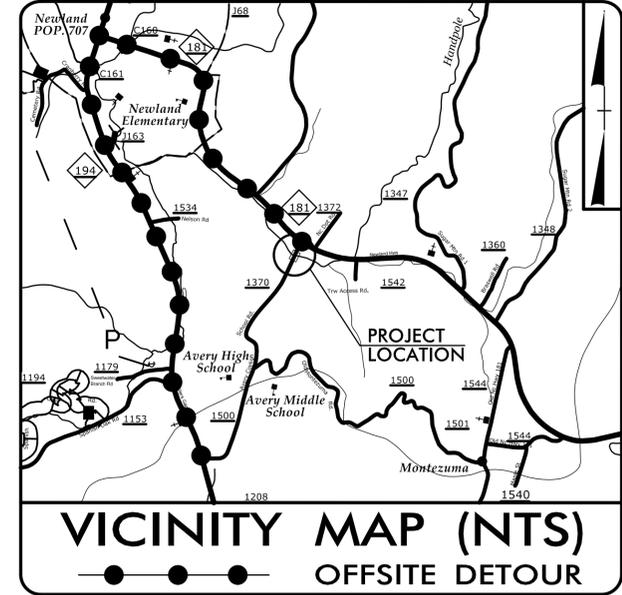


09_08/2011

PROJECT: DF18311.2006017.PR

CONTRACT: DK00433

See Sheet 1A For Index of Sheets

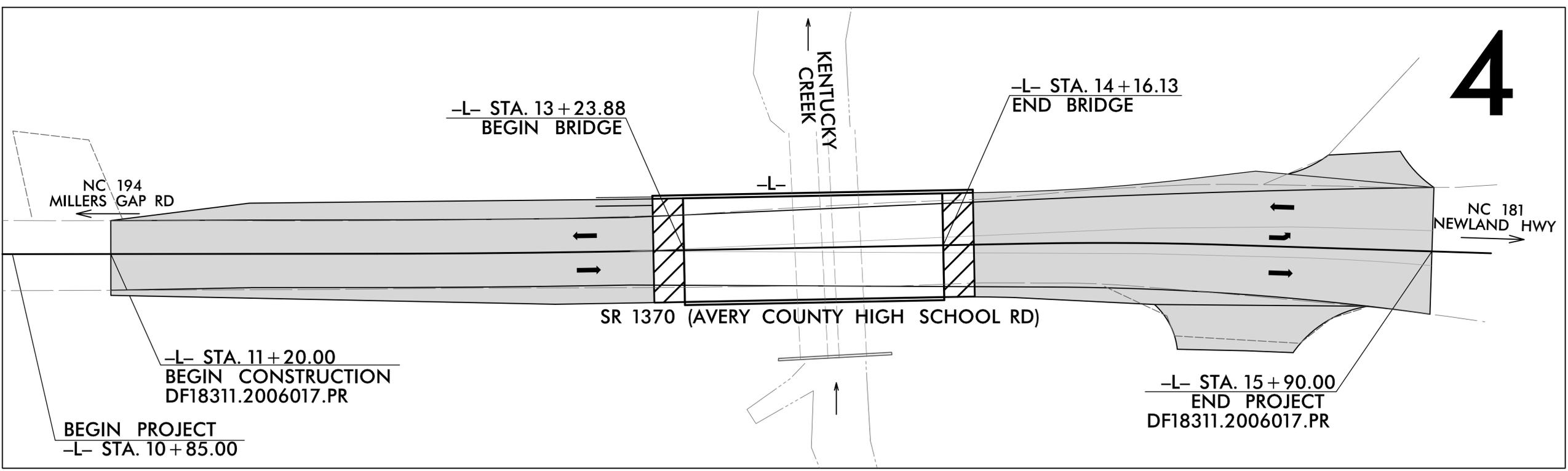


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

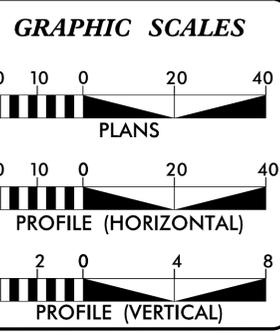
AVERY COUNTY

**LOCATION: STRUCTURE REPLACEMENT OF PIPE NO. 006-2255
ON SR 1370 (AVERY COUNTY HIGH SCHOOL RD)
OVER KENTUCKY CREEK**
**TYPE OF WORK: GRADING, DRAINAGE, PAVING
STRUCTURE, AND UTILITIES**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF18311.2006017.PR	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
DF18311.2006017.PR		PE	
DF18311.2006017.PR		R/W	
DF18311.2006017.PR		UTIL.	
DF18311.2006017.PR		CONST.	



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2025 = 1,760
ADT 2050 = 2,250

V = 40 MPH
TTST = 1% DUAL = 2%
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT DF18311.2006017.PR = 0.072 MILES
LENGTH OF STRUCTURE PROJECT DF18311.2006017.PR = 0.017 MILES
TOTAL LENGTH OF PROJECT DF18311.2006017.PR = 0.089 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:
JUN. 9, 2025

LETTING DATE:
FEB. 19, 2026

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION

DIVISION II
801 Statesville Rd
N. Wilkesboro, NC 28659

JIMMY L. TERRY, PE
PROJECT ENGINEER

KATELYN S. ALMOND
PROJECT DESIGN ENGINEER

ROB WEISZ, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

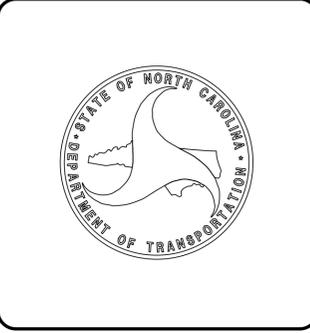
SEAL 024897
JIMMY L. TERRY
P.E. 11/17/2025

SIGNATURE: _____

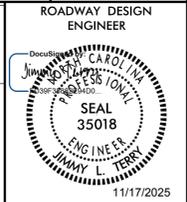
ROADWAY DESIGN ENGINEER

SEAL 35018
JIMMY L. TERRY
P.E. 11/17/2025

SIGNATURE: _____



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



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

INDEX OF SHEETS	
SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1 THRU 2C-2	SPECIAL DETAILS - METHOD OF PIPE INSTALLATION
2C-3 THRU 2C-4	SPECIAL DETAILS - GUARDRAIL PLACEMENT
2G-1	GEOTECHNICAL DETAILS
3B-1	ROADWAY AND DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN SHEET
5	PROFILE SHEET
RW-01 THRU RW-04	RIGHT OF WAY PLANS
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 PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
UC-1 THRU UC-6	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-7	CROSS-SECTIONS
S-1 THRU S-20	STRUCTURE PLANS
STRUCTURE STANDARD NOTES	

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

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

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

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

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

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

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

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

TEMPORARY SHORING:
 SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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

UTILITIES:
 UTILITY OWNERS ON THIS PROJECT ARE TOWN OF NEWLAND, AVERY COUNTY SCHOOL SYSTEM, PIEDMONT NATURAL GAS, DUKE ENERGY, AND AT&T.
 ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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

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:

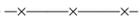
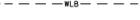
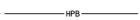
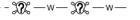
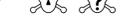
STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
275.01	Rock Plating
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation (Use Details in Lieu of 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
840.24	Frames and Narrow Slot Sag 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

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

05/20/24

Note: Not to Scale

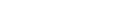
BOUNDARIES AND PROPERTY:

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	_____ 

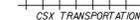
BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	_____ 
Sign	_____ 
Well	_____ 
Small Mine	_____ 
Foundation	_____ 
Area Outline	_____ 
Cemetery	_____ 
Building	_____ 
School	_____ 
Church	_____ 
Dam	_____ 

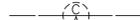
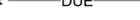
HYDROLOGY:

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	_____ 

RAILROADS:

Standard Gauge	_____ 
RR Signal Milepost	_____ 
Switch	_____ 
RR Abandoned	_____ 
RR Dismantled	_____ 

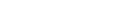
RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	_____ 
Primary Horiz and Vert Control Point	_____ 
Secondary Horiz and Vert Control Point	_____ 
Vertical Benchmark	_____ 
Existing Right of Way Monument	_____ 
Proposed Right of Way Monument (Rebar and Cap)	_____ 
Proposed Right of Way Monument (Concrete)	_____ 
Existing Permanent Easement Monument	_____ 
Proposed Permanent Easement Monument (Rebar and Cap)	_____ 
Existing C/A Monument	_____ 
Proposed C/A Monument (Rebar and Cap)	_____ 
Proposed C/A Monument (Concrete)	_____ 
Existing Right of Way Line	_____ 
Proposed Right of Way Line	_____ 
Existing Control of Access Line	_____ 
Proposed Control of Access Line	_____ 
Proposed ROW and CA Line	_____ 
Existing Easement Line	_____ 
Proposed Temporary Construction Easement	_____ 
Proposed Temporary Drainage Easement	_____ 
Proposed Permanent Drainage Easement	_____ 
Proposed Permanent Drainage/Utility Easement	_____ 
Proposed Permanent Utility Easement	_____ 
Proposed Temporary Utility Easement	_____ 
Proposed Aerial Utility Easement	_____ 

ROADS AND RELATED FEATURES:

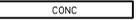
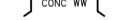
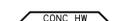
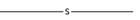
Existing Edge of Pavement	_____
Existing Curb	_____ 
Proposed Slope Stakes Cut	_____ 
Proposed Slope Stakes Fill	_____ 
Proposed Curb Ramp	_____ 
Existing Metal Guardrail	_____ 
Proposed Guardrail	_____ 
Existing Cable Guiderail	_____ 
Proposed Cable Guiderail	_____ 
Equality Symbol	_____ 
Pavement Removal	_____ 

VEGETATION:

Single Tree	_____ 
Single Shrub	_____ 
Hedge	_____ 

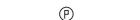
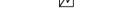
Woods Line	_____ 
Orchard	_____ 
Vineyard	_____ 

EXISTING STRUCTURES:

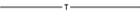
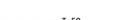
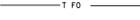
MAJOR:	
Bridge, Tunnel or Box Culvert	_____ 
Bridge Wing Wall, Head Wall and End Wall	_____ 
MINOR:	
Head and End Wall	_____ 
Pipe Culvert	_____ 
Footbridge	_____ 
Drainage Box: Catch Basin, DI or JB	_____ 
Paved Ditch Gutter	_____ 
Storm Sewer Manhole	_____ 
Storm Sewer	_____ 

UTILITIES:

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

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

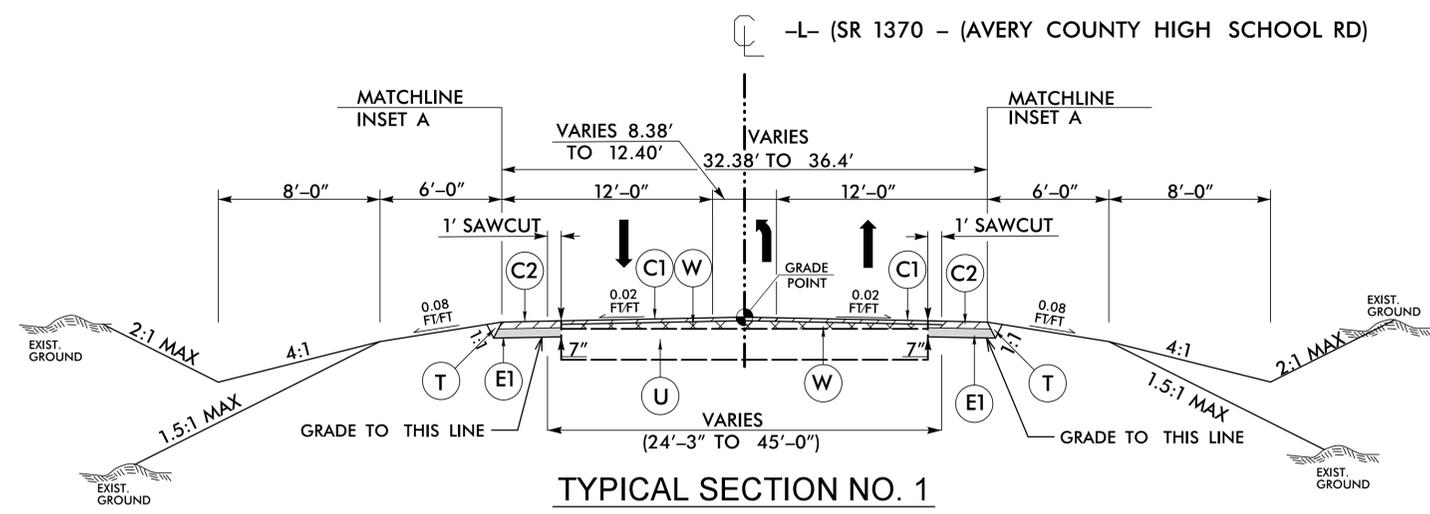
MISCELLANEOUS:

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

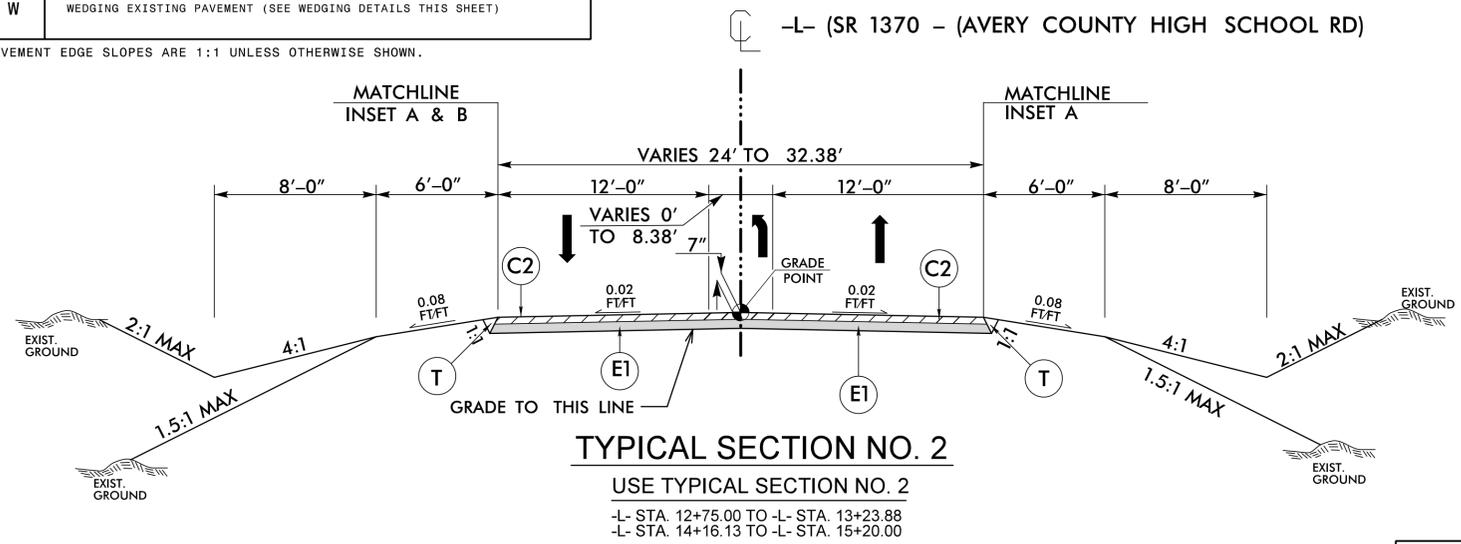
6/2/2025

PAVEMENT SCHEDULE (DECEMBER 17, 2024)	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING, SEE THIS SHEET FOR DETAIL
W	WEDGING EXISTING PAVEMENT (SEE WEDGING DETAILS THIS SHEET)

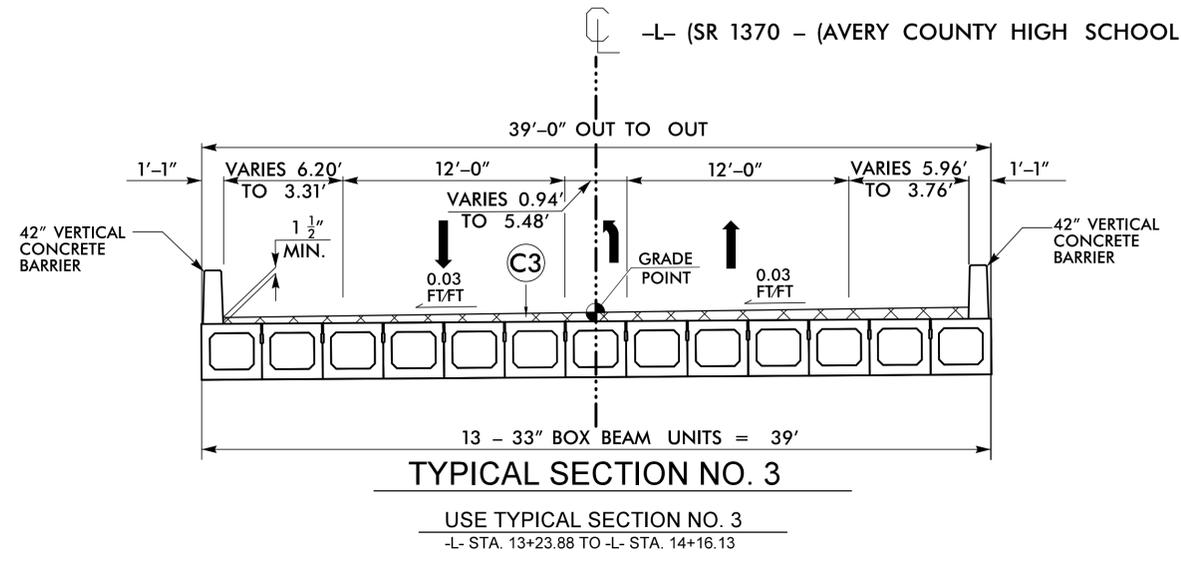
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SHOWN.



TYPICAL SECTION NO. 1
 USE TYPICAL SECTION NO. 1
 -L- STA. 11+20.00 TO -L- STA. 12+75.00
 -L- STA. 15+20.00 TO -L- STA. 15+90.00

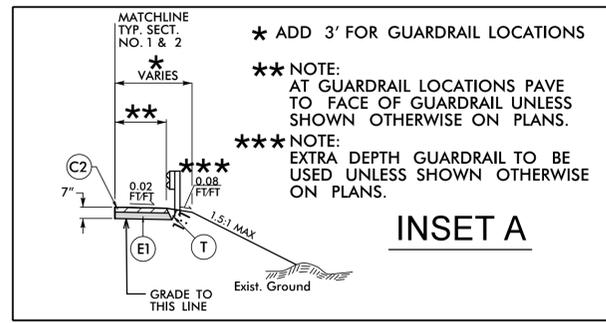


TYPICAL SECTION NO. 2
 USE TYPICAL SECTION NO. 2
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 -L- STA. 14+16.13 TO -L- STA. 15+20.00

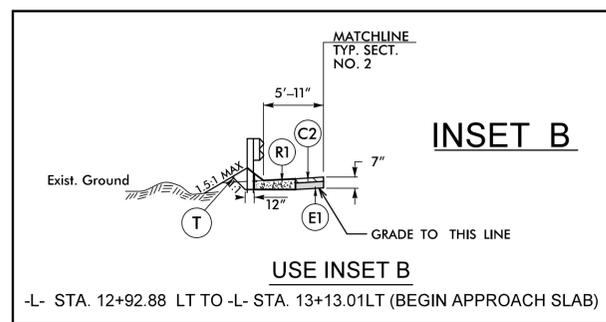
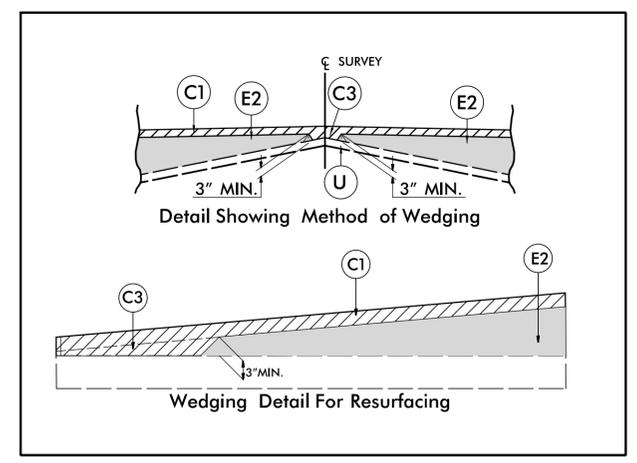


TYPICAL SECTION NO. 3
 USE TYPICAL SECTION NO. 3
 -L- STA. 13+23.88 TO -L- STA. 14+16.13

PROJECT REFERENCE NO. DF18311.2006017.PR	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER JIMMY L. TERRY SEAL 35018 11/17/2025	PAVEMENT DESIGN ENGINEER RAMIE A. SHAW SEAL 049851 11/17/2025
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

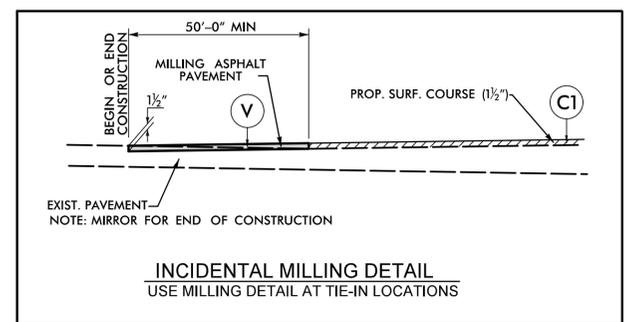


INSET A



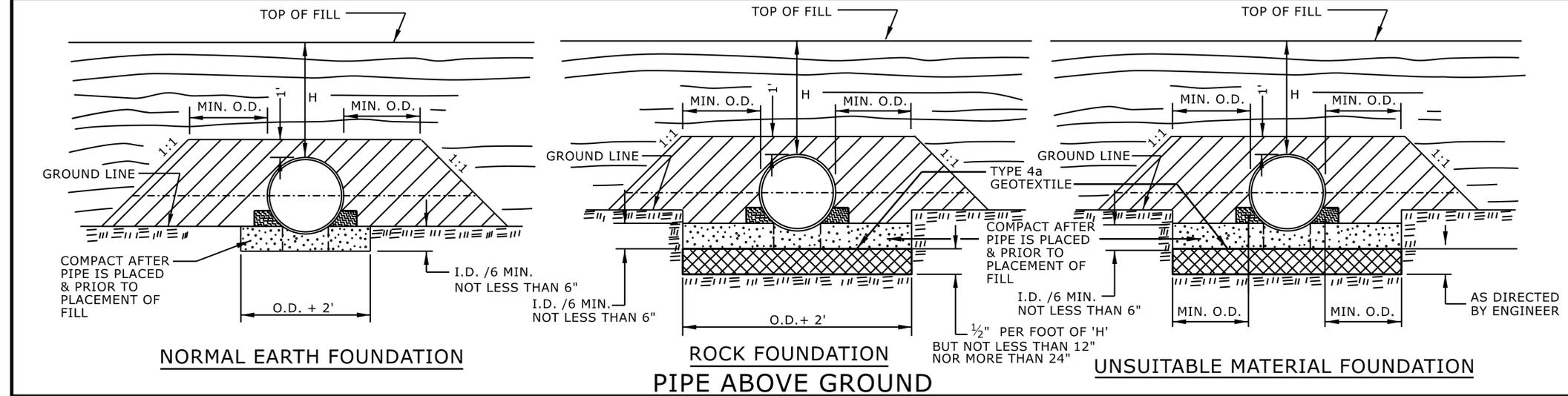
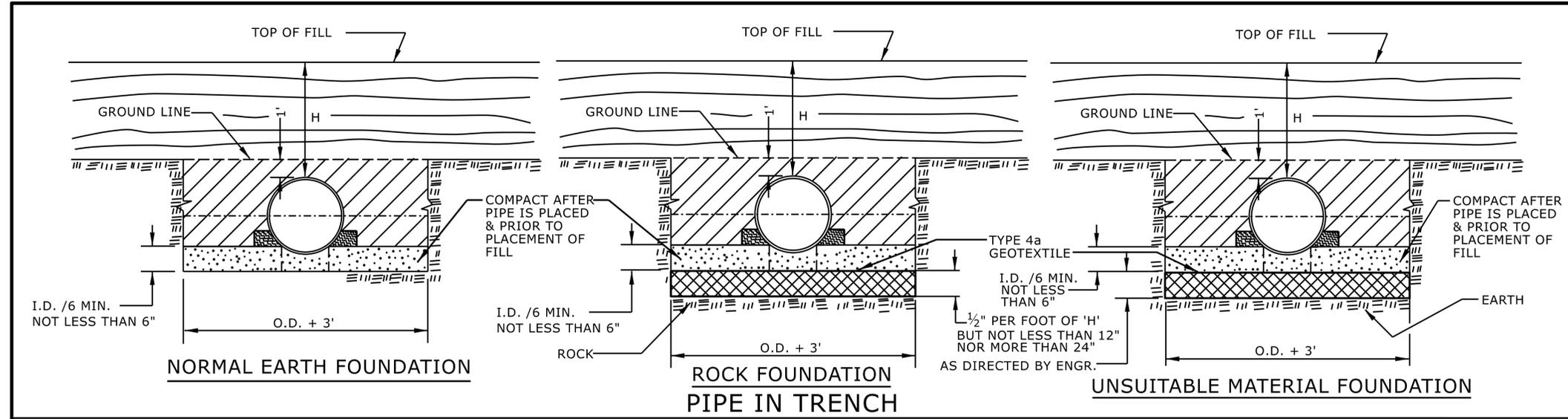
INSET B

USE INSET B
 -L- STA. 12+92.88 LT TO -L- STA. 13+13.01LT (BEGIN APPROACH SLAB)



INCIDENTAL MILLING DETAIL
 USE MILLING DETAIL AT TIE-IN LOCATIONS

I:\2025\11_Avery\2255\Roadway\Design\Avery\2255_Rdy_tjpl.dgn
 User: tjpl
 Date: 6/2/2025 11:11:11 AM



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.

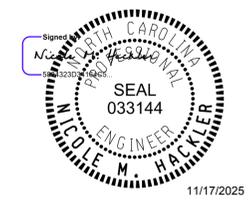
REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

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.

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

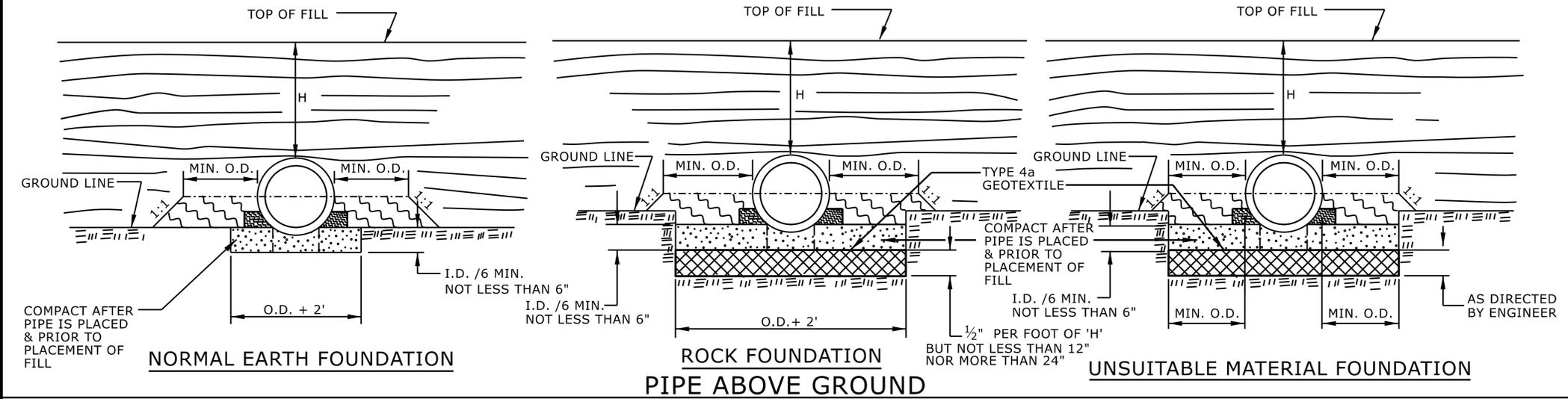
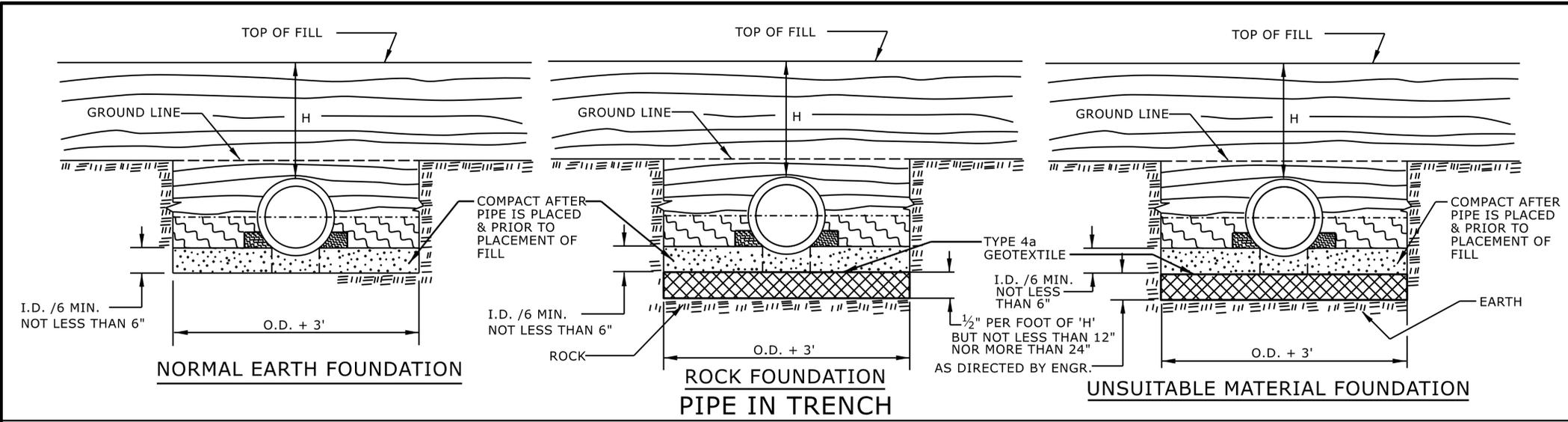


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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.

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



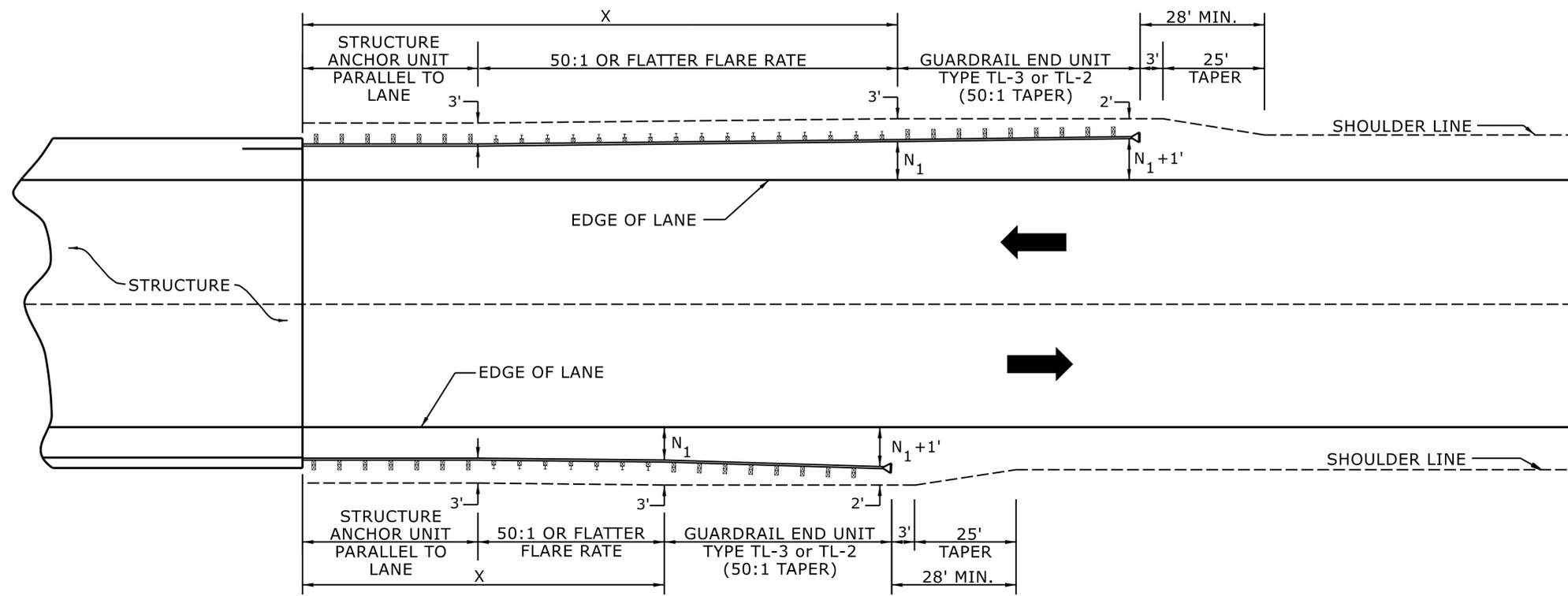
SHEET 2 OF 2
300.01

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

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

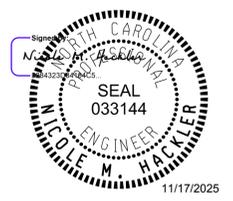


USE FLARE RATE AS THE CONTROL IF THE " N_1 " DISTANCE IS NOT OBTAINED.
 (" N_1 " IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)
 SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS
 FOR POSTED SPEEDS \geq 45MPH USE GREU TYPE TL-3
 FOR POSTED SPEEDS $<$ 45MPH USE GREU TYPE TL-2
 GUARDRAIL LENGTH OF NEED (X) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

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

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT



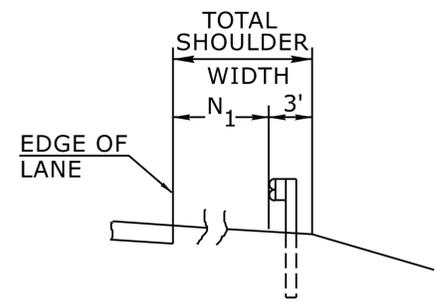
SHEET 4 OF 15
862D01

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

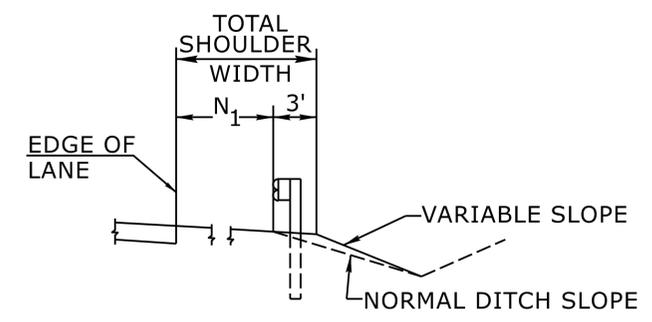
**CONTRACTS STANDARDS
 AND DEVELOPMENT UNIT**
 Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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

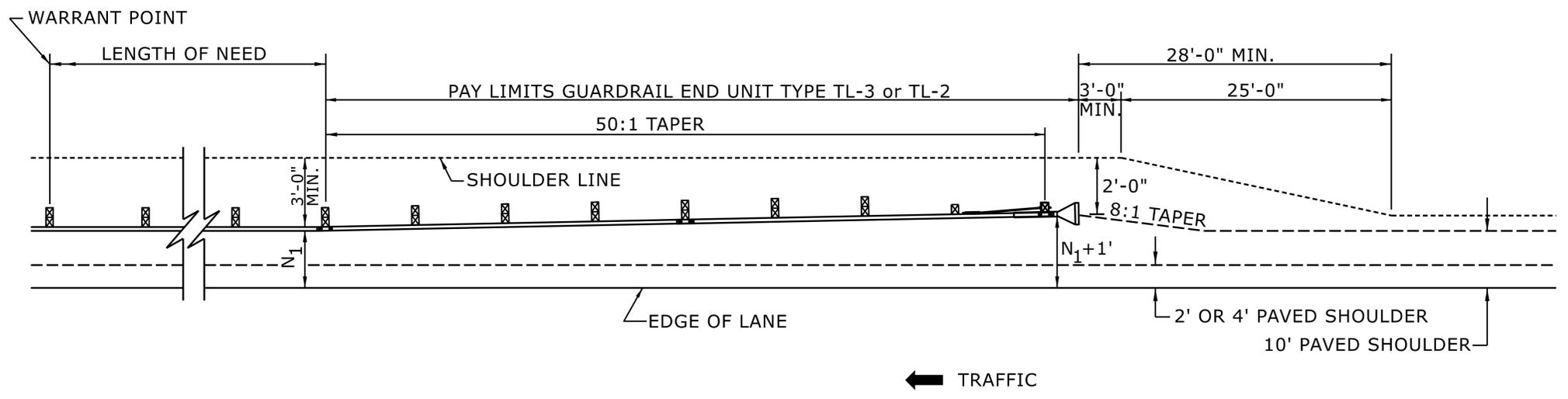


FILL SECTION



CUT SECTION

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

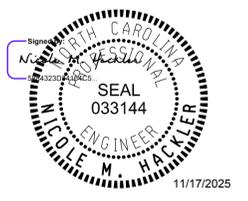


FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

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

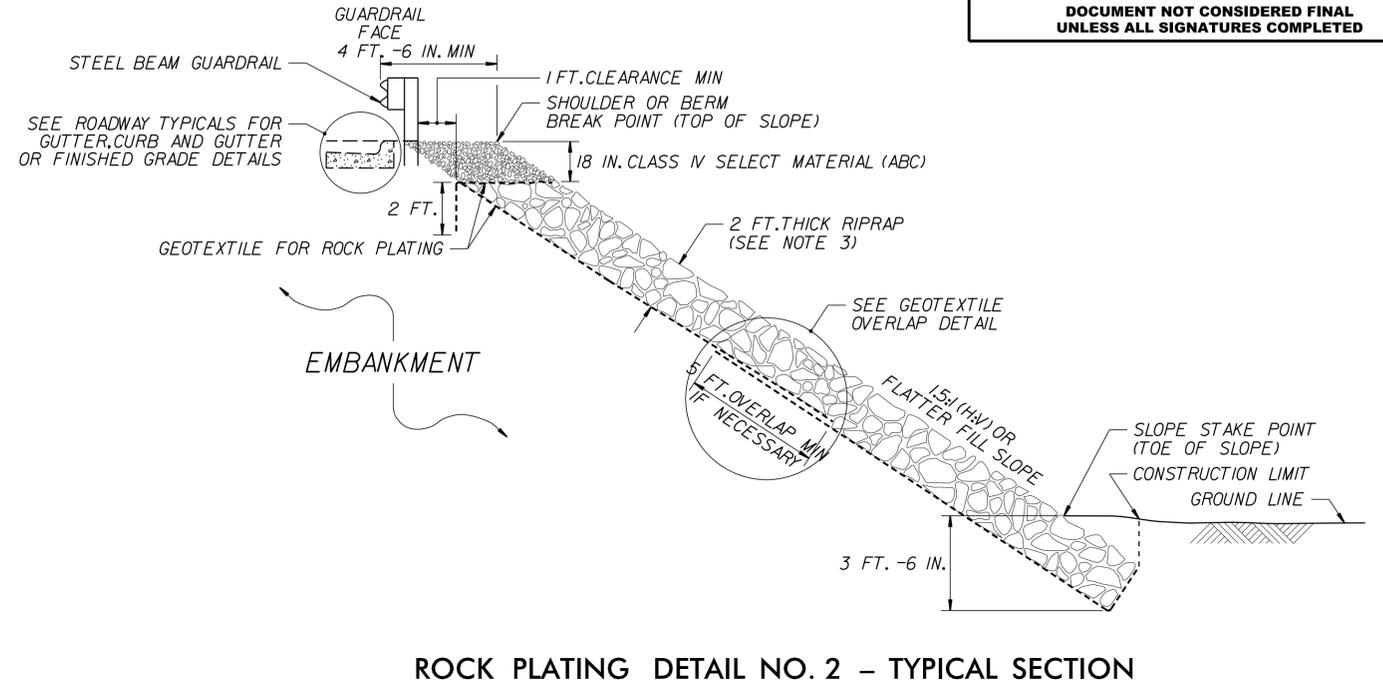
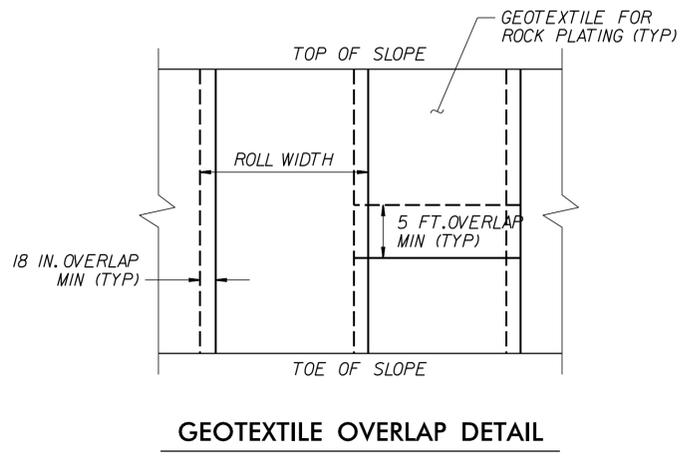
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**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.:	

PROJECT REFERENCE NO. DF18311.2006017.PR		SHEET NO. 2G-1
GEOTECHNICAL ENGINEER  D. Matthew Brewer		ENGINEER
DocuSigned by: D. Matthew Brewer 06/10/2025 SIGNATURE DATE		SIGNATURE DATE
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



ROCK PLATING

FOR ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS
 USE ROCK PLATING AT THE FOLLOWING LOCATIONS:

LINE	BEGINNING SLOPE	APPROX. STATION	ENDING SLOPE	APPROX. STATION	LOCATION LT/RT	ROCK PLATING DETAIL NO. 1/2/3	RIPRAP CLASS* 1/2/B	SY
-L-	1.5:1	11+25	1.5:1	13+23	LT	2	*	850
-L-	1.5:1	12+25	1.5:1	13+23	RT	2	*	380
-L-	1.5:1	14+16	1.5:1	14+75	LT	2	*	250

*USE CLASS 1, 2 OR B RIPRAP UNLESS REQUIRED OTHERWISE IN THE ROADWAY SUMMARY SHEETS.

