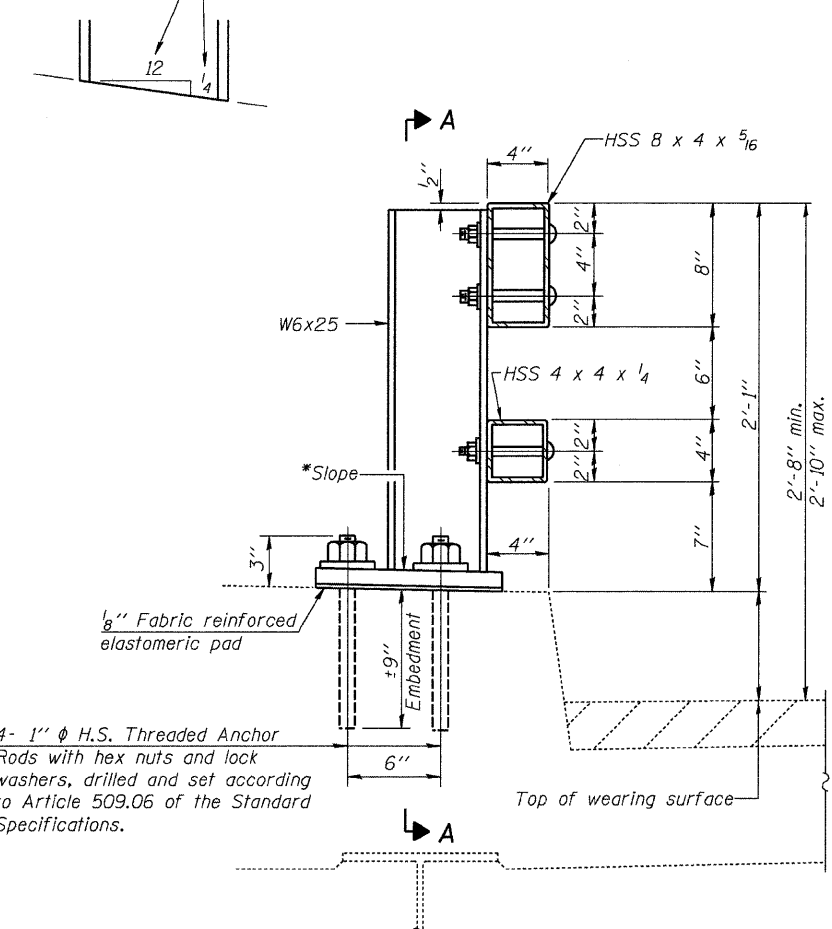


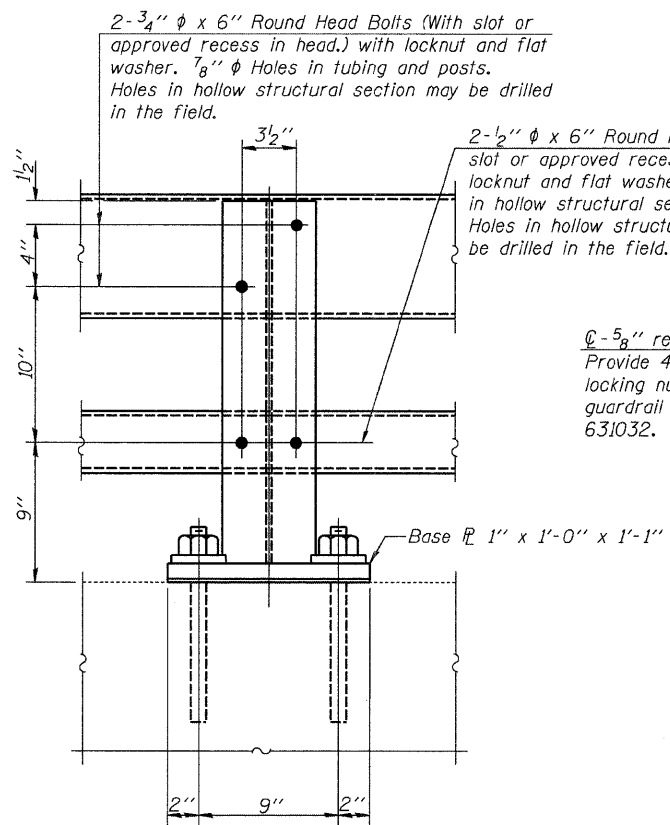
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

*Cut bottom end of post to curb slope.



