

**MATERIAL REQUIREMENTS**

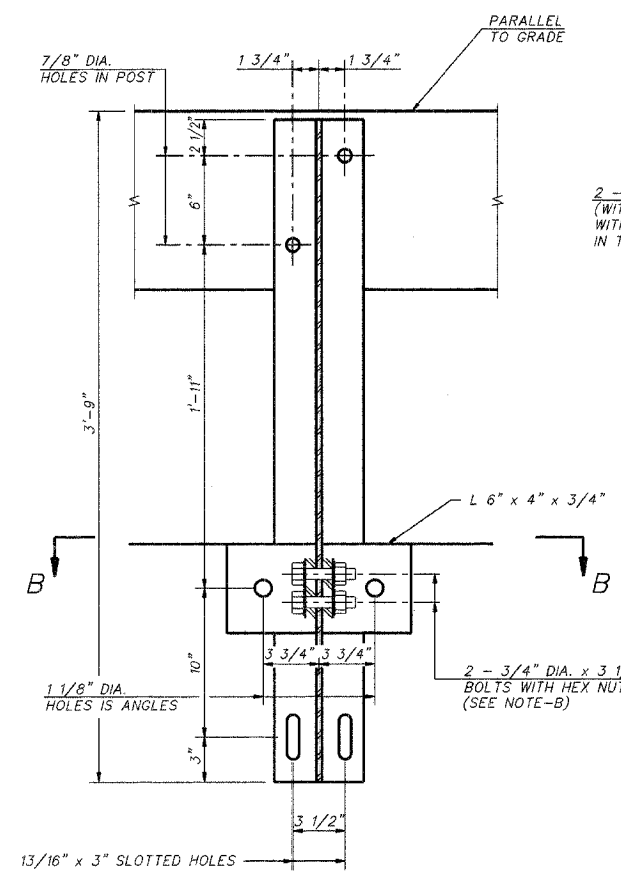
HOLLOW STRUCTURAL STEEL TUBING SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. DESIGNATION A-500 GRADE B STRUCTURAL STEEL TUBING.  
 ALL OTHER STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. M-183 EXCEPT POSTS AND ANGLES SHALL CONFORM TO A.A.S.H.T.O. M-223, GRADE 50.  
 BOLTS, CAP SCREWS AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. DESIGNATION A-307 EXCEPT FOR HIGH STRENGTH BOLTS, NUTS AND WASHERS NOTED WHICH SHALL CONFORM TO A.A.S.H.T.O. M-164.  
 ALL BOLTS, NUTS, CAP SCREWS, WASHERS AND LOCK WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH A.A.S.H.T.O. M-232.  
 ALL POST, RAILING, RAIL SPLICES, ANCHOR DEVICES AND ANGLES SHALL BE GALVANIZED AFTER SHOP FABRICATION IN ACCORDANCE WITH A.A.S.H.T.O. M-111 AND A.S.T.M. A-385. GALVANIZED RAIL SHALL NOT BE PAINTED.

