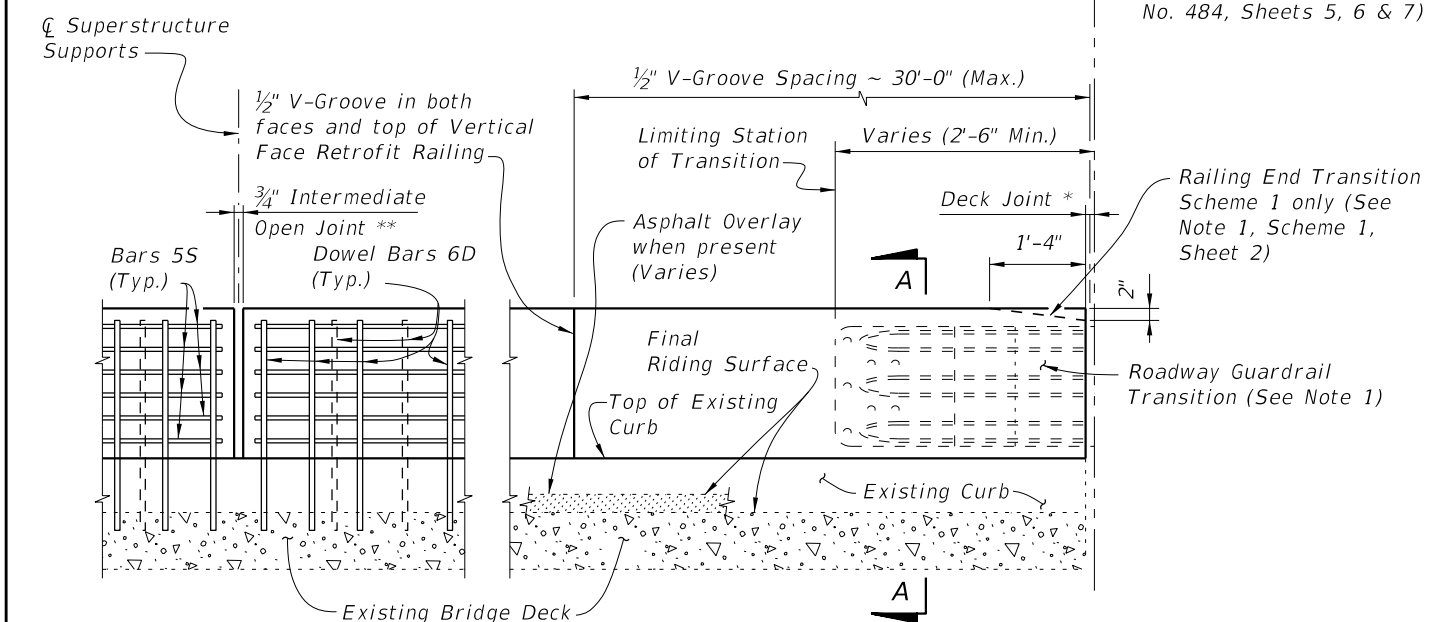


Bars 6D spacing at Railing Joints (Typ. on bridge except as noted for skewed deck joints)

