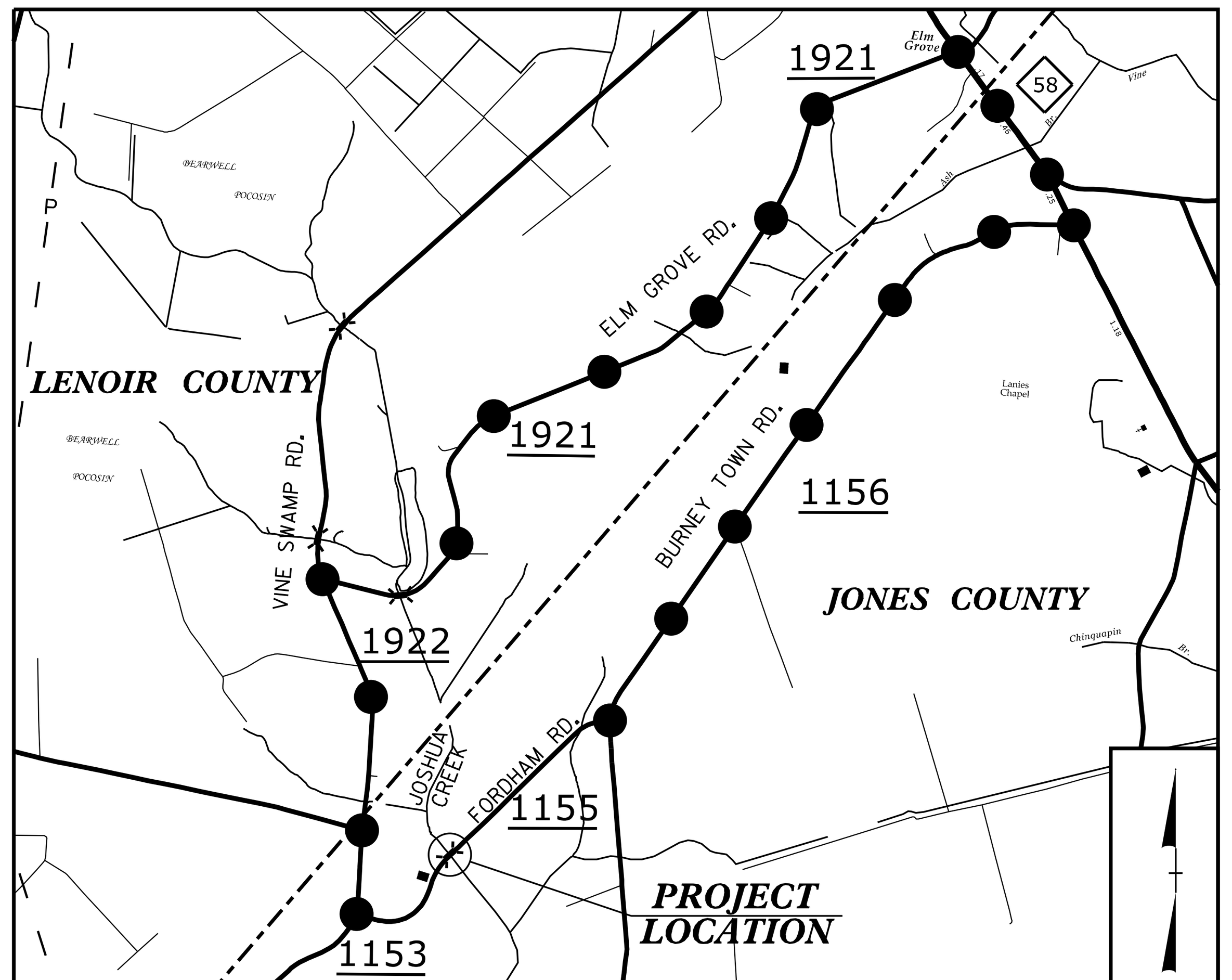
TIP PROJECT: BP2-R021

CONTRACT: DB00604

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



DETOUR

VICINITY MAP N.T.S

100% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JONES COUNTY

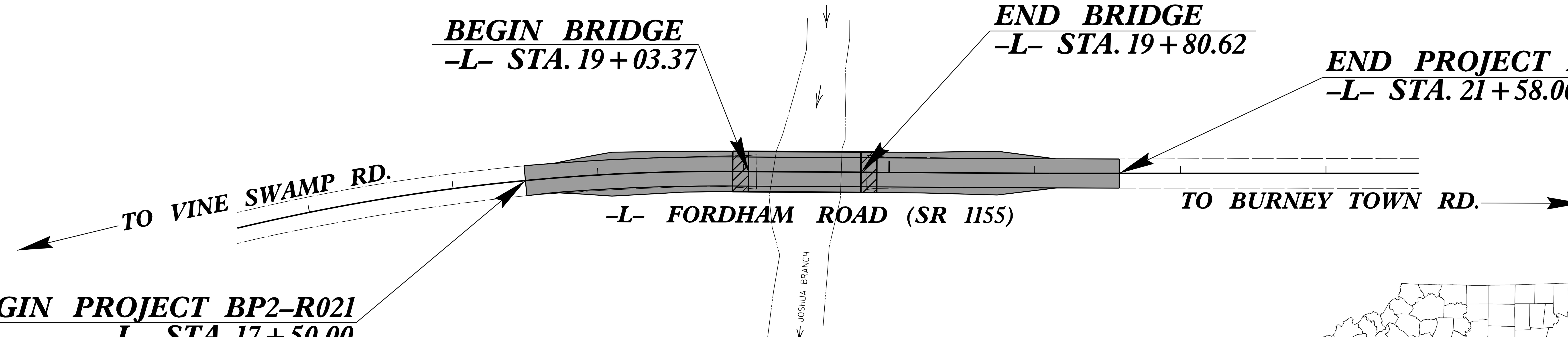
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP2-R021	1	

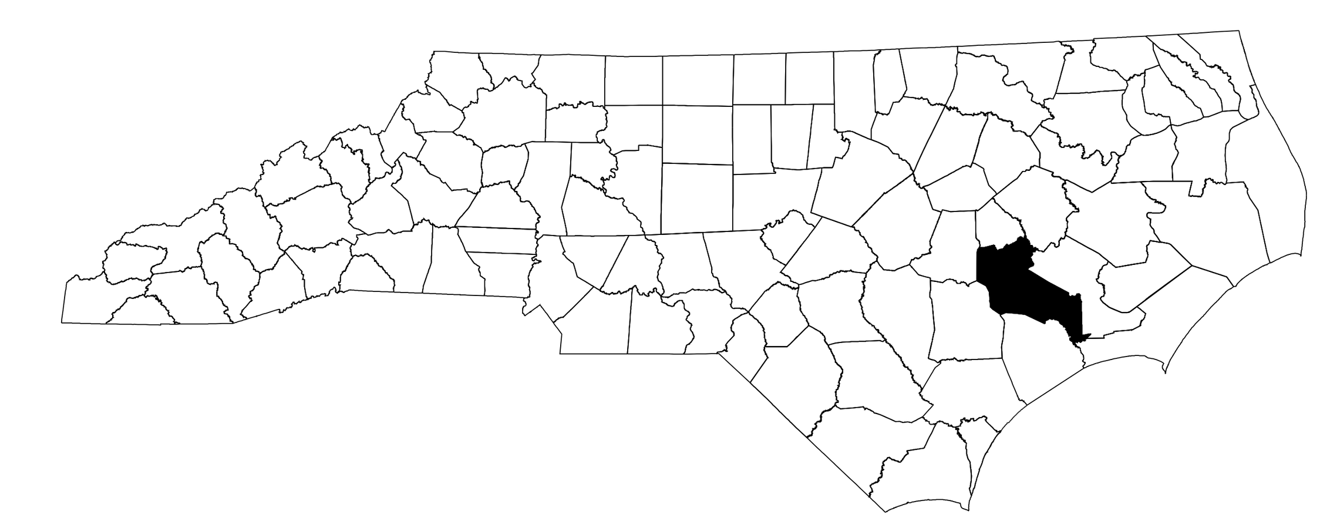
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP2-R021.1	N/A	PE
BP2-R021.2	N/A	RW, UTIL.
BP2-R021.3	N/A	CONST.

LOCATION: REPLACE BRIDGE NO. 510072 ON SR 1155 OVER JOSHUA CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE (BRIDGE)

NAD 83





DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

GRAPHIC SCALES

50 25 0 50 100 — PLANS

50 25 0 50 100 — PROFILE (HORIZONTAL)

10 5 0 10 20 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2024 = 189
ADT 2044 = 411
K = %
D = %
T = % *
V = 60 MPH
* TTST = DUAL
FUNC CLASS =
LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BP2-R021 = 0.063 MILES

LENGTH STRUCTURE TIP PROJECT BP2-R021 = 0.014 MILES

TOTAL LENGTH TIP PROJECT BP2-R021 = 0.077 MILES

PREPARED IN THE OFFICE OF:

RS&H

8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 10, 2023

LETTING DATE:
MAY 14, 2025

ALEX VINSON, PE
PROJECT ENGINEER

SEAN KORTOVICH, PE
PROJECT DESIGN ENGINEER

CATHRINE HOSSACK MEYER, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SEAL 049764

Alexander R Vinson 2/28/2025 P.E.
SIGNATURE

ROADWAY DESIGN ENGINEER

SEAL 044511

2/28/2025 P.E.
SIGNATURE

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 044511 ENGINEER

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RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1 THRU 2C-2	GUARDRAIL PLACEMENT
2D-1 THRU 2D-2	METHOD OF PIPE INSTALLATION
3B-1	EARTHWORK SUMMARY, SUMMARY OF PAVEMENT REMOVAL, SHOULDER BERM GUTTER SUMMARY, SUMMARY OF GUARDRAIL, SUMMARY OF DRAINAGE QUANTITIES
3G-1	GEOTECHNICAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
RW01 THRU RW04	SURVEY CONTROL, EXISITNG CENTERLINES, RIGHT OF WAY, EASEMENT, AND PROPERTY TIES
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-4	CROSS-SECTIONS
S-1 THRU S-14	STRUCTURE PLANS
SN	STRUCTURE STANDARD NOTES SHEET

GENERAL NOTES

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

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

SUBSURFACE DRAINS:

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

GUARDRAIL:

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

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE WATER-JONES COUNTY REGIONAL SYSTEM

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

STANDARD DRAWINGS

EFF. 01-16-2024
REV.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type 1 Approach Fill for Bridge Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)
862.02	Guardrail Installation
862.03	Structure Anchor Units (Use Detail in Lieu of Standard for Sheet 8 of 9)
876.02	Guide for Rip Rap at Pipe Outlets

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9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	1B

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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	2A-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044511
2/28/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

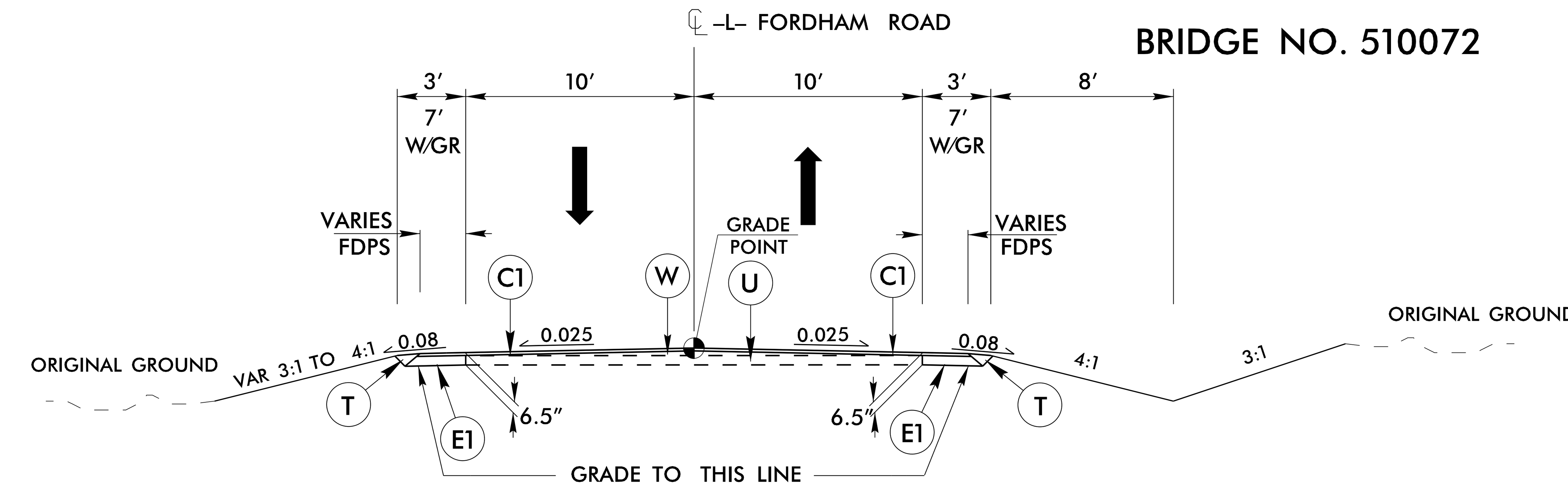
RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

BRIDGE NO. 510072

PAVEMENT SCHEDULE

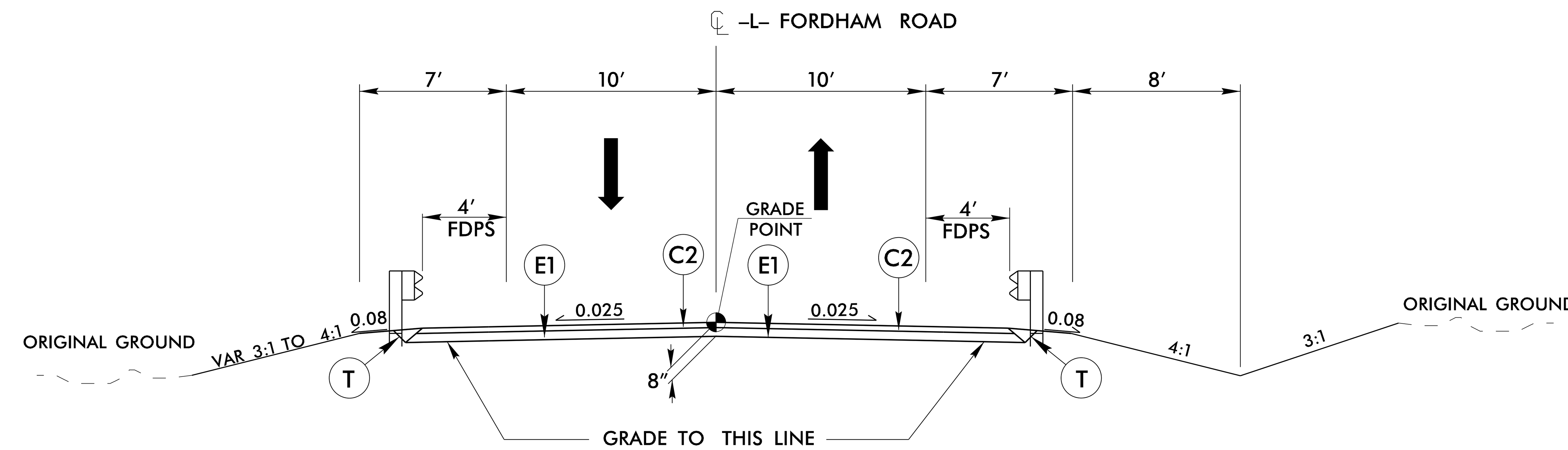
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 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.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 5 ½" IN DEPTH OR LESS THAN 3" IN DEPTH
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT (1½")
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE



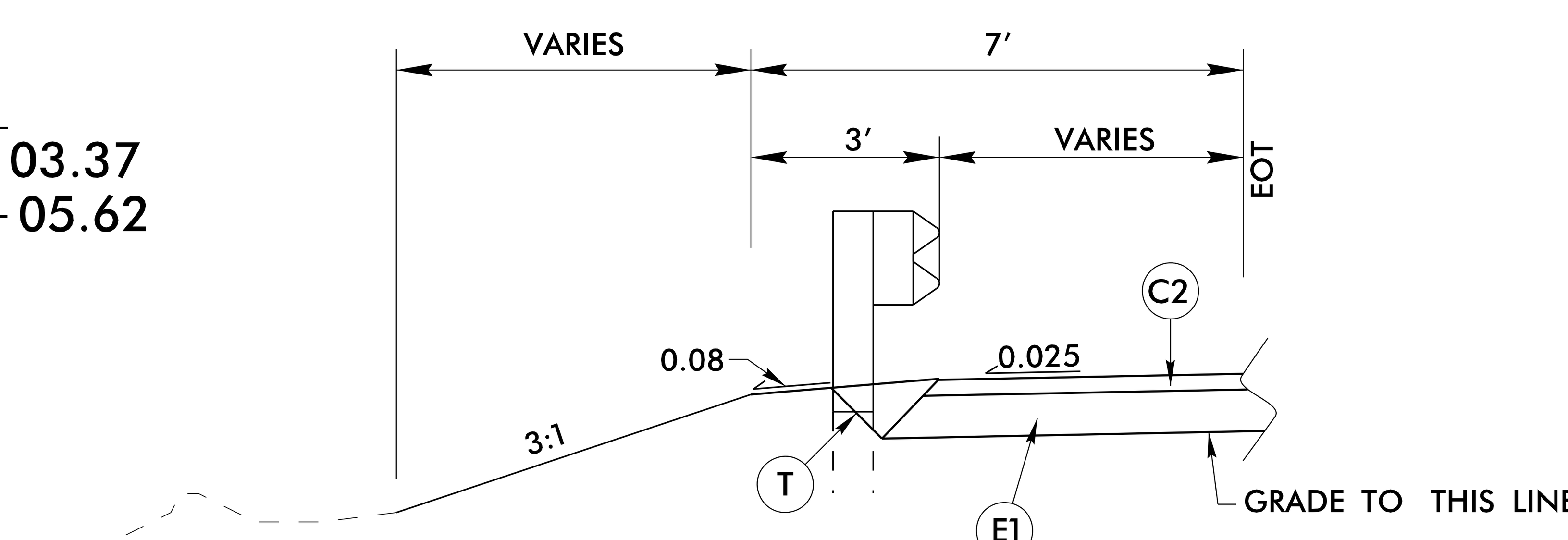
TYPICAL SECTION NO. 1

-L- STA. 17+50.00 TO -L- STA. 18+78.37
-L- STA. 20+05.62 TO -L- STA. 21+58.00



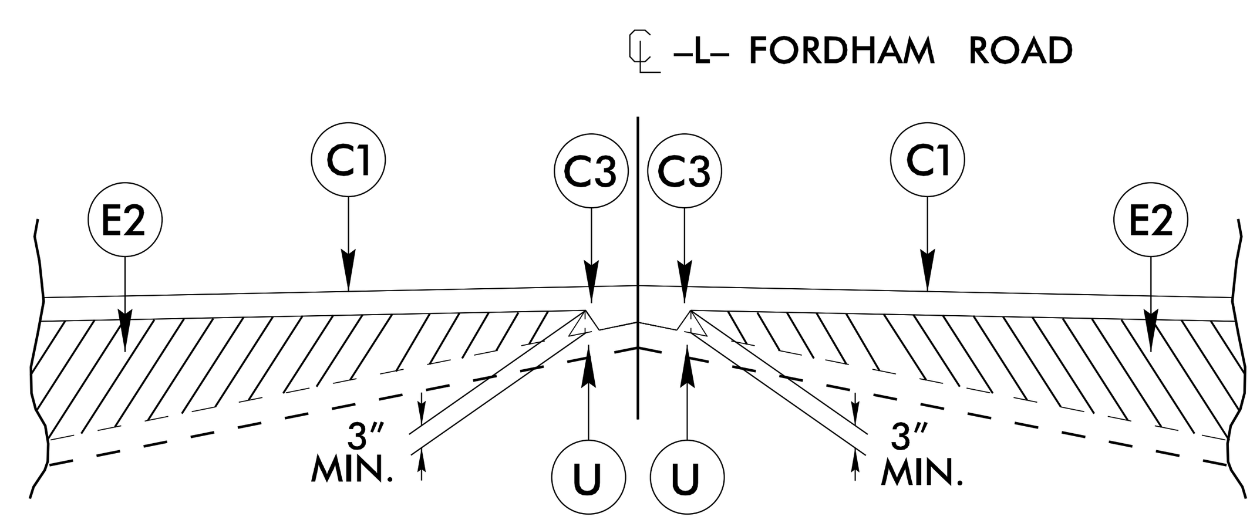
TYPICAL SECTION NO. 2

-L- STA. 18+78.37 TO -L- STA. 19+03.37
-L- STA. 19+80.62 TO -L- STA. 20+05.62

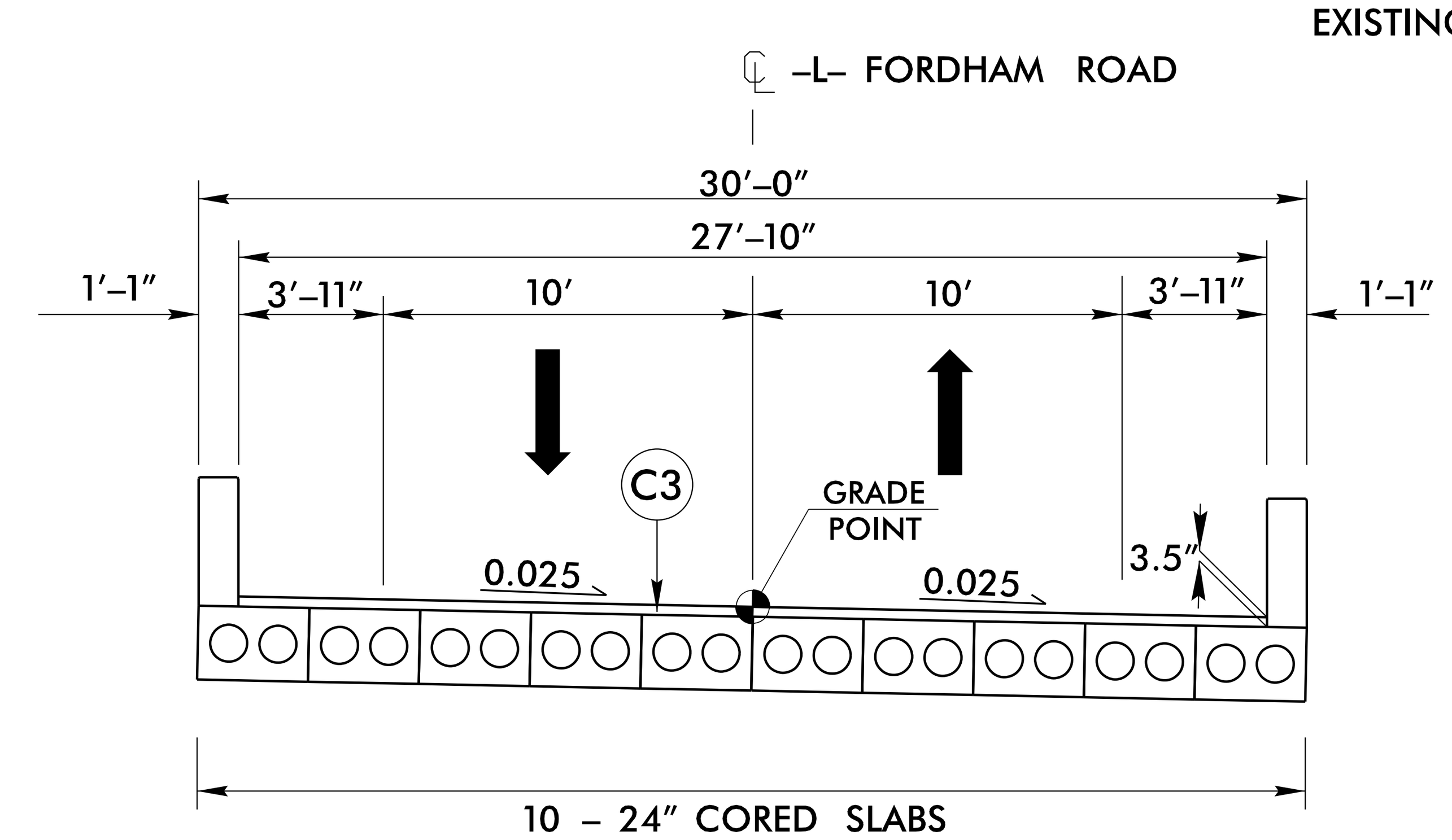


SHOULDER DETAIL

USE IN CONJUNCTION WITH GUARDRAIL ON -L-
SEE CROSS SECTIONS

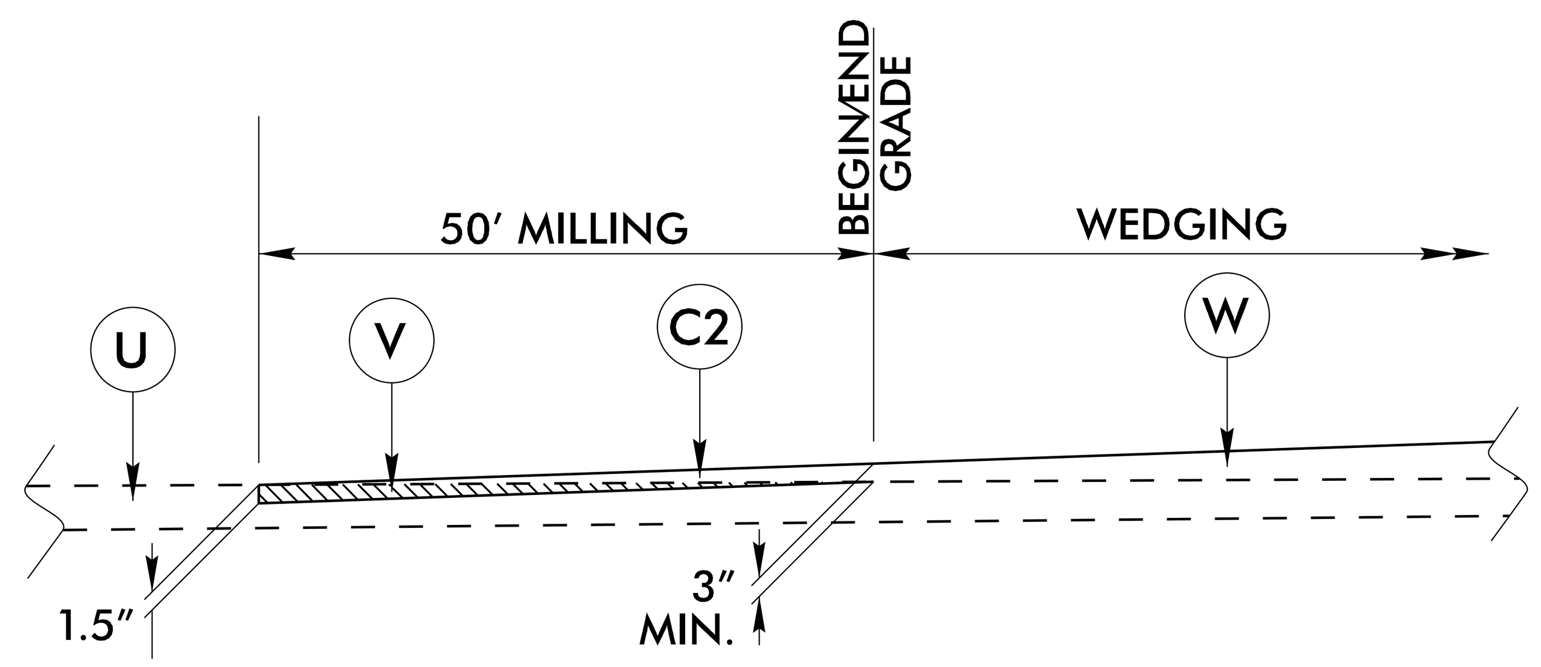


STANDARD WEDGING DETAIL

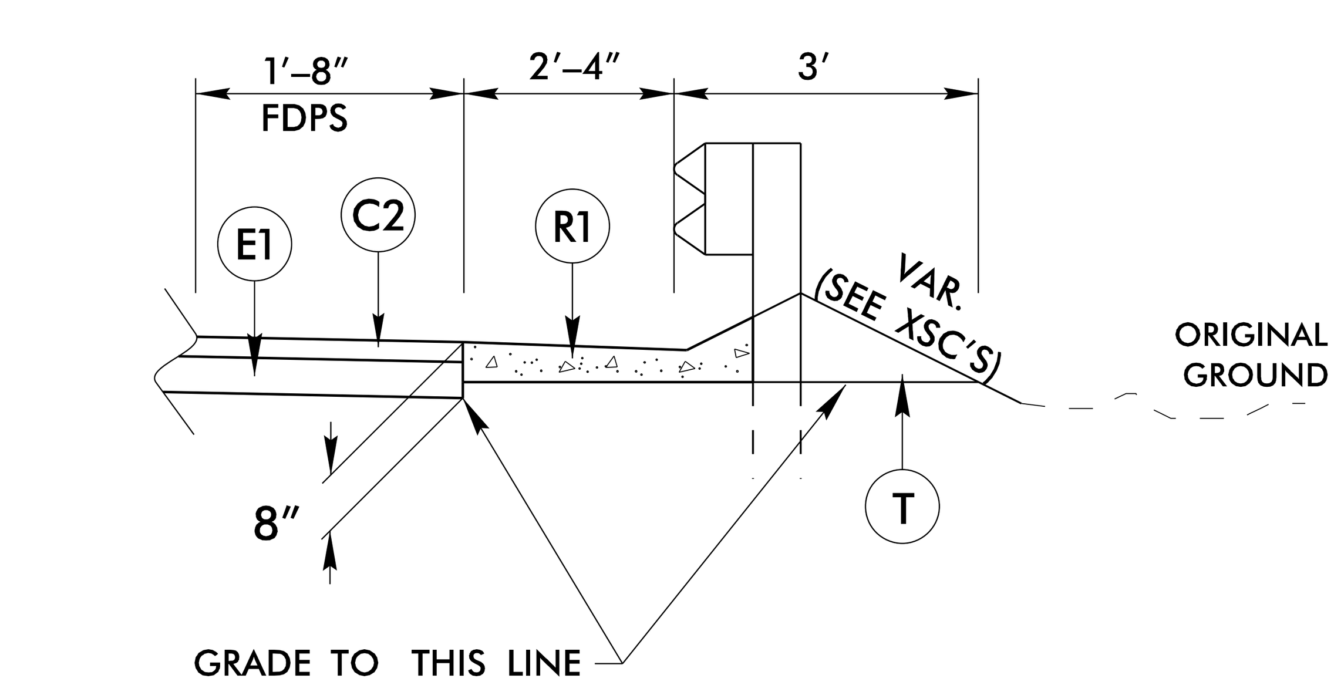


TYPICAL SECTION NO. 3

-L- STA. 19+03.37 TO -L- STA. 19+80.62



DETAIL OF MILLING AT PAVEMENT TIE-INS



SHOULDER BERM GUTTER DETAIL

-L- STA. 18+57.00 TO -L- STA. 18+92.50 (RT)
-L- STA. 19+91.50 TO -L- STA. 20+25.00 (RT)

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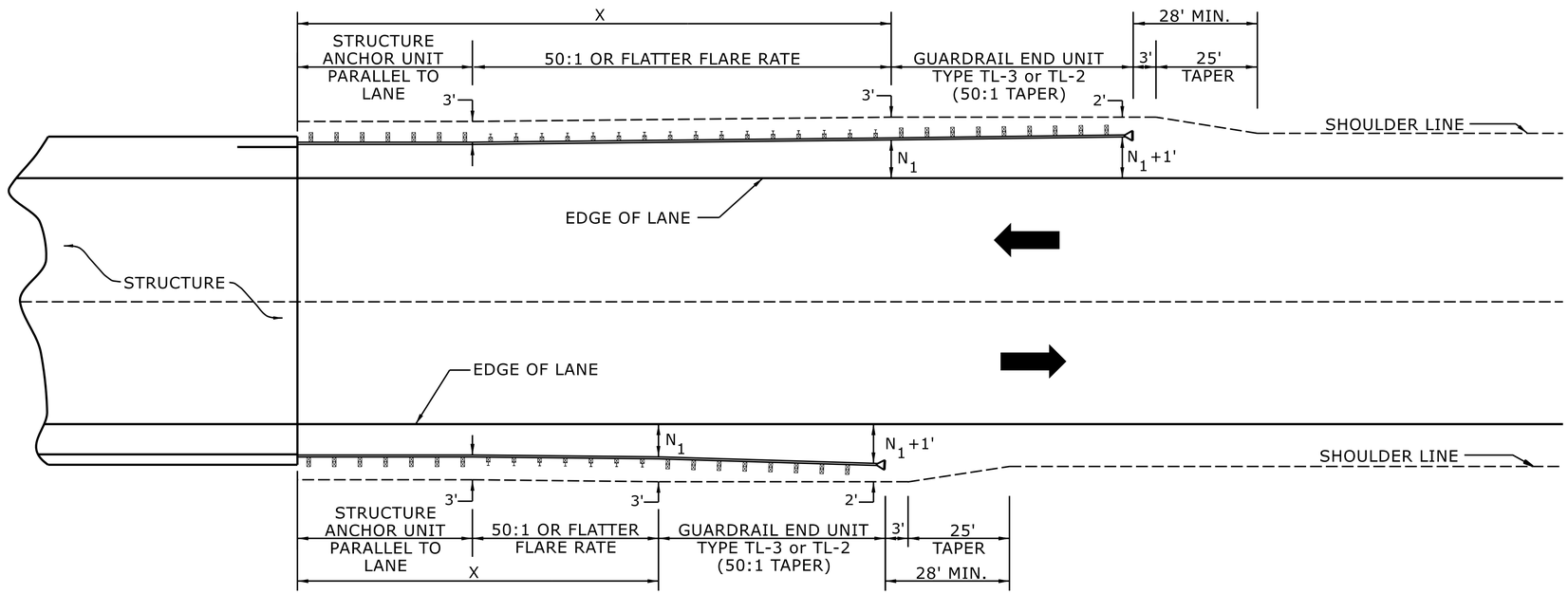
PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	2C-1



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

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

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

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

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

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15

862D01

NORTH CAROLINA PROFESSIONAL SEAL 033144 Signed by: NICOLE M. HACKER
3/3/2025

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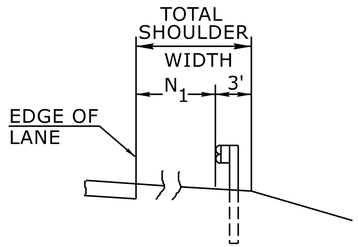
UNLESS ALL SIGNATURES COMPLETED

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

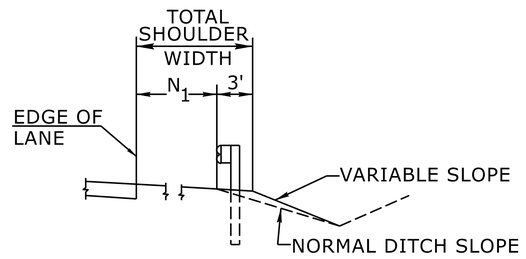
SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	2C-2

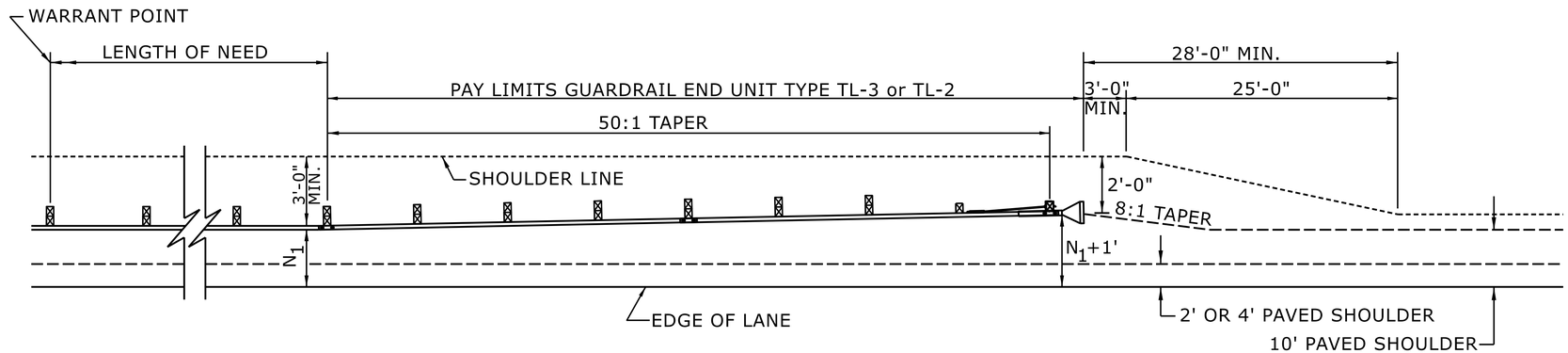


FILL SECTION



CUT SECTION

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



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

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15

862D01

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M HATCHER
Signed by: Nicole Hatcher

3/3/2025

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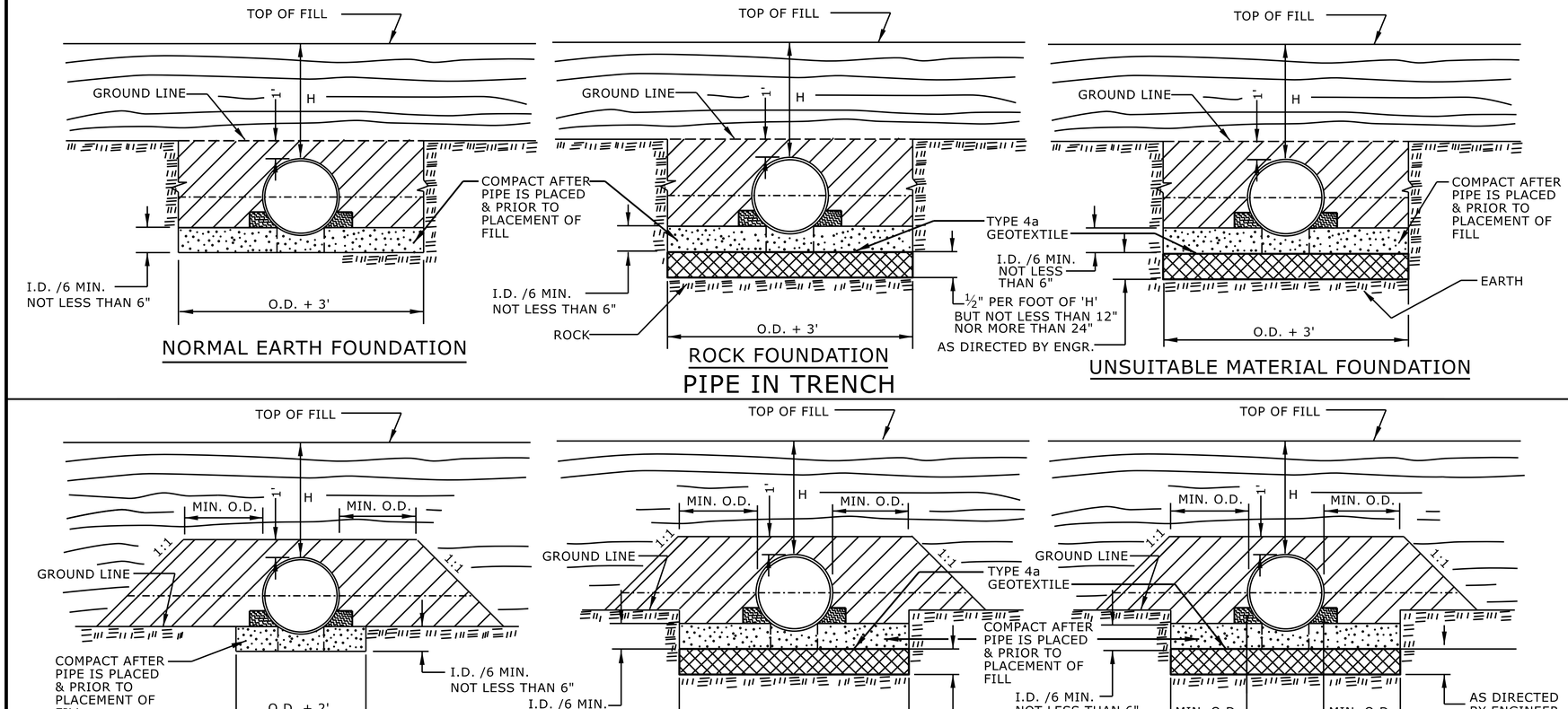
CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	2D-1



GENERAL NOTES:

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

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

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

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

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

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

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

SPRINGLINE OF PIPE

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

UNDISTURBED EARTH MATERIAL

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

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 2

300.01

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. SALTER
Signed by:
3/3/2025

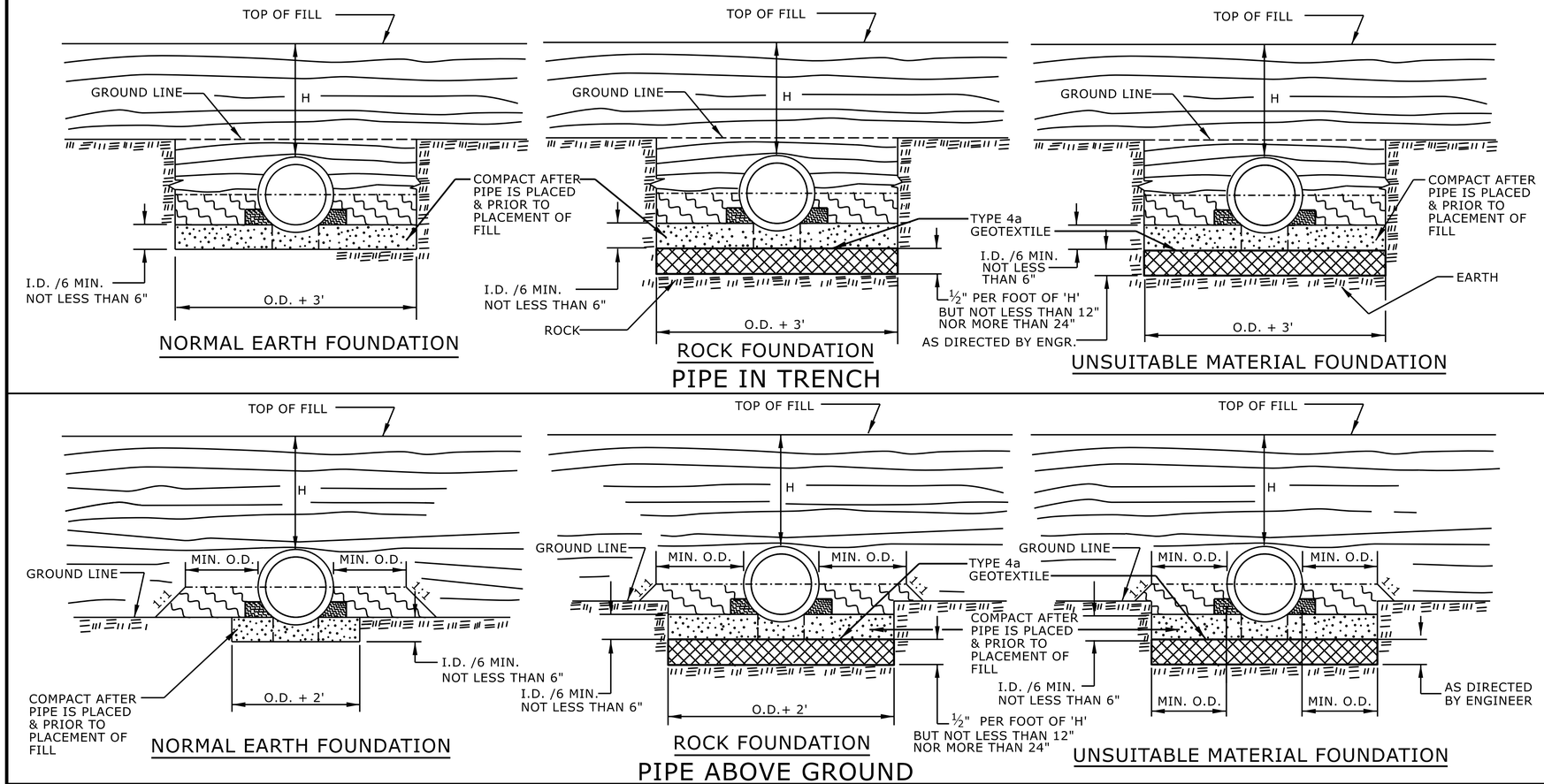
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	2D-2



GENERAL NOTES:

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

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

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

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

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

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

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

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

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

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 2

300.01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033144 NICOLE M. HACKER
3/3/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

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

COMPUTED BY: SGK DATE: 12/10/2024
CHECKED BY: SJS DATE: 12/10/2024

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	3B-1

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	UNDERCUT	EMBANK. +%	BORROW	WASTE
-L- 17+50.00	-L- 19+03.37 (BR)			221	221	
-L- 19+80.62 (BR)	-L- 21+58.00			384	384	
PROJECT TOTALS:				605	605	
EST. 5% TO REPLACE SOIL IN BORROW PIT					30	
GRAND TOTALS:				605	635	
SAY:					670	

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

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

UNDERCUT EXCAVATION = 300 CUBIC YARDS CONTINGENCY
SELECT GRANULAR MATERIAL = 300 CUBIC YARDS CONTINGENCY

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	18+78.37	19+09.03	CL	73.09
-L-	19+84.69	20+05.62	CL	51.15
TOTAL:				124.24
SAY:				130

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-	18+57.00	18+92.50	35.5
-L-	19+91.50	20+25.00	33.5
TOTAL:			69
SAY:			70

NOTE:
INVERT ELEVATIONS INDICATED ARE FOR BID PURPOSES ONLY AND SHALL NOT BE USED FOR PROJECT CONSTRUCTION STAKE OUT.
SEE "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, SECTION 300-5".

