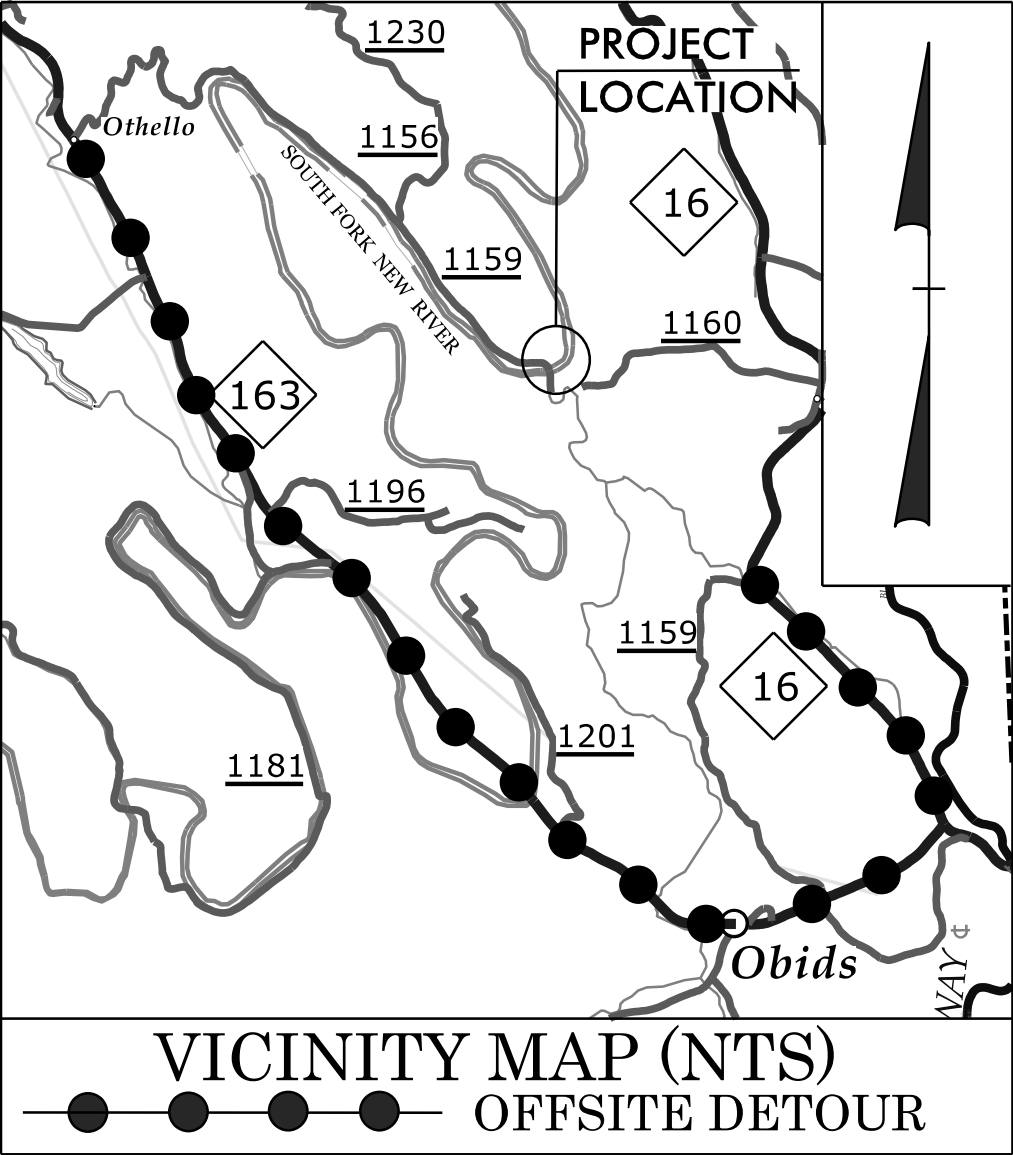


PROJECT: HB-0051

CONTRACT: DK00465

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



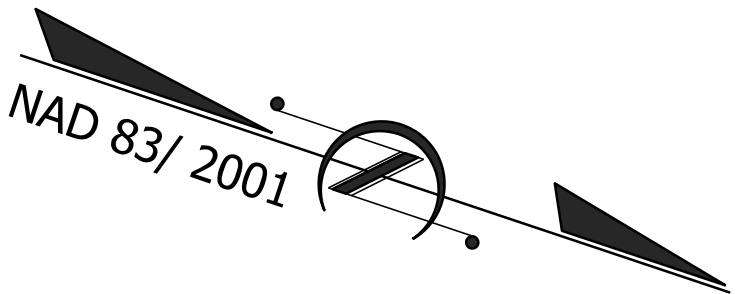
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

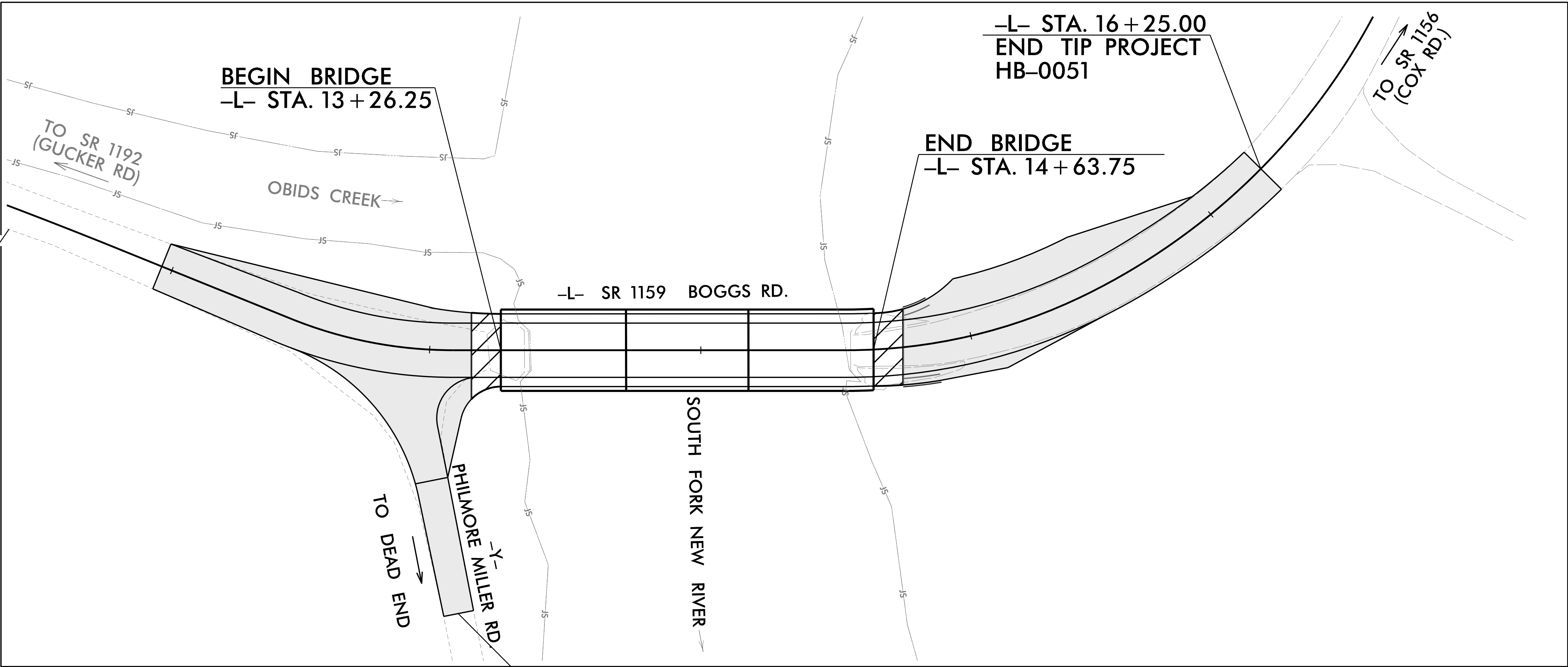
LOCATION: *BRIDGE #040466 OVER SOUTH FORK NEW RIVER
ON SR 1159 (BOGGS RD)*

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0051	11	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
50721.1.1	FBRG111	PE	
50721.2.1	FBRG111	R/W	
50721.2.2	FBRG111	UTIL.	
50721.3.1	FBRG111	CONST.	



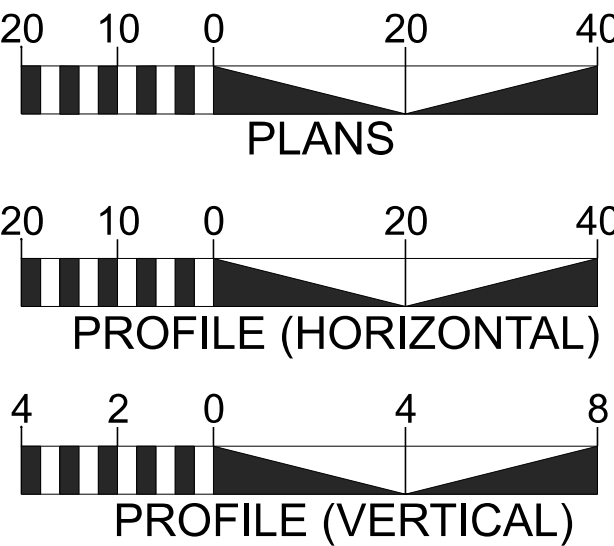
-L- STA. 11 + 30.00
BEGIN TIP PROJECT
HB-0051



-Y- STA. 11 + 00.00
END CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2024 = 360
T = 6 % *
V = 30 MPH
* TTST =3% DUAL = 3%

FUNC CLASS =
LOCAL - RURAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT HB-0051 = 0.068 MILES
LENGTH OF STRUCTURE PROJECT HB-0051 = 0.026 MILES
TOTAL LENGTH OF PROJECT HB-0051 = 0.094 MILES



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

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 17, 2024

LETTING DATE:
APRIL 16, 2026

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION 111
801 STATESVILLE RD
NORTH WILKESBORO, NC 28659

JIMMY TERRY, PE
PROJECT ENGINEER

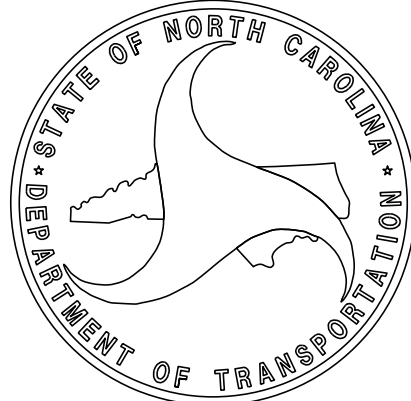
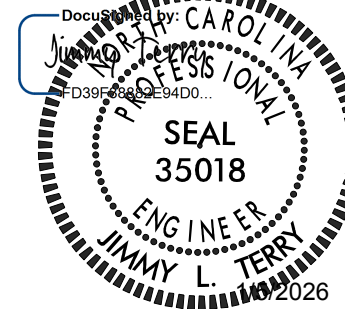
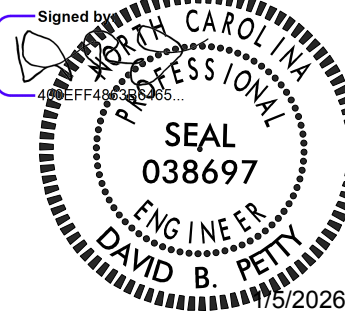
AUSTIN R. TURNER, PE
PROJECT DESIGN ENGINEER

DANIEL R. ADAMS, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.
ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



INDEX OF SHEETS	
SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1 THRU 2C-2	SPECIAL DETAILS - METHOD OF PIPE INSTALLATION
2C-3 THRU 2C-4	SPECIAL DETAILS - GUARDRAIL PLACEMENT
2C-5	SPECIAL DETAILS - TYPE III - SHOP CURVED ANCHOR UNIT
3B-1	ROADWAY AND DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN SHEET
5	PROFILE SHEET
RW-01 THRY RW-04	SURVEY CONTROL SHEETS
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
X-1	CROSS-SECTION INDEX
X-1A	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-18	CROSS-SECTIONS
S-1 THRU S-28	STRUCTURE PLANS
STRUCTURE STANDARD NOTES	

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

GRADE LINE:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

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.

RIGHT-OF-WAY MARKERS:

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

ROCK

ROCK IS ANTICIPATED BETWEEN -L-11+50 TO 12+63, RT & -Y- 10+00 TO 11+00, RT. BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

EFF. 01-16-2024
REV.
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

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

DIVISION 3 - PIPE CULVERTS

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

DIVISION 4 - MAJOR STRUCTURES

423.01 Bridge Approach Fills - Type 1 Approach Fill for Bridge Abutment

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS

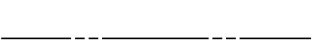
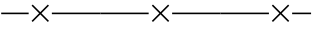
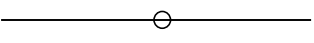
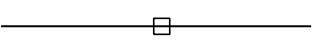
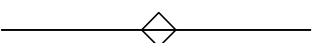
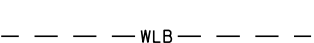
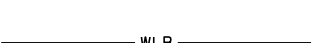
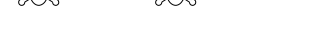
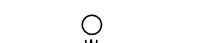
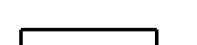
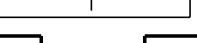
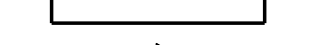
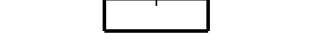
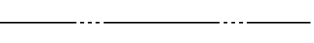
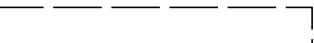
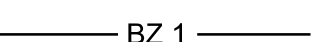
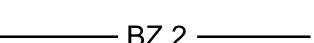
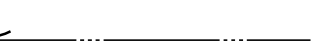
560.01 Method of Shoulder Construction - High Side of Superelevated Curve - Method I

DIVISION 8 - INCIDENTALS

815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
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 (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)
862.02	Guardrail Installation
862.03	Structure Anchor Units (Use Detail in Lieu of Standard for Sheet 8 of 9)
866.04	Barbed Wire Fence - with Wood Posts
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets

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	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
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	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

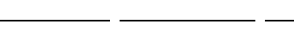
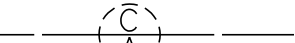
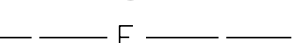
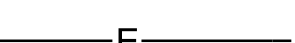
STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

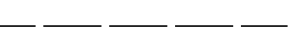
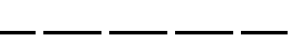
RAILROADS:

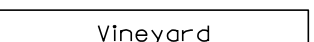
Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

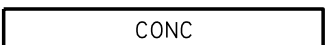
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent 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	

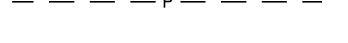
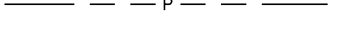
Woods Line	
Orchard	
Vineyard	

EXISTING STRUCTURES:

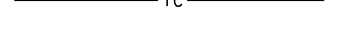
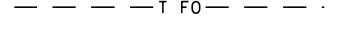
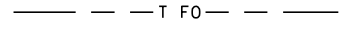
MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

UTILITIES:

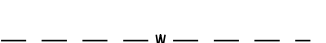
** SUE - Subsurface Utility Engineering
LOS - Level of Service - A,B,C or D (Accuracy)*

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)*	

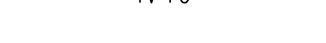
TELEPHONE:

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)*	

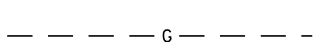
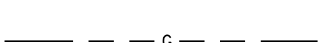
WATER:

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	

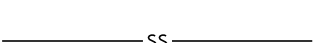
TV:

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	

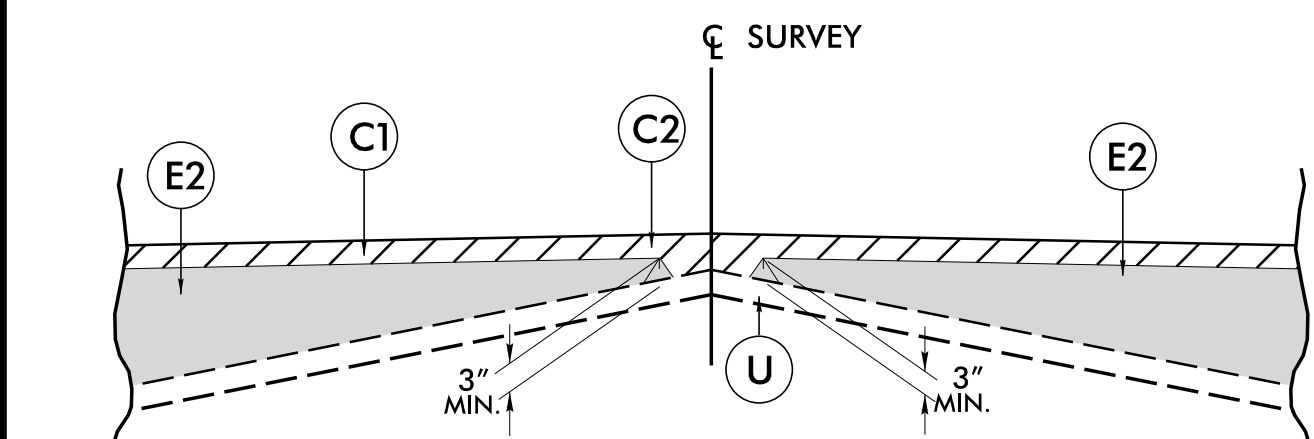
SANITARY SEWER:

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)*	

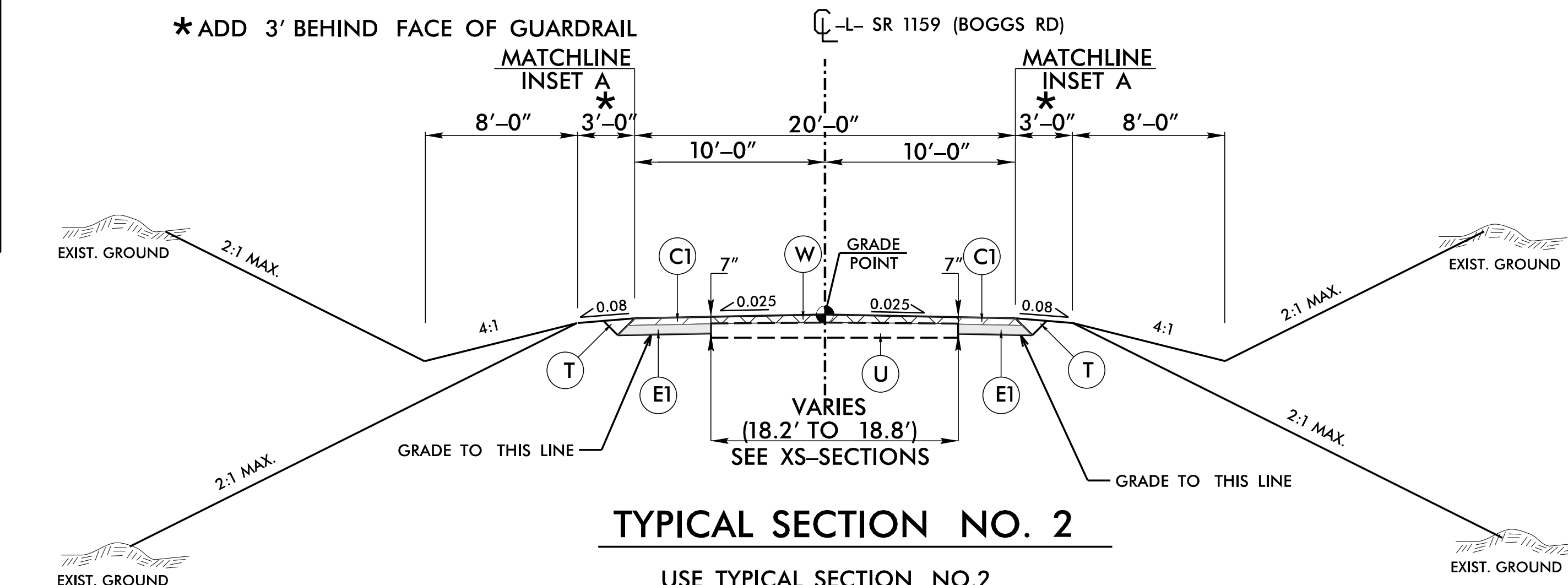
MISCELLANEOUS:

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	
Geoenviromental Boring	
Abandoned According to Utility Records	
End of Information	

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



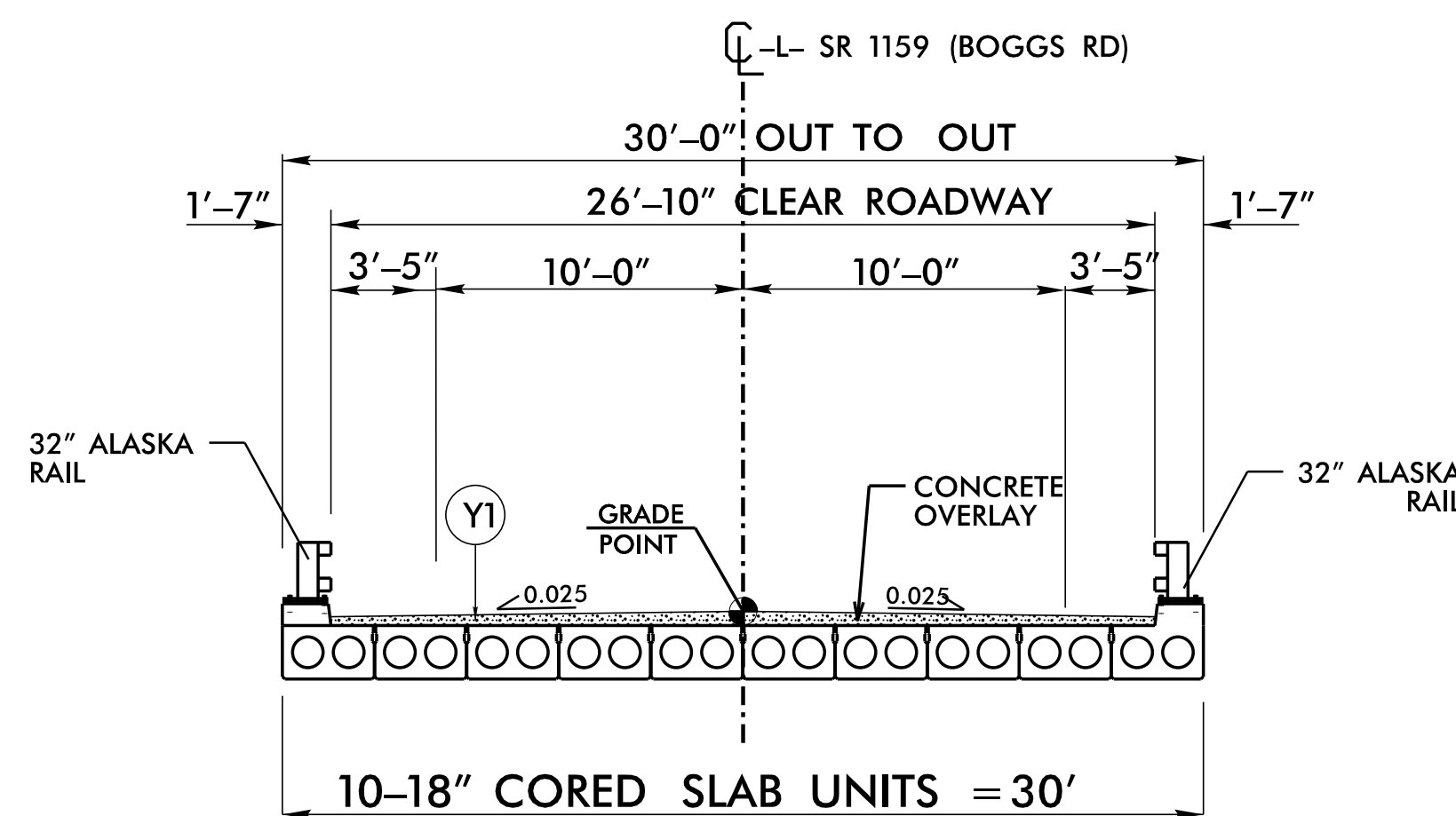
Detail Showing Method of Wedging



TYPICAL SECTION NO. 2

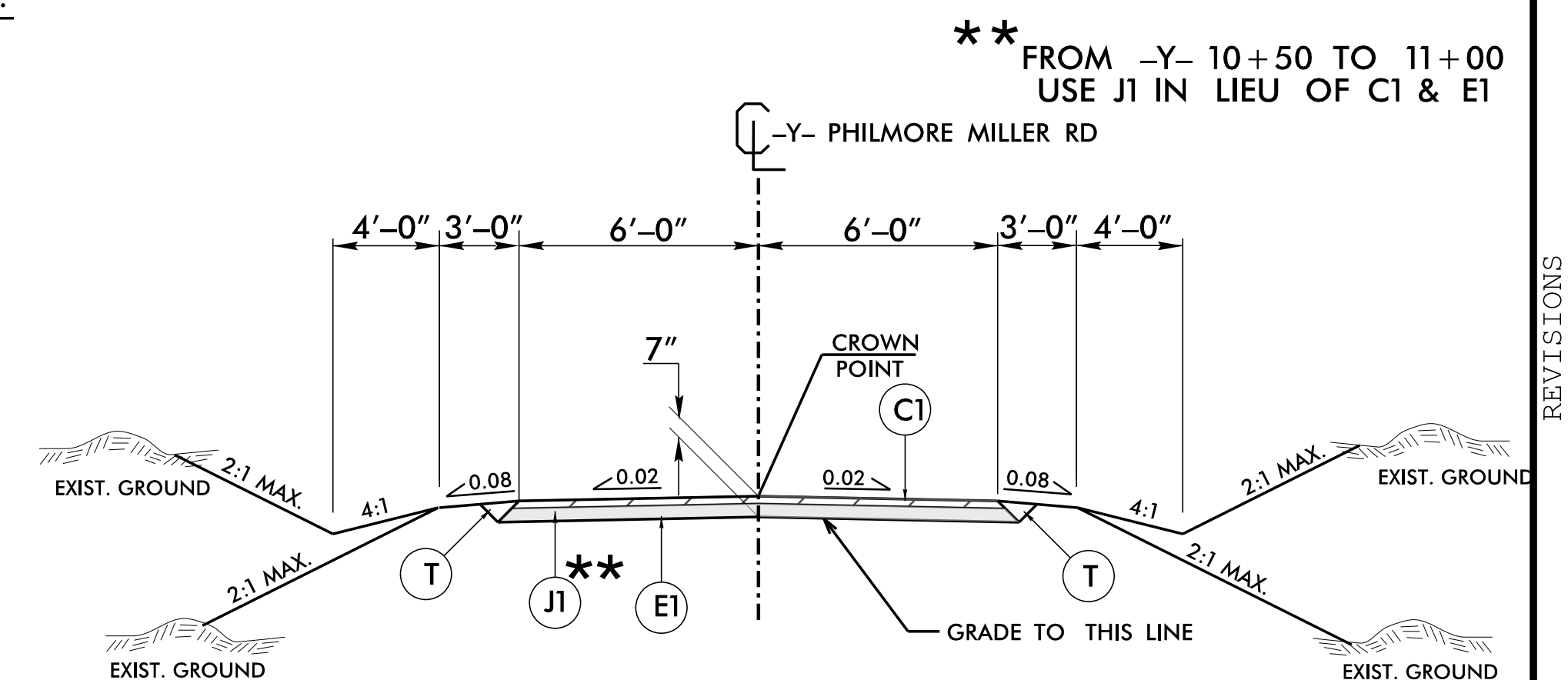
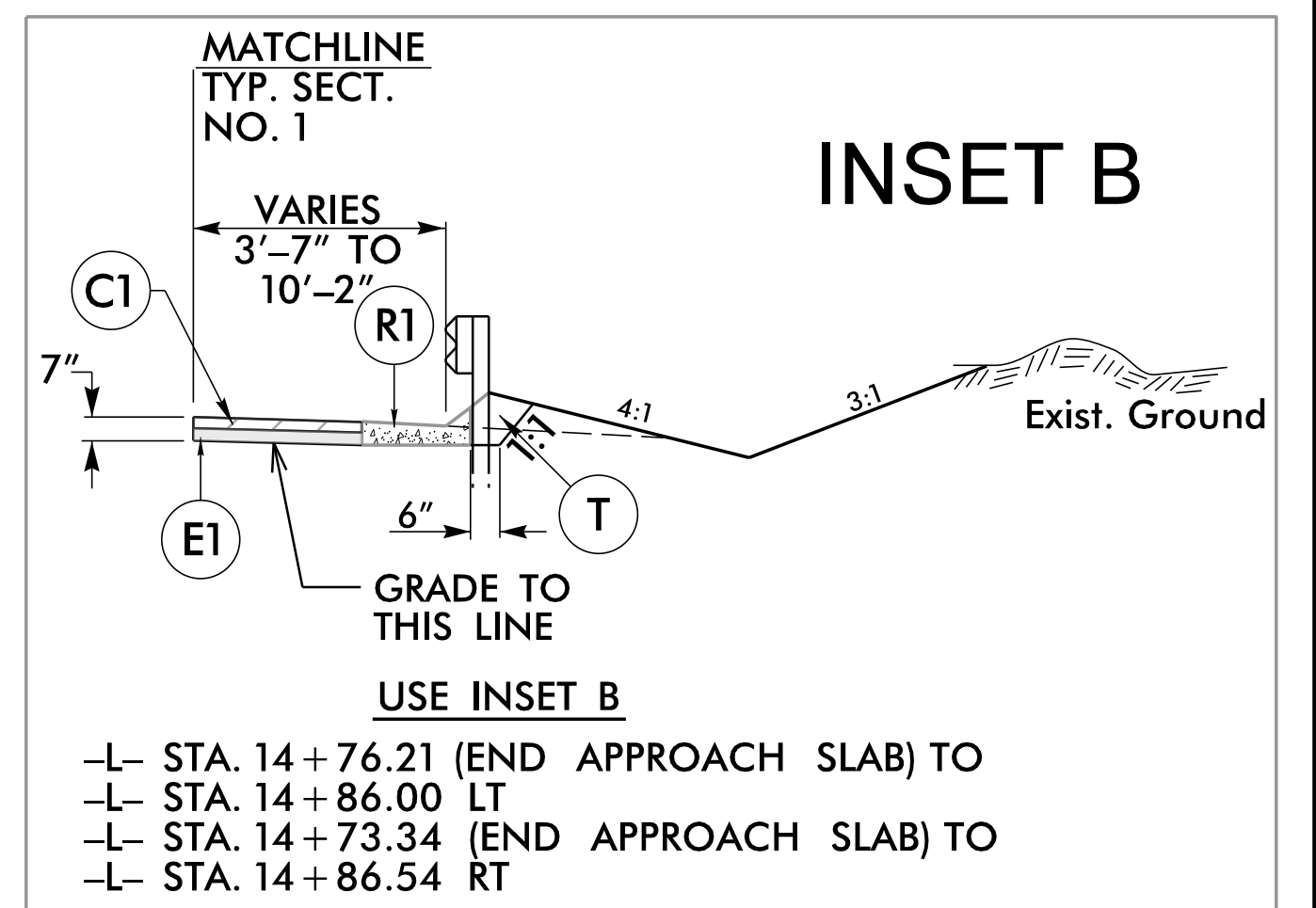
USE TYPICAL SECTION NO.2
-L- STA. 15+25.00 TO -L- STA. 15+75.00

NOTE: TRANSITION BETWEEN EXISTING AND TYP. SECT. NO. 2 AS FOLLOWS:
-L- STA. 15+75.00 TO -L- STA. 16+25.00



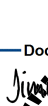
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO.3
-L- STA. 13+26.25 TO -L- STA. 14+63.75



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
-Y- STA. 10+10.46 TO -Y- STA. 11+00.00

HB-0051	
3RD	2A-1
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ASHE COUNTY	
	
ROADWAY DESIGN UNIT	
ROADWAY DESIGN ENGINEER	
Design by <u>James H. Shaw</u> 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PAVEMENT DESIGN ENGINEER	
Design by <u>James H. Shaw</u> 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PREPARED BY	
 TCS ENGINEERS 201 W. WARDEN ST., STE. 200 SHELBY, NC 28150 TEL: 704-961-1000 FAX: 704-961-1001 CONF. LICENSE NO.: C-0273	

REVISIONS

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 2

300.01

TOP OF FILL

GROUND LINE

H

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 3'

NORMAL EARTH FOUNDATION

TOP OF FILL

GROUND LINE

H

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 3'

ROCK

**ROCK FOUNDATION
PIPE IN TRENCH**

TOP OF FILL

GROUND LINE

H

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 3'

TYPE 4a
GEOTEXTILE

1/2" PER FOOT OF 'H'
BUT NOT LESS THAN 12"
NOR MORE THAN 24"
AS DIRECTED BY ENGR.

EARTH

UNSUITABLE MATERIAL FOUNDATION

TOP OF FILL

GROUND LINE

H

MIN. O.D.

1:1

COMPACT AFTER
PIPE IS PLACED
& PRIOR TO
PLACEMENT OF
FILL

O.D. + 2'

I.D. /6 MIN.
NOT LESS THAN 6"

NORMAL EARTH FOUNDATION

TOP OF FILL

GROUND LINE

H

MIN. O.D.

1:1

TYPE 4a
GEOTEXTILE

COMPACT AFTER
PIPE IS PLACED
& PRIOR TO
PLACEMENT OF
FILL

O.D. + 2'

I.D. /6 MIN.
NOT LESS THAN 6"

**ROCK FOUNDATION
PIPE ABOVE GROUND**

TOP OF FILL

GROUND LINE

H

MIN. O.D.

1:1

TYPE 4a
GEOTEXTILE

COMPACT AFTER
PIPE IS PLACED
& PRIOR TO
PLACEMENT OF
FILL

O.D. + 2'

I.D. /6 MIN.
NOT LESS THAN 6"

1/2" PER FOOT OF 'H'
BUT NOT LESS THAN 12"
NOR MORE THAN 24"
AS DIRECTED BY ENGINEER

UNSUITABLE MATERIAL FOUNDATION

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT
ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP
OF THE EMBANKMENT AT THAT POINT.

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1
FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE
UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL
ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS
BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

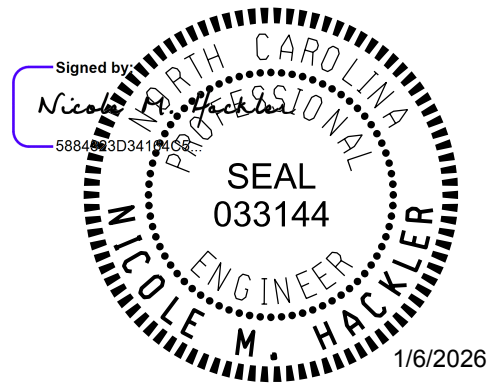
REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS
FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1
ABOVE AND BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE
WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

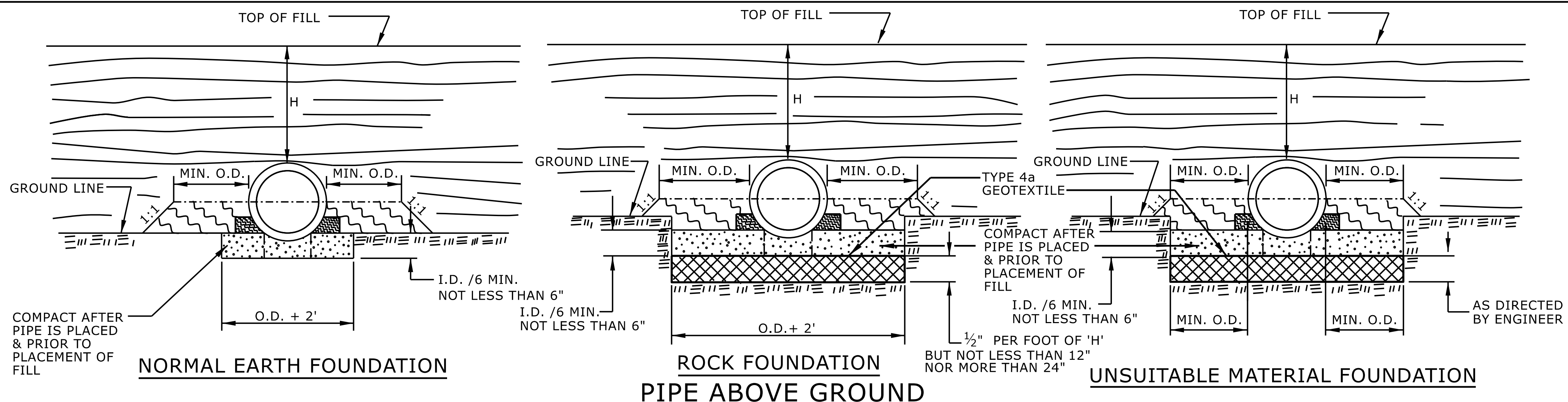
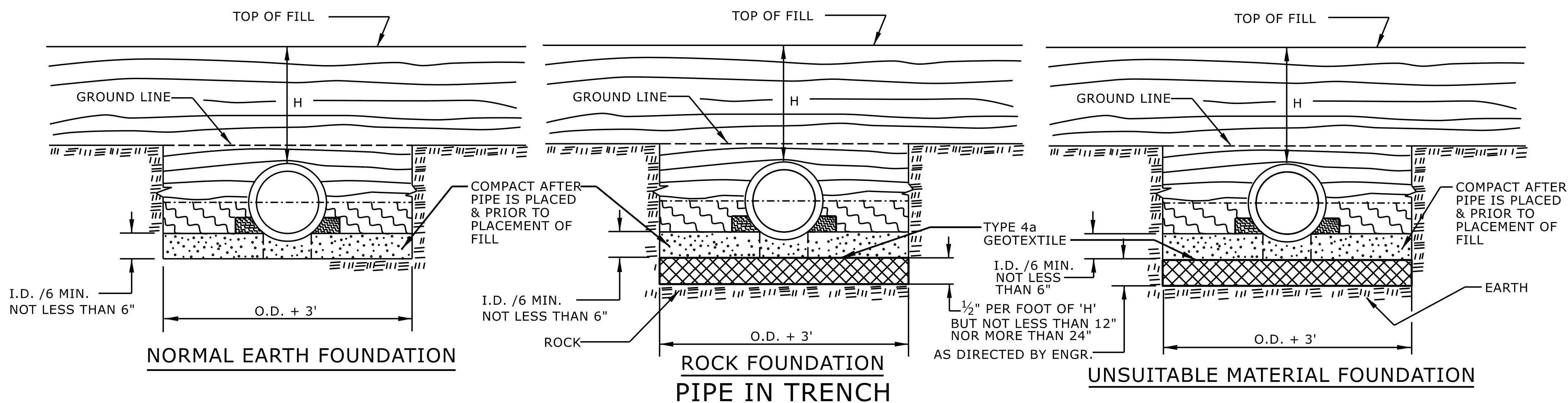


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

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



GENERAL NOTES:
I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT
ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP
OF THE EMBANKMENT AT THAT POINT.

	APPROVED SUITABLE LOCAL MATERIAL.
	TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
	LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

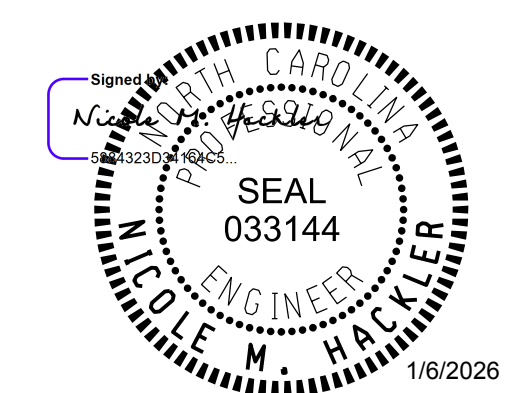
DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS
FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

	SPRINGLINE OF PIPE
	SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.
	UNDISTURBED EARTH MATERIAL
	SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

ROADWAY DETAIL DRAWING FOR METHOD OF PIPE INSTALLATION RIGID PIPE	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
---	---

SHEET 2 OF 2
300.01



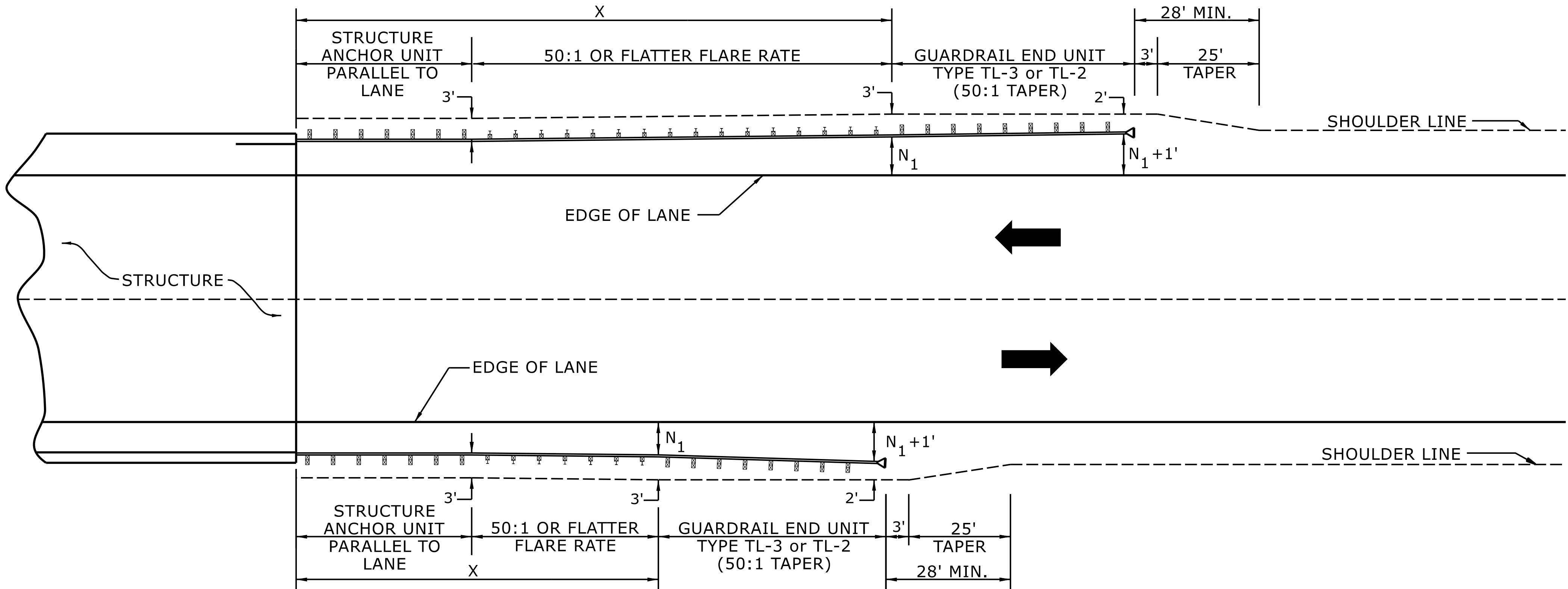
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
HB-0051	2C-3



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

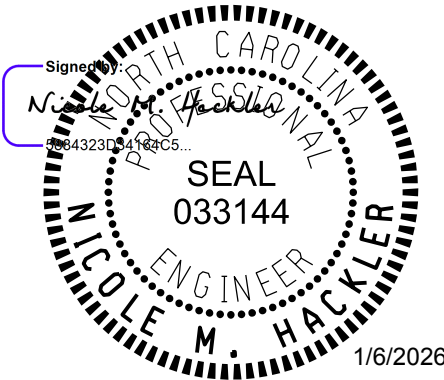
SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

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

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

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT



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

SHEET 4 OF 15
862D01

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

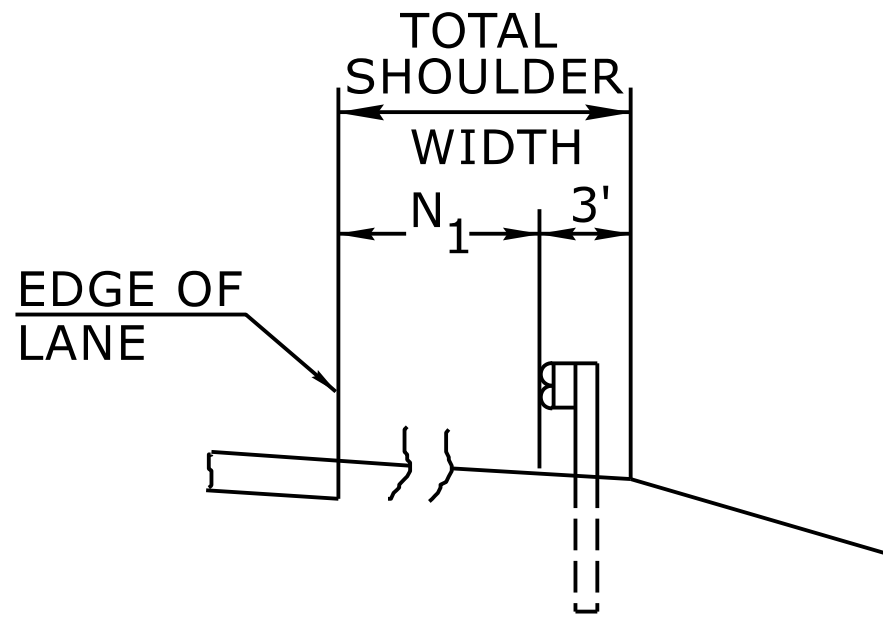
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

Office 919-707-6950 FAX 919-250-4119

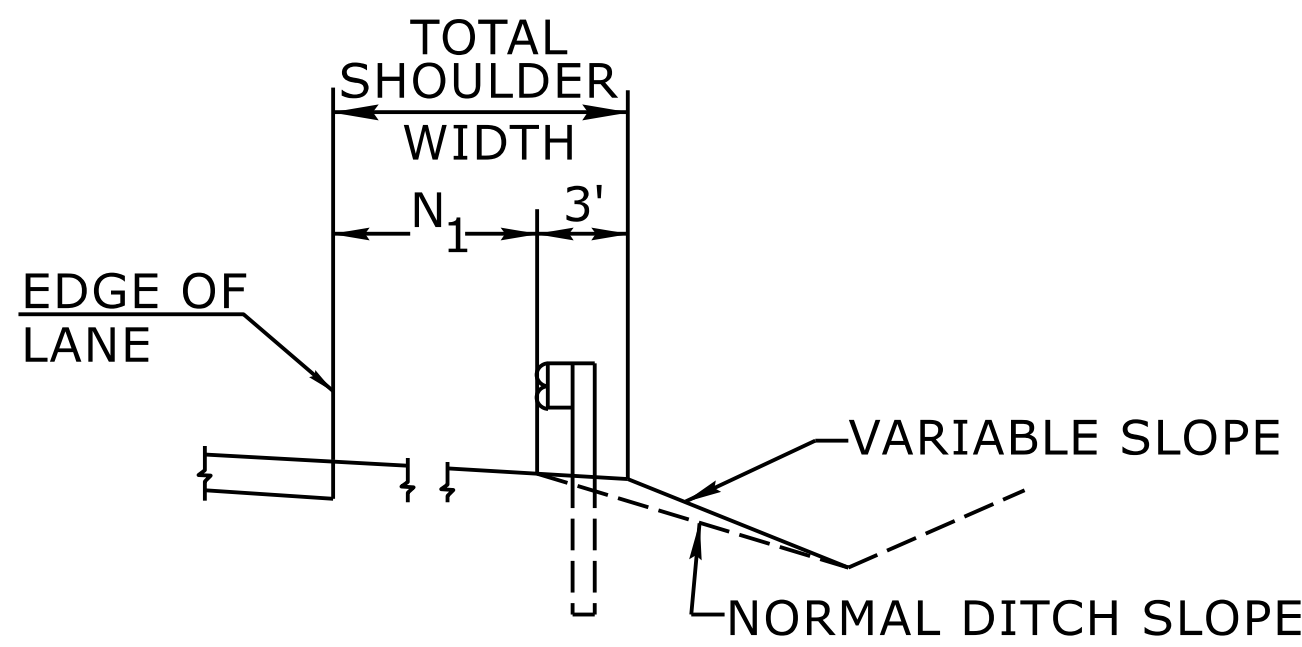
SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
HB-0051	2C-4

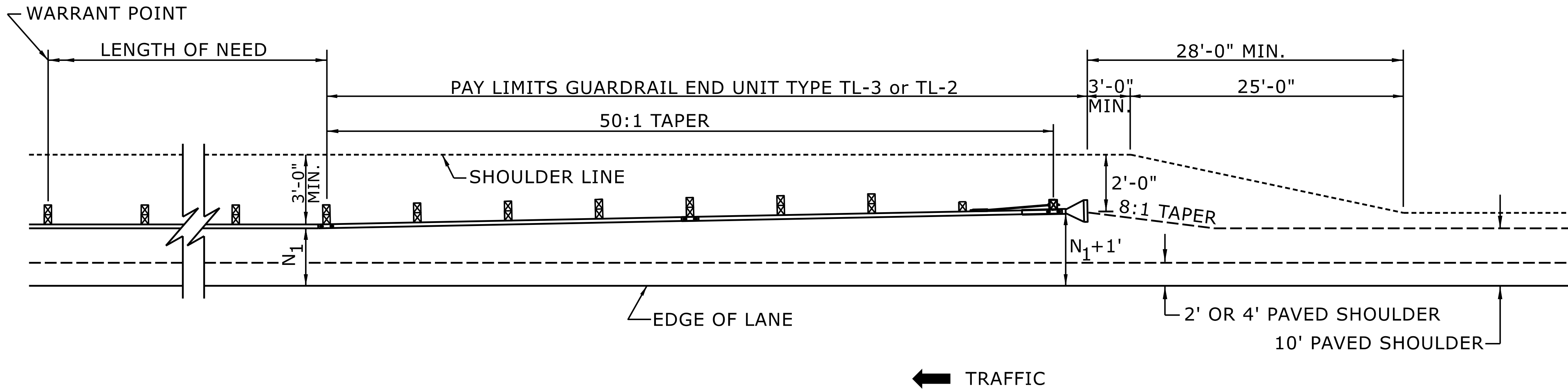


FILL SECTION



CUT SECTION

"N₁"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



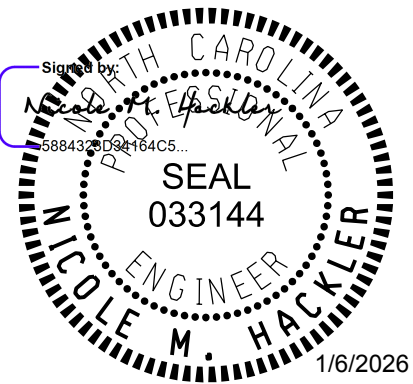
FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15
862D01



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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

SHEET 1 OF 1
TYPE III SC

SHEET 1 OF 1
TYPE III SC



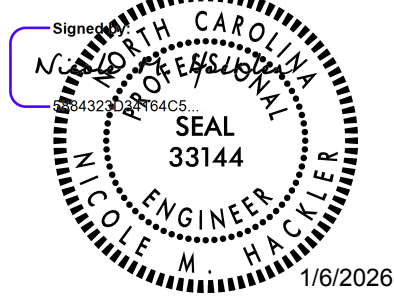
*POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11 $\frac{1}{2}$ " IF CONCRETE BACKWALL IS NOT PRESENT.

- SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
- MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
- LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.

PAY LIMITS FOR GUARDRAIL ANCHOR
TYPE III - SHOP CURVED



SHEET 1 OF 1
TYPE III SC



STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

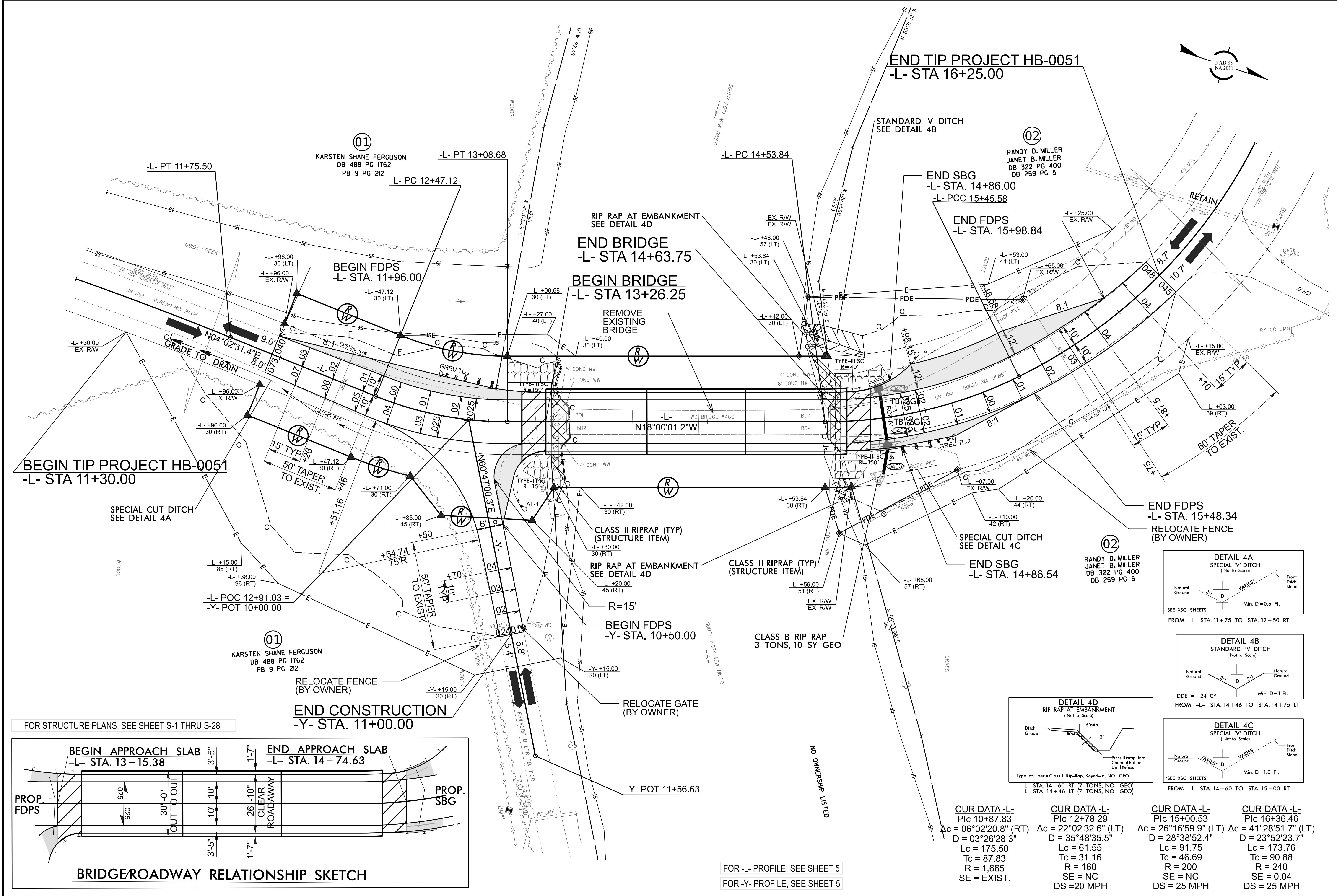
LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

*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			ASU1	12	100	200	300		
			TOTAL CY/TONS/SY:		100	200**	300**	0	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.



HB-0051
3R01 004

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER

SEAL 35018
JIMMY L. TERRY
ENGINEER
0000026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

HYDRAULICS ENGINEER

SEAL 038697
DAVID S. PETTY
ENGINEER
0000026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PREPARED BY

TGS
TGS ENGINEERS
201 W. ANSON ST., STE. 200
SHELBY, NC 28150
CORP. LICENSE NO. 17-0000026



*OVERTOPPING ELEV. OCCURS
AT LOW POINT -L- STA. 14+80.75

DATE OF SITE VISIT = 09-28-2022

APPROX. W.S. ELEVATION
AT DATE OF SITE VISIT = 2703.5

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

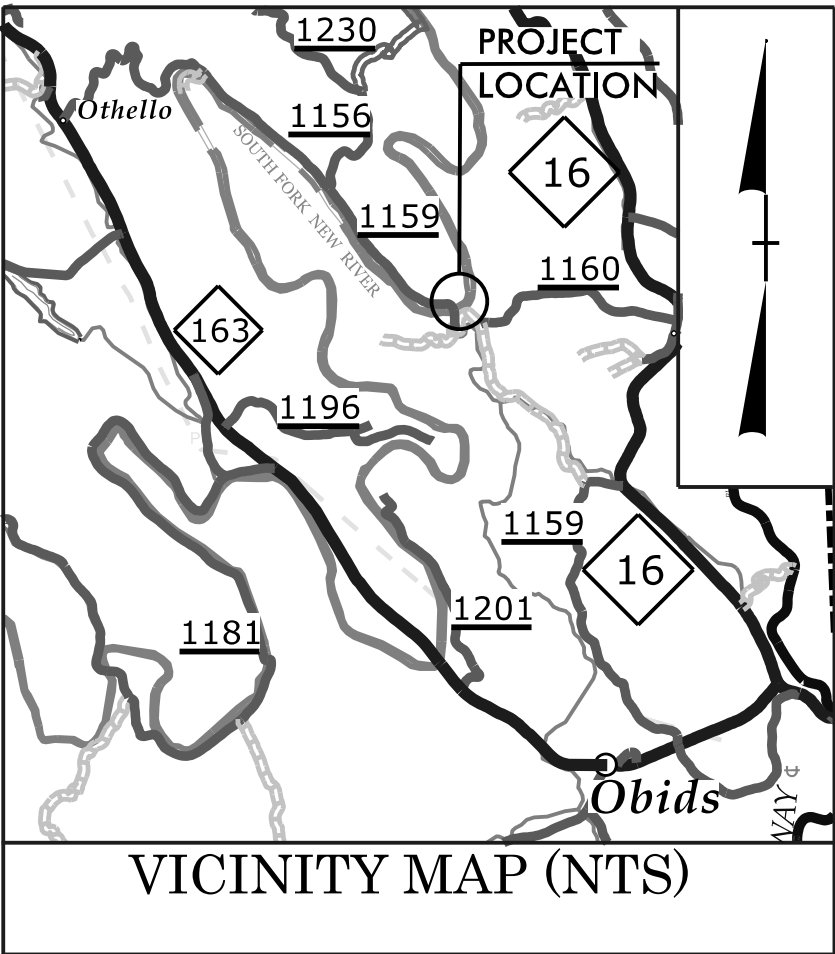
TIP PROJECT: HB-0051

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

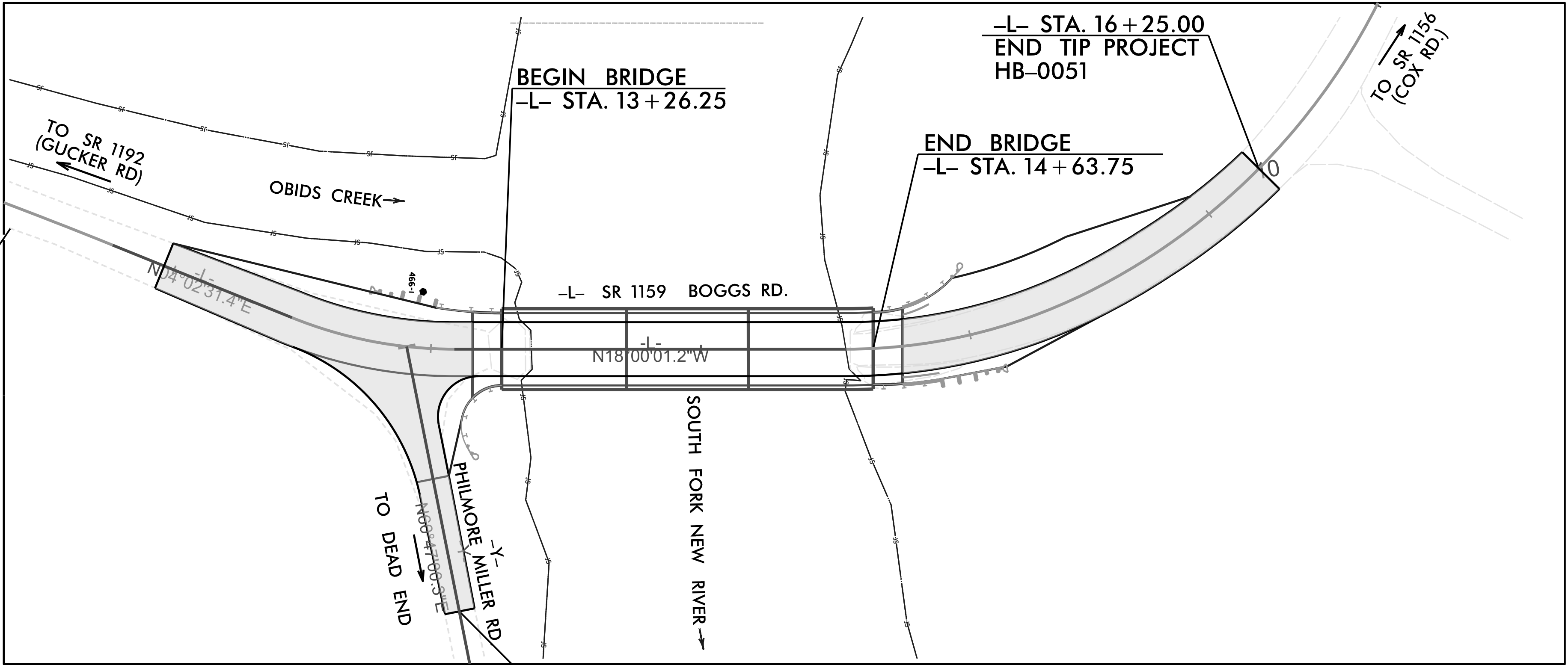
SURVEY CONTROL, EXISTING CENTERLINES,
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

ASHE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0051	RW01	4



-L- STA. 11+30.00
BEGIN TIP PROJECT
HB-0051



-Y- STA. 11+00.00
END CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT 466-1
WITH NAD 1983 (2011) STATE PLANE GRID COORDINATES OF
NORTHING: 953750.2660; EASTING: 1291925.2740
ELEVATION: 2709.73'
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.99993063
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:



Stantec
ONE WEST FOURTH ST., SUITE 820
WINSTON SALEM, N.C. 27101
LICENSE NO.: F-0672
www.stantec.com

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 17, 2024

LETTING DATE:
OCTOBER 16, 2025

PROFESSIONAL LAND
SURVEYOR

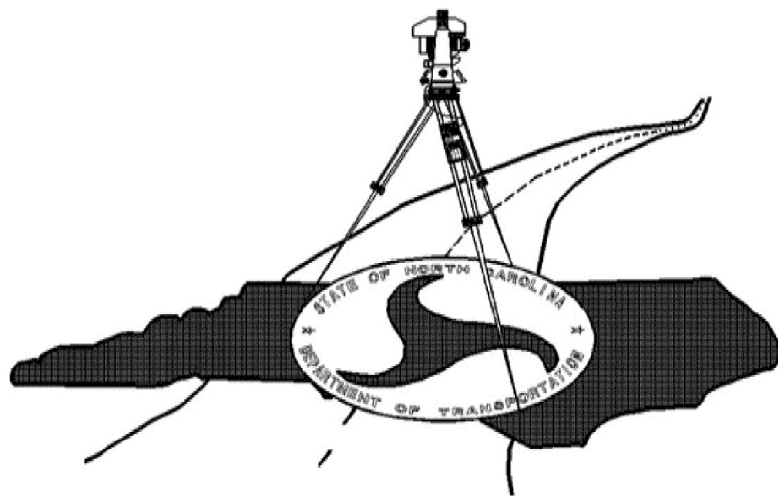


DocuSigned by:
Clinton B. Osborne
CA6F8B08F6449B...

