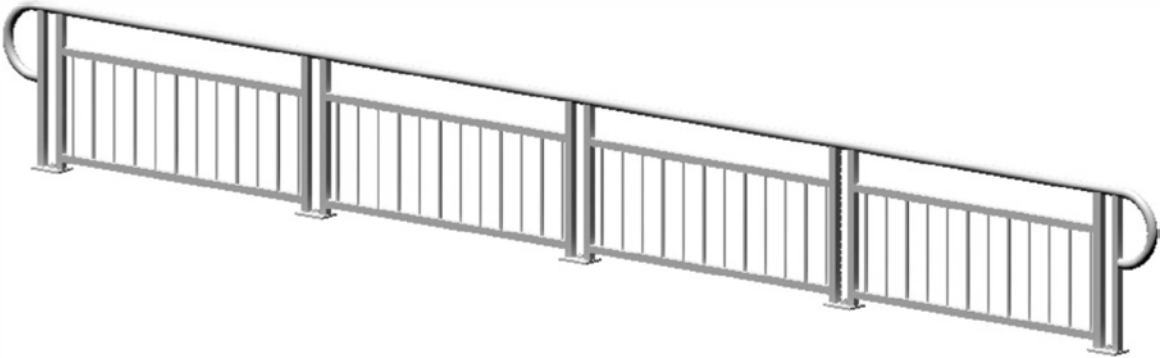


CITY OF BELLE GLADE - TORRY ISLAND SEAWALL PEDESTRIAN RAILING IMPROVEMENTS

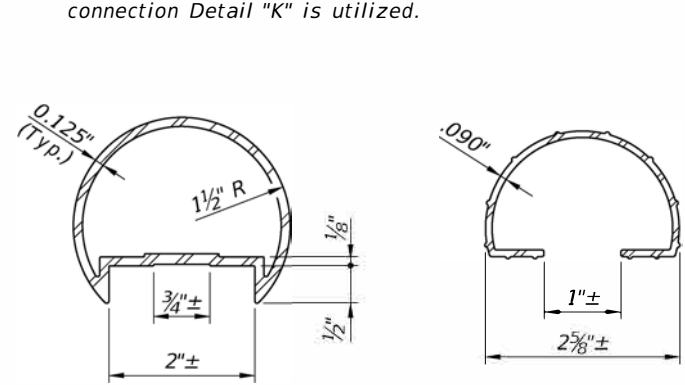
EXHIBIT C - FDOT DETAILS (INDEX 515-062, SHEETS 1 - 9)



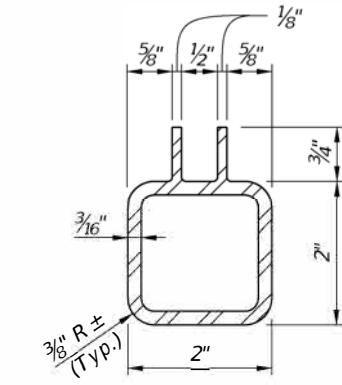
3D VIEW OF RAILING WITH TYPE 1 - PICKET INFILL PANEL
(42" Height shown, 48" Height Similar)

TABLE 1 - RAILING MEMBERS				
MEMBER	ALLOY ⁽¹⁾	DESIGNATION	OUTSIDE DIMENSION	WALL THICKNESS
Posts (Type "A" & "B")	6061-T6	RT 2x2x0.250	2.00" x 2.00"	0.250"
Posts (Type "C")	6061-T6	Extrusion 1½x2½x0.125	1.50" x 2.50"	0.125"
Top Plate (Type "C")	6061-T6	Extrusion (See Details)	2¾" x 7"	Varies
Top Rail	6061-T6	2½" NPS (Sch. 10)	2.875"	0.120"
		3" Round Top Cap Rail	3.000"	0.125"
End Hoops	6063-T5	2½" NPS (Sch. 10)	2.875"	0.120"
		3.00 OD x 0.125 Wall	3.000"	0.125"
Top Rail Joint/Splice Sleeves	6063-T5	2.50 OD x 0.125 Wall	2.500"	0.125"
		Top Cap Rail Inner Sleeve	2.800"	0.090"
Intermediate & Bottom Rail	6061-T6	RT 2x2x0.250	2.00" x 2.00"	0.250" ⁽²⁾
Int. & Bottom Rail Post Connection Sleeve	6063-T5	1.50 OD x 0.125 Wall ⁽³⁾	1.500"	0.125"
Handrail Joint/Splice Sleeves	6063-T5	1" NPS (Sch. 40)	1.315"	0.133"
	6063-T5	1.50 OD x 0.125 Wall	1.500"	0.125"
Handrails	6061-T6	1½" NPS (Sch. 40)	1.900"	0.145"
Handrail Support Bar	6061-T6	¾" Ø Round Bar	0.750"	N/A
Pickets (Type 1 Infill Panel)	6061-T6	¾" Ø Round Bar	0.750"	N/A
Infill Panel Members (Types 2 - 5)	6063-T5	Varies (See Details)	Varies	Varies

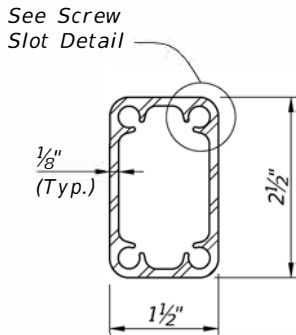
TABLE 1 NOTES:
(1) Alloy 6061-T6 or 6063-T52 & T6 may be substituted for Alloy 6063-T5.
(2) 0.188" wall thickness permitted for rails with post spacings less than 5'-9".
(3) 1" NPS (Sch. 40) non-slit rail sleeves may be substituted when welded connection Detail "K" is utilized.



3" ROUND TOP CAP RAIL TOP CAP RAIL INNER SPLICER SLEEVE
===== ALTERNATE TOP RAIL SECTION =====

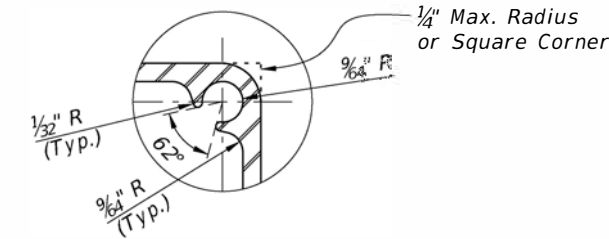


ALTERNATIVE BOTTOM & INTERMEDIATE RAIL SECTION
FOR TYPE 3, 4 & 5 RAILINGS

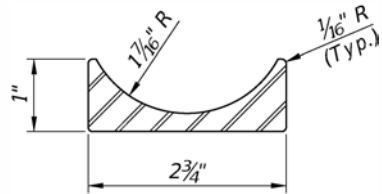


POST TYPE "C"
SCREW SLOT SECTION

CROSS REFERENCES:
Detail "A", Sheet 4
Detail "B", Sheet 4
Detail "K", Sheet 3



SCREW SLOT DETAIL



OPTIONAL TOP PLATE
EXTRUSION SECTION (POST TYPE "C")

NOTES

- Shop Drawings are required, see Specification Section 515.
- For bridge mounted railings, work this Index with Index 515-061 Bridge Bicycle/Pedestrian Railing (Aluminum)
- Materials:
 - Structural Extrusions, Tube, Pipe and Bars: Table 1 and ASTM B221 or ASTM B429
 - Top, bottom and intermediate rail corner bends with maximum 4'-0" post spacing may be Alloy 6063-T6
 - Base Plates and Rail Caps: ASTM B209 Alloy 6061-T6
 - Perforated panels (Type 5) Alloy 3003-H14
 - Stainless steel (SS) screws: Type 316 or 18-8 Alloy
 - Aluminum screws: Alloy 2024-T4 or 7075-T73
 - Galvanized Steel Fasteners: coated in accordance with Specification Section 962.
 - Hex Head Bolts: ASTM A 307
 - 7/8" diameter single bolt option, Grade 36
 - 7/16" diameter four bolt option, Grade 55
 - Adhesive Anchors: ASTM F1554 fully threaded rods, Grade 55
 - Hex Nuts: ASTM A563
 - Flat Washers: ASTM F436
 - Plate Washers: ASTM A36 or ASTM A706 Grade 36.
 - Shims: ASTM B209 Alloy 6061 or 6063
 - Bearing Pads: Provide 1/8" thick Plain, Fabric Reinforced or Fabric Laminated Bearing Pads meeting the requirements of Specification Section 932 for Ancillary Structures.
- Fabricate pickets and vertical panel elements parallel to the posts; except Type 2, 3 and 5 panel infills may be fabricated parallel to the longitudinal grade. Maintain a maximum clear opening of 5 7/8" for standard installations and 3 7/8" when a 4" sphere requirement is indicated in the Data Tables.
- Locate railing expansion joints between the posts on either side of the deck expansion joint. Maximum spacing between expansion joints is 35'-0".
- Field splices are similar to the Expansion Joint Detail and may be approved by the Engineer to facilitate handling; but the top rail must be continuous across a minimum of two posts.
- For intermediate and bottom horizontal rails, the screwed joints shown may be substituted with alternate joints shown in detail "K" for Post Type "A" & "B".
- Make corners and changes in tangential longitudinal alignment with a 9" bend radius or terminate adjoining sections with mitered end sections when handrails are not required.
- For changes in tangential longitudinal alignment greater than 45°, position posts a maximum of 2'-0" each side of the corner but not at the corner apex.
- For curved longitudinal alignments, shop bend the top and bottom rails and handrails to match the alignment radius.
- Handrails are required and must be continuous at landings for:
 - Grades Steeper than 5%,
 - Three or more steps
- Installation: Cutting of reinforcing steel is permitted for post installed anchors.

