

100'-0" x 30'-0"

MESA TOP DRIVE SOUTH BRIDGE

ELITE PROPERTIES of AMERICA, INC

REVIEW AND APPROVAL

APPROVED FOR FABRICATION	APPROVED AS NOTED FOR FABRICATION	REVISE & RESUBMIT
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
REVIEWED BY: _____		
COMPANY: _____		
DATE: _____		
PLEASE CHECK ONE BOX FOR EACH SHEET AND ADD COMMENTS AS NEEDED ON APPROPRIATE SHEETS		

DRAWING INDEX

SHEET NO.	DESCRIPTION
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BY RELEASING CONTECH ENGINEERED SOLUTIONS TO FABRICATE, CUSTOMER ACKNOWLEDGES CONTECH SUBMITTAL PLANS HAVE BEEN REVIEWED BY ALL RELATED PARTIES TO THE PROJECT AND THEY ARE DIRECTING CONTECH TO FABRICATE ACCORDING TO THE APPROVED PLANS.

CONTECH
CONTRACT
DRAWING



100'-0" x 30'-0" MESA TOP DRIVE SOUTH BRIDGE ELITE PROPERTIES of AMERICA, INC FOUNTAIN, CO	<small>The design and information shown on this drawing is provided as a service to the project owner, engineer and contractor by Contech Engineered Solutions, LLC ("Contech"). Neither this drawing, nor any part thereof, shall be used for any purpose other than that intended without the prior written consent of Contech. Failure to comply is done at the user's own risk, and Contech expressly disclaims any liability or responsibility for such use.</small> <small>If discrepancies between the supplied information and the drawings are noted, the user shall immediately notify Contech in writing. Contech shall not be responsible for any errors or omissions in these drawings or for any consequences that may result from the use of these drawings. Contech shall not be responsible for any discrepancies between the supplied information and the drawings or for any consequences that may result from the use of these drawings. Contech shall not be responsible for any errors or omissions in these drawings or for any consequences that may result from the use of these drawings.</small>
CONTECH ENGINEERED SOLUTIONS LLC <small>www.conteches.com</small> <small>1920 G. Rd. Greeley, CO 80631</small> <small>303-545-5128 303-560-140 FAX</small> <small>700-338-3047</small>	BIG R BRIDGE
DATE: 7/24/2020	DESIGNED: NBE DRAWN: RDH
CHECKED: NBE	APPROVED: NBE
PROJECT No.: 621715	SEQUENCE No.: 010
SHEET: 1	OF 10

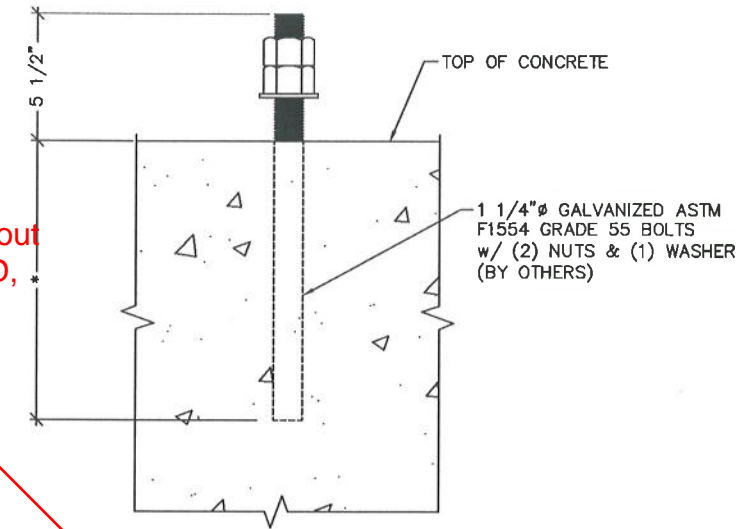
GENERAL NOTES:

- 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
TUBES: ASTM A847 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.
 - BRIDGE 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
S₀ = 0.125
S₁ = 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

- CONTECH IS RESPONSIBLE FOR THE STRUCTURAL DESIGN OF THE CONCRETE DECK. ALL ISSUES RELATED TO MATERIAL SUPPLY, TESTING AND INSTALLATION ARE OUTSIDE OF CONTECH'S RESPONSIBILITY.
- CONCRETE MIX DESIGN, MATERIALS, MIXING, PLACEMENT, FINISHING AND TESTING SHALL BE IN ACCORDANCE WITH THE PROJECT CONTRACT DOCUMENTS. IF THESE ITEMS ARE NOT COVERED IN THE PROJECT CONTRACT DOCUMENTS THE REQUIREMENTS OF SECTION 552 OF FEDERAL HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP-14) SHALL BE USED. FP-14 CAN BE VIEWED OR DOWNLOADED AT: <http://fh.fhwa.dot.gov/business/resources/specs/>
- MINIMUM MATERIAL REQUIREMENTS:
 - CONCRETE: f_c = 4000 psi AT 28 DAY
AIR CONTENT OF 5% +/- 1%
UNIT WEIGHT OF 145 PCF MAX
 - REINFORCING: ASTM A615 OR AASHTO M31 GRADE 60
- 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 CONTECH.
- 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. REQUIRED SPLICE LENGTHS ARE AS FOLLOWS:

BAR SIZE	NORMAL WEIGHT CONCRETE (145 PCF)	LIGHT WEIGHT CONCRETE (120 PCF)
#4	31"	35"
#5	39"	44"
#6	46"	53"
#7	53"	66"
#8	76"	86"
#9	96"	108"



***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.

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	-	-	17,890
TOTAL BRIDGE WEIGHT:			151,180

El Paso County, please make note.

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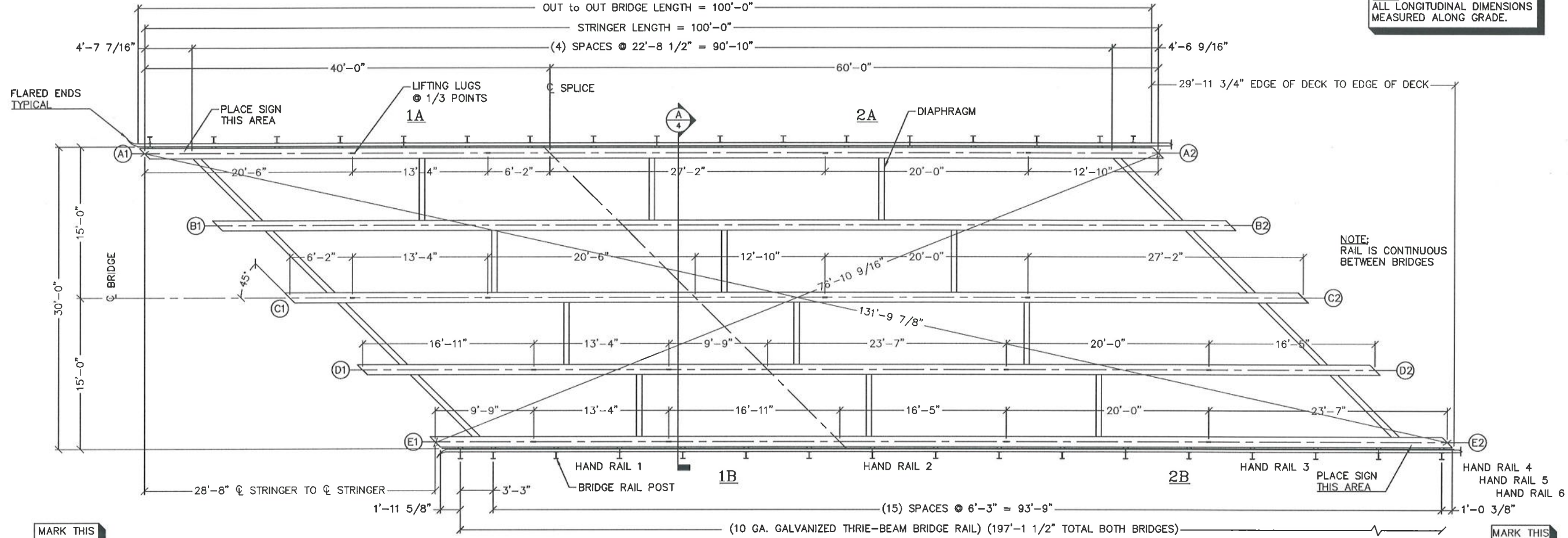
100'-0" X 30'-0"
MESA TOP DRIVE SOUTH BRIDGE
ELITE PROPERTIES OF AMERICA, INC
FOUNTAIN, CO

