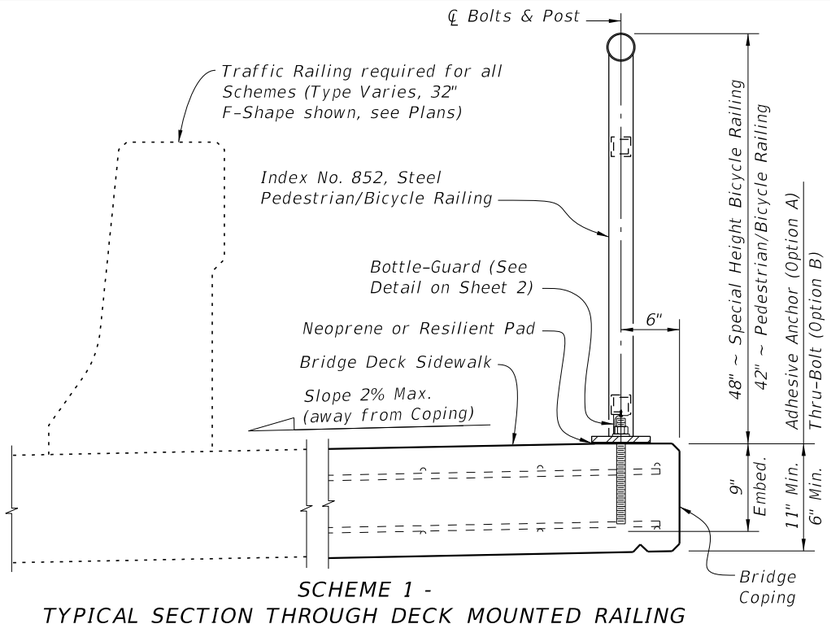
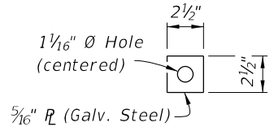
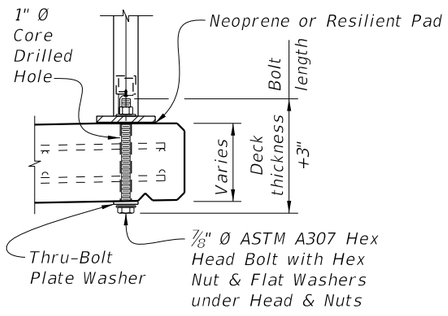


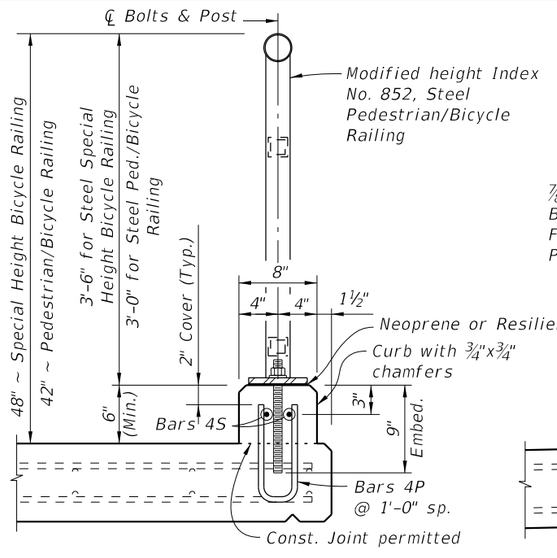

SCHEME 1 -
TYPICAL SECTION THROUGH DECK MOUNTED RAILING
(Adhesive Anchor Option shown - SCHEME 1A)