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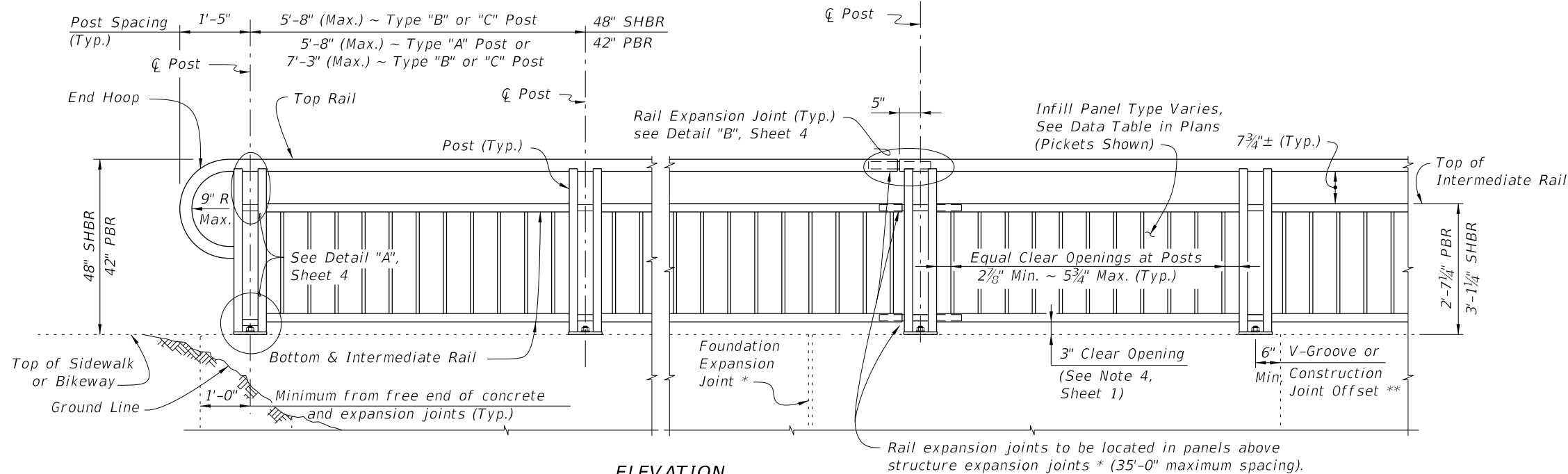


FY 2021-22
STANDARD PLANS

PEDESTRIAN/BICYCLE RAILING (ALUMINUM)

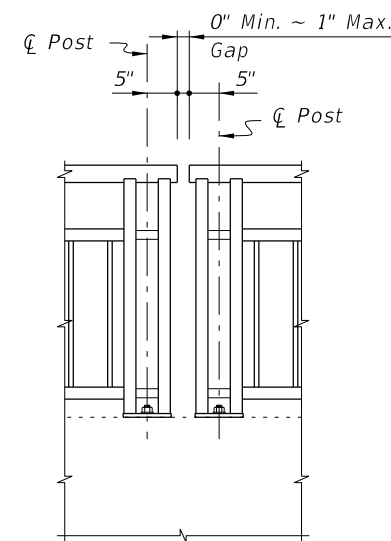
INDEX
515-062

SHEET
1 of 9



ELEVATION
(Showing Outside Face of Railing with Type "A" Posts)

TYPICAL RAILING DETAILS & RAILINGS ON GRADES 0% TO 5%
(Type 1 - Picket Railing Shown, Other Types Similar)

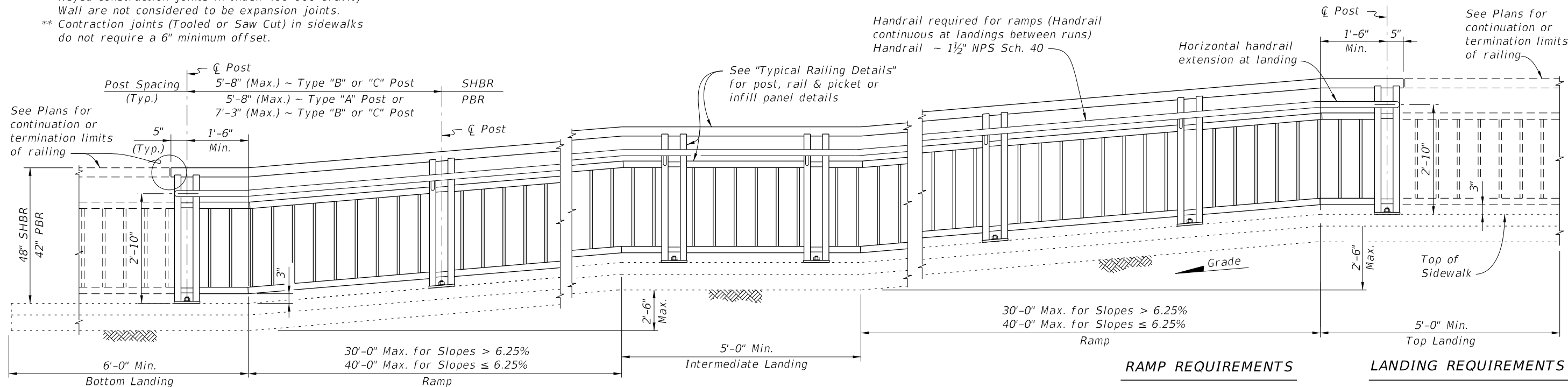


Note: Non-continuous corners are permitted when handrails are not required.

EXPANDED ELEVATION AT CORNERS
DETAIL FOR NON-CONTINUOUS RAILING AT CORNERS

NOTES:

- * Keyed construction joints in Index 400-011 Gravity Wall are not considered to be expansion joints.
- ** Contraction joints (Tooled or Saw Cut) in sidewalks do not require a 6" minimum offset.



ELEVATION
(Showing Inside Face of Railing with Type "A" Posts)

RAILINGS ON GRADES STEEPER THAN 5%
(Type 1 - Picket Railing Shown, Other Types Similar)


RAMP REQUIREMENTS

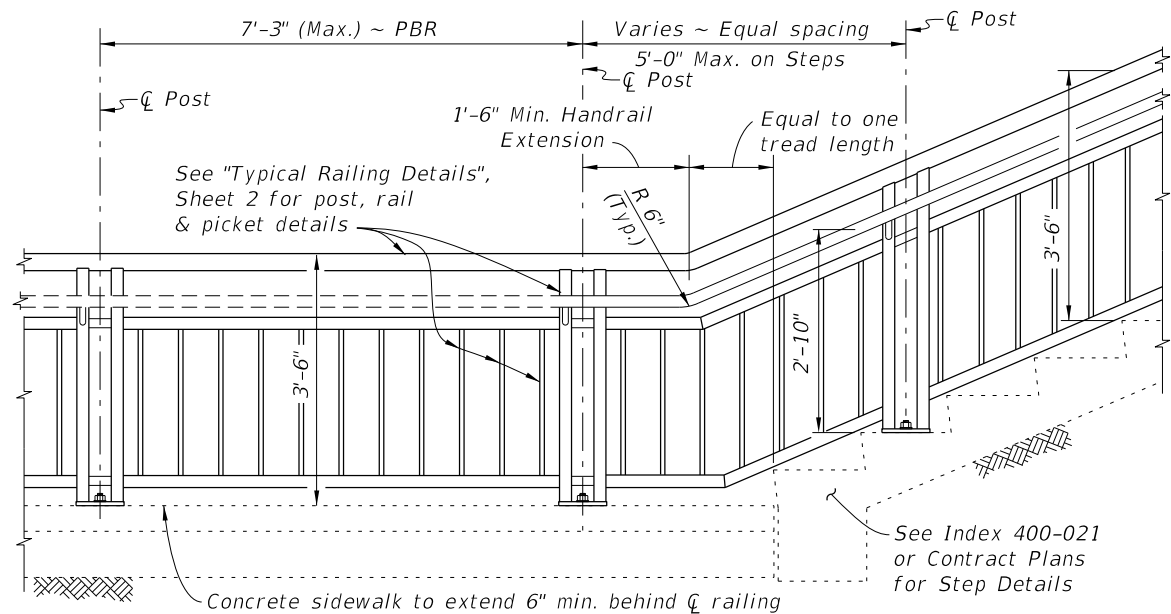
For slopes greater than 5%:
Max. ramp slope = 8.33%
Max. ramp cross-slope = 2.0%

