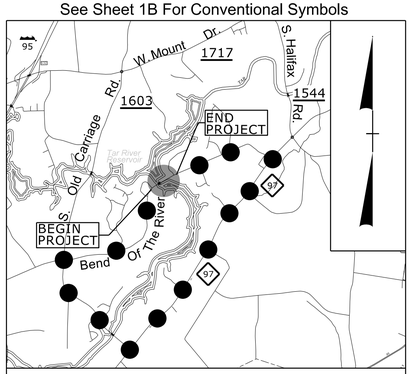
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01/16/24

TIP PROJECT: HB-0038

CONTRACT: DD00540

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




OFFSITE DETOUR ROUTE

VICINITY MAP (NTS)

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

# NASH COUNTY

LOCATION: *SR 1745 (BEND OF THE RIVER ROAD) REPLACE BRIDGE 630110 OVER THE TAR RIVER RESERVOIR*

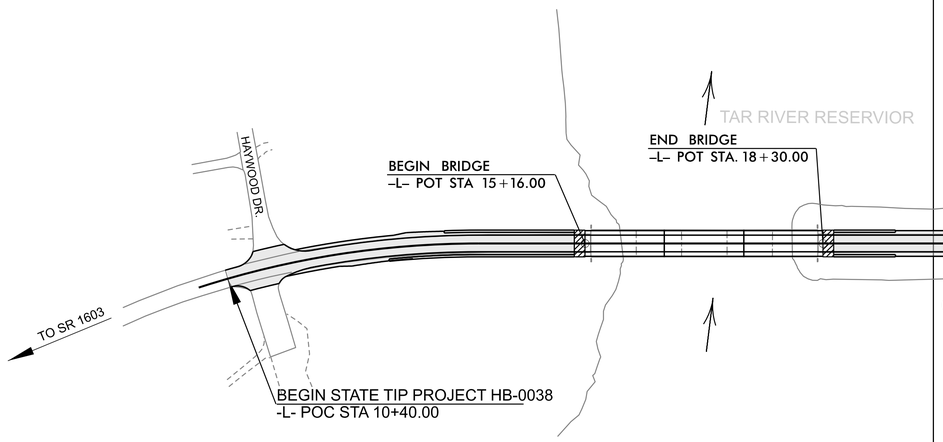
TYPE OF WORK: *GRADING, DRAINAGE, PAVING, AND STRUCTURE.*

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | HB-0038 | 1 | |

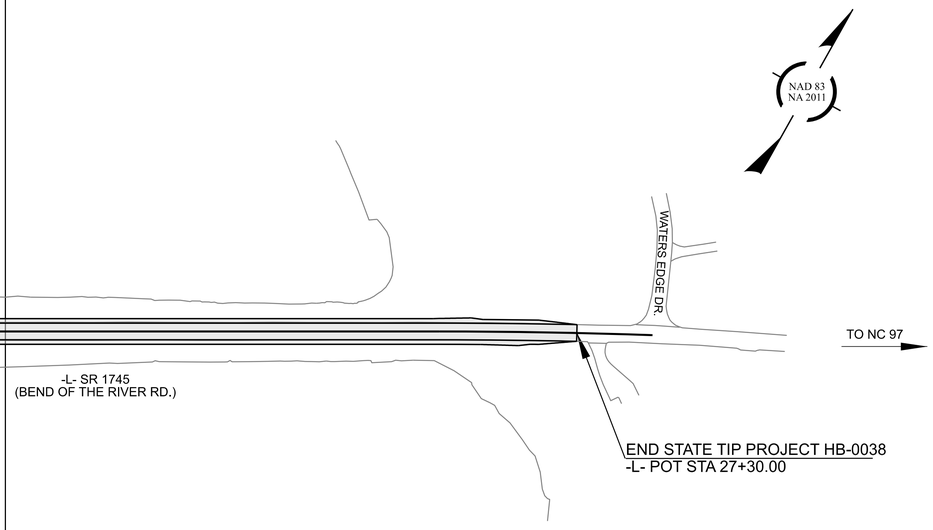
| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 50636.1.1 | N/A | PE |
| 50636.2.1 | N/A | ROW |
| 50636.2.2 | N/A | UTILITIES |
| 50636.3.1 | 5063601 | CONST. |
| | | |
| | | |
| | | |
| | | |

DESIGN COMPLETE REVIEW PLAN SET

4




5




THIS IS A NON CONTROLLED ACCESS FACILITY.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

*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 2026 = 1,977
ADT 2046 = 2,628
K = 10%
D =
T = 6% *
V = 60 MPH
* TTST = 6 DUAL
FUNC CLASS =
LOCAL
SUB-REGIONAL TIER

*PROJECT LENGTH*

LENGTH ROADWAY TIP PROJECT HB-0038 = 0.261 MILES

LENGTH STRUCTURES TIP PROJECT HB-0038 = 0.059 MILES

TOTAL LENGTH TIP PROJECT HB-0038 = 0.320 MILES

*NCDOT CONTACT:* RACHEL EVANS, PE
*DIVISION 4*

509 WARD BLVD.
WILSON, NC 27895

DIRECT: (252)640-6434
RCEVANS@NCDOT.GOV

Prepared in the Office of:
STV Engineers, Inc.
400 Hillsborough St. Suite 430
Raleigh, NC 27603
NC License Number F-0991

*2024 STANDARD SPECIFICATIONS*

*RIGHT OF WAY DATE:*
OCTOBER 23, 2025

*LETTING DATE:*
NOVEMBER 24, 2026

E. NEAL PASCHAL, PE
*PROJECT ENGINEER*

SARA S. LOUKILI, PE
*PROJECT DESIGN ENGINEER*

*HYDRAULICS ENGINEER*

Signed by:
[signature]
P.E.
*SIGNATURE:* 10/22/2026

NORTH CAROLINA PROFESSIONAL SEAL 051699 ENGINEER TIFFANY A. PREDDY

*ROADWAY DESIGN ENGINEER*

Signed by:
Sara Loukili
P.E.
*SIGNATURE:* 10/22/2026

NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUKILI

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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11/15/23

HB-0038
FINAL | 001A

ROADWAY DESIGN ENGINEER




10/22/2026

PREPARED BY

STV Engineers, Inc.
400 Hillsborough St.
Suite 430
Raleigh, NC 27603
NC License Number F-0991

# INDEX OF SHEETS


| SHEET NUMBER | SHEET |
|---|---|
| 1 | TITLE SHEET |
| 1A | INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS |
| 1B | CONVENTIONAL SYMBOLS |
| 2A-1 THRU 2A-2 | PAVEMENT SCHEDULE AND TYPICAL SECTION |
| 2C-1 THRU 2C-4 | SPECIAL DETAILS AND DETAILS IN LIEU OF STANDARDS |
| 2G-1 | GEOTECHNICAL DETAILS |
| 3B-1 | ROADWAY SUMMARIES |
| 3D-1 | DRAINAGE SUMMARIES |
| 3G-1 | GEOTECHNICAL SUMMARIES |
| 4 THRU 7 | PLAN AND PROFILE SHEET |
| RW01 THRU RW2D-1 | SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENT, AND PROPERTY TIES |
| TMP-1 THRU TMP-3 | TRAFFIC MANAGEMENT PLANS |
| PMP-1 THRU PMP-3 | PAVEMENT MARKING PLANS |
| EC-1 THRU EC-7 | EROSION CONTROL PLANS |
| SIGN-1 THRU SIGN-4 | SIGNING PLANS |
| UC-1 THRU UC-6 | UTILITIES CONSTRUCTION PLANS |
| UO-1 THRU UO-4 | UTILITES BY OTHERS PLANS |
| X-1 | CROSS-SECTION SUMMARY SHEET |
| X-2 THRU X-20 | CROSS-SECTIONS |
| S-0 THRU S-35 | STRUCTURE PLANS |
| SU-0 THRU SU-12 | STRUCTURE UTILITY PLANS |


# GENERAL NOTES

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SUBSURFACE DRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE NASH COUNTY WATER AND SEWER

CITY OF ROCKY MOUNT, BRIGHTSPEED

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

# STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 08-11-2025 REV. 11-26-2025

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

STD.NO. TITLE
DIVISION 2 - EARTHWORK
200.03 Method of Clearing - Method III
225.02 Guide for Grading Subgrade - Secondary and Local
225.04 Method of Obtaining Superelevation - Two Lane Pavement
275.01 Rock Plating

DIVISION 4 - MAJOR STRUCTURES
423.02 Bridge Approach Fills - Type 1A Approach Fill for Bridge Abutment

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS
560.01 Method of Shoulder Construction - High Side of Superelevated Curve - Method I

DIVSION 6 - ASPHALT BASES AND PAVEMENT
654.01 Pavement Repairs - For Superpave Mix Types

DIVISION 8 - INCIDENTALS
815.02 Subsurface Drain
846.01 Concrete Curb, Gutter and Curb & Gutter
862.01 Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 11, 12, and 14 of 15)
862.02 Guardrail Installation (Use Detail in Lieu of Standard for Sheet 5 of 9)
862.03 Structure Anchor Units (Use Detail in Lieu of Standards for Sheets 6 and 8 of 9)
876.01 Rip Rap in Channels and Ditches

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05/29/25

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

HB-0038 | FINAL | 001B

*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
- Permanent Construction Easement — PE
- 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

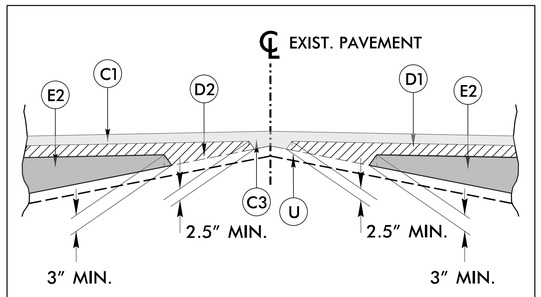
SANITARY SEWER:
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Force Main Line Test Hole (SUE - LOS A)*
- SS Force Main Line (SUE - LOS B)* — FSS
- SS Force Main Line (SUE - LOS C)* — FSS
- SS Force Main Line (SUE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

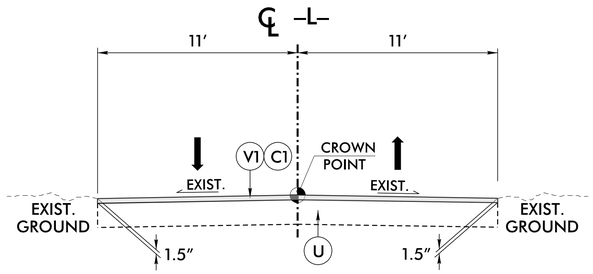
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11/14/23

| PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN) | |
|---|---|
| C1 | PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF ONE LAYER. |
| C2 | PROP. APPROX. 3.0" 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. |
| D1 | PROP. APPROX. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| D2 | PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH. |
| E1 | PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| E2 | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3.0" IN DEPTH OR GREATER THAN 5.5" IN DEPTH. |
| R | SHOULDER BERM GUTTER |
| T | EARTH MATERIAL |
| U | EXISTING PAVEMENT |
| V1 | MILLING (1.5") |
| W | PAVEMENT WEDGING (SEE WEDGING DETAIL THIS SHEET) |

ALL PAVEMENT SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED.

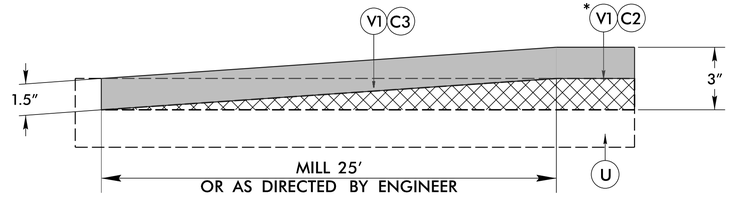



## WEDGING DETAIL




## TYPICAL SECTION NO. 1

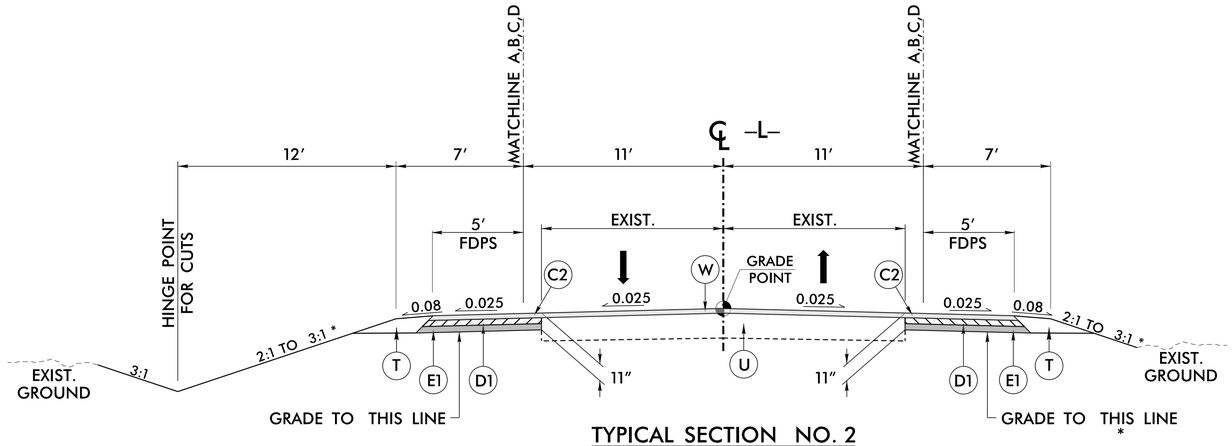
–L– STA. 10+40.00 TO 11+25.00




## TIE–IN MILLING DETAIL

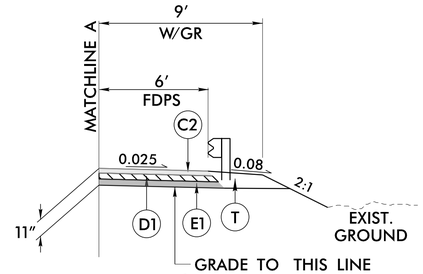
–L– STA. 27+05.00 TO 27+30.00

NOTE: * ON THE CAUSEWAY, MILL 1.5" OF EXISTING ASPHALT. PLACE 3" OF ASPHALT, RESULTING IN A FINAL SURFACE ELEVATION APPROX. 1.5" HIGHER THAN THE EXISTING ELEVATION.




## TYPICAL SECTION NO. 2

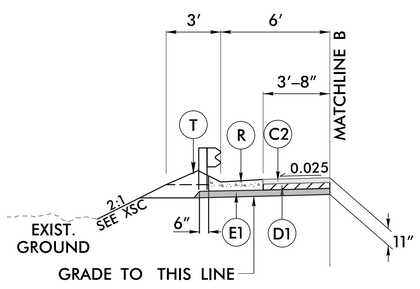
–L– STA. 11+25.00 TO 14+15.00
–L– STA. 19+31.00 TO 23+00.00




## DETAIL A:

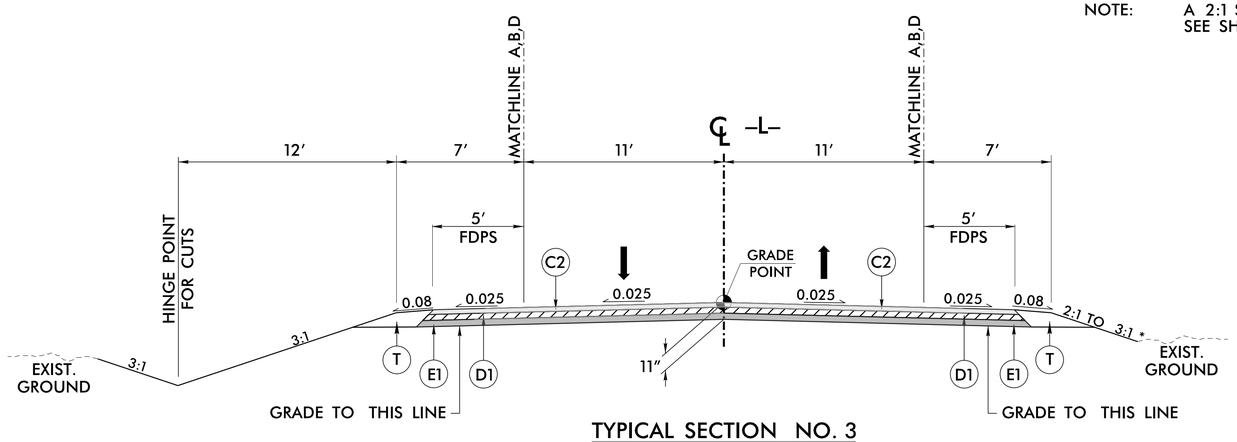
–L– STA. 12+80.62 TO 13+30.62 (LT)
–L– STA. 19+25.65 TO 20+75.00 (LT)
–L– STA. 12+05.17 TO 12+87.54 (RT)
–L– STA. 19+25.65 TO 20+75.00 (RT)

NOTE: A 2:1 SLOPE IS USED AT CAUSEWAY DUE TO IMPACTS. SEE SHEET 2G–1 FOR ROCK PLATING DETAILS.



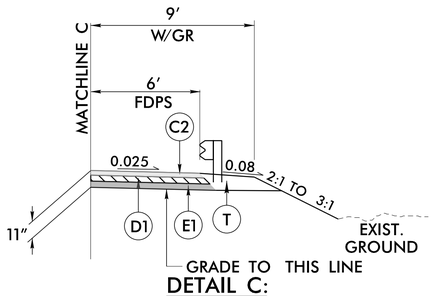

## DETAIL B:

–L– STA. 13+30.62 TO 14+89.00 (LT)
–L– STA. 18+57.00 TO 19+25.65 (LT)
–L– STA. 12+55.64 TO 14+89.00 (RT)
–L– STA. 18+57.00 TO 19+25.65 (RT)




## TYPICAL SECTION NO. 3

–L– STA. 14+15.00 TO 15+16.00 (BEGIN BRIDGE)
–L– STA. 18+30.00 (END BRIDGE) TO 19+31.00




## DETAIL C:

–L– STA. 20+75.00 TO 25+90.28 (LT)
–L– STA. 20+75.00 TO 26+52.95 (RT)

NOTE: * A 2:1 SLOPE IS USED AT CAUSEWAY DUE TO IMPACTS. SEE SHEET 2G–1 FOR ROCK PLATING DETAILS.

HB-0038
FINAL | 2A-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
NASH COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER
10/22/2026

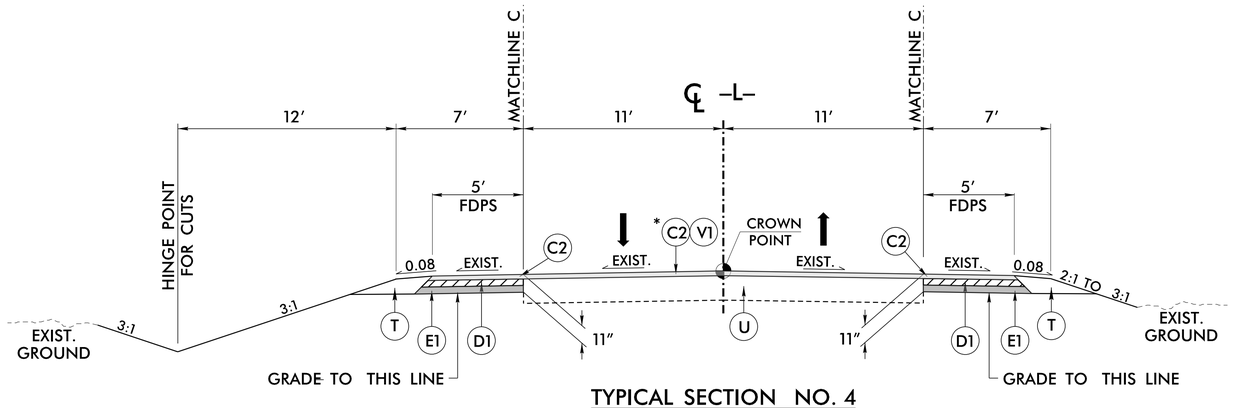
PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 037392 ENGINEER
10/22/2026

PREPARED BY
STV Engineers, Inc.
400 Hillsborough St.
Suite 430
Morrisville, NC 27560
NC License Number: F-0991

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11/14/23

| PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN) | |
|---|---|
| C1 | 1.5″ S9.5B |
| C2 | 3.0″ S9.5B |
| C3 | VAR. S9.5B |
| D1 | 4.0″ I19.0C |
| D2 | VAR. I19.0C |
| E1 | 4.0″ B25.0C |
| E2 | VAR. B25.0C |
| R | SHOULDER BERM GUTTER |
| T | EARTH MATERIAL |
| U | EXISTING PAVEMENT |
| V1 | 1.5″ MILLING |
| W | WEDGING |

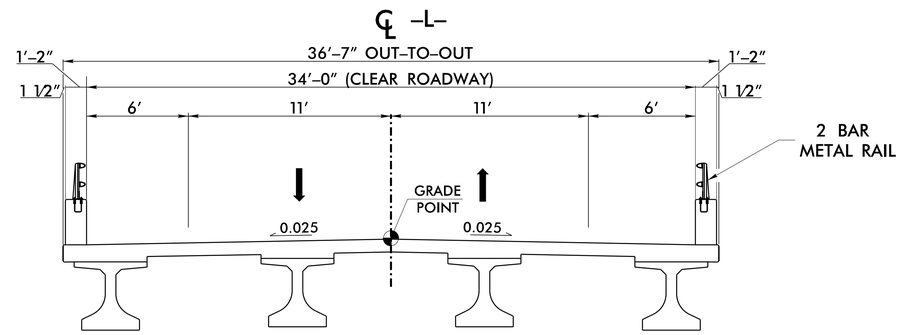
ALL PAVEMENT SLOPES ARE 1:1
UNLESS OTHERWISE INDICATED.




## TYPICAL SECTION NO. 4

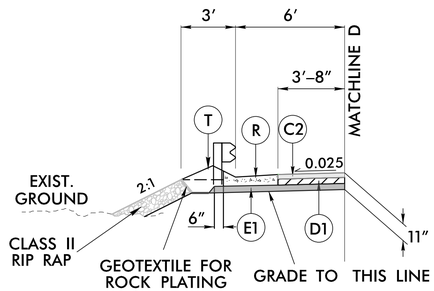
–L– STA. 23+00.00 TO 27+30.00

NOTE: * ON THE CAUSEWAY, MILL 1.5″ OF EXISTING ASPHALT. PLACE 3″ OF ASPHALT, RESULTING IN A FINAL SURFACE ELEVATION APPROX. 1.5″ HIGHER THAN THE EXISTING ELEVATION.




## TYPICAL SECTION NO. 5

–L– STA. 15+16.00 (BEGIN BRIDGE) TO 18+30.00 (END BRIDGE)
NOTE: SEE STRUCTURES PLANS FOR CONSTRUCTION DETAILS




## DETAIL D:

–L– STA. 18+41± (END APPROACH SLAB) TO 21+75 (LT)
–L– STA. 18+45± (END APPROACH SLAB) TO 21+75 (RT)

HB-0038
FINAL | 2A-2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER




10/22/2026

PAVEMENT DESIGN ENGINEER




10/22/2026

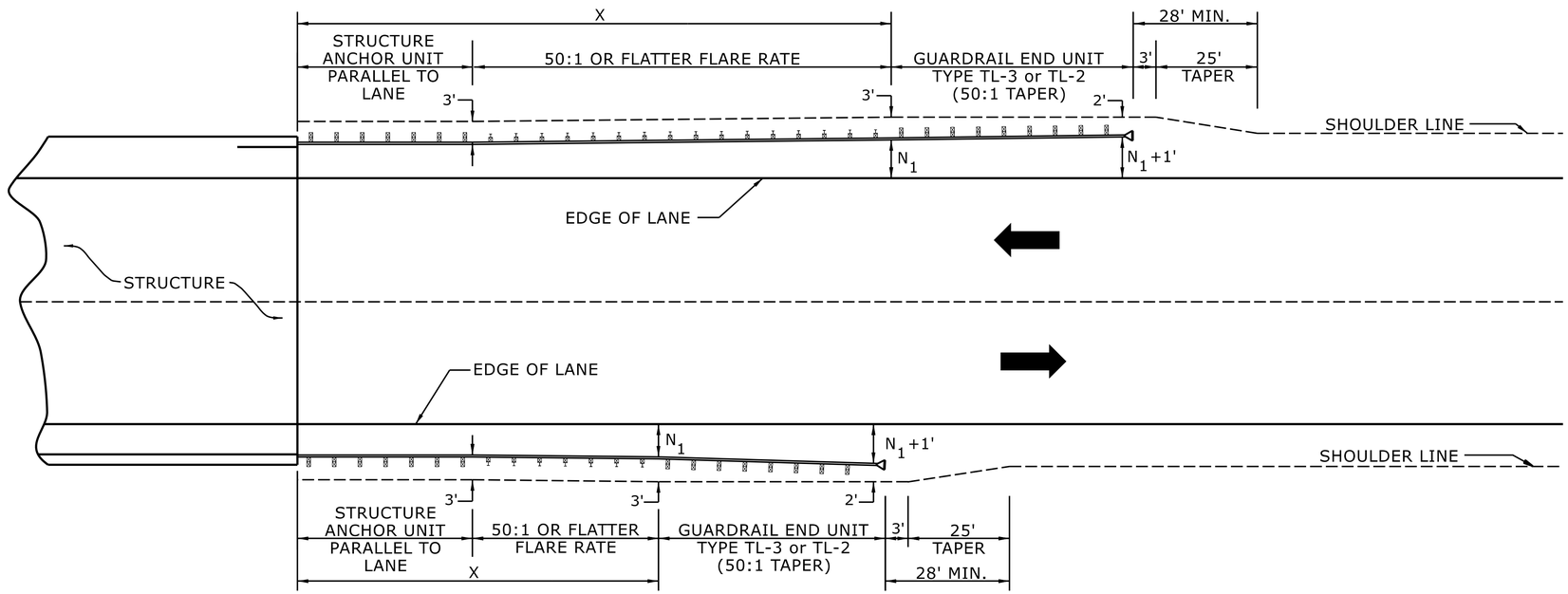
PREPARED BY

STV Engineers, Inc.
400 Hillsborough St.
Suite 430
Morrisville, NC 27560
NC License Number F-0991

REVISIONS

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| HB-0038 | 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**

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033144 NICOLE M. HACKLER
8/5/2026
Signed by: Nicole M. Hackler
5884323D34164C5...

SHEET 4 OF 15
**862D01**

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UNLESS ALL SIGNATURES COMPLETED

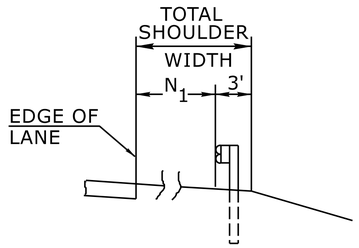
CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

**SEE TITLE BLOCK**

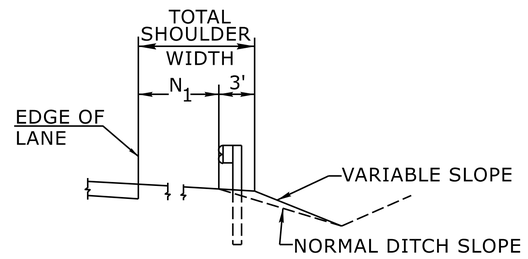
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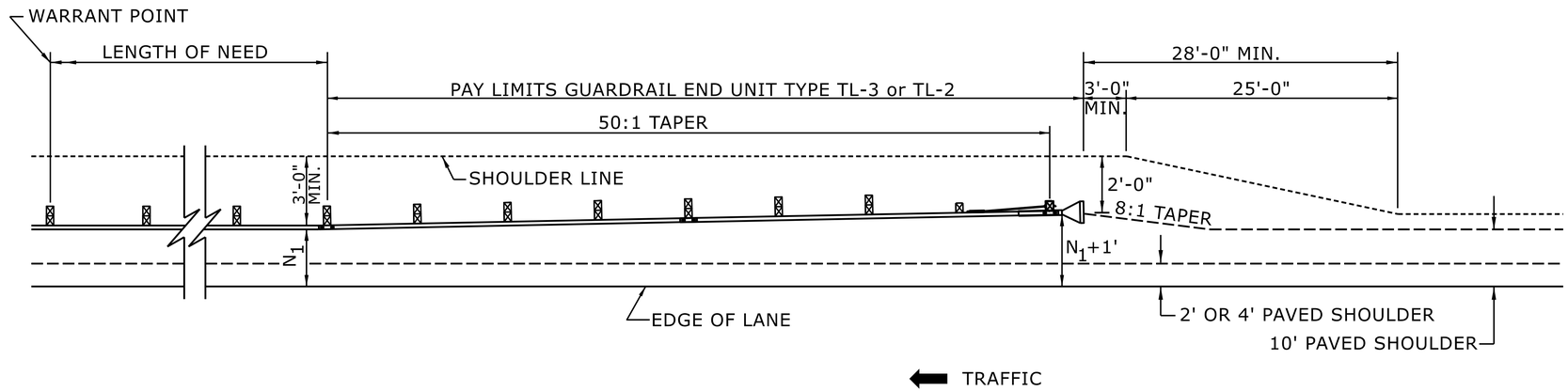



FILL SECTION




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 ENGINEER SEAL 033144 NICOLE M. HACKLER

8/5/2026

Signed by:
Nicole M. Hackler
5884323D34164C5...

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

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CHECKED BY: DATE:
FILE SPEC.:

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| H8-0038 | 2C-3 |

STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

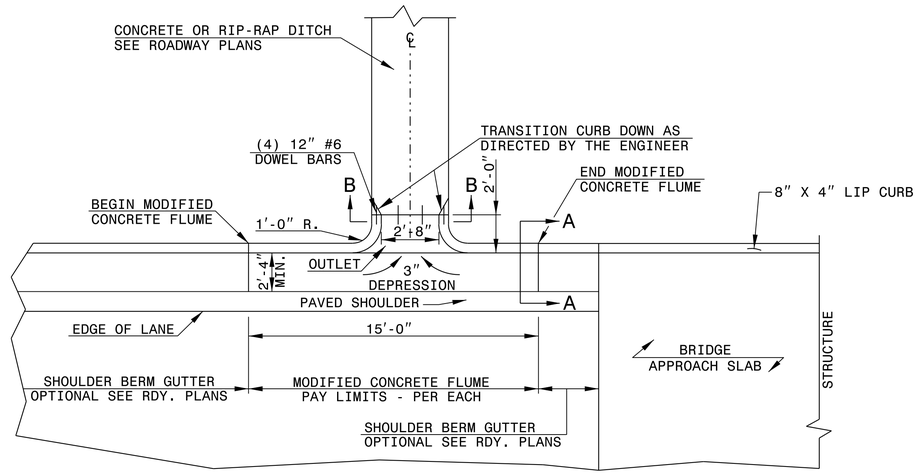
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# MODIFIED CONCRETE FLUME

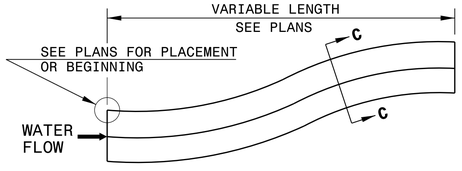
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1

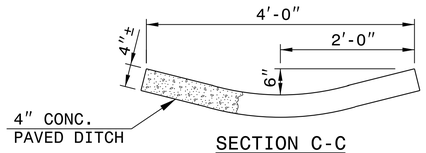
MODFLMDTCH




PLAN VIEW



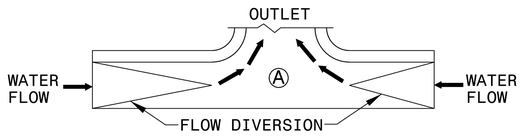

DOWNGRADE OR SAG



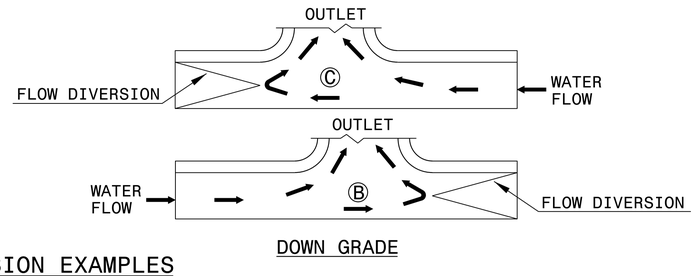

SECTION C-C




SECTION A-A

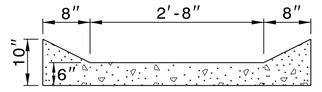



SAG

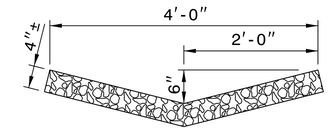



DOWN GRADE

FLOW DIVERSION EXAMPLES




SECTION B-B




RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18″ PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

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

ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1

MODFLMDTCH

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: J.S. Howerton DATE: October 2017
CHECKED BY: DATE:
FILE SPEC.: w:details\stand\modifiedflume.dgn

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HUCKLER

8/5/2026

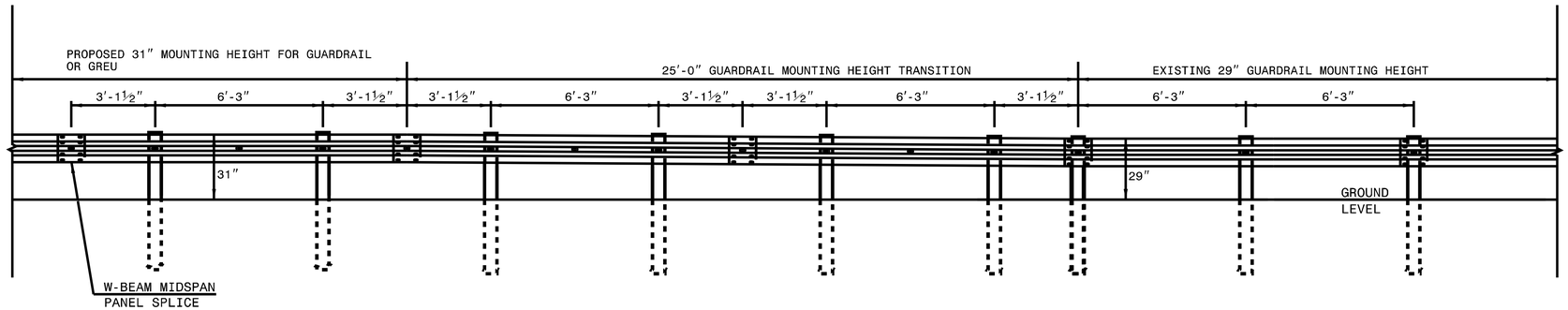
Signed by:
Nicole M. Huckler
588432303416405...

08-OCT-2017 14:17
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jhowerton 4I CSD-212595

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| HB-0038 | 2C-4 |

**NOTE: IF EXISTING GUARDRAIL IS LOWER THAN 29″, USE AN ADDITIONAL 12′-6″ LONG SECTION OF GUARDRAIL, FOR EVERY 1″ OF HEIGHT DIFFERENCE, TO TRANSITION FROM EXISTING GUARDRAIL TO PROPOSED 31″ GUARDRAIL.**




**ELEVATION VIEW**

## TRANSITION FROM 29″ TO 31″ W-BEAM GUARDRAIL MOUNTING HEIGHT

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

ROADWAY DETAIL DRAWING FOR
**GUARDRAIL INSTALLATION**

SHEET 5 OF 9

**862D02**

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033144 NICOLE M. HACKER
10/22/2026

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Office 919-707-8950 FAX 919-250-4119

**SEE TITLE BLOCK**

ORIGINAL BY: K. Aldridge DATE: 02-25
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

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| HB-0038 | 2G-1 |

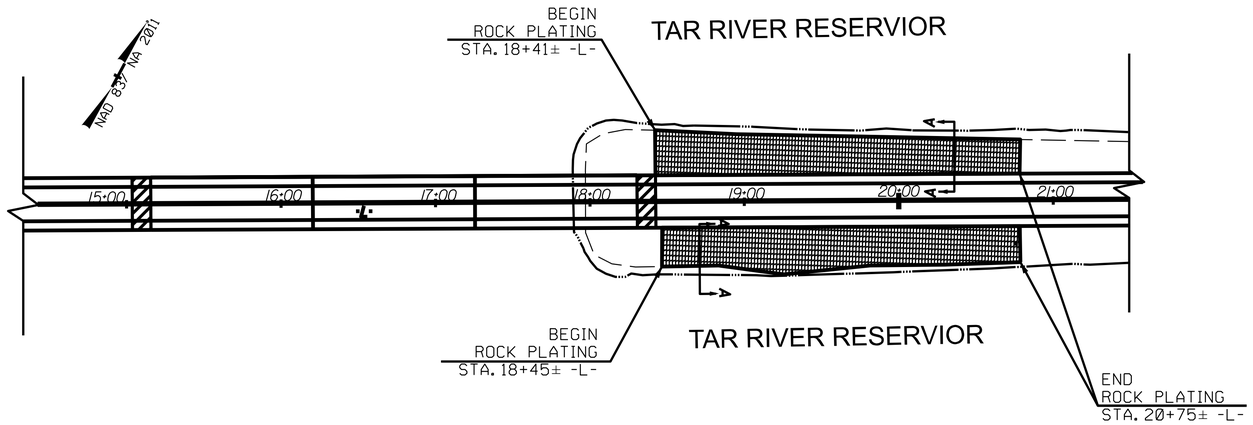
GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 060350 ENGINEER ANDREW DRDA

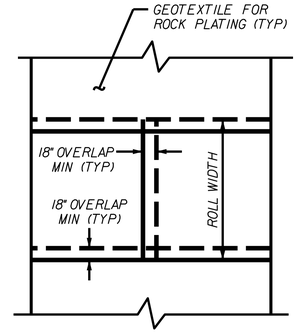
DocuSigned by: Andrew Drda 07/24/2025

SIGNATURE DATE

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ROCK PLATING PLAN VIEW

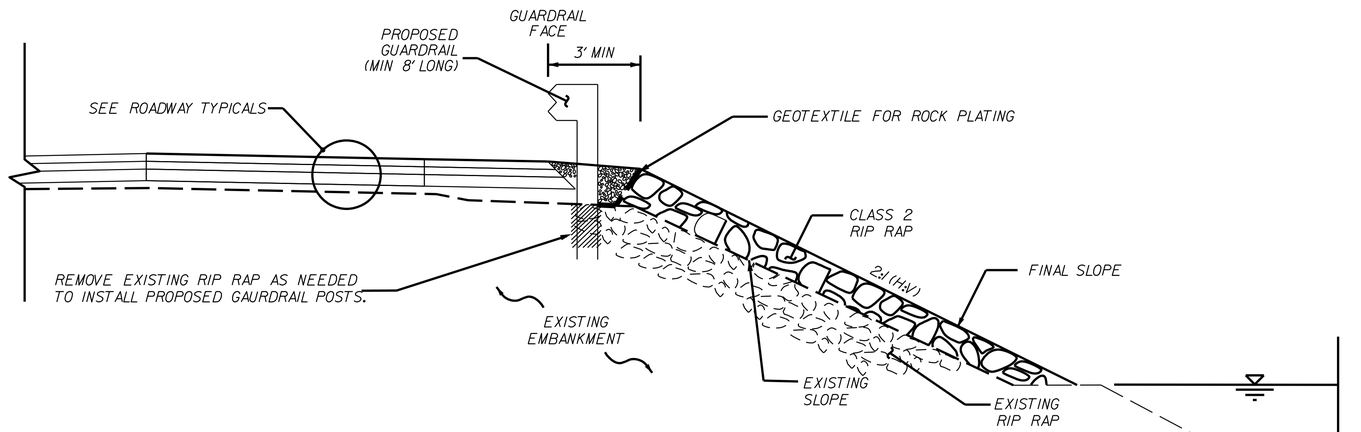



GEOTEXTILE OVERLAP DETAIL

(PLAN VIEW)

ROCK PLATING LOCATIONS AND QUANTITIES

| LOCATION | RIP RAP, CLASS 2 | SELECT MATERIAL, CLASS IV | GEOTEXTILE FOR ROCK PLATING |
|---|---|---|---|
| 18+41±TO 21+75±, LT | 230 TONS | 65 TONS | 85 SY |
| 18+45±TO 21+75±, RT | 315 TONS | 65 TONS | 85 SY |
| TOTAL | 545 TONS | 130 TONS | 170 SY |




ROCK PLATING DETAIL - TYPICAL SECTION A-A

NOT TO SCALE

*NOTES:*

*FOR ROCK PLATING,SEE ROCK PLATING (SPECIAL) PROVISION.*

*EXCAVATED RIP RAP WITH CLASS 2 SIZE CAN BE REUSED TO CONSTRUCT NEW ROCK PLATING.*

*CONSTRUCT SIDE SLOPE WITH CLASS 2 RIP RAP,GEOTEXTILE FOR ROCK PLATING,CLASS IV SELECT MATERIAL (ABC) AS SHOWN ON PLAN.*

| | |
|---|---|
| PREPARED BY: A.DRDA | DATE:07/2025 |
| REVIEWED BY: J. PARK | DATE:07/2025 |

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

# ROCK PLATING DETAILS

REVISIONS

| NO. | BY | DATE | NO. | BY | DATE |
|---|---|---|---|---|---|
| 1 | - | - | 3 | - | - |
| 2 | | | 4 | | |

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| CHECKED BY: | TS | DATE: 6/30/2026 |

HB-0038

FINAL | 3B-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY



ROADWAY DESIGN UNIT

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## SUMMARY OF EARTHWORK

IN CUBIC YARDS

| Station | Station | Uncl. | Embank. | Borrow | Waste |
|---|---|---|---|---|---|
| | | Excav. | +% | | |
| 11+25 | 15+16 (BEGIN BRIDGE) | 32 | 441 | 409 | 0 |
| 18+30 (END BRIDGE) | 21+75 | 10 | 326 | 316 | 0 |
| 21+75 | 27+30 | 186 | 31 | | 155 |
| | | | | | |
| | | | | | |
| **SUBTOTALS:** | | 228 | 798 | 725 | 155 |
| MATERIAL FOR SHOULDER CONSTRUCTION | | | 200 | 200 | |
| | | | | | |
| | | | | | |
| **SUBTOTALS:** | | 228 | 998 | 925 | 155 |
| WASTE IN LIEU OF BORROW | | | | -155 | -155 |
| **PROJECT TOTALS:** | | 228 | 998 | 770 | |
| EST. 5% TO REPLACE TOP SOIL ON BORROW PIT | | | | 39 | |
| **GRAND TOTALS:** | | 228 | 998 | 809 | |
| **SAY:** | | 250 | | 900 | |

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.

EST. SHALLOW UNDERCUT (CONTINGENCY) = 100 CY
EST. UNDERCUT EXCAVATION (CONTINGENCY) = 200 CY
EST. CLASS IV SUBGRADE STABILIZATION (CONTINGENCY) = 200 TONS
EST. GEOTEXTILE FOR SOIL STABILIZATION (CONTINGENCY) = 200 SY
EST. GEOTEXTILE FOR SUBGRADE STABILIZATION (CONTINGENCY) = 300 SY
EST. SELECT GRANULAR MATERIAL (CONTINGENCY) = 200 CY

## PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

| SURVEY LINE | Station | Station | LOCATION LT/RT/CL | ASPHALT REMOVAL |
|---|---|---|---|---|
| -L- | 14+20 | 15+24 | LT/RT | 272.35 |
| -L- | 18+24 | 19+31 | LT/RT | 283.05 |
| | | | | |
| | | | | |
| | | TOTAL: | | 555.40 |
| | | | | |
| | | SAY: | | 560 |

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

## SHOULDER BERM GUTTER SUMMARY

| LINE | Station | Station | LENGTH |
|---|---|---|---|
| -L- RT | 12+56.00 | 14+89.00 | 233 |
| -L- LT | 13+31.00 | 14+89.00 | 158 |
| -L- RT | 18+56.00 | 19+26.00 | 70 |
| -L- LT | 18+56.00 | 19+26.00 | 70 |
| | | | |
| | | TOTAL: | 531 |
| | | | |
| | | SAY: | 540 |

"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

## *GUARDRAIL SUMMARY*

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

| SURVEY LINE | BEG. STA. | END STA. | LOCATION | LENGTH | | | WARRANT POINT | | "N" DIST. FROM E.O.L. | TOTAL SHOUL WIDTH | FLARE LENGTH | | W | | ANCHORS | | | | | | | | | IMPACT ATTENUATOR | | SINGLE FACED CONCRETE BARRIER | REMOVE EXISTING GUARDRAIL | REMOVE & STOCKPILE EXISTING GUARDRAIL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | STRAIGHT | SHOP CURVED | DOUBLE FACED | APPROACH END | TRAILING END | | | APPROACH END | TRAILING END | APPROACH END | TRAILING END | Type III | B-77 | GREU, TL-3 | GREU, TL-2 | CAT-1 | AT-1 | Type III SC | B-77 SC | | G | NG | | | | |
| -L- | 12+72.25 | 15+16.00 | LT | 243.75 | | | | 15+16.00 | 6 | 9 | | 50 | 1.42 | | 1 | | 1 | | | | | | | | | | | |
| -L- | 11+97.25 | 15+16.00 | RT | 318.75 | | | 15+16.00 | | 6 | 9 | 50 | | | 1.91 | 1 | | 1 | | | | | | | | | 303 | | |
| -L- | 18+30.00 | 25+98.75 | LT | 768.75 | | | 18+30.00 | | 6 | 9 | | 50 | 1.03 | | 1 | | 1 | | | | | | | | | 765 | | |
| -L- | 18+30.00 | 26+61.25 | RT | 831.25 | | | | 18+30.00 | 6 | 9 | 50 | | | 1 | 1 | | 1 | | | | | | | | | 828 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 2162.50 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Less Anchor Deductions | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | TYPE III | 4 @ 18.75' = | 75 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | GREU, TL-3 | 4 @ 50' = | 200 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Total | | **1887.50** | | | | | | | | | | | **4** | | **4** | | | | | | | | | **2123** | | |
| | | **SAY =** | | **1900** | 10 Additional G/R Post | | | | | | | | | | | | | | | | | | | | | | | |

PREPARED BY

STV Engineers, Inc.
400 Hillsborough St.
Suite 430
Morrisville, NC 27560
NC License Number F-0991

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

11/14/23



# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

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

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

| LINE & STATION / SIZE / THICKNESS OR GAUGE | OFFSET | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % |
|---|---|---|---|---|---|---|---|
| L 14+97 | 18 LT | 0401 | | | | | |
| L 14+97 | 18 RT | 0402 | | | | | |
| L 18+50 | 17 LT | 0403 | | | | | |
| L 18+50 | 17 RT | 0404 | | | | | |

C. S. PIPE

| STRUCTURE FROM | 12 .064 | 15 .064 | 18 .064 | 24 .064 | | 15 .079 | 18 .079 | 24 .079 | 30 .079 | 36 .079 | | 15 .109 | 18 .109 | 24 .109 | 30 .109 | 36 .109 | 42 .109 | 48 .109 | 54 .109 | 60 .109 | 66 .109 | 72 .109 | 78 .109 | 84 .109 | 90 .109 | 96 .109 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0401 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0402 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0403 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0404 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| STRUCTURE FROM | R. C. PIPE CLASS IV 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH | A: 5' THRU 10' LIN. FT. | B: 10' AND ABOVE LIN. FT. | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E | F | G | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0401 | | | | | | | | | | | | | | | | |
| 0402 | | | | | | | | | | | | | | | | |
| 0403 | | | | | | | | | | | | | | | | |
| 0404 | | | | | | | | | | | | | | | | |

| STRUCTURE FROM | CONCRETE TRANSITIONAL SECTION: D.I. STD. 852.04 OR STD. 852.06 | CONCRETE TRANSITIONAL SECTION: C.B. STD. 852.05 | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | CONCRETE BRIDGE APPROACH D.I. STD. 840.13 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | J.B. STD. 840.31 OR STD. 840.32 | T.B.D.I. FOR STEEL GRATES STD. 840.36 | STEEL FRAME WITH TWO GRATES STD. 840.37 | TEMP STEEL PLATE COVER MASONRY DRAINAGE | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | MODIFIED CONCRETE FLUME (SEE SHEET 2C-3) EA | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0401 | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | |
| 0402 | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | |
| 0403 | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | |
| 0404 | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | |
| **SHEET TOTALS** (48" or Less) | | | | | | | | | | | | | | | | | | | | | | | | 4 | | | | | |
| **PROJECT TOTALS (48" or Less)** | | | | | | | | | | | | | | | | | | | | | | | | 4 | | | | | |

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

PREPARED BY
STV Engineers, Inc.
400 Hillsborough St.
Suite 430
Morrisville, NC 27560
NC License Number F-0991

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

11/14/23

| COMPUTED BY: | RJO | DATE: 6/17/2026 |
|---|---|---|
| CHECKED BY: | | |

HB-0038

FINAL | 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

## SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

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

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

## SUMMARY OF ROCK PLATING

| LINE | Beginning STA. | Ending STA. | Location (LT/RT) | Section 1016 Select Material, Class IV (TONS) | | Section 1042 Plain Rip Rap, Class II (TONS) | | Section 1056 Geotextile for Rock Plating, Type 2 (SY) | |
|---|---|---|---|---|---|---|---|---|---|
| -L- | 18+41± | 21+75± | LT | | 65 | | 230 | | 85 |
| -L- | 18+45± | 21+75± | RT | | 65 | | 315 | | 85 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | TOTAL TONS: | 130 | TOTAL TONS: | 545 | TOTAL SY: | 170 |
| | | | | SAY | 130 | SAY | 550 | SAY | 200 |

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Morrisville, NC 27560
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11/14/23

-L-
CUR DATA -L-
PIc 11+91.06
Δc = 17°43'03.0" (RT)
D = 04°46'28.7"
Lc = 371.07
Tc = 187.03
R = 1,200
SE = 0.06
RO = 150'

-L- POB 10+00.00
-L- PC 10+04.03
-L- PT 13+75.10
-L- POT 15+16.00
-L- POT 18+30.00
-L- POT 15+01.83
-L- POC STA. 11+25.00
-L- POT STA. 18+44.17

N42°58'52.5"E
N60°41'55.5"E

NAD 83
NA 2011

TAR RIVER RESERVIOR

BEGIN STATE TIP PROJECT HB-0038
BEGIN MILL & OVERLAY
-L- STA. 10+40.00

BEGIN SBG
STA. 13+30.62 -L- LT

BEGIN SBG
STA. 12+55.64 -L- RT

END SBG
STA. 14+89.00 -L- LT

END SBG
STA. 14+89.00 -L- RT

MCF WITH
CONC. DITCH

MCF WITH
CONC. DITCH

BEGIN APPROACH SLAB
-L- POT STA. 15+01.83

BEGIN BRIDGE
-L- POT STA. 15+16.00

END BRIDGE
-L- POT STA. 18+30.00

EST. 45 TON
CL-II RIP RAP BENCHING
(SEE DETAIL 4C)

EST. 175 TON CL II RIP RAP
FOR ABUTMENT
(STRUCTURE PAY ITEM)

EST. 554 CY ABUTMENT
STRUCTURE EXCAVATION
(STRUCTURE PAY ITEM)

MCF WITH
RIP RAP DITCH

BEGIN ROCK PLATING
-L- STA. 18+41±
(SEE SHEET 2G-1)

EST. 31 TON
CL-II RIP RAP BENCHING
(SEE DETAIL 4C)

EST. 217 TON CL II RIP RAP
FOR ABUTMENT
(STRUCTURE PAY ITEM)

EST. 804 CY ABUTMENT
STRUCTURE EXCAVATION
(STRUCTURE PAY ITEM)

BEGIN ROCK PLATING
-L- STA. 18+45±
(SEE SHEET 2G-1)

BEGIN SBG
STA. 18+57.00 -L- LT

END SBG
STA.19+25.65
-L- LT

BEGIN SBG
STA. 18+57.00
-L- RT

END SBG
STA.
19+25.65
-L- RT

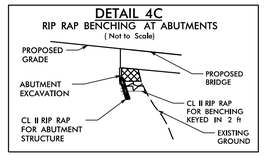
MCF WITH RIP
RAP DITCH

END APPROACH SLAB
-L- POT STA. 18+44.17

END MILL & OVERLAY
-L- POC STA. 11+25.00

MATCH LINE -L- STA 20+00.00 SEE SHEET 5

DETAIL 4C
RIP RAP BENCHING AT ABUTMENTS
( Not to Scale)




SEE STRUCTURE PLANS S-1 THRU S-35
SEE SHEET 6 FOR PROFILE VIEW

HB-0038
FINAL | 004

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER TIMOTHY A. ST. LOUIS
10/22/2026

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 051699 ENGINEER TIMOTHY A. PRESSLY
10/22/2026

PREPARED BY
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Suite 430
Raleigh, NC 27603
NC License Number F-0991

REVISIONS

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11/14/23

-L-
CUR DATA -L-
PIc 26+89.27
Δc = 01°57'29.3" (RT)
D = 00°41'46.4"
Lc = 281.25
Tc = 140.64
R = 8229.54
SE = EXISTING

20

25

NAD 83
NA 2011

TAR RIVER RESERVIOR

-L- PC 25+48.63

-L- POE 28+29.88

KENNETH DALE LAND, ET UX
DB 2263/PG 471
PB 24/PG 166

LEGACY PROPERTY ASSETS, LLC
DB 3117/PG 156
PB 24/PG 166

1 1/2 SFD
(UNDER CONSTRUCTION)

MAROLIN TODD WHITLEY, ET EX
DB 3057/ PG 316
PB 24/PG 166

JOSIAH D. BAKER, ET AL
NO DEED FOUND
PB 24/PG 166

RUTH F. JENKINS
DB 2517/PG 327
PB 16/PG 398

CITY OF ROCKY MOUNT
NO DEED FOUND
PB 8/PG 36

LARRY J. SUSONG, ET UX
DB 1534/PG 842
PB 16/PG 398

ROCK PLATING
(SEE SHEET 2G-1)

BEGIN MILLING AND OVERLAY
-L- POT STA. 23+00.00

END ROCK PLATING
-L- STA. 21+75±

END ROCK PLATING
-L- STA. 21+75±

ROCK PLATING
(SEE SHEET 2G-1)

MATCH LINE -L- STA 20+00.00 SEE SHEET 4

-L- SR 1745

SR 1745 BEND OF THE RIVER RD.

22' PAVED ROADWAY

50' TAPER
LT & RT

GREU-TL3

END STATE TIP PROJECT HB-0038
END MILLING AND OVERLAY
-L- POC STA. 27+30.00

TRANSTION POINT
FROM 15" RCP AT INVERT
TO 15" HDPE
UNKNOWN

EXISTING RW

WD BULKHEAD

WD DOCK

WD BULKHEAD
WITH DOCK

TAR RIVER RESERVIOR

SEE SHEET 7 FOR PROFILE VIEW

REVISIONS

HB-0038
FINAL | 005

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY

ROADWAY DESIGN UNIT

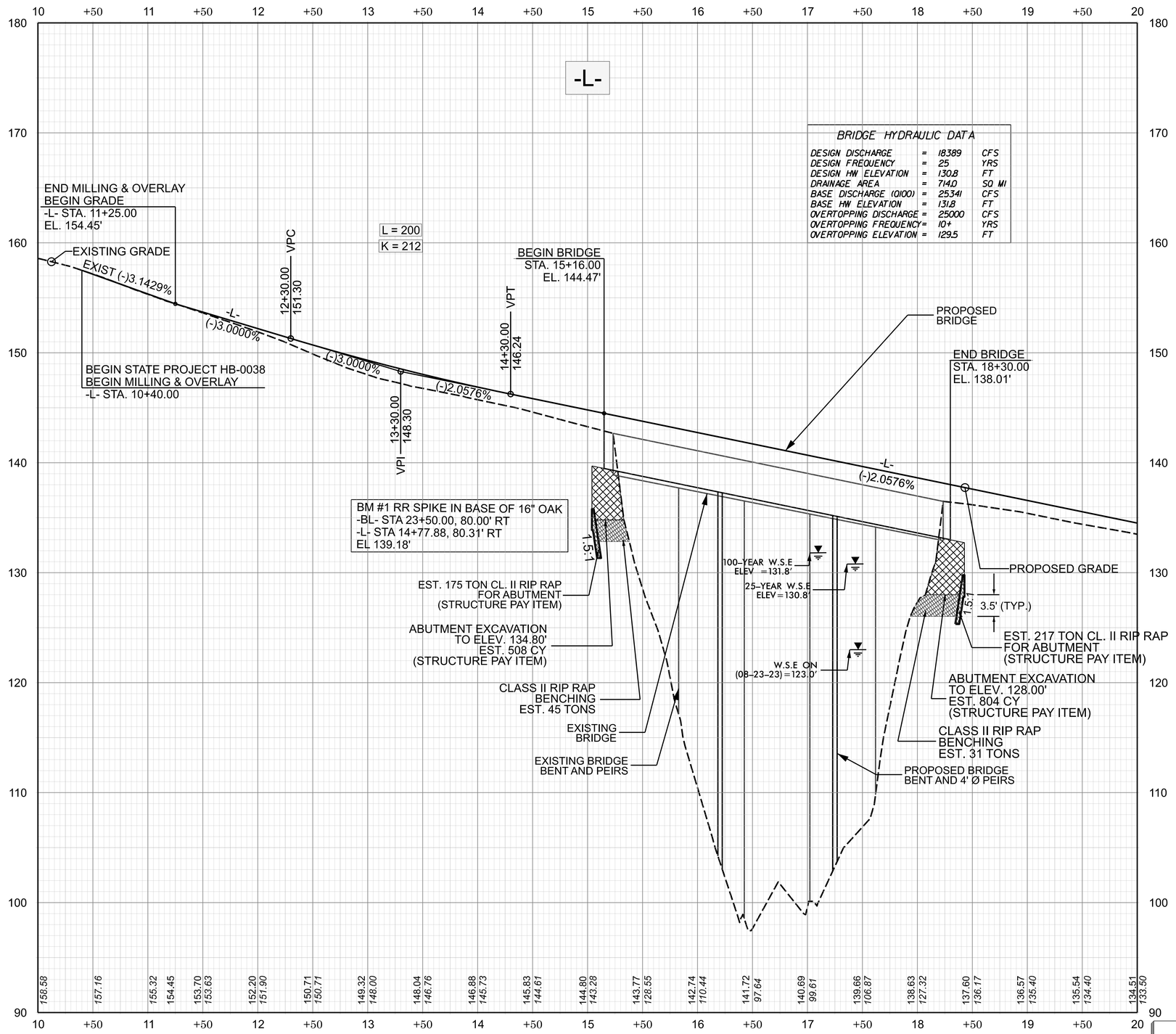
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER KAYLA L. STOUT
10/22/2026

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 051699 ENGINEER TIFFANY A. FREDDY
10/22/2026

PREPARED BY
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Suite 430
Raleigh, NC 27603
NC License Number F-0991

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11/14/23




SEE STRUCTURE PLANS S-1 THRU S-35
SEE SHEET 4 FOR PLAN VIEW

REVISIONS

HB-0038
FINAL | 006

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY

ROADWAY DESIGN UNIT

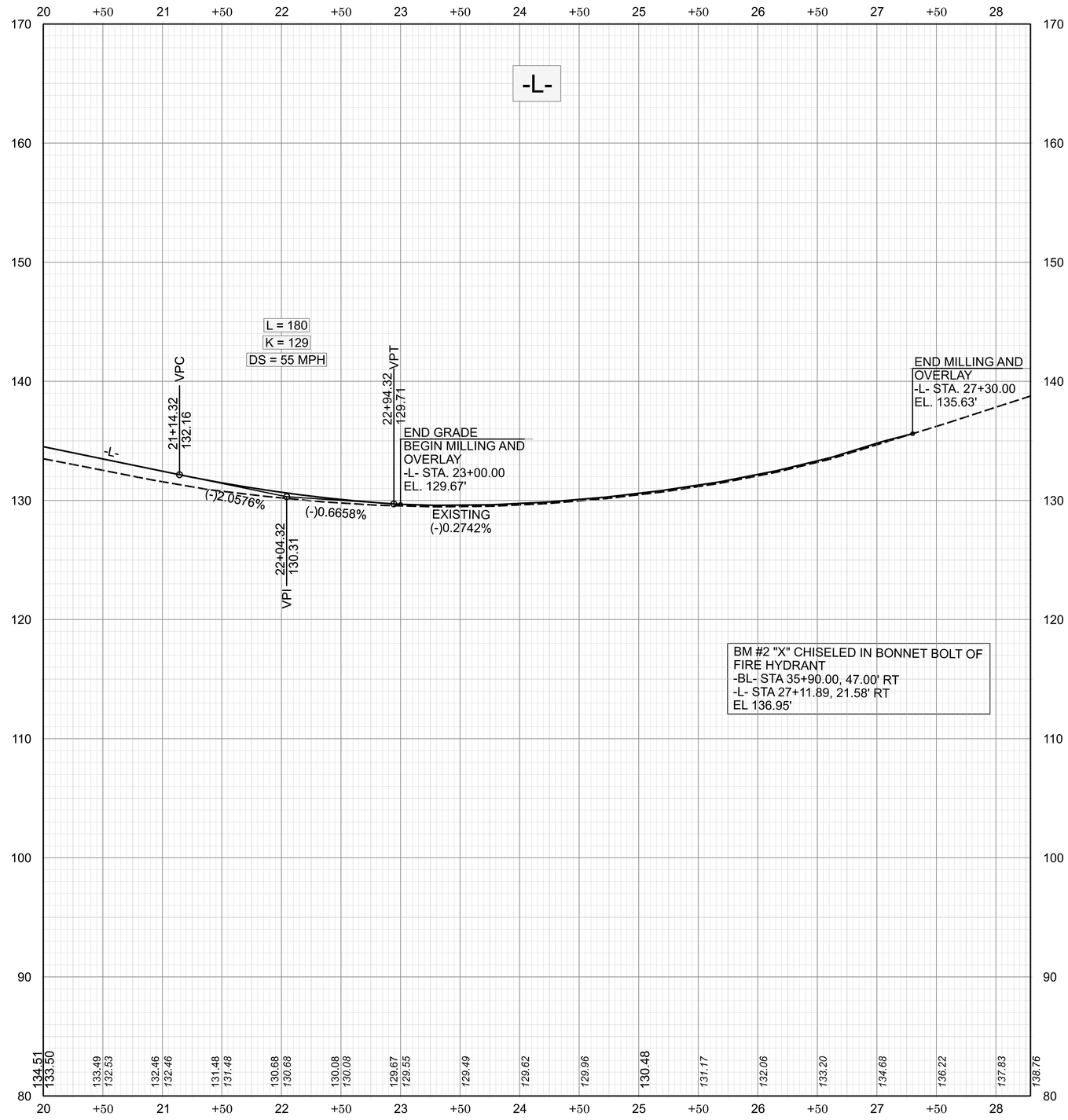
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUKILI
Signed by:
Sara Loukili
1CFA1902C95489...
8/5/2026

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 051699 ENGINEER TIFFANY A. PREDDY
Signed by:
867D69D32F58479...
8/5/2026

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11/14/23




SEE SHEET 5 FOR PROFILE VIEW

HB-0038

FINAL | 007

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUKILI

Signed by: Sara Loukili 8/5/2026

1CFA1902C95489...

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 051699 ENGINEER TIFFANY A. PREDDY

Signed by: 8/5/2026

867D69D32F5847F...

PREPARED BY

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REVISIONS

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07/24/26

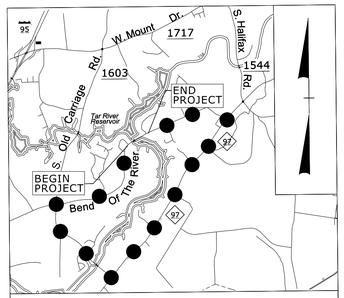
**TIP PROJECT: *HB-0038***

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | HB-0038 | RW01 | 5 |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

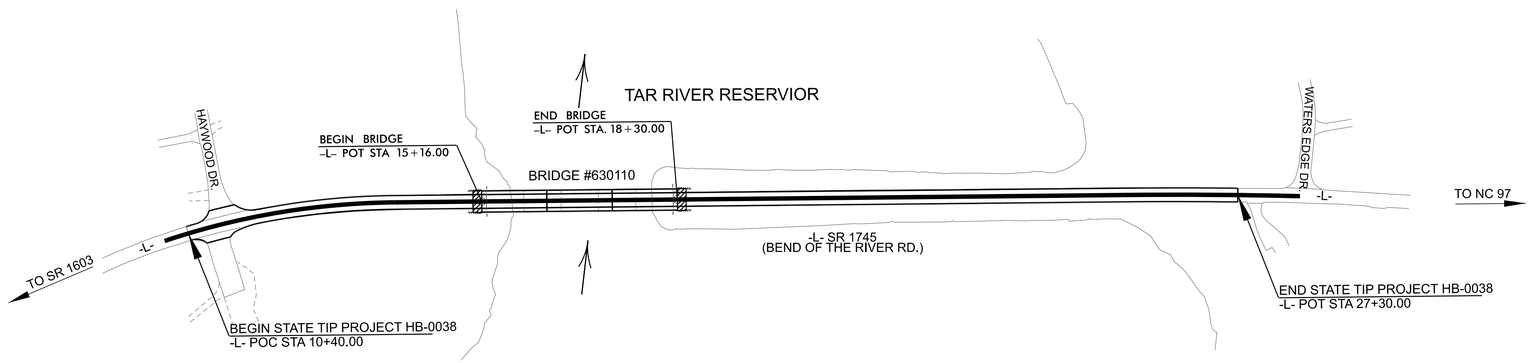
## SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

# NASH COUNTY




VICINITY MAP (NTS)

NAD 83
NA 2011




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

*GRAPHIC SCALES*

100' 50' 0' 100' 200'

## *DATUM DESCRIPTION*

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT 630110-2
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 777339.2040 EASTING: 2326268.9570
ELEVATION: 158.34'
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999930636
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

JoynerKeeny, PLLC
1051 N. Winstead Avenue
Rocky Mount, NC 27804

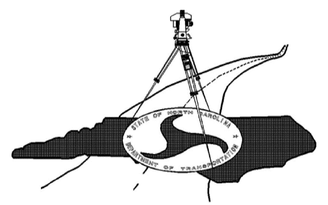
*PROFESSIONAL LAND SURVEYOR*

NORTH CAROLINA PROFESSIONAL SEAL L-4468 LAND SURVEYOR KAREN E. STONE

DocuSigned by:
Karen E. Stone
82435A975745452...

7/27/2026

*SIGNATURE:* *DATE:*



Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

5/26/20

# *SURVEY CONTROL SHEET*

## *W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION*

| BASELINE POINTS TABLE | | | | |
|---|---|---|---|---|
| POINT | DESC | NORTH | EAST | ELEVATION |
| 1 | 630110-1 | 776558,614 | 2326207,071 | 158,715 |
| 2 | 630110-2 | 777339,204 | 2326268,957 | 158,341 |
| 101 | BL-101 | 777658,287 | 2326371,836 | 161,338 |
| 102 | BL-102 | 777922,025 | 2326569,577 | 157,067 |
| 103 | BL-103 | 778327,168 | 2327221,952 | 136,066 |
| 104 | BL-104 | 778571,423 | 2327653,84 | 128,673 |
| 105 | BL-105 | 778835,951 | 2328103,734 | 139,558 |

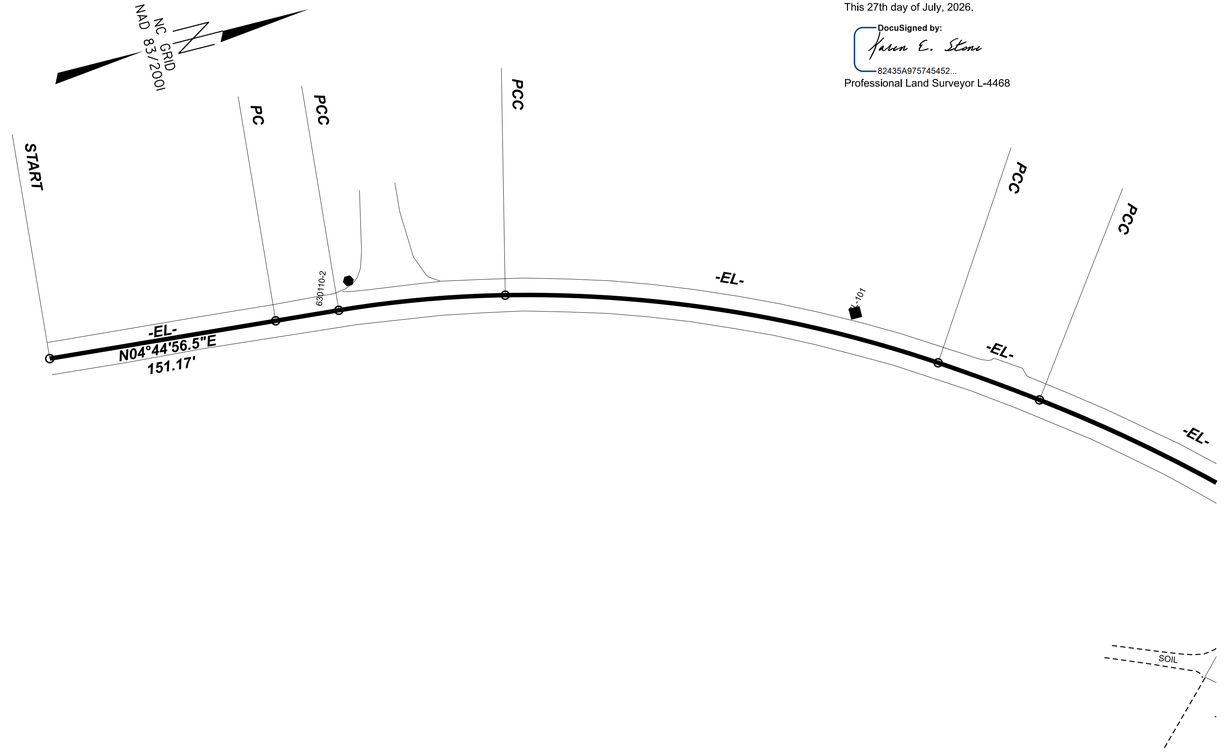
| BENCHMARK TABLE | | | | |
|---|---|---|---|---|
| BENCHMARK | NORTHING | EASTING | ELEVATION | DESCRIPTION |
| 201 | 778067,739 | 2326956,401 | 139,184 | BM1 RR SPIKE IN BASE OF 16" OAK |
| 202 | 778722,206 | 2328003,749 | 136,952 | BM2 CHISELED "X" IN BONNET BOLT OF FIRE HYDRANT |

| EXISTING ALIGNMENT NAME:EL | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| POINT | NORTHING | EASTING | BEARING | DIST | DELTA | D | L | T | R |
| START | 777135,564 | 2326270,185 | | | | | | | |
| LINE | | | N04°44'56,5"E | 151,167 | | | | | |
| PC | 777286,212 | 2326282,700 | | | | | | | |
| CURVE | | | | | 00°06'06,4" Right | 00°14'27,6" | 42,229 | 21,114 | 23774,906 |
| PCC | 777328,293 | 2326286,234 | | | | | | | |
| CURVE | | | | | 08°25'56,0" Right | 07°38'22,0" | 110,377 | 55,289 | 750,000 |
| PCC | 777437,193 | 2326303,612 | | | | | | | |
| CURVE | | | | | 19°42'08,4" Right | 06°46'50,0" | 290,571 | 146,734 | 845,000 |
| PCC | 777703,084 | 2326417,212 | | | | | | | |
| CURVE | | | | | 02°44'20,8" Right | 03°50'43,3" | 71,231 | 35,622 | 1490,000 |
| PCC | 777761,884 | 2326457,405 | | | | | | | |
| CURVE | | | | | 11°32'38,9" Right | 05°36'14,2" | 206,001 | 103,350 | 1022,419 |
| PCC | 777915,916 | 2326593,665 | | | | | | | |
| CURVE | | | | | 01°52'05,4" Right | 02°51'53,2" | 65,211 | 32,608 | 2000,000 |
| PCC | 777959,377 | 2326642,278 | | | | | | | |
| CURVE | | | | | 05°51'55,0" Right | 07°23'34,8" | 79,335 | 39,702 | 775,000 |
| PCC | 778008,124 | 2326704,827 | | | | | | | |
| CURVE | | | | | 01°37'53,6" Right | 03°00'56,0" | 54,104 | 27,054 | 1900,000 |
| PCC | 778038,520 | 2326749,584 | | | | | | | |
| CURVE | | | | | 04°03'54,6" Right | 03°09'12,7" | 128,908 | 64,481 | 1816,874 |
| PT | 778105,542 | 2326859,668 | | | | | | | |
| LINE | | | N60°41'55,5"E | 1136,610 | | | | | |
| PC | 778661,800 | 2327850,858 | | | | | | | |
| CURVE | | | | | 01°57'29,3" Right | 00°41'46,4" | 281,251 | 140,639 | 8229,541 |
| PCC | 778795,228 | 2328098,429 | | | | | | | |
| CURVE | | | | | 02°07'43,3" Right | 02°23'48,0" | 88,818 | 44,414 | 2390,638 |
| PCC | 778834,549 | 2328178,064 | | | | | | | |
| CURVE | | | | | 00°40'25,5" Right | 00°46'14,9" | 87,407 | 43,704 | 7433,261 |

| EXISTING ALIGNMENT NAME:EY1 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| POINT | NORTHING | EASTING | BEARING | DIST | DELTA | D | L | T | R |
| START | 778066,974 | 2326485,266 | | | | | | | |
| LINE | | | S39°31'25,5"E | 184,843 | | | | | |
| END | 777924,394 | 2326602,900 | | | | | | | |

630110-1

| EXISTING ALIGNMENT NAME:EY2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| POINT | NORTHING | EASTING | BEARING | DIST | DELTA | D | L | T | R |
| START | 778960,803 | 2328015,163 | | | | | | | |
| LINE | | | S41°22'21,0"E | 20,584 | | | | | |
| PC | 778945,357 | 2328028,768 | | | | | | | |
| CURVE | | | | | 18°01'35,5" Right | 33°29'37,3" | 53,821 | 27,135 | 171,064 |
| PT | 778900,081 | 2328057,456 | | | | | | | |
| LINE | | | S23°20'45,6"E | 112,235 | | | | | |
| END | 778797,035 | 2328101,932 | | | | | | | |




I, Karen S. Stone, 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: AUGUST 21,2023 to SEPTEMBER 21, 2023
Datum/Epoch:NAD 83/2011 DATUM
Published/Fixed-control use: N/A
Localized around: 630110-2
Northing:777339.2040
Easting:2326268.9570
Combined grid factor:0.999930636
Geoid model: G12BNC
Units:US Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from AUGUST 21, 2023 to SEPTEMBER 21, 2023 , 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 27th day of July, 2026.