DATE: 9/25/2020
 DESIGNED: NBE
 DRAWN: RDH
 CHECKED: NBE
 APPROVED: NBE
 PROJECT No.: 621715
 SEQUENCE No.: 010
 SHEET: 2 OF 10

CONTECH ENGINEERED SOLUTIONS LLC
 www.conteches.com
 1800 CO RD 86 Greeley, CO 80631
 800-338-2047 303-345-5126 303-555-3148 FAX

BIG R BRIDGE

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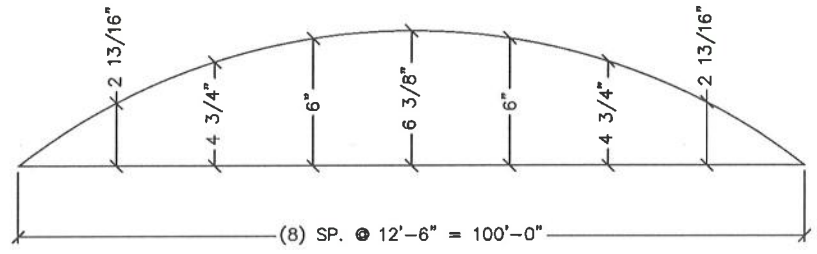
NOTE:
ALL LONGITUDINAL DIMENSIONS
MEASURED ALONG GRADE.

NOTE:
RAIL IS CONTINUOUS
BETWEEN BRIDGES

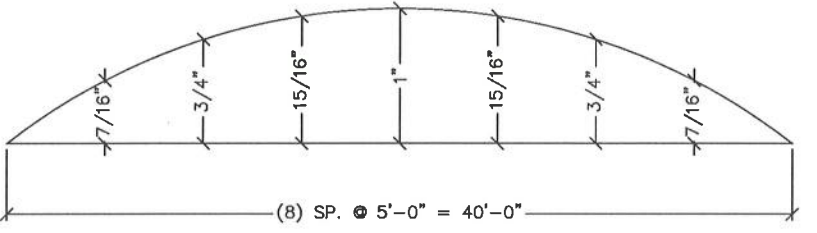
MARK THIS
END HIGH
"H"

MARK THIS
END LOW
"L"

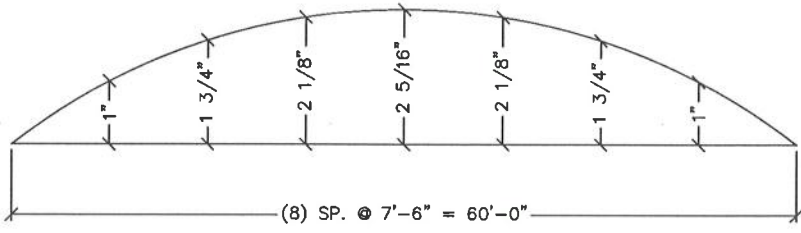
FRAMING PLAN



CAMBER DETAIL
(FULL BRIDGE)



CAMBER DETAIL
(STRINGER SECTION 1)



CAMBER DETAIL
(STRINGER SECTION 2)

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

What is the specific girder size?



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MARK	DATE	REVISION DESCRIPTION	BY
A	9/25/2020	CUSTOMER COMMENTS	RDH

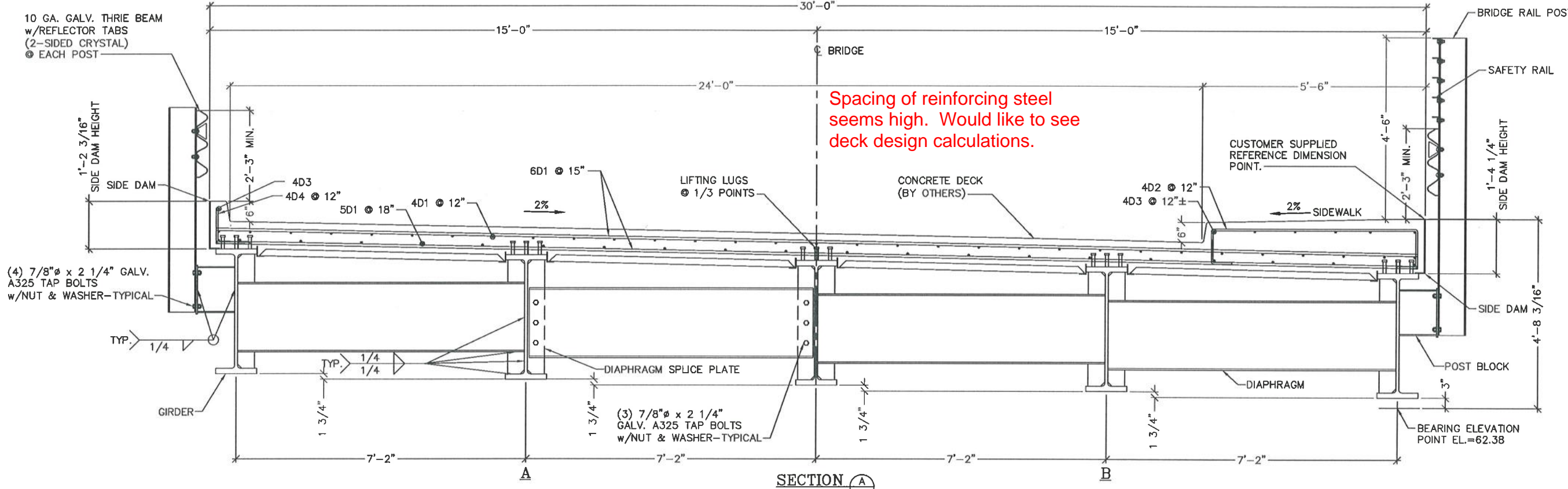
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FOUNTAIN, CO

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ENGINEERED SOLUTIONS LLC
www.conteches.com
1800 CO. RD. 100, FOUNTAIN, CO 80021
303-338-2047 303-338-3128 303-956-3188 FAX

