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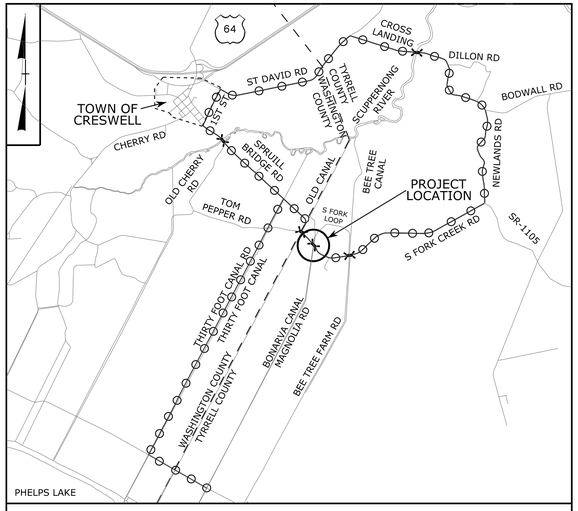
DocuSign Envelope ID: 2F768E01-0783-4269-B9B8-303BDFB77E6A

PROJECT: BP1.R005.1

CONTRACT: DA00529

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



VICINITY MAP

NOT TO SCALE

OFF SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TYRRELL COUNTY

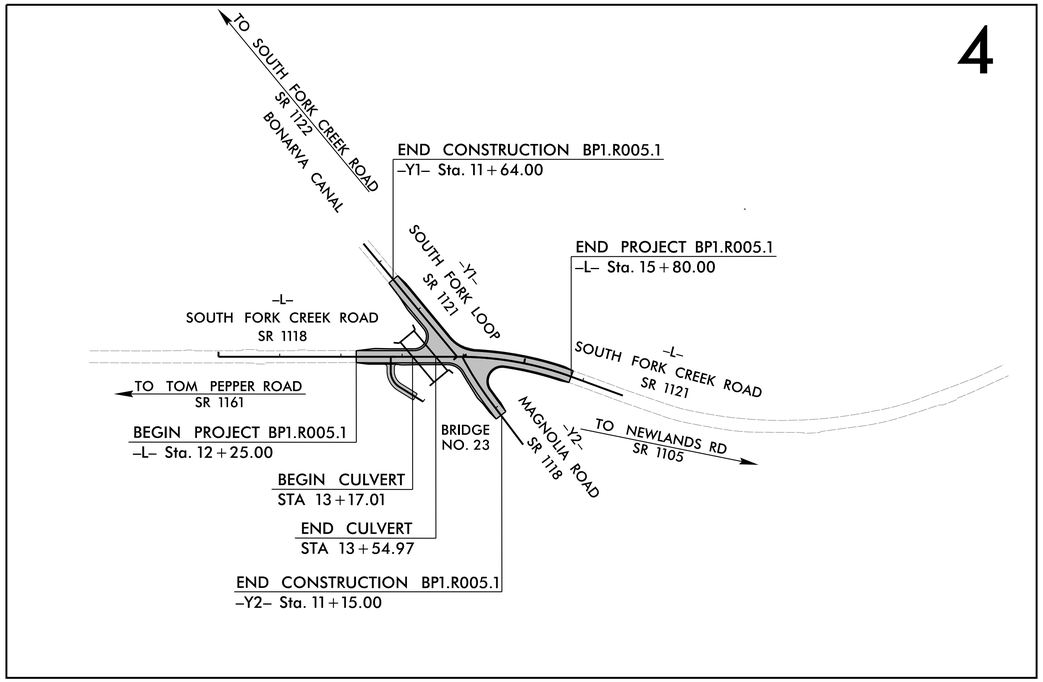
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1.R005.1	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP1.R005.1		P.E.
BP1.R005.2		R / W + UTL
BP1.R005.3		CONST.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

LOCATION: *BRIDGE NO. 23 OVER BONARVA CANAL ON SR 1118 (SOUTH FORK CREEK ROAD)*

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



NAD 83/NA 2011

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2022 = 250 vpd
ADT 2040 = 360 vpd

V = 60 MPH

FUNC CLASS = LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT BP1.R005.1	=	0.115 MILES
LENGTH STRUCTURE PROJECT BP1.R005.1	=	0.007 MILES
TOTAL LENGTH PROJECT BP1.R005.1	=	0.122 MILES

PLANS PREPARED FOR THE NCDOT BY:

Kimley»Horn © 2022

NC LICENSE #P-0102
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NORTH CAROLINA, 27601
PHONE: (919) 677-2000

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 13, 2022

LETTING DATE:
JUNE 1, 2022

MATTHEW WEST, P.E.
PROJECT ENGINEER

JACK CRINO, E.I.
PROJECT DESIGN ENGINEER

RYAN L. SHOOK
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 052128 ENGINEER JORDAN BENNETT

DocuSigned by: Jordan Bennett 3/31/2022
AF5429677CAC4F4...

P.E.

SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST

DocuSigned by: Matthew S. West 2022
AC71A1D0796B425...

P.E.

SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

3/31/2022 K:\RAL_Roadway\0I036575 - BP1.R005\Roadway\Proj\BP1.R005J_rdy_1sh.dgn

DocuSign Envelope ID: 2F768E01-0783-4269-B9B8-303BDFB77E6A

REVISIONS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Kimley»Horn © 2022
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BPI.R005J	IA

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029876 MATTHEW S. WEST
4/1/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 JORDAN BENDL
3/31/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BPI.R005.I
TYRRELL COUNTY

INDEX OF SHEETS

SHEET NUMBER	SHEET
I	TITLE SHEET
IA	INDEX OF SHEETS, GENERAL NOTES, LIST OF ROADWAY STANDARD DRAWINGS
IB	CONVENTIONAL SYMBOLS SHEET
RW0I THRU RW04	SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES
2A-I THRU 2A-2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND MISCELLANEOUS DETAILS
3B-I THRU 3B-2	SUMMARY SHEETS
3D-I	SUMMARY OF DRAINAGE QUANTITIES
4	PLAN SHEET
5	PROFILE SHEET
ROW-I	RIGHT-OF-WAY SHEET
TMP-I THRU TMP-2	TRANSPORTATION MANAGEMENT PLANS
EC-I THRU EC-5	EROSION CONTROL PLANS
UO-I THRU UO-2	UTILITIES BY OTHERS PLANS
X-I THRU X-7	CROSS-SECTIONS
C-I THRU C-4	CULVERT PLANS
SN	STANDARD NOTES

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
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.

GRADING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

SUBSURFACE DRAINS:

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

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

GUARDRAIL:

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

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

LUMEN TECHNOLOGIES: ROD MEDLIN 252-413-7711 ROD.M.MEDLIN@LUMEN.COM

DOMINION ENERGY: HARLEY BOWEN 252-209-7747 JOSEPH.H.BOWEN@DOMINIONENERGY.COM

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.03	Cross Pipe End Section - Precast Concrete Section for 18" to 30" Pipe
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets

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PROJECT REFERENCE NO.	SHEET NO.
BPI.R005J	IB

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP) — EIP
- Computed Property Corner
- Existing Concrete Monument (ECM) — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — 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 — RW
- Existing Control of Access Line — CA
- Proposed Control of Access Line — CA
- Proposed ROW and CA Line — RW CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage/Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- 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 — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

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 — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H–Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)* — P
- U/G Power Line (SUE – LOS C)* — P
- U/G Power Line (SUE – LOS D)* — P

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line (SUE – LOS B)* — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

K:\RAL_Roadway\0II036575 - BPI.R005J\Roadway\Pro\NBPI.R005J_rdy_tshdgn

3/31/2022

09/08/99

TIP PROJECT: BP1.R005

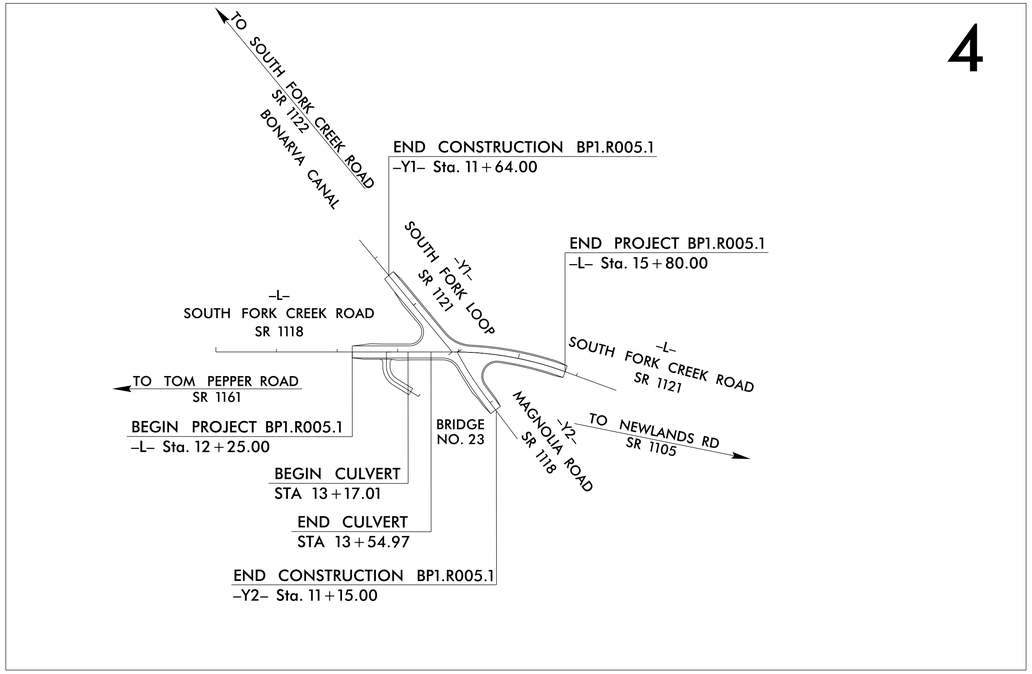
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1.R005.1	RW01	6

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

TYRRELL COUNTY

LOCATION: ***BRIDGE NO. 23 OVER BONARVA CANAL ON SR 1118 (SOUTH FORK CREEK ROAD)***



GRAPHIC SCALE

50 25 0 50 100

PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BP1R005-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 771257.8763(ft) EASTING: 2781493.9466(ft) ELEVATION: 3.00(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999310481 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BP1R005-2" TO -L- STATION 12+25.00 IS N 47°09'38.18" W 187.43(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

Location & Surveys
Division 1
1300 US HWY 64 W
Plymouth, NC 27962

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	***LETTING DATE:***
April 01, 2022	***June 1, 2022***

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by: Linwood T. Downs III
8A59211D2432489...
SIGNATURE: ***Date:*** 04/01/2022

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

01-APR-2022 08:29
R:\B_Jobs_bpi.r005_(Tyrrell23)\Control\ControlSheets\RW and Title-Sheets\bpir005_ls_rw01.dgn
ltdowns AT LS-33023L

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP1.R005.1	RW02C-1

Location and Surveys

LOCATION & SURVEYS
DIVISION 1 FIELD OFFICE
1300 US HWY 64W
PLYMOUTH, NC 27962

PROJECT SURVEYOR

SEAL L-5327 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by:
Linwood T. Downs III
8A59211D2432489...

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

I, Linwood T. Downs III, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: VRS RTN
Dates of survey: February 2021
Datum/Epoch:NAD 83/NA 2011
Published/Fixed-control use: Project Control
Localized around: BP1R005-2
Northing: 771257.8763
Easting: 2781493.9466
Combined grid factor: 0.9999310481
Geoid model: GEIOD 12
Units: US Survey Foot

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from Feb. 2, 2021 to Feb. 12, 2021 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 1st day of April, 2022.

DocuSigned by:
Linwood T. Downs III
8A59211D2432489...
Professional Land Surveyor L-5327

SEAL L-5327 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR LINWOOD T. DOWNS III

SEE SHEET RW02C-2
FOR FURTHER
ALIGNMENT DETAILS

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

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

6/2/99
01-APR-2022 08:39
R:\B_Jobs_bp1r005 (Tyrrell 23)\Control\Control Sheets\C-Sheets\bp1r005_ls_rw02c-1.dgn
ltdowns AT LS-330213L

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP1.R005.1	RW02C-2

Location and Surveys

LOCATION & SURVEYS
DIVISION 1 FIELD OFFICE
1300 US HWY 64W
PLYMOUTH, NC 27962

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by: Linwood T. Downs III

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	771708.149	2781063.432							
LINE			S 42°14'04.2" E	612.46					
PC	771254.686	2781475.105							
CURVE			S 32°11'23.7" E	168.77	20°05'21.1"(RT)	11°50'33.5"	169.63	85.70	483.81
PT	771111.861	2781565.011							
LINE			S 22°08'43.2" E	129.35					
PC	770992.052	2781613.771							
CURVE			S 34°32'42.5" E	287.74	24°47'58.8"(LT)	08°33'05.8"	290.00	147.31	670.00
PCC	770755.045	2781776.937							
CURVE			S 56°42'27.0" E	271.44	19°31'30.1"(LT)	07°09'30.3"	272.76	137.71	800.40
PT	770606.049	2782003.827							
LINE			S 66°28'12.1" E	54.51					
POT	770584.286	2782053.807							

EY

POINT	N	E	BEARING	DIST
POT	771500.701	2781501.238		
LINE			S 08°06'42.2" W	239.91
POT	771263.190	2781467.385		

EY1

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	771244.464	2781484.126							
LINE			S 37°04'46.6" W	24.95					
PC	771224.556	2781469.081							
CURVE			S 23°54'06.9" W	41.22	26°21'19.4"(LT)	63°22'46.9"	41.58	21.17	90.40
PT	771186.873	2781452.381							
LINE			S 10°43'27.2" W	52.84					
PC	771134.954	2781442.548							
CURVE			S 09°41'41.4" W	97.08	02°03'31.7"(LT)	02°07'14.3"	97.08	48.55	2701.83
PT	771039.261	2781426.199							
LINE			S 08°39'55.5" W	30.70					
POT	771008.912	2781421.574							

BL

POINT	DESC.	NORTH	EAST	ELEVATION
BPR0051	BP1R005-1 (GPS	771990.3379	2780784.9876	1.90
BPR0052	BP1R005-2 (GPS	771257.8763	2781493.9466	3.00
BL3	BL-3	770749.2990	2781757.0540	2.39

BM10 ELEVATION - 4.56
N 771266 E 2781410
RR SPIKE IN 36" PINE

I, Linwood T, Downs III., PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: VRS RTN
Dates of survey: February 2021
Datum/Epoch:NAD 83/NA 2011
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Geoid model: GEIOD 12
Units: US Survey Foot

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from Feb. 2, 2021 to Feb. 12, 2021 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 1st day of April, 2022.

DocuSigned by: Linwood T. Downs III

Professional Land Surveyor L-5327

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

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

REVISIONS

6/2/99

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ltdowns AT LS-330213L

6/2/99

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP1.R005.1	RW02D-1

Location and Surveys

LOCATION & SURVEYS
DIVISION 1 FIELD OFFICE
1300 US HWY 64W
PLYMOUTH, NC 27962

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-5327 LINWOOD T. DOWNS III

DocuSigned by:
Linwood T. Downs III

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Linwood T. Downs III, 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 1st day of April, 2022.

DocuSigned by:
Linwood T. Downs III
Professional Land Surveyor L-5327

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-5327 LINWOOD T. DOWNS III

L

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	771551.908	2781205.274							
LINE			S 42°14'04.2" E	392.72					
PC	771261.137	2781469.248							
CURVE			S 32°11'23.7" E	185.93	20°05'21.1"(RT)	10°44'58.8"	186.88	94.41	533.00
PT	771103.791	2781568.296							
LINE			S 22°08'43.2" E	90.40					
POT	771020.062	2781602.372							

Y1

POINT	N	E	BEARING	DIST
POT	771263.190	2781467.385		
LINE			N 08°06'42.2" E	240.00
POT	771500.788	2781501.250		

Y2

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	771257.073	2781472.900							
CURVE			S 15°27'31.3" W	86.00	09°28'08.1"(LT)	10°59'50.2"	86.10	43.15	521.00
PT	771174.180	2781449.977							
LINE			S 10°43'27.2" W	88.90					
POT	771086.835	2781433.434							

DRW1

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	771343.561	2781394.421							
LINE			S 47°45'55.8" W	23.95					
PC	771327.462	2781376.688							
CURVE			S 18°41'17.1" W	29.16	58°09'17.2"(LT)	190°59'09.4"	30.45	16.68	30.00
PT	771299.840	2781367.345							
LINE			S 10°23'21.5" E	45.61					
POT	771254.982	2781375.569							

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

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

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ltdowns AT LS-330213L

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP1.R005.1	RW03E-1

Location and Surveys

LOCATION & SURVEYS
DIVISION 1 FIELD OFFICE
1300 US HWY 64W
PLYMOUTH, NC 27962

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by:
Linwood T. Downs III
8A59211D2432489...

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

I , Linwood T. Downs III , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from March 21, 2022 to March 25, 2022, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 1st day of April, 2022.

DocuSigned by:
Linwood T. Downs III
8A59211D2432489...
Professional Land Surveyor L-5327

NORTH CAROLINA PROFESSIONAL SEAL L-5327 LAND SURVEYOR LINWOOD T. DOWNS III

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+25.00	45.00	771355.0709	2781323.1933
L	12+25.00	30.00	771365.1534	2781334.2993
L	12+65.00	-30.00	771375.8674	2781405.6100
L	12+89.00	30.00	771317.7678	2781377.3180
L	13+38.61	46.36	771270.0399	2781398.5529
L	13+52.00	67.00	771246.2524	2781392.2697
L	13+69.50	55.39	771241.0980	2781412.6295
L	14+98.00	29.25	771161.7014	2781506.7883

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	11+03.00	-20.00	771367.9811	2781462.1189

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y2	10+67.43	20.16	771196.9138	2781434.1196
Y2	11+17.00	20.00	771147.5433	2781424.5764
Y2	11+57.00	-41.00	771096.8909	2781477.0677
Y2	11+63.50	-46.00	771089.5729	2781480.7706
Y2	11+75.00	-30.45	771081.1686	2781463.3514

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED MARCH 21, 2022 to MARCH 25, 2022.