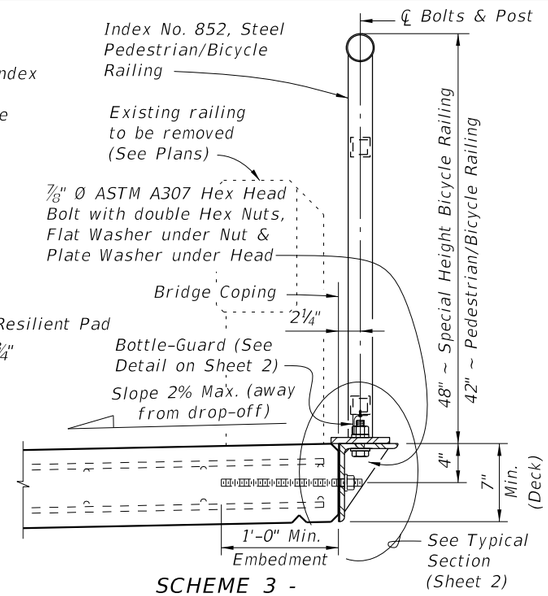

THRU-BOLT PLATE WASHER DETAIL



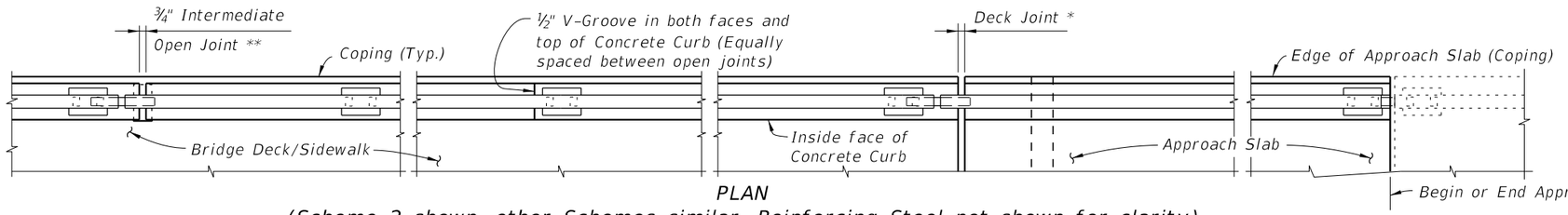

SCHEME 1B - DETAILS
(Thru-Bolt Option)



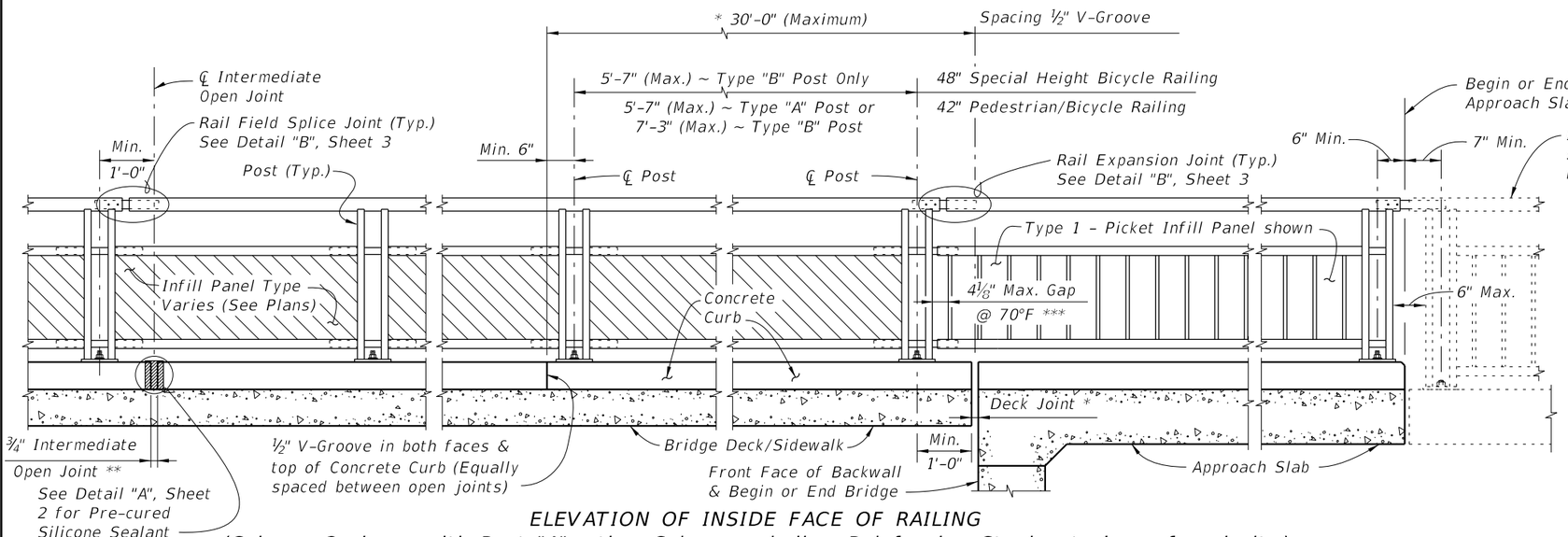

SCHEME 2 -
TYPICAL SECTION THROUGH
CURB MOUNTED RAILING




SCHEME 3 -
TYPICAL SECTION THROUGH
SIDE MOUNTED RAILING (RETROFIT)




