

# ORIGINATION FORM

Proposed Revisions to a Standard Plans Index  
(Please provide all information – Incomplete forms will be returned)

## Contact Information:

Date: January 17, 2019  
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## Standard Plans:

Index Number: 521-610  
Sheet Number (s): 1, 2, & 3  
Index Title: Concrete Barrier/Junction Slab - Wall Coping

## Summary of the changes:

Sheet 1: Corrected Note reference in Partial Plan View for Approach Slab  
Sheet 2: Clarified Note4; Added Overbuild to Typical Section  
Sheet 3: Clarified alternate construction joint in Detail A

## Commentary / Background:

Minor changes - trying to clarify payment for asphalt and allow for 2" change for traffic railing on asphalt roadways.

## Other Affected Offices / Documents: (Provide name of responsible personnel)

Yes	No	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other Standard Plans –
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FDOT Design Manual –
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Basis of Estimates Manual –
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Standard Specifications –
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Approved Product List –
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Construction –
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Maintenance –

## Origination Package Includes: (Email or hand deliver package to Derwood Sheppard)

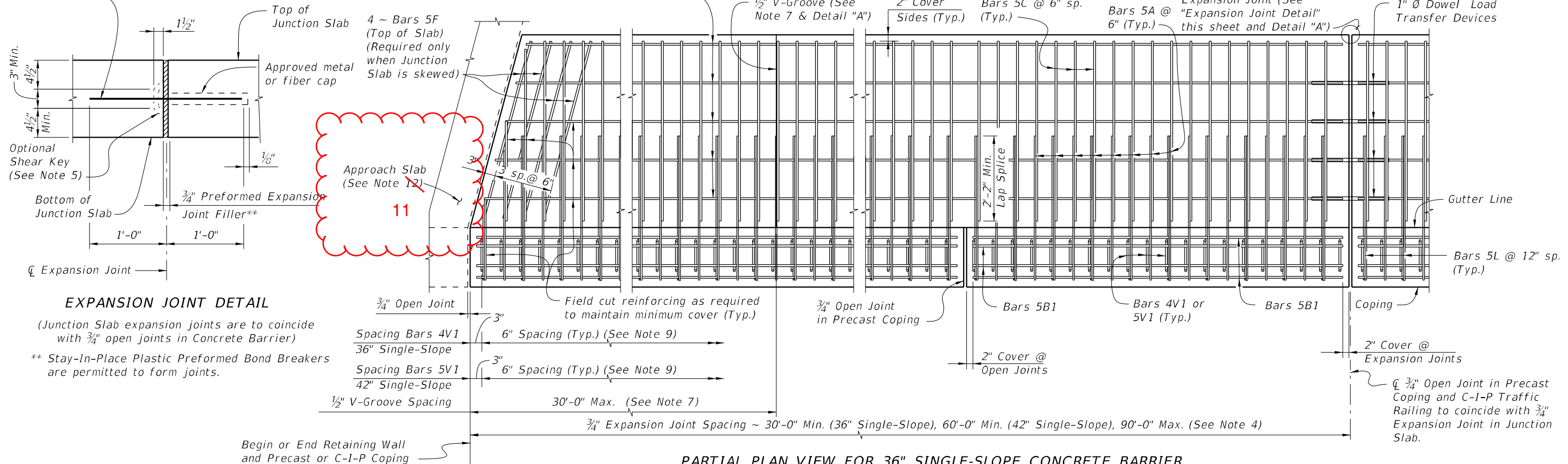
Yes	N/A	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Redline Mark-ups
<input type="checkbox"/>	<input type="checkbox"/>	Proposed Standard Plan Instructions (SPI)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Revised SPI
<input type="checkbox"/>	<input type="checkbox"/>	Other Support Documents

## Implementation:

Design Bulletin (Interim)    DCE Memo    Program Mgmt. Bulletin    FY-Standard Plans (Next Release)

Contact the Roadway Design Office for assistance in completing this form

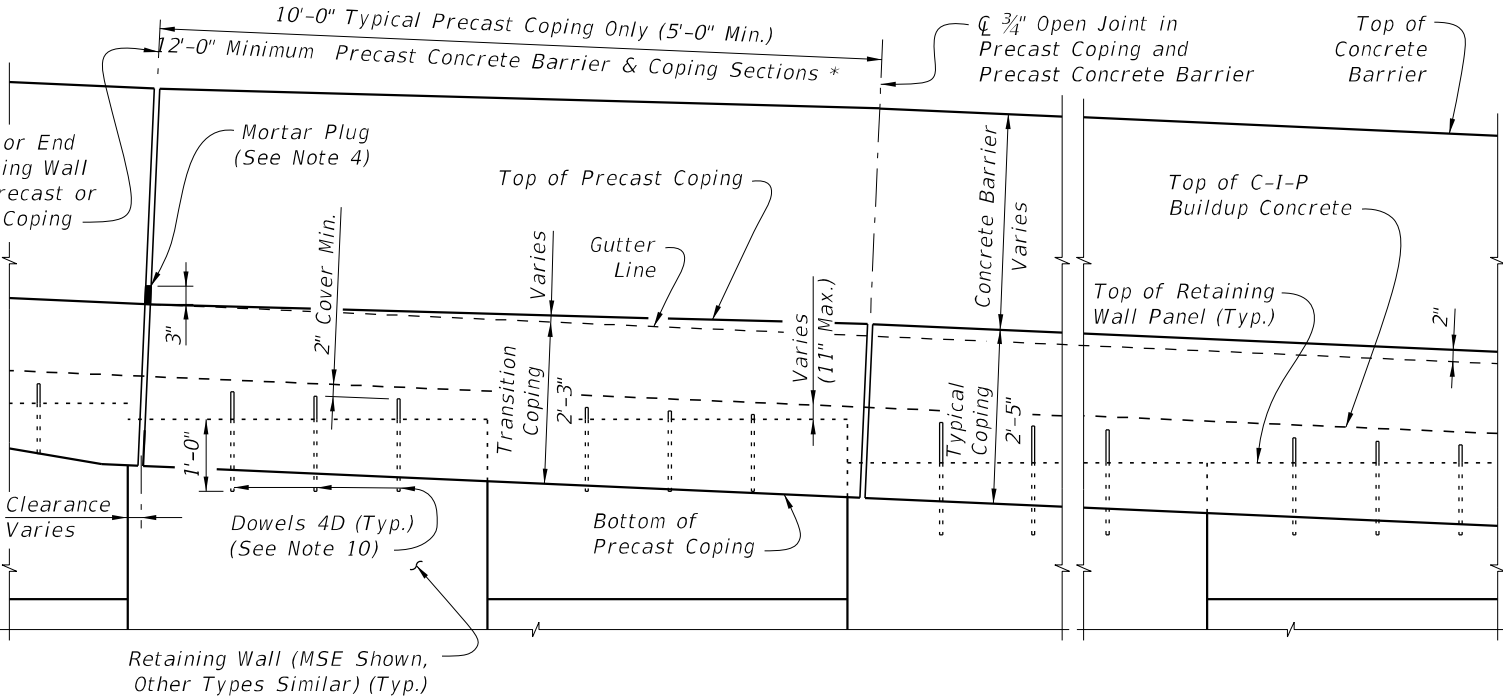
1" Ø Dowel Load Transfer Devices (See Typical Sections for details)



**PARTIAL PLAN VIEW FOR 36" SINGLE-SLOPE CONCRETE BARRIER**  
 (Skewed Approach Slab Shown, Perpendicular Approach Slab Similar)  
 (Precast Coping Shown, C-I-P Coping Similar) (Concrete Barrier not Shown for Clarity)

