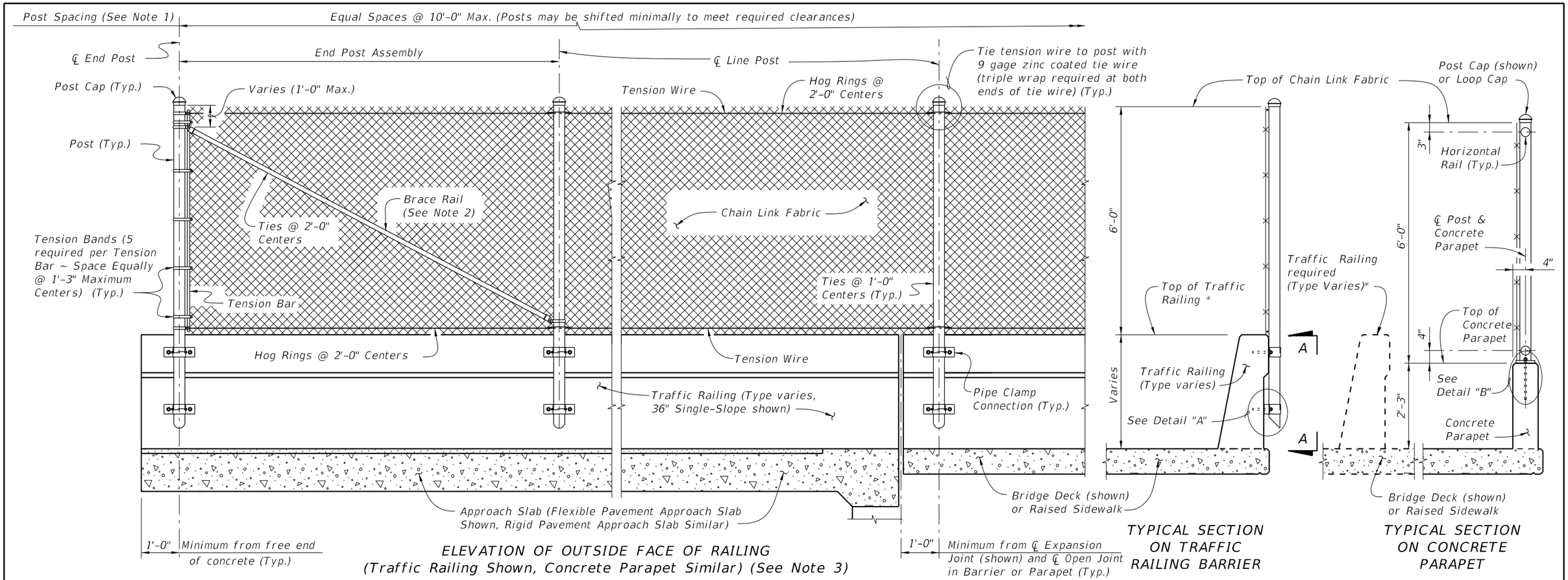

ELEVATION OF OUTSIDE FACE OF RAILING
(Traffic Railing Shown, Concrete Parapet Similar) (See Note 3)

TYPICAL SECTION ON TRAFFIC RAILING BARRIER

TYPICAL SECTION ON CONCRETE PARAPET

NOTES:
1. A Pull Post Assembly is required at maximum intervals of 500'-0". See Sheet 3.
2. Brace rails are only required for vertical fence installations on Traffic Railing.
3. Provide horizontal rails for vertical fence installations on Concrete Parapets in lieu of tension wire. Locate horizontal rails as shown in the Typical Section for Concrete Parapets at right.

* Do not anchor fencing to the top of Traffic Railings.

FENCING NOTES

FENCE INSTALLATION:
Install posts plumb (within a tolerance of ± 1½"). Use shim plates as required to achieve plumb. The required quantity and thickness of shim plates will be determined in the field. Install chain link fence in accordance with ASTM F567 as applicable.

TRAFFIC RAILING DETAILS:
See Superstructure Sheets for Traffic Railing details.

CONCRETE PARAPET DETAILS:
See Index 521-820 – Pedestrian/Bicycle Railing for Concrete Parapet details. Provide fencing in lieu of aluminum bullet railing as shown on Index 521-820.

LIMITS OF FENCING:
Limits of fencing are from begin of approach slab at Begin Bridge to end of approach slab at End Bridge, unless otherwise shown in the plans.

