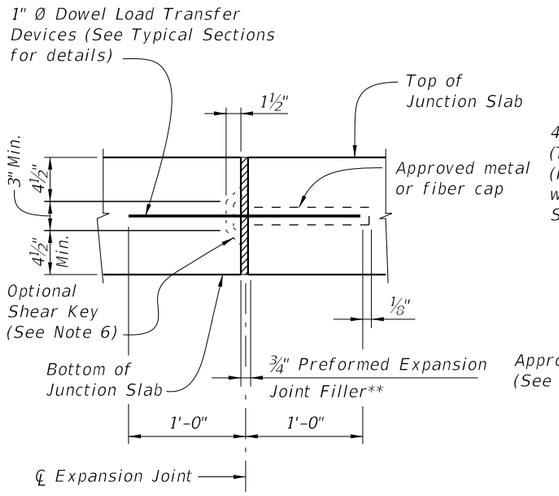
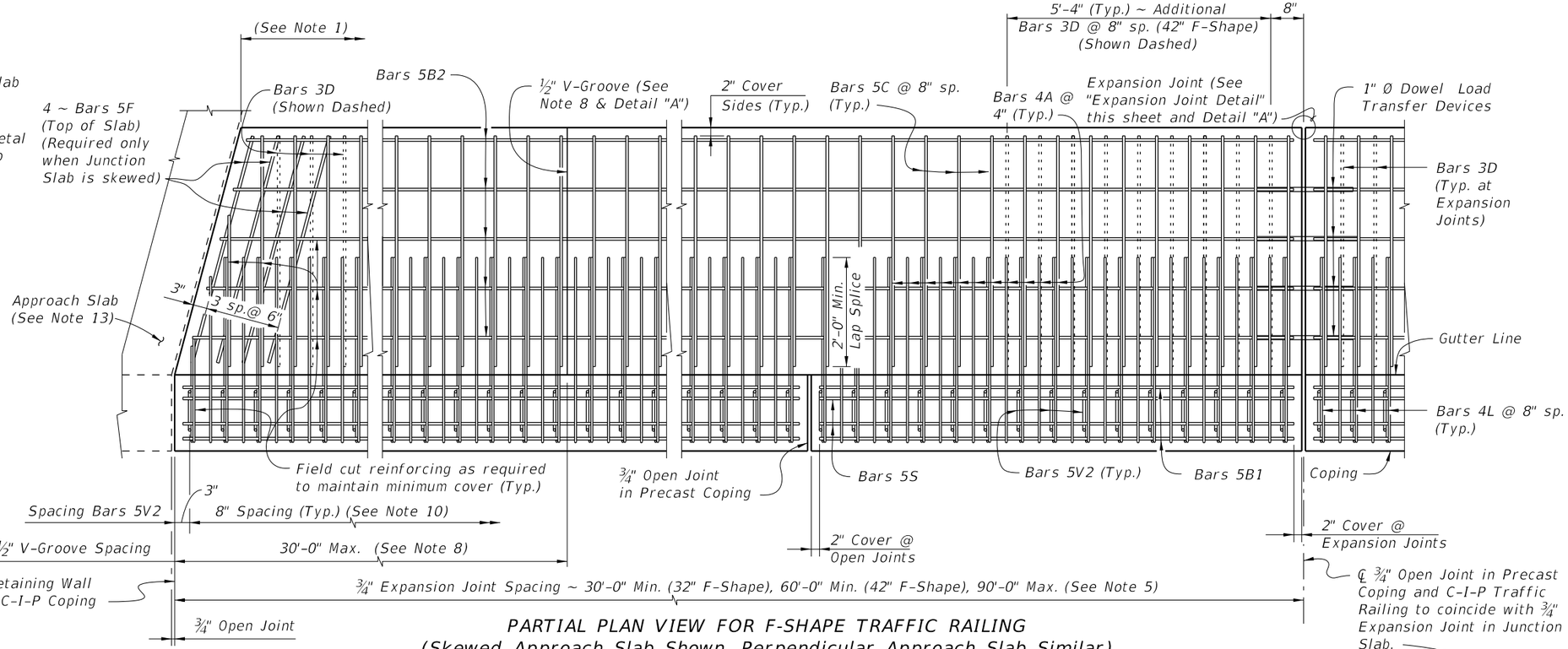


EXPANSION JOINT DETAIL

(Junction Slab expansion joints are to coincide with ¾" open joints in Traffic Railing)

** Stay-In-Place Plastic Preformed Bond Breakers are permitted to form joints.

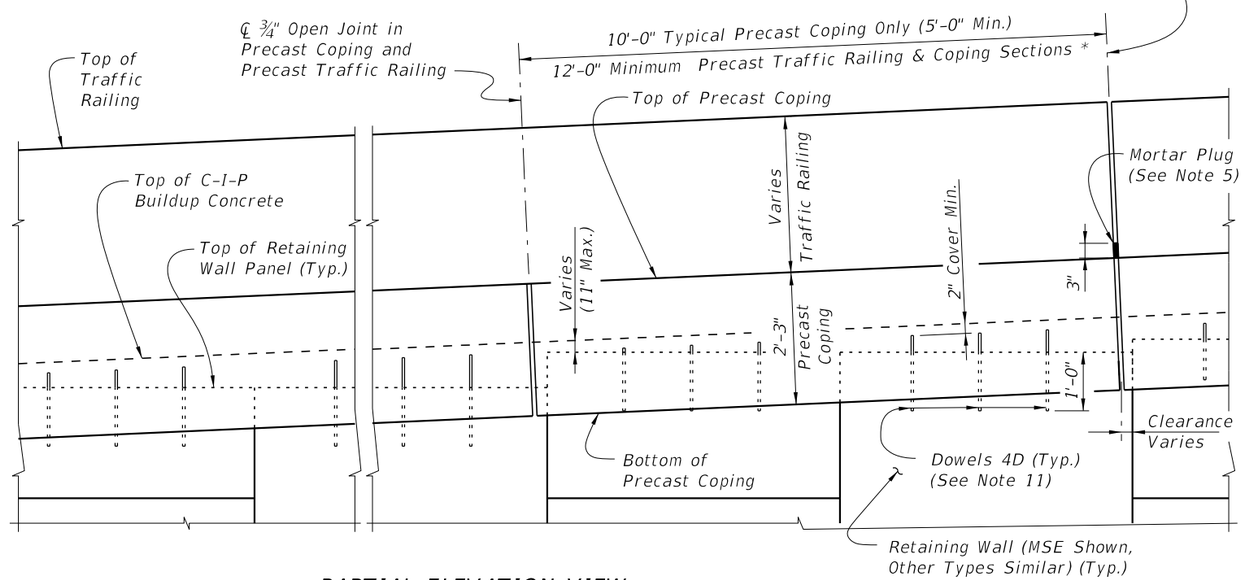


PARTIAL PLAN VIEW FOR F-SHAPE TRAFFIC RAILING
(Skewed Approach Slab Shown, Perpendicular Approach Slab Similar)
(Precast Coping Shown, C-I-P Coping Similar) (Traffic Railing not Shown for Clarity)

