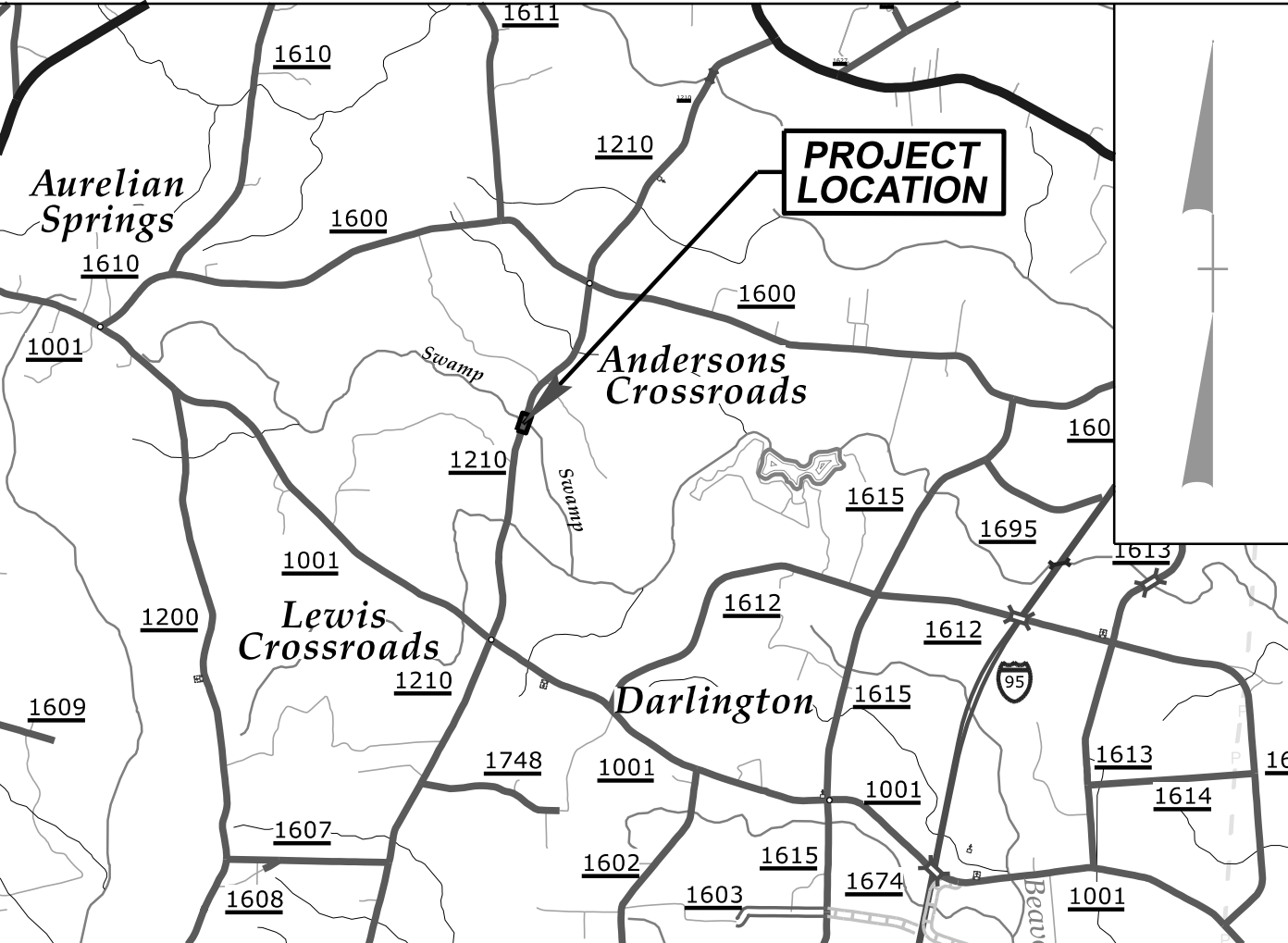


TIP PROJECT: BP4-R033

CONTRACT: DD00534

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



VICINITY MAP (NTS)
OFFSITE DETOUR

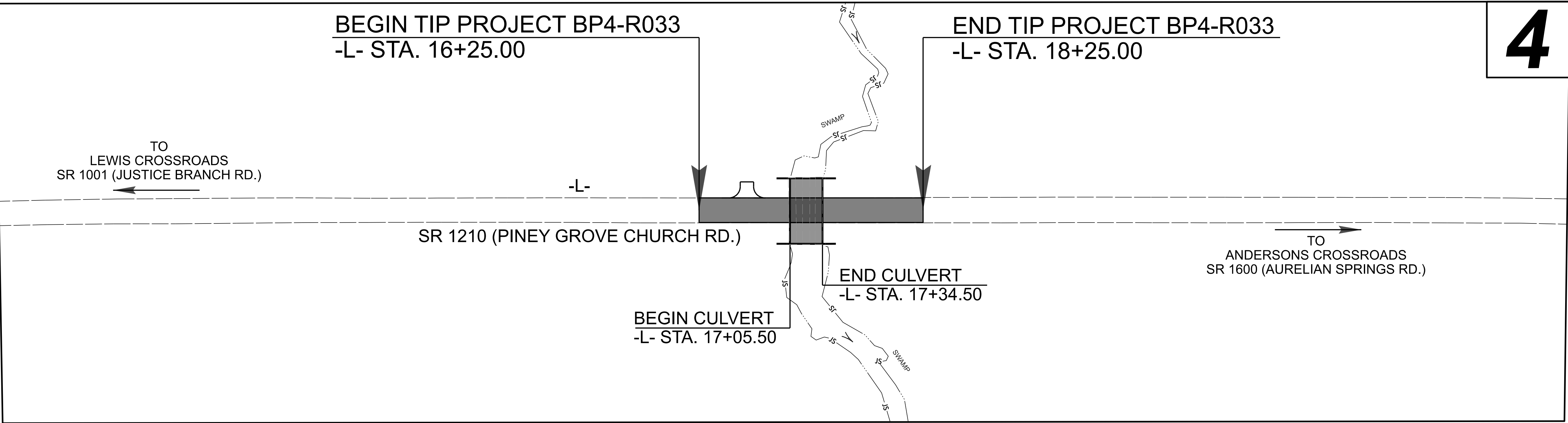
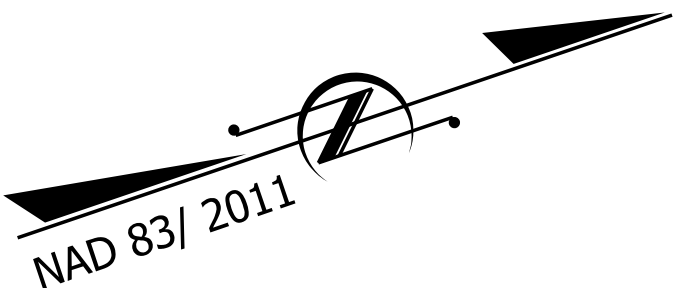
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HALIFAX COUNTY

LOCATION: *REPLACE BRIDGE NO. 410021 ON
SR 1210 OVER SWAMP*

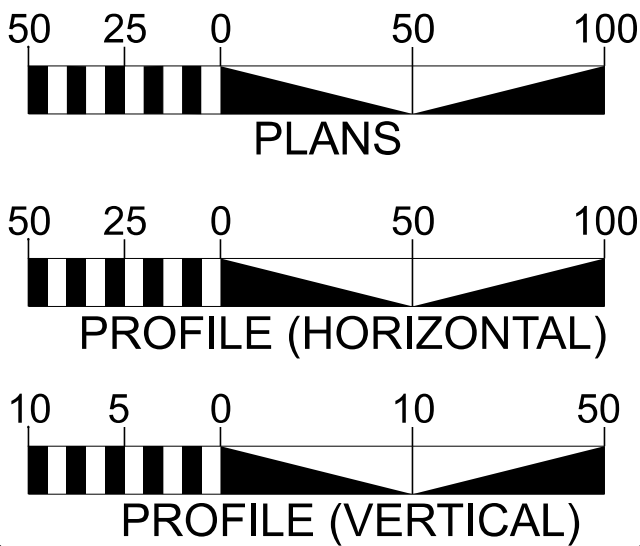
TYPE OF WORK: *GRADING, PAVING, DRAINAGE, AND
STRUCTURE*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP4-R033	11	
STATE PROJ. NO.		F. A. PROJ. NO.	DESCRIPTION
BP4.R033.1			PE
BP4.R033.2			R/W & UTIL
BP4.R033.3			CONST



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2027 = 625
ADT 2047 = 900
V = 55 MPH
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT BP4-R033 = 0.033 MILES
LENGTH OF STRUCTURE TIP PROJECT BP4-R033 = 0.005 MILE
TOTAL LENGTH OF TIP PROJECT BP4-R033 = 0.038 MILES

Prepared for NCDOT Division 4 in the Office of:
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
(919) 733-8887 | tgsengineers.com
CORP. LICENSE NO.: C-0275

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 20, 2026

LETTING DATE:
OCTOBER 27, 2026

BURKE EVANS, PE
PROJECT ENGINEER

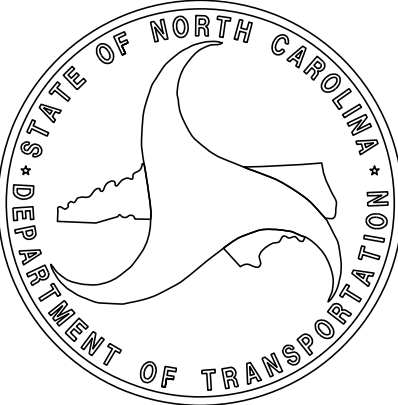
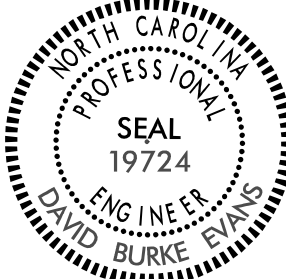
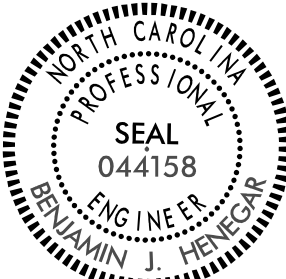
RUSSELL BROADWELL, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

Signed by: Benjamin J. Henegar 9/4/2026
D78CA8B40FF437... P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

DocuSigned by: David Burke Evans 9/4/2026
1DFC086569F9409... P.E.
SIGNATURE:



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
3B-1	SUMMARY OF EARTHWORK AND PAVEMENT REMOVAL SUMMARY
4	PLAN AND PROFILE SHEET
RW-1 THRU RW-4	RIGHT OF WAY SHEETS
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
UC-1 THRU UC-4	UTILITY CONSTRUCTION PLANS
X-1	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-7	CROSS-SECTIONS
C-1 THRU C-3	CULVERT PLANS

GENERAL NOTES

GENERAL NOTES:	2024 SPECIFICATIONS	EFFECTIVE: 01-16-2024
		REVISED:
GRADE LINE: GRADING AND SURFACING:	THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.	
CLEARING:	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD 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 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: BRIGHTSPEED (TELECOM) - KEVIN GODWIN (910) 366-2142 HALIFAX COUNTY (WATER) - CHRISTOPHER M. WILLIAMS (252) 583-1451	
RIGHT-OF-WAY MARKERS:	ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.	

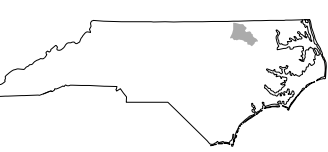
STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS	EFF. 08-11-2025 REV. 11-26-2025
The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:	
STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I

BP4-R033

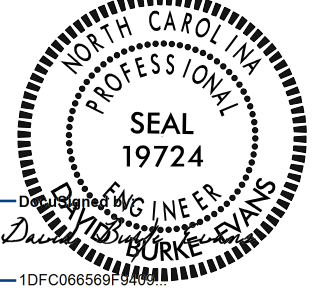
DIA

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HALIFAX COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER



9/4/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

HYDRAULICS
ENGINEER

PREPARED BY

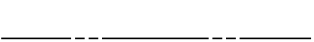
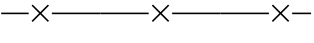
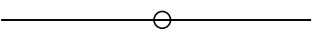
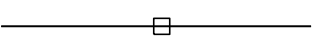
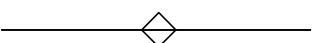
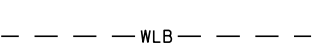
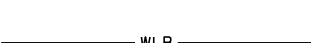
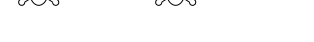
 TGS ENGINEERS
100 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27601
(919) 733-9897 | gse@tgs.com
CORP. LICENSE NO. C-0079

REVISIONS

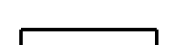
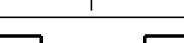
05/29/25

Note: Not to Scale

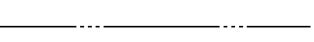
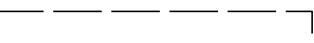
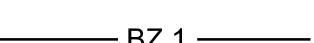
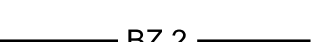
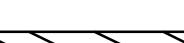
BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin (EIP)	
Computed Property Corner	
Existing Concrete Monument (ECM)	
Parcel / Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

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

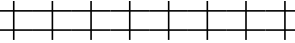
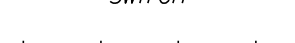
HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

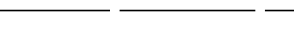
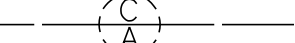
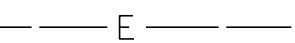
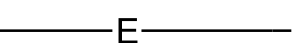
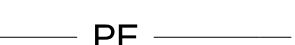
STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

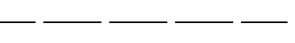
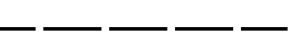
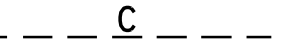
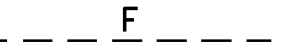
RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

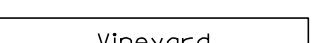
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent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

ROADS AND RELATED FEATURES:

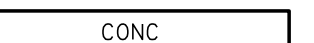
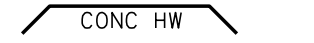
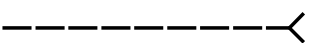
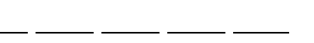
Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

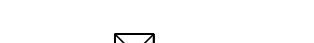
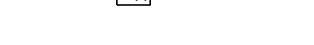
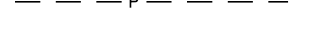
Single Tree	
Single Shrub	

Hedge	
Woods Line	
Orchard	
Vineyard	

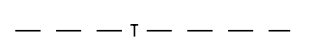
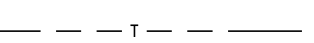
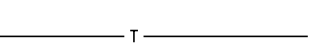
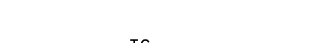
EXISTING STRUCTURES:

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

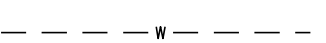
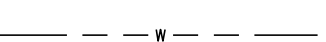
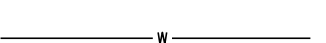
UTILITIES: * SUE - Subsurface Utility Engineering
LOS - Level of Service - A,B,C or D (Accuracy)

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

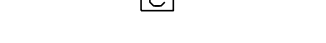
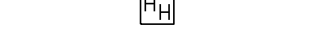
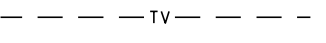
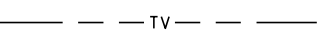
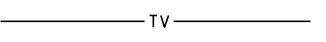
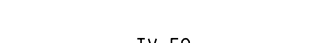
TELEPHONE:

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

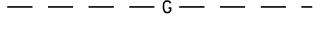
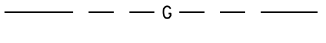
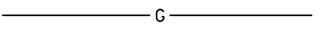
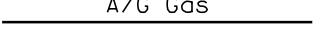
WATER:

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

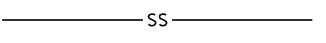
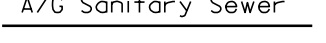
TV:

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

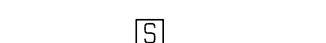
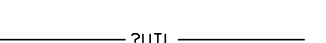
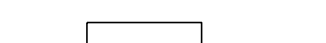
GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

COMPUTED BY:NGPDATE:06/30/2026

CHECKED BY:DBEDATE:7/20/2026

BP4-R033

3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- 16+25.00	-L- 18+25.00	40	229	189	
SUBTOTAL:		40	229	189	
TOTAL:		40	229	189	
PROJECT TOTALS:		40	229	189	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				9	
GRAND TOTALS:		40	229	198	
SAY:		50		215	

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.

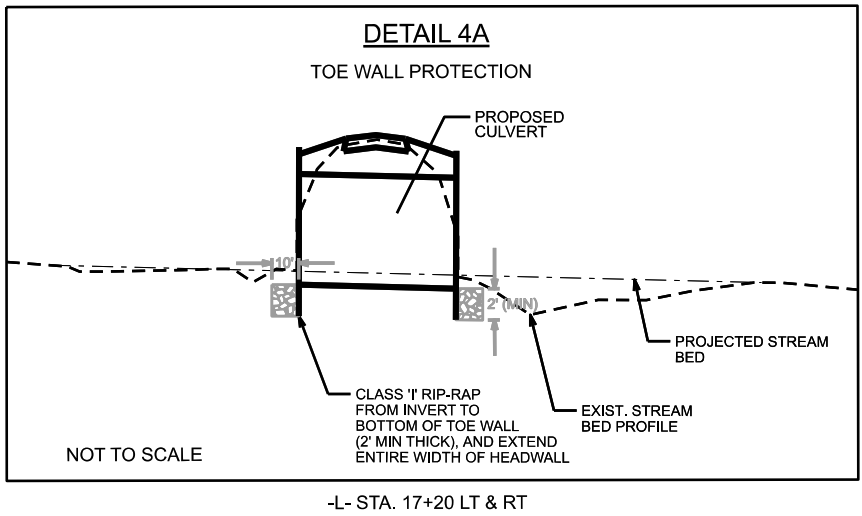
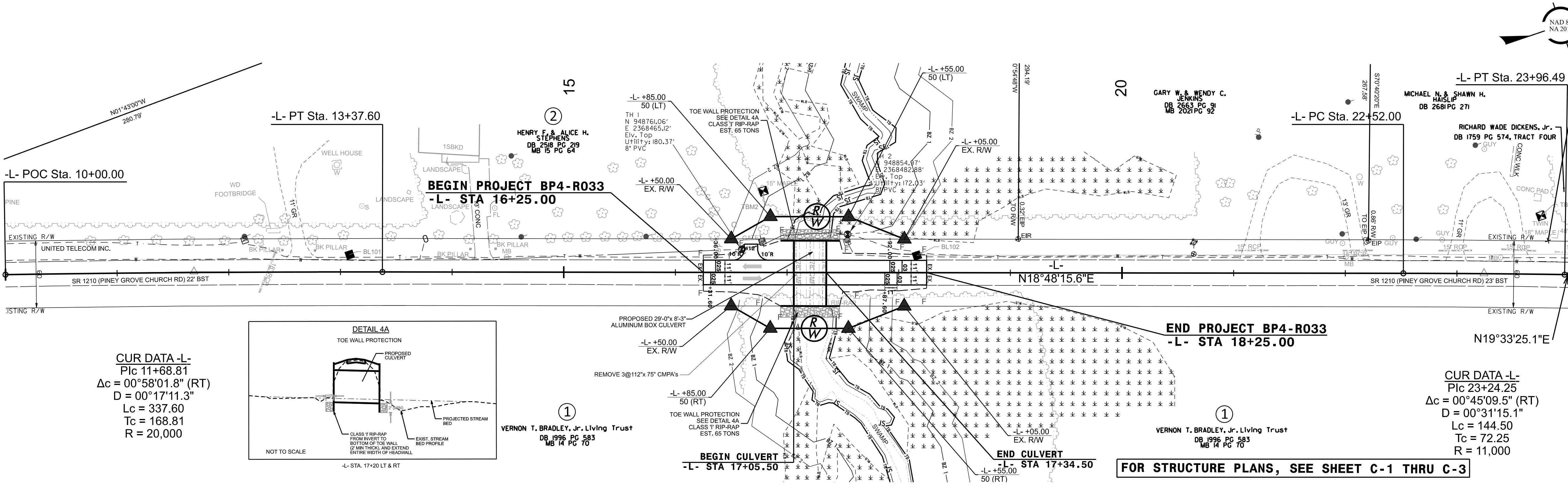
Note: Earthwork quantities are calculated by the Roadway Design Engineer.

PAVEMENT REMOVAL SUMMARY

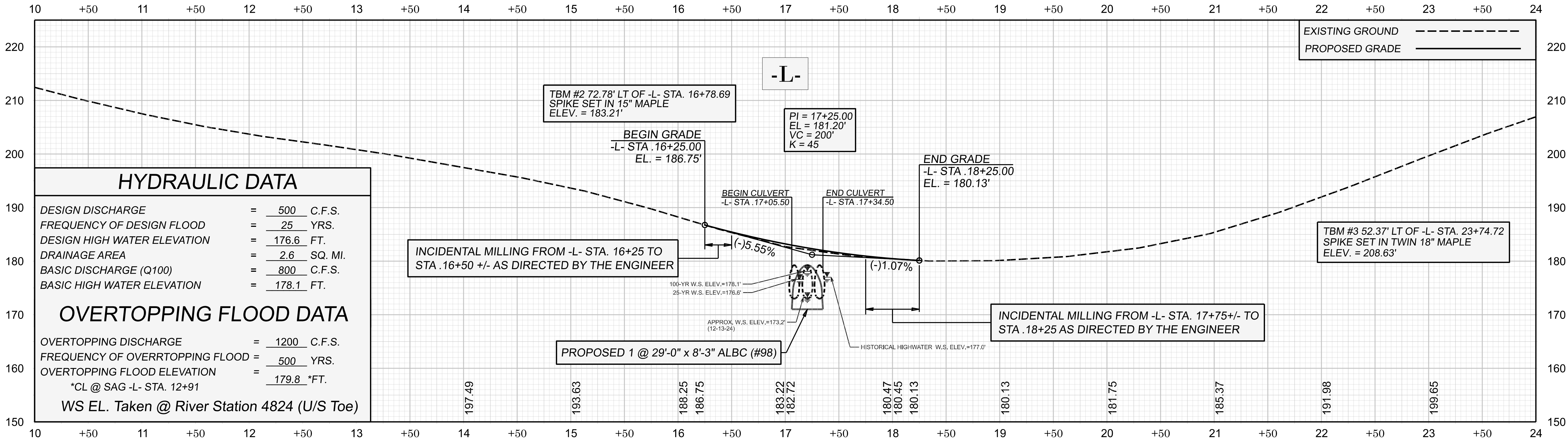
IN SQUARE YARDS

SURVEY LINE	ST ATION	STATION	LOCATION LT/RT/CL	ASPHALT REMOVAL
-L-	16+80	17+60	CL	1760
		TOTAL:		195.56
		SAY:		200

11/14/23



FOR STRUCTURE PLANS, SEE SHEET C-1 THRU C-3



BP4-R033

004

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HALIFAX COUNTY



ROADWAY DESIGN UNIT

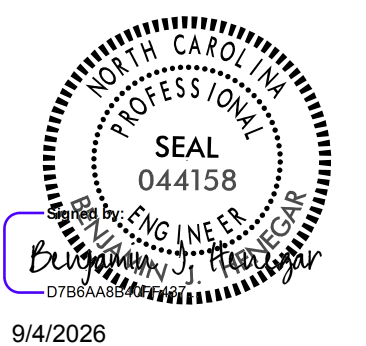
ROADWAY DESIGN
ENGINEER



9/4/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

HYDRAULICS
ENGINEER



9/4/2026

PREPARED BY

TGS ENGINEERS

100 HILLSBOROUGH ST., SUITE 200
RALEIGH, NC 27601
(919) 733-9807 | tgsengineers.com
CONE LICENSE NO. C-0079

REVISIONS

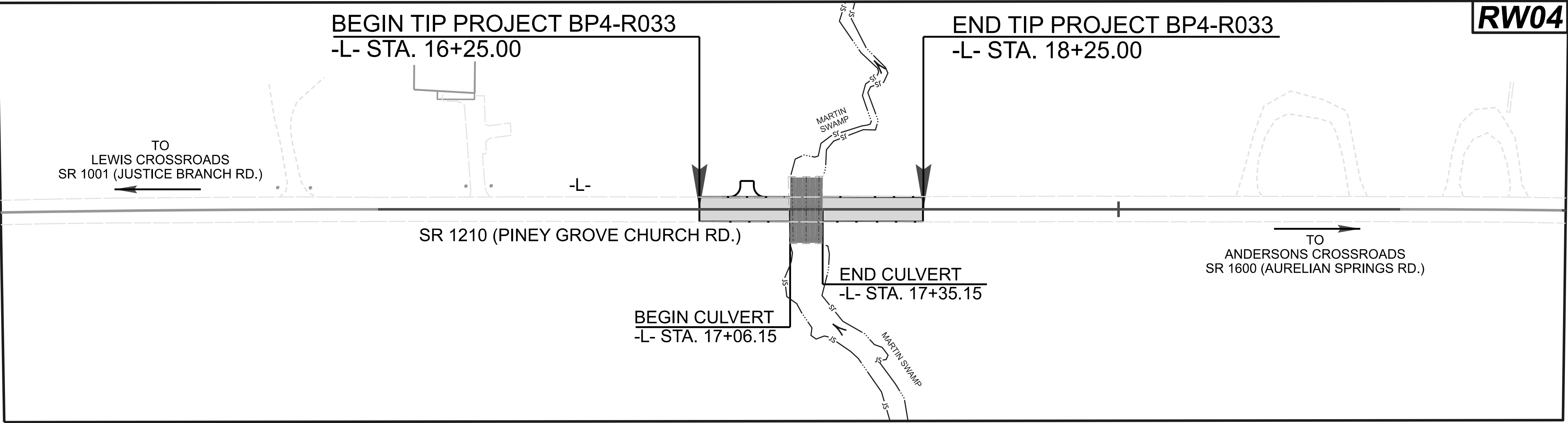
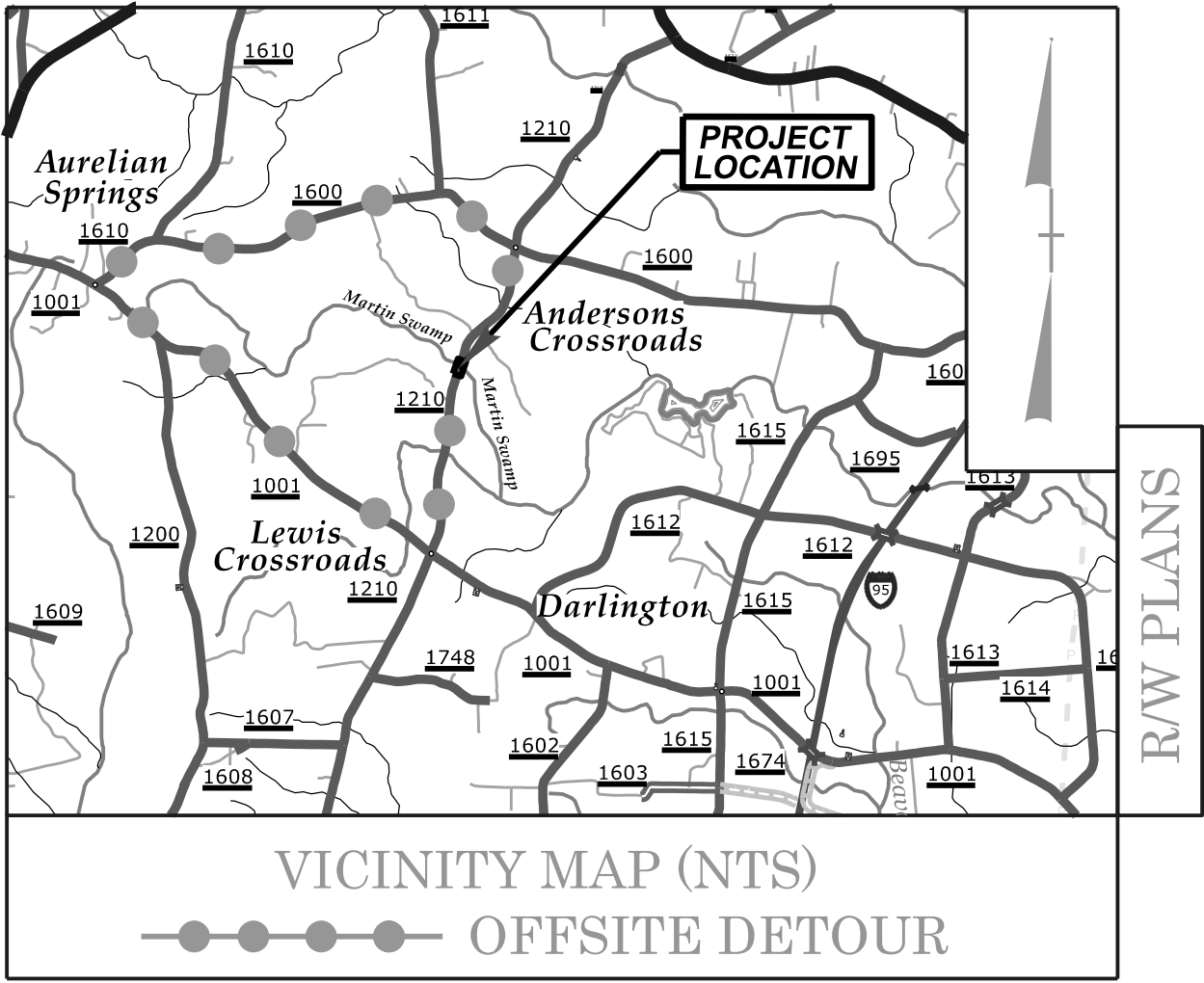
TIP PROJECT: BP4R033

