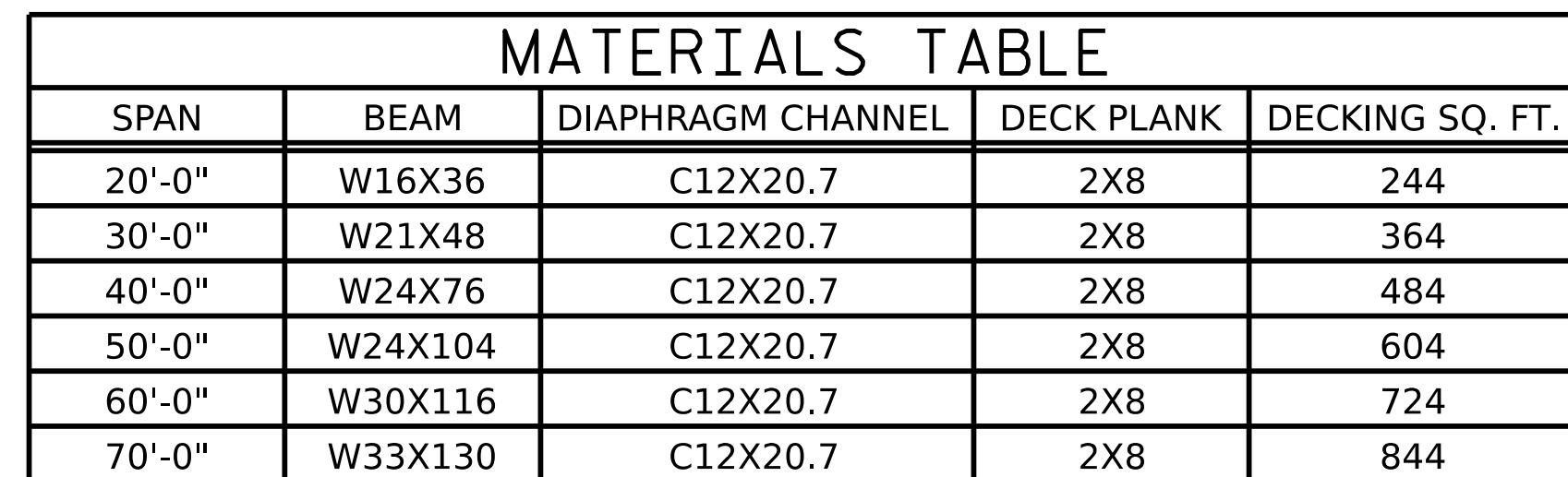




FOR TIMBER BRIDGE DECK SYSTEM DETAILS,
SEE "PLAN OF SPAN" SHEET.

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.

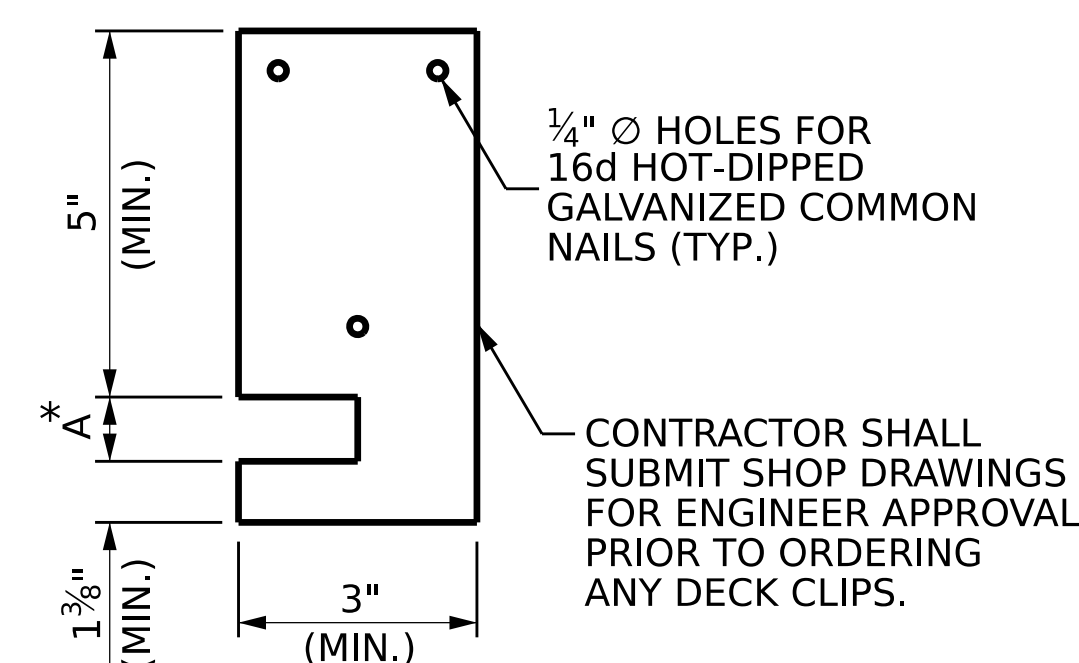
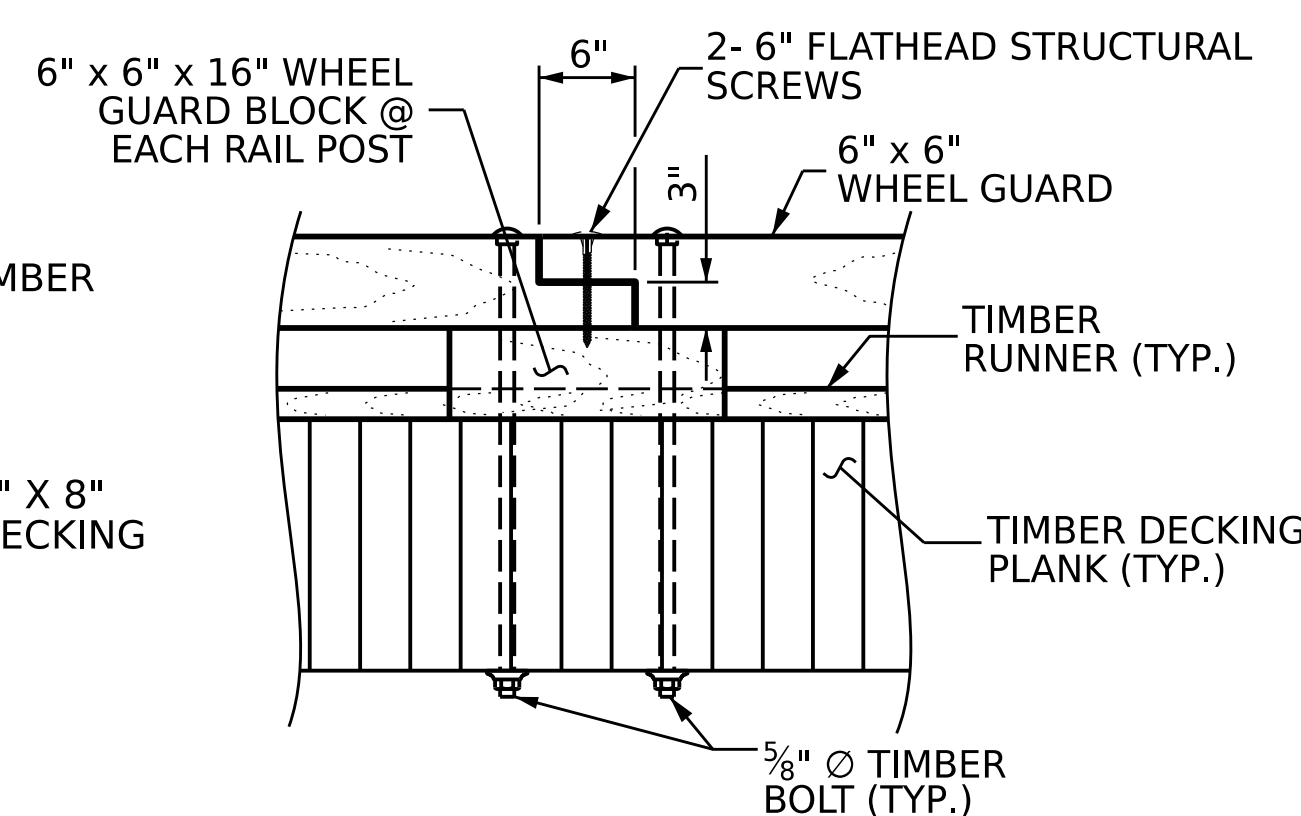
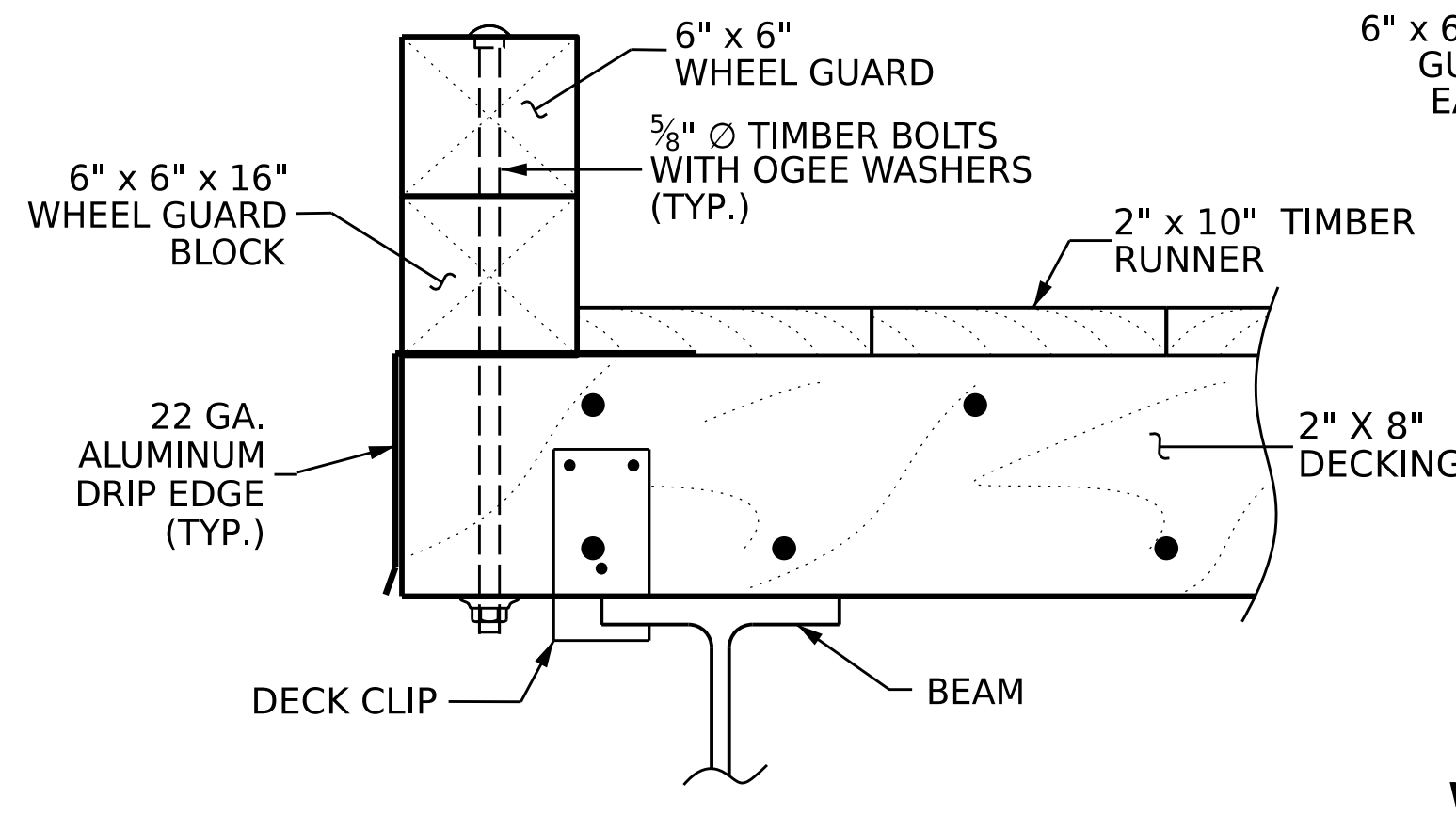
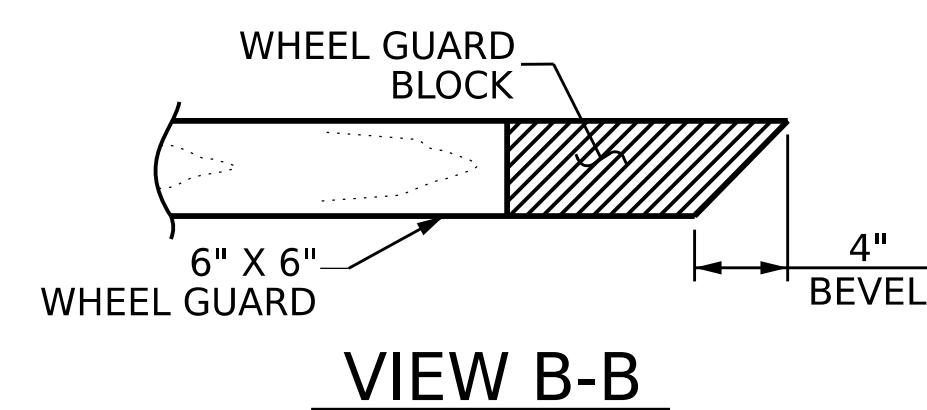
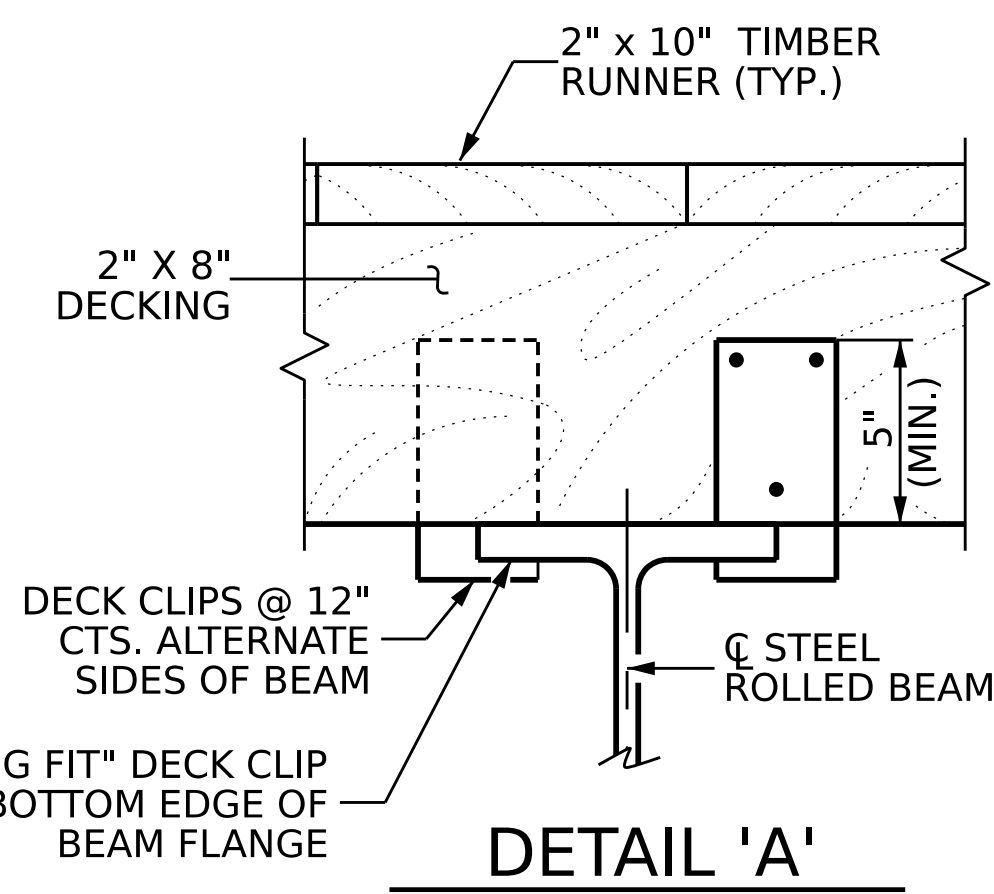
PLACE 2X10 WEARING SURFACE BOARDS PARALLEL TO TRAFFIC WITH A UNIFORM $\frac{3}{4}$ " CLEAR LONGITUDINAL GAP BETWEEN ADJACENT BOARDS. DO NOT BUTT BOARDS TIGHT. THIS GAP SHALL BE MAINTAINED TO FACILITATE SURFACE DRAINAGE AND PREVENT MOISTURE ENTRAPMENT AT THE INTERFACE OF THE STRUCTURAL DECK.

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



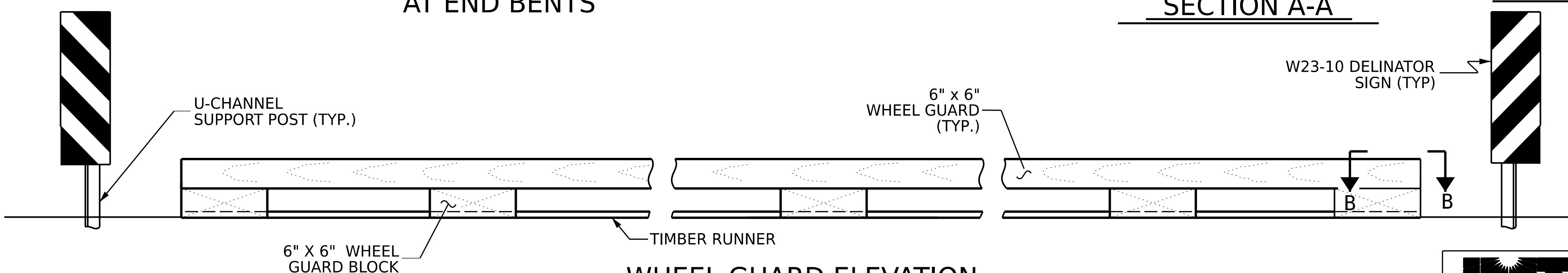
DECK CLIP DIMENSIONS		
SPAN	BEAM	*A
20'-0"	W16X36	1/2"
30'-0"	W21X48	1/2"
40'-0"	W24X76	3/4"
50'-0"	W24X104	13/16"
60'-0"	W30X116	15/16"
70'-0"	W33X130	15/16"

* 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.