SIGNATURE:

3/12/2025

DATE:



REVISIONS

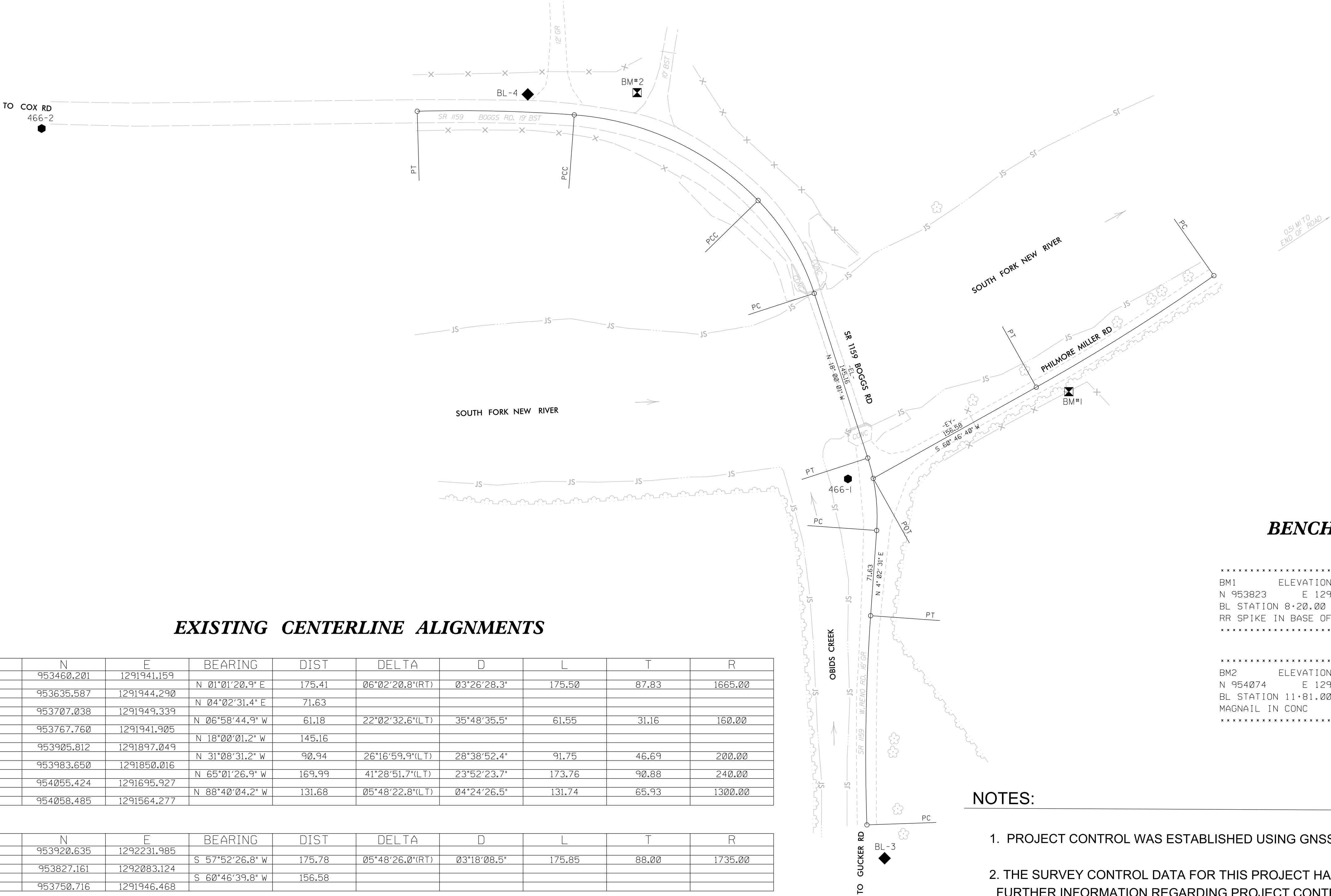
05-MAY-2022 07:45
S:\Surveyors\Projects\LIB\2022\040466\NTC\CONTROL SHEETS\040466.l.s.r\02c-1.dgn
mccornwell AT MCCORNWELLAPTOP

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BASELINE

BL	POINT	DESC.	NORTH	EAST	ELEVATION
3		BL-3	953432.2107	1291955.9716	2709.46
1		466-1	953750.2660	1291925.2740	2709.73
4		BL-4	954072.6200	1291656.8995	2722.13
2		466-2	954044.0070	1291249.5020	2725.88



EXISTING CENTERLINE ALIGNMENTS

EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	953460.201	1291941.159							
CURVE	953635.587	1291944.290	N 01°01'20.9" E	175.41	06°02'20.8"(RT)	03°26'28.3"	175.50	87.83	1665.00
PT			N 04°02'31.4" E	71.63					
PC	953707.038	1291949.339							
CURVE			N 06°58'44.9" W	61.18	22°02'32.6"(LT)	35°48'35.5"	61.55	31.16	160.00
PT	953767.760	1291941.905							
LINE			N 18°00'01.2" W	145.16					
PC	953905.812	1291897.049							
CURVE			N 31°08'31.2" W	90.94	26°16'59.9"(LT)	28°38'52.4"	91.75	46.69	200.00
PCC	953983.650	1291850.016							
CURVE			N 65°01'26.9" W	169.99	41°28'51.7"(LT)	23°52'23.7"	173.76	90.88	240.00
PCC	954055.424	1291695.927							
CURVE			N 88°40'04.2" W	131.68	05°48'22.8"(LT)	04°24'26.5"	131.74	65.93	1300.00
PT	954058.485	1291564.277							

EY POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	953920.635	1292231.985							
CURVE			S 57°52'26.8" W	175.78	05°48'26.0"(RT)	03°18'08.5"	175.85	88.00	1735.00
PT	953827.161	1292083.124							
LINE			S 60°46'39.8" W	156.58					
POT	953750.716	1291946.468							



PROJECT REFERENCE NO.
040466

SHEET NO.
RW02C-1

Location and Surveys

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PROJECT SURVEYOR

DocuSigned by:
Matthew Cornwell
EB0306F11473E475...

5/5/2022

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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: 466-1
Northing: 953750.266
Easting: 1291925.274
Combined grid factor: 0.99993063
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 58.1600 as applicable.

This 5/5/2022

DocuSigned by:
Matthew Cornwell
EB0306F11473E475...

Professional Land Surveyor L-4775

BENCHMARKS

BM1 ELEVATION = 2715.95
N 953823 E 1292110
BL STATION 8+20.00 199 LEFT
RR SPIKE IN BASE OF 16" OAK

BM2 ELEVATION = 2718.64
N 954074 E 1291749
BL STATION 11+81.00 71 RIGHT
MAGNAIL IN CONC

NOTES:

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

PROPOSED ALIGNMENT CONTROL SHEET

I, CLINTON B. OSBORNE, PLS, CERTIFY THAT THE DATA COMPILED CAME FROM AVAILABLE SURVEYS/MAPPING PERFORMED BY OTHERS AND PROVIDED TO ME BY NCDOT AND DO NOT CERTIFY TO THE ACCURACY OR QUALITY OF THE INDIVIDUAL DATA SOURCES.

THIS 12th DAY OF MARCH, 2025.

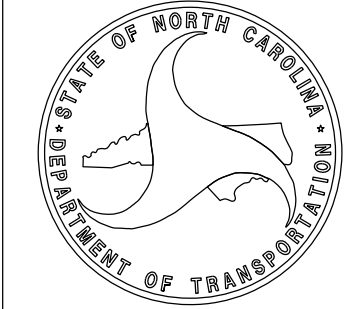
DocuSigned by:
Clinton B. Osborne
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PROFESSIONAL LAND SURVEYOR L-3834

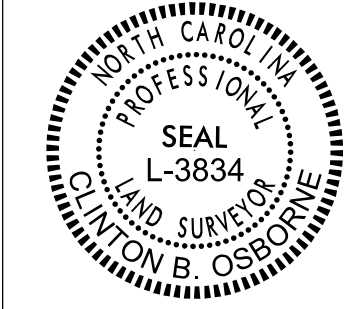
HB-0051

R/W020-I

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

PROPOSED ALIGNMENT: L												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
PC	10+00.00	953460.2014	1291941.1590	N01°01'20.9""E	175.41	06°02'20.8""	03°26'28.3""	175.5	87.83	1665		
PT	11+75.50	953635.5874	1291944.2900	N04°02'31.4""E	71.63							
PC	12+47.12	953707.0384	1291949.3390	N06°58'44.9""W	61.18	22°02'32.6""	35°48'35.5""	61.55	31.16	160		
PT	13+08.68	953767.7602	1291941.9050	N18°00'01.2""W	145.16							
PC	14+53.84	953905.8124	1291897.0490	N31°08'31.2""W	90.94	26°16'59.9""	28°38'52.4""	91.75	46.69	200		
PCC	15+45.58	953983.6500	1291850.0160	N65°01'26.9""W	169.99	41°28'51.7""	23°52'23.7""	173.76	90.88	240		
PCC	17+19.34	954055.4240	1291695.9270	N88°40'04.2""W	131.68	05°48'22.8""	04°24'26.5""	131.74	65.93	1300		
END	18+51.08	954058.4855	1291564.2780									

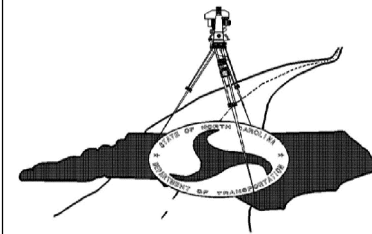
PROPOSED ALIGNMENT: Y												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
START	10+00.00	953750.7093	1291946.4233	N60°47'00.3""E	156.63							
END	11+56.63	953827.1607	1292083.1240									

NOTES:

1. 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.

TIP PROJECT: HB-0051
County: ASHE

PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY



Stantec

ONE WEST FOURTH ST., SUITE 820
WINSTON SALEM, N.C. 27101
LICENSE NO.: F-0672
www.stantec.com

RIGHT OF WAY CONTROL SHEET

I, CLINTON B. OSBORNE, PLS, 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 02-14-25 TO 02-27-25, AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

THIS 12TH DAY OF MARCH, 2025.

DocuSigned by:
Clinton B. Osborne

PROFESSIONAL LAND SURVEYOR L-3834

PERMANENT ROW MARKER IRON PIN AND CAP: L			
	STATION	OFFSET	NORTH EAST
**	11+96.00	-30.00	953658.1559 1291915.8100
	11+96.00	-15.00	953657.0986 1291930.7720
	11+96.00	30.00	953653.9266 1291975.6600
	11+96.00	15.00	953654.9840 1291960.6980
	12+47.12	30.00	953704.9238 1291979.2640
**	12+47.12	-30.00	953709.1531 1291919.4130
	12+71.00	30.00	953733.2496 1291979.1490
	12+85.00	45.00	953752.2261 1291991.9130
	13+08.68	-30.00	953758.4895 1291913.3740
	13+20.00	45.00	953792.4338 1291981.2040
*	13+30.00	30.00	953797.3090 1291963.8480
**	14+53.84	30.00	953915.0831 1291925.5800
	14+53.84	-30.00	953896.5417 1291868.5170
	14+55.16	-30.00	953897.6108 1291868.1660
**	14+64.38	30.00	953926.5108 1291921.5310

PERMANENT EASEMENT MARKER IRON PIN AND CAP: L			
	STATION	OFFSET	NORTH EAST
**	14+42.00	-30.00	953885.2858 1291872.1743
**	14+46.00	-57.00	953880.7464 1291845.2597
**	14+59.00	51.00	953927.7106 1291943.4700
**	15+07.00	30.00	953970.0513 1291899.2254
*	15+65.00	-30.00	953974.3748 1291816.1968

- * MAG NAIL SET
- ** NO POINT SET

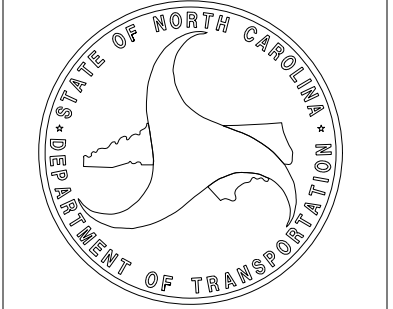
NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

BH-0051

R/W03E-I

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR

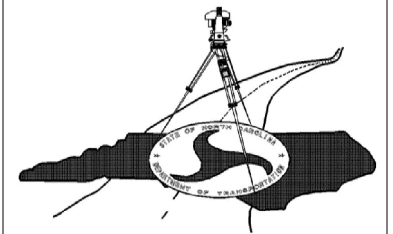


DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: HB-0051
County: ASHE

PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY



Stantec
ONE WEST FOURTH ST., SUITE 820
WINSTON SALEM, N.C. 27101
LICENSE NO.: F-0672
www.stantec.com



THIS 12TH DAY OF MARCH, 2025.

PROFESSIONAL LAND SURVEYOR L-3834

R/W	04
-----	----

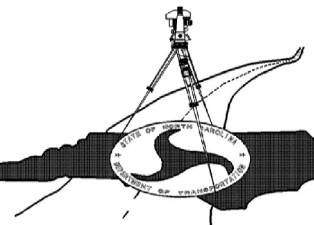
A circular professional seal for a North Carolina Land Surveyor. The outer ring contains the text "NORTH CAROLINA" at the top and "CLINTON B. OSBORNE" at the bottom. The inner ring contains the text "PROFESSIONAL" at the top and "LAND SURVEYOR" at the bottom. In the center, the word "SEAL" is positioned above the license number "L-3834".

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

PROJECT: HB-0051
County: ASHE

PREPARED FOR

LOCATION AND
SURVEYS UNIT

PREPARED BY



Stanted

ONE WEST FOURTH ST., SUITE 800
WINSTON SALEM, N.C. 27101
EPCRA NO.: F-0672
www.stantec.com

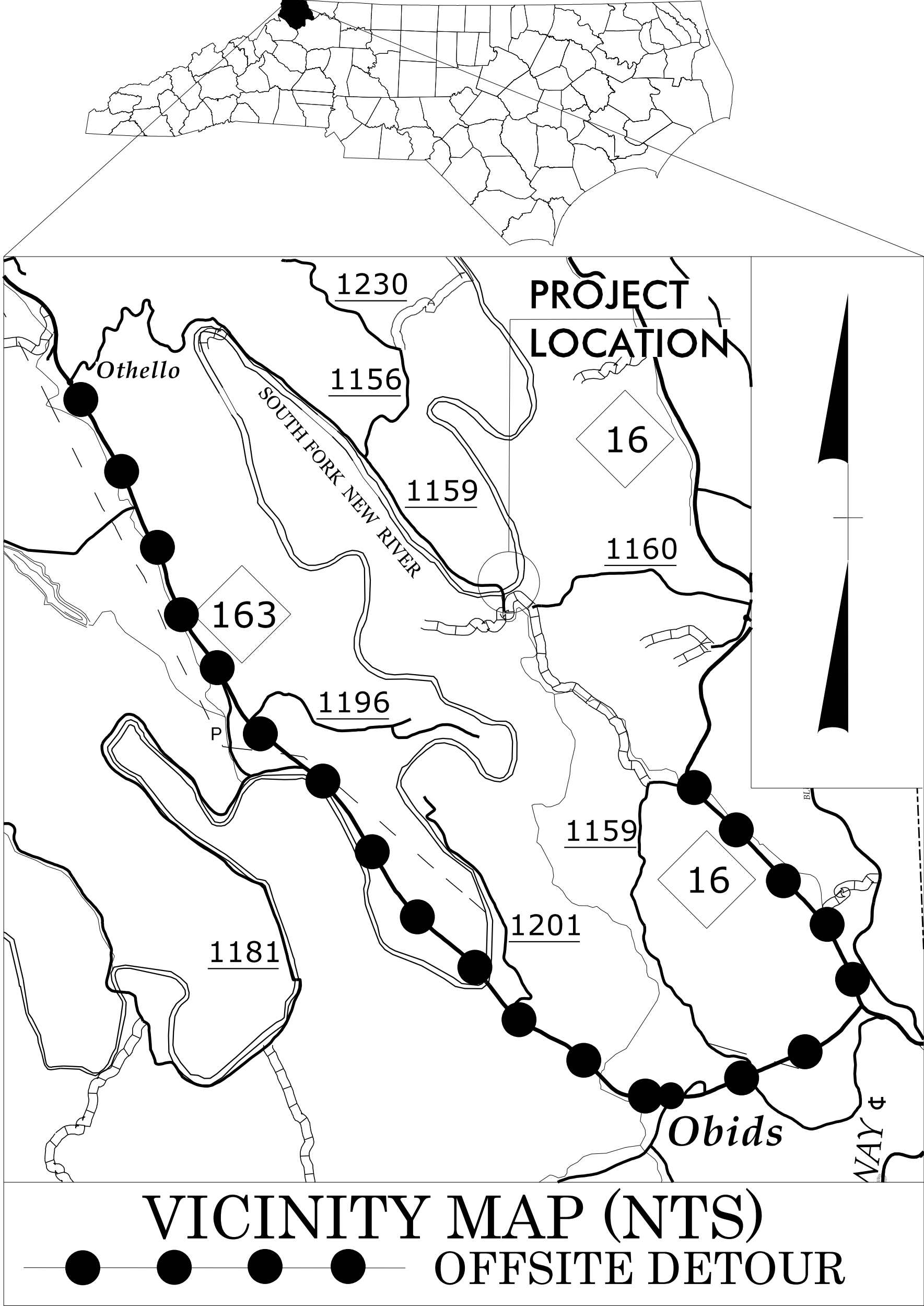
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ASHE COUNTY

LOCATION: *BRIDGE #040466 OVER SOUTH FORK NEW RIVER
ON SR 1159 (BOGGS RD)*

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



INDEX OF SHEETS

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 AND PHASING
TMP-2	SIGN DESIGN
TMP-3	DETOUR SIGNING



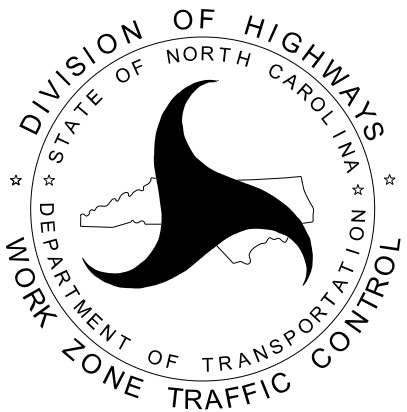
PLANS PREPARED FOR N.C.D.O.T. BY: TGS ENGINEERS



TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

DON A. PARKER, P.E.
PROJECT ENGINEER

CODA BRANNAN, E.I.
DESIGN ENGINEER

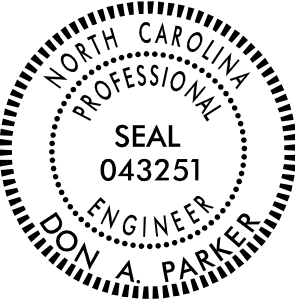


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

APPROVED: Signed by: Don A. Parker
75D08E90ADEF440...

DATE: 1/5/2026

SEAL



PROJECT: HB-0051

SHEET NO.
TMP-1

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - 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:

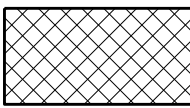
STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES

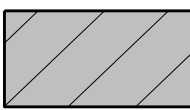
LEGEND

GENERAL

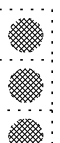
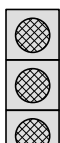
-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  EXIST. PVMT.
-  NORTH ARROW
-  PROPOSED PVMT.
-  TEMP. SHORING (LOCATION PURPOSES ONLY)

 WORK AREA

 REMOVAL

 WEDGING

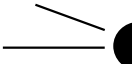
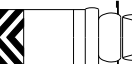
SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY

PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES

TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM
-  SKINNY DRUM
-  TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW BOARD
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

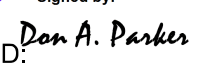
-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

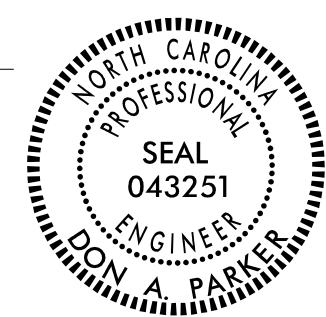
-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW

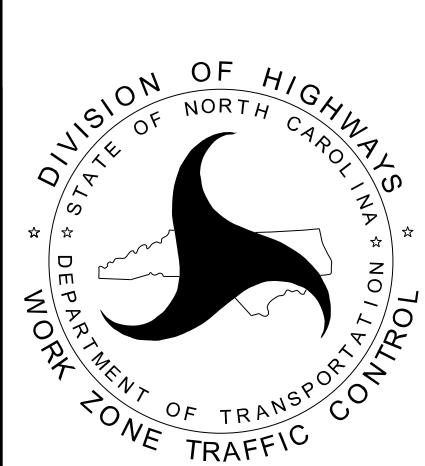
PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS

APPROVED: 
150B9E90ADEF440...

DATE: 1/5/2026





ROADWAY STANDARD
DRAWINGS & LEGEND

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJ. REFERENCE NO.	SHEET NO.
HB-0051	TMP-1B
TCS ENGINEERS TCS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-9887 CORP. LICENSE NO.: C-0275	

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.

TIME RESTRICTIONS

A) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD	DAY AND TIME	DURATION AND OPERATION
SR 1159 (BOGGS RD) PHILMORE MILLER RD.	MONDAY THRU SUNDAY 12:00 AM TO 9:00 AM AND 3:00 PM TO 11:59 PM	20 MINUTES FOR ROCK BLASTING

LANE AND SHOULDER CLOSURE REQUIREMENTS

B) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 5 FT OF AN OPEN TRAVEL LANE ON AN UNDIVIDED FACILITY, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 10 FT OF AN OPEN TRAVEL LANE ON A DIVIDED FACILITY, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

F) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

G) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

H) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

J) 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.

K) 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.

L) 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.

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

TRAFFIC CONTROL DEVICES

N) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

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

PAVEMENT MARKINGS AND MARKERS

P) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS SHOWN IN THE FINAL PAVEMENT MARKING PLAN.

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

PHASING

NOTE: FOR BLASTING OPERATIONS, REFER TO RSD 1101.06 AND INTERMEDIATE CONTRACT TIME. USE FLAGGERS TO STOP LOCAL TRAFFIC.

STEP 1 – INSTALL DETOUR ADVANCE WARNING SIGNS AND DETOUR TRAILBLAZING SIGNS (SEE RSD 1101.03, SHEET 1 AND 2 AND TMP-4).

STEP 2 – CLOSE BOGGS RD. (-L-) TO THRU TRAFFIC.

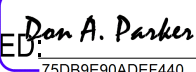
STEP 3 – AWAY FROM TRAFFIC, CONSTRUCT PROPOSED BRIDGE AND APPROACHES ON BOGGS RD (-L-) UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.

STEP 4 – AWAY FROM TRAFFIC, PLACE THE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS ON BOGGS RD (-L-).

STEP 5 – RE-OPEN BOGGS RD (-L-) TO THRU TRAFFIC.

STEP 6 – REMOVE ALL TRAFFIC CONTROL DEVICES.

12/30/2025
X:\NC001\HB-0051 - Ashe 466\Work Zone Traffic Control\HB-0051.TC_TMP_01B.dgn
User: tbrannon

APPROVED: 
750B9690ADEF440...

DATE: 1/5/2026



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



TRANSPORTATION
OPERATIONS
PLAN & PHASING

SIGN NUMBER: name TYPE: STATIONARY QUANTITY: SEE PLANS SIGN WIDTH: 3'-6" HEIGHT: 1'-6" TOTAL AREA: 5.25 Sq.Ft. BORDER TYPE: INSET RECESS: 0-1/2" WIDTH: 0-5/8" RADII: 1-1/2" NO. Z BARS: LENGTH: BACKG COLOR: Fluorescent Orange COPY COLOR: Black <table><tr><th>SYMBOL</th><th>X</th><th>Y</th><th>WID</th><th>HT</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table> MAT'L: 0.080" (2.0 mm) ALUMINUM	SYMBOL	X	Y	WID	HT																																				DESIGN BY: none PROJECT ID: ID CHECKED BY: LOCATION: Apr 11, 2025 DIV: DIV 3' 6" 1' 6" Boggs Rd 6 6 6 5.3 31.3 5.3 BORDER R=1.5 in TH=0.625 in IN=0.5 in Panel Style: construction_guide.ssi M.U.T.C.D.: 2023 Edition Spacing Factor is 1 unless specified otherwise
SYMBOL	X	Y	WID	HT																																					

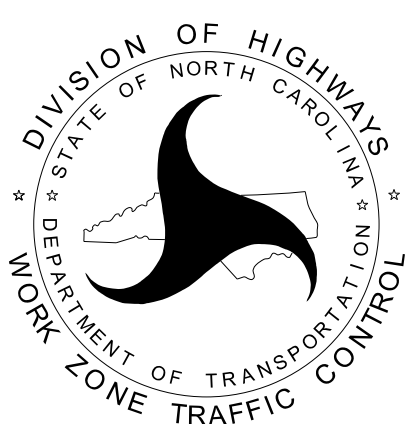
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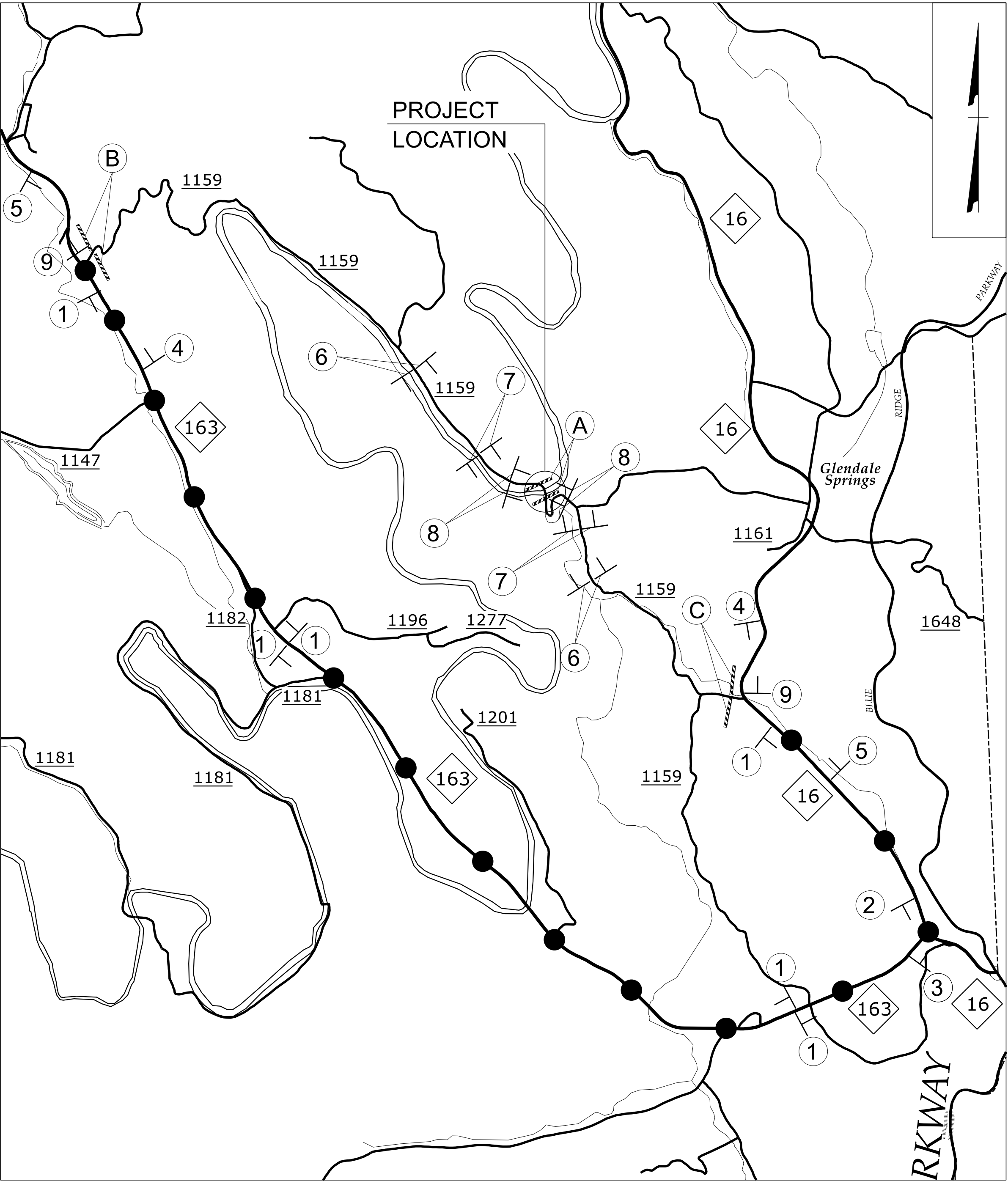
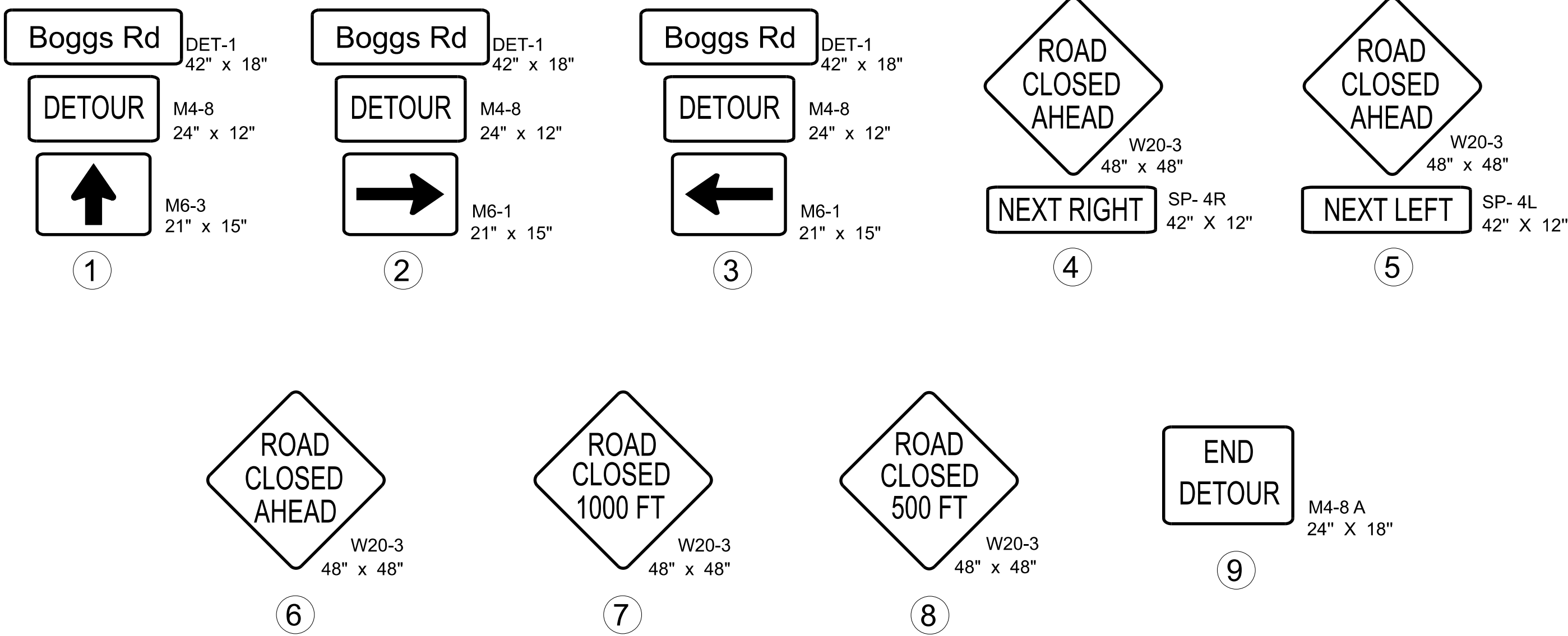
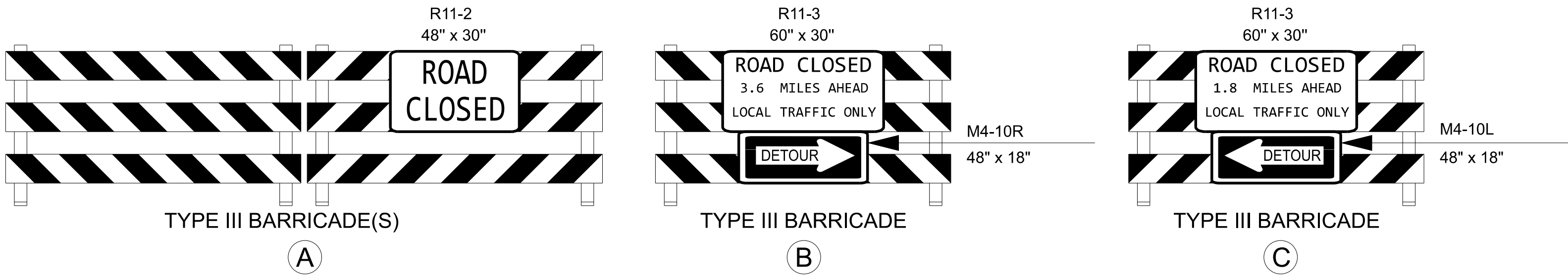
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	B	o	g	g	s		R	d															Text Length
	5.3	9.4	13.2	17.2	21	23.5	29.5	33.6															C 2000
																							31.3

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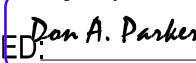
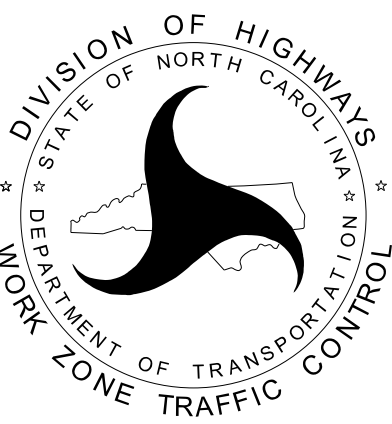
NORTH CAROLINA D.O.T. SIGN DETAIL

12/30/2025
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User: cbrannon

APPROVED  DATE: 1/5/2026  DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		SIGN DESIGN
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VICINITY MAP
OFFSITE DETOUR

APPROVED:  DATE: 1/5/2026 		DETOUR SIGNING
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

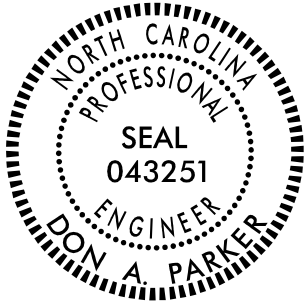
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PROJECT: HB-0051

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
ASHE COUNTY

LOCATION: *BRIDGE #040466 OVER SOUTH FORK NEW RIVER
ON SR 1159 (BOGGS RD)*

TIP NO.	SHEET NO.
HB-0051	PMP-1
Signed by: <i>Don A. Parker</i>	
APPROVED: 75DBBE95ADEF440	
DATE: 1/5/2026	
SEAL	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE, SCHEDULE SHEET, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, GENERAL NOTES, AND FINAL PAVEMENT MARKING SCHEDULE
PMP-1A	REVISED ROADWAY STANDARD DRAWING (1205D01)
PMP-2	PAVEMENT MARKING DETAIL

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:

STD. NO.	TITLE
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 AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L- SR 1159 BOGGS RD	PAINT	NONE

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

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

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

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

H) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING PAINT PAVEMENT MARKING MATERIAL.

FINAL PAVEMENT MARKING
SCHEDULE

SYMBOL DESCRIPTION

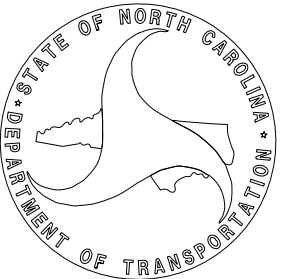
PAVEMENT MARKINGS

PAINT (4")

P1	(4") WHITE EDGELINE
P5	(4") 2 FT. - 6 FT./SP WHITE MINISKIP
P13	(4") YELLOW DOUBLE CENTER

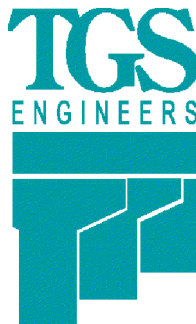
PLAN SUBMITTED TO: NCDOT

DANIEL R. ADAMS, P.E. DIVISION 11 PROJECT TEAM LEAD



PLAN PREPARED BY: TGS ENGINEERS

DON A. PARKER, P.E. PROJECT ENGINEER
CODA BRANNAN, E.I. DESIGN ENGINEER



TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

CONTINUOUS LINES EDGE LINE YELLOW OR WHITE 4" / 6" LANE LINE WHITE 4" / 6" CENTER LINE YELLOW 4" / 6" GORE LINE WHITE 8" / 12" DIAGONAL LINE YELLOW OR WHITE 12" 45 MPH OR HIGHER 8" LESS THAN 45 MPH 4"-6" FOR BICYCLE FACILITIES CROSSWALK LINE WHITE 8" TRANSVERSE 24" LONGITUDINAL RxR LINE WHITE 16" STOP OR TRANSVERSE BAR WHITE 24"	10'-30'/SP SKIP LINE UNLESS OTHERWISE SHOWN, USE 10'-30'/SP SKIPS FOR SKIP LANE LINES AND SKIP CENTER LINES. 10' 30' 4" / 6" YELLOW OR WHITE	2'-6'/SP MINI-SKIP LINE UNLESS OTHERWISE SHOWN, USE 2'-6'/SP MINI-SKIPS FOR LANE LINE EXTENSIONS THROUGH INTERSECTIONS, EDGE LINE EXTENSIONS THROUGH INTERSECTIONS AND BICYCLE LANE EXTENSIONS. 2' 6' 4" / 6" YELLOW OR WHITE	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
	3'-3'/SP MINI-SKIP LINE UNLESS OTHERWISE SHOWN, USE 3'-3'/SP MINI-SKIPS FOR THE WHITE EDGE LINE EXTENSIONS AT ROUNDABOUTS. 3' 3' 8" / 12" WHITE	3'-9'/SP MINI-SKIP LINE UNLESS OTHERWISE SHOWN, USE 3'-9'/SP MINI-SKIPS FOR MINI-SKIP LANE LINES, LINE EXTENSIONS THROUGH TAPERS, AND MINI-SKIPS USED FOR BICYCLE LANE LINES. 3' 9' 4" / 6" WHITE	
	GENERAL NOTES: 1- USE 6" LANE, EDGE, AND CENTER LINES ON ALL FULL CONTROL OF ACCESS FACILITIES AND OTHER ROUTES AS DIRECTED BY THE ENGINEER. 2- LANE LINES INDICATED AS "WIDE" ON THE ROADWAY STANDARD DRAWINGS SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE. 3- GORE LINES SHALL BE TWICE THE WIDTH OF THE NORMAL LINE.		
ROADWAY DETAIL DRAWING FOR PAVEMENT MARKINGS LINE TYPES AND OFFSETS			
SHEET 1 OF 2 1205D01			



CONTRACTS STANDARDS
AND DEVELOPMENT UNIT

Office 919-707-8950 FAX 919-250-4119

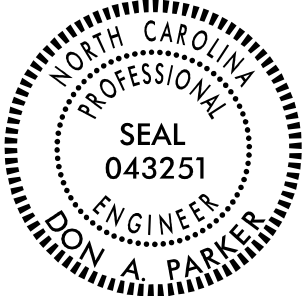
SEE TITLE BLOCK

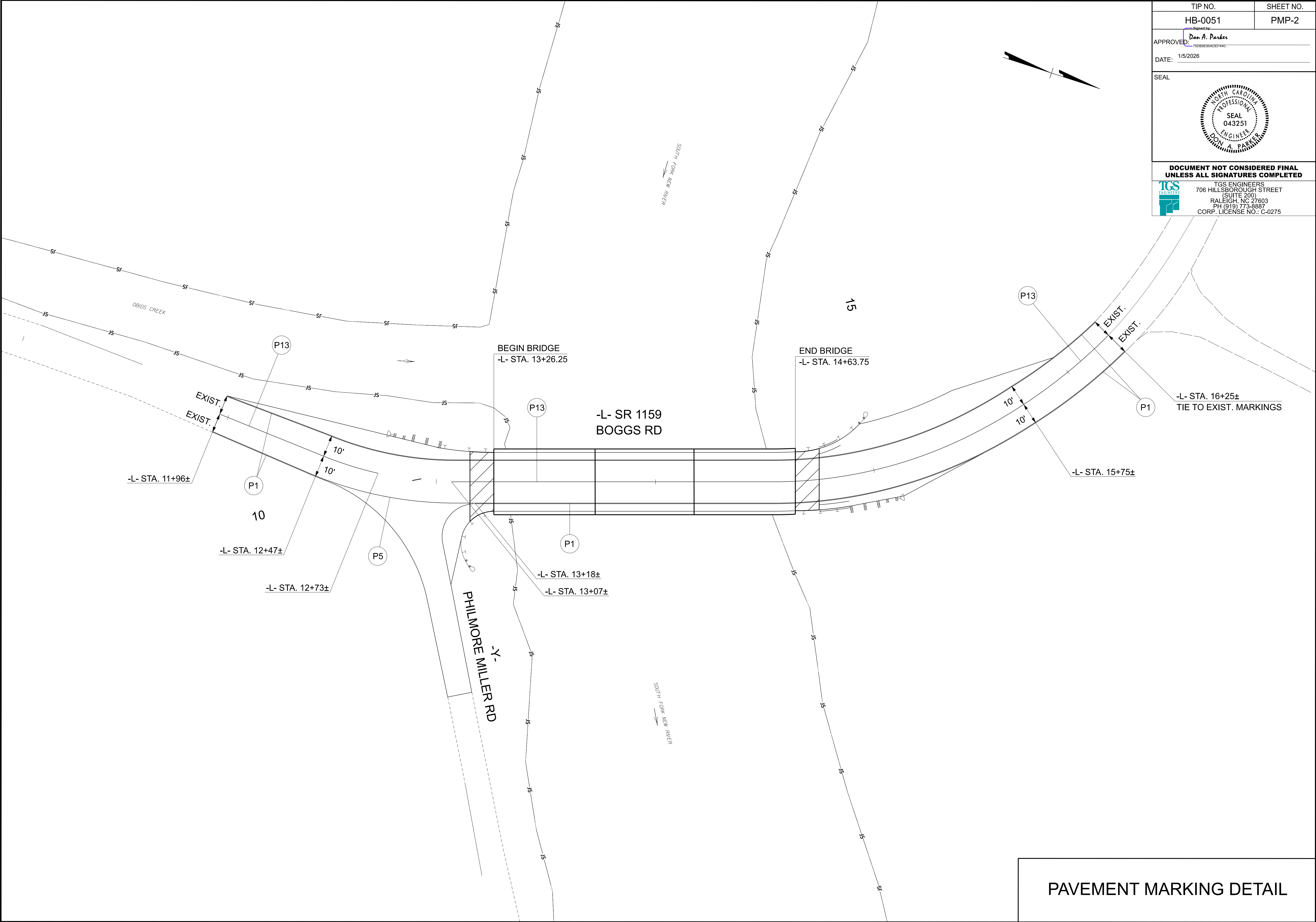
ORIGINAL BY: M.V. SPRINGER DATE: 2-15-24

MODIFIED BY: DATE:

CHECKED BY: DATE:

FILE SPEC.:

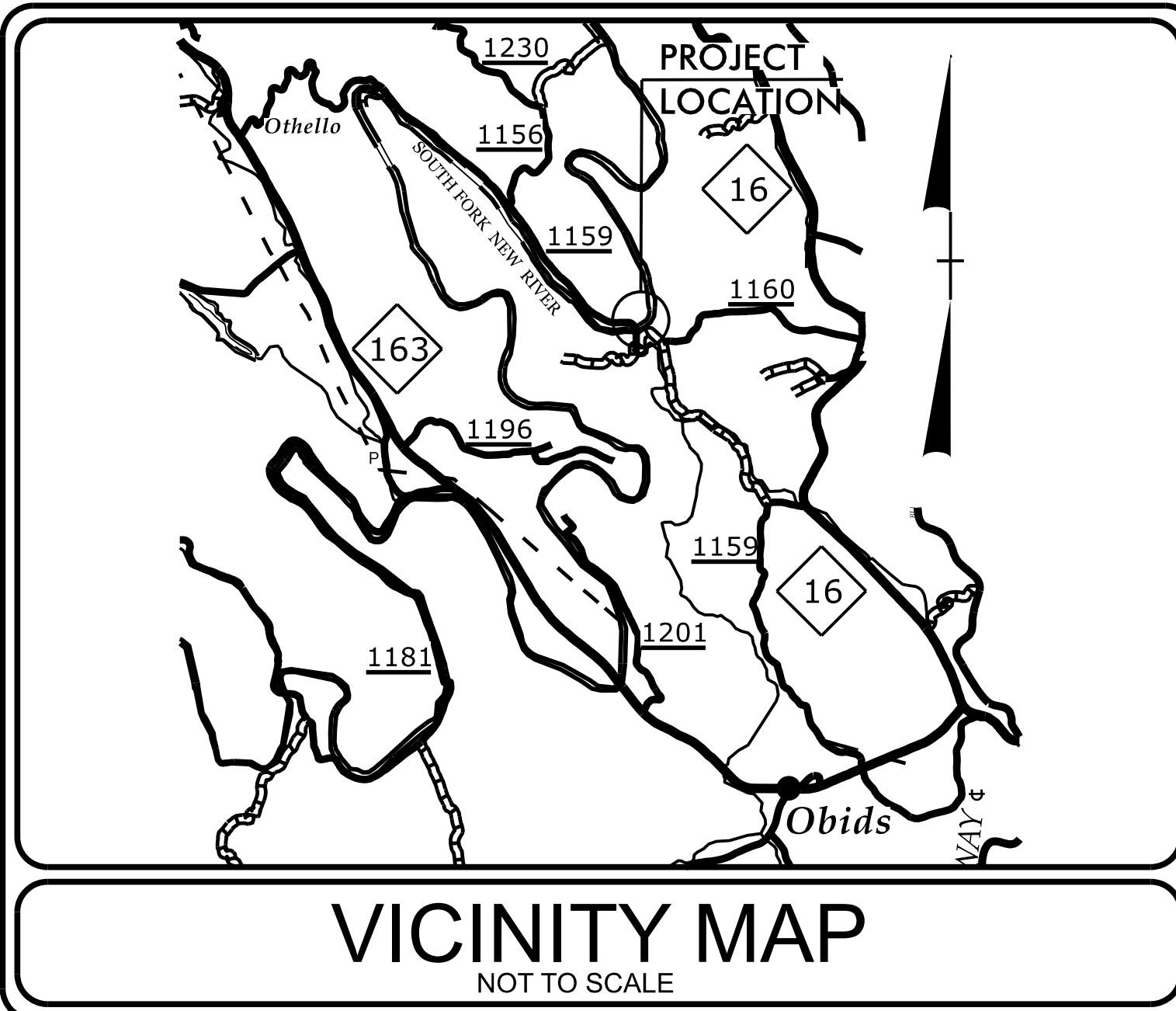
TIP NO.	SHEET NO.
HB-0051	PMP-2
APPROVED: <i>Don A. Parker</i> Signed by: 750B8E9ADEF440	
DATE: 1/5/2026	
SEAL	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 706 HILLSBOROUGH STREET (SUITE 200) RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



PAVEMENT MARKING DETAIL

12/30/2025
X:\NC001\HB-0051 - Ashe 466 Signing and Delineation\Pavement Marking\Design\HB-0051_Sgn_PMP.dgn
User:scbrannon

PROJECT: HB-0051



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
=====

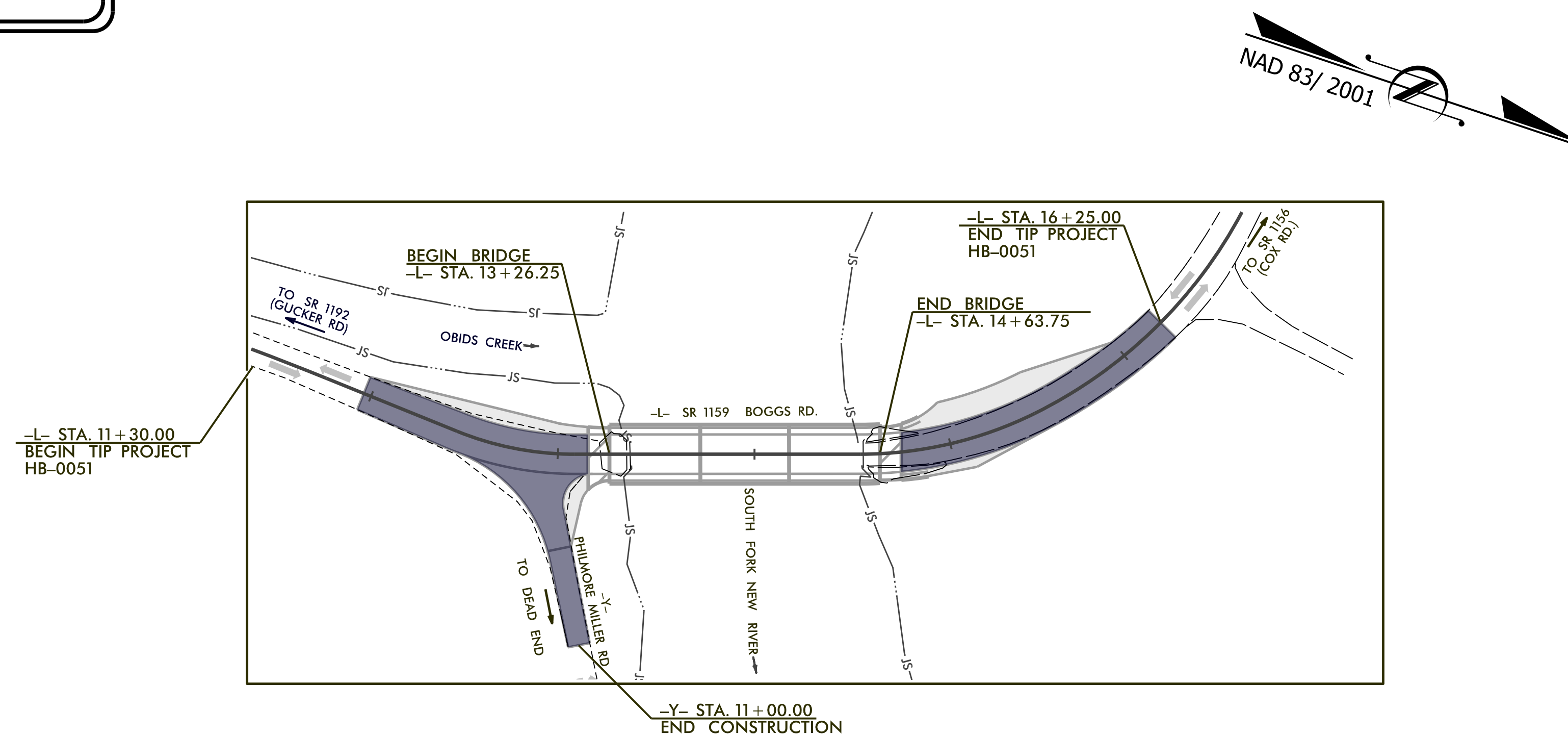
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
=====

ASHE COUNTY

LOCATION: BRIDGE #040466 OVER SOUTH FORK NEW RIVER ON SR 1159 (BOGGS ROAD)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0051	EC-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
50721.1.1	FBRG111	PE	
50721.2.1	FBRG111	R/W	
50721.2.2	FBRG111	UTIL.	
50721.3.1	FBRG111	CONST.	



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

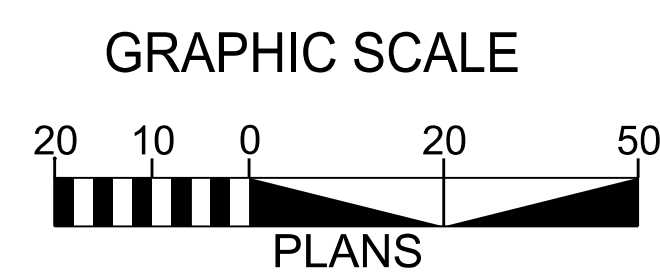
THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.

HIGH QUALITY WATER(S) EXIST
ON THIS PROJECT

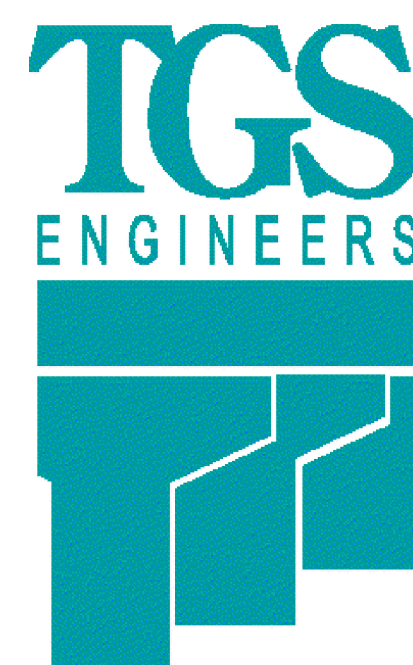
High Quality Water Zone(s) Exist
From Sta. BEGIN
to Sta. END
Refer To E. C. Special Provisions
for Special Considerations.

ENVIRONMENTALLY
SENSITIVE AREA(S)
EXIST ON THIS PROJECT

Refer To E. C. Special Provisions
for Special Considerations.



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG 010000 GENERAL STORMWATER CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES.



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

Designed by:

Andrew H. Cochrane, 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.