DocuSigned by:
Karen E. Stone
82435A975745452...
Professional Land Surveyor L-4468

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.

HB-0038
R/W | D2C-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR
NORTH CAROLINA PROFESSIONAL SEAL L-4468 LAND SURVEYOR KAREN E. STONE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2018 STANDARD SPECIFICATIONS

***TIP PROJECT: HB-0038***
County: NASH

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

JoynerKeeny. PLLC
1051 N. Winstead Avenue
Rocky Mount, NC 27804
252-977-3124

North Carolina Firm
Number P-0551

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

5/26/20

# *SURVEY CONTROL SHEET*

## *W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION*

I, Karen S. Stone, 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:

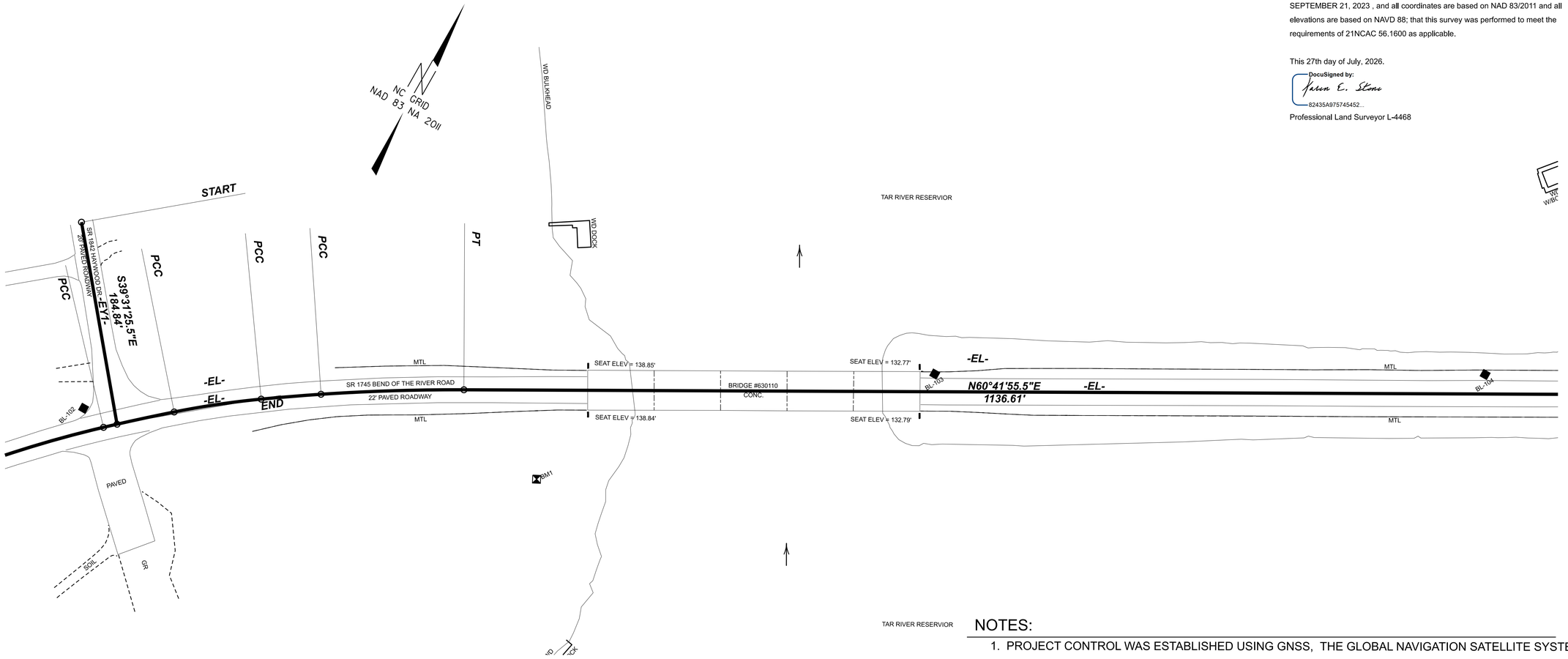
Class of survey: ***AA***
Type of GPS field procedure: RTN
Dates of survey: AUGUST 21,2023 to SEPTEMBER 21, 2023
Datum/Epoch:NAD 83/2011 DATUM
Published/Fixed-control use: N/A
Localized around: 630110-2
Northing:777339.2040
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HB-0038
R/W | 02C-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4468 LAND SURVEYOR KAREN E. STONE

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***TIP PROJECT: HB-0038***
County: NASH

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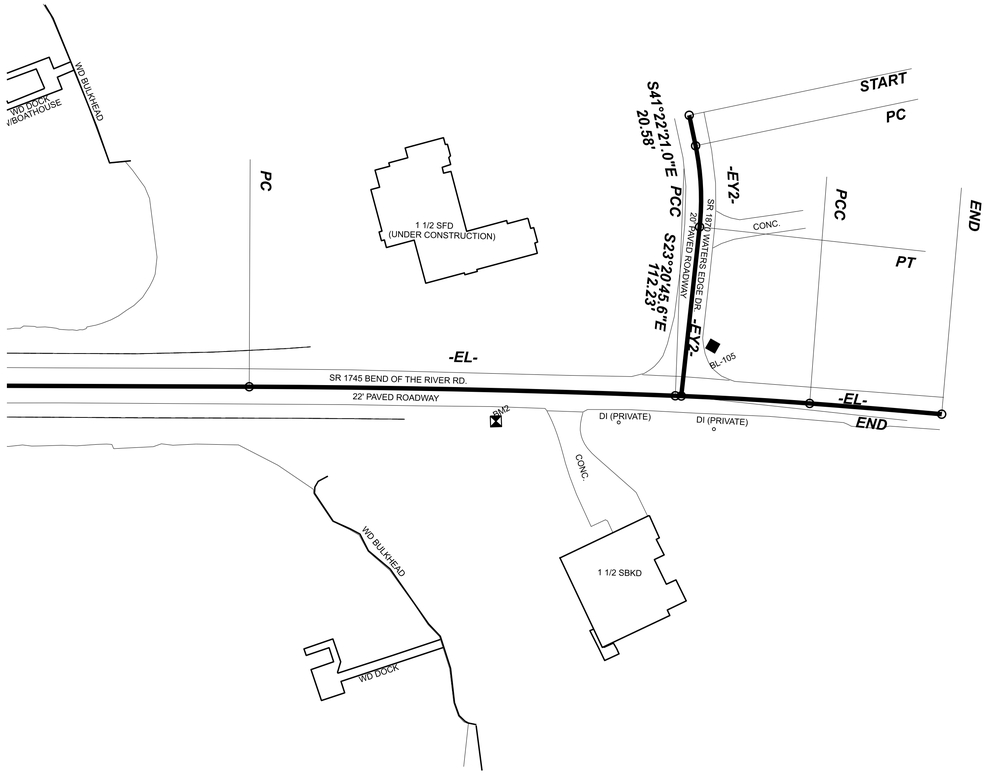
North Carolina Firm
Number P-0551

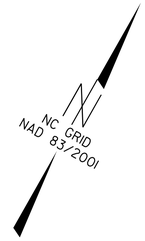
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5/26/20

# *SURVEY CONTROL SHEET*

## *W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION*




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Units:US Feet

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This 27th day of July, 2026.

DocuSigned by:
Karen E. Stone
82435A975745452...
Professional Land Surveyor L-4468

NOTES:

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HB-0038
R/W | 02C-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4468 LAND SURVEYOR KAREN S. STONE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2018 STANDARD SPECIFICATIONS

***TIP PROJECT: HB-0038***
County: NASH

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

JoynerKeeny. PLLC
1051 N. Winstead Avenue
Rocky Mount, NC 27804
252-977-3124

North Carolina Firm Number P-0551

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

5/26/20

# *PROPOSED ALIGNMENT CONTROL SHEET*

I, KAREN E. STONE, 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 27TH DAY OF JULY, 2026.

DocuSigned by:
Karen E. Stone
82435A975745452...

PROFESSIONAL LAND SURVEYOR L-4468

| PROPOSED ALIGNMENT: L | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| POINT | STATION | NORTHING | EASTING | BEARING | DIST | DELTA | D | L | T | R | LT | ST |
| START | 10+00.00 | 777856.1673 | 2326534.115 | N42°58'52.5"E | 4.0268 | | | | | | | |
| PC | 10+04.03 | 777859.1132 | 2326536.861 | N51°50'24.0"E | 369.5976 | 17°43'03.0" | 04°46'28.7" | 371.0742 | 187.0299 | 1200 | | |
| PT | 13+75.10 | 778087.4727 | 2326827.471 | N60°41'55.5"E | 1173.5302 | | | | | | | |
| PC | 25+48.63 | 778661.8003 | 2327850.858 | N61°40'40.1"E | 281.2376 | 01°57'29.3" | 00°41'46.4" | 281.2513 | 140.6393 | 8229.541 | | |
| END | 28+29.88 | 778795.2276 | 2328098.429 | | | | | | | | | |

NOTES:

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

BP4-R034
R/W | D20-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4468 LAND SURVEYOR KAREN E. STONE

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***TIP PROJECT: HB-0038***
County: NASH

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

JoynerKeeny, PLLC
105 I N. Winstead Avenue
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252-977-3124

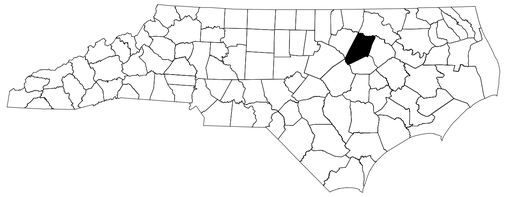
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Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

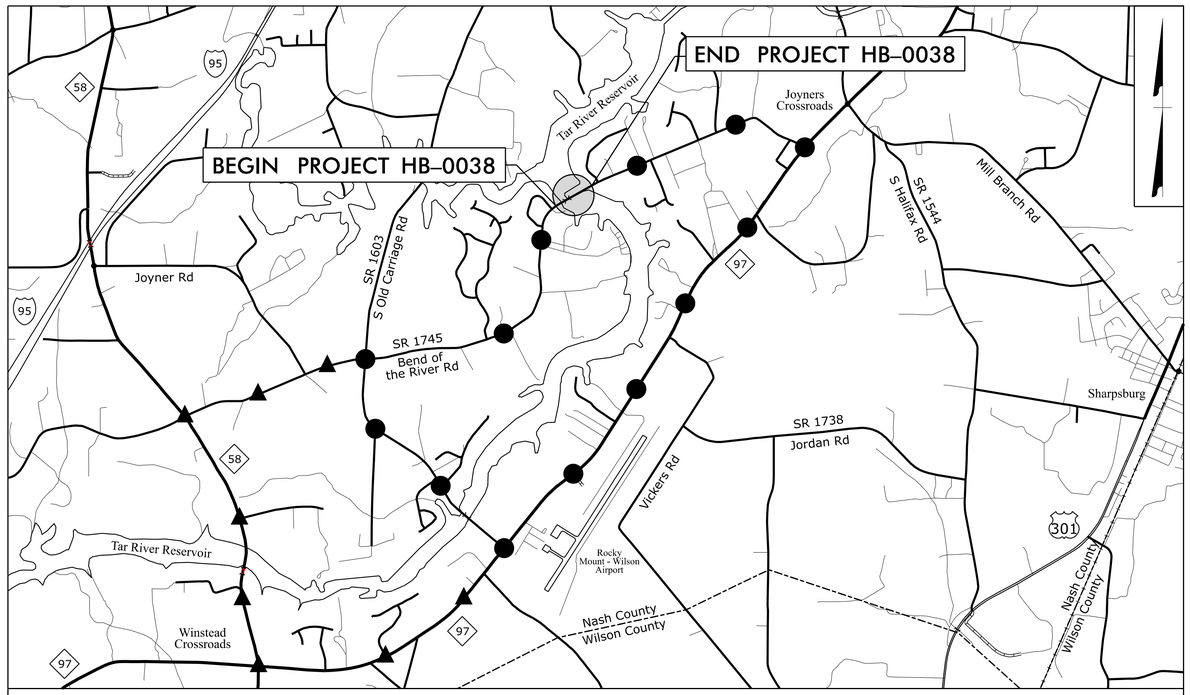
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# TRANSPORTATION MANAGEMENT PLAN

# NASH COUNTY



***LOCATION: BRIDGE 630110 ON SR 1745 (BEND OF THE RIVER ROAD) OVER THE TAR RIVER RESERVOIR***




***DETOUR ROUTE***
***TRUCK DETOUR ROUTE***

## VICINITY MAP

***N.T.S.***

## INDEX OF SHEETS

| SHEET NO. | TITLE |
|---|---|
| TMP-1 | TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS |
| TMP-1A | ROADWAY STANDARD DRAWINGS & LEGEND |
| TMP-1B | TRANSPORTATION OPERATIONS PLAN |
| TMP-2 | ROAD CLOSURE AND OFFSITE DETOUR |
| TMP-3 | SPECIAL SIGN DESIGN |

SHEET NO.
TMP-1

TIP PROJECT: HB-0038



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

PLANS PREPARED BY:
STV Engineers, Inc.
400 Hillsborough St. Suite 430
Raleigh, NC 27603
NC License Number F-0991

SARA S. LOUKILI, P.E.
PROJECT ENGINEER

JENNIFER C. GRIMM
PROJECT DESIGN ENGINEER

NCDOT CONTACTS:

PAUL MARAK, PE
***DIVISION TRAFFIC ENGINEER***

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

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

APPROVED: Signed by: Sara Loukili 1CFA7902CD9546B...

DATE: 8/5/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUKILI

8/5/2026
pw:\\stv-pw.bentley.com:stv-pw-01\Documents\NCDOT\402243 HB-0038\Work Zone Traffic Control\Sheets\Title_Typicals_Details_Summaries\HB-0038_TMP_TSH.dgn
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Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| HB-0038 | TMP-1A |

# ROADWAY STANDARD DRAWINGS

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

| STD. NO. | TITLE |
|---|---|
| 1101.01 | WORK ZONE ADVANCE WARNING SIGNS |
| 1101.02 | TEMPORARY LANE CLOSURES |
| 1101.03 | TEMPORARY ROAD CLOSURES |
| 1101.11 | TRAFFIC CONTROL DESIGN TABLES |
| 1110.01 | STATIONARY WORK ZONE SIGNS |
| 1110.02 | PORTABLE WORK ZONE SIGNS |
| 1130.01 | DRUM |
| 1135.01 | CONES |
| 1145.01 | BARRICADES |

# LEGEND

## GENERAL

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

## SIGNALS

EXISTING — PROPOSED — TEMPORARY

## PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

## TRAFFIC CONTROL DEVICES

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

## TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

## PAVEMENT MARKERS

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

## PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

PLANS PREPARED BY:

STV Engineers, Inc.
400 Hillsborough St. Suite 430
Raleigh, NC 27603
NC License Number F-0991

APPROVED: Signed by: Sara Loukili 1CFA79022C96468...

DATE: 8/5/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUKILI

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

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

ROADWAY STANDARD DRAWINGS & LEGEND

6/30/2026
pw://stv-pw.bentley.com:stv-pw-01/Documents/NCDOT/402413 HB-0038/Work Zone Traffic Control/Sheets/Title_Typicals_Details_Summaries/HB-0038_TMP_TSH.dgn
User:OrtizR

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| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| HB-0038 | TMP-1B |

# GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

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

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

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

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

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

TRAFFIC CONTROL DEVICES

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

# LOCAL NOTES

I) IN ORDER TO HAVE TIME TO ADEQUATELY REROUTE SCHOOL BUSES, NASH COUNTY SCHOOLS WILL BE CONTACTED AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE.

J) NASH COUNTY EMERGENCY SERVICES WILL BE CONTACTED AT AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE TO MAKE THE NECESSARY TEMPORARY ASSIGNMENT TO PRIMARY RESPONSE UNITS.

# TRAFFIC MANAGEMENT STRATEGIES

PROPOSED BRIDGE AND ROADWAY CONSTRUCTION WILL BE PERFORMED UNDER A ROAD CLOSURE, WITH OPERATING ON AN OFF-SITE DETOUR (8.17 MILES).

ROADS USED FOR OFF-SITE DETOUR INCLUDE SR 1603 (S OLD CARRIAGE RD.), AND E NC-97.

LOCAL ACCESS TO ALL RESIDENCIES AND BUSINESSES WILL BE MAINTAINED BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

# PHASING

STEP 1:

USING ROADWAY STANDARD DRAWINGS 1101.03 SHEET 1 AND TMP-2 INSTALL OFFSITE DETOUR SIGNS AND TRAFFIC CONTROL DEVICES AND CLOSE SR 1745 (BEND OF THE RIVER RD.) TO THROUGH TRAFFIC.

STEP 2:

COMPLETE THE FOLLOWING WITHIN THE ROAD CLOSURE:
REMOVE EXISTING BRIDGE, AND CONSTRUCT THE PROPOSED BRIDGE AND ROADWAY INCLUDING THE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS

STEP 3:

REMOVE ALL TRAFFIC CONTROL DEVICES AND DETOUR SIGNS, AND OPEN SR 1745 (BEND OF THE RIVER RD.) TO THROUGH TRAFFIC.

PLANS PREPARED BY:
STV Engineers, Inc.
400 Hillsborough St. Suite 430
Raleigh, NC 27603
NC License Number F-0991

APPROVED: Signed by: Sara Loukili 1CFA79022C9546B...

DATE: 8/5/2026

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 057348 SARA S. LOUKILI

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

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

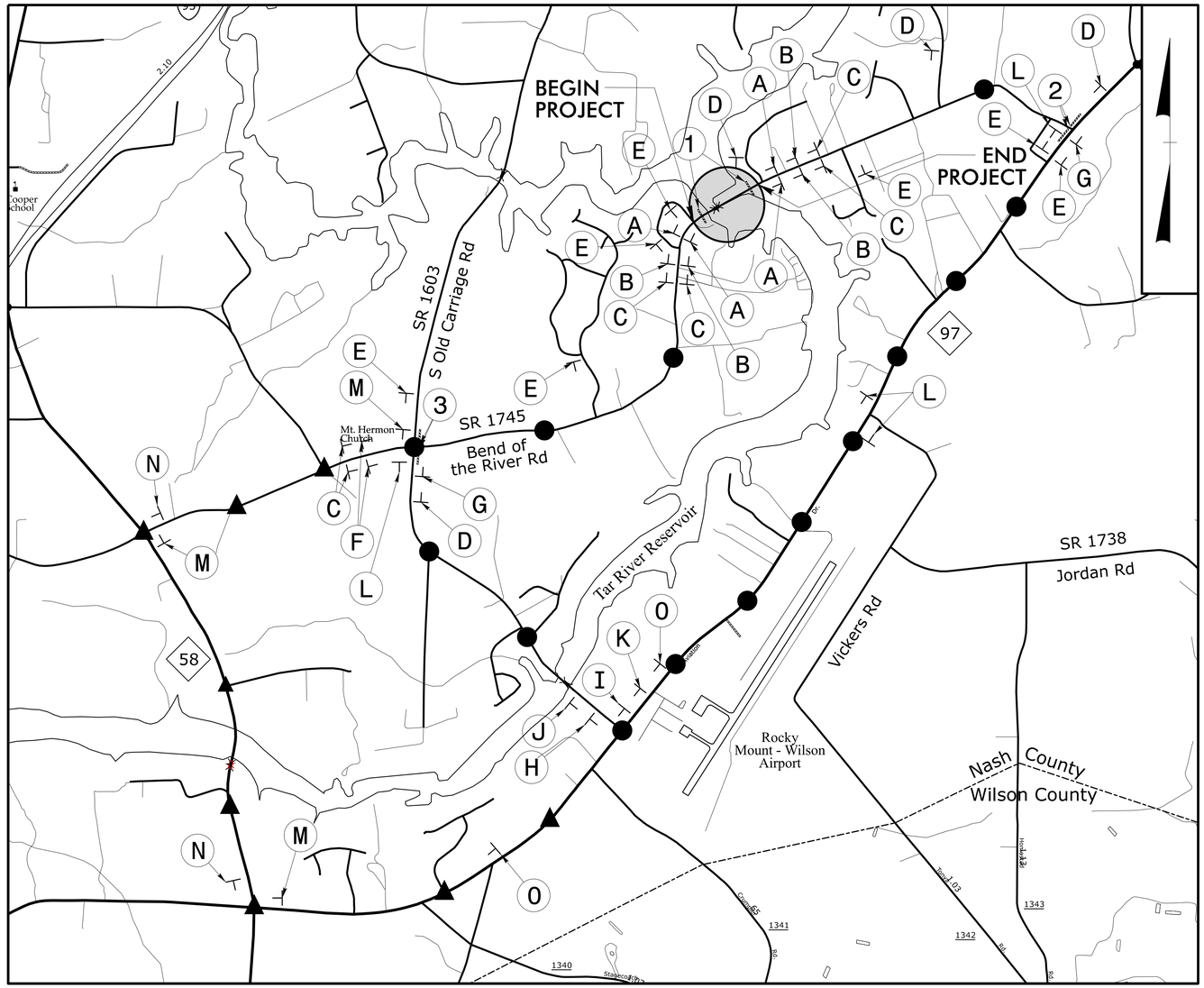
TRANSPORTATION OPERATION PLAN

6/30/2026
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User:OrtizR

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| HB-0038 | TMP-2 |

# OFF-SITE DETOUR SIGNING AND ROAD CLOSURE SIGNING

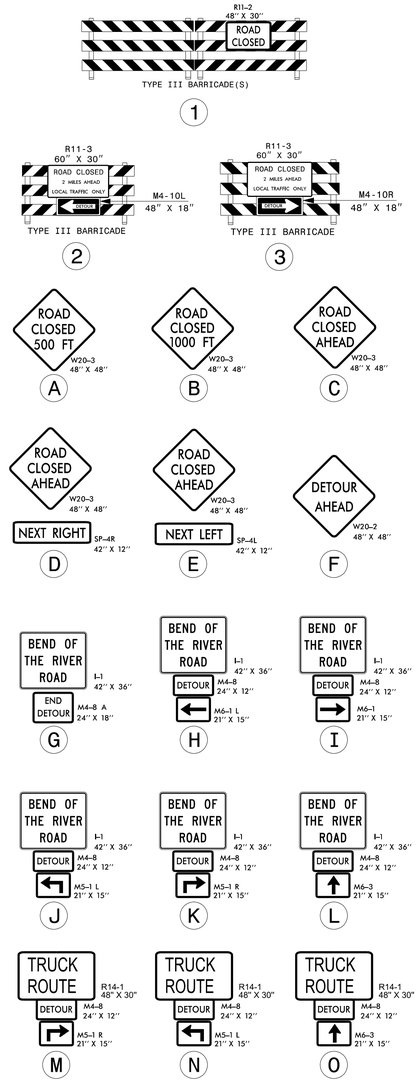



SEE ROADWAY STD DWG 1101.03, SHEET 1 OF 9 FOR ADVANCE WARNING AND BARRICADE PLACEMENT.

CONTRACTOR TO MAINTAIN 10' WIDE LANE ACCESS TO ALL DRIVEWAYS AT ALL TIMES.

***DETOUR ROUTE***
***TRUCK DETOUR ROUTE***






PLANS PREPARED BY:

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Raleigh, NC 27603
NC License Number F-0991

APPROVED: Signed by: Sara Loukili 1CFA79022C95468...

DATE: 8/5/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUKILI

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

ROAD CLOSURE
OFFSITE DETOUR

6/30/2026
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User:Orfiz R

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| HB-0038 | TMP-3 |

SIGN NUMBER: I-1
TYPE: D
QUANTITY: See Plans

SIGN WIDTH: 42″
HEIGHT: 36″
TOTAL AREA: 10.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0.50″
WIDTH: 0.63″
RADII: 1.5″

NO. Z BARS:
LENGTH:

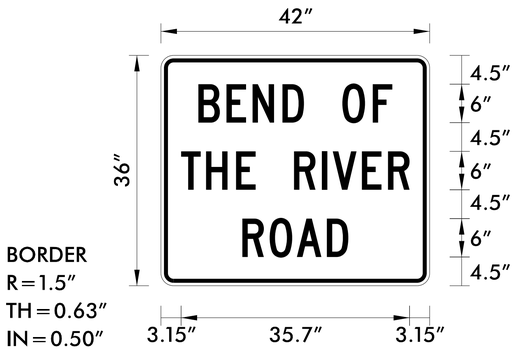
BACKG COLOR: Fluorescent & Orange
COPY COLOR: Black

| SYMBOL | X | Y | WID | HT |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

MAT'L: 0.080″ (2.0 mm) ALUMINUM

USE NOTES: 1,2
1. Legend and border shall be direct applied encapsulated lens reflective sheeting.
2. Background shall be NC Grade B fluorescent.

DESIGN BY: JCG
CHECKED BY: TLS
PROJECT ID: HB-0038
DIV: 4
DATE: Feb 24, 2025




Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter positions are to the lower left corners

| | | | | | | | | | | | | | | | | | | | | | | | | | | Series/Size Text Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B | E | N | D | | O | F | | | | | | | | | | | | | | | | | | | C 2000 / 6 |
| | 5.8 | 10.2 | 14.3 | 19 | 22.3 | 28.3 | 33.1 | | | | | | | | | | | | | | | | | | | 30.3 |
| | T | H | E | | R | I | V | E | R | | | | | | | | | | | | | | | | | C 2000 / 6 |
| | 3.2 | 7.1 | 11.7 | 14.8 | 20.8 | 25.2 | 26.8 | 31.4 | 35.5 | | | | | | | | | | | | | | | | | 35.7 |
| | R | O | A | D | | | | | | | | | | | | | | | | | | | | | | C 2000 / 6 |
| | 12.7 | 17 | 21.2 | 25.9 | | | | | | | | | | | | | | | | | | | | | | 16.6 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | |

NORTH CAROLINA D.O.T. SIGN DETAIL

PLANS PREPARED BY:
STV Engineers, Inc.
400 Hillsborough St. Suite 430
Raleigh, NC 27603
NC License Number F-0991

APPROVED: Signed by: Sara Loukili 1CFA79022C9546B...
DATE: 8/5/2026
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUKILI

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SPECIAL SIGN DESIGN

6/30/2026
pw://stv-pw.bentley.com:stv-pw-01/Documents/NCDOT/402413 HB-0038/Work Zone Traffic Control/Sheets/Title_Typicals_Details_Summaries/Hb-0038_TMP_Off-Site Detour_Sign Dsn.dgn
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Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

PROJECT: HB-0038

CONTRACT: DD00540

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

| STATE PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| HB-0038 | PMP-1 |

# PAVEMENT MARKING PLAN

# NASH COUNTY

***LOCATION: BRIDGE 630110 ON SR 1745 (BEND OF THE RIVER ROAD) OVER THE TAR RIVER RESERVOIR***

## ROADWAY STANDARD DRAWINGS

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

| STD. NO. | TITLE |
|---|---|
| 1205.01 | PAVEMENT MARKINGS - LINE TYPES AND OFFSETS |
| 1205.02 | PAVEMENT MARKINGS - TWO-LANE LANE AND MULTI-LANE ROADWAYS |
| 1205.12 | PAVEMENT MARKINGS - BRIDGES |
| 1261.01 | GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING |
| 1261.02 | GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING |
| 1262.01 | GUARDRAIL END DELINEATION |

## INDEX OF SHEETS



| SHEET NO. | TITLE |
|---|---|
| PMP-1 | PAVEMENT MARKING PLAN COVER SHEET |
| PMP-2 THRU PMP-3 | PAVEMENT MARKING DETAIL SHEETS |



## GENERAL NOTES

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

### PAVEMENT MARKING:

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

| ROAD NAME | MARKING | MARKER |
|---|---|---|
| SR 1745 (BEND OF THE RIVER RD) (-L-) | THERMOPLASTIC | NONE |
| BRIDGE 630110 ON SR 1745 (-L-) | INTEGRATED MULTIPOLYMER | NONE |

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

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

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

E) REPLACE ANY PAVEMENT MARKINGS BEYOND THE PROJECT LIMITS DAMAGED BY THE CONTRACTORS' OPERATIONS DURING CONSTRUCTION.

F) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING POLYUREA PAVEMENT MARKING MATERIAL.

## SUMMARY OF QUANTITIES

| ITEM NO. | | ITEM DESCRIPTION | QUANTITY | UNIT |
|---|---|---|---|---|
| DESC. NO. | SECT. NO. | | | |
| 4685000000-E | 1205 | THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS) | 5,151 | LF |
| 4890000000-E | SP | INTEGRATED MULTIPOLYMER PAVEMENT MARKING LINES (4", 90 MILS) | 1,368 | LF |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: Signed by: Sara Loukili 10/22/2026
DATE:

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 057348 SARA S. LOUKILI

PLAN PREPARED FOR N.C.D.O.T. BY:
STV ENGINEERS, INC., NC LICENSE NUMBER F-0991

SARA S. LOUKILI, PE — PROJECT ENGINEER
JENNIFER C. GRIMM — DESIGN ENGINEER
DESIGN TECHNICIAN

10/19/2026
pw://stv-pw.bentley.com:stv-pw-01/Documents/NCDOT/402243 HB-0038/Signing and Delineation/Pavement Marking/Sheets/Title_Typicals_Details_Summaries/HB-0038_RDY_PMP_TSH.dgn
User:ORTIZR

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Suite 430
Raleigh, NC 27603
NC License Number F-0991

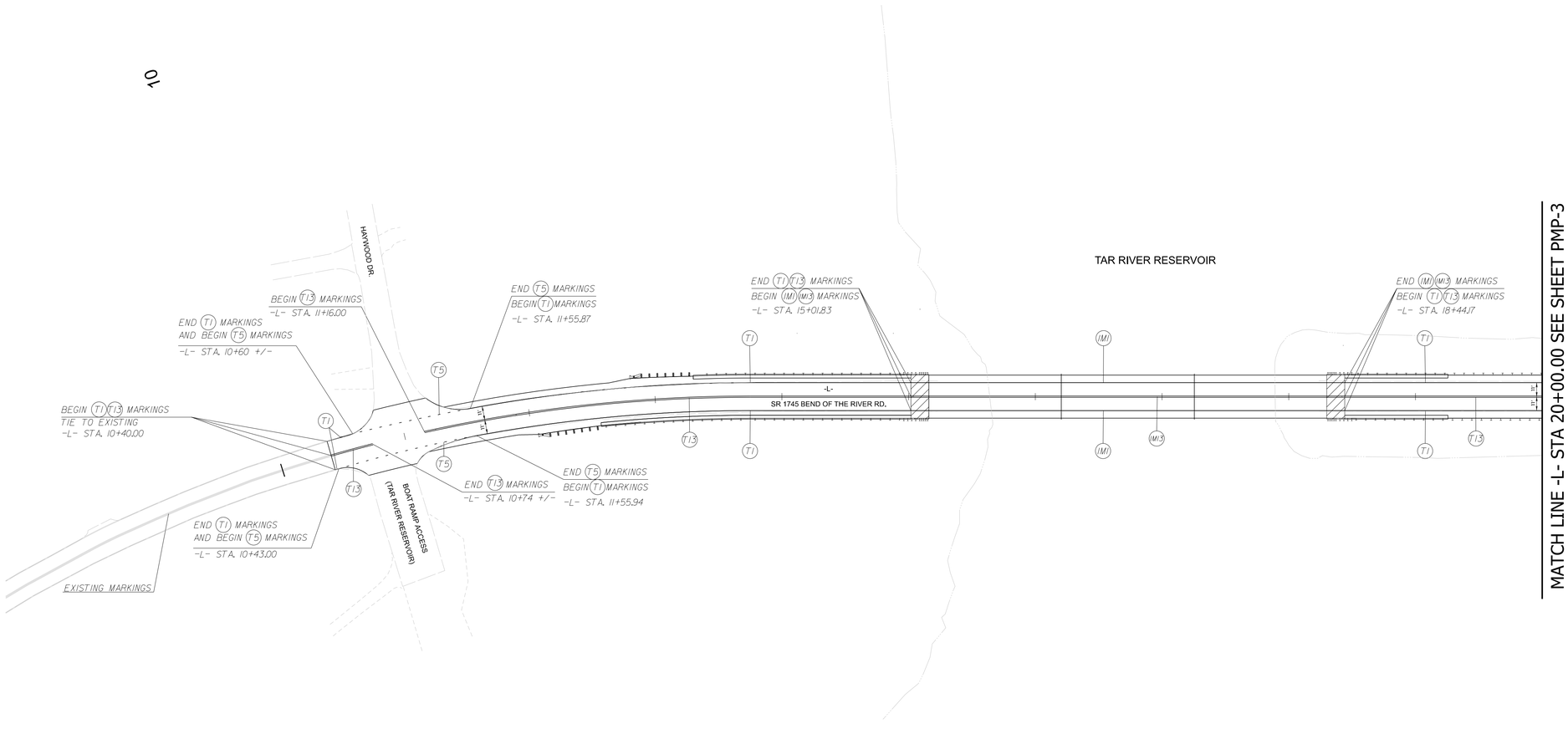
| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| HB-0038 | PMP-2 |
| FINAL | |

10

15

20

NAD 83
NA 2011




| PAVEMENT MARKING SCHEDULE | |
|---|---|
| T1 - THERMOPLASTIC | WHITE EDGELINE (4", 90 MIL) |
| T5 - THERMOPLASTIC | 2' WHITE MINI 6' SPACING (4", 90 MIL) |
| T13 - THERMOPLASTIC | YELLOW DOUBLE CENTER (4", 90 MIL) |
| IM1 - INTEGRATED MULTIPOLYMER | WHITE EDGELINE (4", 90 MIL) |
| IM13 - INTEGRATED MULTIPOLYMER | YELLOW DOUBLE CENTER (4", 90 MIL) |

NOTES:
1) PAVEMENT MARKINGS, MARKERS, AND SYMBOLS TO BE MARKED ACCORDING TO THE ROADWAY STANDARD DRAWINGS UNLESS NOTED OTHERWISE.

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

APPROVED: Signed by: Sara Loukili 1CFA79022C9540B DATE: 10/22/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUKILI

# PAVEMENT MARKING DETAIL

SCALE: 1" = 50'

DWG. BY: SSL

DESIGN BY: JCG

REVIEWED BY: TLS

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH TRAFFIC ENGINEERING BRANCH

REVISIONS

CADD FILE

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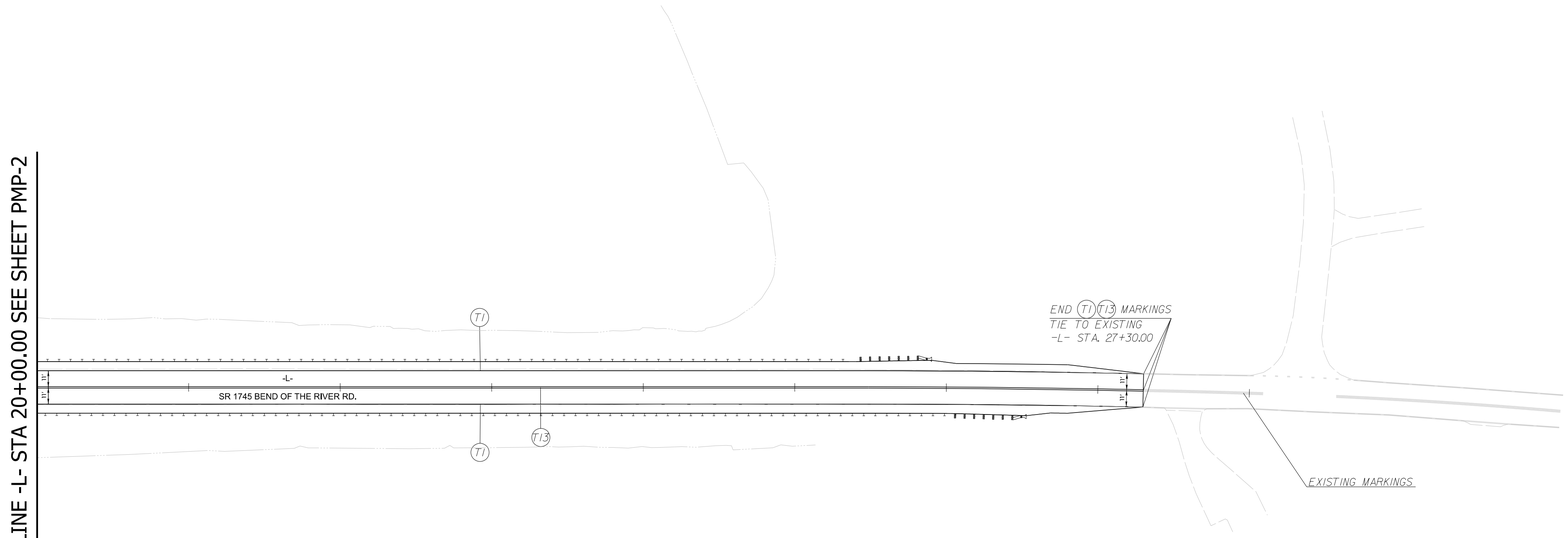
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Suite 430
Raleigh, NC 27603
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| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| HB-0038 | PMP-3 |
| FINAL | |

NAD 83
NA 2011

20

25




| PAVEMENT MARKING SCHEDULE | |
|---|---|
| T1 - THERMOPLASTIC | WHITE EDGELINE (4", 90 MIL) |
| T5 - THERMOPLASTIC | 2' WHITE MINI 6' SPACING (4", 90 MIL) |
| T13 - THERMOPLASTIC | YELLOW DOUBLE CENTER (4", 90 MIL) |
| IM1 - INTEGRATED MULTIPOLYMER | WHITE EDGELINE (4", 90 MIL) |
| IM13 - INTEGRATED MULTIPOLYMER | YELLOW DOUBLE CENTER (4", 90 MIL) |

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

APPROVED: Signed by: Sara Loiseli 1CFAA79022C9408... DATE: 10/22/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOISELLE

# PAVEMENT MARKING DETAIL

SCALE: 1" = 50'

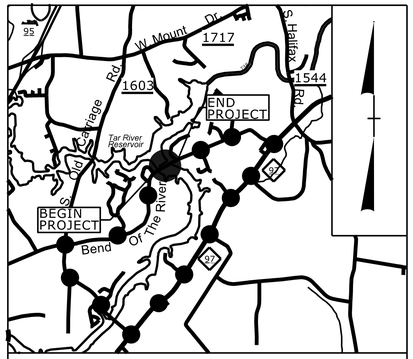
DWG. BY: SSL
DESIGN BY: JCG
REVIEWED BY: TLS

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH TRAFFIC CONTROL

| REVISIONS | |
|---|---|
| | |
| | |
| | |
| CADD FILE | |

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CONTRACT: DD00540 TIP PROJECT: HB-0038




OFFSITE DETOUR ROUTE

VICINITY MAP (NTS)

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## PLAN FOR PROPOSED
## HIGHWAY EROSION CONTROL

# NASH COUNTY

LOCATION: *BRIDGE 630110 ON SR 1745 (BEND OF THE RIVER RD.) OVER THE TAR RIVER RESERVOIR*

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

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | HB-0038 | EC-1 | 10 |

| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 50636.1.1 | N/A | P.E. |
| 50636.2.1 | N/A | ROW |
| 50636.2.2 | N/A | UTILITIES |
| 50636.3.1 | 5063601 | CONST. |
| | | |

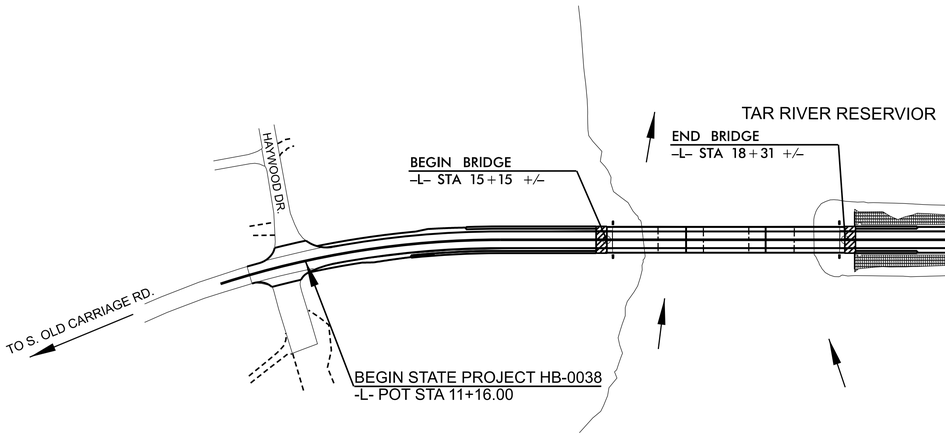
**THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.**

**THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.**

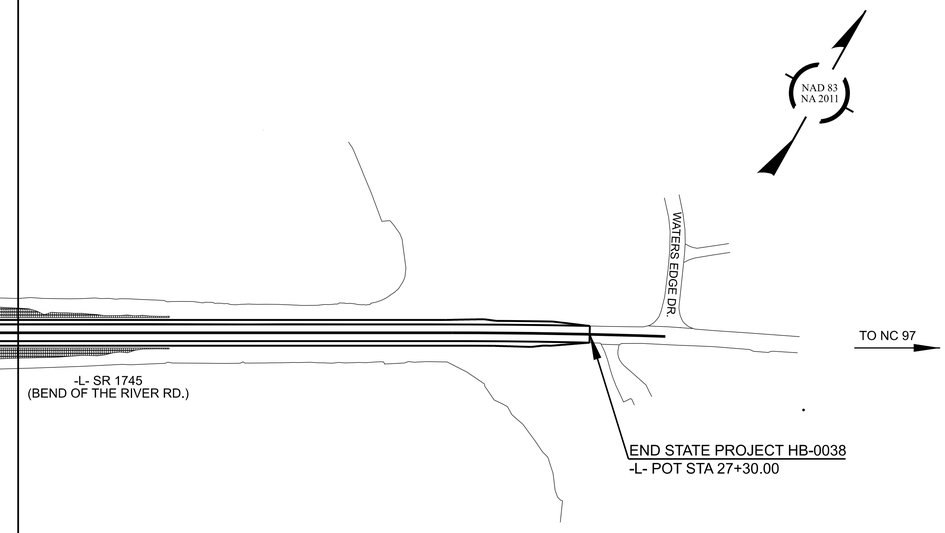
**ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT**

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

4




5




***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 ISSUED BY THE NORTH CAROLINA DIVISION OF ENERGY, MINTERAL, AND LAND RESOURCES.***

STV Engineers, Inc.
400 Hillsborough St.
Suite 430
Raleigh NC, 27603
NC License Number F-0991

*Prepared in the Office of:*
STV Engineers, Inc.
400 Hillsborough St., Suite 430
Raleigh, NC 27603

*Designed by:*
Joy Saddler, PE — 4143
*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.**

$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$USERNAME$$$$$$$$

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# 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 |

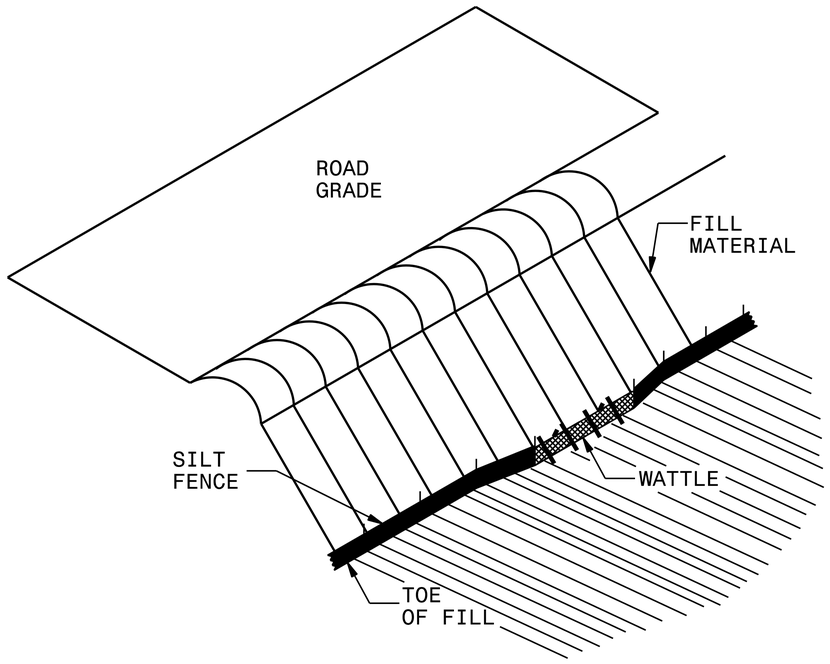
| Std. # | Description | Symbol |
|---|---|---|
| 1633.01 | Temporary Rock Silt Check Type A | |
| 1633.02 | Temporary Rock Silt Check Type B | |
| 1633.03 | Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant | |
| 1634.01 | Temporary Rock Sediment Dam Type A | |
| 1634.02 | Temporary 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 |

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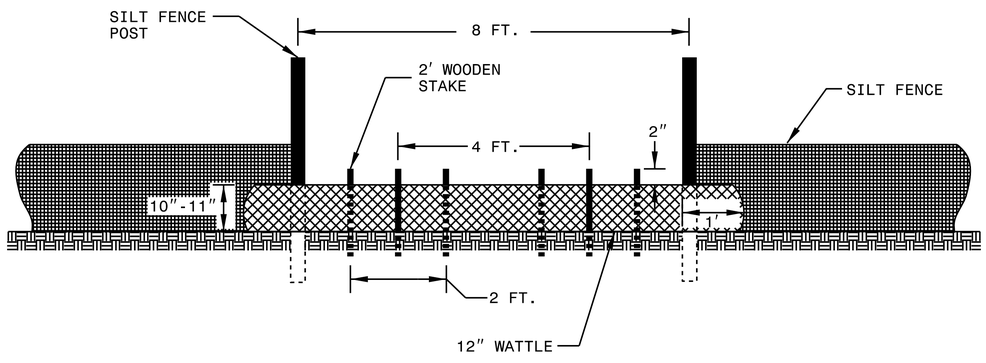
# SILT FENCE COIR FIBER WATTLE BREAK DETAIL

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| HB-0038 | EC-02 |

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**ISOMETRIC VIEW**




**VIEW FROM SLOPE**

NOTES:

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

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

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

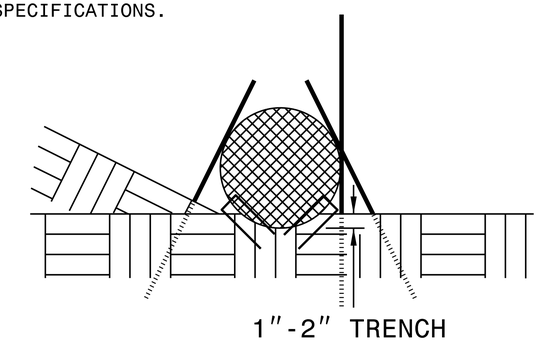
PROVIDE STAPLES MADE OF 11 GUAGE STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 6" IN LENGTH.

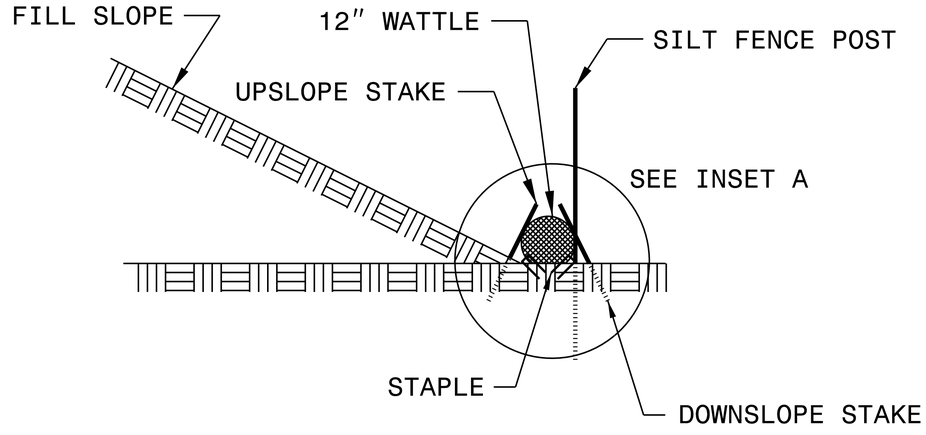
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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

INSET A



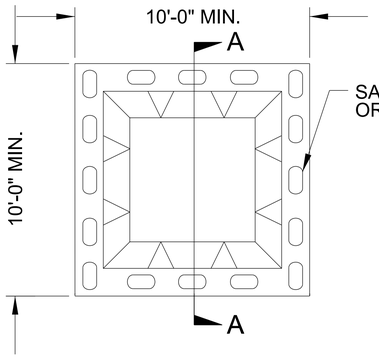

**SIDE VIEW**

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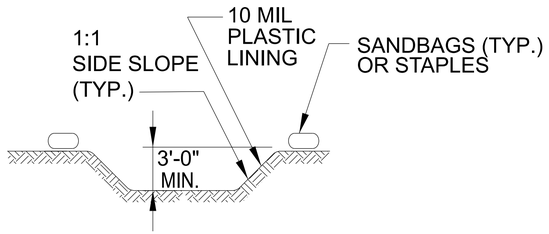
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| HB-0038 | EC-2B |

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# ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER




PLAN




SECTION A-A



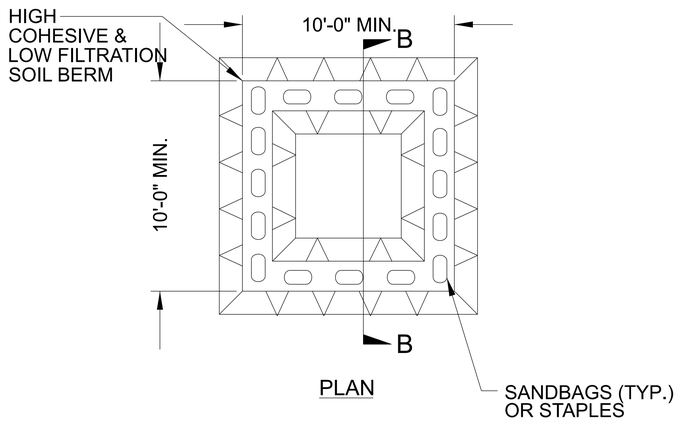

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

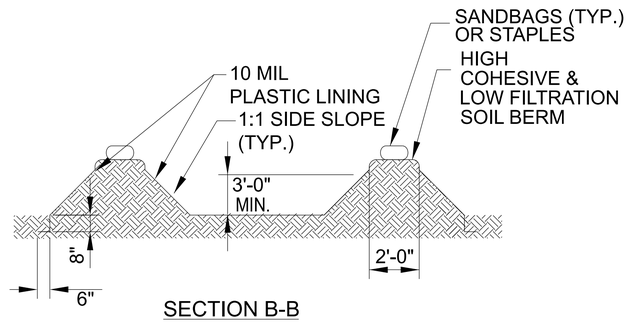
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

## BELOW GRADE WASHOUT STRUCTURE

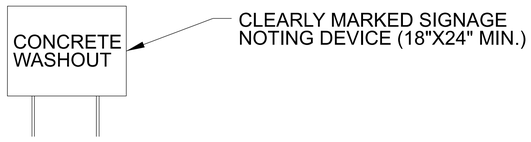
NOT TO SCALE




PLAN




SECTION B-B




NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

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

## ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

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|---|---|
| HB-0038 | EC-3 |

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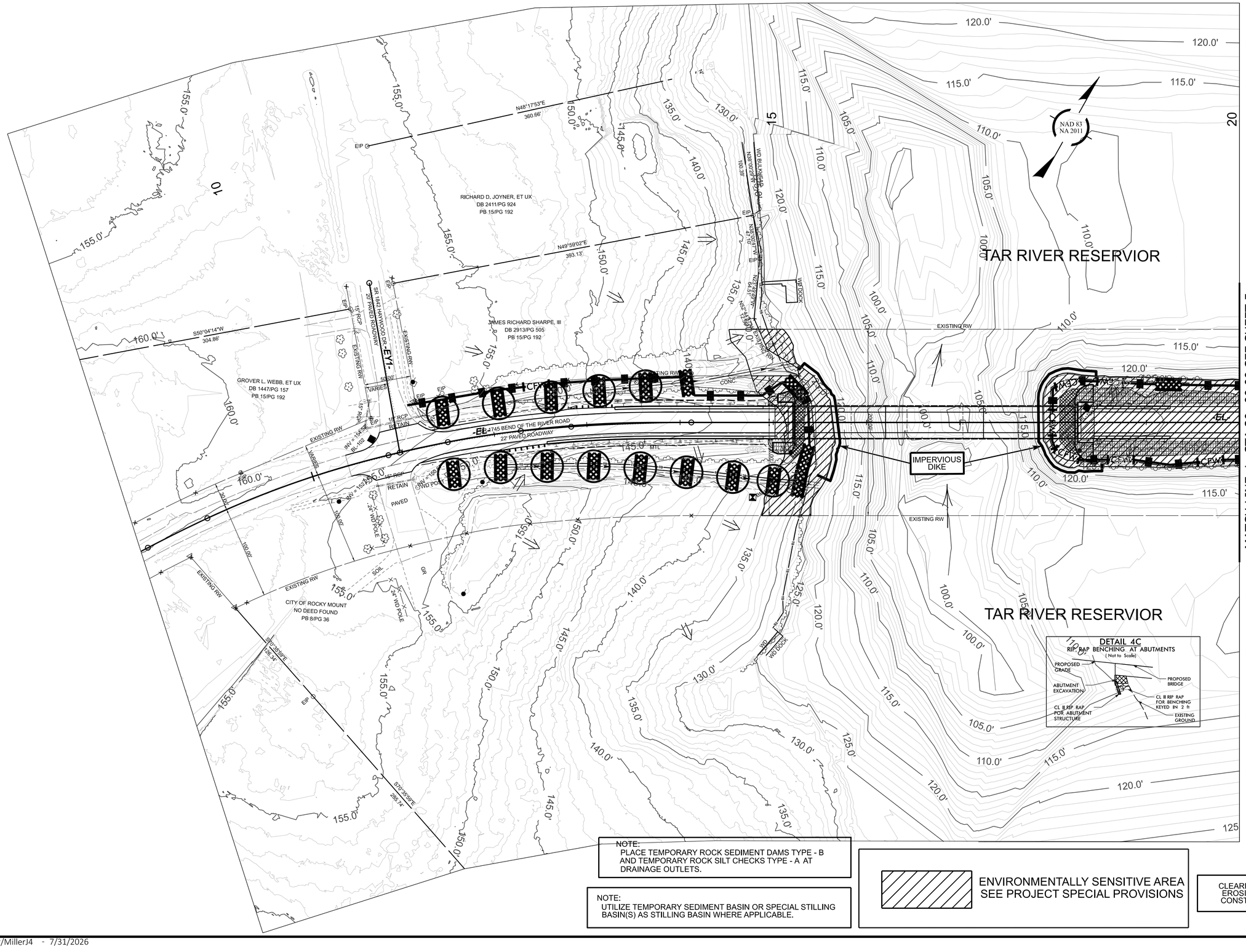
# DIVISION OF HIGHWAYS
# STATE OF NORTH CAROLINA

# 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.<br>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 |

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11/14/23




NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

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

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

HB-0038
EC-4|CON-4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY

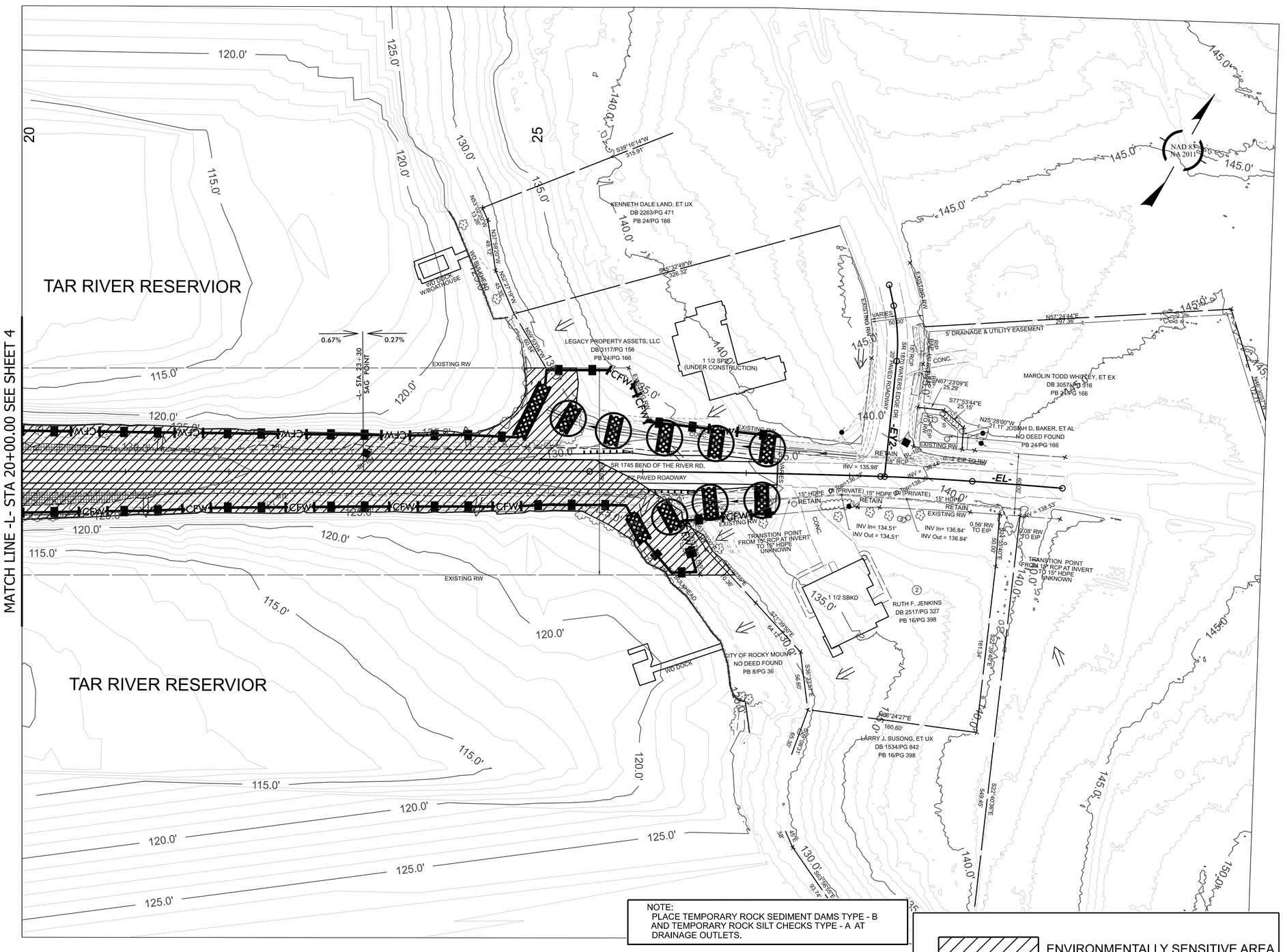
ROADWAY DESIGN UNIT

PREPARED BY

STV Engineers, Inc.
400 Hillsborough St., Suite 430
Raleigh, NC 27603
NC License Number F-0991

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1






NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

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

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

HB-0038
EC-5 | CON-5

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY

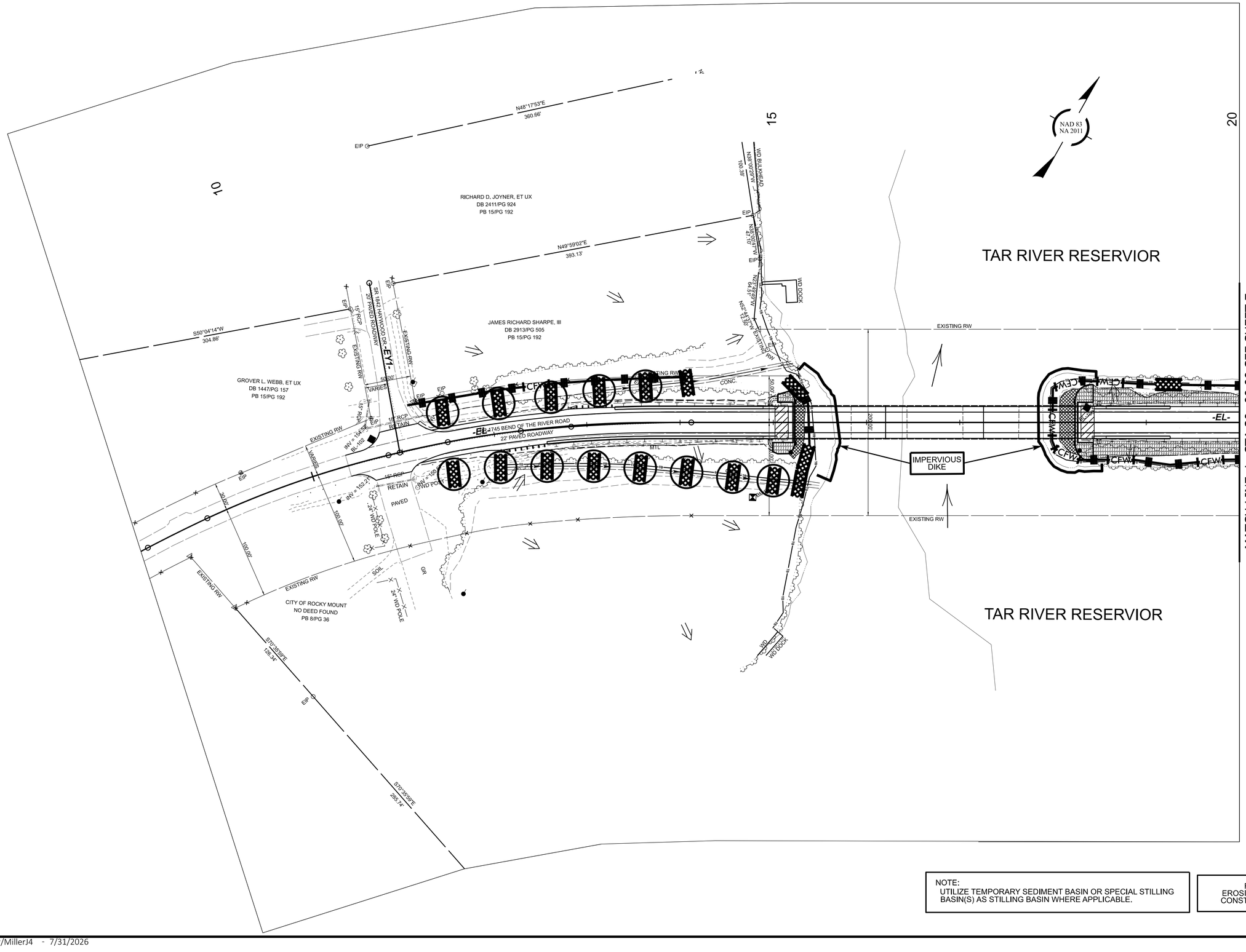
ROADWAY DESIGN UNIT

PREPARED BY

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400 Hillsborough St., Suite 430
Raleigh, NC 27603
NC License Number F-0991

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

11/14/23




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

FINAL PHASE
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

HB-0038
EC-6 | CON-4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY

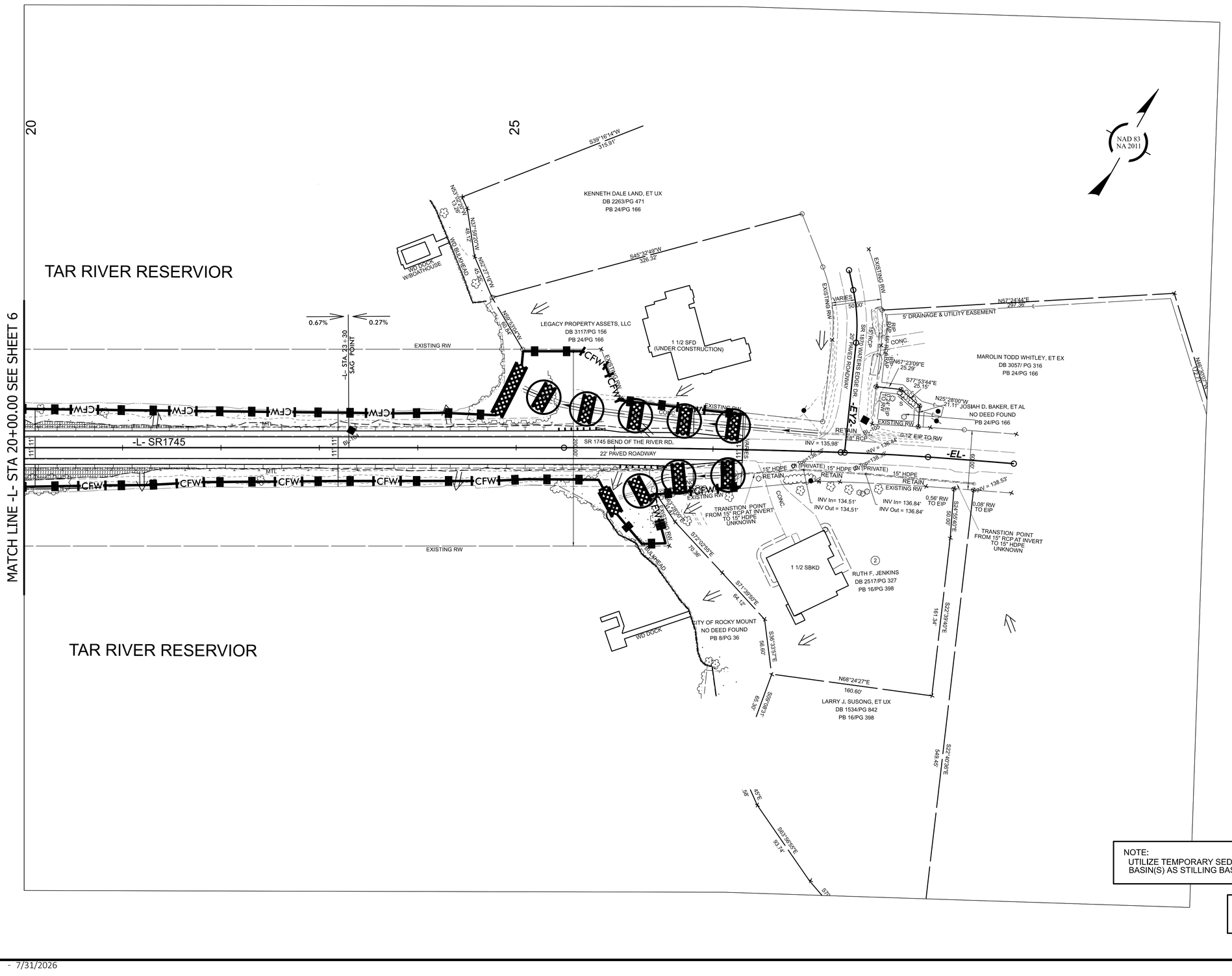
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PREPARED BY

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11/14/23




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

FINAL PHASE
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

HB-0038
EC-7 | CON-5

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

STV Engineers, Inc.
400 Hillsborough St., Suite 430
Raleigh, NC 27603
NC License Number F-0991

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| HB-0038 | SIGN-1 |
| FINAL | |

# STATE OF NORTH CAROLINA
# DEPARTMENT OF TRANSPORTATION

# SIGNING PLAN
## NASH COUNTY
### LOCATION: BRIDGE 630110 ON SR 1745 (BEND OF THE RIVER ROAD) OVER THE TAR RIVER RESERVOIR

## ROADWAY STANDARD DRAWING

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

| STD. NO. | TITLE |
|---|---|
| 904.10 | ORIENTATION OF GROUND MOUNTED SIGNS |
| 904.50 | MOUNTING OF TYPE 'D', 'E', AND 'F' SIGNS ON 'U' CHANNEL SUPPORTS (USE DETEAIL IN LIEU OF STANDARDS FOR SHEETS 1 AND 2 OF 2) |

## GENERAL NOTES

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

## INDEX


| SHEET NO. | DESCRIPTION |
|---|---|
| SIGN-1 | TITLE SHEET |
| SIGN-1A THRU SIGN-1B | DETAIL IN LIEU OF STANDARDS |
| SIGN-2 | TYPE "E" SIGNS |
| SIGN-3 THRU SIGN-4 | SIGN DETAIL SHEETS |


## SUMMARY OF QUANTITIES

| ITEM NO. | | ITEM DESCRIPTION | QUANTITY | UNIT |
|---|---|---|---|---|
| DESC. NO. | SECT. NO. | | | |
| 4080200000-E | 903 | SUPPORTS, STEEL SQUARE TUBE | 105 | LF |
| 4102000000-N | 904 | SIGN ERECTION, TYPE E (GROUND MOUNTED) | 8 | EA |
| 4155000000-N | 907 | DISPOSAL OF SIGN SYSTEM, U-CHANNEL | 8 | EA |


PLAN PREPARED BY: STV ENGINEERS, INC. 400 Hillsborough St. Suite 430 Raleigh, NC 27603 NC License Number F-0991

SARA S. LOUKILI, PE — PROJECT ENGINEER

JENNIFER C. GRIMM — PROJECT DESIGNER


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

PLANS PREPARED BY:
STV Engineers, Inc.
400 Hillsborough St. Suite 430
Raleigh, NC 27603
NC License Number F-0991

APPROVED: Signed by: Sara Loukili 1CCFA2780220C0485... DATE: 10/22/2026

NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUKILI

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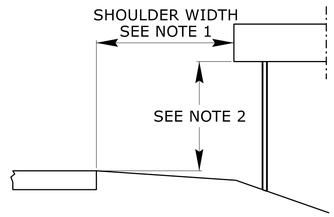
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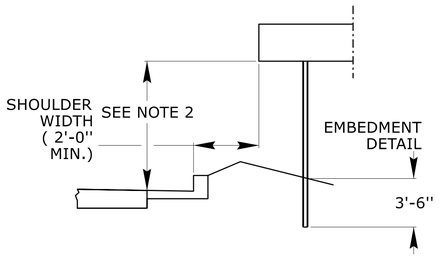
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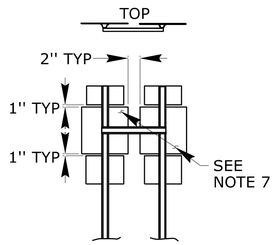
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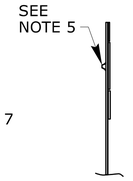
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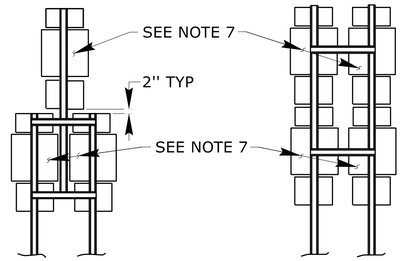


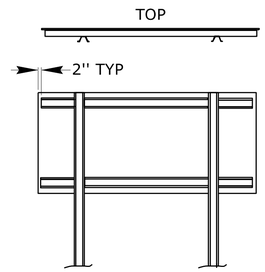

HORIZONTAL AND VERTICAL CLEARANCES



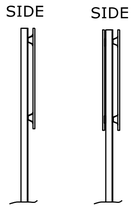



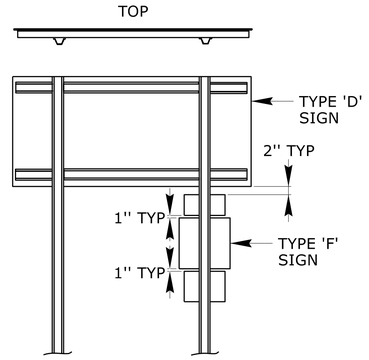

FRAMING AND CROSS-BRACING DETAILS TYPE 'F' SIGNS




TYPE 'D' & 'E' SIGN CROSS BRACING

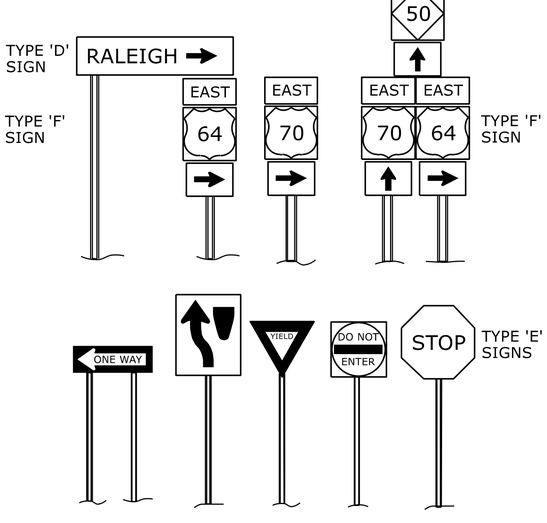



BACK-TO-BACK MOUNT




FRAMING AND CROSS-BRACING DETAILS
FOR COMBINATION TYPE 'D' & 'E' SIGNS
WIDE SIDE OF CROSS BRACE GOES TO BACK OF SIGN

FRAMING AND CROSS-BRACING DETAILS
FOR COMBINATION TYPE 'D' & 'F' SIGNS
WIDE SIDE OF FLANGE GOES TO BACK OF 'F' SIGN




TYPICAL SIGN SHAPES AND COMBINATIONS

NOTES:

1. ERECT TYPE 'D', 'E', AND 'F' SIGNS ON FREEWAYS WITH THE NEAR EDGE OF THE SIGN 20 FT. FROM THE TRAVEL LANE. ERECT ALL OTHER 'D', 'E', AND 'F' SIGNS WITH THE NEAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER BREAK (6 FT. MINIMUM CLEARANCE, 12 FT. DESIRABLE, FROM THE EDGE OF TRAVEL LANE), OR AS DIMENSIONED ON PLAN SHEETS.
2. ERECT TYPE 'D', 'E', AND 'F' SIGNS WITH THE BOTTOM OF SIGN ASSEMBLY AT LEAST 7 FT. ABOVE THE EDGE OF THE TRAVEL LANE ON ROADS WITH 2 OR MORE LANES IN THE SAME DIRECTION AND AT LEAST 5 FT. ON OTHER ROUTES. THE VERTICAL CLEARANCE IS 7 FT. WHERE REQUIRED FOR PEDESTRIAN TRAFFIC AND/OR PARKED VEHICLES.
3. THE VERTICAL DIMENSION BETWEEN MOUNTING HOLE CENTERS ON ALL TYPES 'D', 'E', AND 'F' SIGNS IS 30'' MAXIMUM. THE VERTICAL AND HORIZONTAL DIMENSIONS BETWEEN MOUNTING HOLES IS TO THE WHOLE INCH. EACH SIGN PANEL HAS A MINIMUM OF 2 BOLTS PER SUPPORT.
4. ATTACH SIGN WITH 3/8'' HEX HEAD BOLT, NYLON WASHER, SHIM, FLAT WASHER, LOCK WASHER, HEX NUT. NO BUCKLING OF THE SIGN WILL BE PERMITTED. SEE ASSEMBLY DETAIL SHEET# 2 OF 904.50.
5. FURNISH AND INSTALL CROSS-BRACING AS SHOWN IN DETAIL. PAINT ENDS OF CROSS BRACES WITH APPROVED ZINC PAINT.
6. INSTALL SUPPORT AND CROSS-BRACING WITH THE WIDE SIDE OF THE FLANGE TOWARD THE BACK OF SIGN(S) FOR COMBINATION TYPE 'D' AND 'F' SIGNS.
7. THE SHIELD HEIGHTS IN THESE ASSEMBLIES CANNOT BE LARGER THAN 24''.
8. IF SIGN ASSEMBLIES REQUIRE MORE THAN TWO U-CHANNEL SUPPORTS, THE SUPPORTS SHALL BE PLACED A MINIMUM OF 4 FT. BETWEEN SUPPORTS. NO MORE THAN TWO SUPPORTS SHALL FALL WITHIN 7FT. PATH, OR THE SIGN ASSEMBLY MUST BE PLACED BEHIND BARRIER PROTECTION.