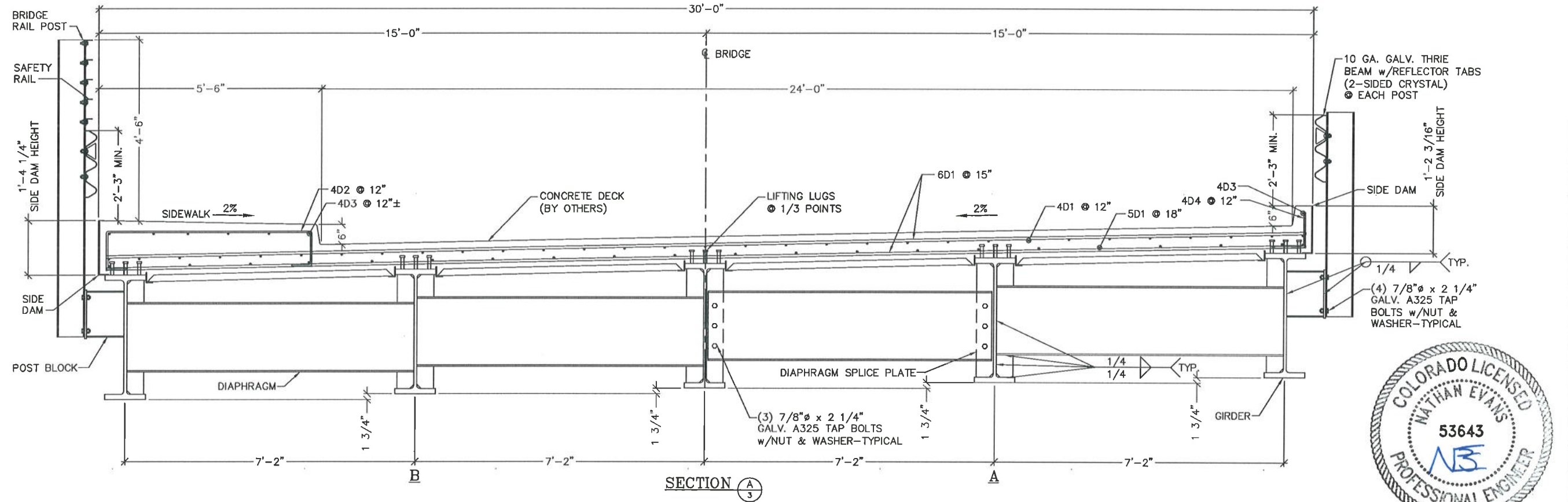
BIG BRIDGE

DATE: 7/24/2020
DESIGNED: NBE DRAWN: RDH
CHECKED: NBE APPROVED: NBE
PROJECT No.: 621715 SEQUENCE No.: 010
SHEET: 3 OF 10

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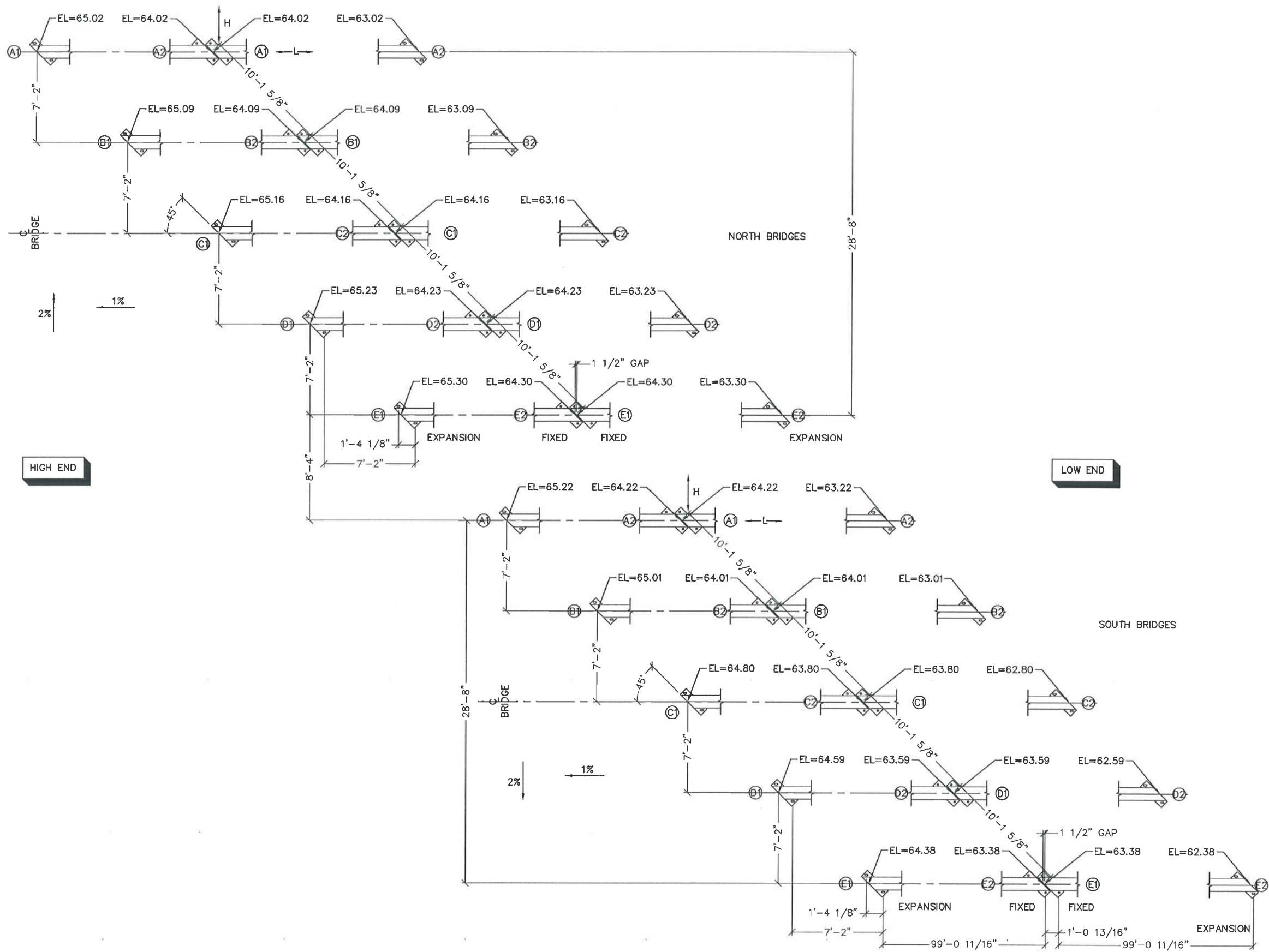
Spacing of reinforcing steel seems high. Would like to see deck design calculations.



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MARK	DATE	CUSTOMER COMMENTS	REVISION DESCRIPTION
A	9/25/2020		
		RDH	BY
<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 1800 D & Greenway, CO 80021 303-346-9120 303-346-9120 FAX</p>			
<p>BIG R BRIDGE</p>			
<p>DATE: 7/24/2020</p>			
DESIGNED:	NBE	DRAWN:	RDH
CHECKED:	NBE	APPROVED:	NBE
PROJECT No.:	621715	SEQUENCE No.:	010
SHEET:	4	OF	10

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ANCHOR BOLT LAYOUT
(ELEVATIONS ARE AT BEARING SEATS)

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APPROVED:	NBE						
PROJECT No.:	621715						
SEQUENCE No.:	010						
SHEET:	5 OF 10						
MARK	A	DATE	9/25/2020	CUSTOMER COMMENTS	REVISION DESCRIPTION	BY	RDH

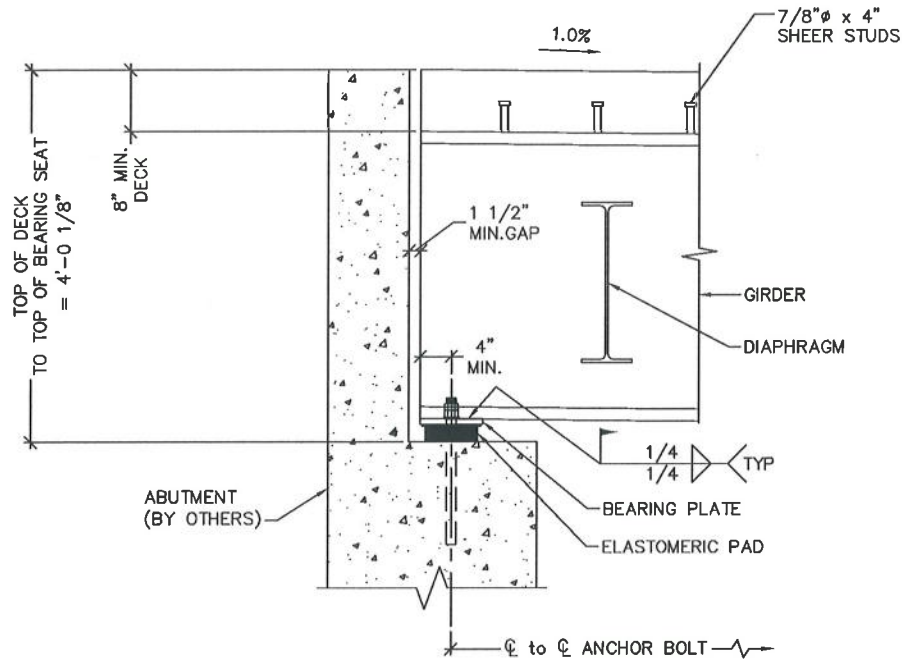
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1800 O St. Denver, CO 80202
303-345-3129 303-555-3188 FAX
1-800-232-2047