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$$$$SYTIME$$$$
$$$$$$$$DGN$$$$$$$$
$$$$USERNAME$$$$

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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
HB-0051	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

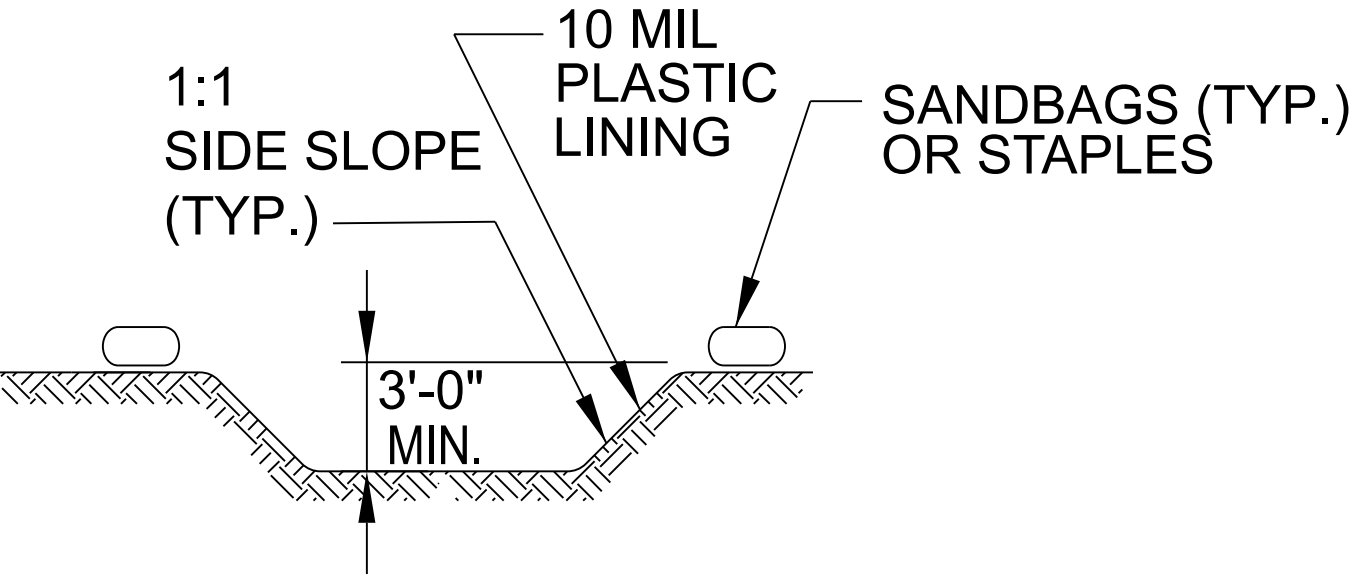
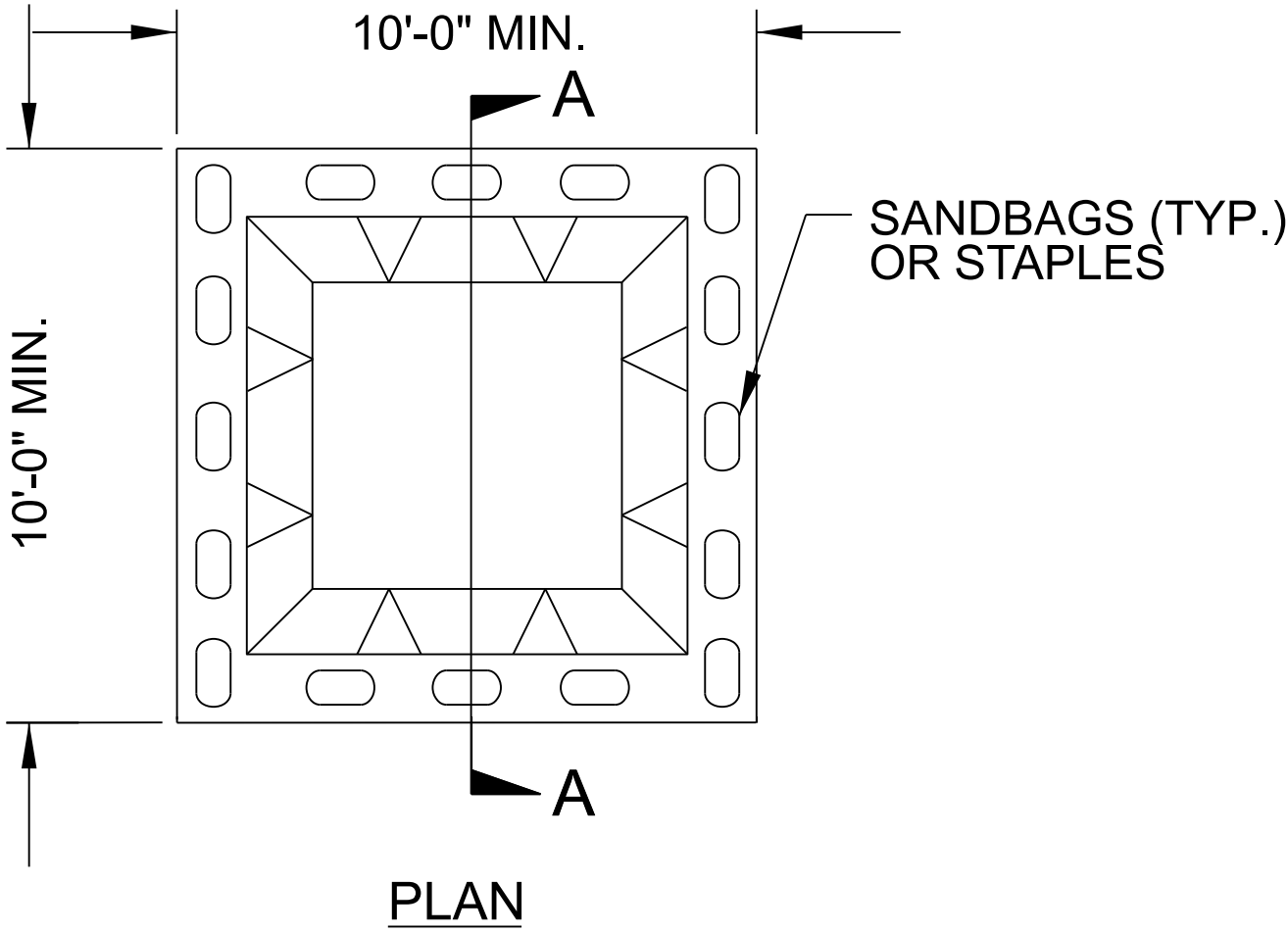
EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	
1630.04	Stilling Basin	
1630.05	Temporary Diversion	
1630.06	Special Stilling Basin	
1630.07	Skimmer Basin	
1630.08	Tiered Skimmer Basin	
1630.09	Earthen Dam with Skimmer	
	Infiltration Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

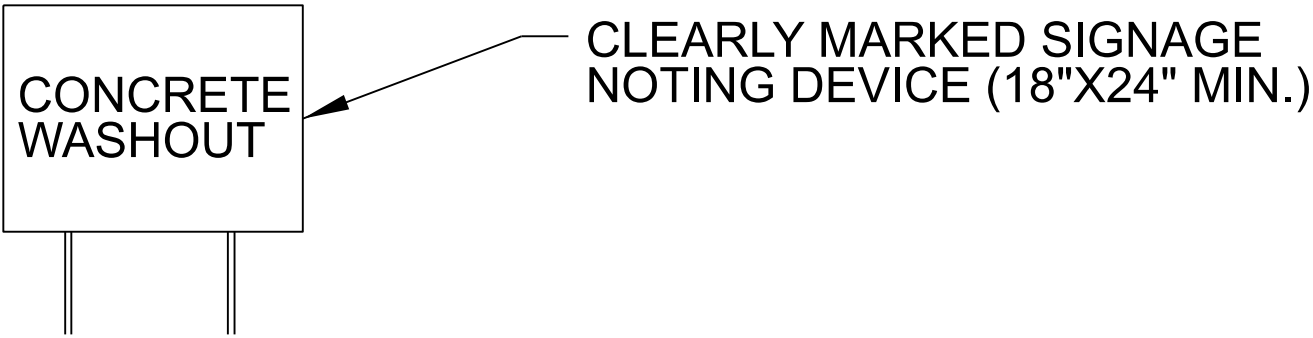
Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet Sediment Trap Type A	A
1635.02	Rock Pipe Inlet Sediment Trap Type B	B
1636.01	Excelsior Wattle Check	
1636.01	Excelsior Wattle Check with Flocculant	
1636.01	Coir Fiber Wattle Check	
1636.01	Coir Fiber Wattle Check with Flocculant	
1636.02	Silt Fence Excelsior Wattle Break	EW
	Silt Fence Coir Fiber Wattle Break	CFW
1636.03	Excelsior Wattle Barrier	—EW—EW—EW—
1636.03	Coir Fiber Wattle Barrier	—CFW—CFW—CFW—

PROJECT REFERENCE NO.	SHEET NO.
HB-0051	EC-02A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER

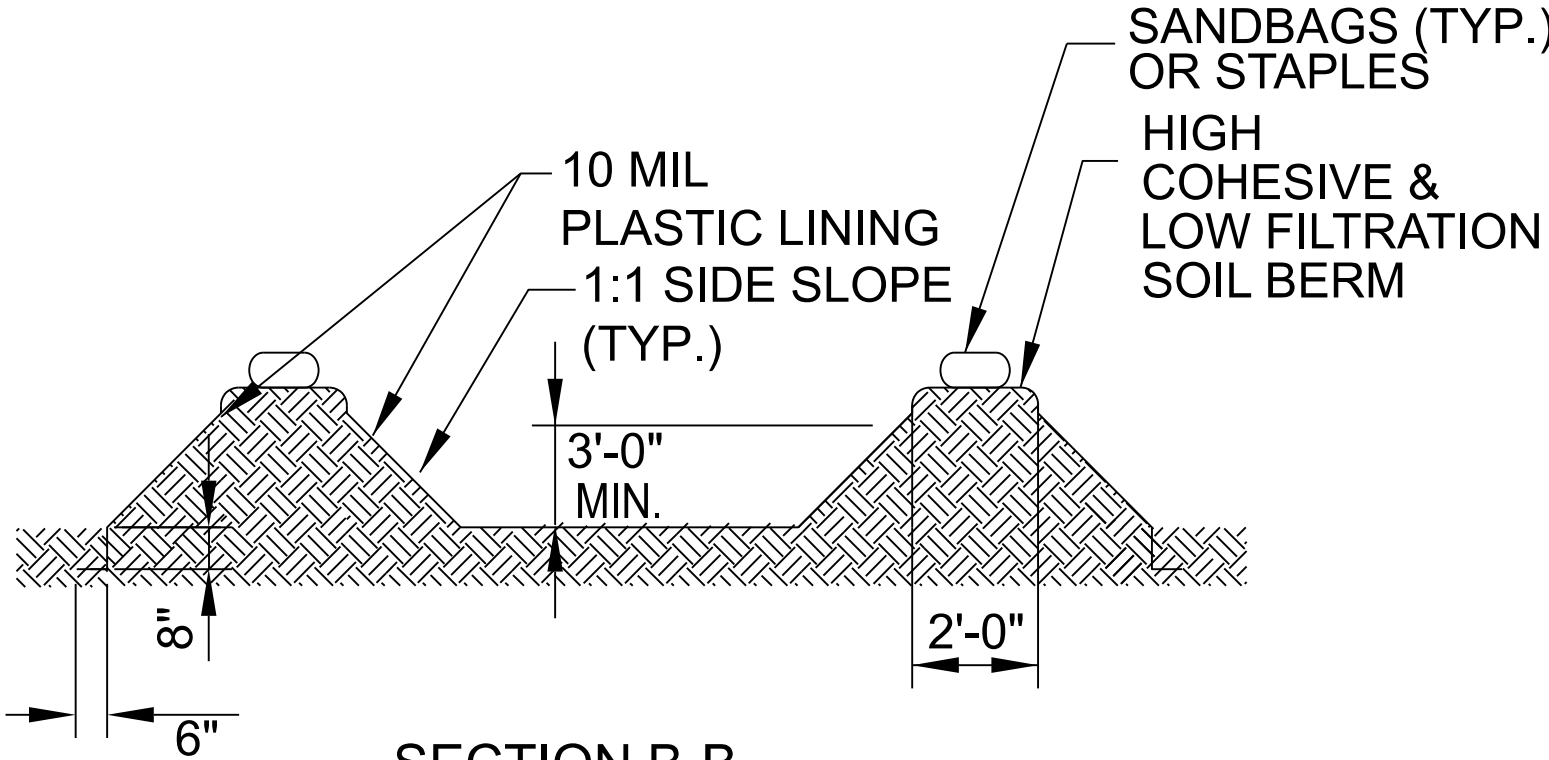
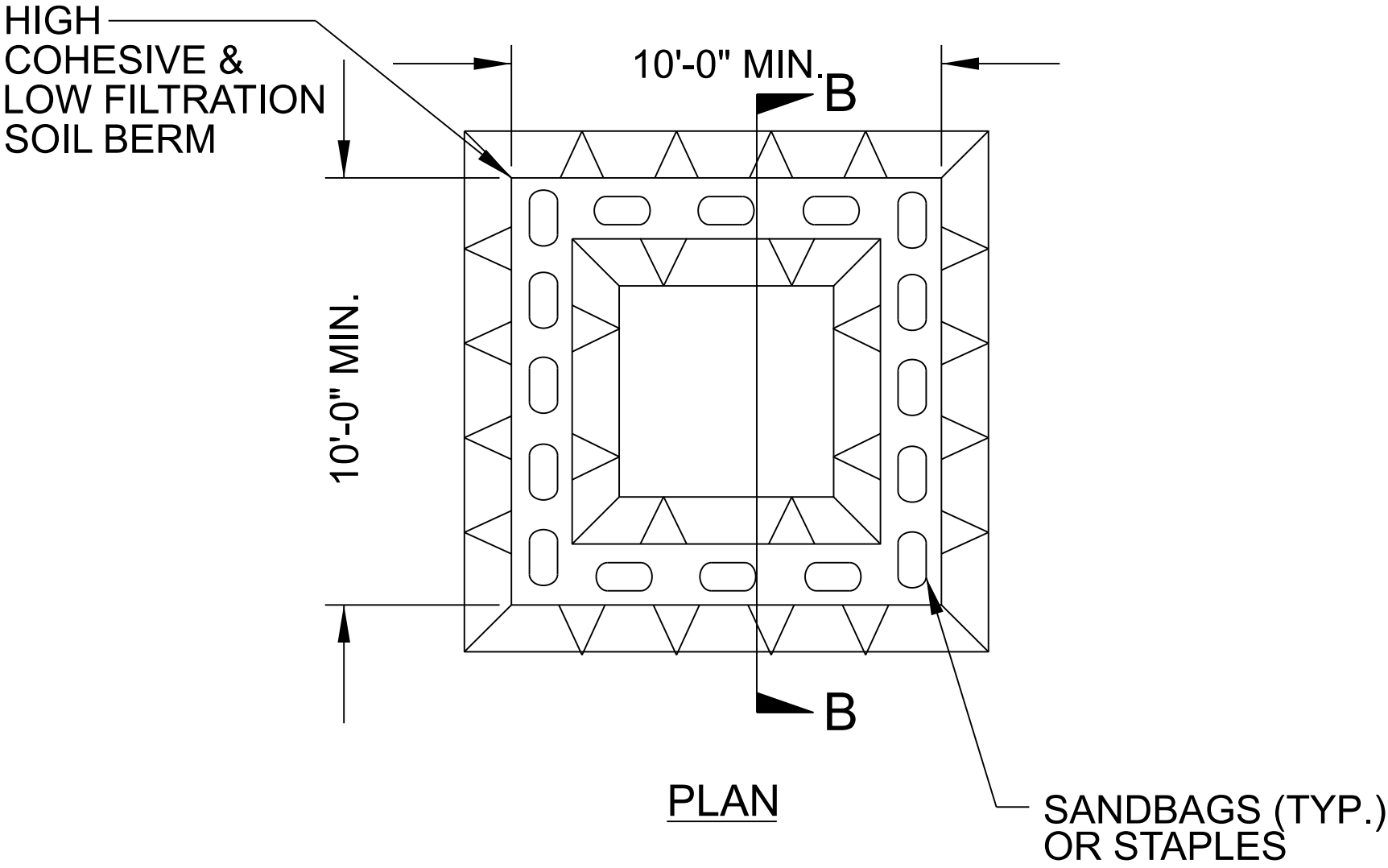


SECTION A-A



BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.



SECTION B-B



ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

PROJECT REFERENCE NO.		SHEET NO.	
HB-0051		EC-03	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

SOIL STABILIZATION SUMMARY SHEET

SLOPE STRAW MATTING FOR EROSION CONTROL

[illegible]

DITCHLINE STRAW MATTING FOR EROSION CONTROL

[illegible]

DITCHLINE EXCELSIOR MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	14+75	15+00	RT	25
4	L	14+75	15+75	LT	180
	SLOPE STRAW MATTING SUBTOTAL				0
	DITCHLINE STRAW MATTING SUBTOTAL				60
	DITCHLINE EXCELSIOR MATTING SUBTOTAL				205
	MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER				1,000
				TOTAL	1,265

DITCHLINE PSRM TYPE 2 FOR EROSION CONTROL

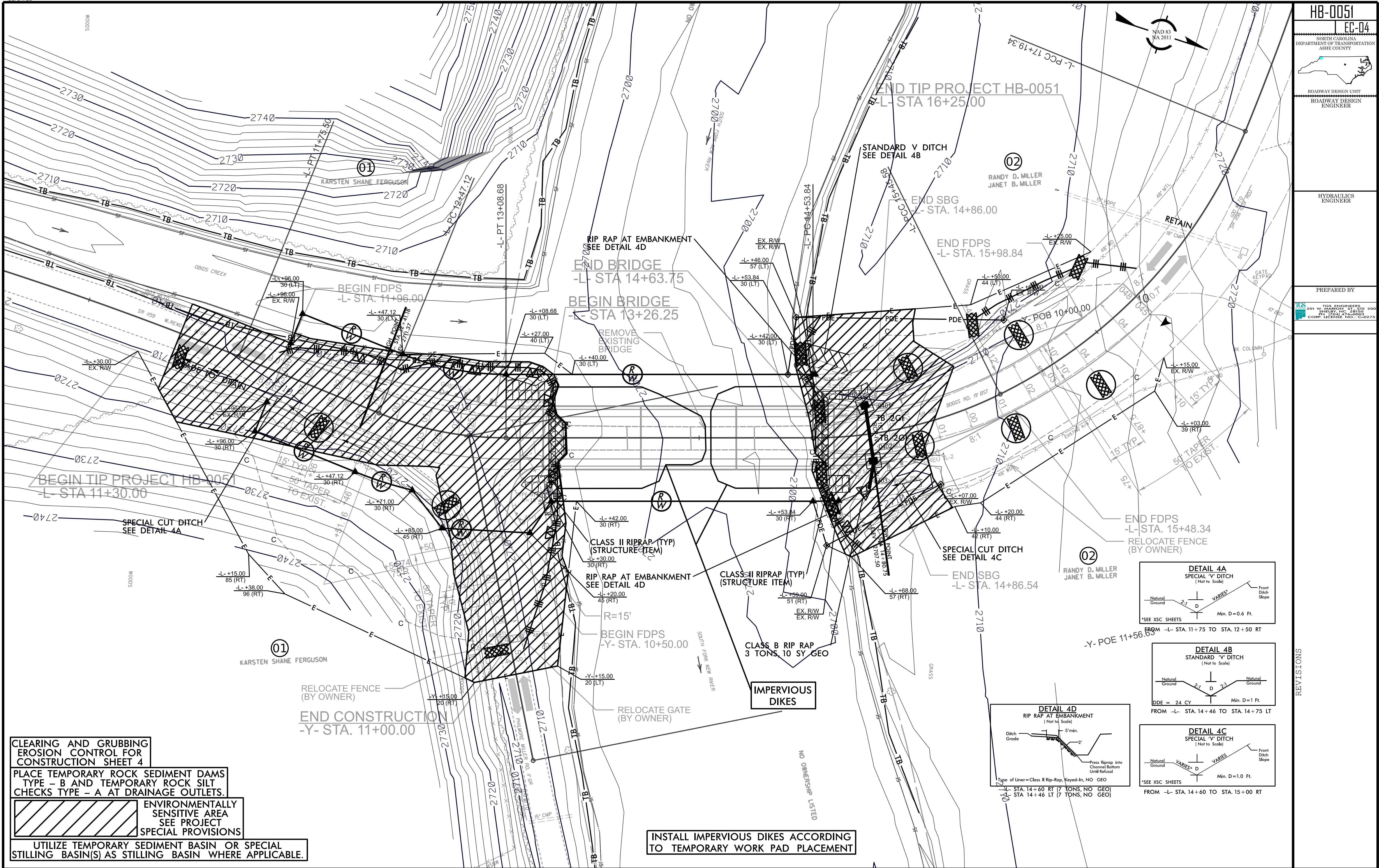
4	L	15+00	16+00	RT	200
		PSRM TYPE 2 TOTAL			200

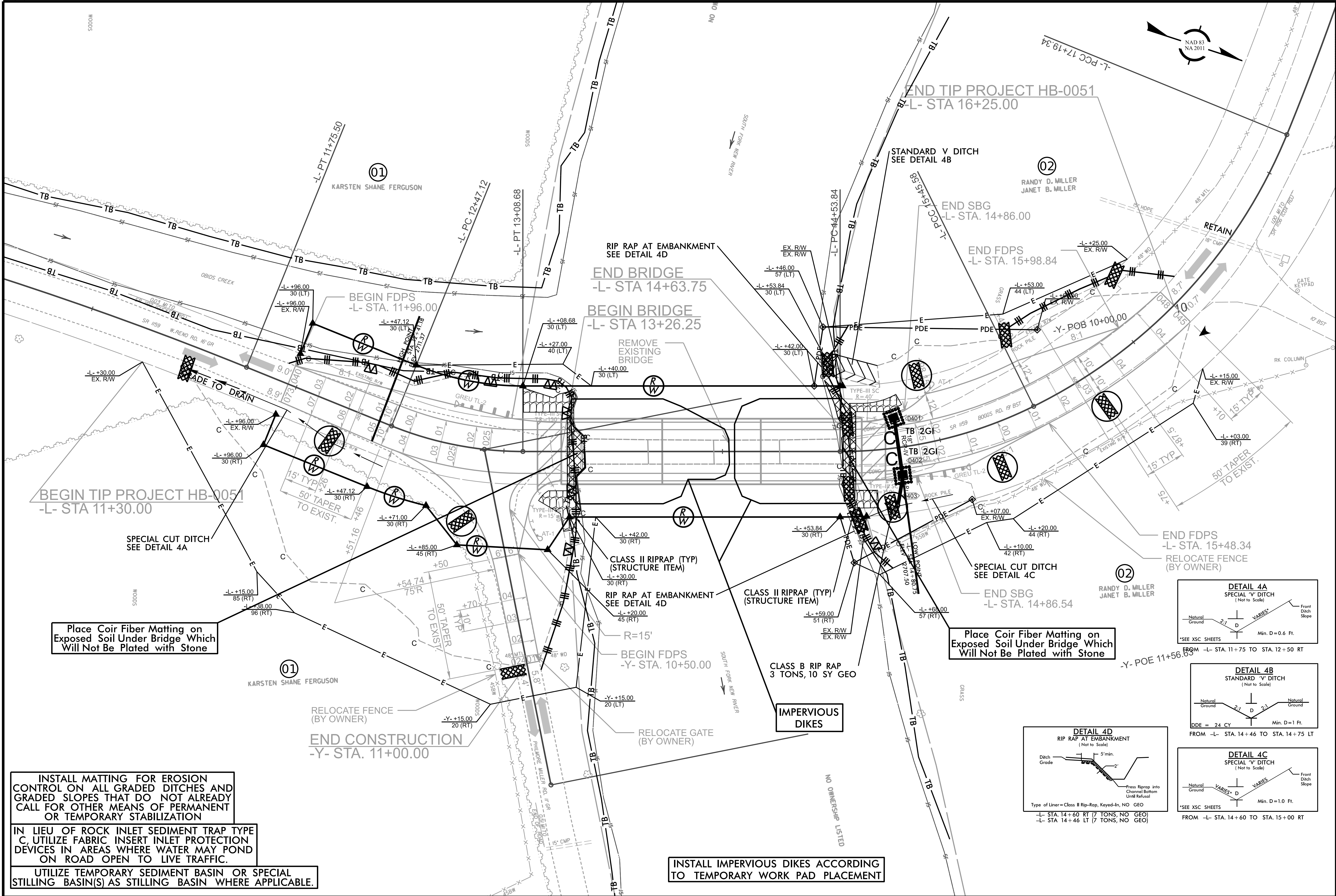
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
HB-0051	EC-03A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
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





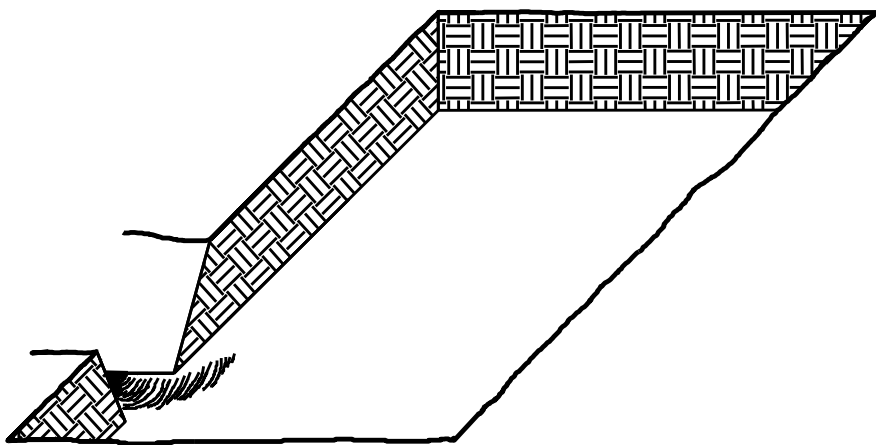
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0051	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

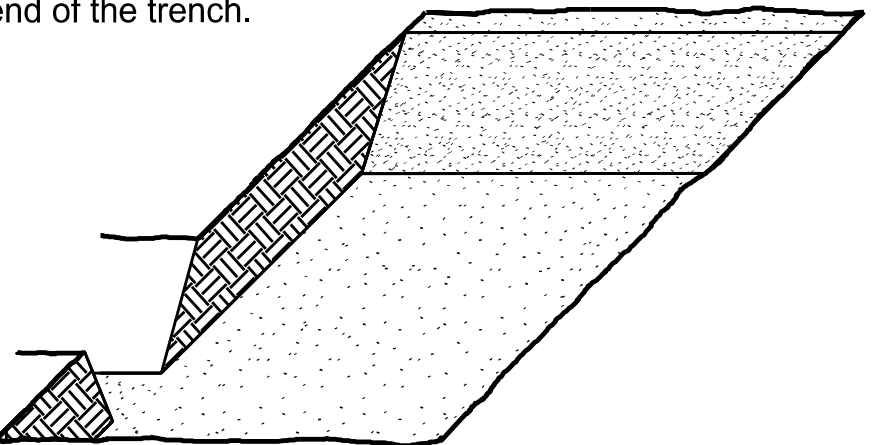
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

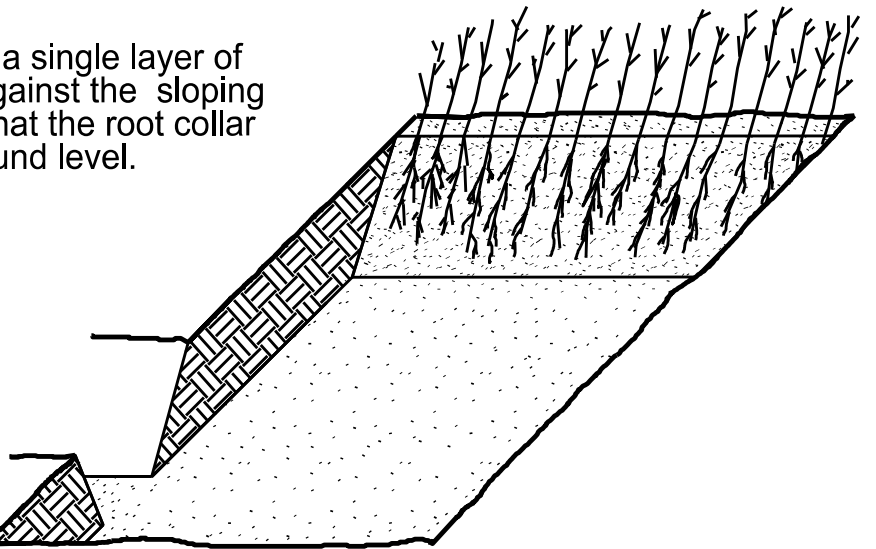
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



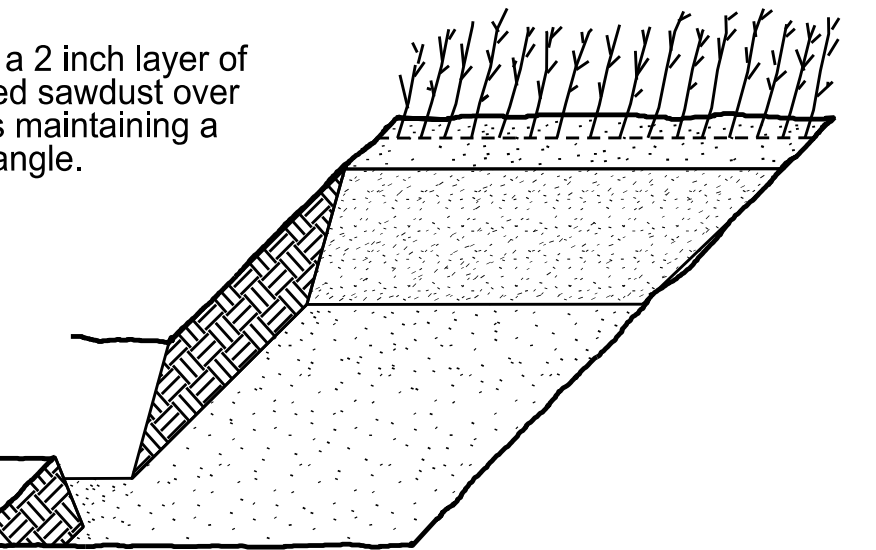
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

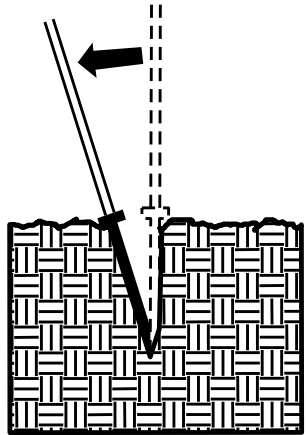


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

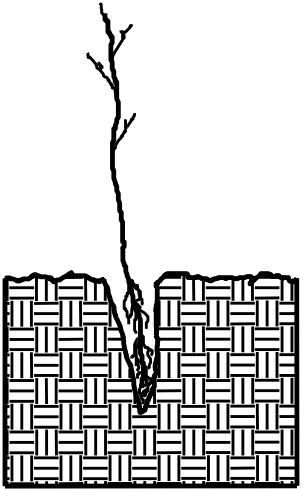


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

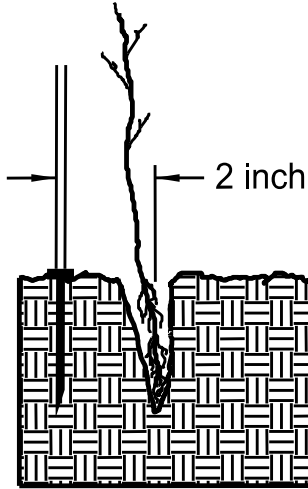
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



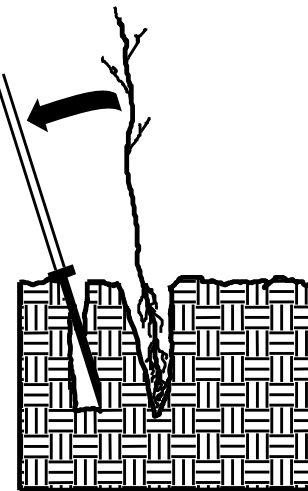
1. Insert planting bar as shown and pull handle toward planter.



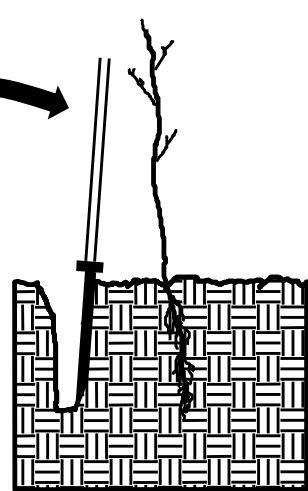
2. Remove planting bar and place seedling at correct depth.



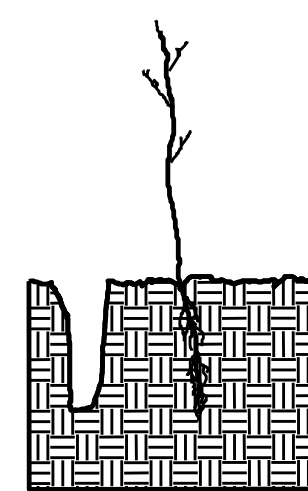
3. Insert planting bar 2 inches lower planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



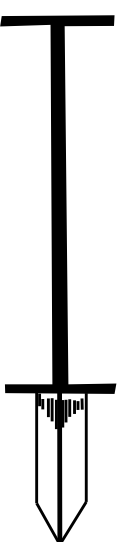
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- ☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

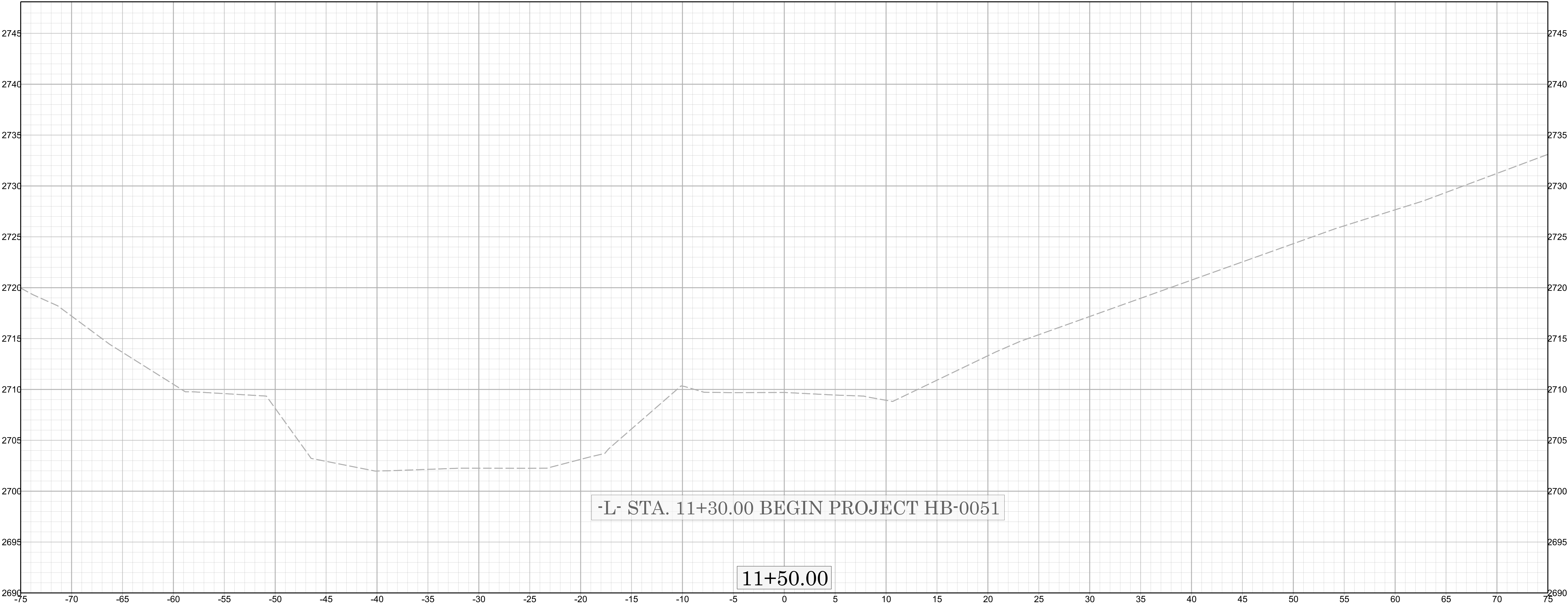
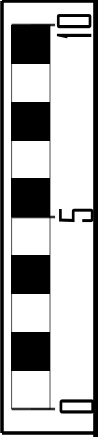
25% LIRIODENDRON TULIIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR
25% NYSSA SYLVATICA	BLACK GUM	12 in - 18 in BR

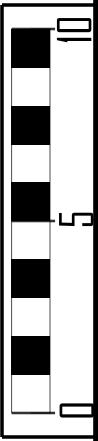
REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

HB - 0051
CROSS - SECTION INDEX

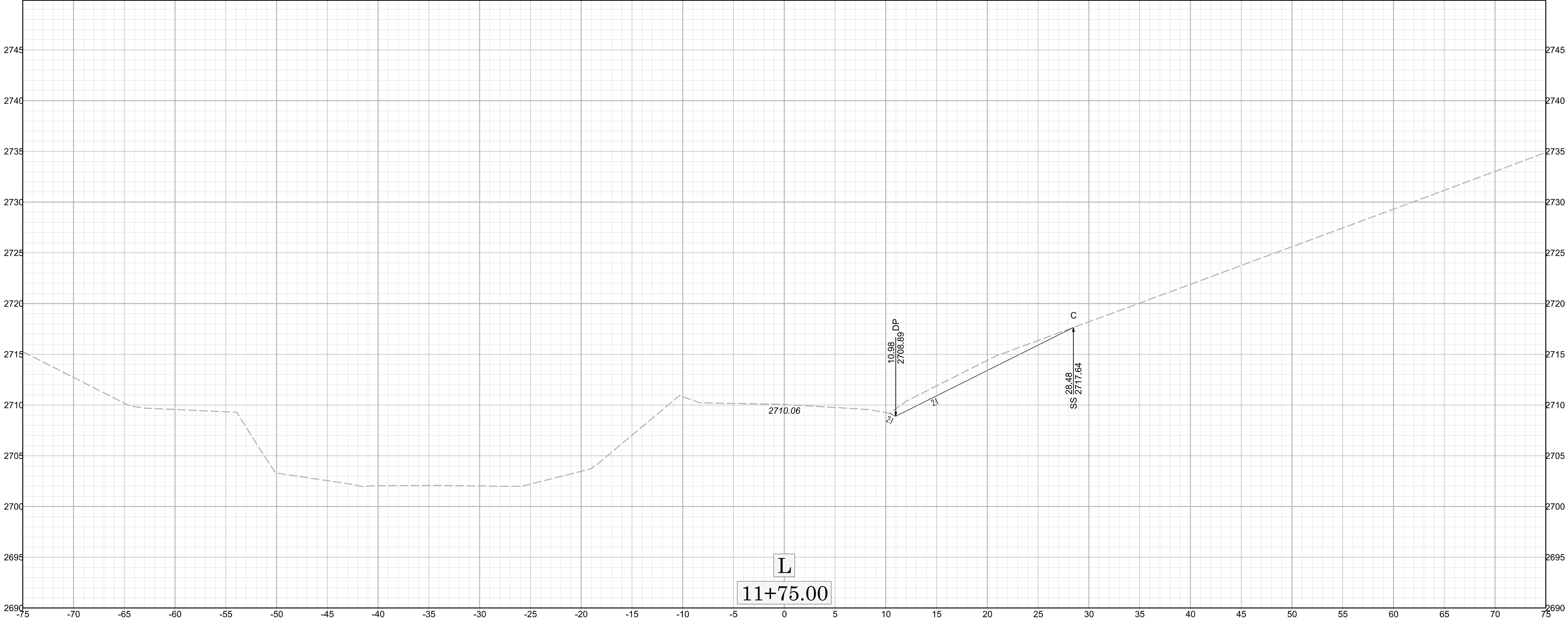
X - INDEX		X - 1
XS - SECTION SUMMARY		X - 1A
- L -		X - 2 THRU X - 14
- Y -		X - 15 THRU X - 18

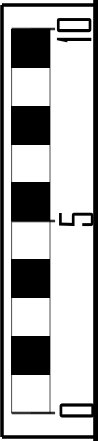




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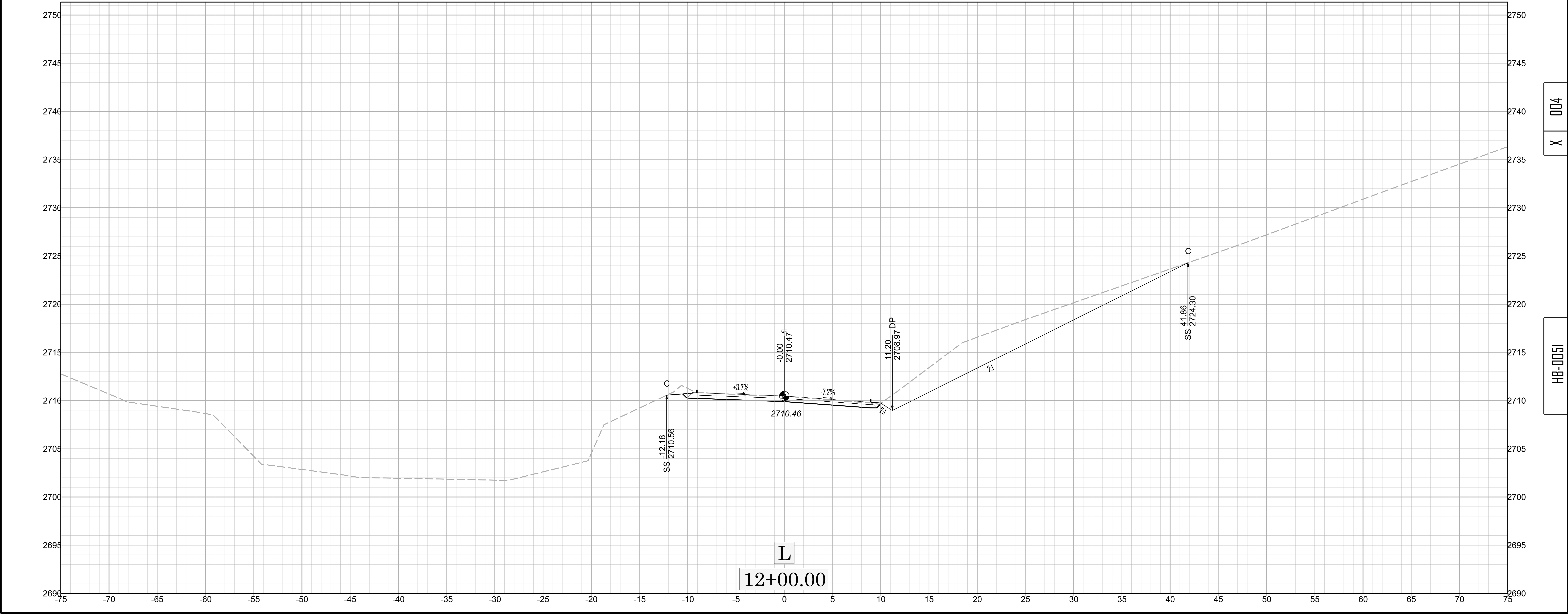
HB-0051

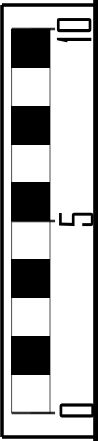
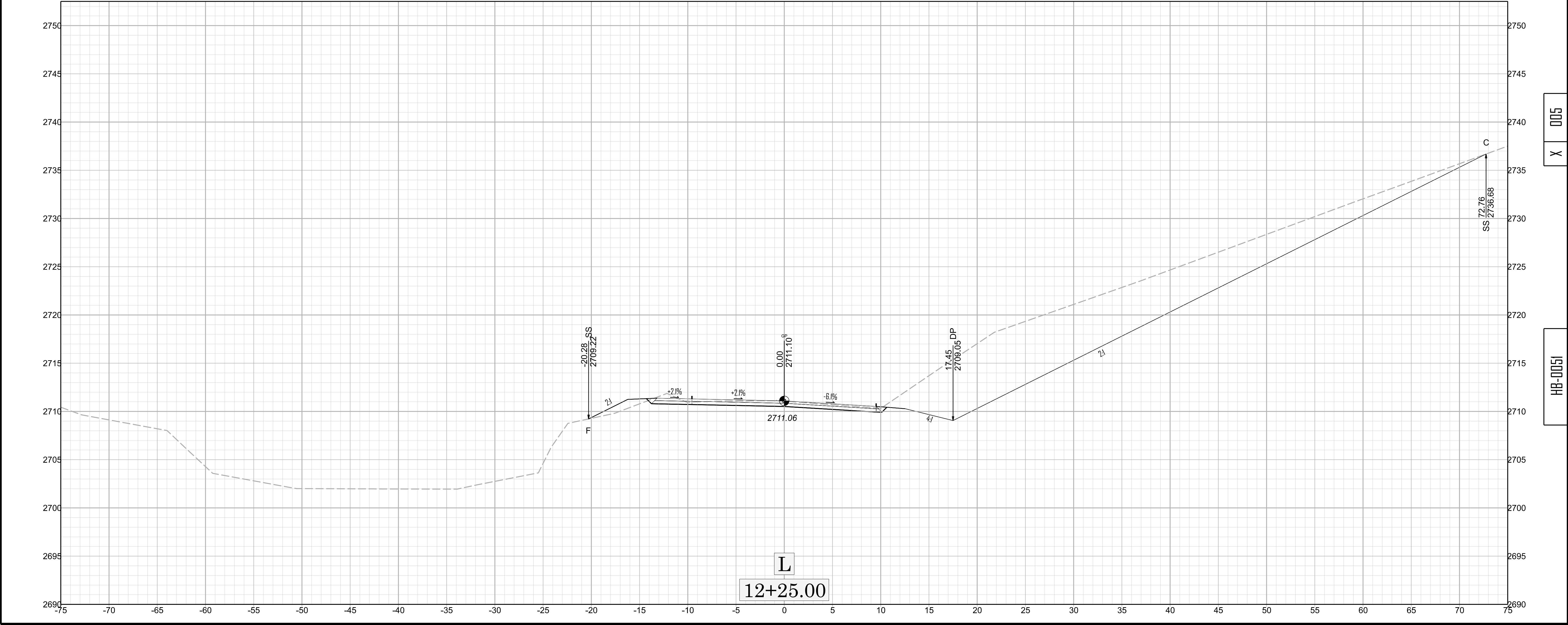




X 004

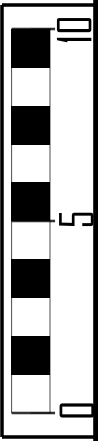
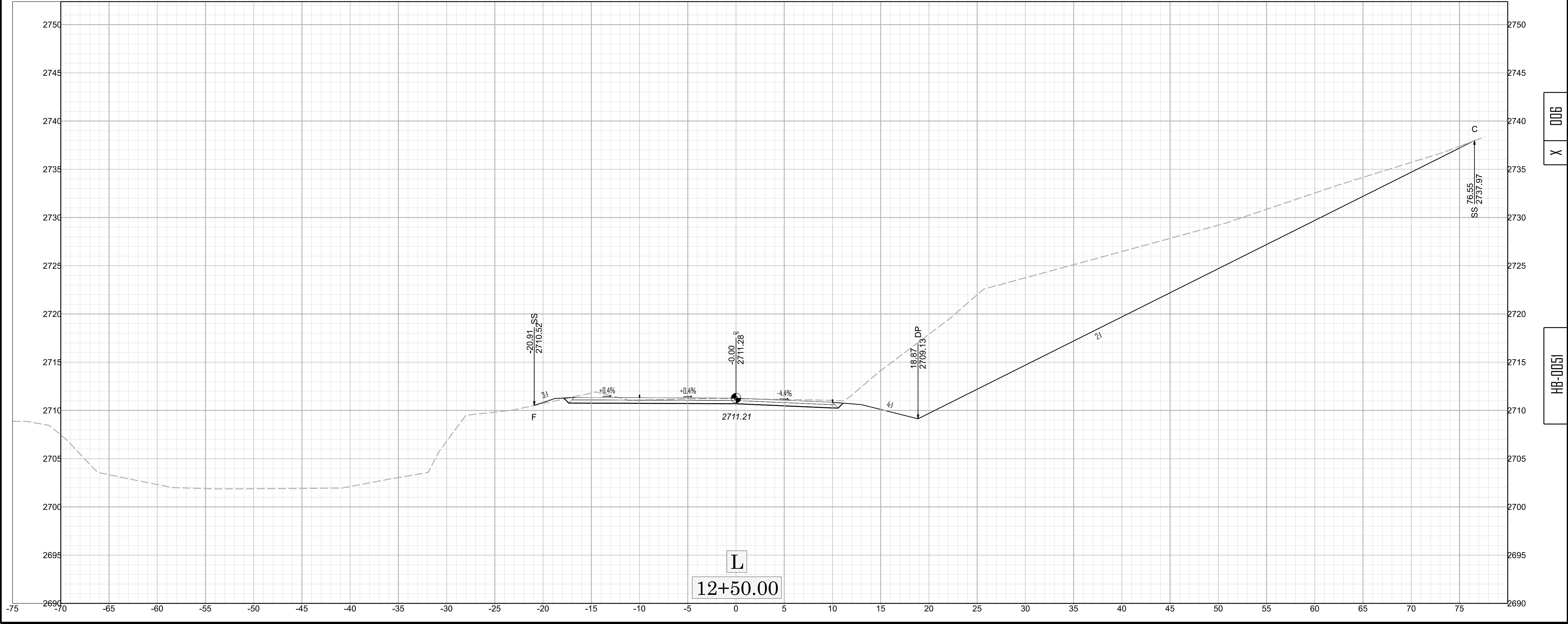
HB-0051



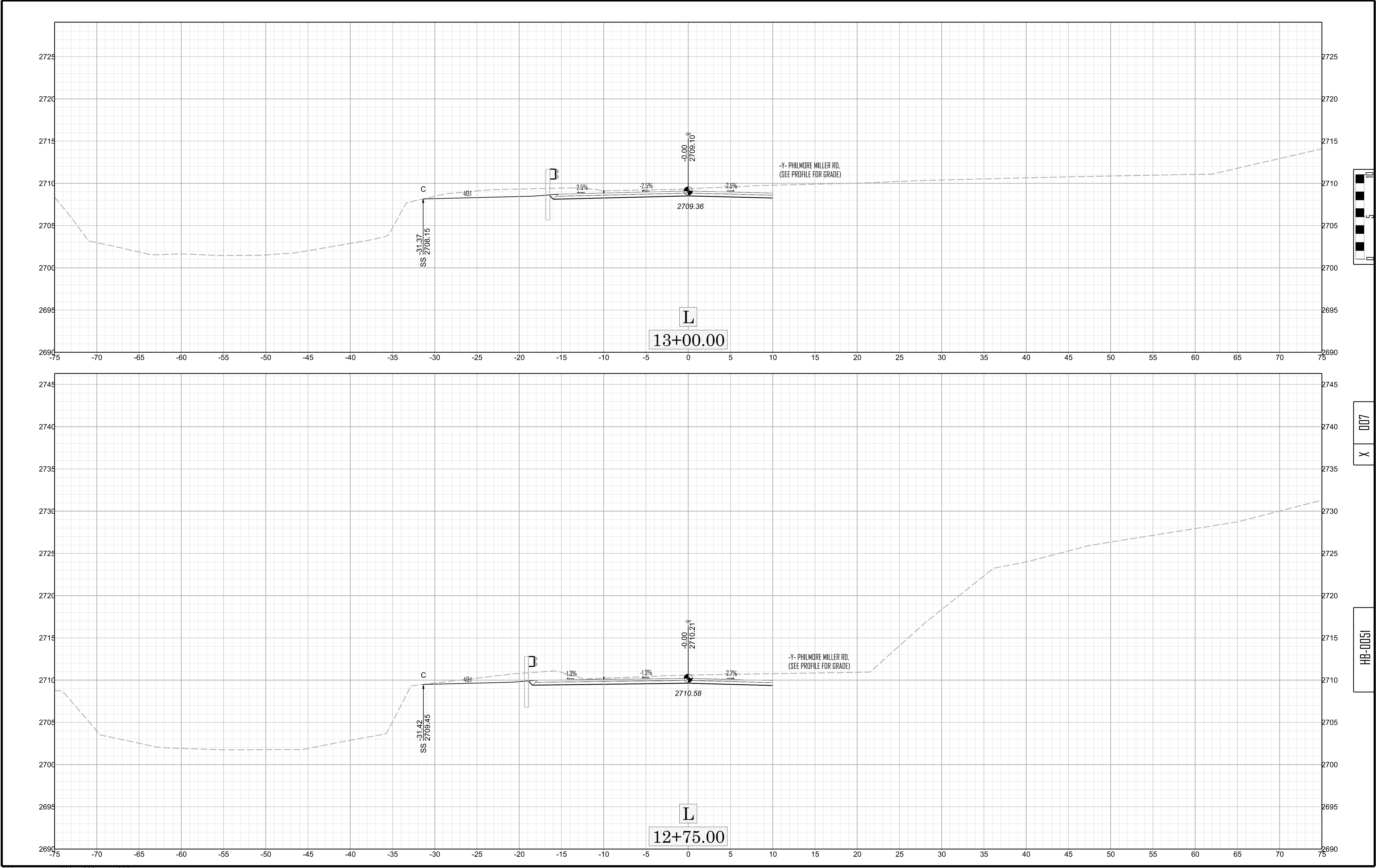


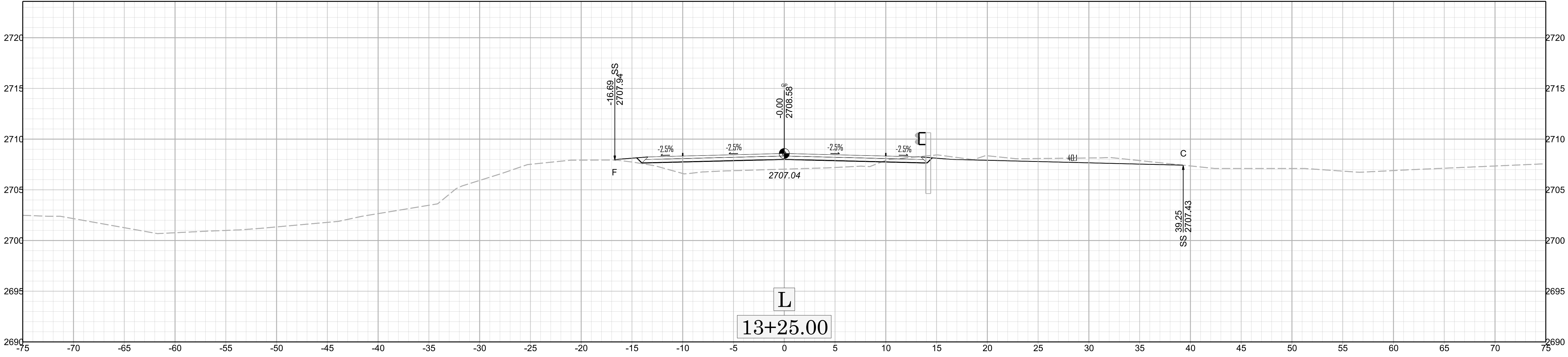
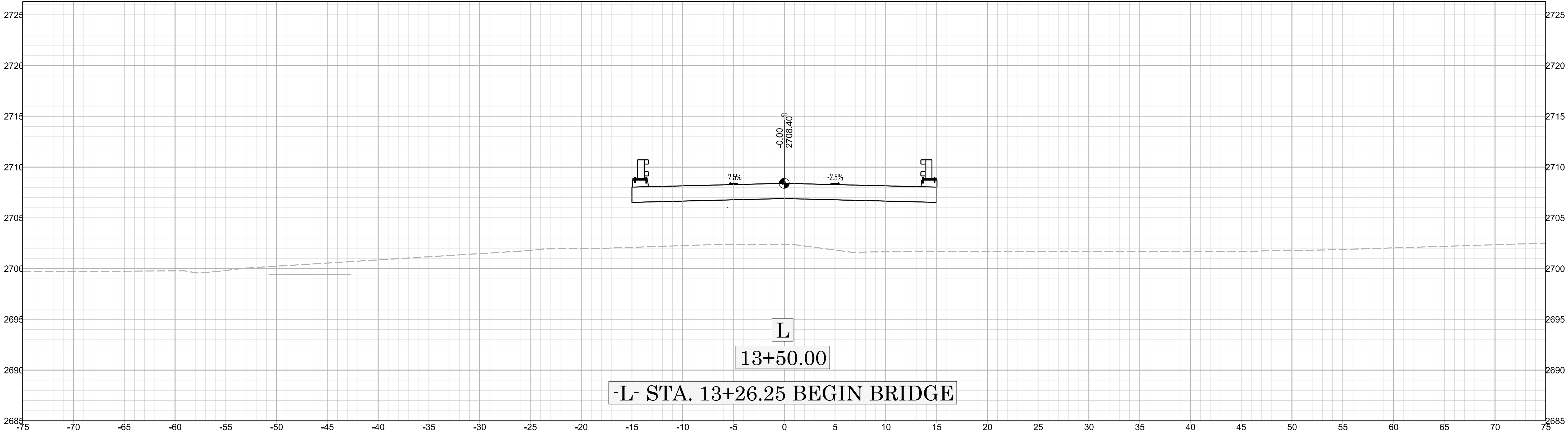
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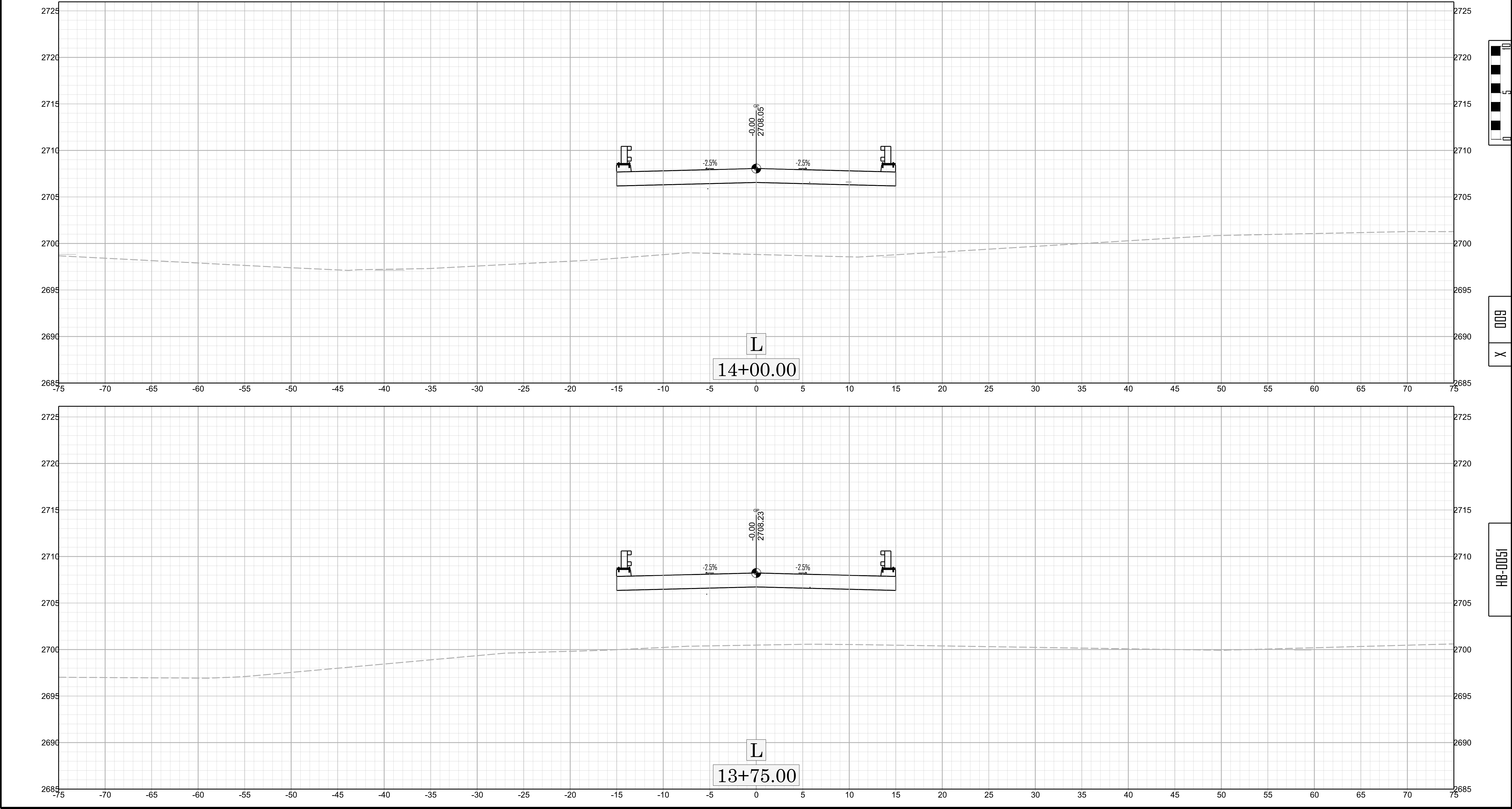
HB-0051

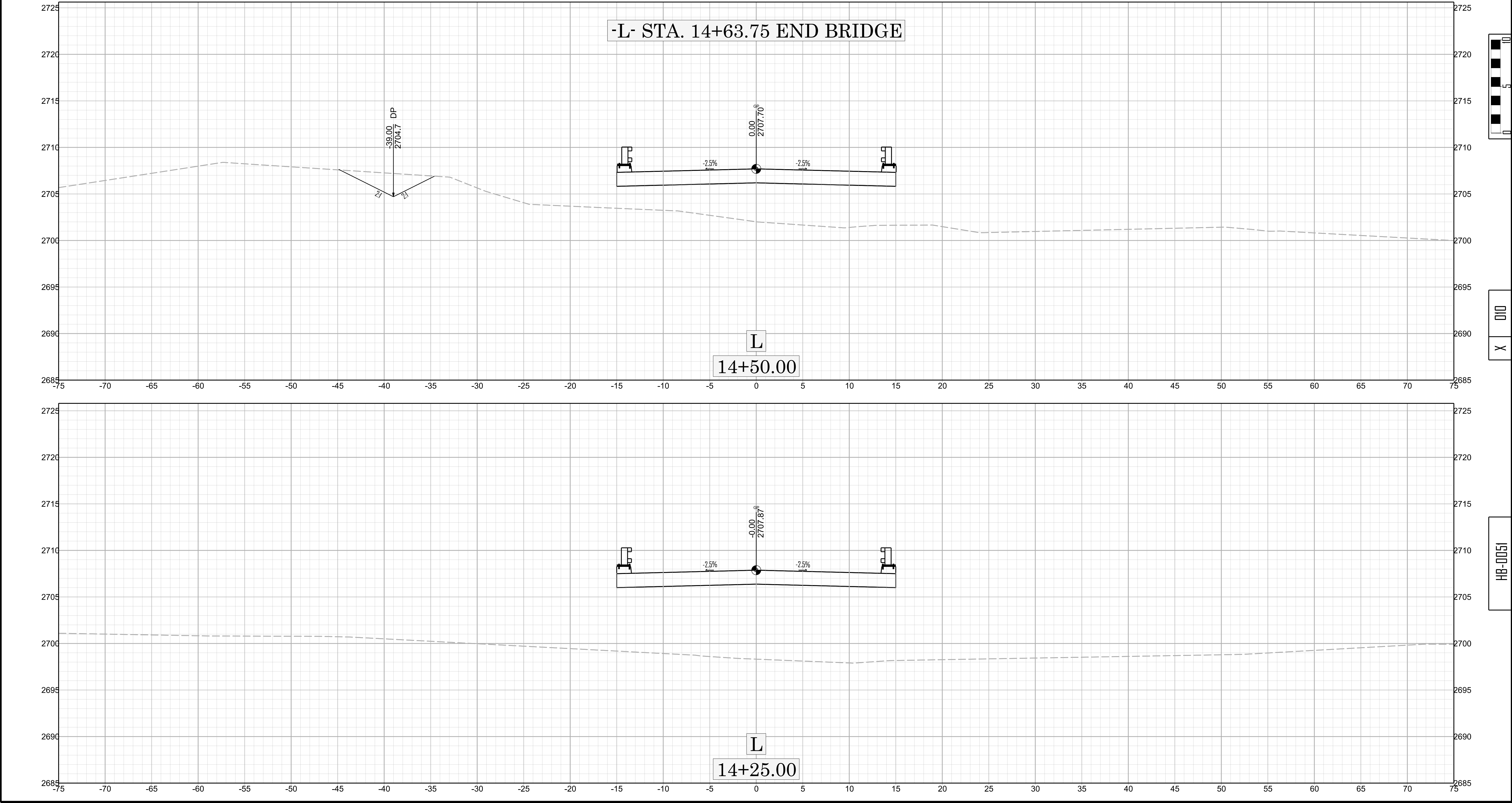


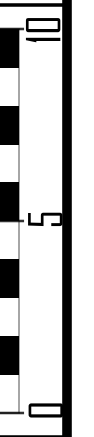
11/14/23





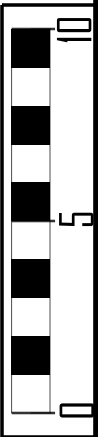
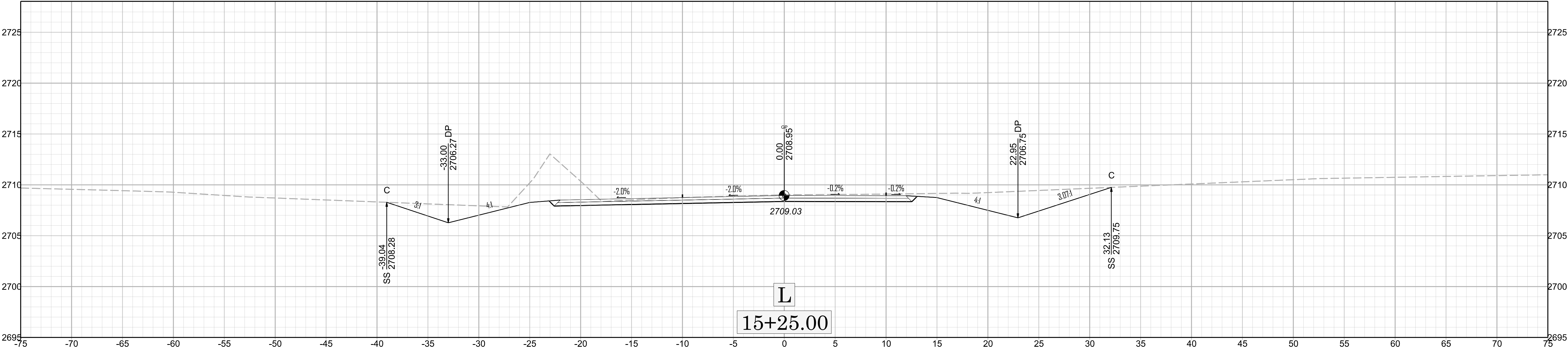
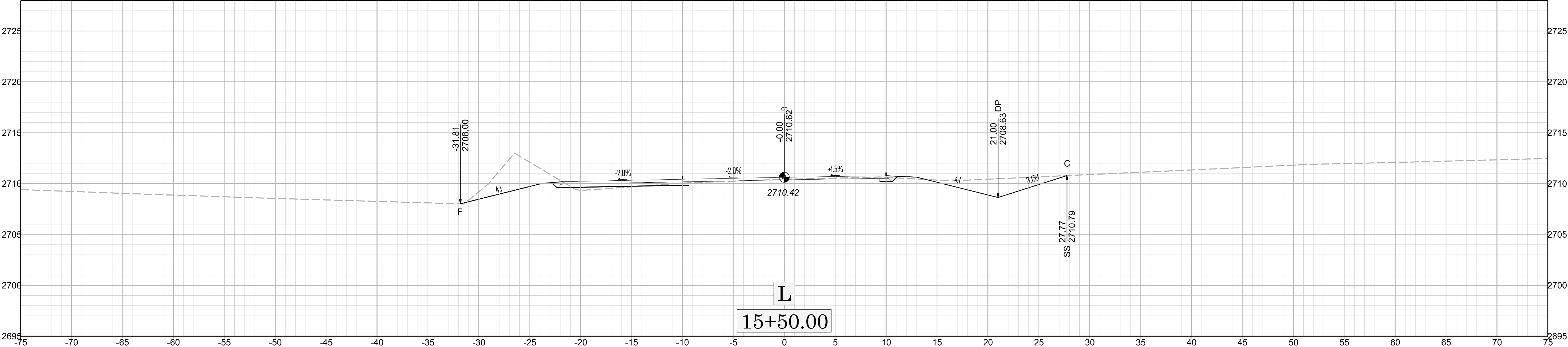