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

ROADWAY DETAIL DRAWING FOR

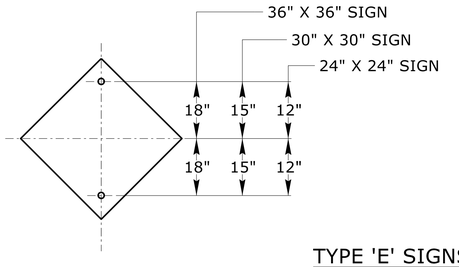
# MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS



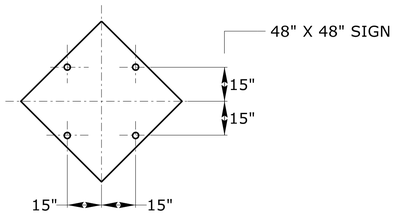
HB-0038
4RD1 | SIGN-1A
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
COUNTY COUNTY
CONTRACT STANDARDS AND DEVELOPMENT UNIT

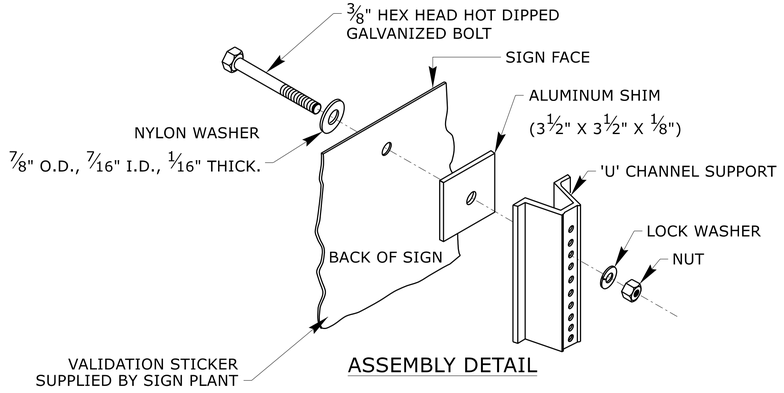


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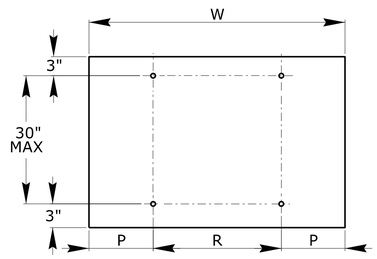



TYPE 'E' SIGNS

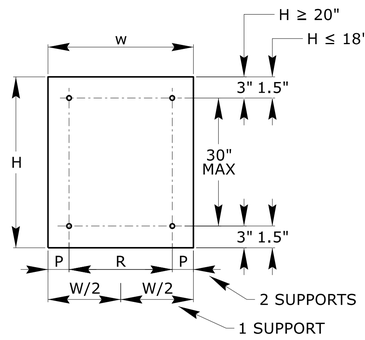



ASSEMBLY DETAIL




TYPE 'D' SIGNS

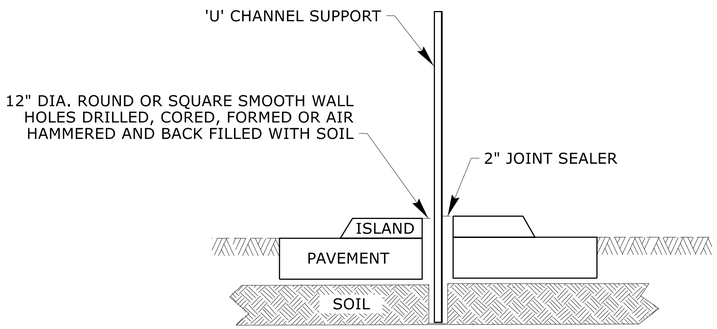



TYPE 'E' AND 'F' SIGNS

| | NO. SUPPORTS | | |
|---|---|---|---|
| | 2 | 3* | 4* |
| P | 0.207W | 0.145W | 0.107W |
| R | 0.586W | 0.355W | 0.262W |

UNITS ON ATTACHED SHEET
* MINIMUM 4 FT. BETWEEN CHANNEL SUPPORTS

HOLE PUNCHING DETAIL




DETAIL FOR INSTALLATION OF
CHANNEL SUPPORT IN CONCRETE

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

ROADWAY DETAIL DRAWING FOR

# MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SHEET 2 OF 2
**904D50**

HB-0038
4RD1 | SIGN-1B

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
COUNTY COUNTY

CONTRACT STANDARDS AND
DEVELOPMENT UNIT

NORTH CAROLINA PROFESSIONAL SEAL 042546 ENGINEER Matthew Spencer, PE

10/22/2026

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| HB-0038 | SIGN-2 |
| FINAL | |

# TYPE "E" SIGNS

401 QUANTITY REQ'D 7




12" X 18"
R7-301

ONE "U" POST PER SIGN

402 QUANTITY REQ'D 1



30" X 30"
W1-2L

ONE "U" POST PER SIGN

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PLANS PREPARED BY:
STV Engineers, Inc.
400 Hillsborough St. Suite 430
Raleigh, NC 27603
NC License Number F-0991

APPROVED: Sara Loubli DATE: 8/5/2026

NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUBLI

# TYPE "E" SIGNS

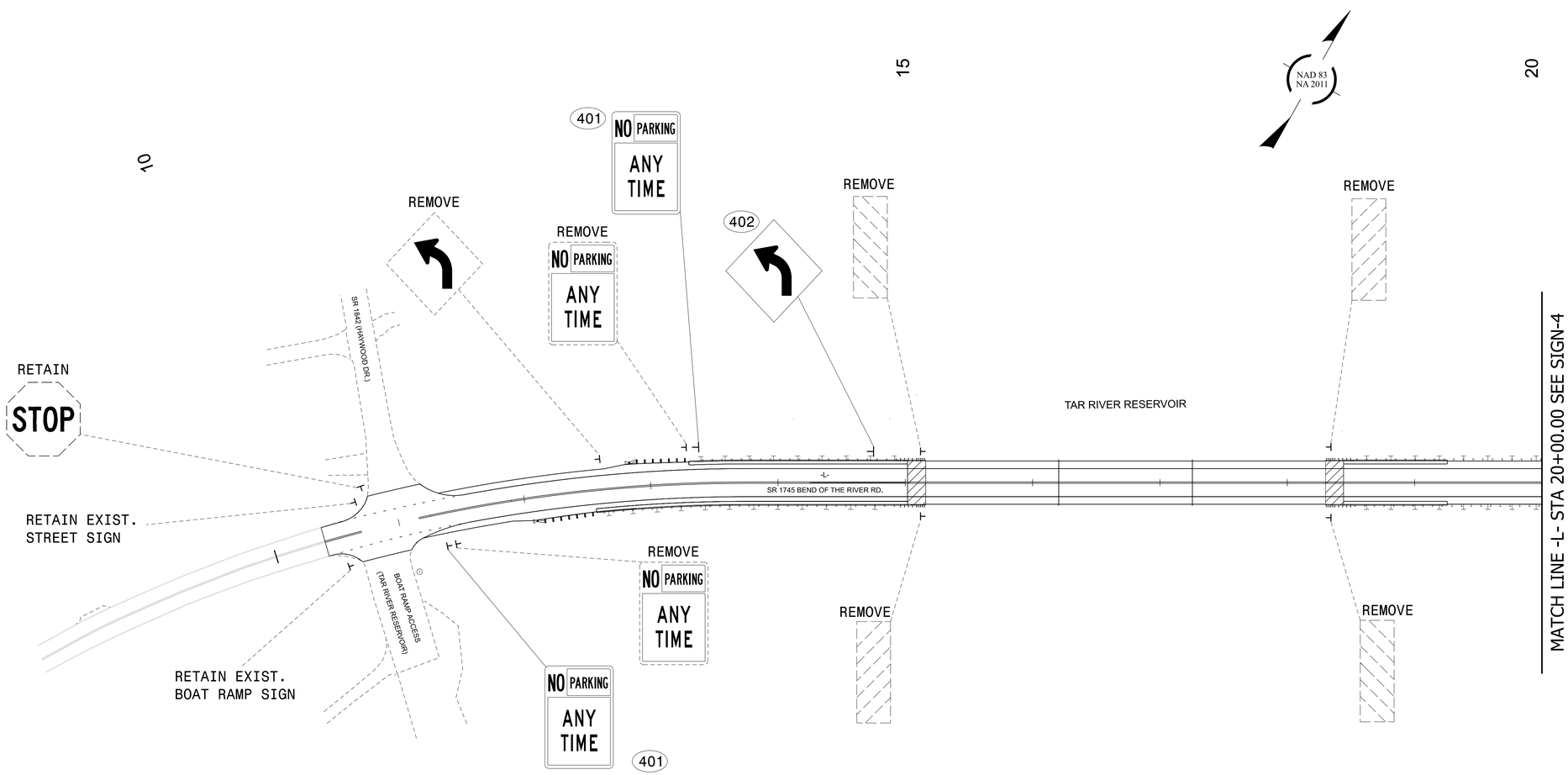
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REVISIONS

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400 Hillsborough St, Suite 430
Raleigh, NC 27603
NC License Number F-0991

APPROVED: Signed by: Sara Loukili DATE: 8/5/2026

NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUKILI

# SIGN DETAIL SHEET

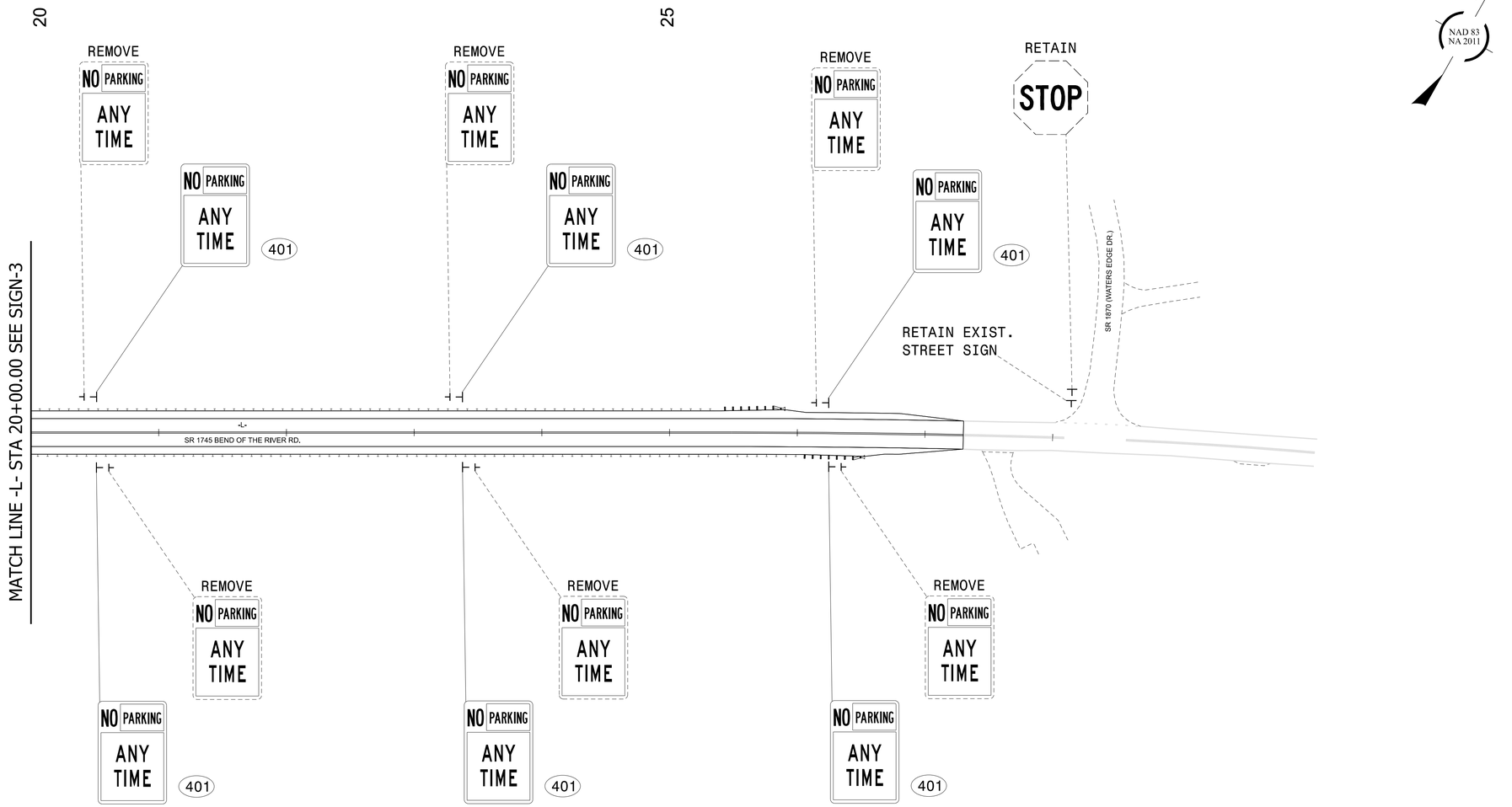
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PLANS PREPARED BY:

STV Engineers, Inc.
400 Hillsborough St. Suite 430
Raleigh, NC 27603
NC License Number F-0991

APPROVED Signed by: Sara Loukili DATE: 8/5/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 057348 ENGINEER SARA S. LOUKILI

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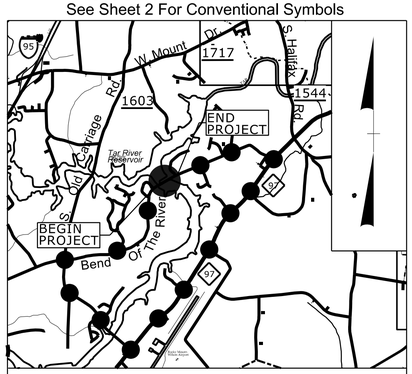
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TIP PROJECT: HB-0038

CONTRACT: DD00540

See Sheet 1 For Index of Sheets
See Sheet 2 For Conventional Symbols




OFFSITE DETOUR ROUTE

VICINITY MAP (NTS)

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

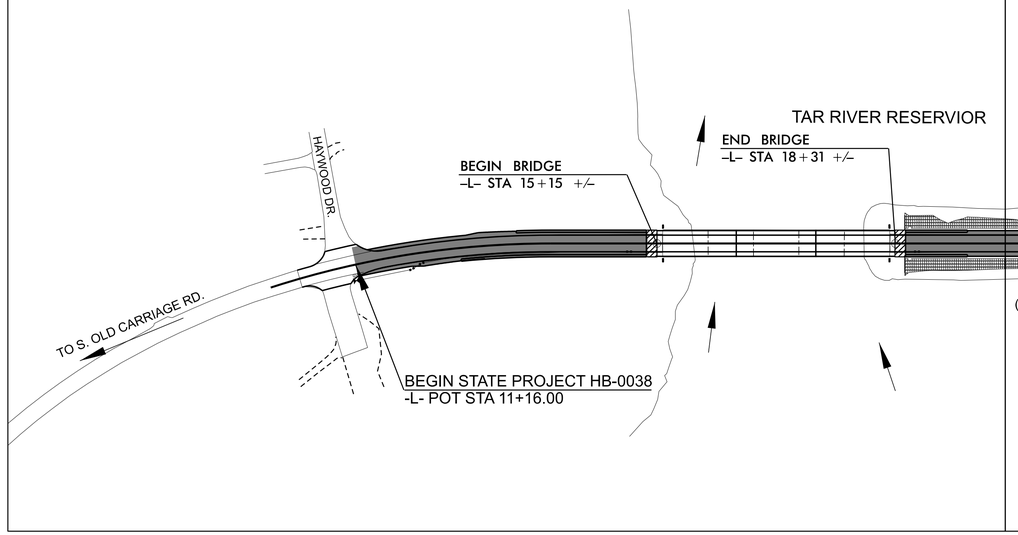
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| N.C. | HB-0038 | 1 | 7 |
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# *UTILITY CONSTRUCTION PLANS*
# *NASH COUNTY*

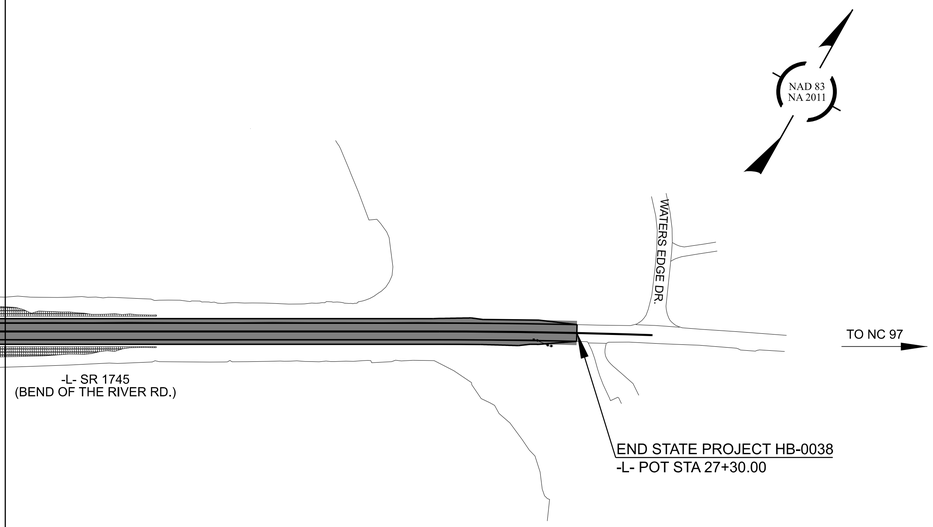
***LOCATION: BRIDGE 630110 ON SR 1745 (BEND OF THE RIVER ROAD) OVER THE TAR RIVER RESERVOIR***

***TYPE OF WORK: WATER LINE RELOCATION***

UC-4




UC-5




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

*GRAPHIC SCALES*

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

## *INDEX OF SHEETS*

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

## *WATER AND SEWER OWNERS ON PROJECT*

*(A) WATER – NASH COUNTY PUBLIC UTILITIES*

NORTH CAROLINA PROFESSIONAL SEAL 045626 ENGINEER WILLIAM B. KEATON

Signed by: William Keaton 8/6/2026
3FA9AC96351441C...

*PREPARED IN THE OFFICE OF*

STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

*(704) 372-1885 FAX: (704) 372-3393*

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*E. NEAL PASCHAL, PE* — *CONSULTANT CONTACT #2*
*SARA S. LOUKILI, PE* — *CONSULTANT CONTACT #3*

*DIVISION OF HIGHWAYS*
*DIVISION 4*
*509 WARD BLVD*
*WILSON, NC 27895*
*PHONE: (252)640-6400*
*FAX: (252)234-6174*

*MATT CLARKE* — *DIVISION ENGINEER*
*COREY MCLAMB* — *DIVISION CONSTRUCTION ENGINEER*
*RACHEL EVANS* — *DIVISION PROJECT ENGINEER*
*LONNY SLEEPER* — *DIVISION UTILITY ENGINEER*

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06/16/22

UTILITY CONSTRUCTION

HB-0038

UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# UTILITIES PLAN SHEET SYMBOLS

## PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — REH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

## PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — SS
- Force Main Sewer Line (Sized as Shown) — FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

## PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — OH POW
- Trenchless Installation — TRENCHLESS WL
- Encasement Method — OPEN CUT
- Encasement

- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

## EXISTING UTILITIES SYMBOLS

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

- *Underground Power Line
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown)

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY



UTILITY DESIGN UNIT

UTILITY CONSTRUCTION
PLANS ONLY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045626 WILLIAM M. B. KEATON

Signature: William Keaton 8/6/2026

SEAL045626.STAMP

DESIGNED BY: GTR

DRAWN BY: TLM

CHECKED BY: DKP

APPROVED BY: WBK

REVISED: 07/30/2026

UTILITIES ENGINEERING SEC.
PHONE:(704)372-1885
FAX:(704)372-3393

FINAL DESIGN
NOT FOR CONSTRUCTION

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1



# UTILITY CONSTRUCTION

## GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024.

2. THE EXISTING UTILITIES BELONG TO NASH COUNTY PUBLIC UTILITIES.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

10. FOR EXPOSED WATER PIPE, PROVIDE MIN. 1" CLOSED-CELL FOAM INSULATION WITH A MINIMUM R-VALUE OF 4.5 BTU*HR*F2*F/INCH. PROVIDE WATERPROOF COVERING OVER INSULATION SEALED WITH WATERPROOF TAPE.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY



UTILITY DESIGN UNIT

UTILITY CONSTRUCTION
PLANS ONLY

**FINAL PLANS
NOT FOR CONSTRUCTION**

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED




Signed by:
William Keaton 8/6/2026
97A4C0B3B4414C...

| | |
|---|---|
| DESIGNED BY: | GTR |
| DRAWN BY: | TLM |
| CHECKED BY: | DKP |
| APPROVED BY: | WBK |
| REVISED: | 07/30/2026 |

UTILITIES ENGINEERING SEC.
PHONE:(704)372-1885
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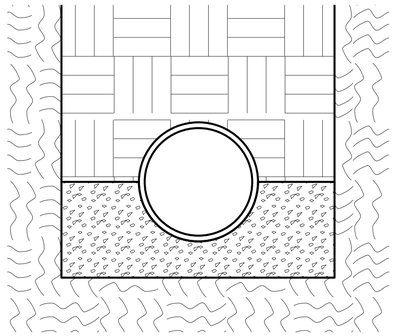
STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

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# UTILITY CONSTRUCTION

## PIPE BEDDING DETAIL



PIPE BEDDED IN SAND, GRAVEL OR CRUSHED STONE TO A DEPTH OF ½ PIPE DIAMETER, 4″ MINIMUM UNDER PIPE. TRENCH BACKFILLED IN LOOSE 6″ LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL, IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROX. 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

## MAXIMUM TRENCH WIDTH AT TOP OF PIPE

| NOMINAL PIPE SIZE (INCHES) | TRENCH WIDTH (INCHES) | NOMINAL PIPE SIZE (INCHES) | TRENCH WIDTH (INCHES) |
|---|---|---|---|
| 4 | 28 | 20 | 44 |
| 6 | 30 | 24 | 48 |
| 8 | 32 | 30 | 54 |
| 10 | 34 | 36 | 60 |
| 12 | 36 | 42 | 66 |
| 14 | 38 | 48 | 72 |
| 16 | 40 | 54 | 78 |
| 18 | 42 | | |

HB-0038
UC-3A

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY



UTILITY DESIGN UNIT

UTILITY CONSTRUCTION
PLANS ONLY

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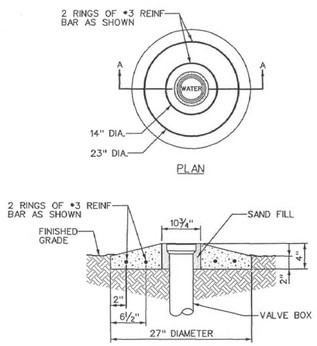


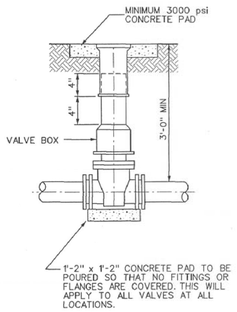

Signed by:
William Keaton 8/6/2026

DESIGNED BY: GTR
DRAWN BY: TLM
CHECKED BY: DKP
APPROVED BY: WBK
REVISED: 07/30/2026

UTILITIES ENGINEERING SEC.
PHONE:(704)372-1885
FAX:(704)372-3393

STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991




REVISIONS

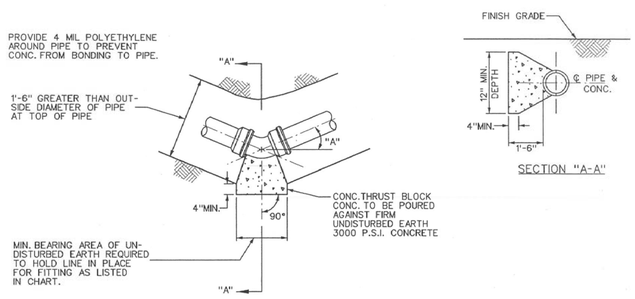
| DATE | DESCRIPTION |
|---|---|
| | |

SHEET 1 OF 1

NASH COUNTY STANDARDS

TYPICAL VALVE BOX INSTALLATION

STD. NO. 1.02




| SQ. FT. BEARING AREA | | | | |
|---|---|---|---|---|
| FITTING | 4" PIPE | 6" PIPE | 8" PIPE | 12" PIPE |
| 90° BEND | 1 | 3 | 5.5 | 40.8 |
| D.E. OR TEE | 1 | 2.5 | 3.8 | 31.5 |
| 45° OR LESS | 1 | 2 | 3 | 22.1 |

EXCAVATE AS NEARLY VERTICAL AS POSSIBLE

REVISIONS

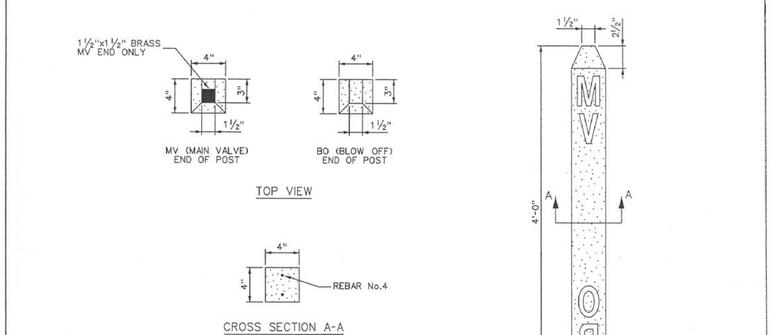
| DATE | DESCRIPTION |
|---|---|
| | |

SHEET 1 OF 1

NASH COUNTY STANDARDS

THRUST BLOCK FOR HORIZONTAL PIPE BENDS

STD. NO. 1.04




NOTES:
1. MARKER POST IS MADE OF 5000 PSI CONCRETE.
2. ALL DIMENSIONS ARE NOMINAL.

REVISIONS

| DATE | DESCRIPTION |
|---|---|
| | |

SHEET 1 OF 1

NASH COUNTY STANDARDS

4'x4"x4" WITNESS POST

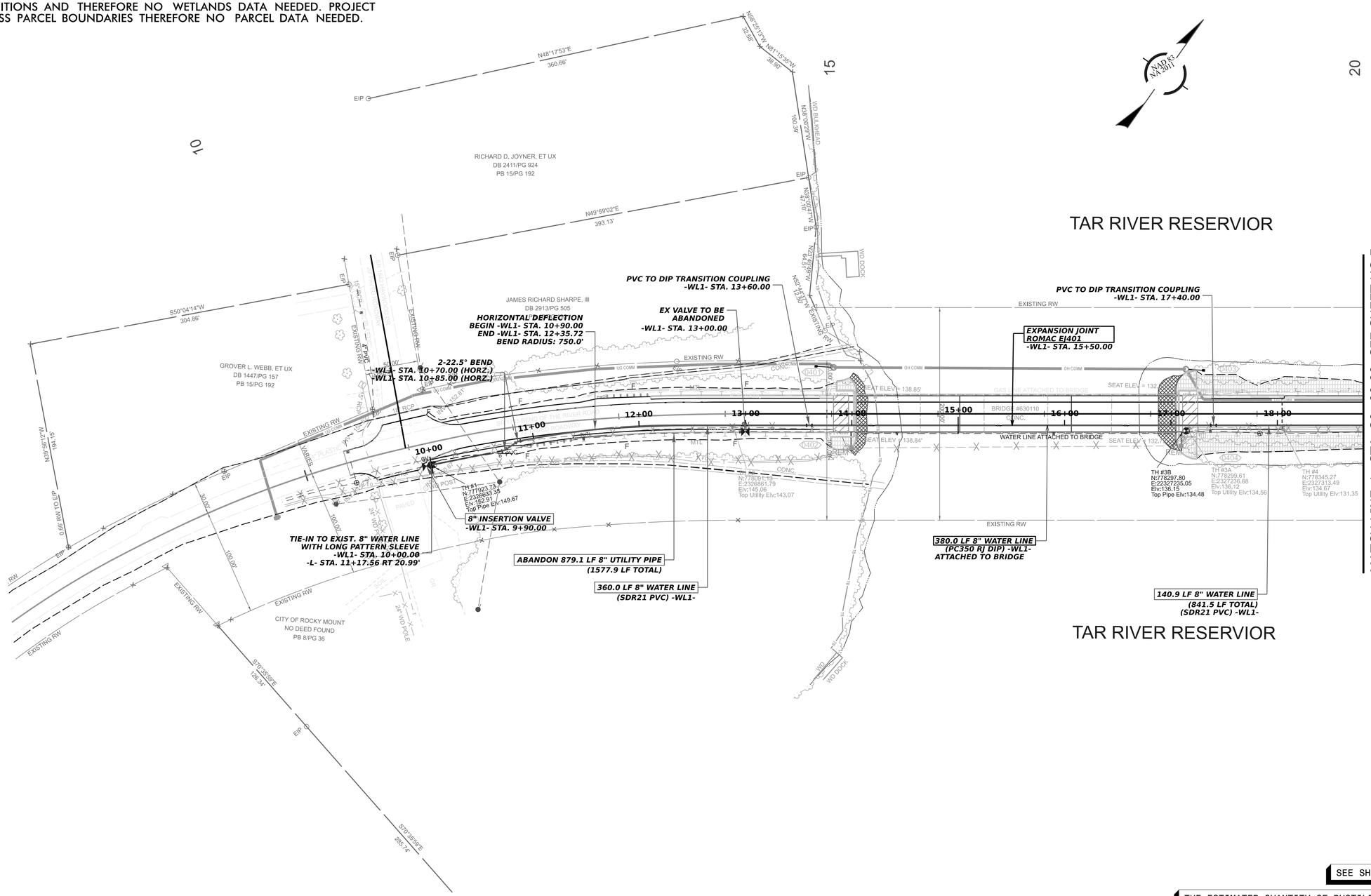
STD. NO. 1.17

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

06/16/22

NOTES:

1. CONNECT PROPOSED WATER LINES TO EXISTING WATER LINE USING NECESSARY FITTINGS AND TRANSITION COUPLINGS RECOMMENDED BY PIPE MANUFACTURER. CONTRACTOR TO SCHEDULE SHUT DOWN AND CONNECTION TO EXISTING WATER LINE WITH UTILITY OWNER. CONTRACTOR TO FIELD VERIFY EXISTING PIPE MATERIAL AND DEPTHS AT TIE–IN POINTS.
2. CONTRACTOR SHALL MAINTAIN A MINIMUM DEPTH OF 36" WHEN INSTALLING WATERLINE ON THIS SHEET.
3. REFER TO STRUCTURE–UTILITY PLAN SET FOR WATERLINE ATTACHMENT INFORMATION AND DETAILS.
4. SEE STRUCTURAL SHEETS.
5. NO BUFFER AUTHORIZATION REQUIRED. THIS COUNTS AS OPEN WATERS DUE TO EXISTING CONDITIONS AND THEREFORE NO WETLANDS DATA NEEDED. PROJECT DOES NOT CROSS PARCEL BOUNDARIES THEREFORE NO PARCEL DATA NEEDED.




SEE SHEET UC-6 FOR -WL1- PROFILE

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 370 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

REVISIONS

HB-0038
UC-4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY

UTILITY DESIGN UNIT

UTILITY CONSTRUCTION PLANS ONLY

FINAL PLANS NOT FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 045626 ENGINEER WILLIAM B. KEATON

Signed by: William Keaton 8/6/2026

DESIGNED BY: GTR
DRAWN BY: TLM
CHECKED BY: DKP
APPROVED BY: WBK
REVISED: 07/30/2026

UTILITIES ENGINEERING SEC.
PHONE:(704)372-1885
FAX:(704)372-3393

STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

06/16/22

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SCALE 1" = 100'
0 50' 100' 150' 200'

NAD 83 NA 2011

20 25

TAR RIVER RESERVIOR

MATCH LINE -L- STA. 20+00.00, SEE SHEET UC-4

KENNETH DALE LAND, ET UX
DB 2263/PG 471
PB 24/PG 166

LEGACY PROPERTY ASSETS, LLC
DB 3117/PG 156
PB 24/PG 166

1 1/2 SFD (UNDER CONSTRUCTION)

MAROLIN TODD WHITLEY, ET EX
DB 3057/ PG 316
PB 24/PG 166

JOSIAH D. BAKER, ET AL
NO DEED FOUND
PB 24/PG 166

RUTH F. JENKINS
DB 2517/PG 327
PB 16/PG 398

CITY OF ROCKY MOUNT
NO DEED FOUND
PB 8/PG 36

LARRY J. SUSONG, ET UX
DB 1534/PG 842
PB 16/PG 398

5' DRAINAGE & UTILITY EASEMENT

EXISTING RW

CONTRACTOR TO UTILIZE EXISTING MAINLINE VALVE TO ISOLATE WATERLINE ACROSS BRIDGE FOR CONSTRUCTION

ABANDON 698.8 LF 8" UTILITY PIPE (1577.9 LF TOTAL)

700.6 LF 8" WATER LINE (841.5 LF TOTAL) (SDR21 PVC) -WL1-

2-22.5° BEND
-WL1- STA. 25+56.53 (HORZ.)
-WL1- STA. 25+76.53 (HORZ.)

TIE-IN TO EXIST. 8" WATER LINE WITH LONG PATTERN SLEEVE
-WL1- STA. 25+81.53
-L- STA. 26+99.13 RT 17.83'

TRANSTION POINT FROM 15" RCP AT INVERT TO 15" HDPE UNKNOWN

0.56' RW TO EIP

0.08' RW TO EIP

TAR RIVER RESERVIOR

SEE SHEET UC-6 FOR -WL1- PROFILE

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 370 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

REVISIONS

HB-0038
UC-5

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY

UTILITY DESIGN UNIT

UTILITY CONSTRUCTION PLANS ONLY

FINAL PLANS NOT FOR CONSTRUCTION

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NORTH CAROLINA PROFESSIONAL SEAL 045626 ENGINEER WILLIAM B. KEATON

Signed by: William Keaton 8/6/2026

DESIGNED BY: GTR
DRAWN BY: TLM
CHECKED BY: DKP
APPROVED BY: WBK
REVISED: 07/30/2026

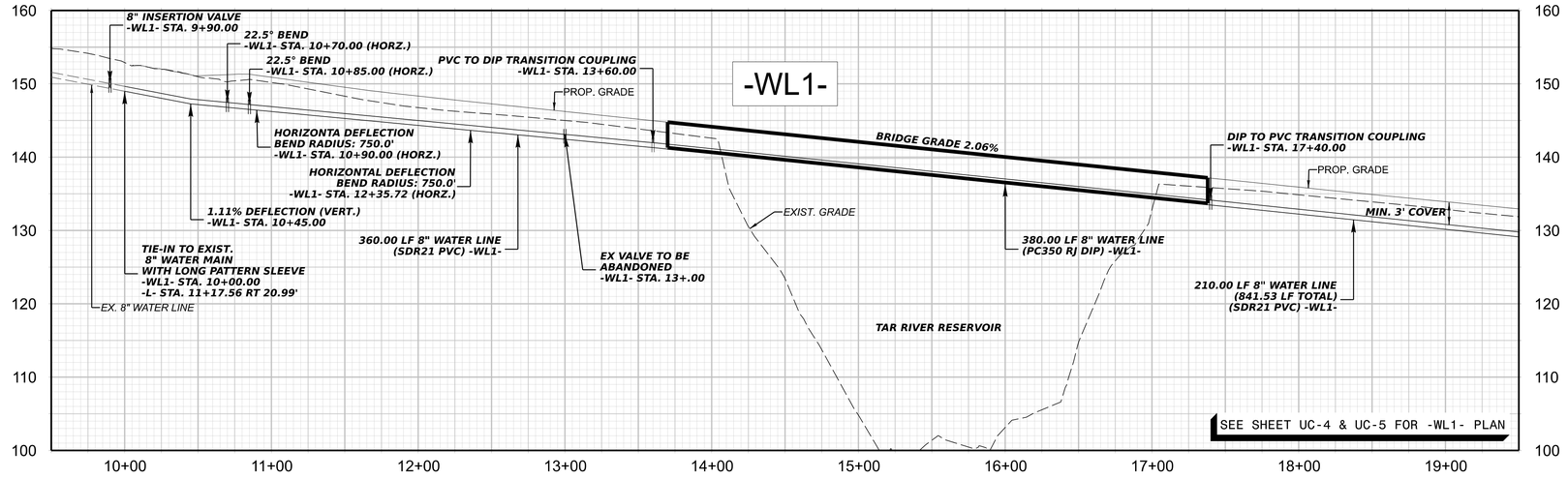
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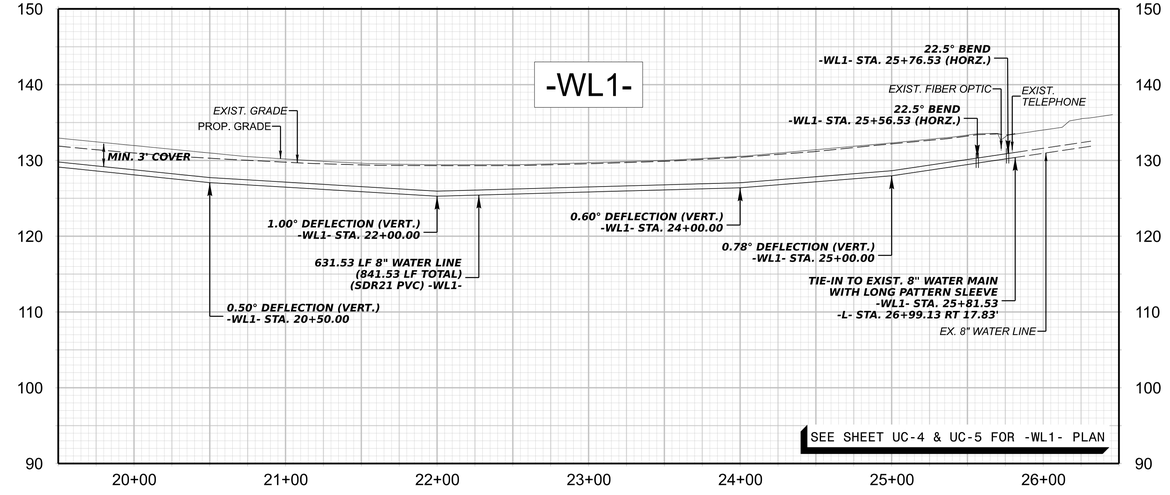
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Charlotte, NC 28203
NC License Number F-0991

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06/16/22

NOTES:
1. REFER TO STRUCTURE–UTILITY PLAN SET FOR WATERLINE ATTACHMENT INFORMATION AND DETAILS.




SCALE 1" = 100'
0 50' 100' 150' 200'
**HORIZONTAL**

SCALE 1" = 10'
0 5' 10' 15' 20'
**VERTICAL**

REVISIONS

# HB-0038
## UC-6

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY



UTILITY DESIGN UNIT

UTILITY CONSTRUCTION PLANS ONLY

**FINAL PLANS NOT FOR CONSTRUCTION**

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Signed by: William Keaton 8/6/2026

| | |
|---|---|
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| DRAWN BY: | TLM |
| CHECKED BY: | DKP |
| APPROVED BY: | WBK |
| REVISED: | 07/30/2026 |

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TIP PROJECT: HB-0038

CONTRACT: DD00540

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

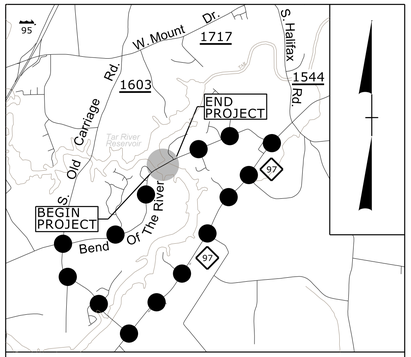
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | HB-0038 | UO-1 | |
| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION | |
| 50636.2.2 | N/A | UTILITIES | |
| | | | |

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.

# *UTILITIES BY OTHERS PLANS*
# *NASH COUNTY*

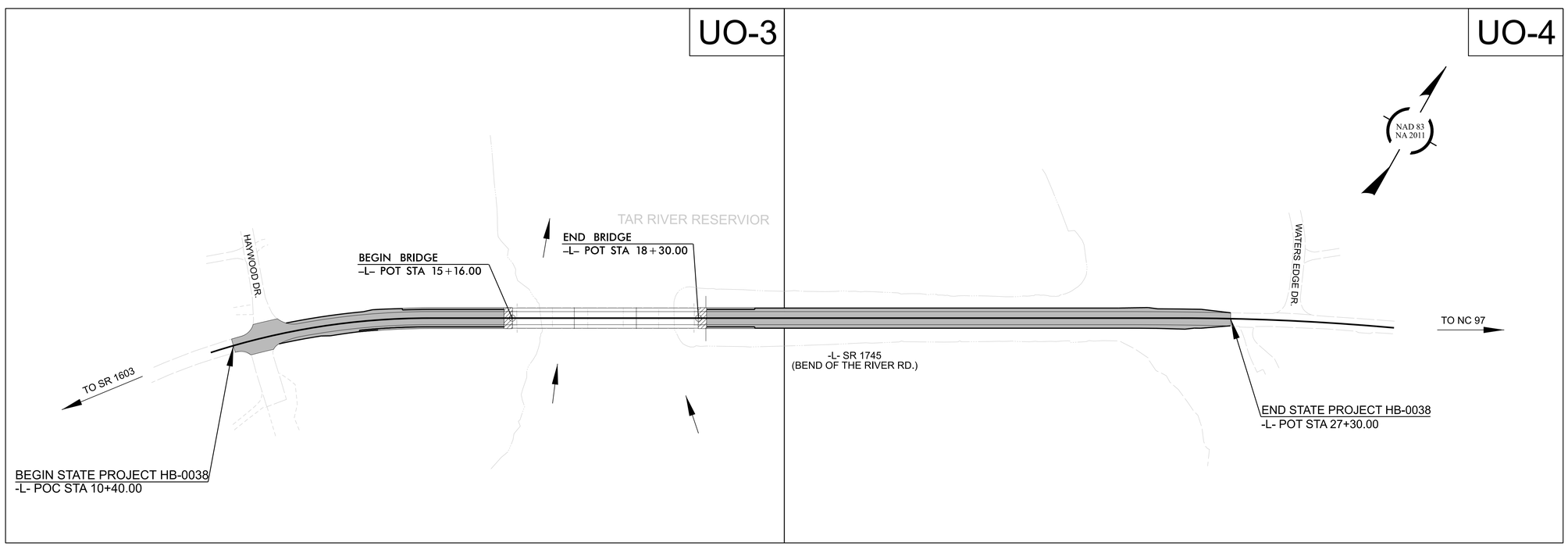
***LOCATION: BRIDGE 630110 ON SR 1745 (BEND OF THE RIVER ROAD) OVER THE TAR RIVER RESERVOIR***

***TYPE OF WORK: GAS & COMMUNICATIONS RELOCATIONS BY OTHERS***




OFFSITE DETOUR ROUTE

VICINITY MAP (NTS)




*GRAPHIC SCALES*

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

## *INDEX OF SHEETS*


| *SHEET NO.:* | *DESCRIPTION:* |
|---|---|
| *UO–1* | *TITLE SHEET* |
| *UO–2* | *SYMBOLOGY SHEET* |
| *UO–3 THRU UO–4* | *UTILITIES BY OTHERS SHEETS* |


## *UTILITY OWNERS WITH CONFLICTS*

*(A) COMMUNICATIONS – BRIGHTSPEED*
*(B) GAS – CITY OF ROCKY MOUNT*


*PREPARED IN THE OFFICE OF*

STV Engineers, Inc.
400 Hillsborough Street, Suite 430
Raleigh, NC 27603
NC License Number F–0991

*TREVER REEVES* *SENIOR UTILITY COORDINATOR*

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

*LONNY SLEEPER* *DIVISION UTILITIES ENGINEER*
*JIMMY SHARPE* *SENIOR DIVISION UTILITY COORDINATOR*

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09-29-21

UTILITIES BY OTHERS

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

# UTILITIES PLAN SHEET SYMBOLS

## PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

## PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

## PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL-PED
- Utility Line by Others (Type as Shown) — PROP U/G POW CABLES
- Trenchless Installation — TRENCHLESS
- Encasement Method — OPEN CUT
- Encasement

- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

## EXISTING UTILITIES SYMBOLS

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

- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

REVISIONS

HB-0038

UO-2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY



UTILITY DESIGN UNIT

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 UTILITY WORK SHOWN ON THIS SHEET.

DESIGNED BY: OTHERS
DRAWN BY: TREVER REEVES
CHECKED BY: DAVID TRANTHAM
APPROVED BY:
REVISED:

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

PREPARED BY
STV Engineers, Inc.

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

09-29-21

NOTES:

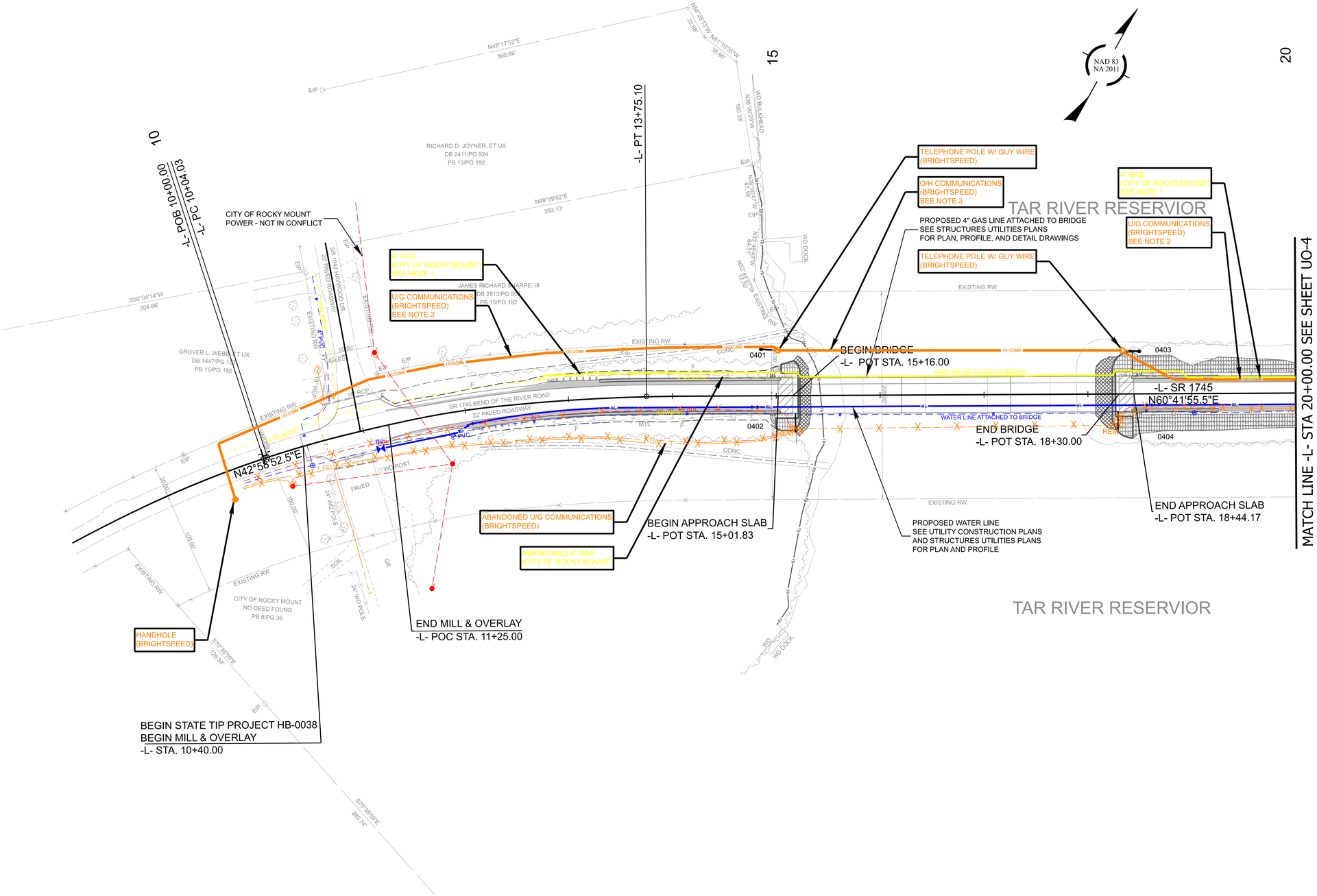
1. CITY OF ROCKY MOUNT WILL INSTALL THEIR NEW 4" GAS LINE BEHIND THE PROPOSED GUARDRAIL ON THE WEST SIDE OF THE BRIDGE, THEN ATTACH TO THE BRIDGE CROSSING THE TAR RIVER RESERVIOR, AND CROSS BETWEEN THE GUARDRAIL POSTS ON THE EAST SIDE OF THE BRIDGE TO BE 1-2' INSIDE THE PROPOSED GUARDRAIL AND UNDER THE PROPOSED PAVED SHOULDER TO THE TIE IN LOCATION.

2. BRIGHTSPEED'S PROPOSED COMMUNICATIONS WILL BE INSTALLED AT A 5' DEPTH BELOW BEND OF THE RIVER ROAD (BOTH CROSSINGS) AND 3' FROM THE BACK OF ROW ON THE WEST SIDE OF THE BRIDGE TO THE POLE, CROSS AERIAL OVER THE TAR RIVER RESERVIOR, THEN CROSS BETWEEN THE GUARDRAIL POSTS ON THE EAST SIDE OF THE BRIDGE TO BE 1' OFF THE PROPOSED EDGE OF TRAVEL AND UNDERNEATH THE PROPOSED PAVED SHOULDER AT A 3' DEPTH.

3. BRIGHTSPEED WILL INSTALL THE OVERHEAD COMMUNICATIONS AT 25' ABOVE THE BRIDGE DECK.

# UTILITIES BY OTHERS

THIS SHEET CORRESPONDS TO RDY-004




| HB-0038 | UO-3 |
|---|---|

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY

UTILITY DESIGN UNIT

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 UTILITY WORK SHOWN ON THIS SHEET.

DESIGNED BY: OTHERS

DRAWN BY: TREVER REEVES

CHECKED BY: DAVID TRANTHAM

APPROVED BY:

REVISED:

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

PREPARED BY
STV Engineers, Inc.

REVISIONS

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

09-29-21

NOTES:

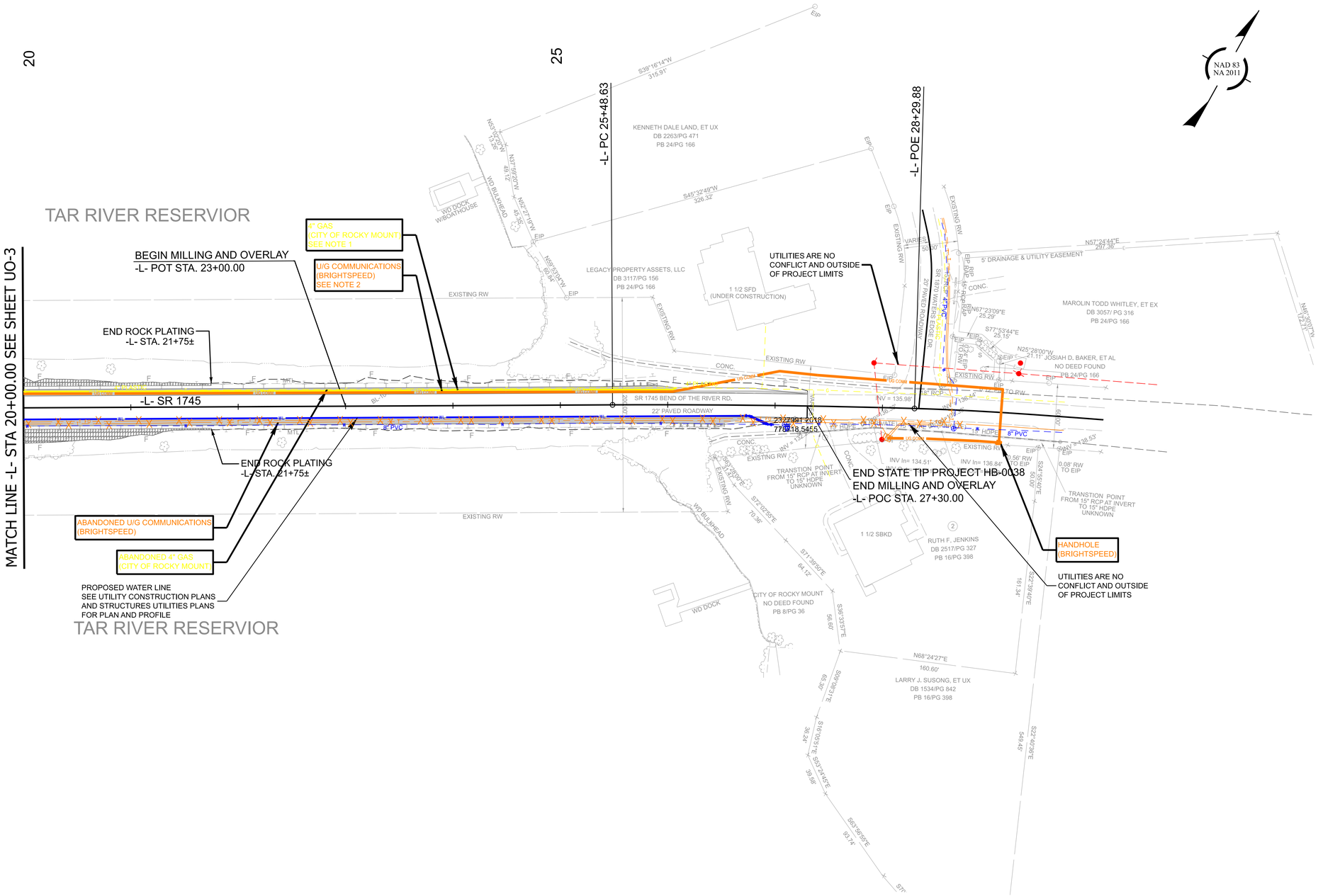
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3. BRIGHTSPEED WILL INSTALL THE OVERHEAD COMMUNICATIONS AT 25' ABOVE THE BRIDGE DECK.

# UTILITIES BY OTHERS

THIS SHEET CORRESPONDS TO RDY-005




| | |
|---|---|
| HB-0038 | |
| | UO-4 |

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
NASH COUNTY



UTILITY DESIGN UNIT

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 UTILITY WORK SHOWN ON THIS SHEET.

| |
|---|
| DESIGNED BY: OTHERS |
| DRAWN BY: TREVER REEVES |
| CHECKED BY: DAVID TRANTHAM |
| APPROVED BY: |
| REVISED: |

PREPARED BY

STV Engineers, Inc.

REVISIONS

Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1



| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| HB-0038 | X-1 |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

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

**NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.**

## *CROSS-SECTION SUMMARY*

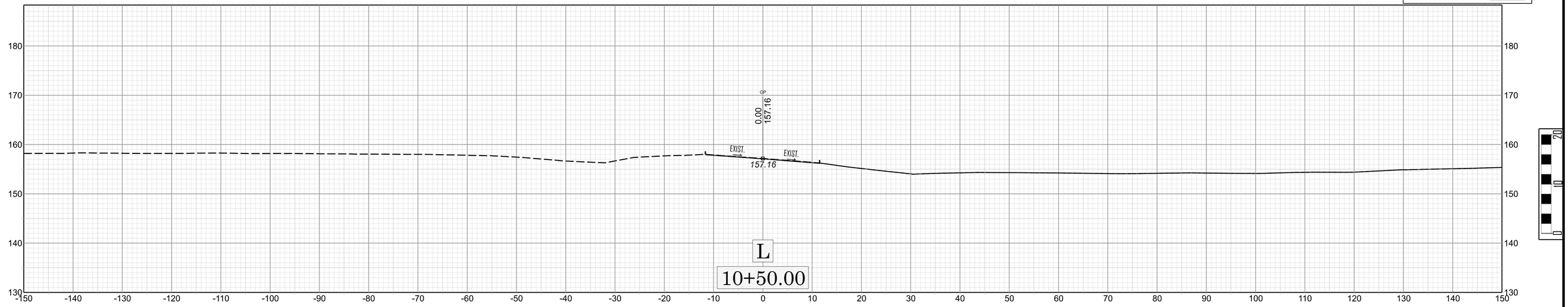
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|---|---|---|
| 11+25.00 | 0 | 0 |
| 11+50.00 | 9 | 1 |
| 12+00.00 | 16 | 6 |
| 12+50.00 | 6 | 25 |
| 13+00.00 | 1 | 60 |
| 13+50.00 | 0 | 82 |
| 14+00.00 | 0 | 78 |
| 14+50.00 | 0 | 56 |
| 15+00.00 | 0 | 39 |
| 15+16.00 | 0 | 6 |
| | | |
| | | |
| 18+30.00 | 0 | 0 |
| 18+50.00 | 1 | 11 |
| 19+00.00 | 2 | 37 |
| 19+50.00 | 0 | 37 |
| 20+00.00 | 0 | 51 |
| 20+50.00 | 0 | 46 |
| 21+00.00 | 1 | 39 |
| 21+50.00 | 3 | 29 |
| 21+75.00 | 3 | 11 |
| 22+00.00 | 5 | 8 |
| 22+50.00 | 14 | 9 |
| 23+00.00 | 18 | 3 |
| 23+50.00 | 20 | 0 |
| 24+00.00 | 19 | 1 |
| 24+50.00 | 18 | 1 |
| 25+00.00 | 16 | 1 |
| 25+50.00 | 18 | 0 |
| 26+00.00 | 19 | 0 |
| 26+50.00 | 18 | 1 |
| 27+00.00 | 15 | 1 |
| 27+30.00 | 6 | 0 |

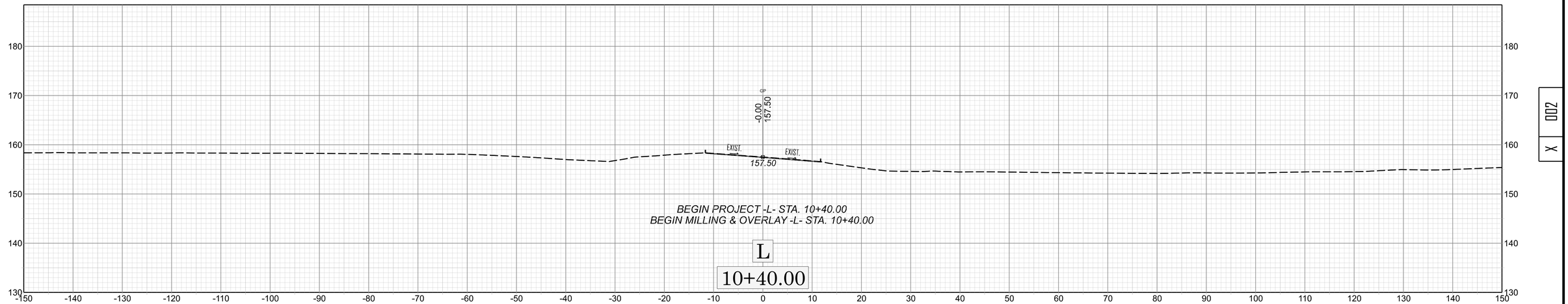
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HB-0038

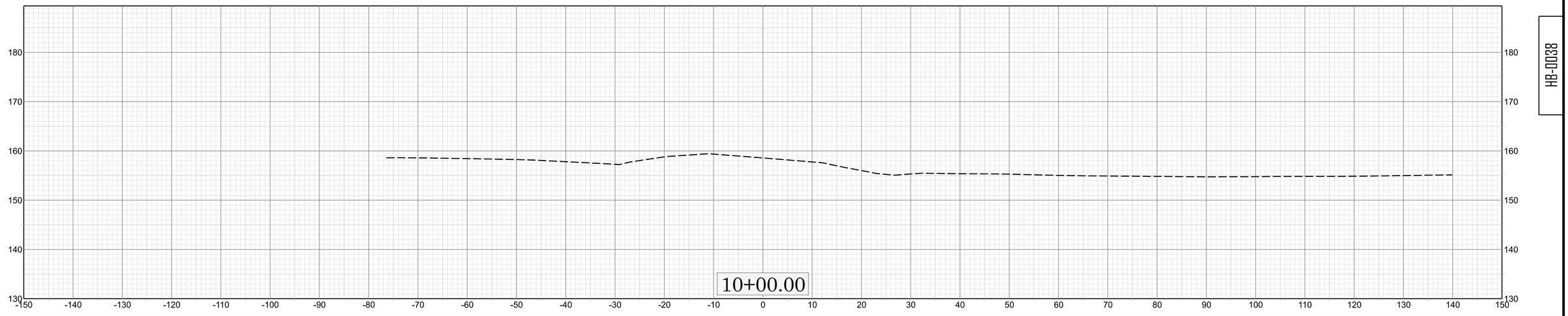
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11/14/23

LEGEND FOR ALL XS
ROCK PLATING



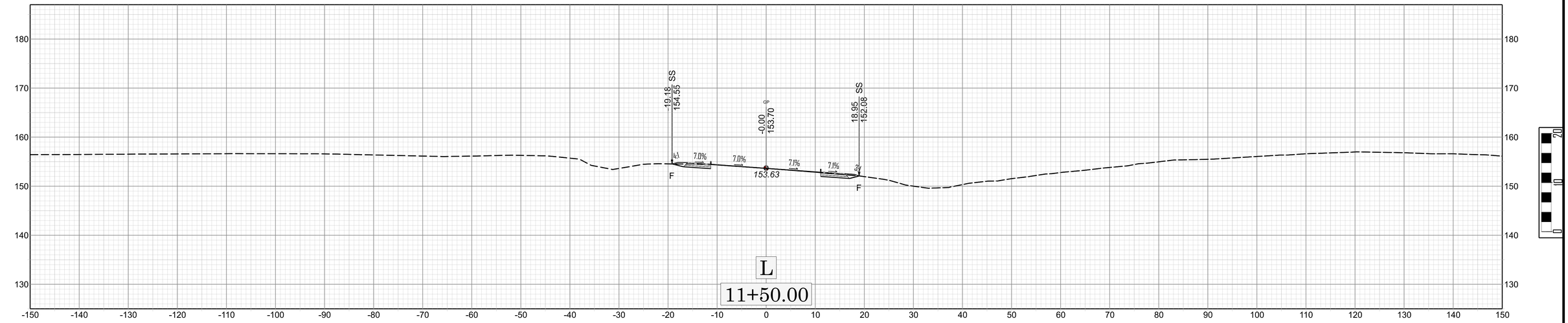

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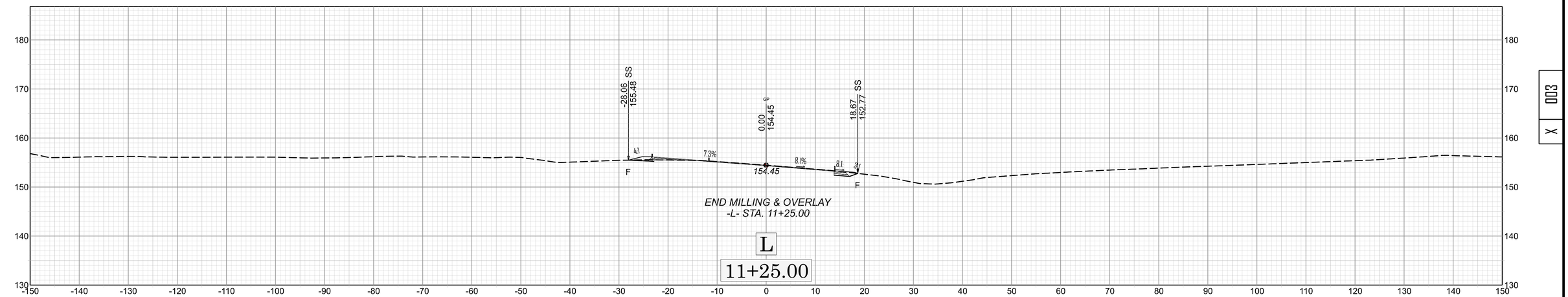
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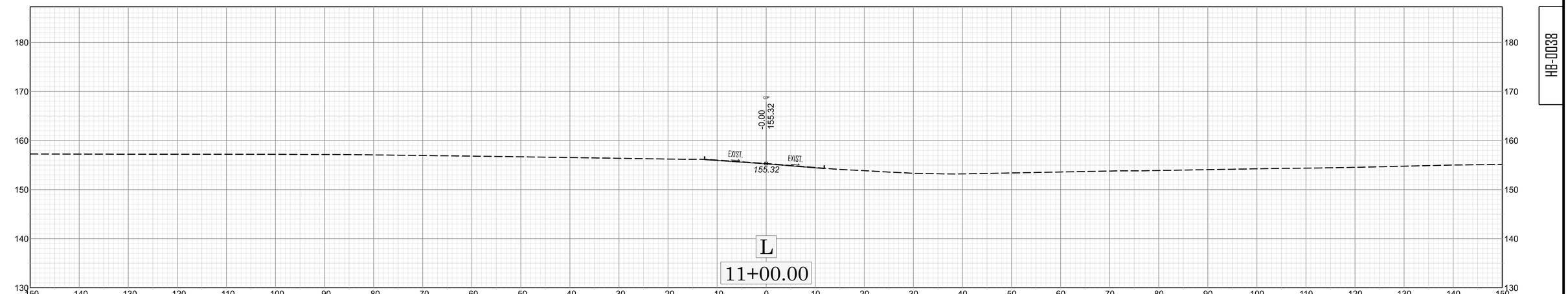
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11/14/23