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

STATION (SIZE / THICKNESS OR GAUGE)	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-L- 18+62	12RT	0401		65.00															
		0401	0402		62.25	58.46			40								X	X	
-L- 20+20	12RT	0403		65.00															
		0403	0404		62.25	57.80			48								X	X	
TOTAL									88										

STATION	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
-L- 18+62																						
-L- 20+20																						
TOTAL																						

STATION	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	T.B.G.D.I. STD. 840.35	T.B.G.D.I. (W.S. FLAT) FRAME W/2 GRATES STD. 840.29	15" ELBOWS							PIPE REMOVAL LIN.FT.	REMARKS
-L- 18+62								1										1	1									
																				2								
-L- 20+20								1										1	1									
																				2								
TOTAL								2										2	2	4								

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.G.D.I.	TRAFFIC BEARING GRATED DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END	ANCHORS GREU TL-3	TYPE III						IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	18+10.49	19+03.37 (BR)	LT	93.75				19+03.37 (BR)	4.00	7.00		50.00'		1	1	1												
-L-	18+08.75	19+03.37 (BR)	RT	93.75			19+03.37 (BR)		4.00	7.00	50.00'		1		1	1												
-L-	19+80.62 (BR)	20+74.36	LT	93.75			19+80.62 (BR)		4.00	7.00	50.00'		1		1	1												
-L-	19+80.62 (BR)	20+74.36	RT	93.75				19+80.62 (BR)	4.00	7.00		50.00'		1	1	1												
			SUBTOTALS	375																								
			ANCHOR DEDUCTION	275																								
			TOTAL	100																								
			SAY	112.5																								

ANCHOR DEDUCTION
GREU TYPE TL-3: 4 @ 50' = 200'
TYPE III: 4 @ 18.75' = 75'
GRAND TOTAL = 275'
ADDITIONAL GUARDRAIL POSTS = 5

COMPUTED BY: Tyler C. Bottoms DATE: 3/3/23 CHECKED BY: Jinyoung Park DATE: 4/3/2023	(2-3-23)	PROJECT NO. BP2-R021	SHEET NO. 3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

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

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

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044511 SEAN ... 2/28/2025

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 049764 ALEXANDER R. VINSON 2/28/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

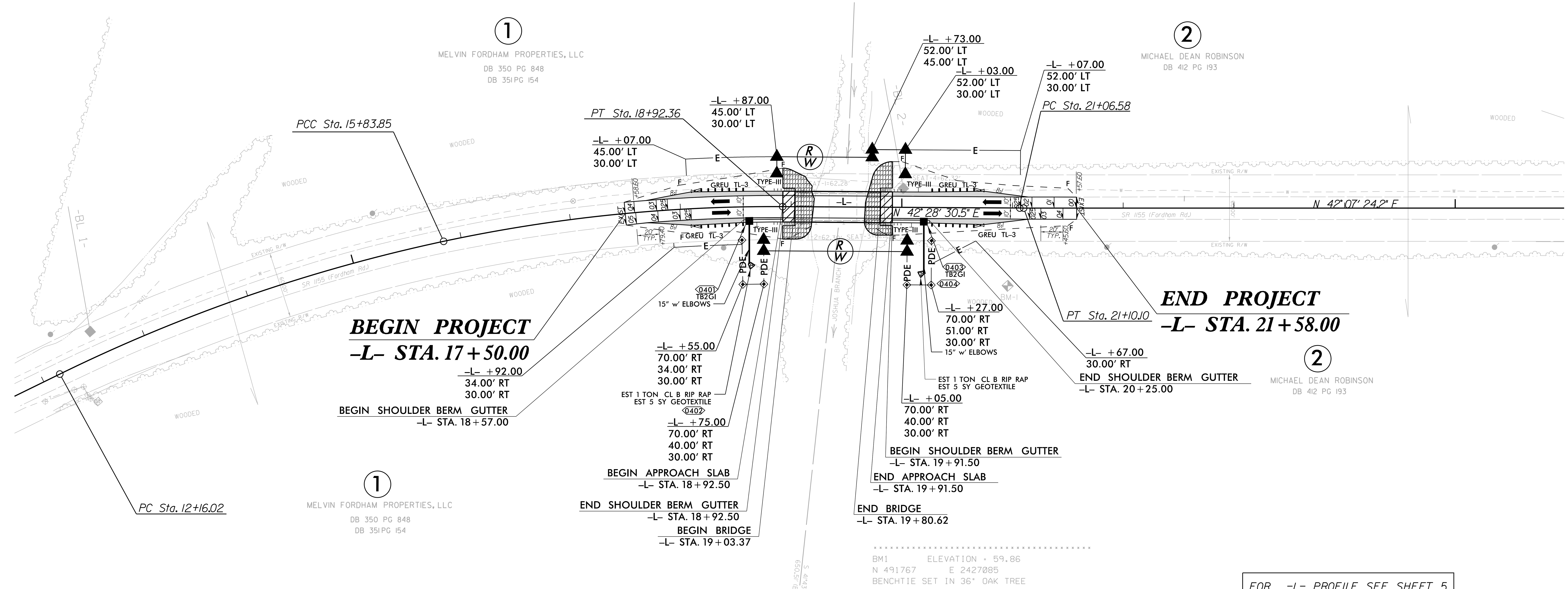
RS&H — 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 NC FIRM LICENSE No: F-0493

REVISIONS

8/17/99

-L- CURVE DATA

PI Sta 14+00.86	PI Sta 17+38.71	PI Sta 21+08.34
Δ = 14° 02' 29.6" (RT)	Δ = 12° 24' 10.3" (RT)	Δ = 0° 21' 06.3" (LT)
D = 3° 49' 02.6"	D = 4° 01' 12.7"	D = 10° 00' 00.0"
L = 367.83'	L = 308.51'	L = 3.52'
T = 184.84'	T = 154.86'	T = 1.76'
R = 1,500.91'	R = 1,425.20'	R = 572.96'
SE = EXIST	SE = EXIST	SE = N/A
RO = N/A	RO = N/A	RO = N/A



FOR -L- PROFILE SEE SHEET 5

NOTE: EXISITNG HORIZONTAL ALIGNMENT WAS USED

FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S-14

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	5

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044511 ENGINEER SEAN M. KORTOVICH
Signed by: E741DD4D67CA471...
2/28/2025

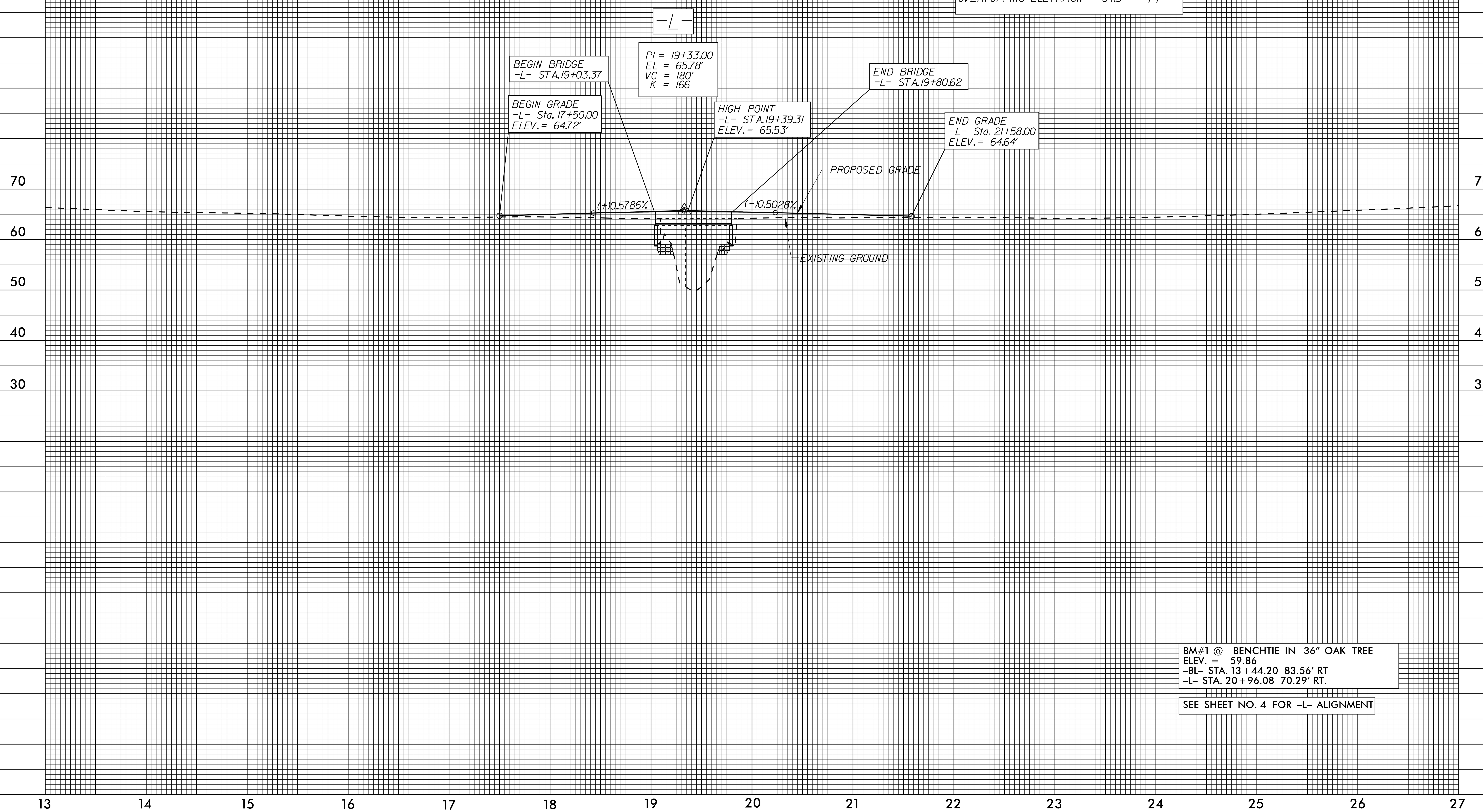
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 049764 ENGINEER ALEXANDER R. VINSON
DocuSigned by: Alexander R Vinson EY90C5A47B6942E...
2/28/2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

STRUCTURE HYDRAULIC DATA

DRAINAGE AREA	=	11.7	SQ MI
DESIGN DISCHARGE	=	1300	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	60.9	FT
BASE DISCHARGE	=	1950	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	62.0	FT
OVERTOPPING DISCHARGE	=	4000	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	64.3	FT



BM#1 @ BENCHTIE IN 36" OAK TREE
ELEV. = 59.86
-BL- STA. 13+44.20 83.56' RT
-L- STA. 20+96.08 70.29' RT.

SEE SHEET NO. 4 FOR -L- ALIGNMENT

12-DEC-2024 07:20
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KrawczuS

09/08/99

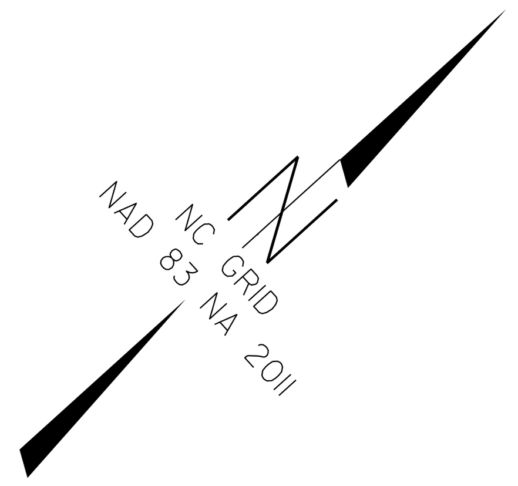
TIP PROJECT: BP2.R021

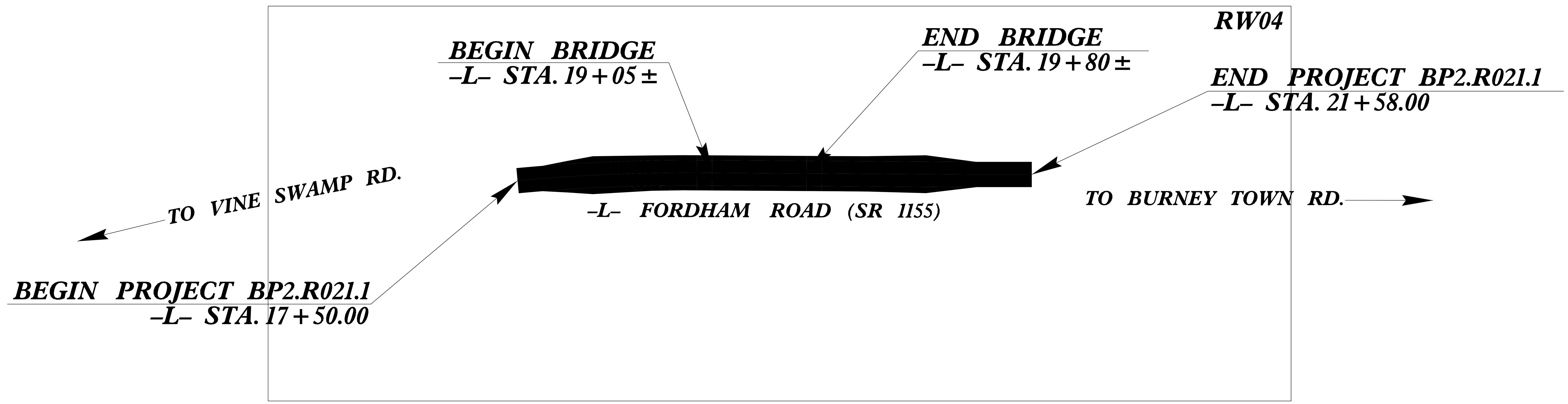
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP2.R021	RW01	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

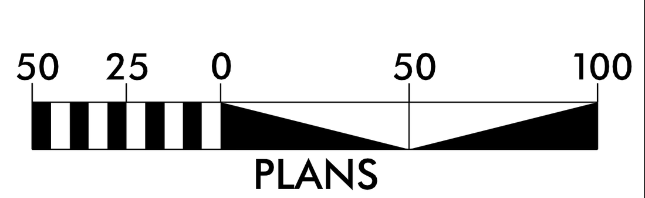
SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

JONES COUNTY





GRAPHIC SCALE



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR GPS MONUMENT "BP2.R021.1 GPS-1"
WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 492277.2777(ft) EASTING: 2427473.4213(ft)
ELEVATION: 66.07(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999880634
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"BP2.R021.1 GPS-1" TO -L- STATION 27+10.63 IS
S 76°33'18" W 28.49(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD88

Prepared In the Office of:

LOCATIONS AND SURVEYS
DIVISION2

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	LETTING DATE:
APRIL 4 2023	MAY 24 2024

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-5082 JAMES C. GREEN III

DocuSigned by:
SIGNATURE:
02/27/2023
Date:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

27-FEB-2023 08:59
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mwstahl AT LS-328780L

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
BP2.R021	RW02C-1

Location and Surveys

LOCATION AND SURVEY
DIVISION 2

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR SEAL L-5082 JAMES C. GREEN III

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

I, James C. Green 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: RTN
Dates of survey: Jan - Feb 2022
Datum/Epoch:NAD82/2011
Published/Fixed-control use: N/A for RTN
Localized around: BP2.R021.1 GPS-1
Northing:492277.2777
Easting:2427473.4213
Combined grid factor:0.999880634
Geoid model:G12NC
Units:US survey ft.

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 Jan. 2022 to Feb. 2022 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 27 day of Feb, 2023.

DocuSigned by:
Jake Green
BFC2DD553857475...
Professional Land Surveyor L-5082

BASELINE

BL

POINT	DESC.	NORTH	EAST	ELEVATION
BL1	BL-1	491124.8680	2426559.9740	66.06
BL2	BL-2	491756.5310	2426956.7890	62.96
1	GPS-1	492277.2777	2427473.4213	66.07
2	GPS-2	493080.0457	2428194.4318	73.36

EXISTING ALIGNMENT

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	490871.162	2426510.400							
LINE			N 16°01'50.6" E	216.02					
PC	491078.781	2426570.054							
CURVE			N 23°03'05.4" E	366.91	14°02'29.6"(RT)	03°49'02.6"	367.83	184.84	1500.91
PCC	491416.394	2426713.721							
CURVE			N 36°16'25.3" E	307.91	12°24'10.3"(RT)	04°01'12.7"	308.51	154.86	1425.20
PT	491664.633	2426895.895							
LINE			N 42°28'30.5" E	214.22					
PC	491822.633	2427040.549							
CURVE			N 42°17'57.4" E	3.52	00°21'06.3"(LT)	10°00'00.0"	3.52	1.76	572.96
PT	491825.235	2427042.916							
LINE			N 42°07'24.2" E	600.54					
POT	492270.654	2427445.714							

BENCHMARK

BM1 ELEVATION - 59.86
N 491767 E 2427085
BENCHTIE SET IN 36" OAK TREE

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.

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6/2/99

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP2.R021	RW02D-1

Location and Surveys

LOCATION AND SURVEYS
DIVISION 2

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5082 LAND SURVEYOR JAMES C. GREEN III

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

I, James C. Green 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 27 day of Feb, 2023.

DocuSigned by:

Professional Land Surveyor L-5082

REVISIONS

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	490871.1620	2426510.4000
PC	12+16.02	491078.7808	2426570.0542
PCC	15+83.85	491416.3945	2426713.7209
PT	18+92.36	491664.6334	2426895.8951
PC	21+06.58	491822.6333	2427040.5492
PT	21+10.10	491825.2348	2427042.9164
POT	27+10.63	492270.6539	2427445.7140

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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mwstahl AT LS-328780L

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
BP2.R021	RW03E-1

Location and Surveys

LOCATION AND SURVEYS
DIVISION 2

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5082 LAND SURVEYOR JAMES C. GREEN III

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RIGHT OF WAY AND PERMANENT EASEMENT CONTROL SHEET

I , James C. Green 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 on Feb. 16 2023, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 27 day of Feb, 2023.

DocuSigned by:
Jake Green
BFC2DD553857475...
Professional Land Surveyor L-5082

REVISIONS

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	18+75.00	40.00	491625.1062	2426914.0782
L	18+75.00	30.00	491631.7686	2426906.6207
L	18+87.00	-30.00	491680.8454	2426870.0777
L	18+87.00	-45.00	491690.9328	2426858.9761
L	19+73.00	-45.00	491754.4958	2426917.1560
L	19+73.00	-52.00	491759.2227	2426911.9930
L	20+03.00	-52.00	491781.3498	2426932.2511
L	20+03.00	-30.00	491766.4938	2426948.4776
L	20+05.00	40.00	491720.7001	2427001.4581
L	20+05.00	30.00	491727.4528	2426994.0824

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	18+55.00	70.00	491590.8485	2426923.8801
L	18+55.00	30.00	491617.0766	2426893.6794
L	18+75.00	70.00	491605.1192	2426936.4504
L	20+05.00	70.00	491700.4419	2427023.5852
L	20+27.00	70.00	491716.6685	2427038.4412
L	20+27.00	30.00	491743.6793	2427008.9384

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 FEB. 16 2023.

27-FEB-2023 09:15
N:\BRIDGEJOBS\BP2.R021.1\Control Sheets\510072_Rdy_row - Copy.dgn
mwstahl AT LS-328780L

PROJECT REFERENCE NO.	SHEET NO.
BP2.R021	RW04

Location and Surveys

LOCATION AND SURVEYS
DIVISION 2

PROJECT SURVEYOR

SEAL L-5082 — NORTH CAROLINA PROFESSIONAL LAND SURVEYOR — JAMES C. GREEN III

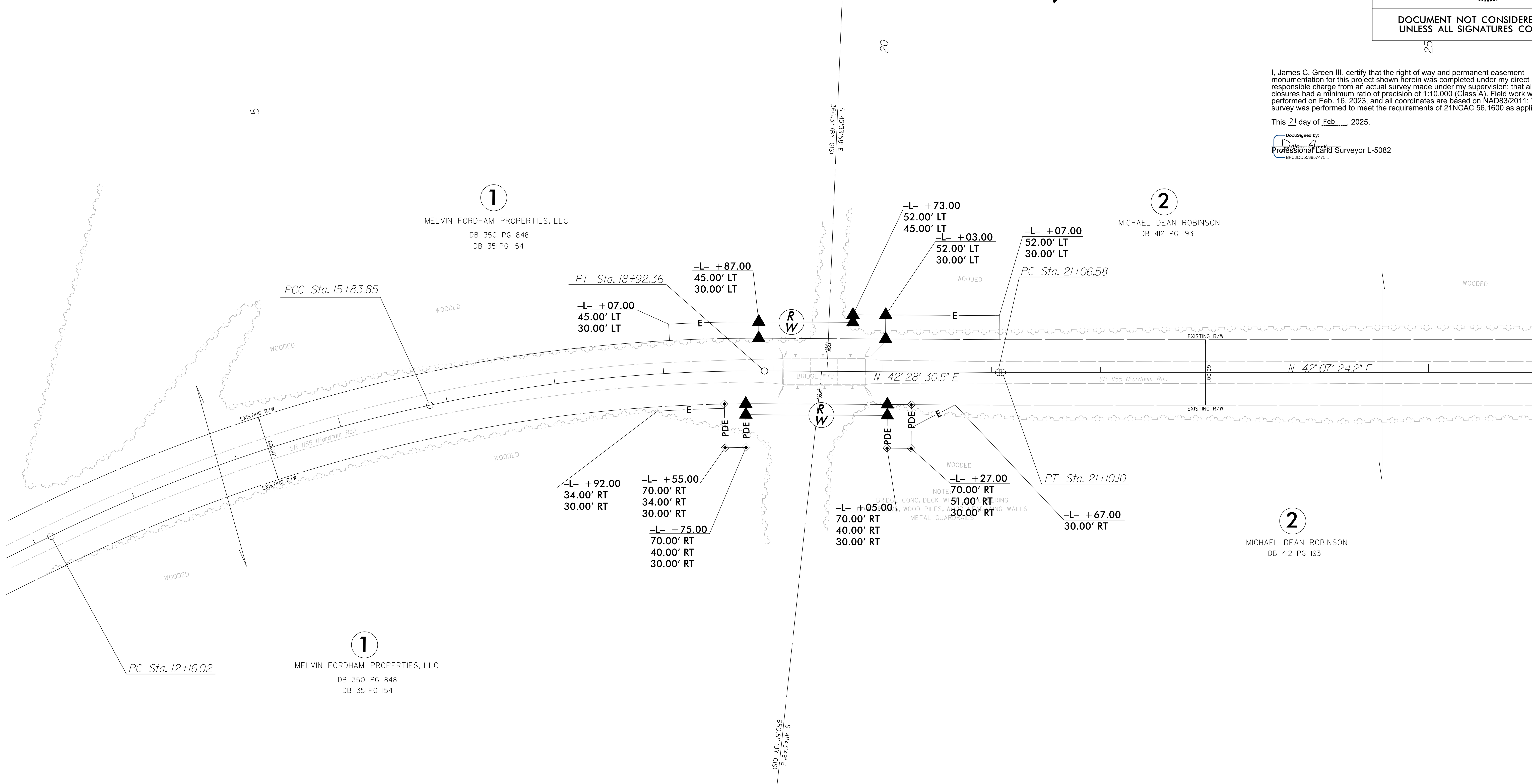
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

6/2/99

-L- CURVE DATA

PI Sta 14+00.86	PI Sta 17+38.71	PI Sta 21+08.34
△ = 14° 02' 29.6" (RT)	△ = 12° 24' 10.3" (RT)	△ = 0° 21' 06.3" (LT)
D = 3° 49' 02.6"	D = 4° 01' 12.7"	D = 10° 00' 00.0"
L = 367.83'	L = 308.51'	L = 3.52'
T = 184.84'	T = 154.86'	T = 1.76'
R = 1,500.91'	R = 1,425.20'	R = 572.96'
SE = EXIST	SE = EXIST	SE = N/A
RO = N/A	RO = N/A	RO = N/A



I, James C. Green 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 on Feb. 16, 2023, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21 day of Feb, 2025.

DocuSigned by:
Professional Land Surveyor L-5082
BFC2DD553857475...

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 ON FEB. 16, 2023 .

20-FEB-2025 14:54
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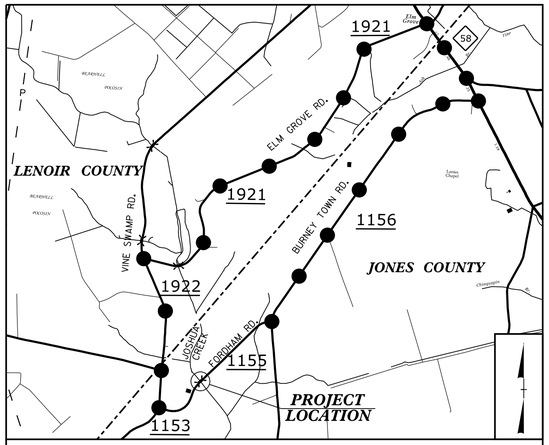
WBS PROJECT: BP2–R021



DETOUR

VICINITY MAP N.T.S

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP2–R021	EC-1	8

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP2–R021.1	N/A	PE
BP2–R021.2	N/A	RW, UTIL.
BP2–R021.3	N/A	CONST.

