

**TRAFFIC RAILING NOTES**

This Traffic Railing Retrofit has been structurally evaluated to be equivalent or greater in strength to a design which has been successfully crash tested previously and approved for a NCHRP Report 350 Test Level 4 rating, except for the Tapered End Transition on Index No. 484.

**CONCRETE:** Concrete for the Traffic Railing (VerticalFace Retrofit), Spread Footing Approaches and replacement curb sections shall be Class IV. Concrete for Curb Transition Blocks shall be Class II (Bridge Deck).

**REINFORCING STEEL:** Reinforcing steel shall be ASTM A615, Grade 60, except Expansion Dowel Bar B which shall be ASTM A36 smooth round bar hot-dip galvanized in accordance with the Specifications.

**EXPANSION SLEEVE ASSEMBLY:** Pipe sleeve shall be ASTM D2241 PVC pipe, SDR13.5. End Cap shall be ASTM D2466 PVC socket fitting, Schedule 40. End of Sleeve assembly at railing open joint shall be sealed with silicone to prevent concrete intrusion during railing casting. A compressible expanded polystyrene plug is required in the opposite end of the assembly for correct dowel positioning during railing casting. Correct dowel positioning is required in order to provide for thermal movement of the deck.

**ADHESIVE-BONDED ANCHORS AND DOWELS:** Adhesive Bonding Material Systems for Anchors and Dowels 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 23,800 lbs. for Dowel Bars 6D on the inside face (traffic side) of the railing (1'-0" embedment) and 18,500 lbs for Dowel Bars 6D along the outside face of the traffic railing (5" min. embedment).

**BRIDGES ON CURVED ALIGNMENTS:** The details presented in these Standards are shown for bridges on tangent alignments. Details for bridges on horizontally curved alignments are similar.

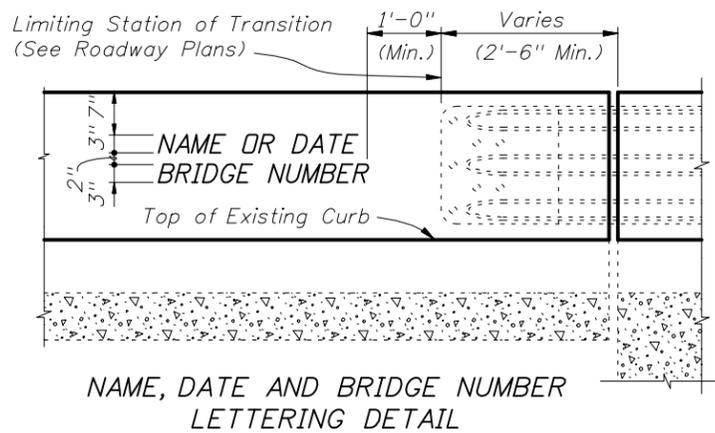
**NAME, DATE AND BRIDGE NUMBER:** The Name and Bridge Number shall be placed on the Traffic Railing so as to be seen on the driver's right side when approaching the bridge. The Date shall be placed on the driver's left side when approaching the bridge. The Date shall be the year the bridge was constructed. Letters and figures may be 3" tall black plastic as approved by the Engineer or 3/8" V-Grooves. V-Grooves shall be formed by preformed letters and figures.

**ELEVATION MARKERS:** Elevation Markers shall be placed on the top surface of the end bents as directed by the Engineer when portions of the existing traffic railing carrying existing elevation markers are removed. Markers are to be furnished by the Florida Department of Transportation and installed by the Contractor.

**SURFACE FINISH:** Unless otherwise shown in the Plans, place a Class 5 Applied Finish Coating on the top and sides of the Traffic Railing (VerticalFace Retrofit).

**REFLECTIVE RAILING MARKERS:** Reflective Railing Markers shall meet Specification Section 993. Install markers on top of the Traffic Railing 2" from the face on the traffic side at the spacing shown in the table below. Reflector color (white or yellow) shall match the color of the near edgeline.