LANDING REQUIREMENTS

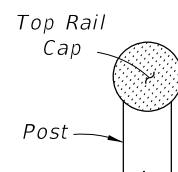
Max. landing slope = 2%
Max. landing cross-slope = 2%

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LAST REVISION 07/01/15	DESCRIPTION:	 FY 2021-22 STANDARD PLANS	PEDESTRIAN/BICYCLE RAILING (ALUMINUM)	INDEX 515-062	SHEET 2 of 9
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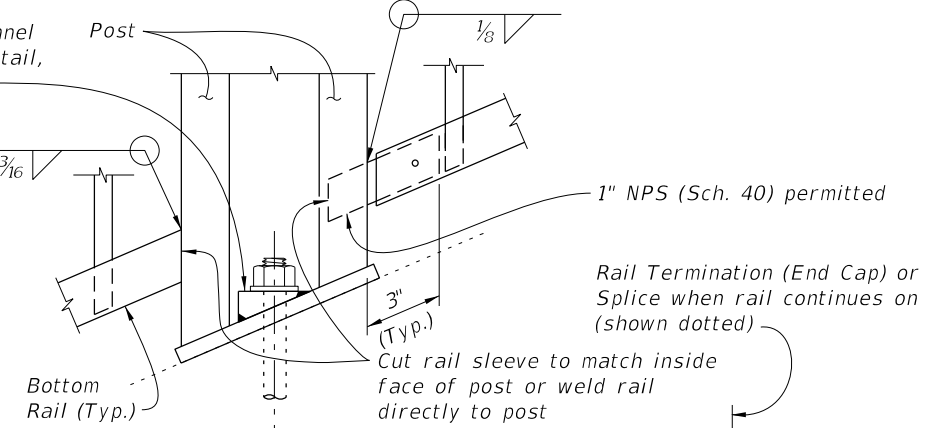


RAILING CONTINUATION BEYOND STEPS OR STAIRS
(Bottom shown, Top similar)



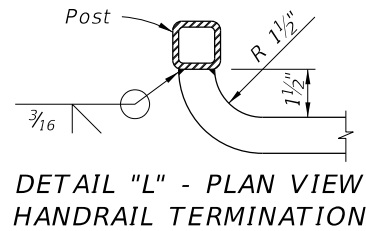
VIEW J-J

DETAIL "J" - ELEVATION VIEW
TOP RAIL TERMINATION

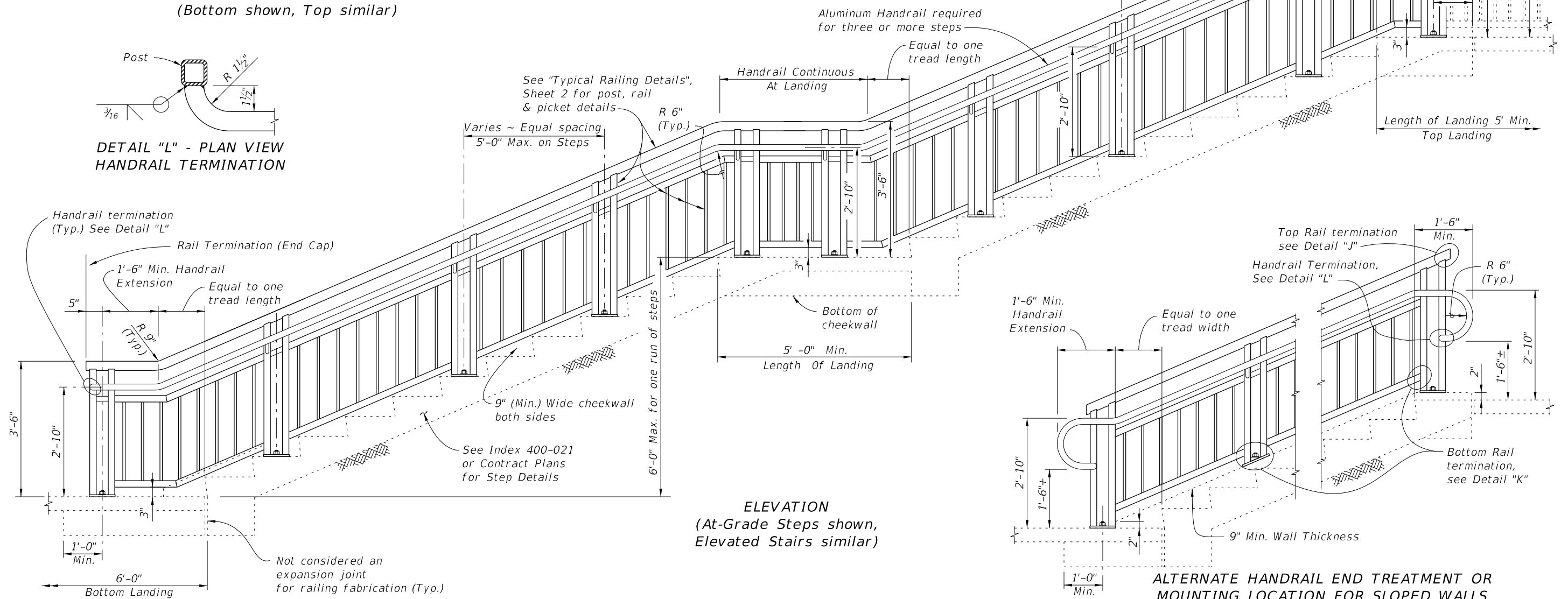


DETAIL "K" - ELEVATION VIEW
BOTTOM RAIL CONNECTION
(Intermediate Rail Similar)

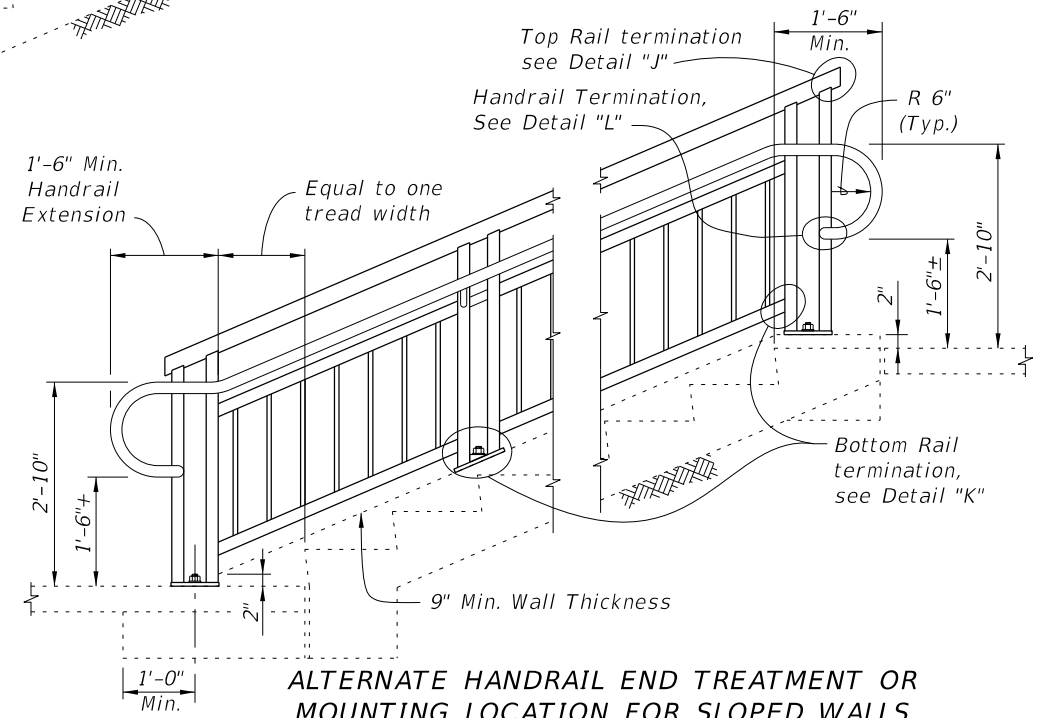
RAIL TERMINATION DETAILS



DETAIL "L" - PLAN VIEW
HANDRAIL TERMINATION



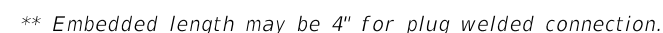
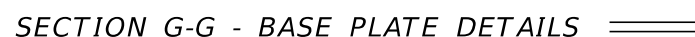
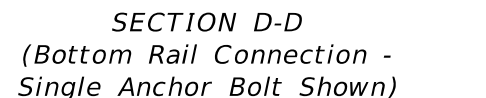
ELEVATION
(At-Grade Steps shown,
Elevated Stairs similar)