JUNCTION SLAB NOTES:

1. When a 42" F-Shape Traffic Railing is used with precast copings, provide Bars 3D @ 8" spacing between Bars 5C within 6'-0" of Expansion Joints.
2. Construct the expansion joints, V-Grooves and face of coping plumb.
3. Provide Class II concrete for slightly aggressive environments or Class IV for moderate or extremely aggressive environments.
4. Dowel Load Transfer Devices will be hot-dip galvanized ASTM A 36 smooth round bar, or GFRP smooth round bars with a minimum shear strength of 22 ksi in accordance with ASTM D7617. Install Dowel Load Transfer Devices in accordance with Specification Section 350.
5. Construct ¾" Expansion Joints in junction slabs and C-I-P copings plumb and perpendicular or radial to the Gutter Line. Provide at 90'-0" maximum intervals as shown. Provide 3"x3" Mortar plugs in open joints at the base of traffic railings to contain runoff.
6. Shear Keys in Junction Slab are required when GFRP bars are used for Dowel Transfer Devices and are optional with steel dowel bars. Tongue Slope on Shear Key must be constant and between 5° to 45° from horizontal.
7. Provide and install Preformed Expansion Joint Filler in accordance with Specification Section 932.
8. Construct ½" V-Grooves in junction slabs and C-I-P copings at 30'-0" maximum intervals as shown. Space V-Grooves equally between ¾" Expansion Joints and/or Begin or End Junction Slab. V-Groove locations are to coincide with V-Groove locations in the Traffic Railing.
9. Shoulder or Roadway Pavement is required on top of the junction slab for its entire length on the traffic side of the Traffic Railing. See Typical Sections on Sheet Nos. 2 and 3 for details.
10. Spacing shown is along the Gutter Line.
11. For Precast Coping only, provide Dowel Bars 4D embedded 1'-0" and extend 9" above the top of MSE wall panels. Field cut as necessary to maintain 2" minimum cover to the top of the buildup concrete. See Wall Company Drawings for number and spacing of Dowel Bars 4D.
12. Work this Index with the following:
    Index No. 420 – Traffic Railing – (32" F-Shape)
    Index No. 425 – Traffic Railing – (42" F-Shape).
13. The following Indexes contain details of the intersection of the retaining wall at approach slabs:
    Index No. 20900 – Approach Slabs (Flexible Pavement Approaches)
    Index No. 20910 – Approach Slabs (Rigid Pavement Approaches)

CROSS REFERENCE: For Detail "A", see Sheet 2.



PARTIAL ELEVATION VIEW
(Precast Coping and Junction Slab Reinforcing not Shown for Clarity)
(Precast Coping Shown, C-I-P Coping Similar)

* C-I-P End Section must be ≥ 12'-0".

F-SHAPE TRAFFIC RAILINGS

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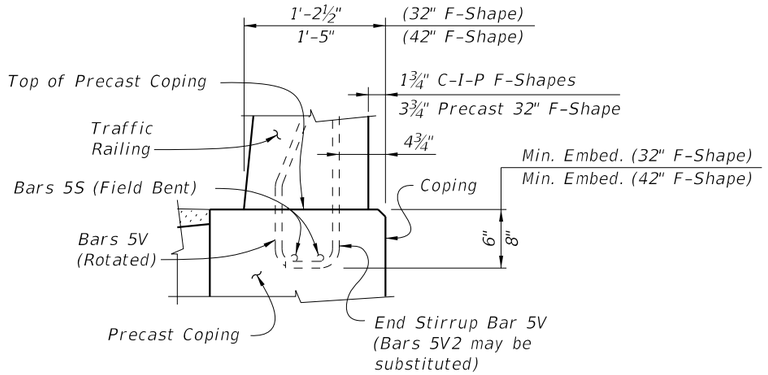
LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2016-17 DESIGN STANDARDS	WALL COPING WITH TRAFFIC RAILING/JUNCTION SLAB	INDEX NO.	SHEET NO.
07/01/15					6110	1 of 6