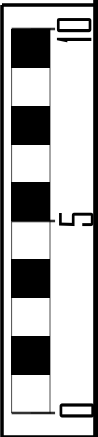
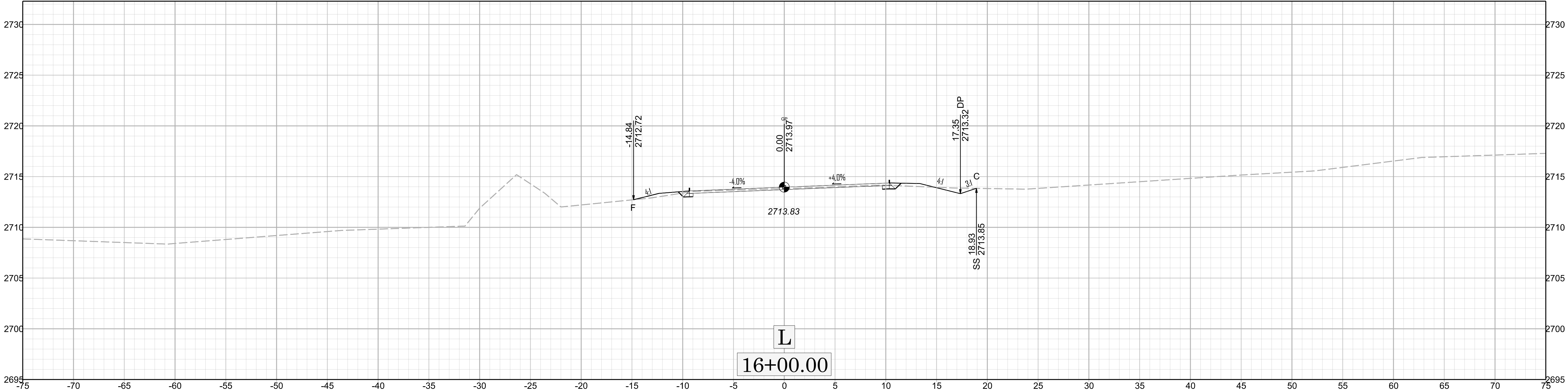
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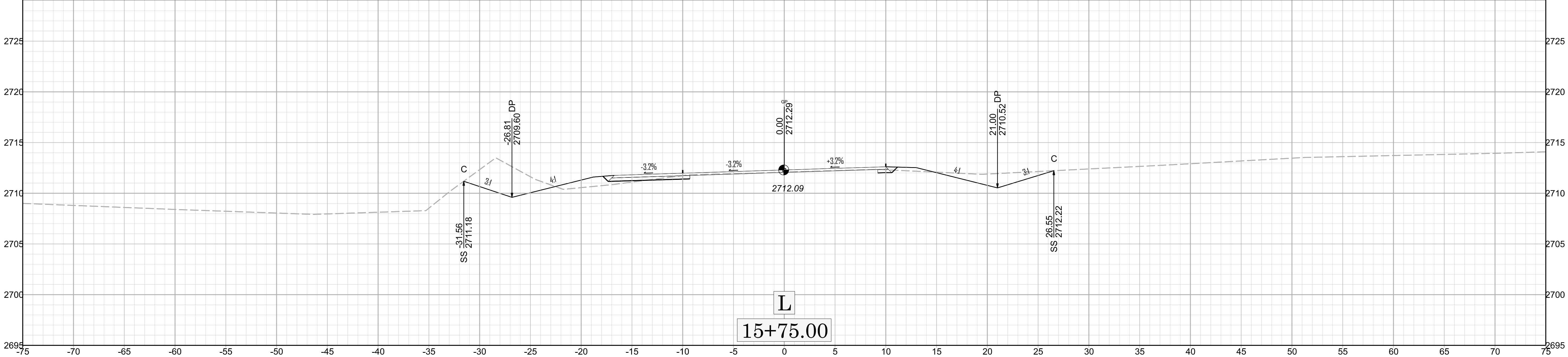
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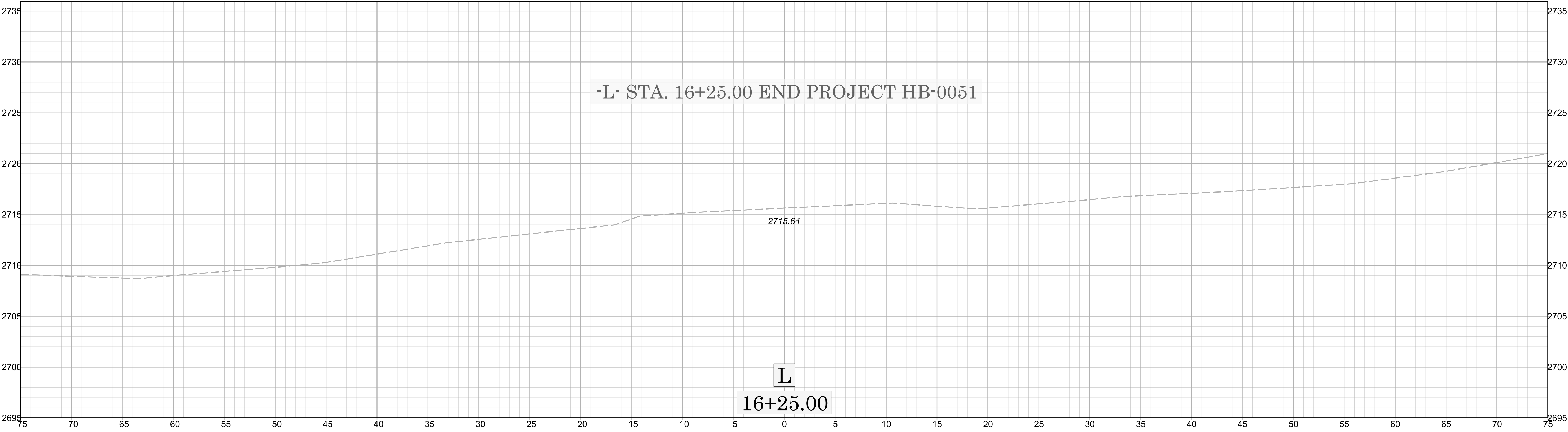
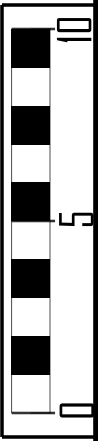
HB-0051

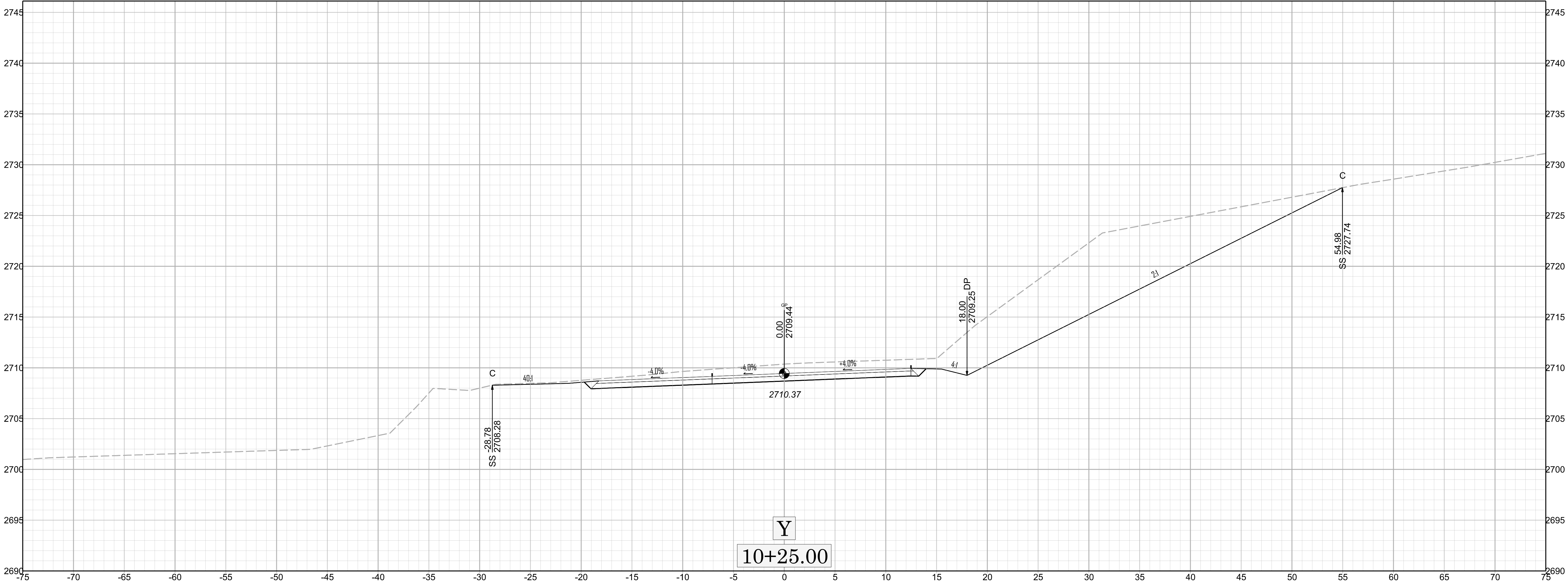
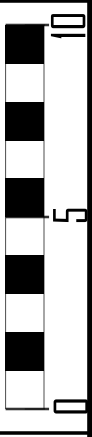


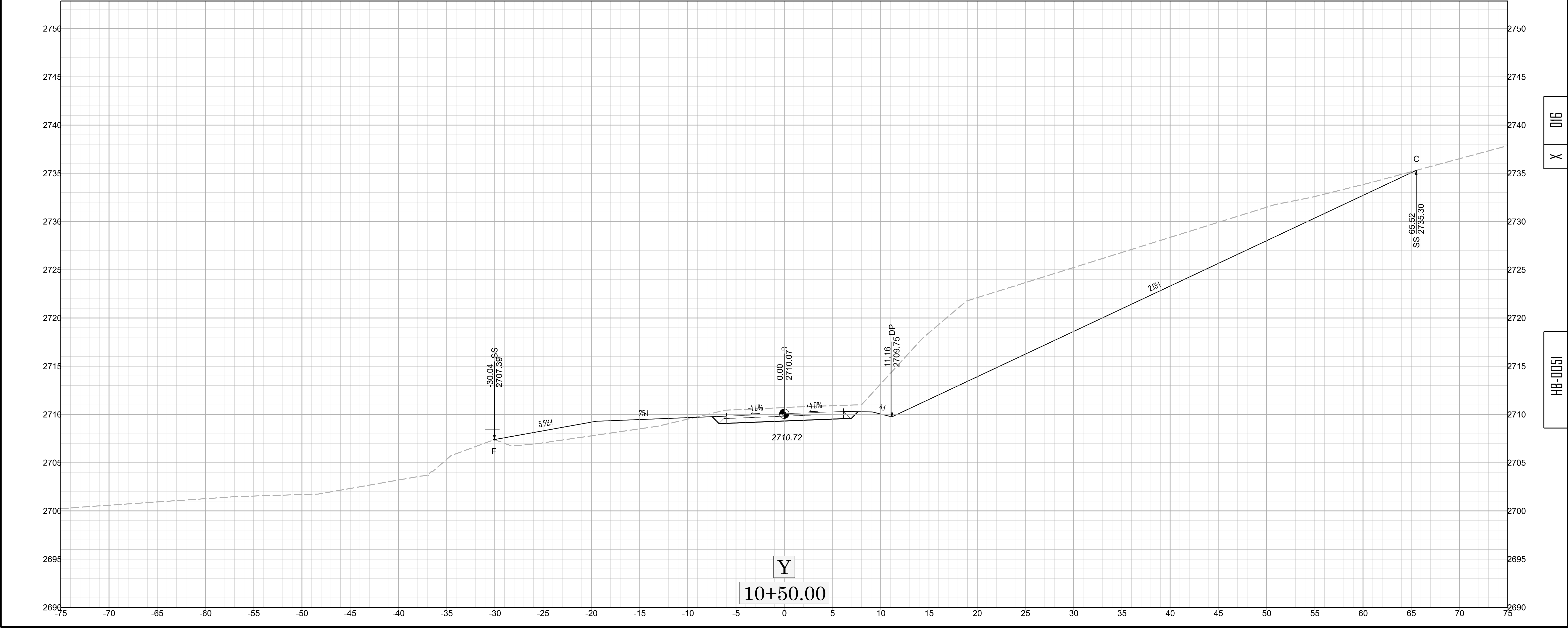
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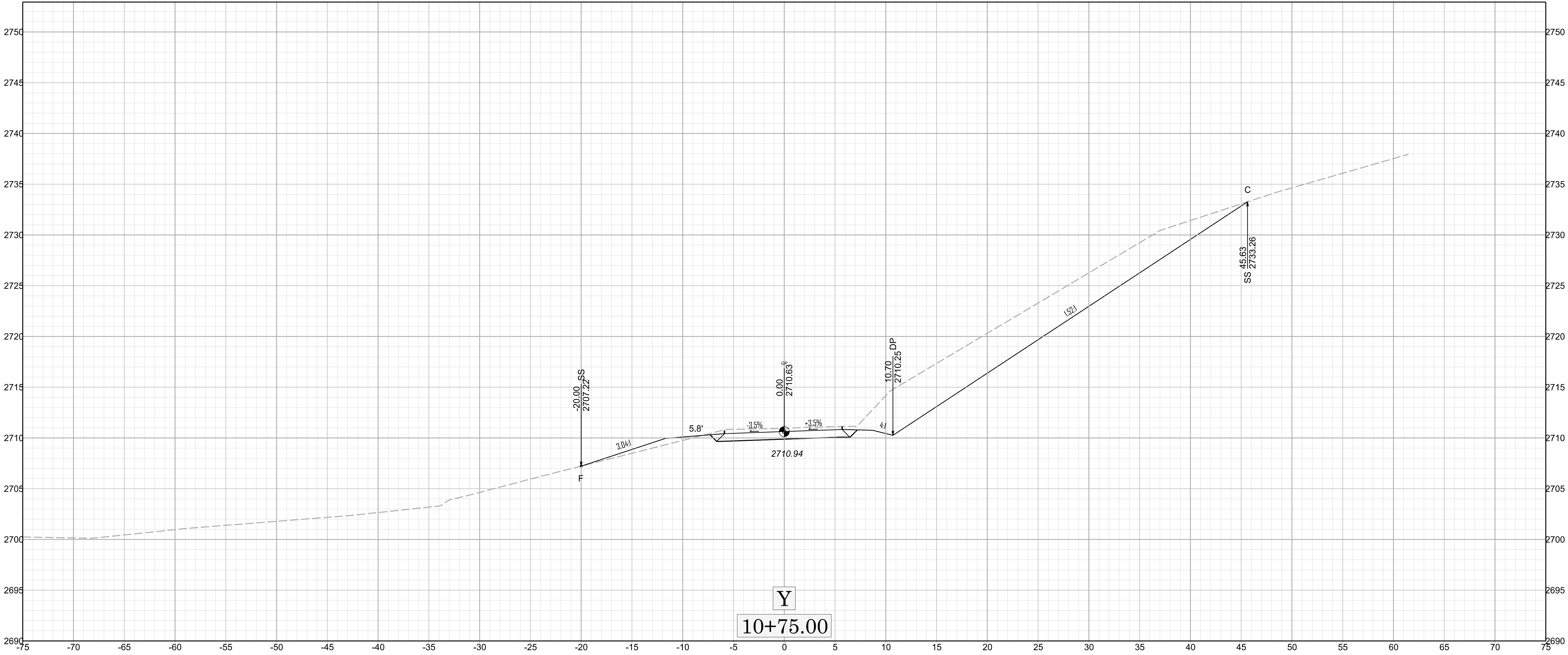
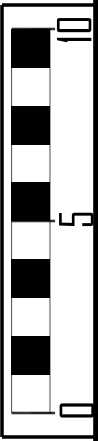
HB-0051





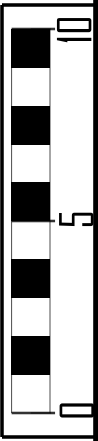






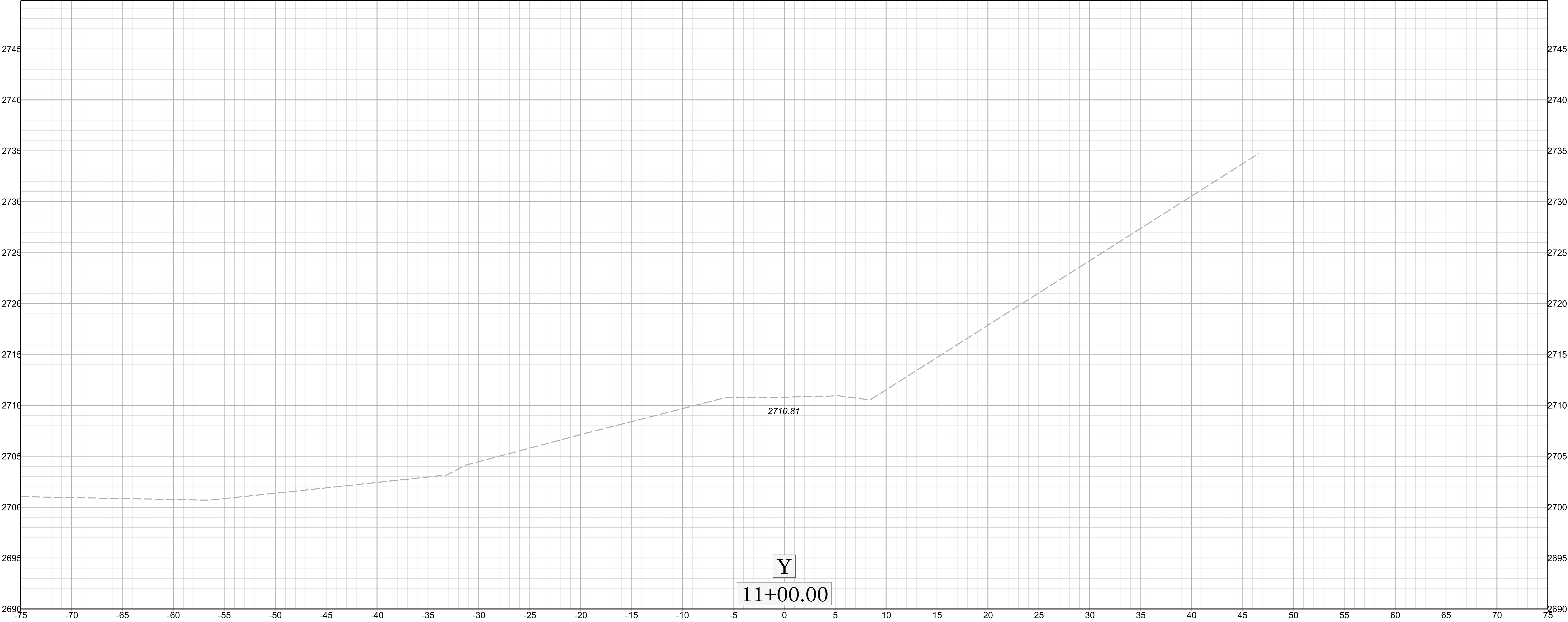
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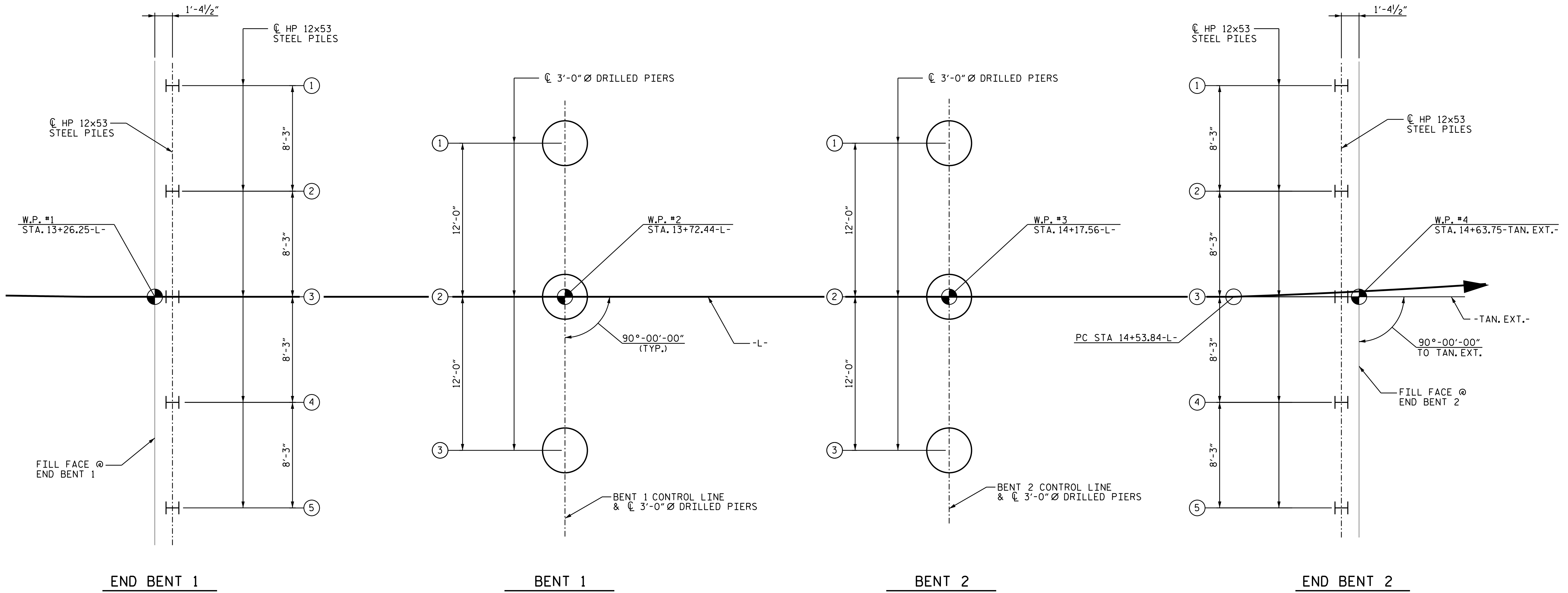
HB-0051



X 018

HB-0051





FOUNDATION LAYOUT

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

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FILL HOLES FOR PILE EXCAVATION AT END BENT 1 AND END BENT 2 WITH CONCRETE.

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

INSTALL PERMANENT STEEL CASINGS AT BENT 1 BY VIBRATING, SCREWING, OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 2,700 FT.

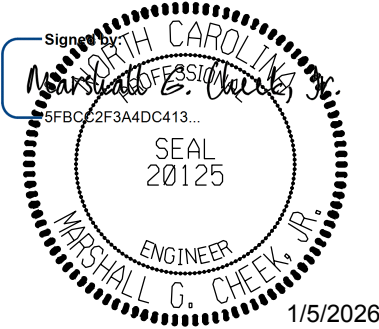
INSTALL PERMANENT STEEL CASINGS AT BENT 2 BY VIBRATING, SCREWING, OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 2,696 FT.

PROJECT NO. HB-0051

ASHE COUNTY

STATION: 13+95.00-L-

SHEET 2 OF 5



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

GENERAL DRAWING

FOR BRIDGE OVER
SOUTH FORK NEW RIVER
ON SR 1159 BETWEEN
SR 1192 AND SR 1156

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-2
2			4			TOTAL SHEETS 28

DRAWN BY : NMW
CHECKED BY : MGC
DATE : 12/24
DATE : 3/25

DRAWN BY :	NMW	DATE :	12/24
CHECKED BY :	MGC	DATE :	3/25

TOTAL BILL OF MATERIAL												
ITEM	CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	3'-0" Ø DRILLED PIERS IN SOIL	3'-0" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIERS	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS
	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EA.	LUMP SUM	S.F.	S.F.
SUPERSTRUCTURE											3,629	3,785
END BENT 1				9.40	26.40					LUMP SUM		
BENT 1						8.07	24.60	11.67	1			
BENT 2						17.61	29.10	22.71	1			
END BENT 2					26.50					LUMP SUM		
TOTALS	LUMP SUM	LUMP SUM	LUMP SUM	9.40	52.90	25.68	53.70	34.38	2	LUMP SUM	3,629	3,785

TOTAL BILL OF MATERIAL													
ITEM	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12x53 STEEL PILES		32" ALASKA RAIL	1'-7" x 1'-1" CONCRETE CURB	RIP RAP, CLASS II	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 1'-6" PRESTRESSED CONCRETE CORED SLABS	
	C.Y.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	LIN. FT.	LIN. FT.	TONS	S.Y.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE							255.50	270.50				30	1350.00
END BENT 1	21.5		2,630		5	60			45	50			
BENT 1	13.9		6,051	721									
BENT 2	13.9		6,794	1,029									
END BENT 2	21.2		2,625		5	50			45	50			
TOTALS	70.5	LUMP SUM	18,100	1,750	10	110	255.50	270.50	90	100	LUMP SUM	30	1350.00

PROJECT NO. HB-0051

ASHE COUNTY

STATION: 13+95.00-L -

SHEET 5 OF 5

DRAWN BY : NMW DATE : 12/24
CHECKED BY : MGC DATE : 3/25

Signed by
MARION STE 200
3/25/2025 10:04:13

SEAL
20125

ENGINEER
MARSHALL G. CHECK
1/5/2026

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

GENERAL DRAWING
FOR BRIDGE OVER
SOUTH FORK NEW RIVER
ON SR 1159 BETWEEN
SR 1192 AND SR 1156

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS 28
2			4			

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LOAD TYPE		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	
							LIVE-LOAD FACTORS (γ _{LL})	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ _{LL})	MOMENT					
								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)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD		HL-93 (INVENTORY)	N/A	1	1.09		1.75	0.280	1.09	45'	EL	22.00	0.530	1.32	45'	EL	1.22	0.80	0.280	1.17	45'	EL	22.00	
		HL-93 (OPERATING)	N/A		1.41		1.35	0.280	1.41	45'	EL	22.00	0.530	2.14	45'	EL	1.22	N/A						
		HS-20 (INVENTORY)	36.000	2	1.34	48,240	1.75	0.280	1.34	45'	EL	22.00	0.530	1.81	45'	EL	1.22	0.80	0.280	1.44	45'	EL	22.00	
		HS-20 (OPERATING)	36.000		1.73	62,280	1.35	0.280	1.73	45'	EL	22.00	0.530	2.91	45'	EL	1.22	N/A						
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13,500		2.81	37,935	1.4	0.280	3.27	45'	EL	22.00	0.530	7.61	45'	EL	8.50	0.80	0.280	2.81	45'	EL	22.00	
		SNGARBS2	20.000		2.27	45,400	1.4	0.280	2.64	45'	EL	22.00	0.530	5.60	45'	EL	8.50	0.80	0.280	2.27	45'	EL	22.00	
		SNAGRIS2	22.000		2.23	49,060	1.4	0.280	2.56	45'	EL	17.50	0.530	5.29	45'	EL	8.50	0.80	0.280	2.23	45'	EL	22.00	
		SNCOTTS3	27,250		1.40	38,150	1.4	0.280	1.63	45'	EL	22.00	0.530	3.30	45'	EL	1.22	0.80	0.280	1.40	45'	EL	22.00	
		SNAGGRS4	34,925		1.24	43,307	1.4	0.280	1.44	45'	EL	22.00	0.530	2.52	45'	EL	1.22	0.80	0.280	1.24	45'	EL	22.00	
		SNS5A	35,550		1.21	43,016	1.4	0.280	1.40	45'	EL	22.00	0.530	2.67	45'	EL	1.22	0.80	0.280	1.21	45'	EL	22.00	
		SNS6A	39,950		1.14	45,543	1.4	0.280	1.32	45'	EL	22.00	0.530	2.33	45'	EL	1.22	0.80	0.280	1.14	45'	EL	22.00	
		SNS7B	42.000	3	1.08	45,360	1.4	0.280	1.26	45'	EL	22.00	0.530	2.35	45'	EL	1.22	0.80	0.280	1.08	45'	EL	22.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		1.40	46,200	1.4	0.280	1.62	45'	EL	22.00	0.530	3.13	45'	EL	1.22	0.80	0.280	1.40	45'	EL	22.00	
		TNT4A	33,075		1.41	46,636	1.4	0.280	1.64	45'	EL	22.00	0.530	2.90	45'	EL	1.22	0.80	0.280	1.41	45'	EL	22.00	
		TNT6A	41,600		1.18	49,088	1.4	0.280	1.37	45'	EL	22.00	0.530	2.75	45'	EL	1.22	0.80	0.280	1.18	45'	EL	22.00	
		TNT7A	42,000		1.21	50,820	1.4	0.280	1.40	45'	EL	22.00	0.530	2.39	45'	EL	1.22	0.80	0.280	1.21	45'	EL	22.00	
		TNT7B	42,000		1.26	52,920	1.4	0.280	1.46	45'	EL	22.00	0.530	2.18	45'	EL	1.22	0.80	0.280	1.26	45'	EL	22.00	
		TNAGRIT4	43,000		1.20	51,600	1.4	0.280	1.39	45'	EL	22.00	0.530	2.03	45'	EL	1.22	0.80	0.280	1.20	45'	EL	22.00	
TNAGT5A		45,000		1.11	49,950	1.4	0.280	1.29	45'	EL	22.00	0.530	2.12	45'	EL	1.22	0.80	0.280	1.11	45'	EL	22.00		
TNAGT5B		45,000		1.09	49,050	1.4	0.280	1.26	45'	EL	22.00	0.530	1.84	45'	EL	1.22	0.80	0.280	1.09	45'	EL	22.00		
EMERGENCY VEHICLE (EV)		EV2	28.750		1.63	46,863	1.3	0.280	2.04	45'	EL	22.00	0.530	3.99	45'	EL	1.22	0.80	0.280	1.63	45'	EL	22.00	
		EV3	43.000	4	1.05	45,150	1.3	0.280	1.31	45'	EL	22.00	0.530	1.96	45'	EL	1.22	0.80	0.280	1.05	45'	EL	22.00	

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:

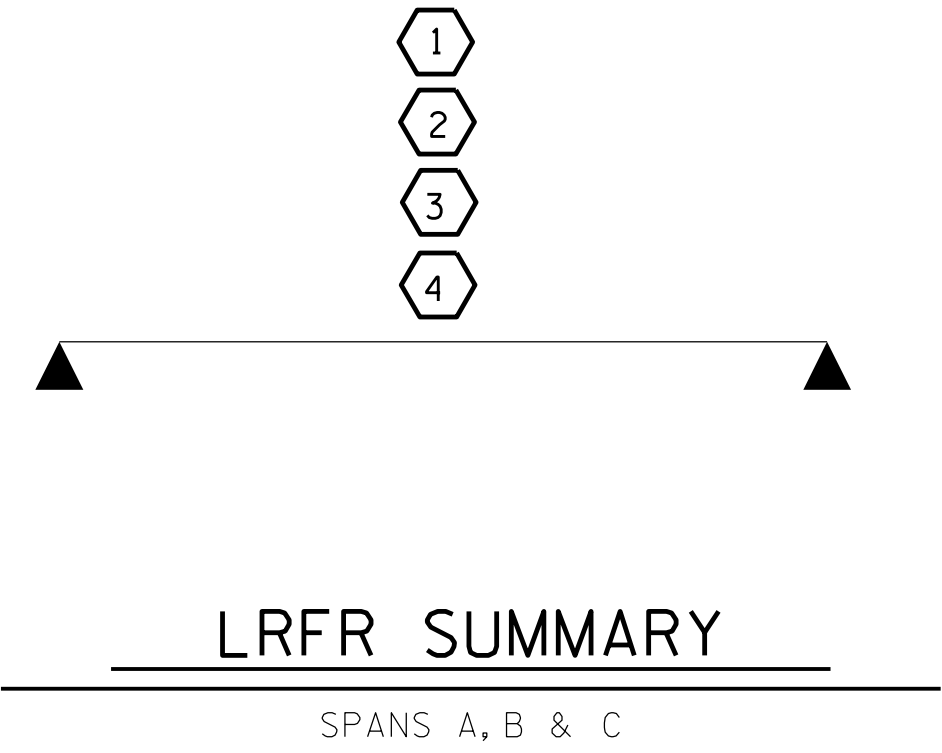
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

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	



PROJECT NO. HB-0051
ASHE COUNTY
STATION: 13+95.00-L-

DRAWN BY : ZCS DATE : 4/25
CHECKED BY : MGC DATE : 4/25
DESIGN ENGINEER OF RECORD : ZCS DATE : 4/25

Signature

STATE OF NORTH CAROLINA

Professional Seal

SEAL 20125

ENGINEER

MARSHALL G. CHECK, JR.

1/5/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS

201 W. MARION ST

STE 200

SHELBY, NC 28150

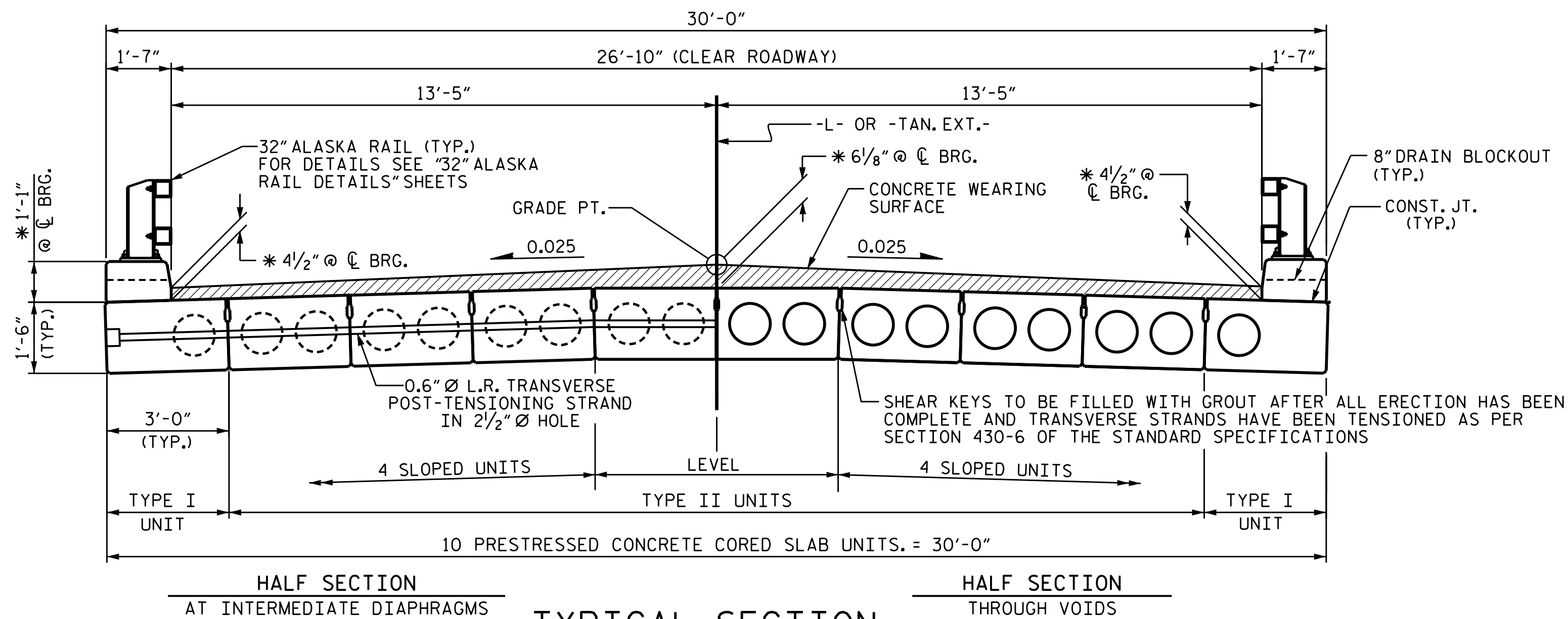
PH (704) 476-0003

CORP. LICENSE NO.: C-0275

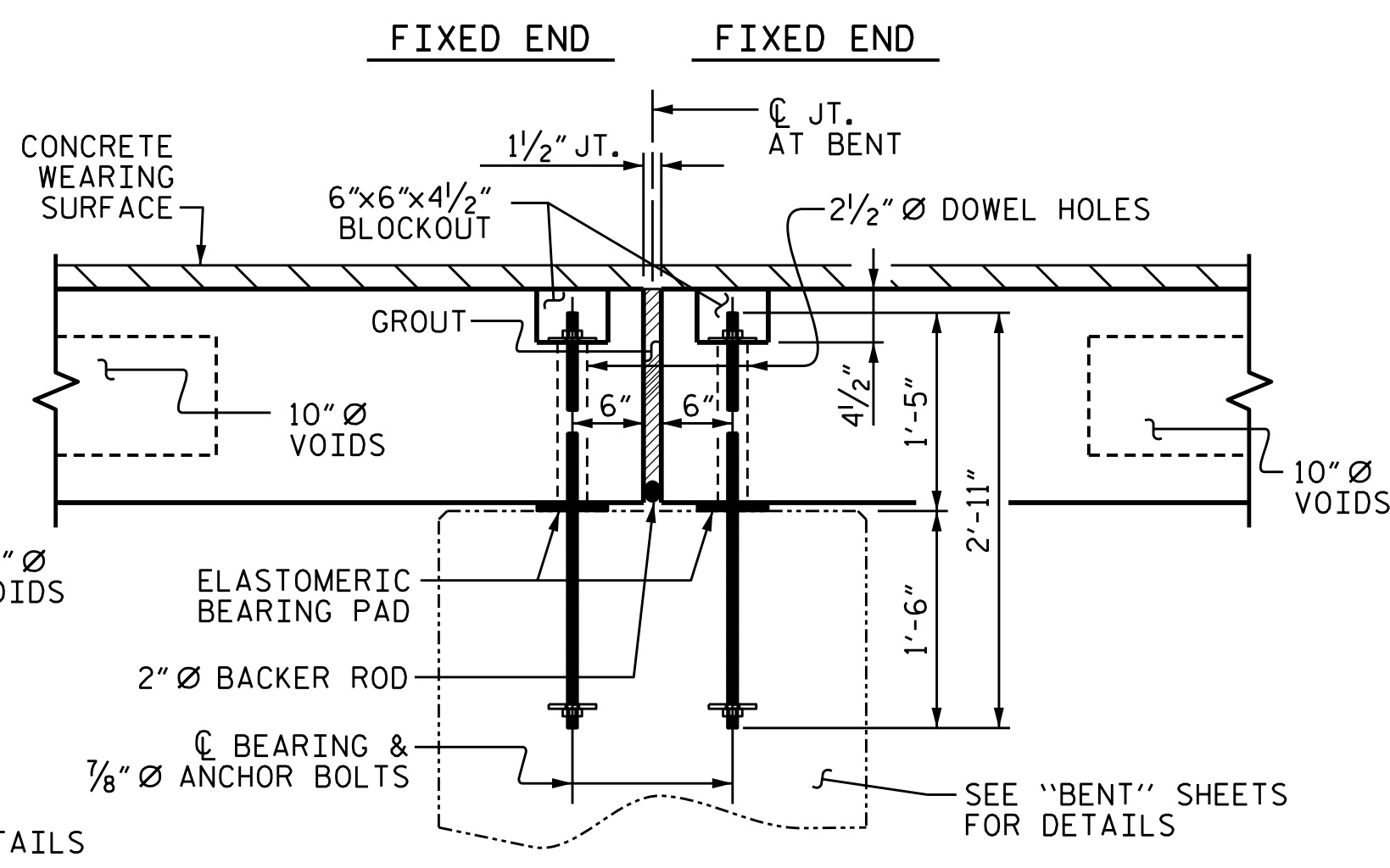
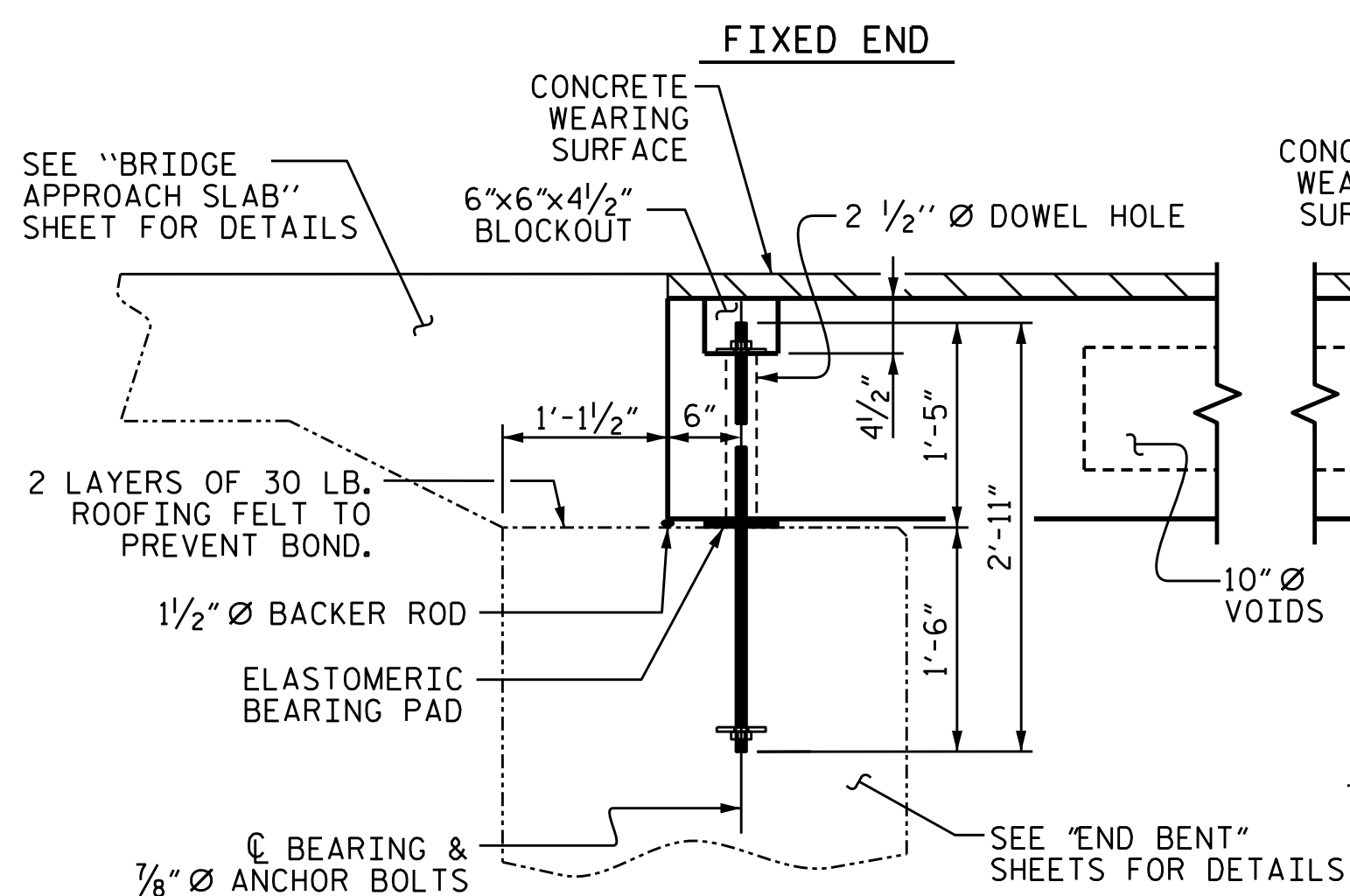
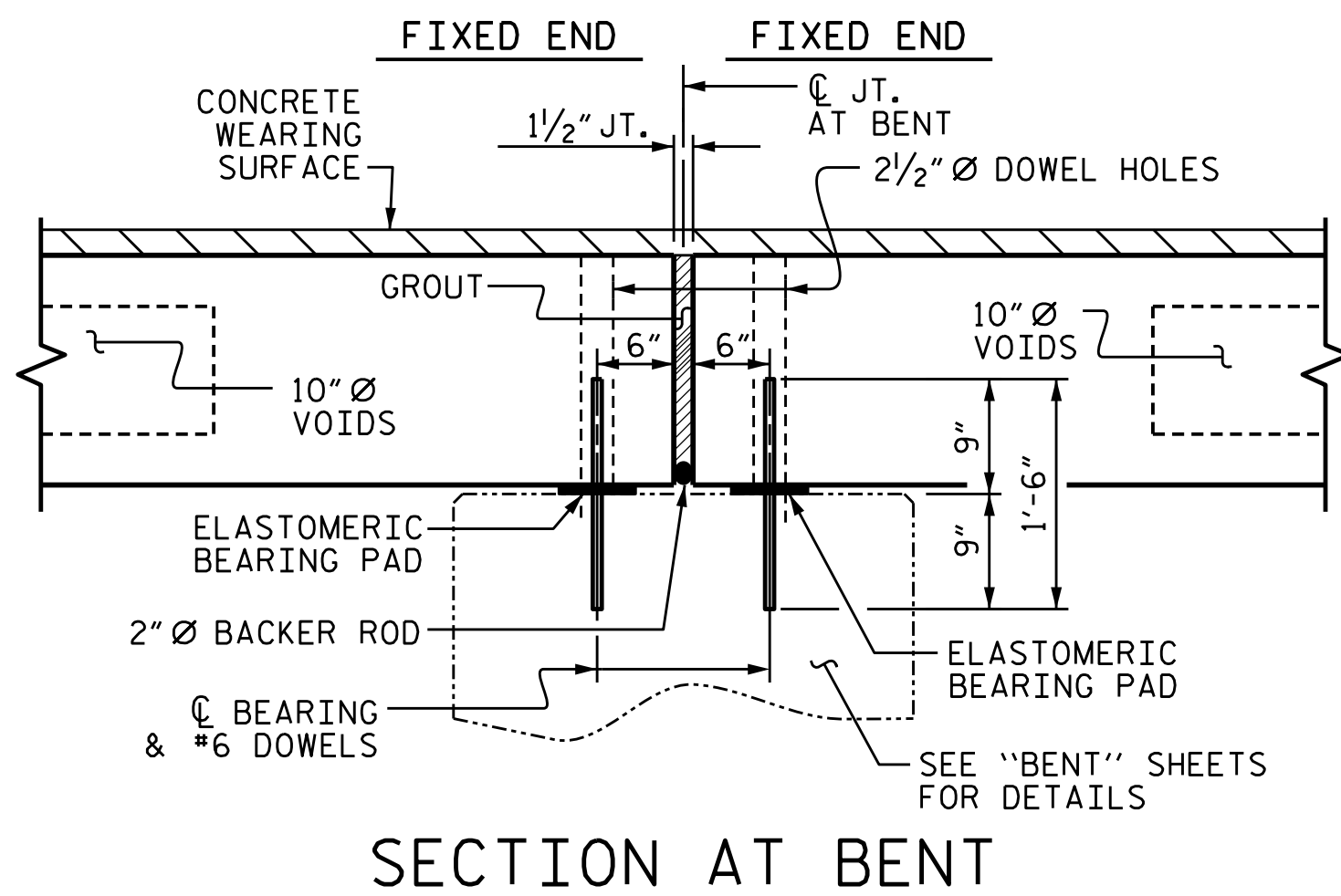
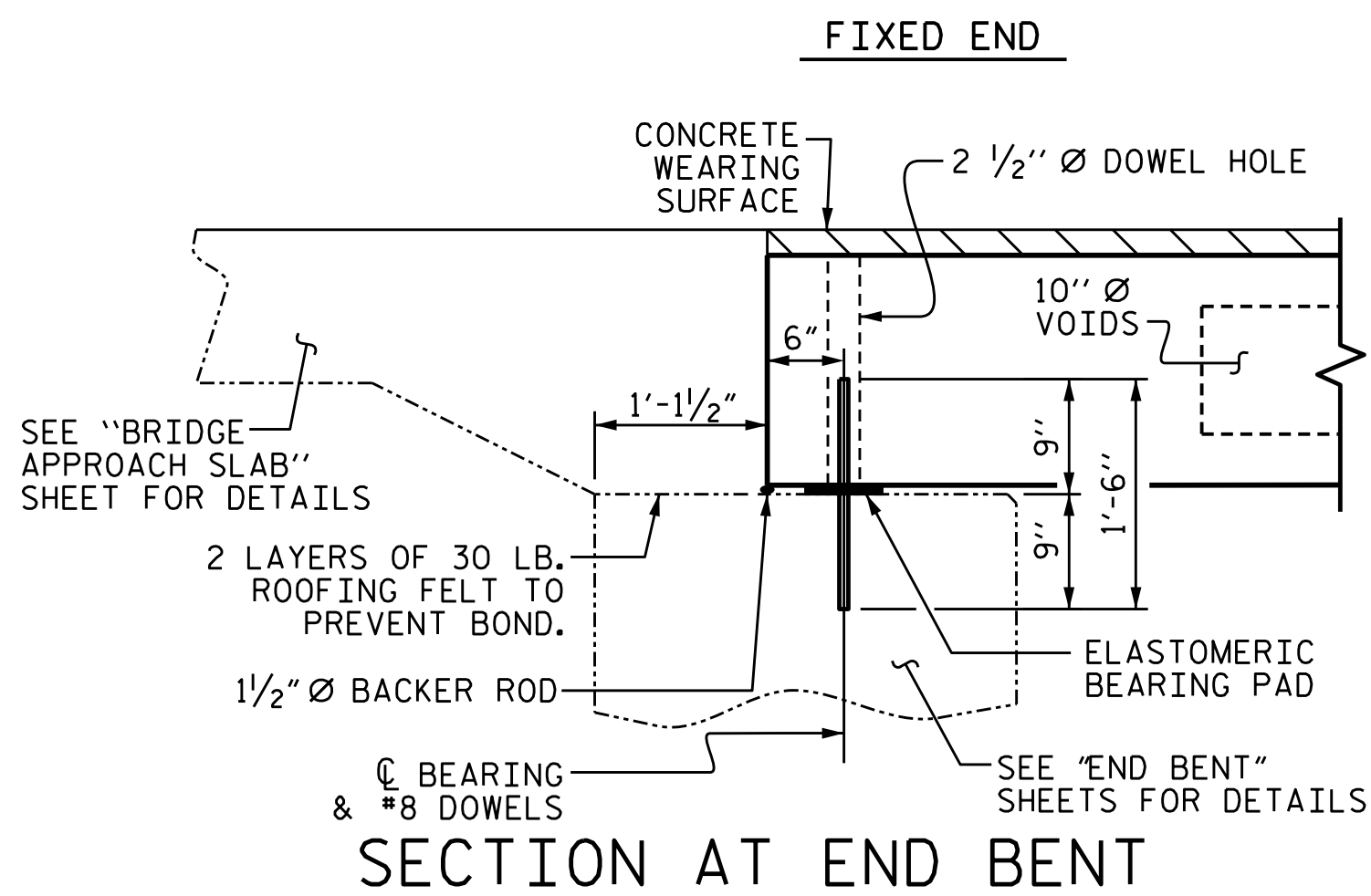
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR
45' CORED SLAB UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

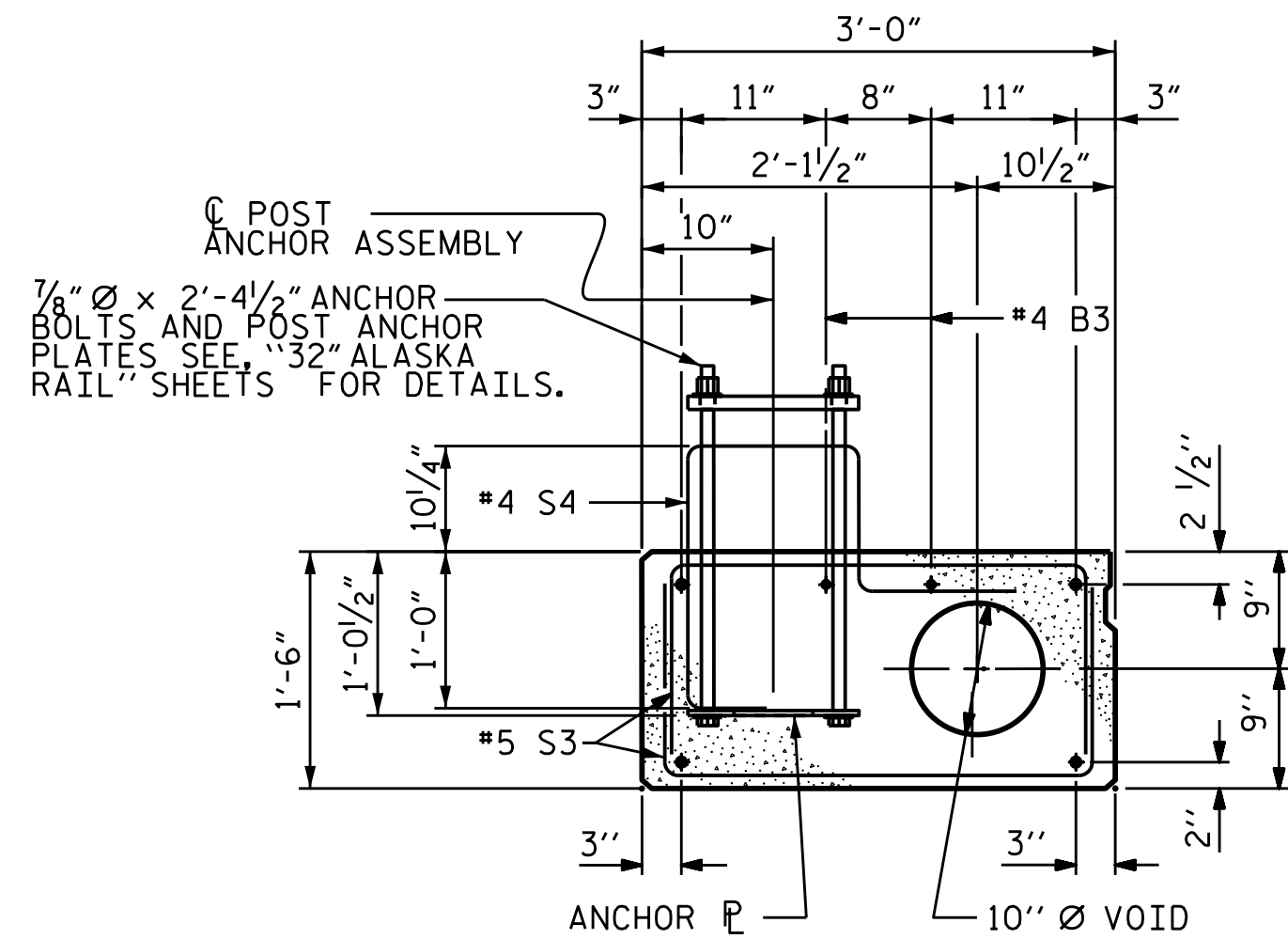
REVISIONS						SHEET NO. S-6 TOTAL SHEETS 28
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



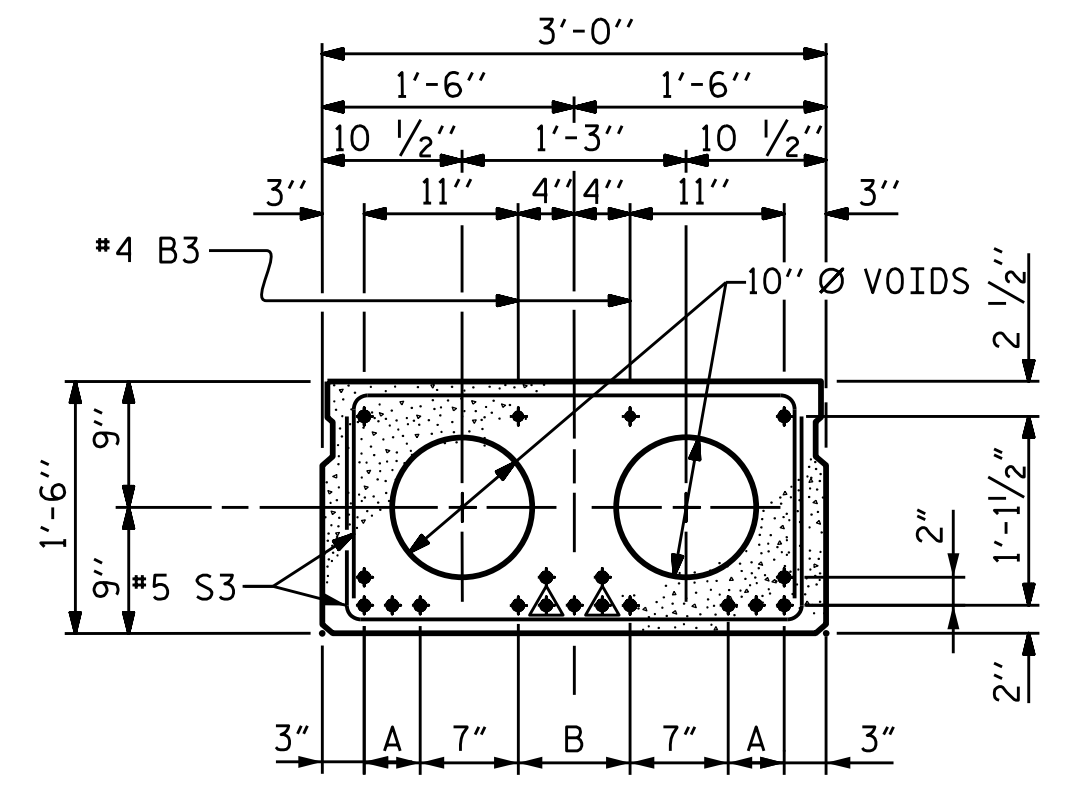
* THE HEIGHT OF THE CURB AND CONCRETE OVERLAY THICKNESS VARIES WHILE THE TOP OF CURB FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR CURB DETAILS, SEE "ALASKA RAIL CURB SECTION", SHEET 5 OF 5.



FOR "BLOCKOUT DETAIL FOR ANCHOR BOLTS", SEE SHEETS 2, 3 & 4 OF 5.



(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION)



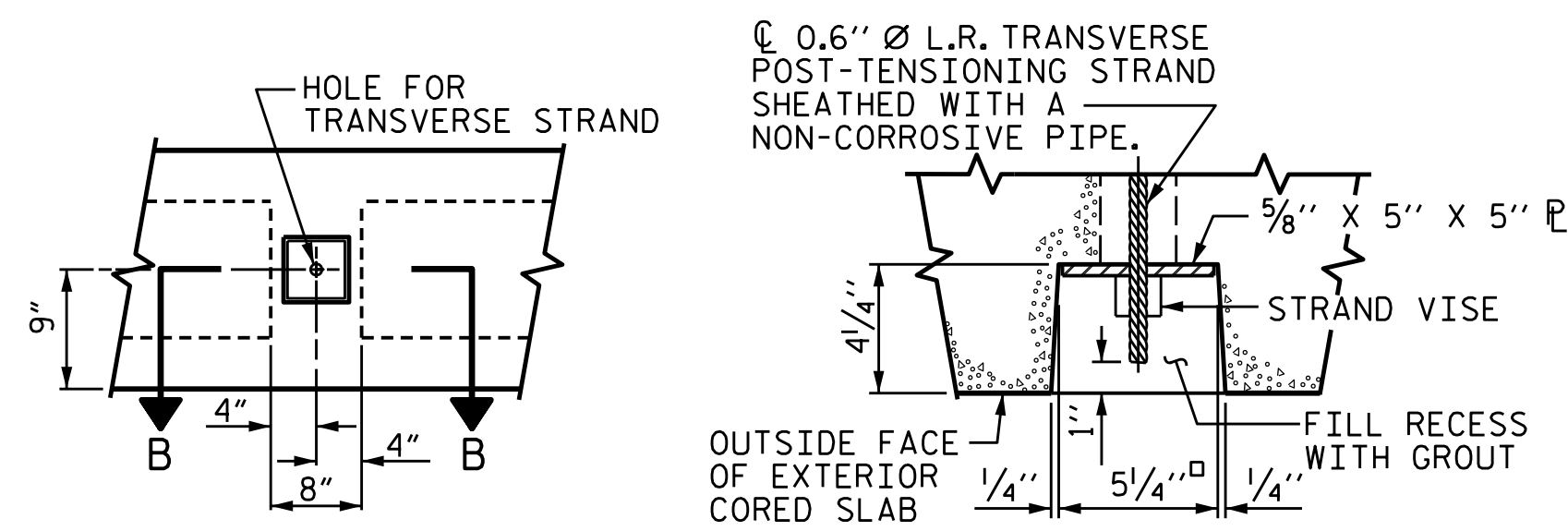
A = 2 SPA. @ 2" CTS. = 4"
B = 4 SPA. @ 2" CTS. = 8"

INTERIOR SLAB SECTION
(17 STRANDS REQUIRED)
(TYPE II UNIT SHOWN,
TYPE I SIMILAR)

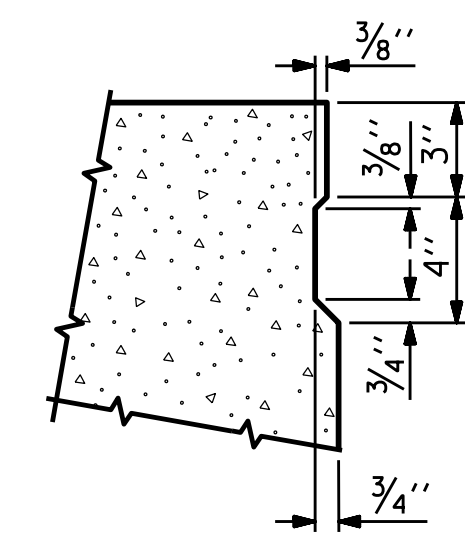
0.6" Ø LOW RELAXATION
STRAND LAYOUT

BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 8'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

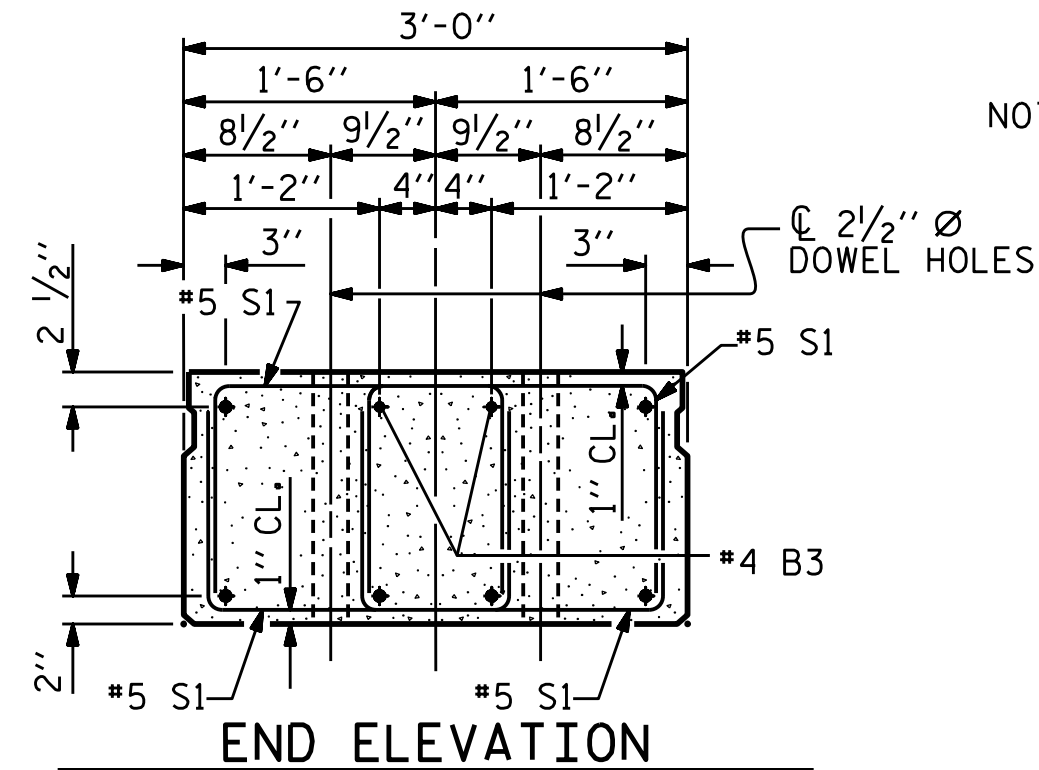
DEBONDING LEGEND



GRAUTED RECESS AT END OF
POST-TENSIONED STRAND OF CORED SLABS

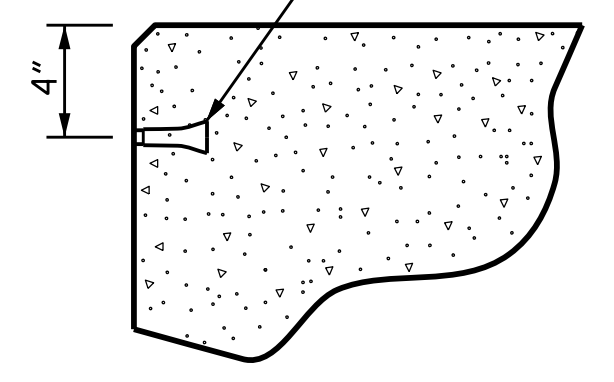


NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES (STRAND LAYOUT NOT SHOWN)
INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.