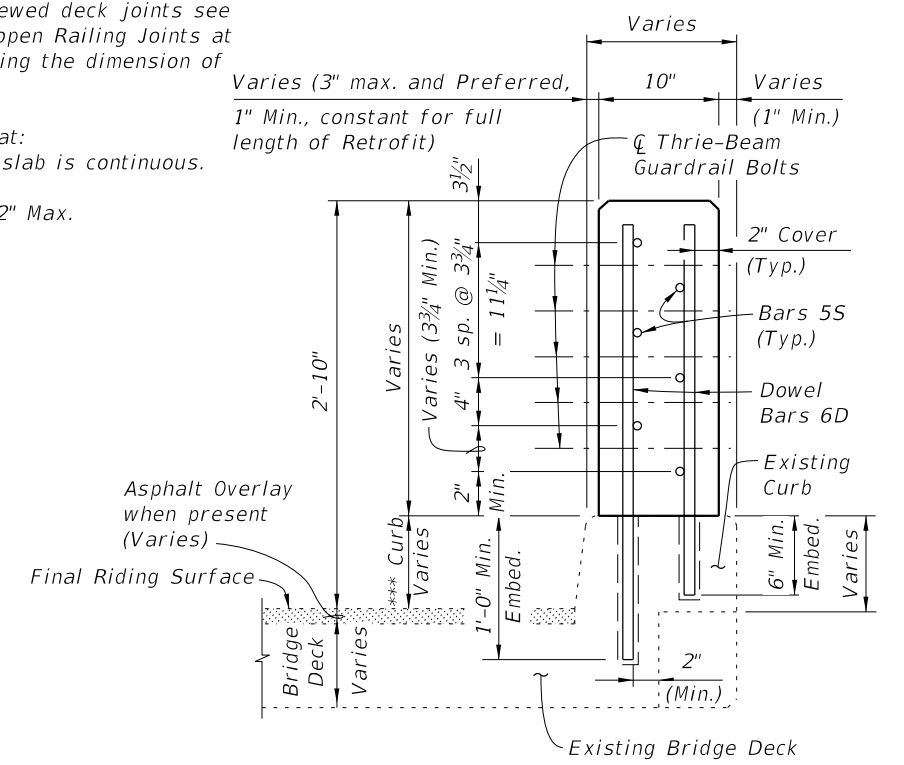


PARTIAL ELEVATION OF INSIDE FACE OF RAILING
 (Expansion Dowel Assemblies & Bars 4C not shown for clarity)

TYPICAL TREATMENT OF RAILING ALONG BRIDGE

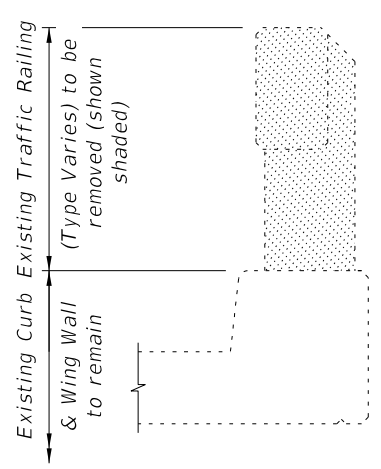
- NOTES:**
1. On approach end provide a Roadway Guardrail Transition, Index No. 402 (as shown) or other site specific treatment. See Roadway Plans for limiting station of Roadway Guardrail Transition or other site specific treatment. If limiting station of Roadway Guardrail Transition is on the bridge, attach Thrie Beam Terminal Connector to railing as shown above. If limiting station of Roadway Guardrail Transition is along the Wing Wall, see Schemes 2 or 3, Index No. 481, Sheet 2 and 3. On skewed bridges, if the skew along the deck joint extends across the width of the railing, the 2'-6" minimum dimension shall apply to both the front and back face of the railing. For treatment of trailing end see Roadway Plans. If vertical face retrofit extends beyond bridge and approach slab ends, see Index No. 484 for treatment and Details.
 2. Field cut Bars 5S and Dowel Bars 6D to maintain clearance within Vertical Face Retrofit Railing.
 3. Where existing structure has been removed and not encased in new concrete; match adjoining areas and finish flat by grouting or grinding as required. Exposed existing reinforcing steel not encased in new concrete shall be burned off 1" below existing concrete and grouted over.

- * Non skewed deck joint shown, actual joint dimensions and orientation vary. For treatment at skewed deck joints see Skew Detail, Index No. 480. Provide open Railing Joints at Deck Expansion Joint locations matching the dimension of the Deck Joint.
- ** Provide 3/4" Intermediate Open Joints at:
 (1) - Superstructure supports where slab is continuous.
- *** Curb heights vary from 5" Min. to 1'-2" Max.