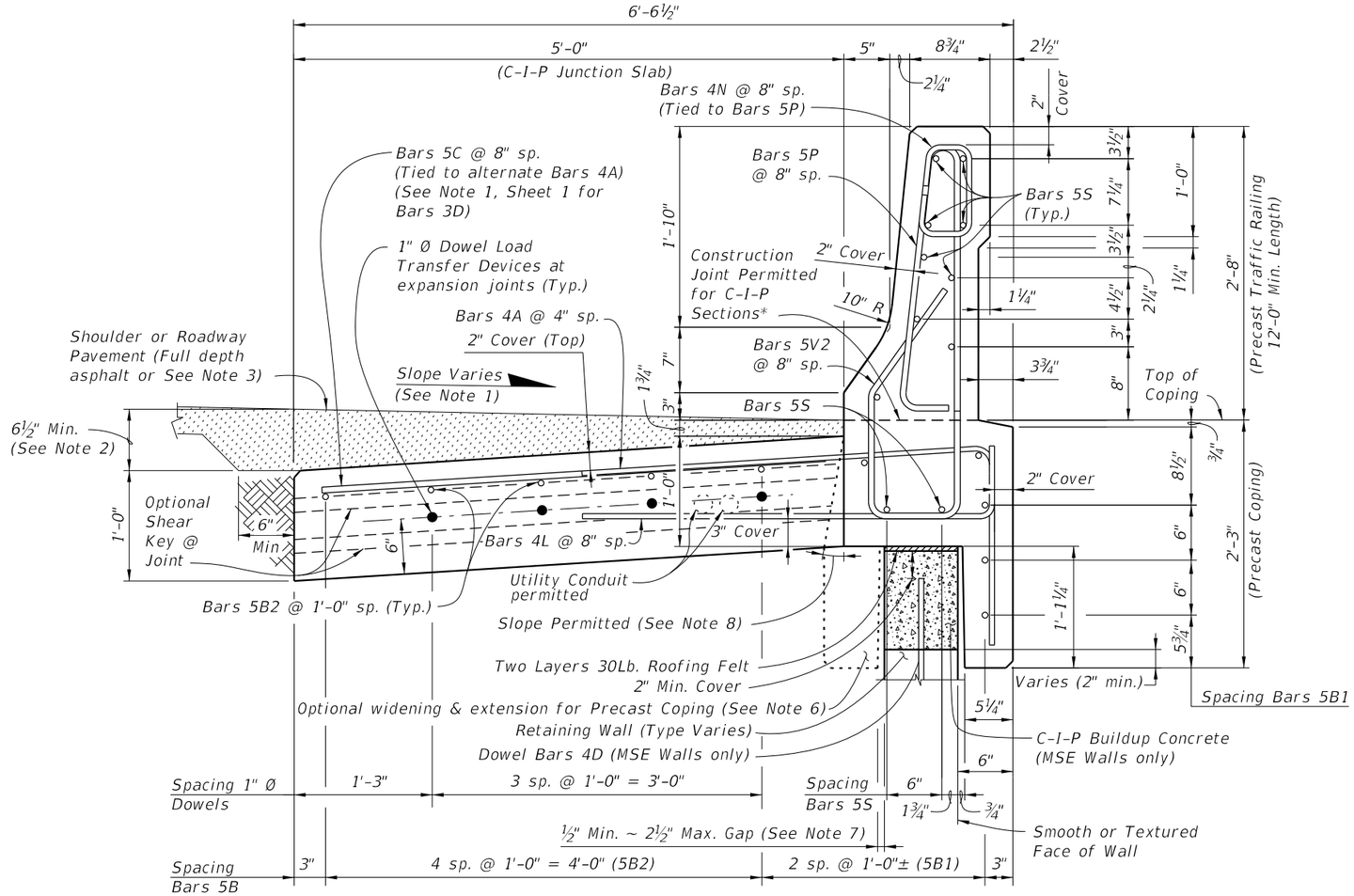


PARTIAL END VIEW OF TRAFFIC RAILING END TRANSITION FOR GUARDRAIL ATTACHMENT (Showing Bars 5V and Bars 5S) (Precast Coping Shown, C-I-P Coping Similar)

NOTE: See Index No. 420 and Index No. 425, Detail "A" for details.

ESTIMATED QUANTITIES FOR PRECAST COPING		
ITEM	UNIT	QUANTITY
Concrete (Precast Coping Only)	CY/LF	0.083
Concrete (Precast Barrier & Coping)	CY/LF	0.169
Concrete (C-I-P Junction Slab)	CY/LF	0.185
Reinforcing Steel (Precast Coping & Traffic Railing)	LB/LF	52.67
Reinforcing Steel (C-I-P Junction Slab) (Typ.)	LB/LF	12.52
Additional Reinf. @ Expansion Joints (Steel Dowels)	LB	21.36

(The above concrete quantities are based on a max. superelevation of 6.25% and a 32" F-Shape Traffic Railing.

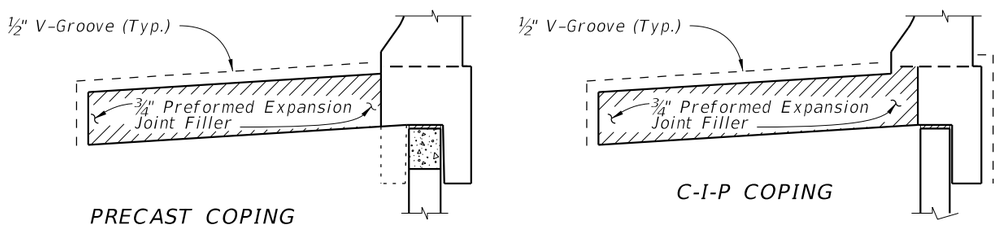


TYPICAL SECTION THRU PRECAST 32" F-SHAPE TRAFFIC RAILING AND COPING WITH C-I-P JUNCTION SLAB*

* C-I-P Traffic Railing and Coping Sections using precast dimensions and reinforcement are permitted at End Sections, Drainage Inlets and Light Pole Pedestals if slip forming is not used.

NOTES:

1. Match Cross Slope of Travel Lane or Shoulder.
2. Vary Junction Slab slope based on roadway cross slope to maintain a minimum 6" asphalt depth at the edge of the slab as shown.
3. For Rigid Pavement (Concrete), Junction Slab may be thickened to match finished grade.
4. Minimum length of Junction Slab between expansion joints is 30'-0".
5. At the Contractor's option, mechanical couplers may be used to splice reinforcing. Complete details, including reinforcement lengths are required in the Shop Drawings. Provide mechanical couplers in accordance with Specification Section 415. Mechanical couplers shall develop 125% of the bar yield strength.
6. Contractor to maintain stability of precast coping/traffic railing prior to junction slab completion. In the Shop Drawings, show reinforcement for optional extension required for stability, shipping and handling. Maintain 2" minimum concrete cover.
7. When the air gap between the precast coping extension and retaining wall exceeds 2½", fill gap with full depth Expanded Polystyrene to provide a maximum 2½" air gap.
8. Angle varies ~ 0° min., 20° max.



DETAIL "A"

(Showing Locations of ½" V-Grooves and ¾" Preformed Expansion Joint Filler)

F-SHAPE TRAFFIC RAILINGS

12/17/2015 12:54:04 PM

LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2016-17 DESIGN STANDARDS	WALL COPING WITH TRAFFIC RAILING/JUNCTION SLAB	INDEX NO.	SHEET NO.
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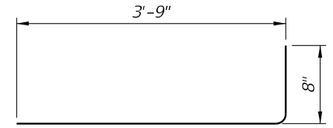
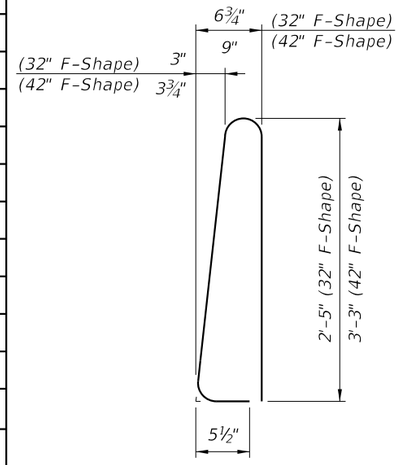
REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL

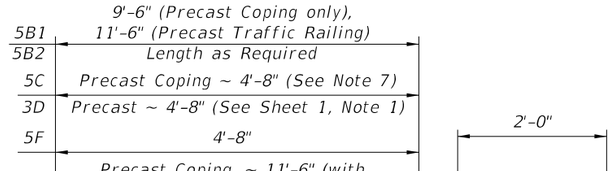
MARK	SIZE	LENGTH		
		PRECAST COPING & 32" F-SHAPE	COPING	
			C-I-P	Precast
A	4	5'-7"	8'-0"	5'-7"
B1	5	11'-6"	N/A	9'-6"
B2	5	AS REQD.	AS REQD.	AS REQD.
C	5	4'-8"	N/A	4'-8"
D	3	4'-8"	N/A	4'-8"
F	5	4'-8"	4'-8"	4'-8"
L	4	4'-5"	4'-5"	4'-5"
N	4	2'-6"	N/A	N/A
P	5	5'-7"	5'-7"	5'-7"
S	5	11'-6"	AS REQD.	9'-6"
S1	8	N/A	AS REQD.	9'-6"
V2	5	5'-10"	5'-10"	5'-10"
1" Ø Dowel	Smooth Bar	2'-0"	2'-0"	2'-0"



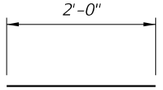
BARS 4L



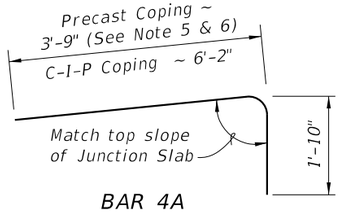
STIRRUP BAR 5P



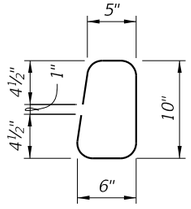
BARS 5B, 5C, 5F & 5S



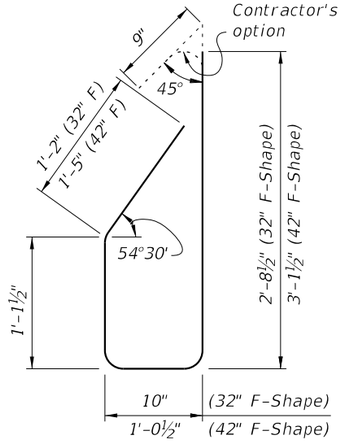
1" Ø DOWEL



BAR 4A



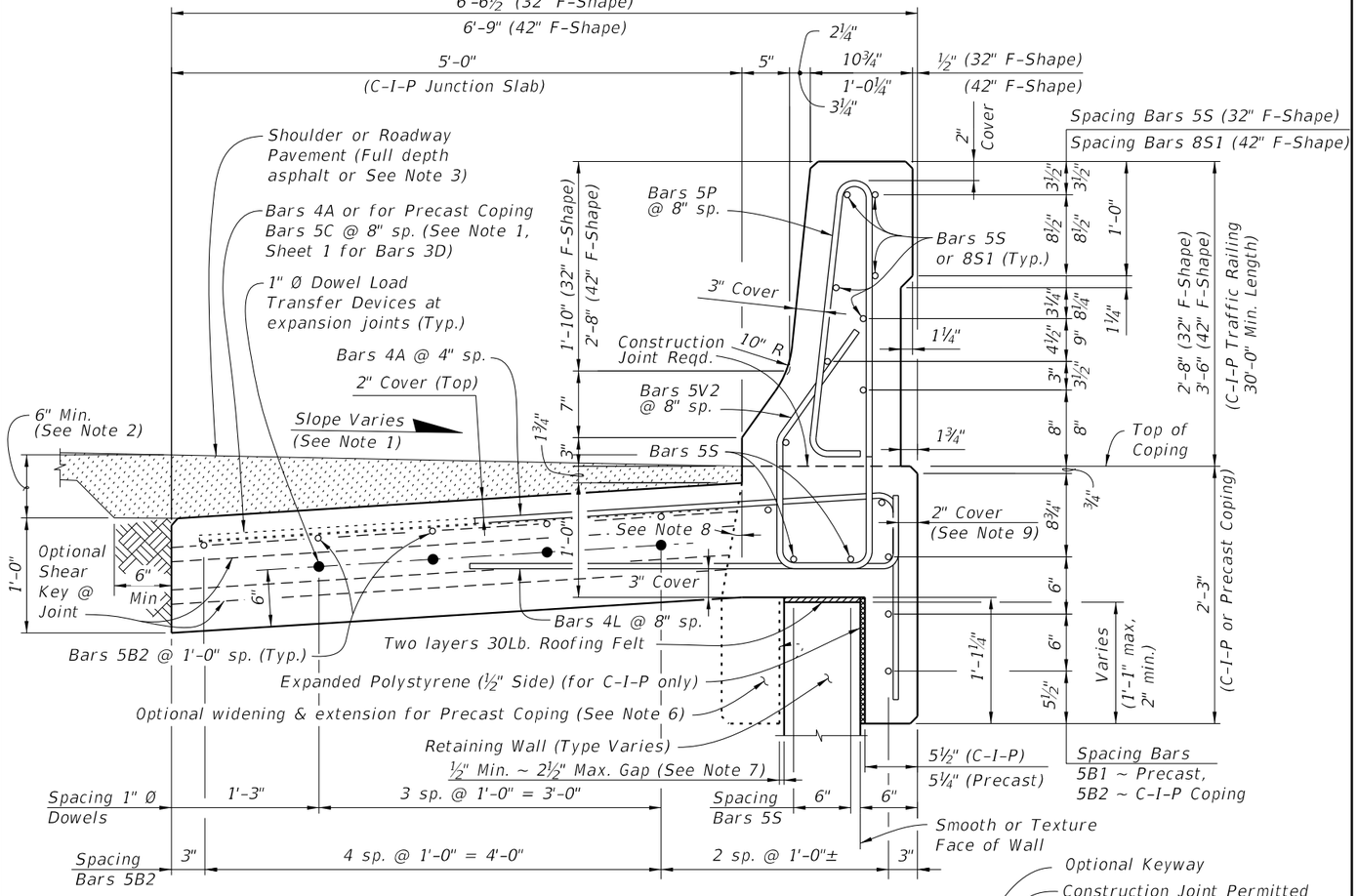
STIRRUP BAR 4N



STIRRUP BAR 5V2

REINFORCING STEEL NOTES:

