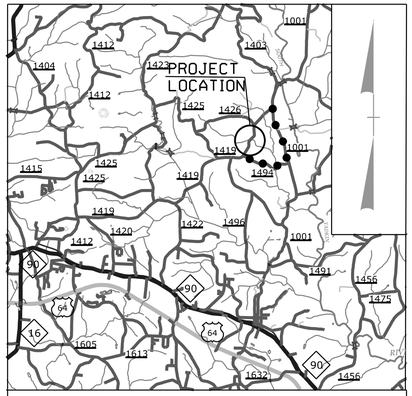
01/16/24

PROJECT: BP12-C001

CONTRACT: DL00381

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

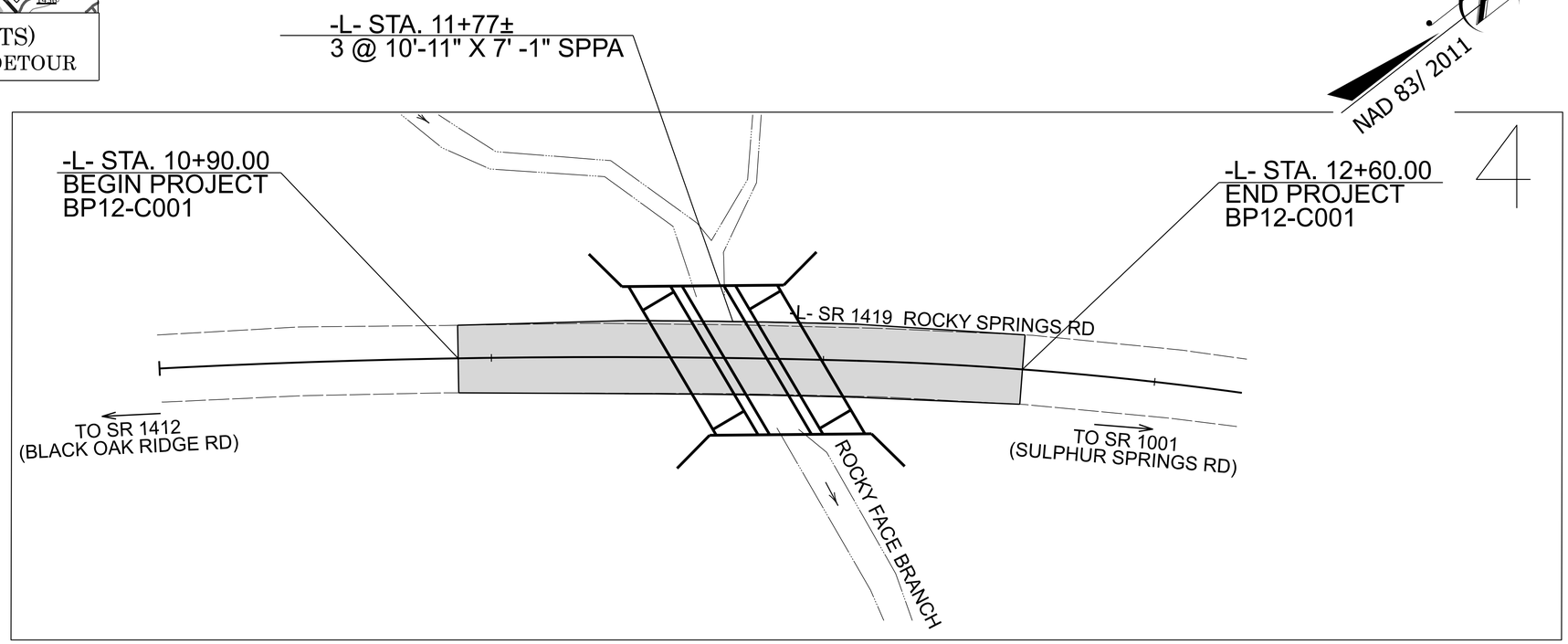
ALEXANDER COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP12-C001	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP12.C001.1	N/A	PE
BP12.C001.2	N/A	R/W, UTIL.
BP12.C001.3	N/A	CONST.

LOCATION: *REPLACE STRUCTURE #010304 OVER ROCKY FACE BRANCH ON SR 1419 (ROCKY SPRINGS RD)*

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



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 20 10 0 20 40

PROFILE (HORIZONTAL): 20 10 0 20 40

PROFILE (VERTICAL): 4 2 0 4 8

DESIGN DATA

ADT 2025 = 730
ADT 2050 = 930
T = 6 % *
V = 50 MPH
* TTST = 3% DUAL = 3%

FUNC CLASS =
LOCAL RURAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT BP12-C004 = 0.032 MILES

TOTAL LENGTH OF PROJECT BP12-C004 = 0.032 MILES

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

NORTH CAROLINA DEPARTMENT OF TRANSPORATION
DIVISION 12
1710 E. MARION ST
SHELBY, NC 28150

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APR. 2, 2025

LETTING DATE: APR. 28, 2026

JIMMY L. TERRY, PE
PROJECT ENGINEER

AUSTIN R. TURNER, PE
PROJECT DESIGN ENGINEER

JOSHUA B. WHITE PE, PLS
NCDOT CONTACT

HYDRAULICS ENGINEER

P.E. *SIGNATURE:*

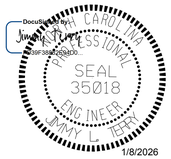
ROADWAY DESIGN ENGINEER

P.E. *SIGNATURE:*

TGSE/kalmond - 1/7/2026

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

BP12-C001
3RD1 | 001A



1/8/2026

INDEX OF SHEETS

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

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE AT&T AND ALEXANDER COUNTY WATER.
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

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	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6,11,12, and 14 of 15)
862.02	Guardrail Installation
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels and Ditches

05/20/24

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BP12-C001 | 3RD1 | 001B

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)*

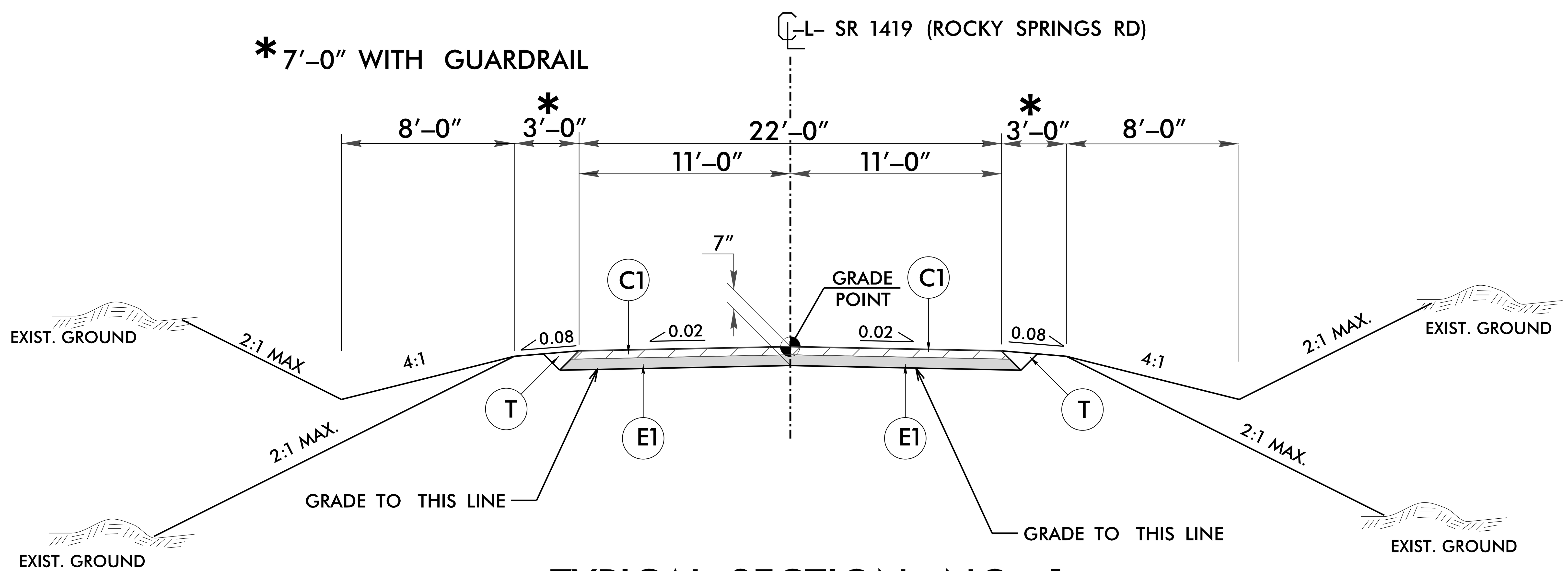
MISCELLANEOUS:

- 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 — AATUR
- End of Information — E.O.I.

11/14/23

FINAL PAVEMENT SCHEDULE (OCTOBER 3, 2024)	
C1	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.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	EARTH MATERIAL.

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



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO.1

-L- STA. 10+90.00 TO -L- STA. 12+60.00

NOTE: TRANSITION BETWEEN EXISTING AND TYP. SECT. NO. 1 AS FOLLOWS:

-L- STA. 10+90.00 TO -L- STA. 11+40.00
-L- STA. 12+10.00 TO -L- STA. 12+60.00

BP12-C001

3RD1 | 2A-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ALEXANDER COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038176 ENGINEER SHIHAI ZHANG

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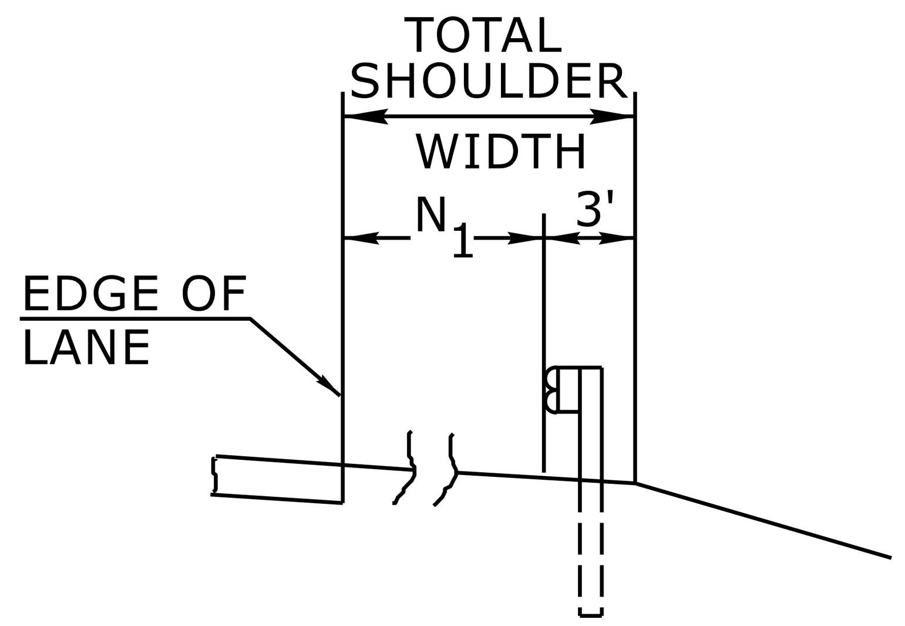
PREPARED BY

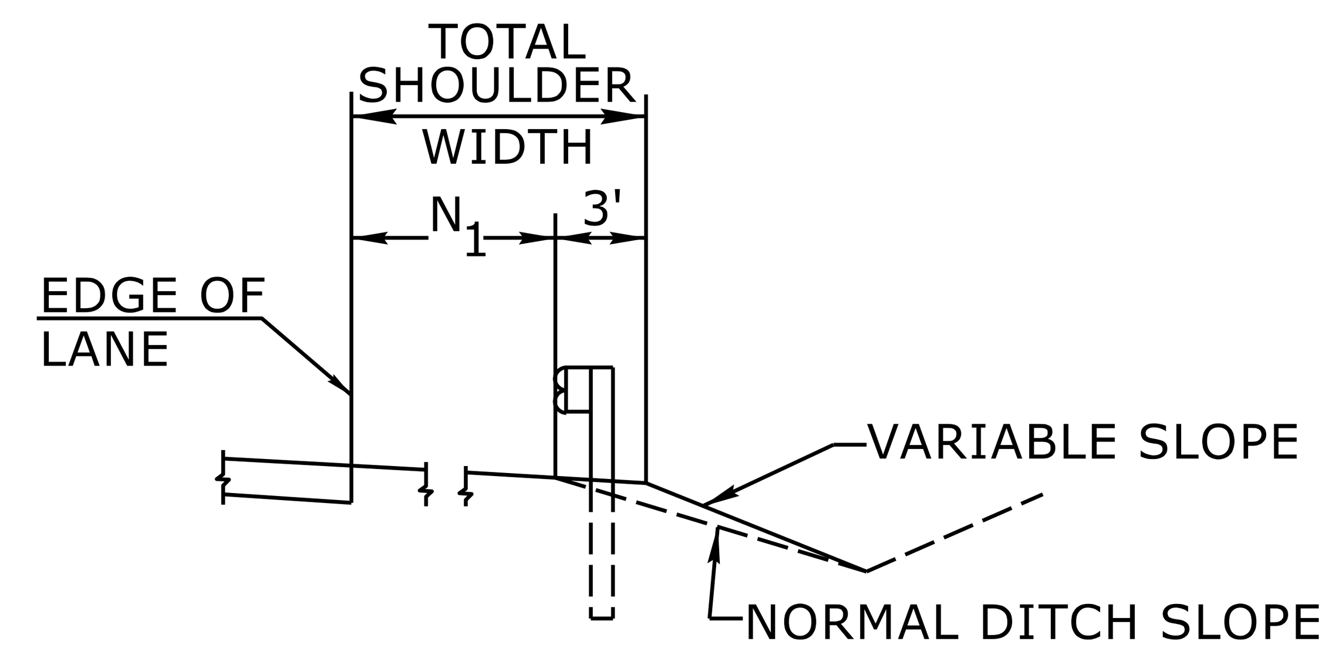
TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
BP12-C001	2C-1

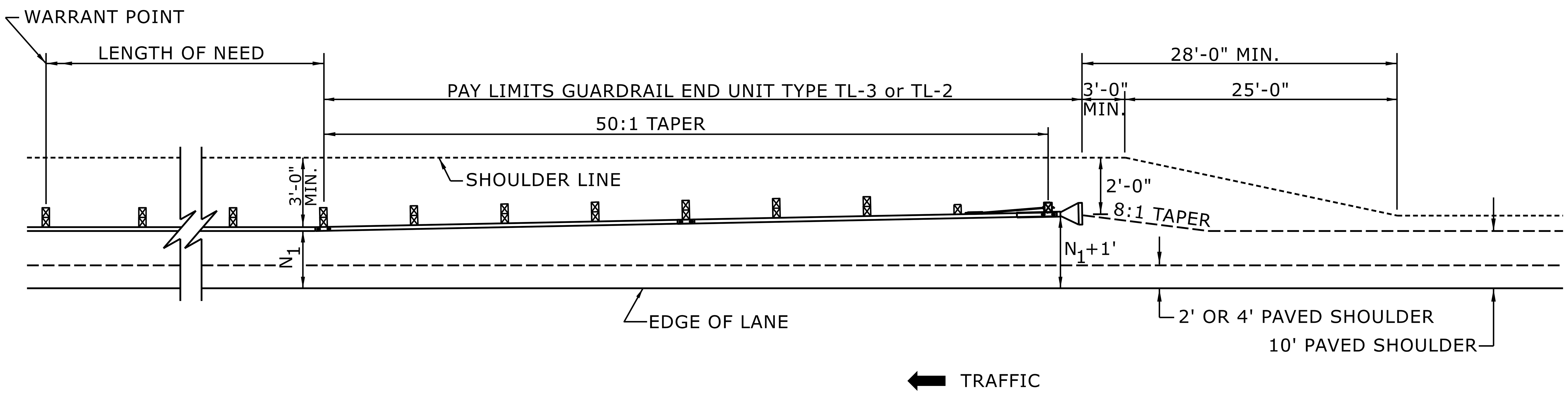


FILL SECTION



CUT SECTION

"N_1"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



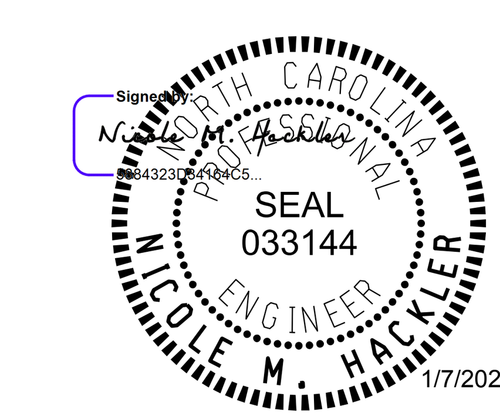
FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

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



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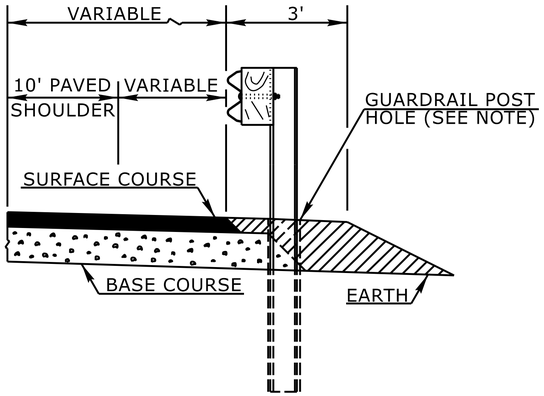
UNLESS ALL SIGNATURES COMPLETED

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

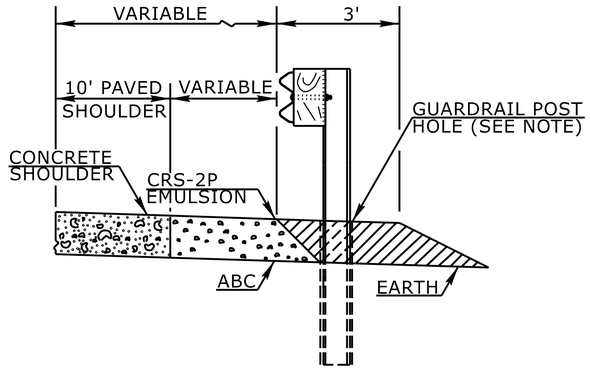
SEE TITLE BLOCK

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

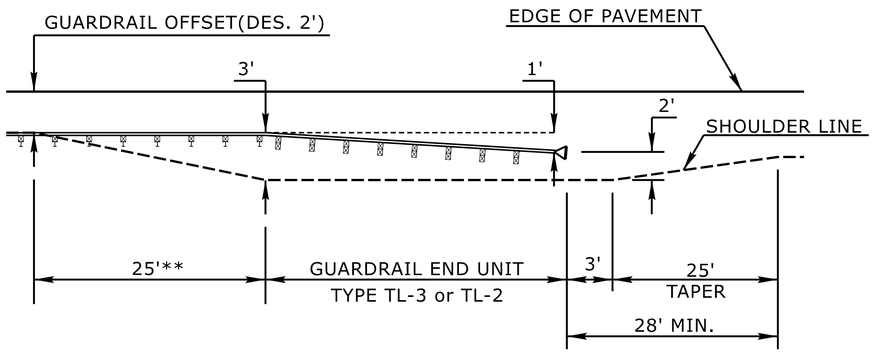
PROJECT REFERENCE NO.	SHEET NO.
BP12-C001	2C-2



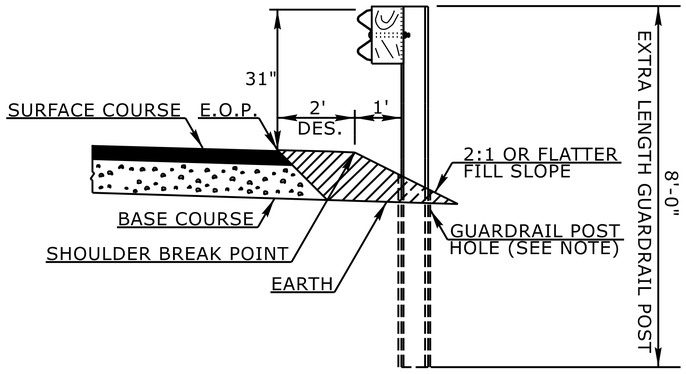
FLEXIBLE PAVED SHOULDER



CONCRETE PAVED SHOULDER



8' GUARDRAIL POST ON 2:1 SLOPE-END UNIT TRANSITION*
PLAN VIEW



8' GUARDRAIL POST ON 2:1 SLOPE*

* THE 8' GUARDRAIL POST ON 2:1 SLOPE DETAIL IS INTENDED FOR USE ONLY IN SEVERELY CONSTRAINED AREAS WITH A POSTED SPEED ≤ 60 MPH. GUARDRAIL END UNITS MAY NOT BE PLACED ON THE 2:1 SLOPE AND MUST TRANSITION TO THE SHOULDER.
** 8' GUARDRAIL POST SHOULD BE USED IN THIS RANGE

NOTE:
WHEN WOODEN GUARDRAIL POSTS ARE USED, DRILL HOLES THROUGH EARTH MATERIAL AND BASE COURSE.THE POST MAY THEN BE DRIVEN TO THE PROPER DEPTH. DRILL THE HOLE OF SUFFICIENT SIZE TO ACCOMMODATE THE PARTICULAR POST BEING USED. BACKFILL AND TAMP HOLES USING THE EXCAVATED MATERIAL.

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 11OF 15

862D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033144 NICOLE M. HACKLER 1/7/2026

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

SEE TITLE BLOCK

ORIGINAL BY: L.SMITH DATE: 10-14-2025
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

COMPUTED BY: KSA DATE: 04/14/2026
CHECKED BY: JLT DATE: 04/14/2026

PROJECT NO.	SHEET NO.
BP12-C001	3B-1

STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Station	Station	Uncl. Excav.	Embank. +15%	Borrow	Waste
-L- 10+90.00	-L- 12+60.00	2	67	65	
TOTALS:		2	67	65	0
LOSS DUE TO CLEARING & GRUBBING					
ROCK WASTE TO REPLACE BORROW					
ADJUST FOR ROCK WASTE					
WASTE IN LIEU OF BORROW					
PROJECT TOTALS:		2	67	65	0
Est. 5% to Replace Top Soil on Borrow Pit					
GRAND TOTALS:		2	67	65	0
SAY		**25**		**80**	

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for grading.

Note: Earthwork quantities are calculated by TGS Engineers.

