For Railing End Transition see Detail "A" (Typical except as noted below)

Edge of Approach Slab (Copings)

5/8" Intermediate Open Joint (see Notes) Coping (Typ.)

V-Groove in both faces and top of Traffic Railing

Deck Joint (see Notes)

Edge of Approach Slab (Copings)

Begin or End Approach Slab or Begin or End Railing on Retaining Wall

90° Maximum

Spacing 3/4" Open Joints (see Notes)

50°-0" Maximum

Spacing 3/4" V-Grooves (see Notes)

Deck Joint (see Notes)

6" Min.

Approach Three-Beam Guardrail Transition (When called for in Plans)

NAME OR DATE BRIDGE NUMBER

Approach Slab (Flexible Pavement Approach Slab Shown, Rigid Pavement Approach Slab Similar)

Front Face of Backwall, Begin or End Bridge

Bridge Deck

Tailing End, W-Beam Guardrail Connection (shown), Three-Beam Guardrail Connection (similar) (When called for in Plans)

1/2" Intermediate Open Joint (see Notes)

See Detail "B" for Marker Plug

TRAFFIC RAILING NOTES

This railing has been structurally evaluated to be equivalent or greater in strength to other safety type railings which have been crash tested to NCHRP Report 350 TL-4 Criteria.

CONCRETE AND REINFORCING STEEL: See Structures Plans General Notes.

MARKERS: Elevation Markers shall be placed on top of the Traffic Railing at the end bents. On bridges longer than 300 ft one marker shall be placed at each end of the bridge. On bridges 300 ft or less one marker shall be placed at one end of the bridge only. Markers are to be furnished by the Florida Department of Transportation and installed by the Contractor. The cost of installing the markers shall be included in the Contract Unit Price for the Traffic Railing.

GUARDRAIL: For Guardrail connection details see Index Nos. 400 and 401.

SUPER-ELEVATED BRIDGES: At the option of the Contractor the Traffic Railing on super-elevated bridges may be constructed perpendicular to the roadway surface. If an adjoining railing is constructed plumb, transition the end of the Traffic Railing from perpendicular to plumb over a minimum distance of 20'-0". The cost of all modifications will be at the Contractor's expense.

P E D I S T R Y AND BICYCLE RAILING: See Index Nos. 821 and 822 for Notes, Details and past spacings for Traffic Railings with Aluminum Pedestrian/Bicycle Railings.


NAME DATE AND BRIDGE NUMBER: The Name and Bridge Number shall be placed on the Traffic Railing so as to be seen on the driver's right side when approaching the bridge. The Date shall be placed on the driver's left side when approaching the bridge. The date shall be shown in the General Notes in the Structures Plans. The date shall be the year the bridge is completed. For a widening when the widening is completed, use both the widening date and the year of the widening. Black plastic letters and figures 3" in height may be used, as approved by the Engineer. In lieu of the letters and figures formed by 3/8" V-Grooves, V-Grooves shall be formed by preformed letters and figures.

REFLECTIVE RAILING MARKERS: Reflective Railing Markers shall meet Specification Section 993. Install markers on top of the Traffic Railing 21" from the face on the traffic side at the spacing shown in the table above. Reflectors color (white or yellow) shall match the color of the near edge line. The cost of the reflective markers shall be concluded in the Contract Unit Price for the Traffic Railing.

JOINTS: See Plans, Superstructure, Approach Slab and Retaining Walls Sheets for actual dimensions and joint orientation. Open Jointing at Deck Transition Joint locations shall match the dimensions at the Deck Joint. For treatment of Railings on skewed bridges see Index No. 490. Deck Joint at Begin Bridge or End Bridge shown, Deck Joint at 6' Pier or Intermediate Pier similar. Provide 1/2" Intermediat Open Joints at:

(1) - Substructure supports, where superstructure slab is continuous.
(2) - Midspan where span length exceeds 90 ft.
(3) - Intermediate locations equally spaced between midspan and substructure supports where span length exceeds 180 ft.
(4) - At ends of approach slabs when adjacent to retaining walls at and expansion joints on retaining wall juction slabs.