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



THREADED INSERT DETAIL

PROJECT NO. HB-0051
ASHE COUNTY
STATION: 13+95.00-L-

SHEET 1 OF 5

DRAWN BY : NMW
CHECKED BY : MCC
DESIGN ENGINEER OF RECORD : ZCS

DATE : 12/24
DATE : 3/25
DATE : 4/25

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-6"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

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

1/5/2026

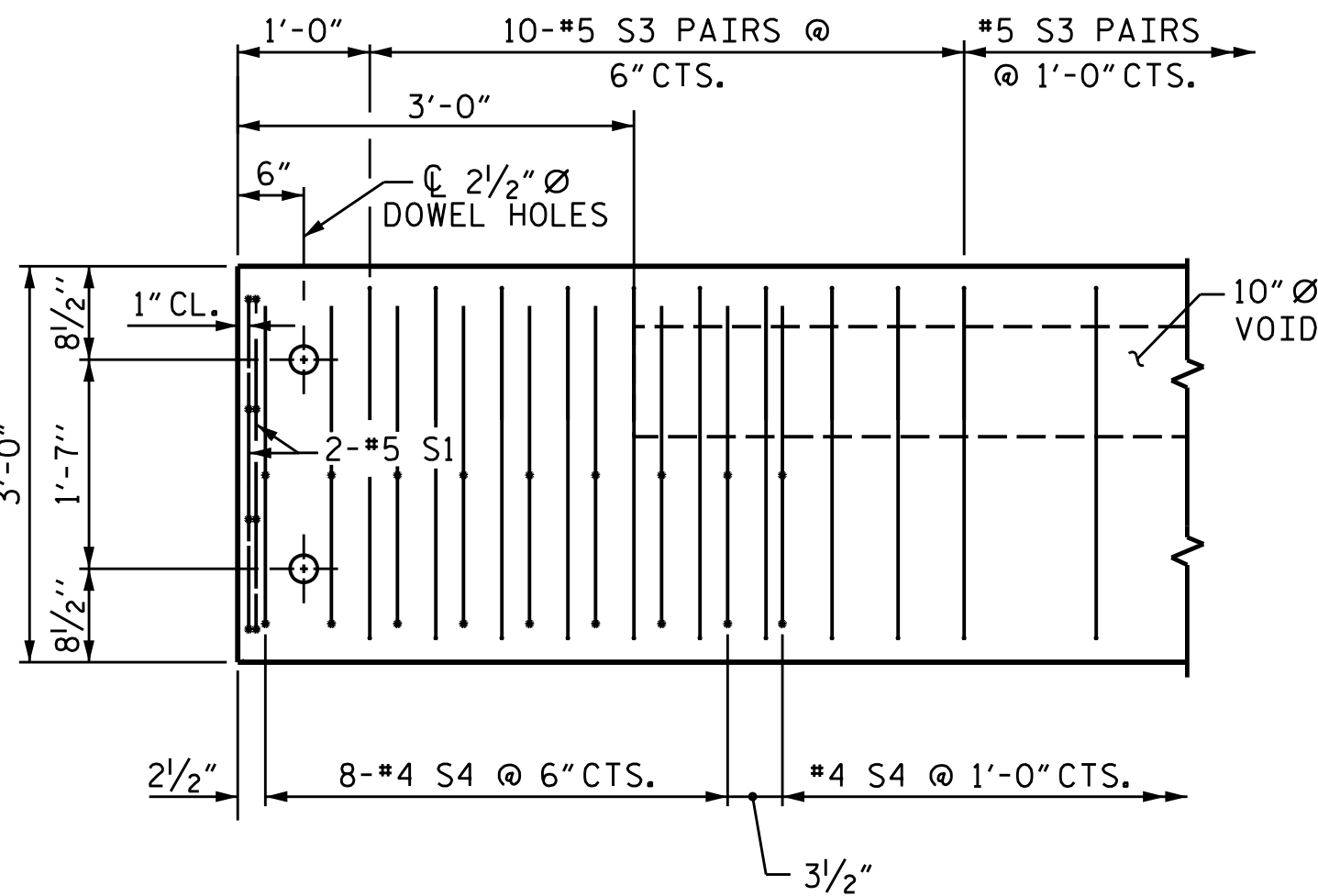
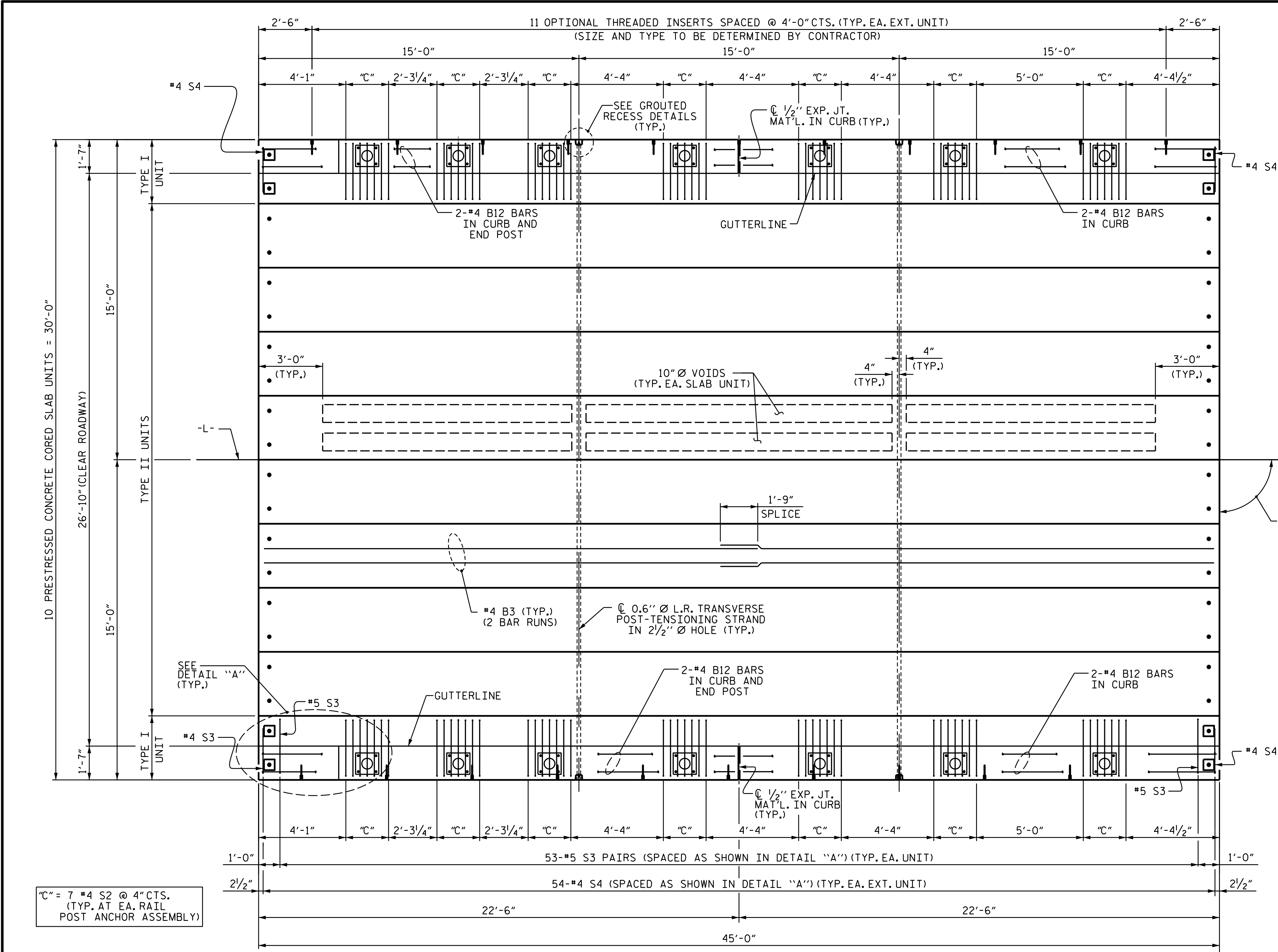
SEAL 20125

ENGINEER
MARSHALL G. CHECK

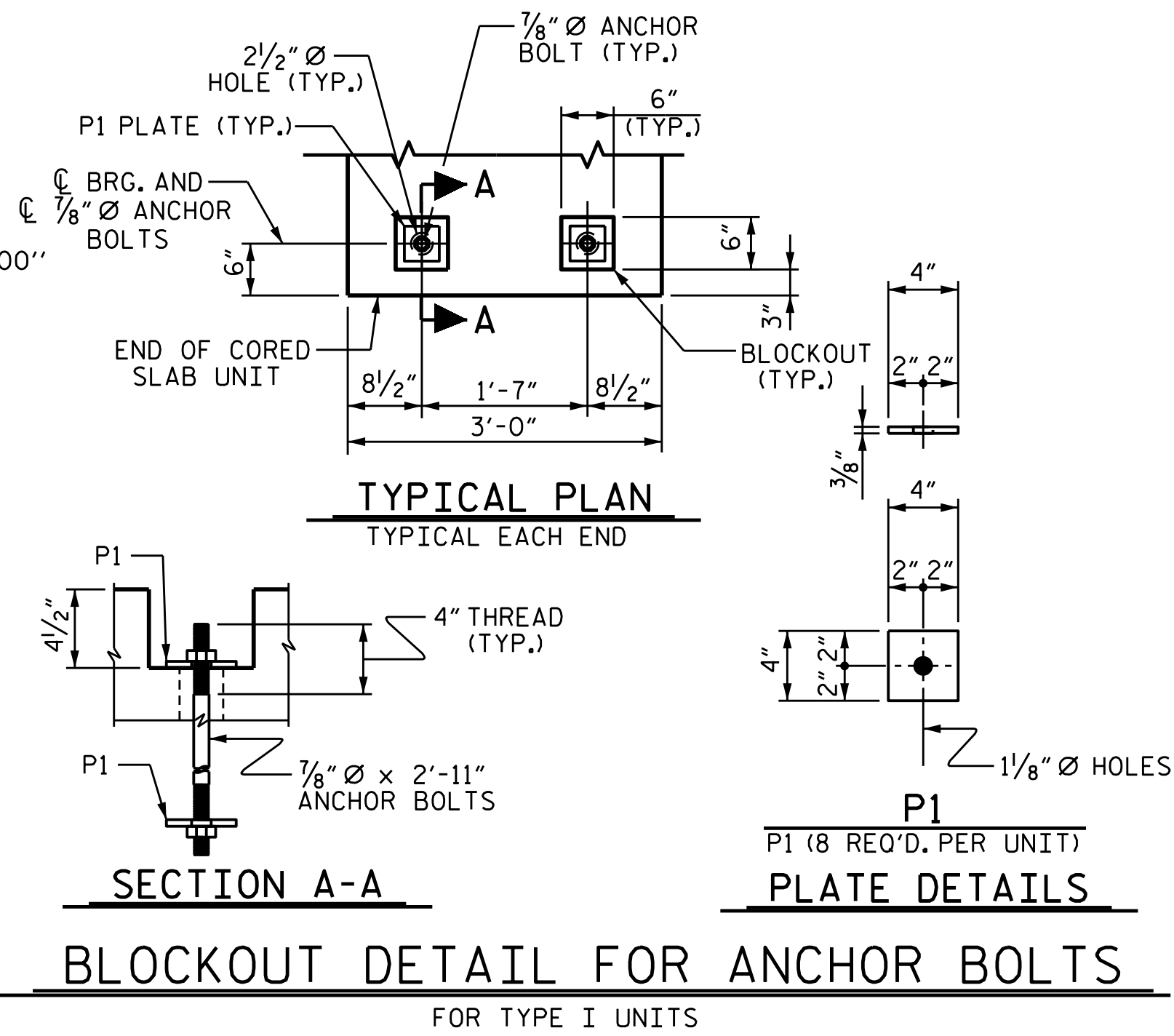
NO. BY: DATE: NO. BY: DATE:

1 2 3 4

SHEET NO. S-7
TOTAL SHEETS 28



DETAIL "A"
(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR
UNIT SIMILAR EXCEPT OMIT #4 S4 BARS.



BLOCKOUT DETAIL FOR ANCHOR BOLTS
FOR TYPE I UNITS

PROJECT NO. HB-0051
ASHE COUNTY
STATION: 13+95.00-L-

SHEET 2 OF 5

NOTES

EXTERIOR SLAB UNITS SHALL BE ANCHORED WITH 7/8" Ø ANCHOR BOLTS.

THE 2 1/2" ANCHOR BOLT HOLES SHALL BE FILLED WITH NON-SHRINK GROUT. SEE GROUT FOR STRUCTURES SPECIAL PROVISION.

ANCHOR BOLTS SHALL BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN.

ANCHOR BOLT BLOCKOUTS SHALL BE FILLED WITH NON-SHRINK GROUT AFTER TIGHTENING OF THE ANCHOR BOLTS AND PRIOR TO PLACEMENT OF CONCRETE WEARING SURFACE.

THE VERTICAL FACES OF THE ANCHOR BOLT BLOCKOUTS SHALL BE FINISHED WITH A ROUGHENED SURFACE.

HOLD DOWN PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PAYMENT FOR HOLD DOWN PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. PLATES SHALL MEET THE REQUIREMENTS OF AASHTO M293. BOLTS, NUTS AND PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND PLATES. SHOP INSPECTIONS REQUIRED.

DRAWN BY : NMW DATE : 1/25
CHECKED BY : MGC DATE : 3/25
DESIGN ENGINEER OF RECORD : ZCS DATE : 4/25

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN A
26'-10" CLEAR ROADWAY
90° SKEW

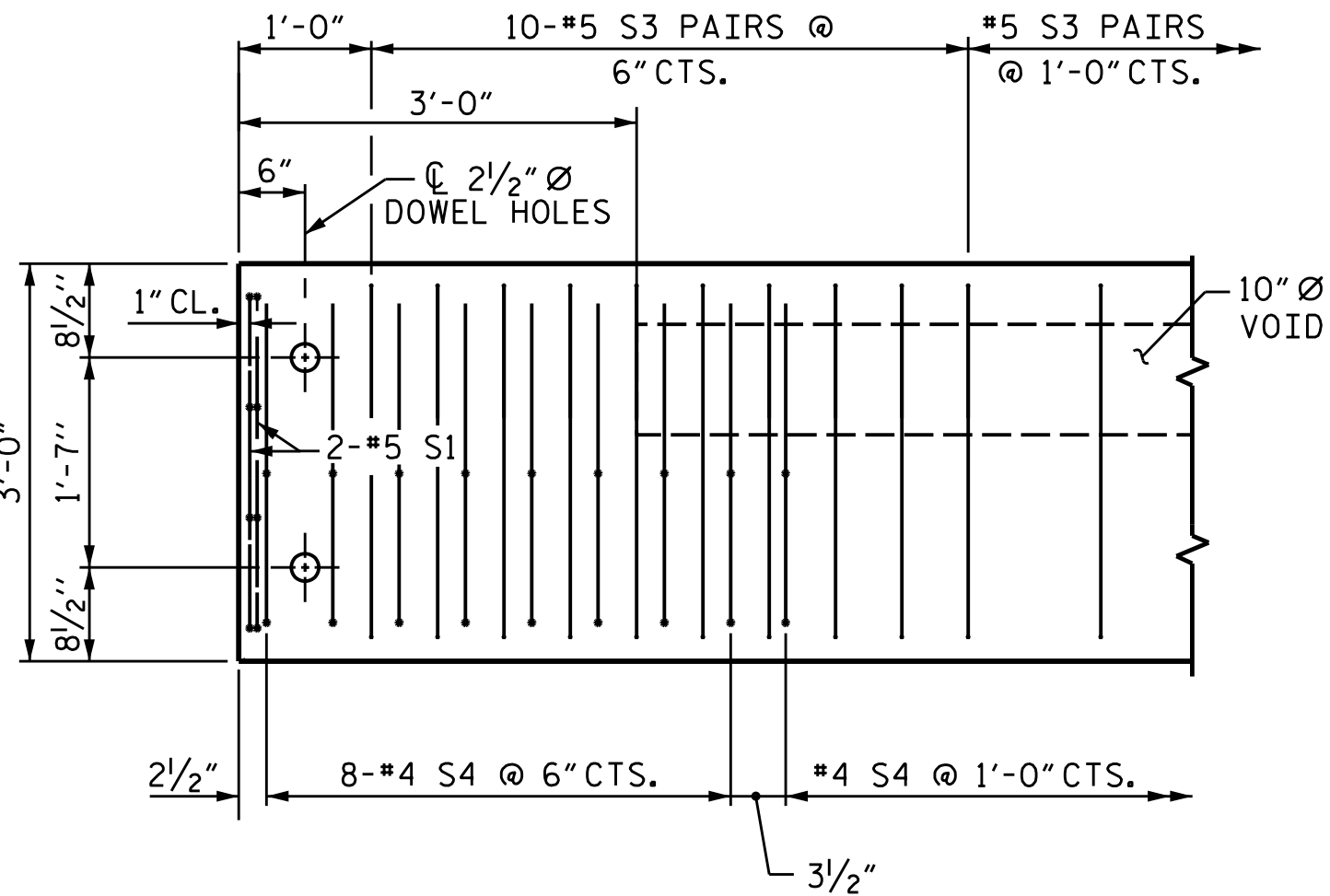
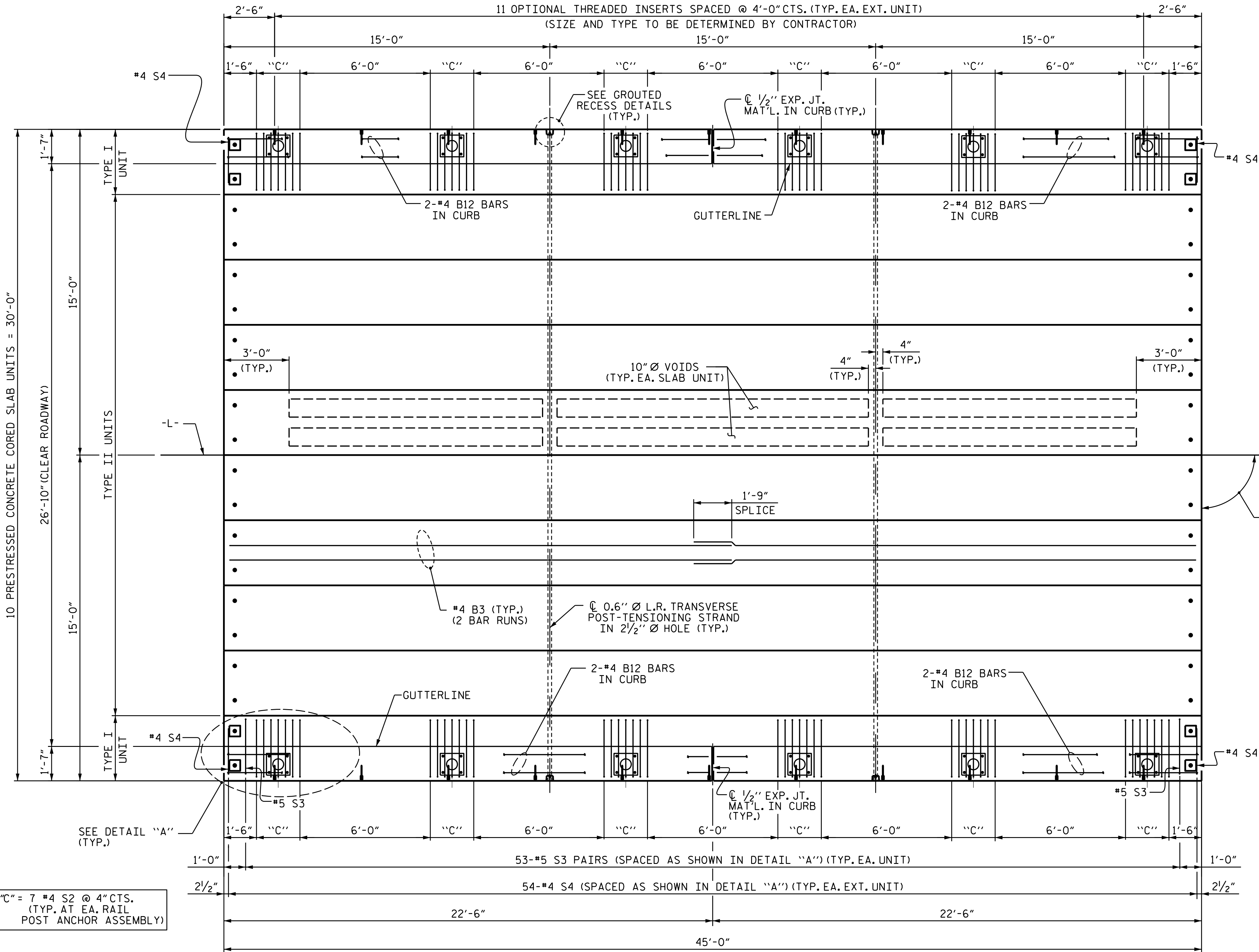
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SHELBY, NC 28150
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CORP. LICENSE NO.: C-0275

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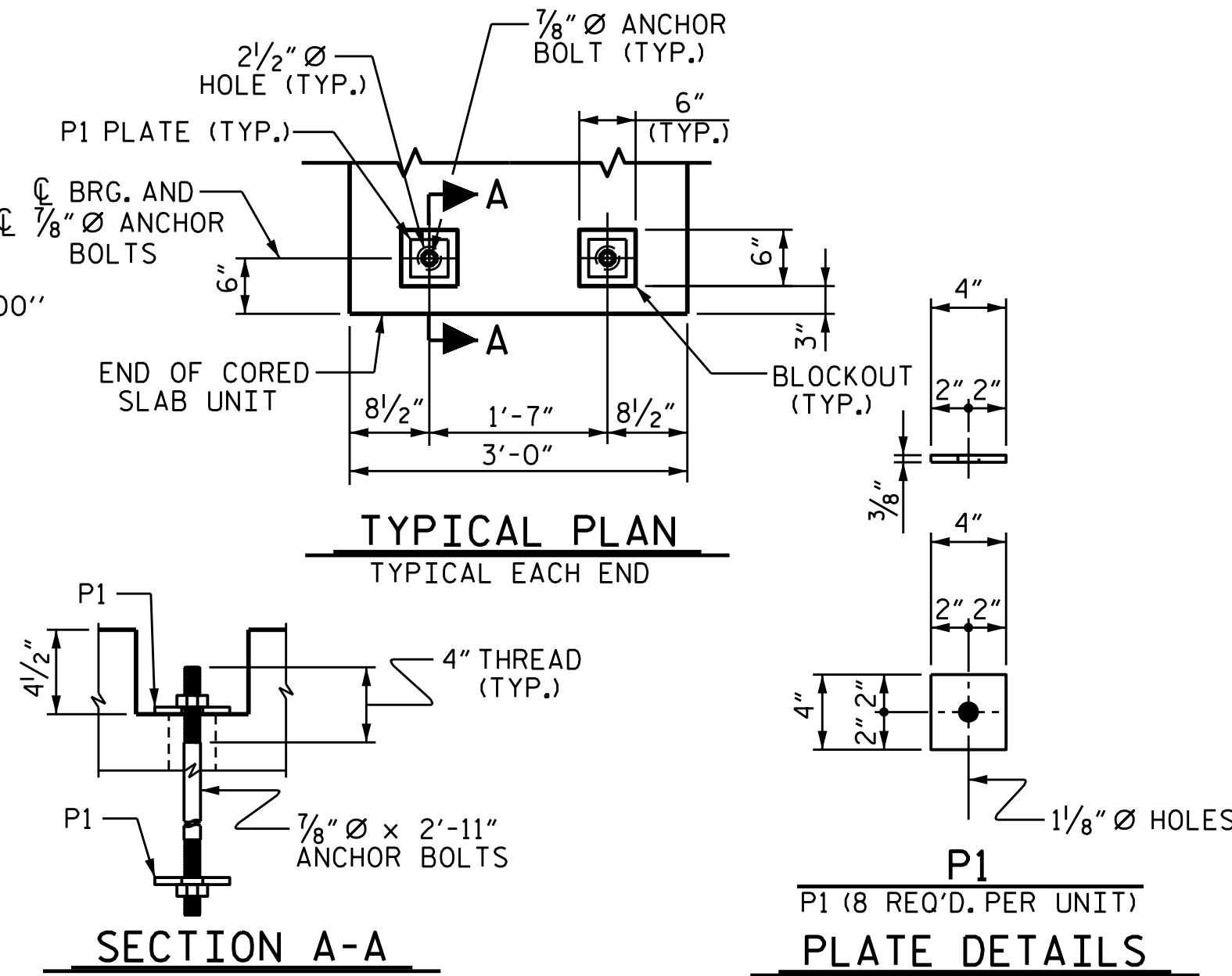
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1			3		
2			4		

SHEET NO.
S-8
TOTAL SHEETS
28



DETAIL "A"

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #4 S4 BARS.



BLOCKOUT DETAIL FOR ANCHOR BOLTS

FOR TYPE I UNITS

PROJECT NO. HB-0051

ASHE COUNTY

STATION: 13+95.00-L-

SHEET 3 OF 5

NOTES

EXTERIOR SLAB UNITS SHALL BE ANCHORED WITH 7/8" Ø ANCHOR BOLTS.

THE 2 1/2" ANCHOR BOLT HOLES SHALL BE FILLED WITH NON-SHRINK GROUT. SEE GROUT FOR STRUCTURES SPECIAL PROVISION.

ANCHOR BOLTS SHALL BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN.

ANCHOR BOLT BLOCKOUTS SHALL BE FILLED WITH NON-SHRINK GROUT AFTER TIGHTENING OF THE ANCHOR BOLTS AND PRIOR TO PLACEMENT OF CONCRETE WEARING SURFACE.

THE VERTICAL FACES OF THE ANCHOR BOLT BLOCKOUTS SHALL BE FINISHED WITH A ROUGHENED SURFACE.

HOLD DOWN PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PAYMENT FOR HOLD DOWN PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. PLATES SHALL MEET THE REQUIREMENTS OF AASHTO M293. BOLTS, NUTS AND PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND PLATES. SHOP INSPECTIONS REQUIRED.

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DESIGN ENGINEER OF RECORD : ZCS DATE : 4/25

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

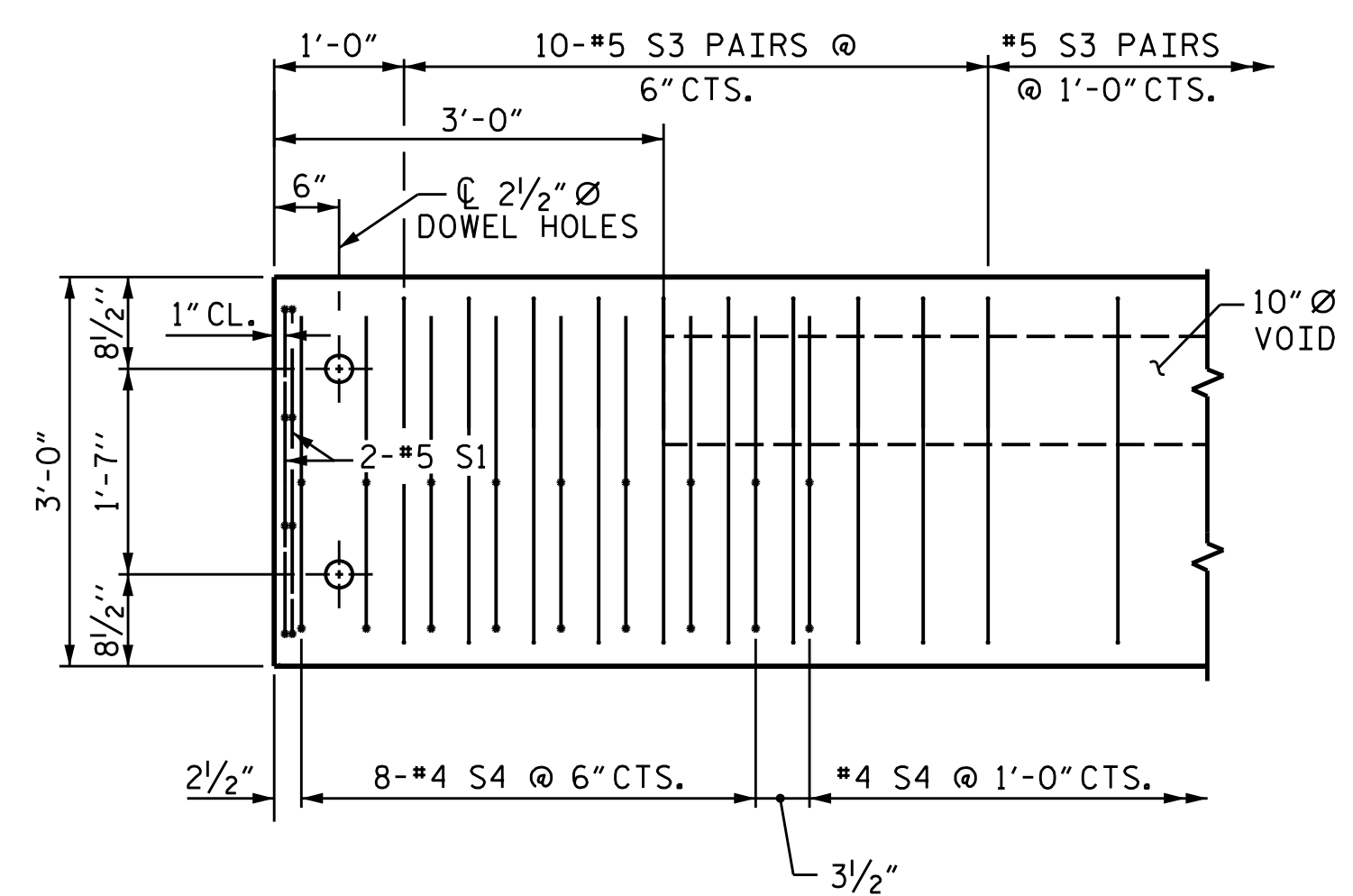
PLAN OF SPAN B
26'-10" CLEAR ROADWAY
90° SKEW

DOCUMENT NOT CONSIDERED FINAL
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201 W. MARION ST STE 200
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CORP. LICENSE NO.: C-0275

SEAL
20125
ENGINEER
MARSHALL G. CHECK
1/5/2026

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-9
1			3			TOTAL SHEETS
2			4			28



The technical drawings illustrate the P1 Plate details for the bridge structure. The drawings include:

- TYPICAL PLAN:** Shows the plan view of the plate at each end. Key dimensions include:
 - Overall width: 6" (TYP.)
 - Distance from centerline to anchor bolt center: 8 1/2"
 - Distance between anchor bolts: 1'-7"
 - Overall length: 3'-0"
 - Anchor bolt diameter: 7/8" Ø ANCHOR BOLT (TYP.)
 - Plate thickness: 3/8"
 - Blockout dimensions: 4" x 2" x 2"
 - End of cored slab unit: 8 1/2"
- SECTION A-A:** Shows the cross-section of the plate. Key dimensions include:
 - Plate thickness: 4 1/2"
 - Anchor bolt diameter: 7/8" Ø x 2'-11"
 - Thread specification: 4" THREAD (TYP.)
- PLATE DETAILS:** Shows the details of the plate at the end. Key dimensions include:
 - Plate thickness: 4"
 - Anchor bolt diameter: 1 1/8" Ø HOLES
 - Plate width: 4"
 - Plate length: 2" x 2" x 2"

FOR TYPE I UNITS

ASHE COUNTY

SHEET 4 OF 5

DRAWN BY :	NMW	DATE :	1/25
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DESIGN ENGINEER OF RECORD :	7CS	DATE :	4/25

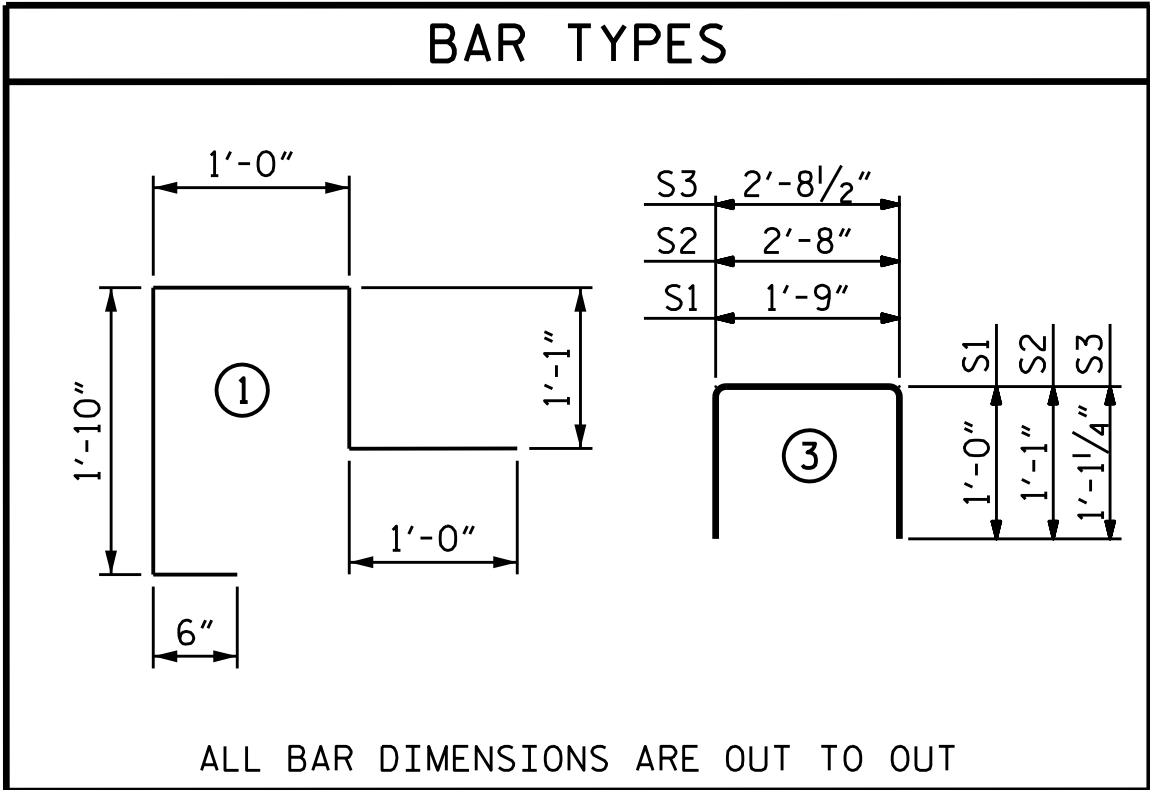
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPAN C
 26'-10" CLEAR ROADWAY
 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10 TOTAL SHEETS 28
1			3			
2			4			

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT SPANS A & C							
				TYPE I		TYPE II	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	2	3'-9"	31	3'-9"	31
S2	49	#4	2	4'-10"	158		
S3	106	#5	2	4'-11"	544	4'-11"	544
* S4	54	#4	1	5'-5"	195		
REINFORCING STEEL				LBS.	795	637	
*EPOXY COATED REINFORCING STEEL				LBS.	195		
6,000 P.S.I. CONCRETE				CU. YDS.	6.7	5.9	
0.6" Ø L.R. STRANDS				No.	17	17	

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT SPAN B							
				TYPE I		TYPE II	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	2	3'-9"	31	3'-9"	31
S2	42	#4	2	4'-10"	136		
S3	106	#5	2	4'-11"	544	4'-11"	544
* S4	54	#4	1	5'-5"	195		
REINFORCING STEEL				LBS.	773	637	
*EPOXY COATED REINFORCING STEEL				LBS.	195		
6,000 P.S.I. CONCRETE				CU. YDS.	6.7	5.9	
0.6" Ø L.R. STRANDS				No.	17	17	



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 CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB 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.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN THE CURB SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE CURB AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN CURB EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF CURB SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB 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.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

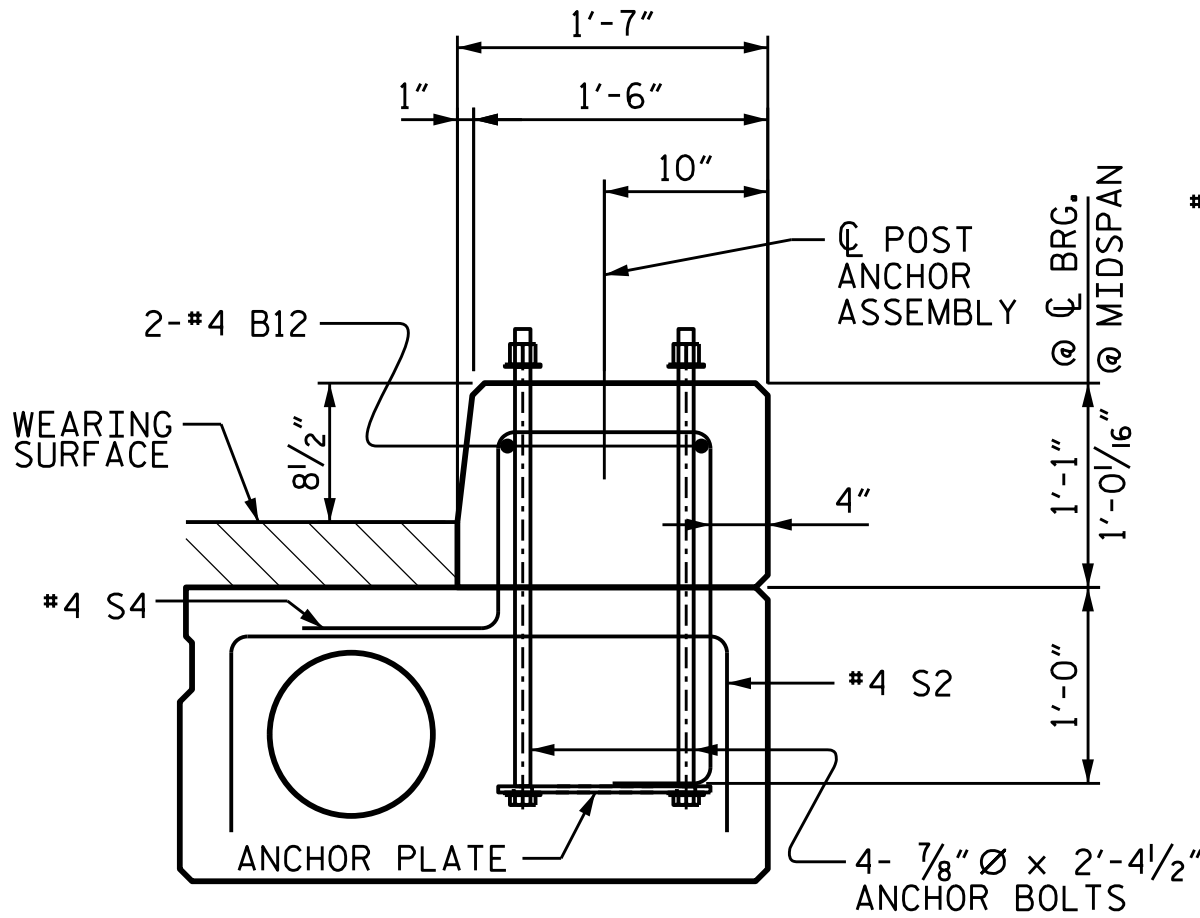
THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

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.

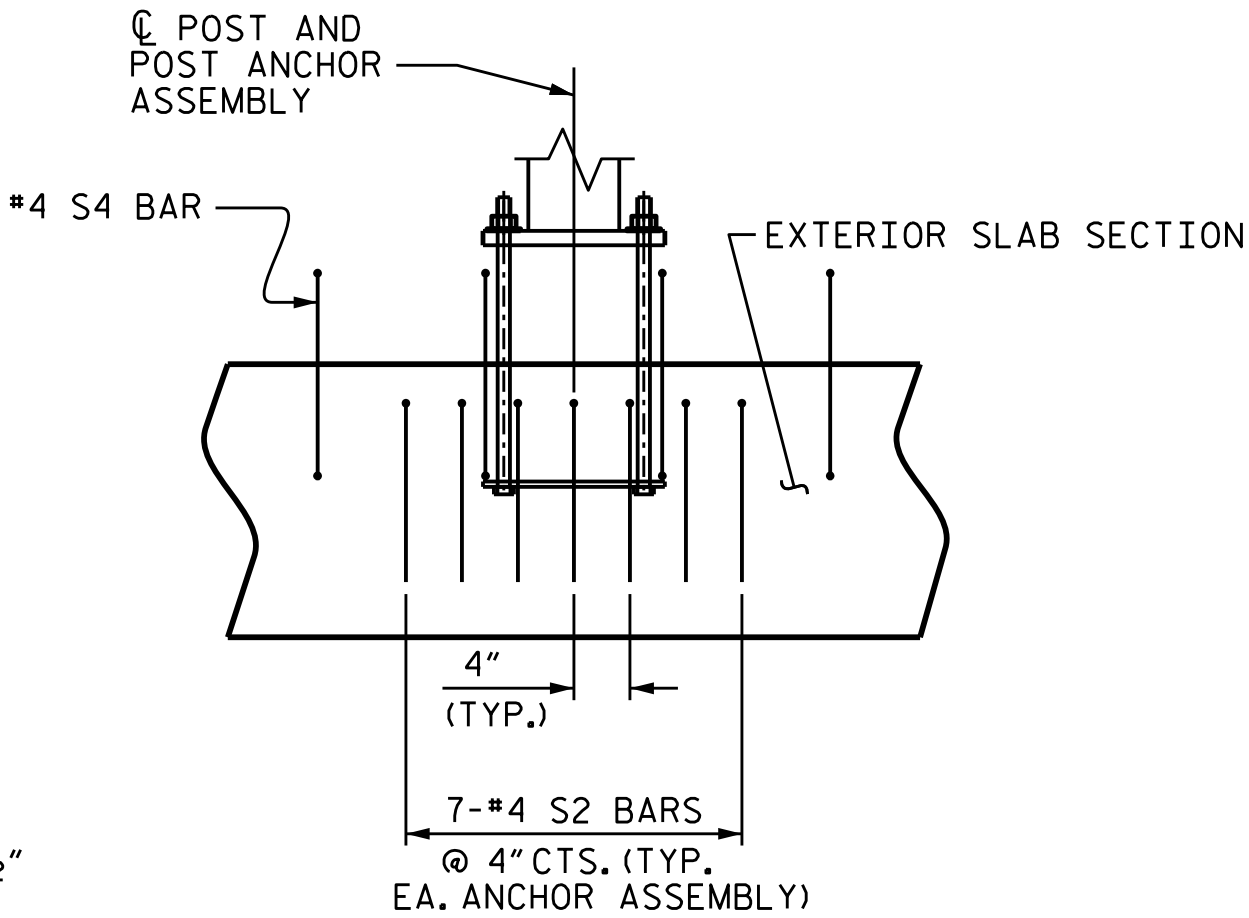
THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

ALASKA RAIL CURB SECTION



SIDE VIEW AT POST LOCATION

(SHOWING #4 S2 BARS AT EACH POST ASSEMBLY)



GUTTERLINE CONCRETE THICKNESS & CURB HEIGHT

45' UNITS	CONCRETE OVERLAY THICKNESS @ MID-SPAN		CURB HEIGHT @ MID-SPAN	
	LEFT GUTTER	RIGHT GUTTER	LEFT GUTTER	RIGHT GUTTER
	3⅞"	3⅞"	1'-0⅞"	1'-0⅞"

DEAD LOAD DEFLECTION AND CAMBER

45' CORED SLAB UNIT	3'-0" x 1'-6"
CAMBER (SLAB ALONE IN PLACE)	0.6" Ø L.R. STRAND
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1⅝" ↓
FINAL CAMBER	⅜" ↓
	1⅝" ↓

** INCLUDES FUTURE WEARING SURFACE

GRADE 270 STRANDS

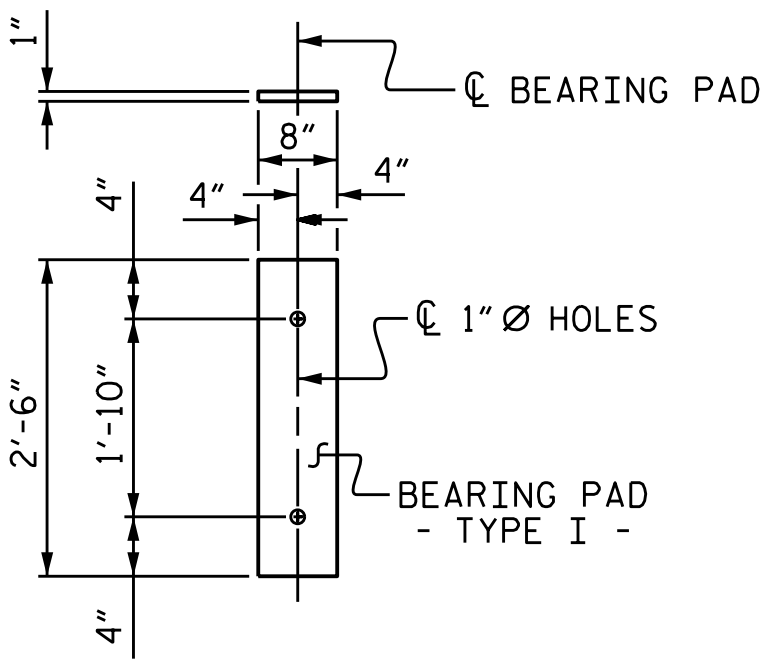
AREA (SQUARE INCHES)	0.6" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	0.217
APPLIED PRESTRESS (LBS. PER STRAND)	58,600
	43,950

CORED SLABS REQUIRED

45' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	6	45'-0"	270'-0"
INTERIOR C.S.	24	45'-0"	1080'-0"
TOTAL	30		1350'-0"

CONCRETE RELEASE STRENGTH

UNIT	PSI
45' UNIT	5000



FIXED END
(TYPE I - 60 REQ'D)

ELASTOMERIC BEARING DETAILS

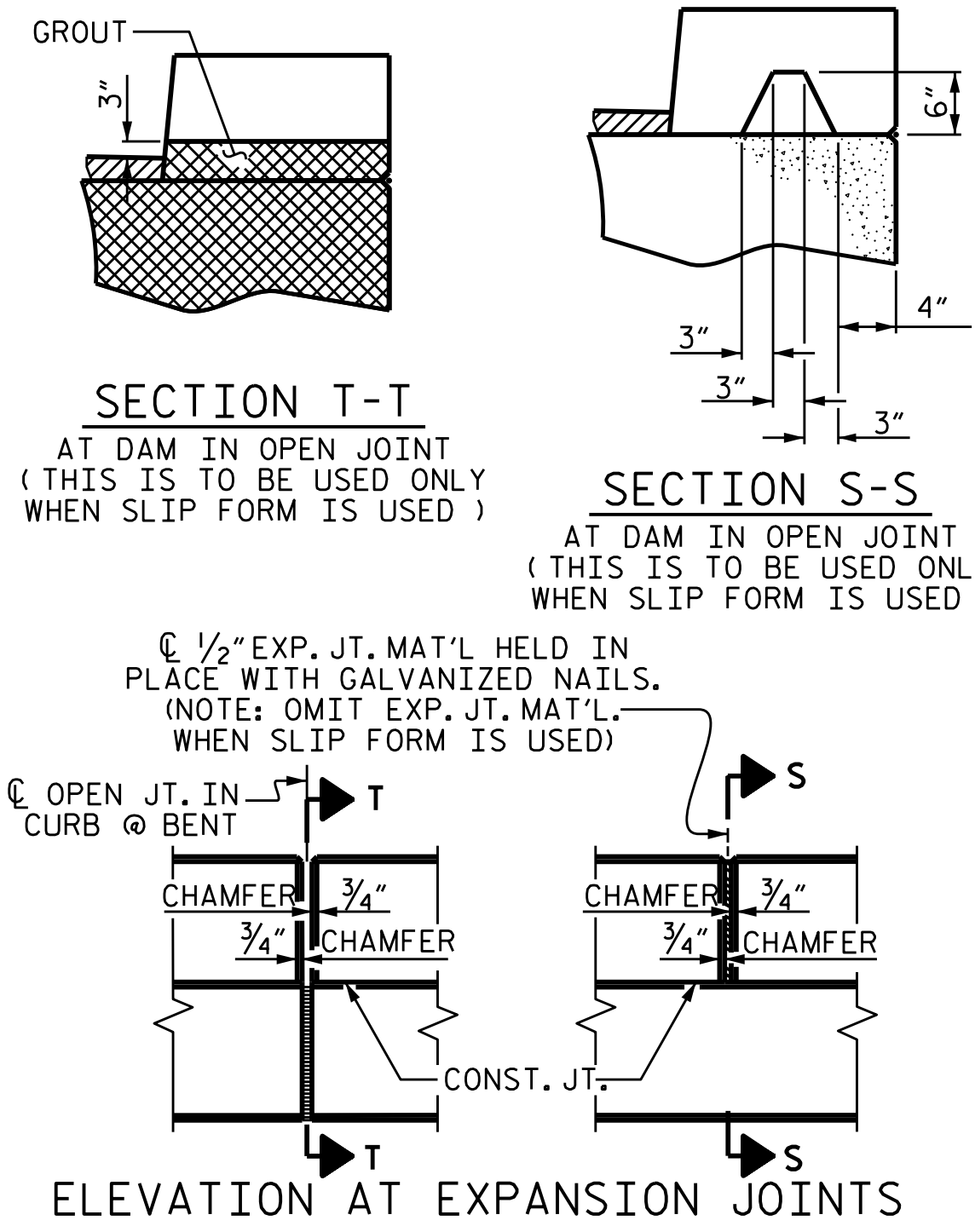
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

SECTION T-T

AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

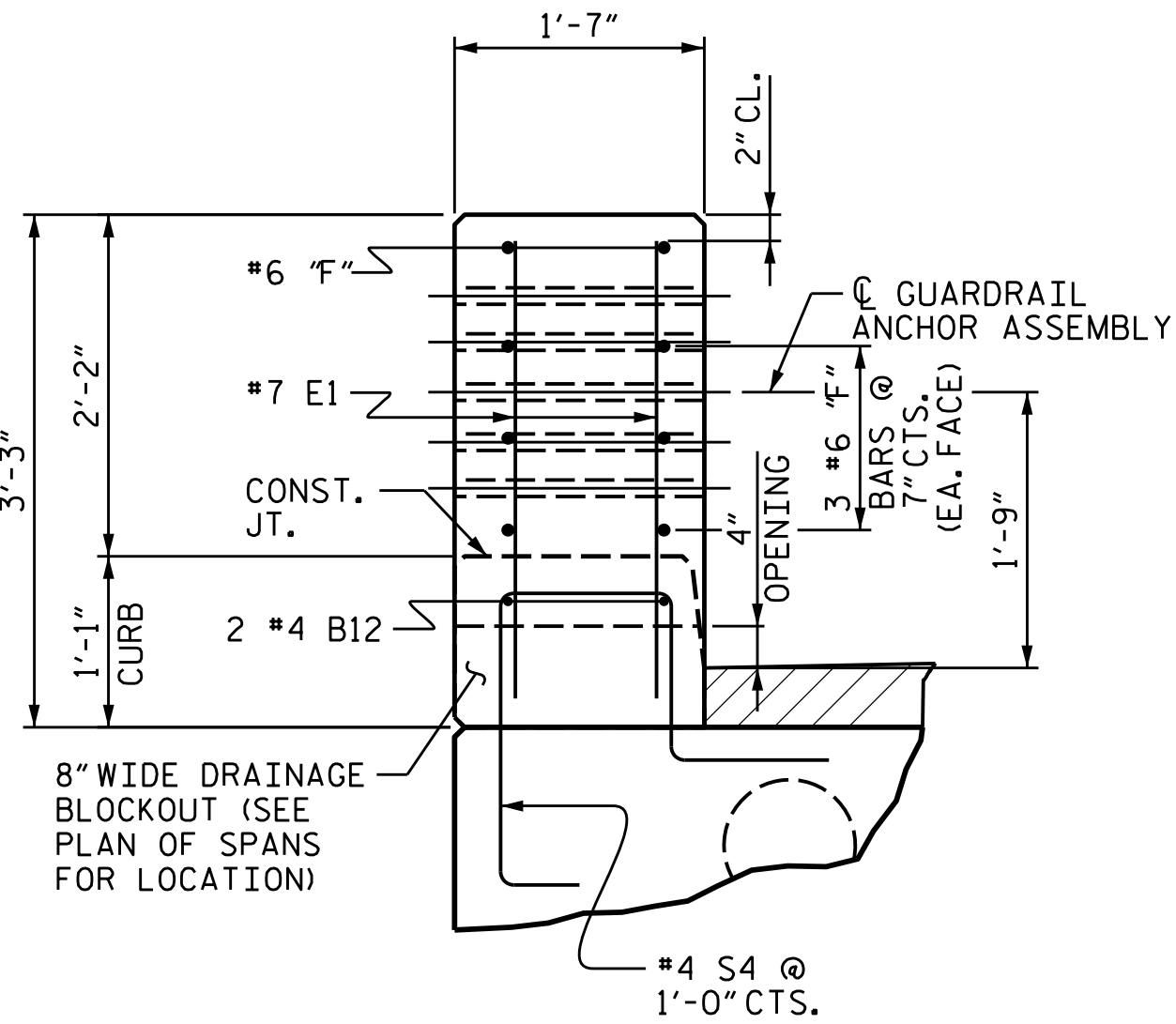
SECTION S-S

AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

END VIEW



CURB AND END POST FOR 32" ALASKA RAIL

DRAWN BY : NMW DATE : 1/25
CHECKED BY : MGC DATE : 3/25
DESIGN ENGINEER OF RECORD : ZCS DATE : 4/25

PROJECT NO. HB-0051

ASHE COUNTY

STATION: 13+95.00-L-

SHEET 5 OF 5

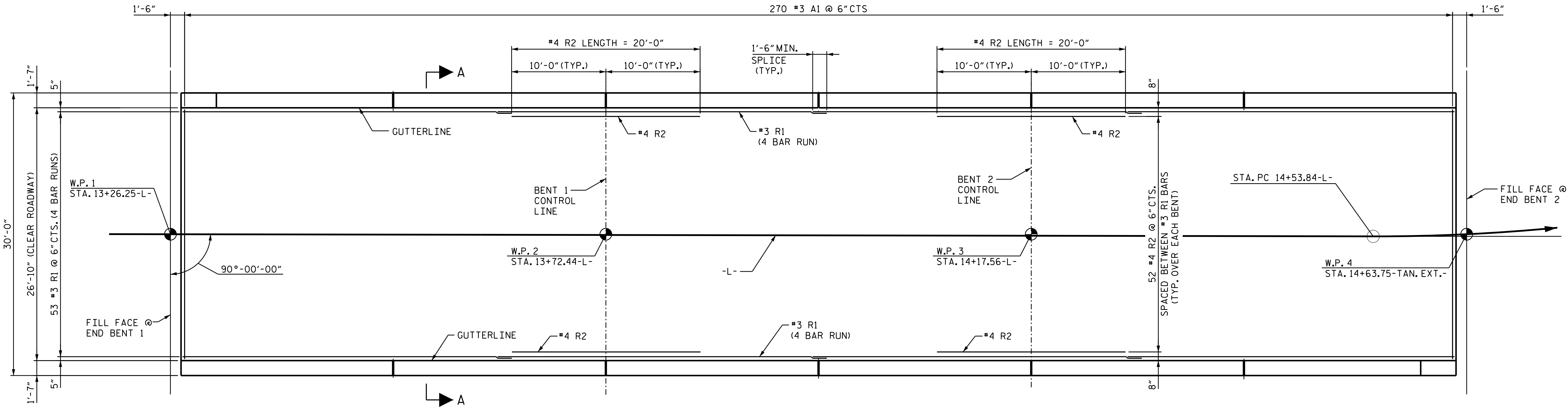
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-6"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

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

1/5/2026

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-11
2			4			TOTAL SHEETS 28



PLAN OF CONCRETE WEARING SURFACE

NOTES

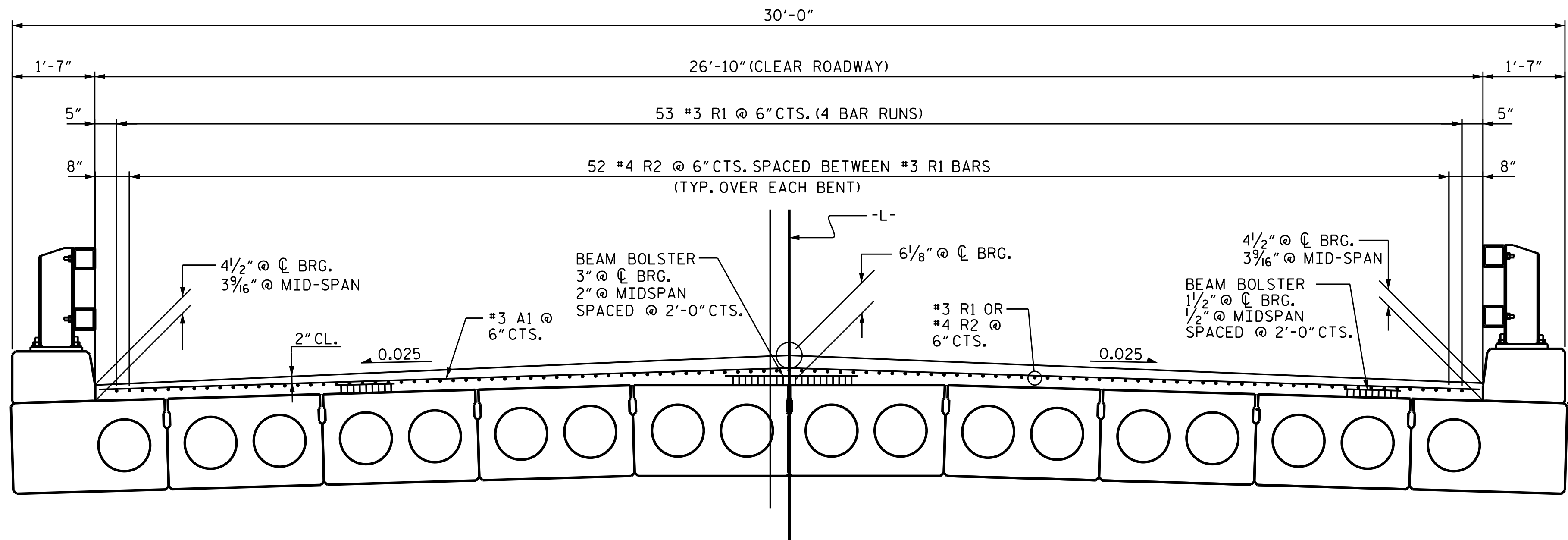
PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE CURB, THE COST OF THE #3 & #4 BARS CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

A GROOVED CONTRACTION JOINT, 1/2" IN DEPTH, SHALL BE TOOLED IN THE TOP OF THE CONCRETE WEARING SURFACE AT THE BENTS, IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS.

FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

GROOVING BRIDGE FLOORS	
APPROACH SLABS	570 SQ. FT.
CONCRETE OVERLAY	3,215 SQ. FT.
TOTAL	3,785 SQ. FT.