SELECT GRANULAR MATERIAL = 50 CUBIC YARDS

PER TGS RECOMMENDATION, ESTIMATED 50 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	10+90.00	12+60.00	CL	408			
			TOTAL:	408.00			
			SAY	**450**			

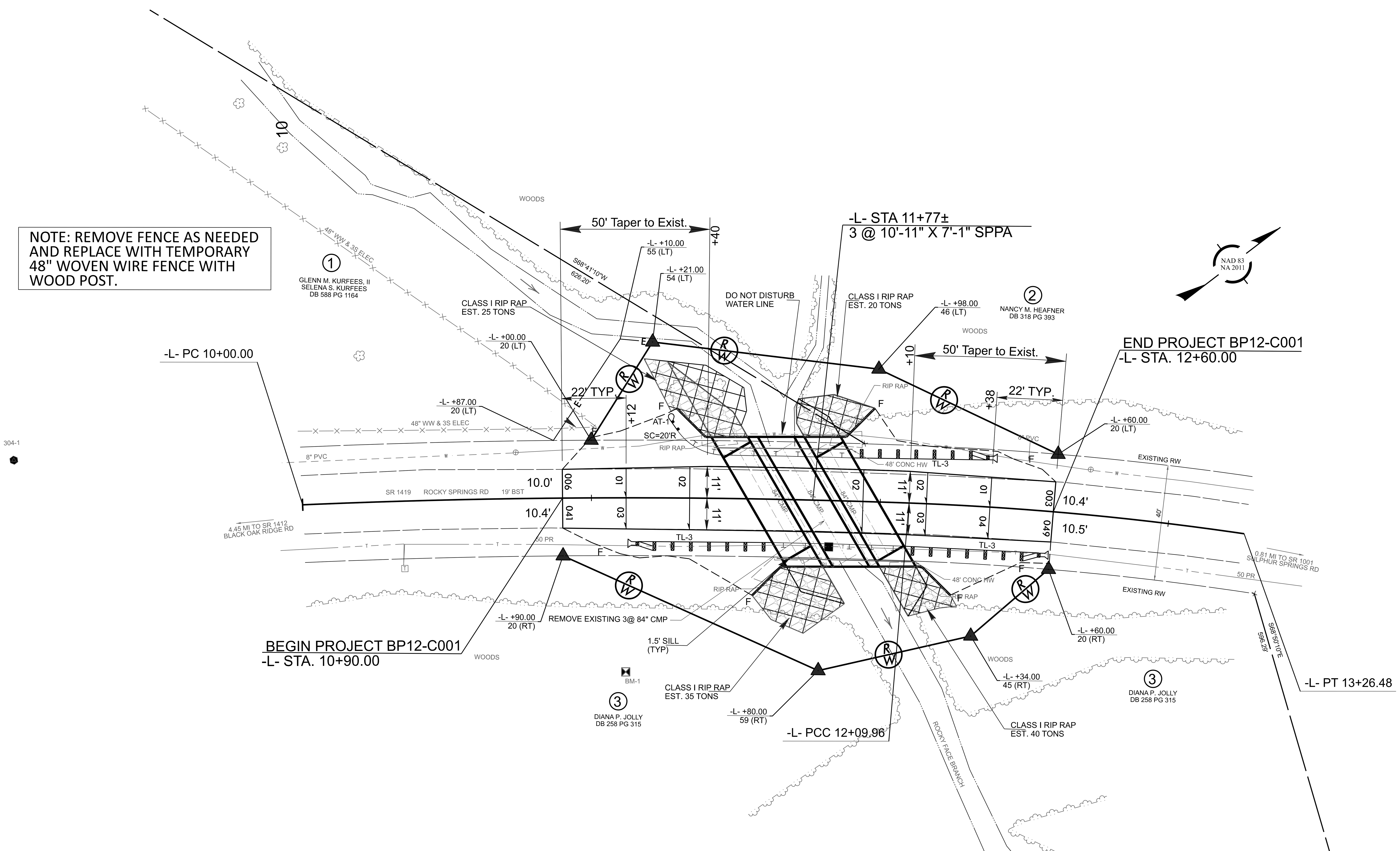
"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING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

GUARDRAIL SUMMARY

IN FEET

LINE	BEG. STA.	END STA.	LOC.	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPR. END	WARRANT POINT TRAIL. END	"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLAIR LENGTH APPR. END	FLAIR LENGTH TRAIL. END	W APPR. END	W TRAIL. END	ANCHORS TL-3	ANCHORS AT-1	ANCHORS	ANCHORS	ANCHORS	IMP. ATTEN. TYPE 350 EA	IMP. ATTEN. TYPE 350 G	IMP. ATTEN. TYPE 350 NG	EXTRA LENGTH GUARDRAIL POSTS (8' STEEL)	REMOVE EXISTING GUARDRAIL	REMARKS
-L-	11+26.50	12+39.50	LT	100.00	25		11+29.39	11+97.12	4.00'	7.00'		50		1	1	1									R=20'
-L-	11+12.50	12+59.50	RT	150.00			11+56.18	12+25.85	4.00'	7.00'	50	50	1	1	2										
SUB-TOTALS				250.00	25										3	1									
LESS ANCHOR DEDUCTIONS																									
TYPE TL-3		3 @ 50.00 ft		150.00																					
AT-1		1 @ 6.25 ft			6.25																				
ANCHOR TOTALS				150.00	6.25																				
GRAND-TOTALS				**100.00**	**18.75**										**3**	**1**									
SAY				**100.00**	**25.00**										**3**	**1**									

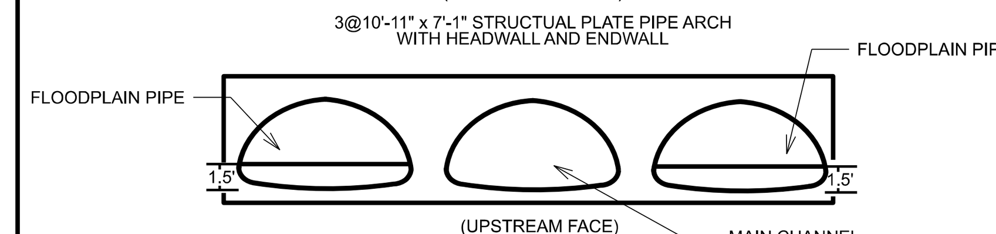
ADDITIONAL GUARDRAIL POSTS = 5 EA



CUR DATA -L-
PIc 11+05.04
Δc = 04°35'29.7" (RT)
D = 02°11'12.7"
Lc = 209.96
Tc = 105.04
R = 2,620
SE = 02
DS = 30 MPH

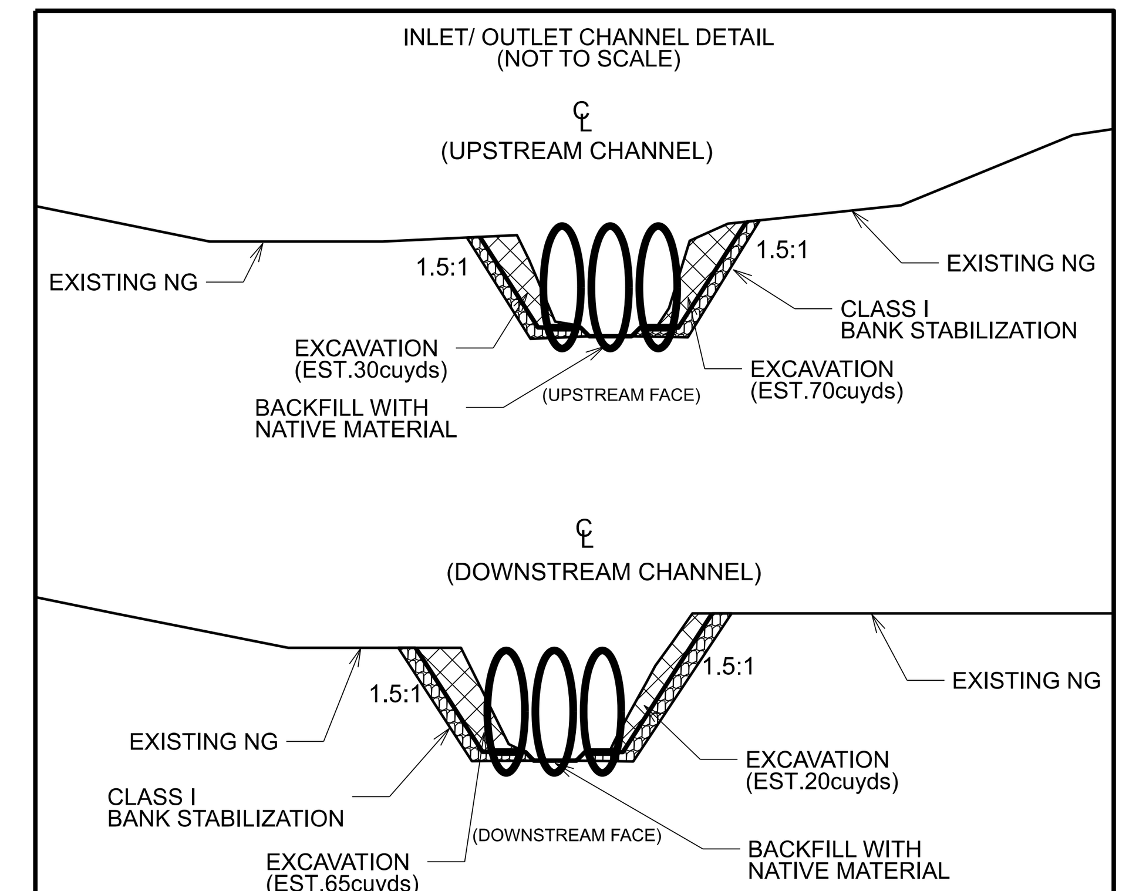
CUR DATA -L-
PIc 12+68.28
Δc = 06°12'36.5" (RT)
D = 05°19'47.4"
Lc = 116.52
Tc = 58.32
R = 1,075
SE = EXIST.

SILL DETAIL (NOT TO SCALE)



NOTE: SILLS TO BE PLACED 2.0' INSET FROM INLET AND OUTLET OF FLOODPLAIN PIPE

INLET/ OUTLET CHANNEL DETAIL (NOT TO SCALE)



FOR -L- PROFILE, SEE SHEET 5

BP12-C001 | 3RD1 | 004

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ALEXANDER COUNTY
ROADWAY DESIGN UNIT

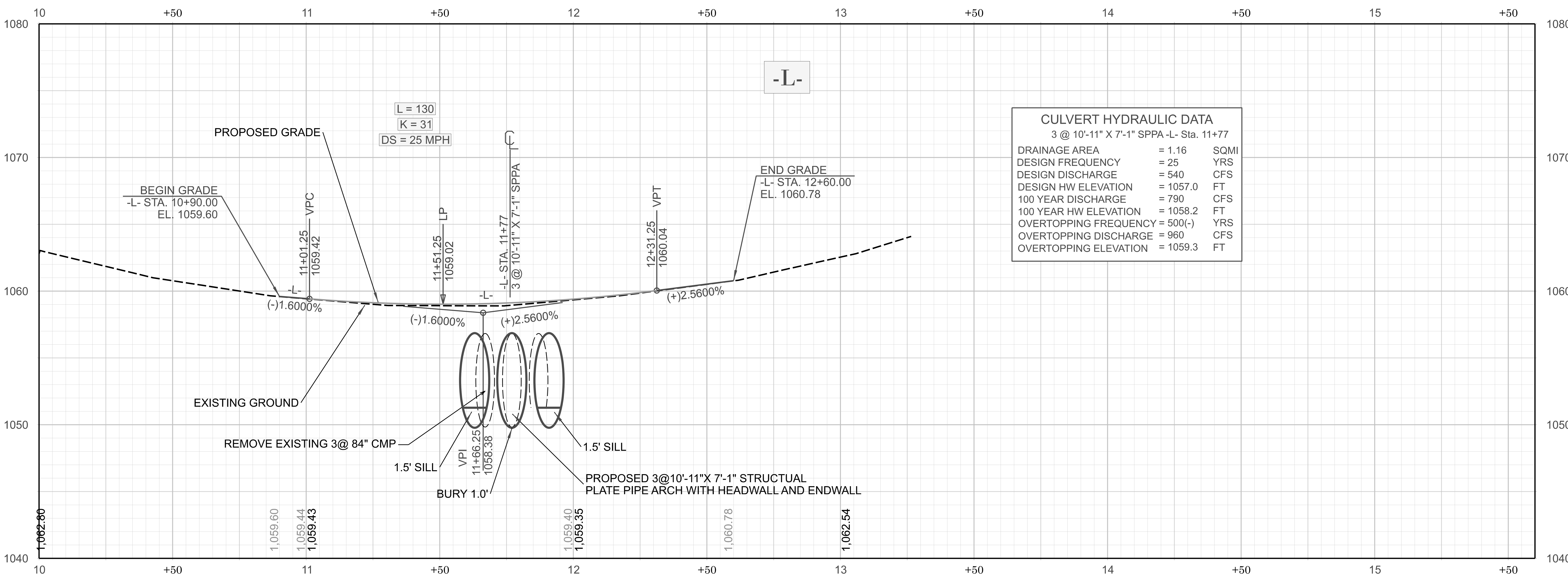
ROADWAY DESIGN ENGINEER
SEAL 35018 JIMMY L. TERRY
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HYDRAULICS ENGINEER
SEAL 024897 John W. Twisdale, Jr.
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

REVISIONS

11/14/23



CULVERT HYDRAULIC DATA

3 @ 10'-11" X 7'-1" SPPA -L- Sta. 11+77

DRAINAGE AREA	= 1.16	SQMI
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 540	CFS
DESIGN HW ELEVATION	= 1057.0	FT
100 YEAR DISCHARGE	= 790	CFS
100 YEAR HW ELEVATION	= 1058.2	FT
OVERTOPPING FREQUENCY	= 500(-)	YRS
OVERTOPPING DISCHARGE	= 960	CFS
OVERTOPPING ELEVATION	= 1059.3	FT

FOR -L- PLAN, SEE SHEET 4

BP12-C001

3RD1 | 005

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ALEXANDER COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

DocuSigned by: Jimmy Terry
FD39F38882E94D0...

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY
1/8/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HYDRAULICS ENGINEER

Signed by: John W. Twisdale, Jr.
06E4FD4C9E304CE...

NORTH CAROLINA PROFESSIONAL SEAL 024897 ENGINEER John W. Twisdale, Jr.
1/8/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PREPARED BY

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

REVISIONS

$$$-USER NAME-$$$ - $$$-DATE-$$$

09/08/99

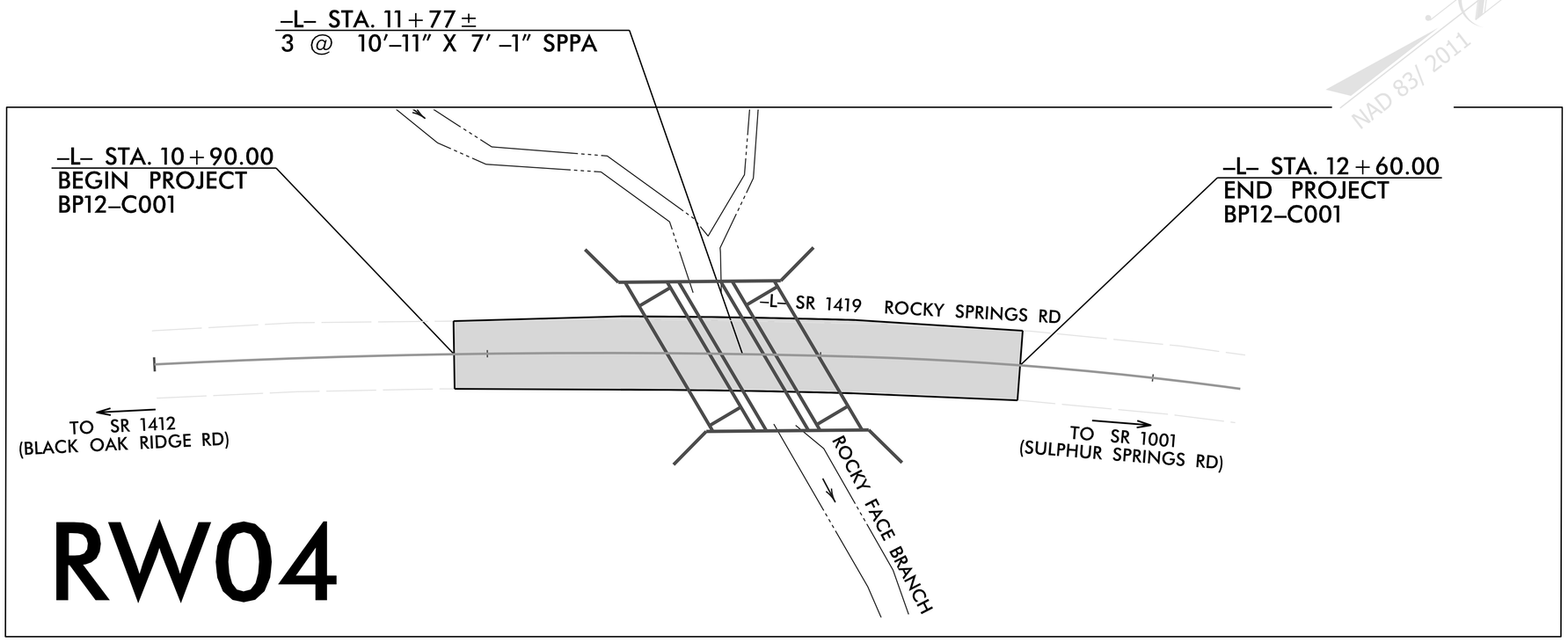
TIP PROJECT: *BP12-C001*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP12-C001	RW01	5

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

ALEXANDER COUNTY



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

20' 10' 0' 20' 40'

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "304-1"
WITH NAD83/2011 STATE PLANE GRID COORDINATES OF
NORTHING: 809572.879 USFT EASTING: 1379933.232 USFT
ELEVATION: 1067.37 USFT
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99990139
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: APRIL 2, 2025

LETTING DATE:

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4775 LAND SURVEYOR MATTHEW T CORNWELL

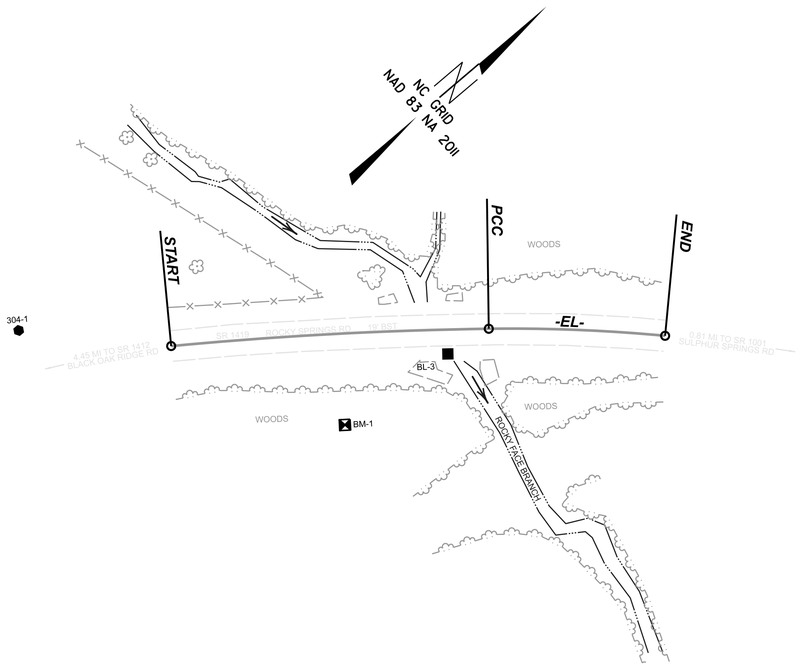
Signed by: Matthew Cornwell EBD36F11473E475...
5/21/2025

SIGNATURE: *DATE:*

5/26/20

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



BASELINE POINTS TABLE				
POINT	DESC	NORTH	EAST	ELEVATION
1	304-1	809572.8790	1379933.2320	1067.3700
2	304-2	810260.4860	1380564.7850	1108.9800
3	BL-3	809778.6544	1380128.4685	1057.7700

BENCHMARK TABLE				
BENCHMARK	NORTHING	EASTING	ELEVATION	DESCRIPTION
BM1	809696.5346	1380120.1705	1060.1700	RR SPIKE IN 17" POPLAR

EXISTING ALIGNMENT NAME:EL									
POINT	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R
PC	809642.8867	1380006.2383							
CURVE					04°35'29.7" Right	02°11'12.7"	209.96	105.04	2620.00
PCC	809809.9546	1380133.3172							
CURVE					06°12'36.5" Right	05°19'47.4"	116.52	58.32	1075.00

I, MATTHEW T. CORNWELL, PLS, CERTIFY THAT THE PROJECT CONTROL WAS PERFORMED UNDER MY SUPERVISION FROM AN ACTUAL GPS SURVEY MADE UNDER MY SUPERVISION AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY:

CLASS OF SURVEY: ***AA***
TYPE OF GPS FIELD PROCEDURE: RTN
DATES OF SURVEY: JULY 2024
DATUM/EPOCH: NAD83/2011
PUBLISHED/FIXED-CONTROL USE: N/A
LOCALIZED AROUND: 304-1
NORTHING: 809572.879
EASTING: 1379933.232
COMBINED GRID FACTOR: 0.99990139
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 AUGUST 2024, AND ALL COORDINATES ARE BASED ON NAD 83/NA 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 9/6/2024

DocuSigned by:
Matthew Cornwell
-EBD36F11473E475...

PROFESSIONAL LAND SURVEYOR L-4775

304-2

50' 25' 0' 50' 100'

NOTES:

1. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

BP12-C001

R/W | 02C-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA · PROFESSIONAL · SEAL L-4775 · LAND SURVEYOR · MATTHEW T. CORNWELL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP12C-001

County: Alexander

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

TGS ENGINEERS
201 WEST MARION ST.
SUITE 200
SHELBY, NC 28150
704-476-0003

TGS ENGINEERS

5/26/20

PROPOSED ALIGNMENT CONTROL SHEET

PROPOSED ALIGNMENT: L												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
PC	10+00.00	809642.8867	1380006.2383	N37°15'29.3"E	209.91	04°35'29.7"	02°11'12.7"	209.96	105.04	2620.00		
PCC	12+09.96	809809.9546	1380133.3172	N42°39'32.4"E	116.46	06°12'36.5"	05°19'47.4"	116.52	58.32	1075.00		

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 5/21/2025

Signed by:
Matthew Cornwell
EBD36F11473E475...

PROFESSIONAL LAND SURVEYOR L-4775

NOTES:

1. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

BP12-C001

R/W | 020-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4775 LAND SURVEYOR MATTHEW T CORNWELL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP12-C001

County: Alexander

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

TGS ENGINEERS
201 WEST MARION ST.
SUITE 200
SHELBY, NC 28150
704-476-0003

TGS ENGINEERS

5/26/20

RIGHT OF WAY CONTROL SHEET

I , MATTHEW T. CORNWELL, PLS, CERTIFY THAT THE RIGHT OF WAY AND PERMANENT EASEMENT MONUMENTATION FOR THIS PROJECT SHOWN HEREIN WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED 5/15/2025, AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

THIS 5/21/2025

Signed by:
Matthew Cornwell
EBD36F11473E475...