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

LOCATION: REPLACE BRIDGE NO. 510072 ON SR 1155 OVER JOSHUA CREEK

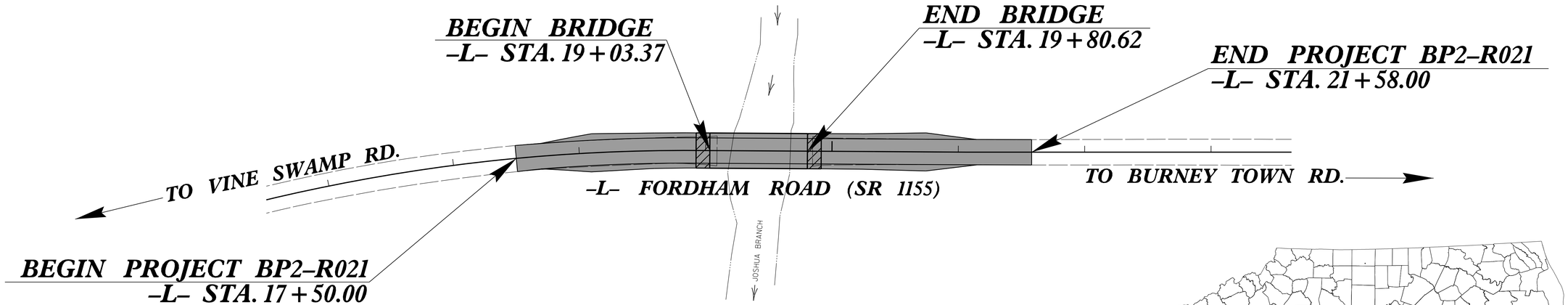
TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE (BRIDGE)

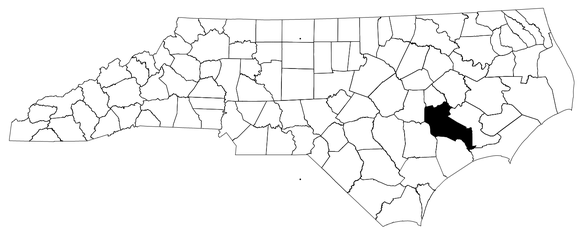
THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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





GRAPHIC SCALE

50 25 0 50 100

PLANS

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

RS&H

Prepared in the Office of:

RS&H

8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

Designed by:

ALEX VINSON ***3909***

NAME *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

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

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	EC-02

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

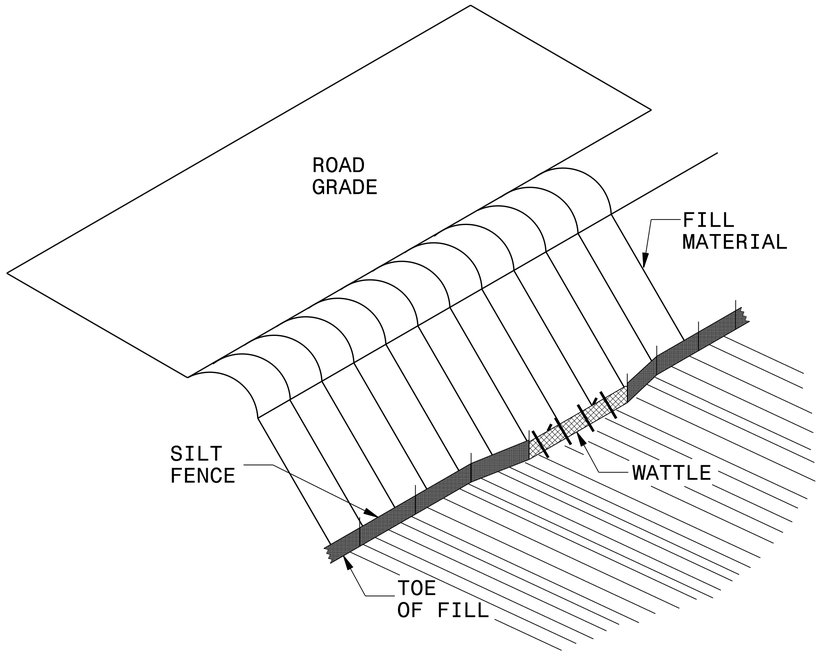
EROSION & SEDIMENT CONTROL LEGEND

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

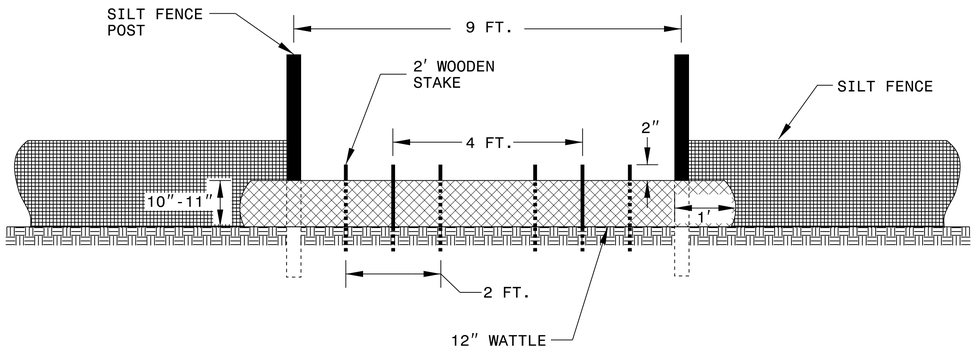
Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet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

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	EC-2A

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

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

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

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

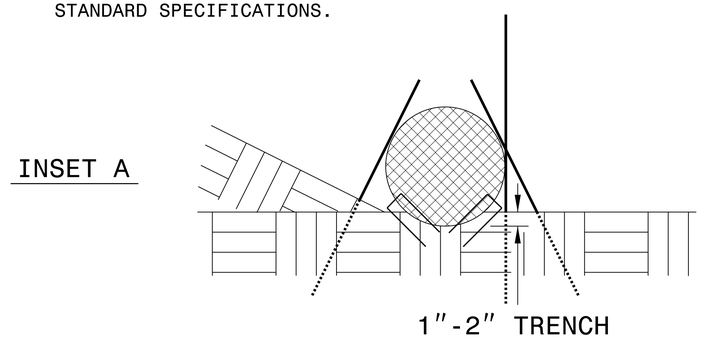
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

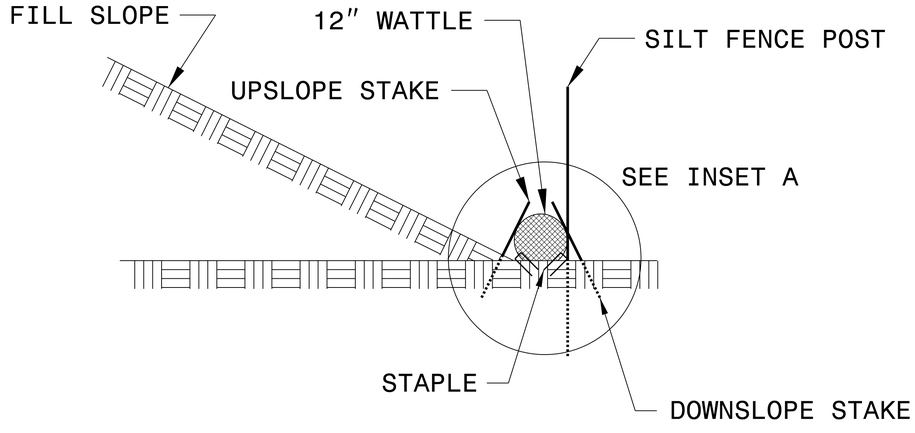
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

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.

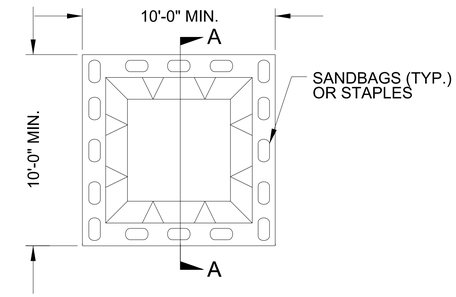


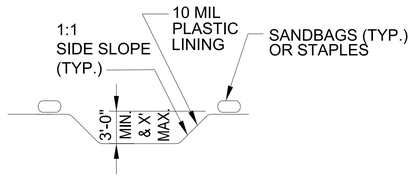


SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	EC-28

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER





PLAN

SECTION A-A

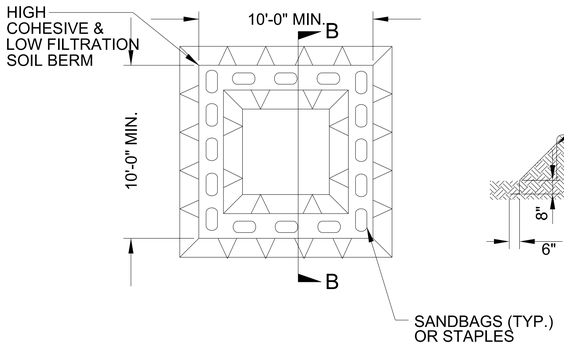
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

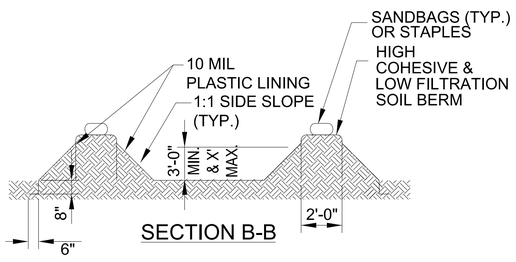
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

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

PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	EC-3

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

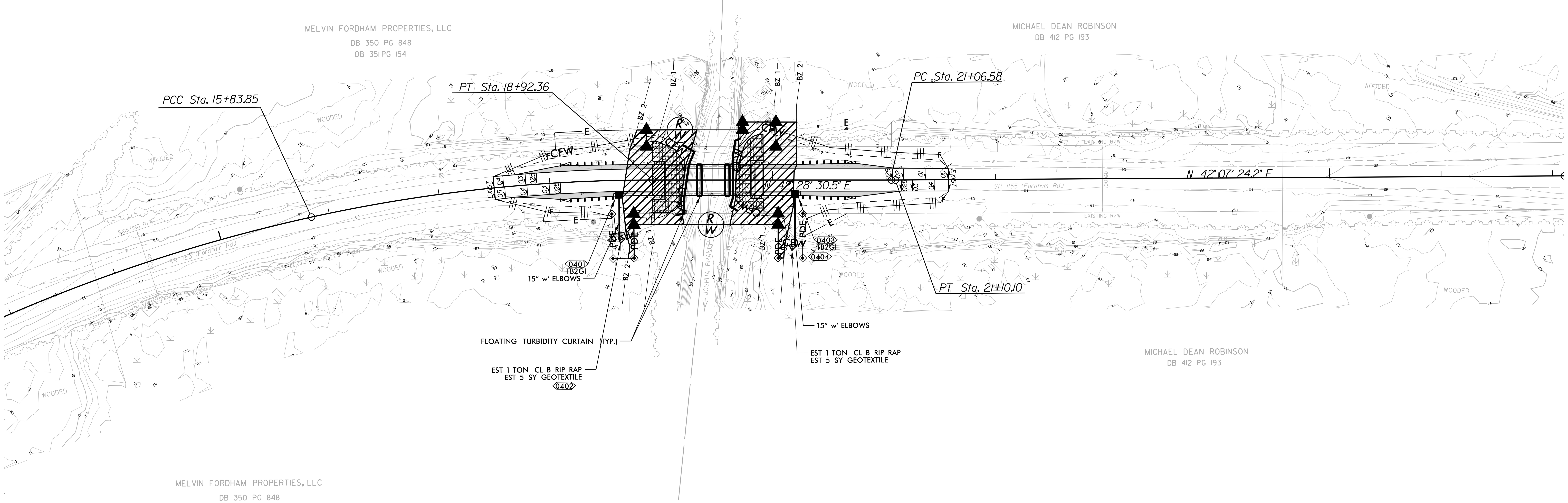
PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	EC-4/CONST.4

RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

NAD 83

-L- CURVE DATA

PI Sta 14+00.86	PI Sta 17+38.71	PI Sta 21+08.34
△ = 14° 02' 29.6" (RT)	△ = 12° 24' 10.3" (RT)	△ = 0° 21' 06.3" (LT)
D = 3° 49' 02.6"	D = 4° 01' 12.7"	D = 10° 00' 00.0"
L = 367.83'	L = 308.51'	L = 3.52'
T = 184.84'	T = 154.86'	T = 1.76'
R = 1,500.91'	R = 1,425.20'	R = 572.96'
SE = EXIST	SE = EXIST	SE = N/A
RO = N/A	RO = N/A	RO = N/A



BM1 ELEVATION = 59.86
N 491767 E 2427085
BENCHTIE SET IN 36' OAK TREE

ENVIRONMENTALLY SENSITIVE AREA SEE PROJECT SPECIAL PROVISIONS

NOTE: UTILIZE FLOATING TURBIDITY CURTAIN ALONG THE SHORE LINE AND AROUND INTERIOR BENTS.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
BP2-R021	EC-5/CONST.4

RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

8/17/99

REVISIONS

-L- CURVE DATA

PI Sta 14+00.86	PI Sta 17+38.71	PI Sta 21+08.34
Δ = 14° 02' 29.6" (RT)	Δ = 12° 24' 10.3" (RT)	Δ = 0° 21' 06.3" (LT)
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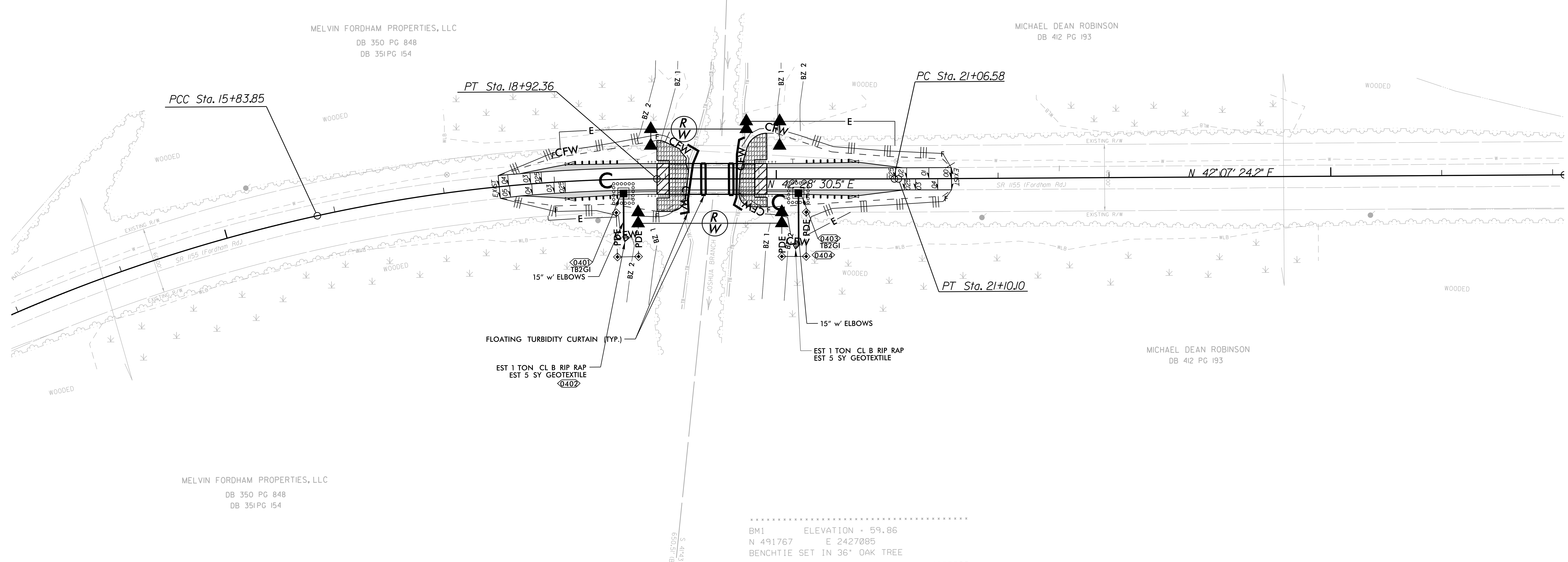
SE = EXIST	SE = EXIST	SE = N/A
RO = N/A	RO = N/A	RO = N/A

NAD 83



NOTE: UTILIZE FLOATING TURBIDITY CURTAIN ALONG THE SHORE LINE AND AROUND INTERIOR BENTS.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

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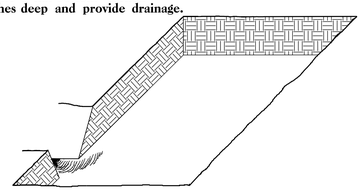
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP2–R021	RF–1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

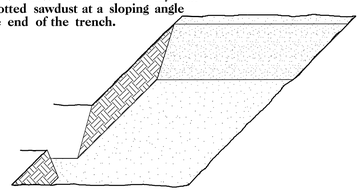
SEEDLING / LINER 3AREROOT PLANTING DETAIL

HEALING IN

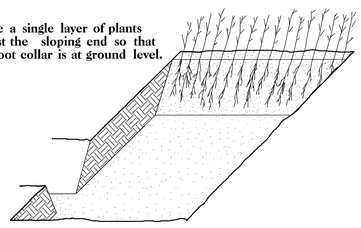
1. Locate a healing–in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



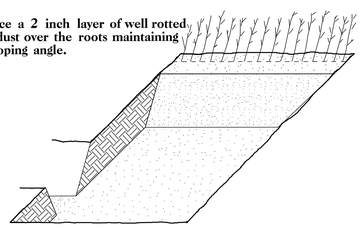
3. 3ackfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

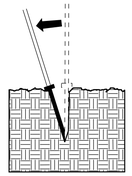


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

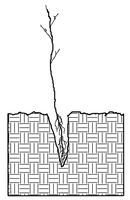


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

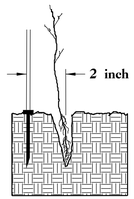
DI33LE PLANTING METHOD USING THE K3C PLANTING 3AR



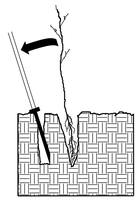
1. Insert planting bar as shown and pull handle toward planter.



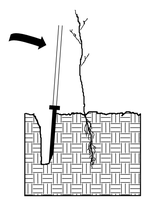
2. Remove planting bar and place seedling at correct depth.



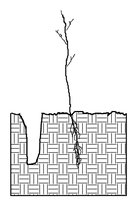
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING 3AG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

K3C PLANTING 3AR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

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

REFORESTATION

☐ TREE REFORESTATION SHALL 3E PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

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

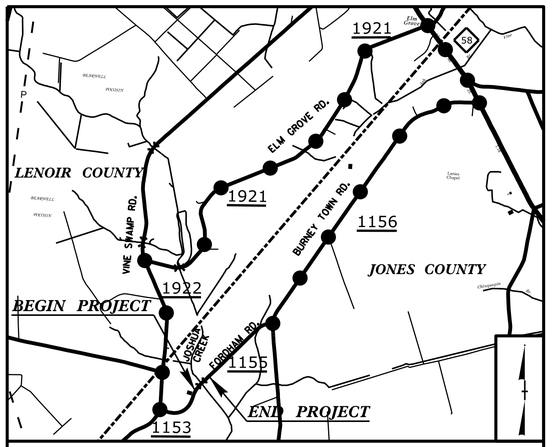
40% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in 3R
30% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in 3R
30% 3ETULA NIGRA	RIVER 3IRCH	12 in – 18 in 3R

REFORESTATION DETAIL SHEET

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

09/08/99

TIP PROJECT: BP2.R021.1



VICINITY MAP N.T.S

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

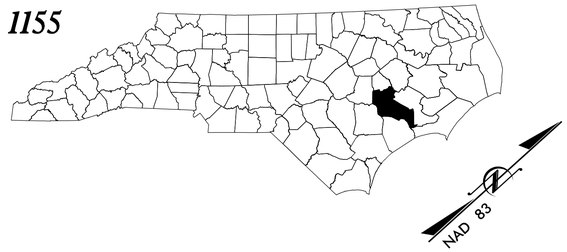
UTILITIES BY OTHERS PLANS
JONES COUNTY

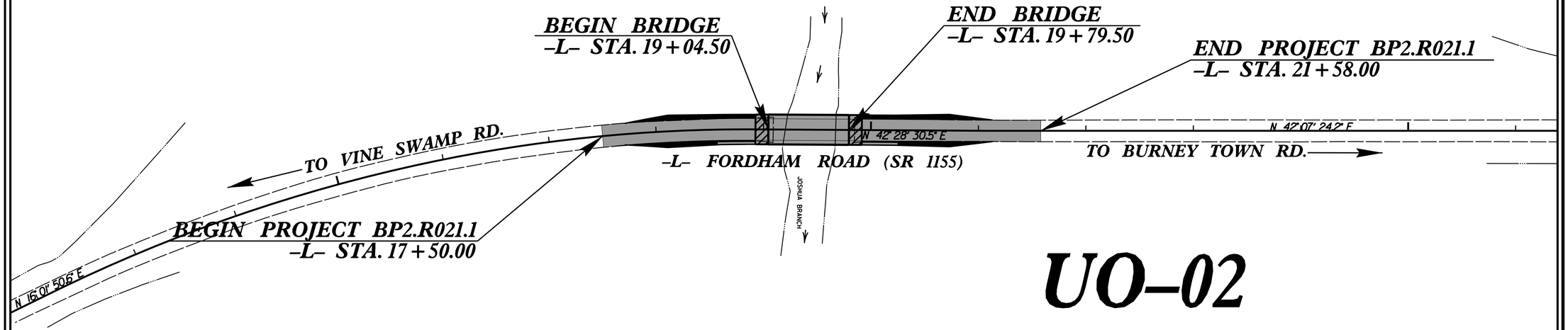
T.I.P. NO.	SHEET NO.
BP2.R021.1	UO–1

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

LOCATION: REPLACE BRIDGE NO. 510072 ON SR 1155 OVER JOSHUA CREEK

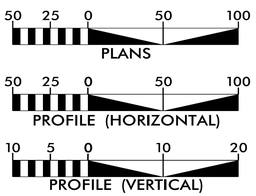
TYPE OF WORK: WATER (DISTRIBUTION)





UO–02

GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO–1	TITLE SHEET
UO–02	UBO PLAN SHEET

UTILITY OWNERS WITH CONFLICTS

(A) WATER–JONES COUNTY REGIONAL SYSTEM

SAM™
2641 SUMNER BOULEVARD
SUIT 116
RALEIGH, NC 27616
(919) 878–7466

Freddie Bunn — UTILITY PROJECT MANAGER
Brian Long — PROJECT UTILITY COORDINATOR

DIVISION OF HIGHWAYS
DIVISION 2
2815 ROUSE ROAD EXTENSION
KINSTON, NC 28504

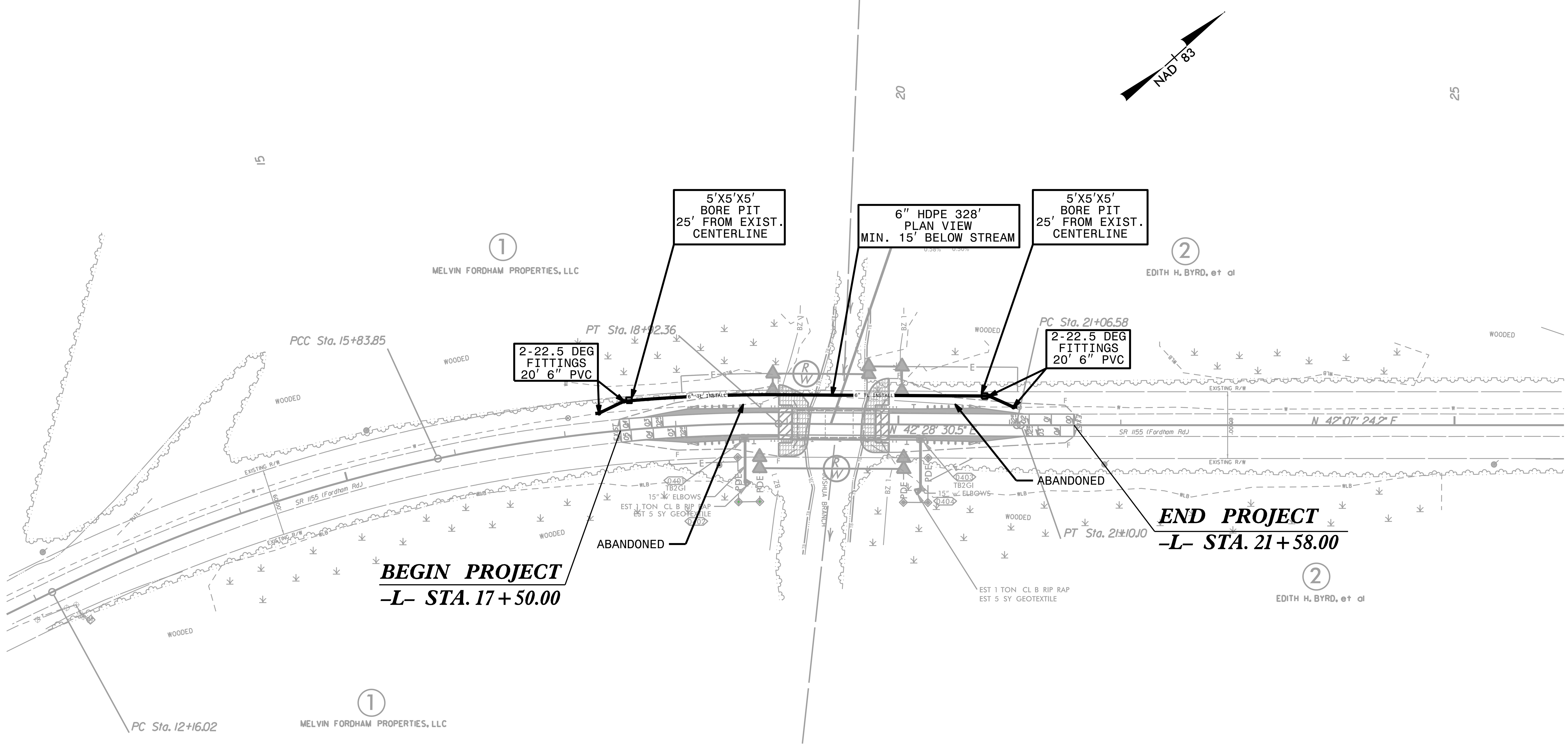
David Kramer — DIVISION UTILITY ENGINEER
Chad Mills — DIVISION UTILITY COORDINATOR