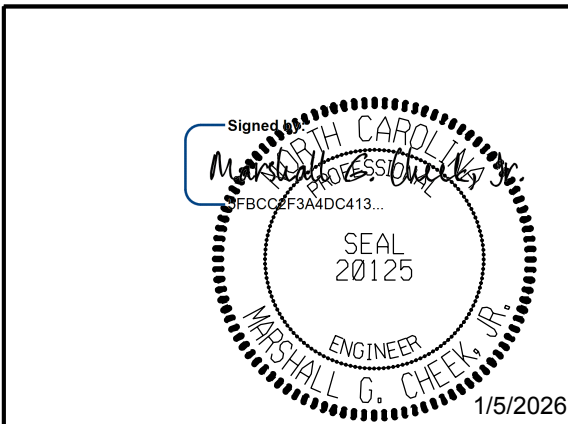
BILL OF MATERIAL FOR CONCRETE OVERLAY					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
* A1	270	#3	STR	26'-6"	2,690
* R1	212	#3	STR	34'-11"	2,783
* R2	104	#4	STR	20'-0"	1,389
* EPOXY COATED REINF. STEEL				6,862	LBS.
CONCRETE WEARING SURFACE				3,629	SQ. FT.



SECTION A-A

PROJECT NO. HB-0051
ASHE COUNTY
STATION: 13+95.00-L-

DRAWN BY : NMW DATE : 1/25
CHECKED BY : MGC DATE : 3/25
DESIGN ENGINEER OF RECORD : ZCS DATE : 4/25



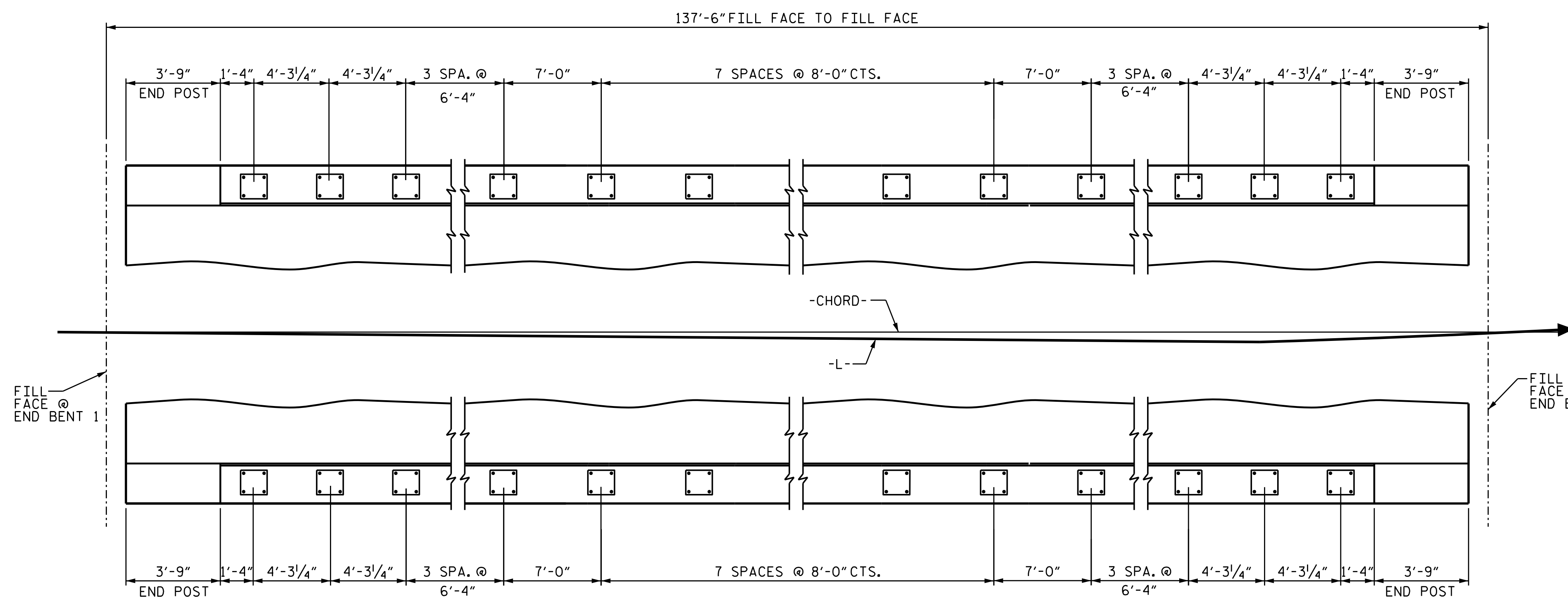
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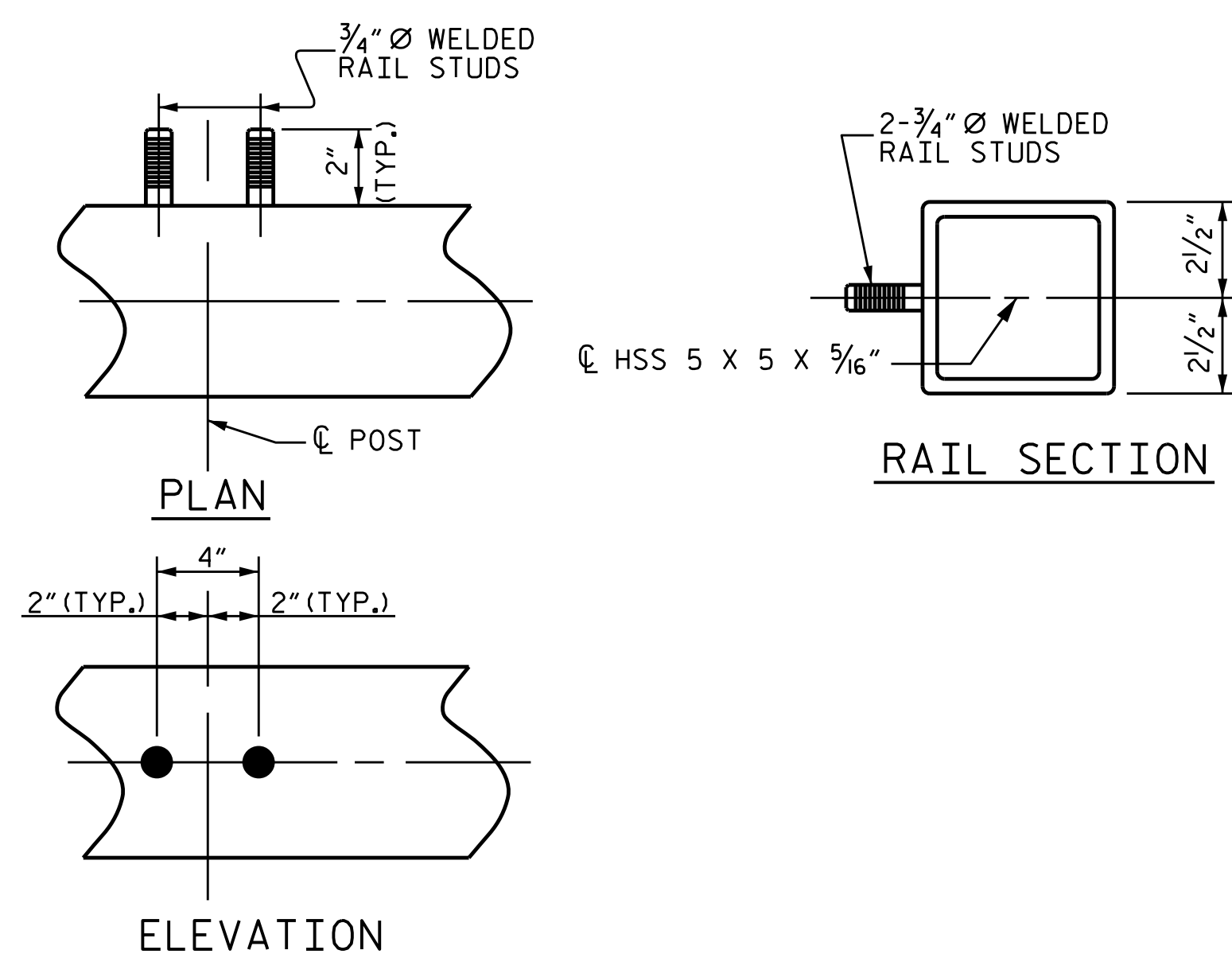
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
CONCRETE WEARING SURFACE DETAILS					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
TOTAL SHEETS					28

STD. NO. BMR8

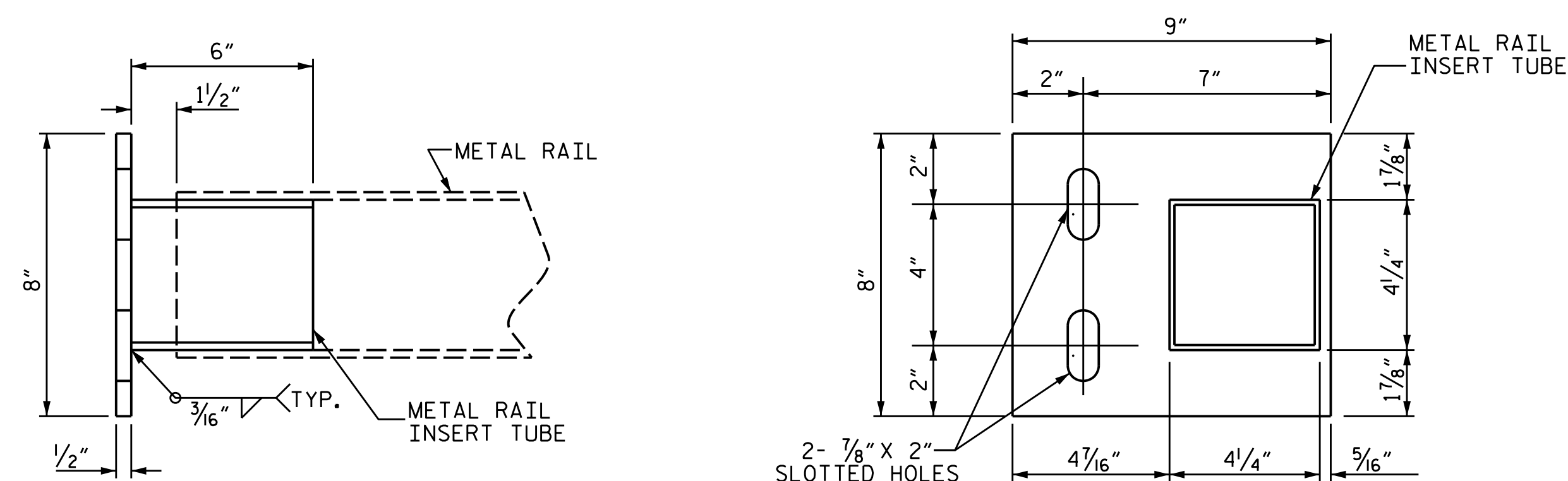
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PLAN OF RAIL POST SPACINGS



RAIL STUD DETAILS



METAL RAIL ATTACHMENT BRACKET

THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM 1/4" PLATES.

NOTES

STRUCTURAL CONCRETE INSERT

- EACH STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULE SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".

- B. 1 - $\frac{3}{4}$ " $\varnothing$ X $\frac{1}{8}$ " BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE $\frac{3}{4}$ " $\varnothing$ X $\frac{1}{8}$ " GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

- C. WIRE STRUT SHOWN IN THE STRUCTURAL CONCRETE INSERT DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A $\frac{7}{16}$ " $\varnothing$ WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

- EACH METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

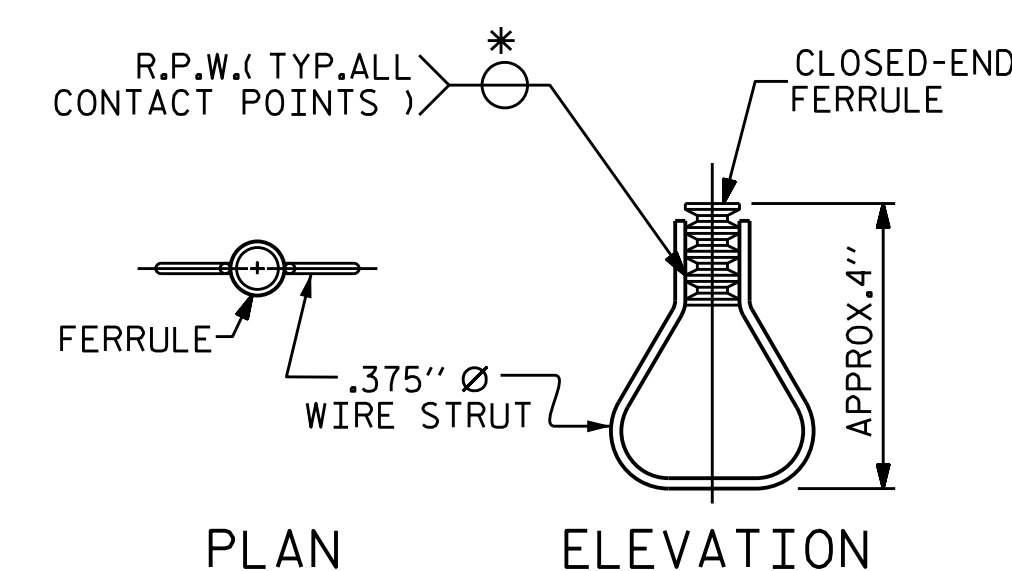
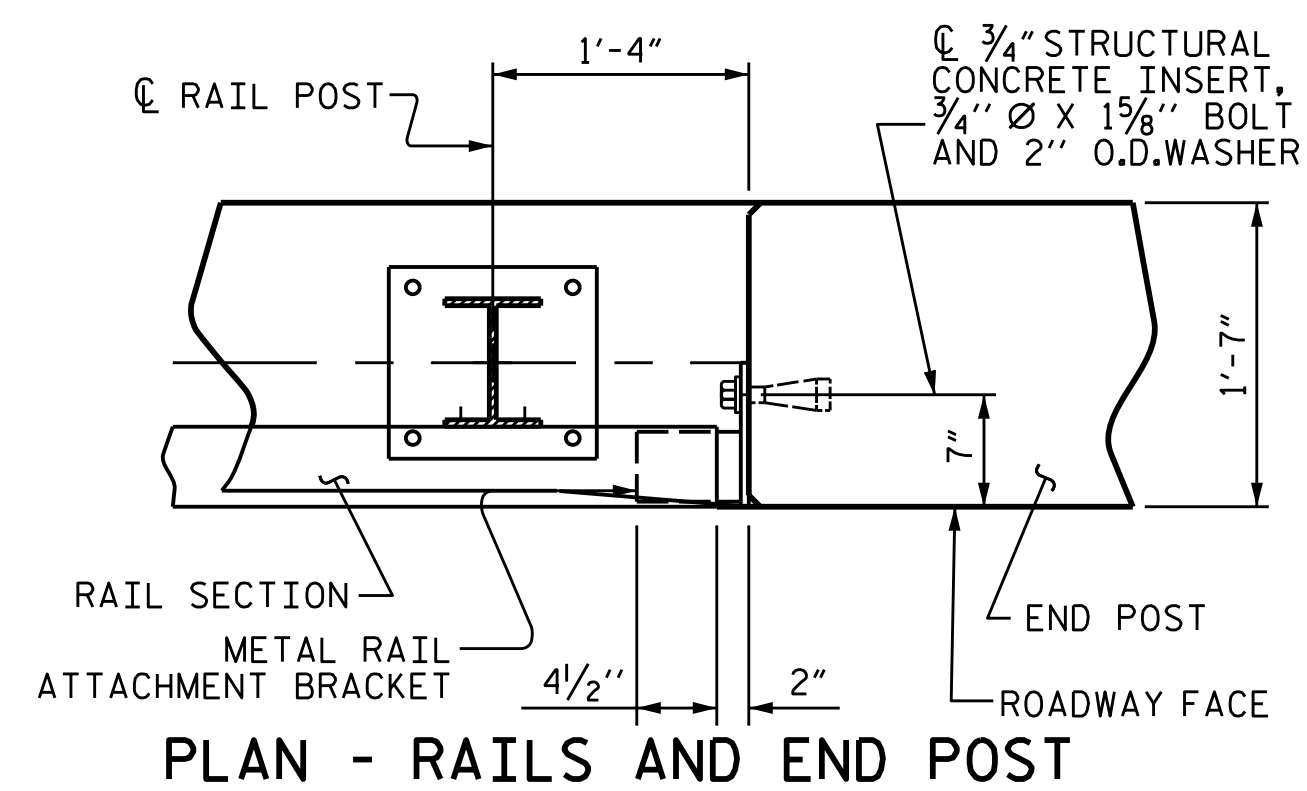
- A. 1/2" METAL BRACKET PLATE AND 1/4" METAL RAIL INSERT TUBE SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION TO AASHTO M111.

- B. $\frac{3}{4}$ " STRUCTURAL CONCRETE INSERTS SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A $\frac{3}{4}$ " $\times$ $\frac{1}{8}$ " BOLT WITH 2" O.D. WASHER IN PLACE. THE $\frac{3}{4}$ " $\times$ $\frac{1}{8}$ " BOLT SHALL HAVE N.C. THREADS.

THE 3/4" STRUCTURAL CONCRETE INSERTS WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT, THE 1/2" BRACKET PLATES, AND THE RAIL INSERT TUBES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE $\frac{3}{4}$ " $\times$ $1\frac{5}{8}$ " BOLTS WITH WASHERS SHALL BE REPLACED WITH $\frac{3}{4}$ " $\times$ $6\frac{1}{2}$ " BOLTS AND 2" O.D. WASHERS. ALL SPECIFICATIONS THAT APPLY TO THE $\frac{3}{4}$ " $\times$ $1\frac{5}{8}$ " BOLTS SHALL APPLY TO THE $\frac{3}{4}$ " $\times$ $6\frac{1}{2}$ " BOLTS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



STRUCTURAL CONCRETE INSERT

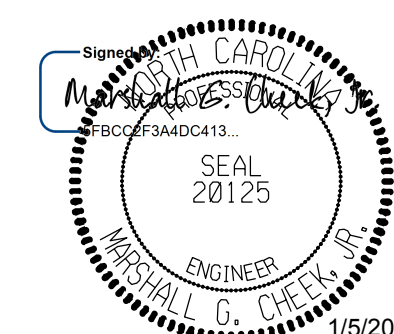
*EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. HB-0051

ASHE COUNTY

STATION: 13+95.00-L-

SHEET 2 OF 2



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

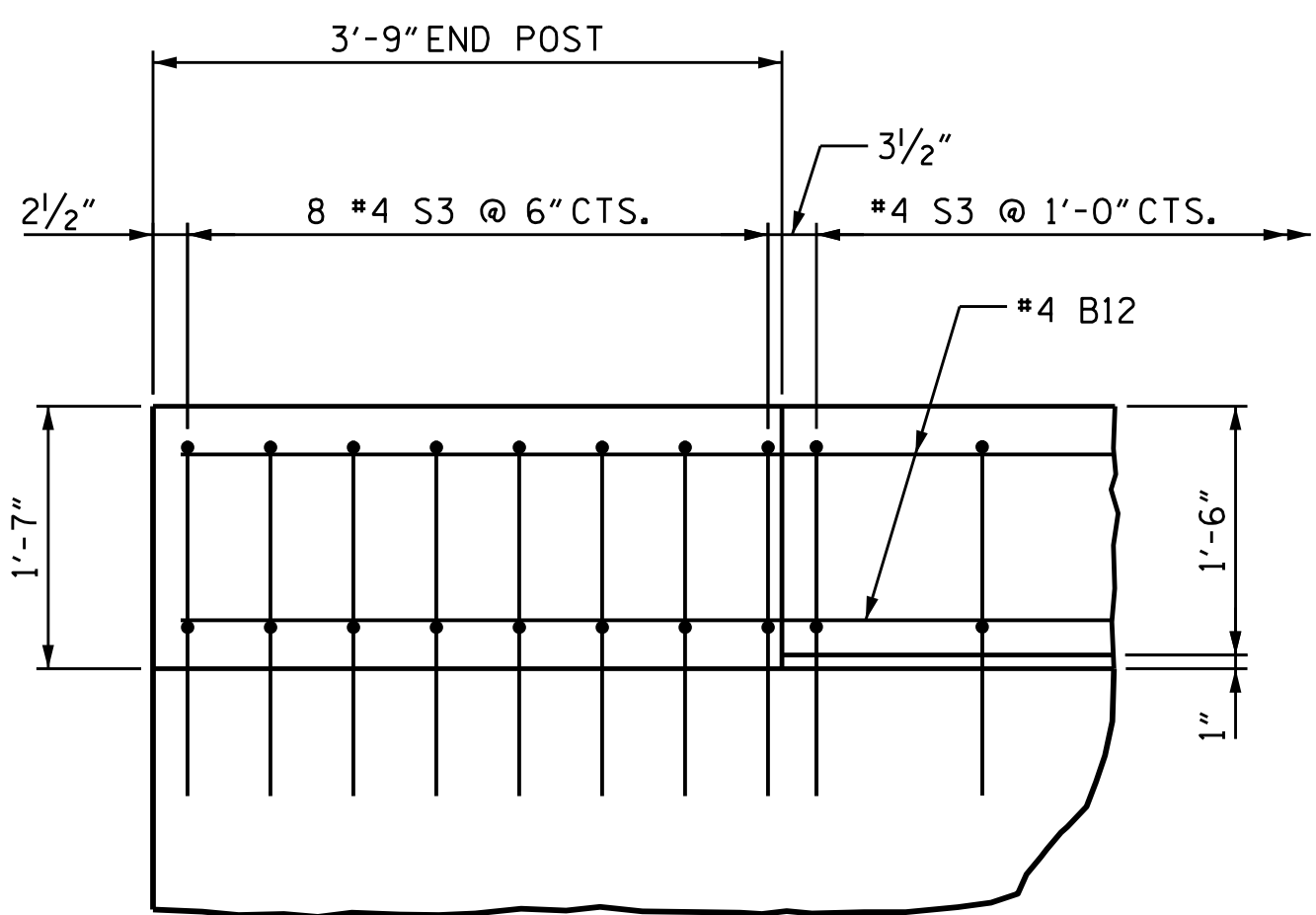
RAIL POST SPACINGS AND END OF RAIL DETAILS

FOR 32" ALASKA RAIL

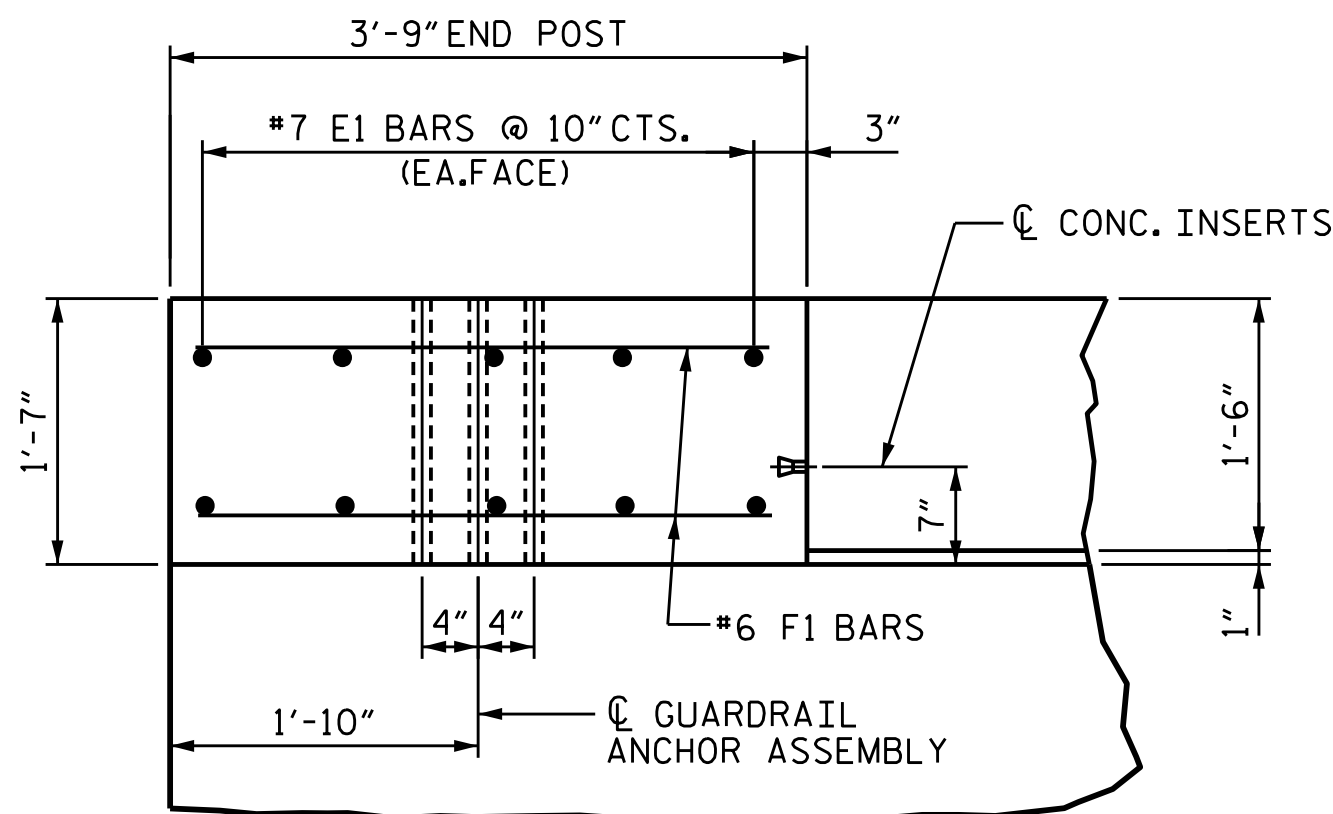
REVISIONS						SHEET NO. S-14 TOTAL SHEETS 28
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STD. NO. BMR9

ASSEMBLED BY :	NMW	DATE :	1/25
CHECKED BY :	MGC	DATE :	3/25
DRAWN BY : RWW	7/14	REV. 12/17	MAA/THC
CHECKED BY : TMG	7/14	REV. 5/18	MAA/THC
		REV. 10/23	RNR/SNM

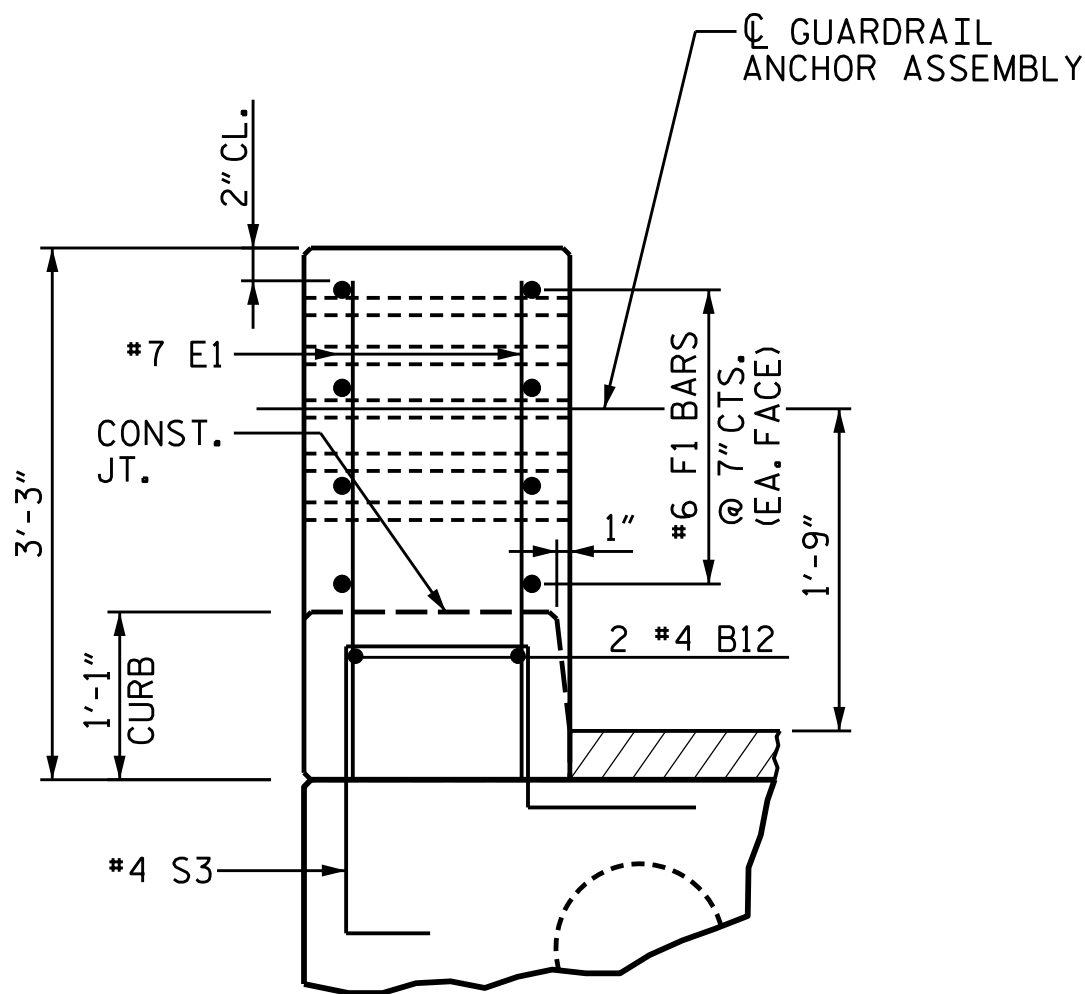


PLAN OF CURB

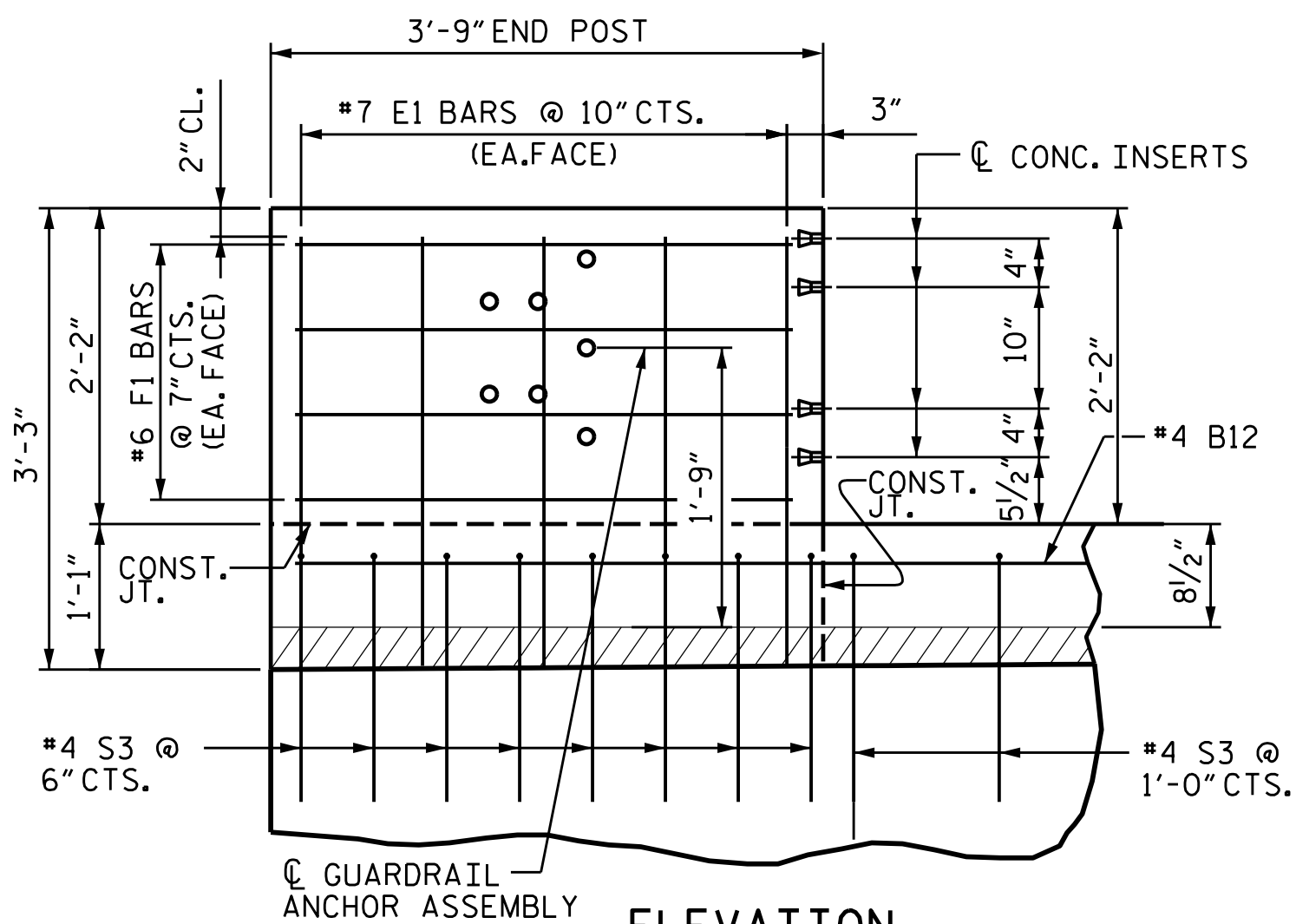


PLAN OF END POST

REINFORCING STEEL IN END POST MAYBE SHIFTED SLIGHTLY TO AVOID GUARDRAIL ANCHOR ASSEMBLY.



END VIEW



ELEVATION

REINFORCING STEEL IN END POST MAY BE SHIFTED SLIGHTLY TO AVOID GUARDRAIL ANCHOR ASSEMBLY.

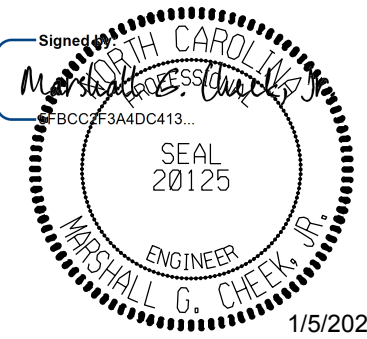
BILL OF MATERIAL FOR
FOUR END POSTS & CURB

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B12	24	#4	STR.	22'-1"	354
* E1	40	#7	STR.	2'-11"	238
* F1	32	#6	STR.	3'-5"	164
* EPOXY COATED REINFORCING STEEL					756 LBS.
CLASS "AA" CONCRETE					18.8 C.Y.
1'-7" x 1'-1" CONCRETE CURB					270.50 LIN. FT.

NOTES:

QUANTITIES FOR THE #4 S3 BARS ARE INCLUDED WITH THE CORED SLAB BILL OF MATERIAL.

PROJECT NO. HB-0051
ASHE COUNTY
STATION: 13+95.00-L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CURB AND END POST
DETAILS FOR
32" ALASKA RAIL

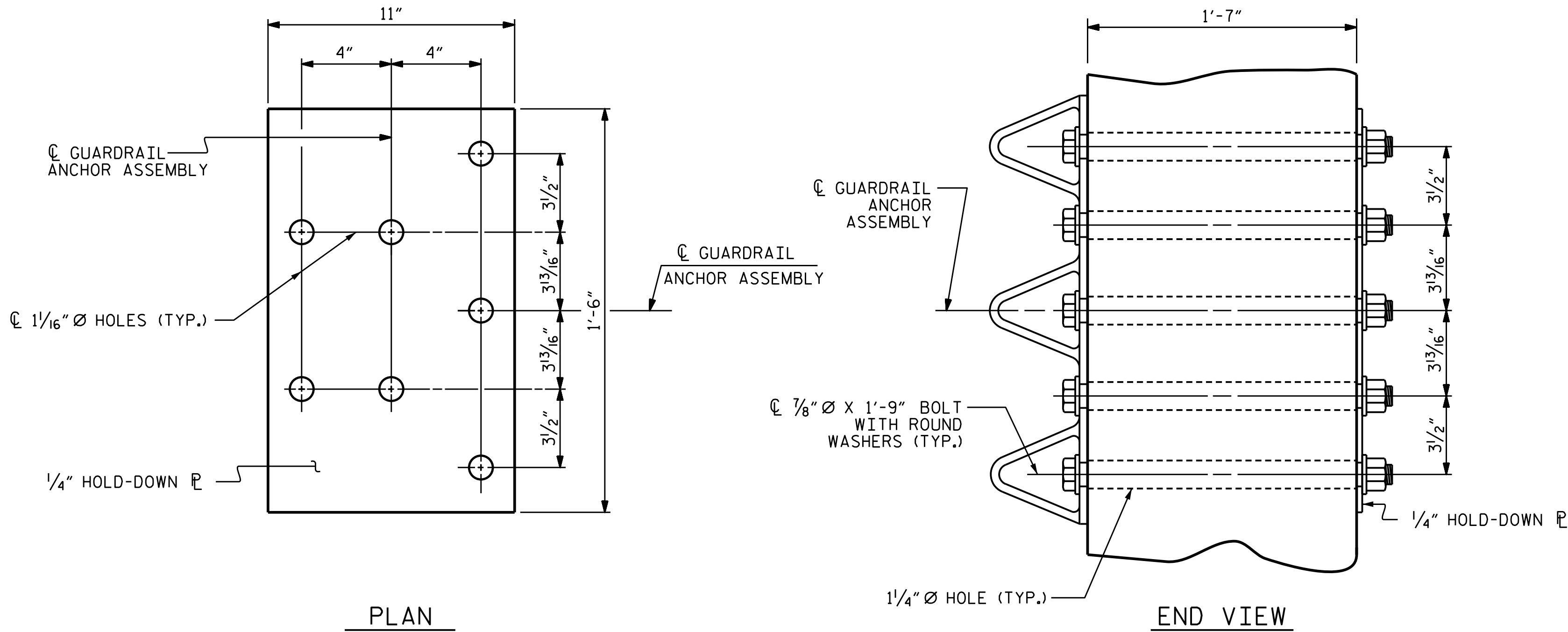
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED
TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

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

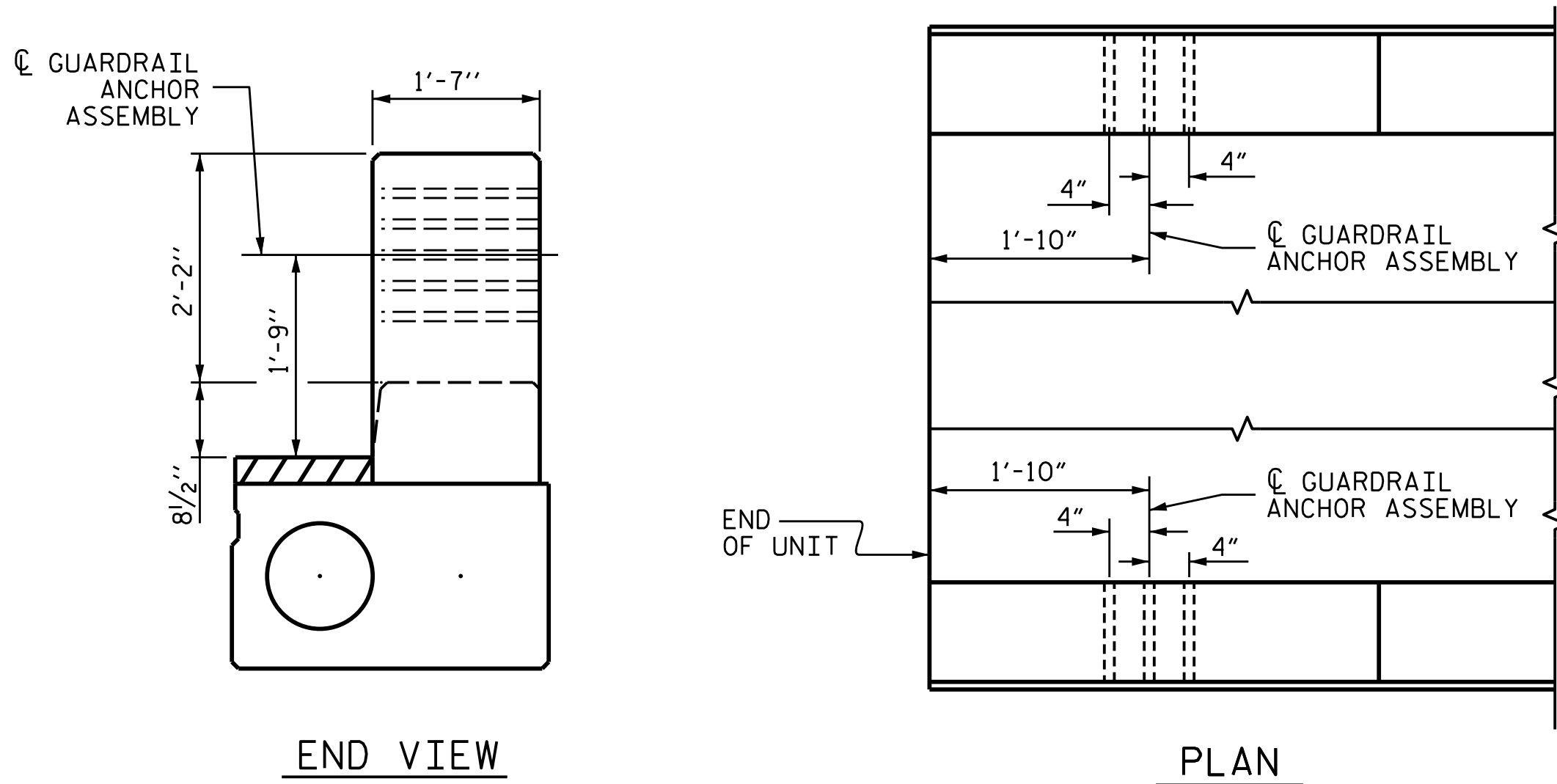
SHEET NO.
S-15
TOTAL
SHEETS
28

DRAWN BY : NMW
CHECKED BY : MCC
DATE : 1/25
DATE : 3/25

CURB AND END POST FOR 32" ALASKA RAIL



GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF GUARDRAIL ANCHOR AT END POST

END BENT 1 SHOWN; END BENT 2 SIMILAR

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 THE PARAPET. 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 ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST 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

PROJECT NO. HB-0051
ASHE COUNTY
STATION: 13+95.00-L-

ASSEMBLED BY :	NMW	DATE :	1/25
CHECKED BY :	MGC	DATE :	3/25
DRAWN BY :	MAA	REV. 1/15	MAA/TMG
CHECKED BY :	GM	REV. 12/17	MAA/THC
		REV. 5/18	MAA/THC

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE
DETAILS
FOR METAL RAILS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

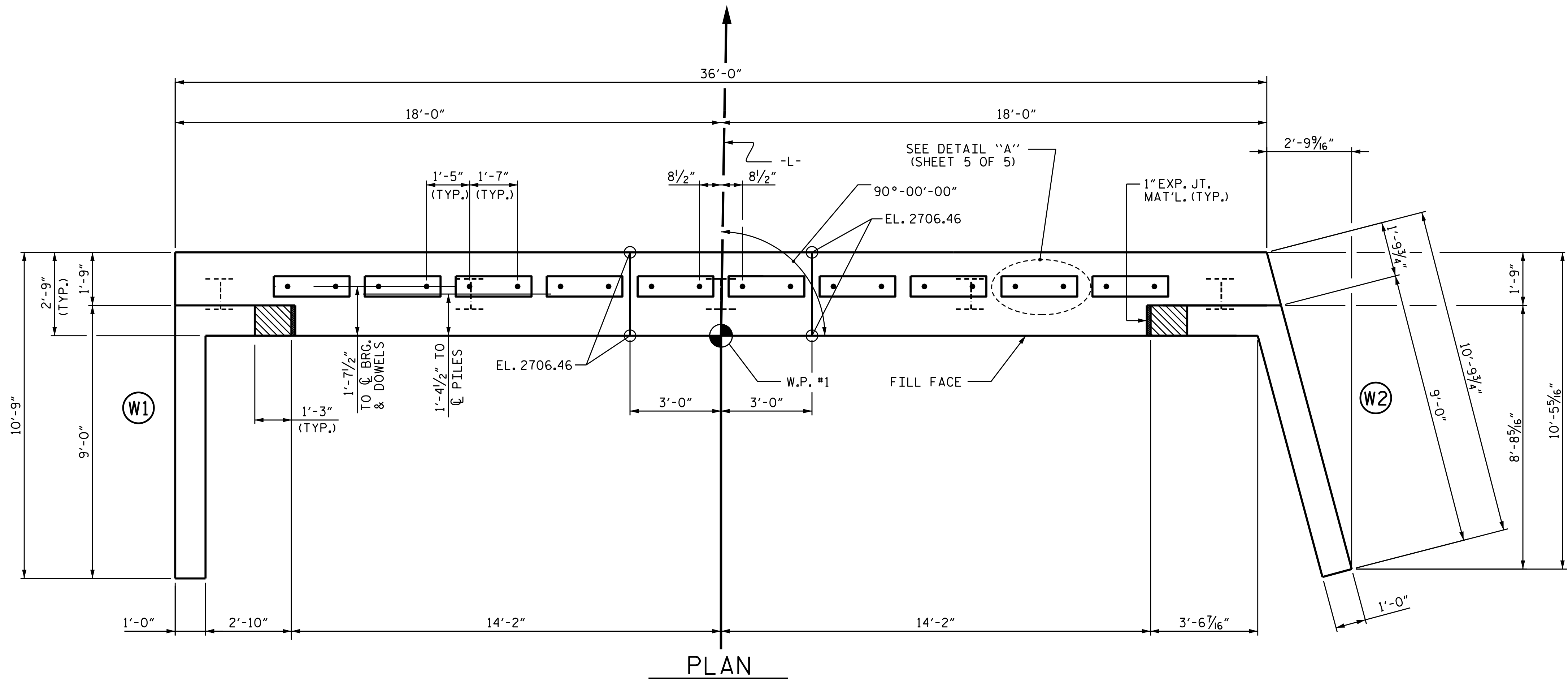
TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

1/5/2026

SEAL
20125

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-16
2			4			TOTAL SHEETS 28

STD. NO. GRA3



NOTES

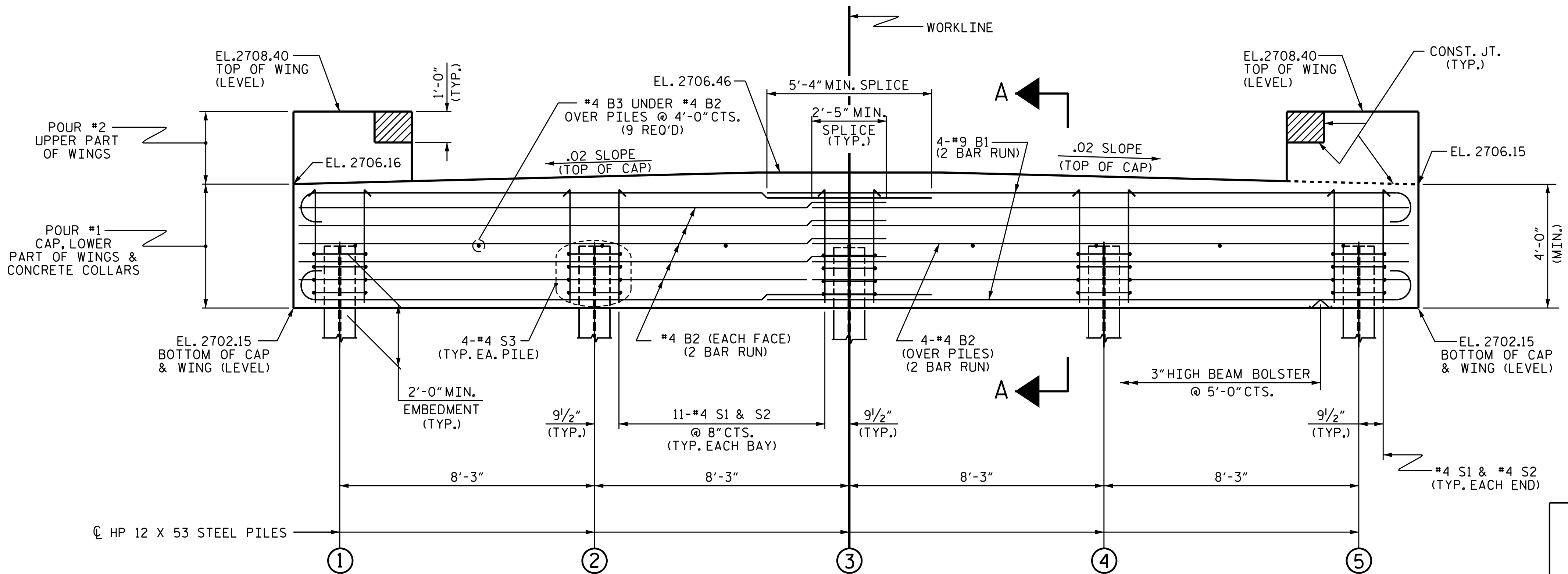
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE CURB IS CAST IF SLIP FORMING IS USED.

FOR PILE SPlice DETAILS, SEE SHEET 5 OF 5.

FOR WING DETAILS, SEE SHEET 3 OF 5.

INSTALL THE 6"Ø DRAIN PIPE THROUGH THE WINGWALL AS REQUIRED FOR BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WINGWALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



PROJECT NO. HB-0051

ASHE COUNTY

STATION: 13+95.00-L-

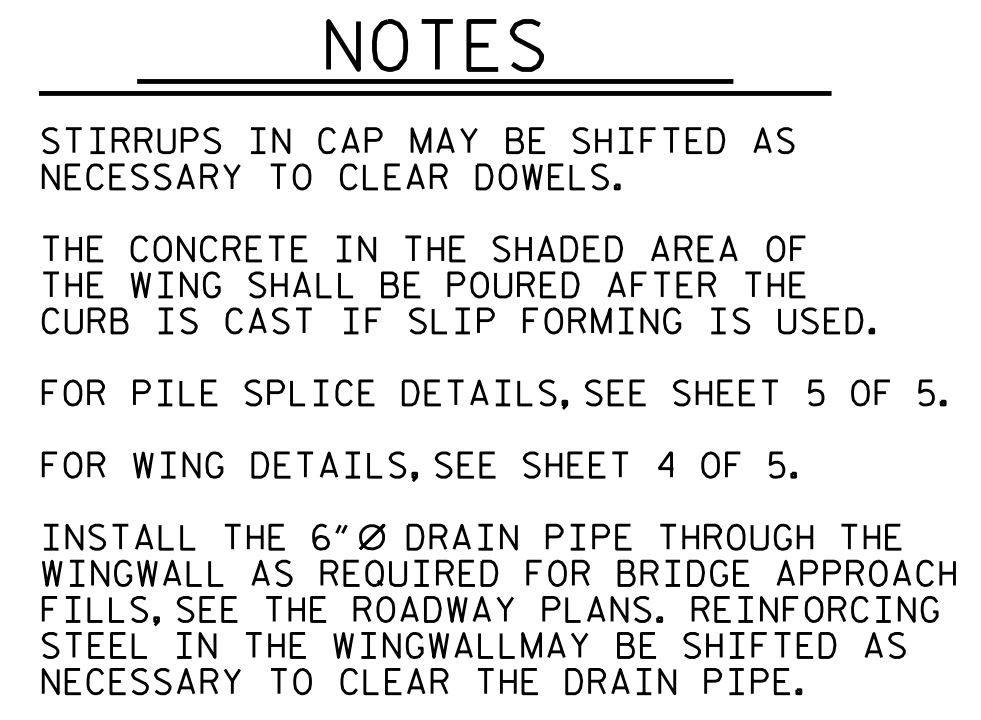
SHEET 1 OF 5

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	

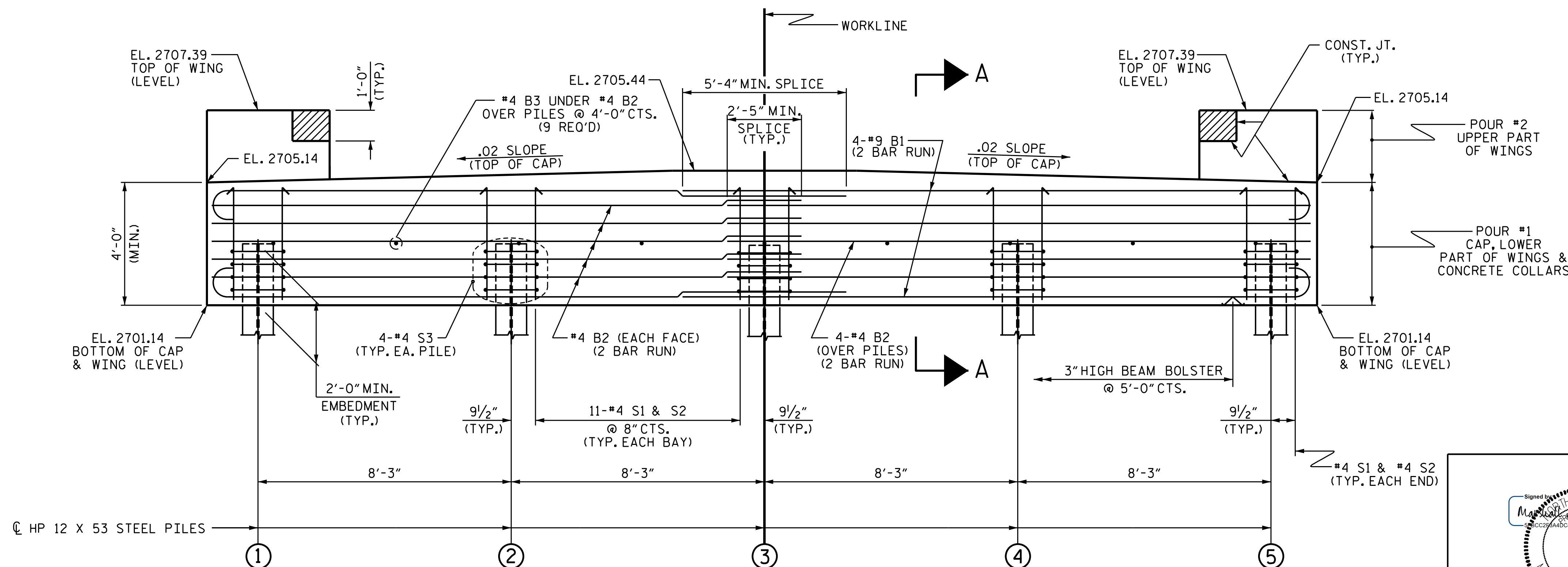
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					28

ASSEMBLED BY :	NMW	DATE :	3/25
CHECKED BY :	MGC	DATE :	3/25
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

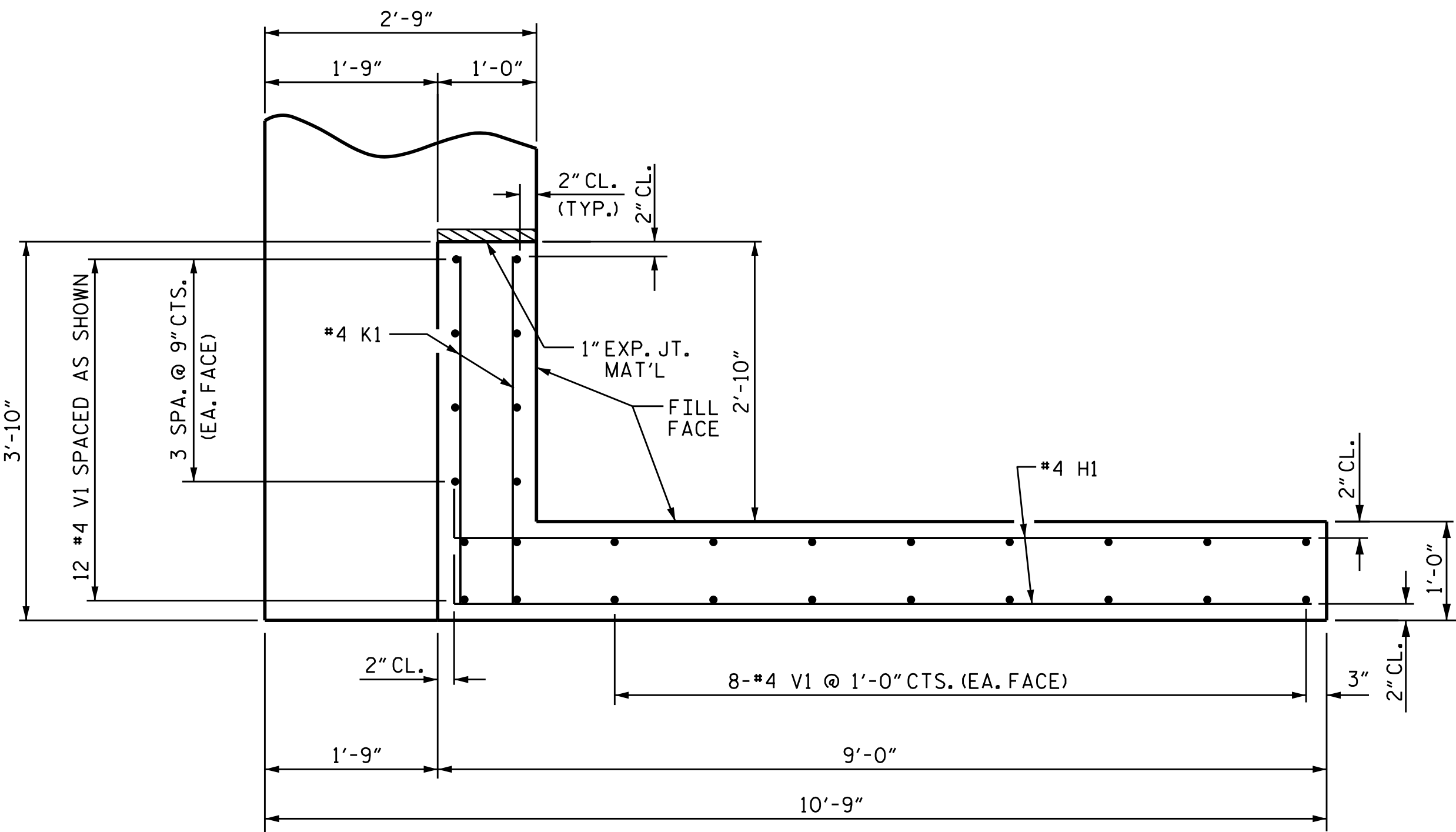


ELEVATION

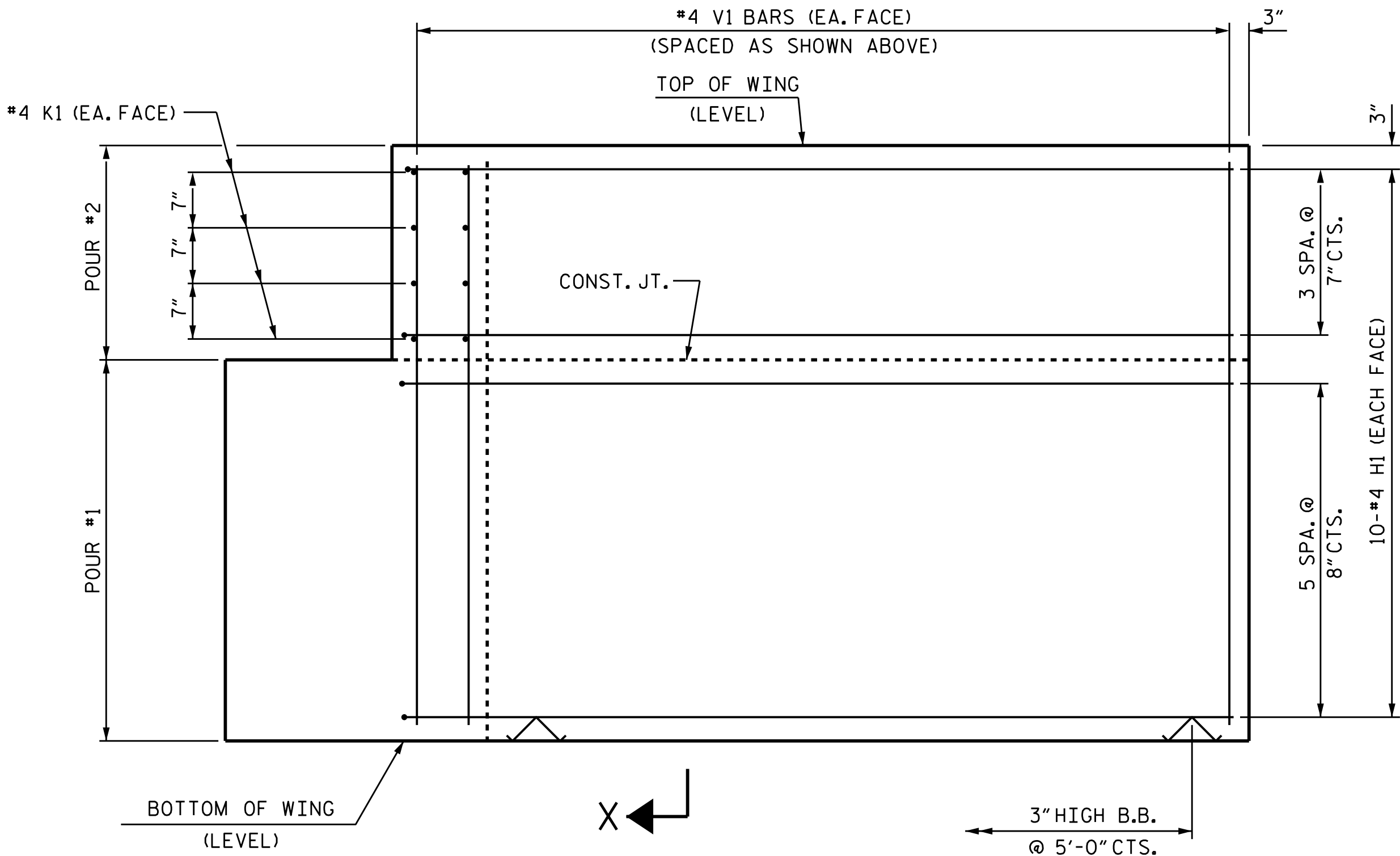
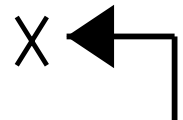
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 5 OF 5.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 5 OF 5.

