

North Carolina Emergency Management – Private Roads and Bridges
Site Information Form

Site Number: _____

Site Address: _____

GPS Coordinates: _____

County: _____

Bridge Type: _____

Span Length: _____

Bridge Width: _____

Substructure Type: _____

Geotechnical Information: _____

Additional Notes: _____



SITE ID: 011-01-00431

SITE ADDRESS: 215 POWERLINE LN.,
WEAVERVILLE, NC 28787

BRIDGE SURVEY & HYDRAULIC DESIGN REPORT

NC DEPARTMENT OF EMERGENCY MANAGEMENT
PRIVATE ROADS AND BRIDGES PROGRAM

Site Number 011-01-00431 Latitude 35.740107 Longitude -82.537275
 County Buncombe Address 215 Powerline Lane
 City Weaverville Zip Code 28787
 Recommended Structure 1 @ 40' Steel Girder Bridge with 2'-6" Pier Caps
 Recommended Width of Roadway 12' Skew Match existing
 Recommended Location is (A) Upstream, Downstream of Existing Crossing
 Temporary Crossing Sitting on temporary abutments

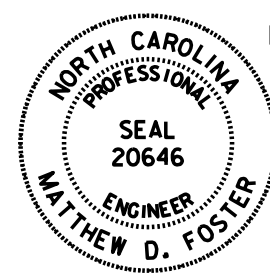
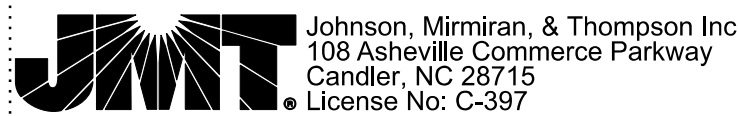


I hereby certify that I have reviewed the existing hydraulic conveyance at this site which was a 35 ft existing bridge with the proposed conveyance provided by a 40 ft span bridge.

The proposed bridge low chord for the bridge shall be set in accordance with the FEMA Disaster Specific Guidance for the Replacement of Private Roads and Bridges issued on 14 February 2025, "to provide bridge/culvert design plans certified (sealed, signed, and dated) by a Professional Engineer licensed in the State of North Carolina demonstrating that the newly designed and installed private bridge/culvert provides conveyance greater than or equal to the original destroyed crossing."

This certification demonstrates that the newly designed and installed private bridge/culvert provides conveyance greater than or equal to the original destroyed crossing. This is based on the best available data provided from the post-storm evaluations. Portions of the existing structures may have been destroyed, removed, modified, or shifted from their original location or elevation.

Designed by _____
 Assisted by _____
 Date _____
 Signed by: **Matthew D Foster** 3/27/2026 5:59:42 PM EDT
 Reviewed by _____ Date _____



SITE DATA

Drainage Area 4.83 SQ MI Source USGS StreamStats
 River Basin French Broad Character _____
 Stream Classification (e.g., Trout, High Quality Water) C
 Debris Potential: Low Moderate High
 Existing Structure - Source of Available Data NCEM Private Roads and Bridges Inspection Team
 Existing Structure - Description 12-ft wide x 35-ft long bridge
 Estimated Waterway Opening 44.2 ft²
 Design Control Elev _____ ft Source _____

Gage Station No _____ Period of Records _____
 Max Discharge _____ cfs Date _____ Frequency _____

Historical Flood Information:
 Date _____ Elev _____ ft Est Freq _____ yr Source _____ Period of Knowledge _____ yrs
 Historical Scour Info: General _____ ft Contraction _____ ft Local _____ ft
 Channel Slope _____ ft/ft Source _____ Normal Water Surface Elev _____ ft
 Manning's n: Left OB _____ Channel _____ Right OB _____ Source _____

Flood Study / Status FEMA Study LDS, FLAT CREEK (into French Broad River)
 Flood Study _____ With _____ Without _____
 100-yr Discharge 2070 cfs WS Elev: Floodway 2155.60 ft River Station 51230

DESIGN DATA

Hydrological Method _____
 Hydraulic Design Method Disaster Specific Guidance for the Replacement of Private Roads and Bridges 2/14/2025

Floods Evaluated	Frequency (year)	Discharge (cfs)	Elevation (ft)	Backwater (ft)	Bridge Opening Velocity (fps)

Waterway Opening Provided Below: Design WS Elev _____ sf 100-yr WS Elev _____ sf Total 51.2 sf
 Average Channel Velocity (Design) _____ fps Average Overbank Velocity (Design) _____ fps
 Computed Scour: General _____ ft Contraction _____ ft Local _____ ft

INFORMATION TO BE SHOWN ON PLANS

HYDRAULIC DATA	
DESIGN DISCHARGE	= 960 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= _____
DRAINAGE AREA	= 4.83 SQ. MI.
BASIC DISCHARGE (Q100)	= 1460 C.F.S.
BASIC HIGH WATER ELEVATION	= _____

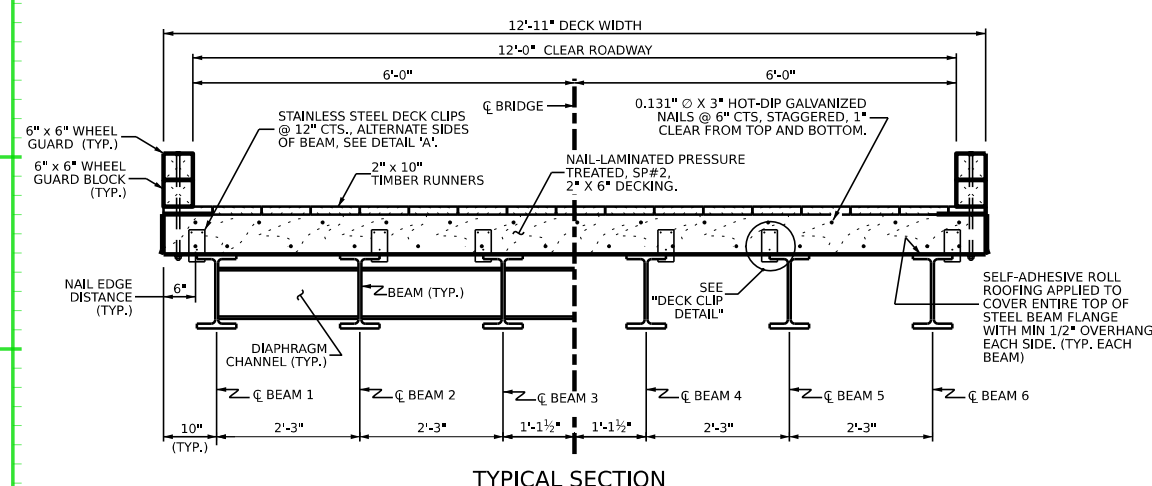
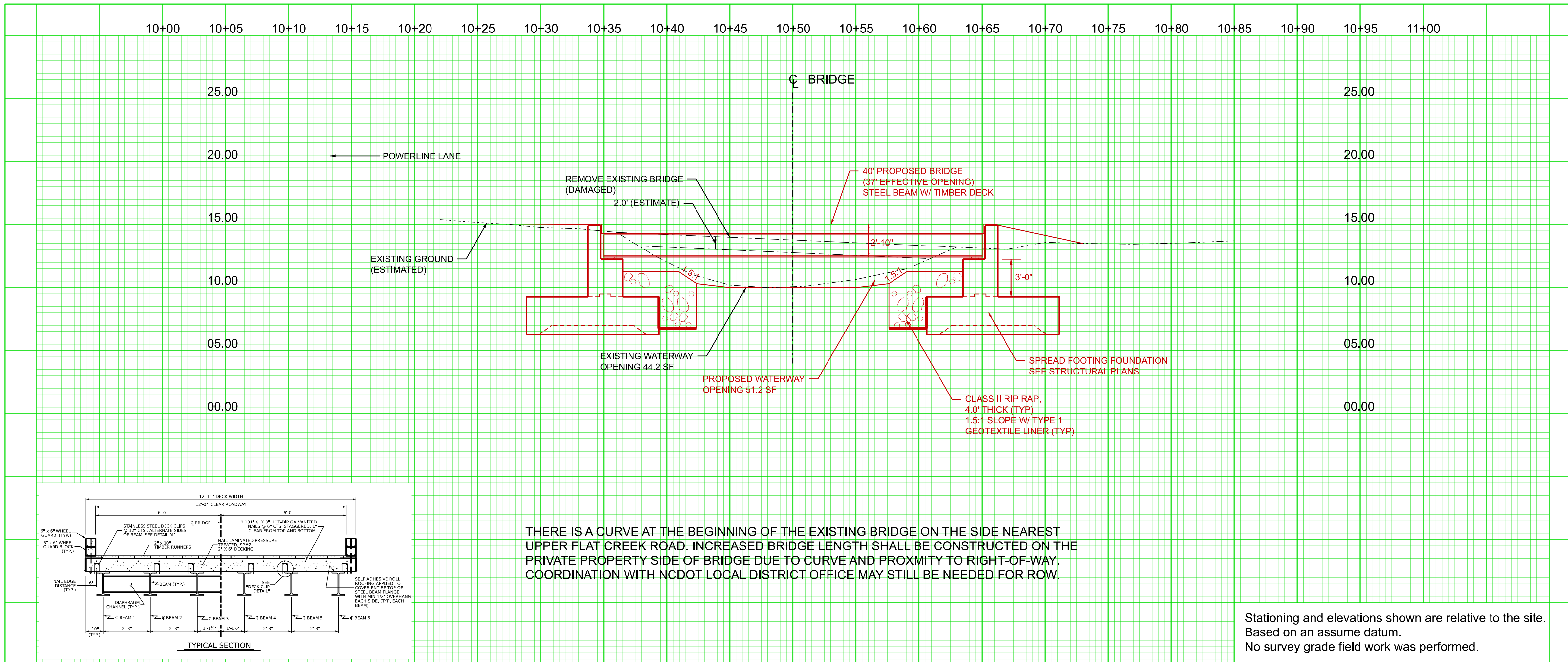
OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= _____ C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= _____ YRS.
OVERTOPPING FLOOD ELEVATION	= _____

*NOTE LOCATION OF OVERTOPPING
 WS EL. Taken @ River Station ?

ADDITIONAL INFORMATION AND COMPUTATIONS

Emergency Vehicle Access Possible?	No	Horizontal Curve	No
Number of Homes Confirmed	Yes	Number of Travel Lanes (LOS)	1
Number of Homes	3	Inclination	No
Churches Confirmed	No	Roadway Divider	No
Number of Churches	0	Road/Bridge Width (ft)	12.00
Schools Confirmed	No	Span/Gap Estimate (ft)	35.00
Number of Schools	0	Surface to Water (ft)	5.00
Recreational/Business Areas Confirmed	No	Utility/Mechanical	Yes
Number of Recreational/Business Areas	0	Utility Types	Electrical, Communications
General Description	bridge is sitting on homemade temporary abutments. Subject to failing without notice.	Pipe Needs Sizing	No
Overall Condition	Damage	Depth of Pipe	
Condition Other		Geotechnical	Other
Site Repair Status	Temporary Repair	Other Geotechnical	foundation
Condition Description	bridge needs to be replaced in order for ambulance to pass		
Expected Level of Effort	Full Redesign		
Other Level of Effort			

TOTAL STR. DIMENSION
 24" [W24X76 I-BEAM]
 + 8" [NOMINAL 2"X8" DECKING]
 + 2" [NOMINAL 2"X10" TIMBER RUNNER]
 = 34" [2'-10" TOTAL STR DEPTH]



Stationing and elevations shown are relative to the site. Based on an assume datum. No survey grade field work was performed.

NOTES

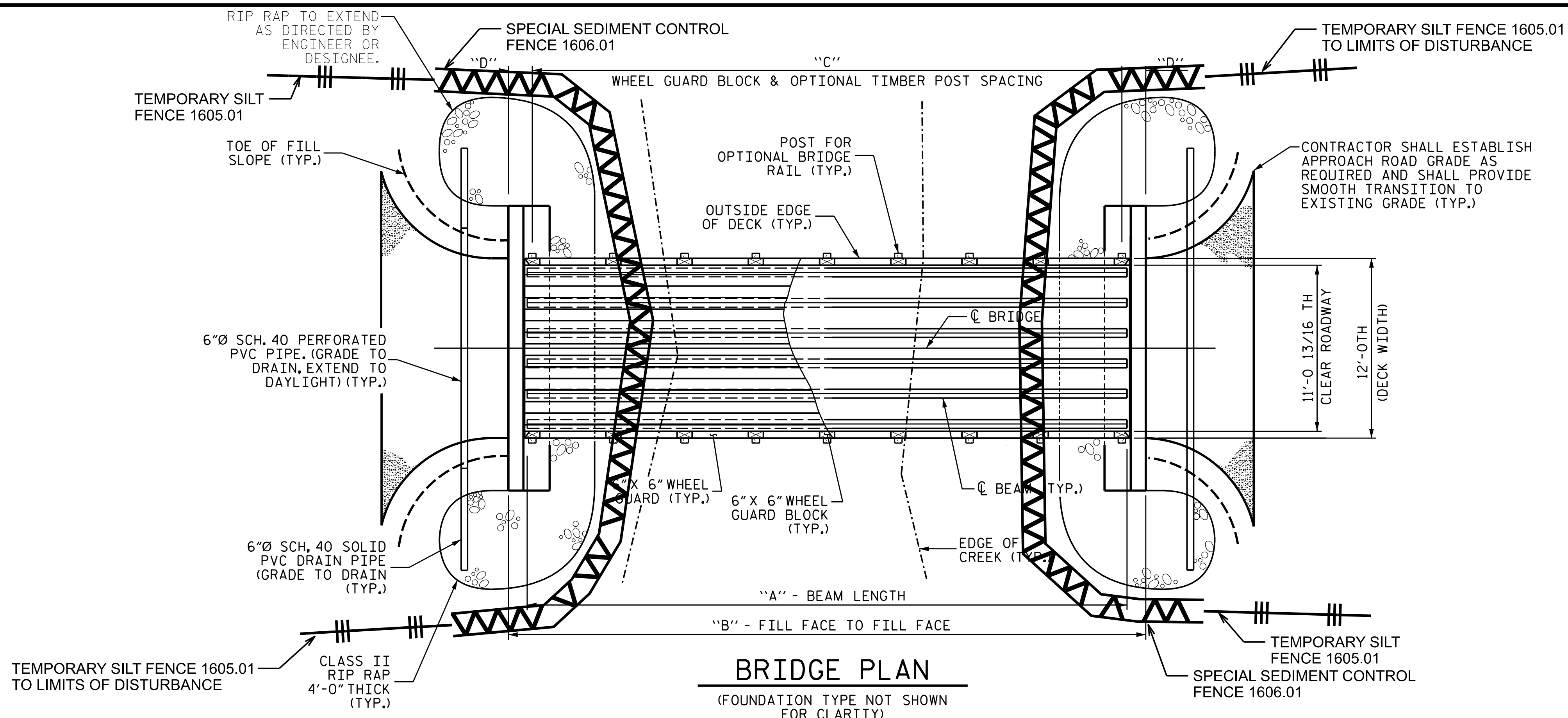
FOR OPTIONAL TIMBER BRIDGE RAIL DETAILS, SEE "OPTIONAL TIMBER BRIDGE RAIL" SHEET.

CONTRACTOR SHALL LOCATE THE EXPANSION BEARING ON THE "UPHILL" END OF THE BRIDGE. THERE WILL BE ONLY ONE EXPANSION BEARING PER BRIDGE.

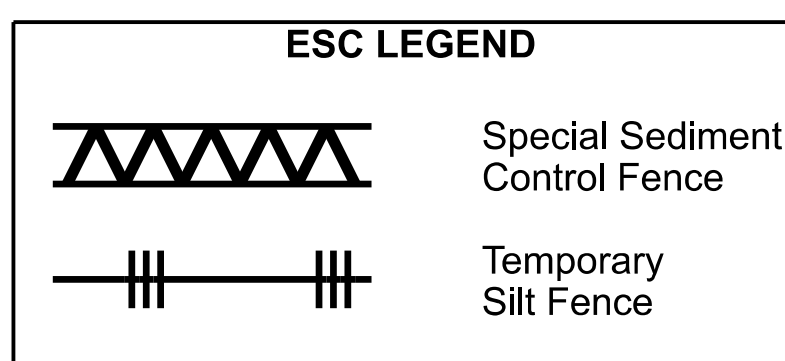
CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES, AS REQUIRED ACCORDING TO NCDOT STANDARD SPECIFICATIONS AND THE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL SET THE LOW-CHORD ELEVATION OF THE BRIDGE BASED ON EXISTING SITE CONDITIONS AND IN COORDINATION WITH THE ENGINEER, SUCH THAT THE NEW CROSSING PROVIDES CONVEYANCE GREATER THAN OR EQUAL TO THE ORIGINAL DESTROYED CROSSING. THE CONTRACTOR SHALL REFER TO THE BSR WHEN SETTING THE LOW-CHORD ELEVATION OF THE BRIDGE. NO CONSTRUCTION ACTIVITIES SHALL COMMENCE UNTIL ALL PARTIES HAVE AGREED UPON THE LOW-CHORD ELEVATION AND THE DATED PERMIT APPLICATION IS APPROVED.

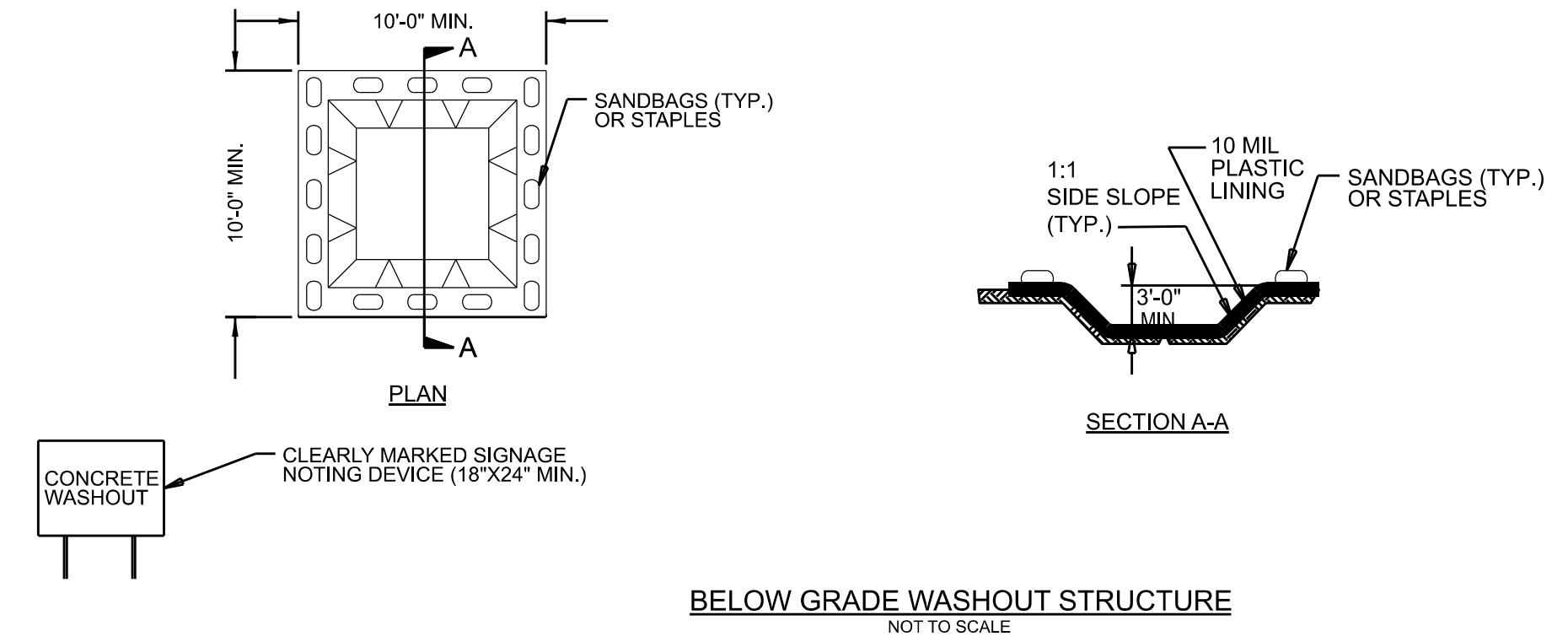
TIMBER DECKING SHALL BE 2X8 BOARDS. 4X6 TIMBER DECKING (6" DIMENSION HORIZONTAL) MAY BE USED IN LIEU OF 2X8 DECKING; SEE OPTIONAL TYPICAL SECTION ON SHEET S-03 FOR DETAILS.



