

OVERHEAD SIGN STRUCTURE

X

X

X

X

INDEX OF DRAWINGS

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ESTIMATED QUANTITIES				
ITEM NO.	ITEM	UNIT	TOTAL QUANTITY	ESTIMATE
506.01048	DRILLED SHAFT FOUNDATIONS 48 in	FT	X	
702.09100	STL OVERHEAD SIGN SUPPORT	LS	LUMP SUM	37,000 LB

REFERENCES

- Supplementary Specifications:
- SS-100K Adjustment for Structural Steel
 - SS-500B Welder Qualification



STRUCTURE NO. XXX
MLxxx, RM XXX.XX
SEC X, TxxN, RxxW

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS			
DMS_ts_V.dgn			
REVIEW _____	DESIGN _____	DETAIL _____	Design Section X
APPROVAL _____	QTY'S _____	Drwg No. X	Sheet 1 of 14

GENERAL NOTES

SPECIFICATIONS: WYDOT Standard Specifications for Road and Bridge Construction, 2010 Edition

CONCRETE: Use class A concrete made with type V cement.

CONCRETE AGGREGATE: Ensure all concrete mix designs meet the following alkali-silica reactivity (ASR) screening:

Test concrete aggregate in accordance with AASHTO T 303-04 (ASTM C 1260-07) Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali-Silica Reaction or, when fly ash or silica fume is used in the mix, test concrete aggregate in accordance with ASTM C 1567-08 Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method).

Conduct the AASHTO T 303 (ASTM C 1260) or ASTM C 1567 test using a combined sample of fine aggregate and coarse aggregate, in the same proportions that will be used in the concrete mix design and using the cementitious material that is to be used in the final concrete mix design.

Ensure the test results indicate an expansion at 16 calendar days from casting of 0.10 percent or less.

Mitigate sources which indicate reactive aggregate through the use of a class F fly ash approved for ASR mitigation in accordance with the Materials Testing Manual, silica fume and/or lithium nitrate additive. Ensure the AASHTO T 303 (ASTM C 1260) and ASTM C 1567 tests are performed within 12 months before the submittal date. The department's Materials Program maintains the option to conduct AASHTO T 303 (ASTM C 1260) and ASTM C 1567 testing for verification.

Submit qualifying AASHTO T 303 (ASTM C 1260) and ASTM C 1567 test results to the engineer a minimum of 14 calendar days before concrete production.

REINFORCING STEEL: Concrete cover to face of reinforcing steel is 2" unless noted. Dimensions for bent bars are out to out.

BAR MARKS



STRUCTURAL STEEL: Ensure structural steel conforms to the following:

- Structural Tubing & Columns --- ASTM A 53 (Grade B), API-5L, ASTM A 252 (Grade 2), ASTM A 500 (Grade B), or ASTM A 501 (Grade A)
 - Weld Tee ----- ASTM A 105 or ASTM A 234 (Grade WPB)
 - Flattened Expanded Metal ----- ASTM F 1267, type II, class 2, grade A
 - Fabricated U-Bolts ----- ASTM A 307
 - Anchor Bolts ----- ASTM A 449 or threaded rods conforming to ASTM F 1554 (Grade 105)
 - All other Bolts ----- ASTM F 3125
 - All other Structural Steel ----- ASTM A 709 (Grade 36)
- Ensure steel fabricators supplying structural components are certified under the AISC Quality Certification Program, Category Simple Steel Bridges (SBR). Ensure all rough edges are ground smooth after fabrication.

SHOP SPLICES: Shop splices in structural tubing and columns will be allowed with approval of the State Bridge Engineer. Ensure shop splices are located as far as possible from handholes, welded fittings, and field splices. Ensure the fabricator's shop drawings show locations and complete details of the proposed shop splices.

STRUCTURE COATING: Ensure sign structure is painted in accordance with Subsection 809.9 - Epoxy Mastic Paint. Do not paint anchor bolts and hardware.

Fabricated components such as the catwalk and handrails may be galvanized instead of painted, at no additional cost to the department.

BOLTED CONNECTIONS: Use galvanized hardware at bolted connections, including fabricated U-Bolts. After installation, paint exposed bolt threads, except anchor bolts, with two coats of zinc rich paint conforming to ASTM A 780.

ELECTRICAL CONDUIT: Work necessary for the electrical conduit in the drilled shafts is incidental to the contract pay item Drilled Shaft Foundations 48 in.

Use watertight flexible electrical conduit and fittings between the horizontal tube and message sign. Work necessary for the flexible electrical conduit is incidental to the contract pay item Stl Overhead Sign Support.

FOUNDATIONS: Columns are on drilled shafts founded in x.

INSTALLATION REQUIREMENTS FOR SPLICE BOLTS: Install splice bolts, utilizing load indicator washers to ensure proper bolt tension, in accordance with Subsection 501.4.2.3, Connections Using High Strength Bolts.

INSTALLATION REQUIREMENTS FOR ANCHOR BOLT NUTS:
 Ensure the top nuts have full thread engagement and the distance from the bottom of the leveling nuts to the top of the drilled shaft does not exceed 1".
 Field lubricate the anchor bolt threads and the top nut's bearing face and threads with a stick wax or beeswax.
 Wrench tighten leveling nuts firmly against base plate before tightening top nuts.
 Consecutively tighten opposite side nuts during all top nut tightening sequences.
 Initially tighten the top nuts in two rounds of tightening with a torque wrench. Achieve 250 LB•FT of torque in second round of tightening. Retighten leveling nuts to ensure firm contact is maintained against the base plate.
 Tighten the top nuts an additional 1/8 turn (60°) in two rounds of 1/12 turn (30°) each.

EXPANDING FOAM: Place a two component rapid curing expanding foam, or a pre-approved equal, between column base plate and top of drilled shaft. Ensure expanding foam seals the entire bottom of the base plate with a 4" minimum width and does not come in contact with the anchor bolt nuts. Include a 3/4" diameter non-corroding drain pipe through expanding foam. Work necessary for the expanding foam and drain is incidental to the contract pay item Stl Overhead Sign Support.

EXPANDED METAL SCREEN: Enclose the opening between column base plate and top of drilled shaft with an expanded metal screen made of stainless steel with diamond shaped mesh openings of 3/8" x 1" or less. Do not extend mesh above top of column base plate. Remove sharp edges. Use a ratchet type device to attach the screen. Work necessary for the expanded metal screen is incidental to the contract pay item Stl Overhead Sign Support.

DYNAMIC MESSAGE SIGN: The approximate weight of the dynamic message sign is 4000 LB. Work necessary for the installation of the dynamic message sign is incidental to the contract pay item Stl Overhead Sign Support.

BRIDGE OFFICE NOTIFICATION: The engineer will notify the State Bridge Engineer in writing within 14 calendar days after the structure has been erected.

DESIGN DATA

SPECIFICATIONS: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 4th Edition with 2002 Interims

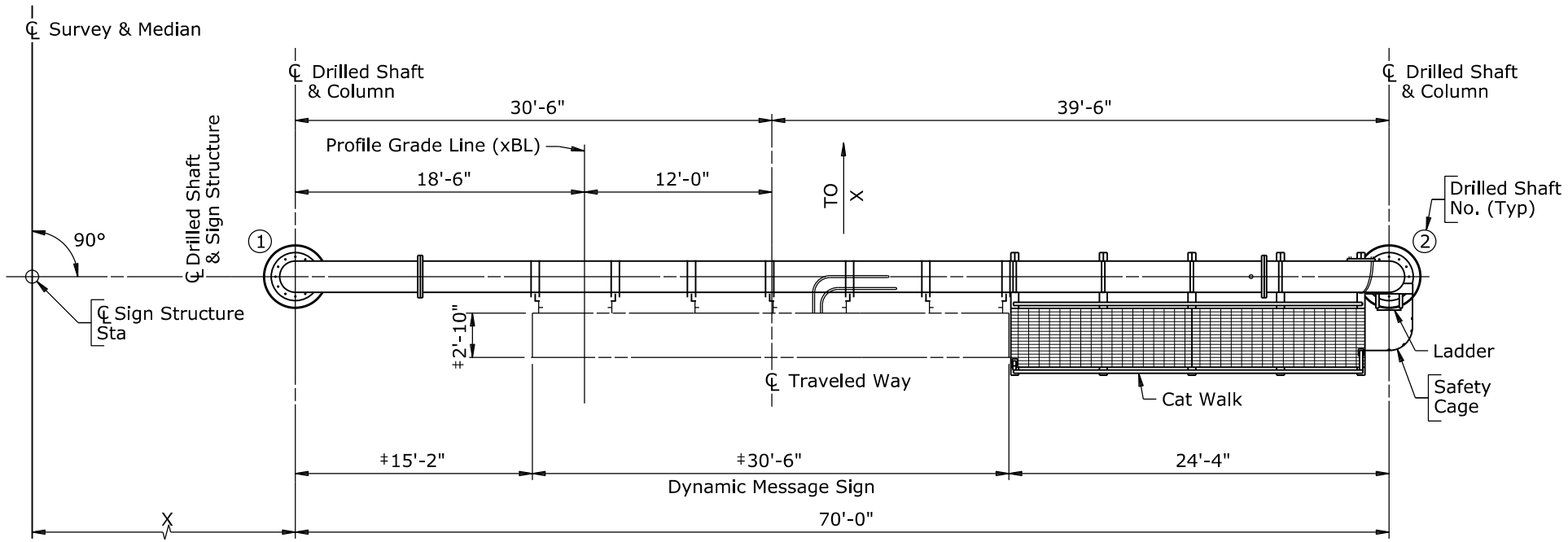
LOADING: 90 mph fastest-mile wind velocity with 30% increase for gust factor in accordance with Appendix C. Ice load 3 psf. Importance Category I Fatigue Design with natural wind gust loading for 12.9 mph yearly mean wind velocity and standard AASHTO truck induced gust loading.

DRILLED SHAFTS: Total Load = X.X T per drilled shaft
 Bearing = X.X T per drilled shaft
 X.X Tsf per drilled shaft
 Friction = X.X T per drilled shaft

STRUCTURAL STEEL: Allowable Stress Design - $F_y = 35,000$ psi

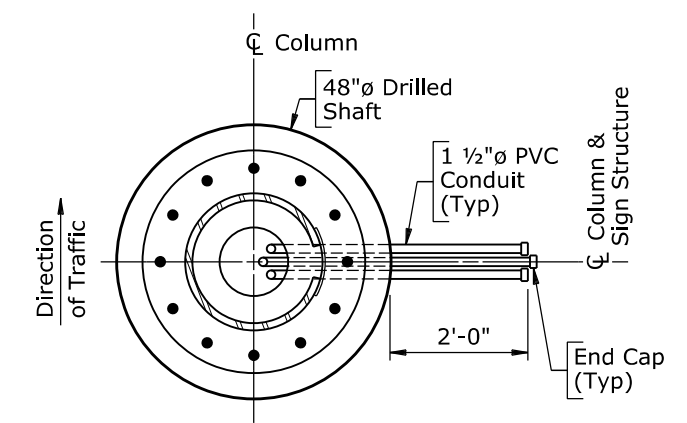
REINFORCED CONCRETE: Load Factor Design -
 Class A Concrete $f'_c = 4000$ psi
 Reinforcing Steel $f_y = 60,000$ psi (Grade 60)

WYOMING DEPARTMENT OF TRANSPORTATION			
BRIDGE PROGRAM			
REVISIONS		GENERAL NOTES	
		DMS_gn_V.dgn	
REVIEW _____	DESIGN _____	Design Section	X
APPROVAL _____	DETAIL X ✓ X	Drwg No. X	Sheet 2 of 14
	QTY'S _____		

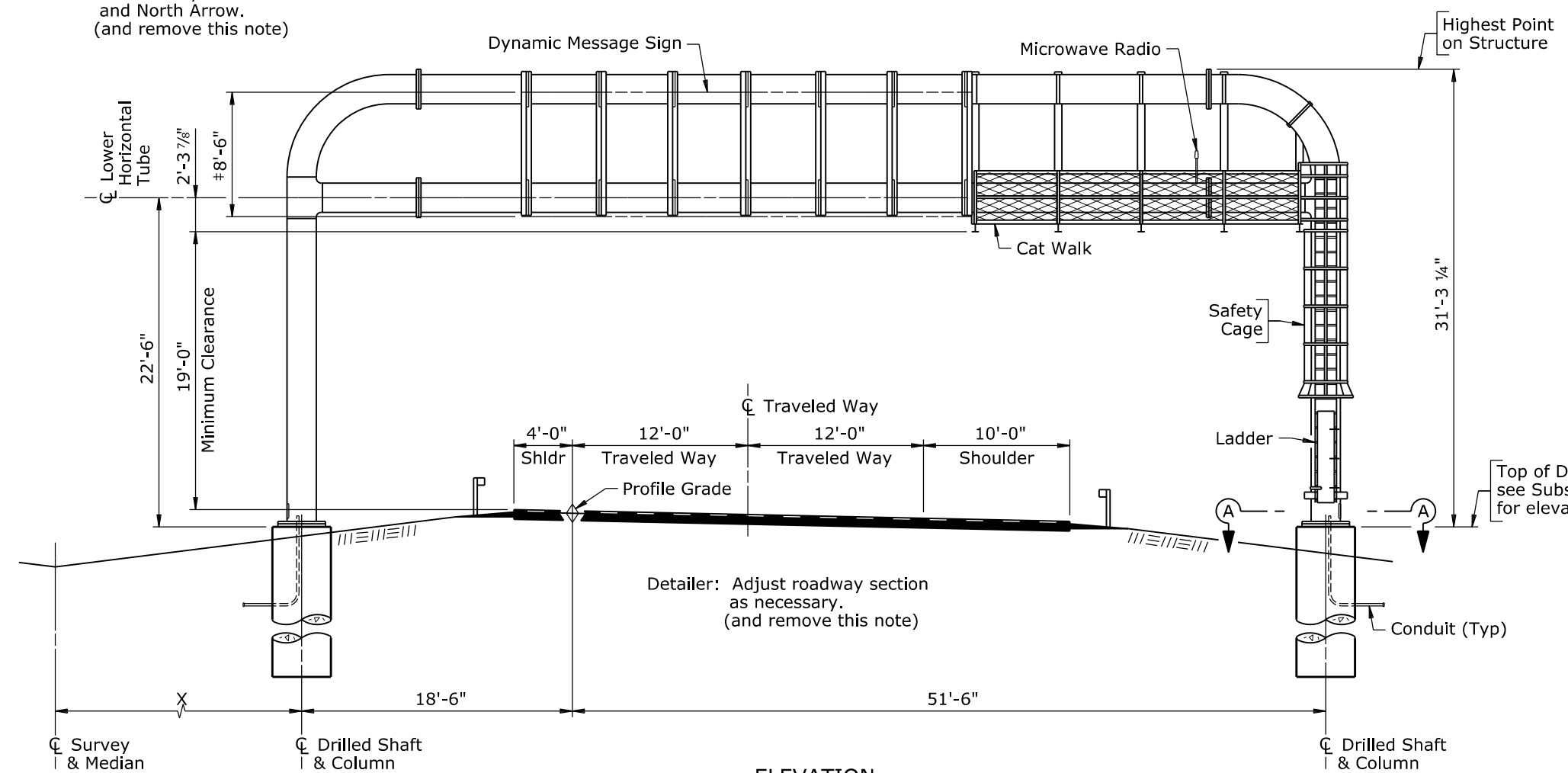


PLAN

Detailer: Add Survey information and North Arrow. (and remove this note)



SECTION A-A
 (Showing conduit placement)

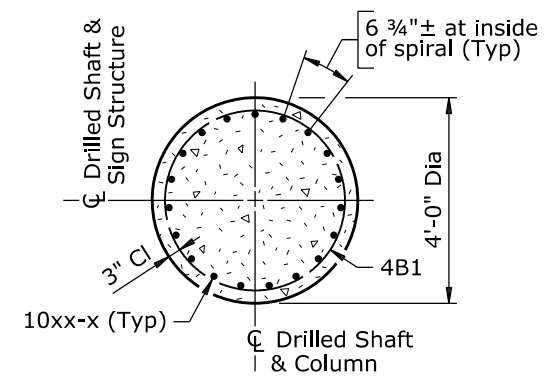
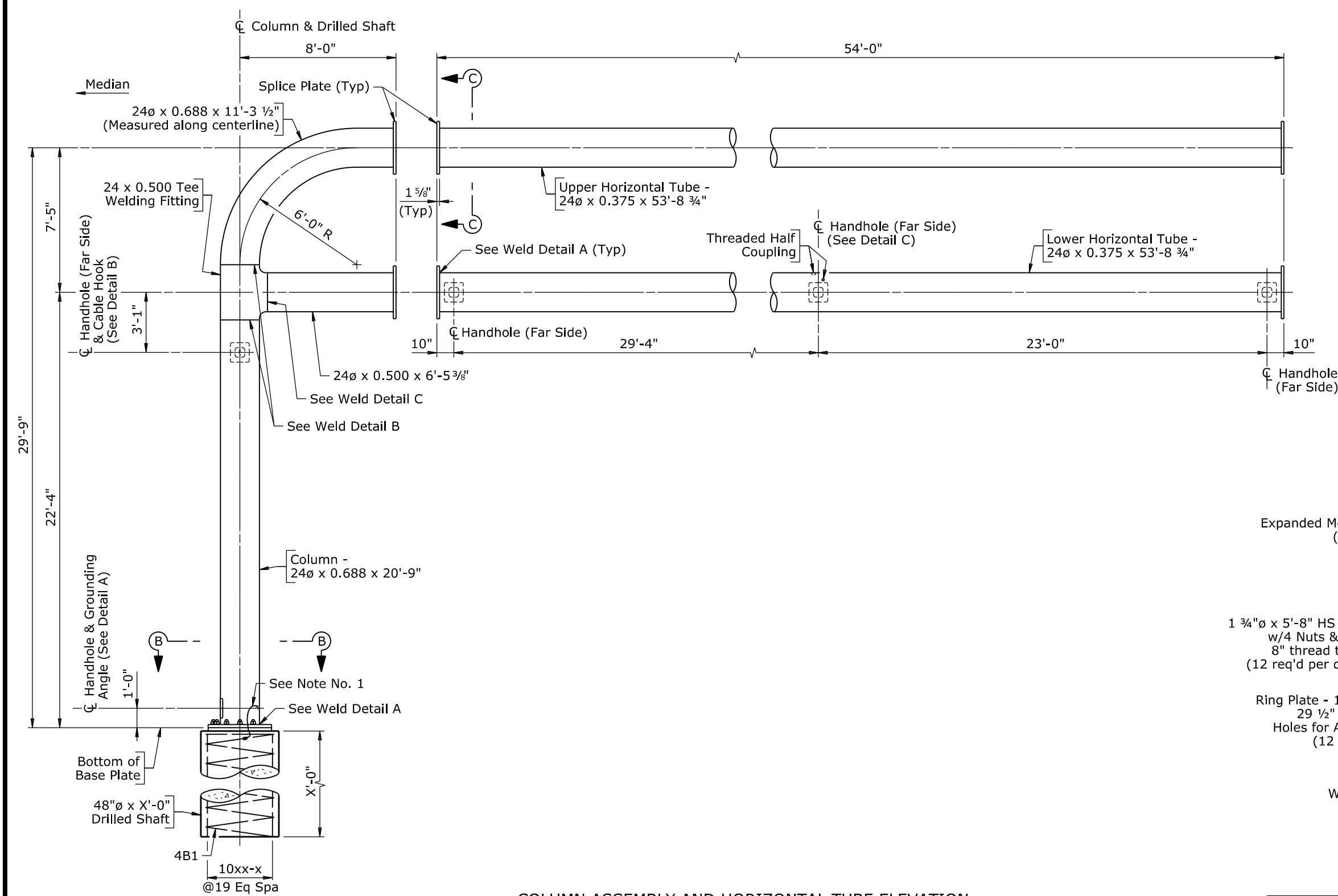


ELEVATION

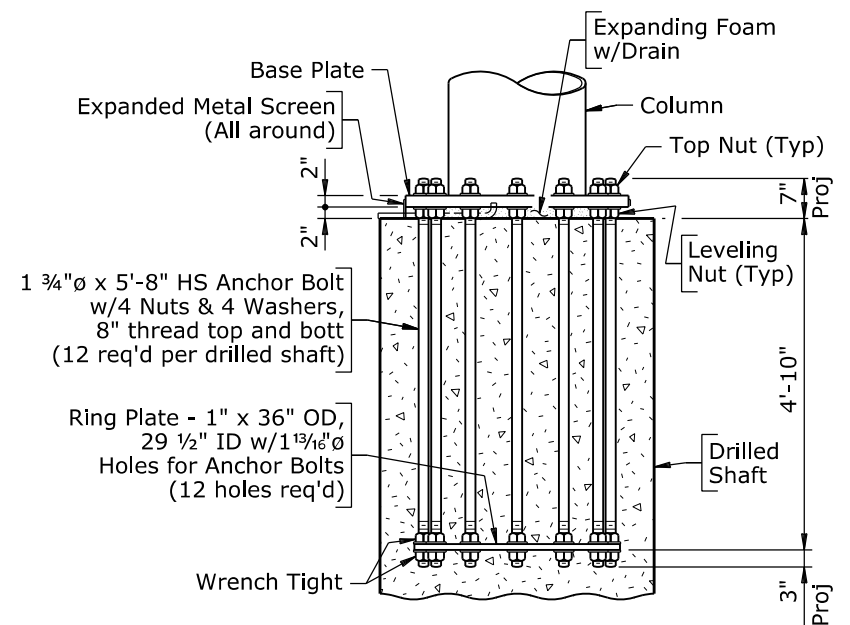
SUBSTRUCTURE DATA	
48"Ø Drilled Shaft Elevations	
Drilled Shafts No. ① & ②	
Top	Bottom
X	X

Note: 1) Extend conduit 9" above top of drilled shaft. Place conduit turnout below anchorage.
 #2) Dynamic message sign dimensions may vary according to sign manufacturer.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS		GENERAL PLAN AND ELEVATION	
DMS_gp_V.dgn			
REVIEW	DESIGN	Design Section	X
APPROVAL	DETAIL	Drwg No. X	Sheet 3 of 14
	QTY'S		



DRILLED SHAFT SECTION
 (2 req'd per structure)



ANCHORAGE DETAIL
 (2 req'd per structure)

COLUMN ASSEMBLY AND HORIZONTAL TUBE ELEVATION
 (Median column shown, shoulder column symmetrical)

BILL OF REINFORCEMENT						
Location	Mark	Number Required	Spiral			
			Mark	Core	Pitch	Turns
Drilled Shafts	4B1	2	4B1	42"	6"	±X.X
	10xx-x	38	±Includes 1 1/2 turns at the top			
	Weight	x LB				

- Note:**
- 1) Attach #6 AWG solid copper wire to drilled shaft reinforcing steel and grounding angle in column.
 - 2) For Sections B-B and C-C and Weld Details A thru C, see Sheet No. 5.
 - 3) For Details A thru C, see Sheet No. 6.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
COLUMN & HORIZONTAL TUBE DETAILS			
DMS_sg01_V.dgn			
REVISIONS	DESIGN	RJR/ X ✓ RHD/ X	Design Section X
	DETAIL	X ✓ X	
	QTY'S	WES/ X ✓ AJM/ X	Drwg No. X
APPROVAL			Sheet 4 of 14

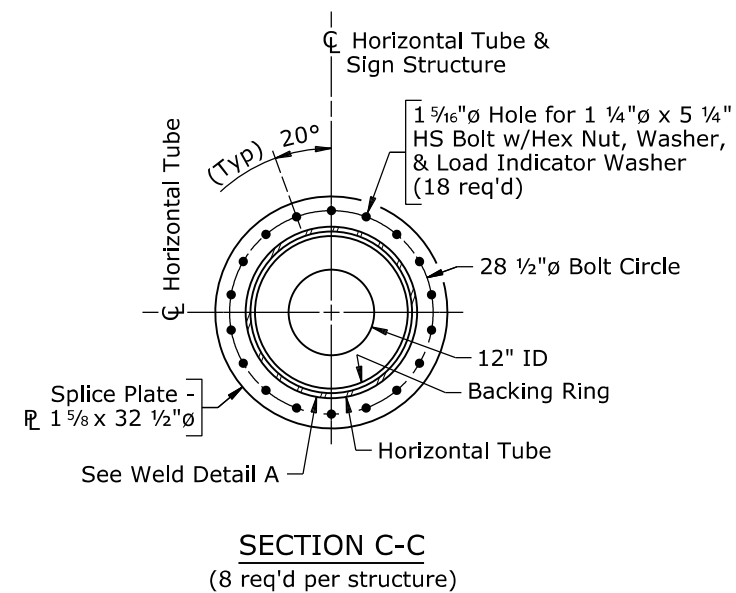
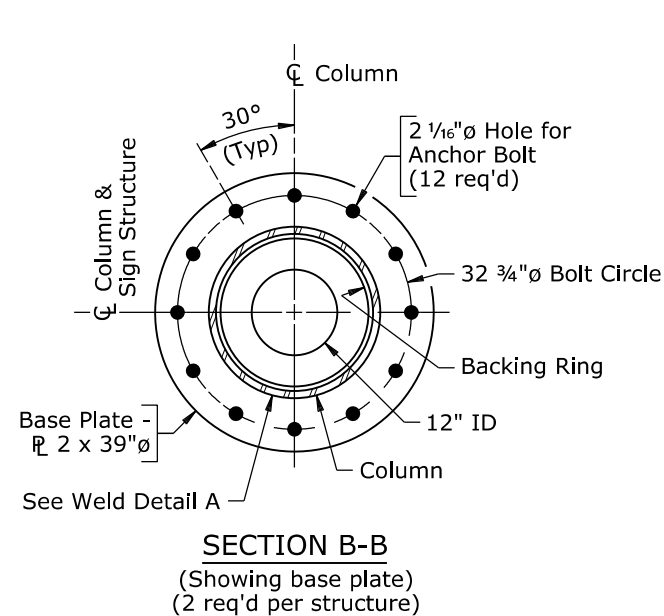
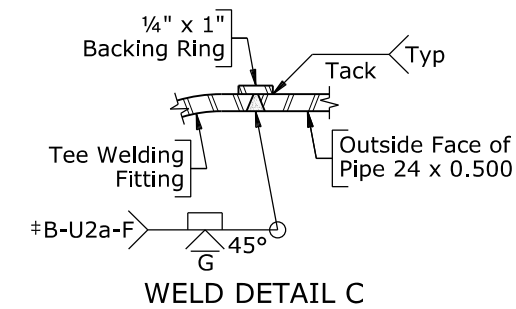
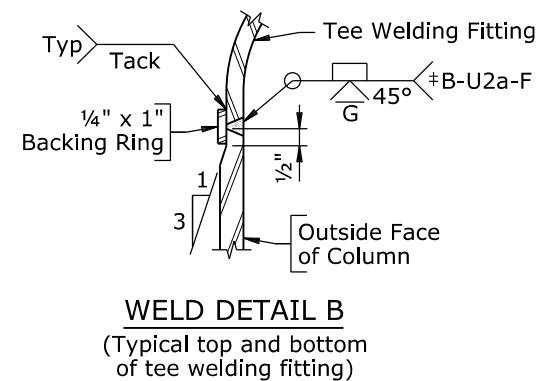
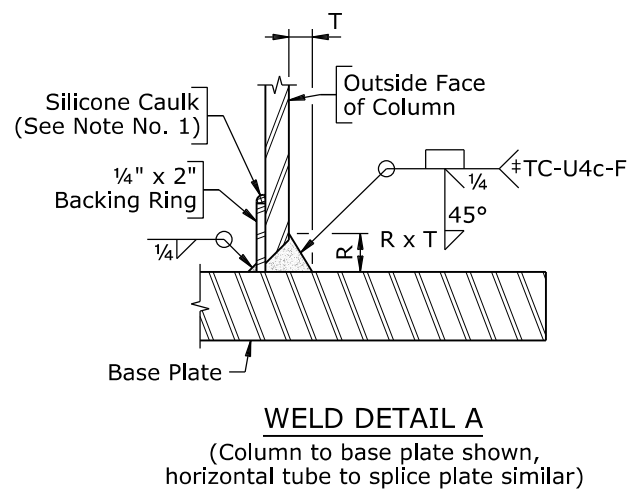
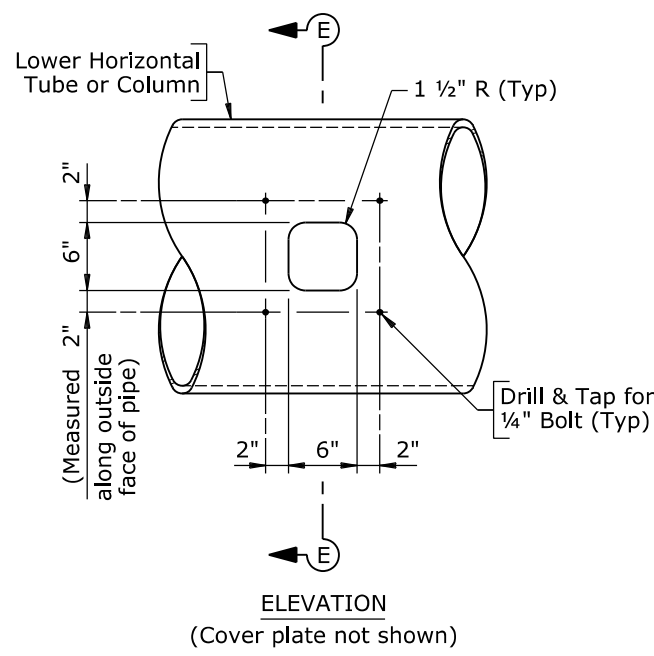


TABLE OF DIMENSIONS (See Weld Detail A)		
Weld Location	T	R
Column to Base Plate	1 1/16"	1 1/8"
Horizontal Tube to Splice Plate	3/8"	13/16"
Pipe 24 x 0.500 to Splice Plate	1/2"	15/16"
Pipe 24 x 0.688 to Splice Plate	1 1/16"	1 1/8"

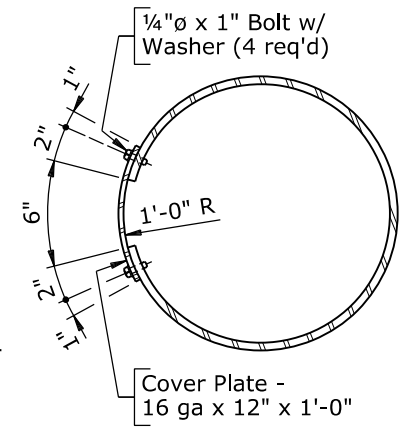


- Note:**
- 1) Field apply exterior grade silicone caulk at top edge of backing ring along entire circumference.
 - 2) Indicated full-penetration welds may be completed using a SAW process. Ensure the fabricator's shop drawings show the proposed weld.
 - 3) For locations of Sections B-B and C-C and Weld Details A thru C, see Sheet No. 4.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS		COLUMN & HORIZONTAL TUBE DETAILS	
DMS_sg02_V.dgn			
DESIGN	RJR ✓ RHD	Design Section	X
DETAIL	X ✓ X	Drwg No.	X
APPROVAL	WES ✓ AJM	Sheet	5 of 14

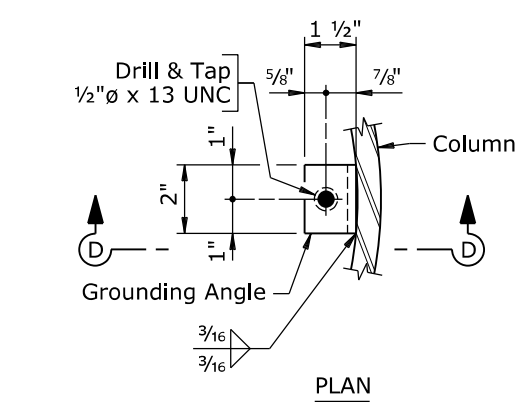


ELEVATION
 (Cover plate not shown)

