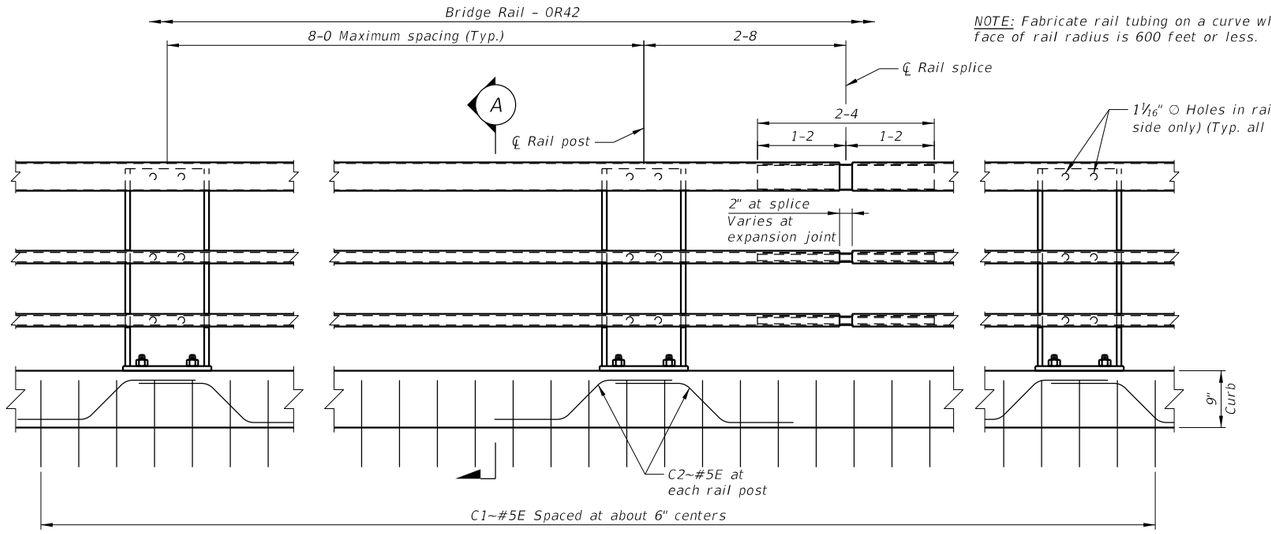


INSIDE ELEVATION OF RAIL

NOTE: Fabricate rail tubing on a curve when face of rail radius is 600 feet or less.

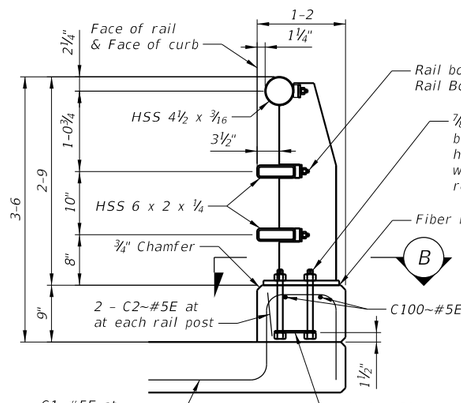
NOTE: Locate the splice on either side of post. Tube shop splices are not allowed.

NOTE: Show vent and pickup holes in rails and sleeves on Fabricator's shop drawings. Place vent holes on the underside of the rail members as installed.

NOTE: Attach panel lengths of tube members continuously to a minimum of two posts (except at abutments with expansion joints).

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

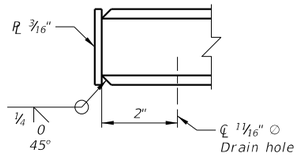
NOTE: Place expansion splice in rail such that it is positioned between the same rail posts as the expansion joint.



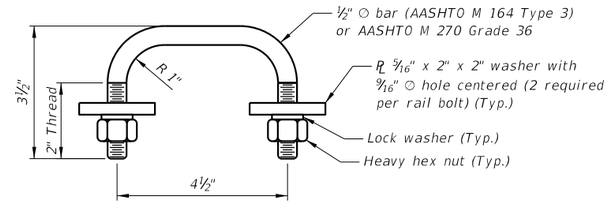
SECTION A

NOTE: Finish the top of slab under each rail post to a smooth and uniform surface to assure a proper alignment of the post and a tight fit between the fiber reinforced pad and concrete. Bush hammering is acceptable only to remove high spots.

NOTE: Use fiber reinforced pads meeting the requirements of subsection 711.16 of the Standard Specifications. Size and position the pads such that not less than ½" of the pad protrudes on all sides of the base plate. Punch slotted holes in pads to match base plate.



TUBE CAP DETAIL



RAIL BOLT DETAIL

NOTES

PLACEMENT: Do not disturb the deck cure to construct the curb and rail.

