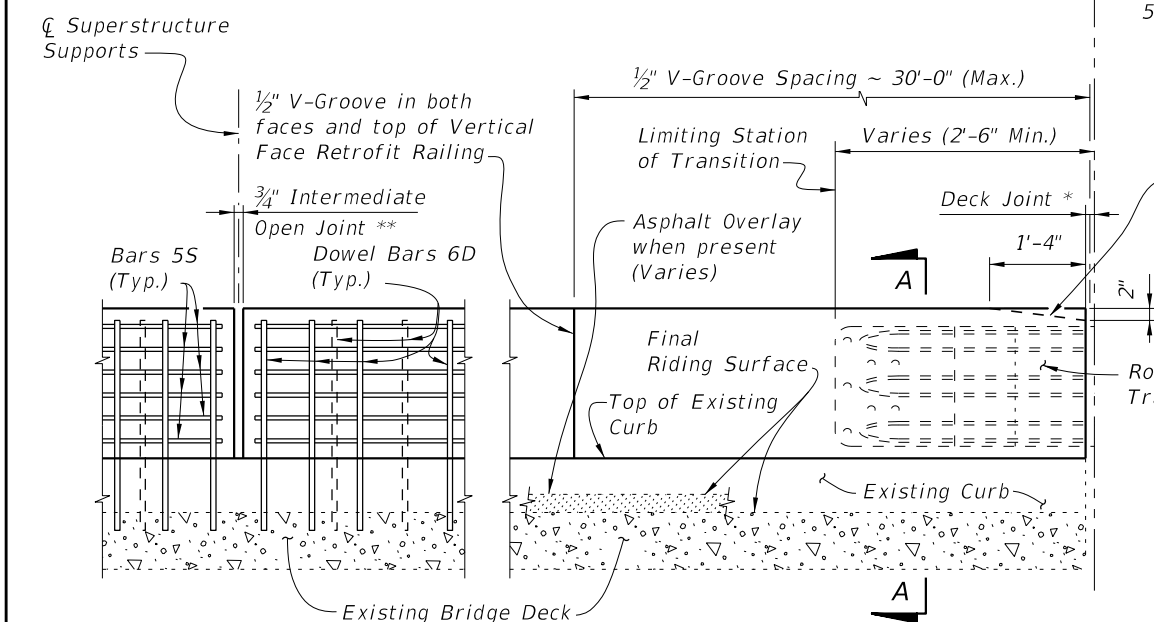


Expansion Dowel Assembly  
 3/4" Intermediate Open Joint \*\*  
 Bars 4C (Typ.)  
 Dowel Bars 6D (Typ.)  
 Bars 5S (Typ.)  
 Existing Bridge Coping  
 Direction of Traffic  
 Vertical Face Retrofit Railing  
 Gutter Line  
 Deck Joint \*  
 Existing Bridge Deck

**PARTIAL PLAN OF RAILING**

Expansion Dowel & Bars 4C not required at end of railing for Scheme 1, except where traffic railing retrofit extends beyond ends of bridge, see Index 521-484



**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 536-002 (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 521-481, 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 521-484 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.

Front Face of Backwall, Begin or End Bridge & Match Line (See Sheet 2 & 3 & Index 521-484, Sheets 5, 6 & 7)