ESTIMATED TOTAL QUANTITY OF ROCK PLATING = 1,480 SY

PREPARED BY: D. MATTHEW BREWER, P.E.	DATE: 06/10/25
REVIEWED BY: D. MATTHEW BREWER, P.E.	DATE: 06/10/25

Prepared in the Office of:



**CAROLINAS
GEOTECHNICAL
GROUP**
 2400 CROWNPOINT EXECUTIVE DRIVE
 SUITE 800
 CHARLOTTE, NC 28227
 (980) 339-8684



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**GEOTECHNICAL
ENGINEERING UNIT**

**GEOTECHNICAL
CONSTRUCTION DETAILS -
ROCK PLATING
NOTES & DETAILS**

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

COMPUTED BY: DMB DATE: 06/10/2025
 CHECKED BY: DMB DATE: 06/10/2025

(9-17-24)

PROJECT NO. DF18311.2006017.PR	SHEET NO. 3G-1
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**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

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

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

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

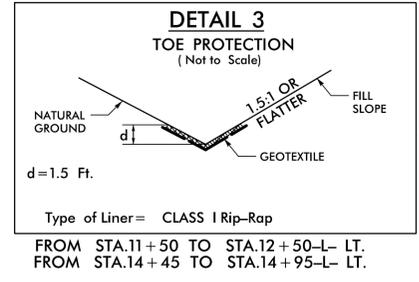
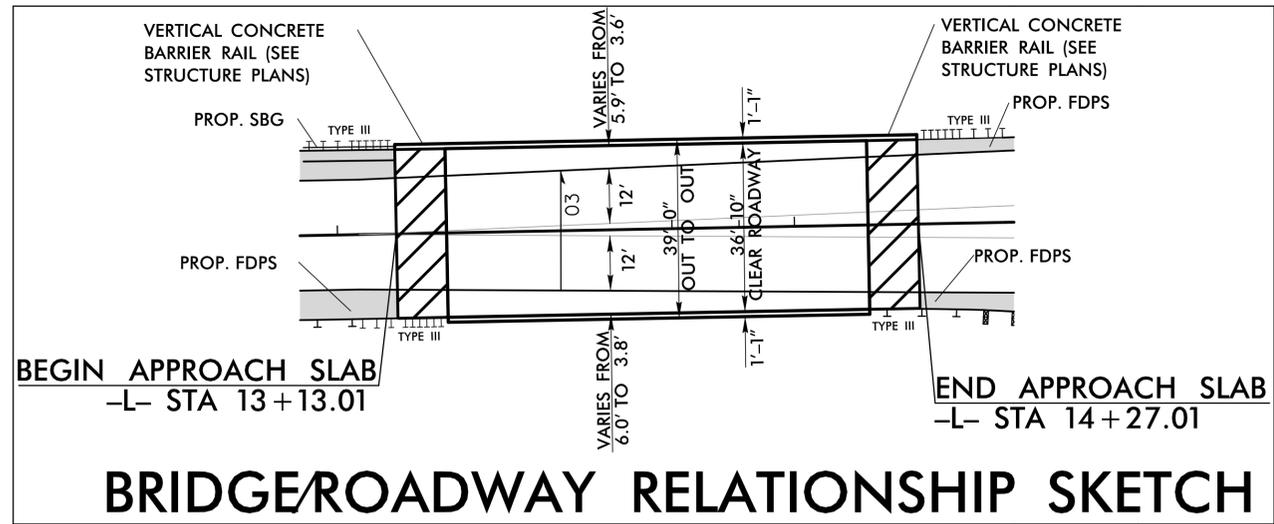
*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
 *AST = Aggregate Stabilization
 **Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization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

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L-	1.5:1	11+25	1.5:1	13+23	LT	2	-	850
-L-	1.5:1	12+25	1.5:1	13+23	RT	2	-	380
-L-	1.5:1	14+16	1.5:1	14+75	LT	2	-	250
							TOTAL SY:	1480

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

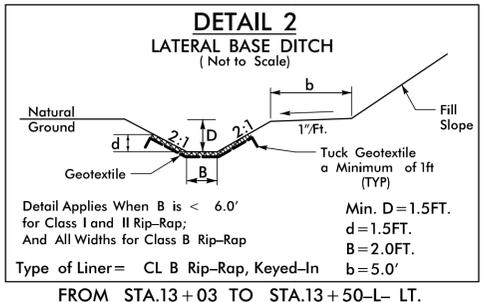
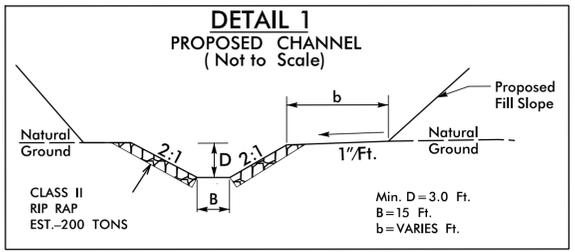
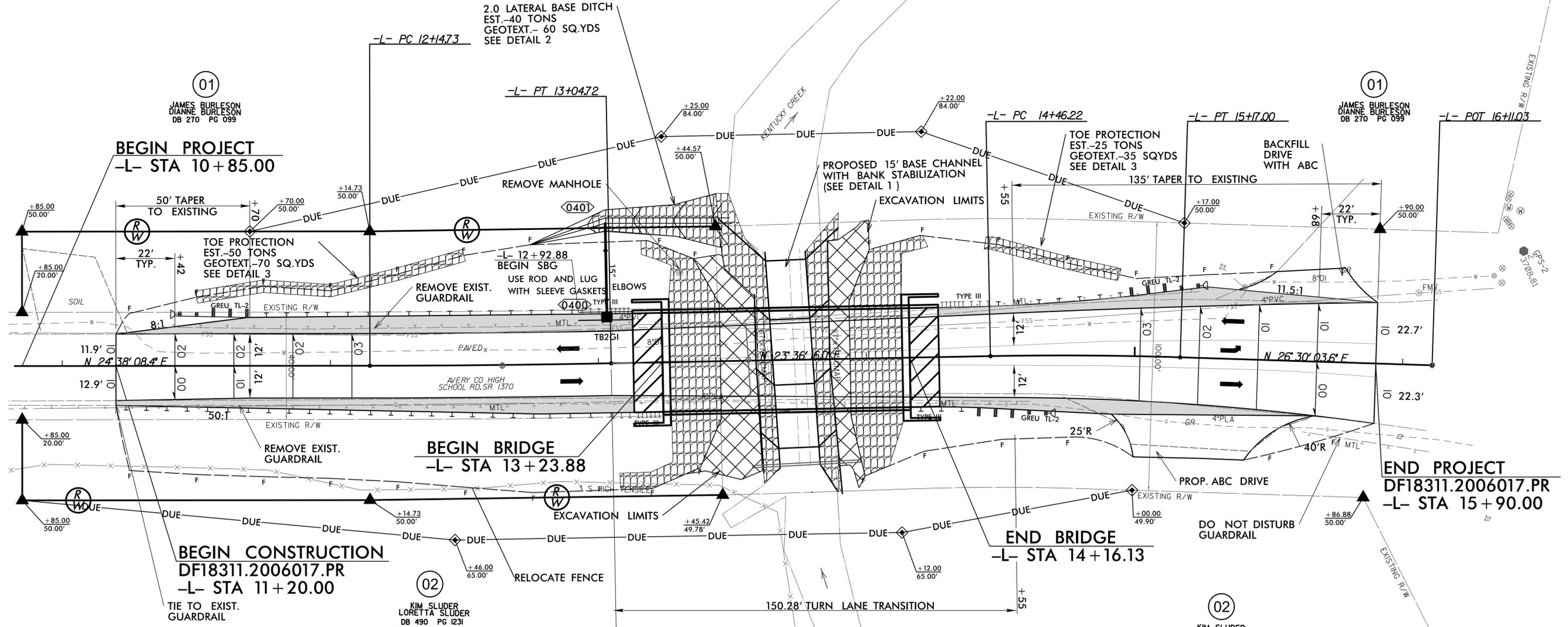
8/17/25



CONTRACTOR IS TO SALVAGE AND HAUL ANY REMANING STONE BACKFILL TO THE NCDOT AVERY COUNTY MAINTENANCE YARD. THE CONTACT FOR THE MAINTENANCE YARD IS DANNY STILLMAN.



PROJECT REFERENCE NO. DF18311.2006017.PR	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	



-L- CUR DATA

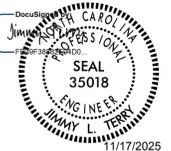
PI Sta 12+59.73	PI Sta 14+81.61
$\Delta = 1' 01" 52.4" (LT)$	$\Delta = 2' 53" 47.6" (RT)$
$D = 1' 08" 45.3"$	$D = 4' 05" 33.2"$
$L = 89.99'$	$L = 70.78'$
$T = 45.00'$	$T = 35.40'$
$R = 5,000.00'$	$R = 1,400.00'$
$SE = 0.03$	$SE = -0.03$

FOR -L- PROFILE, SEE SHEET NO. 5

REVISIONS

1/17/2025
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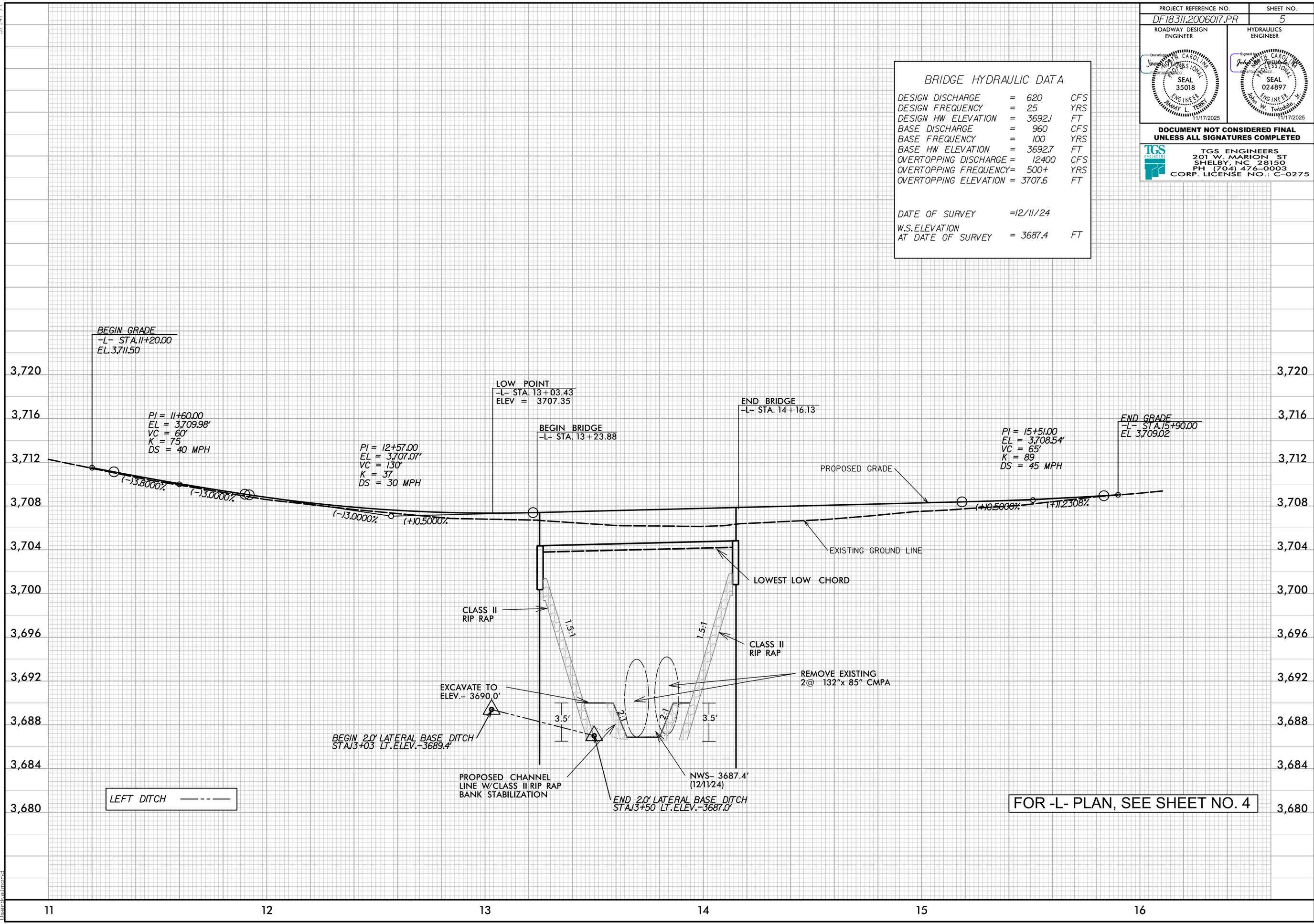
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PROJECT REFERENCE NO. DF18311.2006017.PR	SHEET NO. 5
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	620	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	3692.1	FT
BASE DISCHARGE	=	960	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	3692.7	FT
OVERTOPPING DISCHARGE	=	12400	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	3707.6	FT

DATE OF SURVEY	=	12/11/24
W.S. ELEVATION AT DATE OF SURVEY	=	3687.4 FT



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11/17/2025 11:16:00 AM
User: jkmand

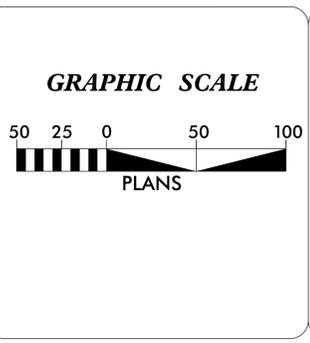
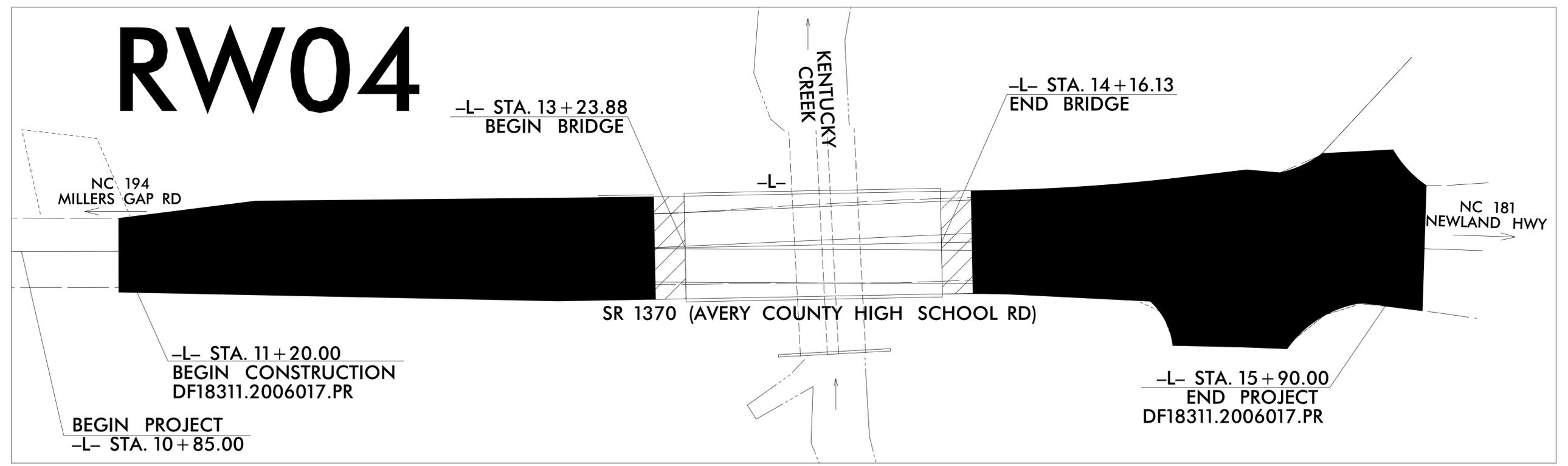
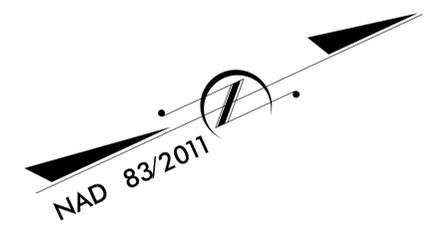
PROJECT: DF18311.2006017.PR

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF18311.2006017.PR	RW01	5

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

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

AVERY COUNTY



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BP0062255-2" WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 858,761.9163(ft) EASTING: 1,138,632.7678(ft) ELEVATION: 3,708.81(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999803105

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BP0062255-2" TO -L- STATION 10+00.00 IS S 20°53'28.91"W X 646.546(ft)

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

Prepared in the Office of:

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

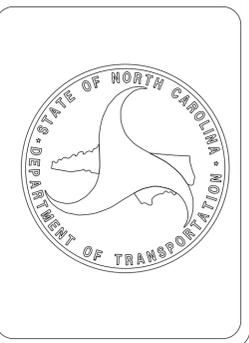
2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: 6/9/2025

LETTING DATE: 2/19/2026

PROFESSIONAL LAND SURVEYOR

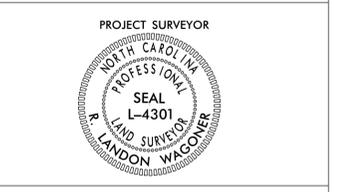
Signed by: Matthew Cornwell
 Date: 7/14/2025



14-JUL-2025 11:38
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 mcornewell AT M CORNWELL AP TOP

Location and Surveys

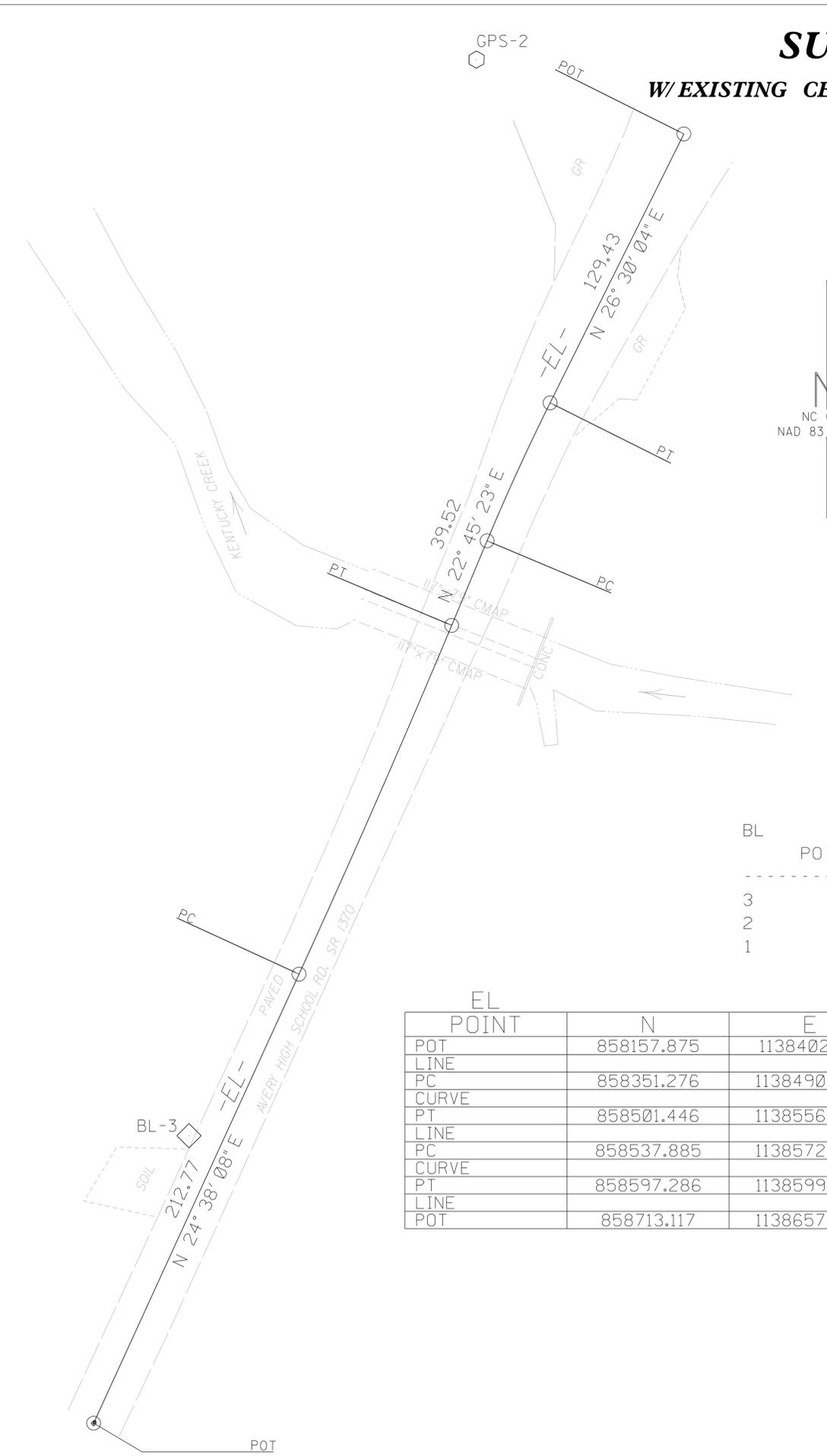
DIV 11 N. WILKESBORO L&S



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SURVEY CONTROL SHEET

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



 BM#1 ELEVATION = 3708.81
 N 858762 E 1138633
 GPS BP0062255-2

BL	POINT	DESC.	NORTH	EAST	ELEVATION
3		BL-3	858281.6640	1138443.3610	3710.79
2		GPS BP0062255-2	858761.9163	1138632.7678	3708.81
1		GPS BP0062255-1	858521.4303	1139093.4990	3709.94

EL	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
	POT	858157.875	1138402.211							
	LINE			N 24°38'08.4" E	212.77					
	PC	858351.276	1138490.902							
	CURVE			N 23°41'45.6" E	164.00	01°52'45.6"(LT)	01°08'45.3"	164.00	82.01	5000.00
	PT	858501.446	1138556.809							
	LINE			N 22°45'22.8" E	39.52					
	PC	858537.885	1138572.095							
	CURVE			N 24°37'43.2" E	65.35	03°44'40.8"(RT)	05°43'46.5"	65.36	32.69	1000.00
	PT	858597.286	1138599.326							
	LINE			N 26°30'03.6" E	129.43					
	POT	858713.117	1138657.080							

I, R. Landon Wagener, 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: VRS
 Dates of survey: November 2024
 Datum/Epoch: NAD83/ 2011
 Published/Fixed-control use:
 Localized around: BP0062255-2
 Northing:858761.9163
 Easting:1138632.7678
 Combined grid factor:0.999803105
 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 from November 14, 2024 to December 04, 2024, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 10th day of December, 2024.

Signed by:

Professional Land Surveyor L-4301

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.

REVISIONS

10-DEC-2024 15:05
 L:\DL\DW\TKS\Div 11 Hurricane Helene Bridge Jobs\BP-006-225\BP0062255-1s.RW02C-1.dgn
 cmastin AT LS-329547L

6/2/19s

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
DF18311.2006017.PR	RW02D-1

Location and Surveys



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

PROJECT SURVEYOR

Signed by: Matthew Cornwell
EBD036F11473E475



7/14/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

This 7/14/2025
Signed by: Matthew Cornwell
EBD036F11473E475
Professional Land Surveyor L-4775

REVISIONS

TYPE	STATION	NORTH	EAST
POT	10+00.00	858157.8750	1138402.2105
PC	12+14.73	858353.0623	1138491.7213
PT	13+04.72	858435.1958	1138528.4958
PC	14+46.22	858564.8518	1138585.1531
PT	15+17.00	858628.9625	1138615.1203
POT	16+11.03	858713.1170	1138657.0800

NOTES:

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

RIGHT OF WAY & PERMANENT EASEMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
DF18311.2006017.PR	RW03E-1
Location and Surveys	
 TGS ENGINEERS 201 WEST MARION STREET SUITE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	
PROJECT SURVEYOR	
Signed by:  <small>EBD06F11473E475</small>	
7/14/2025	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Matthew T. Cornwell, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed 7/2/2025, and all coordinates are based on NAD83/2011. That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 7/14/2025

Signed by:

EBD06F11473E475
 Professional Land Surveyor L-4775

REVISIONS

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+85.00	50.00	858214.2957	1138483.0913
L	10+85.00	20.00	858226.8011	1138455.8220
L	10+85.00	-20.00	858243.4750	1138419.4629
L	10+85.00	-50.00	858255.9804	1138392.1936
L	12+14.73	50.00	858332.2200	1138537.1701
L	12+14.73	-50.00	858373.9019	1138446.2712
L	13+44.57	-50.21	858491.8157	1138498.4410
L	13+45.42	49.78	858452.5491	1138590.4091
L	15+86.88	50.00	858669.1898	1138691.0483
L	15+90.00	-50.00	858716.6068	1138602.9495

ROW MARKER PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+70.00	-50.00	858333.2440	1138427.6259
L	12+46.00	65.00	858354.7988	1138563.9176
L	13+25.00	-84.00	858487.4100	1138459.6426
L	14+12.00	65.00	858507.4683	1138631.0126
L	14+22.00	-84.00	858576.2942	1138498.4834
L	15+00.00	49.90	858591.9846	1138652.5535
L	15+17.00	-50.00	858651.2731	1138570.3739

NOTES:

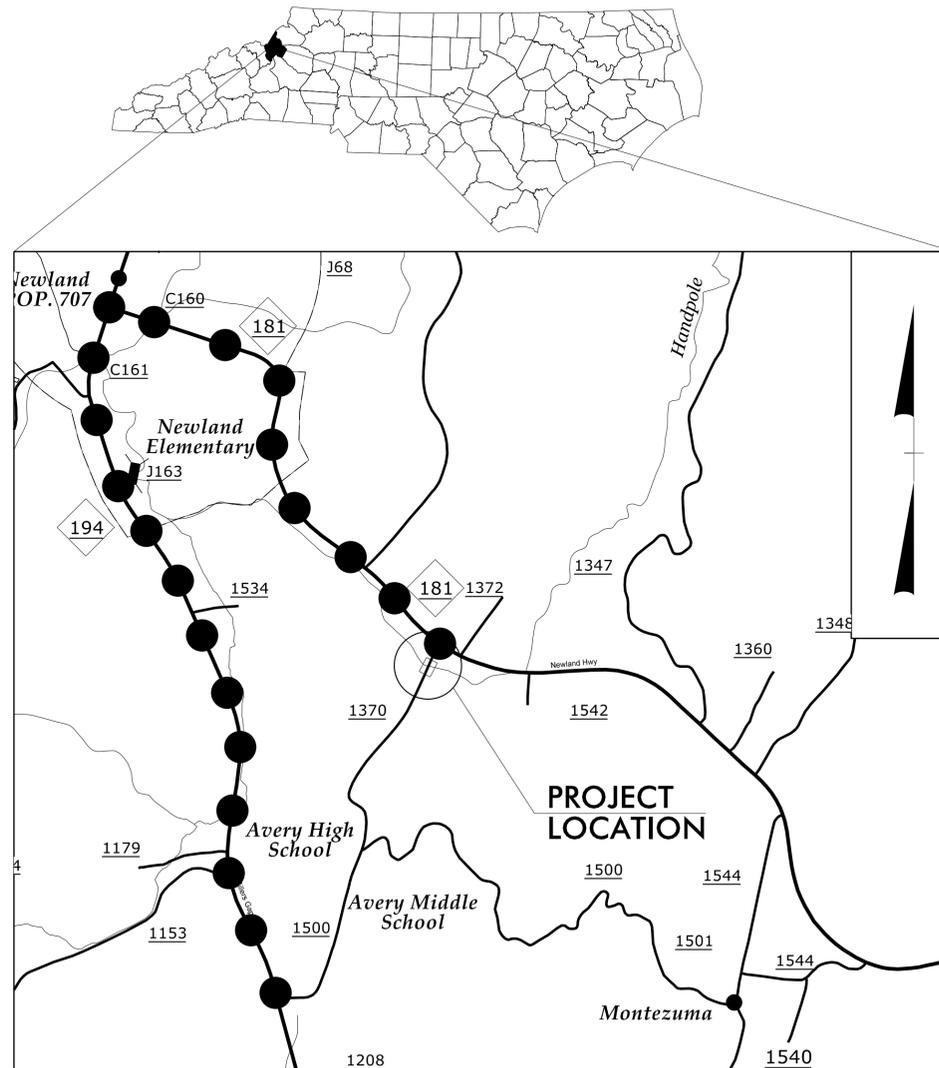
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 7/2/2025.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

AVERY COUNTY

**LOCATION: STRUCTURE REPLACEMENT OF PIPE NO. 006-2255 ON SR 1370
(AVERY COUNTY HIGH SCHOOL RD) OVER KENTUCKY CREEK
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE, AND
UTILITIES**



**VICINITY MAP
OFF-SITE DETOUR**

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: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND PHASING)
TMP-2	SIGN DESIGN
TMP-3	DETOUR SIGNING

SHEET NO.
TMP-1

I:\14\2025\X:\NGDOT\Div II\Avery\2255\Work Zone Traffic Control\Avery2255_TC_TMP_01.dgn
User: tbrannan



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: *Don A. Parker*

DATE: 11/17/2025



PROJECT: DF18311.2006017.PR

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
1101.04	TEMPORARY SHOULDER CLOSURES
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	FLAGGERS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES

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

11/10/2025
X:\NCDOT\Div II\Avery 2255\Work Zone Traffic Control\Avery2255_TC_TMP_01A.dgn
User: tbrannon

APPROVED: DATE: 11/17/2025			<p>ROADWAY STANDARD DRAWINGS & LEGEND</p>
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>			

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 CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
-L- SR 1370 AVERY COUNTY HIGH SCHOOL RD	MONDAY THRU FRIDAY 7:00 AM TO 9:00 AM AND 3:00 PM TO 6:00 PM

NOTE: TIME RESTRICTIONS DO NOT APPLY DURING PHASE I, STEPS 3-5.

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.
- 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.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- H) 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.
- I) 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.
- J) 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.
- K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

N) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L- SR 1370 AVERY COUNTY HIGH SCHOOL RD.	PAINT	NONE

- O) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- P) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- Q) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MANAGEMENT STRATEGIES

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

TRAFFIC MANAGEMENT STRATEGIES:
 FULL ROADWAY CLOSURES
 OFF-SITE DETOURS / USE OF ALTERNATIVE ROUTES

PHASING

PHASE I

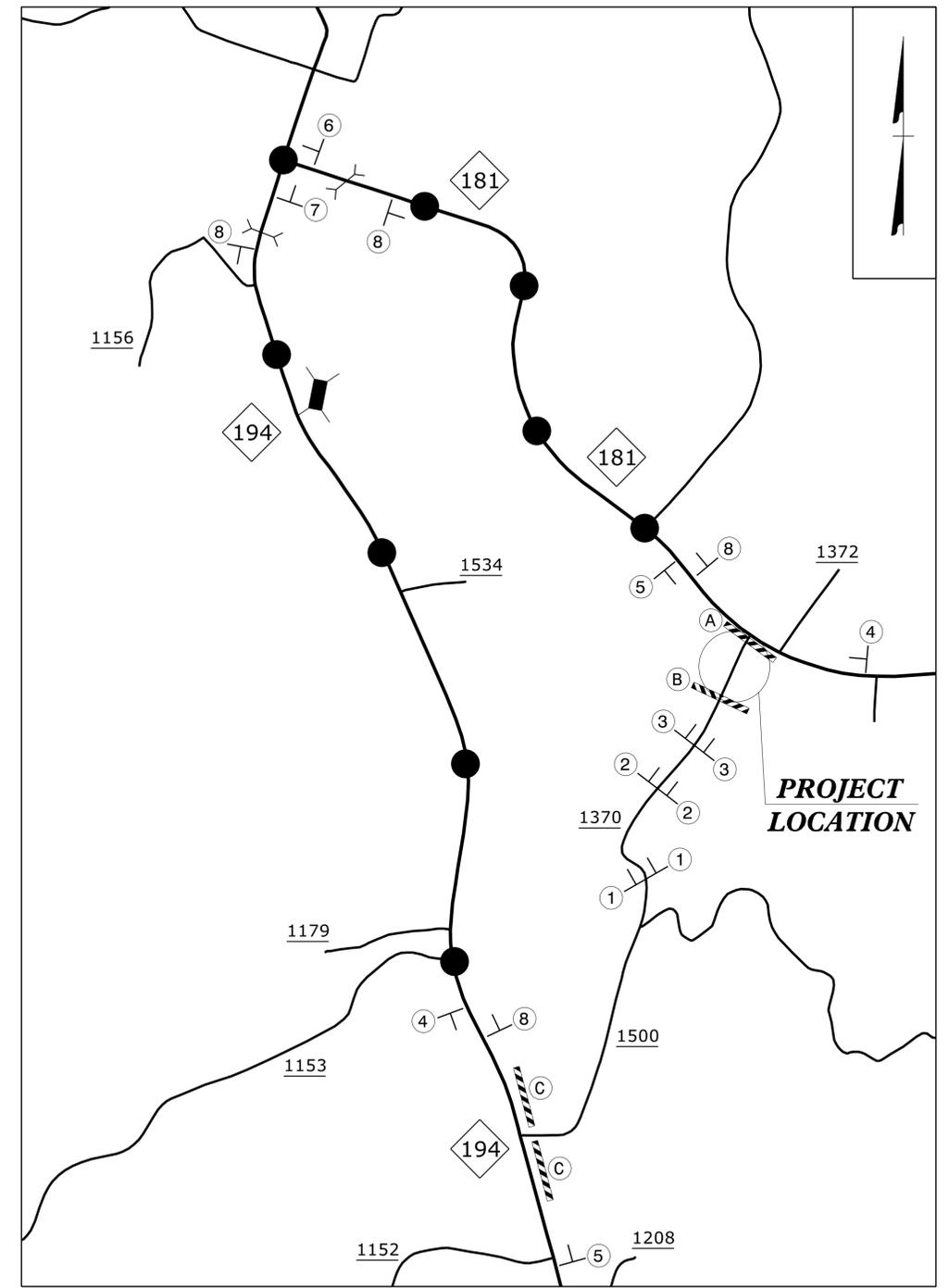
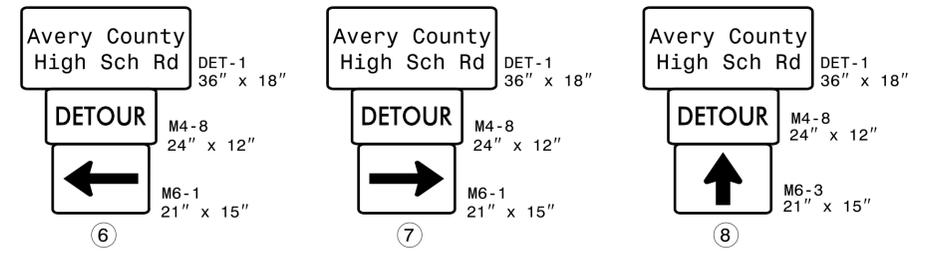
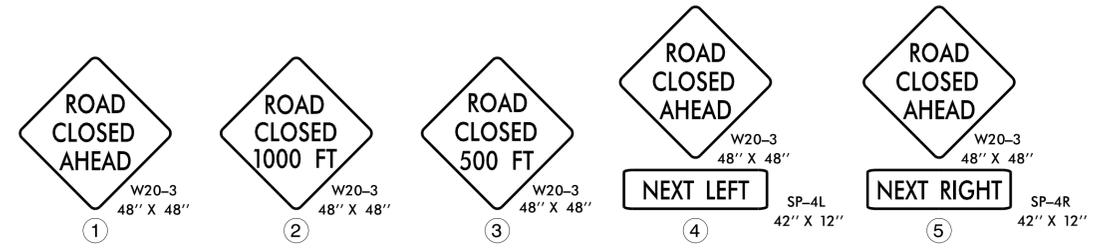
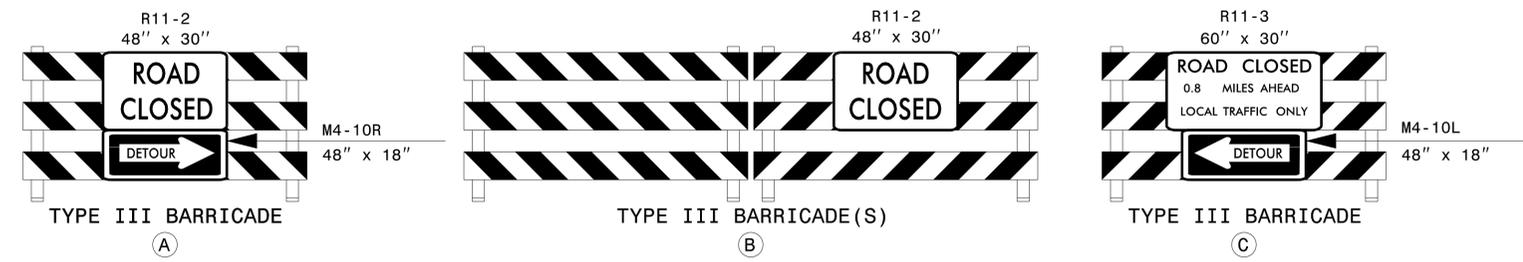
- STEP 1 -- INSTALL AND COVER DETOUR SIGNING (SEE RSD 1101.03 AND TMP-2).
- STEP 2 -- USING FLAGGERS, CONTRACTOR MAY BEGIN UTILITY CONSTRUCTION/RELOCATION.