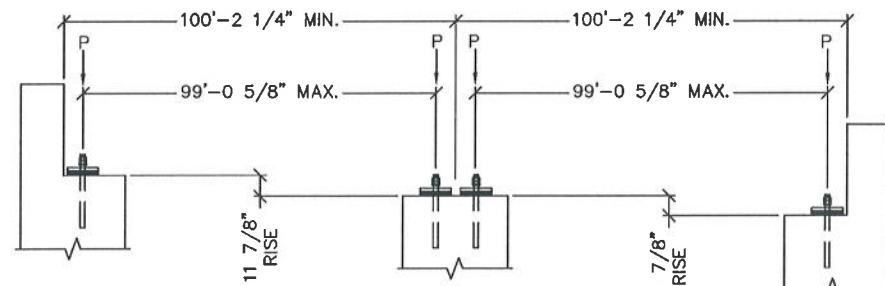
BIG R
BRIDGE

9-25-20

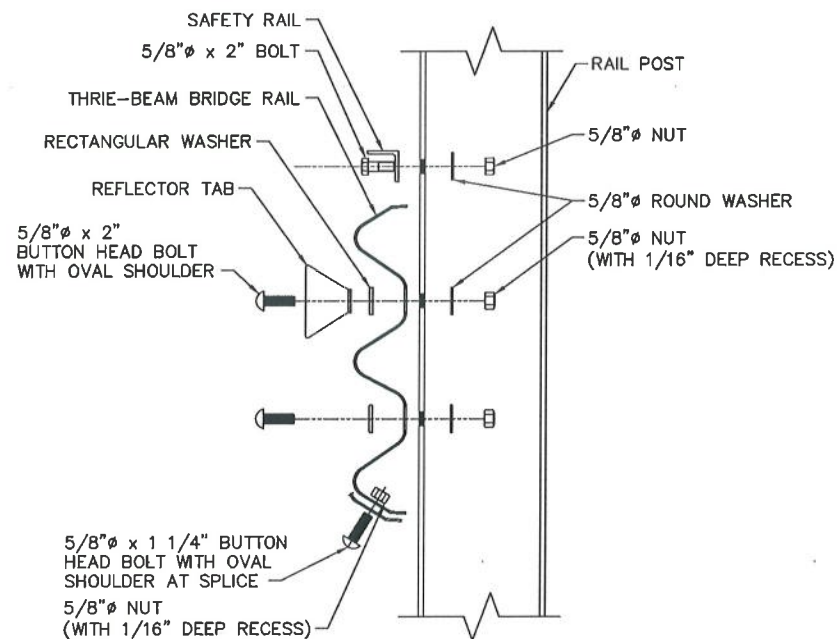
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BEARING DETAIL

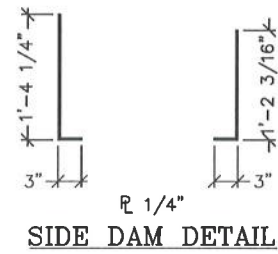


ANCHOR BOLT ELEVATION

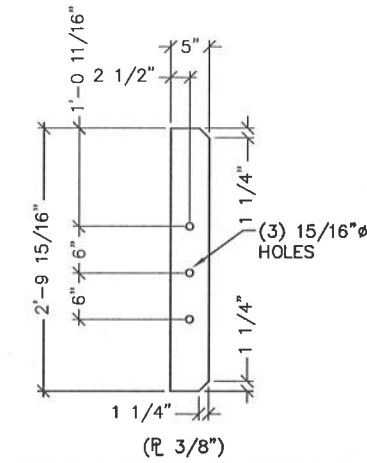


THRIE-BEAM RAIL ATTACHMENT DETAIL

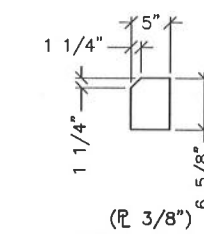
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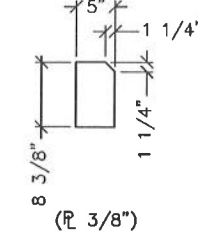
SIDE DAM DETAIL