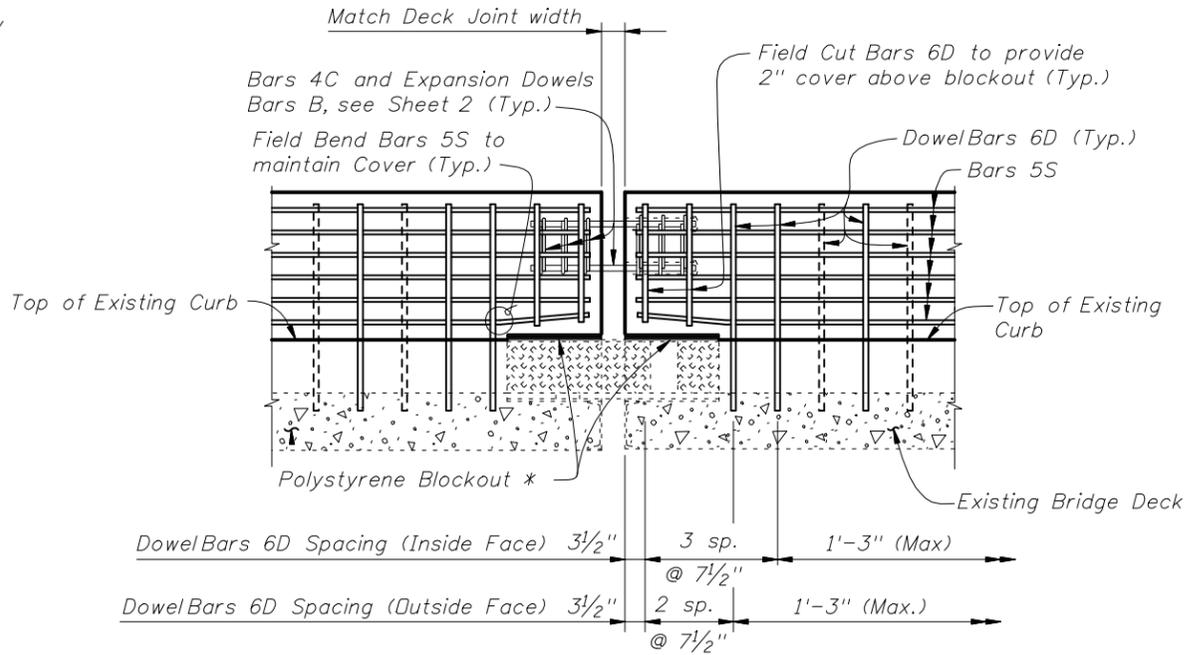
**PAYMENT:** Payment under Traffic Railing (VerticalFace Retrofit) include all materials and labor required to construct the railing. Incidental work as required for transition blocks, curbs, spread footings approaches, reflective railing markers (including installation) shall also be included under Traffic Railing (VerticalFace Retrofit).



REFLECTIVE RAILING MARKER SPACING	
Distance - Edge of Travel Lane to Face of Railing	Spacing (Ft.)
< 4'	40'
4' to 8'	80'
> than 8'	None Required

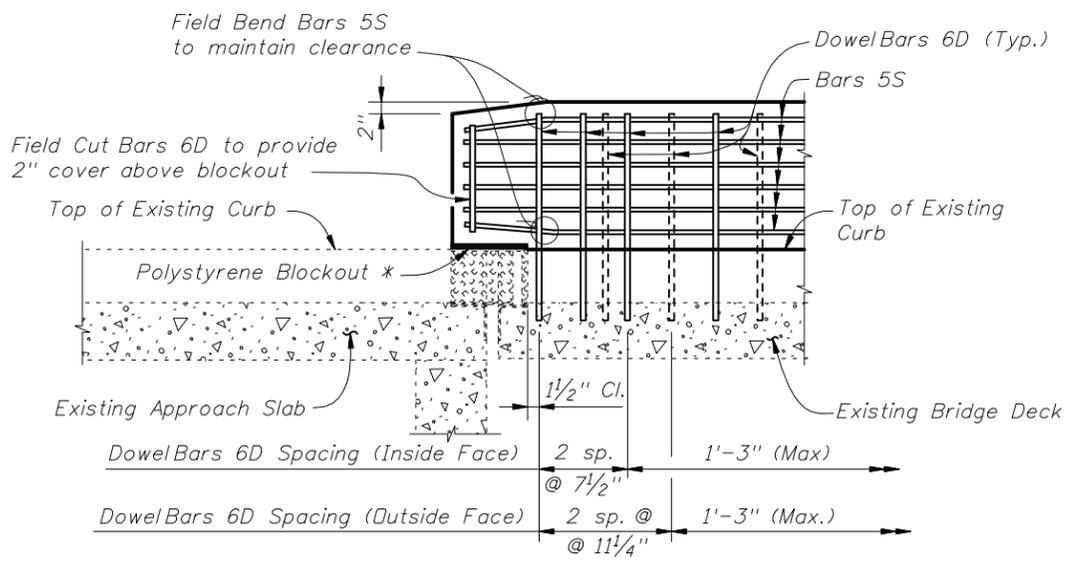
ESTIMATED TRAFFIC RAILING QUANTITIES			
ITEM	UNIT	QUANTITY	
		9" Curb	Increment
Concrete	CY/Ft.	0.064	0.003 per in. height
Reinforcing Steel	Lb./Ft.	13.27	0.10 per in. length

(Quantities are based on a 9" curb, no curb cross slope and 1'-0" embedment length of Bars 6D. If the curb height or embedment length differs from that shown, increase or decrease quantity by the given per inch increment.) See Index No. 484, Sheet 4 for Spread Footing Approach Quantities.