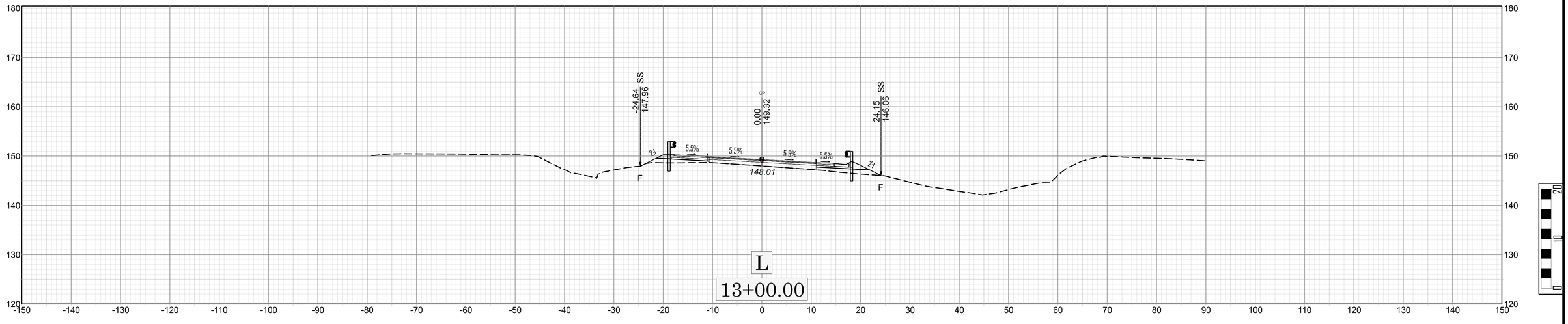



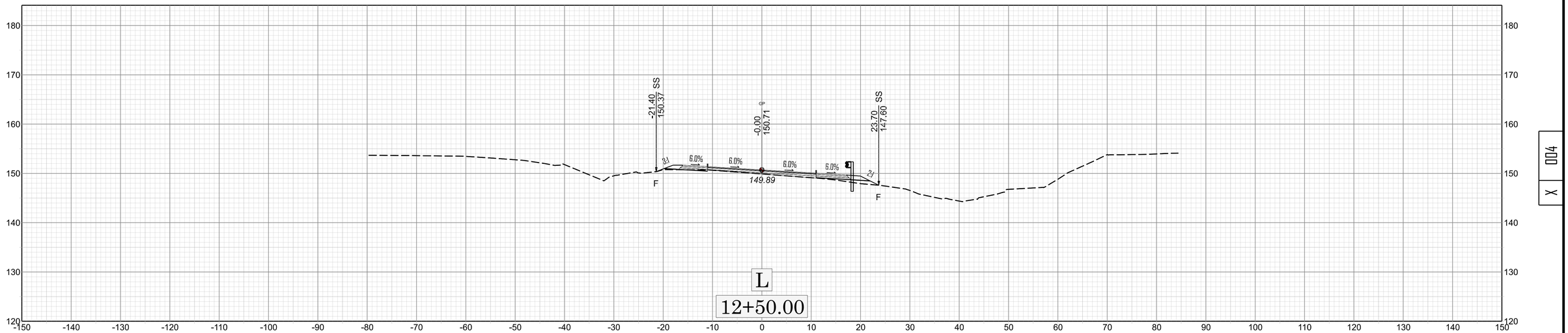

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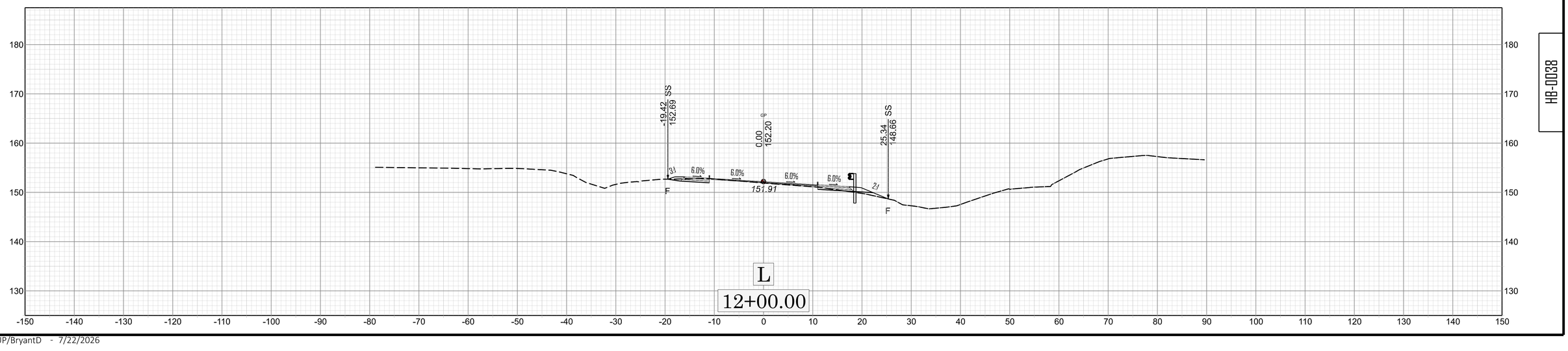
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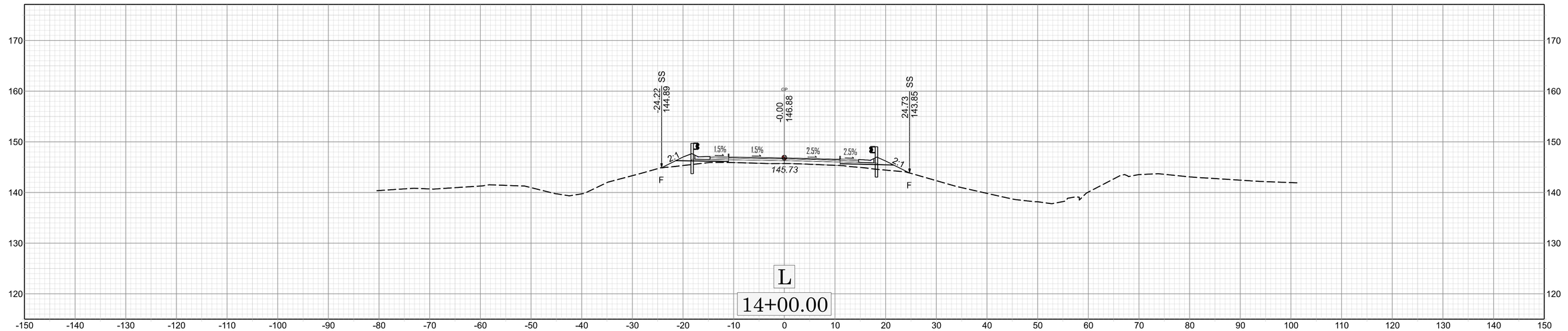

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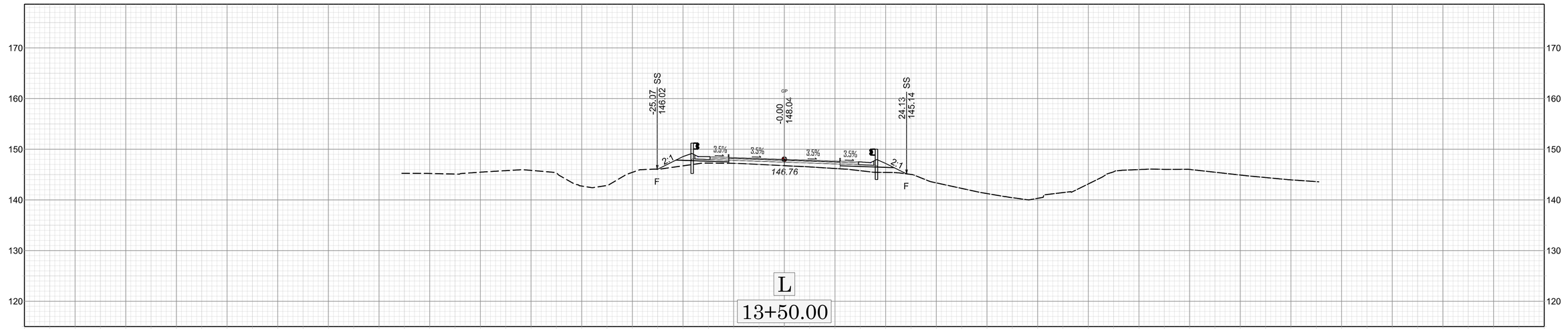
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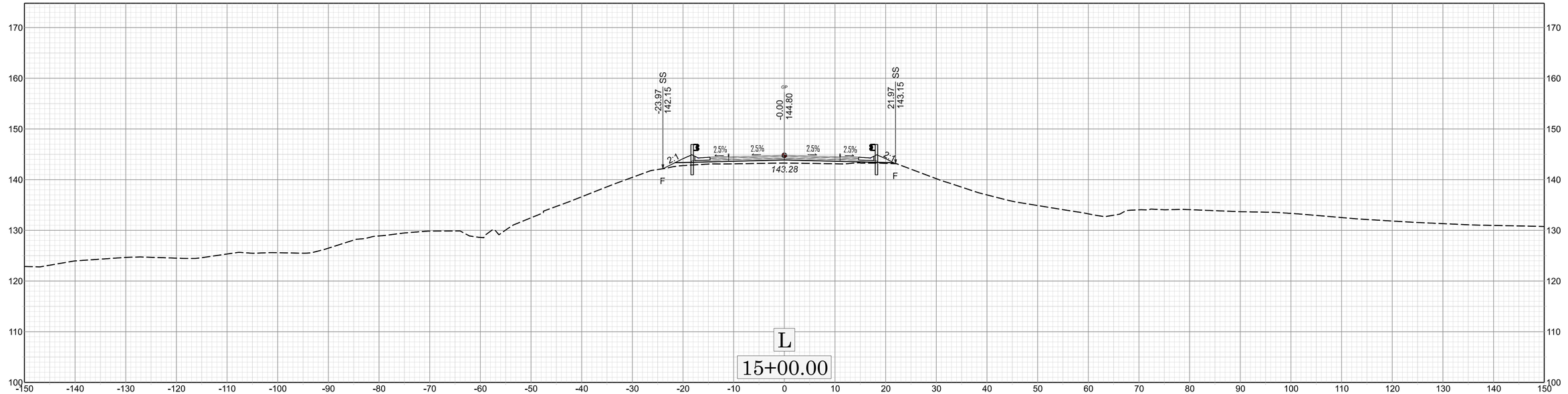


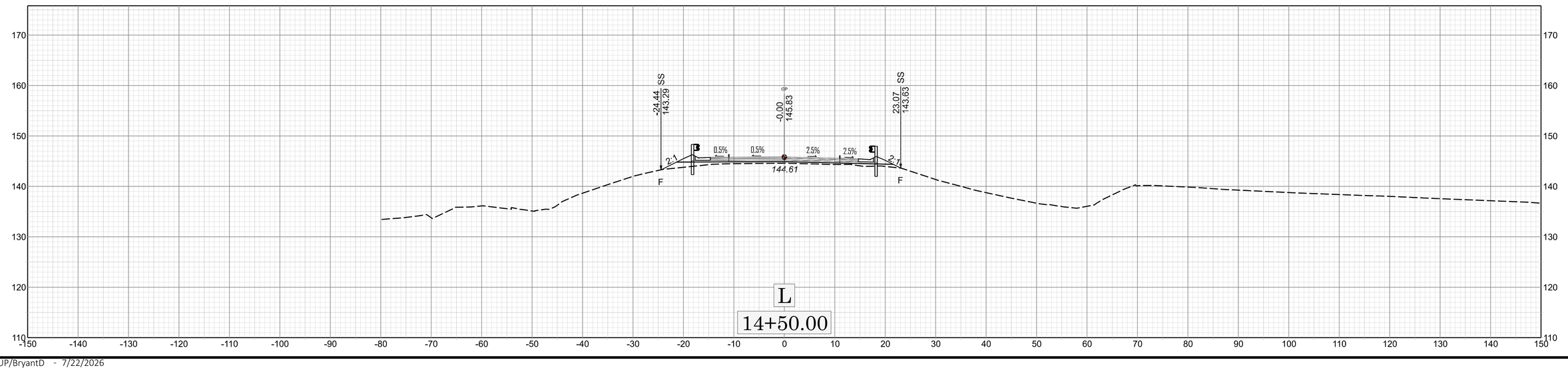


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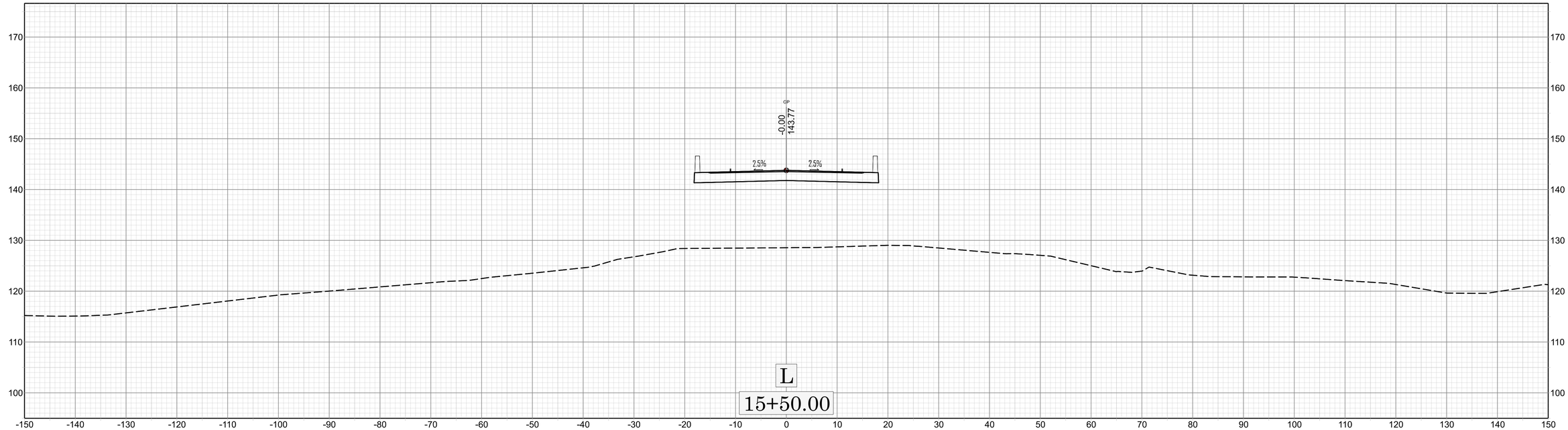
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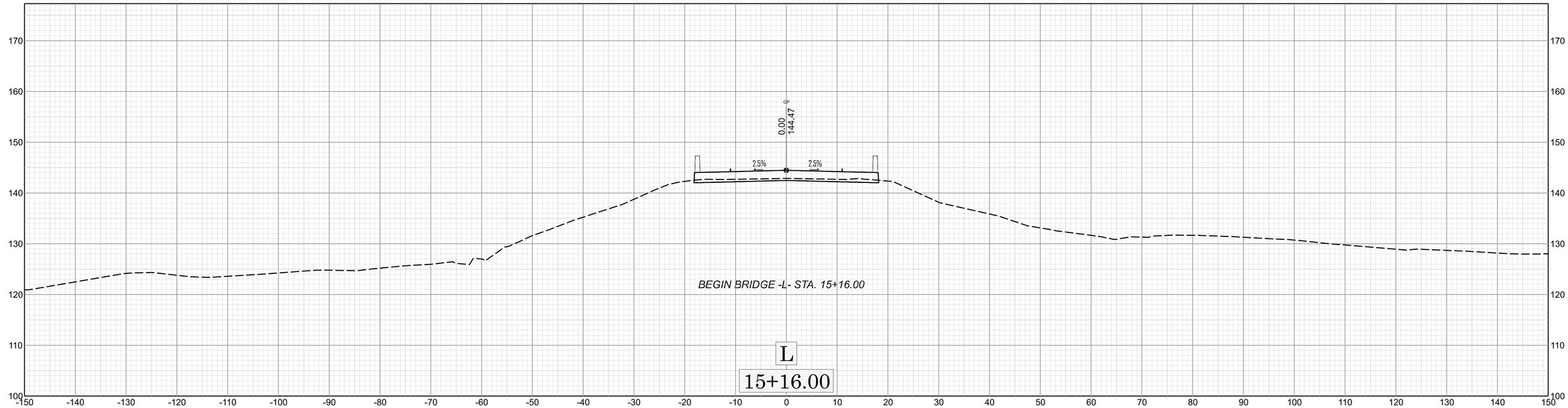


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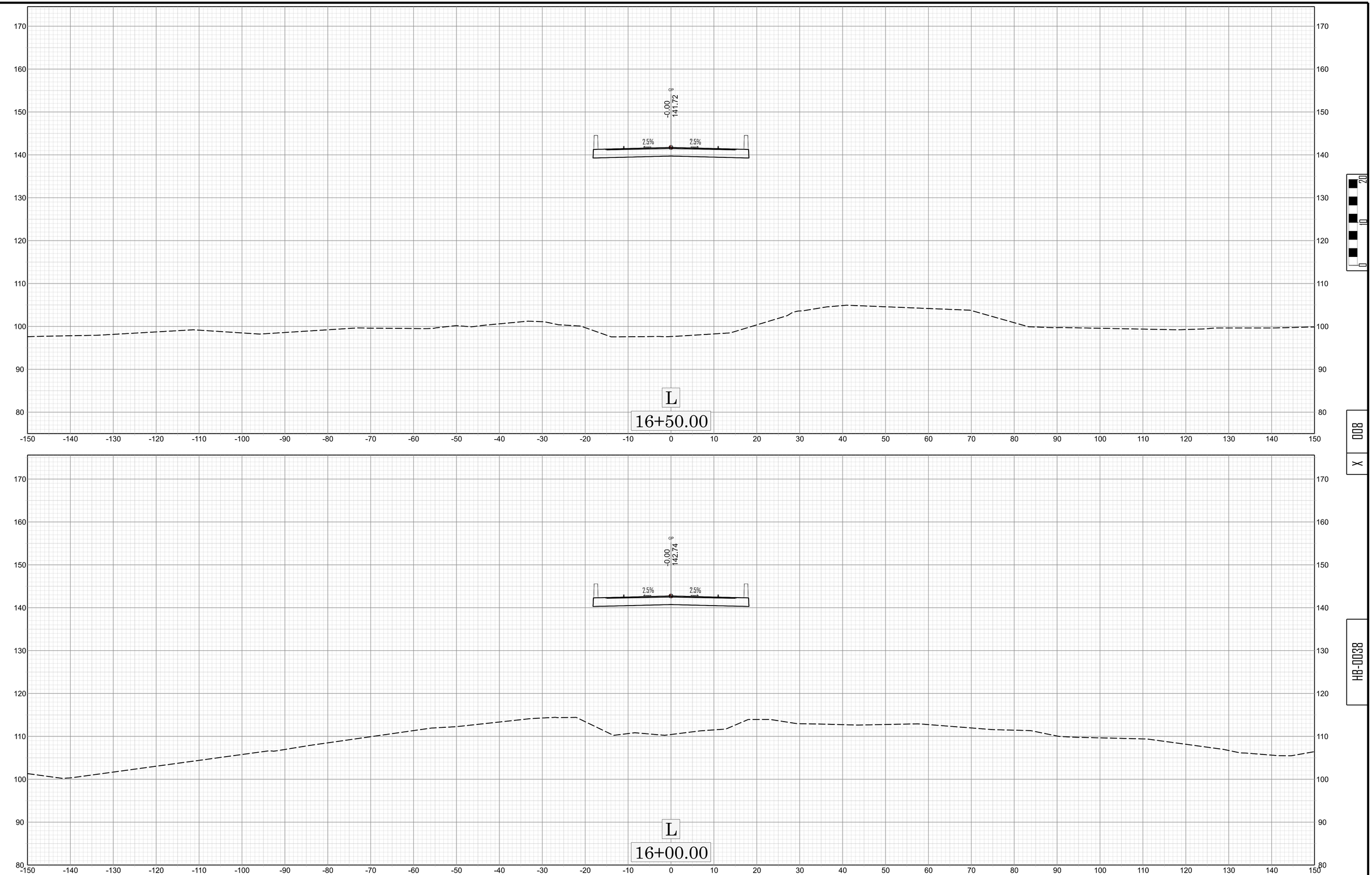



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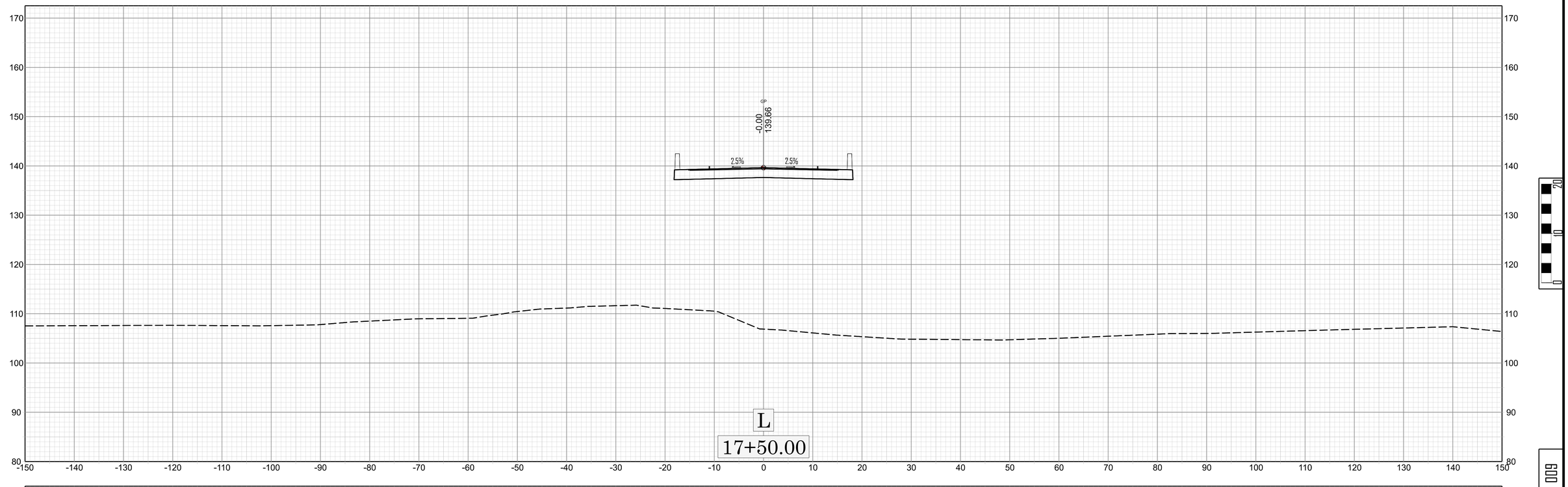
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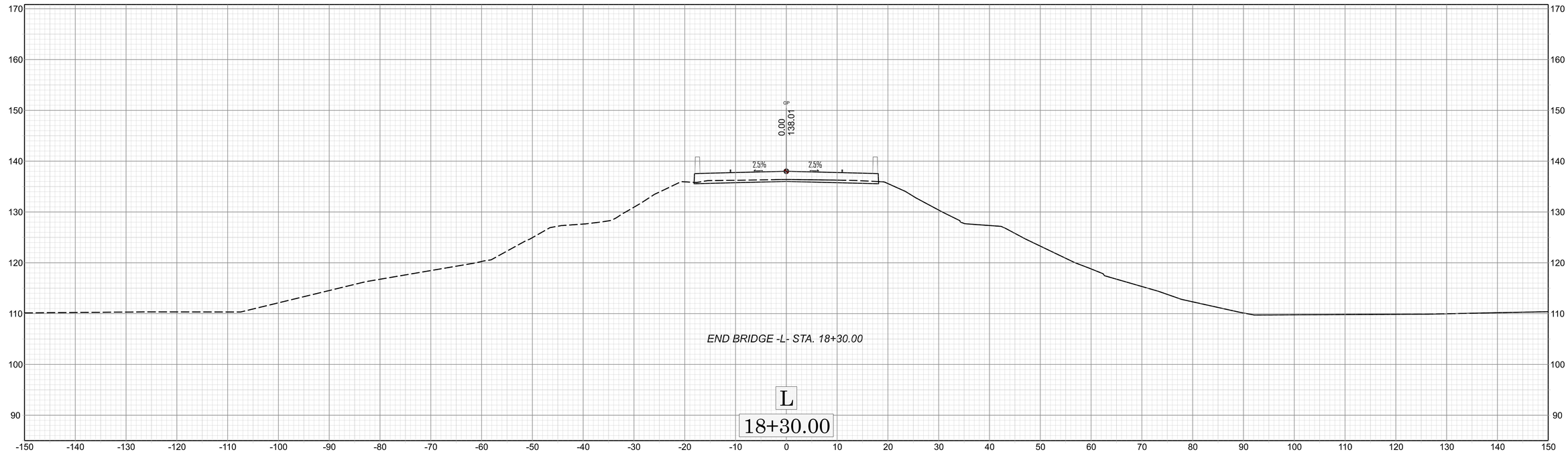
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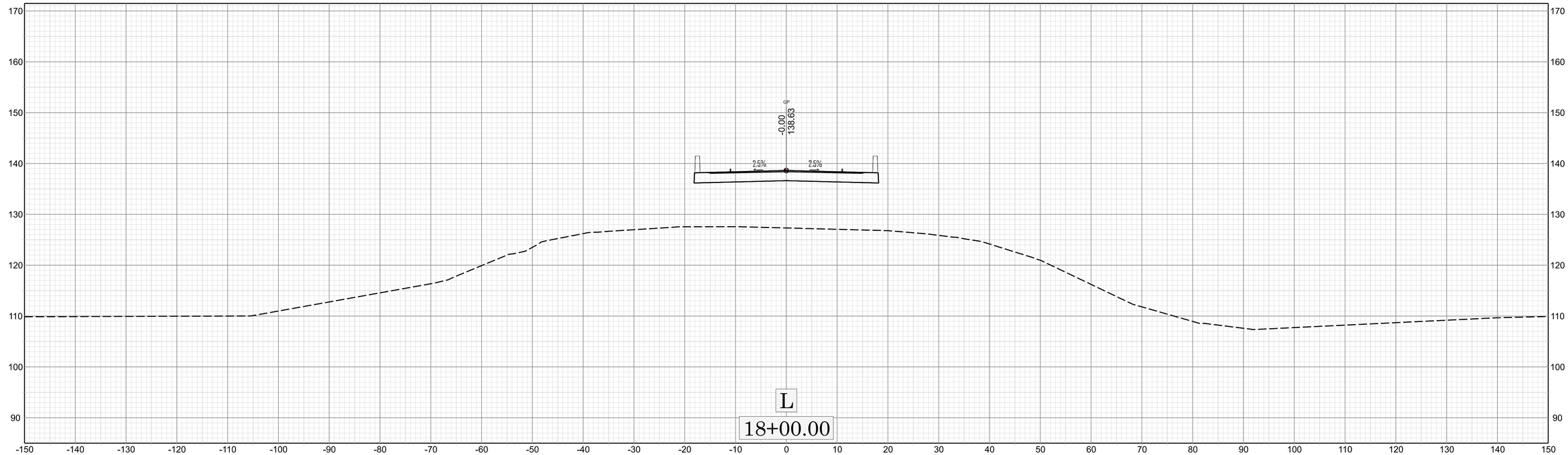
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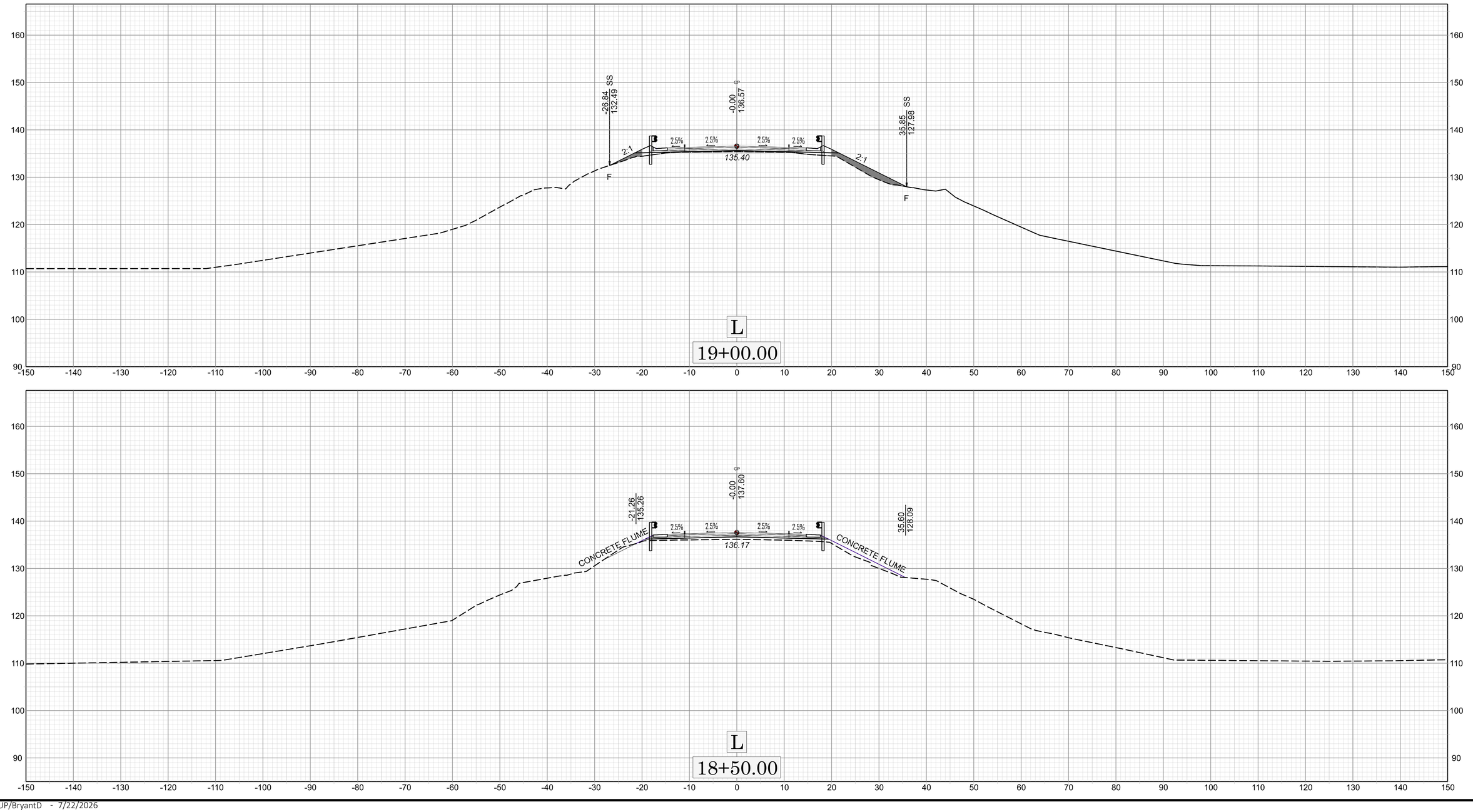




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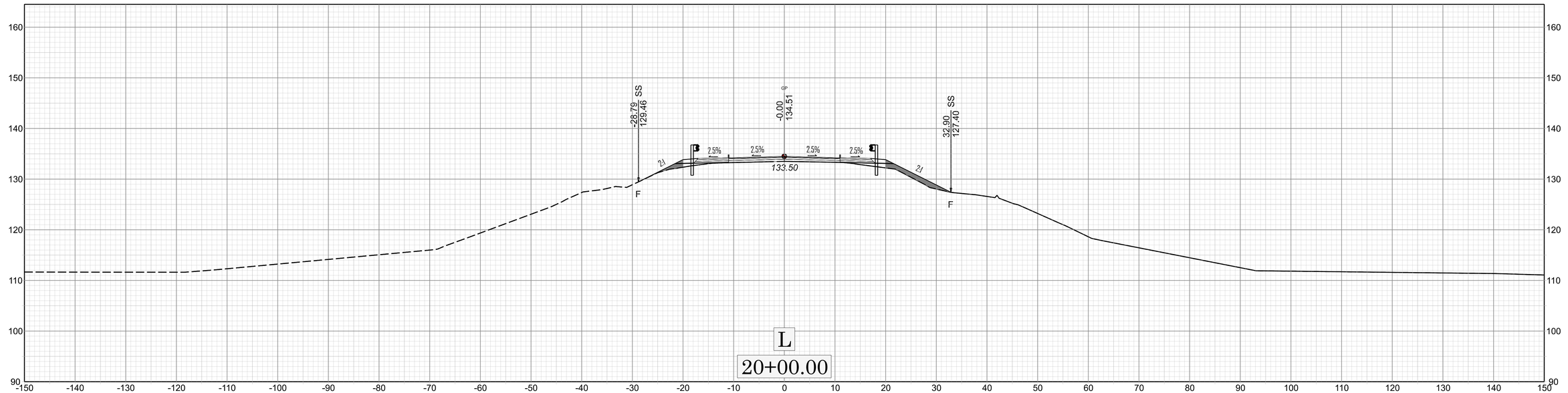

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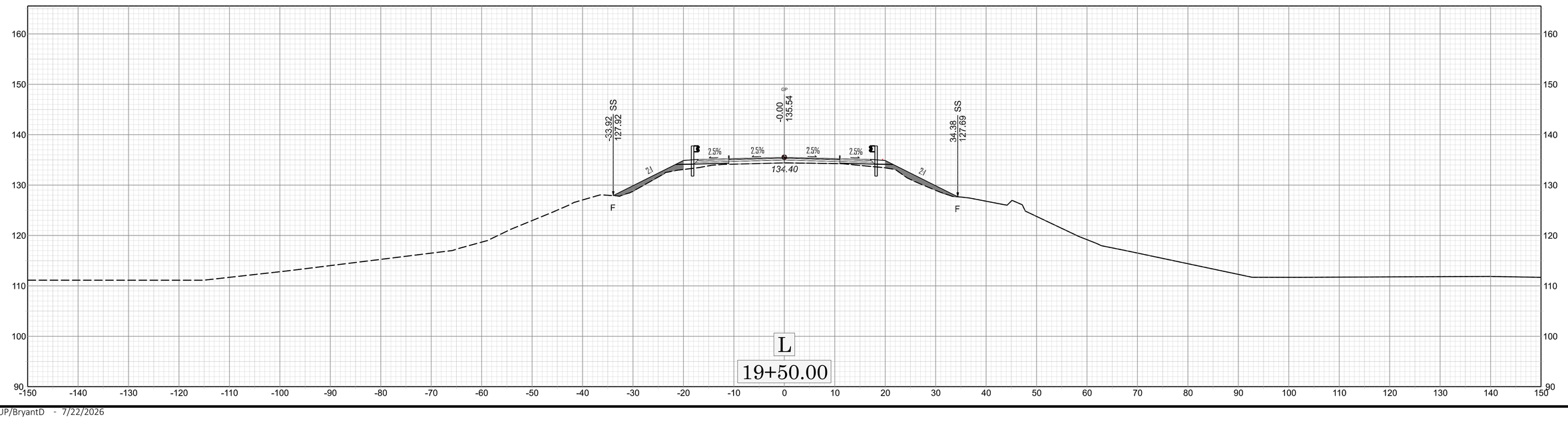
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HB-0038

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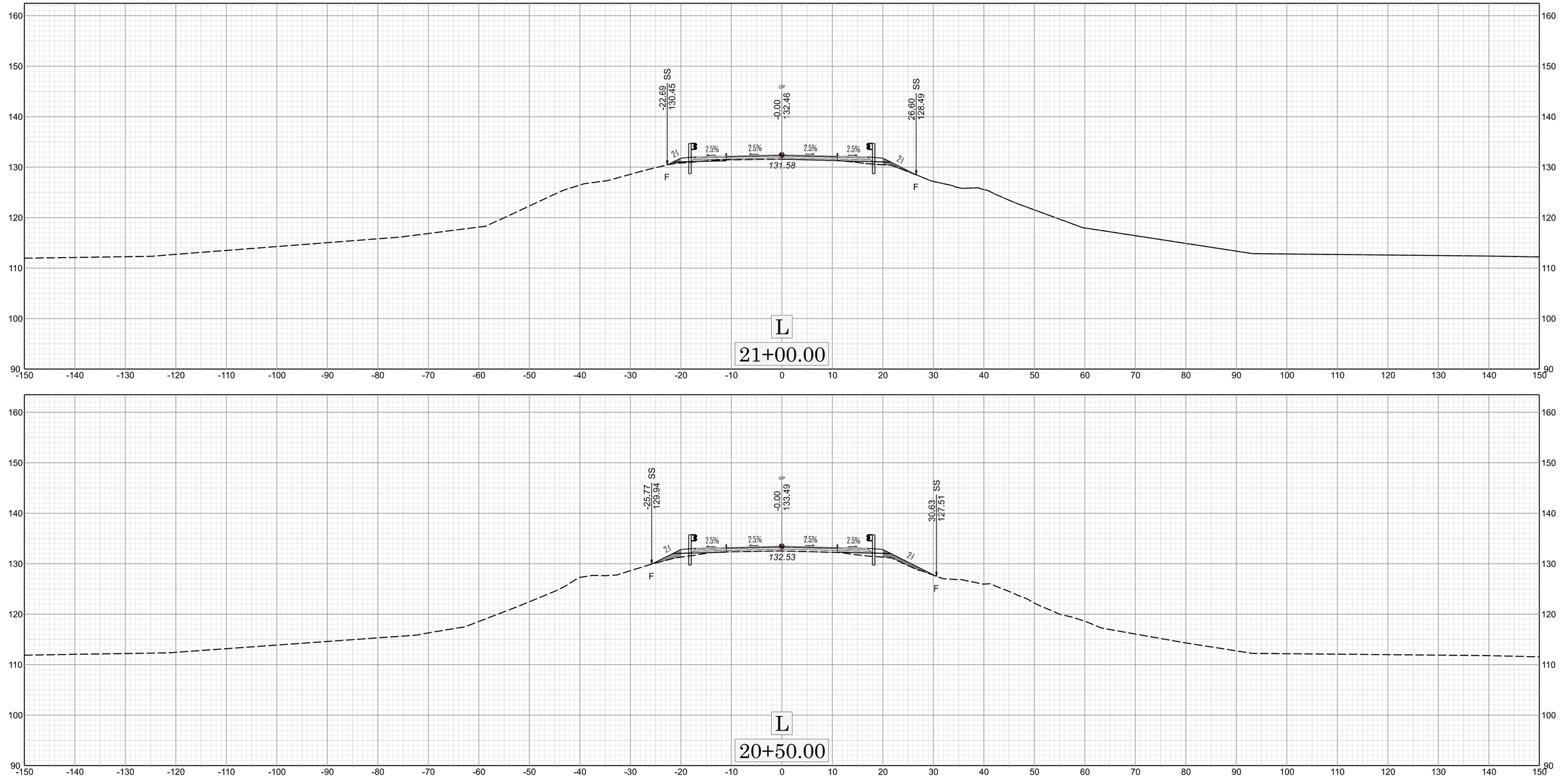

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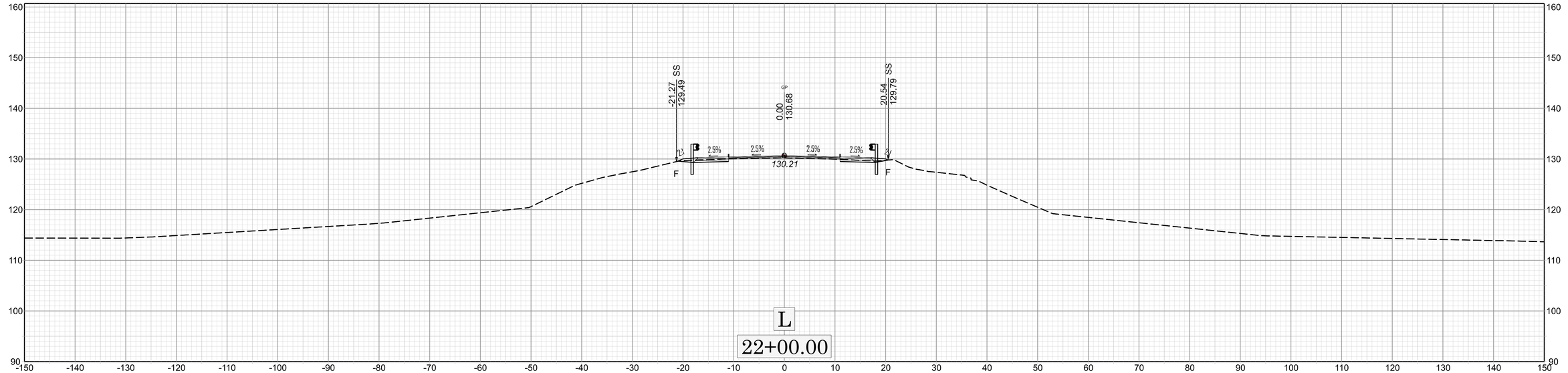
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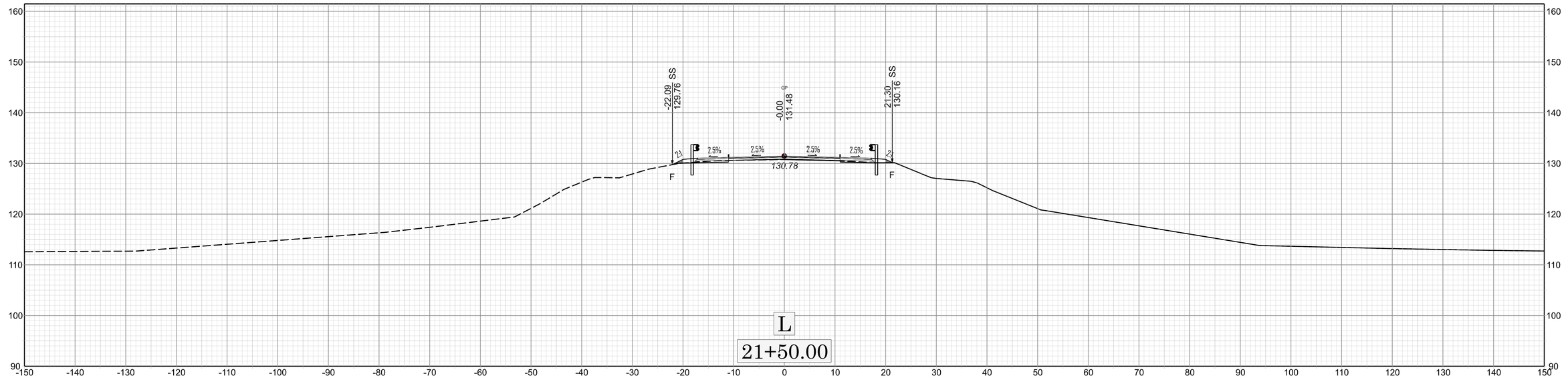
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STVGROUP/BryantD - 7/22/2026

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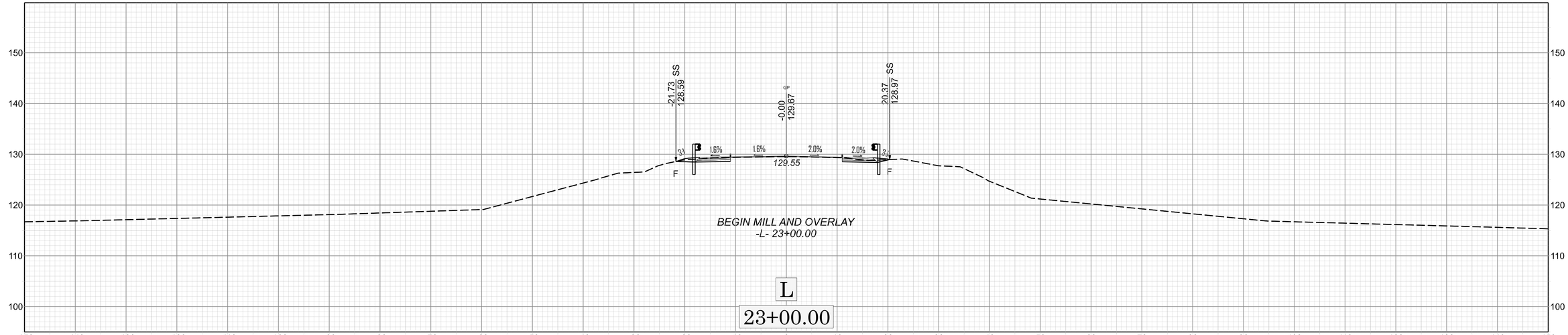


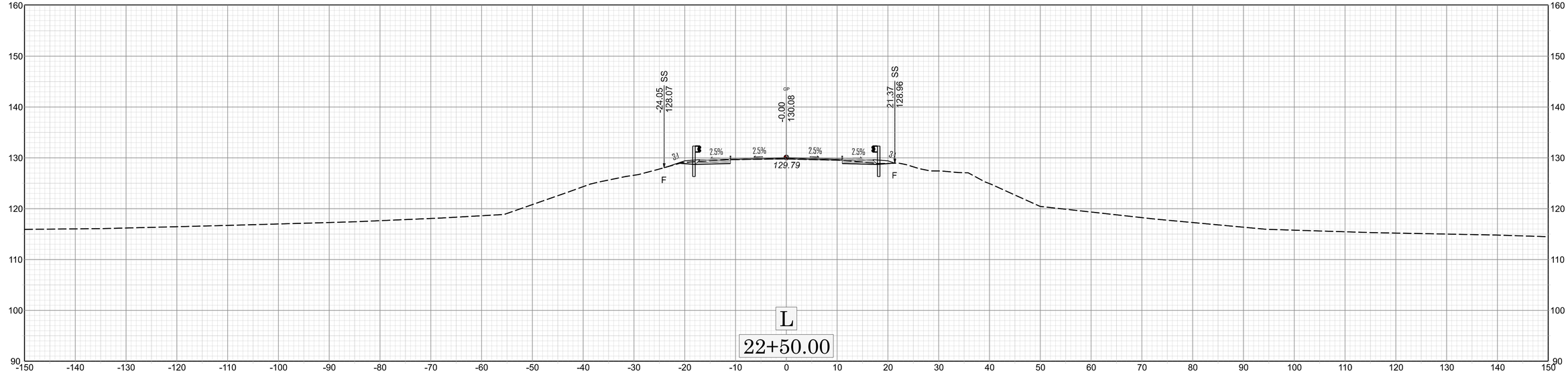


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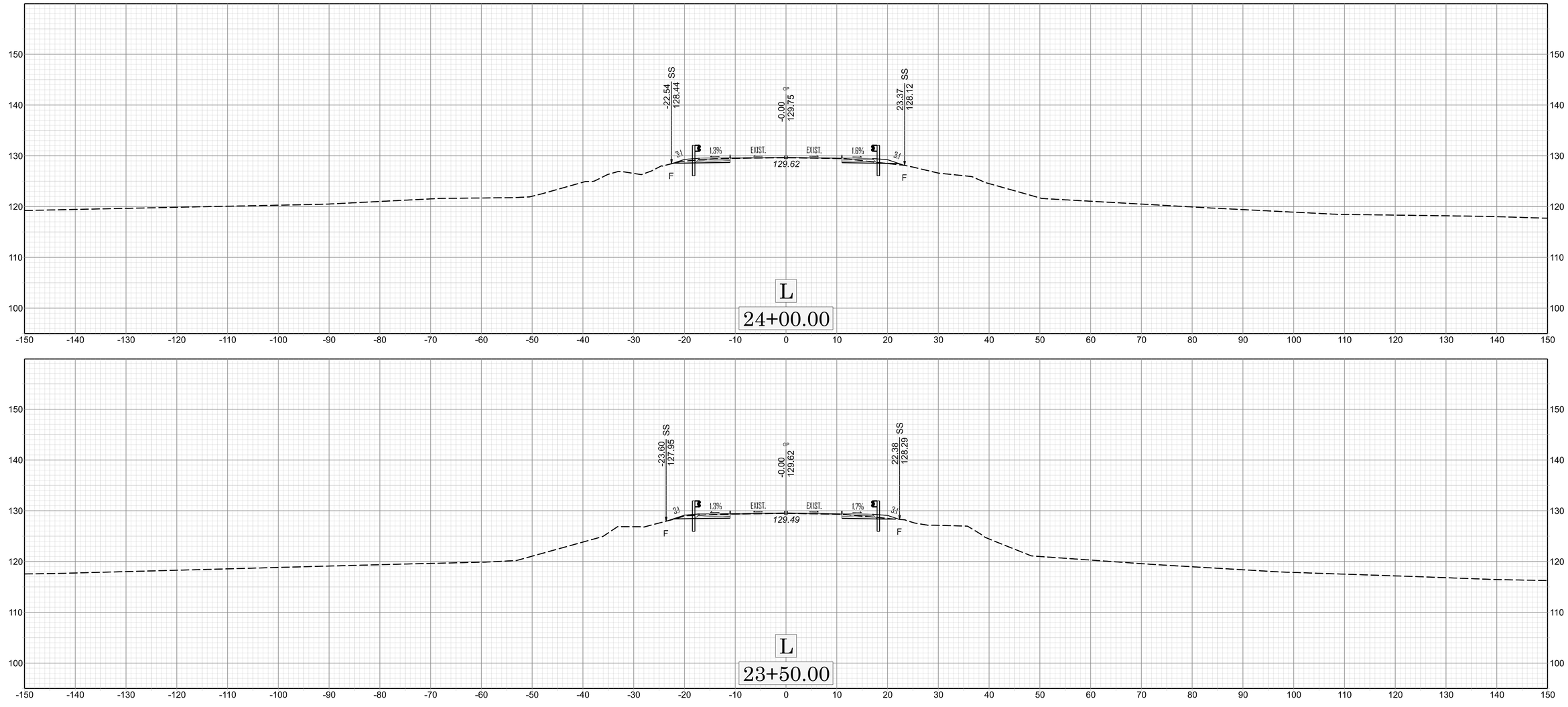




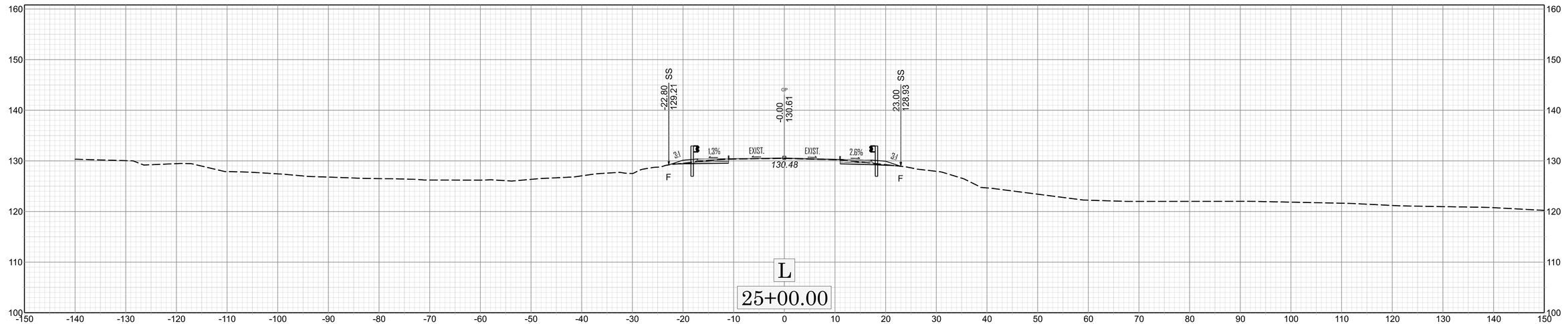
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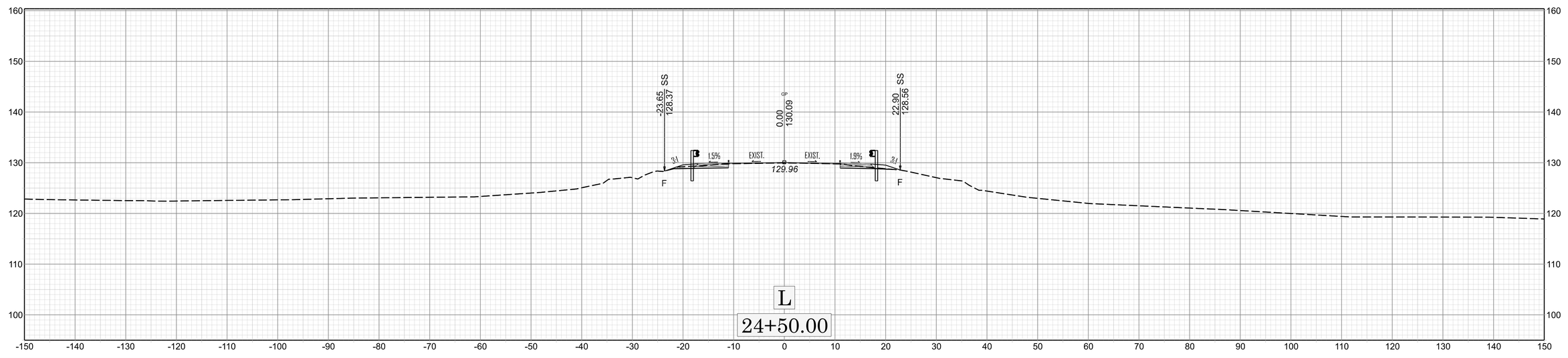
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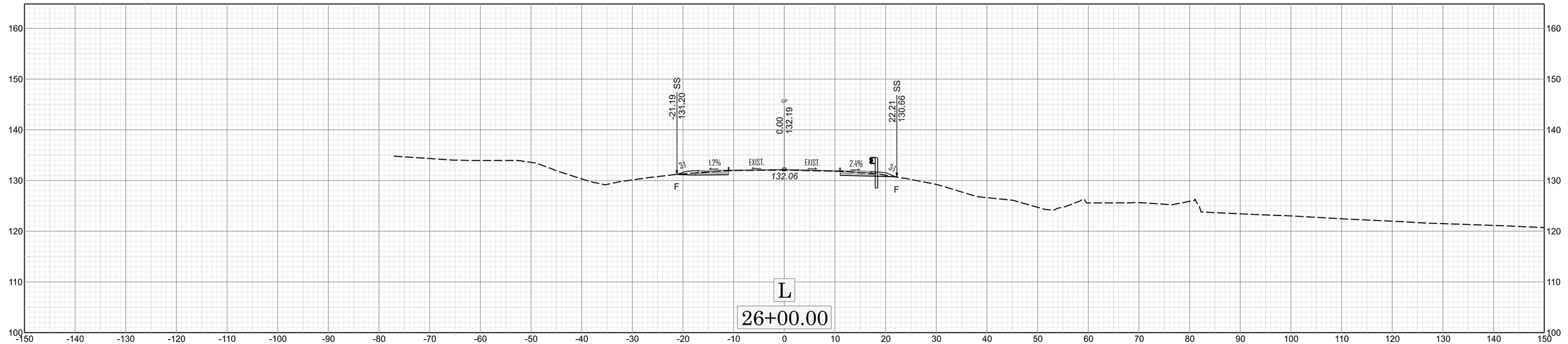
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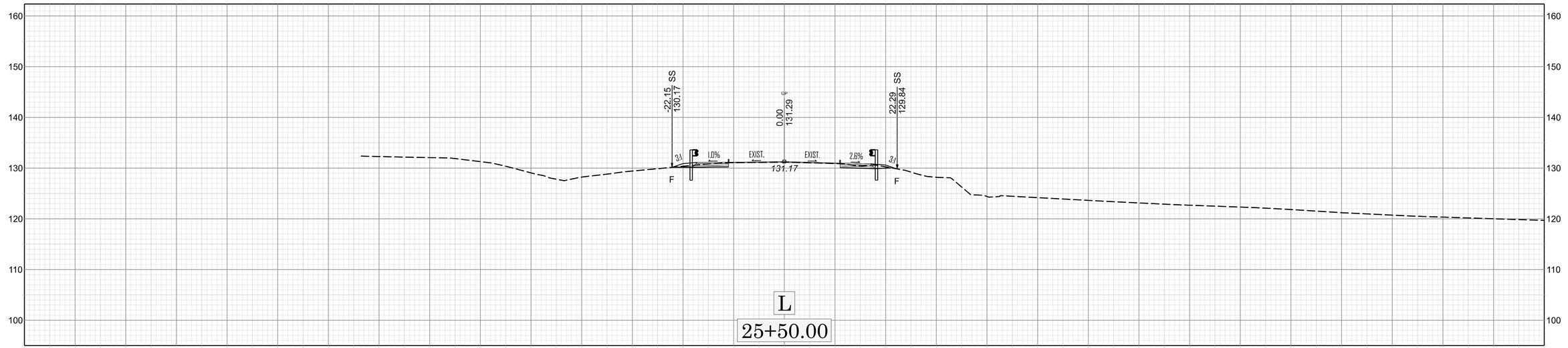
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HB-0038

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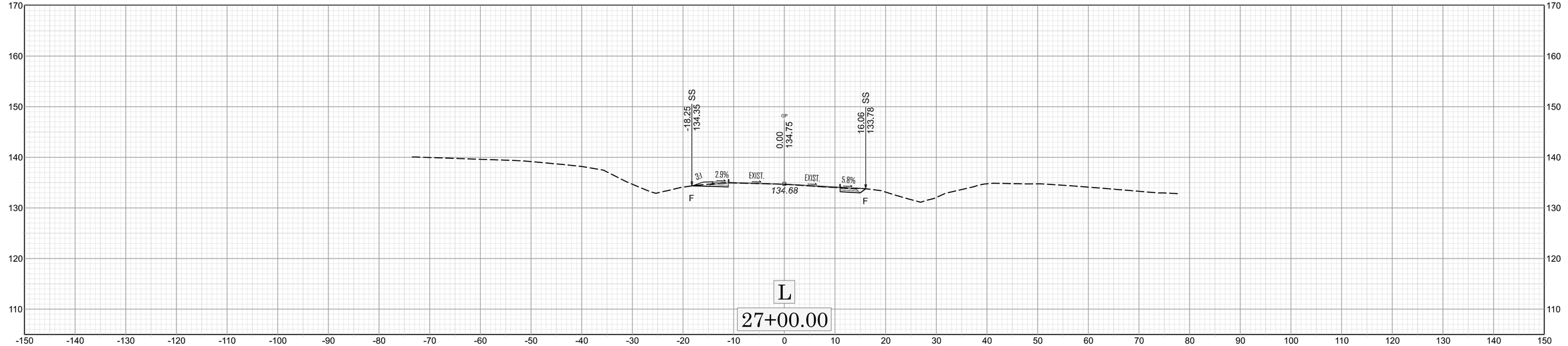

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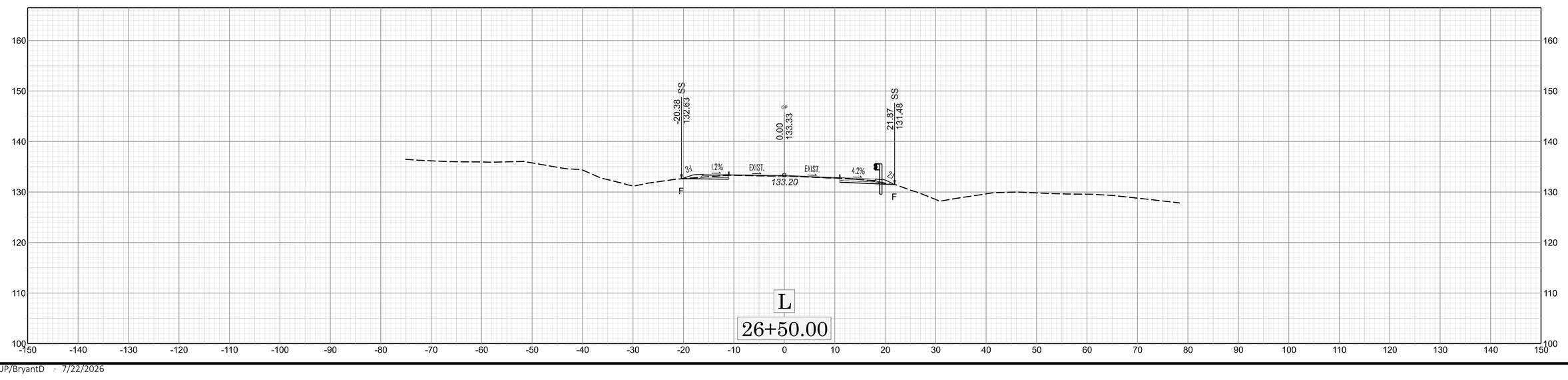
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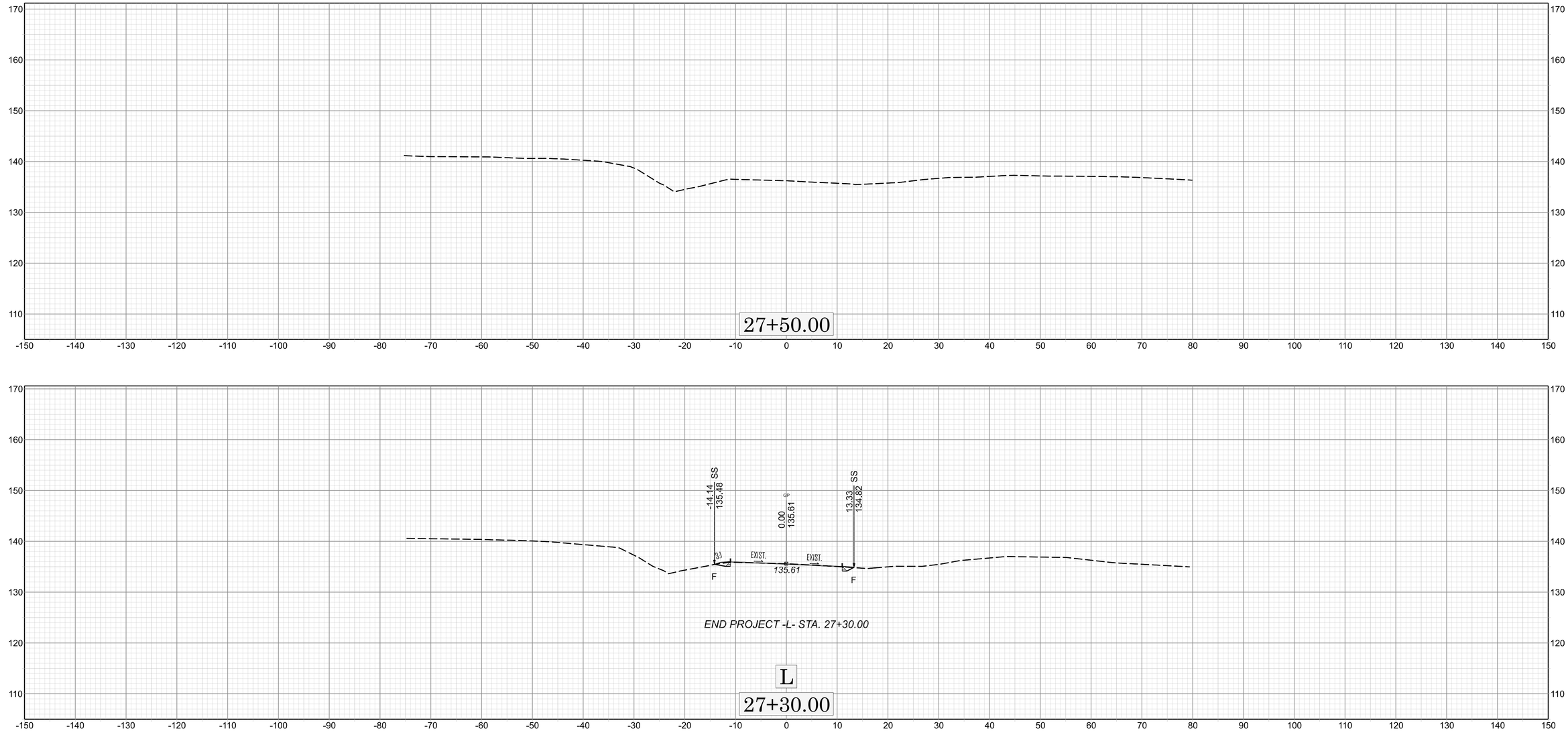




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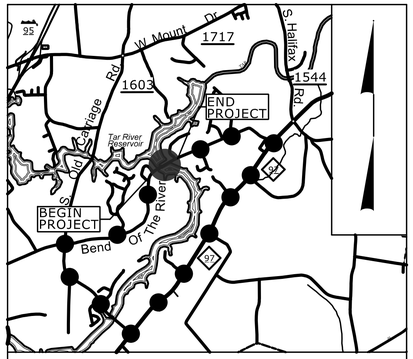




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TIP PROJECT: HB-0038

CONTRACT: DD00540




VICINITY MAP (NTS)

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

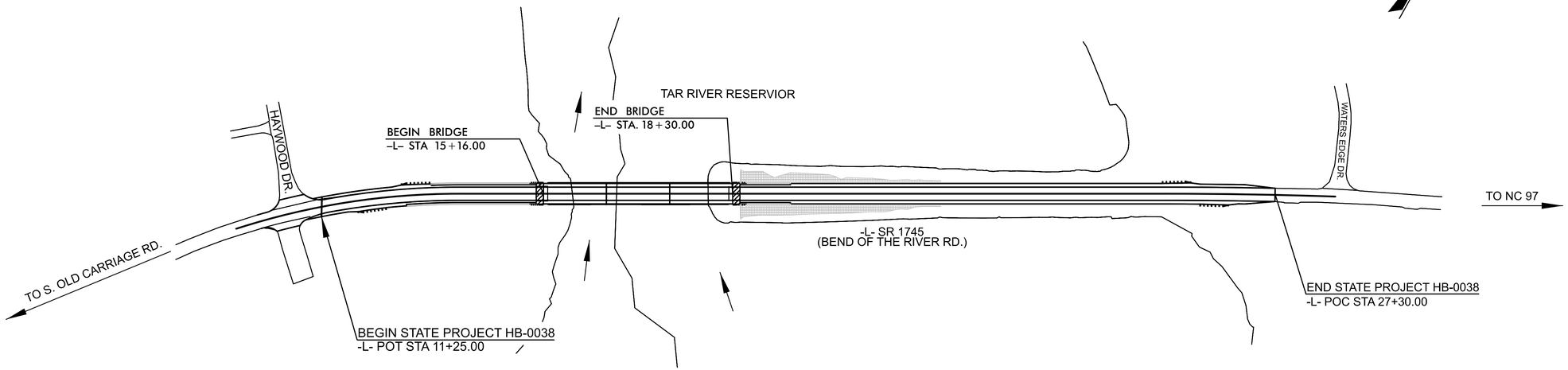
# NASH COUNTY

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | HB-0038 | 1 | |

| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 50636.1.1 | N/A | PE |
| 50636.2.1 | N/A | ROW |
| 50636.2.2 | N/A | UTILITIES |
| 50636.3.1 | 5063601 | CONST. |
| | | |
| | | |
| | | |
| | | |

LOCATION: *BRIDGE 630110 ON SR 1745 (BEND OF THE RIVER ROAD) OVER THE TAR RIVER RESERVOIR*

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




# *STRUCTURE*

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

*DESIGN DATA*

ADT 2026 = 1,977
ADT 2046 = 2,628
K = 10%
D =
T = 6% *
V = 60 MPH
* TTST = 6 DUAL
FUNC CLASS =
LOCAL
SUB-REGIONAL TIER

*PROJECT LENGTH*

LENGTH ROADWAY TIP PROJECT HB-0038 = 0.261 MILES

LENGTH STRUCTURES TIP PROJECT HB-0038 = 0.059 MILES

TOTAL LENGTH TIP PROJECT HB-0038 = 0.320 MILES

*NCDOT CONTACT:* RACHEL EVANS, PE
*DIVISION 4*

509 WARD BLVD.
WILSON, NC 27895

DIRECT: (252)640-6434
RCEVANS@NCDOT.GOV

Prepared in the Office of:
STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

*2024 STANDARD SPECIFICATIONS*

*RIGHT OF WAY DATE:* OCTOBER 15, 2025

*LETTING DATE:* NOVEMBER 24, 2026

NICOLE KING BROWN, PE
*PROJECT ENGINEER*

FILIP WEIL, EI
*PROJECT DESIGN ENGINEER*

*STRUCTURES ENGINEER*

NORTH CAROLINA PROFESSIONAL SEAL Ø44447 ENGINEER NICOLE K. BROWN

8/7/2026

Signed by: Nicole K Brown
(B30BC27A3714CE...
*SIGNATURE* P.E.

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

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F.A. PROJECT NO. 5063601

## VERTICAL CURVE DATA -L-

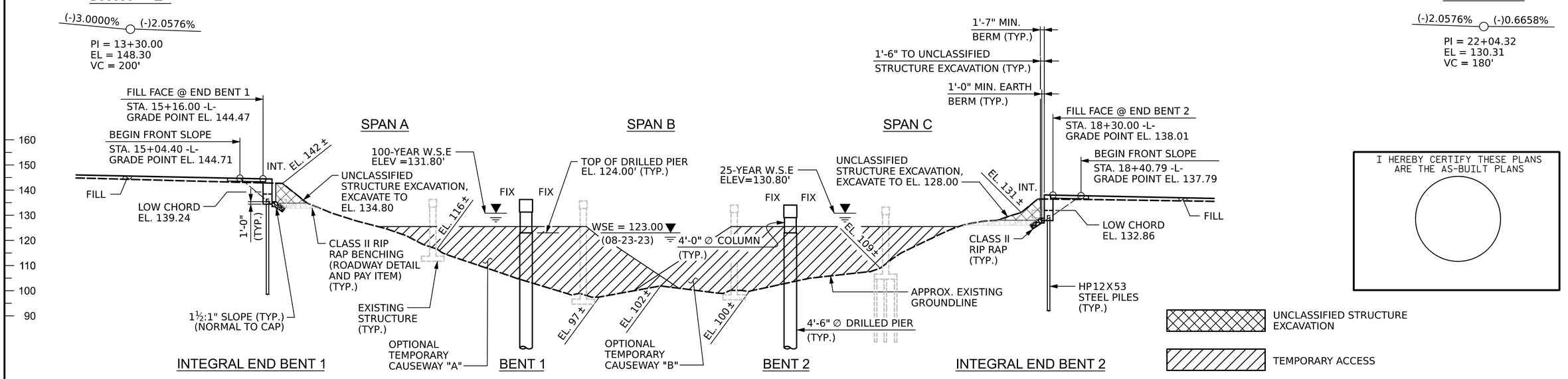
(-)3.0000% (-)2.0576%

PI = 13+30.00
EL = 148.30
VC = 200'

## VERTICAL CURVE DATA -L-

(-)2.0576% (-)0.6658%

PI = 22+04.32
EL = 130.31
VC = 180'




I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

UNCLASSIFIED STRUCTURE EXCAVATION

TEMPORARY ACCESS

## SECTION ALONG -L-

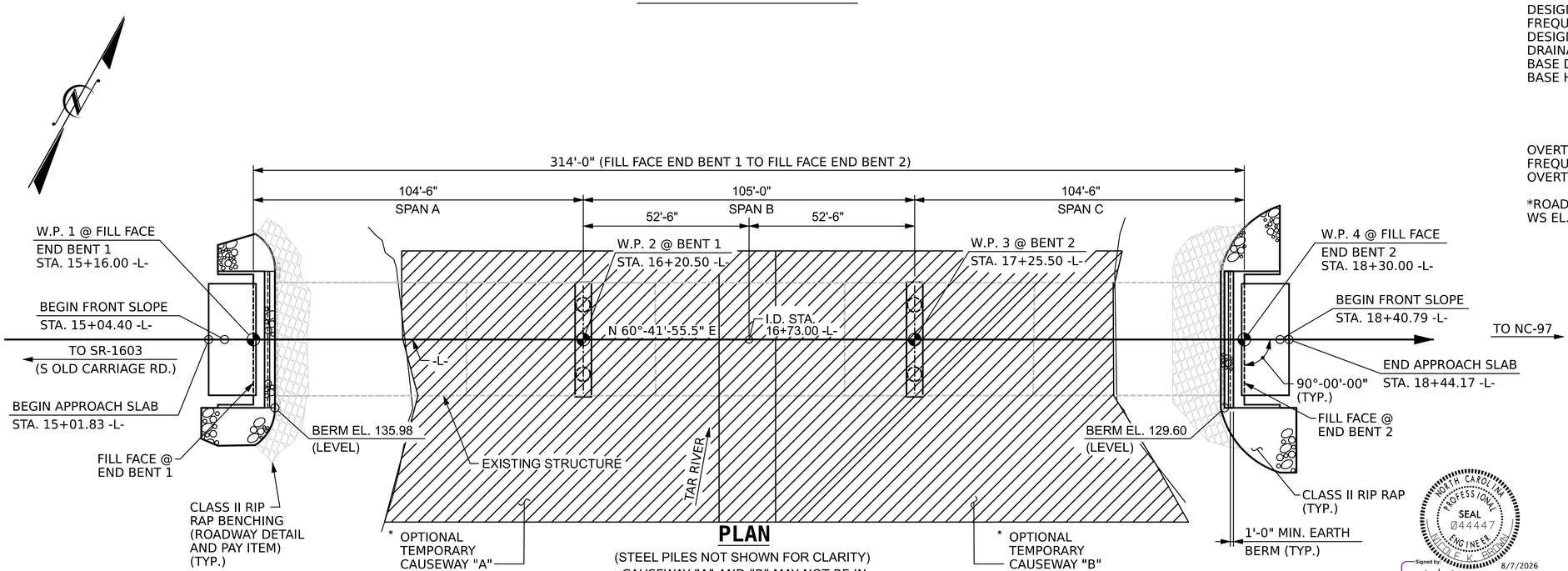
## HYDRAULIC DATA

DESIGN DISCHARGE: _____ 18389 CFS
FREQUENCY OF DESIGN FLOOD: _____ 25 YRS.
DESIGN HIGH WATER ELEVATION: _____ 130.80'
DRAINAGE AREA: _____ 714.0 SQ.MI.
BASE DISCHARGE (Q100): _____ 25341 CFS
BASE HIGH WATER ELEVATION: _____ 131.80'

## OVERTOPPING DATA

OVERTOPPING DISCHARGE: _____ 25000 CFS
FREQUENCY OF OVERTOPPING: _____ 10+ YRS.
OVERTOPPING FLOOD ELEVATION: _____ 129.50*

*ROADWAY SAG 23+30.00 -L-
WS EL. TAKEN @ RIVER STATION 507260




## PLAN

(STEEL PILES NOT SHOWN FOR CLARITY)

* CAUSEWAY "A" AND "B" MAY NOT BE IN PLACE SIMULTANEOUSLY. TEMPORARY FILL SHALL NOT BLOCK MORE THAN 50 PERCENT OF THE CHANNEL AT ANY TIME.

