

100'-0" x 30'-0"

MESA TOP DRIVE SOUTH BRIDGE ELITE PROPERTIES of AMERICA, INC

DRAWING INDEX

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<p>100'-0" x 30'-0" MESA TOP DRIVE SOUTH BRIDGE ELITE PROPERTIES of AMERICA, INC FOUNTAIN, CO</p>	
<p>CONTECH ENGINEERED SOLUTIONS LLC www.conteches.com 15000 S. W. 10th Ave., Suite 100 800-288-2047 303-545-9726 303-566-3148 FAX</p>	
<p>BIG R BRIDGE</p>	
DATE:	7/24/2020
DESIGNED:	NBE
DRAWN:	RDH
CHECKED:	NBE
APPROVED:	NBE
PROJECT No.:	621715
SEQUENCE No.:	030
SHEET:	1 OF 11

GENERAL NOTES:

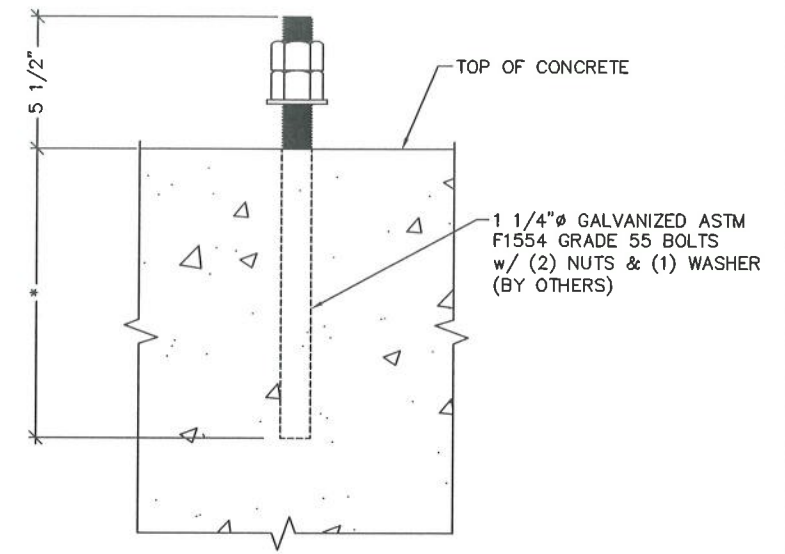
- CONTECH ENGINEERED SOLUTIONS HAS AISC QUALITY CERTIFIED BRIDGE FABRICATION - ADVANCED (MAJOR) WITH A FRACTURE CRITICAL AND SOPHISTICATED PAINT ENDORSEMENT AND CWB CERTIFIED TO CSA STANDARD W47.1 DIVISION 2.
- DESIGN IS IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8th EDITION 2017.
- MATERIALS (UNLESS NOTED OTHERWISE):**
 - STRUCTURAL STEEL: ASTM A588 WEATHERING STEEL
 - ELASTOMERIC PADS: GRADE 4, 60 DUROMETER
 - SHEET PILING: ASTM A929 (GALV)
STRUCTURAL BOLTS: ASTM F3125 GRADE A325 (TYPE 1)
GUARDRAIL BOLTS: ASTM A307 (GALV)
- DESIGN LOADINGS:**
 - BRIDGE DEAD LOAD PLUS 37.5 FUTURE WEARING SURFACE.
 - VEHICLE LIVE LOAD: HL-93, MAX ADTT = 160
 - WIND LOADING PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 3.8:
WIND SPEED = 115 MPH
WIND EXPOSURE CATEGORY = C
MAX HEIGHT OF STRUCTURE = 33 FT.
 - RAIL DESIGNED FOR TL-1 LOADING IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS APPENDIX A13.2 (RAIL HAS NOT BEEN CRASH TESTED)
 - SEISMIC LOADING PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 3.10:
SITE CLASS: D
PGA = 0.058
S_s = 0.125
S_i = 0.035
PERIOD OF BRIDGE = T_m = 0.076 SEC
- BRIDGE TO BE BUILT TO THE REQUIREMENTS OF AWS D1.5.
- ALL SHOP WELDING SHALL USE THE GAS METAL ARC WELDING OR FLUX CORED ARC WELDING PROCESS.
- FINISH:**
ALL EXPOSED SURFACES OF STEEL TO BE CLEANED IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL SURFACE PREPARATION SPECIFICATIONS NO. 1, SSPC-SP1 SOLVENT CLEANING. EXPOSED SURFACES OF STEEL SHALL BE DEFINED AS THOSE SURFACES SEEN FROM THE DECK OR FROM THE OUTSIDE (AND BOTTOM) OF THE STRUCTURE. ALL OTHER SURFACES TO HAVE STANDARD MILL FINISH.
- ALL BOLTED CONNECTIONS ARE CONSIDERED TO BE PRETENSIONED OR SLIP-CRITICAL CONNECTIONS. ALL BOLTS ARE TO BE PRETENSIONED PER THE REQUIREMENTS OF SECTION 8.2 OF THE SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS BY RCSC.
- ALL BOLTS, NUTS AND WASHERS SHALL BE FURNISHED IN THE AMOUNT OF 5% IN EXCESS OF THE NUMBER REQUIRED FOR EACH SIZE AND LENGTH.
- IF BOLTS DO NOT SMOOTHLY ENGAGE UP TO SNUG-TIGHT, THERE MAY BE AN OBSTRUCTION WITHIN THE THREADS. THE BOLTS SHOULD BE REMOVED, THE THREADS ON THE BOLT AND NUT CLEANED AND RETAPPED IF NECESSARY TO ALLOW SMOOTH INSTALLATION OF THE BOLT. (IF APPLICABLE)
- MAINTENANCE NOTE:** CONTECH RECOMMENDS NOT APPLYING DE-ICING OR DUST PROHIBITIVE CHEMICALS OR SALTS TO ANY PART OF THE BRIDGE STRUCTURE. IF DE-ICING OR DUST PROHIBITIVE CHEMICALS OR SALTS ARE APPLIED TO ANY PART OF THE BRIDGE STRUCTURE, CONTECH WILL NOT BE RESPONSIBLE FOR ANY RESULTANT ACCELERATED CORROSION.

CONCRETE NOTES

- BIG R BRIDGE IS RESPONSIBLE FOR THE STRUCTURAL DESIGN OF THE CONCRETE DECK. ALL ISSUES RELATED TO MATERIAL SUPPLY, TESTING AND INSTALLATION ARE OUTSIDE OF BIG R BRIDGE'S RESPONSIBILITY.
- CONCRETE MIX DESIGN, MATERIALS, MIXING, PLACEMENT, FINISHING AND TESTING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 601 OF CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2017 EDITION.
- MINIMUM MATERIAL REQUIREMENTS:**
 - CONCRETE: CLASS D OR H: f_c = 4500 psi AT 28 DAY
AIR CONTENT OF 5.5% +/- 1%
UNIT WEIGHT OF 145 PCF MAX
 - REINFORCING: ASTM A615 GRADE 60 OR ASTM A775 FOR EPOXY COATING
- THE USE OF EPOXY COATED REBAR, GALVANIZED REBAR, DECK SEALERS OR ANY OTHER FORM OF PROTECTION OF THE REBAR SHALL BE DONE AS NEEDED FOR LOCAL CONDITIONS OR AS REQUIRED PER THE PROJECT CONTRACT DOCUMENTS AND IS NOT THE RESPONSIBILITY OF BIG R BRIDGE.
- THE CONTRACTOR MUST EXERCISE CARE TO CONTROL TRAFFIC AND STORAGE OF MATERIALS ON THE FORM DECK BEFORE CONCRETE IS PLACED.
- LONGITUDINAL BARS MAY BE SPLICED IF REQUIRED. SPLICES SHALL BE STAGGERED EVERY OTHER LONGITUDINAL BAR. SPLICES SHALL BE LOCATED AT OR NEAR THE ONE-THIRD POINT OF THE BAY SPANS FROM FLOOR BEAM TO FLOOR BEAM. REQUIRED SPLICE LENGTHS ARE AS FOLLOWS:

BAR SIZE	NORMAL WEIGHT CONCRETE (145 PCF)	LIGHT WEIGHT CONCRETE (120 PCF)
#4	29"	35"
#5	36"	43"
#6	43"	52"
#7	50"	60"
#8	57"	69"
#9	70"	85"

- STAY IN PLACE GALVANIZED FORM DECK SHALL BE USED ON THE BRIDGE. FORM DECK SHALL BE SHOP ATTACHED TO FLOOR BEAMS VIA SELF-DRILLING FASTENERS, WELDING OR POWER ACTUATED FASTENERS. LONGITUDINAL SHEET LAPS SHALL BE ATTACHED WITH SELF-DRILLING FASTENERS AT 36" MAXIMUM SPACING. THE ATTACHMENT OF THE FORM DECK TO THE FLOOR BEAMS IS ONLY NECESSARY TO KEEP THE FORM DECK IN PLACE DURING TRANSPORTATION AND DURING THE CONCRETE PLACEMENT. THE FORM DECK IS NOT REQUIRED FOR DIAPHRAGM ACTION OR COMPOSITE ACTION AND PROVIDES NO STRUCTURAL BENEFIT TO THE TRUSS OR THE DECK AFTER THE CONCRETE IS SET.
- CONCRETE TO BE FINISHED WITH A TRANSVERSE BROOM FINISH.
- THE USE OF GROOVED CONTRACTION JOINTS SHALL BE PUT IN PER THE PROJECT CONTRACT DOCUMENTS OR AT THE DISCRETION OF THE ENGINEER AND OWNER. IF CONTRACTION JOINTS ARE USED, THEY SHALL BE PLACED OVER THE CENTERLINE OF THE FLOOR BEAMS AS NEEDED.