DIMENSIONS TABLE					
SPAN	A	B	C	D	E
20'-0"	20'-0"	22'-6"	5 SPA. @ 3'-8"	2'-1"	19'-9"
30'-0"	30'-0"	32'-6"	7 SPA. @ 4'-0"	2'-3"	29'-9"
40'-0"	40'-0"	42'-6"	9 SPA. @ 4'-3"	2'-1 1/2"	39'-9"
50'-0"	50'-0"	52'-6"	11 SPA. @ 4'-4"	2'-5"	49'-9"



ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER

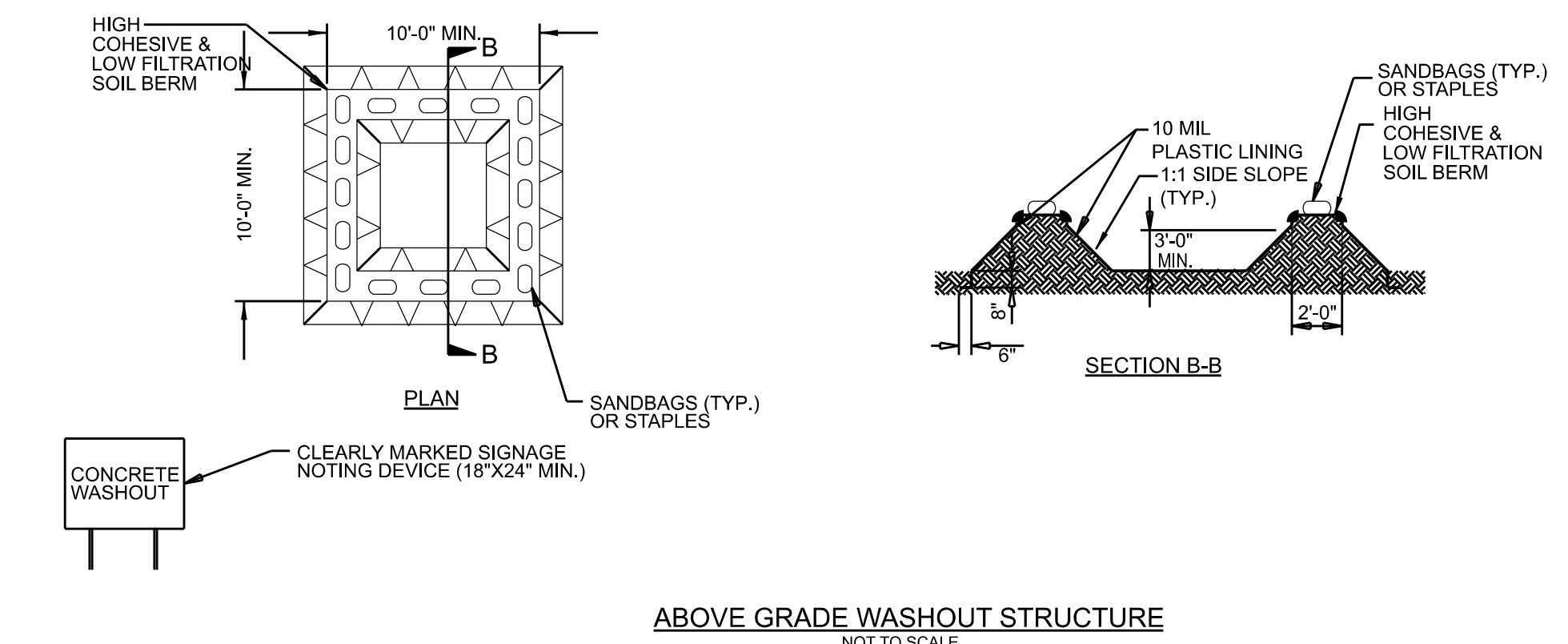


NOTES:

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.

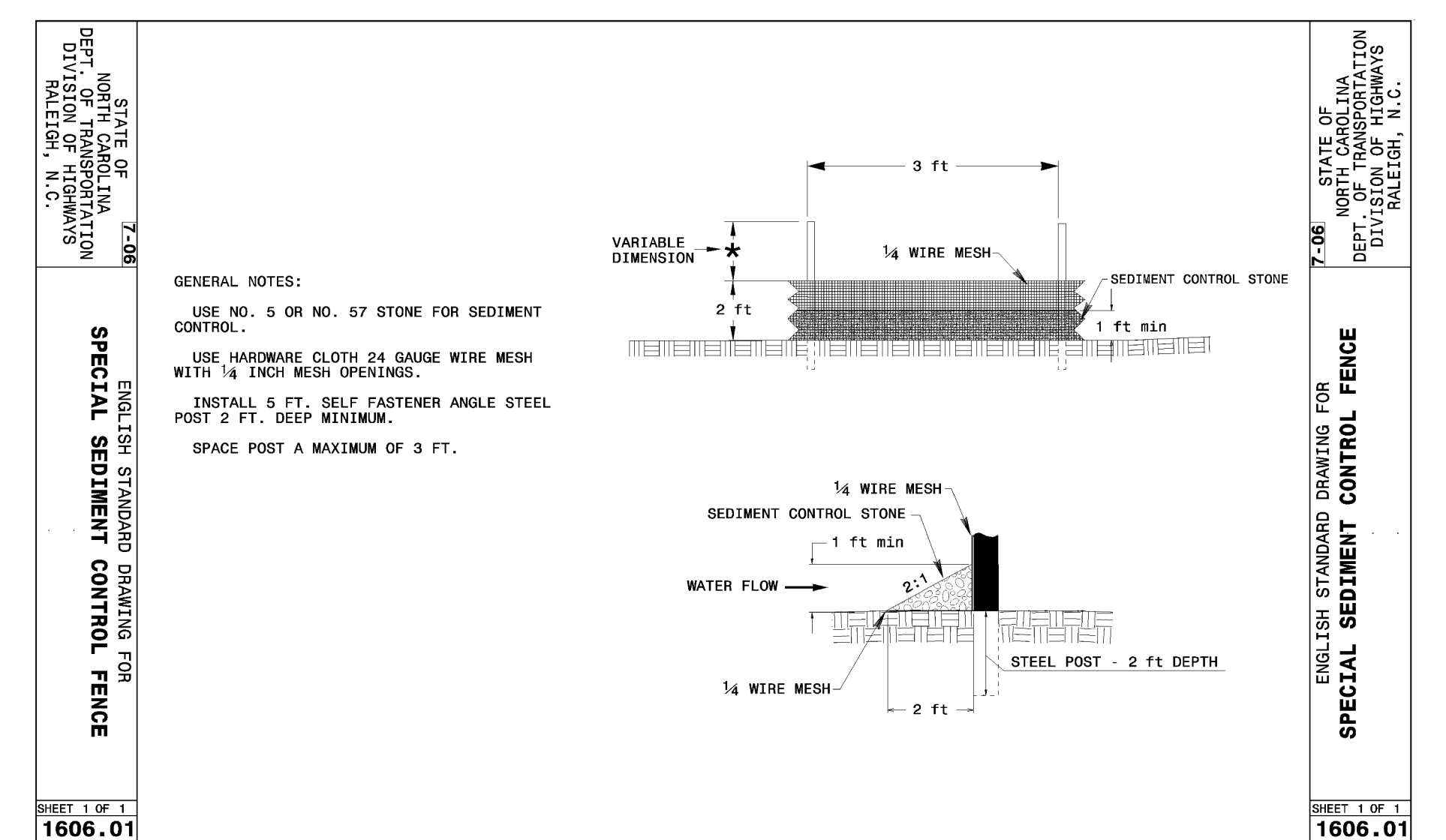
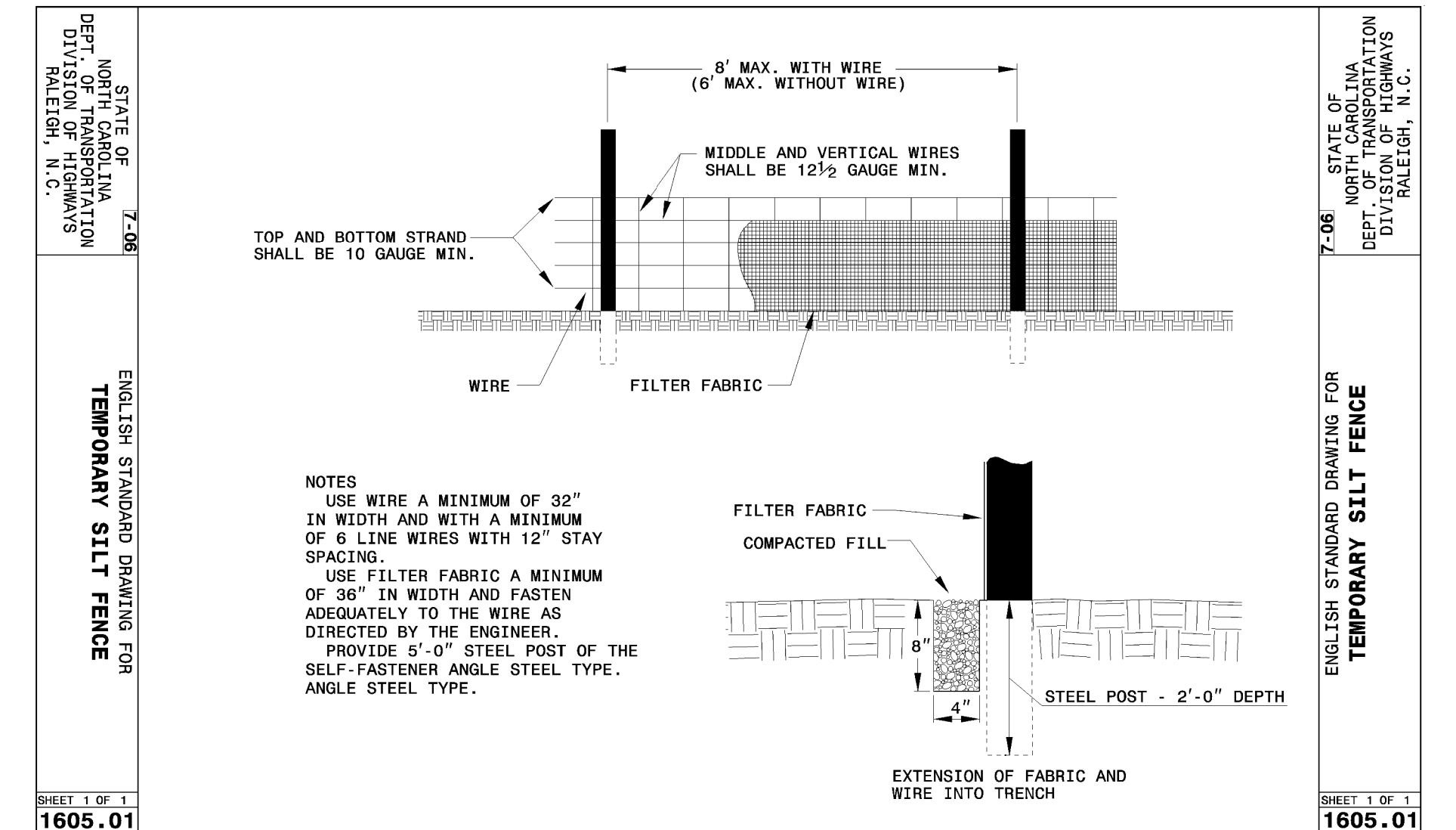
BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



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Signed by:
Matthew D. Foster
 7819328AFC8472
 4/2/2026 1 6:30:17 PM EDT
 NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20646
 MATTHEW D. FOSTER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

**PRIVATE DRIVEWAY
 BRIDGE STANDARDS**

SINGLE LANE STEEL BEAM BRIDGE
 TIMBER DECK

EROSION CONTROL

REVISIONS						SHEET NO. EC-01
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			

JMT Johnson, Mirmiran, & Thompson Inc.
 108 Asheville Commerce Parkway
 Candler, NC, 28715
 License No: C-3097

DWN. BY: BC
 CHKD. BY: GFW
 DES. EGR. OF RECORD: GFW

DATE: 04/2026
 DATE: 04/2026
 DATE: 04/2026

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 TIME: \$\$\$SYTIME\$\$\$\$\$

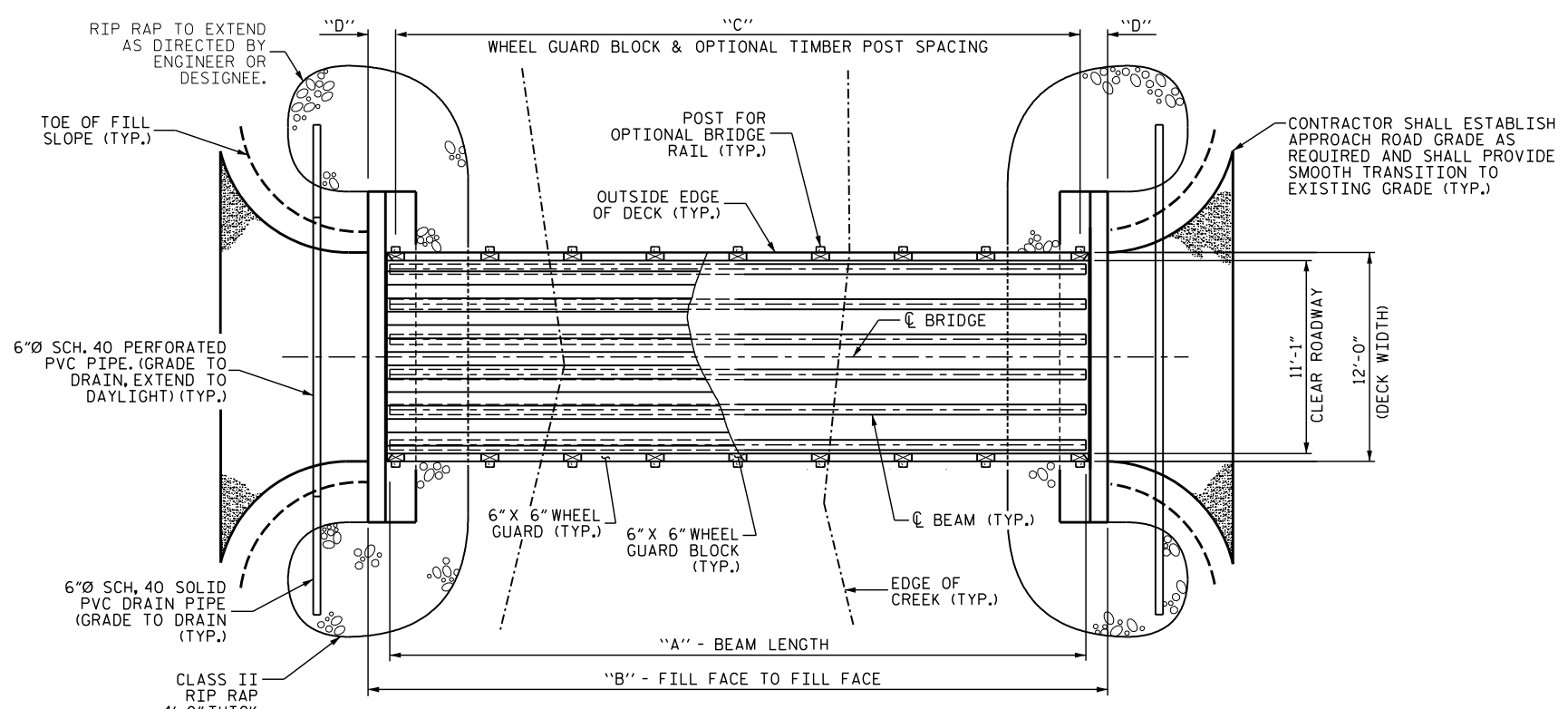
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>X-XXXX</i>	SHEET NO. EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
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

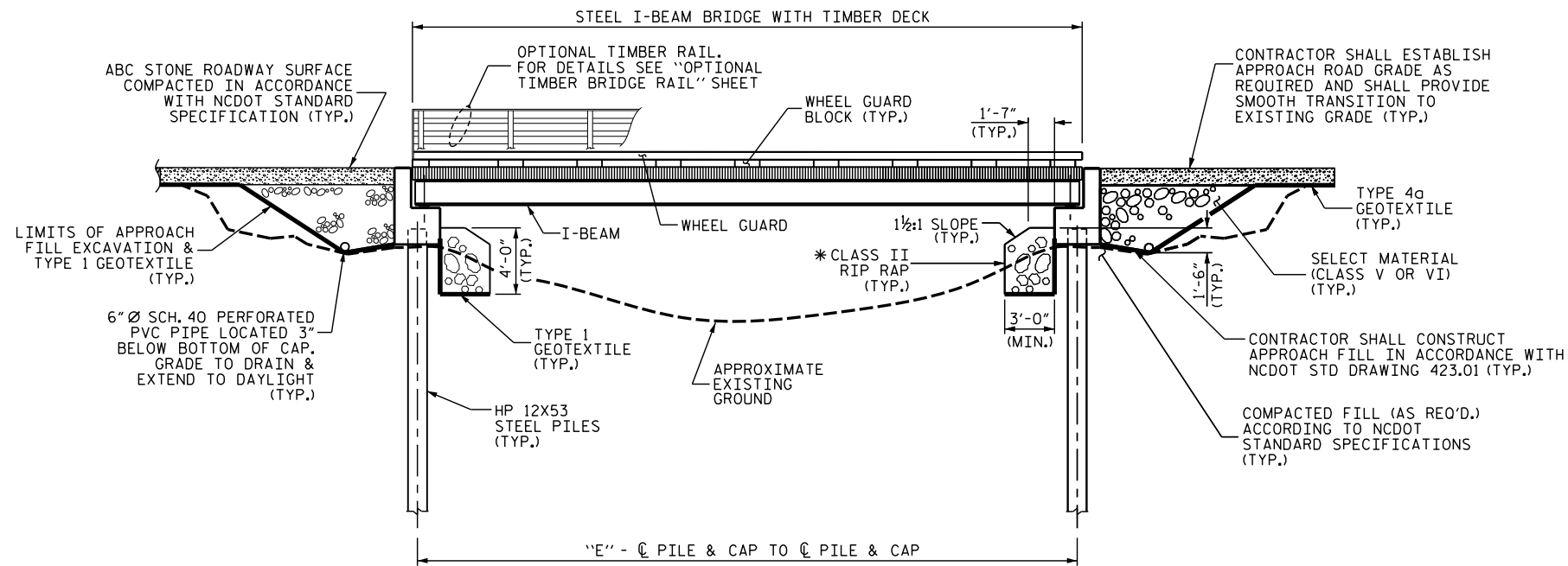
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 TIME: 4/7/2026



BRIDGE PLAN

(FOUNDATION TYPE NOT SHOWN FOR CLARITY)

DIMENSIONS TABLE					
SPAN	A	B	C	D	E
20'-0"	20'-0"	22'-6"	5 SPA. @ 3'-8"	2'-1"	19'-9"
30'-0"	30'-0"	32'-6"	7 SPA. @ 4'-0"	2'-3"	29'-9"
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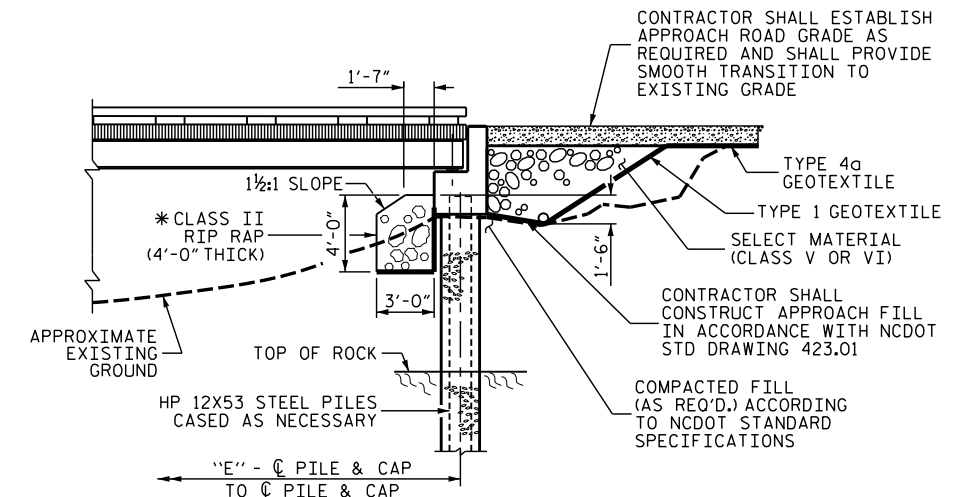
BRIDGE ELEVATION

(SHOWING DRIVEN 12X53 STEEL PILES FOUNDATION)

* SEE BSR FOR RIP RAP LIMITS

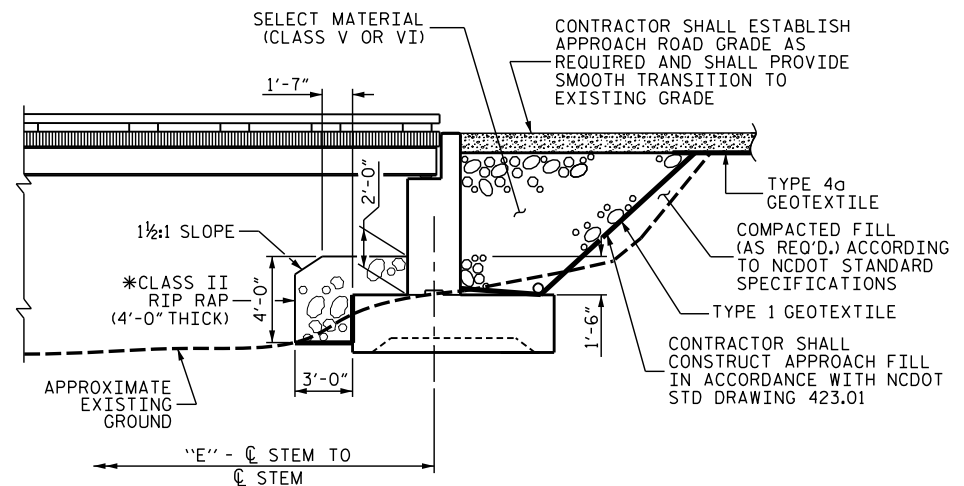
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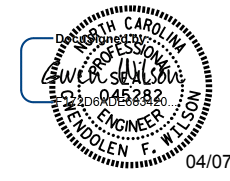
BRIDGE PARTIAL ELEVATION

(SHOWING DRILLED-IN 12X53 STEEL PILES FOUNDATION)



BRIDGE PARTIAL ELEVATION

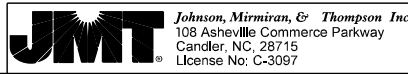
(SHOWING SPREAD FOOTING FOUNDATION)



