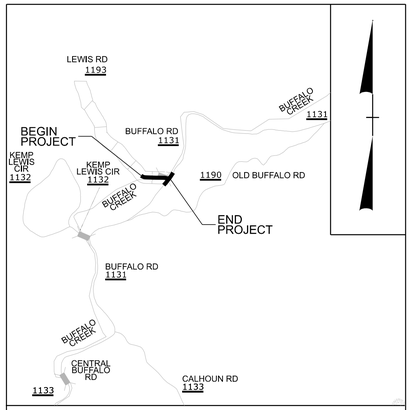
01/16/24

PROJECT: BP11-R012

CONTRACT: DK00453



VICINITY MAP (NTS)

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

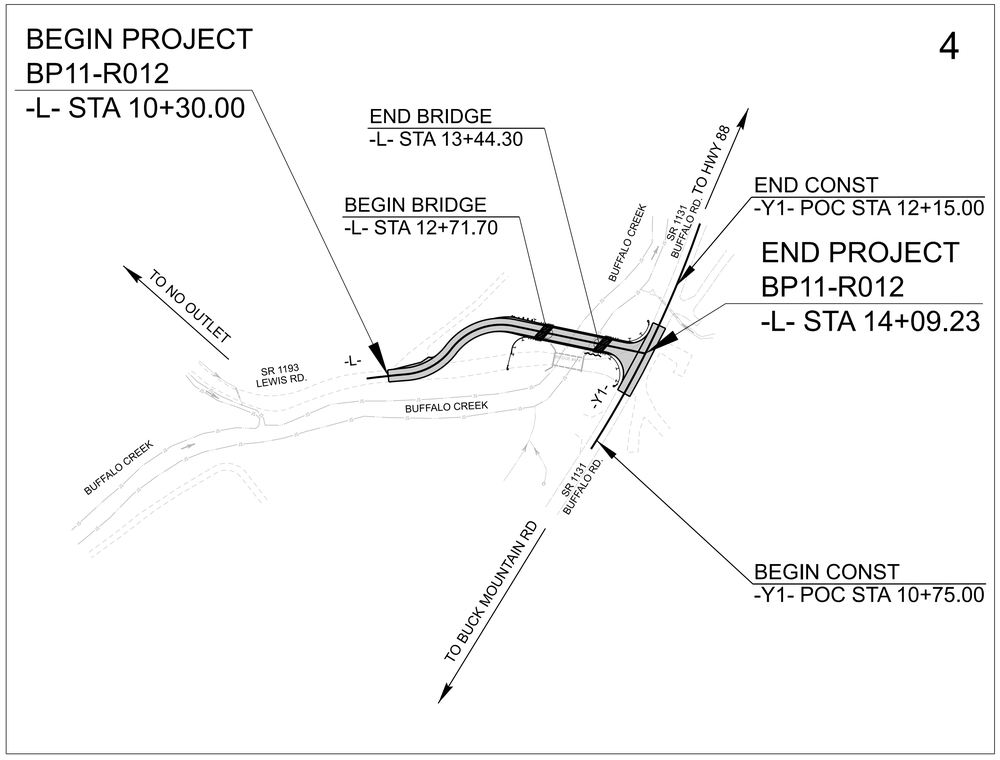
ASHE COUNTY

LOCATION: *REPLACE BRIDGE NO. 040474 ON SR 1193 (LEWIS RD.) OVER BUFFALO CREEK*

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP11-R012	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP11-R012.1	N/A	PE
BP11-R012.2	N/A	R/W / UTIL
BP11-R012.3	N/A	CONST.



THIS IS NOT A CONTROL OF ACCESS PROJECT.

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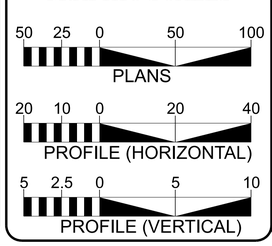
GRAPHIC SCALES



DESIGN DATA

ADT 2025 = 50
ADT 2045 = 60
K = N/A %
D = N/A %
T = N/A % *
V = 35 MPH
* TTST =N/A DUAL N/A
FUNC CLASS =
RURAL LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

PROJECT LENGTHS FOR PROJECT BP11-R012:

LENGTH ROADWAY PROJECT BP11-R012	=	0.058 MILES
LENGTH STRUCTURES PROJECT BP11-R012	=	0.014 MILES
TOTAL LENGTH PROJECT BP11-R012	=	0.072 MILES

Prepared in the Office of:
KCA KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville St.,
Suite 1500
Raleigh, NC 27601
(919)882-7839

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 20, 2024

LETTING DATE:
FEBRUARY 19, 2026

JACOB H. DUKE, P.E.
PROJECT ENGINEER

GERALD P. SYKES, E.I.
PROJECT DESIGN ENGINEER

ROB WEISZ, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

Signed by: John McNulty
SIGNATURE: P.E.

NORTH CAROLINA PROFESSIONAL SEAL 057747 ENGINEER JOHN MCNULTY

ROADWAY DESIGN ENGINEER

Signed by: Jacob H Duke
SIGNATURE: P.E.

NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H. DUKE

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

11/14/23

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1 THRU 2C-5	SPECIAL DETAILS
3B-1 THRU 3B-2	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 5	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-6	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-001 THRU X-010	CROSS-SECTIONS
S-1 THRU S-21	STRUCTURE PLANS

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

SIDE ROADS:

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

SUBSURFACE DRAINS:

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

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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

SKYLINE SKYBEST - COMMUNICATIONS

BLUE RIDGE ENERGY - ELECTRICITY

BRIGHTSPEED - TELECOM

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

EFF. 01-16-2024
REV.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

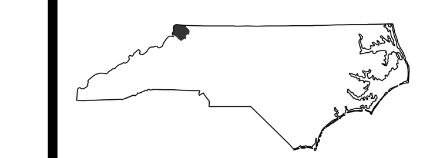
The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	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 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type 1 Approach Fill for Bridge Abutment
423.02	Bridge Approach Fills - Type 1A Alternate Approach Fill for Integral Bridge Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.20	Frames and Wide Slot Flat Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.04	Street Turnout
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)
862.02	Guardrail Installation (Use Detail in Lieu of Standard for Sheets 5 of 9)
862.03	Structure Anchor Units (Use Detail in Lieu of Standard for Sheets 6 and 8 of 9)
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

BP11-R012

FINAL | 1A

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

12/9/2025

NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H. DUKE

Signed by:
Jacob H Duke
29[illegible]

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PREPARED BY

KCA
KISINGER CAMPO & ASSOCIATES

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REVISIONS

11/14/23

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FINAL | 1B

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

Note: Not to Scale

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge
- RR Signal Milepost
- Switch
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:
- Bridge, Tunnel or Box Culvert
- Bridge Wing Wall, Head Wall and End Wall

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

UTILITIES:

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

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

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

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

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

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

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

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

11/14/23

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN 10/03/2023)

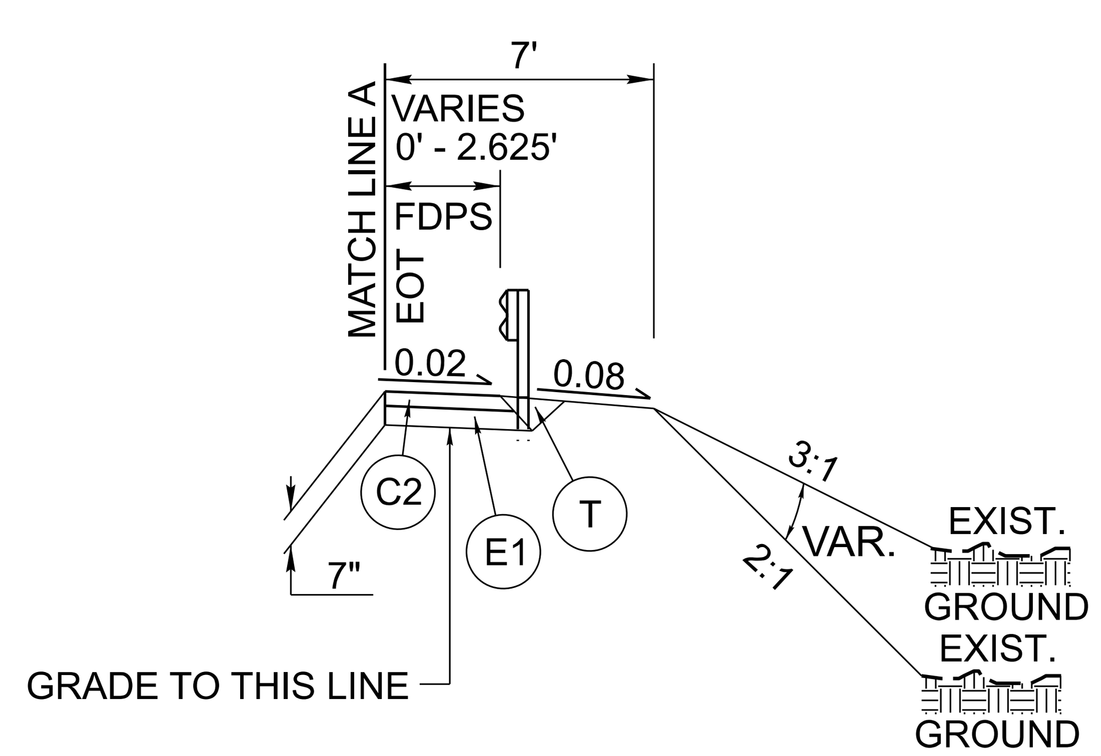
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF THE TWO LAYERS.	T	EARTH MATERIAL
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 TO EXCEED 1.5" IN DEPTH.	U	EXISTING PAVEMENT
		V	1.5" MILLING

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

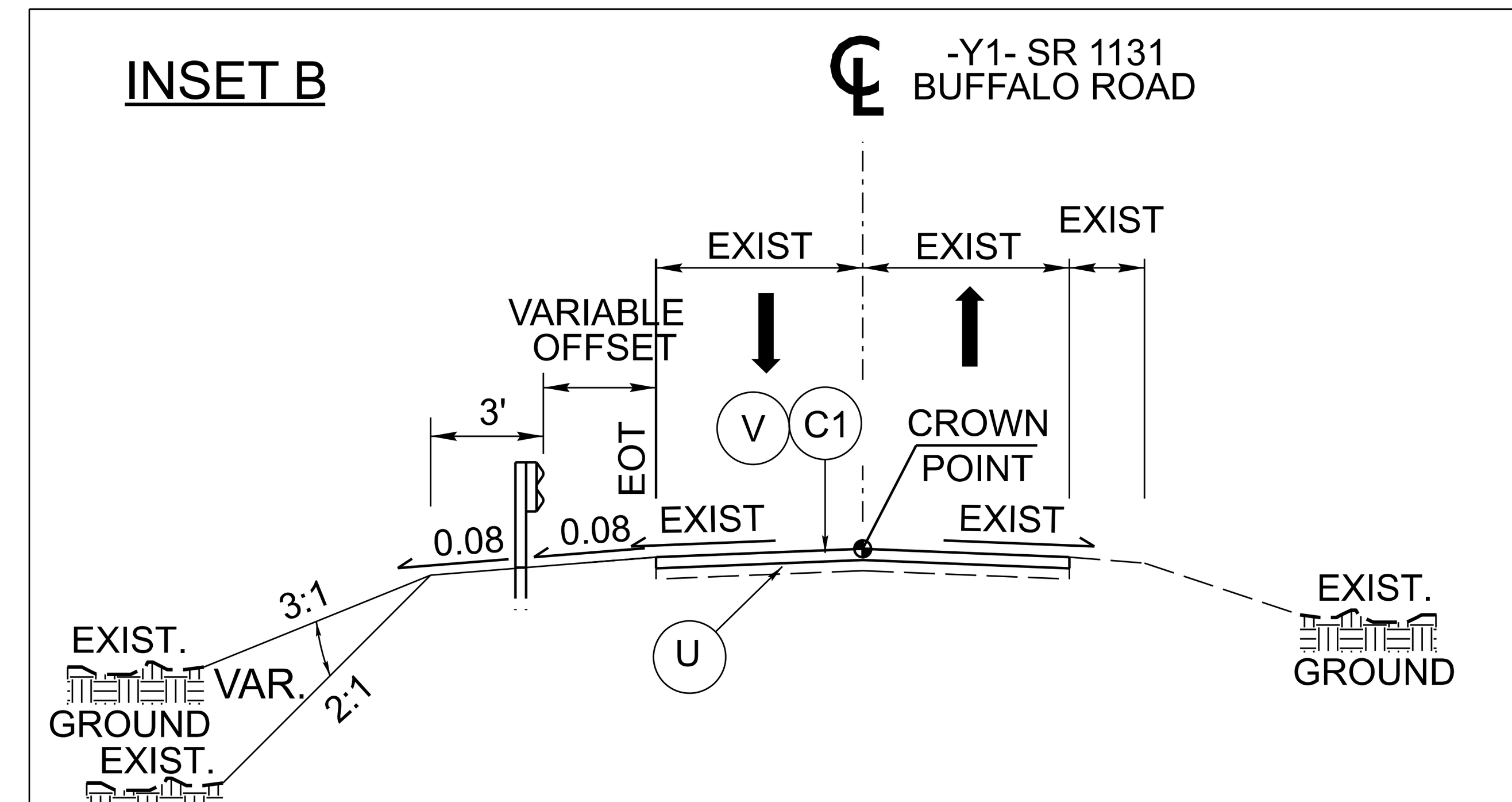
INSET A

USE INSET A IN CONJUNCTION WITH TYPICAL NO. 1

-L- RT. STA. 12+28.00 TO 12+66.72 (BEGIN BRIDGE)
-L- RT. STA. 13+36.72 (END BRIDGE) TO -Y1- LT. 10+50.00 (MIRROR FOR LT.)
-L- LT. STA. 12+19.70 TO 12+79.28 (BEGIN BRIDGE) (MIRROR FOR LT.)
-L- LT. STA. 13+49.28 (END BRIDGE) TO -Y1- LT. 11+55.00 (MIRROR FOR LT.)

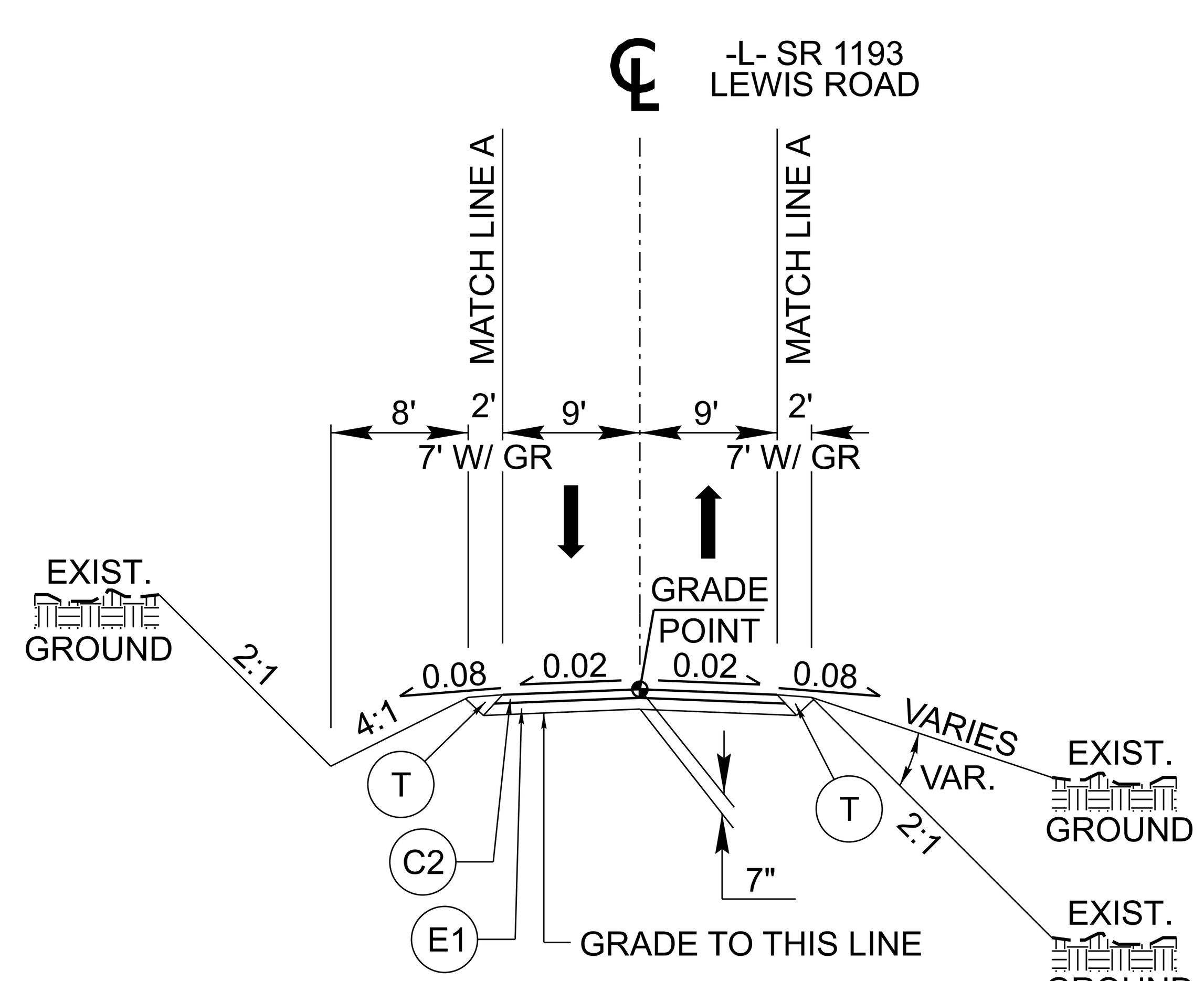


INSET B



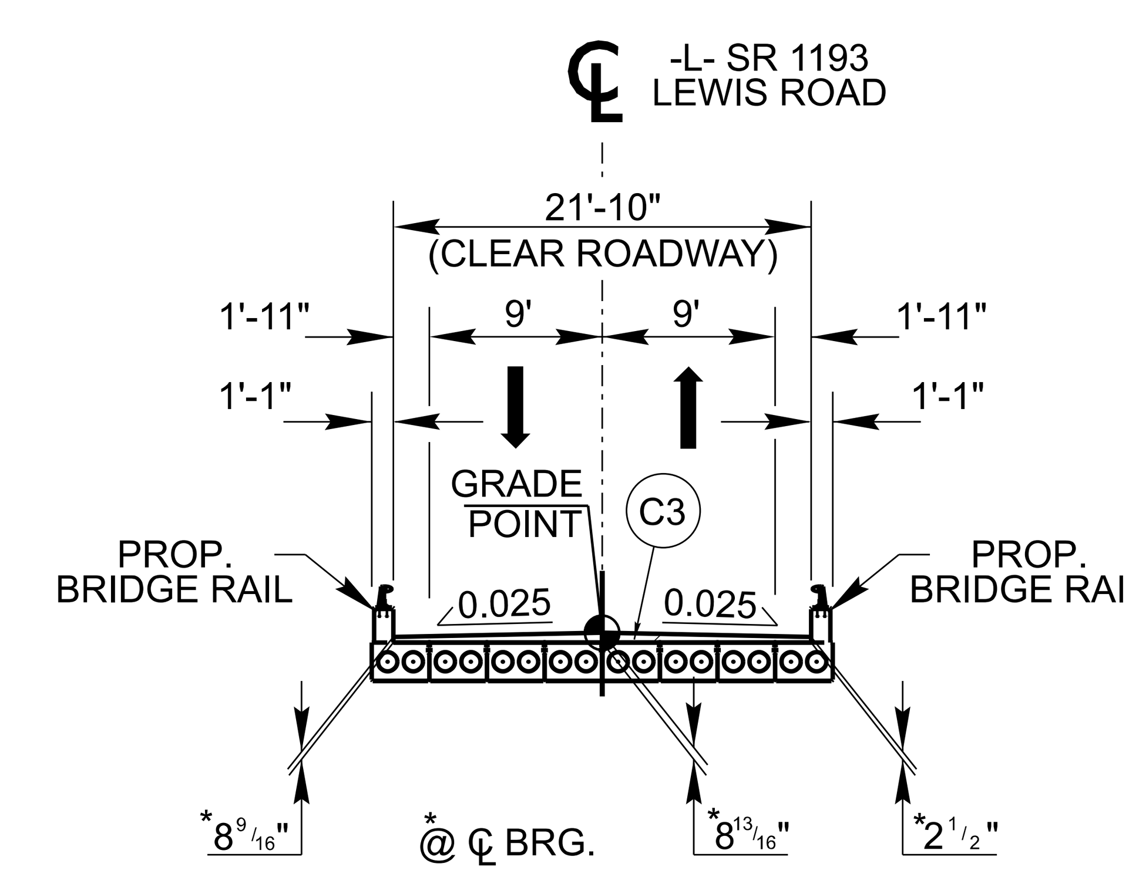
MILLING DETAIL

-Y1- STA. 10+50.00 TO STA. 11+55.00



TYPICAL SECTION NO. 1

-L- STA. 10+30.00 TO 12+71.70 (BEGIN BRIDGE)
-L- STA. 13+44.30 (END BRIDGE) TO 13+99.30



STRUCTURE TYPICAL NO. 1

-L- STA. 12+71.70 TO 13+44.30

SEE STRUCTURE PLANS FOR STRUCTURE CONSTRUCTION DETAILS

BP11-R012
FINAL | 2A-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER
12/9/2025
NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H. DUKE
Signed by: Jacob H. Duke

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PAVEMENT DESIGN ENGINEER
12/9/2025
NORTH CAROLINA PROFESSIONAL SEAL 049851 ENGINEER RAMIE A. SHAW
DocuSigned by: Ramie A. Shaw

PREPARED BY

KCA
KISINGER CAMPO & ASSOCIATES

NC FIRM LICENSE No: C-1506
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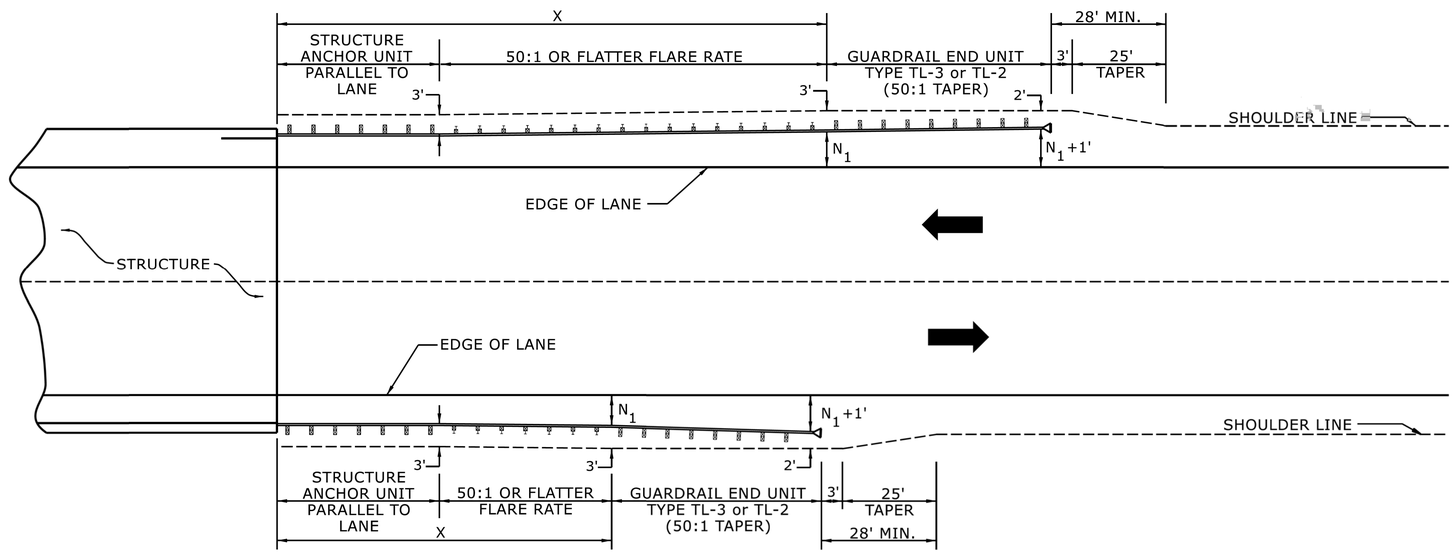
Suite 1500
Raleigh, NC 27601
(919)882-7839

REVISIONS

11/14/23



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

PROJECT REFERENCE NO.	SHEET NO.

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15

862D01

12/11/2025

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

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

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

SEE TITLE BLOCK

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

REVISIONS

BP11-R012
FINAL | 2C-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

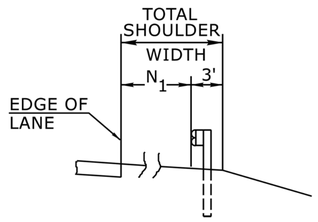
ROADWAY DESIGN UNIT

PREPARED BY

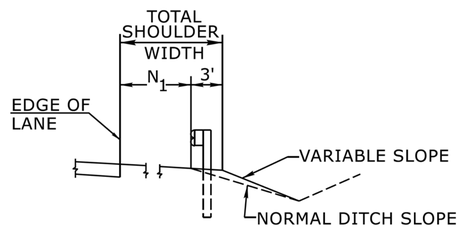
KCA
KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville Street, Suite 1500
Raleigh, NC 27601
(919)882-7839

11/14/23

PROJECT REFERENCE NO.	SHEET NO.

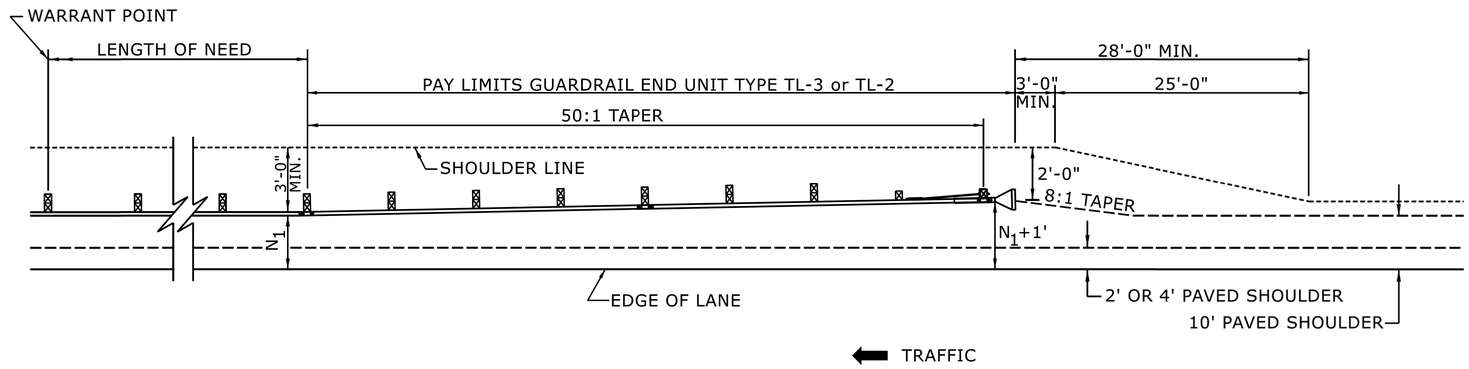


FILL SECTION



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

12/11/2025

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M HACKLER

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

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

SEE TITLE BLOCK

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

BP11-R012
FINAL | 2C-2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

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KISINGER CAMPO & ASSOCIATES

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(919)882-7839

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REVISIONS

11/14/23

BP11-R012

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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

KCA
KISINGER CAMPO & ASSOCIATES

NC FIRM LICENSE No: C-1506
301 Fayetteville Street,
Suite 1500
Raleigh, NC 27601
(919)882-7839

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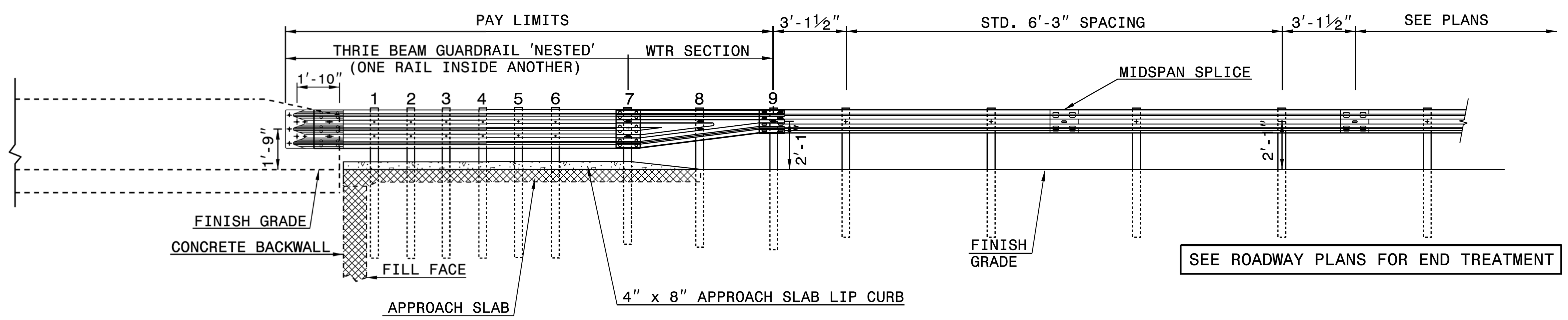
PROJECT REFERENCE NO.	SHEET NO.

5/14/99

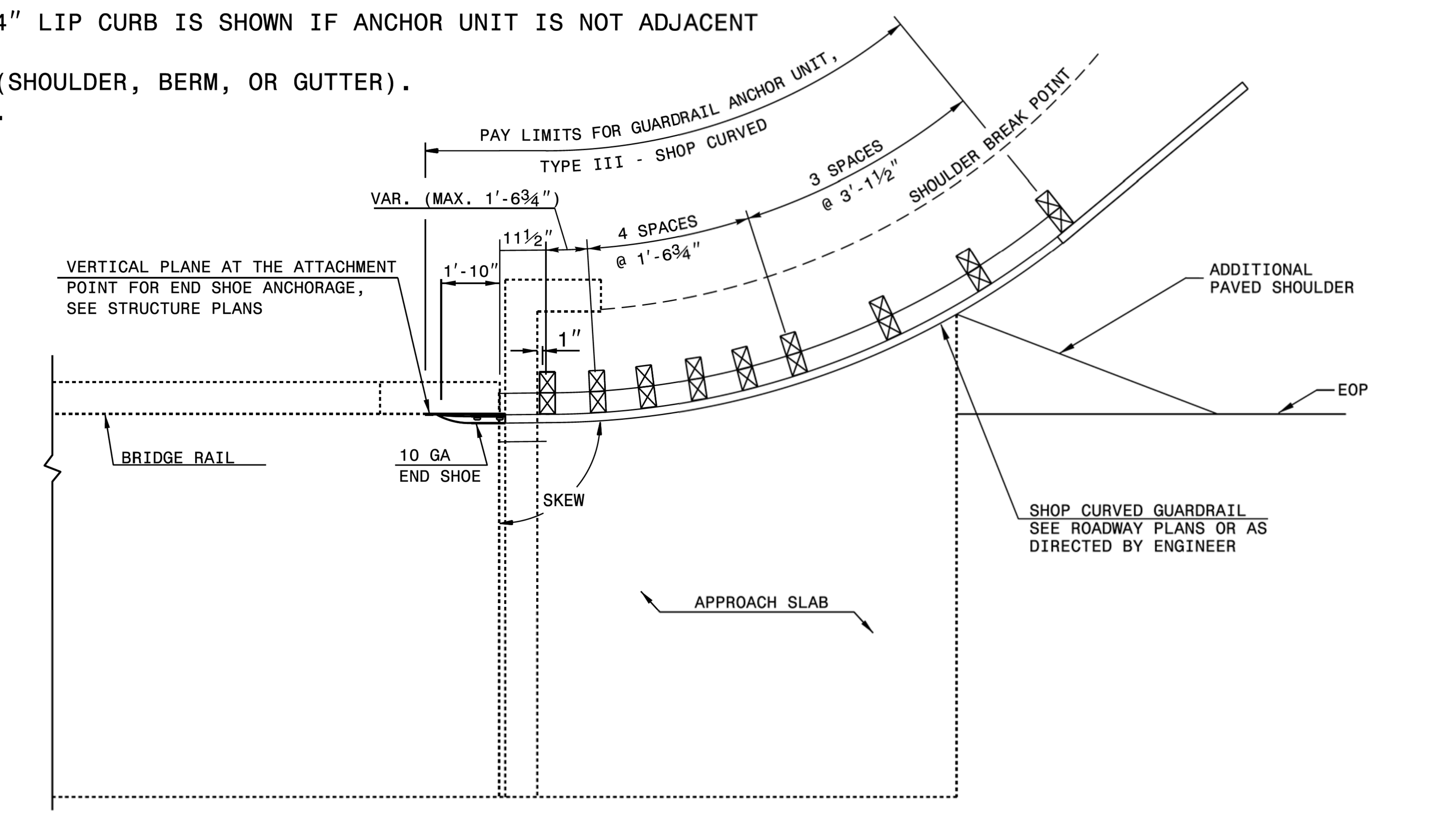
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½″ IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8″ x 4″ LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III - SHOP CURVED FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 1
TYPE III SC

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

ENGLISH DETAIL DRAWING FOR
TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

SHEET 1 OF 1
TYPE III SC

01-FEB-2018 09:19
S:\Contracts\Contracts\Special Details\jhowerton\Guardrail\31 inch Guardrail\type_iii_sc.dgn
jhowerton AT CSD-292595

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12/11/2025

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HACKLER

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

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

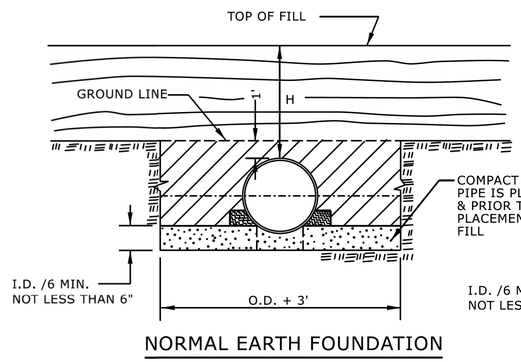
SEE PLATE FOR TITLE

ORIGINAL BY: E.E.Ward DATE: 4-4-02
MODIFIED BY: T.S.Spell DATE: 2-01-18
CHECKED BY: DATE:
FILE SPEC.: \jhowerton\guardrail\31inguardrail\typeiiisc.dgn

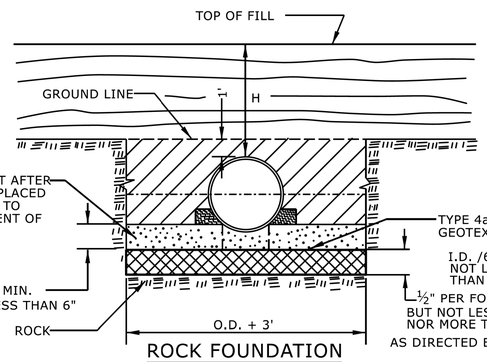
REVISIONS

11/14/23

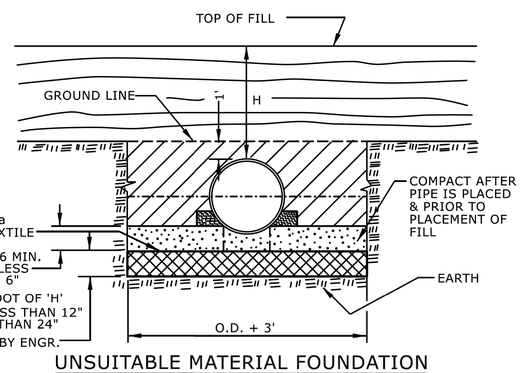
PROJECT REFERENCE NO.	SHEET NO.



NORMAL EARTH FOUNDATION

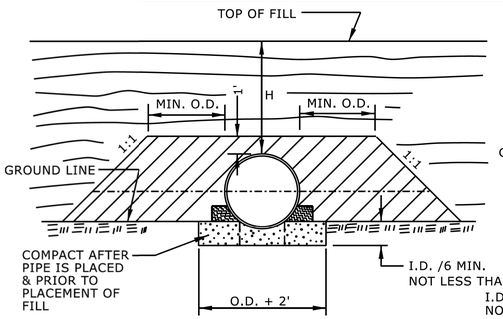


ROCK FOUNDATION

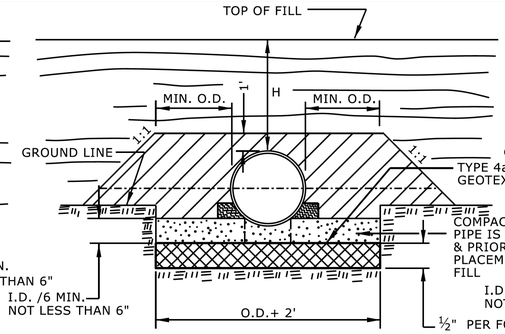


UNSUITABLE MATERIAL FOUNDATION

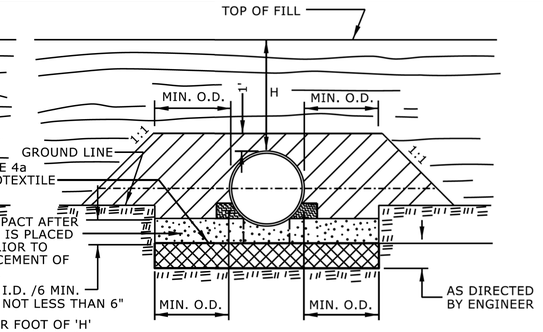
PIPE IN TRENCH



NORMAL EARTH FOUNDATION



ROCK FOUNDATION



UNSUITABLE MATERIAL FOUNDATION

PIPE ABOVE GROUND

GENERAL NOTES:

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

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

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

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

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

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

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

SPRINGLINE OF PIPE

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

UNDISTURBED EARTH MATERIAL

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

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 2

300.01

12/11/2025

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

Signed by: Nicole M. Hackler
588432303416405...

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

SEE TITLE BLOCK

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

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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

KCA KISINGER CAMPO & ASSOCIATES

NC FIRM LICENSE No: C-1506
301 Fayetteville Street, Suite 1500
Raleigh, NC 27601
(919)882-7839

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11/14/23

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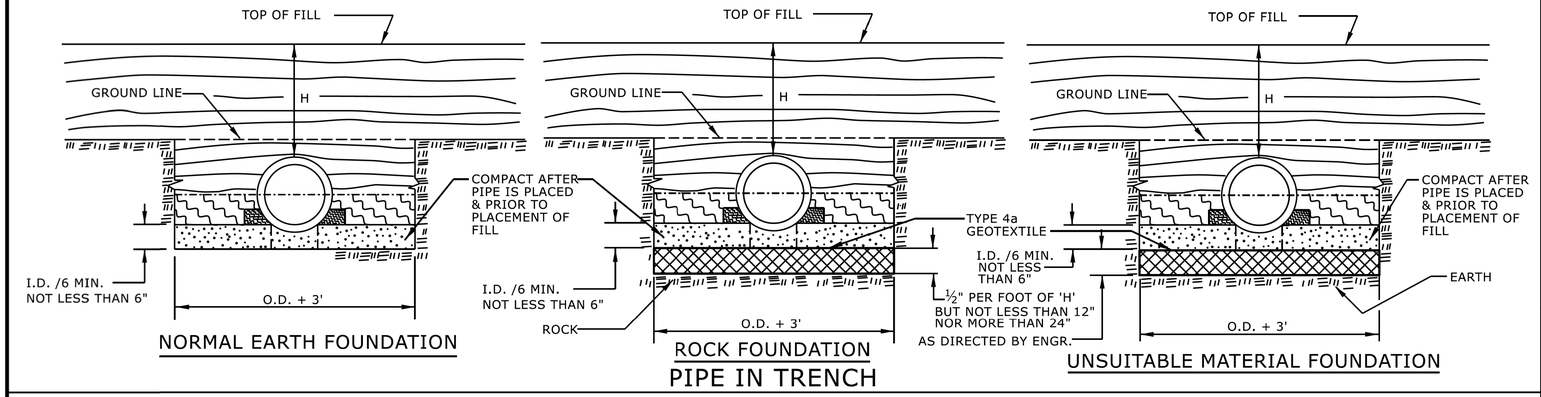
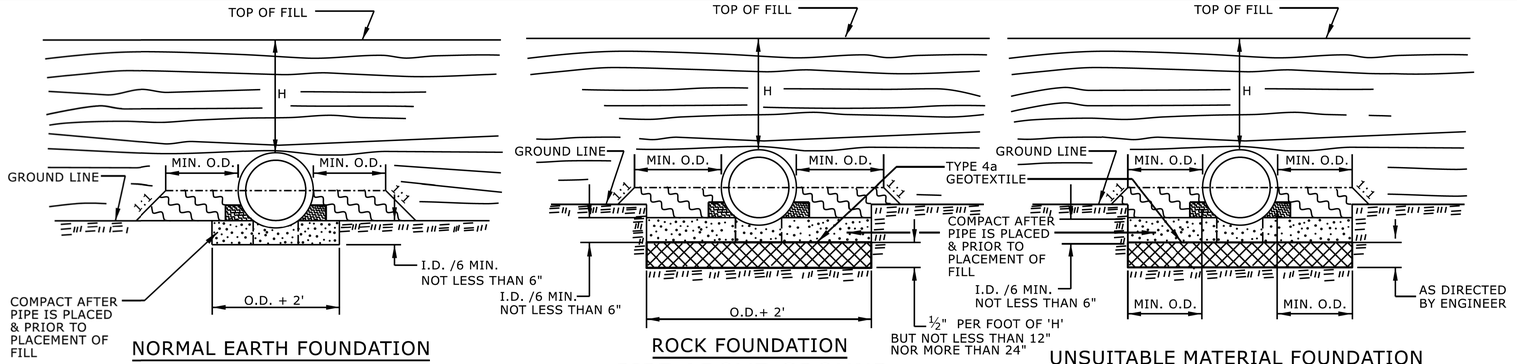


PIPE IN TRENCH



PIPE ABOVE GROUND

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

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 2

300.01

12/11/2025

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

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

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

SEE TITLE BLOCK

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

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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

KCA
KISINGER CAMPO & ASSOCIATES

NC FIRM LICENSE No: C-1506
301 Fayetteville Street, Suite 1500
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(919)882-7839

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REVISIONS

SUMMARY OF EARTHWORK
(IN CUBIC YARDS)

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- 10+30.00	-L- 12+71.70 (Begin Bridge)	32	1,586	1,554	-
-L- 13+44.30 (End Bridge)	-L- 13+99.30	1	611	610	-
		-	-	-	-
PROJECT TOTALS:		33	2197	2164	0
Waste in Lieu of Borrow				0	
Replace Topsoil on Borrow Pit (5%)				108	
GRAND TOTALS:		33	2197	2272	
SAY:		**40**		**2300**	

NOTES:

ALL EARTHWORK QUANTITIES WERE DERIVED FROM ORD QUANTITIES BY NAMED BOUNDARY REPORT(S) AS DESCRIBED IN THE ORD QUICKSTART TRAINING.