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE NO.	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP4R033	RW01	06

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

HALIFAX COUNTY



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT BP4R033-2
WITH NAD83/NA2011 STATE PLANE GRID COORDINATES OF
NORTHING: 947957.334 EASTING: 2368198.537
ELEVATION: 220.425
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999949484
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:



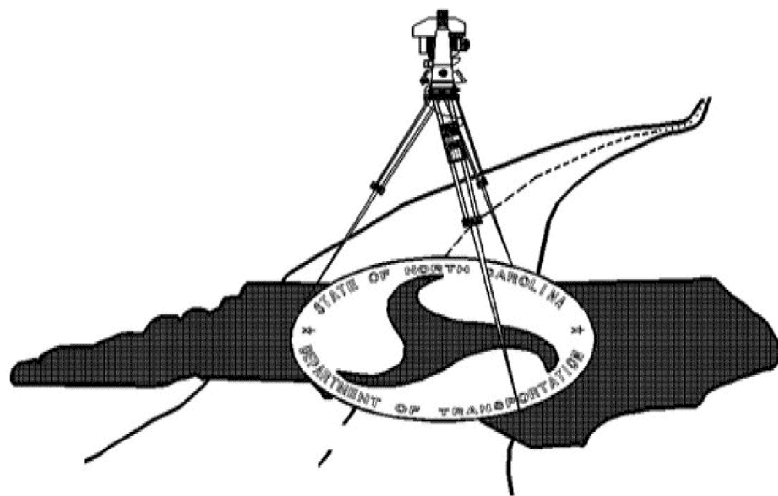
DRMP NC, INC.

NC License No: F-1542
5808 Faringdon Pl,
Raleigh, NC 27609
PHONE: (919) 872 5115

RIGHT OF WAY DATE:
JANUARY 19TH, 2026

LETTING DATE:
JULY 28, 2026

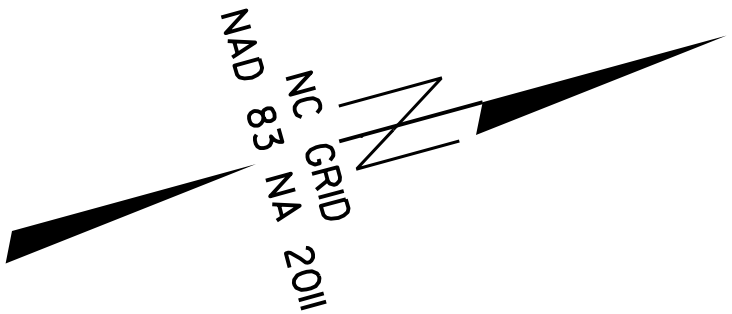
PROFESSIONAL LAND
SURVEYOR



DocuSigned by:
B. J. Perkins
SIGNATURE
573432EB4F1E4DD

4/15/2026
DATE:

PRIMARY SURVEY CONTROL SHEET



PRIVATE RD

MARTIN SWAMP

MARTIN SWAMP

BP4R033-2

PINEY GROVE CHURCH RD

BP4R033-1

PRIMARY CONTROL TABLE				
POINT	DESC	NORTH	EAST	ELEVATION
1	BP4R033-1	947352.97	2368168.029	220.337
2	BP4R033-2	947957.334	2368198.537	220.425



I, AARON J. PERKINSON, PLS, CERTIFY THAT THE PRIMARY 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: RTK
DATES OF SURVEY: AUGUST 2024
DATUM/EPOCH: NAD 83/ NA 2011
PUBLISHED/FIXED-CONTROL USE: N/A
LOCALIZED AROUND: BP4R033-2
NORTHING:947957.334
EASTING:2368198.537
COMBINED GRID FACTOR:0.999949484
GEOID MODEL:18 CONUS
UNITS: US SURVEY FEET

THIS 17TH DAY OF SEPTEMBER, 2024.

DocuSigned by:
AJ Perkinson
373432EB4E1E4DD_ 9/17/2024

PROFESSIONAL LAND SURVEYOR L-5172

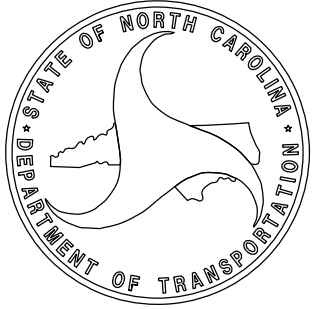
NOTES:

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.

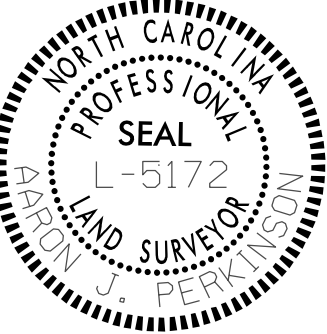
BP4R033

R/W 02C-1

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR

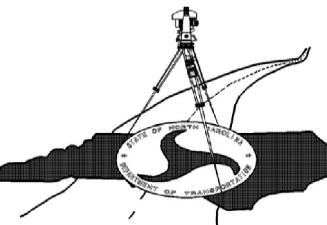


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FINAL UNLESS ALL SIGNATURES
ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: BP4R033
County: Halifax

PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY



SECONDARY SURVEY CONTROL SHEET
W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

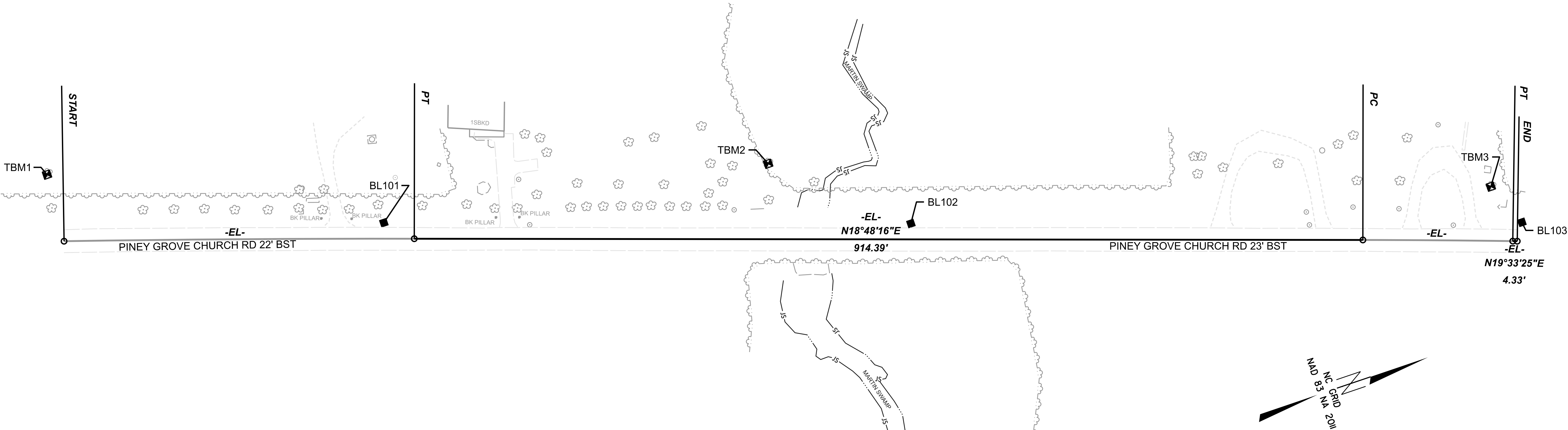
EXISTING ALIGNMENT NAME:EL									
POINT	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R
PC	948129.118	2368274.868							
CURVE					00°58'01.79" Right	00°17'11.32"	337.6	168.81	20000
PT	948449.606	2368380.988							
LINE			N18°48'15.63"E	914.392					
PC	949315.193	2368675.73							
CURVE					00°45'09.50" Right	00°31'15.13"	144.5	72.25	11000
PT	949451.666	2368723.204							
LINE			N19°33'25.13"E	4.333					
END	949455.75	2368724.854							

I, AARON J. PERKINSON, PLS, CERTIFY THAT THE SECONDARY BASELINE CONTROL FOR THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION UTILIZING PRIMARY GPS CONTROL SET BY DRMP; 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 17TH DAY OF SEPTEMBER, 2024.

DocuSigned by:
AJ Perkinson
373432EB4F1E4DD... 9/17/2024

PROFESSIONAL LAND SURVEYOR L-5172



BENCHMARK POINTS TABLE				
Benchmark	Northing	Easting	Elevation	Description
TBM1	948134.238	2368208.793	214.973	SPIKE SET IN 18" PINE
TBM2	948795.947	2368422.036	183.212	SPIKE SET IN 15" MAPLE
TBM3	949448.572	2368666.551	206.625	SPIKE SET IN TWIN 18" MAPLE

SECONDARY CONTROL TABLE				
POINT	DESC	NORTH	EAST	ELEVATION
101	BL-101	948426.799	2368356.957	199.262
102	BL-102	948907.688	2368520.786	178.686
103	BL-103	949465.841	2368708.767	206.756



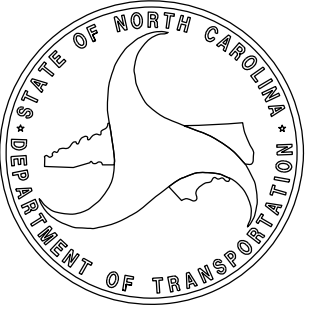
NOTES:

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.

BP4R033

R/W 02C-2

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR

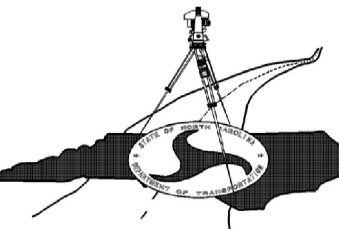


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ARE COMPLETED

2024 STANDARD
SPECIFICATIONS

TIP PROJECT: BP4R033
County: Halifax

PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY



PROPOSED ALIGNMENT CONTROL SHEET

I, AARON J. PERKINSON, 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 15TH DAY OF APRIL, 2026.

DocuSigned by:
AJ Perkinson
4/15/2026
PROFESSIONAL LAND SURVEYOR L-5172
373432EB4F1E4DD...

PROPOSED ALIGNMENT: L												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
PC	10+00.00	948129.1185	2368274.8676	N18°19'14.7"E	337.5999	00°58'01.8"	00°17'11.3"	337.6039	168.8060	20000.0000		
PT	13+37.60	948449.6060	2368380.9875	N18°48'15.6"E	914.3925							
PC	22+52.00	949315.1926	2368675.7305	N19°10'50.4"E	144.4950	00°45'09.5"	00°31'15.1"	144.4961	72.2491	11000.0000		
PT	23+96.49	949451.6664	2368723.2040	N19°33'25.1"E	4.3331							
END	24+00.83	949455.7495	2368724.6545									

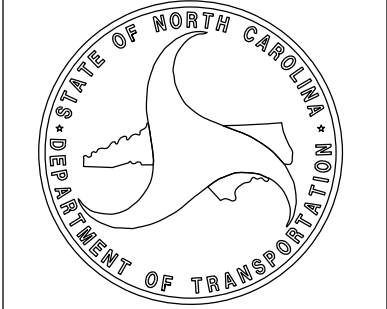
NOTES:

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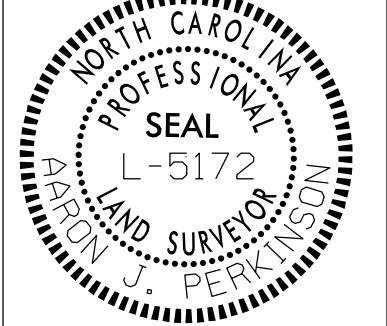
BP4R033

R/W02D-I

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR



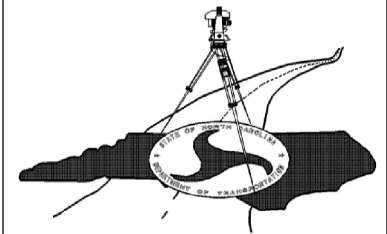
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2024 STANDARD
SPECIFICATIONS

TIP PROJECT: BP4R033

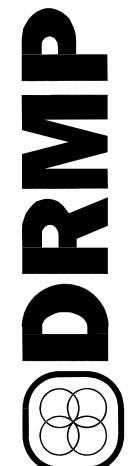
County: Halifax

PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY



RIGHT OF WAY CONTROL SHEET

I, AARON J. PERKINSON, 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 APRIL 2 2026, 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 15TH DAY OF APRIL, 2026.

DocuSigned by:
AJ Perkinson 4/15/2026
PROFESSIONAL LAND SURVEYOR L-5172

PERMANENT ROW MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
16+50.00	30.00	948735.6577	2368510.0832
16+50.00	-30.00	948754.9980	2368453.2857
16+85.00	50.00	948762.3429	2368540.2975
16+85.00	-50.00	948794.5766	2368445.6351
17+55.00	-50.00	948860.8403	2368468.1987
17+55.00	50.00	948828.6066	2368562.8612
18+05.00	-30.00	948901.7248	2368503.2480
18+05.00	30.00	948882.3846	2368560.0455

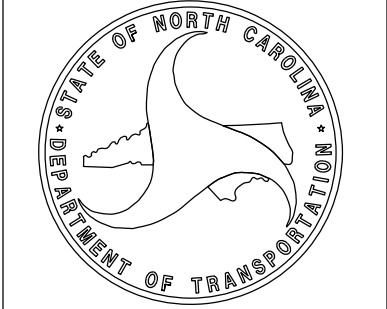
NOTES:

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

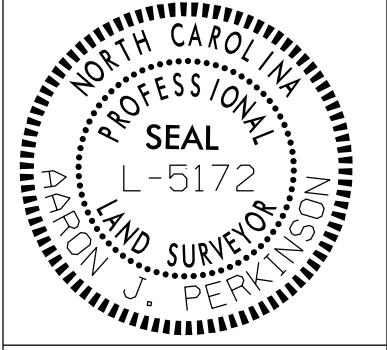
BP4R033

R/W03E-1

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



PROFESSIONAL LAND
SURVEYOR



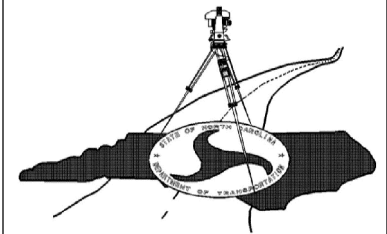
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2024 STANDARD
SPECIFICATIONS

TIP PROJECT: BP4R033

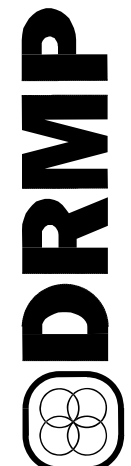
County: Halifax

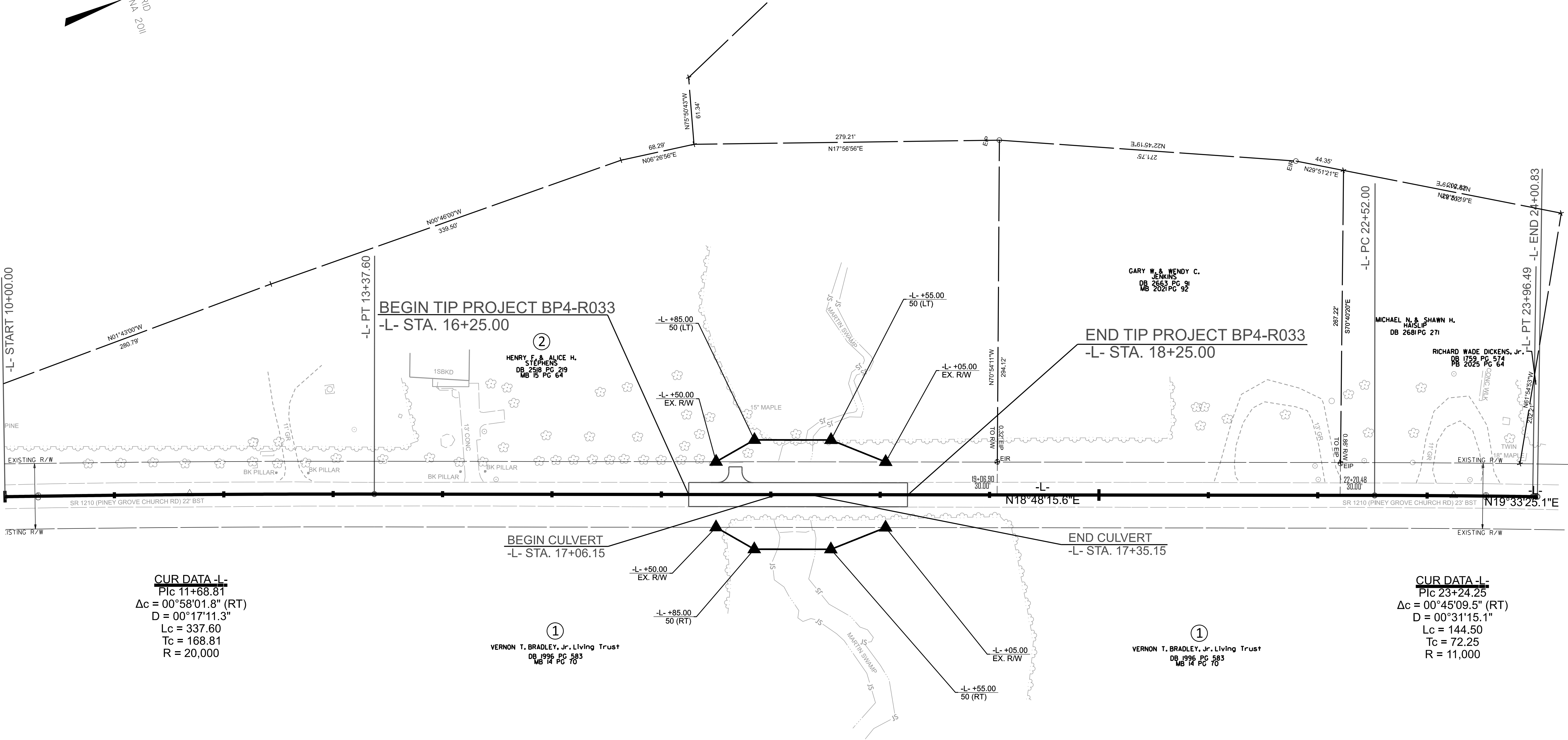
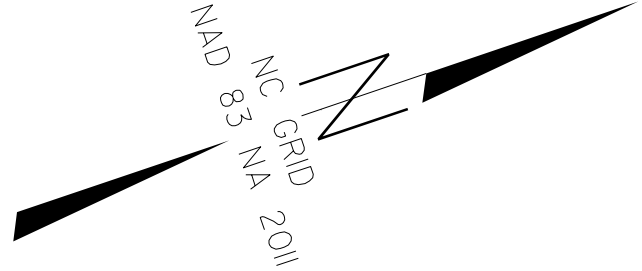
PREPARED FOR



LOCATION AND
SURVEYS UNIT

PREPARED BY





CUR DATA -L-
P/c 11+68.81
 $\Delta c = 00^\circ 58' 01.8''$ (RT)
 $D = 00^\circ 17' 11.3''$
 $Lc = 337.60$
 $Tc = 168.81$
 $R = 20,000$

BEGIN CULVERT
-L- STA. 17+06.15

END CULVERT
-L- STA. 17+35.15

CUR DATA -L-
P/c 23+24.25
 $\Delta c = 00^\circ 45' 09.5''$ (RT)
 $D = 00^\circ 31' 15.1''$
 $Lc = 144.50$
 $Tc = 72.25$
 $R = 11,000$

I, AARON J. PERKINSON, 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 APRIL 2ND 2026, 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 15TH DAY OF APRIL, 2026.

DocuSigned by:
AJ Perkinson 4/15/2026
PROFESSIONAL LAND SURVEYOR L-5172
375432EB4F1E4DD...