ANCHOR BOLT DETAIL

***NOTE:**
ANCHOR BOLTS ARE DESIGNED BY CONTECH FOR STEEL STRENGTH IN SHEAR AND TENSION OF THE ANCHOR BOLT ONLY. ALL DESIGN CONSIDERATIONS REGARDING CONCRETE BREAKOUT STRENGTH IN SHEAR AND TENSION, PULLOUT STRENGTH, CONCRETE SIDE-FACE BLOWOUT STRENGTH, CONCRETE PRYOUT STRENGTH, EMBEDMENT DEPTH, TYPE OF ANCHORAGE OR ANY OTHER CONCRETE FAILURE MODES ARE NOT CONSIDERED AND ARE NOT THE RESPONSIBILITY OF CONTECH. IF LARGER DIAMETER BOLTS ARE REQUIRED TO MEET ANY OF THESE REQUIREMENTS, THAT INFORMATION MUST BE PROVIDED TO CONTECH PRIOR TO BEGINNING ANY FABRICATION ON THE BRIDGE.

LIFTING WEIGHTS			
ITEM	QTY	UNIT WEIGHT (LBS)	TOTAL WEIGHT (LBS)
BRIDGE SECTION 1A	1	21,710	21,710
BRIDGE SECTION 1B	1	32,311	32,311
BRIDGE SECTION 2A	1	31,920	31,920
BRIDGE SECTION 2B	1	47,349	47,349
LOOSE ITEMS	-	-	18,000
TOTAL BRIDGE WEIGHT:			151,290

	BEARING REACTION IN KIPS	MAX AT INTERIOR STRINGER			MAX AT EXTERIOR STRINGER			TOTAL AT ABUTMENT		
		P	H	L	P	H	L	P	H	L
	DEAD LOAD (DC)	53.78			39.77			240.89		
	WEARING SURFACE LOAD (DW)	13.44			34.42			109.14		
	VEHICLE LOAD (LL)	90.43			68.83			193.83		
	VEHICLE LOAD + DYNAMIC LOAD ALLOWANCE (LL+IM)	104.99			79.91			236.87		
	WIND LOAD (WS)	-30.00*	3.00			3.00		-30.00*	15.00	
	THERMAL LOAD (TU)			13.32			13.32			66.59
	BREAKING FORCE (BR)			7.20			7.20			36.00
	SEISMIC LOAD (EQ)		13.36	26.72		13.36	26.72		66.79	133.59

"P": VERTICAL LOAD
"H": HORIZONTAL LOAD TRANSVERSE TO THE STRUCTURE
"L": HORIZONTAL LOAD LONGITUDINAL TO THE STRUCTURE
* WIND LOAD UPLIFT ASSUMES FULL 20 PSF TO DECK AREA IS APPLIED TO ONE STRINGER LINE

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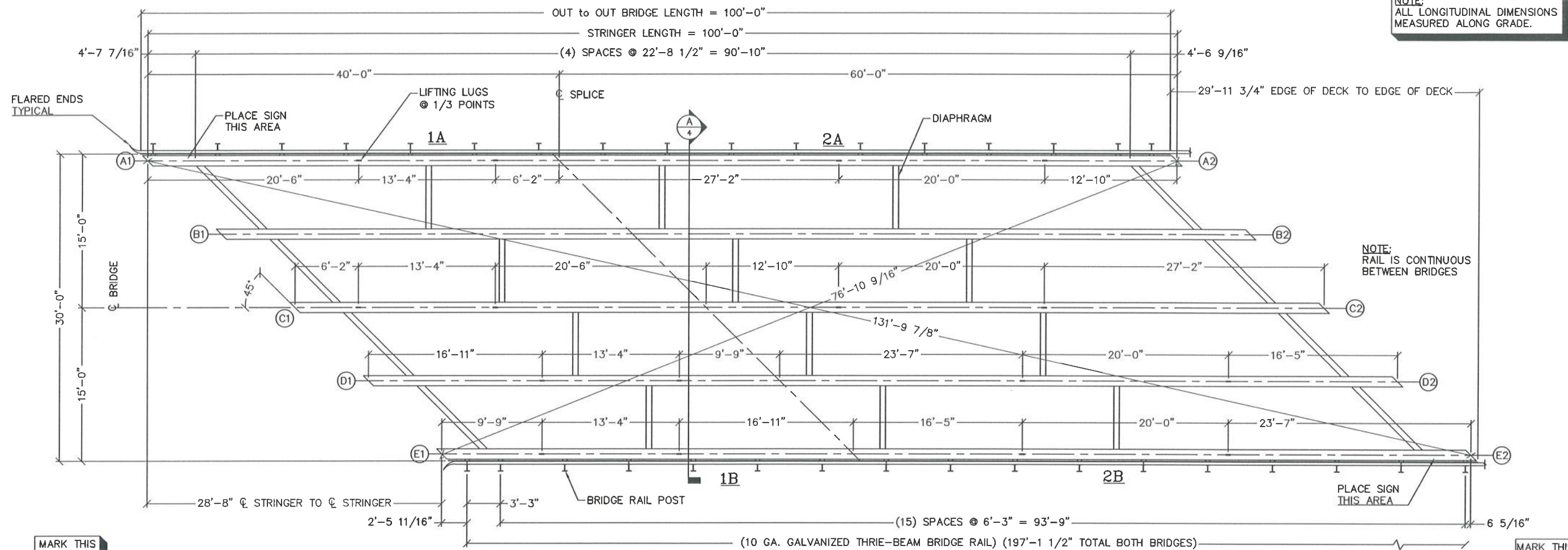
DATE	REVISION DESCRIPTION	BY
7/16/2021	APPROVED FOR CONSTRUCTION	TLF

100'-0" x 30'-0"
MESA TOP DRIVE SOUTH BRIDGE
ELITE PROPERTIES of AMERICA, INC
FOUNTAIN, CO

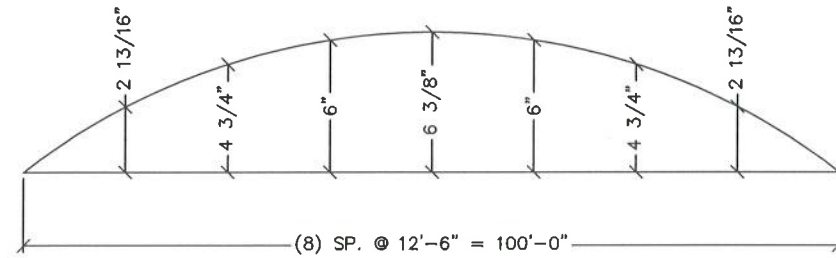
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10000 CO 16 Dr, Greeley, CO 80631
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DATE:	7/24/2020		
DESIGNED:	NBE	DRAWN:	RDH
CHECKED:	NBE	APPROVED:	NBE
PROJECT No:	621715	SEQUENCE No:	030
SHEET:	2 OF 11		

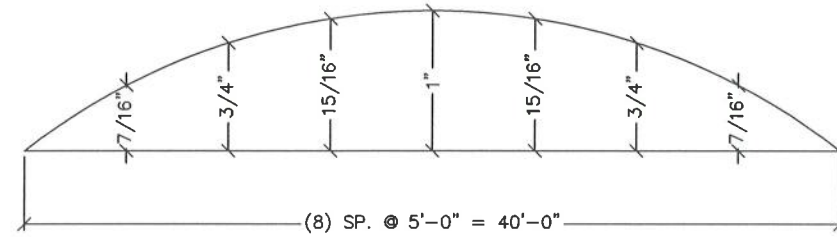
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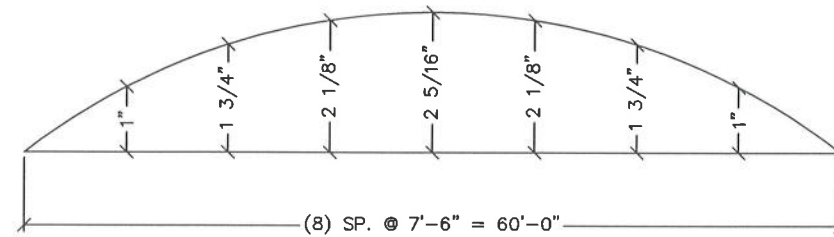
FRAMING PLAN



CAMBER DETAIL
(FULL BRIDGE)



CAMBER DETAIL
(STRINGER SECTION 1)

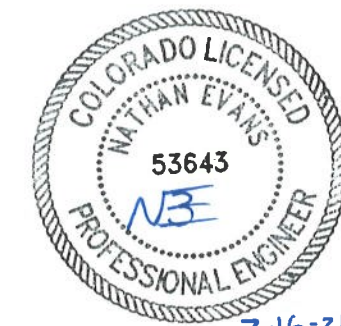


CAMBER DETAIL
(STRINGER SECTION 2)

MEMBERS	DESCRIPTION
GIRDER	W 36x232
DIAPHRAGM	W 21x44
POST BLOCK	W 14x22
SIDE DAM	PL 1/4"

BUILD 4 AS SHOWN
621715-30
621715-40
621715-50
621715-60

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NOTE:
ALL LONGITUDINAL DIMENSIONS
MEASURED ALONG GRADE.