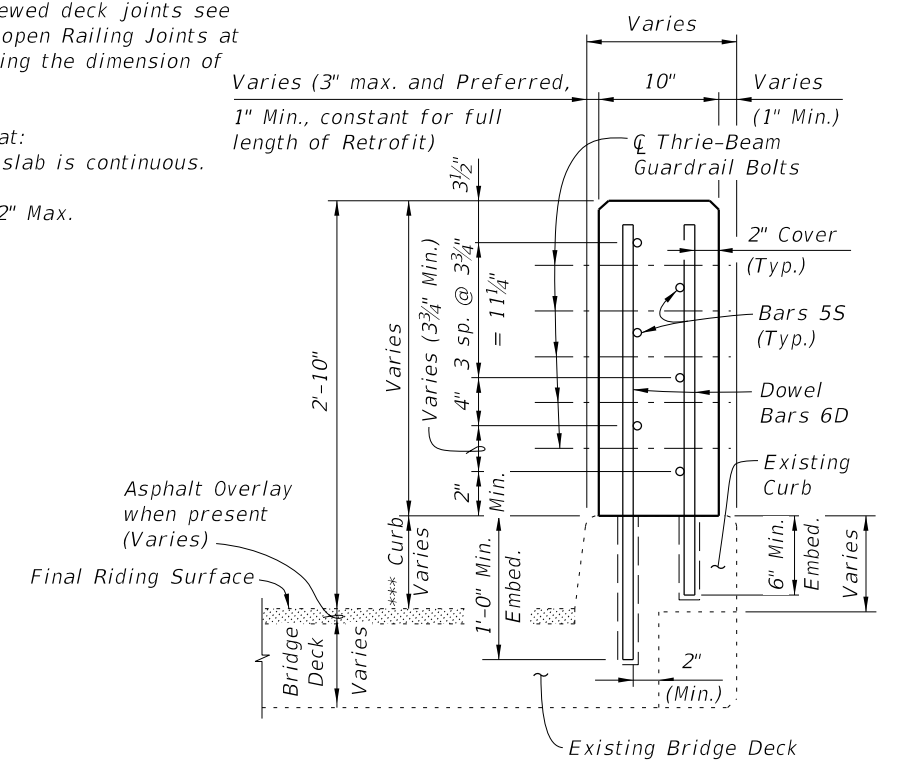
Railing End Transition Scheme 1 only (See Note 1, Scheme 1, Sheet 2)

Roadway Guardrail Transition (See Note 1)

\* Non skewed deck joint shown, actual joint dimensions and orientation vary. For treatment at skewed deck joints see Skew Detail, Index 521-480. 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.

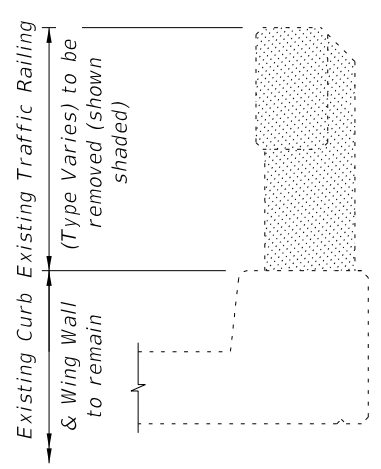
\*\*\* Curb heights vary from 5" Min. to 1'-2" Max.