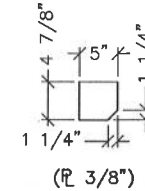
FULL DEPTH DIAPHRAGM CONNECTION PLATE



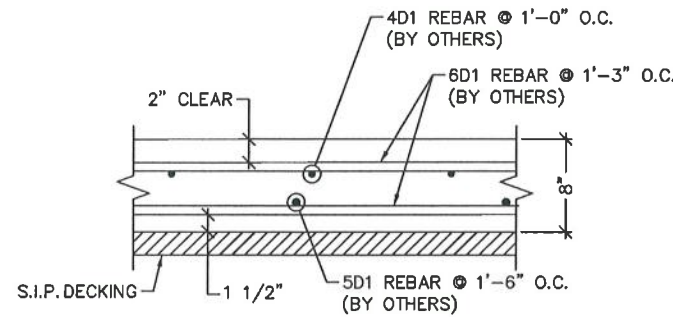
FULL DEPTH CONNECTION PLATE



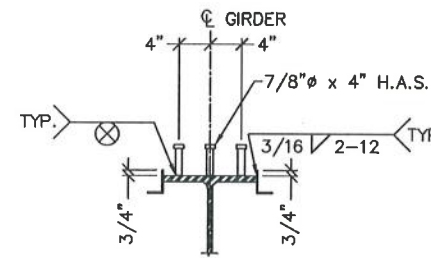
FULL DEPTH CONNECTION PLATE



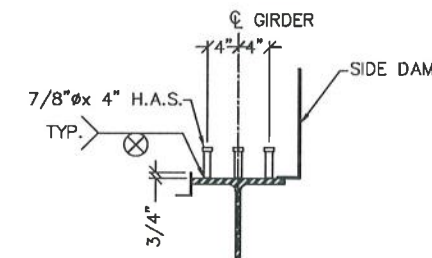
FULL DEPTH CONNECTION PLATE



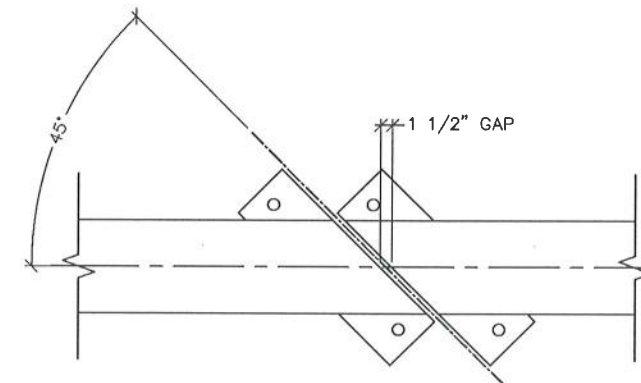
TYPICAL DECK SECTION



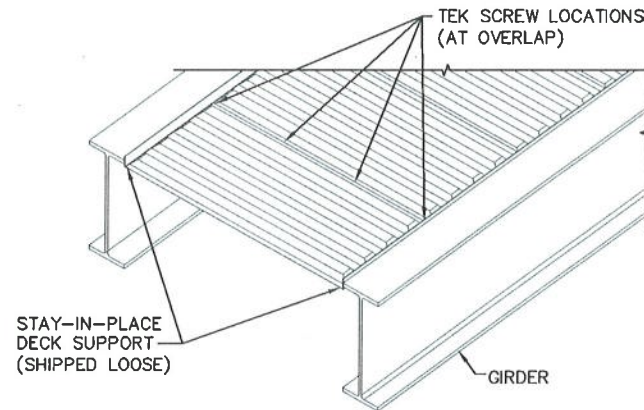
GIRDER DETAIL



TYPICAL EXTERIOR GIRDER DETAIL



BRIDGE GAP DETAIL



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

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9-25-20



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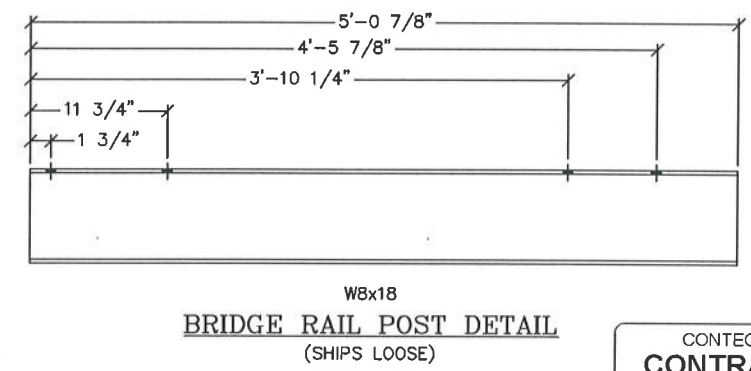
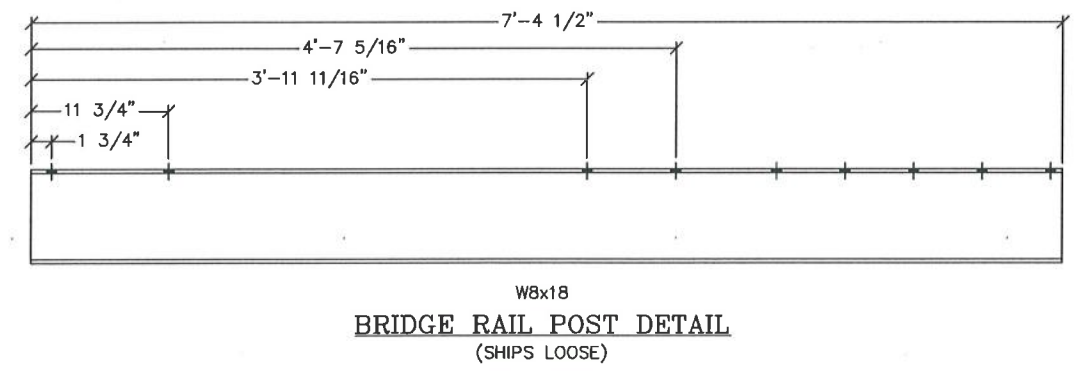
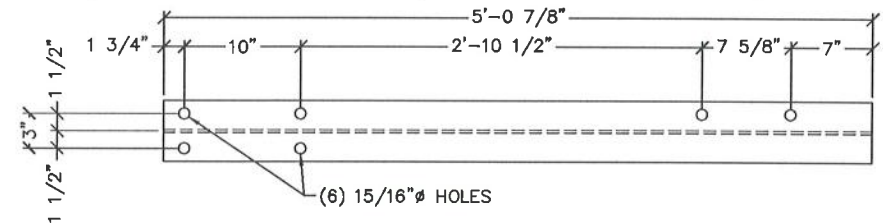
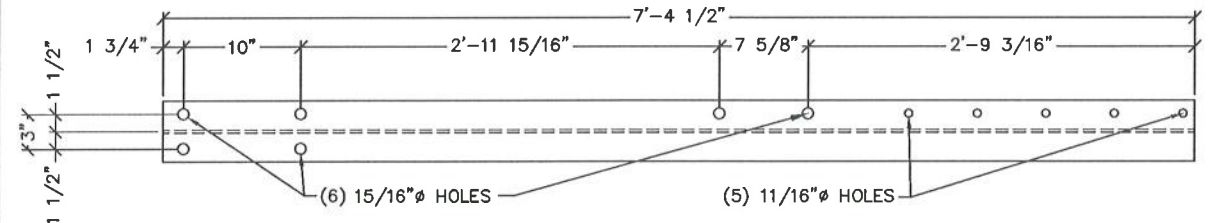
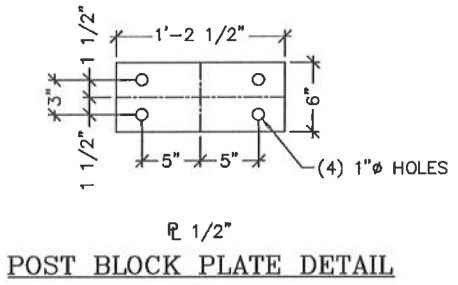
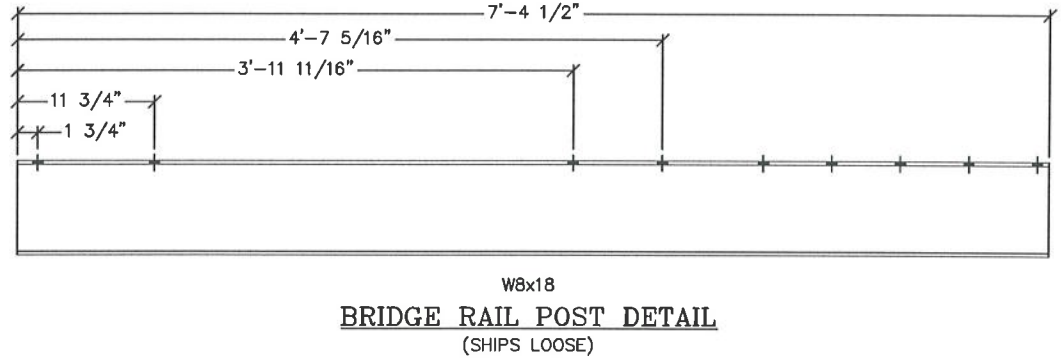
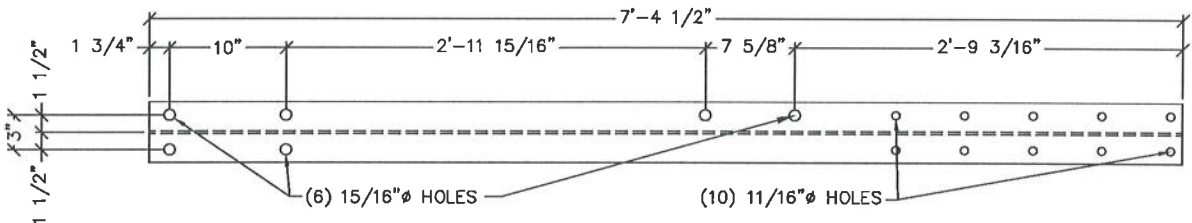
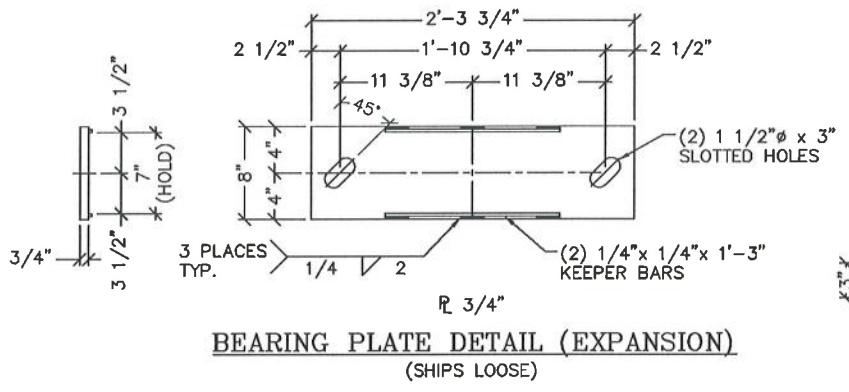
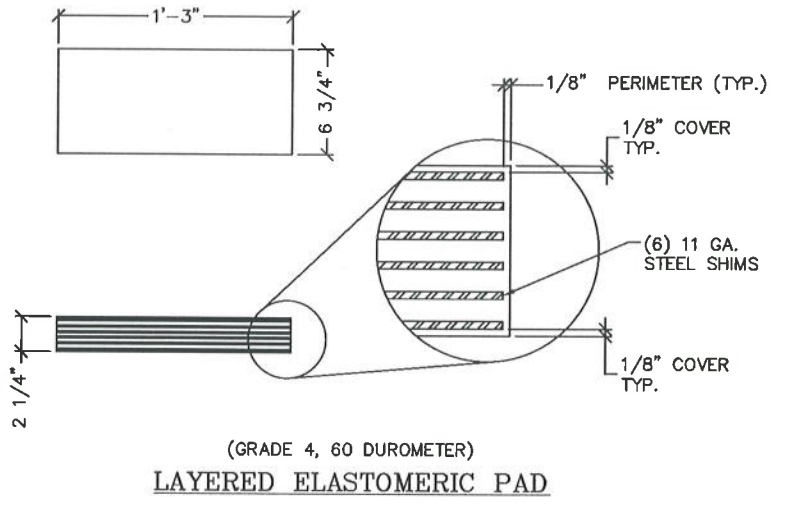
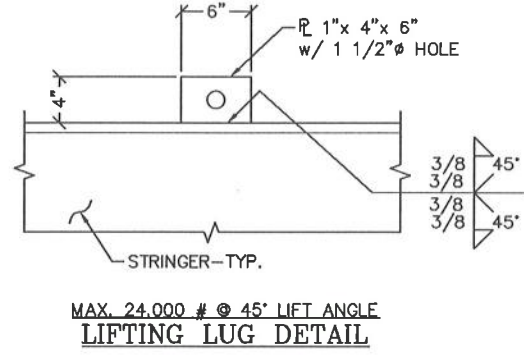
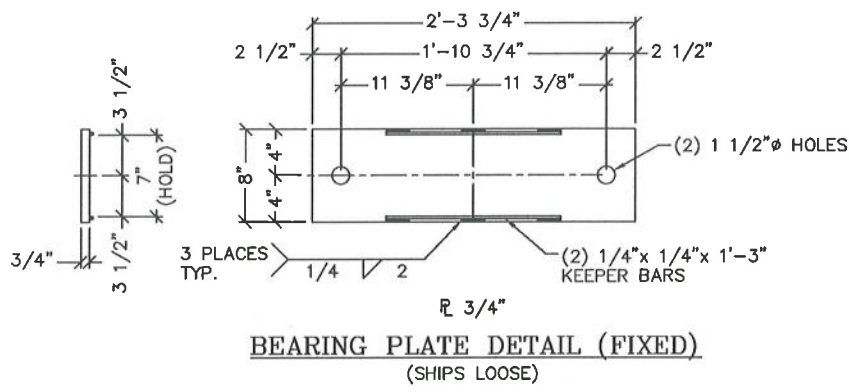
DATE	MARK	REVISION DESCRIPTION	BY
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100'-0" x 30'-0"
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SEQUENCE No.:	010
SHEET:	6 OF 10