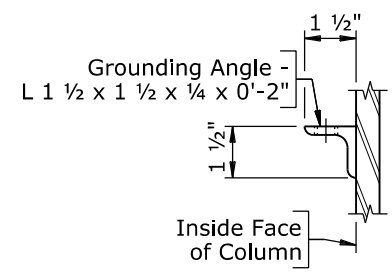


SECTION E-E

HANDHOLE DETAILS
 (7 req'd per structure)

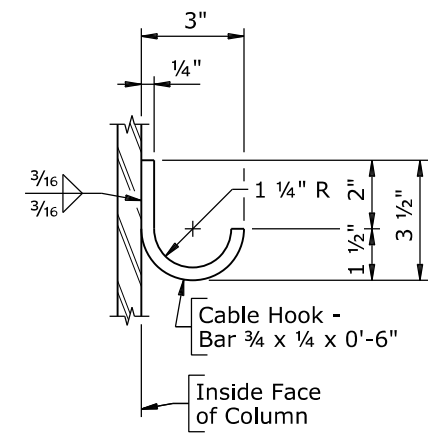


PLAN

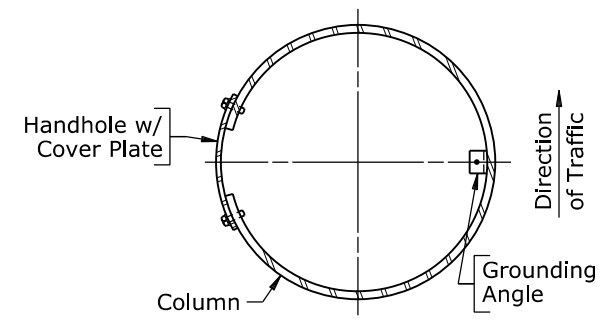


SECTION D-D

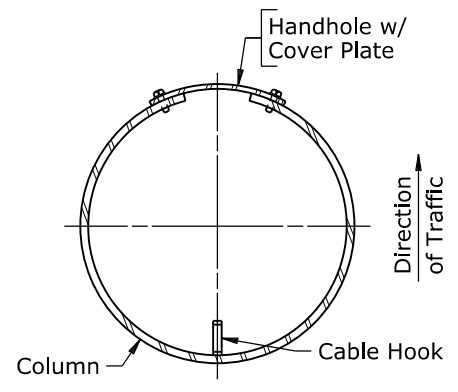
GROUNDING ANGLE DETAILS
 (2 req'd per structure)



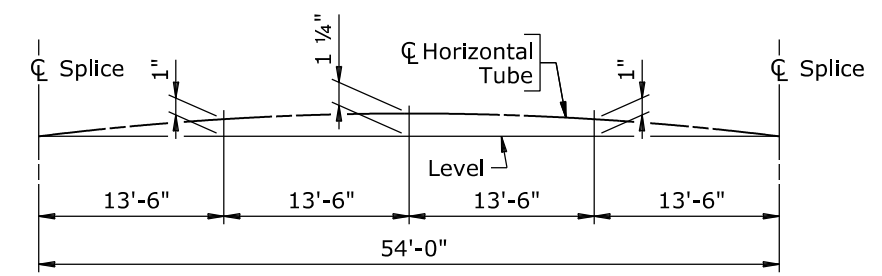
CABLE HOOK DETAIL
 (2 req'd per structure)



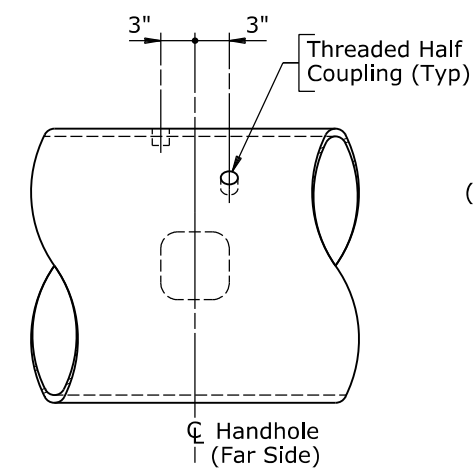
DETAIL A



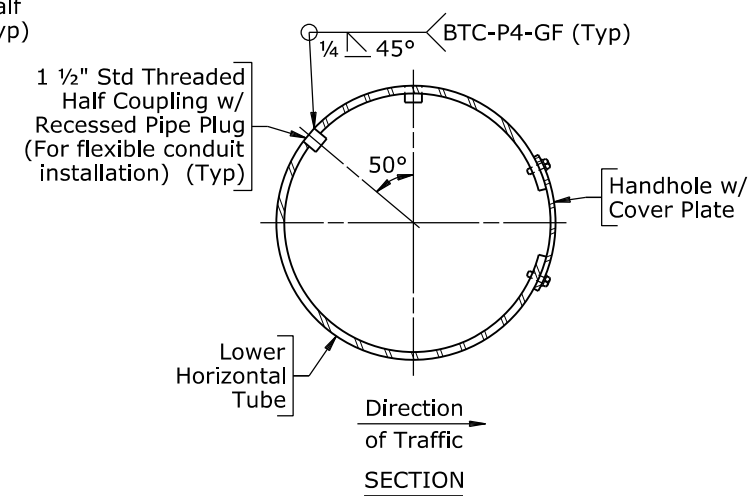
DETAIL B



CAMBER DIAGRAM
 (Typical upper and lower horizontal tubes)



ELEVATION

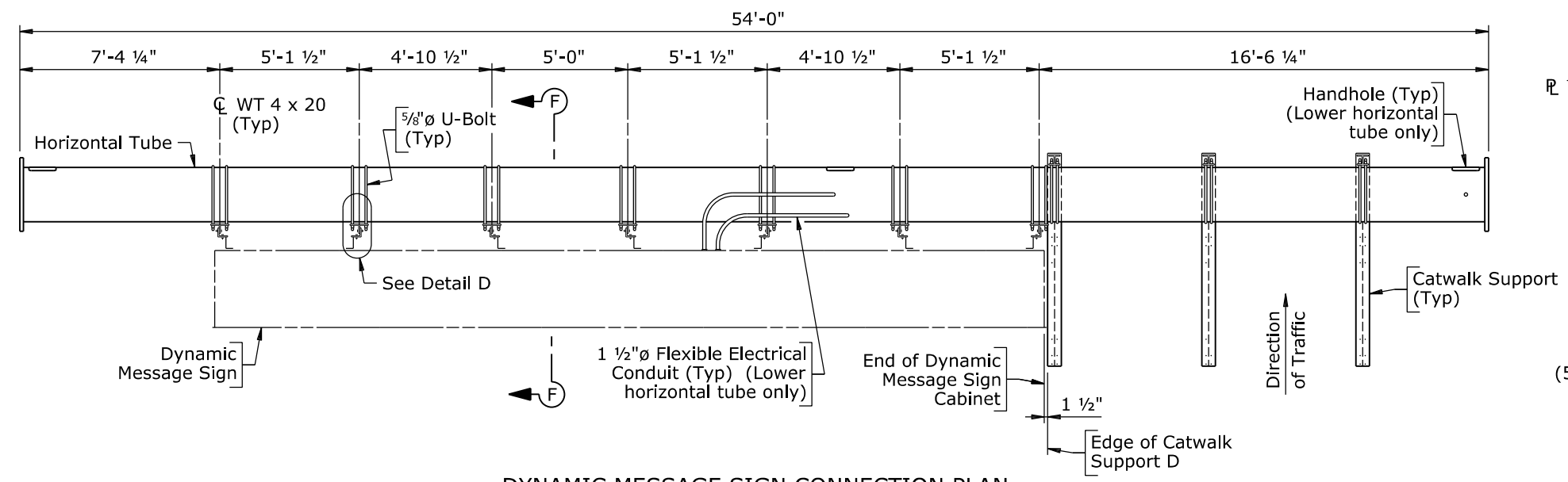


SECTION

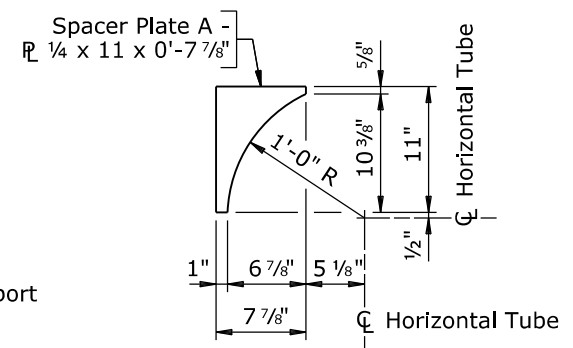
DETAIL C

Note: For location of Details A thru C, see Sheet No. 4.

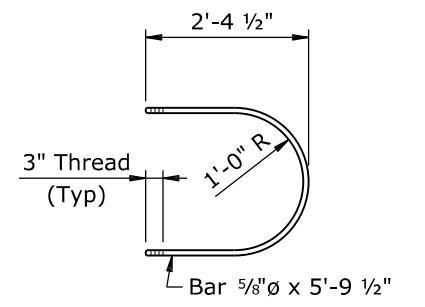
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BRIDGE PROGRAM			
REVISIONS			
COLUMN & HORIZONTAL TUBE DETAILS			
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REVIEW	DESIGN	Design Section	X
APPROVAL	DETAIL	Drwg No. X	Sheet 6 of 14
	QTY'S		



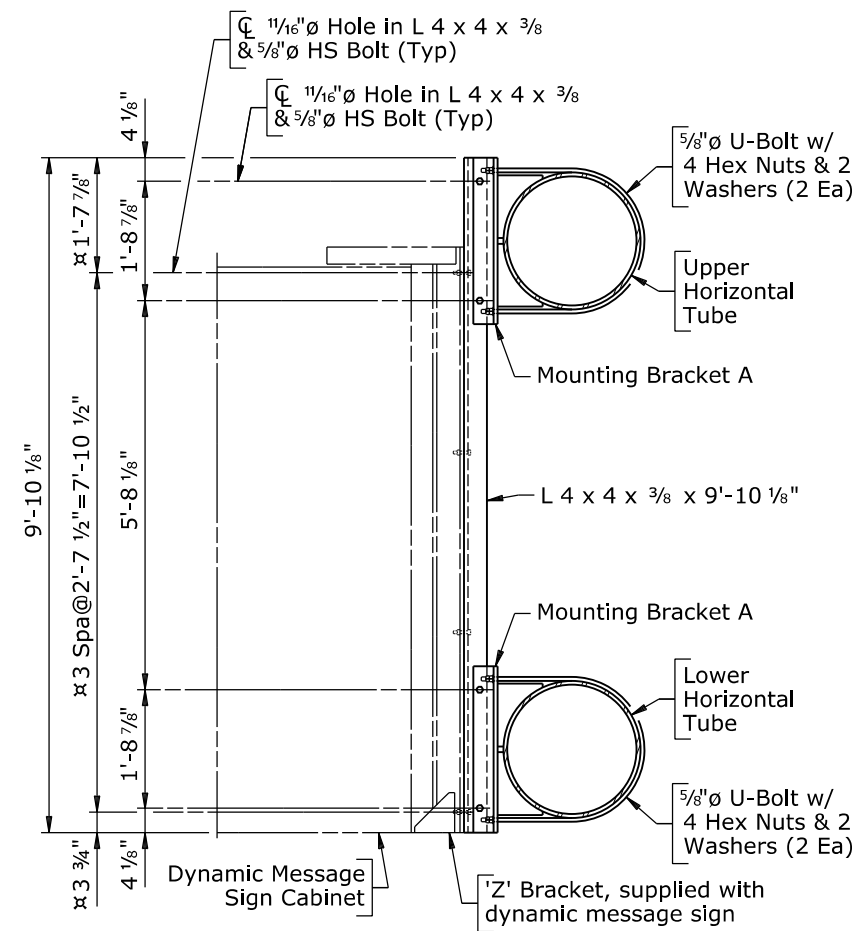
DYNAMIC MESSAGE SIGN CONNECTION PLAN



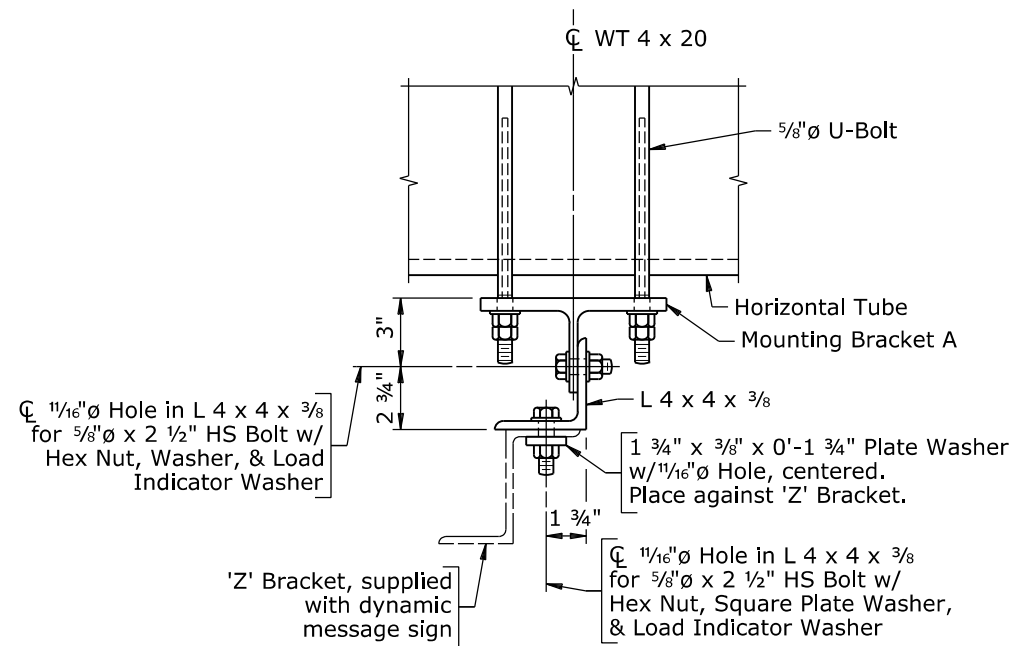
SPACER PLATE A DETAIL
 (56 req'd per structure at sign mounting)
 (36 req'd per structure at catwalk)



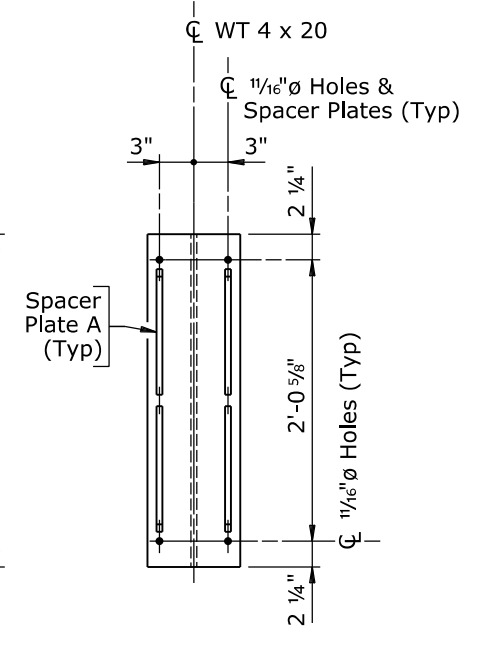
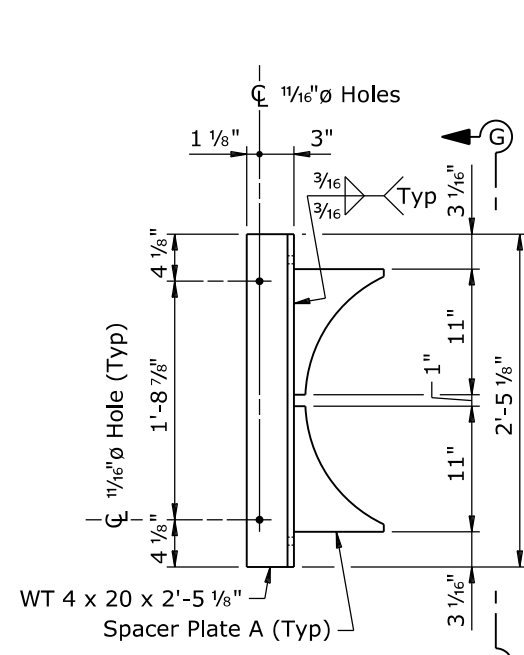
U-BOLT DETAIL
 (28 req'd per structure at sign mounting)
 (20 req'd per structure at catwalk)
 (5 req'd per structure at ladder)



SECTION F-F
 (7 req'd per structure)



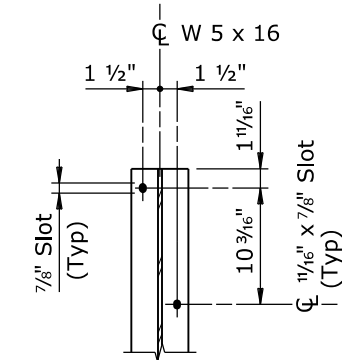
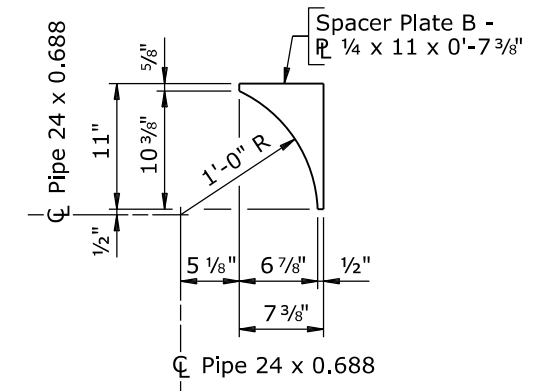
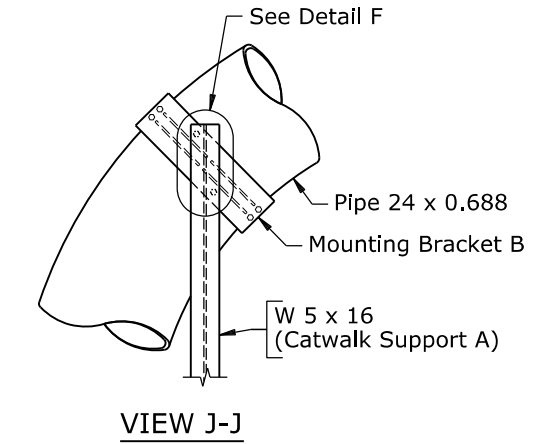
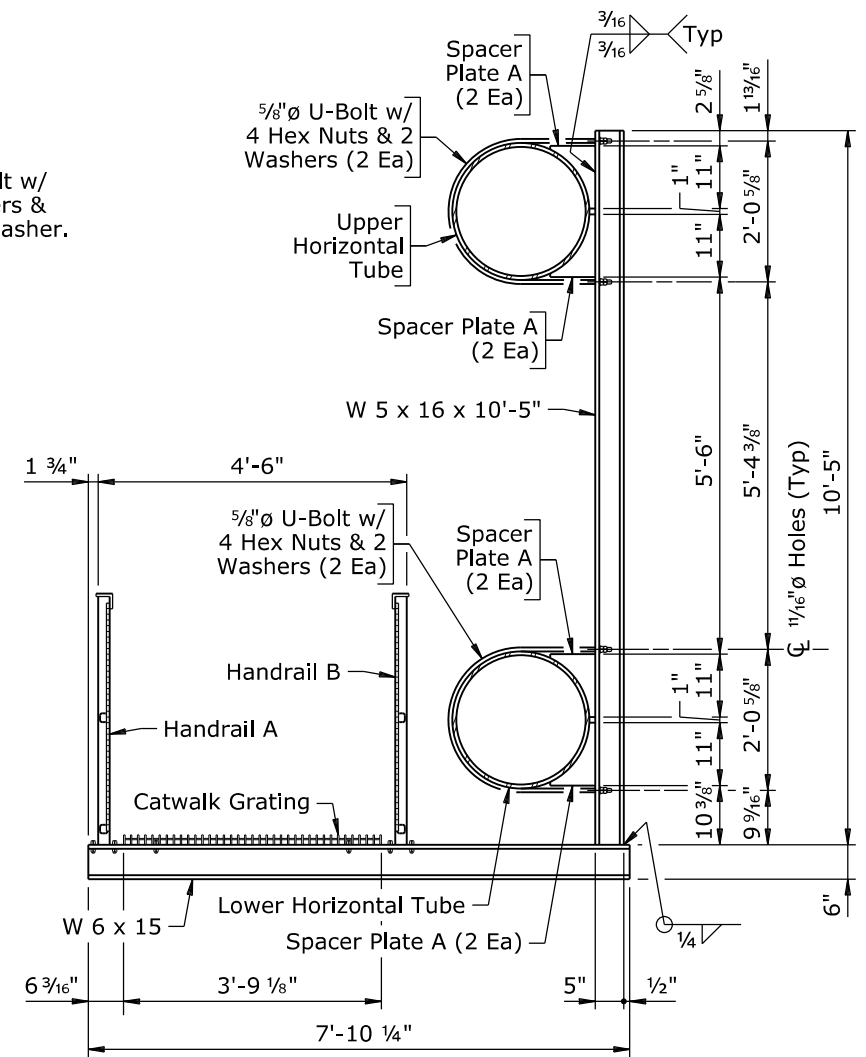
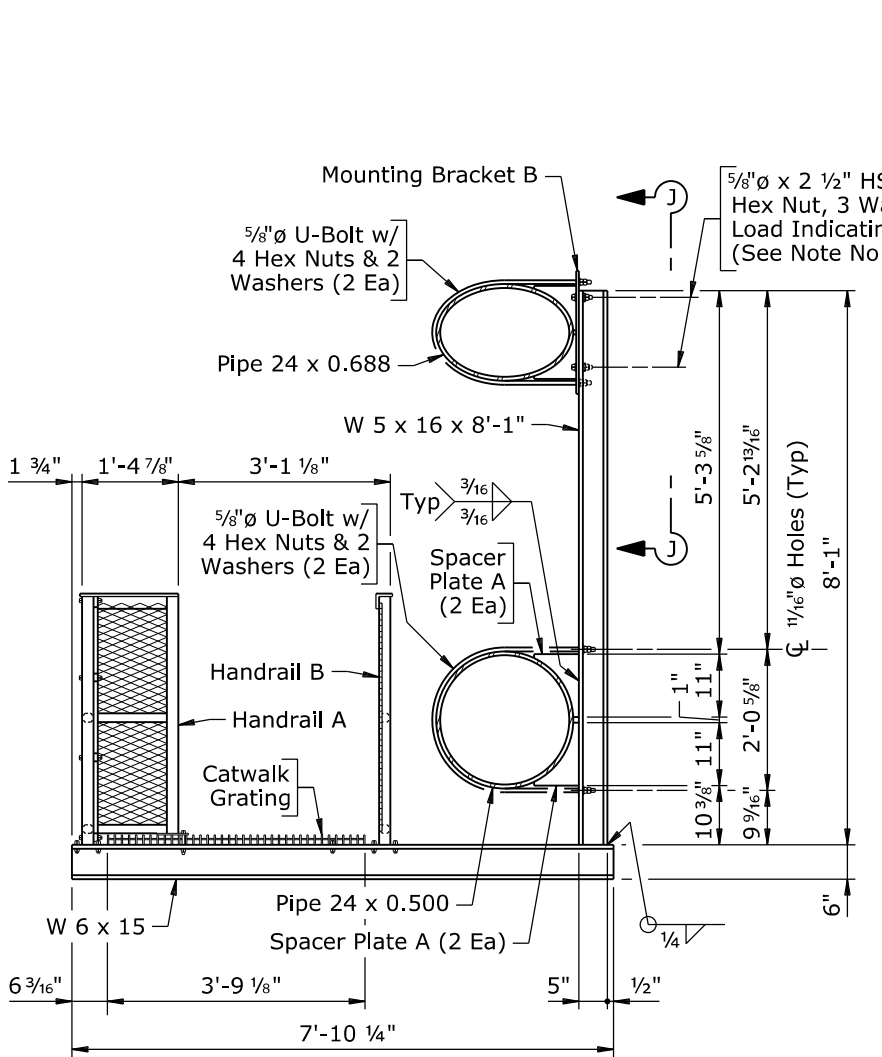
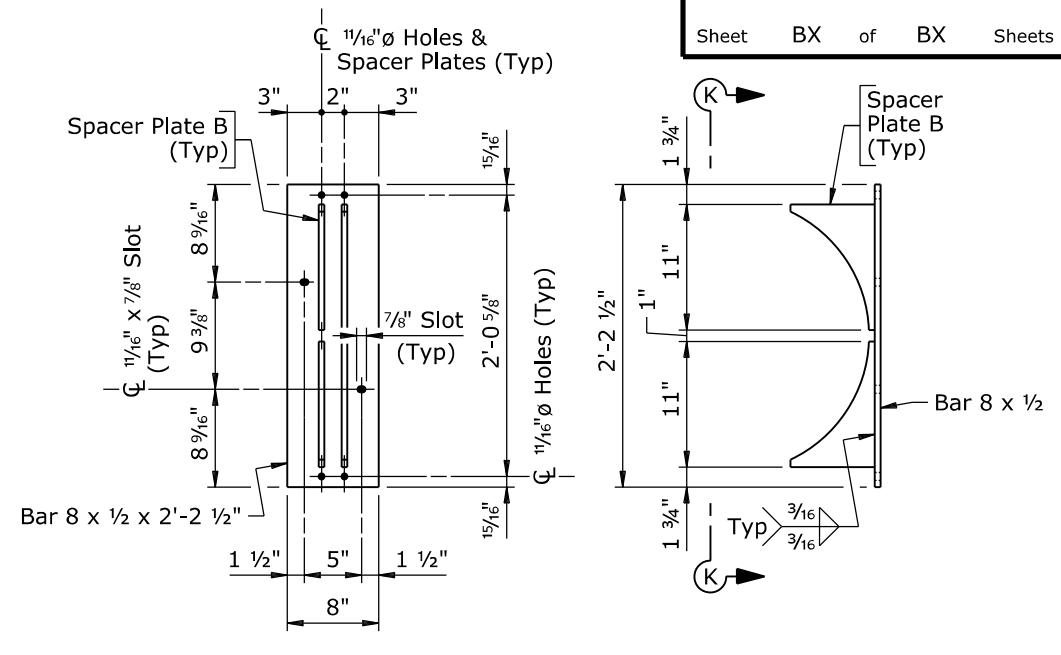
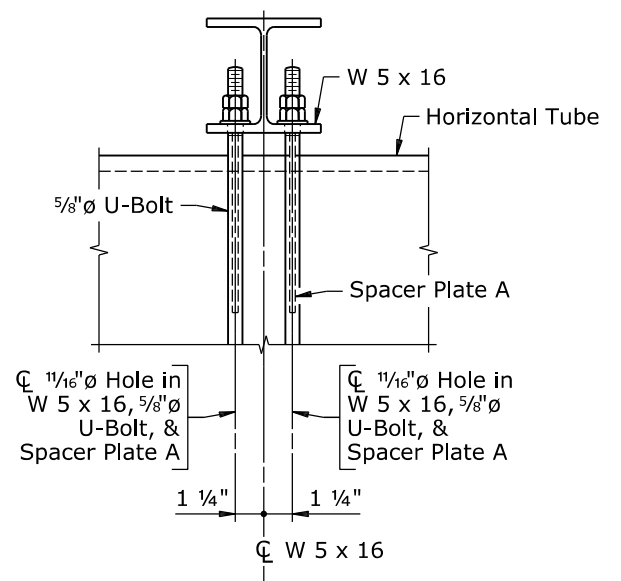
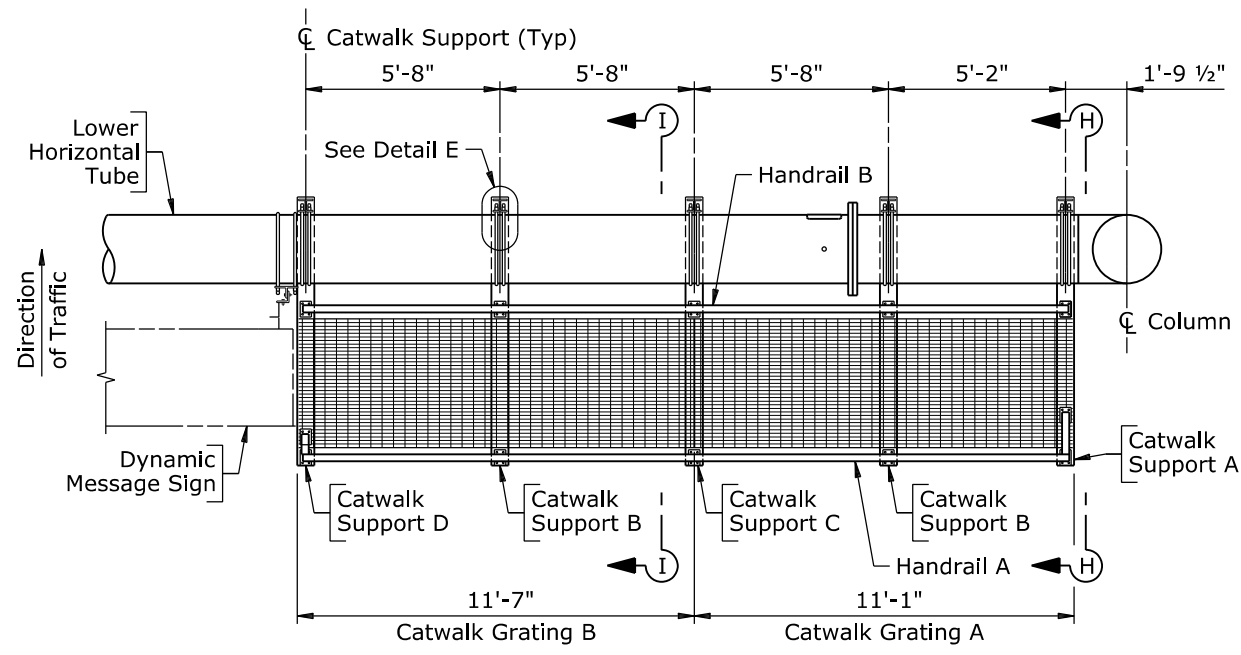
DETAIL D



MOUNTING BRACKET A DETAILS
 (14 req'd per structure)

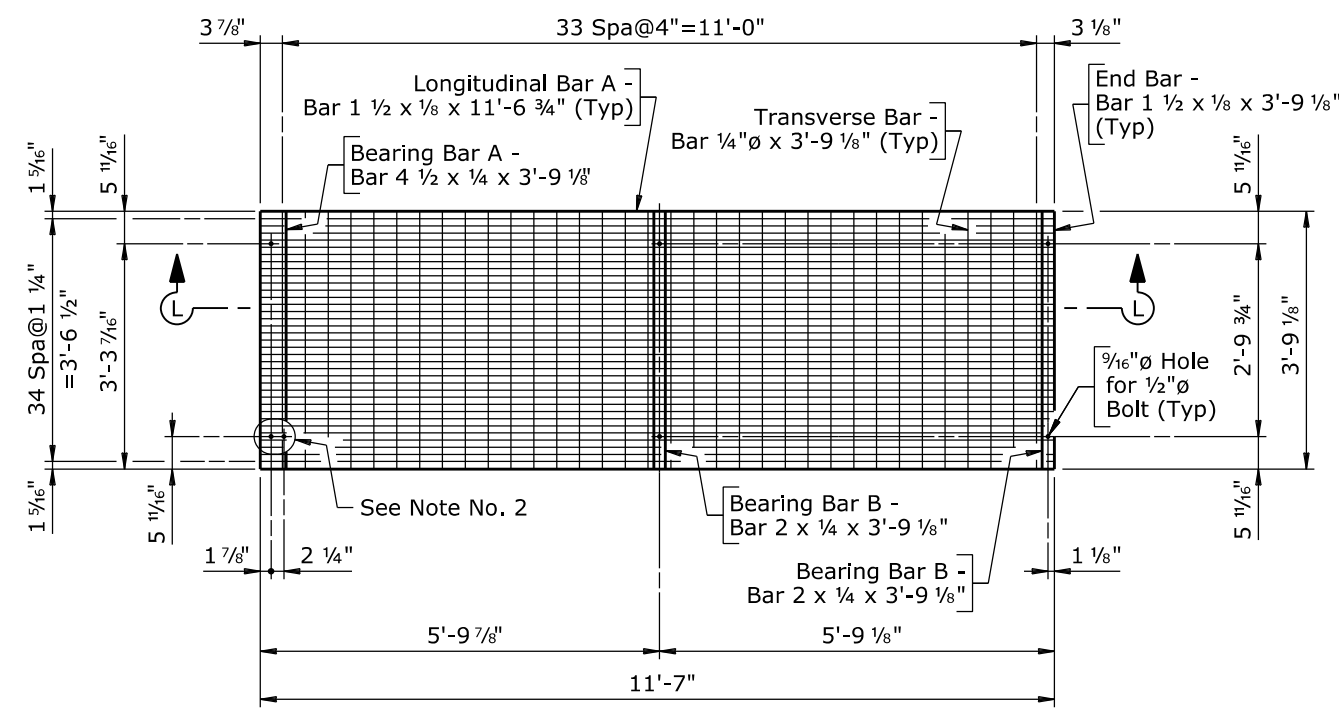
- Note:**
- 1) Terminate welds 1/4" from edge of members, except all-around welds.
 - 2) Verify 'Z' bracket mounting bolt spacing with dynamic message sign manufacturer before fabrication.
 - 3) Adjust spacing of dynamic message sign mounting assemblies as required to match actual sign bracket locations.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
SIGN MOUNTING DETAILS			
DMS_sg04_V.dgn			
REVISIONS	DESIGN	RJR ✓ RHD	Design Section X
	DETAIL	X ✓ X	
	QTY'S	WES ✓ AJM	Drwg No. X
APPROVAL			Sheet 7 of 14

