

**CHAPTER 13**  
**STANDARD DRAWING REVISION LOG**

**B13.1A Concrete Parapet with Thrie Beam Rail**

July 2009 Added ½" V Groove detail 3" from edge of deck  
 July 2010 Changed spacing of bottom R3 bar to 2½" in Section A-A to match details in Section C-C.  
 Deleted lap splice in bottom R3 bar in Partial Parapet Elevation.  
 June 2013 Changed concrete to Class 40AF.  
 March 2015 Revised future overlay allowance to 2".  
 Added note for increasing the parapet height equal to the depth of overlay when overlay is applied during original construction.

**B13.1B Concrete Parapet with Precast End Connection**

April 2008 Changed Section C-C in the Partial Elevation to D-D to avoid duplication in View A-A.  
 July 2009 Added ½" V Groove detail 3" from edge of deck.  
 July 2010 Changed spacing of R3 bars to match details for Concrete Parapet with Thrie Beam Rail.  
 Feb 2012 Labeled R1 bar in Section Thru Slab.  
 June 2013 Revised reference to concrete barrier roadway standard drawing to G-2-A-1 or G-2-A-2 in the Partial Parapet Plan.  
 Added Note for 2 loops at bottom of G-2-A-2 at connection to bridge parapet.  
 Increased bottom slot to 7" to accommodate 2 loops in roadway barrier connection  
 Changed concrete to Class 40AF.  
 March 2015 Revised future overlay allowance to 2".  
 Added note for increasing the parapet height equal to the depth of overlay when overlay is applied during original construction.

**B13.1C Concrete Parapet with Thrie Beam Rail**

July 2009 Added ½" V Groove detail 3" from edge of deck  
 July 2010 Changed spacing of bottom R3 bar to 2½" in Section A-A to match details in Section C-C.  
 Deleted lap splice in bottom R3 bar in Partial Parapet Elevation.  
 Feb 2012 Changed reference to R7 bar to R1  
 June 2013 Changed concrete to Class 40AF  
 March 2015 Revised future overlay allowance to 2".  
 Added note for increasing the parapet height equal to the depth of overlay when overlay is applied during original construction.

**B13.1D Concrete Parapet with Precast End Connection**

July 2009 Added ½" V Groove detail 3" from edge of deck.  
 Added Note 16  
 Corrected height of parapet in Partial parapet Elevation  
 June 2013 Revised reference to concrete barrier roadway standard drawing to G-2-A-1 or G-2-A-2 in the Partial Parapet Plan.  
 Added Note for 2 loops at bottom of G-2-A-2 at connection to bridge parapet.  
 Increased bottom slot to 7" to accommodate 2 loops in roadway barrier connection  
 Changed concrete to Class 40AF.  
 March 2015 Revised future overlay allowance to 2".  
 Added note for increasing the parapet height equal to the depth of overlay when overlay is applied during original construction.

**B13.1E Concrete Parapet Light Pole Support**

April 2008 Added new sheet  
 June 2013 Changed concrete to Class 40AF.

**B13.2A Two-Tube Curb Mounted Rail Sheet 1**

June 2006 Revised Note 2 to make anchor bolts conform to ASTM F-1554 Grade 105.  
 Revised Note 14 reference to conform to the 2004 Standard Specifications.  
 Added 4" dimension between slotted holes in post and specified horizontally slotted holes in post.

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July 2009 Added ½" V Groove detail 3" from edge of deck.  
 June 2013 Changed concrete to Class 40AF.  
 May 2014 Corrected reference in Note 14 to subsection 705.02 to agree with the 2012 Standard Specifications.  
 March 2015 Changed to a 180° hook for the #6(E) additional deck reinforcement.  
 Revised note 2 to add ASTM A-325 for bolts.  
 Revised note 5 for electronic shop drawings.  
 Added note for increasing the curb height equal to the depth of the overlay when the overlay is applied during original construction.

**B13.2B Two-Tube Curb Mounted Rail Sheet 2**

July 2009 Added ½" V Groove detail 3" from edge of deck.  
 March 2015 Changed Guardrail Connection Plate detail reference to "hex head cap screw"

**B13.3A Combination Pedestrian/Bicycle & Traffic Railing**

June 2006 Revised Note 1 to make anchor bolts conform to ASTM F-1554 Grade 36.  
 Revised Note 10 reference to conform to the 2004 Standard Specifications.  
 Added note to Tube Splice Detail for 2'x2" tubes.  
 Combined the Bicycle and Pedestrian rail drawings using a 3'-6" height to conform to the approved 2006 Ballot Item.  
 July 2009 Modified the title block to include "Bicycle".  
 Reformatted the Notes  
 Added additional requirements for powder coating  
 Increased left end length on splice tube and removed "Typical at Exp. Joints & Dummy Joints".  
 Modified note 12 to read, "Each rail section..."  
 March 2011 Modified splice tube details to put slotted hole/bolts on bottom of tube.  
 Sept 2012 Modified retainer plate to use two ¾" dia. bolts at the centerline of the plate to reduce side splitting of the concrete.  
 Added note to allow field drilling and epoxy grouting of bolts for the retainer plate.  
 June 2013 Added color 27040(black) to Note 7.  
 Revised Note 18 reference for grout to 705.02.  
 March 2015 Revised note 12 for electronic shop drawings.  
 Revised color reference to RAL 9005 (jet black).  
 Increased powder coating thickness to 3 mils minimum.