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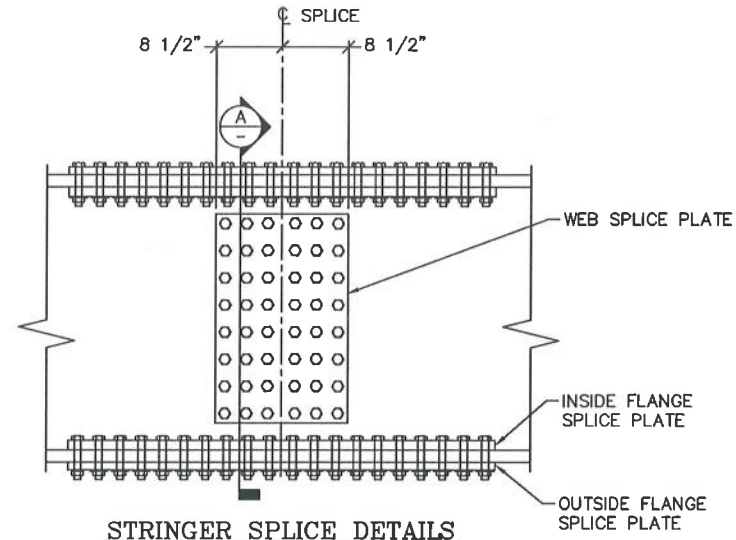
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PROJECT No.:	621715
SEQUENCE No.:	010
SHEET:	7 OF 10

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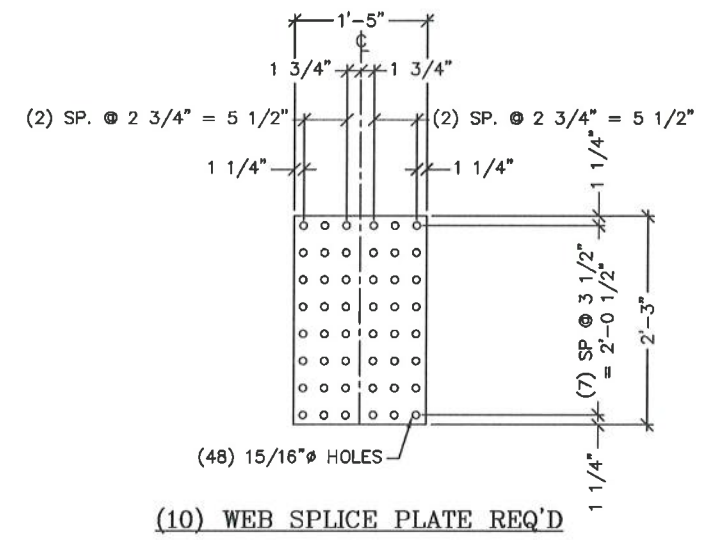
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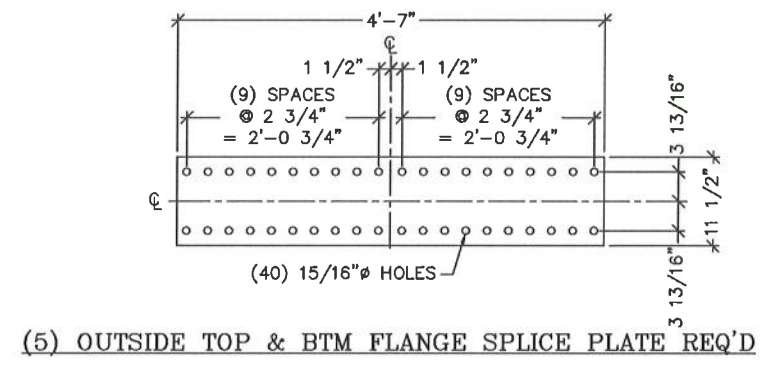
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WEB SPLICE PLATE	10	3/4"	1'-5" x 2'-3"	15/16"	7/8"φ x 3 3/4" A325 GALV	240
INSIDE BTM FLANGE SPLICE PLATE	10	1 1/4"	3 7/8" x 4'-7"	15/16"	-	-
OUTSIDE BTM FLANGE SPLICE PLATE	5	1"	11 1/2" x 4'-7"	15/16"	7/8"φ x 5 1/2" A325 GALV	200
INSIDE TOP FLANGE 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



STRINGER SPLICE DETAILS

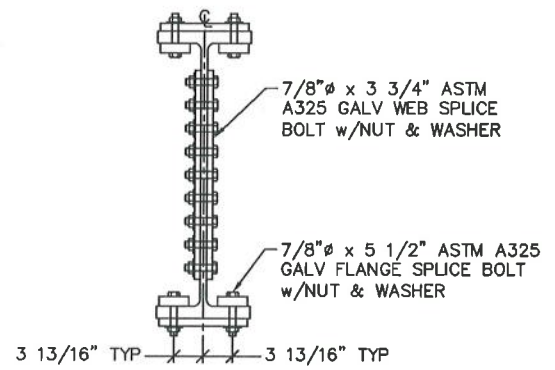


(10) WEB SPLICE PLATE REQ'D



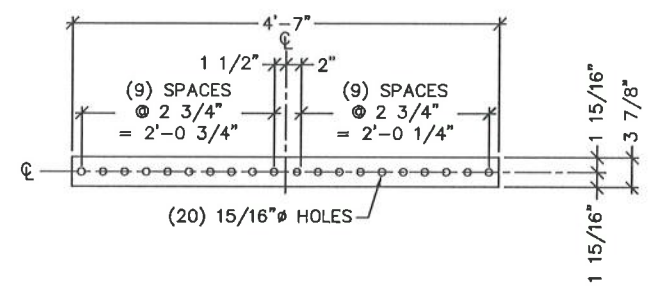
(5) OUTSIDE TOP & BTM FLANGE SPLICE PLATE REQ'D

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.



