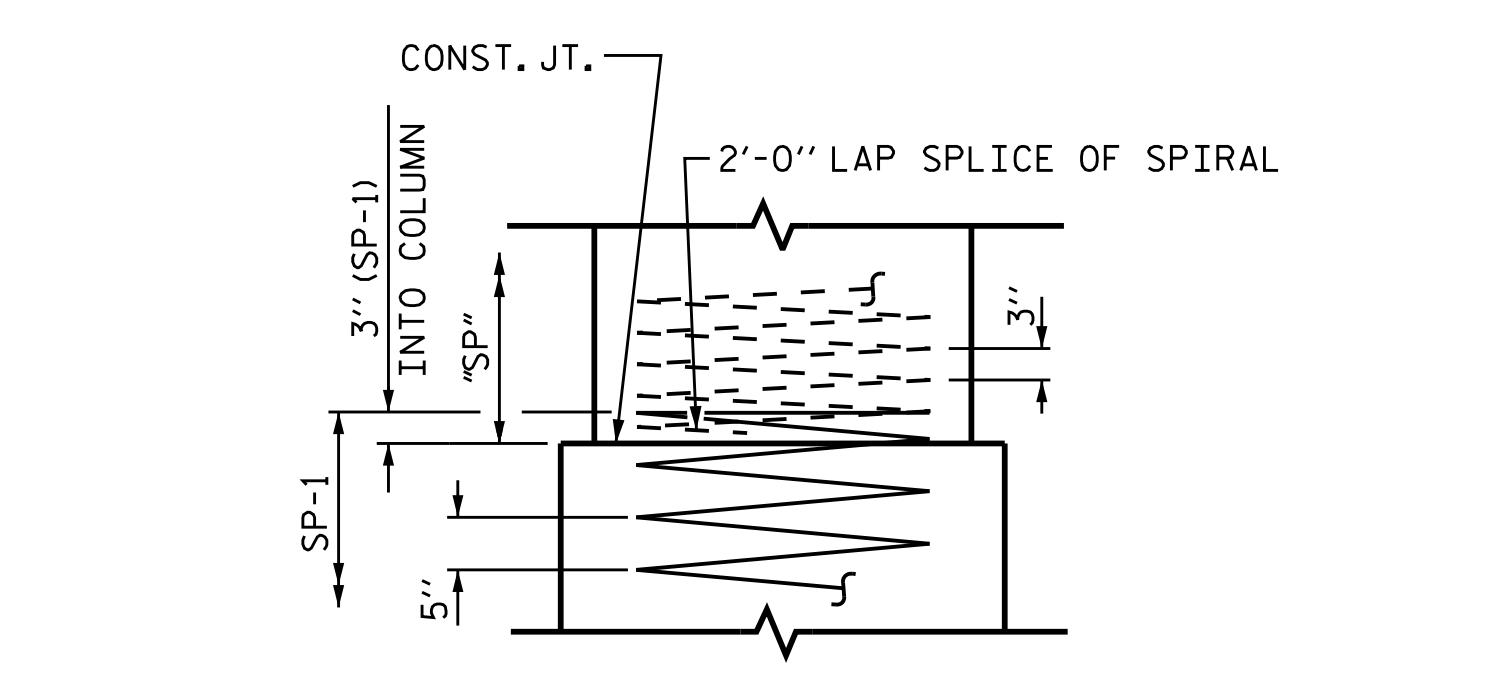
END OF CAP VIEW



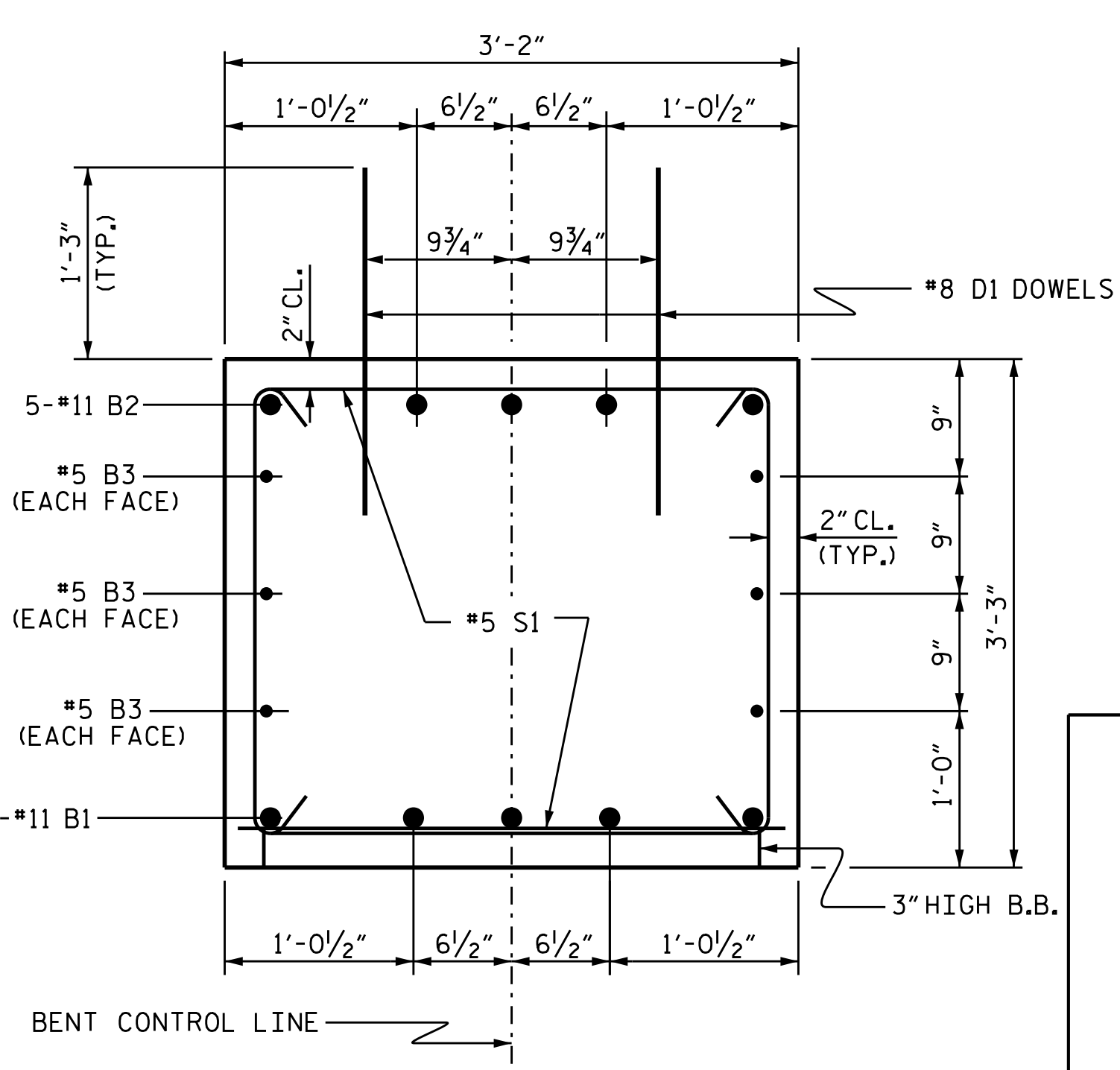
SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT



CONSTRUCTION JOINT DETAIL



SECTION B-B

BILL OF MATERIAL

FOR BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	#11	STR	39'-0"	1036
B2	5	#11	1	42'-0"	1116
B3	6	#5	STR	39'-0"	244
D1	40	#8	STR	2'-3"	240
M1	30	#11	STR	43'-0"	6854
S1	10	#5	2	9'-6"	99
S2	96	#5	2	8'-9"	876
U1	6	#4	3	5'-8"	23
U2	6	#4	3	5'-6"	22
V1	10	#11	4	19'-6"	1036
V2	10	#11	4	19'-1"	1014
V3	10	#11	4	18'-8"	992

REINFORCING STEEL 13,552 LBS.

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
SP-1	3	*	5	572'-6"	1791
SP-2	1	**	6	441'-0"	295
SP-3	1	**	6	427'-7"	286
SP-4	1	**	6	420'-11"	281

SPIRAL COLUMN REINFORCING STEEL 2653 LBS.

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR
 ** THE SP-2, SP-3, SP-4 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR

CLASS A CONCRETE BREAKDOWN

POUR #2 (COLUMNS)	8.4 C.Y.
POUR #3 (CAP)	15.0 C.Y.
TOTAL CLASS A CONCRETE	23.4 C.Y.