BP4R033

R/W04

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

PROFESSIONAL LAND
SURVEYOR

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2024 STANDARD
SPECIFICATIONS

TIP PROJECT: BP4R033

County: Halifax

PREPARED FOR

LOCATION AND
SURVEYS UNIT

PREPARED BY

NOTES:

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

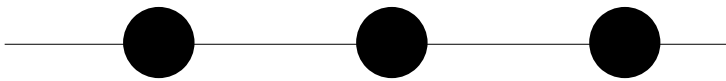
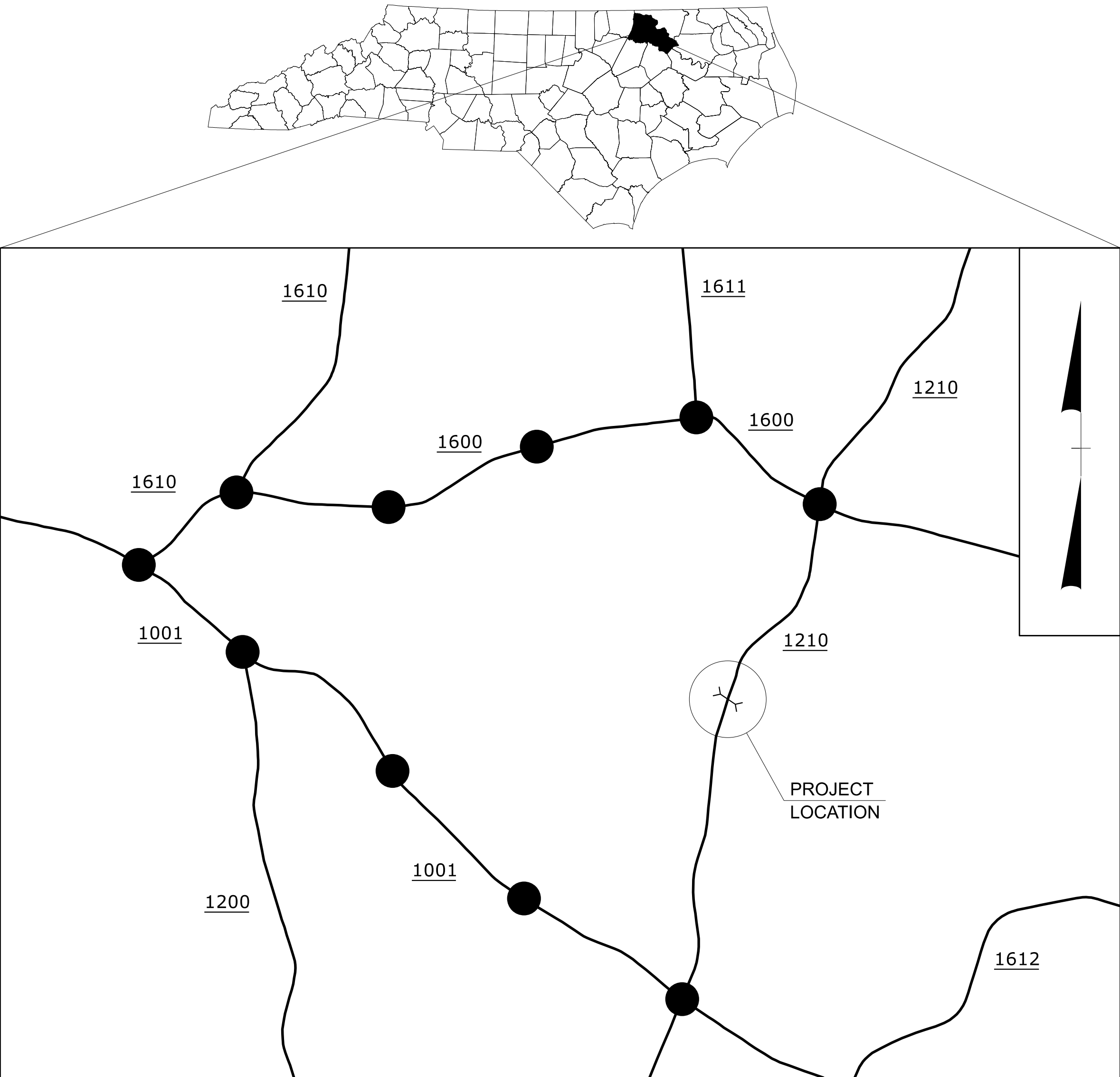
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

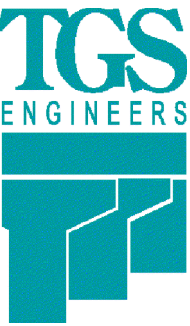
HALIFAX COUNTY

LOCATION: *REPLACE BRIDGE NO. 410021 ON SR 1210 OVER MARTIN SWAMP*

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



VICINITY MAP
OFF-SITE DETOUR

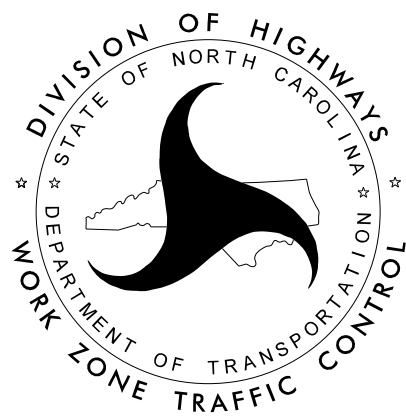


PLANS PREPARED FOR N.C.D.O.T. BY: *TGS ENGINEERS*

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

JAMES J. LAPLANTE
DESIGN ENGINEER



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

APPROVED: 
DATE: 9/4/2026



PROJECT: BP4-R033

SHEET NO.
TMP-1

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

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:

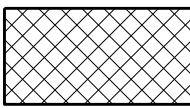
STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

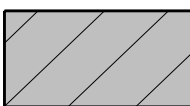
LEGEND

GENERAL

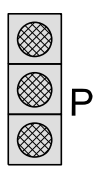
-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  EXIST. PVMT.
-  NORTH ARROW
-  PROPOSED PVMT.
-  TEMP. SHORING (LOCATION PURPOSES ONLY)

 WORK AREA

 REMOVAL

 WEDGING

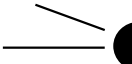
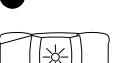
SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY

PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

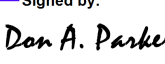
-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN

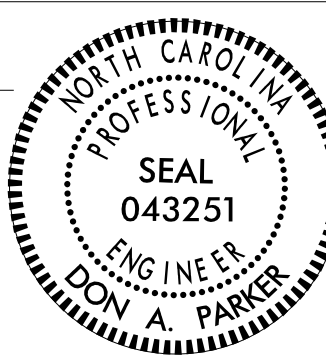
PAVEMENT MARKERS

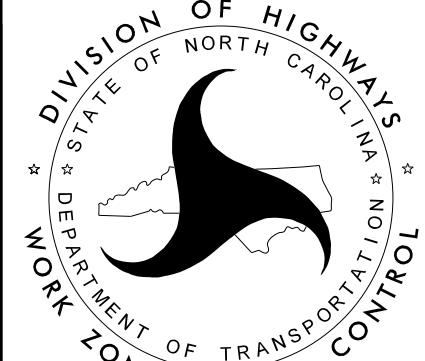
-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS

APPROVED: 
DATE: 9/4/2026





ROADWAY STANDARD
DRAWINGS & LEGEND

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJ. REFERENCE NO.	SHEET NO.
BP4-R033	TMP-1B
TCS ENGINEERS TCS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (819) 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 UNDESIRE

OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

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

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

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

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

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

TRAFFIC CONTROL DEVICES

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

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 1

STEP 1 -- INSTALL AND COVER DETOUR SIGNING. (SEE RSD 1101.03 AND TMP-3).

STEP 2 -- UNCOVER DETOUR SIGNING AND CLOSE SR 1210 (PINEY GROVE CHURCH RD.) (-L-).

STEP 3 -- AWAY FROM TRAFFIC, INSTALL (1) 29'-0" X 8'-3" ALBC AND CONSTRUCT ROADWAY UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA. 16+25 +/- TO -L- STA. 18+25 +/-.

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

STEP 5 -- COVER OR REMOVE DETOUR SIGNING AND RE-OPEN SR 1210 (PINEY GROVE CHURCH RD.) (-L-) TO TRAFFIC.

STEP 6 -- REMOVE ALL TRAFFIC CONTROL DEVICES.

APPROVED:

Don A. Parker

DATE: 9/4/2026

NORTH CAROLINA

PROFESSIONAL

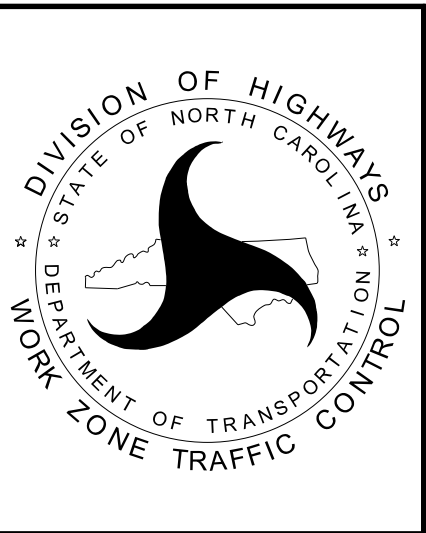
SEAL

043251

ENGINEER

DON A. PARKER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



TRANSPORTATION
OPERATIONS
PLAN

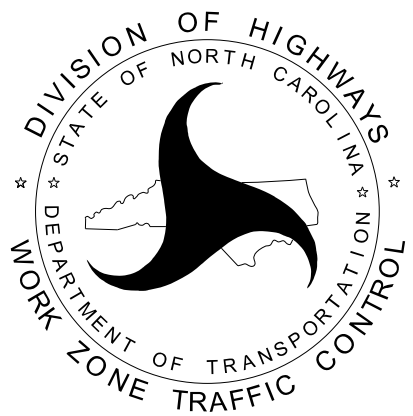
SIGN DESIGN

APPROVED: Don A. Parker
7ED0B9E90ADE7440.

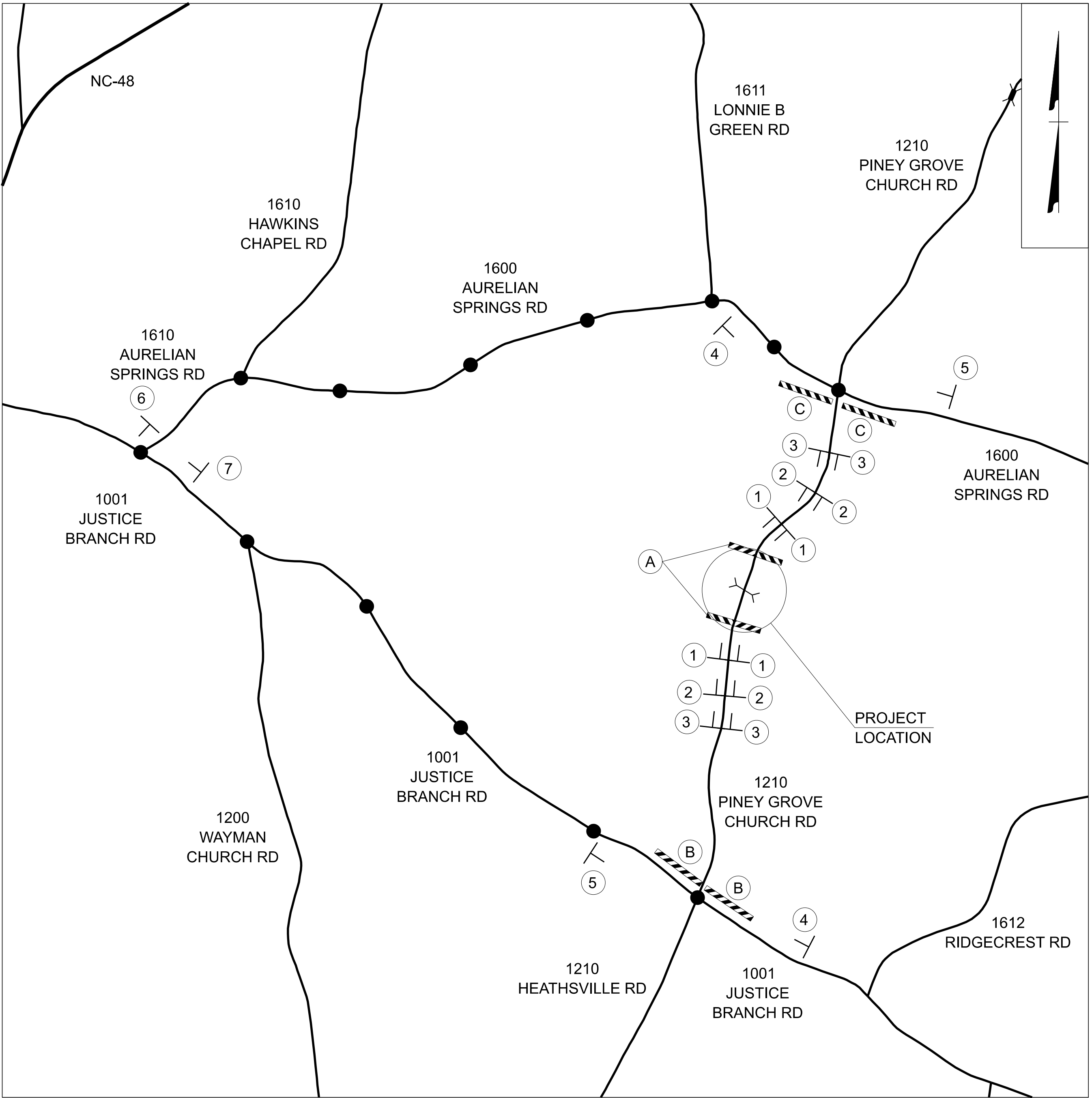
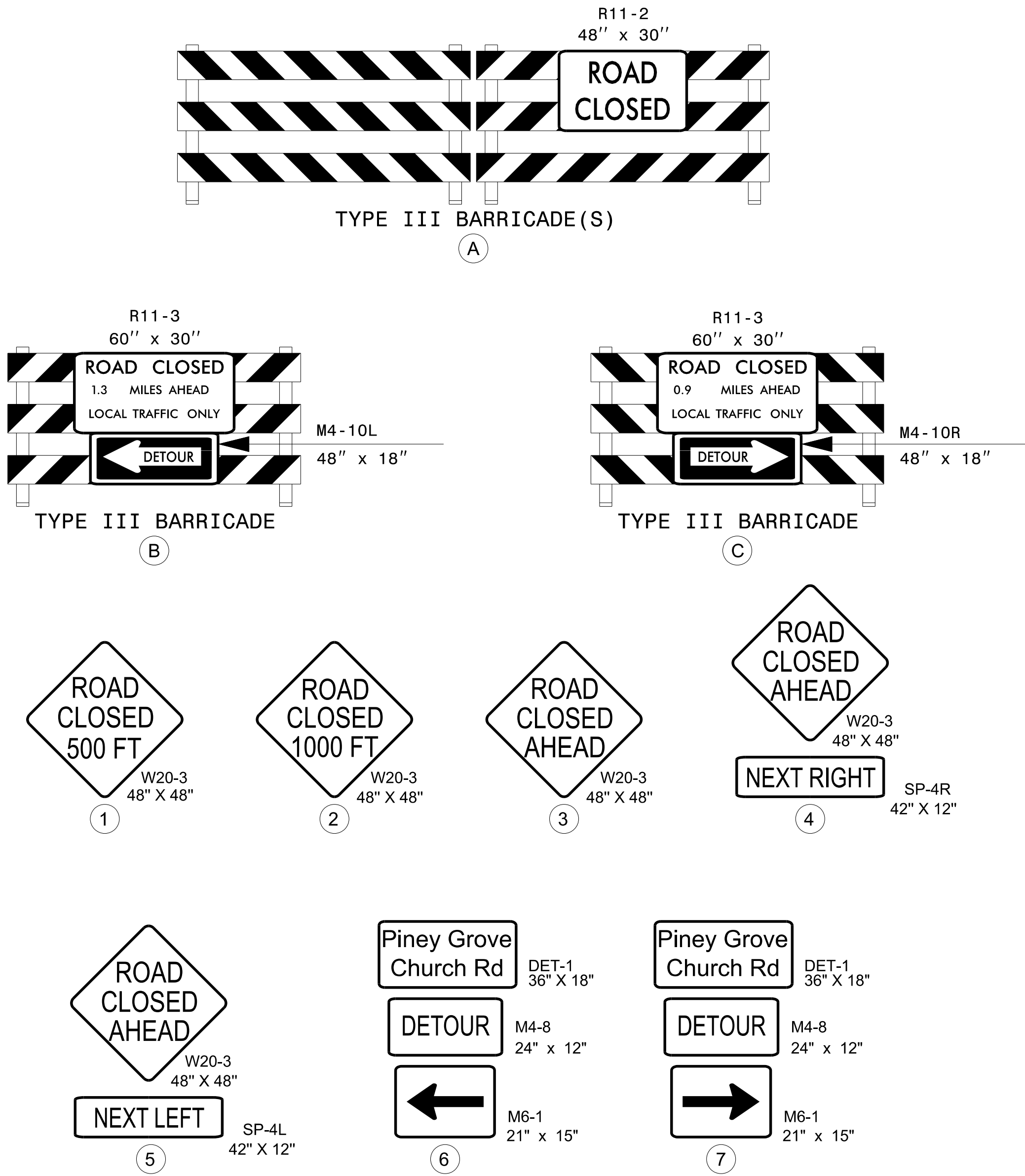
DATE: 9/4/2026



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



PROJ. REFERENCE NO.	SHEET NO.
BP4-R033	TMP-3
TGS ENGINEERS TGS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



VICINITY MAP (NTS)

OFFSITE DETOUR

APPROVED: Don A. Parker 700SBEP04DEF420... DATE: 9/4/2026	NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER	DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	DETOUR SIGNING
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

NOTE: SEE RSD 1101.03, SHEET 1 FOR
ADDITIONAL NOTES AND DETAILS

T.I.P.: BP4-R033

CONTRACT:

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

HALIFAX COUNTY

LOCATION: *REPLACE BRIDGE NO. 410021 ON SR 1210 OVER MARTIN SWAMP*

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

TIP NO.	SHEET NO.
BP4-R033	PMP-1
APPROVED: Signed by: Don A. Parker 75089E90ADEF440...	
DATE: 9/4/2026	
SEAL 75089E90ADEF440... SEAL 043251 ENGINEER DON A. PARKER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE, SCHEDULE SHEET, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, GENERAL NOTES, AND FINAL PAVEMENT MARKING SCHEDULE
PMP-1A	REVISED RSD 1205D0101 - PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
PMP-2	PAVEMENT MARKING DETAIL

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS

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 1210 (PINEY GROVE CHURCH RD)	THERMOPLASTIC	NONE

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.

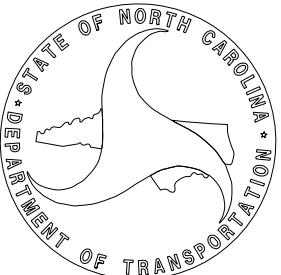
FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	QUANTITY
PAVEMENT MARKINGS		
THERMOPLASTIC (4", 90 MILS)		
T1	(4") WHITE EDGELINE (X2)	400 LF
T13	(4") YELLOW DOUBLE CENTER (X2)	400 LF
		800 LF

PLAN SUBMITTED TO: NCDOT

RUSSELL BROADWELL, P.E.

DIVISION 4 BRIDGE PROGRAM ENGINEER



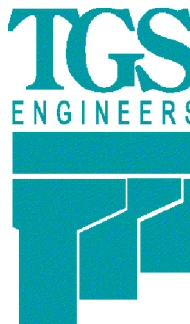
PLAN PREPARED BY: TGS ENGINEERS

DON A. PARKER, P.E.

PROJECT ENGINEER

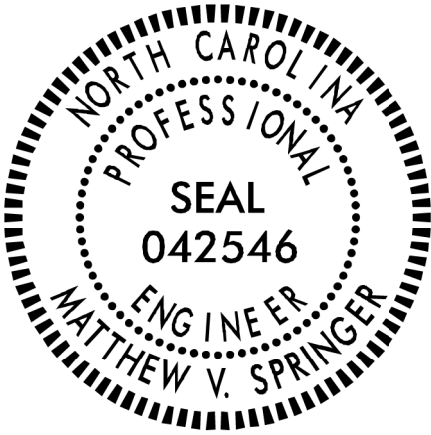
JAMES J. LAPLANTE

DESIGN ENGINEER



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

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



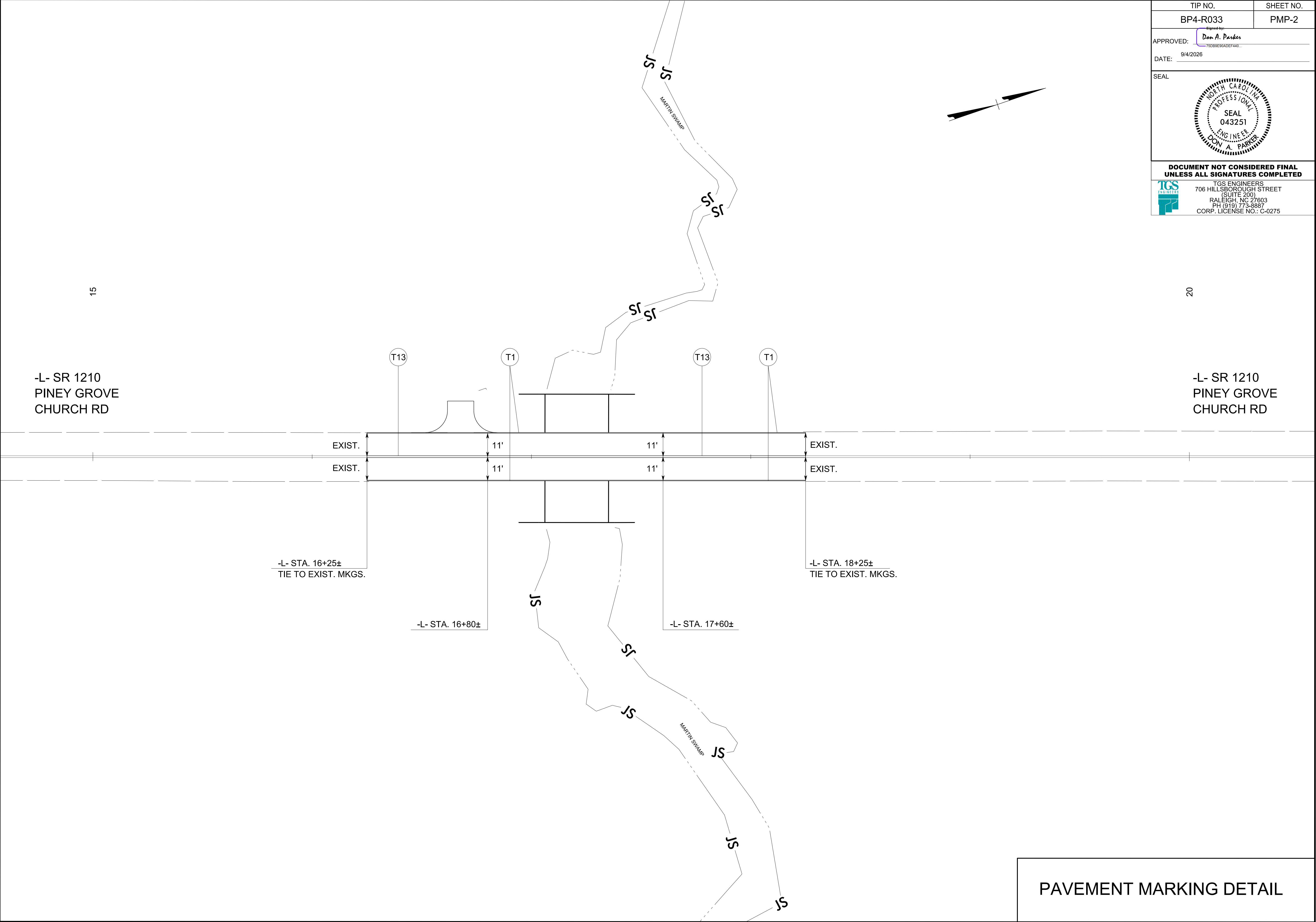
Signed by:
Matthew V. Springer, P.E.
BC00F8E8B584403
9/8/2026

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.:

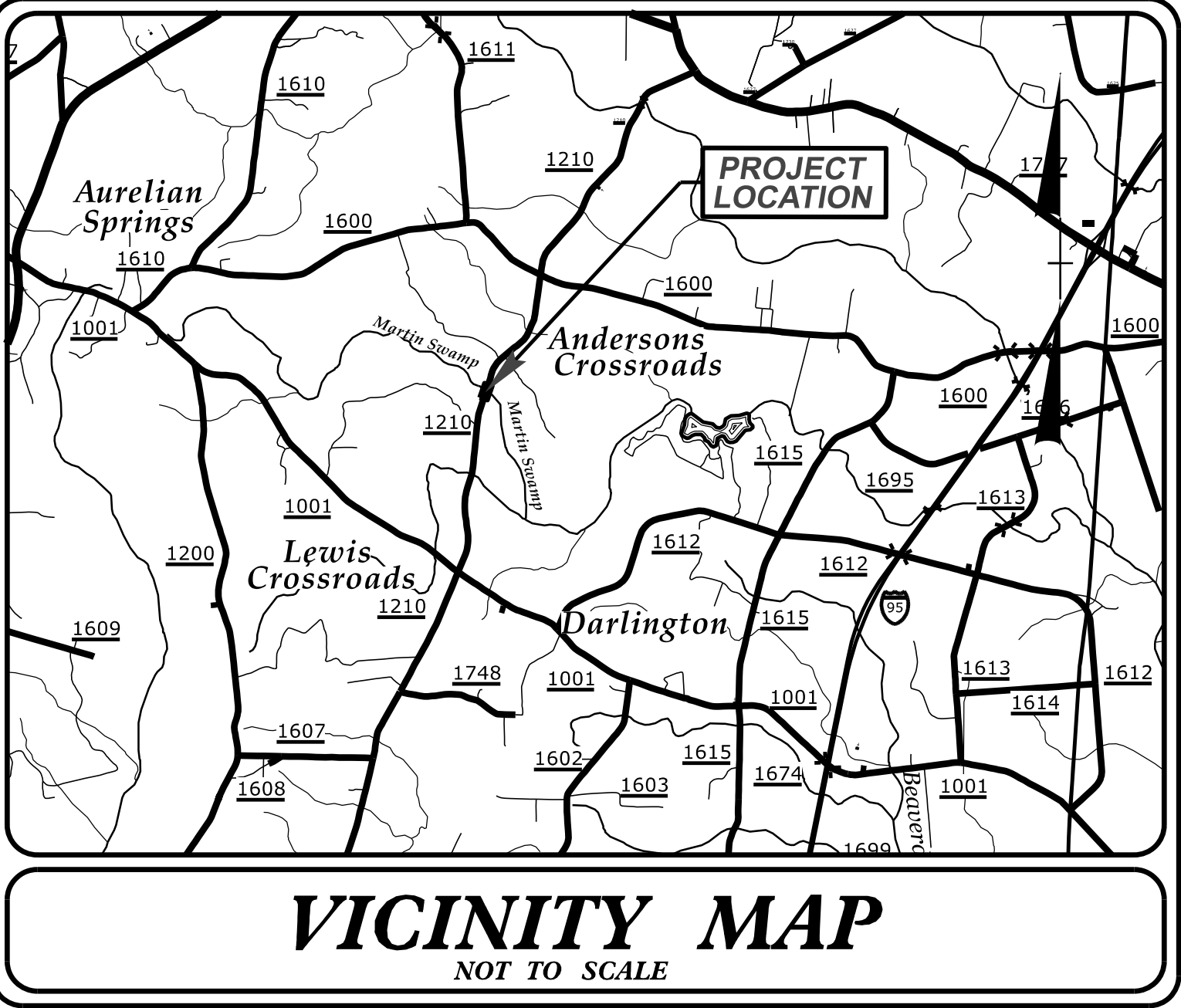
TIP NO.	SHEET NO.
BP4-R033	PMP-2
APPROVED: Signed by: Don A. Parker 750B8E930ADEF440	
DATE: 9/4/2026	
SEAL	
NORTH CAROLINA PROFESSIONAL SEAL 043251 ENGINEER DON A. PARKER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS TGS ENGINEERS 706 HILLSBOROUGH STREET (SUITE 200) RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



9/4/2026
X:\NC001\Division 4 Halfway 41002\Signing and Delineation\Pavement Marking\Design\BP4R033_SGN_PMP_02.dgn
User:nai

PAVEMENT MARKING DETAIL

PROJECT: BP4-R033



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
HALIFAX COUNTY
LOCATION: *REPLACE BRIDGE NO. 410021 ON
SR 1210 OVER MARTIN SWAMP*
TYPE OF WORK: *GRADING, PAVING, DRAINAGE, AND
STRUCTURE*