FOR THE COMPLETION OF STEPS 3 THROUGH 5, SEE INTERMEDIATE CONTRACT TIMES AND LIQUIDATED DAMAGES.

- STEP 3 -- UNCOVER DETOUR SIGNING AND CLOSE -L- SR 1370 (AVERY COUNTY HIGH SCHOOL RD).
- STEP 4 -- AWAY FROM TRAFFIC, CONSTRUCT PROPOSED STRUCTURE, DRAINAGE, AND ROADWAY UP BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA. 11+20 +/- TO STA. 15+90 +/- . INSTALL TEMPORARY PAINT MARKINGS IN THE FINAL PATTERN.
- STEP 5 -- COVER OR REMOVE DETOUR SIGNING AND REOPEN -L- SR 1370 (AVERY COUNTY HIGH SCHOOL RD) TO FINAL PATTERN.
- STEP 6 -- USING FLAGGERS, PLACE FINAL LAYER OF SURFACE COURSE AND FINAL MARKINGS/MARKERS THROUGHOUT THE PROJECT LIMITS.
- STEP 7 -- REMOVE ALL TRAFFIC CONTROL DEVICES.

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 User: tbrannan

APPROVED:  DATE: 11/17/2025			<h3 style="margin: 0;">TRANSPORTATION OPERATIONS PLAN</h3>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



VICINITY MAP
 OFF-SITE DETOUR

11/10/2025
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 User: cbrannan

FOR ADDITIONAL NOTES AND DETAILS,
 SEE RSD 1101.03

APPROVED:  DATE: 11/17/2025			<h2 style="text-align: center;">DETOUR SIGNING</h2>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

PROJECT: DF18311.2006017.PR

CONTRACT: DK00433

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN AVERY COUNTY

LOCATION: STRUCTURE REPLACEMENT OF PIPE NO. 006-2255 ON SR 1370 (AVERY COUNTY HIGH SCHOOL RD) OVER KENTUCKY CREEK TYPE OF WORK: GRADING, DRAINAGE, PAVING STRUCTURE, AND UTILITIES

Approval box containing TIP NO., SHEET NO., APPROVED signature (Don A. Parker), DATE (11/17/2025), and a professional seal for Don A. Parker, Professional Engineer, Seal 043251.

INDEX

Table with 2 columns: SHEET NO. and DESCRIPTION. Rows include PMP-1 (PAVEMENT MARKING PLAN TITLE, SCHEDULE SHEET, INDEX OF SHEETS, LIST OF APPPLICABLE ROADWAY STANDARD DRAWINGS, GENERAL NOTES, AND FINAL PAVEMENT MARKING SCHEDULE), PMP-1A (REVISED ROADWAY STANDARD DRAWING (1250D01)), and PMP-2 (PAVEMENT MARKING DETAIL).

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 1370 (AVERY COUNTY HIGH SCHOOL RD) INTEGRATED MULTIPOLYMER SNOWPLOWABLE (POLYCARBONATE H-SHAPED MKRS) B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES. C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS. D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

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 1205.04 PAVEMENT MARKINGS - INTERSECTIONS 1205.05 PAVEMENT MARKINGS - TURN LANES 1205.08 PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES 1205.12 PAVEMENT MARKINGS - BRIDGES 1250.01 RAISED PAVEMENT MARKERS - INSTALLATION SPACING 1261.01 GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING 1261.02 GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING 1262.01 GUARDRAIL END DELINEATION

FINAL PAVEMENT MARKING SCHEDULE

Table with 2 columns: SYMBOL and DESCRIPTION. Rows include PAVEMENT MARKINGS (INTEGRATED MULTIPOLYMER (4", 90 MILS), IM1 (4") WHITE EDGELINE, IM2 (4") WHITE SOLID LANE LINE, IM4 (4") 3 FT.-9 FT./SP WHITE MINISKIP, IM13 (4") YELLOW DOUBLE CENTER), INTEGRATED MULTIPOLYMER PAVEMENT MARKING SYMBOLS (IM70 LEFT TURN ARROW), and PAVEMENT MARKERS (ME YELLOW/YELLOW POLYCARBONATE H-SHAPED MARKERS, MF CRYSTAL/RED POLYCARBONATE H-SHAPED MARKERS).

PLAN SUBMITTED TO: NCDOT

ROB WEISZ, PE DIVISION 11 BRIDGE PROGRAM MANAGER



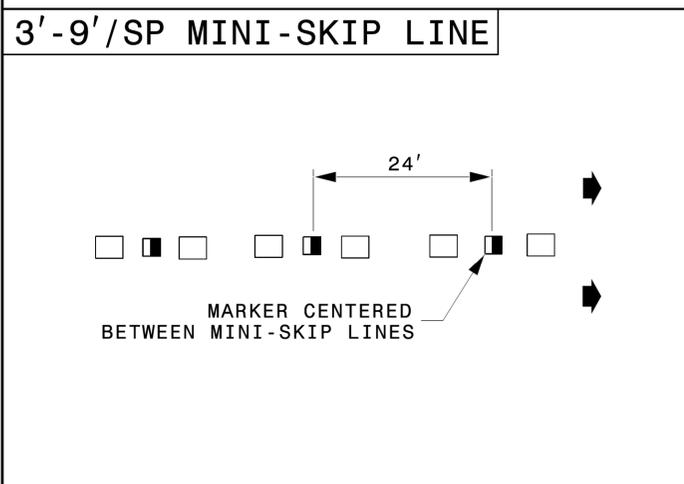
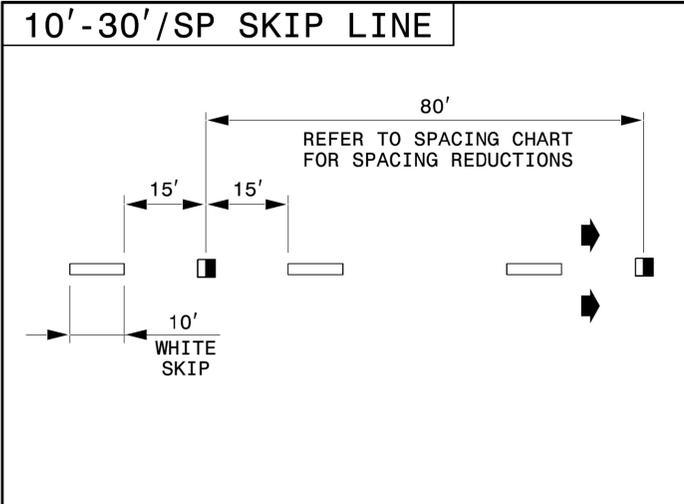
PLAN PREPARED BY: TGS ENGINEERS

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

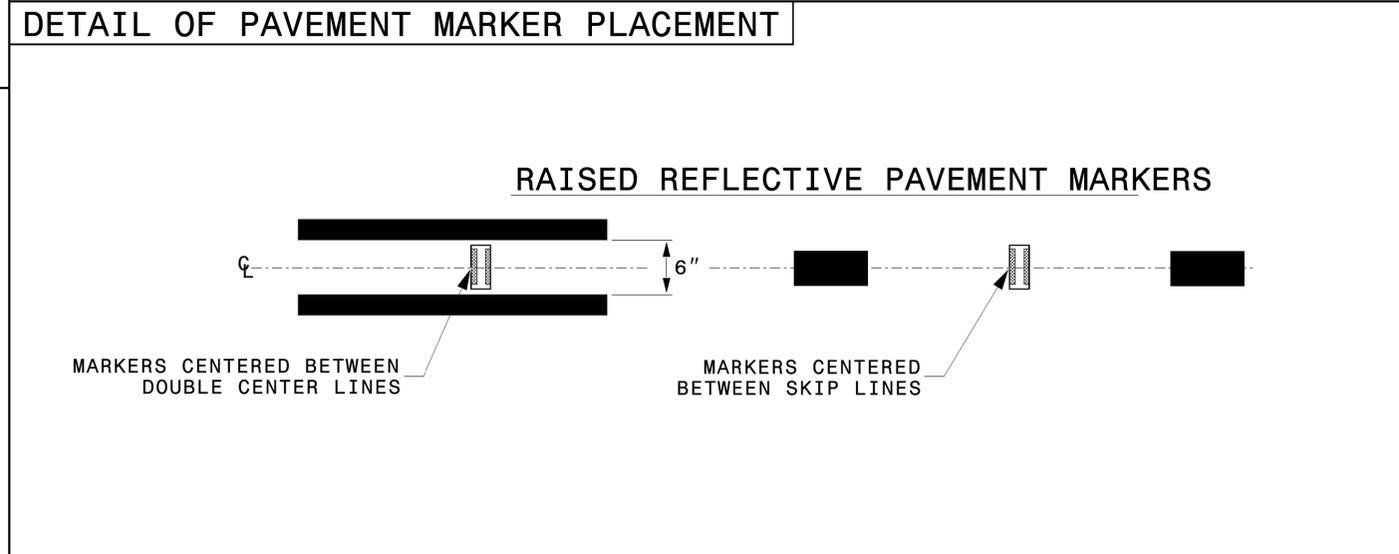
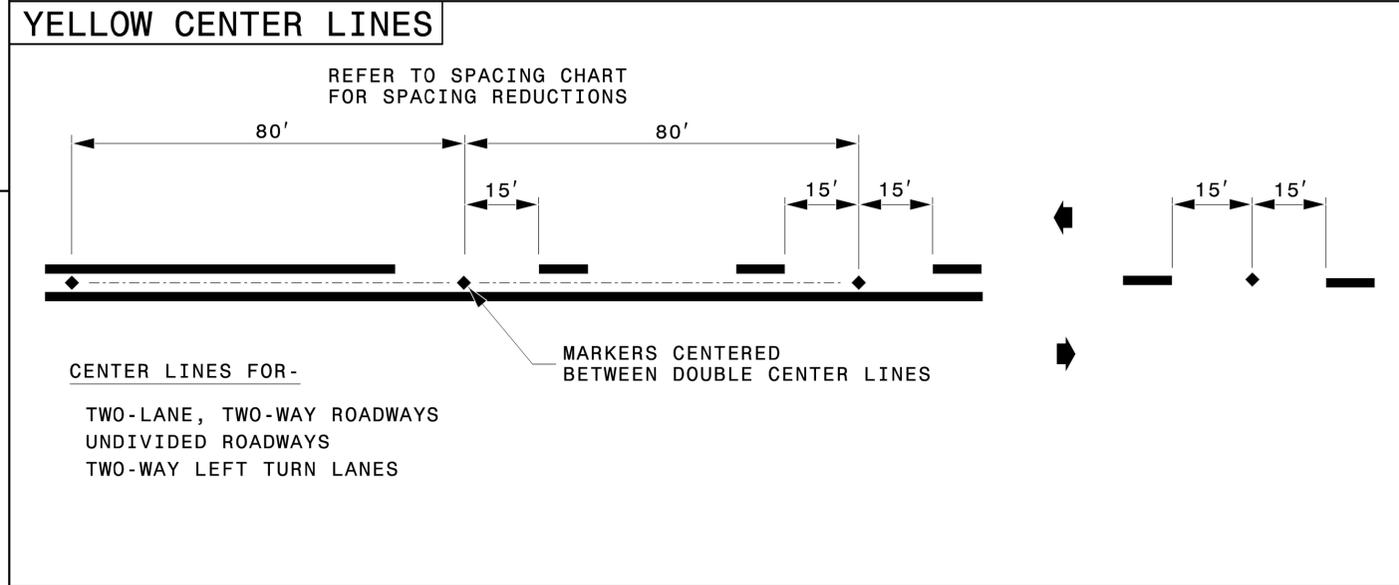
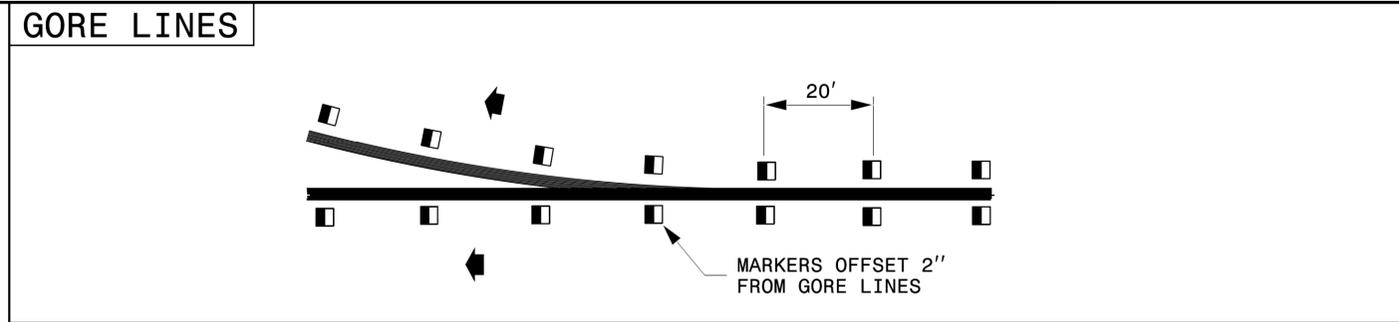


TGS ENGINEERS 706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275

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LEGEND	
	CRYSTAL/RED PAVEMENT MARKER
	YELLOW/YELLOW PAVEMENT MARKER
	DIRECTION OF TRAFFIC FLOW



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

ROADWAY DETAIL DRAWING FOR
RAISED PAVEMENT MARKERS
INSTALLATION SPACING

SHEET 2 OF 3
1250D01

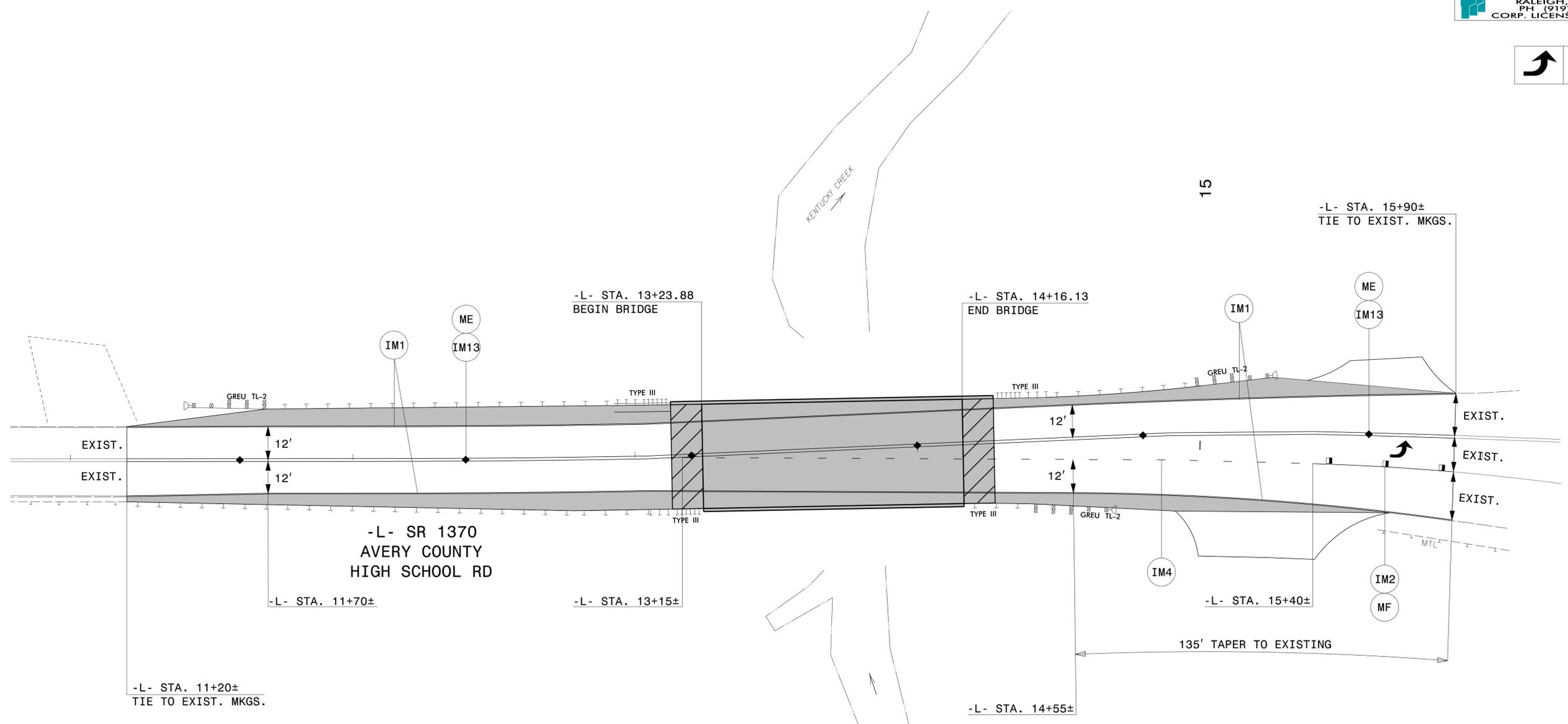


CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-8950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: M.V. SPRINGER DATE: 2-15-24
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____

TIP NO. DF18311.2006017.PR	SHEET NO. PMP-2
APPROVED: <i>Don A. Parker</i> DATE: 11/17/2025	
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	



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SEE RSD 1250.01 SHEET 1 FOR
ME AND MF INSTALLATION SPACING

PAVEMENT MARKING DETAIL

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

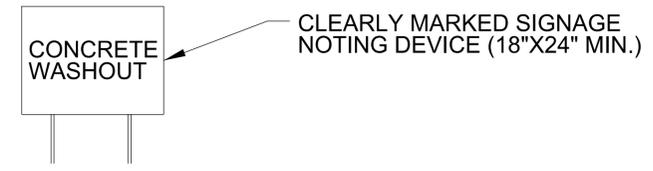
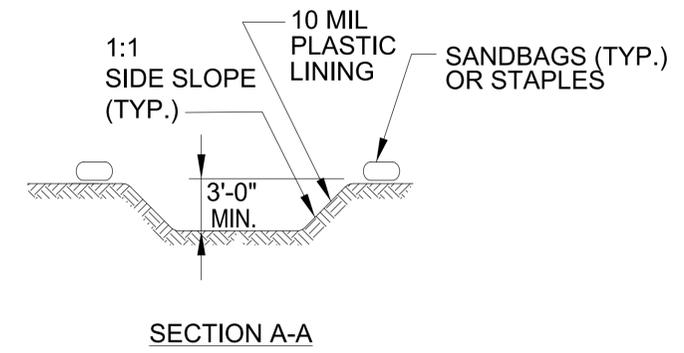
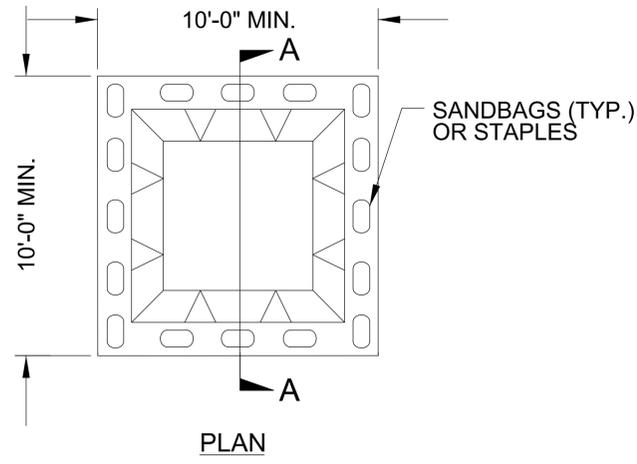
PROJECT REFERENCE NO. DF18311.2006017.PR	SHEET NO. EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EROSION & SEDIMENT CONTROL LEGEND

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

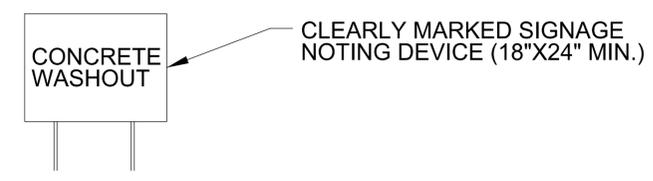
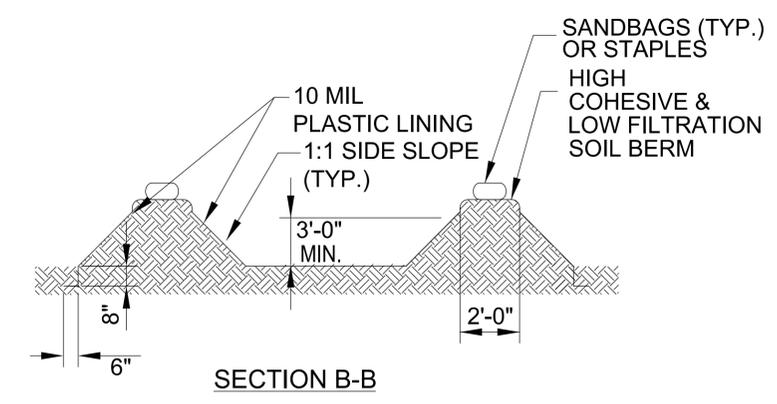
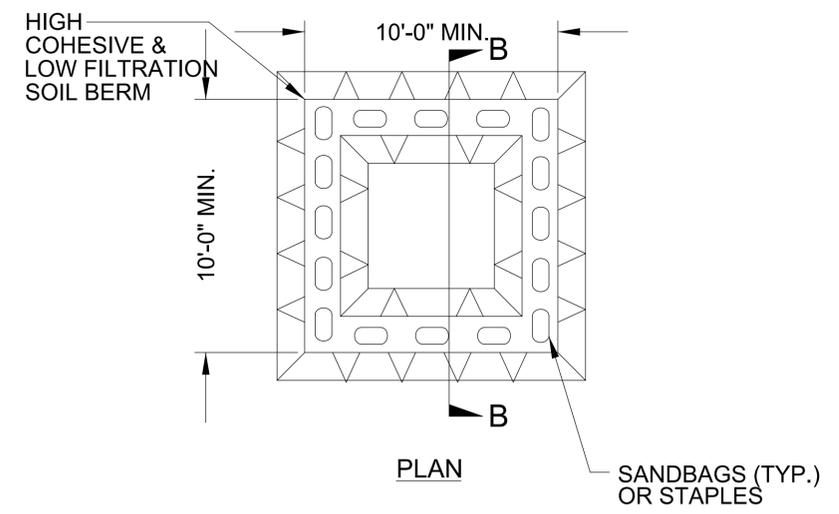
PROJECT REFERENCE NO. <i>DF18311.2006017.PR</i>	SHEET NO. <i>EC-2A</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



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.



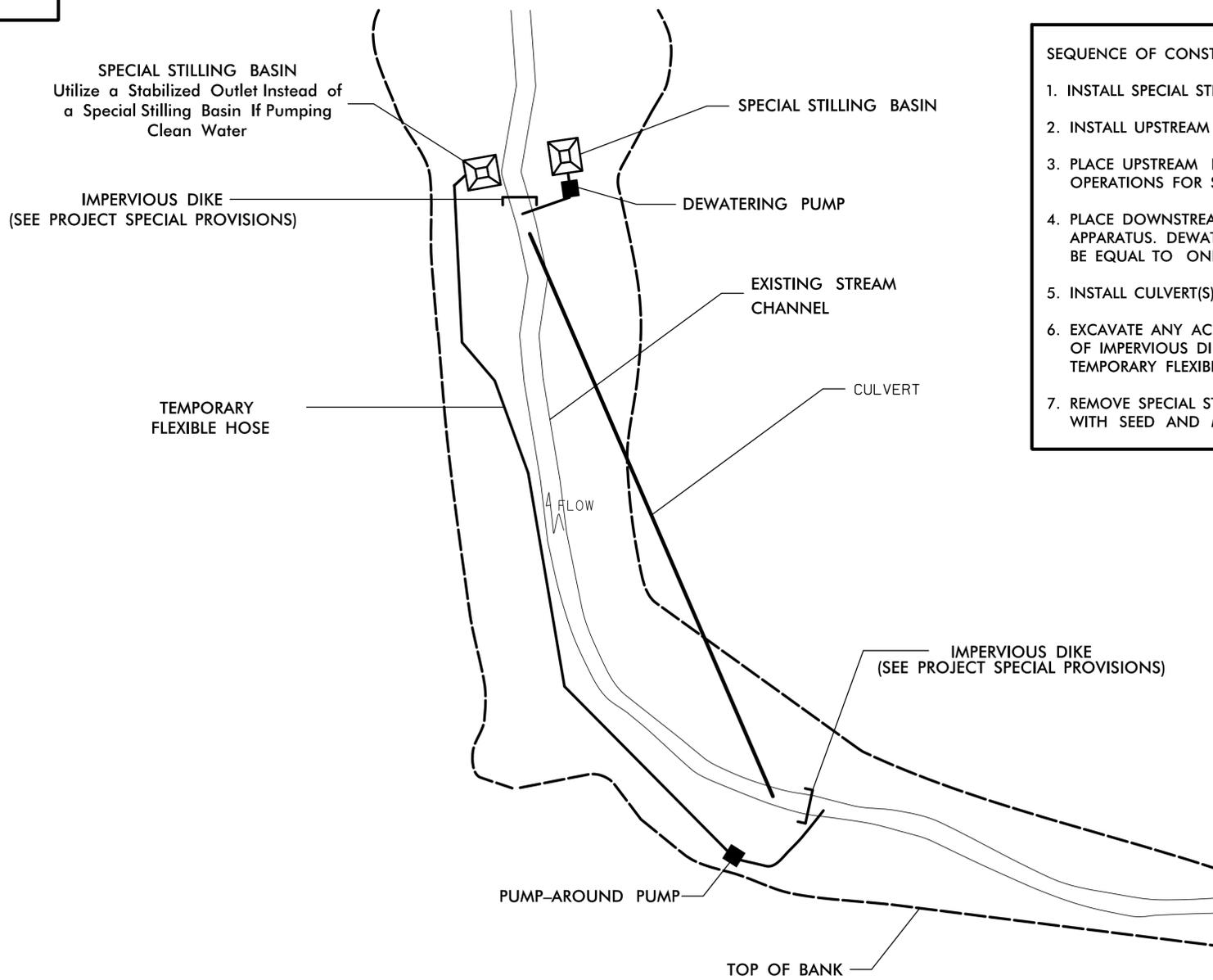
ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

- 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. <i>DF18311.2006017.PR</i>	SHEET NO. <i>EC-2B</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EXAMPLE OF PUMP-AROUND OPERATION

- NOTES:
- 1) All excavation shall be performed in only dry or isolated areas of the work zone.
 - 2) Impervious dikes are to be used to isolate work from stream flow when necessary.
 - 3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
 - 4) Pumps and hoses shall be of sufficient size to dewater the work area.



- SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA
1. INSTALL SPECIAL STILLING BASIN(S).
 2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
 3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
 4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
 5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
 6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
 7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

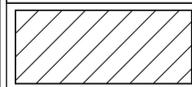
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>DF18311.2006017.PR</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

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

UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.
 REMOVE LARGE PIPES VIA PUMP AROUND.
 REFER TO PUMP AROUND DETAIL ON EC-02B.
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

 ENVIRONMENTALLY SENSITIVE AREA
 SEE PROJECT SPECIAL PROVISIONS

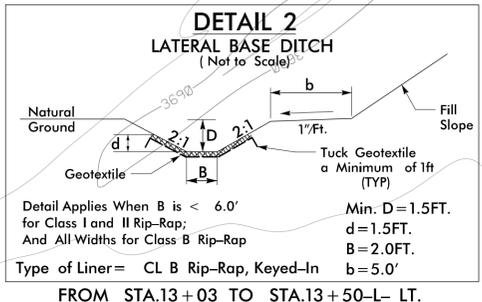
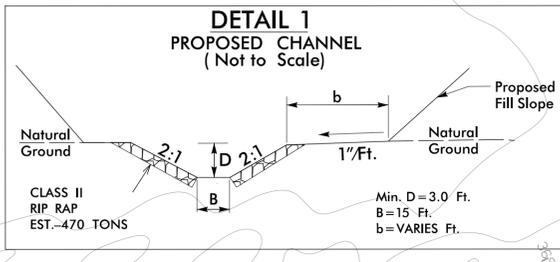
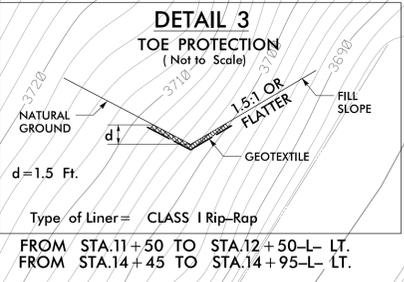
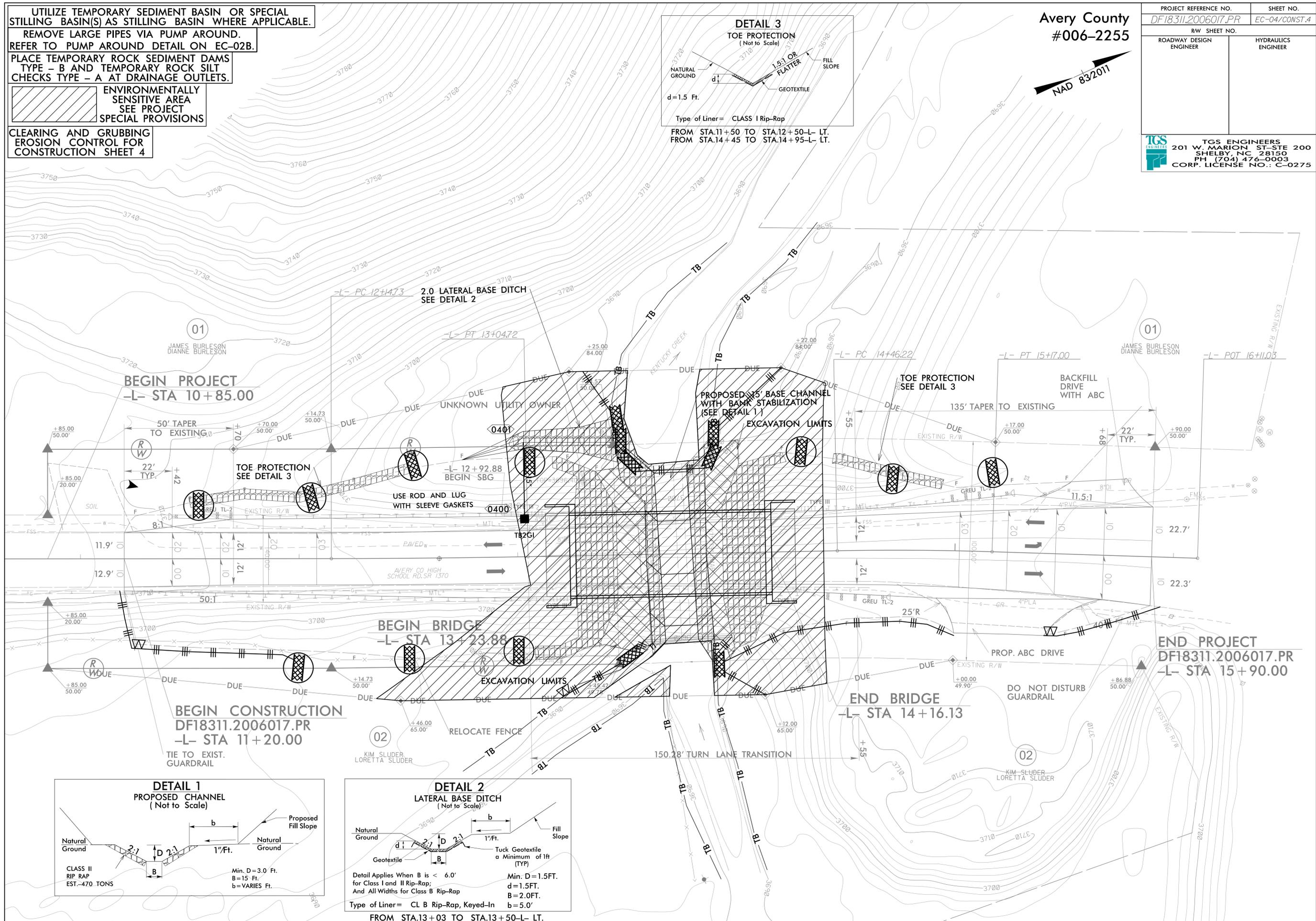
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

Avery County
 #006-2255



PROJECT REFERENCE NO. DF18311.2006017.PR	SHEET NO. EC-04/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



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

REMOVE LARGE PIPES VIA PUMP AROUND. REFER TO PUMP AROUND DETAIL ON EC-02B.

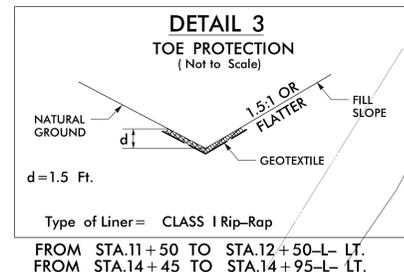
IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C, UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN AREAS WHERE WATER MAY POND ON ROAD OPEN TO LIVE TRAFFIC.

Place Straw Matting for Erosion Control on Slope as Work Allows.
-L- Sta. 11+25 to 13+24 RT EST. 399 SY
-L- Sta. 11+75 to 13+24 LT EST. 223 SY
-L- Sta. 14+16 to 14+75 LT EST. 190 SY

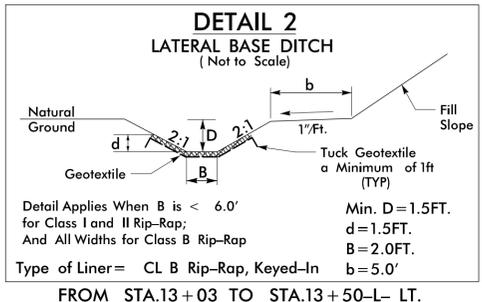
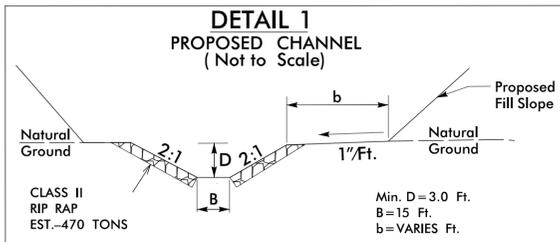
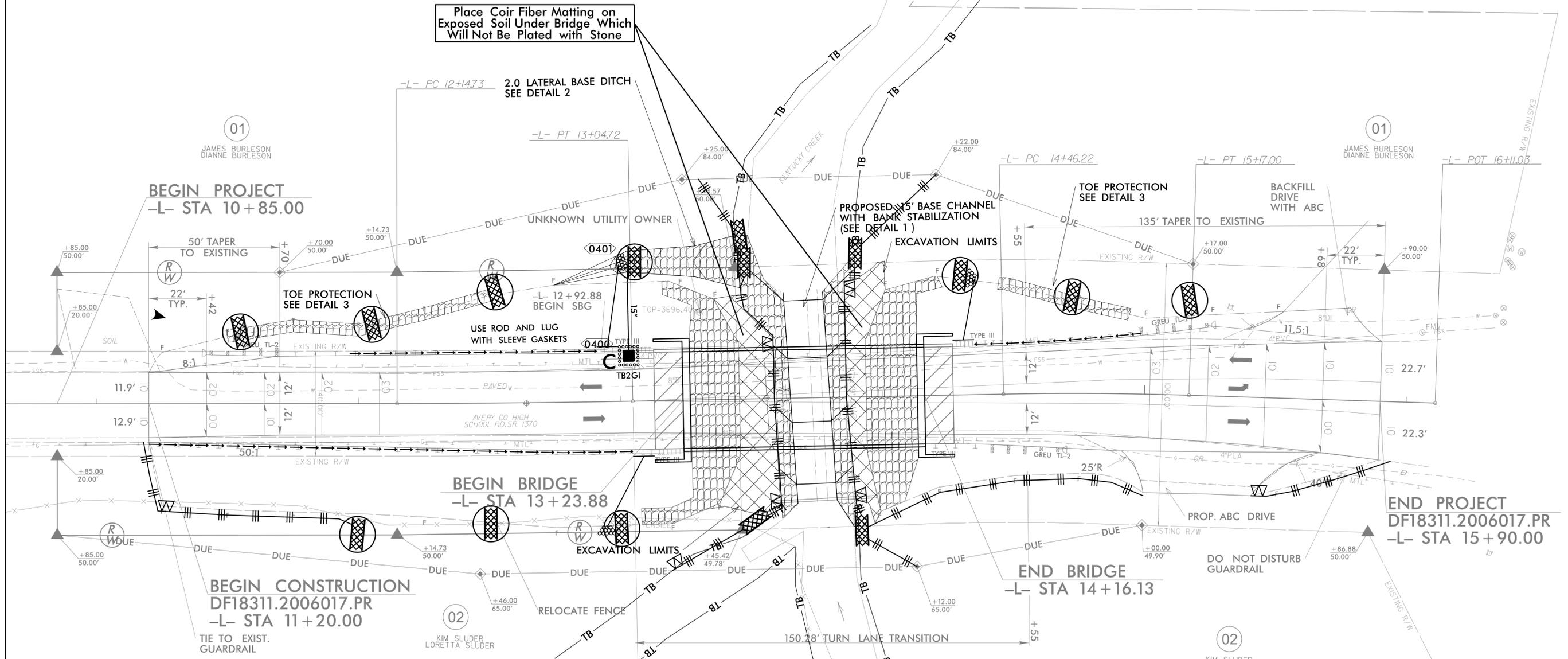
Avery County
#006-2255



PROJECT REFERENCE NO. DF18311.2006017.PR	SHEET NO. EC-05/CONST.4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



Place Coir Fiber Matting on Exposed Soil Under Bridge Which Will Not Be Plated with Stone



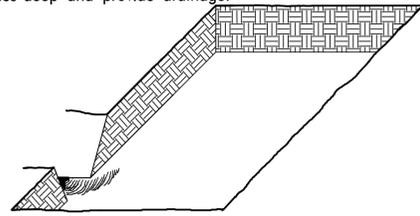
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF18311.2006017.PR	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

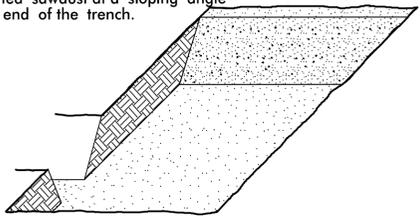
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

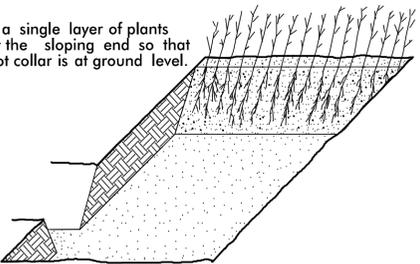
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



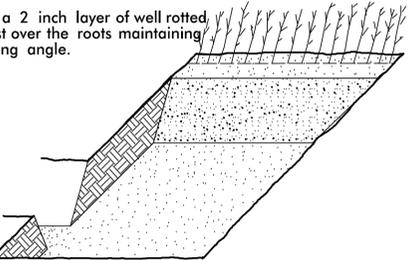
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

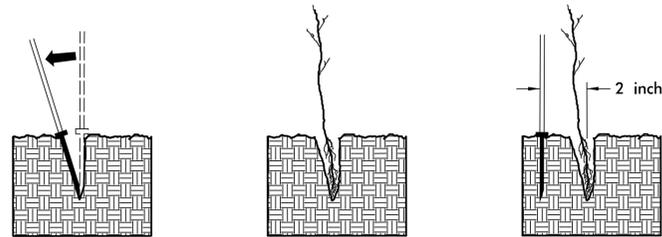


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

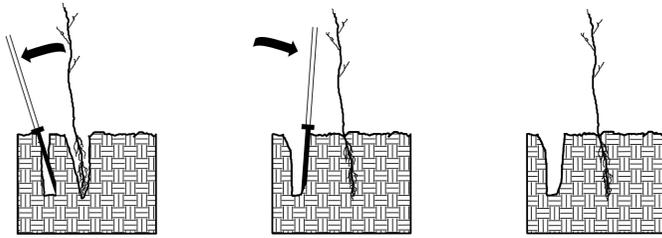


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

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 toward 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 TULIPIFERA	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

TIP NO.	SHEET NO.
DF18311.2006017.PR	SIGN-1
Signed by: <u>Don A. Parker</u> APPROVED: _____ <small>750B8E80ADEF448</small>	
DATE: 11/17/2025	
SEAL	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**SIGNING PLAN
AVERY COUNTY**

**LOCATION: STRUCTURE REPLACEMENT OF PIPE NO. 006-2255
ON SR 1370 (AVERY COUNTY HIGH SCHOOL RD)
OVER KENTUCKY CREEK**

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

PROJECT: DF18311.2006017.PR

CONTRACT: DK00433

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
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

GENERAL NOTES

- . SIGNS FURNISHED BY STATE
- . CONFIRM IN WRITING AT LEAST 4 MONTHS IN ADVANCE, THE ACTUAL DATE THE DEPARTMENT FURNISHED SIGNS WILL BE REQUIRED.
- . IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- . WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- . ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- . THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- . SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

SUMMARY OF QUANTITIES

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.		
4072000000	903	27	L.F.
4102000000	904	2	EA.
4155000000	907	2	EA.