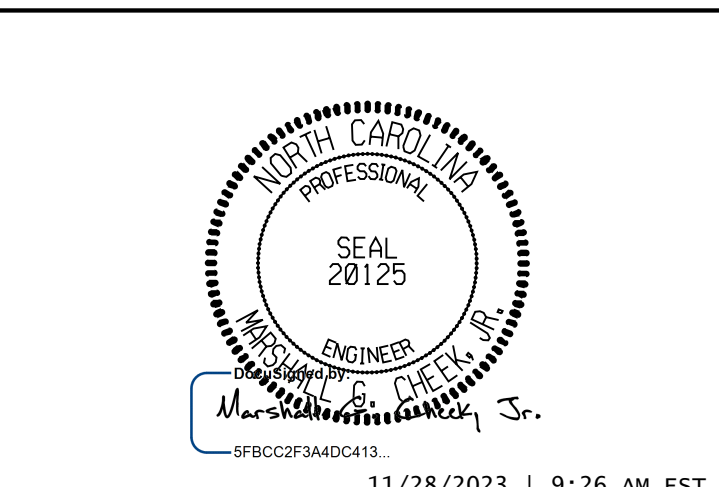
DRILLED PIERS:
 DRILLED PIER CONCRETE POUR #1 27.8 C.Y.