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

EST. DDE = 33 CUBIC YARDS (CY)

EST. SHALLOW UNDERCUT - 100 CY

CLASS IV SUBGRADE STABILIZATION = 200 TONS

PER GEOTECH RECOMMENDATION, ESTIMATED 450 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

PAVEMENT REMOVAL SUMMARY
IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	13+25.00	14+05.00	LT / RT	214.25			
		TOTAL:		214.25			
		SAY:		220			

SHOULDER BERM GUTTER SUMMARY
IN LINEAR FEET

LINE	Station	Station	LENGTH
-L- LT	12+60.00	12+67.28	7.28
-L- LT	13+61.28	13+65.00	3.72
-L- RT	12+49.00	12+54.72	5.72
-L- RT	13+48.72	13+53.00	4.28
		TOTAL:	21.00
		SAY:	30

4 STRAND BARBED WIRE FENCE W POST
IN LINEAR FEET

LINE	Station	Station	LENGTH
-L- LT	11+07.00	13+10.06	238.00
		TOTAL:	238
		SAY:	240
		ADDITIONAL BARBED WIRE	80

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NORTH CAROLINA
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ASHE COUNTY

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Raleigh, NC 27601
(919)882-7839

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REVISIONS

"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 TYPE 350		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	SHOP CURVE TYPE III	AT-1	TYPE III	GREU TL-2	XIII	CAT-1	VI MOD	BIC	G	NG				
-L-	12+28.00	12+66.72	RT	50.00	25		12+66.72		1.875							1	1										
-L-,-Y1-	13+36.72	10+50.00	RT / LT	18.75	50				1.875						1	1											
-L-	12+19.70	12+79.28	LT	56.25				12+79.28	1.875	5.625		37.5		0.75			1	1									
-L-,-Y1-	13+49.28	11+55.00	LT	18.75	68.75				1.875							1	1										
		SUB TOTAL		143.75	143.75										1	3	3	1									
		LESS ANCHOR DEDUCTIONS																									
	1 TYPE III SC @18.75				-18.75																						
	3 AT-1 @ 6.25				-18.75																						
	3 Type III @ 18.75			-56.25																							
	1 GREU TL-2 @ 25			-25.00																							
	ANCHOR DEDUCTIONS SUB TOTAL			-81.25	-37.5																						
Grand Total				62.50	106.25										1	3	3	1									
Say:				62.50	112.5										1	3	3	1									
5 Additional Guardrail Post																											

"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

TEMPORARY 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 TYPE 350		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	SHOP CURVE TYPE III	AT-1	TYPE III	GREU TL-2	XIII	CAT-1	VI MOD	BIC	G	NG				
-L-	12+35.00	12+85.00	RT	50			12+85.00									2											
-L-	13+25.00	13+75.00	RT		50			13+75.00								2											
		SUB TOTAL		50	50											4											
		LESS ANCHOR DEDUCTIONS																									
	2 AT-1 @ 6.25			-12.5																							
	2 AT-1 @ 6.25				-12.5																						
	ANCHOR DEDUCTIONS SUB TOTAL			-12.5	-12.5																						
Grand Total				37.5	37.5											4											
Say:				37.5	37.5											4											

BP11-R012
FINAL | 3B-2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

KCA
KISINGER CAMPO
& ASSOCIATES

NC FIRM LICENSE No: C-1506
301 Fayetteville Street,
Suite 1500
Raleigh, NC 27601
(919)882-7839

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REVISIONS

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		TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Alternate Pipe (RCP, CSP, CAAP, HDPE, or PVC)															R. C. PIPE CLASS III								R. C. PIPE CLASS IV						
		FROM	TO					12	15	18	24	30	36	42	48		DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PPP	DO NOT USE PVC	12	15	18	24	30	36	42	48	12	15	18	24	30	36	42
L 12+52	10 LT	0401		2836.8																																	
		0401	0402		2832.8	2827.4			32								X																				
L 12+52	10 RT	0403		2836.8																																	
		0403	0401		2833.5	2832.8																											20						
SHEET TOTALS (48" or Less)									32																							20					
PROJECT TOTALS (48" or Less)									32																							20					

LINE & STATION	OFFSET	STRUCTURE NUMBER		15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	REINFORCED ENDWALLS	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE				CONCRETE TRANSITIONAL SECTION		T.B.D.I. STD. 840.35	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	15" DRAINAGE PIPE ELBOW		FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
		FROM	TO			CY	CY	0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.		E	F	G		D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																						CY	CY	CY	LIN. FT.	
L 12+52	10 LT	0401						1										1						1																			
		0401	0402																																		2						
L 12+52	10 RT	0403						1										1						1																			
		0403	0401																																								
SHEET TOTALS (48" or Less)								2										2						2													2						
PROJECT TOTALS (48" or Less)								2										2						2													2						

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**

BP11-R012

FINAL | 3D-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

KCA
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& ASSOCIATES

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REVISIONS

COMPUTED BY: DM MULLEN, PE DATE: 1/10/2024
CHECKED BY: SC CLARK, PE DATE: 1/10/2024

(2-3-23)

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 [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU	12	100	200	300		
			TOTAL CY/TONS/SY:		100	200**	300**	0	0

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

BP11-R012
FINAL | 3G-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

KCA
KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville Street, Suite 1500
Raleigh, NC 27601
(919)882-7839

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

11/14/23

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	TERRY A. PARKER KATHRYN L. PARKER
2	4	PAUL M. HODGSON , JESSICA R. HODGSON
3	4	JESSE L. RASH
4	4	KATHERINE D. SWANSON DEBRA E. DUNN
5	4	JESSE L. RASH
6	4	DAVID L. LYLE

BP11-R012

FINAL | 3P-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

12/9/2025

NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H. DUKE

Signed by: Jacob H Duke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PREPARED BY

KCA KISINGER CAMPO & ASSOCIATES

NC FIRM LICENSE No: C-1506
301 Fayetteville Street,
Suite 1500
Raleigh, NC 27601
(919)882-7839

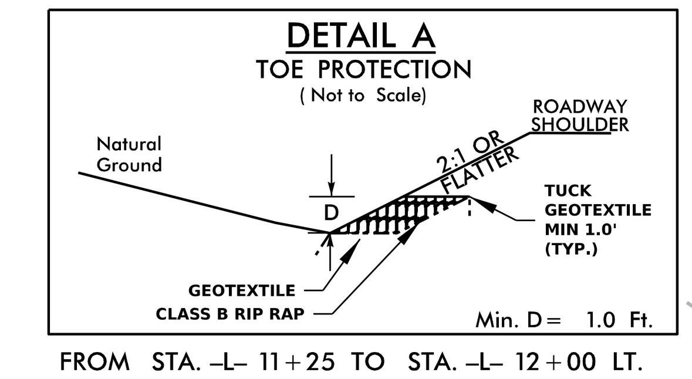
REVISIONS

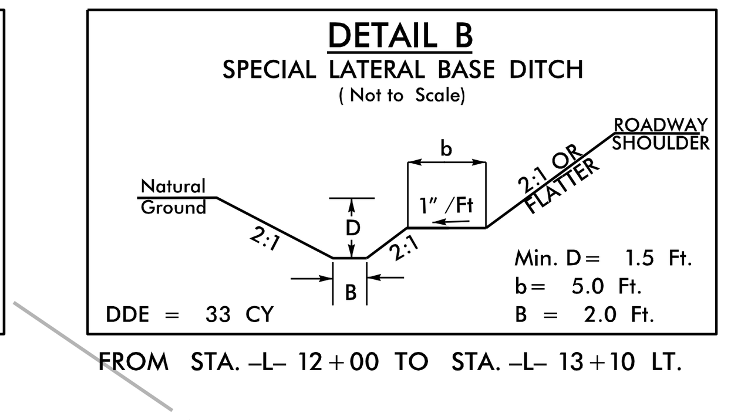
-L-

CUR DATA -L-	CUR DATA -L-	CUR DATA -L-
PI= 10+27.64	PI= 10+93.47	PI= 11+81.65
Δc = 02°32'00.9" (RT)	Δc = 47°53'43.1" (LT)	Δc = 64°42'38.1" (RT)
D = 04°35'01.2"	D = 66°37'22.8"	D = 66°37'22.8"
Lc = 55.27	Lc = 71.89	Lc = 97.13
Tc = 27.64	Tc = 38.20	Tc = 54.48
R = 1,250	R = 86	R = 86
DS = EXIST	DS = 20 MPH*	DS = 20 MPH*
SE = EX.	SE = 0.03	SE = 0.03
	RO = SEE PLANS	RO = SEE PLANS

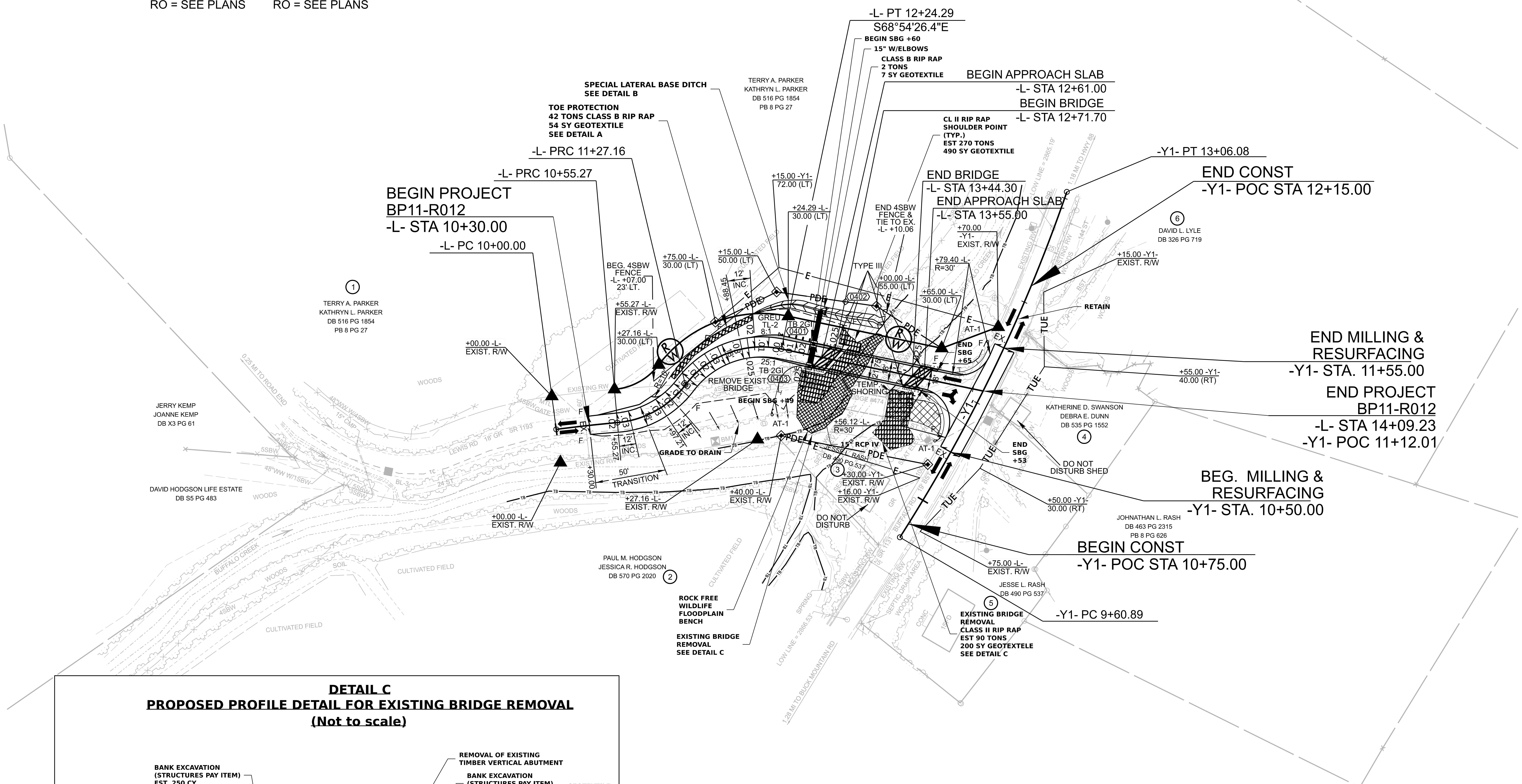
-Y1-

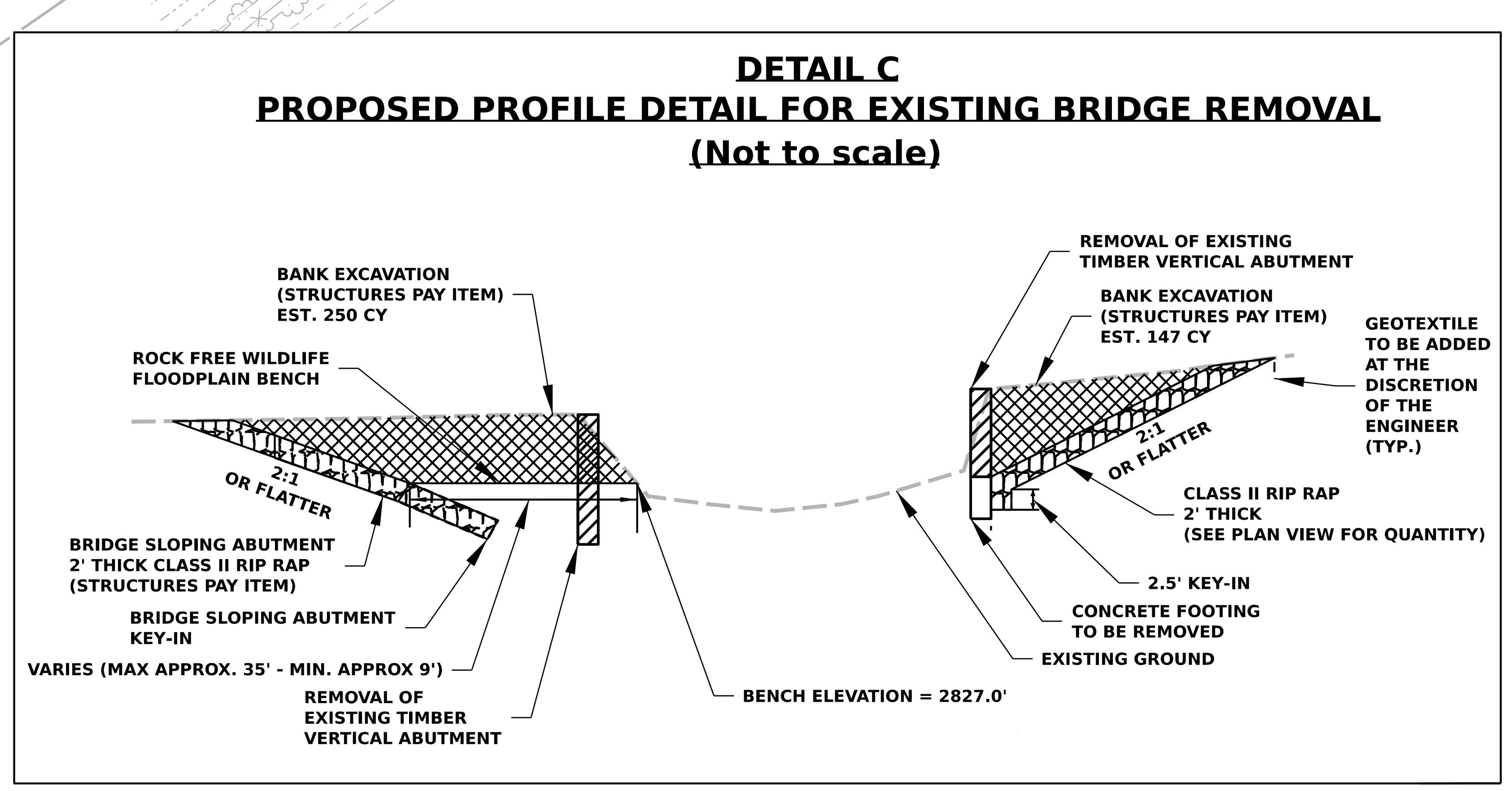
CUR DATA -Y1-
PI= 11+34.30
Δc = 13°38'24.0" (LT)
D = 03°57'05.2"
Lc = 345.19
Tc = 173.42
R = 1,450
DS = EXIST.
SE = EXIST.





NAD 83/2001


-L- PT 12+24.29
S68°54'26.4"E
BEGIN SBG +60
15" W/ELBOWS
CLASS B RIP RAP
2 TONS
7 SY GEOTEXTILE
BEGIN APPROACH SLAB
-L- STA 12+61.00
BEGIN BRIDGE
-L- STA 12+71.70
SPECIAL LATERAL BASE DITCH
SEE DETAIL B
TOE PROTECTION
42 TONS CLASS B RIP RAP
54 SY GEOTEXTILE
SEE DETAIL A
TERRY A. PARKER
KATHRYN L. PARKER
DB 516 PG 1854
PB 8 PG 27
-L- PRC 11+27.16
-L- PRC 10+55.27
BEGIN PROJECT
BP11-R012
-L- STA 10+30.00
-L- PC 10+00.00
CL II RIP RAP
SHOULDER POINT
(TYP.)
EST 270 TONS
490 SY GEOTEXTILE
END BRIDGE
-L- STA 13+44.30
END APPROACH SLAB
-L- STA 13+55.00
-Y1- PT 13+06.08
END CONST
-Y1- POC STA 12+15.00
DAVID L. LYLE
DB 326 PG 719
RETAIN
END MILLING &
RESURFACING
-Y1- STA. 11+55.00
END PROJECT
BP11-R012
-L- STA 14+09.23
-Y1- POC 11+12.01
KATHERINE D. SWANSON
DEBRA E. DUNN
DB 535 PG 1552
DO NOT DISTURB SHED
BEG. MILLING &
RESURFACING
-Y1- STA. 10+50.00
JOHNATHAN L. RASH
DB 463 PG 2315
PB 8 PG 626
BEGIN CONST
-Y1- POC STA 10+75.00
JESSE L. RASH
DB 490 PG 537
-Y1- PC 9+60.89
EXISTING BRIDGE
REMOVAL
CLASS II RIP RAP
EST 90 TONS
200 SY GEOTEXTILE
SEE DETAIL C
ROCK FREE
WILDLIFE
FLOODPLAIN
BENCH
EXISTING BRIDGE
REMOVAL
SEE DETAIL C
PAUL M. HODGSON
JESSICA R. HODGSON
DB 570 PG 2020
JERRY KEMP
JOANNE KEMP
DB X3 PG 61
DAVID HODGSON LIFE ESTATE
DB S5 PG 483
REMOVE EXIST BRIDGE
BEGIN SBG +89
GRADE TO DRAIN
50' TRANSITION
TEMP. SHORING
DO NOT DISTURB
BUFFALO CREEK
CULTIVATED FIELD
WOODS
LEWIS RD
TYPE III
AT-1
TUE


DETAIL C
PROPOSED PROFILE DETAIL FOR EXISTING BRIDGE REMOVAL
(Not to scale)
BANK EXCAVATION
(STRUCTURES PAY ITEM)
EST. 250 CY
ROCK FREE WILDLIFE
FLOODPLAIN BENCH
2:1 OR FLATTER
BRIDGE SLOPING ABUTMENT
2' THICK CLASS II RIP RAP
(STRUCTURES PAY ITEM)
BRIDGE SLOPING ABUTMENT
KEY-IN
VARIES (MAX APPROX. 35' - MIN. APPROX 9')
REMOVAL OF
EXISTING TIMBER
VERTICAL ABUTMENT
BENCH ELEVATION = 2827.0'
REMOVAL OF EXISTING
TIMBER VERTICAL ABUTMENT
BANK EXCAVATION
(STRUCTURES PAY ITEM)
EST. 147 CY
GEOTEXTILE
TO BE ADDED
AT THE
DISCRETION
OF THE
ENGINEER
(TYP.)
2:1 OR FLATTER
CLASS II RIP RAP
2' THICK
(SEE PLAN VIEW FOR QUANTITY)
2.5' KEY-IN
CONCRETE FOOTING
TO BE REMOVED
EXISTING GROUND

NOTES

1. SEE SHEET NO. 5 FOR -L- PROFILE.
2. SEE SHEET NO. 5 FOR -Y1- PROFILE.
3. SEE SHEETS S-1 THRU S-21 FOR STRUCTURE PLANS.
4. *DESIGN SPEED MEETS GEOMETRIC DESIGN OF LOW-VOLUME ROADS.
5. TRANSITION -L- CROSS SLOPE FROM 0.025 AT END BRIDGE TO MATCH CROSS SLOPE AT -Y1-.

TEMPORARY SHORING -L- STA. 13+25 TO -L- STA 13+50, 16' RT	
PAVEMENT REMOVAL	PAVED SHOULDER

BP11-R012
FINAL 004

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

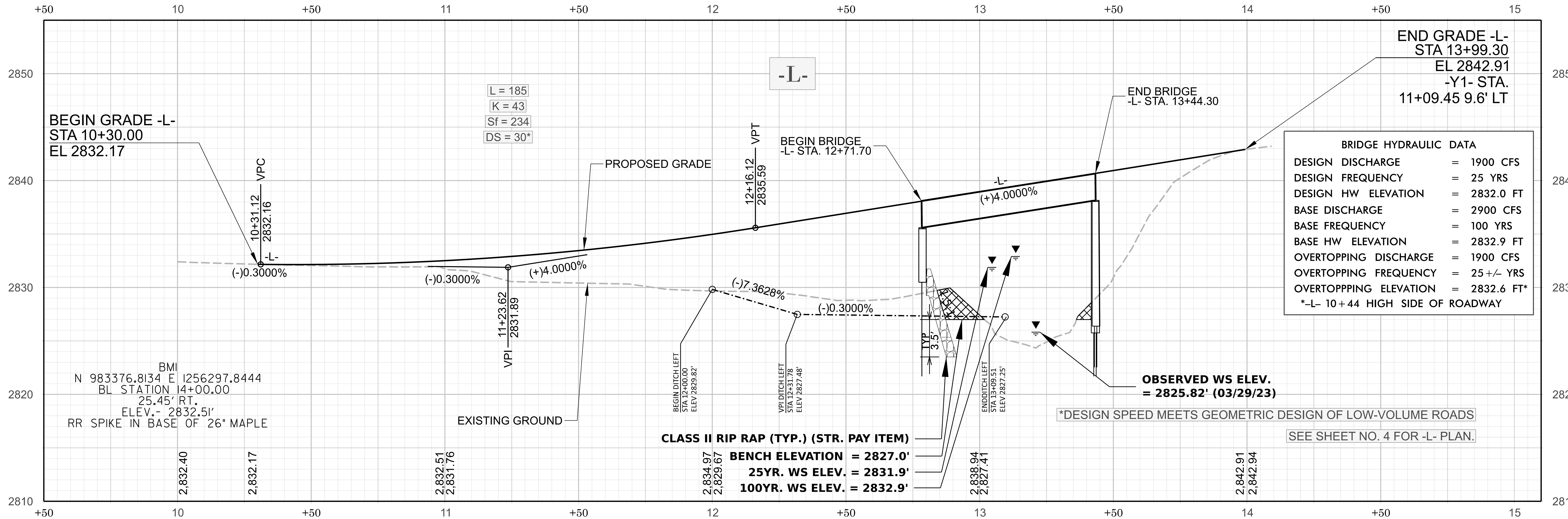
12/9/2025
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043777 JACOB H. DUKE
Signed by: Jacob H. Duke
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

12/9/2025
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 057747 JOHN MCNULTY
Signed by: John McNulty

PREPARED BY
KCA
KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville Street,
Suite 1500
Raleigh, NC 27601
(919)882-7839

REVISIONS

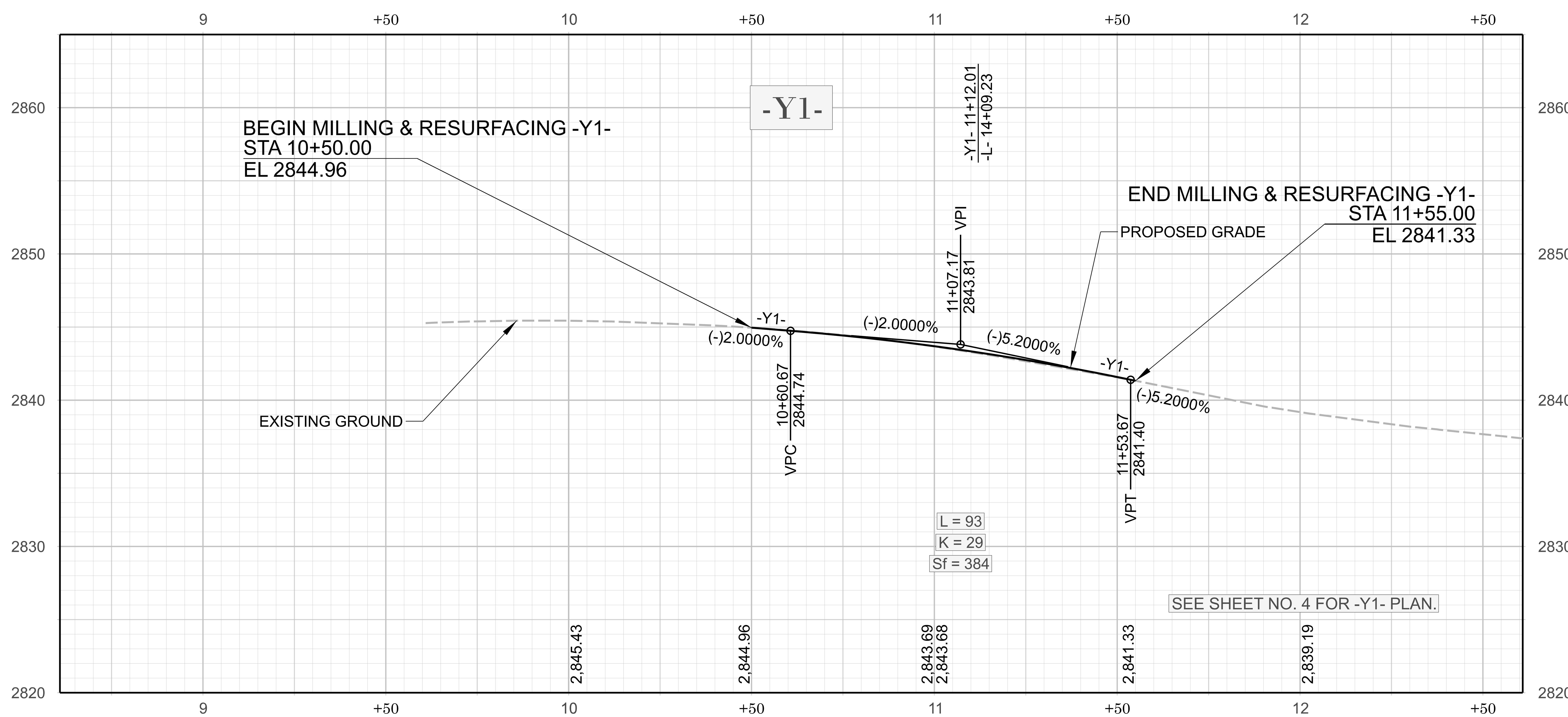
11/14/23



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1900 CFS
DESIGN FREQUENCY	=	25 YRS
DESIGN HW ELEVATION	=	2832.0 FT
BASE DISCHARGE	=	2900 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	2832.9 FT
OVERTOPPING DISCHARGE	=	1900 CFS
OVERTOPPING FREQUENCY	=	25+/- YRS
OVERTOPPPING ELEVATION	=	2832.6 FT*

*-L- 10+44 HIGH SIDE OF ROADWAY



DITCH LINESTYLE LEGEND

-·-·-·-·-·- DITCH LT

BP11-R012

FINAL | 005

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

12/9/2025

NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H. DUKE

Signed by: Jacob H Duke 29530C8054E94D9...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HYDRAULICS ENGINEER

12/9/2025

NORTH CAROLINA PROFESSIONAL SEAL 057747 ENGINEER JOHN MCNULTY

Signed by: John McNulty 6E81A869248E4F6...

PREPARED BY

KCA KISINGER CAMPO & ASSOCIATES

NC FIRM LICENSE No: C-1506
301 Fayetteville Street,
Suite 1500
Raleigh, NC 27601
(919)882-7839

REVISIONS

09/08/99

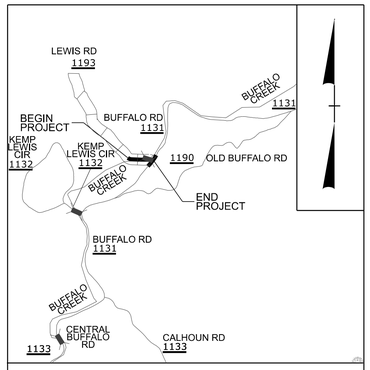
TIP PROJECT: *BP11-R012*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP11-R012	RW	04

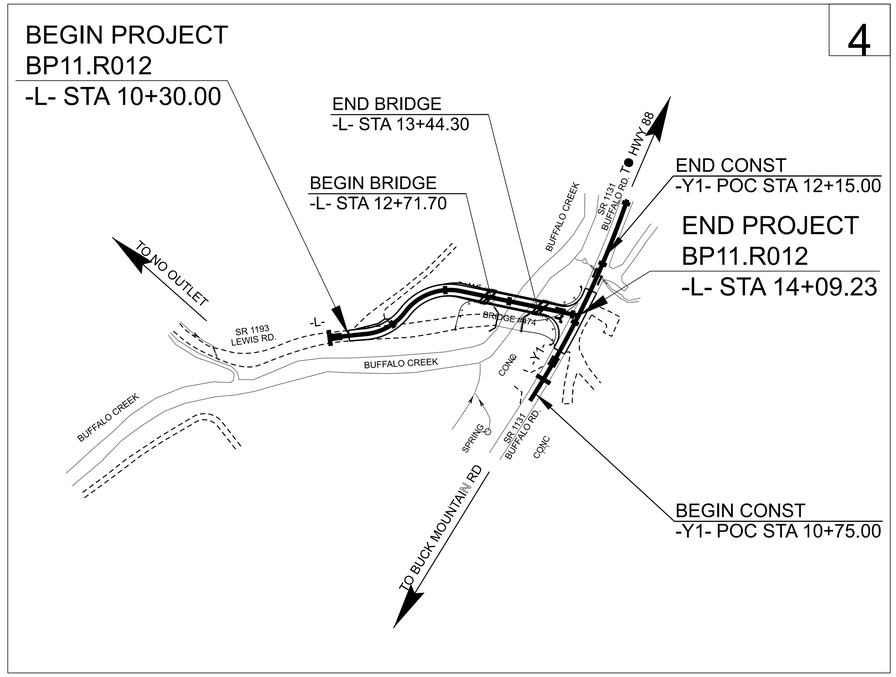
SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

ASHE COUNTY



VICINITY MAP (NTS)

NC GRID
NAD 83 NA 2011



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50' 25' 0' 50' 100'

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT 474-2
WITH NAD 83 (2011) STATE PLANE GRID COORDINATES OF NORTHING: 982899.267 US FT EASTING: 1256120.081 US FT
ELEVATION: 2842.82 FT
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99995105
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

Stantec
ONE WEST FOURTH ST., SUITE 820
WINSTON SALEM, N.C. 27101
LICENSE NO.: F-0672
www.stantec.com

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: *DECEMBER 20, 2024*

LETTING DATE: *OCTOBER, 2025*

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3834 LAND SURVEYOR CLINTON B. OSBORNE

DocuSigned by: Clinton B. Osborne 0A6F6B085F6449B...

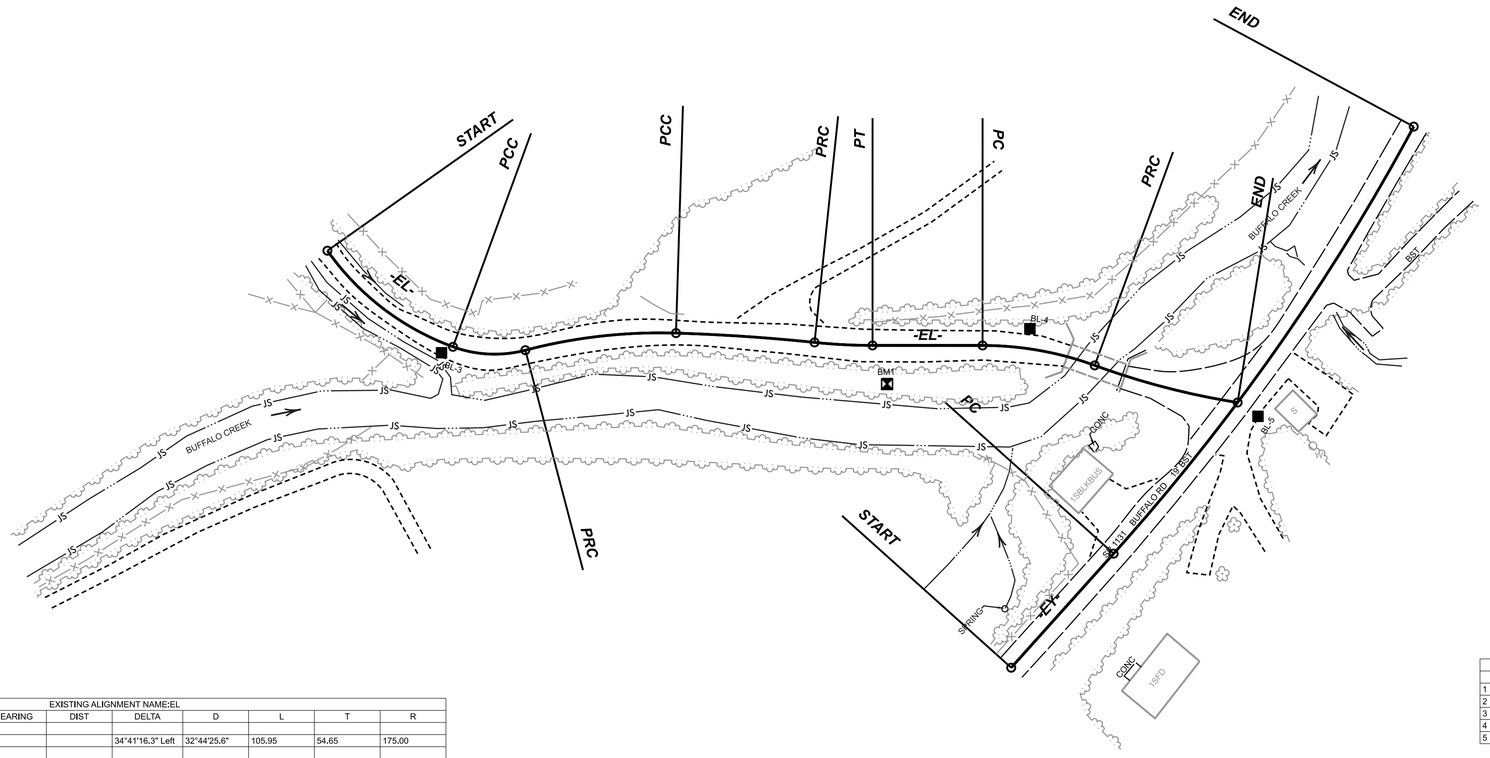
3/3/2025

SIGNATURE: *DATE:*

5/26/20

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



NC GRID
NAD 83 NA 2011

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

Class of survey: ***AA***
Type of GPS field procedure: RTN
Dates of survey: June 2023
Datum/Epoch: NAD83/2011
Published/Fixed-control use: N/A
Localized around: 474-1
Northing: 982899.267
Easting: 1256120.081
Combined grid factor: 0.99995105
Geoid model: GEOID18
Units: US Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed June 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 6/26/2023

DocuSigned by:
Matthew Cornwell
EBD36F11473E475...

Professional Land Surveyor L-4775

BASELINE POINTS TABLE				
POINT	DESC	NORTH	EAST	ELEVATION
1	474-1	982536.8900	1255687.2530	2855.8100
2	474-2	982899.2670	1256120.0810	2842.8200
3	BL-3	983397.4985	1256003.7972	2836.4500
4	BL-4	983413.2442	1256391.9475	2833.0600
5	BL-5	983355.4886	1256542.5551	2844.4600

BENCHMARK TABLE				
BENCHMARK	NORTHING	EASTING	ELEVATION	DESCRIPTION
BM1	983376.8134	1256297.8444	2832.5100	RR SPIKE IN THE BASE OF A 26" MAPLE

EXISTING ALIGNMENT NAME:EL									
POINT	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R
PC	983464.7837	1255928.5125							
CURVE					34°41'16.3" Left	32°44'25.6"	105.95	54.65	175.00
PCC	983401.3714	1256011.3688							
CURVE					34°46'35.2" Left	71°37'11.0"	48.56	25.05	80.00
PRC	983399.1226	1256059.1310							
CURVE					16°26'10.7" Right	16°22'12.8"	100.40	50.55	350.00
PCC	983410.4051	1256158.5526							
CURVE					04°12'05.3" Right	04°35'01.2"	91.66	45.85	1250.00
PRC	983404.2606	1256249.9880							
CURVE					05°56'12.1" Left	15°29'07.2"	38.34	19.19	370.00
PT	983402.2704	1256288.2567							
LINE			S89°59'29.1"E	72.5985					
PC	983402.2596	1256360.8552							
CURVE					20°08'27.8" Right	26°38'57.1"	75.58	38.18	215.00
PRC	983389.1008	1256434.8846							
CURVE					11°10'54.5" Left	11°27'33.0"	97.58	48.95	500.00

EXISTING ALIGNMENT NAME:EY									
POINT	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R
START	983189.6174	1256379.7595							
LINE			N41°55'20.1"E	101.1526					
PC	983264.8802	1256447.3417							
CURVE					13°38'32.2" Left	03°57'05.2"	345.25	173.44	1450.00

474-2

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.

04-0474
R/W | D2C-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2018 STANDARD SPECIFICATIONS

TIP PROJECT: 04-0474
County: Ashe

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

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

5/26/20

PROPOSED ALIGNMENT CONTROL SHEET

I, CLINTON B. OSBORNE, 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 3RD DAY OF MARCH, 2025.

DocuSigned by:
Clinton B. Osborne
0A6F6B085F6449B...

PROFESSIONAL LAND SURVEYOR L-3834

PROPOSED ALIGNMENT: L												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
PC	10+00.00	983410.4051	1256158.5526	S86°59'21.8"E	55.27	02°32'00.9"	04°35'01.2"	55.27	27.64	1250.00		
PRC	10+55.27	983407.5023	1256213.7459	N70°19'47.0"E	69.82	47°53'43.1"	66°37'22.8"	71.89	38.20	86.00		
PRC	11+27.16	983431.0026	1256279.4870	N78°44'14.6"E	92.05	64°42'38.1"	66°37'22.8"	97.13	54.48	86.00		
PT	12+24.29	983448.9803	1256369.7632	S68°54'26.4"E	184.94							
END	14+09.23	983382.4258	1256542.3087									

PROPOSED ALIGNMENT: Y1												
POINT	STATION	NORTHING	EASTING	BEARING	DIST	DELTA	D	L	T	R	LT	ST
PC	9+60.89	983264.9229	1256447.38	N35°06'00.0""E	344.38	13°38'24.0""	03°57'05.2""	345.19	173.42	1450		
END	13+06.08	983546.6746	1256645.398									

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.

BP11-R012

R/W | D2D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3834 LAND SURVEYOR CLINTON B. OSBORNE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP11.R012

County: ASHE

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

Stantec
ONE WEST FOURTH ST., SUITE 820
WINSTON SALEM, N.C. 27101
LICENSE NO.: F-0672
www.stantec.com

5/26/20

RIGHT OF WAY CONTROL SHEET

PERMANENT ROW MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
10+00.00	30.0000	983380.4190	1256157.6397
10+00.00	-30.0000	983440.3912	1256159.4656
10+55.27	-30.0000	983437.4188	1256215.9835
11+27.16	-29.9999	983452.7212	1256258.7917
11+27.16	81.1364	983372.2634	1256335.4586
12+24.29	82.2269	983372.2627	1256340.1716
12+24.34	-30.0000	983476.9523	1256380.6062
13+65.00	-30.0000	983426.3332	1256511.8385

PERMANENT ROW MARKER IRON PIN AND CAP: Y1			
STATION	OFFSET	NORTH	EAST
11+70.00	-12.5000	983436.9622	1256564.9964

PERMANENT EASEMENT MARKER IRON PIN AND CAP: L			
STATION	OFFSET	NORTH	EAST
11+75.00	-30.0000	983482.3123	1256315.1948
12+15.00	-50.0000	983500.1689	1256373.7861
12+40.00	76.1713	983372.2601	1256357.0049
13+00.00	-55.0000	983473.0498	1256460.1917

PERMANENT EASEMENT MARKER IRON PIN AND CAP: Y1			
STATION	OFFSET	NORTH	EAST
10+30.00	-12.5000	983325.3307	1256482.6253

I , CLINTON B. OSBORNE , PLS, CERTIFY THAT THE RIGHT OF WAY AND PERMANENT EASEMENT MONUMENTATION FOR THIS PROJECT SHOWN HEREIN WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED FROM 2-10-2025 TO 2-10-2025, AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

THIS 3RD DAY OF MARCH, 2025.

DocuSigned by:
Clinton B. Osborne
0A6F6B085F64498...

PROFESSIONAL LAND SURVEYOR L-3834

NOTES:

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

BP11-R012

R/W | 03E-I

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3834 LAND SURVEYOR CLINTON B. OSBORNE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP11-R012

County: ASHE

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

Stantec
ONE WEST FOURTH ST., SUITE 820
WINSTON SALEM, N.C. 27101
LICENSE NO.: F-0672
www.stantec.com

5/26/20

CUR DATA -L-
PIc 10+27.64
Δc = 02°32'00.9" (RT)
D = 04°35'01.2"
Lc = 55.27
Tc = 27.64
R = 1,250
DS = EXIST
SE = EX.

CUR DATA -L-
PIc 10+93.47
Δc = 47°53'43.1" (LT)
D = 66°37'22.8"
Lc = 71.89
Tc = 38.20
R = 86
DS = 20 MPH*
SE = 0.03
RO = SEE PLANS

CUR DATA -L-
PIc 11+81.65
Δc = 64°42'38.1" (RT)
D = 66°37'22.8"
Lc = 97.13
Tc = 54.48
R = 86
DS = 20 MPH*
SE = 0.03
RO = SEE PLANS

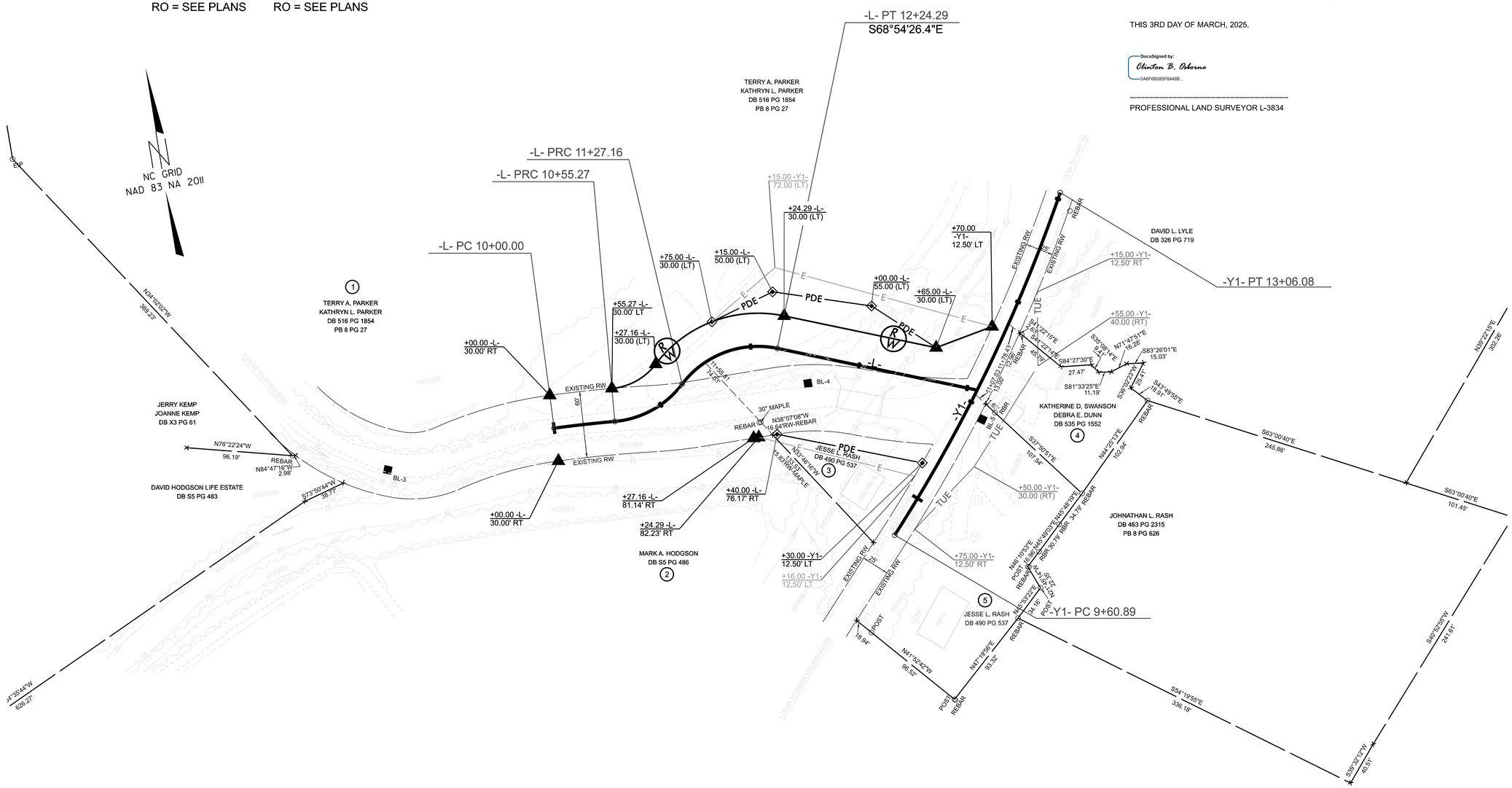
CUR DATA -Y1-
PIc 11+34.30
Δc = 13°38'24.0" (LT)
D = 03°57'05.2"
Lc = 345.19
Tc = 173.42
R = 1,450
DS = EXIST.
SE = EXIST.

I , CLINTON B. OSBORNE , PLS, CERTIFY THAT THE RIGHT OF WAY AND PERMANENT EASEMENT MONUMENTATION FOR THIS PROJECT SHOWN HEREIN WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT ALL HORIZONTAL CLOSURES HAD A MINIMUM RATIO OF PRECISION OF 1:10,000 (CLASS A). FIELD WORK WAS PERFORMED FROM 2-10-2025 TO 2-10-2025 AND ALL COORDINATES ARE BASED ON NAD83/NA 2011; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS OF 21NCAC 56.1600 AS APPLICABLE.

THIS 3RD DAY OF MARCH, 2025.

DocuSigned by:
Clinton B. Osborne
0A6F6B085F6449B...

PROFESSIONAL LAND SURVEYOR L-3834



NOTES:

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

474-2

BP11-R012
R/W | 04

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROFESSIONAL LAND SURVEYOR
NORTH CAROLINA PROFESSIONAL SEAL L-3834 LAND SURVEYOR

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

2024 STANDARD SPECIFICATIONS

TIP PROJECT: BP11-R012
County: ASHE

PREPARED FOR

LOCATION AND SURVEYS UNIT

PREPARED BY

Stantec
ONE WEST FOURTH ST., SUITE 820
WINSTON SALEM, N.C. 27101
LICENSE NO.: F-0672
www.stantec.com

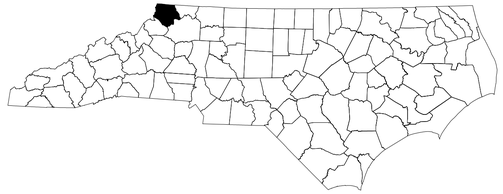
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

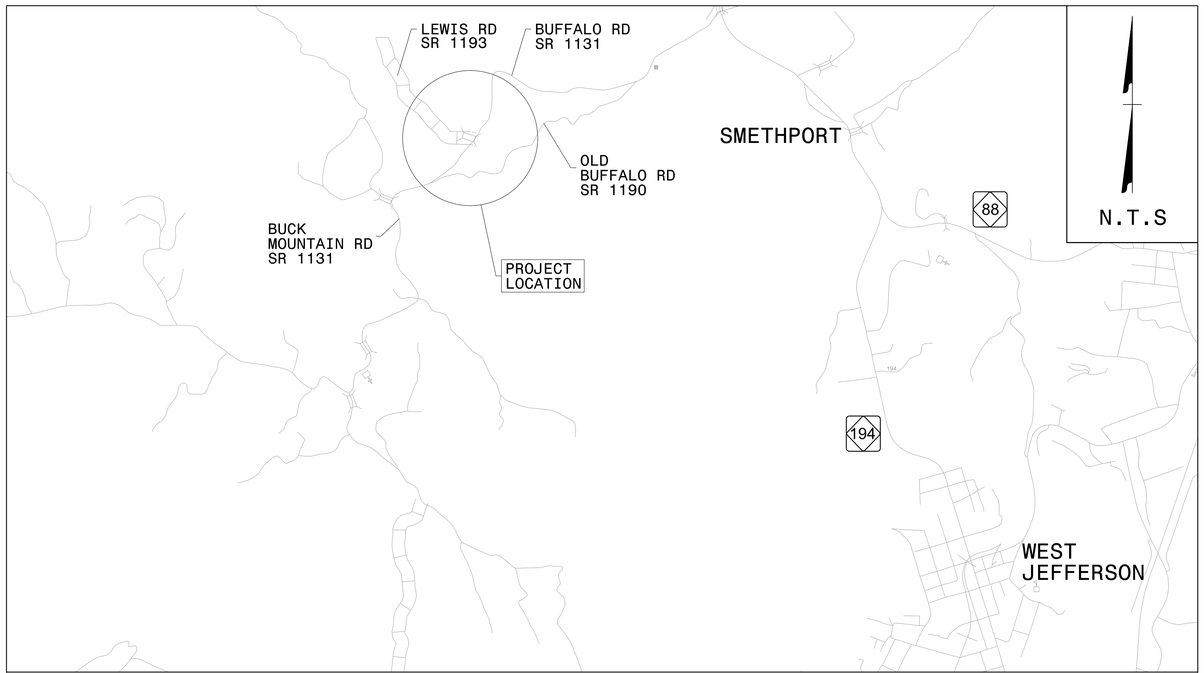
TRANSPORTATION MANAGEMENT PLAN

ASHE COUNTY

LOCATION: *REPLACE BRIDGE NO. 040474 ON SR 1193 (LEWIS RD.) OVER BUFFALO CREEK*

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





VICINITY MAP

INDEX OF SHEETS

SHEET NO.
TMP-1

BP11-R012

TIP PROJECT:

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

PLANS PREPARED BY:

JACOB H. DUKE, P.E.
WZTC ENGINEER

JASON M. DEBONE
DESIGN ENGINEER

NCDOT CONTACTS:

ROB N. WEISZ, P.E.
PROJECT MANAGER

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

KCA KISINGER CAMPO & ASSOCIATES

Kisinger Campo & Associates Corp.
301 Fayetteville Street, Suite 1500
Raleigh, NC 27601
(919) 882-7839
NC Firm License No: C-1506

APPROVED: Signed by: Jacob H Duke 29530C8054E94D9...

DATE: 12/9/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H. DUKE

10/22/2025
BP11R012_TC_TMP_TSH.dgn
User:jdebone

PROJ. REFERENCE NO.	SHEET NO.
BP11-R012	TMP-1A

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE STREET
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RALEIGH, NC 27601
(919) 882-7839
NC FIRM LICENSE: C-1506

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES - TYPE III
1150.01	FLAGGERS
1160.01	TEMPORARY CRASH CUSHION - REFLECTIVE END TREATMENT
1165.01	TRUCK MOUNTED ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY-DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXIT AND ENTRANCE RAMPS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.11	PAVEMENT MARKINGS - RAILROAD CROSSINGS
1205.12	PAVEMENT MARKINGS - BRIDGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1205.14	PAVEMENT MARKINGS - ROUNDABOUTS
1205.15	PAVEMENT MARKINGS - REDUCED CONFLICT INTERSECTIONS
1205.16	BICYCLE FACILITIES
1205.17	PAVEMENT MARKINGS - SIDE-BY-SIDE/ADJACAENT ON/OFF RAMPS PVMT. MARKING LANE TREATMENT
1250.01	RAISED PAVEMENT MARKERS INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION
1266.01	RAISED PAVEMENT MARKERS - TUBULAR MARKERS
1267.01	FLEXIBLE DELINEATORS - INSTALLATION
1267.02	FLEXIBLE DELINEATORS - SPACING TABLES
1267.03	FLEXIBLE DELINEATORS - INTERCHANGE PLACEMENT

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

- P O R T — PORTABLE
- DS — DRIVEWAY SIGNAL

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TEMP. PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PAINT 4"	
P1	WHITE EDGELINE
P5	2FT.- 6FT./SP WHITE MINISKIP
P13	YELLOW DOUBLE CENTER
PAINT 24"	
P61	WHITE STOPBAR

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

APPROVED: Signed by: Jacob H Duke 29530C8054E94D9...