REVISIONS

6/2/99

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ltdowns AT LS-330213L

PROJECT REFERENCE NO.	SHEET NO.
BP1.R005.1	RW04

Location and Surveys

LOCATION & SURVEYS
DIVISION 1 FIELD OFFICE
1300 US HWY 64W
PLYMOUTH, NC 27962

PROJECT SURVEYOR

SEAL L-5327 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR LINWOOD T. DOWNS III

DocuSigned by: Linwood T. Downs III 8A59211D2432489...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

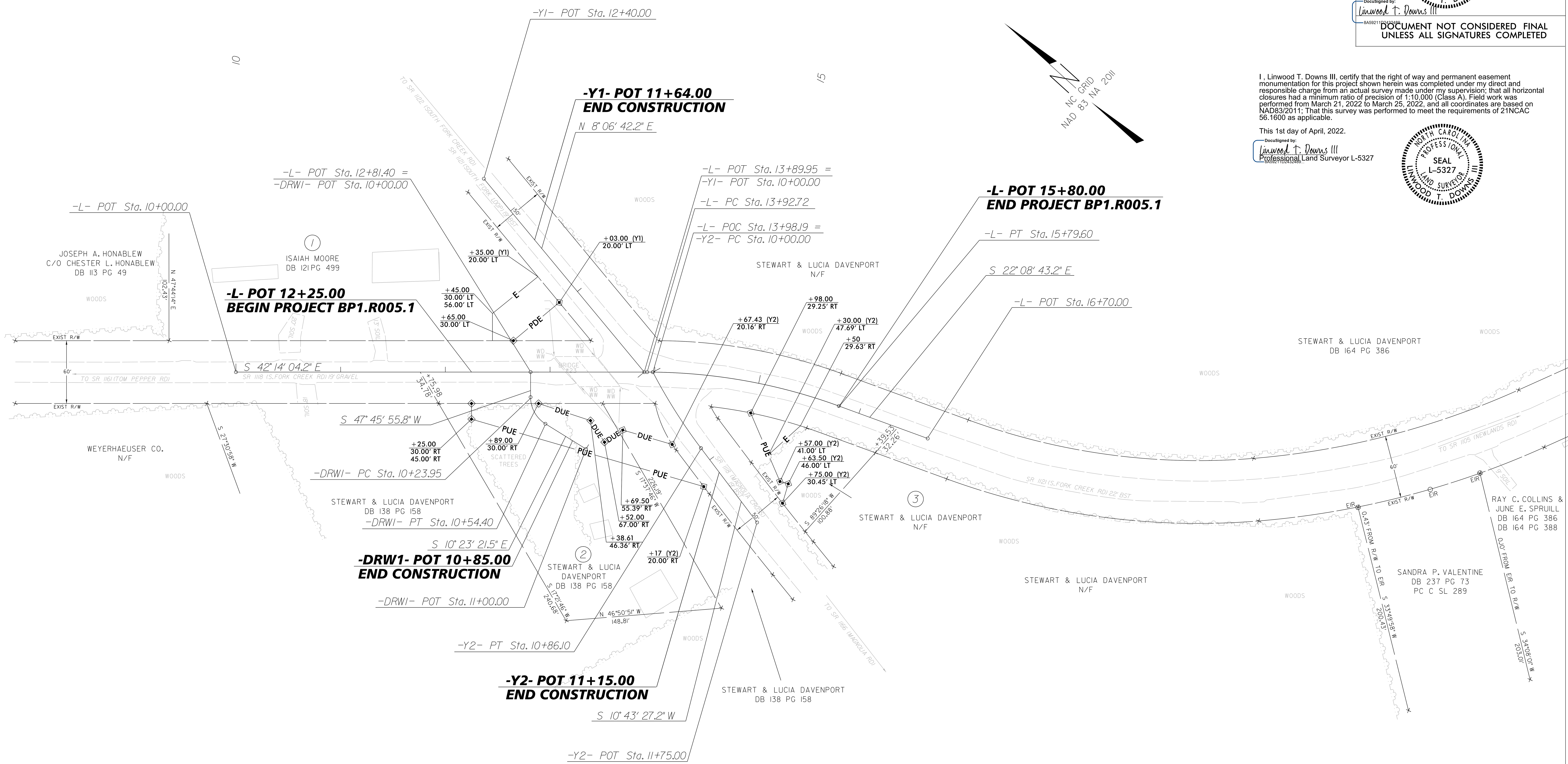
-L-	-Y2-		-DRW1-
PI Sta 14+87.13	PI Sta 10+43.15	PI Sta 11+67.64	PI Sta 10+40.63
△ = 20° 05′ 21.1″ (RT)	△ = 9° 28′ 08.1″ (LT)	△ = 2° 03′ 31.7″ (LT)	△ = 58° 09′ 17.2″ (LT)
D = 10° 44′ 58.8″	D = 10° 59′ 50.2″	D = 2° 07′ 14.3″	D = 190° 59′ 09.4″
L = 186.88′	L = 86.10′	L = 97.08′	L = 30.45′
T = 94.41′	T = 43.15′	T = 48.55′	T = 16.68′
R = 533.00′	R = 521.00′	R = 2,701.83′	R = 30.00′
SE = 0.04			

I , Linwood T. Downs III, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from March 21, 2022 to March 25, 2022, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 1st day of April, 2022.

DocuSigned by: Linwood T. Downs III
Professional Land Surveyor L-5327
8A59211D2432489...

SEAL L-5327 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR LINWOOD T. DOWNS III



NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED MARCH 21, 2022 to MARCH 25, 2022.

REVISIONS

6/2/99

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REVISIONS

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BPI.R005J	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029876 MATTHEW S. WEST

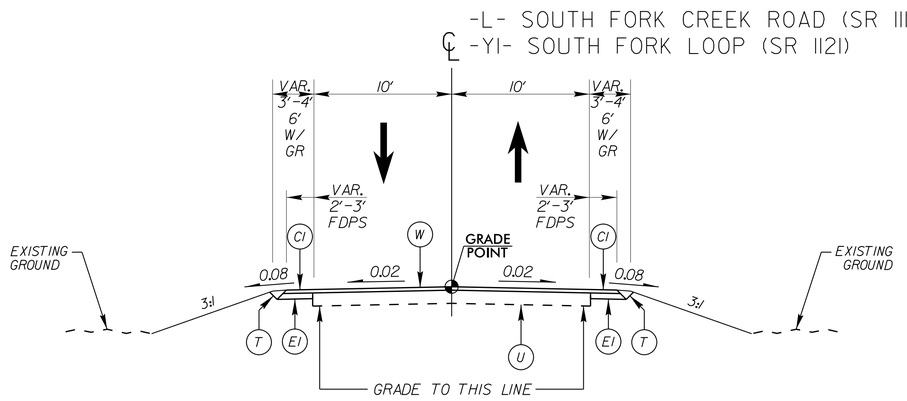
4/1/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 JORDAN BENDL

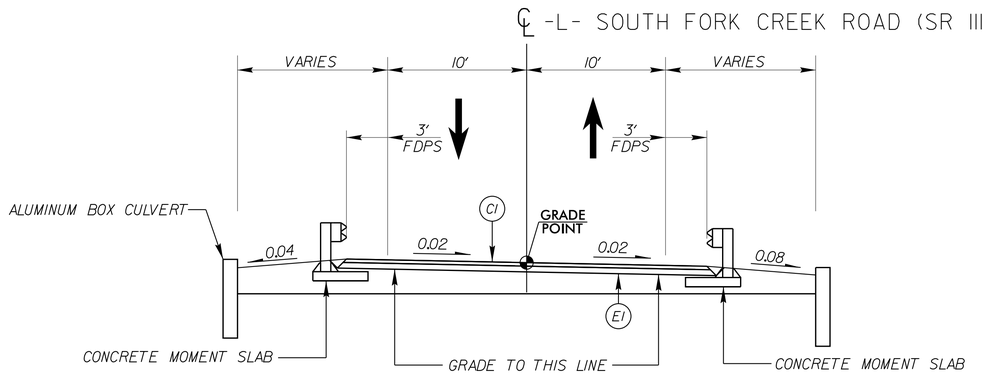
3/31/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 1

-L- STA 12+25.00 TO STA 13+14.69
-L- STA 13+56.27 TO STA 15+80.00
-Y1- STA 10+12.99 TO STA 11+64.00

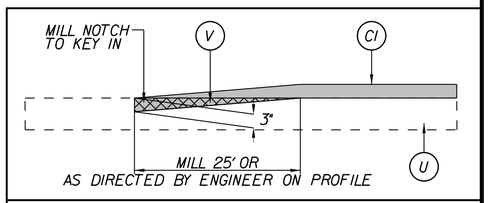


TYPICAL SECTION NO. 2

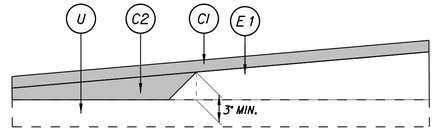
-L- STA 13+14.69 TO STA 13+56.27

FINAL PAVEMENT DESIGN

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LAYERS
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ.YD.
J	PROP. 4" AGGREGATE BASE COURSE
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL BELOW)



PROFILE KEY-IN DETAIL



WEDGING DETAIL

NOTES:
1) MILL NOTCH TO KEY-IN S9.5B FROM -L- STA 12+25.00 TO STA 12+50.00 AND -Y1- STA 11+39.00 TO STA 11+64.00
2) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE
3) TRANSITION FULL DEPTH SHOULDERS IN AREAS OF 8:1 TAPERS.
4) SEE SHEET C4 FOR GUARDRAIL MOMENT SLAB DETAIL.

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REVISIONS

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BPI.R005J	2A-2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029876 ENGINEER MATTHEW S. WEST

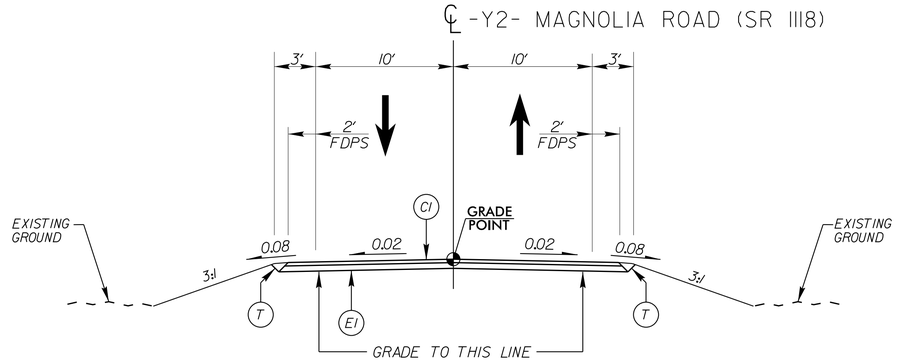
4/1/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 ENGINEER JORDAN BENDL

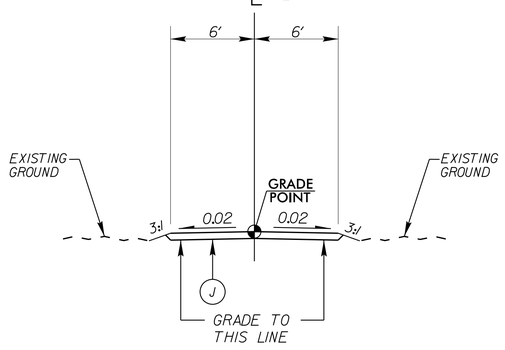
3/31/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 3

-Y2- STA 10+11.44 TO STA 11+15.00



TYPICAL SECTION NO. 4

-DRWI- STA 10+12.00 TO STA 10+85.00

	FINAL PAVEMENT DESIGN
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LAYERS
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ.YD.
J	PROP. 4" AGGREGATE BASE COURSE
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL BELOW)

NOTES:
1) MILL NOTCH TO KEY-IN S9.5B FROM -L- STA 12+25.00 TO STA 12+50.00 AND -Y1- STA 11+39.00 TO STA 11+64.00
2) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE
3) TRANSITION FULL DEPTH SHOULDERS IN AREAS OF 8:1 TAPERS.

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3/31/2022

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PROJECT REFERENCE NO.	SHEET NO.
BP1.R005.1	3B-1

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	EXCAVATION		EMBANKMENT	BORROW	WASTE
		TOTAL UNCLASSIFIED	UNDERCUT	EMBANKMENT +25%		TOTAL
–L– 12+25	–L– 15+80	29		262	233	
–Y1– 10+50	–Y1– 11+64	23		13		10
–Y2– 10+50	–Y2– 11+15	98		0		98
–DRW1– 10+50	–DRW1– 11+15	5		57	52	
	SUBTOTAL	155		332	285	108
	SHOULDER MATERIAL			24	24	
EARTH WASTE TO REPLACE BORROW					–108	–108
	PROJECT TOTAL	155		356	201	0
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT					10	
	GRAND TOTAL	155			211	
	SAY	160			220	

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL AREA TAKEN	CONST. EASE.	PERM. DRAIN. EASE.	PERM. UTILITY EASE.	PERM. DRAIN. UTILITY EASE.
1	ISAIAH MOORE	383 SY	232 SY	151 SY		
2	STEWART & LUCIA DAVENPORT	877 SY	97 SY		669 SY	111 SY

NOTE: APPROXIMATE QUANTITIES ONLY. CLEARING AND GRUBBING, UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, AND REMOVAL OF EXISTING ASPHALT PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

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3/31/2022

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COMPUTED BY: JRC DATE: 09/09/21
CHECKED BY: TGS DATE: 09/10/21

PROJECT REFERENCE NO.	SHEET NO.
BP1.R005.1	3B-2

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE TL-2
NG = NON-GATING IMPACT ATTENUATOR TYPE TL-2

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TL-2			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-2	CAT-1			EA	G	NG				
-L- /-Y1-	12+55.00	11+10.22	LT /RT	100′	50′				3	3	0.5′	0.5′	25′	25′	2										
-L- /-Y2-	13+00.00	10+68.76	RT /LT	112.5′	37.5′				3	3	0.5′	0.5′	25′	25′	2										
			SUBTOTAL	212.5′	87.5′																				
	LESS ANCHOR DEDUCTIONS																								
	GREU TL-2	4 @ 25′	=	100																					
			TOTAL	112.5′	87.5′										4										
			SAY	125′	100′																				

ADDITIONAL GUARDRAIL POSTS = 2 EA

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LL22352

COMPUTED BY:	TB	**DATE:**	09/21/21
CHECKED BY:	JCB	**DATE:**	09/22/21

PROJECT NO.	SHEET NO.
BP1.R004.1	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 12	15	18	24	30	36	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	R. C. PIPE CLASS IV 12	15	18	24	30	36	42		15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	SPRING BOX STD. 840.41	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	15" DRAINAGE PIPE ELBOW	##" DRAINAGE PIPE ELBOW		MODIFIED CONC. FLUME	PREFORMED SCOUR HOLE (PER EACH)	ENERGY DISSIPATION BASIN		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 15+14	14 LT	0401		49.8																															1																								1						1																					
		0401	0402		47.0	44.4			24					X	X																																																														2											
SHEET TOTALS									24																										1																								1						1										2											
PROJECT TOTALS									24																										1																								1						1										2											

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

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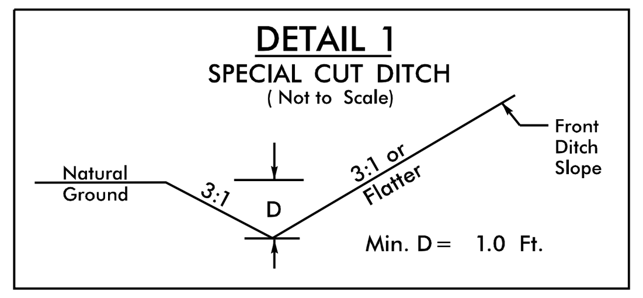
REVISIONS



FROM STA. 10+53 TO STA. 11+15 -Y2- LT
CONTINUES FROM STA. 14+51 TO STA. 14+80 -L- RT

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BP1.R005J	4
RW SHEET NO.	
ROADWAY ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST — Matthew S. West — 4/1/2022	NORTH CAROLINA PROFESSIONAL SEAL 052128 ENGINEER JORDAN BENDL — Jordan Bendl — 3/31/2022

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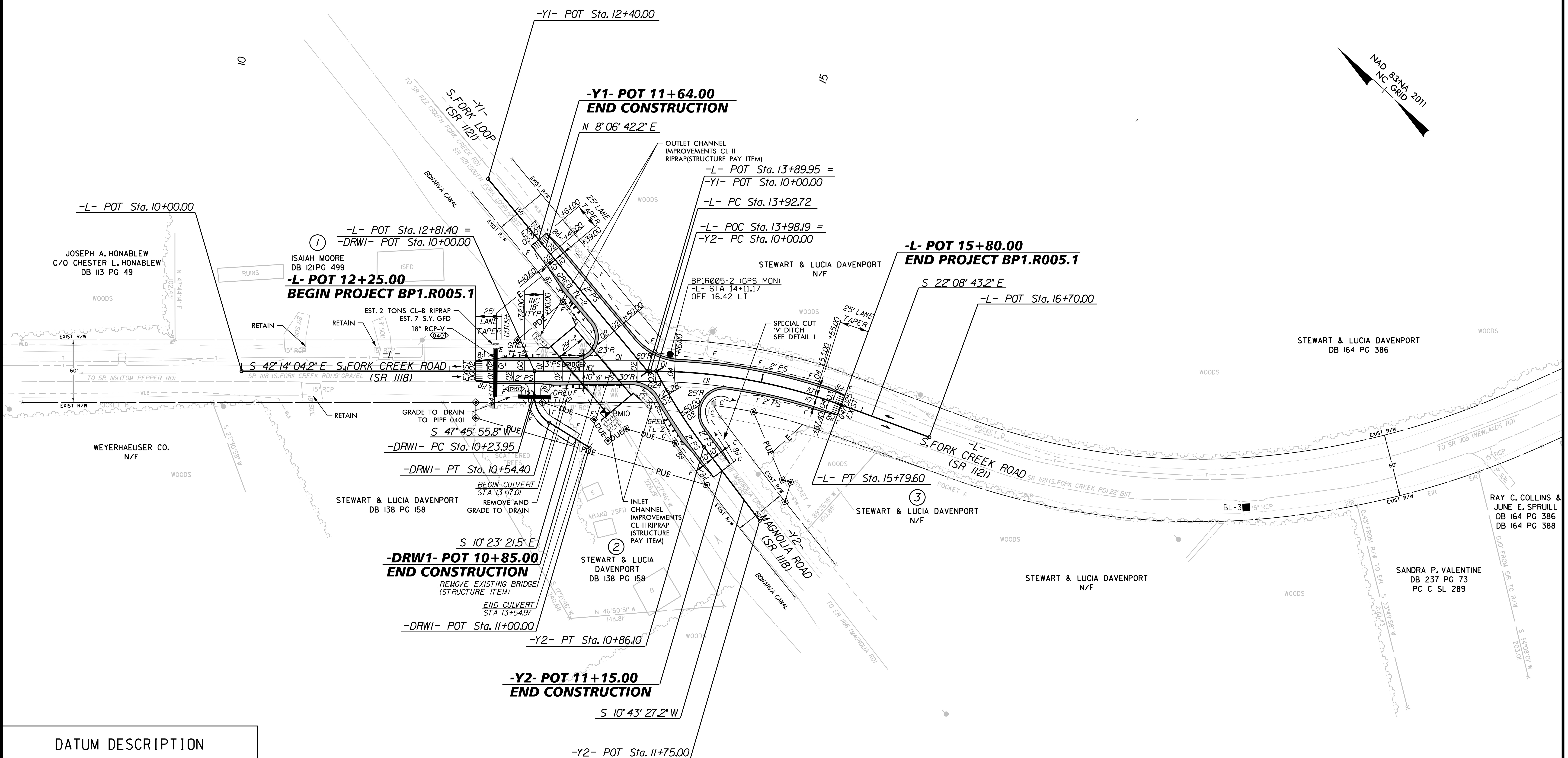
-L-	-Y2-		-DRW1-
PI Sta 14+87.13	PI Sta 10+43.15	PI Sta 11+67.64	PI Sta 10+40.63
Δ = 20° 05' 21.1" (RT)	Δ = 9° 28' 08.1" (LT)	Δ = 2° 03' 31.7" (LT)	Δ = 58° 09' 17.2" (LT)
D = 10° 44' 58.8"	D = 10° 59' 50.2"	D = 2° 07' 14.3"	D = 190° 59' 09.4"
L = 186.88'	L = 86.10'	L = 97.08'	L = 30.45'
T = 94.41'	T = 43.15'	T = 48.55'	T = 16.68'
R = 533.00'	R = 521.00'	R = 2,701.83'	R = 30.00'
SE = 0.04			



DATUM DESCRIPTION

LOCALIZED PROJECT COORDINATES ARE BASED ON THE NAD 83/NA 2011 STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR STATION "BP1R005-2"
N: 771257.8763 (FT) E: 2781493.9466 (FT)
ELEVATION: 3.00 (FT)
USING AN AVERAGE COMBINED GRID FACTOR (LOCALIZED TO GRID) OF 0.9999310481 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES. UNITS ARE "US SURVEY FOOT".
VERTICAL DATUM IS NAVD88 "GEIOD 12".
LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BP1R005-2" TO -L- STATION 16+70.00 IS S24°30'34"E 261.3645'