**JUNCTION SLAB NOTES:**

1. Construct the expansion joints, V-Grooves and face of coping plumb.
2. Provide Class II concrete for slightly aggressive environments or Class IV for moderate or extremely aggressive environments.
3. 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.
4. Construct 3/4" 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 Concrete Barriers to contain runoff.
5. 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.
6. Provide and install Preformed Expansion Joint Filler in accordance with Specification Section 932.
7. Construct 1/2" V-Grooves in junction slabs and C-I-P copings at 30'-0" maximum intervals as shown. Space V-Grooves equally between 3/4" Expansion Joints and/or Begin or End Junction Slab. V-Groove locations are to coincide with V-Groove locations in the Concrete Barrier.
8. Shoulder or Roadway Pavement is required on top of the junction slab for its entire length on the traffic side of the Concrete Barrier. See Typical Sections on Sheets 2 and 3 for details.
9. Spacing shown is along the Gutter Line.
10. For Precast Coping only, provide Dowel Bars 4D embedded 1'-0" and extended 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.
11. The following Indexes contain details of the intersection of the retaining wall at approach slabs:  
 Index 400-090 - Approach Slabs (Flexible Pavement Approaches)  
 Index 400-091 - Approach Slabs (Rigid Pavement Approaches)




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

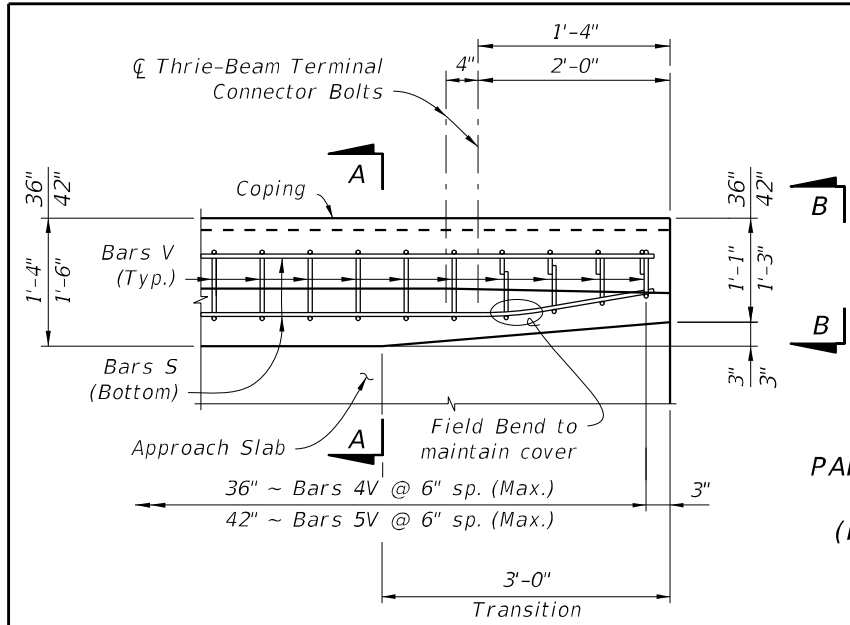
\* C-I-P End Section must be ≥ 12'-0".

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

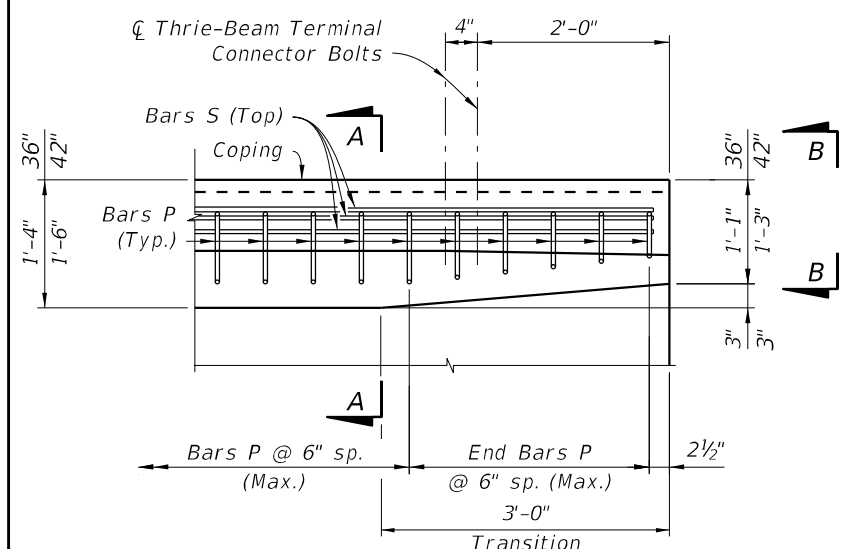
**SINGLE-SLOPE CONCRETE BARRIERS**

LAST REVISION <del>11/01/17</del>	DESCRIPTION: <b>11/01/19</b>	 <b>FY 2019-20 STANDARD PLANS</b>	<b>CONCRETE BARRIER/JUNCTION SLAB - WALL COPING</b>	INDEX <b>521-610</b>	SHEET <b>1 of 3</b>
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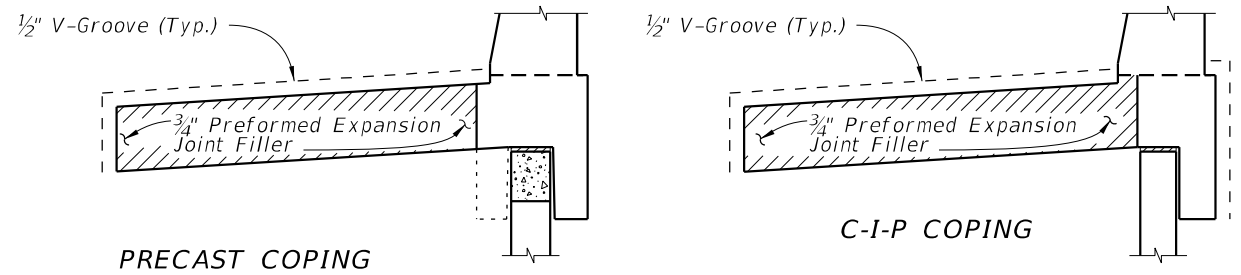


PLAN - RAILING END TRANSITION  
(Showing Bars V and S)



PLAN - RAILING END TRANSITION  
(Showing Bars P and S)

DETAIL "A"