PAYMENT:
Payment will be made under Fencing, Type R. Payment includes posts, horizontal and expansion rails, brace rails and bands, rail ends, combination rail ends, boulevard clamps, chain link fabric, tension wire, ties, hog rings, tension bars and bands, post and loop caps, pipe clamps, base plates, anchor rods, bolts, nuts, washers, shim plates, spacers, bearing pads, miscellaneous fence fittings and hardware and all incidental materials and labor required to complete installation of the fence.

CROSS REFERENCE:
For Table of Fence Components, Table of Post Attachment Components, View A-A and Detail "A" see Sheet 2.
For Pull Post Assembly Detail for Traffic Railings see Sheet 3.
For Pull Post Assembly Detail for Concrete Parapets and Detail "B" see Sheet 4.

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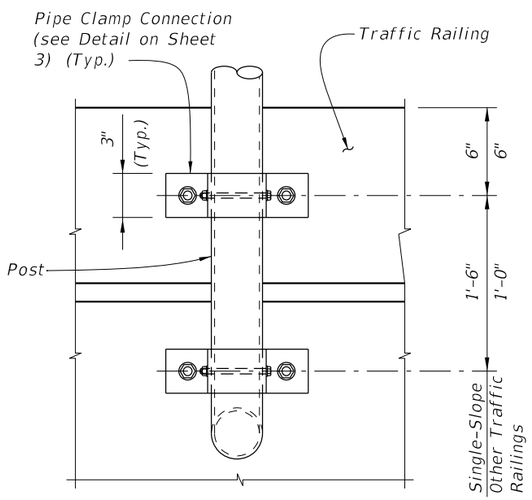
TABLE OF CHAIN LINK FENCE COMPONENTS

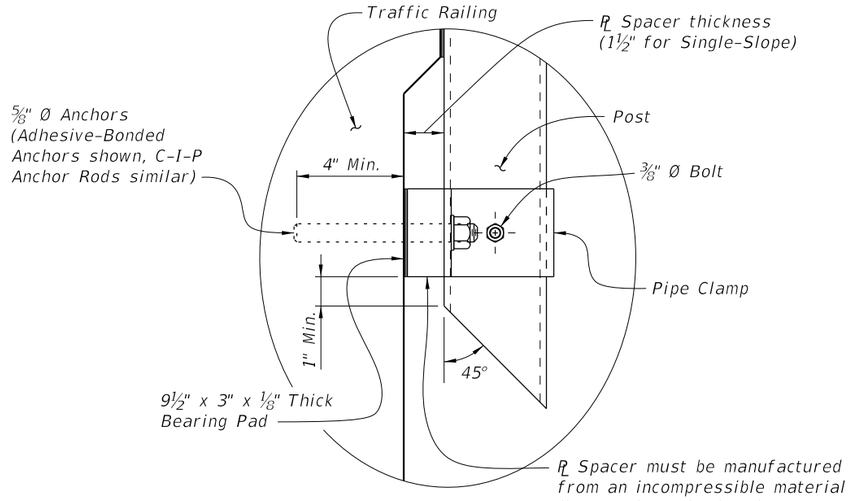
COMPONENT		ASTM DESIGNATION	COMPONENT INFORMATION
Traffic Railings and Concrete Parapets	Posts	F1083	Galvanized Steel Pipe – 3" NPS, Schedule 40 Regular Grade
	Chain Link Fabric (2" mesh with twisted top and knuckled bottom selvage)	A392	Zinc Coated Steel – 9 gage (coated wire diameter), Class 2 Coating
		A491	Aluminum Coated Steel – 9 gage (coated wire diameter)
		F668	Polyvinyl Chloride (PVC) Coated Steel – 9 gage Class 2b
	Tie Wires	F626	Zinc Coated Steel Wire – 9 gage
	Brace Bands	F626	12 Gage (Min. thickness) x ¾" (Min. width) Steel Bands (Beveled or Heavy)
	Tension Bars	F626	3/16" (Min. thickness) x ¾" (Min. width) x 5'–10" (Min. height) Steel Bars
	Tension Bands	F626	14 Gage (Min. thickness) x ¾" (Min. width) Steel Bands
	Miscellaneous Fence Components	F626	Zinc Coated Steel ~ (includes post or loop caps, horizontal and brace rail ends, combination rail ends, boulevard clamps and all other miscellaneous fittings & hardware)
Concrete Parapets	Horizontal Rails	F1083	Galvanized Steel Pipe – 2½" NPS, Schedule 40 Regular Grade
	Expansion Rails	F1083	Galvanized Steel Pipe – 2" NPS, Schedule 40 Regular Grade
	Bolts	A307	¼" Ø x 4¼" Hex Head Bolts for Expansion Rail Connections
	Nuts	A563	Hex Nuts for Expansion Rail Connections
	Washers	F436	Flat Washers for Expansion Rail Connections
Traffic Railings	Tension Wire	A824 & A817	Type II (Zinc Coated Steel Wire) – 7 gage, Class 4 Coating
			Type I (Aluminum Coated Steel Wire) – 7 gage
	Hog Rings	F626	Zinc Coated Steel Wire – 12 gage
	Brace Rails	F1083	Galvanized Steel Pipe – 1¼" NPS, Schedule 40 Regular Grade