DATE: 12/9/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H DUKE

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

10/22/2025
BP11R012_TC_TMP_1A.dgn
User:jdebone

GENERAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
BP11-R012	TMP-1B

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
(919) 882-7839
NC FIRM LICENSE: C-1506

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

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 5 FT OF AN OPEN TRAVEL LANE ON AN UNDIVIDED FACILITY, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 10 FT OF AN OPEN TRAVEL LANE ON A DIVIDED FACILITY, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 250 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

I) 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.

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

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

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

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

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

M) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 250 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

N) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

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

P) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES DRUMS PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

Q) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L- SR 1193 (LEWIS RD)	PAINT	NONE
-Y- SR 1131 (BUFFALO RD)	PAINT	NONE

R) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

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

T) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

U) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 500 FT AND 250 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

LOCAL NOTES

A) THE TEMPORARY PORTABLE TRAFFIC SIGNAL SYSTEM SHALL BE ACTUATED, NOT PRETIMED. THE SIGNALS ARE TO REST IN ALL RED OR AS DIRECTED BY THE ENGINEER.

B) THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION, OPERATION, AND MAINTENANCE OF PORTABLE SIGNAL SYSTEM AT ALL TIMES.

APPROVED: Signed by: Jacob H Duke 29530C8054E94D9...

DATE: 12/9/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H DUKE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

GENERAL NOTES

10/22/2025
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User:jdebone

PHASING NOTES

PROJ. REFERENCE NO.	SHEET NO.
BP11-R012	TMP-1C

KCA KISINGER CAMPO & ASSOCIATES
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SUITE 1500
RALEIGH, NC 27601
(919) 882-7839
NC FIRM LICENSE: C-1506

PRIOR TO ANY CONSTRUCTION, INSTALL WORK ZONE ADVANCE WARNING SIGNS USING NCDOT RSD 1101.01 SHEET 3. CONTRACTOR MAY WORK ON MULTIPLE LOCATIONS SIMULTANEOUSLY IF APPROVED BY THE ENGINEER.

PHASE 1:

USE TMP-3 AND RSD 1101.02 SHEET 17 OF 19 TO PLACE SIGNS AND DEVICES TO CLOSE THE SOUTHBOUND LANE ON -Y1- (SR 1131, BUFFALO RD) AND RESTRICT TRAVEL ON -L- (SR 1193, LEWIS RD) TO A 10FT, ONE-LANE, TWO-WAY TRAVEL WAY. INSTALL TEMPORARY PAINT ON -Y1- (SR 1131, BUFFALO RD) PER TMP-3. INSTALL TEMPORARY SHORING AND 75 LINEAR FEET OF TEMPORARY GUARDRAIL AND TEMPORARY AT-1 ANCHOR UNITS PER TMP-3 PRIOR TO ANY PROPOSED CONSTRUCTION. CONSTRUCT THE PROPOSED BRIDGE, ROADWAY, AND DRAINAGE UP UNTIL BUT NOT INCLUDING THE ROADWAY TIE-INS AND THE FINAL SURFACE COURSE PER ROADWAY AND STRUCTURE PLANS. CONSTRUCT A TEMPORARY 2:1 TIE-IN SLOPE ON THE RIGHT SIDE OF THE PROPOSED ROADWAY FROM APPROXIMATELY -L- STA. 12+40± TO THE BEGINNING OF EXISTING BRIDGE. DO NOT INSTALL PROPOSED RIP RAP AT END BENT 1 IN THIS PHASE.

PHASE 2:

USE TMP-4 TO DENOTE WORK AREA. PRIOR TO ANY CONSTRUCTION REMOVE 25 LINEAR FEET OF GUARDRAIL AND KEEP 12.5 LINEAR FEET, RESET THE TEMPORARY AT-1 GUARDRAIL ANCHOR UNIT PER TMP-4. PERFORM ROADWAY TIE-IN WORK PER ROADWAY PLANS. RE-GRADE WITH ASPHALT WEDGING AS NEEDED ON THE EXISTING ROADWAY TO ALLOW TRAFFIC ACCESS TO -Y1- (SR 1131, BUFFALO RD) AS NEEDED. AT THE END OF EACH WORK PERIOD LEAVE GRADED ABC OR ASPHALT IN PLACE TO ALLOW EXISTING ROADWAY ACCESS. PLACE DRUMS AND BARRICADES TO CLOSE THE PROPOSED ROADWAY TO TRAFFIC.

USING A FLAGGING OPERATION ON -Y1- (SR 1131, BUFFALO RD) PLACE PAVEMENT MARKINGS PER PAVEMENT MARKING PLANS. SHIFT TRAFFIC ON PHASE 3 PATTERN FOR -Y1- (SR 1131, BUFFALO RD).

USING A FLAGGING OPERATION ON -L- (SR 1193, LEWIS RD) PLACE PAVEMENT MARKINGS PER TMP-5. INSTALL PROPOSED TYPE E SIGN SYSTEM IN THE FINAL LOCATION. OPEN TRAFFIC TO PHASE 3 PATTERN.

PHASE 3:

USE TMP-5 AND A FLAGGING OPERATION TO PLACE SIGNS AND DEVICES. PLACE SIGNS AND DEVICES PER TMP-5 TO CLOSE THE EXISTING ROADWAY TO TRAFFIC. PERFROM MILLING AND RESURFACING TIE-IN WORK PER ROADWAY PLANS. AT THE END OF THE WORK PERIOD, KEEP SIGNS AND DEVICES IN PLACE TO KEEP THE EXISTING ROADWAY CLOSED TO TRAFFIC. TRAFFIC SHOULD BE IN FINAL TRAFFIC PATTERN PER TMP AND ROADWAY PLANS.

PHASE 4:

USE TMP-6 TO DENOTE WORK AREA AND PLACE SIGNS AND DEVICES. REMOVE THE EXISTING STRUCTURE, TEMPORARY SHORING, TEMPORARY GUARDRAIL, AND TEMPORARY ANCHOR UNITS. PLACE ALL RIP RAP PER PLANS. INSTALL REMAINING PROPOSED GUARDRAIL PER ROADWAY PLANS. ONCE ALLWORK IS COMPLETE REMOVE ALL SIGNS AND DEVICES.

PHASE 5:

USING A FLAGGING OPERATION, MILL AND RESURFACE -Y1- (SR 1131, BUFFALO RD) AND PLACE THE FINAL SURFACE LAYER ON -L- (SR 1193, LEWIS RD) PER ROADWAY PLANS AND RSD 1101.02 SHEET 1 OF 19. PLACE FINAL PAVEMENT MARKINGS IN ACCORDANCE WITH RSD 1101.02 SHEET 1 OF 19, 1205.01, 1205.02, 1205.12, 1250.01, AND PAVEMENT MARKING PLANS. REMOVE ALL SIGNS AND DEVICES TO KEEP -L- (SR 1193, LEWIS RD) AND -Y1- (SR 1131, BUFFALO RD) OPEN TO TRAFFIC.

APPROVED: Signed by: Jacob H Duke 2953C8054E9409...
DATE: 12/9/2025
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H DUKE

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

PHASING NOTES

10/22/2025
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User:jdebone

PROJ. REFERENCE NO.	SHEET NO.
BP11-R012	TMP-2

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE STREET
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RALEIGH, NC 27601
(919) 882-7839
NC FIRM LICENSE: C-1506

SHORING NOTES

NOTES FOR TEMPORARY SHORING No. 1

SHORING LOCATION NO.	BEGIN STA. & OFFSET	END STA. & OFFSET	ESTIMATED AVERAGE HEIGHT	ESTIMATED MAXIMUM HEIGHT	SHORING LOCATION TYPE
NO. 1	-L- STA. 13+25, 16' RT	-L- STA. 13+50, 16' RT	12.5 FT	13.5 FT	STRUCTURE

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHROING, SEE PLANS AND TEMPORARY SHORING PROVISON.

TEMPORARY SHORING IS REQUIRED FOR THE BRIDGE END BENT CONSTRUCTION FROM STATION 13+25 -L-, 16' RT, TO STATION 13+50 -L-, 16' RT.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 13+25 -L-, 16 FT RIGHT TO STATION 13+50 -L-, 16 FT RIGHT FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 30 DEGREES
COHESION (c) = 0 LB/SF
GROUNDWATER ELEVATION = 2836 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 13+25 -L-, 16 FT RIGHT, TO STATION 13+50 -L-, 16 FT RIGHT. THE TEMPORARY SHORING SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER. SUBMIT SHORING DESIGN PACKAGE FOR REVIEW.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION 13+25 -L-, 16 FT RIGHT, TO STATION 13+50 -L-, 16 FT RIGHT.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION 13+25 -L-, 16 FT RIGHT, TO STATION 13+50 -L-, 16 FT RIGHT. FOR TEMPORARY SOIL NAILS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

NOTES:

1. THIS SHEET IS INFORMATION FROM SIGNED TEMPORARY SHORING RECOMMENDATIONS MEMO FROM SHIPING YANG, PH.D., P.E. DATED MARCH 12, 2025.

APPROVED: Signed by: Jacob H Duke 29530C8054E94D9...
DATE: 12/9/2025
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H DUKE
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TEMPORARY SHORING DATA

PROJ. REFERENCE NO.	SHEET NO.
BP11-R012	TMP-3

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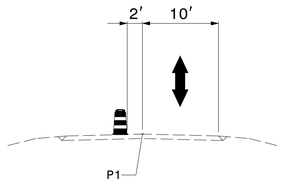
301 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
(919) 882-7839
NC FIRM LICENSE: C-1506

1 QUANTITY = 312.5 SQ. FT

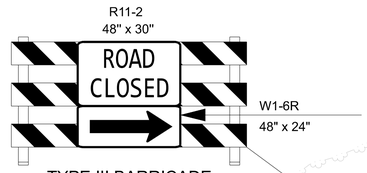
TEMPORARY SHORING
FROM -L- STA. 13+25±, 16′± RT
TO -L- STA. 13+50±, 16′± RT
AVG. HEIGHT 12.5′±

(SEE SHEET TMP-2A FOR TEMPORARY SHORING NOTES)

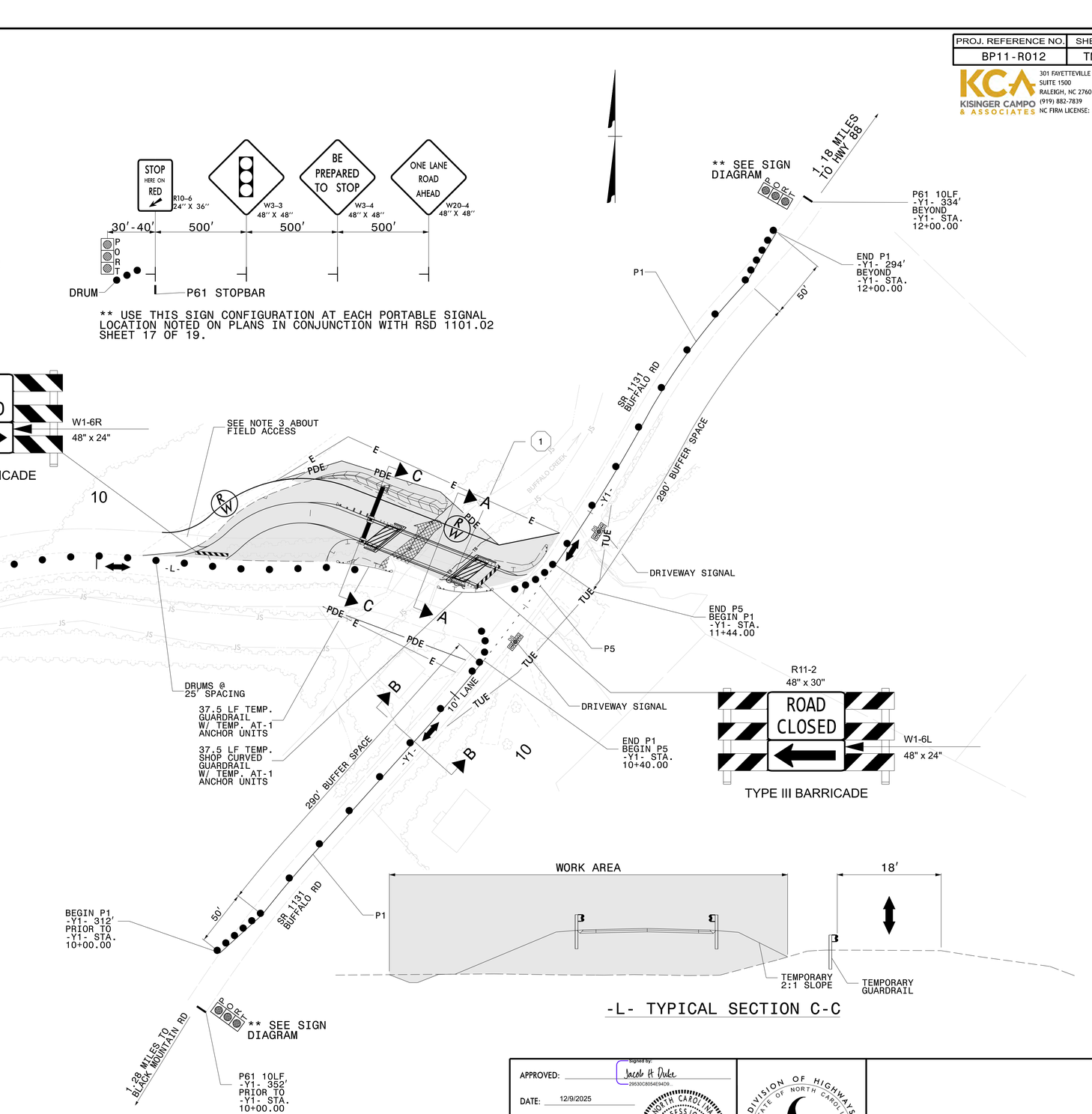


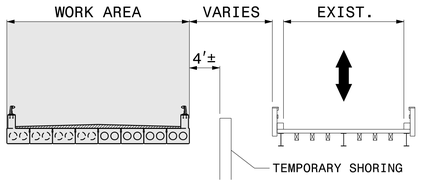
-Y1- TYPICAL SECTION B-B

** USE THIS SIGN CONFIGURATION AT EACH PORTABLE SIGNAL LOCATION NOTED ON PLANS IN CONJUNCTION WITH RSD 1101.02 SHEET 17 OF 19.



TYPE III BARRICADE





-L- TYPICAL SECTION A-A

-L- TYPICAL SECTION C-C

NOTES:

1. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PER ENGINEER'S INSTRUCTIONS AND RSD 1101.02 SHEET 17 OF 19.
2. ALL DRUMS ARE SPACED PER RSD 1101.02 SHEET 17 OF 19 UNLESS OTHERWISE NOTED.
3. THE CONTRACTOR MUST MAINTAIN FIELD ACCESS WHEN NEEDED.
4. THE CONTRACTOR MUST MAINTAIN ACCESS FOR CRANE AT INTERSECTION TO SET GIRDERS.
5. THE POSTS OF THE TEMPORARY GUARDRAIL ARE TO BE DRIVEN INTO THE EXISTING ASPHALT.
6. ALL TEMPORARY GUARDRAIL END UNITS ARE AT-1'S.

APPROVED: Signed by: Jacob H Duke 29530C8054E94D9...

DATE: 12/9/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H DUKE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PHASE 1

10/22/2025
BP11R012_TC_TMP_Phase 1.dgn
User:jdebone

PROJ. REFERENCE NO.	SHEET NO.
BP11-R012	TMP-4

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
(919) 882-7839
NC FIRM LICENSE: C-1506

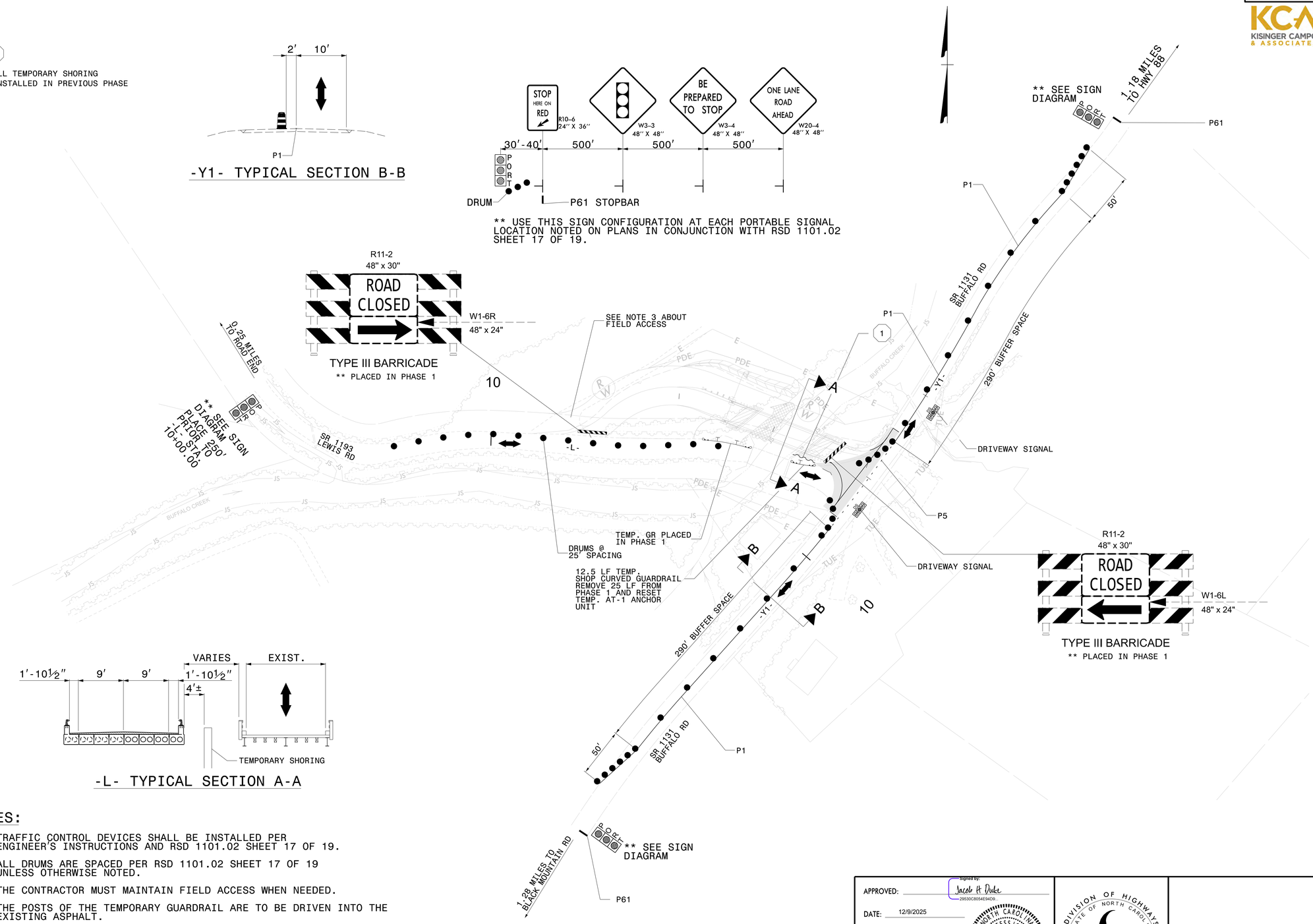
1

ALL TEMPORARY SHORING INSTALLED IN PREVIOUS PHASE

-Y1- TYPICAL SECTION B-B

** USE THIS SIGN CONFIGURATION AT EACH PORTABLE SIGNAL LOCATION NOTED ON PLANS IN CONJUNCTION WITH RSD 1101.02 SHEET 17 OF 19.

TYPE III BARRICADE
** PLACED IN PHASE 1



TYPE III BARRICADE
** PLACED IN PHASE 1

-L- TYPICAL SECTION A-A

NOTES:

1. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PER ENGINEER'S INSTRUCTIONS AND RSD 1101.02 SHEET 17 OF 19.
2. ALL DRUMS ARE SPACED PER RSD 1101.02 SHEET 17 OF 19 UNLESS OTHERWISE NOTED.
3. THE CONTRACTOR MUST MAINTAIN FIELD ACCESS WHEN NEEDED.
4. THE POSTS OF THE TEMPORARY GUARDRAIL ARE TO BE DRIVEN INTO THE EXISTING ASPHALT.
5. ALL TEMPORARY GUARDRAIL END UNITS ARE AT-1'S.
6. THE CONTRACTOR MUST MAINTAIN ACCESS THOUGH THE INTERSECTION AS NEEDED WHILE PERFORMING PROPER TIE-IN. RE-GRADE WITH ABC AFTER EACH WORK PERIOD TO ALLOW TRAFFIC TO UTILIZE THE INTERSECTION UNTIL PROPOSED ROADWAY CONSTRUCTION IS COMPLETED.
7. ALL TEMPORARY PAINT AND DEVICES ON -Y1- AND -L- WERE PLACED IN PHASE 1 AND WILL BE MAINTAINED IN THIS PHASE.

APPROVED: Signed by: Jacob H Duke 29030C8054E9409...
DATE: 12/9/2025
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H DUKE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PHASE 2

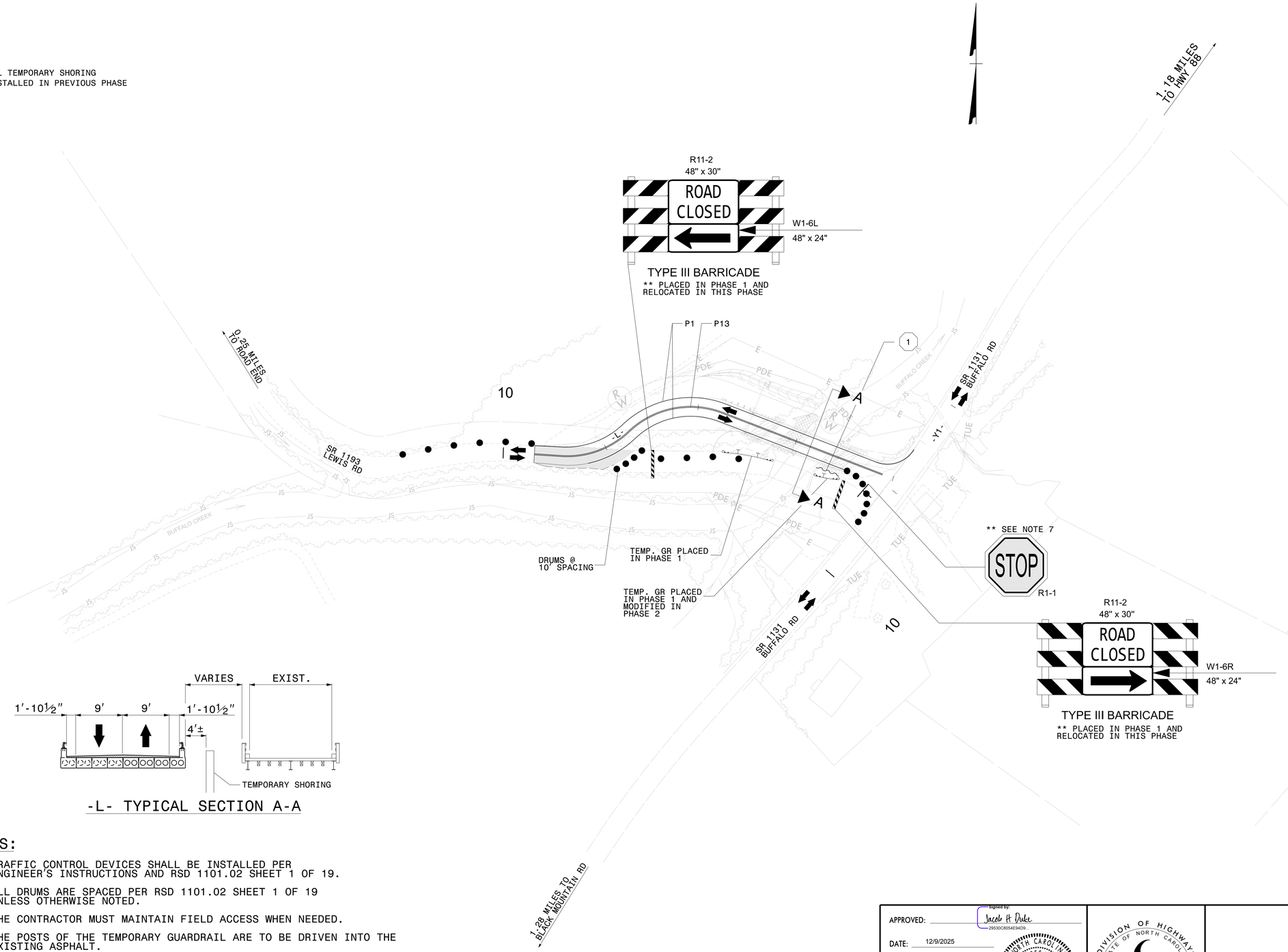
10/22/2025
BP11R012_TC_TMP_Phase 2.dgn
User:ldebone

PROJ. REFERENCE NO.	SHEET NO.
BP11-R012	TMP-5

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
(919) 882-7839
NC FIRM LICENSE: C-1506

1

ALL TEMPORARY SHORING
INSTALLED IN PREVIOUS PHASE



-L- TYPICAL SECTION A-A

NOTES:

1. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PER ENGINEER'S INSTRUCTIONS AND RSD 1101.02 SHEET 1 OF 19.
2. ALL DRUMS ARE SPACED PER RSD 1101.02 SHEET 1 OF 19 UNLESS OTHERWISE NOTED.
3. THE CONTRACTOR MUST MAINTAIN FIELD ACCESS WHEN NEEDED.
4. THE POSTS OF THE TEMPORARY GUARDRAIL ARE TO BE DRIVEN INTO THE EXISTING ASPHALT.
5. ALL TEMPORARY GUARDRAIL END UNITS ARE AT-1'S.
6. THE CONTRACTOR MUST MAINTAIN ACCESS THROUGH THE WORK AREA AS NEEDED.
7. INSTALL THE PROPOSED TYPE E SIGN SYSTEM IN THE FINAL LOCATION.

APPROVED: Signed by: Jacob H Duke 2953DC8054E94D9...
DATE: 12/9/2025
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H DUKE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

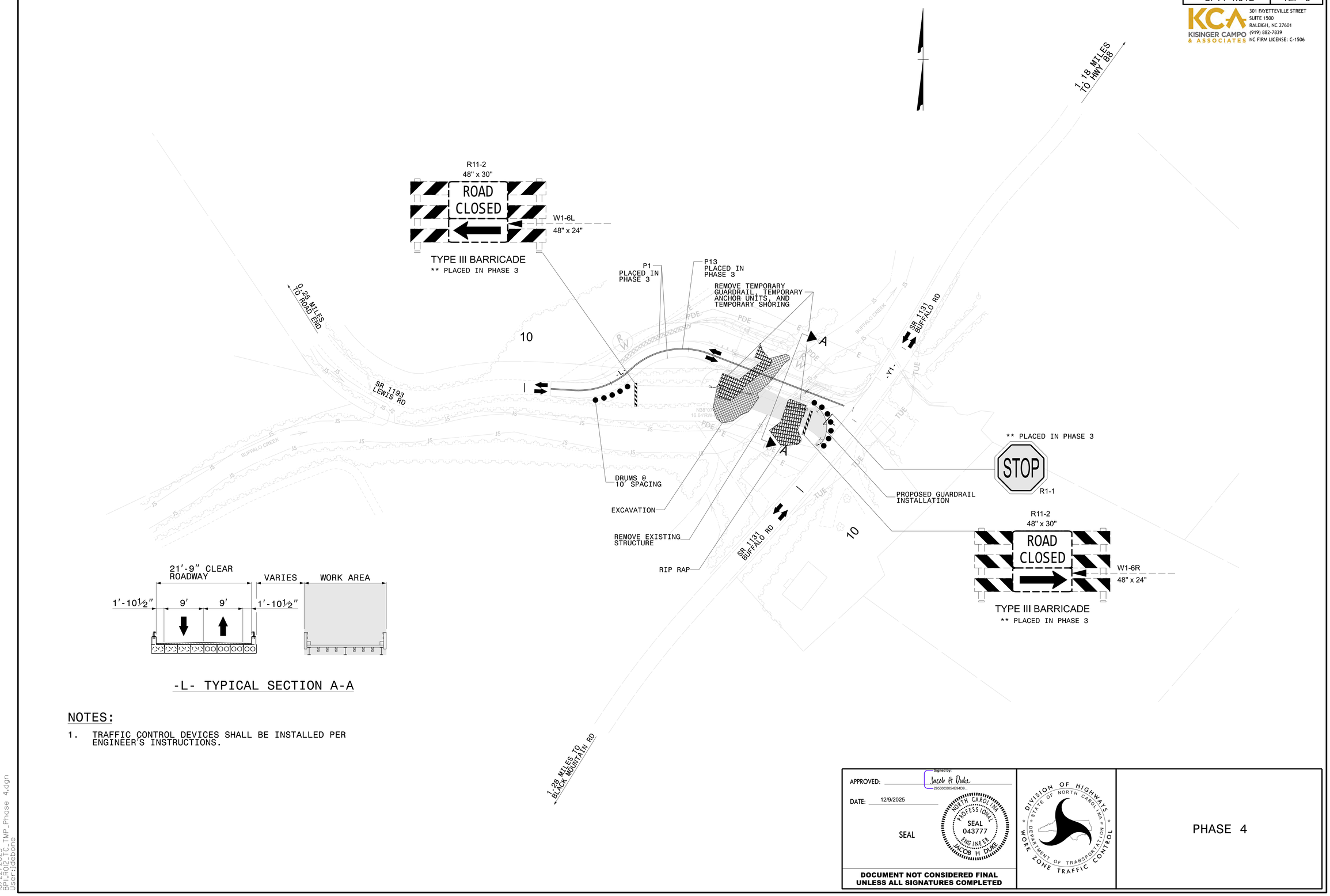
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

PHASE 3

10/22/2025
BP11R012_TC_TMP_Phase 3.dgn
User:jdebone

PROJ. REFERENCE NO.	SHEET NO.
BP11-R012	TMP-6

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
(919) 882-7839
NC FIRM LICENSE: C-1506



-L- TYPICAL SECTION A-A

NOTES:

1. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PER ENGINEER'S INSTRUCTIONS.

APPROVED: Signed by: Jacob H Duke 2953OC8054E94D9...

DATE: 12/9/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H DUKE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PHASE 4

10/22/2025
BP11R012_TC_TMP_Phase 4.dgn
User:jdebone

T.I.P.: BR11-R012

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
ASHE COUNTY

TIP NO.	SHEET NO.
BP11-R012	PMP-1

APPROVED: Signed by: Jacob H. Duke 29530C8054E94D9...

DATE: 12/9/2025

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043777 ENGINEER JACOB H. DUKE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

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

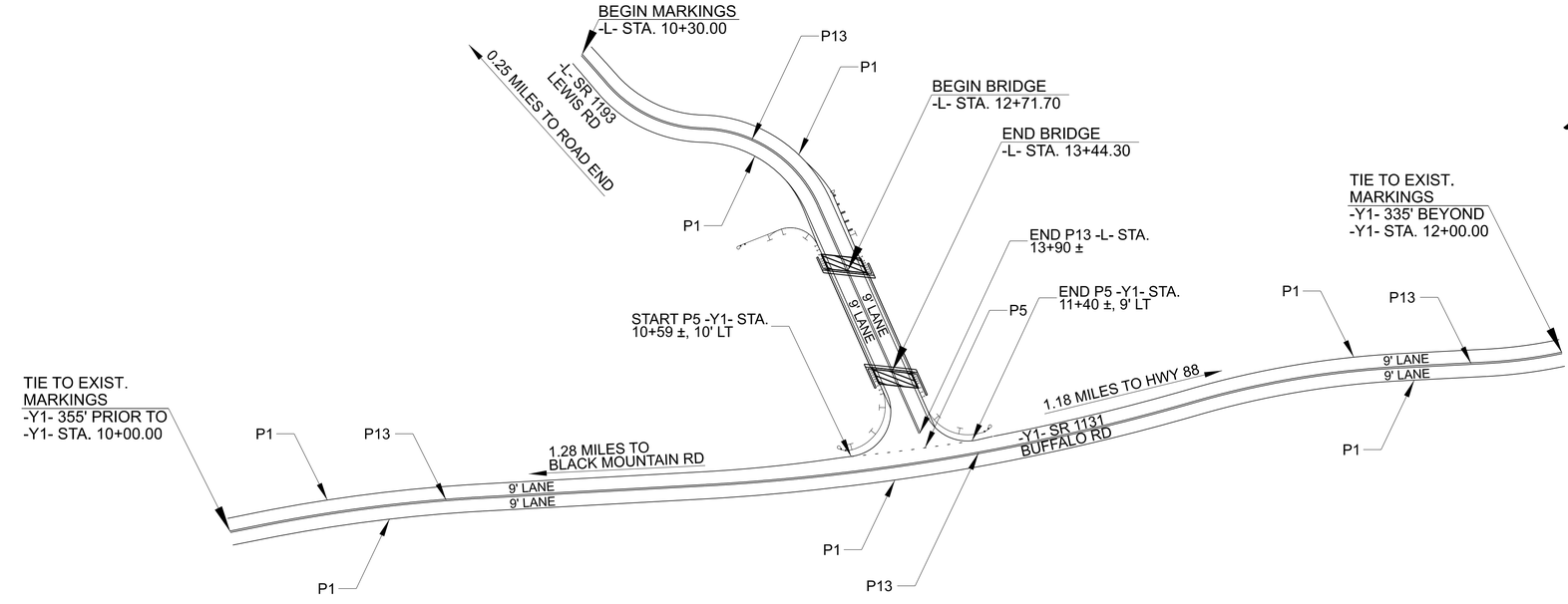
A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L- SR 1193 (LEWIS RD)	PAINT	NONE
-Y1- SR 1131 (BUFFALO RD)	PAINT	SNOWPLOWABLE

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

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

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



PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PAINT	
P1	WHITE EDGELINE (4")
P5	2FT.-6FT./SP WHITE MINISKIP (4")
P13	YELLOW DOUBLE CENTER (4")
ME	SNOWPLOWABLE MARKER (YELLOW/YELLOW)

PLAN PREPARED BY: KISINGER CAMPO & ASSOCIATES

JACOB H. DUKE, PE PROJECT ENGINEER

JASON M. DEBONE PROJECT DESIGNER

KISINGER CAMPO & ASSOCIATES

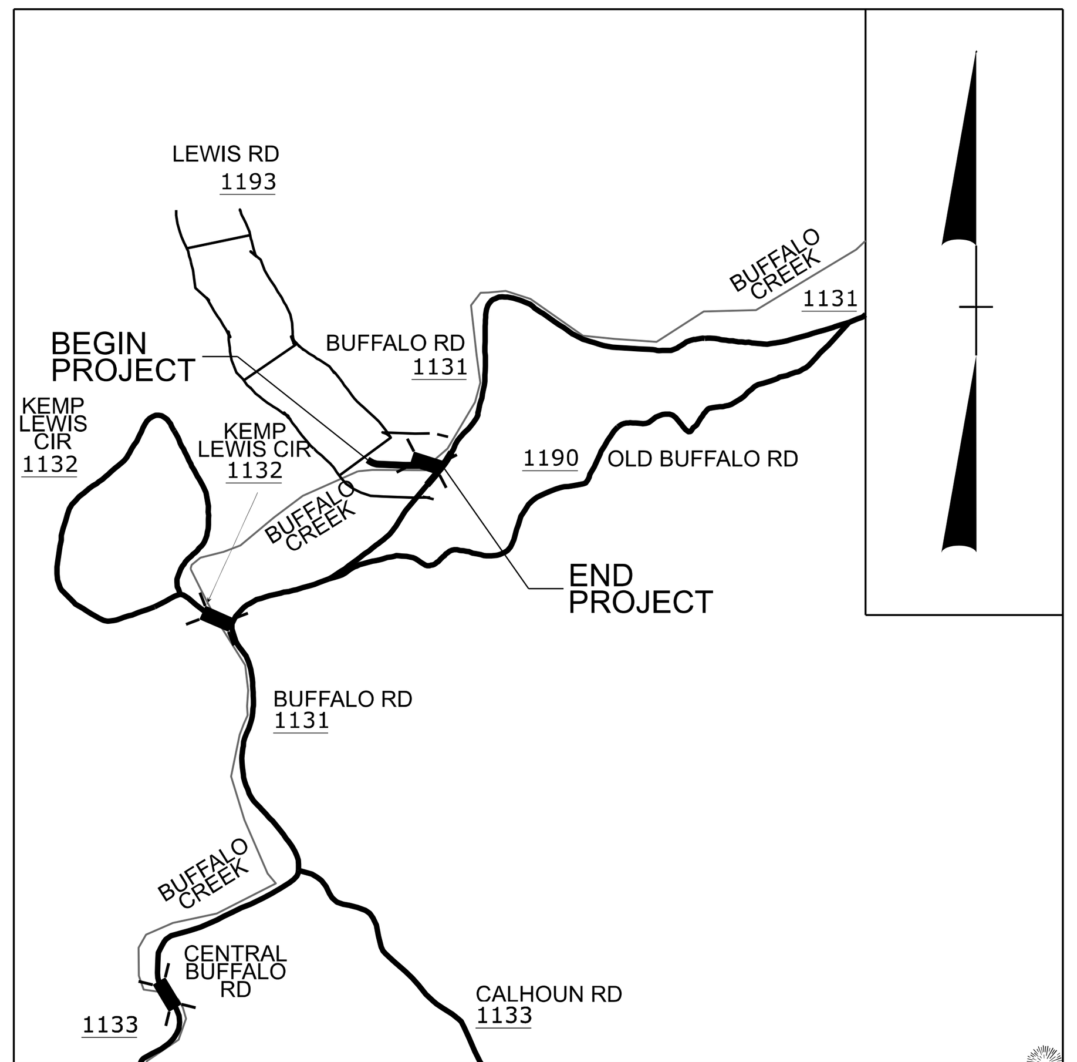
NC FIRM LICENSE No: C-1506
301 Fayetteville St.,
Suite 1500
Raleigh, NC 27601
(919)882-7839

12/9/2025
BP11_R012_Son_PMP.dgn
User:jdebone

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP11.R012	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

NAD 83/2011

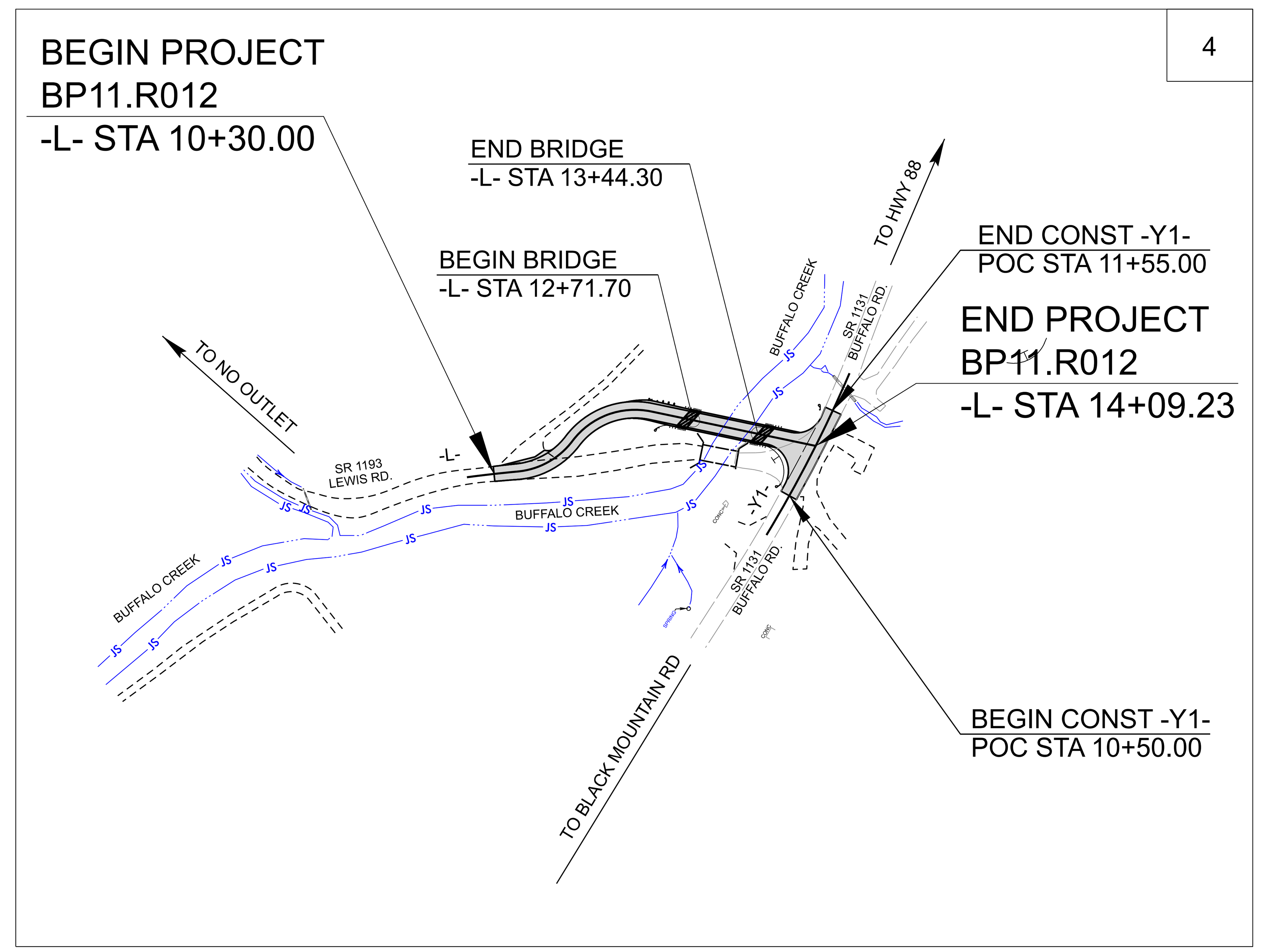
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

ASHE COUNTY

LOCATION: REPLACE BRIDGE NO.474 ON SR 1193 OVER BUFFALO CREEK

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



THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT

High Quality Water Zone(s) Exist
From Sta. 10+30
to Sta. 14+09.23
Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALE

50 25 0 50 100

PLANS

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

Prepared In the Office of:

KCA
KISINGER CAMPO & ASSOCIATES

NC FIRM LICENSE No: C-1506
301 Fayettville St.,
Suite 1500
Raleigh, NC 27601
(919)882-7839

2024 STANDARD SPECIFICATIONS

Designed by:

JEREMIAH JOBE, EI	*4720*
NAME	*LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

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

PROJECT REFERENCE NO.	SHEET NO.
BPII.R012	EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

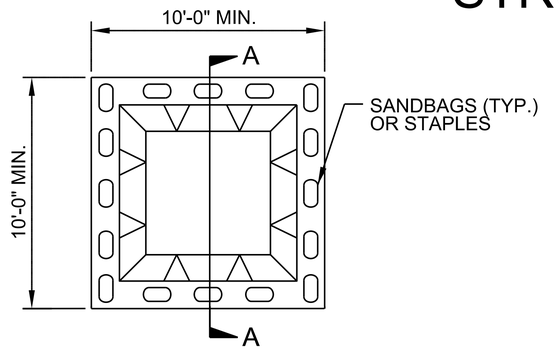
EROSION & SEDIMENT CONTROL LEGEND

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

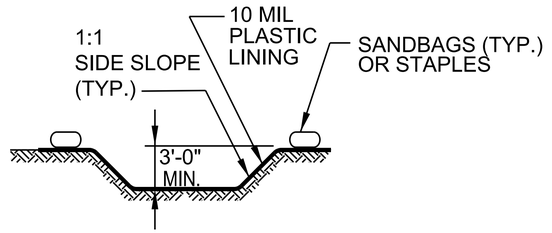
Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet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

PROJECT REFERENCE NO.	SHEET NO.
BP11.R012.1	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A

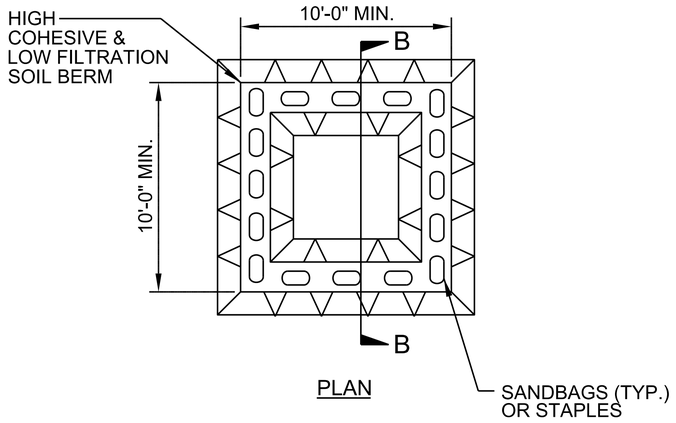
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

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

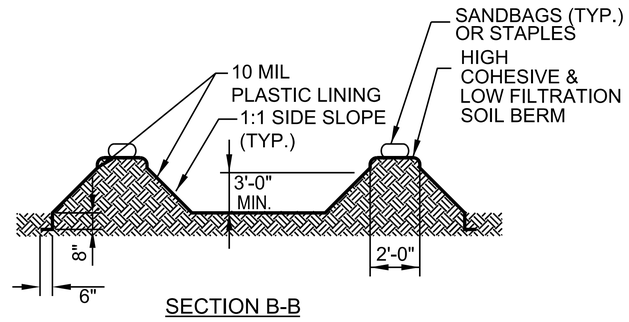
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



PLAN



SECTION B-B

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

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

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

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
BP11.R012	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

PROJECT REFERENCE NO.	SHEET NO.
BPII.R012	EC-3B
	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL (EXCELSIOR)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
	SUBTOTAL EXCELSIOR MATTING				

PERMANENT SOIL REINFORCEMENT MAT (TYPE 2)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	12+00	12+32	LT	30
			SUBTOTAL		30
		ADDITIONAL PSRM TO BE INSTALLED			0
				TOTAL	30
				SAY	30

MATTING FOR EROSION CONTROL (STRAW)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	12+32	13+10	LT	85
		SUBTOTAL STRAW MATTING			85

	SUBTOTAL EXCELSIOR MATTING	0
	SUBTOTAL STRAW MATTING	85
	MISCELLANEOUS MATTING TO BE INSTALLED	2000
	TOTAL	2085
	SAY	2085

5/26/20

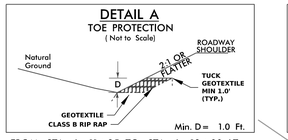
-L-

CUR DATA -L-	CUR DATA -L-	CUR DATA -L-
PIc 10+27.64	PIc 10+93.47	PIc 11+81.65
Δc = 02°32'00.9" (RT)	Δc = 47°53'43.1" (LT)	Δc = 64°42'38.1" (RT)
D = 04°35'01.2"	D = 66°37'22.8"	D = 66°37'22.8"
Lc = 55.27	Lc = 71.89	Lc = 97.13
Tc = 27.64	Tc = 38.20	Tc = 54.48
R = 1,250	R = 86	R = 86
DS = EXIST	DS = 20 MPH*	DS = 20 MPH*
SE = EX.	SE = 0.03	SE = 0.03
	RO = SEE PLANS	RO = SEE PLANS

-Y1-

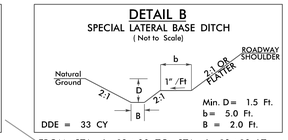
CUR DATA -Y1-
PIc 11+34.30
Δc = 13°38'24.0" (LT)
D = 03°57'05.2"
Lc = 345.19
Tc = 173.42
R = 1,450
DS = EXIST.
SE = EXIST.