PROJECT NO. BP11.R022

SURRY COUNTY

STATION: 13+93.00-L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

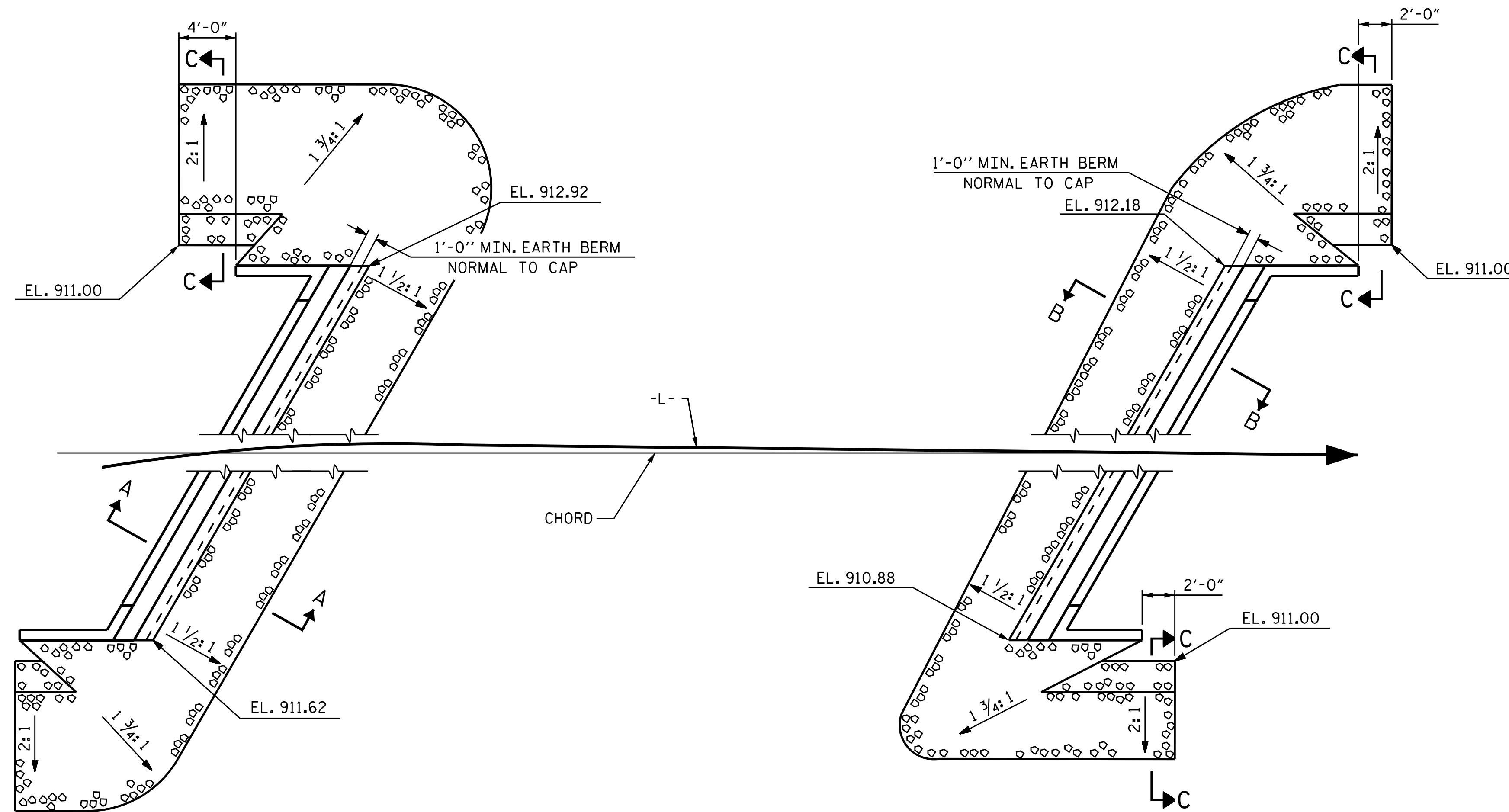
SUBSTRUCTURE
 BENT 1

11/28/2023 | 9:26 AM EST
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 TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS 24
2			4			

DRAWN BY: NMW DATE: 1/23
 CHECKED BY: MGC DATE: 6/23
 DESIGN ENGINEER OF RECORD: STM DATE: 6/23

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

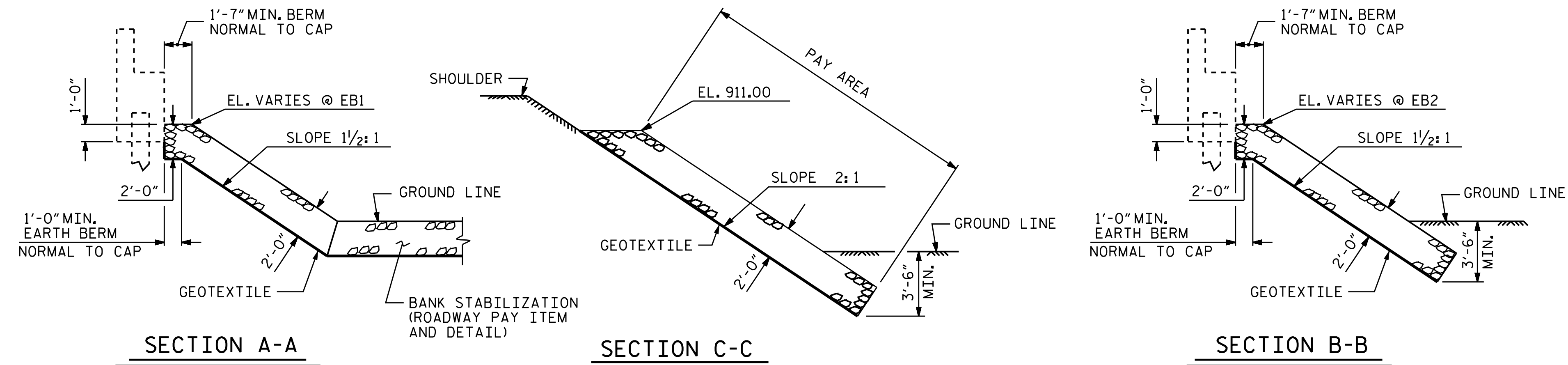


END BENT 1

END BENT 2

RIP RAP

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+93.00-L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	235	260
END BENT 2	145	160