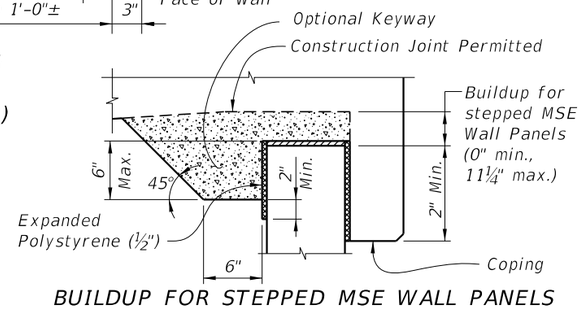
1. *All bar dimensions in the bending diagrams are out to out.*
2. *All reinforcing steel at expansion and open joints will have a 2" minimum cover.*
3. *Lap splices for Bars 5B & 5S will be a minimum of 2'-0".*
4. *For Precast Copings only, lap splice Bars 4A with Bars 5C. Lap splices will be a minimum of 2'-0".*
5. *The Contractor may use either full length Bars 4A or lap splice with Bars 5C at alternate Bars 4A for C-I-P Copings.*
6. *Dimension shown is for lap splice option. For mechanical coupler option, this dimension is 1'-4½" (32" F-Shape) or 1'-7" (42" F-Shape).*
7. *Dimension shown is for lap splice option. For mechanical coupler option, this dimension is 4'-8".*
8. *The Contractor may use Welded Wire Reinforcement (WWR) when approved by the Engineer. WWR must consist of deformed wire meeting the requirements of Specification Section 931.*
9. *Contractor may use a single #5 stirrup in lieu of two bars for 5P and 5V2.*



TYPICAL SECTION THRU C-I-P TRAFFIC RAILING WITH C-I-P JUNCTION SLAB AND C-I-P COPING (PRECAST COPING SIMILAR WITH C-I-P BUILDUP)

NOTES:

1. *Match Cross Slope of Travel Lane or Shoulder.*
2. *Vary the Junction Slab slope based on the roadway cross slope to maintain a minimum 6" asphalt depth at the edge of the slab.*
3. *For Rigid Pavement (Concrete), Junction Slab may be thickened to match finish grade.*
4. *Minimum length of Junction Slab between expansion joints is 30'-0" for 32" F-Shape or 60'-0" for 42" F-Shape.*
5. *See Index No. 420 & 425 for additional Traffic Railing Details.*
6. *Contractor to maintain stability of precast coping prior to junction slab completion. In the Shop Drawings, show reinforcement for optional extension required for stability, shipping and handling. Maintain 2" minimum concrete cover.*
7. *When the air gap between the precast coping extension and retaining wall exceeds 2½", fill gap with full depth Expanded Polystyrene to provide a maximum 2½" air gap.*
8. *Angle varies ~ 0° min., 20° max.*
9. *If slip forming is used, submit shop drawings for approval showing 3" side cover with the Typical Section dimensions adjusted.*



BUILDUP FOR STEPPED MSE WALL PANELS AND C-I-P COPING

ESTIMATED QUANTITIES FOR C-I-P COPING		
ITEM	UNIT	QUANTITY
Concrete (Traffic Railing not Included)	CY/LF	0.268
Reinforcing Steel (Typical) excluding Bars 5V2 and 5S (Typ.)	LB/LF	30.89
Additional Reinf. @ Expansion Joint (Steel Dowels)	LB/LF	21.36

(The above concrete quantities are based on a max. superelevation of 6.25%, beneath a 32" F-Shape Traffic Railing on an MSE Wall).

F-SHAPE TRAFFIC RAILINGS

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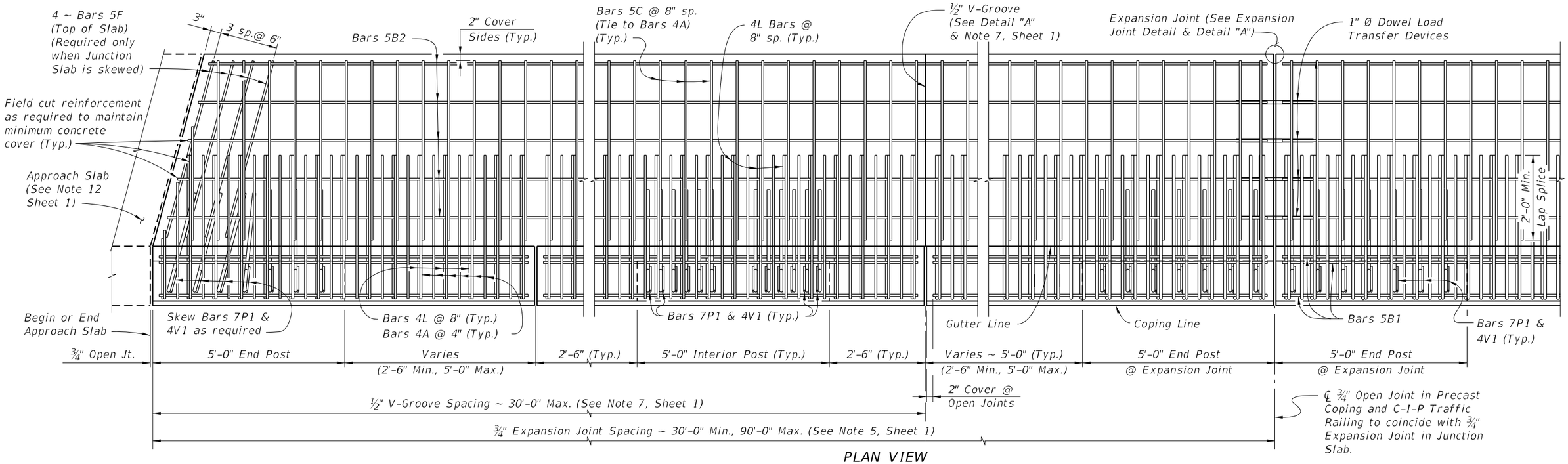
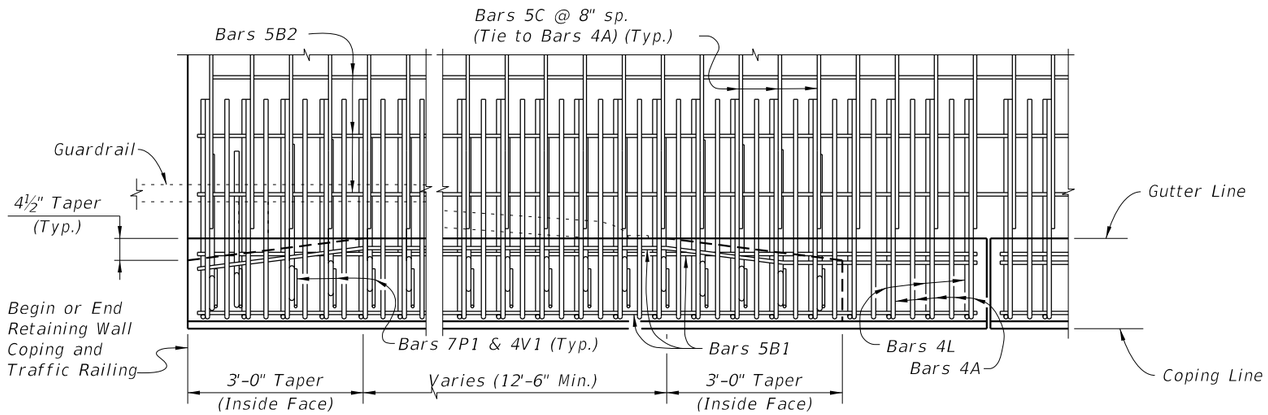
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/15			FDOT FY 2016-17 DESIGN STANDARDS	WALL COPING WITH TRAFFIC RAILING/JUNCTION SLAB	6110	3 of 6