INDEX

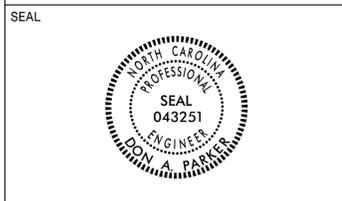
SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-2	TYPE E SHEET
SIGN-3	EXISTING AND PROPOSED SIGNS

PLAN SUBMITTED TO: NCDOT		
<u>ROB WEISZ, P.E.</u>	DIVISION 11 BRIDGE PROGRAM MANAGER	

PLAN PREPARED BY: TGS ENGINEERS		
<u>DON A. PARKER, P.E.</u>	PROJECT ENGINEER	
<u>CODA BRANNAN, E.I.</u>	DESIGN ENGINEER	TGS ENGINEERS 706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275

APPROVED: Don A. Parker
7508690ADEF440

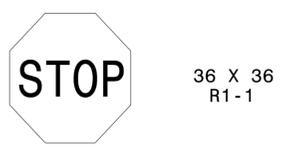
DATE: 11/17/2025



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UNLESS ALL SIGNATURES COMPLETED**

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

401 QUANTITY REQ'D 1



ONE "U" POST PER SIGN

402 QUANTITY REQ'D 1

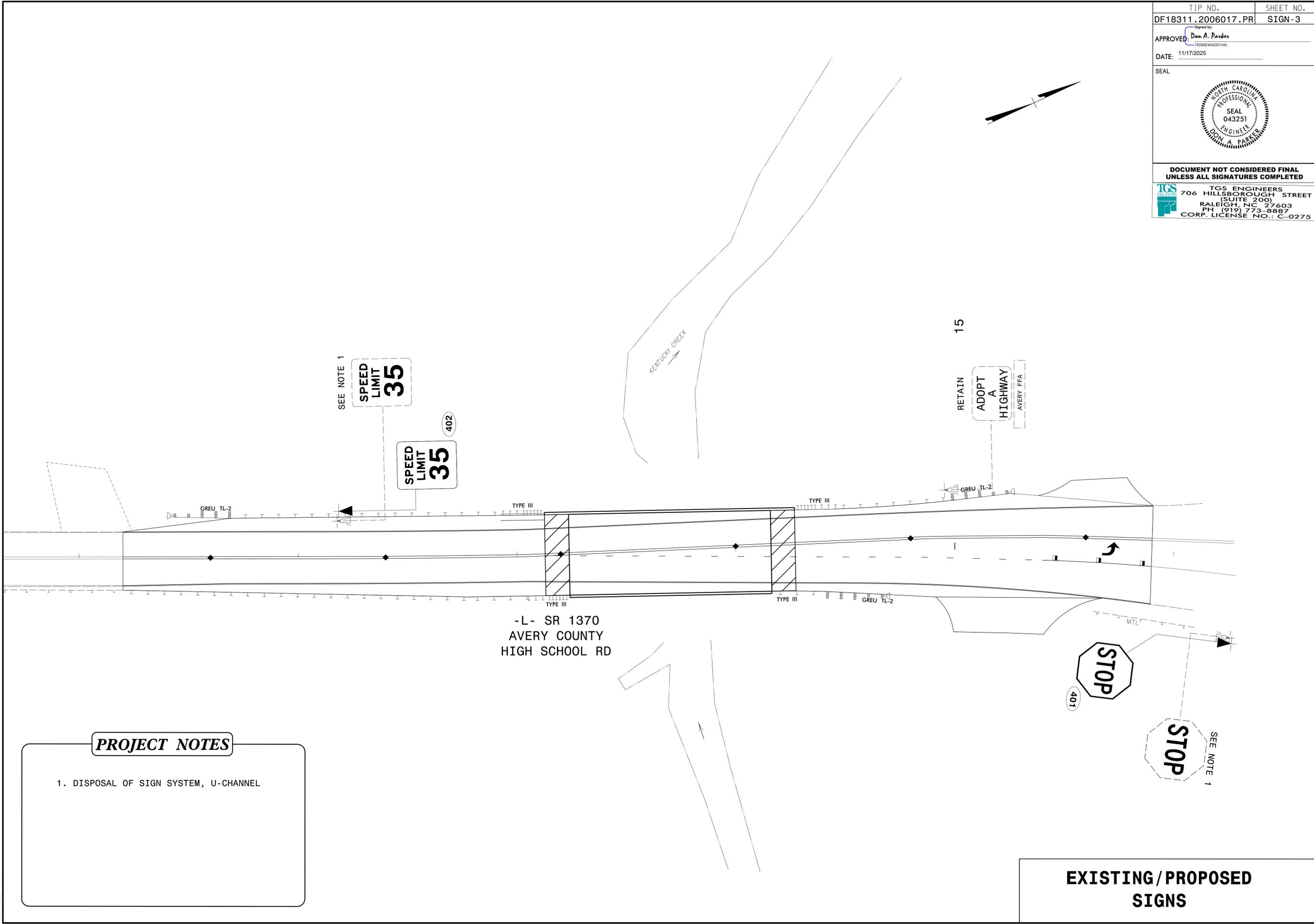


ONE "U" POST PER SIGN

I:\0/2025
 X:\NCC00\Div 11 Avery 2255\Signing and Delineation\Signing\Avery2255_Sgn_S0N_02.dgn
 User:cbannon

TYPE "E" SIGNS

TIP NO.	SHEET NO.
DF18311.2006017.PR	SIGN-3
APPROVED: <i>Don A. Parker</i> <small>75DB8E90ADEF44D...</small>	
DATE: 11/17/2025	
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	



PROJECT NOTES

1. DISPOSAL OF SIGN SYSTEM, U-CHANNEL

**EXISTING/PROPOSED
SIGNS**

11/10/2025
 X:\NCDOT\Div 11 Avery 2255\Signing and Delimitation\Signing\Avery\2255_Sgn_SGN_03.dgn
 User: bbrannon

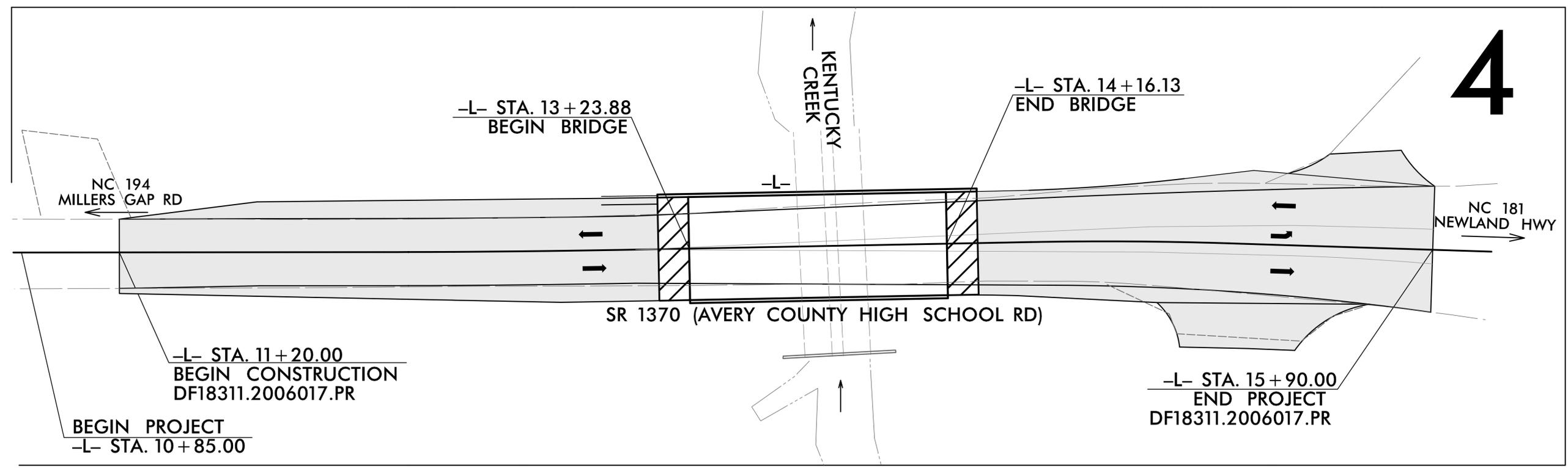
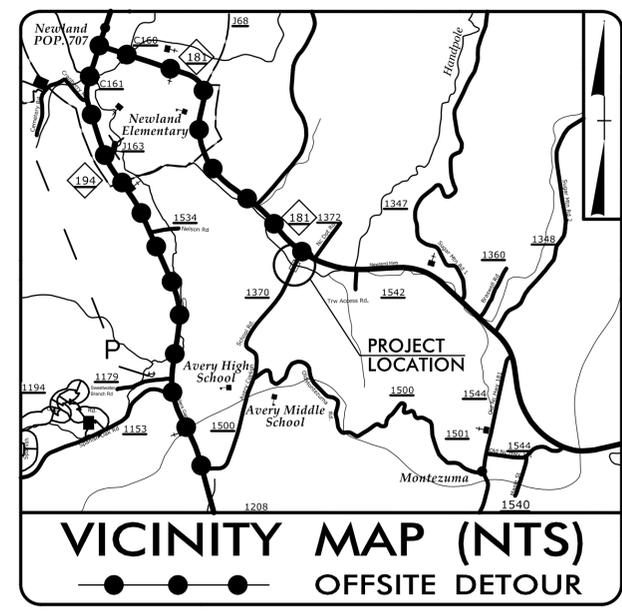
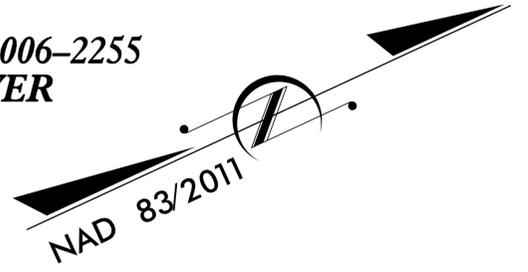
PROJECT: DF18311.2006017.PR

T.I.P. NO.	SHEET NO.
DF18311.2006017.PR	UC-1

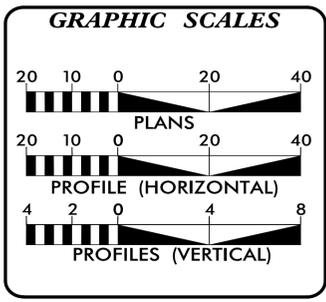
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITY CONSTRUCTION PLANS
AVERY COUNTY**

**LOCATION: STRUCTURE REPLACEMENT OF PIPE NO. 006-2255
ON SR 1370 (AVERY COUNTY HIGH SCHOOL RD) OVER
KENTUCKY CREEK
TYPE OF WORK: WATER & SEWER RELOCATION**



DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED



INDEX OF SHEETS	
SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A	DETAILS
UC-4	UTILITY CONSTRUCTION SHEETS
UC-5 THRU UC-6	PROFILE SHEETS

WATER AND SEWER OWNERS ON PROJECT

(A) WATER - TOWN OF NEWLAND

(B) SEWER - AVERY COUNTY SCHOOL SYSTEM

PREPARED IN THE OFFICE OF

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

B. CHAD HOUSER, PE UTILITY ENGINEER

JIMMY TERRY, PE PROJECT MANAGER

SEAL

10/27/2025

**DIVISION OF HIGHWAYS
HIGHWAY DIVISION II**

801 Statesville Rd
North Wilkesboro, 28659
(336)903-9101
FAX: (336)667-4549

BRANDON GREER DIVISION UTILITY ENGINEER

DANIEL ADAMS, PE DIVISION PROJECT TEAM LEAD

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11¼ Degree Bend	
22½ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

EXISTING UTILITIES SYMBOLS

Power Pole		*Underground Power Line	
Telephone Pole		*Underground Telephone Cable	
Joint Use Pole		*Underground Telephone Conduit	
Utility Pole		*Underground Fiber Optics Telephone Cable	
Utility Pole with Base		*Underground TV Cable	
H-Frame Pole		*Underground Fiber Optics TV Cable	
Power Transmission Line Tower		*Underground Gas Pipeline	
Water Manhole		Aboveground Gas Pipeline	
Power Manhole		*Underground Water Line	
Telephone Manhole		Aboveground Water Line	
Sanitary Sewer Manhole		*Underground Gravity Sanitary Sewer Line	
Hand Hole for Cable		Aboveground Gravity Sanitary Sewer Line	
Power Transformer		*Underground SS Forced Main Line	
Telephone Pedestal		Underground Unknown Utility Line	
CATV Pedestal		SUE Test Hole	
Gas Valve		Water Meter	
Gas Meter		Water Valve	
Located Miscellaneous Utility Object		Fire Hydrant	
Abandoned According to Utility Records		Sanitary Sewer Cleanout	
End of Information			

*For Existing Utilities
 Utility Line Drawn from Record (Type as Shown)
 Designated Utility Line (Type as Shown)

5/14/99

UTILITY CONSTRUCTION NOTES

GENERAL NOTES:

- THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024.
- THE EXISTING WATER LINE BELONGS TO THE TOWN OF NEWLAND. THE EXISTING SEWER LINE BELONGS TO AVERY COUNTY SCHOOLS.
- ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES,PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
- THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
- PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

- THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
- MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
- MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.
- ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, "SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

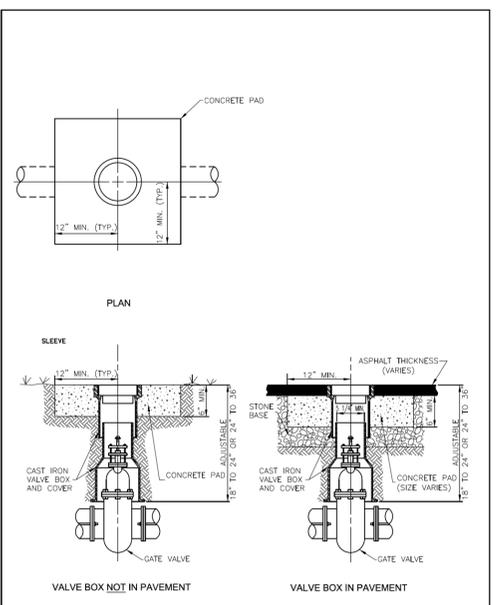
- ALL PROPOSED WATER AND FORCE MAIN SEWER LINES SHALL BE DUCTILE IRON PIPE PRESSURE CLASS 350.
- ALL PROPOSED STEEL ENCASEMENTS SHALL BE SMOOTH WALL WITH A MINIMUM THICKNESS OF 0.25 INCHES.
- ALL WATER LINE FITTINGS 4 TO 12 INCHES IN DIAMETER, SHALL BE PRESSURE CLASS 350 DUCTILE IRON RESTRAINED JOINT IN ACCORDANCE WITH ANSI A21.10 / AWWA C110 AND ANSI A21.4 / AWWA C104.
- WATER LINE SHALL UTILIZE RESTRAINED JOINT PIPE AT THE STREAM CROSSING AS SHOWN ON PLANS. SEWER LINE SHALL UTILIZE RESTRAINED JOINT PIPE AT THE BRIDGE ATTACHMENT AS SHOWN ON PLANS.
- ALL WATER AND SEWER LINE SHALL HAVE COATED TRACER WIRE NO SMALLER THAN 12 AWG SOLID COPPER.
- ALL VALVES 2"THROUGH 12" SHALL BE RESILIENT WEDGE GATE, CAST IRON BODY, CONFORMING TO AWWA C509, LATEST VERSION. SEALING MECHANISM SHALL PROVIDE ZERO LEAKAGE AT THE WATER WORKING PRESSURE AGAINST THE LINE FLOW FROM EITHER DIRETION AND BE DESIGNED SUCH THAT NO EXPOSTED METAL SEAMS, EDGES, SCREWS, ETC. ARE WITHIN THE WATERWAY IN THE CLOSED POSITION. THE GATE SHALL NOT BE WEDGED INTO A POCKET NOR SLIDE ACROSS THE SEATING SURFACE TO OBTAIN TIGHT CLOSURE. ALL INTERNAL AND EXTERNAL FERROUS SURFACES OF THE VALVE, INCLUDING THE INTERIOR OF THE GATE, SHALL BE COATED WITH A PROTECTIVE COATING CONFORMING TO AWWA C5550, LATEST VERSION. COATING SHALL BE APPLIED TO CASTINGS PRIOR TO ASSEMBLY TO ASSURE ALL EXPOSED AREAS WILL BE COVERED. VALVES SHALL BE RATED AT 200 PSI WORKING PRESSURE. UNLESS OTHERWISE NOTED, UNDERGROUND VALVES SHALL HAVE AN OPERATING NUT AND EXPOSES VALVES SHALL HAVE A HAND WHEEL OPERATOR. OPERATING NUT SHALL BE 2"X2", OPEN LEFT.
- EACH VALVE BURIED IN THE GROUND SHALL BE PROVIDED WITH AN APPROVED TYPE OF VALVE BOX AND COVER. THE BOXES SHALL BE ADJUSTABLE SCREW TYPE 24-INCH OR 36-INCH.
- ALL VALVE BOXES SHALL BE CONSTRUCTED OF CAST IRON THAT COMPLIES WITH THE REQUIREMENTS OF ASTM A48. VALVE BOXES SHALL BE THE APPROPRIATE RANGE OF ADJUSTEMENT FOR THE SITE AND CONTRACTOR SHOULD MINIMIZE THE USE OF EXTENSIONS.
- PROVIDE THRUST RESTRAINT ON THE EXISTING WATER LINE WHERE TIE-INS ARE MADE AS NECESSARY.
- CONTRACTOR SHALL NOT OPERATE ANY VALVES ON THE EXISTING UTILITY SYSTEMS. CONTRACTOR SHALL CONTACT THE UTILITY OWNER TO CONDUCT STRATEGIC OPERATION OF VALVES FOR SERVICE INTERRUPTION IN ORDER TO PERFORM SPECIFIC WORK.
- ANY BENDS OF PVC WATER PIPE NOT SPECIFICALLY CALLED OUT WITH A 90, 45, 22.5, OR 11.25 DEGREE BEND FITTING, SHALL BE CONSTRUCTED BY A RADIAL BEND OF THE PIPE AS NOTED ON THE PLANS OR IN ACCORDANCE WITH PIPE MANUFACTURER'S SPECIFICATIONS (WHICHEVER IS MORE STRINGENT) -OR A COMBINATION OF BEND FITTINGS AND A RADIAL BEND OF THE PIPE. DEFLECTION OF THE PIPE JOINTS ON PVC PIPE MATERIALS IS NOT ACCEPTABLE METHOD OF BENDING.
- ALL MATERIALS, EQUIPMENT, LABOR, AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH NCDOT "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024.
- UTILITY OWNER MUST BE PRESENT FOR ANY TESTING OR CONNECTIONS TO THE EXISTING SYSTEM INCLUDING BUT NOT LIMITED TO ALL TAPS AND TEMPORARY CONSTRUCTION CONNECTIONS. A NOTICE OF 72 HOURS MUST BE PROVIDED.

PROJECT REFERENCE NO. DF18311.2006017.PR	SHEET NO. UC-3
DESIGNED BY: BCH	
DRAWN BY: ADC	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	
UTILITY CONSTRUCTION DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

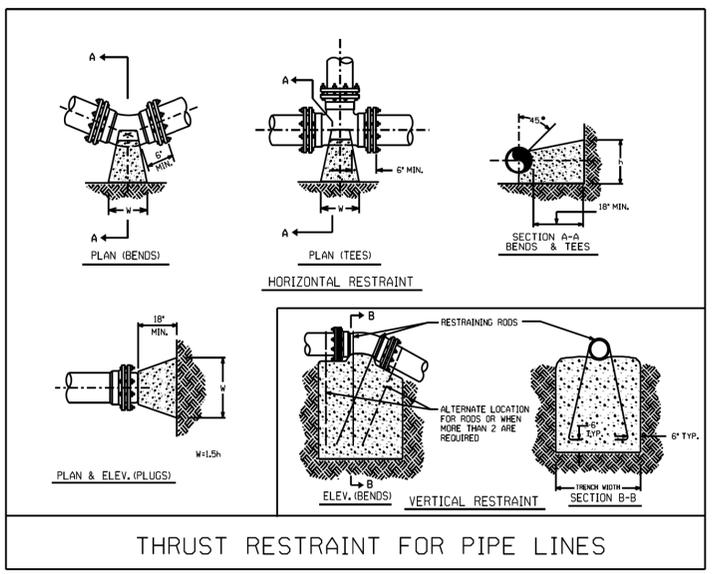
WATER TYPICAL DETAILS

PROJECT REFERENCE NO. DF18311.2006017.PR	SHEET NO. UC-3A
DESIGNED BY: BCH	
DRAWN BY: ADC	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

UTILITY CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



WATER VALVE BOX INSTALLATION FOR 4", 6", 8", AND 12" GATE VALVES



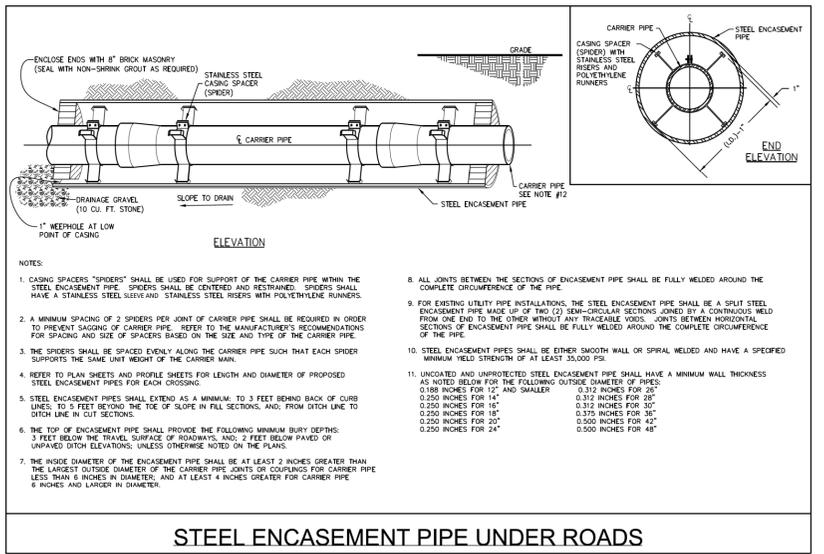
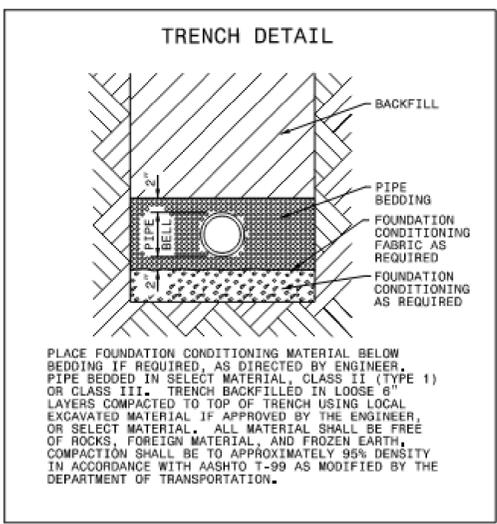
THRUST RESTRAINT FOR PIPE LINES

RESTRAINED JOINT DESIGN TABLE FOR DUCTILE IRON PIPE

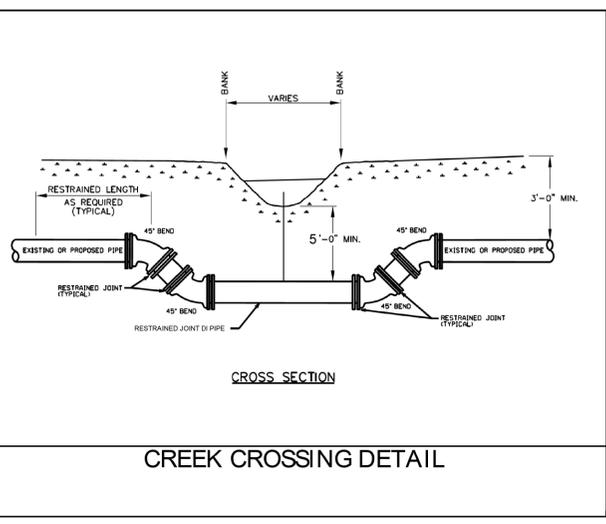
FITTING	REQUIRED RESTRAINED LENGTH (FT) OF BARE D.I. PIPE BY DEPTH OF COVER									
	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT	10 FT	10 FT
HORIZONTAL BENDS										
6 INCH DIA - 11.25 DEG	3	2	2	2	2	1	1	1	1	1
6 INCH DIA - 22.5 DEG	5	4	4	3	3	3	3	2	2	2
6 INCH DIA - 45 DEG	11	4	8	7	7	6	5	5	5	5
6 INCH DIA - 90 DEG	26	22	19	17	16	14	13	12	12	12
8 INCH DIA - 11.25 DEG	3	3	2	2	2	2	2	2	2	2
8 INCH DIA - 22.5 DEG	9	8	7	6	6	5	5	5	5	5
8 INCH DIA - 45 DEG	14	12	10	9	8	8	7	7	7	7
8 INCH DIA - 90 DEG	33	29	25	23	20	19	17	16	16	16
12 INCH DIA - 11.25 DEG	5	4	4	3	3	3	2	2	2	2
12 INCH DIA - 22.5 DEG	7	6	5	5	4	4	4	3	3	3
12 INCH DIA - 45 DEG	20	17	15	13	12	11	10	10	10	10
12 INCH DIA - 90 DEG	47	41	36	33	29	27	25	23	23	23
16 INCH DIA - 11.25 DEG	6	5	5	4	4	3	3	3	3	3
16 INCH DIA - 22.5 DEG	12	11	9	8	8	7	6	6	6	6
16 INCH DIA - 45 DEG	25	22	19	17	16	14	13	12	12	12
20 INCH DIA - 11.25 DEG	7	6	6	5	5	4	4	4	4	4
20 INCH DIA - 22.5 DEG	15	13	11	10	9	9	8	7	7	7
20 INCH DIA - 45 DEG	31	27	24	21	19	18	16	15	15	15
20 INCH DIA - 90 DEG	74	65	57	52	47	43	40	37	37	37
VERTICAL BENDS - DOWN										
6 INCH DIA - 11.25 DEG	7	6	5	5	4	4	4	3	3	3
6 INCH DIA - 22.5 DEG	15	13	11	10	9	8	8	7	7	7
6 INCH DIA - 45 DEG	31	27	23	21	19	17	16	15	15	15
8 INCH DIA - 11.25 DEG	10	8	7	6	6	5	5	5	5	5
8 INCH DIA - 22.5 DEG	12	11	9	8	8	7	6	6	6	6
8 INCH DIA - 45 DEG	40	35	30	27	25	22	21	19	19	19
12 INCH DIA - 11.25 DEG	14	12	10	9	8	8	7	7	7	7
12 INCH DIA - 22.5 DEG	28	24	21	19	17	16	14	13	13	13
12 INCH DIA - 45 DEG	57	50	44	39	35	32	30	28	28	28
16 INCH DIA - 11.25 DEG	18	15	14	12	11	10	9	9	9	9
16 INCH DIA - 22.5 DEG	36	31	27	25	22	20	19	17	17	17
16 INCH DIA - 45 DEG	74	65	57	51	46	42	39	36	36	36
20 INCH DIA - 11.25 DEG	22	19	17	15	14	12	11	11	11	11
20 INCH DIA - 22.5 DEG	44	38	34	30	27	25	23	21	21	21
20 INCH DIA - 45 DEG	91	79	70	63	57	52	48	44	44	44
VERTICAL BENDS - UP										
6 INCH DIA - 11.25 DEG	3	2	2	2	2	1	1	1	1	1
6 INCH DIA - 22.5 DEG	5	4	4	3	3	3	3	2	2	2
6 INCH DIA - 45 DEG	11	9	8	7	7	6	5	5	5	5
8 INCH DIA - 11.25 DEG	3	3	2	2	2	2	2	2	2	2
8 INCH DIA - 22.5 DEG	7	6	5	5	4	4	3	3	3	3
8 INCH DIA - 45 DEG	14	12	10	9	8	8	7	7	7	7
12 INCH DIA - 11.25 DEG	5	4	4	3	3	3	2	2	2	2
12 INCH DIA - 22.5 DEG	9	8	7	6	6	5	5	5	5	5
12 INCH DIA - 45 DEG	20	17	15	13	12	11	10	10	10	10
16 INCH DIA - 11.25 DEG	6	5	5	4	4	3	3	3	3	3
16 INCH DIA - 22.5 DEG	12	11	9	8	8	7	6	6	6	6
16 INCH DIA - 45 DEG	25	22	19	17	16	14	13	12	12	12
20 INCH DIA - 11.25 DEG	7	6	6	5	5	4	4	4	4	4
20 INCH DIA - 22.5 DEG	15	13	11	10	9	9	8	7	7	7
20 INCH DIA - 45 DEG	31	27	24	21	19	18	16	15	15	15
DEAD ENDS / VALVES										
6 INCH DIA	50	45	41	38	35	33	31	29	29	29
8 INCH DIA	65	59	54	50	46	43	40	38	38	38
10 INCH DIA	80	72	66	61	56	52	49	46	46	46
12 INCH DIA	94	85	78	72	66	62	58	54	54	54
16 INCH DIA	123	111	102	94	87	81	76	71	71	71
20 INCH DIA	151	137	125	115	107	100	93	88	88	88
REDUCERS										
3 FT	50	45	41	38	35	33	31	29	29	29
4 FT	50	45	41	38	35	33	31	29	29	29
5 FT	50	45	41	38	35	33	31	29	29	29
6 FT	50	45	41	38	35	33	31	29	29	29
7 FT	50	45	41	38	35	33	31	29	29	29
8 FT	50	45	41	38	35	33	31	29	29	29
9 FT	50	45	41	38	35	33	31	29	29	29
10 FT	50	45	41	38	35	33	31	29	29	29
TEES										
8" RUN X 8" BRANCH - RL = 1 FT	64	58	53	48	44	41	38	36	36	36
8" RUN X 8" BRANCH - RL = 5 FT	59	52	47	42	39	35	32	30	30	30
12" RUN X 12" BRANCH - RL = 1 FT	93	84	77	70	65	60	56	53	53	53
12" RUN X 12" BRANCH - RL = 5 FT	88	79	71	65	59	54	50	47	47	47

ASSUMPTIONS
LAYING CONDITION = TYPE 4
SOIL DESIGNATION = COHESIVE-GRANULAR
DESIGN PRESSURE = 200 PSI (TEST PRESSURE)
SAFETY FACTOR = 1.5

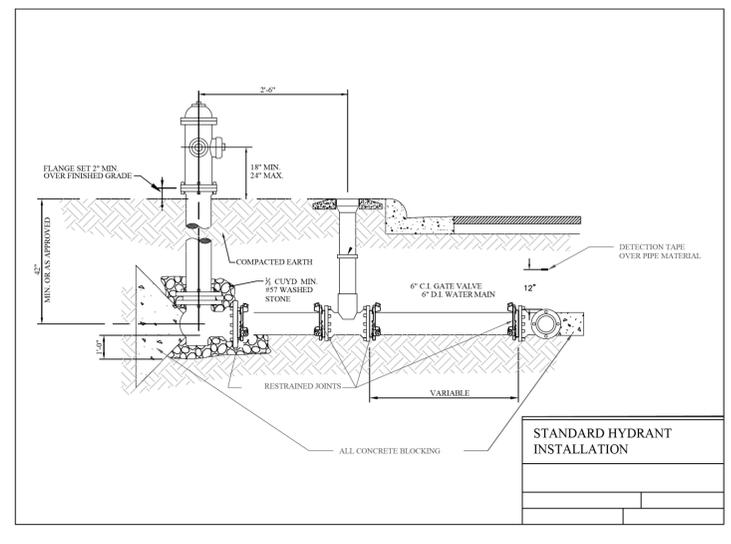
NOTES
1. RESTRAINED LENGTH IS MEASURED AS FOLLOWS:
A. HORIZONTAL/VERTICAL BENDS: ALONG EACH SIDE OF BEND.
B. HORIZONTAL/VERTICAL BENDS - OFFSET: ALONG THE OUTER SIDE OF EACH BEND.
ALL PIPE BETWEEN THE TWO BENDS SHALL BE RESTRAINED JOINTS.
2. WHEN IT IS NOT POSSIBLE TO INSTALL THE RESTRAINED LENGTHS AS NOTED BY THIS TABLE, CONTRACTOR SHALL INSTALL THE APPROPRIATE CONCRETE THRUST RESTRAINTS AS PER THE DETAILS HEREIN.



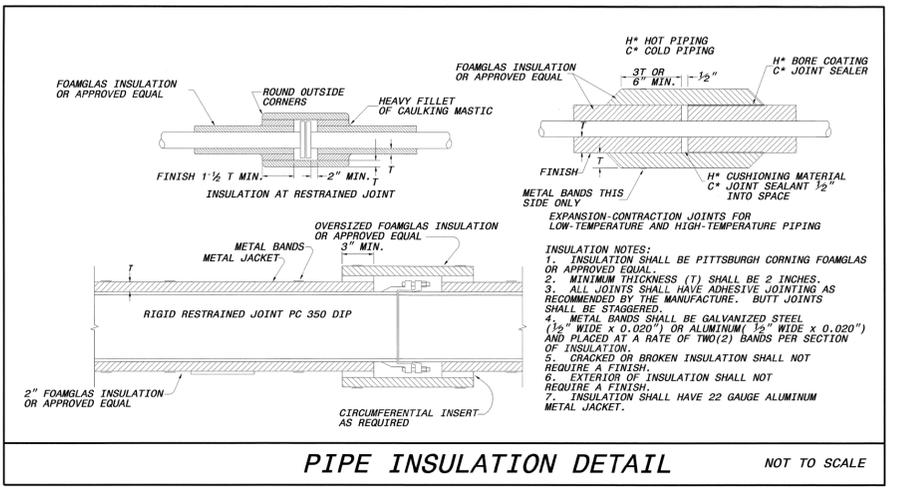
STEEL ENCASUREMENT PIPE UNDER ROADS



CREEK CROSSING DETAIL

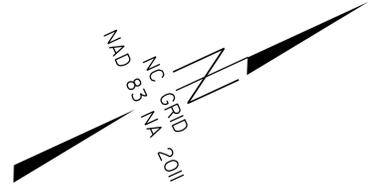


STANDARD HYDRANT INSTALLATION



PIPE INSULATION DETAIL

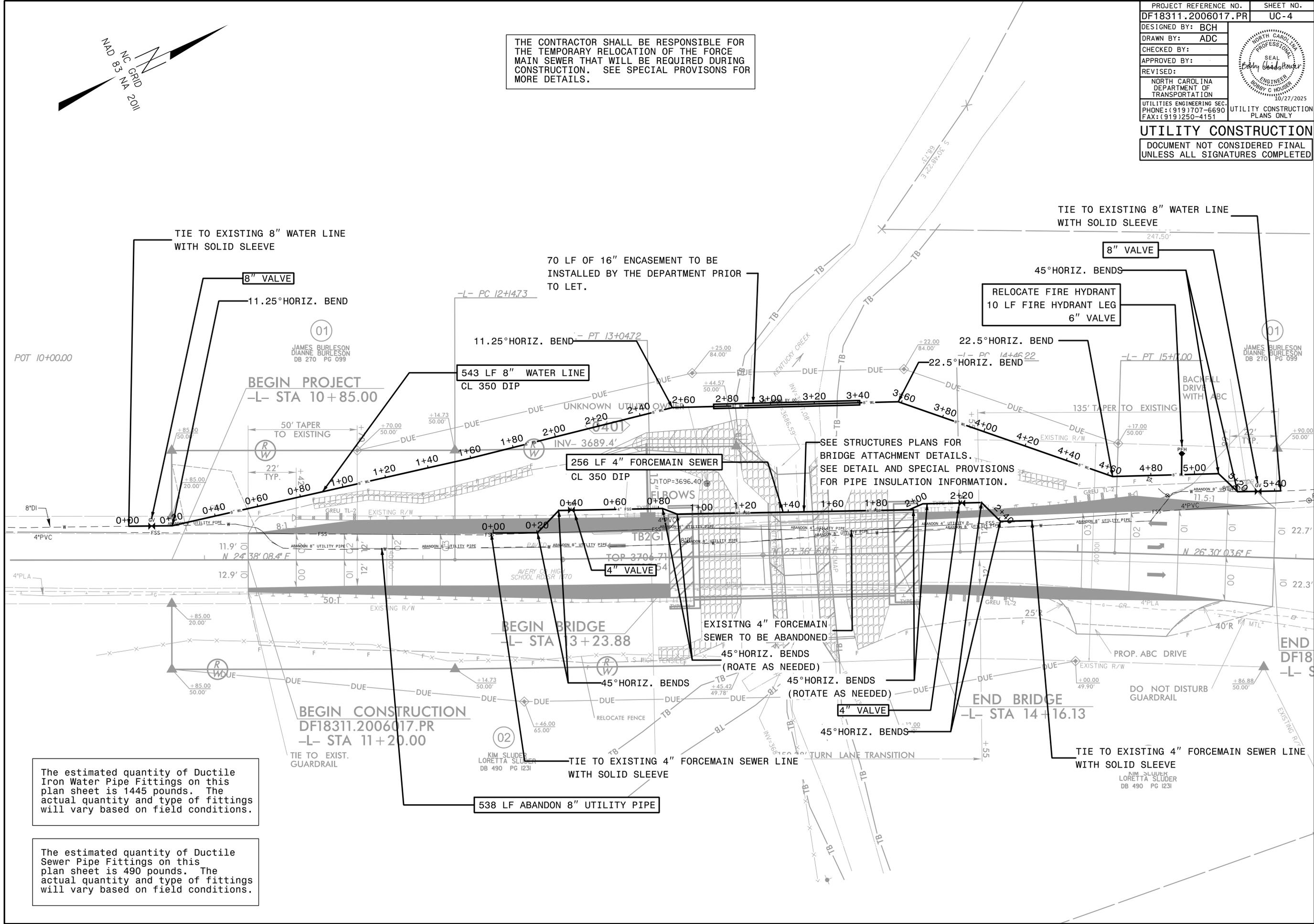
NOT TO SCALE



THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY RELOCATION OF THE FORCE MAIN SEWER THAT WILL BE REQUIRED DURING CONSTRUCTION. SEE SPECIAL PROVISIONS FOR MORE DETAILS.

PROJECT REFERENCE NO. DF18311.2006017.PR	SHEET NO. UC-4
DESIGNED BY: BCH	
DRAWN BY: ADC	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY 10/27/2025	

UTILITY CONSTRUCTION
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The estimated quantity of Ductile Iron Water Pipe Fittings on this plan sheet is 1445 pounds. The actual quantity and type of fittings will vary based on field conditions.

The estimated quantity of Ductile Sewer Pipe Fittings on this plan sheet is 490 pounds. The actual quantity and type of fittings will vary based on field conditions.

