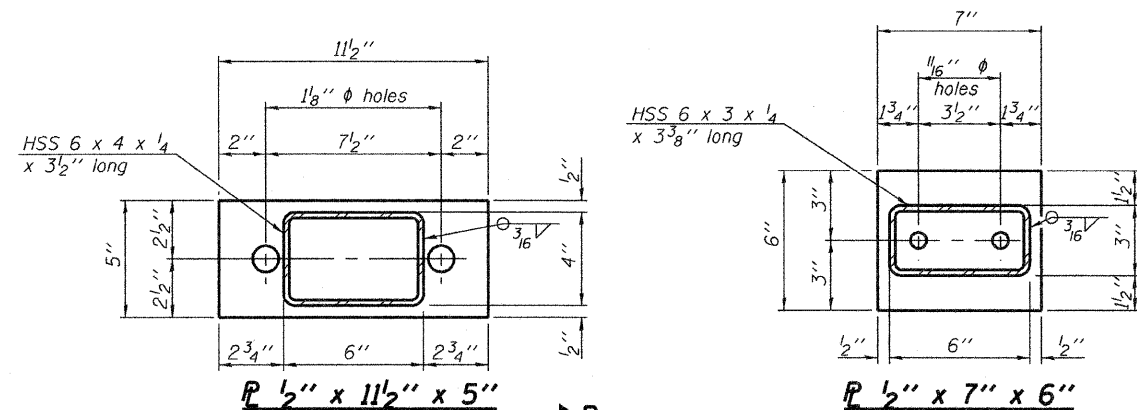
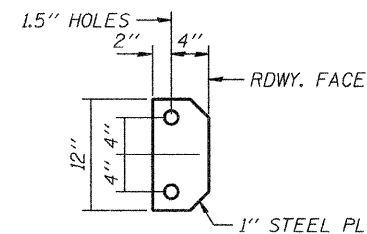