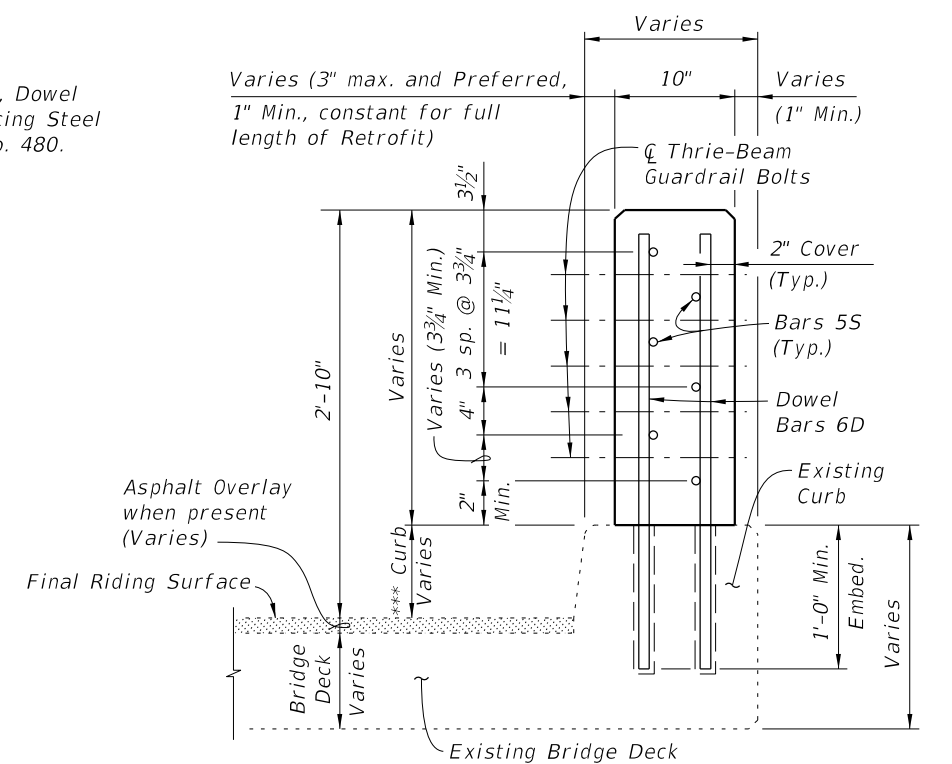


SECTION A-A
TYPICAL SECTION THRU RAILING ON CURB WITH CORBELS

CROSS REFERENCE:
 For General Notes, Estimated Quantities, Dowel Detail, Expansion Dowel Detail, Reinforcing Steel Notes & Bending Diagrams see Index No. 480.



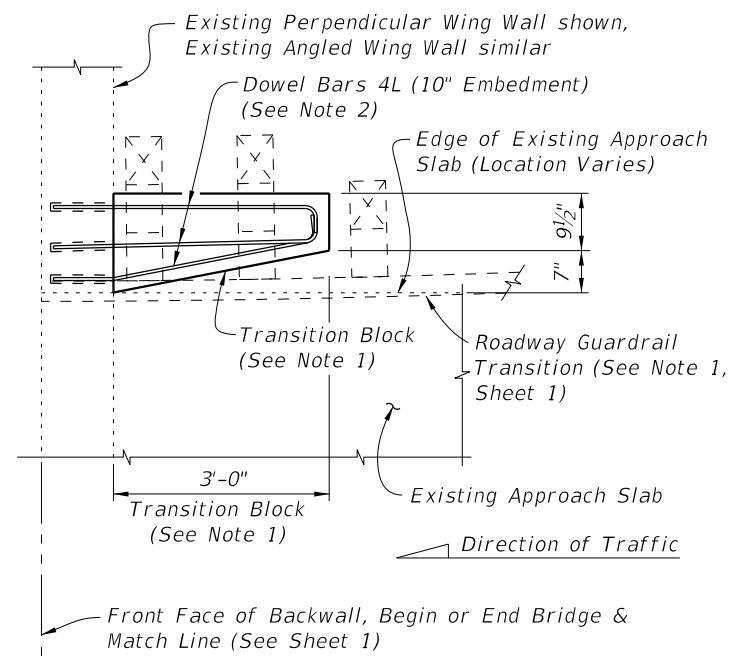
TYPICAL SECTION THRU EXISTING TRAFFIC RAILING SHOWING LIMITS OF REMOVAL
 (BRIDGE DECK SHOWN, WING WALL SIMILAR)