ALTERNATE HANDRAIL END TREATMENT OR
MOUNTING LOCATION FOR SLOPED WALLS

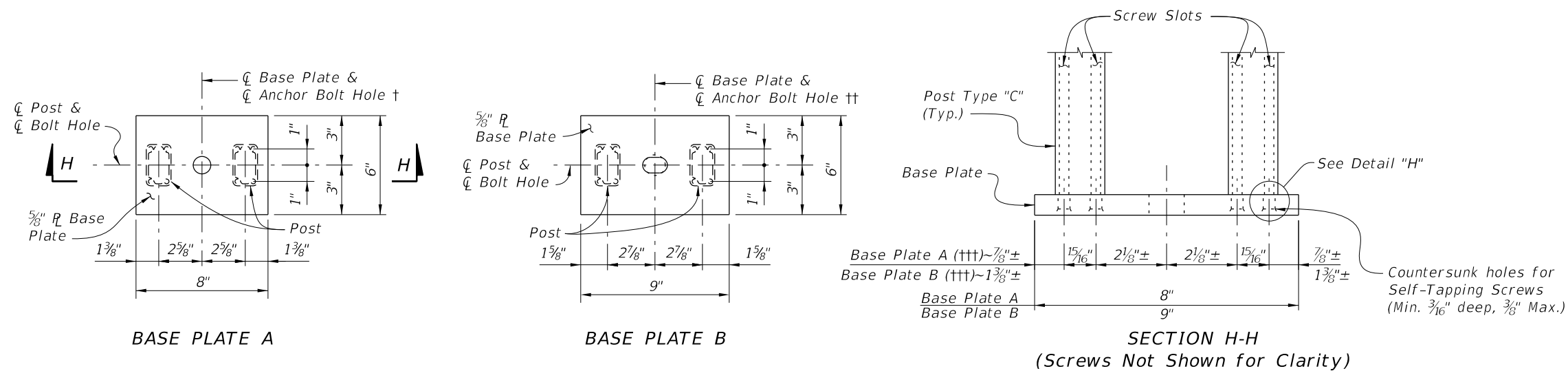
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LAST REVISION	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	PEDESTRIAN/BICYCLE RAILING (ALUMINUM)	INDEX	SHEET
11/01/16					515-062	3 of 9

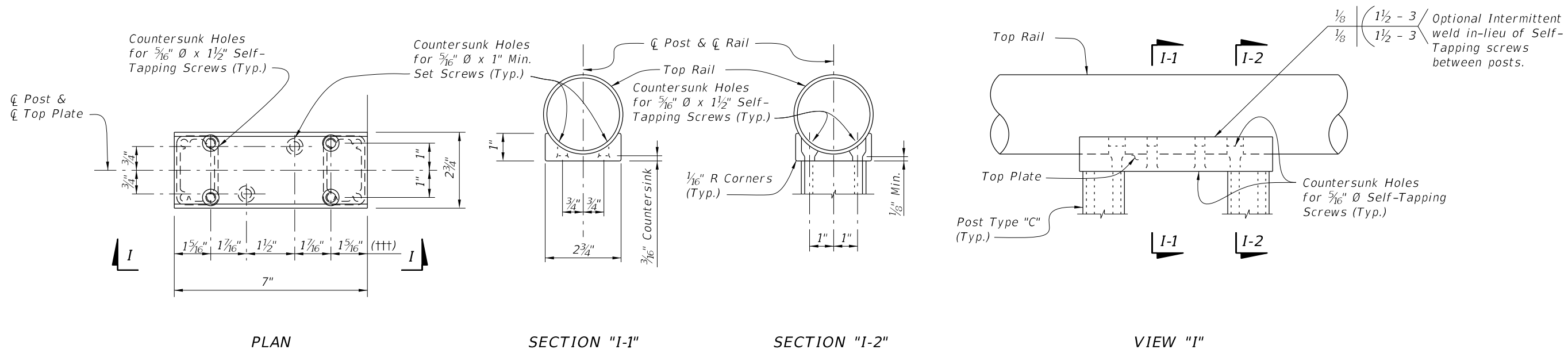


CROSS REFERENCE:

For location of Details "B", See Sheet 2.



BASE PLATE DETAILS FOR TYPE "C" POST

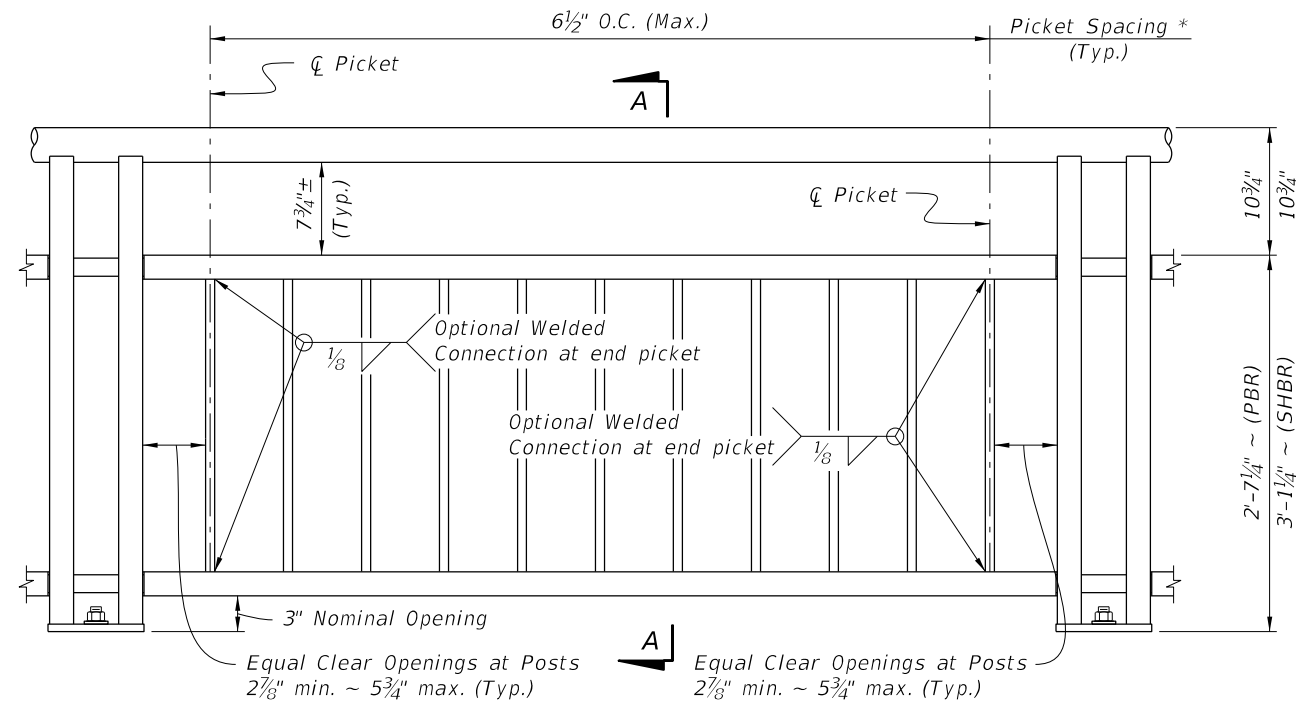


TOP PLATE DETAILS FOR TYPE "C" POST
(Screws Not Shown For Clarity)

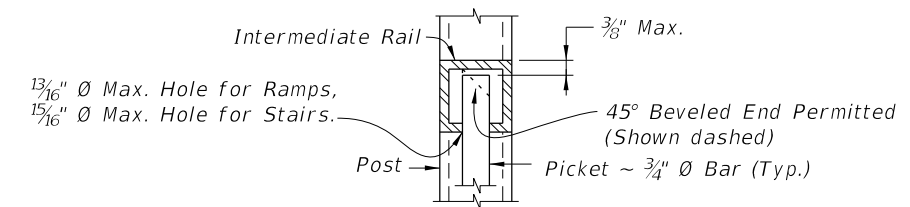
Notes:
 † See Sheet 4 for Notes.
 †† See Sheet 4 for Notes.
 ††† Length varies for beveled posts on grades. Holes must be drilled plumb to align with screw slot.