DETAIL A
TOE PROTECTION
(Not to Scale)



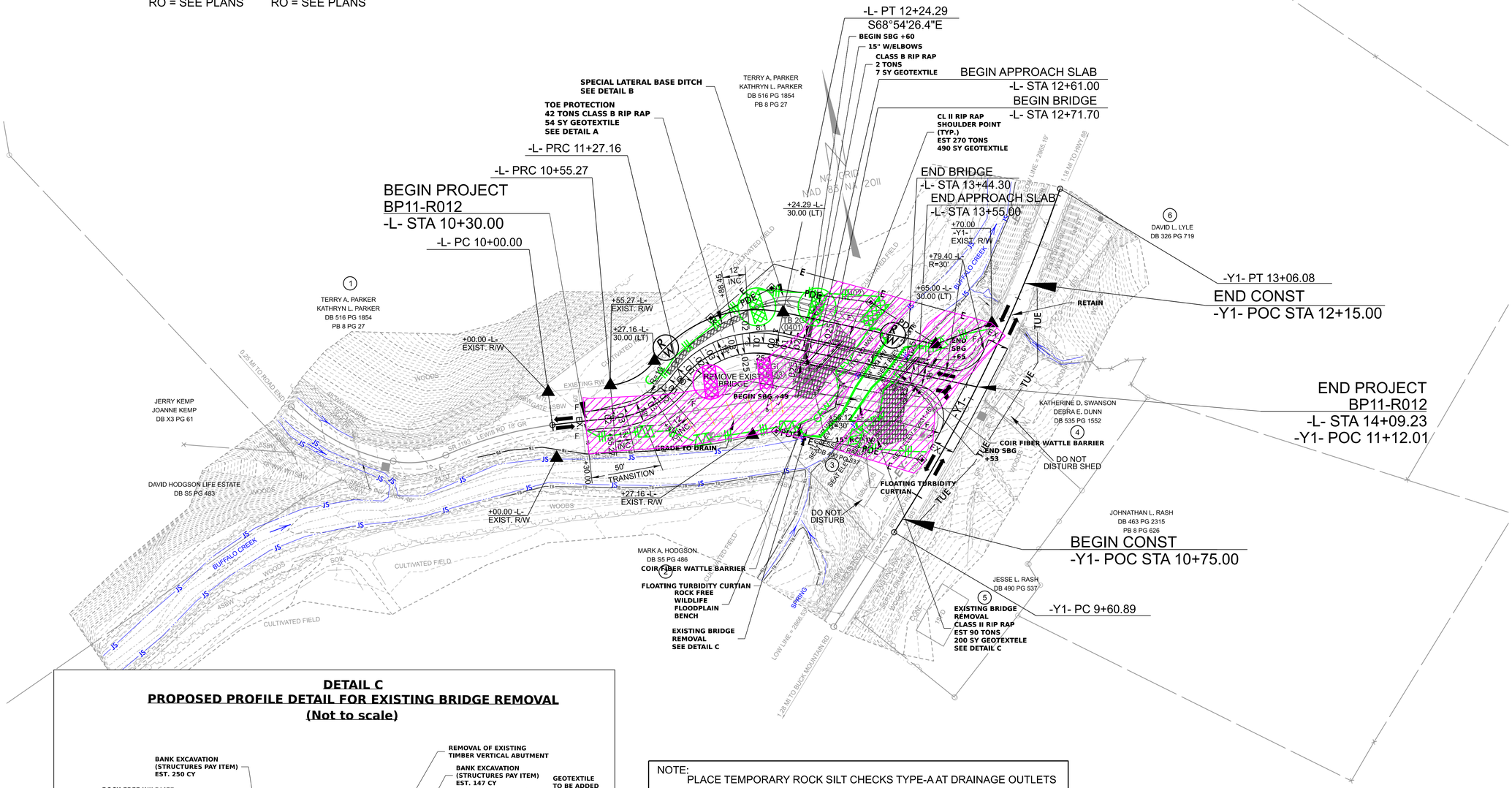
FROM STA. –L– 11+25 TO STA. –L– 12+00 LT.

DETAIL B
SPECIAL LATERAL BASE DITCH
(Not to Scale)

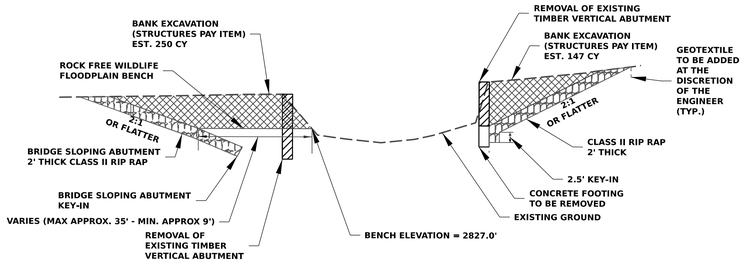


DDE = 33 CY

FROM STA. –L– 12+00 TO STA. –L– 13+10 LT.



DETAIL C
PROPOSED PROFILE DETAIL FOR EXISTING BRIDGE REMOVAL
(Not to scale)



NOTE:
PLACE TEMPORARY ROCK SILT CHECKS TYPE-A AT DRAINAGE OUTLETS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

BP11.R012
EC-4/CONST. 4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

KCA
KISINGER CAMPO
& ASSOCIATES

NC FIRM LICENSE No: C-1506
301 Fayetteville Street,
Suite 1500
Raleigh, NC 27601
(919)882-7839

5/26/20

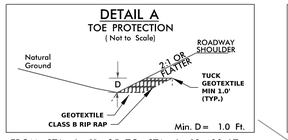
-L-

CUR DATA -L-	CUR DATA -L-	CUR DATA -L-
PIc 10+27.64	PIc 10+93.47	PIc 11+81.65
Δc = 02°32'00.9" (RT)	Δc = 47°53'43.1" (LT)	Δc = 64°42'38.1" (RT)
D = 04°35'01.2"	D = 66°37'22.8"	D = 66°37'22.8"
Lc = 55.27	Lc = 71.89	Lc = 97.13
Tc = 27.64	Tc = 38.20	Tc = 54.48
R = 1,250	R = 86	R = 86
DS = EXIST	DS = 20 MPH*	DS = 20 MPH*
SE = EX.	SE = 0.03	SE = 0.03
	RO = SEE PLANS	RO = SEE PLANS

-Y1-

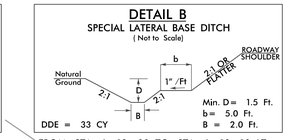
CUR DATA -Y1-
PIc 11+34.30
Δc = 13°38'24.0" (LT)
D = 03°57'05.2"
Lc = 345.19
Tc = 173.42
R = 1,450
DS = EXIST.
SE = EXIST.

DETAIL A
TOE PROTECTION
(Not to Scale)



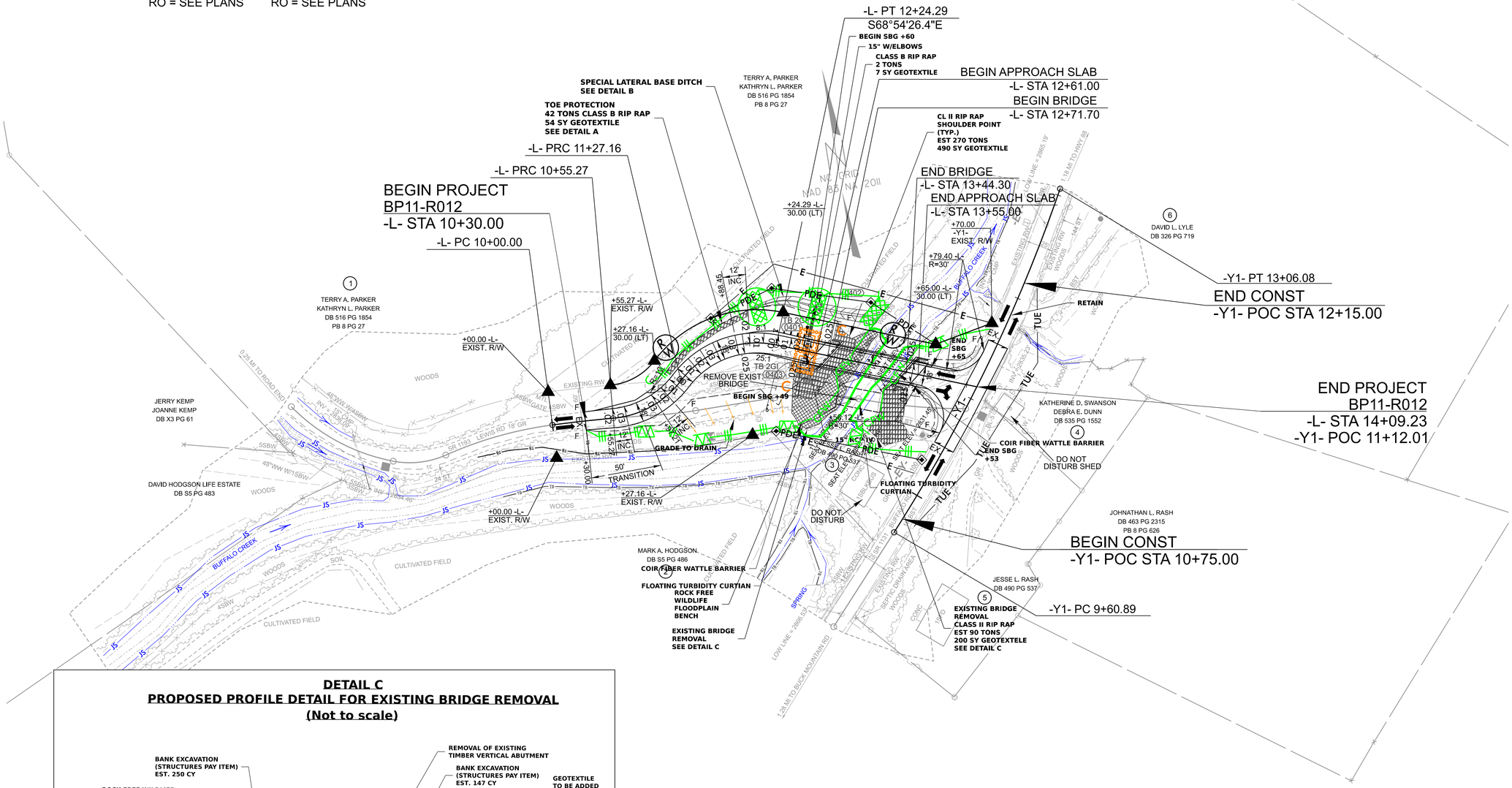
FROM STA. –L– 11+25 TO STA. –L– 12+00 LT.

DETAIL B
SPECIAL LATERAL BASE DITCH
(Not to Scale)

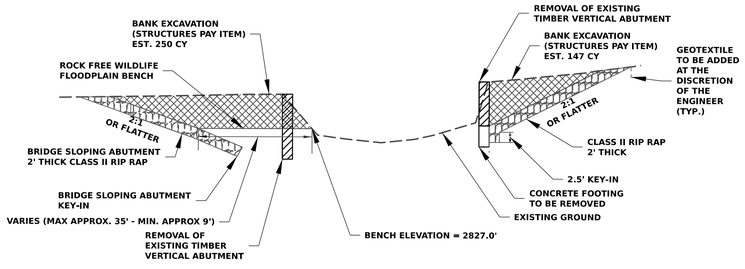


DDE = 33 CY

FROM STA. –L– 12+00 TO STA. –L– 13+10 LT.



DETAIL C
PROPOSED PROFILE DETAIL FOR EXISTING BRIDGE REMOVAL
(Not to scale)



NOTE:
MAT ALL FILL SLOPES AS WORK ALLOWS.

NOTE:
INSTALL COIR FIBER MATTING ON EXCAVATED FLOODPLAIN BENCHES.

Place Coir Fiber Matting for Erosion Control on Slope as Work Allows.
Sta. -L- 12+46 to Sta. 15+50 LT/RT

BP11.R012
EC-5/CONST. 4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

KCA
KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville Street, Suite 1500
Raleigh, NC 27601
(919)882-7839

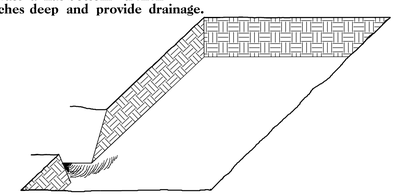
STATE	STATE PROJECT REFERENCE NO.		SHEET NO.	TOTAL SHEETS
N.C.	BP11.R012		RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION		

PLANTING DETAILS

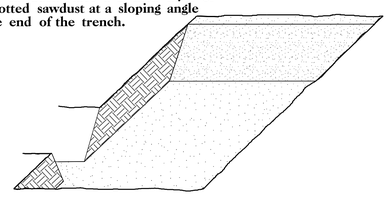
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

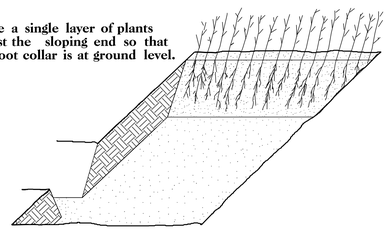
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



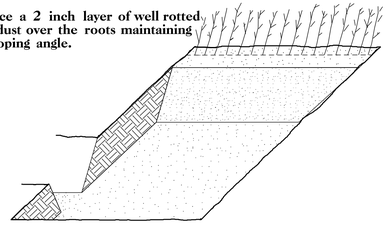
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

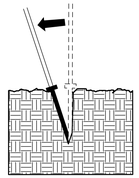


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

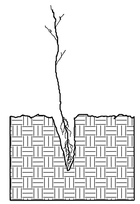


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

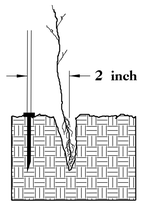
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



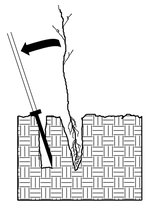
1. Insert planting bar as shown and pull handle toward planter.



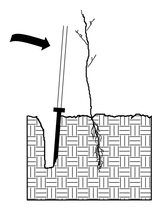
2. Remove planting bar and place seedling at correct depth.



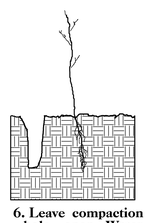
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.

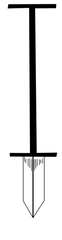


6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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

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



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

REFORESTATION

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

REFORESTATION

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

33% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
33% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
33% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

REFORESTATION DETAIL SHEET

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

PROJECT: BP11-R012

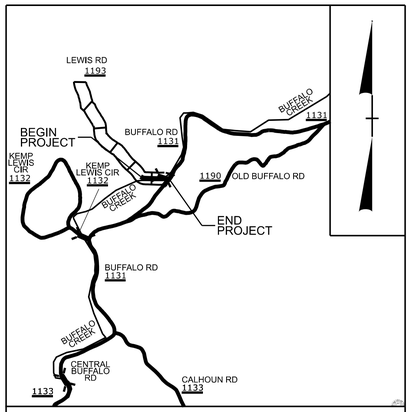
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP11.R012	UO–1	2

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.

UTILITY BY OTHERS PLANS
ASHE COUNTY

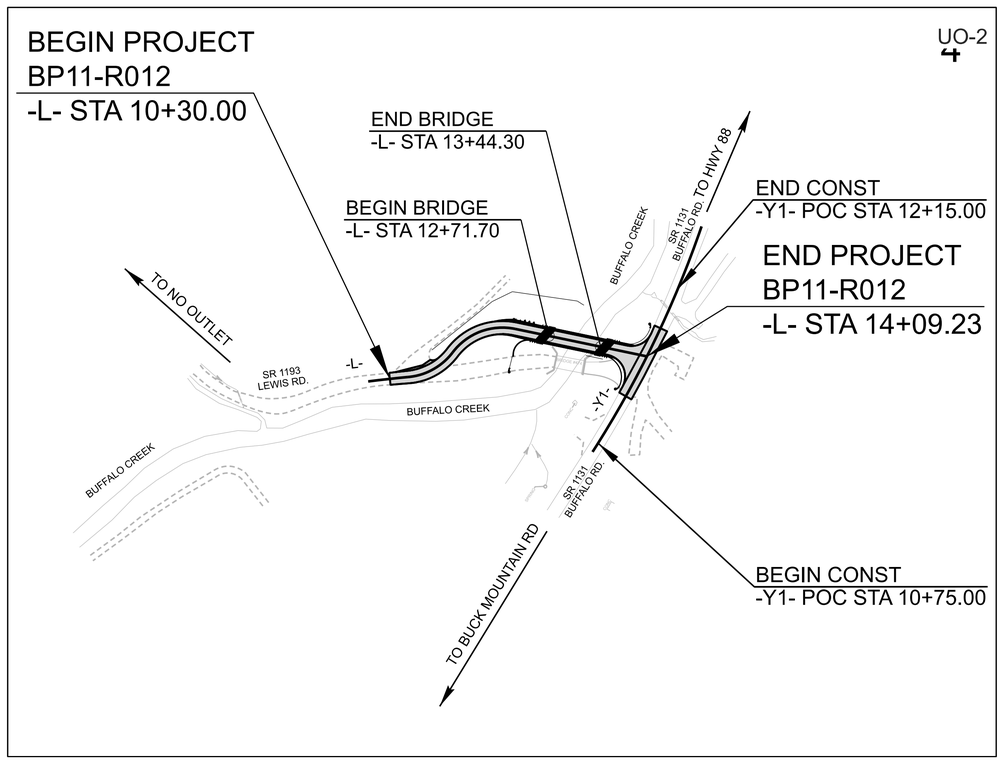
LOCATION: REPLACE BRIDGE NO. 474 ON SR 1193 OVER BUFFALO CREEK
TYPE OF WORK: COMMUNICATION RELOCATION, ELECTRICITY RELOCATION



VICINITY MAP (NTS)

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

NAD 83/2011



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

INDEX OF SHEETS

SHEET:	*DESCRIPTION:*
UO–1	*TITLE SHEET*
UO–2	*UBO PLAN SHEET*

UTILTITY OWNER CONFLICTS

(A) SKYLINE SKYBEST – COMMUNICATIONS
(B) BLUE RIDGE ENERGY – ELECTRICITY
(C) BRIGHTSPEED – COMMUNICATIONS

KCA KISINGER CAMPO & ASSOCIATES

PREPARED IN THE OFFICE OF
NC FIRM LICENSE NO: C–1506
301 FAYETTVILLE ST. SUITE 1500
RALEIGH, NC 27601
PHONE (919)882–7839

SAM CULLUM, PE — *CONSULTANT CONTACT #1*
REBECCA HILL — *CONSULTANT CONTACT #2*
CHRISTIAN SHUPING — *CONSULTANT CONTACT #3*

DIVISION OF HIGHWAYS
UTILITIES UNIT
801 STATESVILLE RD.
NORTH WILKESBORO, NC 28659
PHONE (336)903–9101
FAX (336)667–4549

BRANDON GREER — *DIVISION UTILITY ENGINEER*

UTILITIES BY OTHERS

THIS SHEET CORRESPONDS TO RDY PSH 04

BLUE RIDGE ENERGY
EXISTING OH LINE
TO REMAIN

BLUE RIDGE ENERGY
EXISTING OH LINE
TO REMAIN

BLUE RIDGE ENERGY
REMOVE EXISTING OH LINE
PERMANENT OH LINE

SKYLINE SKYBEST
PROPOSED PED
TIE EXPOSED CABLE
TO EXISTING

SKYLINE SKYBEST
REMOVE EXISTING
OH LINE

SKYLINE SKYBEST
REMOVE EXISTING POLES
AND PEDESTALS
ABANDON CABLES

SKYLINE SKYBEST
PROPOSED PED

BLUE RIDGE ENERGY
& BRIGHTSPEED
REPLACE EXISTING POLE
PERMANENT POLE

BLUE RIDGE ENERGY
& BRIGHTSPEED
JOINED TEMPORARY
OH LINE

BLUE RIDGE ENERGY
& BRIGHTSPEED
TEMPORARY POLE

BLUE RIDGE ENERGY
EXISTING POLE
TO REMAIN

BLUE RIDGE ENERGY
REMOVE EXISTING OH LINE
PERMANENT OH LINE

BLUE RIDGE ENERGY
EXISTING OH LINE
TO REMAIN

SKYLINE SKYBEST
EXPOSE EXISTING CABLE AND
BURY EXPOSED AND EXISTING
CABLES TO PROPOSED PED

BLUE RIDGE ENERGY
EXISTING OH LINE
TO REMAIN

BLUE RIDGE ENERGY
& BRIGHTSPEED
TEMPORARY POLE

BLUE RIDGE ENERGY
EXISTING OH LINE
TO REMAIN

UTILITY CONTACT

BLUE RIDGE ENERGY	SKYLINE SKYBEST	BRIGHTSPEED
STEVE TAYLOR	SAMUELE WILSON	TIMMIE HYLTON
828-264-8894	336-876-6214	336-789-0016
STAYLOR@BLUERIDGEENERGY.COM	SAMUELE.WILSON@SKYLINE.ORG	TIMMIE.HYLTON2@BRIGHTSPEED.COM

BP11-R012

UO 2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

DIVISION 11

UTILITY BY OTHERS
PLANS ONLY

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

DESIGNED BY:	OTHERS
DRAWN BY:	DAA
CHECKED BY:	SLC
APPROVED BY:	
REVISED:	

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

REVISIONS

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Note: Quantities are approximate only. The Resident Engineer will recross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid.

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station -L-	Uncl. Exc. (cu. yd.)	Embt. (cu. yd.)
10+30	0	0
10+50	28	1
11+00	4	116
11+50	0	137
12+00	0	251
12+50	0	747
12+71.70	0	334

Station -L-	Uncl. Exc. (cu. yd.)	Embt. (cu. yd.)
13+44.30	0	0
13+50	0	114
13+99.30	1	497

BP11-R012

FINAL | X-1A

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

KCA
KISINGER CAMPO & ASSOCIATES

NC FIRM LICENSE No: C-1506
301 Fayetteville Street, Suite 1500
Raleigh, NC 27601
(919)882-7839

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

11/14/23

CROSS SECTION INDEX

X-002	THRU	X-006	-L-
X-007	THRU	X-010	-Y1-

NOTES:

ALL EARTHWORK QUANTITIES WERE DERIVED FROM ORD QUANTITIES BY NAMED BOUNDARY REPORT(S) AS DESCRIBED IN THE ORD QUICKSTART TRAINING.

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

BP11-R012

FINAL | X-001

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
ASHE COUNTY

ROADWAY DESIGN UNIT

PREPARED BY

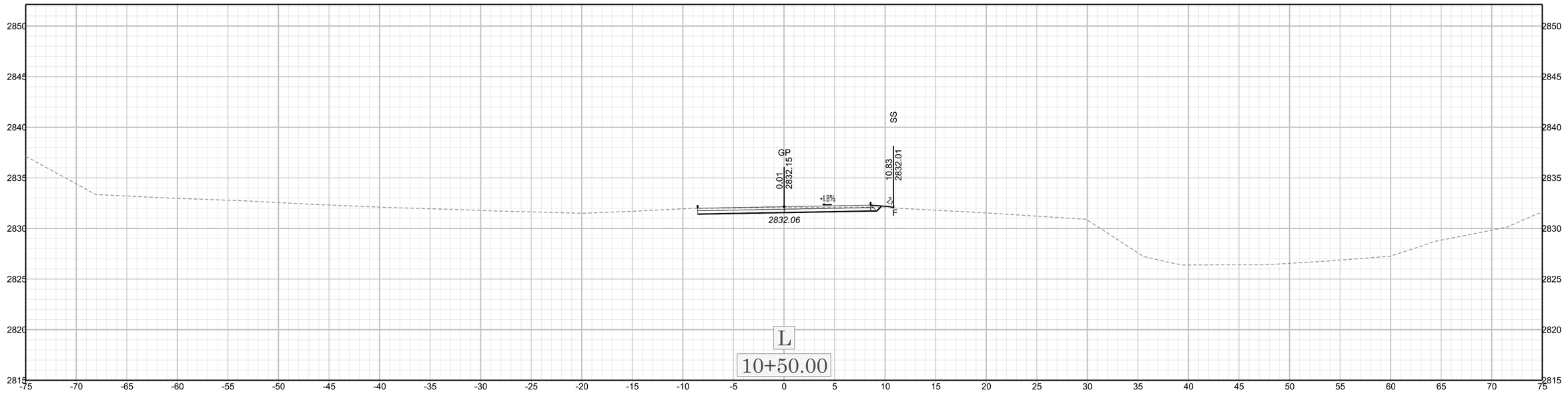
KCA
KISINGER CAMPO & ASSOCIATES

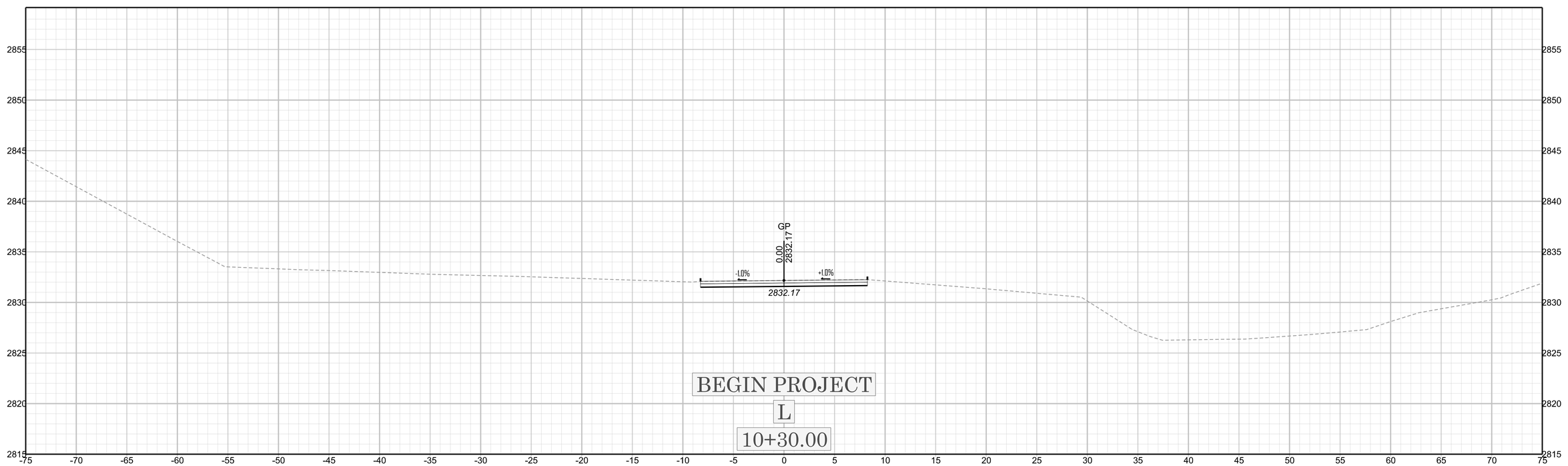
NC FIRM LICENSE No: C-1506
301 Fayetteville Street,
Suite 1500
Raleigh, NC 27601
(919)882-7839