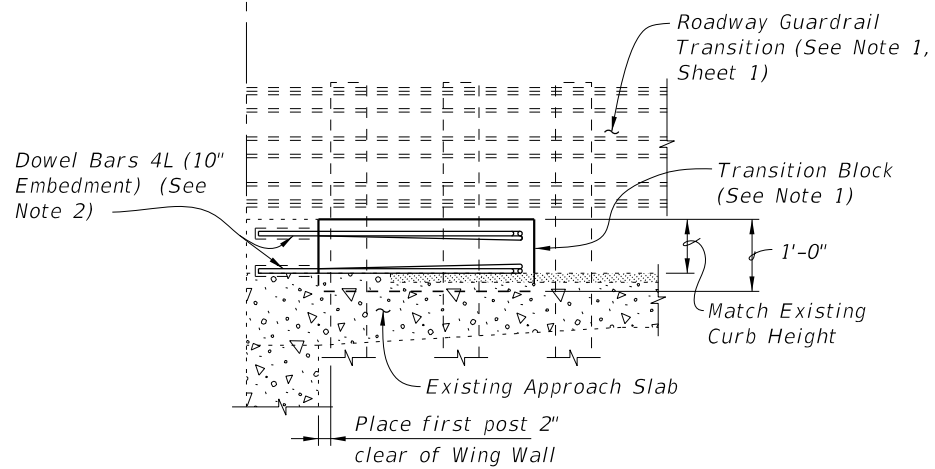
SECTION A-A
TYPICAL SECTION THRU RAILING ON FULL DEPTH CURB (BRIDGE SHOWN, WING WALL SIMILAR)

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LAST REVISION 07/01/13	REVISION	DESCRIPTION:	 2016 DESIGN STANDARDS	TRAFFIC RAILING - (VERTICAL FACE RETROFIT) NARROW CURB	INDEX NO. 481	SHEET NO. 1 of 3
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PARTIAL PLAN OF GUARDRAIL