BEGIN CONSTRUCTION
DF18311.2006017.PR
-L- STA 11+20.00

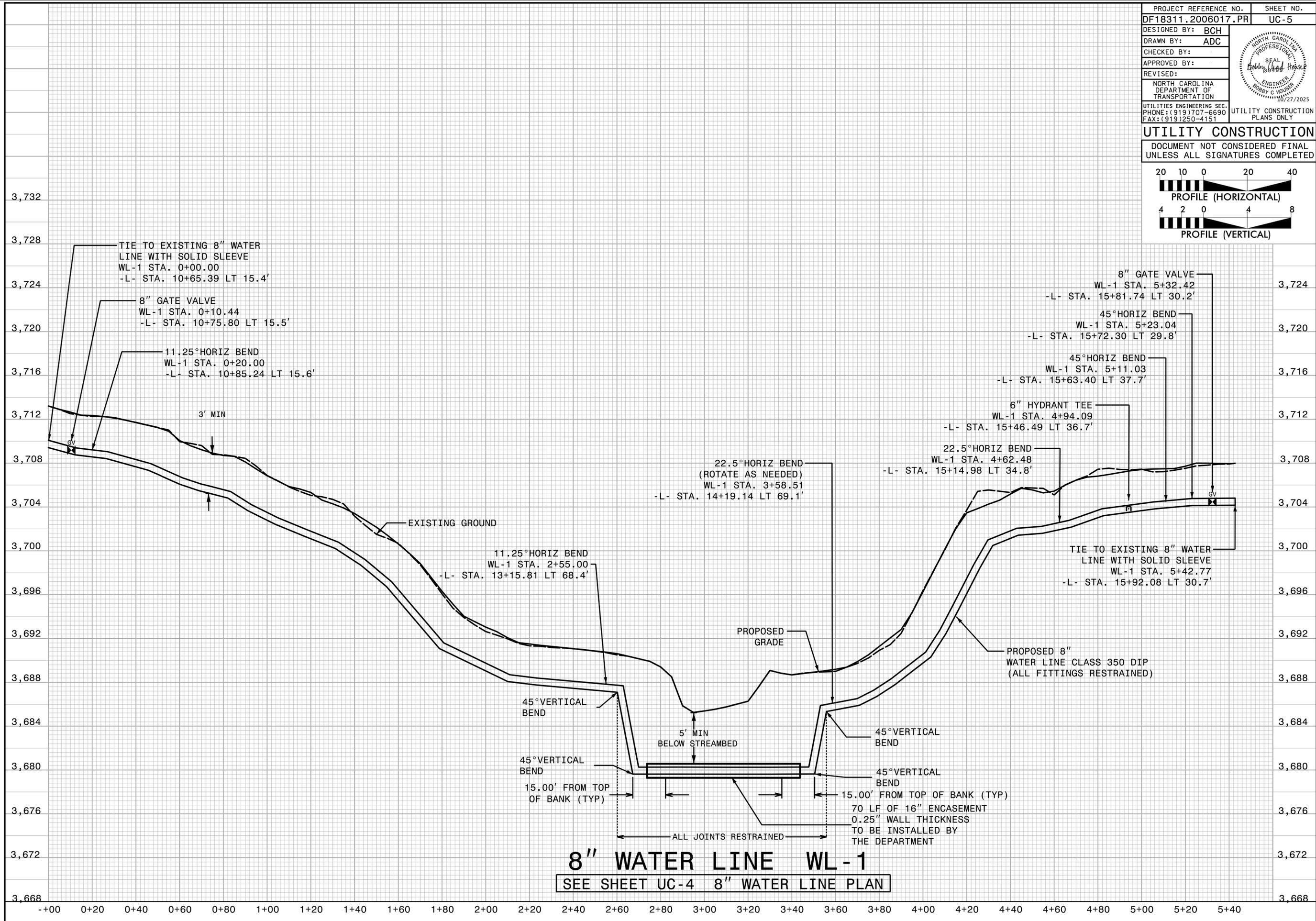
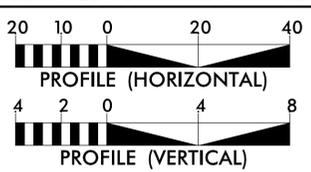
TIE TO EXISTING 4" FORCE MAIN SEWER LINE WITH SOLID SLEEVE

END BRIDGE
-L- STA 14+16.13

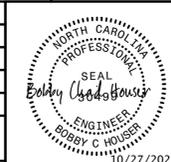
TIE TO EXISTING 4" FORCE MAIN SEWER LINE WITH SOLID SLEEVE

PROJECT REFERENCE NO. DF18311.2006017.PR	SHEET NO. UC-5
DESIGNED BY: BCH	
DRAWN BY: ADC	
CHECKED BY:	
APPROVED BY:	
REVISD:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

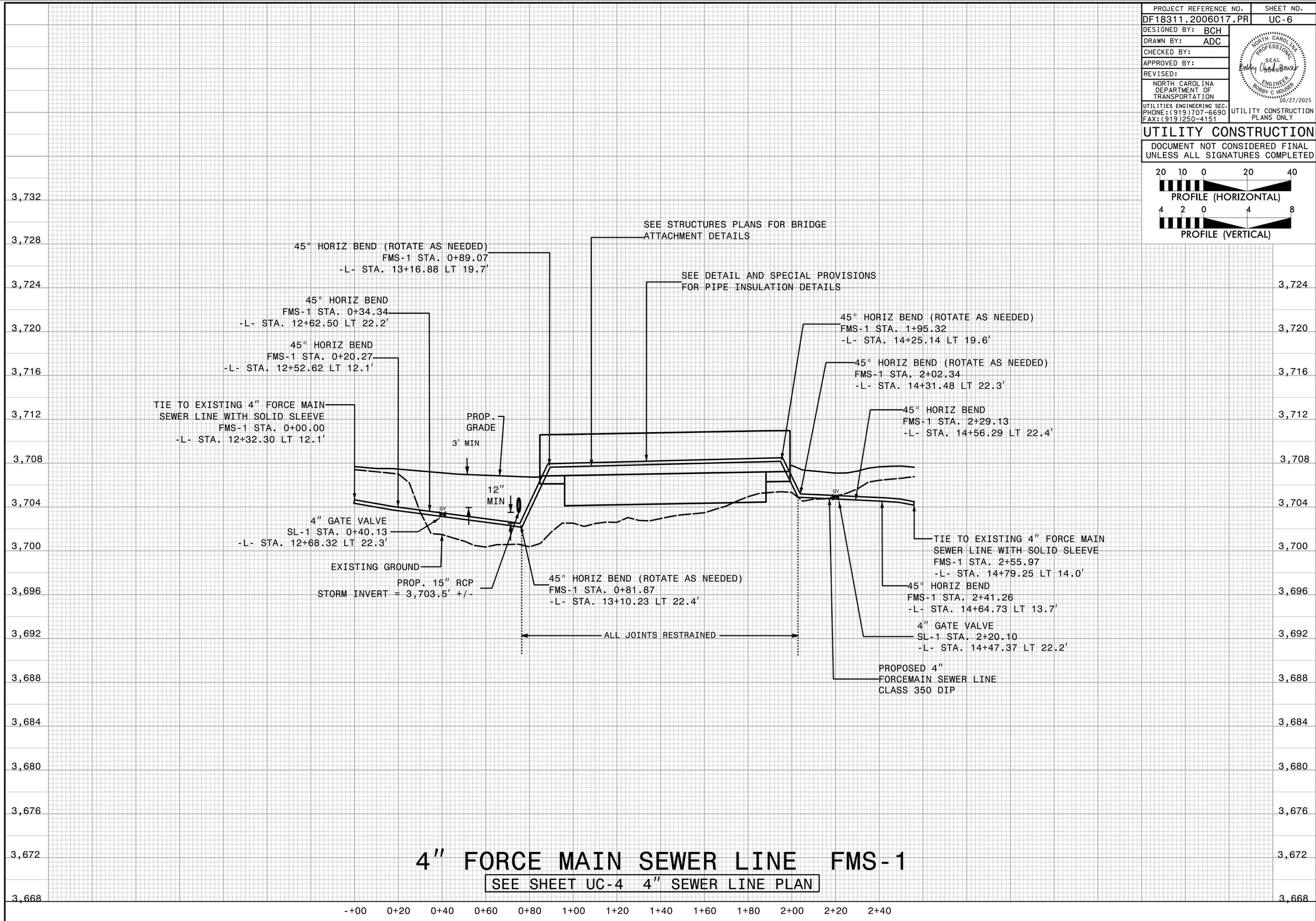
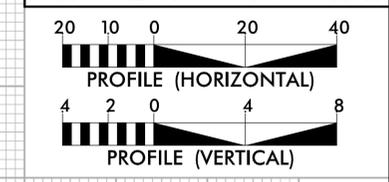
UTILITY CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



8" WATER LINE WL-1
SEE SHEET UC-4 8" WATER LINE PLAN

PROJECT REFERENCE NO. DF18311.2006017.PR	SHEET NO. UC-6
DESIGNED BY: BCH	
DRAWN BY: ADC	
CHECKED BY:	
APPROVED BY:	
REVISER:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

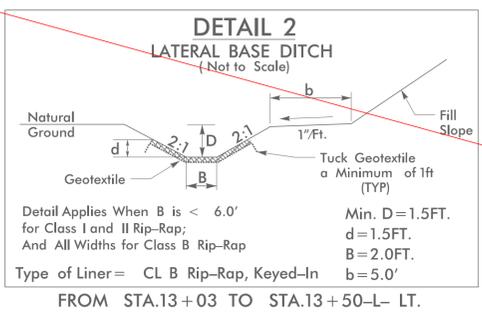
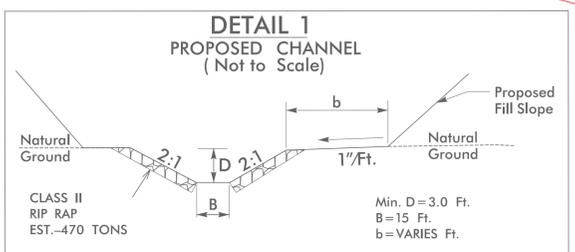
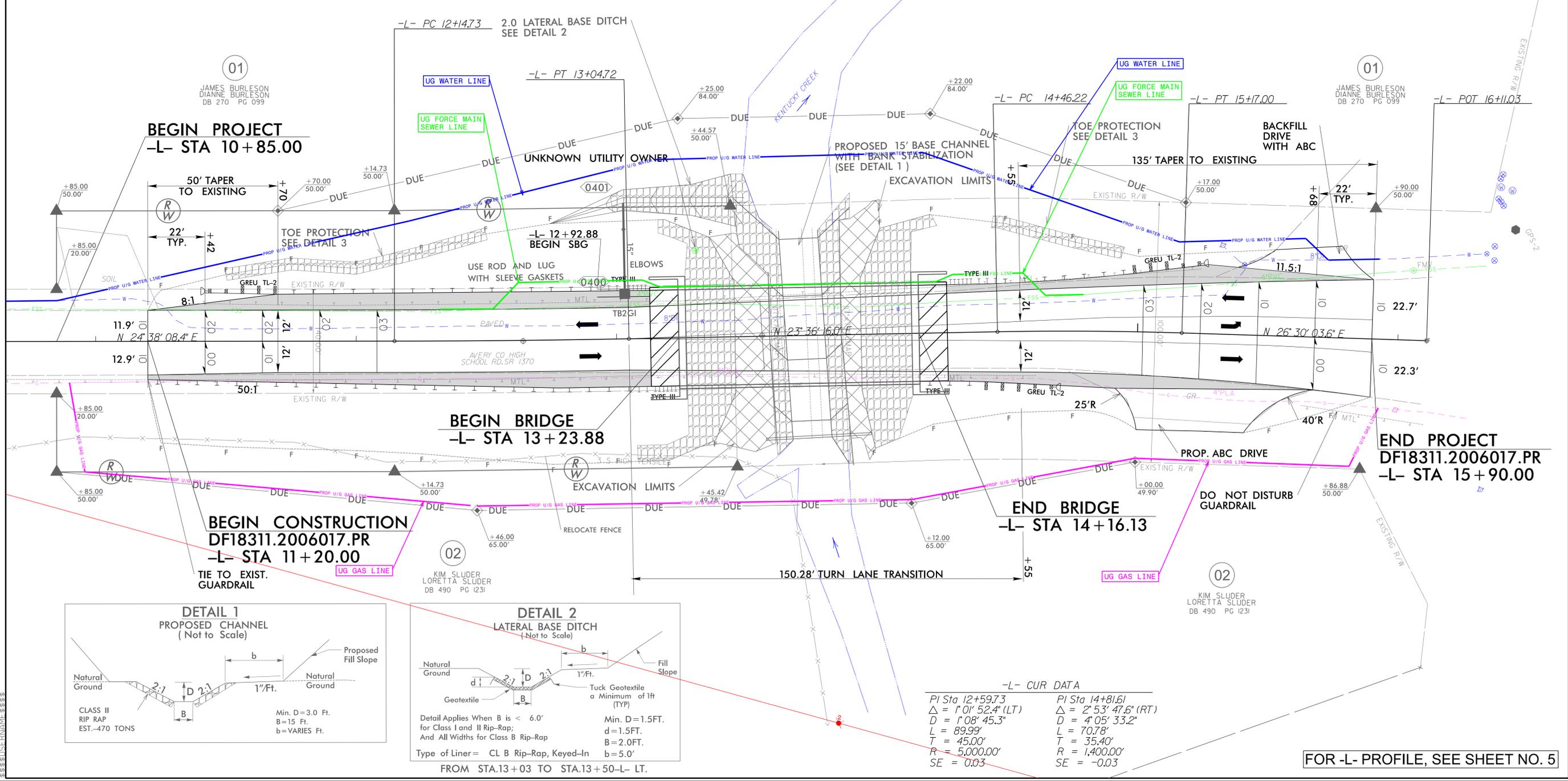
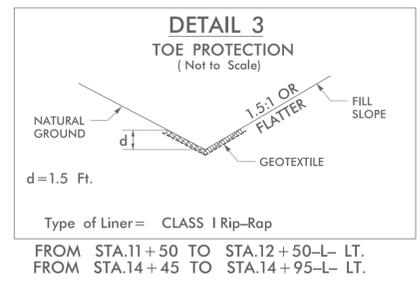
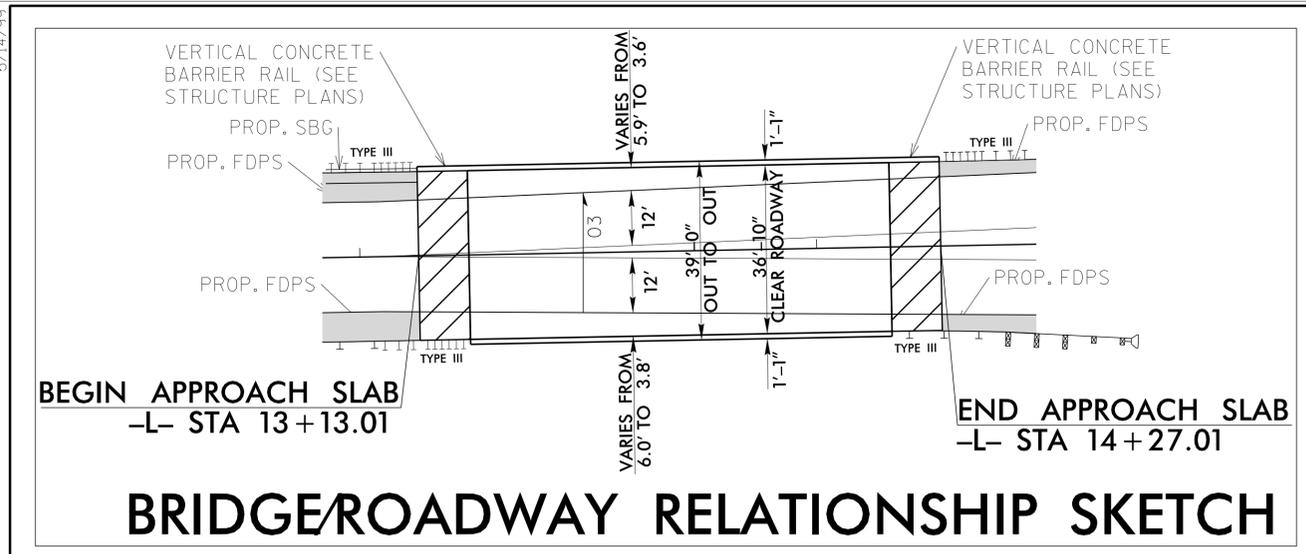


4" FORCE MAIN SEWER LINE FMS-1
SEE SHEET UC-4 4" SEWER LINE PLAN

-+00 0+20 0+40 0+60 0+80 1+00 1+20 1+40 1+60 1+80 2+00 2+20 2+40

UTILITIES BY OTHERS

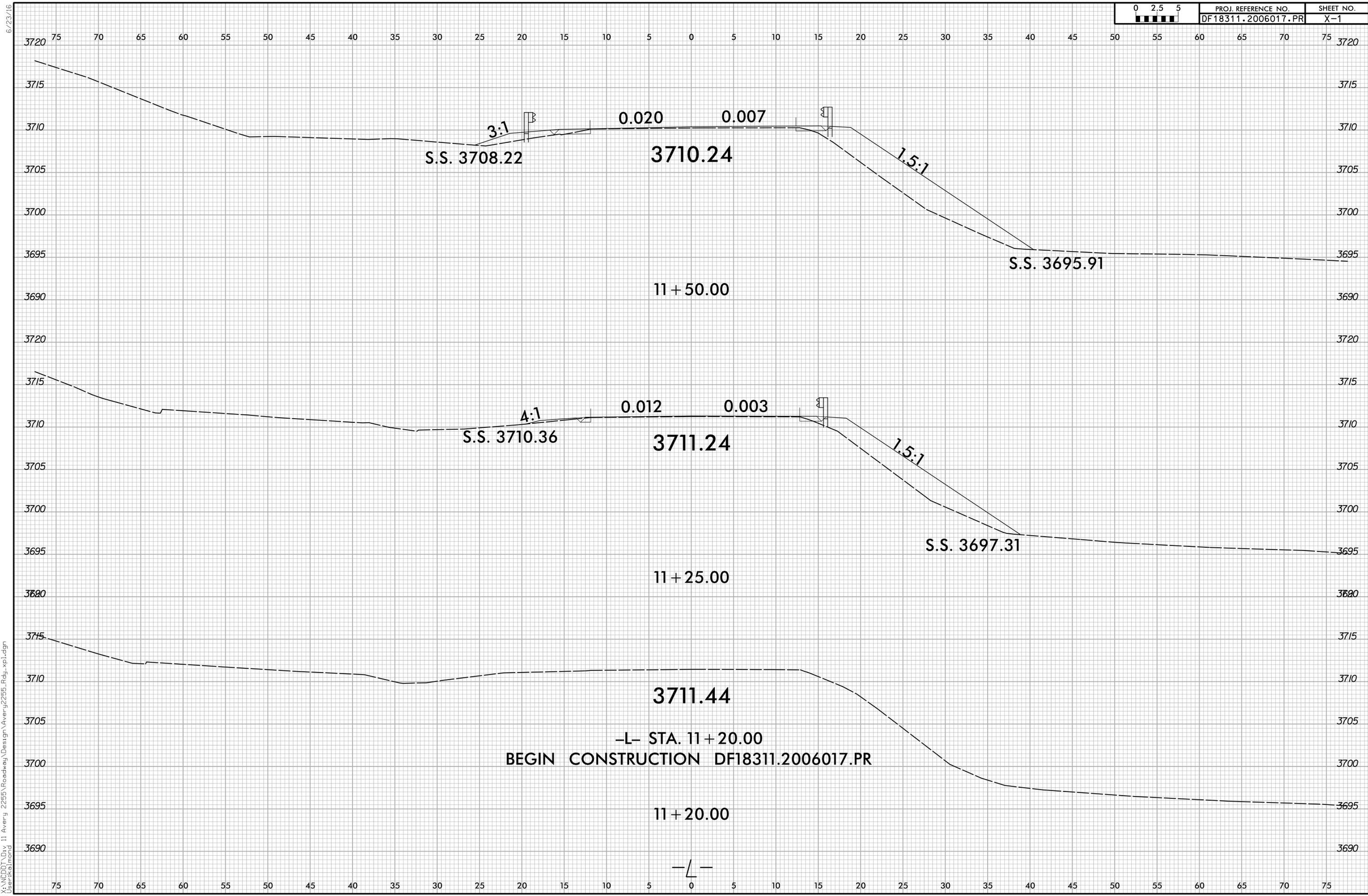
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.



-L- CUR DATA

PI Sta 12+59.73	PI Sta 14+81.61
$\Delta = 1' 01" 52.4" (LT)$	$\Delta = 2' 53" 47.6" (RT)$
$D = 1' 08" 45.3"$	$D = 4' 05" 33.2"$
$L = 89.99'$	$L = 70.78'$
$T = 45.00'$	$T = 35.40'$
$R = 5,000.00'$	$R = 1,400.00'$
$SE = 0.03$	$SE = -0.03$

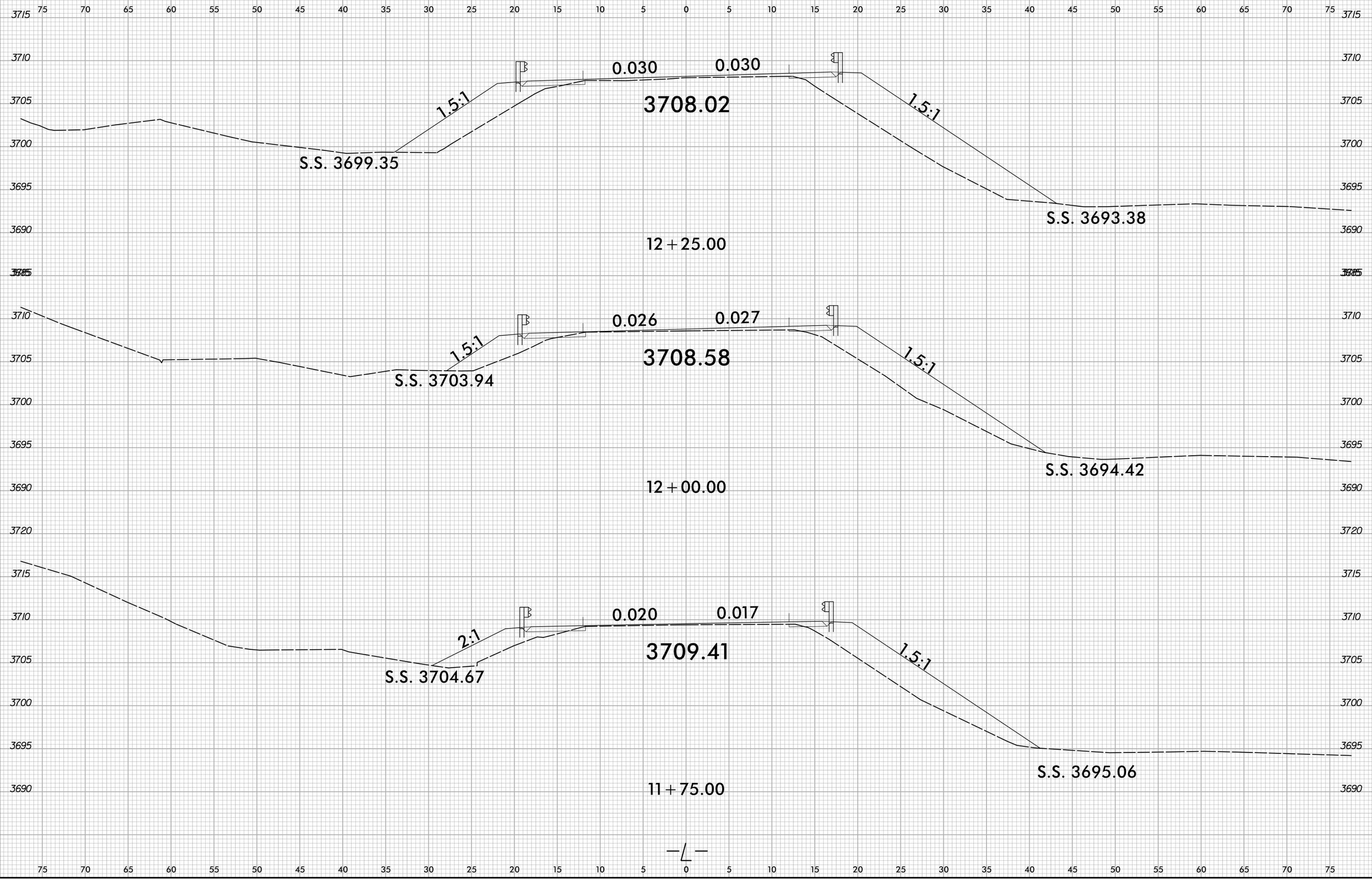
FOR -L- PROFILE, SEE SHEET NO. 5



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User:kalmond

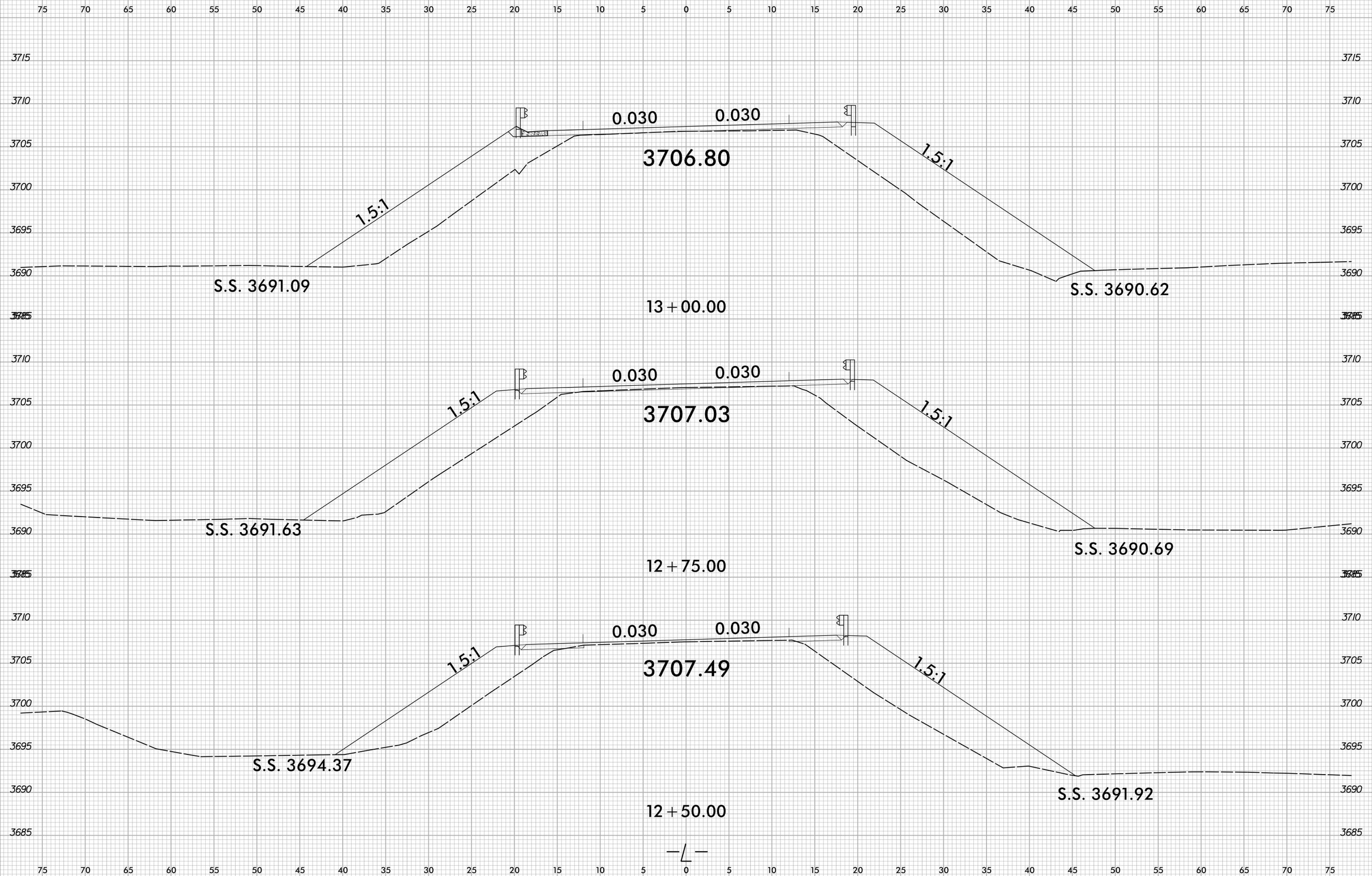
6/23/16

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	DF18311.2006017.PR	X-2



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User:Kalinond

6/23/16



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User:Kalinmond

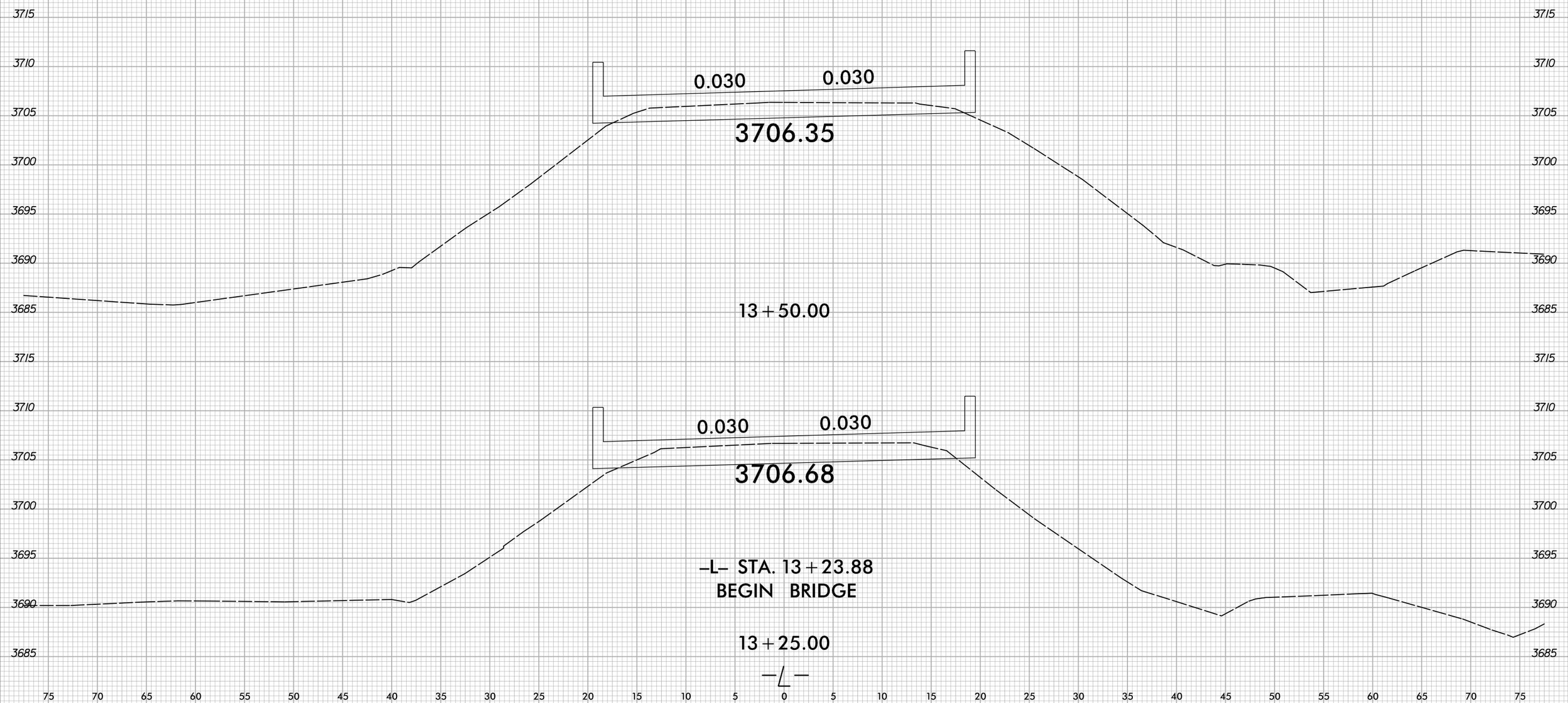
6/23/16



PROJ. REFERENCE NO.
DF18311.2006017.PR

SHEET NO.
X-4

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



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6/23/16

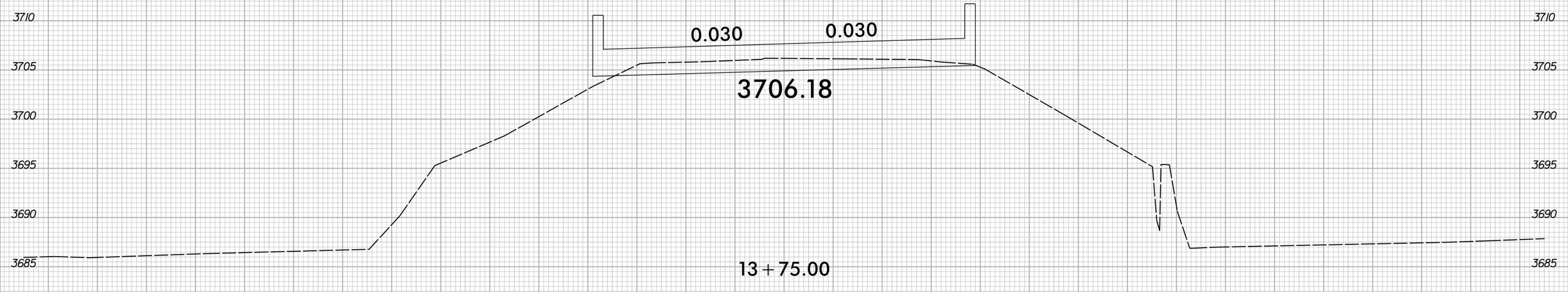
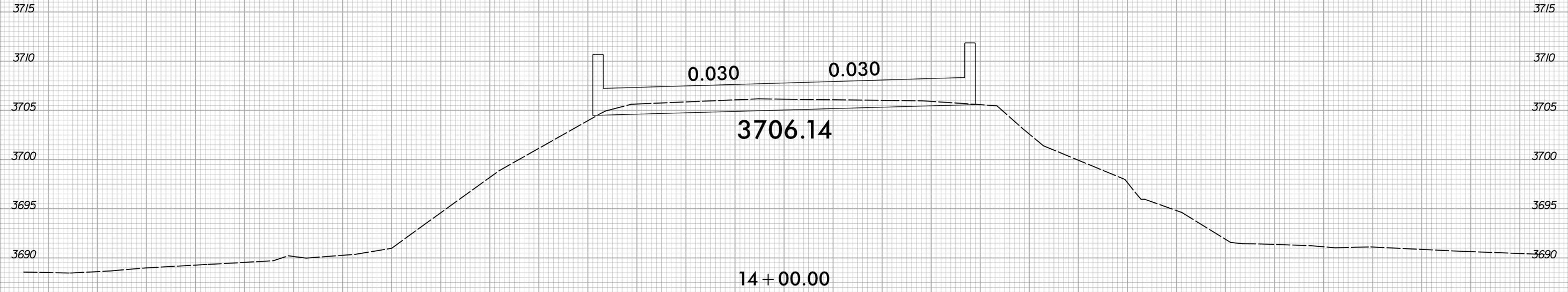


PROJ. REFERENCE NO.
DF18311.2006017.PR

SHEET NO.
X-5

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-L- STA. 14+16.13
END BRIDGE



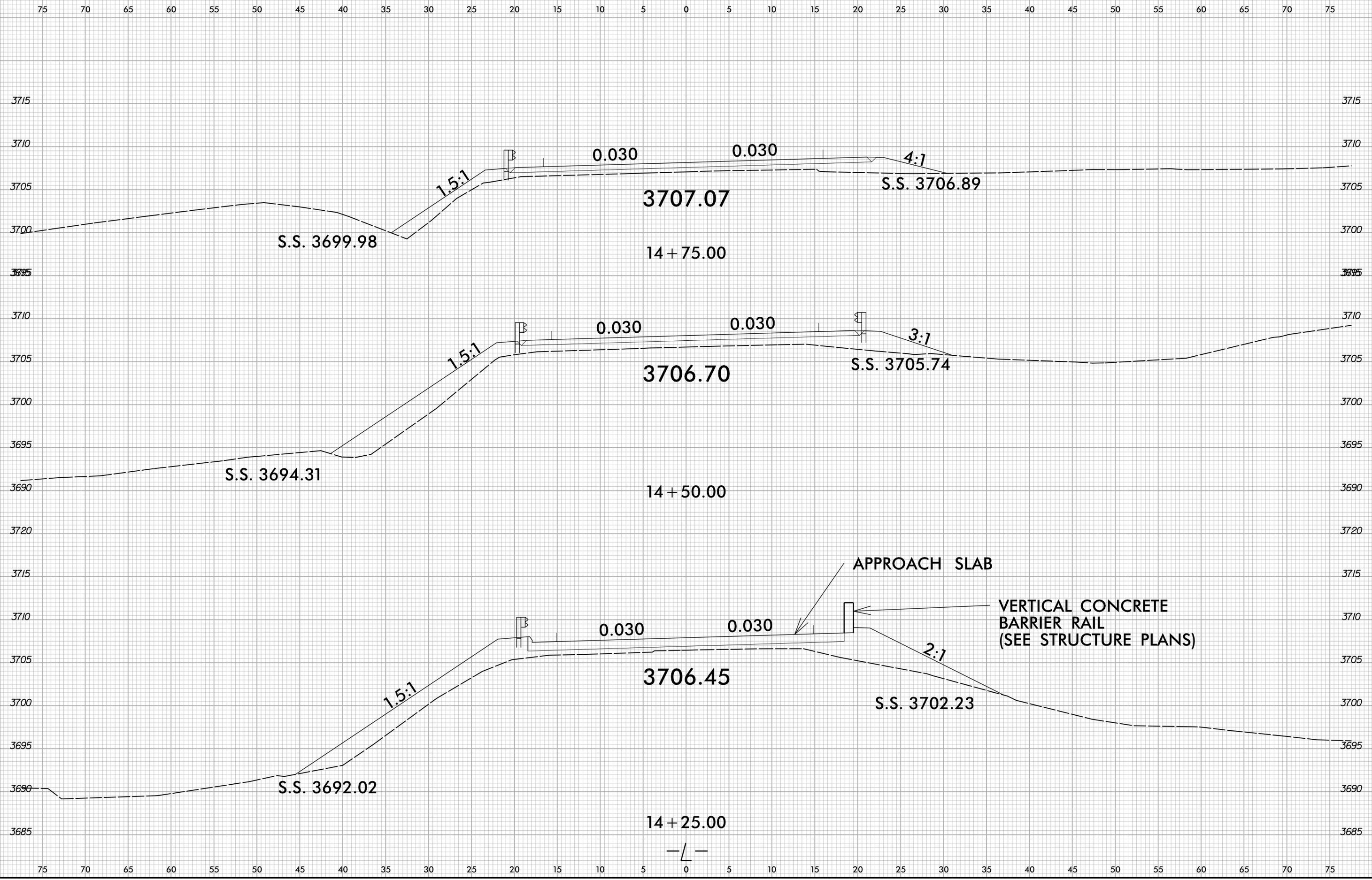
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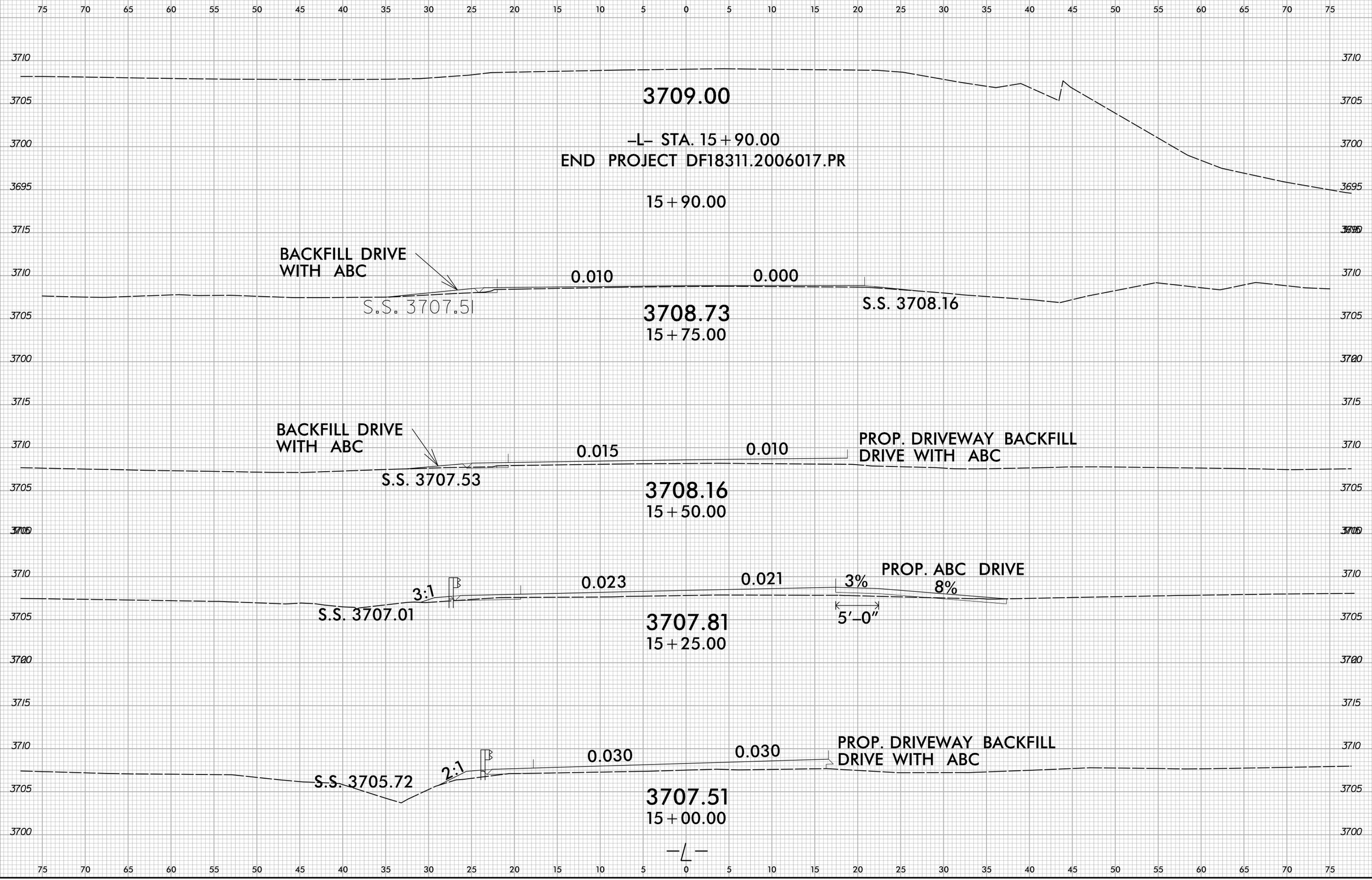
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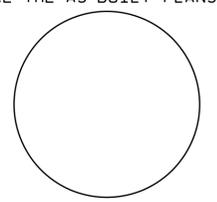
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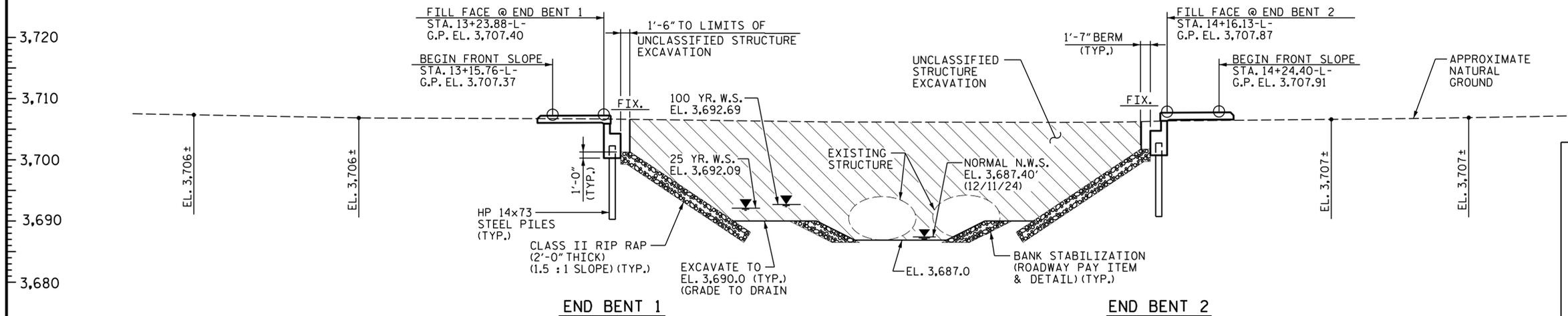
I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.