PLAN
(Scheme 2 shown, other Schemes similar, Reinforcing Steel not shown for clarity)




ELEVATION OF INSIDE FACE OF RAILING
(Scheme 2 shown with Post "A", other Schemes similar, Reinforcing Steel not shown for clarity)

* See Structures Plans, Superstructure Sheets for actual dimensions and joint orientation. Open Curb Joints at Deck Expansion Joint locations shall match the dimension of the Deck Joint. For treatment of Railings on skewed bridges see Index No. 420. Deck Joint at Begin Bridge or End Bridge shown. Deck Joint at ℄ Pier or Intermediate Bent similar.

** ¾" Intermediate Open Joints shall be provided at locations coinciding with ¾" Joints for the Traffic Railing.

*** Clear opening between adjacent pickets or panel at Rail Expansion Joints, above Deck Expansion Joints with a total thermal movement greater than 4", must be reduced to 3½".

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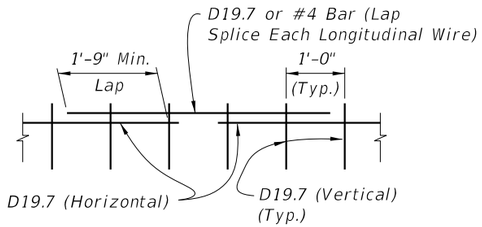
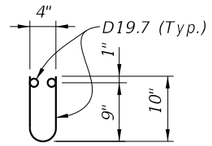
## ALTERNATE REINFORCING (WELDED WIRE REINF.) DETAILS

NOTE: Place wire panels to minimize the end overhang. End Overhangs greater than 4¾" are not permitted.




SPLICE DETAIL
(Between WWR Sections)

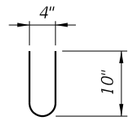



WELDED WIRE REINFORCEMENT (WWR)

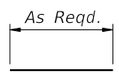
## CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

### BILL OF REINFORCING STEEL

| MARK | SIZE | LENGTH |
|---|---|---|
| P | 4 | 2'-0" |
| S | 4 | As Reqd. |



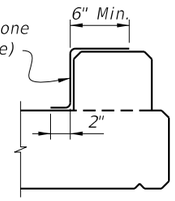

BAR 4P




BAR 4S

CURB REINFORCING STEEL NOTES:

1. All bar dimensions in the bending diagrams are out to out.
2. The reinforcement for the curb on a retaining wall shall be the same as detailed for an 8" deck.
3. All reinforcing steel at the open joints shall have a 2" minimum cover.
4. Bars 4S may be continuous or spliced at the construction joints. Bar splices for Bars 4S shall be a minimum of 1'-9".
5. At the option of the Contractor Welded Wire Reinforcement (WWR) may be used in lieu of all Bars 4P and 4S. WWR must consist of Deformed wire meeting the requirements of Specification Section 931.




DETAIL "A" - SECTION
AT INTERMEDIATE OPEN JOINT

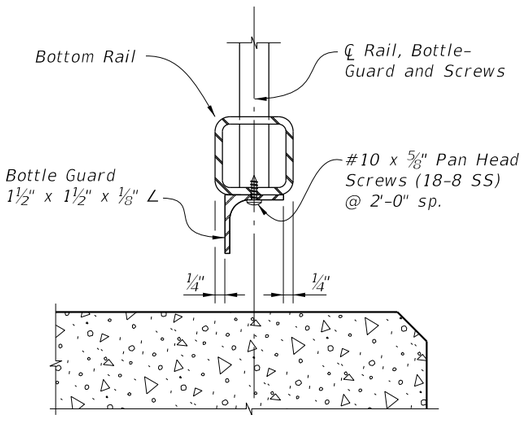
INTERMEDIATE JOINT SEAL NOTE:

At Intermediate Open Joints, seal the lower 6" portion of the open joint with Pre-cured Silicone Sealant in accordance with Specification Section 932. Apply sealant prior to any Class V finish coating and remove all curing compound and loose material from the surface prior to application of bonding agent.