BM10 ELEVATION = 4.56
N 771266 E 2781410
RR SPIKE IN 36' PINE

SEE SHEET 5 FOR -L- PROFILE
SEE SHEET ROW-1 FOR RIGHT-OF-WAY AND EASEMENTS
SEE SHEETS C-1 THRU C-4 FOR CULVERT PLANS

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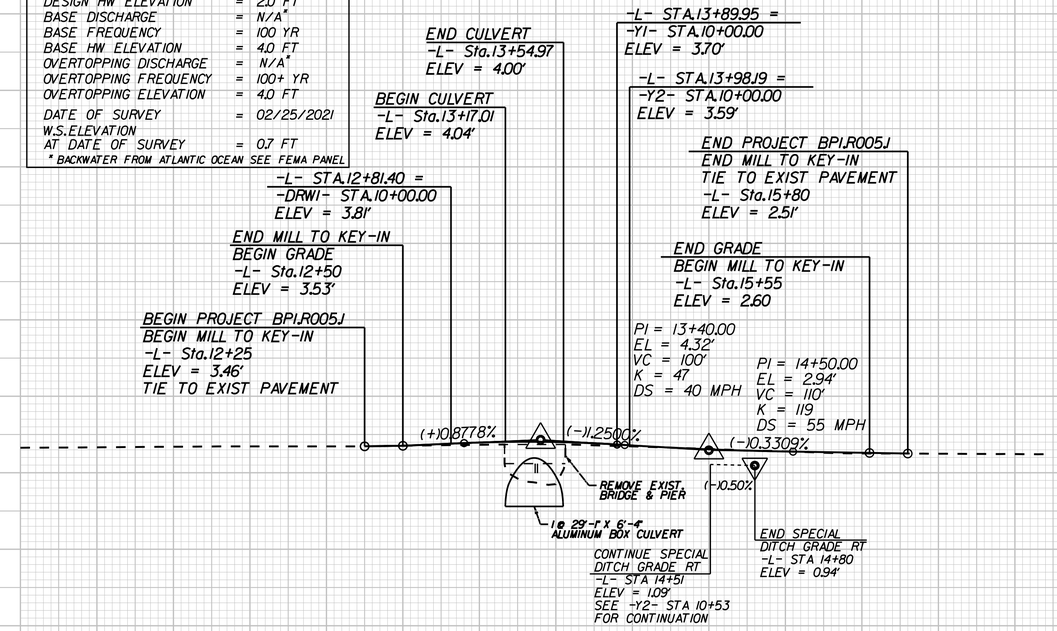
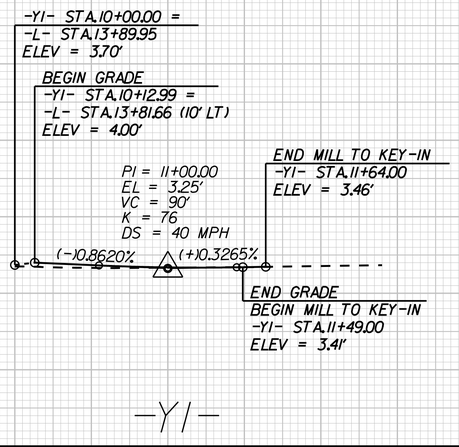
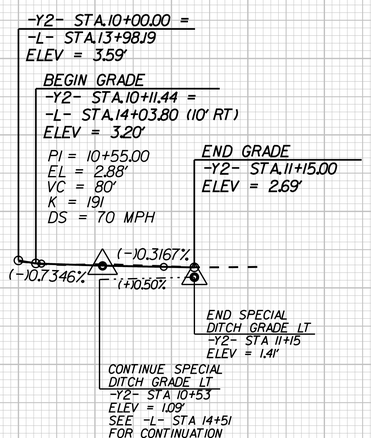
REVISIONS

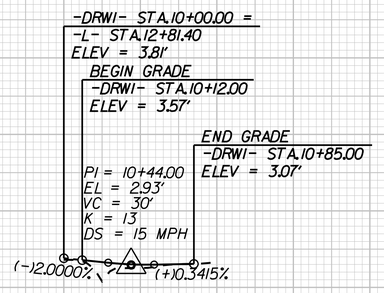
CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	=	260 CFS
DESIGN FREQUENCY	=	25 YR
DESIGN HW ELEVATION	=	2.0 FT
BASE DISCHARGE	=	N/A*
BASE FREQUENCY	=	100 YR
BASE HW ELEVATION	=	4.0 FT
OVERTOPPING DISCHARGE	=	N/A*
OVERTOPPING FREQUENCY	=	100+ YR
OVERTOPPING ELEVATION	=	4.0 FT
DATE OF SURVEY	=	02/25/2021
W.S.ELEVATION AT DATE OF SURVEY	=	0.7 FT

* BACKWATER FROM ATLANTIC OCEAN SEE FEMA PANEL









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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BPI.R005J	5

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST
4/1/2022

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 052128 ENGINEER JORDAN BENDL
3/31/2022

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3/31/2022

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BP1.R005J	ROW-1

RW SHEET NO.

ROADWAY ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST — Matthew S. West — 4/1/2022	NORTH CAROLINA PROFESSIONAL SEAL 052128 ENGINEER JORDAN BENDL — Jordan Bendl — 3/31/2022

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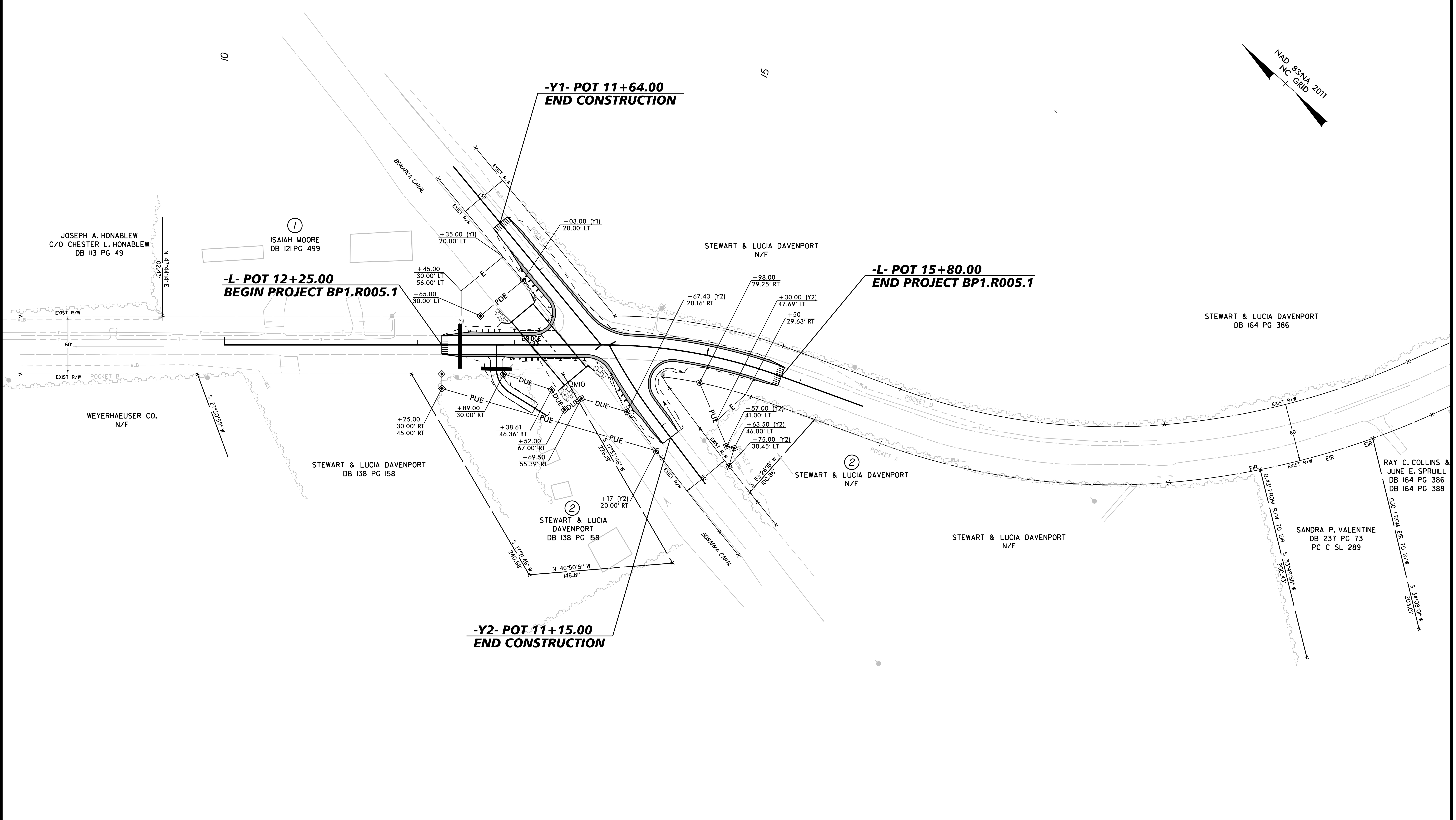
REVISIONS



NAD 83NA 2011
NC GRID
10
15
-Y1- POT 11+64.00
END CONSTRUCTION
-L- POT 12+25.00
BEGIN PROJECT BP1.R005.1
-L- POT 15+80.00
END PROJECT BP1.R005.1
-Y2- POT 11+15.00
END CONSTRUCTION
BONARVA CANAL
JOSEPH A. HONABLEW
C/O CHESTER L. HONABLEW
DB 113 PG 49
1
ISAIAH MOORE
DB 121PG 499
STEWART & LUCIA DAVENPORT
N/F
STEWART & LUCIA DAVENPORT
DB 164 PG 386
WEYERHAEUSER CO.
N/F
STEWART & LUCIA DAVENPORT
DB 138 PG 158
2
STEWART & LUCIA DAVENPORT
DB 138 PG 158
2
STEWART & LUCIA DAVENPORT
N/F
STEWART & LUCIA DAVENPORT
N/F
RAY C. COLLINS &
JUNE E. SPRUILL
DB 164 PG 386
DB 164 PG 388
SANDRA P. VALENTINE
DB 237 PG 73
PC C SL 289
+03.00 (Y1)
20.00' LT
+35.00 (Y1)
20.00' LT
+45.00
30.00' LT
56.00' LT
+65.00
30.00' LT
+98.00
29.25' RT
+67.43 (Y2)
20.16' RT
+30.00 (Y2)
47.69' LT
+50
29.63' RT
+57.00 (Y2)
41.00' LT
+63.50 (Y2)
46.00' LT
+75.00 (Y2)
30.45' LT
+25.00
30.00' RT
45.00' RT
+89.00
30.00' RT
+38.61
46.36' RT
+52.00
67.00' RT
+69.50
55.39' RT
+17 (Y2)
20.00' RT
EXIST R/W
60'
BRIDGE
PDE
PUE
DUE
BM10
N 47°46'14" E
102.43'
S 27°30'58" W
S 17°31'46" W
226.25'
S 17°21'46" W
240.68'
N 46°50'51" W
148.81'
S 89°26'18" W
100.88'
S 33°49'58" W
200.43'
S 34°08'01" W
203.01'
0.43' FROM R/W TO EIR
0.10' FROM EIR TO R/W
EIR
POCKET A
POCKET D

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3/31/2022

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BP1.R005.1	TMP-1

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANAUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

MANAGEMENT STRATEGIES

CONSTRUCTION SUMMARY:
PROPOSED CULVERT WILL BE CONSTRUCTED AWAY FROM TRAFFIC USING A ROAD CLOSURE AND DETOUR ROUTE.

GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER AND STATE FORCES THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION, SUCH THAT NECESSARY PROVISIONS CAN BE MADE TO INFORM LOCAL EMERGENCY, LAW ENFORCEMENT, SCHOOLS, OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.

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 PERMANENT SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

D) PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTES USING ROADWAY STANDARD DRAWING NUMBER 1101.03.

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

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

G) INSTALL SIGNS BEFORE BARRICADES WHEN CLOSING THE ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING THE ROADWAY TO TRAFFIC. INSTALL AND REMOVE SIGNS/BARRICADES IN THE SAME CALENDER DAY.

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

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

PHASING

STEP 1: USING ROADWAY STANDARD DRAWING NUMBER 1101.03, SHEET 1 OF 9, PERFORM THE FOLLOWING:

- INSTALL ALL ROAD CLOSURE AND DETOUR SIGNING, INCLUDING BARRICADES.

- IMPLEMENT A TEMPORARY CLOSURE OF SR 1118 (SOUTH FORK CREEK RD) AND SR 1121 (SOUTH FORK LOOP) USING A DETOUR ALONG SPRUILL BRIDGE RD, 1ST ST, ST DAVID RD, CROSS LANDING, NEWLANDS RD, AND SOUTH FORK CREEK RD. ALLOW LOCAL TRAFFIC ACCESS ALONG SR 1118 (SOUTH FORK CREEK RD) TO APPROXIMATELY 0.01 MILES WEST OF BRIDGE #23 (JUST AFTER THE FINAL DRIVEWAY PRIOR TO THE BRIDGE).

- IMPLEMENT A TEMPORARY CLOSURE OF SR 1118 (MAGNOLIA RD) USING A DETOUR ALONG MAGNOLIA CROSS AND THIRTY FOOT CANAL ROAD.

STEP 2: REMOVE EXISTING BRIDGE #23 OVER BONARVA CANAL AND CONSTRUCT THE PROPOSED CULVERT AND APPROACHES AS SHOWN IN THE CONSTRUCTION PLANS.

STEP 3: INSTALL ALL FINAL PAVEMENT MARKINGS.

STEP 4: REMOVE ALL TRAFFIC CONTROL SIGNING AND DEVICES AND OPEN SR 1118 (SOUTH FORK CREEK RD), SR 1121 (SOUTH FORK LOOP), AND SR 1118 (MAGNOLIA RD) TO THE FINAL TRAFFIC PATTERN.

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Raleigh, North Carolina 27601
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APPROVED:_____ DATE:_____

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029076 MATTHEW S. WEST
4/1/2022

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

TRANSPORTATION OPERATIONS PLAN

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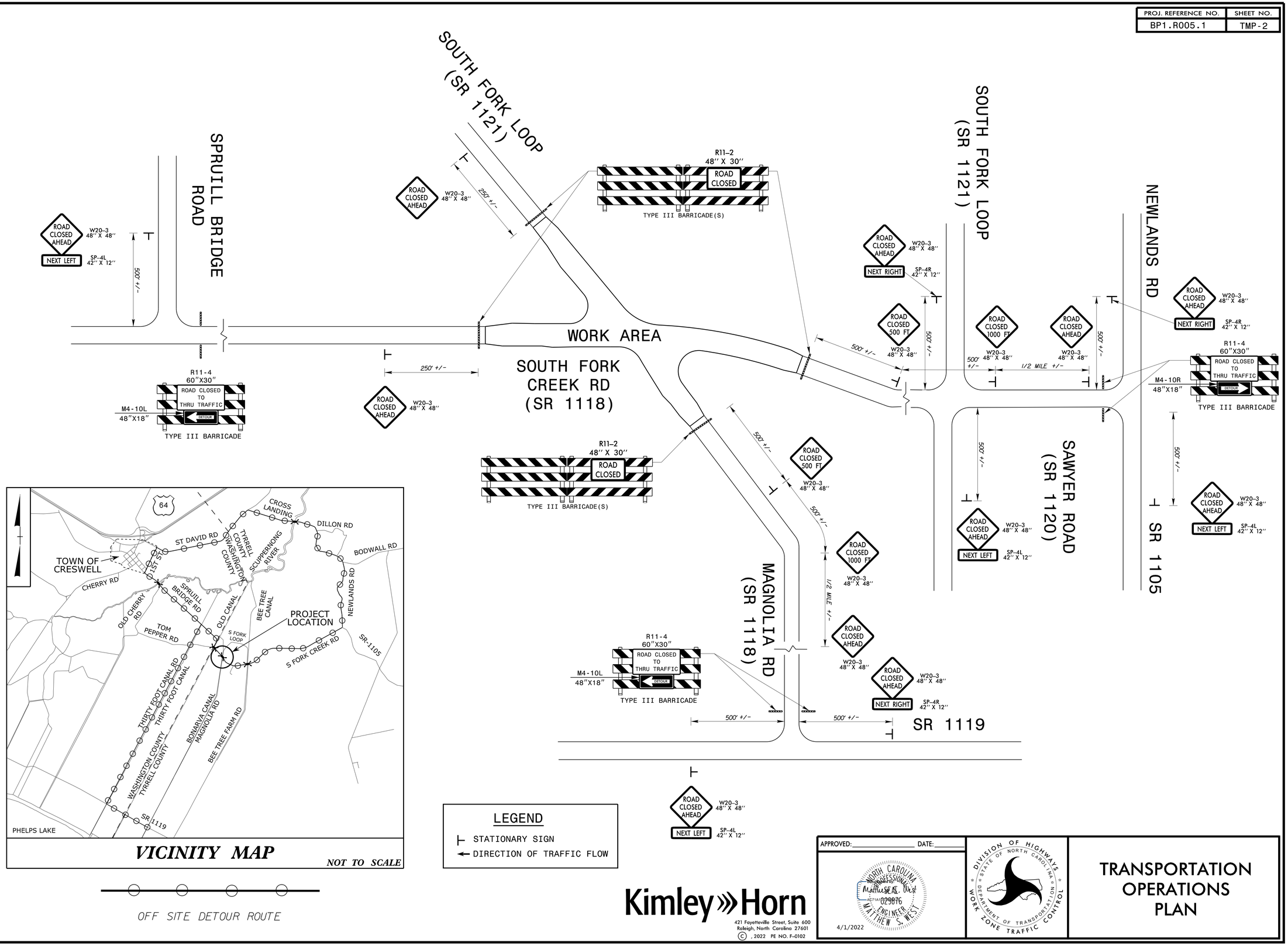
PROJ. REFERENCE NO.	SHEET NO.
BP1.R005.1	TMP-2



VICINITY MAP

NOT TO SCALE

OFF SITE DETOUR ROUTE

LEGEND

- ⊢ STATIONARY SIGN
- ← DIRECTION OF TRAFFIC FLOW

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Raleigh, North Carolina 27601
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APPROVED:_____ DATE:_____

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029676 MATTHEW S. WEST

4/1/2022

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

TRANSPORTATION OPERATIONS PLAN

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3/31/2022

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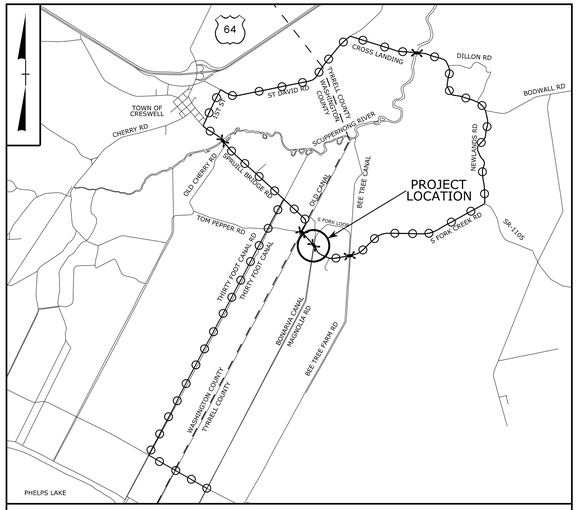
PROJECT: BP1.R005.1

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



VICINITY MAP

NOT TO SCALE

OFF SITE DETOUR ROUTE

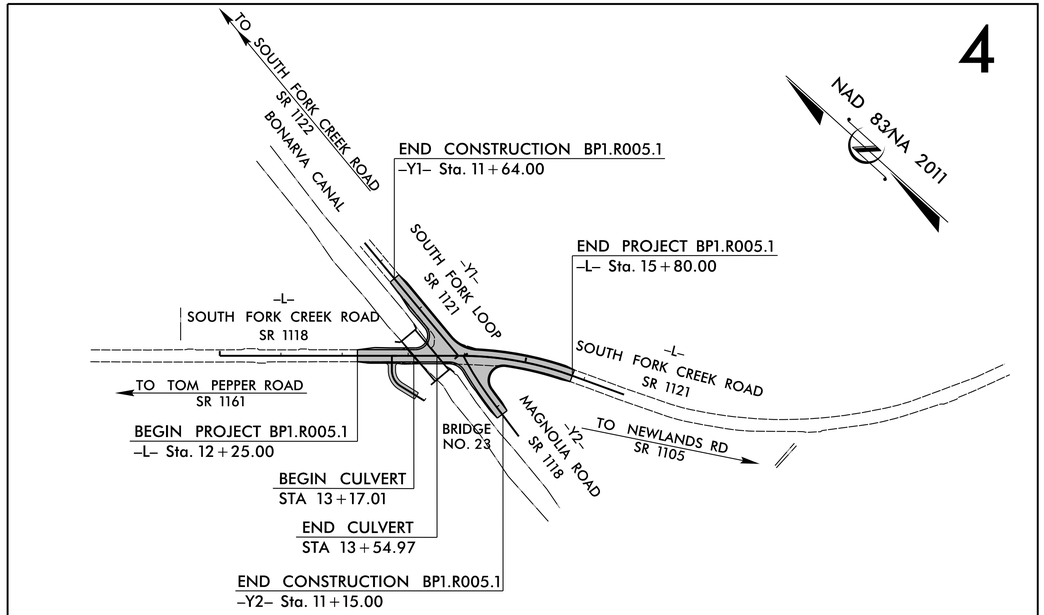
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

TYRRELL COUNTY

LOCATION: BRIDGE NO. 23 OVER BONARVA CANAL ON SR 1118 (SOUTH FORK CREEK ROAD)

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1.R005.1	EC-1	5
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
BP1.R005.1		PE	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	P.E. Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EV GTV
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

GRAPHIC SCALE

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

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

Kimley»Horn ©2021

Prepared in the Office of:

Kimley-Horn

421 Fayetteville Street, Suite 600
Raleigh, NC 27601

Designed by:

JORDAN BENDL, P.E. ***3928***

NAME *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

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COIR FIBER WATTLE DETAIL

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
BPLR005J	EC-2

RIGHT-OF-WAY REV.