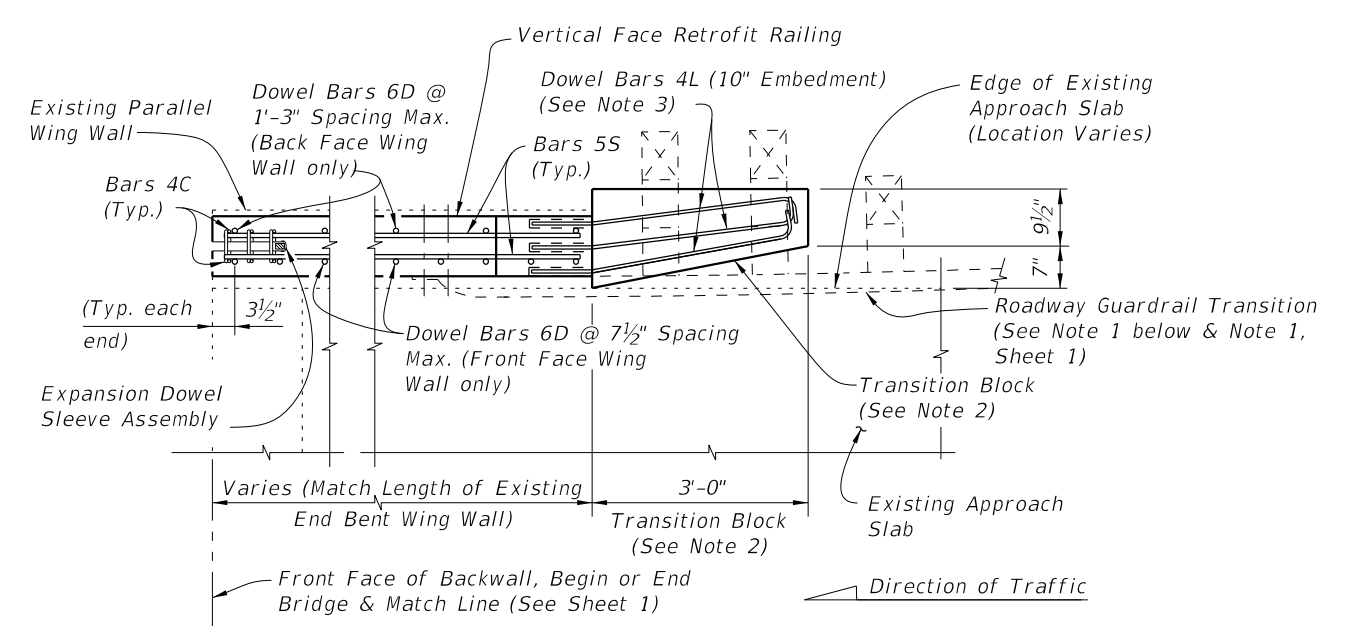


PARTIAL ELEVATION OF INSIDE FACE OF GUARDRAIL

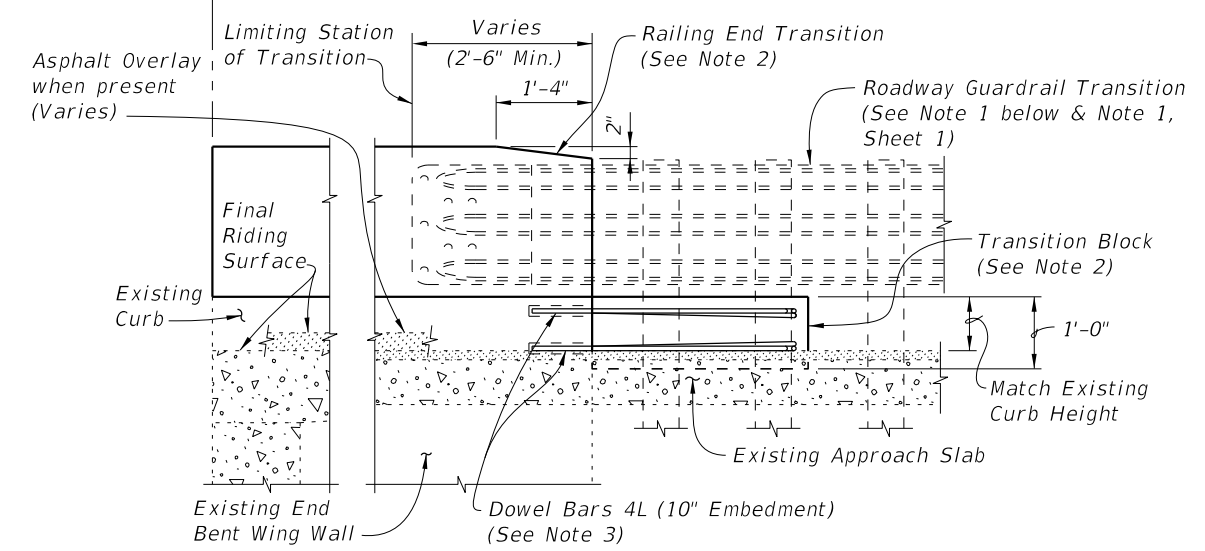
SCHEME 1
RAILING END TREATMENT FOR PERPENDICULAR OR ANGLED WING WALLS

SCHEME 1 NOTES:

1. Provide Transition Block (as shown) or Curb if existing Approach Slab does not have a curb, see Roadway Plans. Shape and height of Transition Block or Curb shall match existing bridge curb. Railing End Transition and Transition Block may be omitted on trailing ends with no opposing traffic.
2. Field bend Dowel Bars 4L within Transition Block as required to maintain 2" top and side clearance and 3" bottom clearance.