ASSEMBLED BY :	NMW	DATE :	3/25
CHECKED BY :	MGC	DATE :	3/25
DRAWN BY :	WJH 12/11	REV. 4/15	MAA/TMG
CHECKED BY :	AAC 12/11		

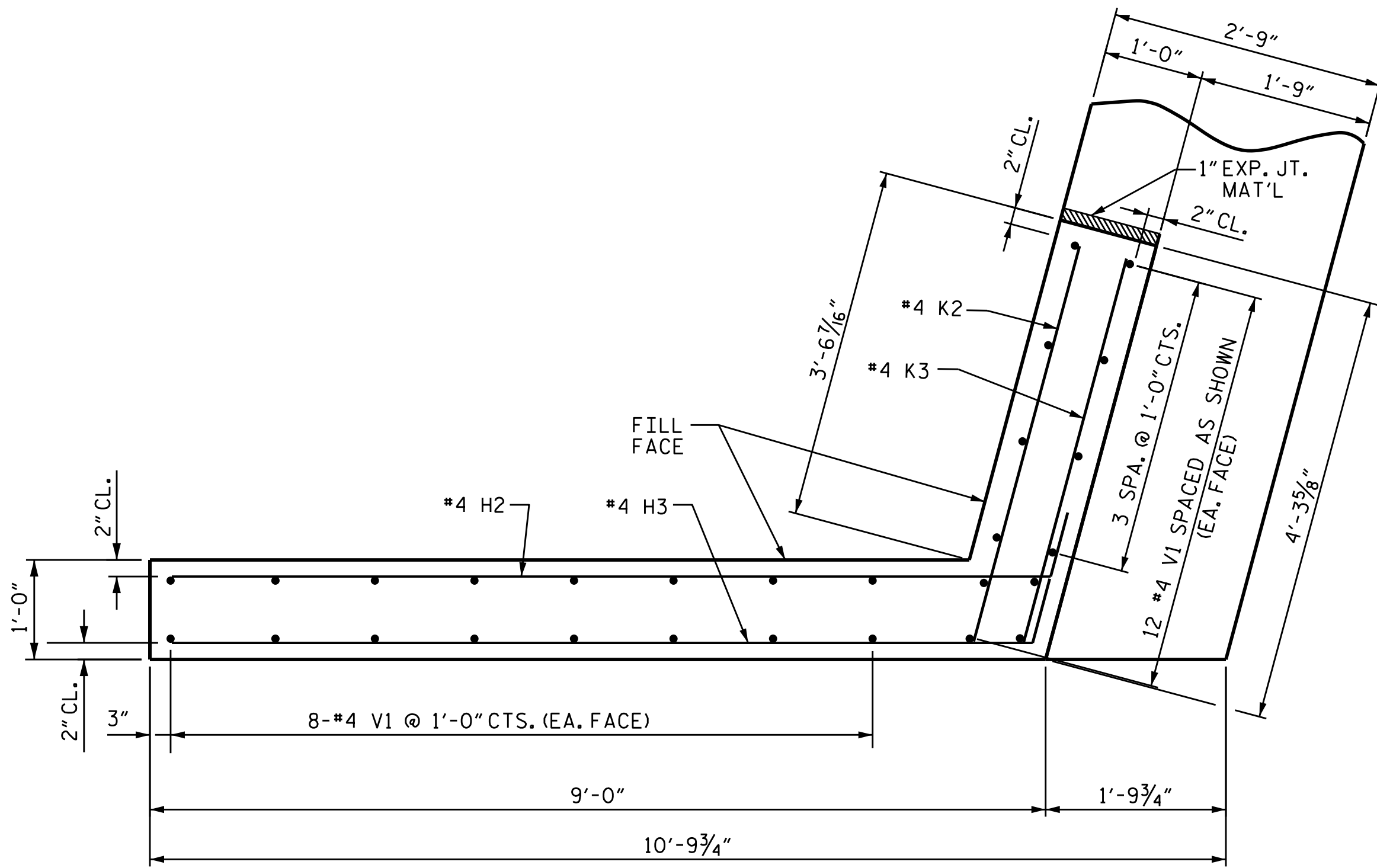
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TGS ENGINEERS 201 W. MARION ST STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275		NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
		1			3			TOTAL SHEETS
		2			4			28



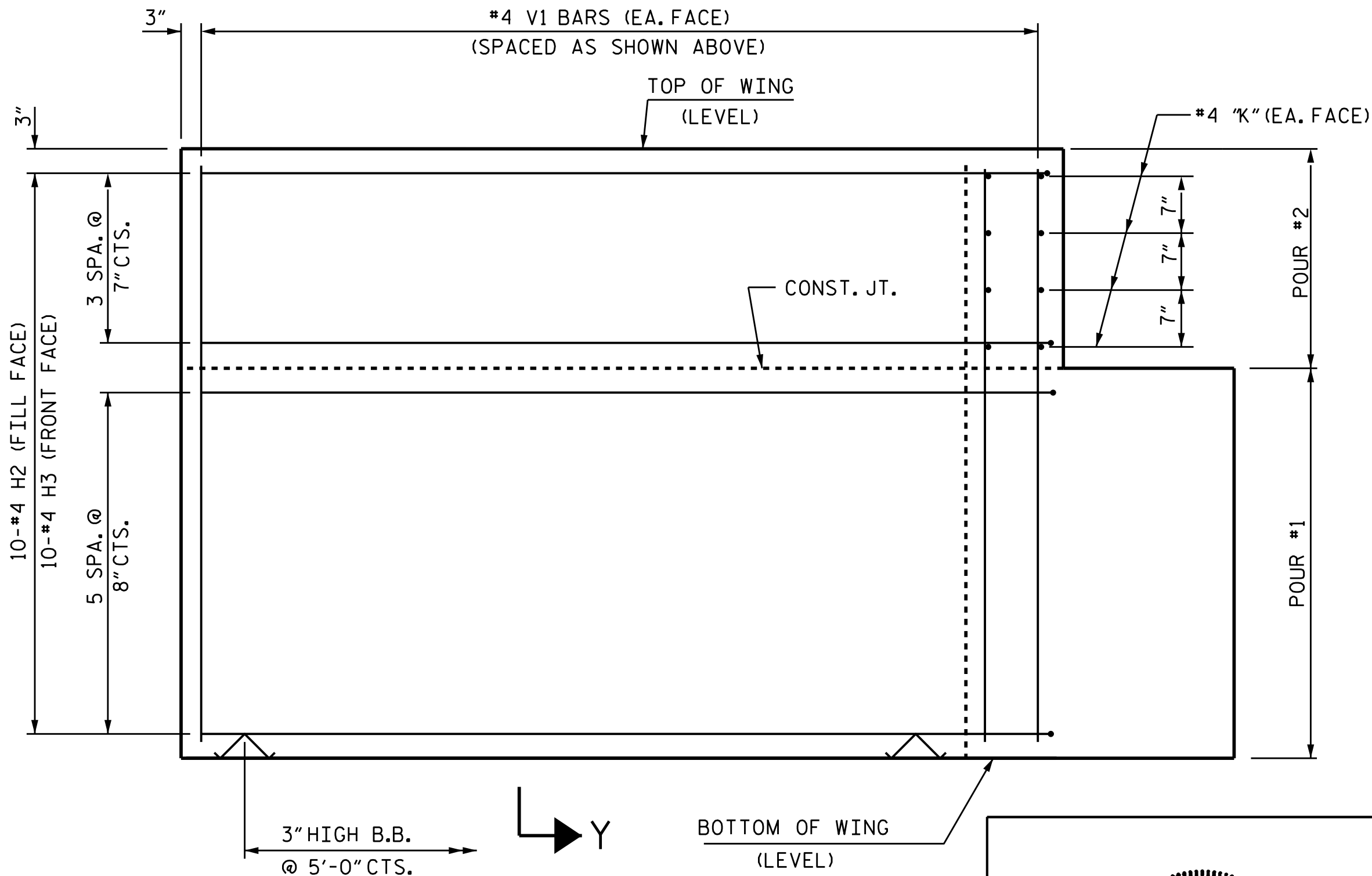
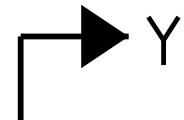
PLAN OF WING (W1)



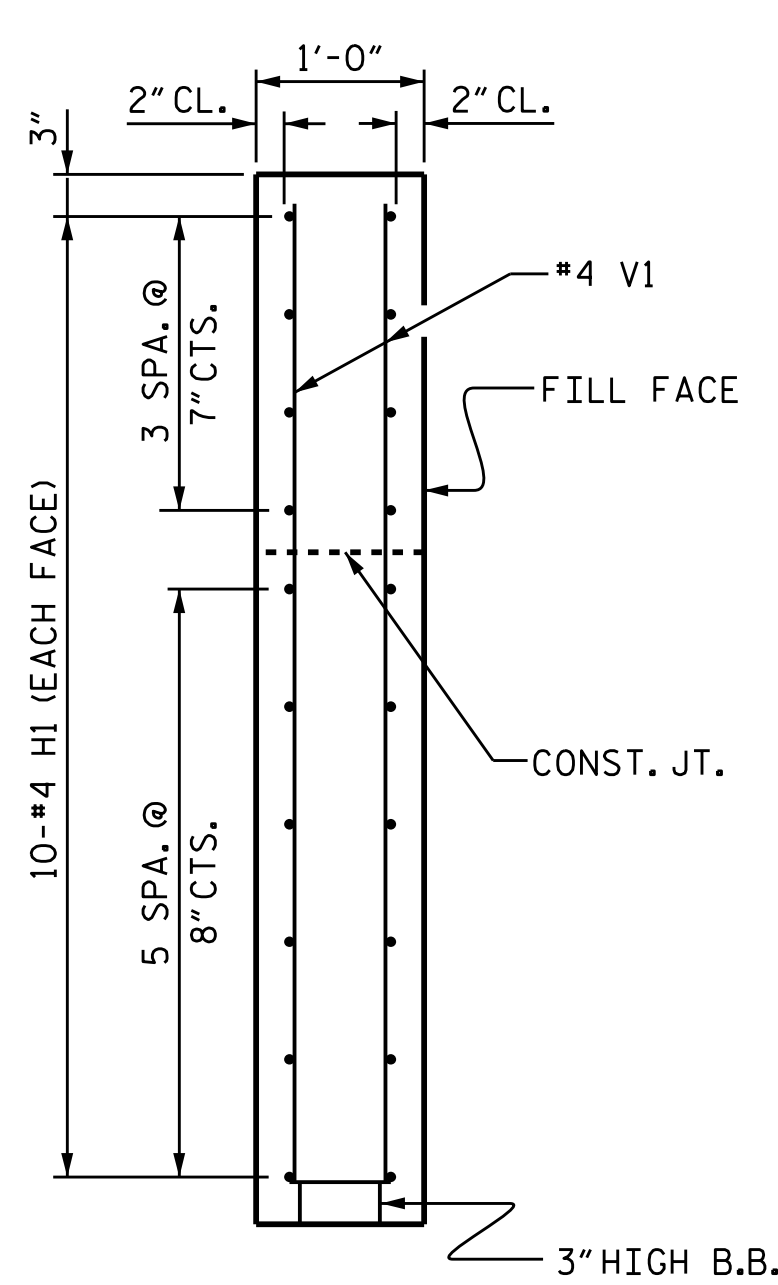
ELEVATION OF WING (W1)



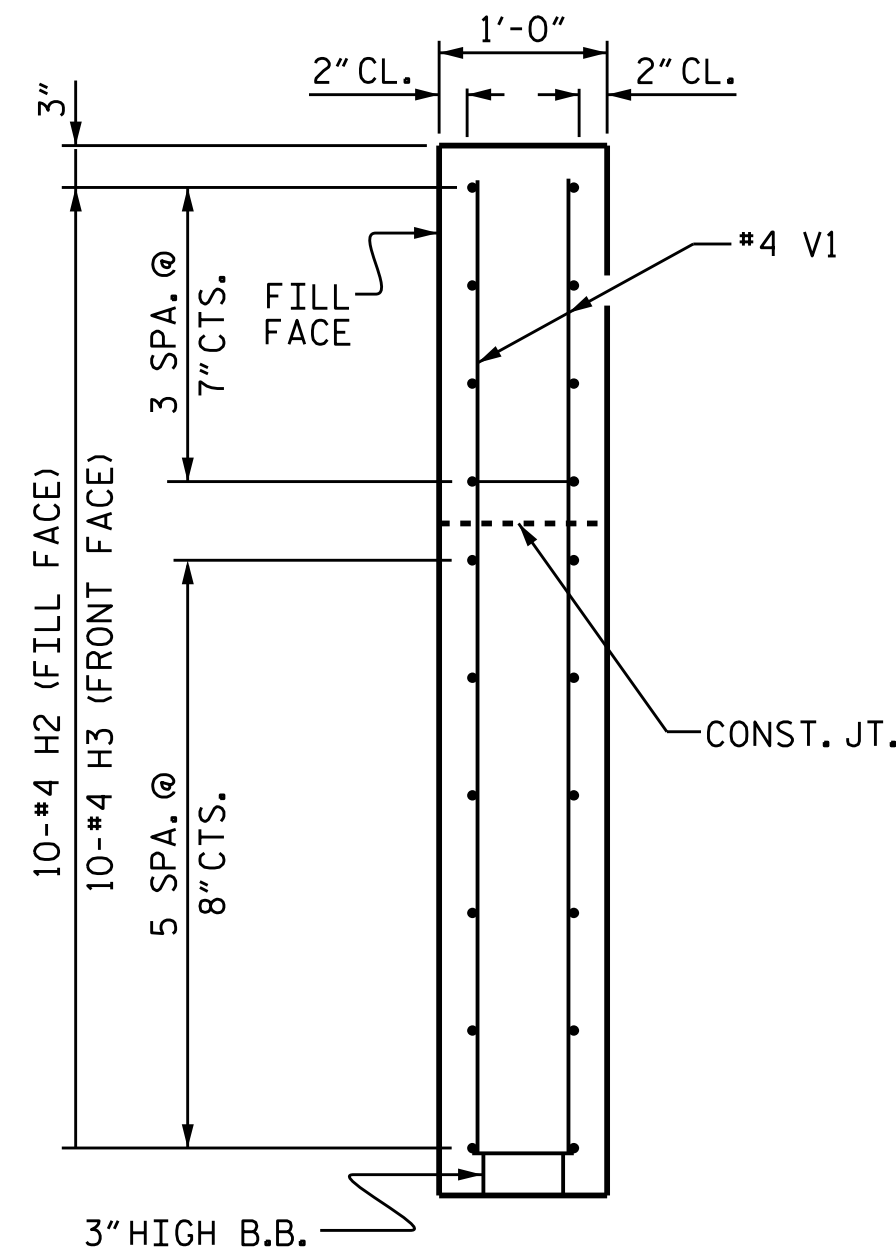
PLAN OF WING (W2)



ELEVATION OF WING (W2)



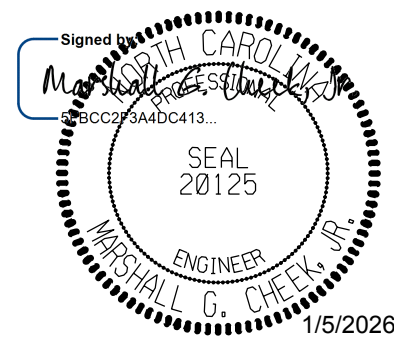
SECTION X-X



SECTION Y-Y

PROJECT NO. HB-0051
ASHE COUNTY
STATION: 13+95.00-L-

SHEET 3 OF 5



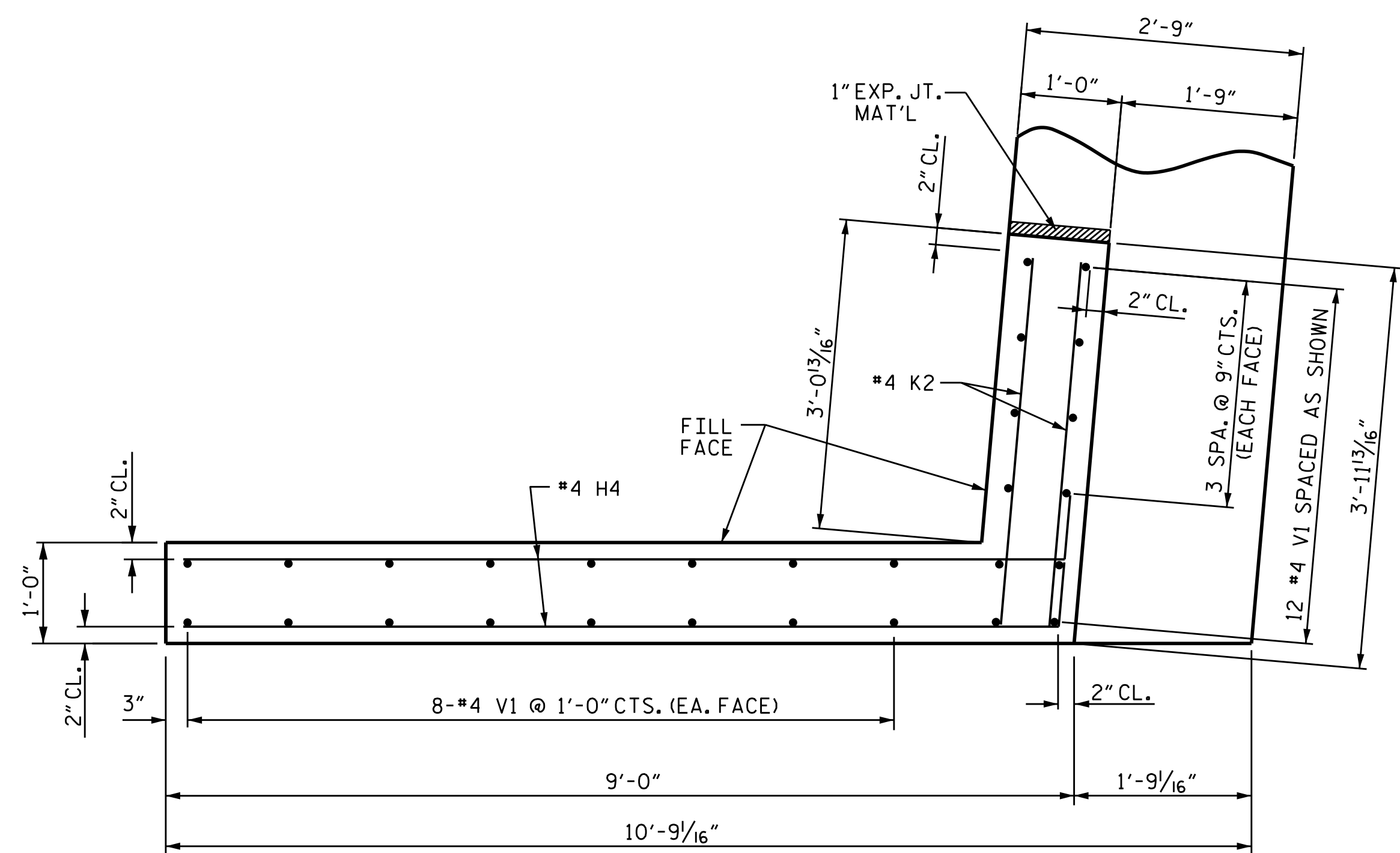
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED
TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

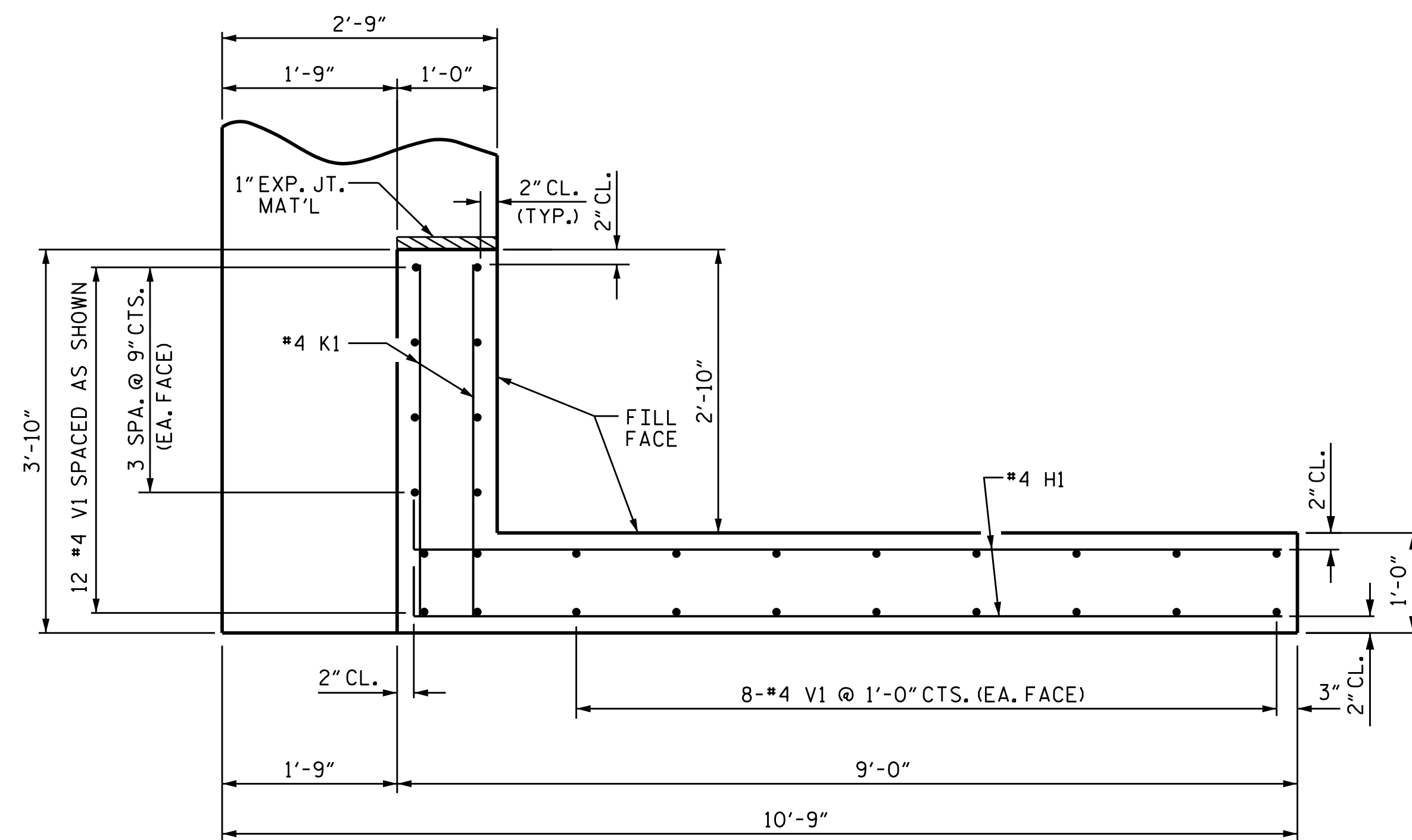
SUBSTRUCTURE
END BENT 1
WING DETAILS

ASSEMBLED BY : NMW DATE : 2/25
CHECKED BY : MGC DATE : 3/25
DRAWN BY : WJH 12/11
CHECKED BY : AAC 12/11
REV. 4/15 MAA/TMG

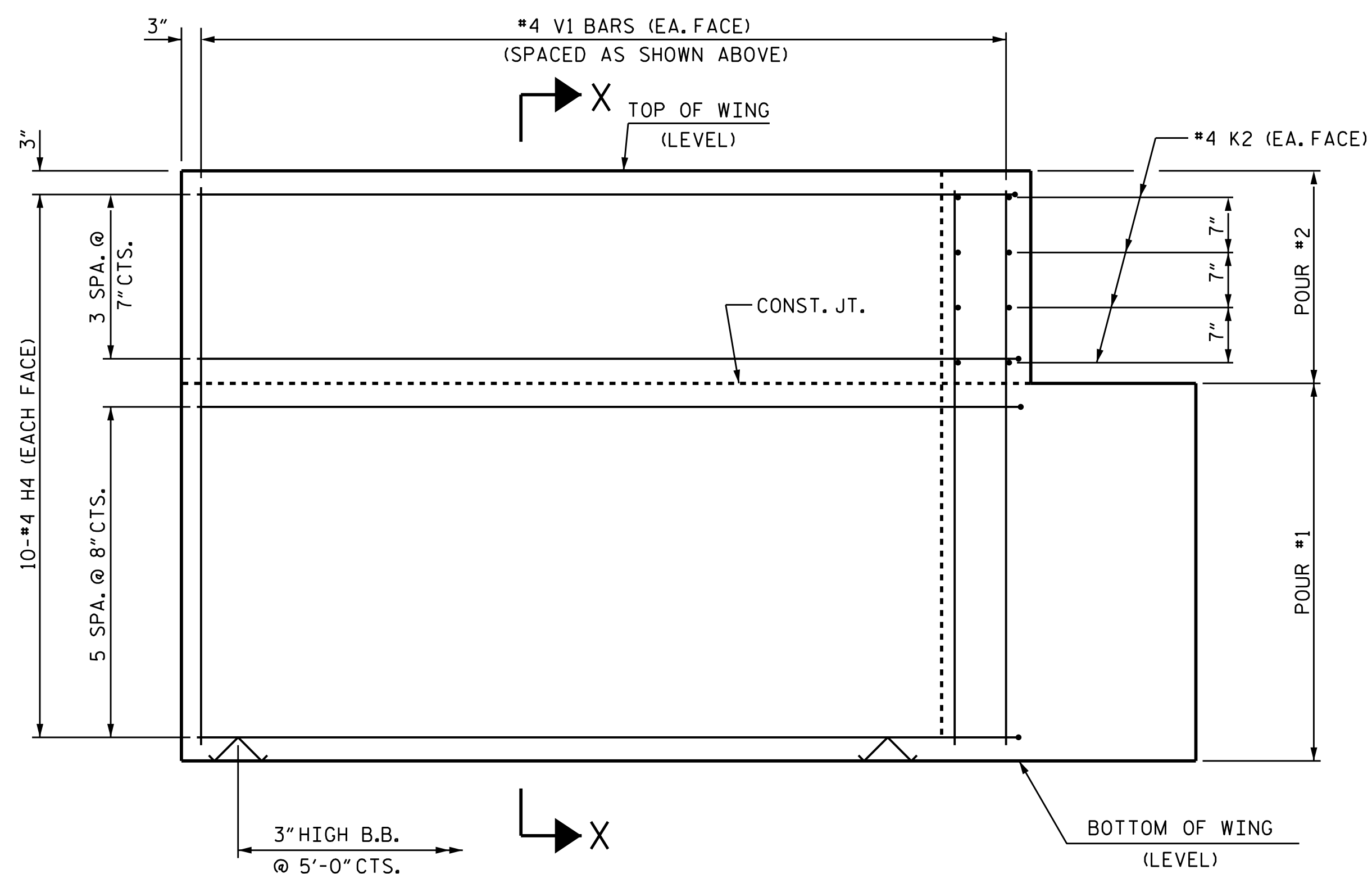
REVISIONS						SHEET NO. S-19 TOTAL SHEETS 28
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



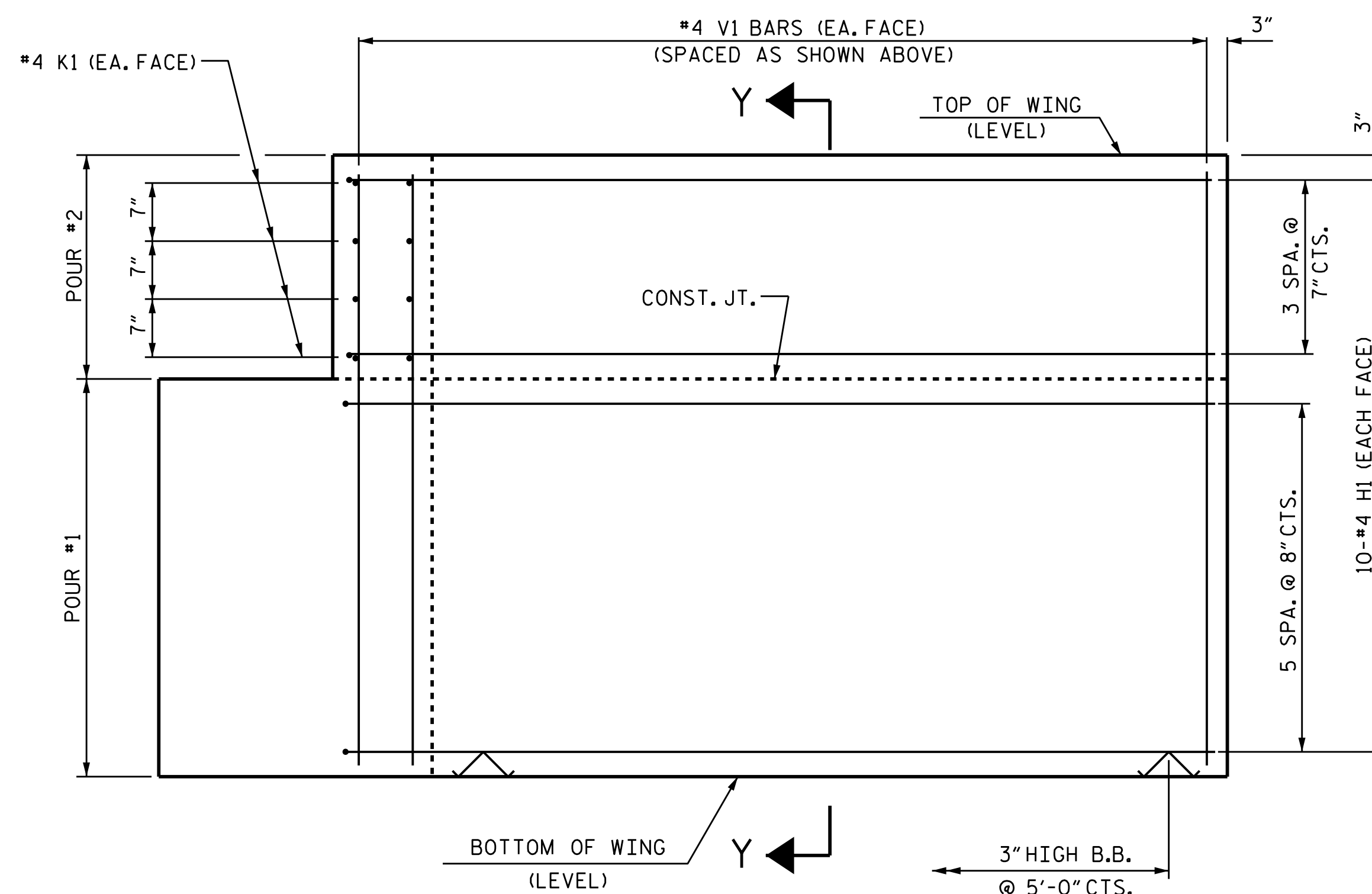
PLAN OF WING (W3)



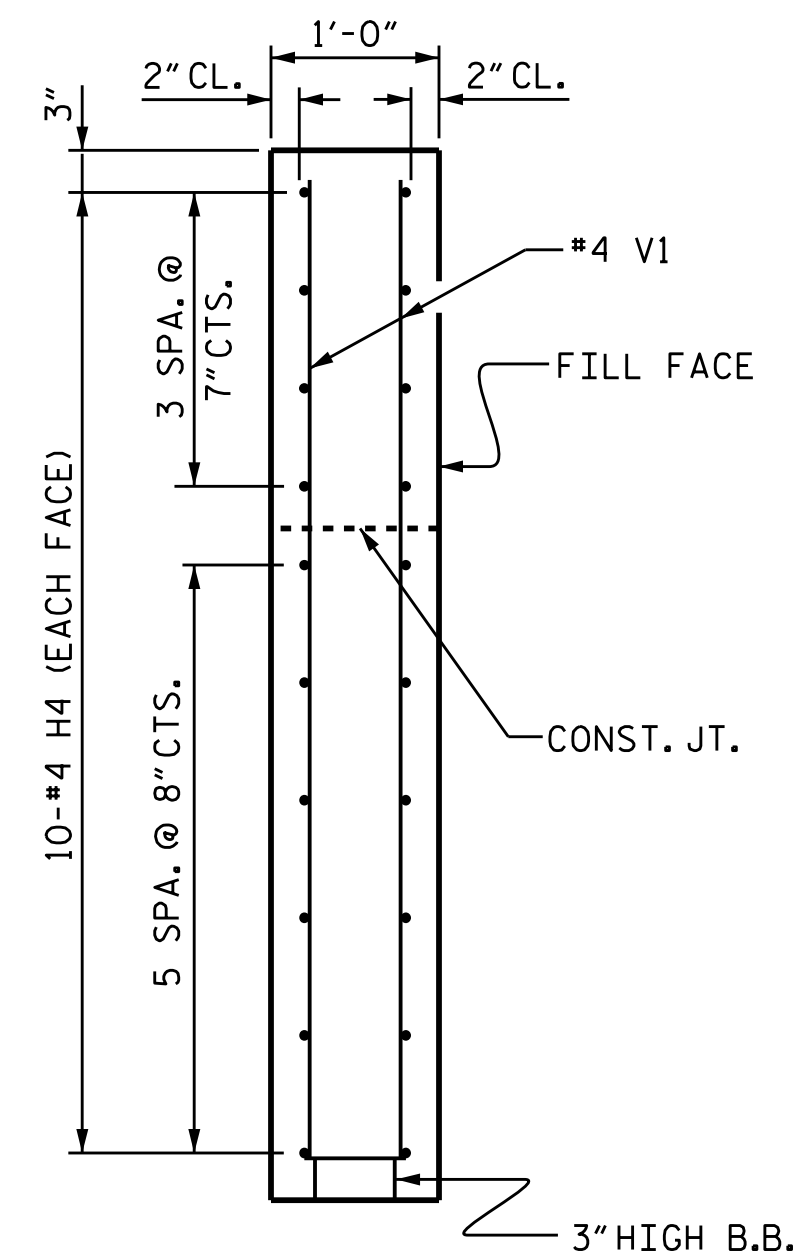
PLAN OF WING (W4)



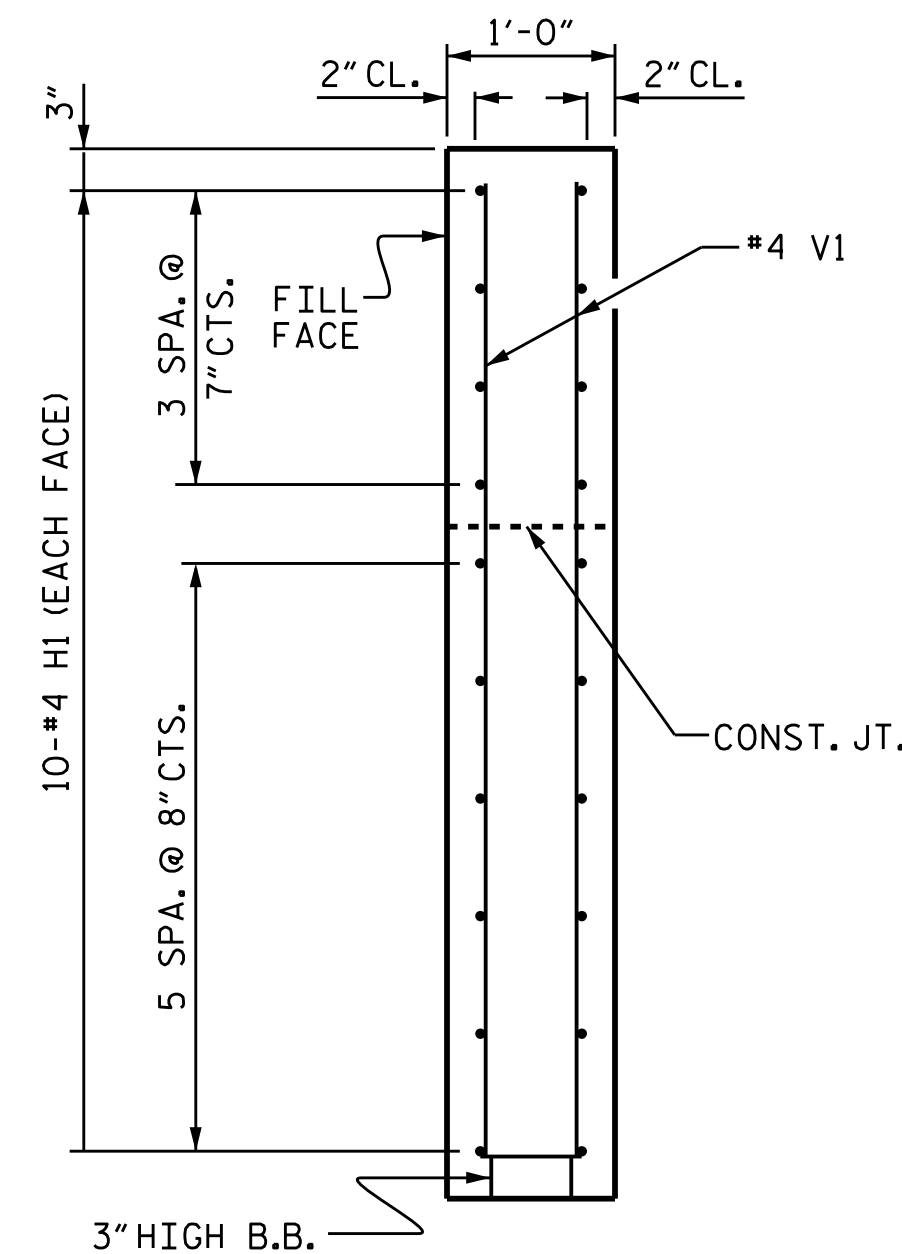
ELEVATION OF WING (W3)



ELEVATION OF WING (W4)



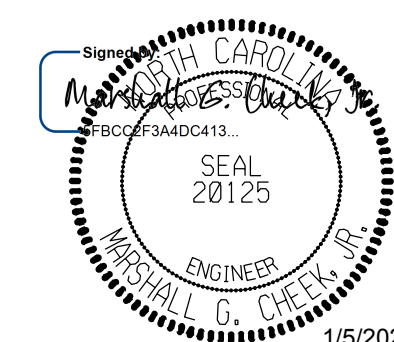
SECTION X-X



SECTION Y-Y

PROJECT NO. HB-0051
ASHE COUNTY
 STATION: 13+95.00-L-

SHEET 4 OF 5



**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-027

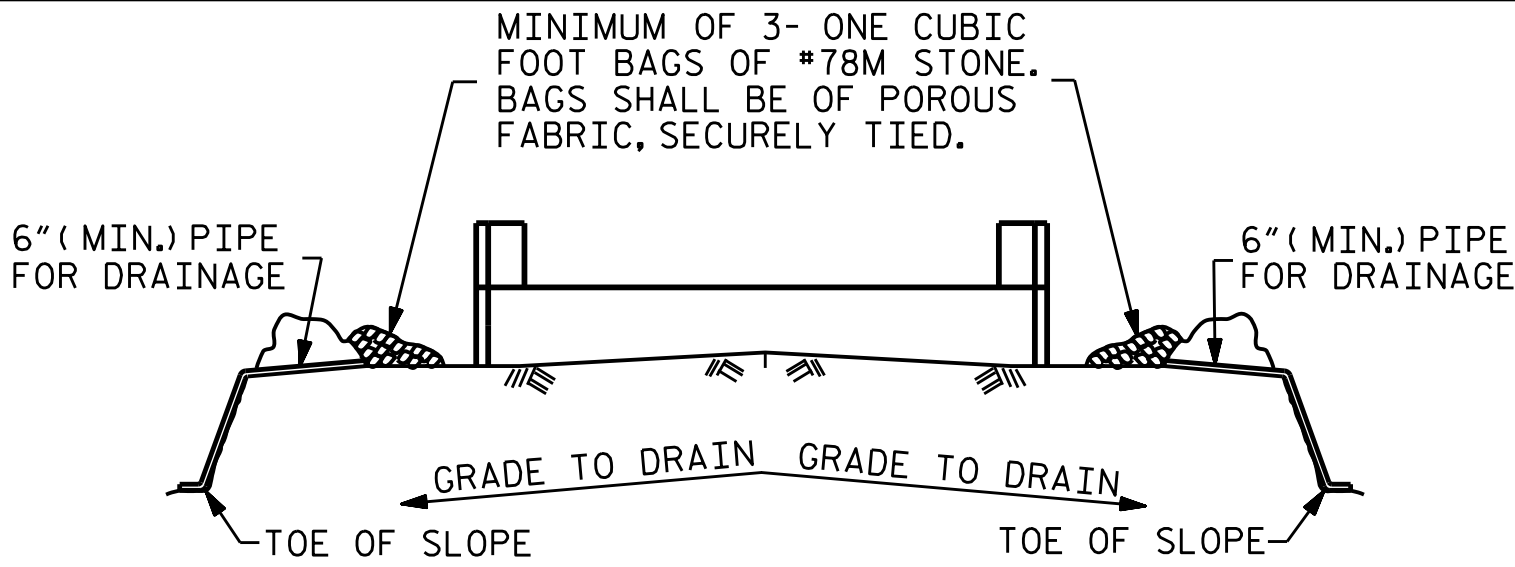
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2
WING DETAILS

REVISIONS						SHEET NO. S-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 28
2			4			

ASSEMBLED BY : NMW		DATE : 2/25	
CHECKED BY : MGC		DATE : 3/25	
DRAWN BY : WJH 12/II		REV. 4/15 MAA/TMG	
CHECKED BY : AAC 12/II			

WING DETAILS

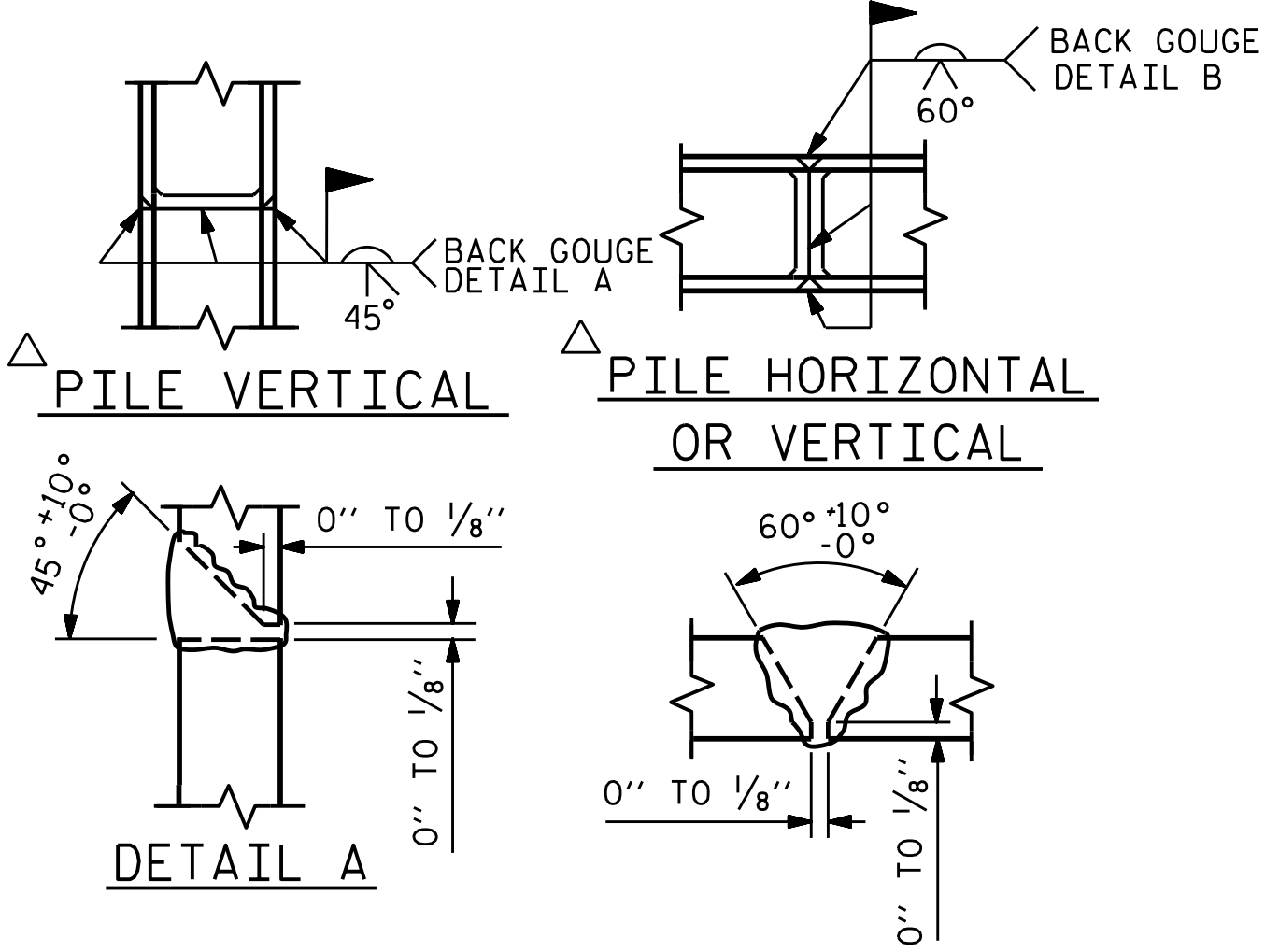


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

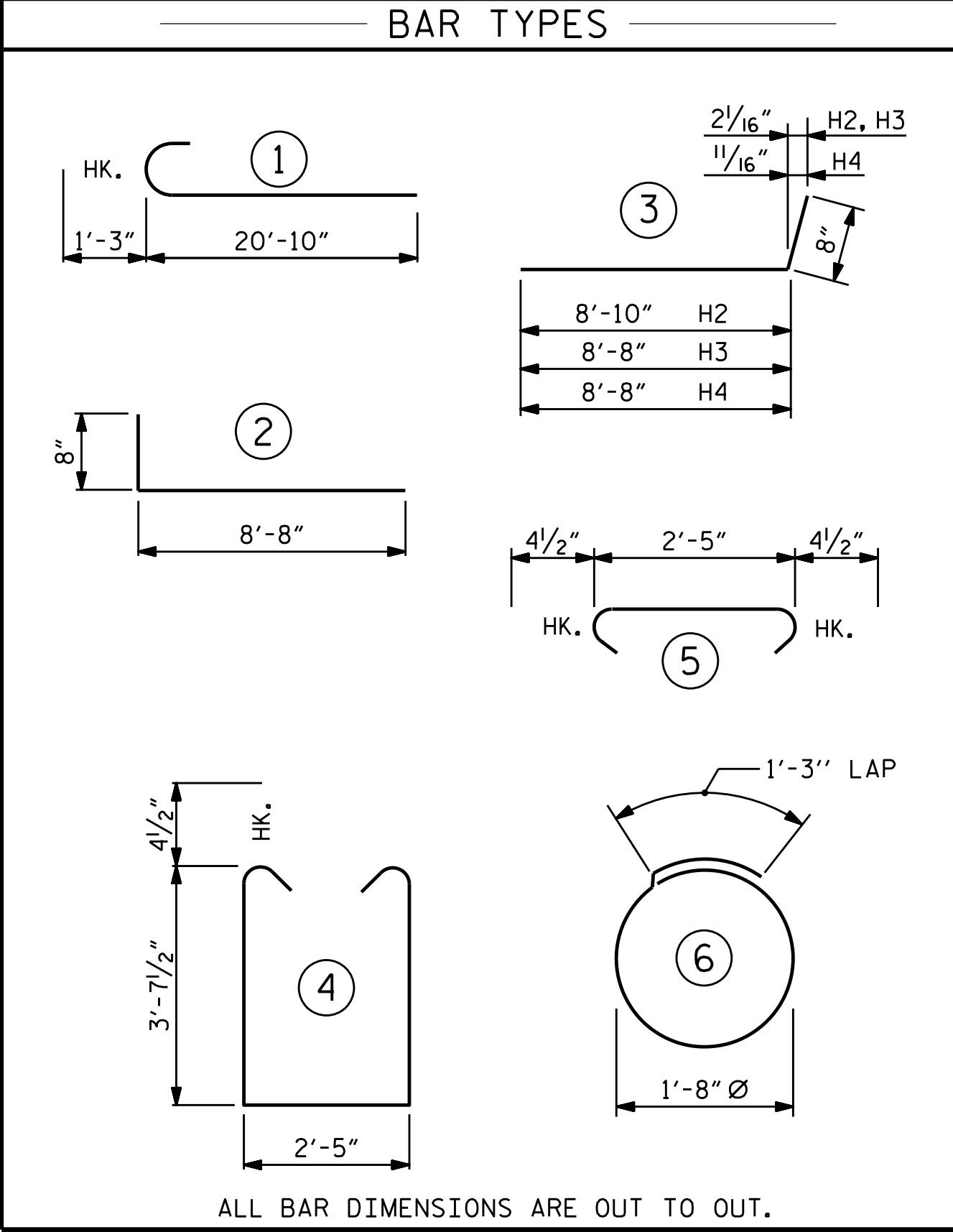
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

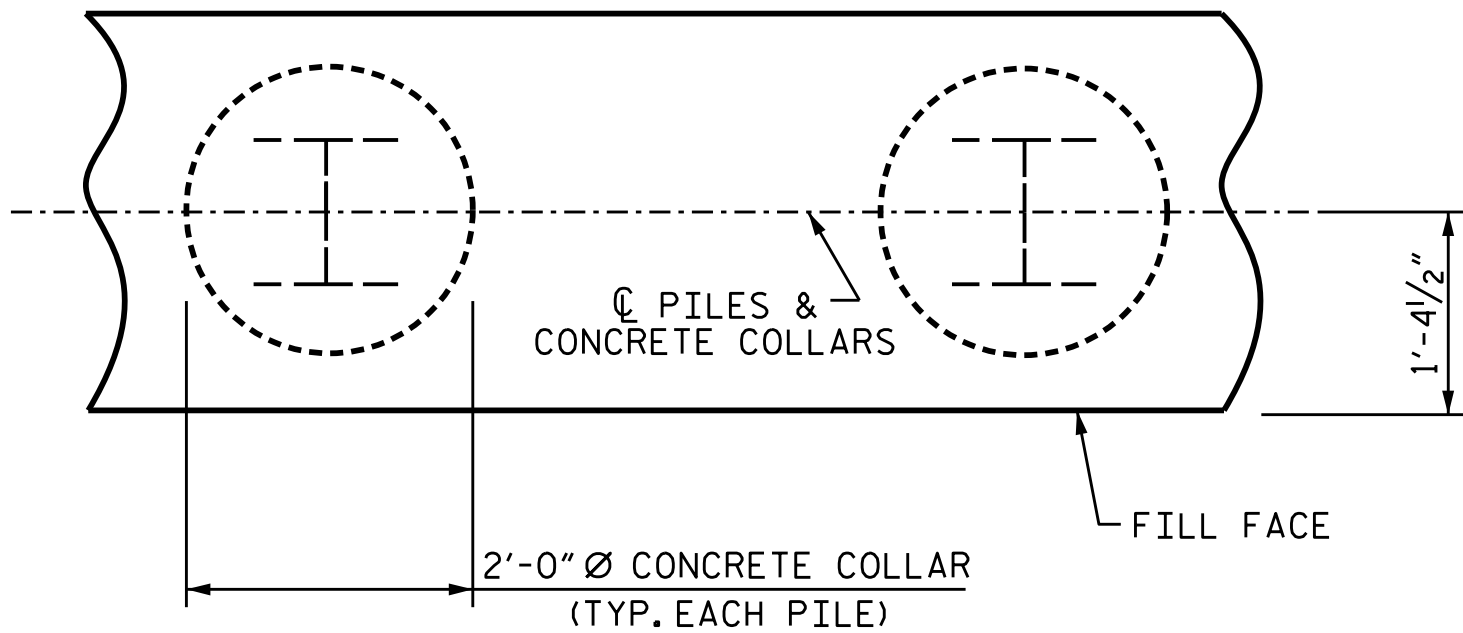
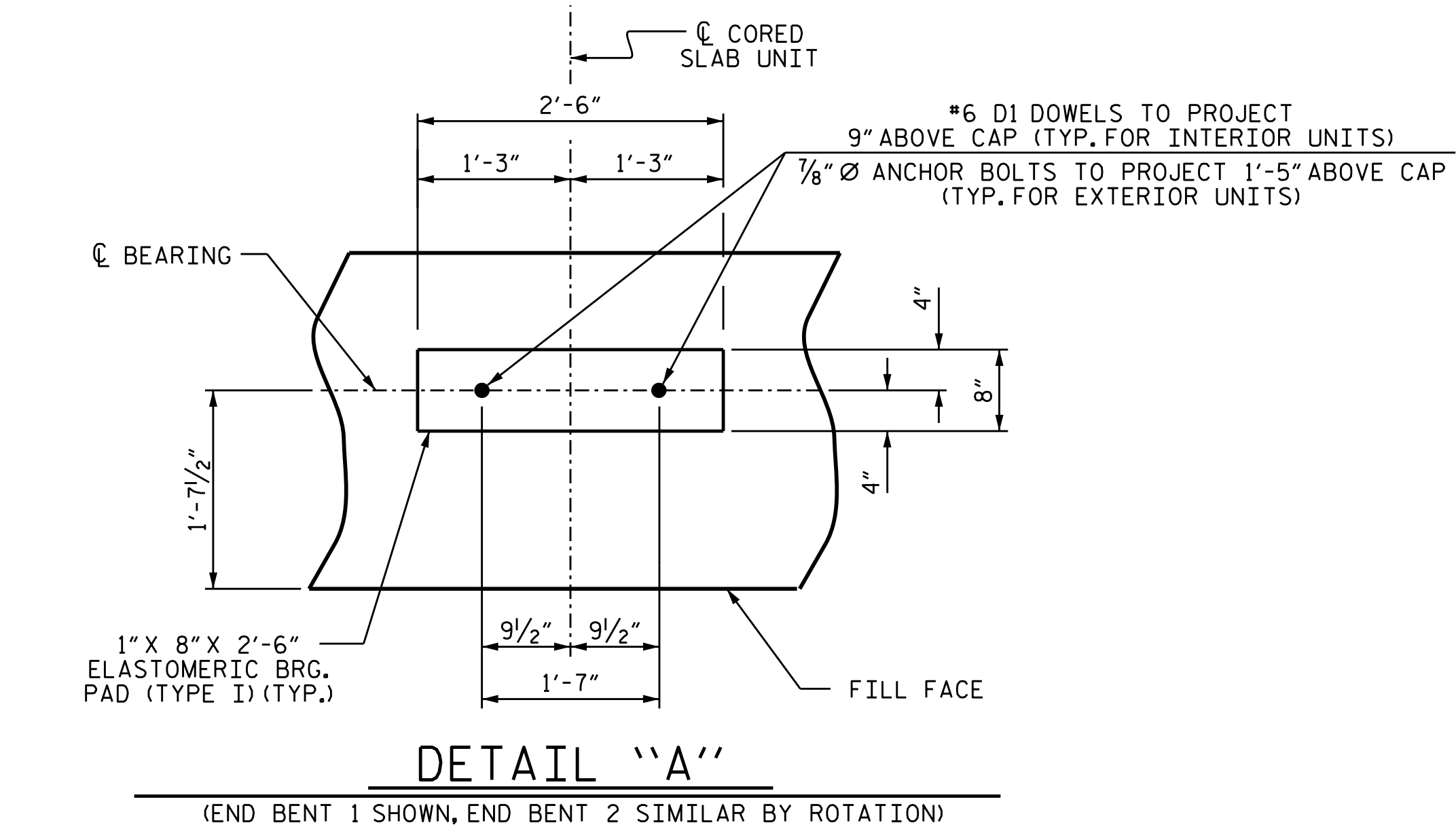
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



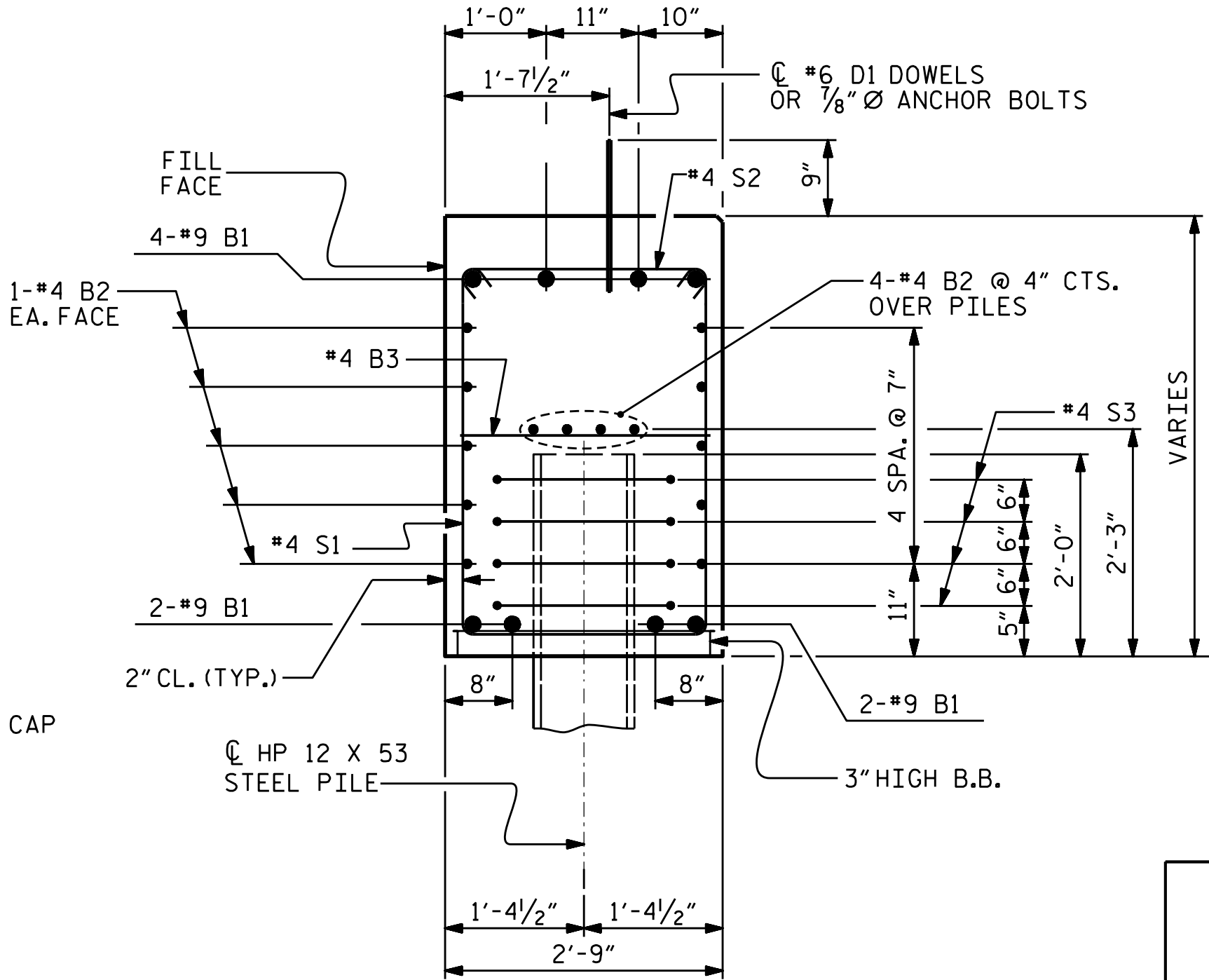
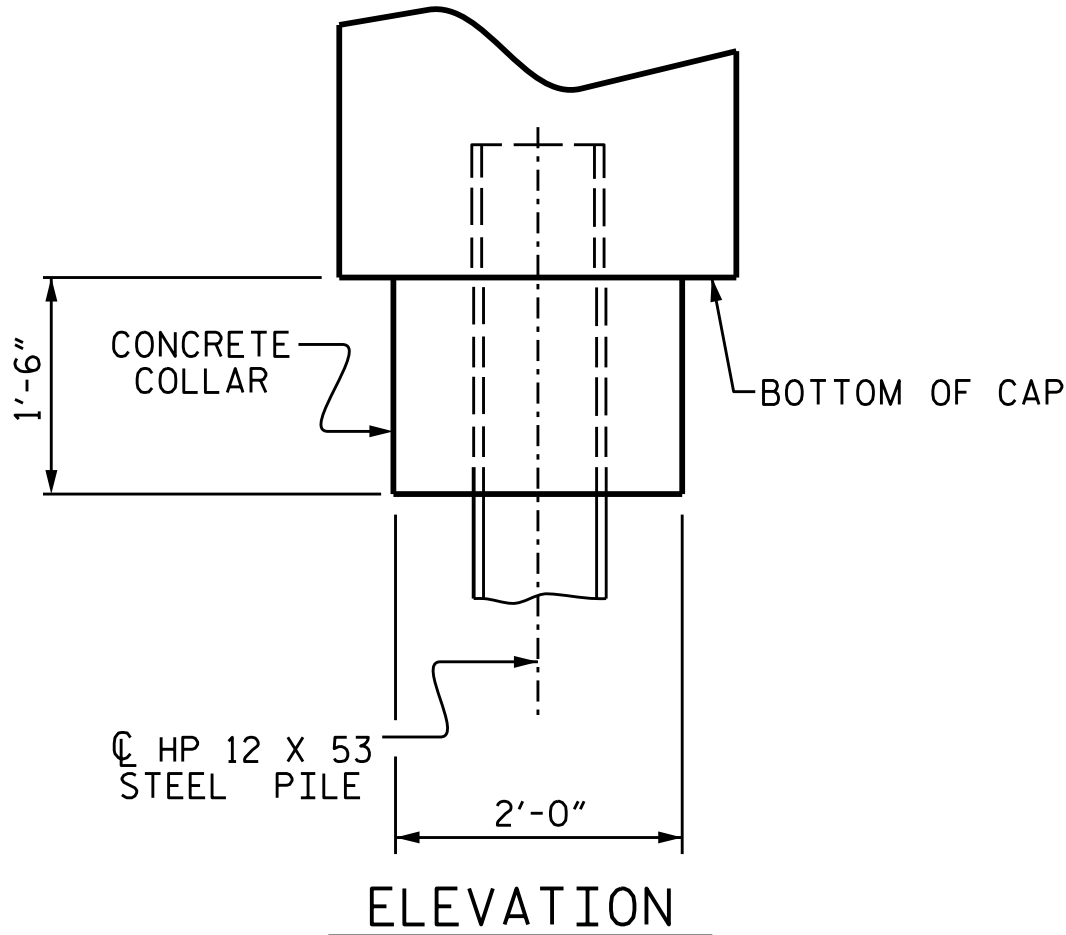
BILL OF MATERIAL FOR END BENT 1						BILL OF MATERIAL FOR END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#9	1	22'-1"	1201	B1	16	#9	1	22'-1"	1201
B2	28	#4	STR	19'-5"	363	B2	28	#4	STR	19'-3"	360
B3	9	#4	STR	2'-5"	15	B3	9	#4	STR	2'-5"	15
D1	16	#6	STR	1'-6"	36	D1	16	#6	STR	1'-6"	36
H1	20	#4	2	9'-4"	125	H1	20	#4	2	9'-4"	125
H2	10	#4	3	9'-6"	63	H4	20	#4	3	9'-4"	125
H3	10	#4	3	9'-4"	62	K1	8	#4	STR	3'-6"	19
						K2	8	#4	STR	3'-7"	19
						S1	46	#4	4	10'-5"	320
						S2	46	#4	5	3'-2"	97
S1	46	#4	4	10'-5"	320	S3	20	#4	6	6'-6"	87
S2	46	#4	5	3'-2"	97	V1	56	#4	STR	5'-11"	221
S3	20	#4	6	6'-6"	87						
V1	56	#4	STR	5'-11"	221						
REINFORCING STEEL 2630 LBS.						REINFORCING STEEL 2625 LBS.					
CLASS A CONCRETE BREAKDOWN						CLASS A CONCRETE BREAKDOWN					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS	19.0 C.Y.				POUR #1	CAP, LOWER PART OF WINGS & COLLARS	18.8 C.Y.			
POUR #2	UPPER PART OF WINGS	2.5 C.Y.				POUR #2	UPPER PART OF WINGS	2.4 C.Y.			
TOTAL CLASS A CONCRETE 21.5 C.Y.						TOTAL CLASS A CONCRETE 21.2 C.Y.					



PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

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



SECTION A-A

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

PROJECT NO. HB-0051
ASHE COUNTY
STATION: 13+95.00-L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 1 & 2 DETAILS					
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					
SIGNED: [Signature] SEAL 20125 ENGINEER MARSHALL G. CHECK 1/5/2026					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS 28					

ASSEMBLED BY :	NMW	DATE :	2/25
CHECKED BY :	MGC	DATE :	3/25
DRAWN BY :	WJH	12/11	
CHECKED BY :	AAC	12/11	
REV.	4/17	MAA/THC	

NOTES

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

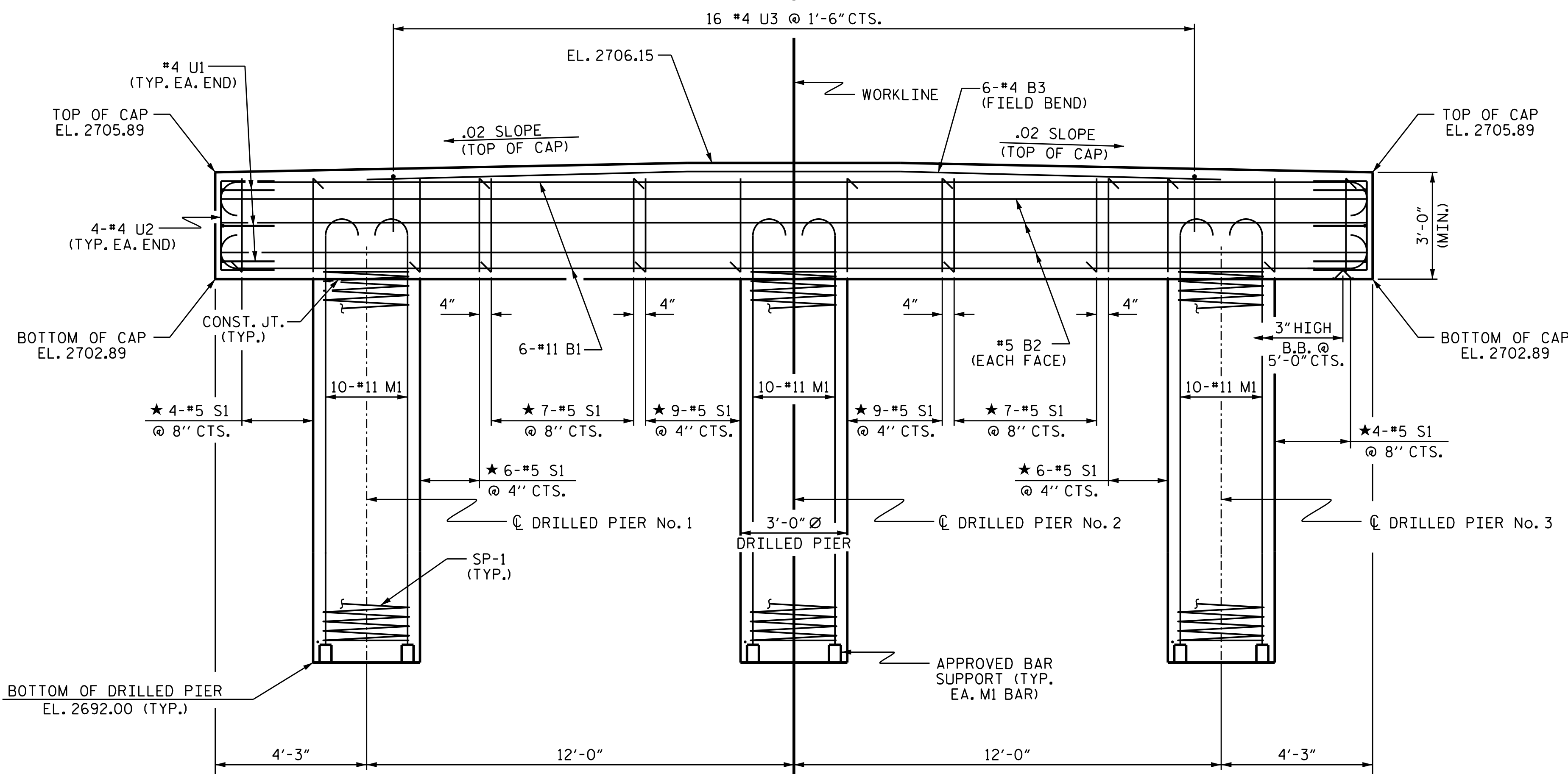
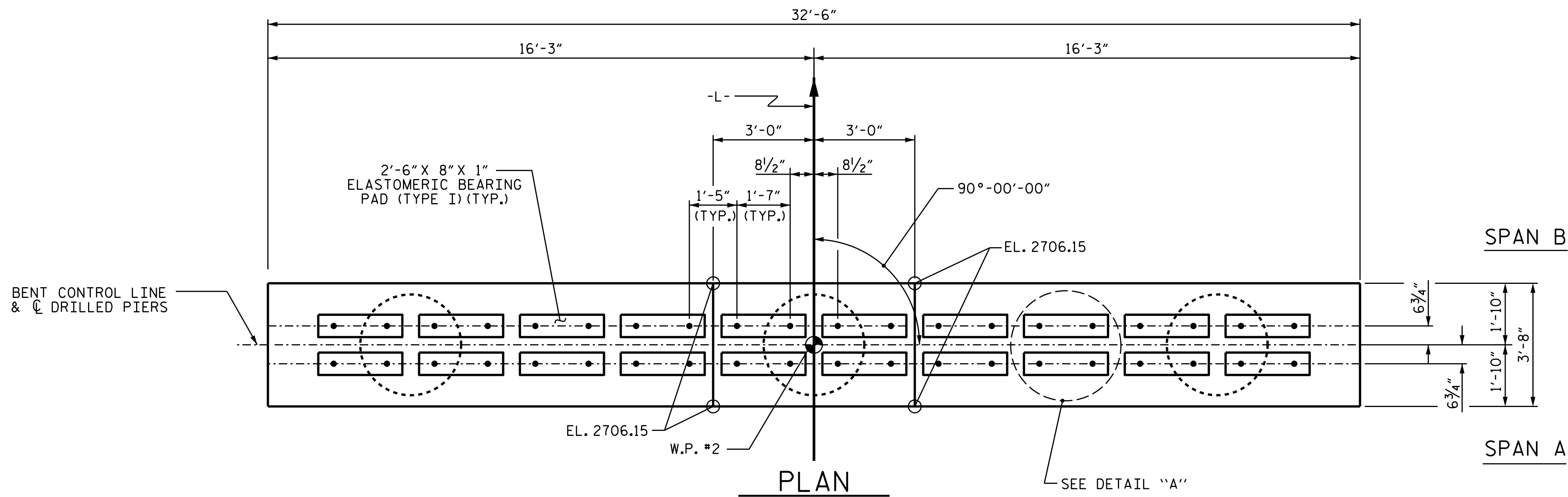
HOOKS ON "M" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

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."

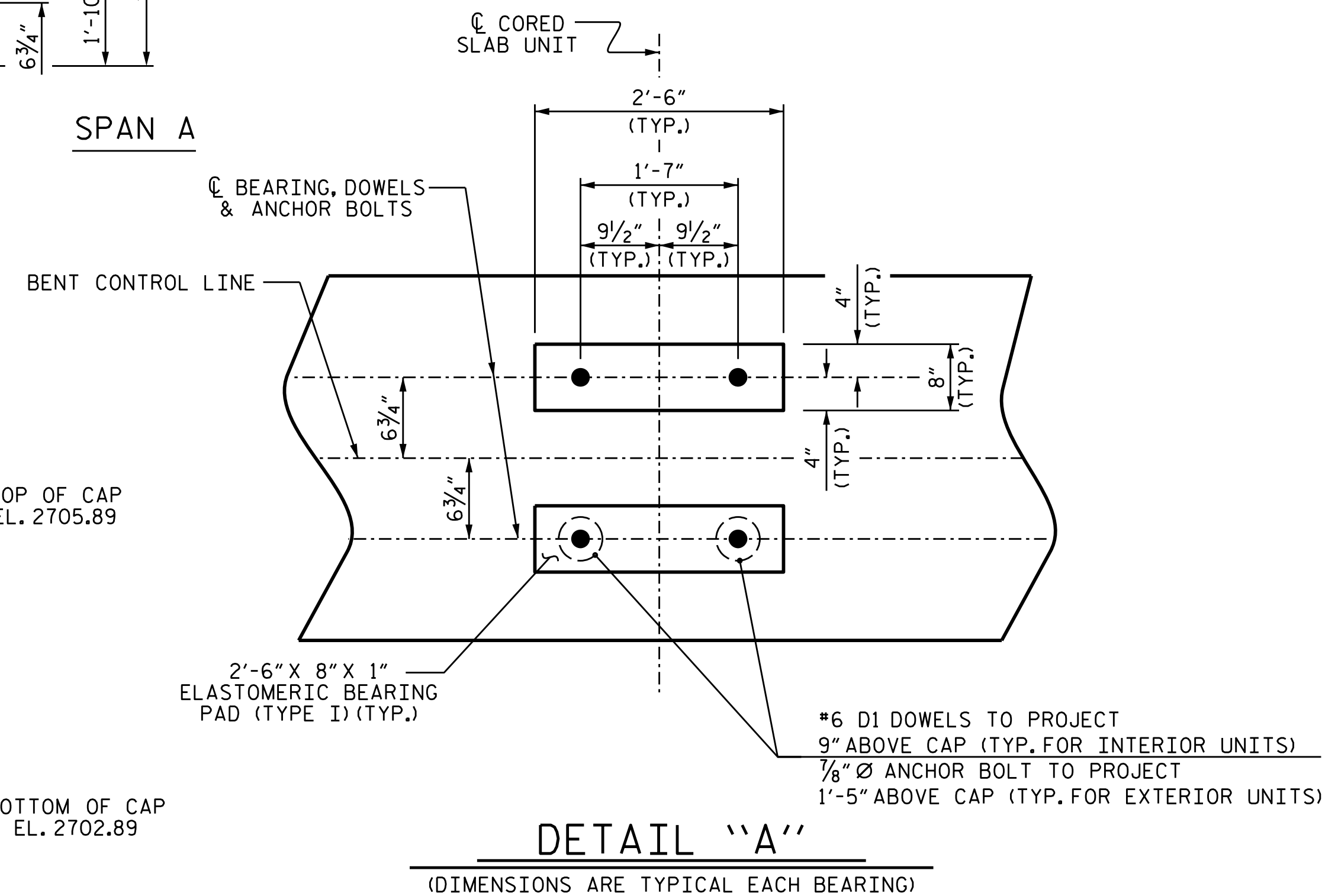
★ INVERT ALTERNATE STIRRUPS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE M1 BARS ARE DETAILED WITH 3 FEET OF EXTRA LENGTH.



ELEVATION

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



PROJECT NO. HB-0051

ASHE COUNTY

STATION: 13+95.00-L-

SHEET 1 OF 2

		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH	
SUBSTRUCTURE BENT 1			
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	
NO. BY DATE		NO. BY DATE	
1		3	
2		4	
TOTAL SHEETS 28		SHEET NO. S-22	

ASSEMBLED BY :	NMW	DATE :	3/25
CHECKED BY :	MGC	DATE :	3/25
DRAWN BY :	DGE	4/10	REV. II/14
CHECKED BY :	MKT	4/10	MAA/TMG

STD. NO. DP_BT_30_90S_<50'

+

+

NOTES

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

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

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★ INVERT ALTERNATE STIRRUPS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE M1 BARS ARE DETAILED WITH 3 FEET OF EXTRA LENGTH.

SPAN C

SPAN B

CL CORED SLAB UNIT

CL BEARING, DOWELS & ANCHOR BOLTS

BENT CONTROL LINE

2'-6" X 8" X 1" ELASTOMERIC BEARING PAD (TYPE I) (TYP.)

#6 D1 DOWELS TO PROJECT 9" ABOVE CAP (TYP. FOR INTERIOR UNITS)
1/8" Ø ANCHOR BOLT TO PROJECT 1'-5" ABOVE CAP (TYP. FOR EXTERIOR UNITS)

DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. HB-0051

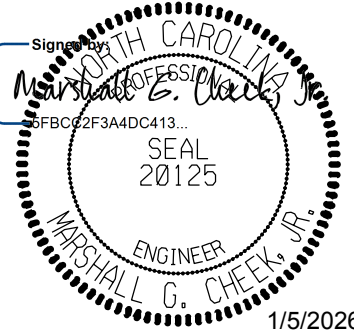
ASHE COUNTY

STATION: 13+95.00-L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 2



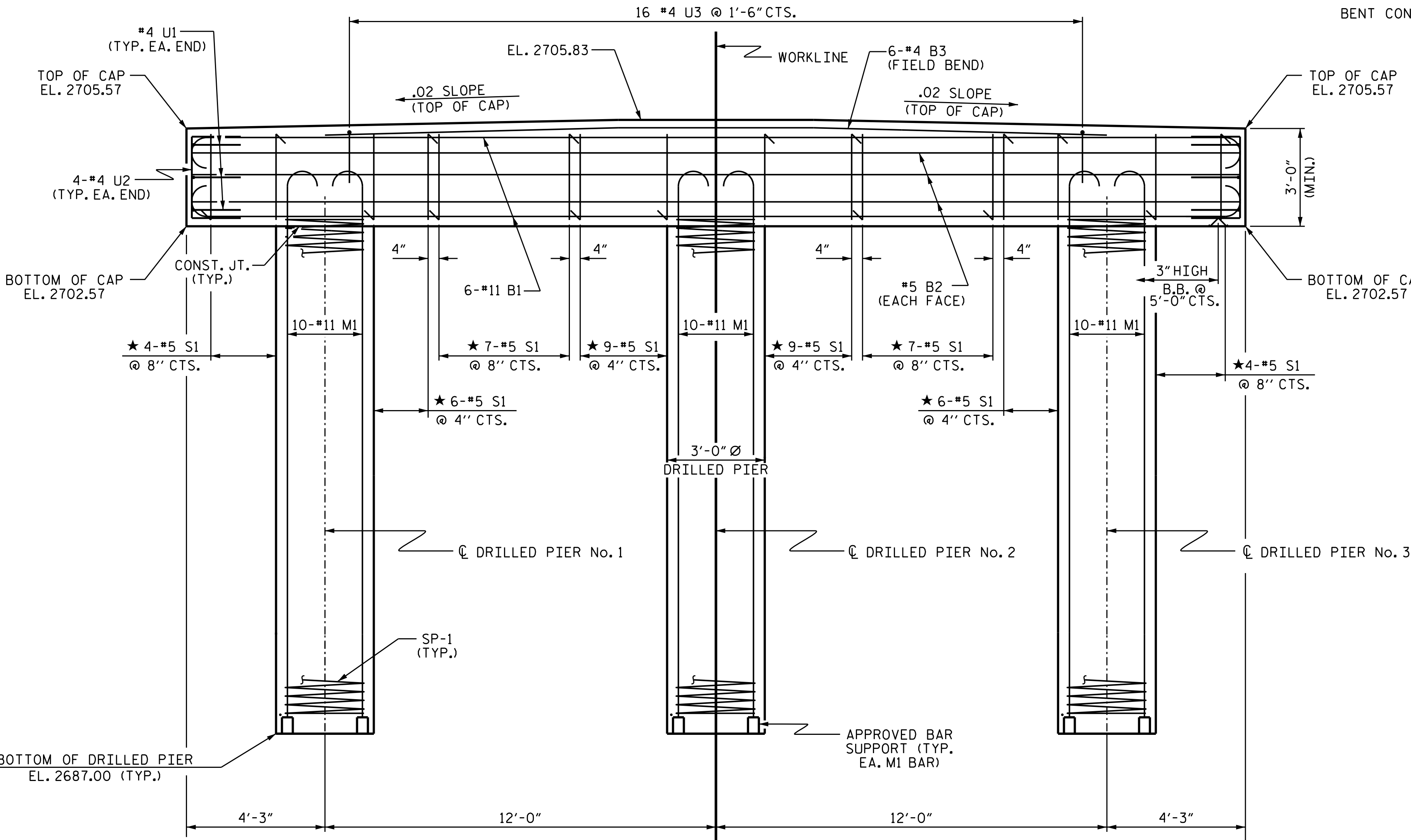
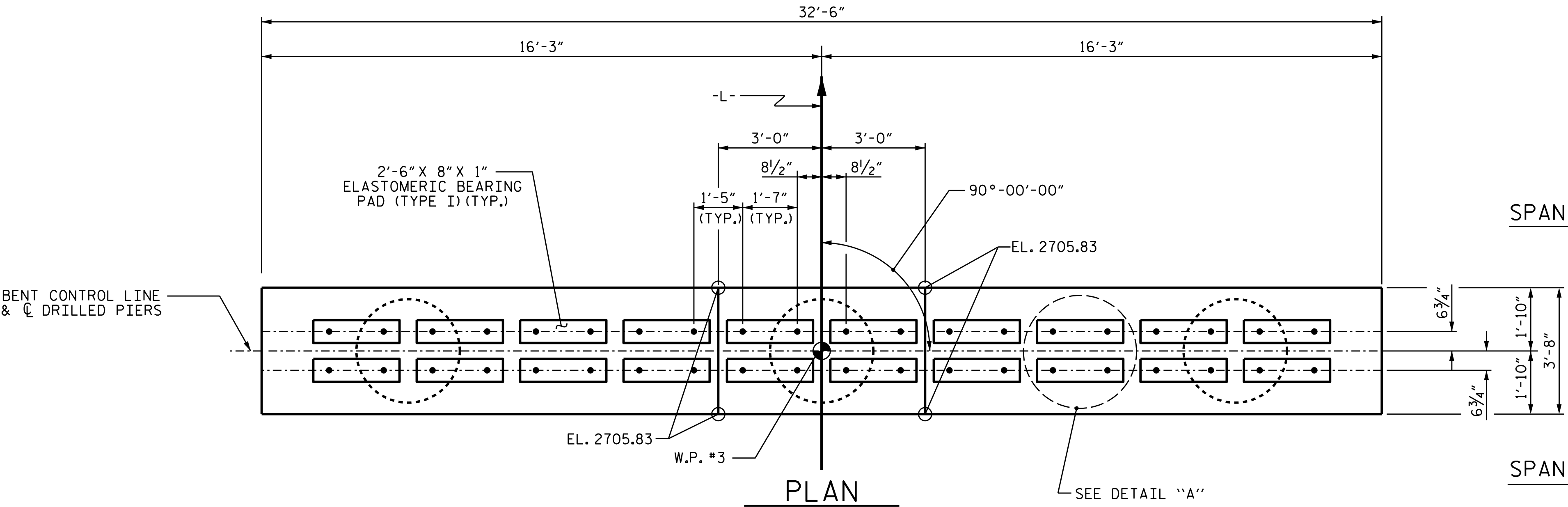
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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
28

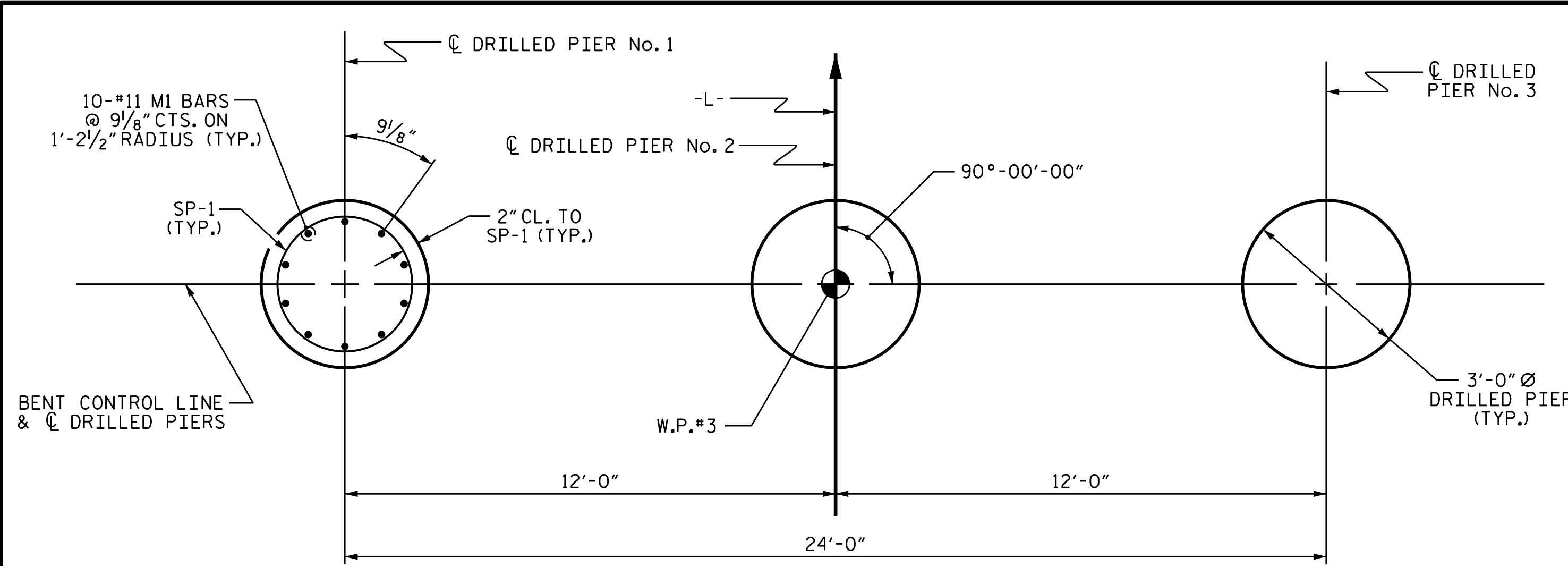
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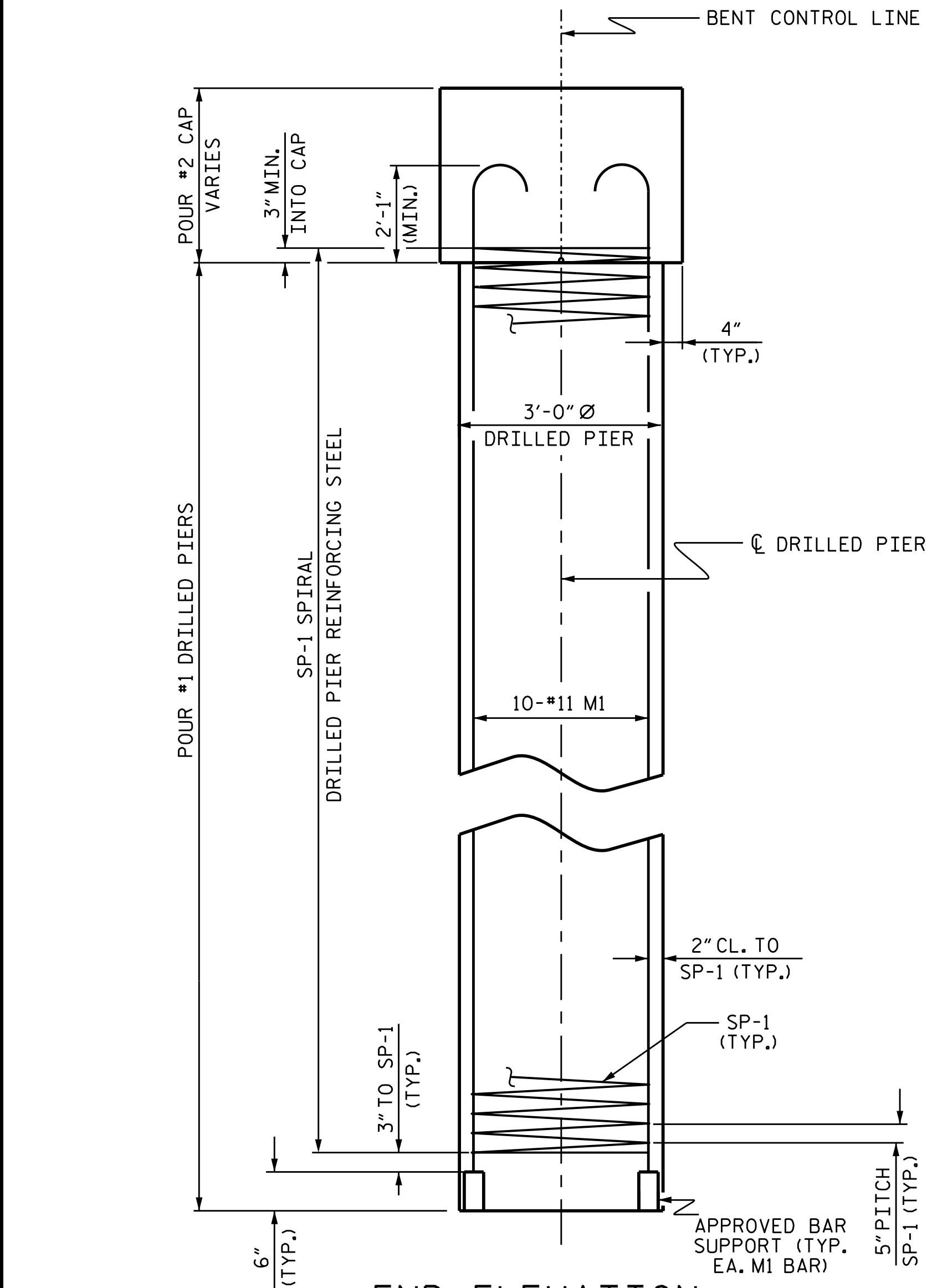
ELEVATION

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

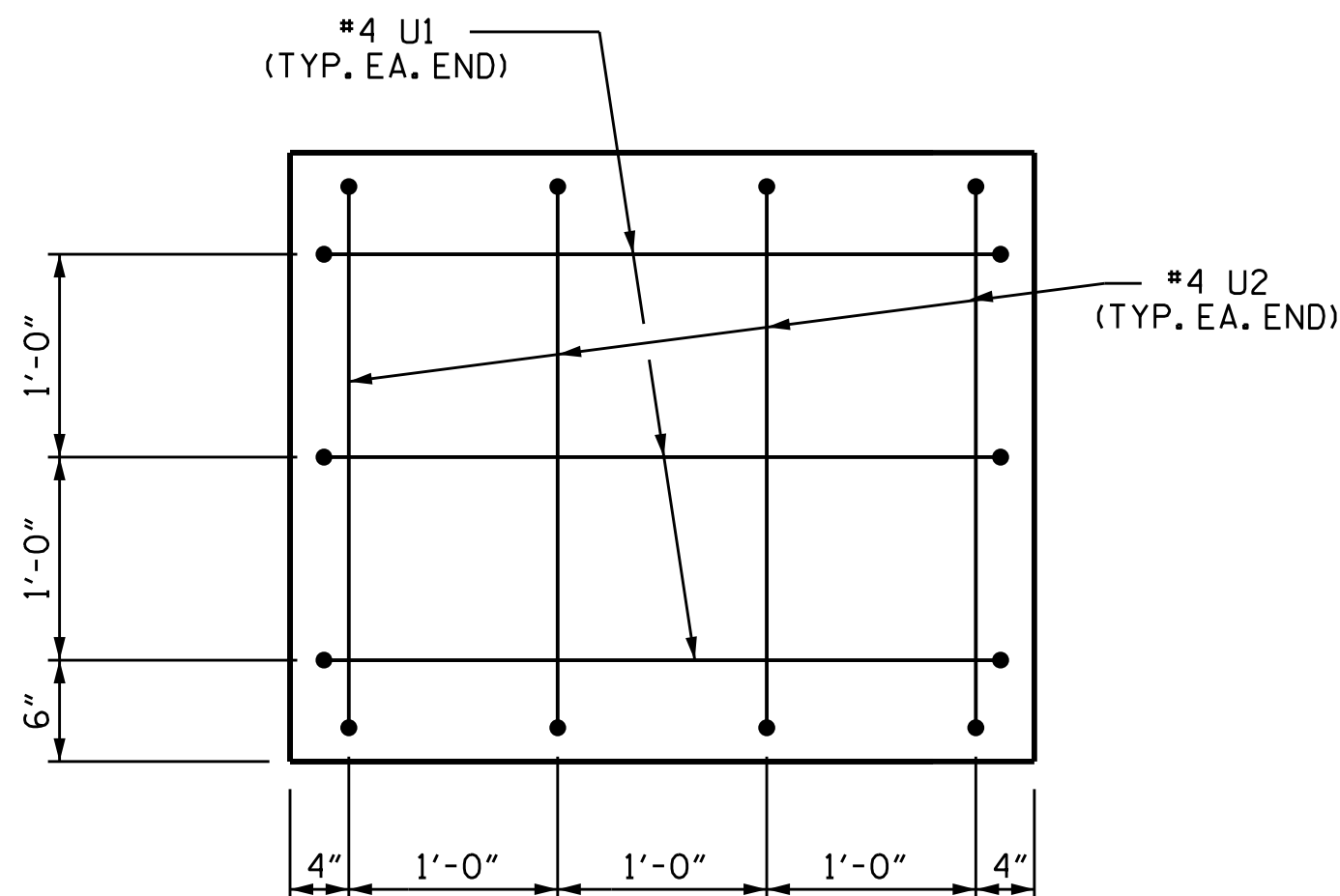
ASSEMBLED BY :	NMW	DATE :	3/25
CHECKED BY :	MGC	DATE :	3/25
DRAWN BY :	DGE	4/10	REV. II/14
CHECKED BY :	MKT	4/10	MAA/TMG



PLAN OF DRILLED PIERS

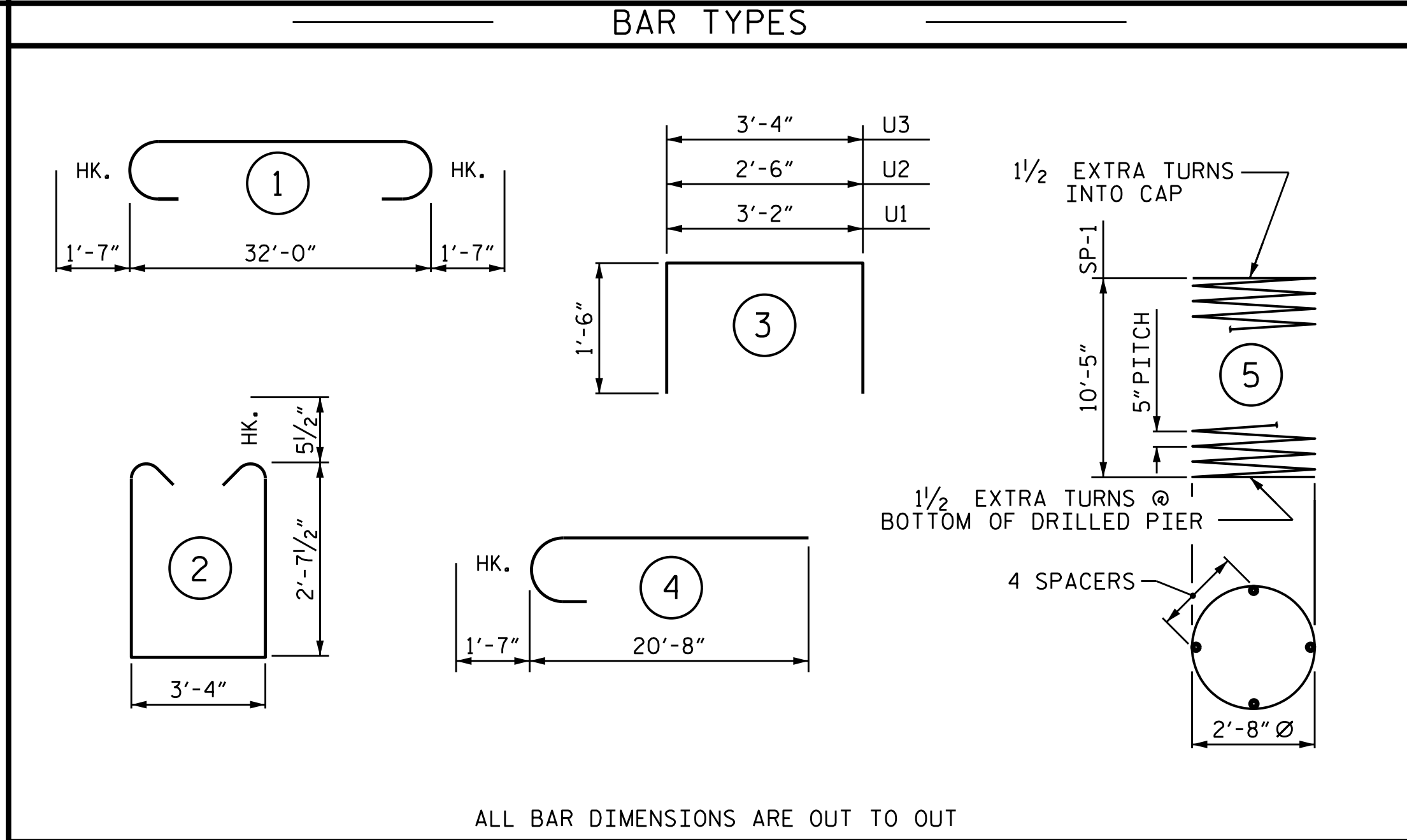


END ELEVATION

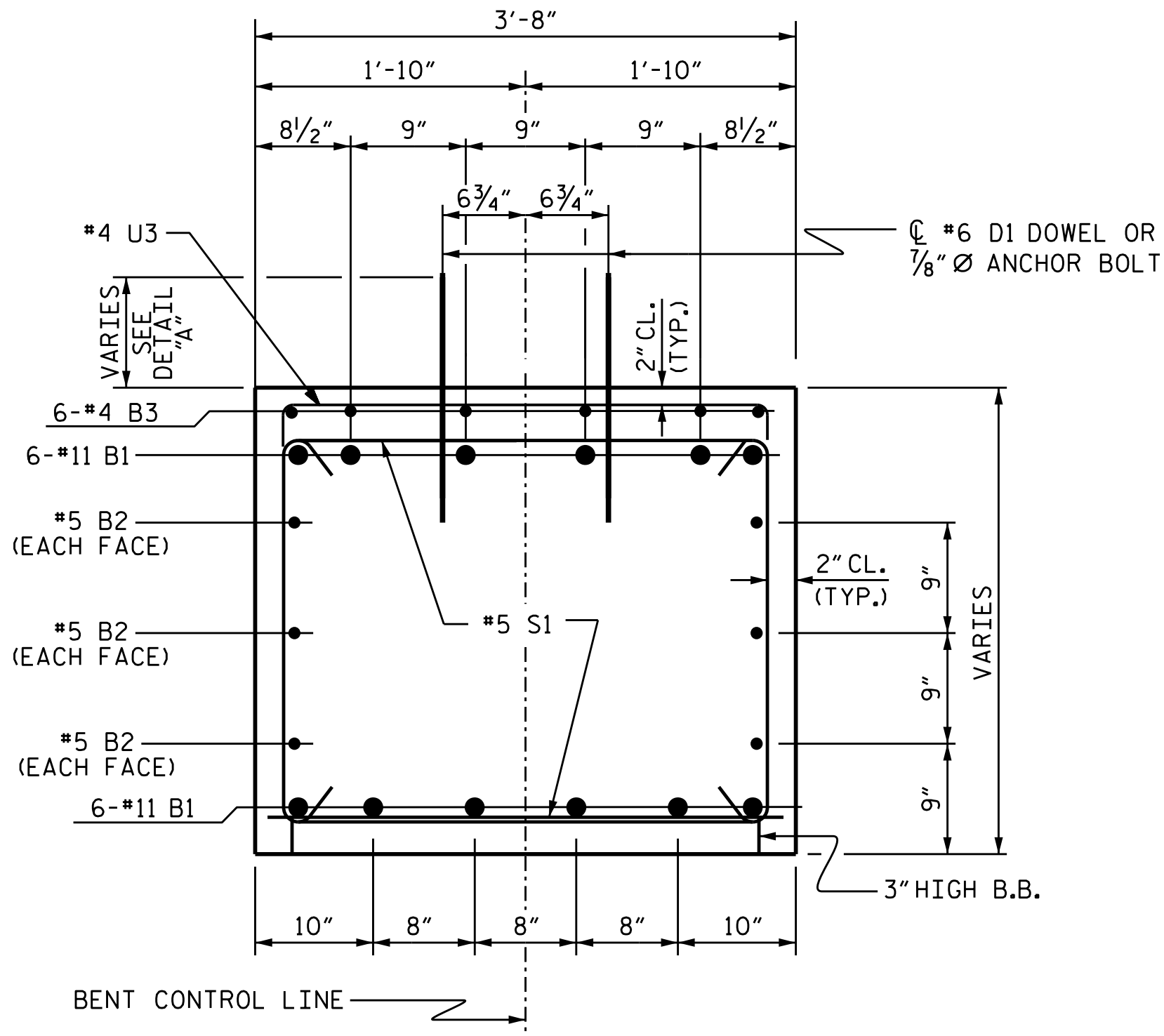


END OF CAP VIEW

(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT



SECTION THRU CAP

BILL OF MATERIAL					
FOR BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#11	1	35'-2"	2242
B2	6	#5	STR	32'-2"	201
B3	6	#4	STR	24'-0"	96
D1	32	#6	STR	1'-6"	72
M1	30	#11	4	22'-3"	3546
S1	52	#5	2	9'-6"	515
U1	6	#4	3	6'-2"	25
U2	8	#4	3	5'-6"	29
U3	16	#4	3	6'-4"	68
REINFORCING STEEL					6794 LBS.
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
SP-1	3	*	5	329'-0"	1029
SPIRAL COLUMN REINFORCING STEEL					1029 LBS.
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR					
CLASS A CONCRETE BREAKDOWN					
POUR #2 (CAP)					13.9 C.Y.
TOTAL CLASS A CONCRETE					
DRILLED PIERS:					
DRILLED PIER CONCRETE					
POUR #1 (DRILLED PIERS)					12.2 C.Y.

PROJECT NO. HB-0051

ASHE COUNTY

STATION: 13+95.00-L-

SHEET 2 OF 2

Signed by
MARSHALL G. CHECK, JR.
Professional Engineer
No. 35333
Exp. 12/31/2024
MARSHALL G. CHECK, JR.
ENGINEER
1/5/2026

SEAL
20125

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

ENGINEERS

NO. 1

BY:

DATE:

NO. 3

BY:

DATE:

NO. 4

BY:

DATE:

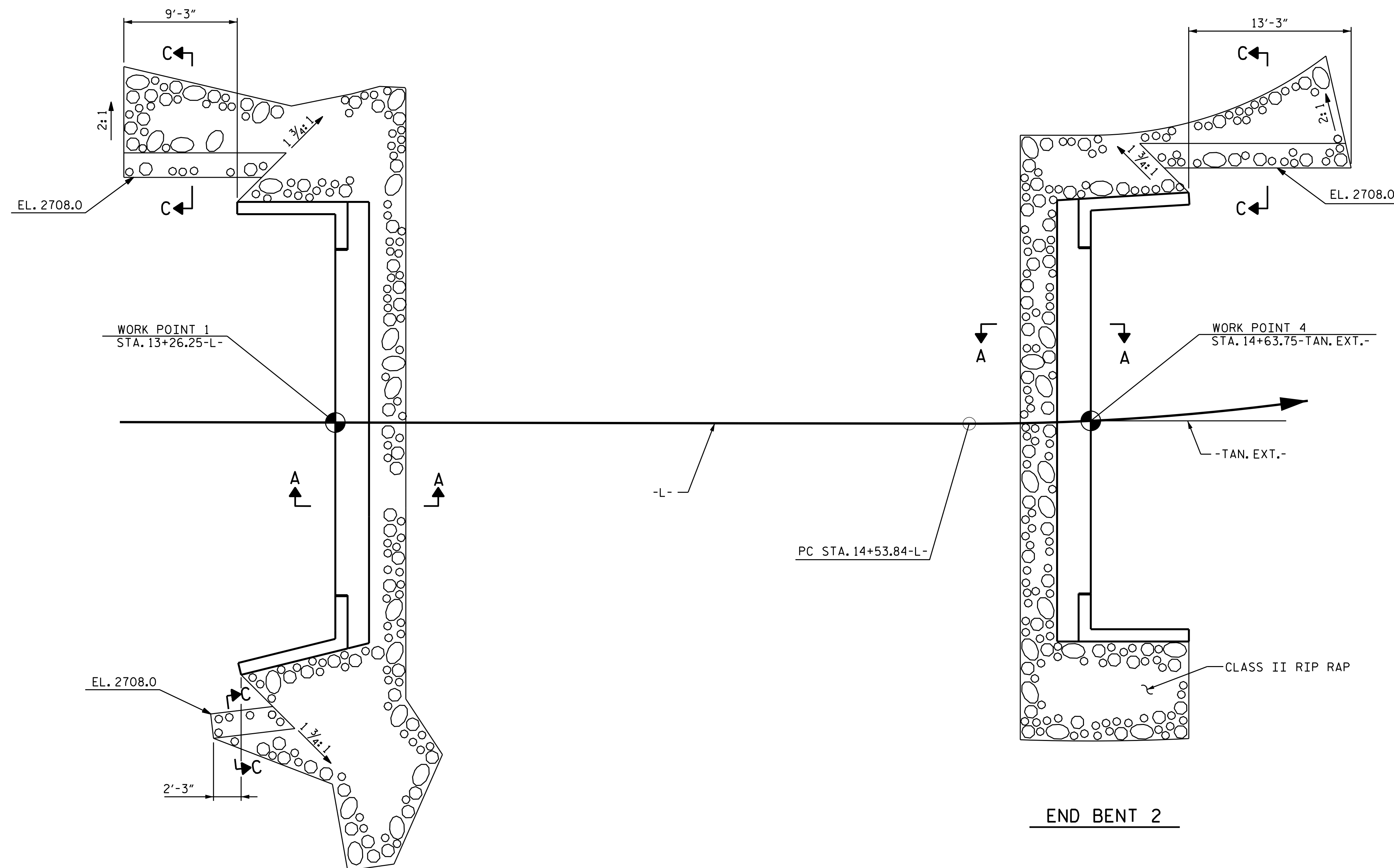
SHEET NO. S-25

TOTAL SHEETS 28

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT 2

ASSEMBLED BY :	NMW	DATE :	3/25
CHECKED BY :	MGC	DATE :	3/25
DRAWN BY :	DGE 3/10	REV. 11/14	MAA/TMG
CHECKED BY :	MKT 3/10		

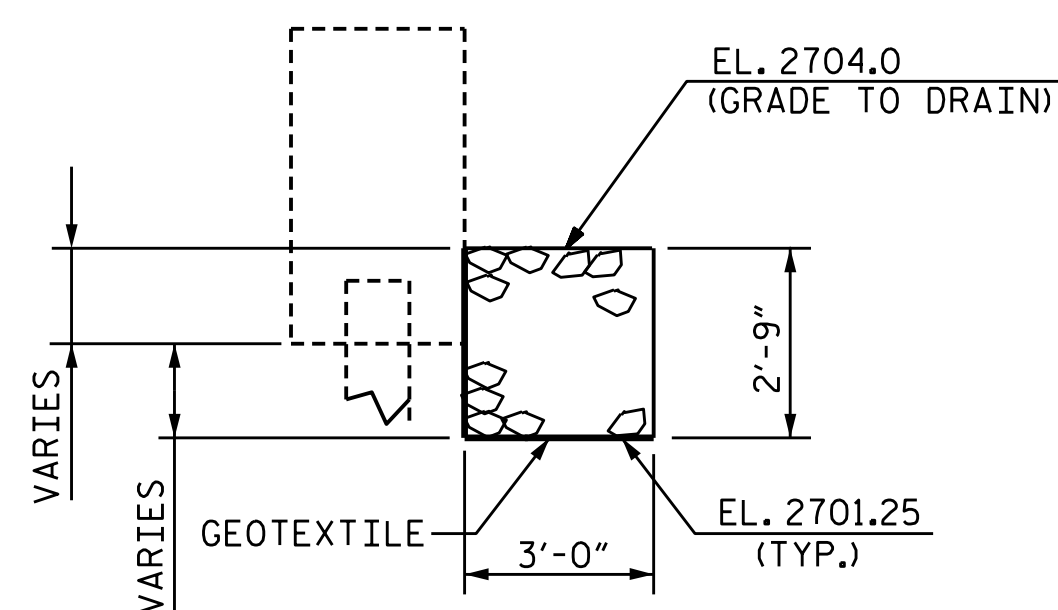
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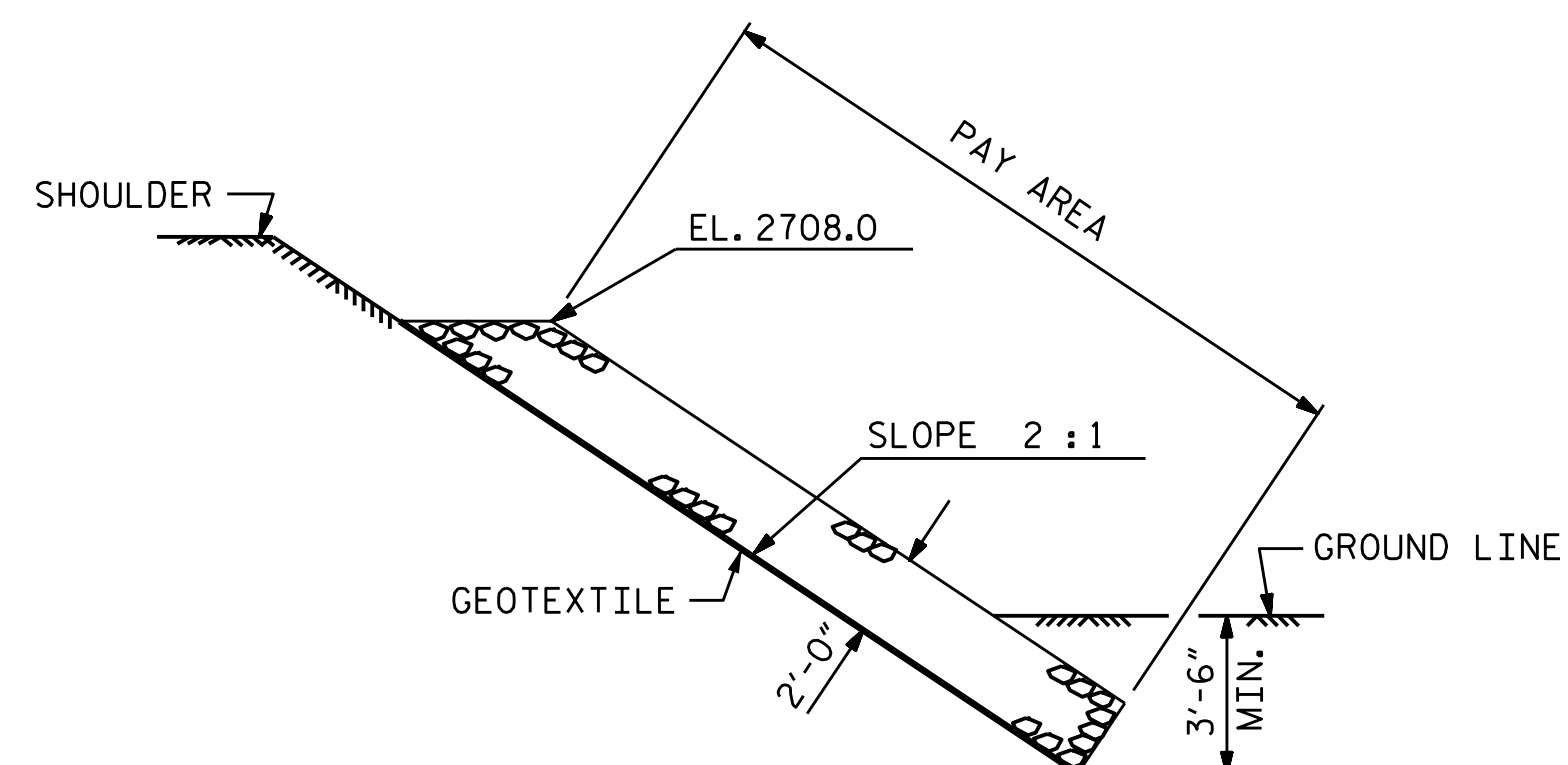
ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+95.00-L-	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	45	50
END BENT 2	45	50

END BENT 1

PLAN

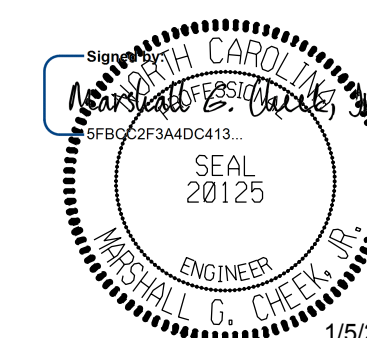


SECTION A-A



SECTION C-C

PROJECT NO. HB-0051
ASHE COUNTY
 STATION: 13+95.00-L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

DRAWN BY :	NMW	DATE :	3/25
CHECKED BY :	MGC	DATE :	3/25

**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

REVISONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			28

1

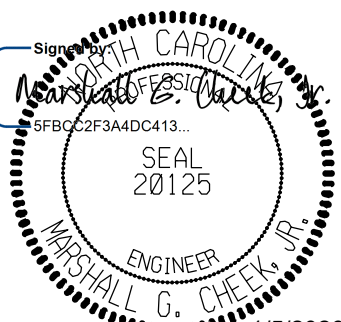
PLAN @ END BENT 2

Diagram illustrating the cross-section of a bridge deck with the following dimensions and details:

- Overall Width:** 10'-10 1/2" (ALONG CHORD)
- Top Chord Spacing:** 10 SPA. @ 1'-0" CTS.
- End Approach Slab:** 5 1/4" (on each side)
- Reinforcement Details:**
 - Top reinforcement: 5/8"
 - Bottom reinforcement: 3/8", 5/16", 3/8", 1/8", 1 1/8", 1 3/16", 1/8", 1 1/8", 5/16", 3/8"
- Labels:**
 - BEGIN APPROACH SLAB
 - FILL FACE
 - END BENT 2
 - END OF CURVE
 - END APPROACH SLAB

ARC OFFSETS - RIGHT SIDE @ EB2

Figure 10: Typical Bridge Deck Profile. The diagram shows a cross-section of a bridge deck with a parabolic profile. The total width is 11'-10" (along chord). The profile is defined by a series of vertical dimensions: 2 1/16", 6 5/16", 9 5/8", 1'-0 1/16", 1'-1 1/16", 1'-2 1/2", 1'-2 1/2", 1'-1 1/16", 1'-0 1/16", 9 5/8", 6 5/16", and 2 1/16". The horizontal spacing between the vertical lines is 11 SPA. @ 1'-0" CTS. The profile starts and ends with a 5" approach slab. A dashed line indicates the 'END BENT 1 & END OF CURVE'.


 The seal is circular with a double-lined border. The outer ring contains the text "MARSHALL G. CHALK, JR." at the bottom and "NORTH CAROLINA" at the top. Inside the ring, the word "ENGINEER" is written horizontally. In the center, the word "SEAL" is at the top, followed by the year "20125". A blue rectangular stamp is placed over the top-left portion of the seal, containing the text "Shelby County" and "Marshall G. Chalk, Jr." in a stylized font.

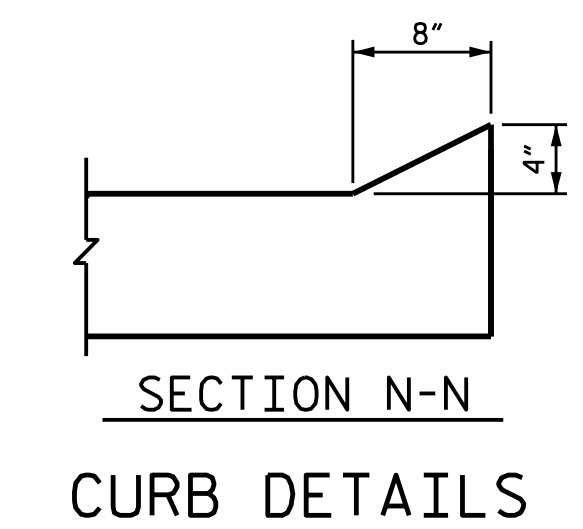
1/5/2026

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED


 The logo consists of the letters "TGS" in a large, bold, sans-serif font, with the word "ENGINEERS" in a smaller, all-caps, sans-serif font directly beneath it. To the left of the text is a stylized graphic element resembling a square with internal geometric patterns.

TGS ENGINEERS
 201 W. MARION ST STE 200
 SHELBY, NC 28150
 PH. (704) 476-0003
 CORP. ENGINEER NO.: C-0277

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



SHEET 1 OF 2

BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
(SUB-REGIONAL TIER)
90° SKEW

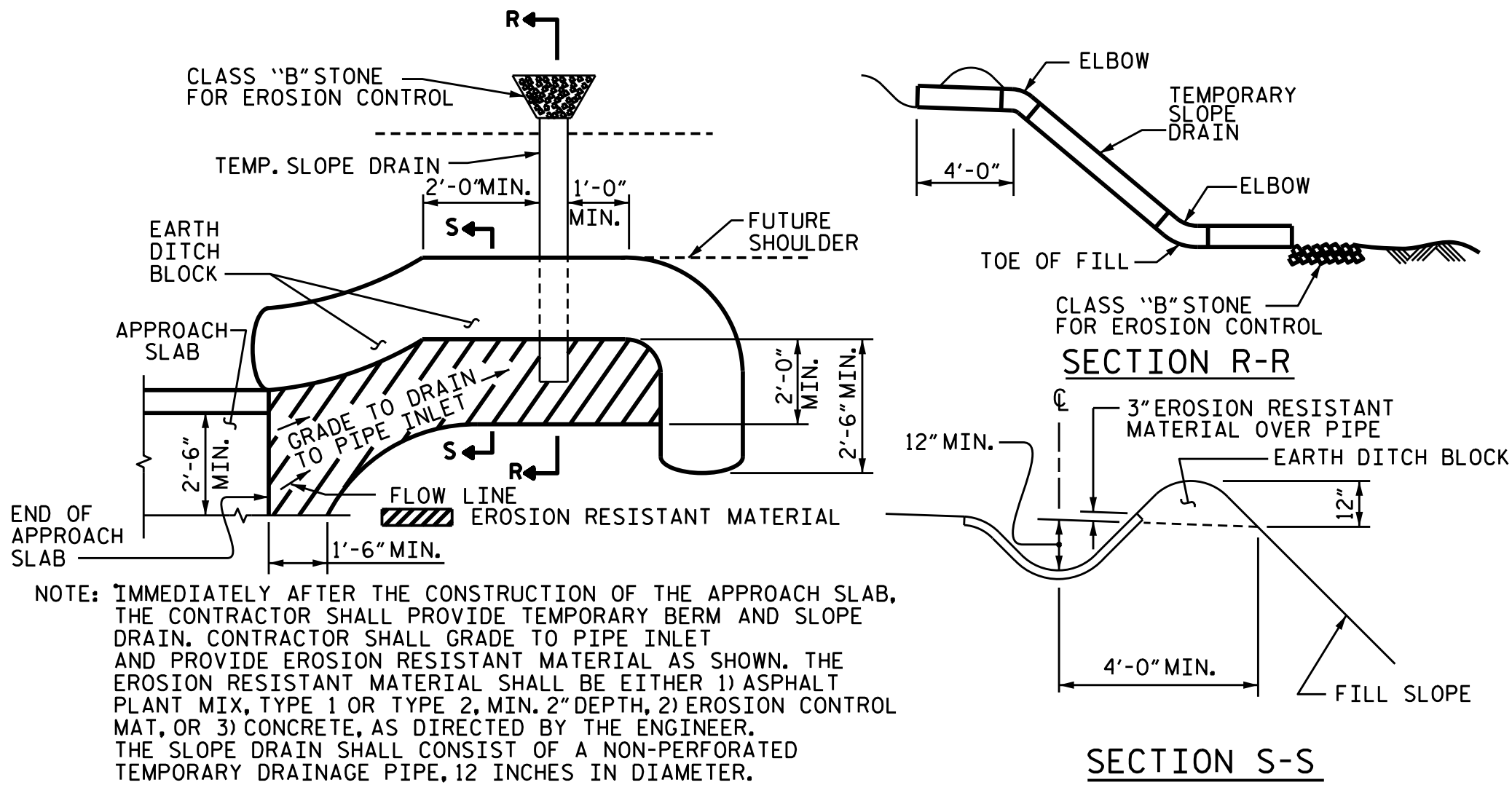
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS 28
2			4			

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.

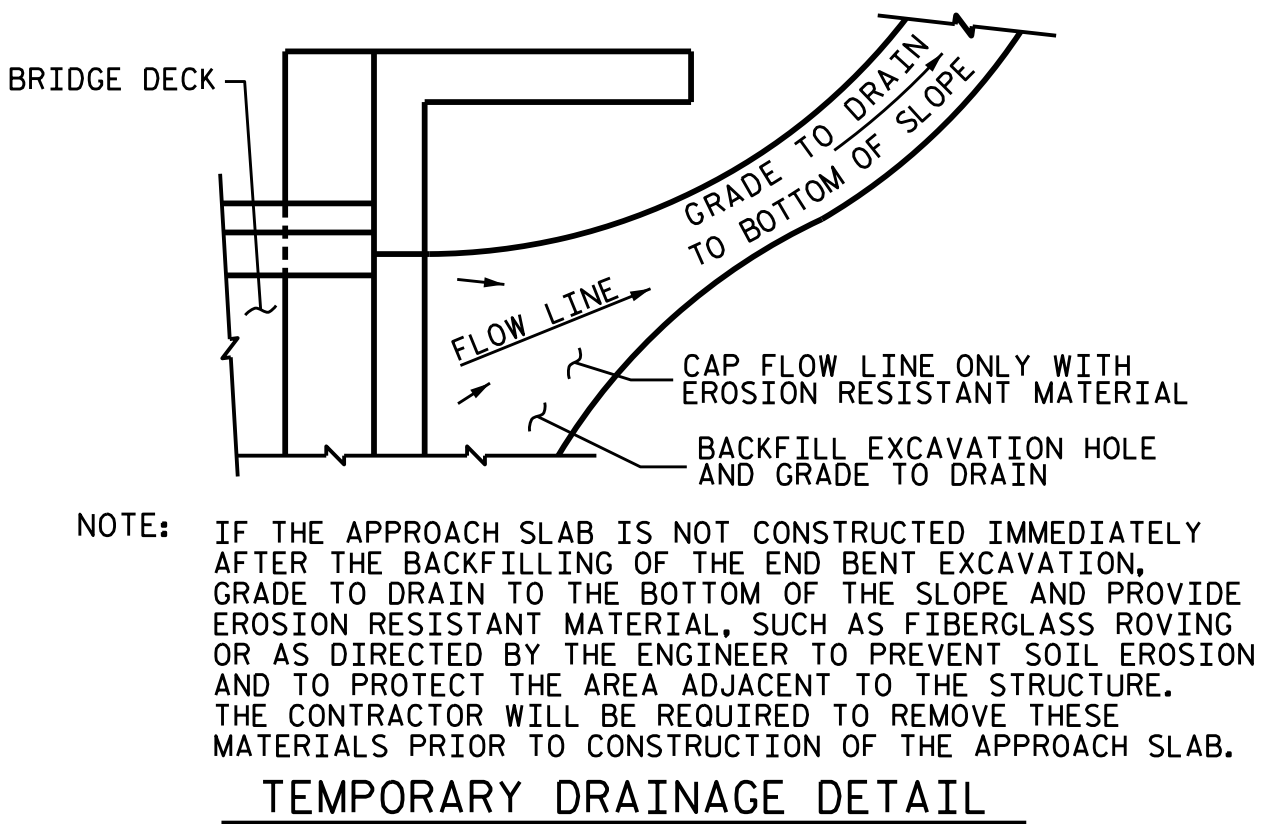
APPROACH SLAB GROOVING IS NOT REQUIRED.



PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

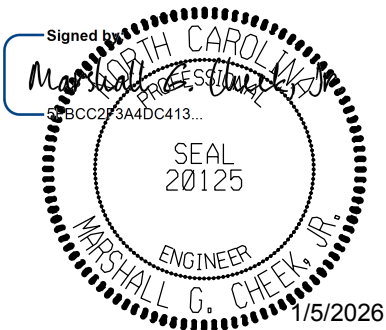


PROJECT NO. HB-0051

ASHE COUNTY

STATION: 13+95.00-L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**BRIDGE APPROACH SLAB
DETAILS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			28

DRAWN BY : NMW DATE : 3/25
CHECKED BY : MGC DATE : 3/25

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 ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" 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 ¼" 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 ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞"Ø STUDS FOR 4 - ¾" Ø 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 ⅝" 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 ⅛" 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.