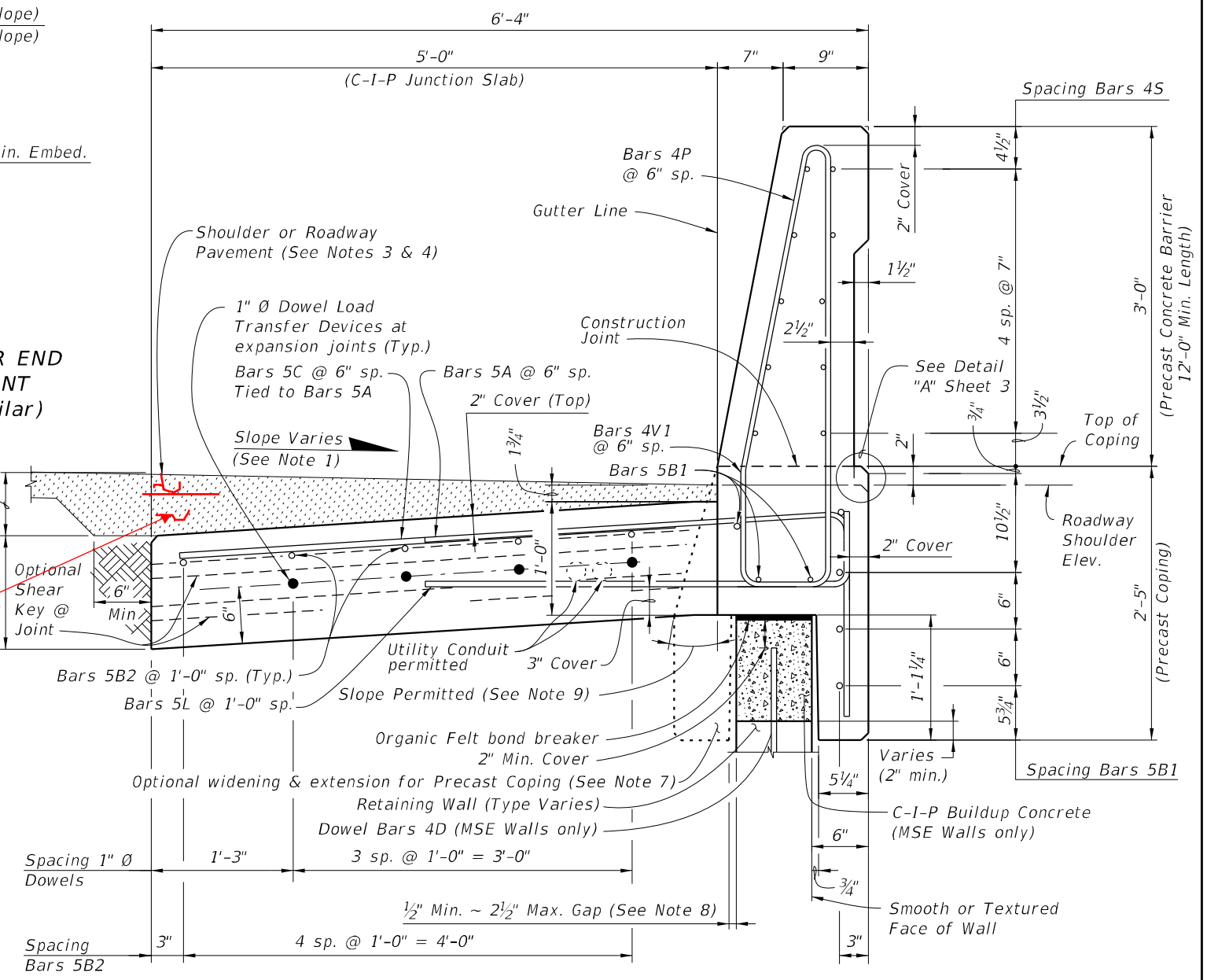
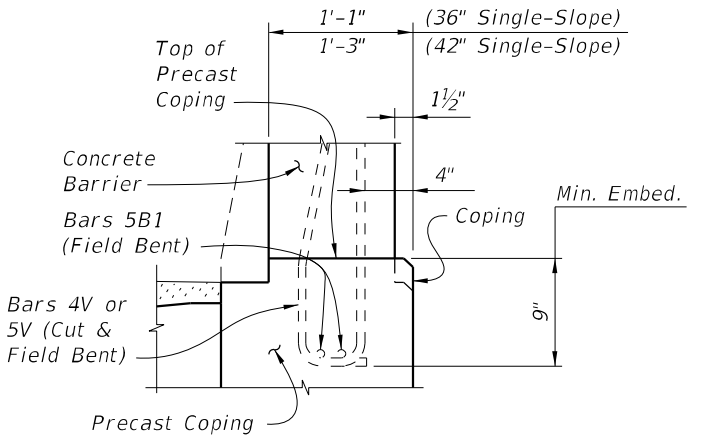


PRECAST COPING

DETAIL "A"

(Showing Locations of 1/2" V-Grooves and 3/4" Preformed Expansion Joint Filler)

PARTIAL END VIEW OF CONCRETE BARRIER END TRANSITION FOR GUARDRAIL ATTACHMENT  
(Precast Coping Shown, C-I-P Coping Similar)



TYPICAL SECTION THRU PRECAST 36" SINGLE-SLOPE  
CONCRETE BARRIER AND COPING WITH C-I-P JUNCTION SLAB

Type SP  
Overbuild

4. See Roadway plans for asphalt  
shoulder, roadway pavement and  
overbuild.

NOTES:

- Match Cross Slope of Travel Lane or Shoulder.
- Vary Junction Slab slope based on roadway cross slope to maintain a minimum 6" asphalt depth at the edge of the slab as shown.
- For Rigid Pavement (Concrete), Junction Slab may be thickened to match finished grade. Vary the Junction Slab slope to maintain a minimum 1'-6" thickness at the edge of the slab.
- ~~For Asphalt: Shoulder or Roadway Pavement will be SuperPave Structural asphalt. Variable thickness asphalt will be structural overbuild.~~
- Minimum length of Junction Slab between expansion joints is 30'-0".
- At the Contractor's option, mechanical couplers may be used to splice reinforcing. Complete details, including reinforcing 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.
- Contractor to maintain stability of precast coping/Concrete Barrier 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.
- When the air gap between the precast coping extension and retaining wall exceeds 2 1/2", fill gap with full depth Expanded Polystyrene to provide a maximum 2 1/2" air gap.
- Angle varies ~ 0° min., 25° max.

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LAST REVISION <b>11/01/18</b>	DESCRIPTION: <b>← 11/01/19</b>	FY 2019-20 STANDARD PLANS	<b>CONCRETE BARRIER/JUNCTION SLAB</b> <b>- WALL COPING</b>	INDEX <b>521-610</b>	SHEET <b>2 of 3</b>
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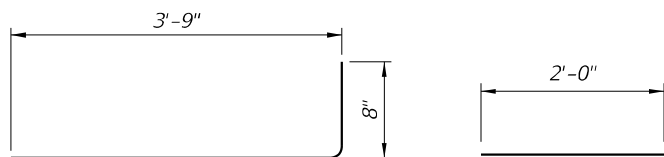
**REINFORCING STEEL BENDING DIAGRAMS**

**BILL OF REINFORCING STEEL**

MARK	SIZE	LENGTH			
		PRECAST COPING FOR SINGLE-SLOPE		C-I-P COPING FOR SINGLE-SLOPE	
		(36")	(42")	(36")	(42")
A	5	5'-3"	5'-5"	7'-10"	8'-0"
B1	5	11'-6"	9'-6"	AS REQD.	AS REQD.
B2	5	AS REQD.	AS REQD.	AS REQD.	AS REQD.
C	5	4'-10"	4'-10"	N/A	N/A
F	5	4'-10"	4'-10"	4'-10"	4'-10"
L	5	4'-5"	4'-5"	4'-5"	4'-5"
P	4	5'-11"	N/A	5'-11"	N/A
P	5	N/A	7'-0"	N/A	7'-0"
S	4	11'-6"	N/A	AS REQD.	N/A
S	6	N/A	9'-6"	N/A	AS REQD.
V1	4	5'-9"	N/A	5'-9"	N/A
V1	5	N/A	6'-4"	N/A	6'-4"
1" Ø Dowel	Smooth Bar	2'-0"	2'-0"	2'-0"	2'-0"