CONST. REV.

ROADWAY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST
Docusigned by: Matthew West
4/1/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 052428 ENGINEER JORDAN BENDL
Docusigned by: Jordan Bendl
3/31/2022

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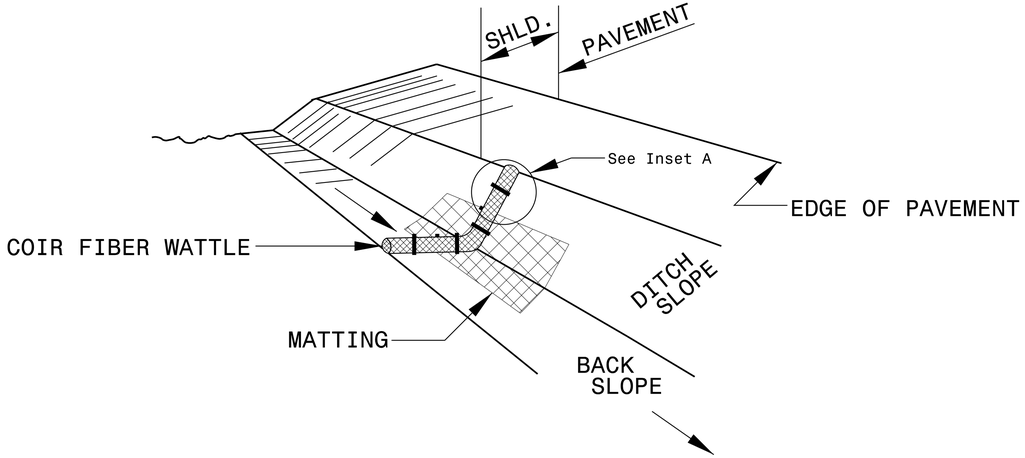
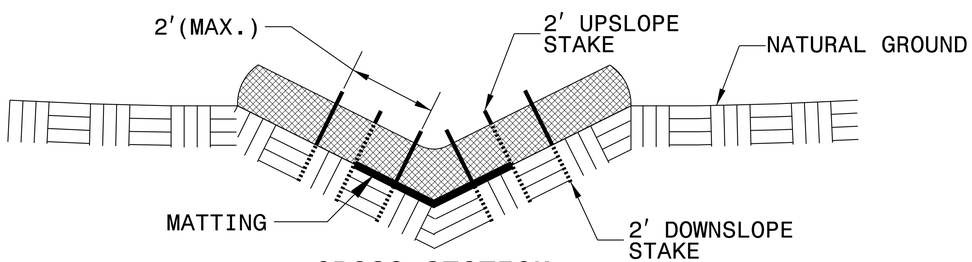
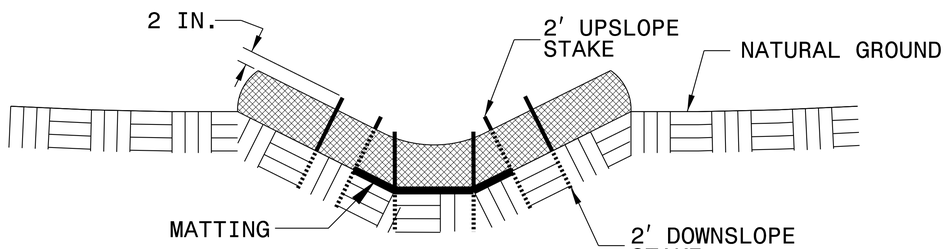
REVISIONS



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

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

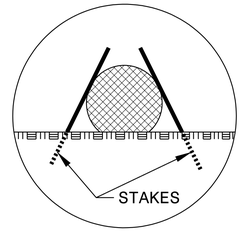
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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

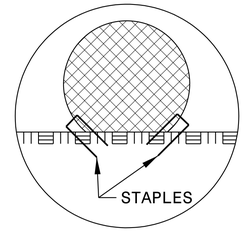
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

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

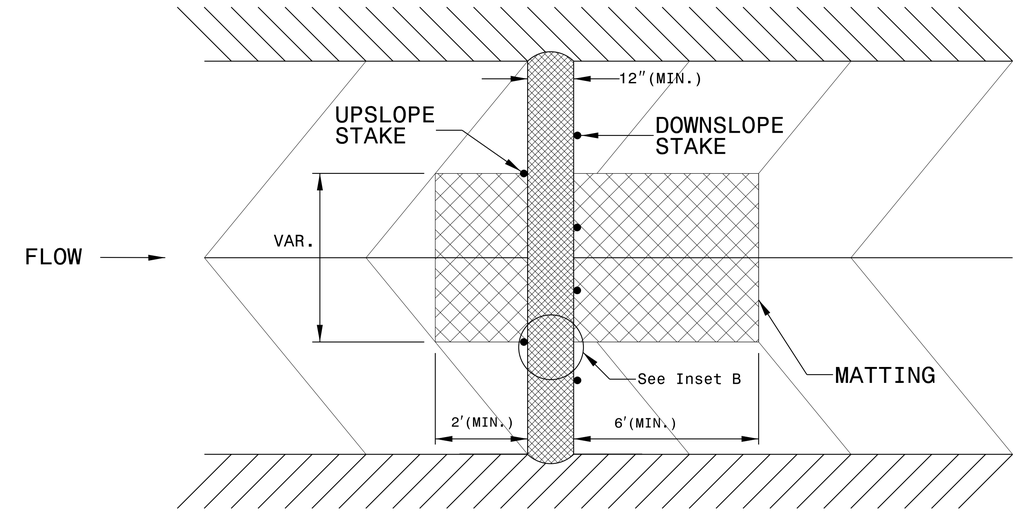
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



INSET B



TOP VIEW

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3/31/2022

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SILT FENCE COIR FIBER WATTLE BREAK DETAIL

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BPLR005J	EC-2A

ROADWAY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST
Docusigned by: Matthew West
4/1/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 052428 ENGINEER JORDAN BENDL
Docusigned by: Jordan Bendl
3/31/2022

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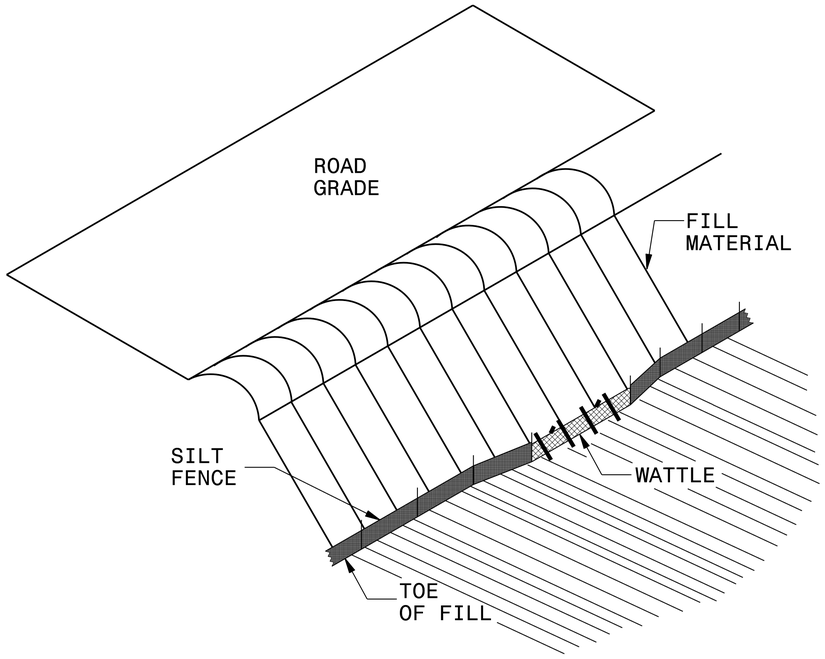
REVISIONS



ISOMETRIC VIEW

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.

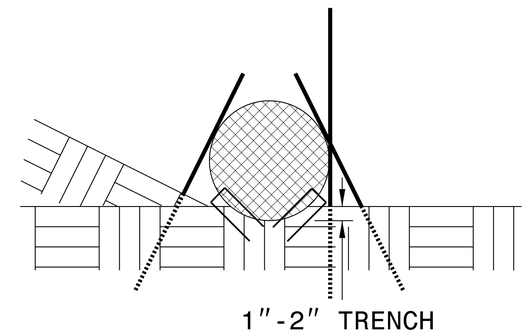
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

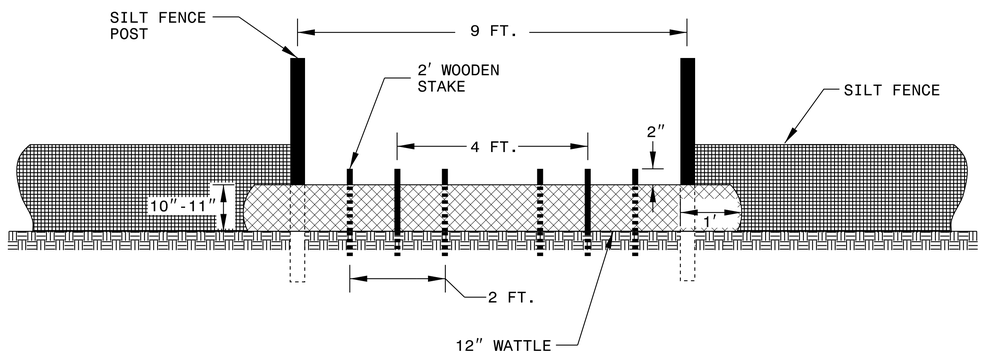
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

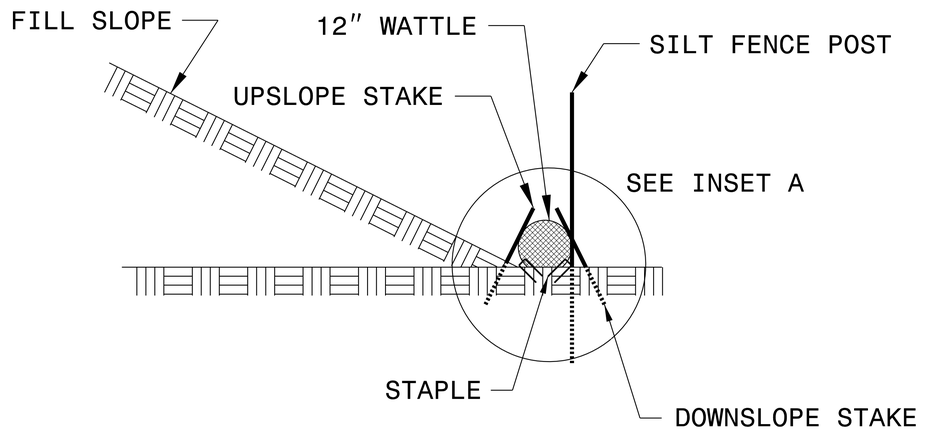
INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





VIEW FROM SLOPE



SIDE VIEW

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3/31/2022

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COIR FIBER WATTLE BARRIER DETAIL

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BPLR005J	EC-2B

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST
Matthew West
4/1/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 052420 ENGINEER JORDAN BENDL
Jordan Bendl
3/31/2022

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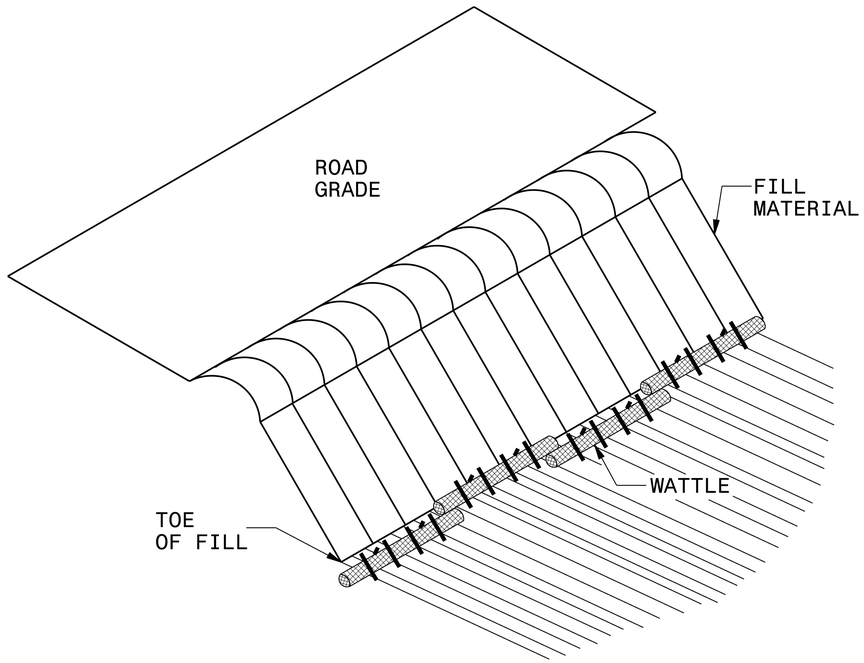


ISOMETRIC VIEW

NOTES:

USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLES ON TOE OF SLOPE.

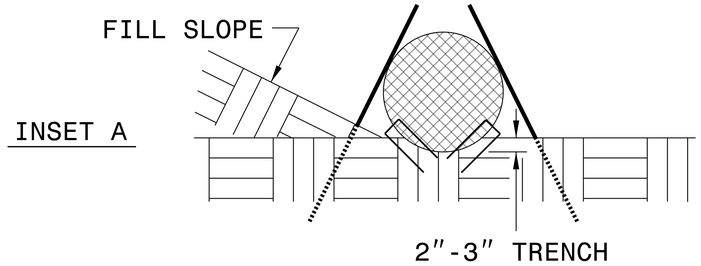
USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

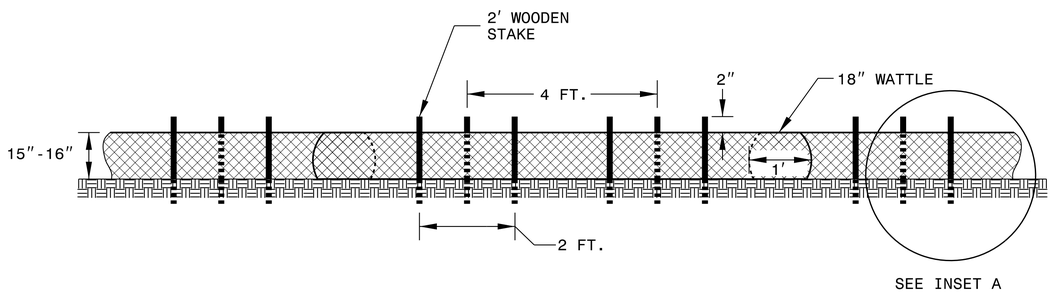
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

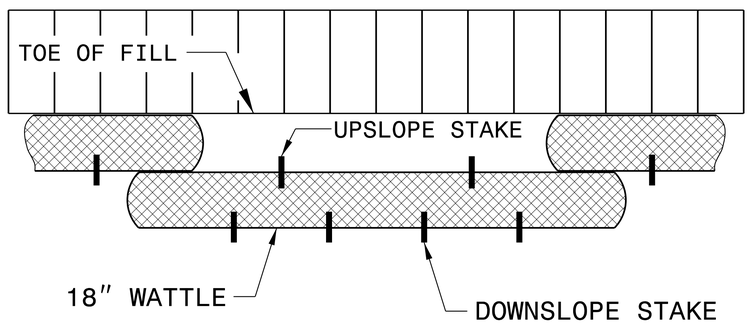
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 25 FT.





FRONT VIEW



TOP VIEW

REVISIONS

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BPLR005J	EC-2C

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 053876 ENGINEER MATTHEW S. WEST
DocuSigned by: Matthew West
4/1/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 053120 ENGINEER JORDAN BENDL
DocuSigned by: Jordan Bendl
3/31/2022

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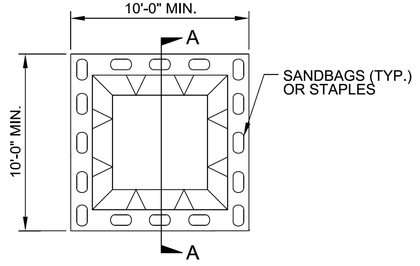
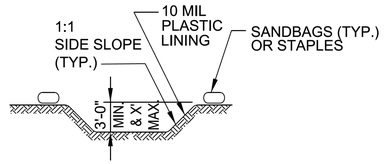
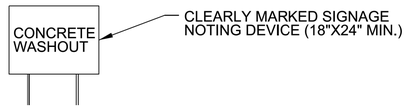
ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER







PLAN

SECTION A-A

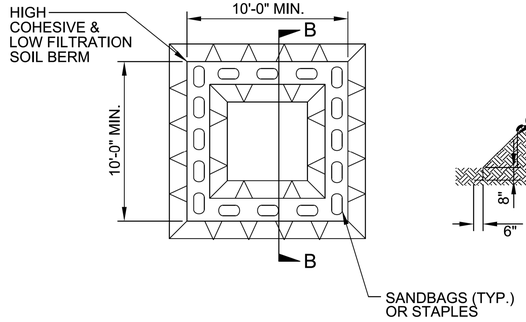
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

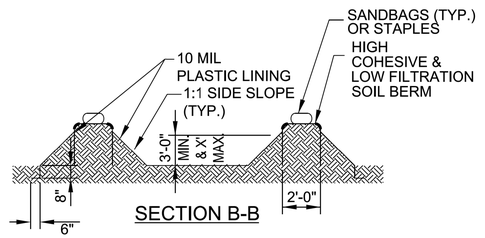
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

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

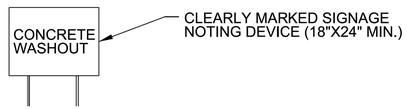
BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE





SECTION B-B



PLAN

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

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3/31/2022

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REVISIONS

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BPLR005J	EC-3

ROADWAY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST
DocuSigned by: Matthew West
4/1/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 052128 ENGINEER JORDAN BENDL
DocuSigned by: Jordan Bendl
3/31/2022

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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 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

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3/31/2022

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REVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BP1.R005J	EC 4/CONST.4
RW SHEET NO.	