(10) INSIDE TOP & BTM FLANGE SPLICE PLATE REQ'D

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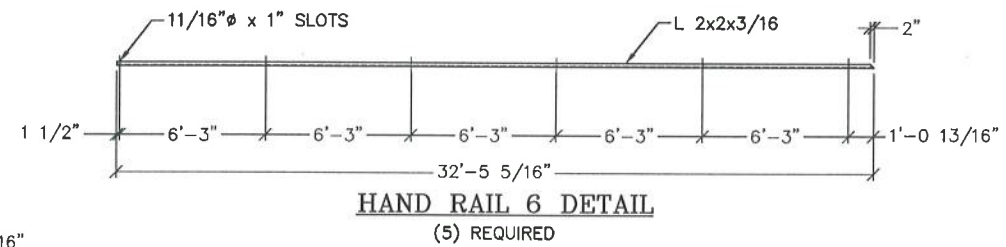
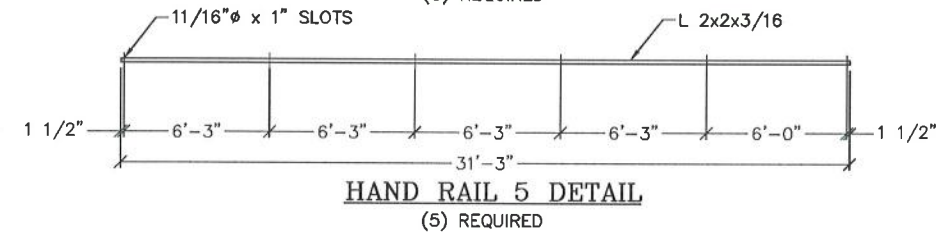
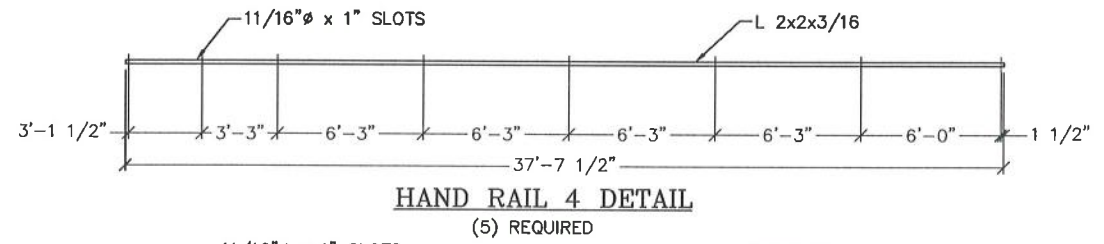
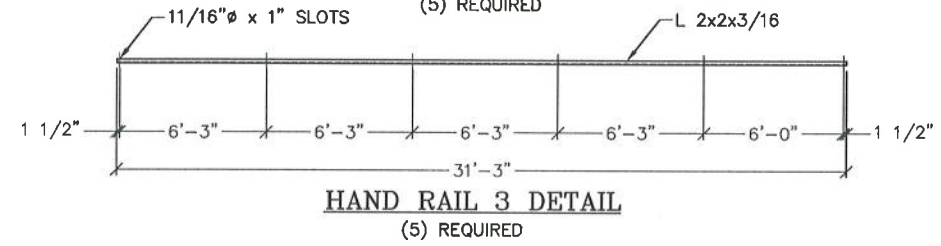
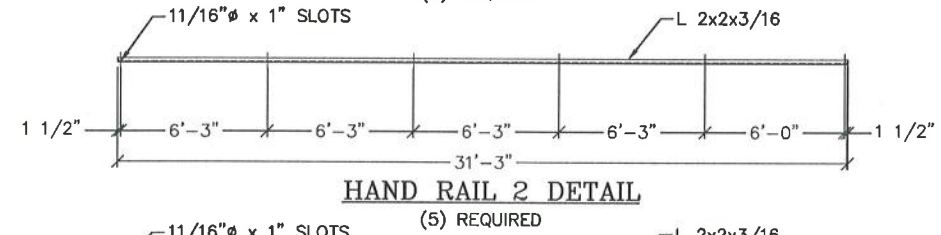
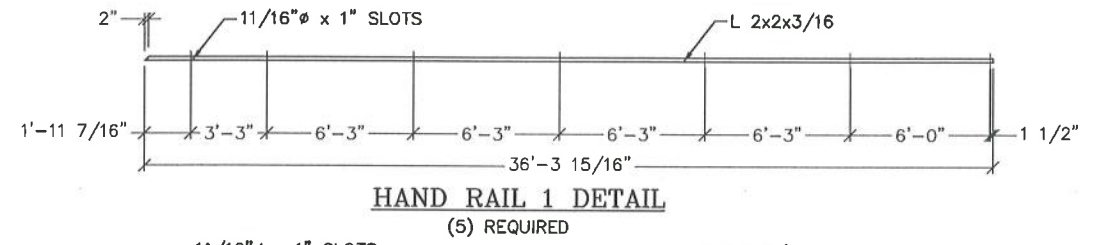
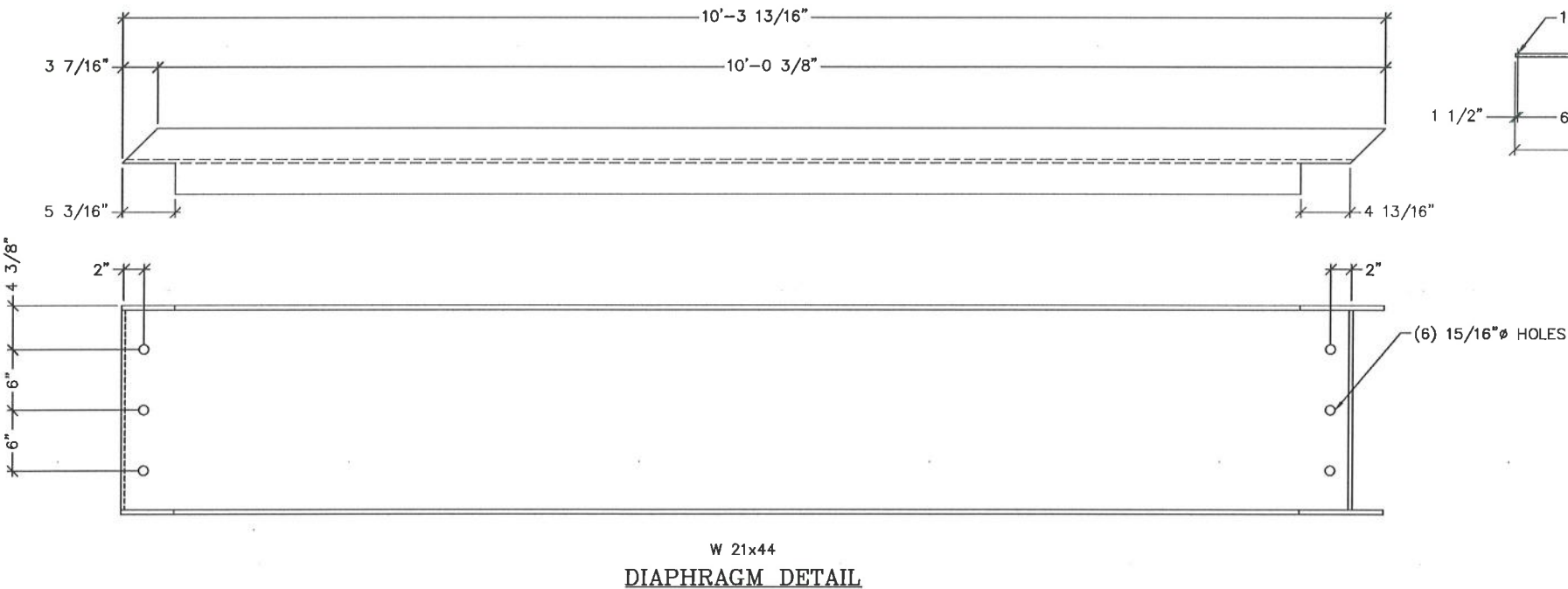
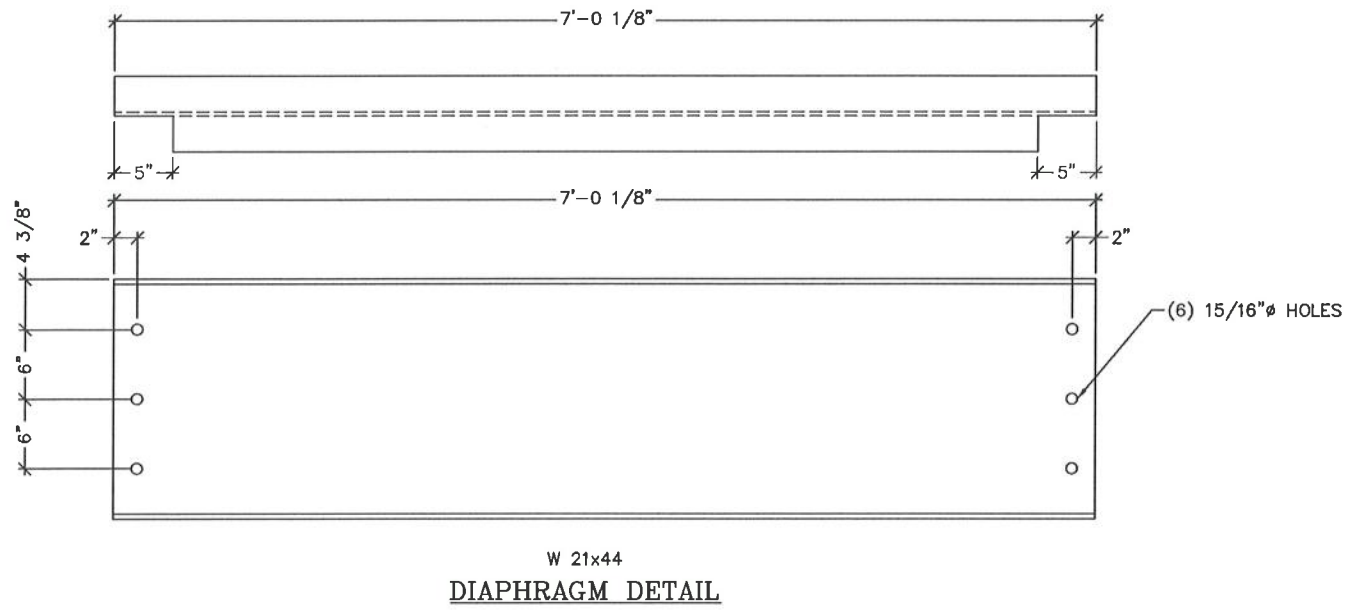
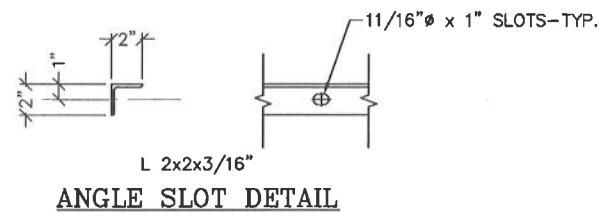
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800-333-2047 303-442-9126 303-556-3148 FAX

