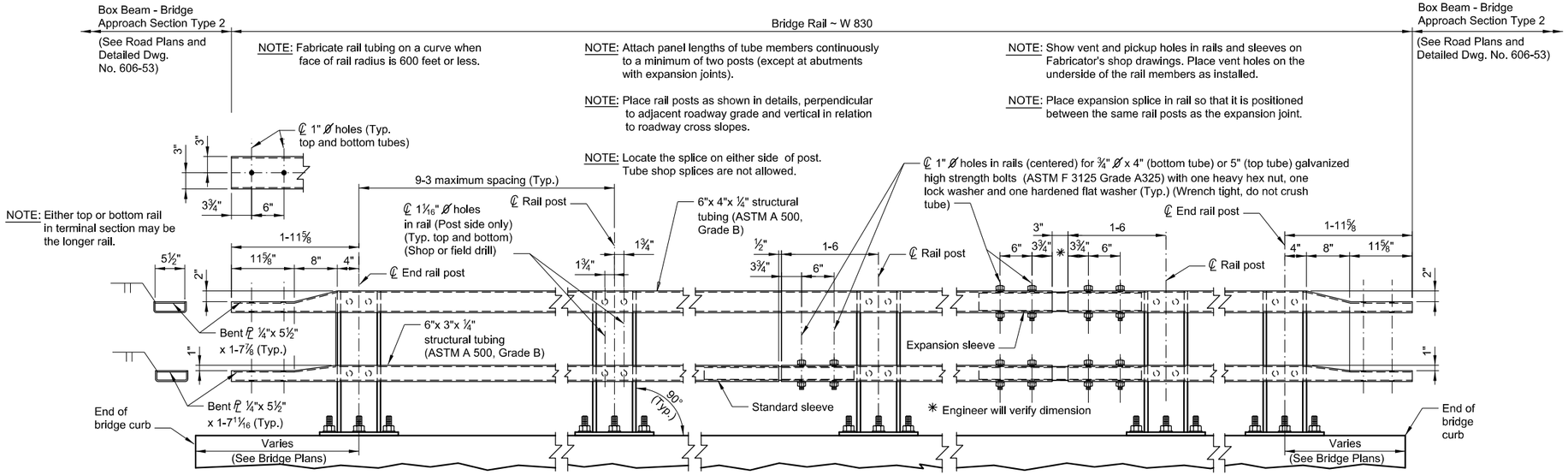


ELEVATION AT BOX BEAM GUARDRAIL CONNECTION

NOTE: Do not provide a tube splice in first panel unless it crosses an expansion joint.

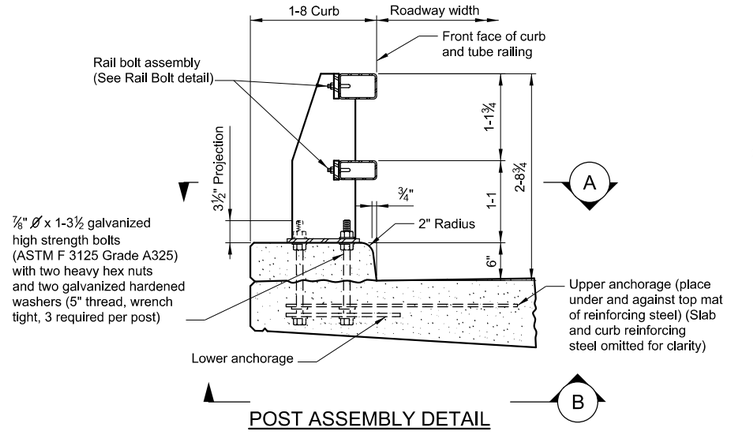
STANDARD SPLICE

(Top or bottom rail)

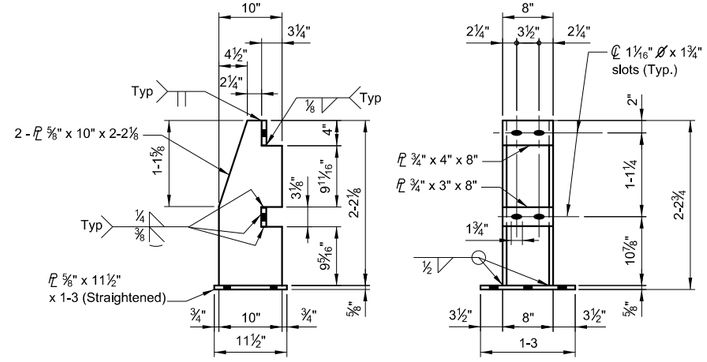
EXPANSION SPLICE

(Top and bottom rail)