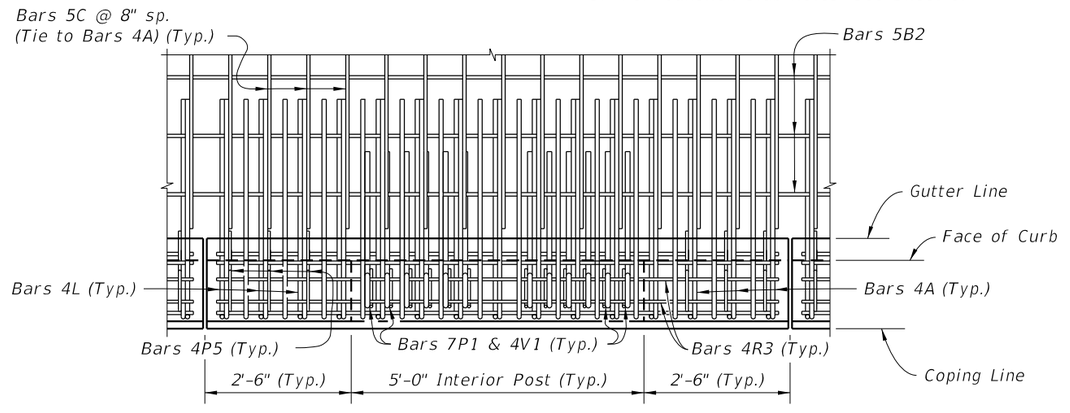


PLAN VIEW
(Skewed Approach Slab shown, Perpendicular Approach Slab similar)
(Precast Coping shown, C-I-P Coping similar)
(Traffic Railing reinforcement not shown, except for Bars 7P1 & 4V1)

CROSS REFERENCES:
1. For Detail "A" see Sheet 2.
2. For "Expansion Joint Detail" see Sheet 1.
3. For "Junction Slab Notes" see Sheet 1.



PARTIAL PLAN VIEW OF GUARDRAIL TRANSITION AT BEGIN OR END RETAINING WALL
(Precast Coping shown, C-I-P Coping similar)
(Traffic Railing reinforcement not shown, except for Bars 7P1 & 4V1)



PARTIAL PLAN VIEW OF COPING WITH CURB
(Precast Coping shown, C-I-P Coping similar)
(Traffic Railing reinforcement not shown, except for Bars 4P5, 4R3, 7P1 & 4V1)

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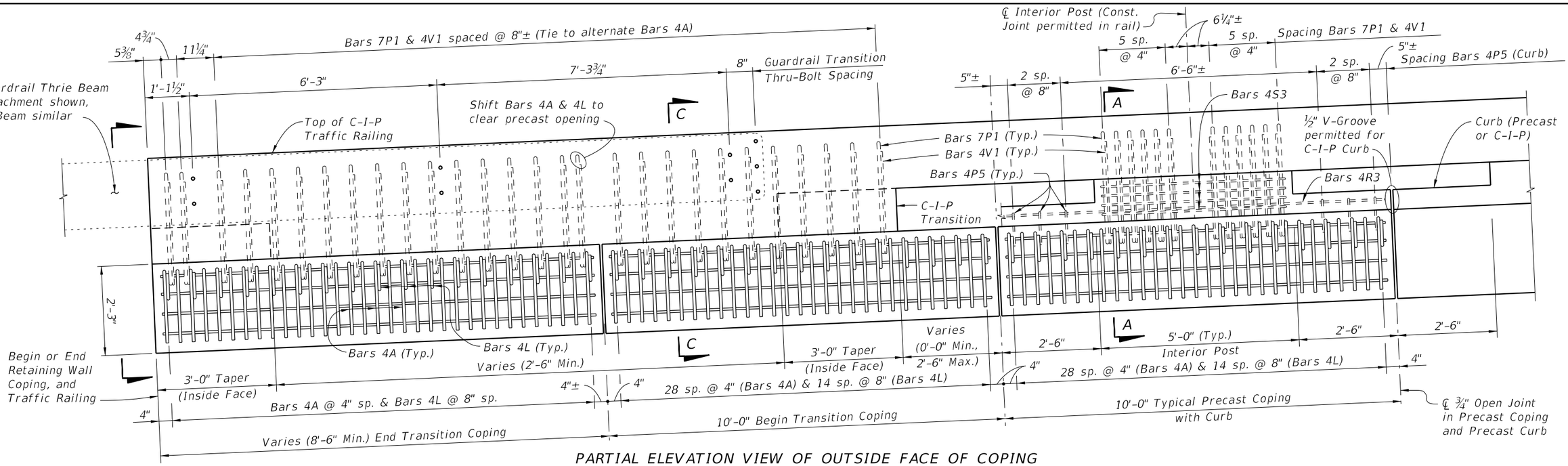
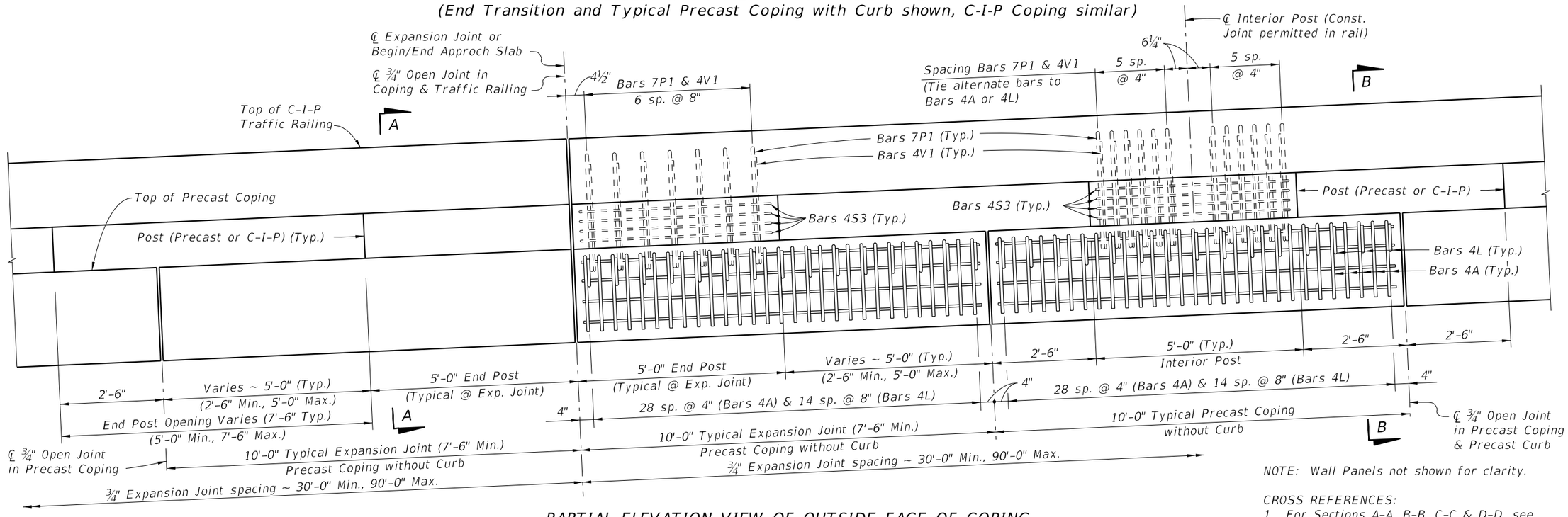
CORRAL SHAPE TRAFFIC RAILINGS