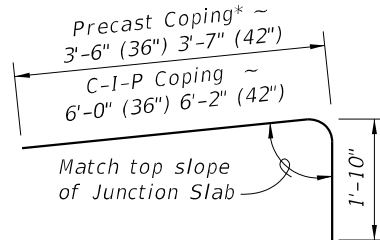
See Table

**BARS 5B1, 5B2, 5C, 5F, 4S, & 6S**



**BARS 5L**

**1" Ø DOWEL**

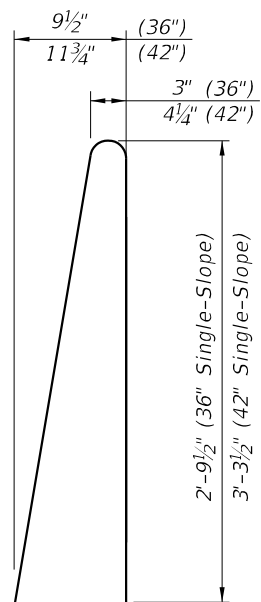


**BAR 5A**

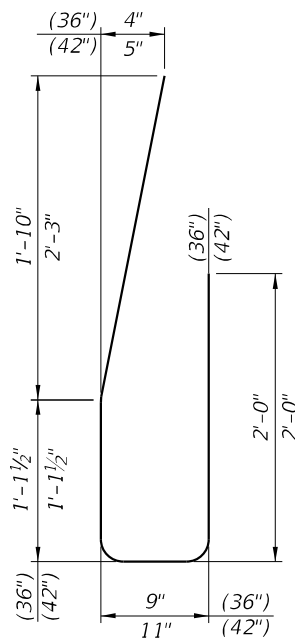
\* See Note 5 & 6

**REINFORCING STEEL NOTES:**

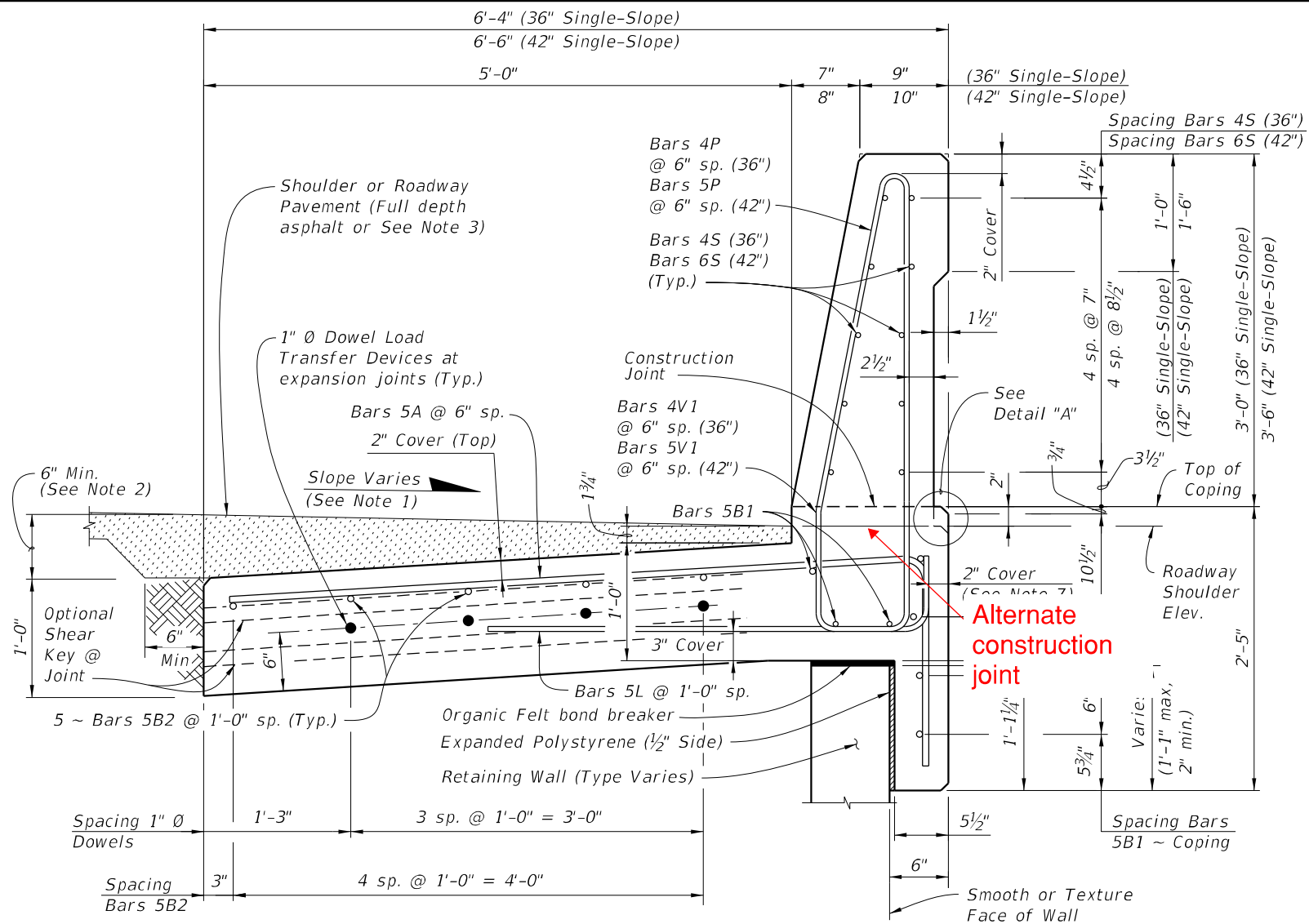
- All bar dimensions in the bending diagrams are out to out.
- All reinforcing steel at expansion and open joints will have a 2" minimum cover.
- Lap splices for Bars 5B & 5S will be a minimum of 2'-2".
- For Precast Copings only, lap splice Bars 5A with Bars 5C. Lap splices will be a minimum of 2'-2".
- The Contractor may use either full length Bars 5A or lap splice with Bars 5C at Bars 5A for C-I-P Copings.
- Dimension shown is for lap splice option. For mechanical coupler option, this dimension is 1'-2½" (36" Single-Slope) or 1'-4½" (42" Single-Slope).
- Dimension shown is for lap splice option. For mechanical coupler option, this dimension is 4'-8".
- When approved by the Engineer, the Contractor may use deformed Welded Wire Reinforcement (WWR) meeting the requirements of Specification Section 931.
- Contractor may use a single #5 stirrup in lieu of two bars for 4P and 4V1.



**STIRRUP BAR 4P (36") 5P (42")**



**STIRRUP BAR 4V1 (36") 5V1 (42")**



**TYPICAL SECTION THRU C-I-P CONCRETE BARRIER WITH C-I-P JUNCTION SLAB AND C-I-P COPING (PRECAST COPING SIMILAR WITH C-I-P BUILDUP)**

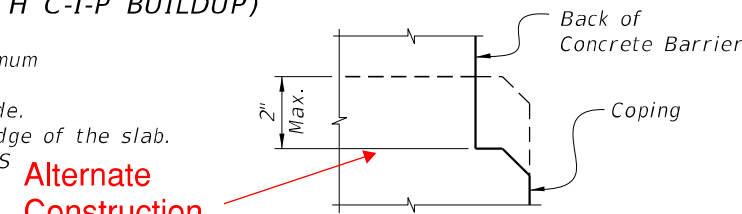
**NOTES:**

- Match Cross Slope of Travel Lane or Shoulder.
- Vary the Junction Slab slope based on the roadway cross slope to maintain a minimum 6" asphalt depth at the edge of the slab.
- For Rigid Pavement (Concrete), Junction Slab may be thickened to match finish grade. Vary the Junction Slab slope to maintain a minimum 1'-6" thickness at the inside edge of the slab.
- Minimum length of Junction Slab between expansion joints is 30'-0" for 36" Single-S or 60'-0" for 42" Single-Slope.
- Contractor to maintain stability of precast coping prior to junction slab completion. Shop Drawings, show reinforcement for optional extension required for stability, strength and handling. Maintain 2" minimum concrete cover.
- If slip forming is used, submit shop drawings for approval showing 2½" side cover the Typical Section dimensions adjusted.

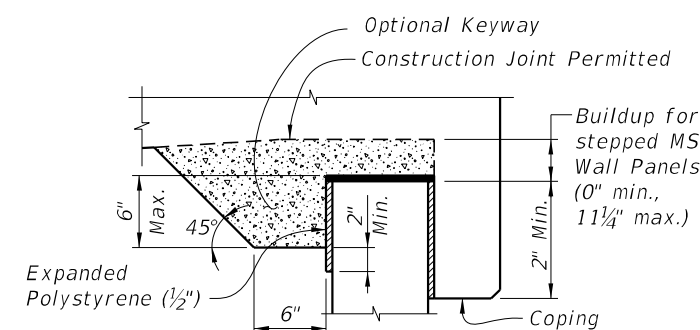
**ESTIMATED QUANTITIES FOR C-I-P**

ITEM	UNIT	QUANTITY (36")	QUANTITY (42")
Concrete	CY/LF	0.376	0.420
Reinforcing Steel (Typical) (excludes Bars 5C & 5F)	LB/LF	62.45	82.17
Additional Reinf. @ Expansion Joint (Steel Dowels)	LB	21.36	21.36

(The above concrete quantities are based on a max. superelevation of 6.25%)