ROADWAY ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029876 ENGINEER MATTHEW S. WEST
4/1/2022

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 ENGINEER JORDAN BENDL
3/31/2022

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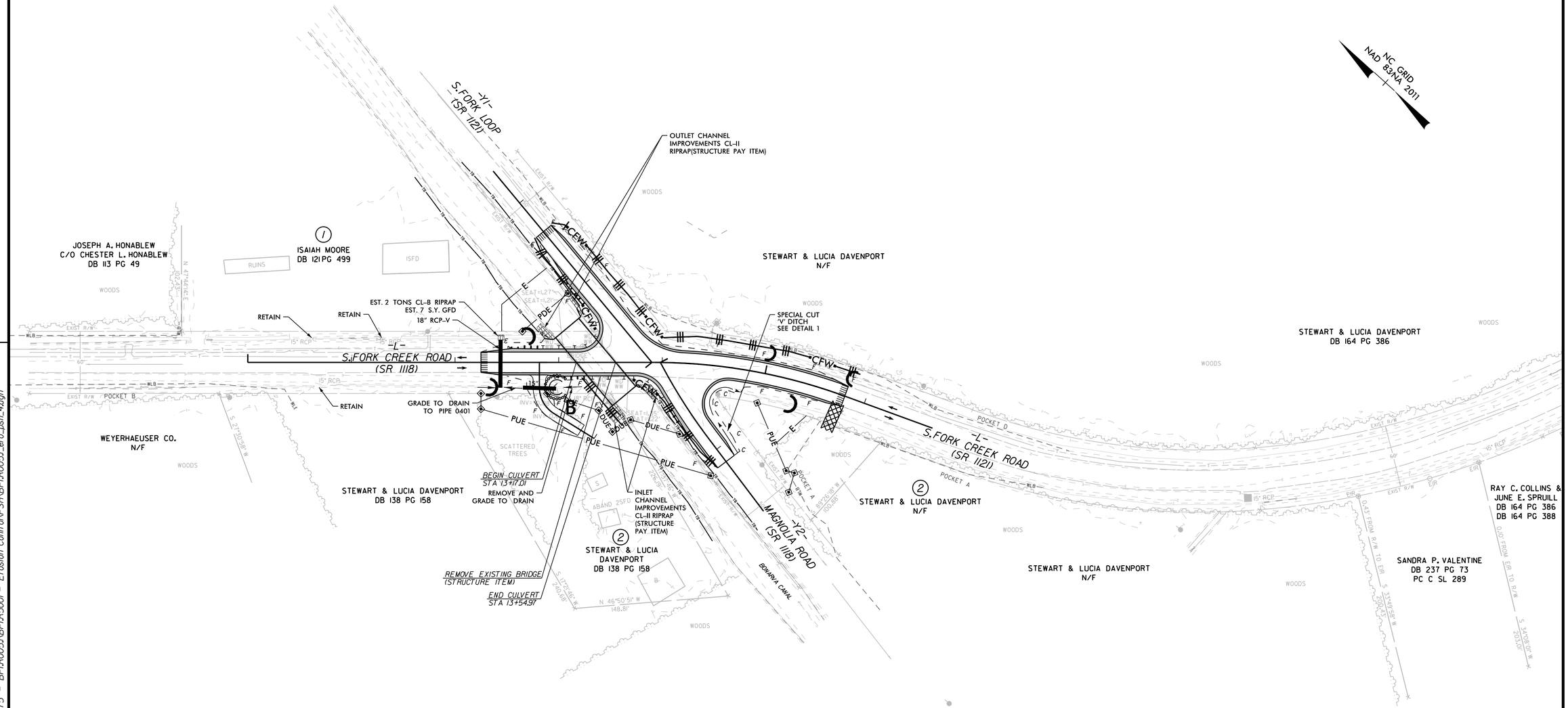

DATUM DESCRIPTION

LOCALIZED PROJECT COORDINATES ARE BASED ON THE NAD 83/NA 2011 STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR STATION "BP1R005-2"
N: 771257.8763 (FT) E: 2781493.9466 (FT)
ELEVATION: 3.00 (FT)
USING AN AVERAGE COMBINED GRID FACTOR (LOCALIZED TO GRID) OF 0.9999310481 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES. UNITS ARE "US SURVEY FOOT". VERTICAL DATUM IS NAVD88 "GEOID 12". LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BP1R005-2" TO -L- STATION 16+70.00 IS S24°30'34"E 261.3645'

****
BM10 ELEVATION = 4.56
N 771266 E 2781410
RR SPIKE IN 36" PINE
****

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CULVERT CONSTRUCTION SEQUENCE STA. 13+17-L-

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BP1.R005J	EC-4A

RW SHEET NO.

ROADWAY ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029876 MATTHEW S. WEST — 4/1/2022

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052128 JORDAN BENDL — 3/31/2022

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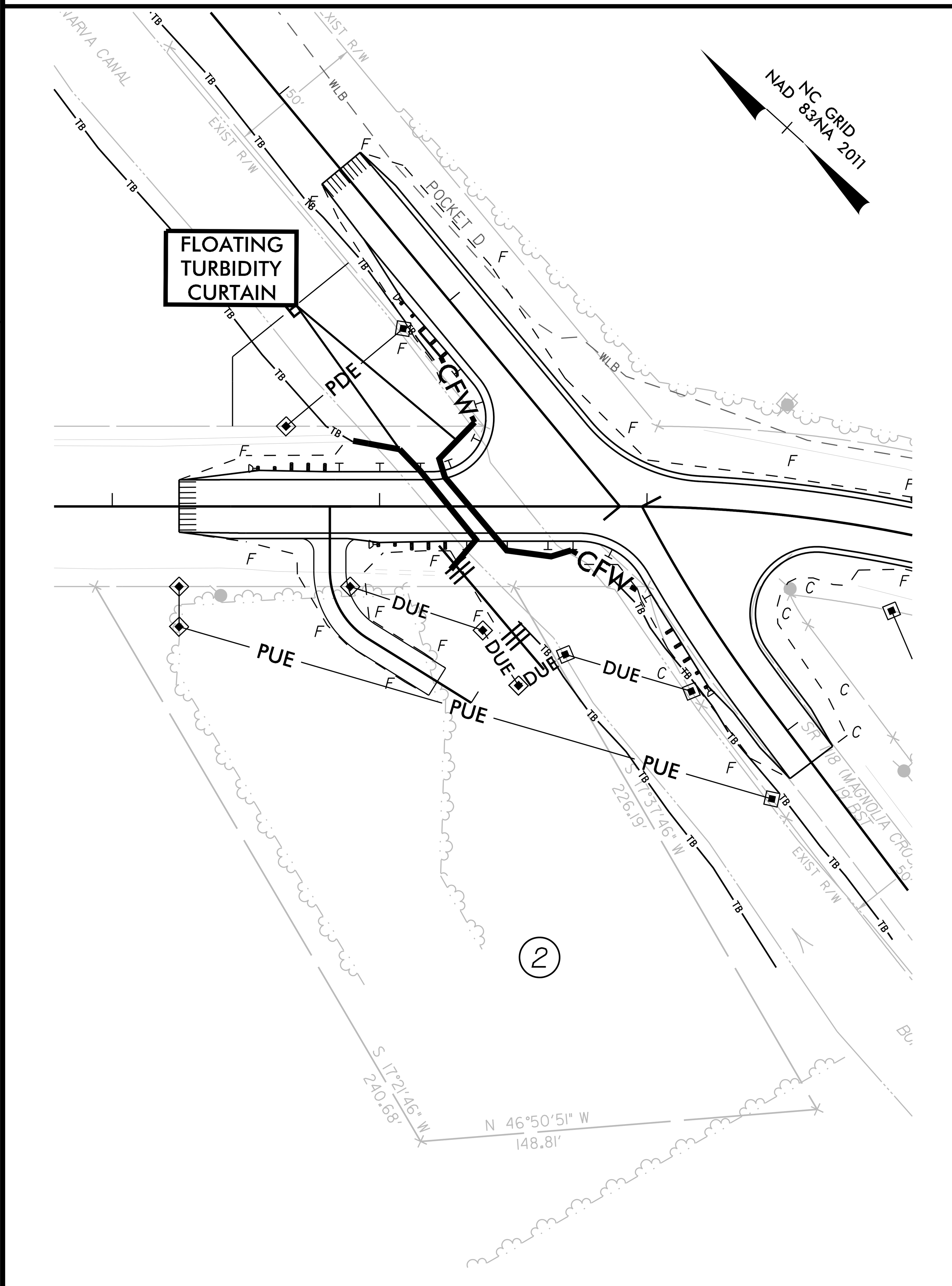
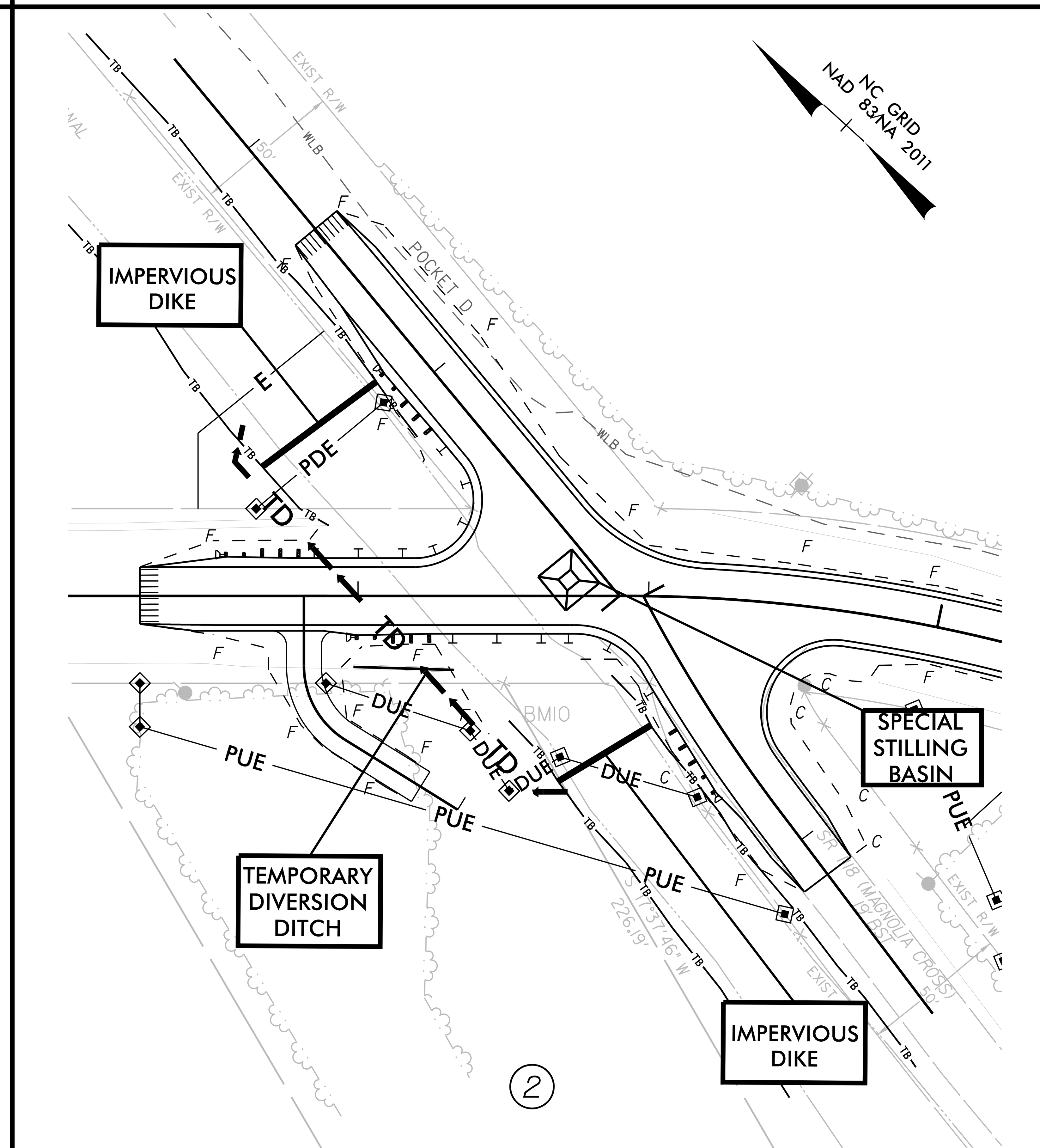
PHASE I

1.) INSTALL EROSION CONTROL MEASURES LEADING TO CANAL BEFORE COMMENCING BRIDGE DECONSTRUCTION.
2.) UTILIZE FLOATING TURBIDITY CURTAINS AS NEEDED DURING DECONSTRUCTION OF EXISTING BRIDGE TO PREVENT SEDIMENT POLLUTION.
3.) REFERENCE TRAFFIC CONTROL PLANS FOR ADDITIONAL DETAIL REGARDING TRAFFIC MANAGEMENT/DETOUR PLANS.



PHASE II

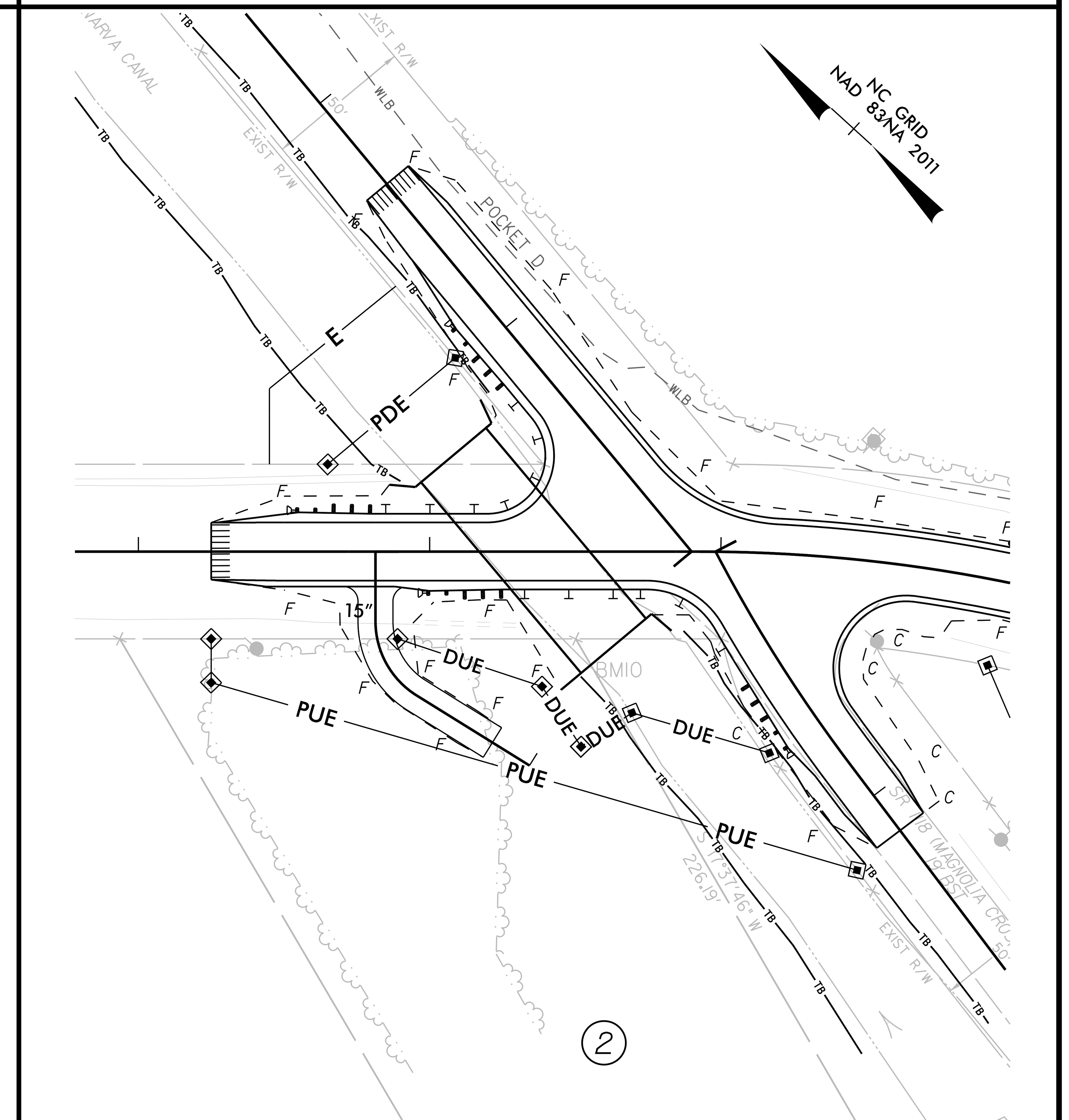
1.) REMOVE EXISTING BRIDGE.
2.) EITHER A)
INSTALL TEMPORARY DIVERSION DITCH ON THE WEST SIDE OF THE CANAL, DIVERTING FLOW AROUND CULVERT INSTALLATION ZONE.
OR B)
INSTALL TEMPORARY ON SITE PUMP FOR DAILY FLOW/STORM FLOW AND PUMP CLEAN TO CLEAN AS NEEDED
3.) CONSTRUCT UPSTREAM AND DOWNSTREAM IMPERVIOUS DIKES.
4.) DEWATER PORTION OF CANAL BETWEEN SHEET PILES.
5.) UTILIZE SPECIAL STILLING BASIN(S) DURING CONSTRUCTION AS NEEDED TO DEWATER WORK SITE. (TYP.)
6.) REFERENCE TRAFFIC CONTROL PLANS FOR ADDITIONAL DETAIL REGARDING TRAFFIC MANAGEMENT/DETOUR PLANS.



NOTE:
ANY DEWATERING ACTIVITIES (INCLUDING BUT NOT LIMITED TO, IMPERVIOUS DIKES, PUMPING, SHORING, SHEETING, ETC.) ARE CONSIDERED TO BE INCIDENTAL TO DEWATERING LUMP SUM PAY ITEM

PHASE III

1.) INSTALL 29'-1" X 6'-4" ALUMINUM BOX CULVERT AND HEADWALL/WINGWALL STRUCTURES IN THE DRY AND STABILIZE BANKS.
2.) REMOVE IMPERVIOUS DIKE AND FILL TEMPORARY DIVERSION DITCH.
3.) REMOVE SPECIAL STILLING BASIN(S).
4.) FINISH ROADWAY AND DRAINAGE CONSTRUCTION.
5.) STABILIZE DISTURBED AREA AND REMOVE ALL EROSION AND SEDIMENT CONTROL DEVICES AS DIRECTED.
6.) REFERENCE TRAFFIC CONTROL PLANS FOR ADDITIONAL DETAIL REGARDING TRAFFIC MANAGEMENT.



SEE FINAL PHASE SHEET EC-5 FOR EROSION CONTROL DEVICES.

THIS CULVERT IS AT LESS THAN MINIMUM COVER FOR POTENTIAL MAXIMUM LOADS EXPOSED TO DURING CONSTRUCTION. TO ENSURE CULVERT STRUCTURAL INTEGRITY DURING CONSTRUCTION, THE CONTRACTOR SHALL NEVER LOCATE FULLY LOADED CONSTRUCTION VEHICLES WHERE THEY WOULD EXPOSE CULVERT TO LOADS ABOVE THE ALLOWABLE LIMIT. SEE CULVERT PLANS/SPECIFICATIONS PROVIDED BY MANUFACTURER FOR FURTHER DETAILS.

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FINAL EROSION CONTROL
FOR CONSTRUCTION SHEET 4

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
BP1.R005J	EC 5/CONST.4
R/W SHEET NO.	