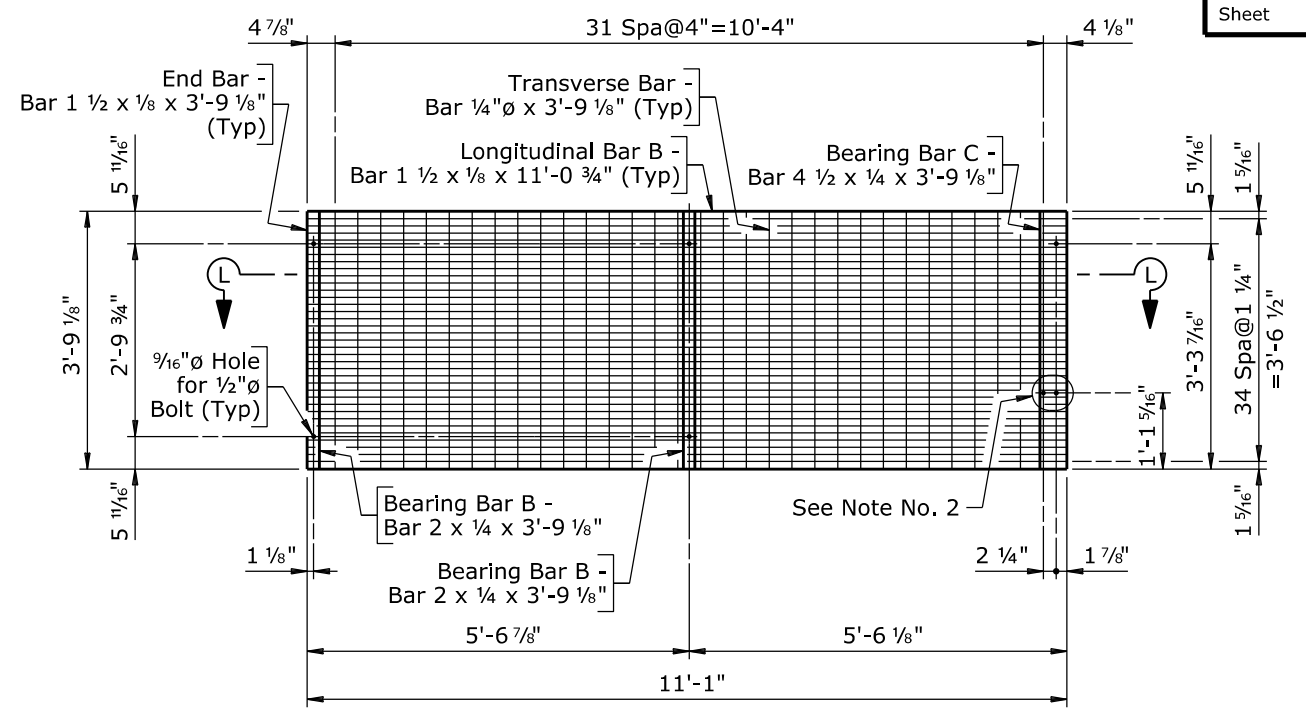


- Note:**
- 1) Terminate welds 1/4" from edge of members, except all-around welds.
 - 2) At bolted connection for Mounting Bracket B, place one washer under bolt head and place load indicating washer between two washers under nut.
 - 3) For Spacer Plate A Detail and U-Bolt Detail, see Sheet No. 7.

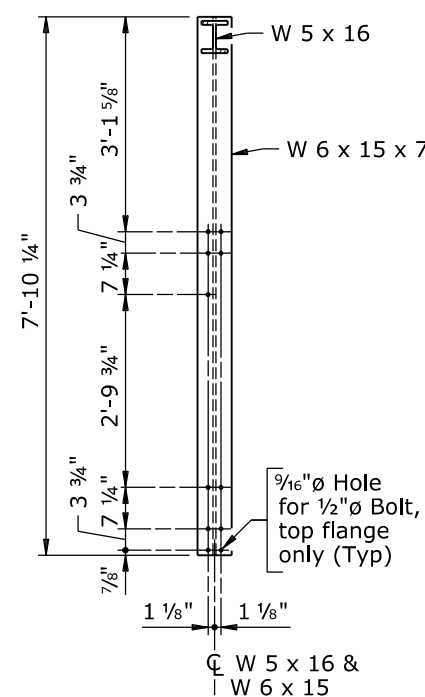
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
CATWALK DETAILS			
DMS_sg05_V.dgn			
REVISIONS	DESIGN	RJR ✓ RHD	Design Section X
	DETAIL	X ✓ X	
	QTY'S	WES ✓ AJM	Drwg No. X Sheet 8 of 14
APPROVAL			



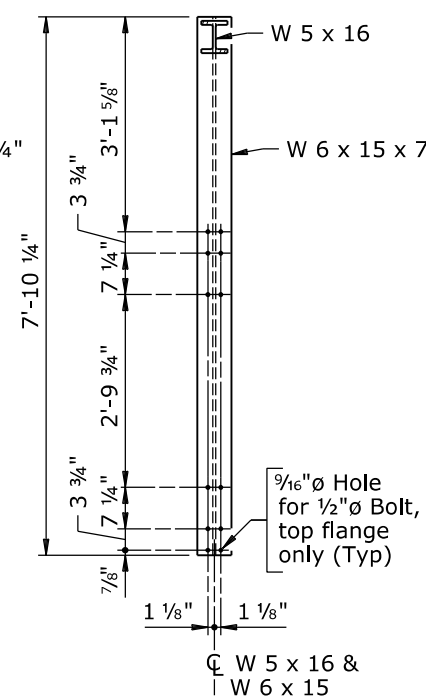
CATWALK GRATING B PLAN
 (1 req'd per structure)



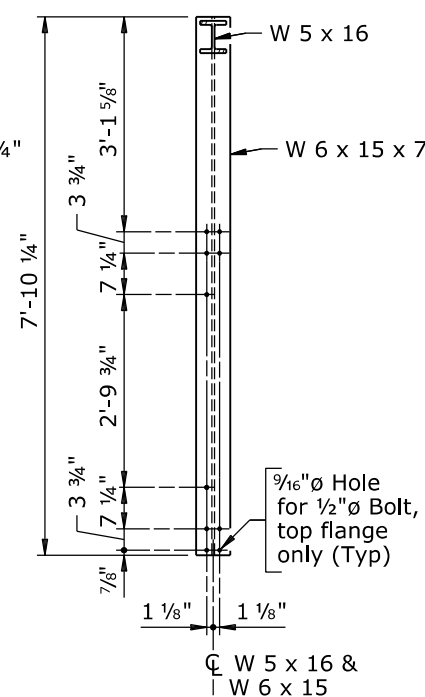
CATWALK GRATING A PLAN
 (1 req'd per structure)



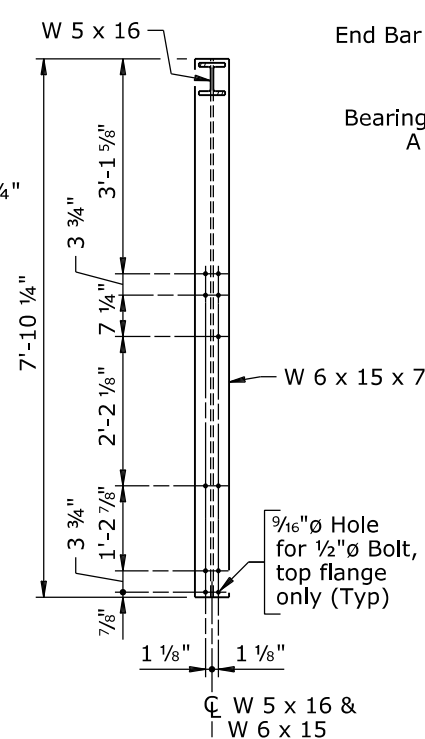
CATWALK SUPPORT D PLAN
 (1 req'd per structure)



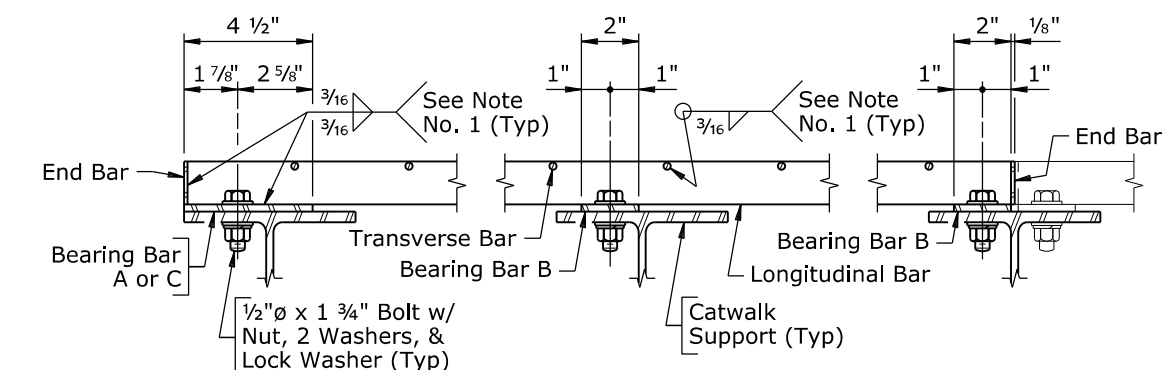
CATWALK SUPPORT C PLAN
 (1 req'd per structure)



CATWALK SUPPORT B PLAN
 (2 req'd per structure)



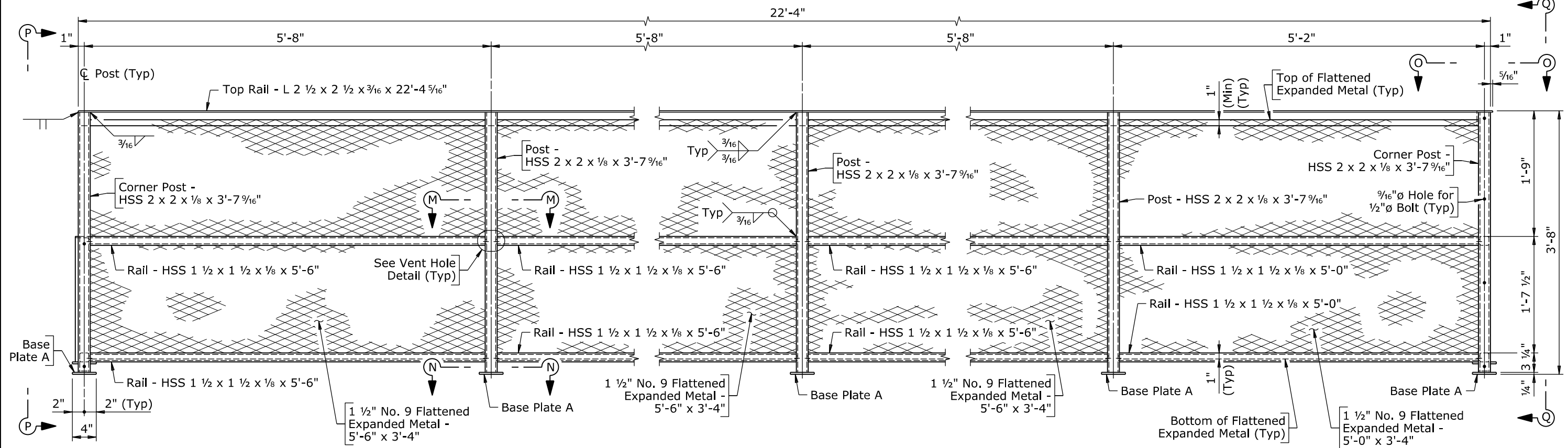
CATWALK SUPPORT A PLAN
 (1 req'd per structure)



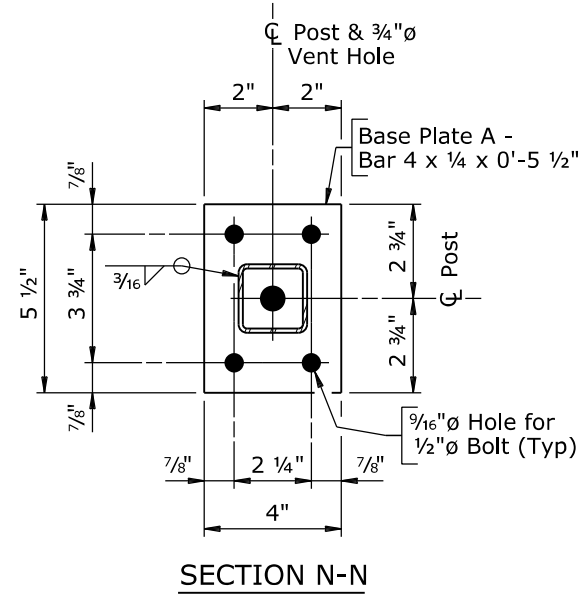
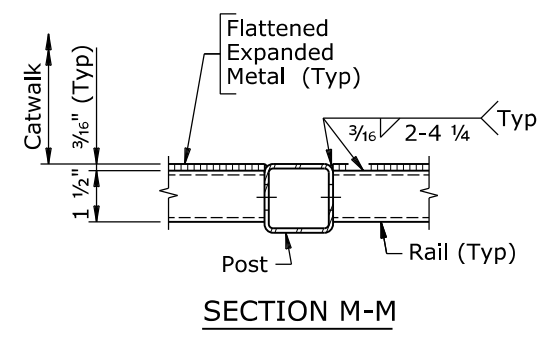
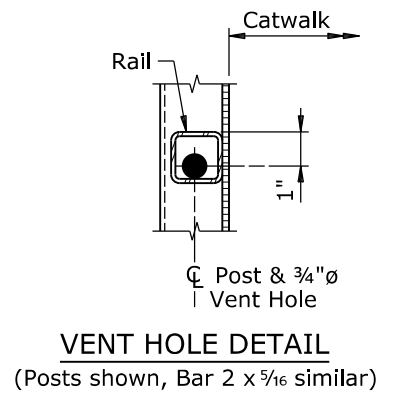
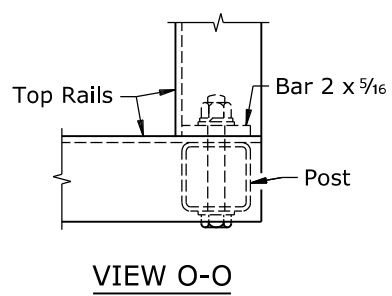
SECTION L-L
 (Catwalk grating B shown, catwalk grating A similar)

- Note:**
- 1) Weld outer and every sixth inner longitudinal bars to end bars and bearing bars. Weld transverse bars to outer and every sixth inner longitudinal bars. Stagger welds to ensure all components are rigid and securely braced.
 - 2) Trim transverse bar between longitudinal bars as required to allow for installation of handrail bolts.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
CATWALK DETAILS			
DMS_sg06_V.dgn			
REVISIONS	DESIGN	RJR ✓ RHD	Design Section X
	DETAIL	X ✓ X	
	QTY'S	WES ✓ AJM	Drwg No. X
APPROVAL			Sheet 9 of 14

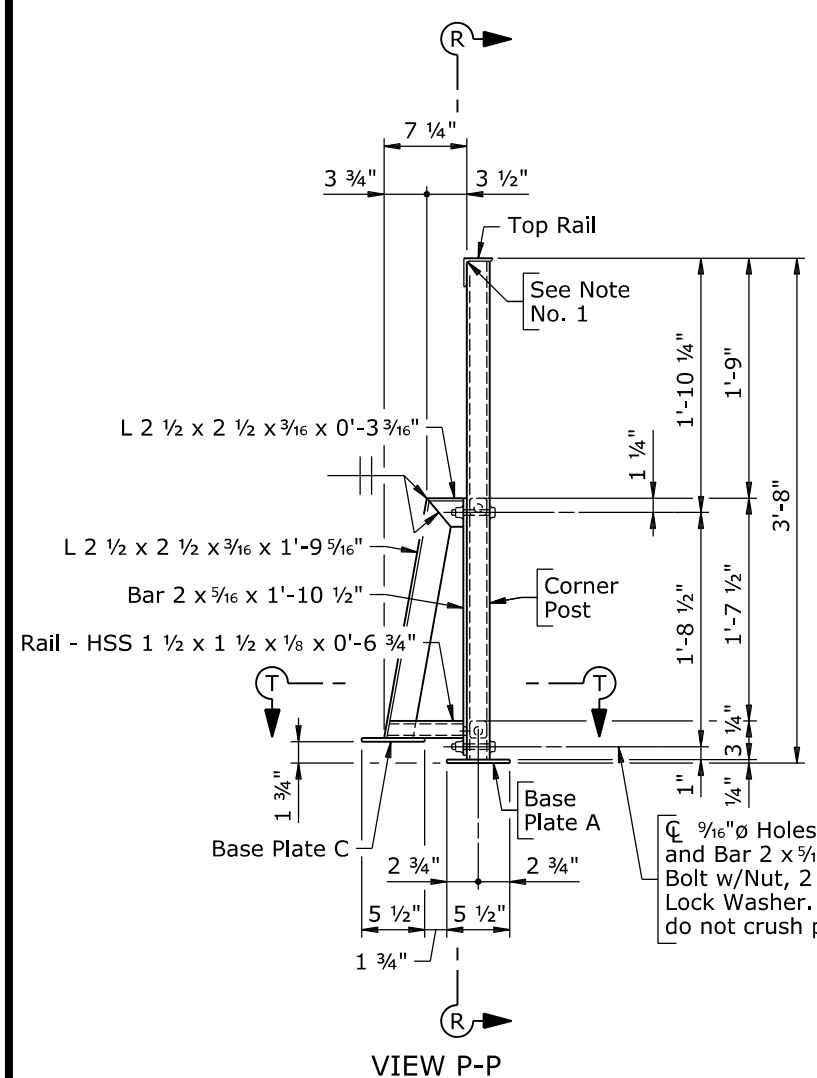


HANDRAIL A ELEVATION
 (Looking towards \bar{C} Sign Structure)
 (1 req'd per structure)

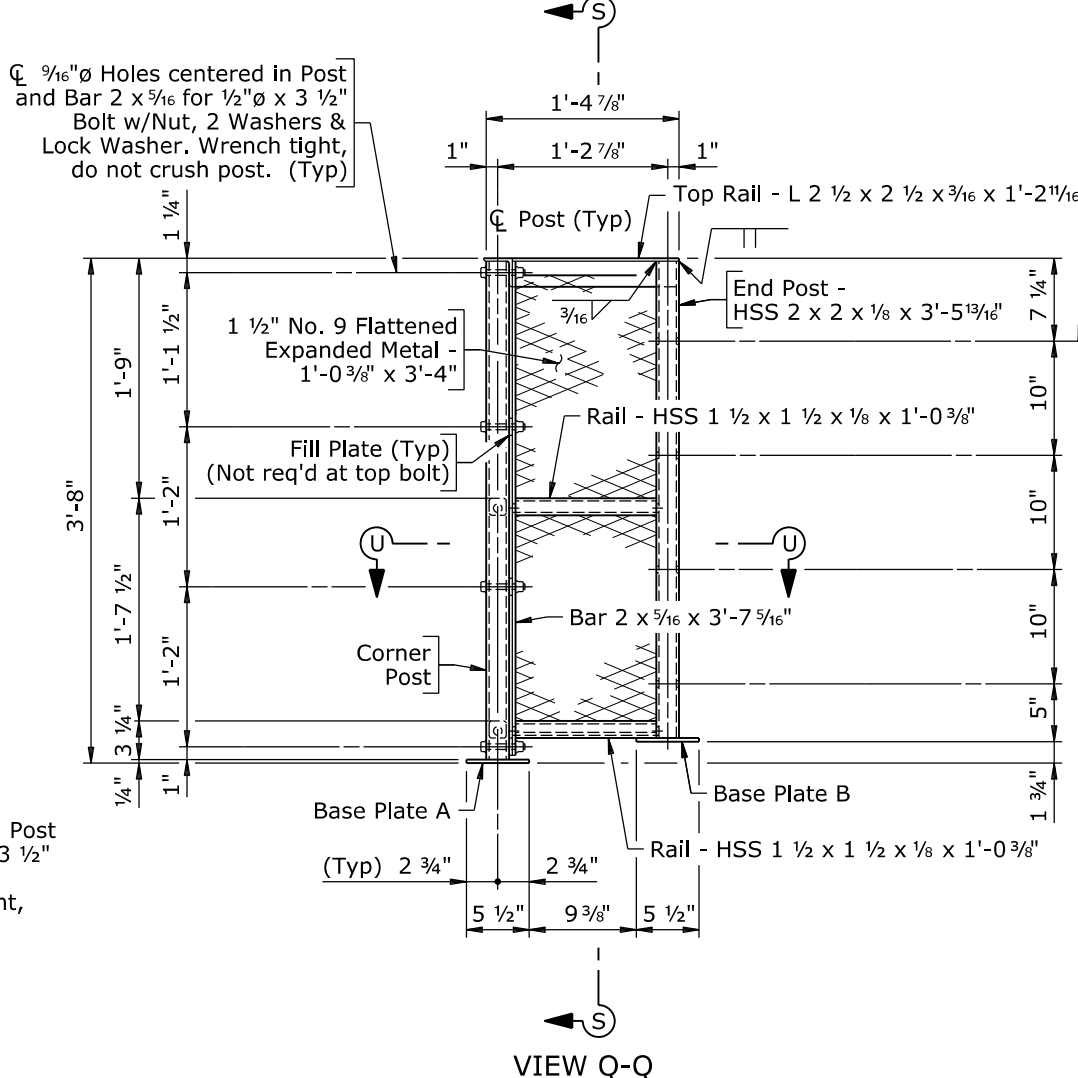


- Note:**
- 1) Ensure flattened expanded metal is continuous top to bottom.
 - 2) Secure Base Plate A to catwalk supports using 1/2" ϕ x 1 3/4" bolts with a nut, 2 washers, and 1 lock washer per bolt.
 - 3) For Views P-P and Q-Q, see Sheet No. 11.

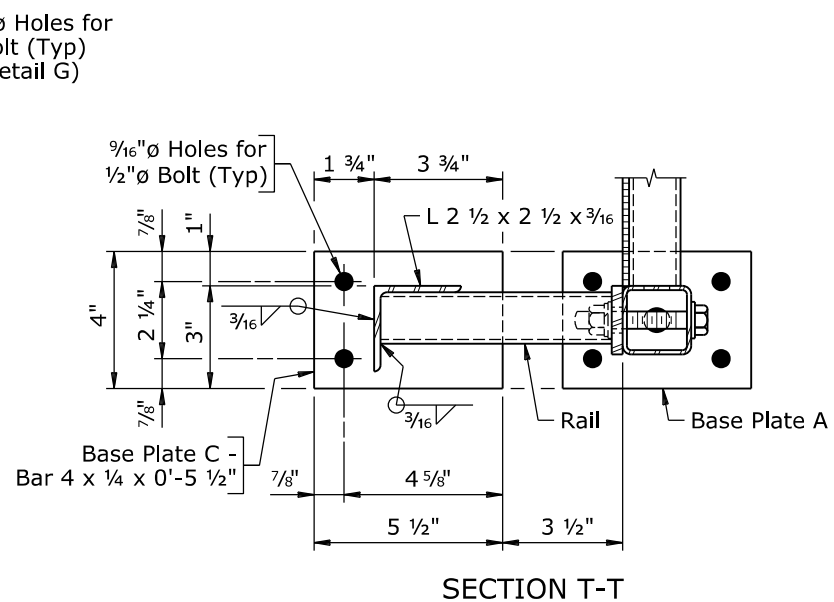
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS		HANDRAIL DETAILS	
DMS_sg07_V.dgn			
DESIGN	RJR ✓ RHD	Design Section	X
DETAIL	X ✓ X	Drwg No.	X
APPROVAL	WES ✓ AJM	Sheet	10 of 14



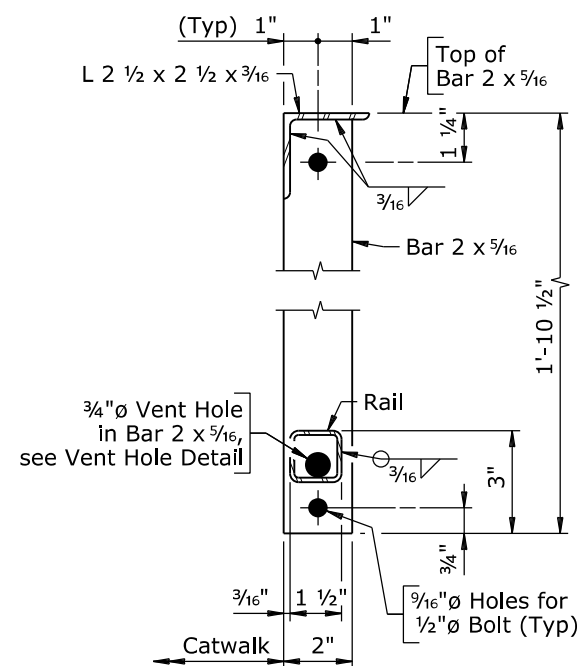
VIEW P-P



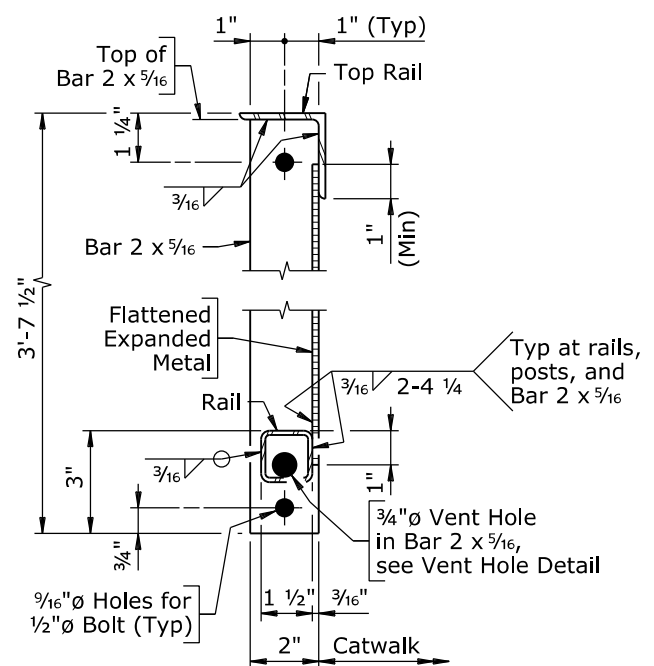
VIEW Q-Q



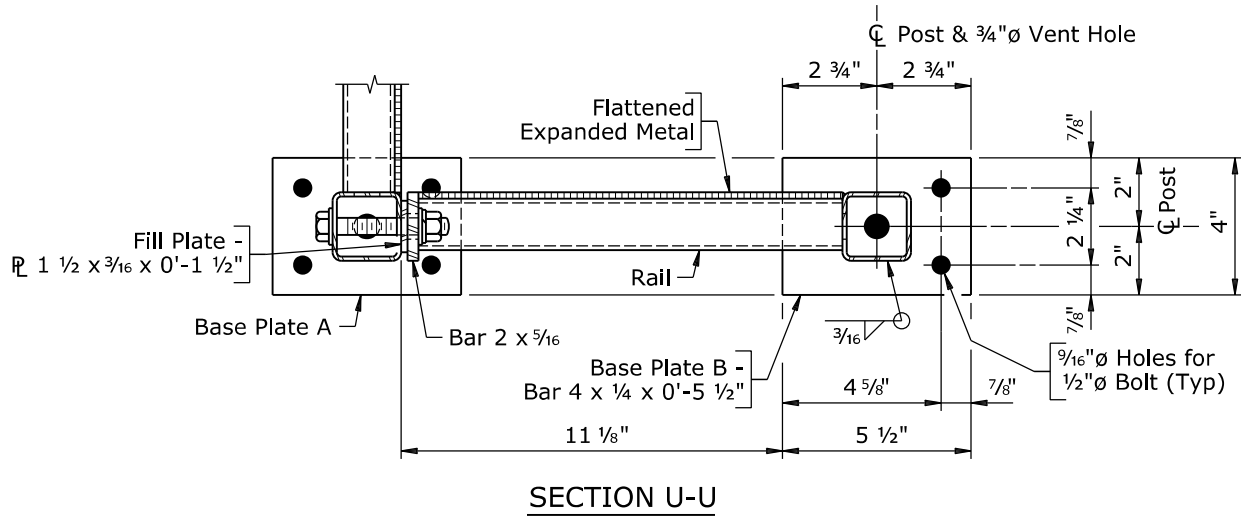
SECTION T-T



SECTION R-R
 (Post and bolts not shown)



SECTION S-S
 (Post and bolts not shown)



SECTION U-U

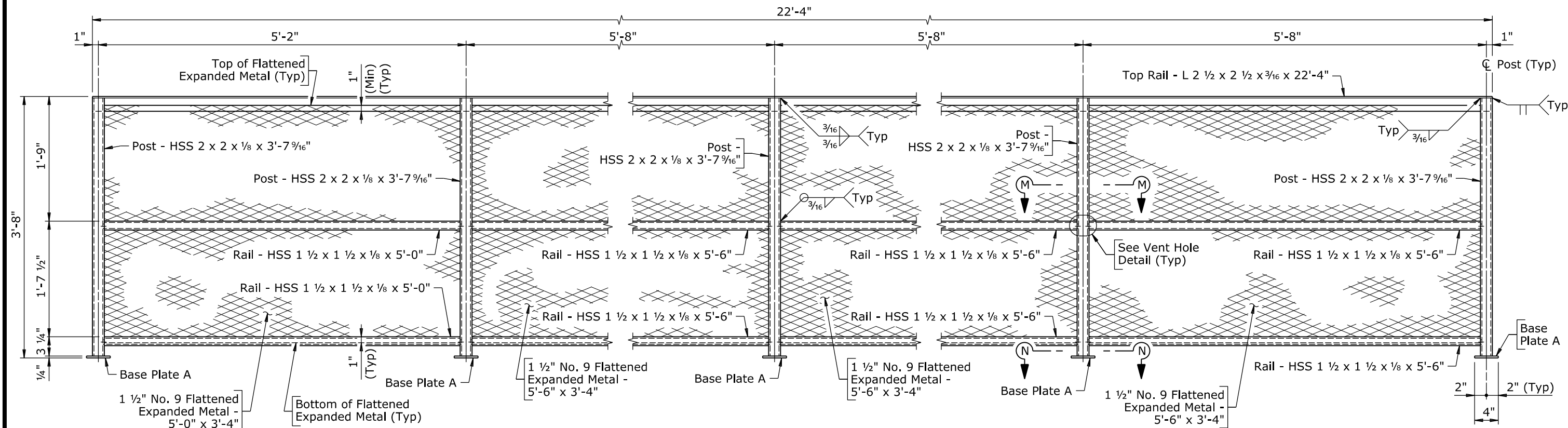
1/16"Ø Holes centered in Post and Bar 2 x 5/16 for 1/2"Ø x 3 1/2" Bolt w/Nut, 2 Washers & Lock Washer. Wrench tight, do not crush post. (Typ)

1/16"Ø Holes for 1/2"Ø Bolt (Typ) (See Detail G)

1/16"Ø Holes centered in Post and Bar 2 x 5/16 for 1/2"Ø x 3 1/2" Bolt w/Nut, 2 Washers & Lock Washer. Wrench tight, do not crush post. (Typ)

- Note:
- 1) Bevel top of posts to ensure top rail is flush with top and face of post.
 - 2) Secure Base Plates B & C to catwalk supports using 1/2"Ø x 3 1/2" bolts with a nut, 2 washers, and 1 lock washer per bolt.
 - 3) For Vent Hole Detail and location of Views P-P and Q-Q, see Sheet No. 10.
 - 4) For Detail G, see Sheet No. 13.