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

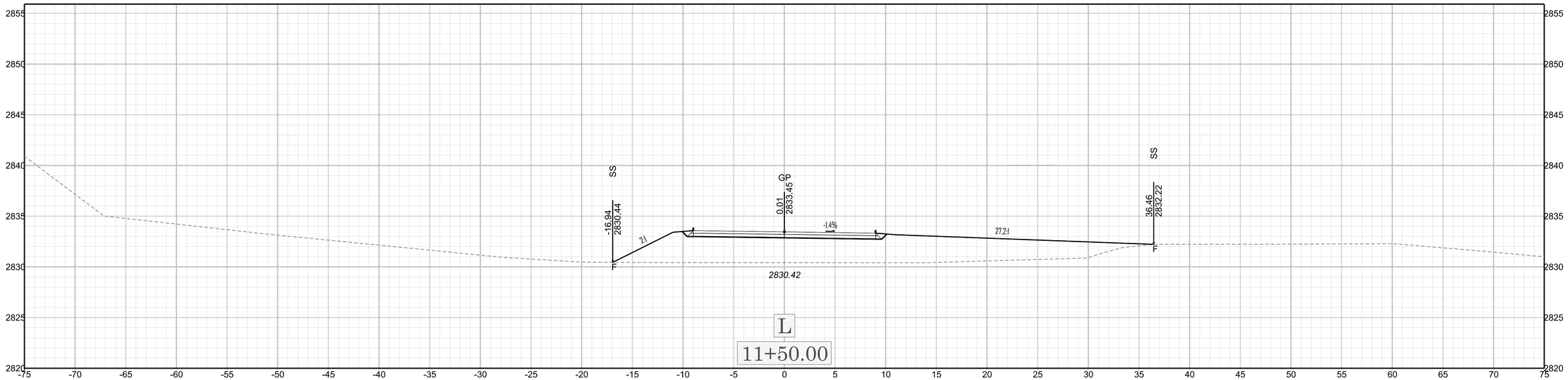
REVISIONS

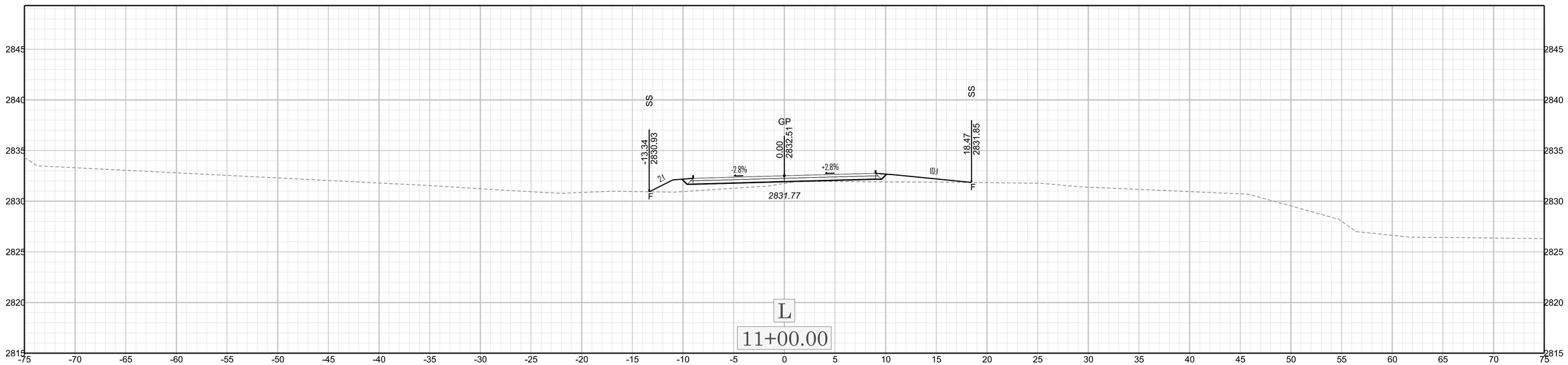
10/18/23

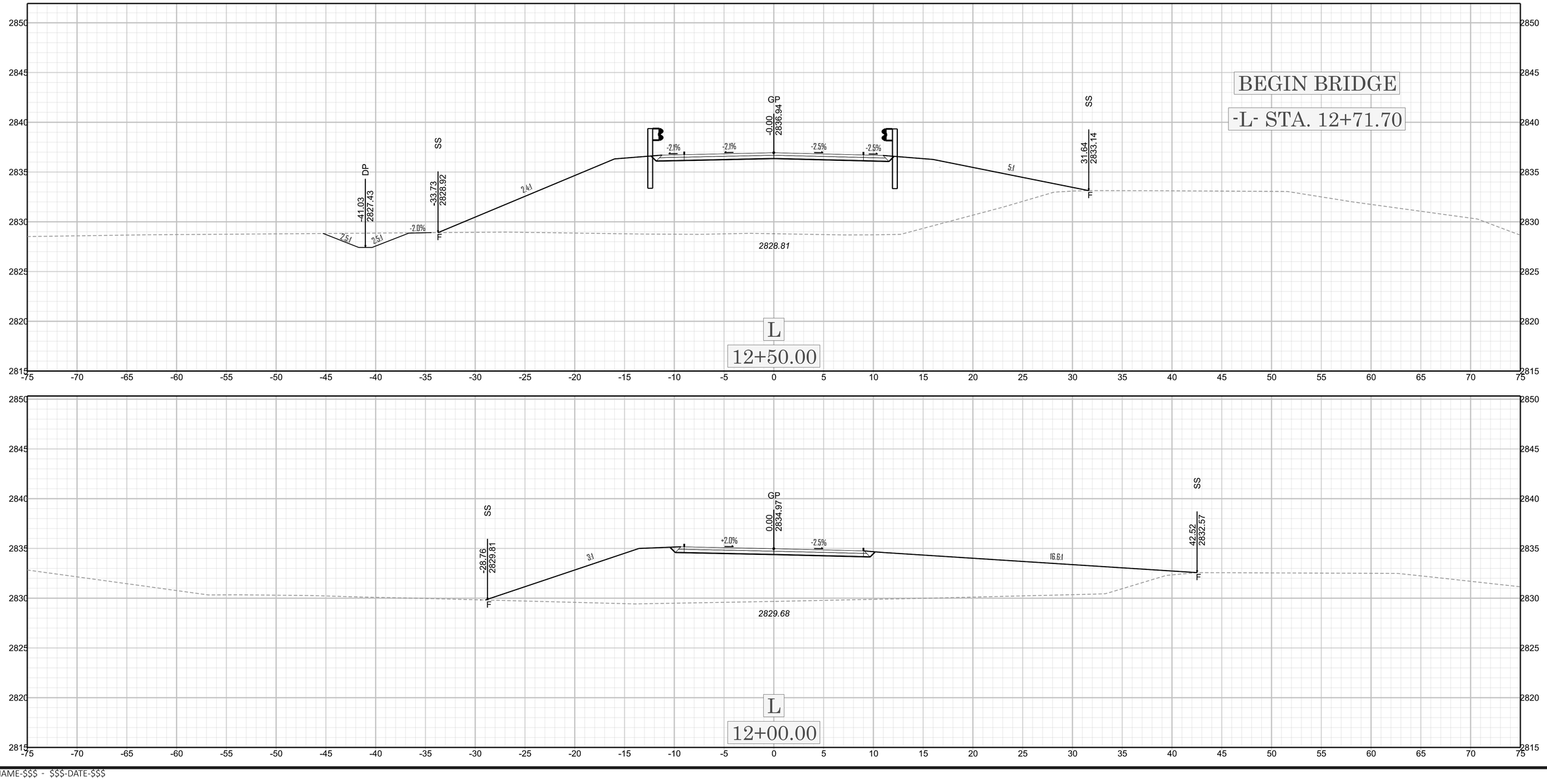




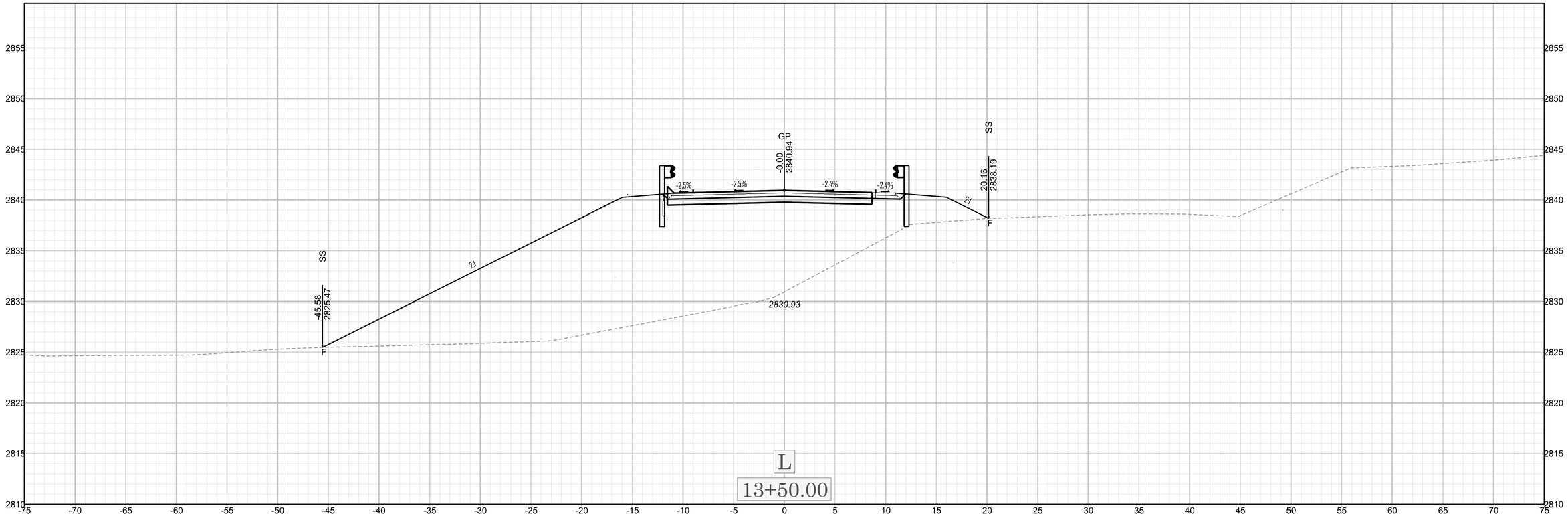
10/18/23

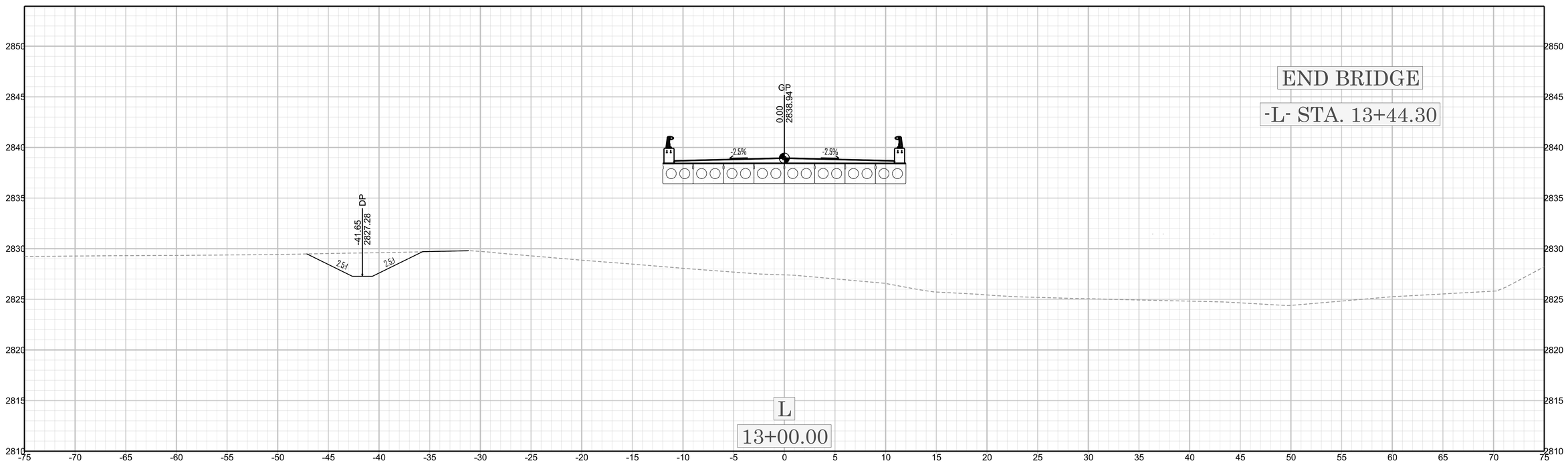






10/18/23

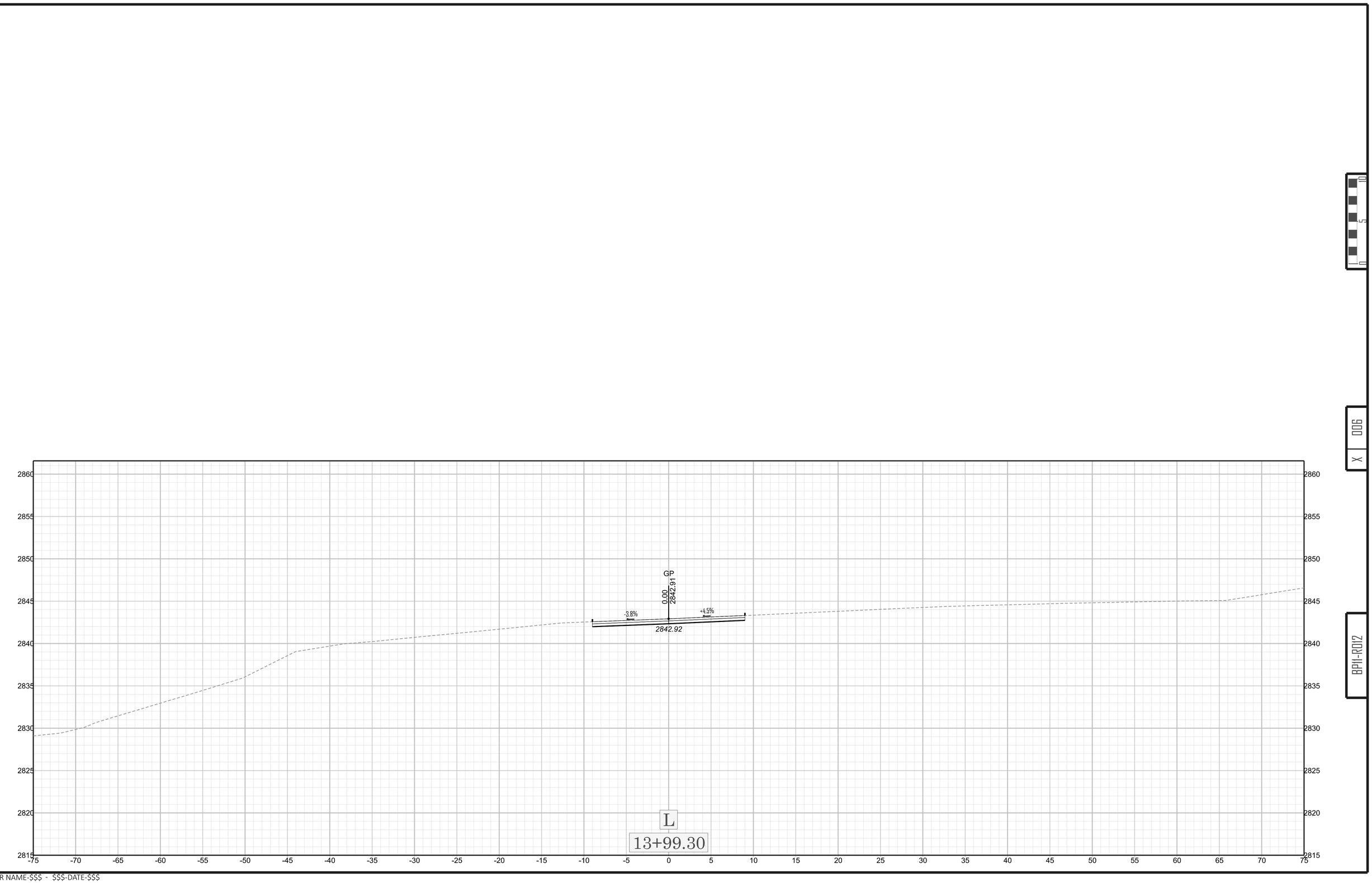




$$$-USER NAME-$$$ - $$$-DATE-$$$

BPH-R012

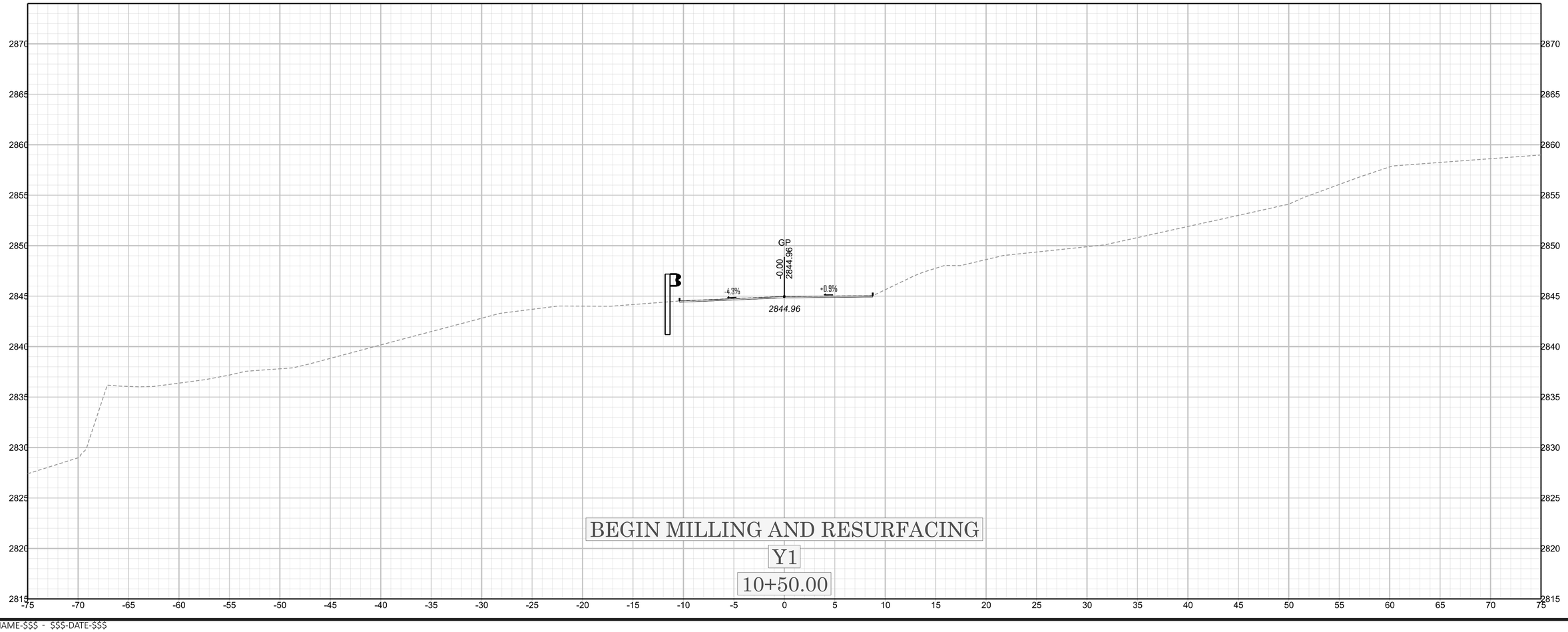
10/18/23



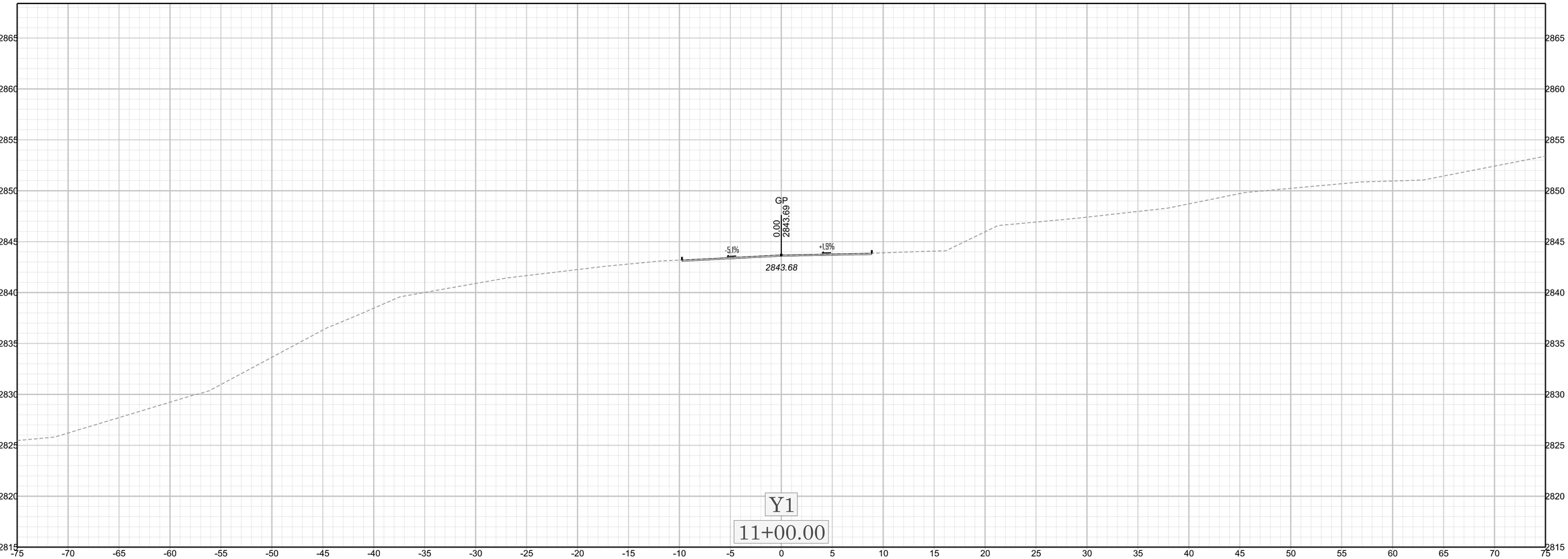
X 006

BP11-R012

10/18/23



10/18/23



Y1

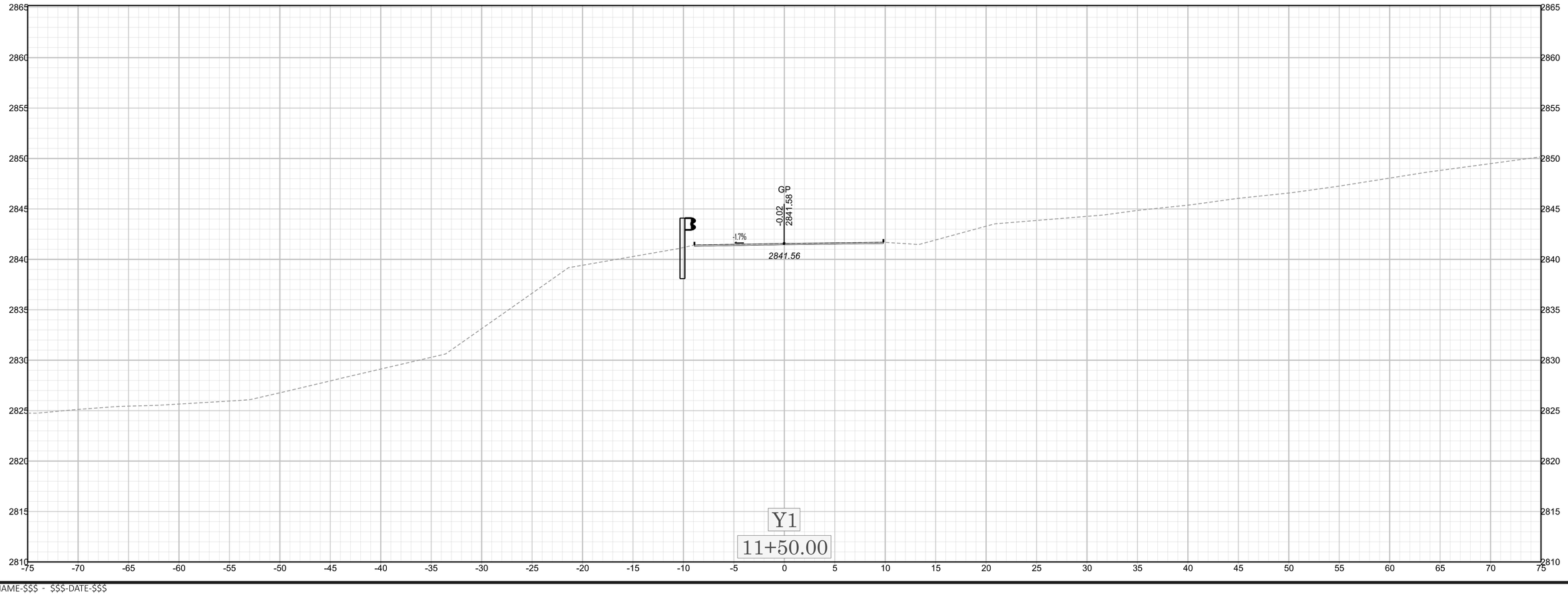
11+00.00

800

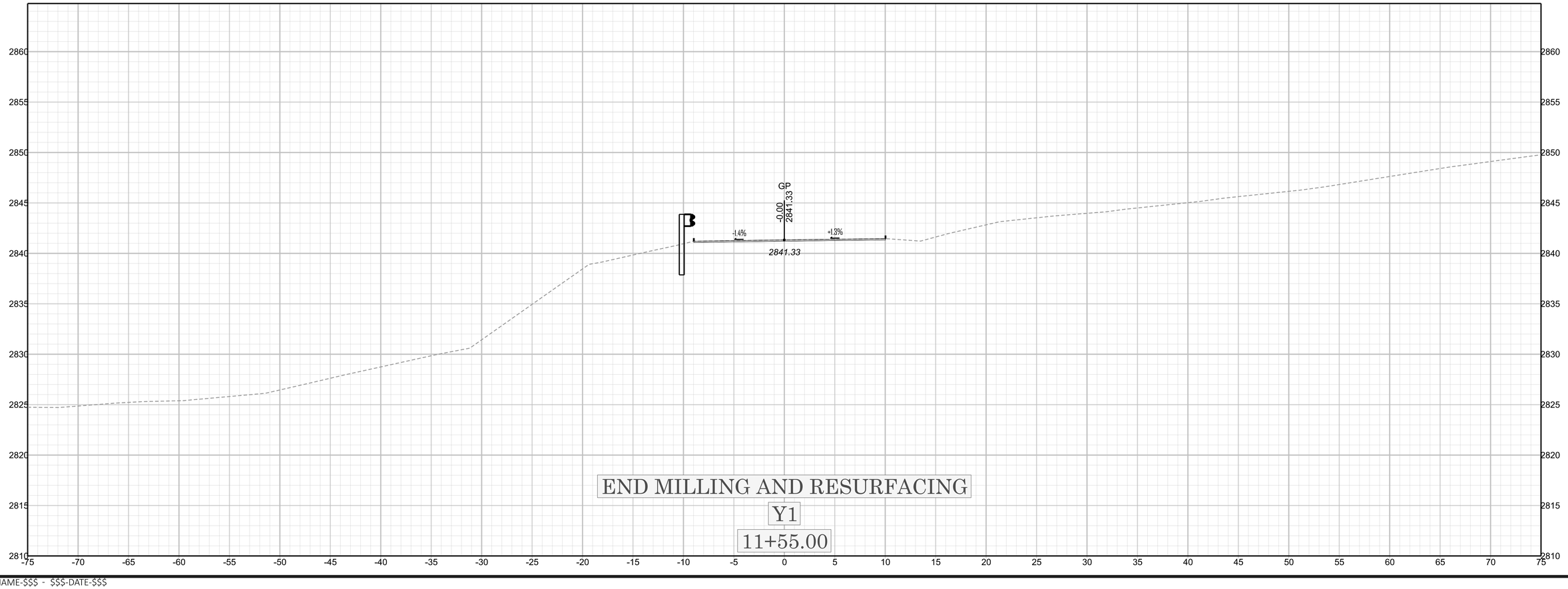
X

BPII-R012

10/18/23



10/18/23

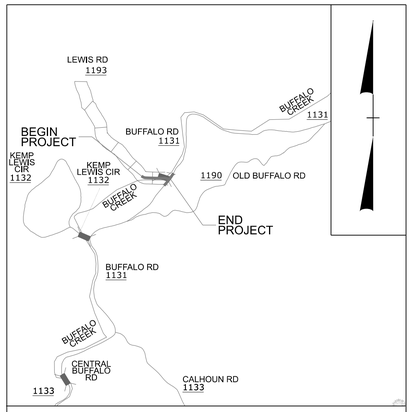


END MILLING AND RESURFACING

Y1

11+55.00

PROJECT: BP11–R012



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

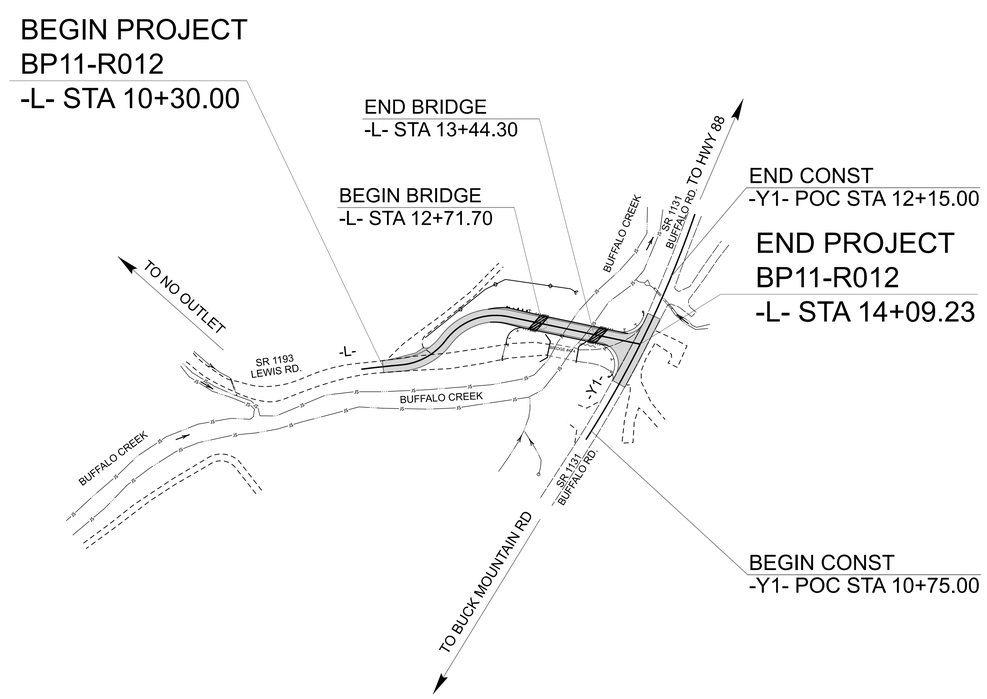
ASHE COUNTY

LOCATION: REPLACE BRIDGE NO. 040474 ON SR 1193 (LEWIS RD.) OVER BUFFALO CREEK

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP11–R012		

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP11–R012.1	–	P.E.
BP11–R012.2	–	R/W/UTIL
BP11–R012.3	–	CONST.



STRUCTURE

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGN DATA

ADT 2025 = 50
ADT 2045 = 60
K = N/A %
D = N/A %
T = N/A % *
V = 35 MPH
* (TTST = N/A, DUAL = N/A)

FUNC CLASS =
RURAL LOCAL SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT BP11–R012 = 0.058 MILES
LENGTH STRUCTURE PROJECT BP11–R012 = 0.014 MILES

TOTAL LENGTH PROJECT BP11–R012 = 0.072 MILES

Prepared in the Office of:

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

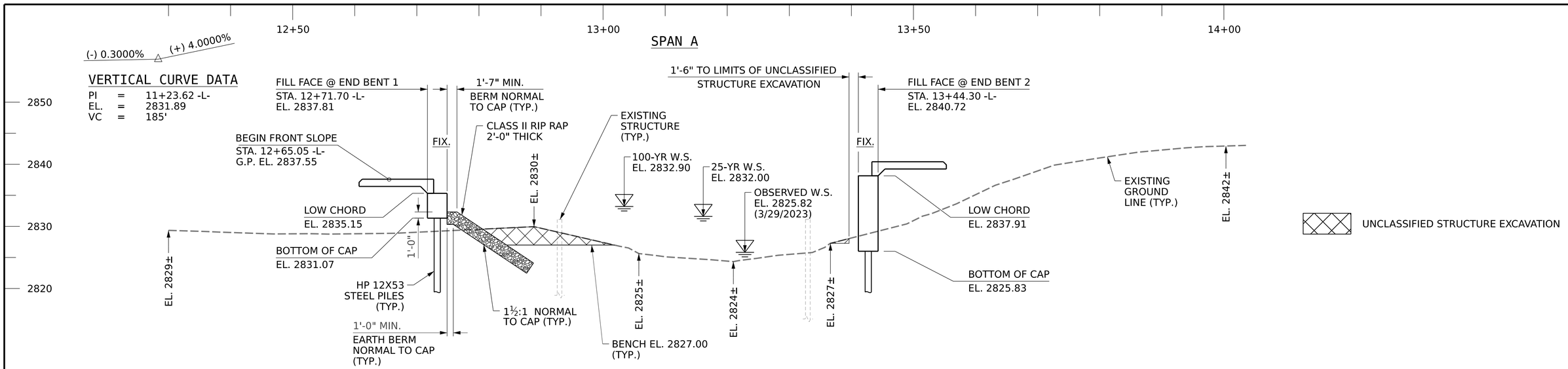
2024 STANDARD SPECIFICATIONS

LETTING DATE :

SEE ROADWAY PLANS

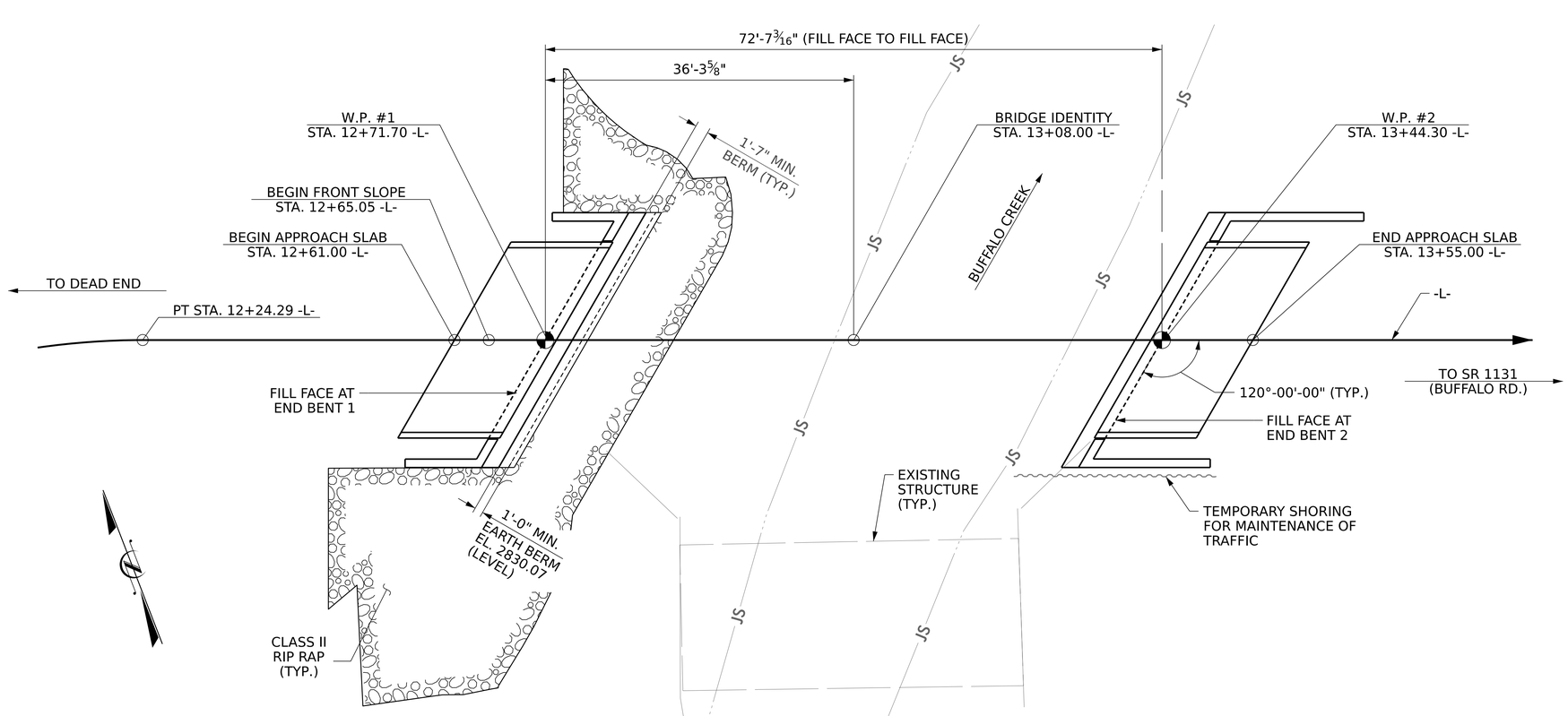
DIEGO A. AGUIRRE, PhD, P.E.
PROJECT ENGINEER

MIGUEL A. LEMOS
PROJECT DESIGN ENGINEER



SECTION ALONG -L-

SECTIONS AT END BENTS ARE TAKEN AT RIGHT ANGLES



PLAN

(PILES NOT SHOWN FOR CLARITY)

I HEREBY CERTIFY THESE PLANS
ARE THE AS-BUILT PLANS

PROJECT NO. BP11-R012

ASHE COUNTY

STATION: 13+08.00 -L-

SHEET 1 OF 4 REPLACES BRIDGE NO. 040474

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON
SR 1193 (LEWIS RD.) OVER
BUFFALO CREEK BETWEEN
DEAD END & SR 1131 (BUFFALO RD.)

Signed by: Diego A Aguirre
ECF43B83073...
12/12/2025

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A. AGUIRRE

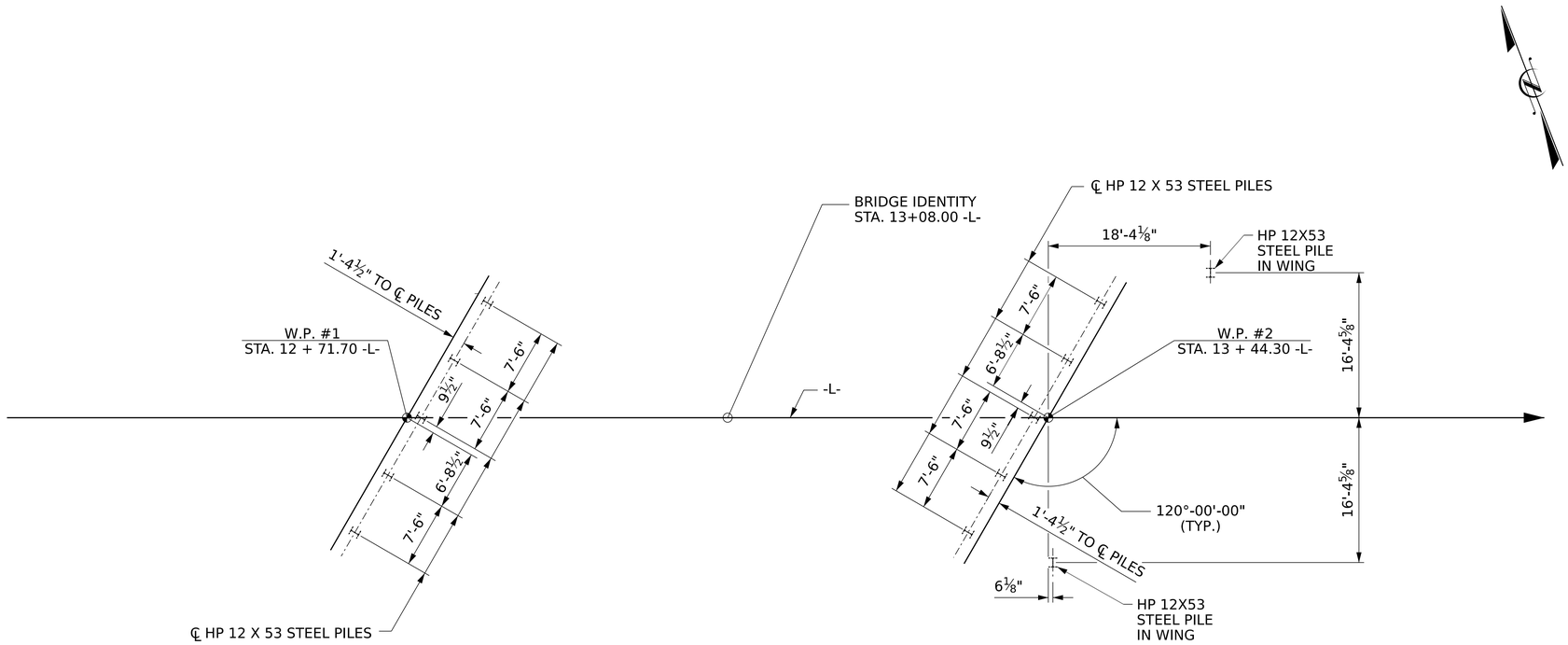
KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

11/25/2025
401_005_BP11R012_SMU_GD01_S-1_040474.dgn
daguirre



END BENT 1

END BENT 2

FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE

PROJECT NO. BP11-R012

ASHE COUNTY

STATION: 13+08.00 -L-

SHEET 2 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

Signed by: Diego A Aguirre ECF43B83073...

12/12/2025

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON
SR 1193 (LEWIS RD.) OVER
BUFFALO CREEK BETWEEN
DEAD END & SR 1131 (BUFFALO RD.)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

11/25/2025
401_010_BP11R012_SMU_GD02_S-2_040474.dgn
daguirre

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 1, Piles 1-5	5	230	2833.07	15			385							
End Bent 2, Piles 1-5	5	230	2829.83	14			385					2816.00	10	
End Bent 2, Piles 6-7 (wing wall)	2	230	2827.83	12			385					2816.00	10	
TOTAL QUANTITY:													70	

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

** 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 1, Piles 1-5	230			0.60		
End Bent 2, Piles 1-7	230			0.60		
End Bent 2, Piles 6-7 (wing wall)	230			0.60		

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

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
End Bent 1, Piles 1-5				5
TOTAL QUANTITY:				5

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Cheng Wang, #048123) on 10-21-2025.
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 and Pipe Pile Plates when necessary.
4. For Piles, see Section 450 of the Standard Specifications
5. Fill holes for pile excavation at End Bent No. 2 with concrete
6. Carry in pile cap at End Bent No. 2 at least 6 in. into rock or 12 in. into weathered rock.

PROJECT NO. BP11-R012

Ashe COUNTY

STATION: 13+08.00 -L-

SHEET 3 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A. AGUIRRE

Signed by: Diego A Aguirre 12/12/2025
EC743B83073C4FB...
SIGNATURE DATE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES

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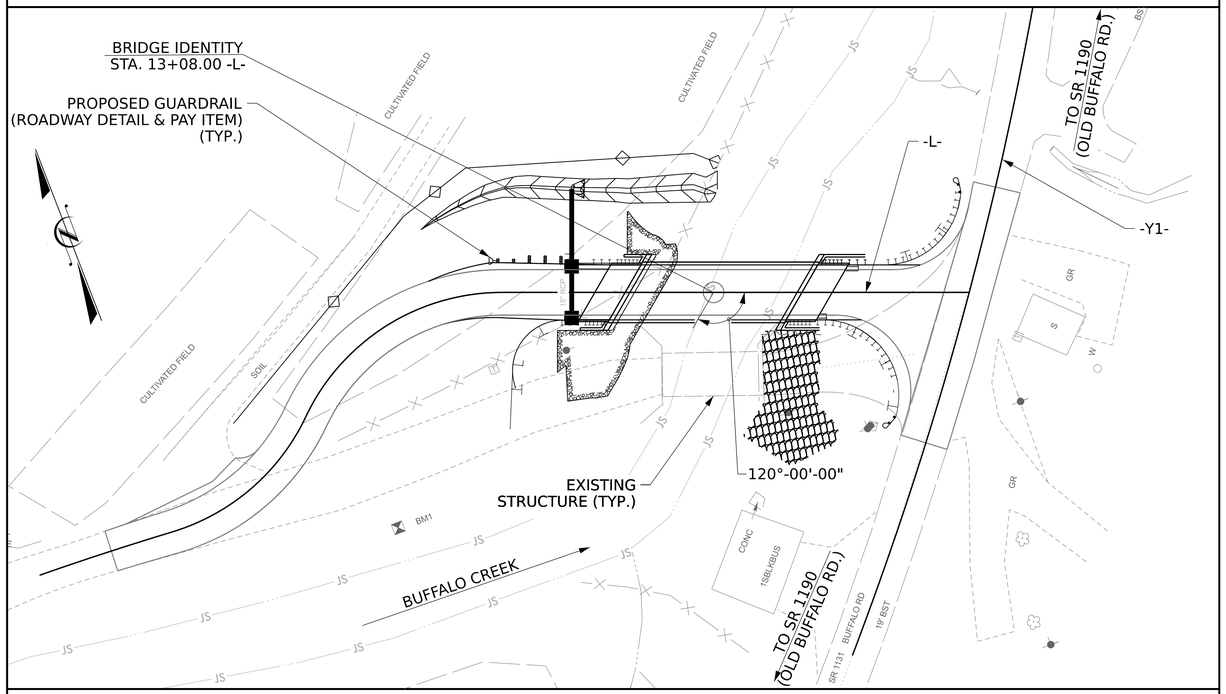
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			20

BM INFO: BM1, RR SPIKE IN BASE OF A 26" MAPLE, -L- STA. 11+12.29, 54.0 RT.
EL. 2832.51', NORTHING: 983376.8134', EASTING: 1256297.8444' DATUM: NAVD 88



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS

GENERAL NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+08.00 -L-".

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF APPROXIMATELY 30FT EACH SIDE OF THE CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF A 40'-6" SINGLE SPAN WITH A CLEAR ROADWAY WIDTH OF 15'-10" AND TIMBER DECK WITH ASPHALT WEARING SURFACE ON TIMBER STRINGERS AND STEEL GIRDERS, SUPPORTED BY TIMBER CAPS AND PILES, AND LOCATED 12' +/- UPSTREAM FROM PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS SHOWN FOR 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 ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

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

HYDRAULIC DATA

DESIGN DISCHARGE	= 1900 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 2832.0
DRAINAGE AREA	= 11.6 SQ. MI.
BASE DISCHARGE (Q100)	= 2900 CFS
BASE HIGH WATER ELEVATION	= 2832.9

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1900 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 25± YRS.
OVERTOPPING FLOOD ELEVATION	= 2832.6*

**-L- 10+44 HIGH SIDE OF ROADWAY*

WS EL. TAKEN @ RIVER STATION 25782 STA 4979.59

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STA. 13+08.00 -L-	ASBESTOS ASSESSMENT	UNCLASSIFIED STRUCTURE EXCAVATION STA. 13+08.00 -L-	PILE EXCAVATION NOT IN SOIL	CLASS A CONCRETE (BRIDGE)	BRIDGE APPROACH SLABS AT STA. 13+08.00 -L-	REINFORCING STEEL (BRIDGE)	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	ONE BAR METAL RAIL	1'-0" X 1'-8½" CONCRETE PARAPET	1'-0" X 2'-2 9/16" CONCRETE PARAPET
	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	CU. YDS.	LUMP SUM	LBS.	EA.	NO.	LIN. FT.	EA.	LIN. FT.	LIN. FT.	LIN. FT.
SUPERSTRUCTURE						LUMP SUM						123.35	70.00	70.00
END BENT 1					20.0		2,365	5	5	75	5			
END BENT 2				50	61.6		5,758	7	7	94				
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	50	81.6	LUMP SUM	8,123	12	12	169	5	123.35	70.00	70.00

TOTAL BILL OF MATERIAL CONT'D

	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	
	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE			LUMP SUM	8	560.00
END BENT 1	270	490			
END BENT 2					
TOTAL	270	490	LUMP SUM	8	560.00

PROJECT NO. BP11-R012

ASHE COUNTY

STATION: 13+08.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON
SR 1193 (LEWIS RD.) OVER
BUFFALO CREEK BETWEEN
DEAD END & SR 1131 (BUFFALO RD.)

Signed by: Diego A Aguirre
ECF43B83072...
12/12/2025

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A. AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
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NC FIRM LICENSE: C-1506

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

11/25/2025
401_020_BP11R012_SMU_GD03_S-4_040474.dgn
dagulrre

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

LOAD TYPE		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 (γ 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 (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD		HL-93 (INVENTORY)	N/A	1	1.060	--	1.75	0.248	1.14	70'	EL	34.423	0.655	1.06	70'	EL	6.885	0.80	0.248	1.11	70'	EL	34.423	
		HL-93 (OPERATING)	N/A	--	1.374	--	1.35	0.248	1.48	70'	EL	34.423	0.655	1.37	70'	EL	6.885	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	2	1.320	47.508	1.75	0.248	1.48	70'	EL	34.423	0.655	1.32	70'	EL	6.885	0.80	0.248	1.44	70'	EL	34.423	
		HS-20 (OPERATING)	36.000	--	1.711	61.585	1.35	0.248	1.91	70'	EL	34.423	0.655	1.71	70'	EL	6.885	N/A	--	--	--	--	--	
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500	--	3.204	43.258	1.4	0.248	4.12	70'	EL	34.423	0.655	3.90	70'	EL	6.885	0.80	0.248	3.20	70'	EL	34.423	
		SNGARBS2	20.000	--	2.403	48.063	1.4	0.248	3.09	70'	EL	34.423	0.655	2.78	70'	EL	6.885	0.80	0.248	2.40	70'	EL	34.423	
		SNAGRIS2	22.000	--	2.282	50.210	1.4	0.248	2.94	70'	EL	34.423	0.655	2.58	70'	EL	6.885	0.80	0.248	2.28	70'	EL	34.423	
		SNCOTTS3	27.250	--	1.595	43.463	1.4	0.248	2.05	70'	EL	34.423	0.655	1.95	70'	EL	6.885	0.80	0.248	1.59	70'	EL	34.423	
		SNAGGRS4	34.925	--	1.339	46.755	1.4	0.248	1.72	70'	EL	34.423	0.655	1.62	70'	EL	6.885	0.80	0.248	1.34	70'	EL	34.423	
		SNS5A	35.550	--	1.309	46.526	1.4	0.248	1.68	70'	EL	34.423	0.655	1.65	70'	EL	6.885	0.80	0.248	1.31	70'	EL	34.423	
		SNS6A	39.950	--	1.203	48.069	1.4	0.248	1.55	70'	EL	34.423	0.655	1.50	70'	EL	6.885	0.80	0.248	1.20	70'	EL	34.423	
		SNS7B	42.000	--	1.146	48.129	1.4	0.248	1.47	70'	EL	34.423	0.655	1.48	70'	EL	6.885	0.80	0.248	1.15	70'	EL	34.423	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000	--	1.468	48.444	1.4	0.248	1.89	70'	EL	34.423	0.655	1.79	70'	EL	6.885	0.80	0.248	1.47	70'	EL	34.423	
		TNT4A	33.075	--	1.475	48.790	1.4	0.248	1.90	70'	EL	34.423	0.655	1.74	70'	EL	6.885	0.80	0.248	1.48	70'	EL	34.423	
		TNT6A	41.600	--	1.208	50.272	1.4	0.248	1.55	70'	EL	34.423	0.655	1.58	70'	EL	6.885	0.80	0.248	1.21	70'	EL	34.423	
		TNT7A	42.000	--	1.216	51.061	1.4	0.248	1.56	70'	EL	34.423	0.655	1.55	70'	EL	6.885	0.80	0.248	1.22	70'	EL	34.423	
		TNT7B	42.000	--	1.261	52.955	1.4	0.248	1.62	70'	EL	34.423	0.655	1.44	70'	EL	6.885	0.80	0.248	1.26	70'	EL	34.423	
		TNAGRIT4	43.000	--	1.197	51.476	1.4	0.248	1.54	70'	EL	34.423	0.655	1.40	70'	EL	6.885	0.80	0.248	1.20	70'	EL	34.423	
		TNAGT5A	45.000	--	1.128	50.745	1.4	0.248	1.45	70'	EL	34.423	0.655	1.39	70'	EL	6.885	0.80	0.248	1.13	70'	EL	34.423	
		TNAGT5B	45.000	3	1.113	50.088	1.4	0.248	1.43	70'	EL	34.423	0.655	1.33	70'	EL	6.885	0.80	0.248	1.11	70'	EL	34.423	
EMERGENCY VEHICLE (EV)		EV2	28.750	--	1.198	57.432	1.3	0.248	2.32	70'	EL	34.423	0.655	2.08	70'	EL	6.885	0.80	0.248	1.20	70'	EL	34.423	
		EV3	43.000	4	1.306	56.170	1.3	0.248	1.52	70'	EL	34.423	0.655	1.41	70'	EL	6.885	0.80	0.248	1.31	70'	EL	34.423	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γDC	γDW
	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.

(#) CONTROLLING LOAD RATING

1. DESIGN LOAD RATING (HL-93)
2. DESIGN LOAD RATING (HS-20)
3. LEGAL LOAD RATING * *
4. EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

LRFR SUMMARY

FOR SPAN "A"

PROJECT NO. BP11-R012

ASHE COUNTY

STATION: 13+08.00 -L-

Signed by: Diego A Aguirre
EC743B83073...
12/12/2025

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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NC FIRM LICENSE: C-1506

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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			20

DRAWN BY : CVC	6/10	REV. BY : BNB/AKP 06/23
CHECKED BY : DNS	6/10	
DRAWN BY : MIGUEL A. LEMOS	DATE : 10/2025	
CHECKED BY : LAURA E. SUTTON	DATE : 10/2025	
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE	DATE : 10/2025	

11/25/2025
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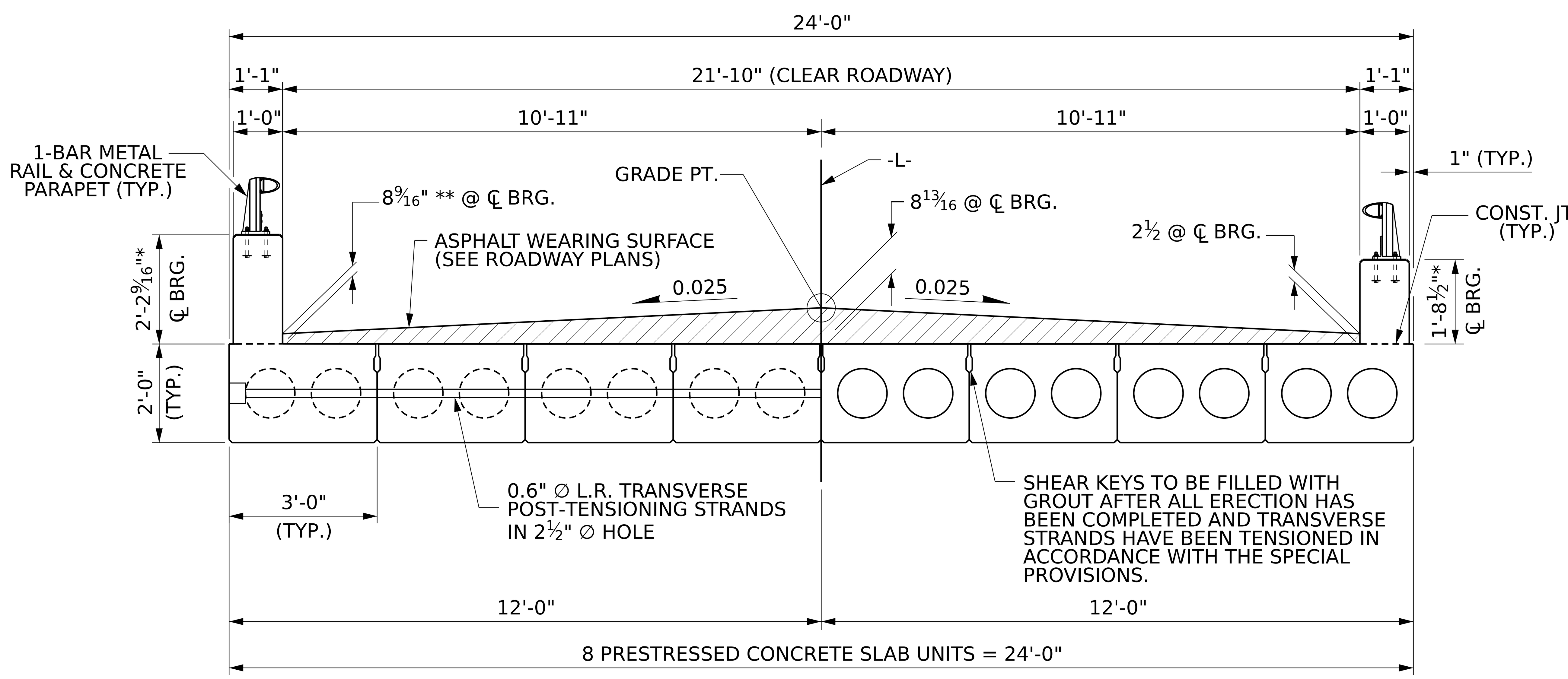
daguirre

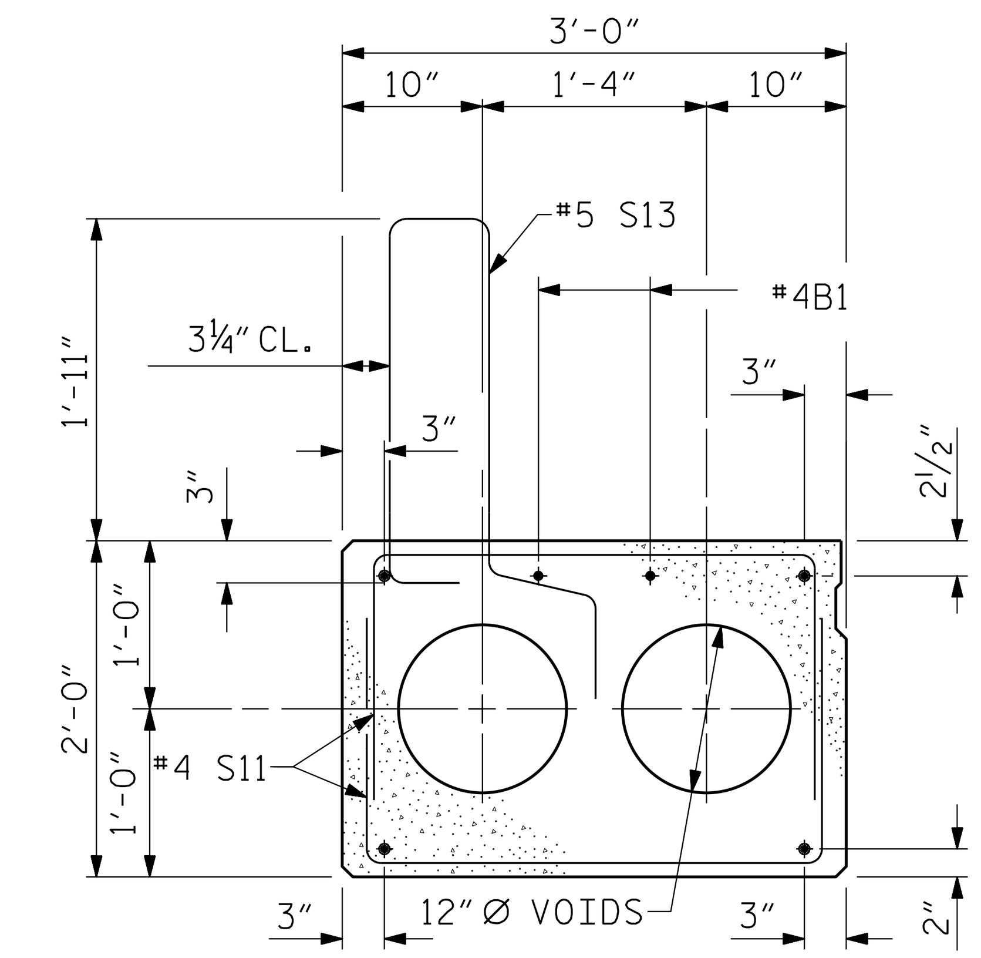
STD.NO.24LRFR1_60&120S_70L



TYPICAL SECTION

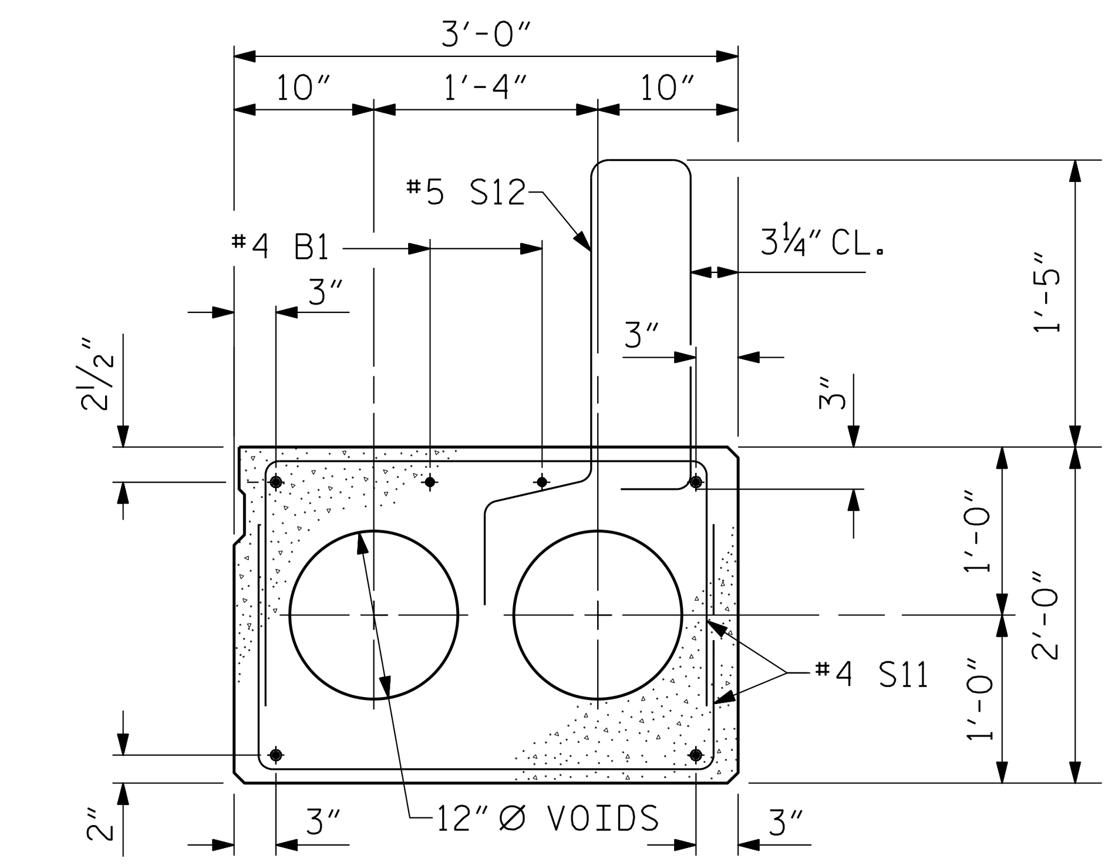
* THE MAXIMUM PARAPET HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE PARAPET AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTER LINE. FOR FOR PARAPET HEIGHT DETAILS AND ASPHALT THICKNESS, SEE "1 BAR METAL RAIL PARAPET DETAILS" ON SHEET 3 OF 3.