TABLE OF POST ATTACHMENT COMPONENTS

COMPONENT		ASTM DESIGNATION	COMPONENT INFORMATION
Pipe Clamps		A36 or A709 Grade 36	¼" Steel PL
Base Plates		A36 or A709 Grade 36	¾" Steel PL
Shim Plates		A36 or A709 Grade 36 or B209 Alloy 6061–T6 or B221 Alloy 6063–T5	Plate thicknesses as required; Holes in shim plates will be ¾" Ø
Spacers		–	Plate thickness varies based on traffic railing type (See Detail "A")
Pipe Clamp Connection	Adhesive Anchor Rods	F1554 Grade 36	Fully threaded Headless Anchor Rods ~ ⅝" Ø x 6" (no spacer) or ⅝" Ø x (6" + spacer thickness)
	C–I–P Anchor Rods	F1554 Grade 36	Hex Head Anchor Rods ~ ⅝" Ø x 6" (no spacer) or ⅝" Ø x (6" + spacer thickness)
Base Plate Connection	Adhesive Anchor Rods	F1554 Grade 36	Fully threaded Headless Anchor Rods ~ ⅞" Ø x 14½"
	C–I–P Anchor Rods	F1554 Grade 36	Hex Head Anchor Rods ~ ⅞" Ø x 14½"
Bolts		A307	⅜" Ø x 4¾" Hex Head Bolts for Pipe Clamp Connections to Posts
Nuts		A563	Hex Nuts for Pipe Clamp and Base Plate Connections
Washers		F436	Flat Washers for Pipe Clamp and Base Plate Connections
Bearing Pads (Plain Neoprene)		–	In accordance with Specification Section 932 for Ancillary Structures



VIEW A-A



DETAIL "A"

POST ATTACHMENT NOTES

ANCHOR RODS, NUTS AND WASHERS:
After the nuts have been tightened, distort the Anchor Rod threads to prevent removal of the nuts. Coat distorted threads and exposed trimmed ends of anchors with a galvanizing compound in accordance with Specification Section 562.

COATINGS:
Hot–dip galvanize all Nuts, Washers, Bolts, C–I–P Anchor Rods, Adhesive Anchors and Fence Framework (Posts, Internal Sleeves, Shim Plates, Base Plates, Pipe Clamps and Spacers) in accordance with Specification Section 962. Hot–dip galvanize Fence Framework after fabrication.

ADHESIVE–BONDED ANCHORS AND DOWELS:
Adhesive Bonding Material Systems for Anchors and Dowels will comply with Specification Section 937 and be installed in accordance with Specification Section 416. Cutting of reinforcing steel is permitted for drilled hole installation.

WELDING:
All welding will be in accordance with the American Welding Society Structural Welding Code (Steel) ANSI/AWS D1.1 (current edition). Weld metal will be E60XX or E70XX. Nondestructive testing of welds is not required.

CROSS REFERENCE:
For location of View A–A and Detail "A" see Sheet 1.