**DETAIL "A" NOTCH AT TOP OF COPING**



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

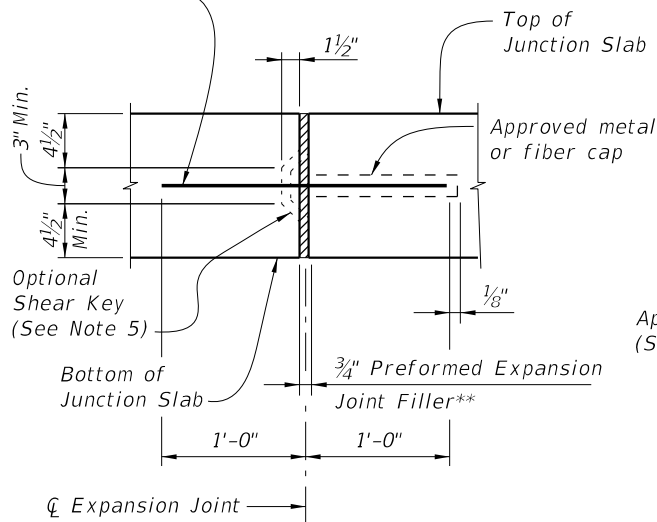
**SINGLE-SLOPE CONCRETE BARRIERS**

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LAST REVISION	DESCRIPTION:
11/01/17	← 11/01/19



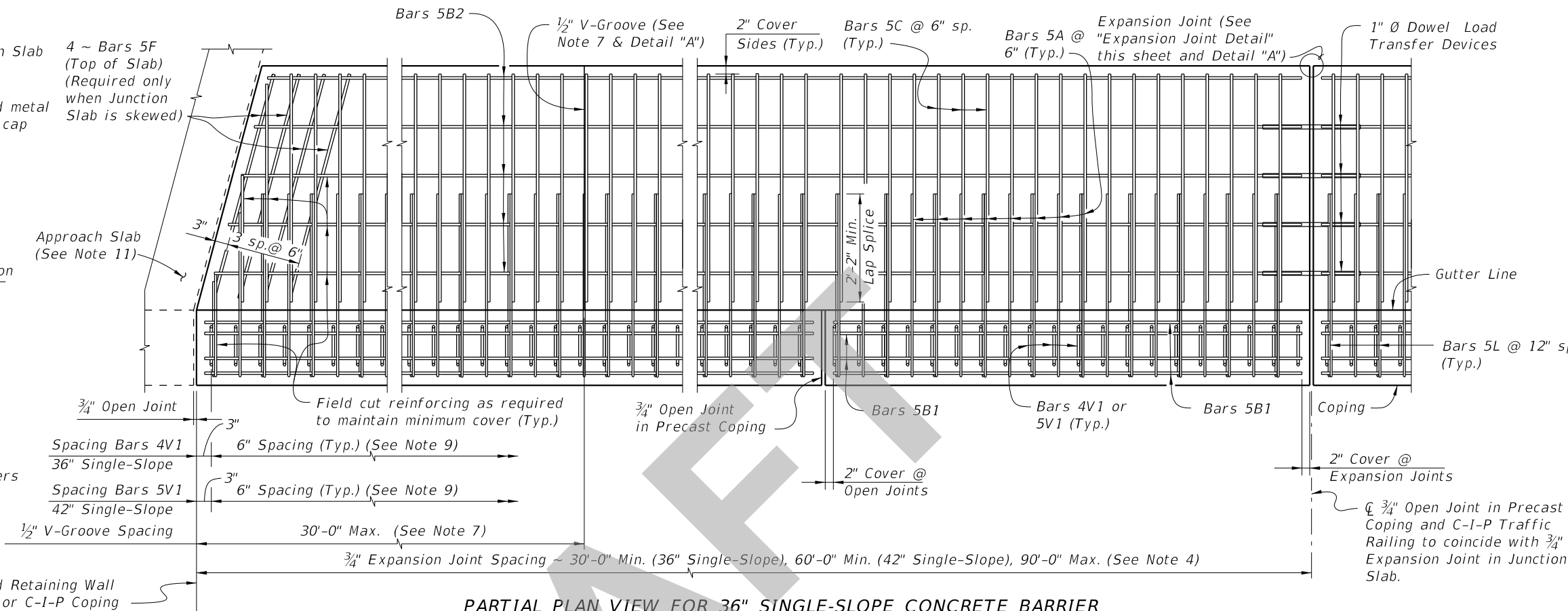
1" Ø Dowel Load Transfer Devices (See Typical Sections for details)



**EXPANSION JOINT DETAIL**

(Junction Slab expansion joints are to coincide with 3/4" open joints in Concrete Barrier)

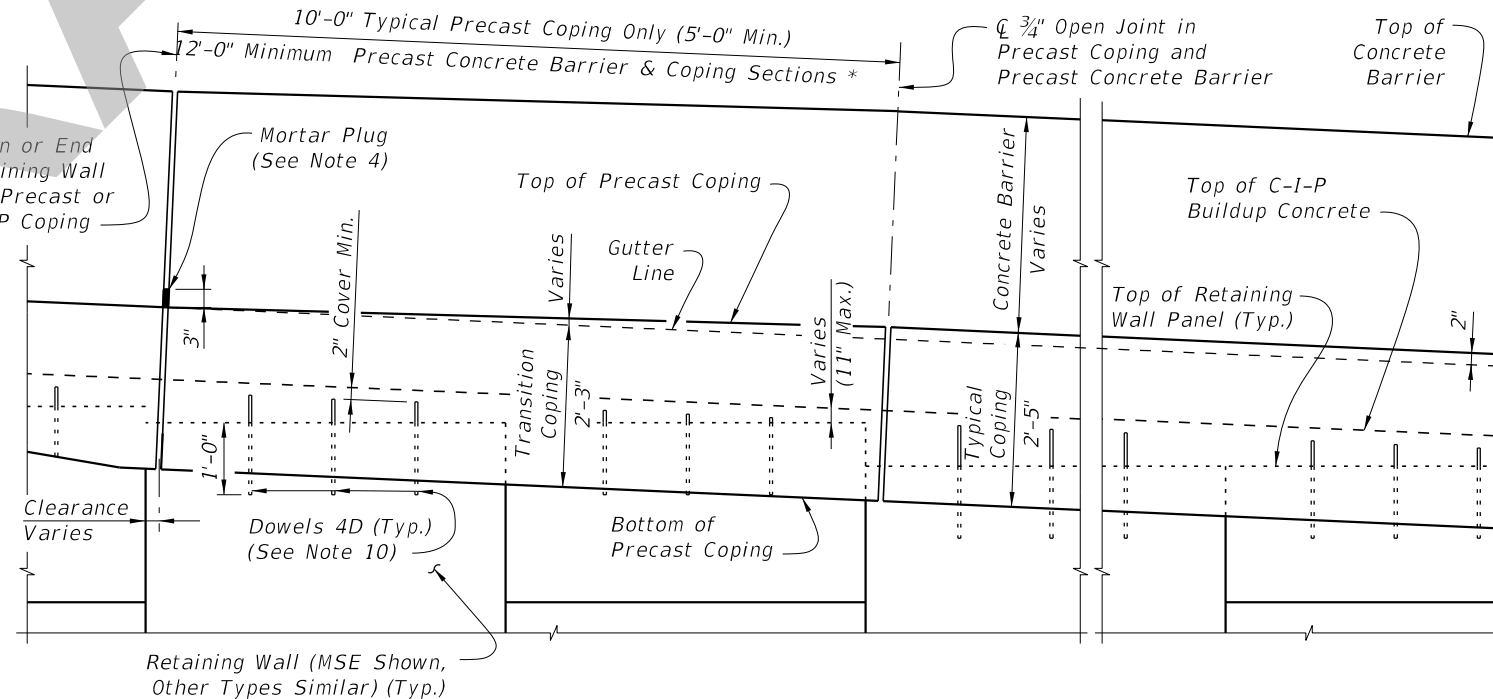
\*\* Stay-In-Place Plastic Preformed Bond Breakers are permitted to form joints.