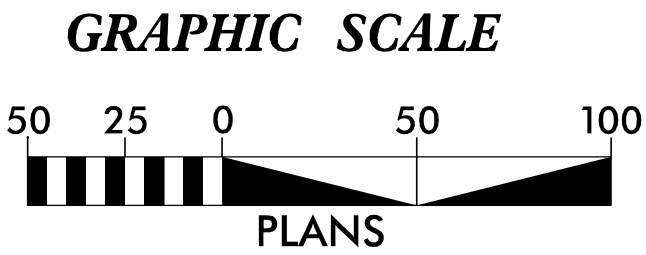
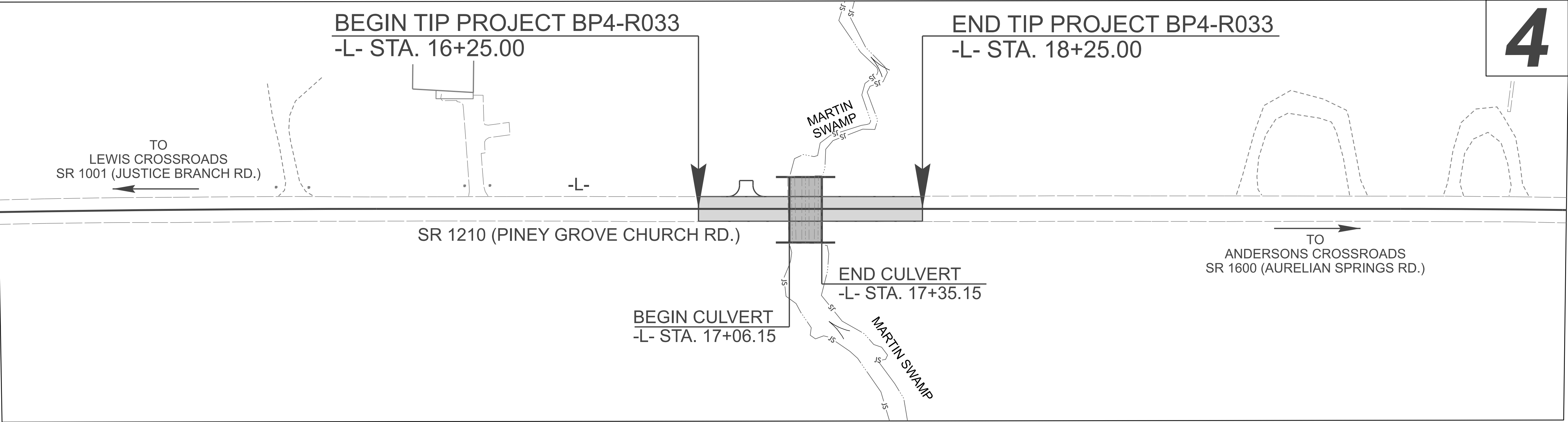
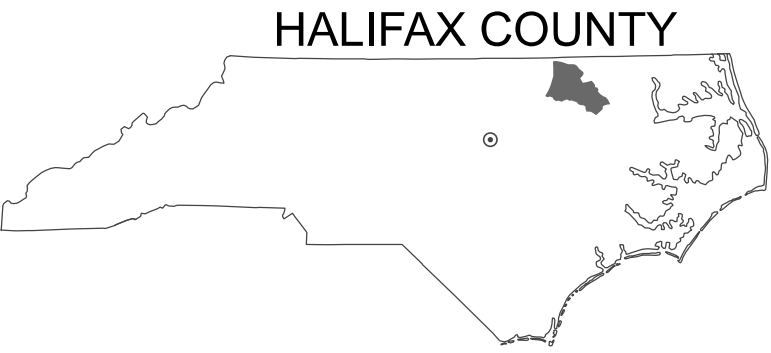
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP4-R033	EC-1	
STATE PROJ.NO.	F.A.PROJ.NO.	DESCRIPTION	

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

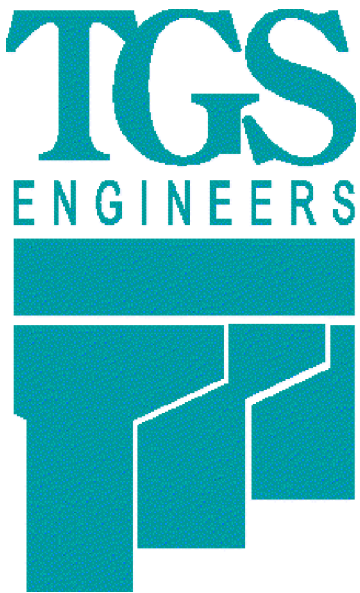
THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.

ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT

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



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



Prepared In the Office of:
TGS ENGINEERS
706 HILLSBOROUGH ST
SUITE 200
RALEIGH, NC 27603

Designed by:
Ben Henegar, PE 3564
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

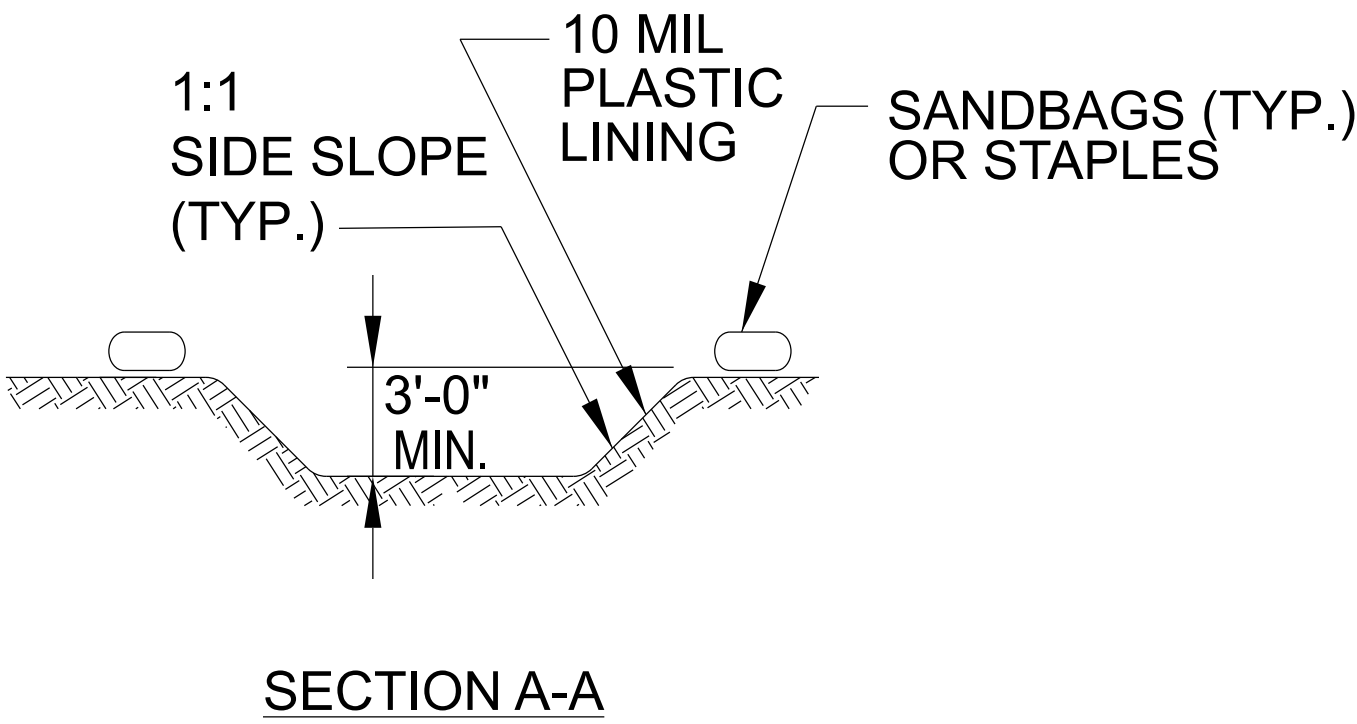
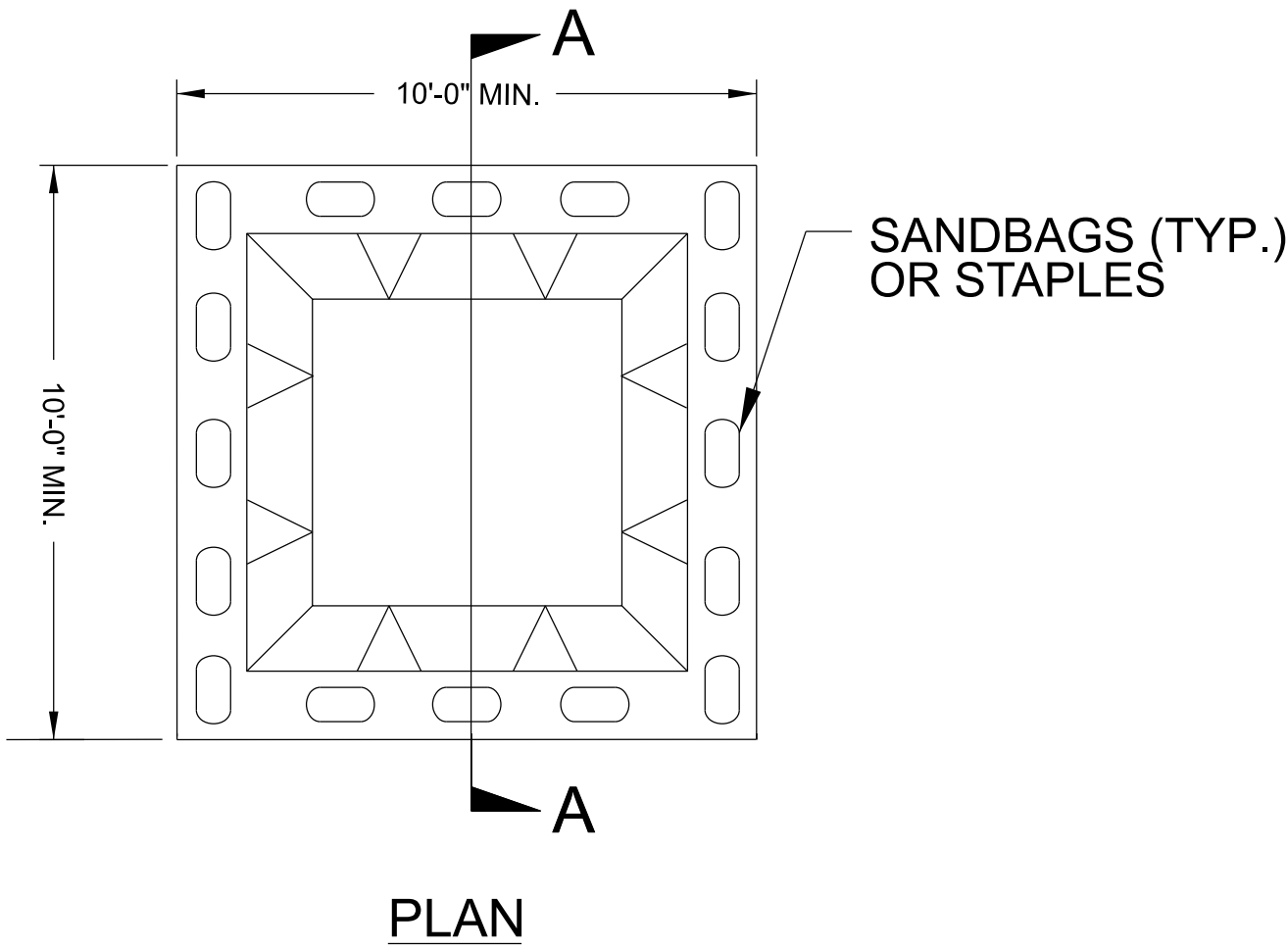
PROJECT REFERENCE NO.	SHEET NO.
BP4-R033	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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				
1632.02	Type B		1636.03	Excelsior Wattle Barrier	
1632.03	Type C		1636.03	Coir Fiber Wattle Barrier	

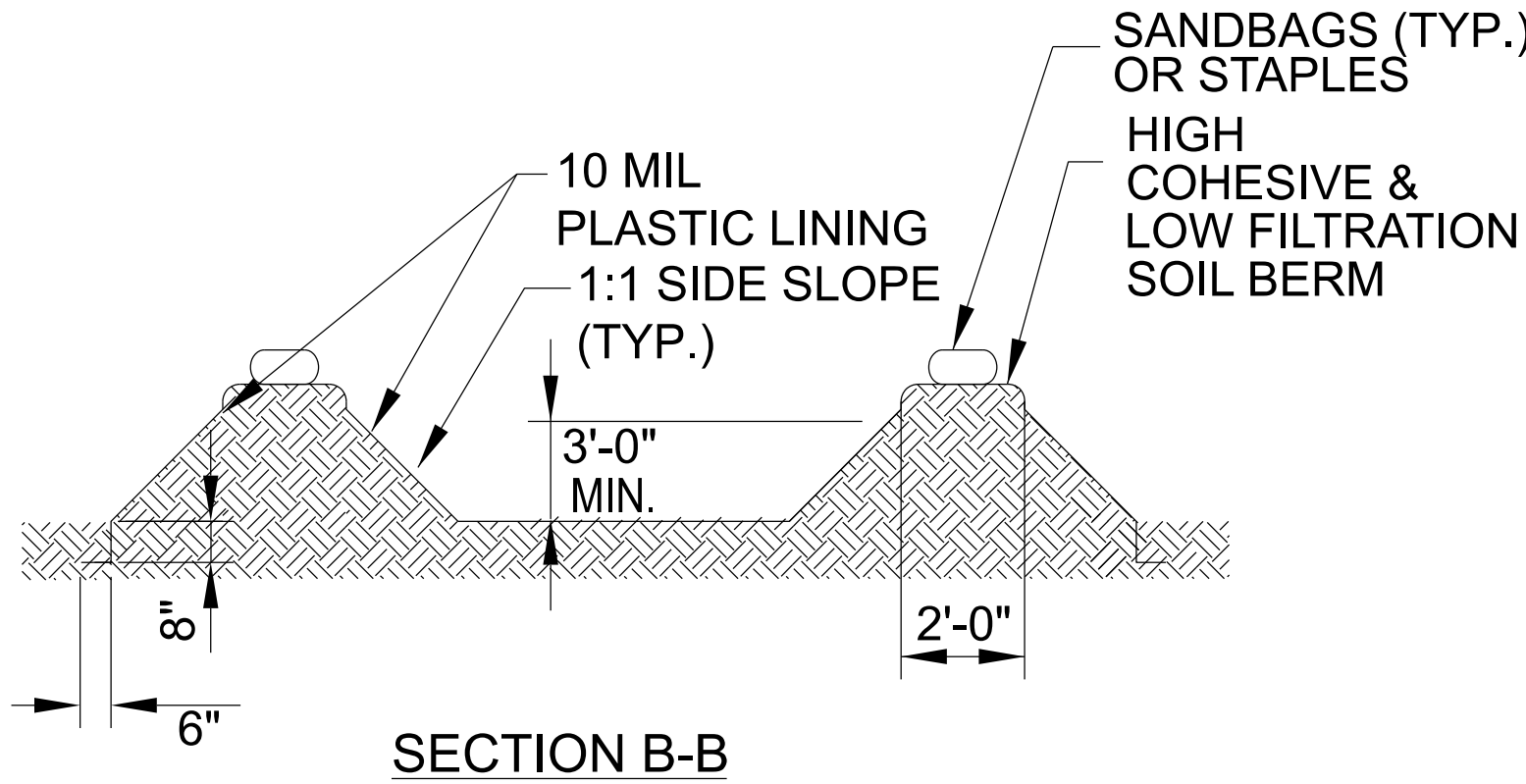
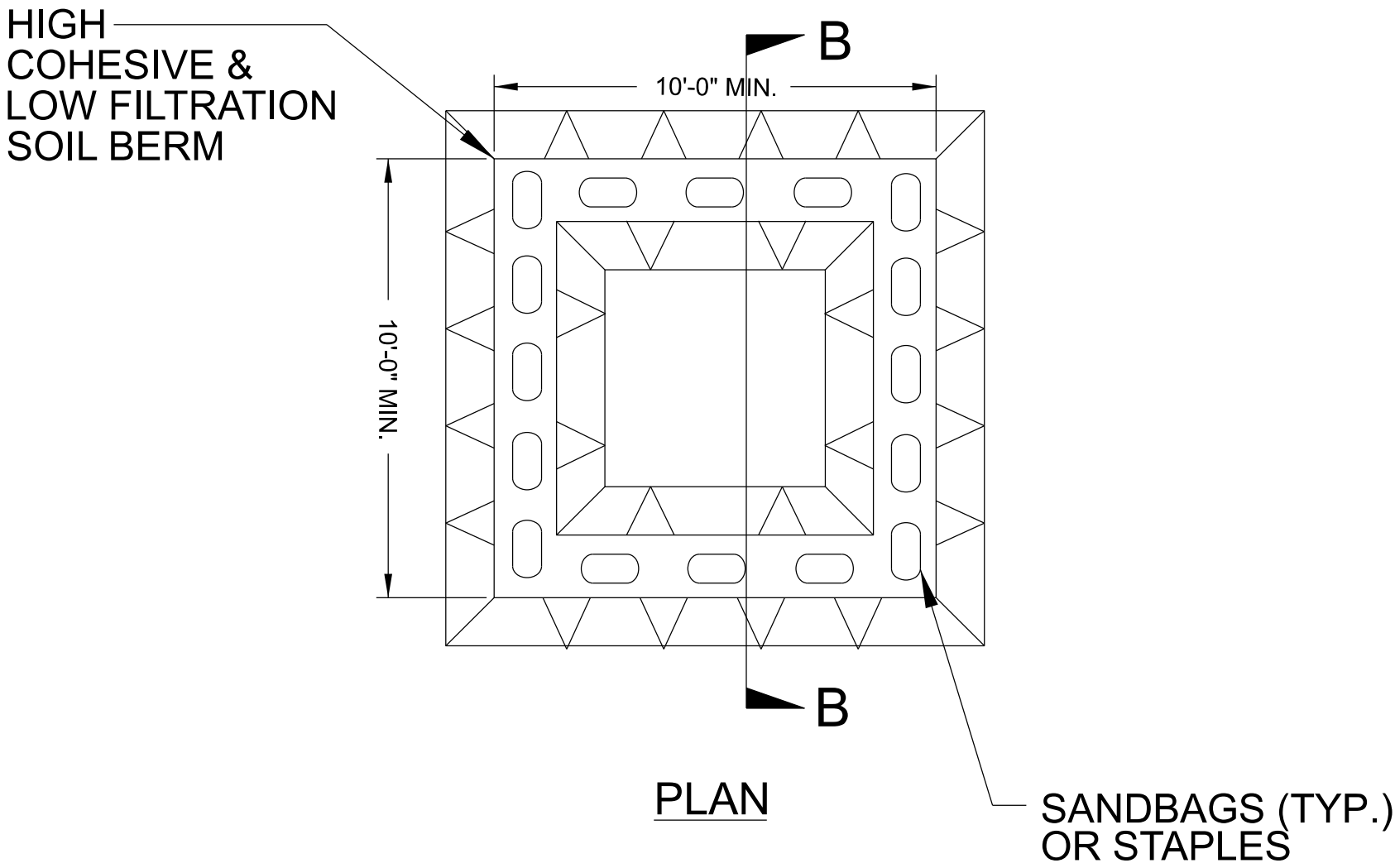
ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER

PROJECT REFERENCE NO.	SHEET NO.
BP4-R033	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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 CLEARY MARKED WITH SIGNAGE NOTING DEVICE.



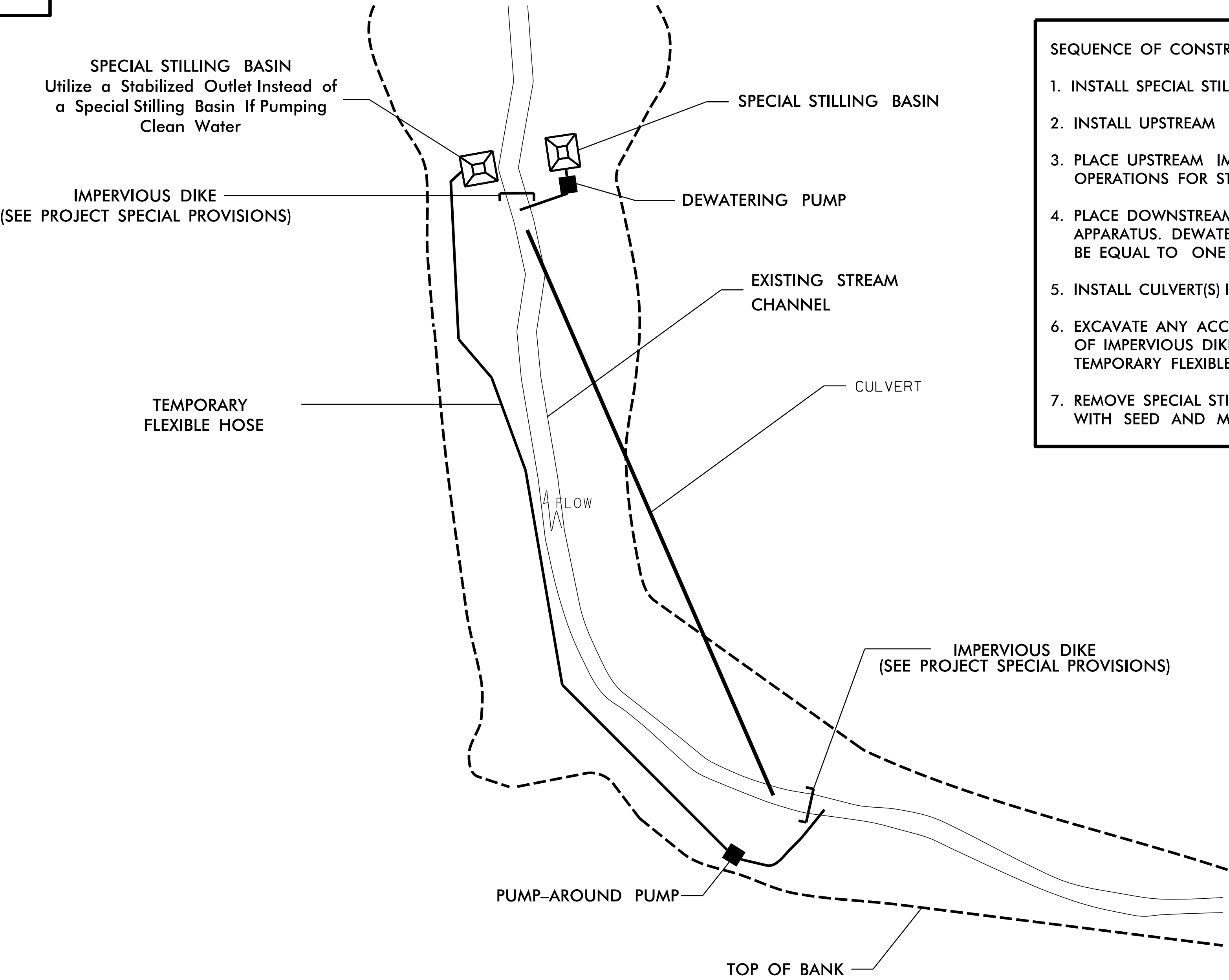
ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

- 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 CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

PROJECT REFERENCE NO.	SHEET NO.
BP4-R033	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

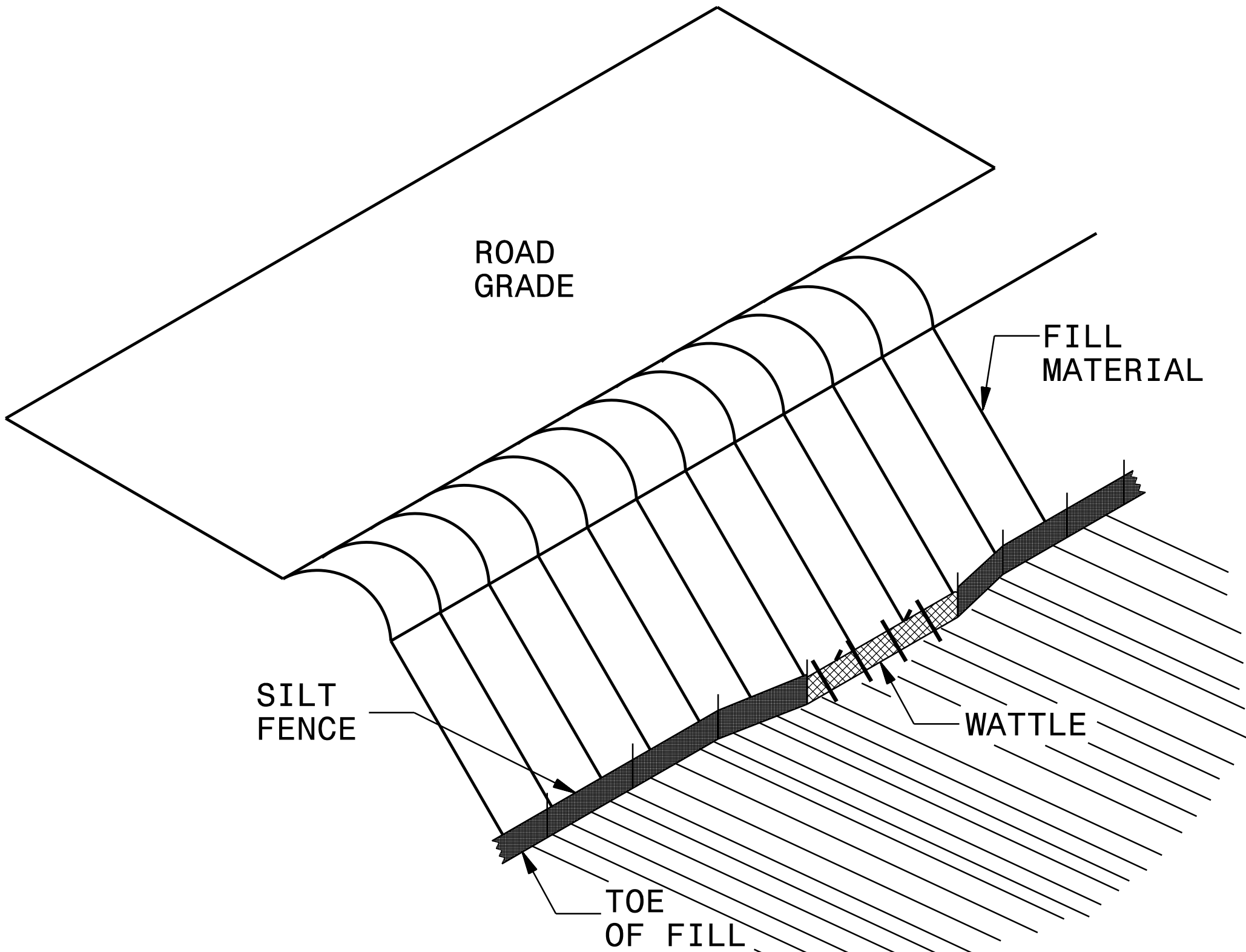
EXAMPLE OF PUMP-AROUND OPERATION

- 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.