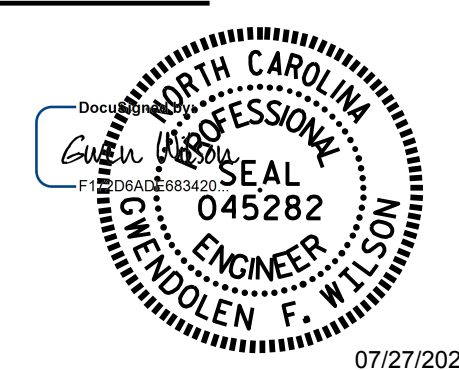


SECTION A-A

WHEEL GUARD SPLICE DETAIL



WHEEL GUARD ELEVATION



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



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

DWN. BY: BC
CHKD. BY: GFW
DES. ECB OF B

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

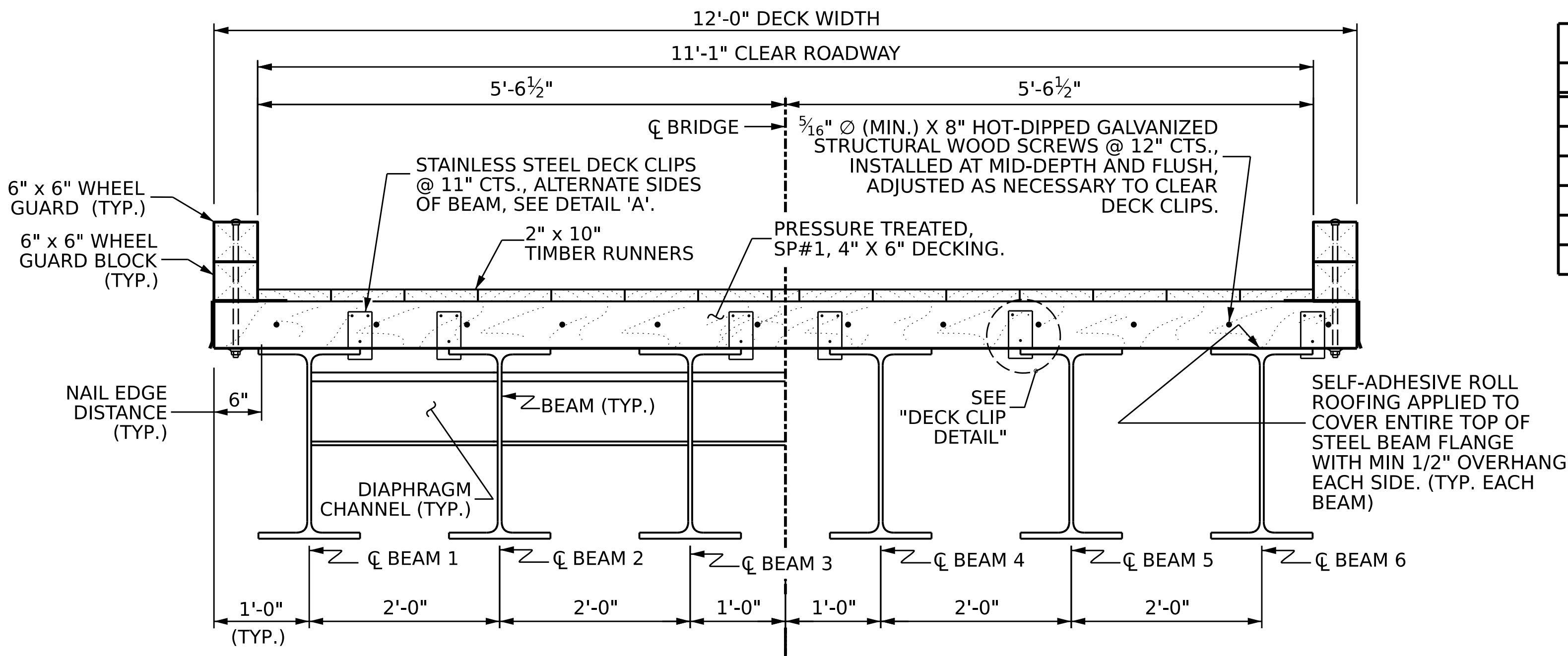
NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

**PRIVATE DRIVEWAY
 BRIDGE STANDARDS**

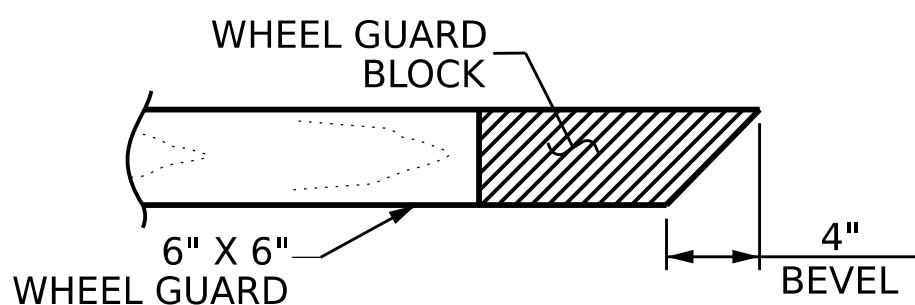
**SINGLE LANE STEEL BEAM BRIDGE
 2X8 TIMBER DECK**

**TYPICAL SECTION
 & RAIL DETAILS**

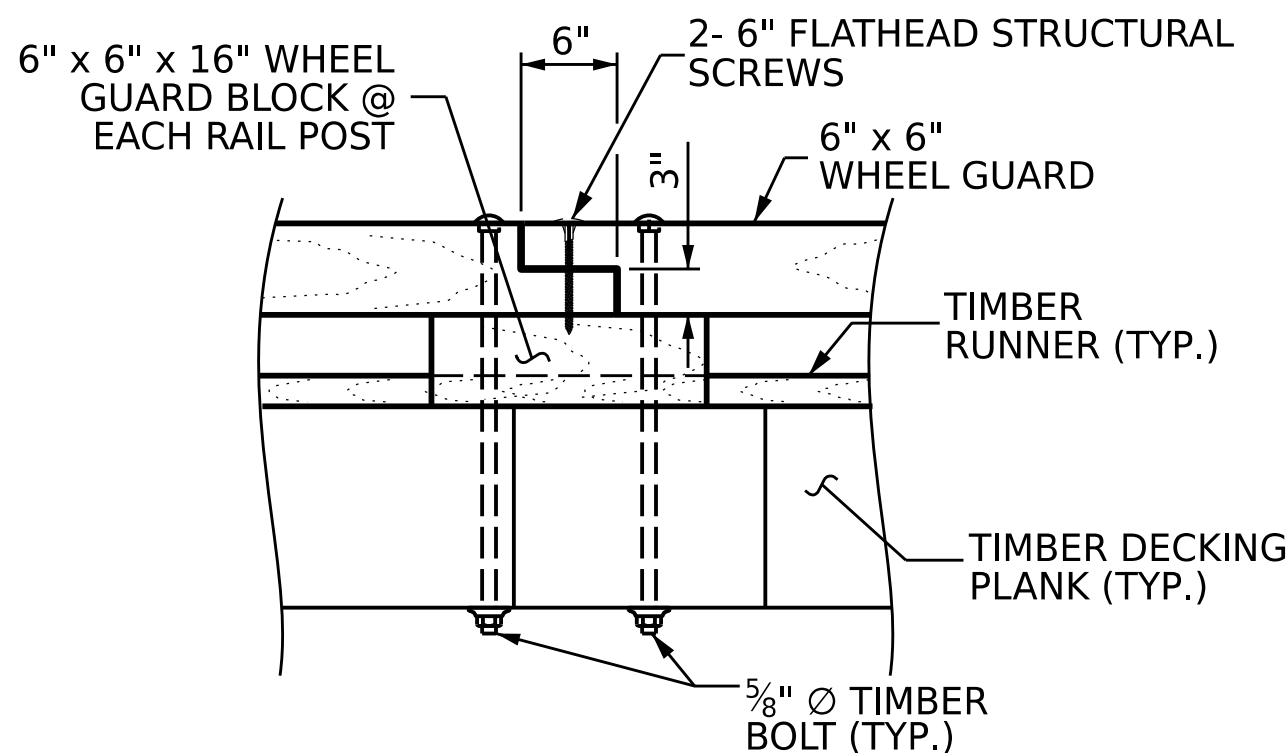
REVISIONS						SHEET NO. S-02
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEET'S 14
1			3			
2			4			



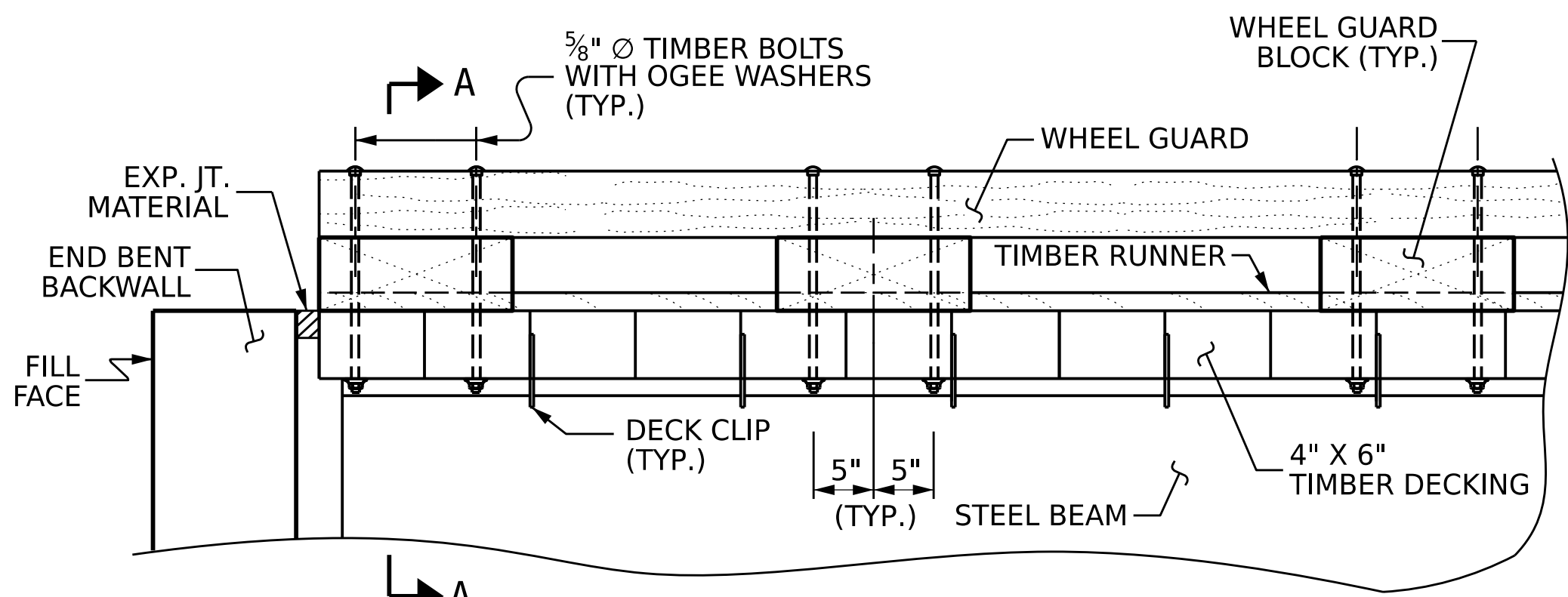
TYPICAL SECTION



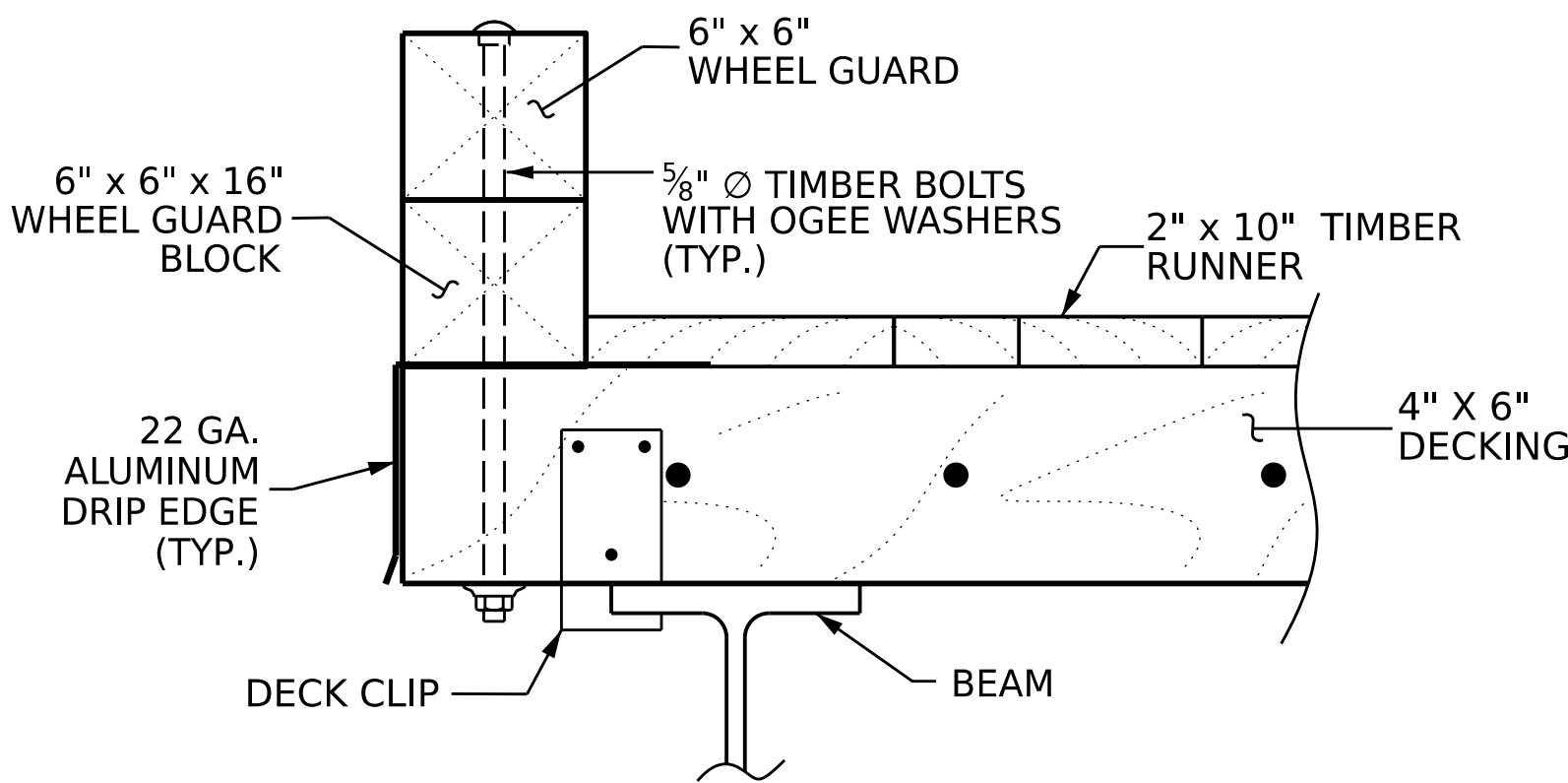
VIEW B-B



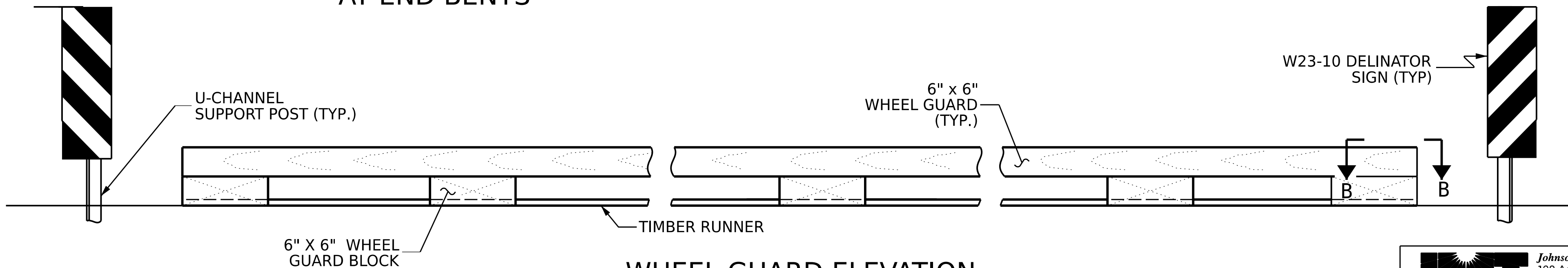
WHEEL GUARD SPLICE DETAIL



WHEEL GUARD DETAIL AT END BENTS

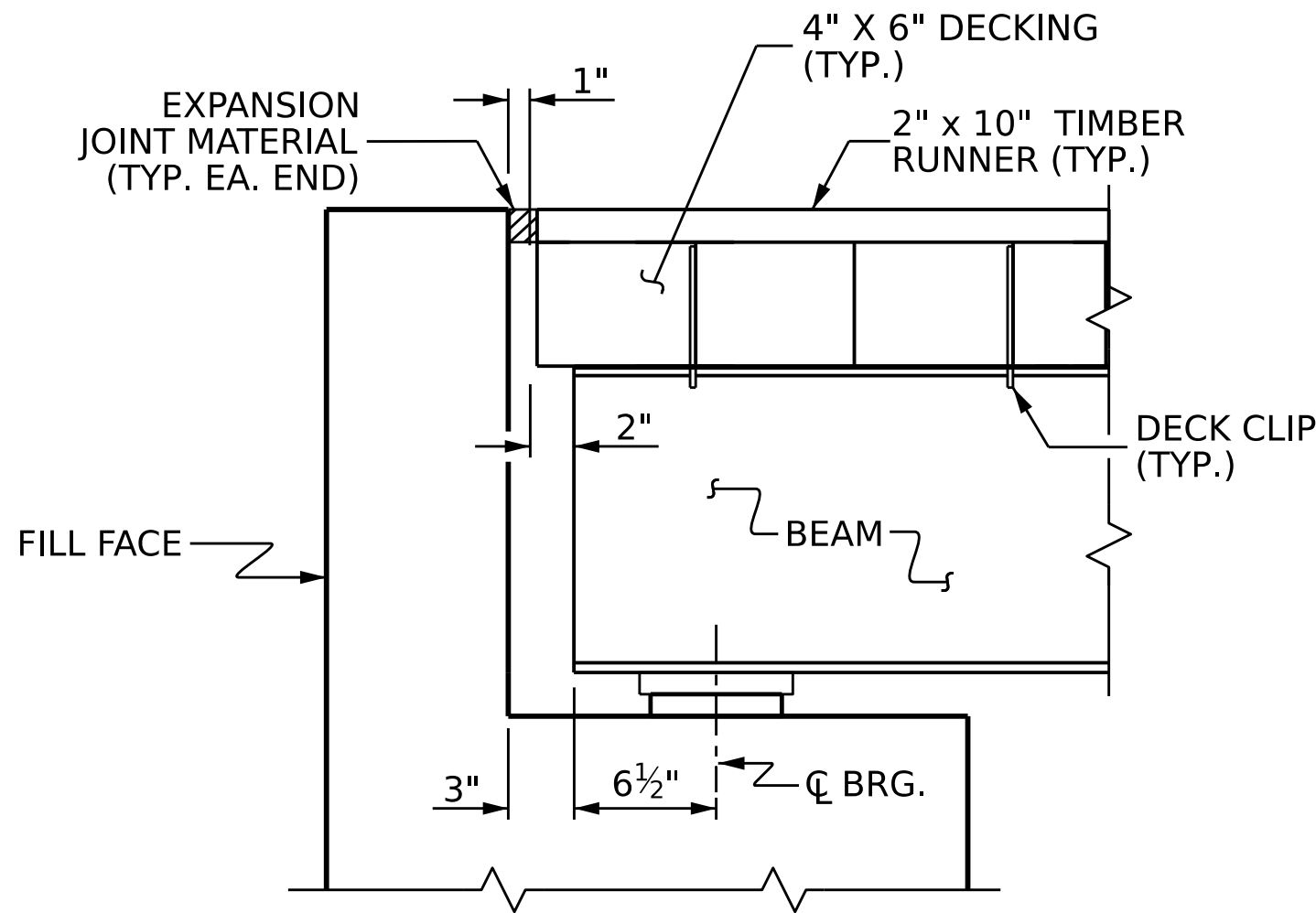


SECTION A-A



WHEEL GUARD ELEVATION

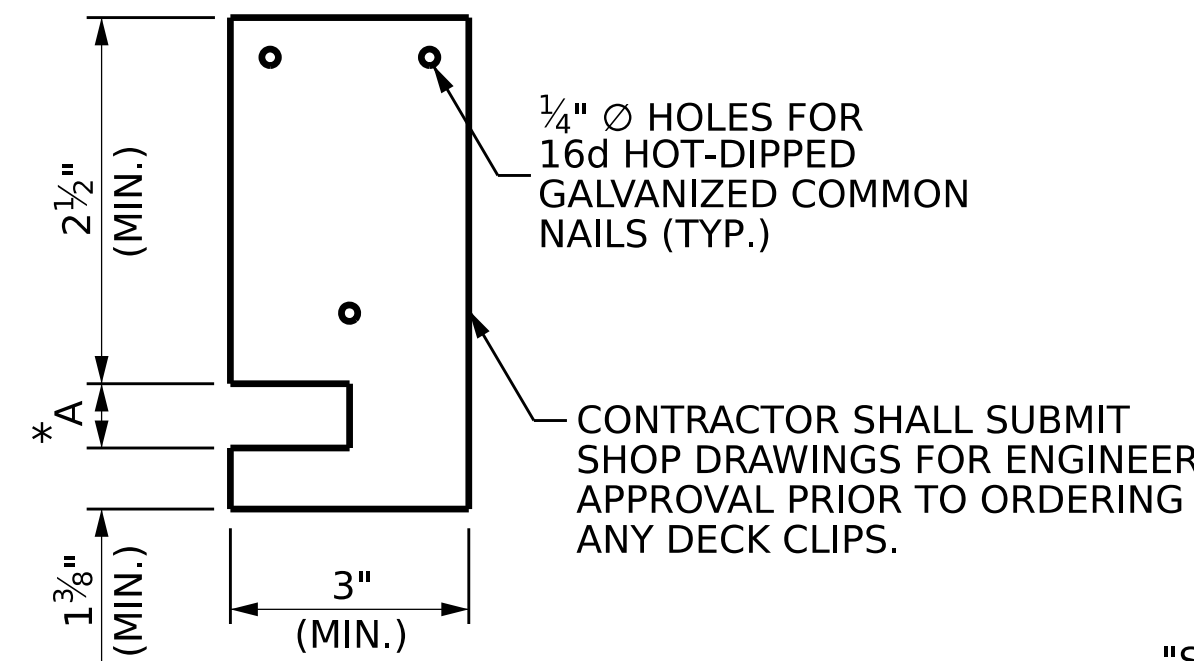
MATERIALS TABLE				
SPAN	BEAM	DIAPHRAGM CHANNEL	DECK PLANK	DECKING SQ. FT.
20'-0"	W16X36	C12X20.7	4X6	244
30'-0"	W21X48	C12X20.7	4X6	364
40'-0"	W24X76	C12X20.7	4X6	484
50'-0"	W24X104	C12X20.7	4X6	604
60'-0"	W30X116	C12X20.7	4X6	724
70'-0"	W33X130	C12X20.7	4X6	844