SEAL

12+50 13+00 13+50 14+00 14+50

VERTICAL GRADE DATA -L-
 PI = 12+57.00 -L-
 EL = 3,707.07
 VC = 130'
 (-)3.0000% (+)0.5000%



HYDRAULIC DATA

DESIGN DISCHARGE	620 CFS
FREQUENCY OF DESIGN DISCHARGE	25 YRS.
DESIGN HIGH WATER ELEVATION	3692.1
DRAINAGE AREA	2.8 SQ. MI.
BASIC DISCHARGE (Q100)	960 CFS
BASIC HIGH WATER ELEVATION	3692.7

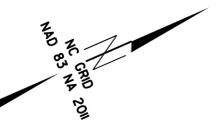
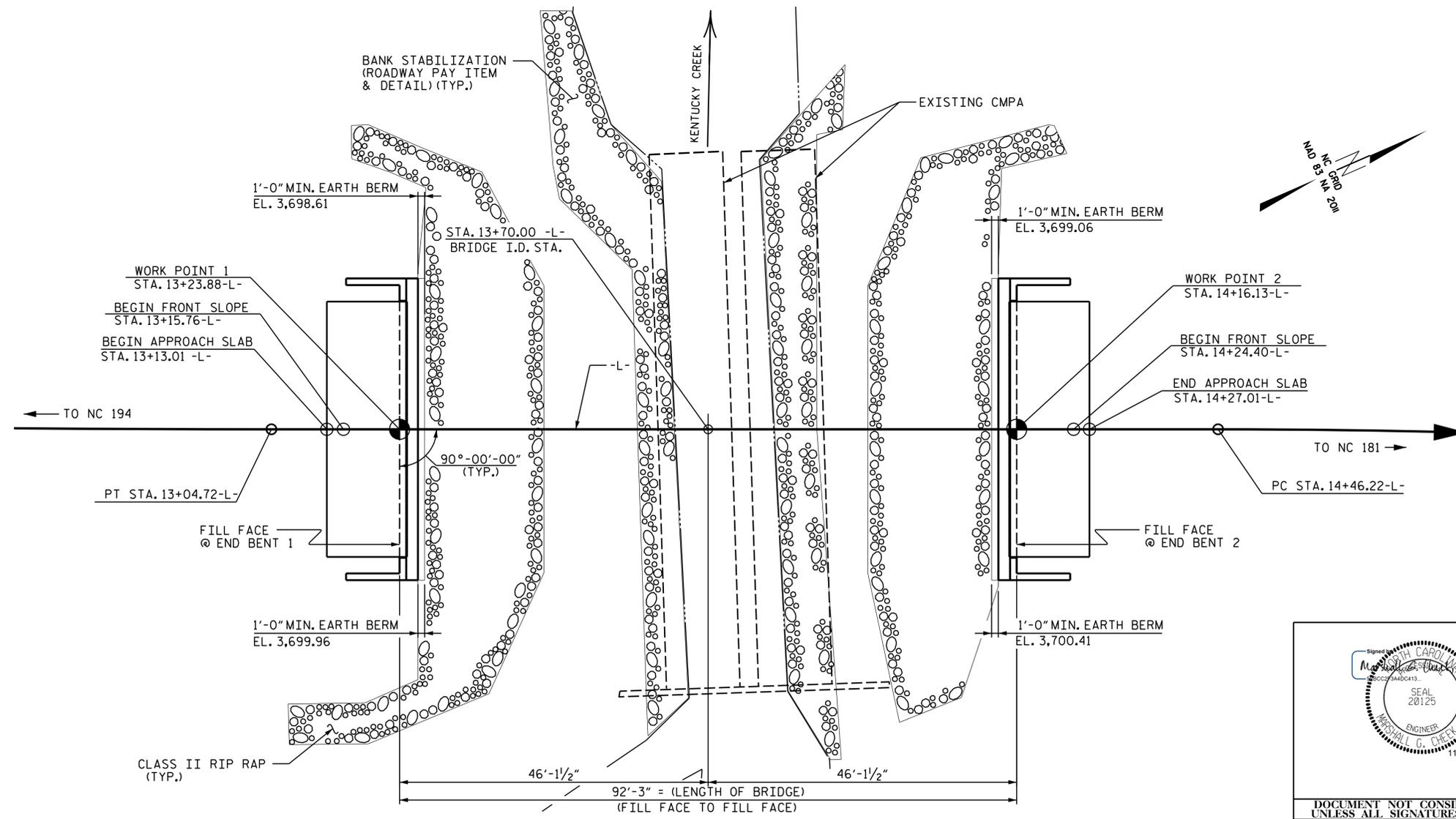
OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	12400 CFS
FREQUENCY OF OVERTOPPING FLOOD	500+ YRS.
OVERTOPPING FLOOD ELEVATION	3707.6 *

* SP RT. OF STA. 13+03-L-
 WS ELEV. TAKEN @ RIVER STATION 6900

LOW CHORD ELEVATION

EB1	3,703.79	EB2	3,704.23
-----	----------	-----	----------



PROJECT NO. DF18311.2006017.PR
AVERY COUNTY
STATION: 13+70.00-L-
 SHEET 1 OF 5 BRIDGE NO. 050185

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING FOR BRIDGE OVER KENTUCKY CREEK ON SR 1370 BETWEEN NC 194 AND NC 181

11/18/2025

Seal: Marshall G. Cheek, Jr., Engineer, No. 34413, 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

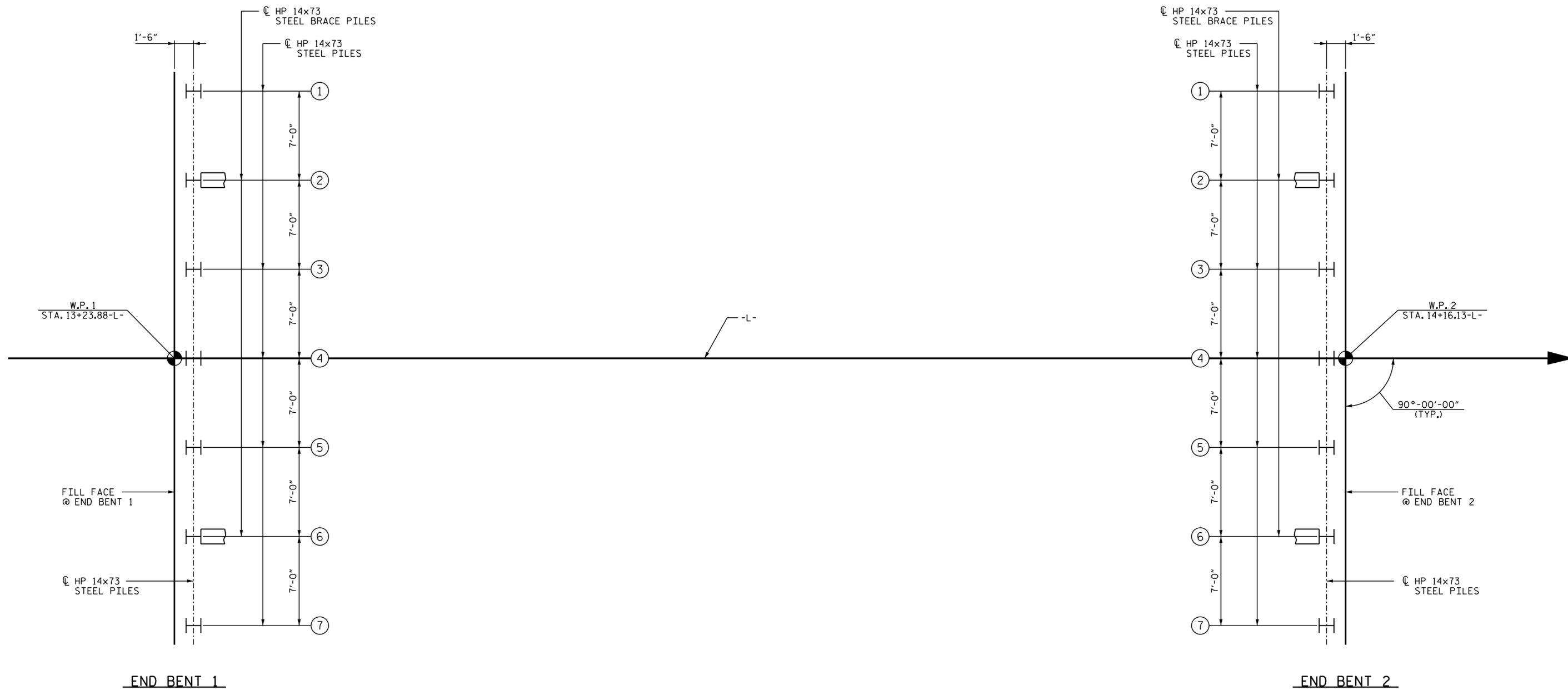
REVISIONS

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

SHEET NO. S-1
 TOTAL SHEETS 20

DRAWN BY : NMW/JLA DATE : 3/25
 CHECKED BY : MGC DATE : 8/25

PILES NOT SHOWN IN PLAN VIEW FOR CLARITY



FOUNDATION LAYOUT

PROJECT NO. DF18311.2006017.PR

AVERY COUNTY

STATION: 13+70.00-L-

SHEET 2 OF 5

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER
 KENTUCKY CREEK
 ON SR 1370 BETWEEN
 NC 194 AND NC 181

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED						REVISIONS			SHEET NO.			
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-2
						1			3			TOTAL SHEETS
						2			4			20

DRAWN BY : JLA DATE : 5/25
 CHECKED BY : MGC DATE : 8/25

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 (LL)	MOMENT				SHEAR				LIVE-LOAD FACTORS (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	1.109	--	1.75	0.272	1.47	90'	EL	44.250	0.493	1.26	90'	EL	4.425	0.80	0.272	1.11	90'	EL	44.250		
	HL-93 (OPERATING)	N/A		1.633	--	1.35	0.272	1.90	90'	EL	44.250	0.493	1.63	90'	EL	4.425	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.507	54.255	1.75	0.272	1.99	90'	EL	44.250	0.493	1.65	90'	EL	4.425	0.80	0.272	1.51	90'	EL	44.250		
	HS-20 (OPERATING)	36.000		2.140	77.039	1.35	0.272	2.59	90'	EL	44.250	0.493	2.14	90'	EL	4.425	N/A	--	--	--	--	--		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH		3.519	47.501	1.4	0.272	5.82	90'	EL	44.250	0.493	5.05	90'	EL	4.425	0.80	0.272	3.52	90'	EL	44.250		
		SNGARBS2	20.000		2.572	51.43	1.4	0.272	4.25	90'	EL	44.250	0.493	3.55	90'	EL	4.425	0.80	0.272	2.57	90'	EL	44.250	
		SNAGRIS2	22.000		2.415	53.122	1.4	0.272	4.00	90'	EL	44.250	0.493	3.27	90'	EL	4.425	0.80	0.272	2.41	90'	EL	44.250	
		SNCOTTS3	27.250		1.749	47.674	1.4	0.272	2.89	90'	EL	44.250	0.493	2.52	90'	EL	4.425	0.80	0.272	1.75	90'	EL	44.250	
		SNAGGRS4	34.925		1.443	50.381	1.4	0.272	2.39	90'	EL	44.250	0.493	2.06	90'	EL	4.425	0.80	0.272	1.44	90'	EL	44.250	
		SNS5A	35.550		1.412	50.195	1.4	0.272	2.34	90'	EL	44.250	0.493	2.07	90'	EL	4.425	0.80	0.272	1.41	90'	EL	44.250	
		SNS6A	39.950		1.287	51.435	1.4	0.272	2.13	90'	EL	44.250	0.493	1.88	90'	EL	4.425	0.80	0.272	1.29	90'	EL	44.250	
	SNS7B	42.000		1.226	51.483	1.4	0.272	2.03	90'	EL	44.250	0.493	1.83	90'	EL	4.425	0.80	0.272	1.23	90'	EL	44.250		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.568	51.733	1.4	0.272	2.59	90'	EL	44.250	0.493	2.24	90'	EL	4.425	0.80	0.272	1.57	90'	EL	44.250	
		TNT4A	33.075		1.572	52.007	1.4	0.272	2.60	90'	EL	44.250	0.493	2.20	90'	EL	4.425	0.80	0.272	1.57	90'	EL	44.250	
		TNT6A	41.600		1.278	53.170	1.4	0.272	2.11	90'	EL	44.250	0.493	1.92	90'	EL	4.425	0.80	0.272	1.28	90'	EL	44.250	
		TNT7A	42.000		1.281	53.782	1.4	0.272	2.12	90'	EL	44.250	0.493	1.89	90'	EL	4.425	0.80	0.272	1.28	90'	EL	44.250	
		TNT7B	42.000		1.315	55.229	1.4	0.272	2.18	90'	EL	44.250	0.493	1.79	90'	EL	4.425	0.80	0.272	1.31	90'	EL	44.250	
		TNAGRIT4	43.000		1.258	54.101	1.4	0.272	2.08	90'	EL	44.250	0.493	1.74	90'	EL	4.425	0.80	0.272	1.26	90'	EL	44.250	
TNAGT5A		45.000		1.190	53.537	1.4	0.272	1.97	90'	EL	44.250	0.493	1.71	90'	EL	4.425	0.80	0.272	1.19	90'	EL	44.250		
TNAGT5B	45.000	③	1.178	53.027	1.4	0.272	1.95	90'	EL	44.250	0.493	1.66	90'	EL	4.425	0.80	0.272	1.18	90'	EL	44.250			
EMERGENCY VEHICLE (EV)	EV2	28.750		2.296	66.005	1.3	0.272	3.25	90'	EL	44.250	0.493	2.49	90'	EL	4.425	0.80	0.272	2.30	90'	EL	44.250		
	EV3	43.000	④	1.510	64.924	1.3	0.272	2.14	90'	EL	44.250	0.493	1.67	90'	EL	4.425	0.80	0.272	1.51	90'	EL	44.250		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	8DC	8DW
	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)

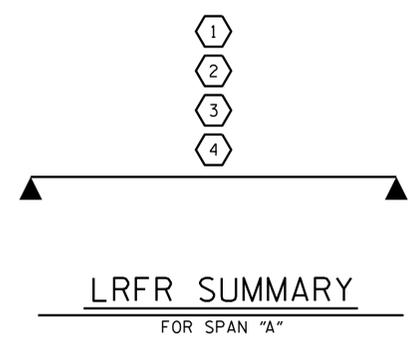
③ LEGAL LOAD RATING **

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. DF18311.2006017.PR
AVERY COUNTY
STATION: 13+70.00-L-

ASSEMBLED BY : JLA DATE : 5/25
CHECKED BY : MGC DATE : 8/25
DRAWN BY : TMC REV. 6/23 AKP/AAI
CHECKED BY : AAC II/II

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

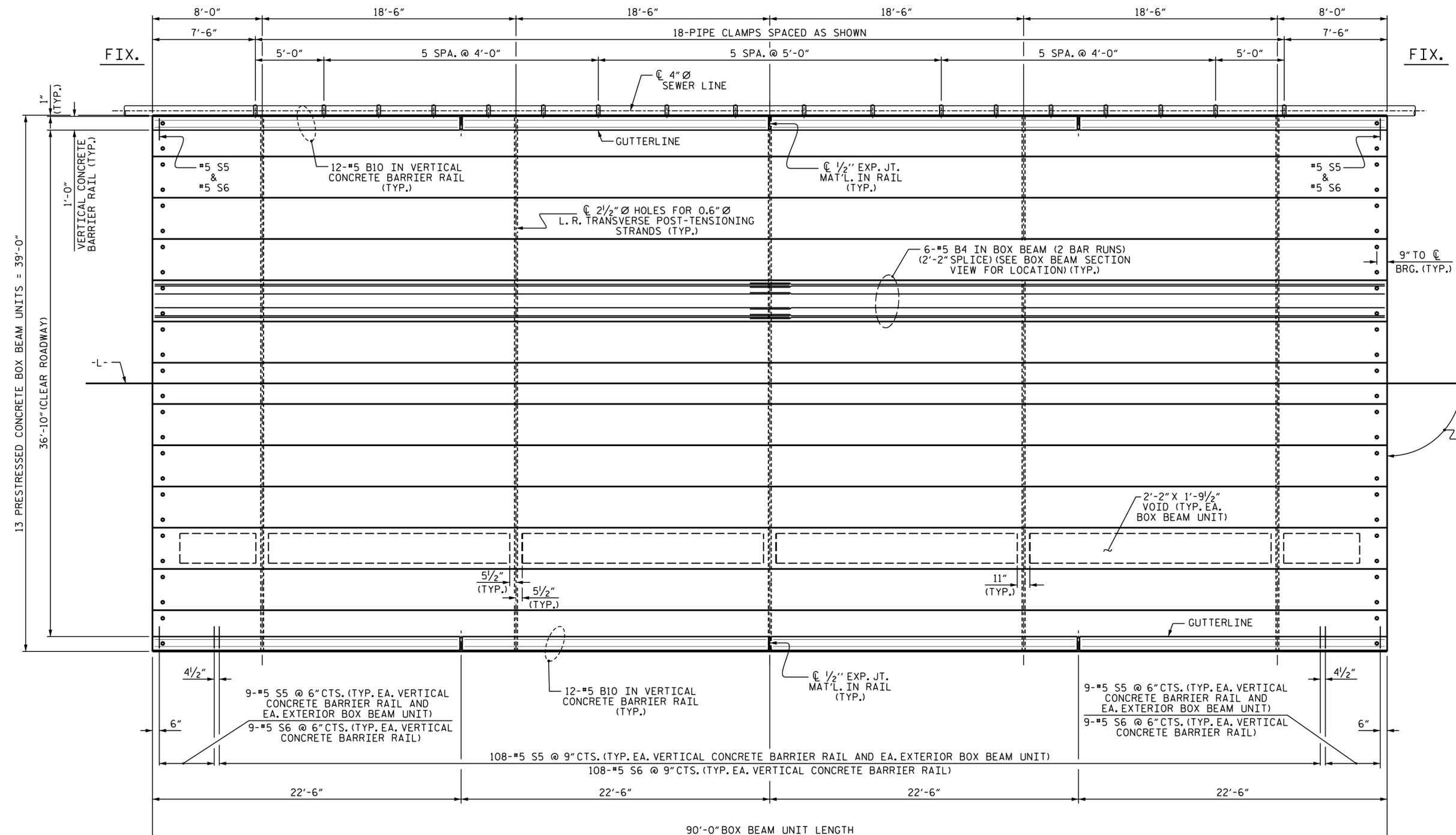
TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

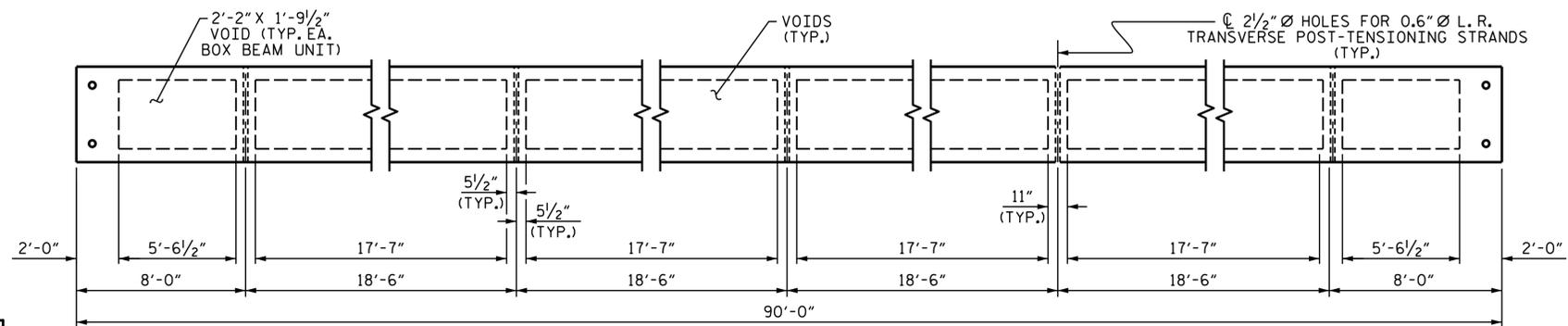
STANDARD

LRFR SUMMARY FOR
90' BOX BEAM UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-6 TOTAL SHEETS 20
2			4			



PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

PROJECT NO. DF18311.2006017.PR
AVERY COUNTY
 STATION: 13+70.00-L-
 SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 PLAN OF 90' UNIT
 36'-10" CLEAR ROADWAY
 90° SKEW

11/18/2025

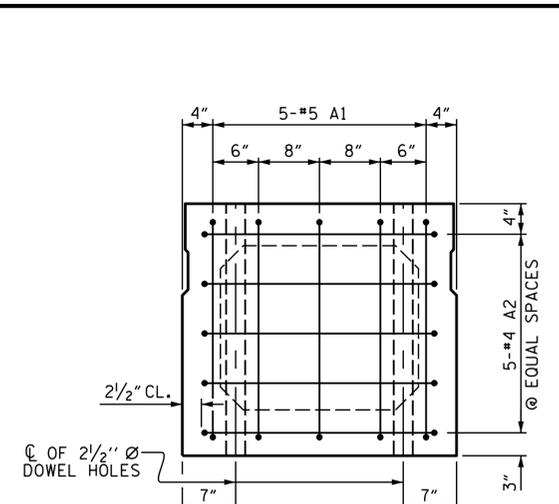
SEAL 20125
 ENGINEER
 MARSHALL G. CHEEK JR.

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

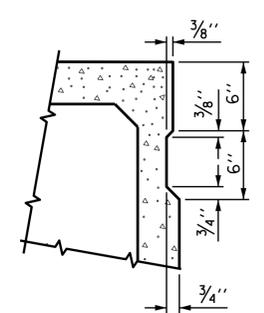
TGS ENGINEERS
 201 W. MARION ST. STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

ASSEMBLED BY :	JLA	DATE :	5/25
CHECKED BY :	MGC	DATE :	8/25
DRAWN BY :	DCE	REV. 8/14	MAA/TMG
CHECKED BY :	TMC	11/11	

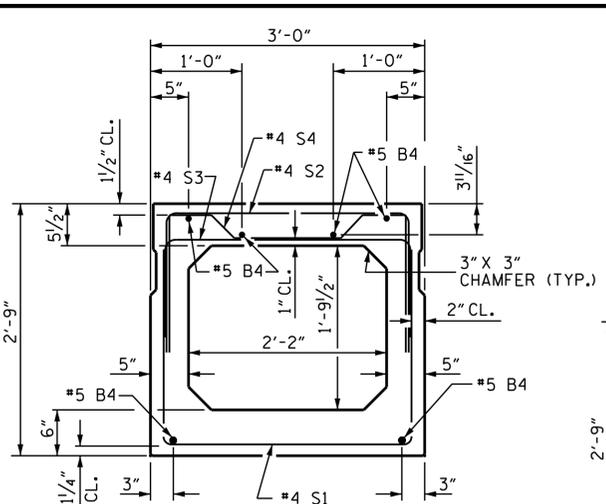
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-8
2			4			TOTAL SHEETS 20



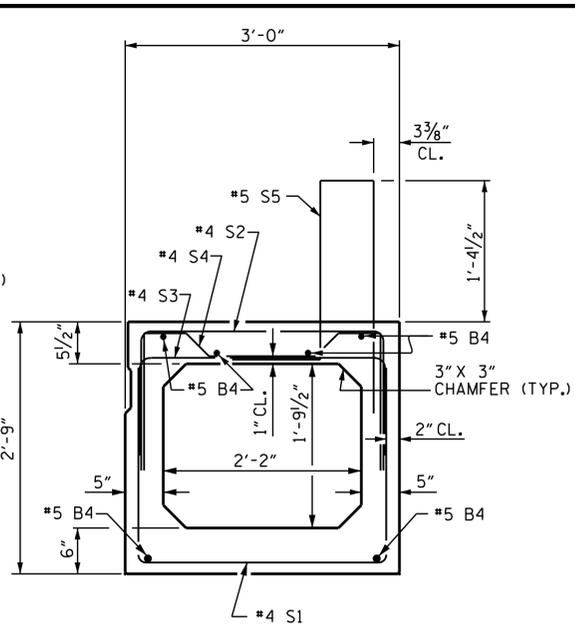
END ELEVATION
SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



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

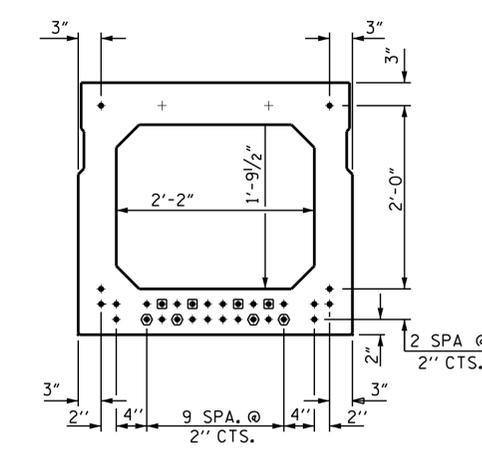


INTERIOR BOX BEAM SECTION
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION
(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT

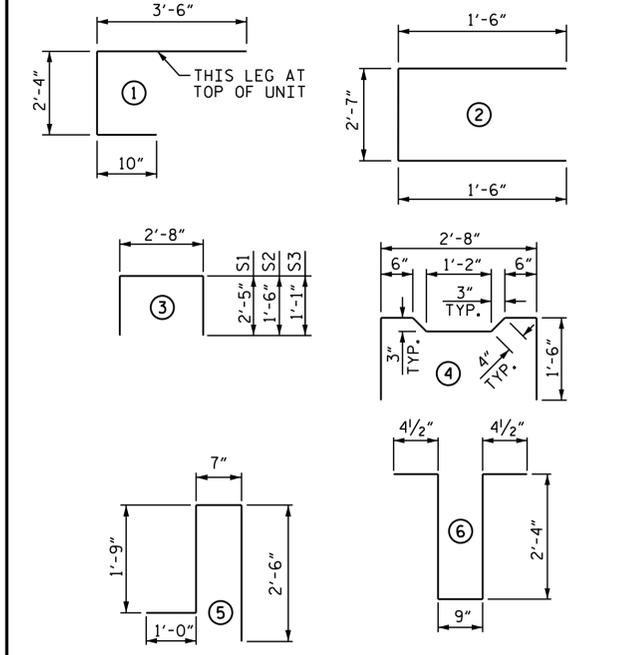


TYPICAL STRAND LOCATION
(30 STRANDS REQUIRED)
DEBONDING LEGEND

- FULLY BONDED STRANDS
 - STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - ⦶ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER
- BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

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

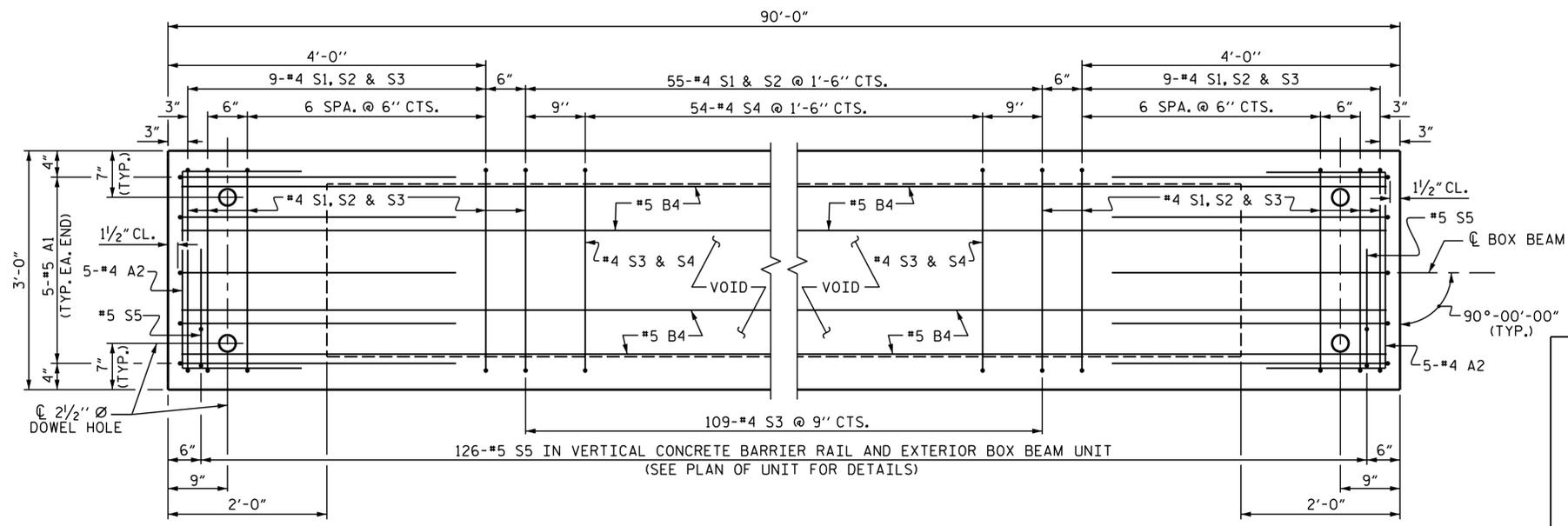
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	40	#4	2	5'-7"	149	5'-7"	149
B4	12	#5	STR	45'-11"	575	45'-11"	575
K1	15	#4	6	6'-2"	62	6'-2"	62
K2	10	#4	STR	2'-7"	17	2'-7"	17
S1	73	#4	3	7'-6"	366	7'-6"	366
S2	73	#4	3	5'-8"	276	5'-8"	276
S3	127	#4	3	4'-10"	410	4'-10"	410
S4	54	#4	4	5'-10"	210	5'-10"	210
* S5	126	#5	5	5'-10"	767	--	--
REINFORCING STEEL				2135	LBS.	2135	LBS.
* EPOXY COATED REINF. STEEL				767	LBS.		
8000 P.S.I. CONCRETE				16.0	CU. YDS.	15.9	CU. YDS.
0.6" Ø L.R. STRANDS				No. 30		No. 30	



PLAN OF BOX BEAM

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

PROJECT NO. DF18311.2006017.PR
AVERY COUNTY
STATION: 13+70.00-L-
SHEET 3 OF 5

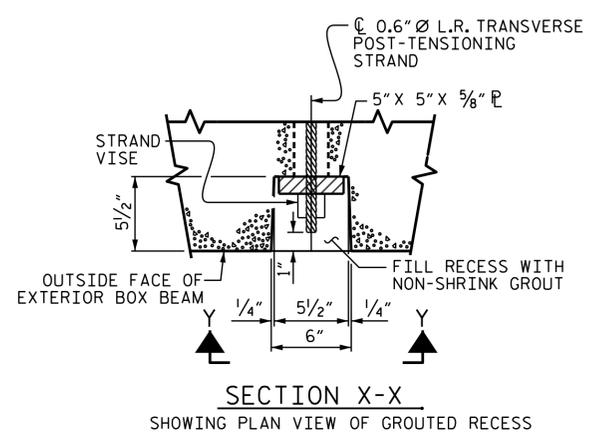
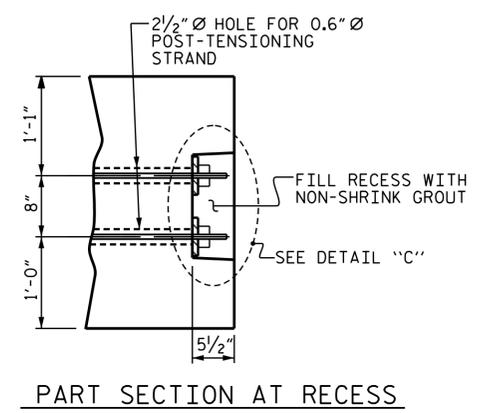
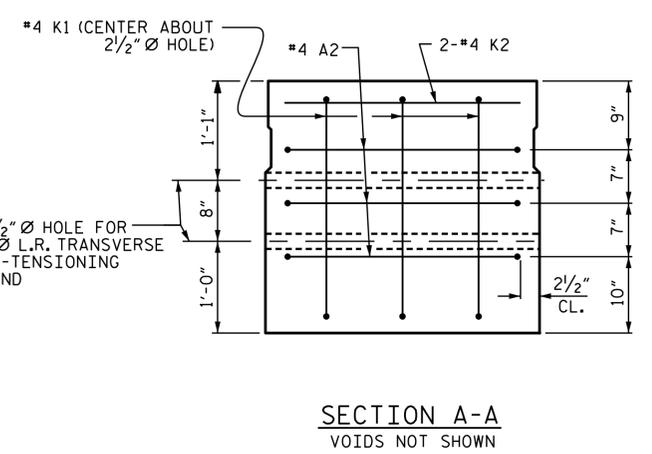
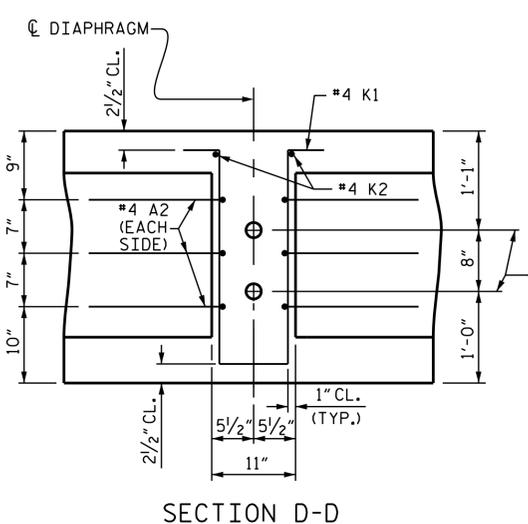
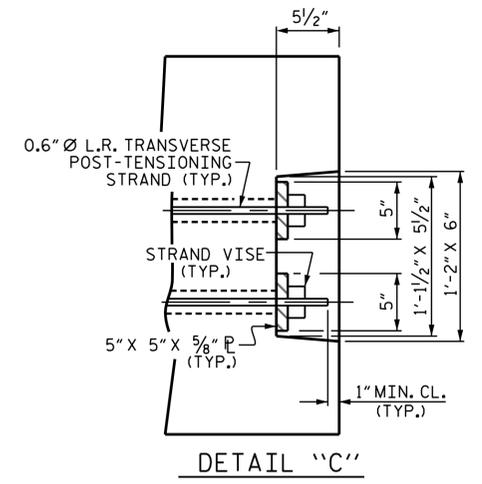
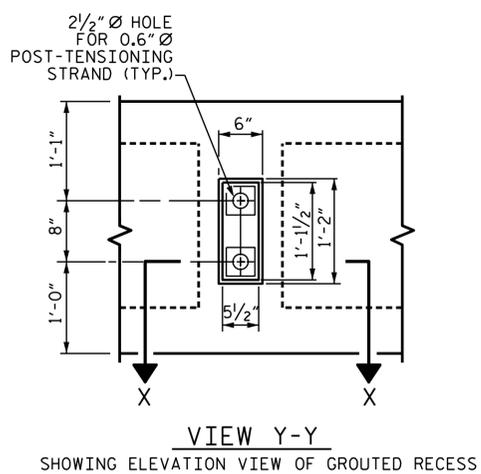
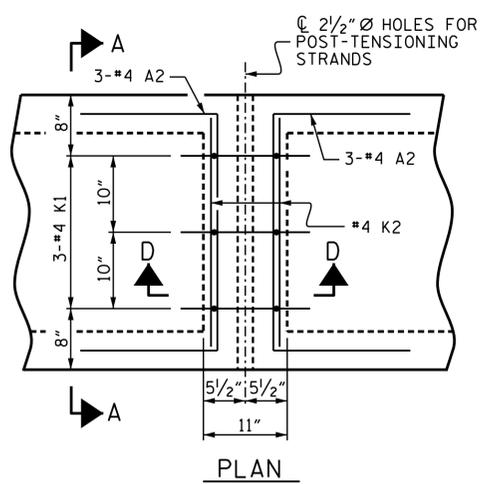