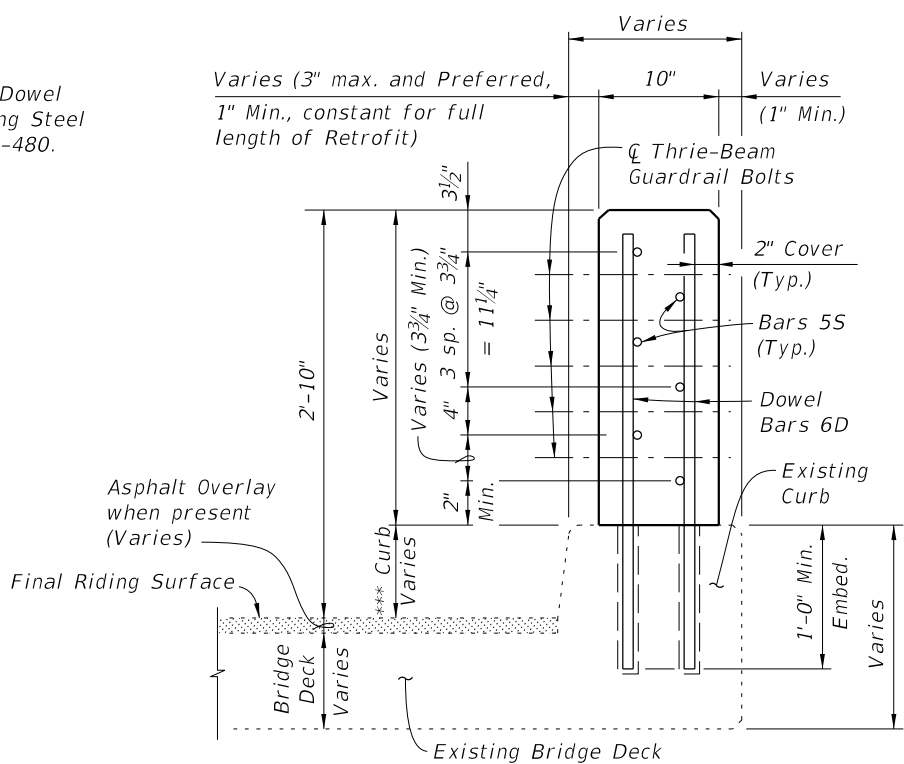
**SECTION A-A**  
**TYPICAL SECTION THRU RAILING ON CURB WITH CORBELS**

**CROSS REFERENCE:**

For General Notes, Estimated Quantities, Dowel Detail, Expansion Dowel Detail, Reinforcing Steel Notes & Bending Diagrams see Index 521-480.



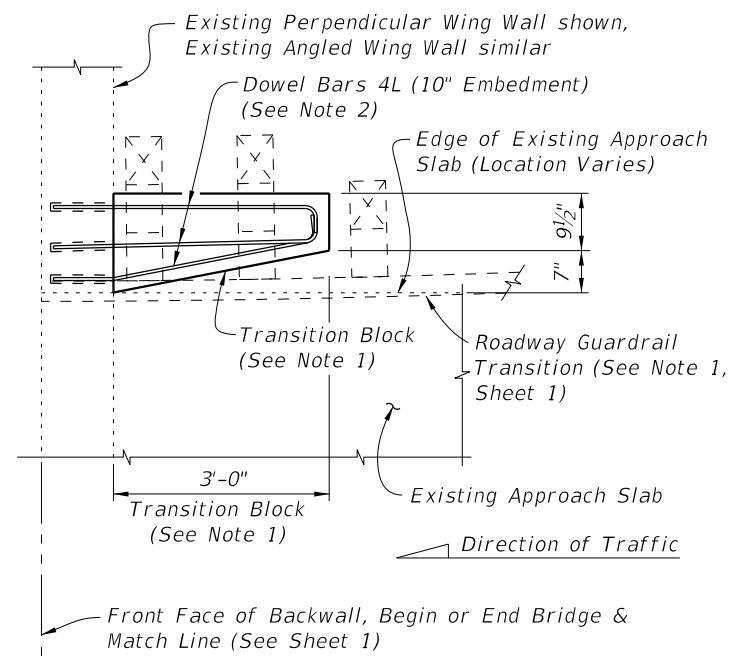
**TYPICAL SECTION THRU EXISTING TRAFFIC RAILING SHOWING LIMITS OF REMOVAL**  
 (BRIDGE DECK SHOWN, WING WALL SIMILAR)



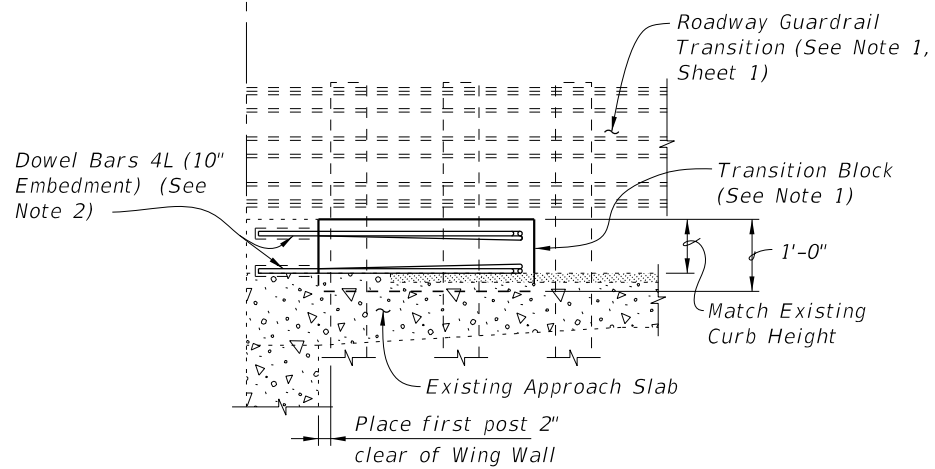
**SECTION A-A**  
**TYPICAL SECTION THRU RAILING ON FULL DEPTH CURB (BRIDGE SHOWN, WING WALL SIMILAR)**