**B13.3B Combination Bicycle & Traffic Railing**

June 2006 Deleted the 4'-6" height rail standard drawing.

**B13.3C Concrete Parapet for Railing – without approach slab**

June 2006 Changed the height of the end block to 3'-7½" and revised details for the new 3-6" rail height.  
 April 2008 Revised bid item description in Note 4 to agree with the Standard Specifications.  
 July 2009 Added ½" V Groove detail 3" from edge of deck.  
 July 2010 Revised Dummy Note to show "space w/posts".  
 Revised hole spacing on end shoe to 3-13/16" to match roadway standard drawing G-1-E.  
 June 2013 Revised railing insert detail to two ¾"Ø concrete inserts at center of parapet to reduce splitting cracks.  
 Changed concrete to Class 40AF.

**B13.3D Concrete Parapet for Railing – with approach slab**

June 2006 Changed the height of the end block to 3'-7½" and revised details for the new 3-6" rail height.  
 April 2008 Revised bid item description in Note 4 to agree with the Standard Specifications.  
 July 2009 Added ½" V Groove detail 3" from edge of deck.  
 July 2010 Revised Dummy Note to show "space w/posts".  
 Revised hole spacing on end shoe to 3-13/16" to match roadway standard drawing G-1-E  
 June 2013 Revised railing insert detail to two ¾"Ø concrete inserts at center of parapet to reduce splitting cracks.  
 Changed concrete to Class 40AF.

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**B13.3E Combination Rail Light Pole Support**

April 2008 Added new sheet  
June 2013 Changed concrete to Class 40AF.

**B13.3F Protective Pedestrian Fence for Combination Rail Concrete Parapet**

July 2009 Added new sheet  
June 2013 Revised Note 15 to specify threaded studs to secure welded wire fabric to correct problem of shear failure of self-tapping screws.  
May 2014 Corrected reference in Note 9 to subsection 705.02 to agree with the 2012 Standard Specifications.  
March 2015 Revised note 4 for electronic shop drawings

**B13.4A 4'-6" Standard Bicycle Rail**

June 2006 Deleted the 4'-6" height rail standard drawing.

**B13.4B Standard Pedestrian/Bicycle Railing**

June 2006 Combined the Bicycle and Pedestrian rail drawings using a 3'-6" height to conform to the approved 2006 Ballot Item.  
Deleted epoxy reinforcement from the Drilled Concrete Post Base.  
Widened the curb to 10" to provide cover for reinforcement around the anchor bolts.  
Modified the title block to include "Bicycle".  
July 2009 Added ½" V Groove detail 3" from edge of deck.  
Changed tube wall thickness to 3/16".  
March 2011 Added "Deck Expansion Joint Typical at Abutment & Pier" to Partial Elevation.  
Corrected maximum clear opening at expansion joint to 6" to comply with Article 13.8.1.  
Added Upper & Lower Splice Connection Elevation to set the distance from the edge of the 2"x2" vertical post to the end of horizontal tube at 1.5" to avoid conflict with the slotted hole tube splice details.

**B13.4C Pedestrian/Bicycle Railing Details**

June 2006 Revised Note 6 to require epoxy reinforcement only in the curb.  
Added Note 7 specifying Concrete Class 40A.  
Added Notes 16, 17, & 19 for tube ends, vent holes, and alternate splice details.  
Increased the top width of bar R2.  
Modified the title block to include "Bicycle".  
July 2009 Renumbered the Notes  
Added additional requirements for powder coating  
Changed tube wall thickness to 3/16".  
Modified splice tube detail.  
Modified note 21 to read, "Each rail section..."  
March 2011 Deleted details F & G for the rub rail that has been deleted.  
Modified splice tube details.  
March 2015 Revised note 17 for electronic shop drawings  
Revised color reference to RAL 9005 (jet black).  
Increased powder coating thickness to 3 mils minimum.

**B13.5 Concrete Median Barrier**

June 2013 Changed concrete to Class 40AF.

**B13.6A W-Beam Railing, Through Bolt Anchorage**

June 2006 Added a note in the title block for using roadway standard drawing G-1-L on retrofit projects.  
March 2011 Changed height of rail to meet 29" top of rail height.  
Dec 2011 Revised note 3 for anchor bolts to F1554 Grade 36 and nuts to ASTM A563.  
Corrected weld symbol in section B-B.  
Sept 2012 Revised note 5 for washers to comply with ASTM F436, Type 1.  
Changed Post Height Table note from "down station" to "ahead station".

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May 2014 Added note 11 for polyethylene blockouts.  
Corrected reference in note 1 to AASHTO M270, Grade 36  
March 2015 Added plate thickness to Section B-B and Section C-C.  
Added maximum 10:1 maximum slope in Section A-A.  
Corrected bid item in note 9 to 612-005A.  
Changed sheet title to "W-Beam Railing, Through Bolt Anchorage."