NOTE:
RAIL IS CONTINUOUS
BETWEEN BRIDGES

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FOUNTAIN, CO

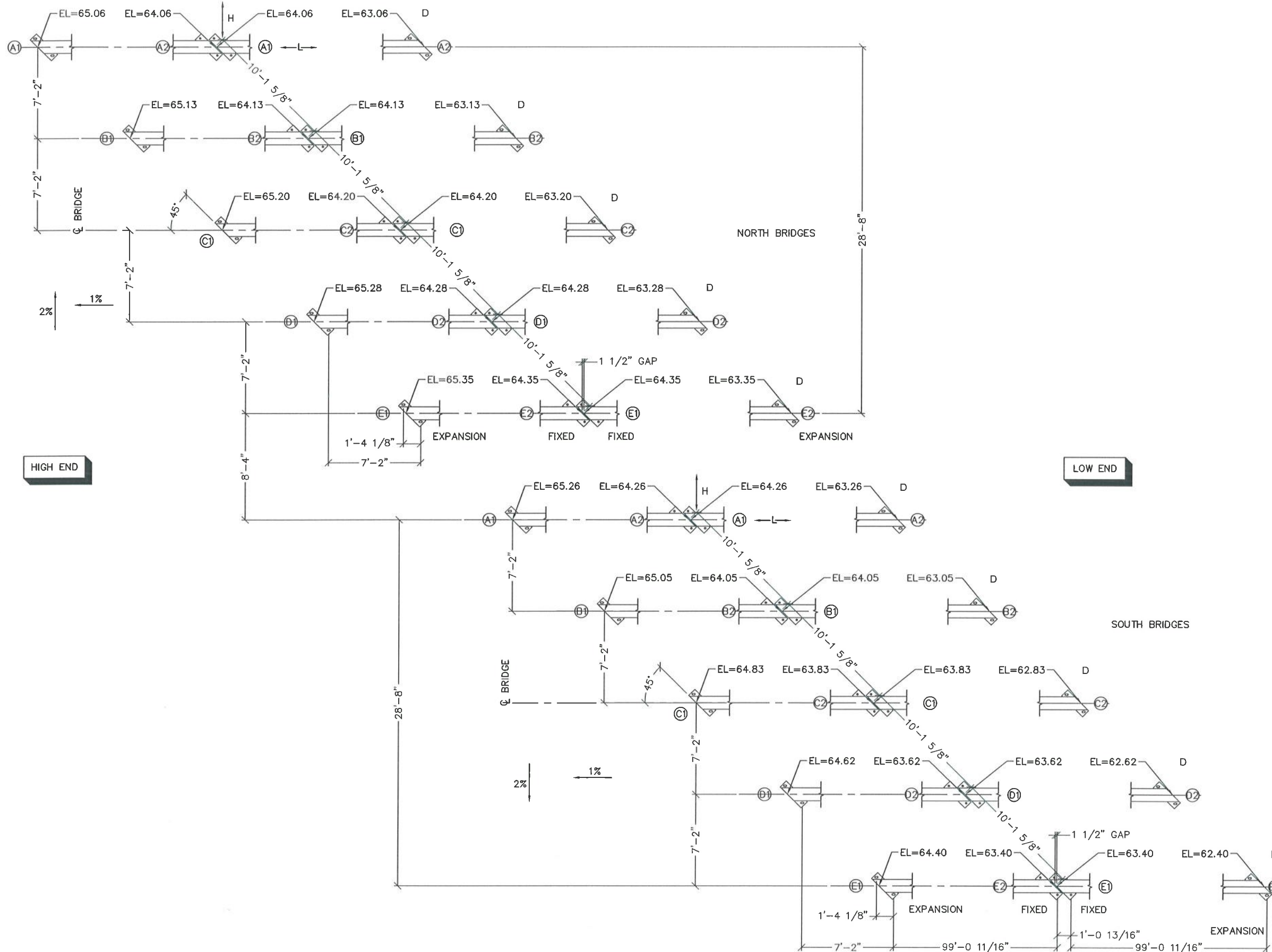
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ENGINEERED SOLUTIONS LLC
www.conteches.com
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BIGR
BRIDGE

DATE: 7/24/2020

DESIGNED: NBE	DRAWN: RDH
CHECKED: NBE	APPROVED: NBE
PROJECT No.: 621715	SEQUENCE No.: 030
SHEET: 3	OF 11

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ANCHOR BOLT LAYOUT
(ELEVATIONS ARE AT BEARING SEATS)

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MARK	DATE	APPROVED FOR CONSTRUCTION	REVISION DESCRIPTION
E0	7/16/2021		

100'-0" x 30'-0"
MESA TOP DRIVE SOUTH BRIDGE
ELITE PROPERTIES OF AMERICA, INC
FOUNTAIN, CO

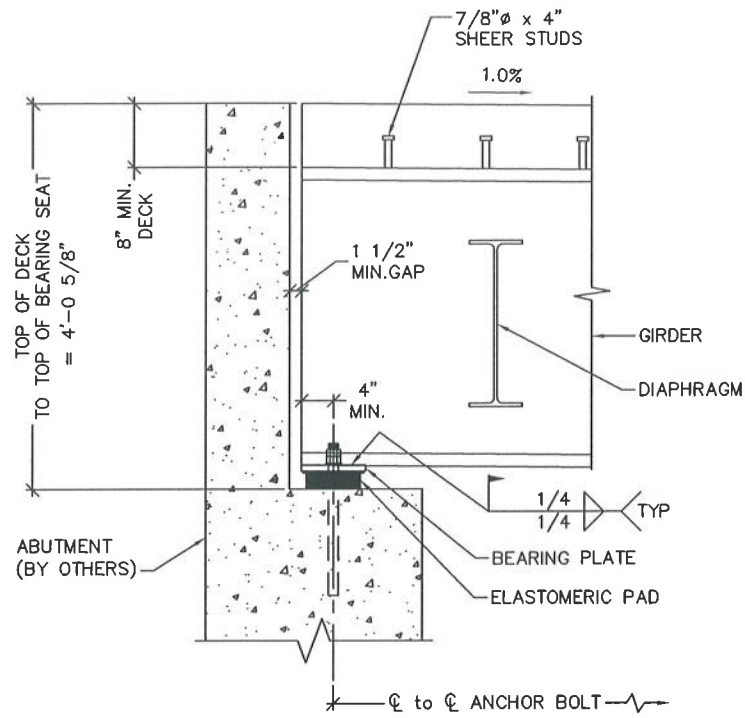
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BIG R
BRIDGE

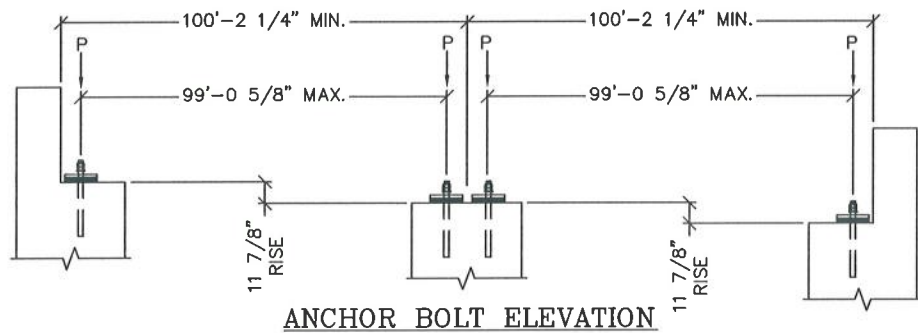
DATE: 7/24/2020

DESIGNED: NBE	DRAWN: RDH
CHECKED: NBE	APPROVED: NBE
PROJECT No.: 621715	SEQUENCE No.: 030
SHEET: 5	OF 11

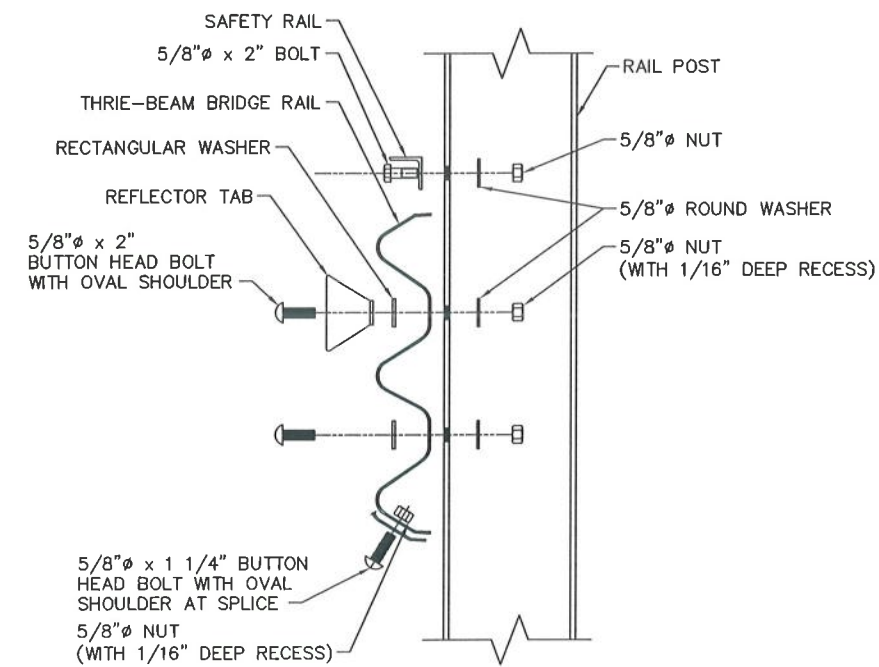
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BEARING DETAIL

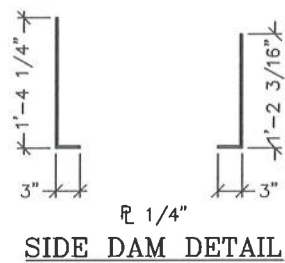


ANCHOR BOLT ELEVATION

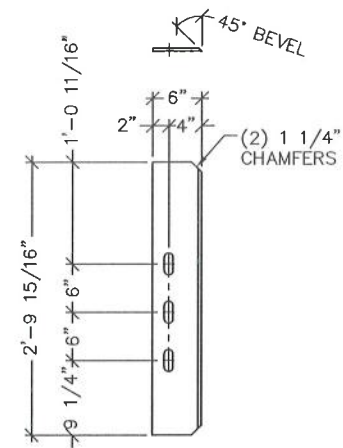


THRIE-BEAM RAIL ATTACHMENT DETAIL

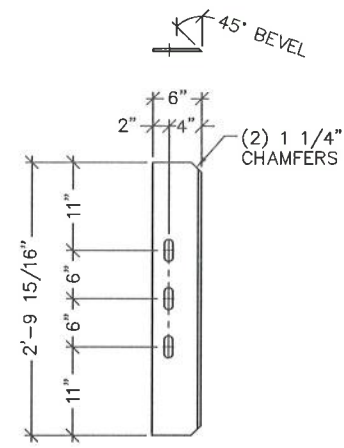
(W 8x18 POSTS)