**PARTIAL ELEVATION OF RAILING SHOWING INTERIOR FINGER/SLIDING PLATE JOINT (Beam/Girder, Intermediate Bent or Pier not shown for clarity)**

\* Place 1" thick polystyrene blackout over limits of bridge deck expansion joint full width to the end of the Traffic Railing to allow for thermal movement. Seal Forms to prevent mortar leakage into the expansion joint.



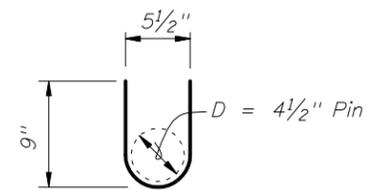
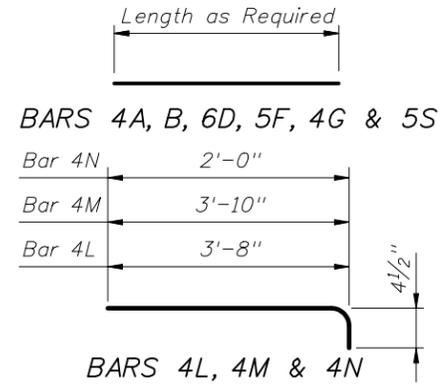
**PARTIAL ELEVATION OF RAILING SHOWING SLIDING PLATE JOINT AT BEGIN OR END BRIDGE (Scheme 1 shown, Schemes 2, 3 and 4 similar) (Guardrail Transition or continuation of Traffic Railing not show for clarity)**



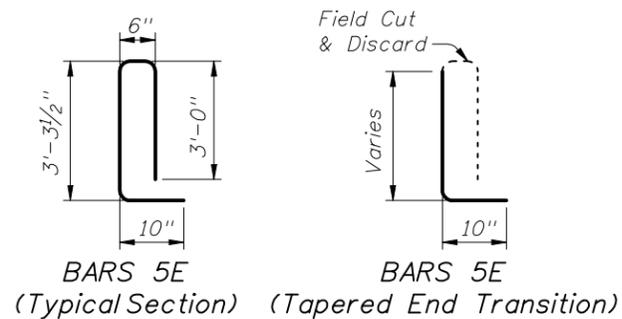
CONVENTIONAL REINFORCING STEEL BENDING DIAGRAM

BILL OF REINFORCING STEEL

MARK	SIZE	LENGTH	INDEX NO.	NOTE NOS.
A	4	AS REQD.	482 ONLY	3
B	1" Ø	2'-0"	481 THRU 483	2 & 5
C	4	2'-0"	481 THRU 484	1, 2 & 3
D	6	AS REQD.	481 THRU 484	2 & 3
E	5	7'-4"	484 ONLY	1 & 3
F	5	4'-3"	484 ONLY	3
G	4	AS REQD.	484 ONLY	3
L	4	4'-1"	481 THRU 483	1 & 3
M	4	4'-3"	482 ONLY	1 & 3
N	4	2'-5"	482 ONLY	1 & 3
S	5	AS REQD.	481 THRU 484	2, 3 & 4

