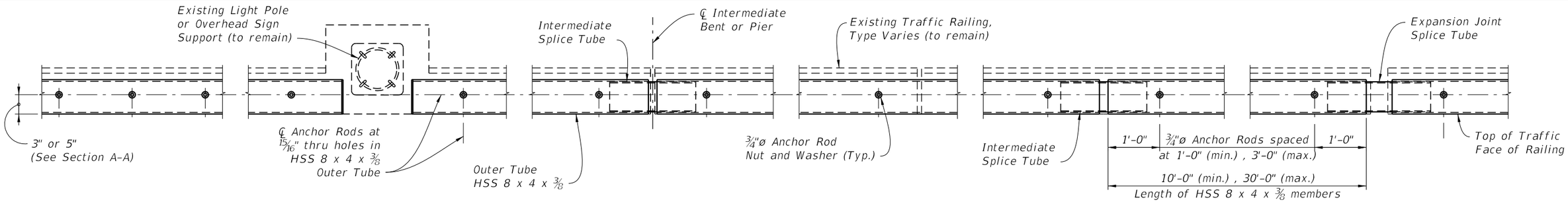
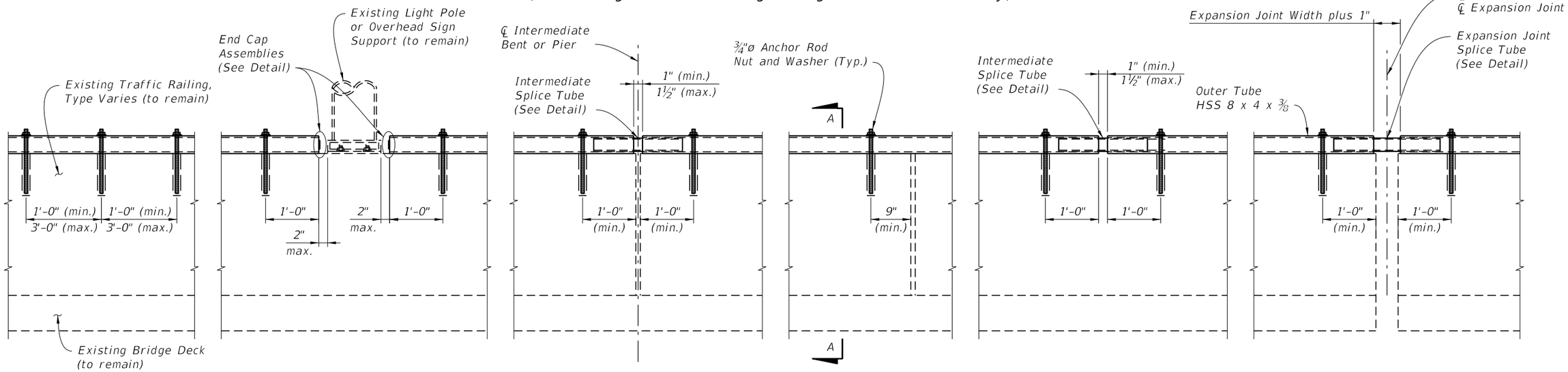


PLAN
(Reinforcing Steel in Existing Railing not shown for clarity)



ELEVATION
(Reinforcing Steel in Existing Railing not shown for clarity)
(Railing on Bridge Deck shown, Railing on Approach Slab and Retaining Wall similar)

GENERAL NOTES

HSS TUBES: HSS Tubes shall be ASTM A500 Grade B.

END CAPS AND END TAPER ASSEMBLIES: Steel plate for End Caps and End Taper Assemblies shall be ASTM A709 Grade 36.

ANCHOR RODS, NUTS AND WASHERS: Adhesive Bonded anchors shall be fully shall be threaded rods in accordance with ASTM F1554 Grade 36 or ASTM A193 Grade B7. All Nuts shall be single self-locking hex nuts and in accordance with ASTM A563 or ASTM A194. Flat Washers shall be in accordance with ASTM F436. After the nuts have been snug tightened, distort the anchor rod threads to prevent removal of the nuts. Coat distorted threads and the exposed trimmed ends of anchor rods with a galvanizing compound in accordance with the Specifications.