ROADWAY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029876 ENGINEER MATTHEW S. WEST
ACTIVATION DATE: 4/1/2022
4/1/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 052128 ENGINEER JORDAN BENDL
3/31/2022

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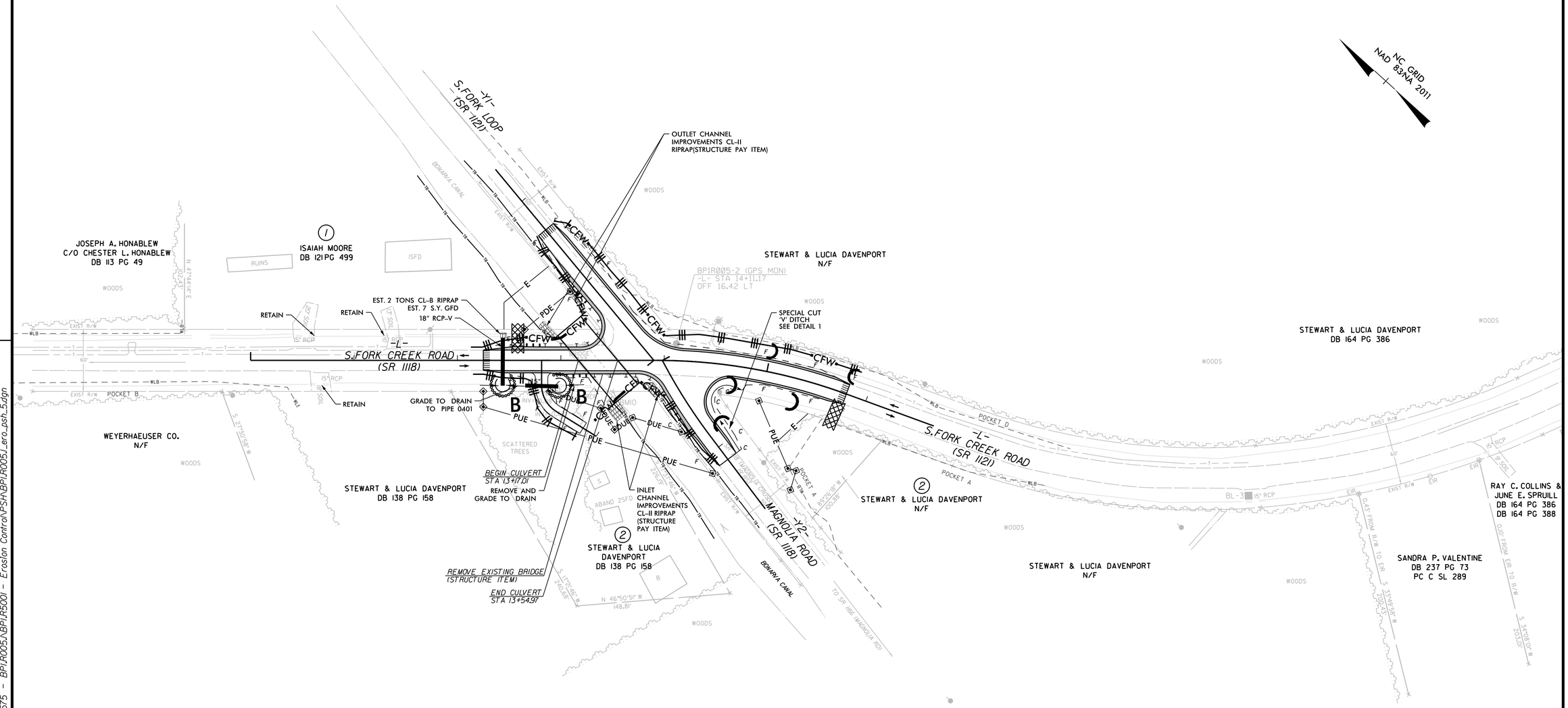
UNLESS ALL SIGNATURES COMPLETED

REVISIONS



DATUM DESCRIPTION

LOCALIZED PROJECT COORDINATES ARE BASED ON THE NAD 83/NA 2011 STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR STATION "BP1R005-2"
N: 771257.8763 (FT) E: 2781493.9466 (FT)
ELEVATION: 3.00 (FT)
USING AN AVERAGE COMBINED GRID FACTOR (LOCALIZED TO GRID) OF 0.9999310481 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES, UNITS ARE "US SURVEY FOOT".
VERTICAL DATUM IS NAVD88 "GEOID 12".
LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BP1R005-2" TO -L- STATION 16+70.00 IS S24°30'34"E 261.3645'

****
BM10 ELEVATION = 4.56
N 771266 E 2781410
RR SPIKE IN 36" PINE
****

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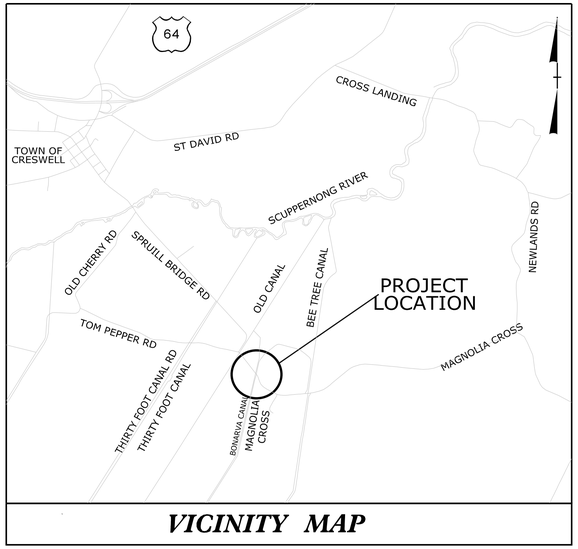
TIP PROJECT: BP1.R005.1



VICINITY MAP

90% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
TYRRELL COUNTY

T.I.P. NO.	SHEET NO.
BP1.R005.1	UO–1

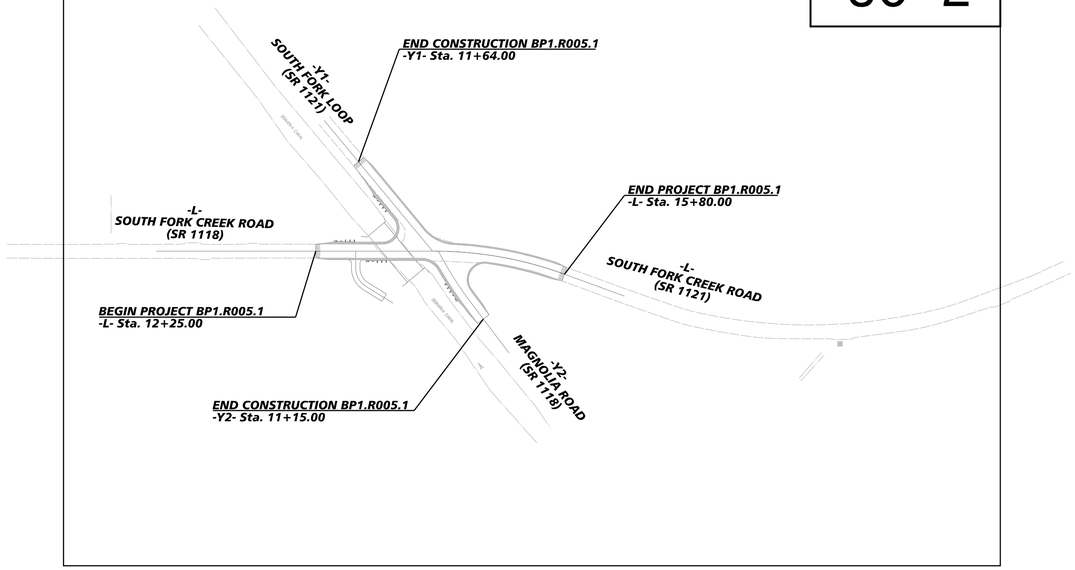
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

LOCATION: ***BRIDGE NO. 23 OVER BONARVA CANAL ON SR 1118 (SOUTH FORK CREEK ROAD)***

TYPE OF WORK: ***DISTRIBUTION POWER AND COMMUNICATIONS RELOCATIONS BY OTHERS***

NC GRID NAD 1983NA 2011

4
UO - 2



GRAPHIC SCALE

50 25 0 50 100
PLANS

INDEX OF SHEETS

SHEET NO.	*DESCRIPTION*
UO–1	*TITLE SHEET*
UO–2	*UBO PLAN SHEETS*

UTILITY OWNERS WITH CONFLICTS

(1) DOMINION ENERGY POWER: HARLEY BOWEN 252–209–7747
(2) LUMEN/CENTURYLINK: ROD MEDLIN 252–413–7711

PREPARED IN THE OFFICE OF:

Kimley»Horn © 2022

NC LICENSE #F-0102
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NORTH CAROLINA 27601
PHONE: (919) 677-2000

NATE HARVEY, P.E. *UTILITY COORDINATOR*

DIVISION OF HIGHWAYS
DIVISION 1
PROJECT DELIVERY UNIT

113 AIRPORT DRIVE, SUITE 100
EDENTON, NC 27932
FAX (252) 482–8722

RYAN L. SHOOK *TEAM LEAD*
DANIEL S. MERRITT *DIV. 1 UTILITIES COORDINATOR*

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PROJECT REFERENCE NO.	SHEET NO.
BP1.R005J	U0-2

UTILITIES BY OTHERS

NOTE:
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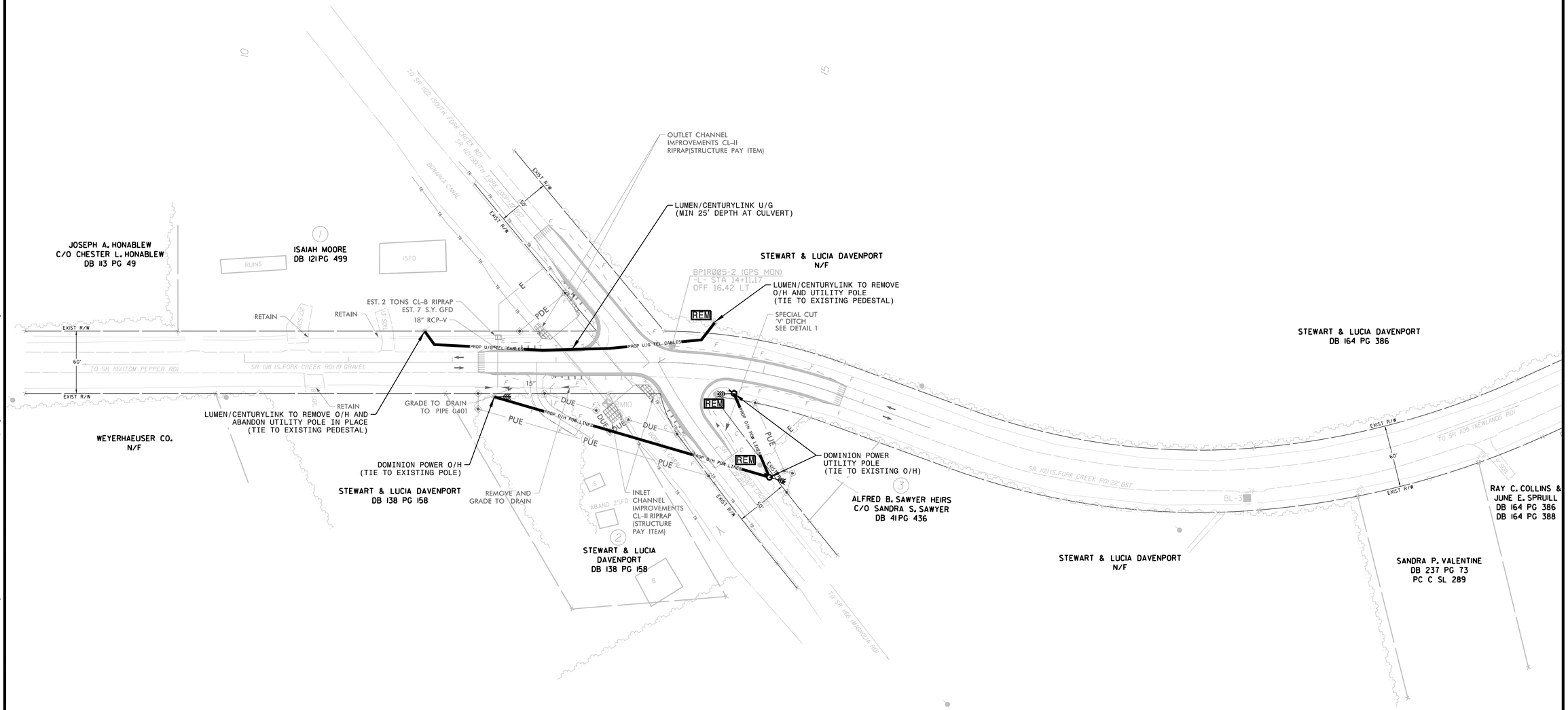

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N 771266 E 2781410
RR SPIKE IN 36" PINE

Kimley»Horn

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2/3/2022

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	BP1.R005J	X-1

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5
0

4.0% 0.02 4.04 0.02 3:1 4.27

13+17.36

10
5
0

4.0% 0.016 3.96 0.02 3:1 3.66

13+00.00

10
5
0

3:1 0.012 3.53 0.014 3:1 3.53

12+50.00

10
5
0

0.02 3.46 0.00 3.46

12+25.00

5
0

3.45

12+00.00

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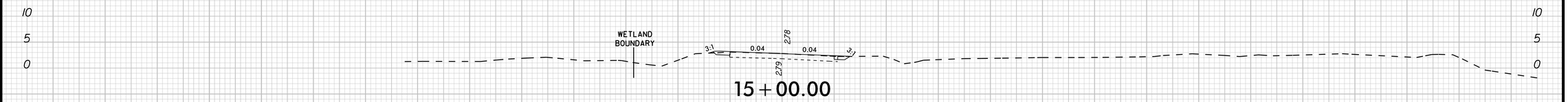

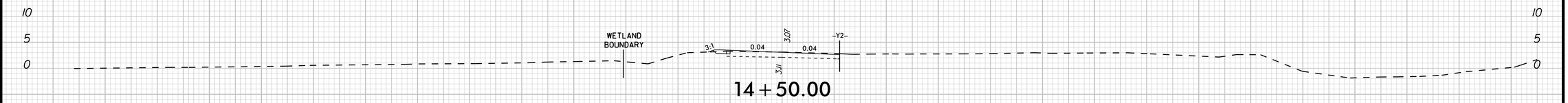

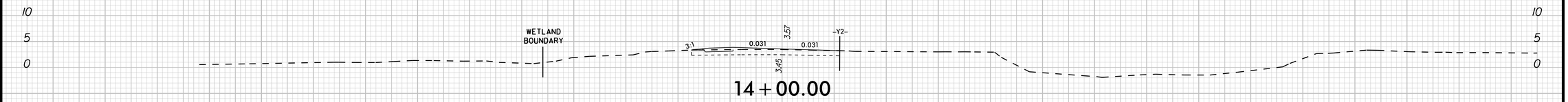

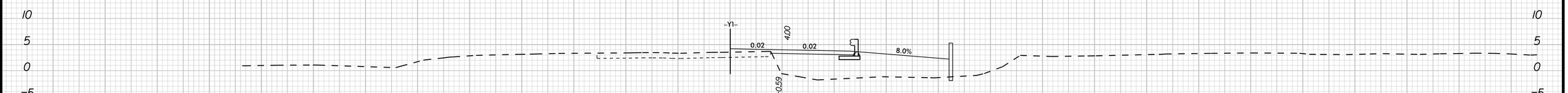

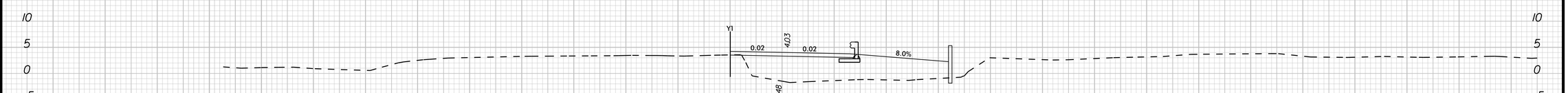

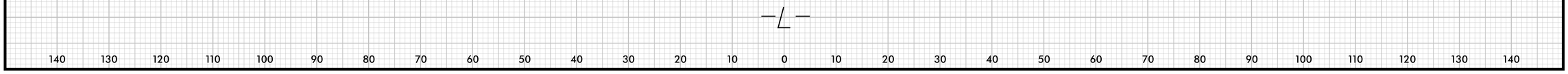

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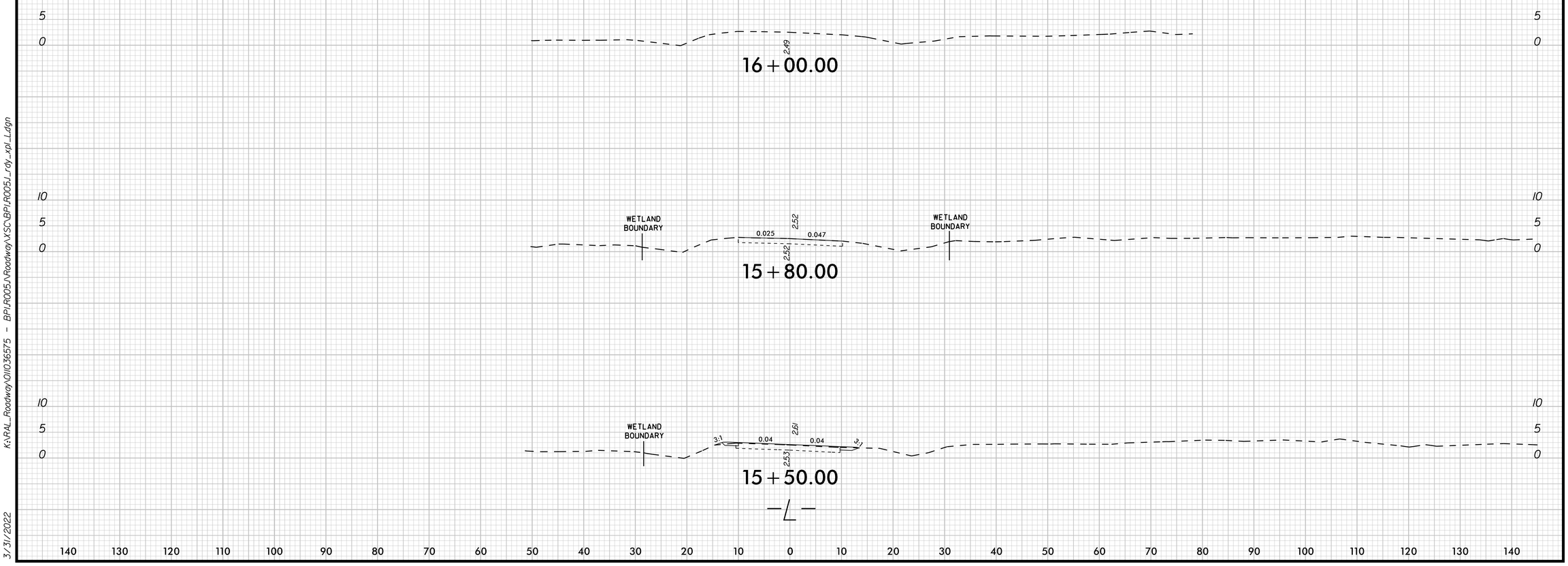

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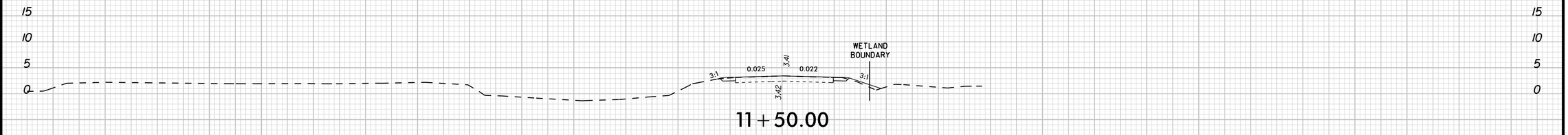
BPIJR005J	X-4