** ADITIONAL AWS REQUIRED TO ADJUST FOR SKEW AND PROVIDE LEVEL TOP OF CAPS AT END BENTS.



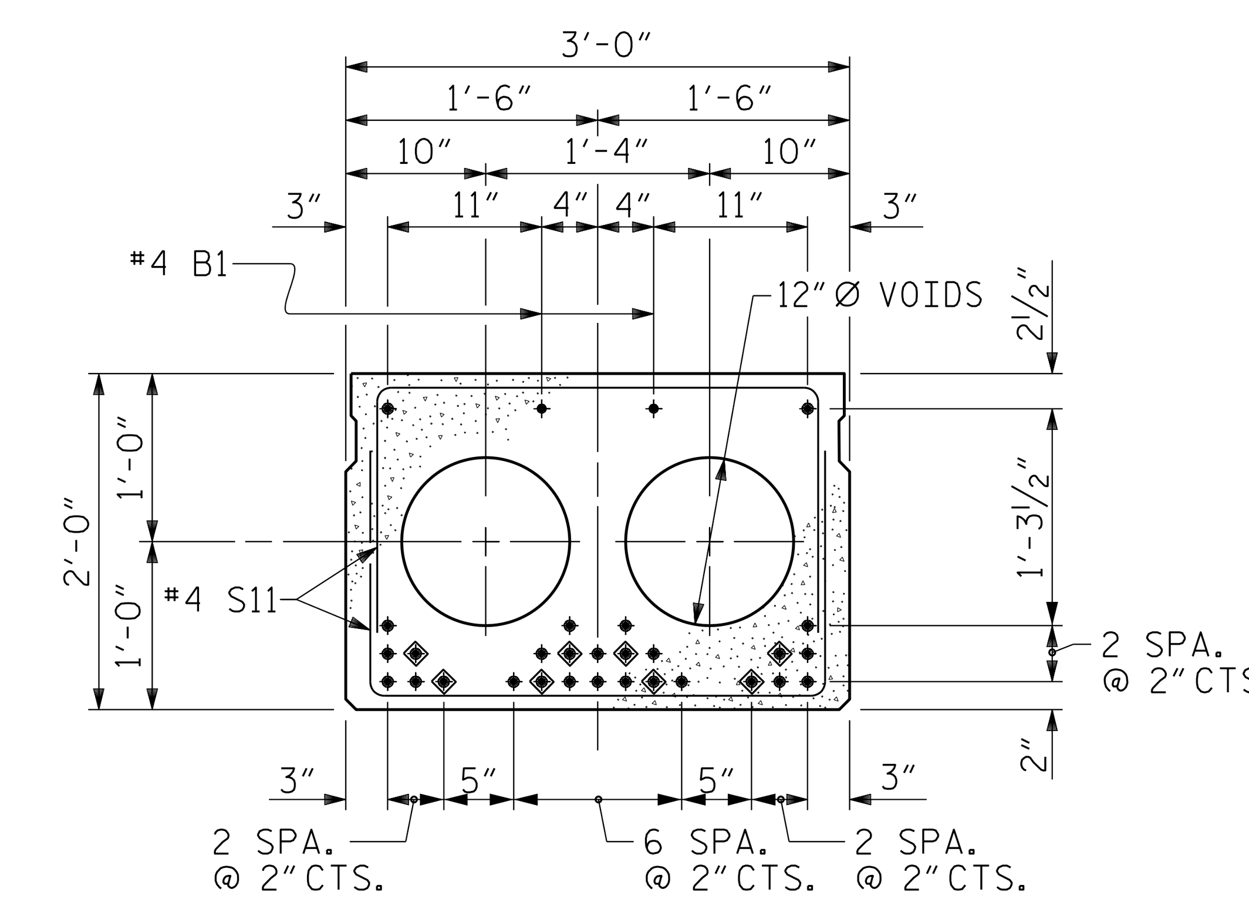
LEFT EXTERIOR SLAB SECTION

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



RIGHT EXTERIOR SLAB SECTION

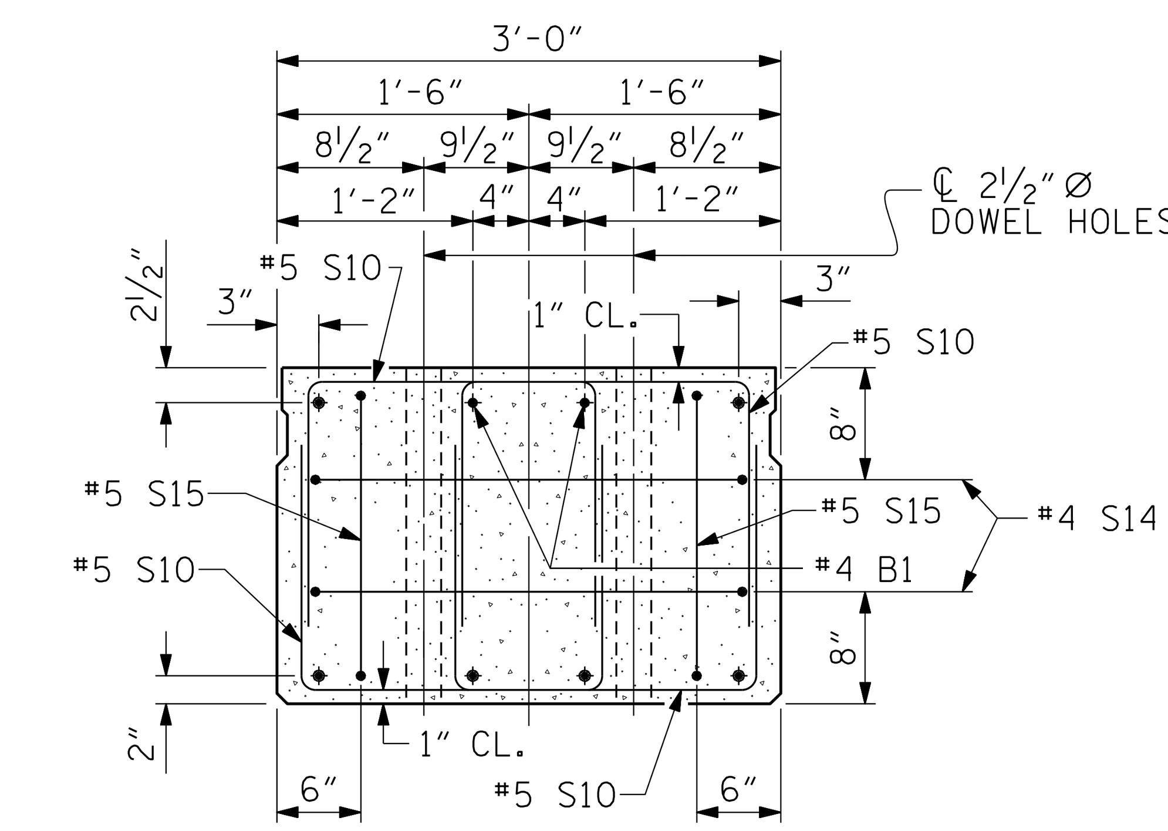
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION (70' UNIT)

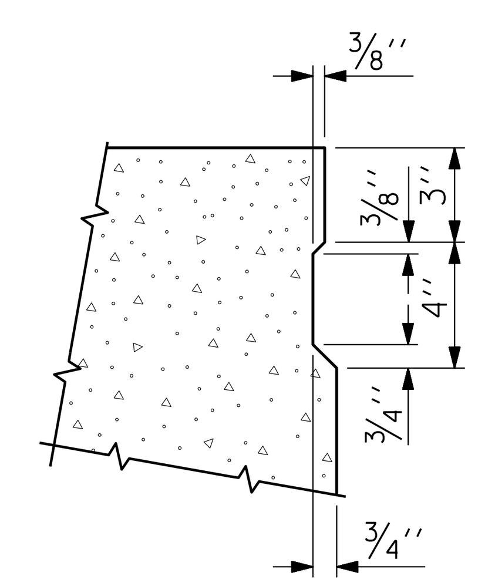
(28 STRANDS REQUIRED)

0.6" ∅ LOW RELAXATION STRAND LAYOUT



END ELEVATION

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



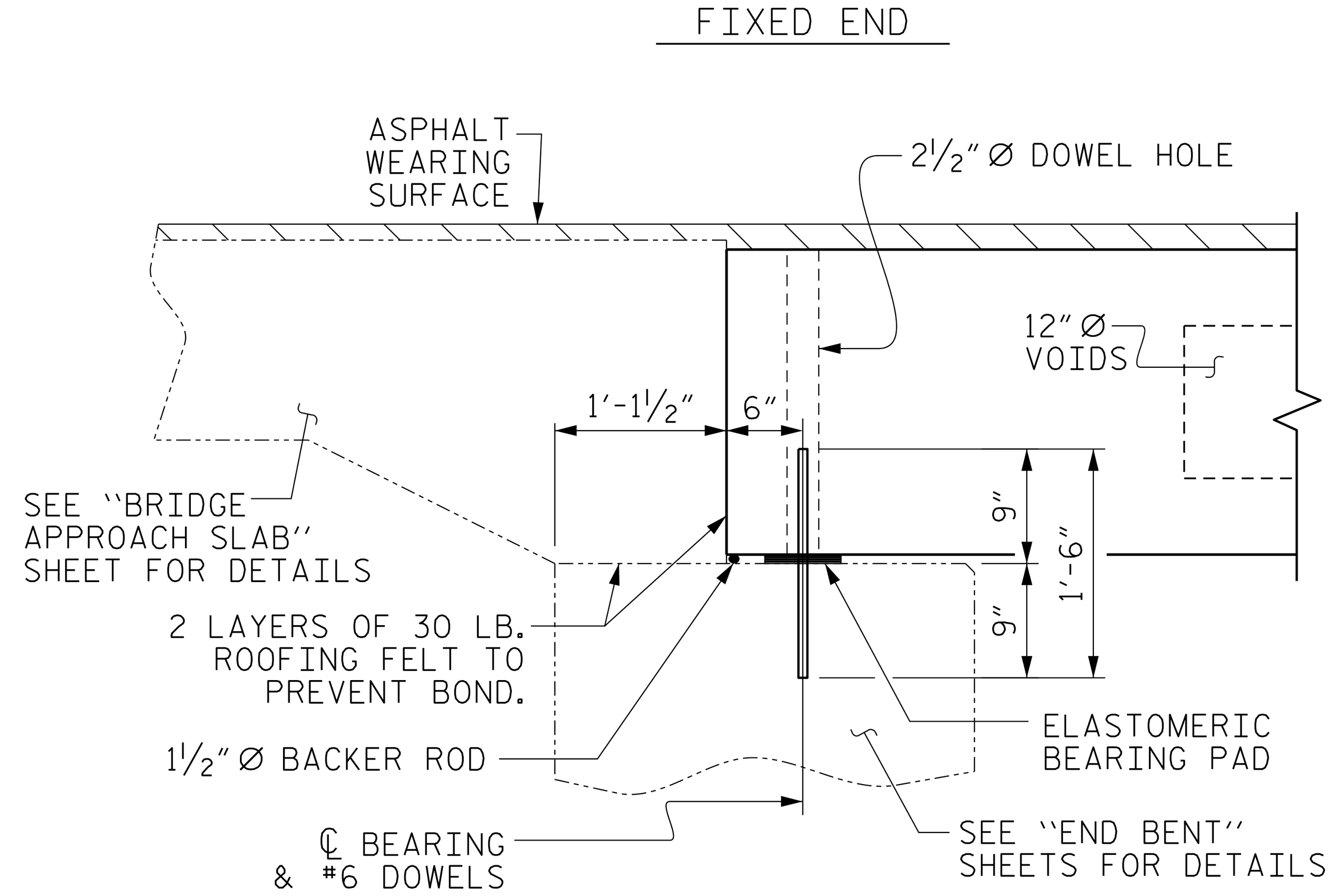
SHEAR KEY DETAIL

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

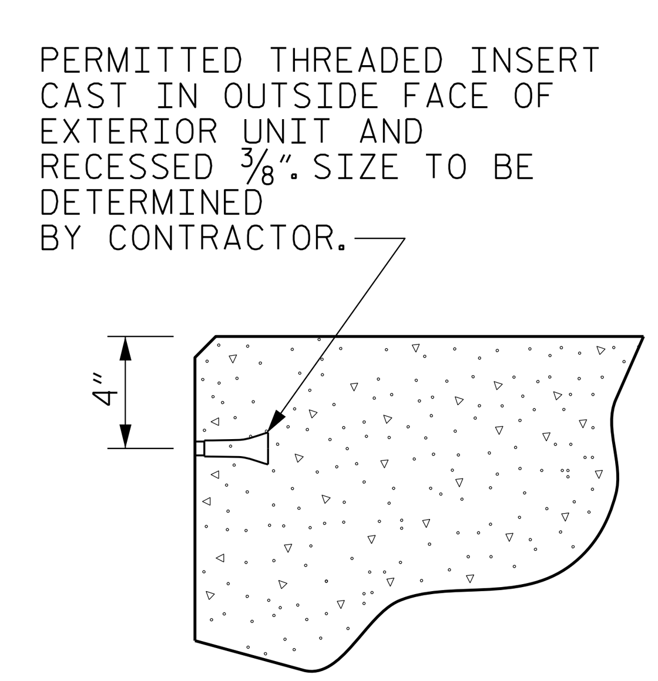
◈ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

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

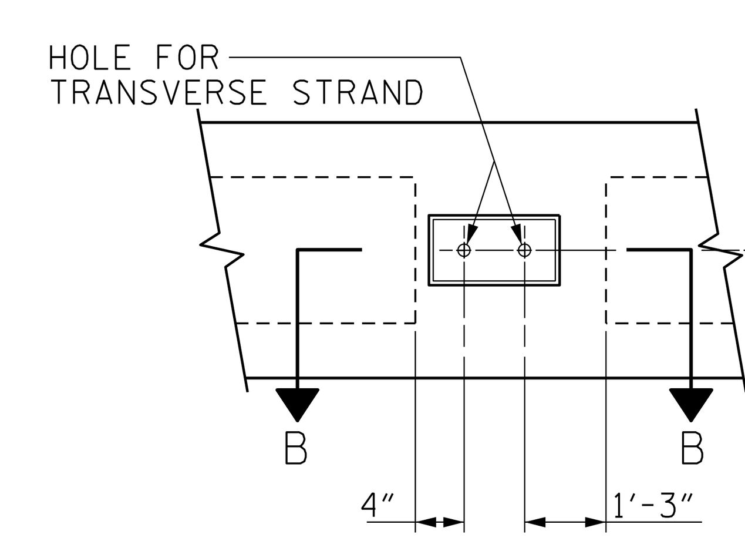
DEBONDING LEGEND



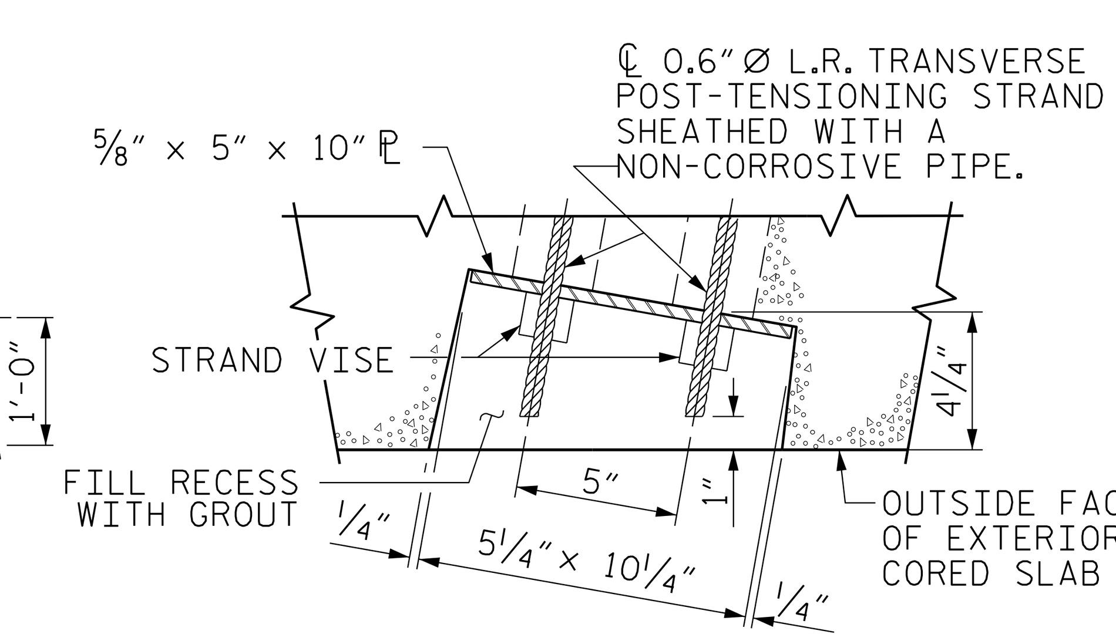
SECTION AT END BENT



THREADED INSERT DETAIL



ELEVATION VIEW



SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

PROJECT NO. BP11-R012

ASHE COUNTY

STATION: 13+08.00 -L-

SHEET 1 OF 3

Signed by: Diego A. Aguirre 12/12/2025
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048223 DIEGO A. AGUIRRE

KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
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NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

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

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-6
1			3				TOTAL SHEETS
2			4				20

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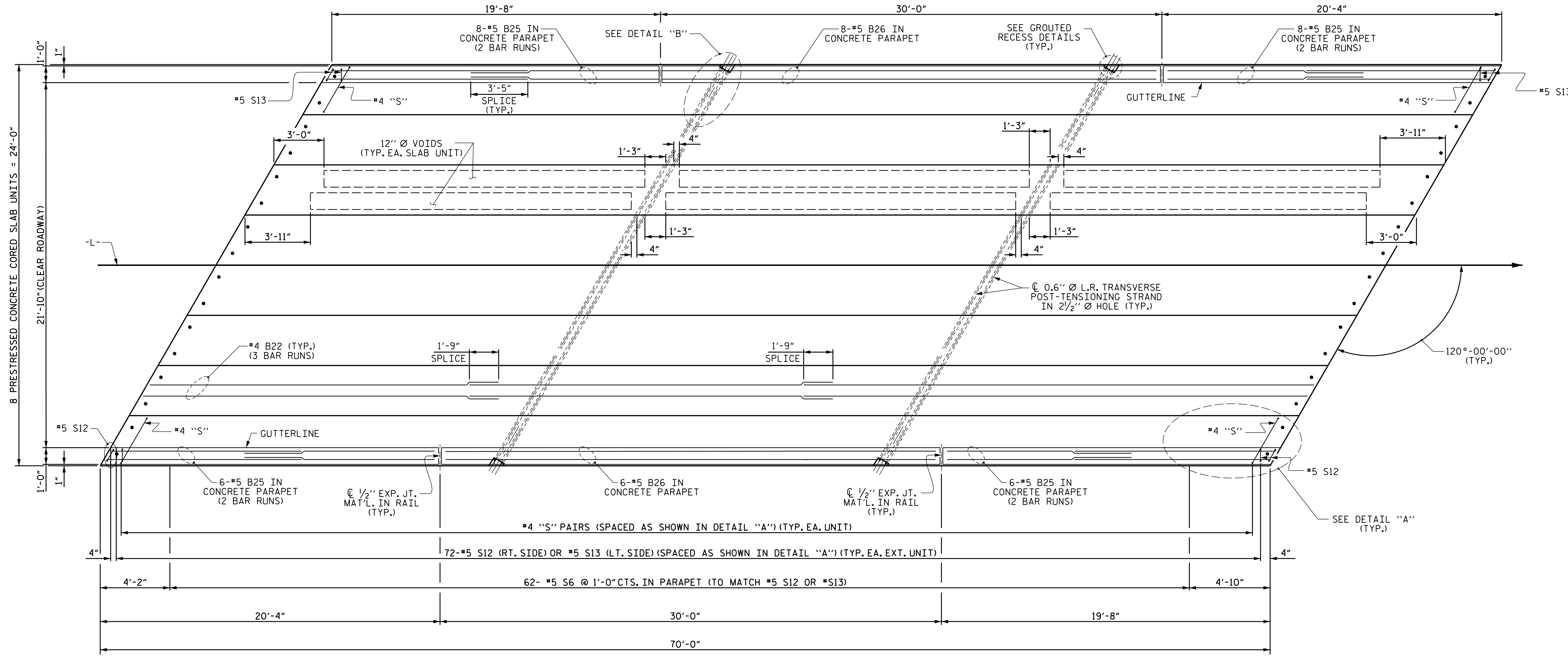
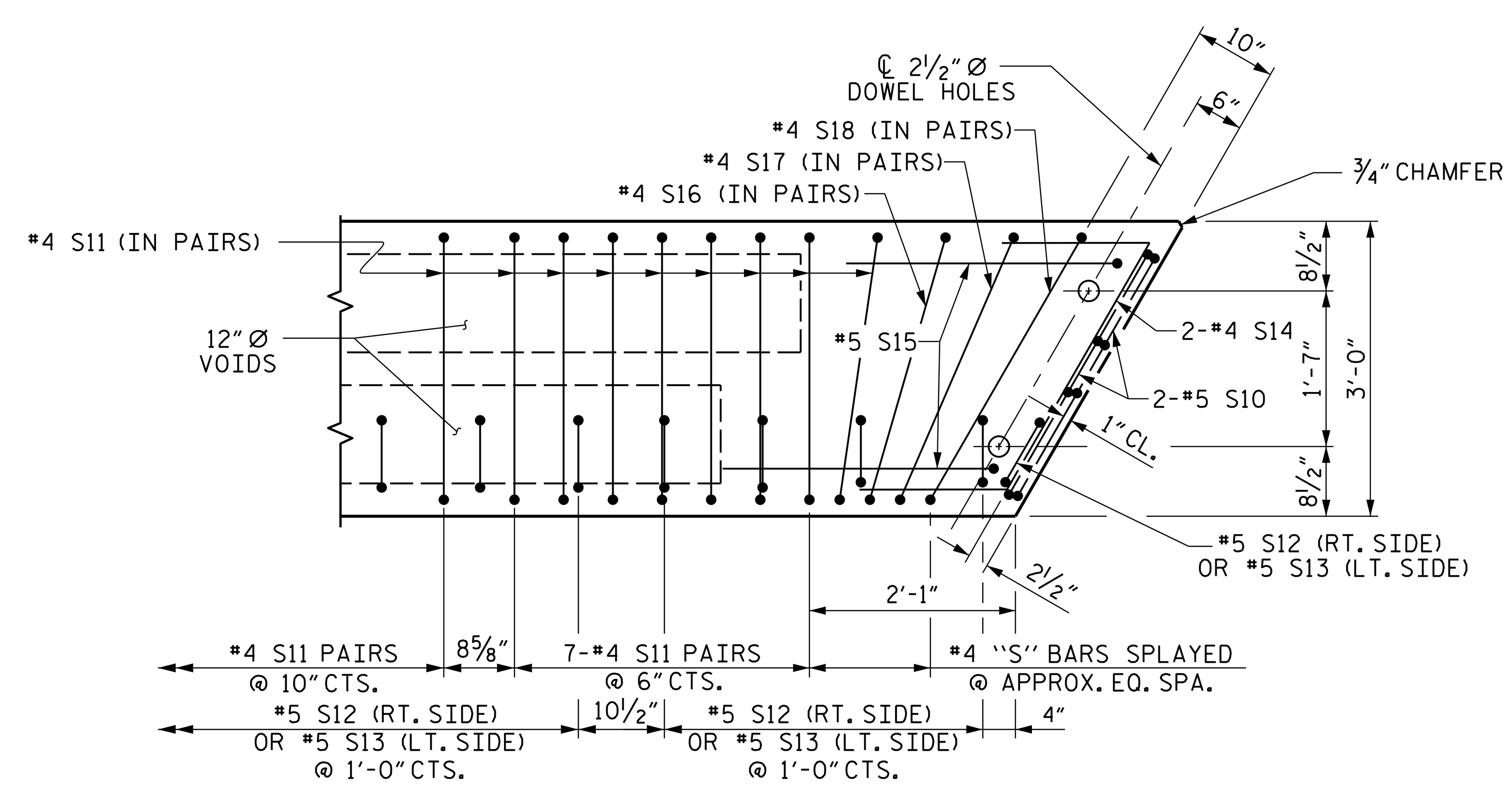
DRAWN BY : MAA	6/10	REV. 8/14	MAA/TMG
CHECKED BY : MKT	7/10		

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

STD. NO. PCS4

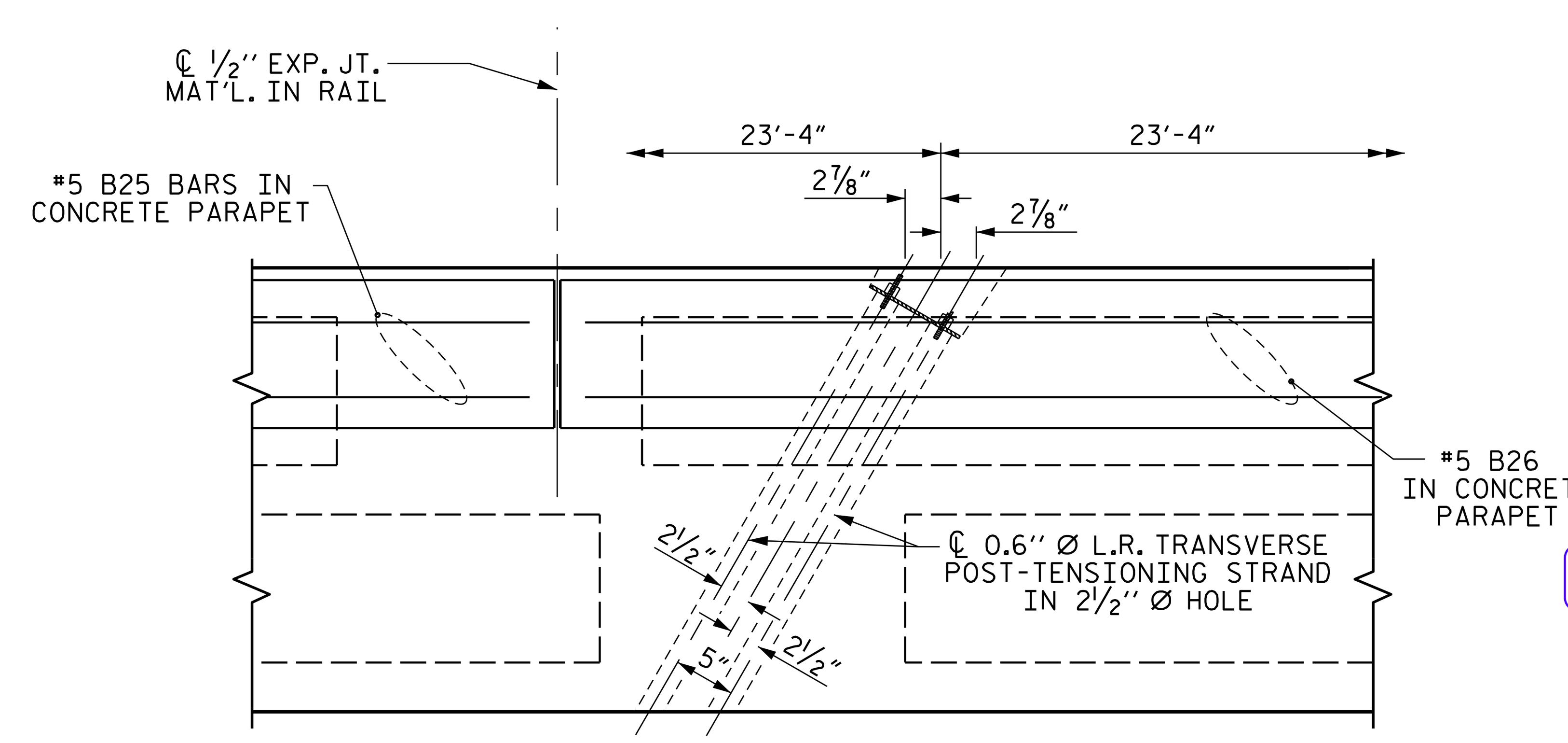


PLAN OF UNIT



DETAIL "A"

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 OR #5 S13 BARS.



DETAIL "B"

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

PROJECT NO. BP11-R012
ASHE COUNTY
STATION: 13+08.00 -L-
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF 70' UNIT 21'-10" CLEAR ROADWAY 120° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A. AGUIRRE
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1			3			TOTAL SHEETS
2			4			20

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

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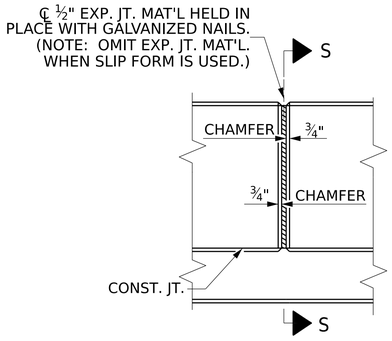
daguirre

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

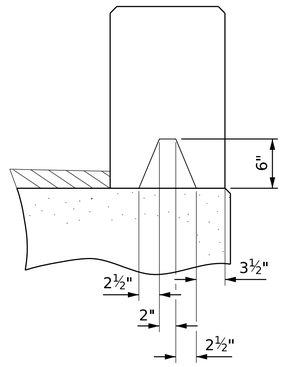
DEAD LOAD DEFLECTION AND CAMBER	3'-0" x 2'-0"
70' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2¼" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	¾" ↓
FINAL CAMBER	1½" ↑

** INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED	NUMBER	LENGTH	TOTAL LENGTH
70' UNIT			
EXTERIOR C.S.	2	70'-0"	140'-0"
INTERIOR C.S.	6	70'-0"	420'-0"
TOTAL	8		560'-0"



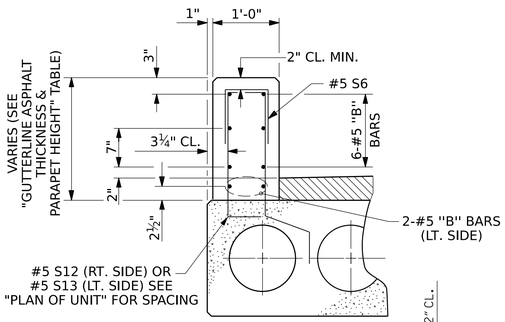
ELEVATION AT EXPANSION JOINTS



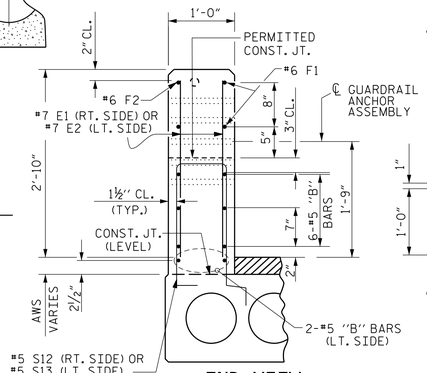
SECTION S-S

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

ELEVATION AT EXPANSION JOINTS



SECTION THRU PARAPET

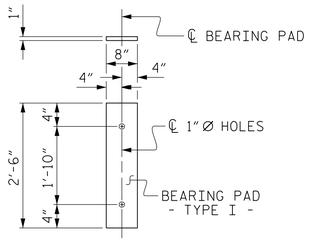


END VIEW

1 BAR METAL RAIL PARAPET DETAILS

BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT				RIGHT EXTERIOR UNIT		LEFT EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98	24'-6"	98
S10	8	#5	2	5'-0"	42	5'-0"	42	5'-0"	42
S11	170	#4	2	5'-10"	662	5'-10"	662	5'-10"	662
*S12	72	#5	1	5'-8"	426	-	-	-	-
*S13	72	#5	1	-	-	6'-8"	501	-	-
S14	4	#4	3	5'-11"	16	5'-11"	16	5'-11"	16
S15	4	#5	2	7'-1"	30	7'-1"	30	7'-1"	30
S16	4	#4	2	5'-11"	16	5'-11"	16	5'-11"	16
S17	4	#4	2	6'-1"	16	6'-1"	16	6'-1"	16
S18	4	#4	2	6'-3"	17	6'-3"	17	6'-3"	17
REINFORCING STEEL				LBS.	897		897		897
*EPOXY COATED REINFORCING STEEL				LBS.	426		501		-
7000 P.S.I CONCRETE				CU. YDS.	12.1		12.1		12.0
0.6" Ø L.R STRANDS				NO.			28		28

GUTTERLINE ASPHALT THICKNESS & PARAPET HEIGHT	ASPHALT OVERLAY THICKNESS @ MID-SPAN	PARAPET HEIGHT @ MID-SPAN
LEFT SIDE	7 1/16"	2'-1 1/16"
RIGHT SIDE	1"	1'-7"

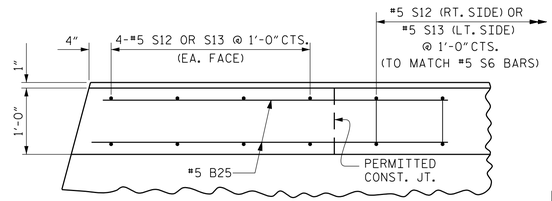


FIXED END

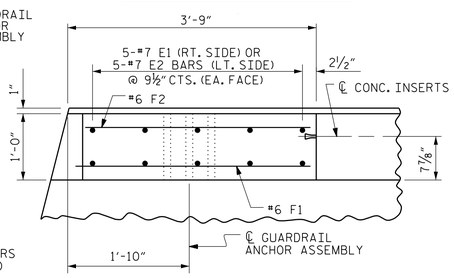
(TYPE I - 16 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

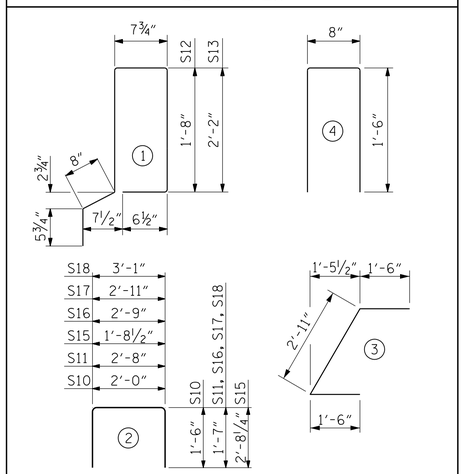


PLAN OF PARAPET



PLAN OF END POST

PARAPET AND END POST FOR ONE BAR RAIL



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR TWO PARAPETS AND FOUR END POSTS					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
* B25	56	#5	STR	11'-8"	682
* B26	14	#5	STR	29'-7"	432
* E1	20	#7	STR	2'-8"	109
* E2	20	#7	STR	3'-1"	126
* F1	8	#6	STR	3'-5"	41
* F2	8	#6	STR	3'-10"	46
* S6	124	#5	4	3'-8"	474
*EPOXY COATED REINFORCING STEEL				LBS.	1,910
CLASS "AA" CONCRETE				CU. YDS.	10.9
1'-0" X 1'-8½" CONCRETE PARAPET				L.F.	70.00
1'-0" X 2'-2 9/16" CONCRETE PARAPET				L.F.	70.00

NOTES

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

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

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

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5,500 PSI.

ALL REINFORCING STEEL IN CONCRETE PARAPETS AND END POSTS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE CONCRETE PARAPETS 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.

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

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

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

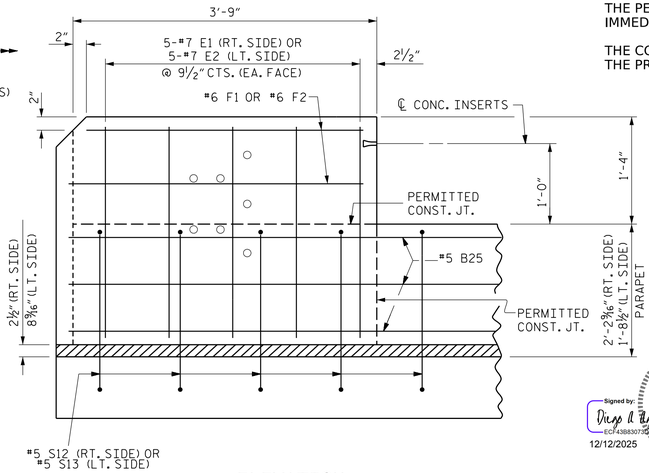
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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

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



ELEVATION

Signed by: Diego A Aguirre
ECF43B83072...
12/12/2025

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A. AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
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RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

PROJECT NO. BP11-R012
ASHE COUNTY
STATION: 13+08.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : WJH 4/89	REV. 1/15 RAA/TMG
CHECKED BY : FCJ 5/89	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

DRAWN BY :	MIGUEL A. LEMOS	DATE : 10/2025
CHECKED BY :	LAURA E. SUTTON	DATE : 10/2025
DESIGN ENGINEER OF RECORD:	DIEGO A. AGUIRRE	DATE : 10/2025

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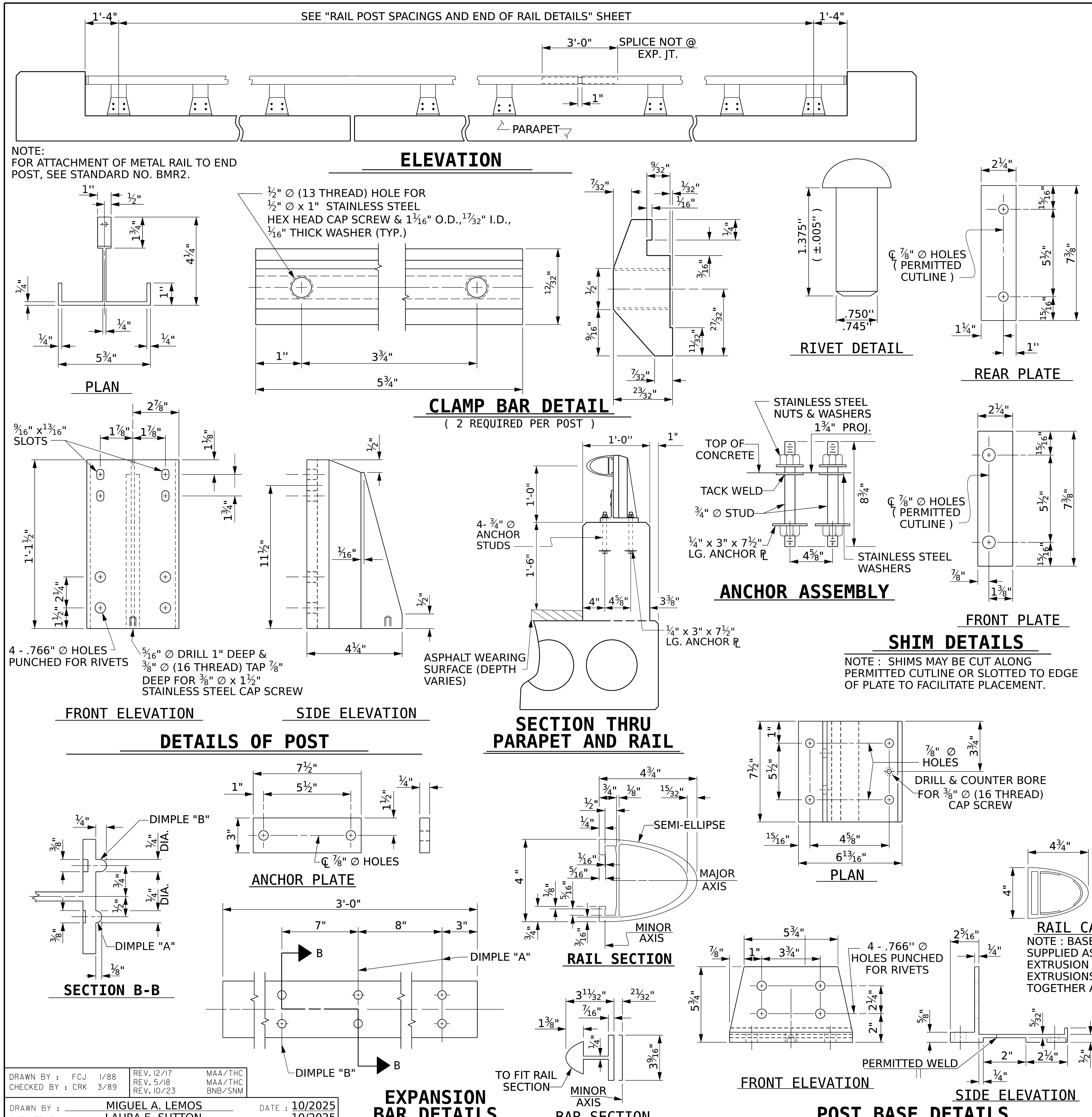
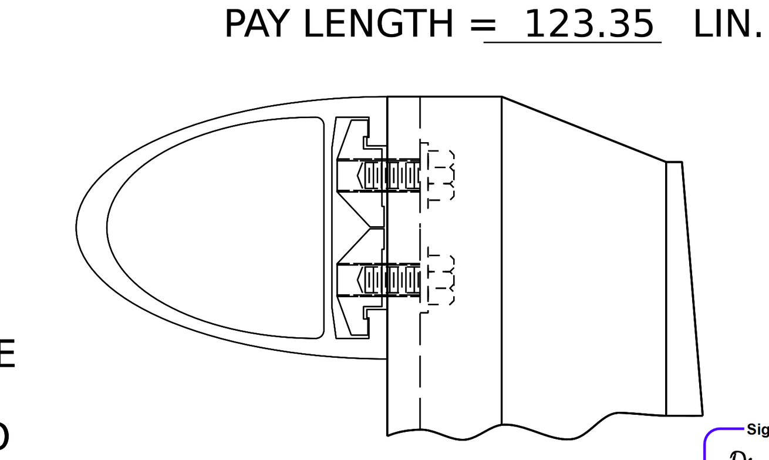
STD. NO. PCS3



PAY LENGTH = 123.35 LIN. FT.



CLAMP & RAIL ASSEMBLY

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.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B221 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

MATERIALS 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 STANDARD NO. BMR2.

MATERIAL FOR ANCHOR STUDS SHALL BE ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. STUDS TO BE EMBEDDED 7" IN CONCRETE. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK, CLASS 2B THREAD, AND MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ANCHOR ℄ SHALL BE ASTM A36 GRADE 36.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 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 KINKINGTO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO ENSURE 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.

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.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS, NUTS AND WASHERS SHALL MEET THE SAME REQUIREMENTS AS THE ANCHOR STUDS, NUTS AND WASHERS FOR USE WITH THE ANCHOR ASSEMBLY.

GROOVED CONTRACTION JOINTS, 1/2" 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.

PROJECT NO. BP11-R012
ASHE COUNTY
STATION: 13+08.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

1 BAR METAL RAIL

Signed by: Diego A. Aguirre
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048223 DIEGO A. AGUIRRE
12/12/2025

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NC FIRM LICENSE: C-1506

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DRAWN BY : FCJ 1/88	REV. 12/17 MAA/THC
CHECKED BY : CRK 3/89	REV. 5/18 MAA/THC
	REV. 10/23 BNB/SNM

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-9
1			3				TOTAL SHEETS
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11/25/2025
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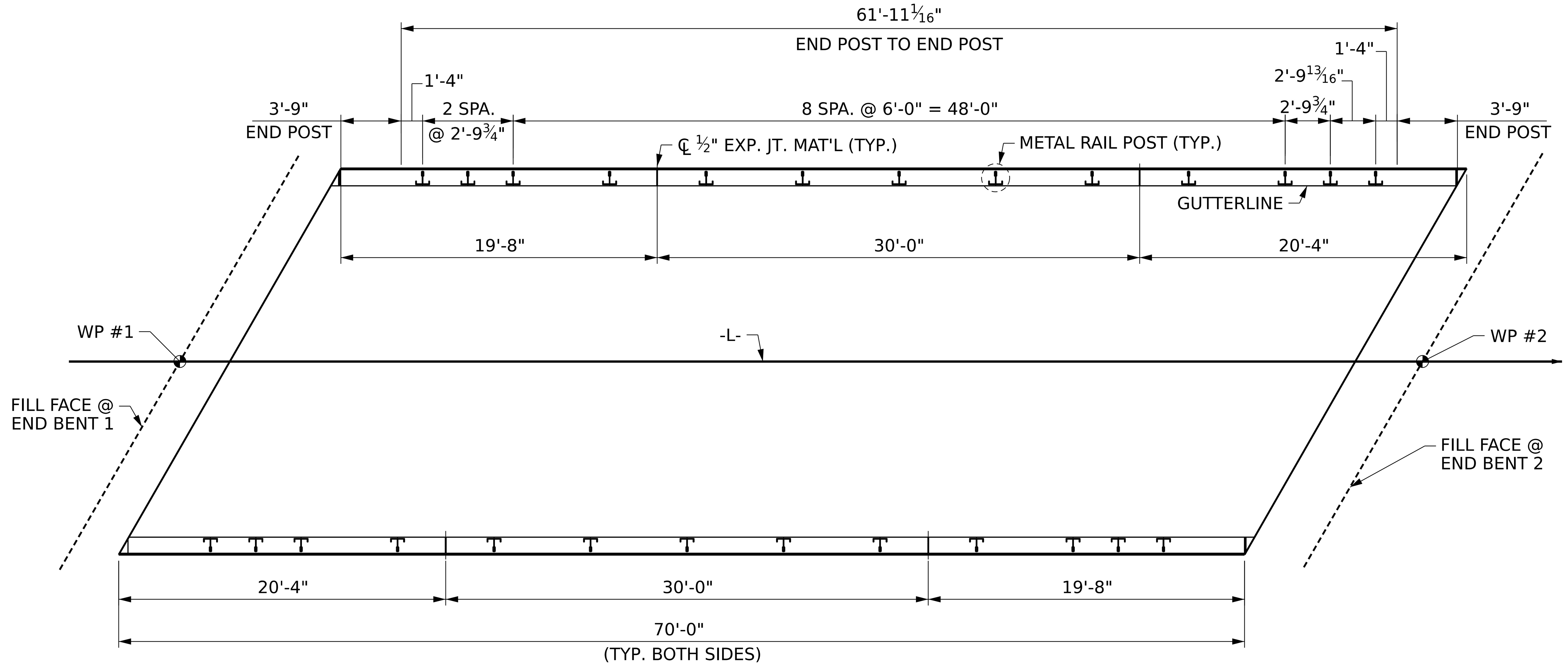
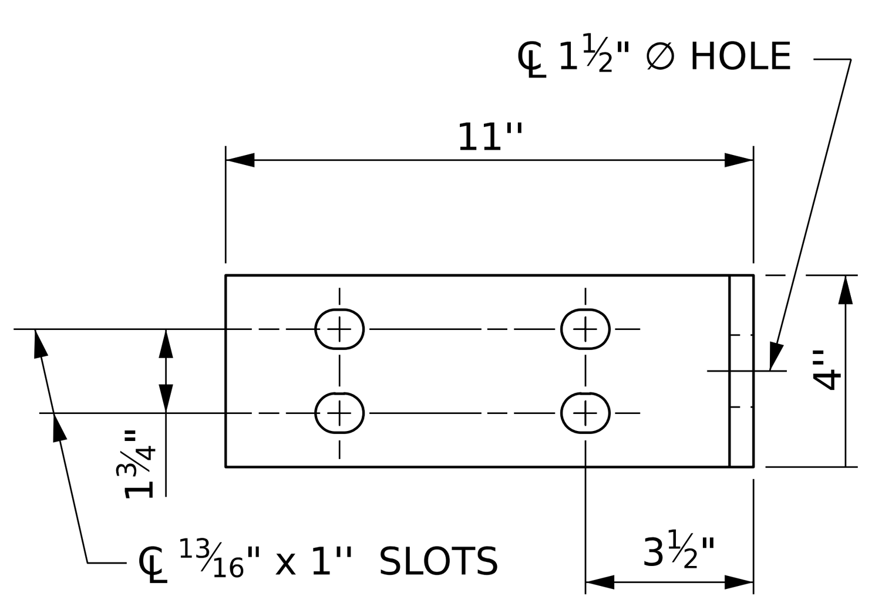
daguirre

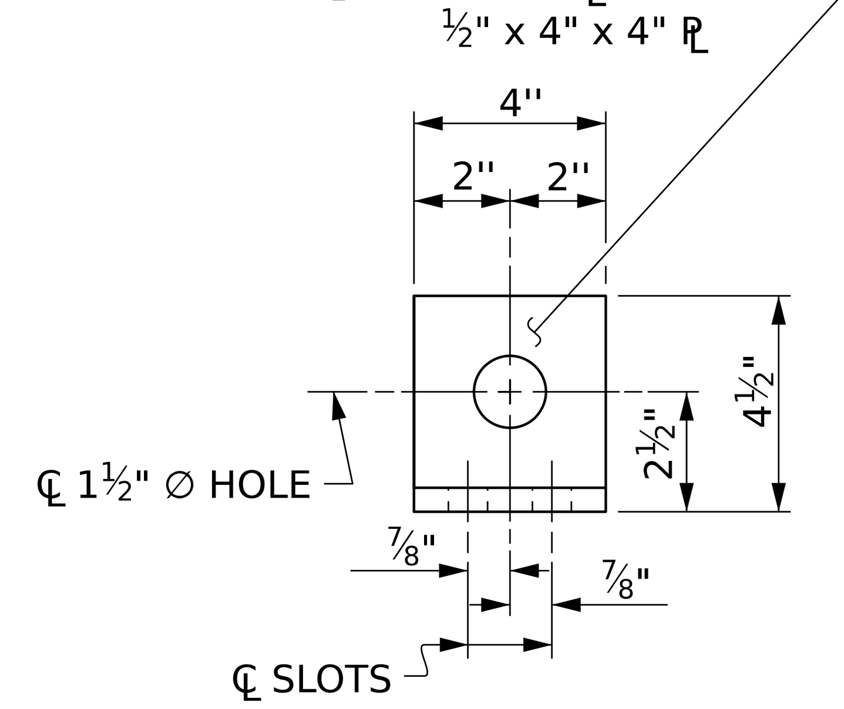
STD. NO. BMR1



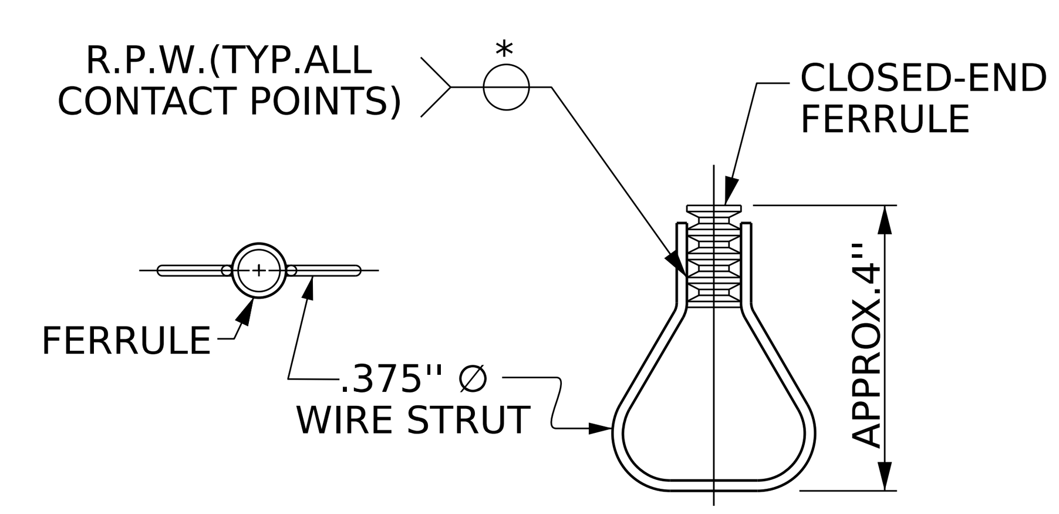
PLAN OF RAIL POST SPACINGS



ELEVATION

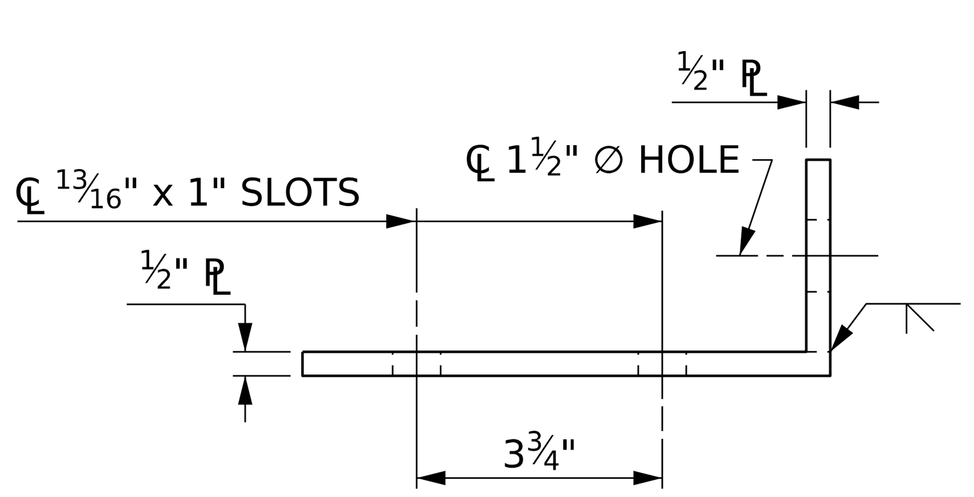


END VIEW (FIX AND EXP.)