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 4835B2C7A3714CE...
8/7/2026

PROJECT NO. HB-0038
NASH COUNTY
STATION: 16+73.00 -L-

SHEET 1 OF 4 REPLACES BRIDGE NO. 630110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

# GENERAL DRAWING

FOR BRIDGE ON SR-1745
(BEND OF THE RIVER RD.)
OVER TAR RIVER RESERVOIR
BETWEEN S OLD CARRIAGE
RD. AND US-97

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY : BLM | DATE : 3-25 | DESIGN ENGINEER OF RECORD: N. BROWN | DATE : 4-26 | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED |
| CHECKED BY : SGH | DATE : 3-25 | | | |

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2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

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|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-1 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 36 |

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INTEGRAL END BENT 1 | BENT 1 | BENT 2 | INTEGRAL END BENT 2

## FOUNDATION LAYOUT

(#) - PILE/DRILLED PIER NO.

DIMENSIONS TO PILES ARE TO ℄ PILE.
DIMENSIONS TO DRILLED PIERS ARE TO ℄ OF DRILLED PIERS.

NOTES:
FOR FOUNDATION NOTES AND INFORMATION SEE SHEET "PILE AND DRILLED PIER FOUNDATION TABLES".

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 2 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN
8/7/2026
Signed by: Nicole K Brown
4853B2C7A3714CE...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**GENERAL DRAWING**

**FOUNDATION LAYOUT**

| | | | |
|---|---|---|---|
| DRAWN BY : BLM | DATE : 2-26 | DESIGN ENGINEER OF RECORD: N. BROWN | DATE : 4-26 |
| CHECKED BY : NKB | DATE : 3-26 | | |

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STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

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Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1

## 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") | Number of Piles per Line | Factored Resistance per Pile KIPS | Pile Cut-Off (Top of Pile) Elevation FT | Estimated Pile Length per Pile FT | Scour Critical Elevation FT | Driven Piles | | | Predrilling for Piles ** | | | Drilled-In Piles | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Minimum Pile Tip (Tip No Higher Than) Elevation FT | Required Driving Resistance (RDR)* per pile KIPS | Pile Redrives Quantity EACH | Predrilling Length per Pile LIN FT | Predrilling Elevation (Elevation Not To Predrill Below) FT | Maximum Predrilling Diameter INCHES | Pile Excavation (Bottom of Hole) Elevation FT | Pile Excavation Not In Soil per Pile LIN FT | Pile Excavation In Soil per Pile LIN FT |
| End Bent No.1, Piles 1-7 | 7 | 210 | 137.11 | 35 | | | 350 | - | | | | | | |
| End Bent No.2, Piles 1-7 | 7 | 210 | 130.63 | 50 | | | 350 | 4 | | | | | | |
| TOTAL QUANTITY: | | | | | | | | 4 | | | | | | |

$$^{*}RDR = \frac{Factored\ Resistance + Factored\ Drag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Drag\ Load\ Resistance + Nominal\ Resistance\ from\ Scourable\ Material$$

** 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.

## 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 KIPS | Factored Drag Load per Pile KIPS | Factored Dead Load * per Pile KIPS | Dynamic Resistance Factor | Nominal Drag Resistance per Pile KIPS | Nominal Scour Resistance per Pile KIPS |
|---|---|---|---|---|---|---|
| End Bent No.1, Piles 1-7 | 210 | | | 0.6 | | |
| End Bent No.2, Piles 1-7 | 210 | | | 0.6 | | |

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

## SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

| Dynamic Pile Testing (DPT) | | | Pile Order Lengths for Concrete Piles | |
|---|---|---|---|---|
| End Bent / Bent No (e.g., "Bent 1 - Bent 3") | DPT Test Pile Length FT | DPT Testing Quantity EACH | End Bent / Bent No (e.g., "Bent 1 - Bent 3") | Pile Order Length Basis* EST or DPT |
| End Bent No.1 | 40 | 1 | | |
| End Bent No.2 | 50 | | | |
| TOTAL QUANTITY: | | 1 | | |

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

## SUMMARY OF DRILLED PIER INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

| End Bent / Bent No, Pier(s) #(-#) (e.g., "Bent 1, Piers 1-3") | Number of Piers per Line | Factored Resistance per Pier KIPS | Required Drilled Pier Tip Elevation FT | Required Tip Resistance per Pier KSF | Scour Critical Elevation FT | Minimum Drilled Pier Penetration Into Rock per Pier LIN FT | Drilled Pier Length* per Pier LIN FT | Drilled Pier Length Not In Soil* per Pier LIN FT | Drilled Pier Length In Soil* per Pier LIN FT | Permanent Steel Casing Required? YES | Permanent Steel Casing Tip Elevation (Elevation Not To Extend Casing Below) FT | Permanent Steel Casing Length** per Pier LIN FT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bent No.1, Pier No.1 | 1 | 1240 | 84.00 | 100 | 92.00 | | | 15.6 | 24.4 | YES | 99.60 | 24.4 |
| Bent No.1, Pier No.2 | 1 | 1240 | 84.00 | 100 | 92.00 | | | 11.2 | 28.8 | YES | 95.20 | 28.8 |
| Bent No.2, Pier No. 1 | 1 | 1240 | 80.00 | 100 | 89.00 | | | 10.5 | 33.5 | YES | 92.00 | 32 |
| Bent No.2, Pier No. 2 | 1 | 1240 | 80.00 | 100 | 89.00 | | | 11.9 | 32.1 | YES | 95.80 | 28.2 |
| TOTAL QUANTITY: | | | | | | | | 49.2 | 118.8 | | | 113.4 |

* Drilled Pier Length, Drilled Pier Length Not in Soil and Drilled Pier Length in Soil represent estimated drilled pier quantities and are measured and paid for as either "54"Dia. Drilled Piers" or "54" Dia. Drilled Piers Not in Soil" and " 54"Dia. Drilled Piers in Soil" in accordance with Article 411-7 of the NCDOT Standard Specifications. For bents with a not in soil pay item, drilled piers through air or water will be paid at the contract unit price for "54" Dia. Drilled Piers in Soil."

** Permanent Steel Casing Length equals the difference between the ground line or top of drilled pier elevation, whichever is higher, and the permanent casing tip elevation and is measured and paid for as "Permanent Steel Casing for 54" Dia. Drilled Pier" in accordance with Article 411-7 of the NCDOT Standard Specifications.

## SUMMARY OF DRILLED PIER TESTING

(Blank entries indicate item is not applicable to structure)

| End Bent / Bent No, Pier(s) #(-#) (e.g., "Bent 1, Piers 1-3") | Standard Penetration Test (SPT) EACH | Crosshole Sonic Logging (CSL) EACH | Thermal Integrity Profiler (TIP) EACH | Shaft Inspection Device (SID) EACH | Pile Integrity Test (PIT) EACH |
|---|---|---|---|---|---|
| Bent No. 1, Piers 1-2 | | 1 | | 1 | |
| Bent No.2, Piers 1-2 | | 1 | | 1 | |
| TOTAL QUANTITY: | | 2 | | 2 | |

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Andrew Drda, #060350) on 06-6-2025.
2. 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.
3. The Engineer may adjust the quantity for DPT Testing, Pipe Pile Plates, Permanent Steel Casing, SPTs, TIPs, CSL Testing, SID Inspections and PITs when necessary.
4. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
5. FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
6. IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 22,000 - 60,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO.1 AND END BENT NO.2. THIS ESTIMATED ENERGY RANGE DOES NOT ESTIMATE ENERGY RANGE EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K. Brown 483582C7A3714CE...

8/7/2026

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

# PILE AND DRILLED PIER FOUNDATION TABLES

DRAWN BY : BLM DATE : 3-26
CHECKED BY : MBK DATE : 3-26

DESIGN ENGINEER OF RECORD: N. BROWN DATE : 4-26

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

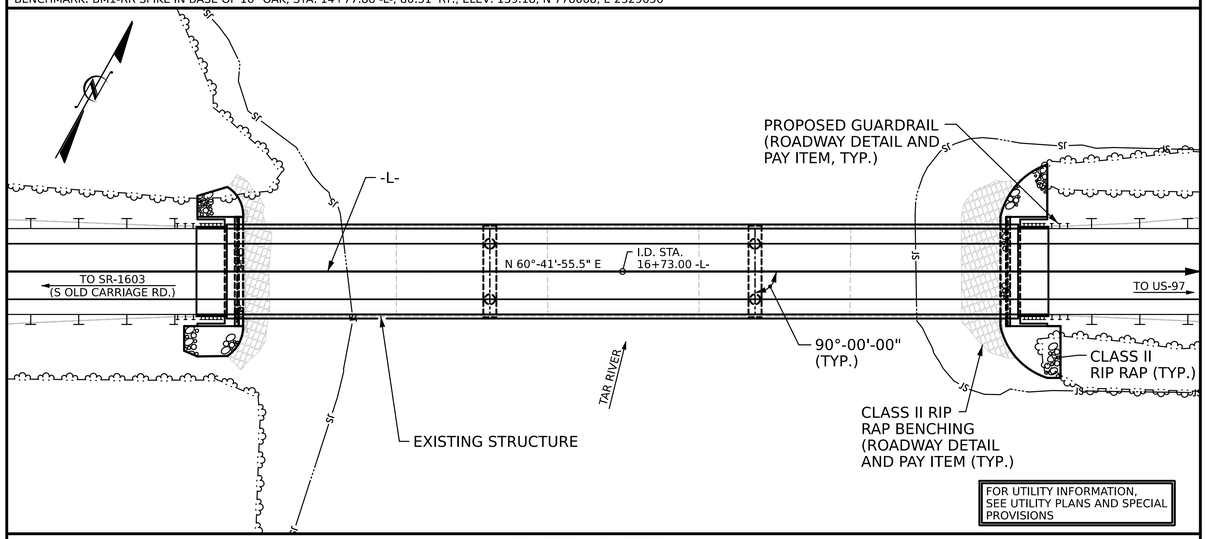
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Charlotte, NC 28203
NC License Number F-0991

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BENCHMARK: BM1-RR SPIKE IN BASE OF 16" OAK, STA. 14+77.88 -L-, 80.31' RT., ELEV. 139.18, N 778068, E 2329656




## LOCATION SKETCH

## TOTAL BILL OF MATERIAL

| | CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS | REMOVAL OF EXISTING STRUCTURE AT STA. 16+73.00 -L- | ASBESTOS ASSESSMENT | 4'-6" DIA. DRILLED PIERS IN SOIL | 4'-6" DIA. DRILLED PIERS NOT IN SOIL | PERMANENT STEEL CASING FOR 4'-6" DIA. DRILLED PIERS | SID INSPECTIONS | CSL TESTING | UNCLASSIFIED STRUCTURE EXCAVATION AT STATION 16+73.00 -L- | REINFORCED CONCRETE DECK SLAB | GROOVING BRIDGE FLOORS | CLASS A CONCRETE | BRIDGE APPROACH SLABS | REINFORCING STEEL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LUMP SUM | LUMP SUM | LUMP SUM | LIN. FT. | LIN. FT. | LIN. FT. | EA. | EA. | LUMP SUM | SQ.FT. | SQ.FT. | CU.YDS. | LUMP SUM | LBS. |
| SUPERSTRUCTURE | | | | | | | | | | 11,427 | 10,581 | | | |
| END BENT NO.1 | | | | | | | | | | | | 31.2 | | 4,726 |
| BENT 1 | | | | 53.2 | 26.8 | 53.2 | 1 | 1 | | | | 39.2 | | 15,656 |
| BENT 2 | | | | 65.6 | 22.4 | 60.2 | 1 | 1 | | | | 37.1 | | 15,968 |
| END BENT NO.2 | | | | | | | | | | | | 31.2 | | 4,726 |
| TOTAL | LUMP SUM | LUMP SUM | LUMP SUM | 118.8 | 49.2 | 113.4 | 2 | 2 | LUMP SUM | 11,427 | 10,581 | 138.7 | LUMP SUM | 41,076 |

## TOTAL BILL OF MATERIAL (CONT'D)

| SPIRAL COLUMN REINFORCING STEEL | FIB 45" PRESTRESSED CONCRETE GIRDER | | PILE DRIVING EQUIPMENT SETUP FOR STEEL PILES | HP 12 X 53 STEEL PILES | | PILE REDRIVES | DYNAMIC PILE TESTING | TWO BAR METAL RAIL | 1'-2" X 2'-6" CONCRETE PARAPET | RIP RAP CLASS II (2'-0" THICK) | GEOTEXTILE FOR DRAINAGE | ELASTOMERIC BEARINGS | SUSPENSION SYSTEM FOR 8" WATER LINE | CONCRETE DECK INSERTS FOR 4"GAS LINE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LBS. | NO. | LIN. FT. | EA. | NO. | LIN. FT. | EA. | EA. | LIN. FT. | LIN. FT. | TON | SQ. YDS. | LUMP SUM | LUMP SUM | LUMP SUM |
| | 12 | 1244'-0" | | | | | | 603.83 | 624.7 | | | | | |
| | | | 7 | 7 | 245 | | 1 | | | 175.3 | 194.8 | | | |
| 2,793 | | | | | | | | | | | | | | |
| 2,888 | | | | | | | | | | | | | | |
| | | | 7 | 7 | 350 | 4 | | | | 216.5 | 240.6 | | | |
| 5,681 | 12 | 1244'-0" | 14 | 14 | 595 | 4 | 1 | 603.83 | 624.7 | 391.8 | 435.4 | LUMP SUM | LUMP SUM | LUMP SUM |

## NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 36 FT. EACH SIDE OF 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 5 SPANS @ 60'-0". 36'-0" CLEAR ROADWAY WIDTH AND A 7" REINFORCED CONCRETE DECK ON I-BEAMS; AND END BENTS CONSISTING OF REINFORCED CONCRETE CAP WITH STEEL PILES AND 3 INTERIOR BENTS CONSISTING OF REINFORCED CONCRETE CAP ON SPREAD FOOTINGS AND 1 INTERIOR BENT CONSISTING OF FOOTING ON PILES LOCATED AT SITE OF PROPOSED BRIDGE SHALL BE REMOVED TO 1-FT BELOW THE SURFACE. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE. A LOAD LIMIT MAY BE POSTED AND 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. SINCE 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 CONDITIONS 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 SPECIAL PROVISIONS. THE END BENTS SHALL BE REMOVED TO A DEPTH EQUAL TO THE FLOODPLAIN ELEVATION, THE INTERIOR BENTS SHALL BE COMPLETELY REMOVED.

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

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 92.00 AT BENT 1 AND 89.00 AT BENT 2. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

IN AS MUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 16+73.00 -L-."

FOR 8" WATER LINE AND SUSPENSION SYSTEM, SEE STRUCTURE UTILITY PLANS.

FOR 4" GAS LINE AND SUSPENSION SYSTEM, SEE STRUCTURE UTILITY PLANS.

IF CONTRACTOR CHOOSES TO USE CAUSEWAY, TEMPORARY FILL SHALL NOT BLOCK MORE THAN 50 PERCENT OF CHANNEL AT ANY TIME.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS.

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 4 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown
4B35B2C7A3714CE...
8/7/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING

FOR BRIDGE ON SR-1745
(BEND OF THE RIVER RD.)
OVER THE TAR RESERVOIR
BETWEEN S OLD CARRIAGE RD.
AND US-97

DRAWN BY : BLM DATE : 2-26
CHECKED BY : MBK DATE : 3-26

DESIGN ENGINEER OF RECORD: N. BROWN DATE : 4-26

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2151 Hawkins St, Suite 1400
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| 1 | | | 3 | | | TOTAL SHEETS |
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# LOAD AND RESISTANCE FACTOR RATING (LRFR) 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 | | | | | | |
| | | | | | | | LIVE-LOAD FACTORS ($\gamma_{LL}$) | 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) | LIVE-LOAD FACTORS ($\gamma_{LL}$) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | |
| DESIGN LOAD RATING | | HL-93 (INVENTORY) | N/A | 1 | 1.20 | -- | 1.75 | 0.880 | 1.53 | B | E | 51.63 | 0.740 | 1.97 | B | I | 51.63 | 0.80 | 0.880 | 1.20 | B | E | 62.09 | |
| | | HL-93 (OPERATING) | N/A | | 1.98 | -- | 1.35 | 0.880 | 1.98 | B | E | 51.63 | 0.740 | 2.63 | B | I | 51.63 | N/A | -- | -- | -- | -- | -- | |
| | | HS-20 (INVENTORY) | 36.000 | 2 | 1.68 | 60.48 | 1.75 | 0.880 | 2.15 | B | E | 51.63 | 0.740 | 2.59 | B | I | 51.63 | 0.80 | 0.880 | 1.68 | B | E | 72.56 | |
| | | HS-20 (OPERATING) | 36.000 | | 2.78 | 100.08 | 1.35 | 0.880 | 2.78 | B | E | 51.63 | 0.740 | 3.45 | B | I | 51.63 | N/A | -- | -- | -- | -- | -- | |
| LEGAL LOAD RATING | SINGLE VEHICLE (SV) | SNSH | 13.500 | | 4.01 | 54.14 | 1.40 | 0.880 | 6.89 | B | E | 51.63 | 0.950 | 9.14 | B | I | 62.09 | 0.80 | 0.880 | 4.01 | B | E | 51.63 | |
| | | SNGARBS2 | 20.000 | | 2.89 | 57.80 | 1.40 | 0.880 | 4.97 | B | E | 51.63 | 0.950 | 6.39 | B | I | 72.56 | 0.80 | 0.880 | 2.89 | B | E | 51.63 | |
| | | SNAGRIS2 | 22.000 | | 2.70 | 59.40 | 1.40 | 0.880 | 4.64 | B | E | 51.63 | 0.950 | 5.89 | B | I | 72.56 | 0.80 | 0.880 | 2.70 | B | E | 51.63 | |
| | | SNCOTTS3 | 27.250 | | 1.99 | 54.23 | 1.40 | 0.880 | 3.42 | B | E | 51.63 | 0.950 | 4.35 | B | I | 41.16 | 0.80 | 0.880 | 1.99 | B | E | 51.63 | |
| | | SNAGGRS4 | 34.925 | | 1.63 | 56.93 | 1.40 | 0.880 | 2.80 | B | E | 51.63 | 0.950 | 3.56 | B | I | 62.09 | 0.80 | 0.880 | 1.63 | B | E | 51.63 | |
| | | SNS5A | 35.550 | | 1.60 | 56.88 | 1.40 | 0.880 | 2.74 | B | E | 51.63 | 0.950 | 3.60 | B | I | 72.56 | 0.80 | 0.880 | 1.60 | B | E | 51.63 | |
| | | SNS6A | 39.950 | | 1.45 | 57.93 | 1.40 | 0.880 | 2.49 | B | E | 51.63 | 0.950 | 3.24 | B | I | 72.56 | 0.80 | 0.880 | 1.45 | B | E | 51.63 | |
| | | SNS7B | 42.000 | | 1.38 | 57.96 | 1.40 | 0.880 | 2.37 | B | E | 51.63 | 0.950 | 3.17 | B | I | 72.56 | 0.80 | 0.880 | 1.38 | B | E | 51.63 | |
| | TRUCK TRACTOR SEMI-TRAILER (TTST) | TNAGRIT3 | 33.000 | | 1.76 | 58.08 | 1.40 | 0.880 | 3.03 | B | E | 51.63 | 0.740 | 3.94 | B | I | 51.63 | 0.80 | 0.880 | 1.76 | B | E | 51.63 | |
| | | TNT4A | 33.075 | | 1.77 | 58.54 | 1.40 | 0.880 | 3.04 | B | E | 51.63 | 0.740 | 3.84 | B | I | 51.63 | 0.80 | 0.880 | 1.77 | B | E | 51.63 | |
| | | TNT6A | 41.600 | | 1.43 | 59.49 | 1.40 | 0.880 | 2.46 | B | E | 51.63 | 0.740 | 3.37 | B | I | 51.63 | 0.80 | 0.880 | 1.43 | B | E | 51.63 | |
| | | TNT7A | 42.000 | | 1.43 | 60.06 | 1.40 | 0.880 | 2.46 | B | E | 51.63 | 0.740 | 3.30 | B | I | 51.63 | 0.80 | 0.880 | 1.43 | B | E | 51.63 | |
| | | TNT7B | 42.000 | | 1.46 | 61.32 | 1.40 | 0.880 | 2.51 | B | E | 51.63 | 0.740 | 3.09 | B | I | 51.63 | 0.80 | 0.880 | 1.46 | B | E | 51.63 | |
| | | TNAGRIT4 | 43.000 | | 1.40 | 60.20 | 1.40 | 0.880 | 2.41 | B | E | 51.63 | 0.740 | 2.99 | B | I | 51.63 | 0.80 | 0.880 | 1.40 | B | E | 51.63 | |
| | | TNAGT5A | 45.000 | | 1.33 | 59.85 | 1.40 | 0.880 | 2.29 | B | E | 51.63 | 0.740 | 2.95 | B | I | 51.63 | 0.80 | 0.880 | 1.33 | B | E | 51.63 | |
| | | TNAGT5B | 45.000 | 3 | 1.32 | 59.40 | 1.40 | 0.880 | 2.27 | B | E | 51.63 | 0.740 | 2.82 | B | I | 51.63 | 0.80 | 0.880 | 1.32 | B | E | 51.63 | |
| EMERGENCY VEHICLE (EV) | | EV2 | 28.750 | | 2.04 | 58.65 | 1.30 | 0.880 | 3.50 | B | E | 51.63 | 0.740 | 4.36 | B | I | 51.63 | 0.80 | 0.880 | 2.04 | B | E | 51.63 | |
| | | EV3 | 43.000 | 4 | 1.34 | 57.62 | 1.30 | 0.880 | 2.31 | B | E | 51.63 | 0.740 | 2.82 | B | I | 51.63 | 0.80 | 0.880 | 1.34 | B | E | 51.63 | |

## LOAD FACTORS:

| DESIGN LOAD RATING FACTORS | LIMIT STATE | $\gamma$DC | $\gamma$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 * *

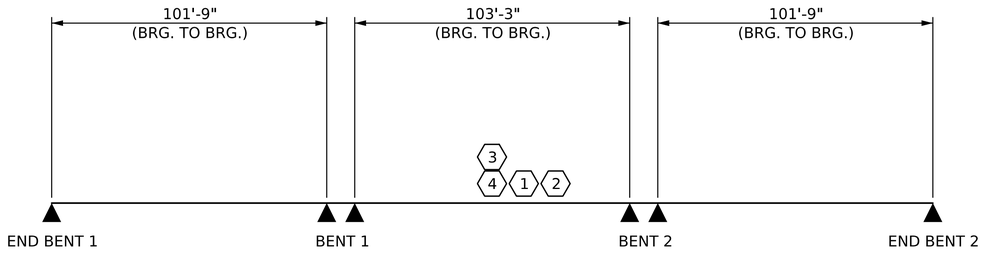
(4) EMERGENCY VEHICLE LOAD RATING **

* * SEE CHART FOR VEHICLE TYPE

**GIRDER LOCATION**

I - INTERIOR GIRDER

E - EXTERIOR GIRDER




## LRFR SUMMARY

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 8/7/2026

4835B2C7A3714CE...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

**LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS**

(NON-INTERSTATE TRAFFIC)

| REVISIONS | | | | | | SHEET NO. |
|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-5 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 36 |

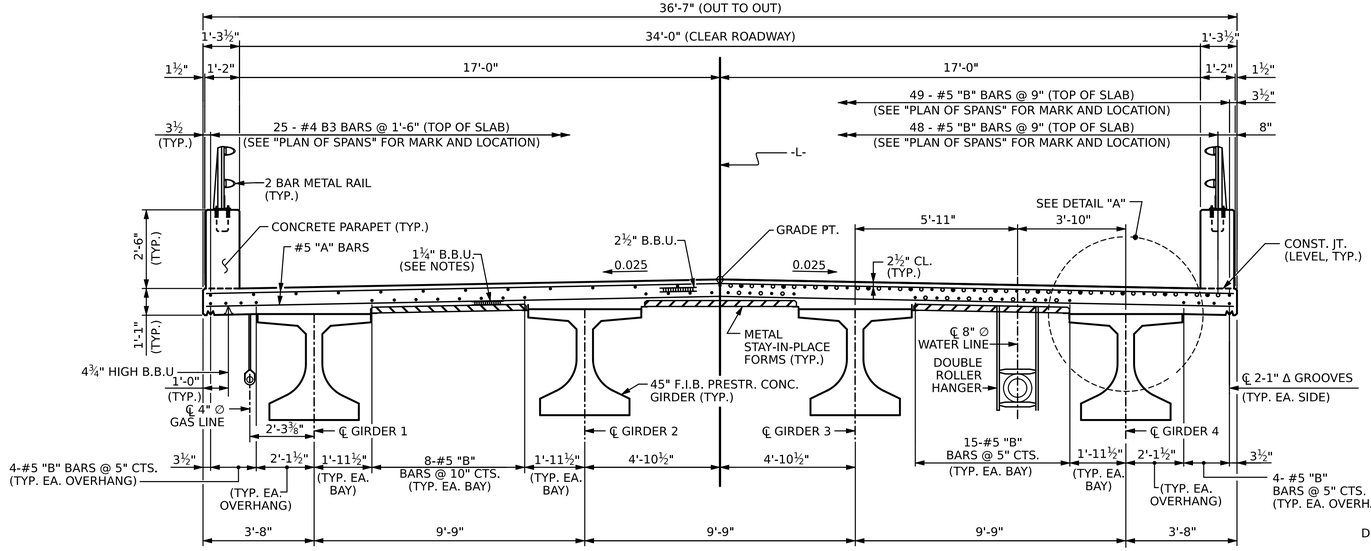
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2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

| | | | | |
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| CHECKED BY : NKB | DATE : 2-26 | | | |

STD. NO. LRFR1

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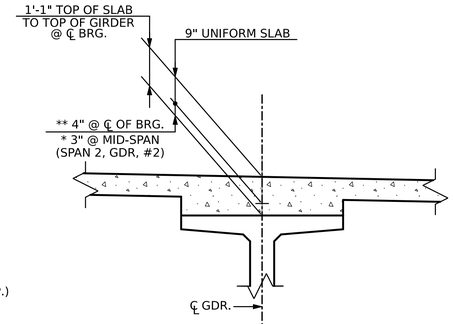
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## TYPICAL SECTION AT MIDSPAN

## PARTIAL TYPICAL SECTION AT BENT 1

(SHOWING LINK SLAB AT BENT 1)
(BENT 2 SIMILAR)




## DETAIL "A"

(TYP. EA. GIRDER)

** ADJUSTMENTS TO BUILD-UP DIMENSIONS SHALL BE IN ¼" INCREMENTS

* BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

## NOTES:

FOR SECTION C-C, SEE "SUPERSTRUCTURE DETAILS" SHEET.

LONGITUDINAL "B" BARS AND "A" BARS IN BOTTOM OF OVERHANG MAY BE SHIFTED SLIGHTLY, AS NEEDED, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

CONCRETE PARAPET IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM 3,000 PSI.

FOR CONCRETE PARAPET, SEE "CONCRETE PARAPET AND 2 BAR METAL RAIL SHEET"

HEIGHT OF BEAM BOLSTER IS CALCULATED TO CENTERLINE OF BEARING, CONTRACTOR SHALL ADJUST HEIGHTS AS NECESSARY TO MAINTAIN PROPER CLEARANCE, DUE TO GIRDER CAMBER.

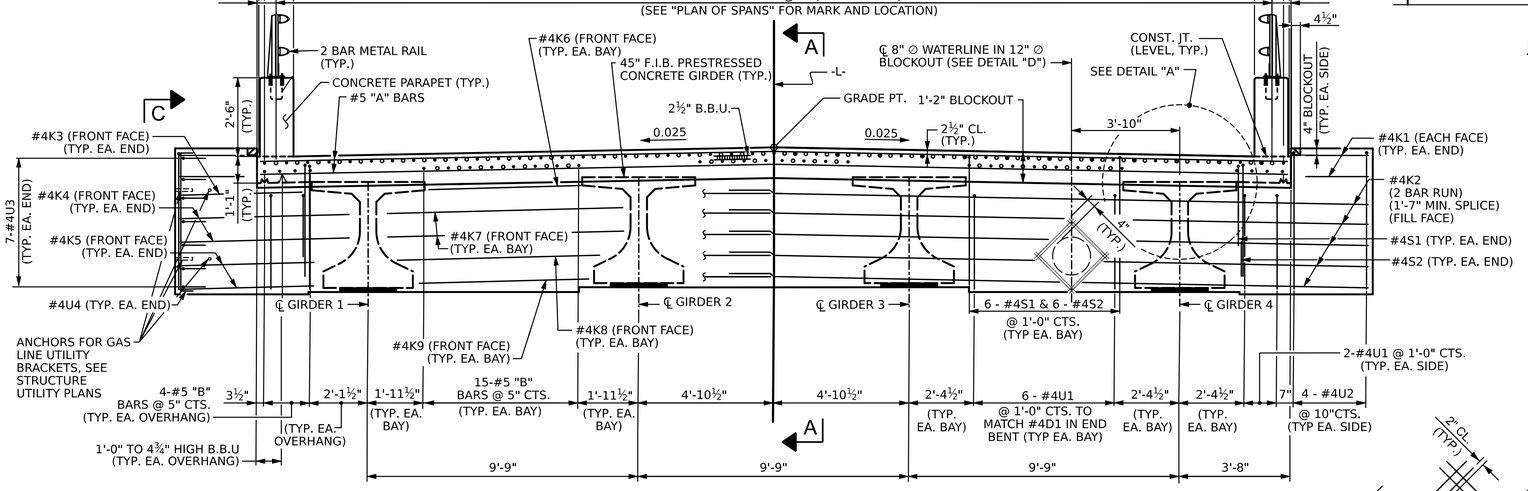
PROVIDE A 1¾" HIGH BEAM BOLSTER UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS, WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR THE METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2½" ABOVE THE TOP OF THE REMOVABLE FORMS.

FOR DETAILS OF 8" ∅ WATERLINE AND HANGER SYSTEM, SEE "STRUCTURE UTILITY PLANS".

FOR DETAILS OF 4" ∅ GAS LINE AND HANGER SYSTEM, SEE "STRUCTURE UTILITY PLANS".

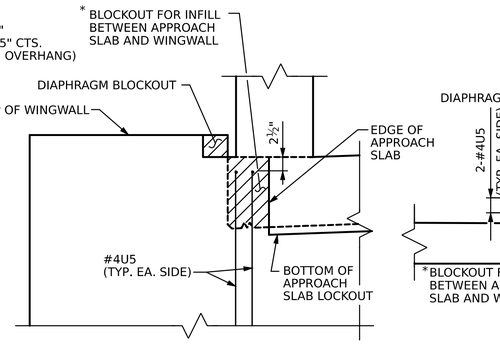
REINFORCING STEEL MAY BE FIELD BENT, SHIFTED OR CUT AS NECESSARY FOR INSTALLATION OF THE 12" DIA. BLOCKOUT.

CENTER WATERLINE IN BLOCKOUT AND FILL ANNULAR SPACE AROUND UTILITY PIPE WITH JOINT FILLER INACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 1028-1.

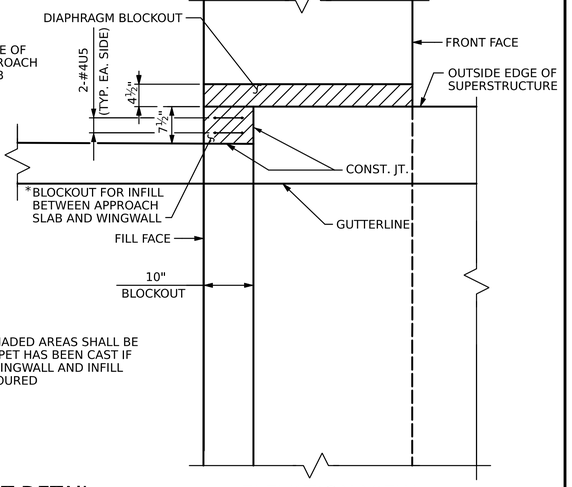



## ELEVATION OF INTEGRAL END BENT DIAPHRAGM

(END BENT 1 SHOWN, END BENT 2, SIMILAR)
(LOOKING IN DIRECTION OF STATIONING)
(BARS EXTENDING FROM END BENT CAP NOT SHOWN FOR CLARITY)

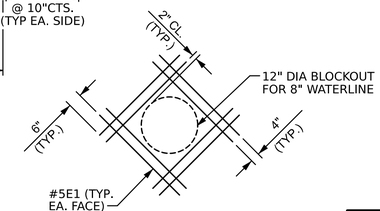



## PLAN VIEW




## ELEVATION VIEW

* THE CONCRETE IN THE SHADED AREAS SHALL BE POURED AFTER THE PARAPET HAS BEEN CAST IF SLIP FORMING IS USED. WINGWALL AND INFILL BLOCKOUTS ARE TO BE POURED SIMULTANEOUSLY.




## DETAIL "D"

(TYP. EA. FACE)

## BLOCKOUT DETAIL

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

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

# TYPICAL SECTION

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN
Signed by: Nicole K Brown 8/7/2026
483582C7A3714CE...

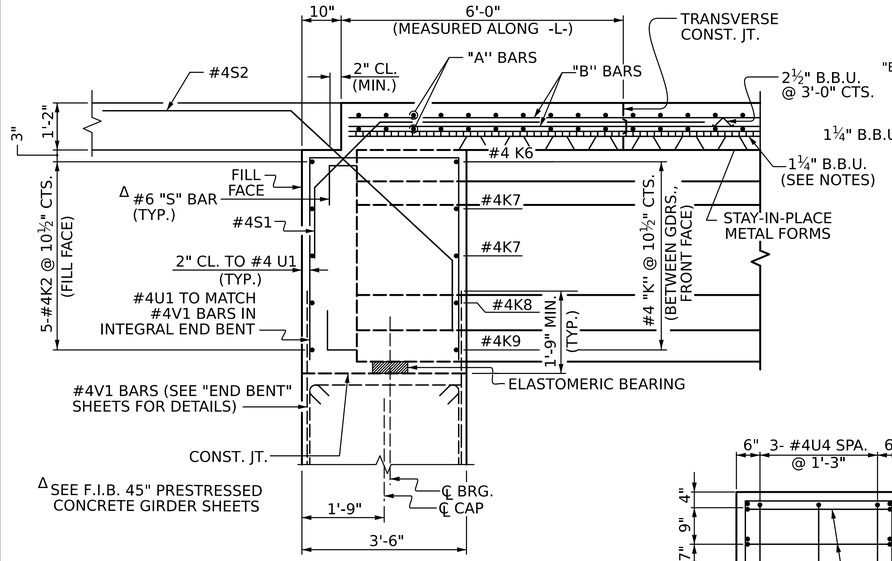
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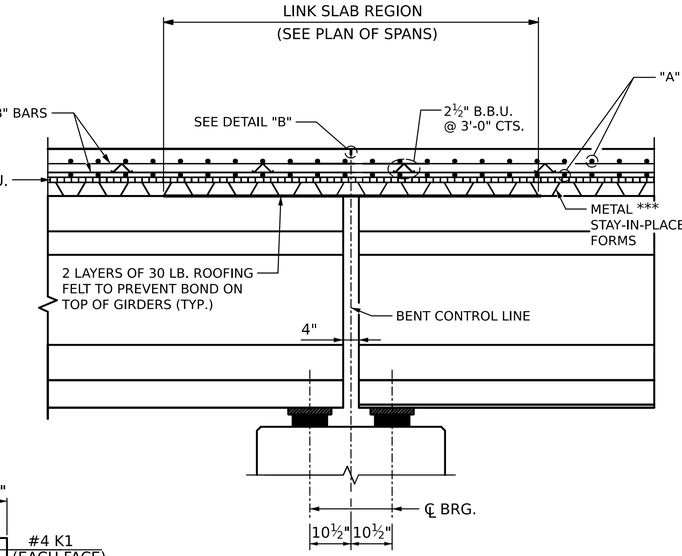
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## SECTION A-A

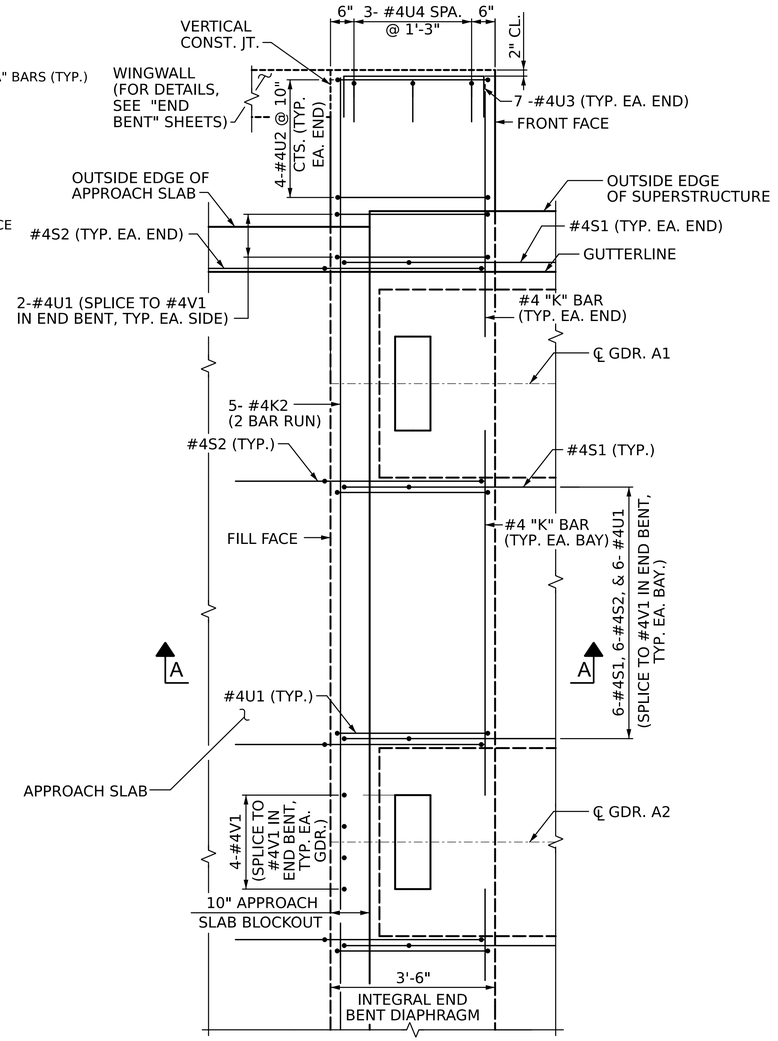
(END BENT 1 SHOWN, END BENT 2 SIMILAR)




## SECTION AT LINK SLAB

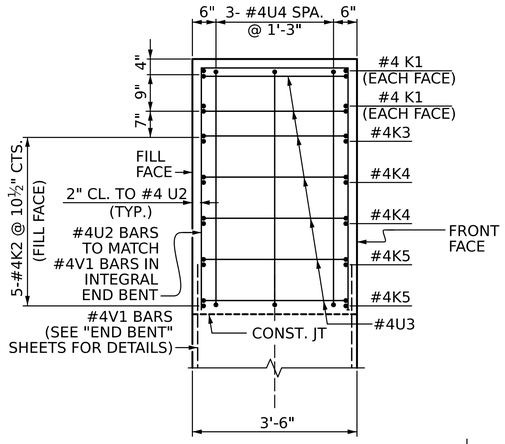
(BENT 1 SHOWN, BENT 2 SIMILAR)

*** METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO THE GIRDER FLANGES IN THE REGION OF THE LINK SLAB



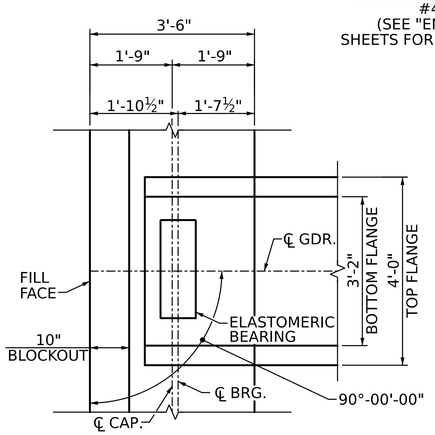

## DETAIL "C"

(INTEGRAL END BENT DIAPHRAGM AT END BENT 1 SHOWN, INTEGRAL END BENT DIAPHRAGM AT END BENT 2 SIMILAR)



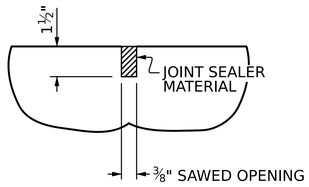

## SECTION C-C

INTEGRAL END BENT 1 SHOWN, INTEGRAL END BENT 2 SIMILAR



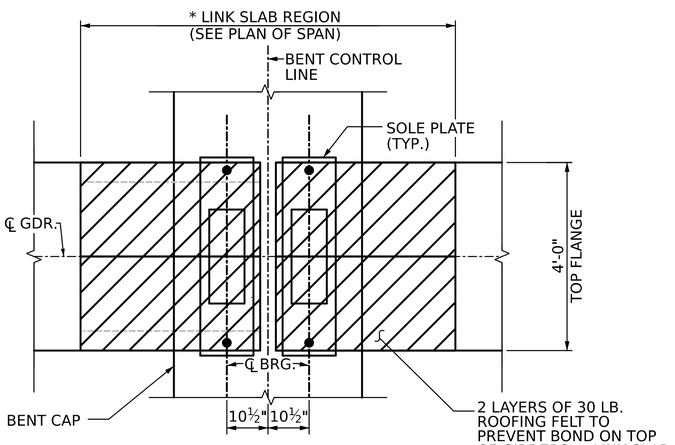

## PLAN OF GIRDER AT END BENT

(END BENT 1 SHOWN, END BENT 2 SIMILAR)




## DETAIL "B"

A 1½" DEEP, ⅜" WIDE CONTRACTION JOINT AT ℄ BENT SHALL BE SAWED WITHIN 24 HOURS OF POURING THE DECK. THE JOINT SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.




## PLAN OF GIRDER AT BENT

(BENT 1 SHOWN, BENT 2 SIMILAR)

* THE TOP OF GIRDER IN THE REGION OF THE LNK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

# TYPICAL SECTION DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 4835B2C7A3714CE...

8/7/2026

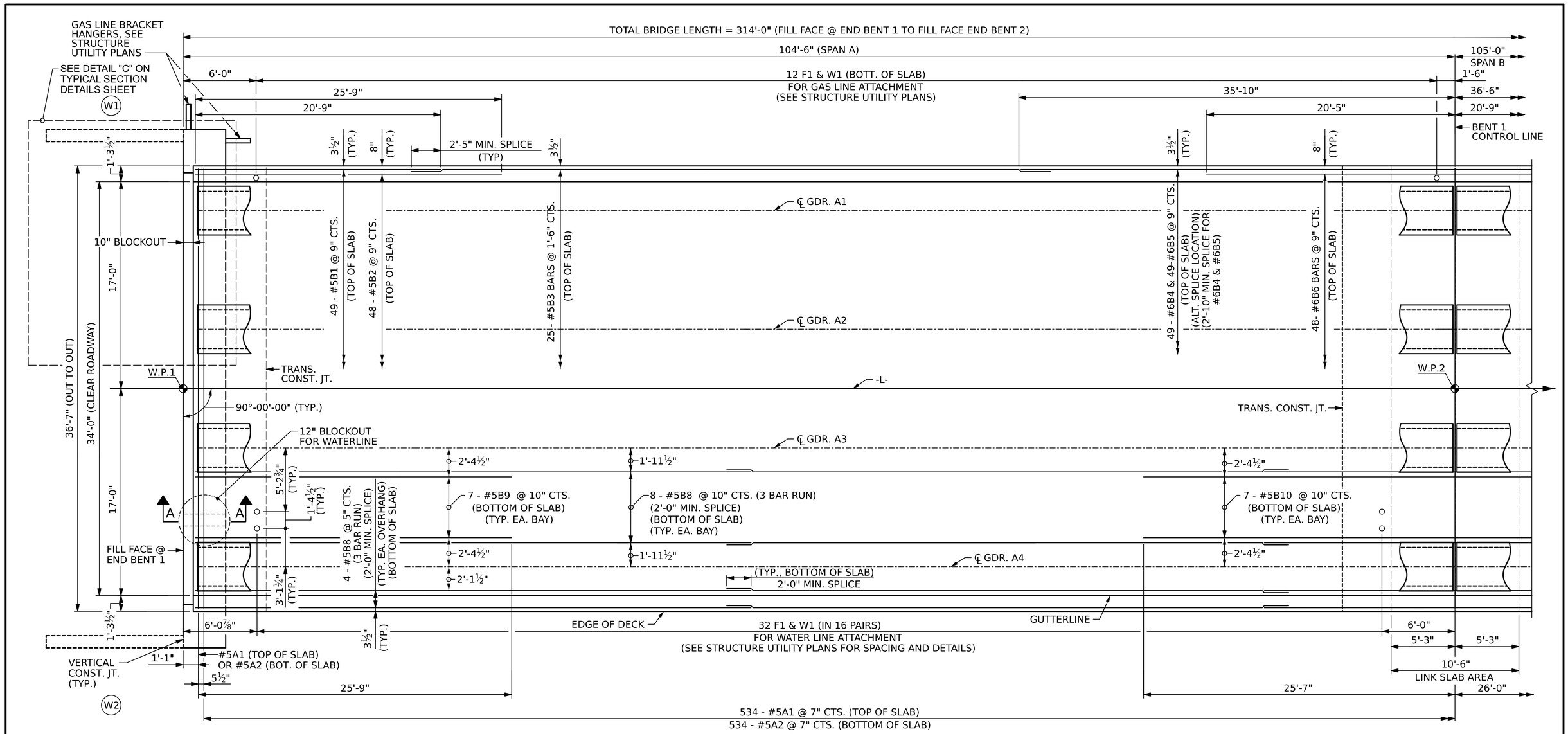
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## NOTES:

FOR SECTION A-A, SEE "TYPICAL SECTION DETAILS" SHEET.

FOR DETAILS AND REINFORCING IN CONCRETE PARAPET, SEE "CONCRETE PARAPET DETAILS" SHEET.

FOR ADDITIONAL DETAILS, SEE "TYPICAL SECTION" AND "TYPICAL SECTION DETAILS" SHEETS.

THE TOP OF THE GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, DECK FORMWORK ATTACHMENTS, AND OVERHAND FALSEWORK/FORMWORK ATTACHMENTS.

FOR POUR SEQUENCE DIAGRAM AND TRANSVERSE CONSTRUCTION JOINT , SEE "TYPICAL SECTION DETAILS" SHEET.

FOR MINIMUM SPLICE LENGTHS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

# PLAN OF SPAN A

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 1 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER — Signed by: Nicole K Brown 4835B2C7A3714CE... 8/7/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
**PLAN OF SPANS (SPAN A)**

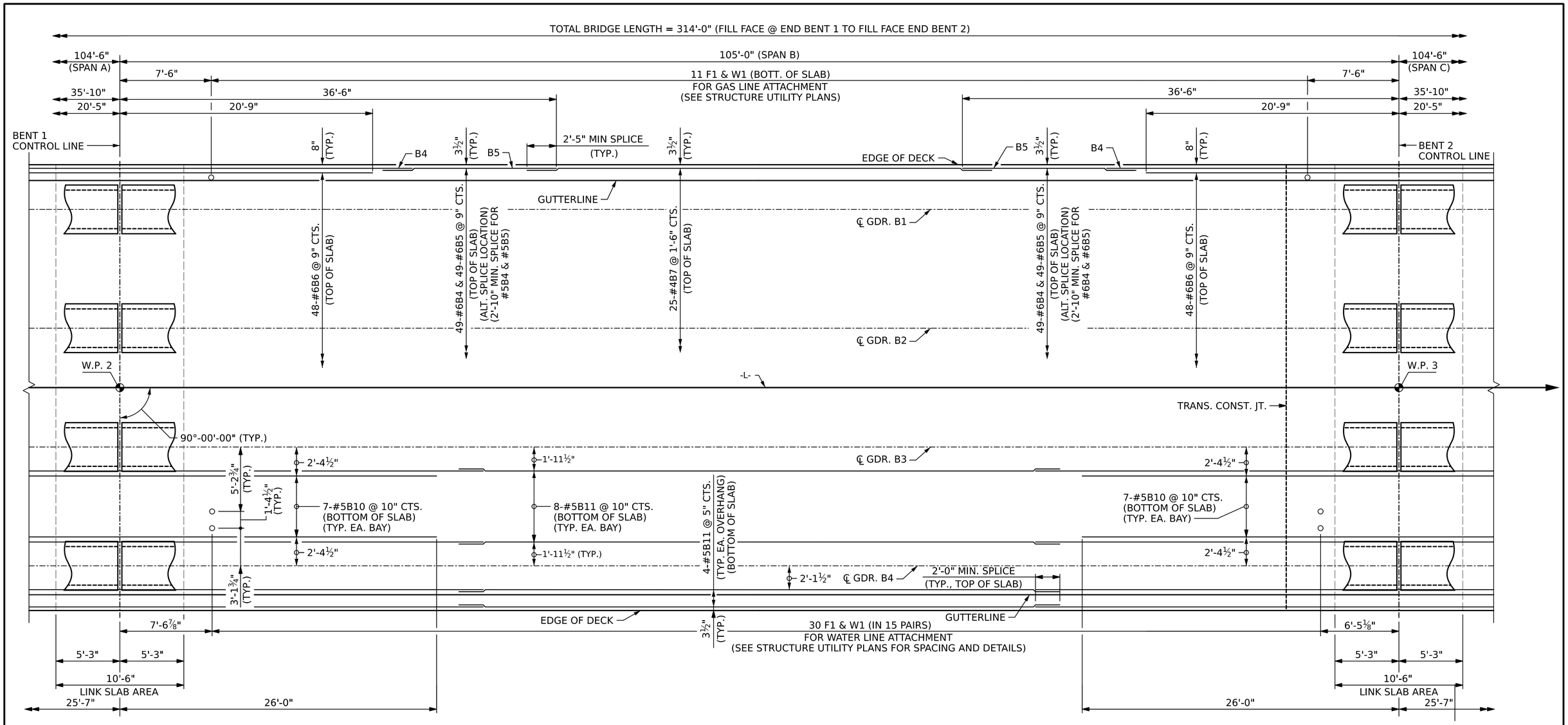
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|---|---|---|---|---|
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## PLAN OF SPAN B

NOTES:

FOR NOTES, SEE SHEET 1 OF 4.

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 2 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 4835B2C7A37 14CE...

8/7/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

**PLAN OF SPANS (SPAN B)**

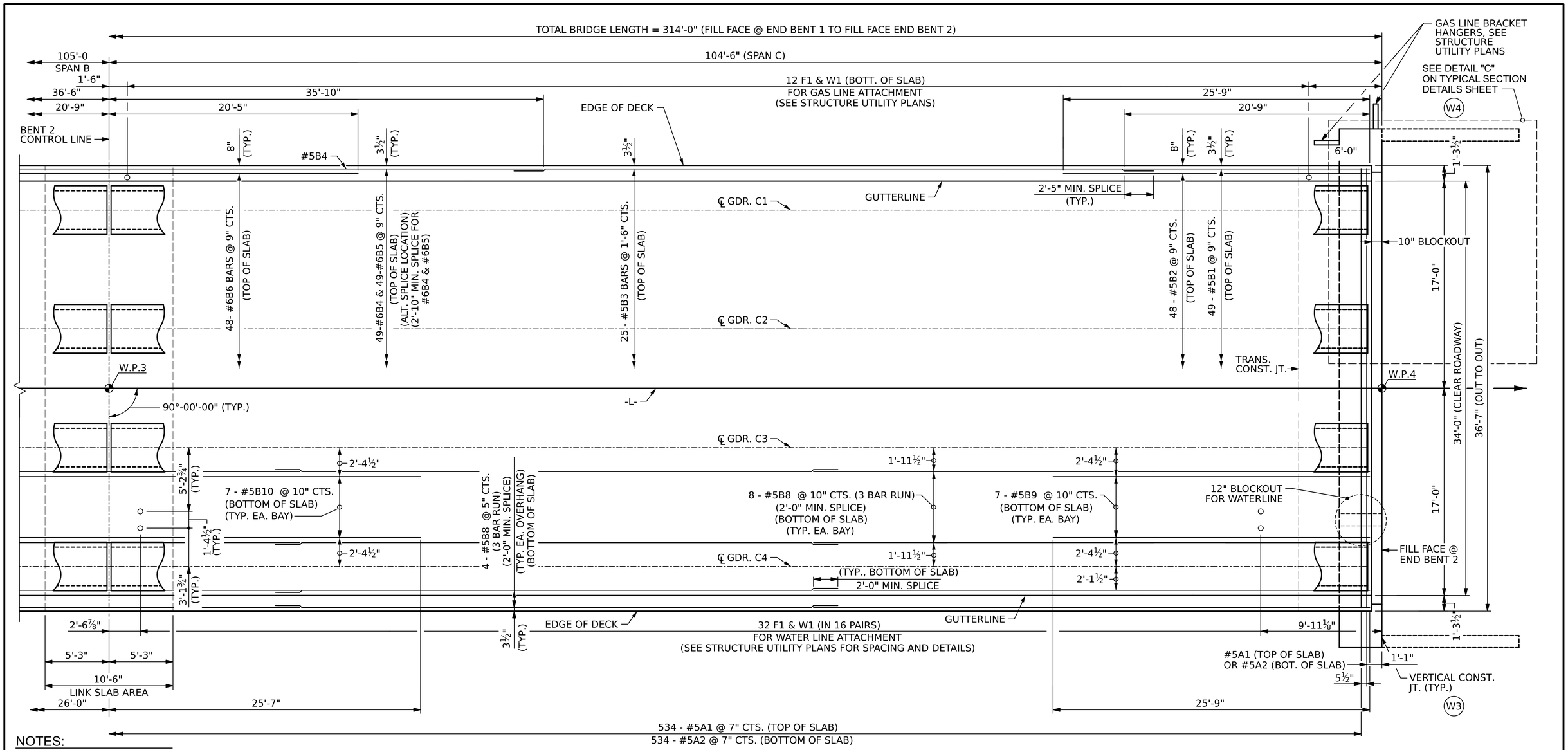
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NOTES:

FOR NOTES, SEE SHEET 1 OF 4

## PLAN OF SPAN C

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 3 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

8/7/2026

Signed by: Nicole K Brown 483582C7A3714CE...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
**PLAN OF SPANS**
**(SPAN C)**

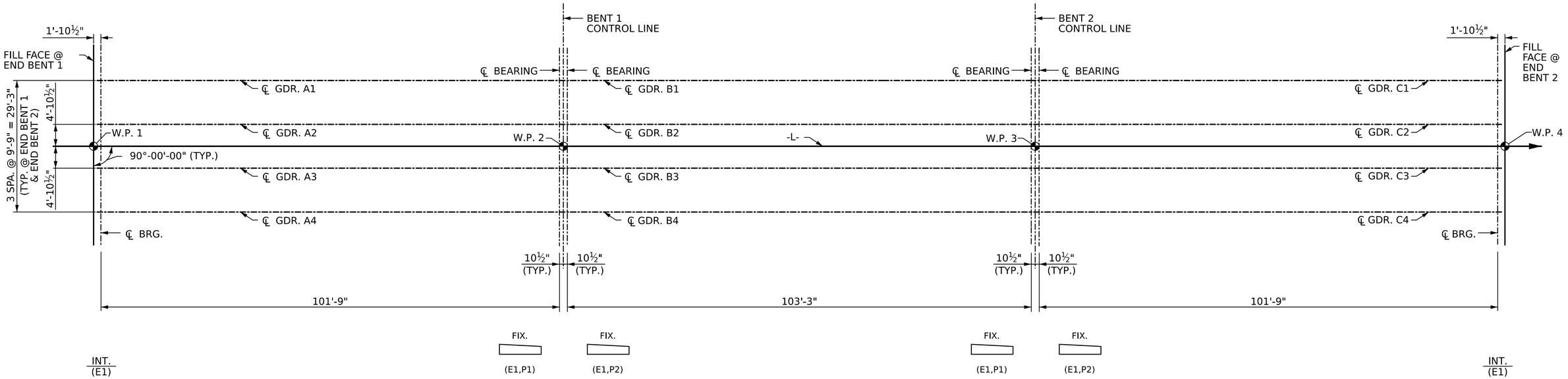
| DRAWN BY : FMW | DATE : 2-26 | DESIGN ENGINEER OF RECORD: N. BROWN | DATE : 4-26 | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED |
|---|---|---|---|---|
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| NO. | BY: | DATE: | NO. | BY: | DATE: | S-10 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 36 |

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Docusign Envelope ID: FBF2C358-7B16-803E-8005-B1CF73AADDC1




# FRAMING PLAN

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE L. BROWN

Signed by: Nicole L Brown 4835BDC7A3714CE...

8/7/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

**FRAMING PLAN**

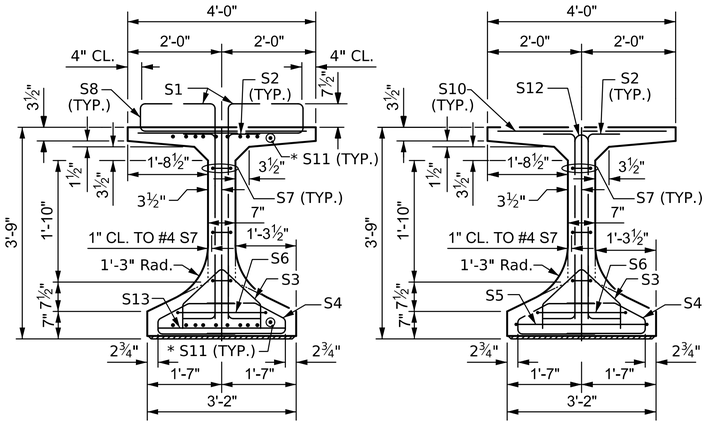
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|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-11 |
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**SECTION A-A**

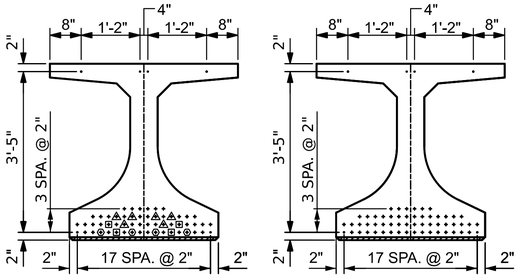



**SECTION B-B**

* FOR S11 BARS, SEE DETAIL "C" OF PRESTRESSED CONCRETE GIRDER (SHEET 3 OF 3) DETAILS SHEET

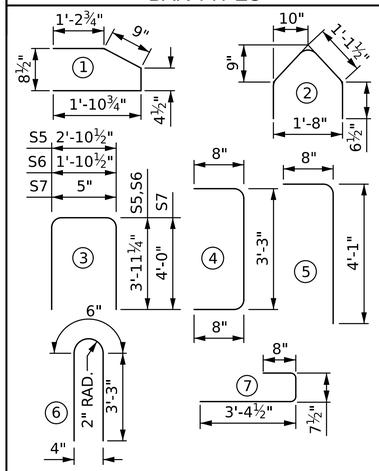
## DEBONDING LEGEND

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 16'-0" FROM END OF GIRDER




0.6" Ø LOW RELAXATION STRAND LAYOUT

## BAR TYPES




ALL BAR DIMENSIONS ARE OUT-TO-OUT

## 0.6"Ø L. R. GRADE 270 STRANDS

| AREA (SQUARE INCHES) | ULTIMATE STRENGTH (LBS. PER STRAND) | APPLIED PRESTRESS (LBS. PER STRAND) |
|---|---|---|
| 0.217 | 58,600 | 43,950 |

## REINFORCING STEEL FOR ONE GDR

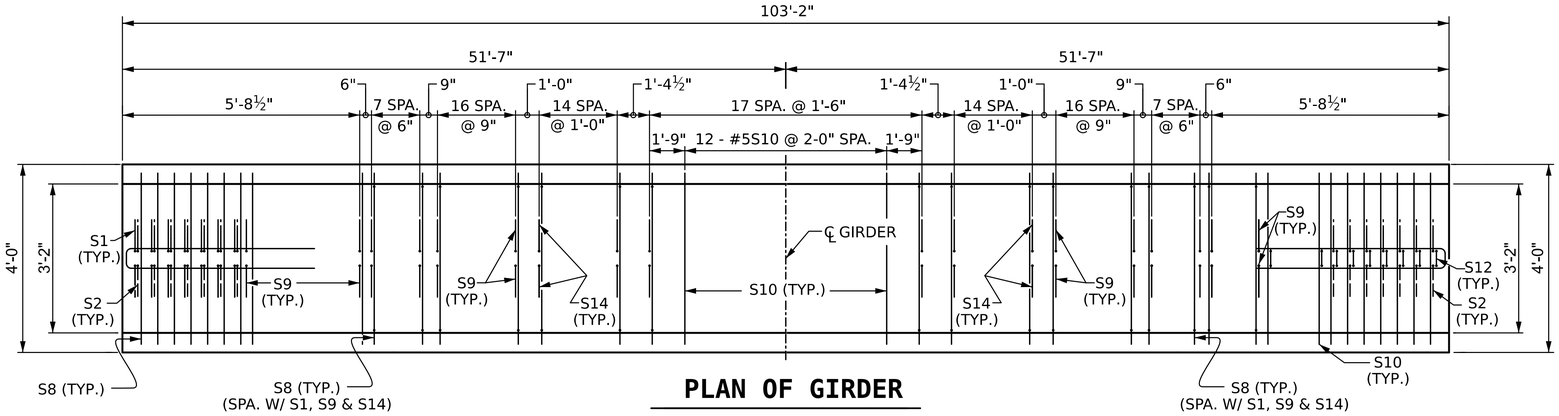
| BAR | NUMBER | SIZE | TYPE | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| S1 | 14 | #6 | 5 | 4'-9" | 100 |
| S2 | 28 | #6 | 4 | 4'-7" | 193 |
| S3 | 28 | #3 | 2 | 3'-4" | 35 |
| S4 | 56 | #3 | 1 | 4'-3" | 89 |
| S5 | 1 | #5 | 3 | 10'-9" | 11 |
| S6 | 2 | #5 | 3 | 9'-9" | 20 |
| S7 | 6 | #4 | 3 | 8'-5" | 34 |
| S8 | 230 | #5 | 7 | 4'-8" | 1,119 |
| S9 | 120 | #5 | 5 | 4'-9" | 595 |
| S10 | 23 | #5 | STR | 3'-8" | 88 |
| ▲ S11 | 20 | #6 | STR | 4'-8" | 140 |
| S12 | 11 | #6 | 6 | 7'-0" | 116 |
| S13 | 1 | #3 | STR | 2'-10" | 1 |
| S14 | 96 | #4 | 5 | 4'-9" | 305 |

## QUANTITIES FOR ONE GIRDER

| REINFORCING STEEL | 9,500 PSI CONCRETE | 0.6" ∅ L.R. STRANDS |
|---|---|---|
| LB. | C.Y. | No. |
| 2,846 | 23.1 | 60 |

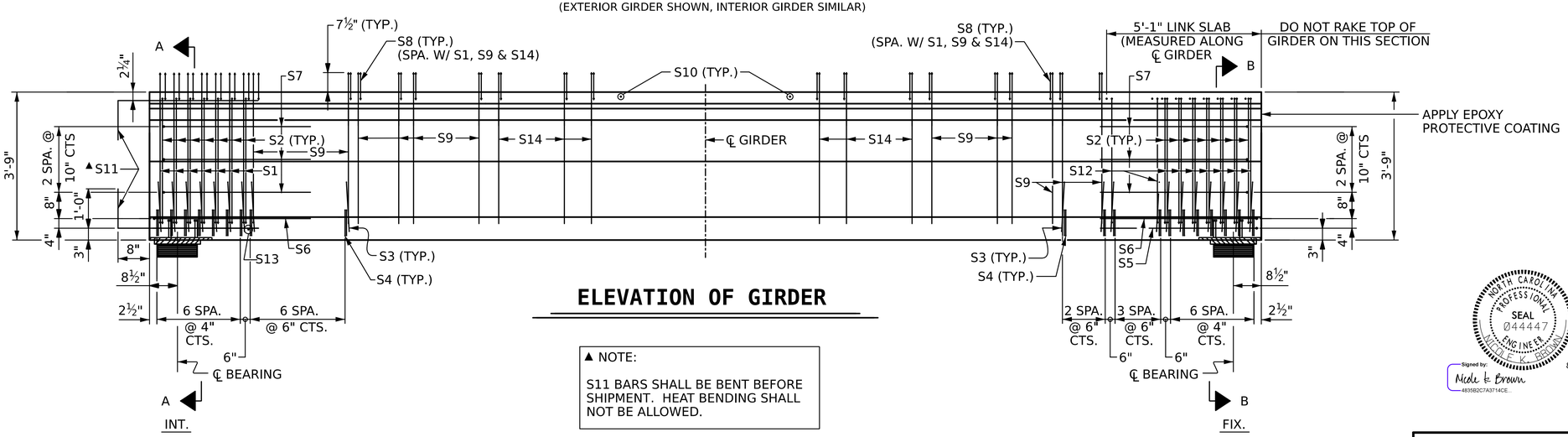
## GIRDERS REQUIRED

| NUMBER | LENGTH | TOTAL LENGTH |
|---|---|---|
| 4 (SPAN A) | 103'-2" | 412'-8" |
| 4 (SPAN C) | 103'-2" | 412'-8" |




**PLAN OF GIRDER**

(EXTERIOR GIRDER SHOWN, INTERIOR GIRDER SIMILAR)




**ELEVATION OF GIRDER**

▲ NOTE:

S11 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

NORTH CAROLINA PROFESSIONAL SEAL Ø44447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 4835B2C7A3714CE...

8/7/2026

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

# 45" FIB PRESTRESSED CONCRETE GIRDER (SPAN A SHOWN, SPAN C MIRRORED)

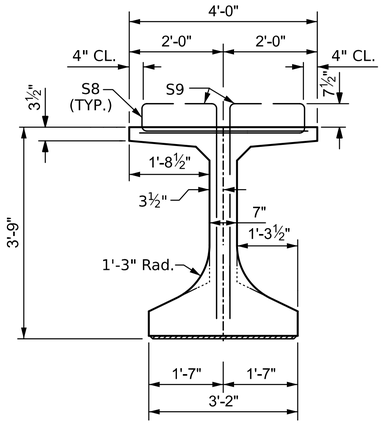
| DRAWN BY : FMW | DATE : 1-26 | DESIGN ENGINEER OF RECORD: N. BROWN | DATE : 4-26 | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED |
|---|---|---|---|---|
| CHECKED BY : LAD | DATE : 2-26 | | | |

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| NO. | BY: | DATE: | NO. | BY: | DATE: | S-12 |
| 1 | | | 3 | | | TOTAL SHEETS |
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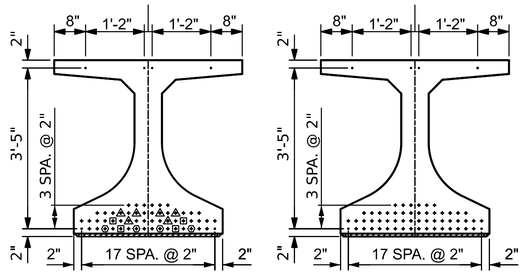
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## SECTION C-C

## DEBONDING LEGEND

- ● FULLY BONDED STRANDS
- ◬ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ▣ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER
- ⬣ STRANDS DEBONDED FOR 16'-0" FROM END OF GIRDER




## 0.6" Ø LOW RELAXATION STRAND LAYOUT

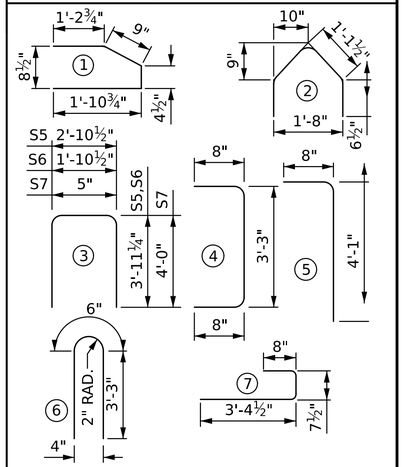
## NOTES

SEE SHEET 1 OF 3 FOR SECTION B-B

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

| REINFORCING STEEL FOR ONE GDR | | | | | |
|---|---|---|---|---|---|
| BAR | NUMBER | SIZE | TYPE | LENGTH | WEIGHT |
| S1 | 14 | #6 | 6 | 7'-0" | 147 |
| S2 | 28 | #6 | 4 | 4'-7" | 193 |
| S3 | 28 | #3 | 2 | 3'-4" | 35 |
| S4 | 56 | #3 | 1 | 4'-3" | 89 |
| S5 | 2 | #5 | 3 | 10'-9" | 22 |
| S6 | 2 | #5 | 3 | 9'-9" | 20 |
| S7 | 6 | #4 | 3 | 8'-5" | 34 |
| S8 | 198 | #5 | 7 | 4'-8" | 964 |
| S9 | 100 | #5 | 5 | 4'-9" | 495 |
| S10 | 41 | #5 | STR | 3'-8" | 157 |
| S11 | 14 | #5 | 6 | 7'-0" | 102 |
| S12 | 98 | #4 | 5 | 4'-9" | 311 |
| | | | | | |

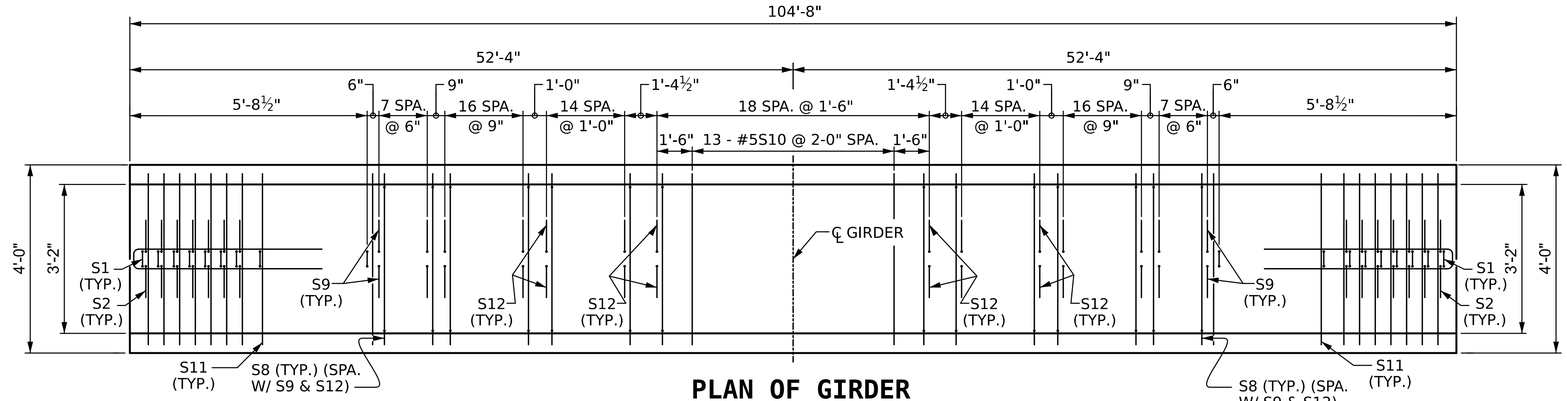
## BAR TYPES




ALL BAR DIMENSIONS ARE OUT-TO-OUT

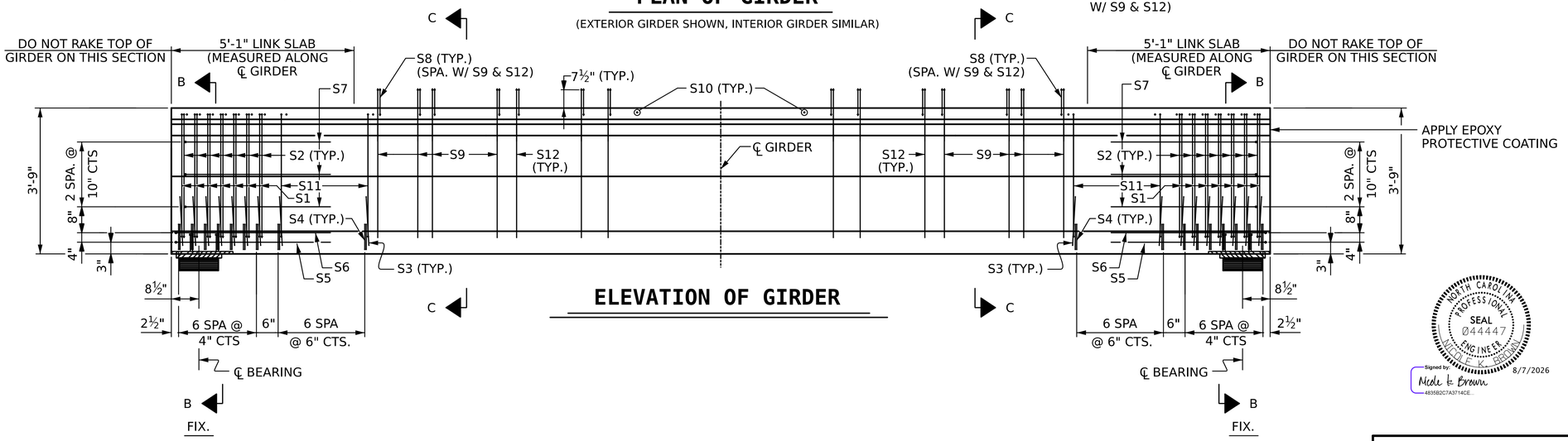
| QUANTITIES FOR ONE GIRDER | | |
|---|---|---|
| REINFORCING STEEL | 9,500 PSI CONCRETE | 0.6" ∅ L.R. STRANDS |
| LB. | C.Y. | No. |
| 2,569 | 23.4 | 60 |

| GIRDERS REQUIRED | | |
|---|---|---|
| NUMBER | LENGTH | TOTAL LENGTH |
| 4 | 104'-8" | 418'-8" |
| | | |




## PLAN OF GIRDER

(EXTERIOR GIRDER SHOWN, INTERIOR GIRDER SIMILAR)




## ELEVATION OF GIRDER

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER
Signed by: Nicole K Brown 8/7/2026
4835B2C7A3714CE...

