GENERAL NOTES

CONCRETE: Concrete for the Traffic Railing (vertical Face Retrofit) shall be Class IV. Concrete for Curb Transition Blocks shall be Class II (Bridge Deck).

ADHESIVE-BONDED DOWELS: Adhesive Bonding Material Systems for 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 OR CURVED ALIGNMENTS: The details presented in this Standard are shown for bridges on tangent alignments. Details for bridges on horizontally curved alignments are similar.

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

GUARDRAIL: See Index 536-001 for guardrail component details, geometric layouts and associated notes not fully detailed herein.

BRIDGE NAME PLATE: If a portion of the existing Traffic Railing is to be removed that carries the bridge name, number and or date, or if the installation of the Traffic Railing (Thrie Beam Retrofit) will obscure the bridge name, number and or date, then replace the information that has been removed or obscured, with 3" tall black lettering on white nonreflective sheeting applied to the top of the adjacent guardrail. The information must be clearly visible from the right side of the approaching travel lane. The sheeting and adhesive backing shall comply with Specification Section 944 and may comprise individual decals of letters and numbers.

PAYMENT: Guardrail Bridge Anchorage Assembly (each) includes all barrier delineators for the entire bridge length, transition blocks, and necessary hardware to complete the Guardrail transitions shown.

Note: Shift dowel holes to clear if the existing reinforcement is encountered.
BAR Dimensions in the bending diagrams are out to out. Bar 10 splice is 1'-3" Max. at Railing End Transition.

Overhang transition needs to be cut for existing deck joint.

**Bars 6D1 & 6D2**

**Bars 5S** (Typ.)

UNIT QUANTITY

Concrete

0.076

AS REQD.

Reinforcing Steel (LBF/FT)

14.7

BARS 6D & 55

**Reinforcement 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 Reinforcement Steel in the Vertical Face Retrofit Railing Shall have a 2" minimum cover.
3 OR MORE CONTINUOUS RAILING PANELS ON WINGWALL ADJACENT TO END POST

2 CONTINUOUS RAILING PANELS ON WINGWALL ADJACENT TO END POST

1 RAILING PANEL ON WINGWALL ADJACENT TO END POST

SCHEME 3 - APPROACH ENDS OF BRIDGES WITH BEAM OR GIRDER SUPERSTRUCTURE

LEGEND

SCHEME 4 - APPROACH ENDS OF BRIDGES WITH FLAT SLAB SUPERSTRUCTURE & PARALLEL WINGWALLS (SHOWN) OR BEAM OR GIRDER SUPERSTRUCTURE & PARALLEL OR CURVED WINGWALLS (SIMILAR)

LIMITS OF REMOVAL OF EXISTING STRUCTURE - POST & BEAM RAILING WITH RECESSED CURB

SUPERSTRUCTURE

INDEPENDENT STRUCTURE

LIMITS OF REMOVAL OF EXISTING STRUCTURE - POST & BEAM RAILING WITH RECESSED CURB

LEGEND

Limits of Existing Structure to be removed

EXISTING POST & BEAM RAILING TO BE REMOVED WITHIN LIMITS SHOWN ABOVE

EXISTING STRUCTURE TO REMAIN

SECTION A-A

SECTION B-B

DETAIL A

DESCRIPTION:

REV IS IO N

STANDARD PLANS

GUARDRAIL TRANSITIONS-EXISTING POST & BEAM BRIDGE RAILINGS (NARROW & RECESSED CURBS)

INDEX

SHEET
REVISION DESCRIPTION:

REVISED

STANDARD PLANS

GUARDRAIL TRANSITIONS-EXISTING POST & BEAM BRIDGE RAILINGS (NARROW & RECESSED CURBS)

INDEX 521-404

5 of 8

FY 2018-19

07/01/13

Bars 5S (Typ.)

2 equal sp. @ 11" Max.

PARTIAL ELEVATION OF INSIDE FACE OF RAILING

SCHEME 3 - APPROACH ENDS OF BRIDGES WITH BEAM OR GIRDER SUPERSTRUCTURE

Match height & face of Existing Railing at top of Railing

3'-0" Min., 3'-1½" Max.

Existing Approach Slab (if present)

SCHEME 4 - APPROACH ENDS OF BRIDGES WITH FLAT SLAB SUPERSTRUCTURE & PARALLEL OR CURVED WINGWALLS (SIMILAR)

Match height & face of Existing Railing at top of Railing

3'-0" Min., 3'-1½" Max.

Existing Approach Slab (if present)

VERTICAL FACE RETROFIT RAILING DETAILS - POST & BEAM RAILING WITH RECESSED CURB

NOTE:

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.

CONVENTIONAL REINFORCING STEEL BENDING DIAGRAM

BARS 6D & 5S

BILL OF REINFORCING STEEL

MARK SIZE LENGTH

D 6 3'-4" Length as Required

S 5 AS REQ

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.

ESTIMATED TRAFFIC RAILING QUANTITIES

ITEM UNIT QUANTITY

Concrete CY/FT 0.102

Reinforcing Steel LB/FT 17.97

VARIATION:

3'-0" Min.

2" Cover (Front & Top)

3" Cover (Back)

7 sp. @ 3"

SUMMARY:

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.
GUARDRAIL TRANSITION DETAILS - SHEET 1 OF 2

SCHEMES 1 & 3
(Narrow Curb Shown, Recessed Curb Similar)

PARTIAL PLAN - APPROACH TRANSITION

Limiting Station of Transition
Varies (7'-6" Min, 9'-0" Max)

PARTIAL ELEVATION - APPROACH TRANSITION

SCHEMES 2 & 4
(Narrow Curb Shown, Recessed Curb Similar, Flat Slab Superstructure Shown, Beam or Girder Superstructure Similar)

PARTIAL PLAN - APPROACH TRANSITION

Limiting Station of Transition
Varies (7'-6" Min, 9'-0" Max)

PARTIAL ELEVATION - APPROACH TRANSITION

* See Limits of Removal of Existing Structure, Sheets 2 of 8 and 4 of 8.
**DESCRIPTION:**

**REV 1**

**LAST REVISION:** 07/01/13

**REVISION:** FY 2018-19

**STANDARD PLANS**

**INDEX:** 521-404

**SHEET:** 8 of 8

**GUARDRAIL TRANSITIONS-EXISTING POST & BEAM BRIDGE RAILINGS (NARROW & RECESSED CURBS)**

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**PLAN VIEW OF TRANSITION BLOCK**

(GUARDRAIL NOT SHOWN FOR CLARITY)

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**ELEVATION OF TRANSITION BLOCK**

(GUARDRAIL AND POSTS NOT SHOWN FOR CLARITY)

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**ESTIMATED QUANTITIES PER TRANSITION BLOCK**

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<thead>
<tr>
<th>ITEM</th>
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<tr>
<td>Reinforcing Steel</td>
<td>LB</td>
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**NOTES:**

ANCHOR RODS: Steel Anchor Rods shall be ASTM A36, ASTM A709 Grade 36 or ASTM A615 Grade 60 hot-dip galvanized in accordance with Specification Section 962.

ADHESIVE-BONDED DOWELS: Adhesive Bonded Dowels are shown installed in an existing curb or sidewalk integrally reinforced with Approach Slab, Wingwall or Bridge Deck. For installations in existing detached curbs or sidewalks, install dowels in available sound concrete.

Shift bars (as needed) to install six dowels into existing bridge or approach slab mounted curb.