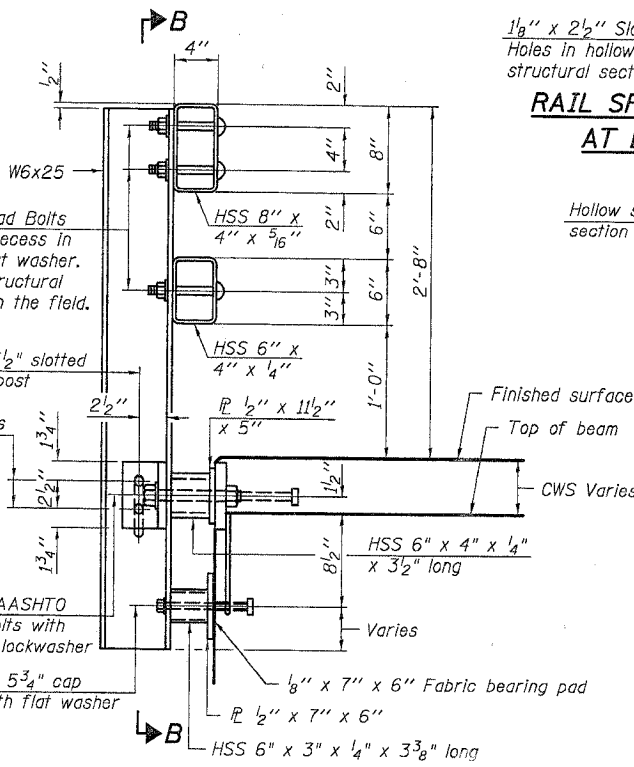


4-3/4"  $\phi$  x 6" Round Head Bolts (With slot or approved recess in head) with locknut & flat washer. 7/8"  $\phi$  holes in hollow structural section may be drilled in the field.

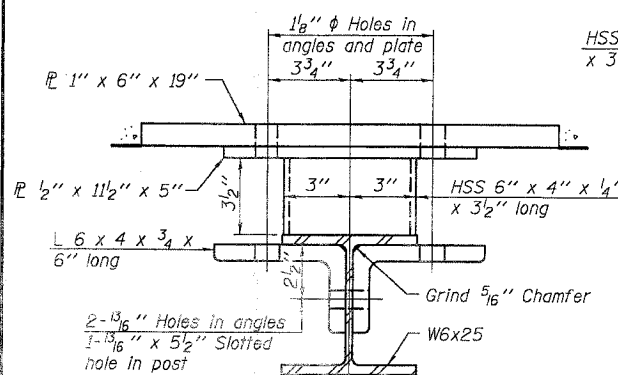
**VIEW A-A**

2-1"  $\phi$  x 7 3/4" AASHTO M-164 anchor bolts with flat washer and lockwasher  
2-5/8"  $\phi$  x 5 3/4" cap screws with flat washer

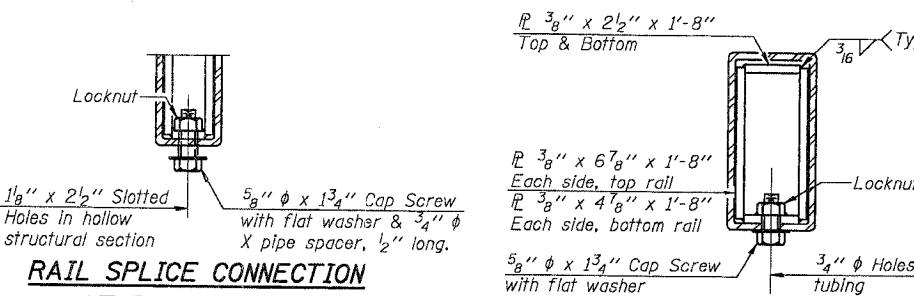
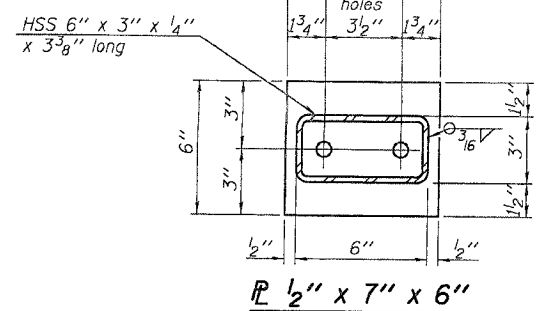
**SECTION B-B**