**PARTIAL PLAN VIEW FOR 36" SINGLE-SLOPE CONCRETE BARRIER**  
(Skewed Approach Slab Shown, Perpendicular Approach Slab Similar)  
(Precast Coping Shown, C-I-P Coping Similar) (Concrete Barrier not Shown for Clarity)

**JUNCTION SLAB NOTES:**

1. Construct the expansion joints, V-Grooves and face of coping plumb.
2. Provide Class II concrete for slightly aggressive environments or Class IV for moderate or extremely aggressive environments.
3. 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.
4. Construct 3/4" 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 Concrete Barriers to contain runoff.
5. 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.
6. Provide and install Preformed Expansion Joint Filler in accordance with Specification Section 932.
7. Construct 1/2" V-Grooves in junction slabs and C-I-P copings at 30'-0" maximum intervals as shown. Space V-Grooves equally between 3/4" Expansion Joints and/or Begin or End Junction Slab. V-Groove locations are to coincide with V-Groove locations in the Concrete Barrier.
8. Shoulder or Roadway Pavement is required on top of the junction slab for its entire length on the traffic side of the Concrete Barrier. See Typical Sections on Sheets 2 and 3 for details.
9. Spacing shown is along the Gutter Line.
10. For Precast Coping only, provide Dowel Bars 4D embedded 1'-0" and extended 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.
11. The following Indexes contain details of the intersection of the retaining wall at approach slabs:  
Index 400-090 - Approach Slabs (Flexible Pavement Approaches)  
Index 400-091 - Approach Slabs (Rigid Pavement Approaches)



**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".

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

**SINGLE-SLOPE CONCRETE BARRIERS**

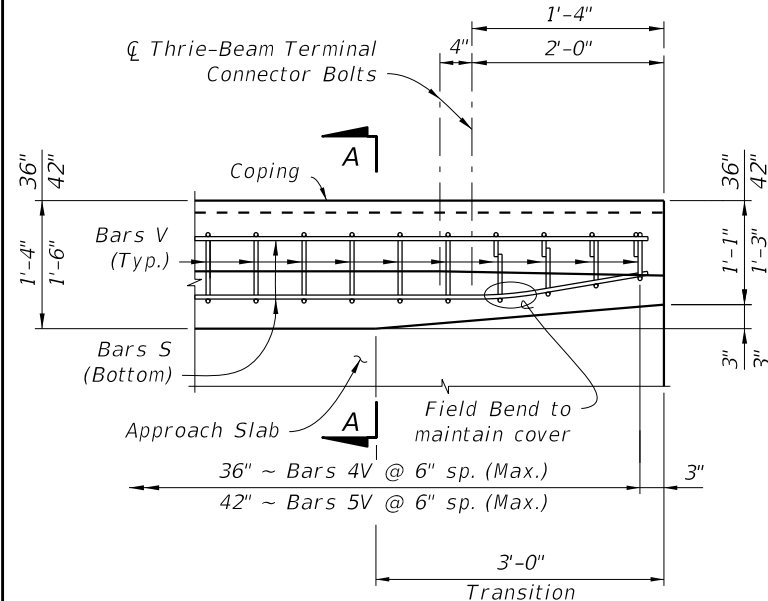
SDATES

LAST REVISION	DESCRIPTION:
11/01/19	

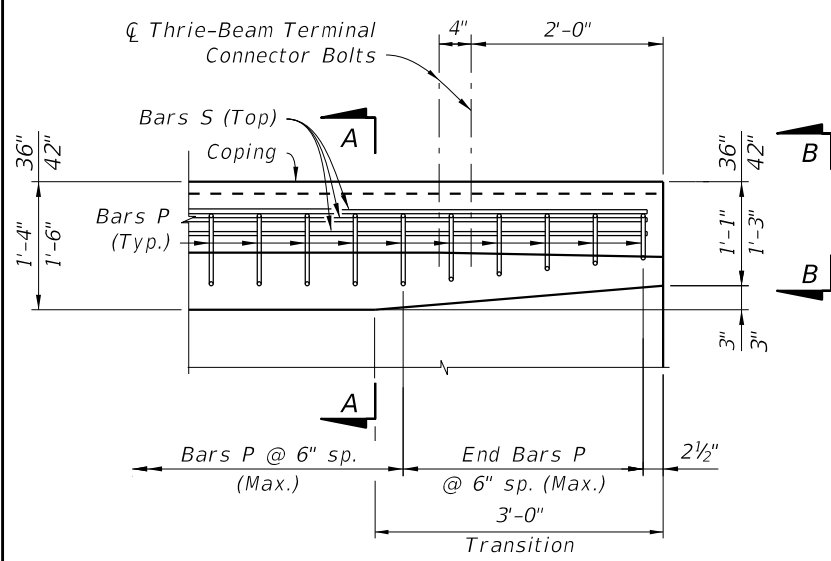

**FY 2020-21  
STANDARD PLANS**

**CONCRETE BARRIER/JUNCTION SLAB  
- WALL COPING**

INDEX	SHEET
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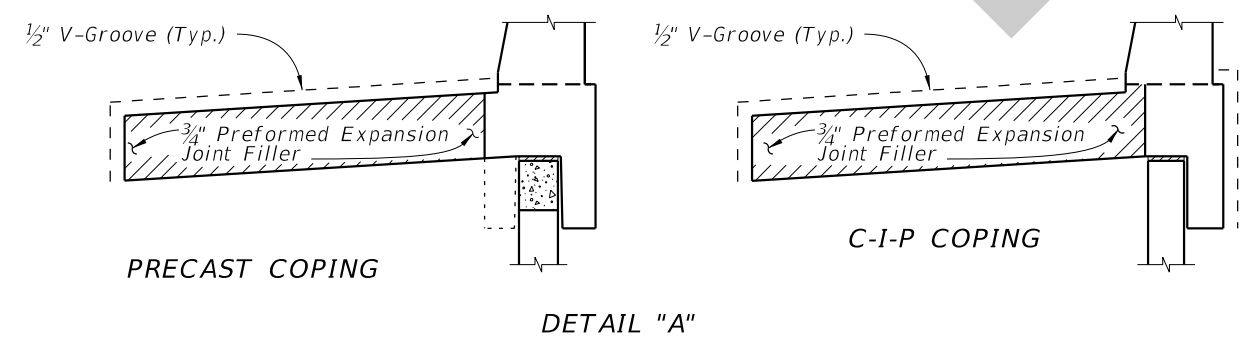