7/18/2024
...\Working\510072_Rdy_tsh.dgn
3:46:32 PM

PROJECT REFERENCE NO.	SHEET NO.
BP2.R021J	UO-02
THIS SHEET CORRESPONDS TO RDY- 4	

UTILITIES BY OTHERS

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



FOR -L- PROFILE SEE SHEET 5

NOTE: EXISITNG HORIZONTAL ALIGNMENT WAS USED

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

PROJ. REFERENCE NO.	SHEET NO.
BP2-R021	X-1

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

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
17+50.00	0	0
18+00.00	0	10
18+50.00	0	42
19+00.00	0	113
19+03.37	0	12

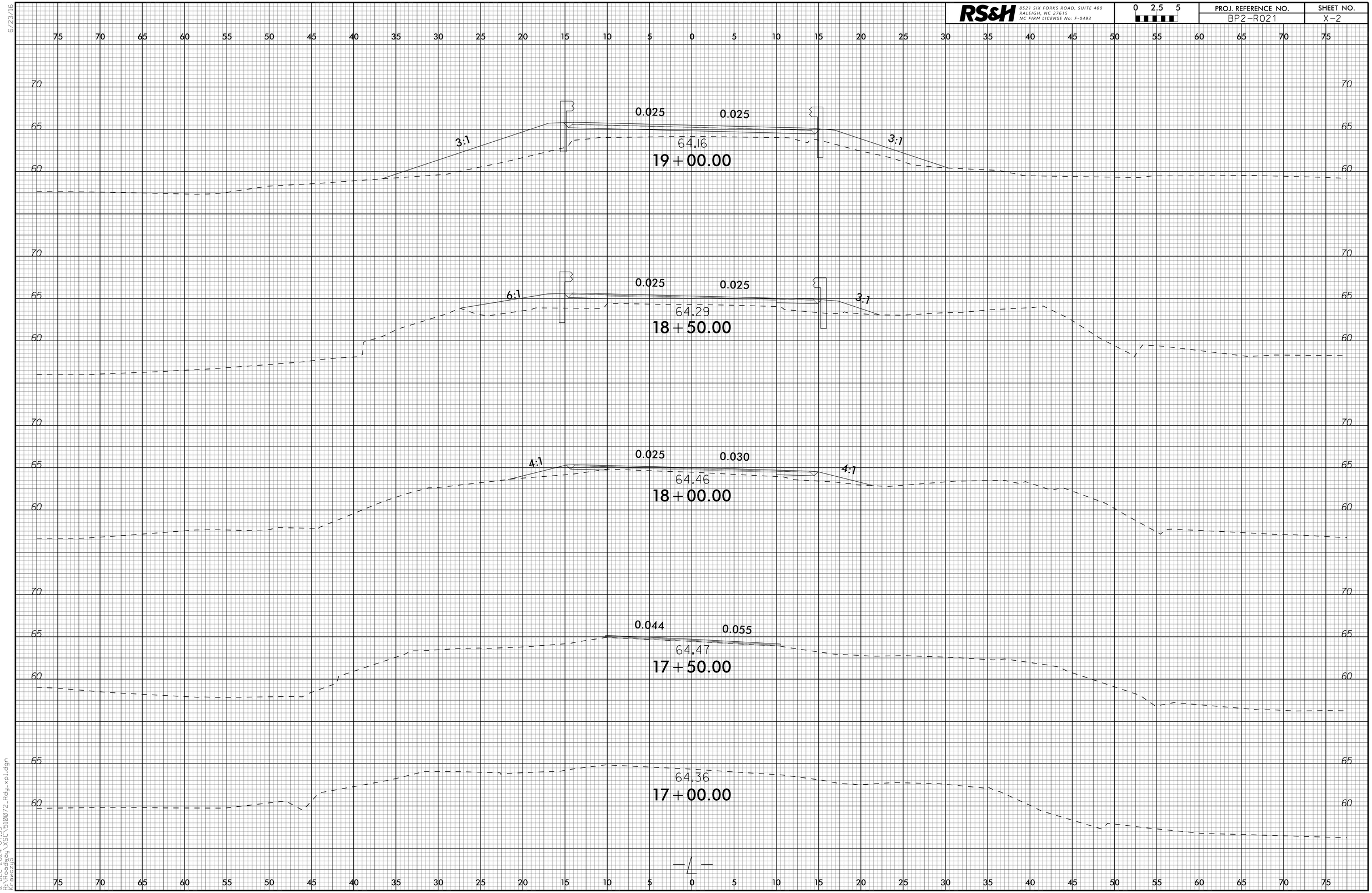
Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
19+80.62	0	0
20+00.00	0	164
20+50.00	0	92
21+00.00	0	33
21+50.00	0	17
21+58.00	0	1

RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
BP2-R021	X-2

6/23/16



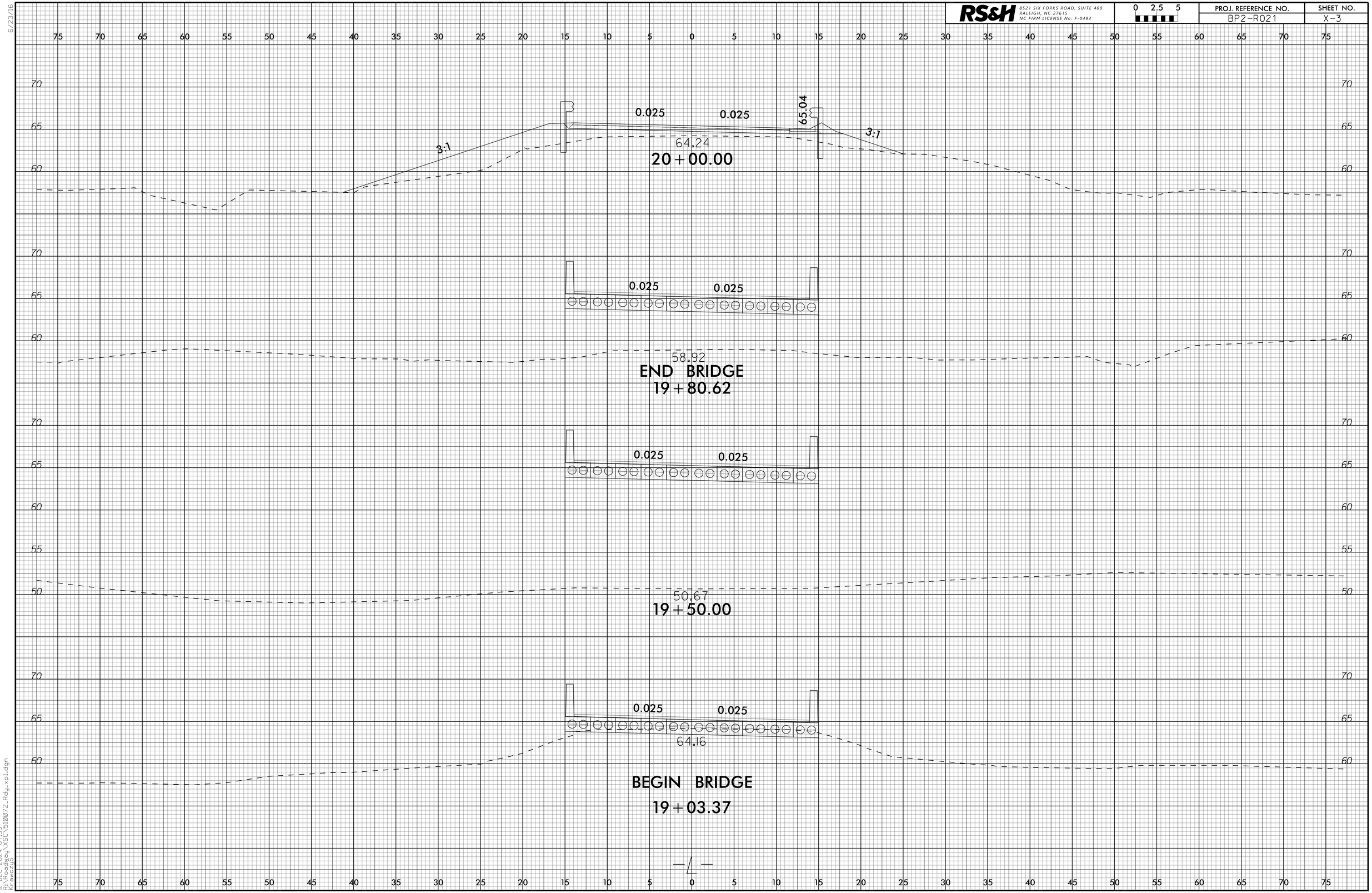
12-DEC-2024 07:39
R:\Roadway\XSC\510072_Rdy_xp1.dgn
krawzak

RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
BP2-R021	X-3

6/23/16



12-DEC-2024 07:39
R:\Roadway\XSC\510072_Rdy_xpl.dgn
krawczyk

09/08/99

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP2–R021	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP2–R021.1	N/A	PE
BP2–R021.2	N/A	RW, UTIL.
BP2–R021.3	N/A	CONST.

TIP PROJECT: BP2–R021

CONTRACT: DB00604

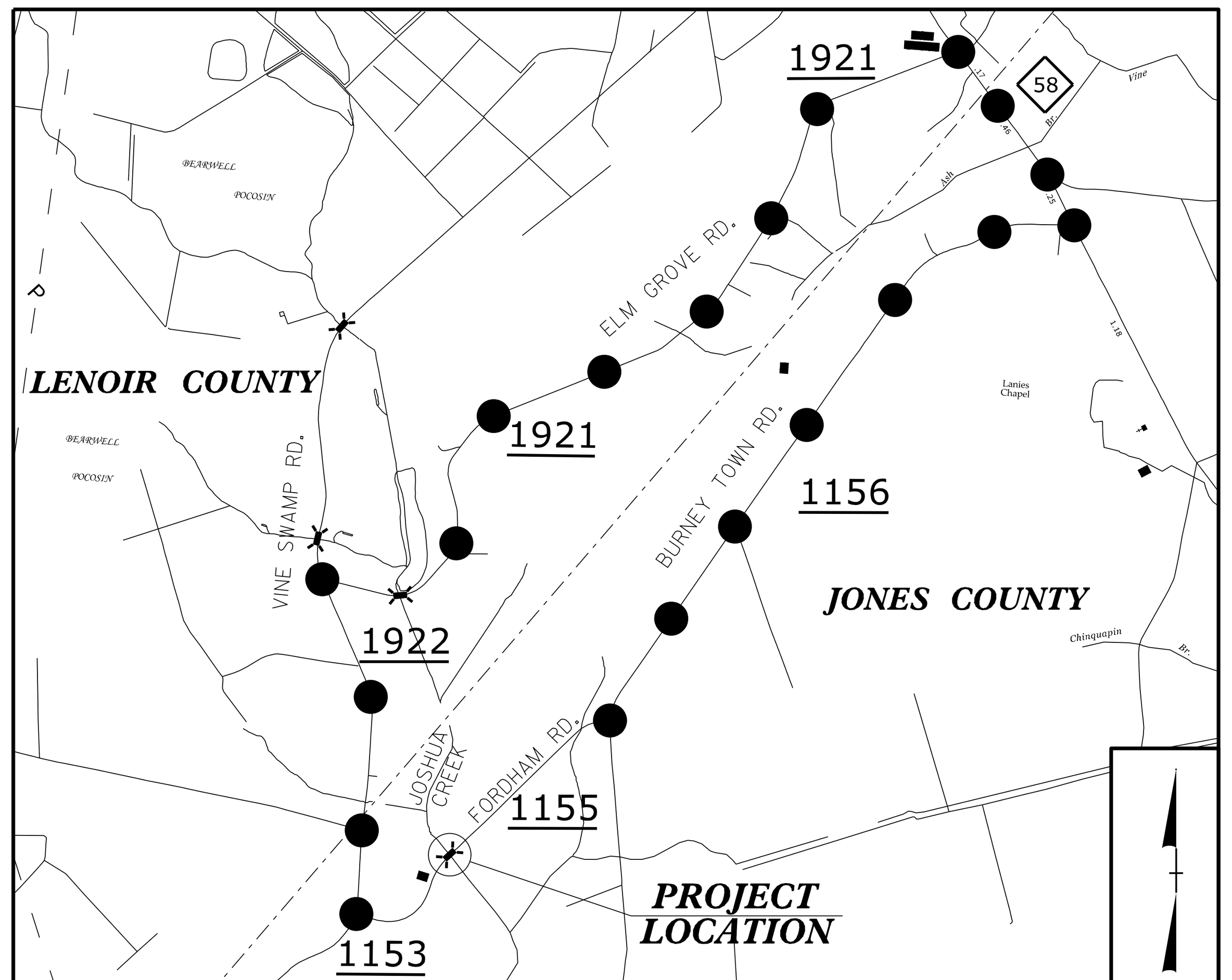
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JONES COUNTY

LOCATION: REPLACE BRIDGE NO. 510072 ON SR 1155 OVER JOSHUA CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE (BRIDGE)

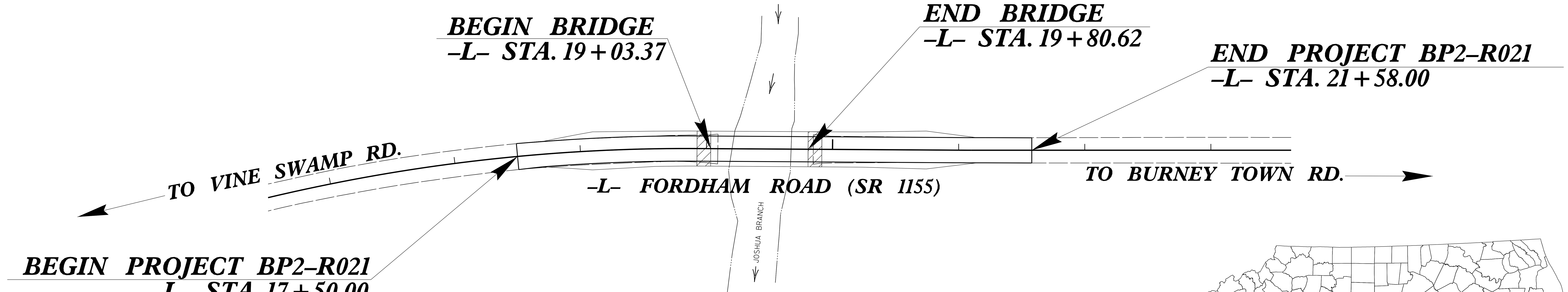
100% PLANS

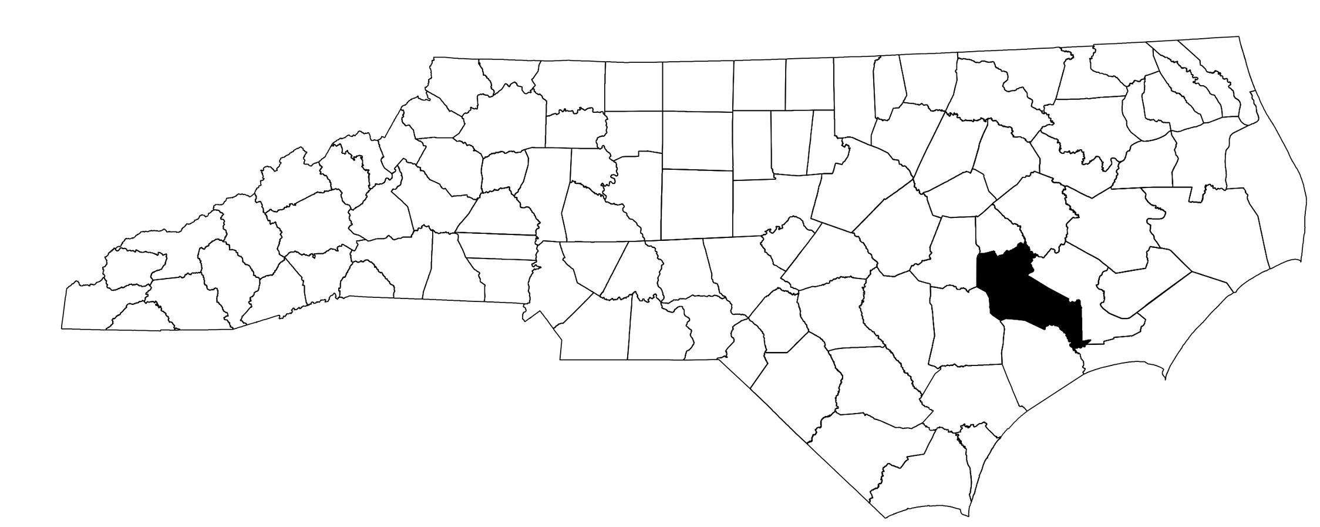


DETOUR

VICINITY MAP N.T.S

NAD 83





STRUCTURE

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

ADT 2024 = 189
ADT 2044 = 411
K = %
D = %
T = % *
V = 60 MPH
* TTST = DUAL
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BP2.R021.1 = 0.063 MILES

LENGTH STRUCTURE TIP PROJECT BP2.R021.1 = 0.014 MILES

TOTAL LENGTH TIP PROJECT BP2.R021.1 = 0.077 MILES

PREPARED IN THE OFFICE OF:

RS&H

8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 10, 2023

LETTING DATE:
MAY 14, 2025

ALEX VINSON, PE
PROJECT ENGINEER

SEAN KORTOVICH, PE
PROJECT DESIGN ENGINEER

CATHRINE HOSSACK MEYER, PE
NCDOT CONTACT

STRUCTURAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 052672 ENGINEER MATTHEW R. ACOSTA

Signed by: Matthew R. Acosta P.E.
SIGNATURE: 2/28/2025

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

12/13/2024
X:\P\0340045004_Div 2 LIBR Bridge 510072\Design\Structures\CAD\401_000_BP2_R021_SMU_TSH_510072.dgn
CuanyN

19+00 | 19+50 | 20+00

+0.5786% / -0.5028%
P.I. = 19+33.00
EL. = 65.78
VC = 180'

GRADE DATA -L-

70 | 65 | 60 | 55 | 50

SPAN A

FILL FACE @ END BENT NO. 1
STA. 19+03.37 -L-
GRADE PT. EL. = 65.49

FIX.

1'-6" TO UNCLASSIFIED STRUCTURE EXCAVATION

BEGIN FRONT SLOPE
STA. 18+95.97 -L-
GRADE PT. EL. = 65.48

LOW CHORD
EL. 62.83

EL. 64.0±

EL. 61.0±

EL. 59.0±

1'-0" (TYP.)

EL. 59.0±

HP 12X53 STEEL PILES (TYP.)

CLASS II RIP RAP (TYP.)

1.5:1 SLOPE NORMAL TO CAP (TYP.)

EL. 51.0±

BASE DISCHARGE (Q100)
H.W. ELEV. = 62.00

NWS ELEV. = 54.70±
DATE OF SURVEY:
08/16/2022

EL. 50.0±

EXISTING SUBSTRUCTURE (TYP.)

EL. 58.0±

EL. 52.0±

FIX.

FILL FACE @ END BENT NO. 2
STA. 19+80.62 -L-
GRADE PT. EL. = 65.48

1'-7" BERM NORMAL TO CAP (TYP.)

BEGIN FRONT SLOPE
STA. 19+88.02 -L-
GRADE PT. EL. = 65.46

LOW CHORD
EL. 62.82

EL. 64.0±

APPROXIMATE EXISTING GROUND LINE

EL. 58.0±

2'-0" (TYP.)

1'-0" MIN. EARTH BERM (TYP.)

END BENT NO. 1

END BENT NO. 2

SECTION ALONG -L-

UNCLASSIFIED STRUCTURE EXCAVATION TO EL. 59.00

CLASS II RIP RAP (TYP.)

77'-3"
FILL FACE @ END BENT NO. 1 TO FILL FACE @ END BENT NO. 2

38'-7½" | 38'-7½"

1'-0" MIN. EARTH BERM
EL. 58.57

1'-0" MIN. EARTH BERM
EL. 58.56

W.P. #1
FILL FACE @ END BENT NO. 1
STA. 19+03.37 -L-

P.T.
STA. 18+92.36 -L-

TO SR 1153
VINE SWAMP RD.

BEGIN APPROACH SLAB
STA. 18+92.50 -L-

BEGIN FRONT SLOPE
STA. 18+95.97 -L-

BRIDGE I.D.
STA. 19+42.00 -L-

90°-00'-00" (TYP.)

W.P. #2
FILL FACE @ END BENT NO. 2
STA. 19+80.62 -L-

-L-

TO SR 1156
BURNEY TOWN RD.

END APPROACH SLAB
STA. 19+91.50 -L-

BEGIN FRONT SLOPE
STA. 19+88.02 -L-

EXISTING STRUCTURE

JOSHUA CREEK

1'-0" MIN. EARTH BERM
EL. 57.67

1'-0" MIN. EARTH BERM
EL. 57.66

PLAN

PILES NOT SHOWN FOR CLARITY.

NAD 83

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. BP2-R021

JONES COUNTY

STATION: 19+42.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE 510072

NORTH CAROLINA PROFESSIONAL SEAL 050672 ENGINEER MATTHEW R. ARCHER

2/28/2025

RS&H

RS&H Architects-Engineers-Planners, Inc.
8521 Six Forks Road, Suite 400
Raleigh, NC 27615
919-926-4100 FAX 919-846-9080
www.rsandh.com
North Carolina License Nos. 50073 ° F-0493 ° C-28

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON SR 1155
OVER JOSHUA CREEK BETWEEN
SR 1153 AND SR 1156

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

DRAWN BY : NSC DATE : 05/2023
CHECKED BY : MRA DATE : 05/2023
DESIGN ENGINEER OF RECORD: MRA DATE : 11/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

12/13/2024
X:\P\1034045004_Div 2 LIBR Bridge 510072\Design\Structures\CAD\401_001_BP2.R021.1_SMU_GD1_S-1_510072.dgn
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SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Lenth per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent 1, Piles 1-5	105	See Substructure	65	N/A	N/A	175	5						
End Bent 2, Piles 1-5	105	Plans	65	N/A	N/A	175							

*Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

$$^{**}RDR = \frac{Factored\ Resistance + Factored\ Downdrag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Downdrag\ Resistance + \frac{Nominal\ Scour\ Resistance}{Scour\ Resistance\ Factor}$$

SUMMARY OF PDA/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Pile Driving Analyzer (PDA)				Pile Order Lengths	
End Bent/ Bent No	PDA Testing Required? YES or MAYBE	PDA Test Pile Length FT	Total PDA Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or PDA
EB1	MAYBE	70	1		
EB2	MAYBE	70			

*EST = Pile order lengths from estimated pile lengths; PDA = Pile order lengths based on PDA testing. For groups of end bents/bents with pile order lengths based on PDA testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the PDA.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent 1, Piles 1-5	105			0.60			
End Bent 2, Piles 1-5	105			0.60			

*Factored Dead Load is factored weight of pile above the ground line.

