

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 521-484.

CONCRETE: Concrete for the Traffic Railing (Vertical Face 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).

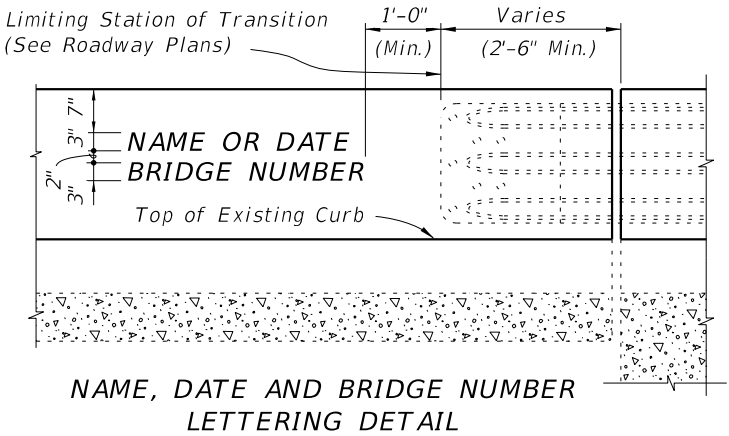
BRIDGES ON CURVED ALIGNMENTS: The details presented in these Indexes are shown for bridges on tangent alignments. Details for bridges on horizontally curved alignments are similar.

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 need not be replaced when portions of the existing traffic railing carrying existing elevation markers are removed.

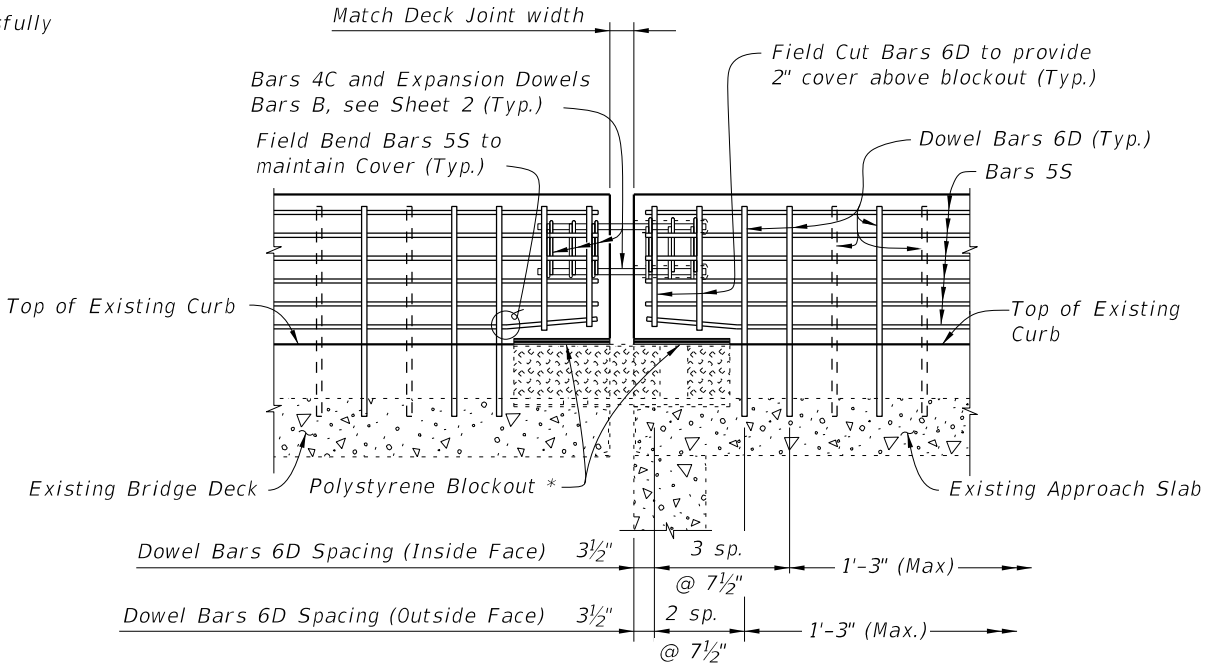
BARRIER DELINEATORS: Barrier Delineators shall meet Specification Section 993. Install Barrier Delineators on top of the Traffic Railing 2" from the face on the traffic side in accordance with Specification Section 705. Match the Barrier Delineator color (white or yellow) to the near edgeline.