COATINGS: Galvanize all Anchor Rods, Nuts, Bolts, Washers and HSS Tube Assemblies in accordance with the Specifications. Hot-dip HSS Tubes and Tube Assemblies after fabrication.

ADHESIVE-BONDED ANCHORS AND DOWELS: Adhesive Bonding Material Systems for Anchor Rods shall comply with Specification Section 937 and be installed in accordance with Specification Section 416. The field testing proof loads required by Specification Section 416 shall be 10,000 lbs.

INSTALLATIONS ON CURVED ALIGNMENTS AND GRADES: The details presented in this Standard are shown for installations on tangent alignments and constant grades except as shown in the Offset Detail for Retrofit Installations on Horizontally Curved Alignments. Details for installations on horizontally curved alignments and or vertically curved profiles are similar. Straight sections of HSS Tube may be installed in a chorded manner within the offset limit shown in the Offset Detail for Retrofit Installations on Horizontally Curved Alignments. Shop bend HSS Tubes for use on horizontally curved alignments where the offset limit shown cannot be met using straight sections of HSS Tube. Straight and horizontally curved sections of HSS Tube may be field bent during installation for use on vertically curved profiles.

SHOP DRAWINGS: Submit shop drawings and obtain approval prior to fabrication in accordance with Specification Section 5. Show project specific geometry (line and grade) and bolt hole, expansion joint and splice locations. Include other project specific details as required.

PAYMENT: Payment will be made under Metal Traffic Railing (Rectangular Tube Retrofit) which shall include all materials and labor required to fabricate and install the Rectangular Tube Retrofit.

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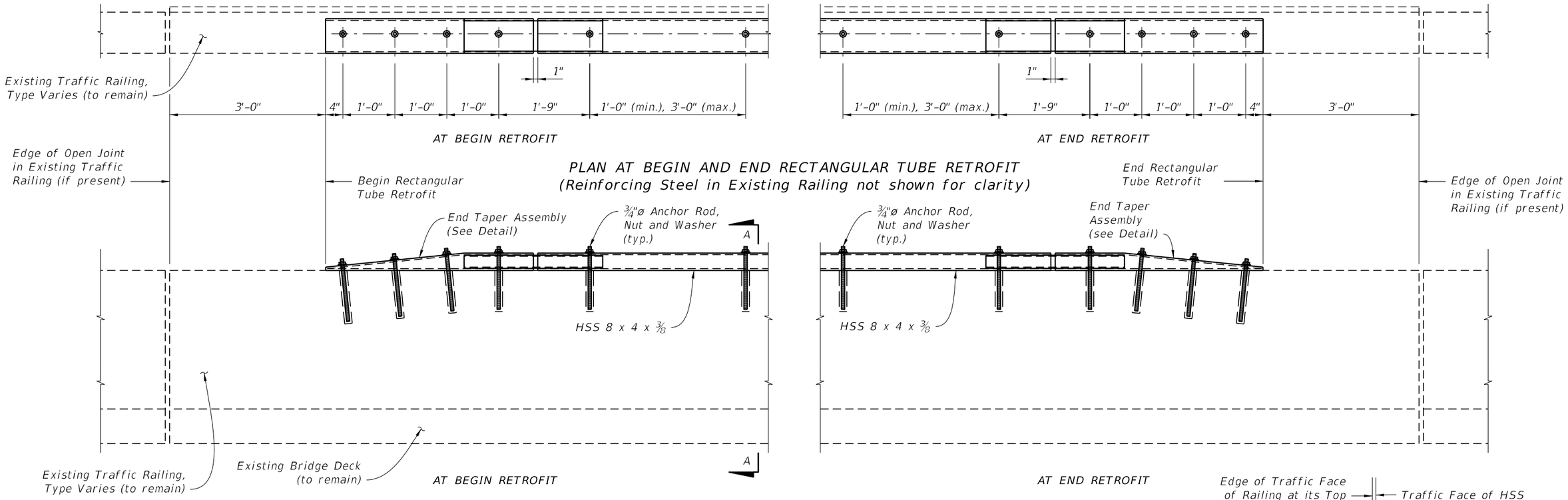
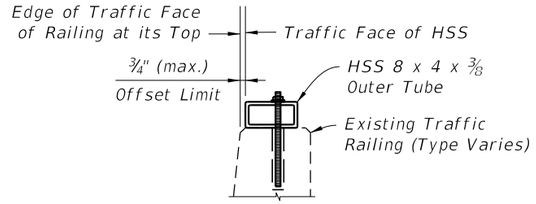
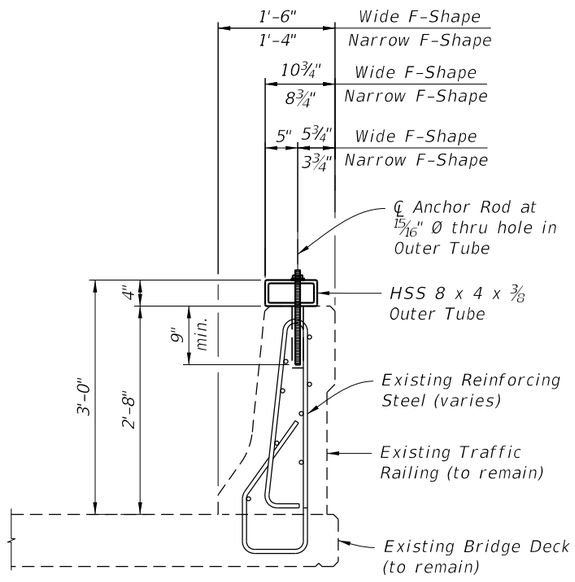