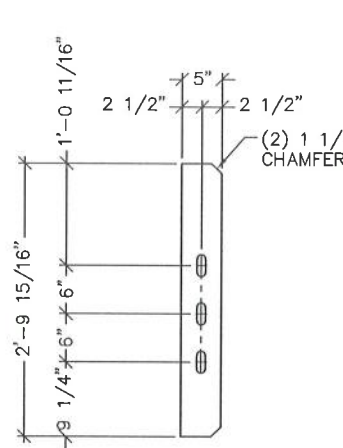
SIDE DAM DETAIL



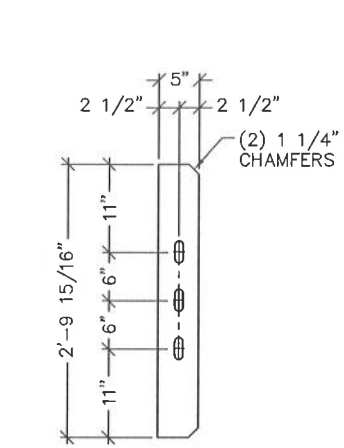
ATTACHMENT PLATE '1'
(2) REQUIRED



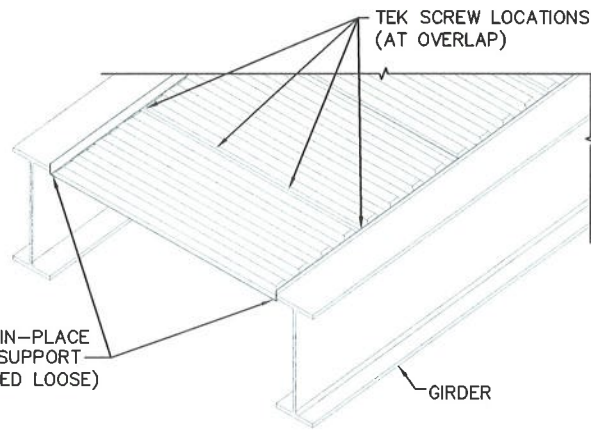
ATTACHMENT PLATE '2'
(2) REQUIRED



ATTACHMENT PLATE '3'
(3) REQUIRED



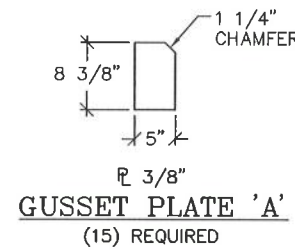
ATTACHMENT PLATE '4'
(3) REQUIRED



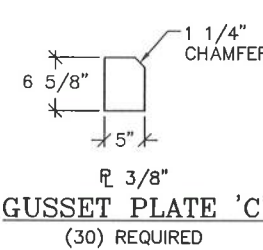
STAY-IN-PLACE DECK SUPPORT (SHIPPED LOOSE)

NOTES:
1) STAY-IN-PLACE DECK PANS TO BE ATTACHED IN THE FIELD TO THE SUPPORT ANGLE WITH SELF-TAPPING TEK SCREWS PLACED AT THE FOUR PAN CORNERS AND AT THE 1/3 POINTS ALONG THE LONGITUDINAL OVERLAPS. (4 PER SHEET).

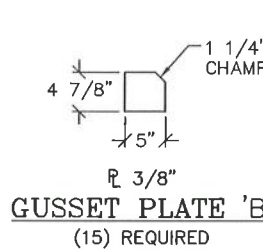
TYPICAL STAY-IN-PLACE DECK MOUNTING DETAIL



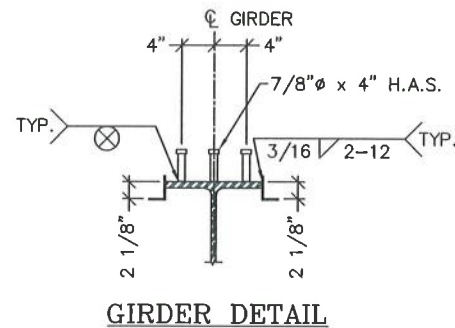
GUSSET PLATE 'A'
(15) REQUIRED



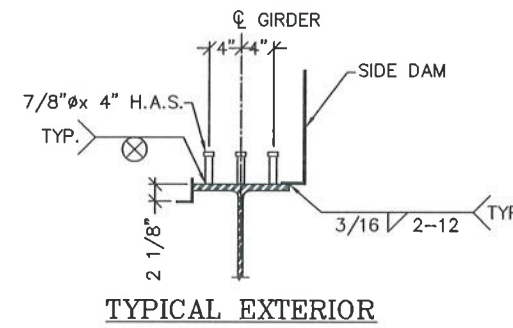
GUSSET PLATE 'C'
(30) REQUIRED



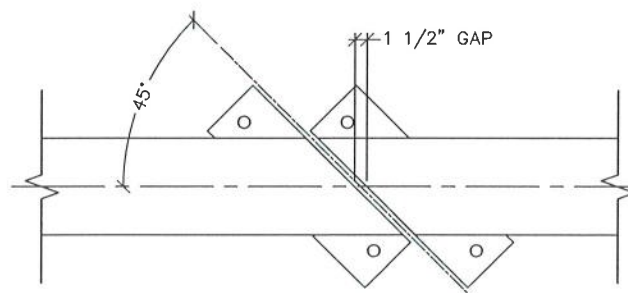
GUSSET PLATE 'B'
(15) REQUIRED



GIRDER DETAIL



TYPICAL EXTERIOR GIRDER DETAIL



BRIDGE GAP DETAIL

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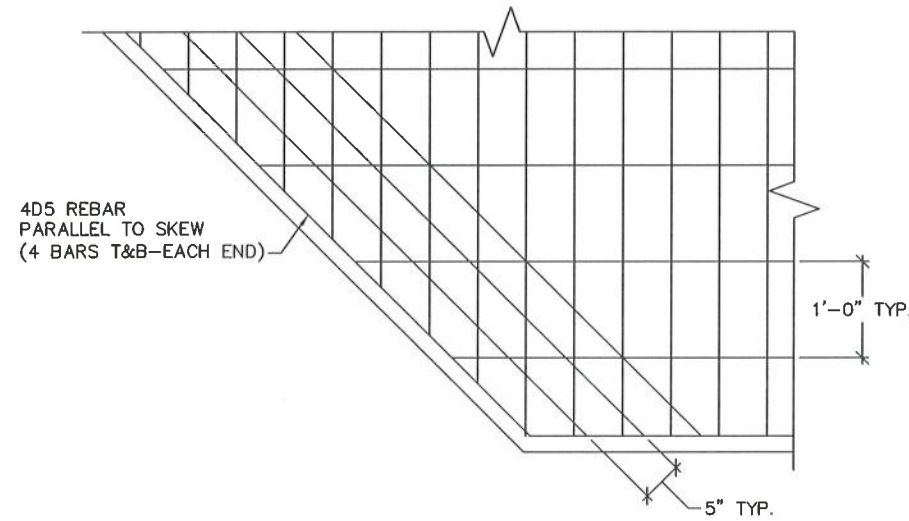
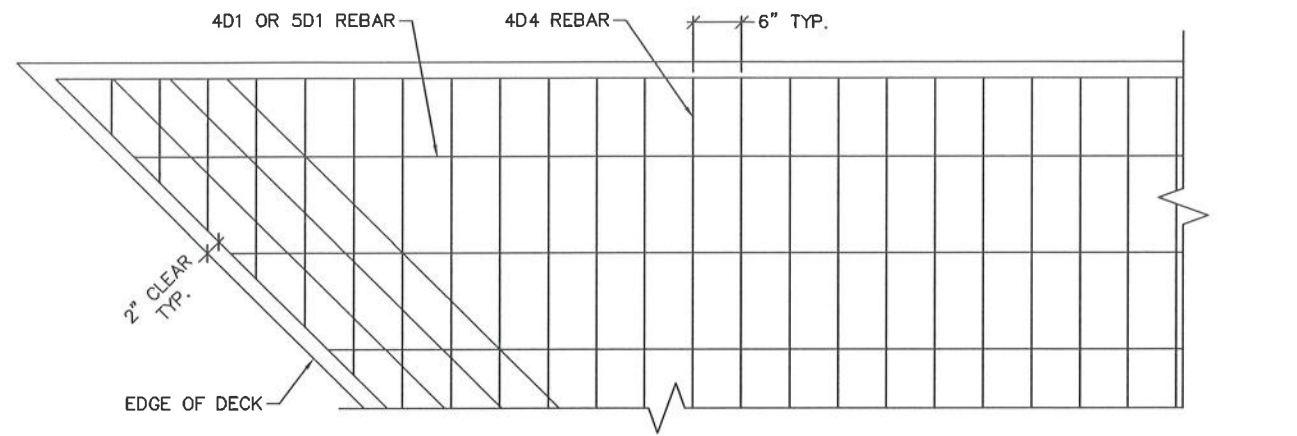
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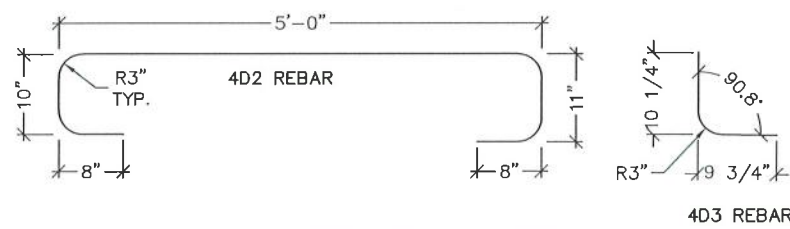
BIG BIRD
BRIDGE