**B13.6B W-Beam Railing, Adhesive Anchorage**

March 2015 Added new sheet

**B13.7A G-2-F Type 1 Rail Retrofit Details**

June 2006 Added a new drawing.  
July 2009 Added details from Roadway Standard Drawing G-2-F to allow G-2-F to be deleted.  
Revised paint system in Note 3.  
July 2010 Changed post spacing to 3'-1½" in transition section.  
Specified w6x15 x 7'-0" steel posts for the first 4 posts beyond the end of bridge.  
Specified w6x8.5 x 6'-0" steel posts for the last 2 posts in the bridge pay limits.  
Feb 2012 Deleted 27" rail height drawing and replaced with 29" rail height drawing.  
Added reference to Sections 627 & 707 in note 3.  
Sept 2012 Added W6x15 Post Block details.  
May 2014 Added note 9 for polyethylene blockouts.  
Revised note 3 paint references to agree with 2012 Standard Specifications.  
Made Typical Sections "NTS" and deleted dimensions that could vary.

**B13.7B G-2-F Type 2 Rail Retrofit Details**

June 2006 Added a new drawing.  
July 2009 Added details from Roadway Standard Drawing G-2-F to allow G-2-F to be deleted.  
Revised paint system in Note 3.  
July 2010 Changed post spacing to 3'-1½" in transition section.  
Specified w6x15 x 7'-0" steel posts for the first 4 posts beyond the end of bridge.  
Specified w6x8.5 x 6'-0" steel posts for the last 2 posts in the bridge pay limits.  
Feb 2012 Deleted 27" rail height drawing and replaced with 29" rail height drawing.  
Added reference to Sections 627 & 707 in note 3.  
Sept 2012 Added W6x15 Post Block details.  
May 2014 Added note 9 for polyethylene blockouts.  
Revised note 3 paint references to agree with 2012 Standard Specifications.  
Made Typical Sections "NTS" and deleted dimensions that could vary.

**B13.7C G-2-F Type 4 Rail Retrofit Details**

June 2006 Added a new drawing.  
April 2008 Changed size of attachment angle to 6x4x5/16 and added Detail A.  
July 2009 Added details from Roadway Standard Drawing G-2-F to allow G-2-F to be deleted.  
Revised paint system in Note 1.  
July 2010 Changed post spacing to 3'-1½" in transition section.  
Changed the post spacing to 1'-6¾" for the 4 posts from the end of bridge to beginning of the transition section.  
Specified w6x15 x 7'-0" steel posts for the first 6 posts beyond the end of bridge.  
Specified w6x8.5 x 6'-0" steel posts for the last 2 posts in the bridge pay limits.  
Feb 2012 Deleted 27" rail height drawing and replaced with 29" rail height drawing.  
Added reference to Sections 627 & 707 in note 1.  
Sept 2012 Added W6x15 Post Block details.  
Clarified maximum post spacing at end of concrete parapet.  
May 2014 Added note 6 for polyethylene blockouts.  
Revised note 1 paint references to agree with 2012 Standard Specifications.  
Made Typical Sections "NTS" and deleted dimensions that **could vary**.

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**B13.7D Delaware Rail Retrofit Details**

June 2006 Added a new drawing.  
July 2009 Added details from Roadway Standard Drawing G-2-F to allow G-2-F to be deleted.  
Added Note 11 for painting field drilled holes.  
July 2010 Changed post spacing to 3'-1½" in transition section.  
Specified w6x15 x 7'-0" steel posts for the first 4 posts beyond the end of bridge.  
Specified w6x8.5 x 6'-0" steel posts for the last 2 posts in the bridge pay limits.  
Feb 2012 Deleted 27" rail height drawing and replaced with 29" rail height drawing.  
Changed existing rail removal to S501-30A.  
Added reference to Sections 627 & 707 in note 11.  
Sept 2012 Added W6x15 Post Block details.  
Clarified maximum post spacing at end of concrete parapet.  
May 2014 Added note 12 for polyethylene blockouts.  
Revised reference in note 2 from AASHTO M291 to ASTM A563. AASHTO M291 has been withdrawn.  
Revised note 11 paint references to agree with 2012 Standard Specifications.  
Made Typical Sections "NTS" and deleted dimensions that **could vary**.

**B13.7E Iowa Rail Retrofit Details**

June 2006 Added a new drawing.  
May 2014 Changed concrete to Class 40AF.

**B13.7F G-2-F Type 1 Rail Retrofit Details – 29" Rail Height**

March 2011 Added new sheet  
Feb 2012 Renamed to B13.7A.

**B13.7G G-2-F Type 2 Rail Retrofit Details – 29" Rail Height**

March 2011 Added new sheet  
Feb 2012 Renamed to B13.7B.

**B13.7H G-2-F Type 4 Rail Retrofit Details – 29" Rail Height**

March 2011 Added new sheet  
Feb 2012 Renamed to B13.7C.

**B13.7I Delaware Rail Retrofit Details – 29" Rail Height**

March 2011 Added new sheet  
Feb 2012 Renamed to B13.7D.