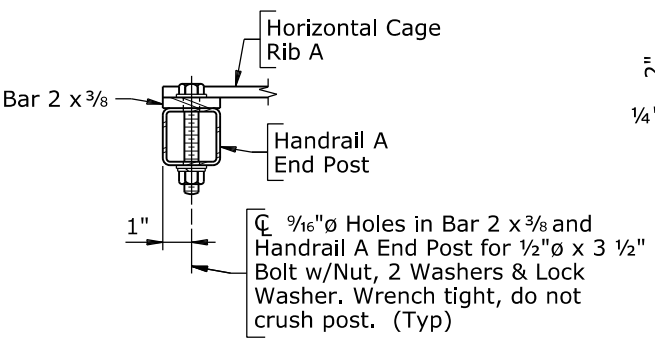
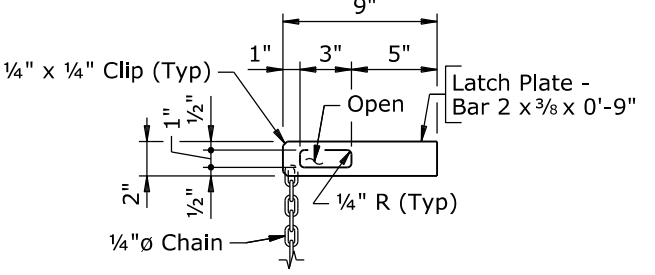
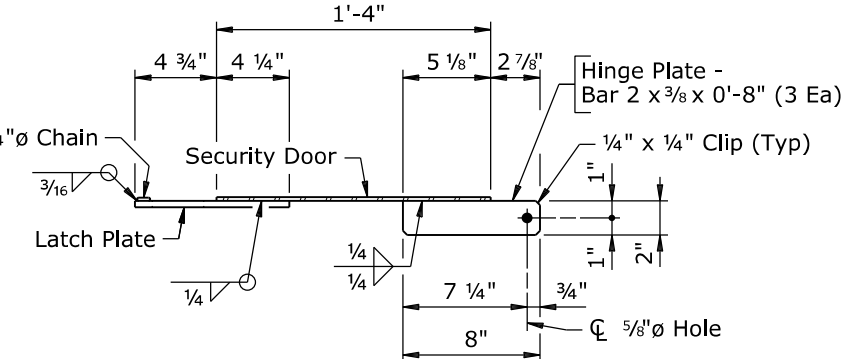
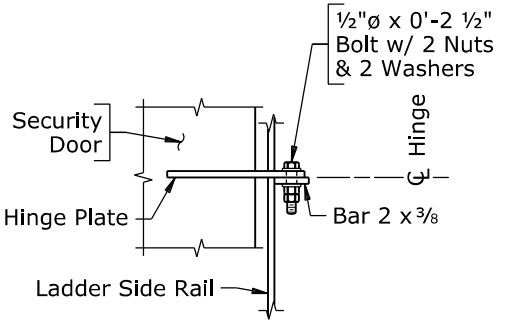
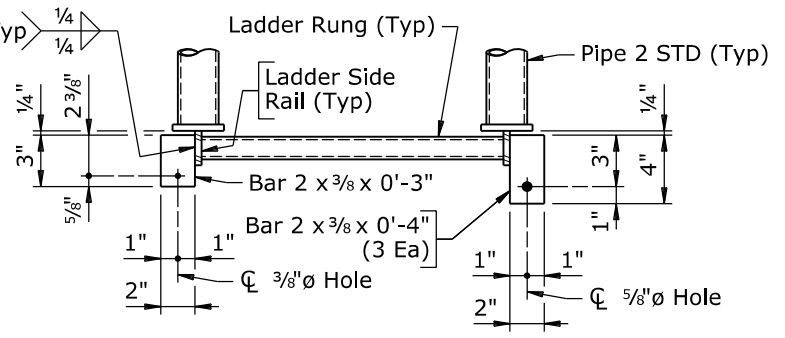
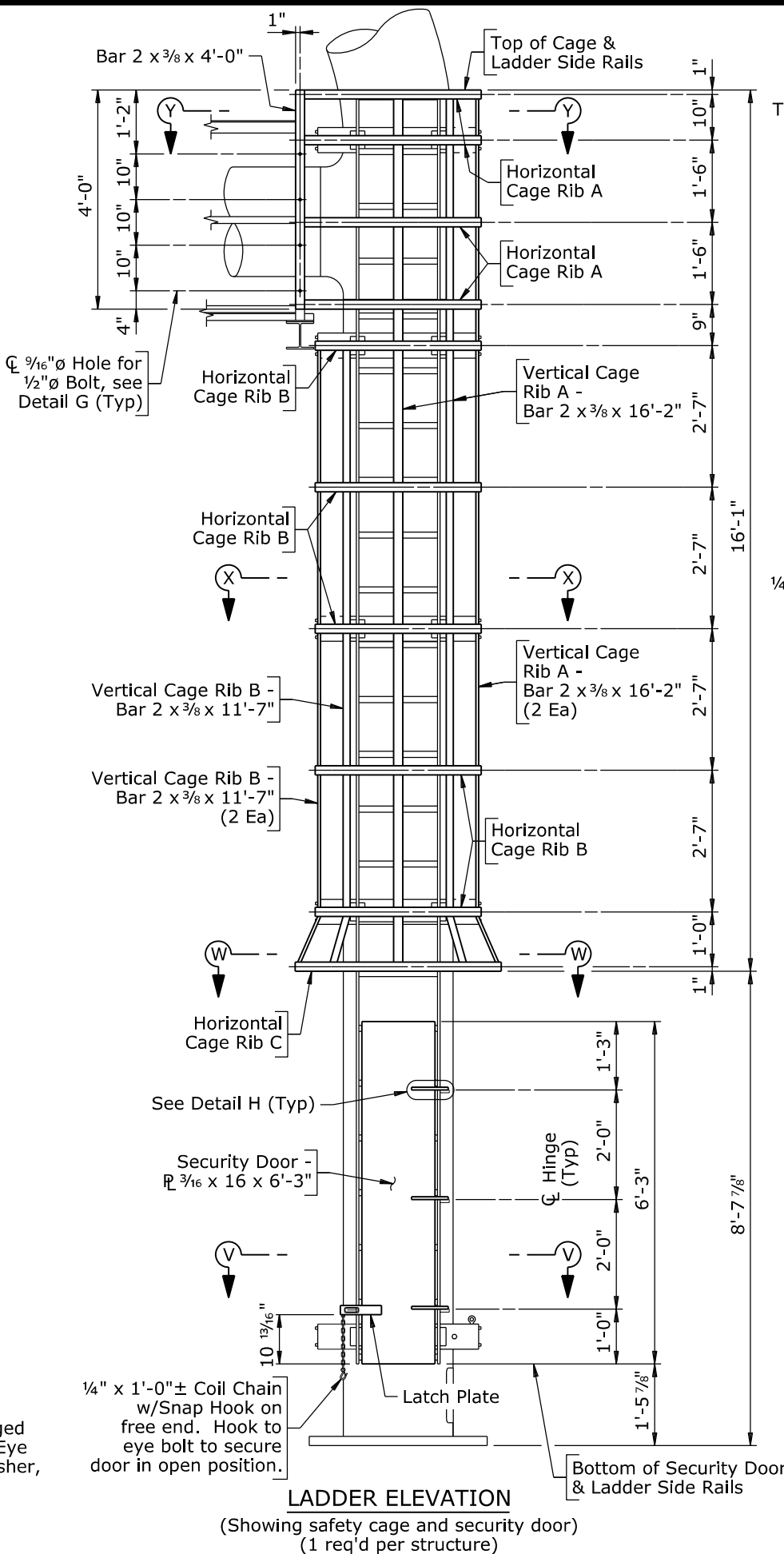
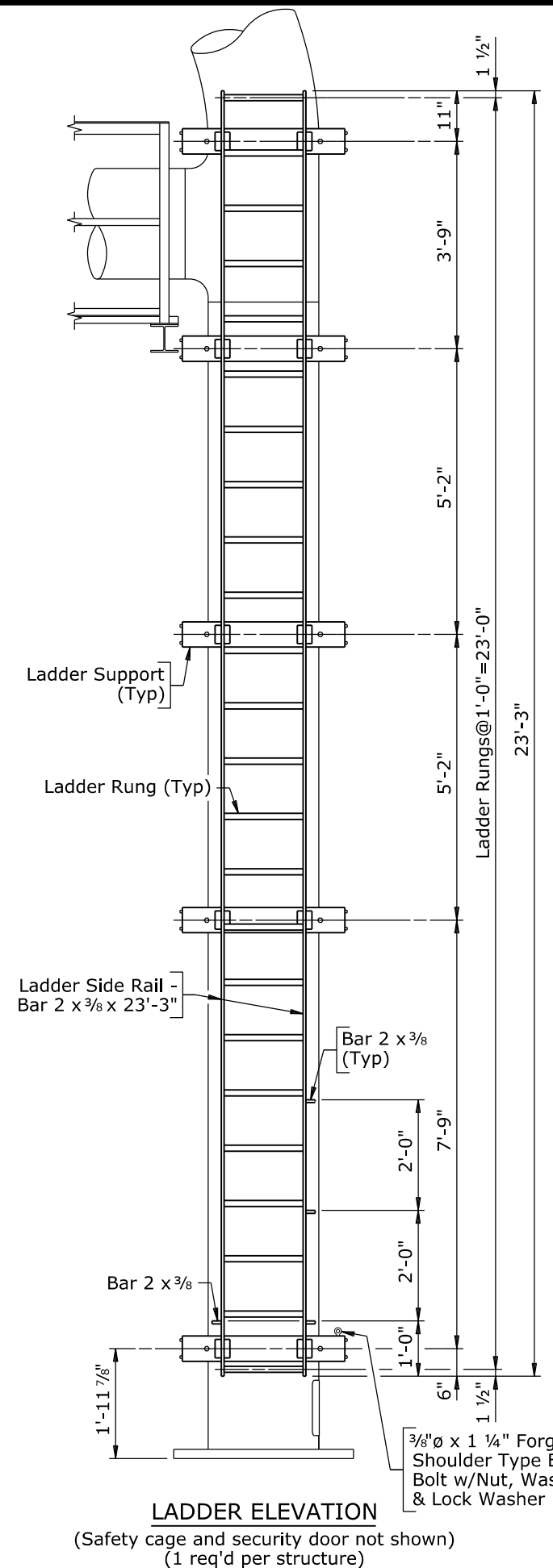
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
HANDRAIL DETAILS			
DMS_sg08_V.dgn			
REVISIONS	DESIGN	RJR ✓ RHD	Design Section X
	DETAIL	X ✓ X	
	QTY'S	WES ✓ AJM	Drwg No. X
APPROVAL			Sheet 11 of 14



HANDRAIL B ELEVATION
 (Looking away from \bar{C} Sign Structure)
 (1 req'd per structure)

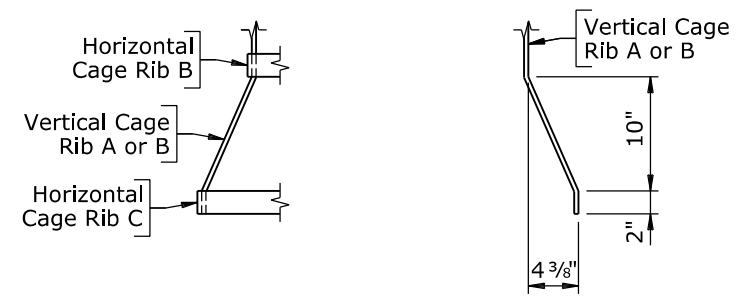
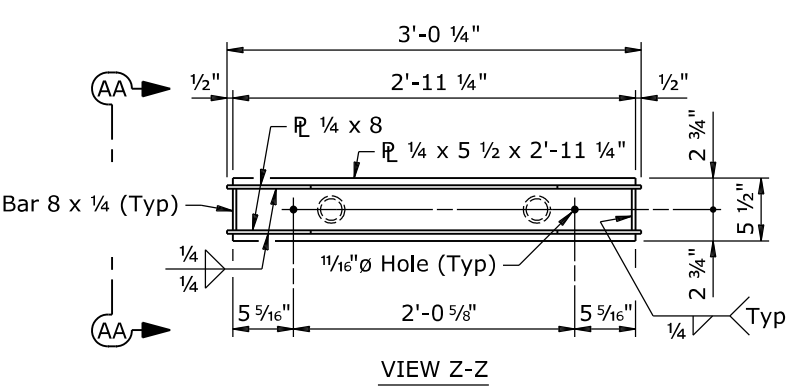
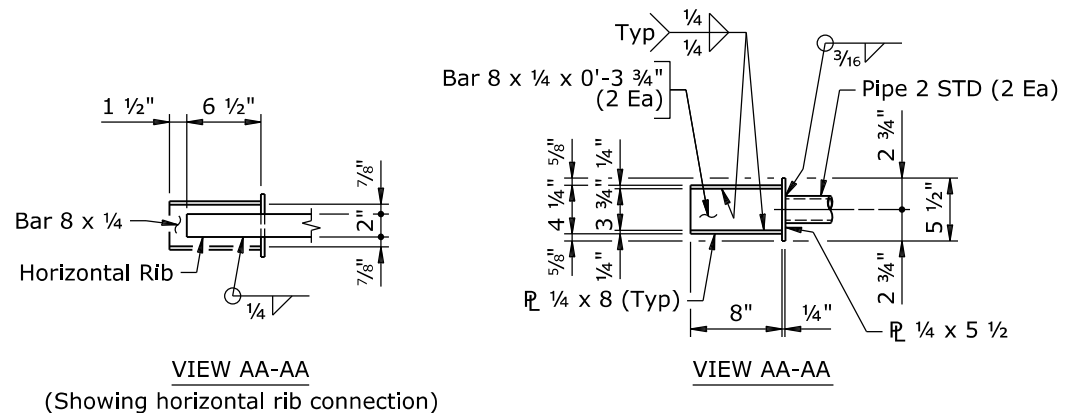
Note: For Vent Hole Detail and Sections M-M and N-N, see Sheet No. 10.

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS		HANDRAIL DETAILS	
DMS_sg09_V.dgn			
REVIEW _____	DESIGN <u>RJR</u> ✓ <u>RHD</u>	Design Section	X
APPROVAL _____	DETAIL <u>X</u> ✓ <u>X</u>	Drwg No. X	Sheet 12 of 14
	QTY'S <u>WES</u> ✓ <u>AJM</u>		

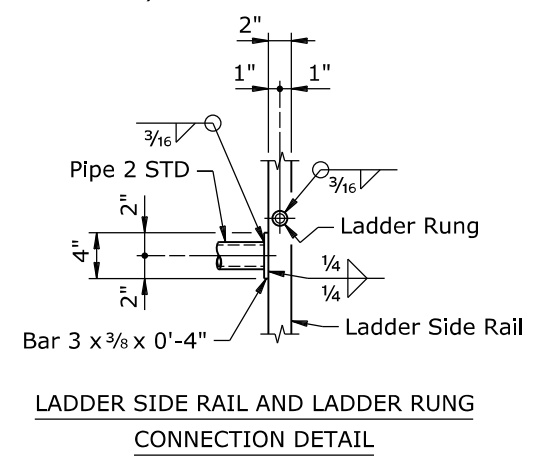


- Note:**
- 1) Furnish one heavy, weatherproof padlock with two keys for securing security door in closed position.
 - 2) Ensure size compatibility of the eye bolt and snap hook for securing door in open position.
 - 3) For Sections W-W thru Y-Y, see Sheet No. 14.

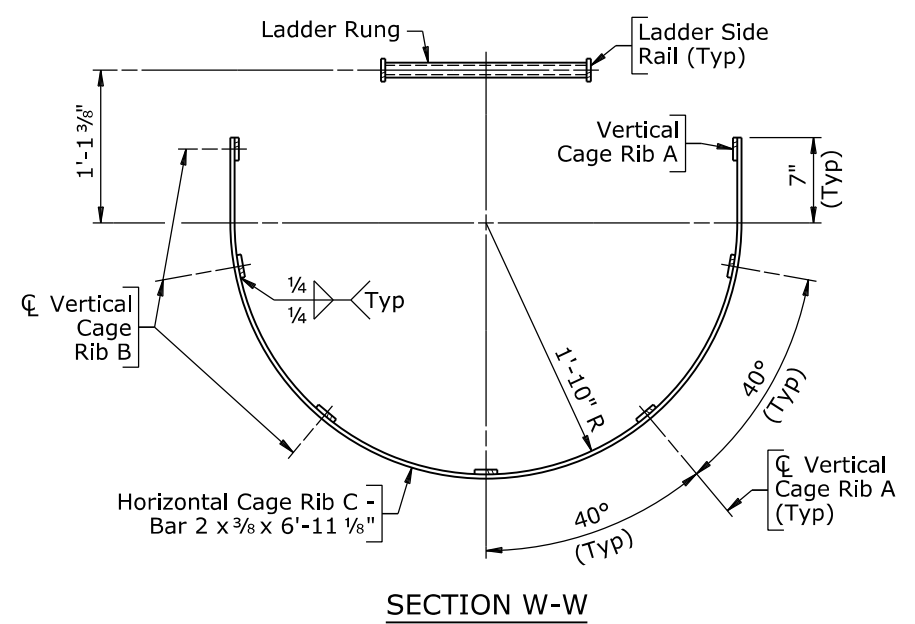
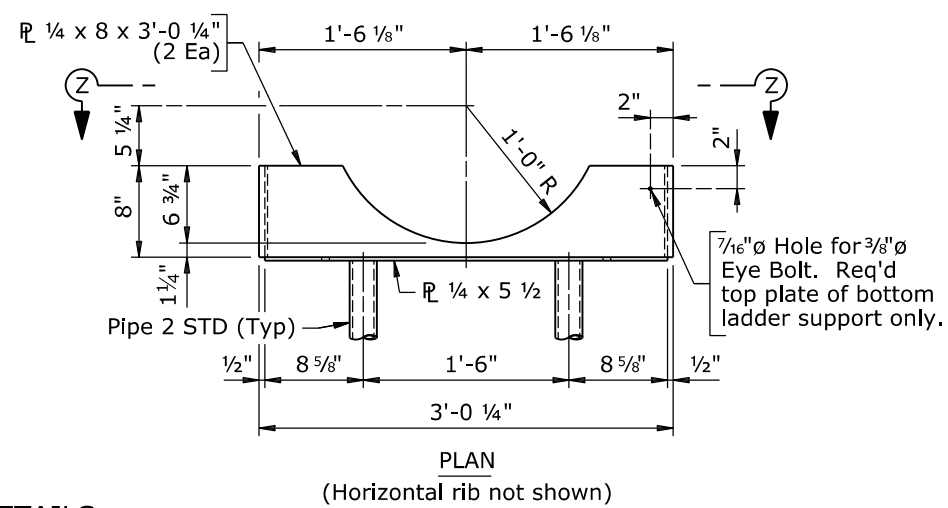
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
LADDER DETAILS			
DMS_sg10_V.dgn			
REVISIONS	DESIGN	RJR ✓ RHD	Design Section X
	DETAIL	X ✓ X	
	QTY'S	WES ✓ AJM	Drwg No. X
APPROVAL			Sheet 13 of 14



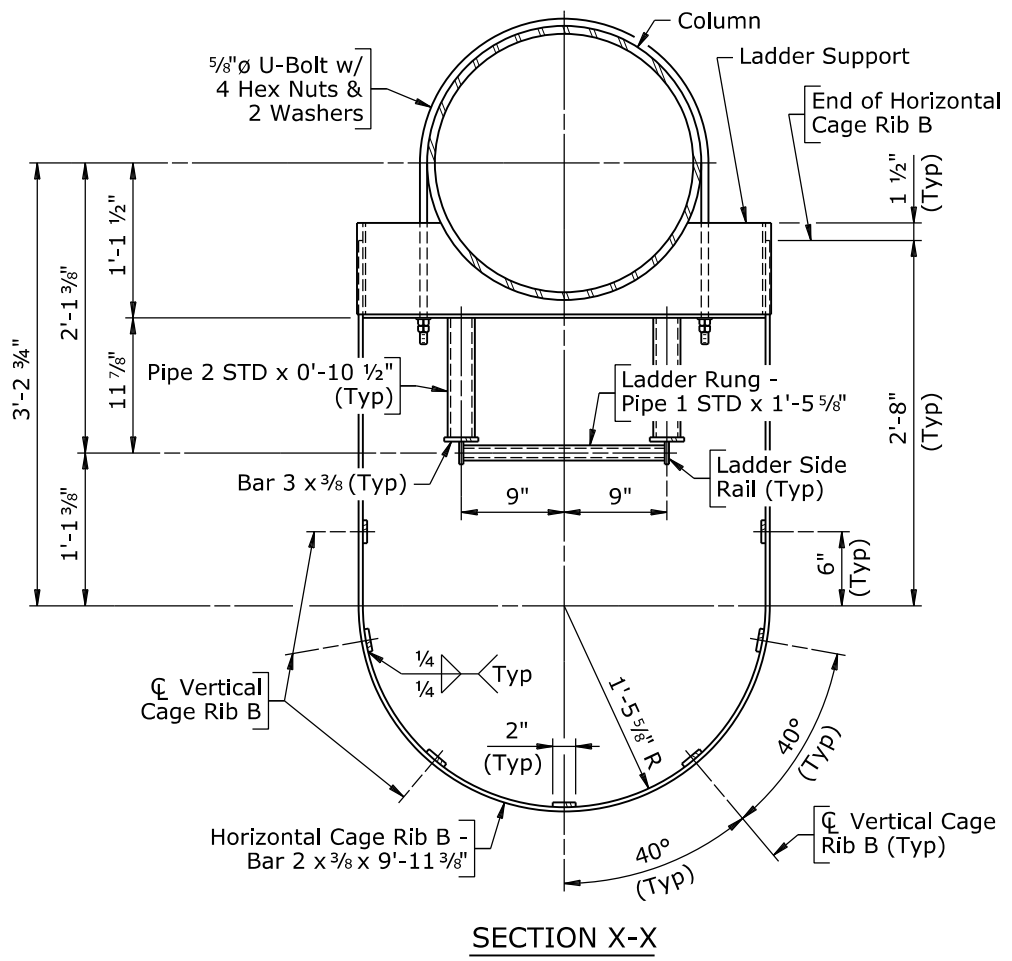
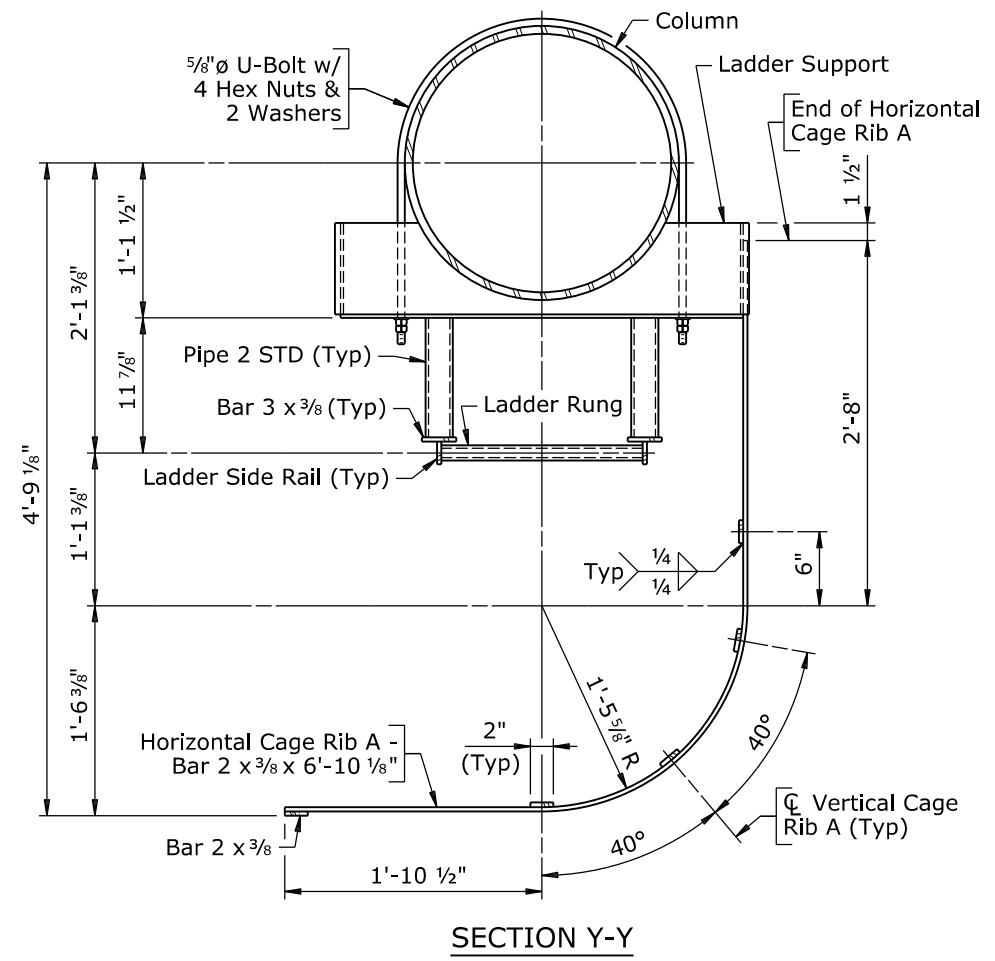
BELL BOTTOM RIB DETAILS



LADDER SUPPORT DETAILS
 (5 req'd per structure)

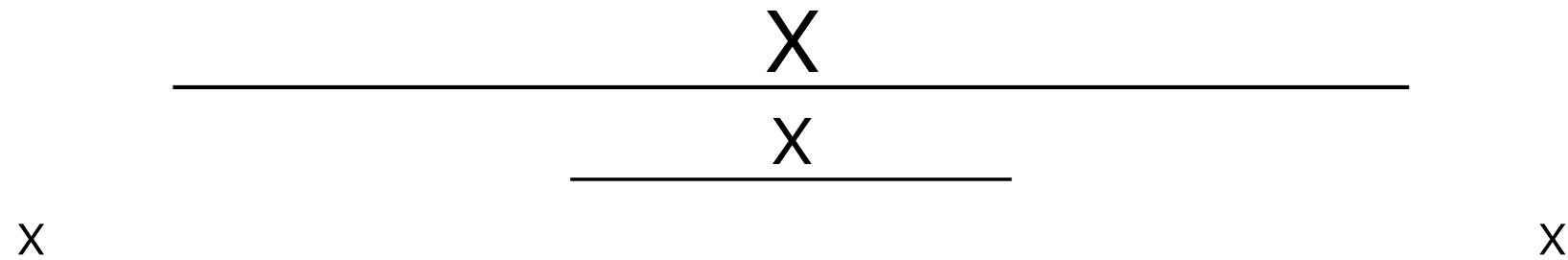


Note: 1) For U-Bolt Detail, see Sheet No. 7.
 2) For location of Sections W-W thru Y-Y, see Sheet No. 13.



WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
LADDER DETAILS			
DMS_sg11_V.dgn			
REVISIONS	DESIGN	RJR ✓ RHD	Design Section X
	DETAIL	X ✓ X	
	QTY'S	WES ✓ AJM	Drwg No. X Sheet 14 of 14
REVIEW			
APPROVAL			

SIDE MOUNT SIGN STRUCTURE



GENERAL NOTES

SPECIFICATIONS: WYDOT Standard Specifications for Road and Bridge Construction, 2010 Edition.

CONCRETE: Use class A concrete made with type V cement.

CONCRETE AGGREGATE: Ensure all concrete mix designs employed in the project meet the following alkali-silica reactivity (ASR) screening.

Conduct the AASHTO T 303 (ASTM C 1260) test using a combined sample of fine aggregate and coarse aggregate, in the same proportions that will be used in the concrete mix design. If the test results indicate an expansion at 16 days from casting of 0.10 percent or less, the aggregate is considered non-reactive and mitigation measures are not required.

If the test results indicate an expansion at 16 days from casting of greater than 0.10 percent, mitigate the aggregate reactivity through the use of a Class F fly ash as approved for ASR mitigation in accordance with the Materials Testing Manual, silica fume, and/or lithium nitrate additive. Demonstrate adequate mitigation by conducting the ASTM C 1567 test and ensuring the test results indicate an expansion at 16 days from casting of 0.10 percent or less. When conducting the ASTM C 1567 test, use a combined sample of fine aggregate and coarse aggregate, in the same proportions that will be used in the concrete mix design and use the cementitious material that is to be used in the mix design.

Ensure the AASHTO T 303 (ASTM C 1260), and ASTM C 1567 tests have been performed within 12 months of the submittal date.

Submit qualifying AASHTO T 303 (ASTM C 1260) and ASTM C 1567 test results to the engineer a minimum of 14 calendar days before concrete production. Submit test results to the Materials Program along with each mix design request.

STRUCTURAL STEEL: Ensure structural steel conforms to the following:
 Structural Tubing & Pipe ----- ASTM A 53 (Grade B), API-5L, ASTM A 252 (Grade 2), ASTM A 500 (Grade B), or ASTM A 501 (Grade A)
 Flattened Expanded Metal ----- ASTM F 1267, Type II, Class 2, Grade A
 Fabricated U-Bolts ----- ASTM A 307
 High Strength Bolts ----- ASTM F 3125 (Grade A325)
 All other Bolts ----- ASTM A 307 (Grade A)
 All other Structural Steel ----- ASTM A 709 (Grade 36)
 Ensure all rough edges are ground smooth after fabrication and structural steel is galvanized.

BOLTED CONNECTIONS: Use galvanized hardware at bolted connections, including fabricated U-Bolts. After installation, paint exposed bolt threads, except anchor bolts, with two coats of zinc rich paint conforming to ASTM A 780.

POST LENGTHS: The engineer will provide post lengths in 1" increments to the State Bridge Engineer before fabrication.

FOUNDATIONS: Construct adjacent foundations at least 24 hours apart.

LEVELING SOIL: Compact leveling soil in accordance with Subsection 203.4.3.3, Embankment Areas. Work necessary for the compacted leveling soil is incidental to the contract pay item Class B Concrete.

DYNAMIC MESSAGE SIGN: The approximate weight of the dynamic message sign is 2000 LB. Work necessary for the installation of the dynamic message sign is incidental to the contract pay item Structural Steel.

BRIDGE OFFICE NOTIFICATION: The engineer will notify the State Bridge Engineer in writing within 14 calendar days after the structure has been erected.

DESIGN DATA

SPECIFICATIONS: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 4th Edition with 2002, 2003 and 2006 interims

LOADING: 90 mph fastest-mile wind velocity with 30% increase for gust factor in accordance with Appendix C. Ice load 3 psf. Live load 85 psf.