SECTION A-A

SECTION C-C

SECTION B-B

PROJECT NO. BP11.R022
SURRY COUNTY
 STATION: 13+93.00-L-

11/28/2023 | 9:26 AM EST

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

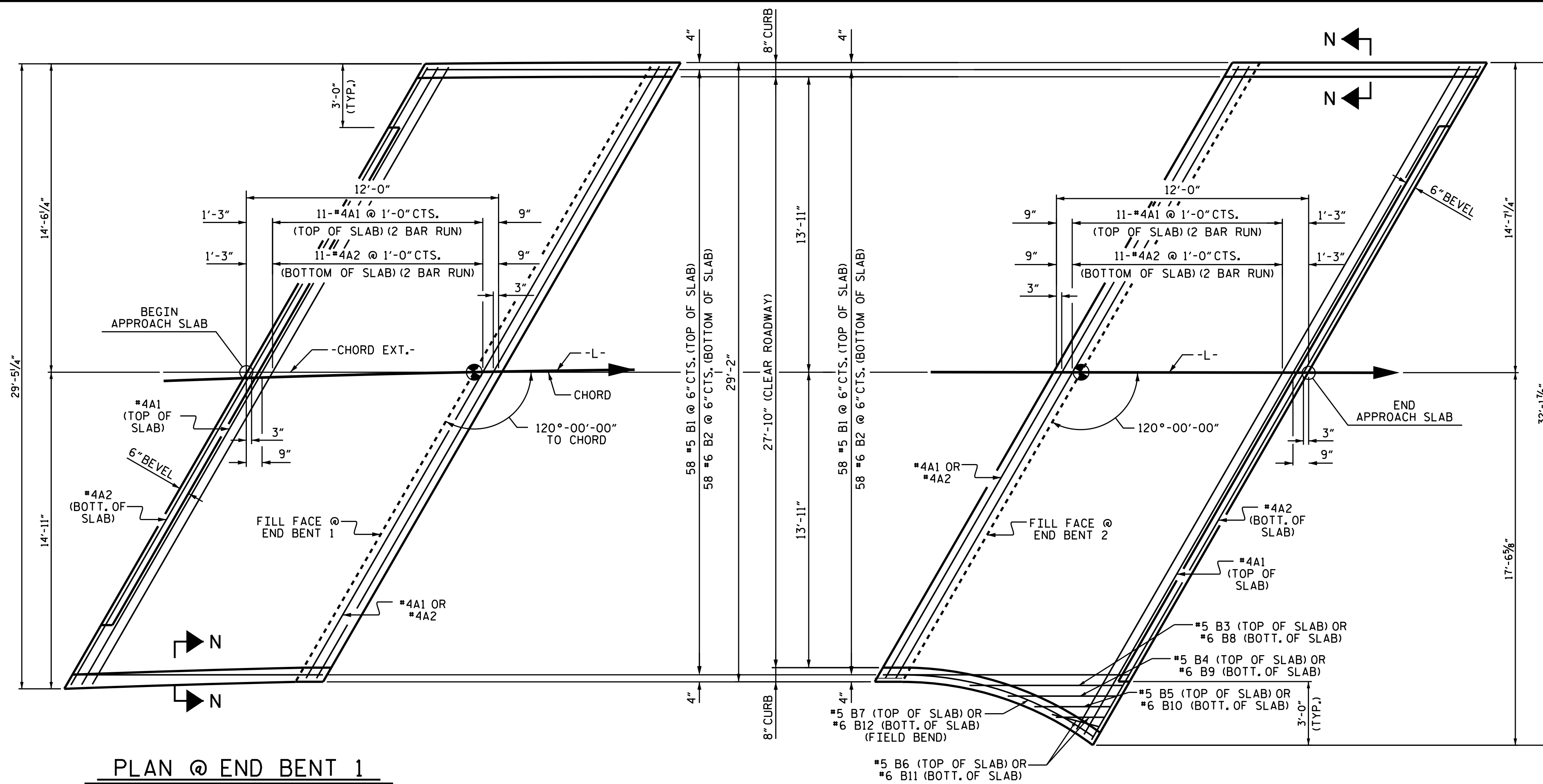
STANDARD
 RIP RAP DETAILS

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

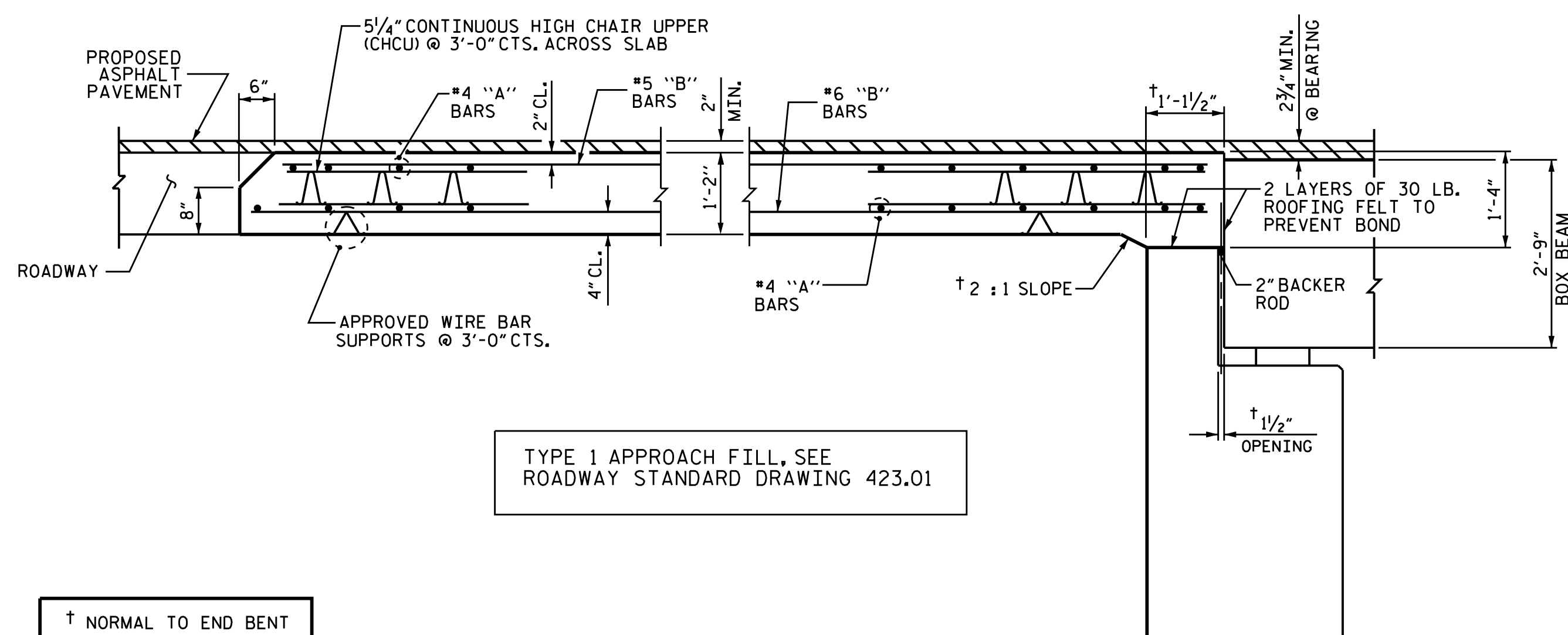
ASSEMBLED BY :	NMW	DATE :	1/23
CHECKED BY :	MGC	DATE :	1/23
DRAWN BY :	REK	REV. 10/1/11	MAA/GM