04/07/2026

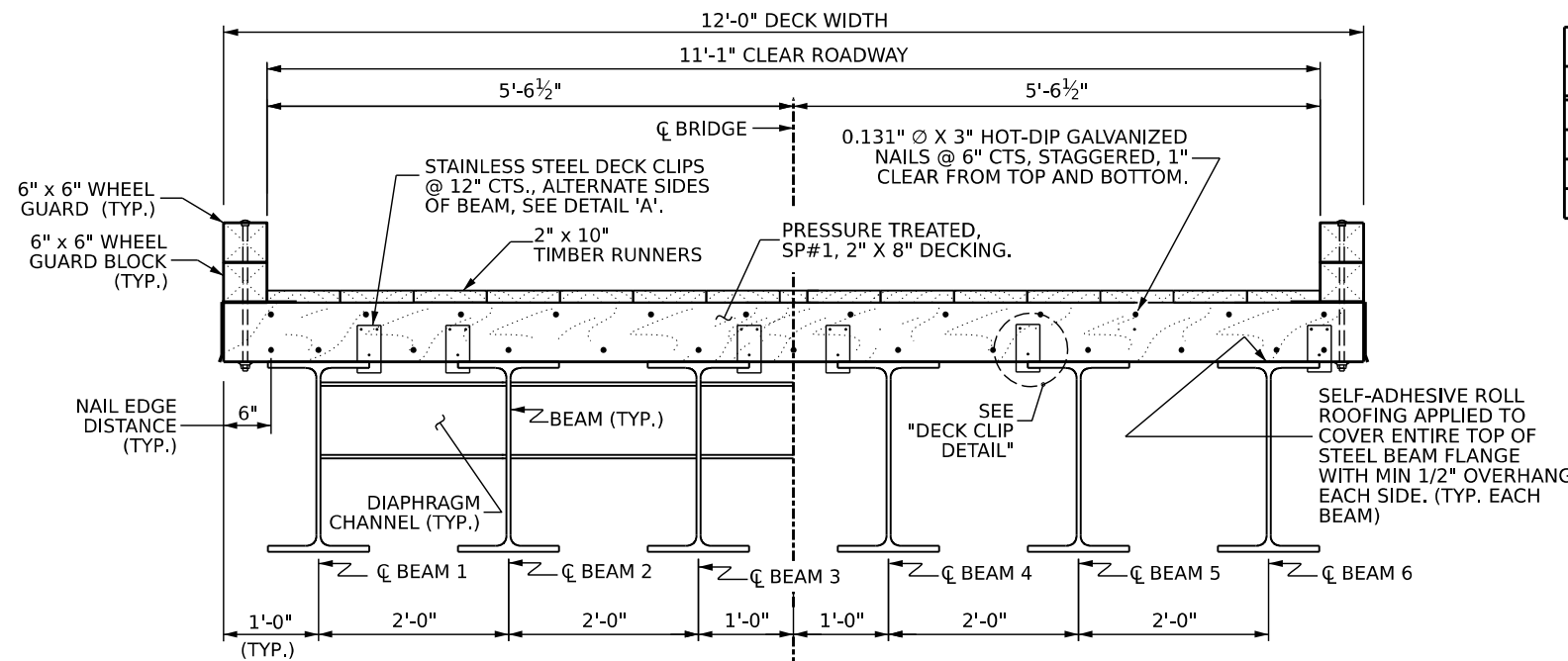
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT
PRIVATE DRIVEWAY BRIDGE STANDARDS
 SINGLE LANE STEEL BEAM BRIDGE
 TIMBER DECK
GENERAL DRAWING



DWN. BY: BC
 CHKD. BY: GFW
 DES. EGR. OF RECORD: GFW
 DATE: 04/2026
 DATE: 04/2026
 DATE: 04/2026

REVISIONS						SHEET NO. S-01
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			

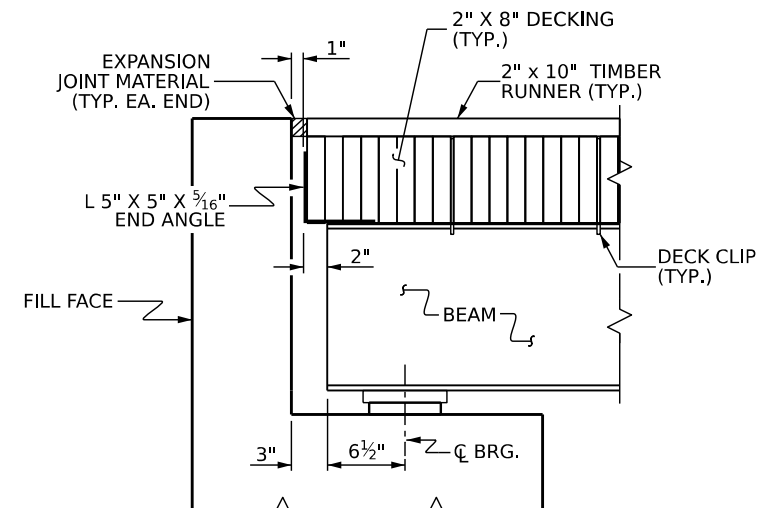


TYPICAL SECTION

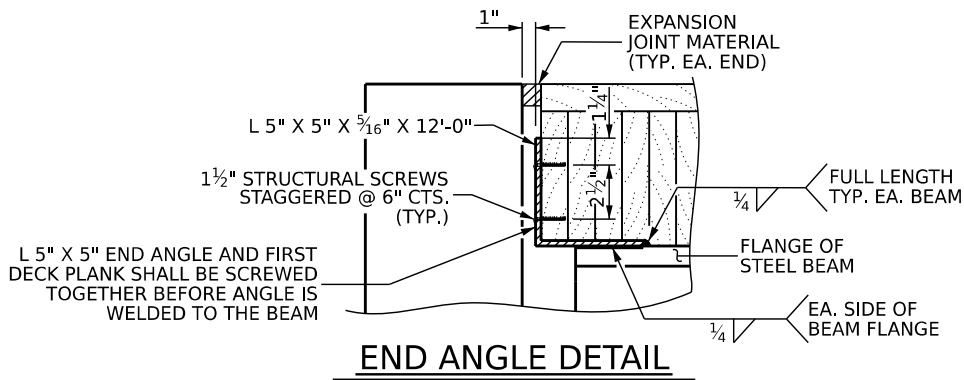
MATERIALS TABLE				
SPAN	BEAM	DIAPHRAGM CHANNEL	DECK PLANK	DECKING SQ. FT.
20'-0"	W16X36	C12X20.7	2X8	244
30'-0"	W21X48	C12X20.7	2X8	364
40'-0"	W24X76	C12X20.7	2X8	484
50'-0"	W24X104	C12X20.7	2X8	604

NOTES

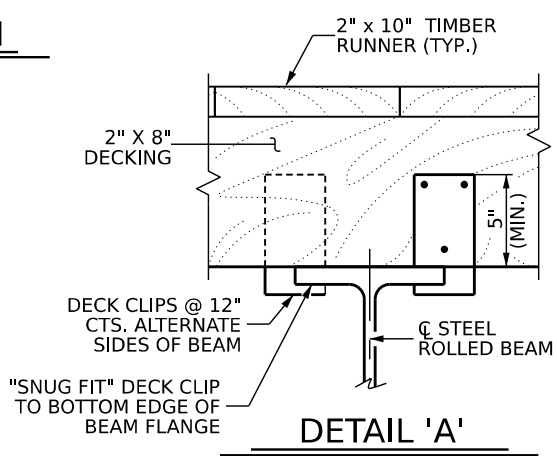
- FOR TIMBER BRIDGE DECK SYSTEM DETAILS, SEE "PLAN OF SPAN" SHEET.
- FOR OPTIONAL TIMBER RAILS, SEE "OPTIONAL TIMBER BRIDGE RAIL" SHEET.
- FOR BEAM AND DIAPHRAGM DETAILS, SEE "FRAMING PLAN & BEAM DETAILS" SHEET.
- TREAT ALL DRILLED OR NEWLY EXPOSED HOLES IN TIMBER MEMBERS BY PUMPING WITH BITUMINOUS ASPHALT-BASED ROOFING CEMENT, OR APPROVED PRESERVATIVE SYSTEM BEFORE INSTALLING HARDWARE.
- SEE "PLAN OF SPAN" SHEET FOR NUMBER OF WHEEL GUARDS AND WHEEL GUARD SPACING.
- STAINLESS STEEL DECK CLIPS SHALL BE FABRICATED FROM 12-GAUGE STEEL.
- THE 2"x10" TIMBER RUNNERS SHALL BE LAID OUT SYMMETRICALLY ABOUT THE CENTERLINE OF THE BRIDGE. ANY REQUIRED WIDTH ADJUSTMENT SHALL BE MADE AT THE CENTER RUNNER.
- PLACE 2X10 WEARING SURFACE BOARDS PARALLEL TO TRAFFIC WITH A UNIFORM 1/4" CLEAR LONGITUDINAL GAP BETWEEN ADJACENT BOARDS. DO NOT BUTT BOARDS TIGHT. THIS GAP SHALL BE MAINTAINED TO FACILITATE SURFACE DRAINAGE AND PREVENT MOISTURE ENTRAPMENT AT THE INTERFACE OF THE STRUCTURAL DECK.
- INSTALL 2X10 WEARING SURFACE BOARDS WITH GROWTH RINGS CURVING DOWNWARD TO PROMOTE DRAINAGE.



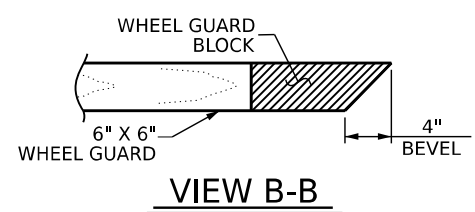
SECTION AT END BENT



END ANGLE DETAIL



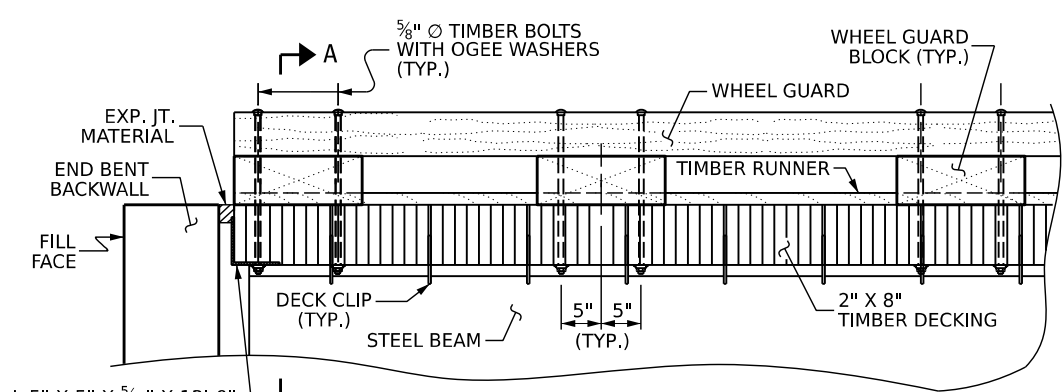
DETAIL 'A'



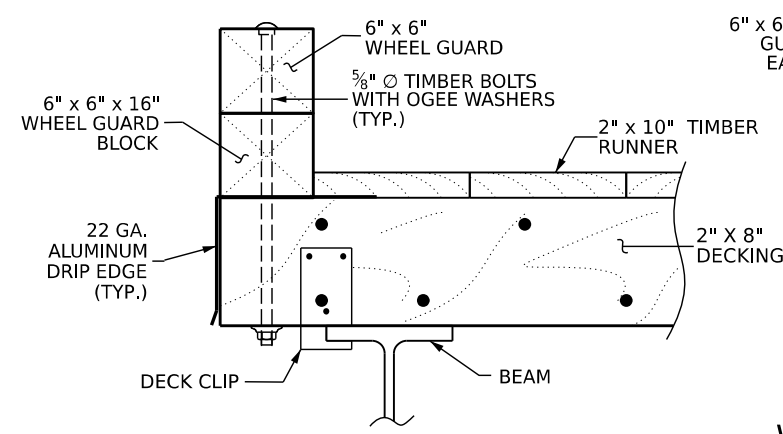
VIEW B-B

DECK CLIP DIMENSIONS		
SPAN	BEAM	*A
20'-0"	W16X36	1/2"
30'-0"	W21X48	1/2"
40'-0"	W24X76	3/4"
50'-0"	W24X104	13/16"

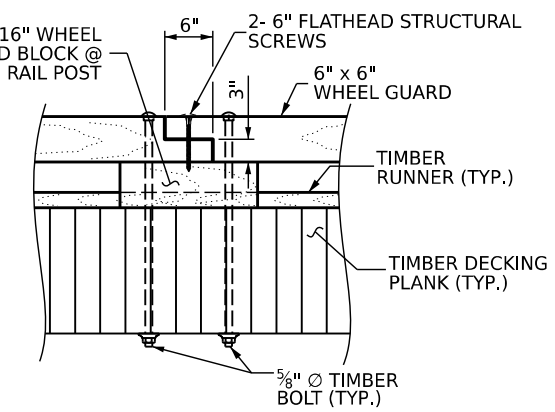
* DIMENSION A IS FOR INFORMATION ONLY. IT IS BASED ON THE FLANGE THICKNESS PLUS A 1/16" TOLERANCE. THE CONTRACTOR SHALL VERIFY THIS DIMENSION WITH DECK CLIP SUPPLIER. THE DECK CLIP SHALL HAVE A SNUG FIT TO THE BEAM FLANGE.



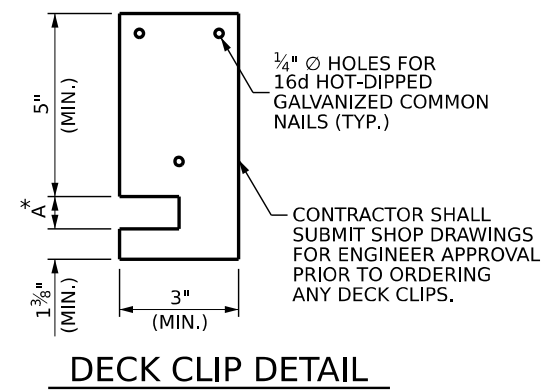
WHEEL GUARD DETAIL AT END BENTS



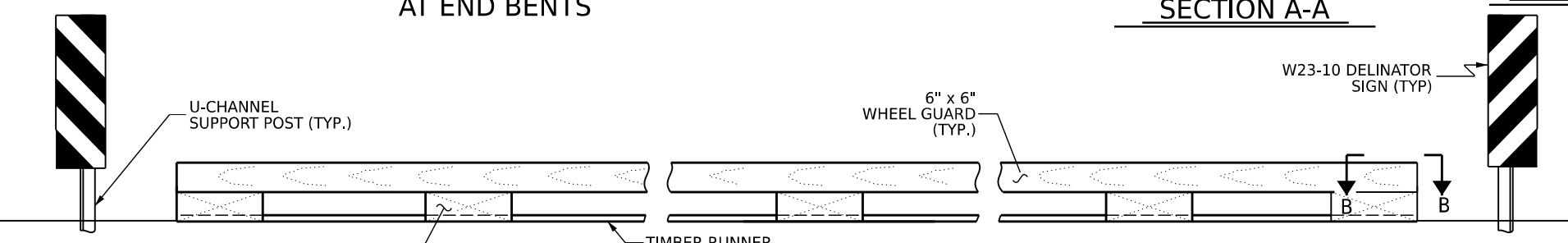
SECTION A-A



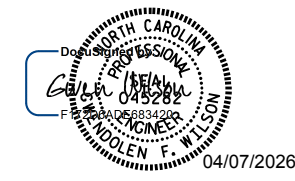
WHEEL GUARD SPLICE DETAIL



DECK CLIP DETAIL



WHEEL GUARD ELEVATION



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF EMERGENCY MANAGEMENT
PRIVATE DRIVEWAY BRIDGE STANDARDS
 SINGLE LANE STEEL BEAM BRIDGE
 2X8 TIMBER DECK
TYPICAL SECTION & RAIL DETAILS

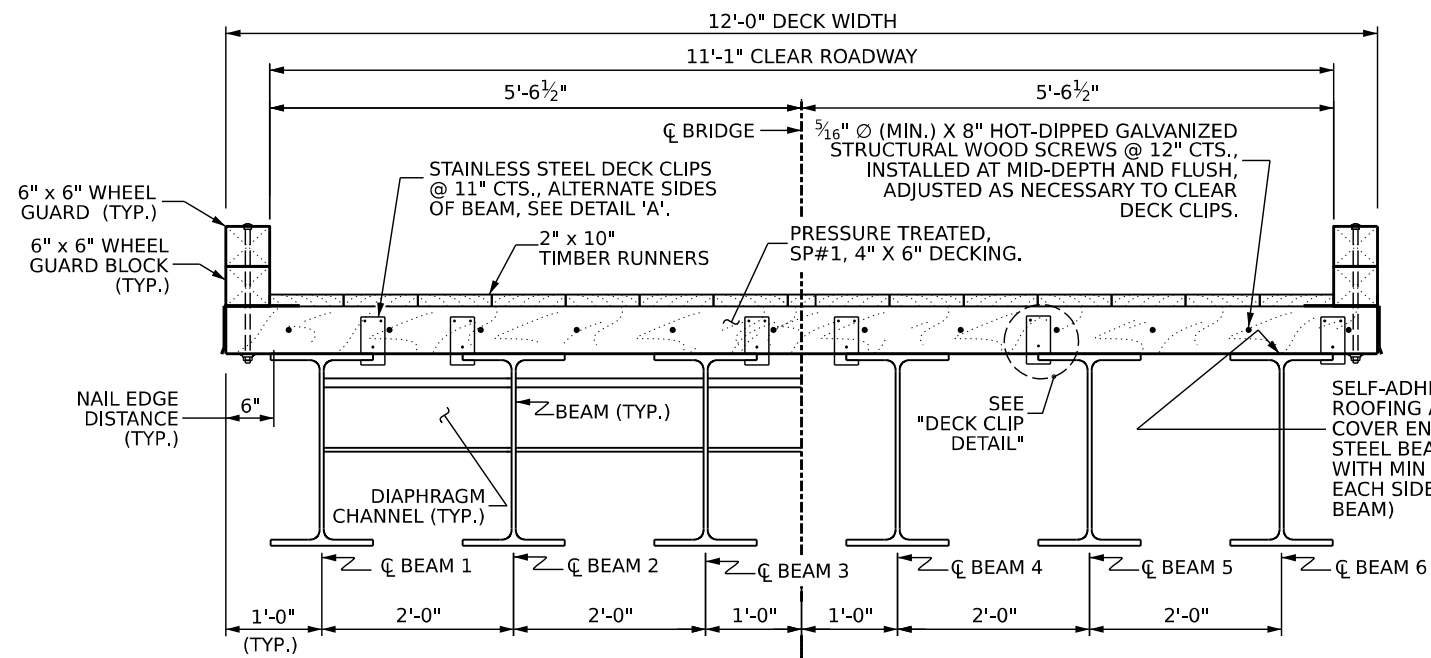
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-02
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JMT Johnson, Mirmiran, & Thompson Inc.
 108 Asheville Commerce Parkway
 Candler, NC, 28715
 License No. C-3097

DWN. BY: BC
 CHKD. BY: GFW
 DES. EGR. OF RECORD: GFW
 DATE: 04/2026
 DATE: 04/2026
 DATE: 04/2026

W:\Projects\2025\25-00529\25-00529-001\Design\Structures\NC PRB-Steel Beam with Timber Deck Standards\Single Lane Steel Beam with Timber Deck Standards\Drawings\20-70 FT - 12 FT DECK WIDTH\002-SZ-Typical Section.dgn
 DATE: 4/7/2026
 TIME: 11:11:11 AM

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 DATE: 4/7/2026
 TIME: 11:11:11 AM



TYPICAL SECTION

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FOR OPTIONAL TIMBER RAILS, SEE "OPTIONAL TIMBER BRIDGE RAIL" SHEET.

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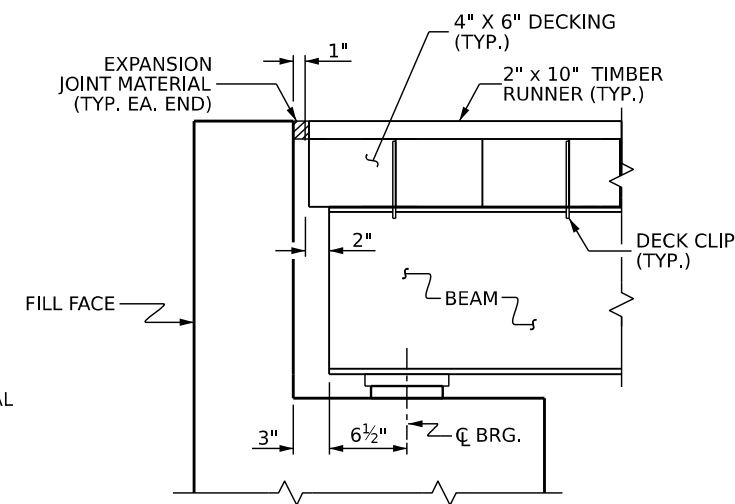
SEE "PLAN OF SPAN" SHEET FOR NUMBER OF WHEEL GUARDS AND WHEEL GUARD SPACING.

STAINLESS STEEL DECK CLIPS SHALL BE FABRICATED FROM 12 GAUGE STEEL.

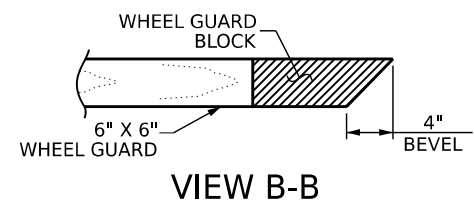
THE 2"x10" TIMBER RUNNERS SHALL BE LAID OUT SYMMETRICALLY ABOUT THE CENTERLINE OF THE BRIDGE. ANY REQUIRED WIDTH ADJUSTMENT SHALL BE MADE AT THE CENTER RUNNER.

PLACE 2X10 WEARING SURFACE BOARDS PARALLEL TO TRAFFIC WITH A UNIFORM 1/4" CLEAR LONGITUDINAL GAP BETWEEN ADJACENT BOARDS. DO NOT BUTT BOARDS TIGHT. THIS GAP SHALL BE MAINTAINED TO FACILITATE SURFACE DRAINAGE AND PREVENT MOISTURE ENTRAPMENT AT THE INTERFACE OF THE STRUCTURAL DECK.