PROFESSIONAL LAND SURVEYOR L-4775

PERMANENT ROW MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
10+90.00	20.0000	809703.7271	1380075.0556
11+00.00	-20.0000	809735.8041	1380049.1507
11+21.00	-54.0000	809773.3677	1380035.0619
11+80.00	59.0000	809749.6953	1380160.2865
11+98.00	-46.0000	809829.8445	1380090.1199
12+34.00	45.0000	809798.8906	1380182.8770
12+60.00	-20.0000	809861.2191	1380151.2562
12+60.00	20.0000	809834.3395	1380180.8786

NOTES:

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

BP12-C001

R/W | 03E-I

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4775 LAND SURVEYOR MATTHEW T CORNWELL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP12-C001

County: Alexander

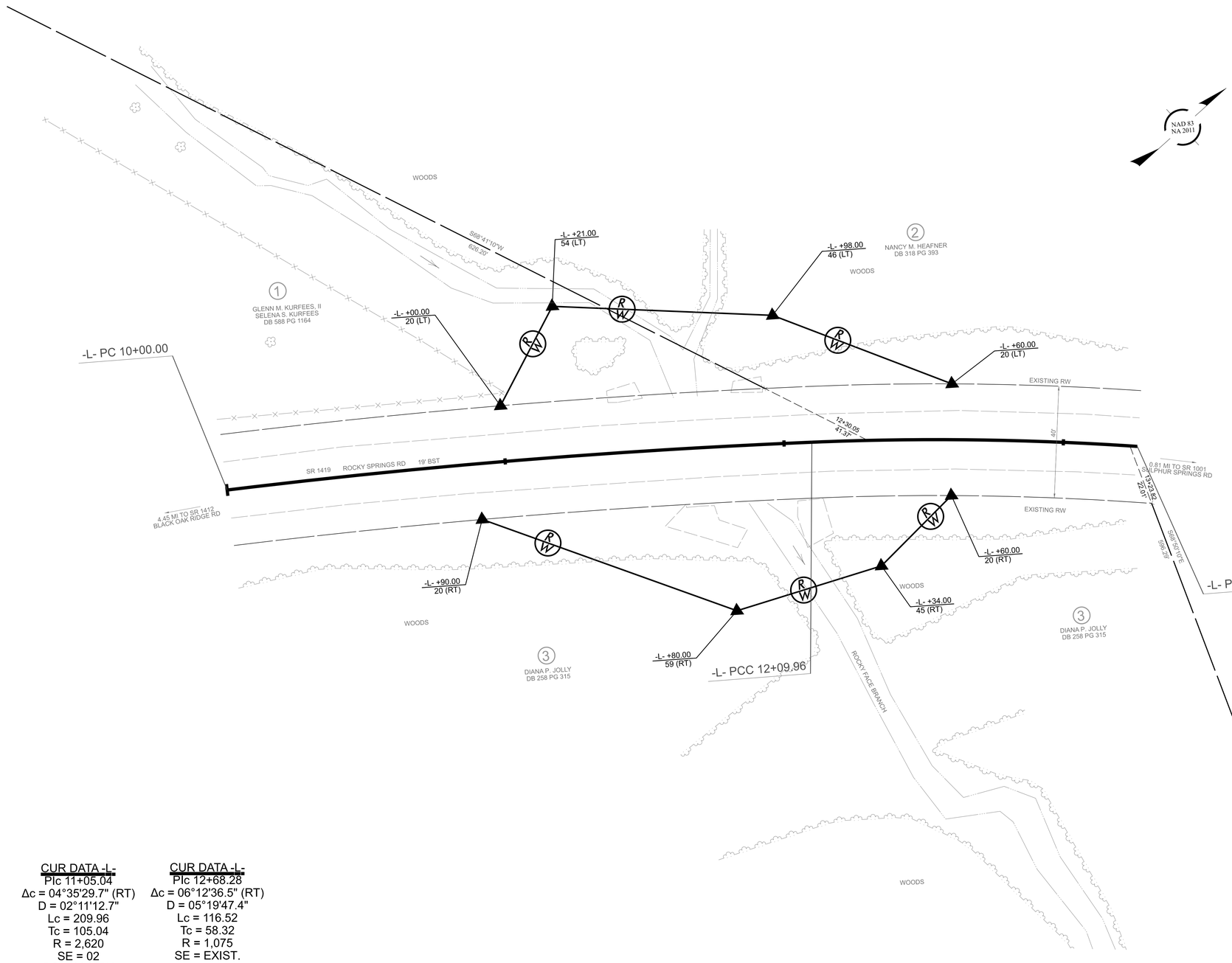
PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

TGS ENGINEERS
201 WEST MARION ST.
SUITE 200
SHELBY, NC 28150
704-476-0003

5/26/20



CUR DATA -L-
PIc 11+05.04
Δc = 04°35'29.7" (RT)
D = 02°11'12.7"
Lc = 209.96
Tc = 105.04
R = 2,620
SE = 02
DS = 30 MPH

CUR DATA -L-
PIc 12+68.28
Δc = 06°12'36.5" (RT)
D = 05°19'47.4"
Lc = 116.52
Tc = 58.32
R = 1,075
SE = EXIST.

I , MATTHEW T. CORNWELL, PLS, CERTIFY THAT THE RIGHT OF WAY AND PERMANENT EASEMENT MONUMENTATION FOR THIS PROJECT SHOWN HEREIN WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED 5/15/2025, AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

THIS 5/21/2025

Signed by:
Matthew Cornwell
EBC36F11473E475...

PROFESSIONAL LAND SURVEYOR L-4775

NOTES:

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

BP12-C001
R/W 04

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR
NORTH CAROLINA PROFESSIONAL SEAL L-4775 LAND SURVEYOR MATTHEW T CORNWELL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP12-C001
County: Alexander

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

TGS ENGINEERS
201 WEST MARION ST.
SUITE 200
SHELBY, NC 28150
704-476-0003

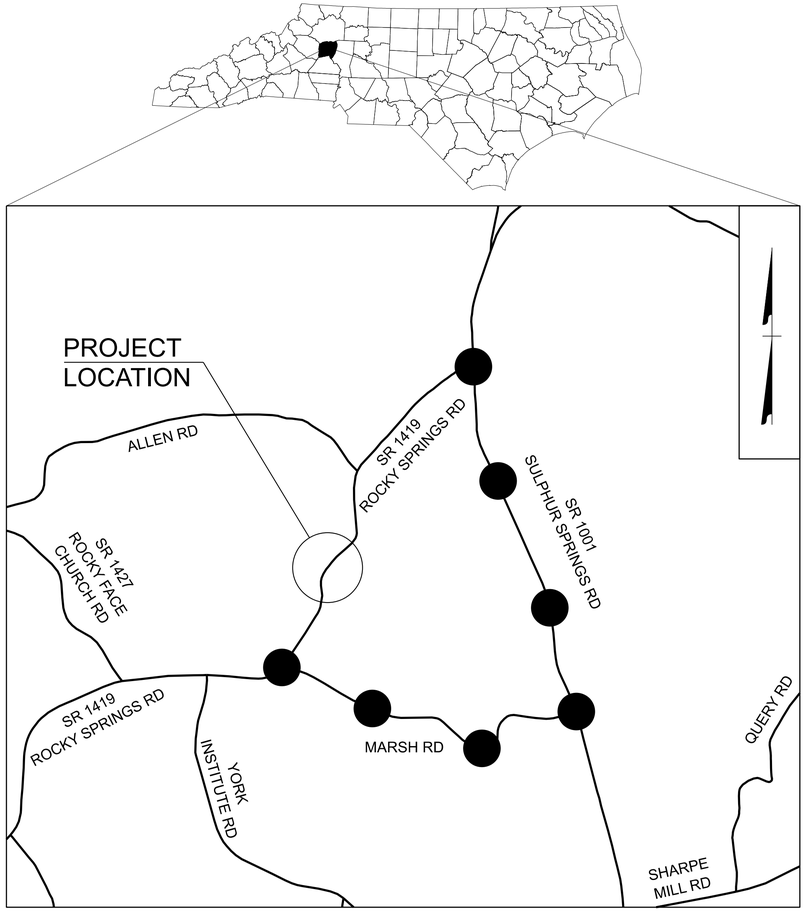
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ALEXANDER COUNTY

LOCATION: *REPLACE STRUCTURE #010304 OVER ROCKY FACE BRANCH ON SR 1419 (ROCKY SPRINGS RD)*

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



VICINITY MAP

OFF-SITE DETOUR

INDEX OF SHEETS

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:

SHEET NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

LEGEND

BARRICADE (TYPE III)

STATIONARY SIGN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: Signed by: Don A. Parker 75DB9E90ADEF440...

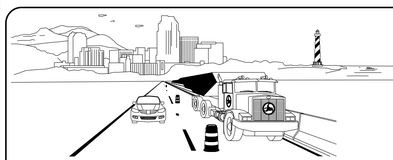
DATE: 1/7/2026

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER

SHEET NO.

TMP-1

PROJECT: BP12-C001



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

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

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

12/30/2025
X:\NCDOT\Div 12 Alexander 304\Work Zone Traffic Control\Alexander 304_TC_TMP_01.dgn
User:cbrannan

PROJ. REFERENCE NO.	SHEET NO.
BP12-C001	TMP-1A

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

GENERAL NOTES

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

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) 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.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

C) 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.

D) 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.

E) 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.

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

TRAFFIC CONTROL DEVICES

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

MANAGEMENT STRATEGIES

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

RECOMMENDED STRATEGIES:

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

PHASING

PHASE 1

STEP 1 -- INSTALL AND COVER DETOUR SIGNING. (SEE RSD 1101.03 AND TMP-2)

STEP 2 -- UNCOVER DETOUR SIGNING AND CLOSE -L- SR 1419 (ROCKY SPRINGS RD).

STEP 3 -- AWAY FROM TRAFFIC, INSTALL PROPOSED DRAINAGE STRUCTURE AND CONSTRUCT ROADWAY UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA. 10+90 +/- TO STA. 12+60 +/-.

STEP 4 -- AWAY FROM TRAFFIC, INSTALL FINAL PAVEMENT MARKINGS.

STEP 5 -- COVER OR REMOVE DETOUR SIGNING AND RE-OPEN -L- SR 1419 (ROCKY SPRINGS RD).

STEP 6 -- REMOVE ALL TRAFFIC CONTROL DEVICES.

APPROVED: Signed by: Don A. Parker 75DB9E90ADEF440...

DATE: 1/7/2026

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN

PROJ. REFERENCE NO.	SHEET NO.
BP12-C001	TMP-2

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

SIGN NUMBER: DET-1
TYPE: STATIONARY
QUANTITY: SEE PLANS

SIGN WIDTH: 30"
HEIGHT: 18"
TOTAL AREA: 3.75 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0-1/2"
WIDTH: 0-5/8"
RADII: 1-1/2"

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

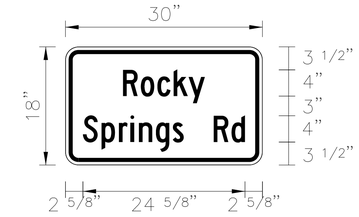
SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

USE NOTES:

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

DESIGN BY: CMB
PROJECT ID: BP12-C001
CHECKED BY: DAP
LOCATION: ALEXANDER CO.
Nov 17, 2025
DIV: 12



BORDER
R=1 1/2"
TH=0 5/8"
IN=0 1/2"

Panel Style: construction_guide.ssi
M.U.T.C.D.: 2023 Edition

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner

	R	o	c	k	y																				Series/Size Text Length
	8 3/4"	11 1/2"	14"	16 1/2"	18 3/4"																				C 2000 12 1/2"
	S	p	r	i	n	g	s		R	d															C 2000 24 5/8"
	2 5/8"	5 1/2"	8 1/8"	10"	11 1/8"	13 3/4"	16 3/8"	18 1/8"	22 5/8"	25 1/4"															

Alexander 304_TC_TMP_02

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED: Don A. Parker (Signed by: 75D89E90ADEF440...)
DATE: 1/7/2026

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

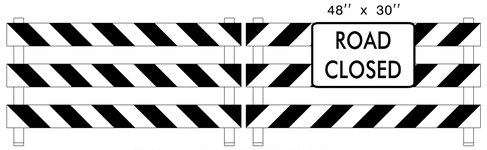
SIGN DESIGN

12/19/2025
X:\NCDOT\Div 12 Alexander 304\Work Zone Traffic Control\Alexander 304_TC_TMP_02.dgn
User:rdorman

PROJ. REFERENCE NO.	SHEET NO.
BP12-C001	TMP-3

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

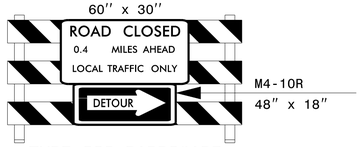
R11-2
48″ x 30″



TYPE III BARRICADE(S)

A

R11-3
60″ x 30″

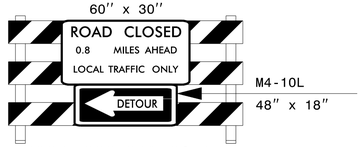


M4-10R
48″ x 18″

TYPE III BARRICADE

B

R11-3
60″ x 30″



M4-10L
48″ x 18″

TYPE III BARRICADE

C

R11-3
60″ x 30″

TYPE III BARRICADE

D

W20-3
48" x 48"

1

W20-3
48" x 48"

2

W20-3
48" x 48"

3

W20-3
48" x 48"

SP- 4R
42" X 12"

4

W20-3
48" x 48"

SP- 4L
42" X 12"

5

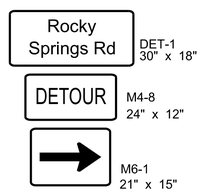
W20-3
48" x 48"

W16–3P
24″ X 24″

6

W20-2
48" X 48"

7

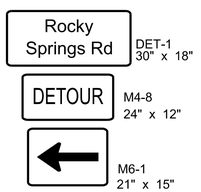


DET-1
30" x 18"

M4-8
24" x 12"

M6-1
21" x 15"

8



DET-1
30" x 18"

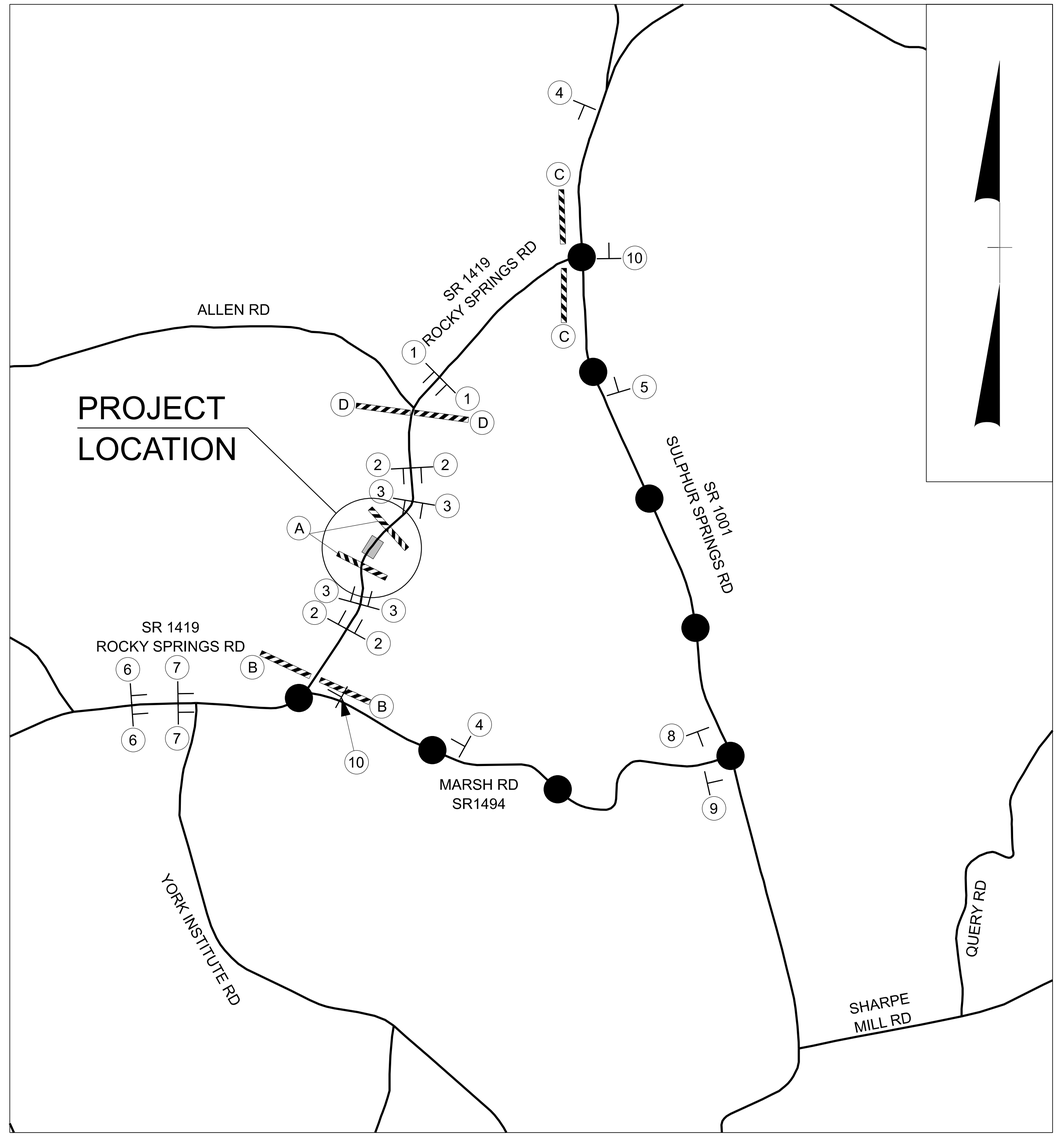
M4-8
24" x 12"

M6-1
21" x 15"

9

M4-8 A
24" X 18"

10



VICINITY MAP (NTS)

OFF-SITE DETOUR

SEE RSD 1101.03, SHEET 1 FOR ADDITIONAL NOTES AND DETAILS

APPROVED Signed by: Don A. Parker 75DB9E90ADEF440...

DATE: 1/7/2026

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A PARKER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

DETOUR SIGNING

12/19/2025
X:\NCDOT\Div 12 Alexander 304\Work Zone Traffic Control\Alexander 304_TC_TMP_Detour.dgn
User:cbrannon

PROJECT: BP12-C001

CONTRACT:

TIP NO.	SHEET NO.
BP12-C001	PMP-1

Signed by:
APPROVED: Don A. Parker
75DB9E90ADEF440...

DATE: 1/7/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A PARKER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
ALEXANDER COUNTY

LOCATION: *REPLACE STRUCTURE #010304 OVER ROCKY FACE BRANCH ON SR 1419 (ROCKY SPRINGS RD)*

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

INDEX

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
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

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

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

ROAD NAME	MARKING	MARKER
-L- SR 1419 (ROCKY SPRINGS RD)	PAINT	NONE

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

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

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

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

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL DESCRIPTION

PAVEMENT MARKINGS

PAINT (4")		TOTAL QUANTITY
P1	(4") WHITE EDGELINE	340 LF (X2)
P13	(4") YELLOW DOUBLE CENTER	340 LF (X2)
		1360 LF

PLAN SUBMITTED TO:

JOSHUA B. WHITE, P.E., P.L.S. NCDOT CONTACT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PLAN PREPARED BY: TGS ENGINEERS

DON A. PARKER, P.E. PROJECT ENGINEER

CODA BRANNAN, E.I. DESIGN ENGINEER

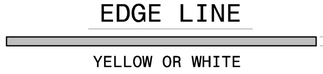
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

12/30/2025
X:\NCDOT\Div.12 Alexander 304\Signing and Delineation\Pavement Marking\Design\Alexander 304_Sgn_PMP_01.dgn
User:scbrannan

PROJECT REFERENCE NO.	SHEET NO.
BP12-C001	PMP-1A

CONTINUOUS LINES

EDGE LINE



YELLOW OR WHITE

LANE LINE

WHITE

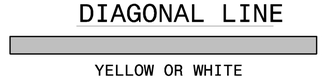
CENTER LINE

YELLOW

GORE LINE

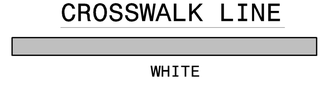
WHITE

DIAGONAL LINE



YELLOW OR WHITE

CROSSWALK LINE

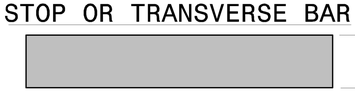


WHITE

RxR LINE

WHITE

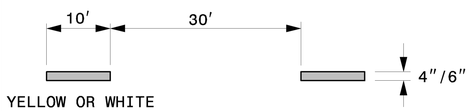
STOP OR TRANSVERSE BAR



WHITE

10′-30′/SP SKIP LINE

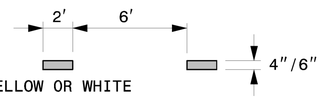
UNLESS OTHERWISED SHOWN, USE 10′-30′/SP SKIPS FOR SKIP LANE LINES AND SKIP CENTER LINES.



YELLOW OR WHITE

2′-6′/SP MINI-SKIP LINE

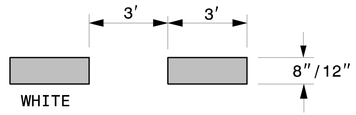
UNLESS OTHERWISED SHOWN, USE 2′-6′/SP MINI-SKIPS FOR LANE LINE EXTENSIONS THROUGH INTERSECTIONS, EDGE LINE EXTENSIONS THROUGH INTERSECTIONS AND BICYCLE LANE EXTENSIONS.



YELLOW OR WHITE

3′-3′/SP MINI-SKIP LINE

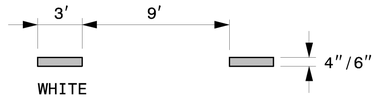
UNLESS OTHERWISED SHOWN, USE 3′-3′/SP MINI-SKIPS FOR THE WHITE EDGE LINE ENTENSIONS AT ROUNDABOUTS.



WHITE

3′-9′/SP MINI-SKIP LINE

UNLESS OTHERWISED SHOWN, USE 3′-9′/SP MINI-SKIPS FOR MINI-SKIP LANE LINES, LINE EXTENSIONS THROUGH TAPERS, AND MINI-SKIPS USED FOR BICYCLE LANE LINES.



WHITE

GENERAL NOTES:

1- USE 6″ LANE, EDGE, AND CENTER LINES ON ALL FULL CONTROL OF ACCESS FACILITIES AND OTHER ROUTES AS DIRECTED BY THE ENGINEER.

2- LANE LINES INDICATED AS "WIDE" ON THE ROADWAY STANDARD DRAWINGS SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE.

3- GORE LINES SHALL BE TWICE THE WIDTH OF THE NORMAL LINE.

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

ROADWAY DETAIL DRAWING FOR

PAVEMENT MARKINGS

LINE TYPES AND OFFSETS

SHEET 1 OF 2

1205D01

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

SEE TITLE BLOCK

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

TIP NO.	SHEET NO.
BP12-C001	PMP-2

APPROVED: Signed by: Don A. Parker 75CB9E90ADEF440...