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

# 45" FIB PRESTRESSED CONCRETE GIRDER (SPAN B)

| DRAWN BY : FMW | DATE : 1-26 | DESIGN ENGINEER OF RECORD: N. BROWN | DATE : 4-26 | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED |
|---|---|---|---|---|
| CHECKED BY : LAD | DATE : 2-26 | | | |

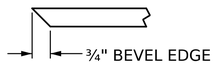
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Charlotte, NC 28203
NC License Number F-0991

| REVISIONS | | | | | |
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| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
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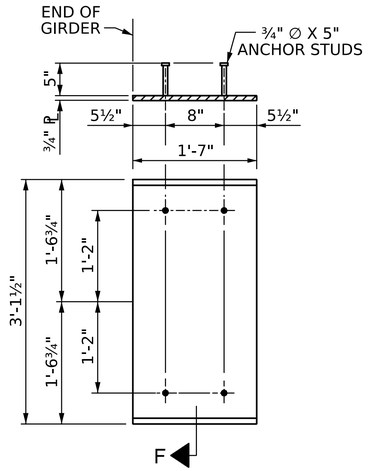
SHEET NO. S-13
TOTAL SHEETS 36

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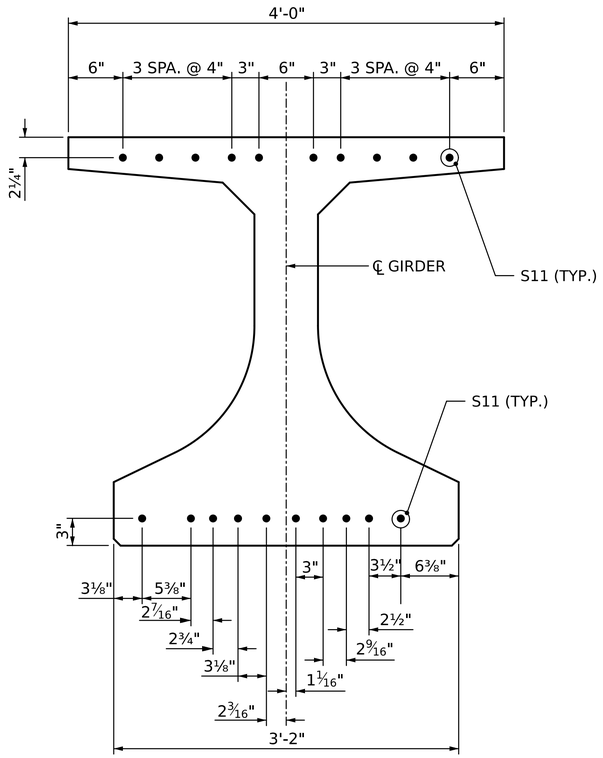
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## SECTION "F"
(SEE NOTES)




## EMBEDDED PLATE "B-1" DETAILS FOR FIB GIRDER
(2 REQ'D PER GIRDER)




## DETAIL "C"

# 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 SHALL BE GRADE 60.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUB SECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 7,600 PSI.

DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", AND THE AREA SHOWN ON THE GIRDER SHEETS SHALL BE RAKED TO A DEPTH OF ¼".

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 483582C7A3714CE...

8/7/2026

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

**45" FIB PRESTRESSED CONCRETE GIRDER DETAILS**

| DRAWN BY : FMW | DATE : 1-26 | DESIGN ENGINEER OF RECORD: N. BROWN | DATE : 4-26 | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED |
|---|---|---|---|---|
| CHECKED BY : LAD | DATE : 2-26 | | | |

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| 1 | | | 3 | | | TOTAL SHEETS |
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## DEAD LOAD DEFLECTION TABLE FOR SPAN A & C

GIRDERS 1 & 4

| FOURTIETH POINTS | 0.000 | 0.025 | 0.050 | 0.075 | 0.100 | 0.125 | 0.150 | 0.175 | 0.200 | 0.225 | 0.250 | 0.275 | 0.300 | 0.325 | 0.350 | 0.375 | 0.400 | 0.425 | 0.450 | 0.475 | 0.500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMBER (GIRDER ALONE IN PLACE) ▲ | 0.000 | 0.027 | 0.054 | 0.080 | 0.106 | 0.131 | 0.156 | 0.179 | 0.201 | 0.221 | 0.241 | 0.259 | 0.275 | 0.289 | 0.302 | 0.313 | 0.322 | 0.329 | 0.334 | 0.337 | 0.338 |
| * DEFLECTION DUE TO SUPERIMPOSED D.L. ▼ | 0.000 | -0.017 | -0.035 | -0.052 | -0.069 | -0.086 | -0.103 | -0.119 | -0.135 | -0.149 | -0.163 | -0.175 | -0.186 | -0.196 | -0.206 | -0.212 | -0.219 | -0.223 | -0.228 | -0.229 | -0.230 |
| FINAL CAMBER ▲ | 0" | 1/8" | 1/4" | 5/16" | 7/16" | 9/16" | 5/8" | 11/16" | 13/16" | 7/8" | 15/16" | 1" | 1 1/16" | 1 1/8" | 1 3/16" | 1 3/16" | 1 1/4" | 1 1/4" | 1 1/4" | 1 5/16" | 1 5/16" |
| FOURTIETH POINTS | 0.525 | 0.550 | 0.575 | 0.600 | 0.625 | 0.650 | 0.675 | 0.700 | 0.725 | 0.750 | 0.775 | 0.800 | 0.825 | 0.850 | 0.875 | 0.900 | 0.925 | 0.950 | 0.975 | 1.000 | |
| CAMBER (GIRDER ALONE IN PLACE) ▲ | 0.337 | 0.334 | 0.328 | 0.322 | 0.313 | 0.302 | 0.289 | 0.275 | 0.259 | 0.241 | 0.221 | 0.201 | 0.179 | 0.156 | 0.131 | 0.106 | 0.080 | 0.054 | 0.027 | 0.000 | |
| * DEFLECTION DUE TO SUPERIMPOSED D.L. ▼ | -0.229 | -0.228 | -0.223 | -0.219 | -0.212 | -0.206 | -0.196 | -0.186 | -0.175 | -0.163 | -0.149 | -0.135 | -0.119 | -0.103 | -0.086 | -0.069 | -0.052 | -0.035 | -0.017 | 0.000 | |
| FINAL CAMBER ▲ | 1 5/16" | 1 1/4" | 1 1/4" | 1 1/4" | 1 3/16" | 1 3/16" | 1 1/8" | 1 1/16" | 1" | 15/16" | 7/8" | 13/16" | 11/16" | 5/8" | 9/16" | 7/16" | 5/16" | 1/4" | 1/8" | 0" | |

## DEAD LOAD DEFLECTION TABLE FOR SPAN A & C

GIRDERS 2 & 3

| FOURTIETH POINTS | 0.000 | 0.025 | 0.050 | 0.075 | 0.100 | 0.125 | 0.150 | 0.175 | 0.200 | 0.225 | 0.250 | 0.275 | 0.300 | 0.325 | 0.350 | 0.375 | 0.400 | 0.425 | 0.450 | 0.475 | 0.500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMBER (GIRDER ALONE IN PLACE) ▲ | 0.000 | 0.027 | 0.054 | 0.080 | 0.106 | 0.131 | 0.156 | 0.179 | 0.201 | 0.221 | 0.241 | 0.259 | 0.275 | 0.289 | 0.302 | 0.313 | 0.322 | 0.329 | 0.334 | 0.337 | 0.338 |
| * DEFLECTION DUE TO SUPERIMPOSED D.L. ▼ | 0.000 | -0.019 | -0.037 | -0.055 | -0.074 | -0.092 | -0.110 | -0.127 | -0.144 | -0.159 | -0.174 | -0.186 | -0.199 | -0.209 | -0.219 | -0.227 | -0.234 | -0.238 | -0.243 | -0.244 | -0.246 |
| FINAL CAMBER ▲ | 0" | 1/8" | 3/16" | 5/16" | 3/8" | 1/2" | 9/16" | 5/8" | 11/16" | 3/4" | 13/16" | 7/8" | 15/16" | 15/16" | 1" | 1 1/16" | 1 1/16" | 1 1/16" | 1 1/16" | 1 1/8" | 1 1/8" |
| FOURTIETH POINTS | 0.525 | 0.550 | 0.575 | 0.600 | 0.625 | 0.650 | 0.675 | 0.700 | 0.725 | 0.750 | 0.775 | 0.800 | 0.825 | 0.850 | 0.875 | 0.900 | 0.925 | 0.950 | 0.975 | 1.000 | |
| CAMBER (GIRDER ALONE IN PLACE) ▲ | 0.337 | 0.334 | 0.328 | 0.322 | 0.313 | 0.302 | 0.289 | 0.275 | 0.259 | 0.241 | 0.221 | 0.201 | 0.179 | 0.156 | 0.131 | 0.106 | 0.080 | 0.054 | 0.027 | 0.000 | |
| * DEFLECTION DUE TO SUPERIMPOSED D.L. ▼ | -0.244 | -0.243 | -0.238 | -0.234 | -0.227 | -0.219 | -0.209 | -0.199 | -0.186 | -0.174 | -0.159 | -0.144 | -0.127 | -0.110 | -0.092 | -0.074 | -0.055 | -0.037 | -0.019 | 0.000 | |
| FINAL CAMBER ▲ | 1 1/8" | 1 1/8" | 1 1/16" | 1 1/16" | 1 1/16" | 1" | 15/16" | 15/16" | 7/8" | 13/16" | 3/4" | 11/16" | 5/8" | 9/16" | 1/2" | 3/8" | 5/16" | 3/16" | 1/8" | 0" | |

## DEAD LOAD DEFLECTION TABLE FOR SPAN B

GIRDERS 1 & 4

| FOURTIETH POINTS | 0.000 | 0.025 | 0.050 | 0.075 | 0.100 | 0.125 | 0.150 | 0.175 | 0.200 | 0.225 | 0.250 | 0.275 | 0.300 | 0.325 | 0.350 | 0.375 | 0.400 | 0.425 | 0.450 | 0.475 | 0.500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMBER (GIRDER ALONE IN PLACE) ▲ | 0.000 | 0.027 | 0.054 | 0.081 | 0.107 | 0.132 | 0.157 | 0.181 | 0.203 | 0.224 | 0.243 | 0.261 | 0.278 | 0.292 | 0.305 | 0.316 | 0.325 | 0.332 | 0.337 | 0.340 | 0.341 |
| * DEFLECTION DUE TO SUPERIMPOSED D.L. ▼ | 0.000 | -0.019 | -0.037 | -0.055 | -0.073 | -0.092 | -0.110 | -0.127 | -0.143 | -0.158 | -0.173 | -0.186 | -0.198 | -0.208 | -0.218 | -0.226 | -0.233 | -0.238 | -0.242 | -0.244 | -0.245 |
| FINAL CAMBER ▲ | 0" | 1/8" | 3/16" | 5/16" | 7/16" | 1/2" | 9/16" | 5/8" | 11/16" | 13/16" | 7/8" | 15/16" | 15/16" | 1" | 1 1/16" | 1 1/16" | 1 1/8" | 1 1/8" | 1 1/8" | 13/16" | 13/16" |
| FOURTIETH POINTS | 0.525 | 0.550 | 0.575 | 0.600 | 0.625 | 0.650 | 0.675 | 0.700 | 0.725 | 0.750 | 0.775 | 0.800 | 0.825 | 0.850 | 0.875 | 0.900 | 0.925 | 0.950 | 0.975 | 1.000 | |
| CAMBER (GIRDER ALONE IN PLACE) ▲ | 0.340 | 0.337 | 0.331 | 0.325 | 0.316 | 0.305 | 0.292 | 0.278 | 0.261 | 0.243 | 0.224 | 0.203 | 0.181 | 0.157 | 0.132 | 0.107 | 0.081 | 0.054 | 0.027 | 0.000 | |
| * DEFLECTION DUE TO SUPERIMPOSED D.L. ▼ | -0.244 | -0.242 | -0.238 | -0.233 | -0.226 | -0.218 | -0.208 | -0.198 | -0.186 | -0.173 | -0.158 | -0.143 | -0.127 | -0.110 | -0.092 | -0.073 | -0.055 | -0.037 | -0.019 | 0.000 | |
| FINAL CAMBER ▲ | 1 3/16" | 1 1/8" | 1 1/8" | 1 1/8" | 1 1/16" | 1 1/16" | 1" | 15/16" | 15/16" | 7/8" | 13/16" | 11/16" | 5/8" | 9/16" | 1/2" | 7/16" | 5/16" | 3/16" | 1/8" | 0" | |

## DEAD LOAD DEFLECTION TABLE FOR SPAN B

GIRDERS 2 & 3

| FOURTIETH POINTS | 0.000 | 0.025 | 0.050 | 0.075 | 0.100 | 0.125 | 0.150 | 0.175 | 0.200 | 0.225 | 0.250 | 0.275 | 0.300 | 0.325 | 0.350 | 0.375 | 0.400 | 0.425 | 0.450 | 0.475 | 0.500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMBER (GIRDER ALONE IN PLACE) ▲ | 0.000 | 0.027 | 0.054 | 0.081 | 0.107 | 0.132 | 0.157 | 0.181 | 0.203 | 0.224 | 0.243 | 0.261 | 0.278 | 0.292 | 0.305 | 0.316 | 0.325 | 0.332 | 0.337 | 0.340 | 0.341 |
| * DEFLECTION DUE TO SUPERIMPOSED D.L. ▼ | 0.000 | -0.020 | -0.040 | -0.059 | -0.078 | -0.098 | -0.117 | -0.135 | -0.153 | -0.169 | -0.185 | -0.198 | -0.212 | -0.222 | -0.233 | -0.241 | -0.249 | -0.254 | -0.258 | -0.260 | -0.261 |
| FINAL CAMBER ▲ | 0" | 1/16" | 3/16" | 1/4" | 3/8" | 7/16" | 1/2" | 9/16" | 5/8" | 11/16" | 11/16" | 3/4" | 13/16" | 13/16" | 7/8" | 7/8" | 15/16" | 15/16" | 15/16" | 15/16" | 15/16" |
| FOURTIETH POINTS | 0.525 | 0.550 | 0.575 | 0.600 | 0.625 | 0.650 | 0.675 | 0.700 | 0.725 | 0.750 | 0.775 | 0.800 | 0.825 | 0.850 | 0.875 | 0.900 | 0.925 | 0.950 | 0.975 | 1.000 | |
| CAMBER (GIRDER ALONE IN PLACE) ▲ | 0.340 | 0.337 | 0.331 | 0.325 | 0.316 | 0.305 | 0.292 | 0.278 | 0.261 | 0.243 | 0.224 | 0.203 | 0.181 | 0.157 | 0.132 | 0.107 | 0.081 | 0.054 | 0.027 | 0.000 | |
| * DEFLECTION DUE TO SUPERIMPOSED D.L. ▼ | -0.260 | -0.258 | -0.254 | -0.249 | -0.241 | -0.233 | -0.222 | -0.212 | -0.198 | -0.185 | -0.169 | -0.153 | -0.135 | -0.117 | -0.098 | -0.078 | -0.059 | -0.040 | -0.020 | 0.000 | |
| FINAL CAMBER ▲ | 15/16" | 15/16" | 15/16" | 15/16" | 7/8" | 7/8" | 13/16" | 13/16" | 3/4" | 11/16" | 11/16" | 5/8" | 9/16" | 1/2" | 7/16" | 3/8" | 1/4" | 3/16" | 1/16" | 0" | |

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVE IN INCHES (FRACTION FORM).

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 8/7/2026
4835B2C7A3714CE...

PROJECT NO. HB-0038
NASH COUNTY
STATION: 16+73.00 -L-
SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

**DEAD LOAD DEFLECTIONS**

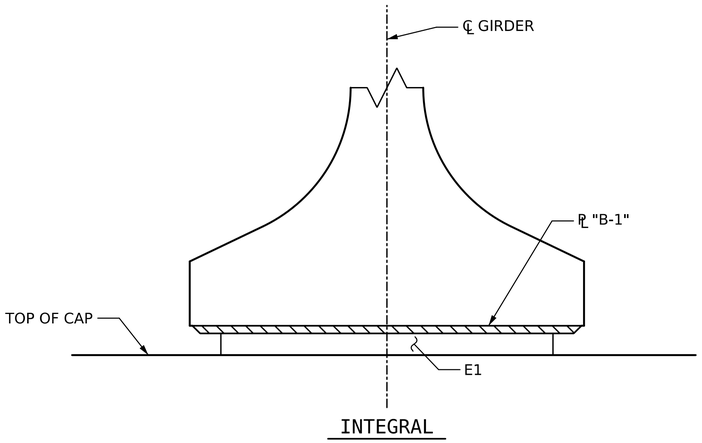
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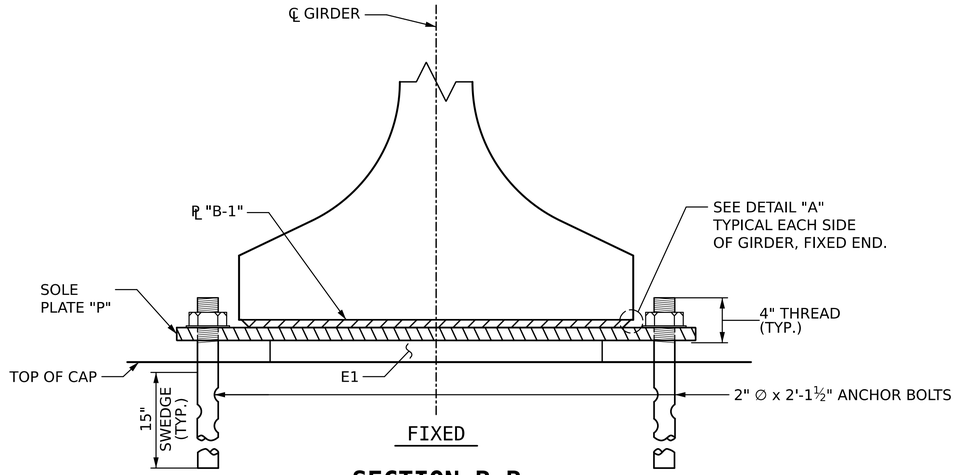
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## SECTION A-A




## SECTION B-B

## NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

SOLE PLATE "P", BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

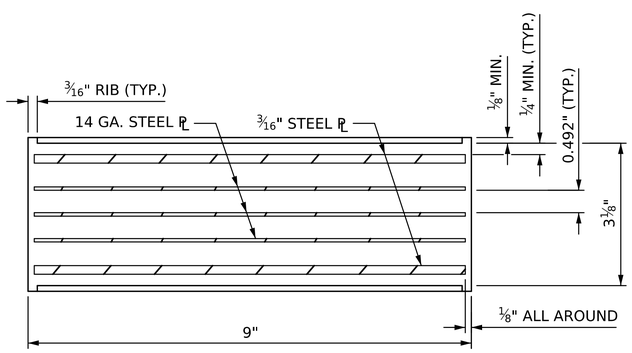
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

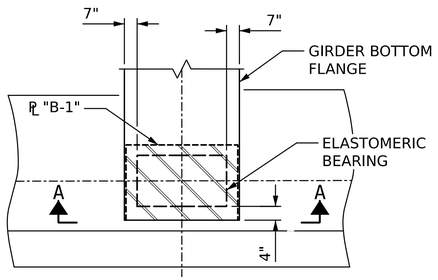
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

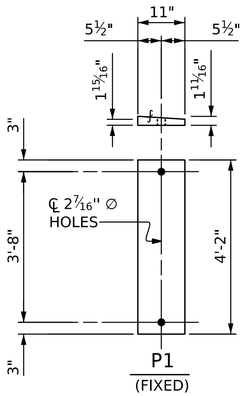


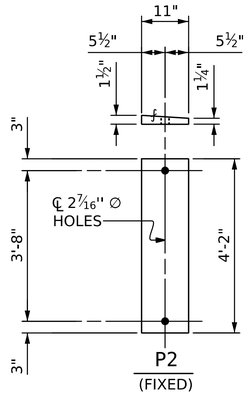

## TYPICAL SECTION OF ELASTOMERIC BEARINGS




## TYPICAL PLAN AT INTEGRAL END BENT

(END BENT 1 SHOWN, END BENT 2 SIMILAR)




## SOLE PLATE DETAILS ("P")

| MAXIMUM ALLOWABLE SERVICE LOADS | |
|---|---|
| D.L. + L.L. (NO IMPACT) | |
| TYPE VIII | 390 K |

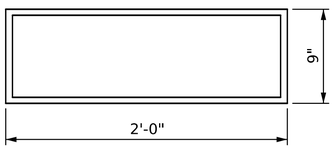



## DETAIL "A"

PROJECT NO. HB-0038

NASH COUNTY

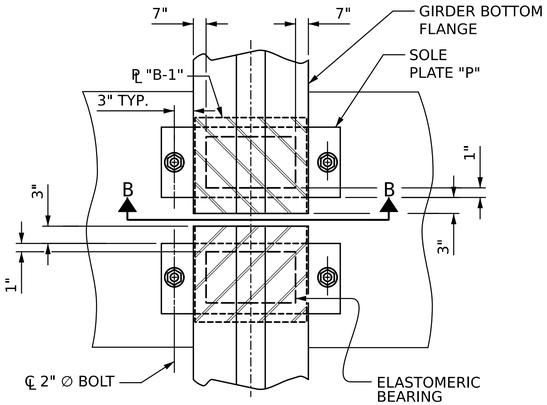
STATION: 16+73.00 -L-



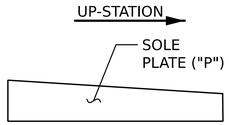

## PLAN VIEW OF ELASTOMERIC BEARING

E1 (24 REQ'D)

**E1**




## PLAN VIEW OF INTERIOR BENT




## SOLE ℄ PLACEMENT DETAIL

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

# ELASTOMERIC BEARING DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICHOLAS K. BROWN

Signed by: Nicole K Brown 8/7/2026

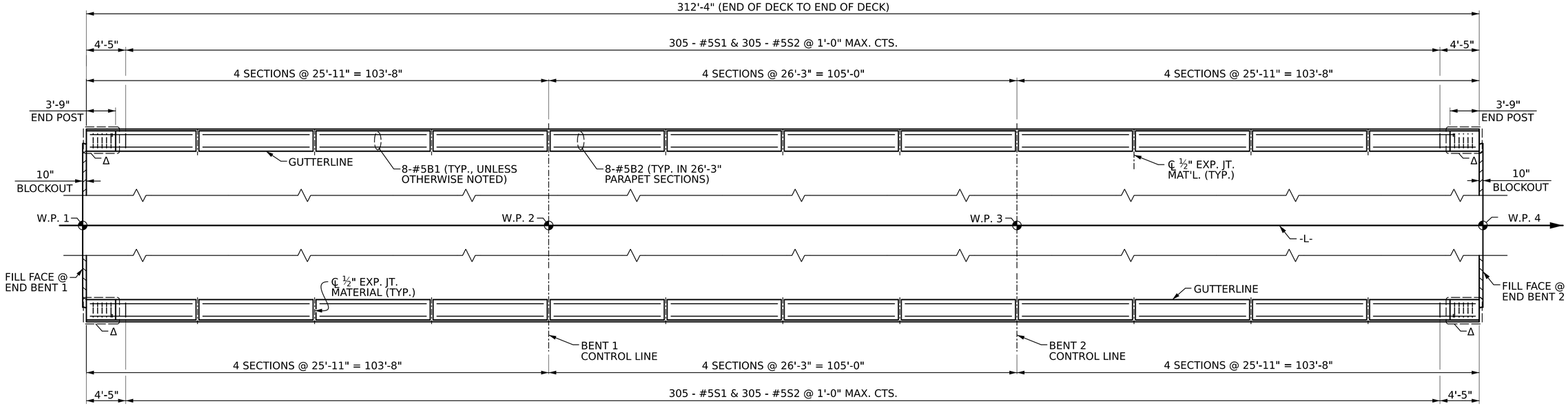
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|---|---|---|---|---|
| CHECKED BY : LAD | DATE : 2-26 | | | |

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SPAN A SPAN B SPAN C

Δ FOR REINFORCING STEEL AT END POST, SEE DETAILS ON SHEET 2 OF 2.

## PLAN OF CONCRETE RAIL

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE L. BROWN

Signed by: Nicole L Brown 4835B2C7A3714CE...

8/7/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

**CONCRETE PARAPET**

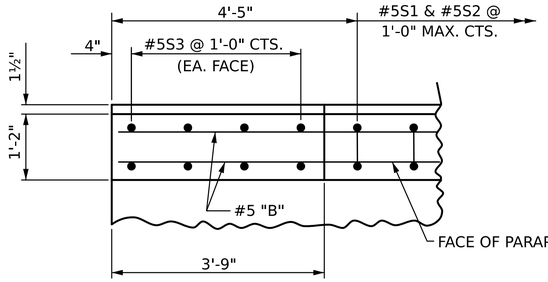
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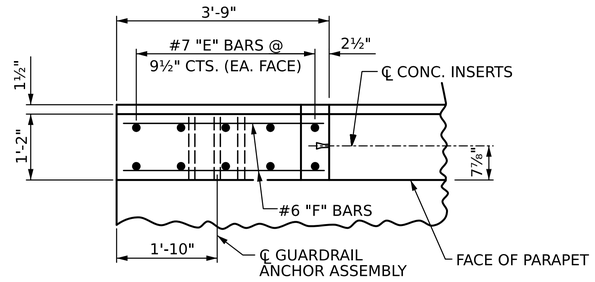
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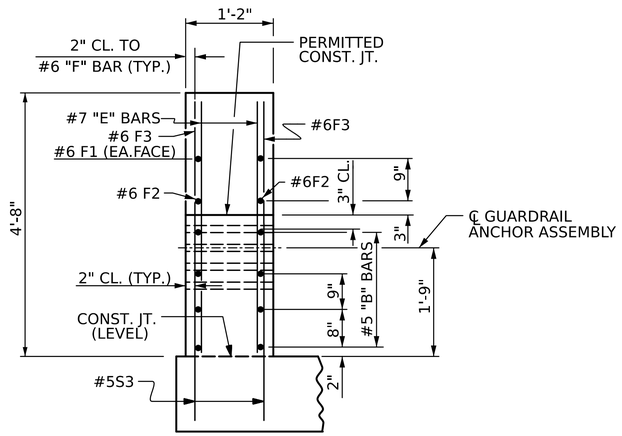
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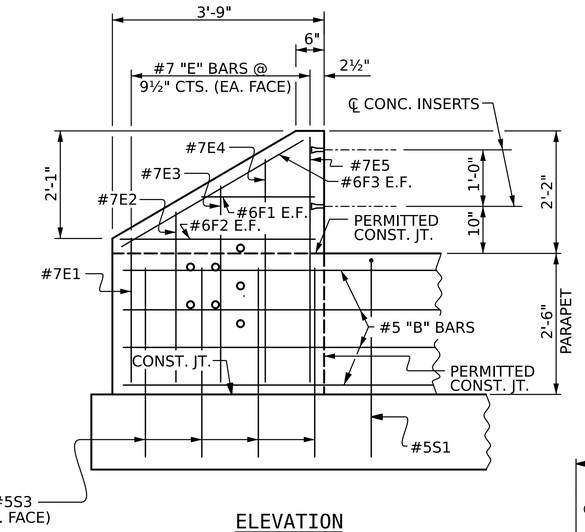




## PLAN OF PARAPET



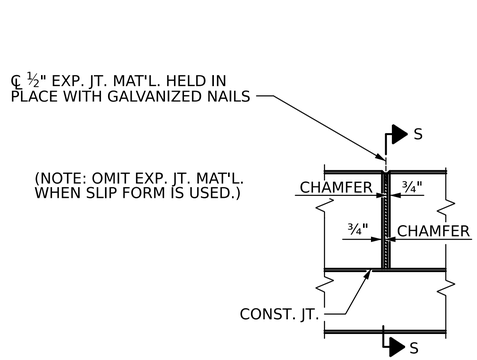

END VIEW

## PLAN OF END POST

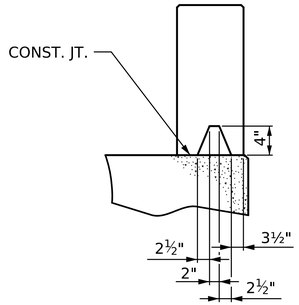



ELEVATION

## PARAPET AND END POST FOR TWO BAR METAL RAIL



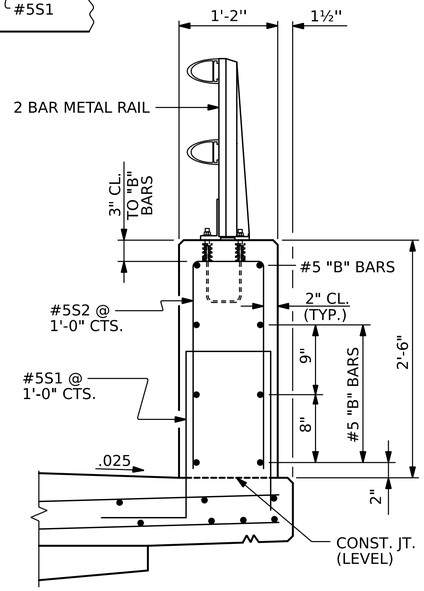

ELEVATION AT EXPANSION JOINTS




SECTION S-S

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

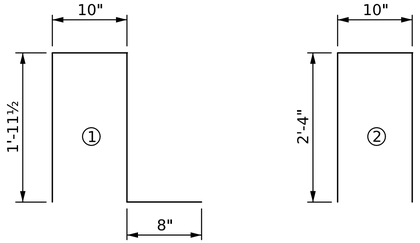
## PARAPET RAIL DETAILS




## SECTION THRU PARAPET AND RAIL

RIGHT PARAPET SHOWN, LEFT PARAPET SIMILAR

## BAR TYPE




ALL BAR DIMENSIONS ARE OUT TO OUT.

## BILL OF MATERIAL

FOR CONCRETE PARAPET AND FOUR END POSTS

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| * B1 | 128 | #5 | STR | 25'-7" | 3,415 |
| * B2 | 64 | #5 | STR | 25'-11" | 1,730 |
| | | | | | |
| * E1 | 8 | #7 | STR | 2'-7" | 42 |
| * E2 | 8 | #7 | STR | 3'-1" | 50 |
| * E3 | 8 | #7 | STR | 3'-8" | 60 |
| * E4 | 8 | #7 | STR | 4'-2" | 68 |
| * E5 | 8 | #7 | STR | 4'-6" | 74 |
| | | | | | |
| * F1 | 8 | #6 | STR | 1'-10" | 22 |
| * F2 | 8 | #6 | STR | 3'-0" | 36 |
| * F3 | 8 | #6 | STR | 3'-6" | 42 |
| | | | | | |
| * S1 | 305 | #5 | ① | 5'-5" | 1,723 |
| * S2 | 305 | #5 | ② | 5'-6" | 1,750 |
| * S3 | 32 | #5 | STR | 3'-0" | 100 |

| | | |
|---|---|---|
| * EPOXY COATED REINFORCING STEEL | 9,112 | LBS. |
| CLASS AA CONCRETE | 68.3 | CU. YARDS |
| 1'-2" x 2'-6" CONCRETE PARAPET | 624.7 | LIN. FT. |

NOTES:

ALL REINFORCING STEEL IN CONCRETE PARAPETS SHALL BE EPOXY COATED.

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

CONCRETE PARAPET IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL Ø44447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 8/7/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

**CONCRETE PARAPET**

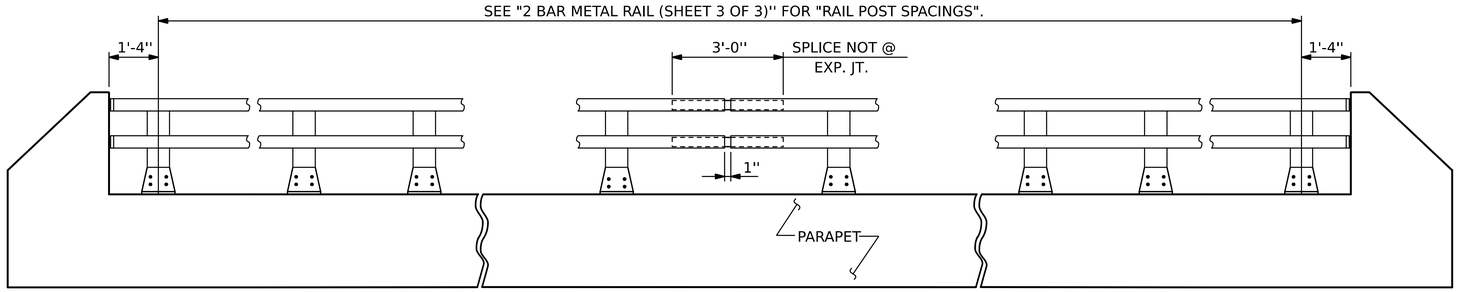
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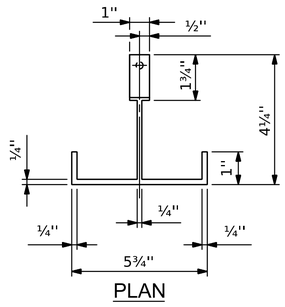
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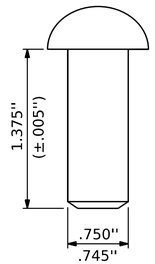



## ELEVATION

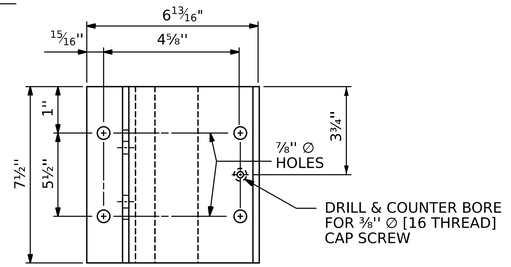
FOR ATTACHMENT OF METAL RAIL TO END POST,
SEE "2 BAR METAL RAIL SHEET 4 OF 4''.



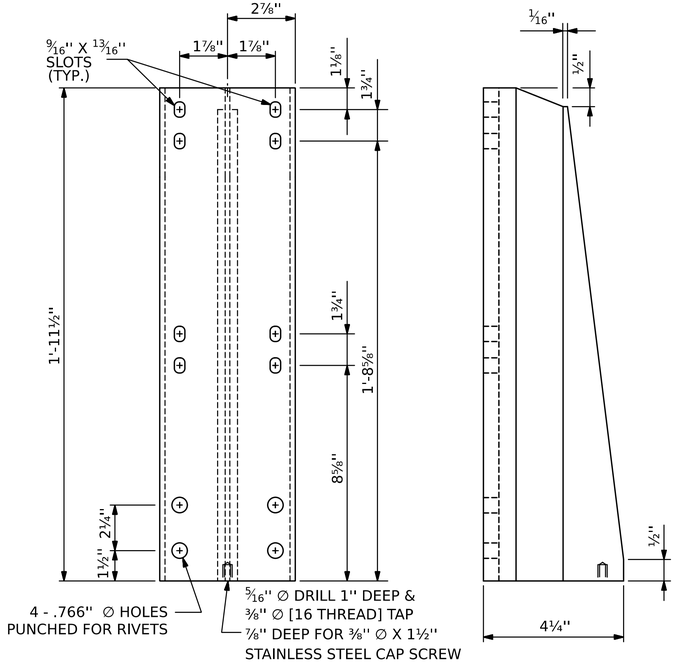

PLAN




## RIVET DETAILS




PLAN

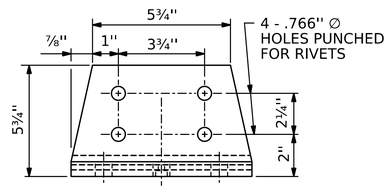



FRONT ELEVATION

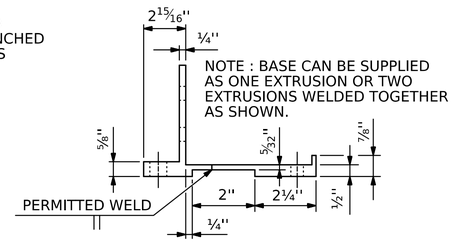



SIDE ELEVATION

## DETAILS OF POST




FRONT ELEVATION




SIDE ELEVATION

## POST BASE DETAILS

## NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

UNLESS OTHERWISE REQUIRED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR HAS THE OPTION TO USE AN ALTERNATE TO THE 2 BAR METAL RAIL. THE ALTERNATE RAIL SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST (APL) UNDER "2 BAR METAL RAIL ALTERNATE". ADJUSTMENTS TO THE CONCRETE PARAPET WILL NOT BE ALLOWED.

### ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6.

MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

### GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: ASTM A36 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO ASTM A123.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A1011 FOR GRADE 36, 40, 45 OR ASTM A1008 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A1011 FOR GRADE 36, 40, 45 OR ASTM A1008 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

### GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE "2 BAR METAL RAIL (SHEET 3 OF 3)".

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

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

FOR SECTIONS THRU PARAPET AND RAIL, SEE "2 BAR METAL RAIL (SHEET 3 OF 3)".

PAY LENGTH = 603.83 LIN. FT.

NORTH CAROLINA PROFESSIONAL SEAL Ø44447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 483582C7A3714CE... 8/7/2026

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

# 2 BAR METAL RAIL

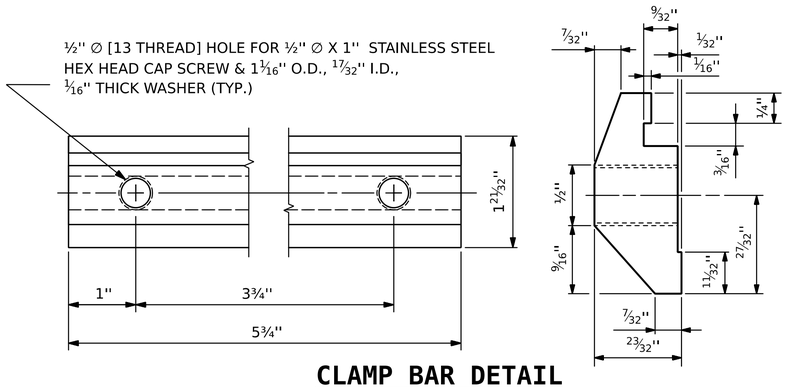
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Charlotte, NC 28203
NC License Number F-0991

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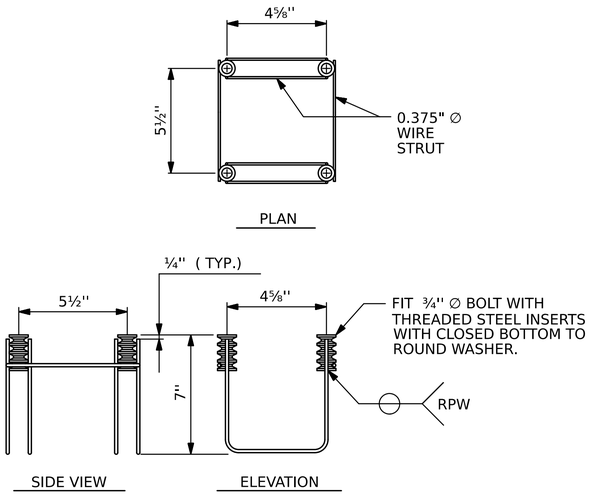
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## CLAMP BAR DETAIL

(4 REQUIRED PER POST)




## 4-BOLT METAL RAIL ANCHOR ASSEMBLY

(100 ASSEMBLIES REQUIRED)

## NOTES

STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2'' FOR ¾'' FERRULES.

B. 4 - ¾'' ∅ X 2½'' BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE ¾'' ∅ X 2½'' GALVANIZED BOLTS 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.

C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16'' ∅ WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

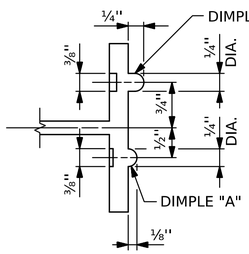
D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO A123.

E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.

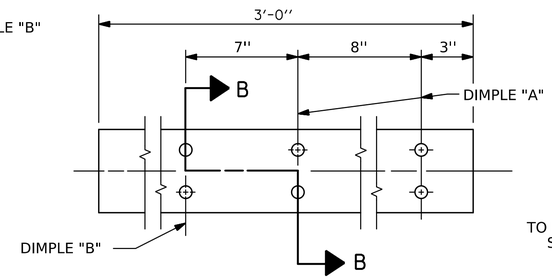
F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

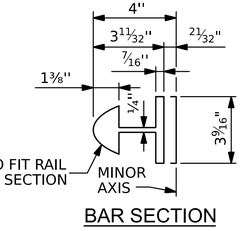
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE ¾" ∅ BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



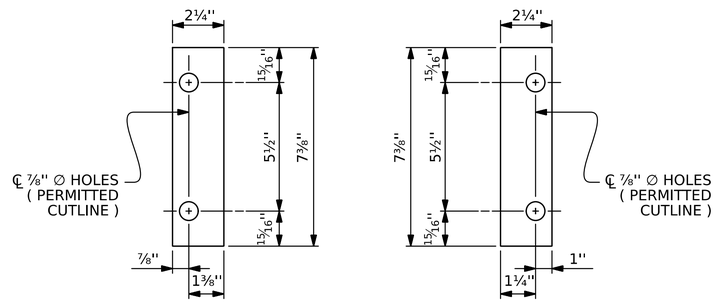

SECTION B-B



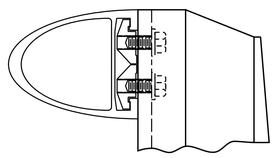

BAR SECTION

## EXPANSION BAR DETAILS

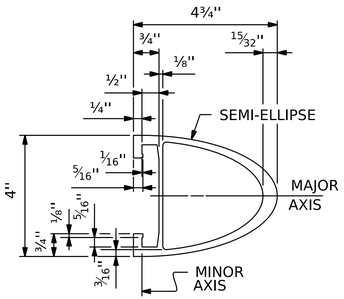



## SHIM DETAILS

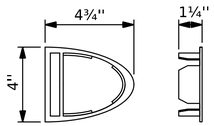
NOTE:
SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.



## CLAMP ASSEMBLY




## RAIL SECTION




RAIL CAP




PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

## 2 BAR METAL RAIL

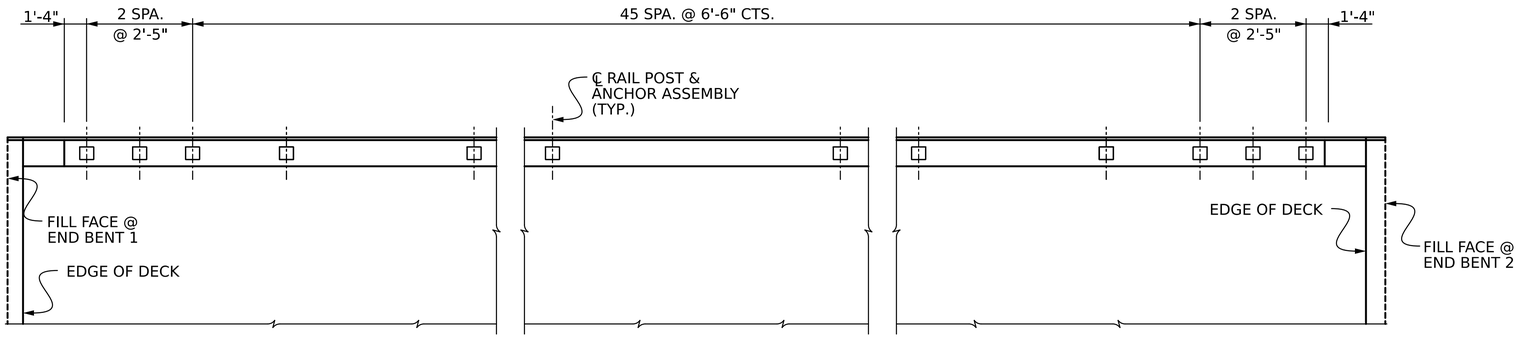
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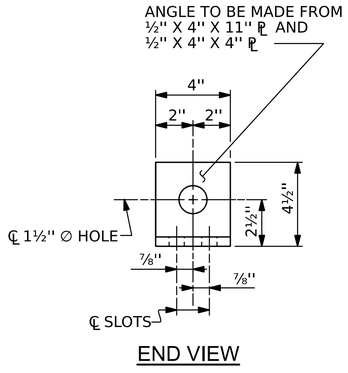
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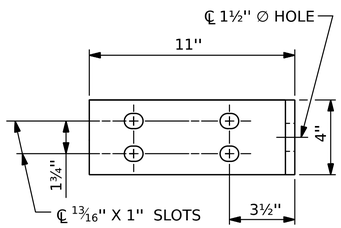



## PLAN OF RAIL POST SPACINGS

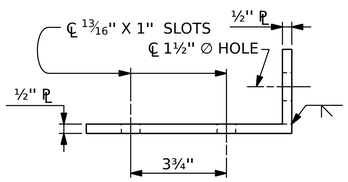
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)



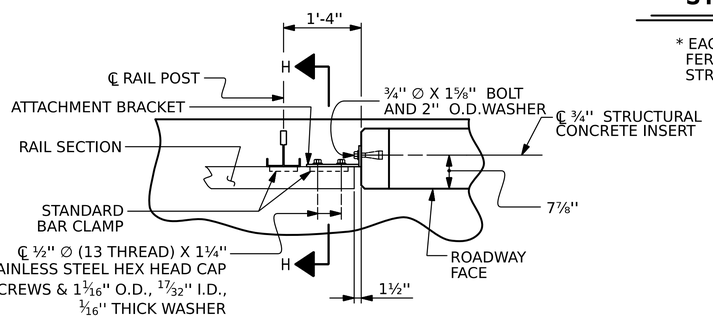

END VIEW



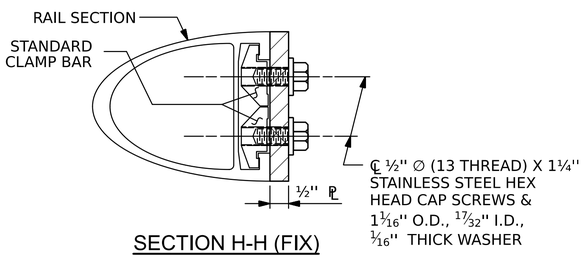

ELEVATION




TOP VIEW

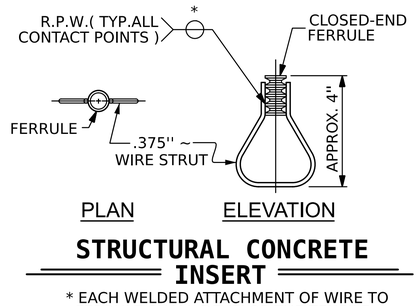



PLAN - RAIL AND END POST



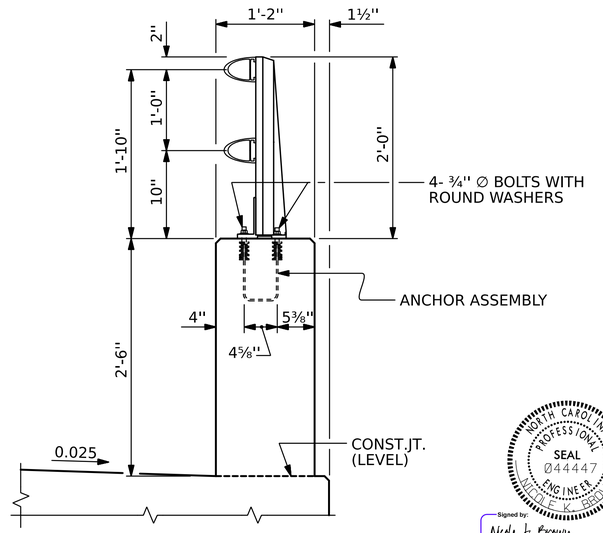

SECTION H-H (FIX)

## DETAILS FOR ATTACHING METAL RAIL TO END POST




## STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.




## SECTION THRU PARAPET AND RAIL

RIGHT PARAPET SHOWN, LEFT PARAPET SIMILAR

# NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. ½'' PLATES SHALL CONFORM TO ASTM A36 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.

B. ¾'' STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A ¾''∅ X 1⅛'' BOLT WITH 2'' O.D. WASHER IN PLACE. THE ¾''∅ X 1⅛'' BOLT SHALL HAVE N. C. THREADS.

C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.

D. STANDARD CLAMP BARS SEE "2 BAR METAL RAIL" (SHEET 2 OF 3).

E. ½'' ∅ PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 2 BAR METAL RAIL.

THE ¾'' STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE ¾'' STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE ½'' PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE ¾'' ∅ X 1⅛'' BOLT WITH WASHER SHALL BE REPLACED WITH A ¾''∅ X 6½'' BOLT AND 2'' O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE ¾''∅ X 1⅛'' BOLT SHALL APPLY TO THE ¾''∅ X 6½'' BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

# NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1½''.

B. 1 - ¾'' ∅ X 1⅛'' BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. ( AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE ¾'' ∅ X 1⅛'' GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16'' ∅ WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

**2 BAR METAL RAIL**

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 8/7/2026
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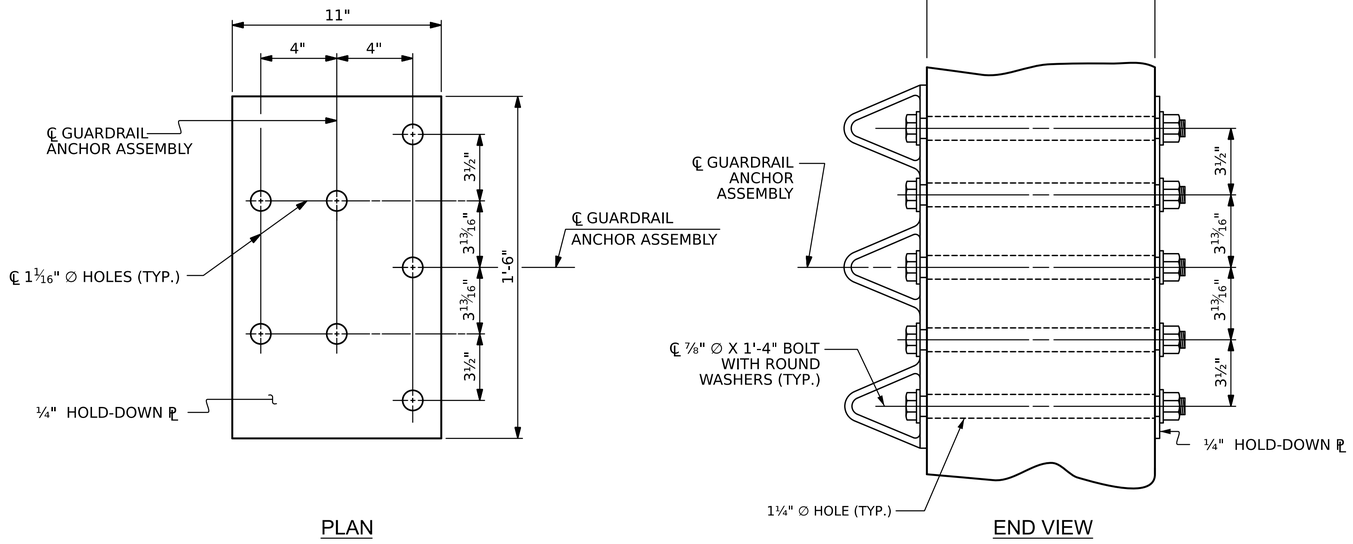
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| CHECKED BY : LAD | DATE : 2-26 | | | |

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Charlotte, NC 28203
NC License Number F-0991

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PLAN

END VIEW

## GUARDRAIL ANCHOR ASSEMBLY DETAILS

## NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A ¼" HOLD DOWN PLATE AND 7 - ⅞" ∅ 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 ⅞" ∅ GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

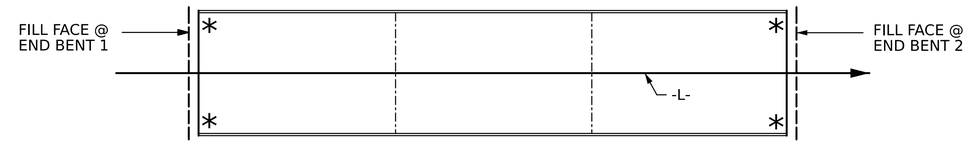
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

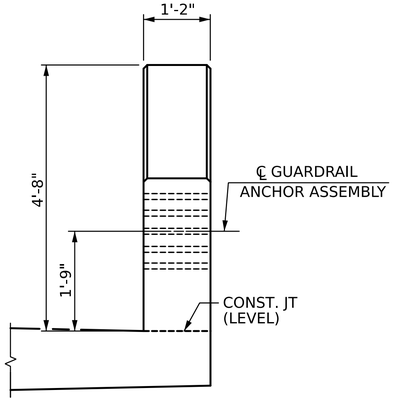
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1¼" ∅ 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.



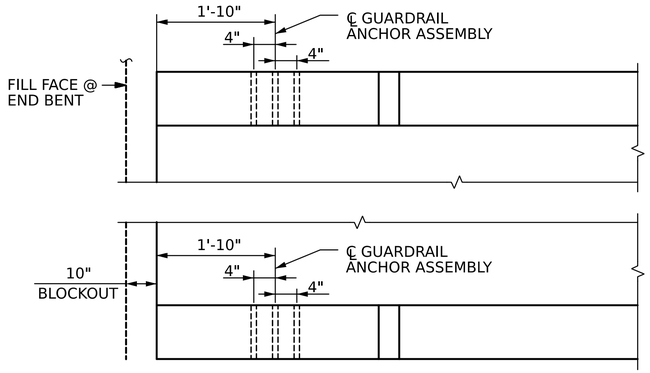

## SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT




END VIEW

(RIGHT SIDE PARAPET SHOWN, LEFT SIDE SIMILAR.)




PLAN

NOTE:GUARDRAIL ANCHORAGE ASSEMBLIES AT BEGIN OF DECK SLAB SHOWN, DETAILS FOR END OF DECK SLAB SIMILAR.

## LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 8/7/2026

4835B2C7A3714CE...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

**GUARDRAIL ANCHORAGE DETAILS**

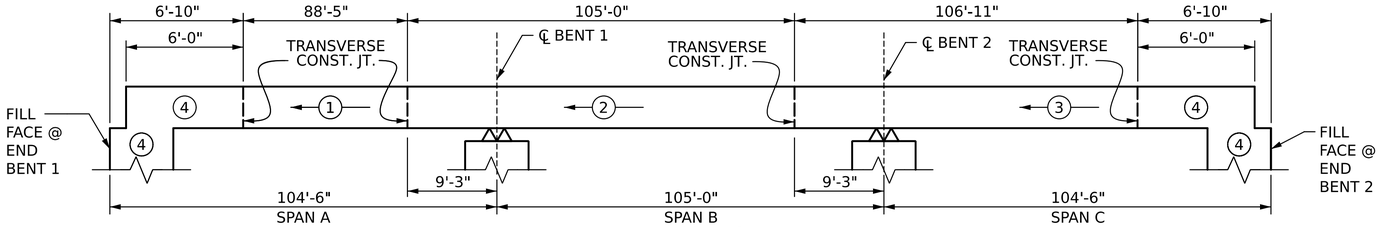
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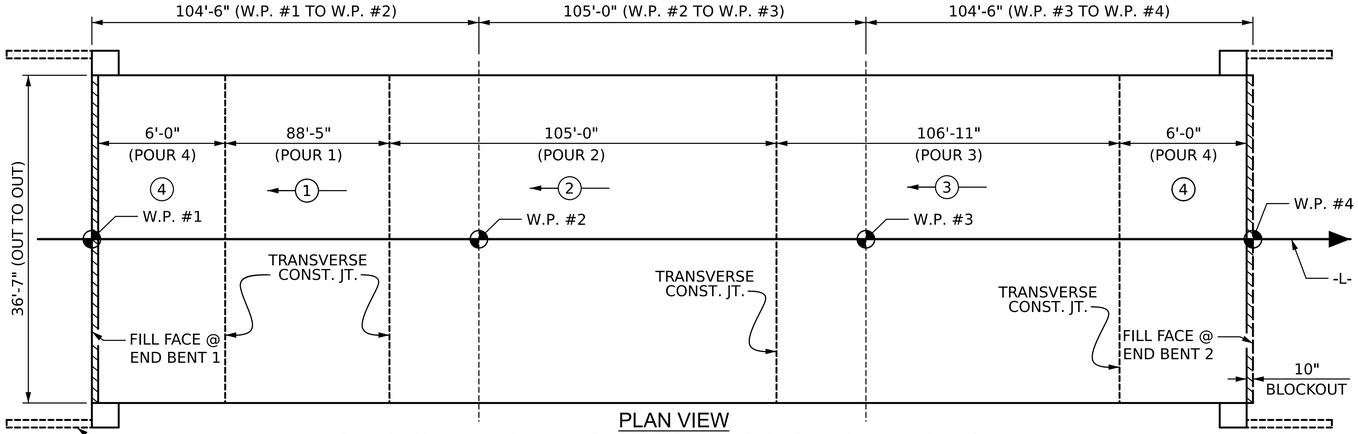
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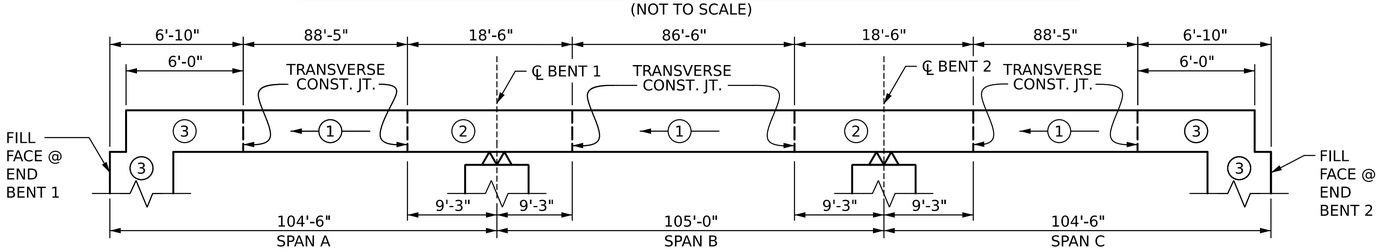

ELEVATION VIEW



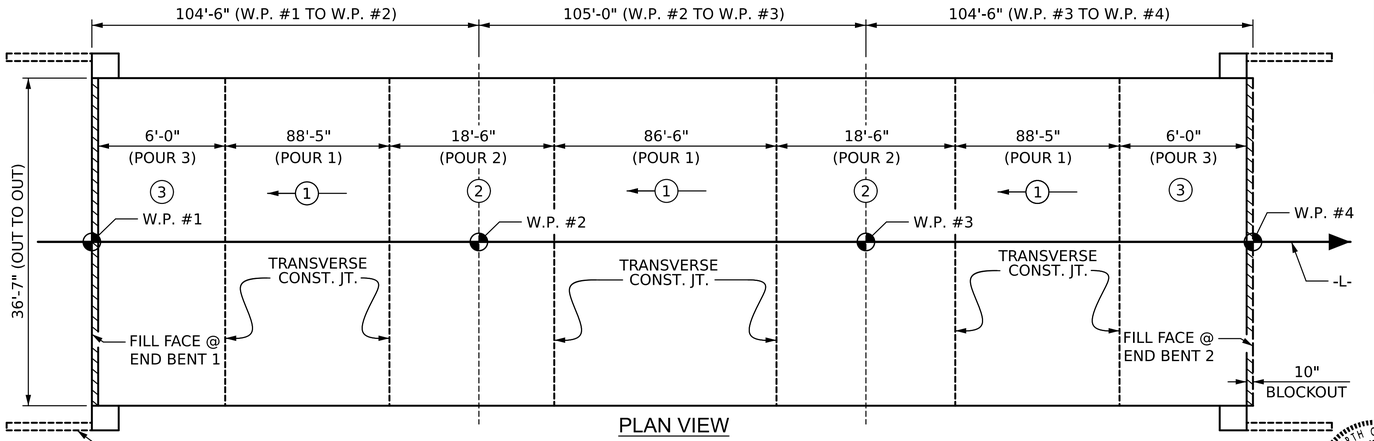

PLAN VIEW

## POUR SEQUENCE AND LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT = 11,427)

(NOT TO SCALE)




ELEVATION VIEW




PLAN VIEW

## OPTIMAL POUR SEQUENCE

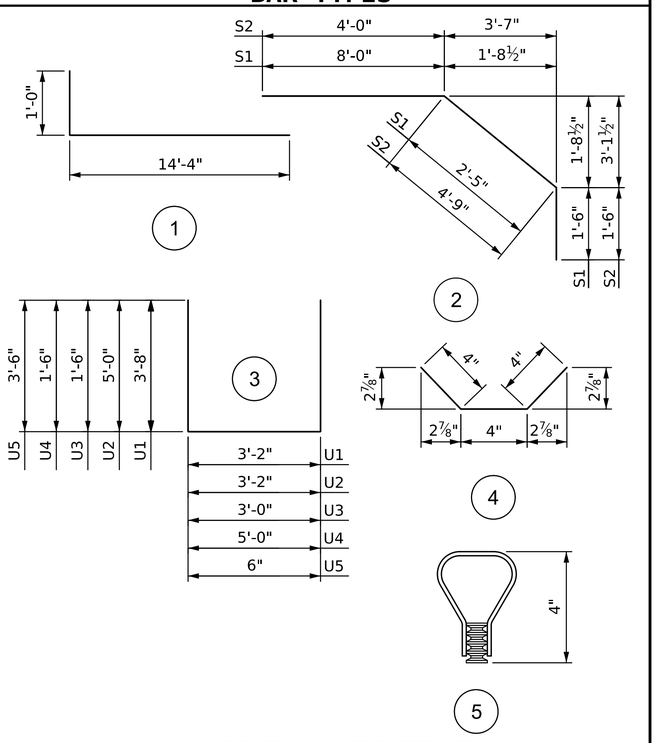
(NOT TO SCALE)

## BILL OF MATERIAL

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| *A1 | 536 | #5 | STR | 36'-3" | 20265 |
| A2 | 536 | #5 | STR | 36'-3" | 20265 |
| | | | | | |
| *B1 | 98 | #5 | STR | 20'-9" | 2121 |
| *B2 | 96 | #5 | STR | 25'-9" | 2578 |
| *B3 | 50 | #5 | STR | 51'-9" | 2699 |
| *B4 | 98 | #6 | STR | 60'-0" | 8832 |
| *B5 | 98 | #6 | STR | 15'-2" | 2232 |
| *B6 | 96 | #6 | STR | 41'-2" | 5936 |
| *B7 | 25 | #5 | STR | 36'-10" | 960 |
| B8 | 192 | #5 | STR | 45'-10" | 9178 |
| B9 | 42 | #5 | STR | 25'-9" | 1128 |
| B10 | 42 | #5 | STR | 51'-7" | 2260 |
| B11 | 32 | #5 | STR | 49'-0" | 1635 |
| | | | | | |
| E1 | 32 | #5 | STR | 2'-8" | 89 |
| | | | | | |
| K1 | 16 | #4 | STR | 2'-2" | 23 |
| K2 | 20 | #4 | STR | 22'-0" | 294 |
| K3 | 4 | #4 | STR | 4'-3" | 11 |
| K4 | 8 | #4 | STR | 6'-0" | 32 |
| K5 | 8 | #4 | STR | 4'-9" | 25 |
| K6 | 6 | #4 | STR | 5'-5" | 22 |
| K7 | 12 | #4 | STR | 8'-9" | 70 |
| K8 | 6 | #4 | STR | 7'-2" | 29 |
| K9 | 6 | #4 | STR | 6'-3" | 25 |
| | | | | | |
| *S1 | 38 | #4 | 2 | 11'-11" | 302 |
| *S2 | 38 | #4 | 2 | 10'-3" | 260 |
| | | | | | |
| *U1 | 38 | #4 | 3 | 10'-6" | 267 |
| U2 | 16 | #4 | 3 | 13'-2" | 141 |
| U3 | 28 | #4 | 3 | 6'-0" | 112 |
| U4 | 12 | #4 | 3 | 8'-0" | 64 |
| U5 | 8 | #4 | 3 | 7'-6" | 40 |
| | | | | | |
| W1 | 122 | #4 | 4 | 1'-0" | 82 |
| | | | | | |
| REINFORCING STEEL | | | | | 35,525 LBS. |
| EPOXY COATED REINF. STEEL | | | | | 46,452 LBS. |
| F1 | 122 | - | 5 | - | - |

F1 FERRULE SIZE AND WEIGHT WILL BE PROVIDED BY MANUFACTURER

## BAR TYPES




ALL BAR DIMENSIONS ARE OUT TO OUT

## SUPERSTRUCTURE BILL OF MATERIAL

| | CLASS AA CONCRETE | REINFORCING STEEL | EPOXY COATED REINFORCING STEEL |
|---|---|---|---|
| | (CU.YDS.) | (LBS.) | (LBS.) |
| POUR 1 | 110.6 | - | - |
| POUR 2 | 131.3 | - | - |
| POUR 3 | 133.7 | - | - |
| * POUR 4 (BEGIN) | 29.3 | - | - |
| * POUR 4 (END) | 29.3 | - | - |
| | | | |
| TOTALS * * | 434.2 | 45,428 | 46,452 |

* * QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

* POUR 4 INCLUDES CONCRETE FOR SUPERSTRUCTURE PORTION OF INTEGRAL END BENT. ALL COSTS ASSOCIATED WITH THE SUPERSTRUCTURE PORTION OF THE INTEGERAL END BENT, INCLUDING, BUT NOT LIMITED TO, MATERIALS, LABOR AND ALL INCIDENTALS SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR REINFORCED CONCRETE DECK SLAB. NO ADDITIONAL PAYMENT WILL BE MADE.

## GROOVING BRIDGE FLOORS

| | |
|---|---|
| APPRAOCH SLABS | 899 SQ.FT. |
| BRIDGE DECK | 9,682 SQ.FT. |
| TOTAL | 10,581 SQ.FT. |

## SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

| BAR SIZE | SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPETS, AND BARRIER RAILS | | APPROACH SLABS | | PARAPETS AND BARRIER RAILS |
|---|---|---|---|---|---|
| | EPOXY COATED | UNCOATED | EPOXY COATED | UNCOATED | |
| #4 | 1'-11" | 1'-7" | 1'-11" | 1'-7" | 2'-6" |
| #5 | 2'-5" | 2'-0" | 2'-5" | 2'-0" | 3'-1" |
| #6 | 2'-10" | 2'-5" | 3'-7" | 2'-5" | 3'-8" |
| #7 | 4'-2" | 2'-9" | | | |
| #8 | 4'-9" | 3'-2" | | | |

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

# BILL OF MATERIAL

DRAWN BY : BLM DATE : 3-26
CHECKED BY : LAD DATE : 2-26

DESIGN ENGINEER OF RECORD: N. BROWN DATE : 4-26

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

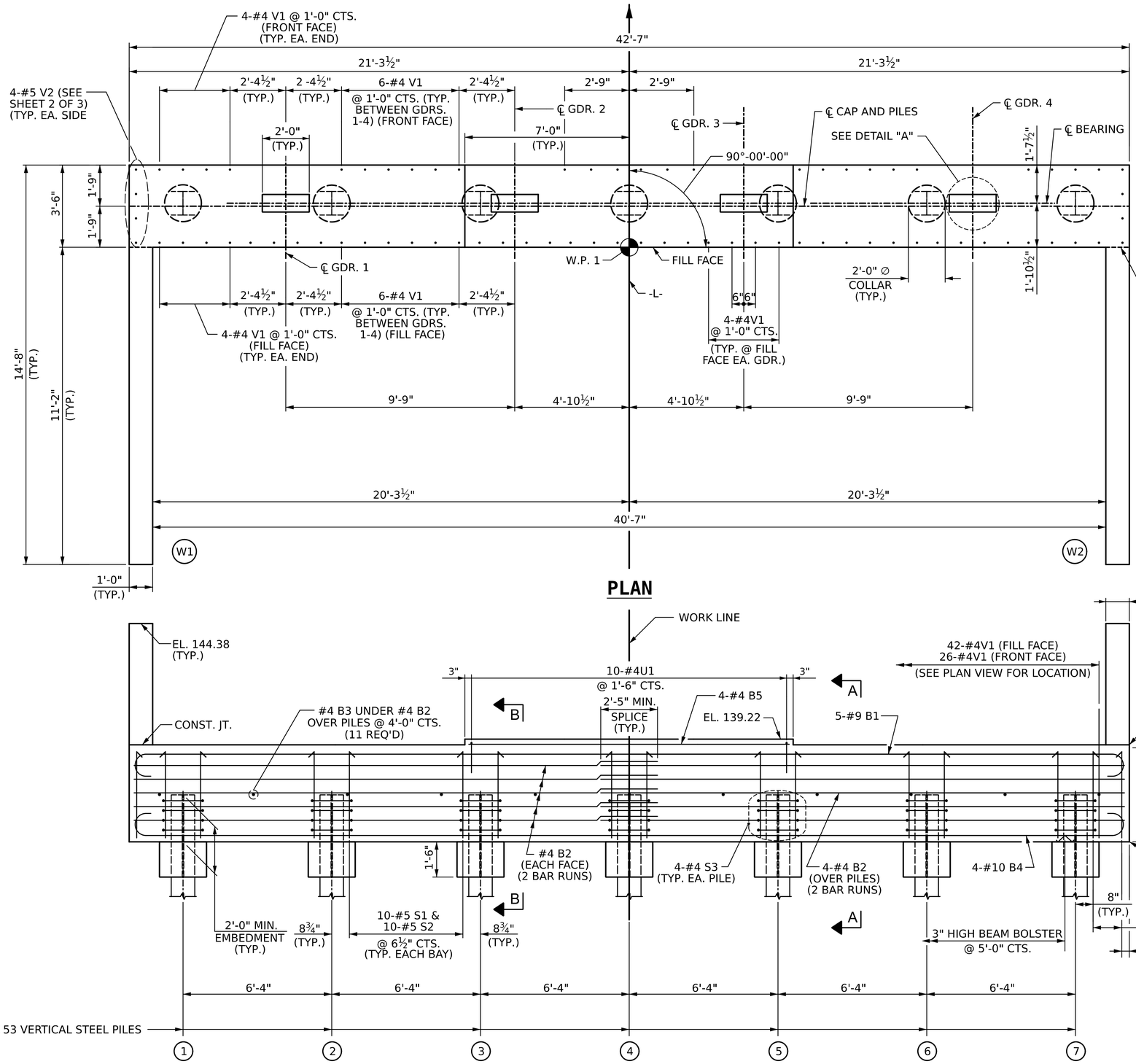
Signed by: Nicole K Brown 8/7/2026

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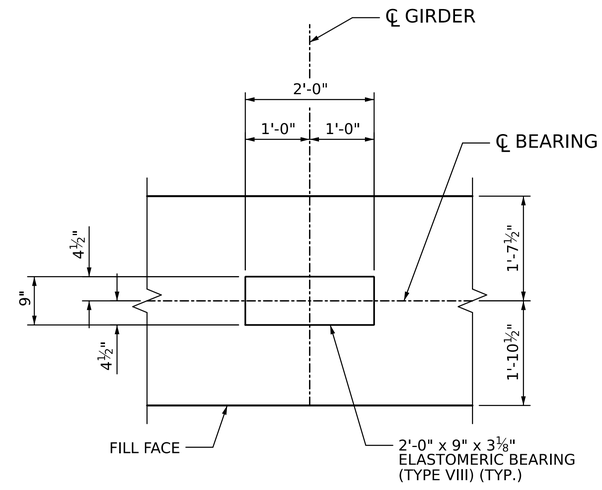
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## PLAN




## ELEVATION




## DETAIL "A"

(TYP. EACH BEARING)

## NOTES:

THE TOP SURFACE OF THE END BENT CAP AND WINGS (POUR 1), EXCEPT THE BEARING AREAS AND THE NON-INTEGRAL AREAS AT CAP ENDS, SHALL BE RAKED TO A DEPTH OF ¼".