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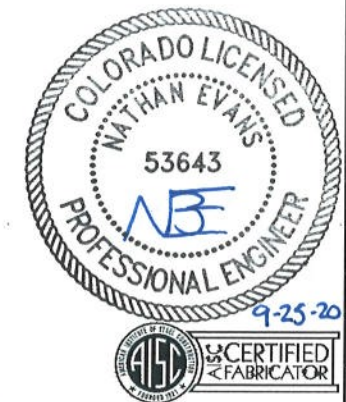
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PROJECT No:	621715	SEQUENCE No: 010
SHEET:	8 OF 10	

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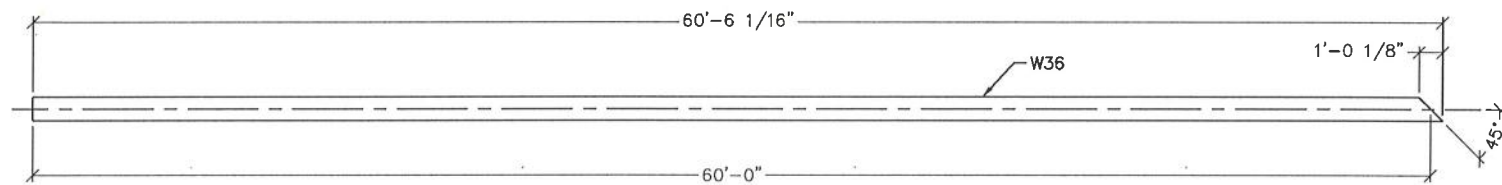
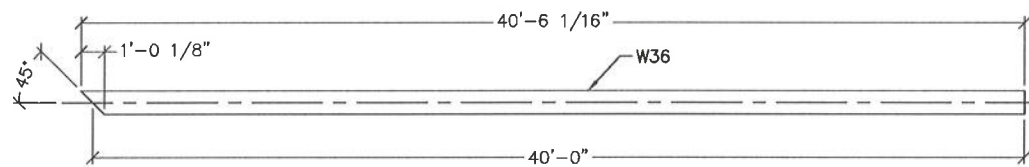
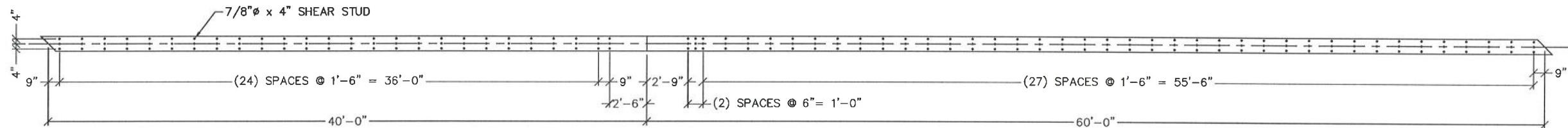
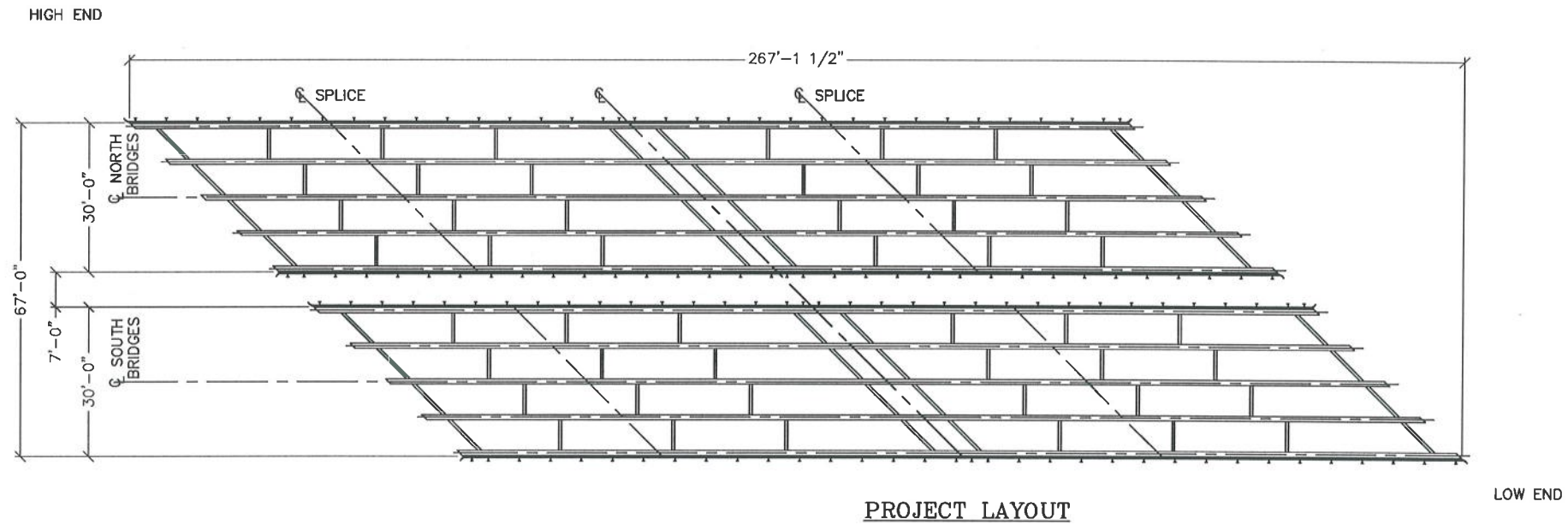
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SHEAR STUD DETAIL

GIRDER DETAIL

GIRDER DETAIL

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SEQUENCE No.:	010
SHEET:	10 OF 10

Contech Superstructure Plans_r1.pdf Markup Summary

karen.fox (10)

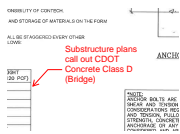


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Author: karen.fox
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Substructure Plans call out CDOT Concrete Class D, with an $f'c = 4500$ psi

ID#	ORIGINAL DESCRIPTION	COMMENTS
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#2		
#3		
#4		
#5		
#6		
#7		
#8		
#9		
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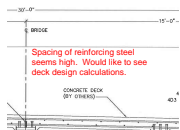
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Substructure plans call out CDOT Concrete Class D (Bridge)



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El Paso County, please make note.



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Spacing of reinforcing steel seems high. Would like to see deck design calculations.

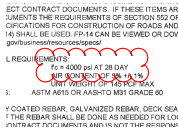


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What is the specific girder size?



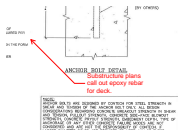
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Subject: Callout
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Substructure plans call out epoxy rebar for deck.