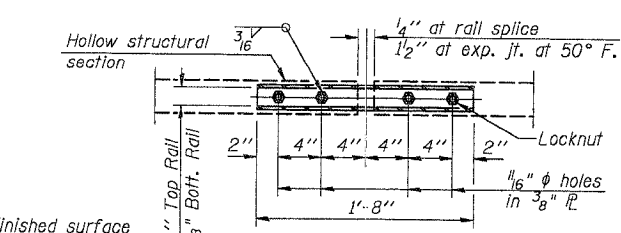
**SECTION AT RAIL POST**



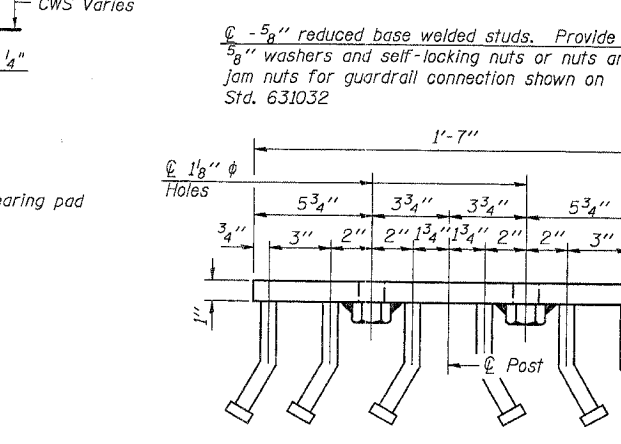
**SECTION C-C**



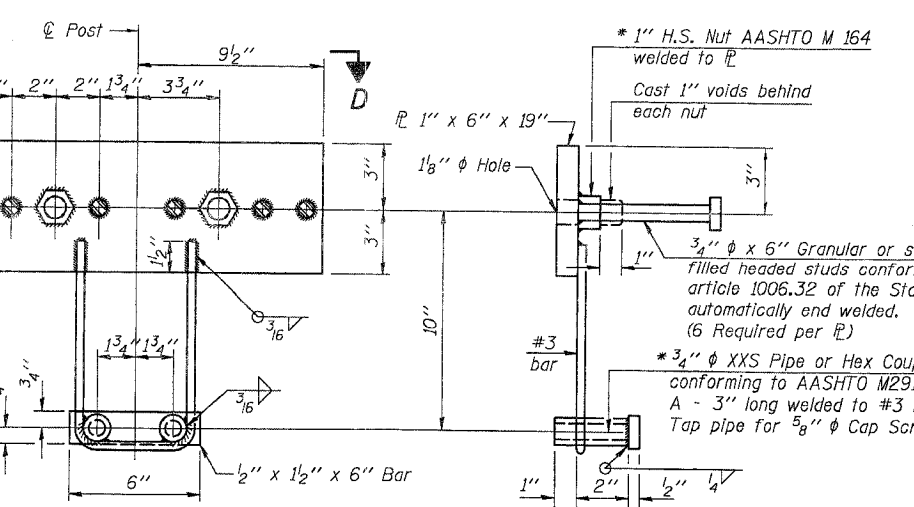
**RAIL SPLICE CONNECTION AT EXPANSION JT.**



**PLAN-BOTT. SPLICE R TYPICAL**

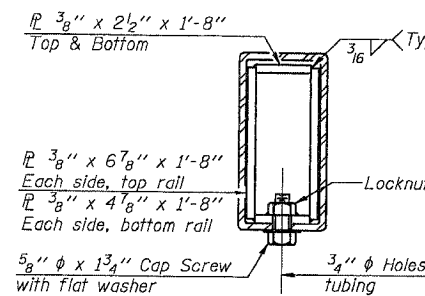


**VIEW D-D**

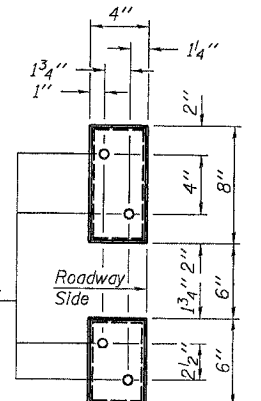


**ANCHOR DEVICE**

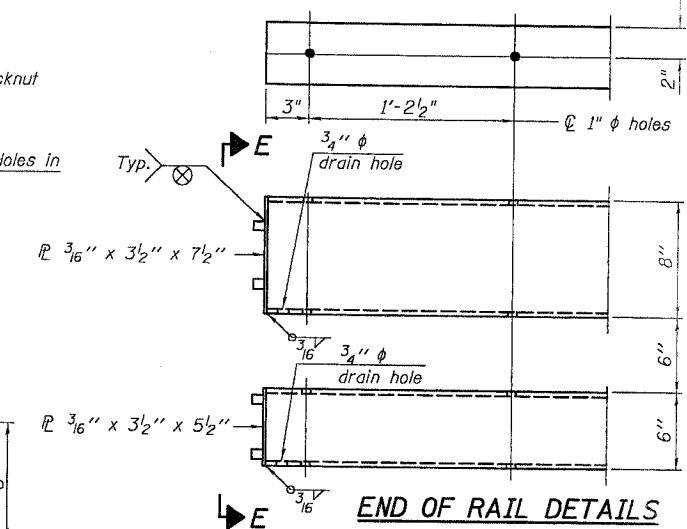
\* Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.



**SECTION AT RAIL SPLICE**



**VIEW E-E**



**NOTES**

Hollow structural sections shall conform to the requirements of ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F.  
All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270, Grade 50.  
Bolts, cap screws, and nuts shall conform to the requirements of ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.  
All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.  
All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.  
Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for Steel Bridge Rail, Type SM.  
All field drilled holes shall be coated with an approved zinc rich paint before erection.  
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Bridge Rail, Type SM.  
The 3/4"  $\phi$  high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04(f)(2) of the Standard Specifications. The 1"  $\phi$  high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8"  $\phi$  cap screws in bottom of posts shall be tightened to a snug fit only.

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Bridge Rail, Type SM	Foot	208

DESIGNED	MGH
CHECKED	RGD
DRAWN	MDJ
CHECKED	NRF

10-28-05 (64' 3" Maximum Post Spacing) (5" minimum to 7 1/2" maximum CWS thickness)

**STEEL BRIDGE RAIL, TYPE SM AT PPC CONCRETE DECK BEAMS IL. RT. 84 OVER CEDAR CREEK F.A.P. ROUTE 308 - SECTION 109 BR-3 WHITESIDE COUNTY STA. 225+65.77 SN 098-0022**