**INSTALLATION NOTES**

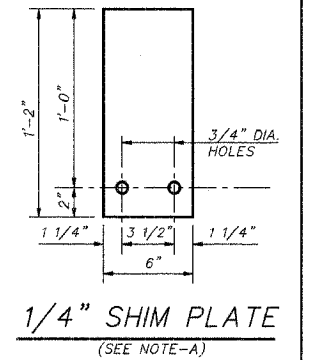
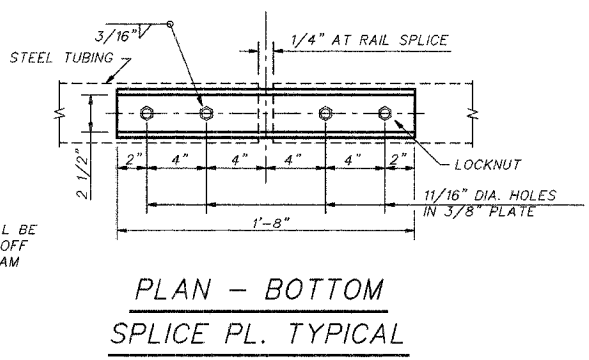
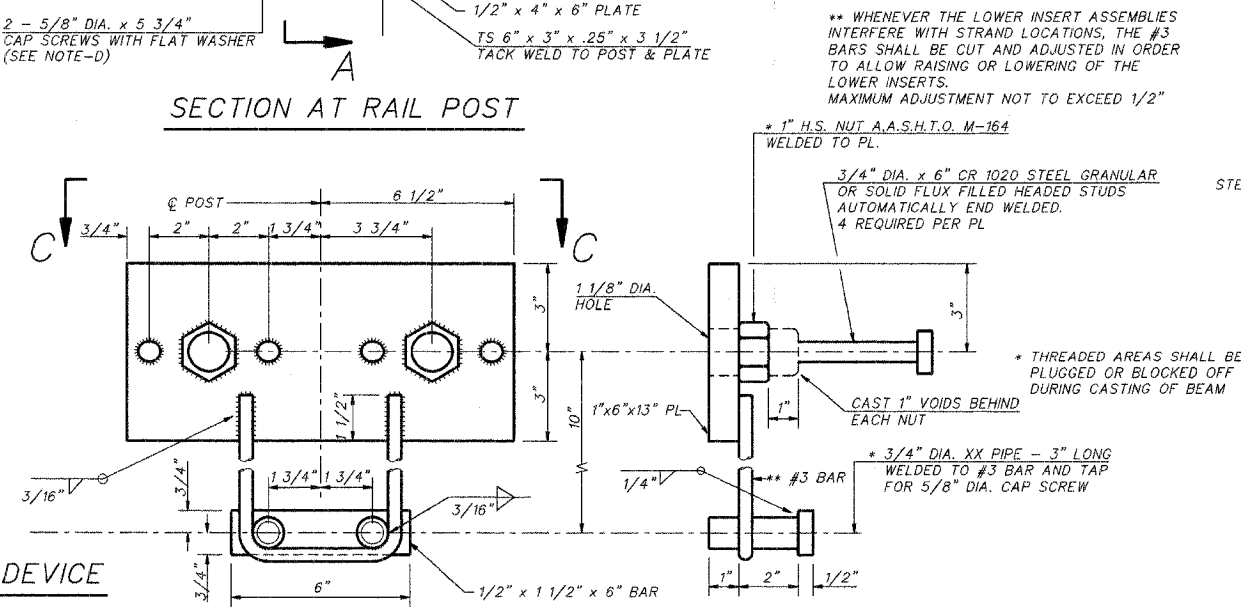
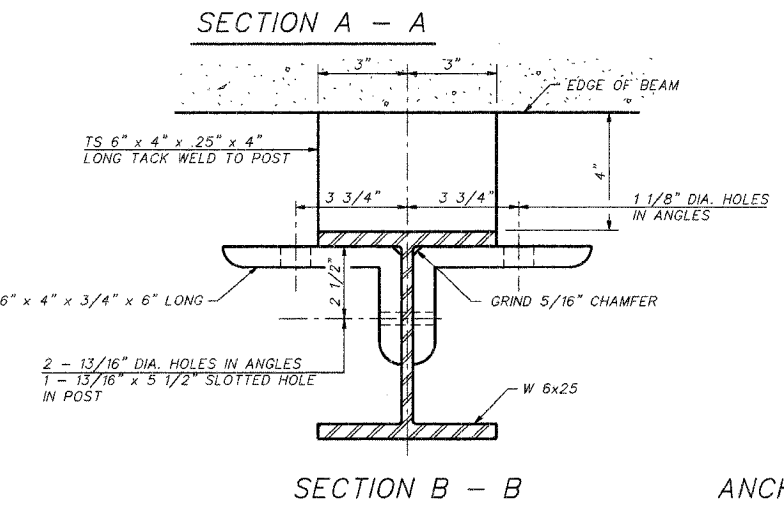
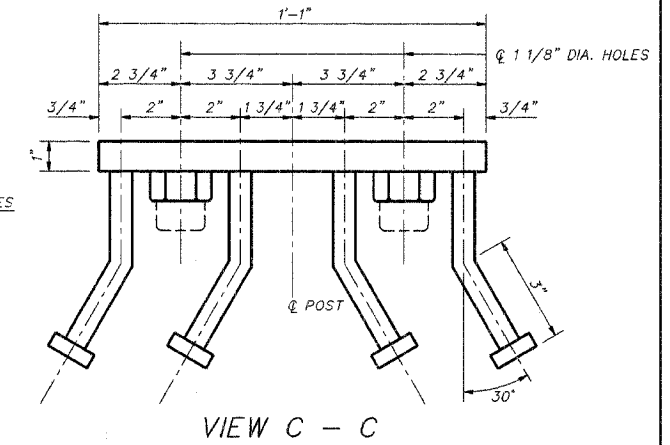
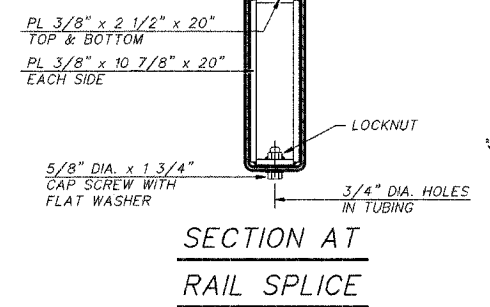
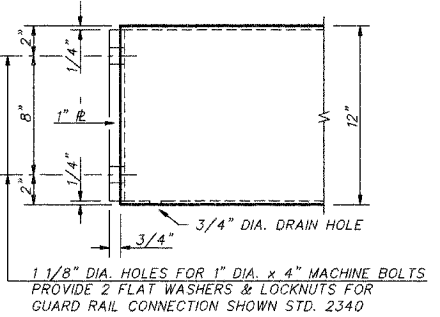
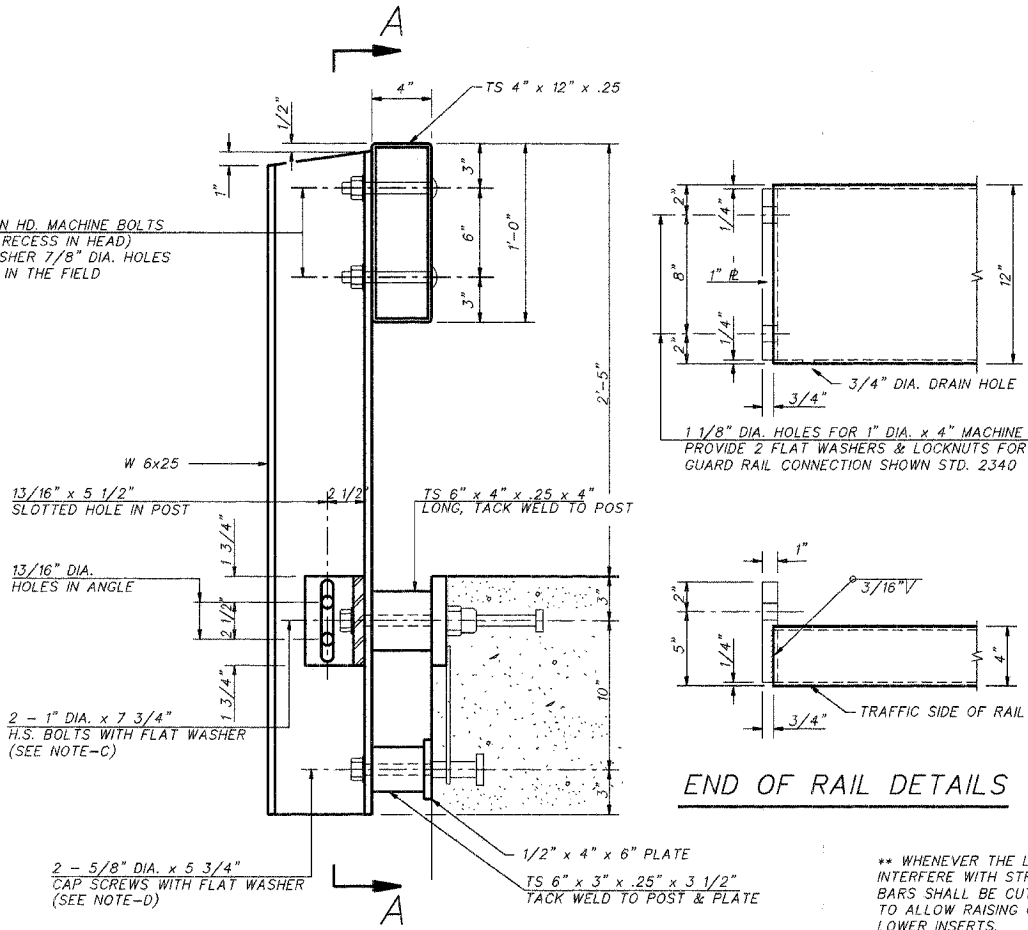
- (A) FOR MULTI-SPAN BRIDGES, SUFFICIENT 1/4" x 6" x 1'-2" GALVANIZED STEEL SHIMS SHALL BE PROVIDED TO ALIGN RAIL BETWEEN ADJACENT SPANS. COST INCIDENTAL TO STEEL RAILING. ALL FIELD DRILLED HOLES SHALL BE COATED WITH AN APPROVED ZINC RICH PAINT BEFORE ERECTION. THE 1/2" x 4" x 6" PLATES THAT COME IN CONTACT WITH CONCRETE SHALL RECEIVE TWO COATS OF ASPHALT PAINT CONFORMING TO SECTION 760.07 TYPE II OR PLACE 1/8" FABRIC BEARING PADS BETWEEN THE PLATES AND CONCRETE.