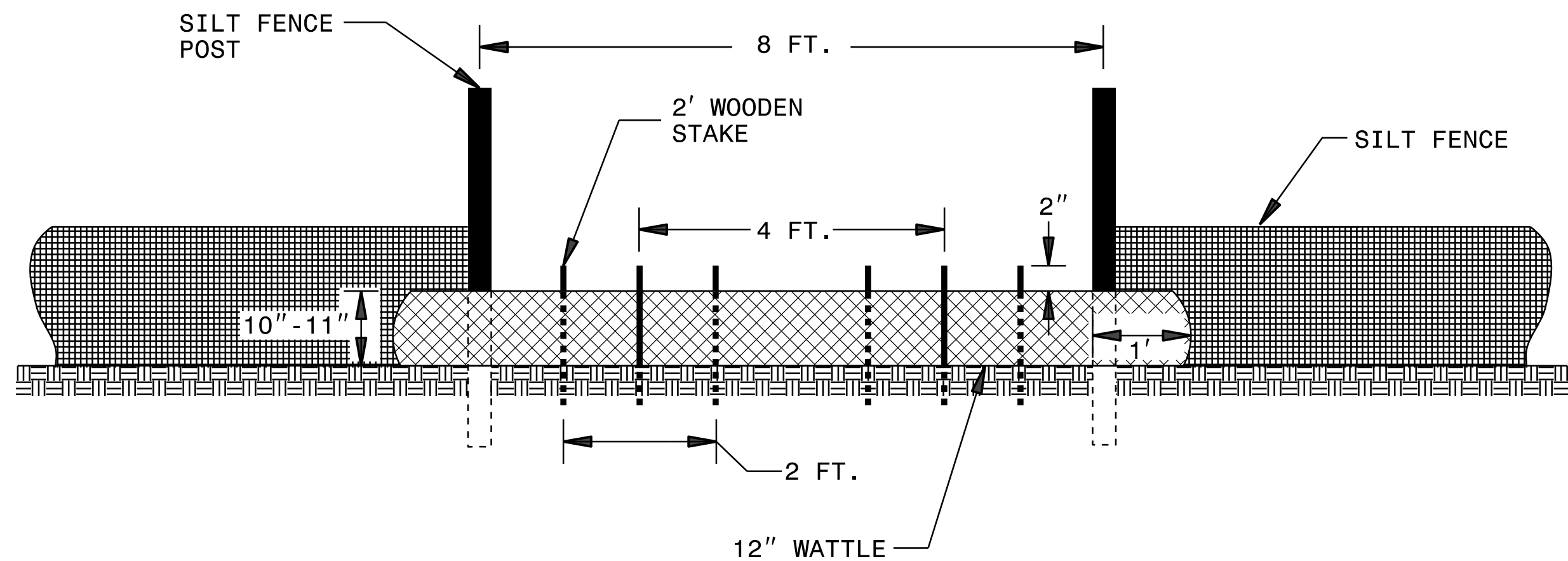


- SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA
- 1. INSTALL SPECIAL STILLING BASIN(S).
 - 2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
 - 3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
 - 4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER 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.

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

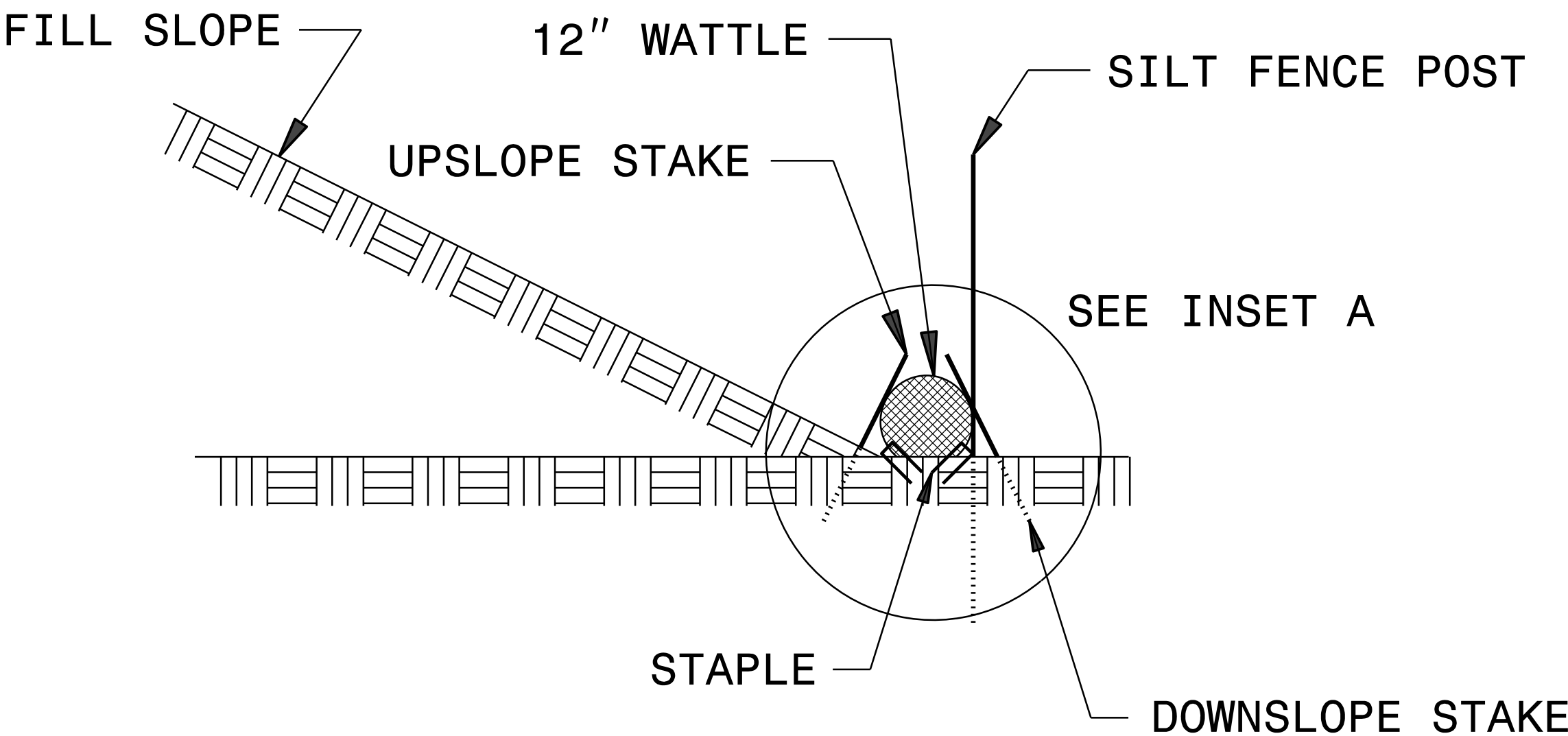
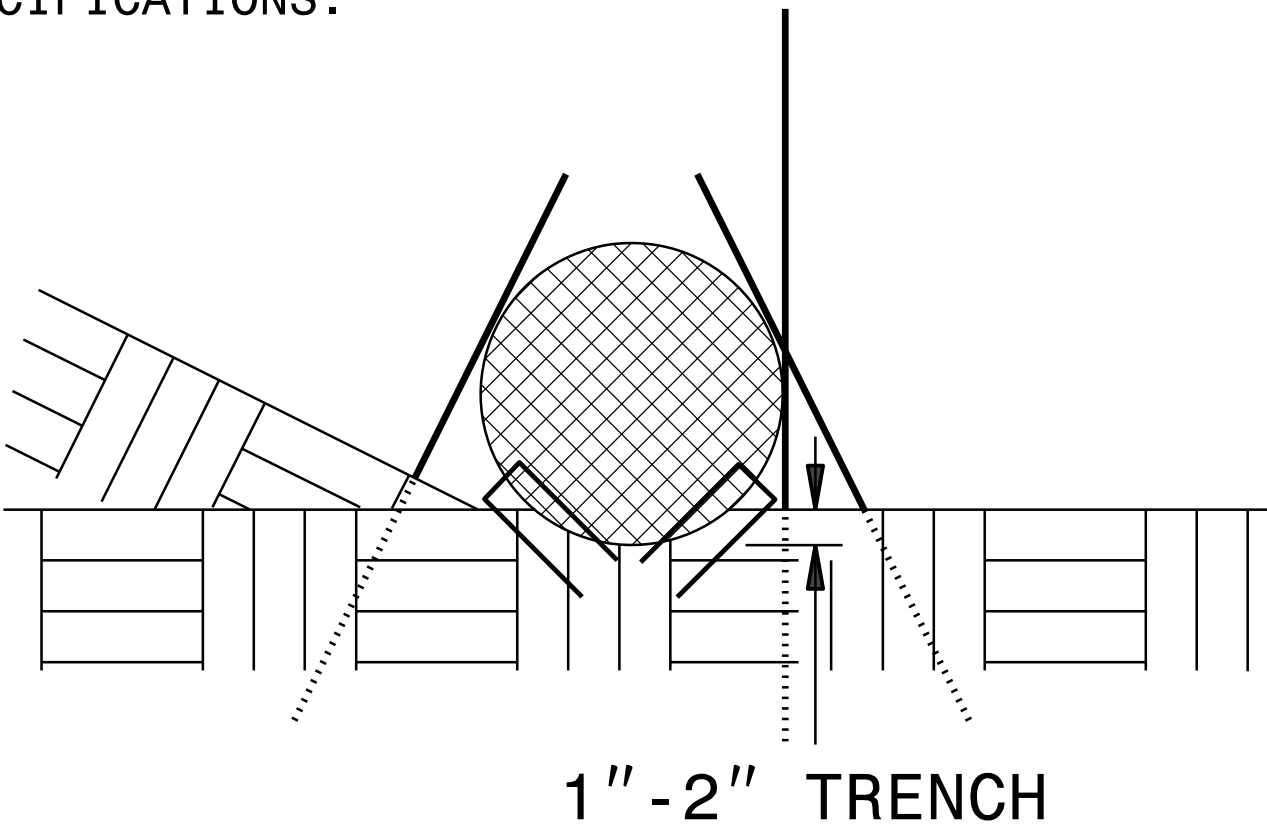
PROVIDE STAPLES MADE OF 11 GAUGE STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 6" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A



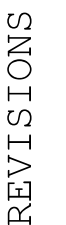
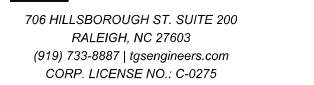
SIDE VIEW

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
BP4-R033	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

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



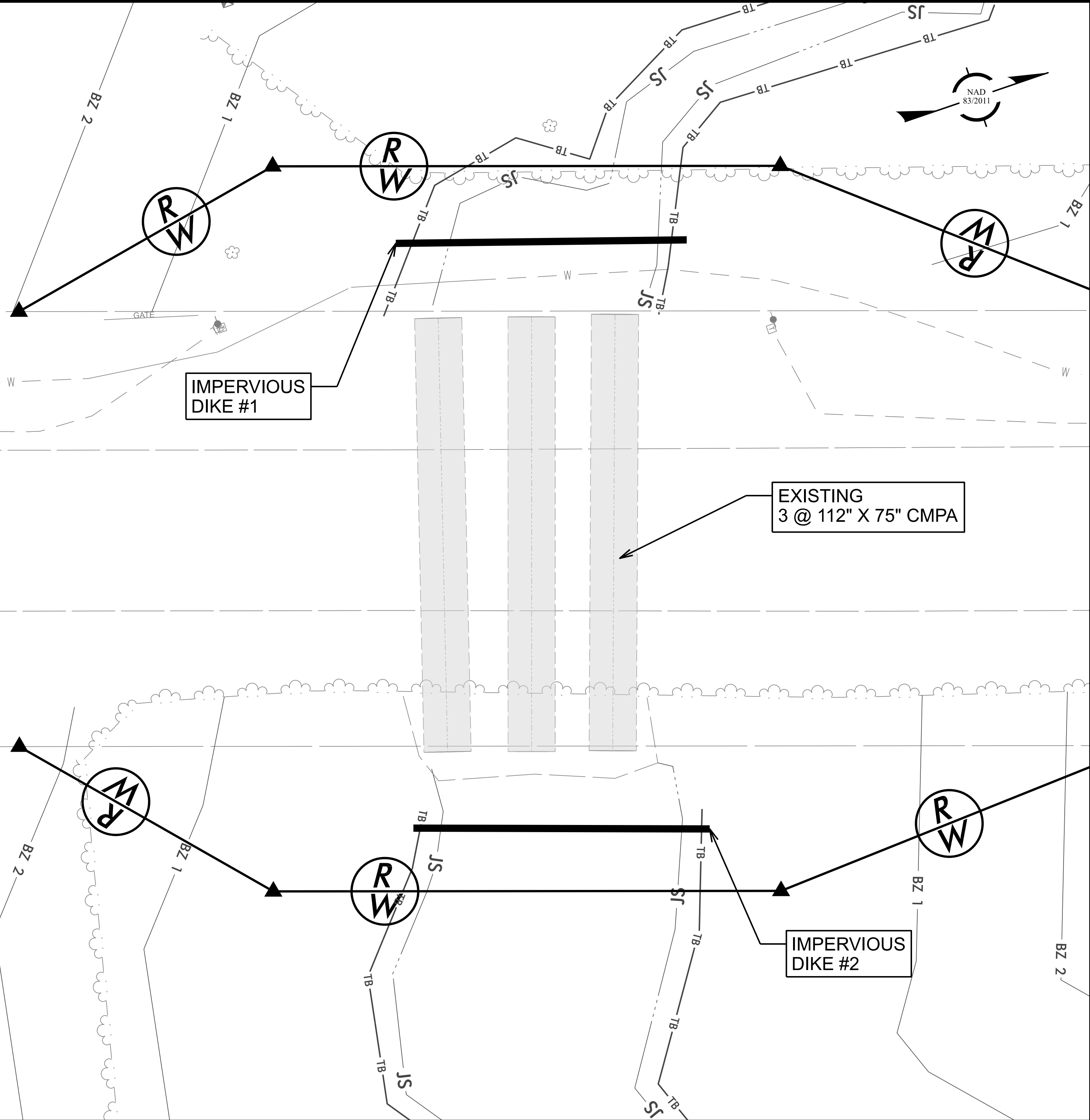
CULVERT CONSTRUCTION SEQUENCE STA. 17+20 -L-

1"=10'

PROJECT REFERENCE NO.	SHEET NO.
BP4-R033	EC-4A/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

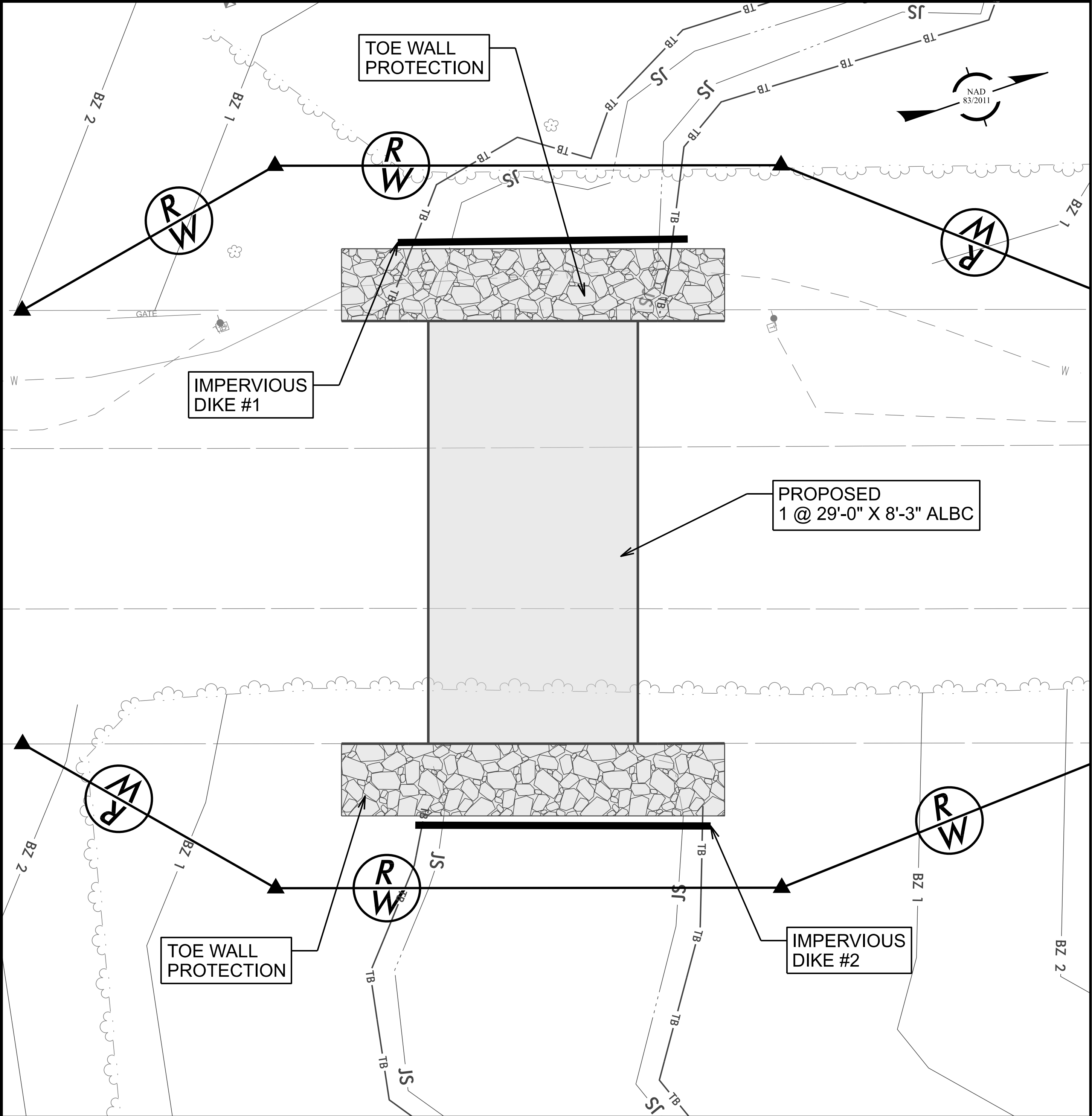
PHASE I

1. INSTALL IMPERVIOUS DIKES #1, #2, & TEMPORARY PUMP-AROUND. SEE EC-2B.
2. DEWATER CONSTRUCTION AREA INTO SPECIAL STILLING BASIN(S) AS REQUIRED.
3. REMOVE EXISTING 3 @ 112" X 75" CMPA.



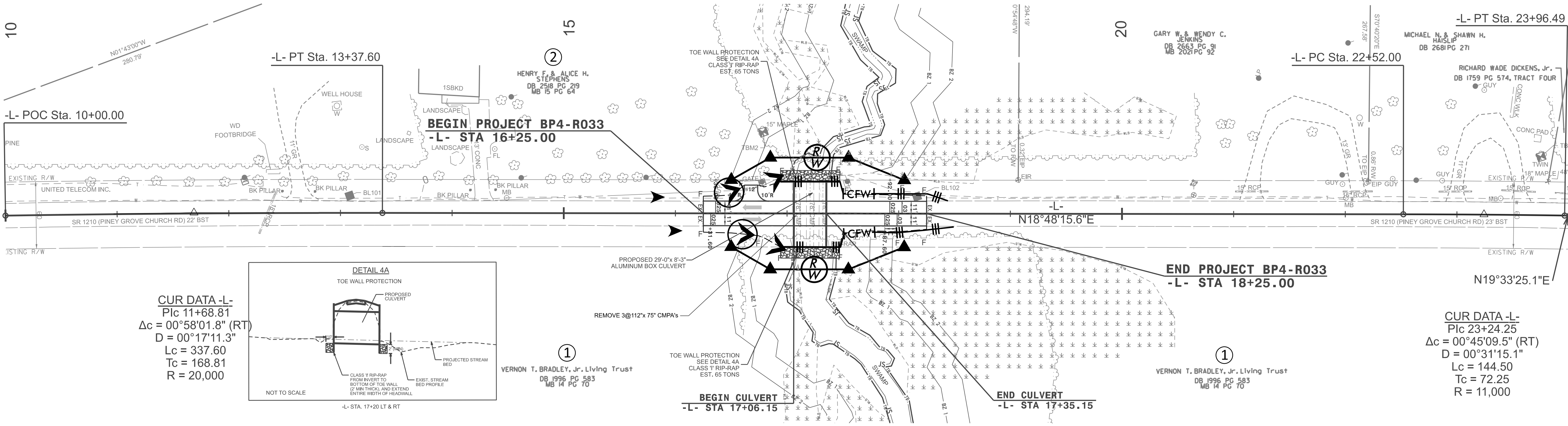
PHASE II

1. DEWATER CONSTRUCTION AREA INTO SPECIAL STILLING BASIN(S) AS REQUIRED.
2. CONSTRUCT PROPOSED 1 @ 29'-0" X 8'-3" ALBC AND TOE WALL PROTECTION.
3. REMOVE IMPERVIOUS DIKES #1, #2, TEMPORARY PUMP-AROUND, & SPECIAL STILLING BASIN(S).

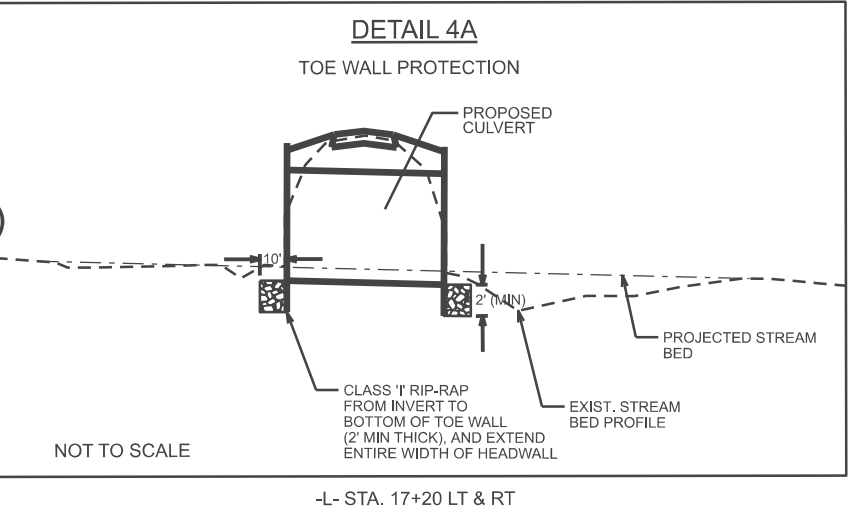


11/14/23

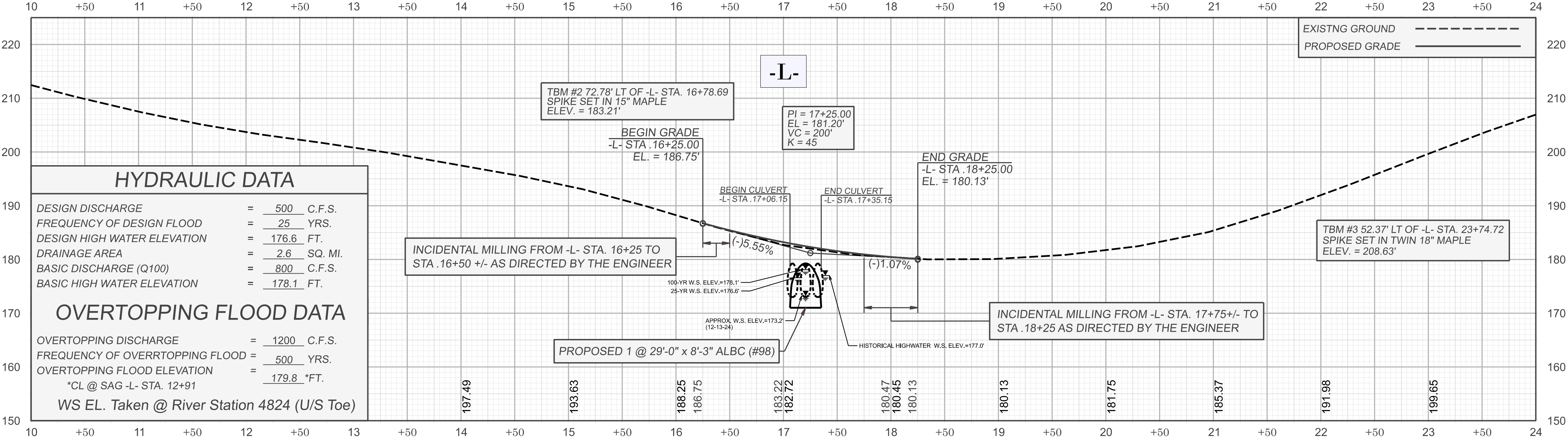
NOTE:
UTILIZE SPECIAL STILLING BASIN(S) AS
STILLING BASIN WHERE APPLICABLE.



CUR DATA -L-
Plc 11+68.81
 $\Delta c = 00^\circ 58' 01.8''$ (RT)
D = $00^\circ 17' 11.3''$
Lc = 337.60
Tc = 168.81
R = 20,000



CUR DATA -L-
Plc 23+24.25
 $\Delta c = 00^\circ 45' 09.5''$ (RT)
D = $00^\circ 31' 15.1''$
Lc = 144.50
Tc = 72.25
R = 11,000



HYDRAULIC DATA

DESIGN DISCHARGE	=	500	C.F.S.
FREQUENCY OF DESIGN FLOOD	=	25	YRS.
DESIGN HIGH WATER ELEVATION	=	176.6	FT.
DRAINAGE AREA	=	2.6	SQ. MI.
BASIC DISCHARGE (Q100)	=	800	C.F.S.
BASIC HIGH WATER ELEVATION	=	178.1	FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	1200	C.F.S.
FREQUENCY OF OVERTTOPPING FLOOD	=	500	YRS.
OVERTOPPING FLOOD ELEVATION	=	179.8	*FT.