PROJECT NO. BP2-R021

JONES COUNTY

STATION: 19+42 -L-

SHEET 2 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 052672 ENGINEER MATTHEW R. ACOSTA

Signed by: Matthew J. Acosta 4/28/2025
SIGNATURE DATE

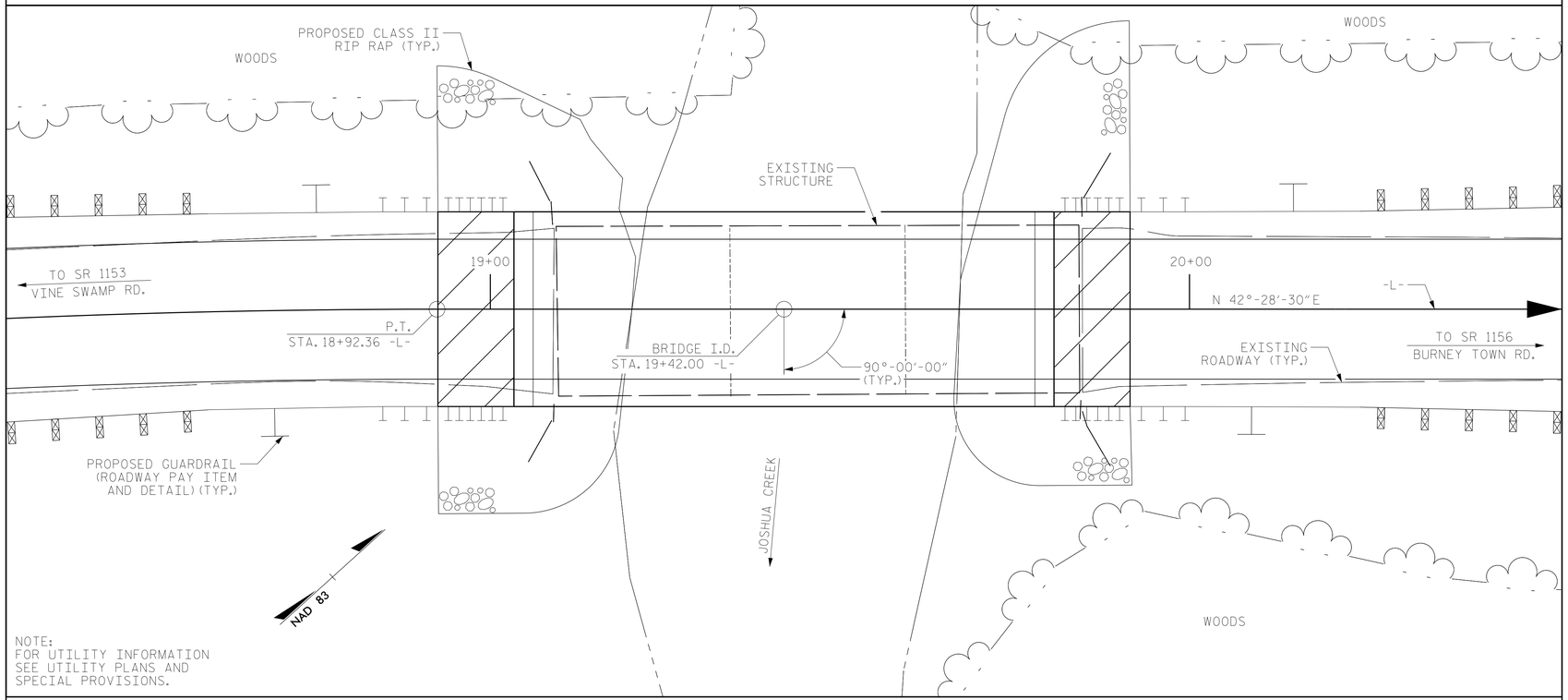
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES

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

BM#1: BENCHTIE SET IN 36"Ø OAK TREE, 70' RT. OF STA. 20+96 -L-, EL. 59.86



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET 1 OF 3 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT LEFT AND 22 FT RIGHT FOR END BENT NO. 1 OF THE CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS @ 25'-6" AND 1 SPAN @ 25'-0" WITH ASPHALT WEARING SURFACE ON PRESTRESSED CONCRETE CHANNEL BEAMS WITH A CLEAR ROADWAY WIDTH OF 24'-6" ON CONCRETE CAPS ON TIMBER PILES AT END BENT NO. 1 AND NO. 2 AND BENT NO. 1 AND NO. 2 LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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 THE COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO THE HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR ``REMOVAL OF EXISTING STRUCTURE AT STA. 19+42.00 -L-''.

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

ASPHALT WEARING SURFACE IS INCLUDED IN THE ROADWAY QUANTITY ON ROADWAY PLANS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

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

PAVEMENT ALONG THE TRANSVERSE CENTERLINE OF ALL CAPS SHALL BE SAW CUT TO A DEPTH OF ¾", CLEANED, AND FILLED WITH AN APPROVED ASPHALT SEALANT IN ACCORDANCE WITH SECTION 1028 OF THE STANDARD SPECIFICATIONS. PAYMENT FOR THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT UNIT PRICE FOR VARIOUS CONTRACT ITEMS.

APPLY AN APPROVED EPOXY PROTECTIVE COATING TO THE TOPS OF ALL CAPS AND TO THE EXTERIOR FACE OF ALL EXTERIOR CORED SLAB UNITS. CARE SHALL BE TAKEN TO NOT PLACE EPOXY PROTECTIVE COATING UNDER LIMITS OF THE ELASTOMERIC BEARING PADS. PAYMENT FOR THIS WORK SHALL BE INCIDENTAL TO OTHER PAY ITEMS IN THE CONTRACT AND NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.

USE A WATERPROOFING EPOXY COATING IN ACCORDANCE WITH SECTION 1080-10 OF THE STANDARD SPECIFICATIONS. PROVIDE A TYPE 3 MATERIAL CERTIFICATION IN ACCORDANCE WITH ARTICLE 106-3 SHOWING THAT THE PROPOSED EPOXY MEETS THE REQUIREMENTS OF ARTICLE 1080-10.

TOTAL BILL OF MATERIALS

	REMOVAL OF EXISTING STRUCTURE @ STA. 19+42.00 -L-	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION @ STA. 19+42.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12X53 STEEL PILES	HP 12X53 STEEL PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SQ. YDS.
SUPERSTRUCTURE												150.25		
END BENT NO. 1					20.2		2449	5	5	325			165	180
END BENT NO. 2					20.2		2449	5	5	325			115	130
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	40.4	LUMP SUM	4898	10	10	650	5	150.25	280	310

	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE		10	750
END BENT NO. 1			
END BENT NO. 2			
TOTAL	LUMP SUM	10	750

FOUNDATION NOTES:

THE PILE FOUNDATION TABLES ARE BASED ON THE BRIDGE SUBSTRUCTURE DESIGN AND FOUNDATION RECOMMENDATIONSSEALED BY A NORTH CAROLINA PROFESSIONAL ENGINEER (JINYOUNG PARK PE#032171) ON 5-24-23

TOTAL PILE DRIVING EQUIPMENT SETUP QUANTITY (NOT SHOWN IN PILE FOUNDATION TABLES) EQUALS THE NUMBER OF DRIVEN PILES I.E., THE NUMBER OF PILES WITH A REQUIRED DRIVING RESISTANCE.

THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING WHEN PDAS MAY BE REQUIRED.

FOR PILES, SEE PILES PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 1300 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YRS
DESIGN HIGH WATER ELEVATION	= 60.9'
DRAINAGE AREA	= 11.7 SQ. MI.
BASE DISCHARGE (Q100)	= 1950 CFS
BASE HIGH WATER ELEVATION	= 62.0'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 4000 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YRS
* OVERTOPPING FLOOD ELEVATION	= 64.3'
* OVERTOPPING @ STA. 23+15.00 -L-	

PROJECT NO. BP2-R021

JONES COUNTY

STATION: 19+42.00 -L-

SHEET 3 OF 3

DRAWN BY : NSC DATE : 05/2023

CHECKED BY : MRA DATE : 05/2023

DESIGN ENGINEER OF RECORD: MRA DATE : 11/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 052672 ENGINEER JINYOUNG PARK

2/28/2025

RS&H

RS&H Architects-Engineers-Planners, Inc.
8521 Six Forks Road, Suite 400
Raleigh, NC 27615
919-926-4100 FAX 919-846-9080
www.rsandh.com
North Carolina License Nos. 50073 ° F-0493 ° C-28

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON SR 1155
OVER JOSHUA CREEK BETWEEN
SR 1153 AND SR 1156

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

12/17/2024
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AcostaM

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.17	--	1.75	0.23	1.21	75'	EL	37.0	0.53	1.38	75'	EL	7.0	0.80	0.23	1.17	75'	EL	37.0	
		HL-93(Opr)	N/A	--	1.57	--	1.35	0.23	1.57	75'	EL	37.0	0.53	1.83	75'	EL	7.0	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.53	55.08	1.75	0.23	1.59	75'	EL	37.0	0.53	1.78	75'	EL	7.0	0.80	0.23	1.53	75'	EL	37.0	
		HS-20(Opr)	36.000	--	2.06	74.16	1.35	0.23	2.06	75'	EL	37.0	0.53	2.35	75'	EL	7.0	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.47	46.85	1.4	0.23	4.51	75'	EL	37.0	0.53	5.60	75'	EL	7.0	0.80	0.23	3.47	75'	EL	37.0	
		SNGARBS2	20.000	--	2.58	51.60	1.4	0.23	3.35	75'	EL	37.0	0.53	3.93	75'	EL	7.0	0.80	0.23	2.58	75'	EL	37.0	
		SNAGRIS2	22.000	--	2.44	53.68	1.4	0.23	3.17	75'	EL	37.0	0.53	3.64	75'	EL	7.0	0.80	0.23	2.44	75'	EL	37.0	
		SNCOTTS3	27.250	--	1.73	47.14	1.4	0.23	2.24	75'	EL	37.0	0.53	2.71	75'	EL	7.0	0.80	0.23	1.73	75'	EL	37.0	
		SNAGGRS4	34.925	--	1.44	50.29	1.4	0.23	1.87	75'	EL	37.0	0.53	2.22	75'	EL	67.0	0.80	0.23	1.44	75'	EL	37.0	
		SNS5A	35.550	--	1.29	45.86	1.4	0.23	1.68	75'	EL	37.0	0.53	2.05	75'	EL	7.0	0.80	0.23	1.29	75'	EL	37.0	
		SNS6A	39.950	--	1.29	51.54	1.4	0.23	1.68	75'	EL	37.0	0.53	2.04	75'	EL	7.0	0.80	0.23	1.29	75'	EL	37.0	
		SNS7B	42.000	--	1.23	51.66	1.4	0.23	1.60	75'	EL	37.0	0.53	2.00	75'	EL	7.0	0.80	0.23	1.23	75'	EL	37.0	
	TTST	TNAGRIT3	33.000	--	1.57	51.81	1.4	0.23	2.05	75'	EL	37.0	0.53	2.46	75'	EL	7.0	0.80	0.23	1.57	75'	EL	37.0	
		TNT4A	33.075	--	1.58	52.26	1.4	0.23	2.06	75'	EL	37.0	0.53	2.39	75'	EL	7.0	0.80	0.23	1.58	75'	EL	37.0	
		TNT6A	41.600	--	1.29	53.66	1.4	0.23	1.68	75'	EL	37.0	0.53	2.12	75'	EL	7.0	0.80	0.23	1.29	75'	EL	37.0	
		TNT7A	42.000	--	1.30	54.60	1.4	0.23	1.69	75'	EL	37.0	0.53	2.09	75'	EL	7.0	0.80	0.23	1.30	75'	EL	37.0	
		TNT7B	42.000	--	1.34	56.28	1.4	0.23	1.74	75'	EL	37.0	0.53	1.95	75'	EL	7.0	0.80	0.23	1.34	75'	EL	37.0	
		TNAGRIT4	43.000	--	1.28	55.04	1.4	0.23	1.66	75'	EL	37.0	0.53	1.89	75'	EL	7.0	0.80	0.23	1.28	75'	EL	37.0	
		TNAGT5A	45.000	--	1.41	63.45	1.4	0.23	1.83	75'	EL	37.0	0.53	2.28	75'	EL	67.0	0.80	0.23	1.41	75'	EL	37.0	
		TNAGT5B	45.000	3	1.19	53.55	1.4	0.23	1.55	75'	EL	37.0	0.53	1.79	75'	EL	7.0	0.80	0.23	1.19	75'	EL	37.0	
EMERGENCY VEHICLE (EV)		EV2	28.750	--	1.82	52.33	1.3	0.23	2.37	75'	EL	37.0	0.53	2.7	75'	EL	7.0	0.80	0.23	1.82	75'	EL	37.0	
		EV3	43.000	4	1.19	51.17	1.3	0.23	1.55	75'	EL	37.0	0.53	1.78	75'	EL	7.0	0.80	0.23	1.19	75'	EL	37.0	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

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

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

COMMENTS:

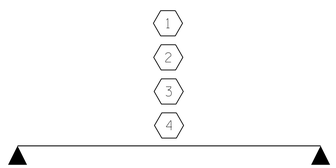
1.
2.
3.
4.

⬡ CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)
2 DESIGN LOAD RATING (HS-20)
3 LEGAL LOAD RATING **
4 EMERGENCY VEHICLE LOAD RATING **
** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY
FOR SPAN 'A'

PROJECT NO. BP2-R021
JONES COUNTY
STATION: 19+42.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 052872 ENGINEER MATTHEW R. ADDY
2/28/2025

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR 75' CORED SLAB UNIT 90° SKEW
(NON-INTERSTATE TRAFFIC)

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

DRAWN BY : NSC DATE : 05/2023
CHECKED BY : MRA DATE : 05/2023
DESIGN ENGINEER OF RECORD: MRA DATE : 11/2024

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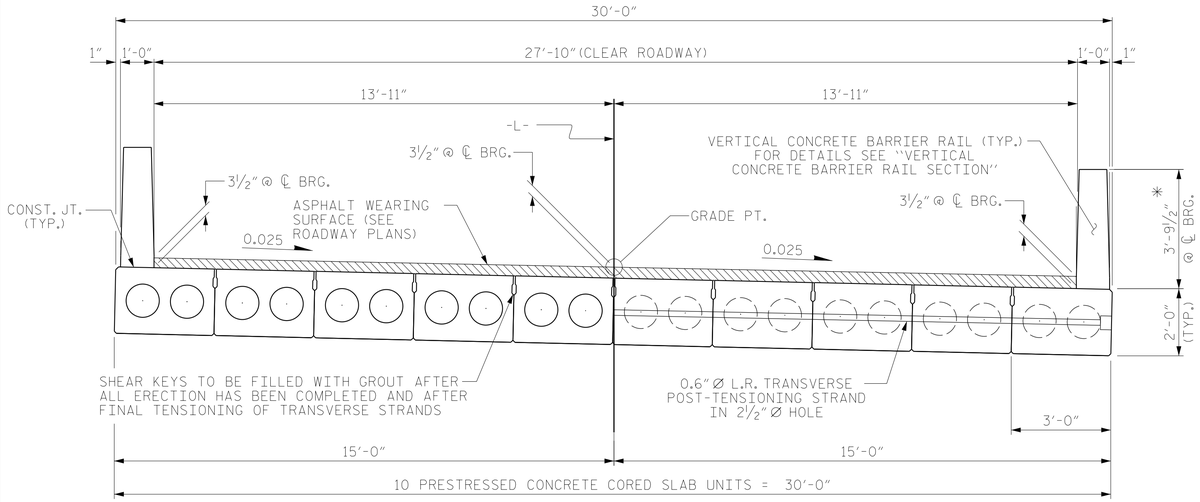


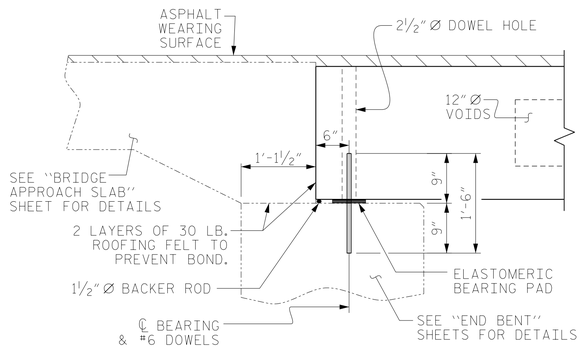
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

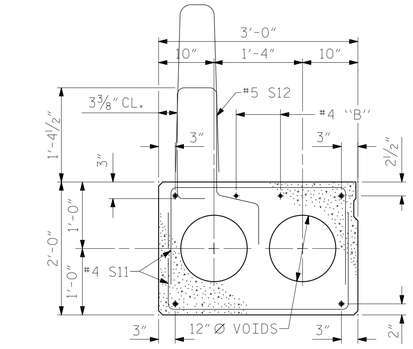
TYPICAL SECTION

* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END

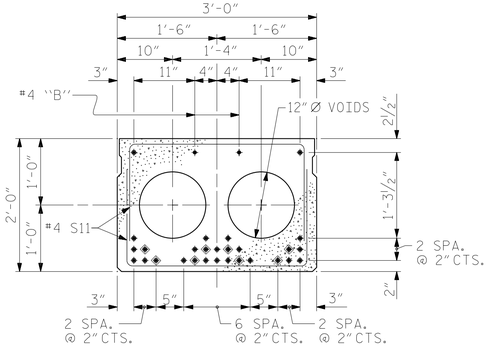


SECTION AT END BENT



EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION (75' UNIT)

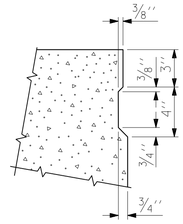
(28 STRANDS REQUIRED)

0.6'' Ø LOW RELAXATION STRAND LAYOUT

◈ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

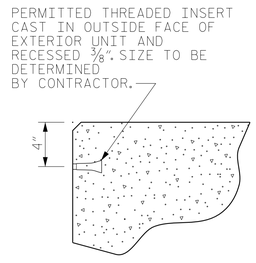
◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

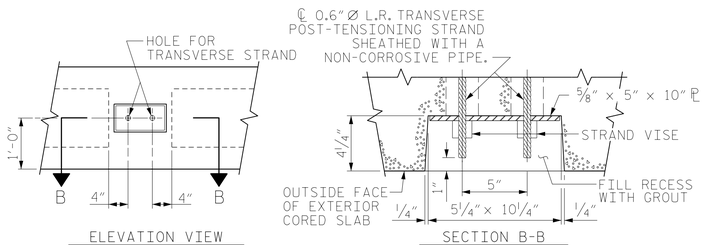


SHEAR KEY DETAIL

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



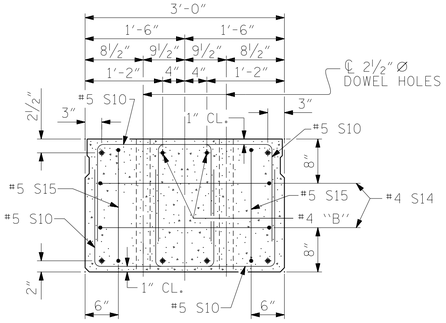
THREADED INSERT DETAIL



ELEVATION VIEW

SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



END ELEVATION

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

PROJECT NO. BP2-R021

JONES COUNTY

STATION: 19+42.00 -L-

SHEET 1 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 052472 ENGINEER MATTHEW R. ACOSTA
2/28/2025

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0'' X 2'-0'' PRESTRESSED CONCRETE CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			14

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DRAWN BY : NSC DATE : 05/2023
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DESIGN ENGINEER OF RECORD: MRA DATE : 11/2024

12/13/2024
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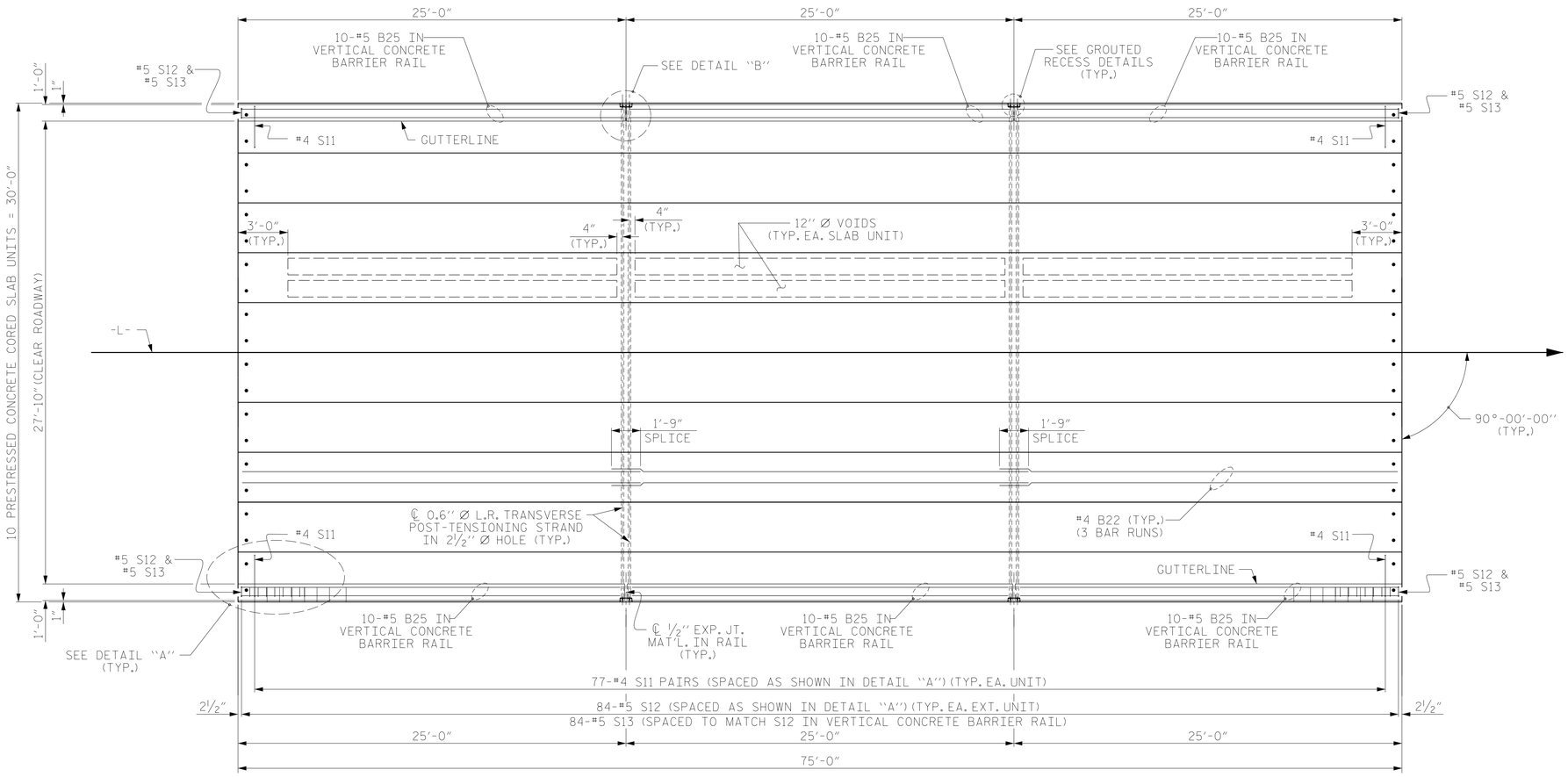
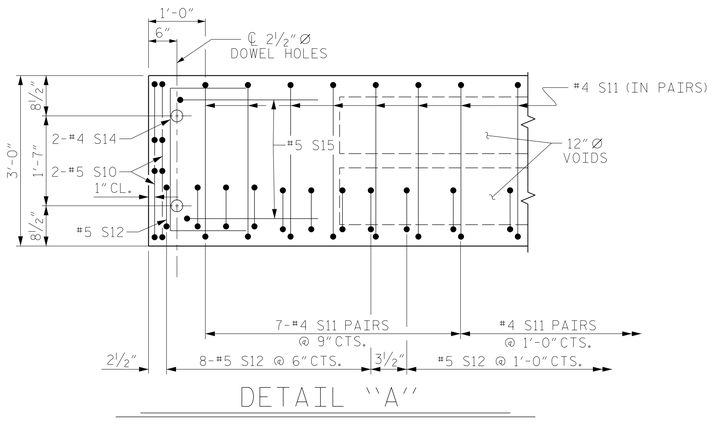
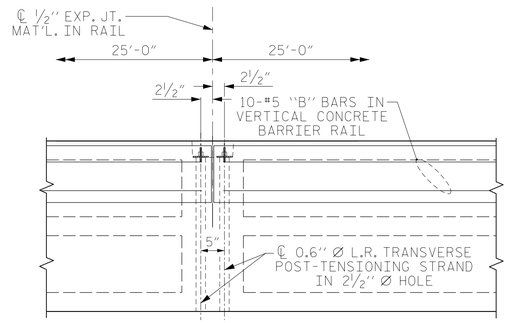