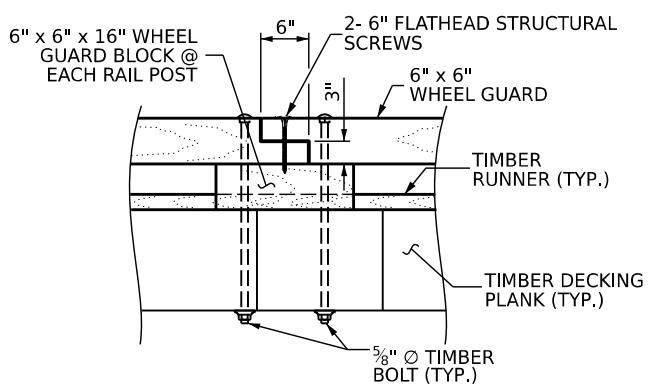
INSTALL 2X10 WEARING SURFACE BOARDS WITH GROWTH RINGS CURVING DOWNWARD TO PROMOTE DRAINAGE.



SECTION AT END BENT



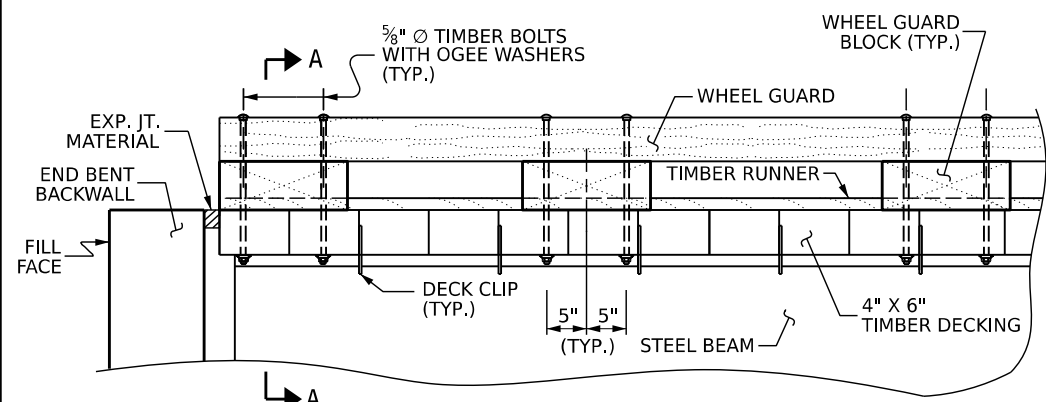
VIEW B-B



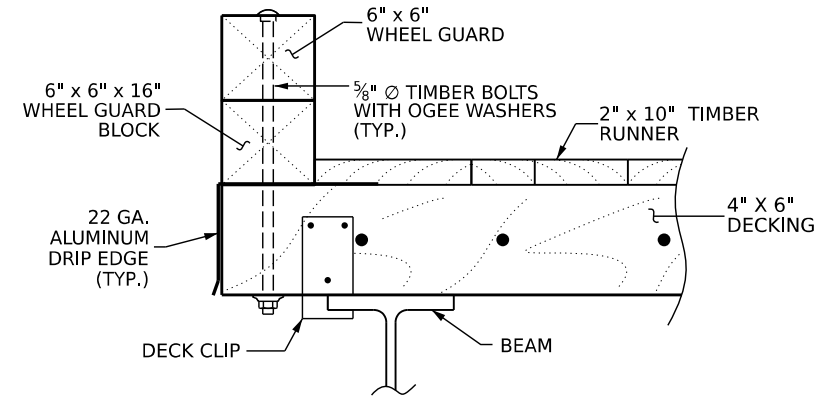
WHEEL GUARD SPLICE DETAIL

DECK CLIP DIMENSIONS		
SPAN	BEAM	*A
20'-0"	W16X36	1/2"
30'-0"	W21X48	1/2"
40'-0"	W24X76	3/4"
50'-0"	W24X104	13/16"

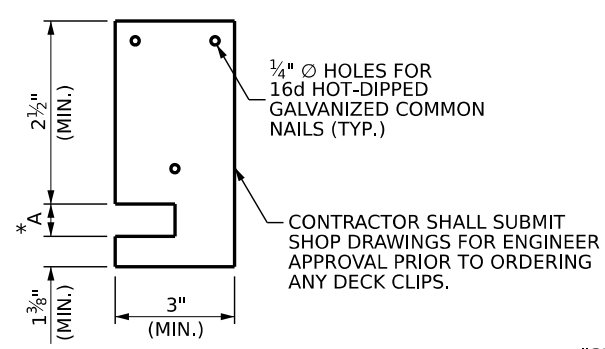
* DIMENSION A IS FOR INFORMATION ONLY. IT IS BASED ON THE FLANGE THICKNESS PLUS A 1/16" TOLERANCE. THE CONTRACTOR SHALL VERIFY THIS DIMENSION WITH DECK CLIP SUPPLIER. THE DECK CLIP SHALL HAVE A SNUG FIT TO THE BEAM FLANGE.



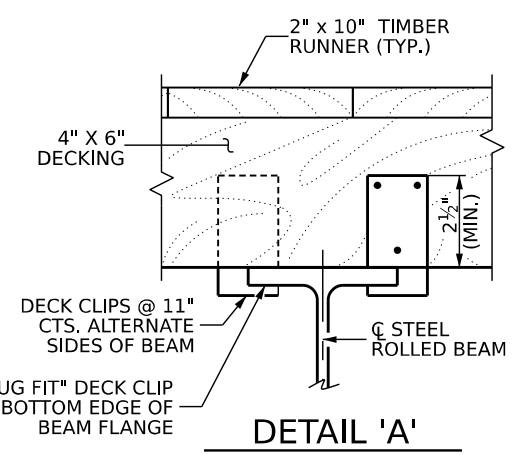
WHEEL GUARD DETAIL AT END BENTS



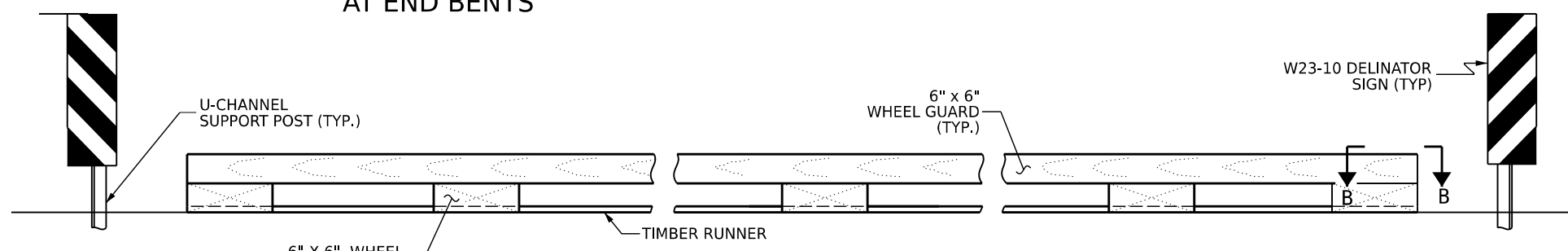
SECTION A-A



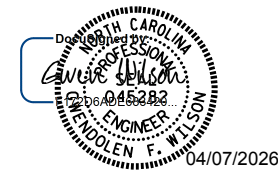
DECK CLIP DETAIL



DETAIL 'A'



WHEEL GUARD ELEVATION



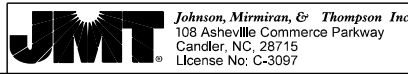
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

**PRIVATE DRIVEWAY
BRIDGE STANDARDS**

SINGLE LANE STEEL BEAM BRIDGE
4X6 TIMBER DECK

**OPTIONAL TYPICAL SECTION
& RAIL DETAILS**

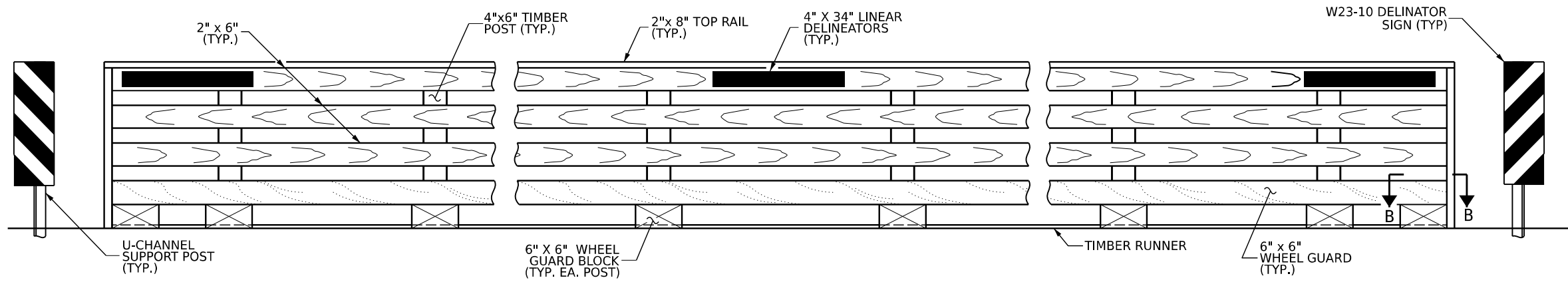


DWN. BY: BC
CHKD. BY: GFW
DES. EGR. OF RECORD: GFW

DATE: 04/2026
DATE: 04/2026
DATE: 04/2026

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-03
1			3			TOTAL SHEETS 13
2			4			

W:\Projects\2025\25-00629\25-00629-001\Design\Structures\NC PRB-Steel Beam with Timber Deck Standards\Single Lane Steel Beam with Timber Deck Plans\2 Standard Drawings\20-70 FT - 12 FT DECK WIDTH\004-54 Optional Bridge Rail.dwg
 DATE: 4/7/2026
 TIME:



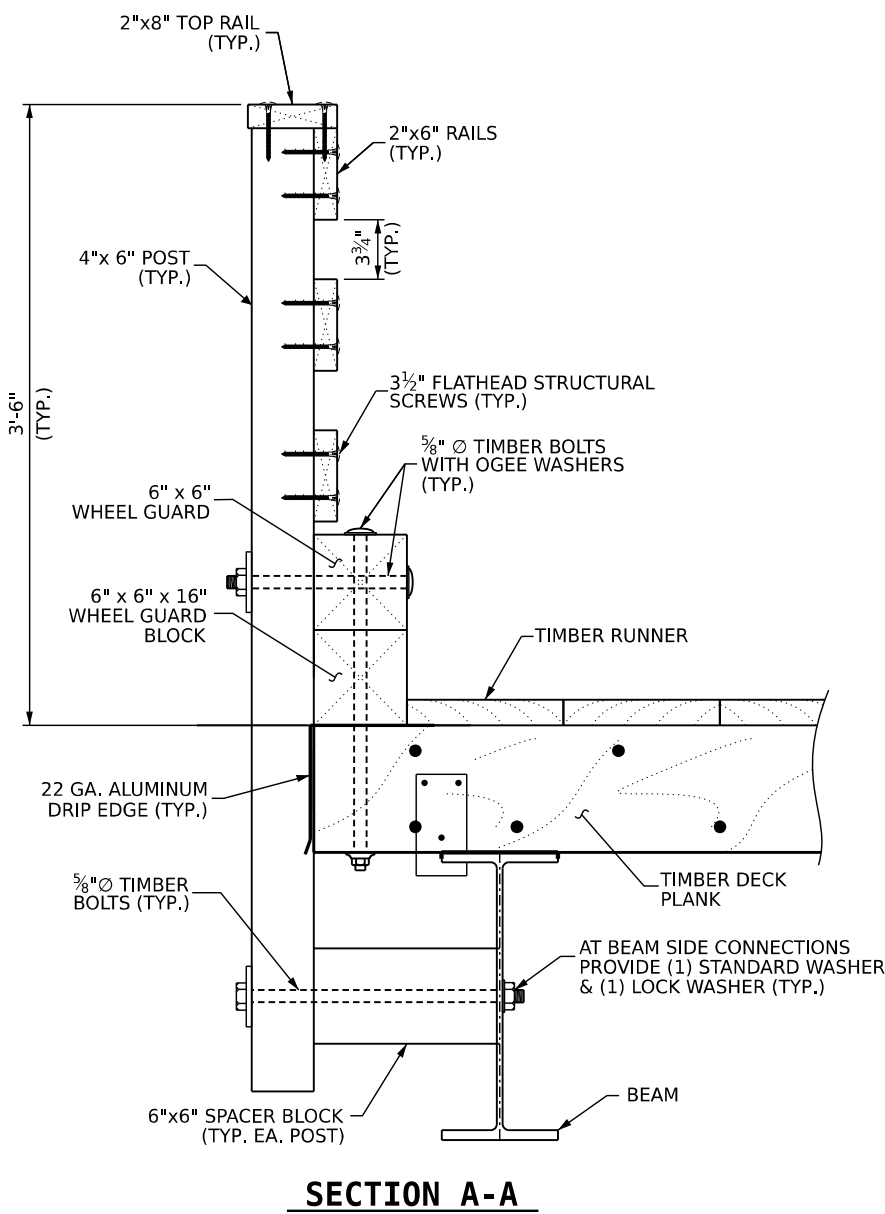
ELEVATION OF OPTIONAL BRIDGE RAIL

OPTIONAL BRIDGE RAIL NOTES

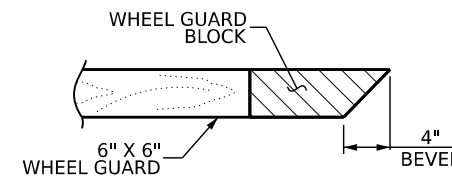
BRIDGE RAILS SHALL BE CONTINUOUS FROM END POST TO END POST WITH NO GAPS. RAIL LUMBER LENGTHS SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

TREAT ALL DRILLED OR NEWLY EXPOSED HOLES IN TIMBER MEMBERS BY PUMPING WITH BITUMINOUS ASPHALT-BASED ROOFING CEMENT, OR APPROVED PRESERVATIVE SYSTEM BEFORE INSTALLING HARDWARE.

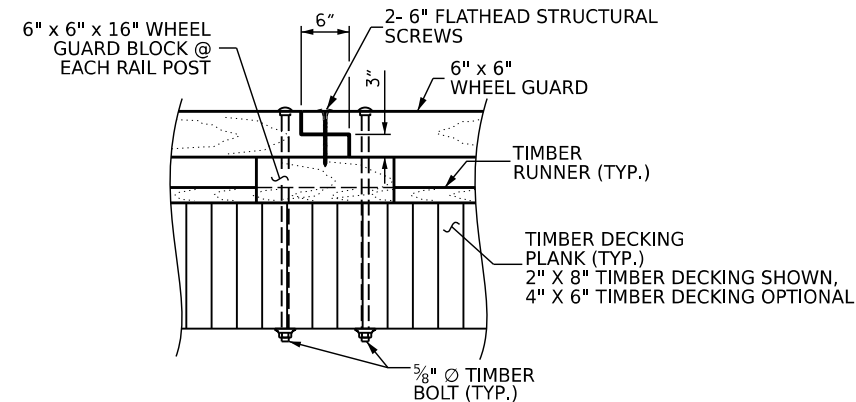
SEE "PLAN OF SPAN" SHEET FOR NUMBER OF POSTS AND POST SPACING.



SECTION A-A

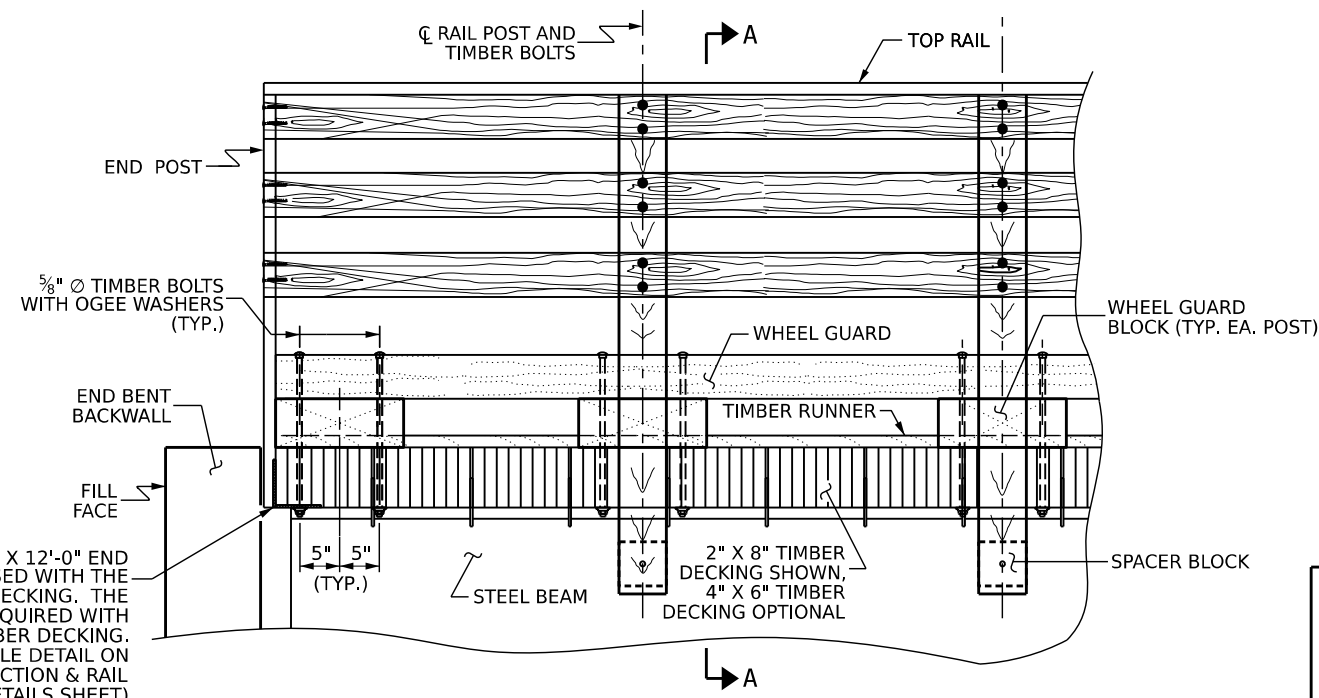


VIEW B-B



WHEEL GUARD SPLICE DETAIL

L 5" X 5" X 5/16" X 12'-0" END ANGLE TO BE USED WITH THE 2" X 8" TIMBER DECKING. THE ANGLE IS NOT REQUIRED WITH THE 4" X 6" TIMBER DECKING. (SEE END ANGLE DETAIL ON TYPICAL SECTION & RAIL DETAILS SHEET)



OPTIONAL RAIL DETAIL AT END BENTS



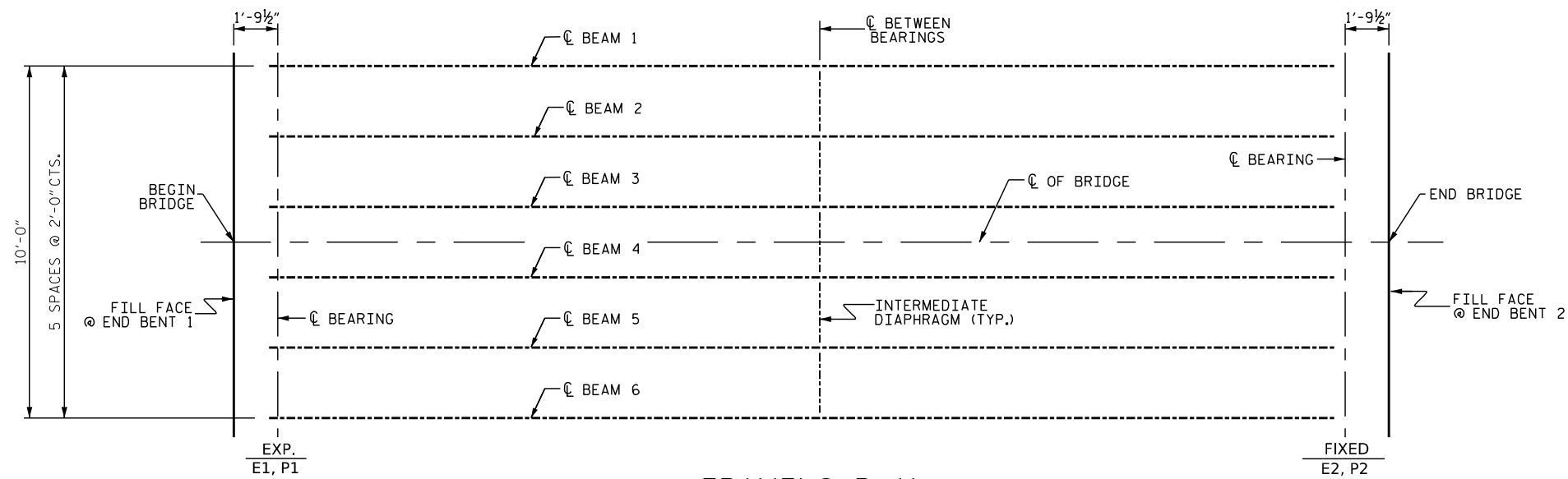
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT
PRIVATE DRIVEWAY
BRIDGE STANDARDS
 SINGLE LANE STEEL BEAM BRIDGE
 TIMBER DECK
OPTIONAL TIMBER
BRIDGE RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-04
1			3			TOTAL SHEETS
2			4			13

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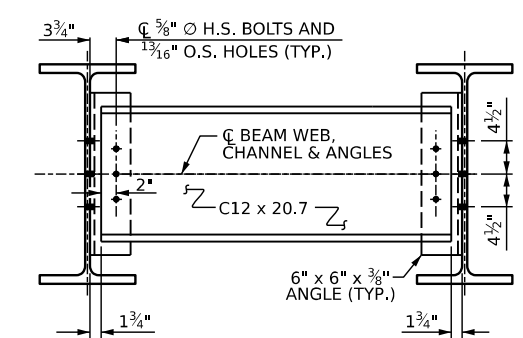
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 DES. EGR. OF RECORD: GFW
 DATE: 04/2026
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 DATE: 04/2026



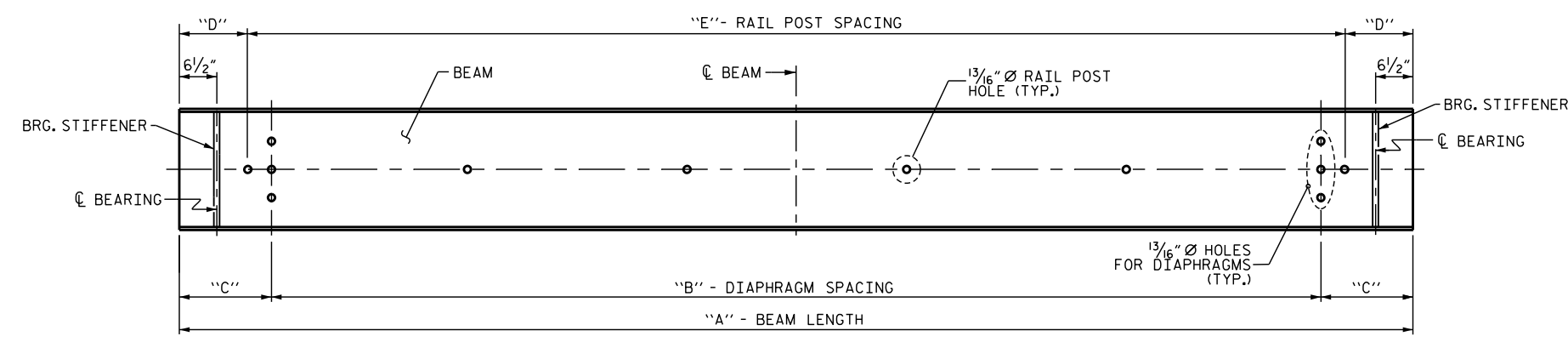
FRAMING PLAN

EXPANSION BEARING SHALL BE PLACED ON THE "UPHILL" END OF THE BRIDGE.