*CL @ SAG -L- STA. 12+91

WS EL. Taken @ River Station 4824 (U/S Toe)

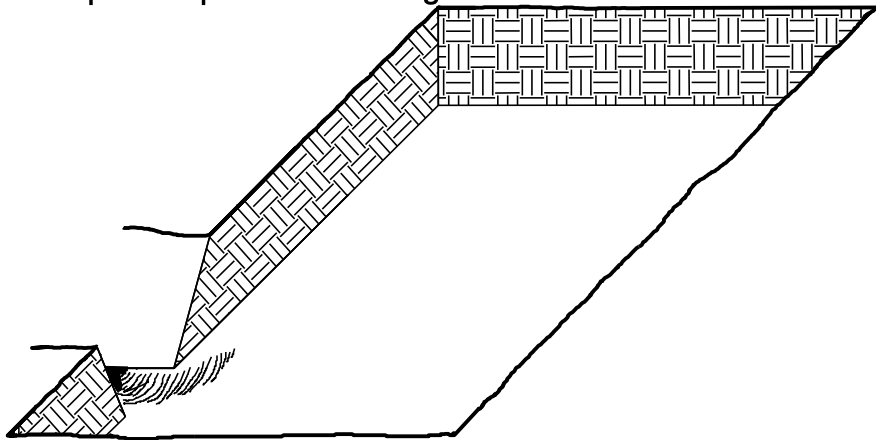
STATE	STATE PROJECT REFERENCE NO.	SHEET	SHEETS
N.C.	BP4-R033	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

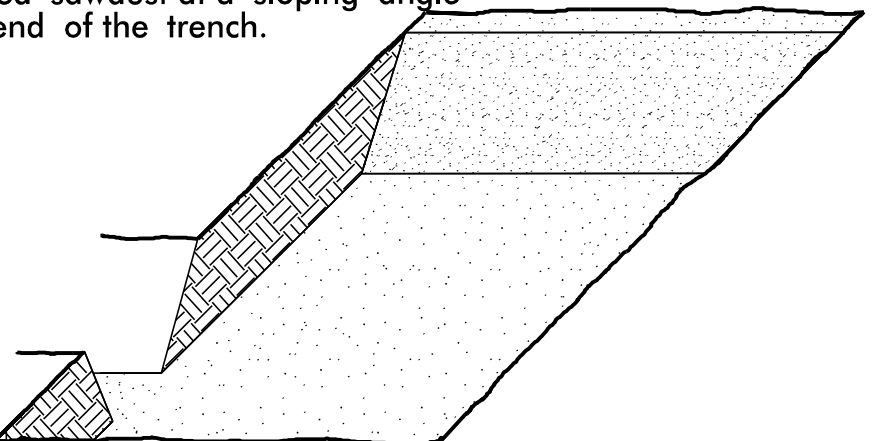
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

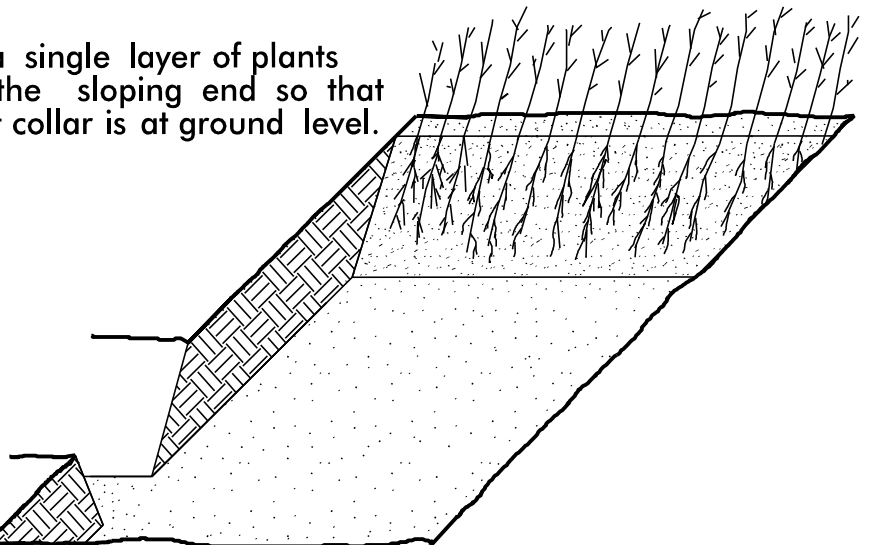
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



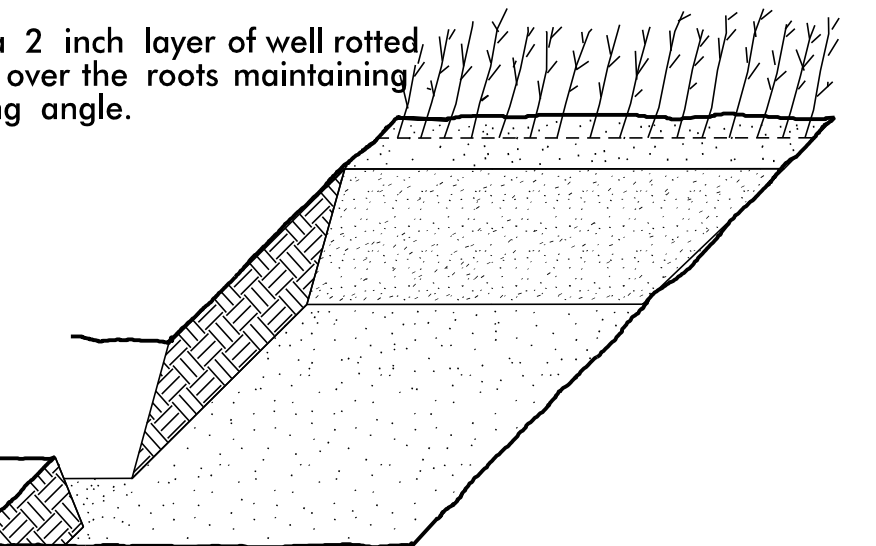
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

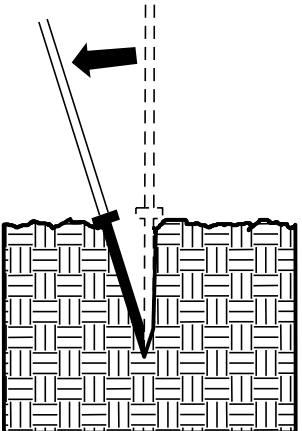


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

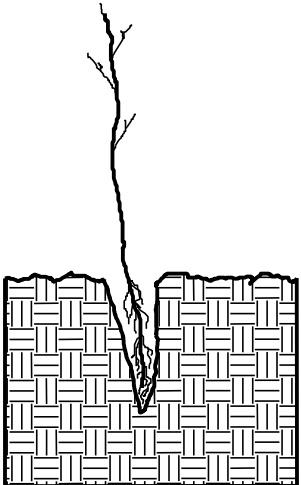


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

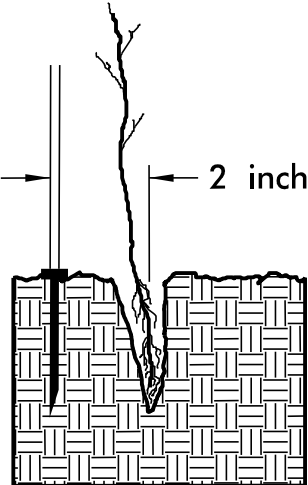
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



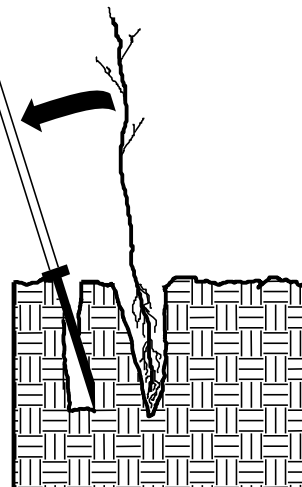
1. Insert planting bar as shown and pull handle toward planter.



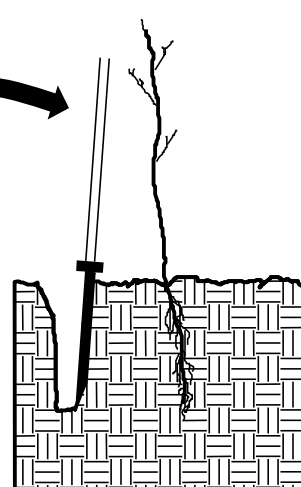
2. Remove planting bar and place seedling at correct depth.



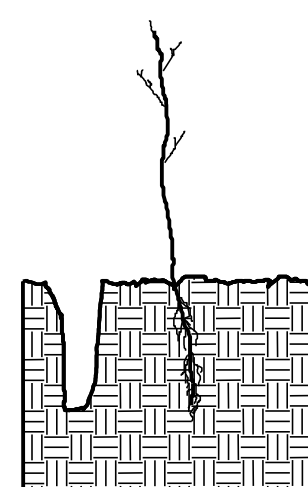
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



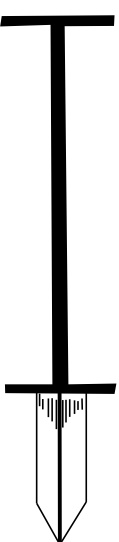
6. Leave compaction hole open. Water thoroughly.

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:

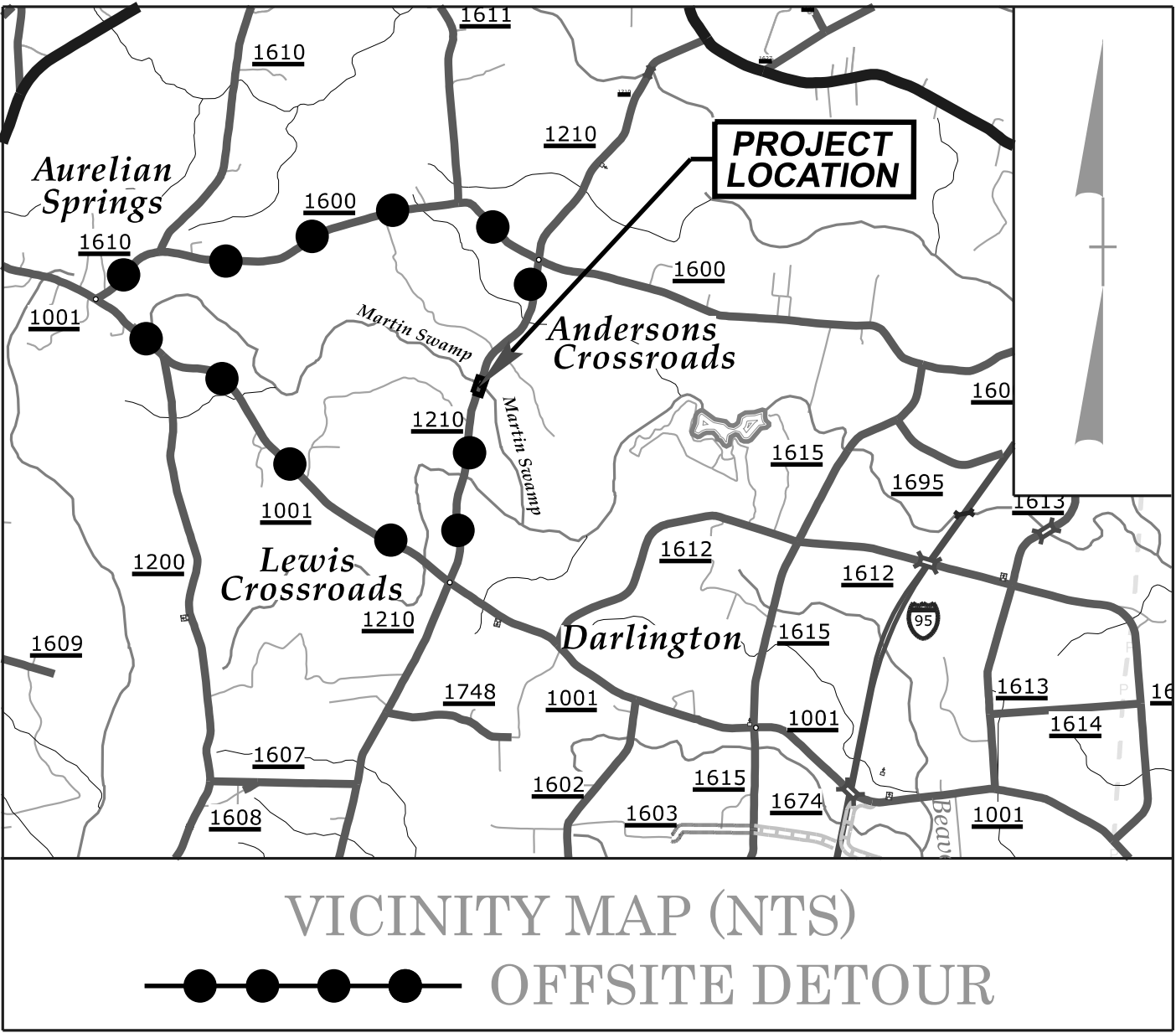
25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR
25% NYSSA SYLVATICA	BLACK GUM	12 in – 18 in BR

REFORESTATION DETAIL SHEET

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

TIP PROJECT: BP4-R033

CONTRACT: -----



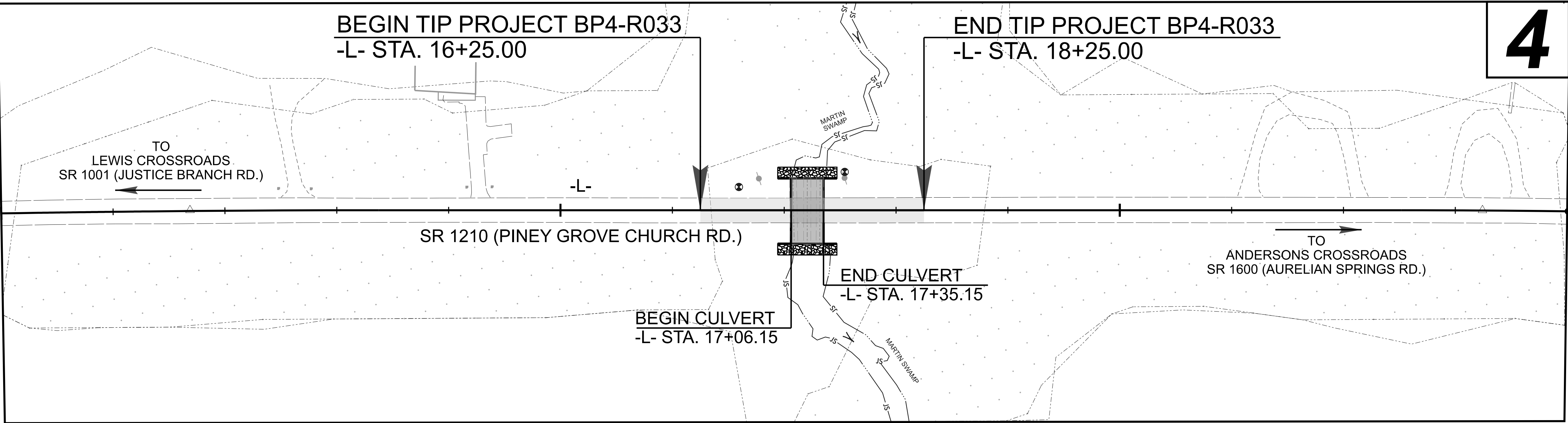
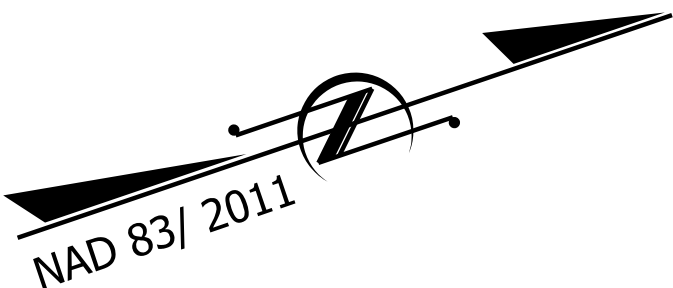
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
HALIFAX COUNTY

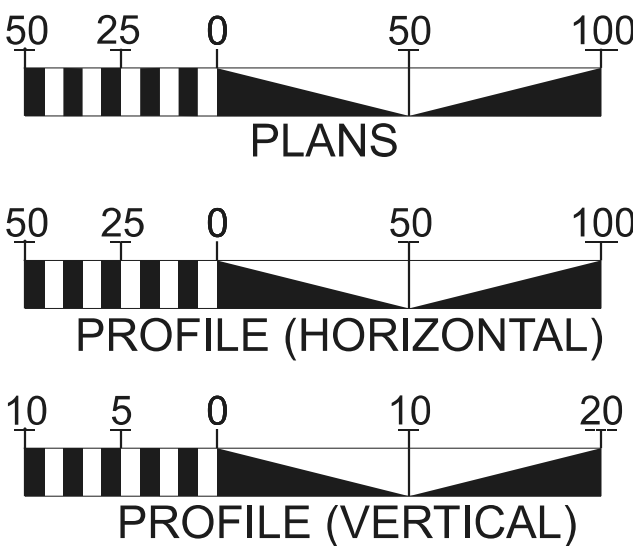
LOCATION: REPLACE BRIDGE NO. 410021 ON
SR 1210 OVER MARTIN SWAMP

TYPE OF WORK: RELOCATE WATER LINE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP4-R033	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	



GRAPHIC SCALES



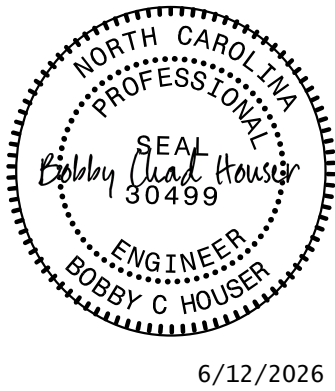
INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A	DETAILS
UC-4	UTILITY CONSTRUCTION SHEET & PROFILE SHEET

WATER AND SEWER
OWNERS ON PROJECT

(A) HALIFAX COUNTY

SEAL



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

CHAD HOUSER P.E. UTILITY DESIGN ENGINEER



DIVISION OF HIGHWAYS
DIVISION 4
509 WARD BLVD.
PO BOX 3165
WILSON NC 27895
PHONE (252) 640-6400
FAX (252) 234-6174

LONNY SLEEPER DIVISION UTILITIES ENGINEER
JIMMY G. SHARPE SENIOR DIVISION UTILITY COORDINATOR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION

BP4-R033

UC2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY

UTILITY DESIGN UNIT

UTILITY CONSTRUCTION
PLANS ONLY

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: BCH

DRAWN BY: ADC

CHECKED BY:

APPROVED BY:

REVISED:

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

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	

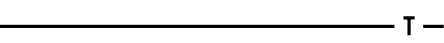
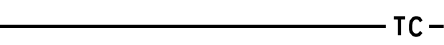
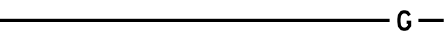
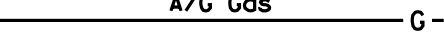
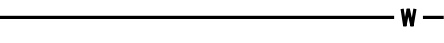
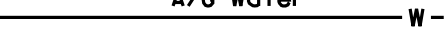
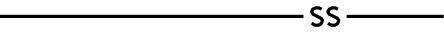
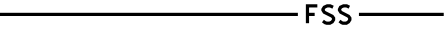
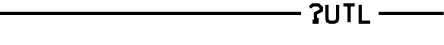
Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement Method	
Encasement	

Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	
End of Information	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

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

EXISTING UTILITIES SYMBOLS

*Underground Power Line	
*Underground Telephone Cable	
*Underground Telephone Conduit	
*Underground Fiber Optics Telephone Cable	
*Underground TV Cable	
*Underground Fiber Optics TV Cable	
*Underground Gas Pipeline	
Aboveground Gas Pipeline	
*Underground Water Line	
Aboveground Water Line	
*Underground Gravity Sanitary Sewer Line	
Aboveground Gravity Sanitary Sewer Line	
*Underground SS Forced Main Line	
Underground Unknown Utility Line	
SUE Test Hole	
Water Meter	
Water Valve	
Fire Hydrant	
Sanitary Sewer Cleanout	

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

REVISIONS

06/16/22

GENERAL NOTES

1.

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.
2.

THE EXISTING WATER LINE BELONGS TO HALIFAX COUNTY. THE CONTACT FOR HALIFAX COUNTY IS CHRISTOPHER WILLIAMS (PUBLIC UTILITIES DIRECTOR) AND HIS PHONE NUMBER AND EMAIL ARE 252-583-1451 AND WILLIAMSCM@HALIFAXNC.COM.
3.

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.
4.

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.
5.

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.
6.

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.
7.

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.
8.

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.
9.

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

1.

ALL PROPOSED WATER LINE 4 TO 12 INCHES IN DIAMETER, SHALL BE DUCTILE IRON PIPE - PRESSURE CLASS 350.
2.

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.
3.

WATER LINE UTILIZING RESTRAINED JOINTS SHALL BE TYTON JOINT, HP LOK, AMERICAN "FAST GRIP", US PIPE "FIELD-LOK" OR APPROVED EQUAL.
4.

ALL WATERLINE SHALL HAVE COATED TRACER WIRE NO SMALLER THAN 14 AWG SOLID COPPER.
5.

RESILIENT WEDGE INSERTION GATE VALVES SHALL MEET OR EXCEED ALL PERTINENT REQUIREMENTS OF ANSI/AWWA C515-15 GATE VALVE STANDARD. THE VALVE BODY, BONNET, STUFFING BOX AND OPERATING NUT SHALL BE MADE OF ASTM A536 DUCTILE IRON. THE BODY AND BONNET SHALL ADHERE TO THE MINIMUM WALL THICKNESS AS SET FORTH IN AWWA C515-15 TABLE 3, SECTION 4.4.1.2. WALL THICKNESSES THAT DO NOT MEET AWWA MINIMUMS ARE NOT ACCEPTABLEWHEEL OPERATOR. OPERATING NUT SHALL BE 2"X2", OPEN LEFT.
6.

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.
7.

ALL VALVE BOXES SHALL BE SET LEVEL WITH THE GROUND AND HAVE A CONCRETE COLLAR PLACED AROUND IT. VALVE BOX SHALL BE FIVE AND ONE QUARTER (5 ¼) INCH CAST IRON WITH WATER STAMPED LID. THE VALVE BOX SHALL ALSO BE OF THE SCREW TYPE NATURE TO ALLOW FOR FURTHER ADJUSTMENT IN HEIGHT.
8.

PROVIDE THRUST RESTRAINT ON THE EXISTING WATER LINE WHERE TIE-INS ARE MADE AS NECESSARY.
9.

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.
10.

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 MATERIAL IS NOT AN ACCEPTABLE METHOD OF PIPE BENDING.
12.

ALL MATERIALS, EQUIPMENT, LABOR, AND WORKSMANSHIP SHALL BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
13.

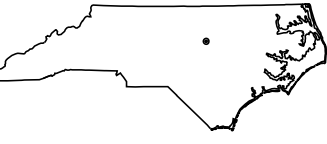
UTILITY OWNER MUST BE PRESENT FOR ANY TESTING OR CONNECTIONS TO THE EXISTING SYSTEM INCLUDING BUT NOT LIMITED TO ALL TAPS AND TEMPORARY CONSTRUCTION CONNECTIONS. A NOTICE OF 72 HOURS MUST BE PROVIDED.

BP4-R033

UC

3

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY



UTILITY DESIGN UNIT
UTILITY CONSTRUCTION
PLANS ONLY

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DESIGNED BY: BCH

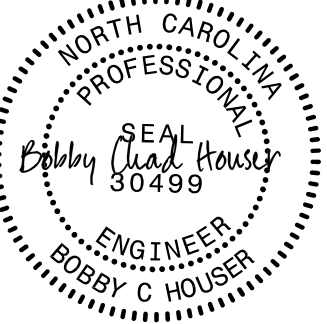
DRAWN BY: ADC

CHECKED BY:

APPROVED BY:

REVISED:

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



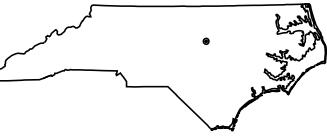
6/12/2026

REVISIONS

BP4-R033

UC3A

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY



UTILITY DESIGN UNIT

UTILITY CONSTRUCTION
PLANS ONLY

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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6/12/2026

PROJECT TYPICAL DETAILS

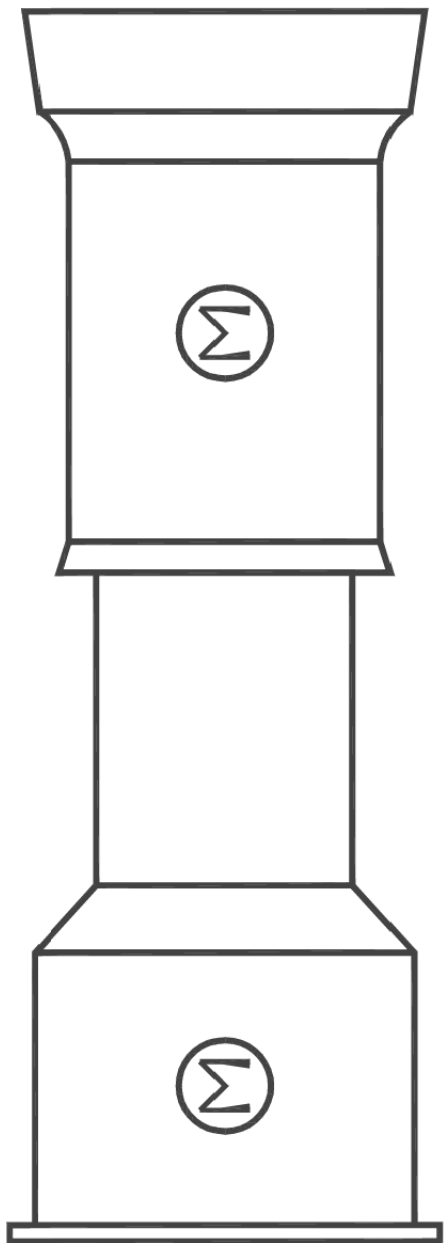
RESTRAINED JOINT DESIGN TABLE FOR DUCTILE IRON PIPE

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

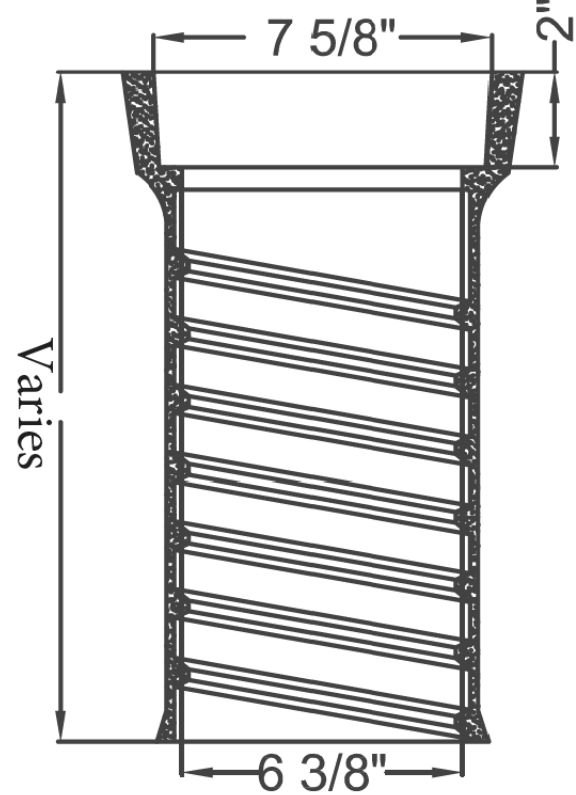
ASSUMPTIONS
LAYING CONDITION = TYPE 4
SOIL DESIGNATION = COHESIVE-GRANULAR
DESIGN PRESSURE = 200 PSI (TEST PRESSURE)
SAFETY FACTOR = 1.5

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 JOINT.
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.