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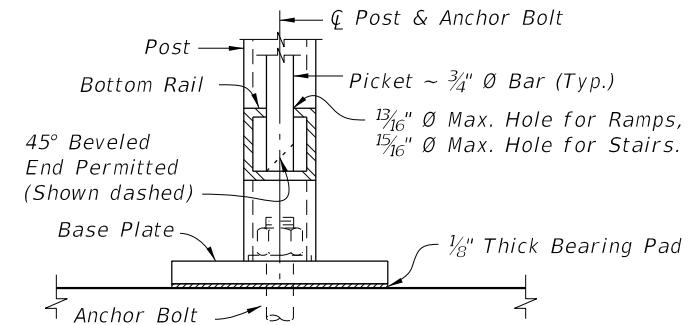
LAST REVISION 11/01/16	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	PEDESTRIAN/BICYCLE RAILING (ALUMINUM)	INDEX 515-062	SHEET 5 of 9
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SECTION A-A



DETAIL "1A"
(Top of Picket Connection)

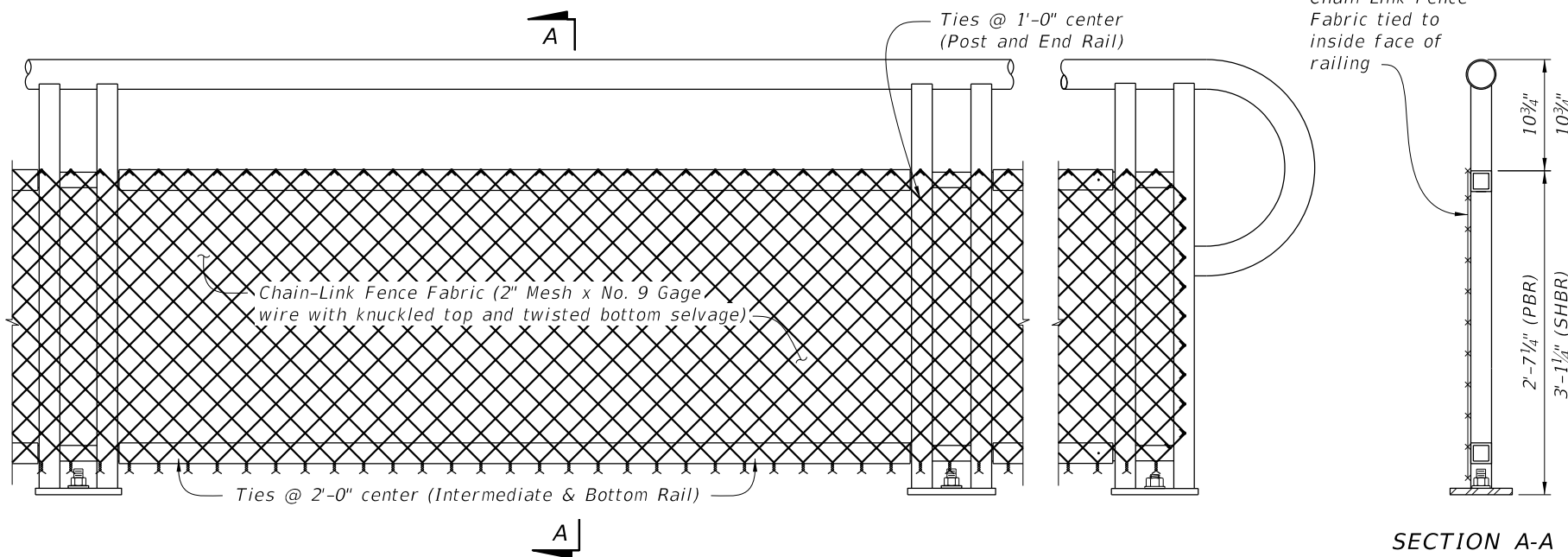


DETAIL "1B"
(Bottom of Picket Connection)

TYPE 1 - PICKET INFILL PANEL

PICKET NOTES:

- * Picket Spacing of $6\frac{1}{2}$ " centers is based on a $\frac{3}{4}$ " \varnothing Bar for standard applications. When shown in the Contract Plans a $4\frac{1}{2}$ " picket spacing may be required. See Note 4 (Sheet 1).



SECTION A-A

TABLE 2 - CHAIN-LINK PANEL COMPONENT MATERIALS		
COMPONENT	ASTM	COMPONENT INFORMATION
Chain-Link Fence Fabric (2" mesh with twisted bottom and knuckled top selvage)	A392	Zinc-Coated Steel - No. 9 gage (coated wire diameter), Class 2 Coating
	A491	Aluminum-Coated Steel - No. 9 gage (coated wire diameter)
	F668	Polyvinyl Chloride (PVC) Coated Steel - No. 9 gage Zinc-Coated Wire (metallic-coated core wire diameter) ~ See Plans for specified color of PVC.
Tie Wires	F626	Zinc-Coated Steel Wire - No. 9 gage with coating to match Chain-Link Fence Fabric.
Tension Bars	F626	$\frac{3}{16}$ " (min. thickness) x $\frac{3}{4}$ " (min. width) x 2'-3' (min. height) Steel Bars
Miscellaneous Fence Components	F626	Zinc-Coated Steel

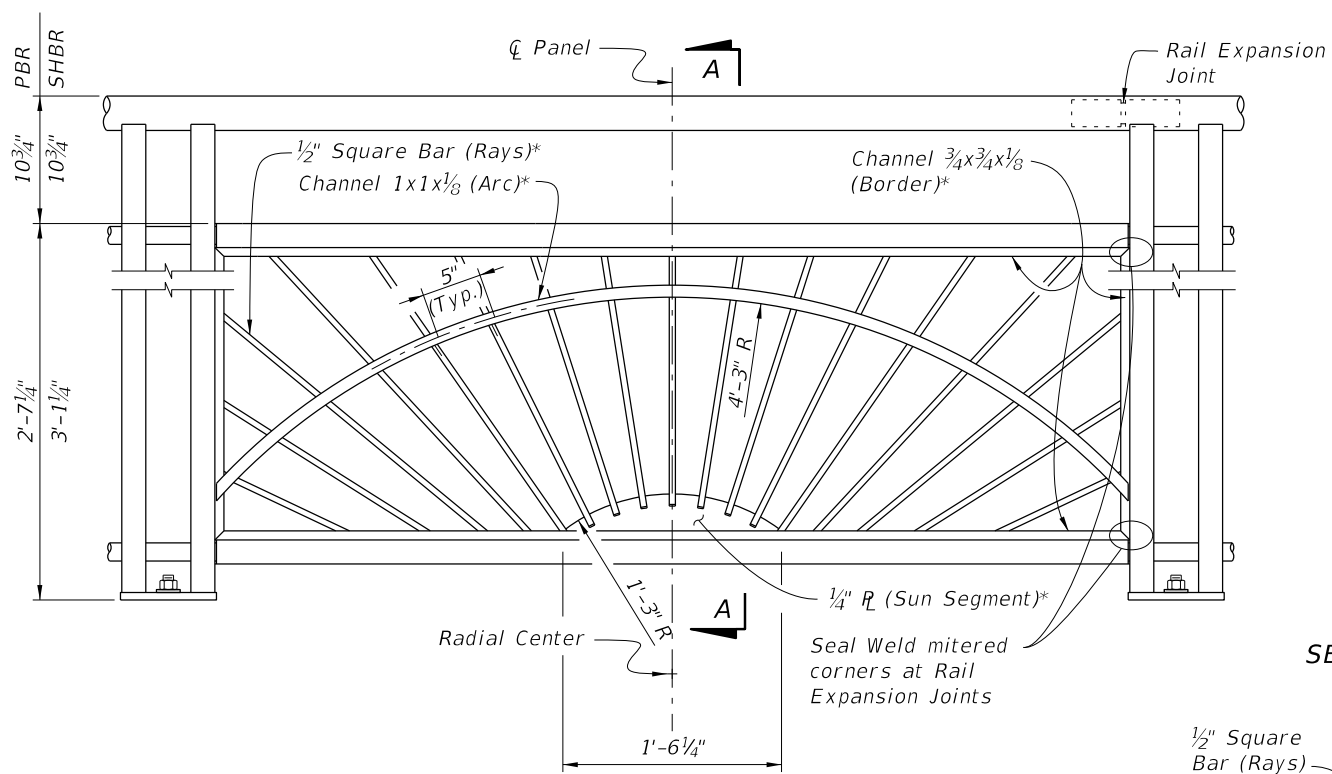
CHAIN-LINK PANEL NOTE:

Chain-Link Fence Fabric shall be continuous along limits of railing. Splicing of Chain-Link panels using Tension Bars at 20'-0" minimum increments is permitted.

TYPE 2 - CHAIN-LINK (Continuous Infill Panel)

NOTES:

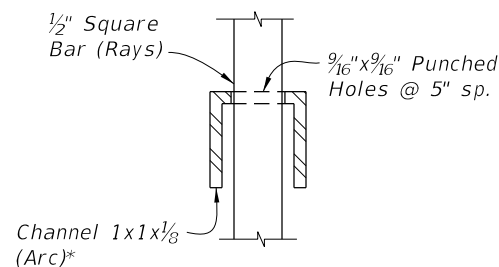
1. See Plans for Infill Panel option required.



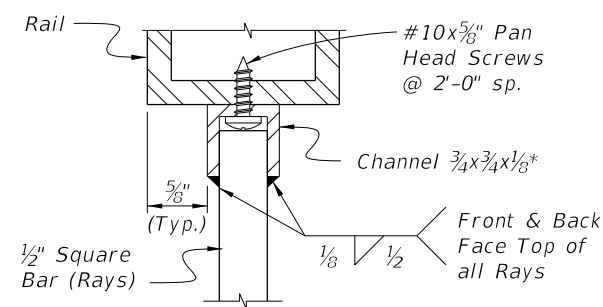
TYPE 3 - SUNSHINE INFILL PANEL

* Arc, Rays and Sun Segment may be formed in a single panel from 1/2" plate (ASTM B209 Alloy 6061-T6 or T651) pattern cut with laser or plasma CNC, welded to a 1x1x1/8 Angle Border or the 3/4x3/4x1/8 Channel Border shown.