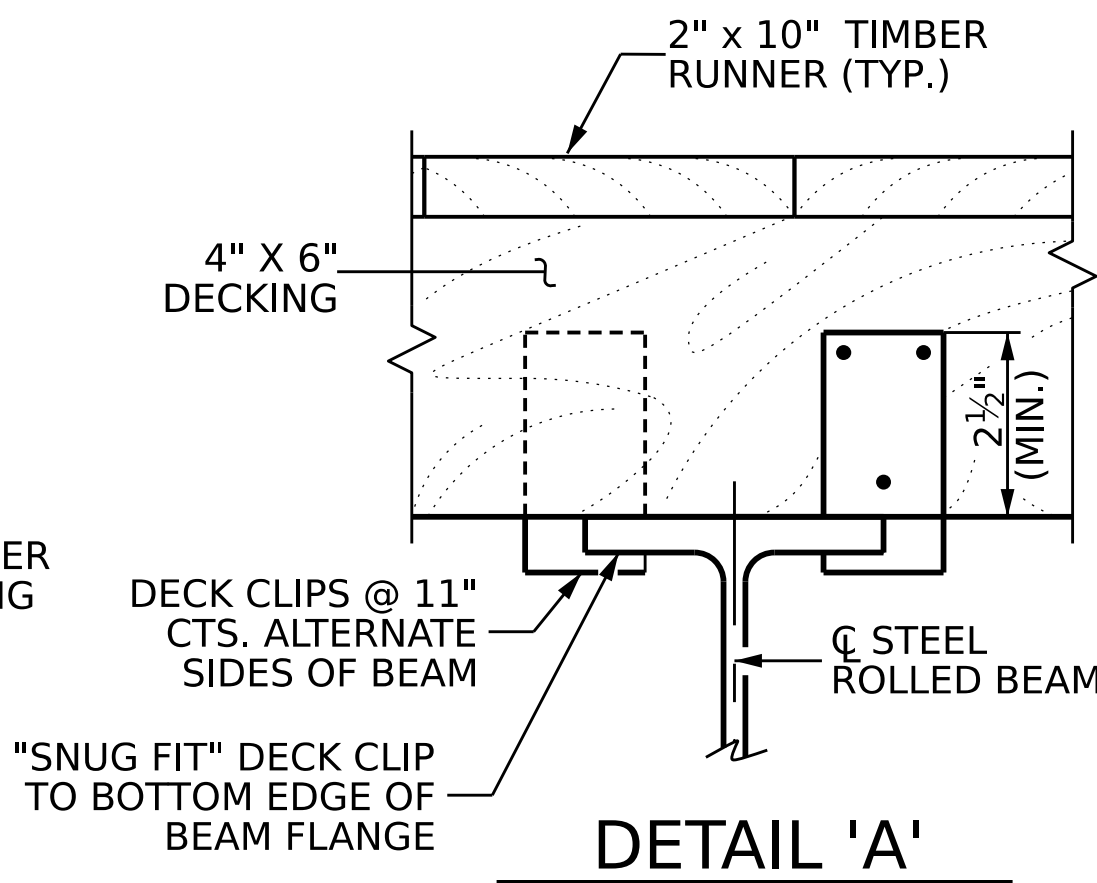
SECTION AT END BENT

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"
60'-0"	W30X116	15/16"
70'-0"	W33X130	15/16"

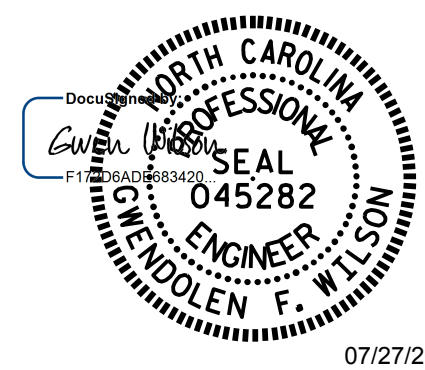
* DIMENSION A IS FOR INFORMATION ONLY. IT IS BASED ON THE FLANGE THICKNESS PLUS A 1/16" TOLERANCE. THE CONTRACTOR SHALL VERIFY THIS DIMENSION WITH DECK CLIP SUPPLIER. THE DECK CLIP SHALL HAVE A SNUG FIT TO THE BEAM FLANGE.



DECK CLIP DETAIL



DETAIL 'A'



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

REVISIONS

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

SHEET NO.
S-03

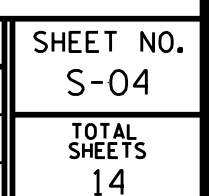
TOTAL SHEETS
14



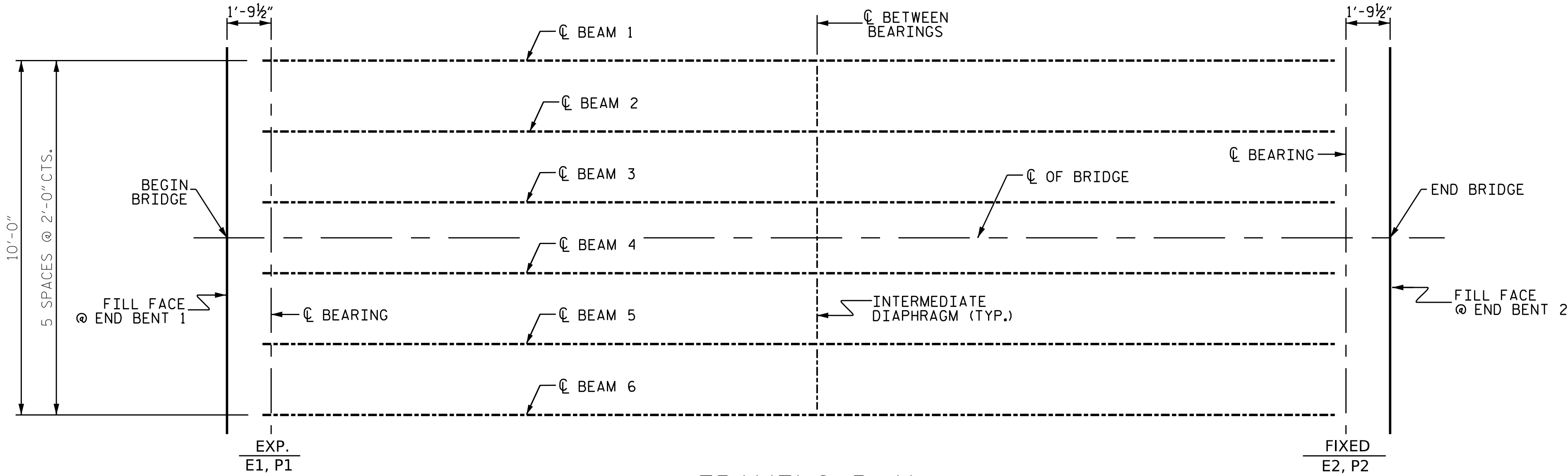
Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
Candler, NC, 28715
License No: C-3097

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

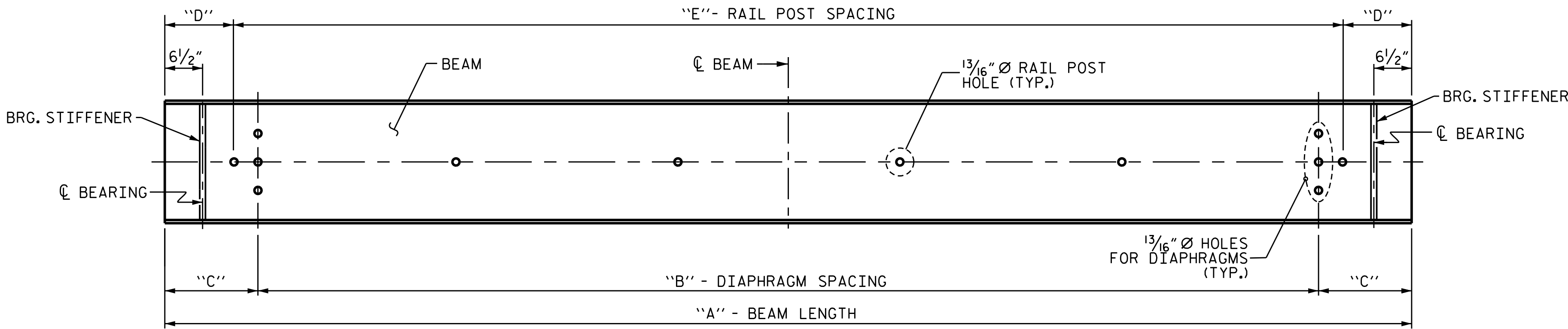
DATE: 04/2026
DATE: 04/2026
DATE: 04/2026



\\jc01-cad\proj\1\mt-pw\benh16\com\jmt-pw-01\Documents\Projects\2025\25-00629\25-00629\25-00629\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\006-SC_Framing Plan.dgn
DATE: 1/25/2026 TIME: 11:25:20 AM

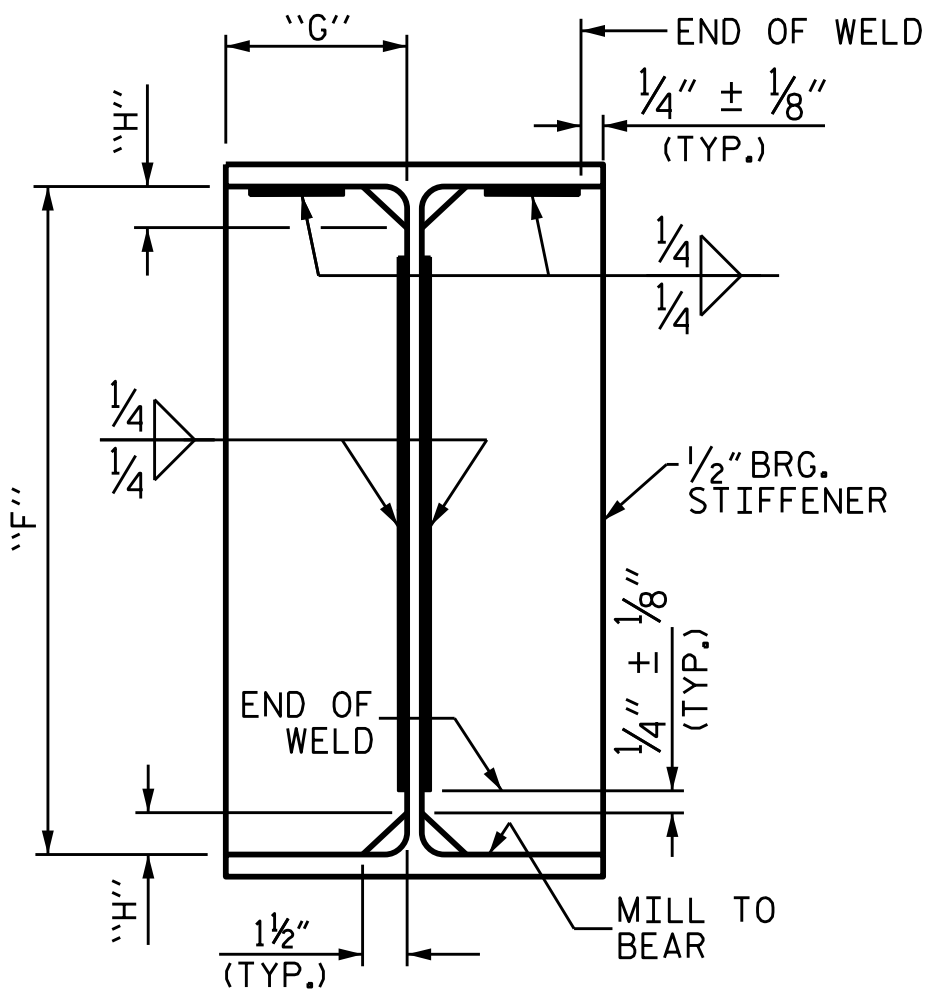


FRAMING PLAN
EXPANSION BEARING SHALL BE PLACED ON THE "UPHILL" END OF THE BRIDGE.



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

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"
60'-0"	W30X116	C12X20.7	60'-0"	4 SPA. @ 13'-6"	3'-0"	1'-0 1/4"	13 SPA. @ 4'-5 1/2"
70'-0"	W33X130	C12X20.7	70'-0"	4 SPA. @ 16'-0"	3'-0"	1'-3"	15 SPA. @ 4'-6"

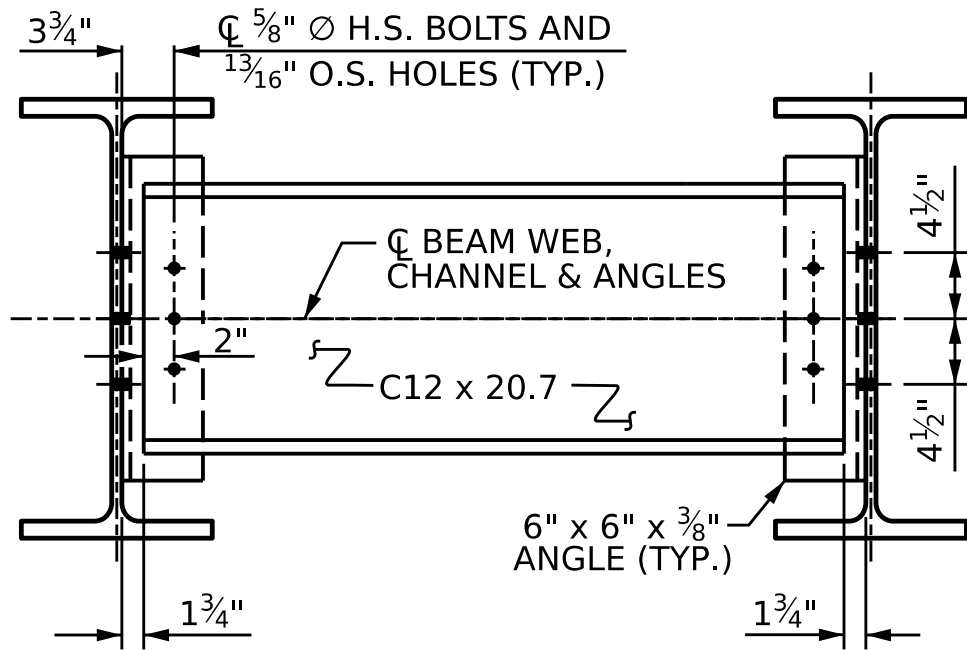


SECTION VIEW - BRG. STIFFENER

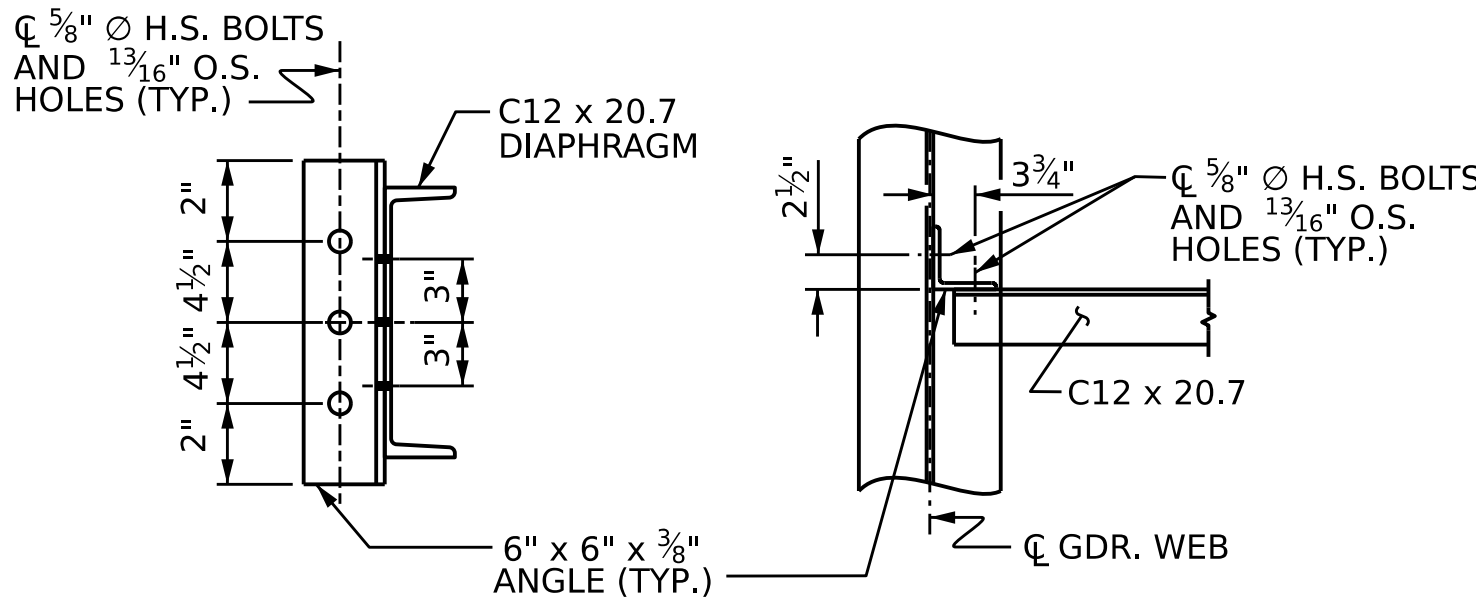
STIFFENER DIMENSION			
BEAM	F	G	H
W16X36	1'-3"	3 3/8"	2"
W21X48	1'-7 3/4"	3 7/8"	2"
W24X76	1'-10 9/16"	4 1/4"	2 7/16"
W24X104	1'-10 9/16"	6 1/8"	2 3/4"
W30X116	2'-4 1/4"	5"	3 1/16"
W33X130	2'-7 3/8"	5 1/2"	3 1/8"

NOTES

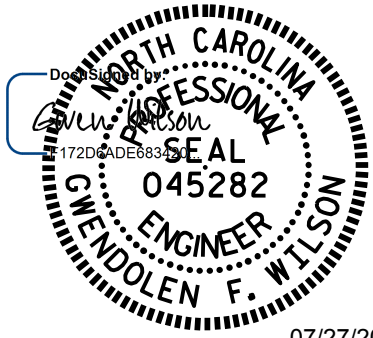
- NO SALVAGED BEAMS SHALL BE USED, UNLESS OTHERWISE NOTED ON THE PLANS.
- NO SHOP CAMBER REQUIRED, TURN NATURAL MILL CAMBER UP.
- ALL STRUCTURAL STEEL FIELD CONNECTIONS SHALL BE 5/8" DIA. GALVANIZED HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.
- BEAMS SHALL BE PLACED PARALLEL TO THE CHORD.
- CONTRACTORS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



DIAPHRAGM DETAILS



ANGLE DETAILS



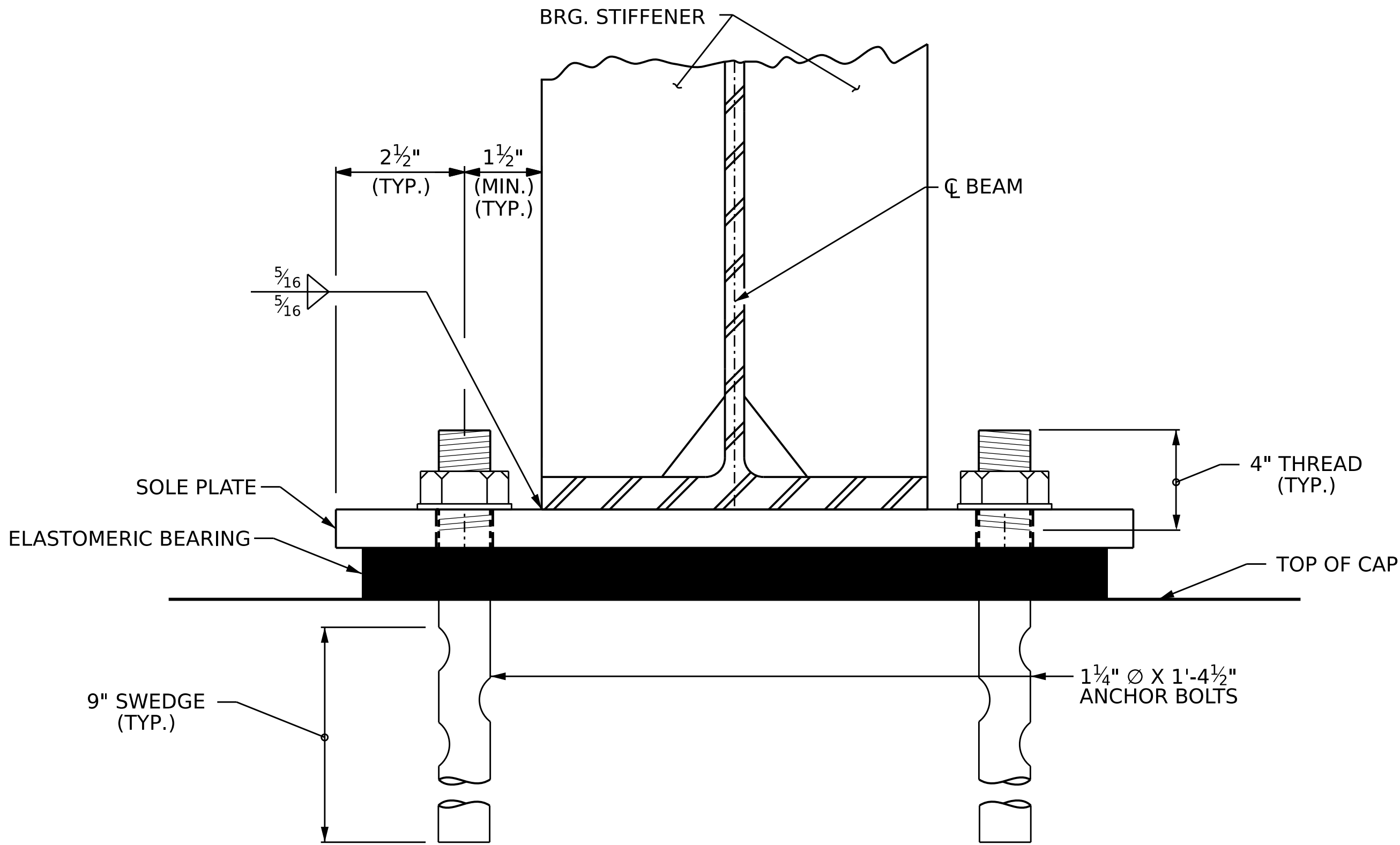
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

REVISIONS						SHEET NO. S-06
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 14
2			4			

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

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



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"
60'-0"	W30X116	10 ¹ / ₂ "	IV	1'-3"	1'-7"	1'-8"
70'-0"	W33X130	11 ¹ / ₂ "	IV	1'-3"	1'-7"	1'-8"

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.