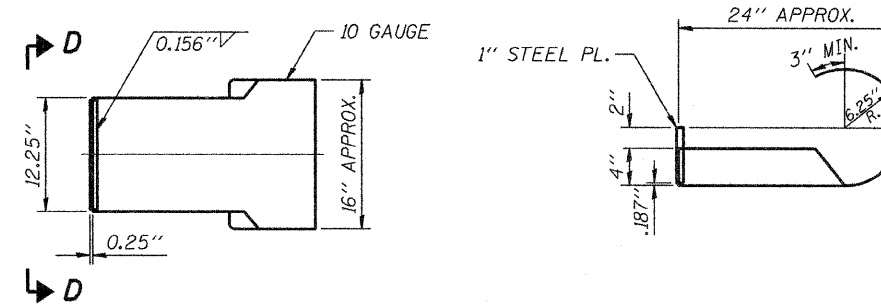
**VIEW A-A  
ROUND HEAD BOLT**



**1/2" x 11 1/2" x 5"**      **1/2" x 7" x 6"**

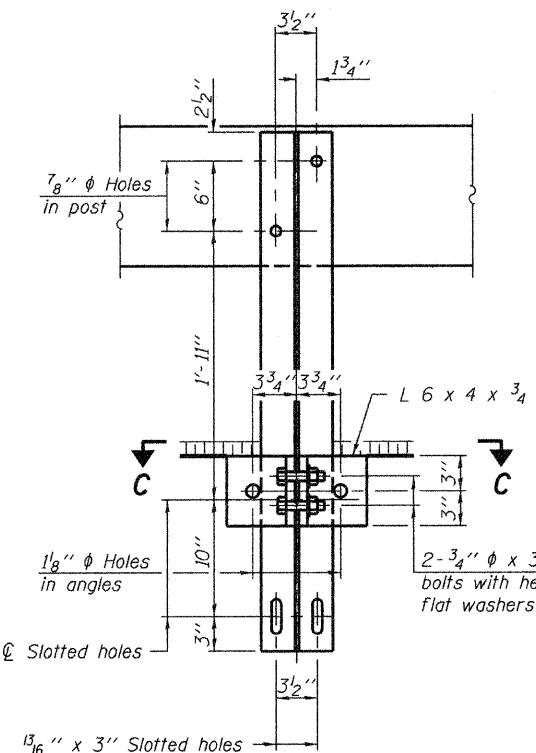


**VIEW D-D**

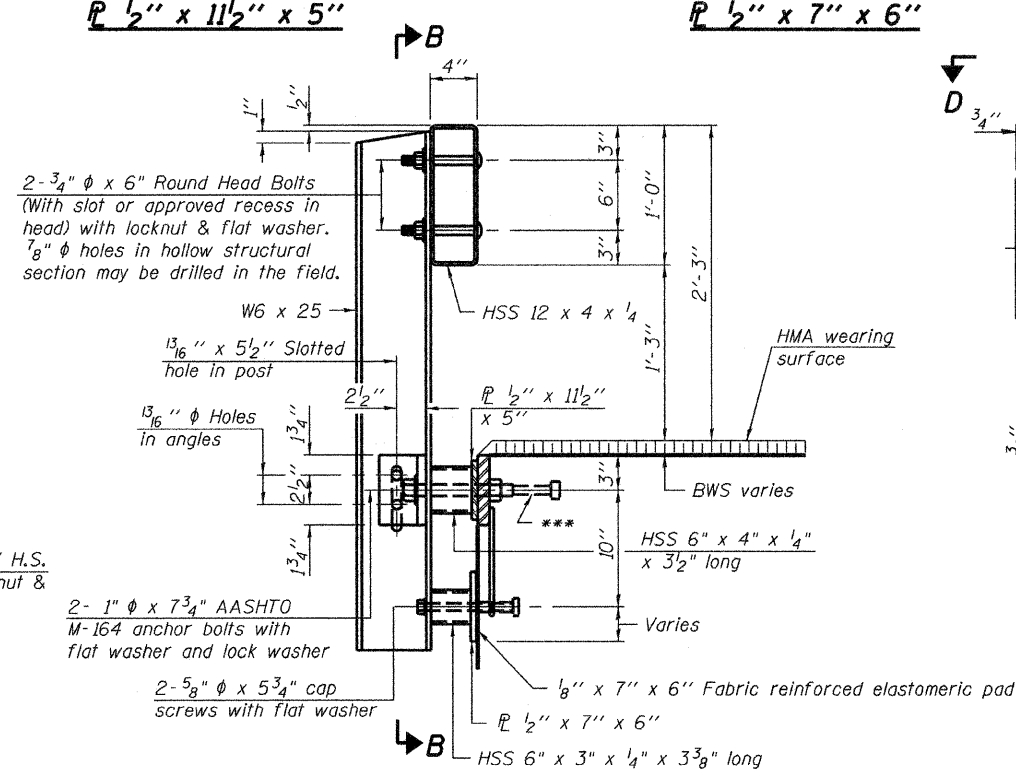


**CURLED END SECTION DETAILS**

4 REQUIRED - COST INCLUDED IN "STEEL RAILING, TYPE S-1"

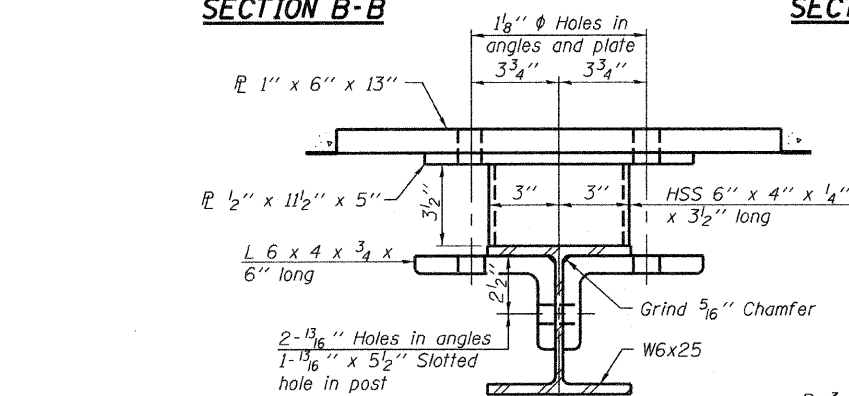


**SECTION B-B**

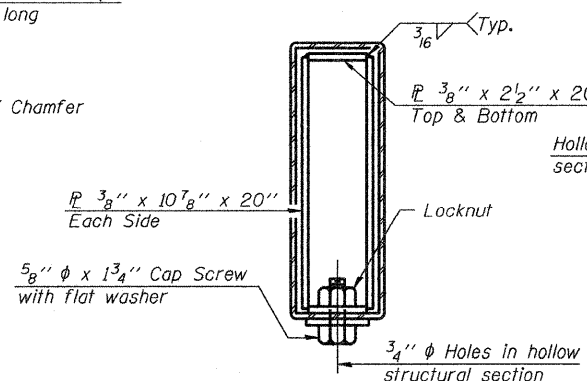


**SECTION AT RAILING POST**

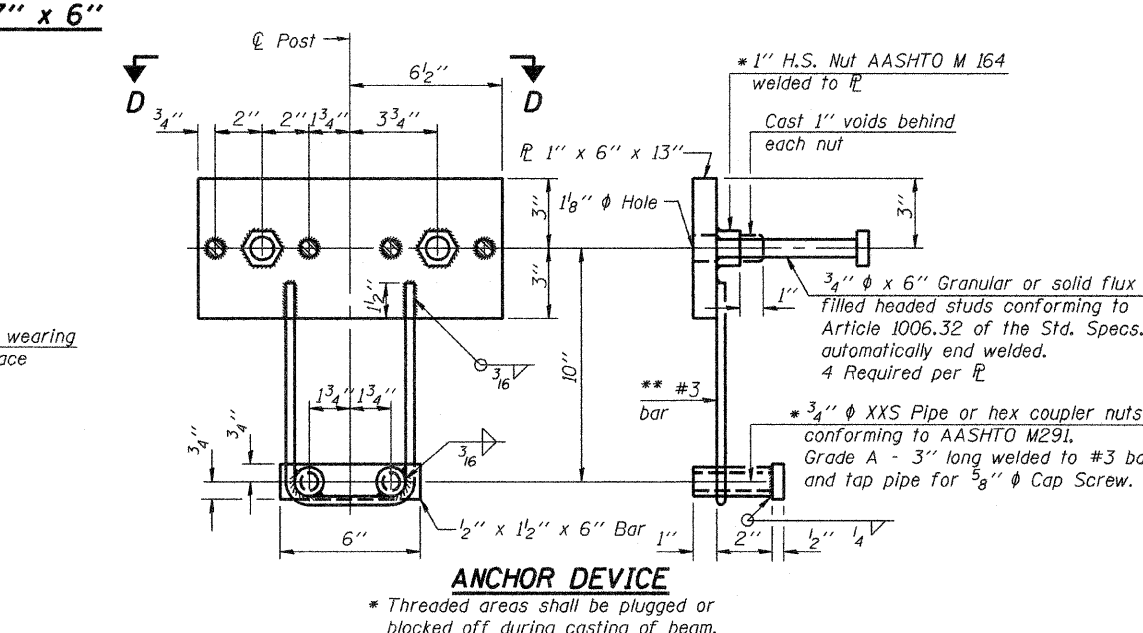
\*\* Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



**SECTION C-C**

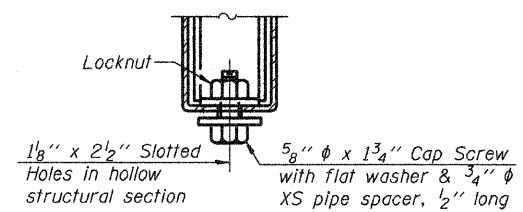


**SECTIONS AT RAIL SPLICE**

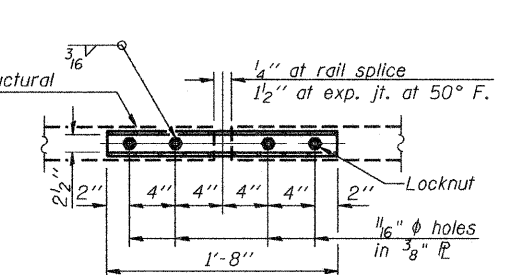


**ANCHOR DEVICE**

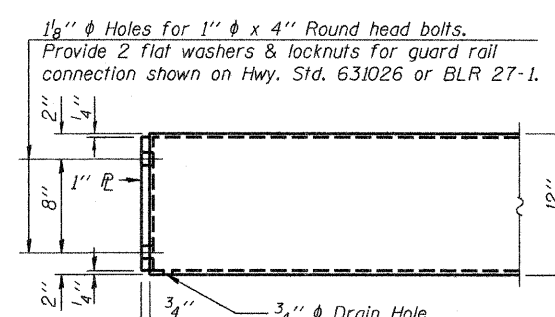
\* Threaded areas shall be plugged or blocked off during casting of beam.



**RAIL SPLICE CONNECTION AT EXPANSION JT.**

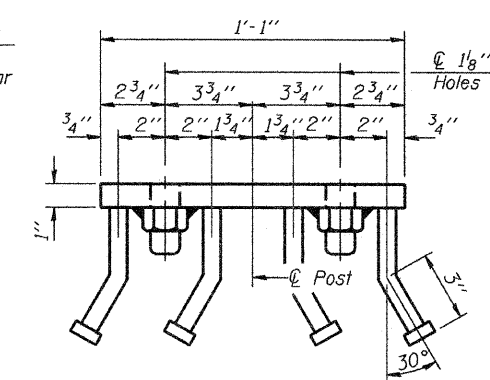


**PLAN-BOTT. SPLICE R TYPICAL**



**END OF RAIL DETAILS**

Notes:  
All field drilled holes shall be coated with an approved zinc rich paint before erection.  
For multi-span bridges, sufficient 1/4 inch x 6 inch x 1-2 inch galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.  
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.  
\*\*\* The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



**VIEW D-D**

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	87

**STEEL RAILING, TYPE S-1  
TR 413 OVER FREEDWELL BRANCH**

DATE: 02-05-10      DRAWN BY: JEH      CHECKED BY: DF

SHEET NO. 4 OF 7 SHEETS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		08-09121-00-BR	VERMILION	14	7
FED. ROAD DIST. NO. -		ILLINOIS FED. AID PROJECT	CONTRACT NO. 91431		

PRINTED DATE: 2/23/2010 FILE NAME: W:\Projects\11-1-09\Freedwell1\Rail.dgn

**ESI CONSULTANTS, LTD**  
753 WINDSOR ROAD  
CHARLESTON, IL 61920  
(617) 343-1000  
WWW.ESICONSULTANTS.LTD.COM  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184-003885