- NOTES**
- NO SALVAGED BEAMS SHALL BE USED, UNLESS OTHERWISE NOTED ON THE PLANS.
 - NO SHOP CAMBER REQUIRED, TURN NATURAL MILL CAMBER UP.
 - ALL STRUCTURAL STEEL FIELD CONNECTIONS SHALL BE 5/8" DIA. GALVANIZED HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.
 - BEAMS SHALL BE PLACED PARALLEL TO THE CHORD.
 - CONTRACTORS OPTION TO WELD CONNECTOR TO BEAM PRIOR TO SHOP COATING.
 - SEE "GENERAL NOTES" SHEET FOR COATING.

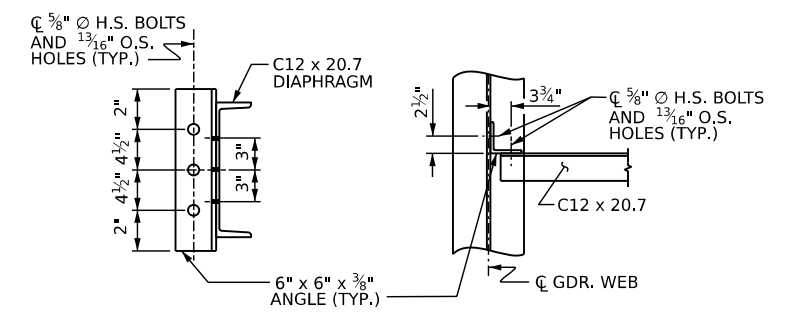


DIAPHRAGM DETAILS



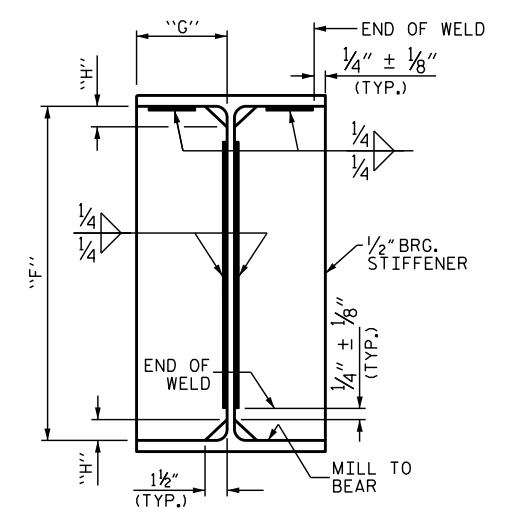
BEAM FLANGE ELEVATION

SHOWING DIAPHRAGM HOLES FOR ALL BEAMS, AND RAIL POST HOLES FOR EXTERIOR BEAMS.



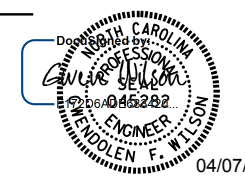
ANGLE DETAILS

BEAM DIMENSION TABLE							
SPAN	BEAM	CHANNEL	A	B	C	D	E
20'-0"	W16X36	C12X20.7	20'-0"	2 SPA. @ 7'-0"	3'-0"	10"	5 SPA. @ 3'-8"
30'-0"	W21X48	C12X20.7	30'-0"	2 SPA @ 12'-0"	3'-0"	1'-0"	7 SPA. @ 4'-0"
40'-0"	W24X76	C12X20.7	40'-0"	2 SPA. @ 17'-0"	3'-0"	10 1/2"	9 SPA. @ 4'-3"
50'-0"	W24X104	C12X20.7	50'-0"	2 SPA. @ 22'-0"	3'-0"	1'-2"	11 SPA. @ 4'-4"



SECTION VIEW - BRG. STIFFENER

STIFFENER DIMENSION			
BEAM	F	G	H
W16X36	1'-3"	3 3/8"	2"
W21X48	1'-7 3/4"	3 7/8"	2"
W24X76	1'-10 9/16"	4 1/4"	2 7/16"
W24X104	1'-10 9/16"	6 1/8"	2 3/4"



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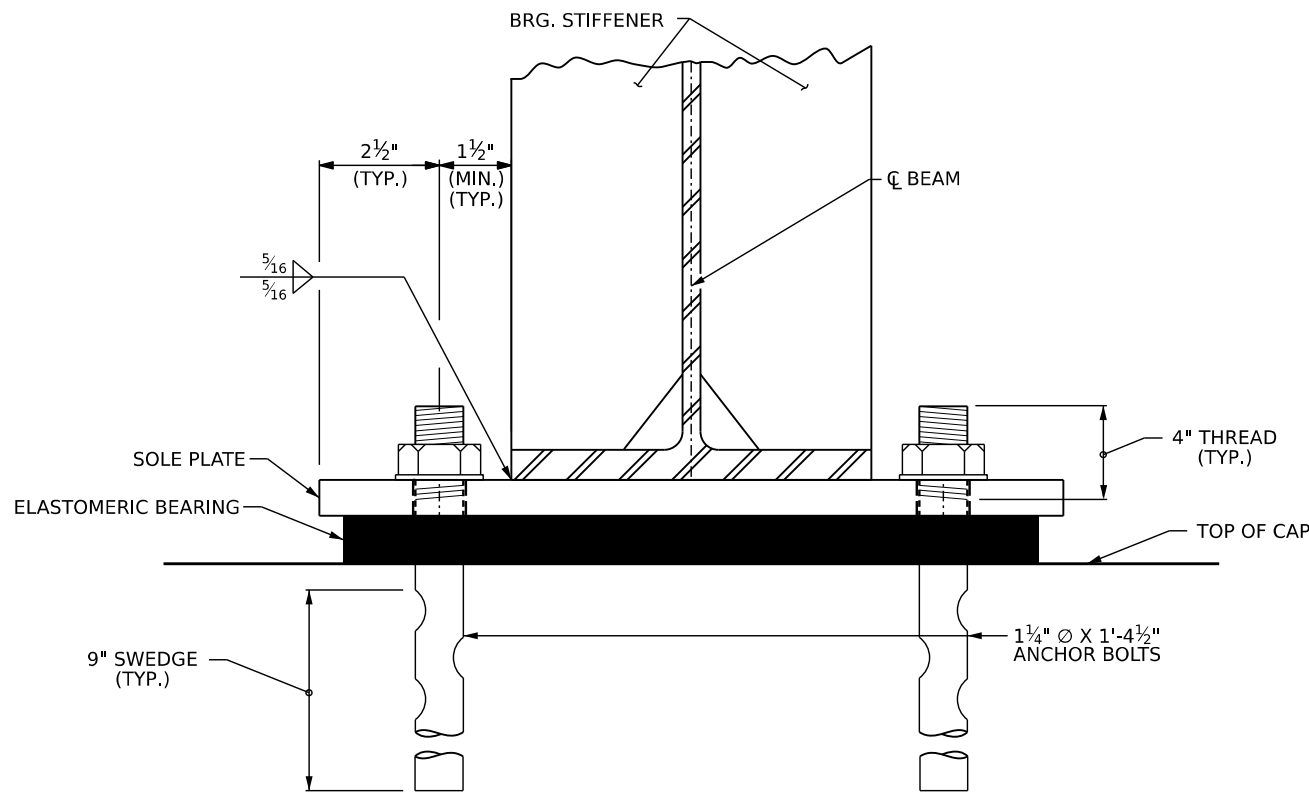
NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT
PRIVATE DRIVEWAY BRIDGE STANDARDS
 SINGLE LANE STEEL BEAM BRIDGE
 TIMBER DECK
FRAMING PLAN & BEAM DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-06
1			3			TOTAL SHEETS 13
2			4			

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DWN. BY: BC
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 DES. EGR. OF RECORD: GFW
 DATE: 04/2026
 DATE: 04/2026
 DATE: 04/2026

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 DATE: 4/7/2026
 TIME: 11:51:00 AM



SECTION AT BEARING
END VIEW

DIMENSIONS TABLE						
SPAN	BEAM	FLANGE WIDTH	TYPE	A	B	C
20'-0"	W16X36	7"	I	11"	1'-3"	1'-4"
30'-0"	W21X48	8 ¹ / ₈ "	II	1'-1"	1'-5"	1'-6"
40'-0"	W24X76	9"	II	1'-1"	1'-5"	1'-6"
50'-0"	W24X104	12 ³ / ₄ "	III	1'-4"	1'-8"	1'-9"

NOTES

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

AT ALL SUPPORTS, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

ALL BEARING PLATES SHALL BE AASHTO M270 GRADE 36.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS, AND WASHERS. SHOP INSPECTION IS REQUIRED.

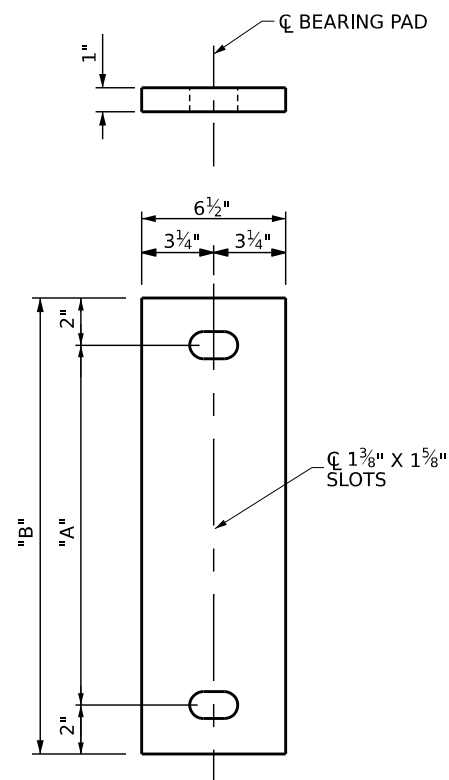
AT THE APPROVAL OF THE ENGINEER, SOLE PLATES AT THE EXPANSION END MAY BE FIELD WELDED.

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

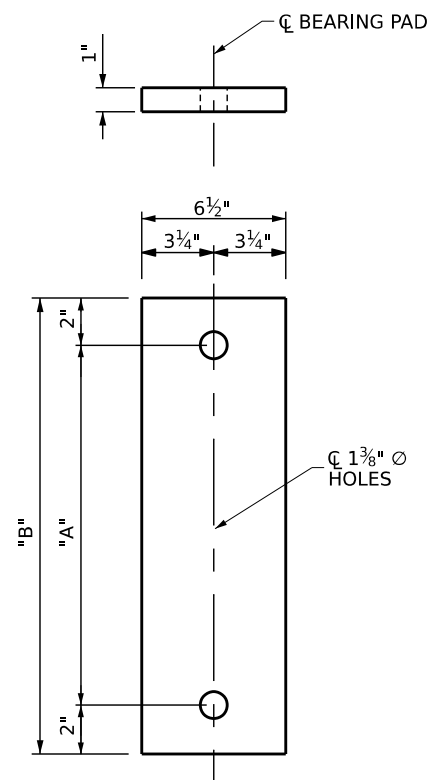
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

AT NO ADDITIONAL COST, THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CAST-IN-PLACE ANCHORS. LEVEL 1 FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE ANCHOR BOLT IS 30 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

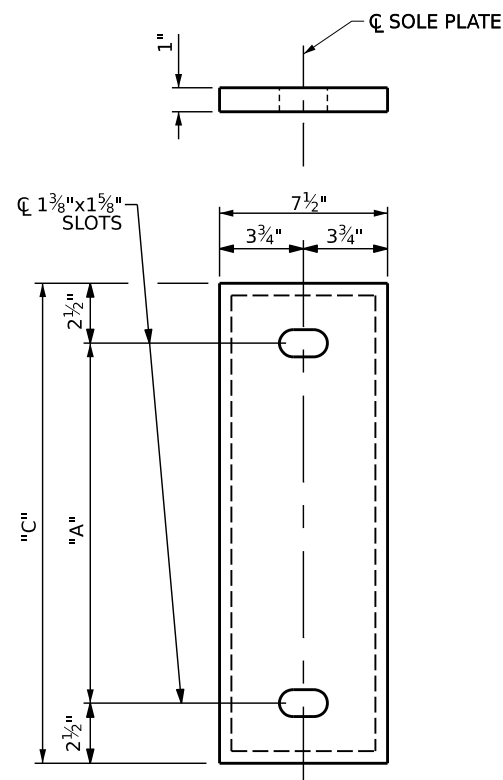
ADHESIVELY ANCHORED ANCHOR BOLTS SHALL BE THREADED FULL LENGTH.



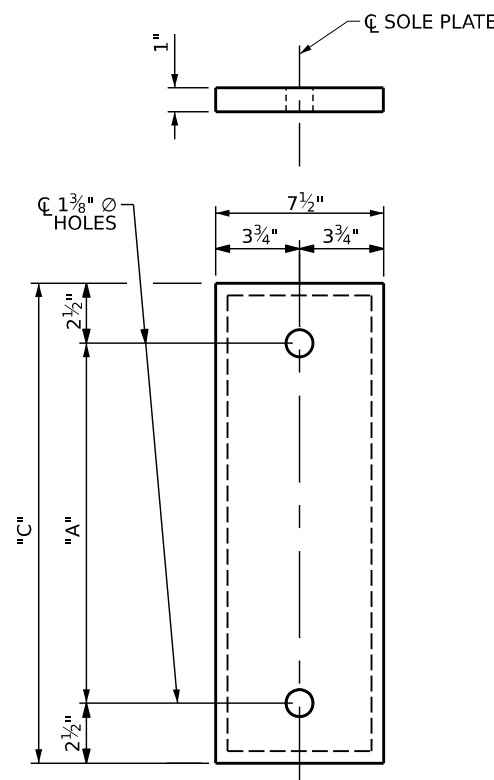
E1 ELASTOMERIC BEARING DETAILS
(6 REQ'D)
EXPANSION



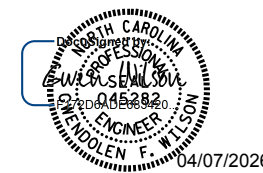
E2 ELASTOMERIC BEARING DETAILS
(6 REQ'D)
FIXED



P1 SOLE PLATE DETAILS
(6 REQ'D)
EXPANSION



P2 SOLE PLATE DETAILS
(6 REQ'D)
FIXED



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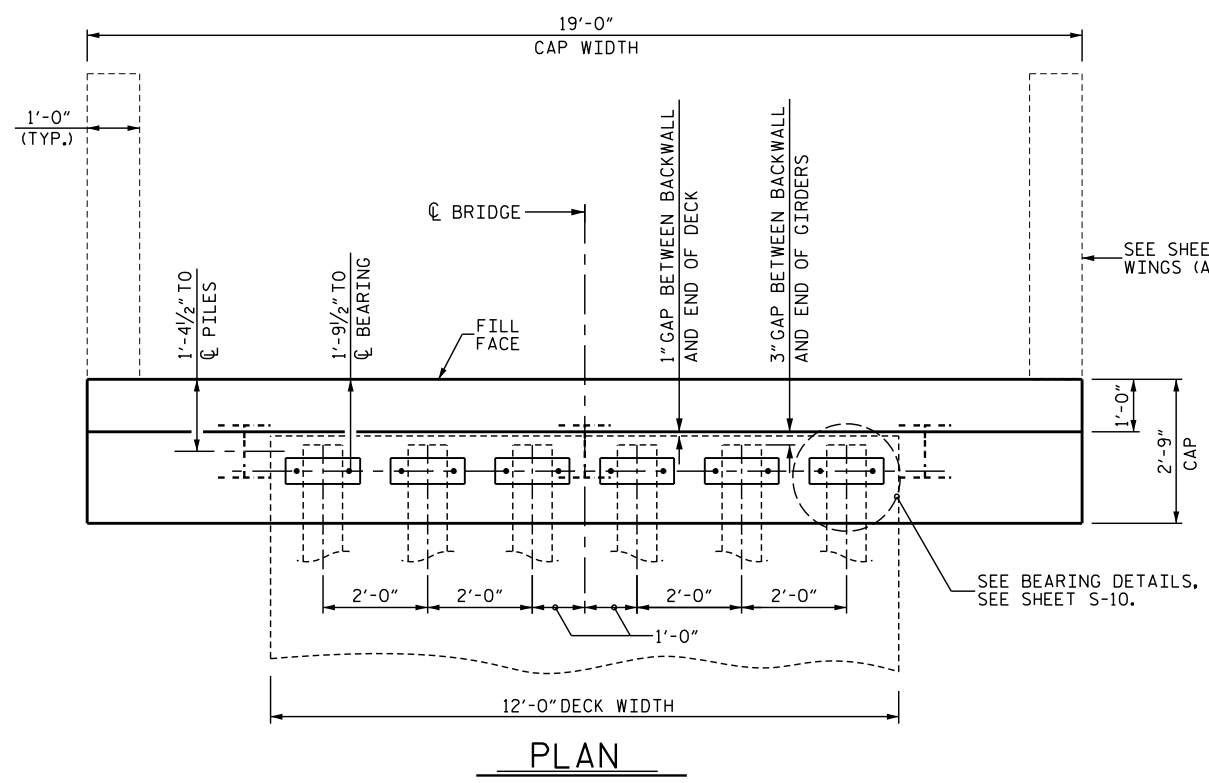
**PRIVATE DRIVEWAY
BRIDGE STANDARDS**

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

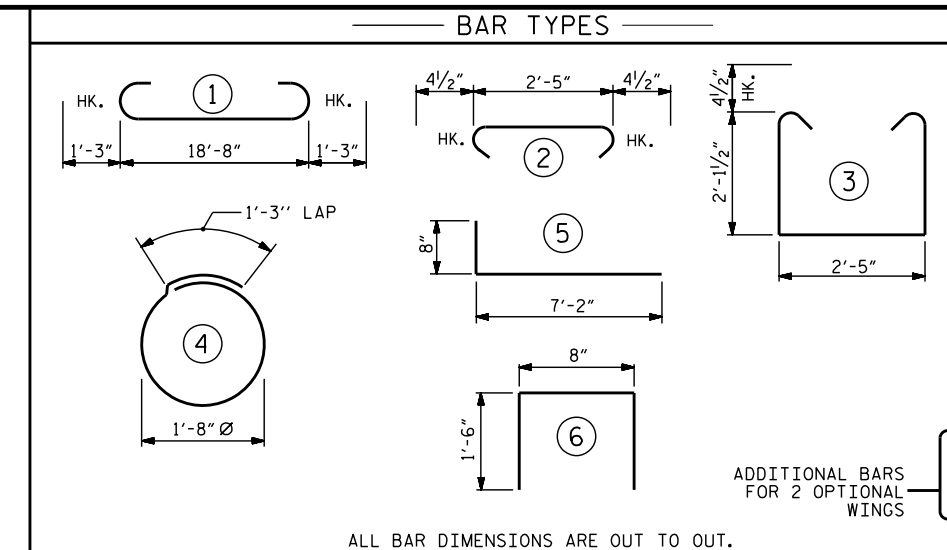
BEARING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-07
1			3			TOTAL SHEETS
2			4			13

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 TIME: 11:41:00 AM



PLAN



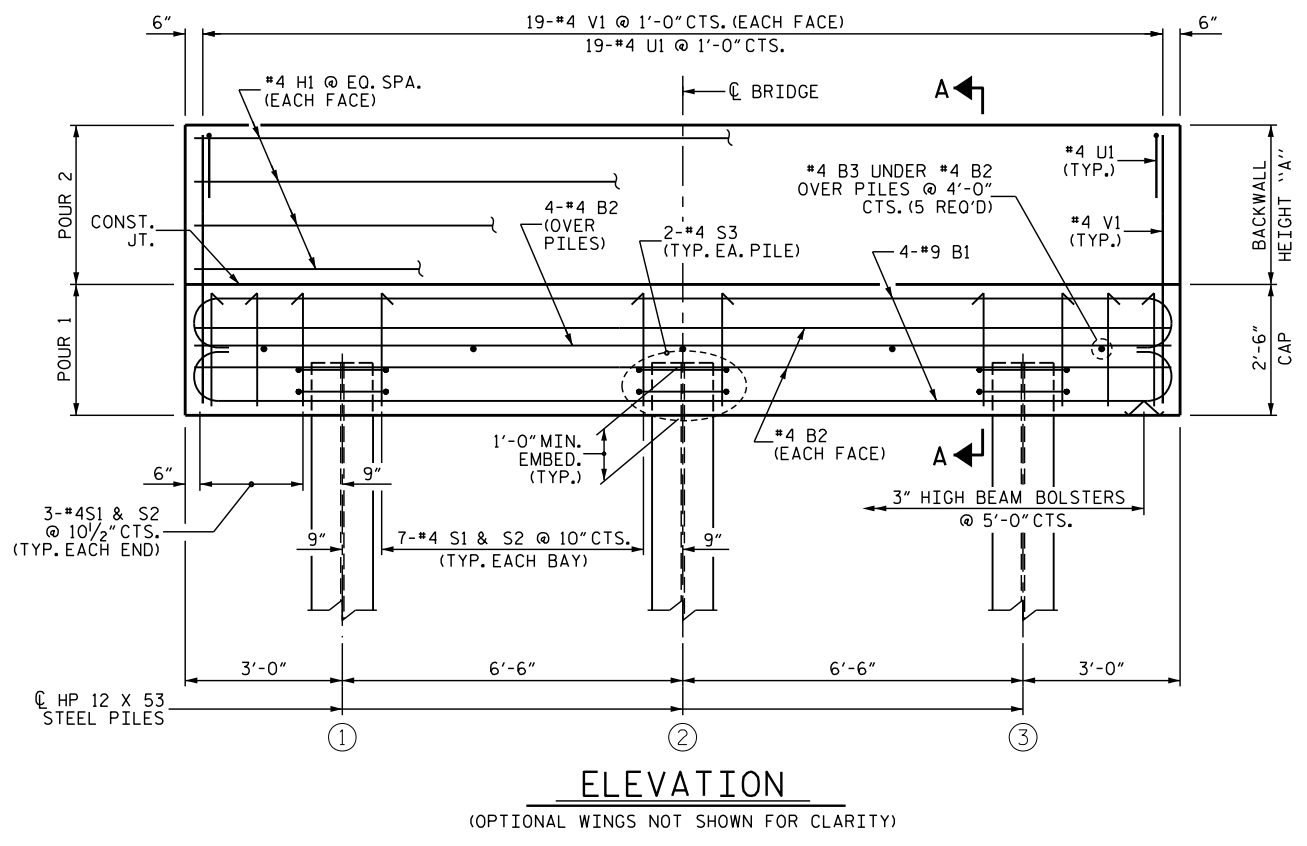
BILL OF MATERIAL FOR ONE END BENT					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#8	#9	1	21'-2"	576
B2	#8	#4	STR	18'-8"	100
B3	#5	#4	STR	2'-5"	8
H1	#8	#4	STR	18'-8"	100
S1	20	#4	3	7'-5"	99
S2	20	#4	2	3'-2"	42
S3	6	#4	4	6'-6"	26
U1	19	#4	6	3'-8"	47
V1	38	#4	STR	4'-4"	110
H2	28	#4	5	7'-10"	147
V2	56	#4	STR	3'-2"	118

BACKWALL HEIGHT			
SPAN	BEAM	A (2X8 DECKING)	A (4X6 DECKING)
20'-0"	W16X36	2'-2 ⁵ / ₈ "	1'-10 ⁷ / ₈ "
30'-0"	W21X48	2'-7 ³ / ₈ "	2'-3 ⁵ / ₈ "
40'-0"	W24X76	2'-10 ³ / ₈ "	2'-6 ⁷ / ₈ "
50'-0"	W24X104	2'-10 ³ / ₄ "	2'-7"

DIMENSION "A" (BACKWALL HEIGHT) VARIES BASED ON DECKING TYPE. USE VALUES CORRESPONDING TO SELECTED DECKING OPTION.