### ESTIMATED CONCRETE CURB QUANTITIES (SCHEME 2)

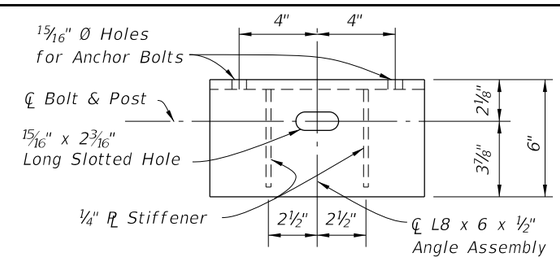
| ITEM | UNIT | QUANTITY |
|---|---|---|
| Concrete | CY/LF | 0.0124 |
| Reinforcing Steel | LB/LF | 4.01 |

## SCHEME 2 - CONCRETE CURB DETAILS




TYPICAL SECTION THROUGH BOTTOM RAIL
(Post Not Shown for Clarity)

## SCHEME 1 - BOTTLE GUARD DETAIL




PLAN VIEW

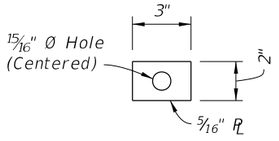
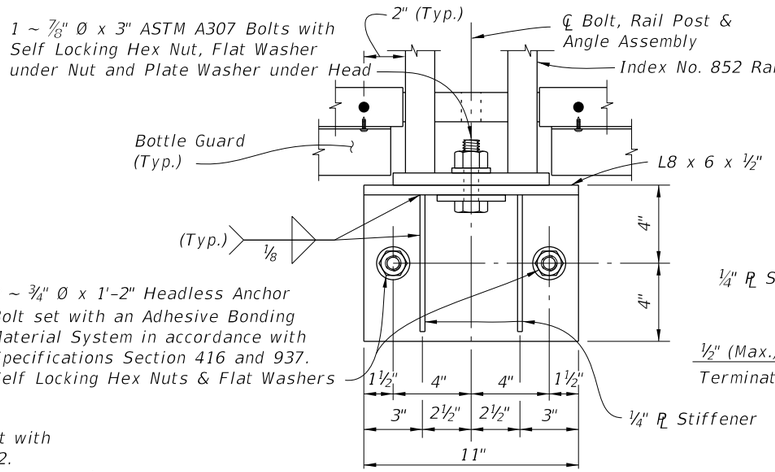
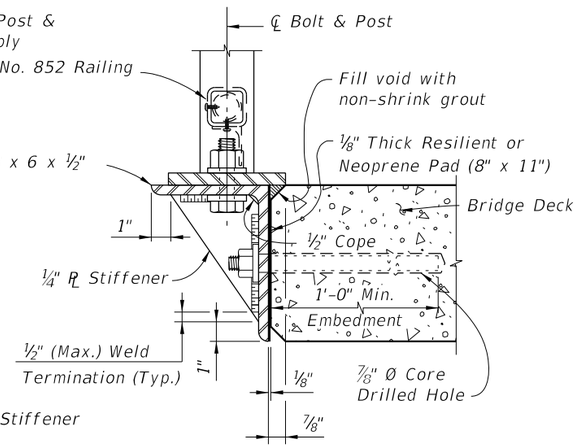



PLATE WASHER DETAIL

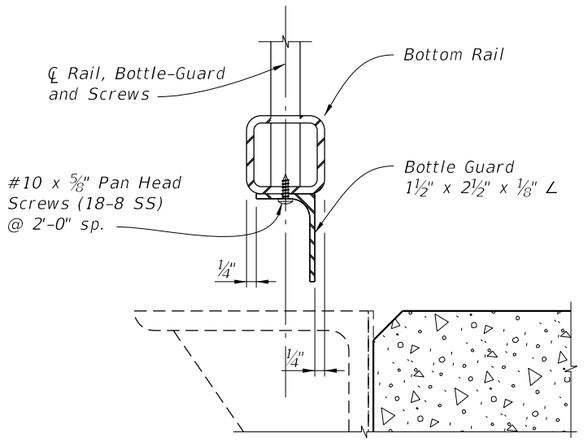



ELEVATION VIEW




TYPICAL SECTION

## SCHEME 3 - SIDE-MOUNTED SUPPORT BRACKET DETAILS




TYPICAL SECTION THROUGH BOTTOM RAIL
(Post Not Shown for Clarity)

CROSS REFERENCE:

See Sheet 3 for Bridge Railing Notes.