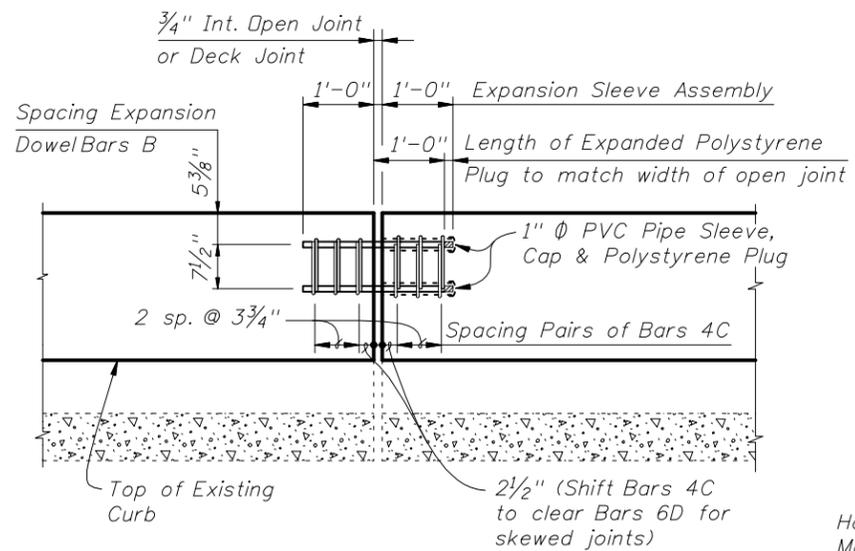


BARS 4C  
(12 required per open joint)

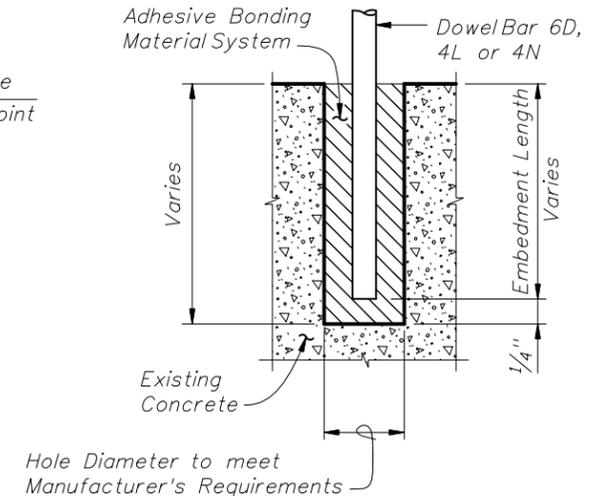


REINFORCING STEEL NOTES:

1. All bar dimensions in the bending diagrams are out to out.
2. The reinforcement for the railing on a retaining wall shall be the same as detailed for a bridge deck.
3. All reinforcing steel in the Vertical Face Retrofit Railing shall have a 2" minimum cover.
4. Bars 5S may be continuous or spliced at the construction joints. Bar splices for Bars 5S shall be a minimum of 2'-0".
5. Expansion Dowel Bars B shall be ASTM A36 smooth round bar and hot-dip galvanized in accordance with the Specifications.



OPEN JOINT EXPANSION DOWEL DETAIL  
(Railing Reinforcing Not Shown For Clarity)



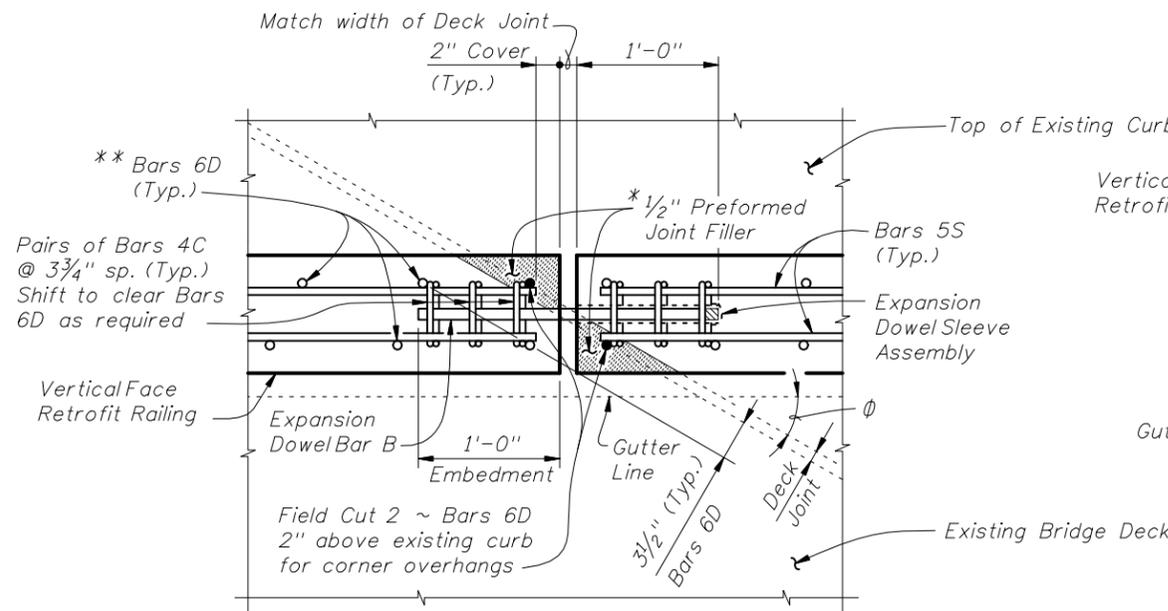
DOWEL DETAIL

Dowel Installation Notes:

1. Shift dowelholes to clear if the existing reinforcement is encountered.
2. See individual Standards Index Nos. 481 thru 484 for required embedment length of Bars 6D, 4L or 4N.