**PLAN - RAILING END TRANSITION**  
(Showing Bars V and S)

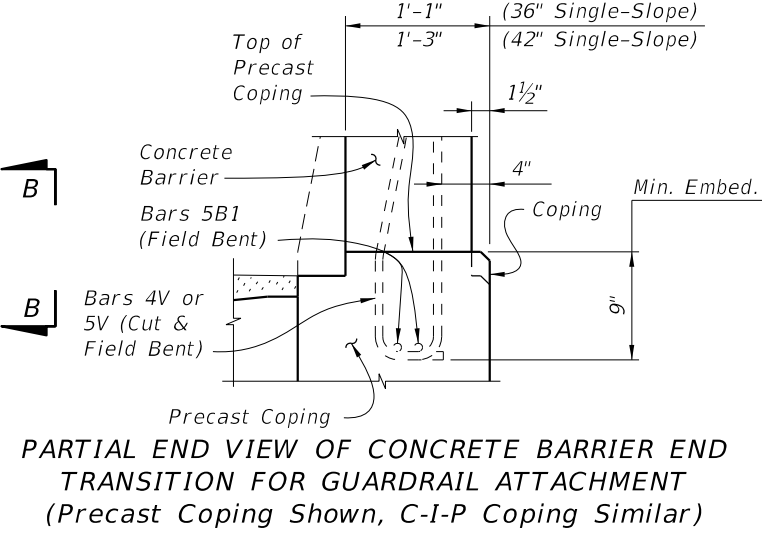


**PLAN - RAILING END TRANSITION**  
(Showing Bars P and S)

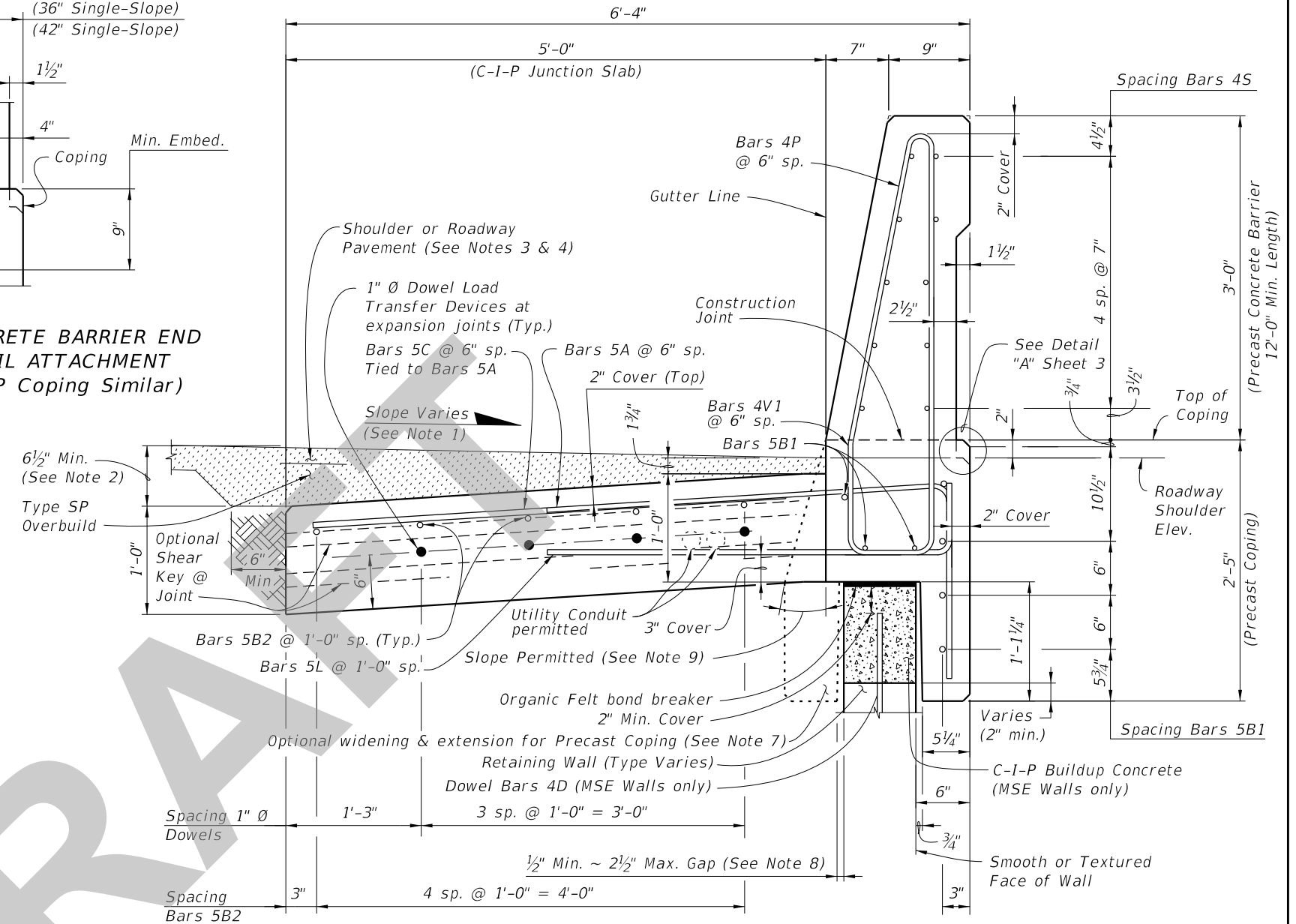
**DETAIL "A"**



**DETAIL "A"**  
(Showing Locations of 1/2" V-Grooves and 3/4" Preformed Expansion Joint Filler)



**PARTIAL END VIEW OF CONCRETE BARRIER END TRANSITION FOR GUARDRAIL ATTACHMENT**  
(Precast Coping Shown, C-I-P Coping Similar)



**TYPICAL SECTION THRU PRECAST 36" SINGLE-SLOPE CONCRETE BARRIER AND COPING WITH C-I-P JUNCTION SLAB**

**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. Vary the Junction Slab slope to maintain a minimum 1'-6" thickness at the edge of the slab.
4. See Roadway Plans for asphalt shoulder, roadway pavement and overbuild.
5. Minimum length of Junction Slab between expansion joints is 30'-0".
6. At the Contractor's option, mechanical couplers may be used to splice reinforcing. Complete details, including reinforcing 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.
7. Contractor to maintain stability of precast coping/Concrete Barrier 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.
8. When the air gap between the precast coping extension and retaining wall exceeds 2 1/2", fill gap with full depth Expanded Polystyrene to provide a maximum 2 1/2" air gap.
9. Angle varies ~ 0° min., 25° max.

SDATES

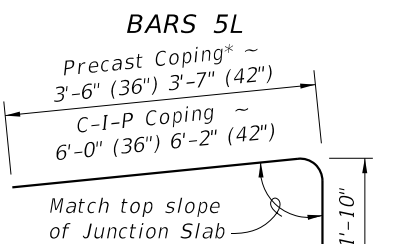
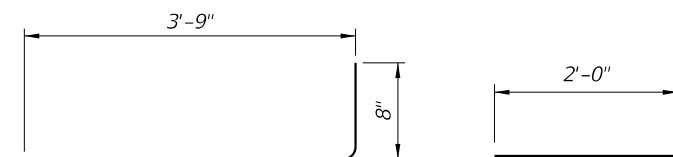
LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	CONCRETE BARRIER/JUNCTION SLAB - WALL COPING	INDEX	SHEET
						521-610	2 of 3

**REINFORCING STEEL BENDING DIAGRAMS**

**BILL OF REINFORCING STEEL**

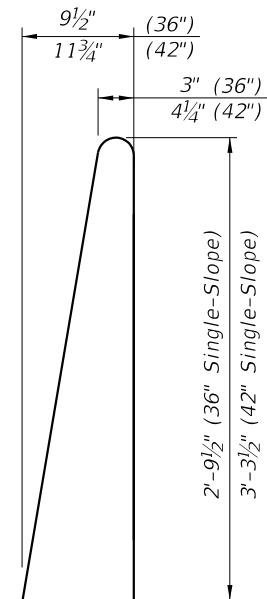
MARK	SIZE	LENGTH			
		PRECAST COPING FOR SINGLE-SLOPE		C-I-P COPING FOR SINGLE-SLOPE	
		(36")	(42")	(36")	(42")
A	5	5'-3"	5'-5"	7'-10"	8'-0"
B1	5	11'-6"	9'-6"	AS REQD.	AS REQD.
B2	5	AS REQD.	AS REQD.	AS REQD.	AS REQD.
C	5	4'-10"	4'-10"	N/A	N/A
F	5	4'-10"	4'-10"	4'-10"	4'-10"
L	5	4'-5"	4'-5"	4'-5"	4'-5"
P	4	5'-11"	N/A	5'-11"	N/A
P	5	N/A	7'-0"	N/A	7'-0"
S	4	11'-6"	N/A	AS REQD.	N/A
S	6	N/A	9'-6"	N/A	AS REQD.
V1	4	5'-9"	N/A	5'-9"	N/A
V1	5	N/A	6'-4"	N/A	6'-4"
1" Ø Dowel	Smooth Bar	2'-0"	2'-0"	2'-0"	2'-0"