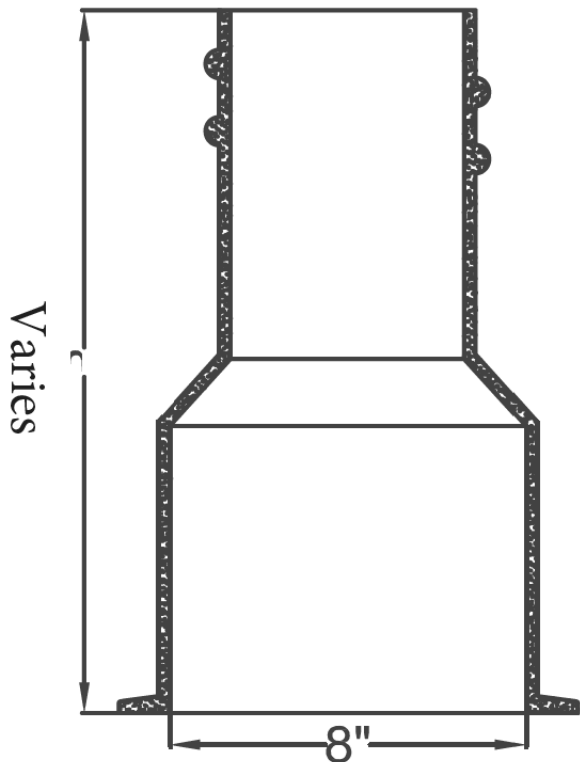
SCREW TYPE



VALVE BOX COMPLETE

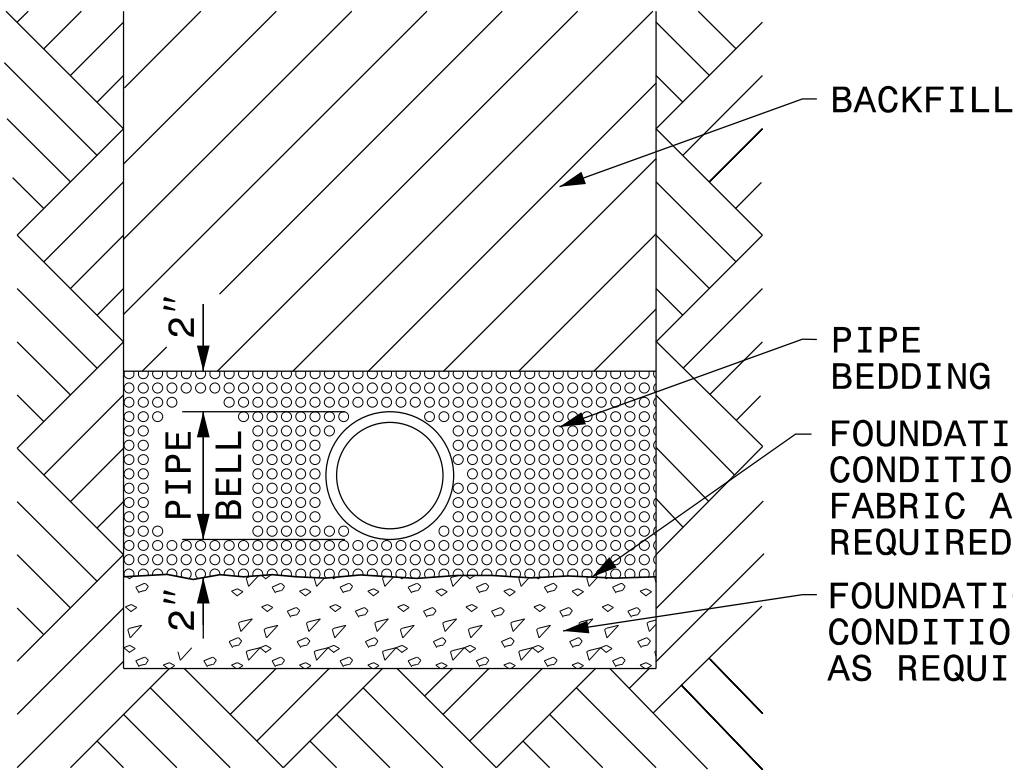


TOP SECTION



BOTTOM SECTION

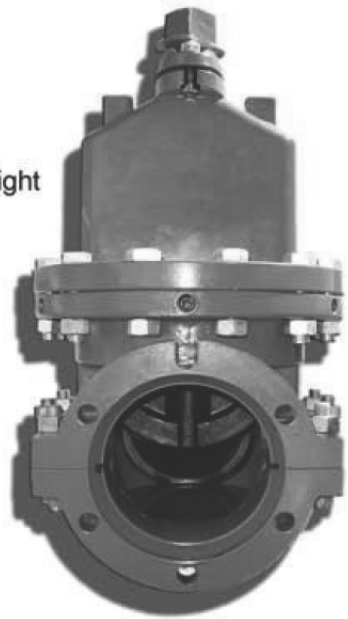
TRENCH DETAIL



PLACE FOUNDATION CONDITIONING MATERIAL BELOW BEDDING IF REQUIRED, AS DIRECTED BY ENGINEER. PIPE BEDDED IN SELECT MATERIAL, CLASS II (TYPE 1) OR CLASS III. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROXIMATELY 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

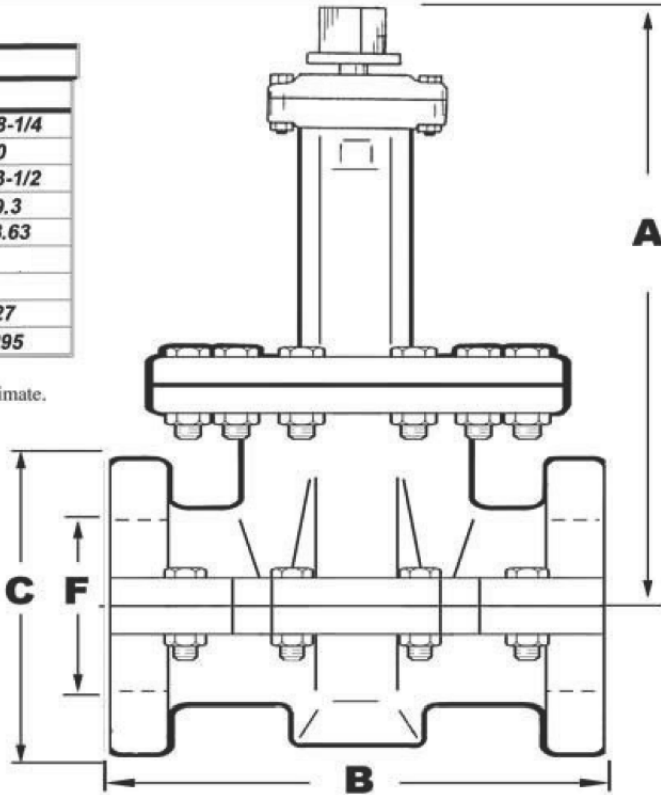
INSERTION VALVE

- Sizes – 4", 6", 8", 10", 12" Water & Sewer Applications
- Standard valve body installs on Steel, PVC, C-900, Cast-iron Ductile-iron and class 150 A/C pipe without modifications.
- 2" square wrench nut (Optional Hand-wheel) open left or open right Non-rising stem (NRS)
- Meets or exceeds ANSI/AWWA C515 Standards
- Ductile Iron body with nominal 10 mils Epoxy Coated
- Epoxy coating meets or exceeds ANSI/AWWA C550 Standards and ANSI/NSF 61
- Iron wedge, encapsulated with molded rubber
- Triple O-ring seal stuffing box (2 upper & 1 lower O-rings)
- 4"-12" sizes – 250 psig (1723 kPa) maximum working pressure

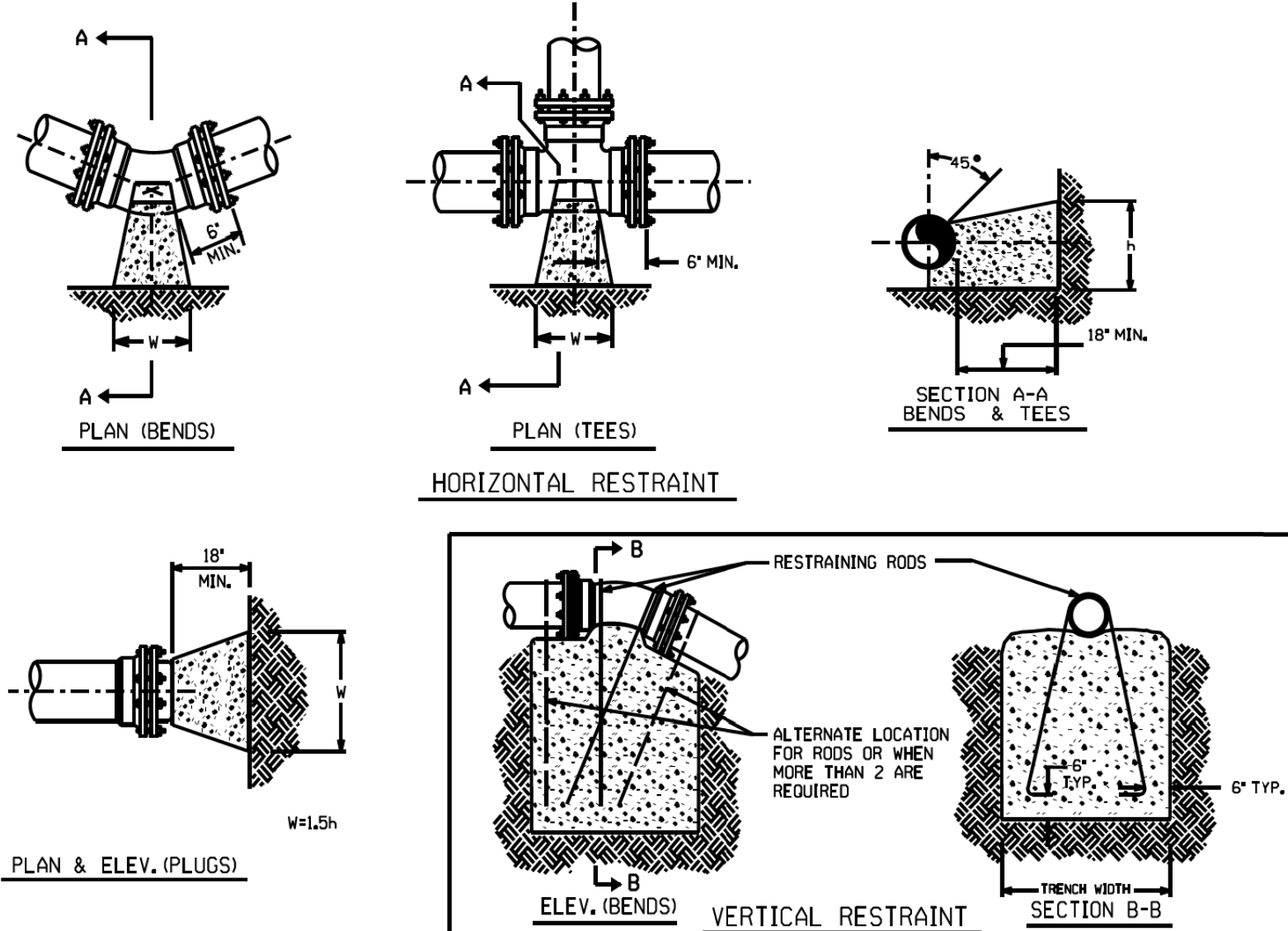


Dimensions			
Dimension*	Nominal size		
	4"	6"	8"
A	18	23-1/2	28-1/4
B	16	18	20
C	9-1/8	11-1/4	13-1/2
F	5	7.2	9.3
	Largest std. O.D.	4.5	6.63
	Smallest std. O.D.		8.63
Turns to open	15	21	27
Weight*	155	230	295

*All dimensions are in inches. All weights are in pounds and are approximate.



THRUST RESTRAINT FOR PIPE LINES



BP4-R033

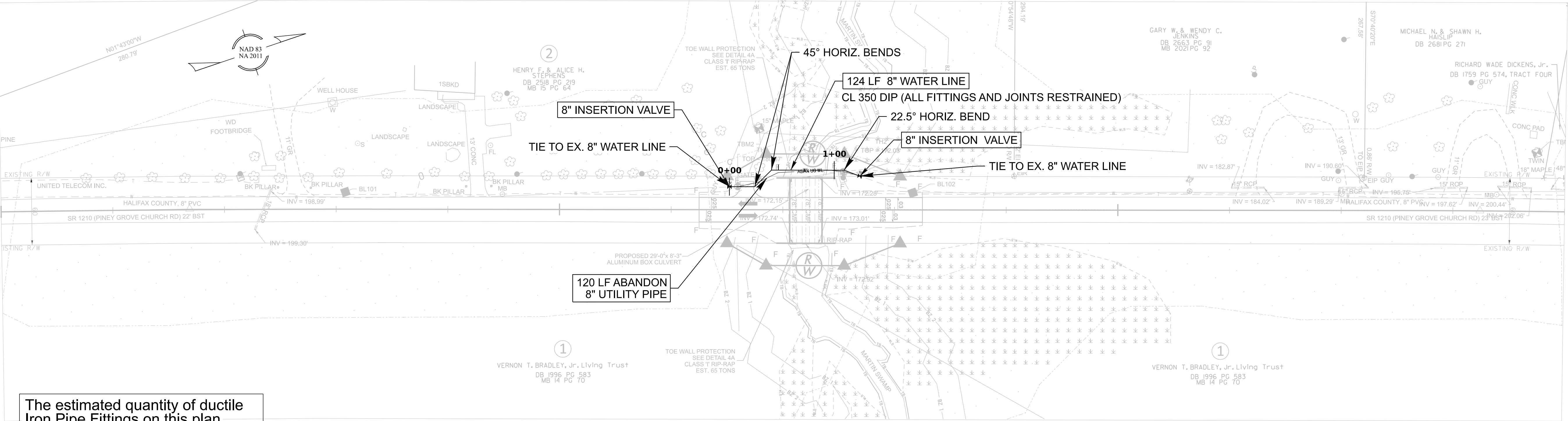
UC4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
- COUNTY

UTILITY DESIGN UNIT

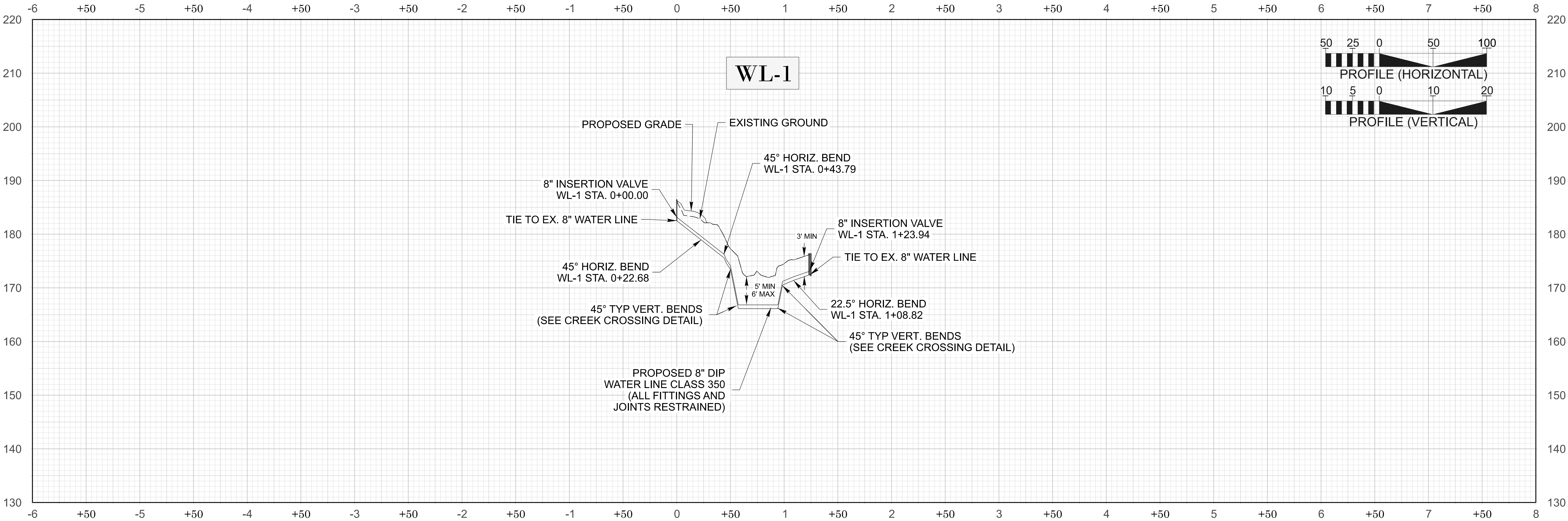
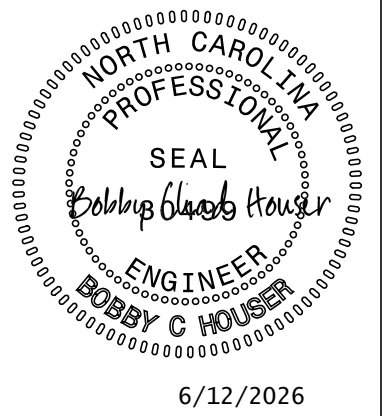
UTILITY CONSTRUCTION
PLANS ONLY

NOTE: WATER LINE IS FED FROM BOTH DIRECTIONS
AND CAN BE ISOLATED DURING CONSTRUCTION.



The estimated quantity of ductile Iron Pipe Fittings on this plan sheet is 770 pounds. The actual quantity and type of fittings will vary based on field conditions.

DESIGNED BY: BCH
DRAWN BY: ADC
CHECKED BY:
APPROVED BY:
REVISED:
UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

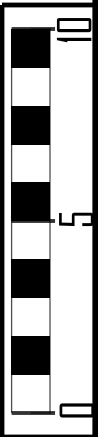
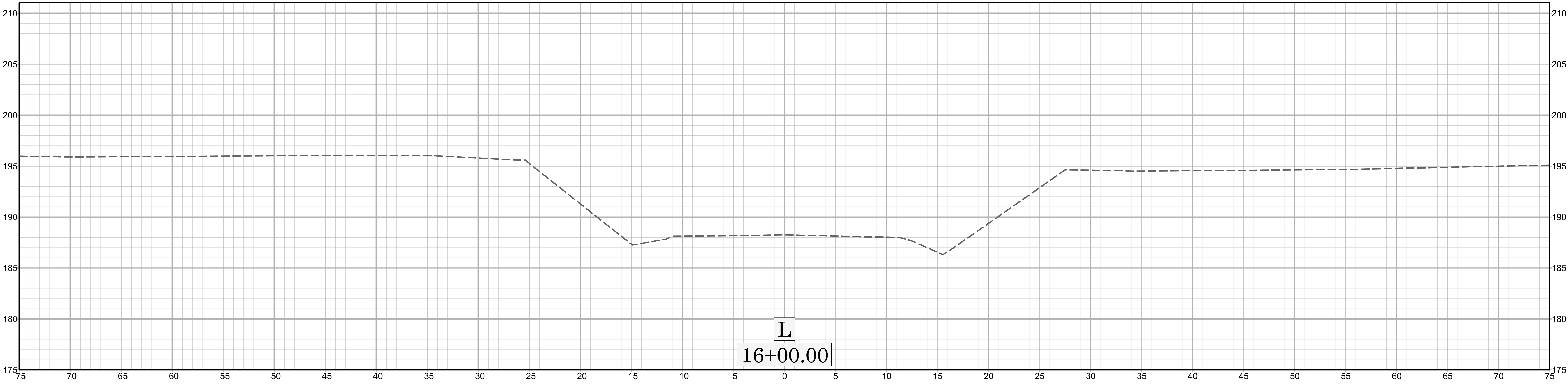
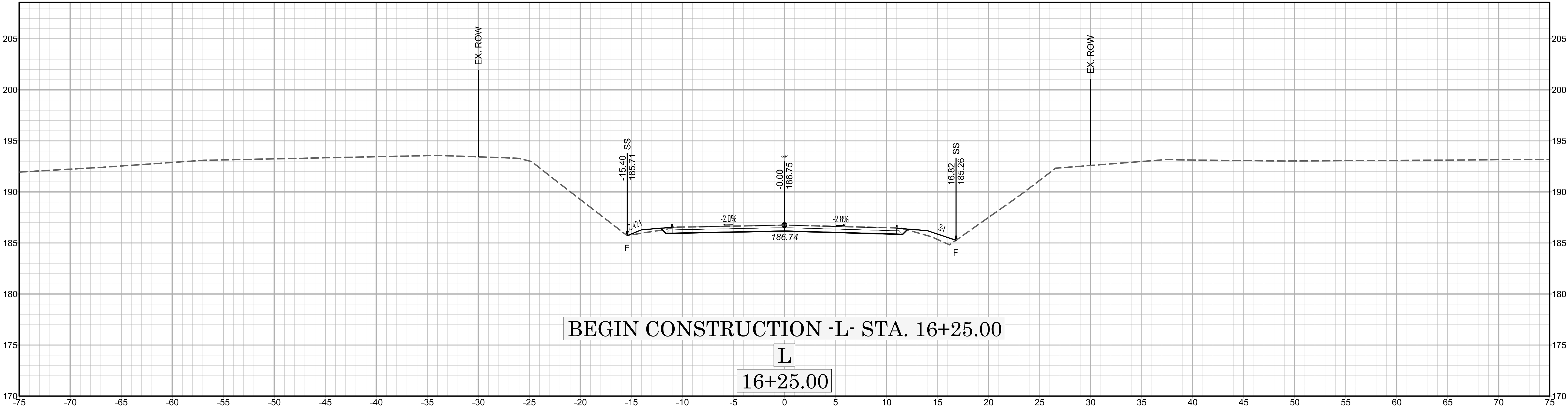


REVISIONS

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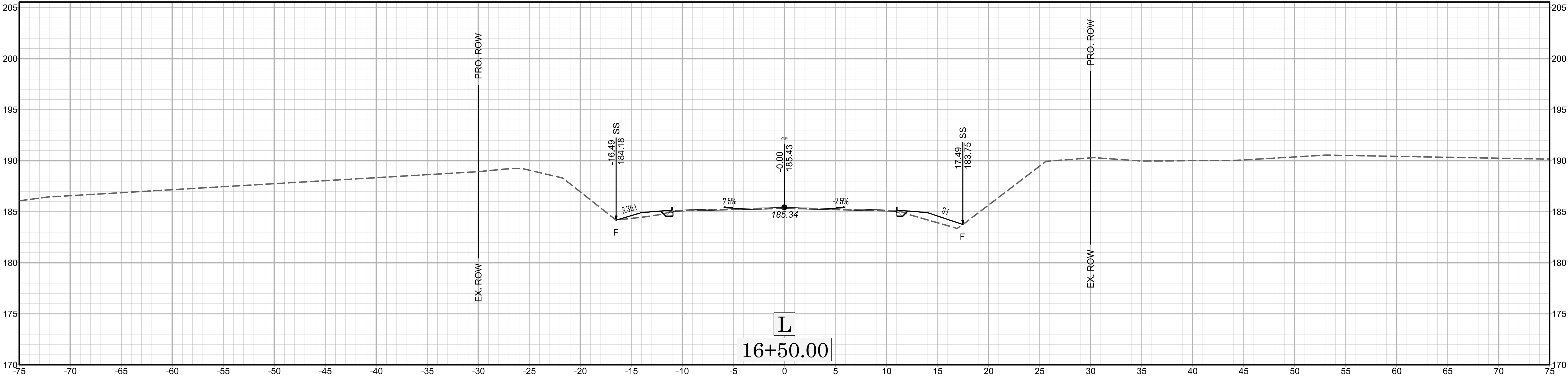
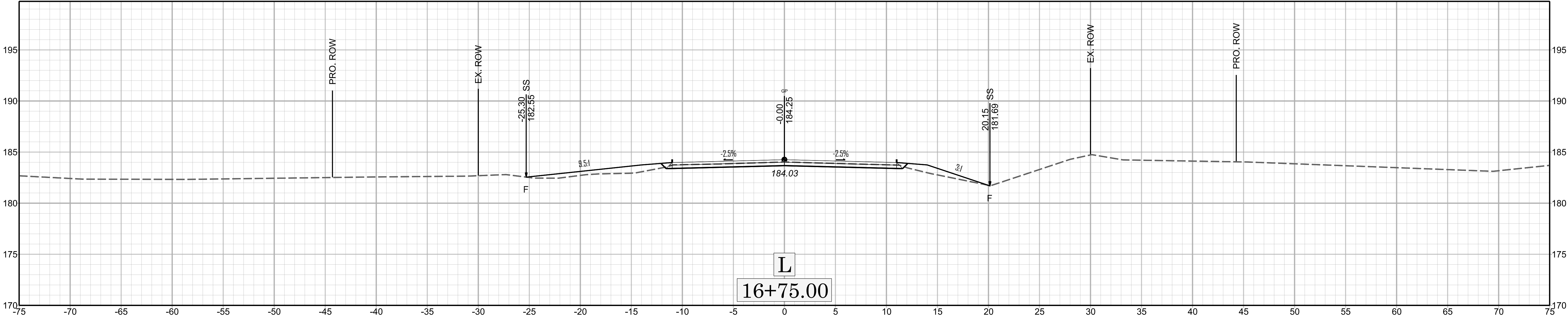
NOTE: EMBANKMENT COLUMN DOES NOT INCLUDES BACKFILL FOR UNDERCUT