4- 1" ϕ H.S. Threaded Anchor Rods with hex nuts and lock washers, drilled and set according to Article 509.06 of the Standard Specifications.

SECTION AT RAIL POST

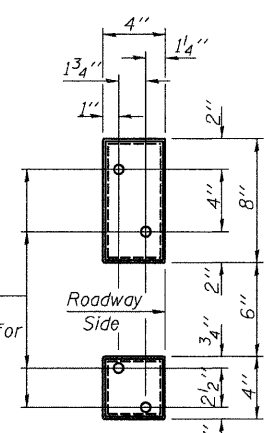


2-3/4" ϕ x 6" Round Head Bolts (With slot or approved recess in head.) with locknut and flat washer. 7/8" ϕ Holes in tubing and posts. Holes in hollow structural section may be drilled in the field.

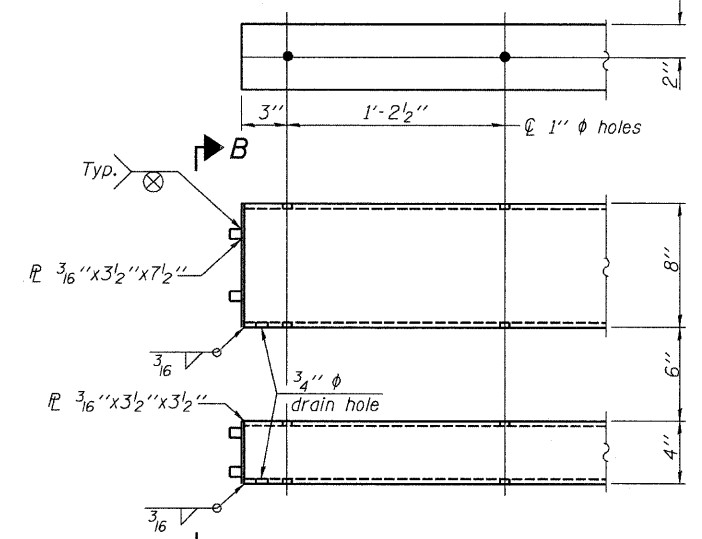
2-1/2" ϕ x 6" Round Head Bolts (With slot or approved recess in head.) with locknut and flat washer. 5/8" ϕ Holes in hollow structural section and post. Holes in hollow structural section may be drilled in the field.

4-5/8" reduced base welded studs. Provide 4-5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032.

SECTION A-A



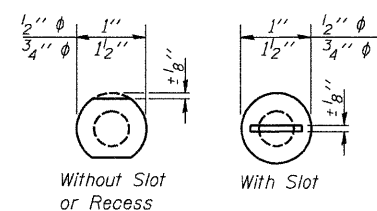
VIEW B-B



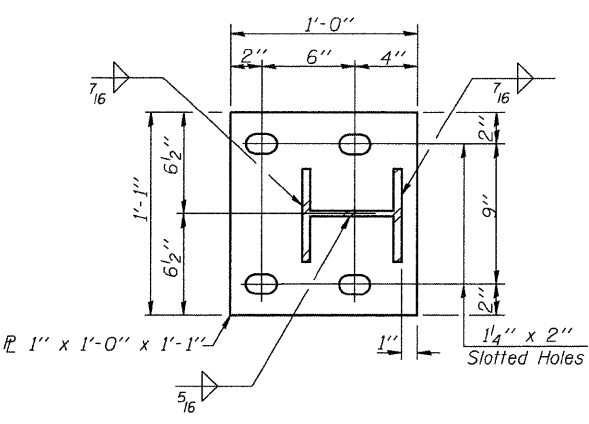
END OF RAIL DETAILS

Notes:

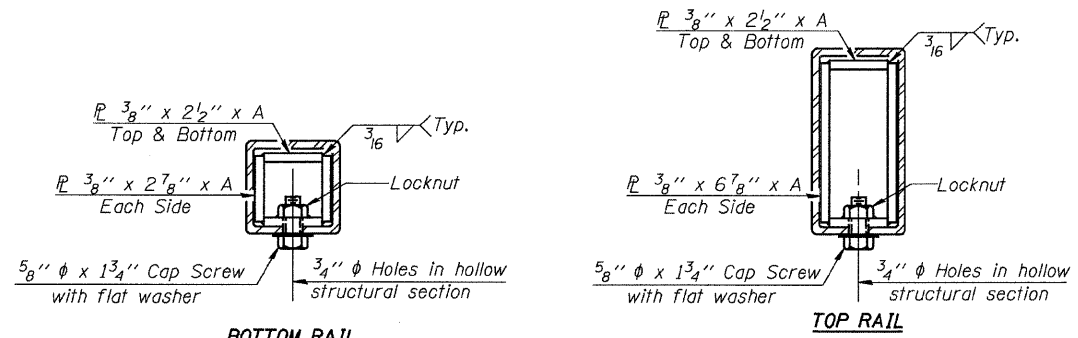
All field drilled holes shall be coated with an approved zinc rich paint before erection.
Posts shall not be located closer than 1'-3" to an existing bridge expansion joint or end of bridge.
Steel Bridge Rail expansion joint shall be provided between any two (2) posts which span a bridge expansion joint. Bolts located at expansion joint shall be provided with locknuts and shall be tightened only to a point that will allow railing movement.
Provide one 1/8" and two 1/16" steel shims for 25% of the posts. Shims shall be similar to base plates in size and holes.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.



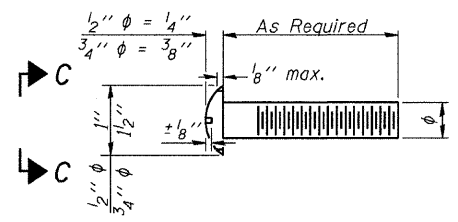
VIEW C-C



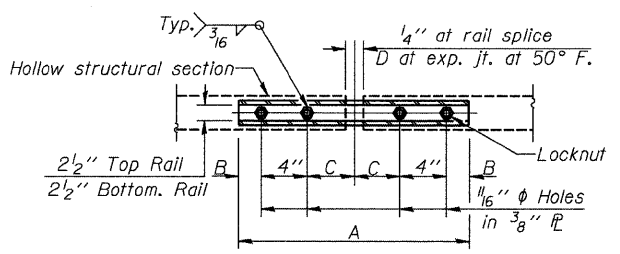
BASE PLATE DETAIL



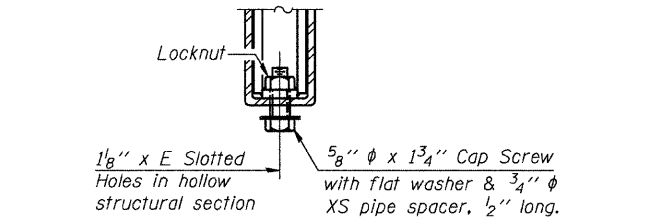
SECTIONS AT RAIL SPLICE



DETAIL OF 1/2" ϕ & 3/4" ϕ ROUND HEAD BOLTS



PLAN-BOTTOM SPLICE TYPICAL



RAIL SPLICE CONNECTION AT EXPANSION JT.

SPLICE DIMENSIONS

| T | D | A | B | C | E |
|---------------|--------|--------|--------|--------|--------|
| ≤ 4" | 2 1/2" | 1'-8" | 2" | 4" | 2 1/2" |
| > 4" ≤ 6 1/2" | 3 3/4" | 2'-0" | 2 1/2" | 5 1/2" | 3 1/2" |
| > 6 1/2" ≤ 9" | 5" | 2'-4" | 3 1/2" | 6 1/2" | 9" |
| > 9" ≤ 13" | 7" | 2'-10" | 4 1/2" | 8 1/2" | 11" |
| Rail Splice | 1/4" | 1'-8" | 2" | 4" | — |

T=Total movement at expansion joint as shown on the design plans.

BILL OF MATERIAL

| Item | Unit | Quantity |
|--------------------------|------|----------|
| Steel Railing, Type 2399 | Foot | |

STEEL RAILING, TYPE 2399
STRUCTURE NO.

| | |
|----------|------------------------------------|
| DESIGNED | 200 |
| CHECKED | EXAMINED |
| DRAWN | PASSED |
| CHECKED | ENGINEER OF BRIDGES AND STRUCTURES |

R-31 5-16-08 (6'-3" Maximum Post Spacing)

| | | | | | |
|---------------------|-----------|---------------------------|--------------------|--------------|-----------|
| SHEET NO. | F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | VAR | 2008-058 GRR | VARIOUS | 21 | 17 |
| SHEETS | | | CONTRACT NO. 60F16 | | |
| FED. ROAD DIST. NO. | | ILLINOIS FED. AID PROJECT | | | |