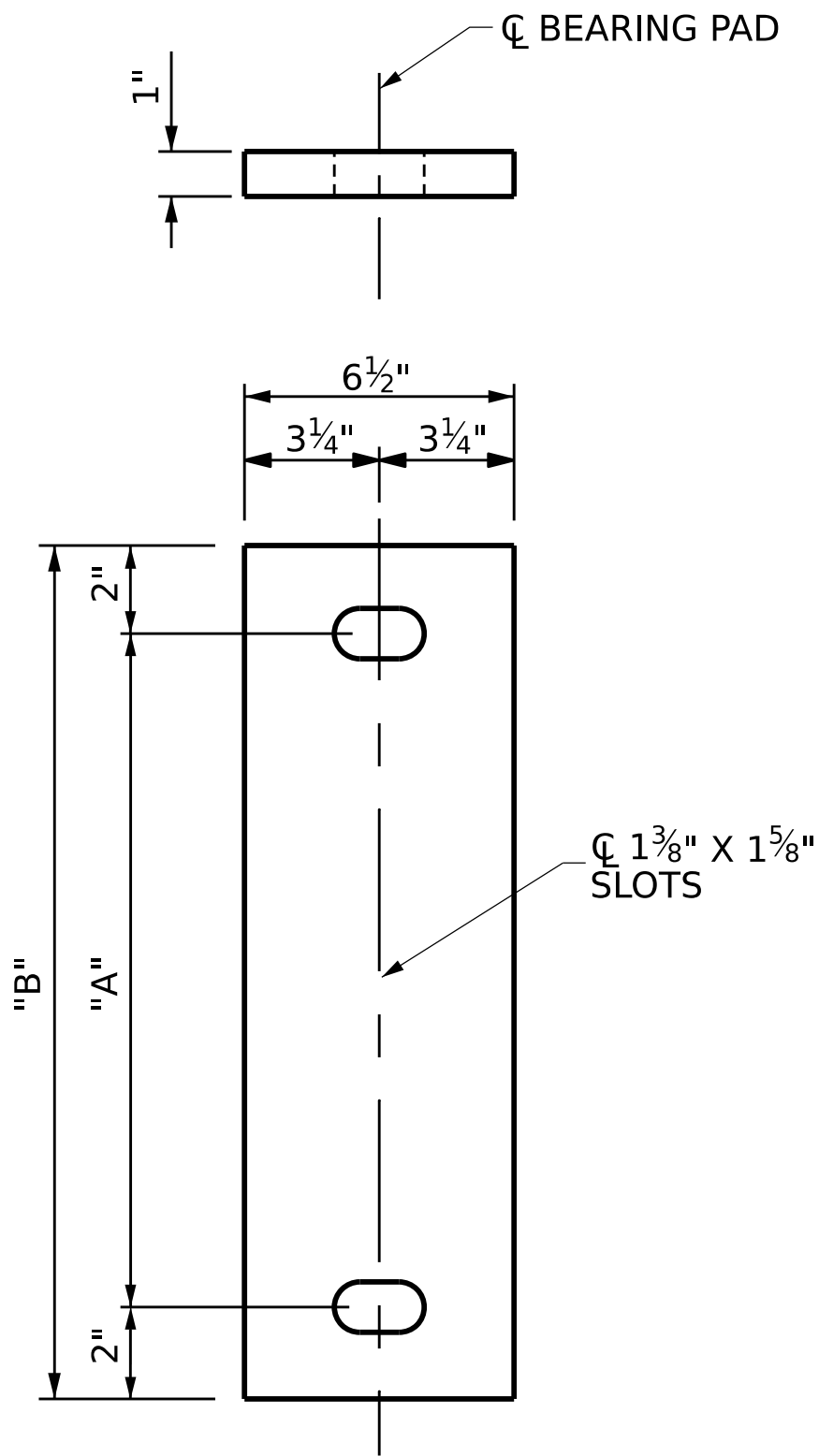
AT THE APPROVAL OF THE ENGINEER, SOLE PLATES AT THE EXPANSION END MAY BE FIELD WELDED.

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.

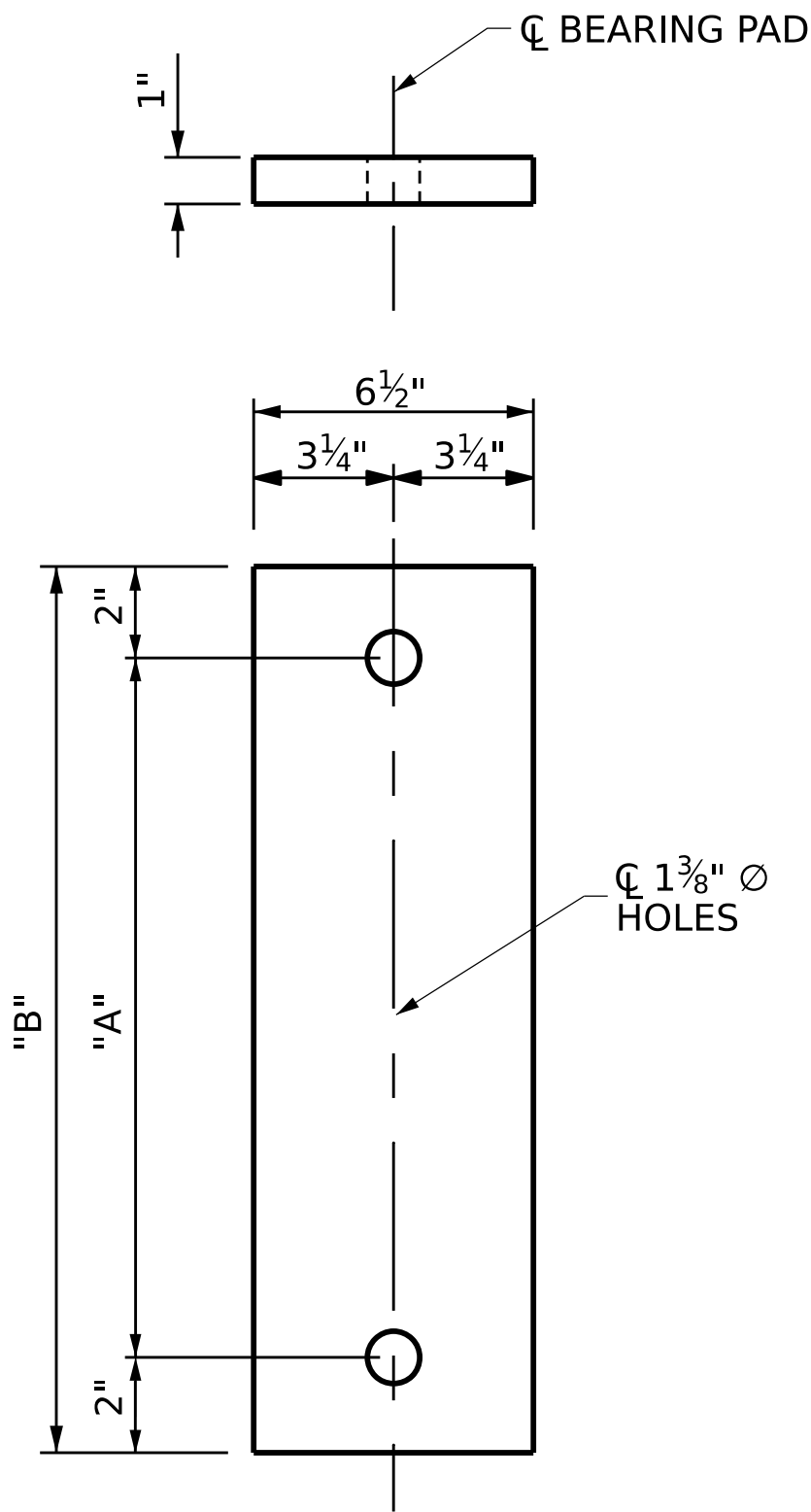
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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.

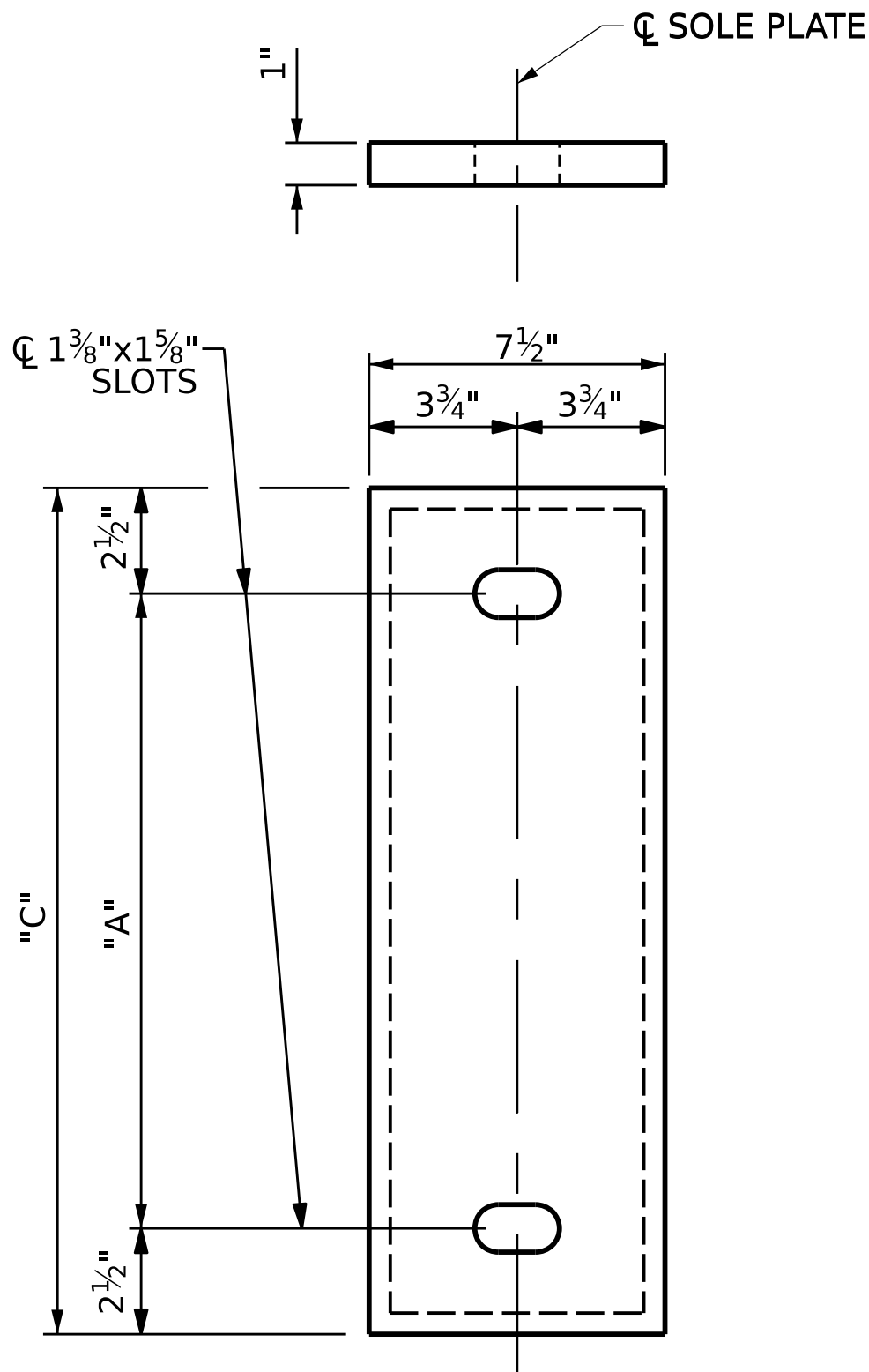
ADHESIVELY ANCHORED ANCHOR BOLTS SHALL BE THREADED FULL LENGTH.



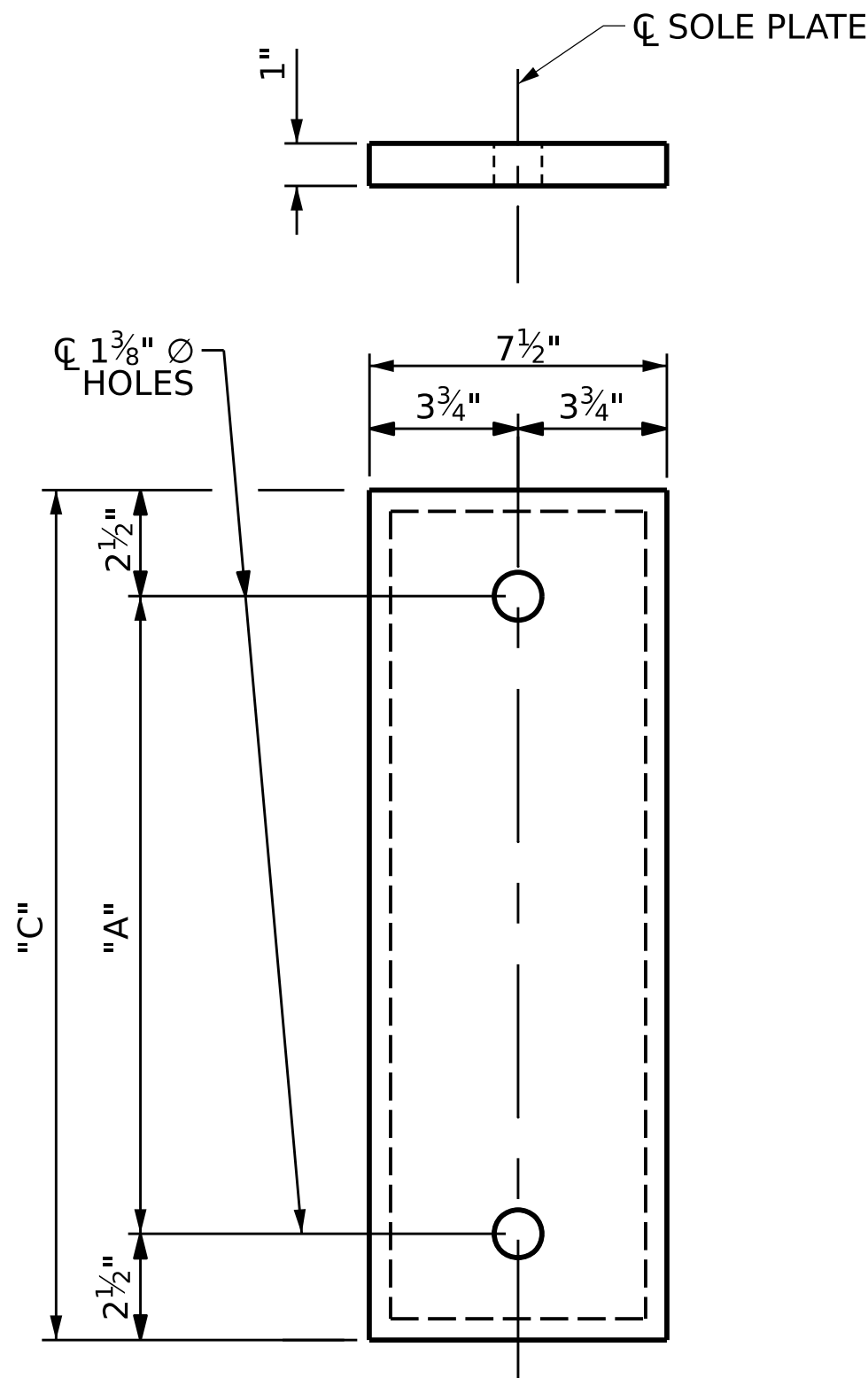
E1 ELASTOMERIC BEARING DETAILS
(6 REQ'D)
EXPANSION



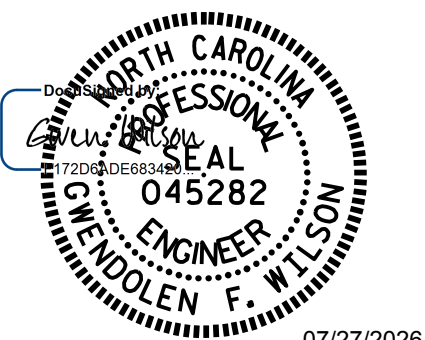
E2 ELASTOMERIC BEARING DETAILS
(6 REQ'D)
FIXED



P1 SOLE PLATE DETAILS
(6 REQ'D)
EXPANSION



P2 SOLE PLATE DETAILS
(6 REQ'D)
FIXED



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

BEARING DETAILS

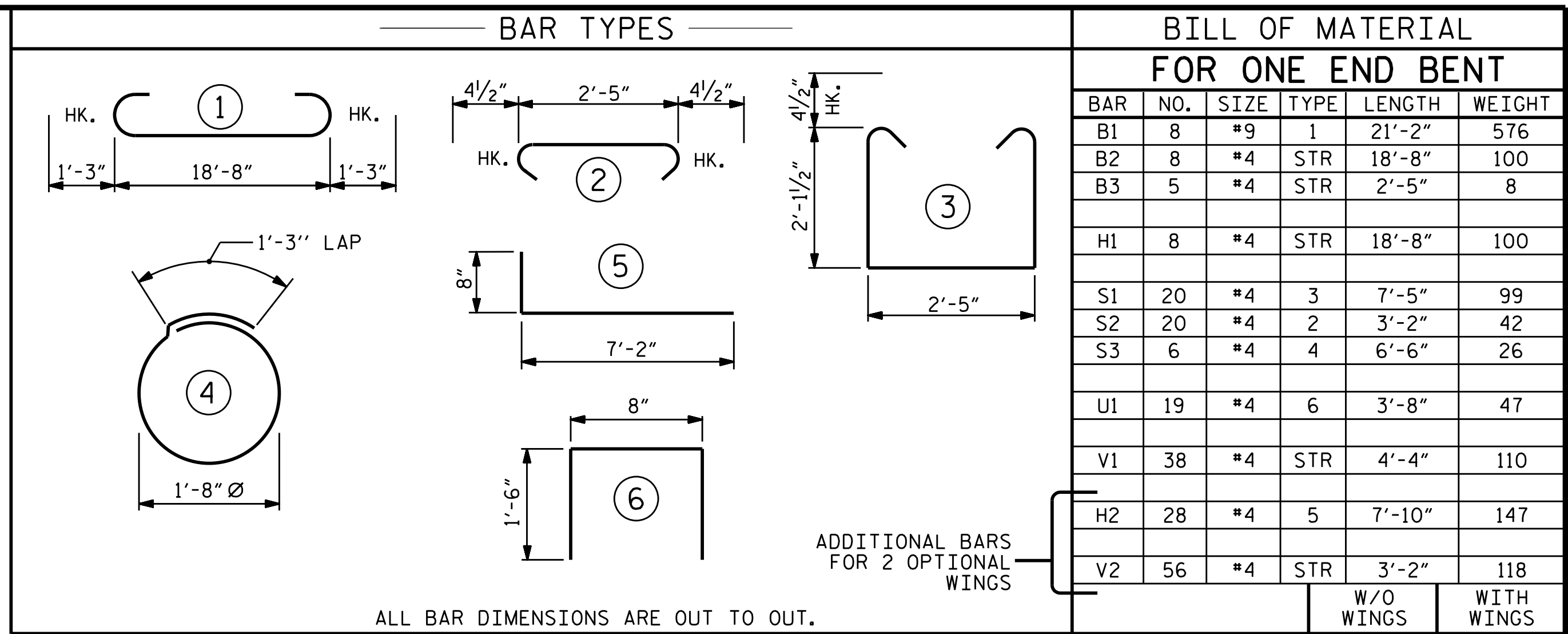
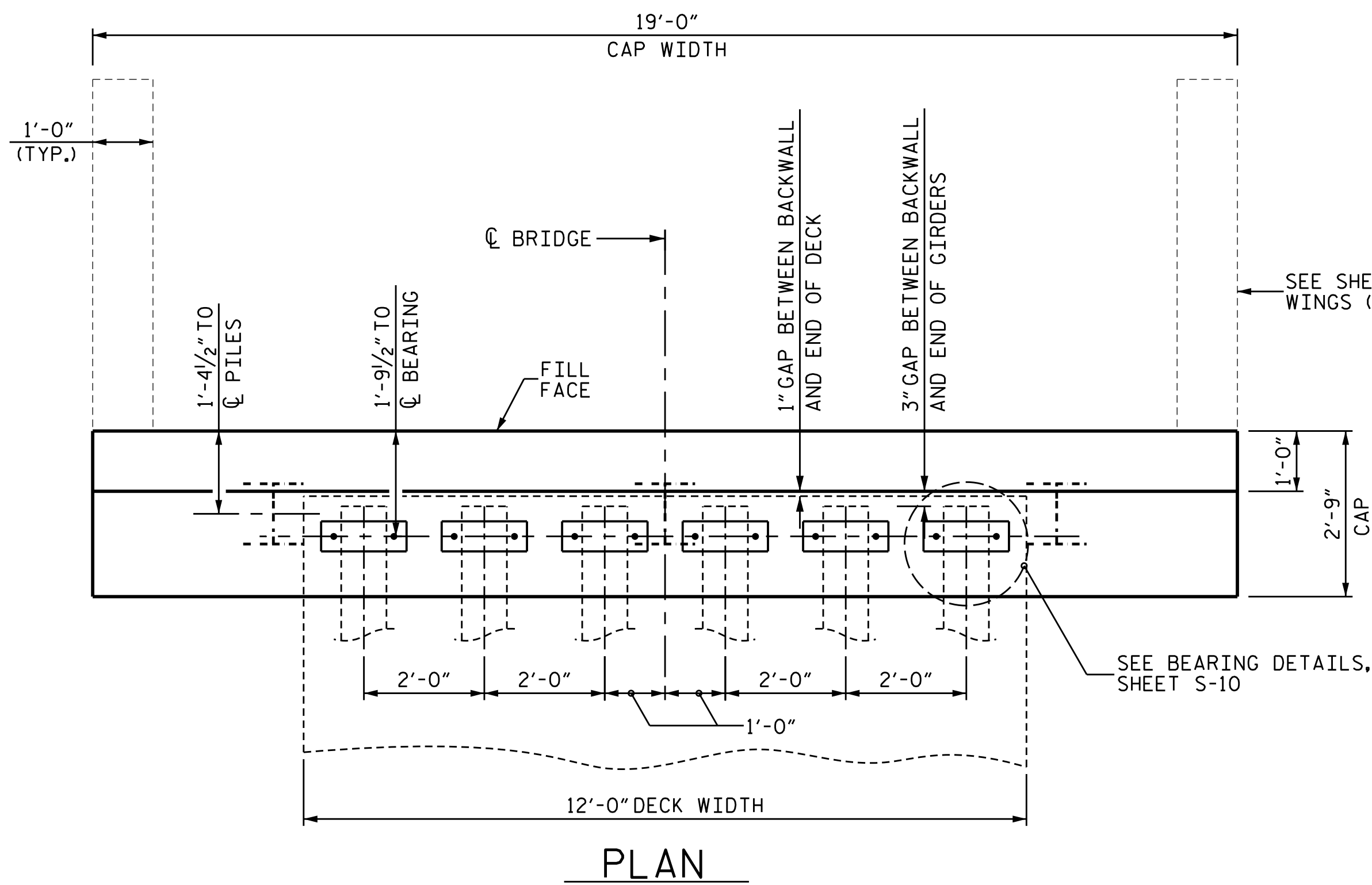
REVISIONS						SHEET NO. S-07
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 14
2			4			