CONCRETE STRENGTH: Do not place construction vehicles or equipment on the deck until the concrete has reached 90% of its specified 28-day compressive strength or without approval from the Project Manager.

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 42 IN Open Rail – BR.

PAYMENT: Payment for 42 IN Open Rail – BR 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 42 IN Open Rail – BR. Use rail post plates and base plates conforming to AASHTO M 270 Grade 50 T3. Use AASHTO M 270 Grade 50 for all other plates and ASTM A500 Grade B for structural tubing.

ERECTION: Place rail posts as shown in details, perpendicular to adjacent roadway grade and vertical in relation to roadway cross slopes.

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.

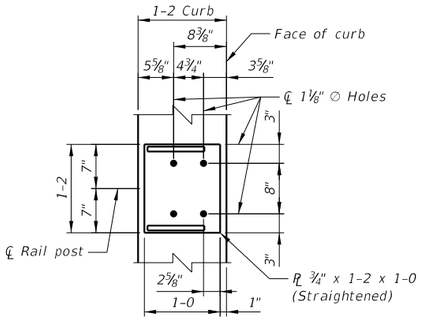
EXCEPTIONS: Use details shown on this drawing only as they apply to the project. Anchorage details may vary. Refer to other drawings for variations in these details.

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.

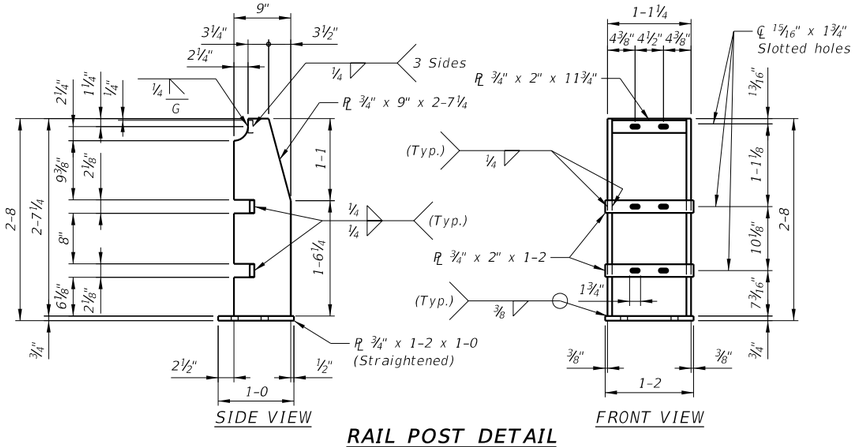
RAIL WEIGHT: For informational purposes only, the rail weight is approximately:
Curb weight = 131.3 lb/ft
Curb volume = 0.875 cu. ft / ft
Rail weight = 52.9 lb/ft

PICKETS: See Std. Dwg. No. SBR-0R42-PK for rail pickets when called for in the Bridge Plans.

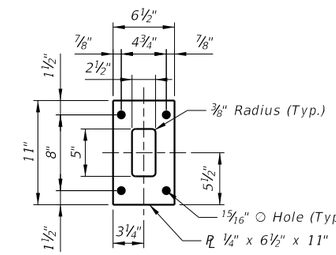
CRASH TEST: This rail has been evaluated and approved to be of equal strength to railings with like geometry, which have been crash tested to meet MASH TL-4 criteria.



SECTION B
(Anchor bolts not shown)

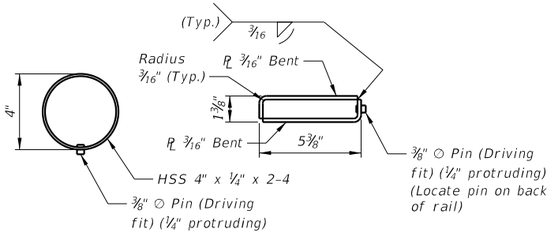


RAIL POST DETAIL



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

ANCHOR PLATE DETAIL

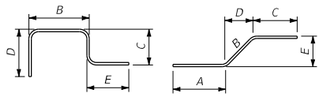


NOTE: Locate ⅜" ∅ Pin at mid-length of sleeve.

SLEEVE FABRICATION DETAILS

BILL OF REINFORCING STEEL

FOR ONE CURB ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



NOTE: See Bridge Plans for number of bars required and longitudinal bars.

Mark	Size	Type	Length	A	B	C	D	E	G	N
C1	#5E	526	4-0½		11"	1-1¾	1-1¾	10"		
C2	#5E	41	2-6¾	11"	8¾"	11"	6¼"	6¼"		

STANDARD BRIDGE RAIL
TYPE OPEN RAIL 42"

No Scale

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

REVISED				
REVISED				
REVISED				
APPROVED	9-17-19	N.A.H.		
CHECKED	2-7-19	L.M.M.		
DRAWN	3-14-18	T.J.B.		SFILEABBREV$
$DATES		$TIMES		

DRAWING NO.
SBR-0R42