PAYMENT: Payment under Traffic Railing (Vertical Face Retrofit) includes all materials and labor required to construct the railing and incidental work as required for transition blocks, curbs, spread footing approaches, and Barrier Delineators.



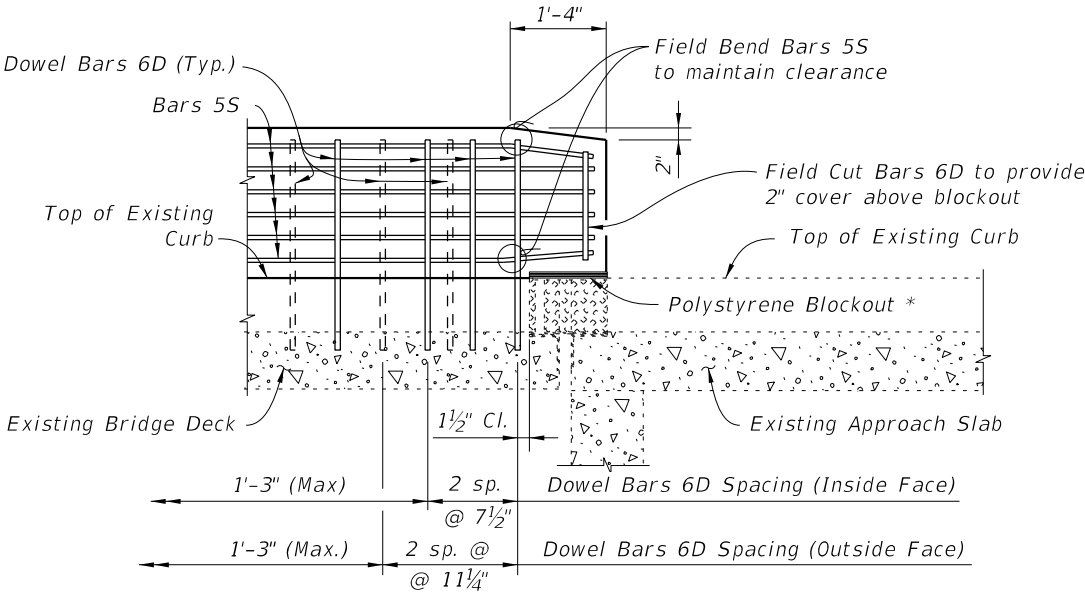
ESTIMATED TRAFFIC RAILING QUANTITIES			
ITEM	UNIT	QUANTITY	
		9" Curb	Increment
Concrete	CY/FT	0.064	0.003 per in. height
Reinforcing Steel	LB/FT	13.27	0.10 per in. length

(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 521-484, Sheet 4 for Spread Footing Approach Quantities.



PARTIAL ELEVATION OF RAILING SHOWING FINGER/SLIDING PLATE JOINT - SCHEMES 2 THRU 5
(Begin or End Bridge Shown, Intermediate Joints Similar)

* Place 1" thick polystyrene blockout 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 FINGER/SLIDING PLATE
JOINT AT BEGIN OR END BRIDGE - SCHEME 1
(Guardrail Transition not shown for clarity)

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LAST REVISION	REVISION	DESCRIPTION:	 FY 2027-28 STANDARD PLANS	TRAFFIC RAILING - (VERTICAL FACE RETROFIT) TYPICAL DETAILS & NOTES	INDEX 521-480	SHEET 1 of 2
07/01/19						

CONVENTIONAL REINFORCING STEEL BENDING DIAGRAM

BILL OF REINFORCING STEEL				
MARK	SIZE	LENGTH	INDEX NO.	NOTE NOS.
A	4	AS REQD.	521-482 ONLY	3
B	1" Ø	2'-0"	521-481 THRU 521-483	2 & 5
C	4	2'-0"	521-481 THRU 521-484	1, 2 & 3
D	6	AS REQD.	521-481 THRU 521-484	2 & 3
E	5	7'-4"	521-484 ONLY	1 & 3
F	5	4'-3"	521-484 ONLY	3
G	4	AS REQD.	521-484 ONLY	3
L	4	4'-1"	521-481 THRU 521-483	1 & 3
M	4	4'-3"	521-482 ONLY	1 & 3
N	4	2'-5"	521-482 ONLY	1 & 3
S	5	AS REQD.	521-481 THRU 521-484	2, 3 & 4