CHECKED BY :	RDU	REV. 12/21/11	MAA/GM
		REV. 12/17	MAA/THC

TGS ENGINEERS	TGS ENGINEERS	SHEET NO.
201 W. MARION ST STE 200	201 W. MARION ST STE 200	S-23
SHELBY, NC 28150	SHELBY, NC 28150	TOTAL
PH (704) 476-0003	PH (704) 476-0003	SHEETS
CORP. LICENSE NO.: C-0275	CORP. LICENSE NO.: C-0275	24



PLAN @ END BENT 1

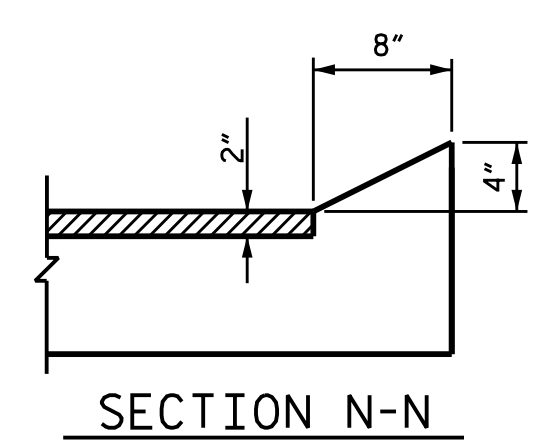
PLAN @ END BENT 2



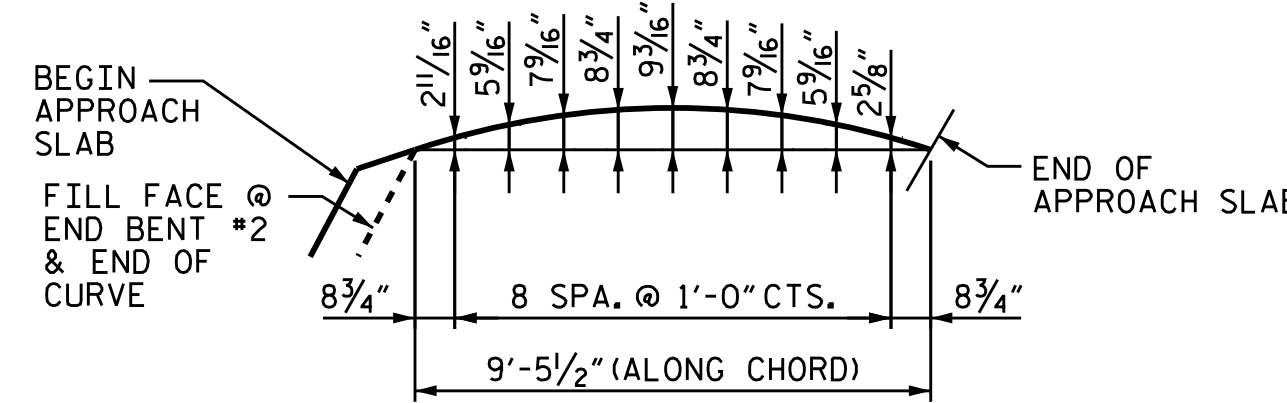
TYPE 1 APPROACH FILL, SEE ROADWAY STANDARD DRAWING 423.01