PLAN OF UNIT



DETAIL "A"

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2½" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. BP2-R021

JONES COUNTY

STATION: 19+42.00 -L-

SHEET 2 OF 3

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2/28/2025

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 75' UNIT 27'-10" CLEAR ROADWAY 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			14

DRAWN BY : NSC DATE : 05/2023
CHECKED BY : MRA DATE : 05/2023
DESIGN ENGINEER OF RECORD: MRA DATE : 11/2024

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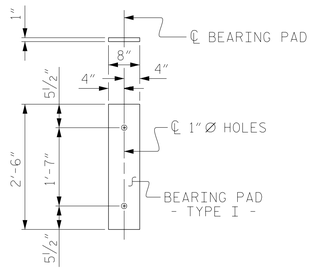


FIXED END
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

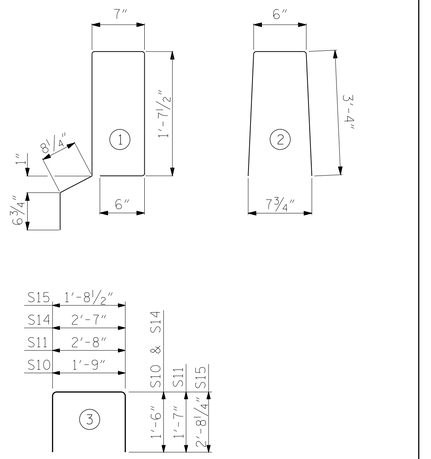
CONCRETE RELEASE STRENGTH	
UNIT	PSI
75' UNITS	5500

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
75' UNITS	2½"	3'-8½"

BILL OF MATERIAL FOR ONE 75' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	26'-1"	105	26'-1"	105
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	154	#4	3	5'-10"	600	5'-10"	600
✳S12	84	#5	1	5'-7"	489		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		790		790
✳EPOXY COATED REINFORCING STEEL			LBS.		489		
7500 P.S.I. CONCRETE			CU. YDS.		12.7		12.7
0.6"Ø L.R. STRANDS			No.		28		28

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 2'-0"
75' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1" ↓
FINAL CAMBER	1" ↑

** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS 75' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
✳B25	60	60	#5	STR	24'-7"	1538
✳S13	168	168	#5	2	7'-2"	1256
✳EPOXY COATED REINFORCING STEEL				LBS.		2794
CLASS AA CONCRETE				CU.YDS.		19.4
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		150.25

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

THE 2½"Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

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

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

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
75' UNIT			
EXTERIOR C.S.	2	75'-0"	150'-0"
INTERIOR C.S.	8	75'-0"	600'-0"
TOTAL	10	75'-0"	750'-0"

SECTION THRU RAIL

ELEVATION AT EXPANSION JOINTS

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

VERTICAL CONCRETE BARRIER RAIL DETAILS

END VIEW

SIDE VIEW

END OF RAIL DETAILS

PROJECT NO. BP2-R021
JONES COUNTY
STATION: 19+42.00 -L-

SHEET 3 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 035477 ENGINEER MATTHEW R. KOSKA
2/28/2025

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			14

DRAWN BY : NSC DATE : 05/2023
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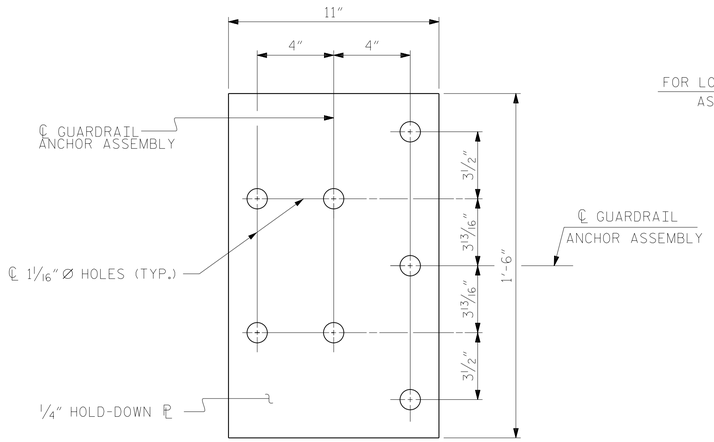
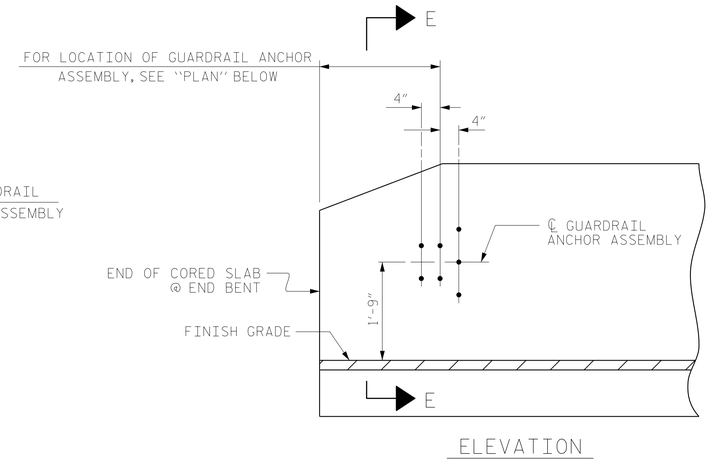


PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

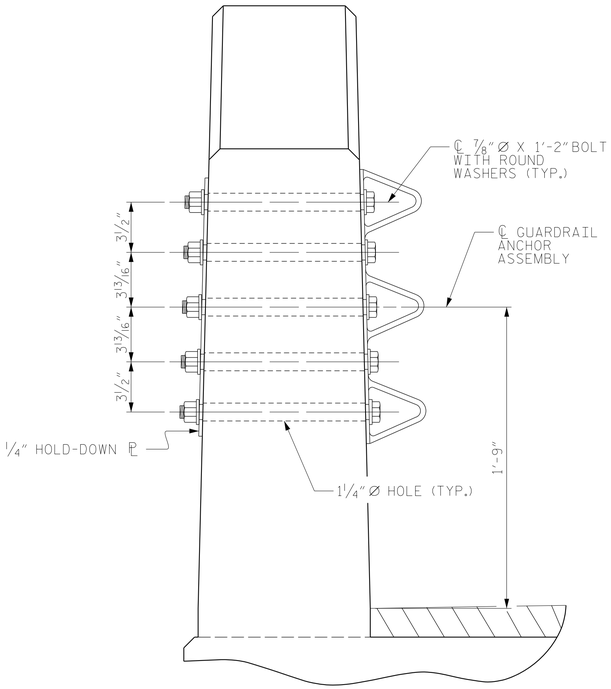
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

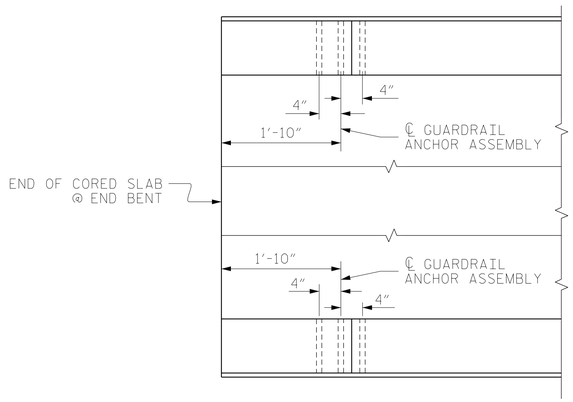
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BP2-R021

JONES COUNTY

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CHECKED BY : GM 5/10	REV. 12/17	MAA/THC	
	REV. 5/18	MAA/THC	

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STANDARD
GUARDRAIL ANCHORAGE DETAILS
FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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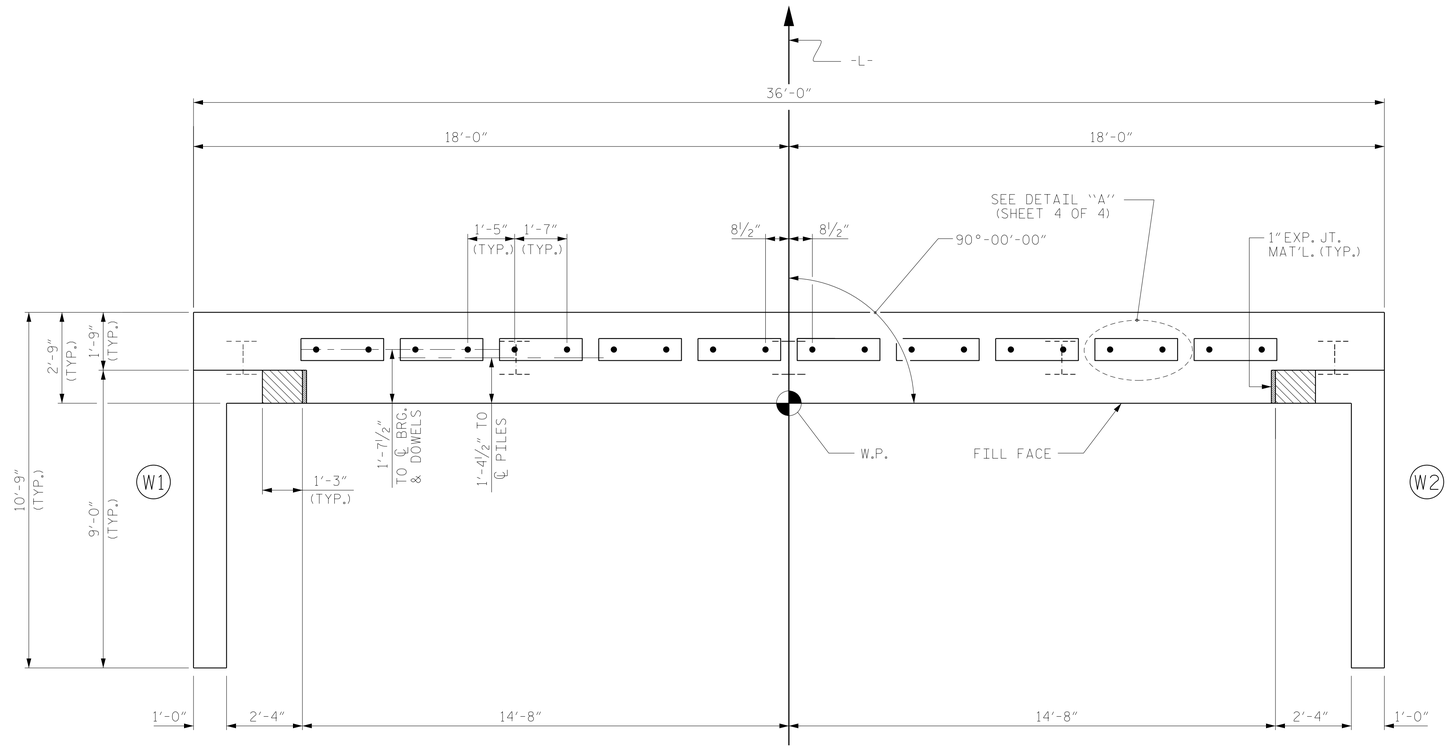
(SHT 1) STD. NO. GRA3



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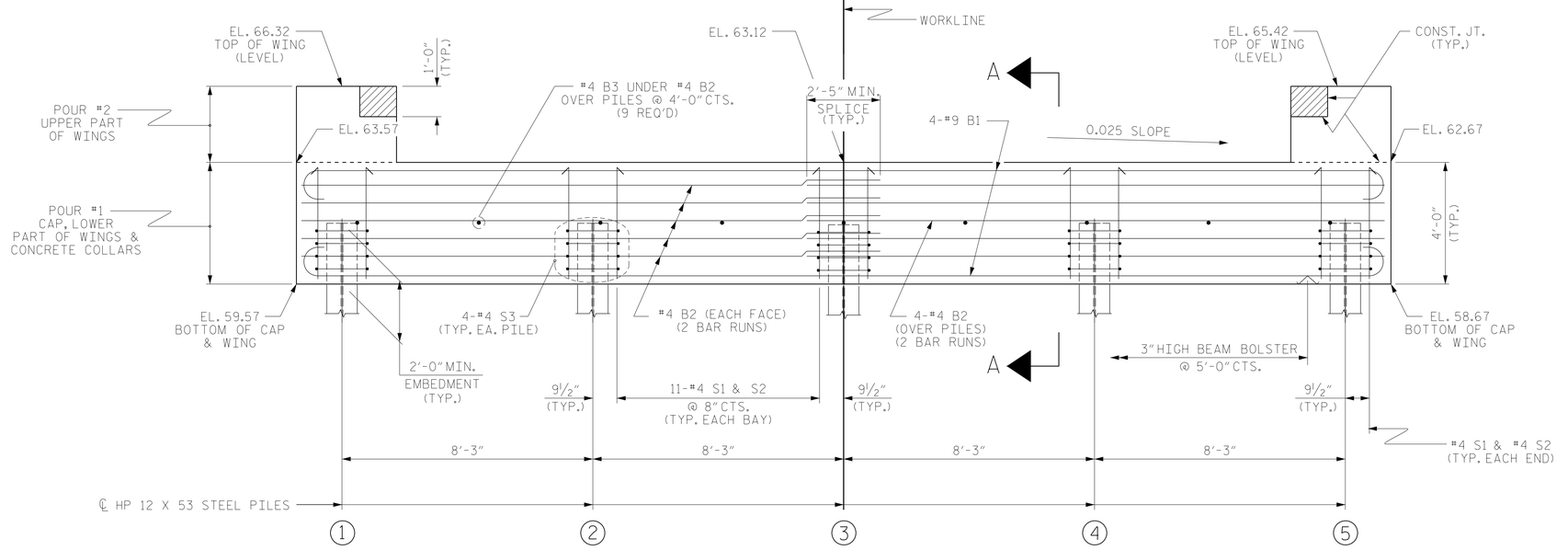

ELEVATION

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

NOTES

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

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

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS	
1	61.53
2	61.33
3	61.12
4	60.91
5	60.71

PROJECT NO. BP2-R021
JONES COUNTY
STATION: 19+42.00 -L-

SHEET 1 OF 4

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SUBSTRUCTURE

END BENT NO. 1

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1			3			TOTAL SHEETS
2			4			14

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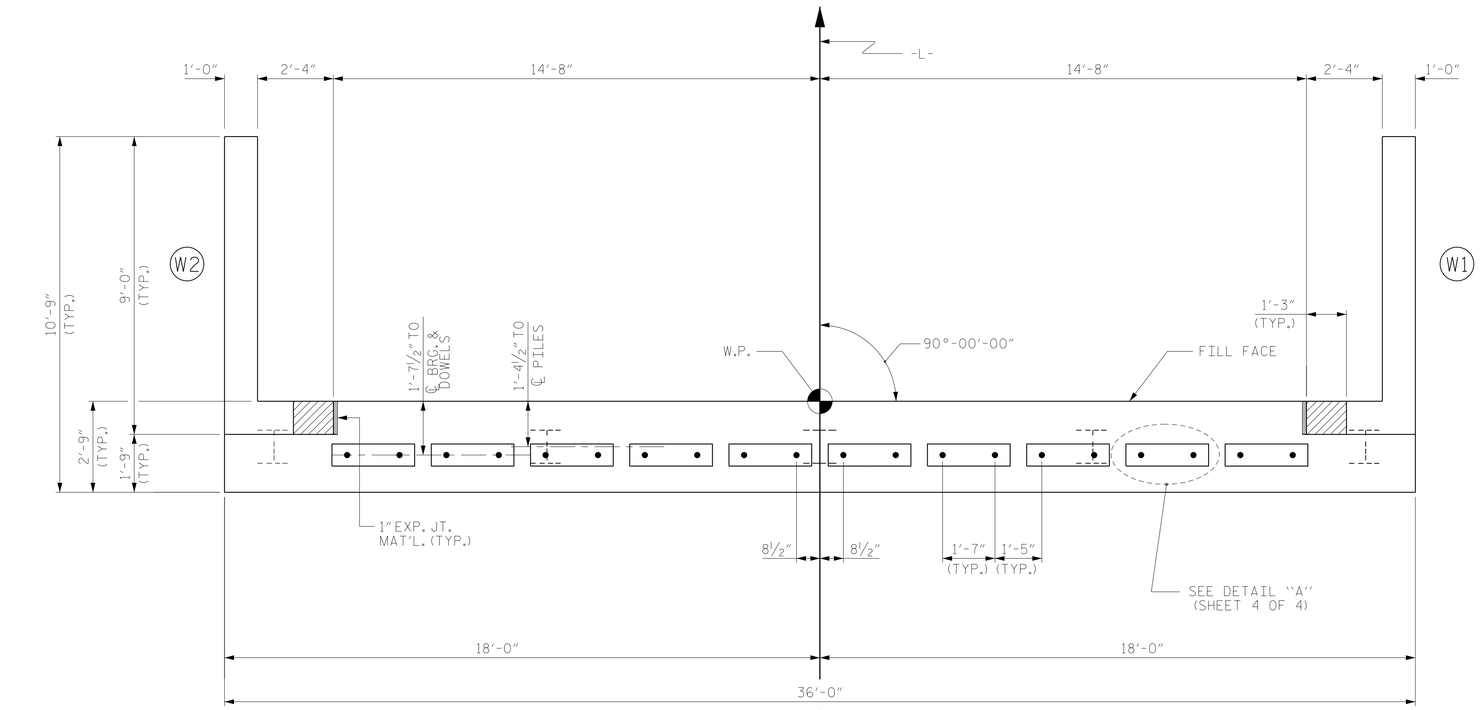
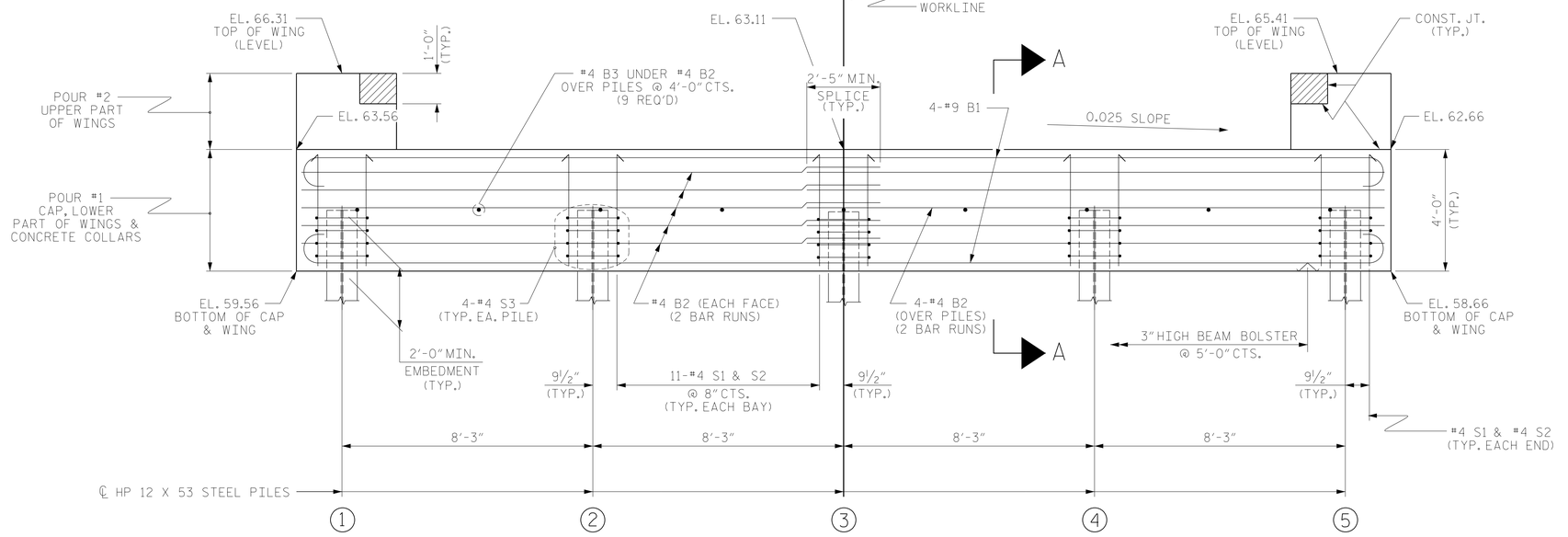


PLAN



ELEVATION

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

NOTES

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

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

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS	
1	61.52
2	61.32
3	61.11
4	60.90
5	60.70

PROJECT NO. BP2-R021
JONES COUNTY
STATION: 19+42.00 -L-

SHEET 2 OF 4

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CHECKED BY : AAC 12/11			

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END BENT NO. 2

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1			3			TOTAL SHEETS
2			4			14

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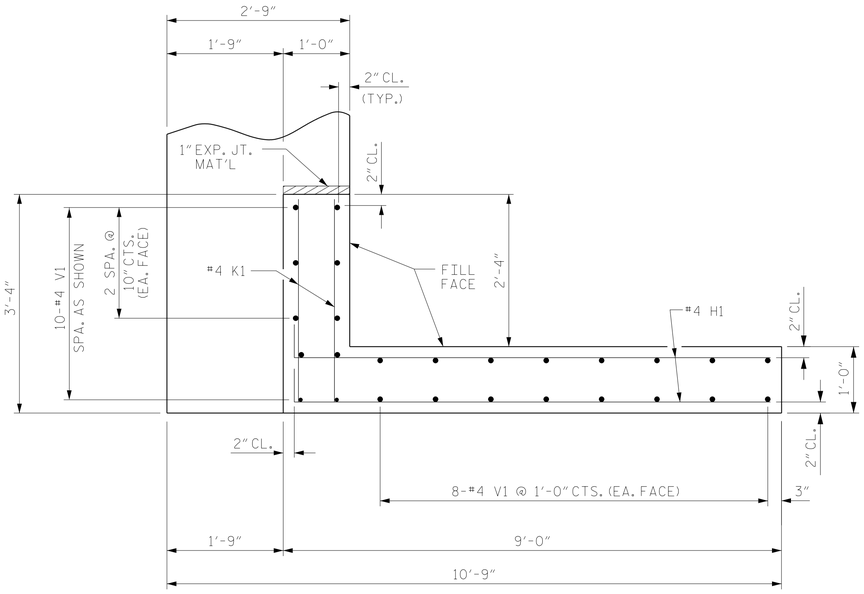
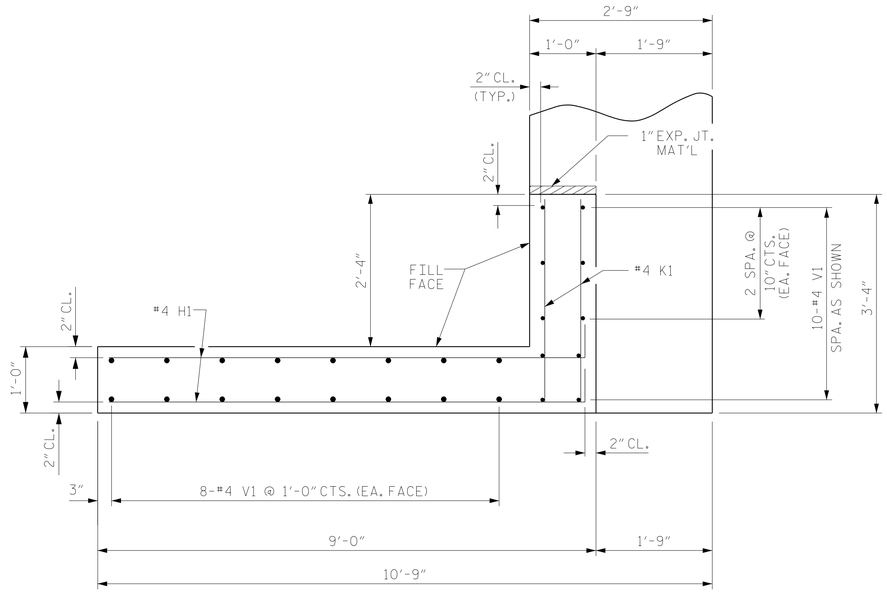
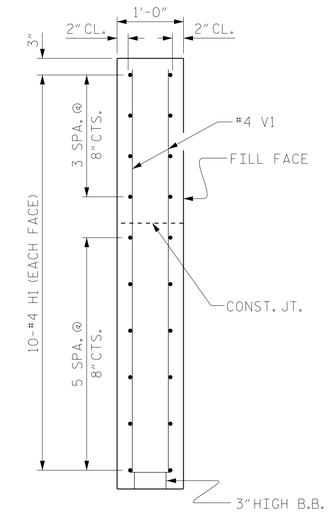