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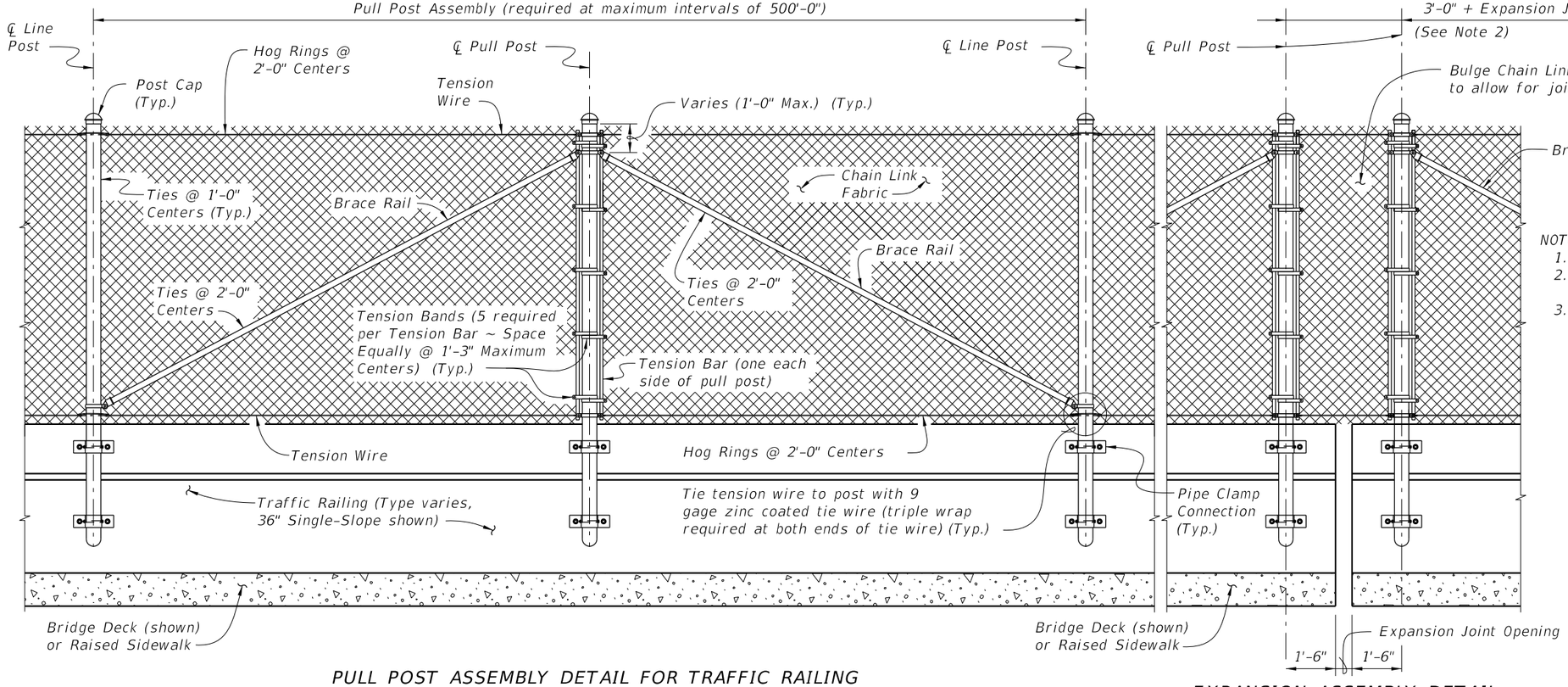
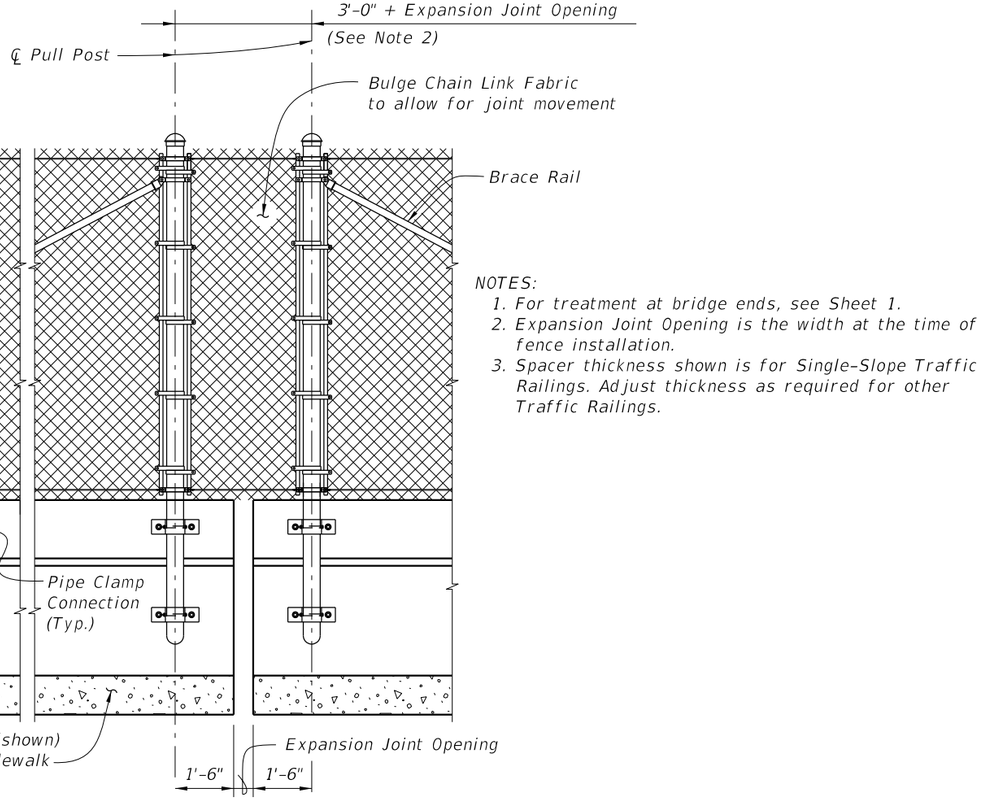