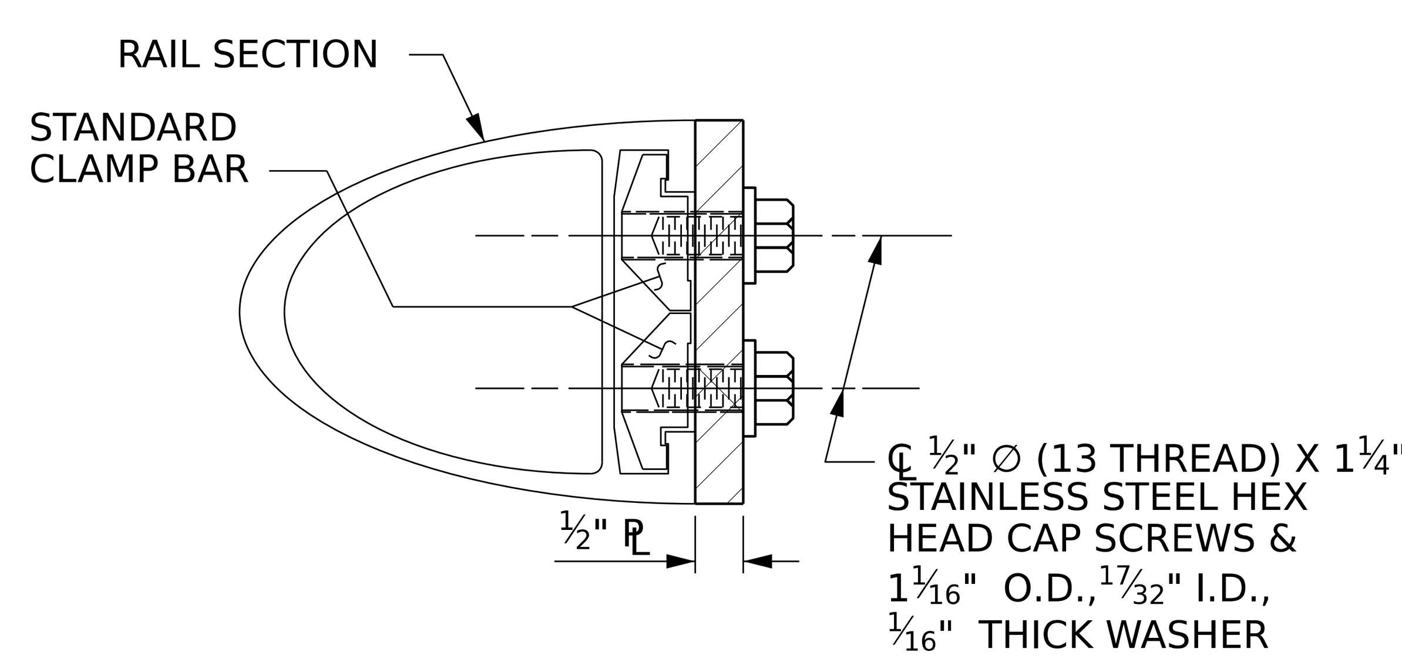


STRUCTURAL CONCRETE INSERT

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

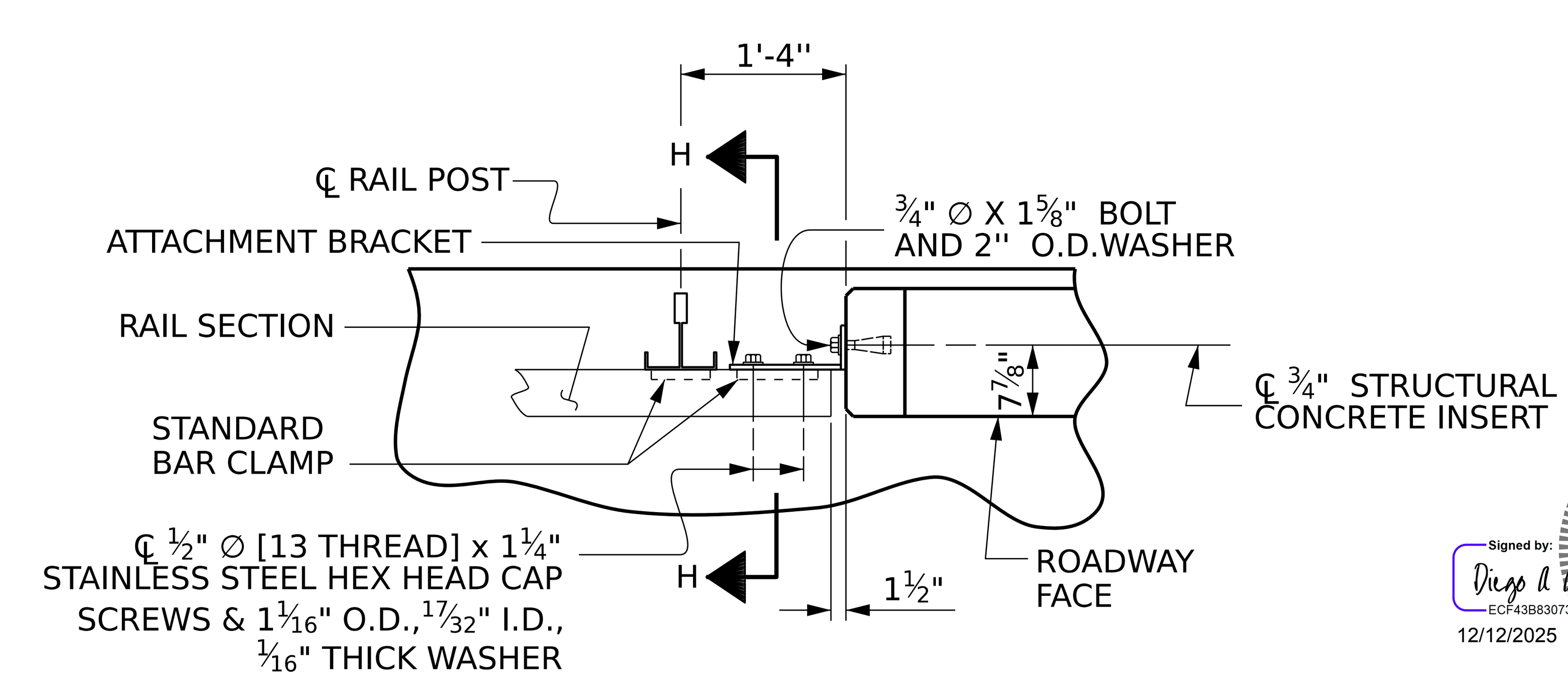


TOP VIEW



SECTION H-H (FIX)

FIXED



PLAN - RAIL AND END POST

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 1 1/2".

B. 1 - 3/4" ∅ x 1 5/8" 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 3/4" ∅ x 1 5/8" 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.

NOTES

METAL RAIL TO END POST CONNECTION

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

A. 1/2" PLATES SHALL CONFORM TO ASTM A36 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.

B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" ∅ x 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" ∅ x 1 5/8" 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 METAL RAIL SHEET).

E. 1/2" ∅ 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 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" 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 3/4" ∅ x 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" ∅ x 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" ∅ x 1 5/8" BOLT SHALL APPLY TO THE 3/4" ∅ x 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

PROJECT NO. BP11-R012
ASHE COUNTY
STATION: 13+08.00 -L-
SHEET 2 OF 2

Signed by: Diego A. Aguirre 12/12/2025
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048223 DIEGO A. AGUIRRE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RAIL POST SPACINGS AND END OF RAIL DETAILS

FOR ONE BAR METAL RAILS

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-10
1			3					TOTAL SHEETS
2			4					20

DRAWN BY : FCJ 1/88	REV. 10/1/11	MAA/GM
CHECKED BY : CRK 3/89	REV. 12/17	MAA/THC
	REV. 10/23	BNB/SNM

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

DETAILS FOR ATTACHING METAL RAIL TO END POST

11/25/2025
401_050_BP11R012_SMU_BMR02_S-10_040474.dgn
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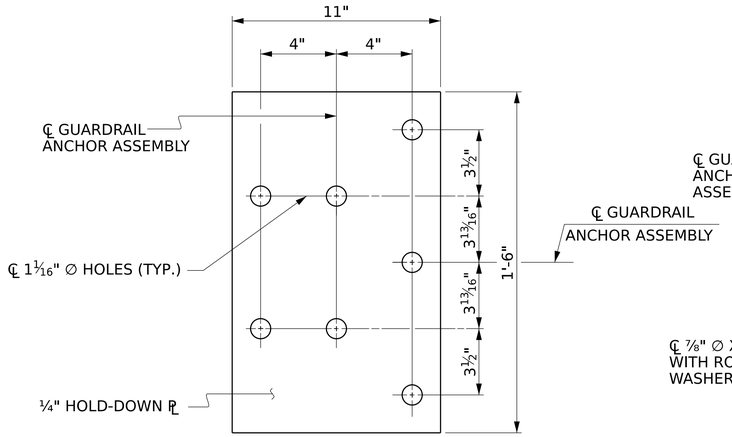
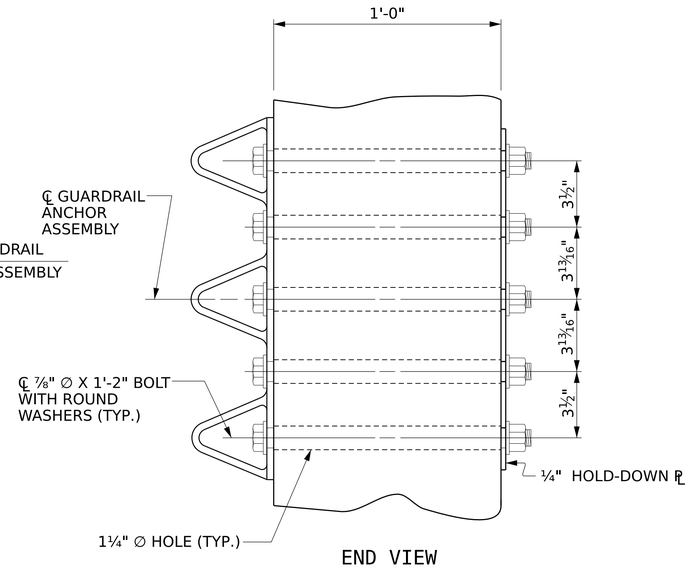
STD. NO. BMR2



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.

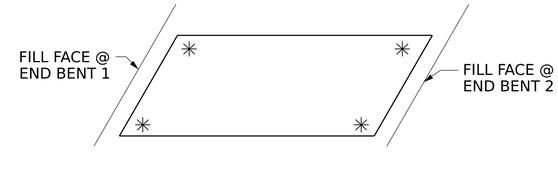
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

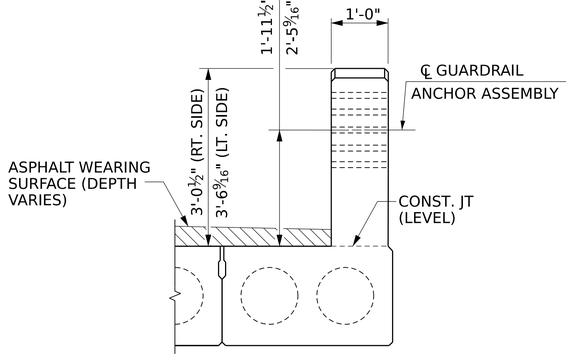
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1 ¼'' ∅ 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.

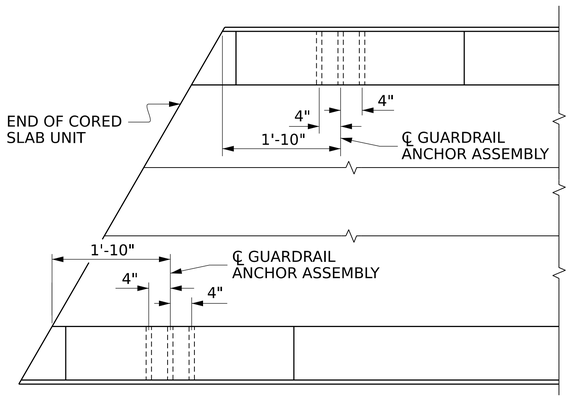


SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



END VIEW
(ONE BAR METAL RAIL)



PLAN

LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. BP11-R012

ASHE COUNTY

STATION: 13+08.00 -L-

Signed by: Diego A Aguirre
EC743B83072...
12/12/2025

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : MAA 5/10	REV. 1/15	MAA/TMG
CHECKED BY : GM 5/10	REV. 12/17	MAA/THC
	REV. 5/18	MAA/THC

DRAWN BY :	MIGUEL A. LEMOS	DATE : 10/2025
CHECKED BY :	LAURA E. SUTTON	DATE : 10/2025
DESIGN ENGINEER OF RECORD:	DIEGO A. AGUIRRE	DATE : 10/2025

11/25/2025
401_055_BP11R012_SMU_GR_S-11_040474.dgn
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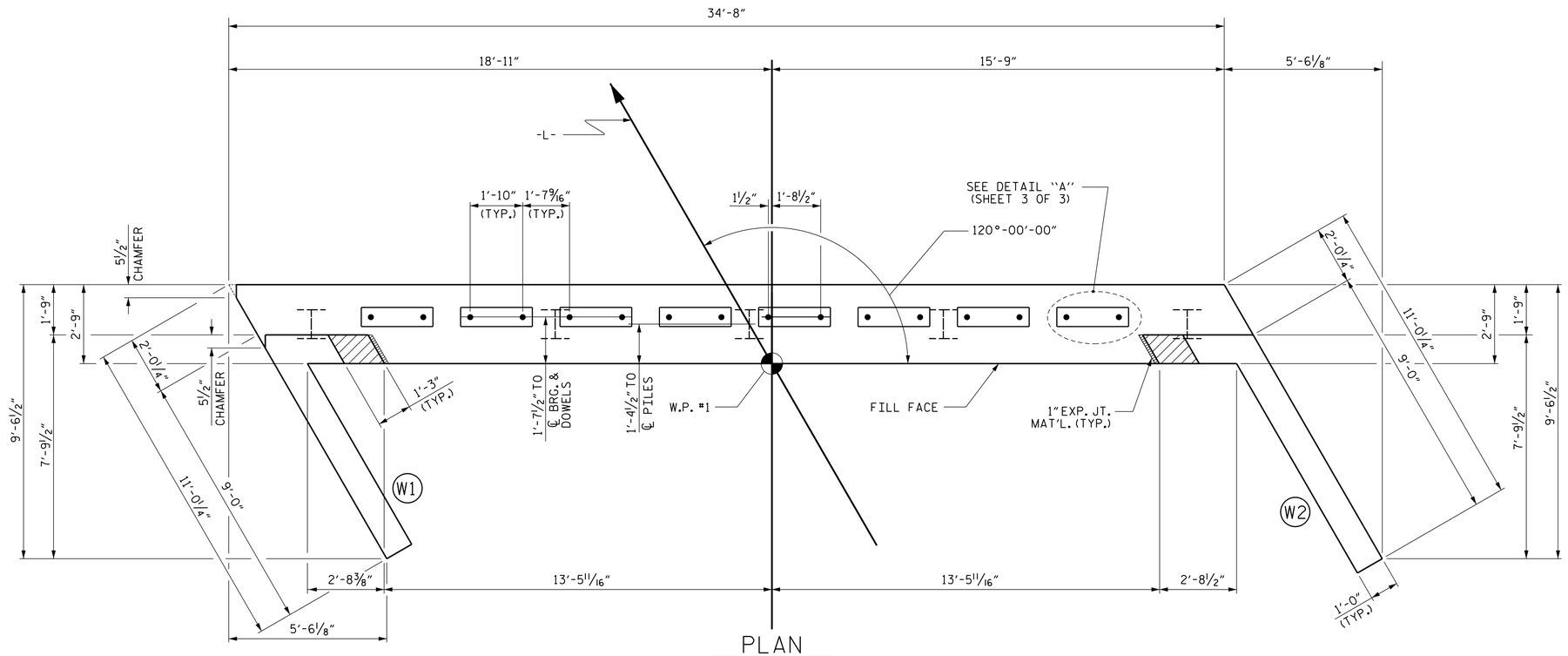
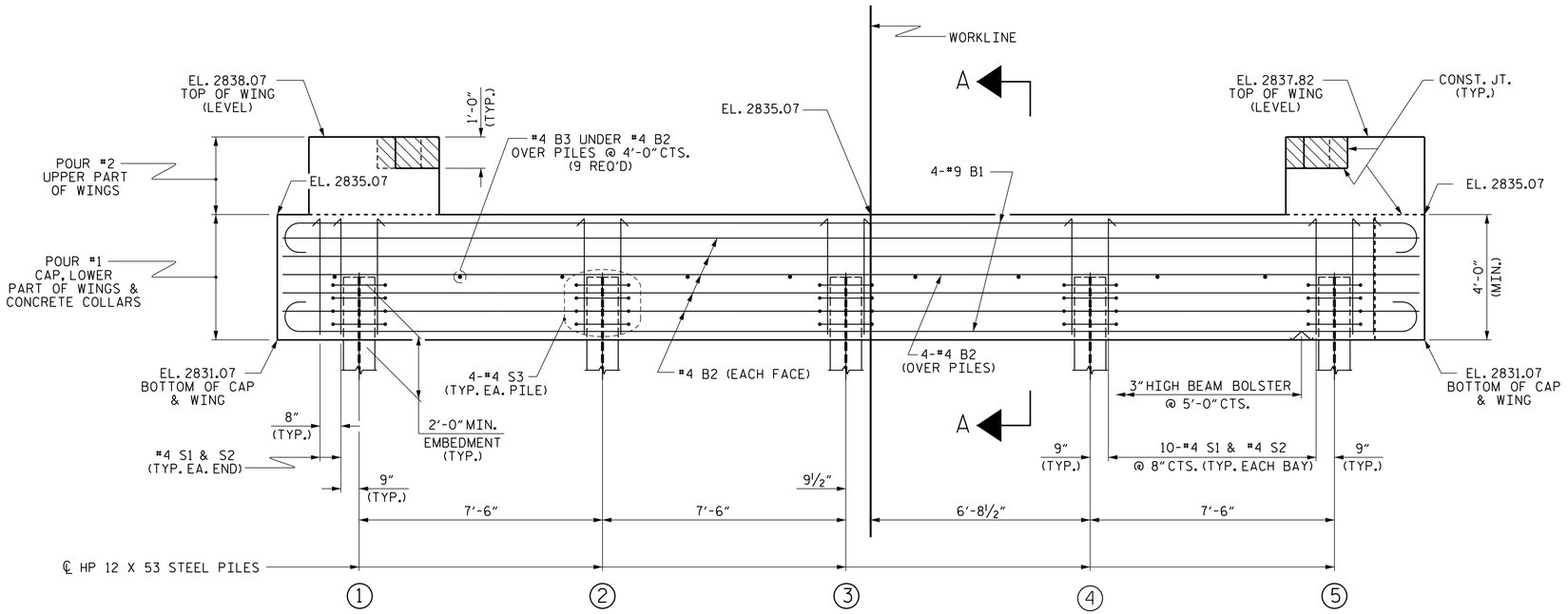
STD. GRA3 Sht.2a



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 3 OF 3.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

NOTES

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

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE CONCRETE PARAPET AND END POSTS ARE CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.

PROJECT NO. BP11-R012
ASHE COUNTY
STATION: 13+08.00 -L-
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE
Signed by: Diego A Aguirre ECF43B83073...
12/12/2025

KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : DIEGO A. AGUIRRE DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

11/25/2025
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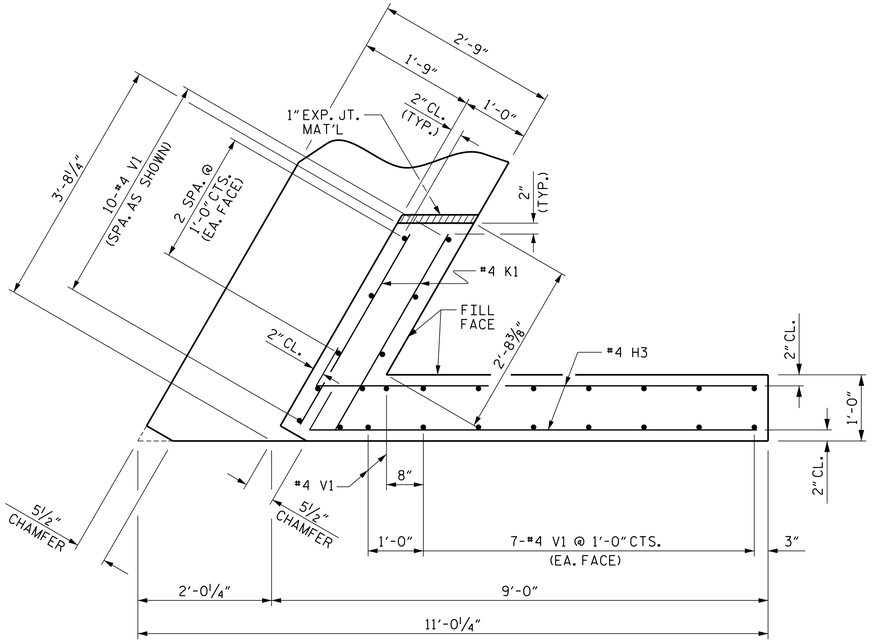
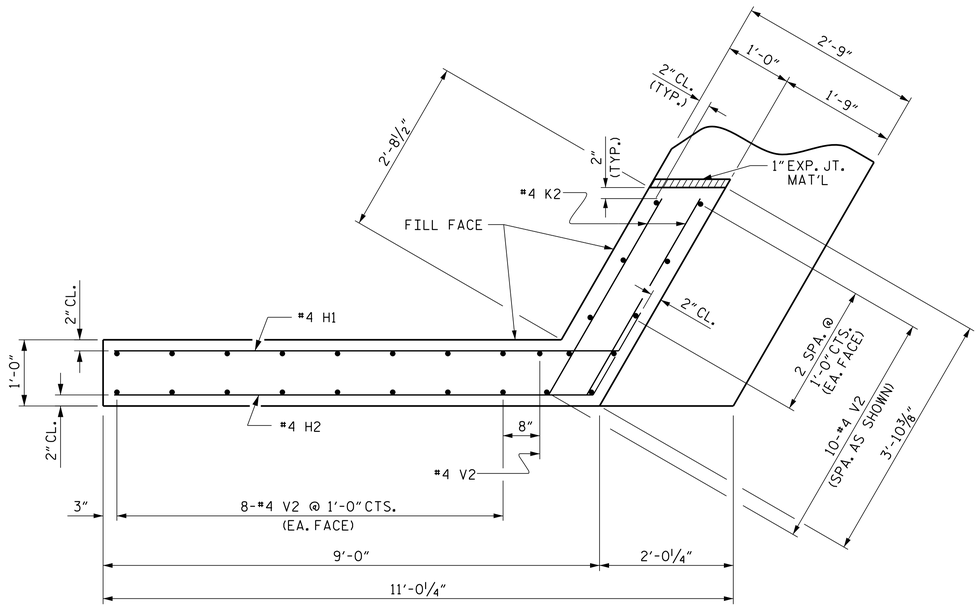
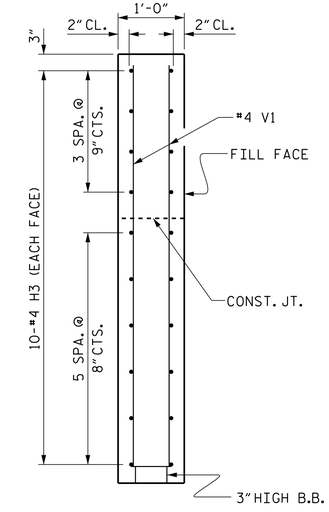
daguirre



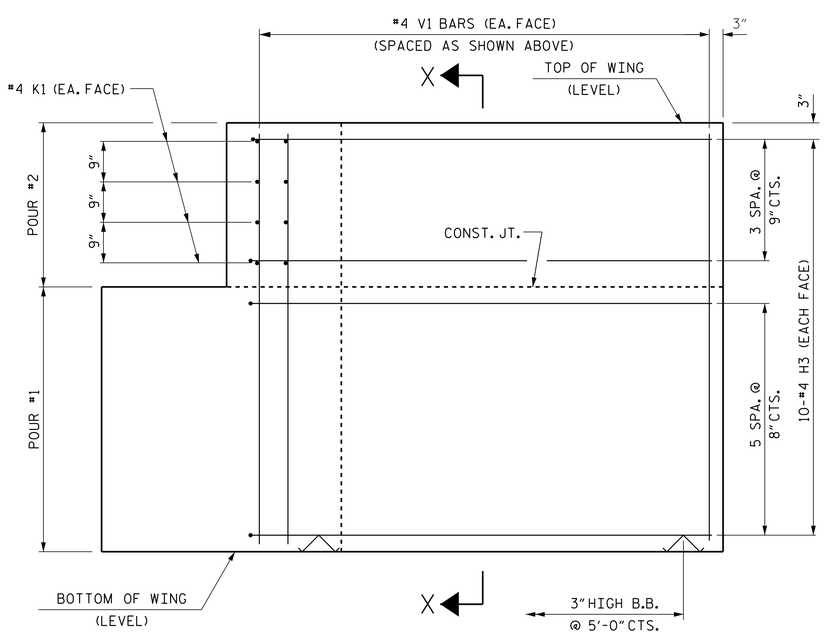
PLAN OF WING (W1)



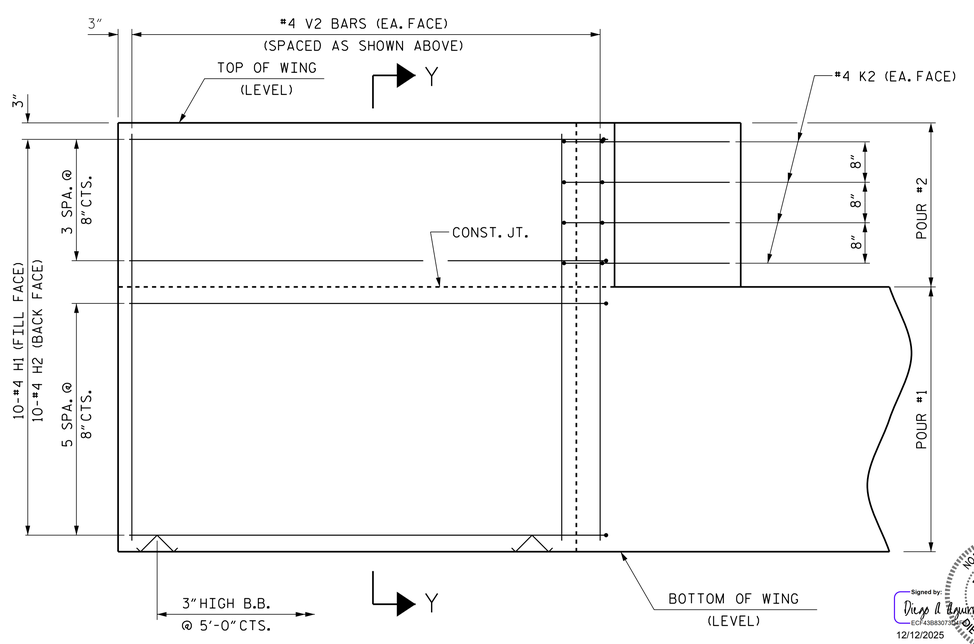
PLAN OF WING (W2)



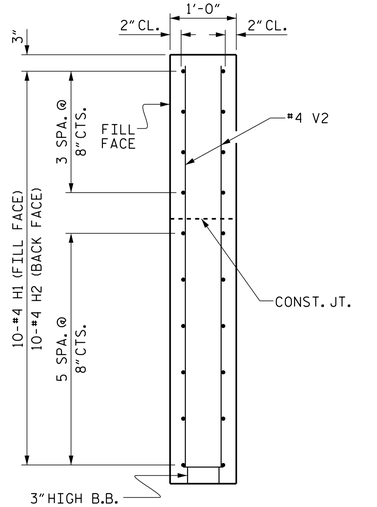
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

WING DETAILS

PROJECT NO. BP11-R012

ASHE COUNTY

STATION: 13+08.00 -L-

SHEET 2 OF 3

Signed by: Diego A Aguirre
ECF43B83072...
12/12/2025

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

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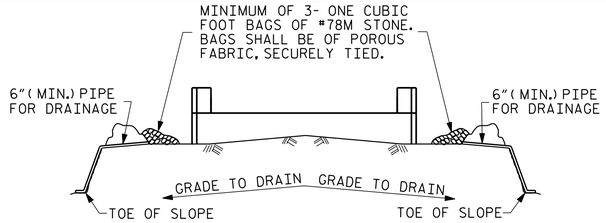
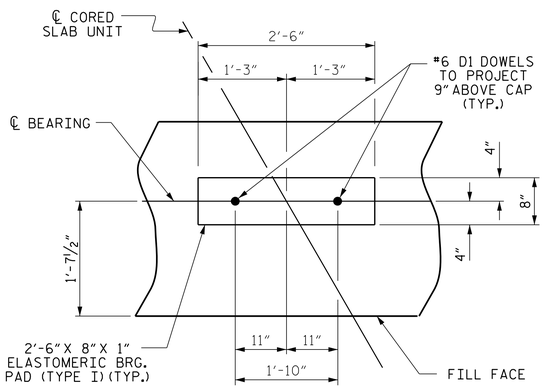


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

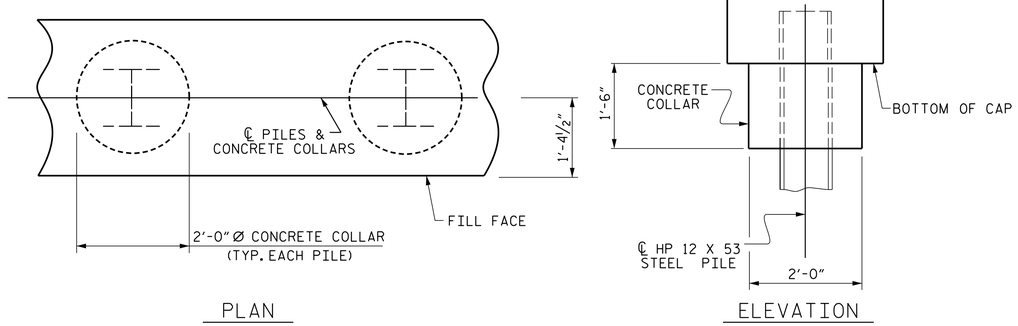
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT

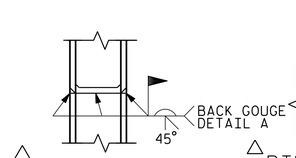


DETAIL "A"

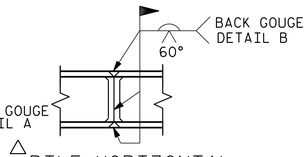


PLAN ELEVATION

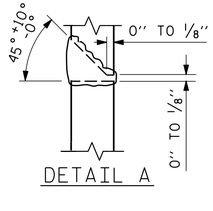
CORROSION PROTECTION FOR STEEL PILES DETAIL



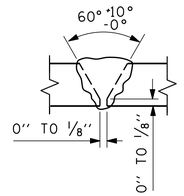
△ PILE VERTICAL



△ PILE HORIZONTAL OR VERTICAL



DETAIL A

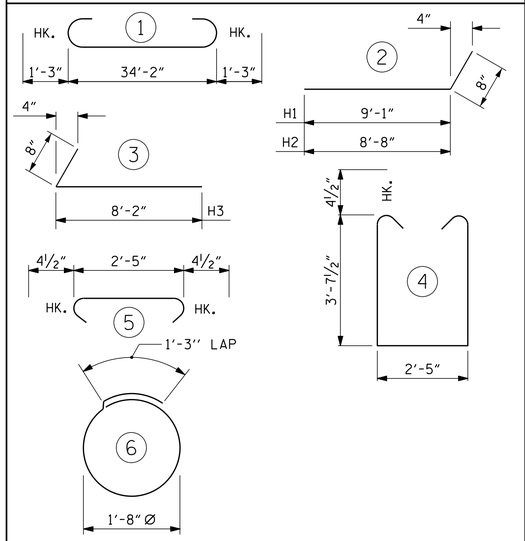


DETAIL B

△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	36'-8"	997
B2	14	#4	STR	34'-2"	321
B3	9	#4	STR	2'-5"	15
D1	16	#6	STR	1'-6"	36
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
H3	20	#4	3	8'-10"	118
K1	8	#4	STR	3'-0"	16
K2	8	#4	STR	3'-6"	19
S1	44	#4	4	10'-5"	306
S2	44	#4	5	3'-2"	93
S3	20	#4	6	6'-6"	87
V1	26	#4	STR	6'-8"	116
V2	27	#4	STR	6'-4"	114

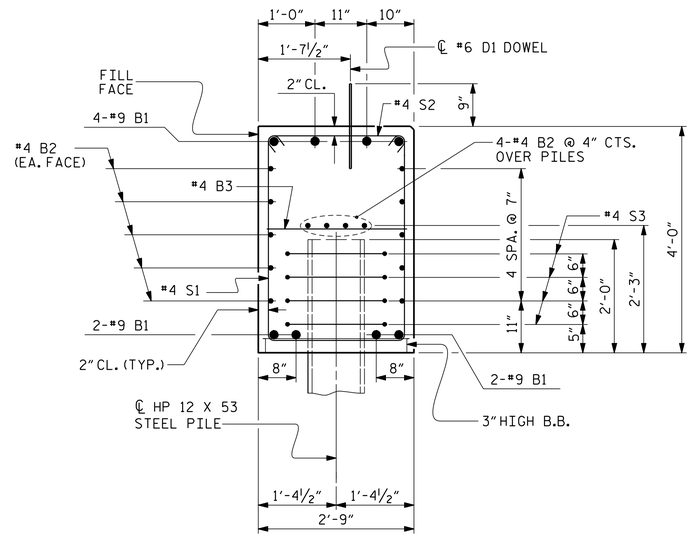
REINFORCING STEEL 2,365 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 17.4 C.Y.

POUR #2 UPPER PART OF WINGS 2.6 C.Y.

TOTAL CLASS A CONCRETE 20.0 C.Y.



SECTION A-A

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

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

Signed by: Diego A Aguirre ECF43B83073...

12/12/2025

KCA KISINGER CAMPO & ASSOCIATES

301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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PROJECT NO. BP11-R012

ASHE COUNTY

STATION: 13+08.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

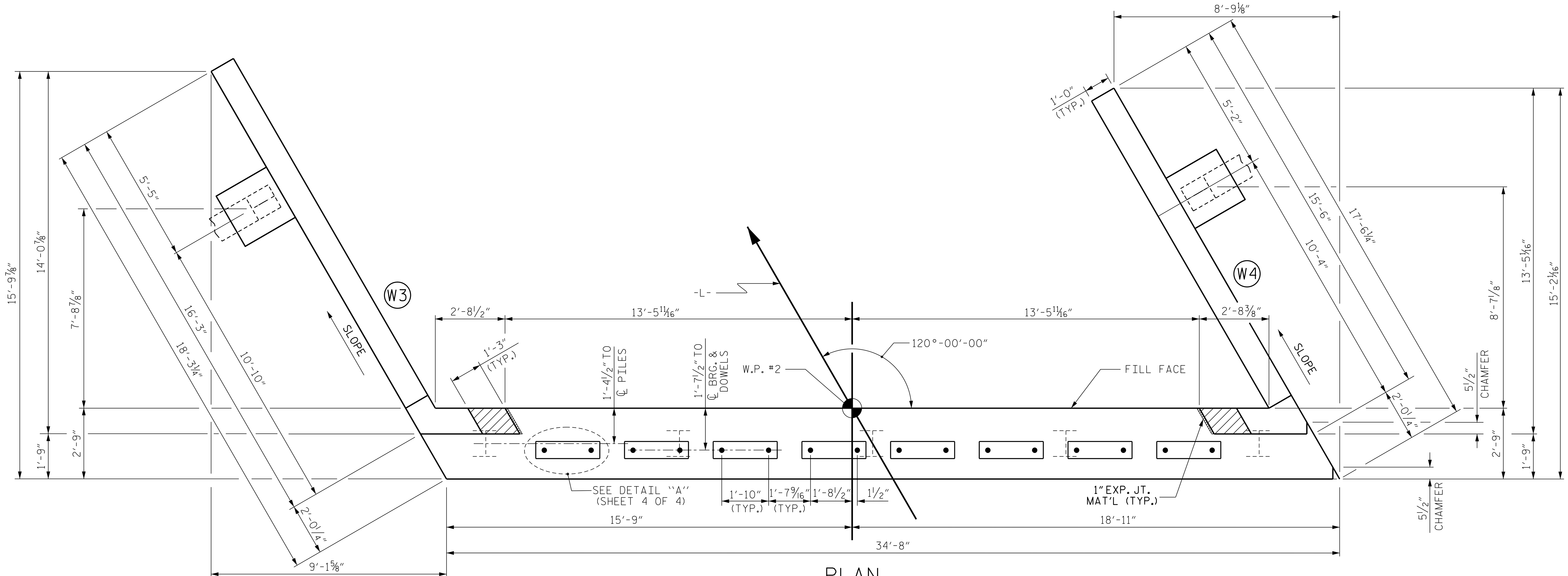
SUBSTRUCTURE

END BENT 1 DETAILS

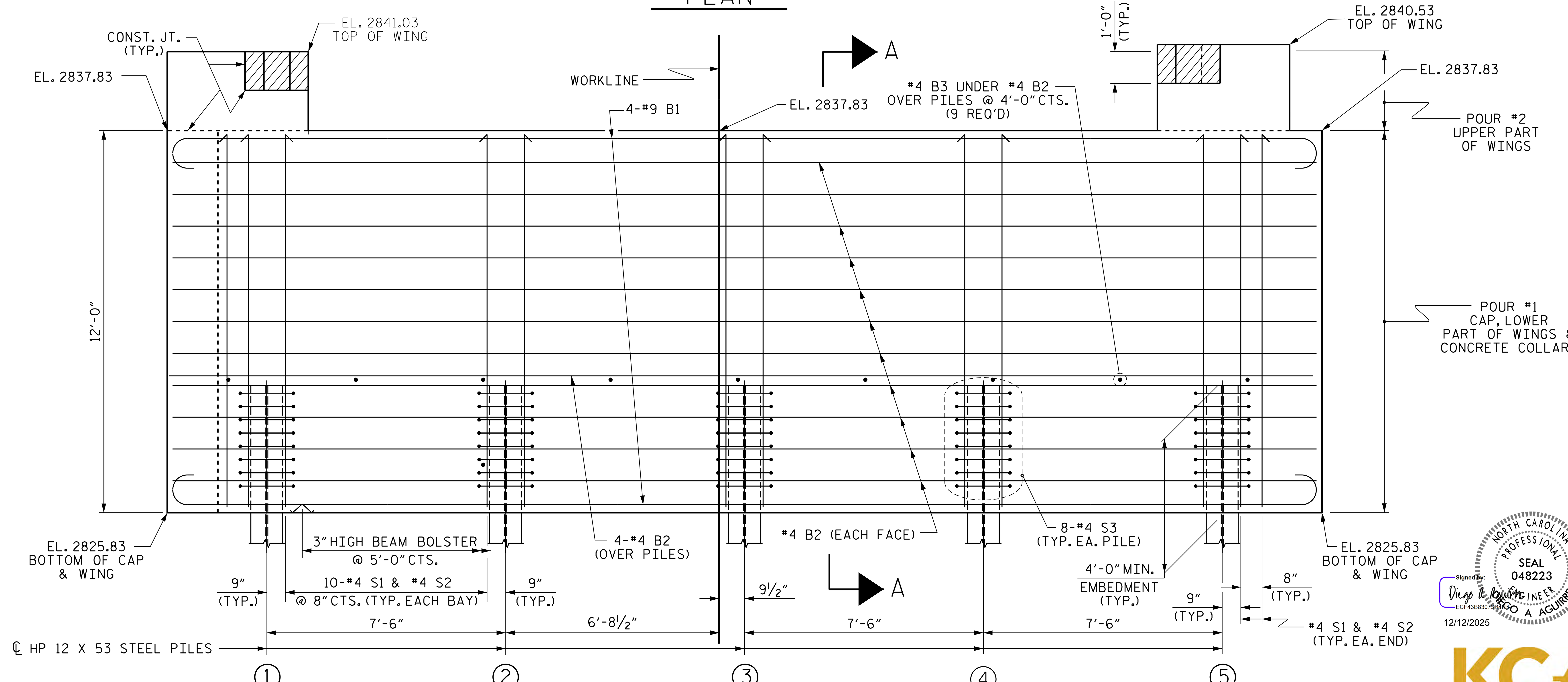
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

11/25/2025
401_070_BP11R012_SMU_E03_S-14_040474.dgn
dagulrre



PLAN



ELEVATION

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

NOTES

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

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE CONCRETE PARAPET AND END POSTS ARE CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE END BENT 1 SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEETS 2 & 3 OF 4.

EXCAVATE PILE LOCATIONS TO EL. 2815.83.

CARRY PILES AT LEAST 6" INTO ROCK OR 12" INTO WEATHERED ROCK.

FILL HOLES FOR PILE EXCAVATION WITH CONCRETE AFTER INSTALLING PILES.