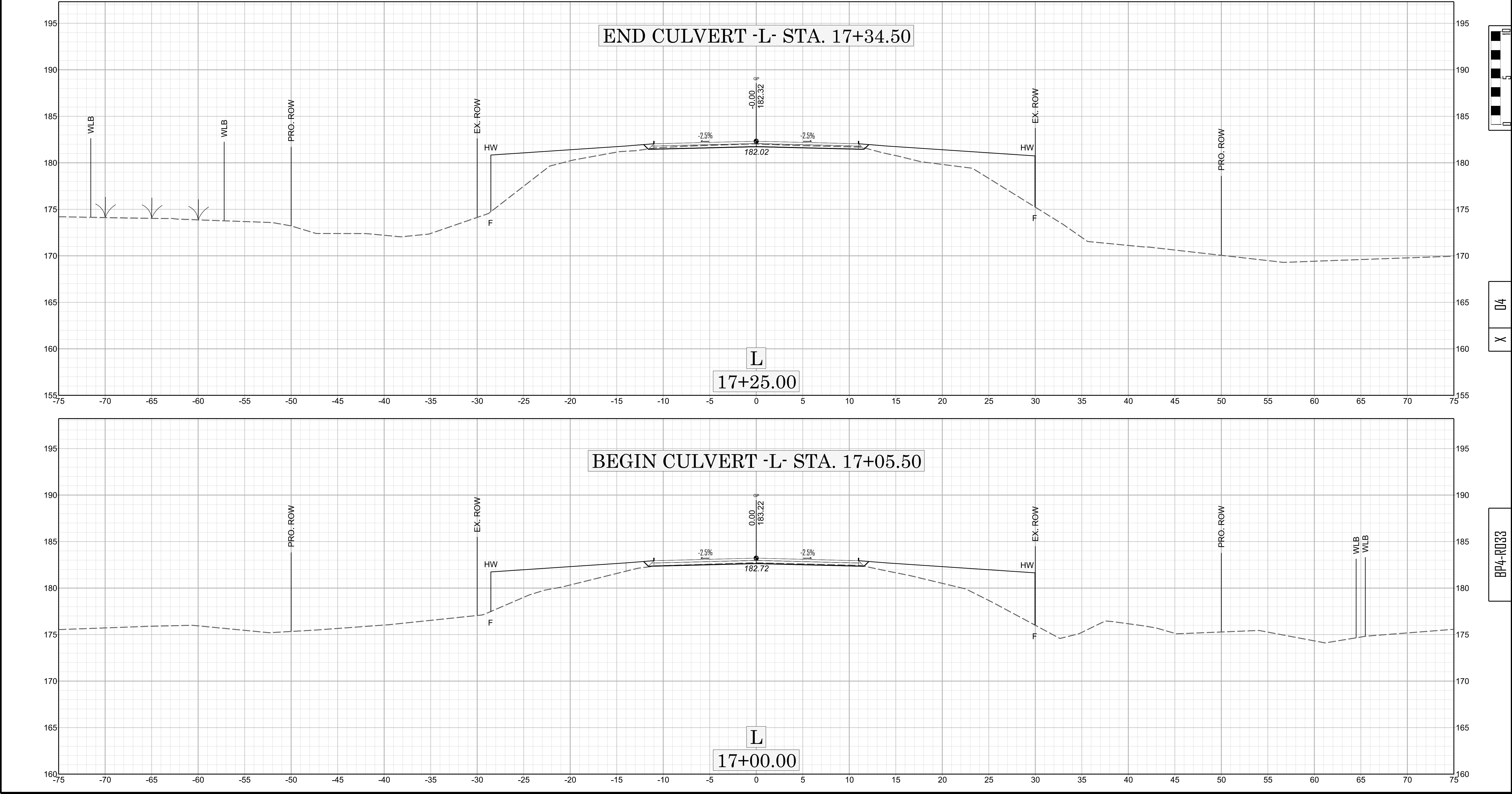
Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

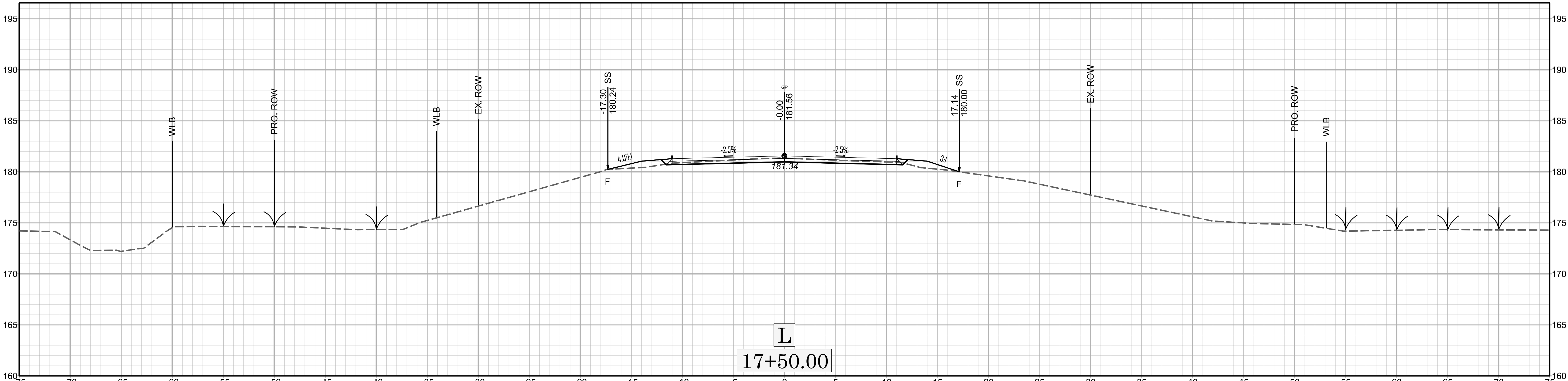
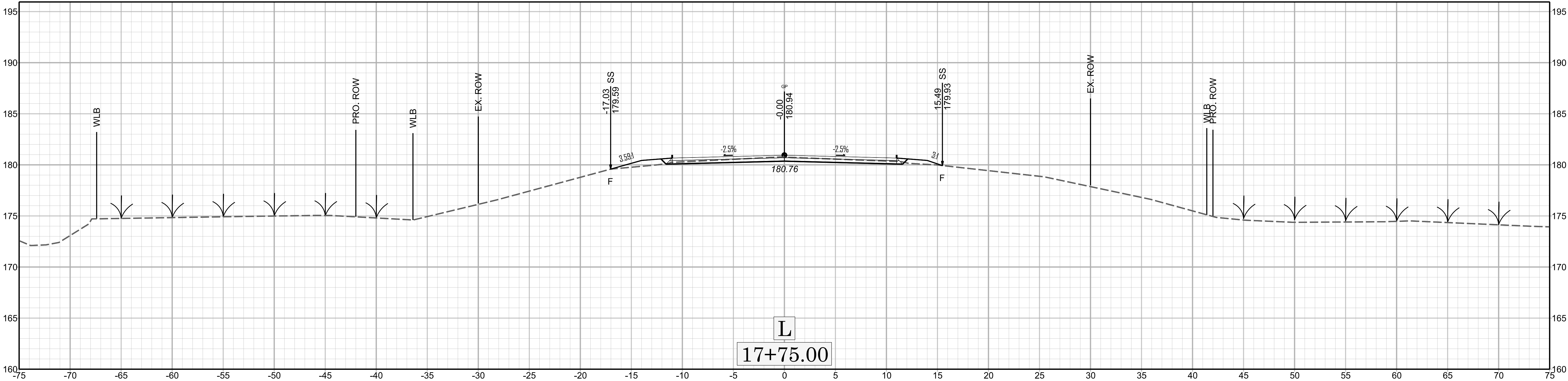


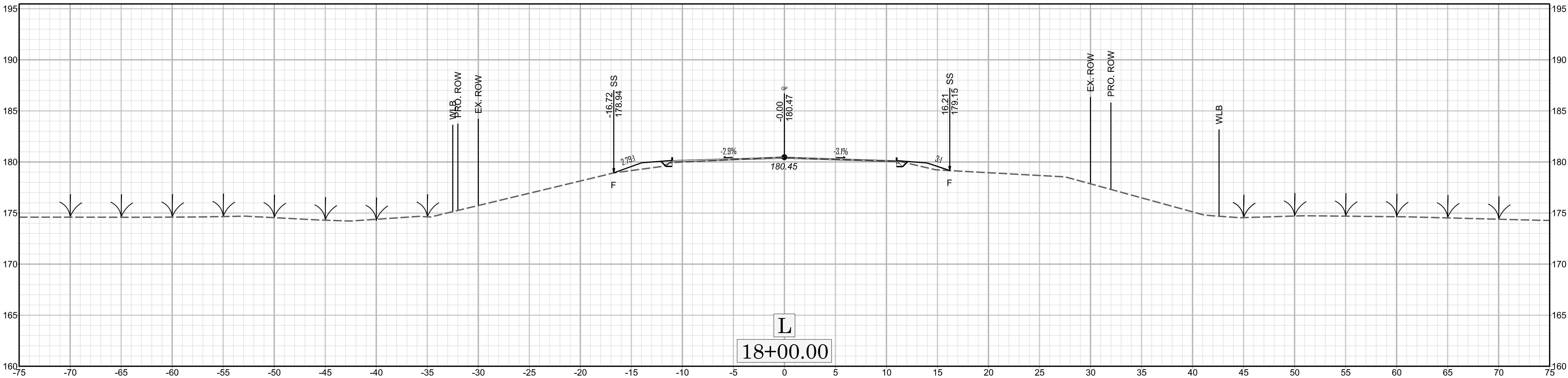
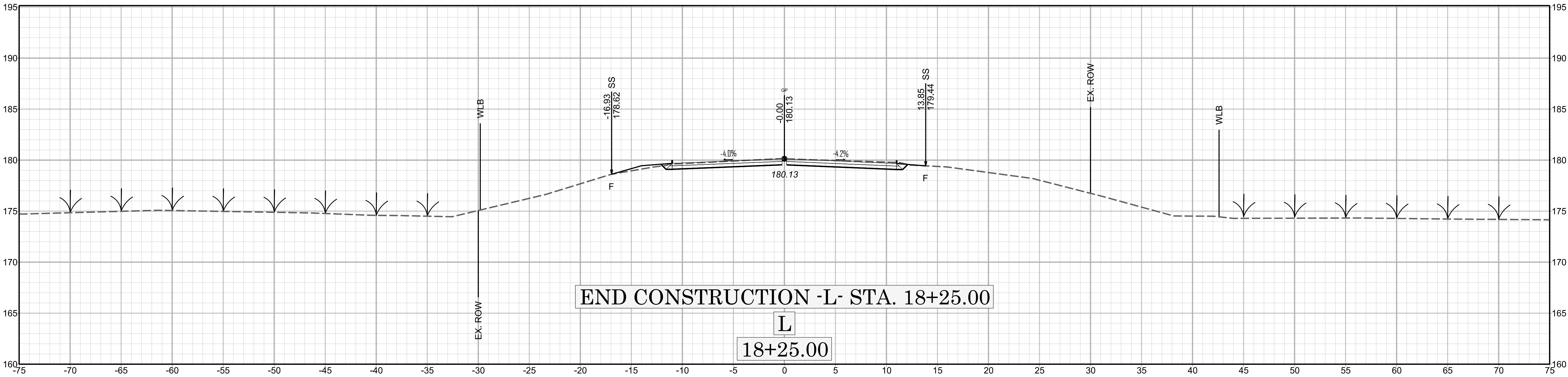
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BP4-R033

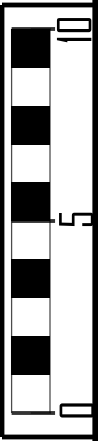






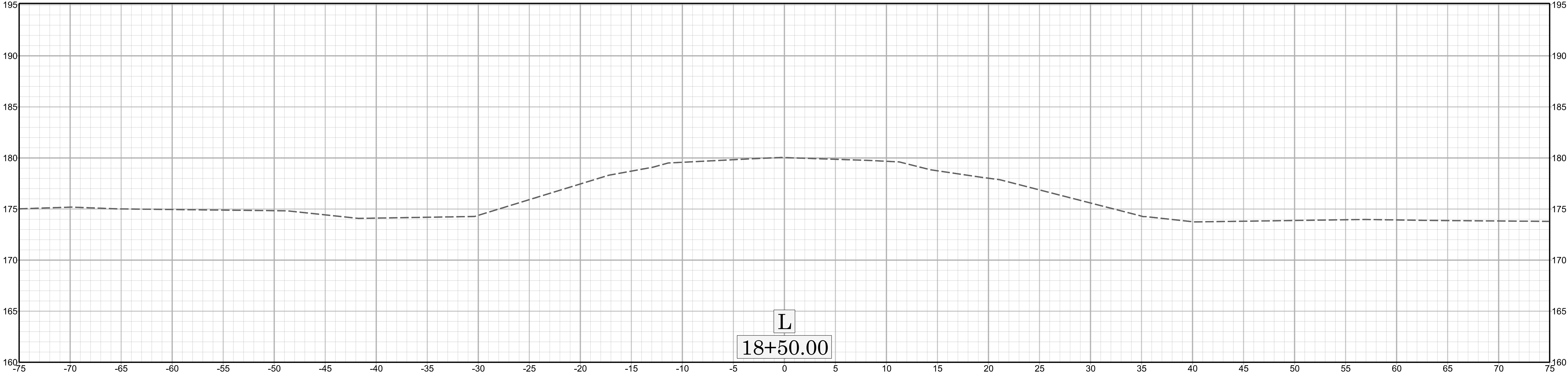


11/14/23



X 07

BP4-R033



Profile along centerline of culvert showing elevations and distances. The profile is a dashed line representing the ground surface, with a solid line indicating the proposed culvert structure. The profile is divided into segments by vertical lines, with distances and elevations labeled. The elevations are in feet and inches, and the distances are in feet and inches. The profile shows a general downward slope from left to right, with a slight rise in the center. The elevations at the ends of the profile are 172.2'± and 170.1'±. The elevations at the center of the profile are 181.9'± and 179.4'±. The elevations at the right end of the profile are 174.8'±, 171.8'±, 169.0'±, and 170.1'±. The distances between the vertical lines are 40'-0"±, 23'-3"±, 7'-0"±, 30'-0"±, 23'-0"±, 7'-6"±, 26'-9"±, and 25'-0"±. The profile is labeled "APPROX. NATURAL GROUND" and "-L-".

Distance (ft-in)	Elevation (ft-in)
0'-0"	172.2'±
40'-0"±	171.3'±
63'-3"±	172.2'±
70'-3"±	176.0'±
77'-3"±	179.6'±
107'-3"±	181.9'±
130'-3"±	179.4'±
137'-9"±	174.8'±
145'-3"±	171.8'±
172'-0"±	169.0'±
197'-0"±	170.1'±

PROFILE ALONG CULVERT

DRAWN BY :	STM	DATE :	1/26
CHECKED BY :	MGC	DATE :	1/26

NOTES:

ASSUMED LIVE LOAD ----- HL-93 OR ALTERNATE LOADING.

MIN. DESIGN FILL----- 1.7'

MAX. DESIGN FILL----- 3.7'

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

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

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

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ALUMINUM BOX CULVERT, SEE SPECIAL PROVISIONS.

THE DETAILS SHOWN HERE ARE FOR GENERAL LAYOUT ONLY. THE SUPPLIER SHALL SUPPLY DESIGNS AND DETAILS FOR REVIEW AND APPROVAL THAT MEET THE REQUIREMENTS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12, AND ARE SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.

THE MANUFACTURER OF THE 29'-0" X 8'-3" ALUMINUM BOX CULVERT SHALL PROVIDE LOAD AND RESISTANCE FACTOR RATINGS (LRF) SUMMARIES PER NCDOT REQUIREMENTS.

UNLESS OTHERWISE INDICATED, THE SUPPLIER SHALL DESIGN, DETAIL AND FURNISH ALL STRUCTURAL ELEMENTS AND HARDWARE.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR CULVERT EXCAVATION, SEE SPECIAL PROVISIONS.

REMOVAL OF EXISTING CMPA SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE CMPA IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR REMOVAL OF EXISTING CMPA, SEE CULVERT EXCAVATION SPECIAL PROVISION.

GRADE POINT ELEV. @ STA. 17+20.00-L- = 182.33
BED ELEV. @ STA. 17+20.00-L- _____ = 171.00
ROADWAY SLOPES _____ = 15:1

DESIGN DISCHARGE	_____	=	500 CFS
FREQUENCY OF DESIGN FLOOD	_____	=	25 YRS
DESIGN HIGH WATER ELEVATION	_____	=	176.60
DRAINAGE AREA	_____	=	2.6 SQ. MI.
BASIC DISCHARGE (Q100)	_____	=	800 CFS
BASIC HIGH WATER ELEVATION	_____	=	178.1

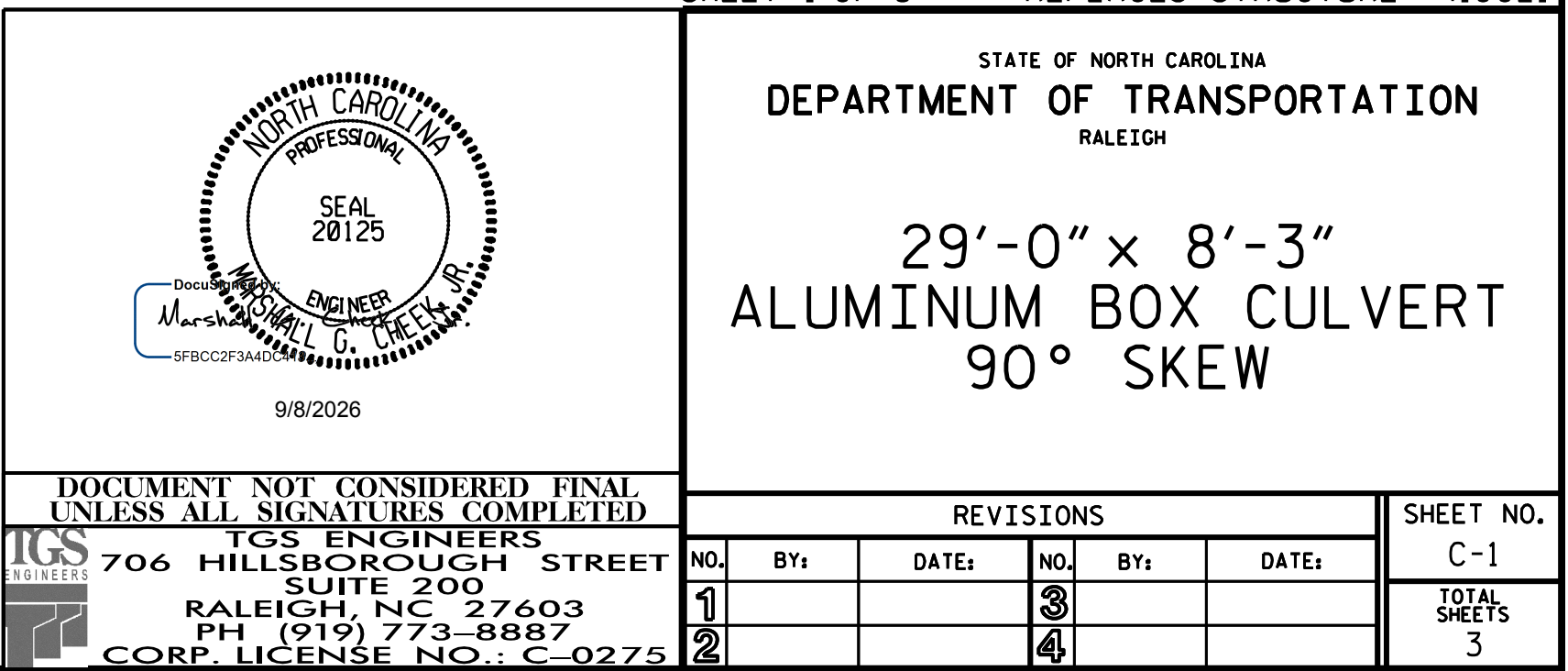
OVERTOPPING DISCHARGE _____ = 1200 CFS
FREQUENCY OF OVERTOPPING FLOOD _ = 500 YRS
OVERTOPPING FLOOD ELEVATION _____ = 179.80 *

* @ SAG STA. 18+51.00 -L-

WS ELEVATION TAKEN @ RIVER STATION 4824

PROJECT NO. BP4-R033
HALIFAX COUNTY
 STATION: 17+20.00 -L-

SHEET 1 OF 3 REPLACES STRUCTURE #410021





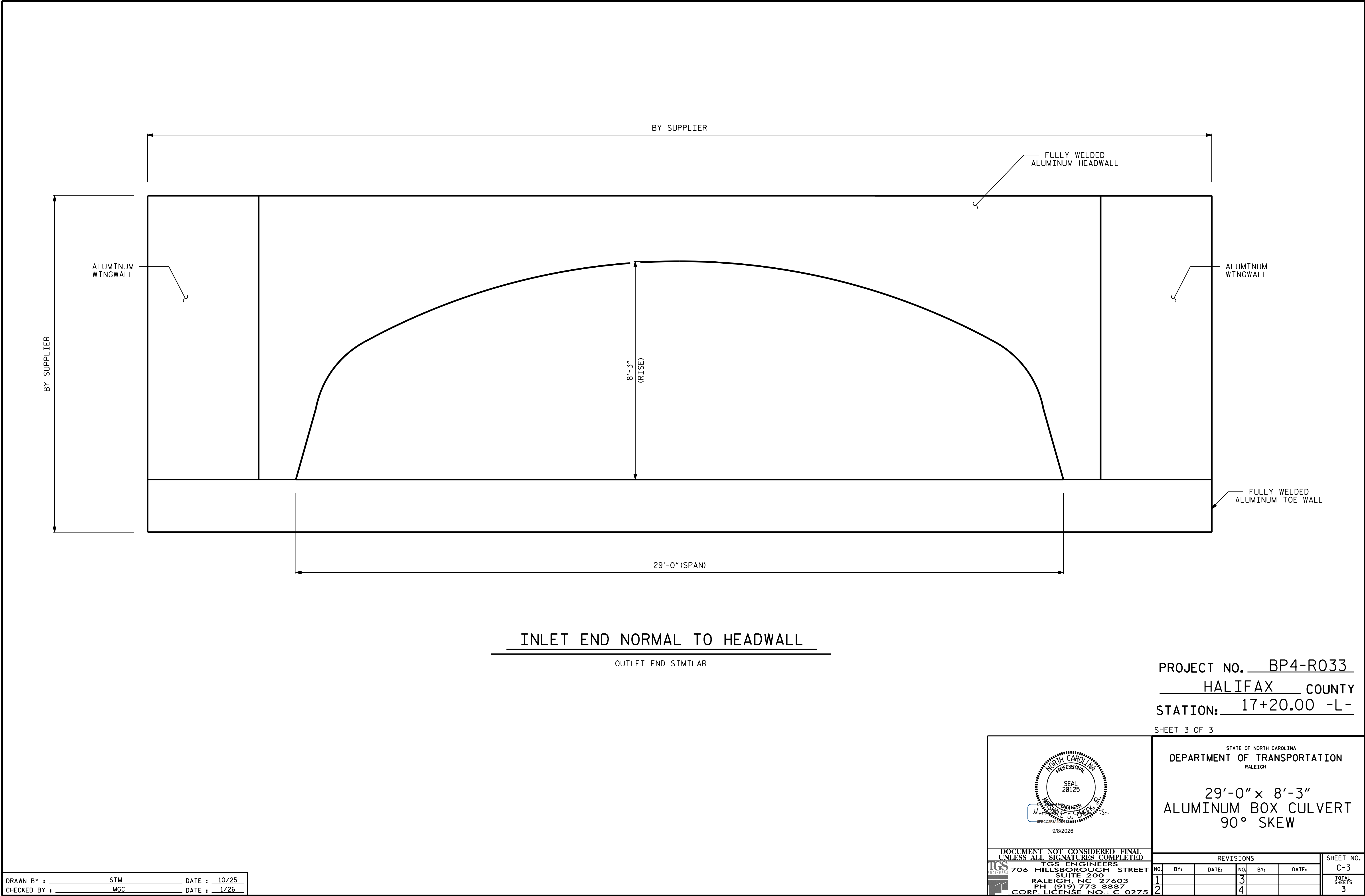
SHEET 2 OF 3



29'-0" x 8'-3"
ALUMINUM BOX CULVERT
90° SKEW

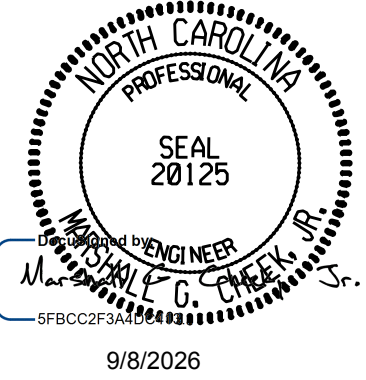
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS 3
2			4			

DRAWN BY : STM DATE : 10/25
CHECKED BY : MGC DATE : 1/26



PROJECT NO. BP4-R033
HALIFAX COUNTY
STATION: 17+20.00 -L-

SHEET 3 OF 3



9/8/2026

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

29'-0" x 8'-3"
ALUMINUM BOX CULVERT
90° SKEW

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

DRAWN BY : STM DATE : 10/25
CHECKED BY : MGC DATE : 1/26

8/26/21

+

+

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 CHAMFERED¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO ½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST ⅝" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY ⅛" OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

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

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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.