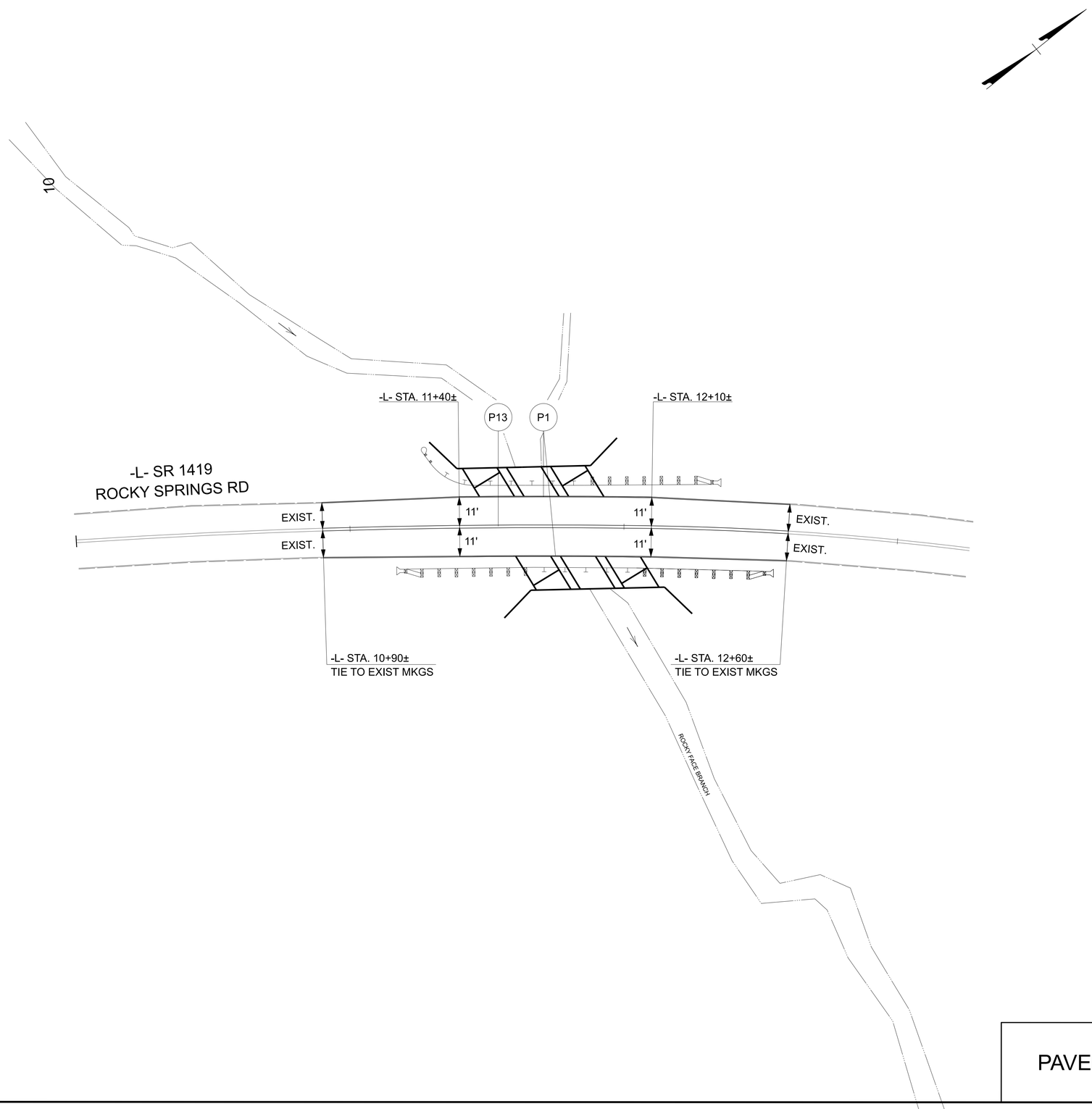
DATE: 1/7/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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



PAVEMENT MARKING DETAIL

PROJECT: BP12-C001

VICINITY MAP
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

ALEXANDER COUNTY

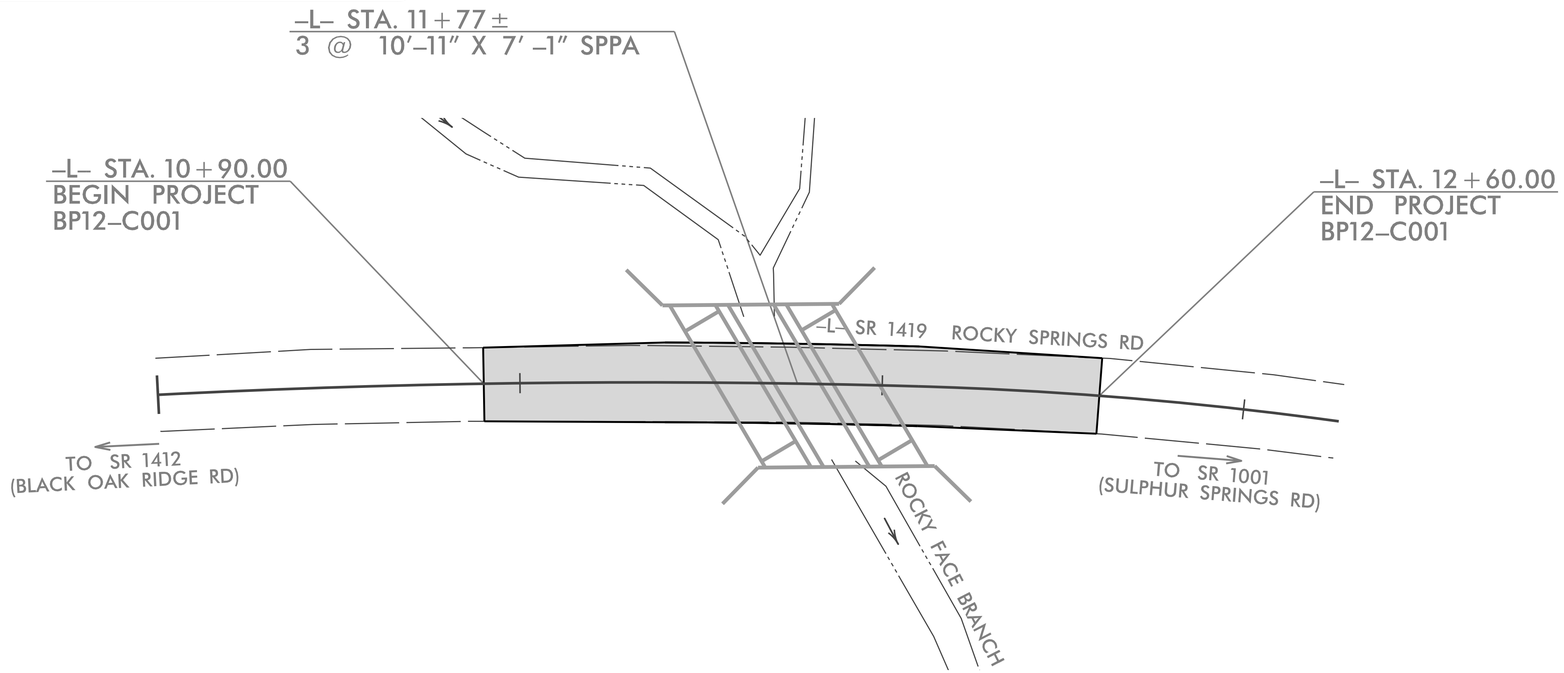
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP12-COO1	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP12.C001	N/A	PE
BP12.C001	N/A	R/W. UTIL.
BP12.C001	N/A	CONST.

LOCATION: REPLACE STRUCTURE #010304 OVER ROCKY FACE BRANCH ON SR 1419 (ROCKY SPRINGS RD)

TYPE OF WORK: GRADING, DRAINAGE, AND PAVING

NAD 83/ 2011



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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT

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

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

GRAPHIC SCALE

20 10 0 20 40
PLANS

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

TGS ENGINEERS

Prepared in the Office of:

TGS ENGINEERS
201 W. MARION ST-STE 200
SHELBY, NC 28150

Designed by:

Andrew H. Cochrane, PE 3015
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

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

PROJECT REFERENCE NO.	SHEET NO.
BP12-C001	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

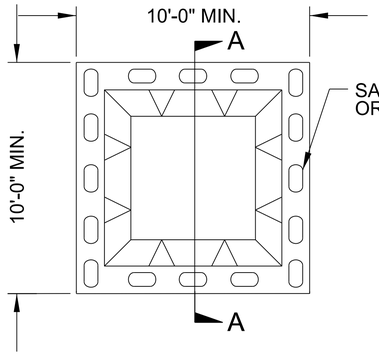
EROSION & SEDIMENT CONTROL LEGEND

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

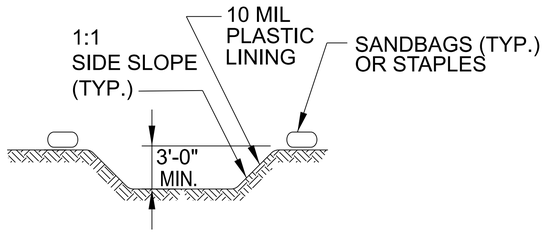
Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet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

PROJECT REFERENCE NO.	SHEET NO.
BP12-C001	EC-02A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A

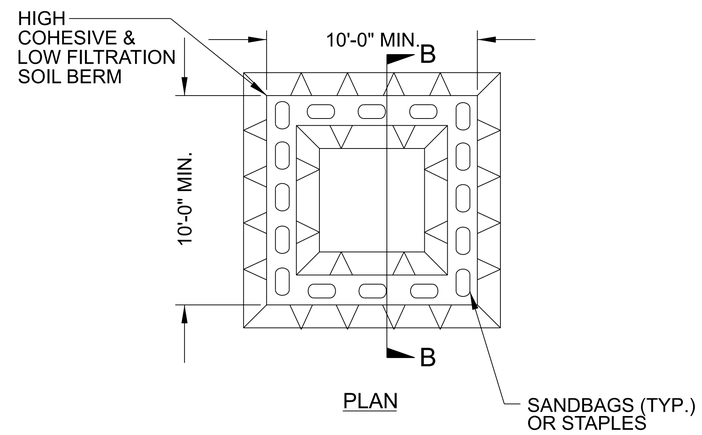
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

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.

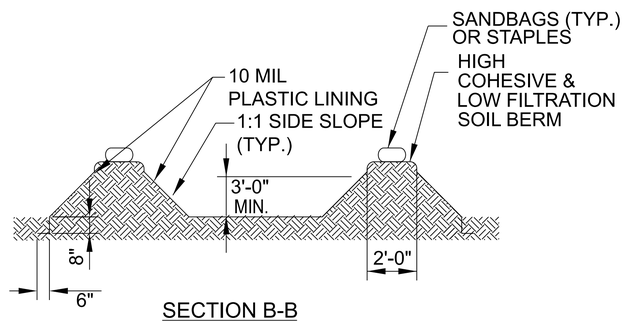
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

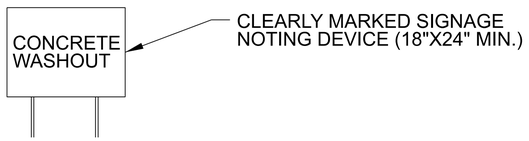
NOT TO SCALE



PLAN



SECTION B-B



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.

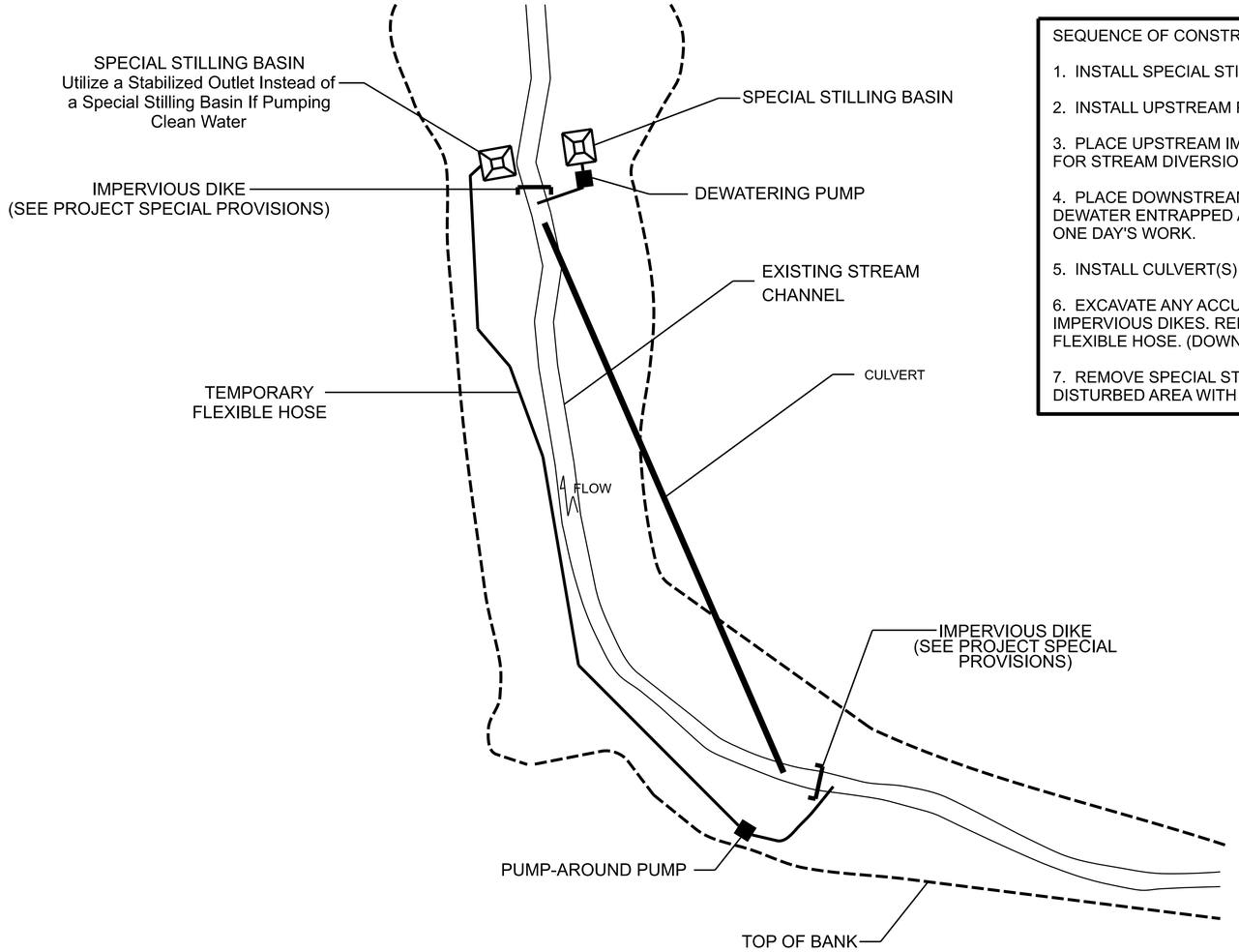
ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
BP12-C001	EC-2B
R/W 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.

PROJECT REFERENCE NO.	SHEET NO.
BP12-C001	EC-03

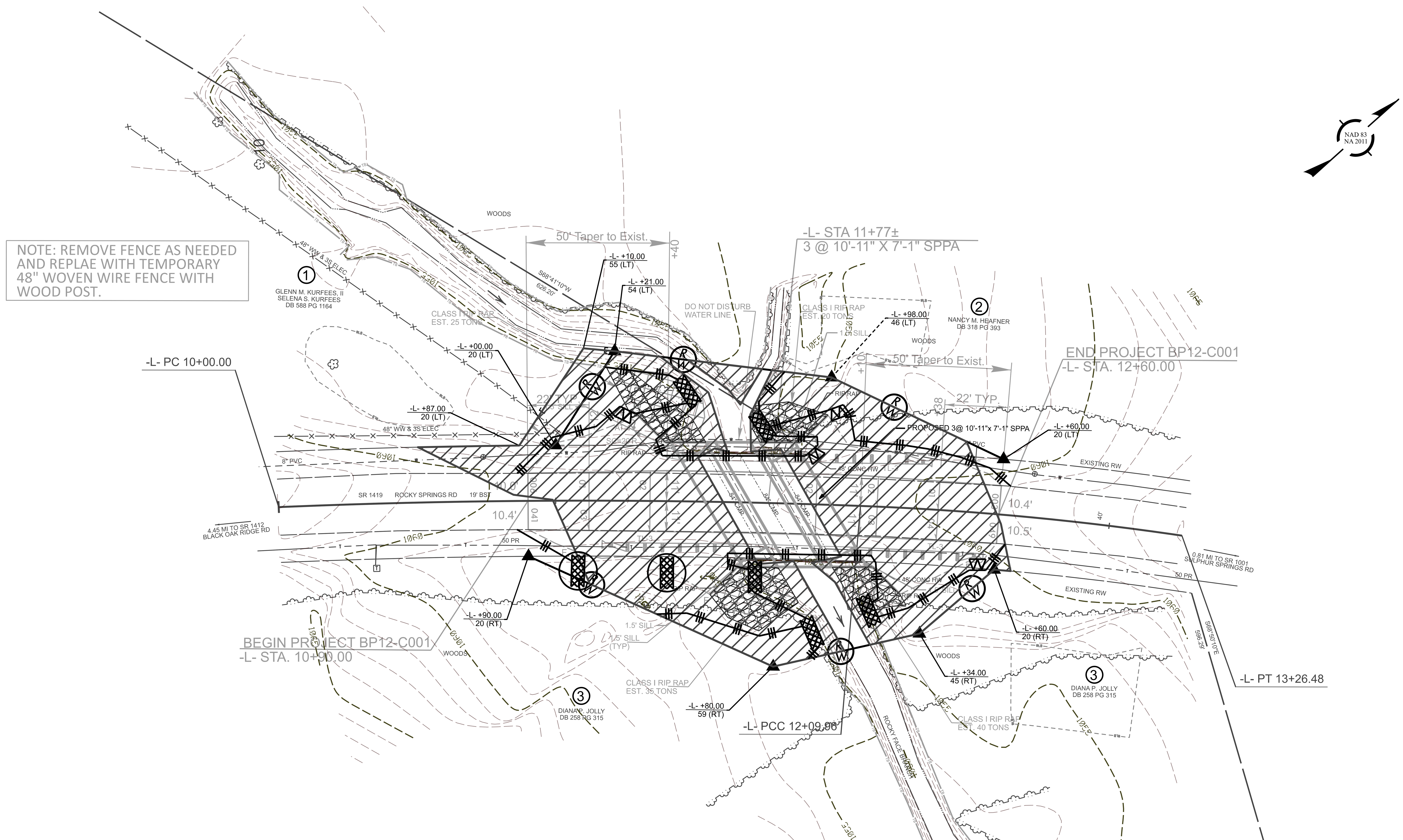
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

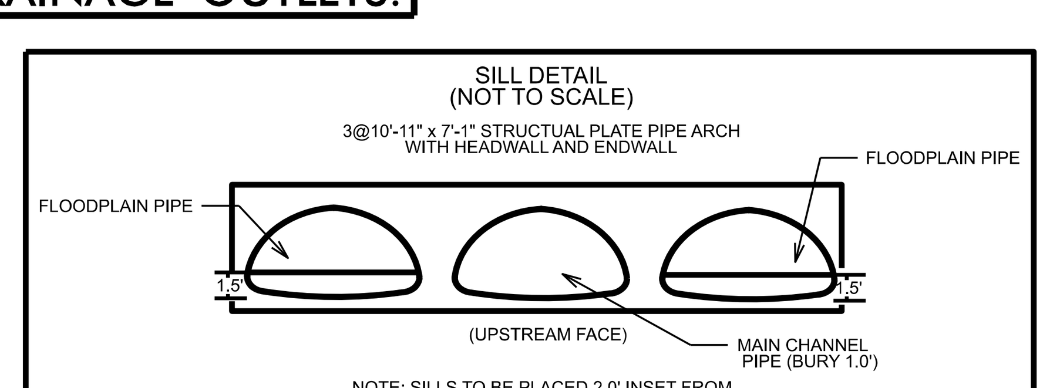
11/14/23

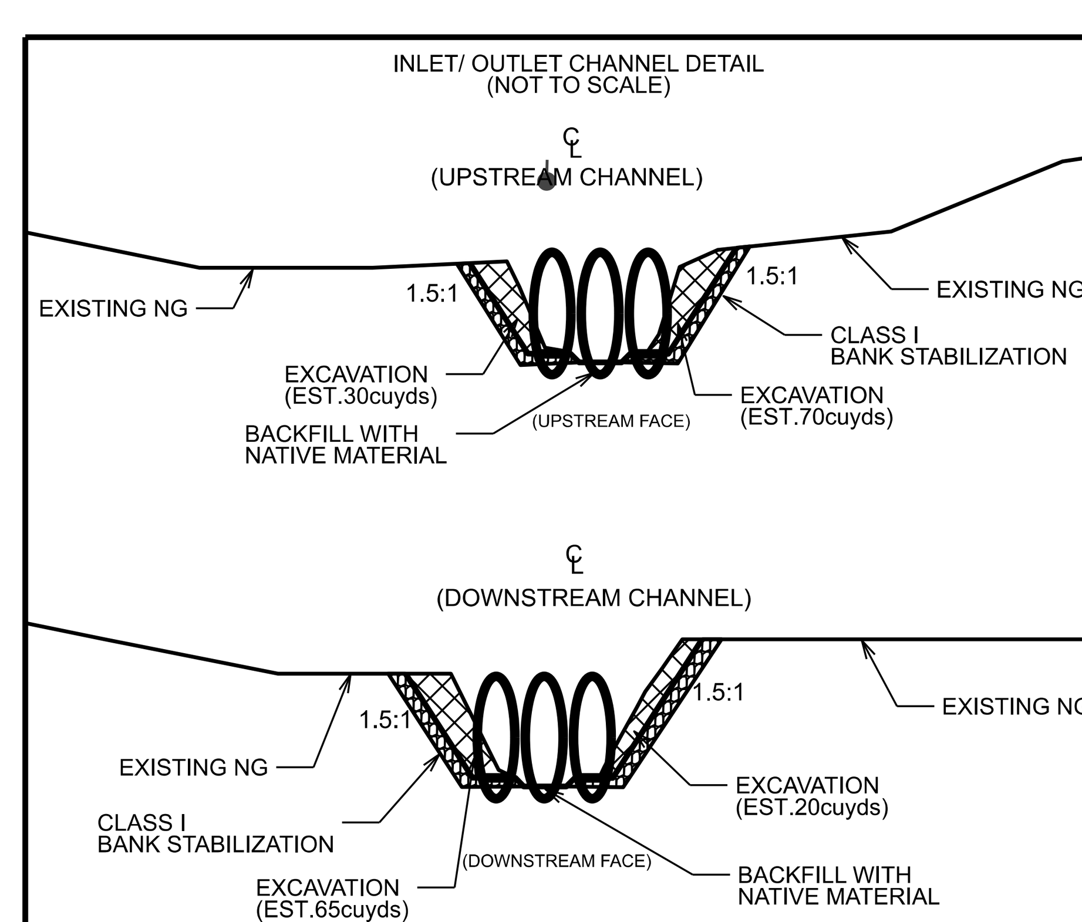


CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

ENVIRONMENTALLY SENSITIVE AREA SEE PROJECT SPECIAL PROVISIONS

PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.