REINFORCING STEEL (FOR ONE END BENT) (LBS.) *	W/O WINGS	WITH WINGS
1,108	1,108	1,373
CLASS A CONCRETE (FOR ONE END BENT) (C.Y.)		
POUR 1	4.8	6.0
POUR 2 *	1.7	2.8
TOTAL	6.5	8.8

* REINFORCING AND CONCRETE QUANTITIES ARE BASED ON THE SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. CONTRACTOR SHALL ADJUST FOR 4X6 DECKING OR INCREASED BACKWALL HEIGHT.



ELEVATION

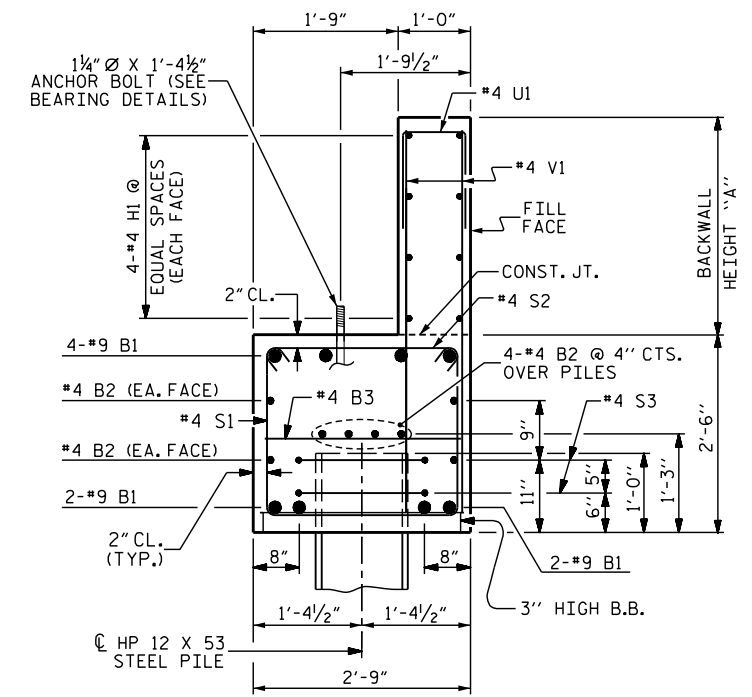
GENERAL NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 CONTRACTOR SHALL SLOPE TOP OF CAP TO MATCH LONGITUDINAL GRADE OF THE BRIDGE. SLOPES SHALL MATCH ON BOTH END BENT 1 AND END BENT 2 CAPS.
 WINGS MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER OR DESIGNER.
 FOR OPTIONAL WINGS FOR END BENT, SEE SHEET S-10.
 FOR BEARING DETAILS, SEE SHEET S-10.
 FOR PILE SPLICE DETAILS, SEE SHEET S-10.

*"Y" BARS BASED ON SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. ADJUST LENGTH TO MAINTAIN REQUIRED MIN. CLEARANCE AT BOTTOM OF CAP AND TOP OF BACKWALL.

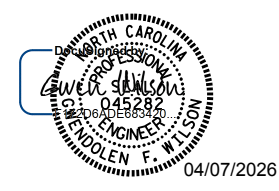
FOUNDATION NOTES

DRIVEN PILES
 INSTALL PILES IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.
 DO NOT INSTALL PILES UNTIL FILL HAS BEEN PLACED.
 DRIVE PILES TO A MINIMUM PENETRATION OF AT LEAST 10 FEET INTO NATURAL GROUND OR CHANNEL BOTTOM.
 DRIVE ALL PILES TO "REFUSAL" BELOW MINIMUM PENETRATION.
 PREDRILLING OR SPUDDING MAY BE REQUIRED TO ACHIEVE THE MINIMUM PILE PENETRATION.
 SUBMIT THE PROPOSED PILE DRIVING METHODS AND EQUIPMENT FOR ACCEPTANCE BY THE ENGINEER.



SECTION A-A

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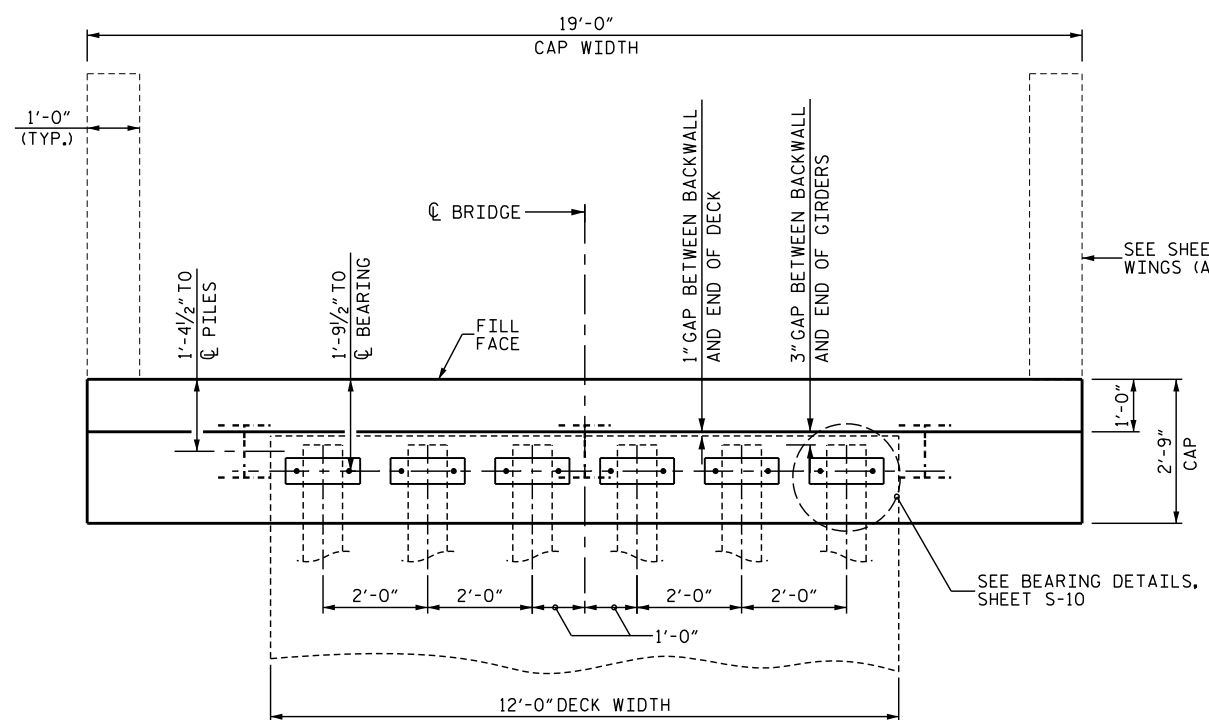
PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

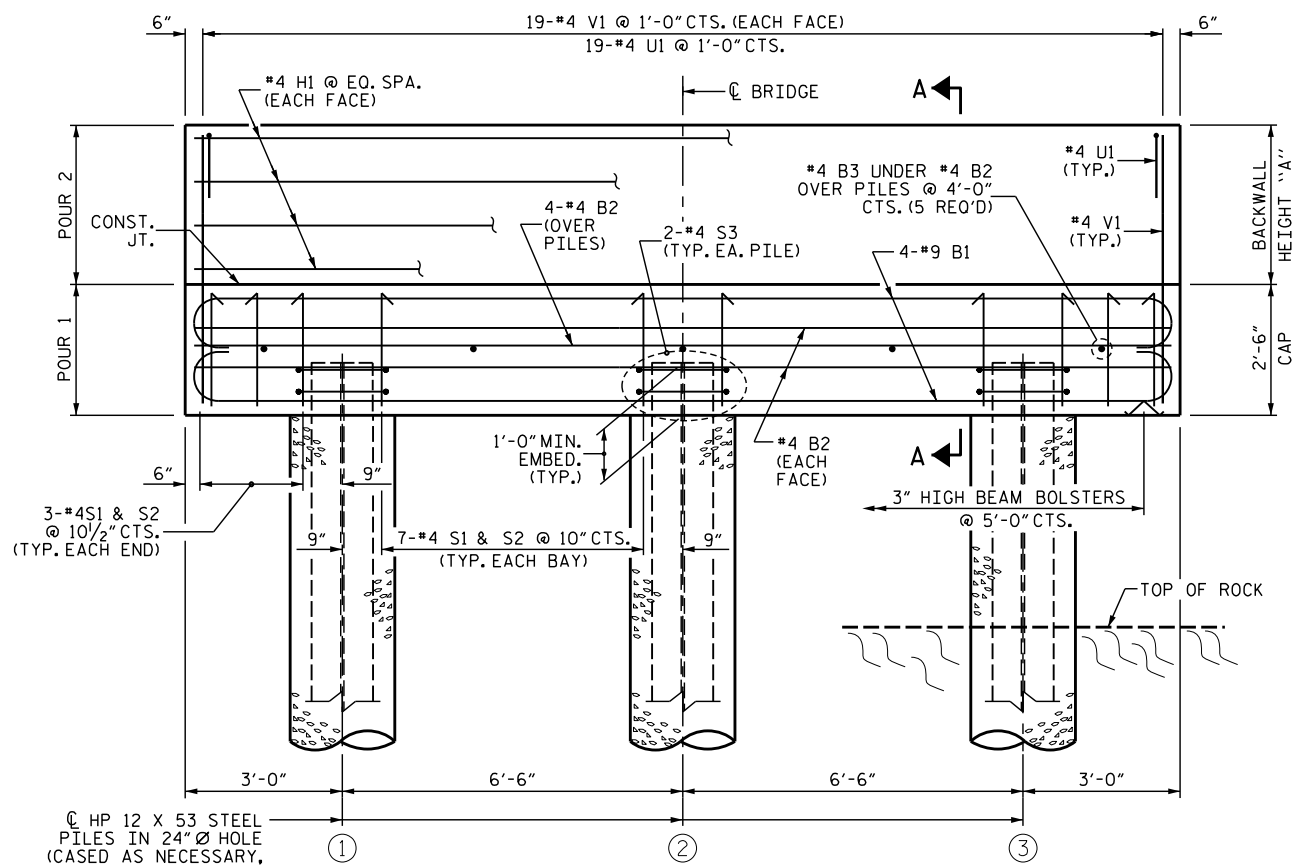
END BENT DRIVEN PILES

Johnson, Mirmiran, & Thompson Inc. 108 Asheville Commerce Parkway Candler, NC, 28715 License No. C-3097	DWN. BY: BC CHKD. BY: GFW DES. EGR. OF RECORD: GFW	DATE: 04/2026 DATE: 04/2026 DATE: 04/2026	NO. 1 BY: 3 DATE: 4	SHEET NO. S-08 TOTAL SHEETS 13
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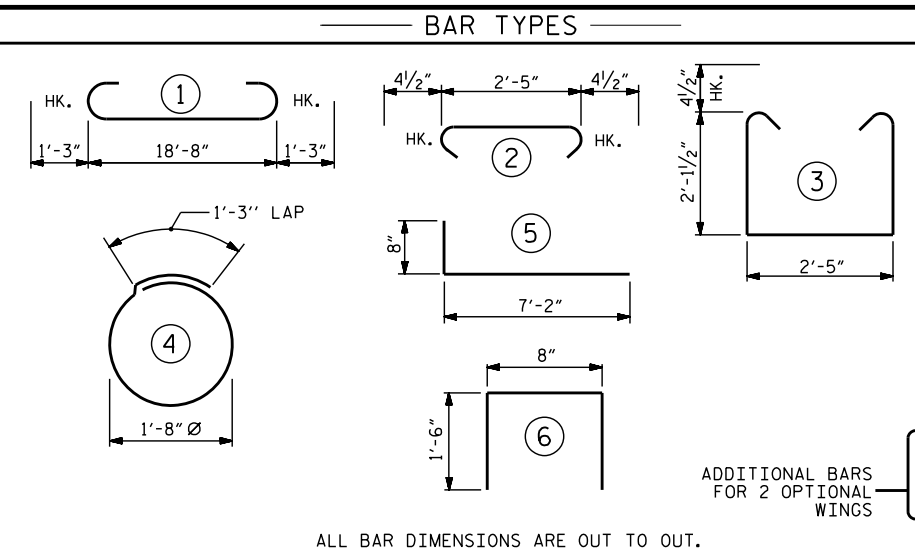


PLAN



ELEVATION

(OPTIONAL WINGS NOT SHOWN FOR CLARITY)



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE END BENT					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#8	#9	1	21'-2"	576
B2	#8	#4	STR	18'-8"	100
B3	5	#4	STR	2'-5"	8
H1	8	#4	STR	18'-8"	100
S1	20	#4	3	7'-5"	99
S2	20	#4	2	3'-2"	42
S3	6	#4	4	6'-6"	26
U1	19	#4	6	3'-8"	47
V1	38	#4	STR	4'-4"	110
H2	28	#4	5	7'-10"	147
V2	56	#4	STR	3'-2"	118
			W/O WINGS	WITH WINGS	
REINFORCING STEEL (FOR ONE END BENT) (LBS.) *			1,108	1,373	
CLASS A CONCRETE (FOR ONE END BENT) (C.Y.)					
POUR 1			4.8	6.0	
POUR 2 *			1.7	2.8	
TOTAL			6.5	8.8	

BACKWALL HEIGHT			
SPAN	BEAM	A (2X8 DECKING)	A (4X6 DECKING)
20'-0"	W16X36	2'-2 ⁵ / ₈ "	1'-10 ¹ / ₈ "
30'-0"	W21X48	2'-7 ³ / ₈ "	2'-3 ⁵ / ₈ "
40'-0"	W24X76	2'-10 ⁵ / ₈ "	2'-6 ⁷ / ₈ "
50'-0"	W24X104	2'-10 ³ / ₄ "	2'-7"

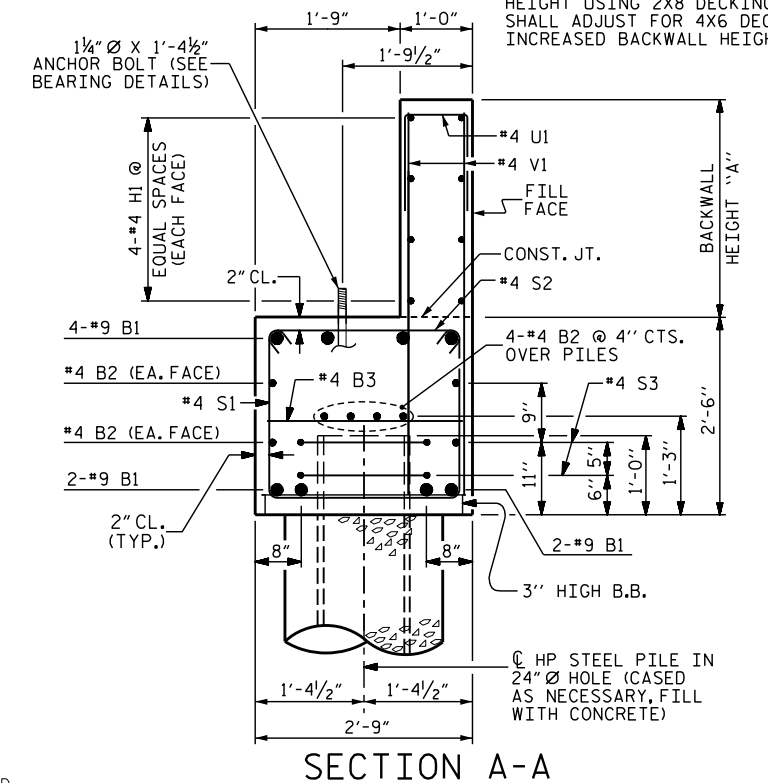
DIMENSION "A" (BACKWALL HEIGHT) VARIES BASED ON DECKING TYPE. USE VALUES CORRESPONDING TO SELECTED DECKING OPTION.

GENERAL NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- CONTRACTOR SHALL SLOPE TOP OF CAP TO MATCH LONGITUDINAL GRADE OF THE BRIDGE. SLOPES SHALL MATCH ON BOTH END BENT 1 AND END BENT 2 CAPS.
- WINGS MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER OR DESIGNEE.
- FOR OPTIONAL WINGS FOR END BENT, SEE SHEET S-10. FOR BEARING DETAILS, SEE SHEET S-10.
- FOR PILE SPlice DETAILS, SEE SHEET S-10.
- "V" BARS BASED ON SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. ADJUST LENGTH TO MAINTAIN REQUIRED MIN. CLEARANCE AT BOTTOM OF CAP AND TOP OF BACKWALL.

FOUNDATION NOTES
DRILLED-IN PILES

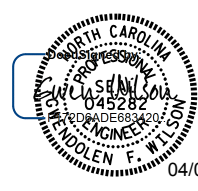
- ROCK QUALITY DESIGNATION (ROD)
GEOLOGICAL STRENGTH INDEX (GSI)
- INSTALL DRILLED-IN PILES IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.
- MINIMUM PILE PENETRATION OF 10-FT INTO NATURAL GROUND OR CHANNEL BOTTOM IS REQUIRED.
- MINIMUM ROCK SOCKET DEPTHS, UNLESS OTHERWISE INDICATED ON PROJECT SPECIFIC DATA SHEET:
 - 4' MINIMUM (ROD >70, GSI >50)
 - 6' MINIMUM (ROD 30-70, GSI 30-50)
 - 8' MINIMUM (ROD <30, GSI <30)
- REFER TO BORING LOGS FOR ROD AND GSI DATA.
- PILES SHALL BE SEATED IN THE BOTTOM OF THE EXCAVATION. PILE DRIVING IS NOT REQUIRED.
- BACKFILL WITH CONCRETE ONLY. DO NOT PROCEED WITH CONSTRUCTION ACTIVITIES UNTIL THE 28 DAY STRENGTH IS ACHIEVED.