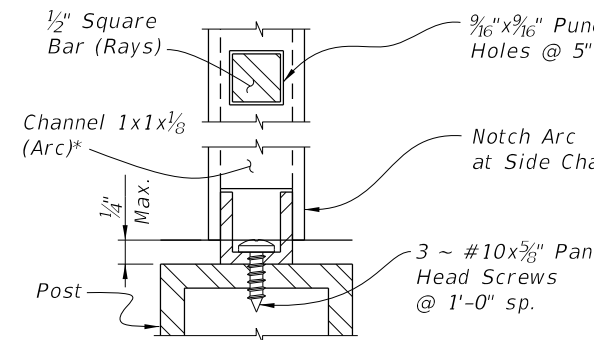
SECTION A-A



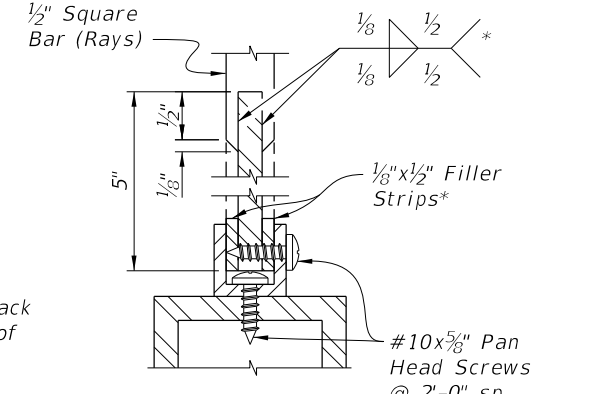
DETAIL "3C"
RAY/ARC CONNECTION



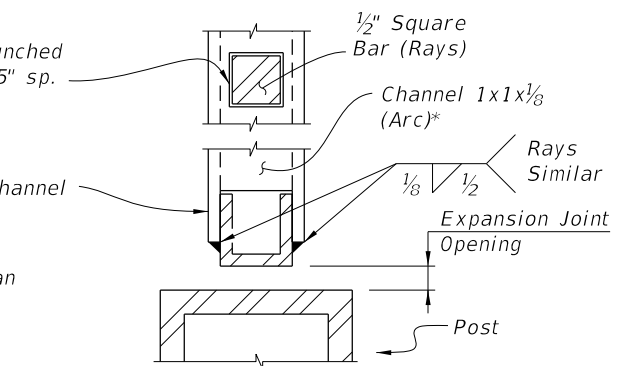
DETAIL "3A"
INTERMEDIATE RAIL/RAY
CONNECTION



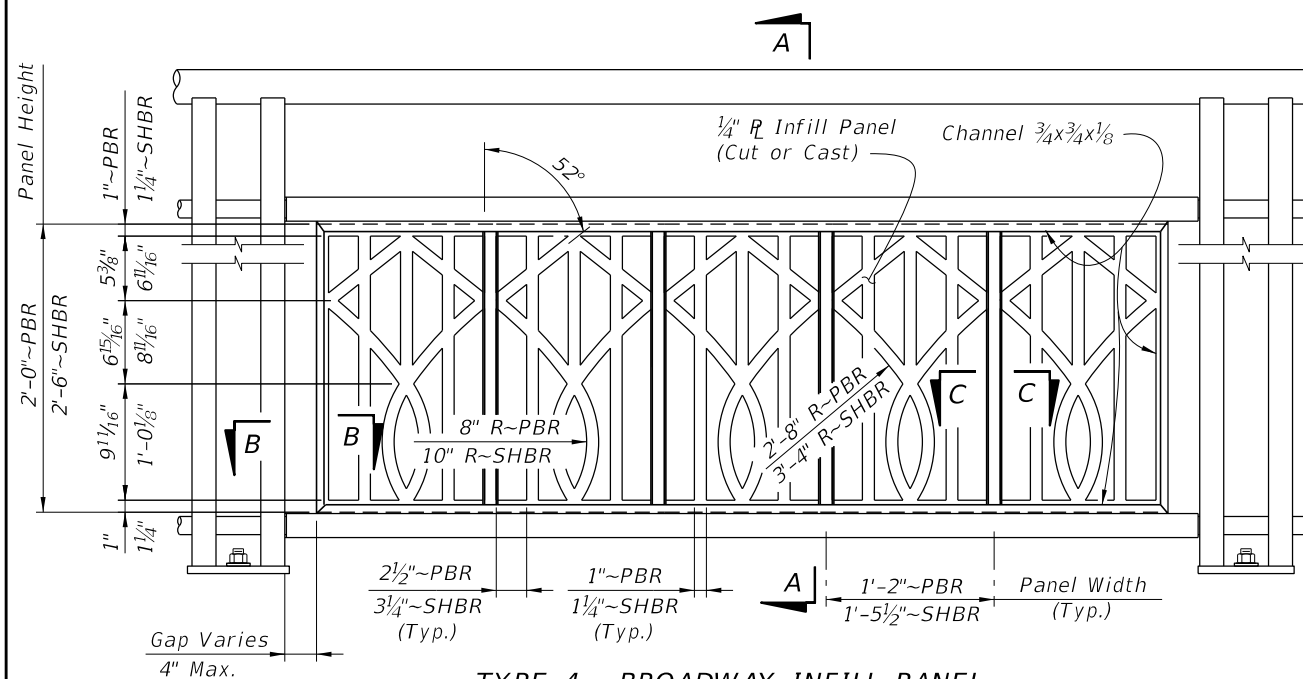
DETAIL "3D"
ARC/POST CONNECTION
(Continuous Top Rail)



DETAIL "3B"
BOTTOM RAIL/RAY CONNECTION



DETAIL "3E"
PANEL END CONNECTION
AT POST WITH EXPANSION JOINT

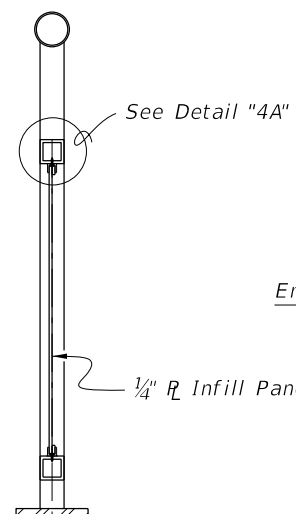


TYPE 4 - BROADWAY INFILL PANEL

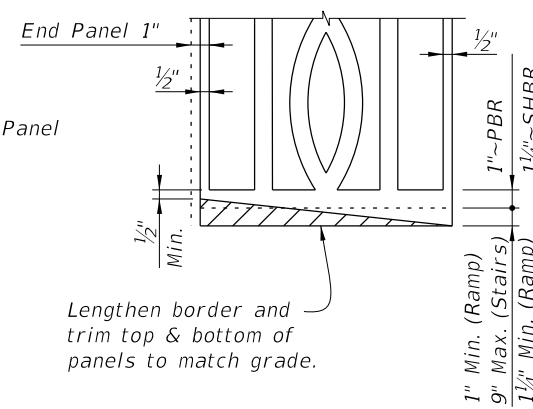
NOTES:

1. See Plans for Infill Panel Option required.

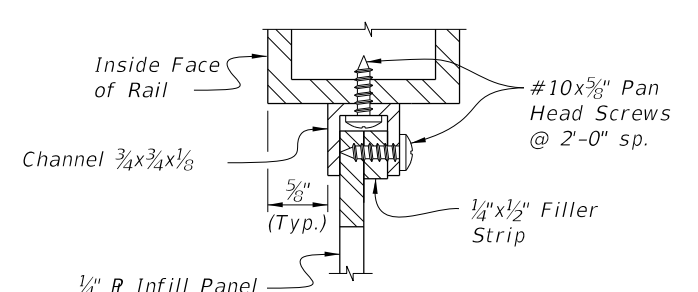
SECTION A-A



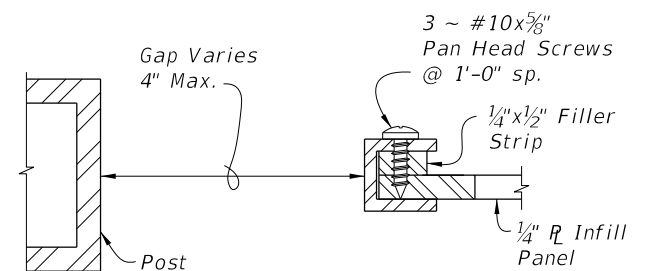
SECTION C-C
PANEL/SPLICE CONNECTION



PANEL ADJUSTMENT FOR RAILINGS
ON GRADES



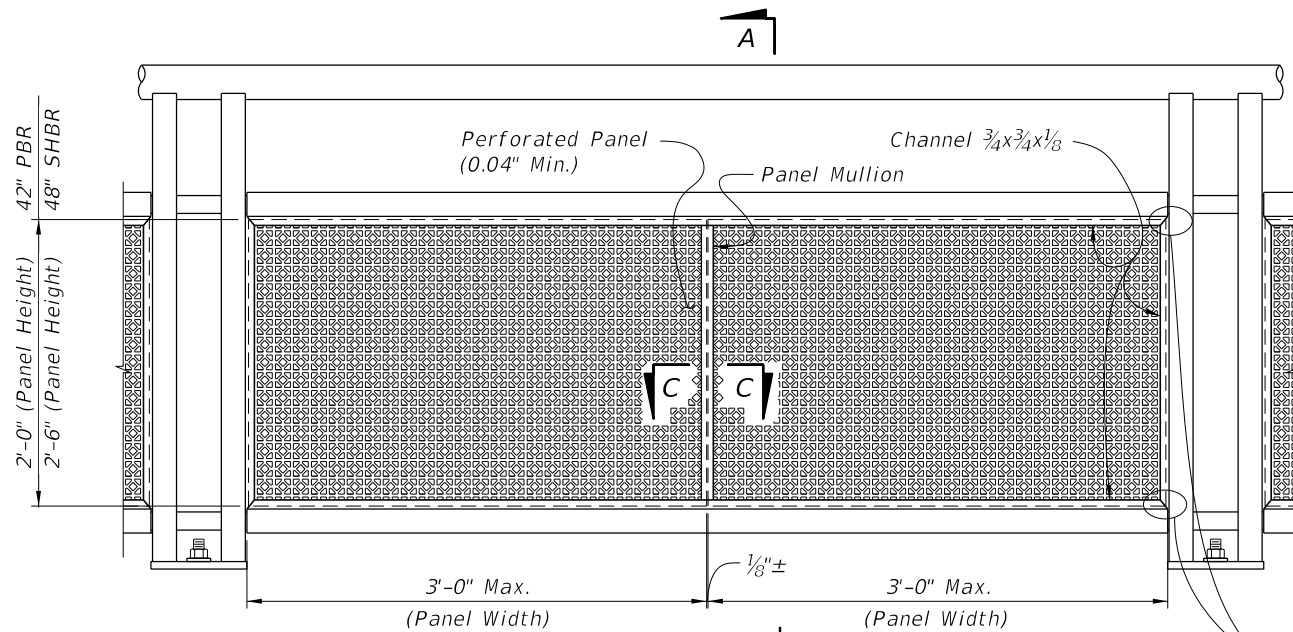
DETAIL "4A"
PANEL/RAIL CONNECTION
(Top Shown, Bottom Similar)



SECTION B-B
PANEL END CAP

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<p>LAST REVISION 11/01/16</p>	<p>DESCRIPTION:</p>	<p>FY 2021-22 STANDARD PLANS</p>	<p>PEDESTRIAN/BICYCLE RAILING (ALUMINUM)</p>	<p>INDEX 515-062</p>	<p>SHEET 7 of 9</p>
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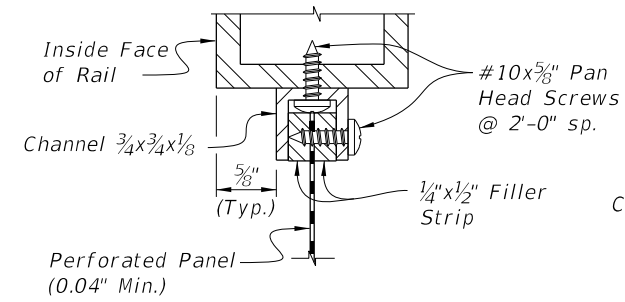
TYPE 5 - PERFORATED INFILL PANEL

See Detail "5A"

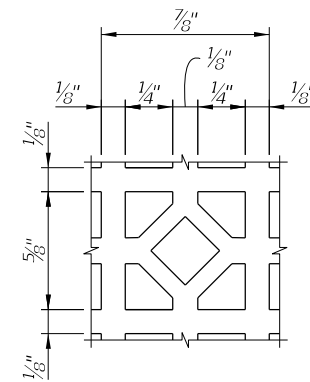
Perforated Panel (0.04" Min.)

Seal welding mitered corners is permitted

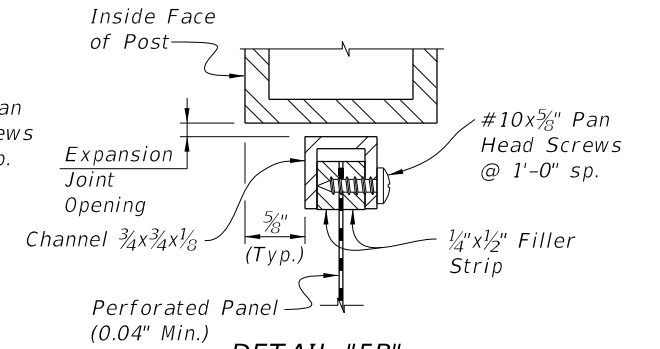
SECTION A-A



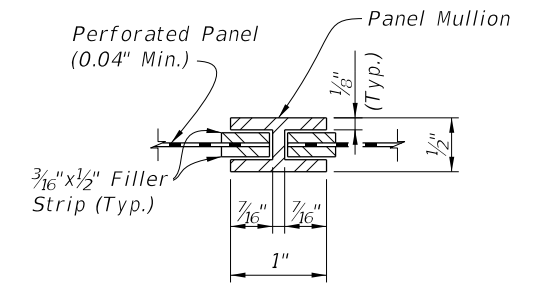
DETAIL "5A"
PANEL/RAIL CONNECTION
(Top Shown, Bottom Similar)




REPEATING PATTERN DETAIL
FOR PERFORATED PANEL

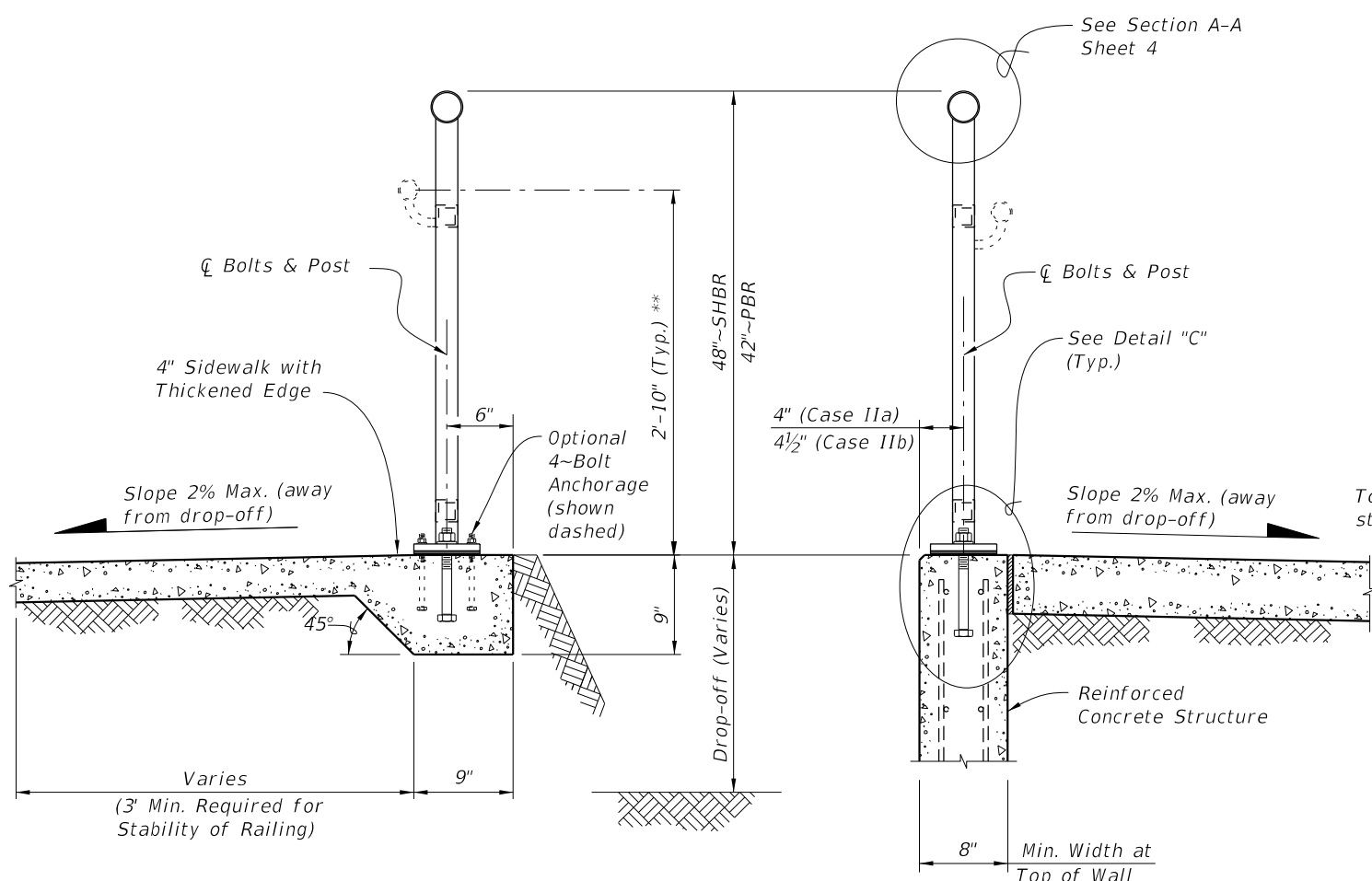


DETAIL "5B"
PANEL END CONNECTION
(Expansion Joint Shown, Sides Similar)