See Table  
**BARS 5B1, 5B2, 5C, 5F, 4S, & 6S**

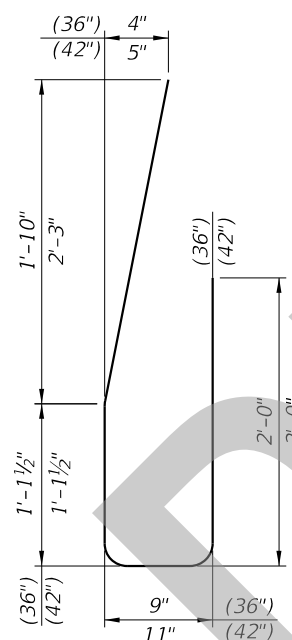


**BAR 5A**

\* See Note 5 & 6



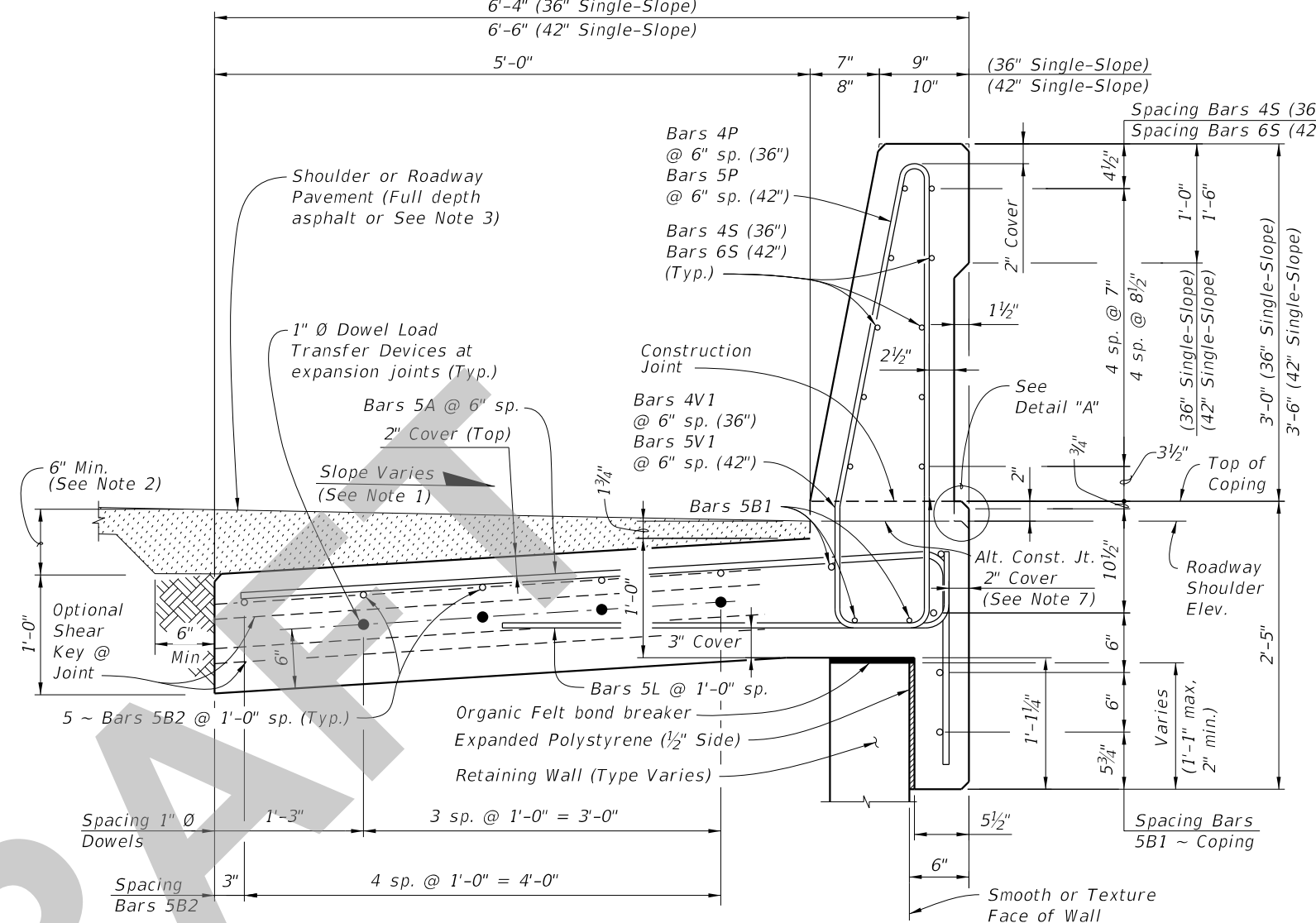
**STIRRUP BAR  
4P (36") 5P (42")**



**STIRRUP BAR  
4V1 (36") 5V1 (42")**

**REINFORCING STEEL NOTES:**

- All bar dimensions in the bending diagrams are out to out.
- All reinforcing steel at expansion and open joints will have a 2" minimum cover.
- Lap splices for Bars 5B & 5S will be a minimum of 2'-2".
- For Precast Copings only, lap splice Bars 5A with Bars 5C. Lap splices will be a minimum of 2'-2".
- The Contractor may use either full length Bars 5A or lap splice with Bars 5C at Bars 5A for C-I-P Copings.
- Dimension shown is for lap splice option. For mechanical coupler option, this dimension is 1'-2 1/2" (36" Single-Slope) or 1'-4 1/2" (42" Single-Slope).
- Dimension shown is for lap splice option. For mechanical coupler option, this dimension is 4'-8".
- When approved by the Engineer, the Contractor may use deformed Welded Wire Reinforcement (WWR) meeting the requirements of Specification Section 931.
- Contractor may use a single #5 stirrup in lieu of two bars for 4P and 4V1.



**TYPICAL SECTION THRU C-I-P CONCRETE BARRIER WITH C-I-P JUNCTION SLAB AND C-I-P COPING (PRECAST COPING SIMILAR WITH C-I-P BUILDUP)**

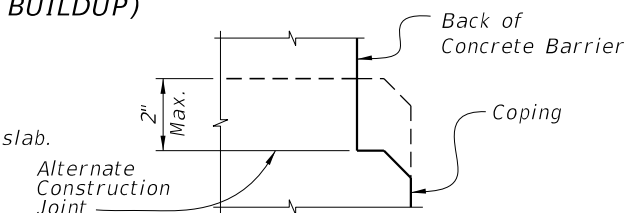
**NOTES:**

- Match Cross Slope of Travel Lane or Shoulder.
- Vary the Junction Slab slope based on the roadway cross slope to maintain a minimum 6" asphalt depth at the edge of the slab.
- For Rigid Pavement (Concrete), Junction Slab may be thickened to match finish grade. Vary the Junction Slab slope to maintain a minimum 1'-6" thickness at the inside edge of the slab.
- Minimum length of Junction Slab between expansion joints is 30'-0" for 36" Single-Slope or 60'-0" for 42" Single-Slope.
- 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.
- If slip forming is used, submit shop drawings for approval showing 2 1/2" side cover with the Typical Section dimensions adjusted.

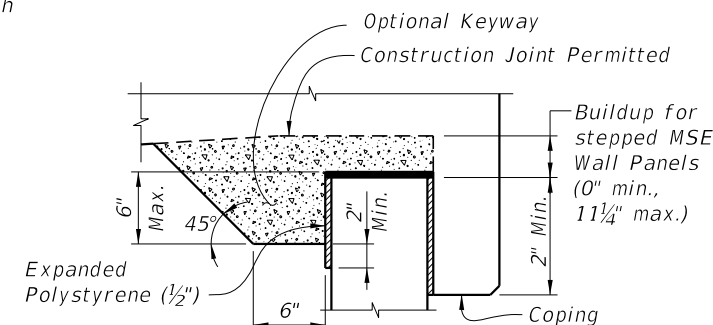
**ESTIMATED QUANTITIES FOR C-I-P**

ITEM	UNIT	QUANTITY (36")	QUANTITY (42")
Concrete	CY/LF	0.376	0.420
Reinforcing Steel (Typical) (excludes Bars 5C & 5F)	LB/LF	62.45	82.17
Additional Reinf. @ Expansion Joint (Steel Dowels)	LB	21.36	21.36

(The above concrete quantities are based on a max. superelevation of 6.25%)



**DETAIL "A"  
OPTIONAL NOTCH AT TOP OF COPING**



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

**SINGLE-SLOPE CONCRETE BARRIERS**

SDATES

LAST REVISION	DESCRIPTION:
11/01/19	



**FY 2020-21  
STANDARD PLANS**

**CONCRETE BARRIER/JUNCTION SLAB  
- WALL COPING**

INDEX  
**521-610**

SHEET  
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