SECTION A-A

SHEET 1 OF 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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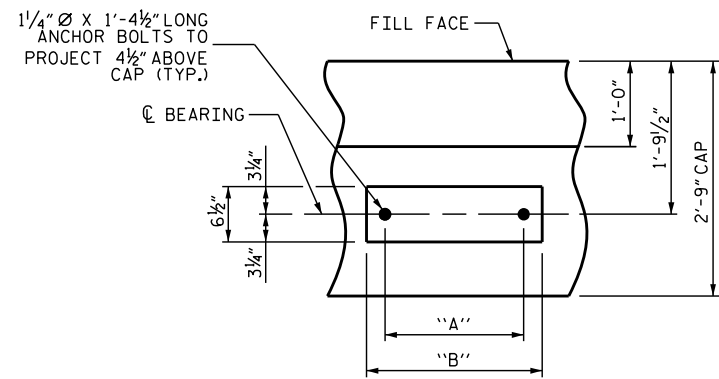
**PRIVATE DRIVEWAY
BRIDGE STANDARDS**

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

**END BENT
DRILLED-IN PILES**

JMT Johnson, Mirmiran, & Thompson Inc. 108 Asheville Commerce Parkway Candler, NC, 28715 License No. C-3097	DWN. BY: BC	DATE: 04/2026	NO. 1	BY: 3	DATE:	SHEET NO. S-09
	CHKD. BY: GFW	DATE: 04/2026				
DES. EGR. OF RECORD: GFW	DATE: 04/2026					

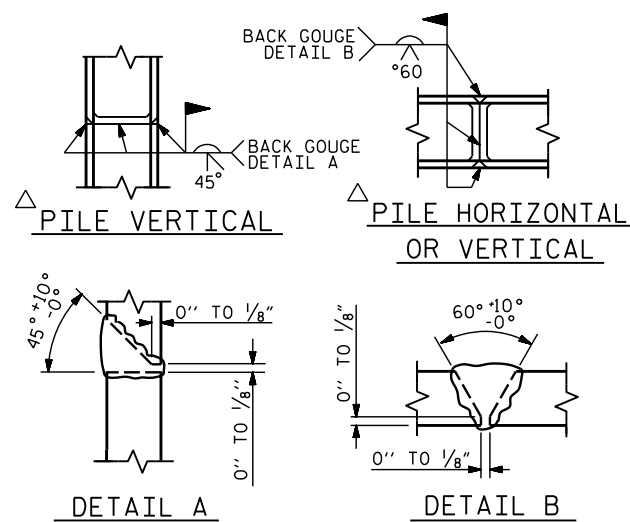
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 DATE: 4/17/2026
 TIME: 11:56:40 AM



BEARING DETAIL

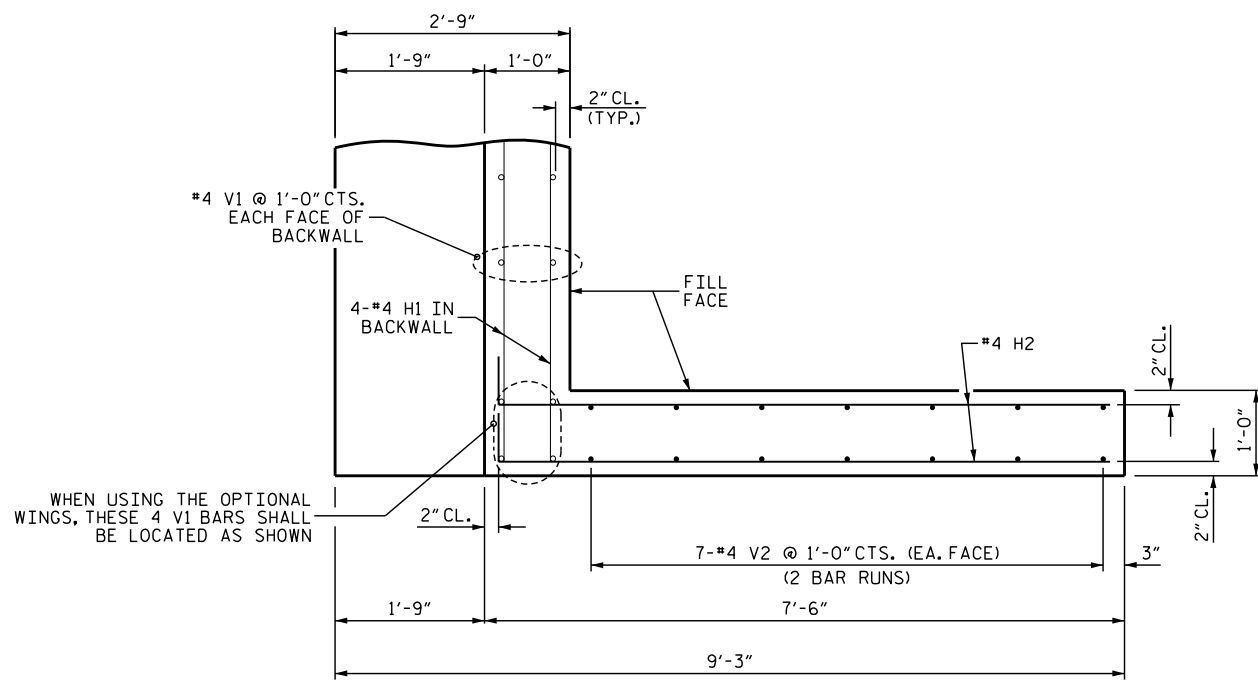
(TYP. EACH BEARING LOCATION)

REFER TO DIMENSIONS TABLE ON SHEET S-07 FOR DIMENSIONS A AND B.



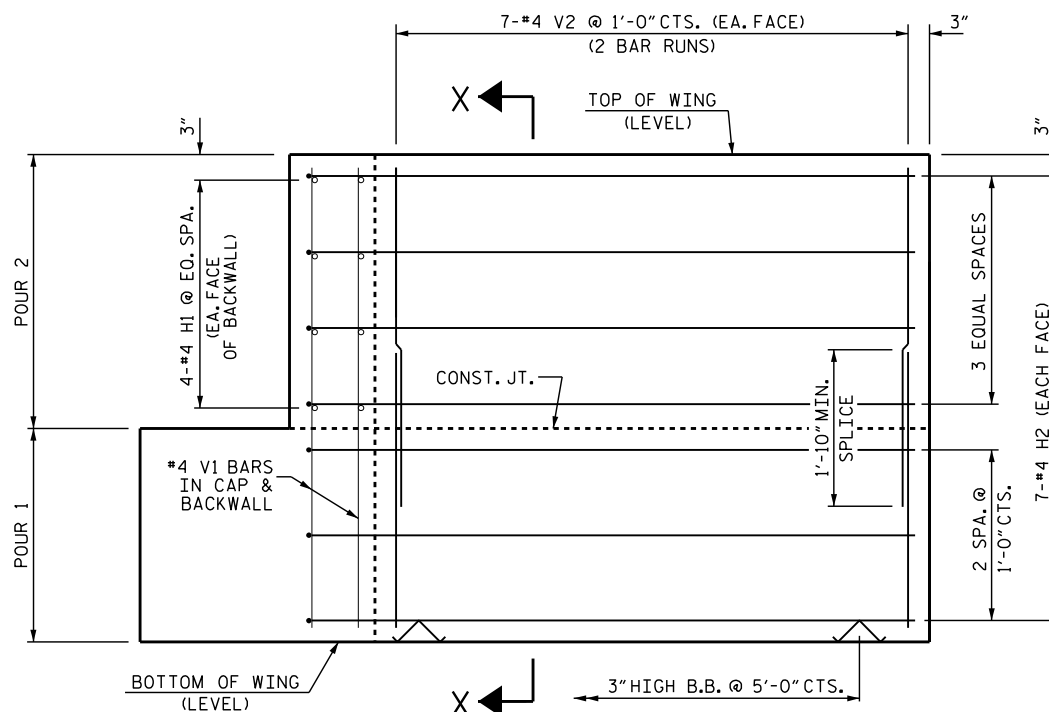
PILE SPLICE DETAILS

△ POSITION OF PILE DURING WELDING.



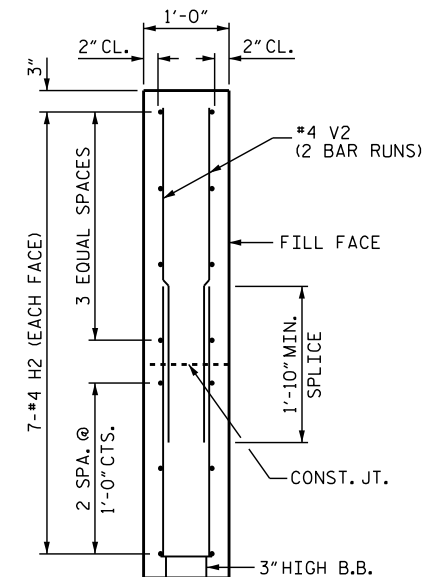
ELEVATION OF WING

(OPTIONAL)



PLAN OF WING

(OPTIONAL)



SECTION X-X

(OPTIONAL)

RIGHT SIDE WING SHOWN,
LEFT SIDE WING SIMILAR.
WING HEIGHT DEPENDENT
ON BACKWALL HEIGHT.



04/07/2026

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FINAL UNLESS ALL
SIGNATURES COMPLETED

SHEET 2 OF 2

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT
PRIVATE DRIVEWAY
BRIDGE STANDARDS
 SINGLE LANE STEEL BEAM BRIDGE
 TIMBER DECK
OPTIONAL WINGS FOR DRIVEN
OR DRILLED-IN PILES

REVISIONS

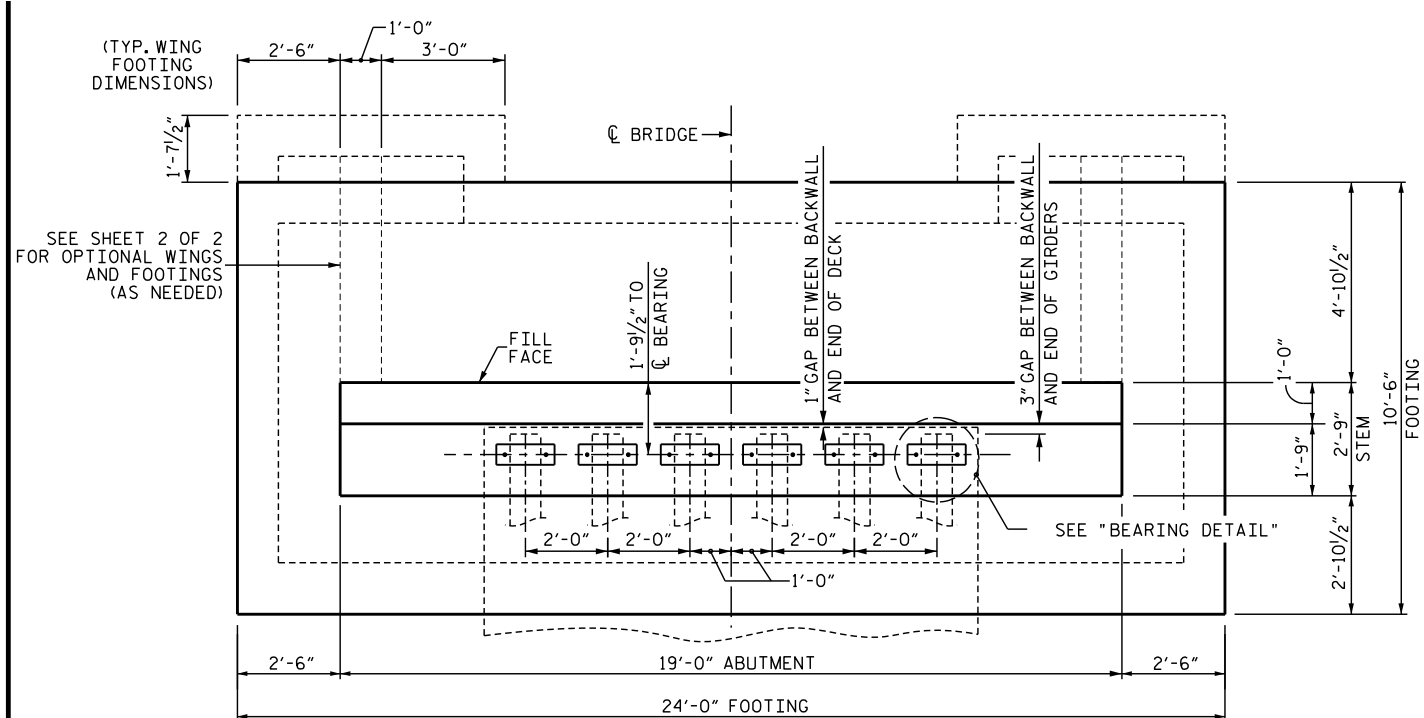
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SHEET NO.	S-10
TOTAL SHEETS	13

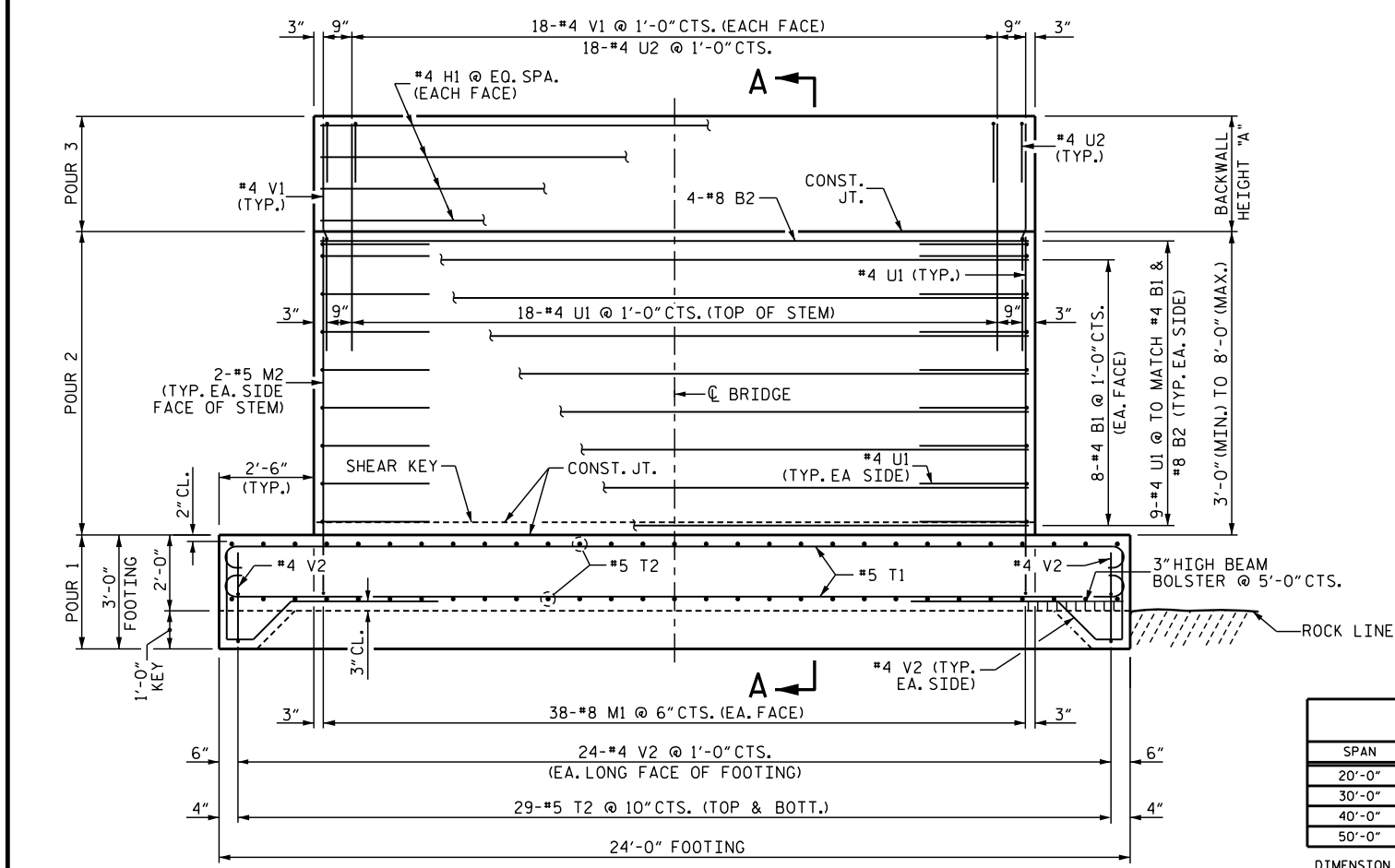
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 Candler, NC, 28715
 License No. C-3097

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 CHKD. BY: GFW
 DES. EGR. OF RECORD: GFW
 DATE: 04/2026
 DATE: 04/2026
 DATE: 04/2026

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 DATE: 4/7/2026 TIME:



PLAN

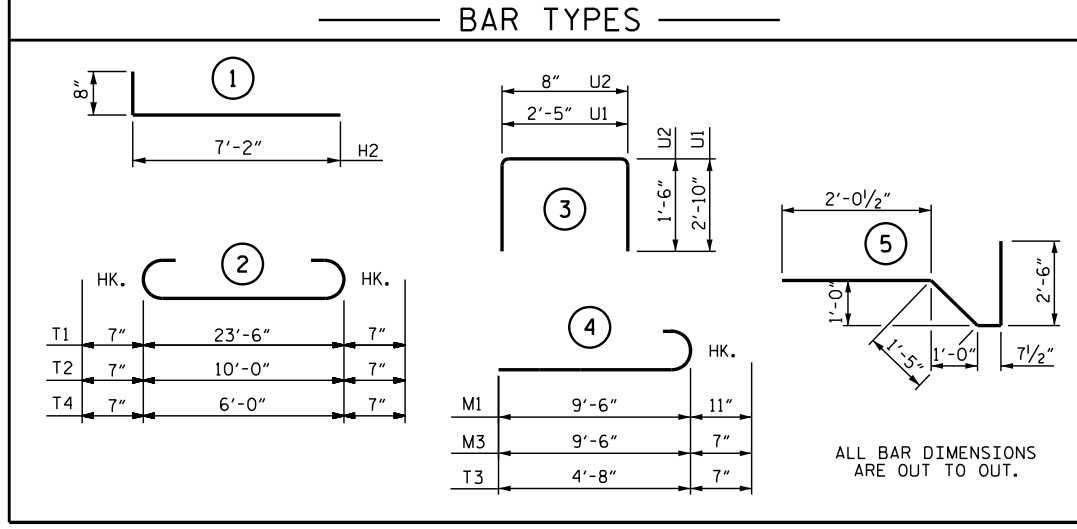


ELEVATION

(OPTIONAL WINGS NOT SHOWN FOR CLARITY)

BACKWALL HEIGHT			
SPAN	BEAM	A (2X8 DECKING)	A (4X6 DECKING)
20'-0"	W16X36	2'-2 3/4"	1'-10 3/8"
30'-0"	W21X48	2'-7 3/8"	2'-3 3/8"
40'-0"	W24X76	2'-10 3/8"	2'-6 3/8"
50'-0"	W24X104	2'-10 3/4"	2'-7"

DIMENSION "A" (BACKWALL HEIGHT) VARIES BASED ON DECKING TYPE. USE VALUES CORRESPONDING TO SELECTED DECKING OPTION.

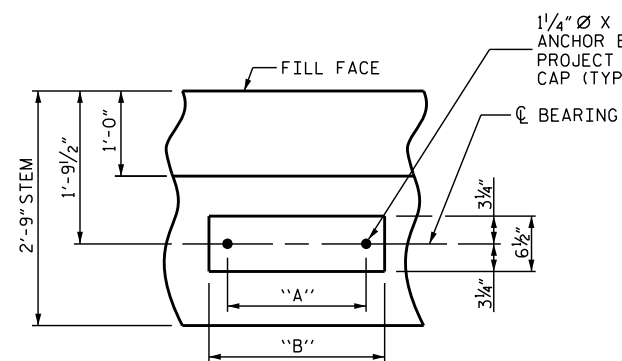


GENERAL NOTES

U1 BARS IN STEM MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 CONTRACTOR SHALL SLOPE TOP OF CAP TO MATCH LONGITUDINAL GRADE OF THE BRIDGE. SLOPES SHALL MATCH ON BOTH END BENT 1 AND END BENT 2 CAPS.
 WINGS MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER OR DESIGNEE.
 FOR OPTIONAL WINGS FOR END BENT, SEE SHEET 2 OF 2.
 FOR SECTION A-A, SEE SHEET 2 OF 2.

FOUNDATION NOTES

SPREAD FOOTING
 FOUNDATION EXCAVATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTION 410 OF THE SPECIFICATIONS.
 A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA SHALL OBSERVE THE BEARING SURFACE AND CONFIRM THE FOOTING IS CONSTRUCTED ON ROCK. THE ENGINEER SHALL PROVIDE A LETTER VERIFYING ACCEPTANCE OF THE BEARING SURFACE.
 CLEAN ALL ROCK OF LOOSE MATERIAL AND CUT TO A FIRM SURFACE, AS DIRECTED BY THE ENGINEER AND FILL WITH CONCRETE, MORTAR OR GROUT. LEAVE ROCK SURFACE IN A ROUGH CONDITION.
 BEARING SURFACE MUST RESIST A MAXIMUM APPLIED BEARING PRESSURE OF 5.0 KSF.
 KEY IN FOOTINGS AT LEAST 1 FT INTO ROCK.



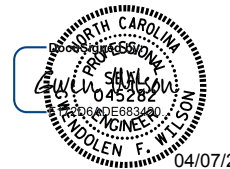
BEARING DETAIL

(TYP. EACH BEARING LOCATION)
 REFER TO DIMENSIONS TABLE ON SHEET S-07 FOR DIMENSIONS A AND B.

** BILL OF MATERIAL FOR ONE END BENT					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#4	STR	18'-8"	200
B2	4	#8	STR	18'-8"	199
H1	8	#4	STR	18'-8"	100
M1	76	#8	4	10'-5"	2,114
M2	4	#5	STR	7'-6"	31
T1	26	#5	2	24'-8"	669
T2	58	#5	2	11'-2"	676
U1	38	#4	3	8'-1"	205
U2	20	#4	3	3'-8"	49
V1	40	#4	STR	6'-0"	160
V2	70	#4	5	6'-7"	308
H2	52	#4	1	7'-10"	272
M3	40	#5	4	10'-1"	421
M4	40	#5	STR	5'-4"	223
T3	32	#5	4	5'-3"	175
T4	8	#5	2	7'-2"	60
V2	22	#4	5	6'-7"	97
REINFORCING STEEL (W/O WINGS)				4711 LBS.	
REINFORCING STEEL (WITH WINGS)				5959 LBS.	
CLASS A CONCRETE BREAKDOWN					
POUR #1 FOOTING				22.5 C.Y.	
POUR #2 END BENT STEM				15.5 C.Y.	
POUR #3 BACKWALL				1.6 C.Y.	
WINGWALLS (OPTIONAL)				7.5 C.Y.	
TOTAL CLASS A CONCRETE (W/O WINGS)				39.6 C.Y.	
TOTAL CLASS A CONCRETE (WITH WINGS)				47.1 CY	

ADDITIONAL BARS FOR 2 OPTIONAL WINGS WITH FOOTINGS

** THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE QUANTITIES AND REINFORCING BARS SHOWN IN THE BILL OF MATERIAL ARE BASED ON AN 8'-0" MAXIMUM STEM WALL HEIGHT AND THE SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. THE CONTRACTOR IS RESPONSIBLE FOR THE FINAL QUANTITIES BASED ON THE ACTUAL STEM WALL AND BACKWALL HEIGHTS.



