PIPE RAILING & POSTS
Pipe Rails and Posts shall be in accordance with ASTM A53 Grade B for standard weight pipe and ASTM A500 Grade B for schedule pipe. Bars for handrail/support rails shall be in accordance with ASTM A36. Posts and End Rails shall be fabricated and installed plumb, 2° tolerance when measured at the bottom of the rail. Corners and changes in tangent/longitudinal alignment shall be made continuous with a 9° (bias) radius or terminated at adjoining sections with a standard end hoop. Handrails are not required. Changes in tangent/longitudinal alignment greater than 45°, posts shall be positioned at a maximum distance of 2′-6″ each side of the corner and shall not be located at the corner apex. Curved longitudinal alignments the top and bottom rails and handrails shall be bent to match the alignment radius.

RAILING MEMBER DIMENSIONS TABLE

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>DESIGNATION</th>
<th>OUTSIDE DIMENSION</th>
<th>WALL THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posts</td>
<td>2″ NPS (Sch. 40)</td>
<td>2.375″</td>
<td>0.254″</td>
</tr>
<tr>
<td>Rails</td>
<td>2″ NPS (Sch. 40)</td>
<td>2.375″</td>
<td>0.254″</td>
</tr>
<tr>
<td>Rod Joint/Splice Sleeves</td>
<td>1½″ NPS (Sch. 40)</td>
<td>1.905″</td>
<td>0.255″</td>
</tr>
<tr>
<td>Handrails Joint/Splice Sleeves</td>
<td>1″ NPS (Sch. 40)</td>
<td>1.315″</td>
<td>0.133″</td>
</tr>
<tr>
<td>Handrails</td>
<td>1″ NPS (Sch. 40)</td>
<td>1.315″</td>
<td>0.133″</td>
</tr>
<tr>
<td>Cantilever Support Bar</td>
<td>1″ Round Bar</td>
<td>1.005″</td>
<td>N/A</td>
</tr>
</tbody>
</table>

BASE PLATES

Base Plates shall be in accordance with ASTM A36 or ASTM A479 Grade 36.

SLOT PLATES

Sleeve Plates shall be aluminum in accordance with ASTM B209, Alloy 6060 or 6063. Sleeve plates shall be used for foundation height adjustments greater than 1/4″ and located clear of girders greater than 1/4″.

Field trimmable plates when necessary to match the contours of the foundation. Revealed sleeve plates may be used in lieu of trimmed flat sleeve plates shown. Stacked sleeve plates shall be bonded together with adhesive bonding material. Welded plates for full thickness with welds ground to a galvanizing compound in accordance with the Specifications.

COATING

The railing shall be hot-dip galvanized after fabrication in accordance with Section 962 of the Specifications.

ANCHORS

Anchor bolts shall be in accordance with ASTM F1554 Grade 36. Hexagonal anchor bolts for Adhesive anchors shall be threaded half-length. Cutting of reinforcing steels permitted for drilled hole installation. Three or more anchor bolts shall be used in lieu of self-locking nuts. All nuts shall be in accordance with ASTM A563 or ASTM A495. Plane washers shall be in accordance with ASTM F436 and Female washers for long slotted holes only, shall be in accordance with ASTM A453 or ASTM A709 Grade 36. After the nuts have been snug tightened, the anchor bolt threads shall be distorted to prevent removal of the nut. Distorted threads and tack welds shall be ground to a galvanizing compound in accordance with the Specifications.

RESIDENT AND ENGINEER PADS

Resident and Engineer pads shall be in accordance with Section 932, except that testing of the finished pads shall not be required. Neoprene pads shall be rubber hardness 50 or 60. JOINTS

All jointed rails are to be welded all-around and ground smooth. Expansion Joints shall be fitted at a maximum of 10′-0″. Field splices of 3/8″ shall be expanded in 1/2″ increments. Only use the Centurion Field Splice (Detail ET-10) to make the railing continuous for unforeseen field adjustments.

WELDING

All welding shall be in accordance with the American Welding Society, Structural Welding Code (Steel A307), AWS or AWS D1.1 (current edition). Weld metal shall be E60XX or E70XX. Nondestructive testing of welds is not required. SHOP DRAWINGS

Complete details addressing project specific geometry (line & grade) showing post and expansion joint locations must be submitted by the Contractor for the Engineer’s approval prior to fabrication of the railing. Shop drawings shall be in accordance with the Specifications.

PAYMENT

Guided shall be paid for under the contract unit price for Pipe Guidewall (Steel), LP (Item No. 01511. Payment for the Guidewall plan quantity measured on the lengths along the center line of the top rail, and includes rails, posts, rail splice assembly, base plates, anchor bolts, nuts, washers, resident or neoprene pads and all incidental materials and labor required to complete installation of the Guidewall.

2008 FDOT Design Standards
ELEVATION

TYPICAL RAILING DETAILS & RAILINGS ON GRADES 0% TO 5%

- See Plan for continuation or termination limits of railing
- See Typical Railing Details for post & rail details

ELEVATION
(Showing Inside Face of Railing)

RAILINGS ON GRADES STEEPER THAN 5% TO 8.33%
TYPICAL SECTION ON CONCRETE SIDEWALK

TYPICAL SECTION ON GRAVITY WALL
(Other Retaining Walls Similar)

NOTES:

## 2-3/8" x 8" Steel Anchors:
- Galvanized Steel Bolts (as shown) (C-1-P):
- Galvanized U-Bolts Permitted (C-1-P):
- Galvanized Adhesive Anchors Permitted (###):
- Expansion Anchors Not Permitted:

### Adhesive anchors shall be fully threaded, threaded, and fully anchored in drilled holes (manufacturer recommended diameter) with an Adhesive Bonding Material System in accordance with Specification Section 937 and installed in accordance with Specification Section 416. The minimum embedment is 6".

OPTIMAL SIDEWALK ANCHORAGE DETAIL