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**PARTIAL PLAN OF GUARDRAIL**

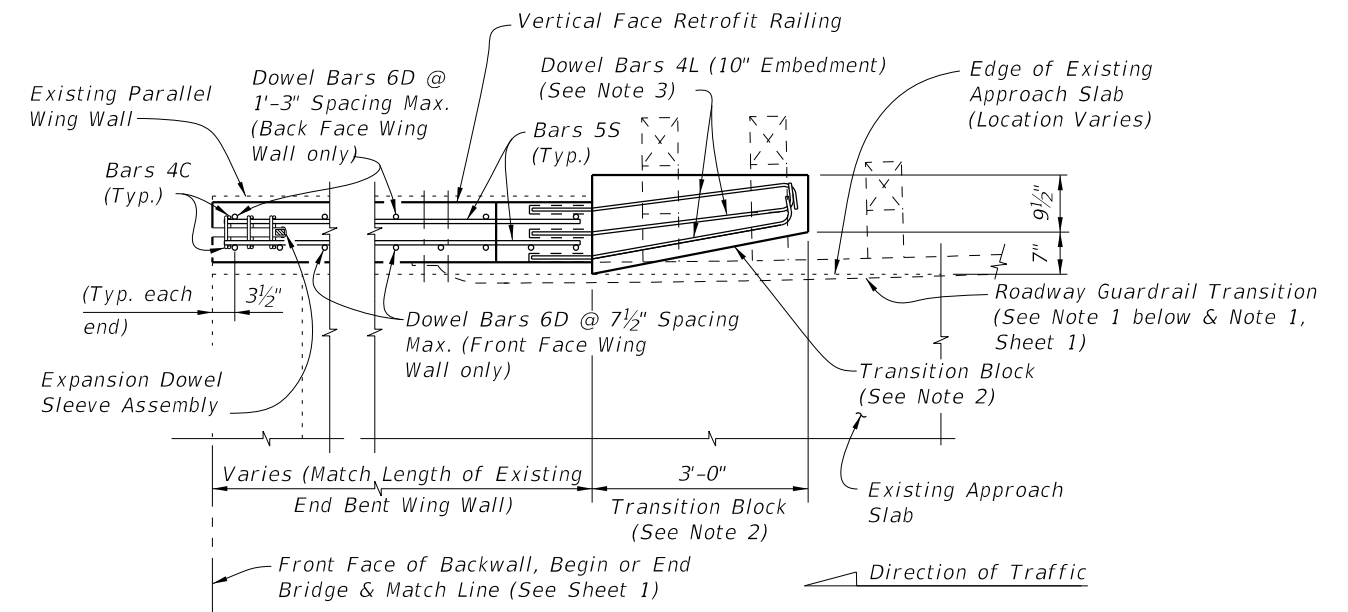


**PARTIAL ELEVATION OF INSIDE FACE OF GUARDRAIL**

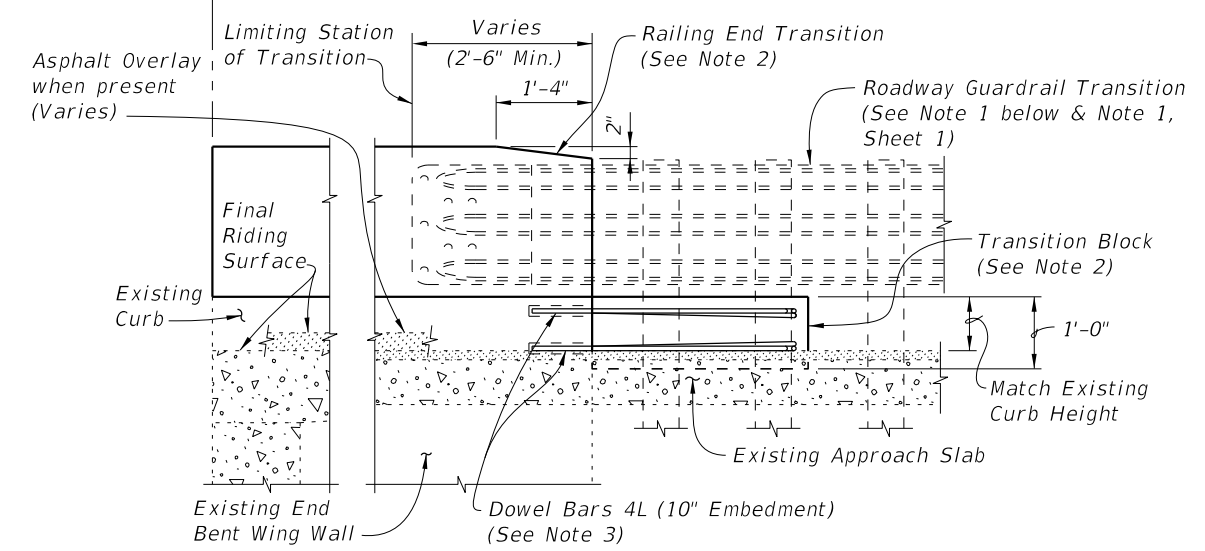