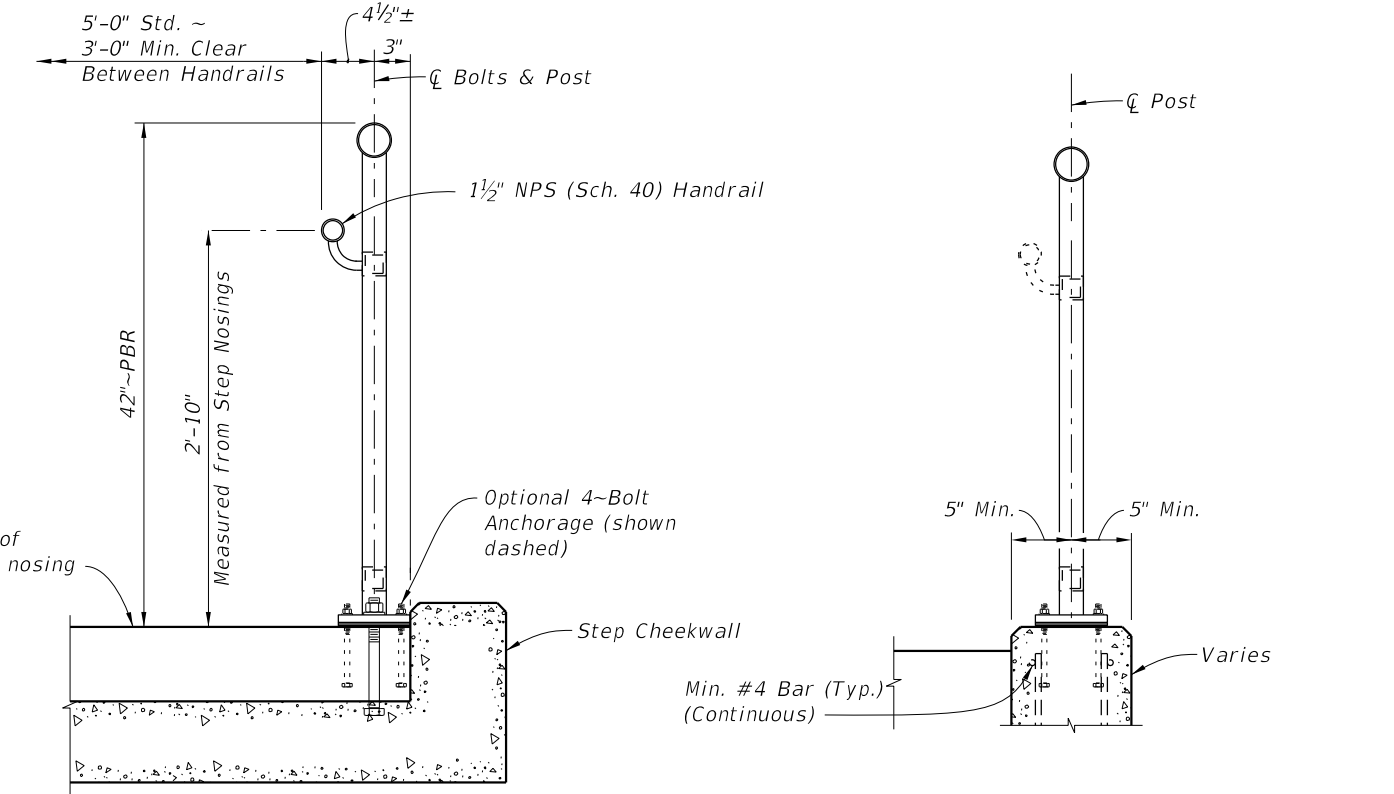
SECTION C-C
PANEL/SPLICE CONNECTION

LAST REVISION 11/01/16	REVISION	DESCRIPTION:	 FY 2021-22 STANDARD PLANS	PEDESTRIAN/BICYCLE RAILING (ALUMINUM)	INDEX 515-062	SHEET 8 of 9
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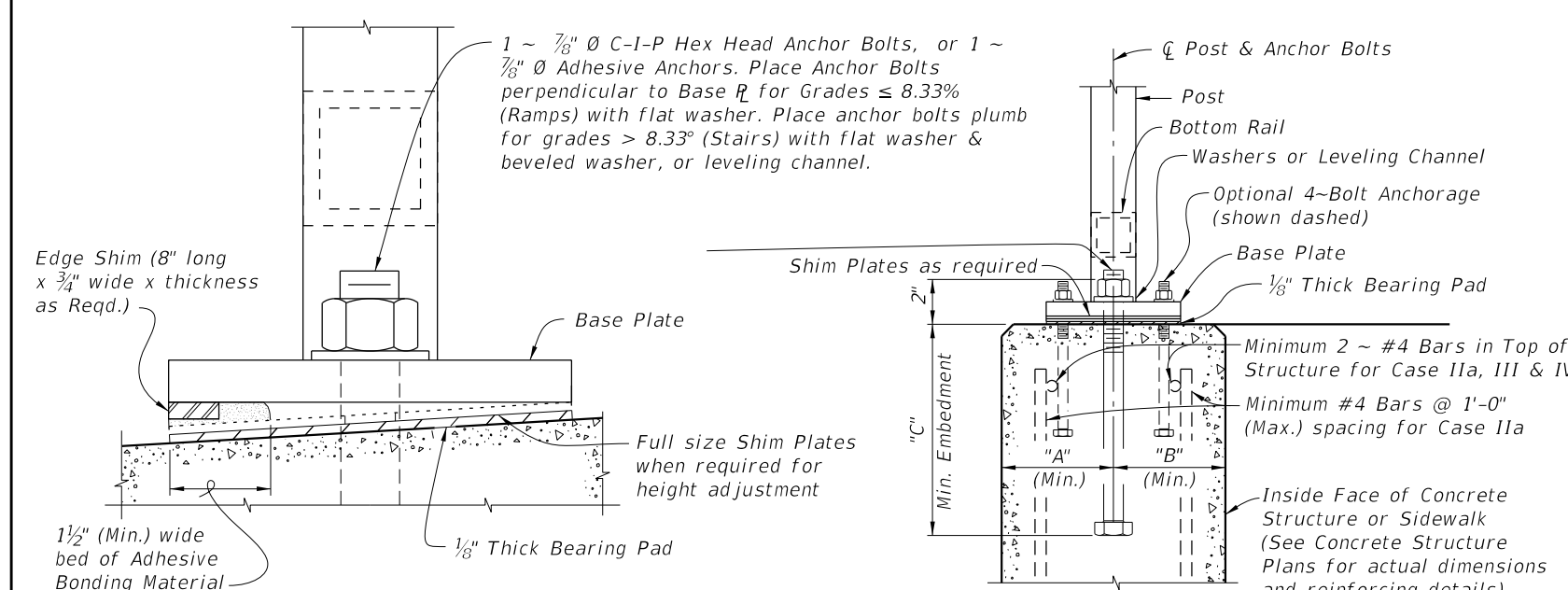
TYPICAL SECTION ON CONCRETE SIDEWALK (Case I)

TYPICAL SECTION ON RETAINING WALL (Case II)



TYPICAL SECTION ON STEPS & STAIRS (Case III)

TYPICAL SECTION FOR 4-BOLT ANCHORAGE (Case IV)



ANCHOR BOLT TABLE							
CASE	STRUCTURE TYPE	DIMENSIONS			ANCHOR LENGTH		ANCHOR SIZE
		"A" Edge Dist.	"B" Edge Dist.	"C" Embedment	C.I.P Hex Head Bolt	Adhesive Anchor	
I	Unreinforced Concrete	6"	1'-2"	6"	7 1/2"	8"	7/8" Ø
IIa	Reinforced Concrete	4"	4"	9"	10 1/2"	11"	7/8" Ø
IIb	Gravity Wall Index 400-011	4 1/2"	3 1/2" @ top	9"	10 1/2"	11"	7/8" Ø
III	Step Cheekwall	4 1/2"	4 1/2"	9"	10 1/2"	11"	7/8" Ø
IV	Varies	5"	5"	5"	6 1/2"	7"	7/16" Ø

** When required; measured from top of sidewalk (Typ.)

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