FOR SECTION A-A, SECTON B-B, PILE SPLICE DETAILS, AND TEMPORARY DRAINAGE DETAILS, SEE SHEET 3 OF 3.

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #4 V1 BARS.

FOR INTEGRAL BACKWALL REINFORCEMENT, SEE "SUPERSTRUCTURE DETAILS" SHEET.

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

# INTEGRAL END BENT 1 PLAN AND ELEVATION

NORTH CAROLINA PROFESSIONAL SEAL Ø44447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 4835B2C7A3714CE... 8/7/2026

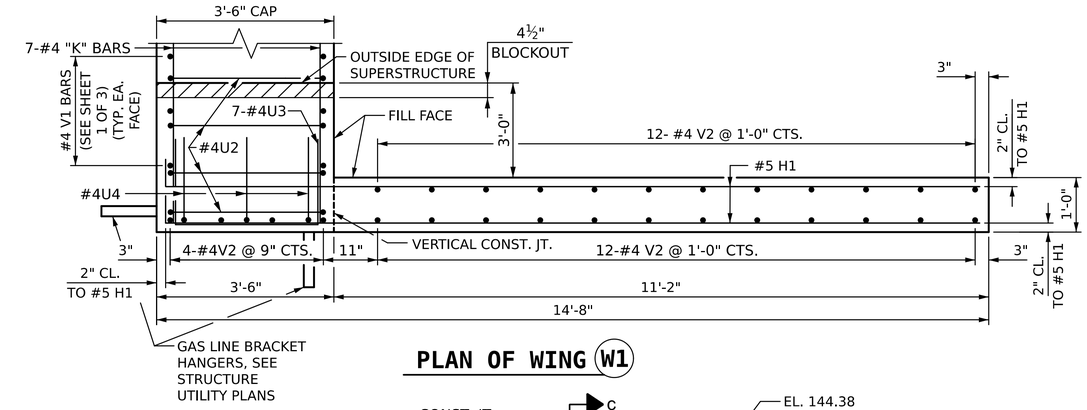
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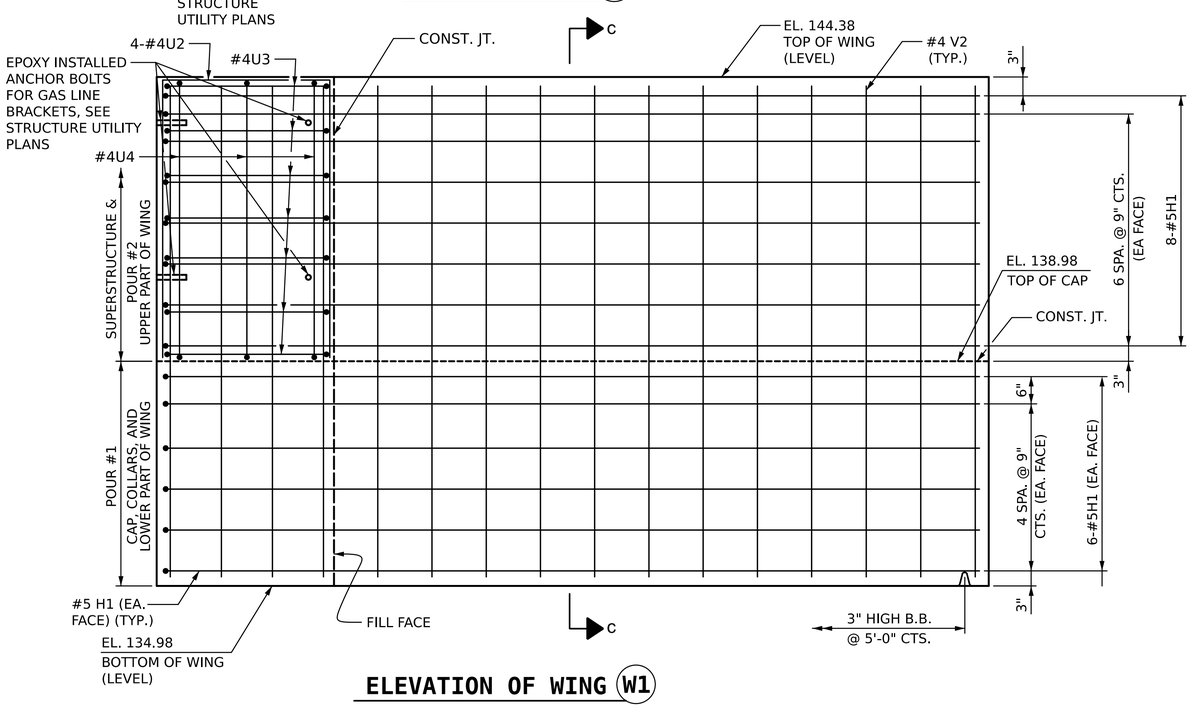
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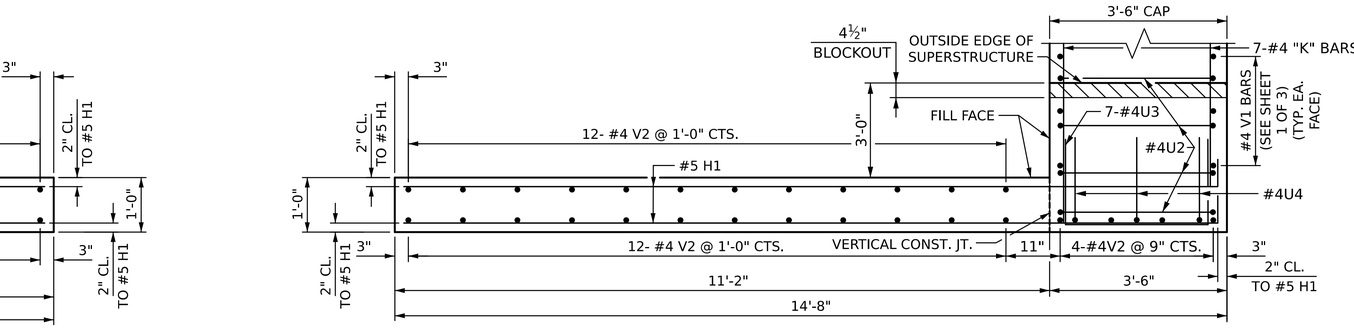
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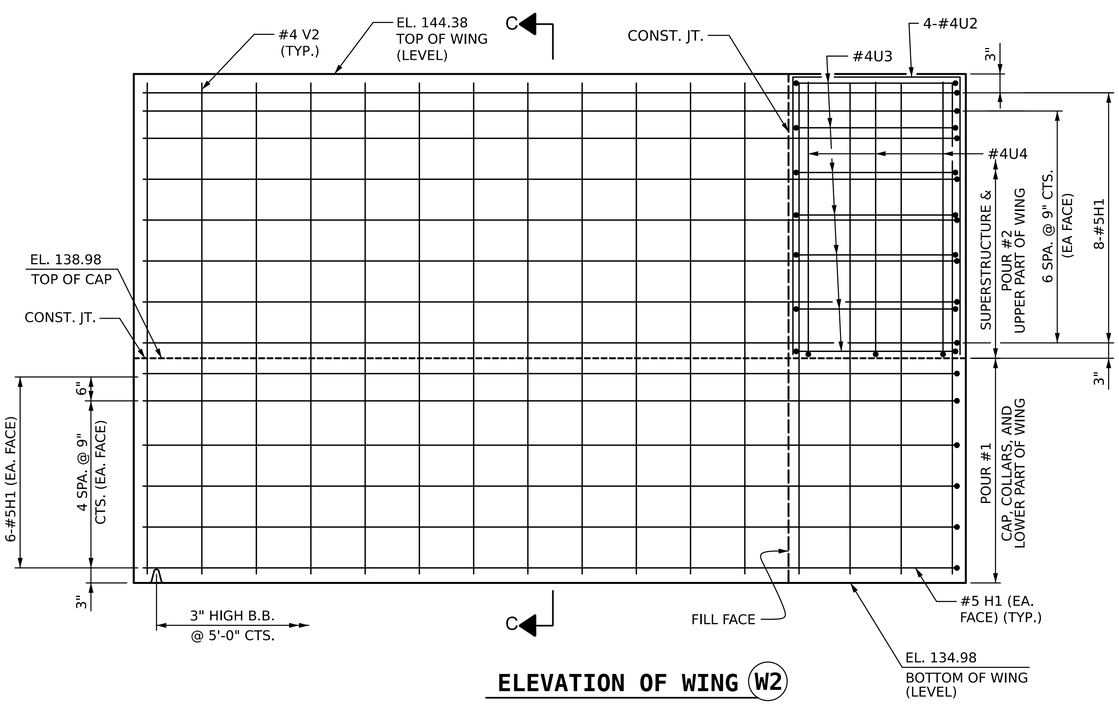

## PLAN OF WING W1



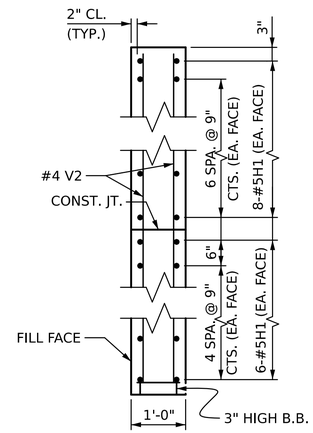

## ELEVATION OF WING W1




## PLAN OF WING W2




## ELEVATION OF WING W2




## SECTION C-C

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

# INTEGRAL END BENT 1 WINGWALL DETAILS

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Signed by: Nicole K Brown 4835B2C7A3714CE...
8/7/2026

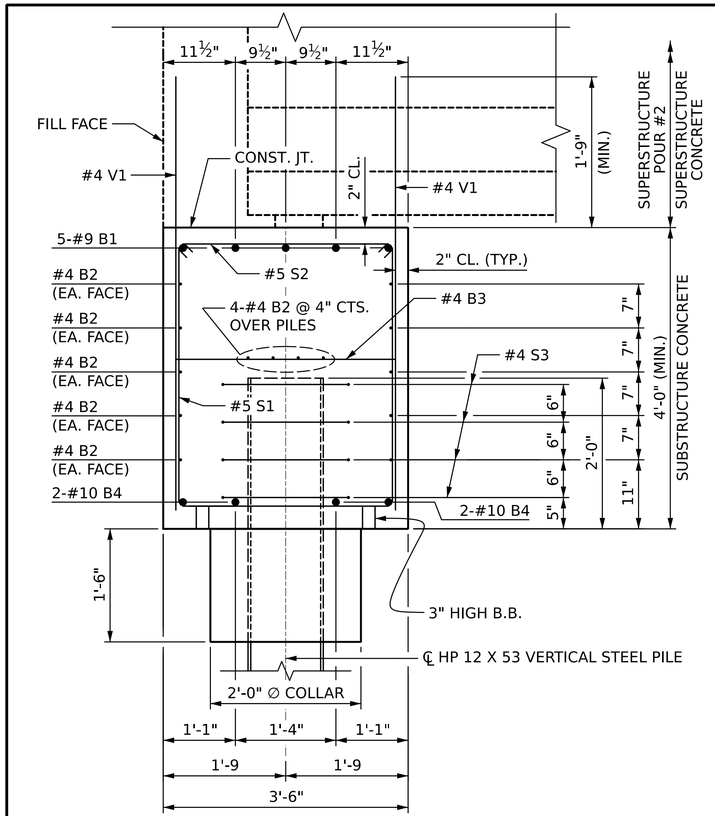
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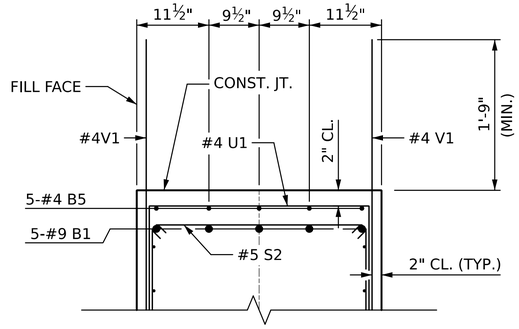
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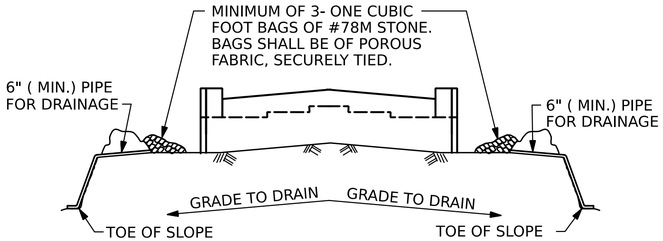
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## SECTION A-A




## PARTIAL SECTION B-B

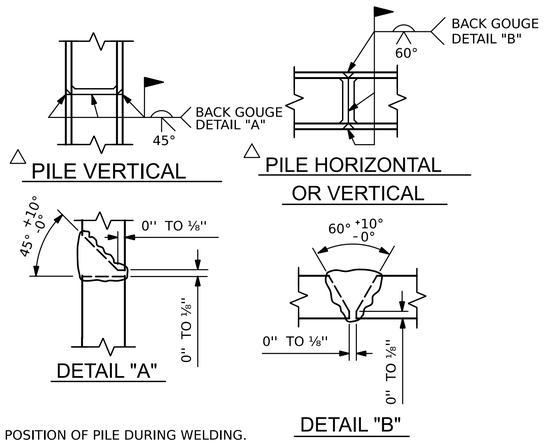



BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

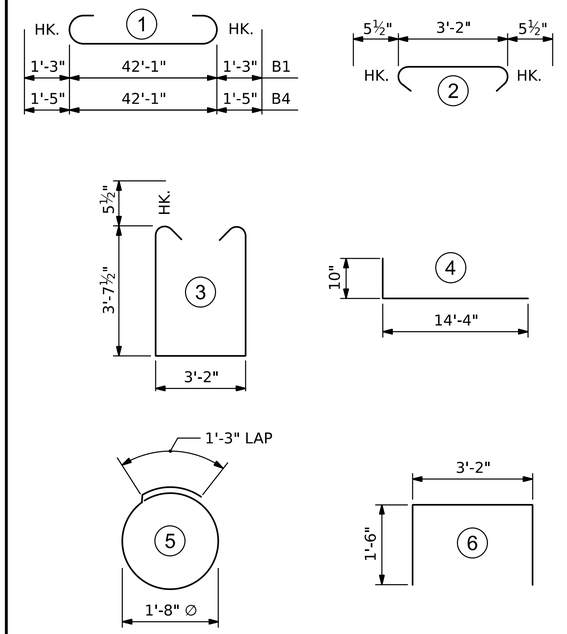
## TEMPORARY DRAINAGE AT END BENT




△ POSITION OF PILE DURING WELDING.

## PILE SPLICE DETAILS

## BAR TYPES




ALL BAR DIMENSIONS ARE OUT TO OUT.

## BILL OF MATERIAL

### END BENT 1

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| B1 | 5 | #9 | 1 | 44'-7" | 758 |
| B2 | 28 | #4 | STR | 22'-4" | 418 |
| B3 | 11 | #4 | STR | 3'-2" | 23 |
| B4 | 4 | #10 | 1 | 44'-11" | 773 |
| B5 | 5 | #4 | STR | 13'-8" | 46 |
| | | | | | |
| H1 | 56 | #5 | 4 | 15'-2" | 886 |
| | | | | | |
| S1 | 66 | #5 | 3 | 11'-4" | 780 |
| S2 | 66 | #5 | 2 | 4'-1" | 281 |
| S3 | 28 | #4 | 5 | 6'-6" | 122 |
| | | | | | |
| U1 | 10 | #4 | 6 | 6'-2" | 41 |
| | | | | | |
| V1 | 68 | #4 | STR | 5'-9" | 261 |
| V2 | 56 | #4 | STR | 9'-0" | 337 |

| | |
|---|---|
| REINFORCING STEEL | 4,726 LBS. |
| | |
| CLASS "A" CONCRETE | |
| POUR #1 (CAP, LOWER PART OF WINGS, & COLLARS) | 26.7 C.Y. |
| POUR #2 (UPPER PART OF WINGS) | 4.5 C.Y. |
| TOTAL CLASS "A" CONCRETE | 31.2 C.Y. |

NORTH CAROLINA PROFESSIONAL SEAL Ø44447 ENGINEER NICOLE K. BROWN
Signed by: Nicole K Brown 8/7/2026

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

# INTEGRAL END BENT 1 DETAILS AND BILL OF MATERIAL

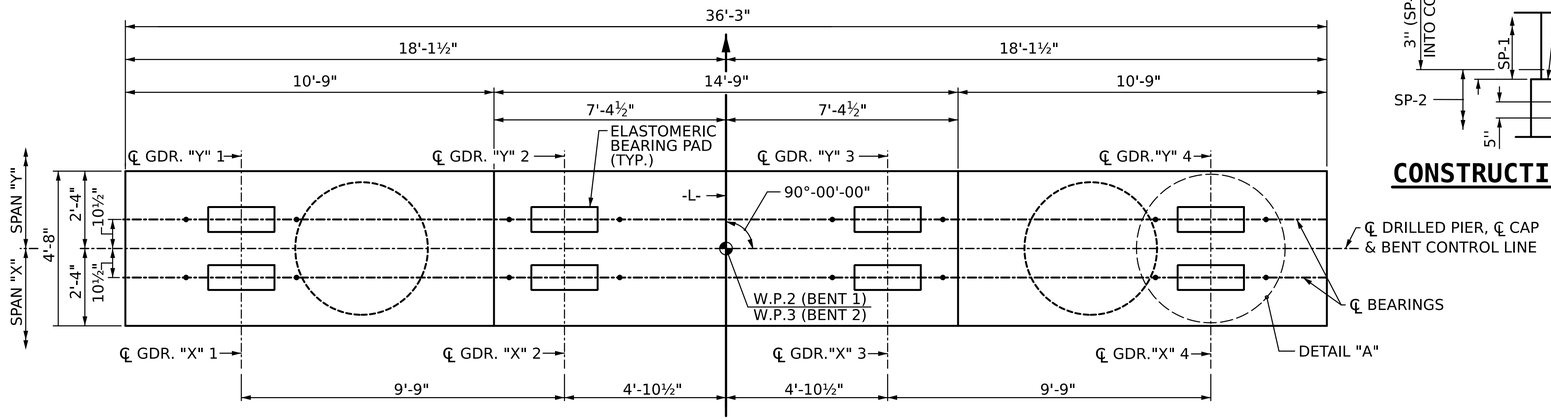
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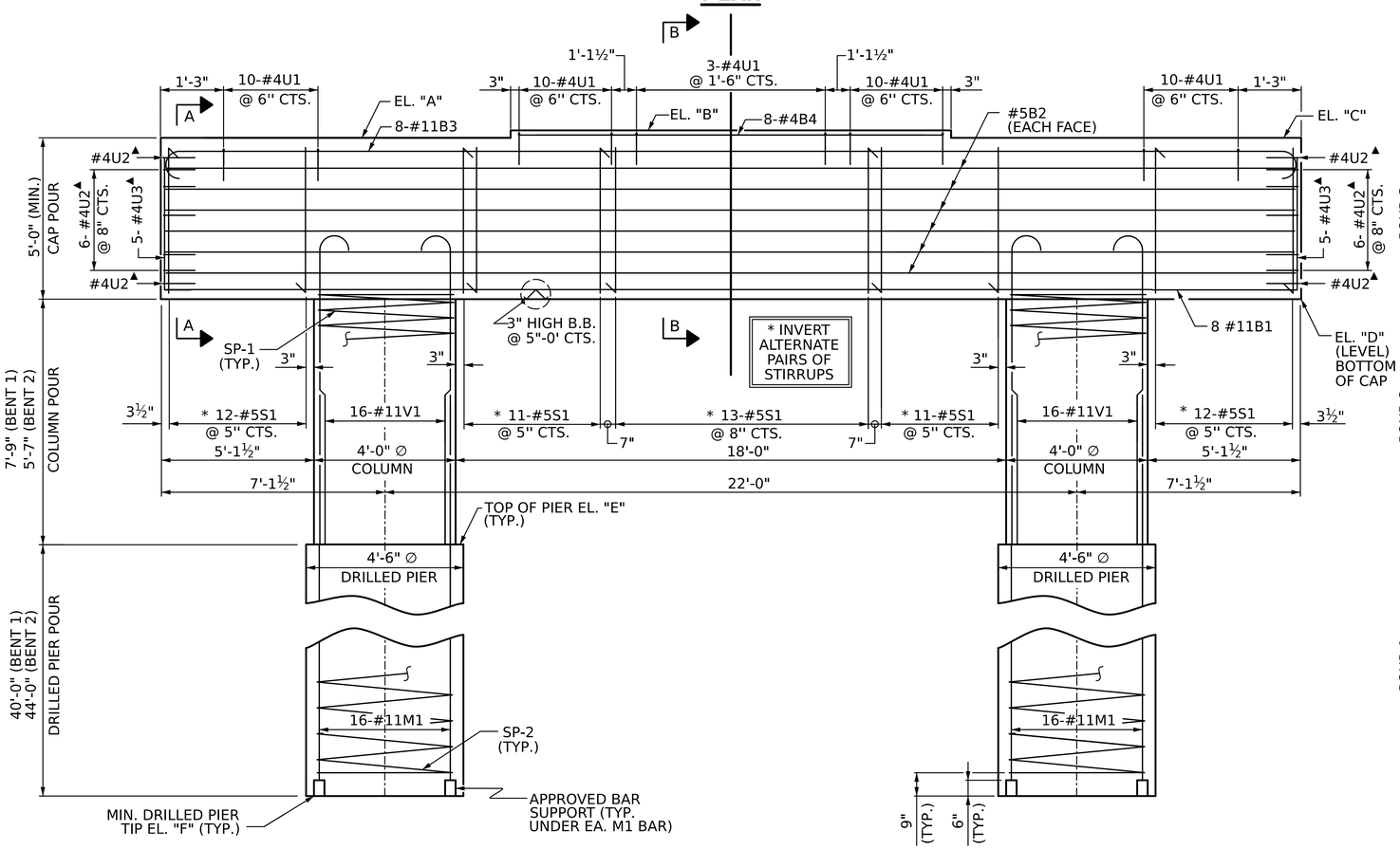
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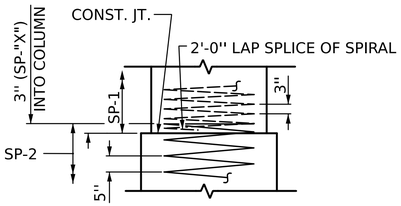



## PLAN




▲ TYP. EA. END OF CAP

## ELEVATION




## CONSTRUCTION JOINT DETAIL

## NOTES

STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

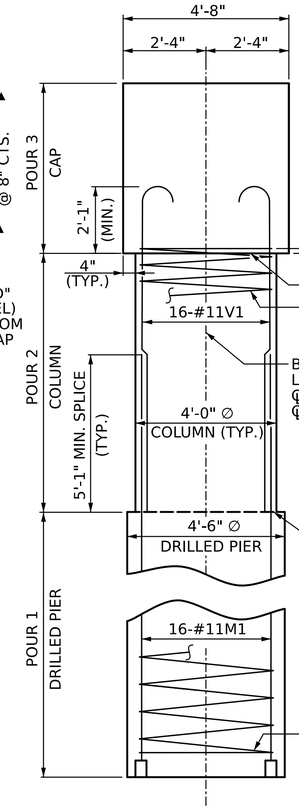
SEE SHEET 2 OF 2 FOR SECTIONS A-A AND B-B.

SEE "DRILLED PIER FOUNDATION TABLES" FOR ADDITIONAL NOTES AND DRILLED PIER DATA.

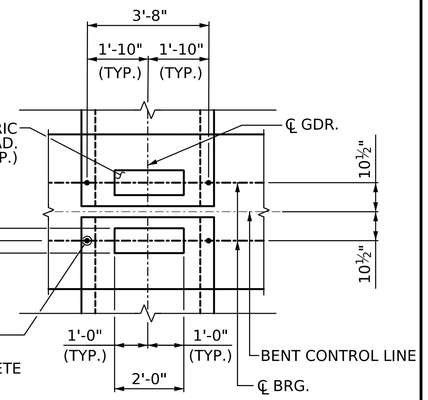
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

| BENT DATA | | |
|---|---|---|
| BENT | 1 | 2 |
| "X" | A | B |
| "Y" | B | C |
| ELEVATION ID. | BENT 1 ELEV. | BENT 2 ELEV. |
| "A" | 136.73 | 134.57 |
| "B" | 136.98 | 134.81 |
| "C" | 136.73 | 134.57 |
| "D" | 131.73 | 129.57 |
| "E" | 123.98 | 123.98 |
| "F" | 83.98 | 79.98 |




## END ELEVATION




## DETAIL "A"

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

# BENT 1 & 2

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown
4835B2C7A3714CE...
8/7/2026

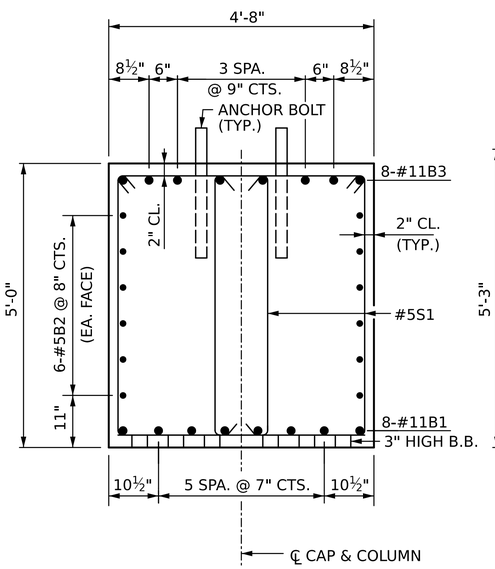
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NC License Number F-0991

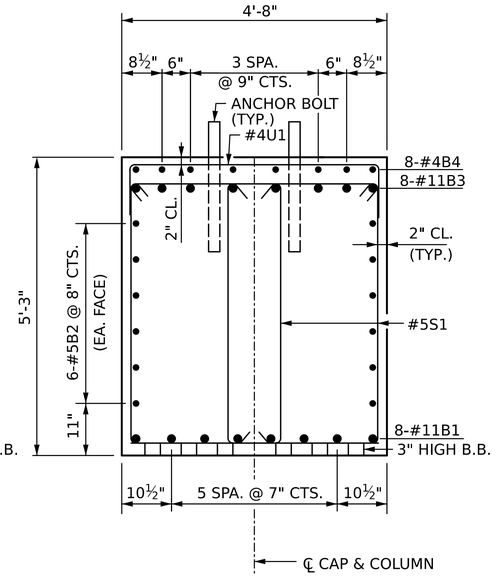
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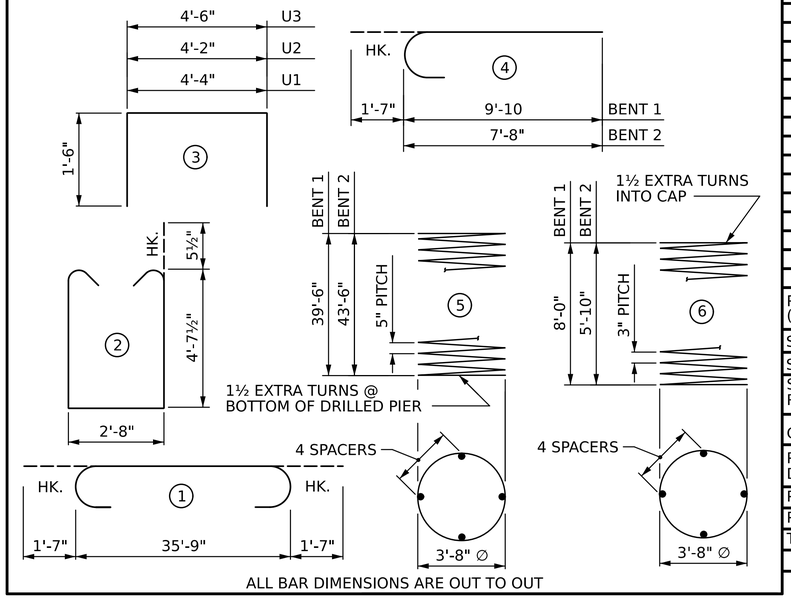
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## SECTION A-A




## SECTION B-B

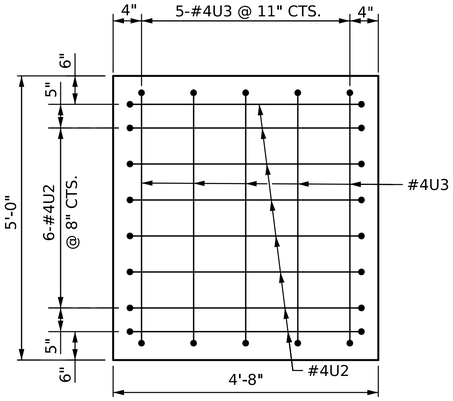



| BILL OF MATERIAL FOR BENT 1 | | | | | |
|---|---|---|---|---|---|
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1 | 8 | #11 | STR | 35'-11" | 1,527 |
| B2 | 12 | #5 | STR | 35'-11" | 450 |
| B3 | 8 | #11 | 1 | 38'-11" | 1,654 |
| B4 | 8 | #4 | STR | 14'-5" | 77 |
| | | | | | |
| M1 | 32 | #11 | STR | 47'-7" | 8,090 |
| | | | | | |
| S1 | 118 | #5 | 2 | 12'-10" | 1,579 |
| | | | | | |
| U1 | 43 | #4 | 3 | 7'-4" | 211 |
| U2 | 16 | #4 | 3 | 7'-2" | 77 |
| U3 | 10 | #4 | 3 | 7'-6" | 50 |
| | | | | | |
| V1 | 32 | #11 | 4 | 11'-5" | 1,941 |
| | | | | | |
| REINFORCING STEEL (FOR ONE BENT) | | | | LBS. | 15,656 |
| SP-1 | 2 | * | 6 | 381'-8" | 510 |
| SP-2 | 2 | ** | 5 | 1,094'-4" | 2,283 |
| SPIRAL COLUMN REINFORCING STEEL | | | | LBS. | 2,793 |
| CLASS A CONCRETE: | | | | | |
| POUR 1 - DRILLED PIER | | | | CU. YDS. | 47.1 |
| POUR 2 - COLUMN | | | | CU. YDS. | 7.2 |
| POUR 3 - CAP | | | | CU. YDS. | 32.0 |
| TOTAL | | | | CU. YDS. | 39.2 |

| BILL OF MATERIAL FOR BENT 2 | | | | | |
|---|---|---|---|---|---|
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| B1 | 8 | #11 | STR | 35'-11" | 1,527 |
| B2 | 12 | #5 | STR | 35'-11" | 450 |
| B3 | 8 | #11 | 1 | 38'-11" | 1,654 |
| B4 | 8 | #4 | STR | 14'-5" | 77 |
| | | | | | |
| M1 | 32 | #11 | STR | 51'-7" | 8,770 |
| | | | | | |
| S1 | 118 | #5 | 2 | 12'-10" | 1,579 |
| | | | | | |
| U1 | 43 | #4 | 3 | 7'-4" | 211 |
| U2 | 16 | #4 | 3 | 7'-2" | 77 |
| U3 | 10 | #4 | 3 | 7'-6" | 50 |
| | | | | | |
| V1 | 32 | #11 | 4 | 9'-3" | 1,573 |
| | | | | | |
| REINFORCING STEEL (FOR ONE BENT) | | | | LBS. | 15,968 |
| SP-1 | 2 | * | 6 | 282'-11" | 378 |
| SP-2 | 2 | ** | 5 | 1,203'-5" | 2,510 |
| SPIRAL COLUMN REINFORCING STEEL | | | | LBS. | 2,888 |
| CLASS A CONCRETE: | | | | | |
| POUR 1 - DRILLED PIER | | | | CU. YDS. | 51.8 |
| POUR 2 - COLUMN | | | | CU. YDS. | 5.2 |
| POUR 3 - CAP | | | | CU. YDS. | 31.9 |
| TOTAL | | | | CU. YDS. | 37.1 |

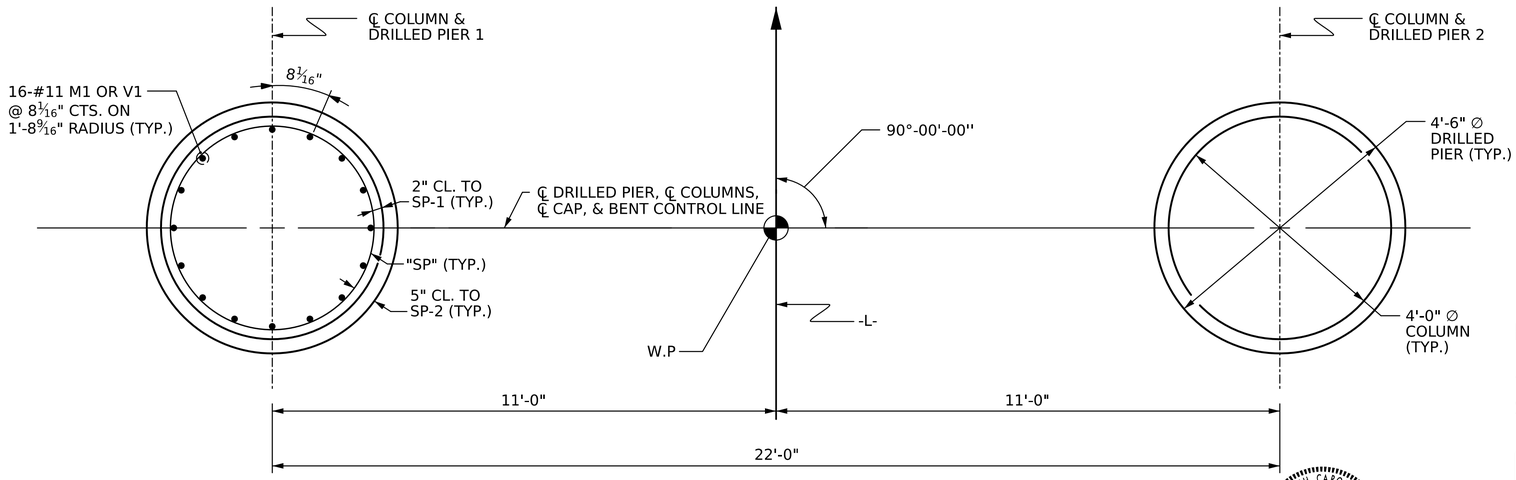
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR A #4 PLAIN OR DEFORMED BAR.

** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR A #5 PLAIN OR DEFORMED BAR.




## END VIEW

(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)




## PLAN OF DRILLED PIERS AND COLUMNS

(DIMENSION AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER)

NORTH CAROLINA PROFESSIONAL SEAL Ø44447 ENGINEER NATIONAL SOCIETY OF PROFESSIONAL

Signed by: Nicole K Brown 4835B2C7A3714CE...

8/7/2026

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

# INTERIOR BENT SECTION & DETAILS

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CHECKED BY : MBK DATE : 3/26

DESIGN ENGINEER OF RECORD: N. BROWN DATE : 4-26

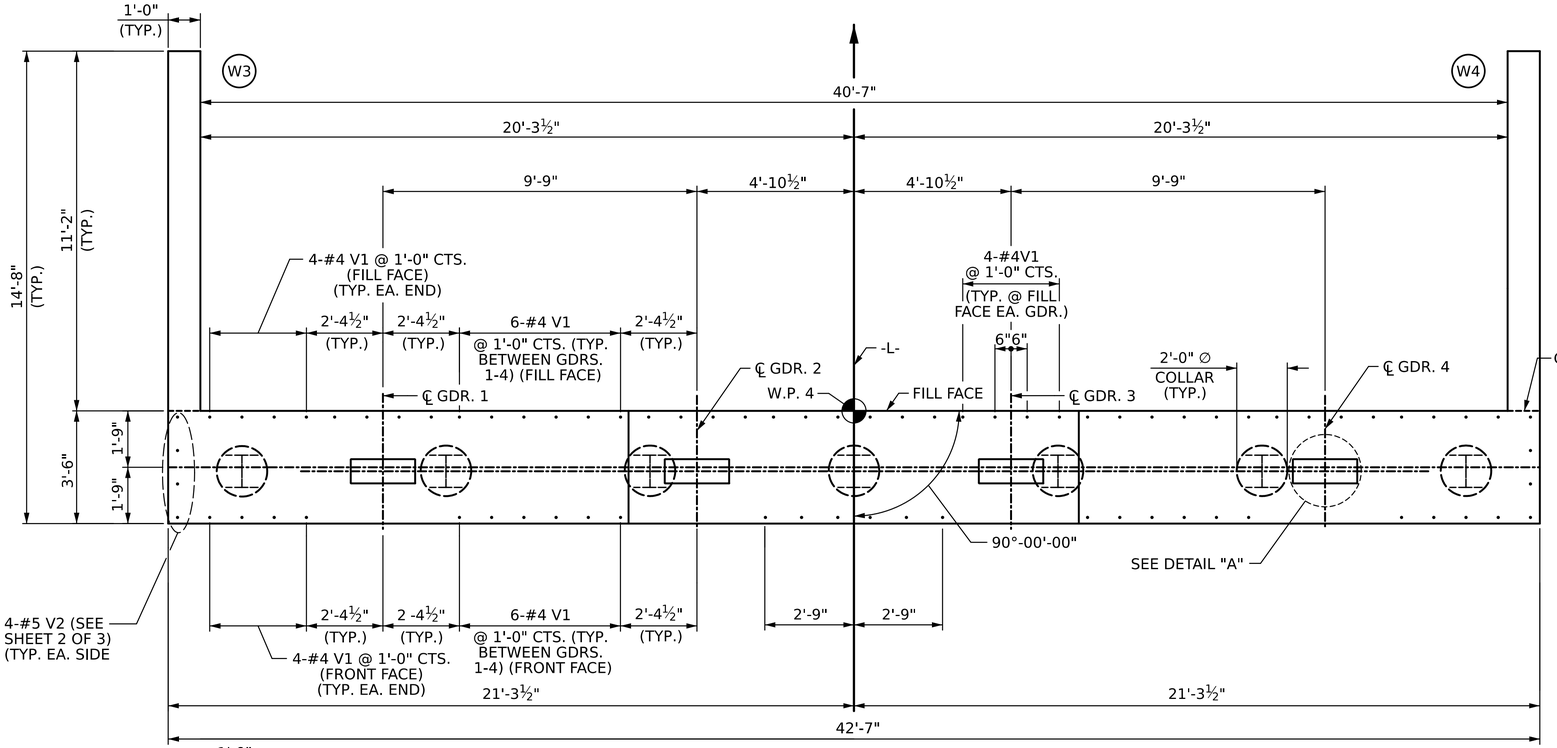
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Charlotte, NC 28203
NC License Number F-0991

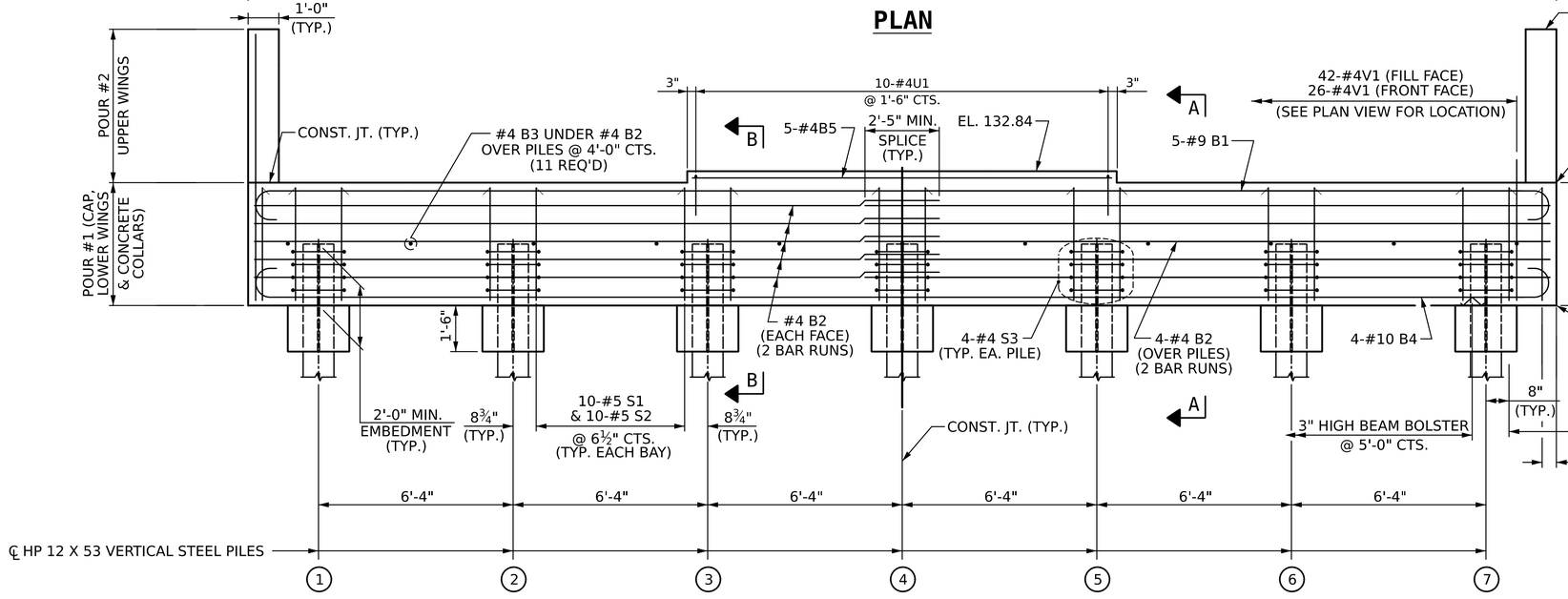
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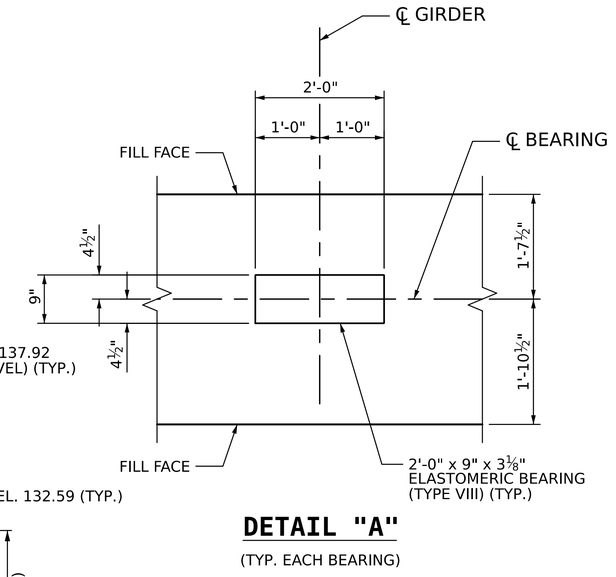
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## PLAN




## ELEVATION




## DETAIL "A"

(TYP. EACH BEARING)

## NOTES:

THE TOP SURFACE OF THE END BENT CAP AND WINGS (POUR 1), EXCEPT THE BEARING AREAS AND THE NON-INTEGRAL AREAS AT CAP ENDS, SHALL BE RAKED TO A DEPTH OF ¼".

FOR SECTION A-A, SECTON B-B, PILE SPLICE DETAILS, AND TEMPORARY DRAINAGE DETAILS, SEE SHEET 3 OF 3.

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #4 V1 BARS.

THE UPPER PART OF INTEGRAL PORTION SHALL BE POURED WITH THE SUPERSTRUCTURE.

FOR INTEGRAL BACKWALL REINFORCEMENT, SEE "SUPERSTRUCTURE DETAILS" SHEET.

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

# INTEGRAL END BENT 2 PLAN AND ELEVATION

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 8/7/2026
4635B2C7A3714CE...

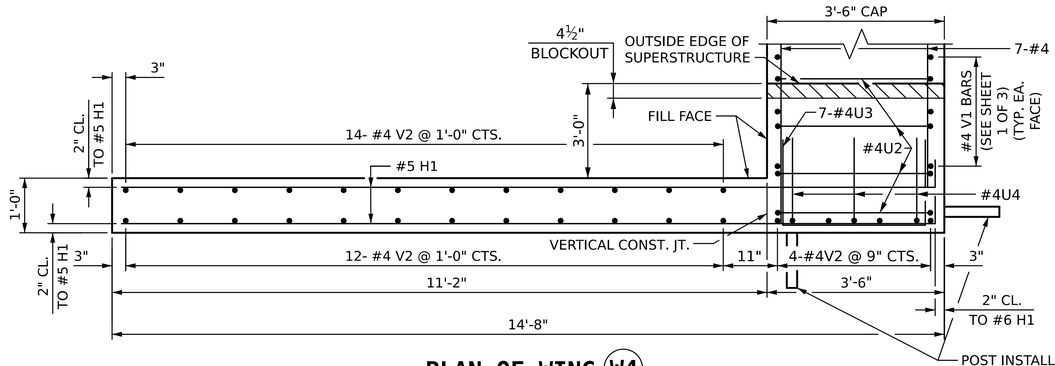
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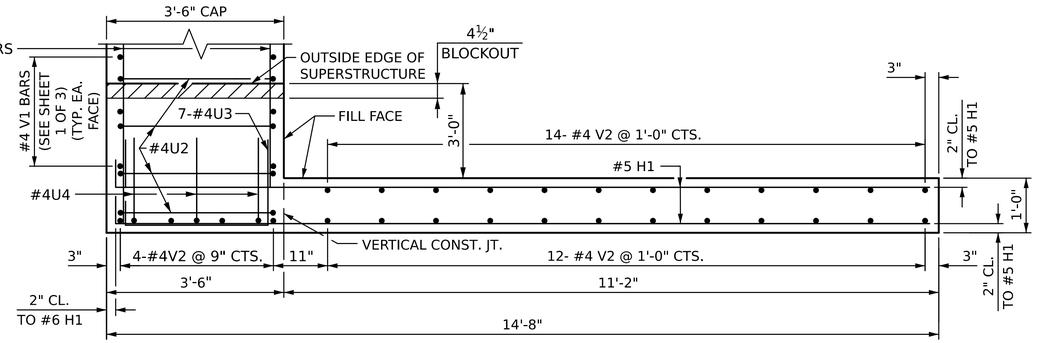
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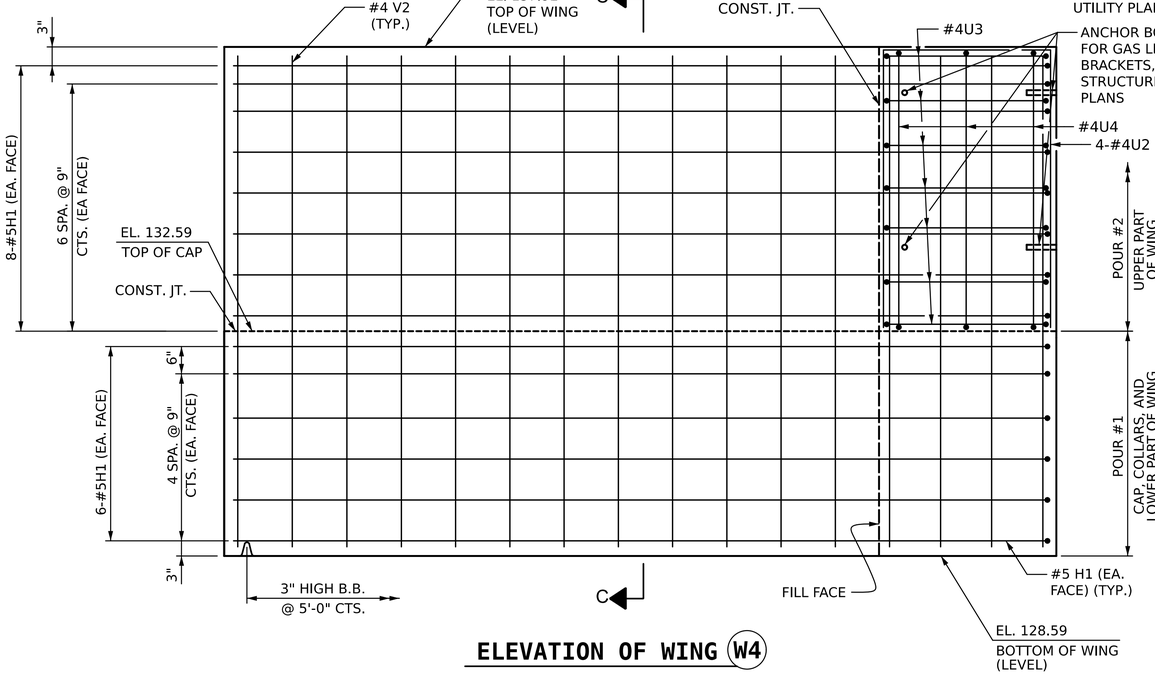
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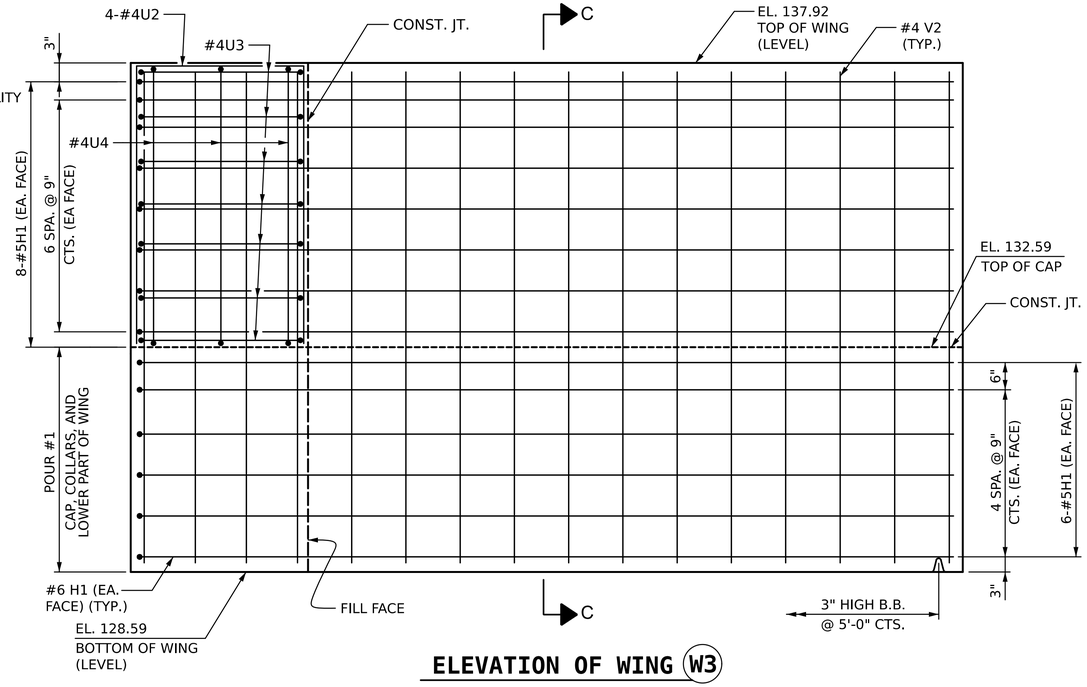

## PLAN OF WING W4



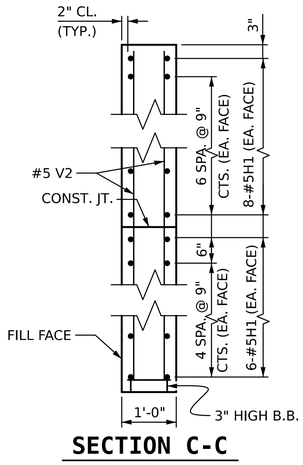

## PLAN OF WING W3




## ELEVATION OF WING W4




## ELEVATION OF WING W3




## SECTION C-C

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

# INTEGRAL END BENT 2 WINGWALL DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044447 NIKOLE K. BROWN

Signed by: Nicole K. Brown 4835B2C7A3714CE...

8/7/2026

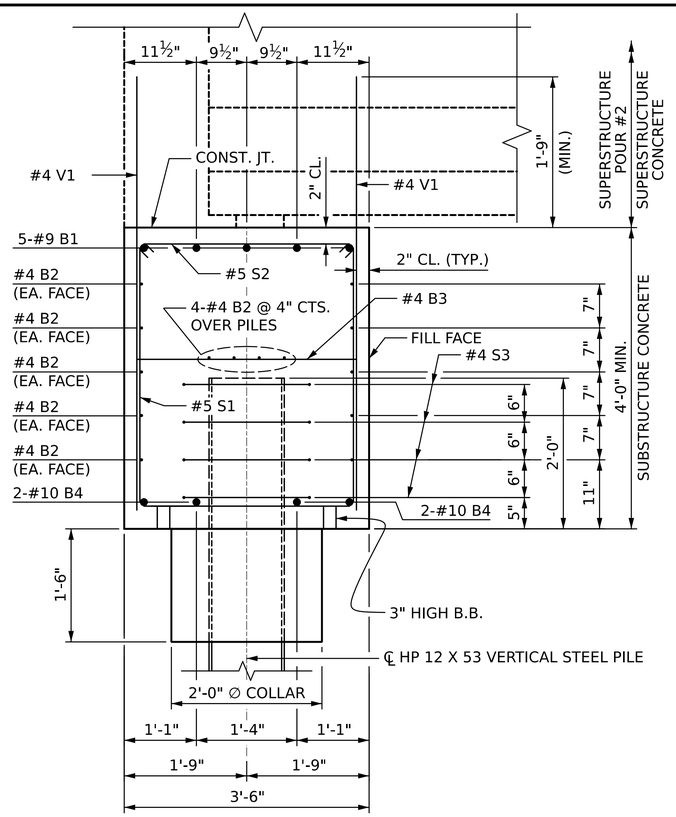
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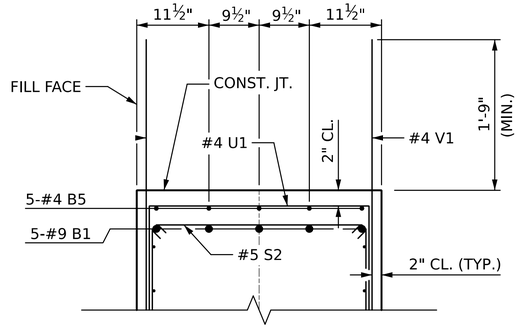
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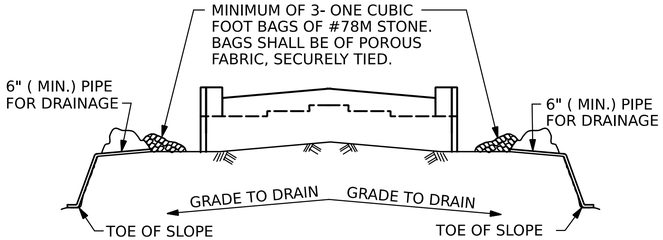
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## SECTION A-A




## PARTIAL SECTION B-B

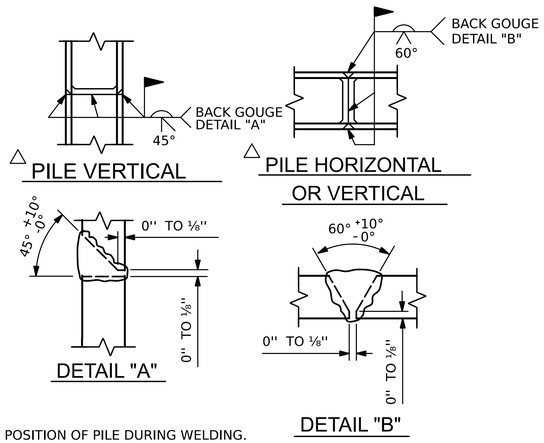



BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

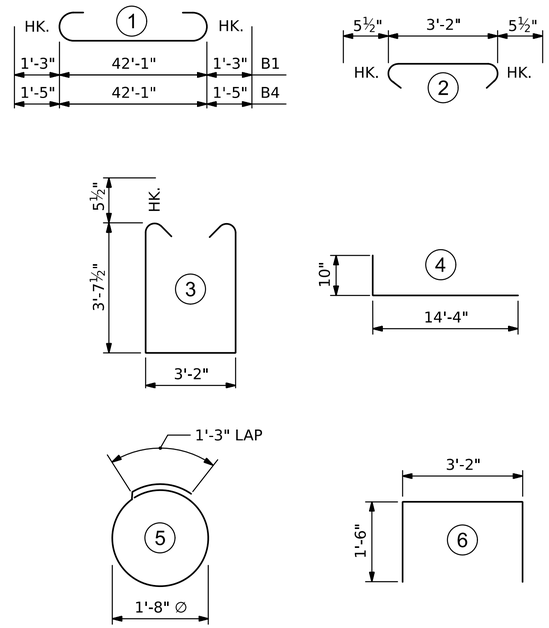
## TEMPORARY DRAINAGE AT END BENT




△ POSITION OF PILE DURING WELDING.

## PILE SPLICE DETAILS

## BAR TYPES




ALL BAR DIMENSIONS ARE OUT TO OUT.

## BILL OF MATERIAL

### END BENT 1

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| B1 | 5 | #9 | 1 | 44'-7" | 758 |
| B2 | 28 | #4 | STR | 22'-4" | 418 |
| B3 | 11 | #4 | STR | 3'-2" | 23 |
| B4 | 4 | #10 | 1 | 44'-11" | 773 |
| B5 | 5 | #4 | STR | 13'-8" | 46 |
| | | | | | |
| H1 | 56 | #5 | 4 | 15'-2" | 886 |
| | | | | | |
| S1 | 66 | #5 | 3 | 11'-4" | 780 |
| S2 | 66 | #5 | 2 | 4'-1" | 281 |
| S3 | 28 | #4 | 5 | 6'-6" | 122 |
| | | | | | |
| U1 | 10 | #4 | 6 | 6'-2" | 41 |
| | | | | | |
| V1 | 68 | #4 | STR | 5'-9" | 261 |
| V2 | 56 | #4 | STR | 8'-10" | 330 |

| | |
|---|---|
| REINFORCING STEEL | 4,726 LBS. |
| CLASS "A" CONCRETE | |
| POUR #1 (CAP, LOWER PART OF WINGS, & COLLARS) | 26.7 C.Y. |
| POUR #2 (UPPER PART OF WINGS) | 4.5 C.Y. |
| TOTAL CLASS "A" CONCRETE | 31.2 C.Y. |

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

# INTEGRAL END BENT 2 DETAILS AND BILL OF MATERIAL

NORTH CAROLINA PROFESSIONAL SEAL Ø44447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 8/7/2026
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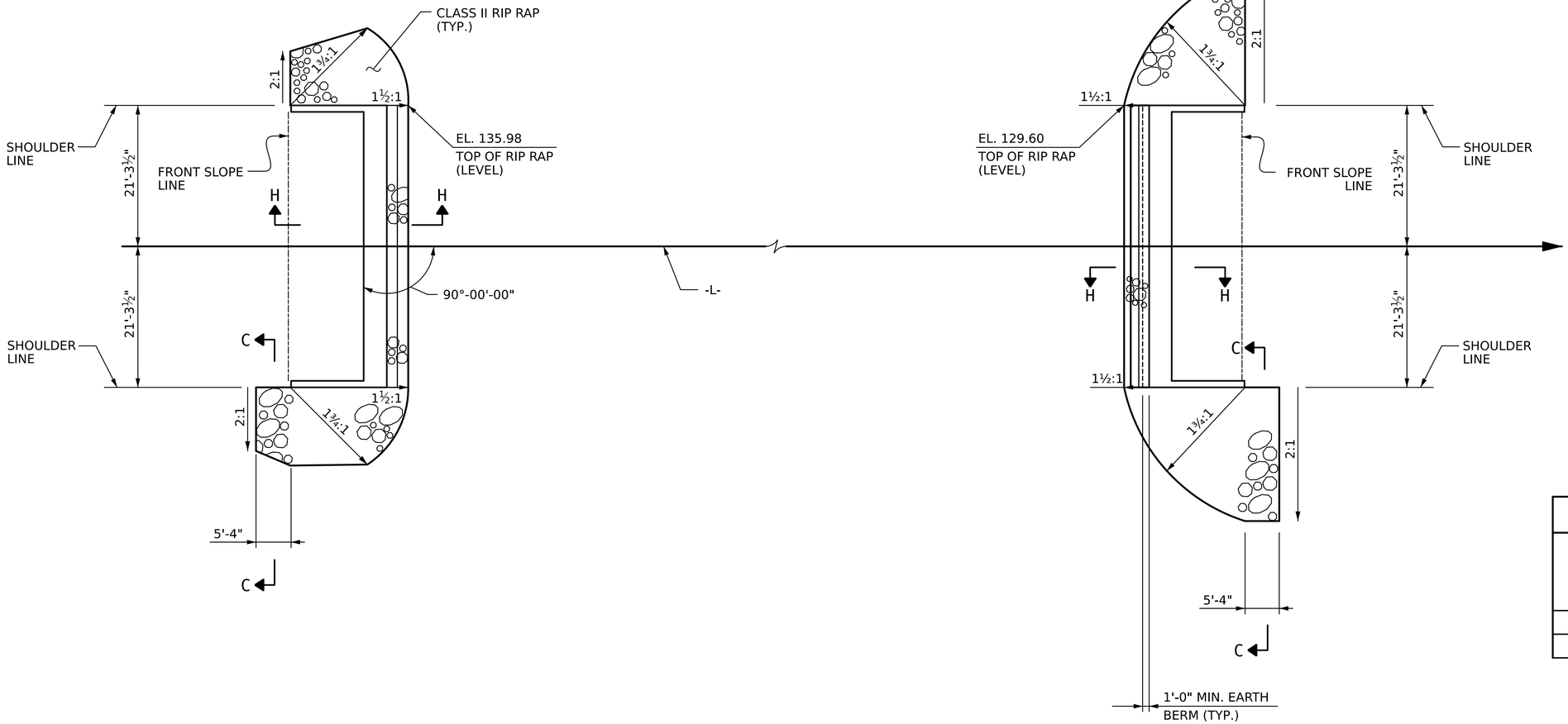
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| CHECKED BY : NKB | DATE : 2-26 | | | |

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Charlotte, NC 28203
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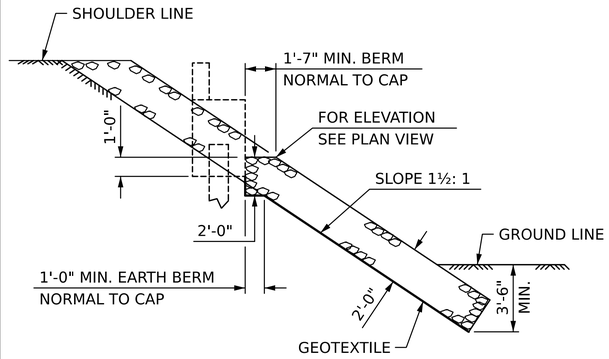
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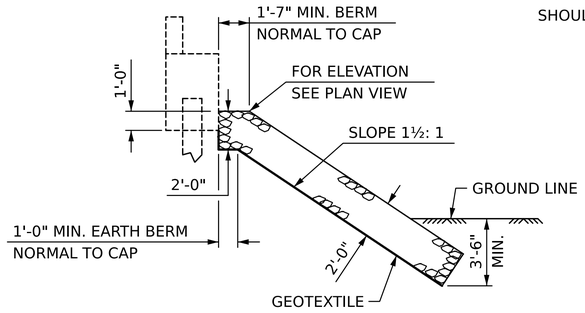



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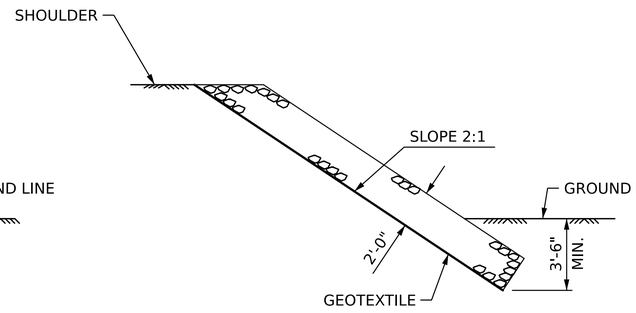
| BRIDGE @ STA. 16+73.00 -L- | RIP RAP CLASS II (2'-0" THICK) | GEOTEXTILE FOR DRAINAGE |
|---|---|---|
| | TONS | SQUARE YARDS |
| END BENT 1 | 175.3 | 194.8 |
| END BENT 2 | 216.5 | 240.6 |




**SECTION H-H**




**℄ SECTION**




**SECTION C-C**

NORTH CAROLINA PROFESSIONAL SEAL Ø44447 ENGINEER WILLIAM K. BROWN

Signed by: Nicole K Brown 8/7/2026
4835B2C7A3714CE...

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

# RIP RAP DETAILS

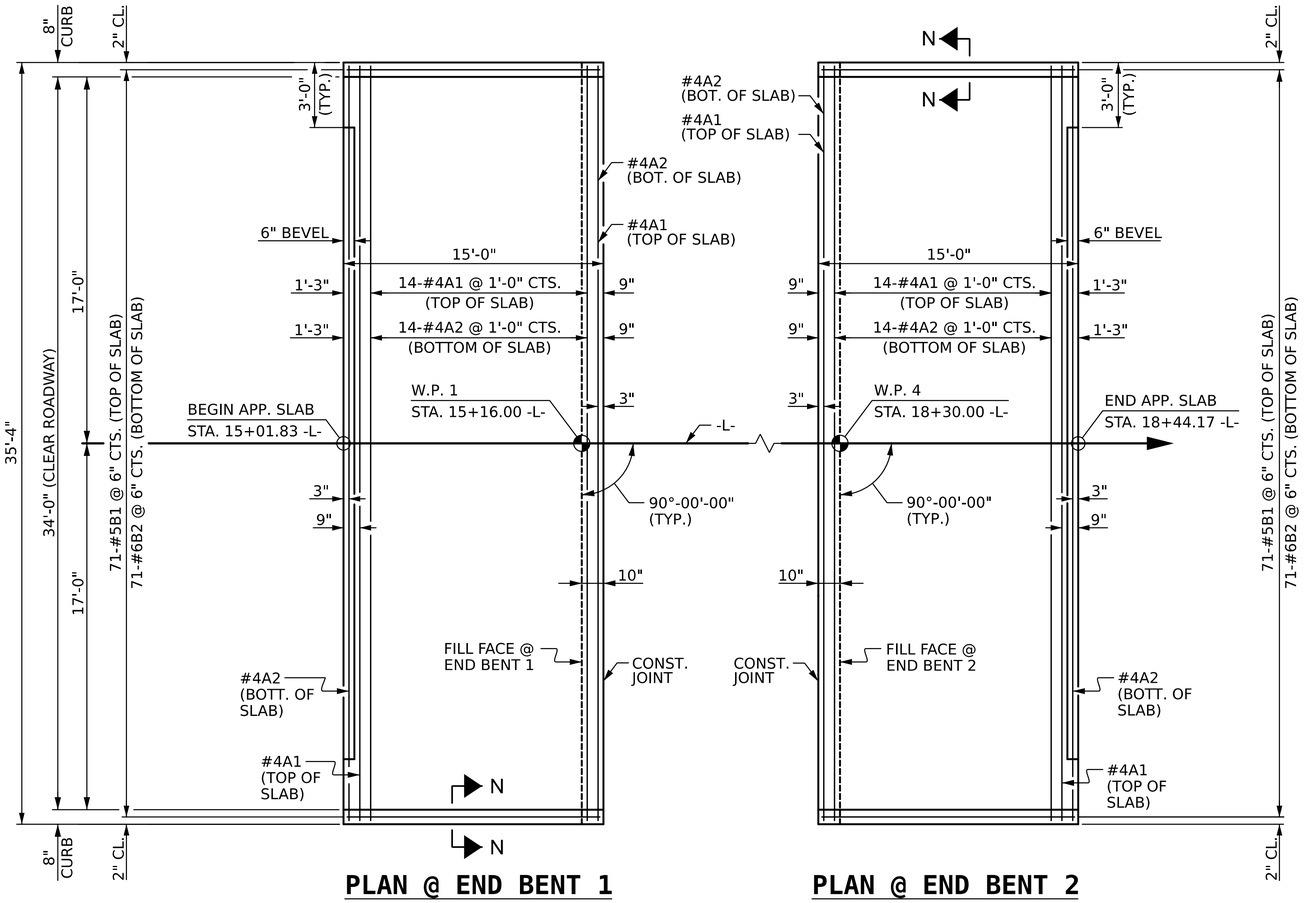
| DRAWN BY : BLM | DATE : 8-25 | DESIGN ENGINEER OF RECORD: N. BROWN | DATE : 4-26 | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED |
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STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

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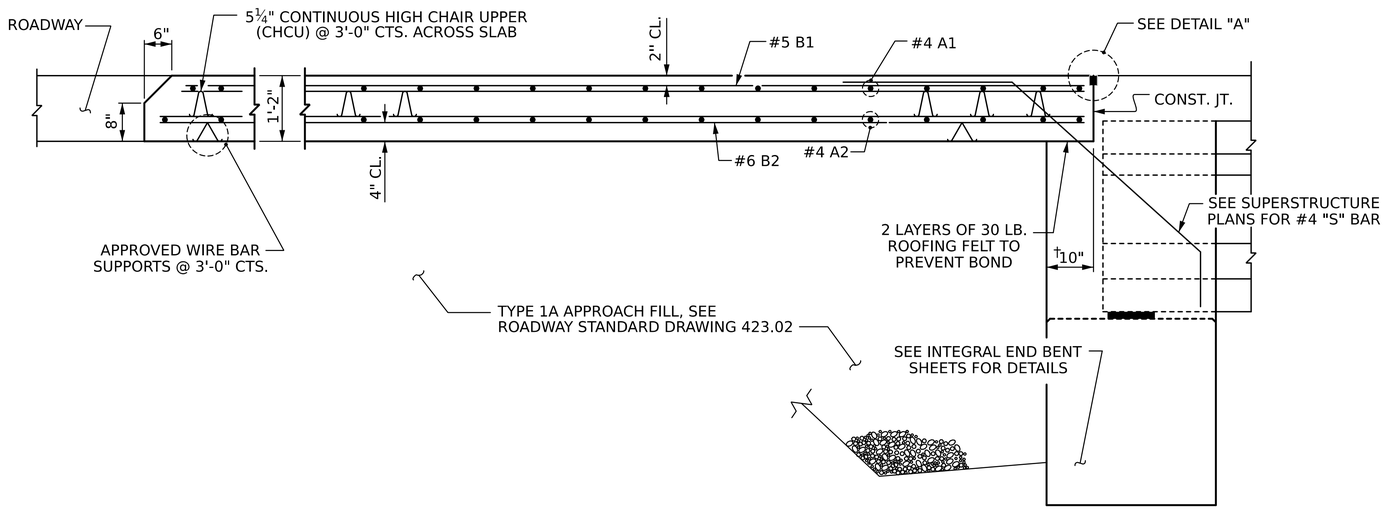



## PLAN @ END BENT 1




## PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS




## SECTION THRU SLAB

## NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

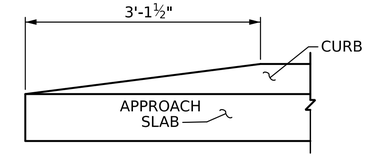
## BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

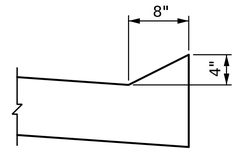
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| *A1 | 16 | #4 | STR | 35'-0" | 374 |
| A2 | 16 | #4 | STR | 35'-0" | 374 |
| | | | | | |
| *B1 | 71 | #5 | STR | 14'-2" | 1,049 |
| B2 | 71 | #6 | STR | 14'-8" | 1,564 |
| | | | | | |
| REINFORCING STEEL | | | | LBS. | 1,938 |
| * EPOXY COATED REINFORCING STEEL | | | | LBS. | 1,423 |
| | | | | | |
| CLASS AA CONCRETE | | | | C. Y. | 18.3 |

### SPLICE LENGTHS

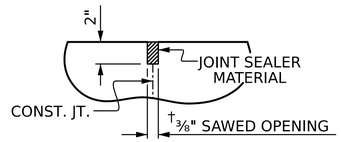
| BAR SIZE | EPOXY COATED | UNCOATED |
|---|---|---|
| #4 | 1'-11" | 1'-7" |
| #5 | 2'-5" | 2'-0" |
| #6 | 3'-7" | 2'-5" |




## END OF CURB WITHOUT SHOULDER BERM GUTTER




## SECTION N-N




## DETAIL "A"

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

# BRIDGE APPROACH SLAB

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN
8/7/2026
Signed by: Nicole K Brown 4835B2C7A37144CE...