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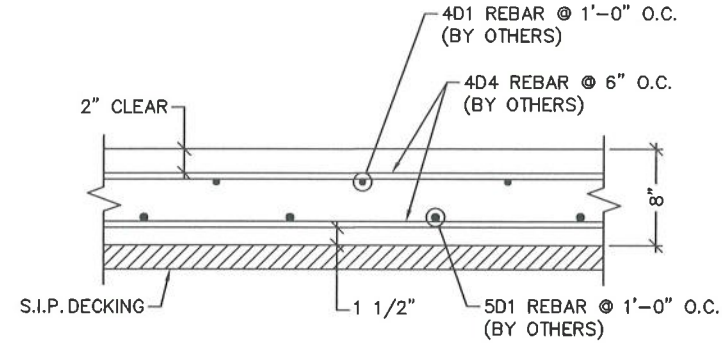
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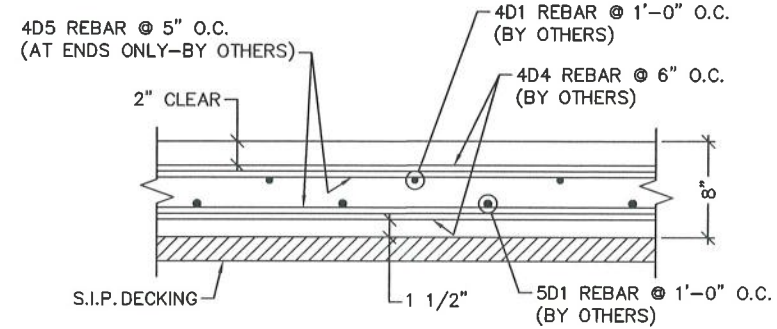
END REBAR LAYOUT



BENT REBAR DETAILS



TYPICAL DECK SECTION



TYPICAL DECK SECTION AT ENDS

- NOTES:
 1. ALL CONCRETE & REBAR BY OTHERS
 2. ALL QUANTITIES ARE FOR ONE BRIDGE

REBAR SCHEDULE				
MARK	TYPE	QUANTITY	LENGTH	REMARKS
4D1	STRAIGHT	38	99'-6"	EPOXY*
4D2	BENT	202	8'-1"	EPOXY
4D3	BENT	202	1'-8"	EPOXY
4D4	STRAIGHT	405	29'-7"	EPOXY
4D5	STRAIGHT	16	41'-11"	EPOXY
5D1	STRAIGHT	31	99'-6"	EPOXY*

DIGIT PRECEDING LETTER DENOTES SIZE OF REBAR
 * SEE CONCRETE NOTE 6 ON PG. 2 FOR SPLICING

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7/16/2021	E0	APPROVED FOR CONSTRUCTION	TLF

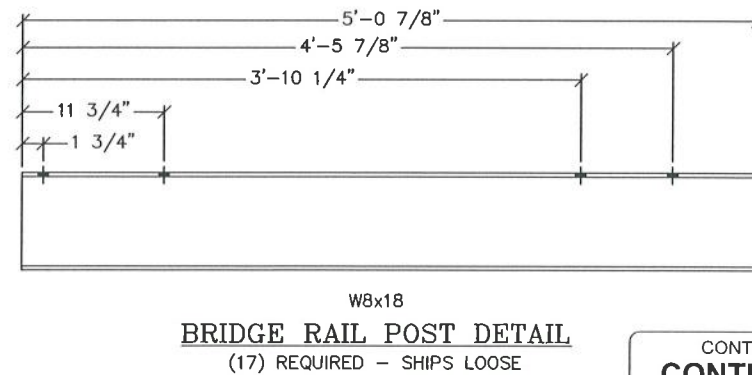
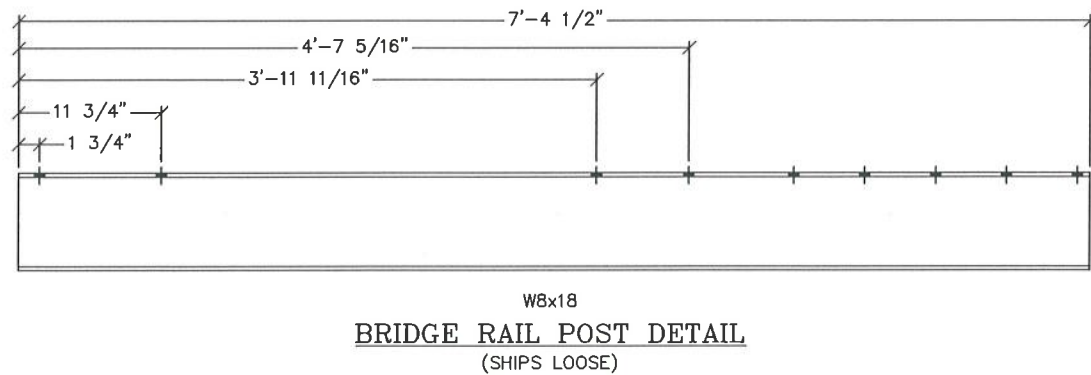
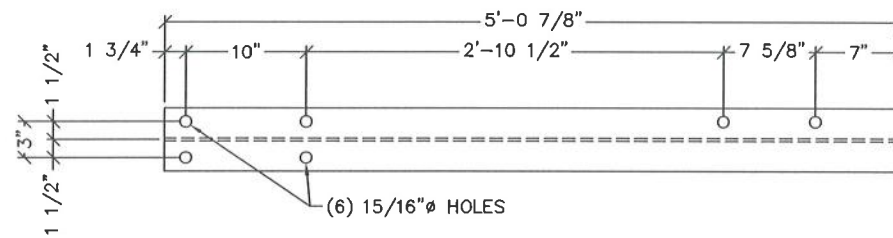
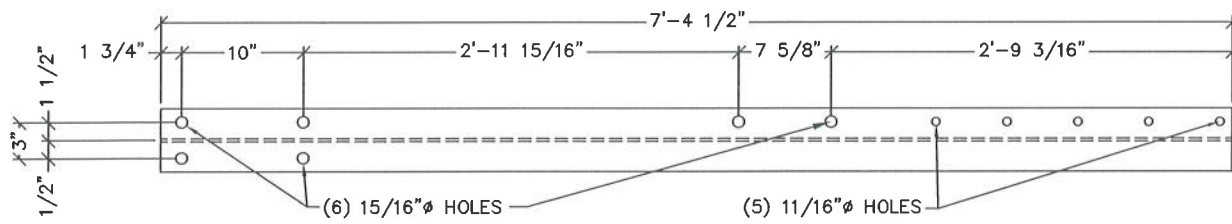
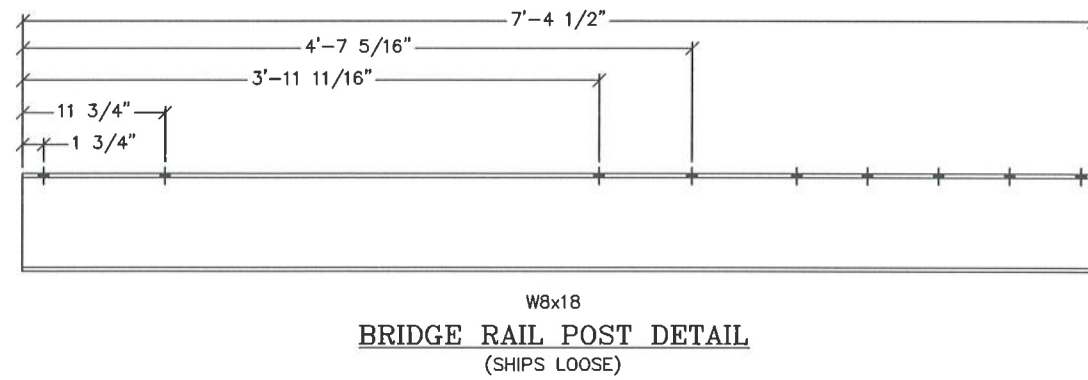
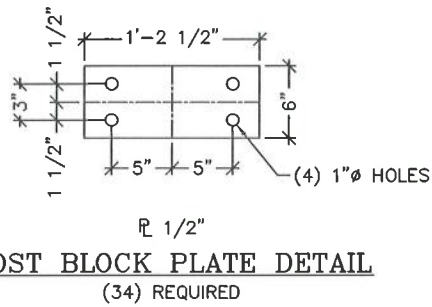
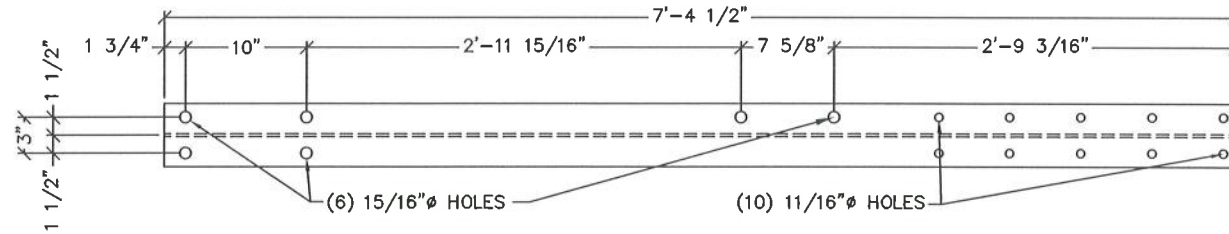
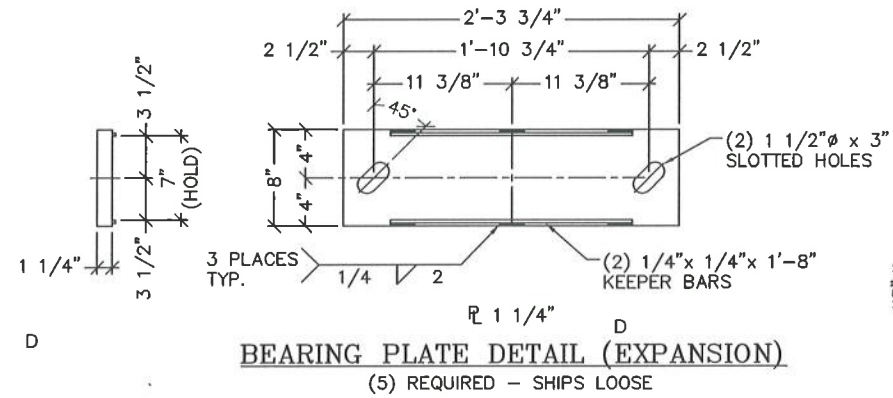
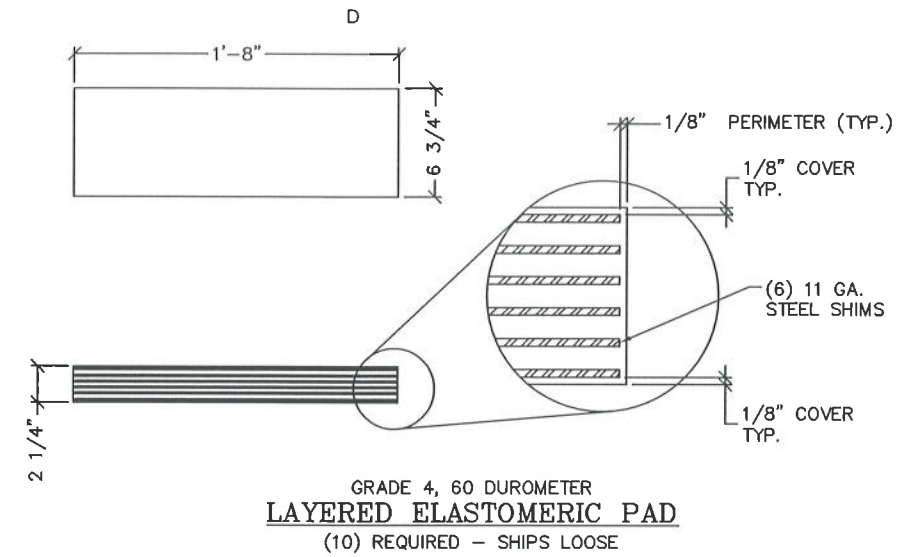
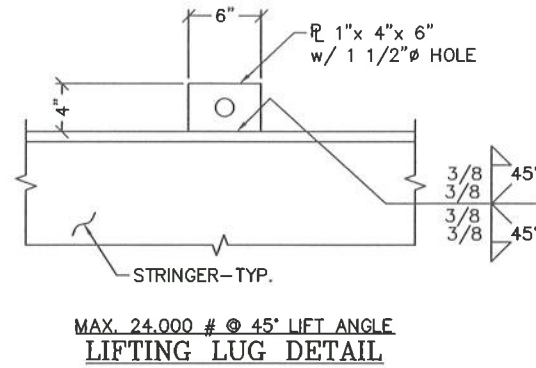
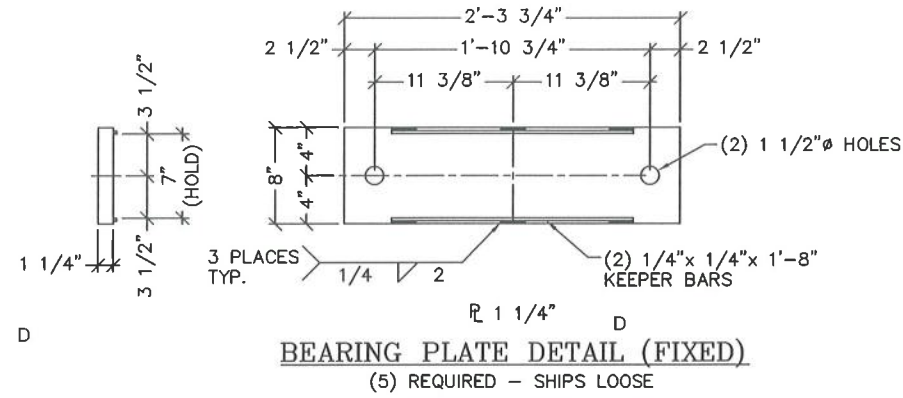
100'-0" x 30'-0"
 MESA TOP DRIVE SOUTH BRIDGE
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 800-326-2047 303-545-9120 303-565-3148 FAX
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DATE: 7/24/2020