ELEVATION OF INSIDE FACE OF RAILING

(Railing on Bridge Deck and Approach Slab shown, Railing on Retaining Wall similar.)
SECTION A-A
TYPICAL SECTION THRU TRAFFIC RAILING
(Section thru Bridge Deck shown, Section thru Approach Slab and Retaining Walls similar)

PLAN - Railing End Transition
(Showing Bars 5V and 5S)

DETAIL "A"

NOTE: Unit Railing End Transition and Guardrail Index 420 Concrete Barrier Walls used beyond the Approach Slab or Retaining Wall. See Structures Plans, Plan and Elevation Sheet and Wayway Plans. If Railing End Transition is omitted extend Typical Section to end of the Approach Slab or limiting station on Retaining Wall, and space Bars 5P and 5V at 8’ (Typ.)

INSTRUCTIONS TO DESIGNER:
For Bridge Decks up to a maximum thickness of 9”, the two Bars 5S placed in the Bridge Deck may substitute for the longitudinal deck steel located within the limits of Bars 5V, provided that the total area of longitudinal-deck steel beneath the railing, as required by calculation, is not reduced. Show these bars on the Structures Plans, Superstructure Sheets with the deck steel.

W/Bars 5P, 5S and 5V as shown are included in the Estimated Traffic Railing Guidance. Do not include Bars 5S 5S and 5V in the reinforcing bar lists and estimated quantities for supporting bridge decks, approach slabs or retaining walls.

NOTES:
- Rotate Bars 5V in Railing End Transition to maintain cover. Begin placing Bars 5P and 5V on Approach Slab at the barrier end and proceed toward Begin or End Bridge to ensure placement of guardrail bolts holes.
- If required, adjustments to the bar spacing for Bars 5P and 5V shall be made immediately adjacent to begin or end bridge.

VIEW B-B
(Section thru Approach Slab shown, Section thru Retaining Walls similar)

CROSS REFERENCE:
For locations of Section A-A and View B-B see Sheet l.
**ALTERNATE REINFORCING STEEL (WELDED WIRE REINFORCEMENT) DETAILS**

**CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS**

**BILL OF REINFORCING STEEL**

<table>
<thead>
<tr>
<th>MARK</th>
<th>SIZE</th>
<th>LENGTH</th>
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<tbody>
<tr>
<td>P</td>
<td>5</td>
<td>5'-7&quot;</td>
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<tr>
<td>S</td>
<td>5</td>
<td>As Req.</td>
</tr>
<tr>
<td>V</td>
<td>5</td>
<td>5'-1&quot;</td>
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- **ROADWAY CROSS-SLOPE**
  - LOW GUTTER: 84°, 60°, 64°, 60°
  - HIGH GUTTER: 84°, 64°, 60°, 64°

- **Splice Detail**
  - (Between WWR Sections)
  - Welded Wire Reinforcement (WWR) Piece No. 1
  - Welded Wire Reinforcement (WWR) Piece No. 2
  - Welded Wire Reinforcement (WWR) Piece No. 3

- **WELDED WIRE REINFORCEMENT NOTES**:
  1. At the option of the Contractor, Welded Wire Reinforcement (WWR) may be utilized in lieu of all bars 5P, 5S, and 5V. Welded Wire Reinforcement shall conform to ASTM A697.

- **REINFORCING STEEL NOTES**:
  1. All bars in the bending diagrams are cut to length as required.
  2. The 8" and the 2'-4" vertical dimensions shown for Bar 5V are based on a bridge deck without a raised sidewalk. If a raised sidewalk is to be provided, increase these dimensions to achieve a 6" minimum embedment into the bridge deck. See Structures Plans, Superstructure and Approach Slope Sheets.
  3. The reinforcement for the railing on a retaining wall shall be the same as detailed above for a 8" deck with 64° to 90°.
  4. All reinforcing steel at the open joints shall have a 2" minimum cover.
  5. Bars 5S may be continuous or spaced at the construction joints. Bar splices for Bars 5S shall be a minimum of 2'-0".

- **ESTIMATED TRAFFIC RAILING QUANTITIES**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
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<tbody>
<tr>
<td>Concrete</td>
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<tr>
<td>Reinforcing Steel</td>
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*The above quantities are based on a 24" deck cross slope railing on the low side of deck.*

**DETAIL "8" - SECTION AT INTERMEDIATE OPEN JOINT**

**SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES**

**2010 FDOT Design Standards**

**TRAFFIC RAILING - (32° F SHAPE)**