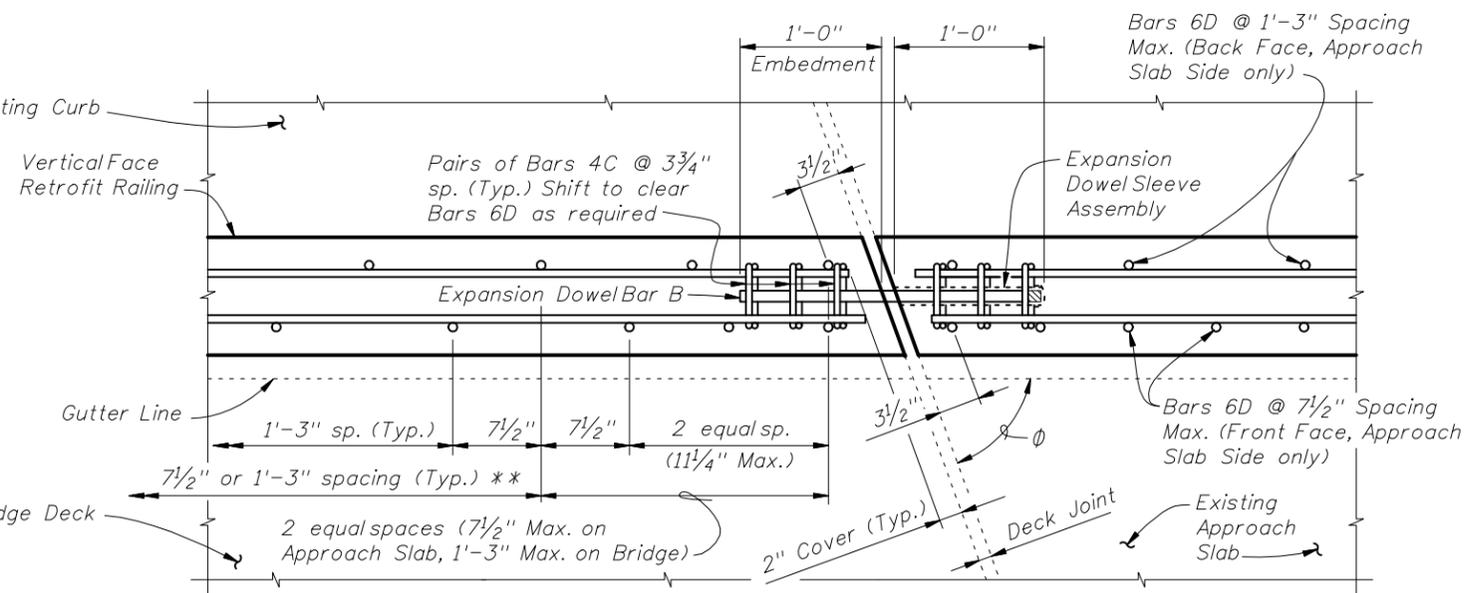
\* 1/2" Preformed Joint Filler at top of Existing Curb shall extend beyond the joint material (Silicone, poured rubber, armored neoprene seal or sliding plates) as shown to prevent concrete intrusion during railing casting and shall be placed so as not to restrict in any way normal joint movement.

\*\* See individual Standard Index Nos. 481 thru 484 for spacing of Bars 6D.



PARTIAL PLAN OF RAILING (SKEW ANGLE Ø LESS THAN 70°)  
(Skewed Deck Joint at Begin or End Bridge Shown, Skewed Deck Joint at Intermediate Pier or Bent Similar)

SKEW DETAIL



PARTIAL PLAN OF RAILING (SKEW ANGLE Ø = 70° OR GREATER)  
(Skewed Deck Joint at Begin or End Bridge Shown, Skewed Deck Joint at Intermediate Pier or Bent Similar)



2010 FDOT Design Standards

TRAFFIC RAILING - (VERTICAL FACE RETROFIT)  
GENERAL NOTES & DETAILS

Last Revision: 07/01/09  
Sheet No.: 2 of 2  
Index No.: 480