PLAN AT BEGIN AND END RECTANGULAR TUBE RETROFIT
(Reinforcing Steel in Existing Railing not shown for clarity)

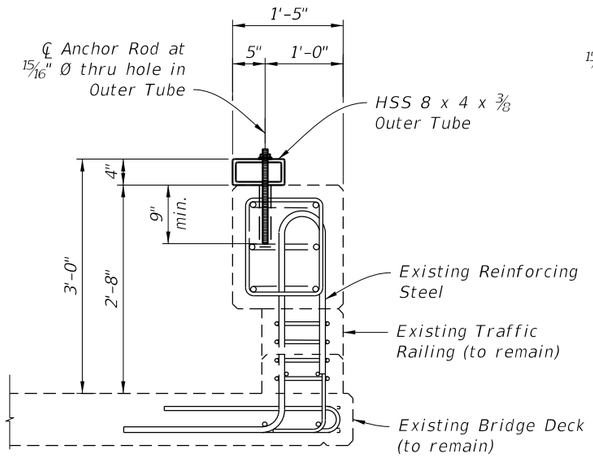
ELEVATION AT BEGIN AND END RECTANGULAR TUBE RETROFIT
(Reinforcing Steel in Existing Railing not shown for clarity)
(Railing on Bridge Deck shown, Railing on Approach Slab and Retaining Wall similar)



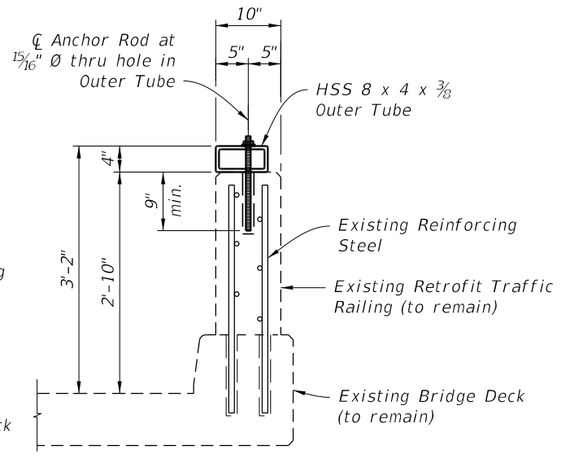
OFFSET DETAIL FOR INSTALLATIONS ON HORIZONTAL CURVES