STRUCTURAL STEEL: Allowable Stress Design -
 ASTM A 53 (Grade B) $F_y = 35,000$ psi
 ASTM A 709 (Grade 36) $F_y = 36,000$ psi

REFERENCES

Supplementary Specifications:
 SS-100K Adjustment for Structural Steel
 SS-500B Welder Qualification

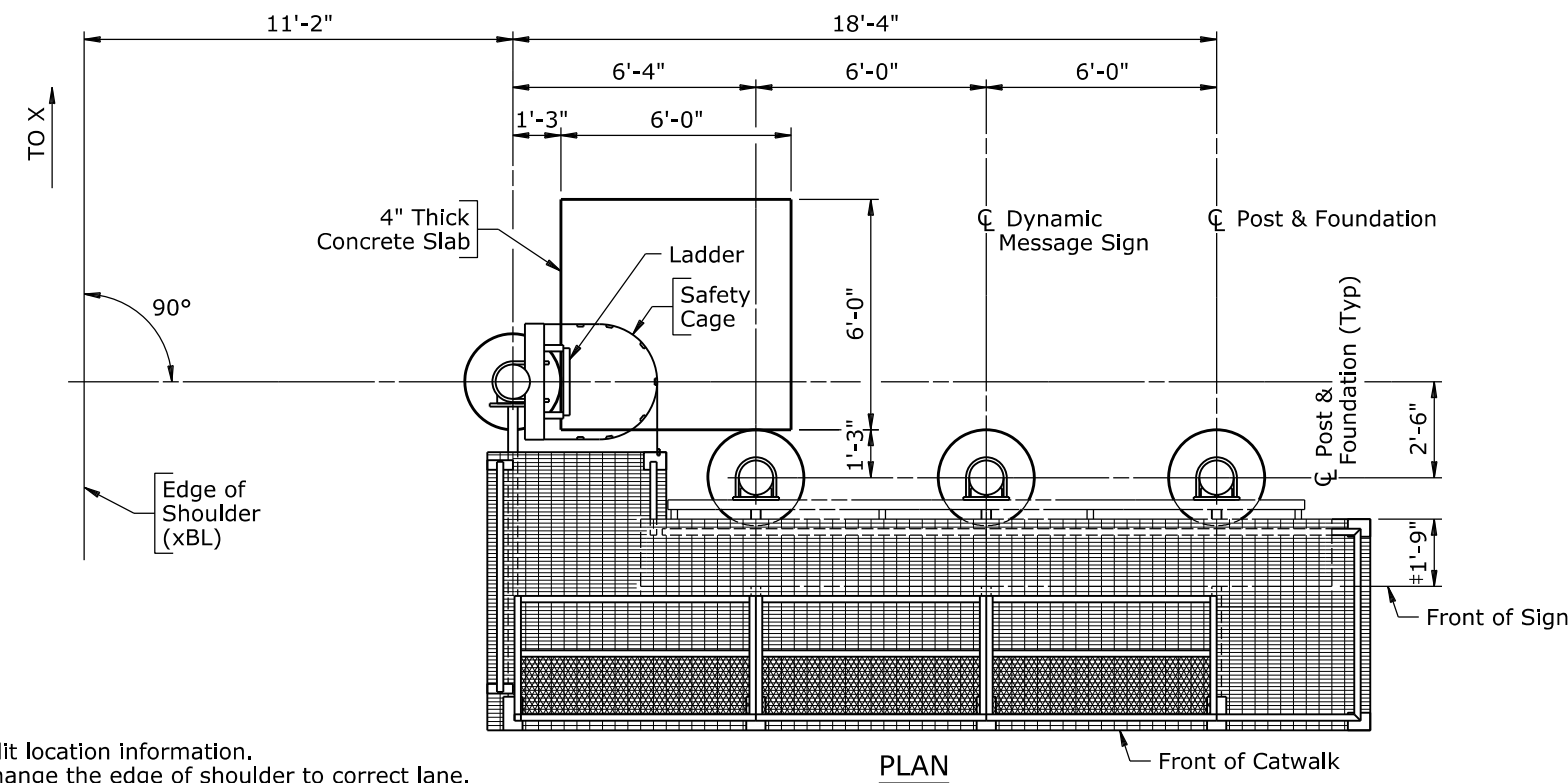
INDEX OF DRAWINGS

Drawing: Sheet No.
 Title Sheet ----- 1
 General Plan and Elevation ----- 2
 Sign Structure Details ----- 3-13

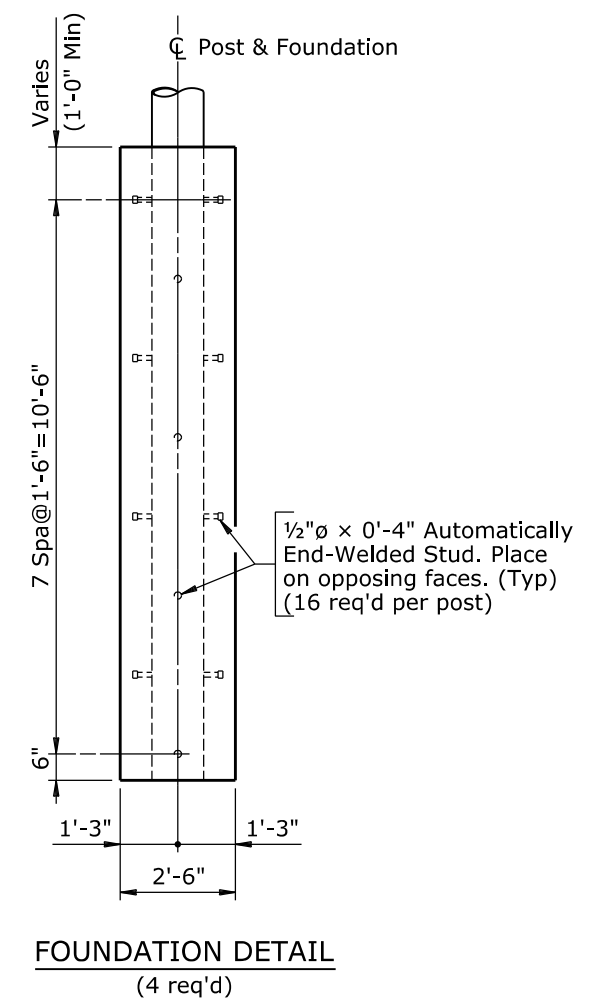
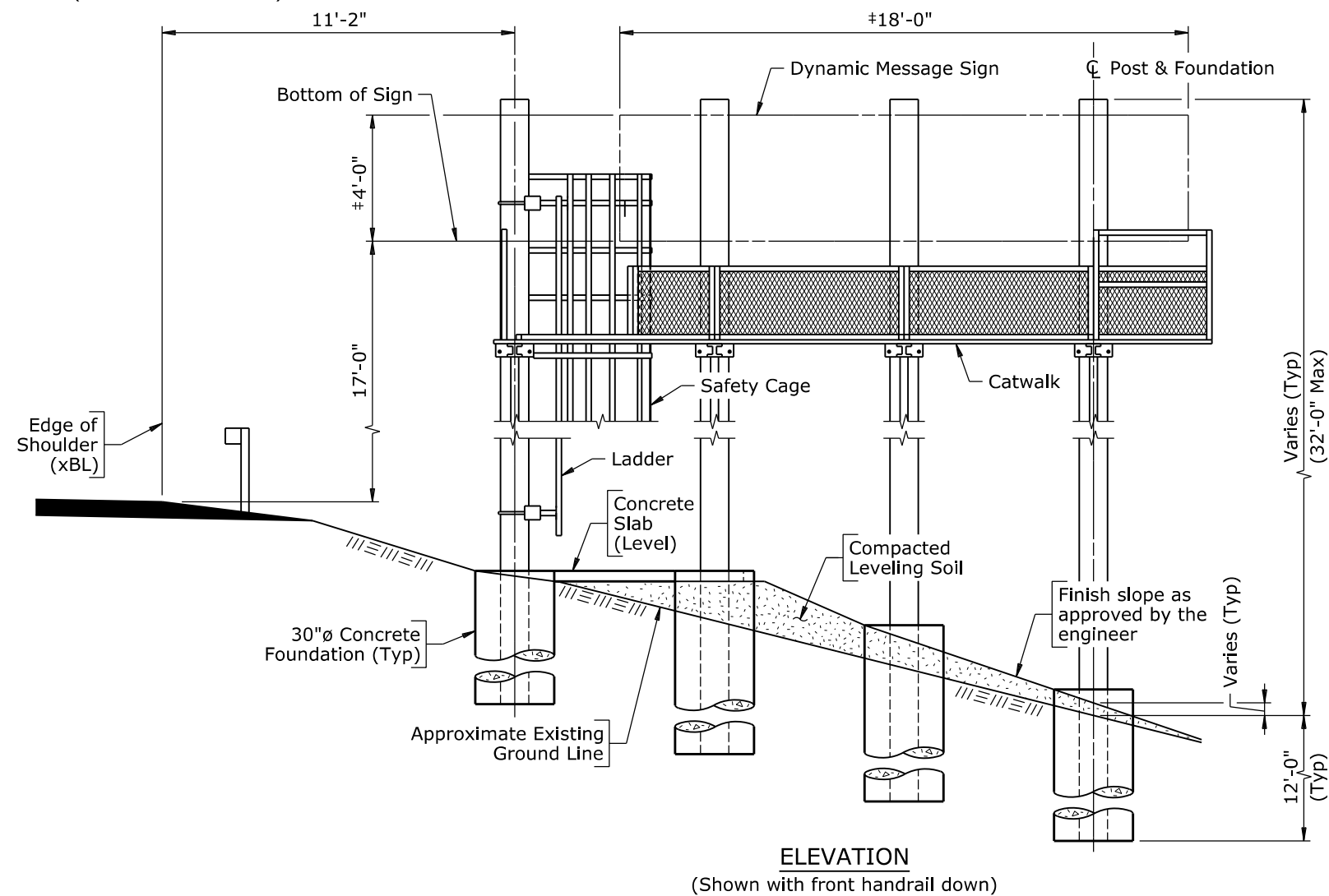
ESTIMATED QUANTITIES				
ITEM NO.	ITEM	UNIT	TOTAL QUANTITY	ESTIMATE
501.01000	STRUCTURAL STEEL	LS	LUMP SUM	14,400 LB
513.00005	CLASS A CONCRETE	LS	LUMP SUM	9.6 CY

STRUCTURE NO. XXX
MLxxx, RM XXX.XX
SEC X, TxxN, RxxW

WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
REVISIONS			
SMS_ts_V.dgn			
REVIEW _____	DESIGN _____	Design Section X	
APPROVAL _____	DETAIL X ✓ X	Drwg No. X	Sheet 1 of 13
	QTY'S _____		

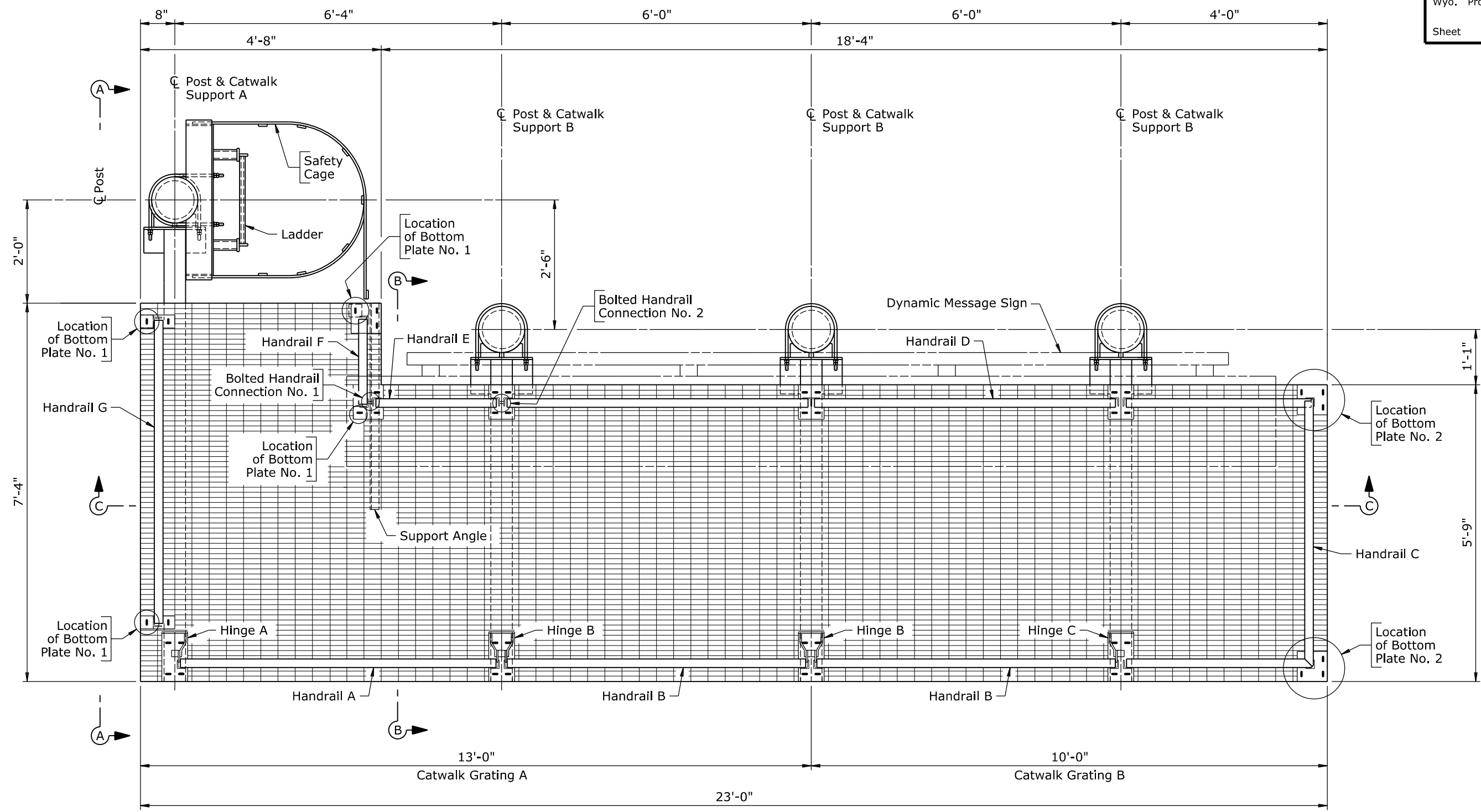


Detailer: Edit location information.
 Change the edge of shoulder to correct lane.
 Add North Arrow.
 (and remove this note)



Note: #Dynamic message sign dimensions may vary according to sign manufacturer.

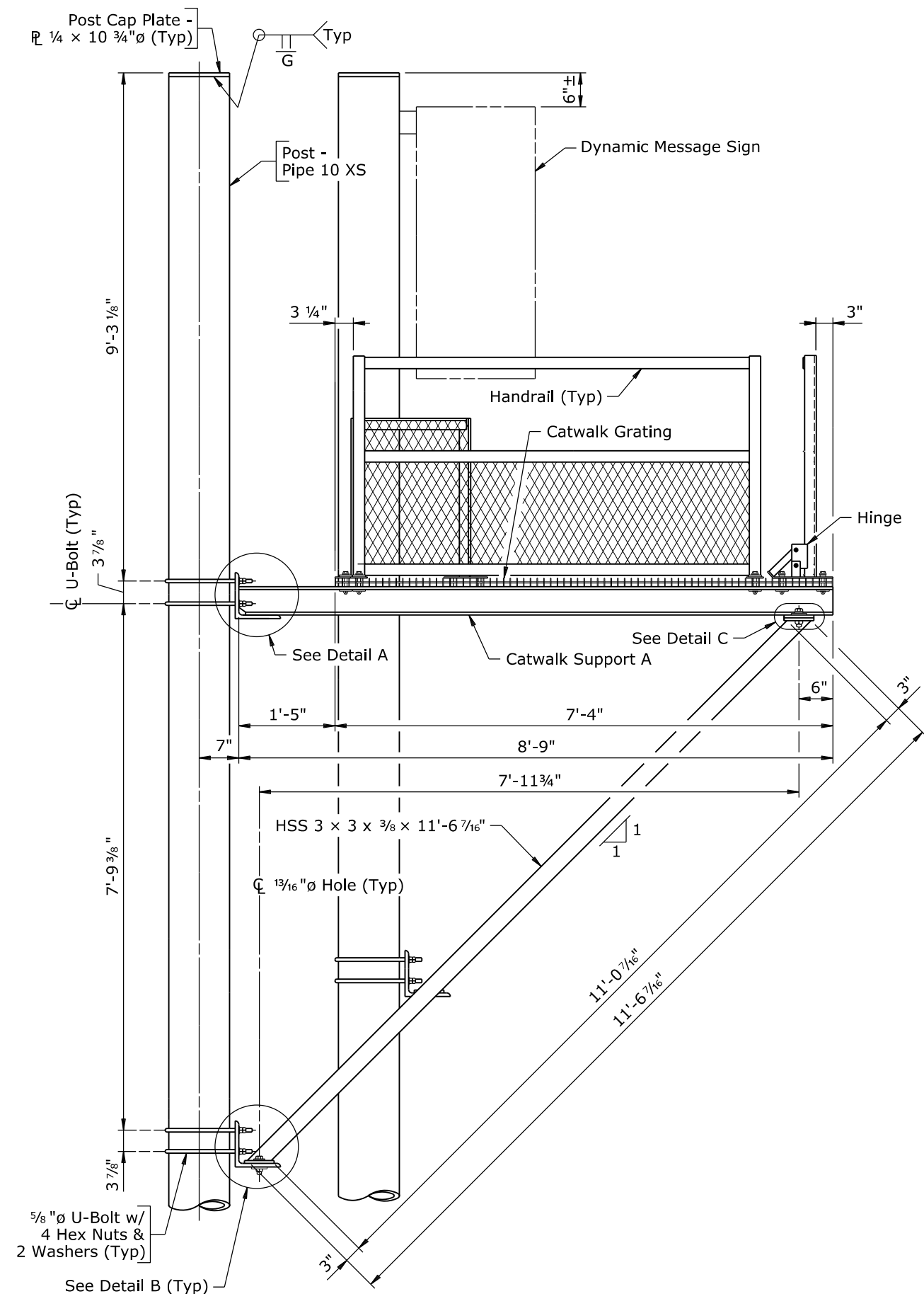
WYOMING DEPARTMENT OF TRANSPORTATION			
BRIDGE PROGRAM			
GENERAL PLAN AND ELEVATION			
SMS_gp_V.dgn			
REVISIONS	DESIGN	Design Section	X
	DETAIL	Drwg No.	X
	QTY'S	Sheet	2 of 13



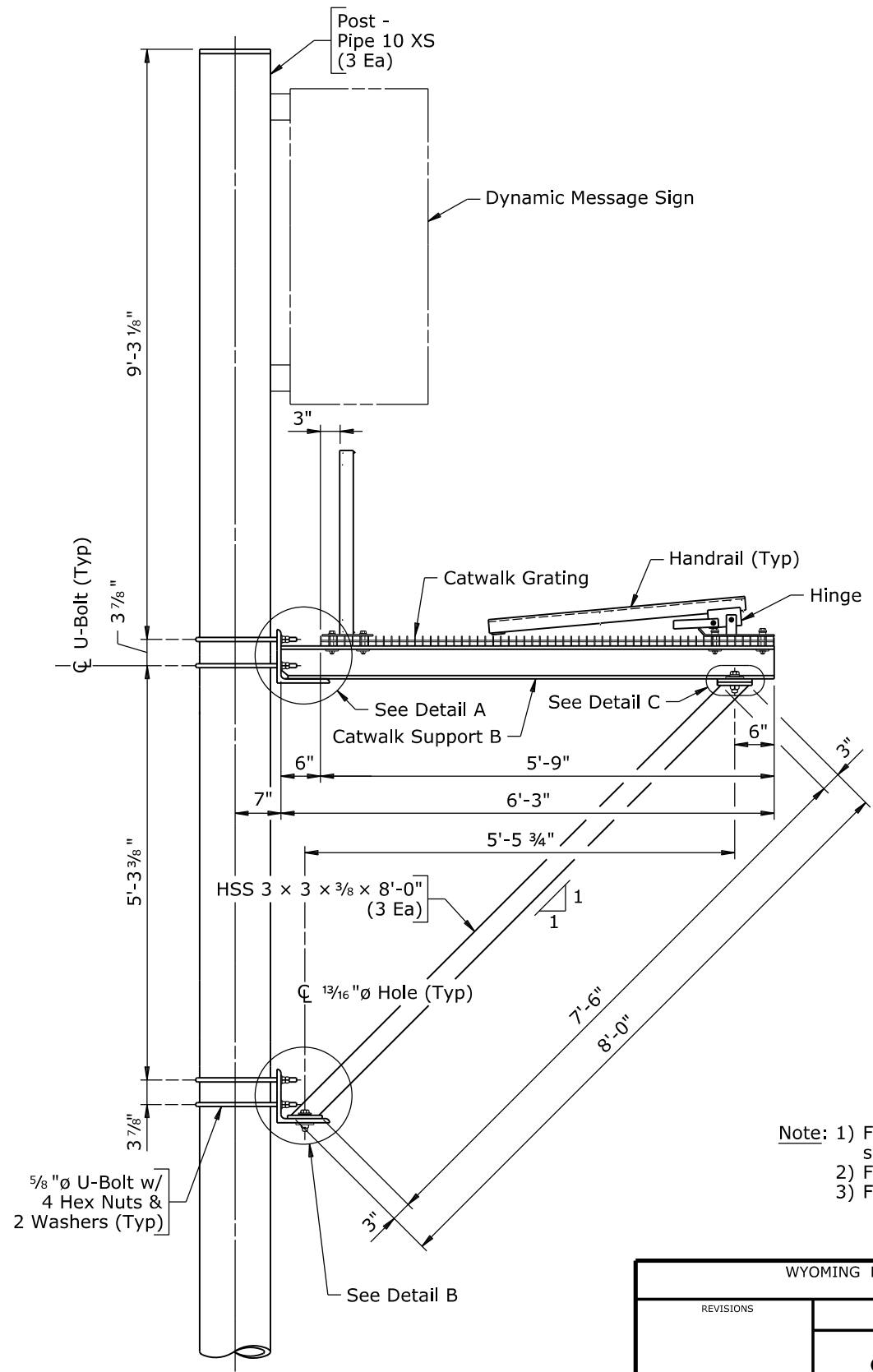
CATWALK PLAN

Note: 1) For View A-A and Section B-B, see Sheet No. 4.
 2) For Section C-C, see Sheet No. 7.

WYOMING DEPARTMENT OF TRANSPORTATION			
BRIDGE PROGRAM			
SIGN STRUCTURE DETAILS			
SMS_sg01_V.dgn			
REVISIONS			
DESIGN	JFJ	BKS	Design Section X
DETAIL	X	X	
APPROVAL	WES	SMS	Drwg No. X Sheet 3 of 13



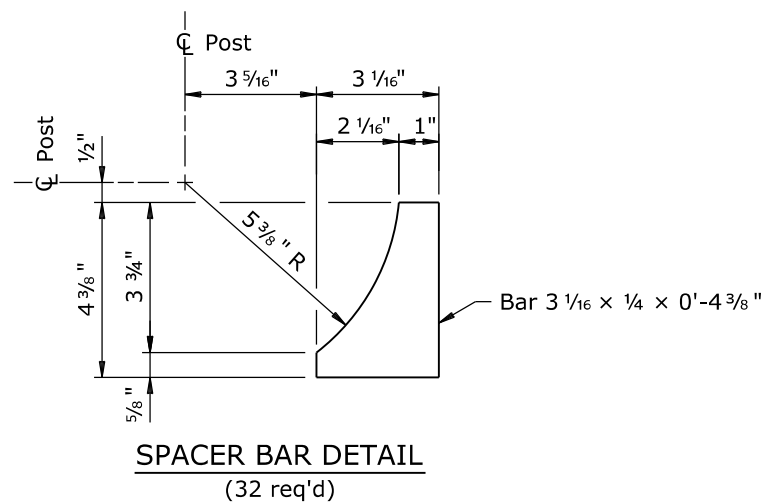
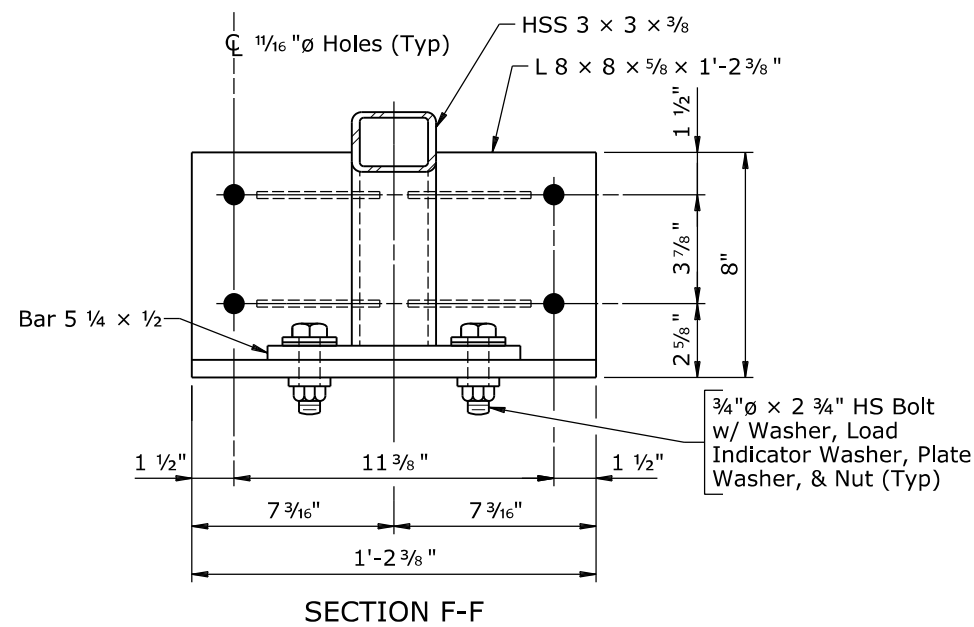
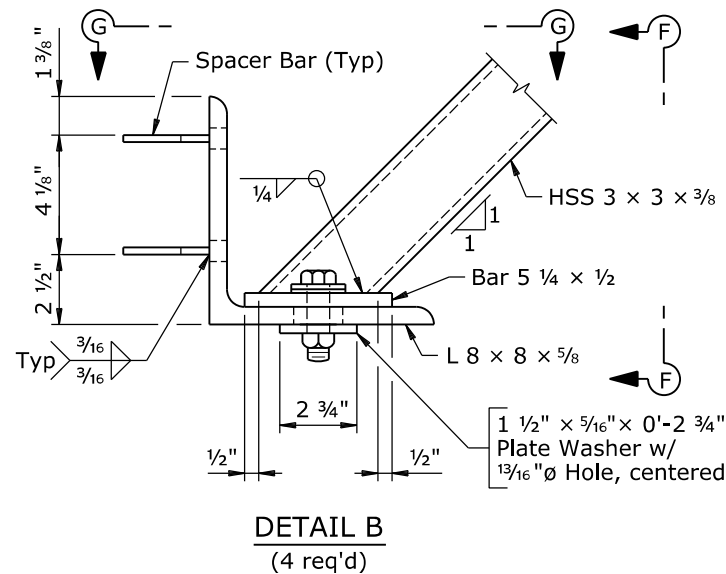
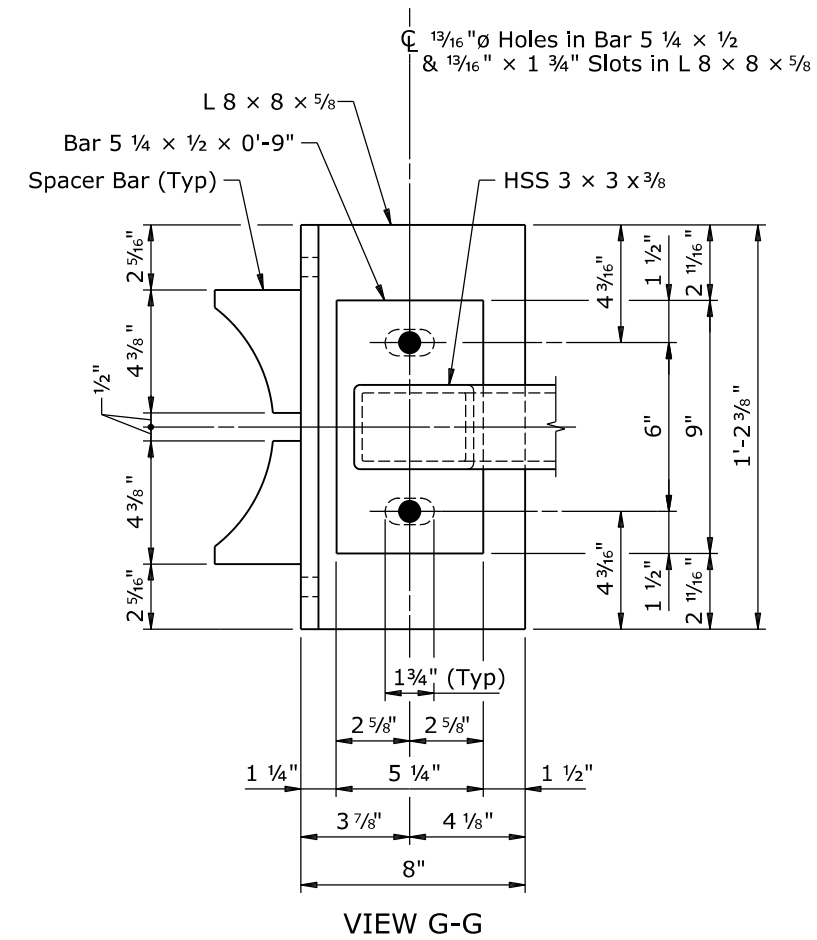
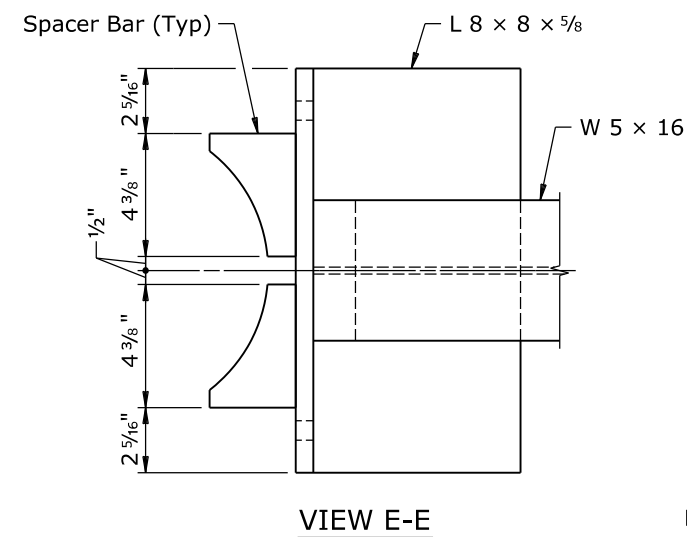
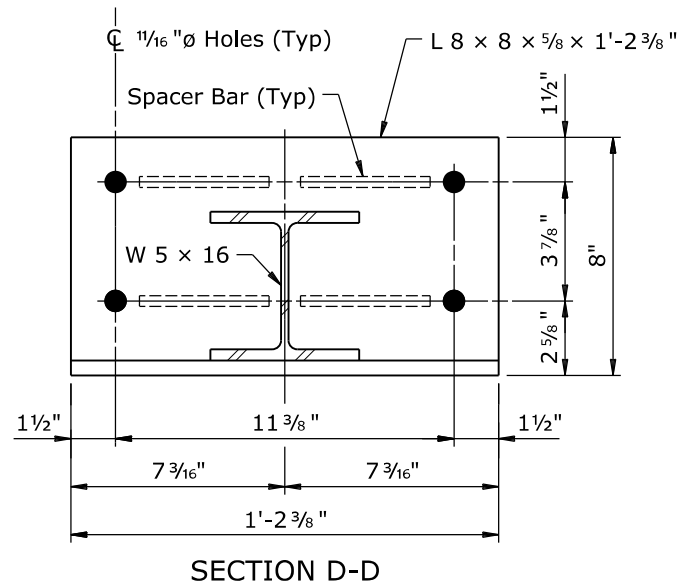
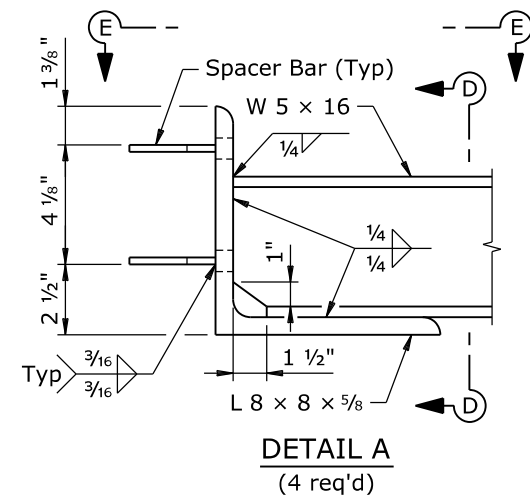
VIEW A-A
 (Handrail C, ladder, and cage not shown)
 (Shown with front handrail up)



SECTION B-B
 (Handrail C not shown)
 (Shown with front handrail down)

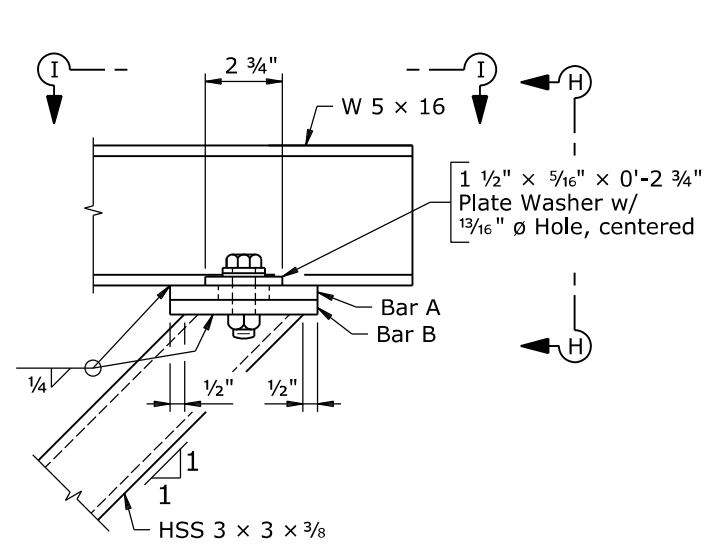
Note: 1) For location of View A-A and Section B-B, see Sheet No. 3.
 2) For Details A and B, see Sheet No. 5.
 3) For Detail C, see Sheet No. 6.