SECTION THRU SLAB

SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"



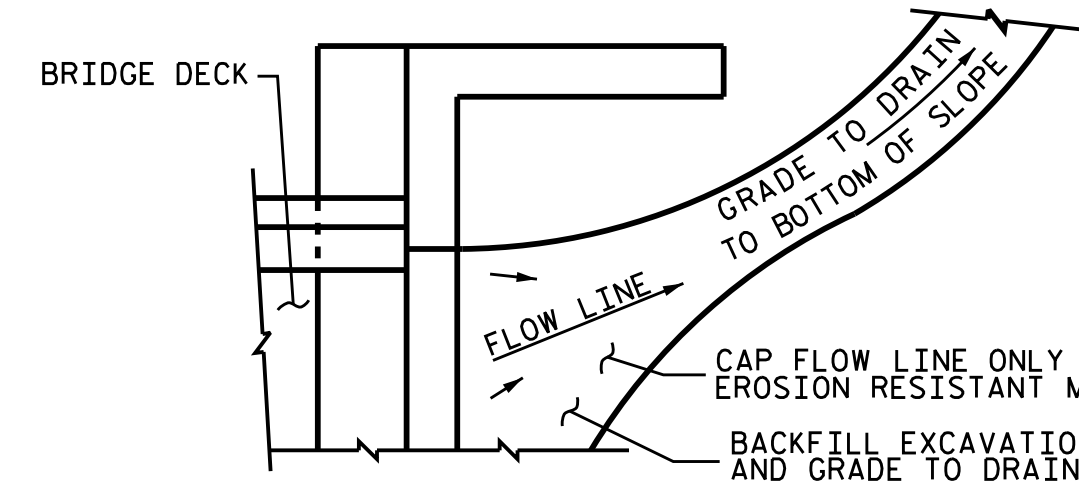
SECTION N-N CURB DETAILS



ARC OFFSETS - RIGHT SIDE

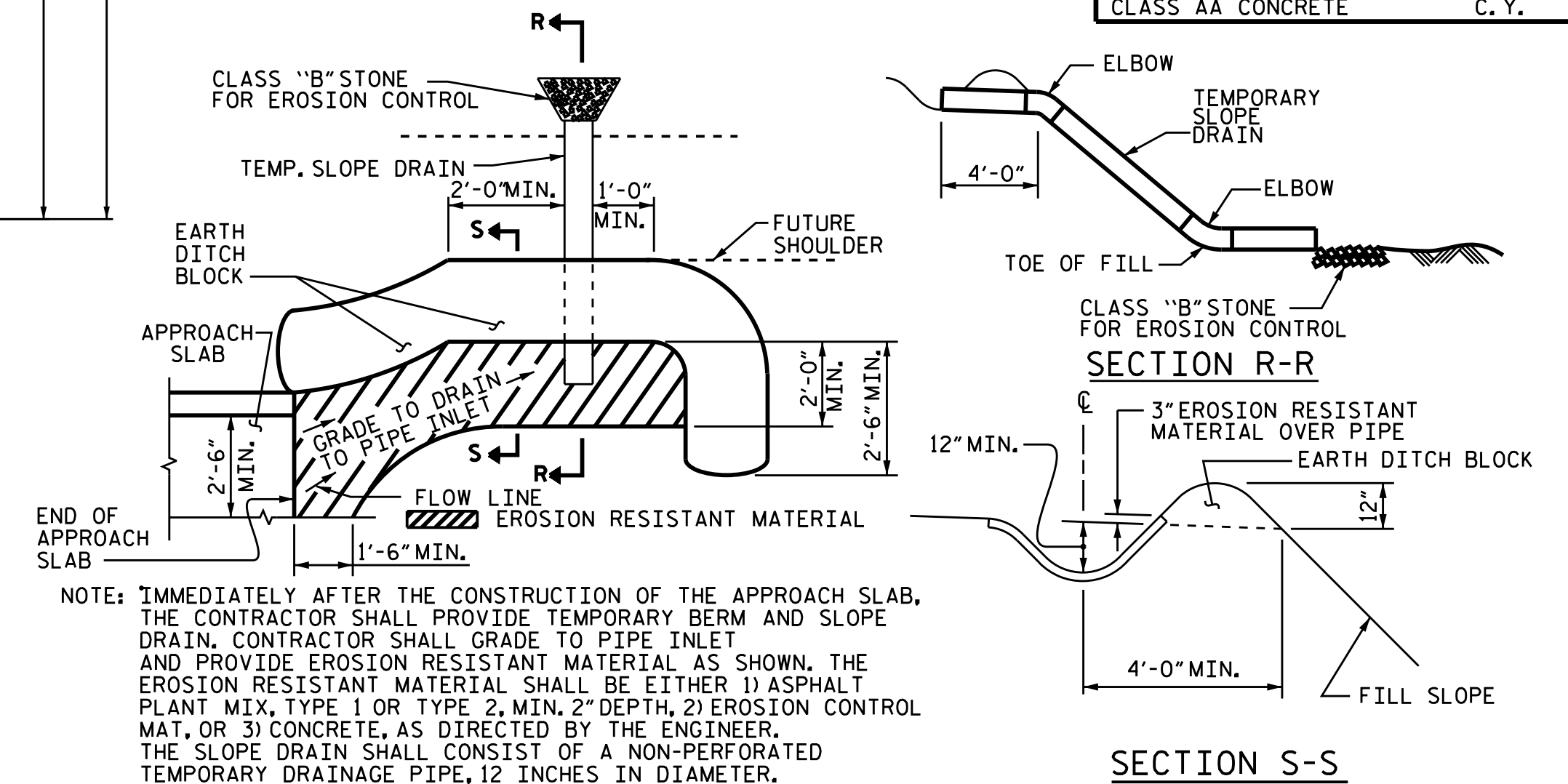
NOTES

FOR APPROACH FILL, SEE ROADWAY PLANS.
 AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED, SEE ROADWAY PLANS.
 APPROACH SLAB GROOVING IS NOT REQUIRED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



PLAN VIEW
 TEMPORARY BERM AND SLOPE DRAIN DETAILS
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL						
APPROACH SLAB AT EB 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	17'-10"	310	
A2	26	#4	STR	17'-8"	307	
*B1	58	#5	STR	11'-1"	670	
B2	58	#6	STR	11'-7"	1009	
REINFORCING STEEL					LBS.	1316
* EPOXY COATED REINFORCING STEEL					LBS.	980
CLASS AA CONCRETE					C. Y.	15.5
APPROACH SLAB AT EB 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	19'-4"	336	
A2	26	#4	STR	19'-2"	333	
*B1	58	#5	STR	11'-1"	670	
B2	58	#6	STR	11'-7"	1009	
*B3	1	#5	STR	7'-3"	8	
*B4	1	#5	STR	5'-2"	5	
*B5	1	#5	STR	3'-7"	4	