PLAN OF WING (W1)

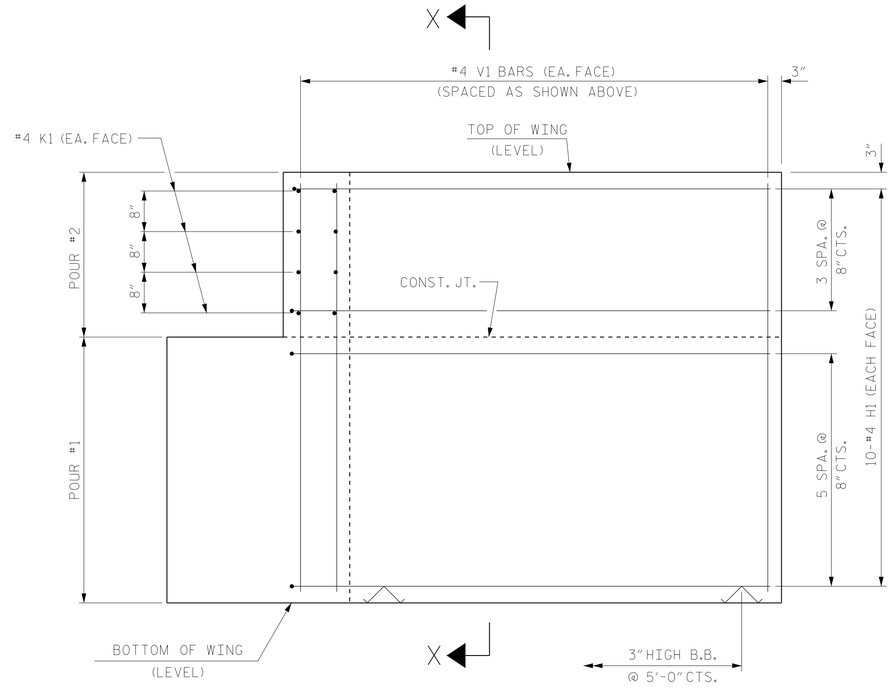


PLAN OF WING (W2)

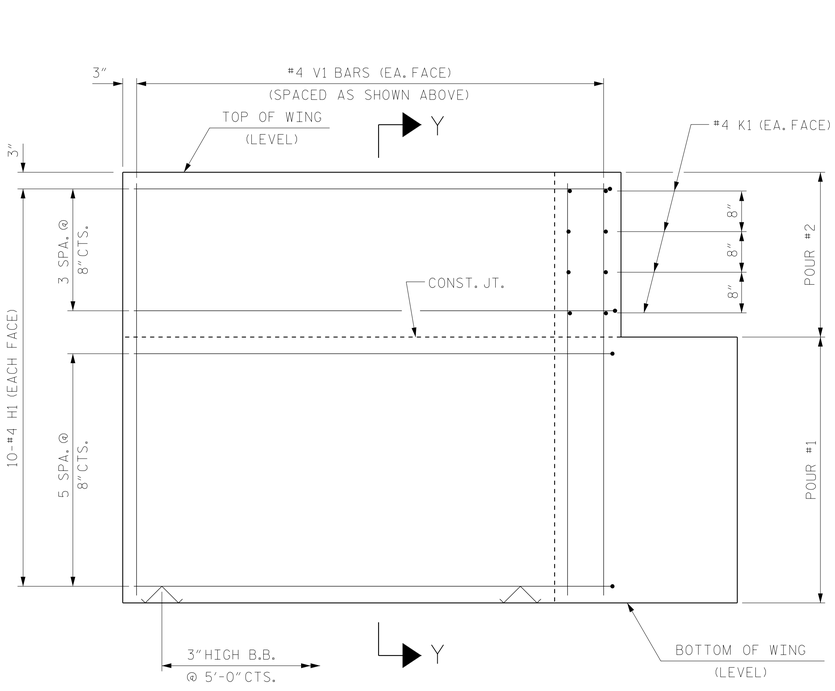


SECTION X-X

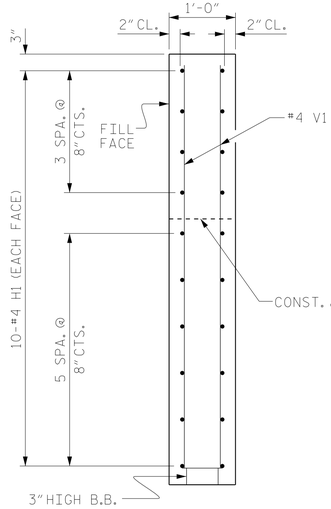
X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

PROJECT NO. BP2-R021

JONES COUNTY

STATION: 19+42.00 -L-

SHEET 3 OF 4

WING DETAILS

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SUBSTRUCTURE

END BENT
WING DETAILS

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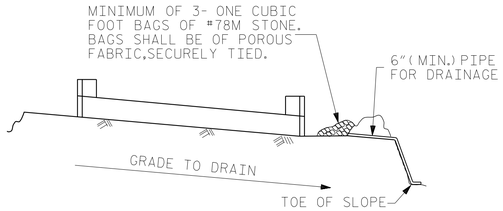
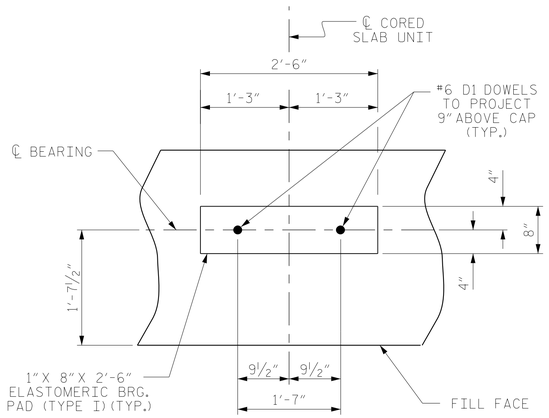


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

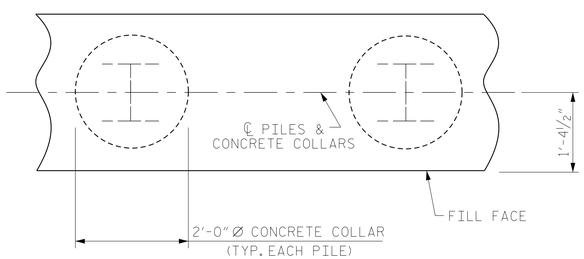
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

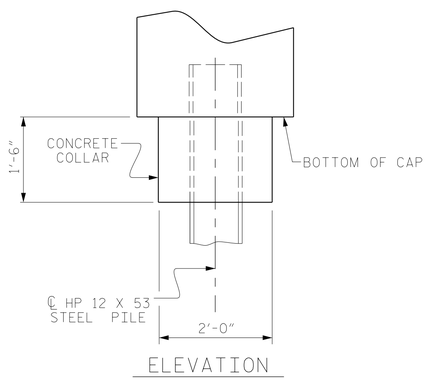


DETAIL "A"

(END BENT NO.1 SHOWN, END BENT NO.2 SIMILAR BY ROTATION)



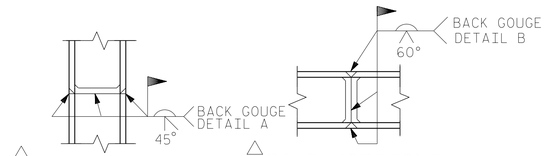
PLAN



ELEVATION

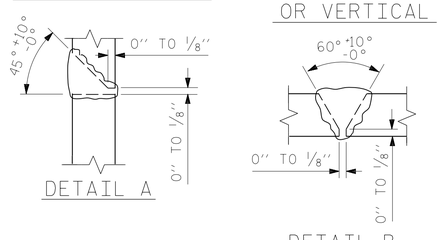
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT NO.1 SHOWN, END BENT NO.2 SIMILAR BY ROTATION)



△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL



DETAIL A

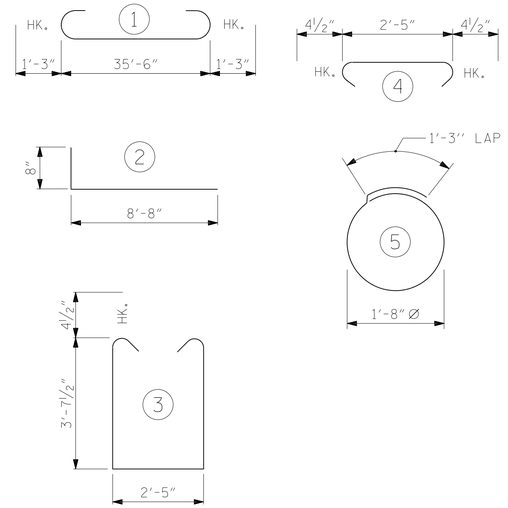
DETAIL B

△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

SCALE- 7/16" = 1'-0"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	28	#4	STR	19'-1"	357
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	46	#4	3	10'-5"	320
S2	46	#4	4	3'-2"	97
S3	20	#4	5	6'-6"	87
V1	52	#4	STR	6'-2"	214

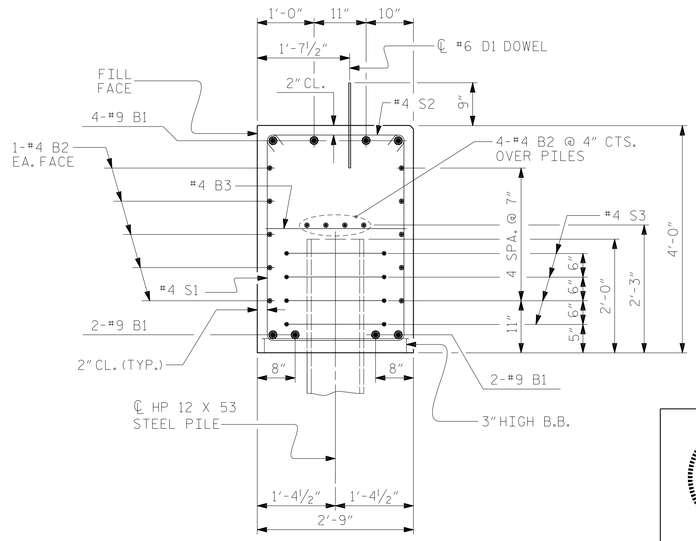
REINFORCING STEEL (FOR ONE END BENT) 2449 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 17.9 C.Y.

POUR #2 UPPER PART OF WINGS 2.3 C.Y.

TOTAL CLASS A CONCRETE 20.2 C.Y.



SECTION A-A

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

PROJECT NO. BP2-R021

JONES COUNTY

STATION: 19+42.00 -L-

SHEET 4 OF 4

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CHECKED BY :	AAC 12/11		

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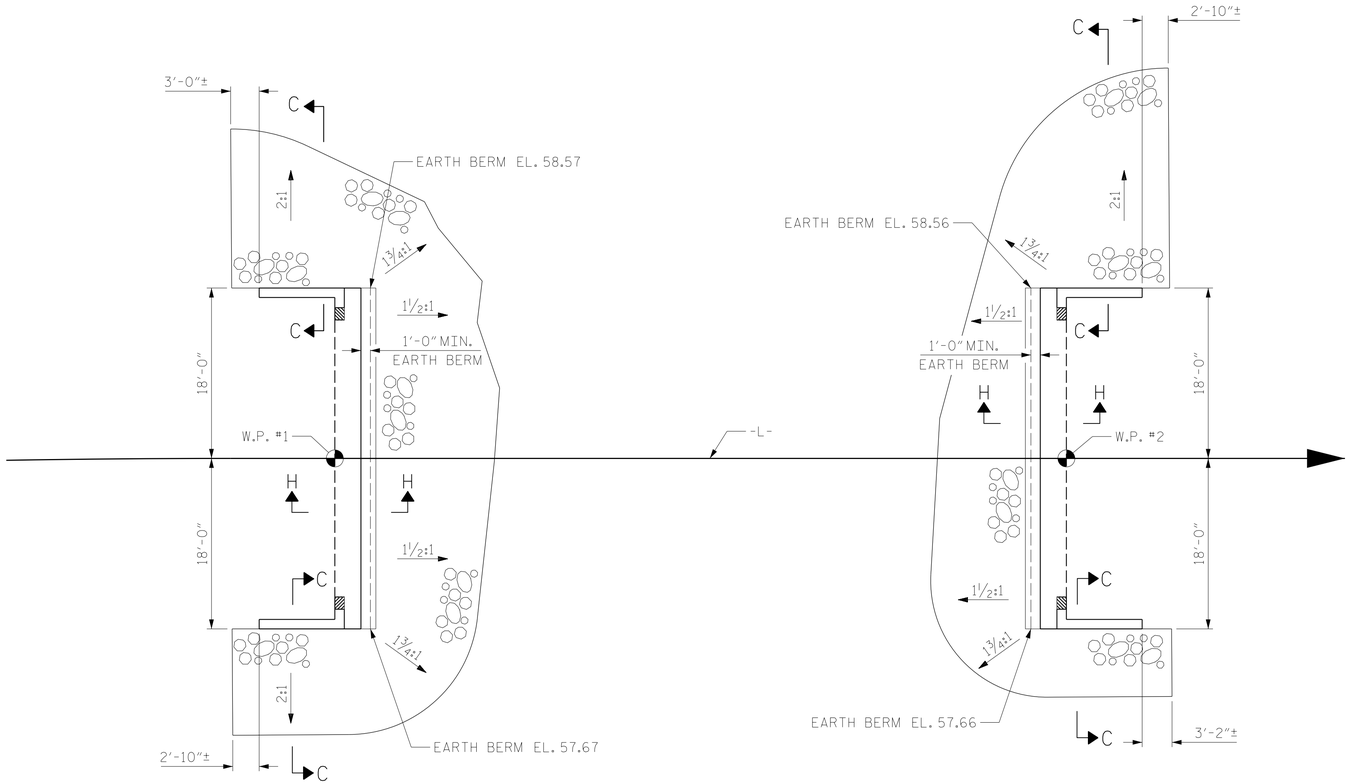
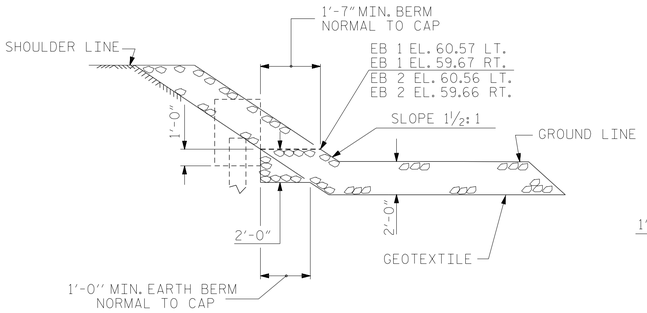


PLAN OF RIP RAP

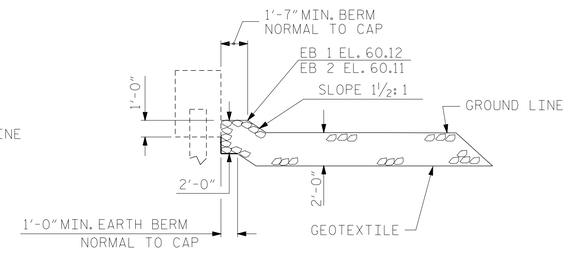
NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

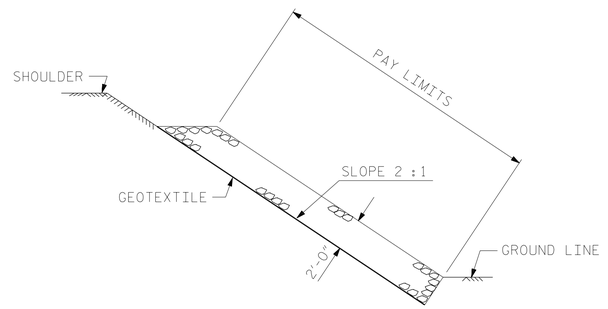
ESTIMATED QUANTITIES		
BRIDGE @ STA. 19+42.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	165	180
END BENT 2	115	130



SECTION H-H



℄ SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. BP2-R021

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RIP RAP DETAILS

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DESIGN ENGINEER OF RECORD:	MRA	DATE : 11/2024

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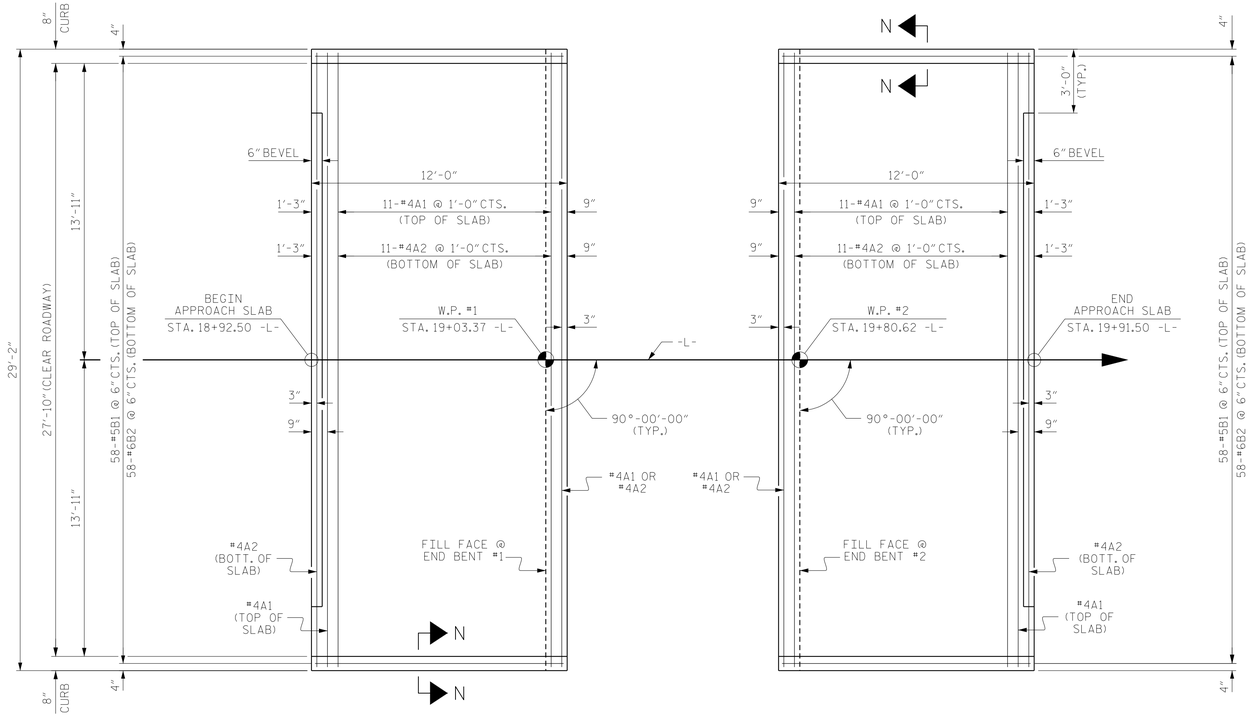
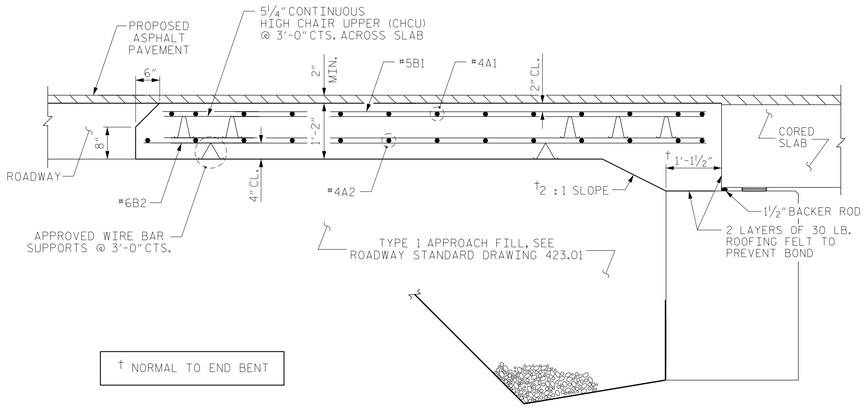


PLAN @ END BENT NO. 1 PLAN @ END BENT NO. 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



† NORMAL TO END BENT

SECTION THRU SLAB

NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

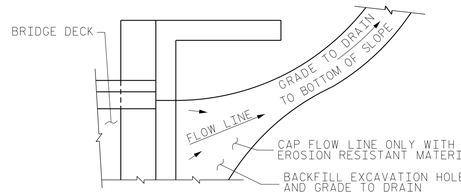
BILL OF MATERIAL

APPROACH SLAB AT EB NO. 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
✳ B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
✳ EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C. Y.	17.7

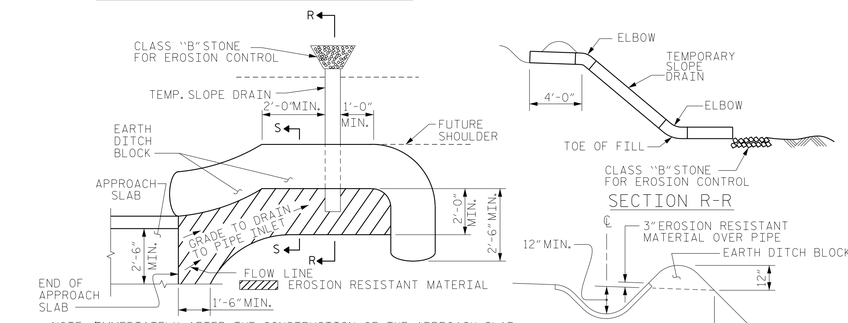
APPROACH SLAB AT EB NO. 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
✳ B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
✳ EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C. Y.	17.7



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

TEMPORARY DRAINAGE DETAIL



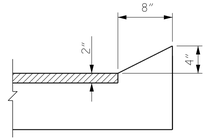
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION N-N

CURB DETAILS

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

PROJECT NO. BP2-R021

JONES COUNTY

STATION: 19+42.00 -L-

DRAWN BY : NSC DATE : 05/2023

CHECKED BY : MRA DATE : 05/2023

DESIGN ENGINEER OF RECORD: MRA DATE : 11/2024

12/13/2024
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 052672 ENGINEER MATTHEW R. ALLEN
2/28/2025

RS&H

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North Carolina License Nos. 50073 ° F-0493 ° C-28

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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