BP12-C001

EC-04

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ALEXANDER COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PREPARED BY

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

REVISIONS

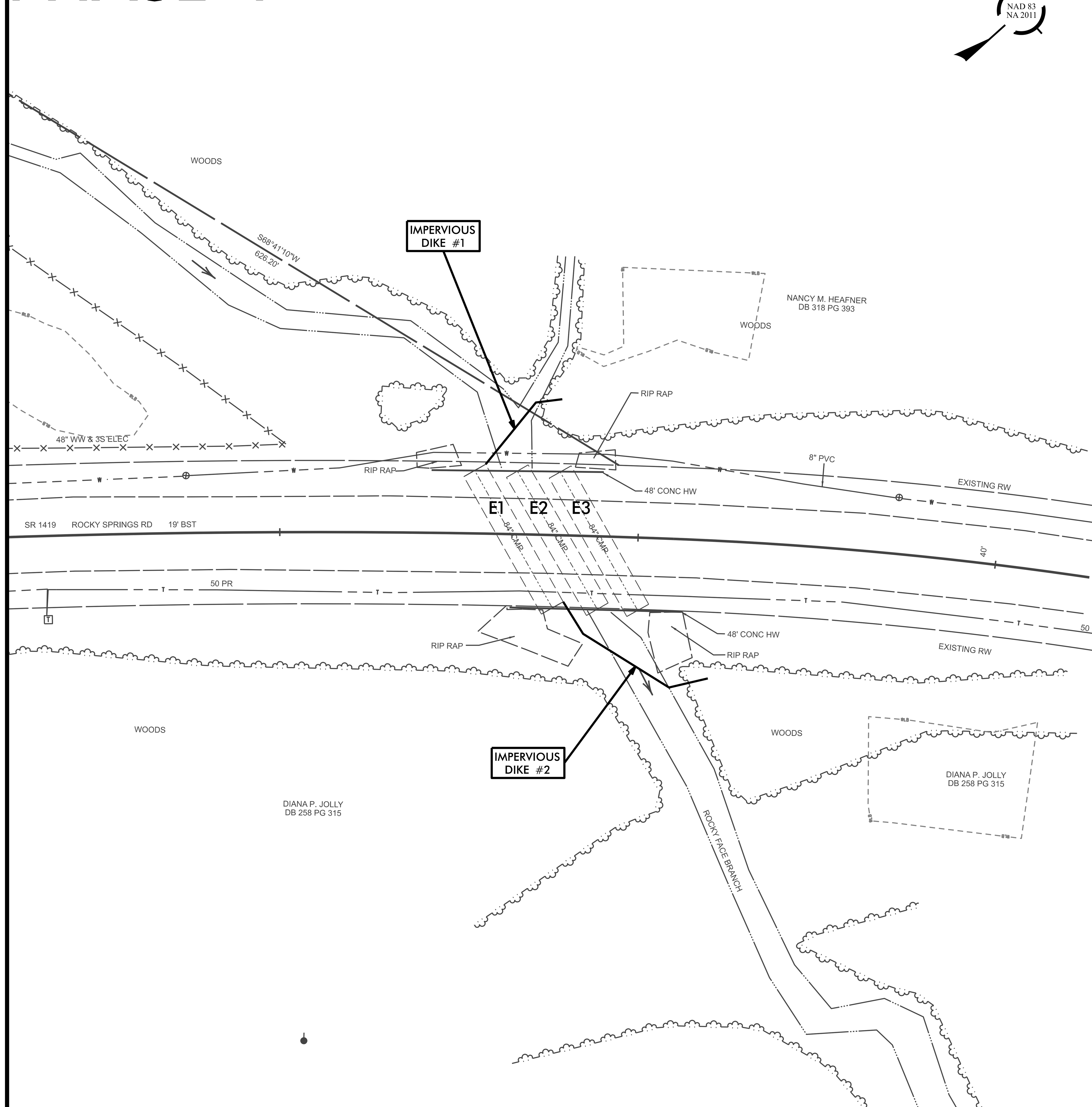
11/14/23

CULVERT CONSTRUCTION SEQUENCE STA. 11+77 –L–

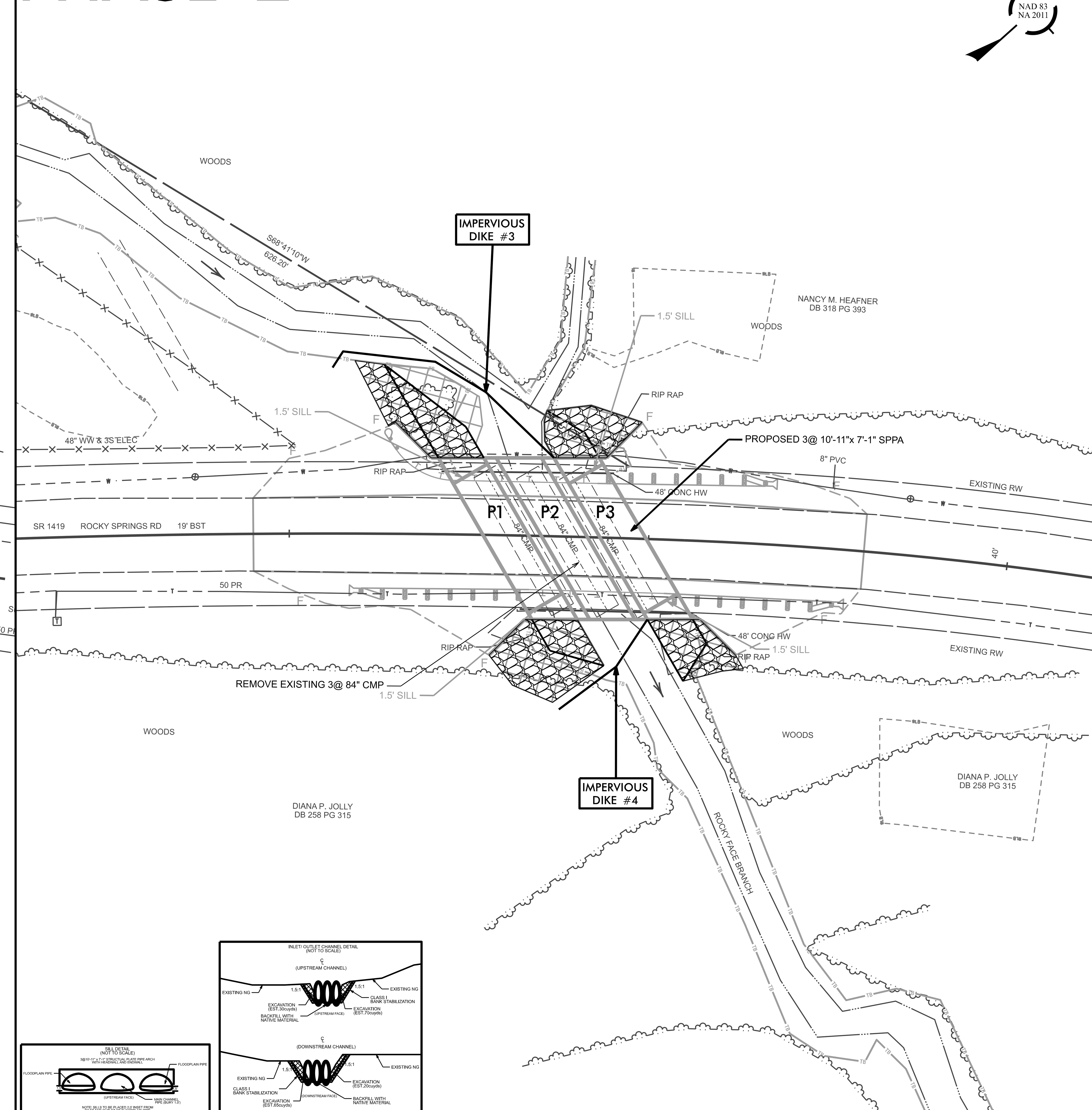
1. INSTALL TRAFFIC CONTROL DEVICES AS SHOWN ON TMP PLANS.
2. INSTALL IMPERVIOUS DIKES #1 & #2, DIRECTING FLOW THROUGH EXISTING CULVERT E1.
3. DEWATER WORK SITES AS NEEDED INTO SPECIAL STILLING BASIN(S).
4. REMOVE EXISTING CULVERTS E2 & E3.
5. BUILD PROPOSED CULVERT P3 WITHOUT SILLS.
6. COMPLETE FLOODPLAIN GRADING AND INLET/OUTLET CHANNEL STABILIZATION FOR P3.

1. REMOVE IMPERVIOUS DIKES #1 & #2.
2. INSTALL IMPERVIOUS DIKES #3 & #4, DIRECTING FLOW THROUGH NEW CULVERT P3.
3. REMOVE EXISTING CULVERT E1.
4. BUILD PROPOSED CULVERTS P1 & P2.
5. COMPLETE FLOODPLAIN GRADING AND INLET/OUTLET CHANNEL STABILIZATION FOR P1 & P2.

PHASE 1



PHASE 2



BP12-C001
EC-04A

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ALEXANDER COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PREPARED BY

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

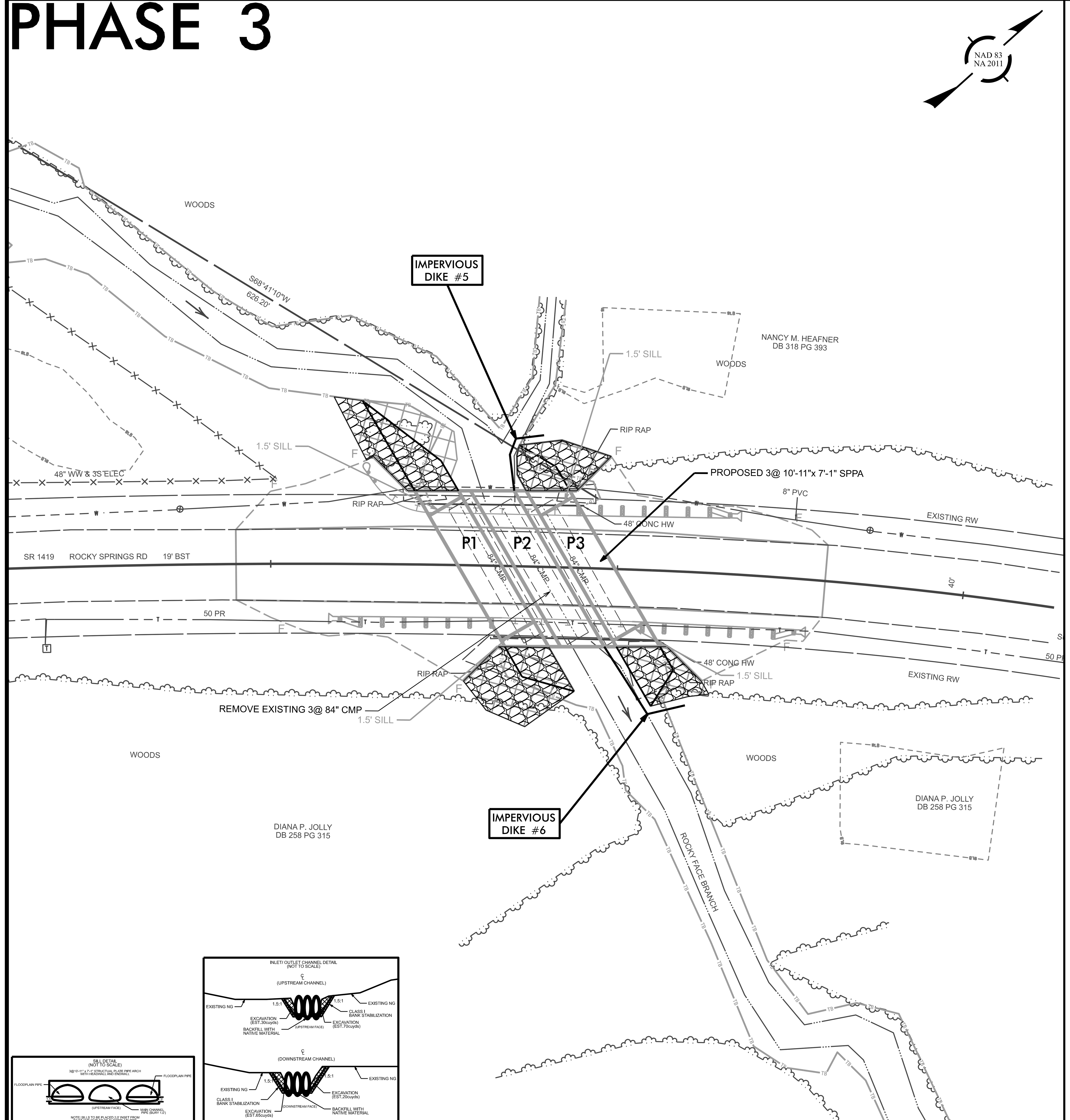
REVISIONS

11/14/23

CULVERT CONSTRUCTION SEQUENCE STA. 11+77 -L-

1. REMOVE IMPERVIOUS DIKES #3 & #4.
2. INSTALL IMPERVIOUS DIKES #5 & #6, DIRECTING FLOW THROUGH NEW CULVERTS P1 & P2.
3. COMPLETE REMAINDER OF PROPOSED CULVERT P3 (SILLS).
4. REMOVE IMPERVIOUS DIKES #5 & #6 AND REESTABLISH STREAM ACCORDING TO CONST. PLANS.

PHASE 3



BP12-C001

EC-04B

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ALEXANDER COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

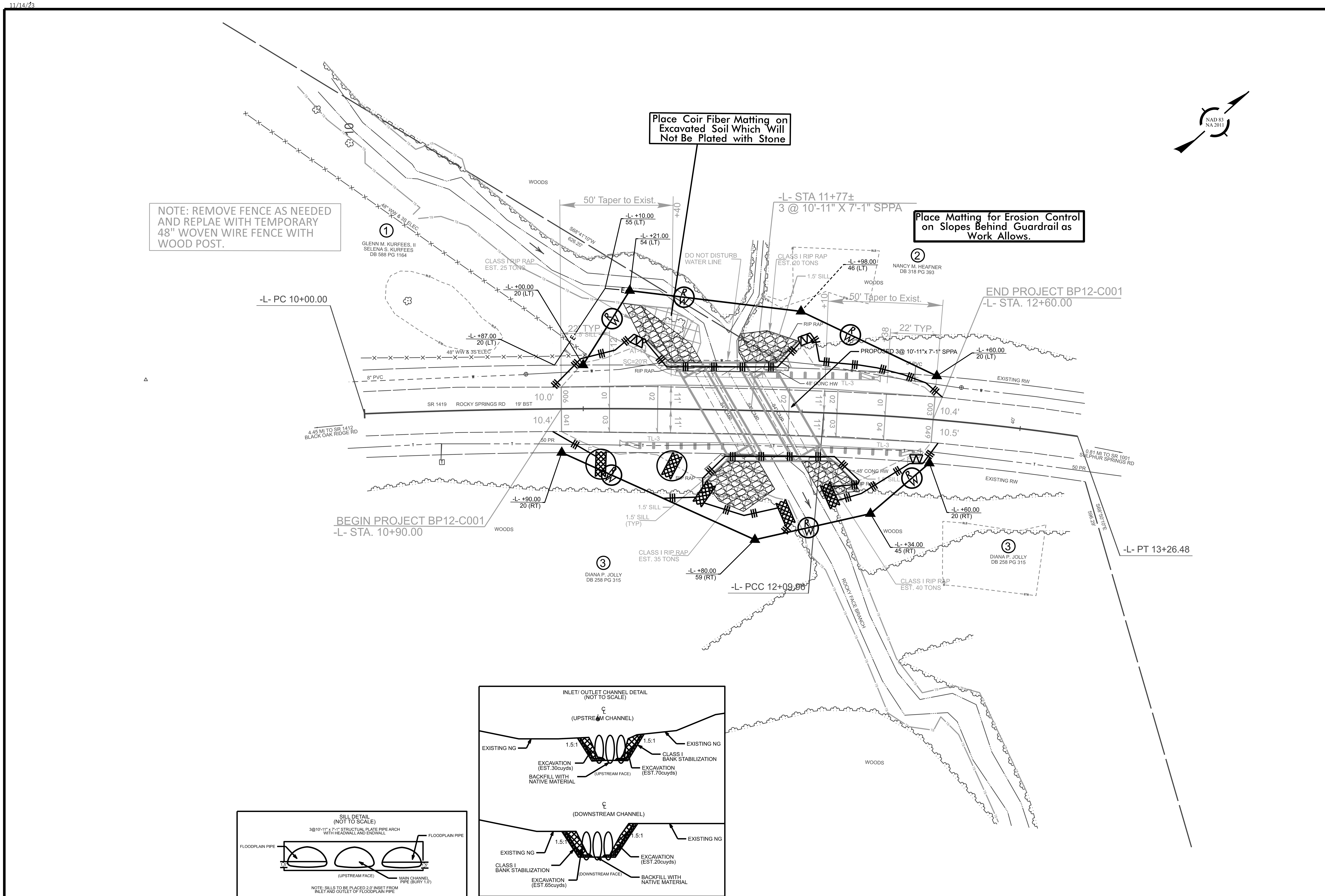
HYDRAULICS ENGINEER

PREPARED BY

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

REVISIONS

11/14/23



BP12-C001

EC-05

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ALEXANDER COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PREPARED BY

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201 W. MARION ST. STE 200
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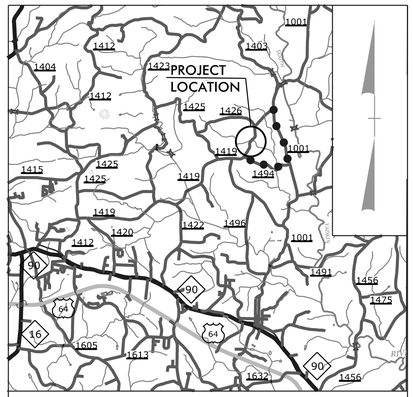
REVISIONS

PROJECT: BP12-C001

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)
OFFSITE DETOUR

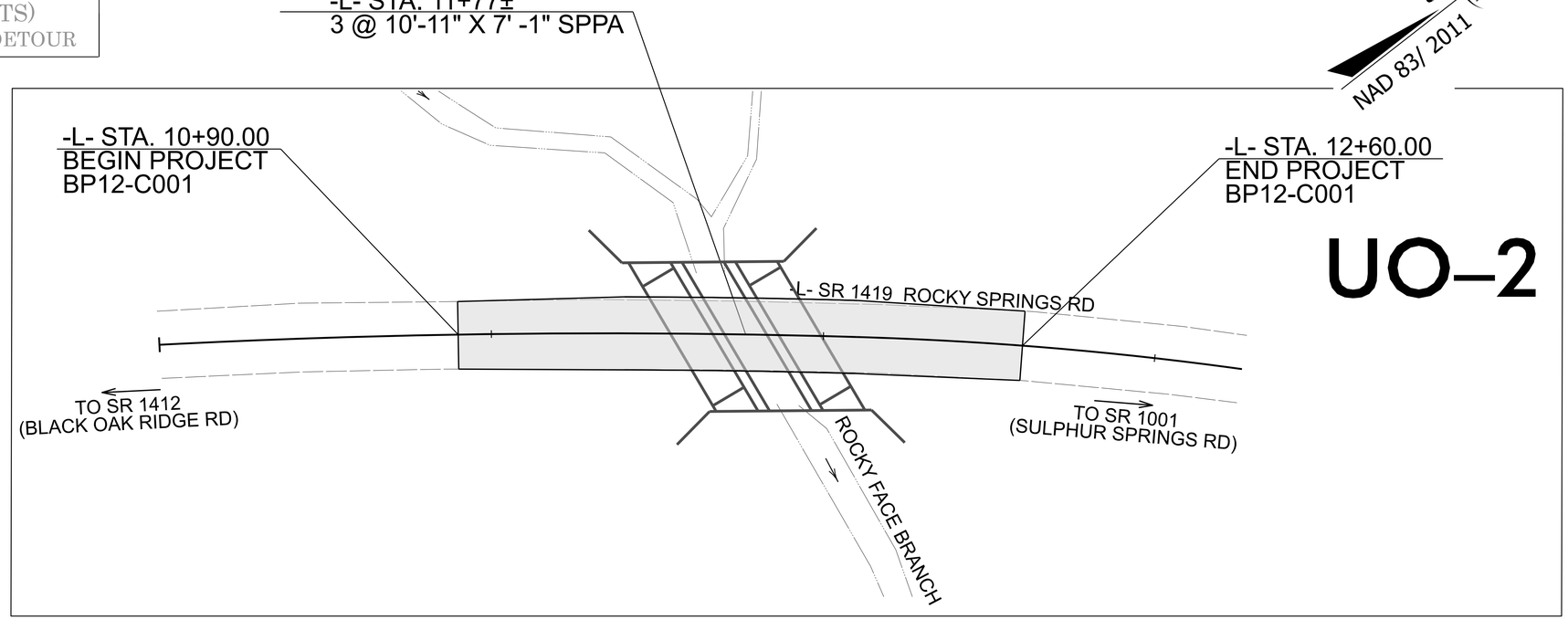
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	RDY SHEET	SHEET NO.
N.C.	BP12-C001	4	UO-1

UTILITIES BY OTHERS PLANS
ALEXANDER COUNTY

LOCATION: REPLACE STRUCTURE #010304 OVER ROCKY FACE BRANCH ON SR 1419 (ROCKY SPRINGS RD)

TYPE OF WORK: ABANDON UNDERGROUND COPPER CABLES



GRAPHIC SCALES

20 10 0 20 40
PLANS

INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UO–1	*TITLE SHEET*
UO–2	*UTILITIES BY OTHER SHEET*

UTILITY OWNERS ON PROJECT

(A) TELECOMM – AT&T

(B) WATER – ALEXANDER COUNTY WATER

PREPARED IN THE OFFICE OF:

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

LYNN KIESELHORST, P.G. — *PROJECT UTILITY COORDINATOR*
JIMMY TERRY, P.E. — *PROJECT MANAGER*

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

JOSH WHITE, PE, PLS — *DIVISION PROJECT TEAM LEAD*
WARREN ANDERSON — *DIVISION UTILITIES ENGINEER*

02/02/22

UTILITIES BY OTHERS

NOTE: REMOVE FENCE AS NEEDED AND REPLACE WITH TEMPORARY 48" WOVEN WIRE FENCE WITH WOOD POST.

-L- PC 10+00.00

BEGIN PROJECT BP12-C001
-L- STA. 10+90.00

-L- STA 11+77±
3 @ 10'-11" X 7'-1" SPPA

END PROJECT BP12-C001
-L- STA. 12+60.00

-L- PCC 12+09.96

-L- PT 13+26.48

ABANDON EXISTING UG TELEPHONE NE OF EXISTING PED

REMOVE EXISTING 3@ 84" CMP

1.5' SILL (TYP)

PROPOSED 3@ 10'-11"x 7'-1" SPPA

CLASS I RIP RAP EST. 25 TONS

CLASS I RIP RAP EST. 20 TONS

CLASS I RIP RAP EST. 35 TONS

CLASS I RIP RAP EST. 40 TONS

DO NOT DISTURB WATER LINE

RIP RAP

WOODS

48" WW & 3S ELEC

8" PVC

SR 1419 ROCKY SPRINGS RD 19' BST

4.45 MI TO SR 1412 BLACK OAK RIDGE RD

0.81 MI TO SR 1001 SULPHUR SPRINGS RD

AT-1

SC=20'R

TL-3

48" CONC HW

EXISTING RW

50 PR

ROCKY FACE BRANCH

NC GRID NAD 83 NA 2011

BP12-C001	
RDY 4	UD-2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY

UTILITY DESIGN UNIT

UTILITIES BY OTHERS PLANS

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

DESIGNED BY: LAK
DRAWN BY: ADC
CHECKED BY:
APPROVED BY: LAK
SCALE: 1"=20'

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

REVISIONS
1. 02/23/2026 REVISED AT&T PLANS TO ABANDON EXISTING CABLE ONLY.