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SHEET 1 OF 2

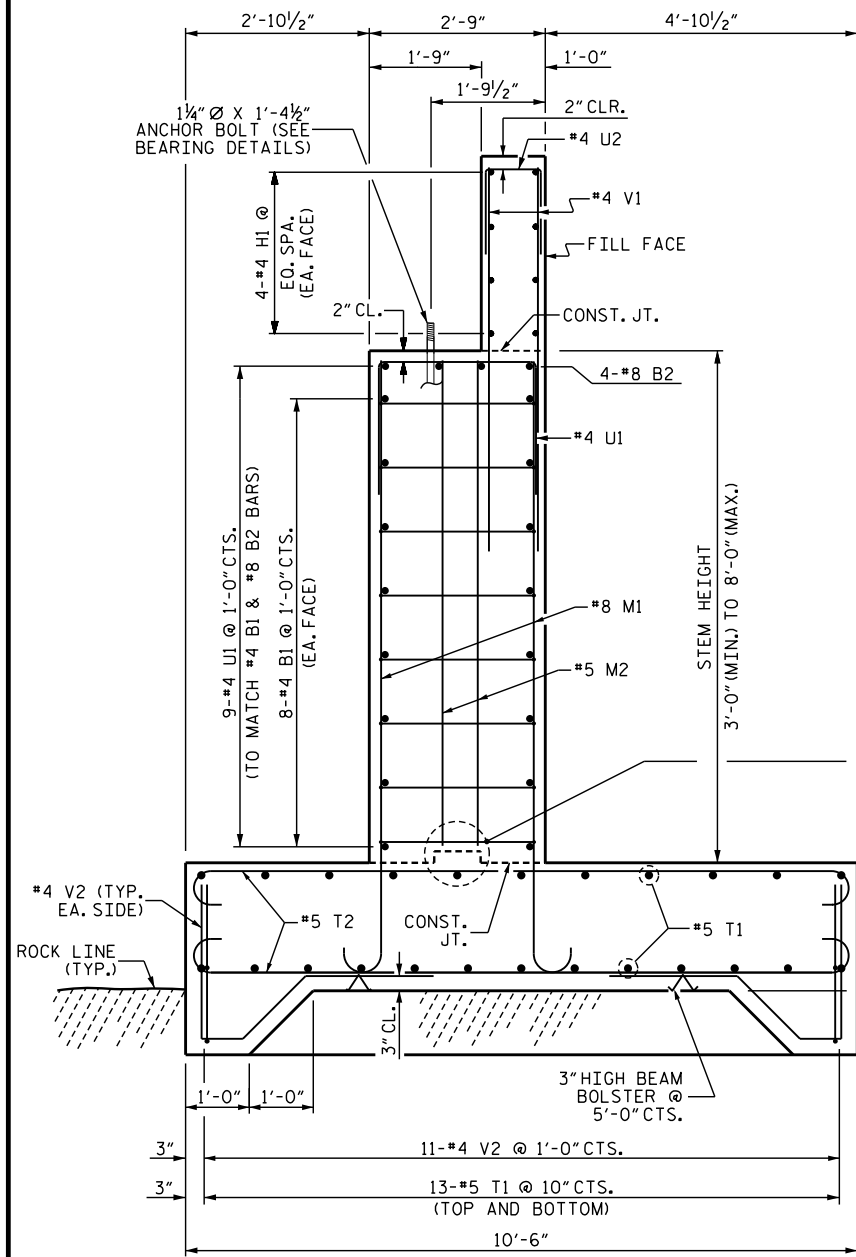
NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT
PRIVATE DRIVEWAY BRIDGE STANDARDS
 SINGLE LANE STEEL BEAM BRIDGE
 TIMBER DECK
END BENT
SPREAD FOOTING

REVISIONS						SHEET NO. S-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

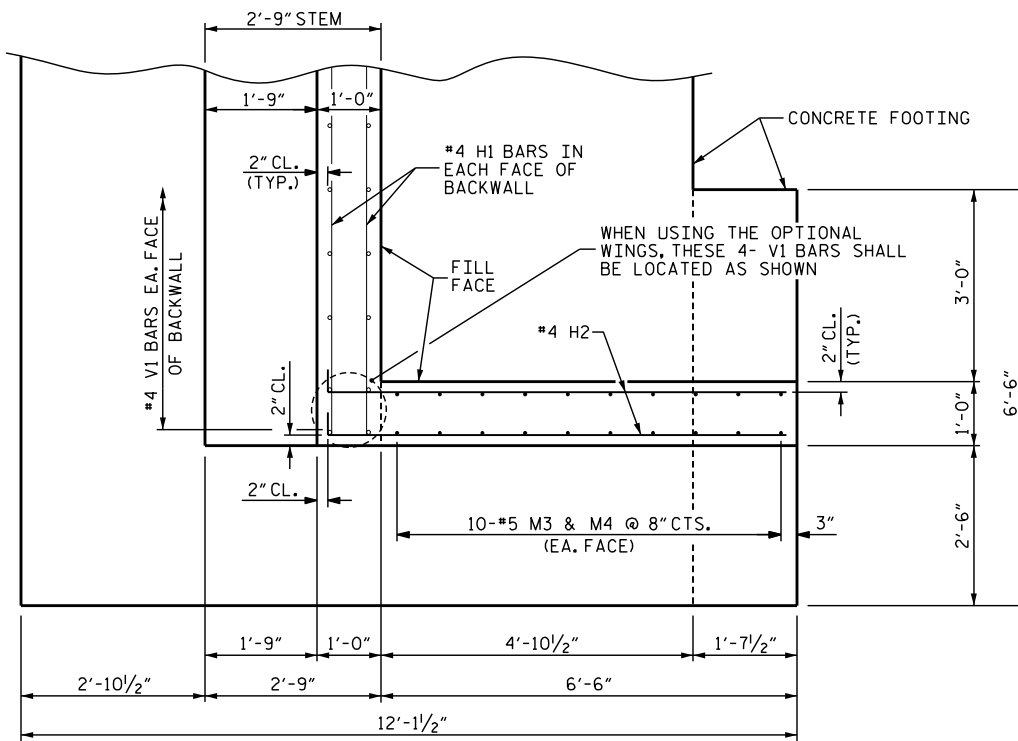
Johnson, Mirmiran, & Thompson Inc.
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 Candler, NC, 28715
 License No. C-3097

DWN. BY: BC
 CHKD. BY: GFW
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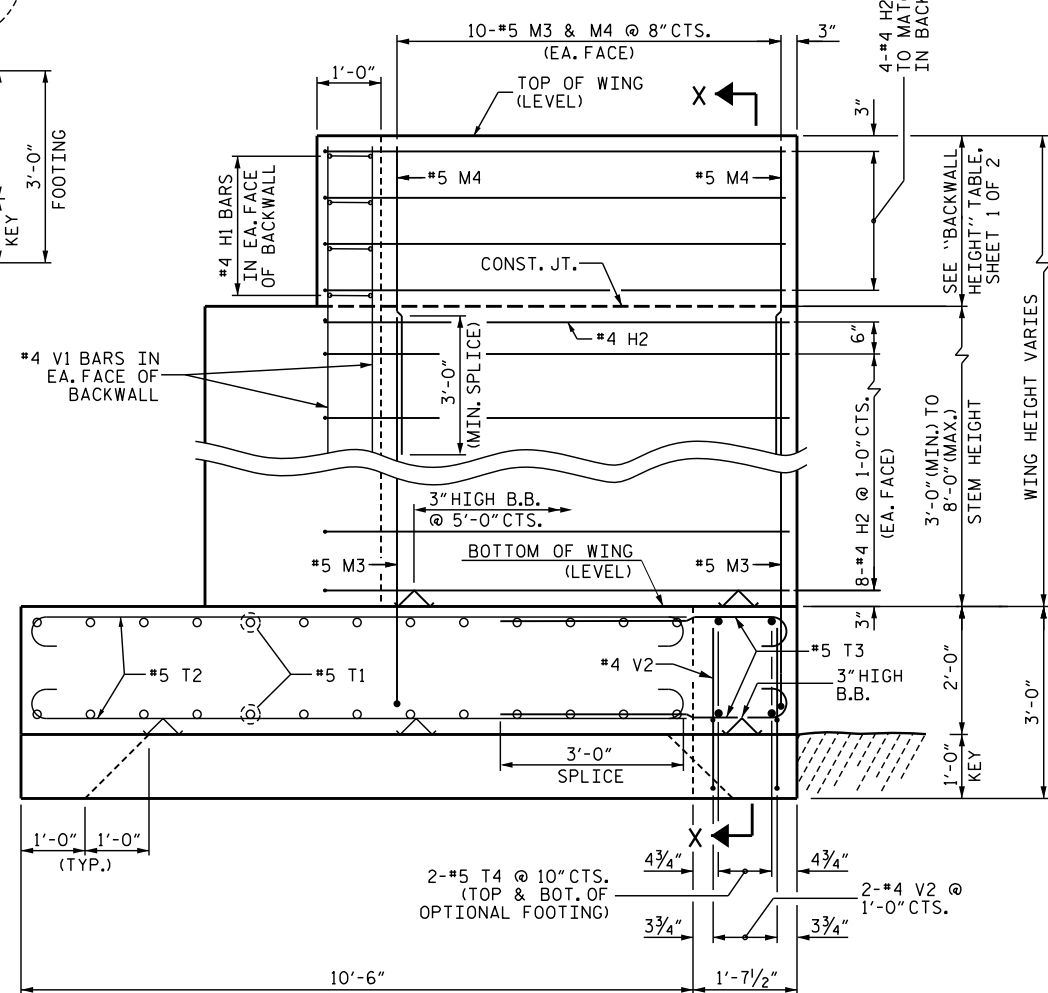
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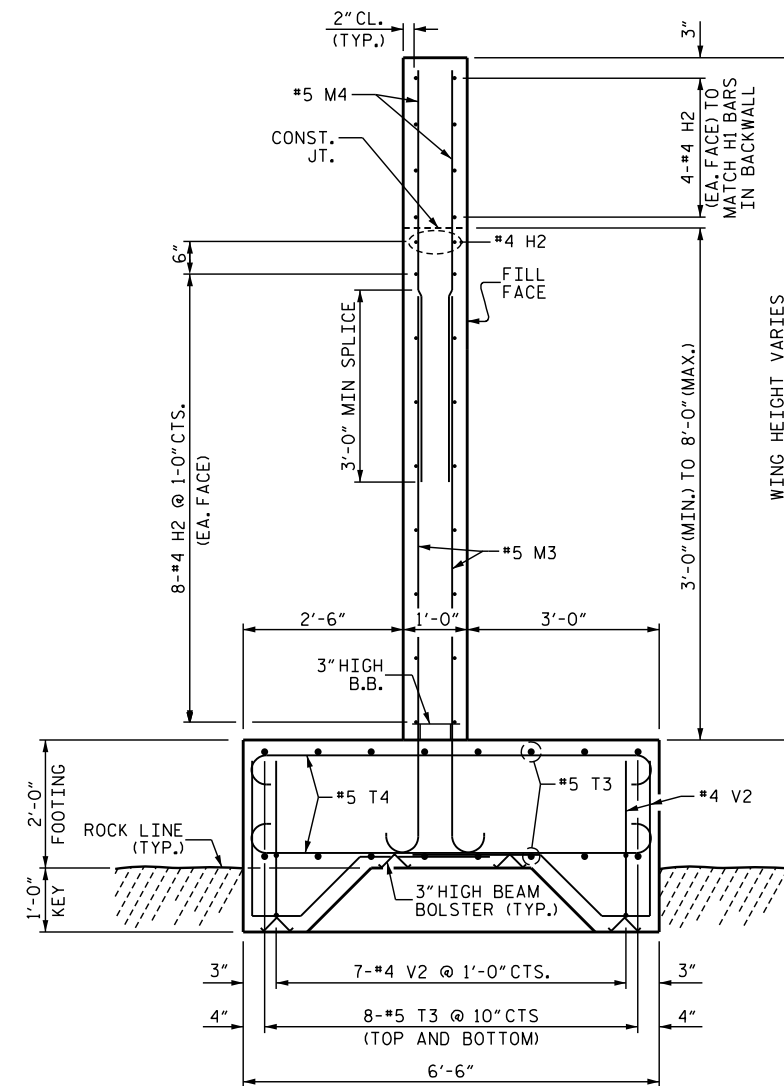
SECTION A-A



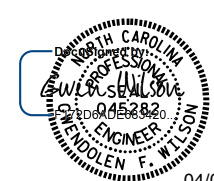
PLAN OF WING (OPTIONAL)



ELEVATION OF WING (OPTIONAL)



SECTION X-X (OPTIONAL)



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SHEET 2 OF 2

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

**PRIVATE DRIVEWAY
BRIDGE STANDARDS**

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

OPTIONAL WINGS & FOOTINGS

JMT Johnson, Mirmiran, & Thompson Inc. 108 Asheville Commerce Parkway Candler, NC, 28715 License No. C-3097	DWN. BY: BC	DATE: 04/2026	NO. BY: DATE: NO. BY: DATE:	SHEET NO. S-12
	CHKD. BY: GFW	DATE: 04/2026		
DES. EGR. OF RECORD: GFW	DATE: 04/2026	1 3	2 4	

STRUCTURAL STEEL / HARDWARE NOTES:

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50 AND PAINTED IN ACCORDANCE WITH SYSTEM 1 OF THE STRUCTURAL STEEL COATING PROGRAM AND ARTICLE 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

COATING APPLICATION FOR ALL STRUCTURAL STEEL SHALL NOT BE PERFORMED UNTIL SHOP FABRICATION INCLUDING CUTTING, DRILLING AND WELDING HAS BEEN COMPLETED.

ALL HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATION, UNLESS OTHERWISE NOTED ON THE PLANS.

DO NOT DRIVE LAG/STRUCTURAL SCREWS WITH A HAMMER, SCREW OR TORQUE LAG/STRUCTURAL SCREWS.

SCREWS SHALL BE OF SUFFICIENT LENGTH TO PROVIDE FULL THREAD ENGAGEMENT INTO RECEIVING MEMBERS.

REPAIR ANY DAMAGED GALVANIZED SURFACES IN ACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 1076-7.

REPAIR ANY DAMAGED PAINTED SURFACES IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.

STRUCTURAL WOOD SCREWS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATION.

TIMBER / LUMBER NOTES:

ALL TIMBER AND LUMBER MEMBERS SHALL BE TREATED NO. 1 SOUTHERN PINE AND CONFORM TO SECTION 1082 OF THE STANDARD SPECIFICATIONS.

ALL TIMBER DIMENSIONS SHOWN ON THE PLANS ARE NOMINAL DIMENSIONS. DESIGN IS BASED ON ACTUAL DRESSED DIMENSIONS.

PRE-DRILL HOLES IN TIMBER MEMBERS RECEIVING BOLTS TO ELIMINATE SPLITTING. PRE-DRILL HOLES FOR SCREWS AS NECESSARY TO PREVENT SPLITTING IN TIMBER MEMBERS.

DESIGN LOADS:

LIVE LOAD:

TRUCK LOAD:

THIS BRIDGE WAS DESIGNED FOR:

HS20
GVWR = 72,000 LBS
NUMBER OF AXLES: 3
AXLE WEIGHTS:
GAWR FRONT = 8,000 LBS
GAWR INTERMEDIATE = 32,000 LBS
GAWR REAR = 32,000 LBS

EV2
GVWR = 57,500 LBS
NUMBER OF AXLES: 2
AXLE WEIGHTS:
GAWR FRONT = 24,000 LBS
GAWR REAR = 33,500 LBS

EV3
GVWR = 86,000 LBS
NUMBER OF AXLES: 3
AXLE WEIGHTS:
GAWR FRONT = 24,000 LBS
GAWR INTERMEDIATE = 31,000 LBS
GAWR REAR = 31,000 LBS

LIVE LOAD FACTORS:

HS-20 = 1.30
EV2 = 1.3
EV3 = 1.3

LIVE LOAD FACTORS LOAD RATING:

HS-20 = 1.35
EV2 = 1.0
EV3 = 1.0

MULTIPLE PRESENCE FACTOR:

MPF = 1.0

LANE LOAD:

NO LANE LOAD WAS APPLIED.

IMPACT:

DYNAMIC IMPACT FOR WOOD/TIMBER COMPONENTS IS ZERO. DYNAMIC IMPACT FACTOR FOR ALL OTHER COMPONENTS IS 33%.

DEAD LOADS:

WEARING SURFACES SHALL NOT BE ALLOWED.

WEIGHT OF TIMBER = 40 PCF.

DESIGN ASSUMPTIONS/PARAMETERS:

SUPERSTRUCTURE WILL BE SIX LINES OF I-BEAMS.

BRIDGE IS SINGLE SPAN.

BRIDGE WIDTH = 12'-0" OUT TO OUT.

GENERAL NOTES:

THIS BRIDGE IS DESIGNED IN ACCORDANCE WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) "STRUCTURES MANAGEMENT UNIT MANUAL", DATED 6/15/23, 2024 NCDOT IN-KIND TIMBER BRIDGE REPLACEMENT PROGRAM, AND THE AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS", 9th EDITION.

THESE DRAWINGS ARE INTENDED ONLY FOR USAGE IN THE INSTALLATION OF SINGLE SPAN I-BEAM BRIDGES FOR PRIVATE DRIVEWAYS IN COUNTIES AS LISTED IN THE CONTRACT DOCUMENTS BY NORTH CAROLINA OFFICE OF EMERGENCY MANAGEMENT IN RESPONSE TO THE DAMAGE CAUSED BY HURRICANE HELENE.

BRIDGE CONSTRUCTION, WORKMANSHIP, AND MATERIALS SHALL BE IN ACCORDANCE WITH THE NCDOT "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES", 2024 EDITION.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

IT IS ASSUMED THAT THERE ARE NO UTILITY CONFLICTS. THE CONTRACTOR SHALL INVESTIGATE THE PRESENCE OF UTILITIES BEFORE COMMENCING WORK.

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.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

CONTRACTOR SHALL SET BRIDGE ELEVATIONS SUCH THAT WATER WILL DRAIN AND NOT POND ON THE BRIDGE DECK AND MINIMUM LONGITUDINAL GRADE SHALL BE 0.5% AND MAXIMUM GRADE SHALL BE 6%.

FOR PILE-SUPPORTED END BENTS, PLACE APPROACH EMBANKMENT (CORE MATERIAL) PRIOR TO PILE INSTALLATION.

THIS BRIDGE HAS BEEN DESIGNED FOR ADTT < 100.

EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON SHEET EC-01 ARE FOR GENERAL GUIDANCE ONLY AND REPRESENT MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL REQUIRED EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, CONTRACT DOCUMENTS, AND APPLICABLE REGULATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MODIFYING THESE MEASURES AND PROVIDING ANY ADDITIONAL DEVICES NECESSARY TO ACCOUNT FOR ACTUAL SITE CONDITIONS, INCLUDING GROUNDWATER CONDITIONS AND WEATHER EVENTS, AND TO PREVENT SEDIMENT FROM LEAVING THE PROJECT SITE.

ALL REFERENCES WITHIN THESE PLANS TO "STANDARD SPECIFICATIONS" OR "NCDOT SPECIFICATIONS" SHALL BE GOVERNED BY THE NCDOT "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024.

TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, INCLUDING THE SPECIAL PROVISIONS, AND IN CONFORMANCE WITH THE NCDOT STANDARD SPECIFICATIONS, NCDOT ROADWAY STANDARD DRAWINGS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING, INSTALLING, AND MAINTAINING ALL TRAFFIC CONTROL DEVICES NECESSARY TO SAFELY CONDUCT THE WORK AND PROTECT THE TRAVELING PUBLIC.

MATERIAL PROPERTIES:

CONCRETE: MINIMUM COMPRESSIVE STRENGTH, f'_c = 3,000 psi (CLASS A)

STRUCTURAL STEEL: AASHTO M270, GRADE 50.

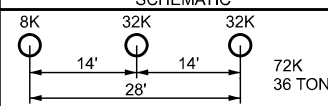
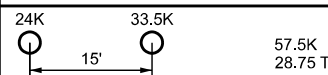
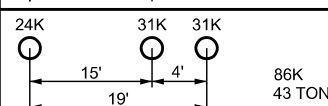
WELDS: SMAW, 70 KSI ELECTRODES PER NCDOT STANDARD SPECIFICATIONS.

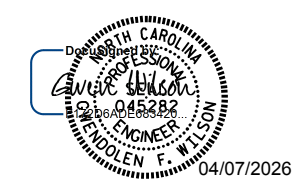
ANCHOR BOLTS: ASTM F1554, GRADE 55.

BOLTS SHALL CONFORM TO ASTM F3125, GRADE A325. PROVIDE GALVANIZED NUTS AND WASHERS COMPATIBLE WITH THE BOLTS.

TIMBER: ALL TIMBER & DIMENSIONAL LUMBER SHALL BE NO. 1 VISUALLY GRADED, SOUTHERN PINE WITH REFERENCE DESIGN VALUES OF: F_{bo} = 1.35 ksi AND F_{vo} = 0.175 ksi OR GREATER.

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS WITH A SHEAR MODULUS OF 0.110 KSI.

REF.#	DESIGN VEHICLES	
	SCHEMATIC	
HS-20		72K 36 TON
EV2		57.5K 28.75 TON
EV3		86K 43 TONS



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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

**PRIVATE DRIVEWAY
BRIDGE STANDARDS**

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

GENERAL NOTES

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

JMT Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
Candler, NC, 28715
License No: C-3097

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W:\Projects\2025\25-00629\25-00629-01\Design\Structures\NC PRB-Steel Beam with Timber Deck Standards\Single Lane Steel Beam with Timber Deck Plans\2 Standard Drawings\20-70 FT - 12 FT DECK WIDTH\015-515-General Notes.dgn
 DATE: 4/7/2026 TIME: