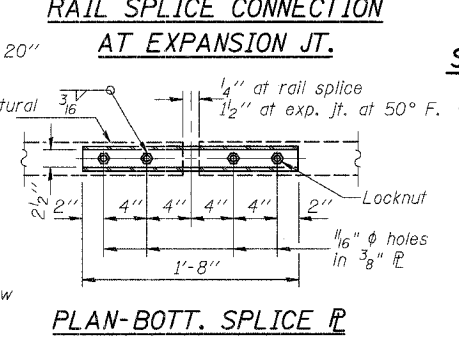
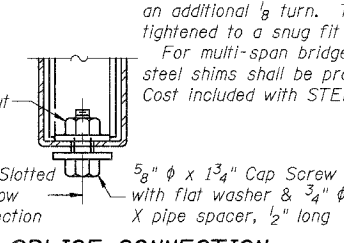
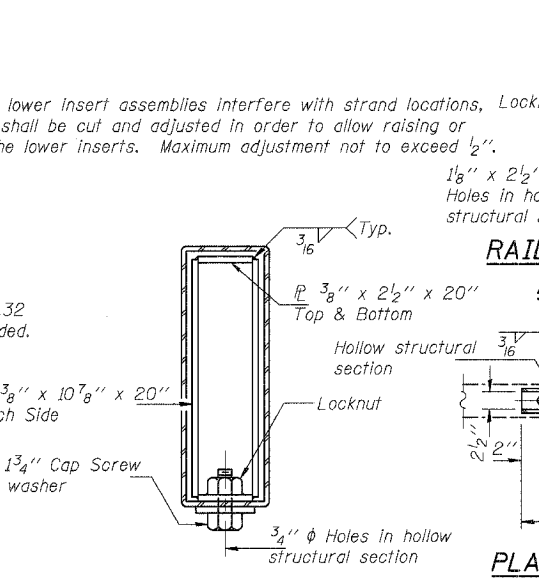
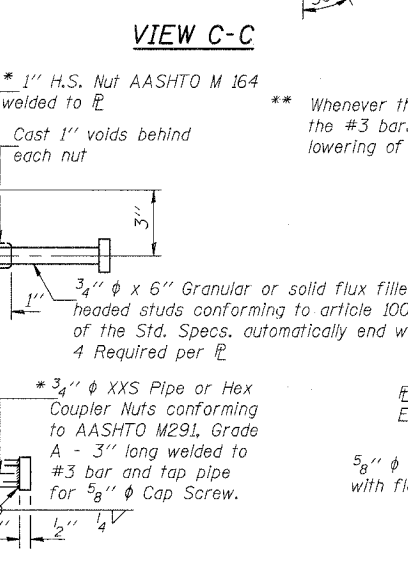
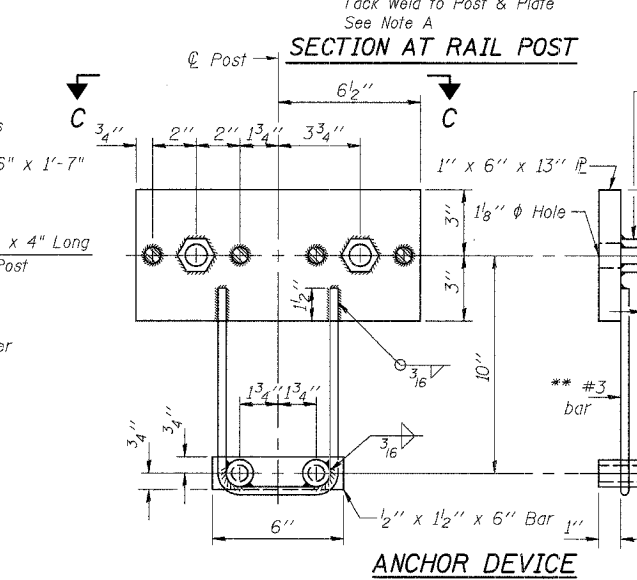
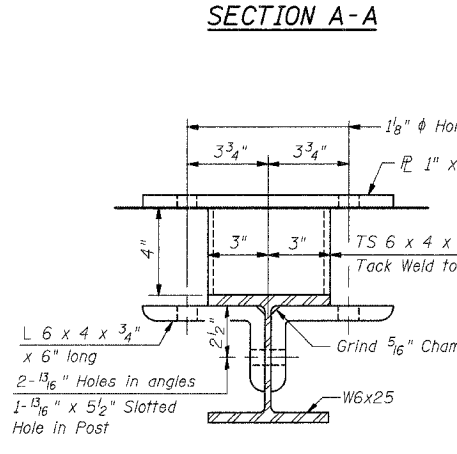
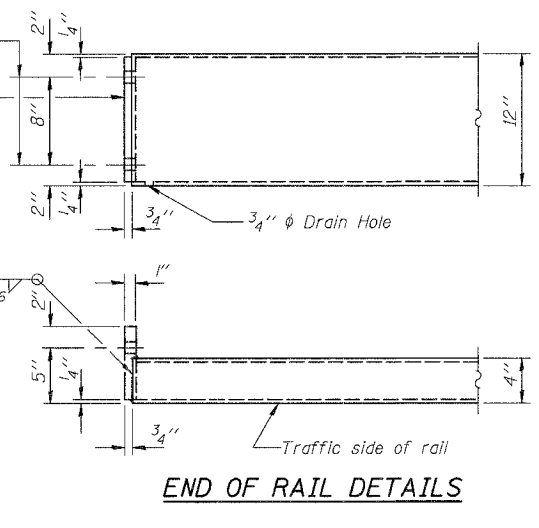
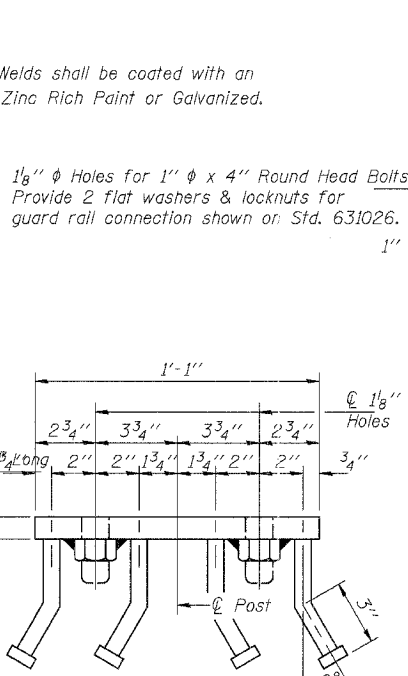
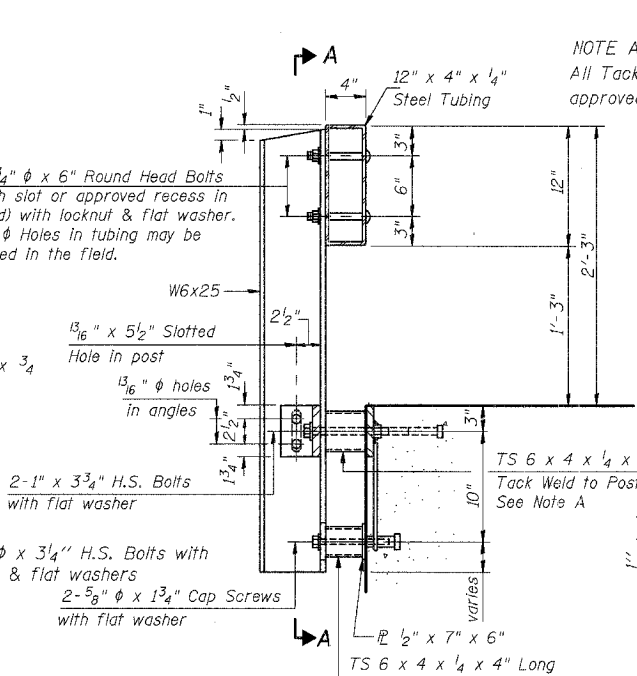
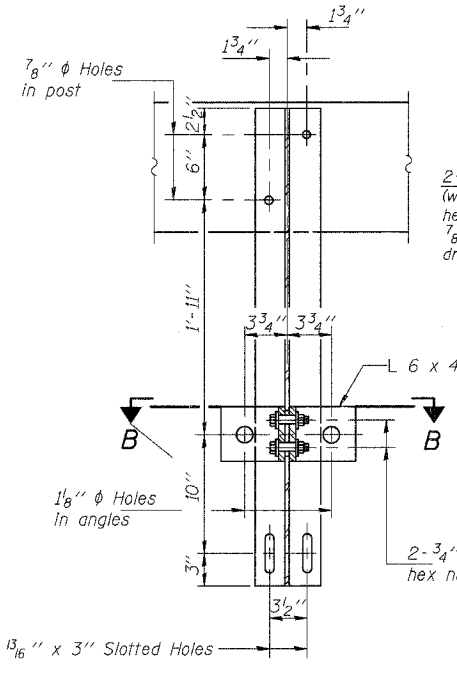
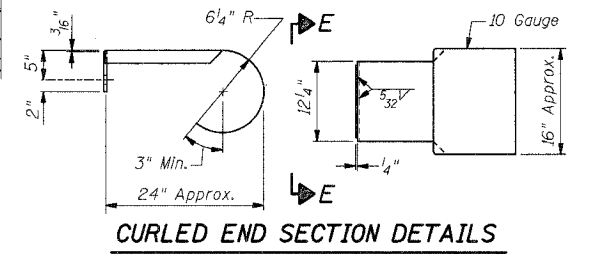
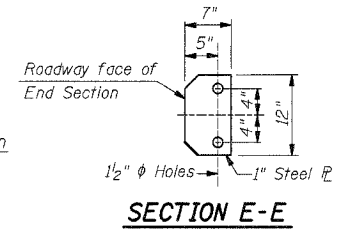
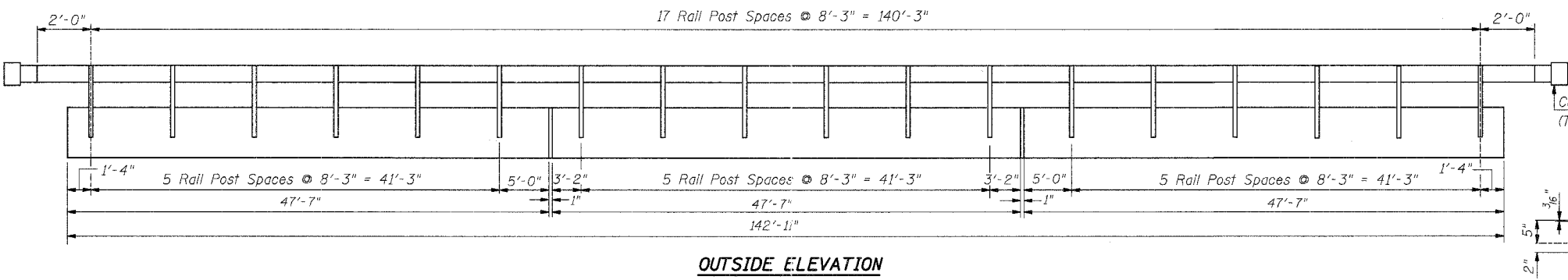
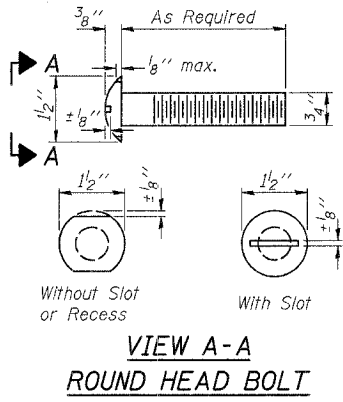


T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
128	99-05117-00-BR	SHELBY	15	12
FED. ROAD DIST. NO. 7		ILLINOIS PROJECT		SHEET 3 OF 6



NOTE A:
All Tack Welds shall be coated with an approved Zinc Rich Paint or Galvanized.

1/8" diameter Holes for 1" diameter x 4" Round Head Bolts. Provide 2 flat washers & locknuts for guard rail connection shown on Std. 631026.

2-3/4" diameter x 6" Round Head Bolts (with slot or approved recess in head) with locknut & flat washer. 7/8" diameter Holes in tubing may be drilled in the field.

2-3/4" diameter x 3 1/4" H.S. Bolts with hex nut & flat washers
2-5/8" diameter x 1 3/4" Cap Screws with flat washer

* 1" H.S. Nut AASHTO M 164 welded to PL
Cast 1" voids behind each nut

3/4" diameter x 6" Granular or solid flux filled headed studs conforming to article 1006.32 of the Std. Specs. automatically end welded. 4 Required per PL

** #3 bar
* 3/4" diameter XXS Pipe or Hex Coupler Nuts conforming to AASHTO M291, Grade A - 3" long welded to #3 bar and tap pipe for 5/8" diameter Cap Screw.

** 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".

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 spllices, 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 RAILING, TYPE S-1.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/2" fabric bearing pad between the post and concrete.

The 3/4" diameter 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(FK2) of the Standard Specifications. The 1" diameter 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" diameter cap screws in bottom of posts shall be tightened to a snug fit only.

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 RAILING, TYPE S-1.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing Type S-1	Foot	289

STEEL RAILING TYPE S-1 DETAILS
T.R. 128 OVER MITCHELL CREEK
SECTION 99-05117-00-BR
SHELBY COUNTY
S.N. 087-3520
STA. 9+94.00

ie consultants

DESIGNED: D.R.B. CHECKED: D.R.B.
DRAWN: J.P.H. DATE: 10/20/04