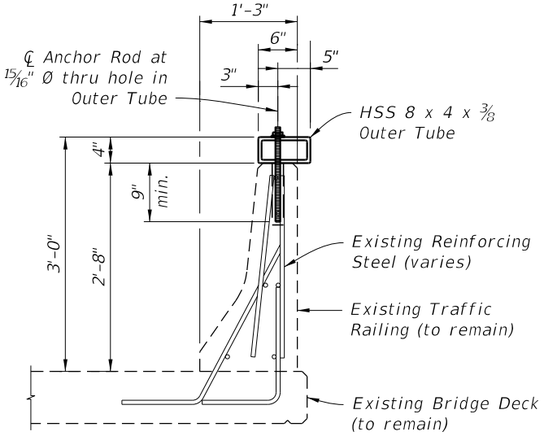
SECTION A-A
F-Shape Traffic Railing



SECTION A-A
Corral Shape Traffic Railing



SECTION A-A
Vertical Face Retrofit Traffic Railing



SECTION A-A
New Jersey Shape Traffic Railing

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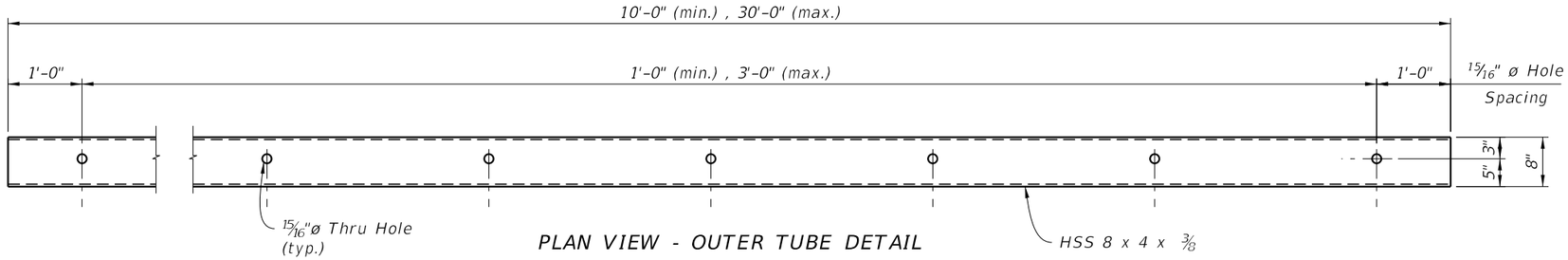
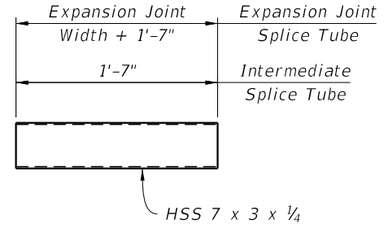
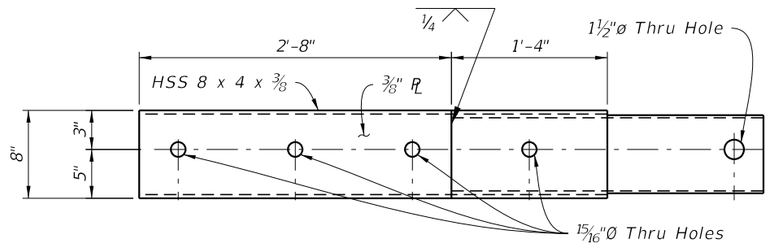