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
01/01/12			FDOT FY 2016-17 DESIGN STANDARDS	WALL COPING WITH TRAFFIC RAILING/JUNCTION SLAB	6110	4 of 6



PARTIAL ELEVATION VIEW OF OUTSIDE FACE OF COPING
(End Transition and Typical Precast Coping with Curb shown, C-I-P Coping similar)



PARTIAL ELEVATION VIEW OF OUTSIDE FACE OF COPING
(Precast Coping at Expansion Joint and Typical Precast Coping without Curb shown, C-I-P Coping similar)

NOTE: Wall Panels not shown for clarity.

CROSS REFERENCES:
1. *For Sections A-A, B-B, C-C & D-D, see Sheet 6.*
2. *For Junction Slab Notes, see Sheet 1.*

CORRAL SHAPE TRAFFIC RAILINGS

LAST REVISION	REVISION	DESCRIPTION:			
01/01/12			FY 2016-17 DESIGN STANDARDS	WALL COPING WITH TRAFFIC RAILING/JUNCTION SLAB	INDEX NO. 6110 / SHEET NO. 5 of 6

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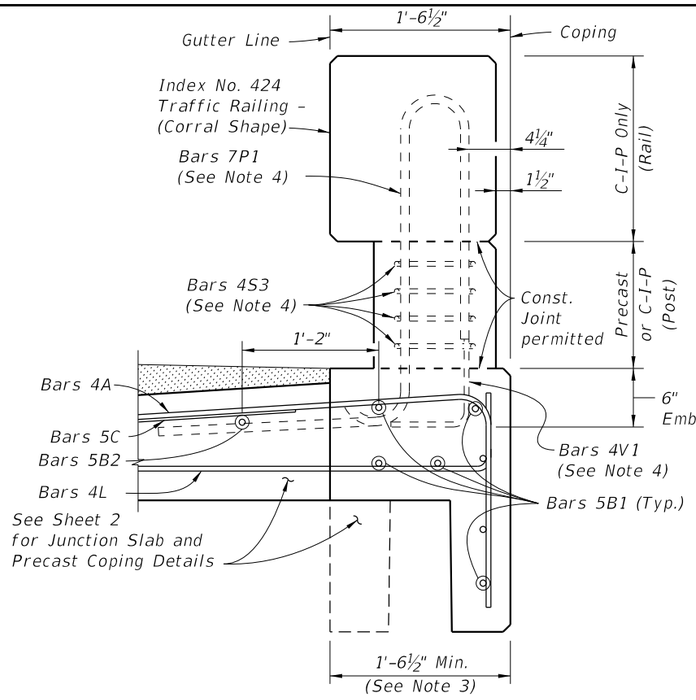
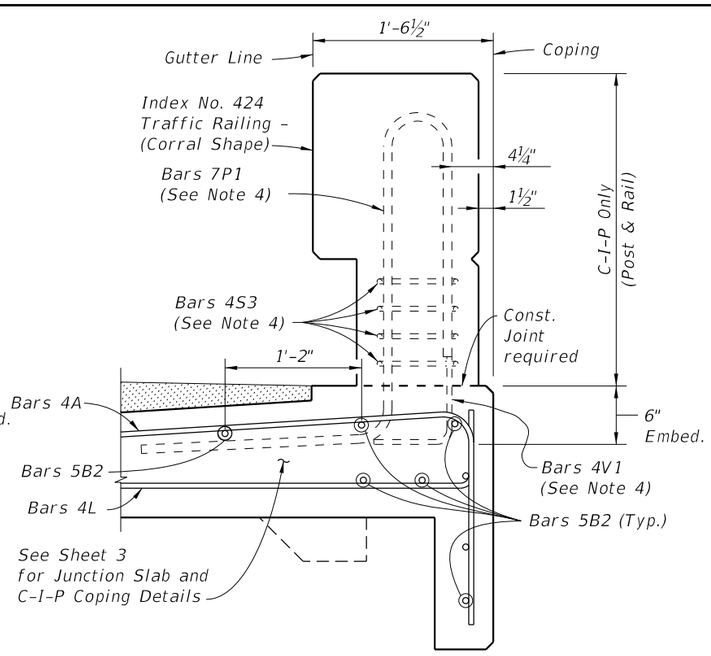
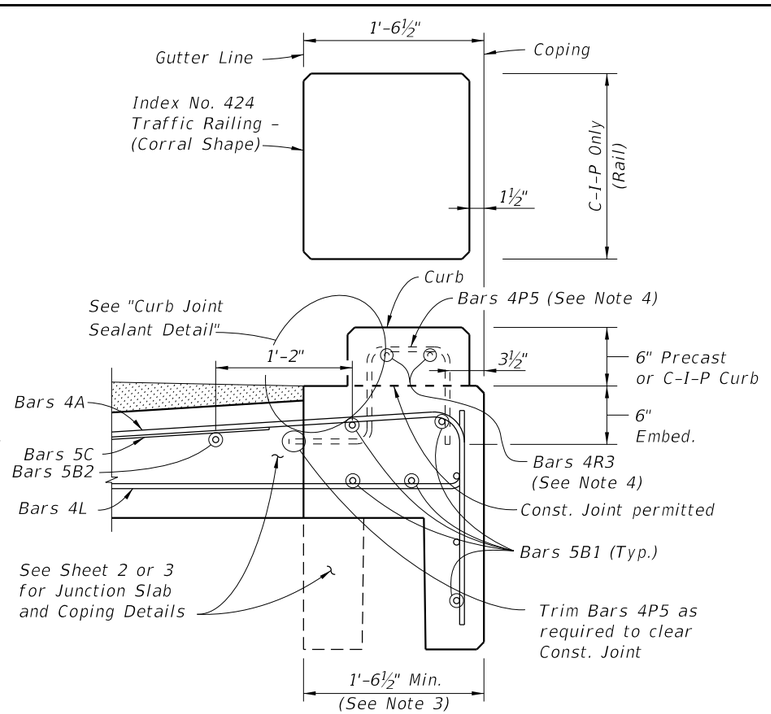