WYOMING DEPARTMENT OF TRANSPORTATION			
BRIDGE PROGRAM			
SIGN STRUCTURE DETAILS			
SMS_sg02_V.dgn			
REVISIONS	DESIGN	JFJ ✓ BKS	Design Section X
	DETAIL	X ✓ X	
	QTY'S	WES ✓ SMS	Drwg No. X Sheet 4 of 13

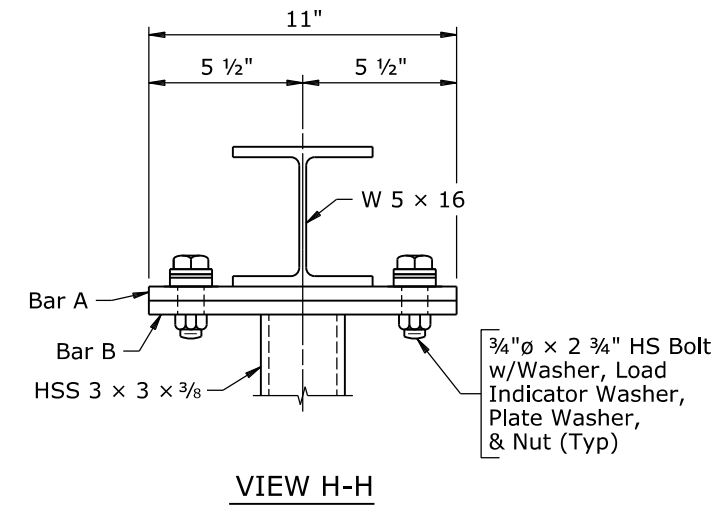


Note: 1) Terminate welds 1/4" from edge of members, except all-around welds.
 2) For location of Details A and B, see Sheet No. 4.

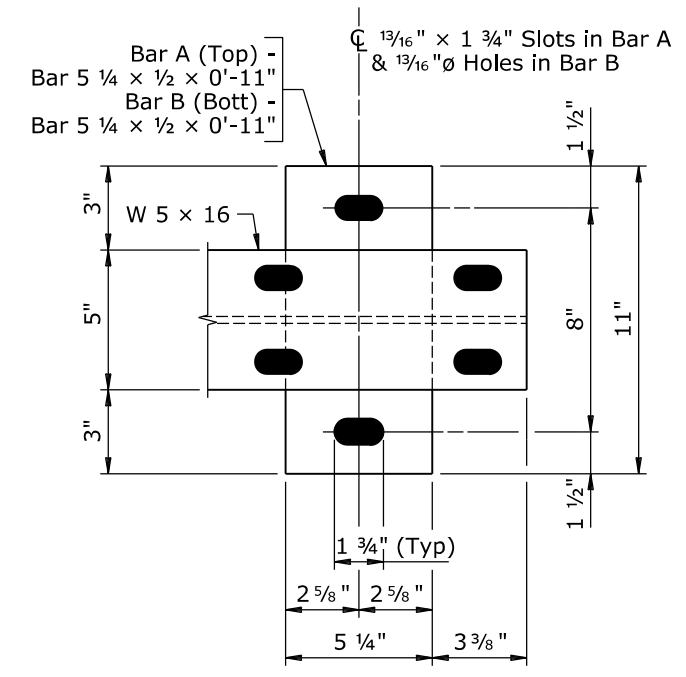
WYOMING DEPARTMENT OF TRANSPORTATION			
BRIDGE PROGRAM			
SIGN STRUCTURE DETAILS			
SMS_sg03_V.dgn			
REVISIONS	DESIGN JFJ ✓ BKS	Design Section X	
REVIEW _____	DETAIL X ✓ X	Drwg No. X	Sheet 5 of 13
APPROVAL _____	QTY'S WES ✓ SMS		



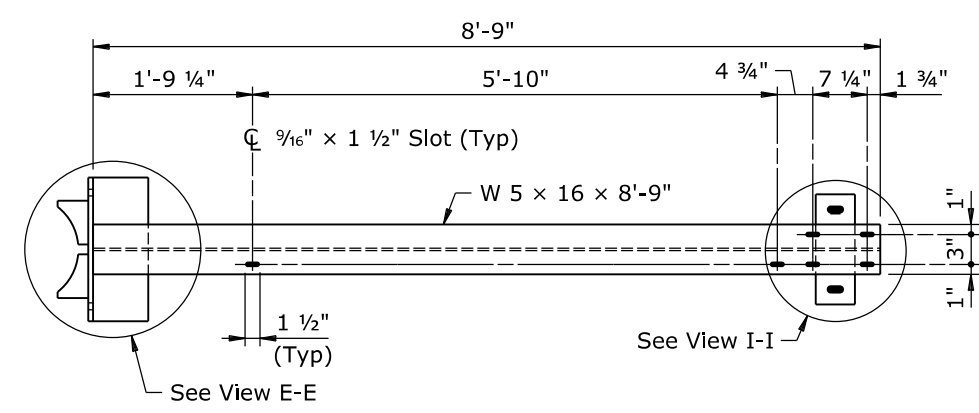
DETAIL C
(4 req'd)



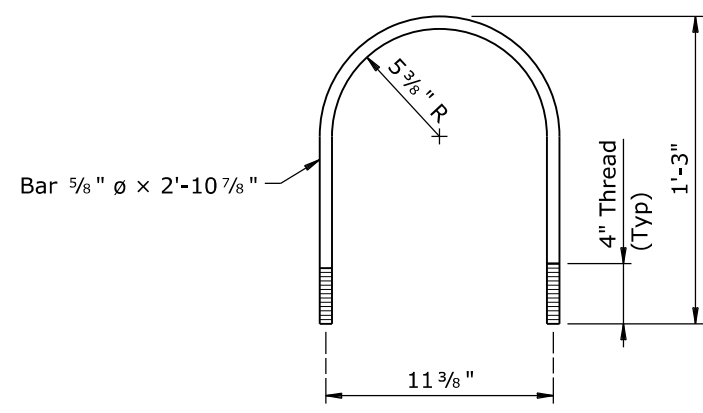
VIEW H-H



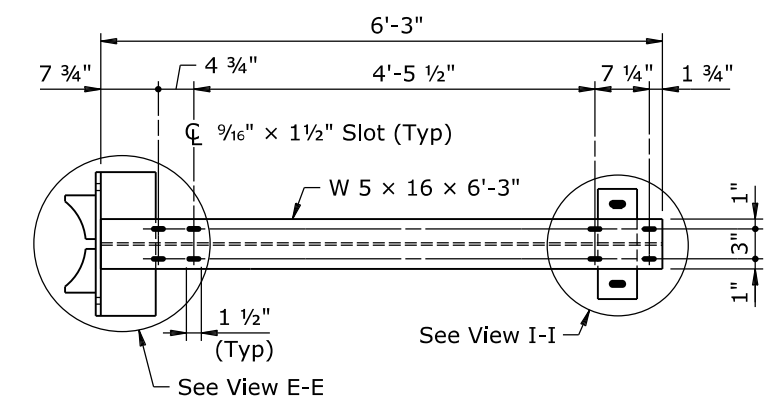
VIEW I-I
(HSS 3x3x3/8 not shown)



CATWALK SUPPORT A PLAN
(1 req'd)



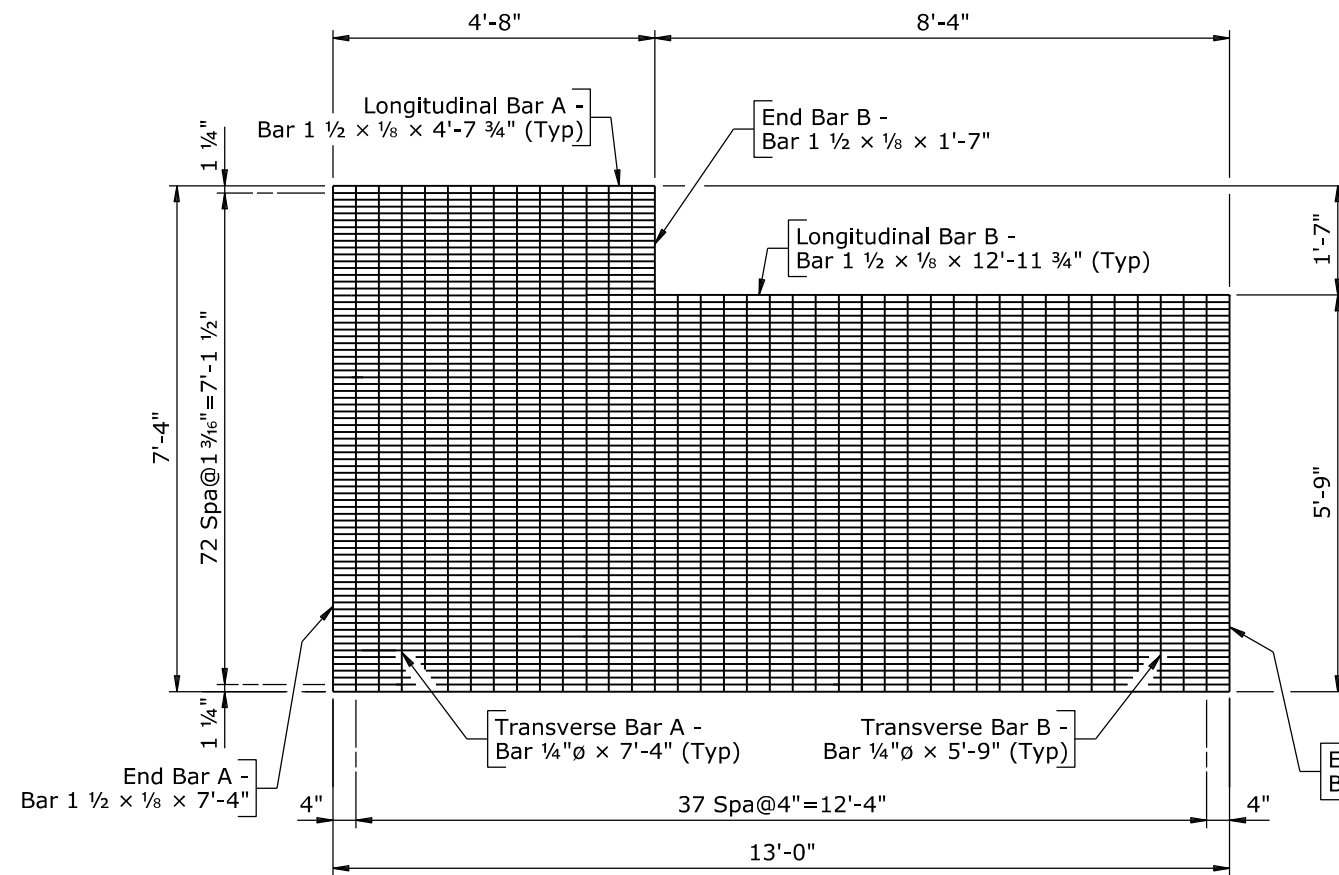
U-BOLT FOR CATWALK DETAIL
(16 req'd)



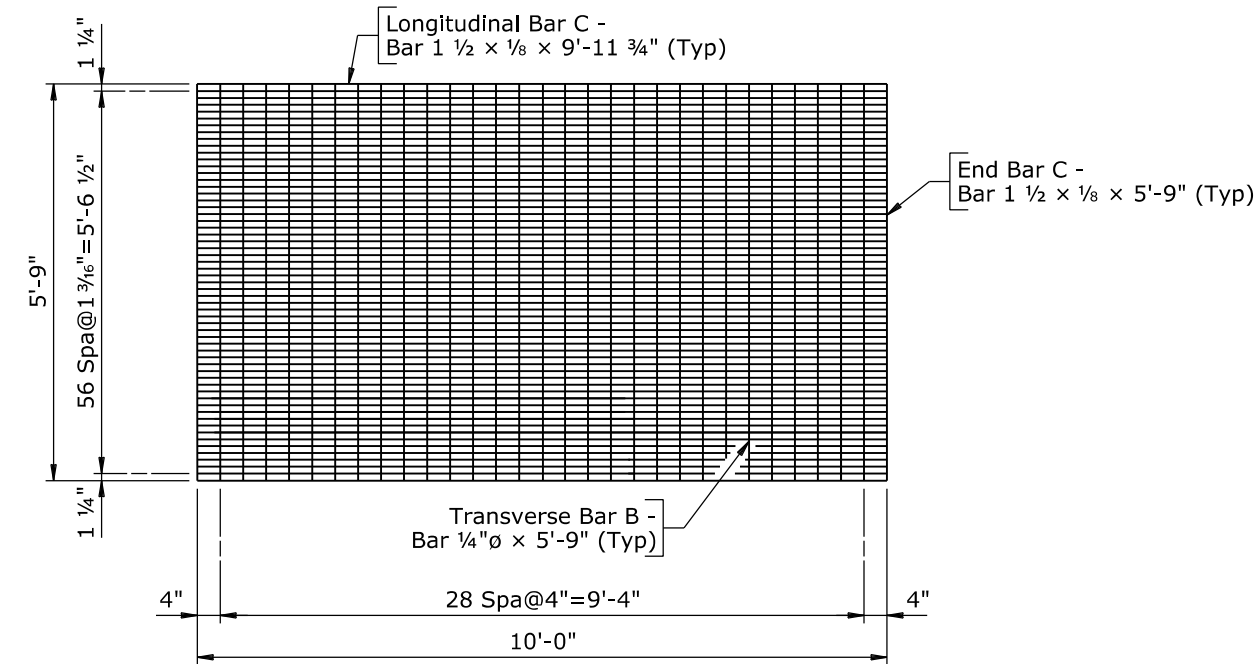
CATWALK SUPPORT B PLAN
(3 req'd)

Note: 1) For location of Detail C, see Sheet No. 4.
 2) For View E-E, see Sheet No. 5.

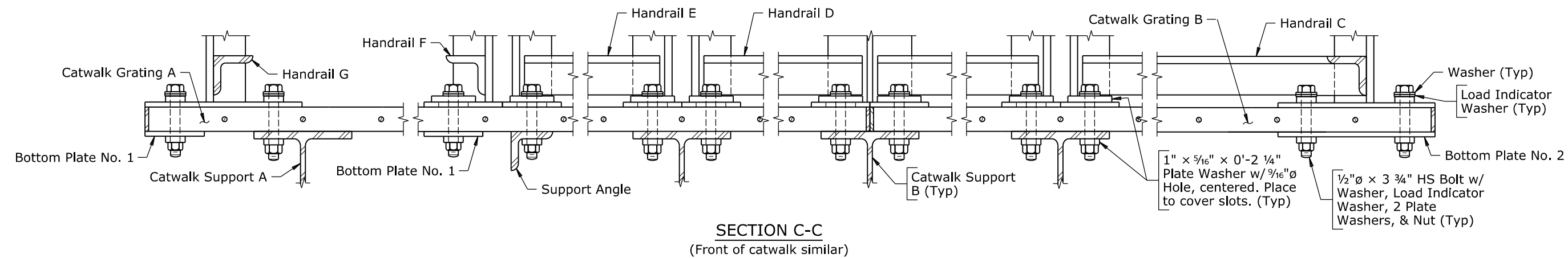
WYOMING DEPARTMENT OF TRANSPORTATION			
BRIDGE PROGRAM			
SIGN STRUCTURE DETAILS			
SMS_sg04_V.dgn			
REVISIONS			
DESIGN	JFJ	BKS	Design Section X
DETAIL	X	X	
APPROVAL	WES	SMS	Drwg No. X Sheet 6 of 13



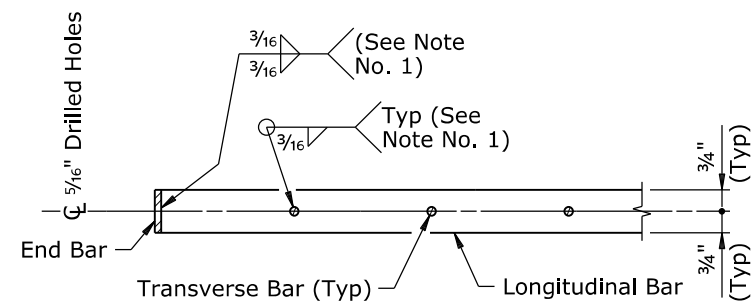
CATWALK GRATING A PLAN
 (1 req'd)



CATWALK GRATING B PLAN
 (1 req'd)



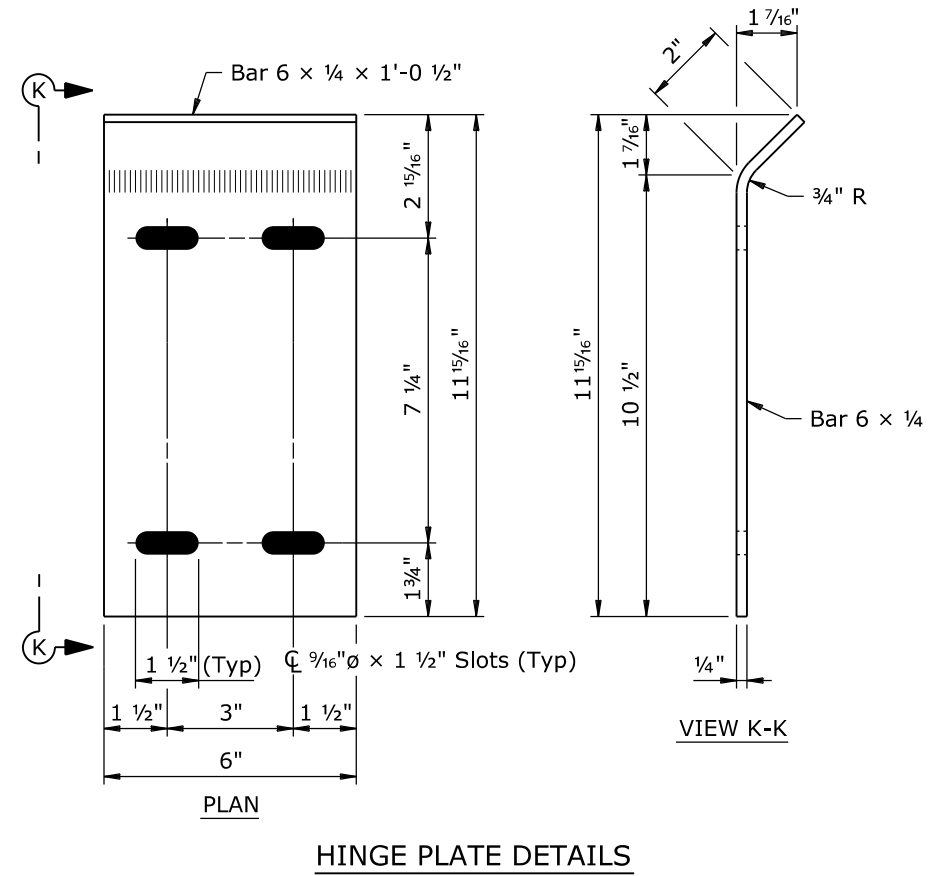
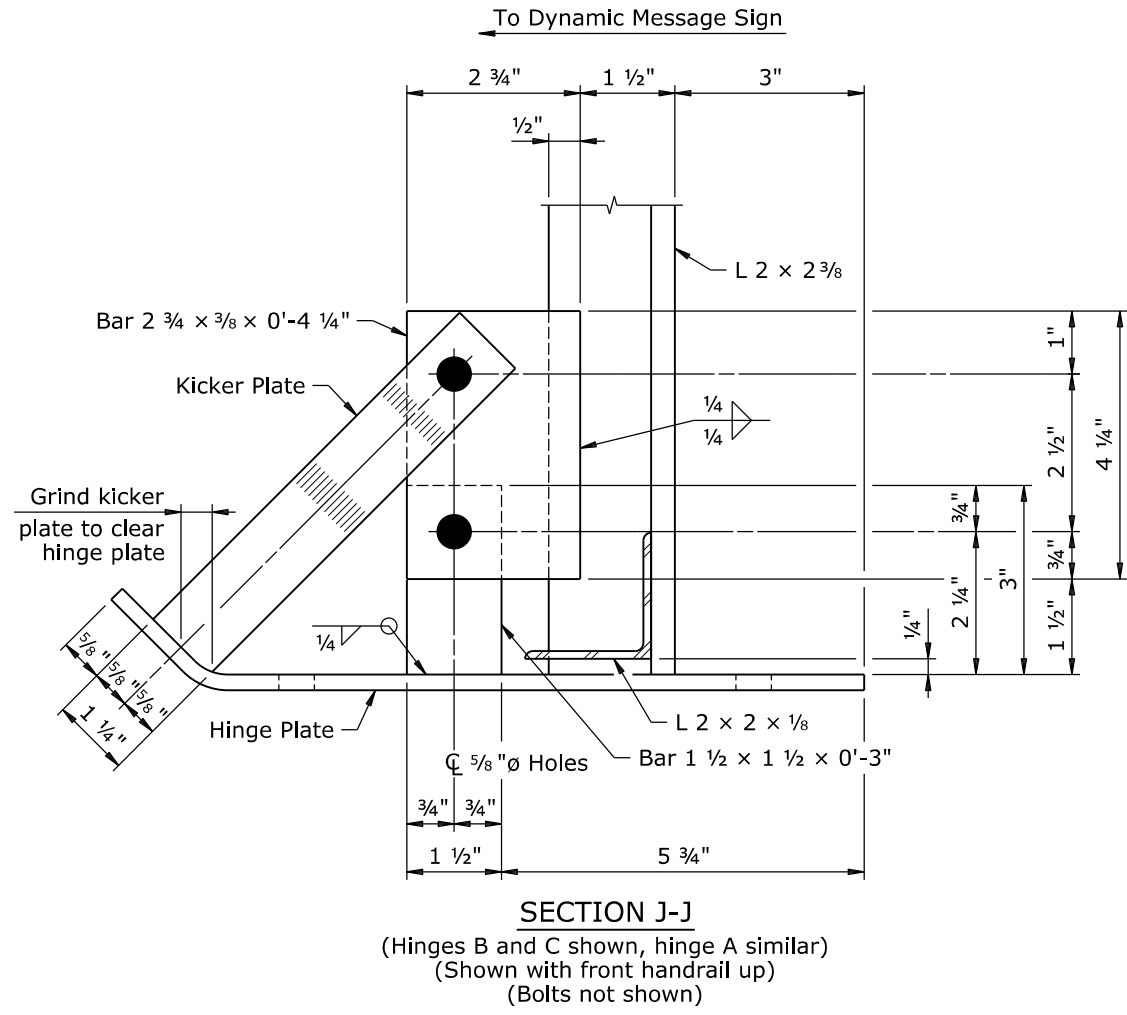
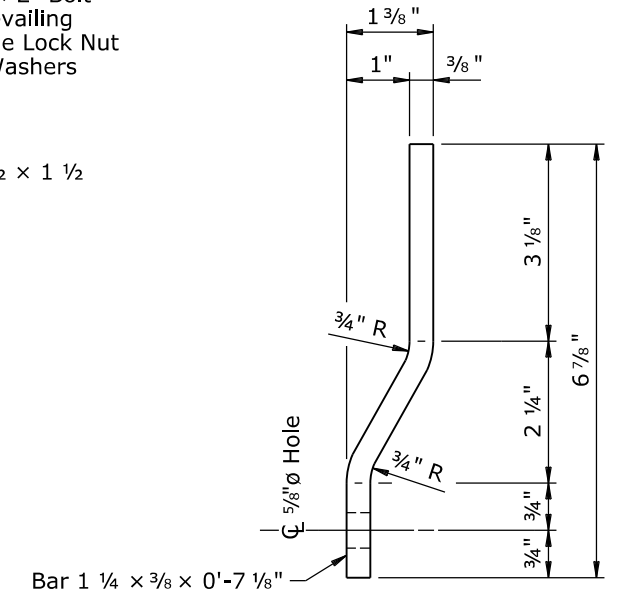
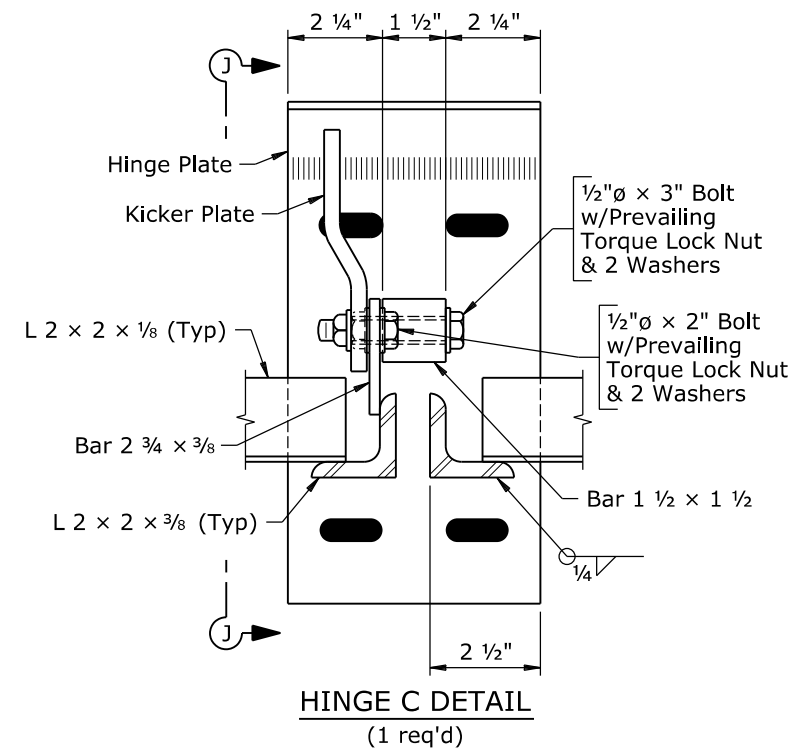
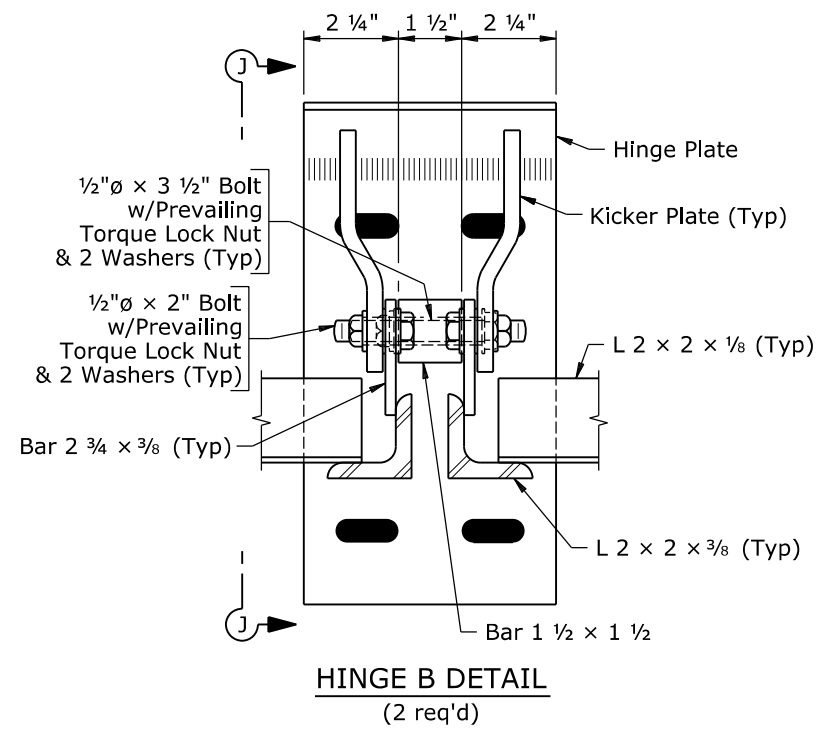
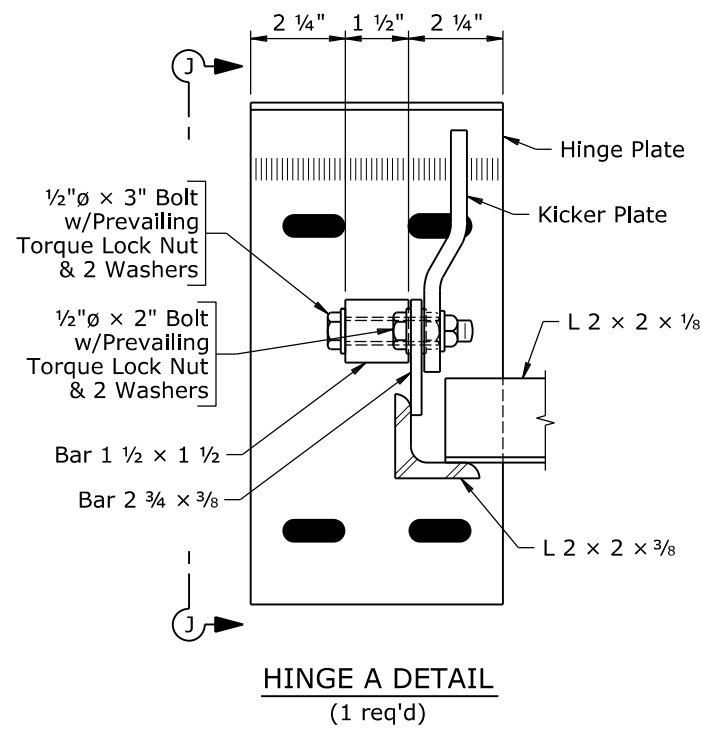
SECTION C-C
 (Front of catwalk similar)



TYPICAL GRATING DETAIL

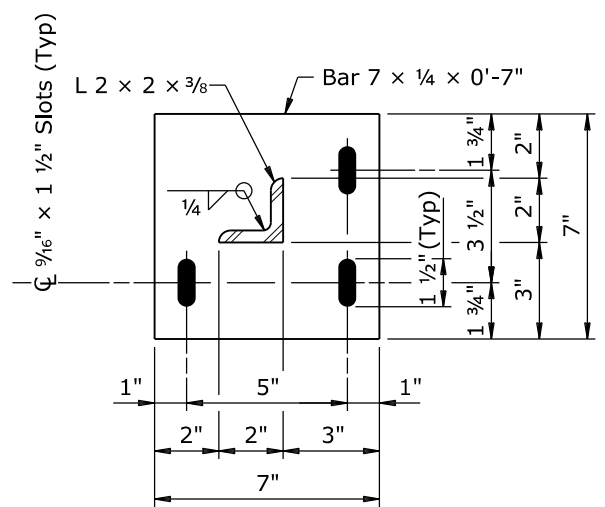
Note: 1) Weld outer and every sixth inner longitudinal bars to end bars. Weld transverse bars to outer and every sixth inner longitudinal bars. Stagger welds to ensure all components are rigid and securely braced.
 2) For location of Section C-C, see Sheet No. 3.