PROJ. REFERENCE NO.	SHEET NO.
BP12-C001	X-1A

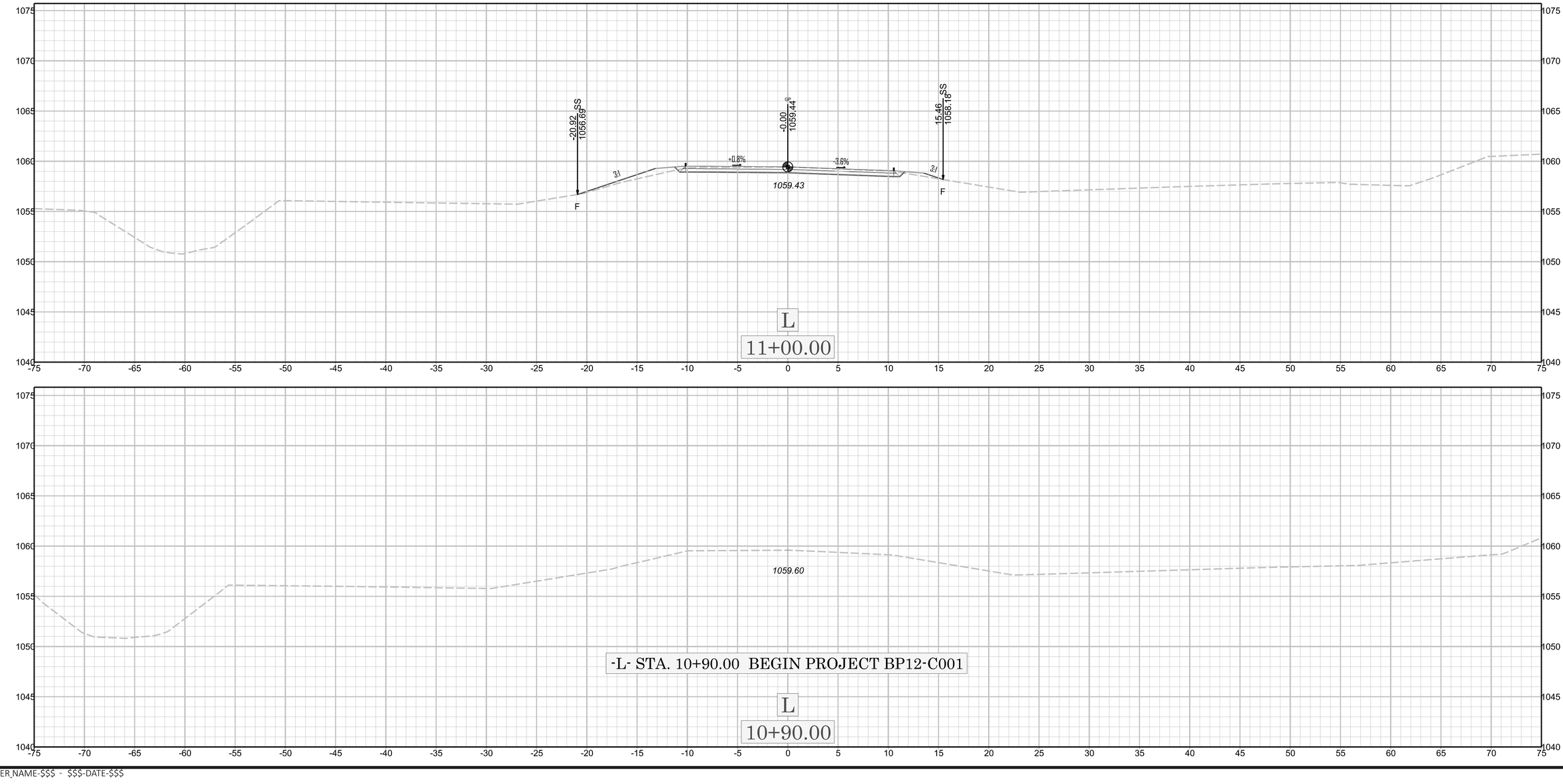
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

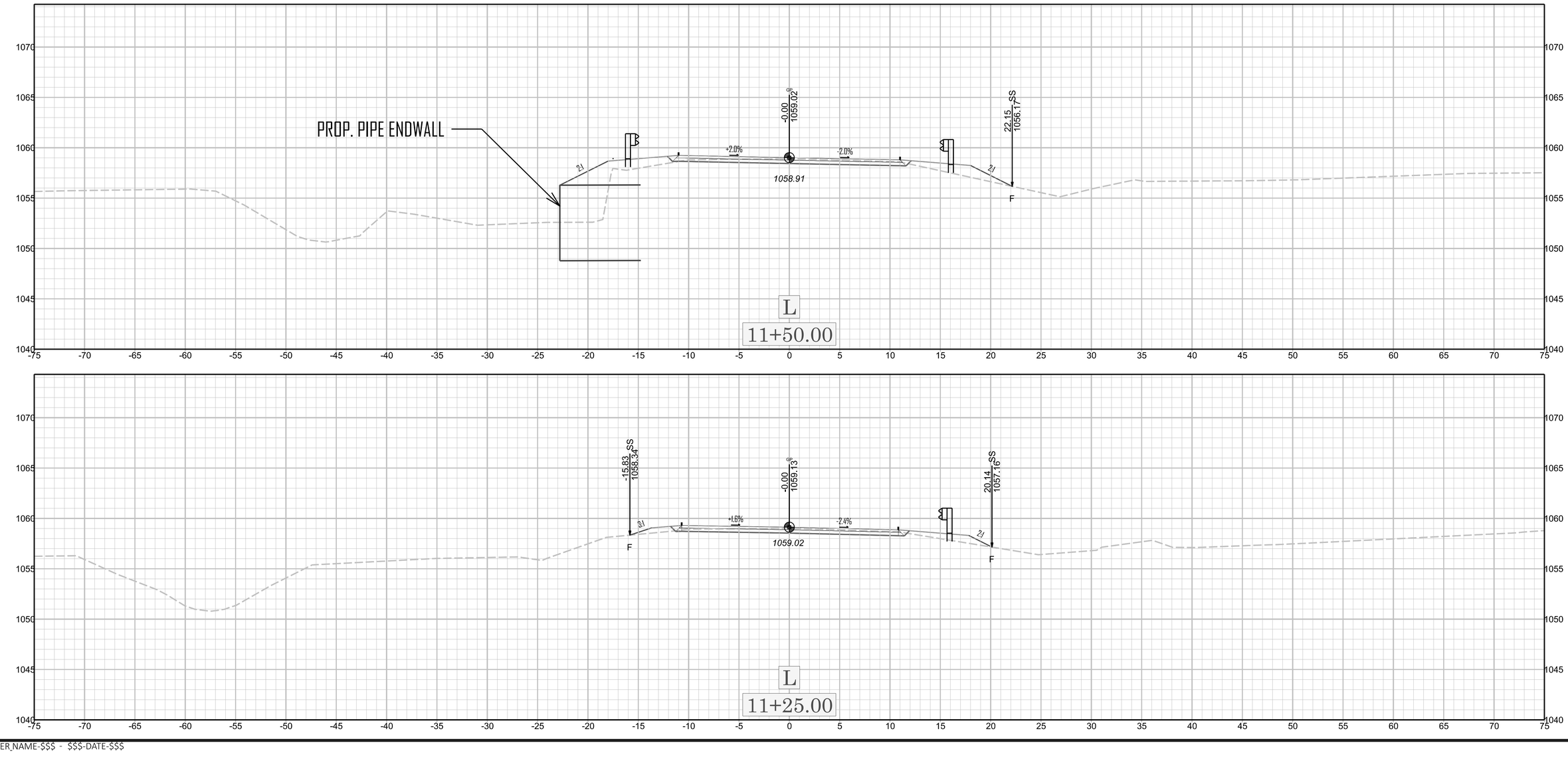
NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

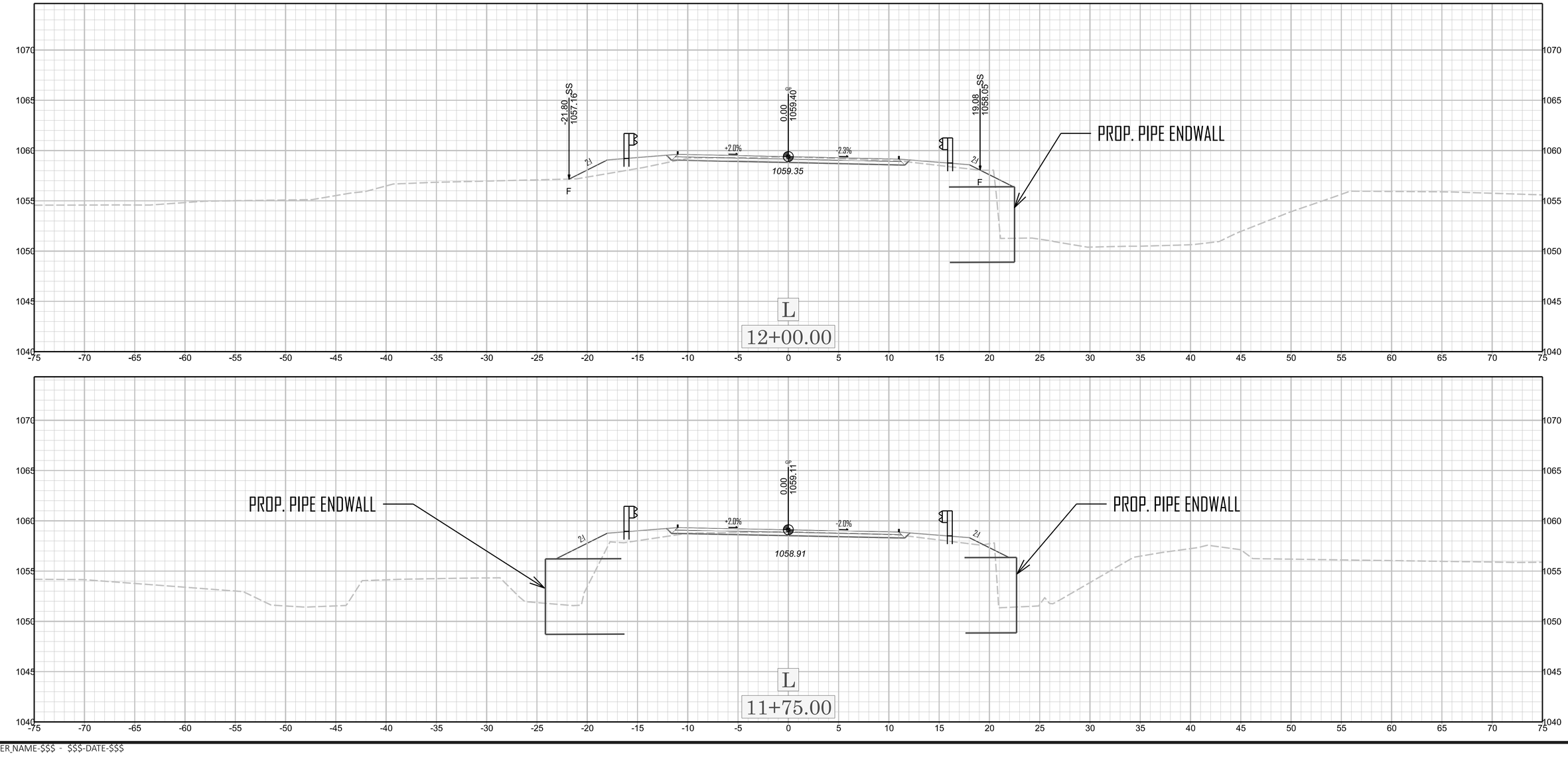
CROSS-SECTION SUMMARY

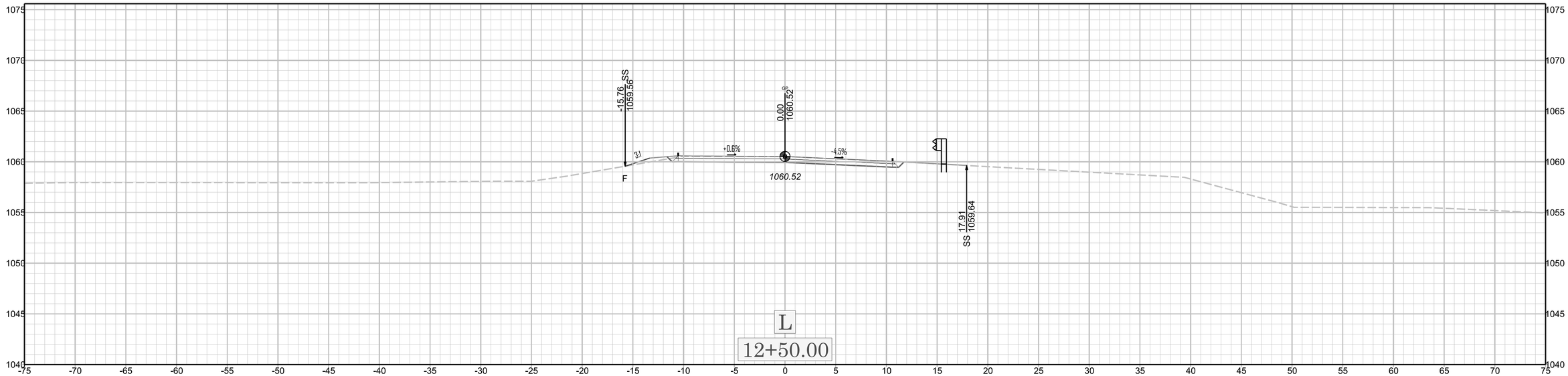
Station -L-	Uncl. Exc. (cu yd)	Embt (cu yd)
10+90	0	0
11+00	0	1
11+25	0	5
11+50	0	12
11+75	0	16
12+00	1	13
12+25	1	8
12+50	0	3
12+60	0	0

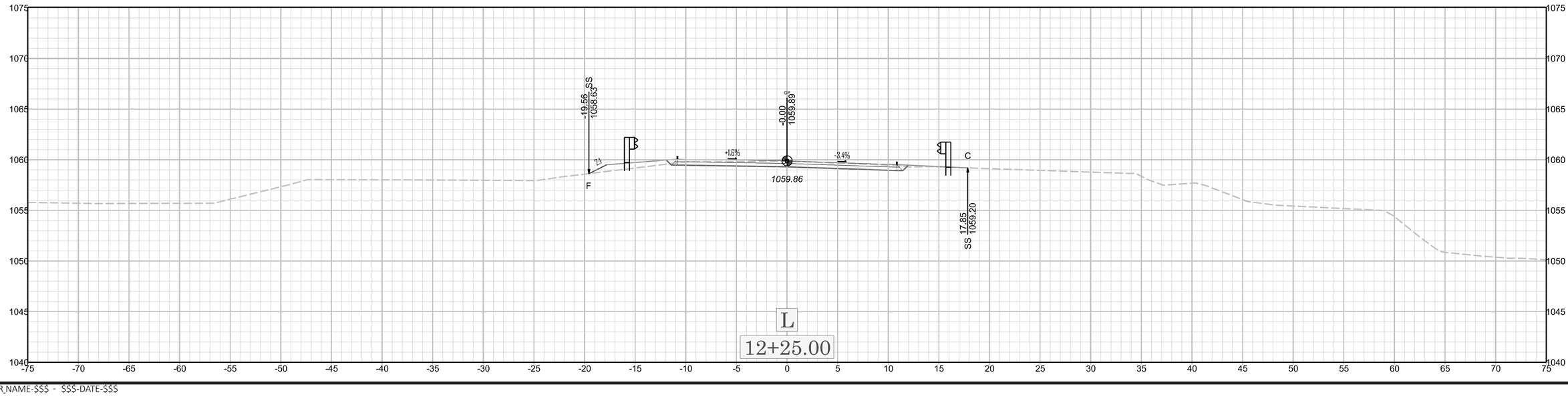
Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for grading.

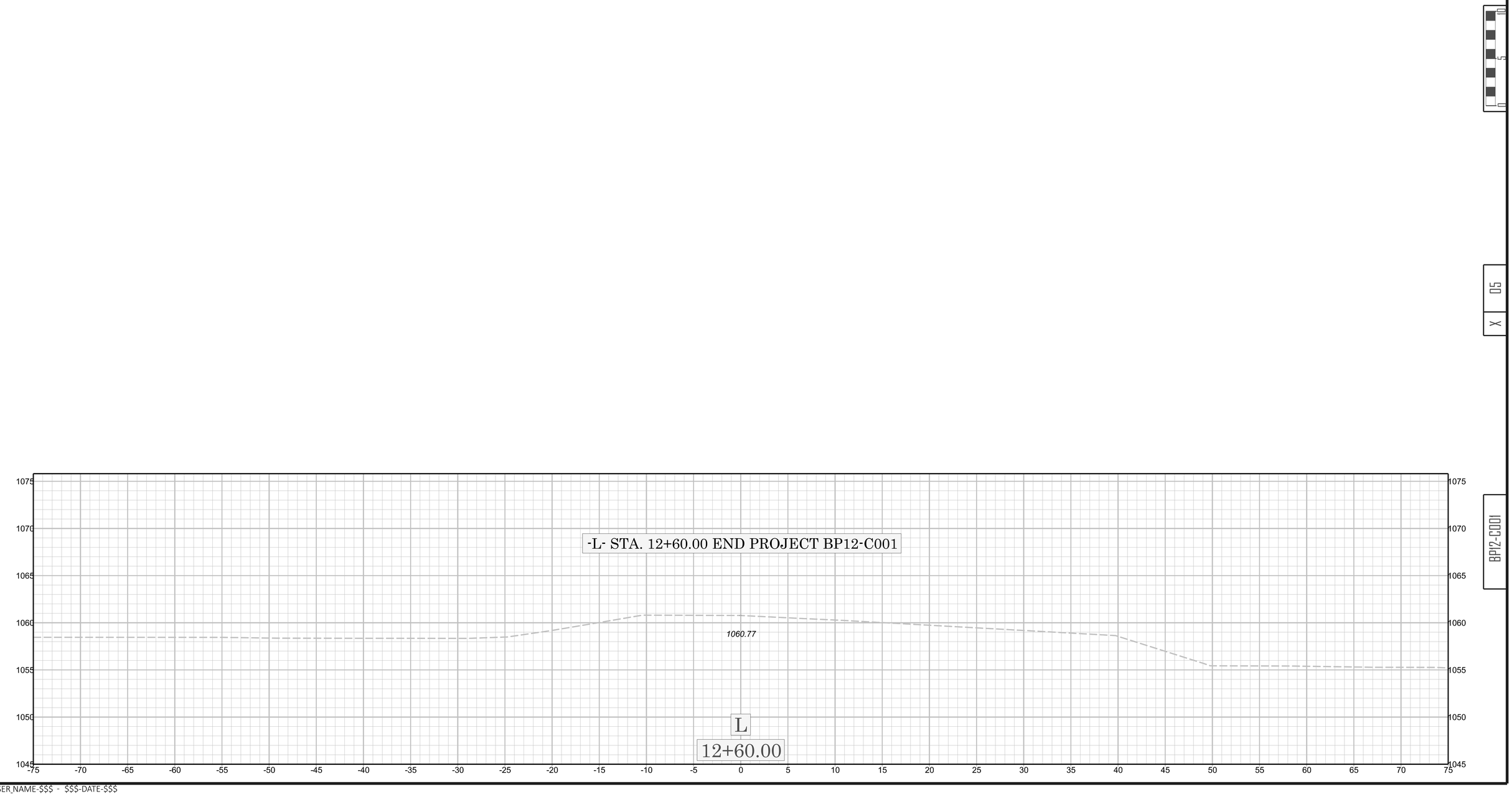






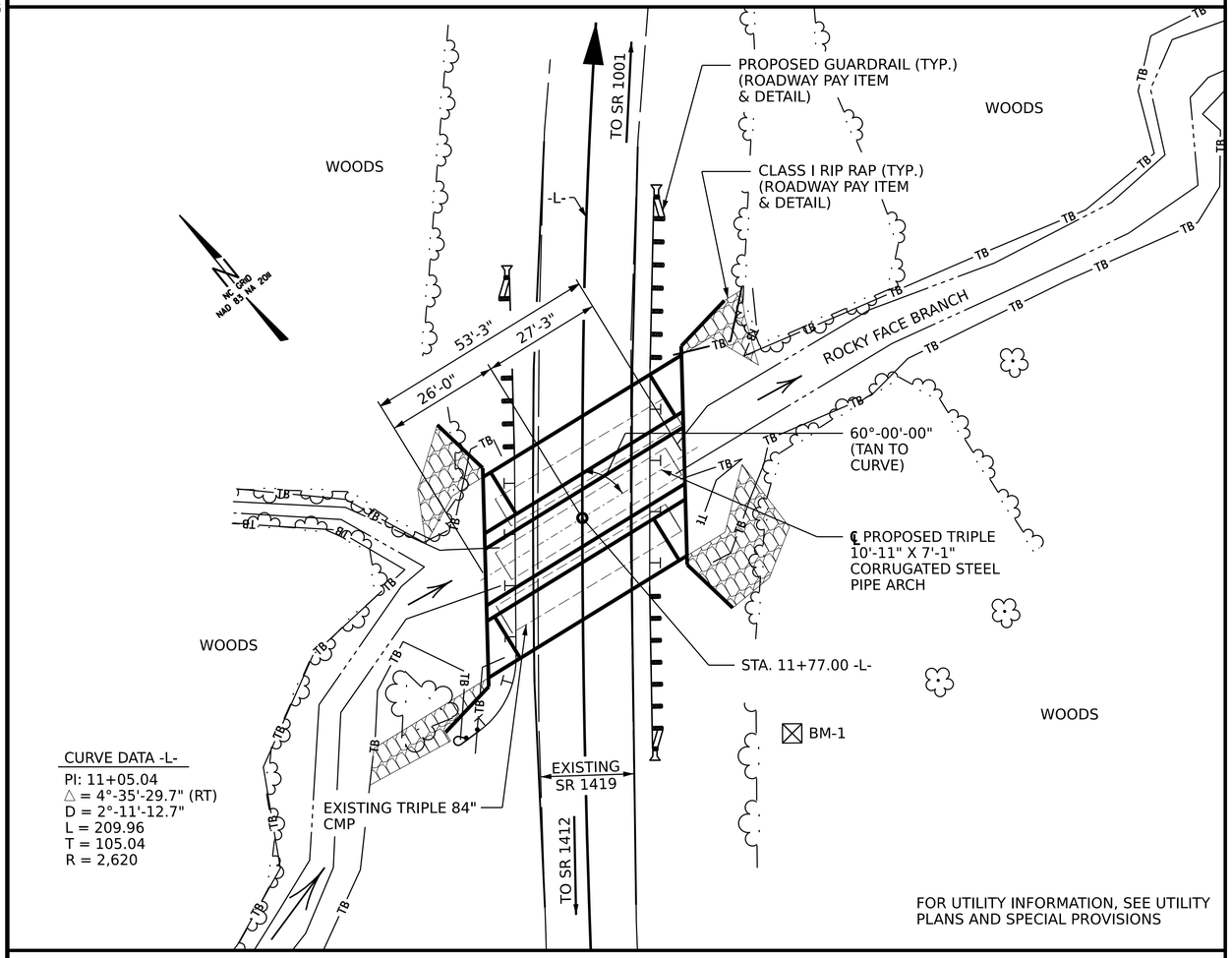




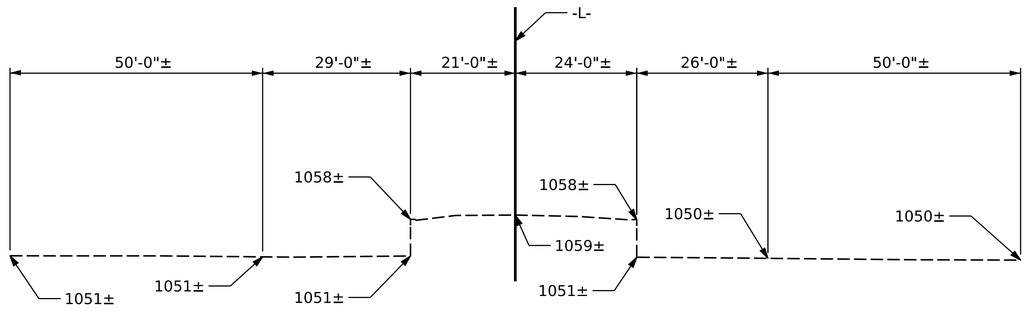


8/26/21

BENCH MARK #1: RR SPIKE IN BASE OF 17" POPLAR; 60' RT. OF STA. 11+11.70 -L-; ELEV. 1060.17



LOCATION SKETCH



PROFILE ALONG ℄ CULVERT

TOTAL STRUCTURE QUANTITIES	
CORRUGATED STEEL PIPE ARCH CULVERT	LUMP SUM
CULVERT EXCAVATION	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	161 TONS
MOMENT SLAB	94 LIN. FT.