Length as Required

BARS 4A, B, 6D, 5F, 4G & 5S

Bar 4N 2'-0"

Bar 4M 3'-10"

Bar 4L 3'-8"

4 1/2"

BARS 4L, 4M & 4N

5 1/2"

9"

D = 4 1/2" Pin

BARS 4C

(12 required per open joint)

6"

3'-3 1/2"

10"

BARS 5E

(Typical Section)

Field Cut & Discard

Varies

10"

BARS 5E

(Tapered End Transition)

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'-2".

5. Expansion Dowel Bars B shall be ASTM A36 smooth round bar and hot-dip galvanized in accordance with the Specifications.

3/4" Int. Open Joint or Deck Joint

1'-0"

1'-0"

Expansion Sleeve Assembly

Length of Expanded Polystyrene Plug to match width of open joint

1" Ø PVC Pipe Sleeve, Cap & Polystyrene Plug

2 sp. @ 3 3/4"

Spacing Pairs of Bars 4C

5 3/8"

7 1/2"

Top of Existing Curb

2 1/2" (Shift Bars 4C to clear Bars 6D for skewed joints)

OPEN JOINT EXPANSION DOWEL DETAIL

(Railing Reinforcing Not Shown For Clarity)

Adhesive Bonding Material System

Dowel Bar 6D, 4L or 4N

Varies

Existing Concrete

1/4"

Embedment Length

Varies

Hole Diameter to meet Manufacturer's Requirements

DOWEL DETAIL

Dowel Installation Notes:

1. Shift dowel holes to clear if the existing reinforcement is encountered.

2. See Index 521-481 thru 521-484 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 Index 521-481 thru 521-484 for spacing of Bars 6D.

Match width of Deck Joint

2" Cover (Typ.)

1'-0"

** Bars 6D (Typ.)

θ

Pairs of Bars 4C @ 3 3/4" sp. (Typ.) Shift to clear Bars 6D as required

Vertical Face Retrofit Railing

Expansion Dowel Bar B

1'-0"

Embedment

Gutter Line

3 1/2" (Typ.)

Deck Joint

Field Cut 2 ~ Bars 6D 2" above existing curb for corner overhangs

1/2" Preformed Joint Filler

Bars 5S (Typ.)

Expansion Dowel Sleeve Assembly

Top of Existing Curb

Vertical Face Retrofit Railing

Existing Bridge Deck

PARTIAL PLAN OF RAILING (SKEW ANGLE θ GREATER THAN 20°)

(Skewed Deck Joint at Begin or End Bridge Shown, Skewed Deck Joint at Intermediate Pier or Bent Similar)

1'-0"

Embedment

θ

3 1/2"

Bars 6D @ 1'-3" Spacing Max. (Back Face, Approach Slab Side only)

Expansion Dowel Sleeve Assembly

Pairs of Bars 4C @ 3 3/4" sp. (Typ.) Shift to clear Bars 6D as required

Expansion Dowel Bar B

1'-3" sp. (Typ.)

7 1/2"

7 1/2"

2 equal sp. (11 1/4" Max.)

7 1/2" or 1'-3" spacing (Typ.) **

2 equal spaces (7 1/2" Max. on Approach Slab, 1'-3" Max. on Bridge)

2" Cover (Typ.)

Deck Joint

Existing Approach Slab

Bars 6D @ 7 1/2" Spacing Max. (Front Face, Approach Slab Side only)

PARTIAL PLAN OF RAILING (SKEW ANGLE θ = 20° OR LESS)

(Skewed Deck Joint at Begin or End Bridge Shown, Skewed Deck Joint at Intermediate Pier or Bent Similar)

LAST REVISION 11/01/16

REVISION

DESCRIPTION:

FDOT

FY 2027-28 STANDARD PLANS

TRAFFIC RAILING - (VERTICAL FACE RETROFIT)

TYPICAL DETAILS & NOTES

INDEX 521-480

SHEET 2 of 2