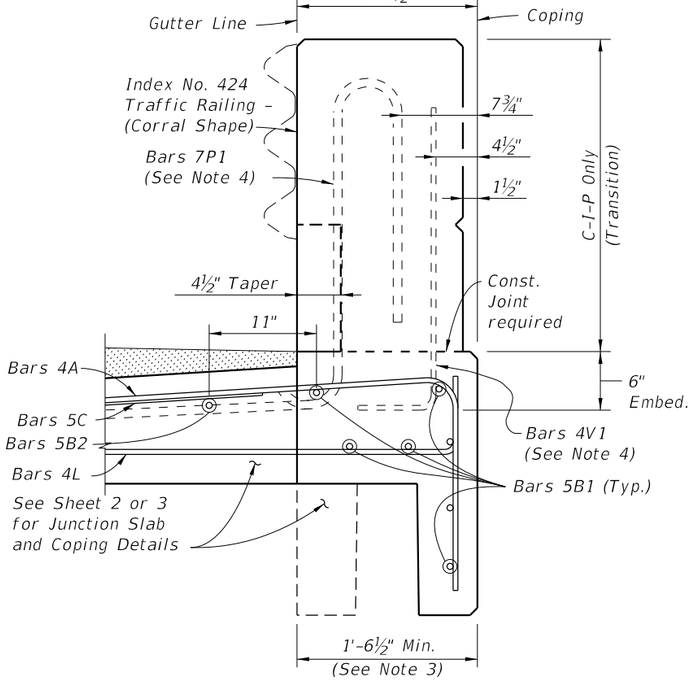
SECTION A-A
(TYPICAL SECTION PRECAST COPING WITHOUT CURB)



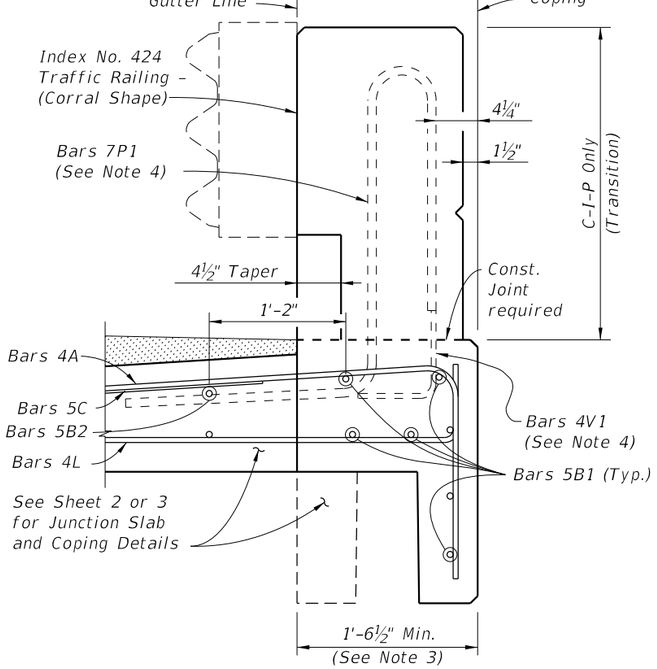
SECTION A-A
(TYPICAL SECTION C-I-P COPING WITHOUT CURB)



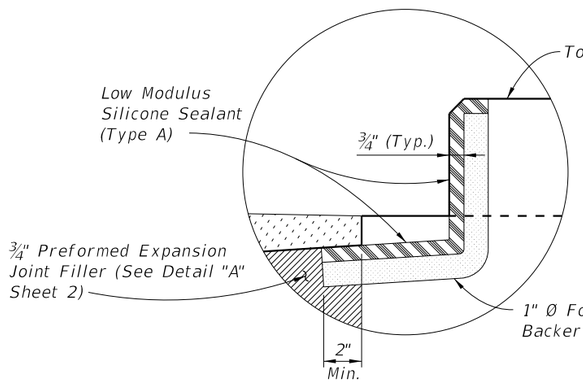
SECTION B-B
(TYPICAL SECTION WITH CURB)
(Precast Coping Shown, C-I-P Coping Similar)



SECTION C-C
(TYPICAL SECTION TRANSITION COPING)
(Precast Coping shown, C-I-P Coping similar)



END VIEW D-D
(TYPICAL SECTION TRANSITION COPING)
(Precast Coping shown, C-I-P Coping similar)



JOINT NOTE:
Joint sealant required at all expansion joints and between precast and C-I-P curb openings.

CURB JOINT SEALANT DETAIL

NOTES:
1. See Sheets 2 & 3 for Junction Slab and additional Coping details.
2. Slip Forming of C-I-P Traffic Railing is not permitted.
3. Actual width varies depending on type of Retaining Wall used.
4. See Index No. 424 for Traffic Railing details and Bars 7P1, 4P5, 4R3, 4S3 & 4V1. Bars 5R2 and 5U are not required in Retaining Wall Coping.

CORRAL SHAPE TRAFFIC RAILINGS

12/17/2015 12:54:08 PM

LAST REVISION	REVISION	DESCRIPTION:			
07/01/14			FY 2016-17 DESIGN STANDARDS	WALL COPING WITH TRAFFIC RAILING/JUNCTION SLAB	INDEX NO. 6110 / SHEET NO. 6 of 6