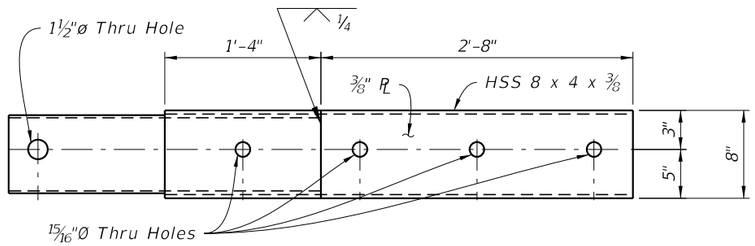
PLAN VIEW - OUTER TUBE DETAIL



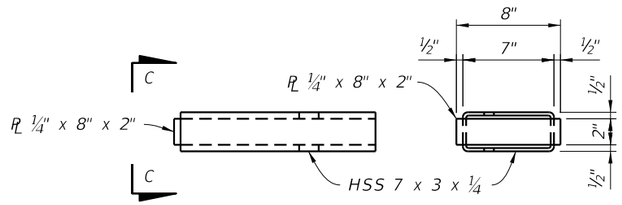
SPLICE TUBE DETAIL



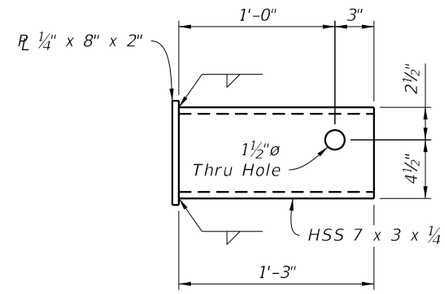
PLAN



PLAN

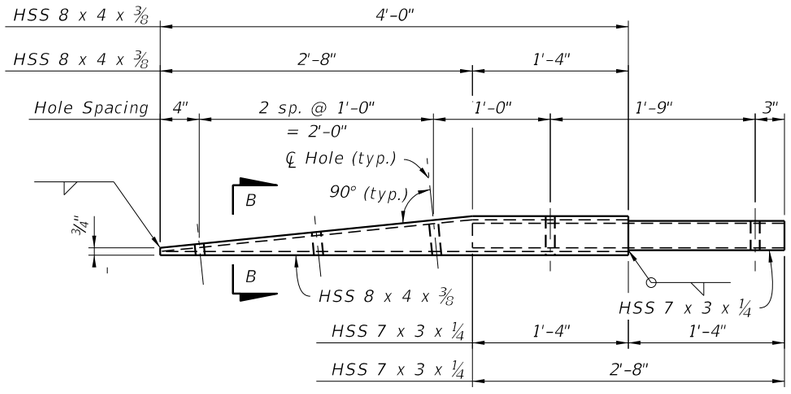


ELEVATION VIEW C-C



PLAN

END CAP ASSEMBLY DETAIL



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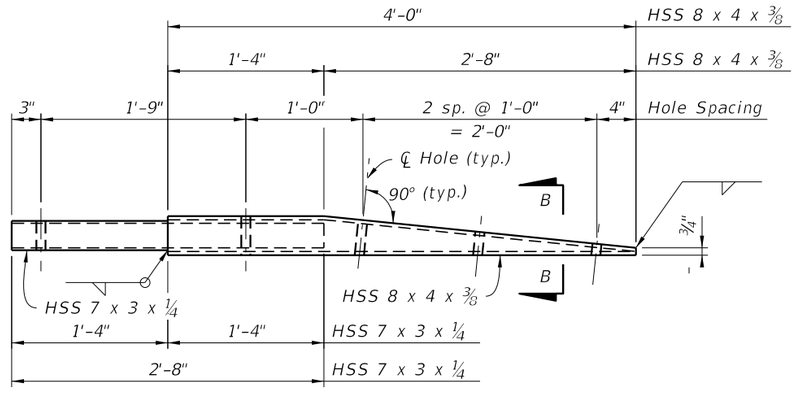

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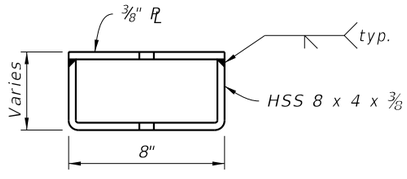
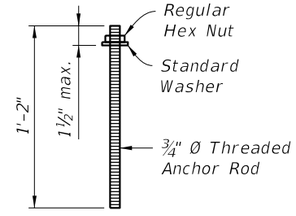


SECTION B-B

TAPERED END ASSEMBLY DETAIL



ANCHOR RODS

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