PARTIAL PLAN OF RAILING




PARTIAL ELEVATION OF INSIDE FACE OF RAILING
 (Railing Reinforcing and Expansion Dowel Assemblies not shown for clarity)

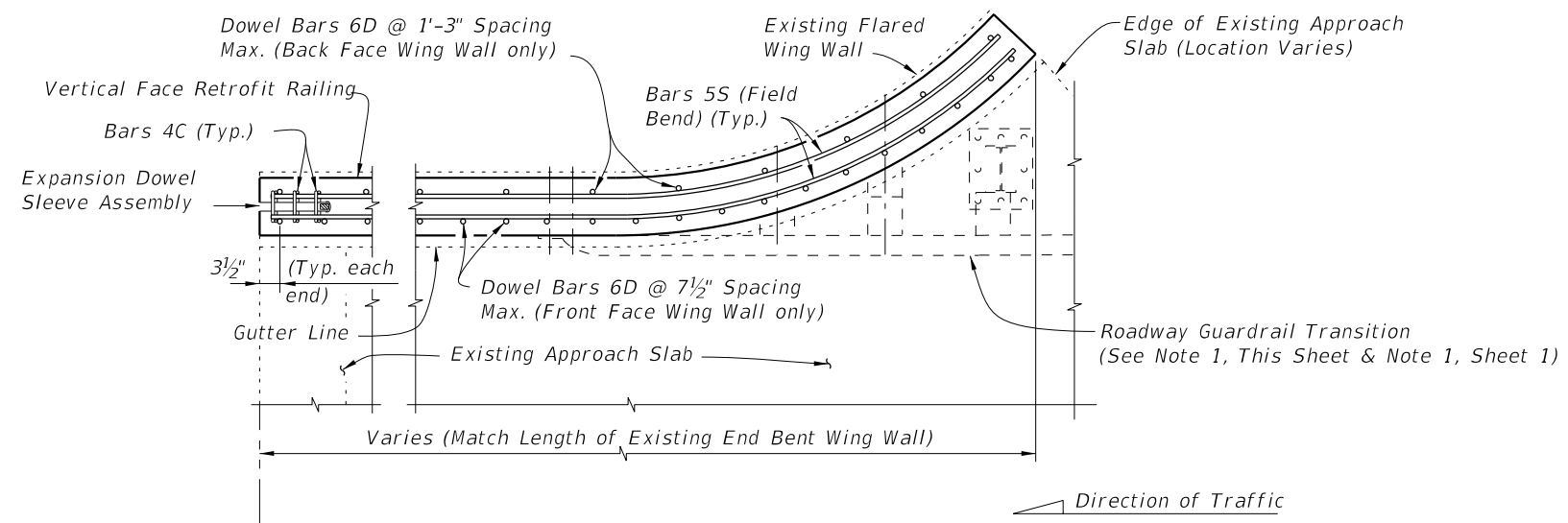
SCHEME 2
RAILING END TREATMENT FOR PARALLEL WING WALLS

SCHEME 2 NOTES:

1. See Roadway Plans for limiting station of Roadway Guardrail Transition or other site specific treatment. If limiting station of Roadway Guardrail Transition is along the Wing Wall, attach Thrie-Beam Terminal Connector to railing as shown above. If limiting station of Roadway Guardrail Transition is on the bridge, see Index No. 481, Sheet 1. On skewed bridges, if the skew along the deck joint extends across the width of the railing, the 2'-6" minimum dimension shall apply to both the front and back face of the railing.
2. Provide Transition Block (as shown) or Curb if existing Approach Slab does not have a curb, see Roadway Plans. Shape and height of Transition Block or Curb shall match existing bridge curb. Railing End Transition and Transition Block may be omitted on trailing ends with no opposing traffic.
3. Field bend Dowel Bars 4L within Transition Block as required to maintain 2" top and side clearance and 3" bottom clearance.