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

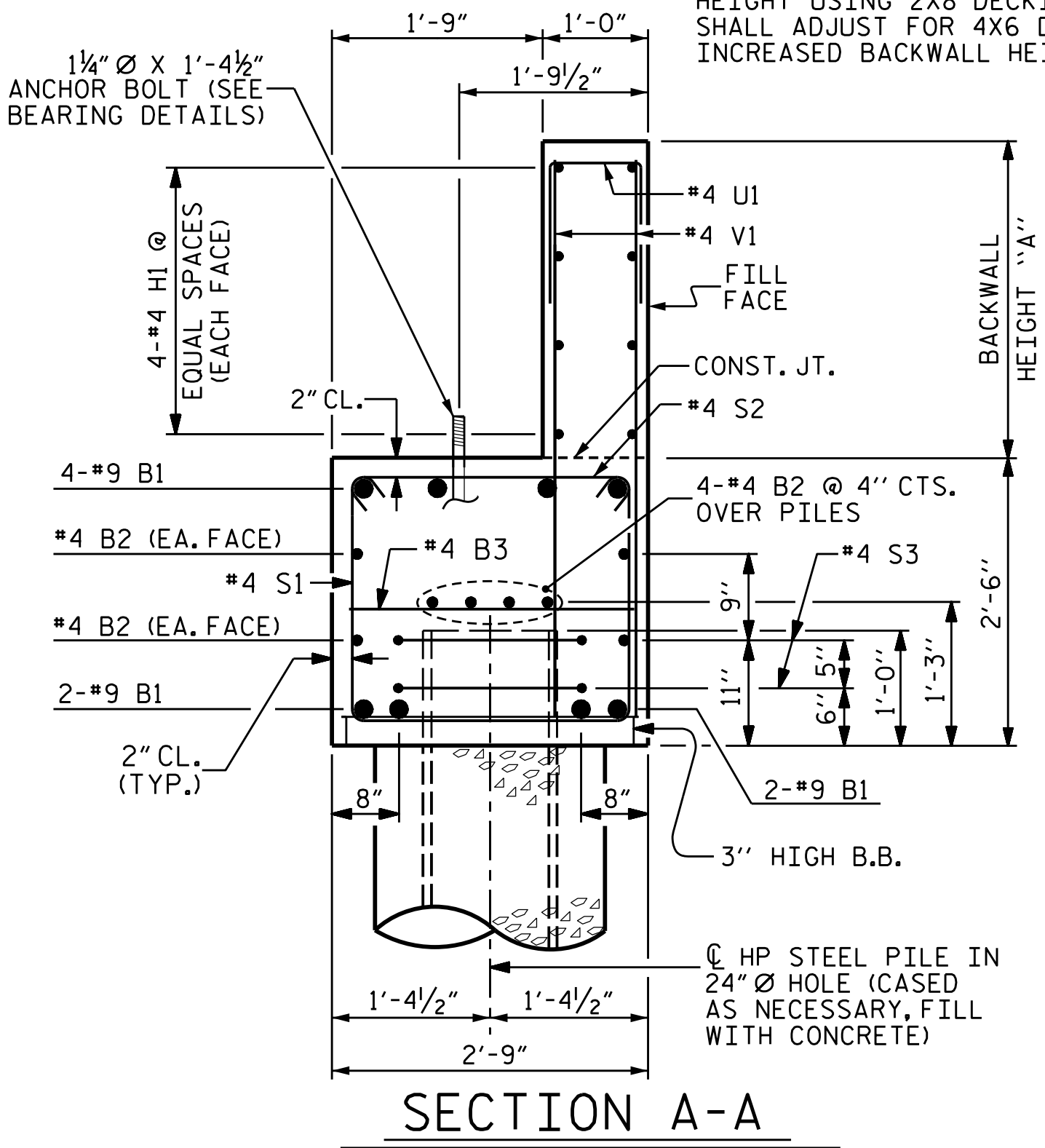
DWN. BY: BC
CHKD. BY: CFW
DES. EGR. OF RECORD: GFW

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

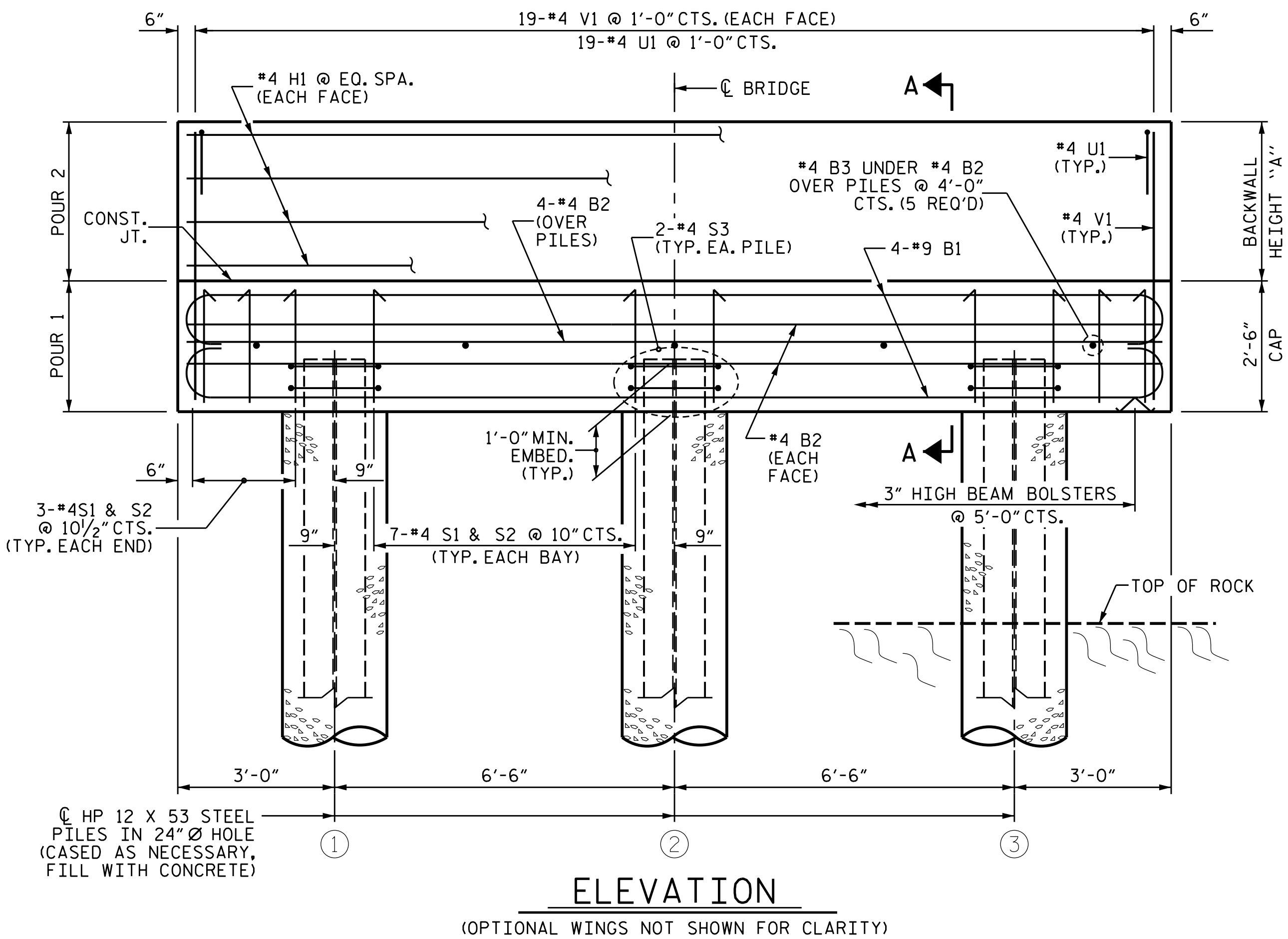


REINFORCING STEEL (FOR ONE END BENT) (LBS.) *	1,108	1,373
CLASS A CONCRETE (FOR ONE END BENT) (C.Y.)		
POUR 1	4.8	6.0
POUR 2 *	1.7	2.8
TOTAL	6.5	8.8

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



SHEET 1 OF 2



BACKWALL HEIGHT

SPAN	BEAM	A (2X8 DECKING)	A (4X6 DECKING)
20'-0"	W16X36	2'-2 $\frac{5}{8}$ "	1'-10 $\frac{7}{8}$ "
30'-0"	W21X48	2'-7 $\frac{3}{8}$ "	2'-3 $\frac{3}{8}$ "
40'-0"	W24X76	2'-10 $\frac{5}{8}$ "	2'-6 $\frac{7}{8}$ "
50'-0"	W24X104	2'-10 $\frac{3}{4}$ "	2'-7"
60'-0"	W30X116	3'-4 $\frac{3}{4}$ "	3'-1"
70'-0"	W33X130	3'-7 $\frac{3}{4}$ "	3'-4"

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 (RQD)
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.

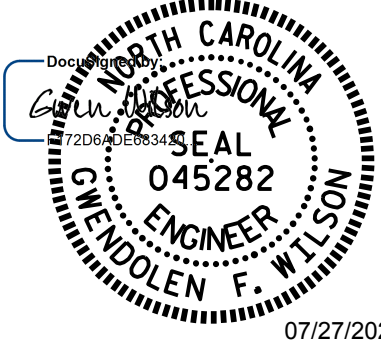
MINIMUM ROCK SOCKET DEPTHS, UNLESS OTHERWISE INDICATED
ON PROJECT SPECIFIC DATA SHEET:

- 4' MINIMUM (RQD >70, GSI >50)
6' MINIMUM (RQD 30-70, GSI 30-50)
8' MINIMUM (RQD <30, GSI <30)

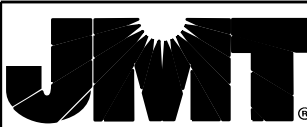
REFER TO BORING LOGS FOR RQD AND GSI DATA.

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.



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



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

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

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

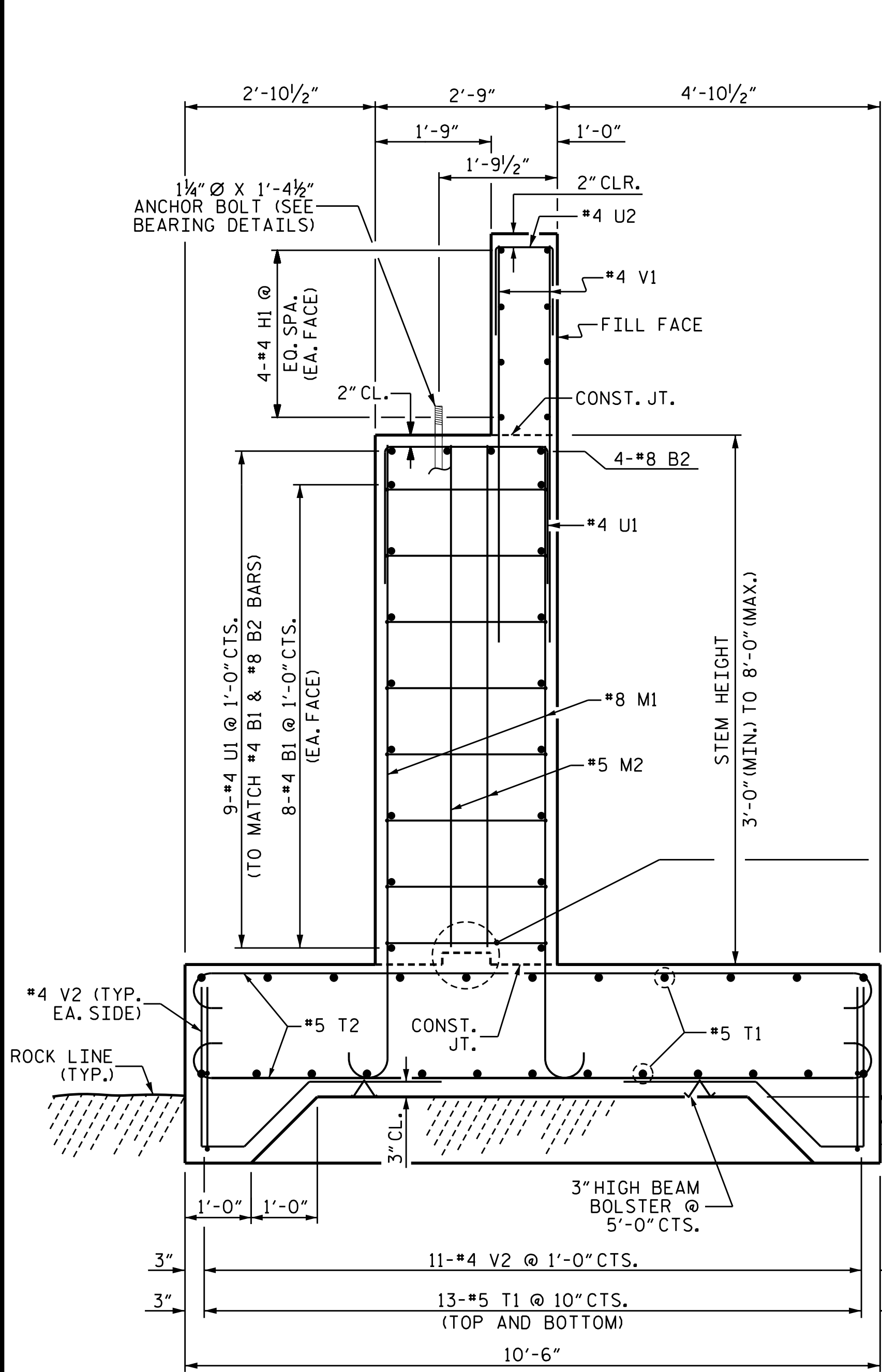
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-09
1			3			TOTAL SHEETS 14
2			4			