WYOMING DEPARTMENT OF TRANSPORTATION			
BRIDGE PROGRAM			
SIGN STRUCTURE DETAILS			
SMS_sg05_v.dgn			
REVISIONS	DESIGN	JFJ ✓ BKS	Design Section X
	DETAIL	X ✓ X	
APPROVAL	QTY'S	WES ✓ SMS	Drwg No. X Sheet 7 of 13

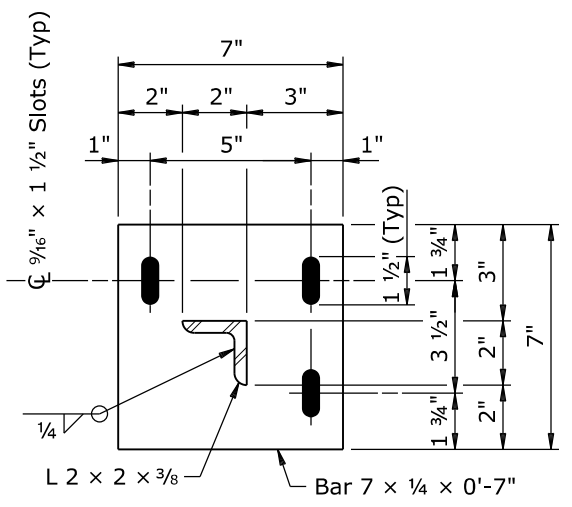


- Note: 1) Ensure hinge and post assemblies meet the following requirements during shop testing: kicker bar rotates freely due to its own weight; L 2 x 2 x 3/8 is vertical when handrail is up and provides firm support for a 250 pound horizontal force applied at top of L 2 x 2 x 3/8 in directions toward and away from sign.
 2) Install hinge and kicker plate bolts to ensure handrails and kicker plates rotate freely, but are not excessively loose.
 3) Terminate welds 1/4" from edge of members, except all-around welds.
 4) For location of Hinge A, B, and C, see Sheet No. 3.

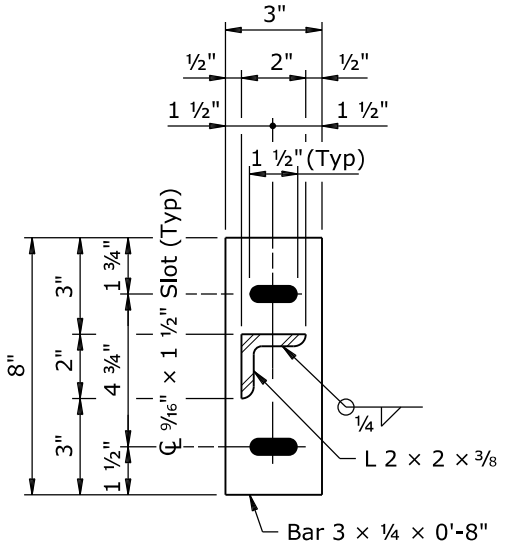
WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
SIGN STRUCTURE DETAILS			
SMS_sg06_V.dgn			
REVISIONS	DESIGN JFJ ✓ BKS	Design Section X	
REVIEW _____	DETAIL X ✓ X	Drwg No. X	Sheet 8 of 13
APPROVAL _____	QTY'S WES ✓ SMS		



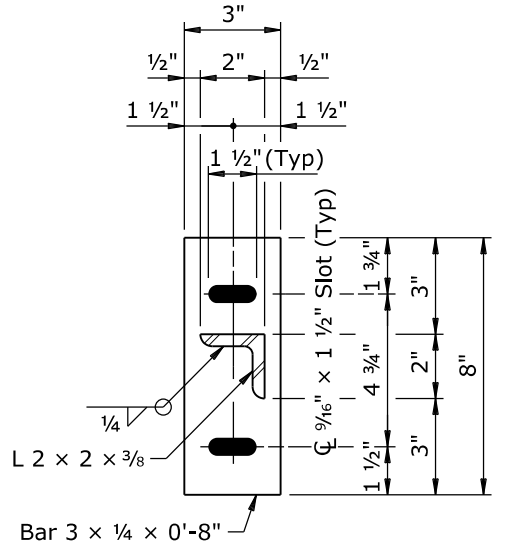
BASE PLATE A DETAIL
(1 req'd)



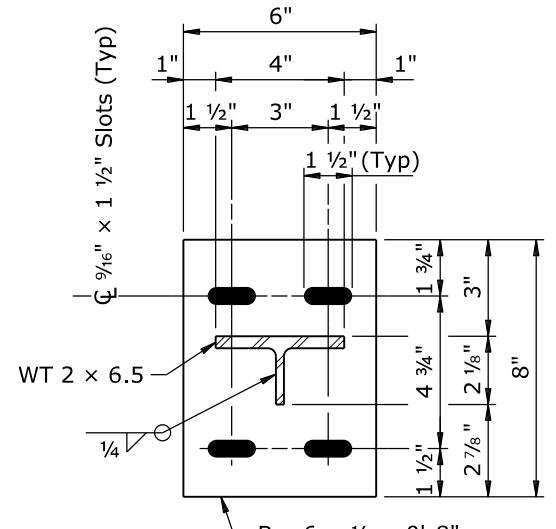
BASE PLATE B DETAIL
(2 req'd)



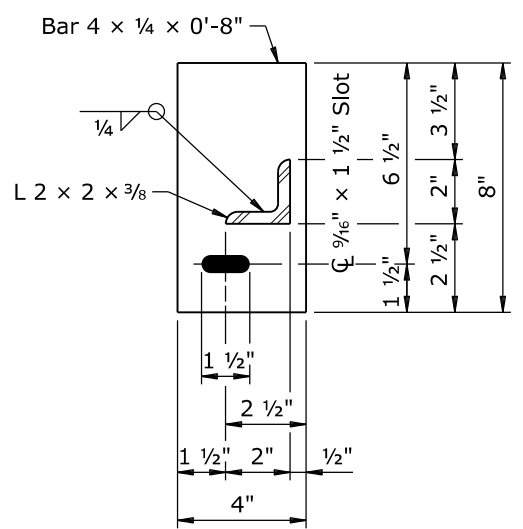
BASE PLATE C DETAIL
(3 req'd)



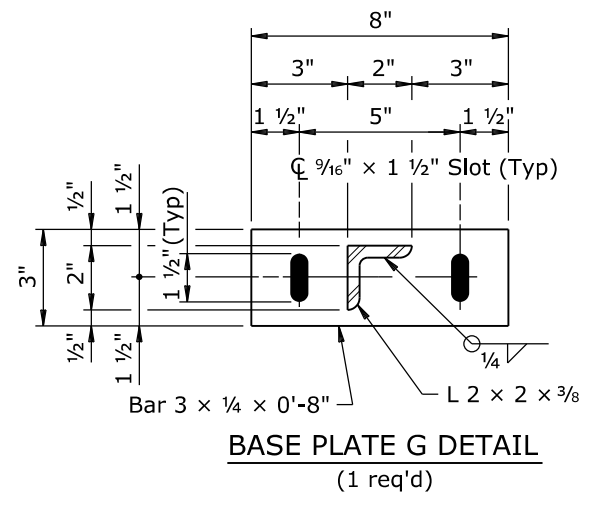
BASE PLATE D DETAIL
(2 req'd)



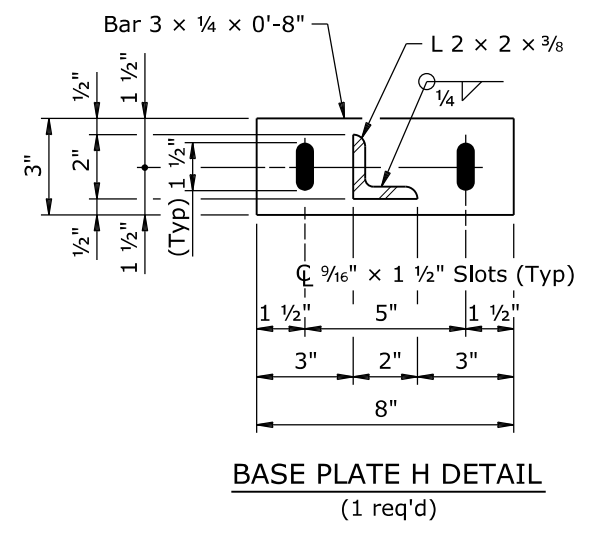
BASE PLATE E DETAIL
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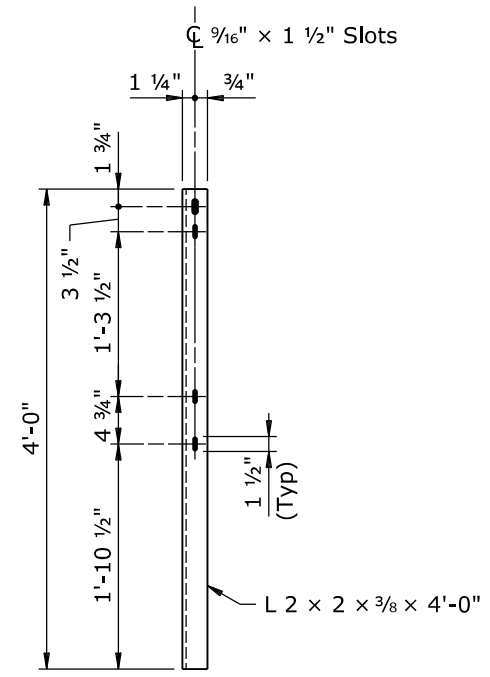
BASE PLATE F DETAIL
(1 req'd)



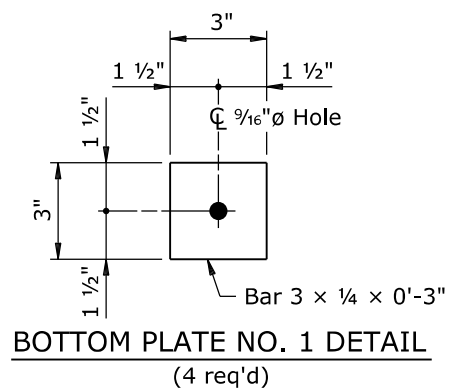
BASE PLATE G DETAIL
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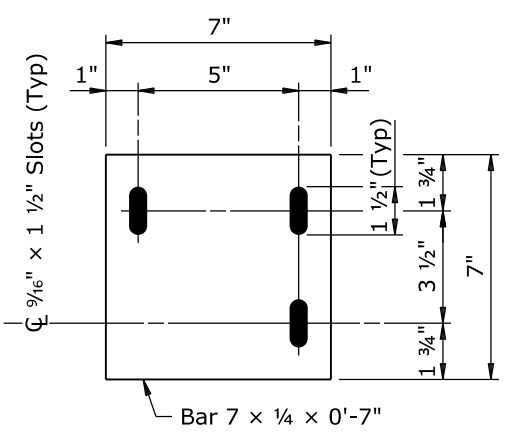
BASE PLATE H DETAIL
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SUPPORT ANGLE DETAIL
(1 req'd)

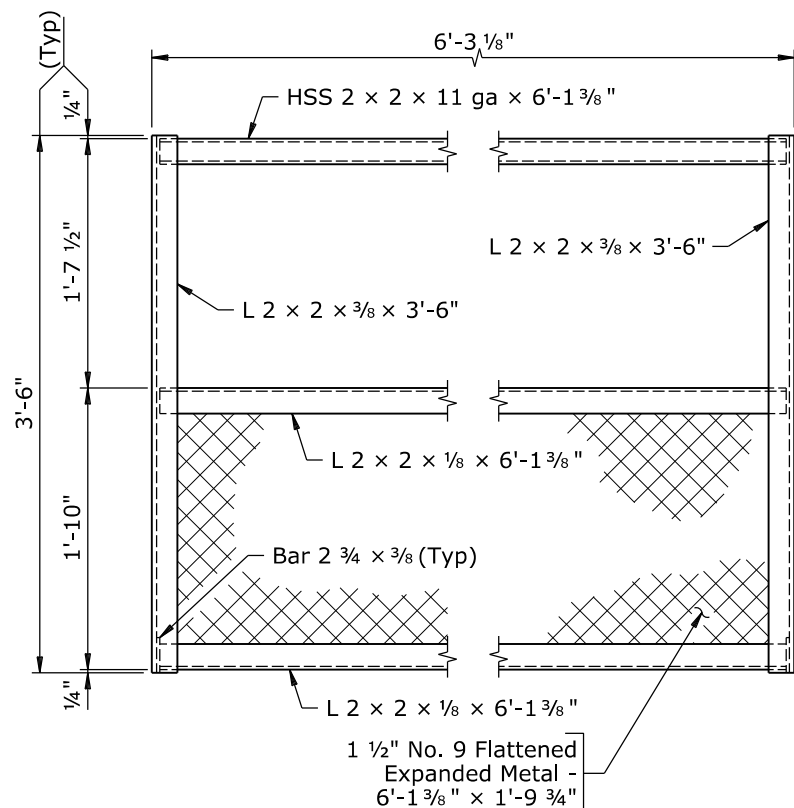


BOTTOM PLATE NO. 1 DETAIL
(4 req'd)

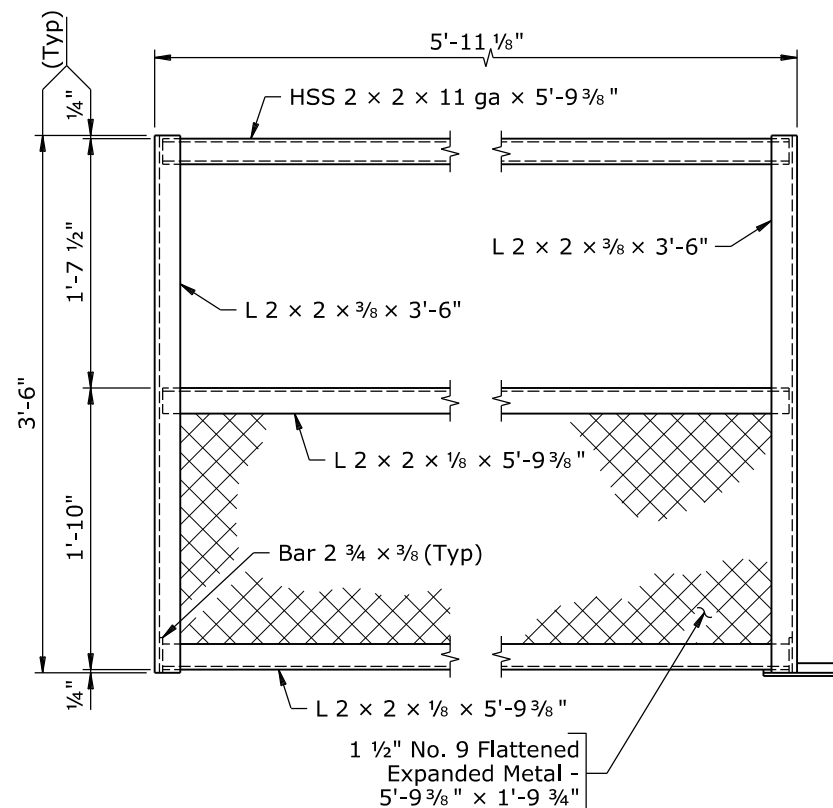


BOTTOM PLATE NO. 2 DETAIL
(2 req'd)

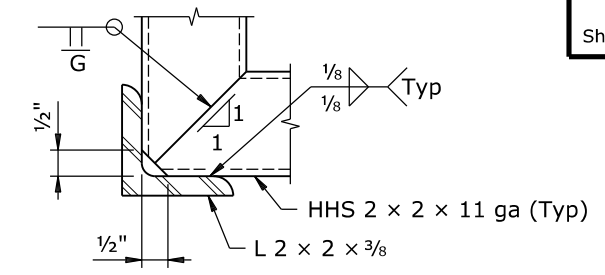
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SIGN STRUCTURE DETAILS			
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REVISIONS	DESIGN	JFJ ✓ BKS	Design Section X
	DETAIL	X ✓ X	
	QTY'S	WES ✓ SMS	Drwg No. X
REVIEW			Sheet 9 of 13
APPROVAL			



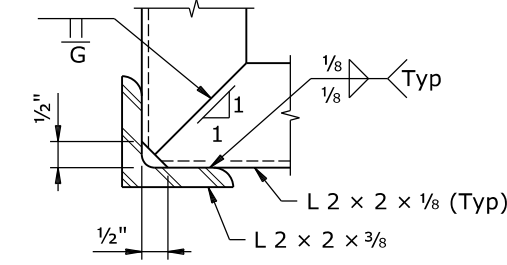
HANDRAIL A ELEVATION
 (Looking at outside face of handrail)
 (1 req'd)



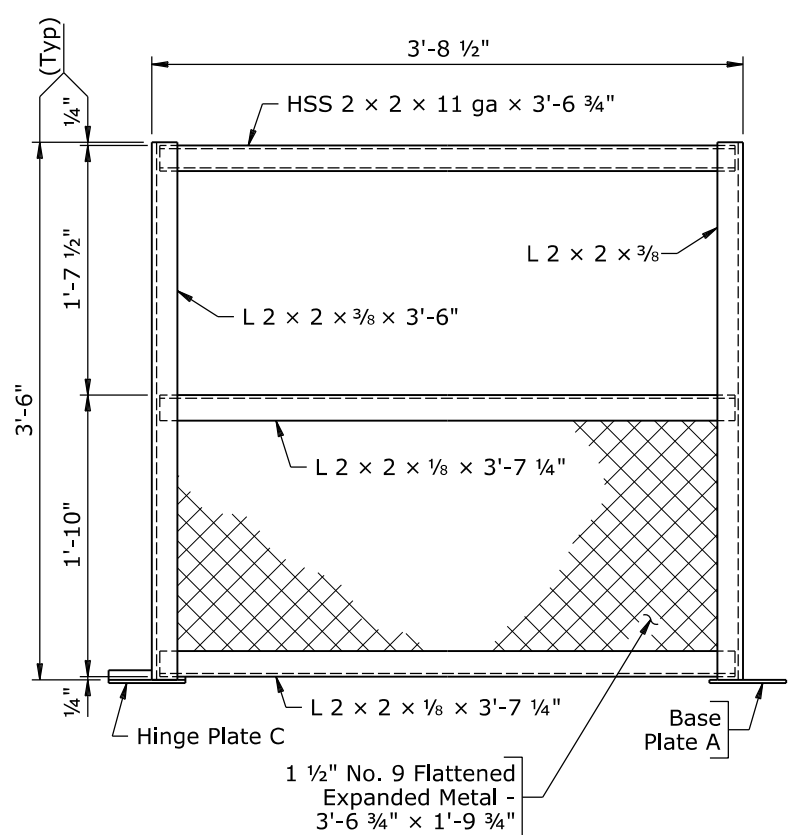
HANDRAIL B ELEVATION
 (Looking at outside face of handrail)
 (2 req'd)



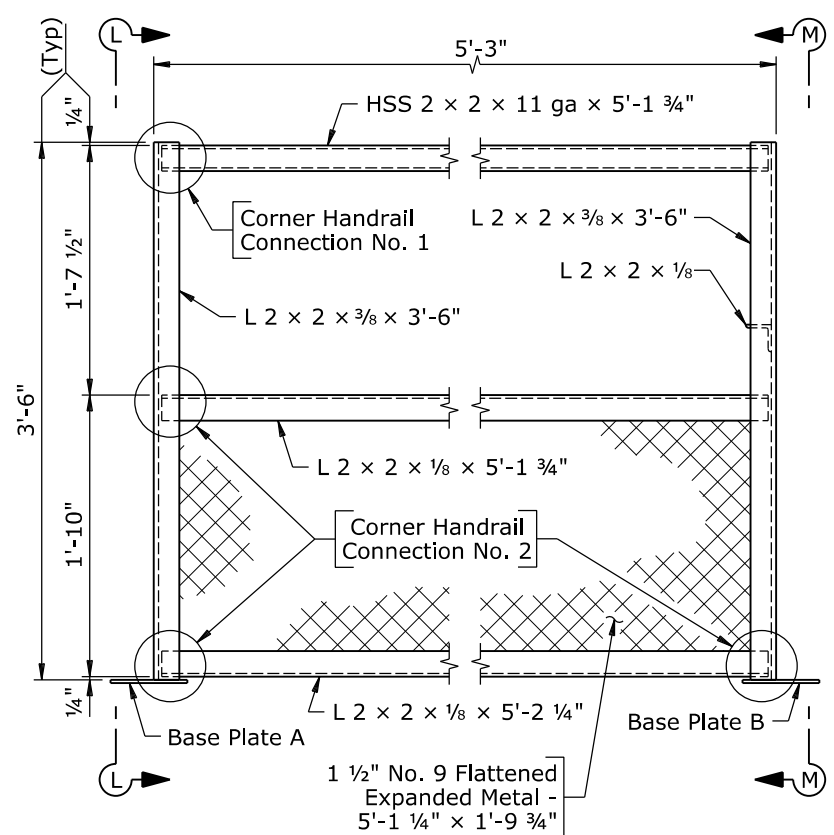
CORNER HANDRAIL CONNECTION NO. 1 DETAIL



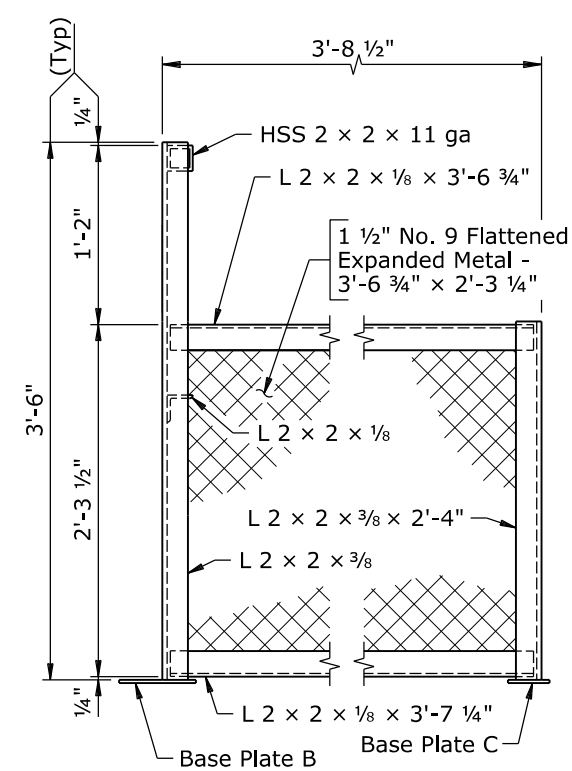
CORNER HANDRAIL CONNECTION NO. 2 DETAIL



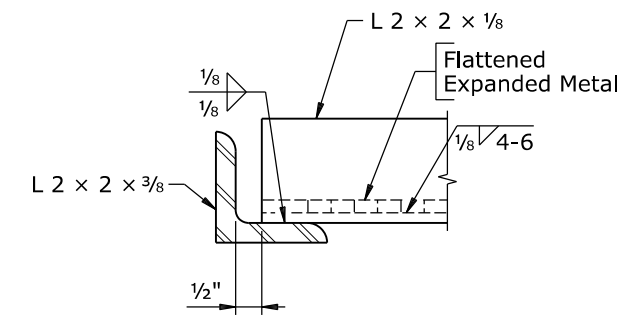
VIEW L-L



HANDRAIL C ELEVATION
 (Looking at outside face of handrail)
 (1 req'd)



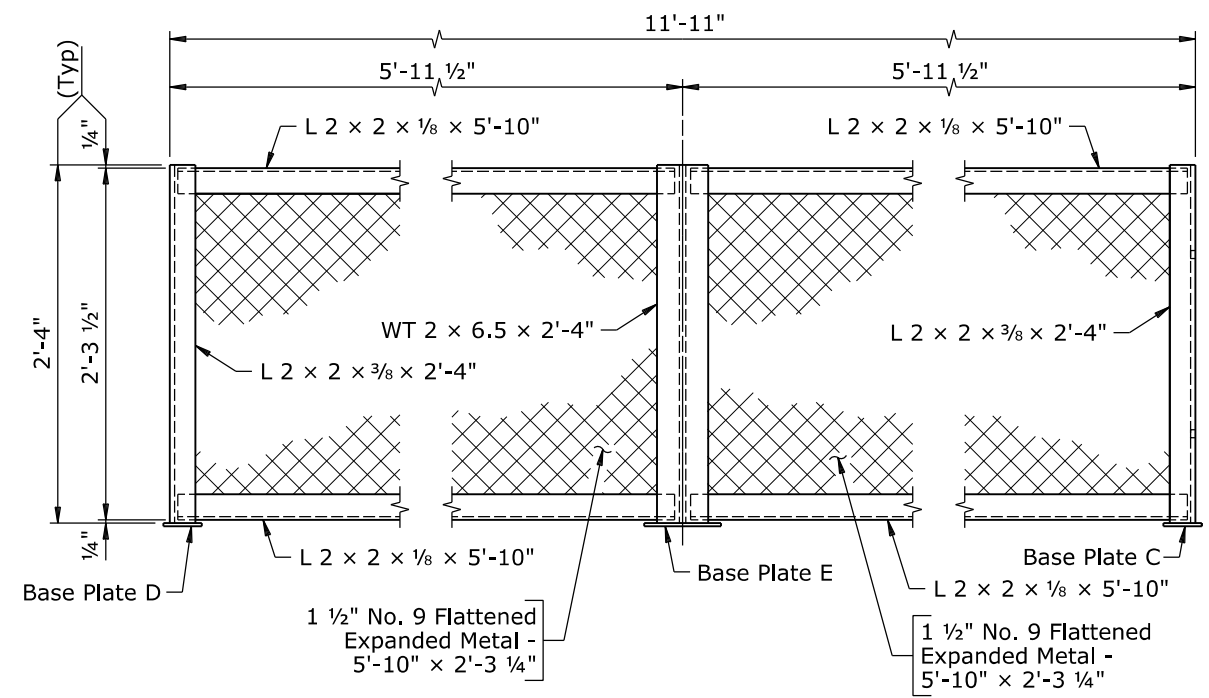
VIEW M-M



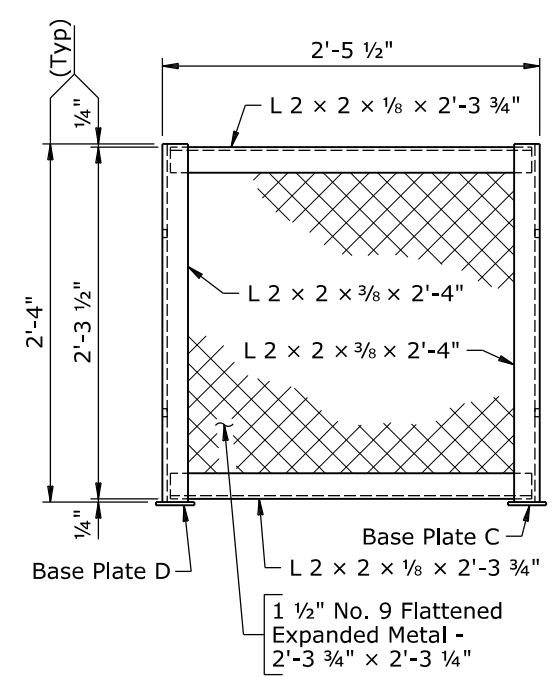
TYPICAL HANDRAIL CONNECTION DETAIL
 (L 2 x 2 x 1/8 shown, HSS 2 x 2 x 11 ga similar)

Note: Terminate welds 1/4" from edge of members, except all-around welds.