*B6	2	#5	STR	2'-3"	5	
*B7	1	#5	STR	9'-7"	10	
B8	1	#6	STR	7'-3"	11	
B9	1	#6	STR	5'-2"	8	
B10	1	#6	STR	3'-7"	5	
B11	2	#6	STR	2'-3"	7	
B12	1	#6	STR	9'-7"	14	
REINFORCING STEEL					LBS.	1387
* EPOXY COATED REINFORCING STEEL					LBS.	1038
CLASS AA CONCRETE					C. Y.	16.2

ASSEMBLED BY : NMW	DATE : 1/23
CHECKED BY : MGC	DATE : 1/23
DRAWN BY : EEM 3/95	REV. 6/13 MAA/GM
CHECKED BY : VAP 3/95	REV. 12/17 MAA/THC
	REV. 07/23 BNB/SNM

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 120° SKEW

SEAL 20125
 ENGINEER
 M. SHERMAN C. CHEEK, JR.
 1/28/2023 | 9:26 AM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 201 W. MARION ST. STE 200
 SHELBY, NC 28150
 PH. (704) 476-0003
 CORP. LICENSE NO.: C-0275

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-24
 TOTAL SHEETS 24

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W ...	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST $\frac{5}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY $\frac{1}{16}$ " OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.