## SCHEME 3 - BOTTLE GUARD DETAIL

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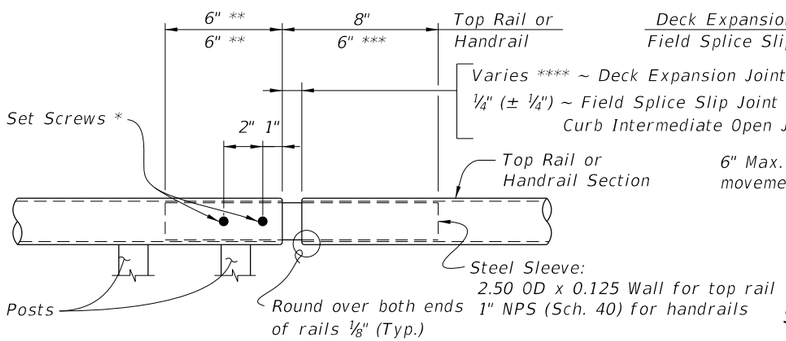
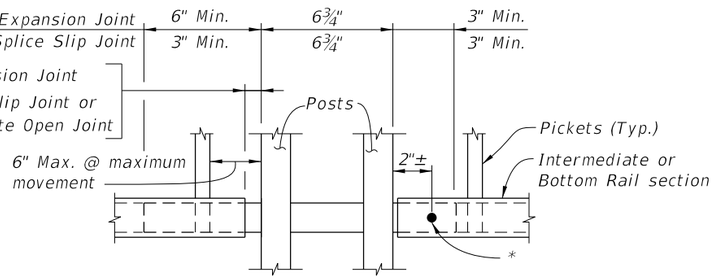
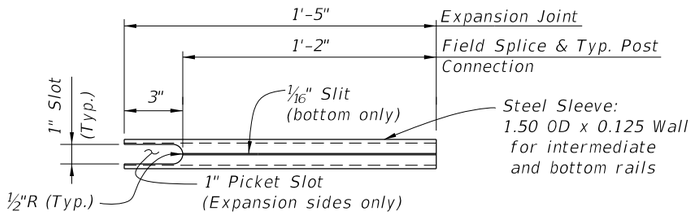



ROUND RAILS - TOP RAIL OR HANDRAIL




SQUARE RAILS - INTERMEDIATE OR BOTTOM RAIL




INTERMEDIATE OR BOTTOM RAIL - Steel SLEEVE DETAIL (Bottom Side Shown)

* ¼" Ø x ¾" Pan Head Stainless Steel (Type 316 or 18-8 Alloy) Set Screws along outside face of railing. Set screws must be set flush against the rail surface. A ¾" Ø plug weld may be substituted for the two set screws at expansion joints.

** Embedded length may be 4" for plug welded connection.

*** Increase handrail sleeve embedment to 8" for Expansion Joint openings greater than 2".

**** Expansion Joint opening shall match the clear opening in the deck joint but not greater than 3".

DETAIL "B" EXPANSION JOINT (FIELD SPLICE SIMILAR)

BRIDGE RAILING NOTES:

APPLICABILITY NOTE: Railing is limited to use on bridges with an expansion joint thermal movements not exceeding 5". Scheme 3 is limited to bridge retrofit applications where additional sidewalk width is required.

RAILING DETAILS: For Railing fabrication and installation details and notes see Index No. 852, except that railing shall be fabricated and installed normal to the Profile Grade longitudinally and vertical transversely, unless otherwise shown in the Contract Plans.

BOTTLE-GUARD (Schemes 1 & 3): L-Shape shall be in accordance with ASTM A36.

CONCRETE CURB (Scheme 2): Construct concrete curb vertical with the top surface finished level transversely. Concrete class shall be the same as the bridge deck.

SIDE MOUNTED SUPPORT BRACKET (Scheme 3): L-Shape and Stiffener Plate shall be in accordance with ASTM A36. Welding shall be in accordance with the American Society of Structural Welding Code (Steel) ANSI/AWS D1.1 (current edition). Weld metal shall be E60XX or E70XX. Nondestructive testing of welds is not required. The bracket shall be hot-dip galvanized after fabrication in accordance with Specification Section 962.

PAYMENT: Railing shall be paid per linear foot (Item No. 515-2-abb) for the steel railing and include the cost of support brackets (Scheme 3). Concrete and reinforcing steel quantities for the concrete curb (Scheme 2), will be included in the bridge deck plan quantity pay items. Payment will be plan quantity measured as the length along the center line of the top rail, and includes rails, posts, pickets, rail splice assembly, base plates, bottle-guards, anchor bolts, nuts, washers, resilient or neoprene pads and all incidental materials and labor required to complete installation of the railing.

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