PULL POST ASSEMBLY DETAIL FOR TRAFFIC RAILING

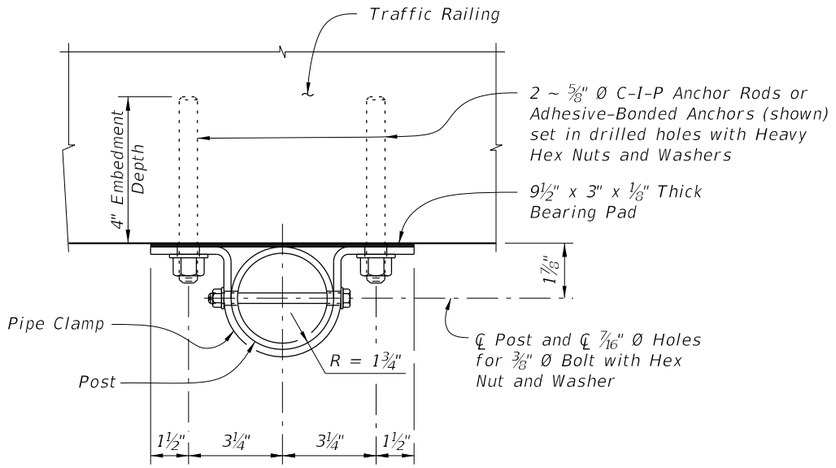


EXPANSION ASSEMBLY DETAIL

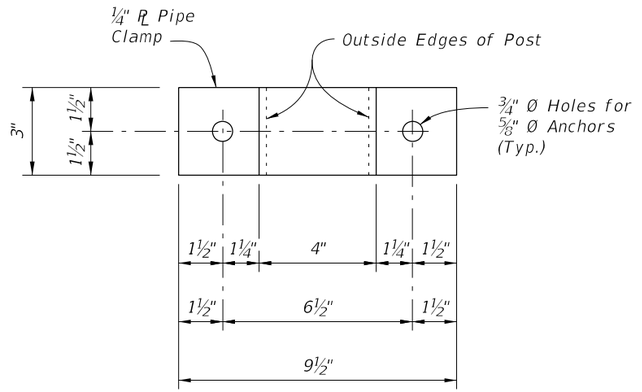
(Required only at expansion joint locations where total movement exceeds 6")

NOTES:

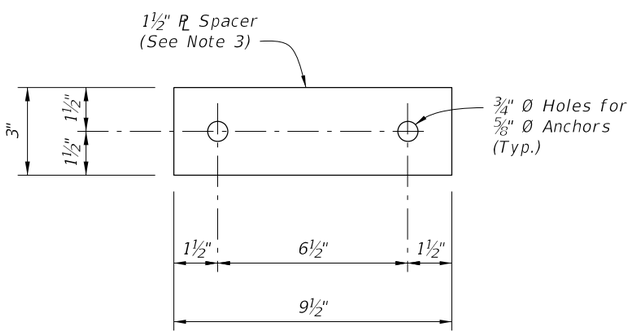
1. For treatment at bridge ends, see Sheet 1.
2. Expansion Joint Opening is the width at the time of fence installation.
3. Spacer thickness shown is for Single-Slope Traffic Railings. Adjust thickness as required for other Traffic Railings.