DESIGNED: NBE	DRAWN: RDH
CHECKED: NBE	APPROVED: NBE
PROJECT No.: 621715	SEQUENCE No.: 030
SHEET: 7	OF 11

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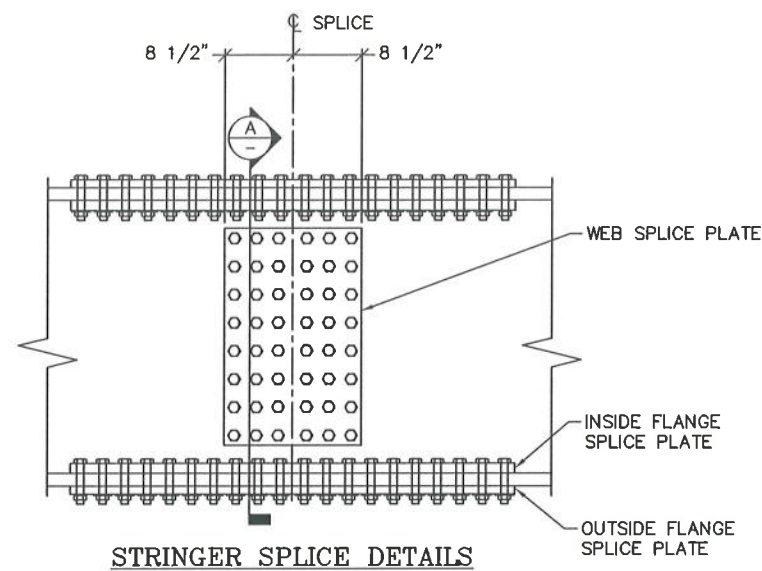
BIG R
 BRIDGE

DATE:	7/24/2020	
DESIGNED:	NBE	RDH
CHECKED:	NBE	NBE
PROJECT No:	621715	SEQUENCE No: 030
SHEET:	8 OF 11	

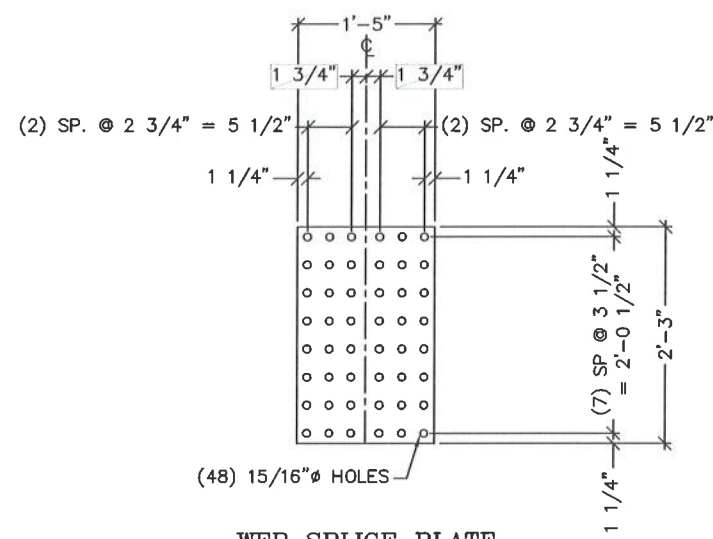
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MEMBERS	QTY	THICKNESS	SIZE	HOLES	BOLTS w/NUT & WASHER	BOLT QTY
WEB SPLICE PLATE	10	3/4"	1'-5" x 2'-3"	15/16"	7/8"φ x 3 3/4" A325 GALV	240
INSIDE BTM FLANGE SPLICE PLATE	10	1 1/4"	4 3/8" x 4'-7"	15/16"	-	-
OUTSIDE BTM FLANGE SPLICE PLATE	5	1"	1'-0" x 4'-7"	15/16"	7/8"φ x 5 1/2" A325 GALV	200
INSIDE TOP FLANGE SPLICE PLATE	10	1 1/4"	4 3/8" x 4'-7"	15/16"	-	-
OUTSIDE TOP FLANGE SPLICE PLATE	5	1"	1'-0" x 4'-7"	15/16"	7/8"φ x 5 1/2" A325 GALV	200

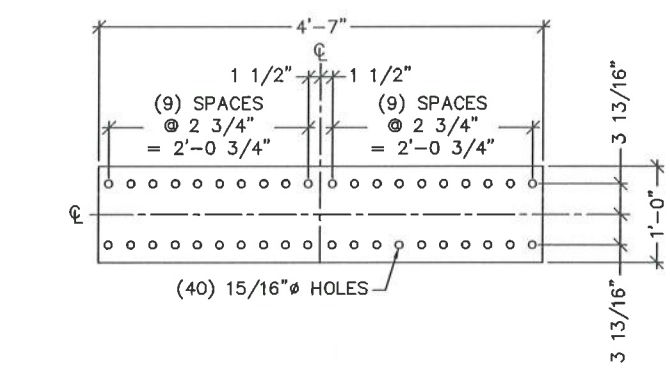
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STRINGER SPLICE DETAILS