ROADWAY DATA

GRADE POINT ELEV. @ STA. 11+77.00 -L-	= 1059.13
BED ELEV. @ STA. 11+77.00 -L-	= 1049.70
ROADWAY SLOPES	= 2:1

HYDRAULIC DATA

DESIGN DISCHARGE	= 540 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YRS
DESIGN HIGH WATER ELEVATION	= 1057.0
DRAINAGE AREA	= 1.16 SQ. MI.
BASIC DISCHARGE (Q100)	= 790 CFS
BASIC HIGH WATER ELEVATION	= 1058.2

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 960 CFS
FREQUENCY OF OVERTOPPING FLOOD	= -500 YRS
OVERTOPPING FLOOD ELEVATION	= 1059.3 *

* OVERTOPPING @ U/S SHOULDER POINT STA. 11+51.30 -L-
W.S. ELEV. TAKEN @ RIVER STA. 1245

NOTES

ASSUMED LIVE LOAD - HL-93 OR ALTERNATE.

FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTES SHEET.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF THE CULVERT BEFORE CONSTRUCTION TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

FILL DEPTH 2.62'.

EXCAVATE AT LEAST 1 FOOT BELOW THE CULVERT AND REPLACE EXCAVATED MATERIAL WITH FOUNDATION CONDITIONING MATERIAL. FOR FOUNDATION CONDITIONING MATERIAL, SEE CULVERT EXCAVATION SPECIAL PROVISION.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

FOR CORRUGATED STEEL PIPE ARCH CULVERT, SEE SPECIAL PROVISIONS.

THE MANUFACTURER OF THE CORRUGATED STEEL PLATE PIPE ARCH CULVERT SHALL PROVIDE LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY PER NCDOT REQUIREMENTS.

REMOVAL OF EXISTING CMP WITH CONCRETE HEADWALLS SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE CMP WITH CONCRETE HEADWALLS IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS. FOR REMOVAL OF THE EXISTING CMP, SEE CULVERT EXCAVATION SPECIAL PROVISION.

FOR CULVERT EXCAVATION, SEE SPECIAL PROVISIONS.

THE DETAILS SHOWN HERE ARE FOR GENERAL LAYOUT ONLY. THE CONTRACTOR SHALL SUPPLY DESIGNS AND DETAILS THAT MEET THE REQUIREMENTS OF AASHTO SECTION 12, AND ARE SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.

FOR FOUNDATION CONDITIONING MATERIAL, SEE CULVERT EXCAVATION SPECIAL PROVISION.

FOR MOMENT SLAB, SEE SPECIAL PROVISIONS.

PROJECT NO. BP12-C001

ALEXANDER COUNTY

STATION: 11+77.00 -L-

SHEET 1 OF 5 REPLACES STRUCTURE 010304

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CASEY, JR.

Marshall G. Casey, Jr.
5FBCC2F3A4DC413...

4/16/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE 10'-11" X 7'-1" CORRUGATED STEEL PIPE ARCH CULVERT 60° SKEW

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

ASSEMBLED BY:	STM	DATE :	01/25
CHECKED BY :	MGC	DATE :	04/25

4/16/2026
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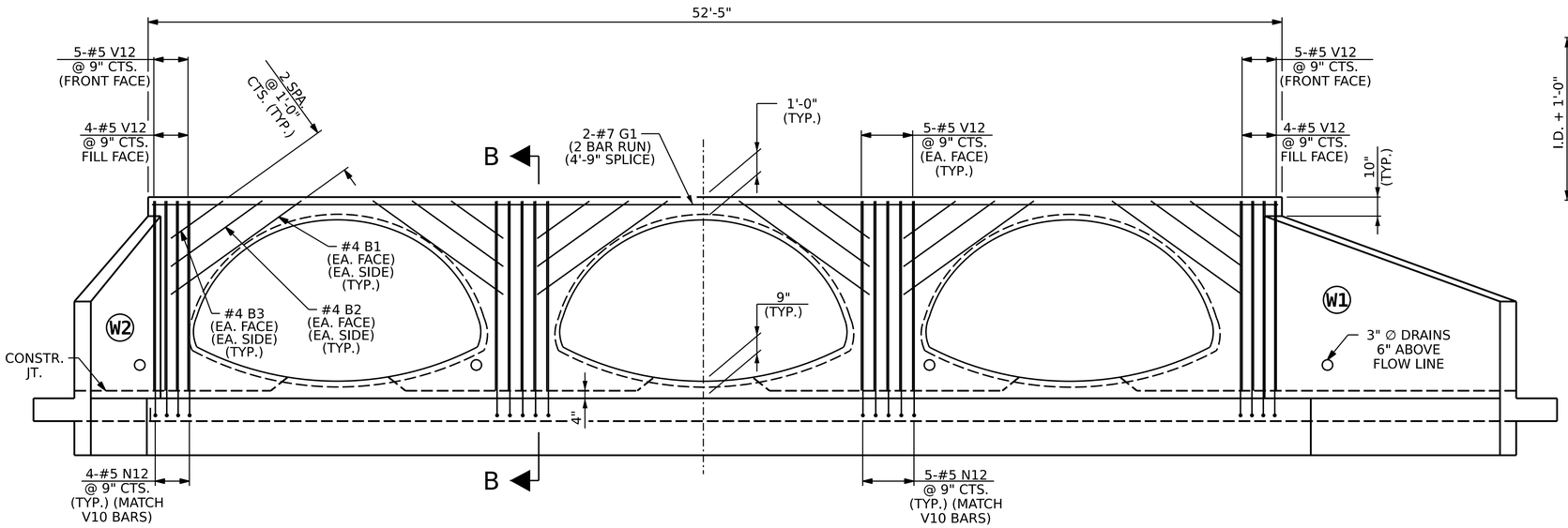
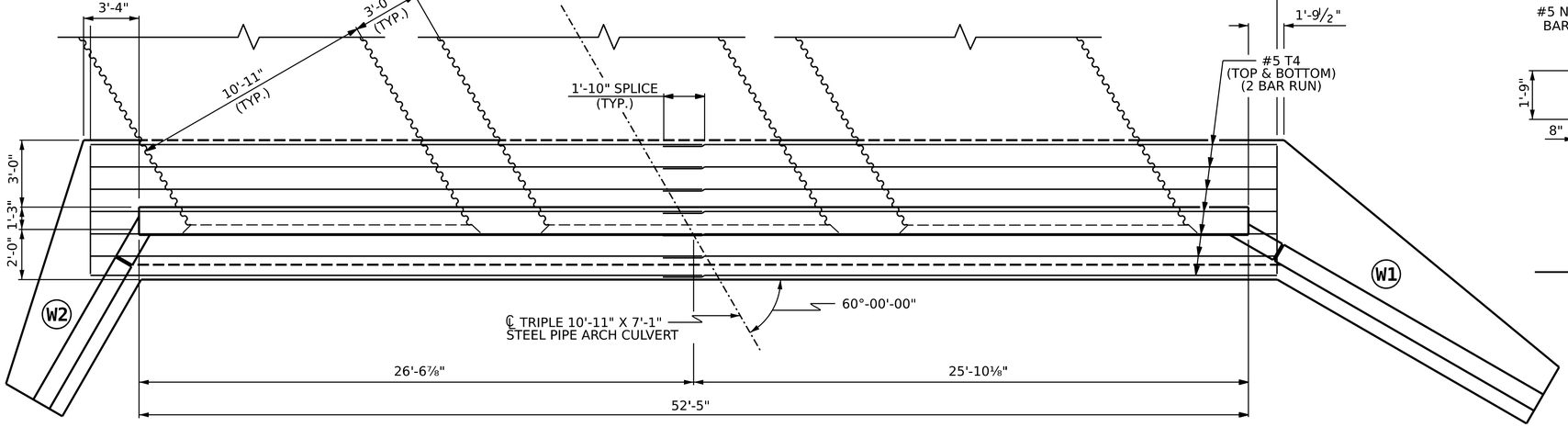
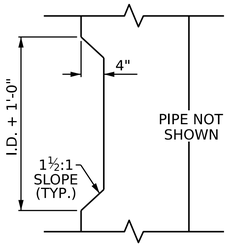
ZSmith



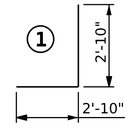
ELEVATION



PLAN



TAPER DETAIL

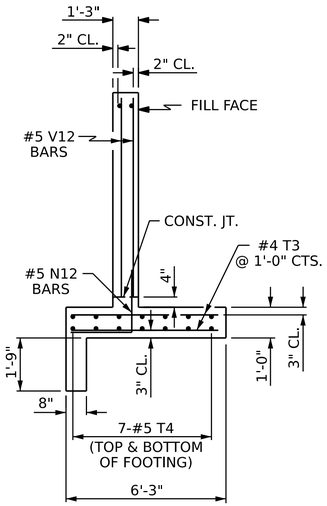


BAR DIMENSIONS ARE OUT TO OUT.

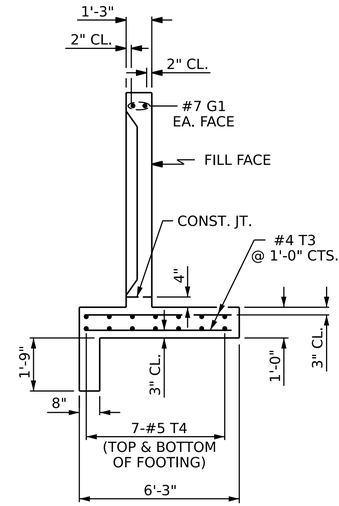
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	24	#4	STR	12'-0"	192
B2	24	#4	STR	8'-5"	135
B3	24	#4	STR	4'-9"	76
G1	8	#7	STR	28'-6"	466
N12	36	#5	1	5'-8"	213
T3	228	#4	STR	5'-10"	888
T4	56	#5	STR	29'-6"	1723
V12	72	#5	STR	8'-3"	620

REINFORCING STEEL FOR 2 HEADWALLS	4313 LBS
CLASS A CONCRETE FOR 2 HEADWALLS	42.9 CY



SECTION B-B



SECTION ALONG ℄

TOTAL QUANTITES		
REINFORCING CONCRETE		
4 WINGS	1,570	LBS.
2 HEADWALLS	4,298	LBS.
TOTAL	5,868	LBS.
CLASS A CONCRETE		
4 WINGS	11.1	C.Y.
2 END CURTAIN WALLS	10.5	C.Y.
2 HEADWALLS	42.9	C.Y.
2 FOOTINGS	30.1	C.Y.
TOTAL	94.6	C.Y.

NOTES

NO SEPARATE PAYMENT WILL BE MADE FOR REINFORCING STEEL OR CLASS A CONCRETE. THE ENTIRE COST OF THESE ITEMS SHALL BE PAID FOR UNDER THE LUMP SUM PRICE BID FOR CORRUGATED STEEL PIPE ARCH CULVERT.

CHAMFER ALL CORNERS 1".

PLACE A STONE DRAIN CONSISTING OF ONE (1) CUBIC FOOT OF NUMBER 78M STONE CONTAINED IN A POROUS FABRIC AT EACH WEEP HOLE. PLACE SUBDRAIN FINE AGGREGATE BENEATH, AROUND AND OVER THE STONE DRAIN SO THE STONE DRAIN IS COMPLETELY COVERED BY A LAYER OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT THICK. WHERE THERE IS THAN ONE WEEP HOLE IN A WING WALL, PLACE A HORIZONTAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT SQUARE IN CROSS SECTION TO CONNECT ALL STONE DRAINS. PLACE A VERTICAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST ONE (1) FOOT SQUARE IN CROSS SECTION AT EACH WEEP HOLE TO AN ELEVATION OF TWO (2) FEET BELOW THE SURFACE OF THE EMBANKMENT.

PROJECT NO. BP12-C001

ALEXANDER COUNTY

STATION: 11+77.00 -L-

SHEET 2 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER Marshall G. Chesney, Jr.

4/16/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE 10'-11" X 7'-1" CORRUGATED STEEL PIPE ARCH CULVERT 60° SKEW

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

DRAWN BY :	STM	DATE : 04/25
CHECKED BY :	MGC	DATE : 04/25

4/14/2026
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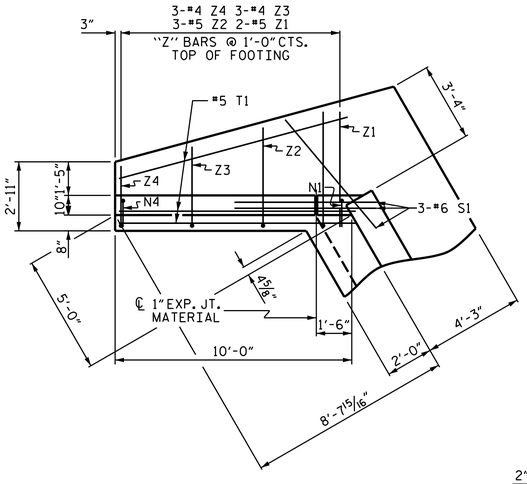
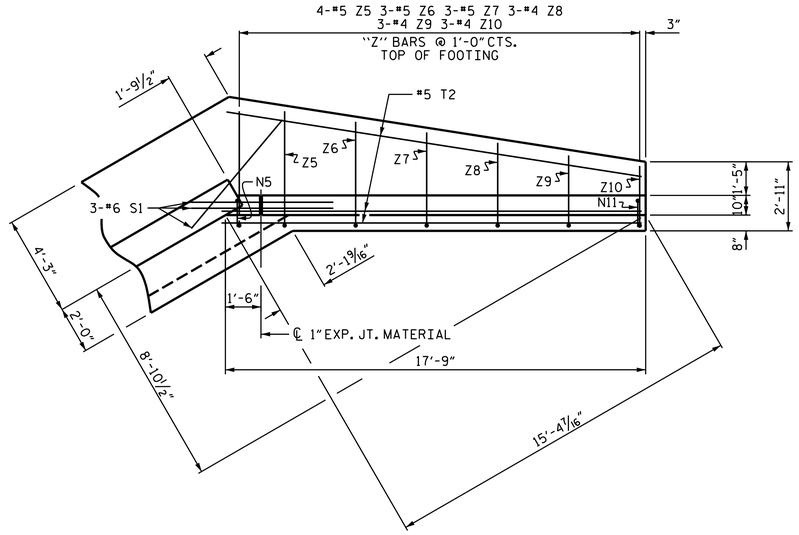
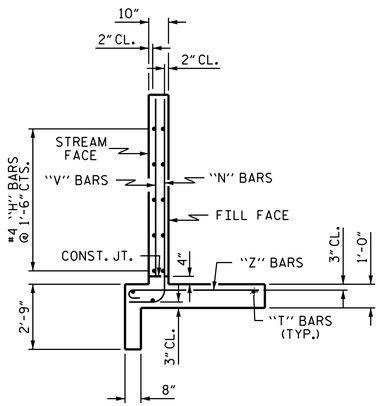


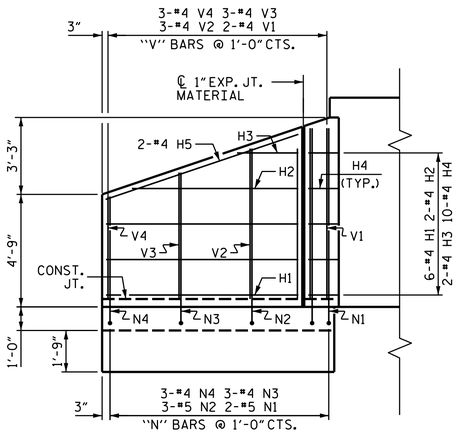
PLAN W2



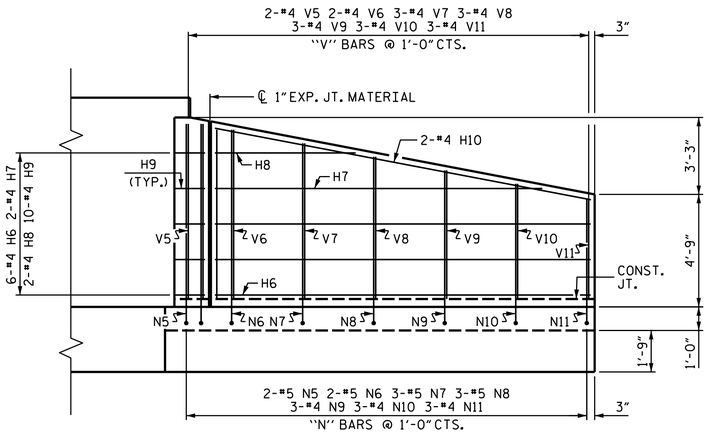
PLAN W1



TYPICAL WING SECTION

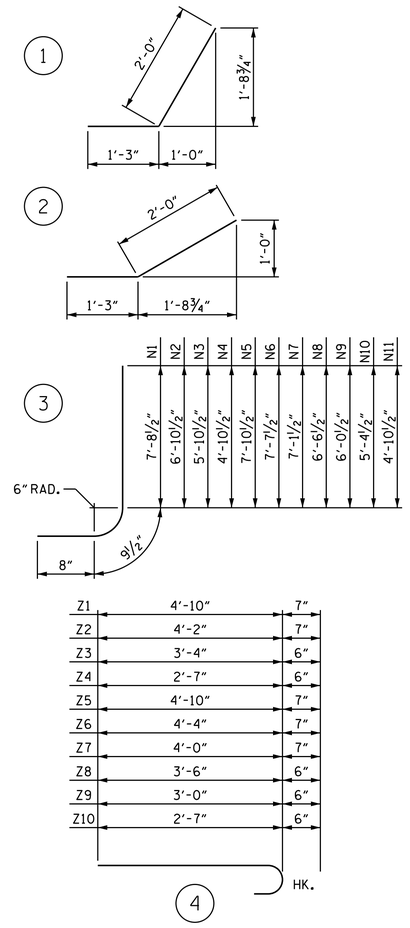


ELEVATION W2

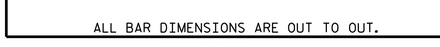


ELEVATION W1

BAR TYPES



Z1	4'-10"	7"
Z2	4'-2"	7"
Z3	3'-4"	6"
Z4	2'-7"	6"
Z5	4'-10"	7"
Z6	4'-4"	7"
Z7	4'-0"	7"
Z8	3'-6"	6"
Z9	3'-0"	6"
Z10	2'-7"	6"



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR	8'-1"	65
H2	4	#4	STR	7'-0"	19
H3	4	#4	STR	2'-7"	7
H4	20	#4	1	3'-3"	43
H5	4	#4	STR	8'-6"	23
H6	12	#4	STR	15'-10"	127
H7	4	#4	STR	13'-10"	37
H8	4	#4	STR	6'-0"	16
H9	20	#4	2	3'-3"	43
H10	4	#4	STR	16'-2"	43
N1	4	#5	3	9'-2"	38
N2	6	#5	3	8'-4"	52
N3	6	#4	3	7'-4"	29
N4	6	#4	3	6'-4"	25
N5	4	#5	3	9'-4"	39
N6	4	#5	3	9'-1"	38
N7	6	#5	3	8'-7"	54
N8	6	#5	3	8'-0"	50
N9	6	#4	3	7'-6"	30
N10	6	#4	3	6'-10"	28
N11	6	#4	3	6'-4"	25
S1	12	#6	STR	6'-0"	108
T1	6	#5	STR	10'-0"	63
T2	6	#5	STR	17'-9"	111
V1	4	#4	STR	7'-2"	19
V2	6	#4	STR	6'-4"	25
V3	6	#4	STR	5'-4"	21
V4	6	#4	STR	4'-4"	17
V5	4	#4	STR	7'-4"	20
V6	4	#4	STR	7'-1"	19
V7	6	#4	STR	6'-6"	26
V8	6	#4	STR	6'-0"	24
V9	6	#4	STR	5'-5"	22
V10	6	#4	STR	4'-10"	19
V11	6	#4	STR	4'-3"	17
Z1	4	#5	4	5'-5"	23
Z2	6	#5	4	4'-9"	30
Z3	6	#4	4	3'-10"	15
Z4	6	#4	4	3'-1"	12
Z5	8	#5	4	5'-5"	45
Z6	6	#5	4	5'-1"	32
Z7	6	#5	4	4'-7"	29
Z8	6	#4	4	4'-0"	16
Z9	6	#4	4	3'-6"	14
Z10	6	#4	4	3'-1"	12
REINFORCING STEEL FOR 4 WINGS					1570 LBS
CLASS A CONCRETE 4 WINGS					11.1 CY

NOTES:

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

PROJECT NO. BP12-C001

ALEXANDER COUNTY

STATION: 11+77.00 -L-

SHEET 3 OF 5

ASSEMBLED BY :	STM	DATE :	09/25
CHECKED BY :	MGC	DATE :	09/25
DRAWN BY : CCJ	11/99	REV. 6/19	MAA/THC
CHECKED BY : RWW	03/00		

4/14/2026
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smassinople

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER
Marshall G. Adcock, Jr.
Marshall G. Adcock, Jr.
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4/16/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

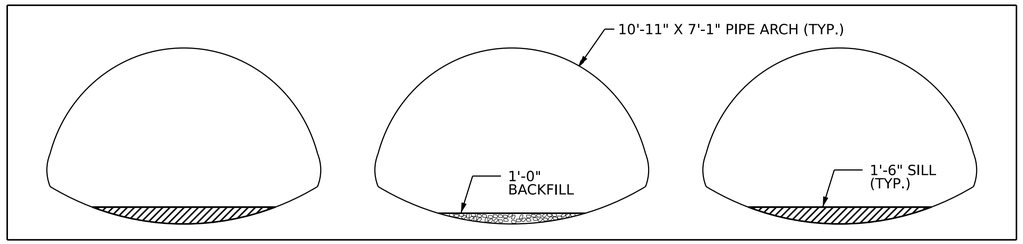
TGS ENGINEERS
201 W MARION ST
SUITE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WINGS FOR CORRUGATED STEEL PIPE ARCH CULVERT