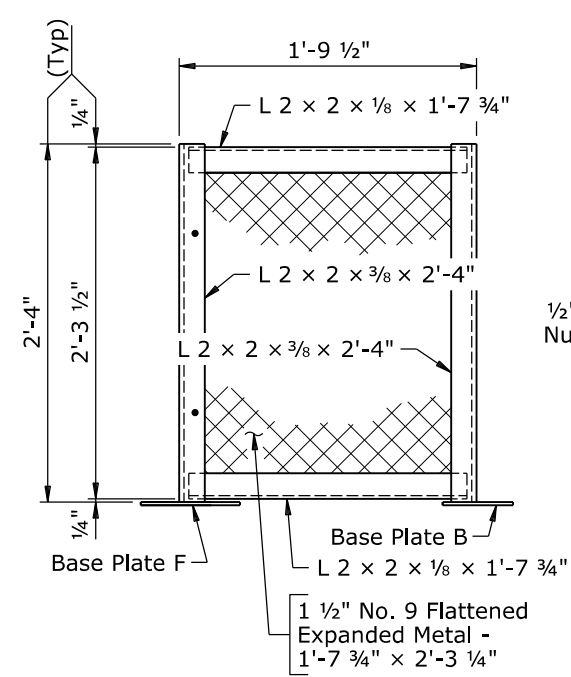
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SIGN STRUCTURE DETAILS			
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REVISIONS	DESIGN	JFJ ✓ BKS	Design Section X
	DETAIL	X ✓ X	
	QTY'S	WES ✓ SMS	Drwg No. X Sheet 10 of 13
REVIEW			
APPROVAL			



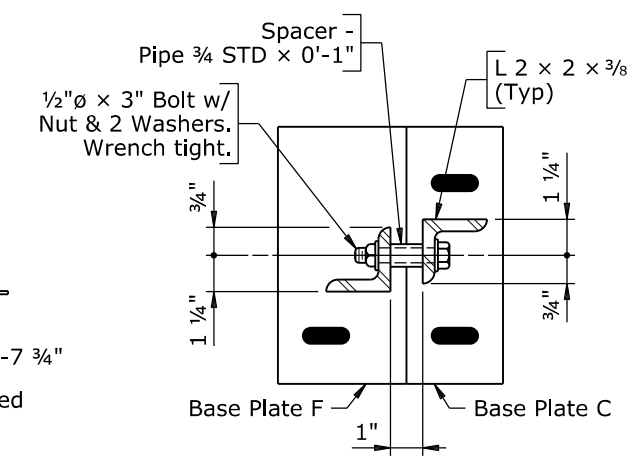
HANDRAIL D ELEVATION
 (Looking at outside face of handrail)
 (1 req'd)



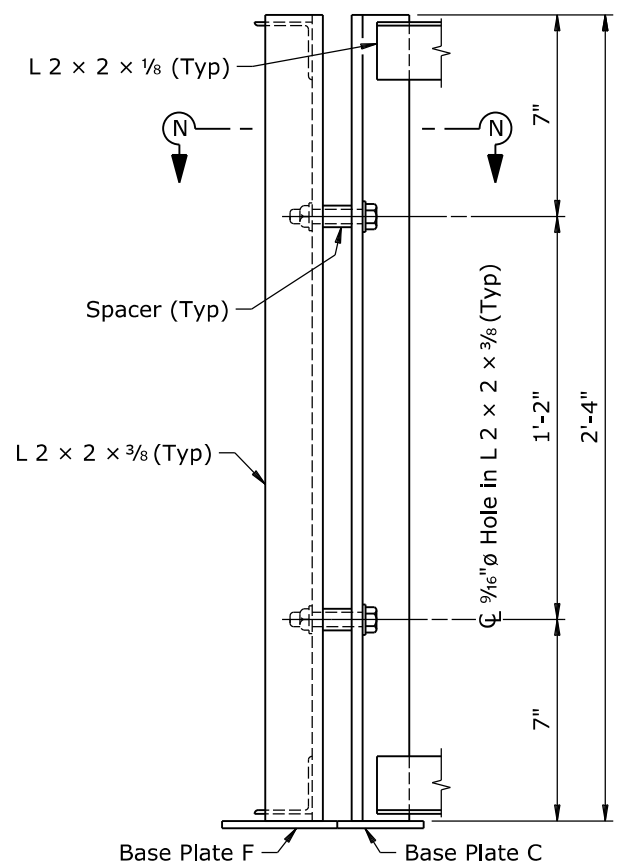
HANDRAIL E ELEVATION
 (Looking at outside face of handrail)
 (1 req'd)



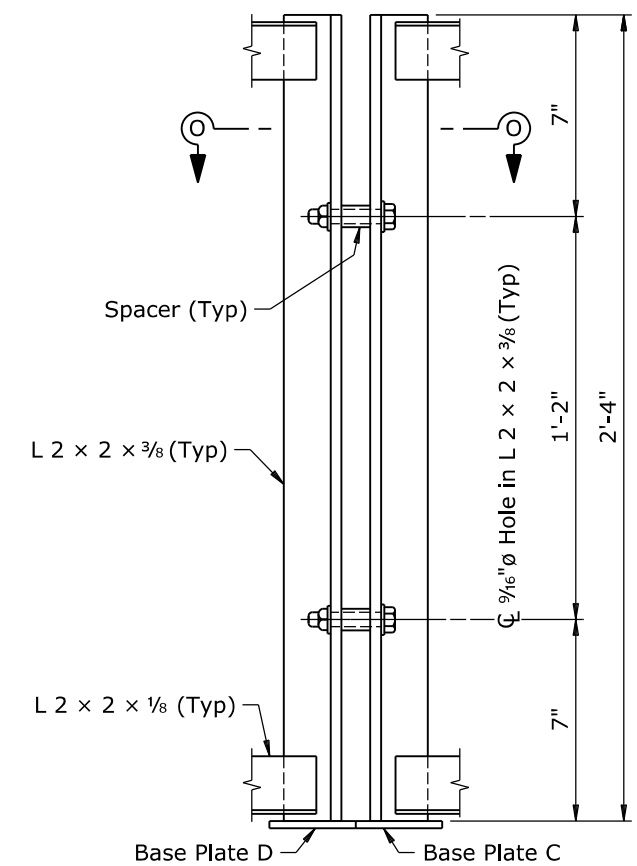
HANDRAIL F ELEVATION
 (Looking at outside face of handrail)
 (1 req'd)



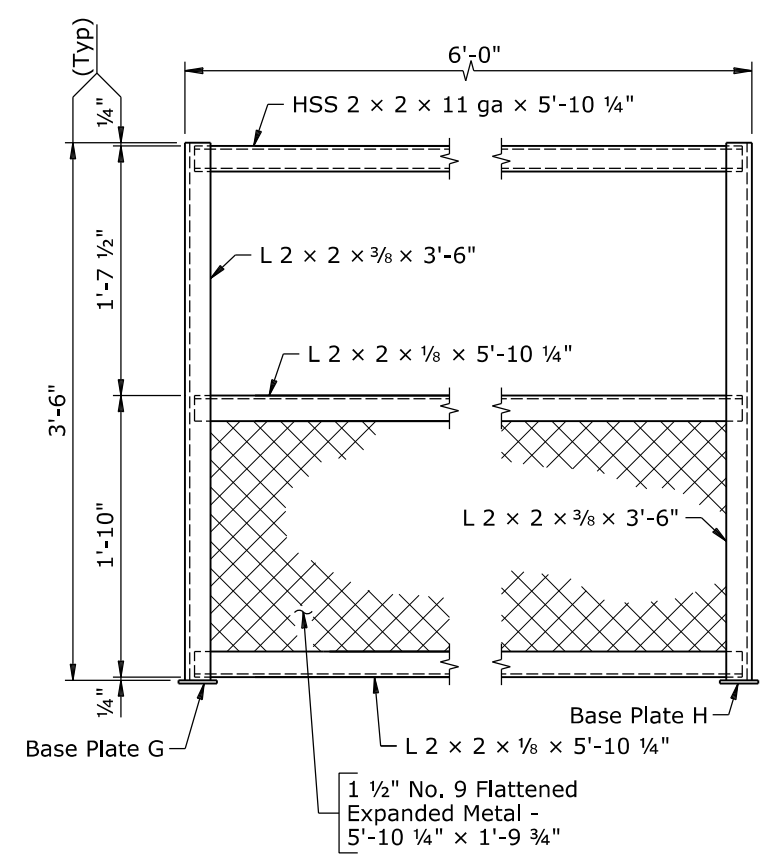
SECTION N-N



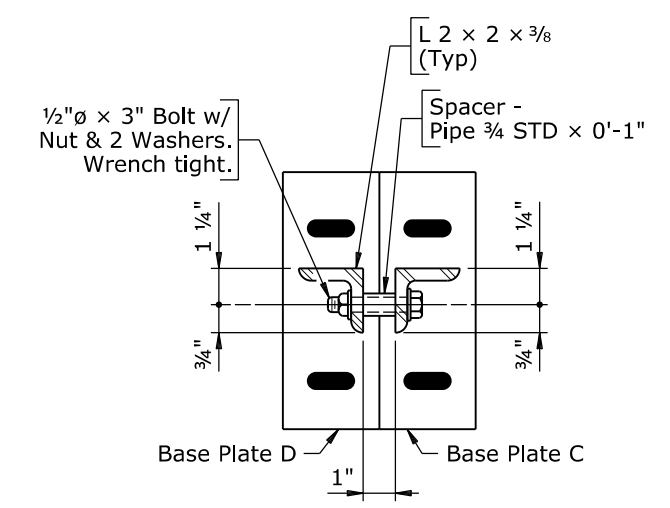
BOLTED HANDRAIL
CONNECTION NO. 1 DETAIL
 (Looking at inside face of handrail)
 (Flattened expanded metal not shown)
 (1 req'd)



BOLTED HANDRAIL
CONNECTION NO. 2 DETAIL
 (Looking at inside face of handrail)
 (Flattened expanded metal not shown)
 (1 req'd)

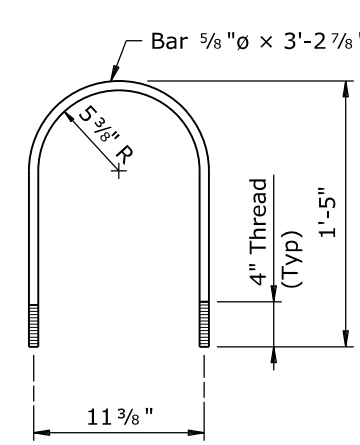
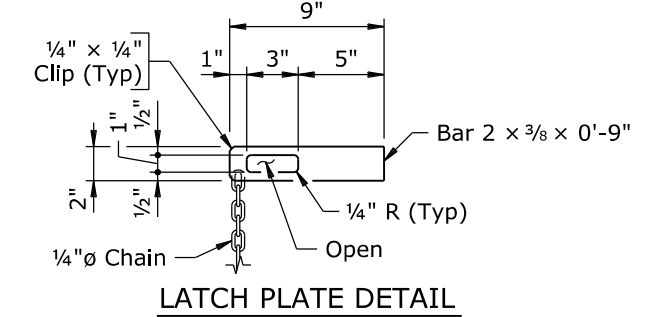
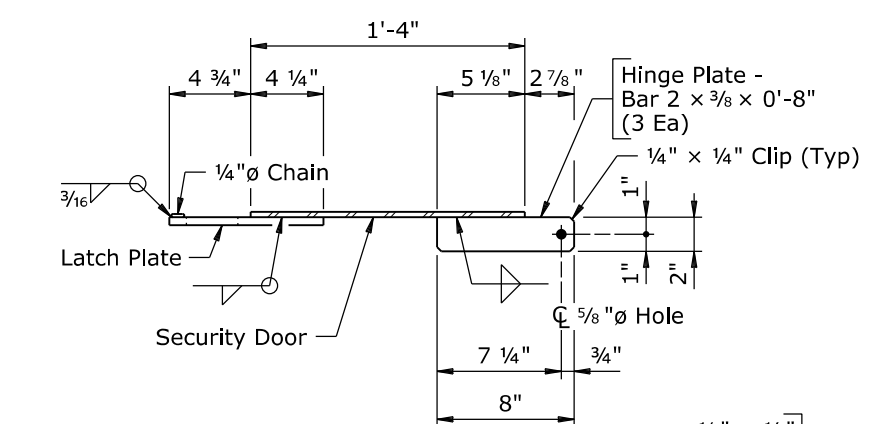
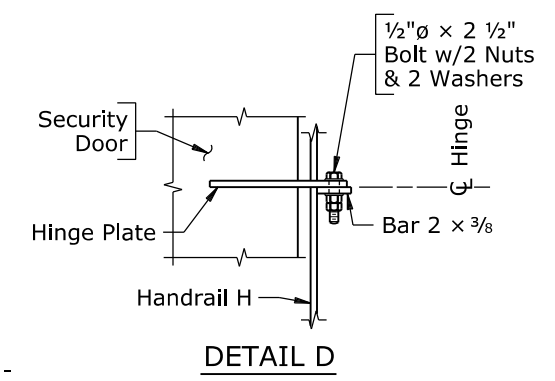
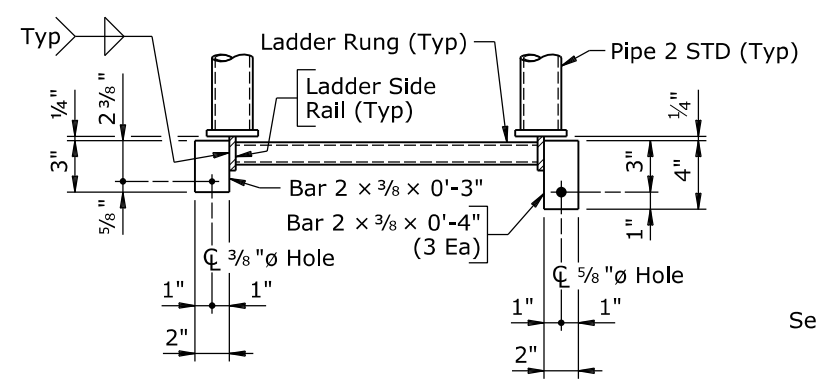
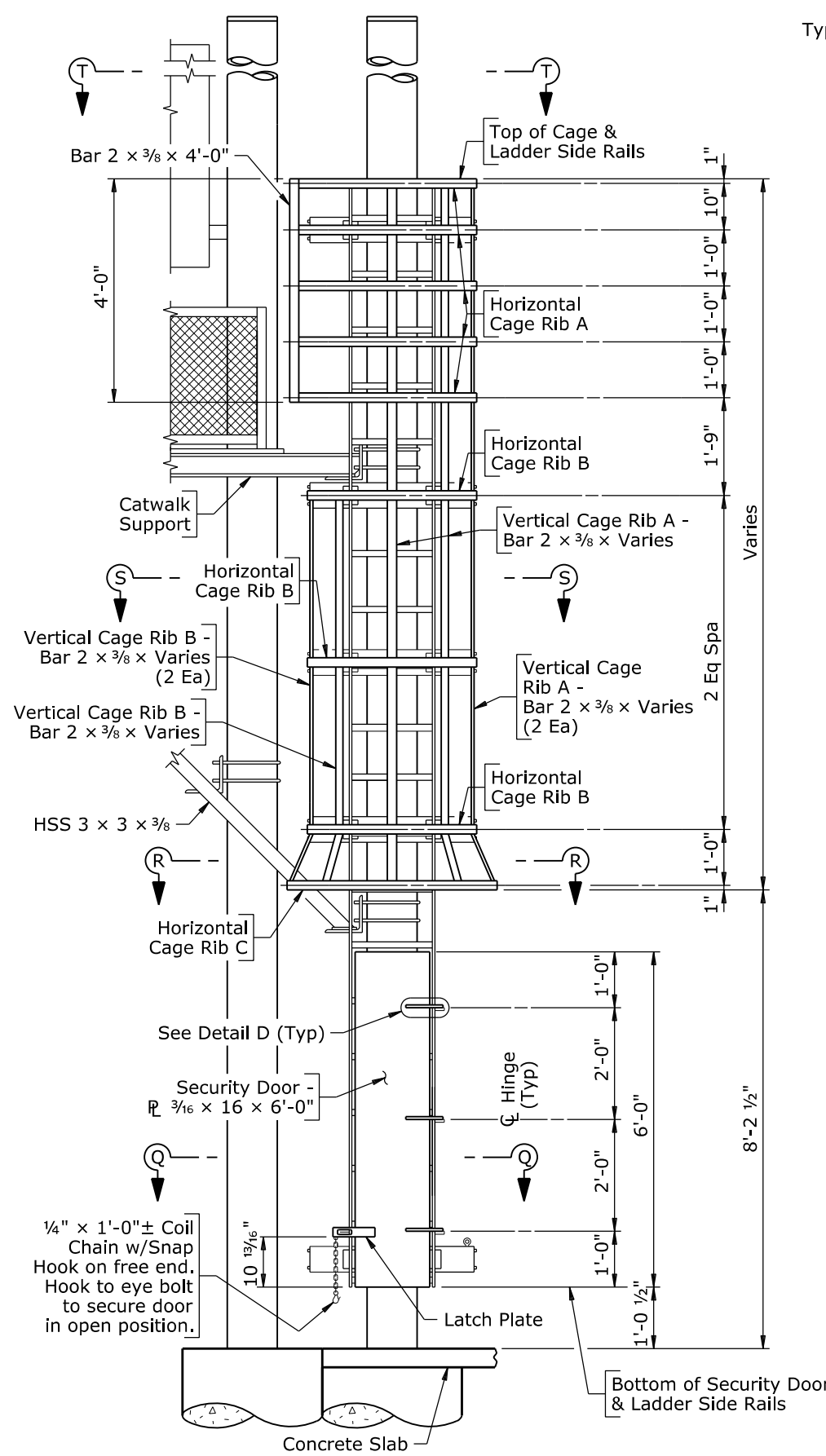
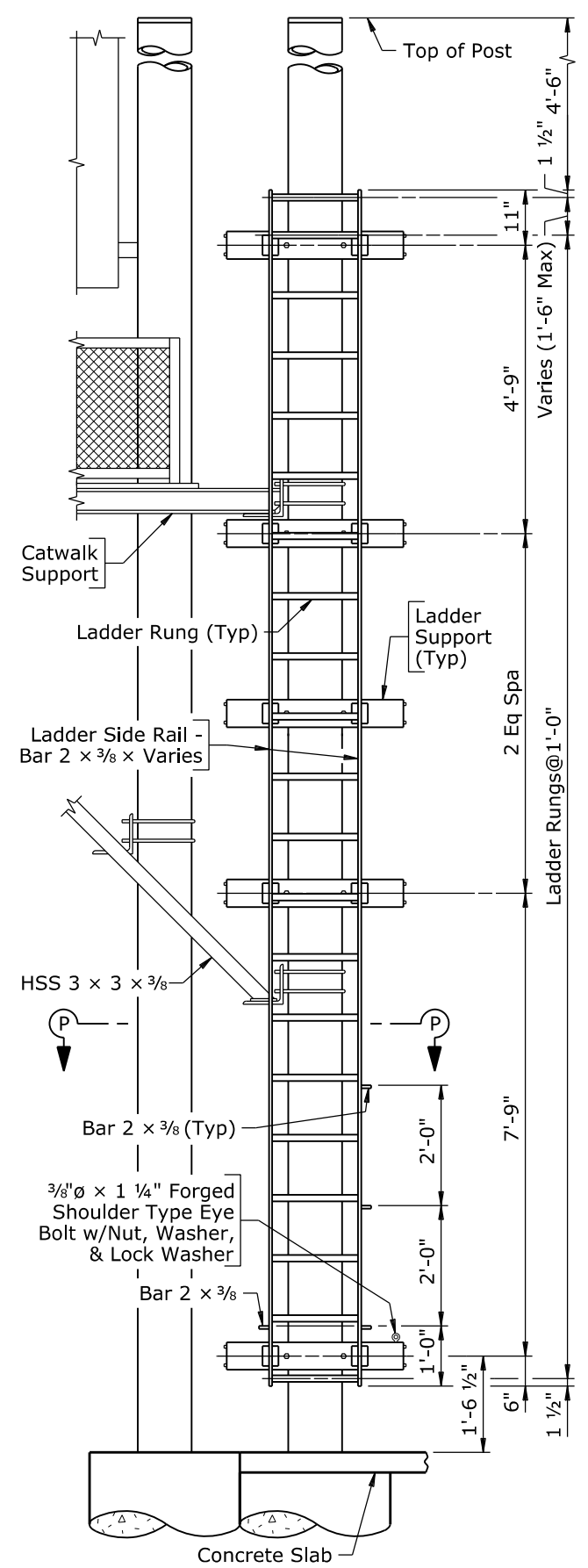


HANDRAIL G ELEVATION
 (Looking at outside face of handrail)
 (1 req'd)



SECTION O-O

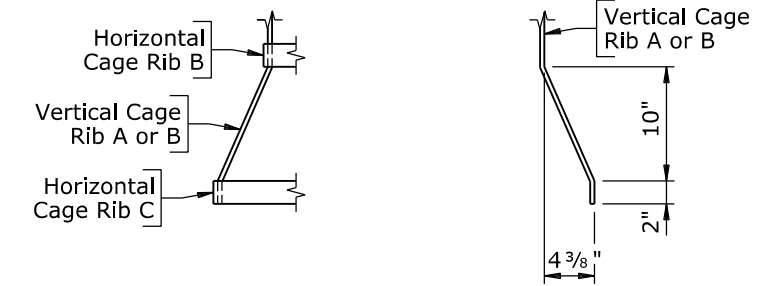
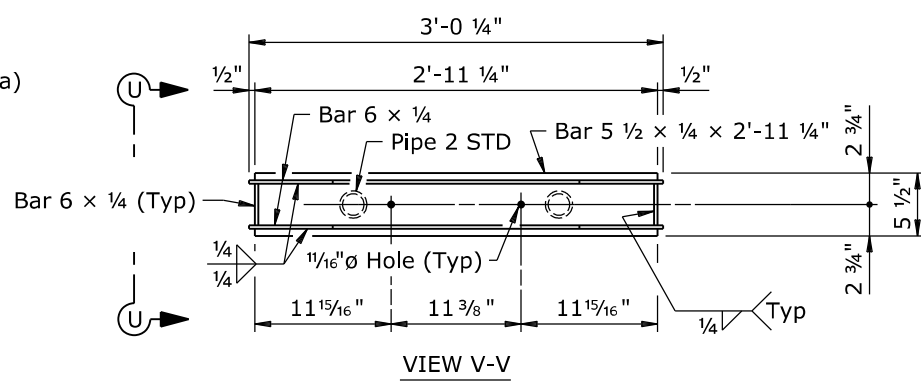
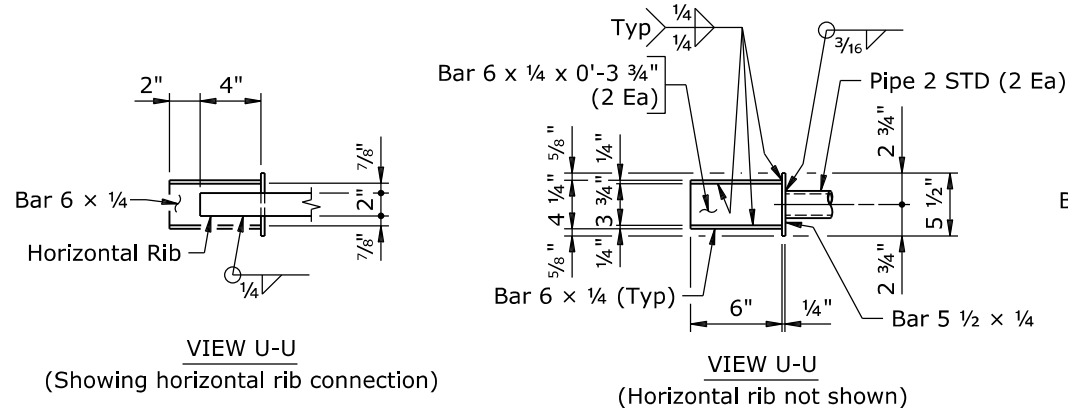
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REVISIONS	DESIGN	JFJ ✓ BKS	Design Section X
	DETAIL	X ✓ X	
APPROVAL	QTY'S	WES ✓ SMS	Drwg No. X Sheet 11 of 13



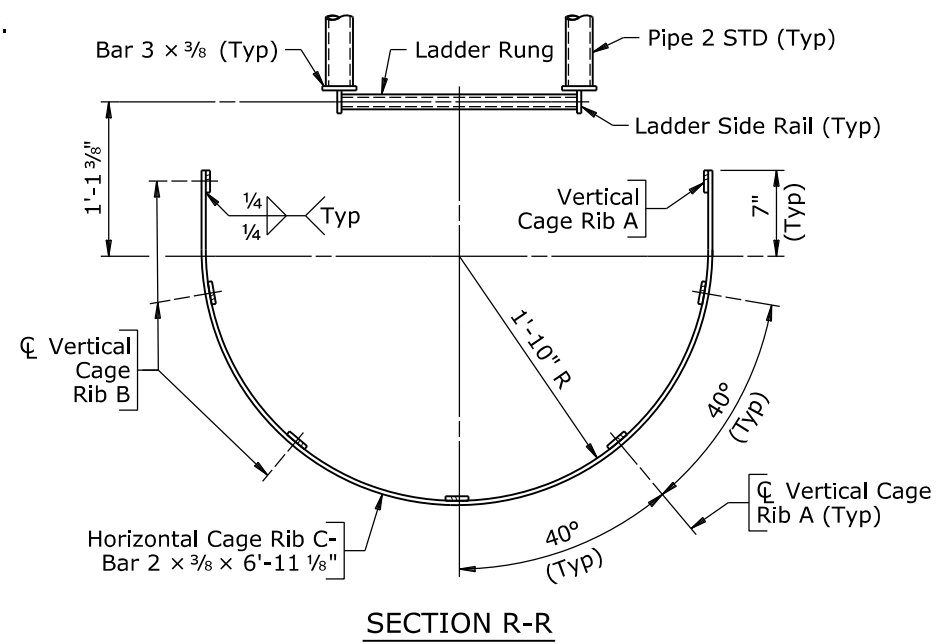
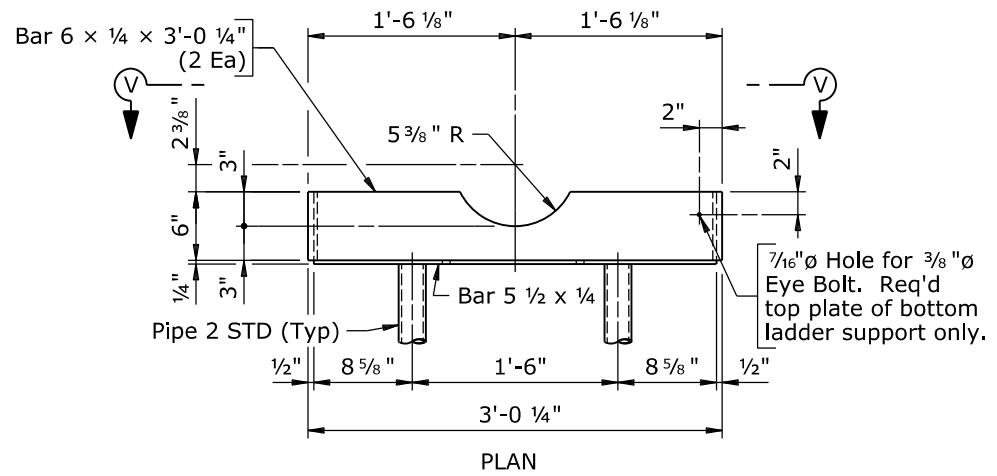
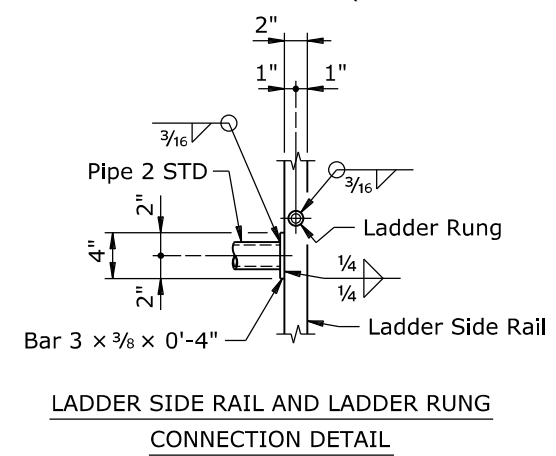
- Note:**
- 1) Ensure fillet welds are terminated 1/4" from edge of members, except all-around welds.
 - 2) Adjust ladder support spacing as required to clear catwalk support and HSS 3 x 3 x 3/8.
 - 3) Furnish one heavy, weatherproof padlock with two keys for securing security door in closed position.
 - 4) Ensure size compatibility of the eye bolt and snap hook for securing door in open position.
 - 5) For Sections R-R, S-S, and T-T, see Sheet No. 13.

DETAILER NOTE: If approximate post height is known, ladder rungs, ladder supports, and horizontal cage ribs spacing may be given. (Remove this note)

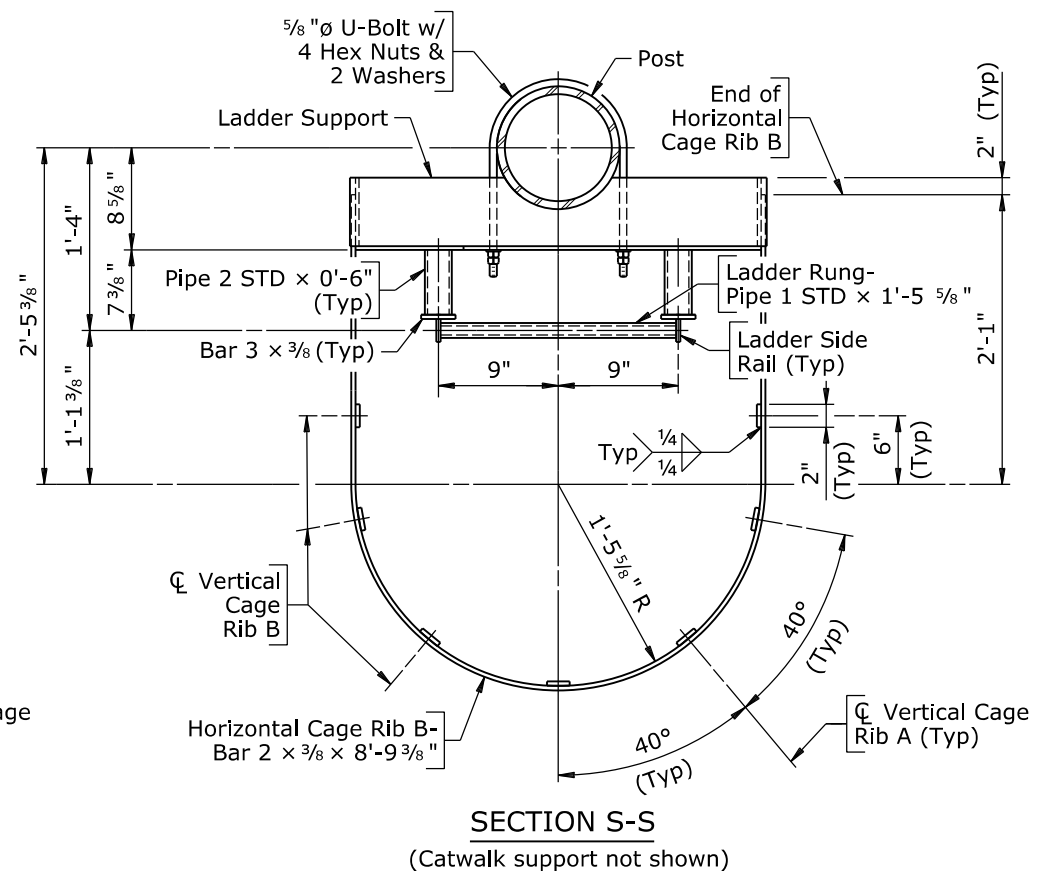
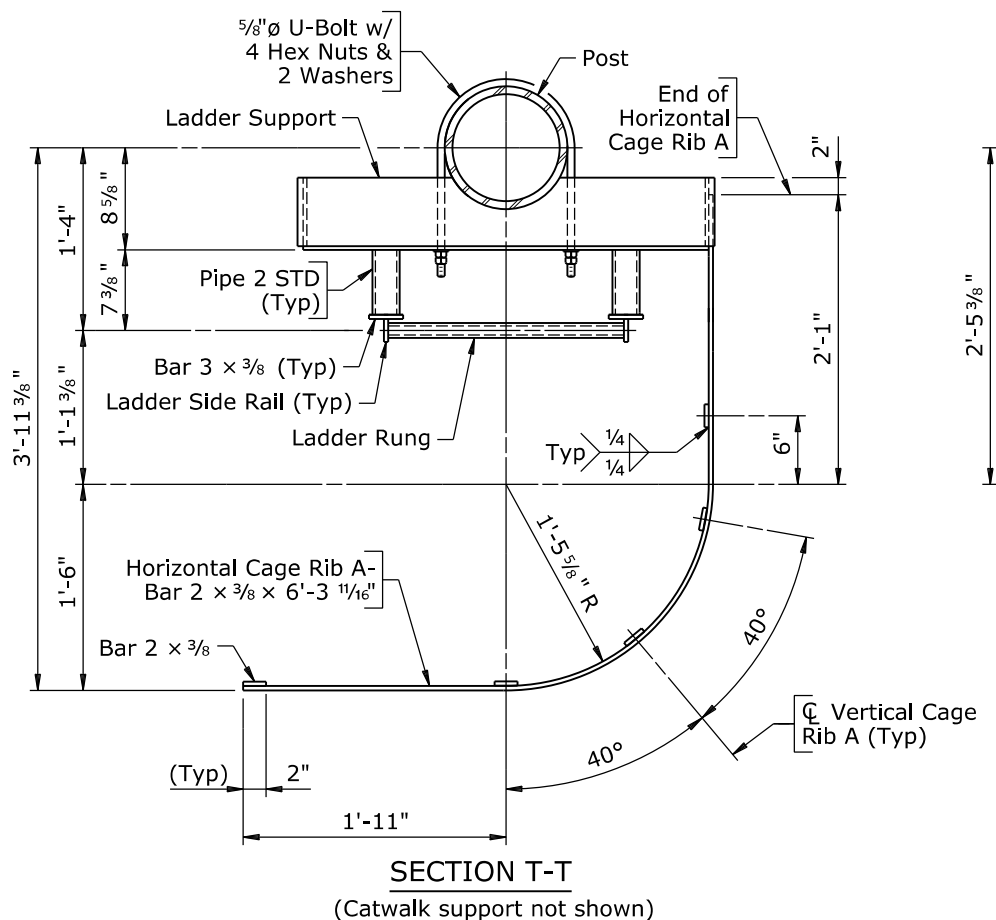
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BRIDGE PROGRAM			
SIGN STRUCTURE DETAILS			
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REVISIONS	DESIGN JFJ ✓ BKS	Design Section X	
	DETAIL X ✓ X	Drwg No. X	Sheet 12 of 13
APPROVAL	QTY'S WES ✓ SMS		



BELL BOTTOM RIB DETAILS



Note: 1) Terminate welds 1/4" from edge of members, except all-around welds.
 2) For location of Sections R-R, S-S, and T-T, see Sheet No. 12.



WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE PROGRAM			
SIGN STRUCTURE DETAILS			
SMS_sg11_V.dgn			
REVISIONS	DESIGN JFJ ✓ BKS	Design Section X	
	DETAIL X ✓ X	Drwg No. X	Sheet 13 of 13
APPROVAL	QTY'S WES ✓ SMS		