**SCHEME 1**  
**RAILING END TREATMENT FOR PERPENDICULAR OR ANGLED WING WALLS**

**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)

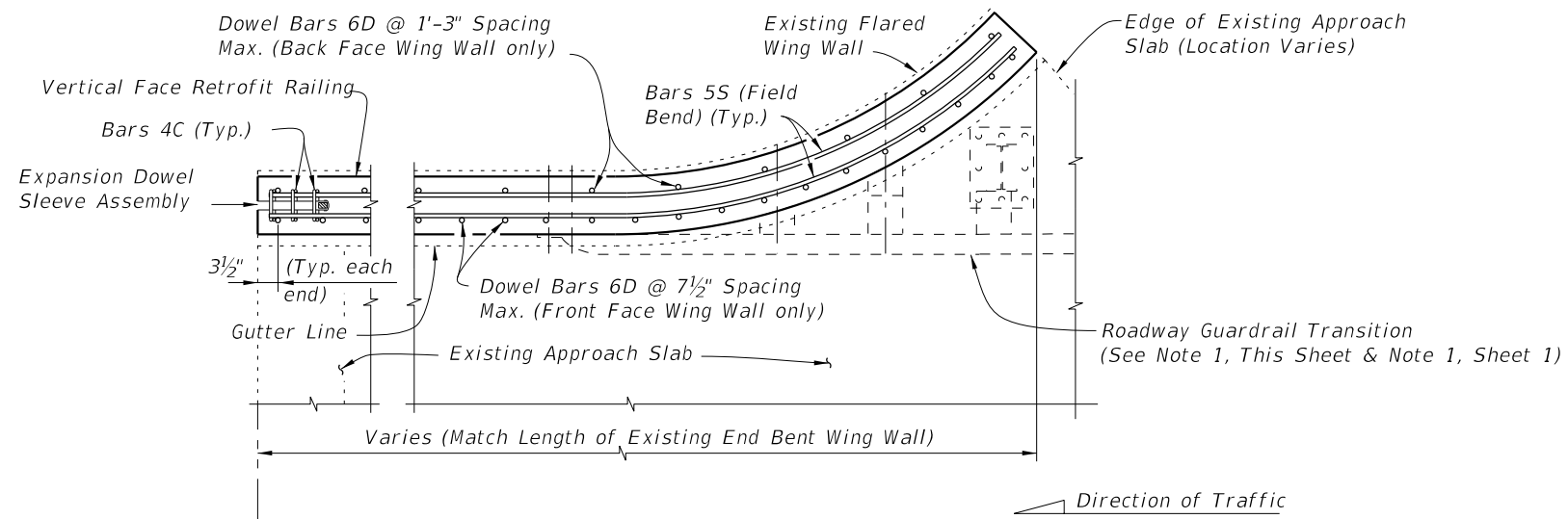
**SCHEME 2**  
**RAILING END TREATMENT FOR PARALLEL WING WALLS**