- (B) THE 3/4" DIA. HIGH STRENGTH BOLTS USED TO CONNECT THE 6"x4"x3/4" ANGLES TO THE POST SHALL BE TIGHTENED IN ACCORDANCE WITH ARTICLE 505.04 (f)(3) OF THE STANDARD SPECIFICATIONS.
- (C) THE 1" DIA. 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" DIA. CAP SCREWS IN BOTTOM OF POSTS SHALL BE TO A SNUG FIT ONLY.
- (D) THE MAXIMUM ALLOWABLE RAIL POST SPACING SHALL BE 10'-9".

**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
STEEL RAILING, TYPE S-1	FOOT	230



2 - 3/4" DIA. x 6" BUTTON HD. MACHINE BOLTS (WITH SLOT OR APPROVED RECESS IN HEAD) WITH LOCKNUT & FLAT WASHER 7/8" DIA. HOLES IN TUBING MAY BE DRILLED IN THE FIELD



STEEL RAILING, TYPE S-1	<p><b>McCLINTOCK</b> CIVIL ENGINEERING SERVICE 404 SHAW AVENUE, PARSIPpany, NJ 07654 PHONE (201) 466-8100</p>	
SEC. 98-03121-00-BR EAST OAKLAND TOWNSHIP COLES COUNTY		
DRN. R.T. CK	DATE 9/23/02 SCALE	SHEET 9 OF 15
APPR.		JOB NO. 3137-454-99