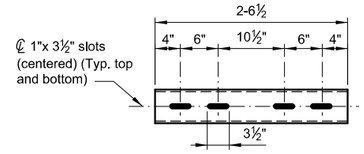
INSIDE ELEVATION OF RAIL



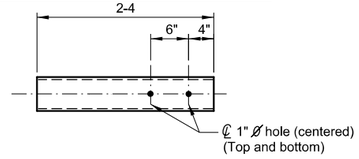
POST ASSEMBLY DETAIL



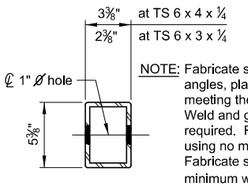
POST DETAILS



EXPANSION SLEEVE DETAIL

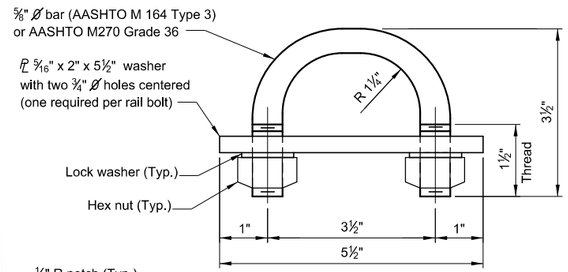


STANDARD SLEEVE DETAIL

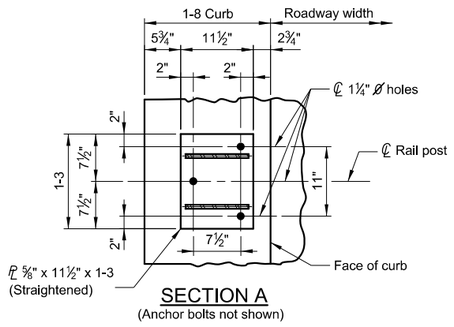


NOTE: Fabricate sleeves using channels, angles, plates, or bent plates meeting the dimensions shown. Weld and grind smooth as required. Fabricate sleeves using no more than four welds. Fabricate sleeves with a minimum wall thickness of 3/16".

SLEEVE FABRICATION OPTIONS

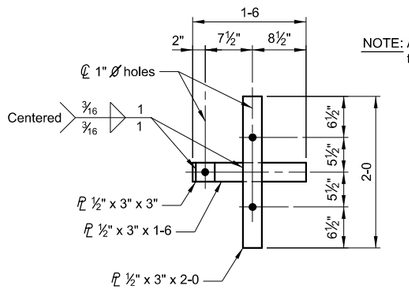


RAIL BOLT DETAIL



SECTION A

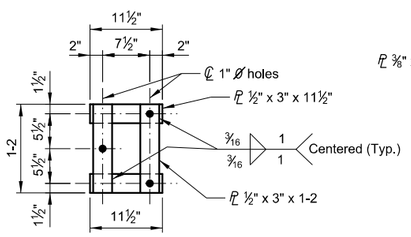
(Anchor bolts not shown)



NOTE: Anchor bolts may be tack welded to anchorage (shop or field).

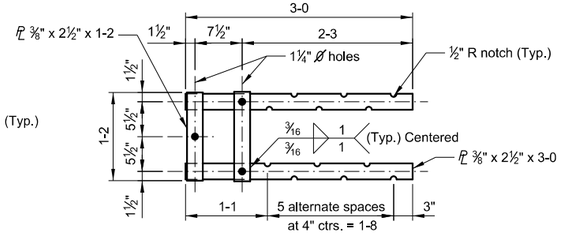
VIEW B

(Showing lower anchorage)
(Do not galvanize)
(Anchor bolts not shown)



VIEW B (U-TYPE BENT)

(Do not galvanize)
(Anchor bolts not shown)



VIEW B

(Showing upper anchorage)
(Do not galvanize)
(Anchor bolts not shown)

NOTES

GALVANIZING: Galvanize all bolts, nuts, washers and pipe sleeves in accordance with ASTM F 2329.

REFLECTORS: Place a white reflector on top of the top tube rail at equal spacing (not to exceed 30 foot spacing) between ends of rail. See Dtl. Dwg. No. 605-00 for reflector detail. Mount the reflector on the tube rail with an approved adhesive. Include the cost of reflector in the unit price bid for Bridge Rail ~ W830.

PAYMENT: Payment for Bridge Rail ~ W830 per linear foot includes compensation for the cost of Concrete Class Deck in the curb and for all resources necessary to complete the work. See the General Layout for the number of linear feet for payment of Bridge Rail ~ W830. Use rail post plates and base plates conforming to AASHTO M 270 Grade 36 T3. Use AASHTO M 270 Grade 36 for all other plates.

ERECTION: Place rail posts as shown in details, perpendicular to adjacent roadway grade and vertical in relation to roadway cross slopes. Place posts in proper alignment prior to placement of curb.

PAINTING: Paint all posts, structural tubing and plates (except as noted) in accordance with the Standard Specifications. Galvanizing the posts, structural tubing and plates in accordance with AASHTO M 111 will be allowed.

EXCEPTIONS: Use details shown on this drawing only as they apply to the project. Anchorage details may vary. Refer to other drawings for variations in these details.

FABRICATION: For the purposes of fabrication, this rail system is considered an ancillary item. The requirements of subsection 1.3.7 of AASHTO/AWS D1.5 apply.

RAIL WEIGHT: For informational purposes only, the rail weight is approximately 123.0 lb/ft for the curb and 50.0 lb/ft for the rail.

STANDARD BRIDGE RAIL TYPE W830

No Scale

MDT MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

REVISED	3-15-17	D.F.J.	
REVISED	5-20-14	D.F.J.	
REVISED	2-1-11	D.F.J.	
APPROVED	3-26-08	D.F.J.	
CHECKED	3-20-08	D.J.R.	
DRAWN	8-2-06	L.M.S.	
$DATE$	$TIME$	$FILEABBREV$	

DRAWING NO. SBR-W830