**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 521-481, 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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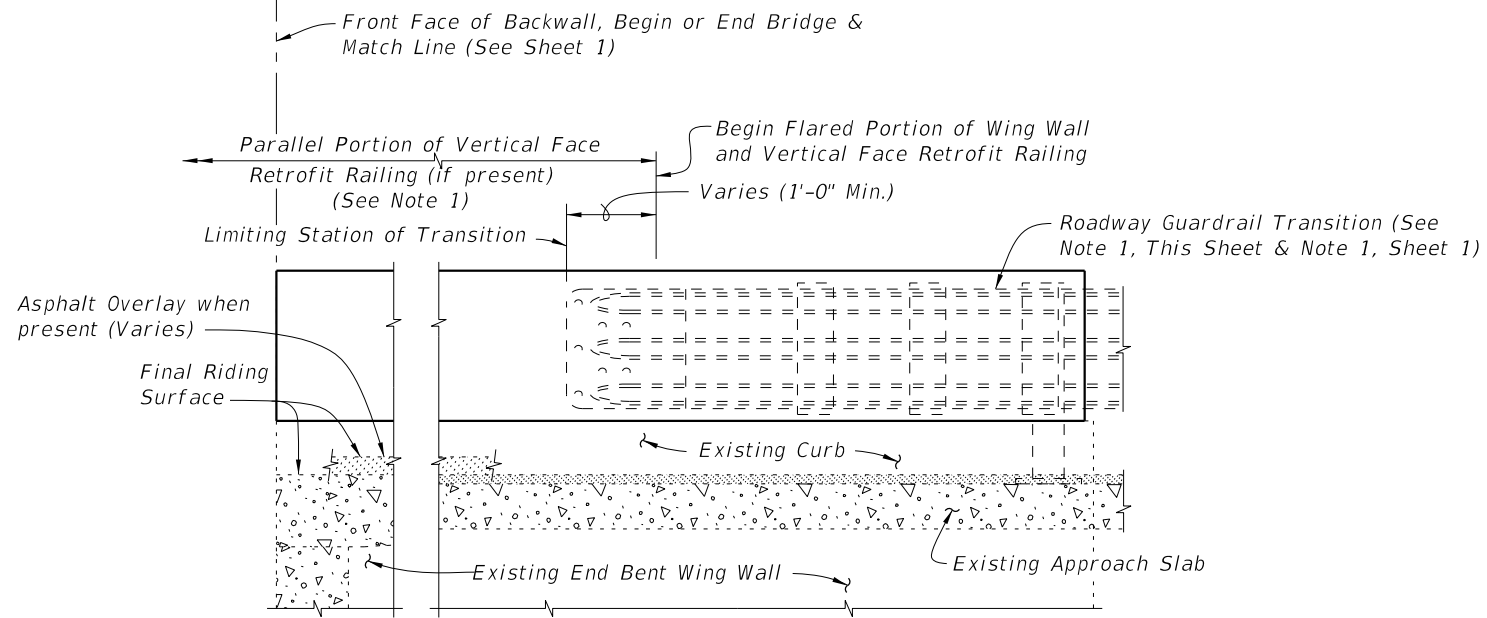
LAST REVISION 07/01/07	REVISION	DESCRIPTION:		FY 2019-20 STANDARD PLANS	<b>TRAFFIC RAILING - (VERTICAL FACE RETROFIT)          NARROW CURB</b>	INDEX 521-481	SHEET 2 of 3
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**PARTIAL PLAN OF RAILING**

**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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