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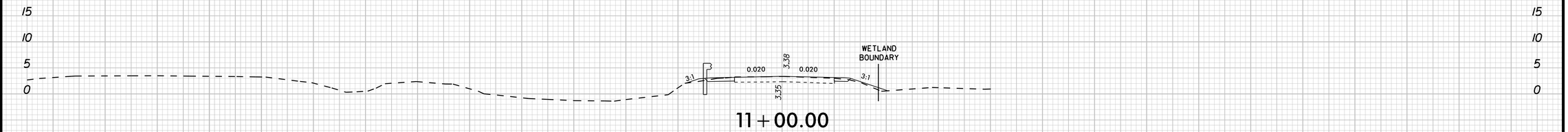

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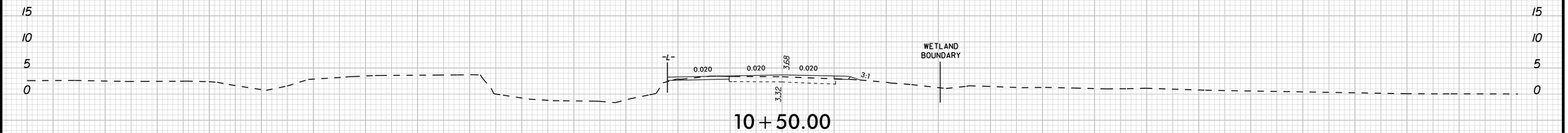

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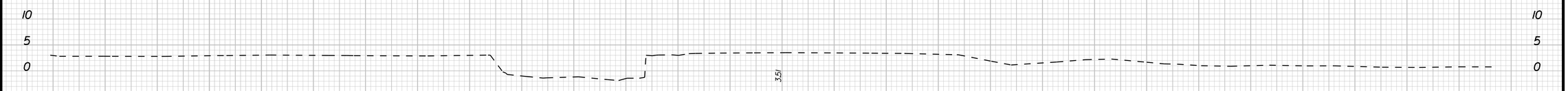

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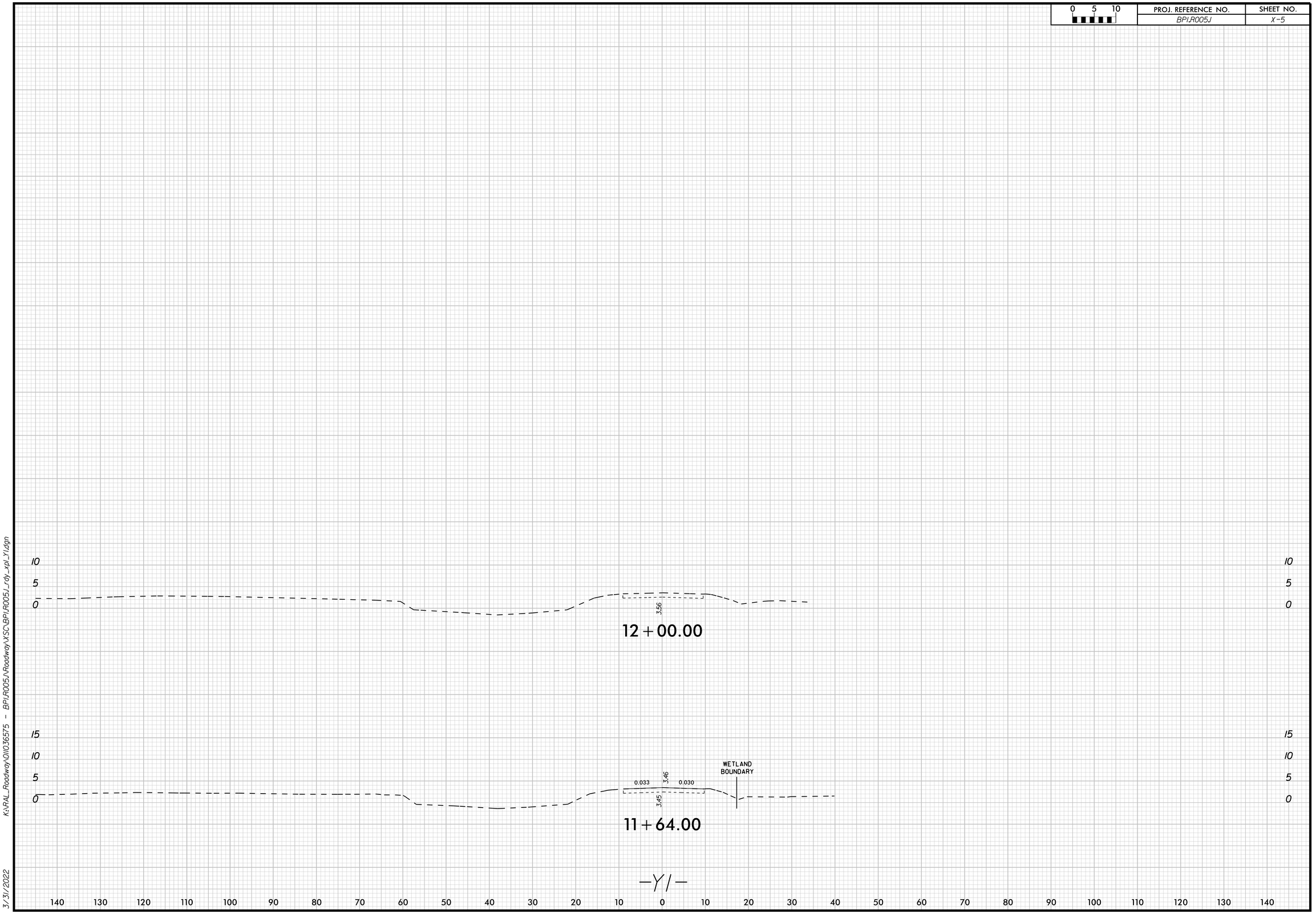

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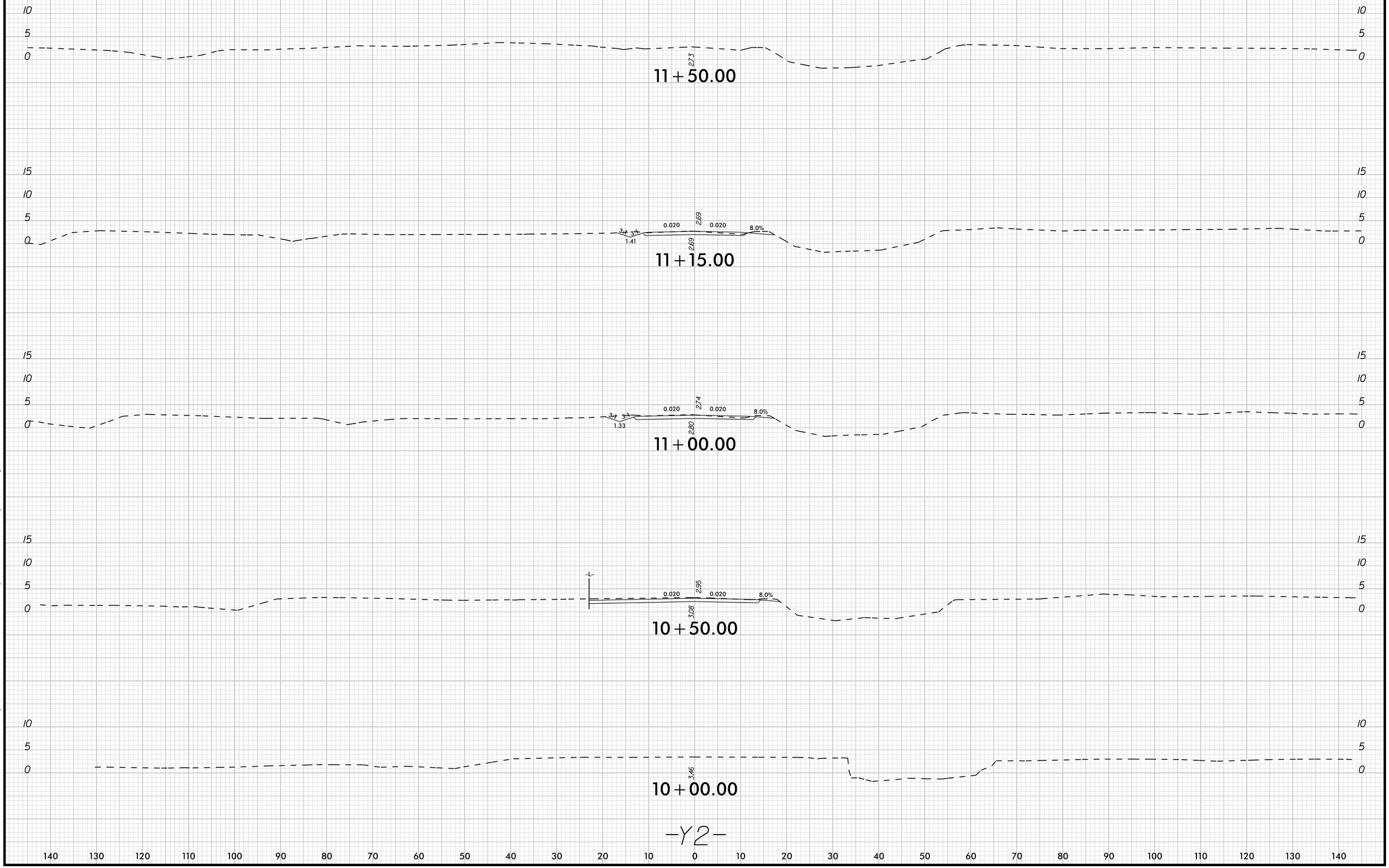

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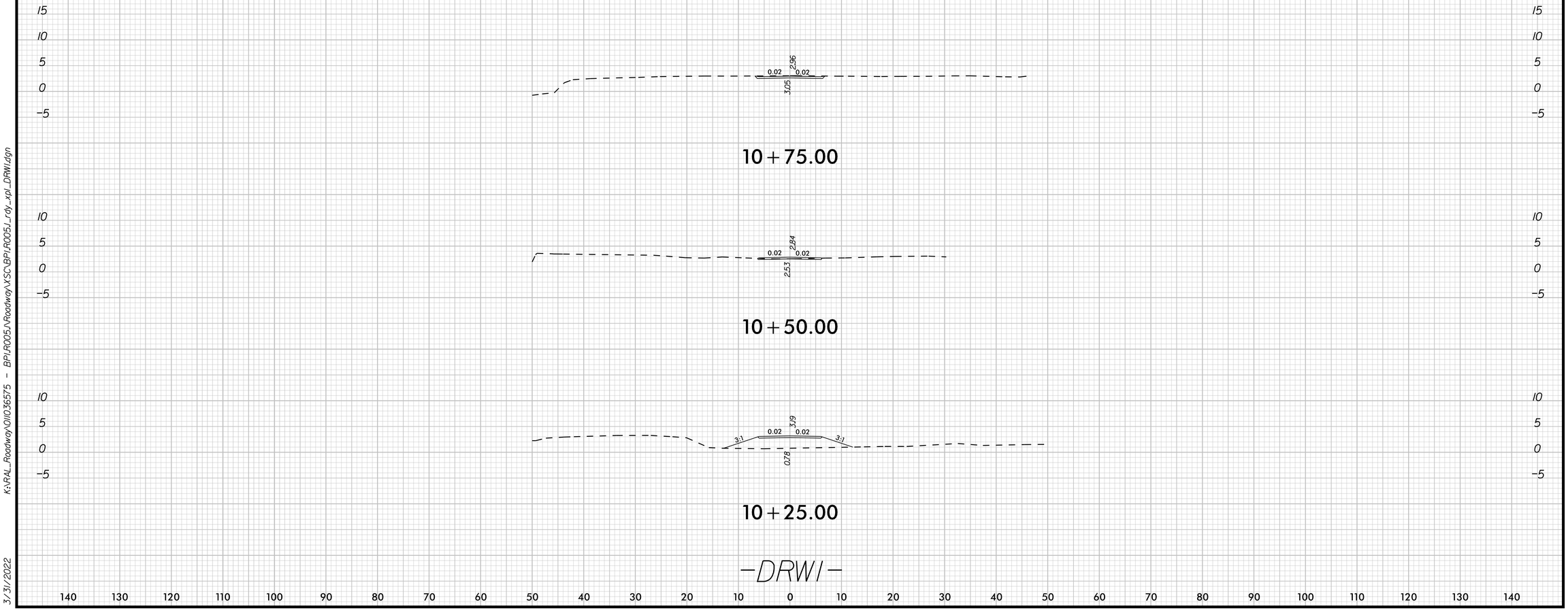

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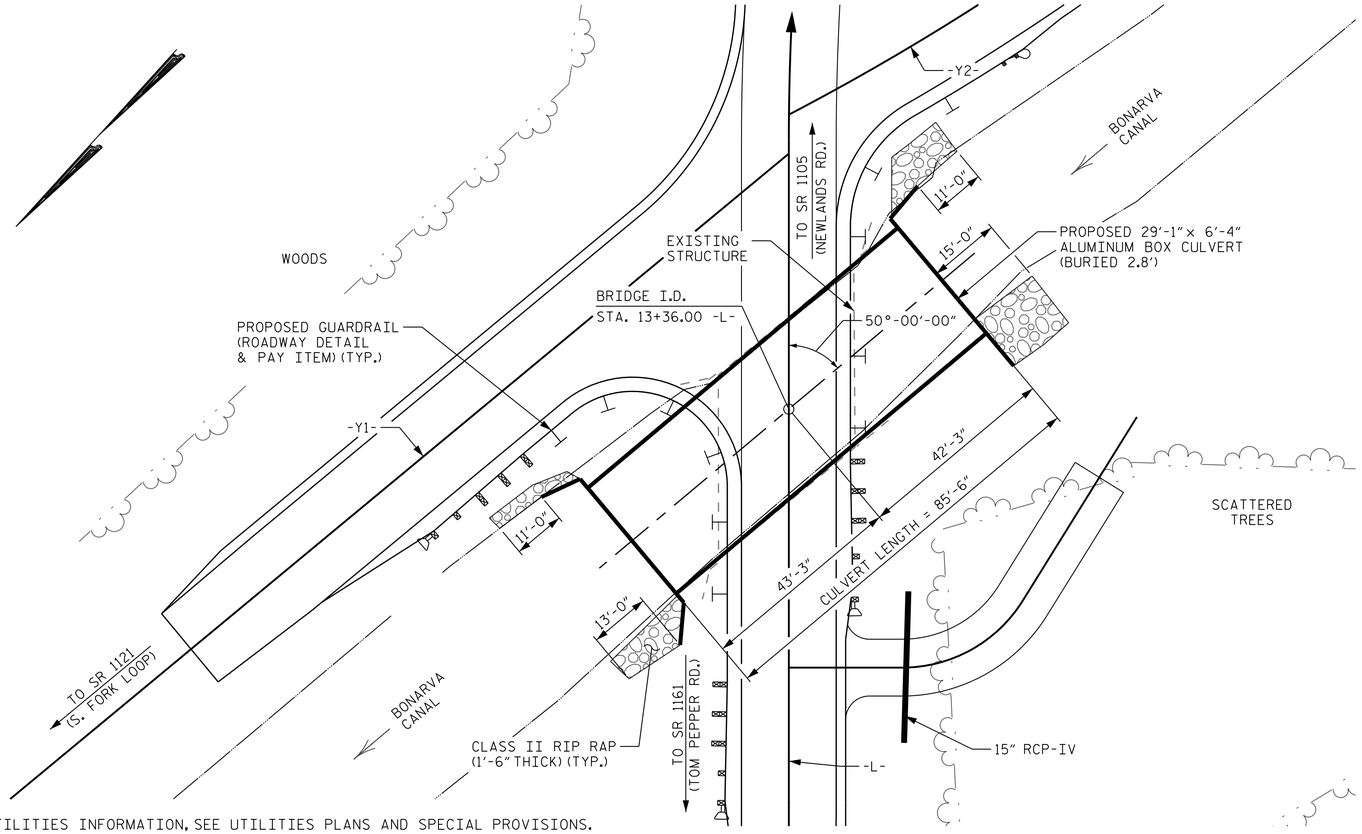
BM #10: RR SPIKE IN 36" PINE TREE, 39.99' RIGHT OF STATION 13+49.24 -L-, ELEV. 4.56'



FOR UTILITIES INFORMATION, SEE UTILITIES PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

ROADWAY DATA

GRADE POINT ELEV. @ STA. 13+36.00 -L-	= 4.06'
BED EVEV. @ STA. 13+36.00 -L-	= -4.40'
ROADWAY SLOPES	= VARIES

HYDRAULIC DATA

DESIGN DISCHARGE	260 CFS
FREQUENCY OF DESIGN FLOOD	25 YR.
DESIGN HIGH WATER ELEVATION	2.0 FT.
DRAINAGE AREA	1.1 SQ. MI.
BASE DISCHARGE (Q100)	N/A - ATLANTIC OCEAN
BASE HIGH WATER ELEVATION	4.0 FT. (FIRM PANEL #7786)

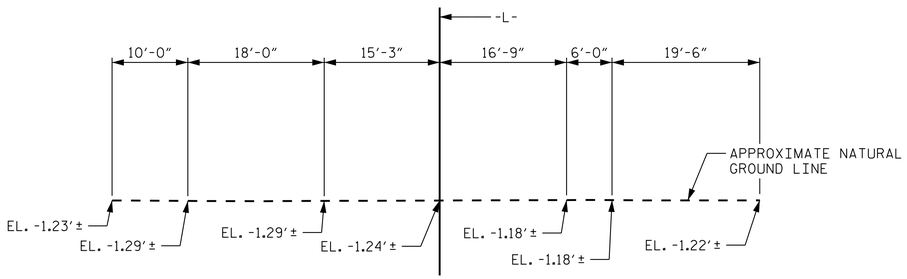
OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	N/A - ATLANTIC OCEAN
FREQUENCY OF OVERTOPPING FLOOD	100+ YR.
OVERTOPPING FLOOD ELEVATION	4.0 FT.

FIRM PANEL #7786 SHOWS ENTIRE AREA INUNDATED DUE TO FLOODING FROM ATLANTIC OCEAN BACKWATER DURING 100+ YR. STORM

TOTAL STRUCTURE QUANTITIES

REMOVAL OF EXISTING STRUCTURE AT STATION 13+36.00 -L-	LUMP SUM
ASBESTOS ASSESSMENT	LUMP SUM
CULVERT EXCAVATION	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	200 TONS
CLASS AA CONCRETE (FOOTINGS)	6.9 C.Y.
EPOXY COATED REINFORCING STEEL (FOOTINGS)	2,238 LBS.
CLASS II RIP RAP (1'-6" THICK)	38 TONS
GEOTEXTILE (FOR DRAINAGE)	80 S.Y.
ALUMINUM BOX CULVERT	LUMP SUM
CULVERT BACKFILL	810 TONS



PROFILE ALONG ℄ CULVERT

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

CULVERT TO BE DESIGNED FOR A MINIMUM FILL DEPTH OF 2'-0" AND A MAXIMUM FILL DEPTH OF 5'-9".

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

FOR ADDITIONAL INFORMATION REGARDING DRAINAGE, GRADING, AND ROADWAY, SEE ROADWAY PLANS.

ALL MATERIALS SHALL MEET THE REQUIREMENTS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JANUARY 2018.

THE DETAILS SHOWN ARE FOR GENERAL LAYOUT ONLY. THE SUPPLIER SHALL PROVIDE 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.

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

GUARDRAIL POSTS SHALL BE LOCATED AS INDICATED IN THESE PLANS IN ORDER TO FACILITATE APPROPRIATE CONNECTION TO CONCRETE FOOTING. ANY VARIATIONS FROM THE PROPOSED GUARDRAIL POST LOCATIONS SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS @ 20', 28' CLEAR ROADWAY ON STEEL PLANK DECK ON STEEL I-BEAMS ON TIMBER CAPS AND PILES AND LOCATED AT THE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGUALTIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+36.00 -L".