SHEET NO.
S-09

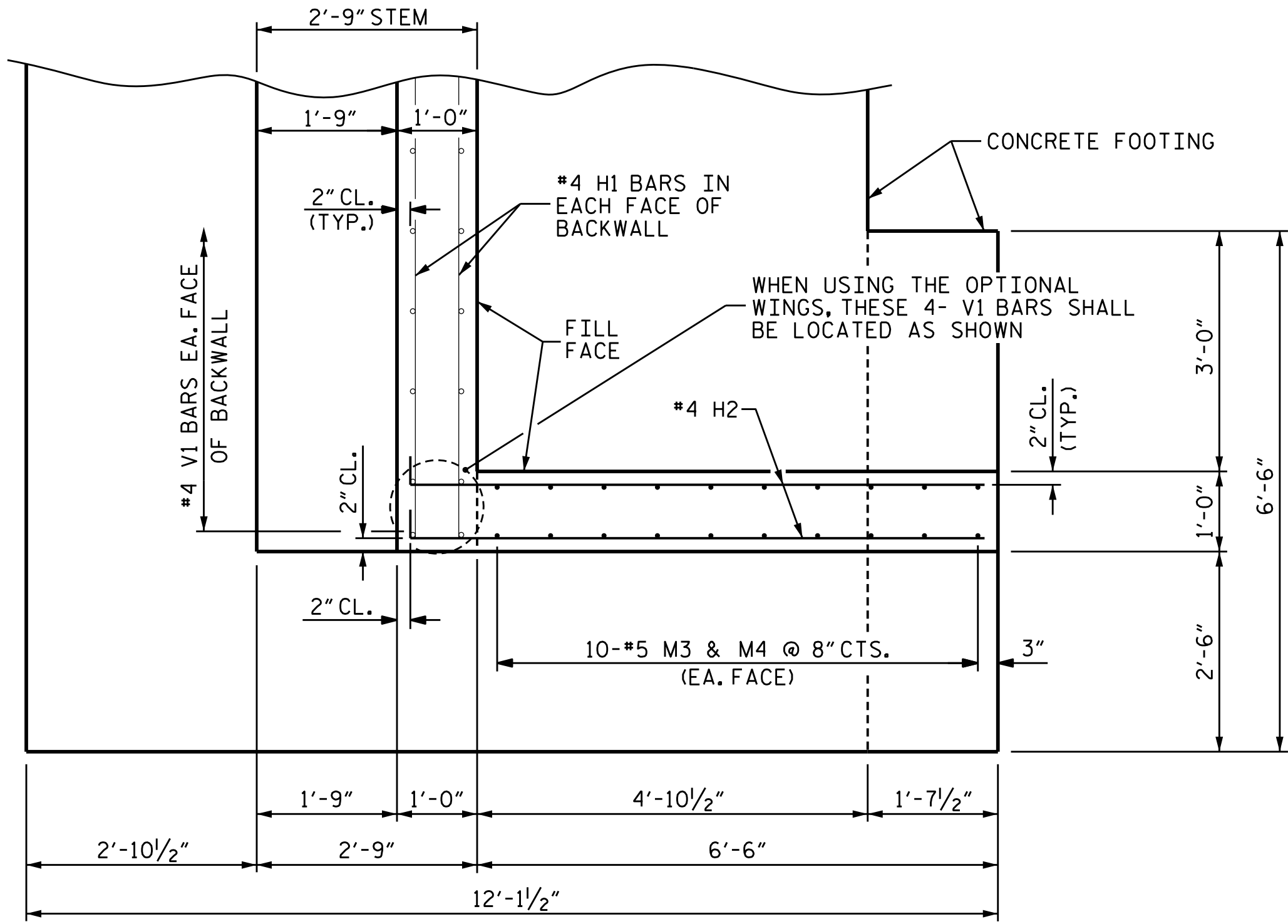
TOTAL
SHEETS
14

SHEET NO.	S-10
TOTAL SHEETS	14

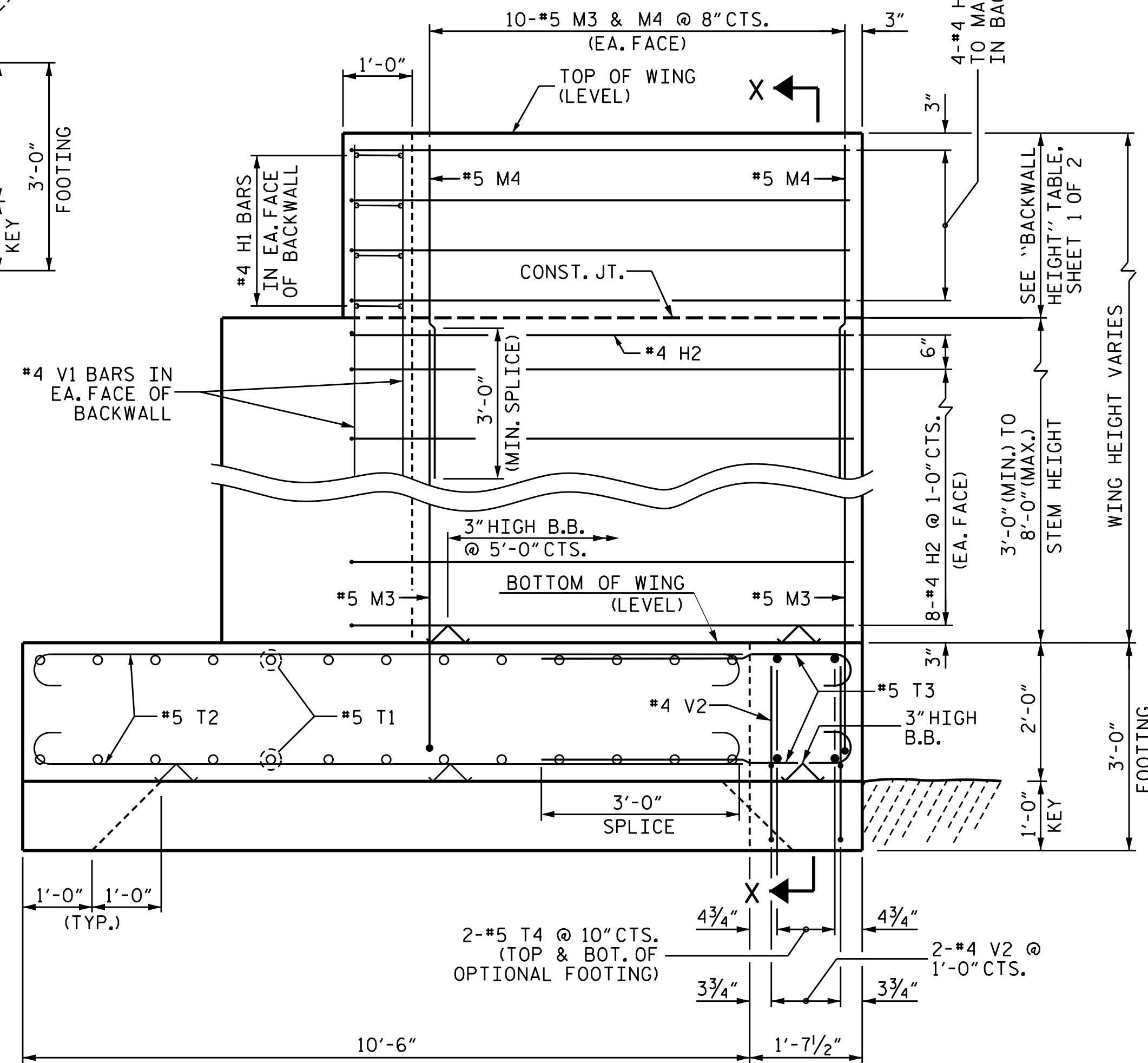
\\pc-bentley.com\jmt_2w-01\Documents\Projects\2025\25-00629\25-00629\01\Design\Structures\NC PRB-Steel Beam with Timber Deck Standards\Single Lane Steel Beam with Timber Deck Plans\2 Standard Drawings\20-70 FT - 12 FT DECK WIDTH\012-Optional Wings-Footings.dgn
DATE: 1/25/2026 TIME: 11:25:20 AM



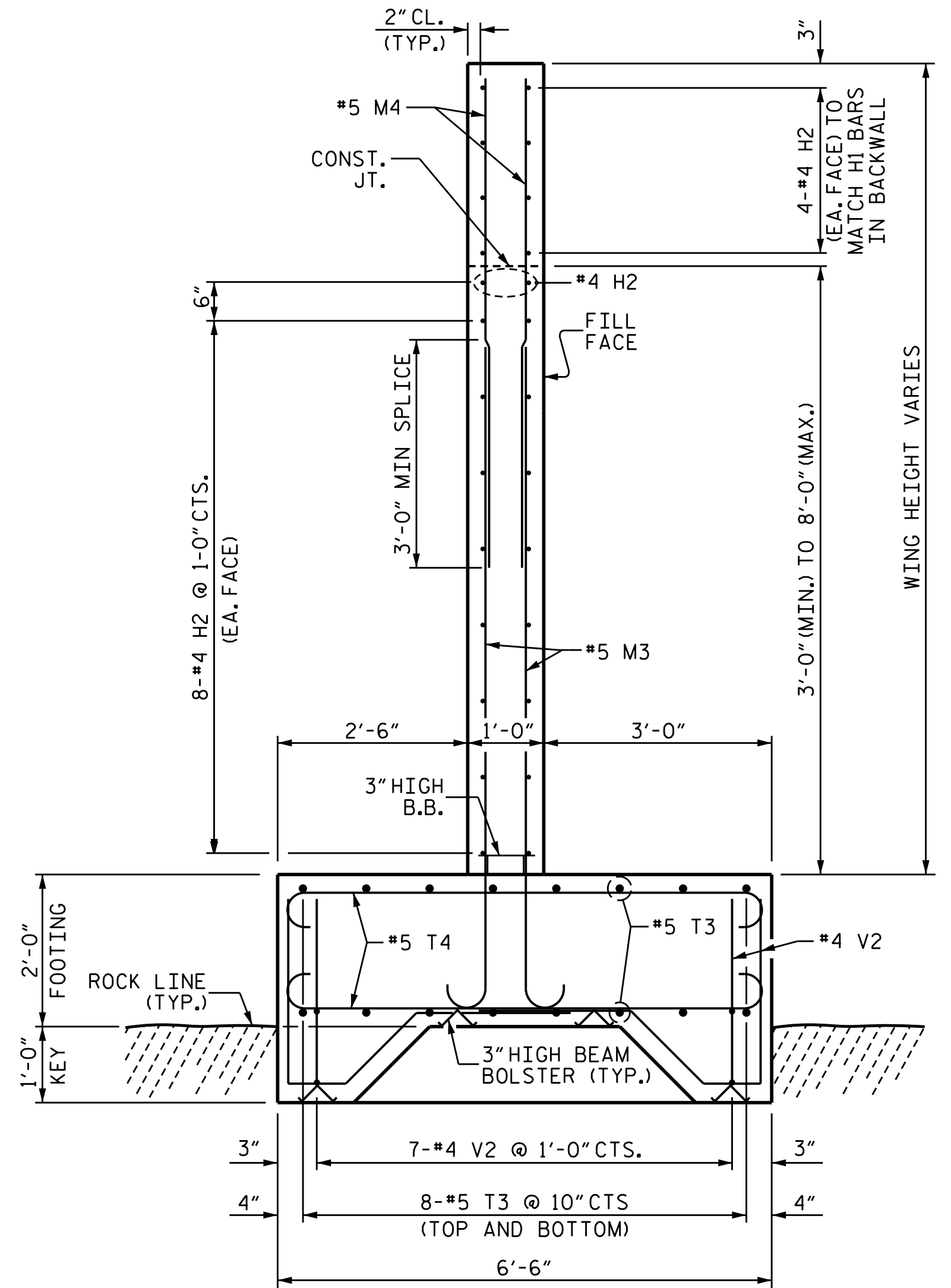
SECTION A-A



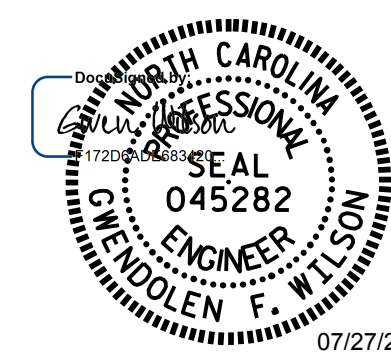
PLAN OF WING
(OPTIONAL)



ELEVATION OF WING
(OPTIONAL)



SECTION X-X
(OPTIONAL)



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SHEET 2 OF 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-12
2			4			
TOTAL SHEETS						14

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

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

(FOUNDATION TYPE NOT SHOWN
FOR CLARITY)

A	B	C
30'-0"	25'-6"	22'-9"
40'-0"	35'-6"	32'-9"
50'-0"	45'-6"	42'-9"
60'-0"	55'-6"	52'-9"

(SHOWING DRIVEN 12X53 STEEL
PILES FOUNDATION)

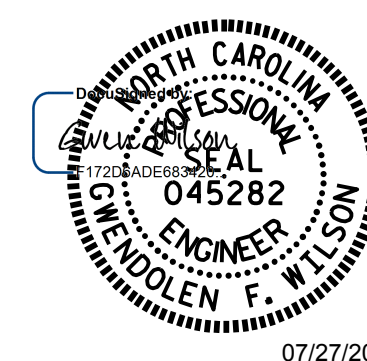
THE MODULAR BRIDGE SHALL BE POSITIONED TO PROVIDE A UNIFORM OVERHANG BEYOND THE FILL FACE OF EACH END BENT. THE OVERHANG SHALL BE SUPPORTED FULL LENGTH. THE CONTRACTOR SHALL PROVIDE A COMPACTED AGGREGATE BEARING SURFACE TO SUPPORT THE SUPERSTRUCTURE OVERHANG.

CONTRACTOR SHALL ESTABLISH
APPROACH ROAD GRADE AS
REQUIRED AND SHALL PROVIDE
SMOOTH TRANSITION TO
EXISTING GRADE (TYP.)

(SHOWING DRILLED-IN 12X53 STEEL
PILES FOUNDATION)

(SHOWING MICROPILES FOUNDATION)

(SHOWING SPREAD FOOTING
FOUNDATTION)



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

MODULAR PANEL BRIDGE

GENERAL DRAWING

REVISIONS						SHEET NO. S-01
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 7
2			4			

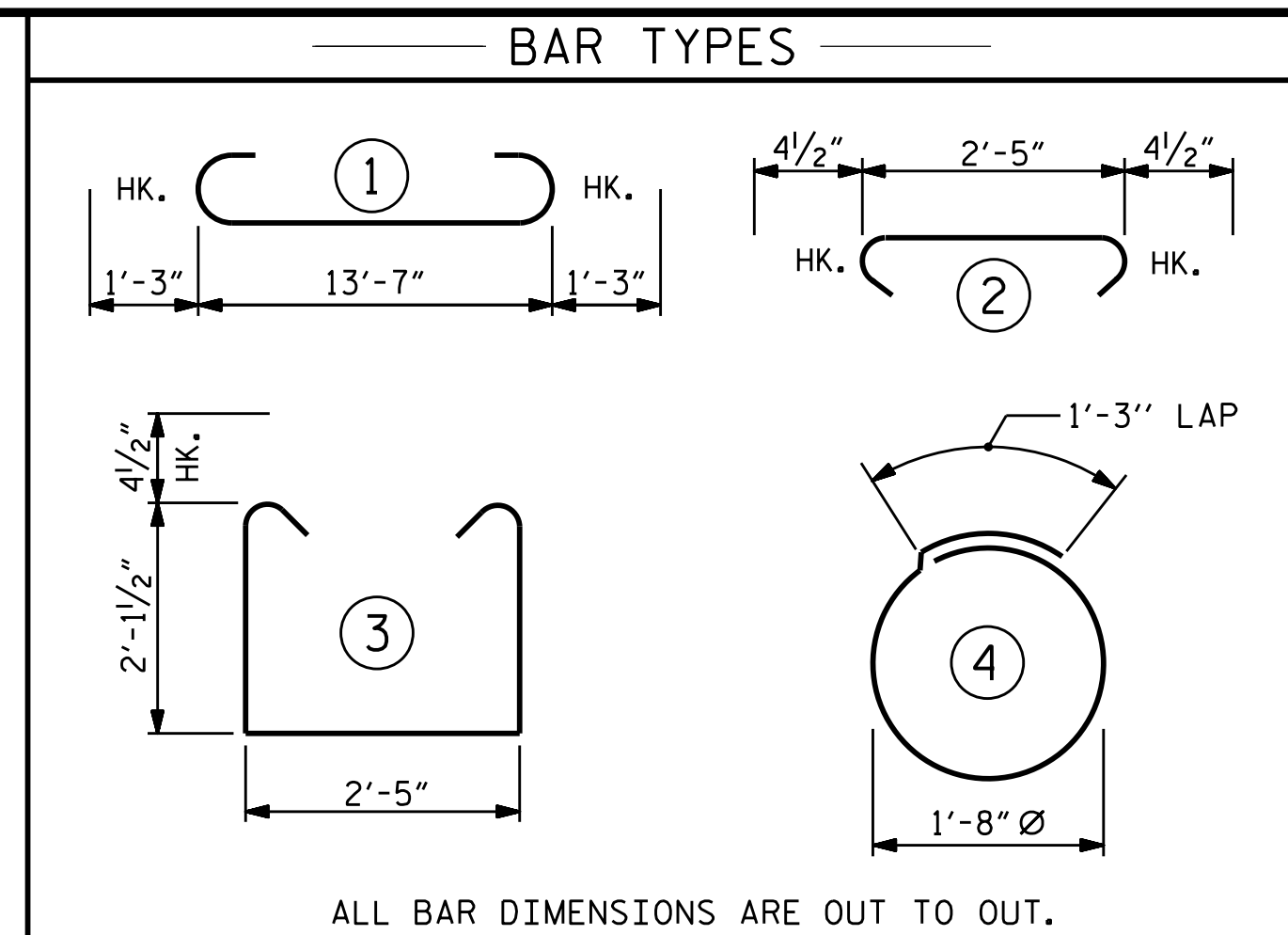
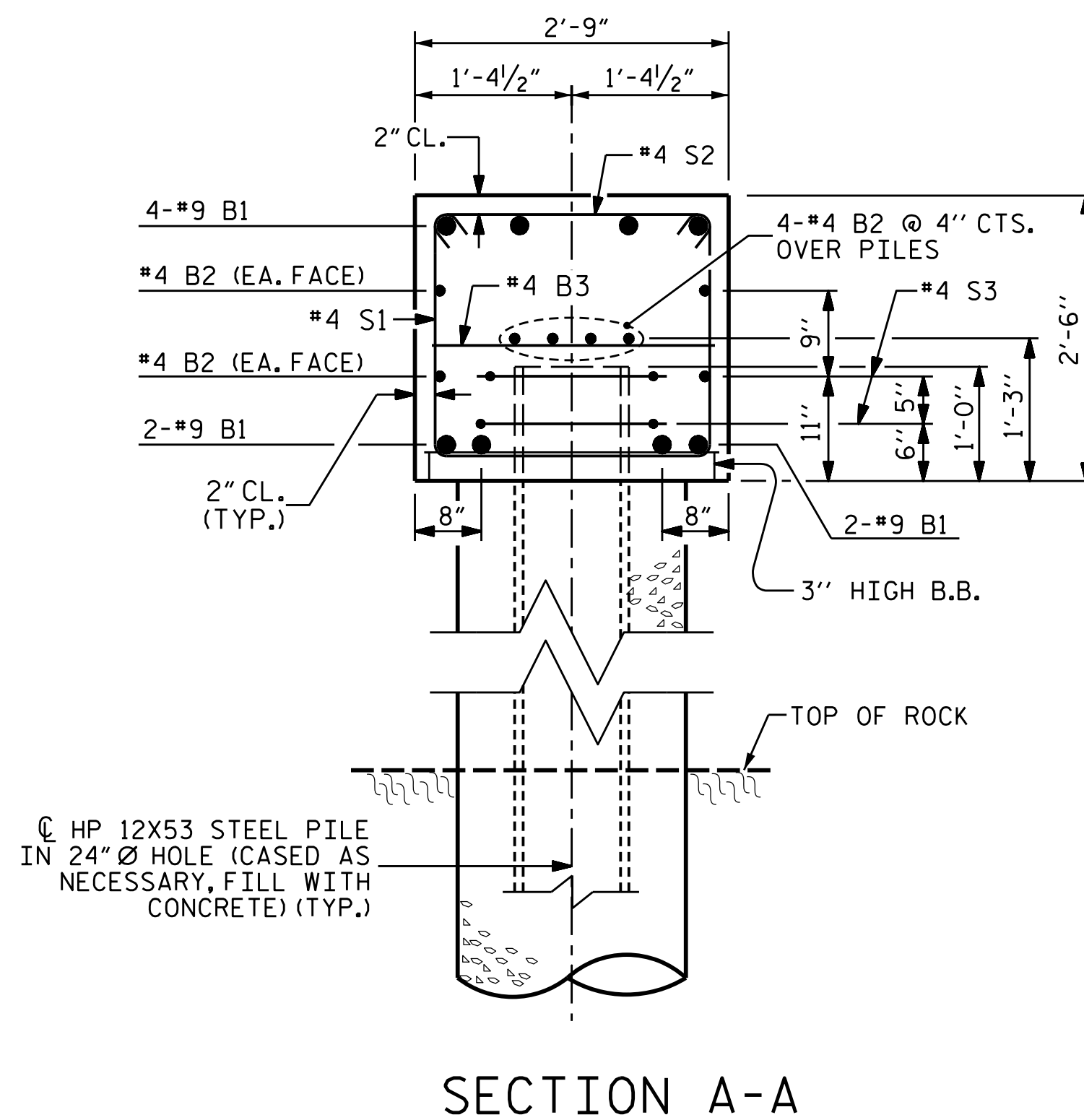
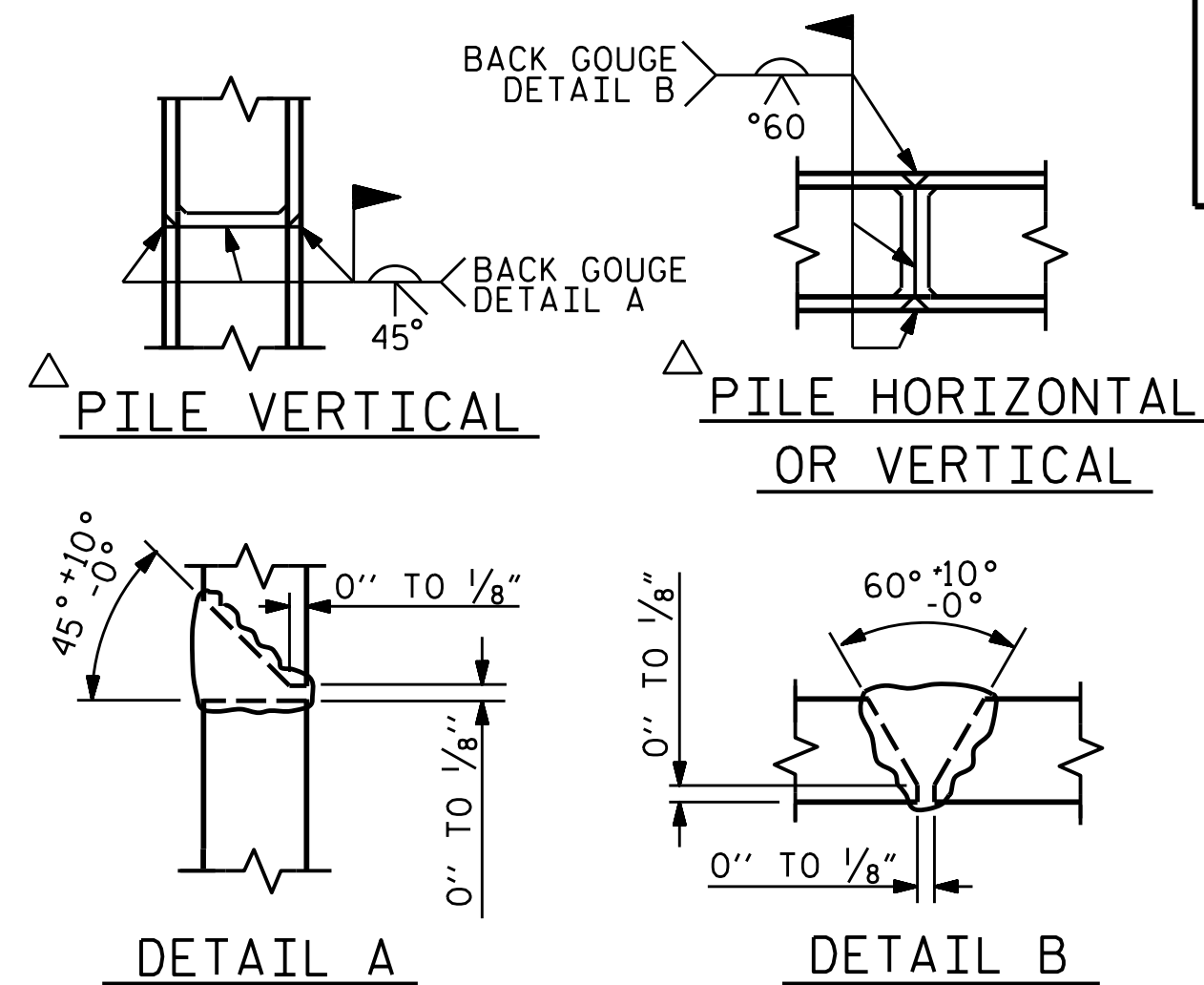
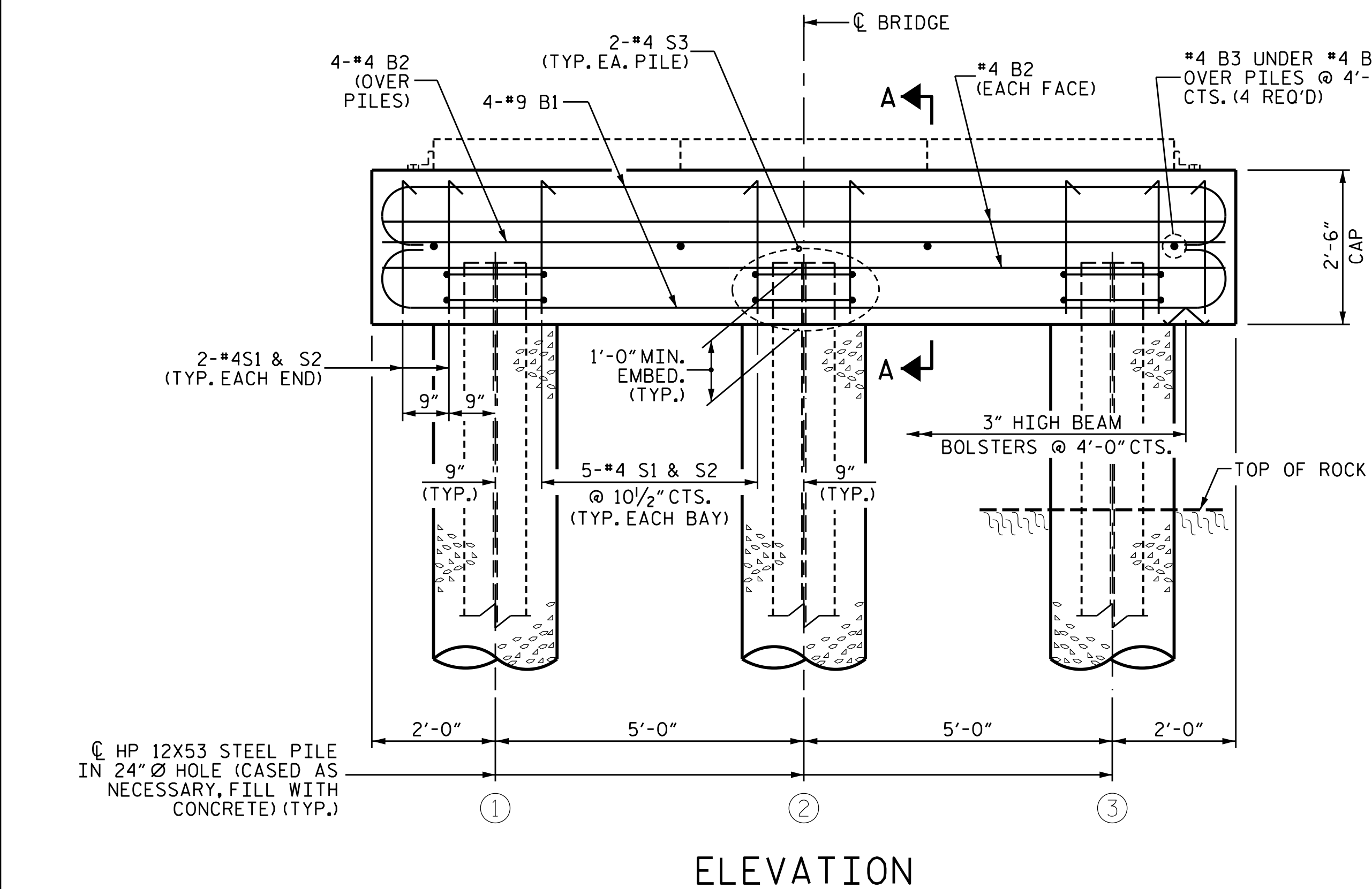
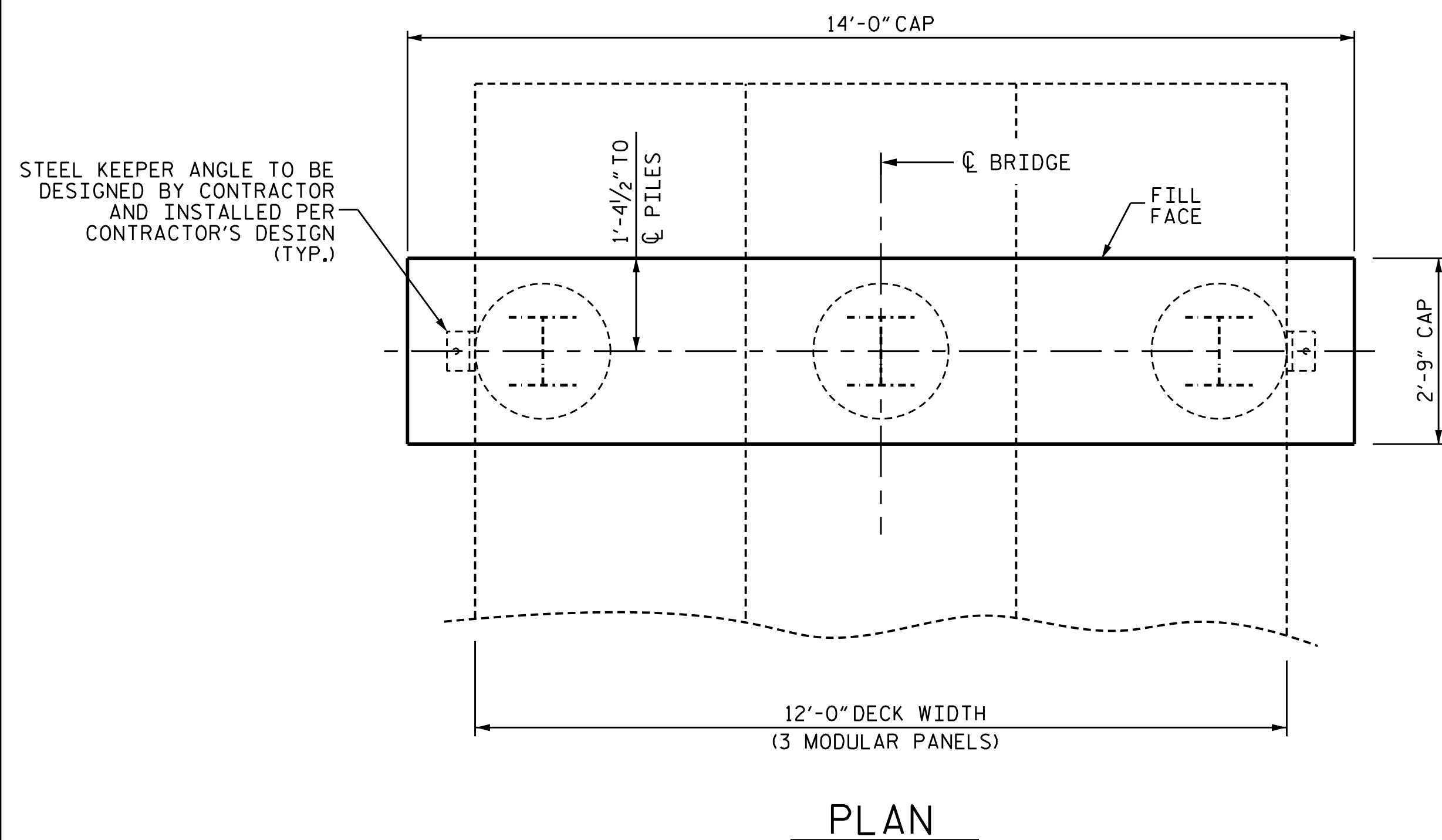


Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
Candler, NC, 28715
License No: C-3097

DWN. BY: BC/WDC
CHKD. BY: GFW
DES. EGR. OF REC

DATE: 05/2026
DATE: 05/2026
DATE: 05/2026





BILL OF MATERIAL					
FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	16'-1"	437
B2	8	#4	STR	13'-8"	73
B3	4	#4	STR	2'-5"	7
S1	14	#4	3	7'-5"	69
S2	14	#4	2	3'-2"	30
S3	6	#4	4	6'-6"	26
REINFORCING STEEL (FOR ONE END BENT)					642 LBS.
CLASS A CONCRETE (FOR ONE END BENT)					3.6 C.Y.

GENERAL NOTES

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.

MODULAR BRIDGE SUPERSTRUCTURE SHOWN IS SCHEMATIC ONLY. ACTUAL MODULAR BRIDGE SYSTEM CONFIGURATION AND MEMBER SIZING SHALL BE DETERMINED BY THE CONTRACTOR TO MEET THE SPECIFIED DESIGN LOADS.

FOUNDATION NOTES

DRILLED-IN PILES

ROCK QUALITY DESIGNATION (RQD)
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.

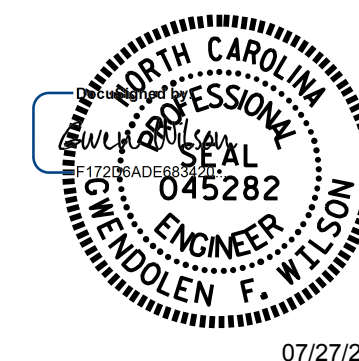
MINIMUM ROCK SOCKET DEPTHS, UNLESS OTHERWISE INDICATED
ON PROJECT SPECIFIC DATA SHEET:

4'-0" MINIMUM (RQD >70, GSI >50)
6'-0" MINIMUM (RQD 30-70, GSI 30-50)
8'-0" MINIMUM (RQD <30, GSI <30)

REFER TO BORING LOGS FOR RQD 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.



07/27/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF						
EMERGENCY MANAGEMENT						
PRIVATE DRIVEWAY						
BRIDGE STANDARDS						
MODULAR PANEL BRIDGE						
END BENT						
DRILLED IN PILES						
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-04
1			3			TOTAL SHEETS
2			4			7



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

DWN. BY: BC/WDC
CHKD. BY: GFW
DES. EGR. OF REC

DATE: 05/2026
DATE: 05/2026
DATE: 05/2026

GENERAL NOTES

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.

THE FINAL STEM WALL HEIGHT SHALL BE DETERMINED IN THE FIELD BASED ON EXISTING ROCK ELEVATIONS. THE STEM WALL HEIGHT SHALL NOT BE LESS THAN 3'-0"OR GREATER THAN 8'-0.

STEM WALL REINFORCEMENT AND DETAILS ARE BASED ON A MAXIMUM STEM WALL HEIGHT OF 8'-0". THE CONTRACTOR SHALL ADJUST THE HORIZONTAL REINFORCEMENT LAYOUT TO ACCOMMODATE FIELD-VERIFIED STEM WALL HEIGHTS WHILE MAINTAINING REBAR SIZES, SPACING, LAP LENGTHS, AND THE OVERALL REINFORCING CONFIGURATION SHOWN IN THE STRUCTURAL PLANS AND DETAILS.

MODULAR BRIDGE SUPERSTRUCTURE SHOWN IS SCHEMATIC ONLY. ACTUAL MODULAR BRIDGE SYSTEM CONFIGURATION AND MEMBER SIZING SHALL BE DETERMINED BY THE CONTRACTOR TO MEET THE SPECIFIED DESIGN LOADS.

FOUNDATION NOTES

SPREAD FOOTING

FOUNDATION EXCAVATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTION 410 OF THE STANDARD 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 3.0 TSF.

KEY IN FOOTINGS AT LEAST 1 FT INTO ROCK.

**BILL OF MATERIAL

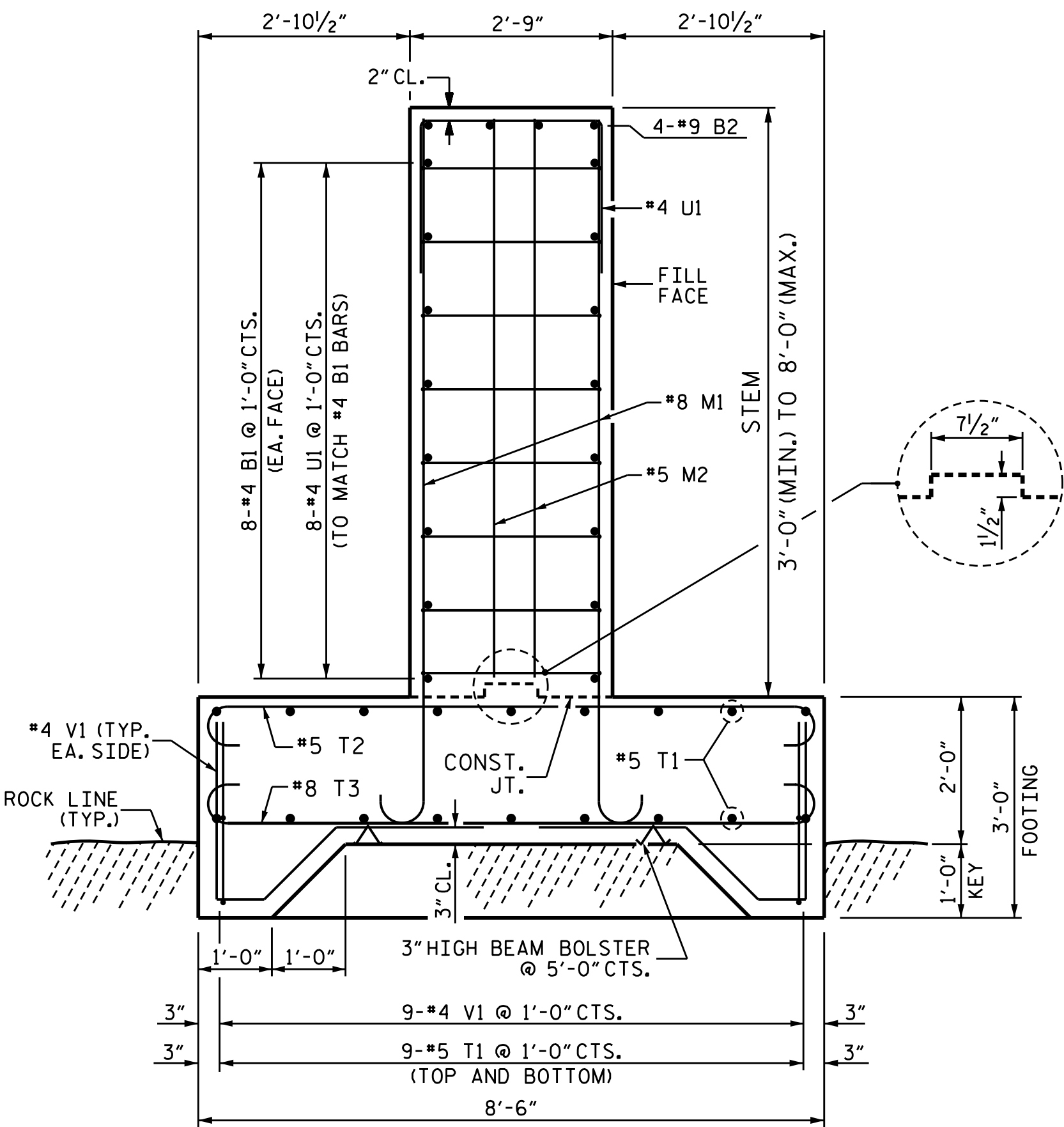
FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#4	STR	13'-8"	146
B2	4	#9	STR	13'-8"	186
M1	56	#8	3	10'-5"	1,558
M2	4	#5	STR	7'-6"	31
T1	18	#5	1	16'-8"	313
T2	16	#5	1	9'-2"	153
T3	16	#8	1	9'-10"	420
U1	30	#4	2	8'-1"	162
V1	50	#4	4	6'-7"	220
REINFORCING STEEL					3,189 LBS.

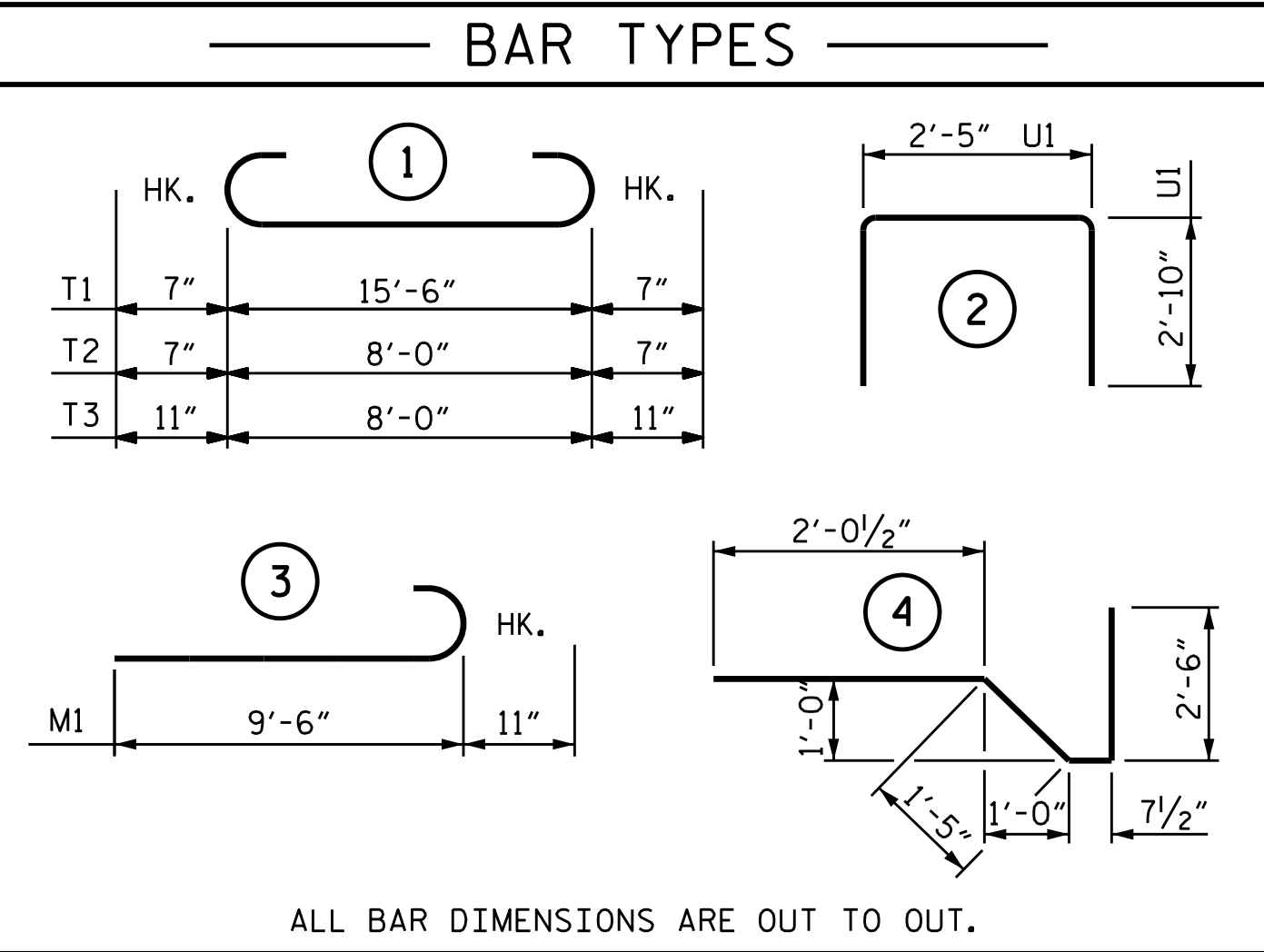
CLASS A CONCRETE BREAKDOWN

POUR #1	FOOTING	12.7 C.Y.
POUR #2	END BENT STEM	11.4 C.Y.
TOTAL		24.1 C.Y.

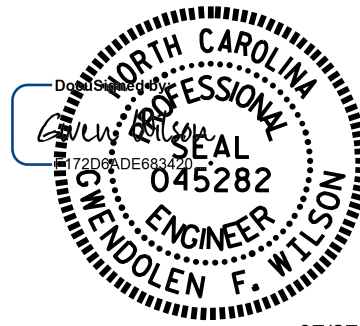
** THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE QUANTITIES AND REINFORCING BARS SHOWN IN THE BILL OF MATERIAL ARE BASED ON AN 8'-0" MAXIMUM STEM WALL HEIGHT. THE CONTRACTOR IS RESPONSIBLE FOR THE FINAL QUANTITIES BASED ON THE ACTUAL STEM WALL HEIGHT.



SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT
PRIVATE DRIVEWAY
BRIDGE STANDARDS
MODULAR PANEL BRIDGE

END BENT
SPREAD FOOTING

REVISIONS

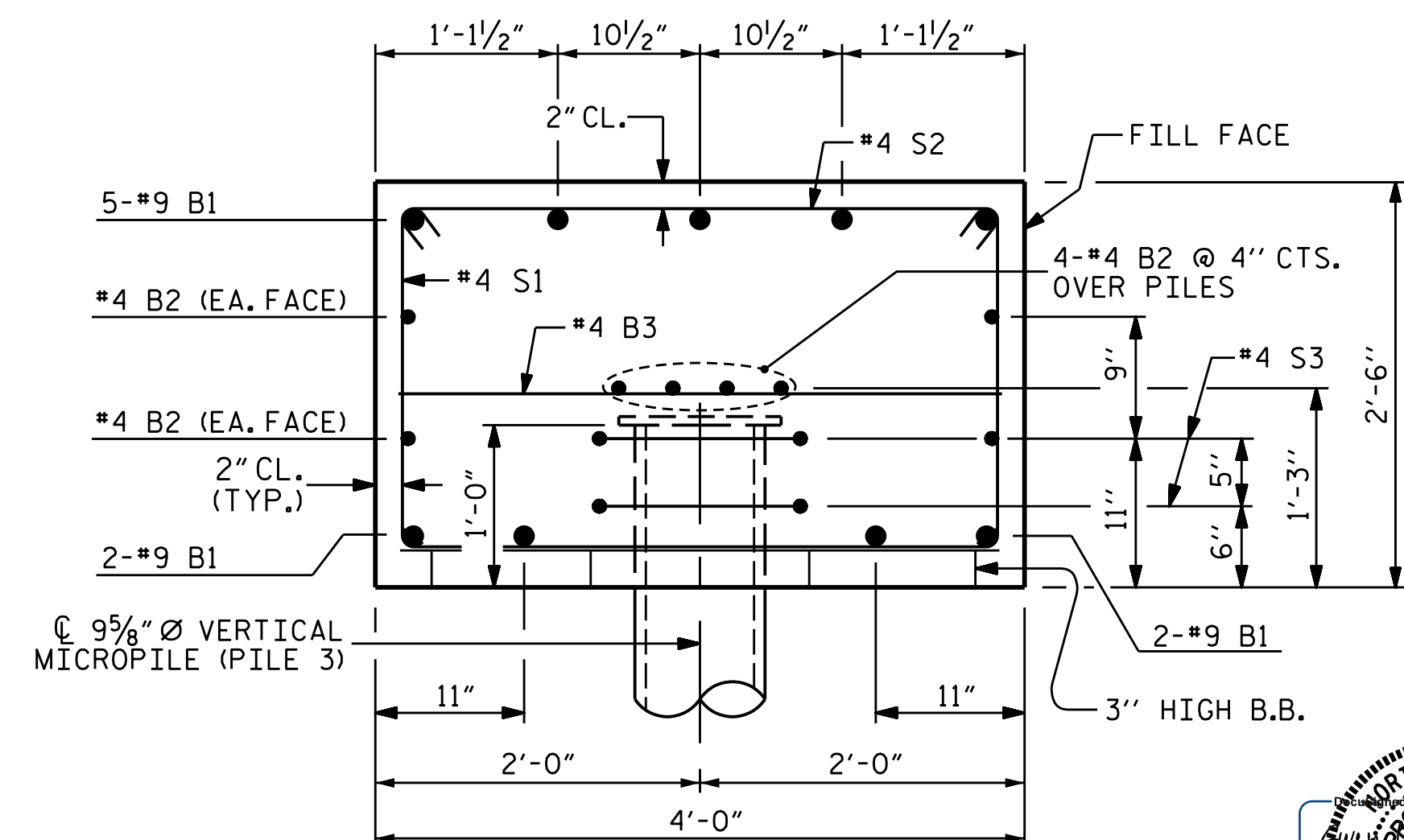
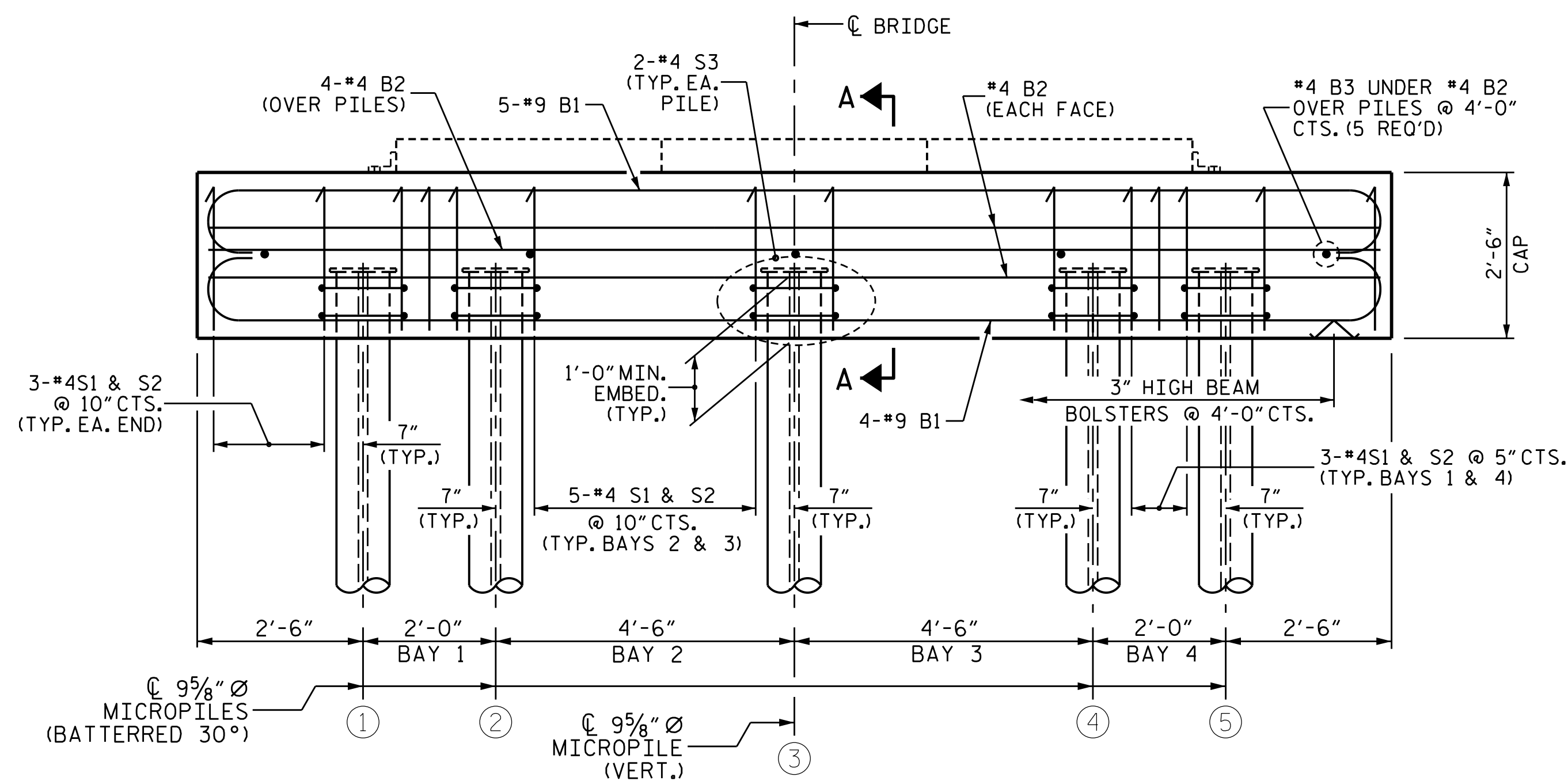
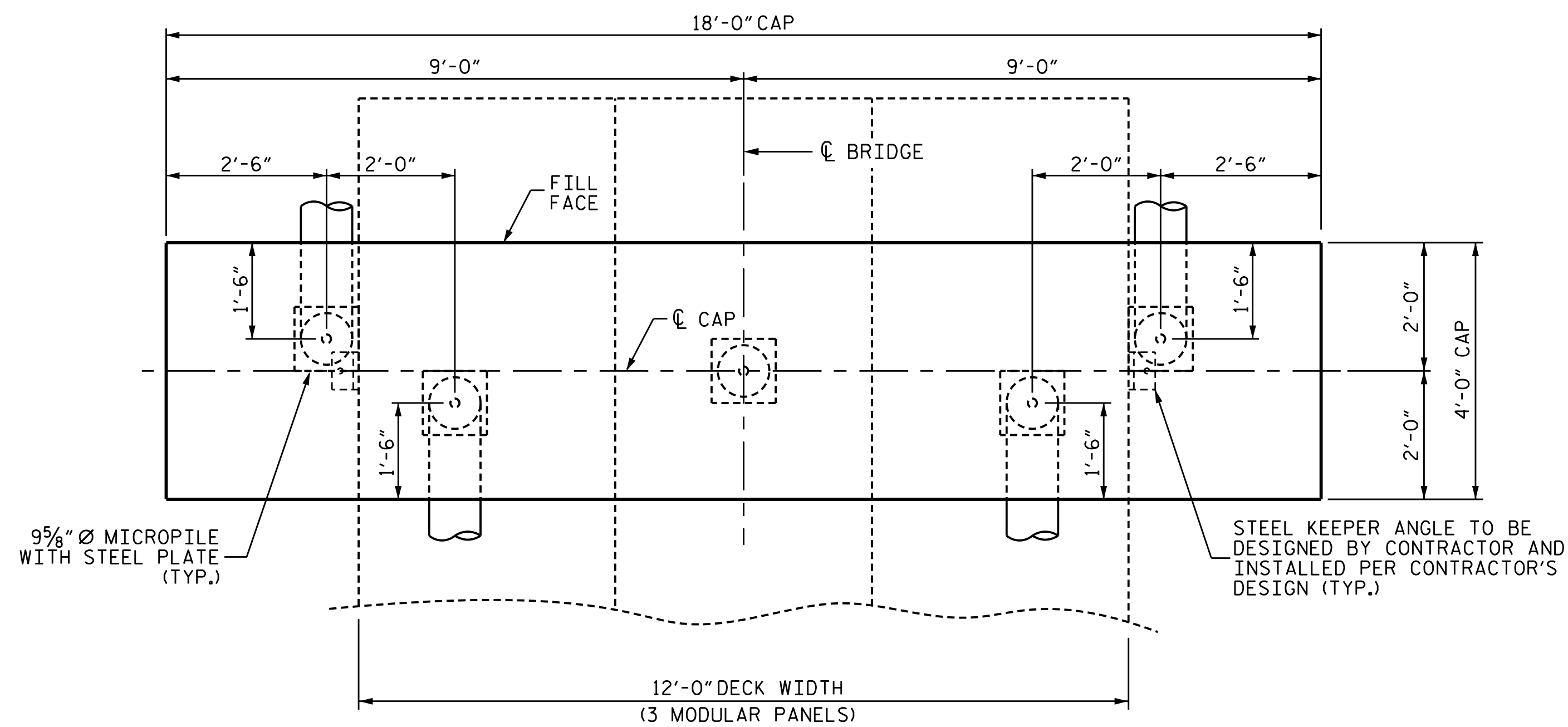
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-05
2			4			TOTAL SHEETS 7



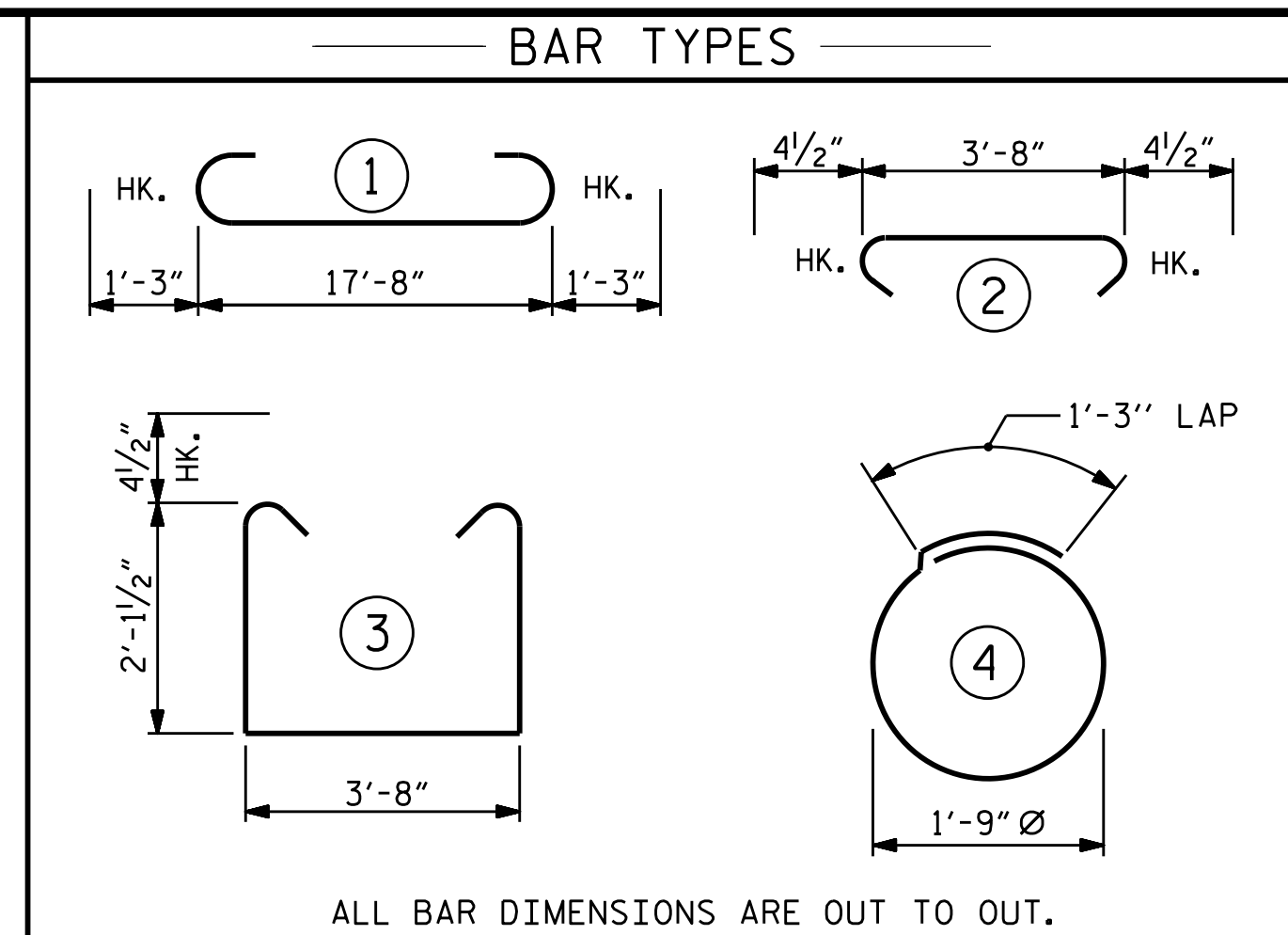
Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
Candler, NC, 28715
License No: C-3097

DWN. BY: BC/WDC
CHKD. BY: CFW
DES. EGR. OF RECORD: GFW

DATE: 05/2026
DATE: 05/2026
DATE: 05/2026



(PILES 1, 2, 4 & 5 ARE BATTERED 30°
AND NOT SHOWN FOR CLARITY)



BILL OF MATERIAL					
FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	9	#9	1	20'-2"	617
B2	8	#4	STR	17'-8"	94
B3	5	#4	STR	3'-8"	12
S1	22	#4	3	8'-8"	127
S2	22	#4	2	4'-5"	65
S3	10	#4	4	6'-9"	45
REINFORCING STEEL (FOR ONE END BENT)					960 LBS.
CLASS A CONCRETE (FOR ONE END BENT)					6.7 C.Y.

GENERAL NOTES

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.

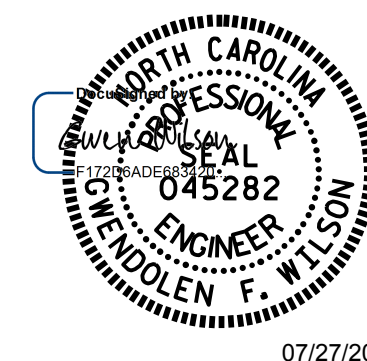
MODULAR BRIDGE SUPERSTRUCTURE SHOWN IS SCHEMATIC ONLY.
ACTUAL MODULAR BRIDGE SYSTEM CONFIGURATION AND MEMBER
SIZING SHALL BE DETERMINED BY THE CONTRACTOR TO MEET
THE SPECIFIED DESIGN LOADS.

REFER TO MICROPILE DRAWINGS FOR MICROPILE
REQUIREMENTS, PROPERTIES AND OTHER DETAILS.

FOUNDATION NOTES

MICROPILES

FOR MICROPILES, SEE SPECIAL PROVISIONS.



07/27/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF EMERGENCY MANAGEMENT PRIVATE DRIVEWAY BRIDGE STANDARDS MODULAR PANEL BRIDGE END BENT MICROPILES						SHEET NO. S-06 TOTAL SHEETS 7	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

STRUCTURAL STEEL / HARDWARE NOTES:

THE MODULAR BRIDGE SUPERSTRUCTURE SHALL BE PROVIDED AND DESIGNED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE SEALED MODULAR BRIDGE PLANS PREPARED BY A LICENSED PROFESSIONAL ENGINEER.

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

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

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

DAMAGED GALVANIZED SURFACES FOR THE MODULAR BRIDGE SUPERSTRUCTURE SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS ARTICLE 1076-77.

DAMAGED PAINTED SURFACES FOR THE MODULAR BRIDGE SUPERSTRUCTURE SHALL BE REPAIRED IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.

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 = 1.75
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 FACTOR IS 33%.

DESIGN ASSUMPTIONS/PARAMETERS:

BRIDGE IS SINGLE SPAN.

BRIDGE WIDTH = 12'-11" OUT TO OUT.

GENERAL NOTES:

THE SUBSTRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) "STRUCTURES MANAGEMENT UNIT MANUAL", DATED 6/15/23, AND THE AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS", 9th EDITION.

THE MODULAR BRIDGE SUPERSTRUCTURE SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, INCLUDING THE GEOMETRY AND REQUIREMENTS SHOWN IN THE PLANS. DESIGN OF SUPERSTRUCTURE IS NOT INCLUDED IN THESE PLANS.

THESE DRAWINGS ARE INTENDED ONLY FOR FOR THE DESIGN AND CONSTRUCTION OF THE BRIDGE SUBSTRUCTURE AND FOR THE INSTALLATION OF CONTRACTOR-SUPPLIED SINGLE-SPAN MODULAR BRIDGE SUPERSTRUCTURE FOR PRIVATE DRIVEWAYS IN COUNTIES AS LISTED IN THE CONTRACT DOCUMENTS BY NORTH CAROLINA OFFICE OF EMERGENCY MANAGEMENT IN RESPONSE TO THE DAME CAUSED BY HURRICANE HELENE.

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

WORK ASSOCIATED WITH THE MODULAR BRIDGE SUPERSTRUCTURE SHALL BE IN ACCORDANCE WITH THE CONTRACTOR'S DESIGN AND APPLICABLE SPECIFICATIONS.

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.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE MODULAR BRIDGE SUPERSTRUCTURE, INCLUDING ALL CONNECTIONS, BEARING DETAILS, AND INTERFACES WITH THE SUBSTRUCTURE. SEALED MODULAR BRIDGE PLANS PREPARED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER SHALL BE SUBMITTED BY THE CONTRACTOR.

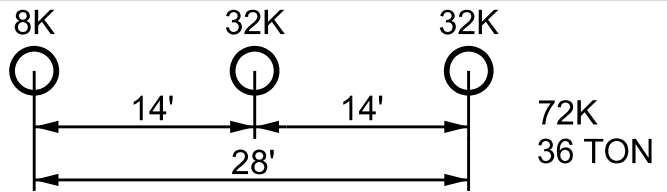
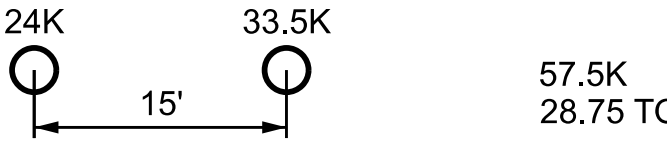
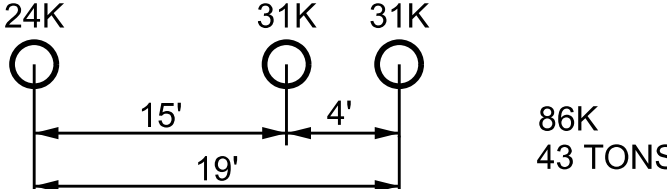
REVIEW OF SHOP DRAWINGS IS FOR GENERAL CONFORMANCE WITH THE PLANS AND DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR DESIGN, FABRICATION, OR CONSTRUCTION.

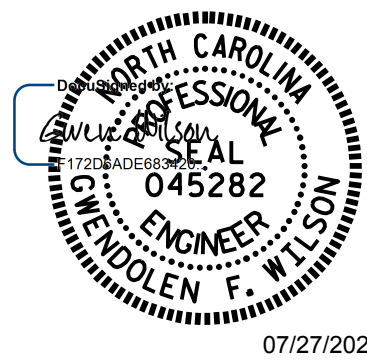
MATERIAL PROPERTIES:

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.

DESIGN VEHICLES	
REF.#	SCHEMATIC
HS-20	
EV2	
EV3	



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF EMERGENCY MANAGEMENT						SHEET NO. S-07	
PRIVATE DRIVEWAY BRIDGE STANDARDS						TOTAL SHEETS 7	
MODULAR PANEL BRIDGE							
GENERAL NOTES							
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				



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

DWN. BY: BC/WDC
CHKD. BY: CFW
DES. EGR. OF RECORD: GFW
DATE: 05/2026
DATE: 05/2026
DATE: 05/2026