PIPE CLAMP CONNECTION DETAIL
(Connection without spacer shown, Connection with spacer similar)



PIPE CLAMP DETAIL



SPACER DETAIL

(Must be manufactured from an incompressible material (i.e., steel or aluminum))

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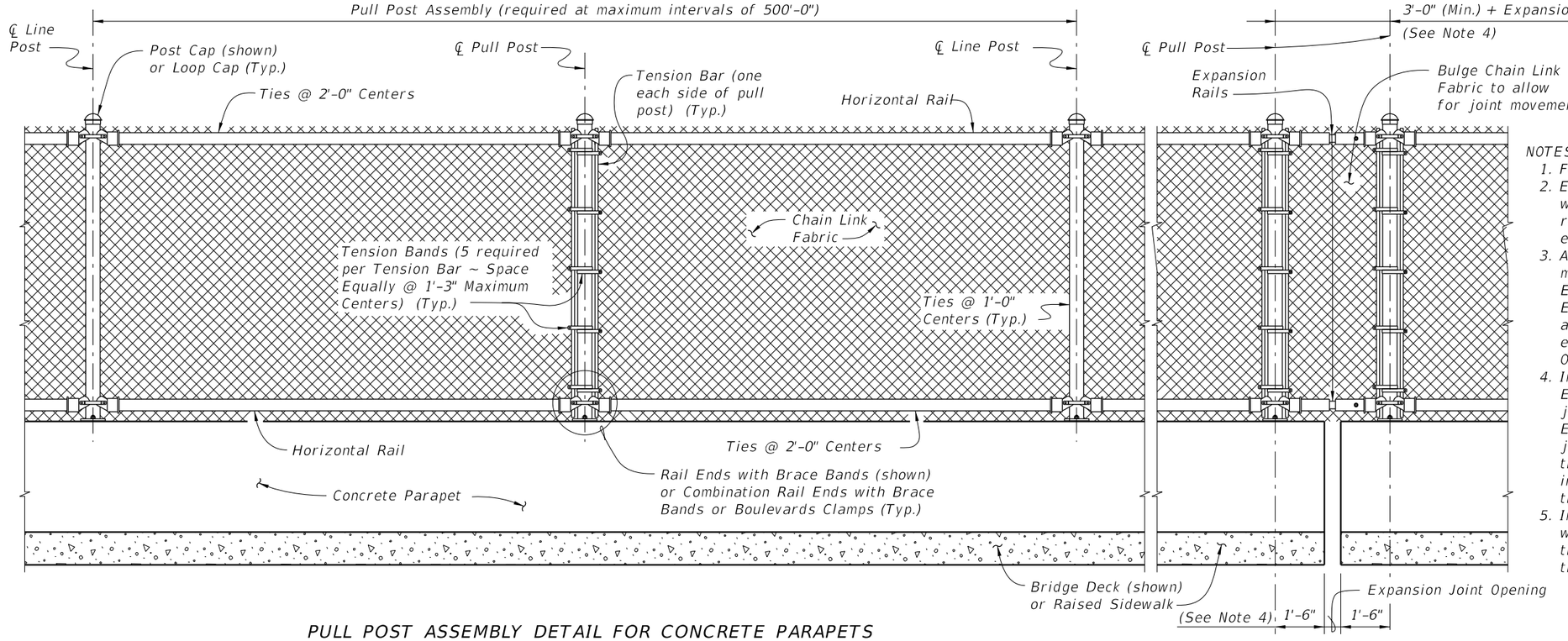


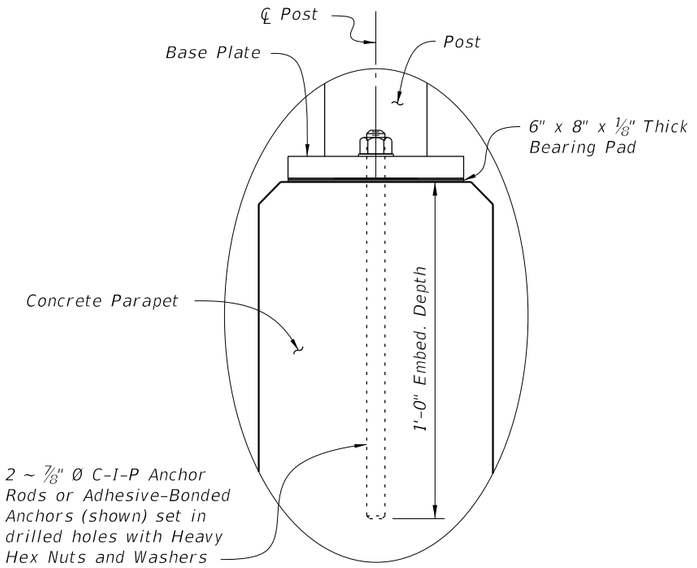
PULL POST ASSEMBLY DETAIL FOR CONCRETE PARAPETS

EXPANSION ASSEMBLY DETAIL

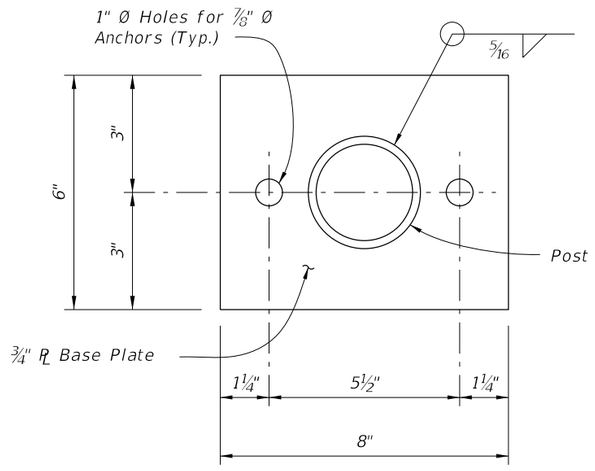
(Required only at expansion joint locations where total movement exceeds 6")

NOTES:

1. For treatment at the bridge ends, see Index 811 Sheet 1.
2. Expansion Rails are required at expansion joint locations where the total movement exceeds 1". Install expansion rails midway between the fence posts spanning the expansion joint.
3. An Expansion Assembly is required where the total joint movement exceeds 6". Expansion Assembly includes Expansion Rails and two pull posts (as shown). When the Expansion Joint Opening is greater than 9" add an additional length to the free end of the Expansion Rail equal to the difference between the Expansion Joint Opening and 9".
4. Install the post on the fixed (bolted) side of the Expansion Rail 1'-6" from the edge of the expansion joint. Install the post on the slip (unbolted) side of the Expansion Rail 1'-6" from the edge of the expansion joint unless the Expansion Joint Opening is greater than 9". When the Expansion Joint Opening exceeds 9" increase the 1'-6" dimension by the difference between the Expansion Joint Opening and 9".
5. Install nut for the expansion rail finger-tight. The nut will fully engage bolts with a minimum of one bolt thread extending beyond the nuts. Distort the first thread on the outside of the nut to prevent loosening.

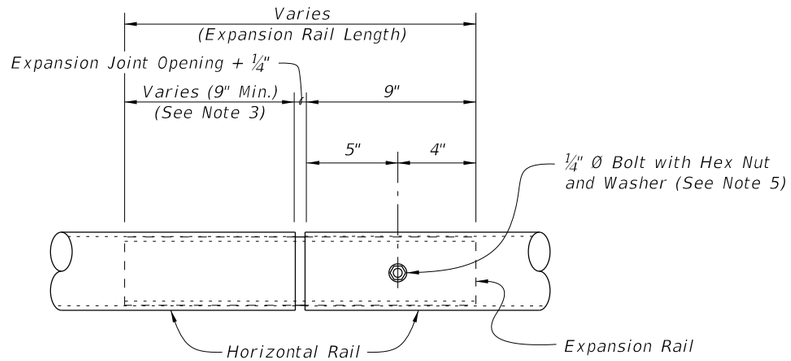


DETAIL "B"



BASE PLATE DETAIL

CROSS REFERENCE:
For location of Detail "B" see Sheet 1.



EXPANSION RAIL DETAIL

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