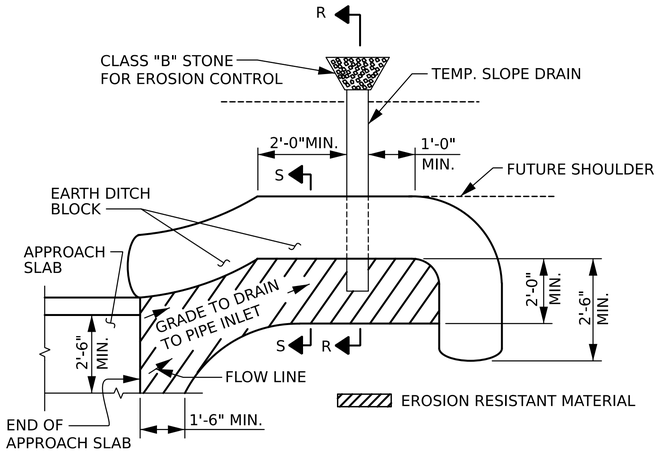
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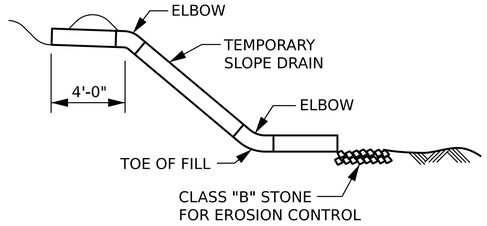
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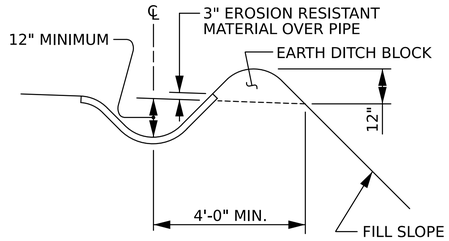

PLAN VIEW

NOTE:

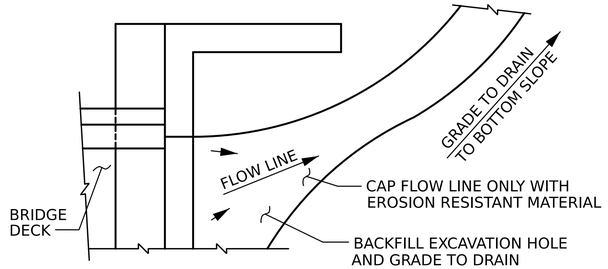
IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 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.




SECTION R-R




SECTION S-S




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 DETAILS

## TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. HB-0038

NASH COUNTY

STATION: 16+73.00 -L-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE L. BROWN

Signed by: Nicole L Brown 4835B2C7A3714CE...

8/7/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**BRIDGE APPROACH SLAB DETAILS**

| DRAWN BY : BLM | DATE : 8-25 | DESIGN ENGINEER OF RECORD: N. BROWN | DATE : 4-26 | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED |
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8/26/21

# STANDARD NOTES

DESIGN DATA:

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

## MATERIAL AND WORKMANSHIP:

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

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

## CONCRETE:

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

## CONCRETE CHAMFERS:

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

## DOWELS:

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

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

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

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

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

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

## REINFORCING STEEL:

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

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

## STRUCTURAL STEEL:

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

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

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

## HANDRAILS AND POSTS:

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

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

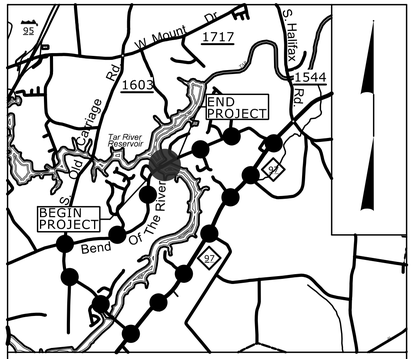
## SPECIAL NOTES:

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

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TIP PROJECT: HB-0038

CONTRACT: DD00540




OFFSITE DETOUR ROUTE

VICINITY MAP (NTS)

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

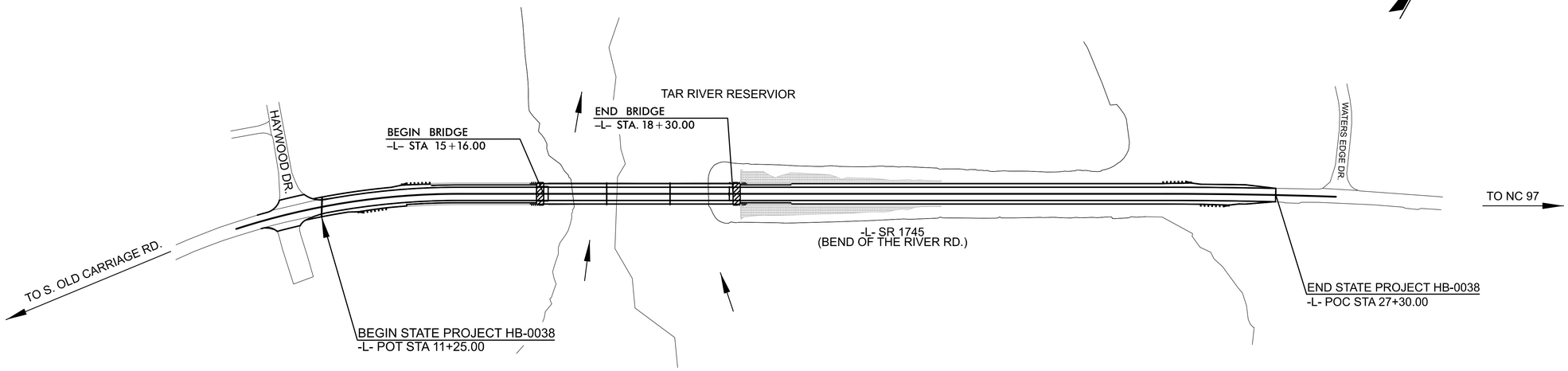
# NASH COUNTY

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
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| N.C. | HB-0038 | 1 | |

| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 50636.1.1 | N/A | PE |
| 50636.2.1 | N/A | ROW |
| 50636.2.2 | N/A | UTILITIES |
| 50636.3.1 | N/A | CONST. |
| | | |
| | | |
| | | |
| | | |

LOCATION: *BRIDGE 630110 ON SR 1745 (BEND OF THE RIVER ROAD) OVER THE TAR RIVER RESERVOIR*

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




# *STRUCTURES UTILITY PLANS*

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

*DESIGN DATA*

ADT 2026 = 1,977
ADT 2046 = 2,628
K = 10%
D =
T = 6% *
V = 60 MPH
* TTST = 6 DUAL
FUNC CLASS =
LOCAL
SUB-REGIONAL TIER

*PROJECT LENGTH*

LENGTH ROADWAY TIP PROJECT HB-0038 = 0.244 MILES

LENGTH STRUCTURES TIP PROJECT HB-0038 = 0.060 MILES

TOTAL LENGTH TIP PROJECT HB-0038 = 0.304 MILES

*NCDOT CONTACT:* RACHEL EVANS, PE
*DIVISION 4*
509 WARD BLVD.
WILSON, NC 27895
DIRECT: (252)640-6434
RCEVANS@NCDOT.GOV

Prepared in the Office of:
STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

*2024 STANDARD SPECIFICATIONS*

*RIGHT OF WAY DATE:* OCTOBER 15, 2025

*LETTING DATE:* NOVEMBER 24, 2026

NICOLE KING BROWN, PE
*PROJECT ENGINEER*

FILIP WEIL, EI
*PROJECT DESIGN ENGINEER*

*STRUCTURES ENGINEER*

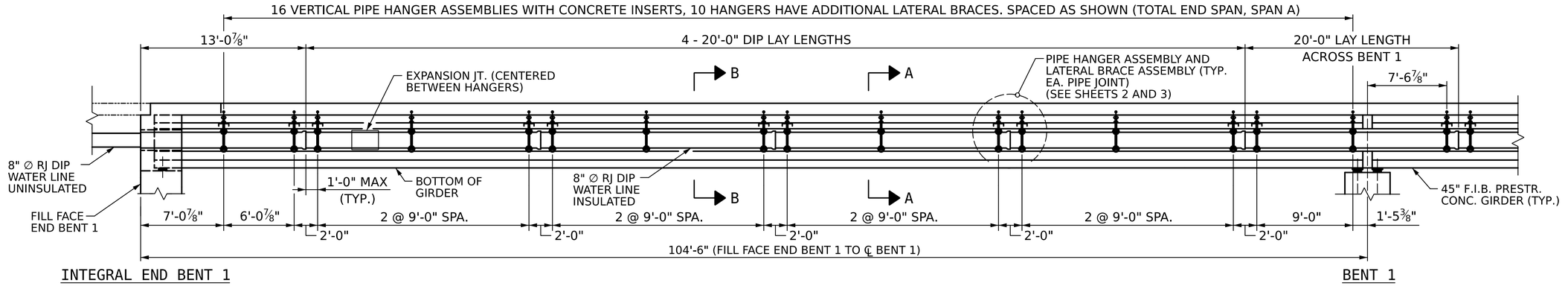
NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

8/10/2026

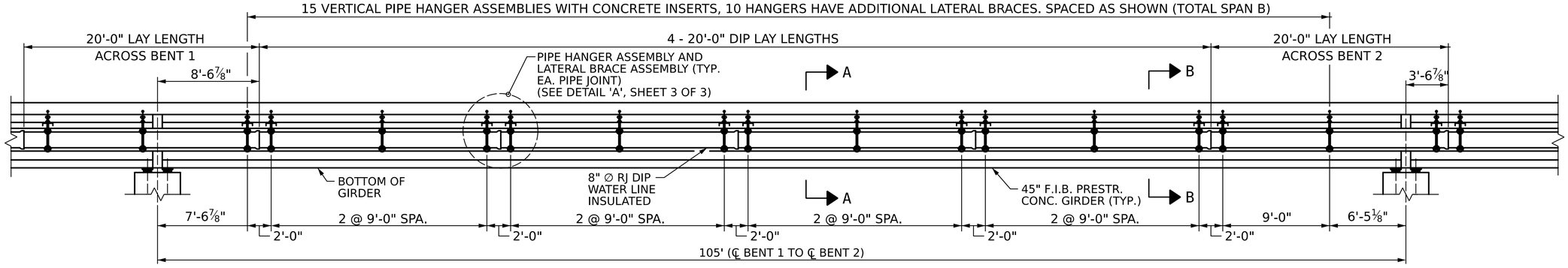
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*SIGNATURE:* P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

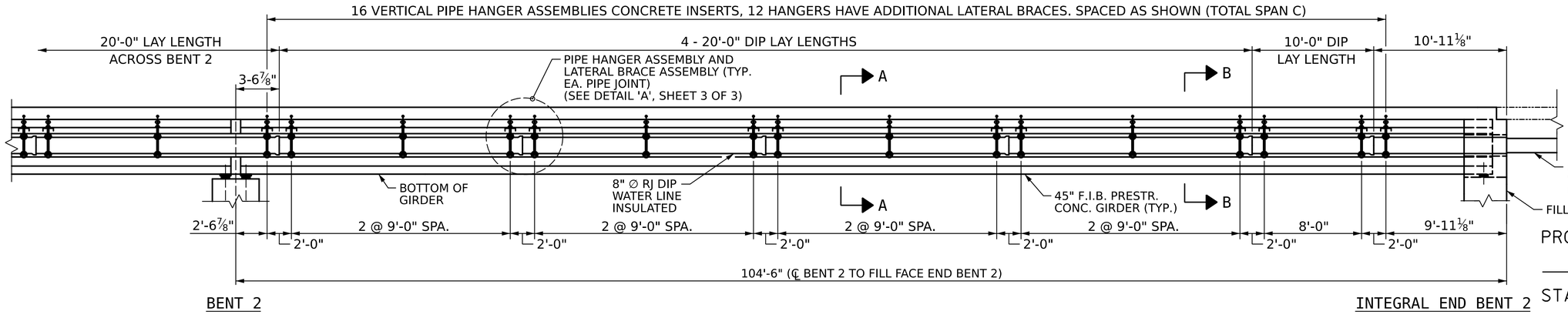
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## UTILITY ATTACHMENT (104'-6" END SPAN, SPAN A)




## UTILITY ATTACHMENT (105' INTERIOR SPAN, SPAN B)




## UTILITY ATTACHMENT (104'-6" END SPAN, SPAN C)

PROJECT NO. 4022413

NASH COUNTY

STATION: 16+73.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 4835B2C7A3714CE...

8/10/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**PIPE HANGER BRIDGE CROSSING**

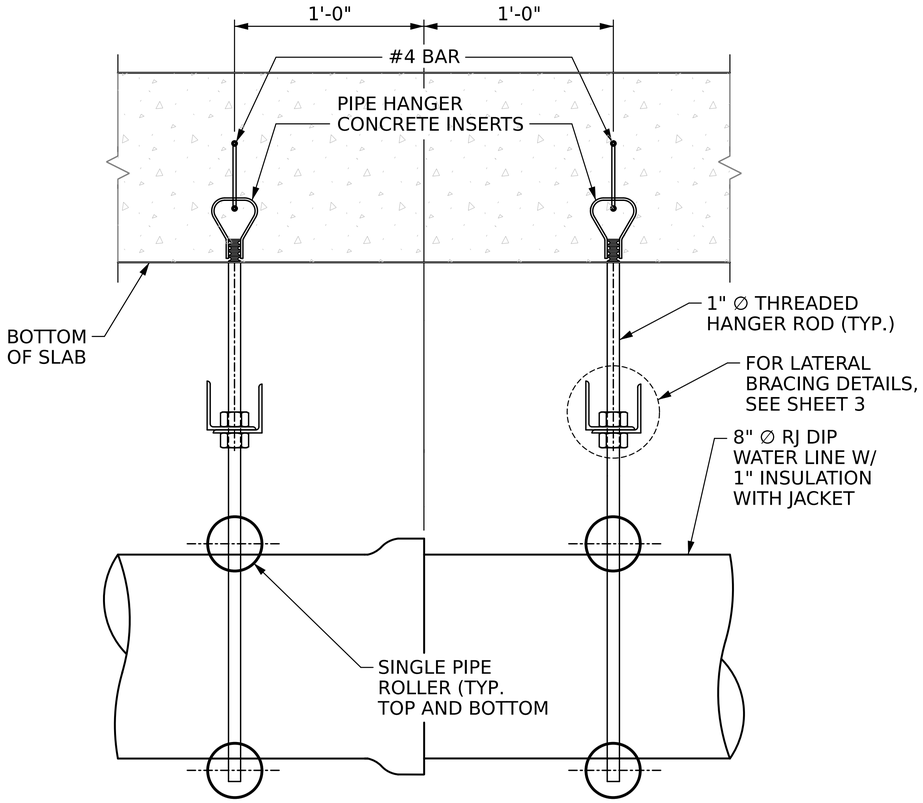
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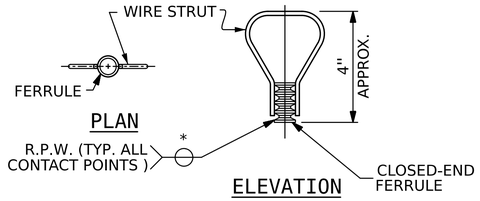
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## DETAIL "A"




## STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

(94 - CONCRETE INSERTS FOR 1" THREADED ROD)

THE STRUCTURAL CONCRETE INSERT SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169. GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1½".

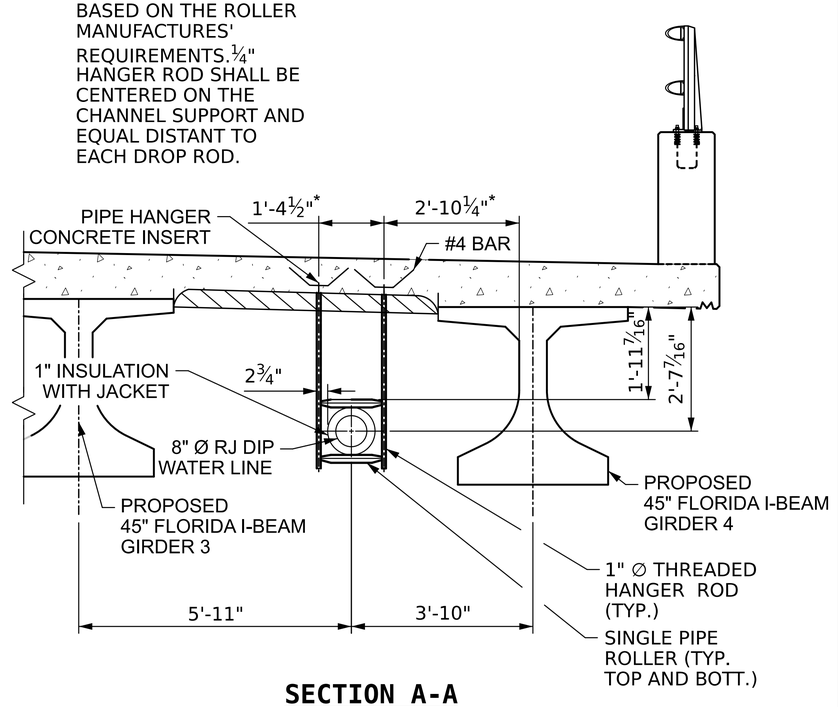
B. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100 KSI.

CONCRETE INSERTS SHALL BE OF AN APPROVED GALVANIZED TYPE HAVING A MINIMUM WORKING LOAD TENSION CAPACITY OF 800 LBS PER HANGER AND 800 LBS PER LATERAL BRACE.

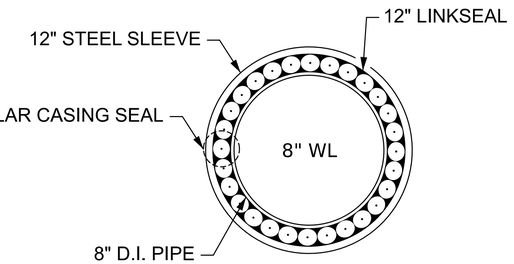
C. FOR LOCATION OF HANGERS WITH LATERAL BRACES, SEE SHEET 1.

D. STEEL SLEEVES THROUGH END BENT SHALL CONFORM TO AASHTO M181 WITH A MINIMUM WALL THICKNESS OF ½".

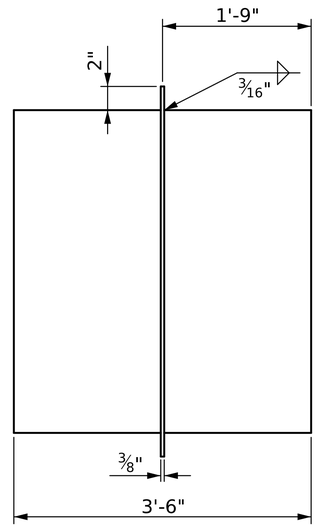
CONTRACTOR SHALL * VERIFY AND ADJUST THESE DIMENSIONS BASED ON THE ROLLER MANUFACTURES' REQUIREMENTS.¼" HANGER ROD SHALL BE CENTERED ON THE CHANNEL SUPPORT AND EQUAL DISTANT TO EACH DROP ROD.




## SECTION A-A

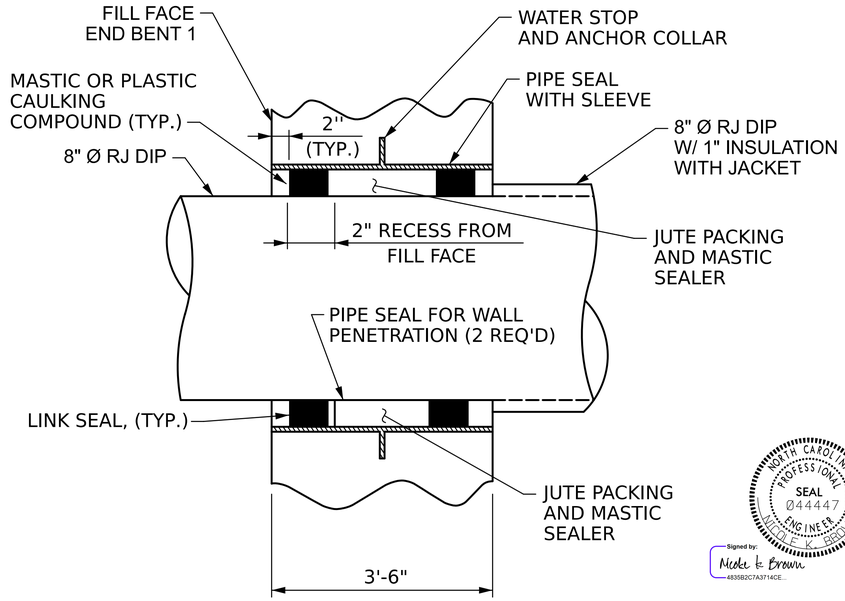



## LINK SEAL DETAIL




## PIPE SEAL WALL SLEEVE DETAILS

(2 WALL SLEEVES REQUIRED)




## DETAIL OF PIPE SEAL FOR THRU WALL PENETRATION AT END BENT

END BENT 1 SHOWN, END BENT 2 SIMILAR

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 4835B2C7A3714CE...

8/10/2026

PROJECT NO. 4022413

NASH COUNTY

STATION: 16+73.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

# PIPE HANGER BRIDGE CROSSING

# CONCRETE INSERT DETAILS

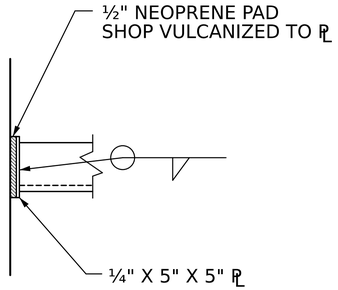
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STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

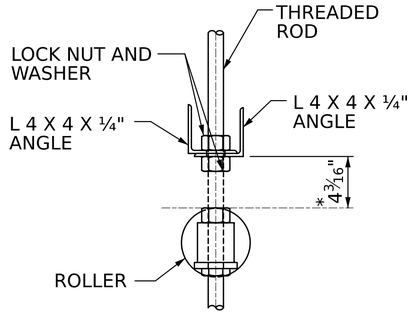
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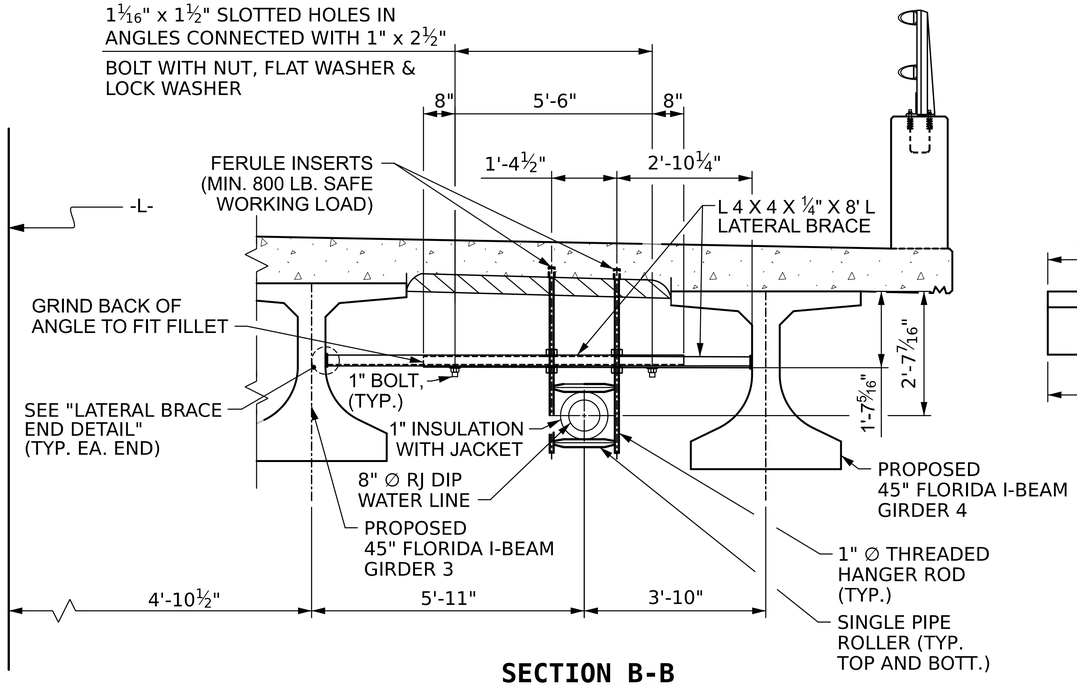



## LATERAL BRACE END DETAIL




## LATERAL BRACING SECTION

* VERIFY DIMENSION PRIOR TO INSTALLATION FOR END OF LATERAL BRACE TO REST AGAINST VERTICAL PORTION OF F.I.B. GIRDERS




## SECTION B-B

■ WATERLINE SLOPE FOLLOWS THE LONGITUDINAL DECK SLOPE

## NOTES

MAXIMUM DEFLECTION ANGLE AT A PIPE JOINT IS 5°.

ALL COMPONENTS OF DOUBLE ROLLER GUIDE ASSEMBLY (INCLUDING BUT NOT LIMITED TO ROLLERS, RODS, FERRULE INSERTS, NUTS, AND WASHERS) SHALL BE GALVANIZED.

ALL COMPONENTS OF LATERAL BRACING SHALL BE HOT DIPPED GALVANIZED.

LATERAL BRACING IS REQUIRED AT EACH PIPE JOINT.

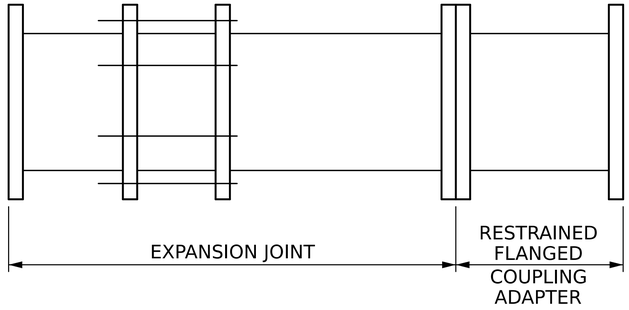
CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR DOUBLE ROLLER GUIDE ASSEMBLY. SEE SPECIAL PROVISIONS.

CONTRACTOR SHALL ADJUST THE DOUBLE ROLLER GUIDE ASSEMBLY TO ENSURE A TIGHT FIT BETWEEN THE ROLLERS AND THE WATERLINE.

FOR PAYMENT OF WATERLINE AND JOINT FILLER MATERIAL, SEE ROADWAY PLANS.

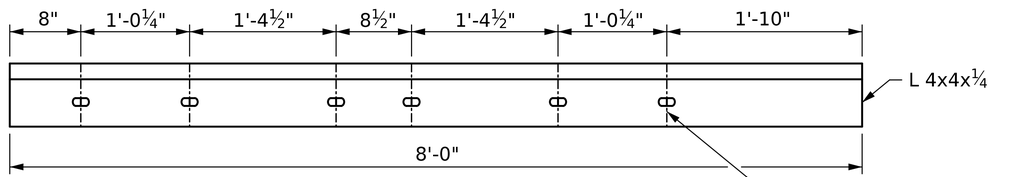
THE COST FOR LABOR AND MATERIAL FOR THE DOUBLE ROLLER GUIDE ASSEMBLY AND ALL MOUNTING HARDWARE REQUIRED SHALL BE PAID FOR IN THE UNIT PRICE BID FOR "REINFORCED CONCRETE DECK SLAB".

PIPE HANGER ASSEMBLY SHALL NOT EXTEND BELOW THE LOW CHORD OF GIRDER 4.




NOTE: TOTAL PIPE MOVEMENT IS 4.25

## PIPE EXPANSION JOINT DETAIL




## LATERAL BRACE ANGLE DETAIL

2 REQUIRED PER LATERAL BRACE

PROJECT NO. 4022413

NASH COUNTY

STATION: 16+73.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 044447 ENGINEER NICOLE K. BROWN

Signed by: Nicole K Brown 483082C7A3714CE...

8/10/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

# PIPE HANGER BRIDGE CROSSING

# WATERLINE LATERAL BRACING DETAILS

| DRAWN BY : BLM | DATE : 2-26 | DESIGN ENGINEER OF RECORD: N. BROWN | DATE : 7-26 | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED |
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2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

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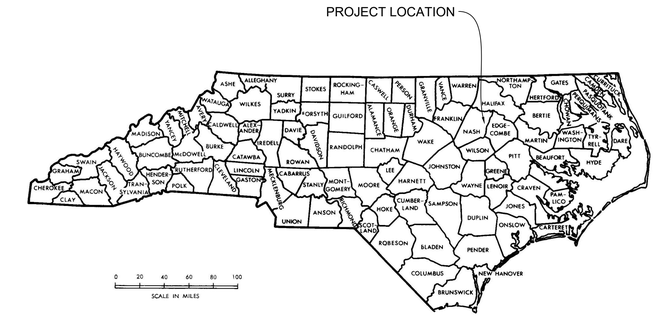
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# BEND OF THE RIVER ROAD BRIDGE

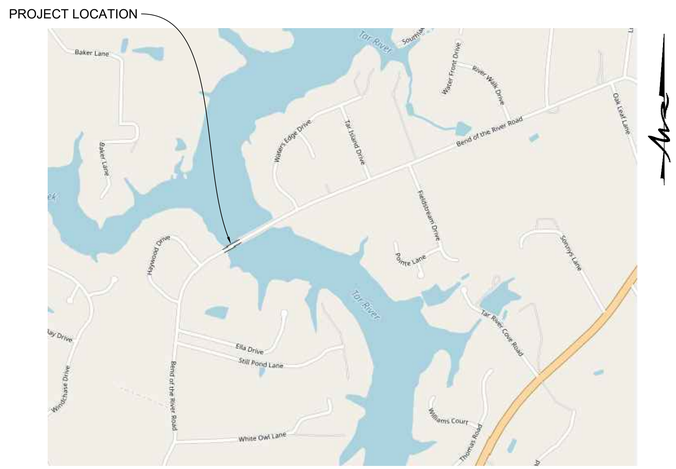
## CITY OF ROCKY MOUNT
## NASH, NC
## PROJECT: HB-0038

## AUGUST 2026

| SHEET INDEX | |
|---|---|
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| 1 | COVER |
| 2 | SPAN A |
| 3 | SPAN B |
| 4 | SPAN C |
| 5 | SPAN A PROFILE |
| 6 | SPAN B PROFILE |
| 7 | SPAN C PROFILE |
| 8 | END BENT 1 & 2 PROFILE |
| 9 | DETAILS |




STATE MAP
NTS




VICINITY MAP
N.T.S.

MAGNOLIA RIVER®
7047 OLD MADISON PIKE
HUNTSVILLE, AL 35806
(256) 773-9420

AUSTIN GAY (256) 773-9420
P.E. LICENSE: 062822

CITY OF ROCKY MOUNT, NC
331 S. FRANKLIN ST.
ROCKY MOUNT, NC. 27802

ROB PATE (252) 467-4809
ROBERT.PATE@ROCKYMOUNTNC.GOV

NORTH CAROLINA PROFESSIONAL SEAL 062822 ENGINEER AUSTIN GAY

Austin Marion Gay
Digitally signed by Austin Marion Gay
Date: 2026.08.07 15:11:45 -05'00'

North Carolina 811 www.nc811.org

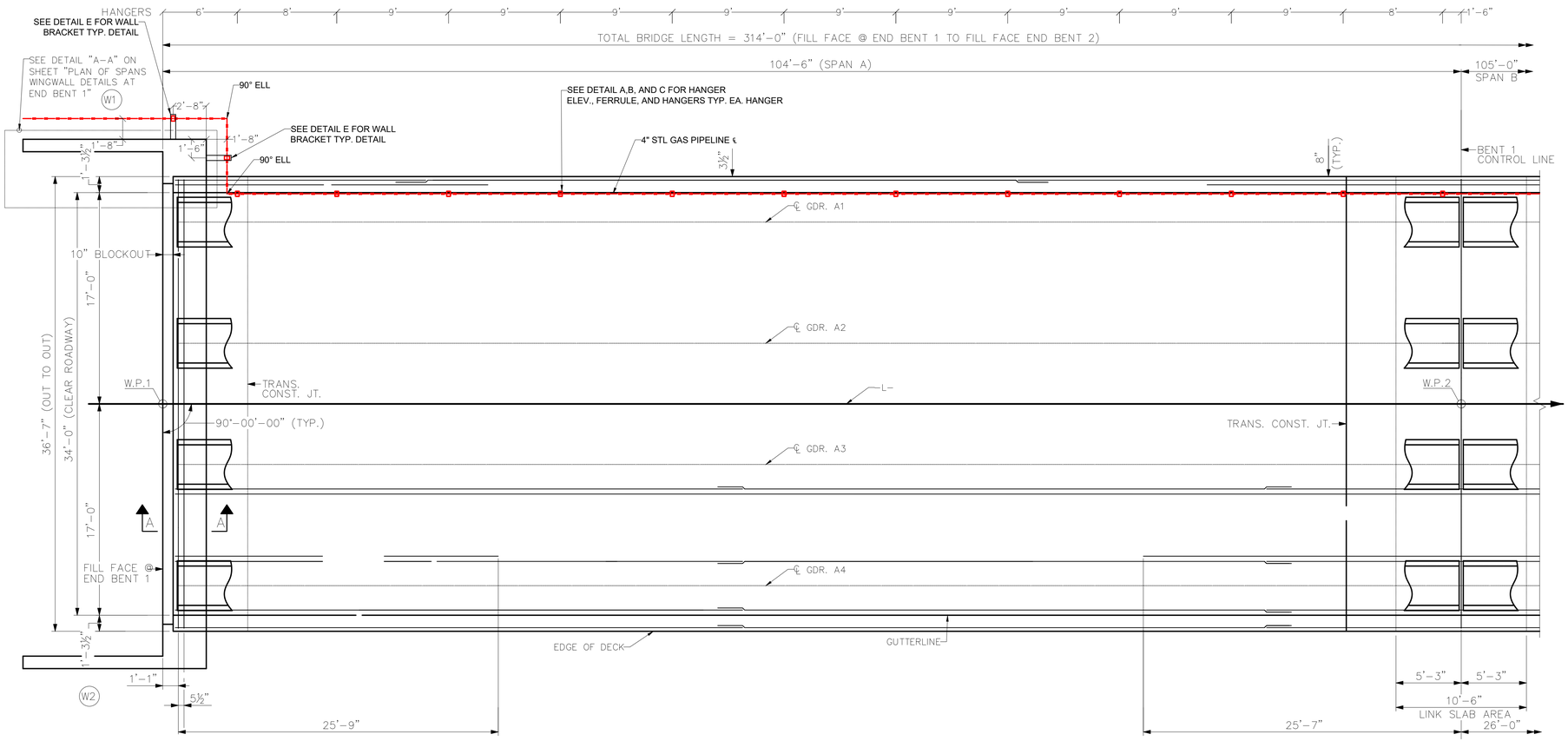
MAGNOLIA SAFETY FIRST!

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NOTE: 1. CONSULT ENGINEER IF HANGER SPACING GREATER THAN 9 FEET IS REQUIRED.
2. PIPE TO BE PAINTED WITH ZINC CHROMATE PRIMER AND HIGHWAY GREEN PAINT.
3. BRIDGE CONTRACTOR TO INSTALL SCREW CONCRETE INSERTS AND DRILL HOLES FOR WALL BRACKETS AND INSTALL ADHESIVE ANCHORS.
4. CITY OF ROCKY MOUNT GAS DEPARTMENT REPRESENTATIVES OR CONTRACTOR TO INSTALL WALL BRACKETS, SINGLE ROD HANGER ASSEMBLIES, AND 4" STEEL GAS MAIN ALONG BRIDGE.




# PLAN OF SPAN A

FOR SECTION VIEWS, SEE "TYPICAL SECTION SHEETS"
FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "PRESTRESSED CONCRETE GIRDER" SHEET 4 OF 4

PROJECT NO. HB-0038
NASH COUNTY
STATION: 16+73.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

4" GAS LINE HANGER PLAN& DETAILS

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Austin Marion Gay
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NORTH CAROLINA PROFESSIONAL SEAL 062822 ENGINEER AUSTIN GAY

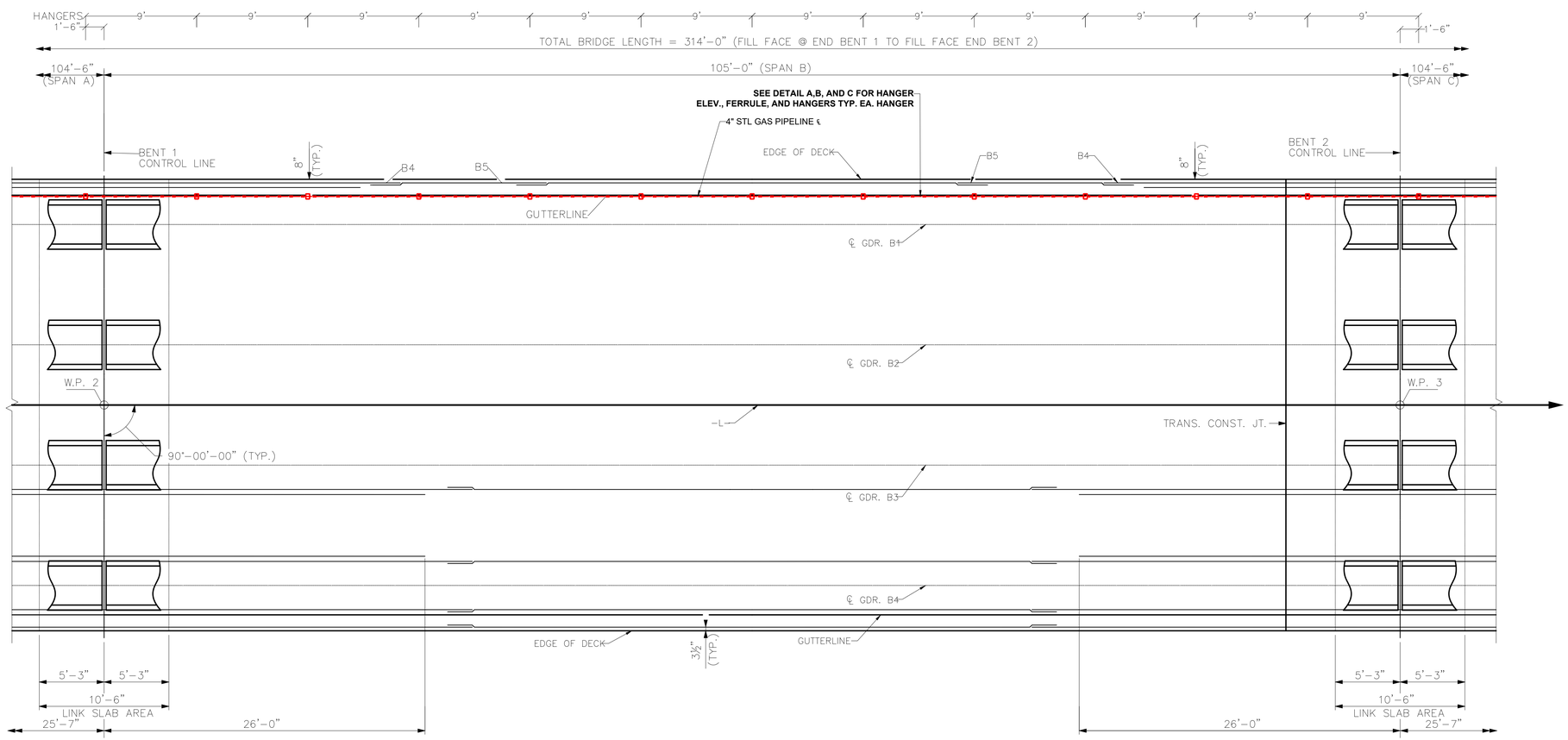
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CHECKED BY : A. GAY DATE : 08/07/2026

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# PLAN OF SPAN B

FOR SECTION VIEWS, SEE "TYPICAL SECTION SHEETS"
FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "PRESTRESSED CONCRETE GIRDER" SHEET 4 OF 4

PROJECT NO. HB-0038
NASH COUNTY
STATION: 16+73.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

4" GAS LINE HANGER PLAN& DETAILS

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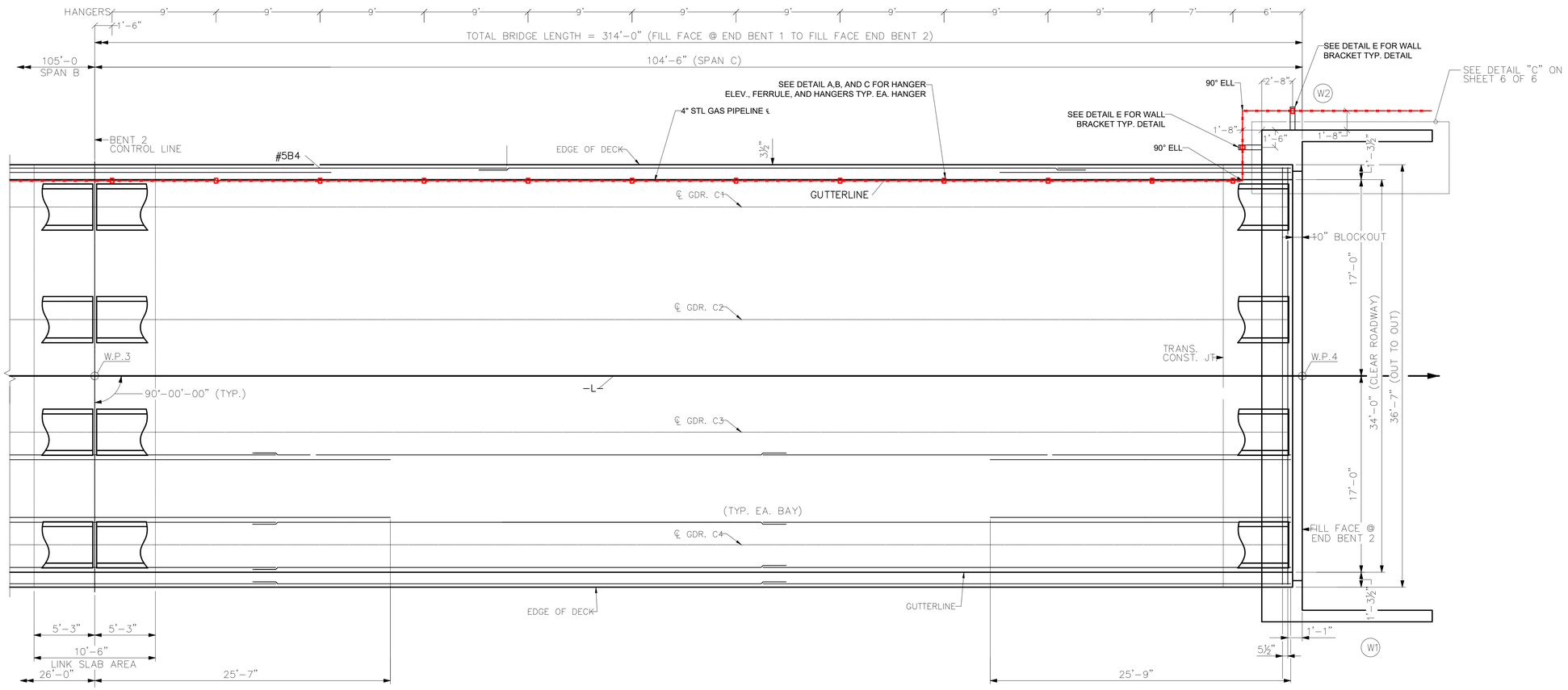
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# PLAN OF SPAN C

FOR SECTION VIEWS, SEE "TYPICAL SECTION SHEETS"
FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "PRESTRESSED CONCRETE GIRDER" SHEET 4 OF 4

PROJECT NO. HB-0038
NASH COUNTY
STATION: 16+73.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

4" GAS LINE HANGER PLAN& DETAILS

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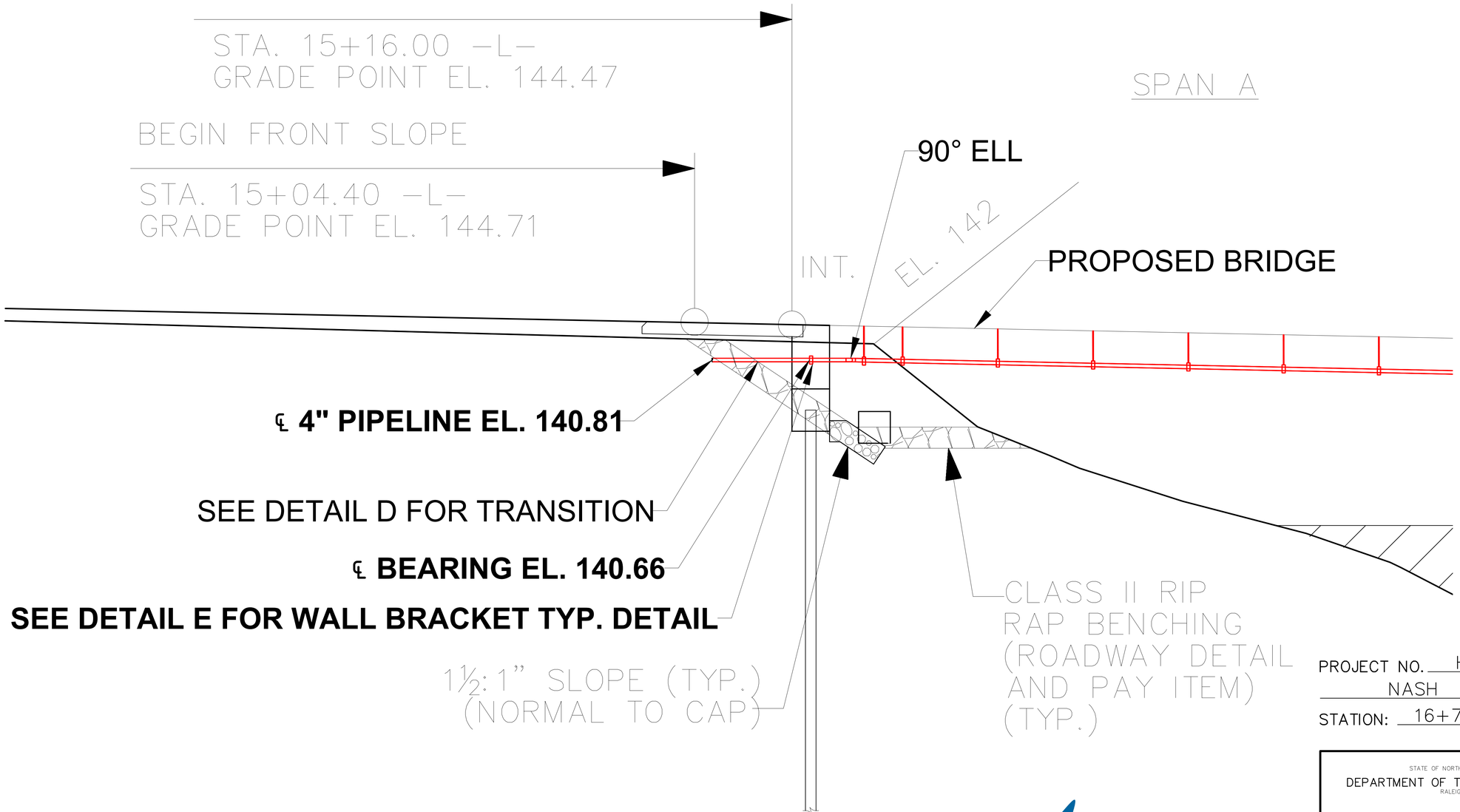
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# INTEGRAL END BENT 1

PROJECT NO. HB-0038
NASH COUNTY
STATION: 16+73.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

4" GAS LINE HANGER PLAN& DETAILS

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Austin Marion Gay — Digitally signed by Austin Marion Gay Date: 2026.08.07 15:10:17 -05'00'

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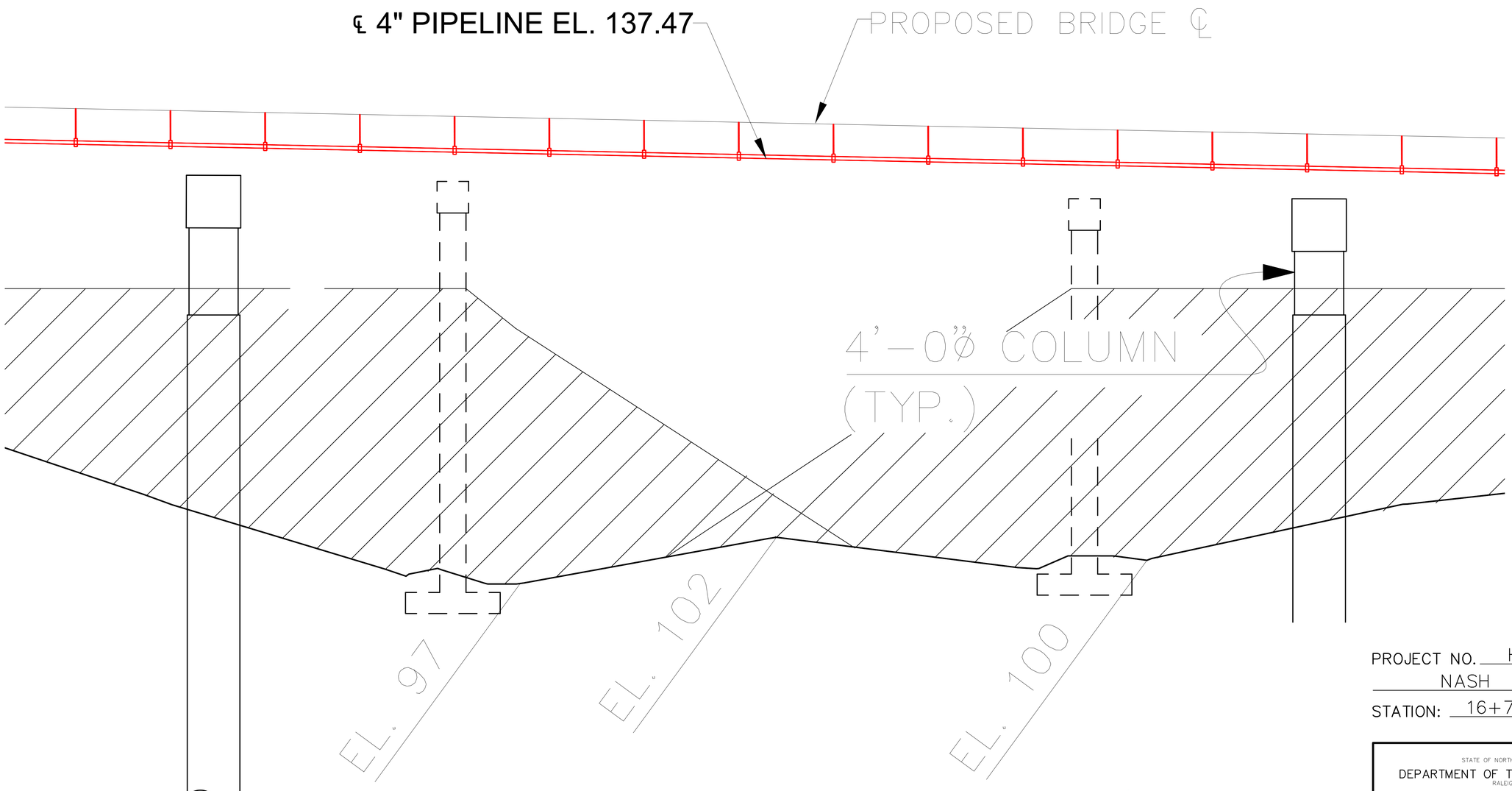
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# INTEGRAL END BENT 1

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PROJECT NO. HB-0038
NASH COUNTY
STATION: 16+73.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

4" GAS LINE HANGER PLAN& DETAILS

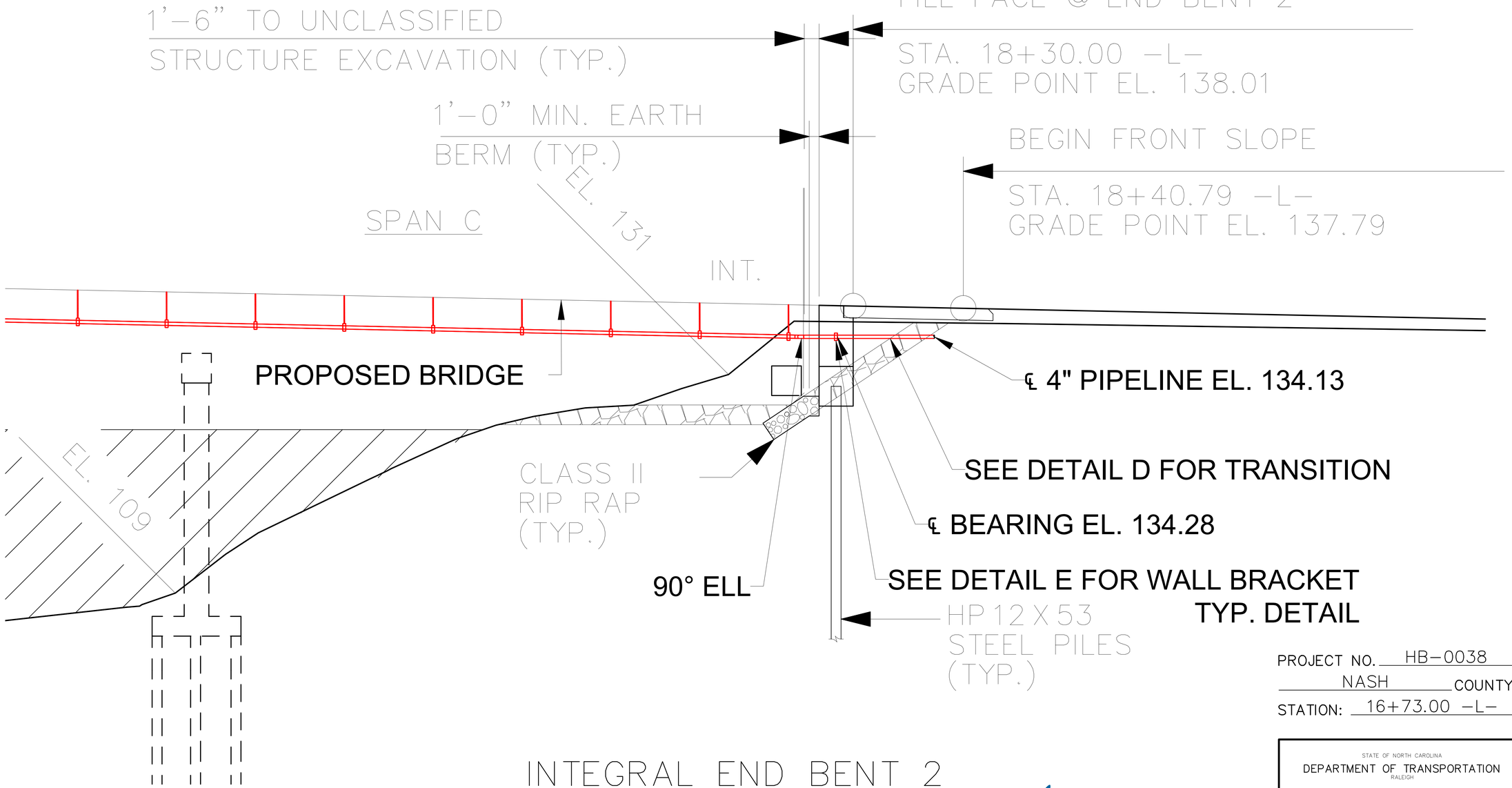
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# INTEGRAL END BENT 2

PROJECT NO. HB-0038
NASH COUNTY
STATION: 16+73.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

4" GAS LINE HANGER PLAN& DETAILS

MAGNOLIA RIVER®

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NORTH CAROLINA PROFESSIONAL SEAL 062822 ENGINEER AUSTIN GAY

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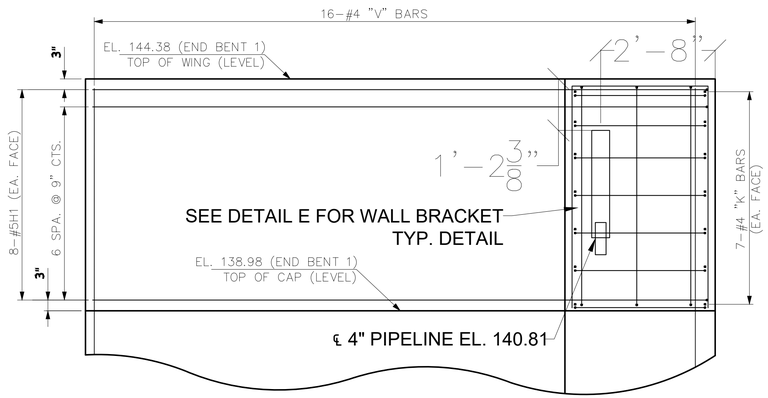
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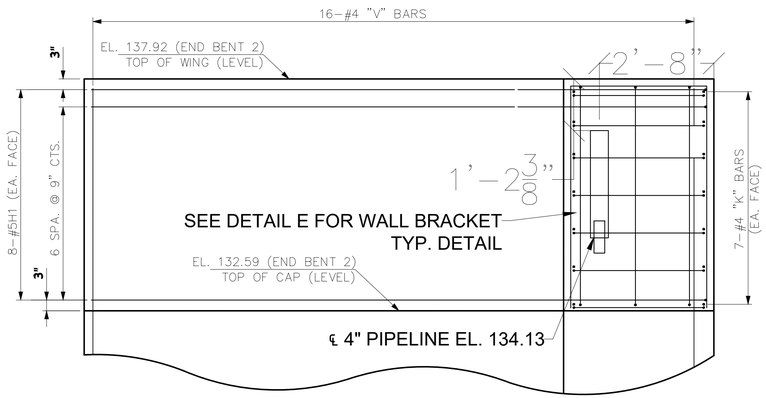
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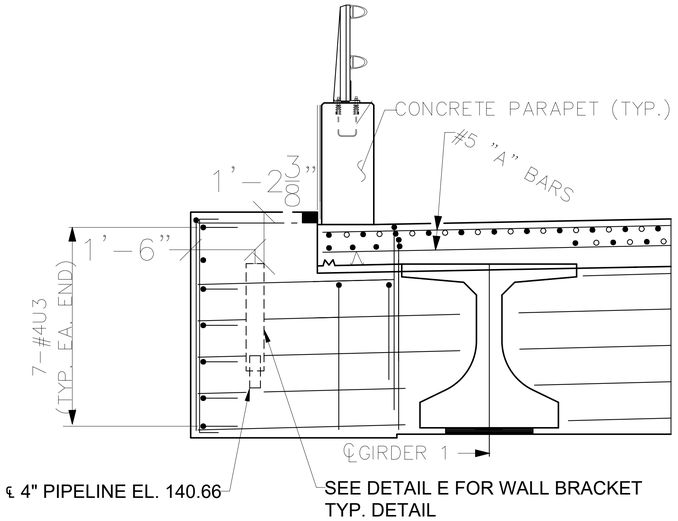
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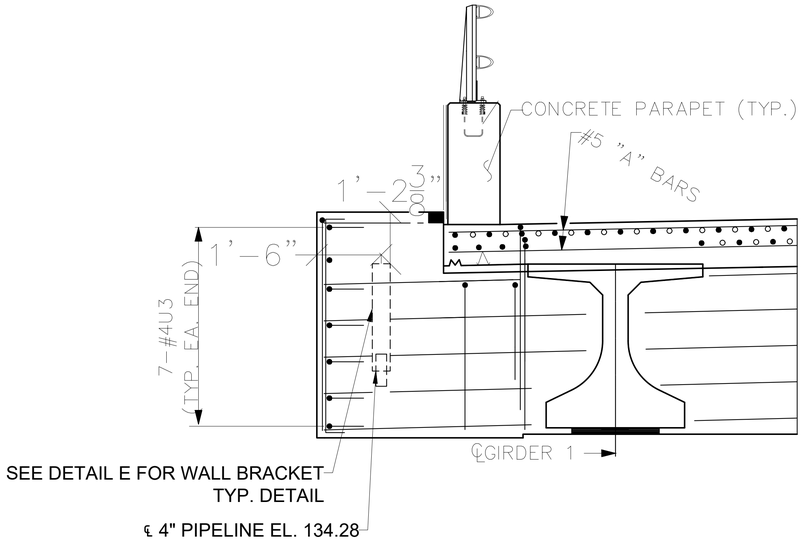
NOTE: 1. CONSULT ENGINEER IF HANGER SPACING GREATER THAN 9 FEET IS REQUIRED.
2. PIPE TO BE PAINTED WITH ZINC CHROMATE PRIMER AND HIGHWAY GREEN PAINT.
3. BRIDGE CONTRACTOR TO INSTALL SCREW CONCRETE INSERTS AND DRILL HOLES FOR WALL BRACKETS AND INSTALL ADHESIVE ANCHORS.
4. CITY OF ROCKY MOUNT GAS DEPARTMENT REPRESENTATIVES OR CONTRACTOR TO INSTALL WALL BRACKETS, SINGLE ROD HANGER ASSEMBLIES, AND 4" STEEL GAS MAIN ALONG BRIDGE.




END BENT 1




END BENT 2

PROJECT NO. HB–0038
NASH COUNTY
STATION: 16+73.00 –L–

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

4" GAS LINE HANGER PLAN& DETAILS

| REVISIONS | | | | | | SHEET NO. |
|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | 8 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 9 |

MAGNOLIA RIVER®

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NORTH CAROLINA PROFESSIONAL SEAL 062822 ENGINEER AUSTIN GAY

Austin Marion Gay Digitally signed by Austin Marion Gay Date: 2026.08.07 15:09:20 -05'00'

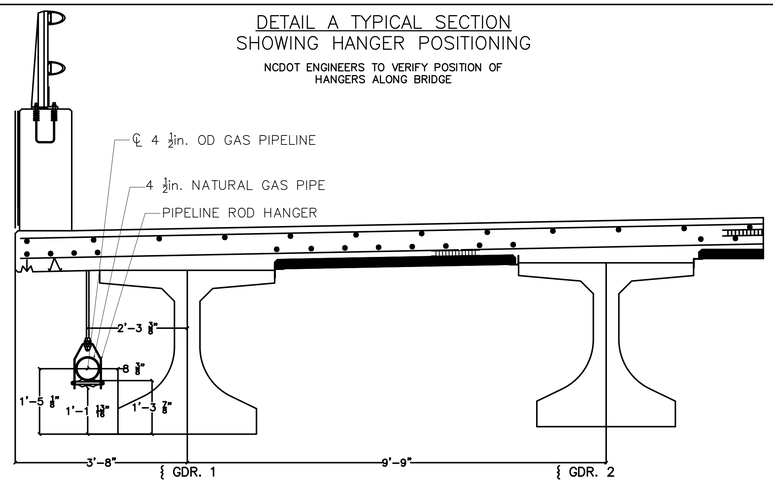
DRAWN BY : J. CALZADA DATE : 08/07/2026
CHECKED BY : A. GAY DATE : 08/07/2026

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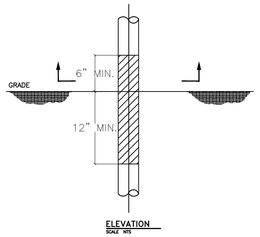
## DETAIL A TYPICAL SECTION SHOWING HANGER POSITIONING

NCDOT ENGINEERS TO VERIFY POSITION OF HANGERS ALONG BRIDGE




## DETAIL D AIR TRANSITION DETAIL

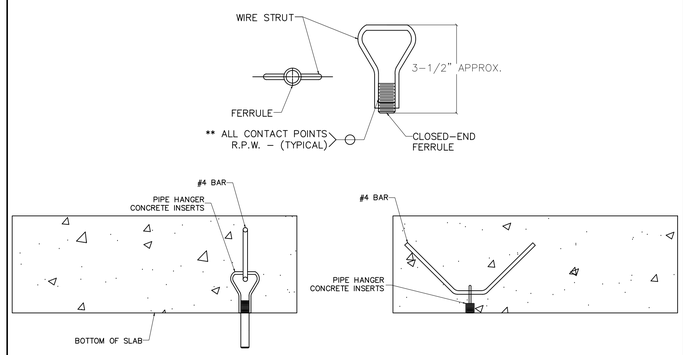



NOTES:
1.THIS GUIDELINE IS FOR STEEL TRANSITIONS FROM BELOW TO ABOVE GROUND.
2.INSTALL COATINGS PER MANUFACTURER'S RECOMMENDATIONS.
3.WRAP MUST BE AT LEAST 6 INCHES CLEAR OF RIP RAP AND EXTEND BACK INTO GRADE.

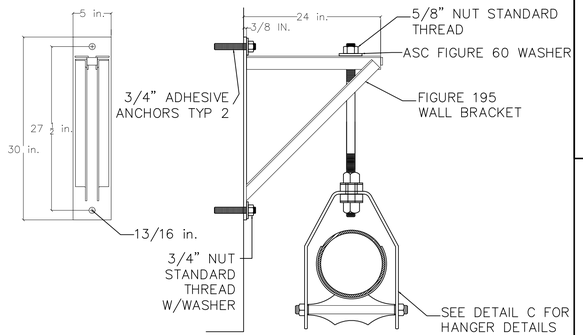
| BILL OF MATERIAL | |
|---|---|
| ITEM | DESCRIPTION |
| 1 | FUSION BOND EPOXY |
| 2 | TRENTON MCO 110 OR SYNTHOGLASS SPF OUTER WRAP |

NOTE:MAXIMUM BOLT ENGAGEMENT FOR FERRULE IS 1-1/8"




## DETAIL B SCREW CONCRETE INSERT DETAIL

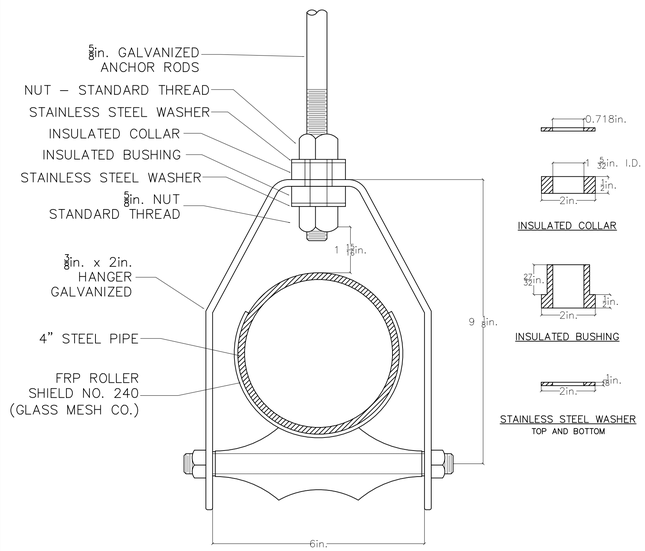
## DETAIL E PIPE HANGER WALL BRACKET DETAIL




NOTE:ADHESIVE ANCHORS TO BE 7/8" DRILLED HOLES W/3/4" THREADED ROD AT 6-3/4" EMBEDMENT USING RED HEAD C6+ ADHESIVE OR APPROVED EQUAL

**TYPICAL WALL BRACKET ROD HANGER ASSEMBLY**

THREAD A NUT ON THE 5/8" ROD. PLACE A WASHER ON TOP OF THE FIRST NUT AND THEN THREAD A SECOND NUT DOWN ON TOP OF THE WASHER. TIGHTEN THE TWO NUTS TOGETHER "LOCKING" THE WASHER BETWEEN THEM. THE TOP NUT SHOULD BE FLUSH WITH THE TOP OF THE ROD.




## DETAIL C TYPICAL SINGLE ROD HANGER ASSEMBLY

| BILL OF MATERIAL | | | |
|---|---|---|---|
| No. | QTY. | UNITS | ITEM |
| 1 | 80 | FT | 4 1/2" O.D COATED STEEL PIPE, API 5L X-52, ERW, .237 WT, 14-16 MILS FBE |
| 2 | 340 | FT | 4 1/2" O.D STEEL PIPE, API 5L X-52, ERW, .237 WT, BARE |
| 3 | 39 | EA | VERTICAL HANGER ASSEMBLY - INCLUDES 5/8" STEEL ROD (GALVANIZED), ANVIL HANGER FIG 181 #5 HOT DIP GALVANIZED WITH NONCONDUCTIVE ROLLERS WITH NUTS/INSULATING MATERIALS, 4" FRP ROLL ON SHIELD TYPE 240 |
| 4 | 4 | EA | 4" LRW 90 ELLS, STANDARD WT Y52 |
| 5 | 1 | EA | TAPECOAT 20 HOT APPLIED TAPE WRAP AS NEEDED |
| 6 | 1 | EA | PRIMER AND PAINT AS NEEDED |
| 7 | 35 | EA | 5/8" SCREW CONCRETE INSERTS, DAYTON SUPERIOR F-42 LOOP INSERTS |
| 8 | 4 | EA | ANVIL FIGURE 195 WALL BRACKET #2, HOT DIP GALVANIZED WITH 3/4" ADHESIVE ANCHORS, WITH 3/4" WASHERS AND NUTS |
| 9 | 4 | EA | ANVIL FIGURE 60 WASHER, HOT DIP GALVANIZED WITH 3/4" DIA HOLE FOR 5/8" ROD |

| Pressure Test Specification | |
|---|---|
| **Pipe** | 4" Steel 0.237 WT X52 |
| **SYSTEM MAOP** | 60 |
| **Target Test Pressure** | 160 |
| **Minimum Test Pressure** | 150 |
| **Maximum Test Pressure** | 175 |
| **Test Medium** | INERT GAS / AIR |
| **Test Duration** | 4 HOURS |
| **Qualified MAOP** | 100 |

PROJECT NO. HB-0038
NASH COUNTY
STATION: 16+73.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

# 4" GAS LINE HANGER PLAN& DETAILS

MAGNOLIA RIVER®

ISSUED FOR CONSTRUCTION

Austin Marion Gay
Digitally signed by Austin Marion Gay
Date: 2026.08.07 15:08:38 -05'00'

NORTH CAROLINA PROFESSIONAL SEAL 062822 ENGINEER AUSTIN GAY

| REVISIONS | | | | | | SHEET NO. |
|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | 9 |
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DRAWN BY : J. CALZADA DATE :08/07/2026
CHECKED BY : A. GAY DATE :08/07/2026

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