PROJECT NO. BP11-R012
ASHE COUNTY
STATION: 13+08.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048223 DIEGO A. AGUIRRE
Signed by: Diego A. Aguirre
12/12/2025

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

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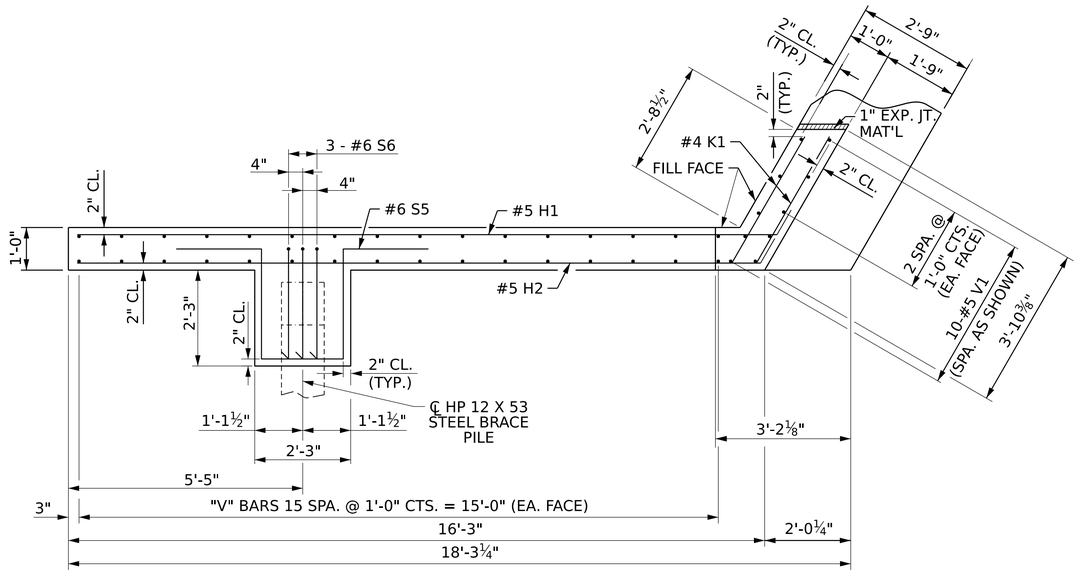
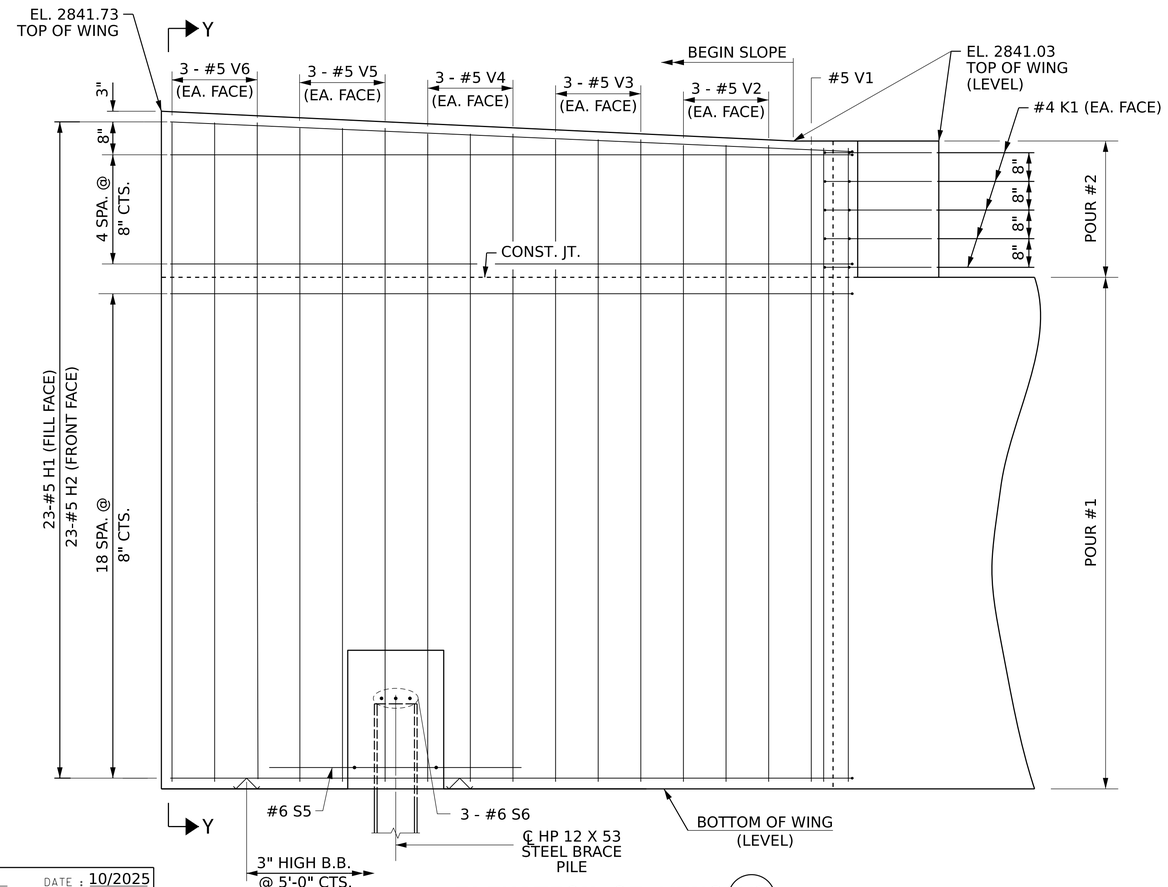
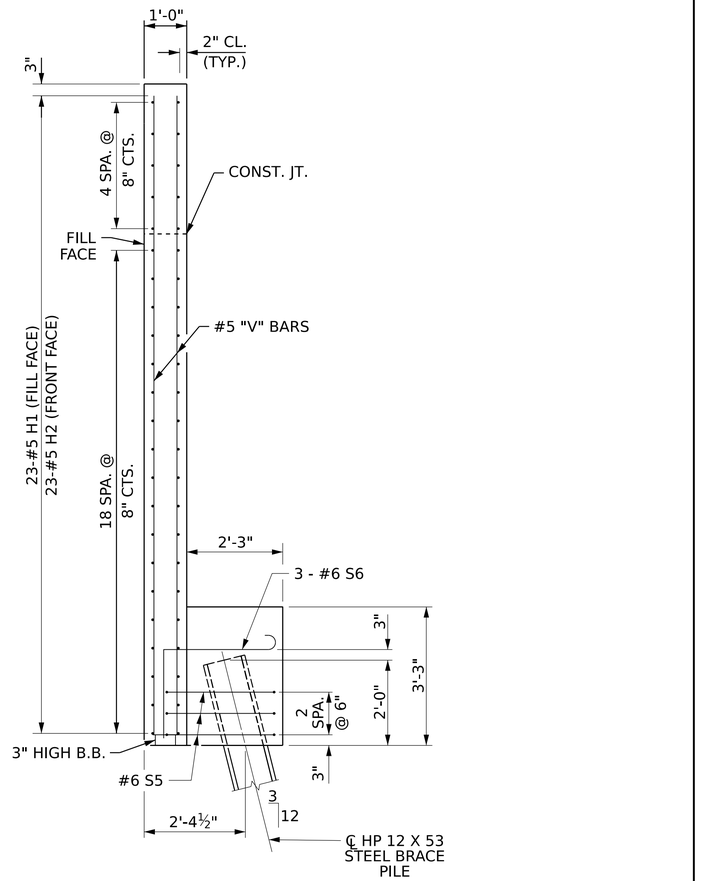


PLAN OF WING W3



ELEVATION OF WING W3



SECTION Y-Y

PROJECT NO. BP11-R012

ASHE COUNTY

STATION: 13+08.00 -L-

SHEET 2 OF 4

Signed by: Diego A Aguirre
ECF43B83377...
12/12/2025

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2 WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

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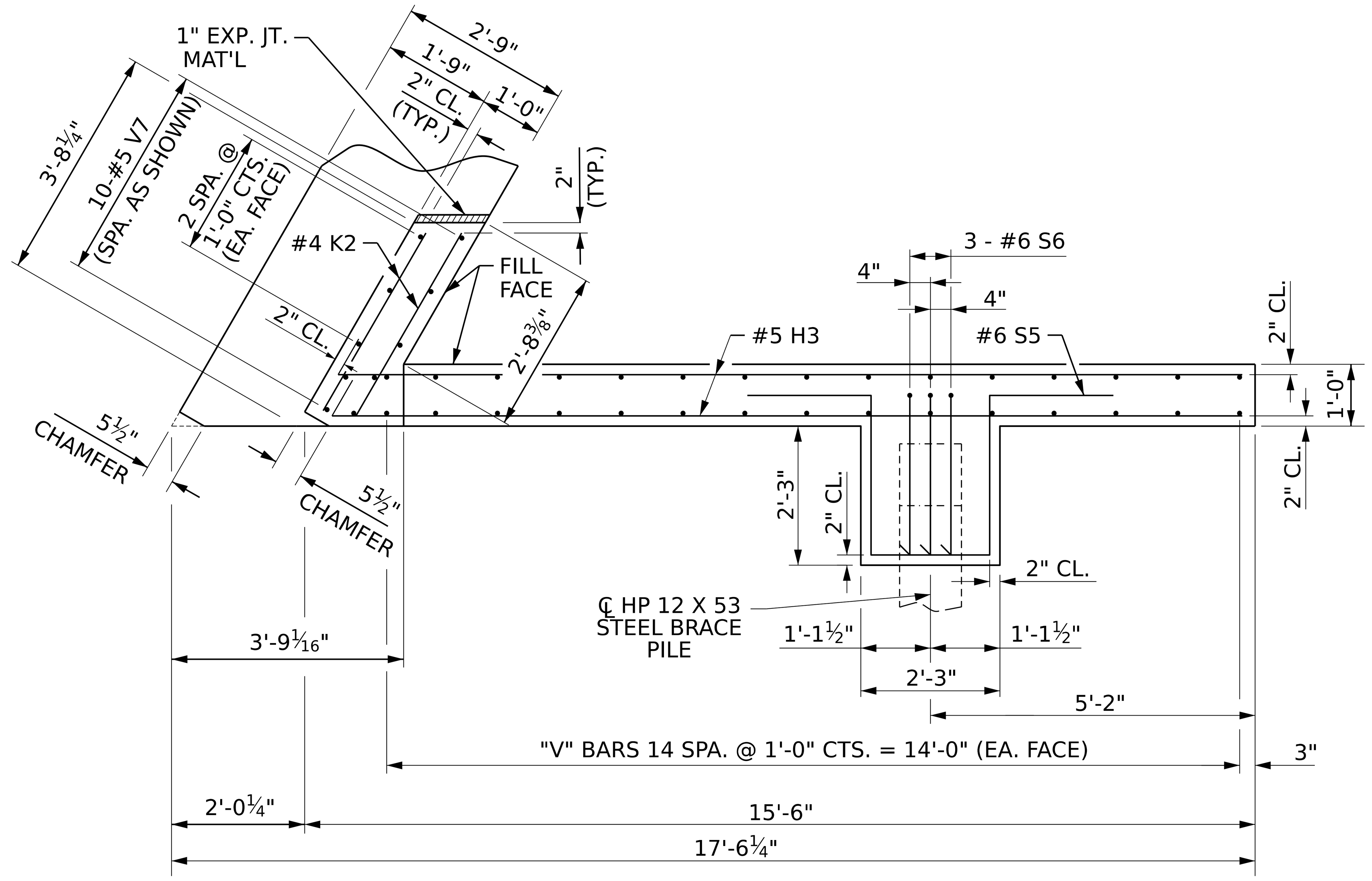
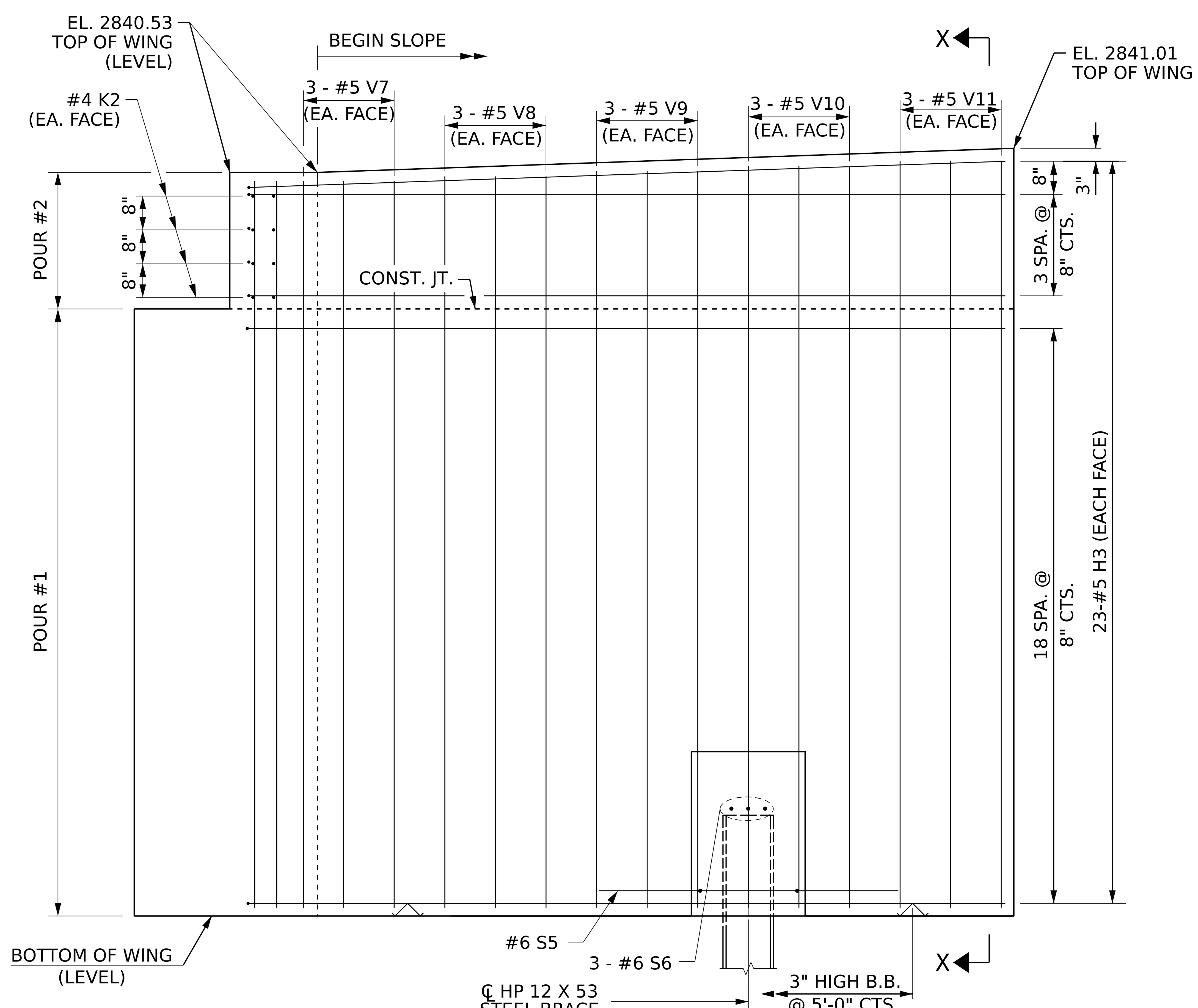
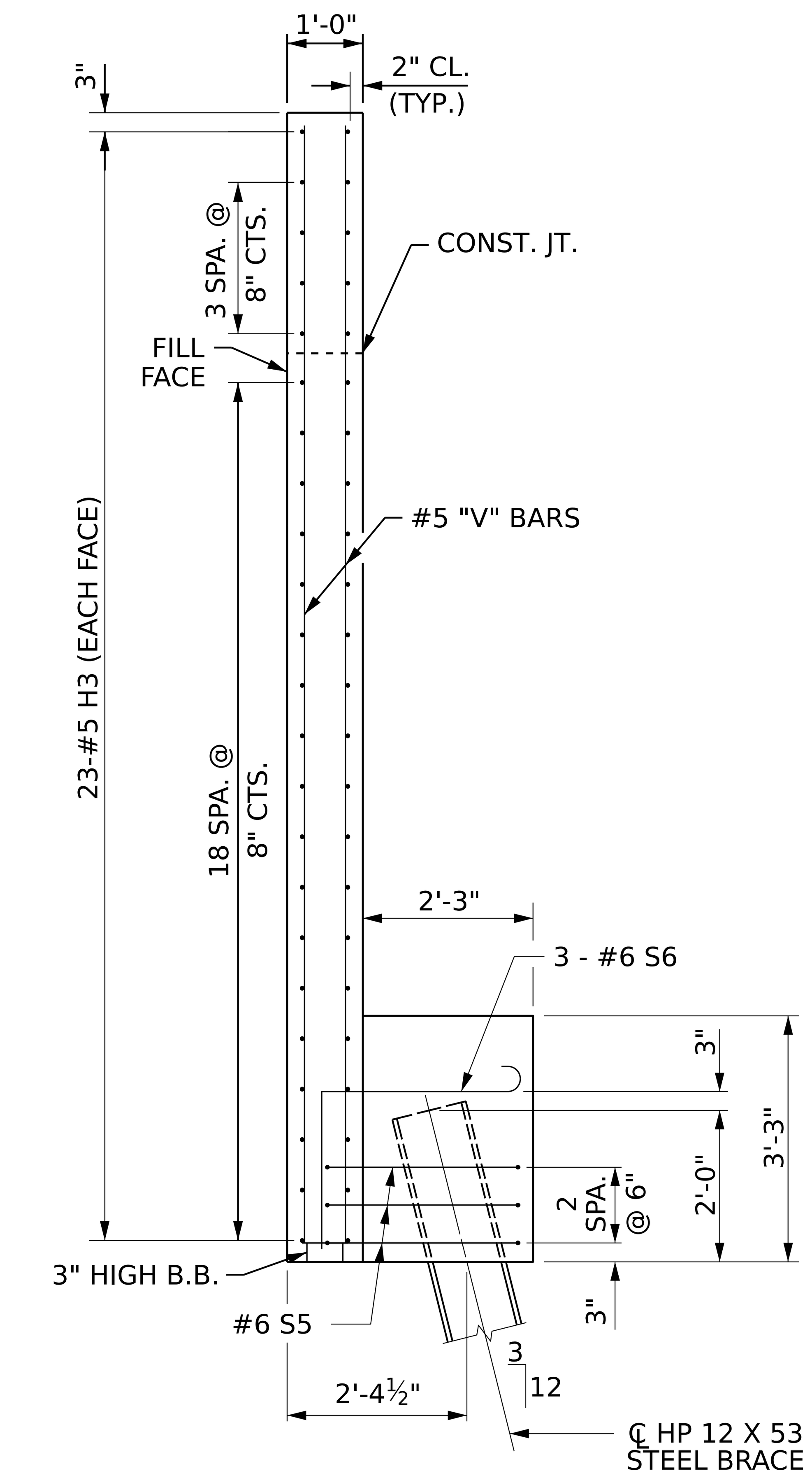


PLAN OF WING W4



ELEVATION OF WING W4



SECTION X-X

PROJECT NO. BP11-R012

ASHE COUNTY

STATION: 13+08.00 -L-

SHEET 3 OF 4

Signed by: Diego A. Aguirre 12/12/2025

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048223 DIEGO A. AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2
WING DETAILS

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REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-17
1			3				TOTAL SHEETS
2			4				20

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

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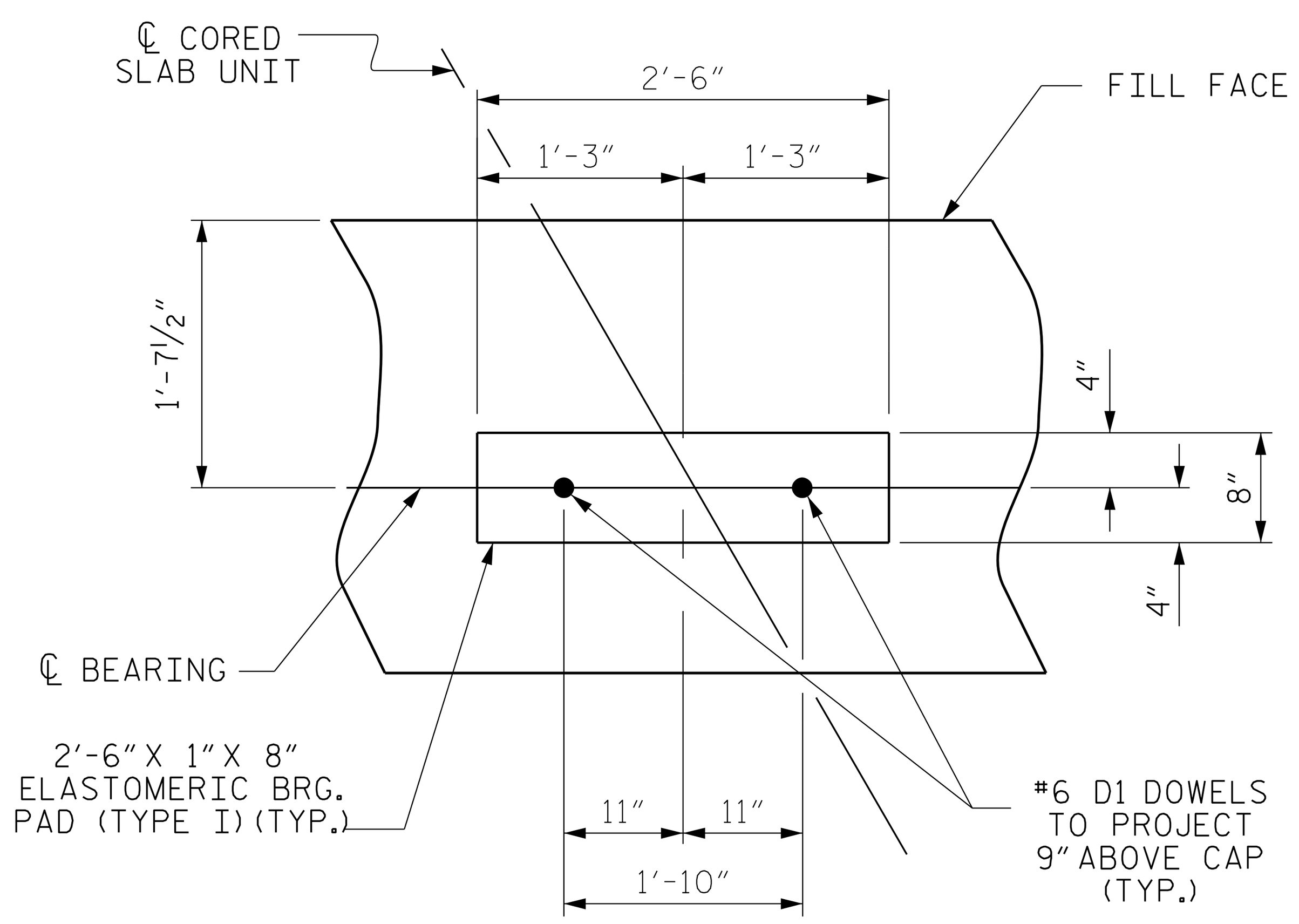
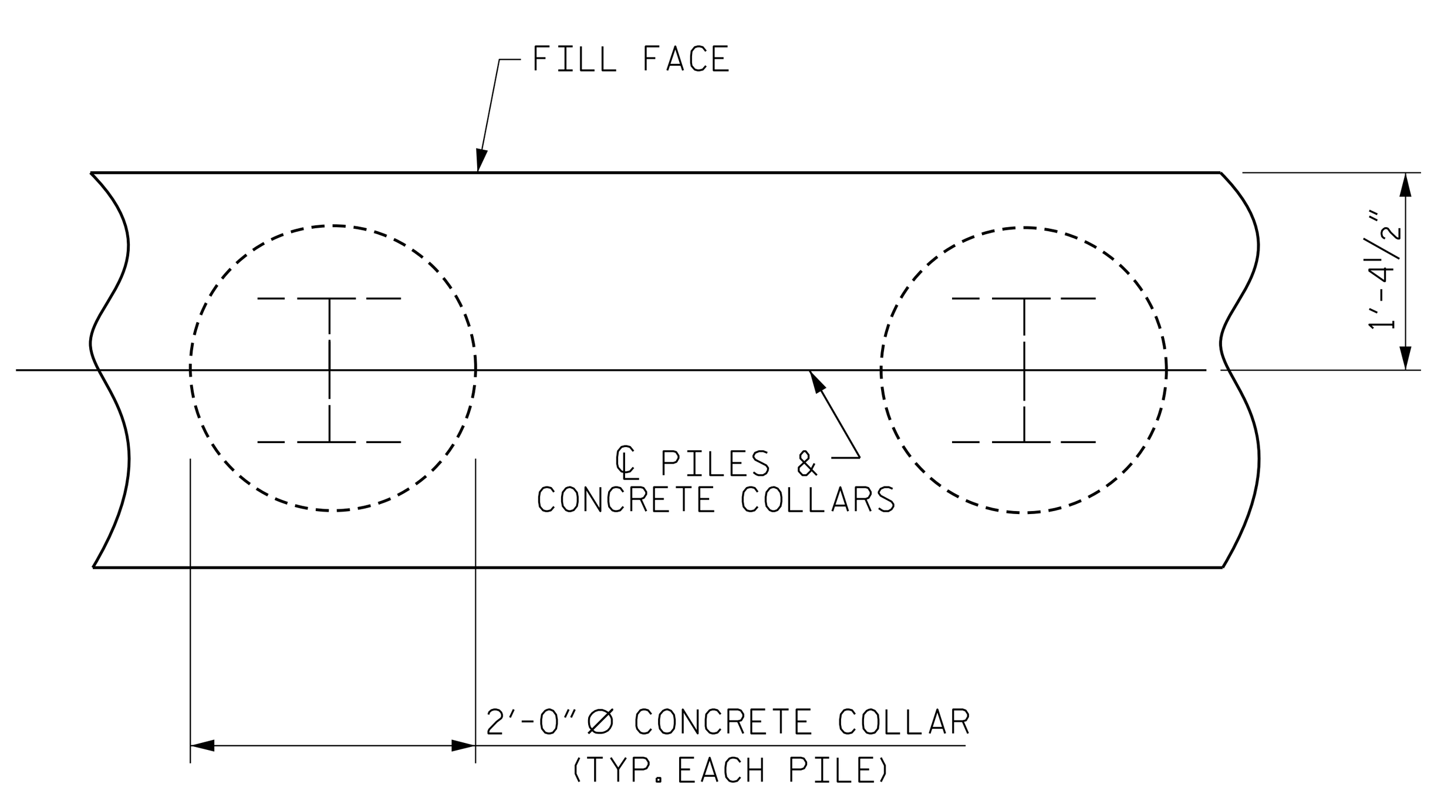
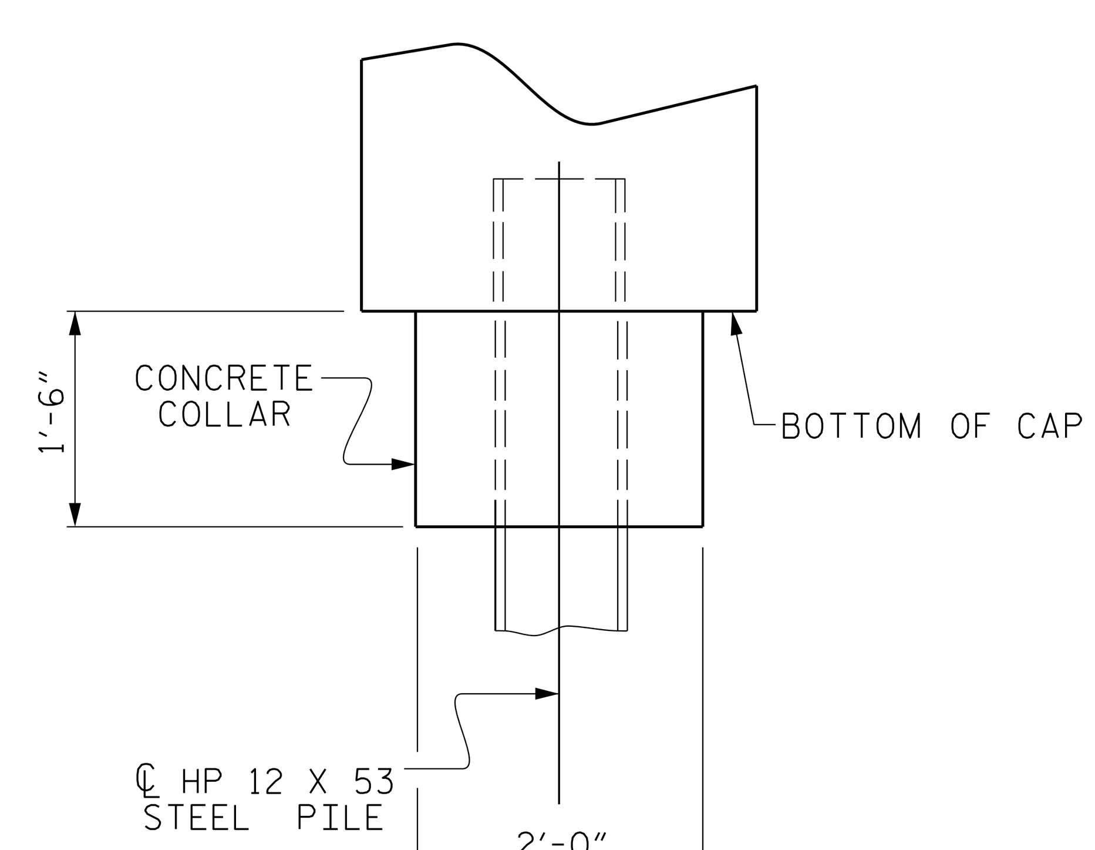


DETAIL "A"

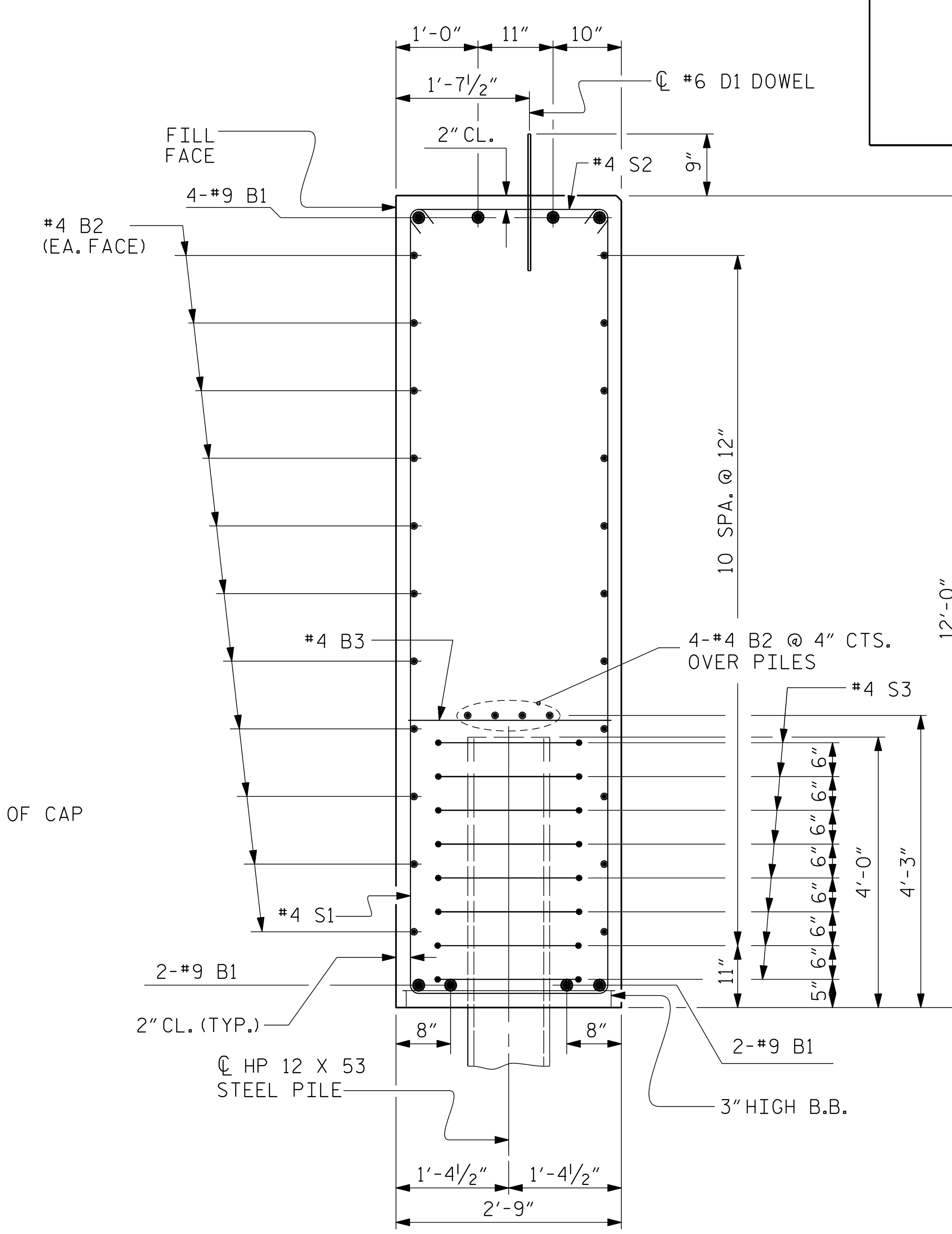


PLAN



ELEVATION

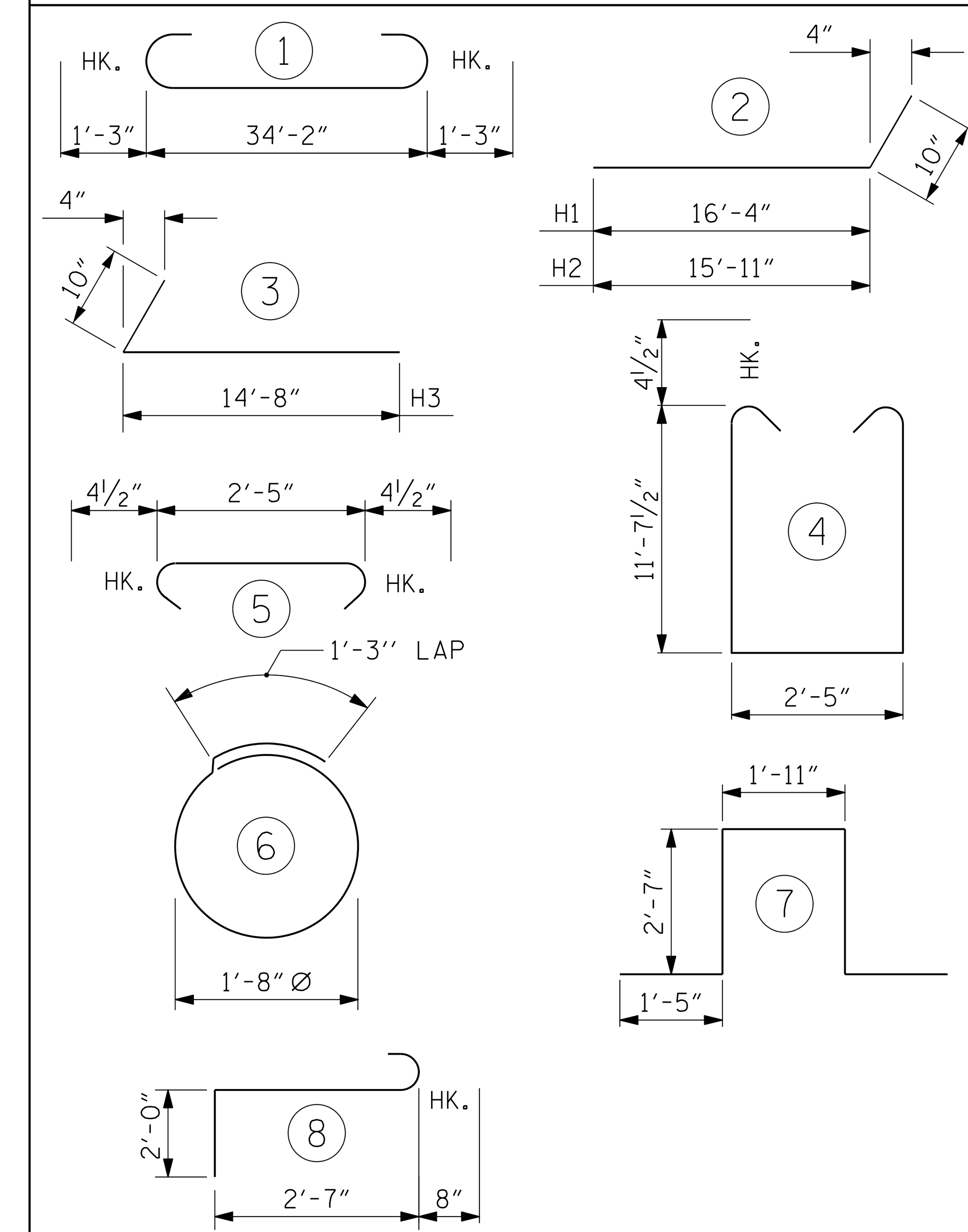
CORROSION PROTECTION FOR STEEL PILES DETAIL



SECTION A-A

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	36'-8"	997
B2	26	#4	STR	34'-4"	596
B3	9	#4	STR	2'-5"	15
D1	16	#6	STR	1'-6"	36
H1	23	#5	2	17'-2"	412
H2	23	#5	2	16'-9"	402
H3	46	#5	3	15'-6"	744
K1	10	#4	STR	3'-6"	23
K2	10	#4	STR	3'-0"	20
S1	44	#4	4	28'-10"	847
S2	44	#4	5	3'-2"	93
S3	40	#4	6	6'-6"	174
S5	6	#6	7	9'-11"	89
S6	6	#6	8	5'-3"	47
V1	12	#5	STR	14'-10"	186
V2	6	#5	STR	14'-11"	93
V3	6	#5	STR	15'-0"	94
V4	6	#5	STR	15'-2"	95
V5	6	#5	STR	15'-3"	95
V6	6	#5	STR	15'-5"	96
V7	16	#5	STR	14'-4"	239
V8	6	#5	STR	14'-5"	90
V9	6	#5	STR	14'-6"	91
V10	6	#5	STR	14'-8"	92
V11	6	#5	STR	14'-9"	92

REINFORCING STEEL 5,758 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	57.5 C.Y.
POUR #2	UPPER PART OF WINGS	4.1 C.Y.
TOTAL CLASS A CONCRETE		61.6 C.Y.

PROJECT NO. BP11-R012
ASHE COUNTY
STATION: 13+08.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2 DETAILS

Signed by: Diego A. Aguirre
12/12/2025

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048223 DIEGO A. AGUIRRE

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NC FIRM LICENSE: C-1506

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REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-18
TOTAL SHEETS 20

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

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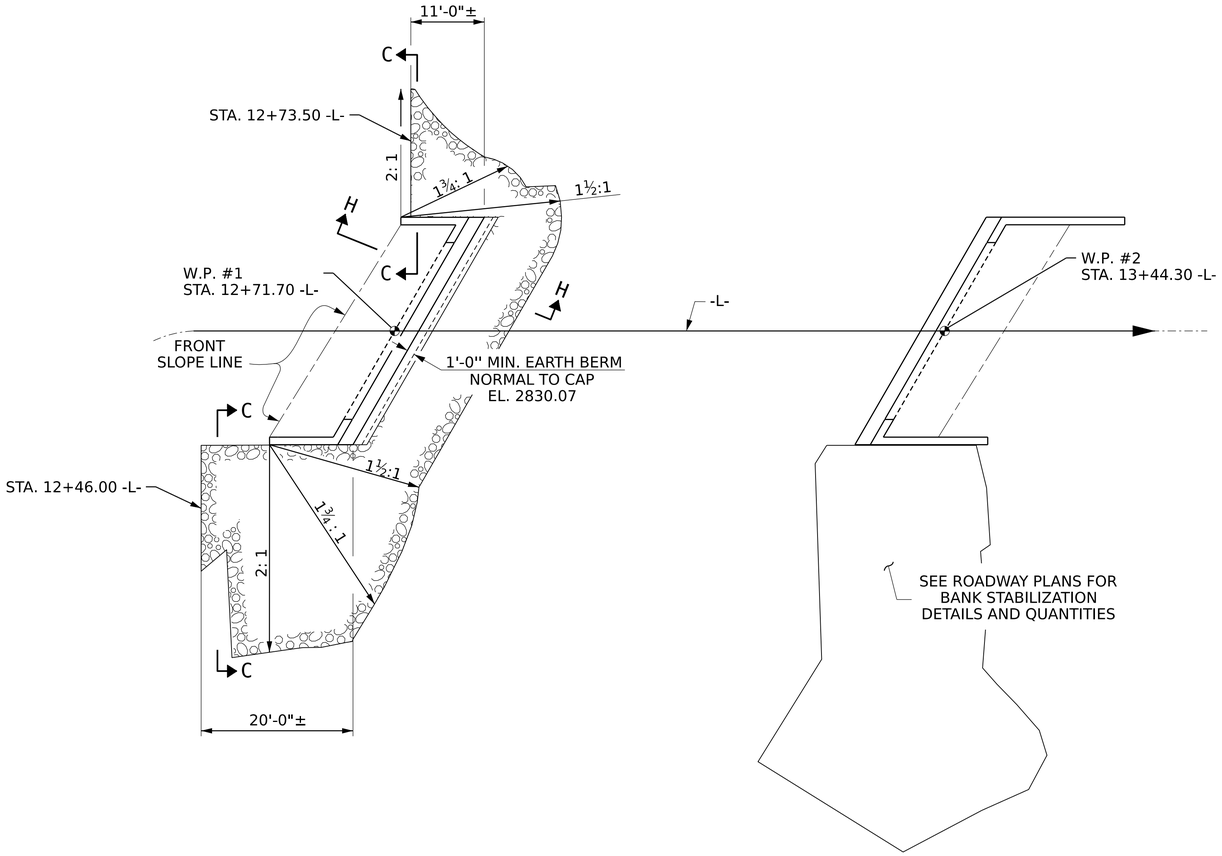


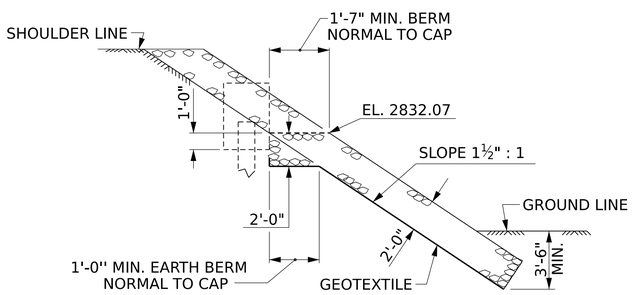
END BENT 1

END BENT 2

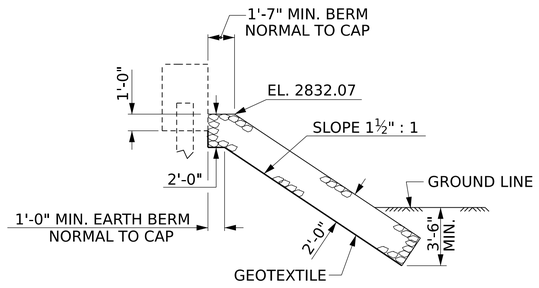
NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

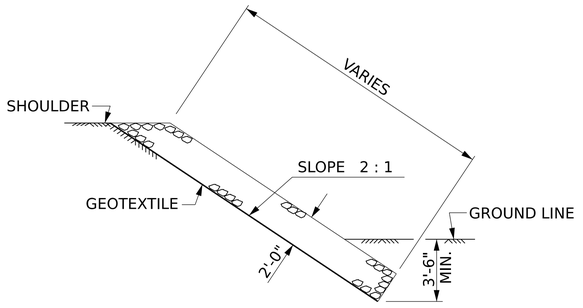
ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+08.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	270	490



SECTION H-H



℄ SECTION



SECTION C-C

BERM RIP RAPPED

Signed by: Diego A Aguirre
12/12/2025
NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

PROJECT NO. BP11-R012
ASHE COUNTY
STATION: 13+08.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : REK 1/84
CHECKED BY : RDU 1/84

REV. 10/1/11	MAA/GM
REV. 12/21/11	MAA/GM
REV. 12/17	MAA/THC

DRAWN BY : MIGUEL A. LEMOS DATE : 10/2025
CHECKED BY : LAURA E. SUTTON DATE : 10/2025
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 10/2025

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301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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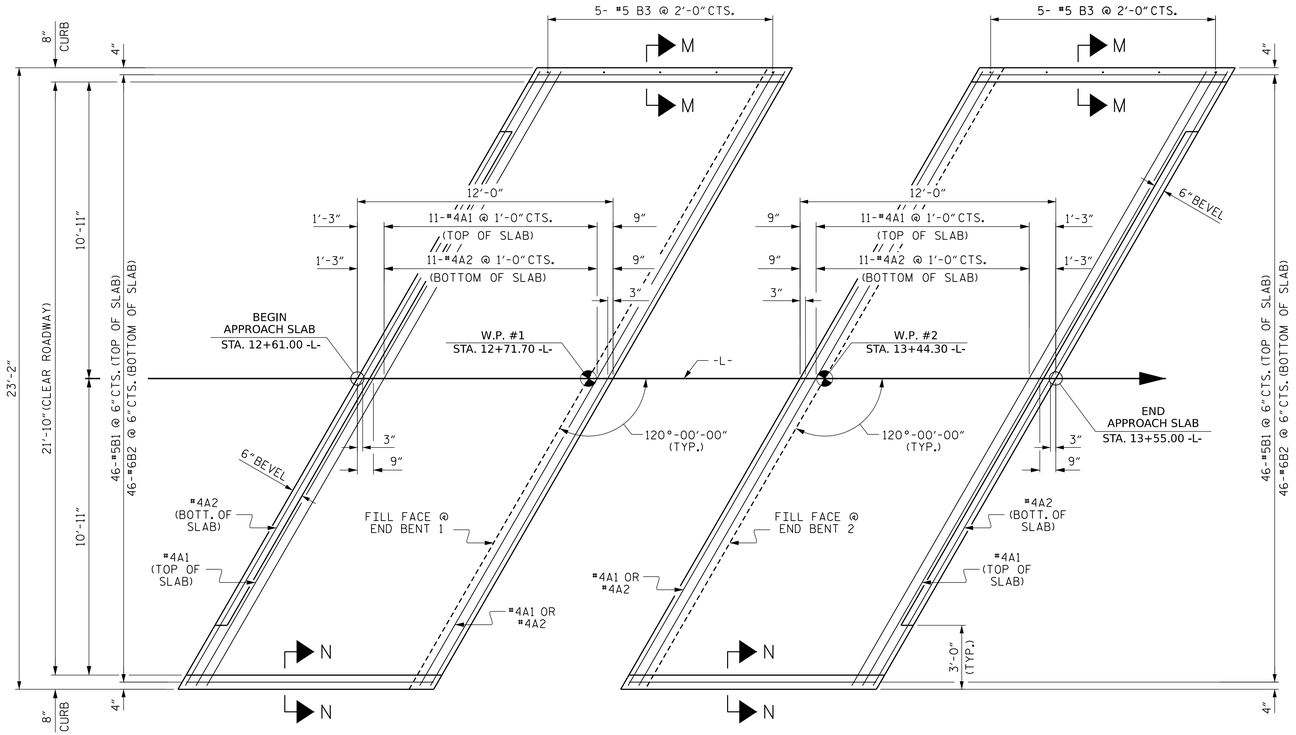
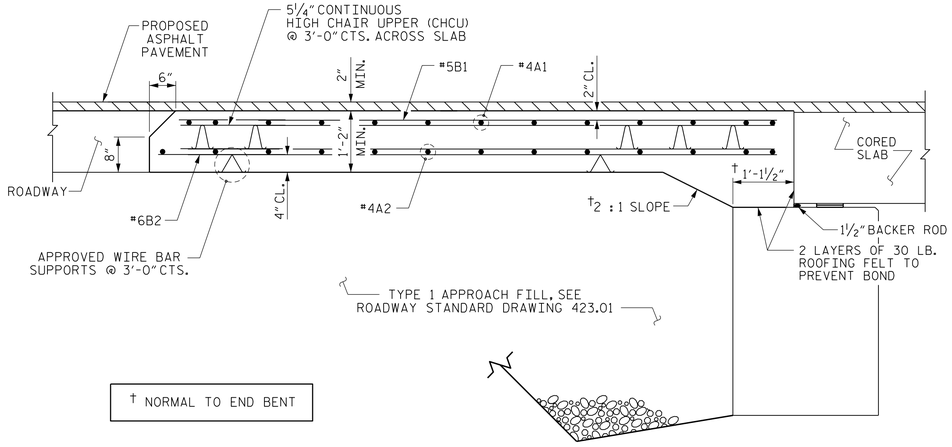
STD. NO. RR1



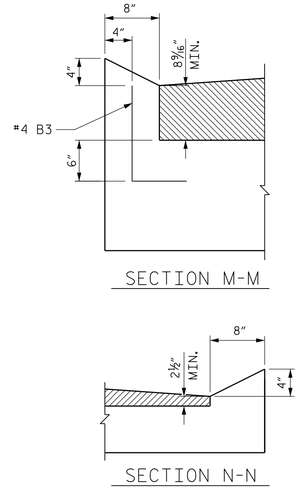
PLAN @ END BENT 1 PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



† NORMAL TO END BENT

SECTION THRU SLAB



SECTION M-M

SECTION N-N

CURB DETAILS

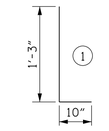
NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

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

APPROACH SLAB GROOVING IS NOT REQUIRED.

BAR TYPE



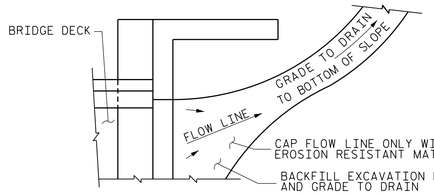
BILL OF MATERIAL

APPROACH SLAB AT EB 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	26'-4"	229
A2	13	#4	STR	26'-4"	229
* B1	46	#5	STR	11'-1"	532
B2	46	#6	STR	11'-7"	800
* B3	5	#5	1	2'-1"	11
REINFORCING STEEL				LBS.	1029
* EPOXY COATED REINFORCING STEEL				LBS.	772
CLASS AA CONCRETE				C. Y.	16.4

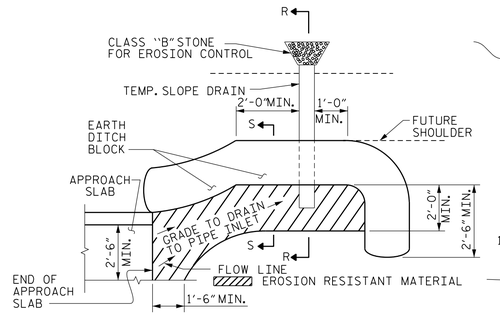
APPROACH SLAB AT EB 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	26'-4"	229
A2	13	#4	STR	26'-4"	229
* B1	46	#5	STR	11'-1"	532
B2	46	#6	STR	11'-7"	800
* B3	5	#5	1	2'-1"	11
REINFORCING STEEL				LBS.	1029
* EPOXY COATED REINFORCING STEEL				LBS.	772
CLASS AA CONCRETE				C. Y.	16.4



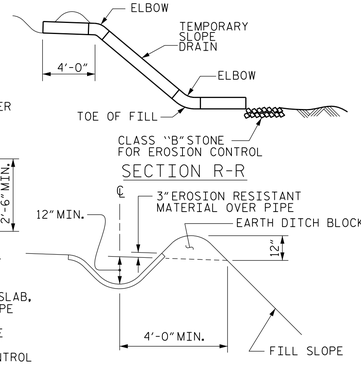
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



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

PLAN VIEW



SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

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

Signed by: Diego A Aguirre
ECF43B83072...
12/12/2025

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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PROJECT NO. BP11-R012
ASHE COUNTY
STATION: 13+08.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT
(SUB-REGIONAL TIER) 120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : FCJ 6/87	REV. 12/17	MAA/THC	
CHECKED BY : EGA 6/87	REV. 06/19	BNB/THC	
	REV. 07/23	BNB/SNM	
DRAWN BY : MIGUEL A. LEMOS		DATE : 10/2025	
CHECKED BY : LAURA E. SUTTON		DATE : 10/2025	
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE		DATE : 10/2025	

11/25/2025
401_100_BP11R012_SMU_AS01_S-20_040474.dgn
daguirre

STD. NO. BAS3

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 $\frac{3}{4}$" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $1\frac{1}{2}$" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$" 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 $\frac{1}{4}$" 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 $\frac{7}{8}$" ∅ SHEAR STUDS FOR THE $\frac{3}{4}$" ∅ STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$" ∅ STUDS FOR 4 - $\frac{3}{4}$" ∅ STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$" ∅ STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$" ∅ STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$"∅ STUDS FOR 4 - $\frac{3}{4}$" ∅ 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 $\frac{5}{16}$" 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 $\frac{1}{16}$" 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.