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

ASSEMBLED BY :	JLA	DATE :	5/25
CHECKED BY :	MGC	DATE :	8/25
DRAWN BY :	DCE	REV. 9/14	MAA/TMG
CHECKED BY :	TMG	10/11	11/11

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

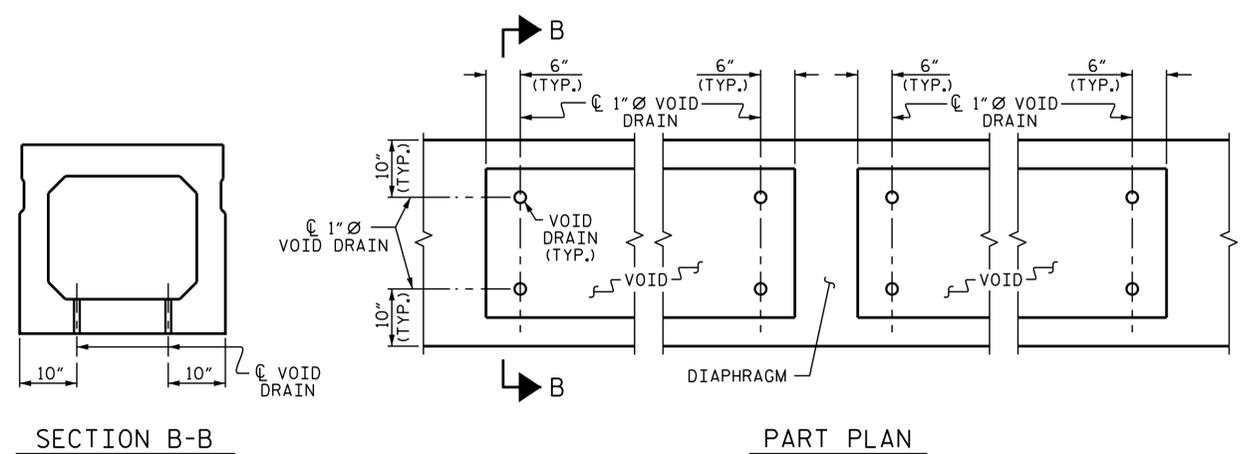
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-9
2			4			TOTAL SHEETS 20



DOUBLE DIAPHRAGM DETAILS

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

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



VOID DRAIN DETAILS

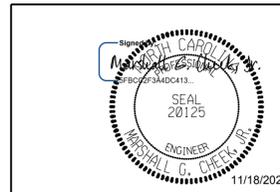
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

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

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. DF18311.2006017.PR
 AVERY COUNTY
 STATION: 13+70.00-L-

SHEET 4 OF 5



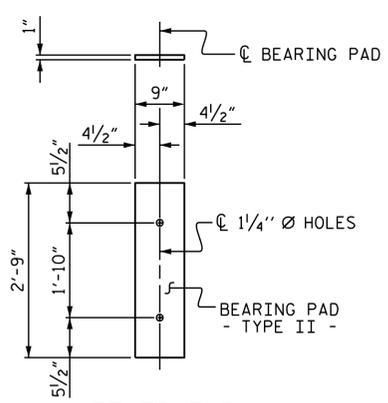
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

ASSEMBLED BY : JLA	DATE : 5/25
CHECKED BY : MGC	DATE : 8/25
DRAWN BY : DCE	10/11
CHECKED BY : TMG	11/11
REV. 8/14	MAA/TMG

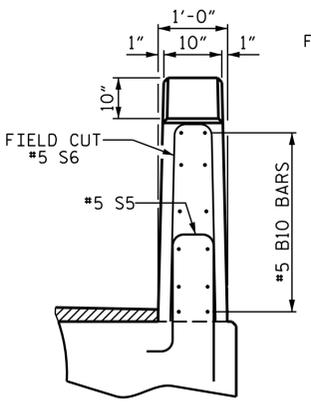
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 CORP. LICENSE NO.: C-0275

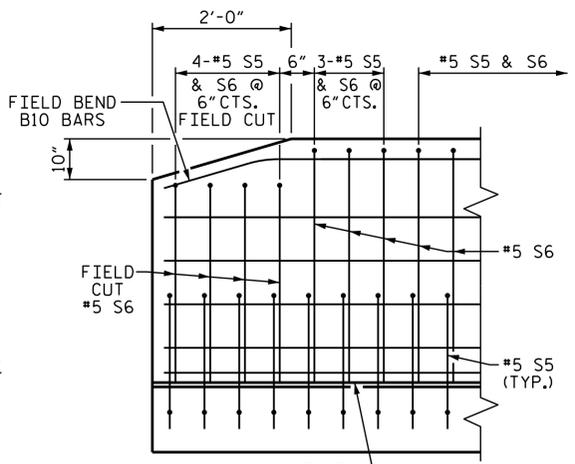
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS 20
2			4			



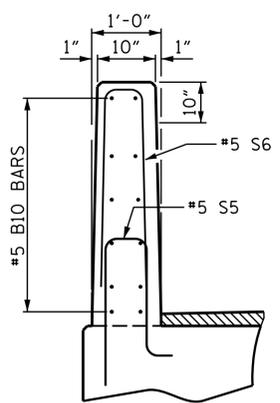
FIXED END
(TYPE II - 26 REQ'D)



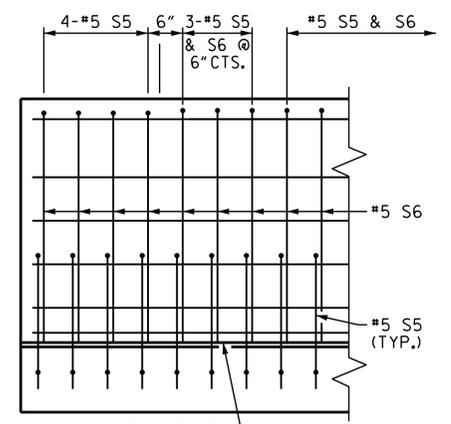
END VIEW
RIGHT SIDE



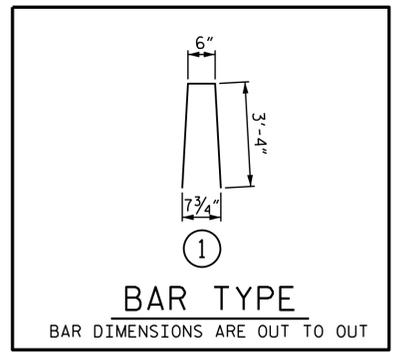
SIDE VIEW
RIGHT SIDE



END VIEW
LEFT SIDE



SIDE VIEW
LEFT SIDE



BAR TYPE
BAR DIMENSIONS ARE OUT TO OUT

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

END OF RAIL DETAILS

BOX BEAM UNITS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	90'-0"	180'-0"
INTERIOR B.B.	11	90'-0"	990'-0"
TOTAL	13		1170'-0"

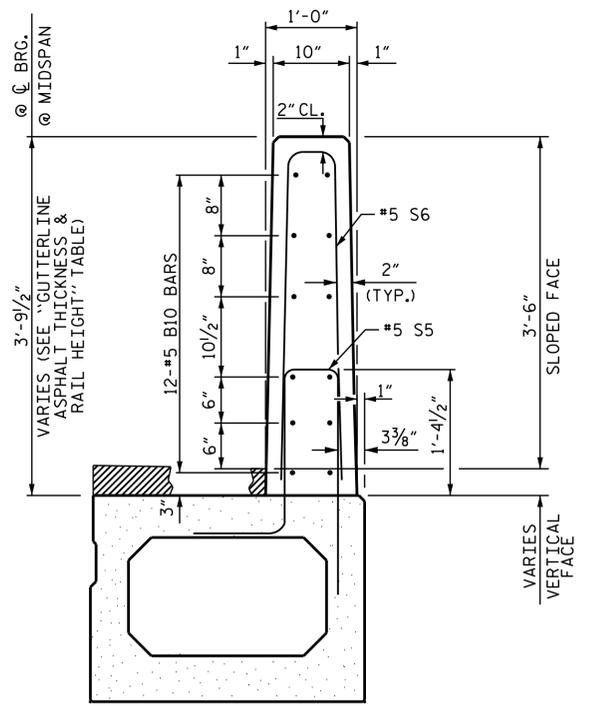
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	SIZE	TYPE	LENGTH	WEIGHT
	90' UNIT				
*B10	96	#5	STR	22'-1"	2211
*S6	252	#5	1	7'-2"	1884
* EPOXY COATED REINFORCING STEEL				LBS.	4095
CLASS AA CONCRETE				CU.YDS.	23.2
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.	204.00

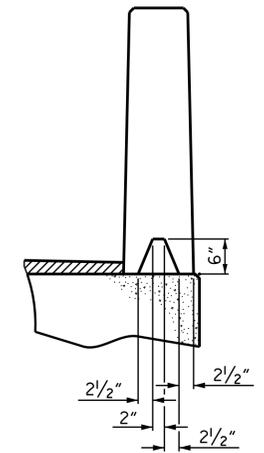
NOTE: PAYMENT FOR THE BARRIER RAIL ON THE APPROACH SLABS SHALL BE PAID FOR UNDER THE CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL. REINFORCING STEEL AND CONCRETE QUANTITIES ARE INCLUDED WITH THE APPROACH SLAB BILL OF MATERIAL.

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
90' UNITS	1 1/2"	3'-7 1/2"

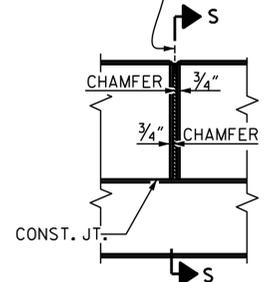


SECTION THRU RAIL



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

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

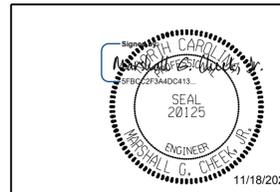
VERTICAL CONCRETE BARRIER RAIL DETAILS

PROJECT NO. DF18311.2006017.PR

AVERY COUNTY

STATION: 13+70.00-L-

SHEET 5 OF 5

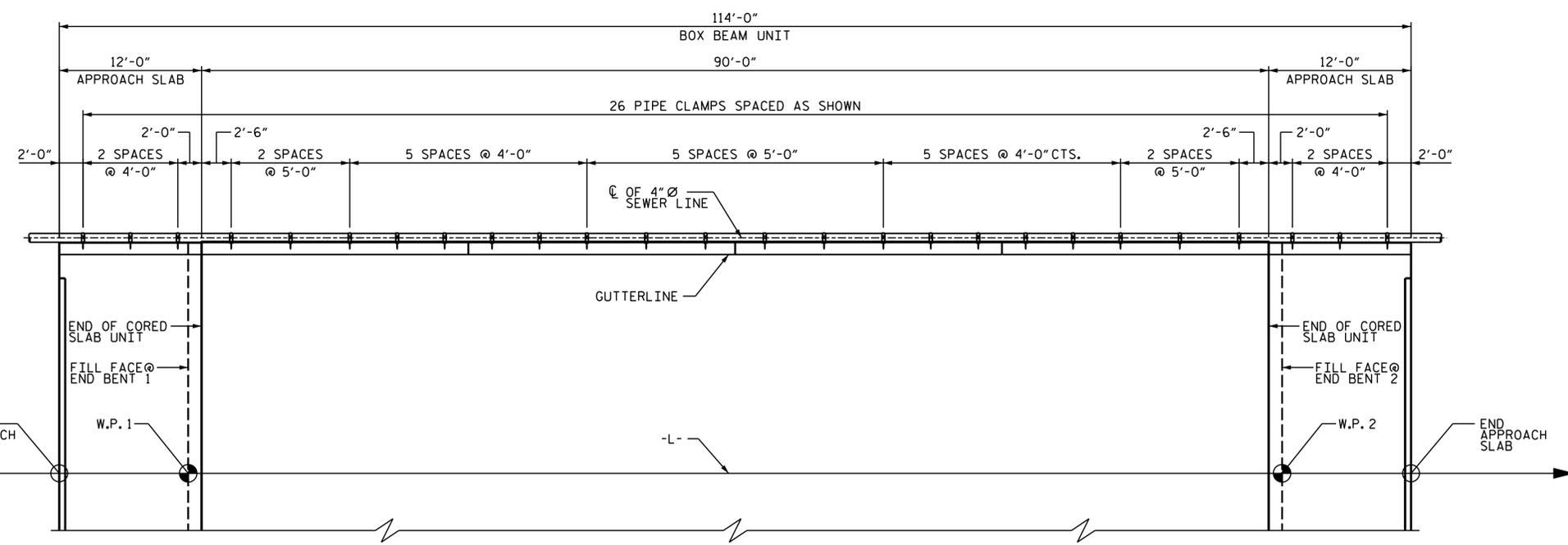


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

ASSEMBLED BY :	JLA	DATE :	5/25
CHECKED BY :	MGC	DATE :	8/25
DRAWN BY :	DCE	10/11	REV. 5/18
CHECKED BY :	TMG	11/11	MAA/THC

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PLAN VIEW - PIPE CLAMP LAYOUT

NOTES

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.

IN LIEU OF THE 3/8" STRAP PLATE, THE CONTRACTOR MAY SUBMIT AN ALTERNATE STRAP PLATE TO THE ENGINEER FOR APPROVAL.

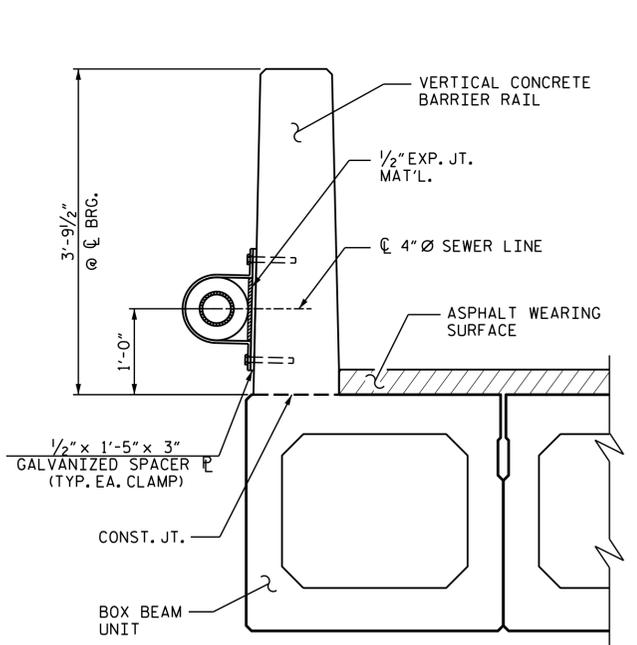
AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

STEEL SPACER AND STRAP PLATE SHALL CONFORM TO ASTM M270 GRADE 36 AND SHALL BE GALVANIZED TO AASHTO M11.

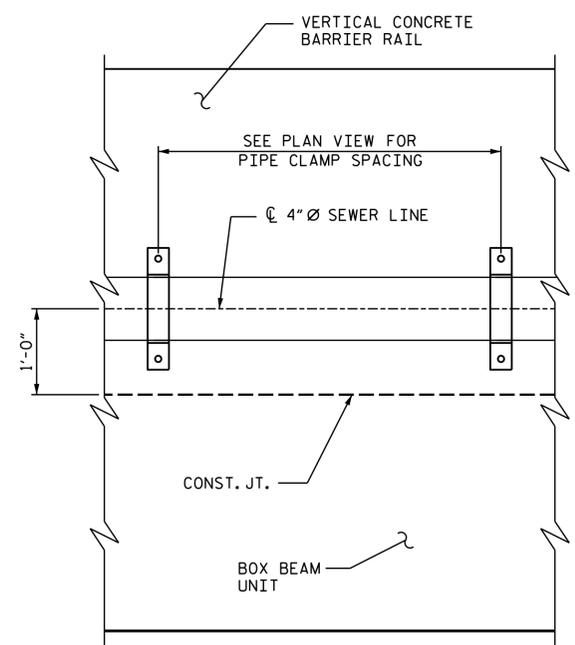
LEVEL ONE FIELD TESTING IS REQUIRED AND THE YIELD LOAD OF THE ANCHOR BOLTS IS 10.0 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS, SEE THE STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGING THE REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL.

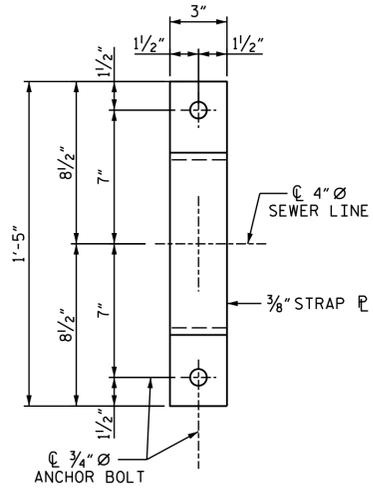
THE ENTIRE COST OF THE PIPE CLAMP INCLUDING INSTALLATION, LABOR, BOLTS, NUTS, WASHERS, STRAP PLATE AND STEEL SPACER AND ALL INCIDENTALS SHALL BE INCLUDED IN THE UNIT CONTRACT BID PRICE FOR VERTICAL CONCRETE BARRIER RAIL.



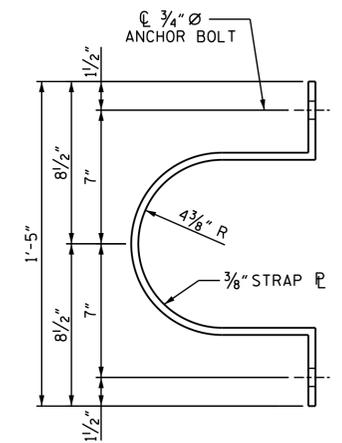
SECTION THRU SEWER LINE



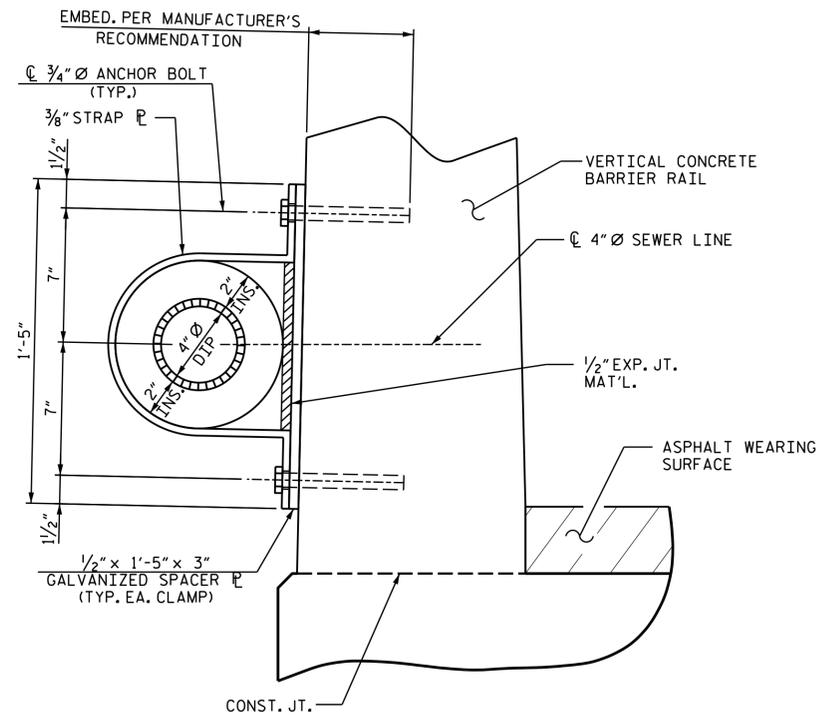
PARTIAL ELEVATION



FRONT VIEW OF PIPE CLAMP



SIDE VIEW OF PIPE CLAMP



PARTIAL ELEVATION

PIPE CLAMP DETAILS

PROJECT NO. DF18311.2006017.PR
AVERY COUNTY
 STATION: 13+70.00-L-

DRAWN BY : JLA DATE : 8/25
 CHECKED BY : MGC DATE : 8/25
 DESIGN ENGINEER OF RECORD : RDE DATE : 8/25

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE MOUNTED SEWER LINE DETAILS

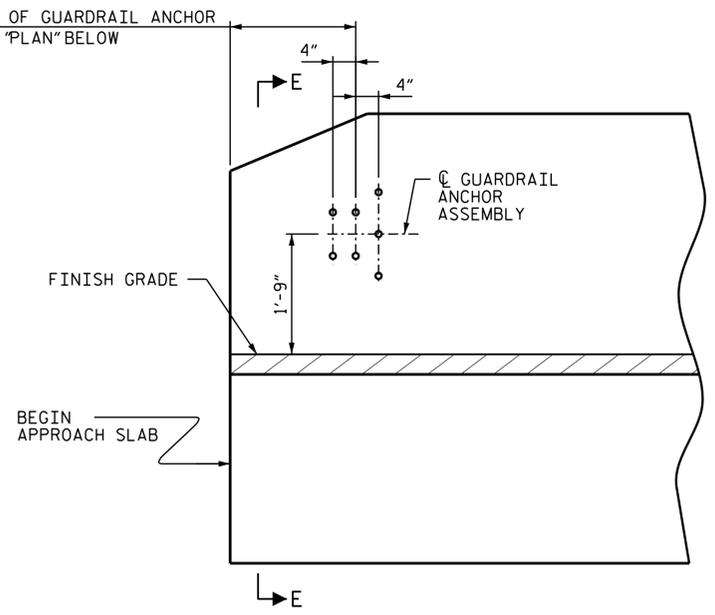
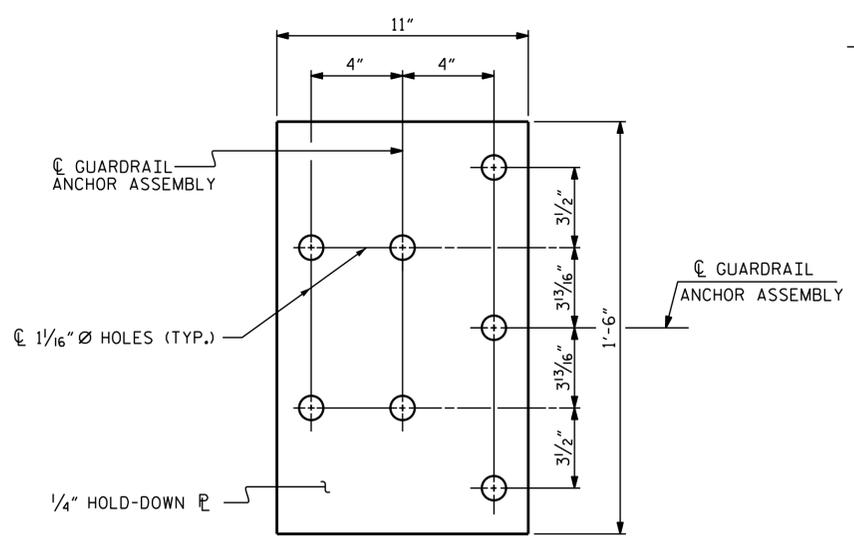
11/18/2025

ENGINEER
 MARSHALL G. CHEEK, JR.

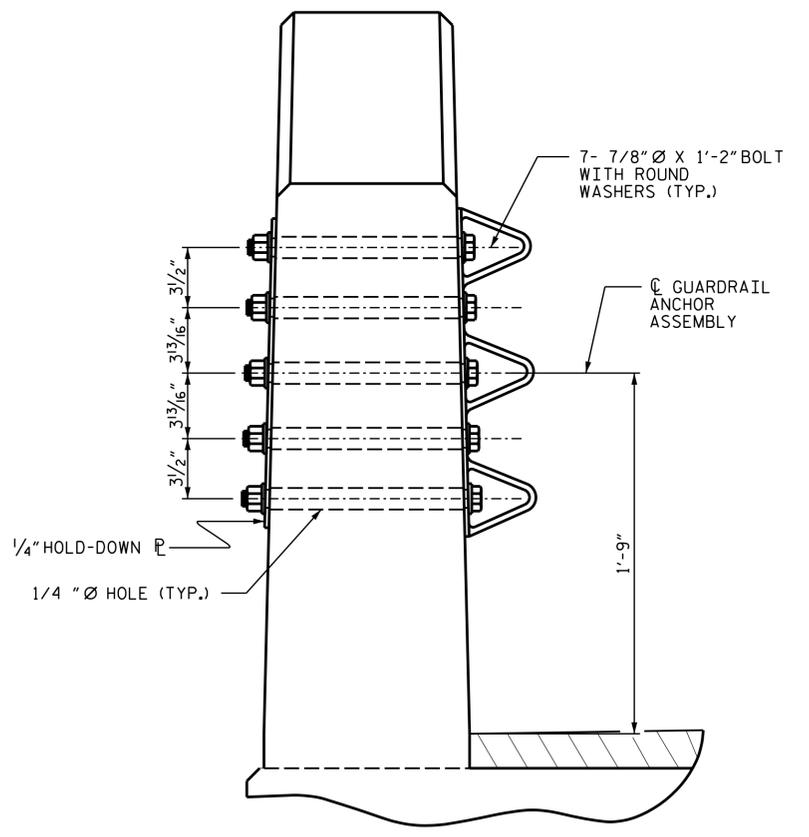
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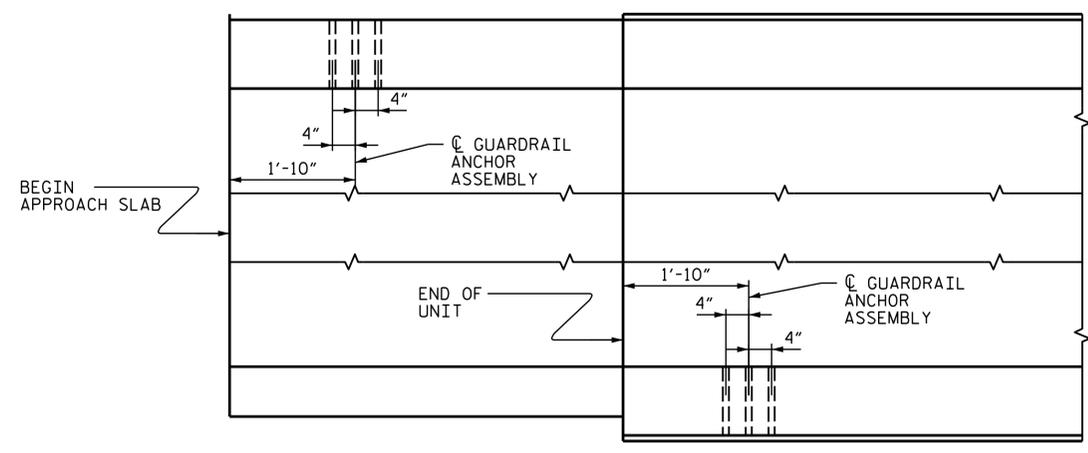
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2			4			TOTAL SHEETS 20



ELEVATION

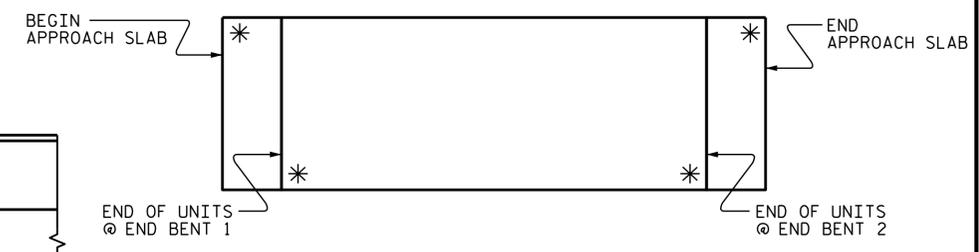


SECTION E-E



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

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.

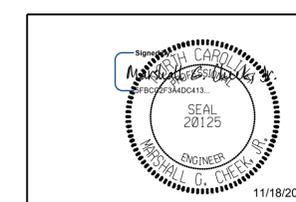
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

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 1/4" 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.

PROJECT NO. DF18311.2006017.PR
AVERY COUNTY
 STATION: 13+70.00-L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS FOR VERTICAL
 CONCRETE BARRIER RAIL

ASSEMBLED BY :	JLA	DATE :	5/25
CHECKED BY :	MGC	DATE :	8/25
DRAWN BY :	MAA	REV. 1/15	MAA/TMG
CHECKED BY :	GM	REV. 12/17	MAA/THC
		REV. 5/18	MAA/THC

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NOTES

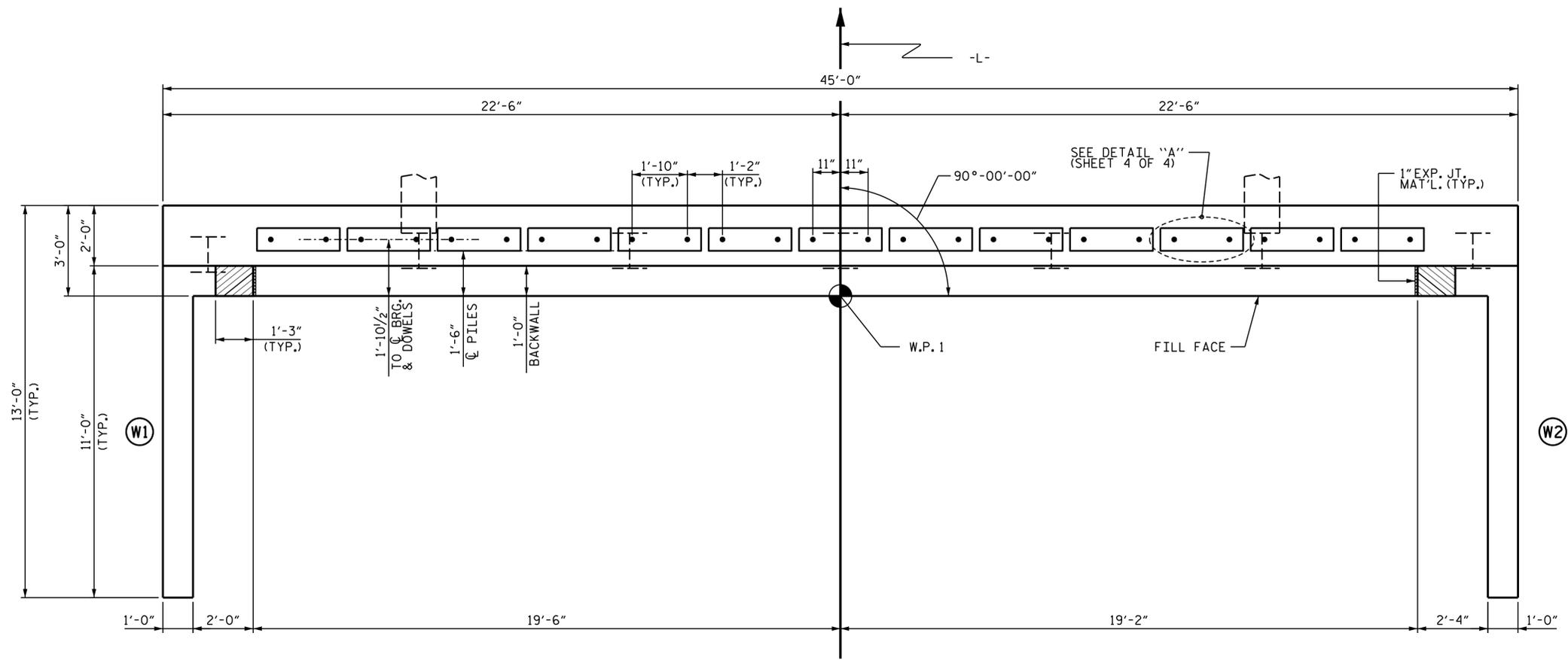
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

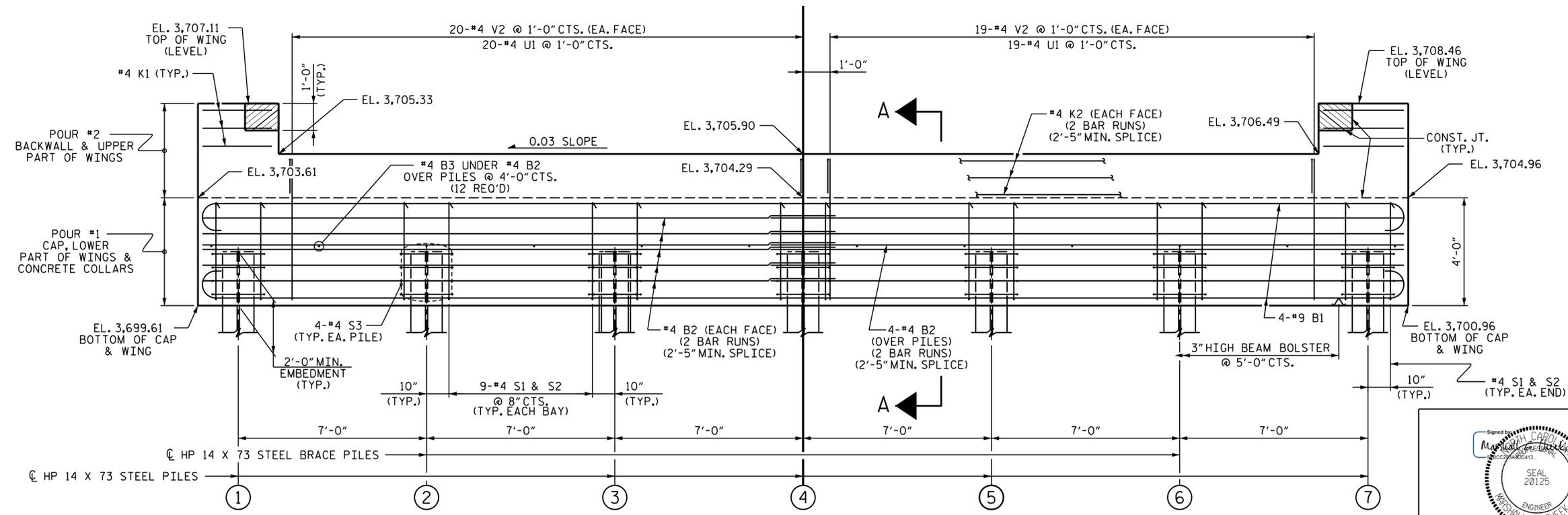
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

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



PLAN

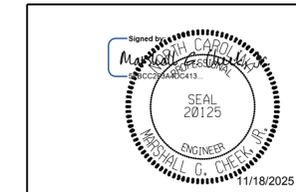


ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

TOP OF PILE ELEVATIONS	
①	3,701.68
②	3,701.89
③	3,702.10
④	3,702.31
⑤	3,702.52
⑥	3,702.73
⑦	3,702.94

PROJECT NO. DF18311.2006017.PR
AVERY COUNTY
 STATION: 13+70.00-L-
 SHEET 1 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

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1			3			TOTAL SHEETS
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 CHECKED BY : MGC DATE : 8/25

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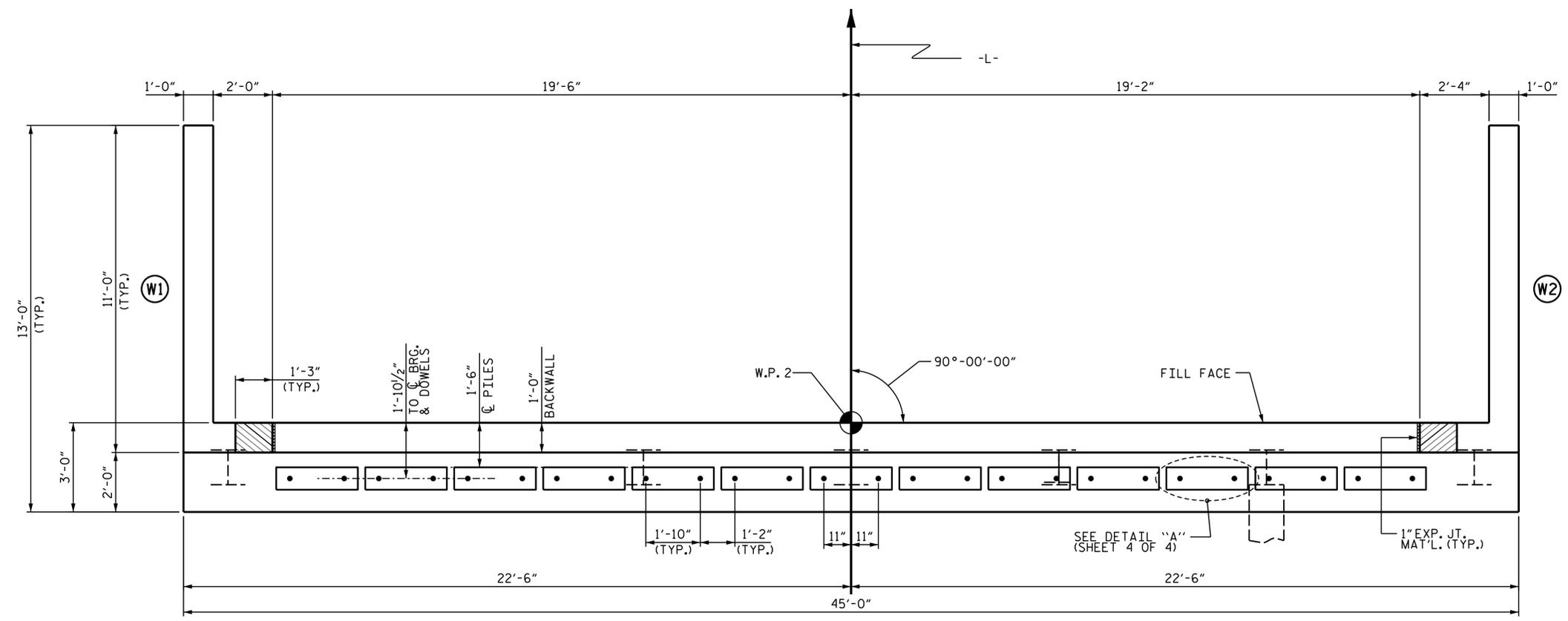
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

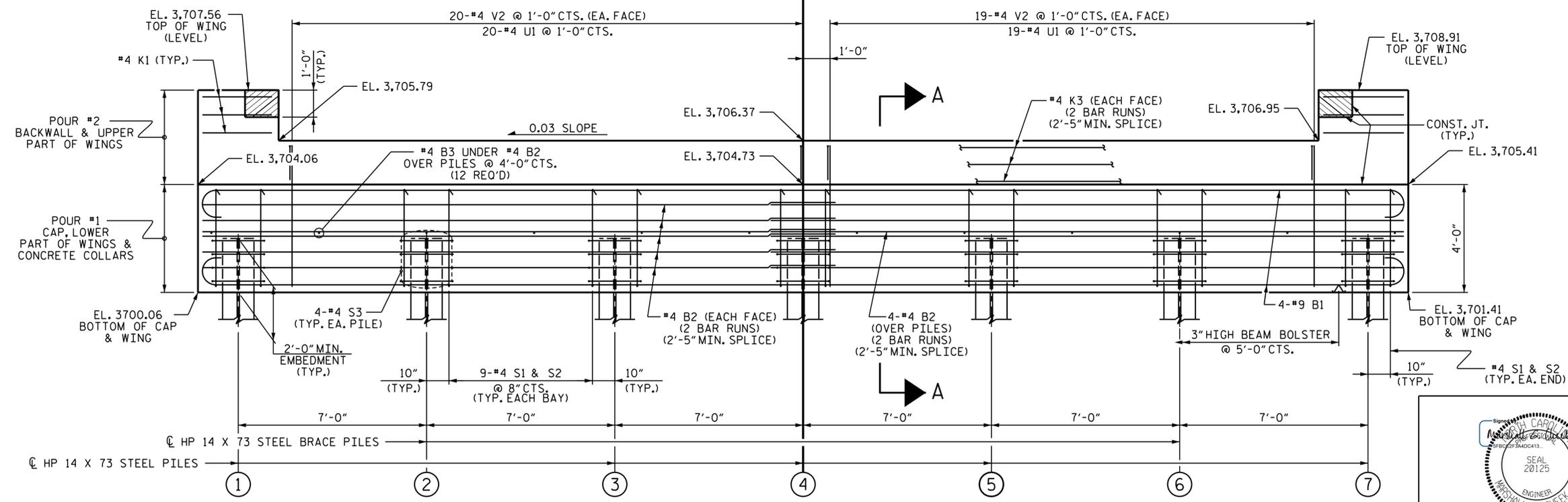
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