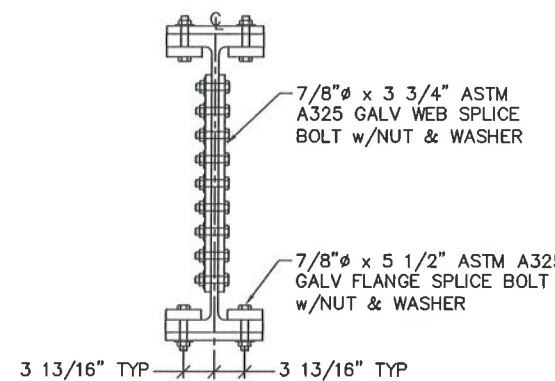


WEB SPLICE PLATE



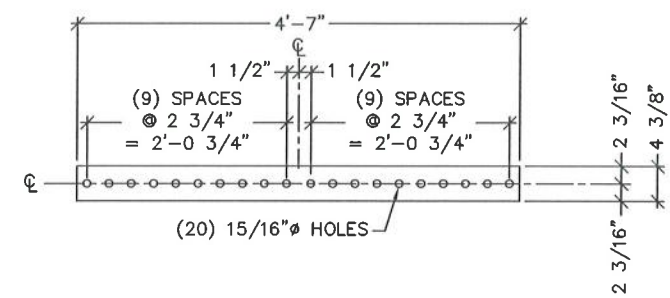
OUTSIDE TOP & BTM FLANGE SPLICE PLATE

SHOP NOTE:
15/16"φ HOLES IN STRINGER FLANGE AND WEB



SECTION A

CONTRACTOR NOTE:
FIELD WELDING TO BE PERFORMED BY A WELDER CERTIFIED PER AWS D1.5 BRIDGE WELDING CODE.



INSIDE TOP & BTM FLANGE SPLICE PLATE

DATE	REVISION DESCRIPTION	BY
7/16/2021	APPROVED FOR CONSTRUCTION	TLF

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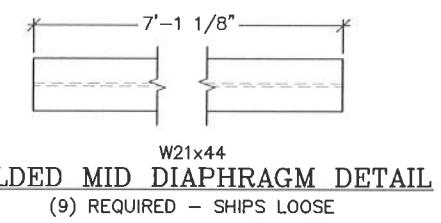
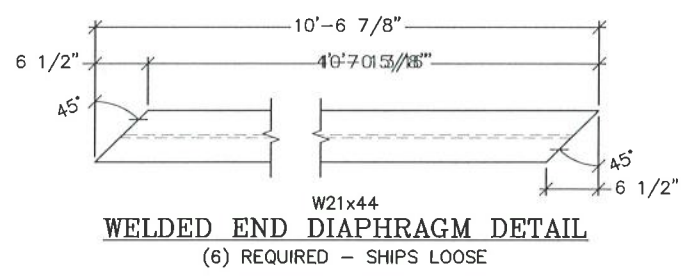
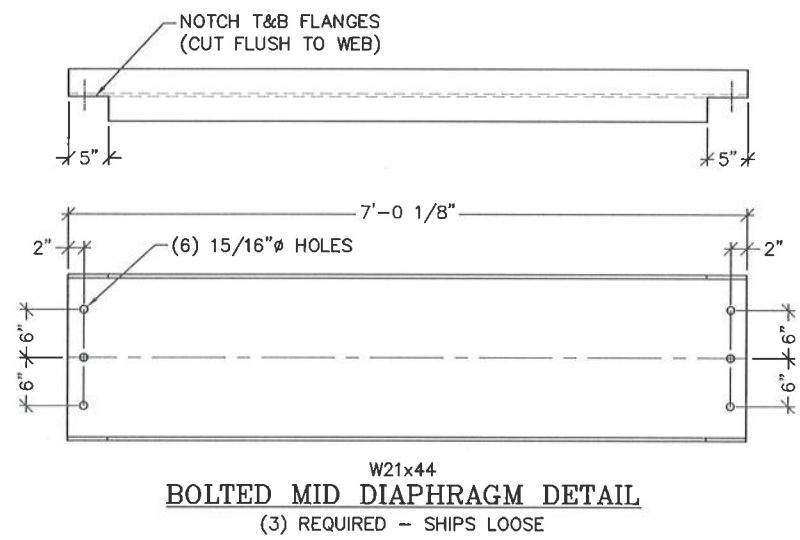
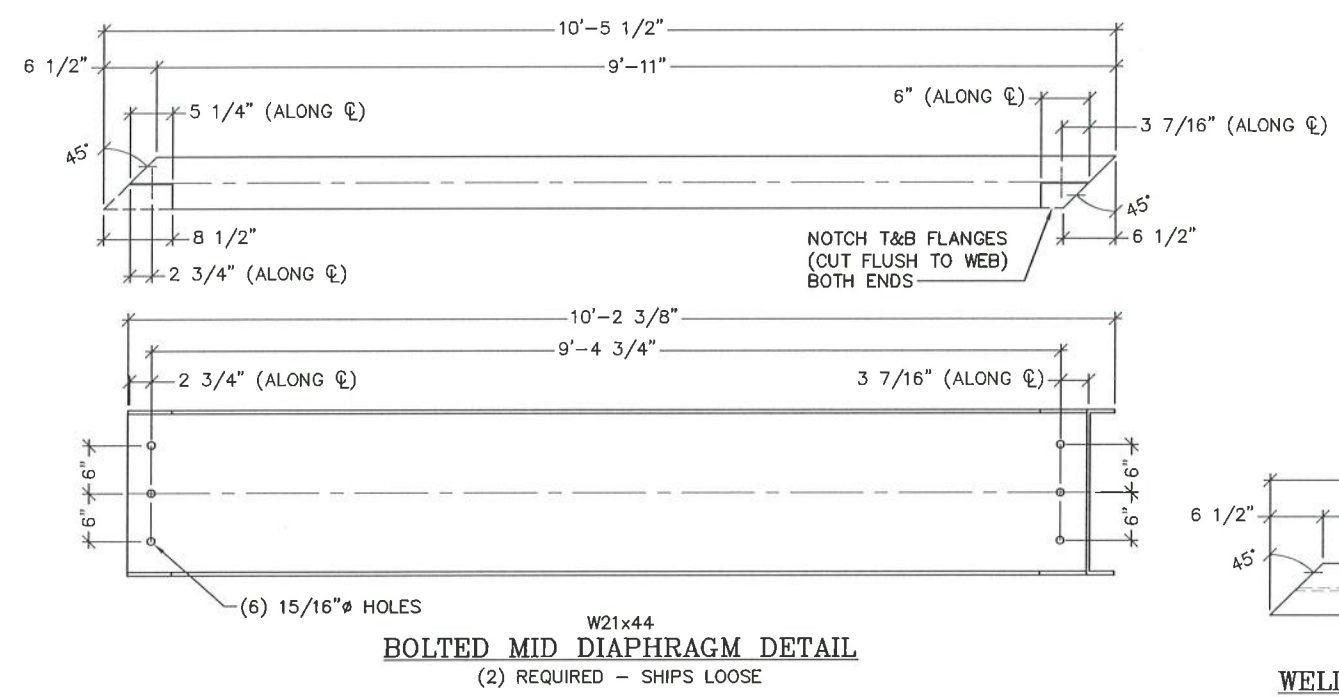
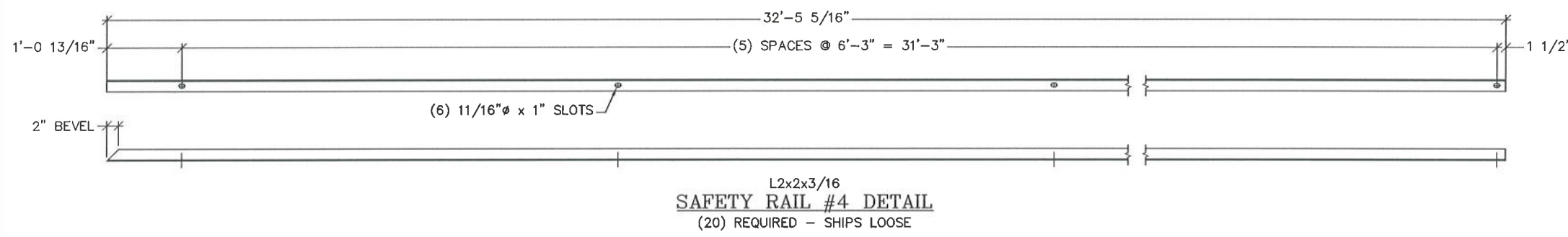
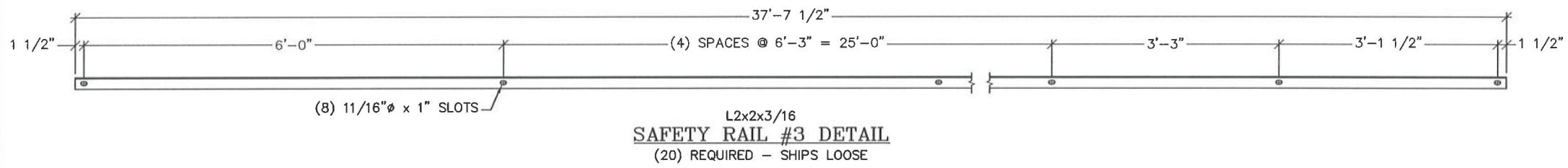
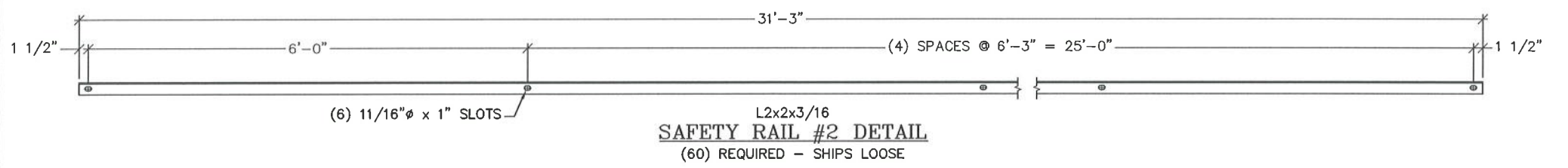
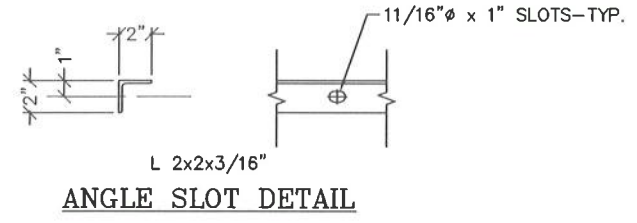
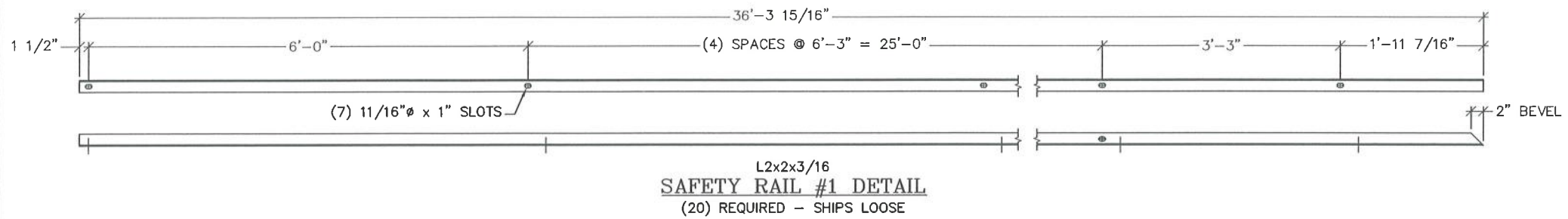
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CONTRACT
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DATE: 7/24/2020