H = 8'-0" SLOPE = 2:1
60° SKEW

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



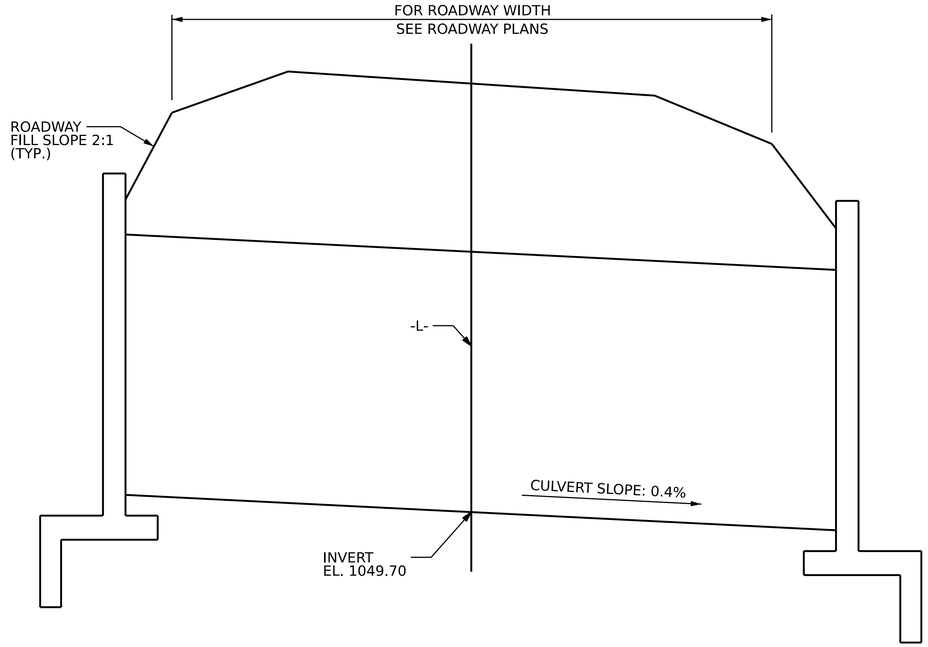
SILL DETAIL - ELEVATION

NOTES

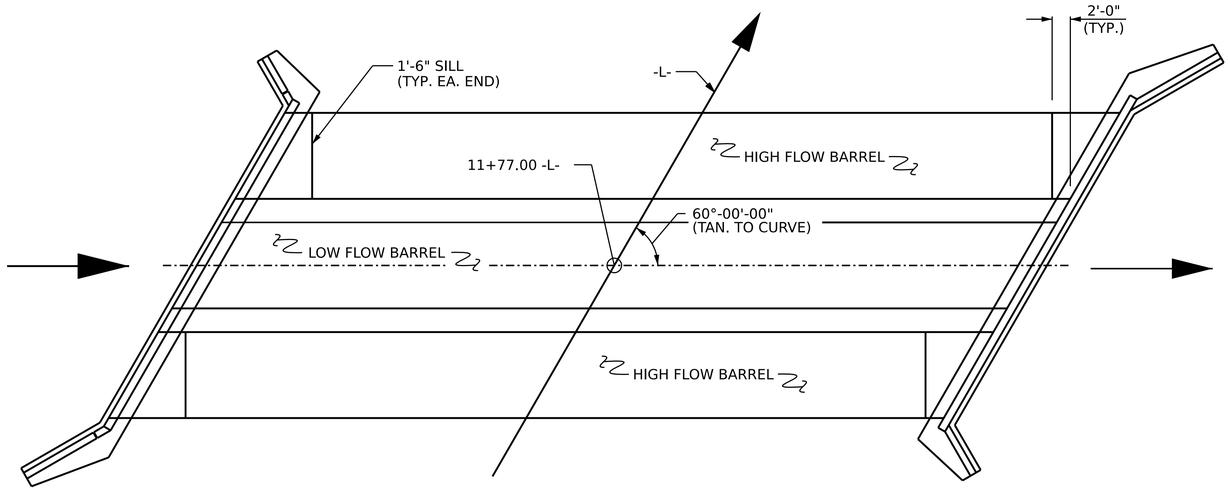
THE ENGINEER, IN CONSULTATION WITH DEO STAFF, SHALL REVIEW ALL MATERIAL TO BE USED AS BACKFILL PRIOR TO CONDUCTING THE BACKFILL ACTIVITY. BACKFILL SHALL CONSIST OF NATIVE MATERIAL ONLY UNLESS THE ENGINEER, IN CONSULTATION WITH DEO STAFF, DETERMINES THAT (1) THE NATIVE MATERIAL IS UNSUITABLE, OR (2) ADDITIONAL MATERIAL IS REQUIRED TO SUPPLEMENT THE NATIVE MATERIAL. THE CHOSEN BACKFILL MATERIAL SHALL NOT HAVE ADVERSE EFFECTS TO AQUATIC LIFE, AQUATIC LIFE PASSAGE, OR WATER QUALITY. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAMBED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION.

THE ENTIRE COST OF WORK REQUIRED TO PLACE THE EXCAVATED MATERIAL, OR SUPPLEMENTAL MATERIAL, SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE BID FOR CULVERT EXCAVATION.

THE ENTIRE COST OF THE SILLS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR THE CORRUGATED STEEL PIPE ARCH CULVERT.



CULVERT SECTION NORMAL TO ROADWAY



FLOOR SILL LAYOUT

PROJECT NO. BP12-C001

ALEXANDER COUNTY

STATION: 11+77.00 -L-

SHEET 4 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL C. CHEEK, JR.

Signed by: Marshall C. Cheek, Jr.
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4/16/2026

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE 10'-11" X 7'-1" CORRUGATED STEEL PIPE ARCH CULVERT 60° SKEW

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

DRAWN BY :	STM	DATE : 04/25
CHECKED BY :	MGC	DATE : 04/25

4/14/2026
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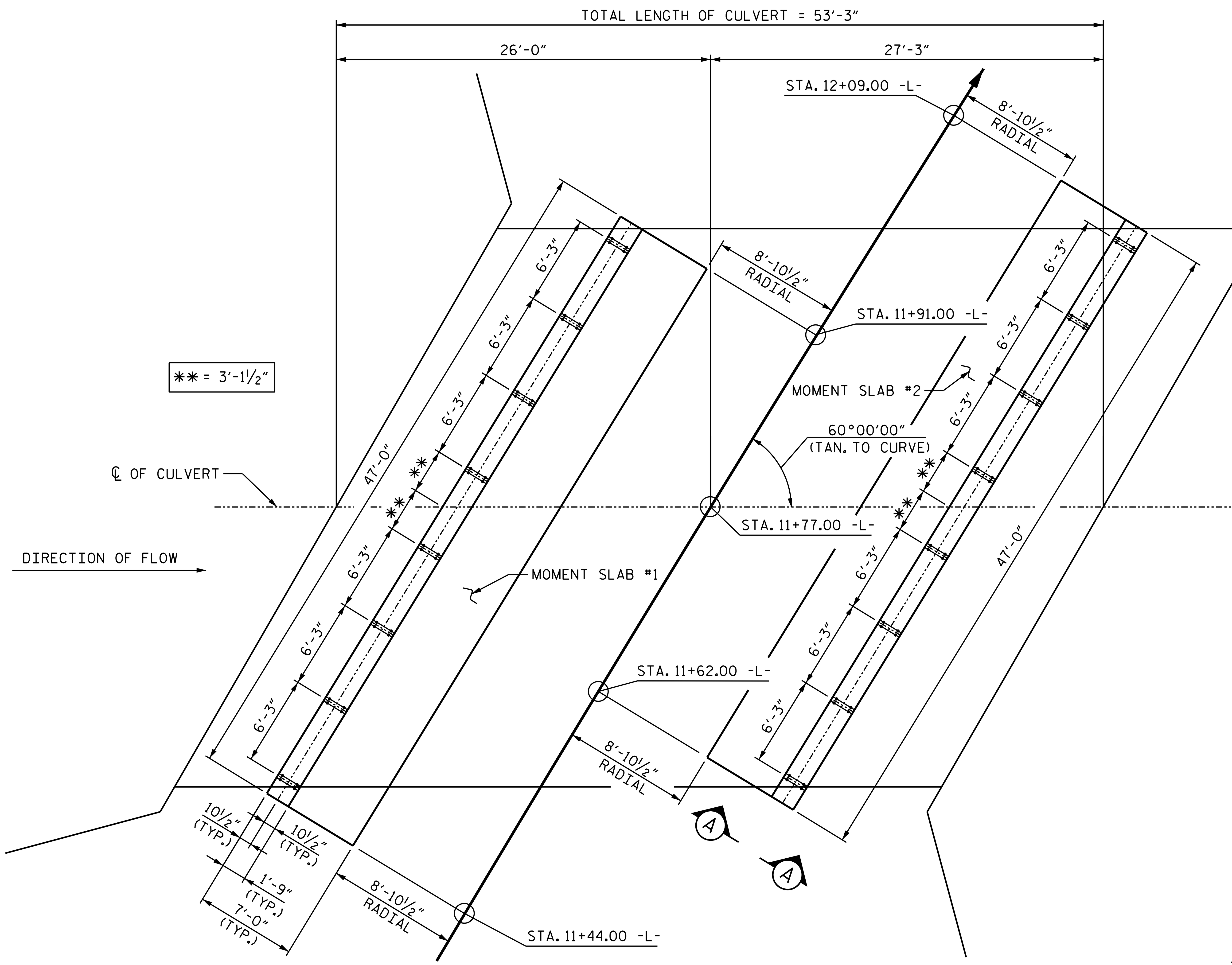
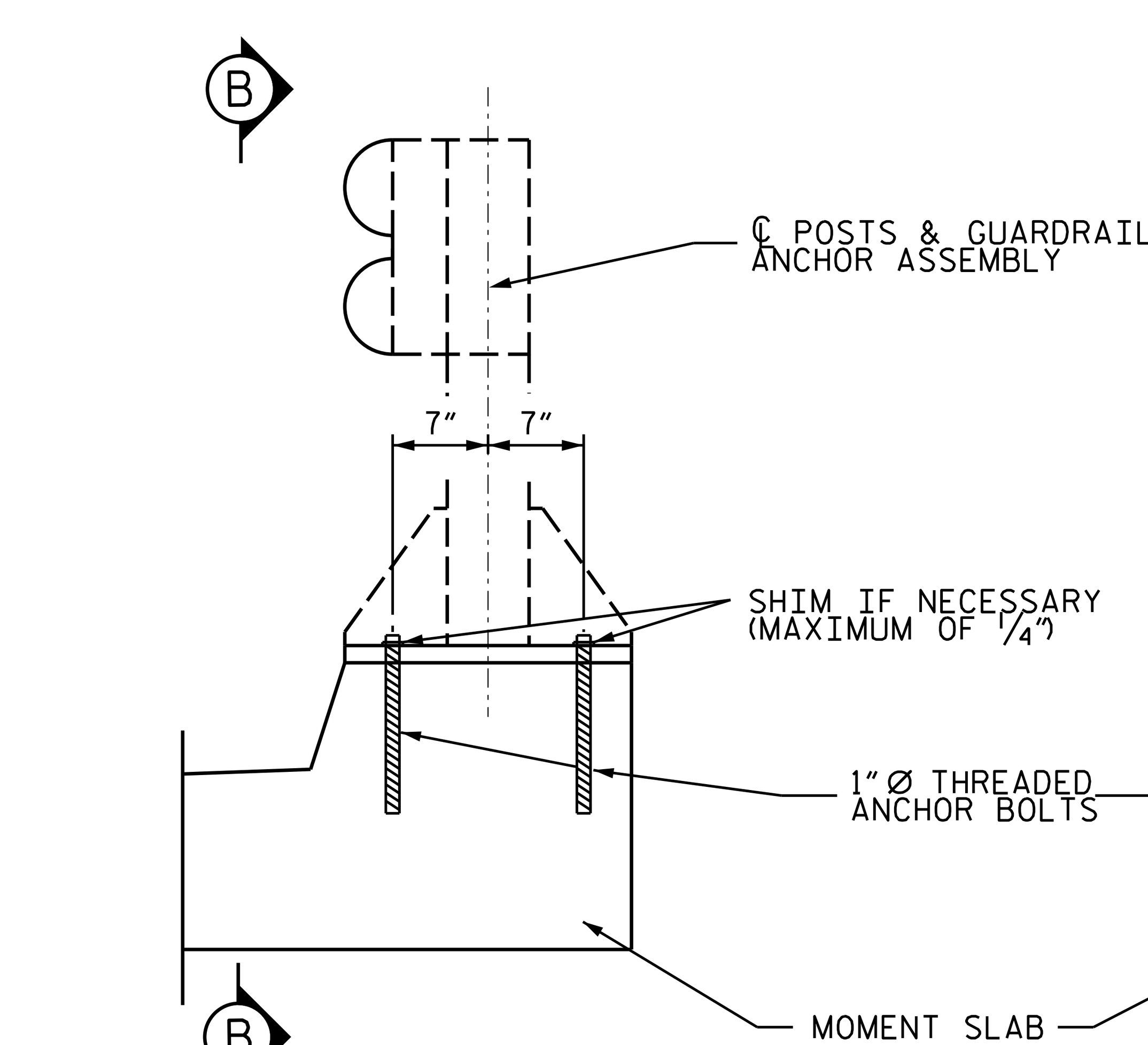
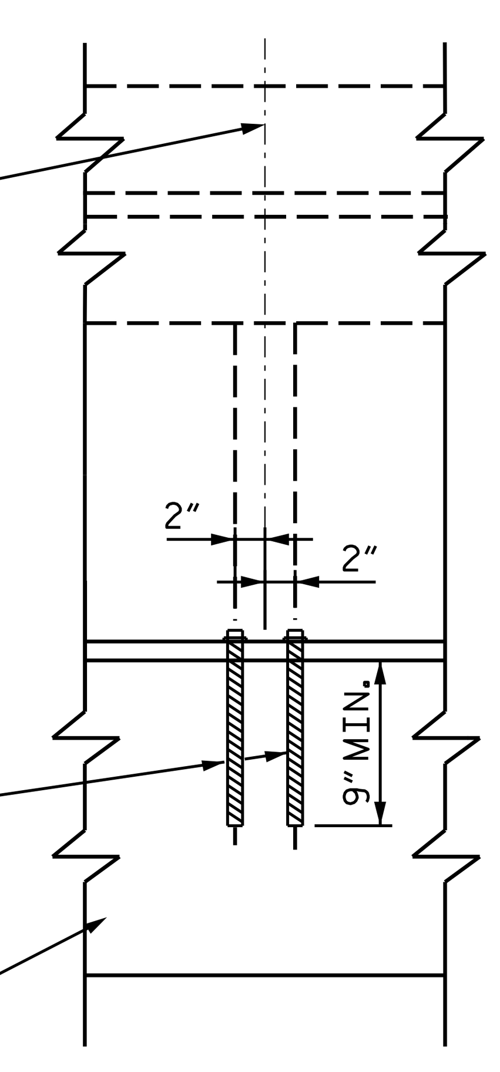


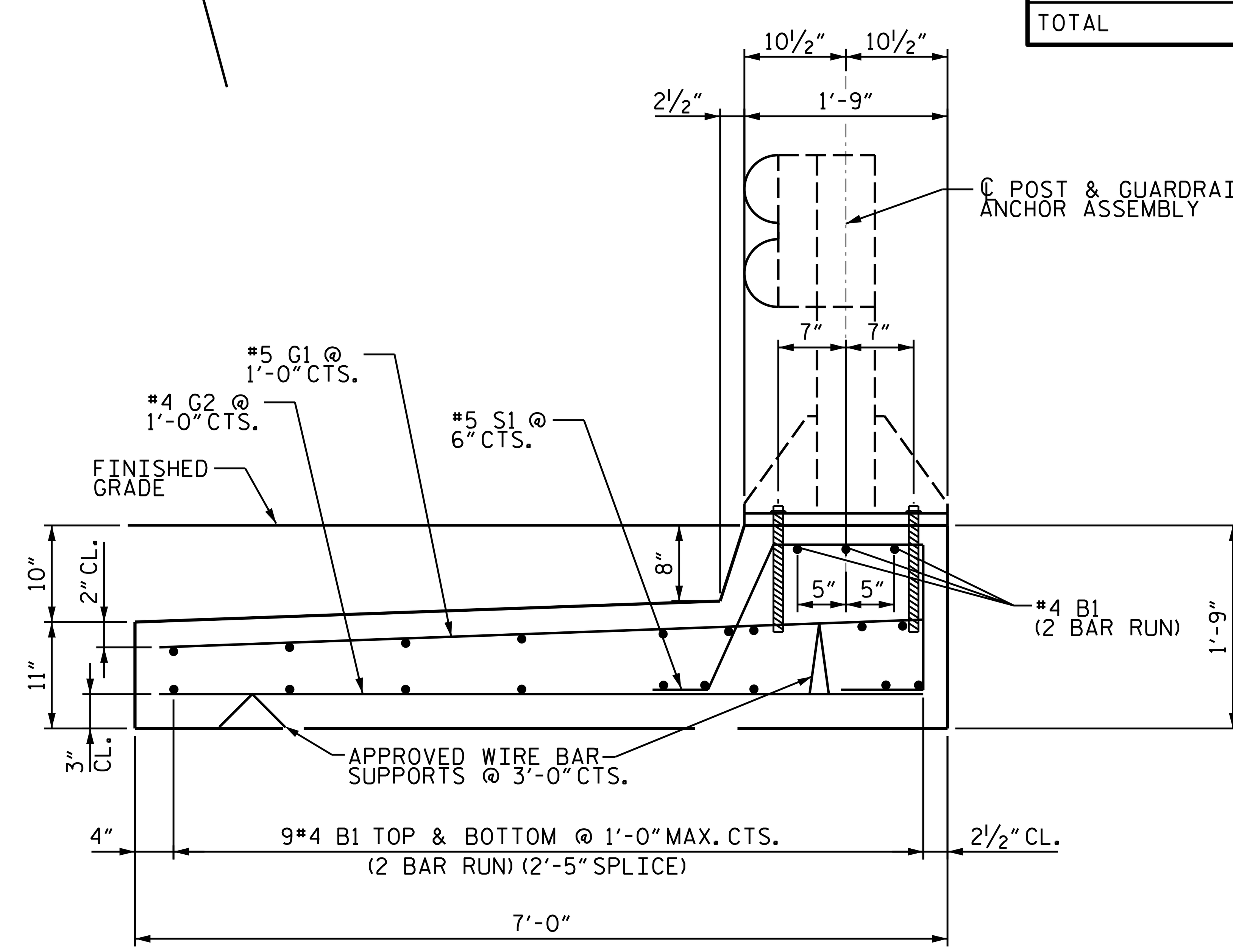
PLAN OF MOMENT SLAB LAYOUT



SECTION A-A



SECTION B-B



TYPICAL SECTION THRU MOMENT SLAB

BILL OF MATERIAL

MOMENT SLAB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	42	#4	STR.	24'-7"	690
* G1	47	#5	STR.	6'-7"	323
* G2	47	#4	STR.	6'-7"	207
* S1	94	#5	1	5'-7"	547
* EPOXY COATED REINFORCING STEEL					1767 LBS.
CLASS "AA" CONCRETE					14.7 C.Y.

BILL OF MATERIAL

MOMENT SLAB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	42	#4	STR.	24'-7"	690
* G1	47	#5	STR.	6'-7"	323
* G2	47	#4	STR.	6'-7"	207
* S1	94	#5	1	5'-7"	547
* EPOXY COATED REINFORCING STEEL					1767 LBS.
CLASS "AA" CONCRETE					14.7 C.Y.

MOMENT SLABS

MOMENT SLAB #1	47 LIN. FT.
MOMENT SLAB #2	47 LIN. FT.
TOTAL	94 LIN. FT.

NOTES

ALL GUARDRAIL ATTACHMENTS SHALL BE MADE USING ADHESIVELY ANCHORED ANCHOR BOLTS. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1"Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS, SEE STANDARD SPECIFICATIONS.

ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE 1"Ø AND MEET THE REQUIREMENTS OF ASTM A325. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.

PAYMENT FOR GUARDRAIL, POSTS, ADHESIVELY ANCHORED ANCHOR BOLTS AND POST BASE PLATES IS INCLUDED IN ROADWAY ITEMS.

FOR GUARDRAIL POSTS, ANCHOR BASE PLATES & ANCHOR BOLTS, SEE ROADWAY PLANS.

THE GUARDRAIL POSTS SHALL NOT BE ATTACHED UNTIL THE MOMENT SLAB HAS ATTAINED AN AGE OF THREE CURING DAYS OR A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI. IN ADDITION, NO FILL MATERIAL, ASPHALT, OR CONSTRUCTION EQUIPMENT IS ALLOWED ON THE MOMENT SLAB PRIOR TO SATISFYING THE MINIMUM CONCRETE CURING AND STRENGTH REQUIREMENTS.

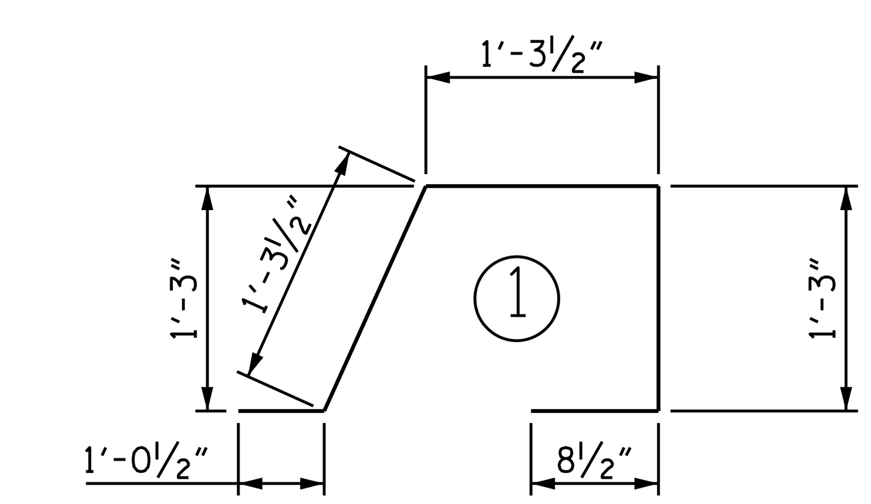
ALL REINFORCING STEEL IN THE MOMENT SLAB SHALL BE EPOXY COATED.

THE CONTRACT UNIT PRICE FOR MOMENT SLAB WILL BE FULL COMPENSATION FOR SUBMITTALS, LABOR, TOOLS, EQUIPMENT, MOMENT SLAB MATERIALS, EXCAVATING, BACKFILLING, HAULING AND REMOVING EXCAVATED MATERIALS, AND SUPPLYING ANY INCIDENTALS NECESSARY TO CONSTRUCT THE CONCRETE MOMENT SLABS.

FOR MOMENT SLAB, SEE SPECIAL PROVISIONS.

— BAR TYPES —

ALL BAR DIMENSIONS ARE OUT TO OUT.



PROJECT NO. BP12-C001

ALEXANDER COUNTY

STATION: 11+77.00-L-

SHEET 5 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER

4/16/2026

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE 10'-11' X 7'-1"
CORRUGATED STEEL
PIPE ARCH CULVERT
60° SKEW

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

DRAWN BY :	NMW	DATE :	4/26
CHECKED BY :	MGC	DATE :	4/26

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" ∅ SHEAR STUDS FOR THE ¾" ∅ STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" ∅ STUDS FOR 4 - ¾" ∅ STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" ∅ STUDS ALONG THE BEAM AS SHOWN FOR ¾" ∅ STUDS BASED ON THE RATIO OF 3 - ⅞"∅ STUDS FOR 4 - ¾" ∅ STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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