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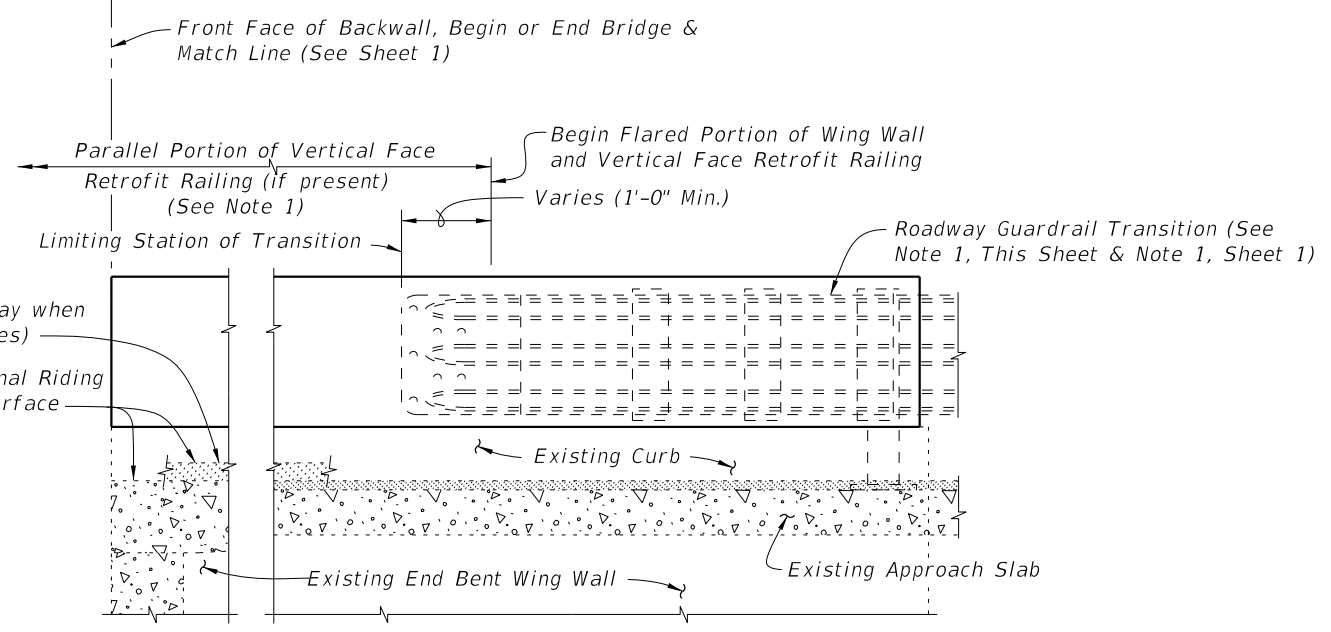
LAST REVISION 07/01/07	REVISION	DESCRIPTION:	 2016 DESIGN STANDARDS	TRAFFIC RAILING - (VERTICAL FACE RETROFIT) NARROW CURB	INDEX NO. 481	SHEET NO. 2 of 3
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PARTIAL PLAN OF RAILING

SCHEME 3 NOTE:

1. See Roadway Plans for limiting station of Roadway Guardrail Transition or other site specific treatment. If limiting station of Roadway Guardrail Transition is along the Wing Wall, attach Thrie-Beam Terminal Connector to railing as shown above. If limiting station of Roadway Guardrail Transition is on the bridge, see Sheet 1.



PARTIAL ELEVATION OF INSIDE FACE OF RAILING
(Railing Reinforcing and Expansion Dowel Assemblies not shown for clarity)

SCHEME 3
RAILING END TREATMENT FOR
FLARED WING WALLS

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LAST REVISION 07/01/07	REVISION	DESCRIPTION:	 2016 DESIGN STANDARDS	TRAFFIC RAILING - (VERTICAL FACE RETROFIT) NARROW CURB	INDEX NO. 481	SHEET NO. 3 of 3
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