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

FOR ALUMINUM BOX CULVERT AND FOUNDATIONS, SEE SPECIAL PROVISIONS FOR ALUMINUM BOX CULVERT.

CULVERT BARREL SHOULD BE BACKFILLED WITH NATIVE MATERIAL TO BURY DEPTH (2.8'). NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

FOR CULVERT BACKFILL, SEE SPECIAL PROVISIONS.

THE ALUMINUM BOX CULVERT SHALL BE PLACED ON THE STANDARD 1.0 FT. BLANKET OF FOUNDATION CONDITIONING MATERIAL. SEE SECTION 414 OF THE STANDARD SPECIFICATIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

PROJECT NO. BP1.R005.1

TYRRELL COUNTY

STATION: 13+36.00 -L-

SHEET 1 OF 4 REPLACES BRIDGE NO. 23

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS
3/31/2022

Kimley»Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601-1772
Phone (919) 677-2000
NC LICENSE # F-0102

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 29'-1" x 6'-4" ALUMINUM BOX CULVERT 50° SKEW

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

DRAWN BY: D. D. LOWERY DATE: 10/2021
CHECKED BY: C.T. POOLE DATE: 01/2022
DESIGN ENGINEER OF RECORD: A.L. PHILLIPS DATE: 02/2022

3/31/2022 K:\NDOT_Structures_Bridge\NC\01036575 - BP1.R005.1 (Tyrrell 23)\Cad\Dgn\BP1.R005.1_SMU_CUL_880023.dgn

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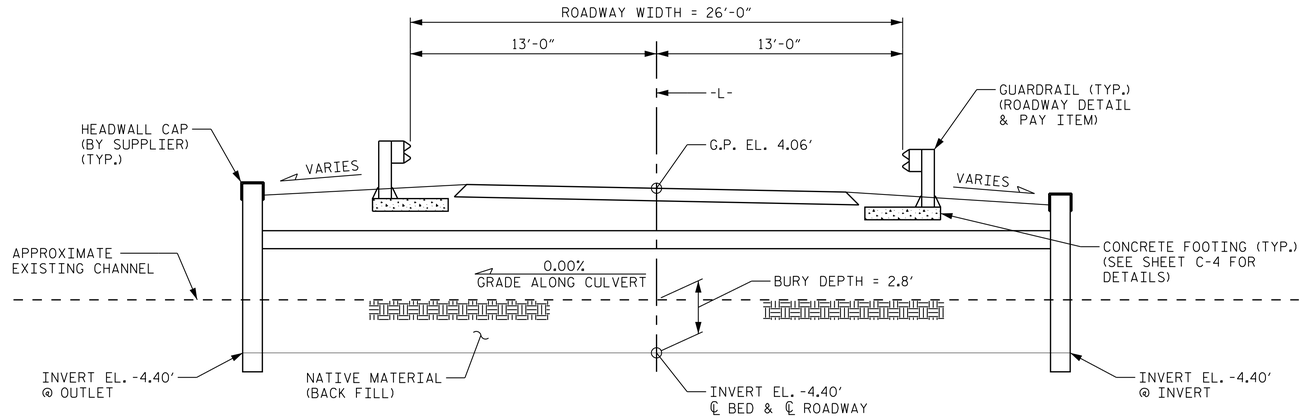
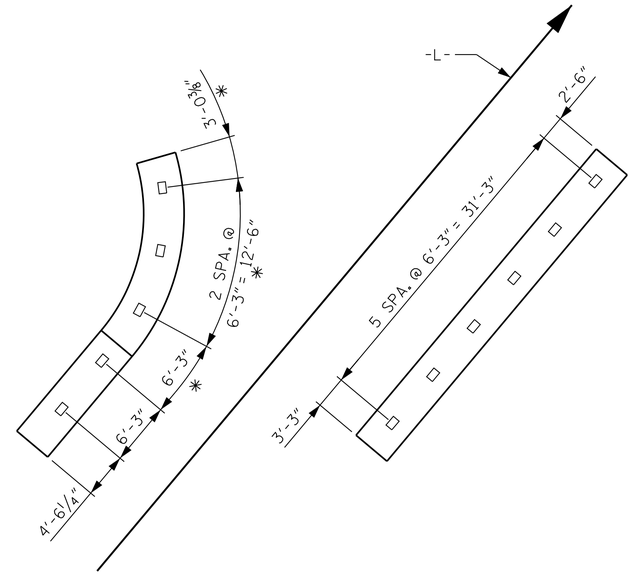


CULVERT SECTION NORMAL TO SURVEY LINE -L-

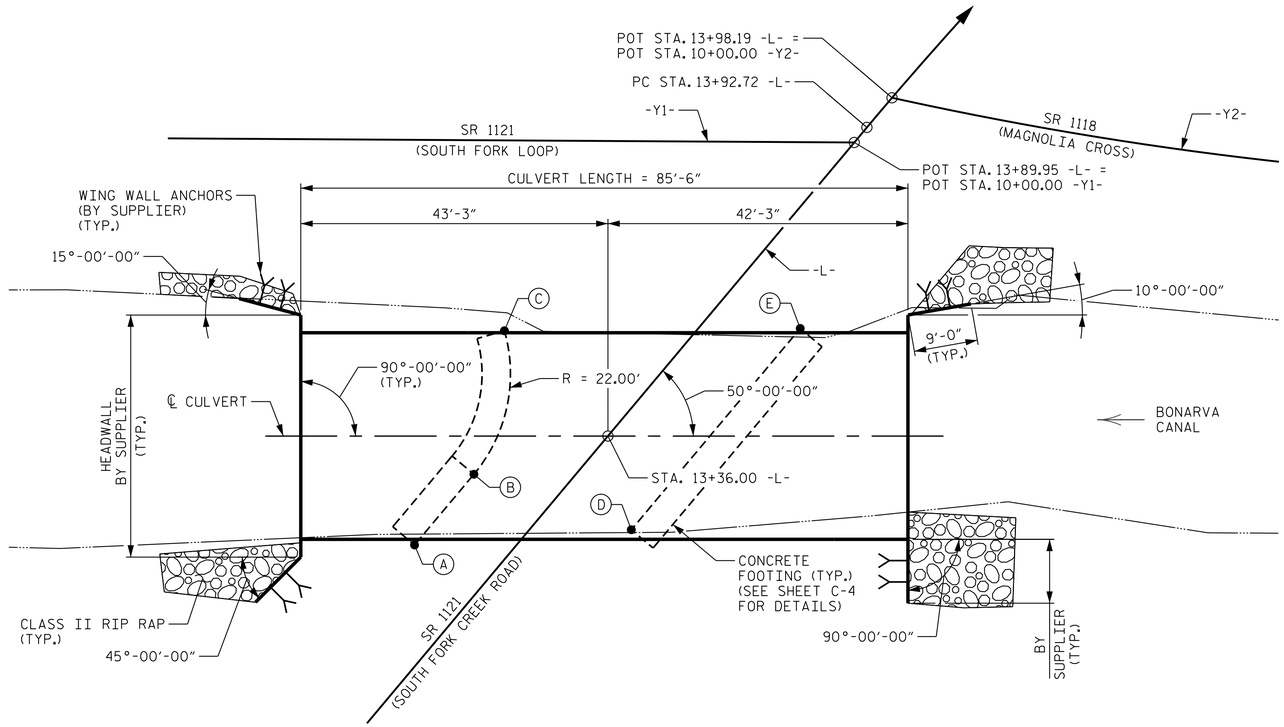


PLAN OF GUARDRAIL ATTACHMENT LOCATIONS

* MEASURED ALONG ARC OF FRONT FACE OF GUARDRAIL

(ALL DIMENSIONS ARE MEASURED ALONG FRONT FACE OF GUARDRAIL)

CONCRETE FOOTING TABLE		
POINT	STATION	OFFSET
(A)	13+06.74 -L-	-11.00'
(B)	13+19.74 -L-	-11.00'
(C)	13+37.97 -L-	-20.70'
(D)	13+28.00 -L-	+11.00'
(E)	13+65.00 -L-	+11.00'



PLAN

PROJECT NO. BP1.R005.1

TYRRELL COUNTY

STATION: 13+36.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 29'-1" x 6'-4" ALUMINUM BOX CULVERT 50° SKEW

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS
3/31/2022

Kimley»Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601-1772
Phone (919) 677-2000
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS
2			4			4

DRAWN BY: D. D. LOWERY DATE: 10/2021
CHECKED BY: C.T. POOLE DATE: 01/2022
DESIGN ENGINEER OF RECORD: A.L. PHILLIPS DATE: 02/2022

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3/31/2022 K:\RDT_Structures_Bridge\NC\0110366?5 - BP1.R005.1 (Tyrrell23)\Cad\Dgn\BP1.R005.1_SMU_CU2_880023.dgn

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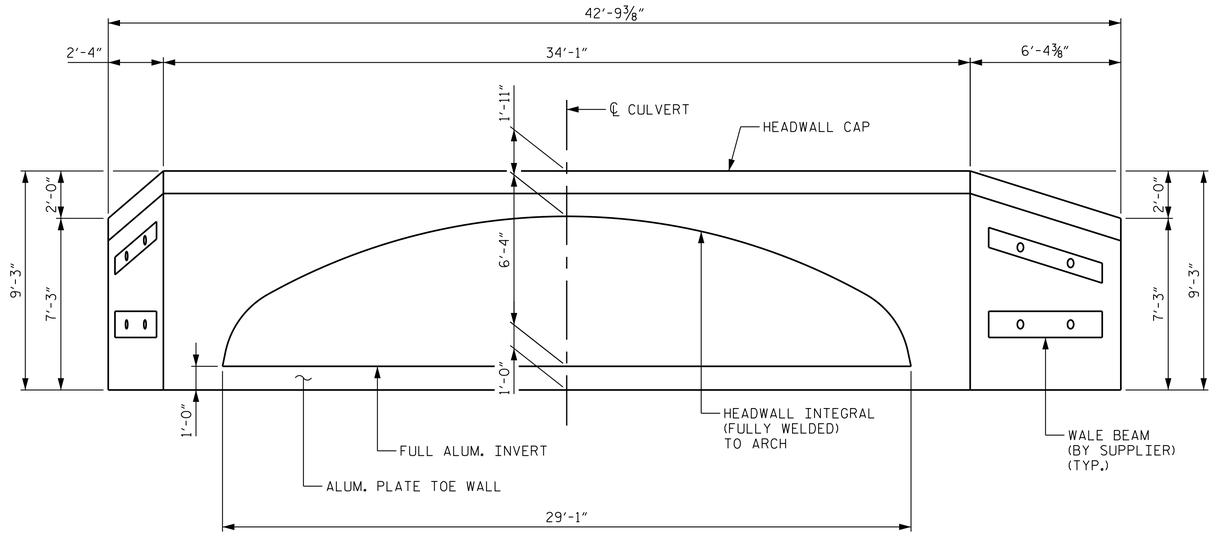
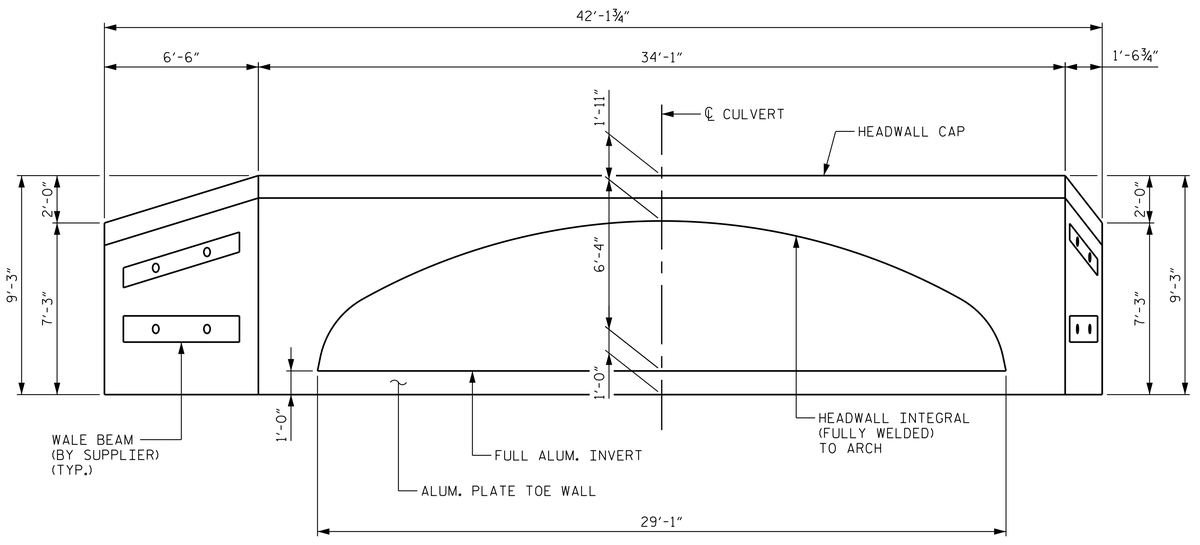


OUTLET - END ELEVATION

(LOOKING UPSTREAM)



INLET - END ELEVATION

(LOOKING DOWNSTREAM)

PROJECT NO. BP1.R005.1

TYRRELL COUNTY

STATION: 13+36.00 -L-

SHEET 3 OF 4

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040769 ANDREW L. PHILLIPS

3/31/2022

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 29'-1" x 6'-4" ALUMINUM BOX CULVERT 50° SKEW

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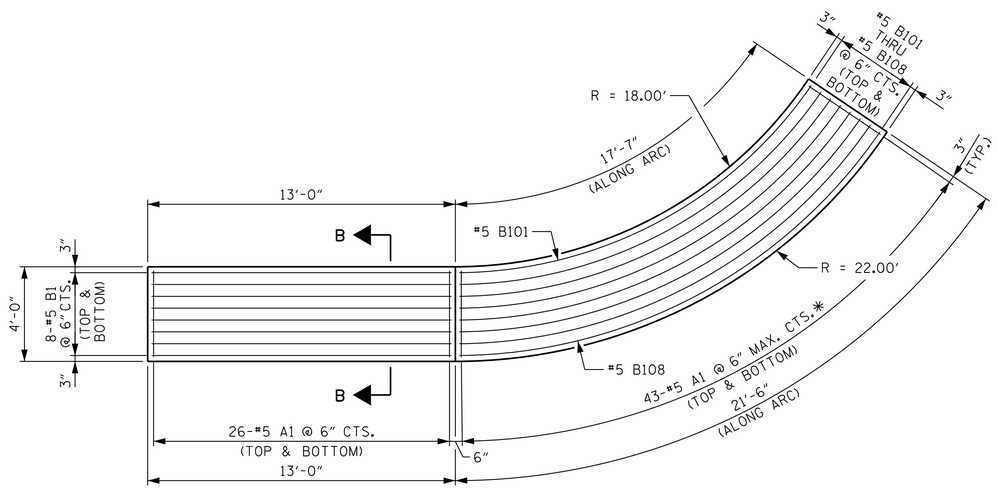
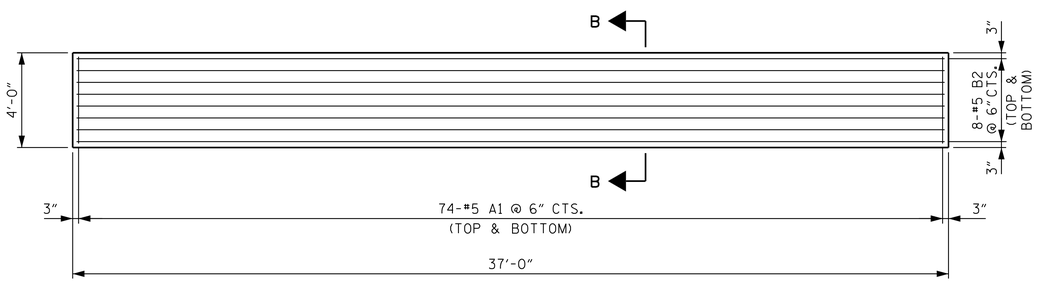


FOOTING PLAN - LEFT FOOTING

* RADIAL DIMENSIONS



FOOTING PLAN - RIGHT FOOTING

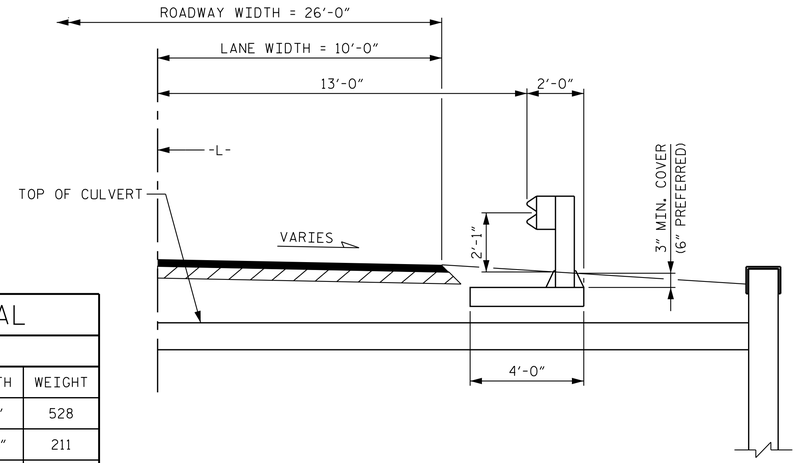
BILL OF MATERIAL						
LEFT FOOTING						
BAR	NO.	SIZE	TYPE	RADIUS	LENGTH	WEIGHT
A1	138	5	STR.	-	3'-8"	528
B1	16	5	STR.	-	12'-8"	211
B101	2	5	STR.	18.25'	17'-6"	37
B102	2	5	STR.	18.75'	17'-11"	37
B103	2	5	STR.	19.25'	18'-5"	38
B104	2	5	STR.	19.75'	18'-11"	39
B105	2	5	STR.	20.25'	19'-5"	41
B106	2	5	STR.	20.75'	19'-11"	42
B107	2	5	STR.	21.25'	20'-5"	43
B108	2	5	STR.	21.75'	20'-11"	44
EPOXY COATED REINFORCING STEEL LBS. = 1,060						
CLASS AA CONCRETE CU. YDS. = 3.2						

NOTES: ALL REINFORCING STEEL IS TO BE EPOXY COATED

ALL CURVED BARS ARE DETAILED AS STRAIGHT WITH A RADIUS PROVIDED TO FACILITATE REQUIRED BENDING/CURVING

BILL OF MATERIAL					
RIGHT FOOTING					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	148	5	STR.	3'-8"	566
B2	16	5	STR.	36'-8"	612
EPOXY COATED REINFORCING STEEL LBS. = 1,178					
CLASS AA CONCRETE CU. YDS. = 3.7					

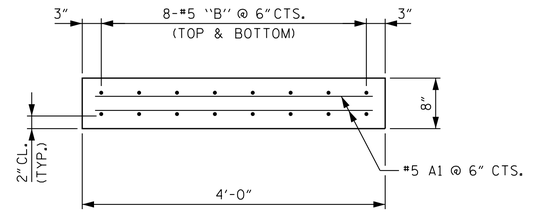
NOTE: ALL REINFORCING STEEL IS TO BE EPOXY COATED



NOTE: FOR GUARDRAIL ANCHORAGE TO FOOTING DETAILS SEE NCDOT STD. DWG. 862.03, SHEET 7 OF 7.

CONTRACTOR SHALL LAYOUT AND INSTALL ALL ANCHORS IN FOOTINGS PRIOR TO CASTING FOOTING CONCRETE.

SECTION THRU SHOULDER



SECTION B-B

PROJECT NO. BP1.R005.1

TYRRELL COUNTY

STATION: 13+36.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 29'-1" x 6'-4" ALUMINUM BOX CULVERT 50° SKEW

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040709 ANDREW L. PHILLIPS
3/31/2022

Kimley»Horn
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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
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 A.A.S.H.T.O.
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 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH 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.

ENGLISH

JANUARY, 1990