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



PLAN

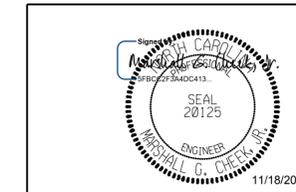


ELEVATION

WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

TOP OF PILE ELEVATIONS	
①	3,702.12
②	3,702.33
③	3,702.54
④	3,702.75
⑤	3,702.96
⑥	3,703.17
⑦	3,703.38

PROJECT NO. DF18311.2006017.PR
AVERY COUNTY
 STATION: 13+70.00-L-
 SHEET 2 OF 4



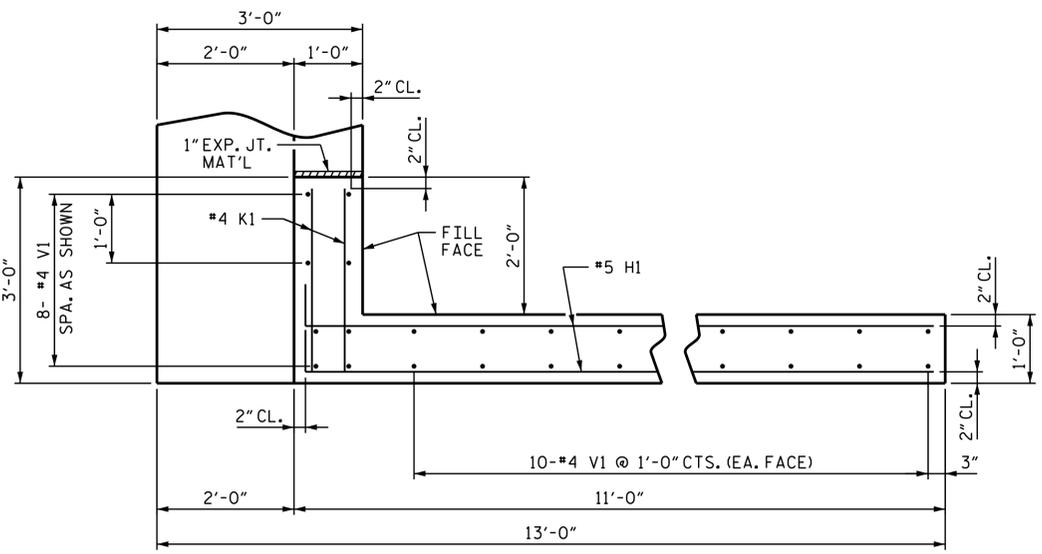
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 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

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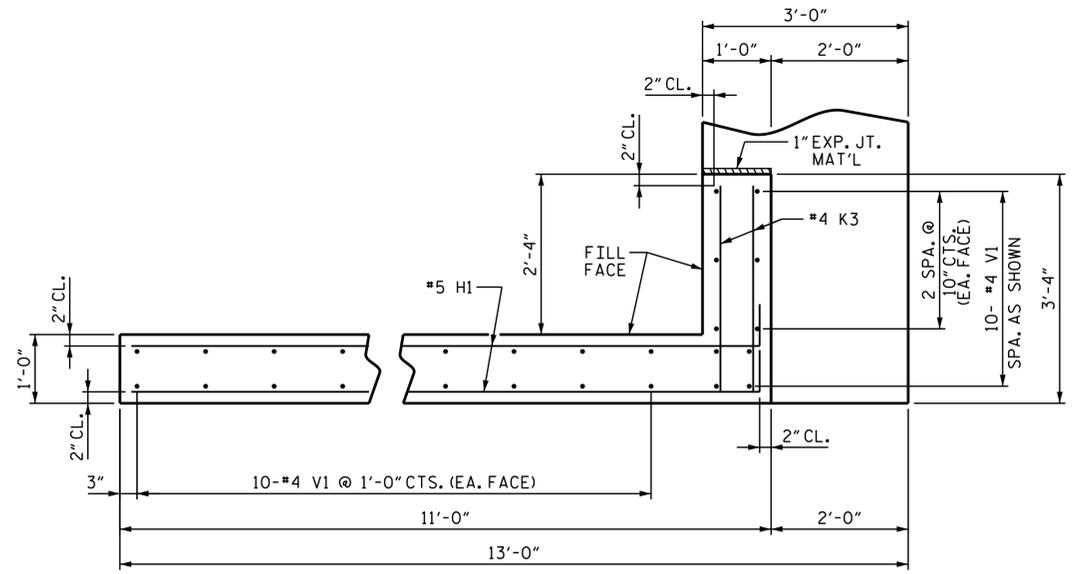
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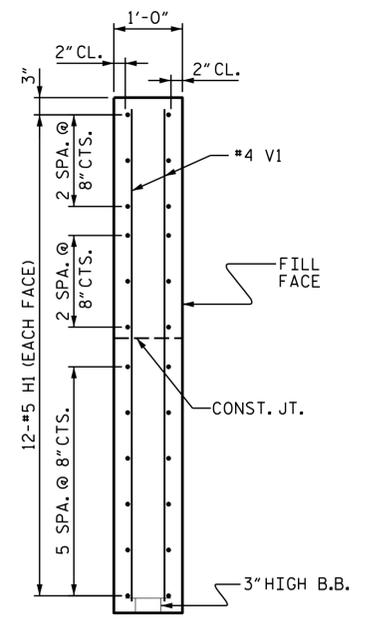
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 CHECKED BY : MGC DATE : 8/25



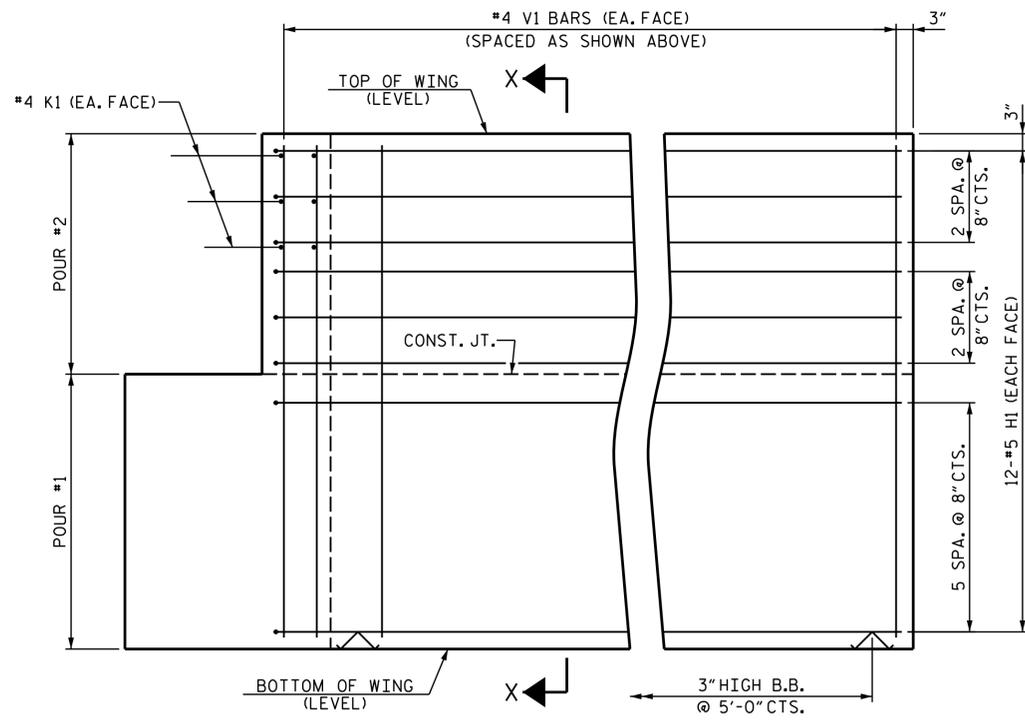
PLAN OF WING (W1)



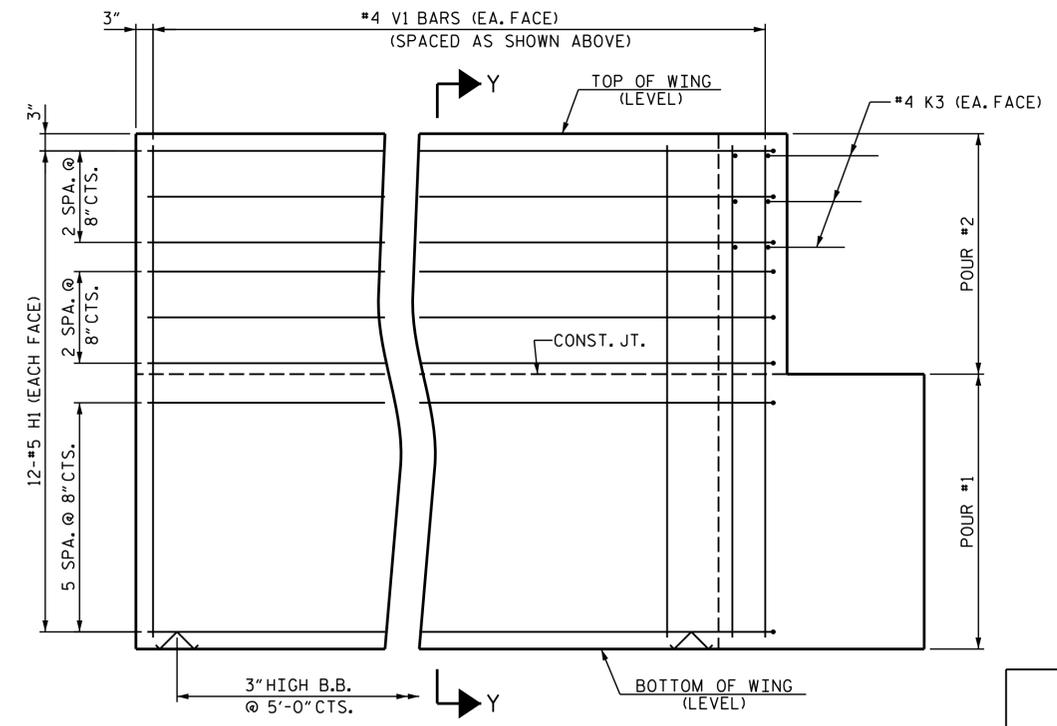
PLAN OF WING (W2)



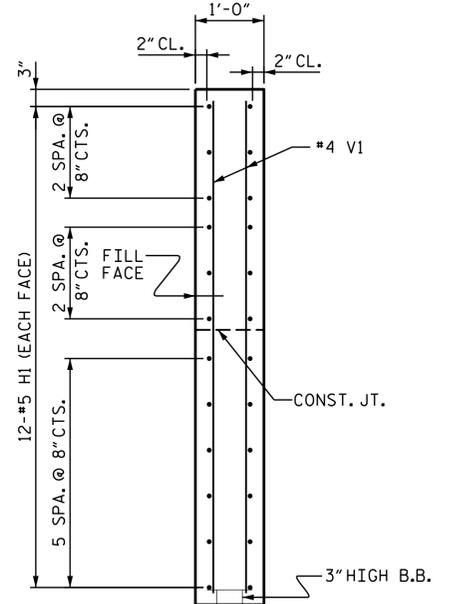
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

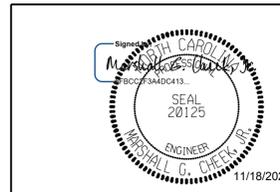
WING DETAILS

PROJECT NO. DF18311.2006017.PR

AVERY COUNTY

STATION: 13+70.00-L-

SHEET 3 OF 4

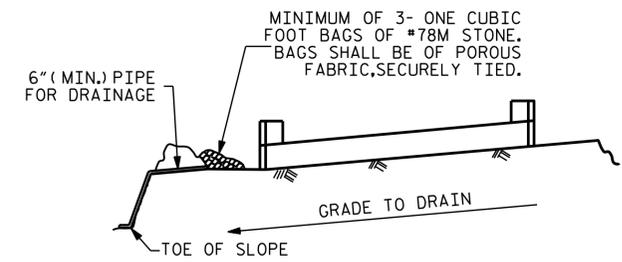


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT
WING DETAILS

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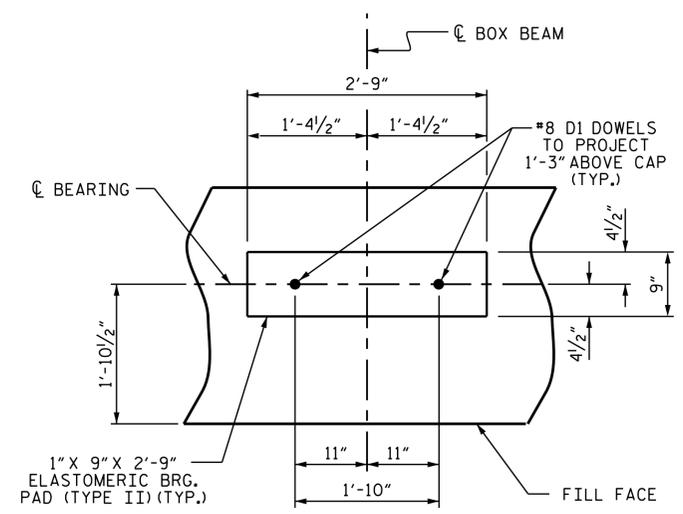


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

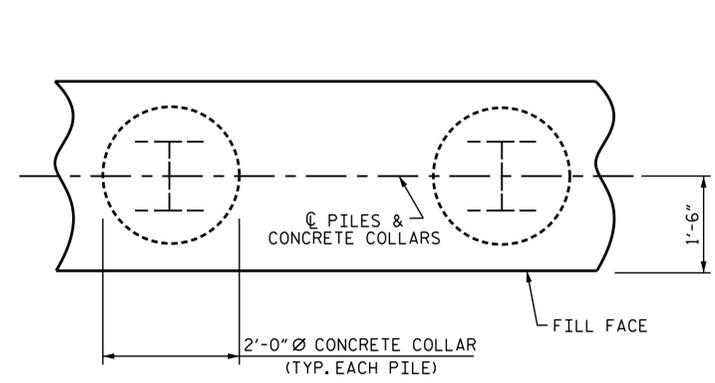
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

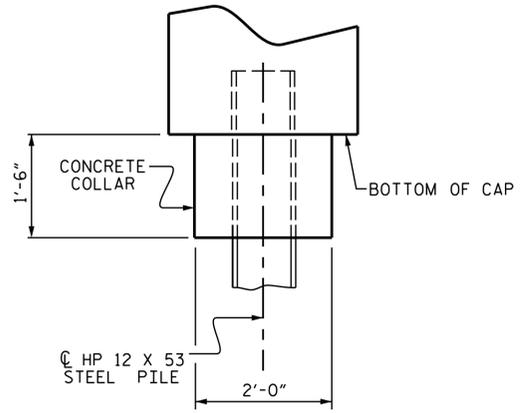
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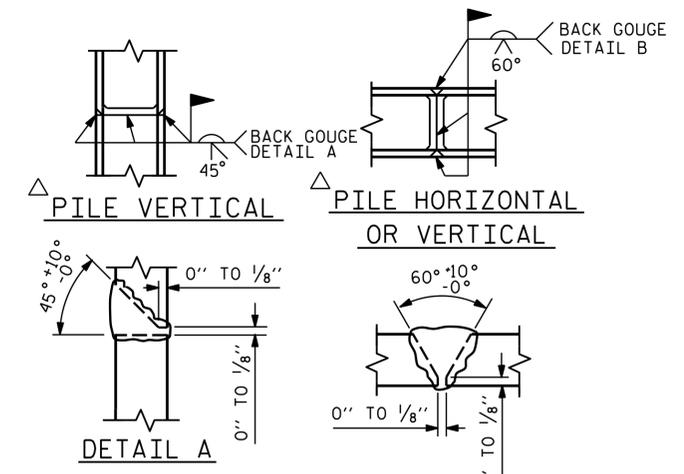
PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

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

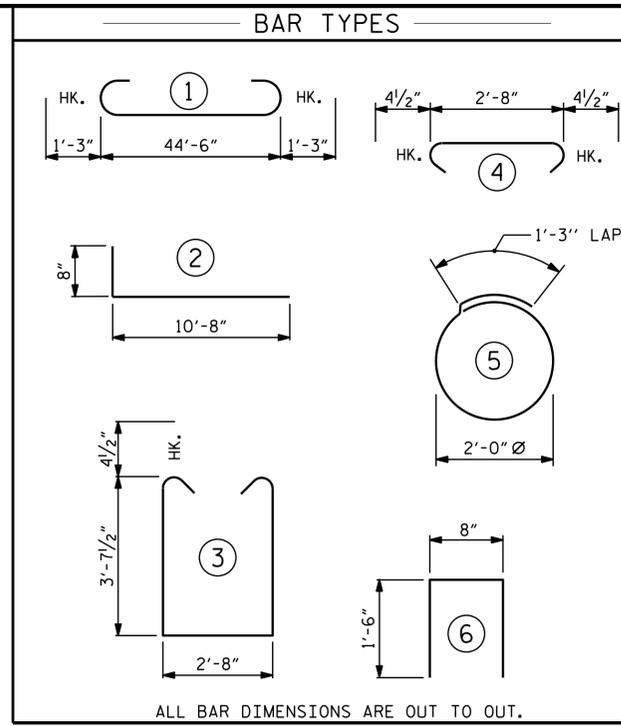


ELEVATION

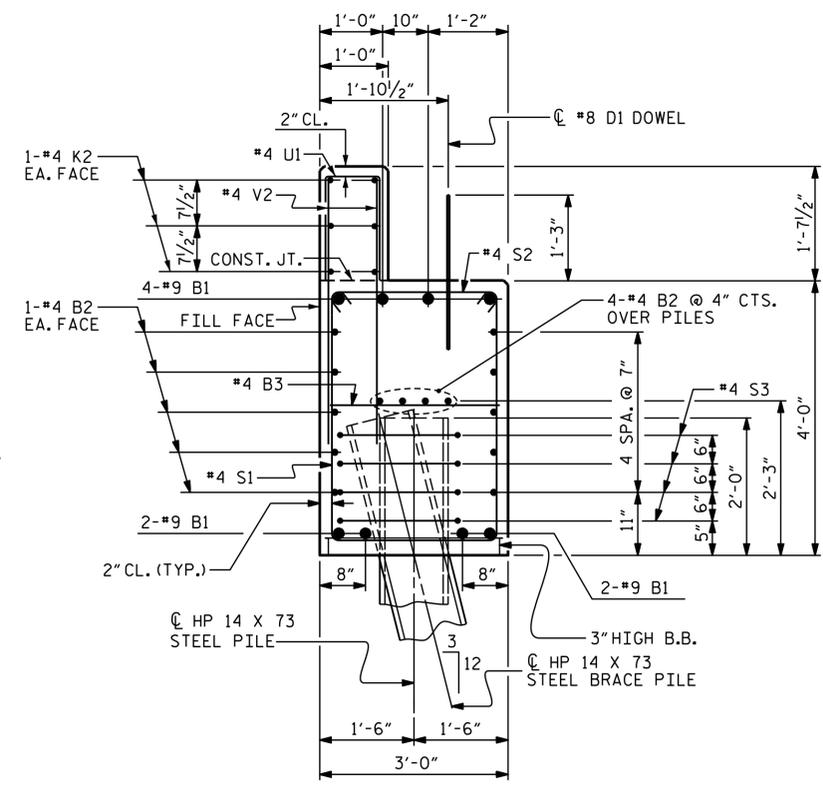


POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	47'-0"	1278
B2	28	#4	STR	23'-7"	441
B3	12	#4	STR	2'-5"	19
D1	26	#8	STR	2'-3"	156
H1	48	#5	2	11'-4"	567
K1	6	#4	STR	2'-7"	10
K2	12	#4	STR	23'-7"	189
K3	6	#4	STR	3'-0"	12
S1	56	#4	3	10'-8"	399
S2	56	#4	4	3'-5"	128
S3	28	#4	5	7'-7"	142
U1	39	#4	6	3'-8"	96
V1	56	#4	STR	7'-2"	268
V2	78	#4	STR	5'-3"	274
REINFORCING STEEL (FOR ONE END BENT)				3979 LBS.	
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				24.2 C.Y.	
POUR #2 BACKWALL & UPPER PART OF WINGS				5.7 C.Y.	
TOTAL CLASS A CONCRETE				29.9 C.Y.	



SECTION A-A

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

PROJECT NO. DF18311.2006017.PR
AVERY COUNTY
STATION: 13+70.00-L-
SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 1 & 2
DETAILS

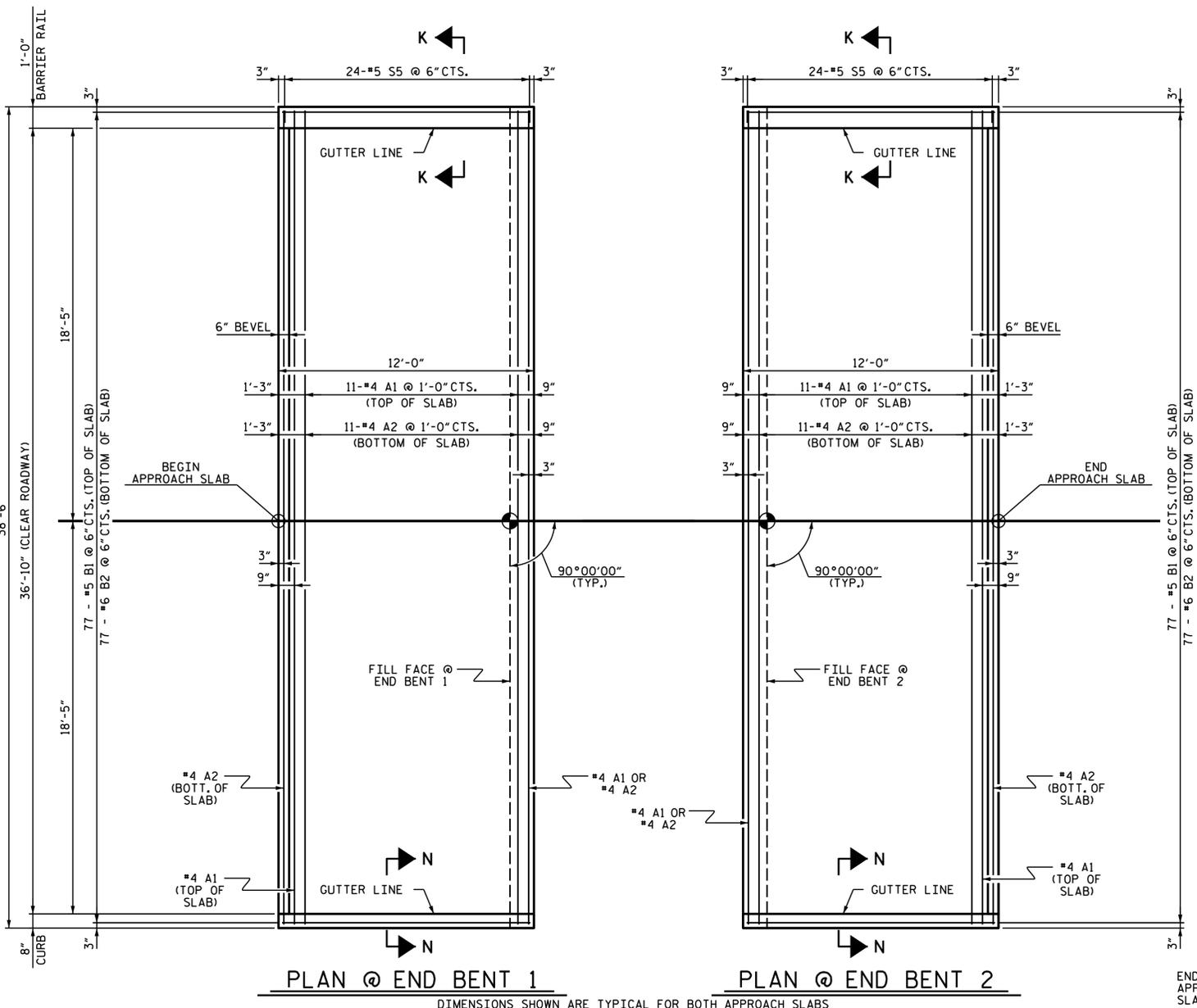
11/18/2025
SEAL 20125
MARSHALL G. CHEEK, JR.
ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

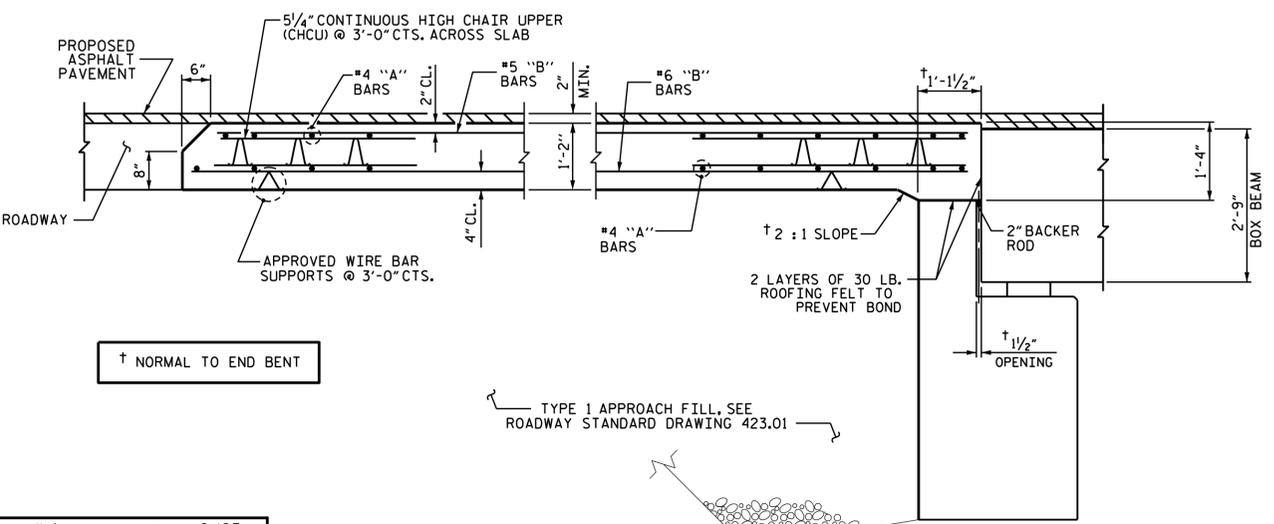
TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : JLA DATE : 8/25
CHECKED BY : MGC DATE : 8/25

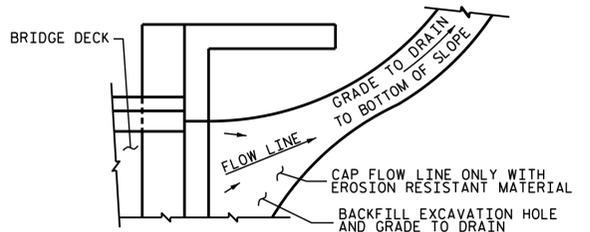


PLAN @ END BENT 1
PLAN @ END BENT 2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

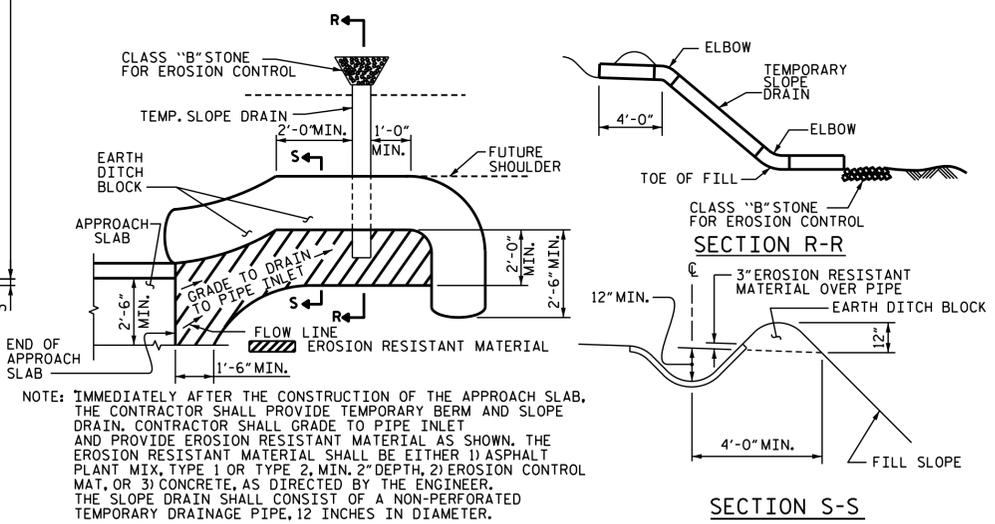


SECTION THRU SLAB

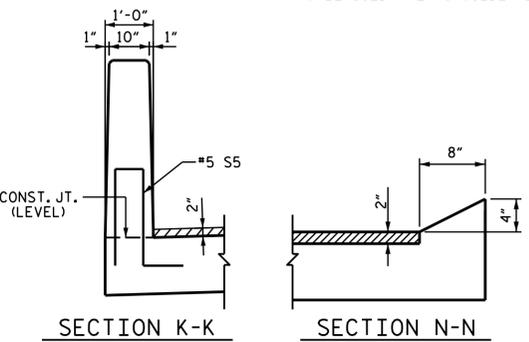
NOTES
FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
APPROACH SLAB GROOVING IS NOT REQUIRED.
PAYMENT FOR THE VERTICAL CONCRETE BARRIER RAIL ON THE APPROACH SLABS SHALL BE INCLUDED IN THE PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.



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

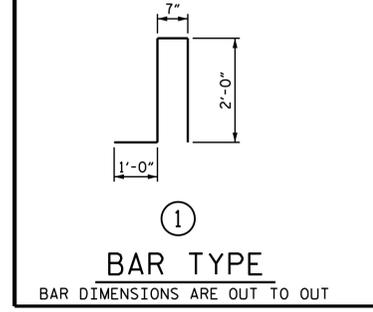


TEMPORARY BERM AND SLOPE DRAIN DETAILS
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION K-K
SECTION N-N

BILL OF MATERIAL													
APPROACH SLAB AT EB 1						APPROACH SLAB AT EB 2							
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*A1	13	#4	STR	38'-2"	331	*A1	13	#4	STR	38'-2"	331		
A2	13	#4	STR	38'-2"	331	A2	13	#4	STR	38'-2"	331		
*B1	77	#5	STR	11'-2"	897	*B1	77	#5	STR	11'-2"	897		
B2	77	#6	STR	11'-8"	1349	B2	77	#6	STR	11'-8"	1349		
*S5	24	#5	STR	5'-7"	140	*S5	24	#5	STR	5'-7"	140		
REINFORCING STEEL					LBS.	1680	REINFORCING STEEL					LBS.	1680
*EPOXY COATED REINFORCING STEEL					LBS.	1368	*EPOXY COATED REINFORCING STEEL					LBS.	1368
CLASS AA CONCRETE					C. Y.	20.2	CLASS AA CONCRETE					C. Y.	20.2



BAR TYPE
BAR DIMENSIONS ARE OUT TO OUT

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

ASSEMBLED BY : JLA DATE : 6/25
CHECKED BY : MGC DATE : 8/25
DRAWN BY : MAA II/II REV. 08-19 BNB/THC
CHECKED BY : AAC II/II REV. 01-25 HRS

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
BOX BEAM UNIT
(SUB-REGIONAL TIER)
90° SKEW

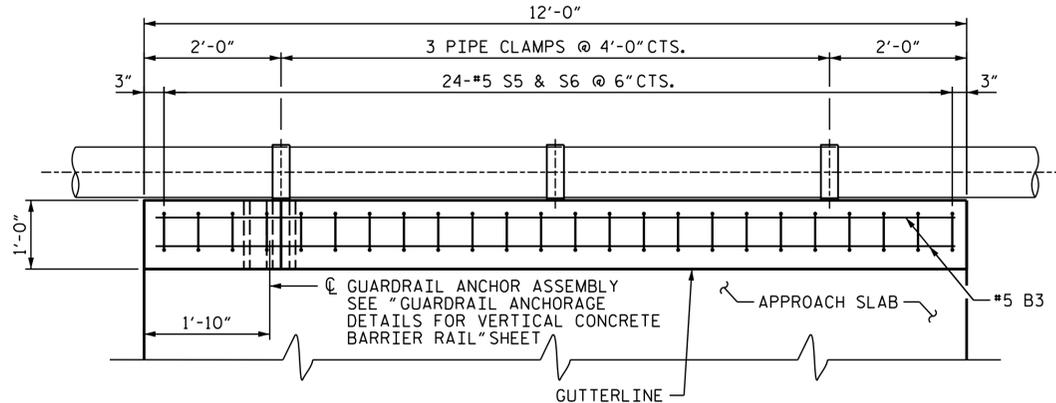
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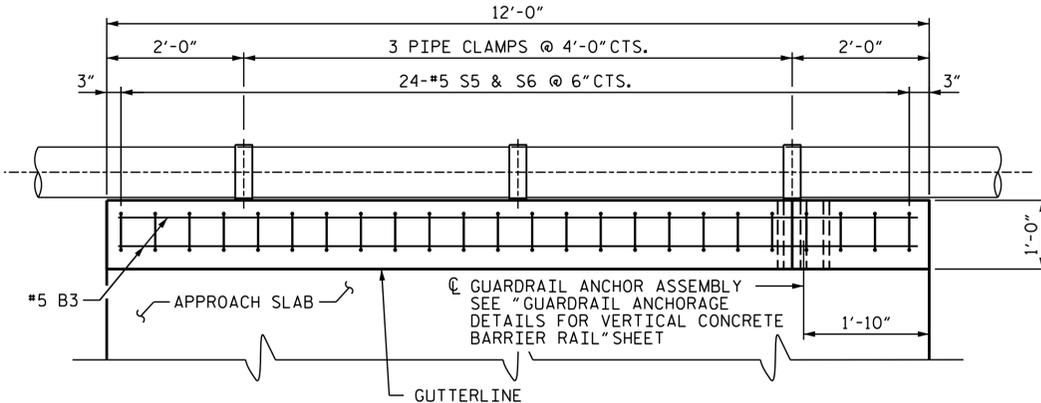
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AVERY COUNTY
STATION: 13+70.00-L-
SHEET 1 OF 2

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			20

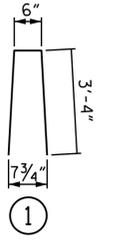


PLAN OF BARRIER RAIL @ END BENT 1

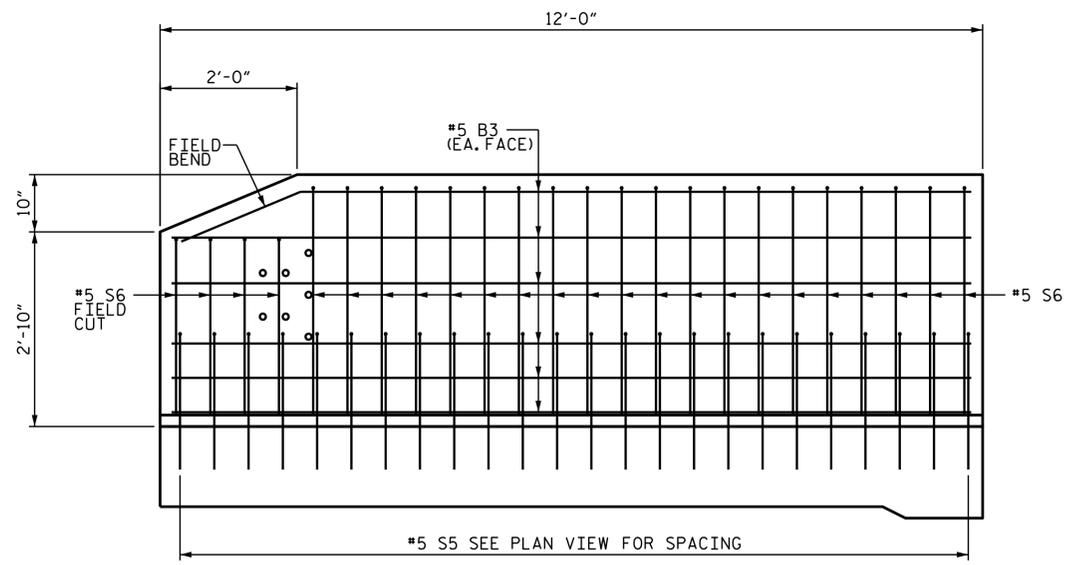


PLAN OF BARRIER RAIL @ END BENT 2

BILL OF MATERIAL						
BARRIER RAIL ONLY @ EB 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* B3	12	#5	STR	11'-8"	146	
* S6	24	#5	1	7'-2"	179	
* EPOXY COATED REINFORCING STEEL					LBS.	325
CLASS AA CONCRETE					C. Y.	1.5
BARRIER RAIL ONLY @ EB 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* B3	12	#5	STR	11'-8"	146	
* S6	24	#5	1	7'-2"	179	
* EPOXY COATED REINFORCING STEEL					LBS.	325
CLASS AA CONCRETE					C. Y.	1.5

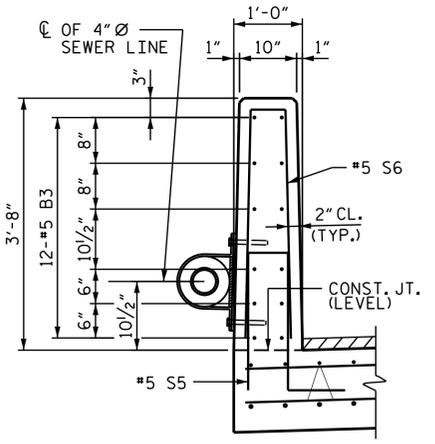


BAR TYPE
BAR DIMENSIONS ARE OUT TO OUT

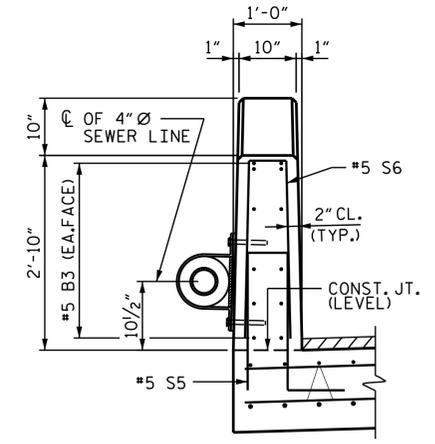


ELEVATION

(APPROACH SLAB @ END BENT 1 SHOWN, APPROACH SLAB @ END BENT 2 SIMILAR)



SECTION THRU RAIL



END VIEW

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "VERTICAL CONCRETE BARRIER RAIL".

THE BARRIER RAIL ON EACH APPROACH SLAB SHALL NOT BE CAST UNTIL ALL APPROACH SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

FOR BRIDGE MOUNTED SEWER LINE DETAILS, SEE "BRIDGE MOUNTED SEWER LINE DETAILS" SHEET.

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AVERY COUNTY

STATION: 13+70.00-L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH SLAB DETAILS

11/18/2025

Seal of Marshall G. Cheek, Jr., Engineer

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SHELBY, NC 28150
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CHECKED BY : MGC DATE : 8/25