DESIGNED: NBE	DRAWN: RDH
CHECKED: NBE	APPROVED: NBE
PROJECT No: 621715	SEQUENCE No: 030
SHEET: 9	OF 11

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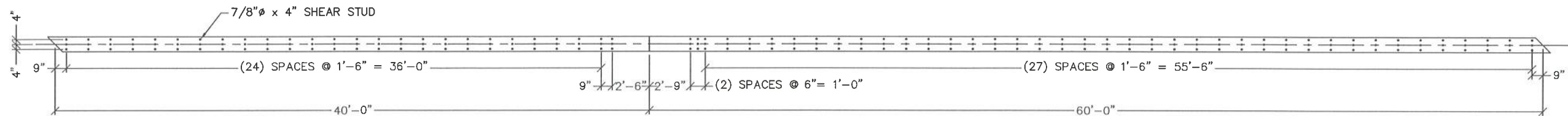
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303-565-3148 FAX
303-565-3148

BIG R
BRIDGE

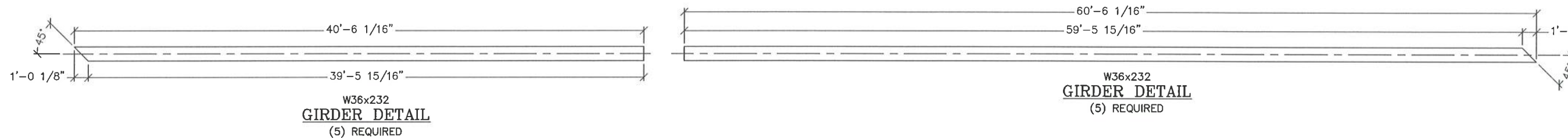
DATE: 7/24/2020

DESIGNED: NBE	DRAWN: RDH
CHECKED: NBE	APPROVED: NBE
PROJECT No.: 621715	SEQUENCE No.: 030
SHEET:	

10 OF 11

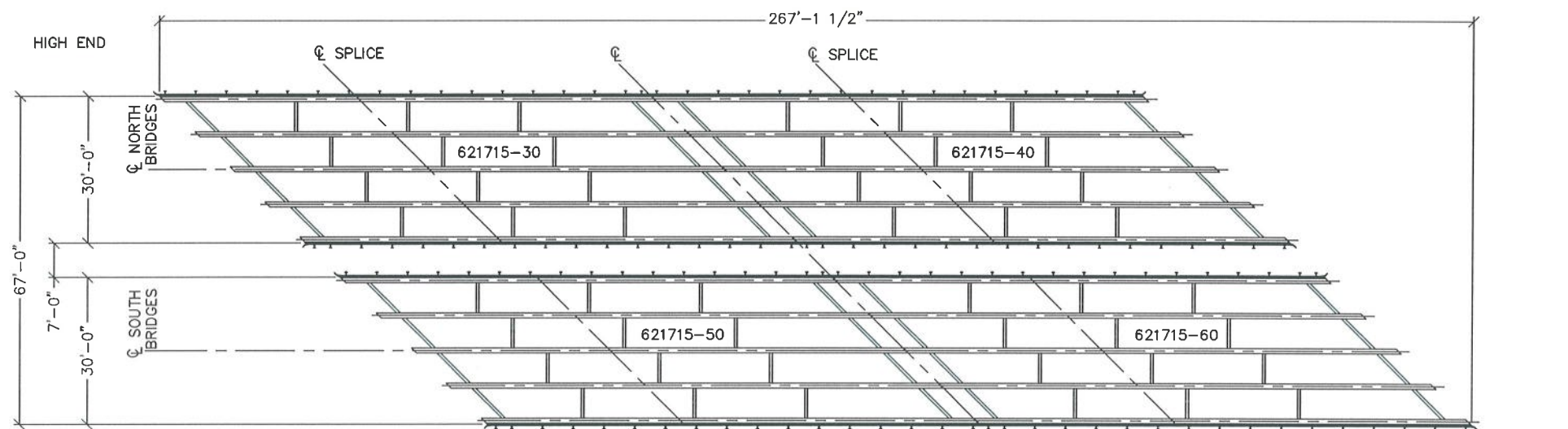


SHEAR STUD DETAIL

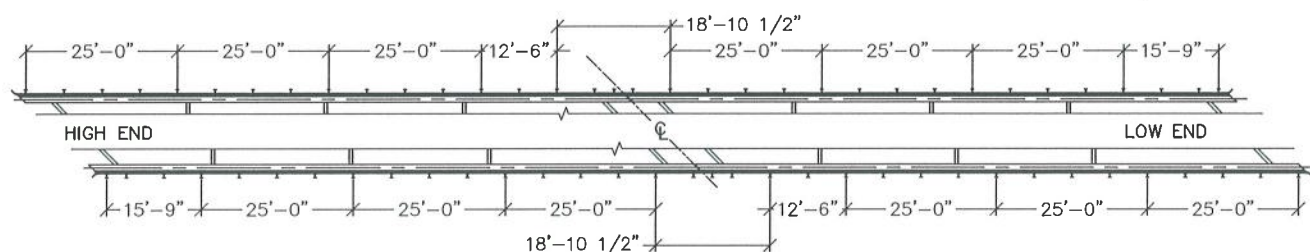


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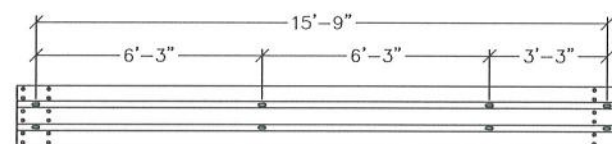
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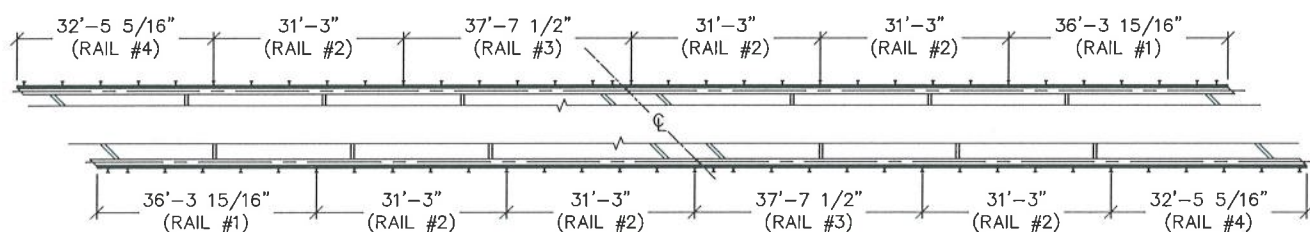
PROJECT LAYOUT



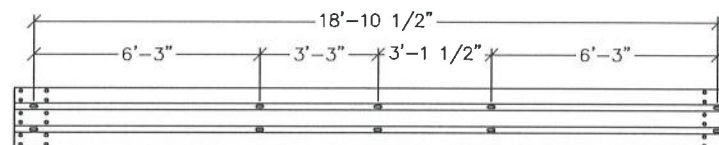
THRIE-BEAM BRIDGE RAIL LAYOUT
TYPICAL 621715-30 & 621715-40
TYPICAL 621715-50 & 621715-60



END THRIE-BEAM RAIL LAYOUT (TYPICAL AT SHORT CORNER OF EACH BRIDGE) (4) REQUIRED



ANGLE SAFETY RAIL LAYOUT
TYPICAL 621715-30 & 621715-40
TYPICAL 621715-50 & 621715-60



THRIE-BEAM RAIL AT BRIDGE GAP LAYOUT (TYPICAL BETWEEN 621715-30 & 621715-40) (TYPICAL BETWEEN 621715-50 & 621715-60) (4) REQUIRED

NOTE: ALL RAIL SECTIONS NOT SHOWN ARE STANDARD MILL PUNCH.

CONTECH CONTRACT DRAWING



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BIG R
BRIDGE

DATE:	7/24/2020
DESIGNED:	NBE
DRAWN:	RDH
CHECKED:	NBE
APPROVED:	NBE
PROJECT No.:	621715
SEQUENCE No.:	030
SHEET:	



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