The use of this standard is governed by the "Texas Engineering Practice Act." No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion.

Constr ction Notes:
- For vehicular safety, finished grade must be flush with top of curb. Adjust reinforcing as necessary to provide 1'-0" cover.
- At the Contractor's option, anchor bolts may be an adhesive anchor system.
- Fasten anchors in accordance with TxDOT's "Tests" test 3 anchors per 100 anchors installed. Pattern correction to be made using an approved procedure to meet the required load. Repair damage as directed.

Material Notes:
- Provide contract for curb of the same class and strength as the box culvert top slab.
- Cushion all 60D reinforcing steel with 1" cardboard or equivalent elsewhere.
- Anchor bolts for base plate must be same Dia ASTM F1525 Grade A-325 or Grade A-499 bolts per ASTM A193. Gr 87 or F1554 Gr 105 threaded rods with one tack welded heavy hex nut each with one hardened steel washer (ASTM F436) and one regular lock washer placed under each heavy hex nut. Nuts must conform to ASTM F436 requirements.
- Optional adhesive anchor system must be Dia ASTM A193 Gr 87 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM F436) and one regular lock washer placed under each heavy hex nut. Nuts must conform to ASTM F436 requirements.

General Notes:
- Designed in accordance with AASHTO LRFD Bridge Design Specifications.
- See TB6315 or TB631 rail standard for approved speed restrictions, sizes, and details.

<table>
<thead>
<tr>
<th>Curb Height</th>
<th>Section Type</th>
<th>Date</th>
<th>Steel Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1'-0&quot;</td>
<td>TYPE 1</td>
<td>1995</td>
<td>A503</td>
</tr>
<tr>
<td>2'-0&quot;</td>
<td>TYPE 2</td>
<td>1985</td>
<td>A503</td>
</tr>
<tr>
<td>3'-0&quot;</td>
<td>TYPE 3</td>
<td>1990</td>
<td>A503</td>
</tr>
<tr>
<td>4'-0&quot;</td>
<td>TYPE 4</td>
<td>1995</td>
<td>A503</td>
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</tbody>
</table>

<table>
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<tr>
<th>CURVE RADIUS</th>
<th>SECTION TYPE</th>
<th>BARS V (#5)</th>
<th>BARS S (#4)</th>
<th>BARS L (#5)</th>
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</thead>
<tbody>
<tr>
<td>1'-0&quot;</td>
<td>TYPE 1</td>
<td>Spaced at 12&quot; Max</td>
<td>Spaced at 12&quot; Max</td>
<td>Spaced at 12&quot; Max</td>
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<tr>
<td>2'-0&quot;</td>
<td>TYPE 2</td>
<td>Spaced at 12&quot; Max</td>
<td>Spaced at 12&quot; Max</td>
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<td>Spaced at 12&quot; Max</td>
<td>Spaced at 12&quot; Max</td>
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<tr>
<td>4'-0&quot;</td>
<td>TYPE 4</td>
<td>Spaced at 12&quot; Max</td>
<td>Spaced at 12&quot; Max</td>
<td>Spaced at 12&quot; Max</td>
</tr>
</tbody>
</table>

Use with all curb heights shown

Typical Section Thru Parallel Wingwall

Optional Adhesive Anchorages

- Optional adhesive anchor may replace cast-in-place anchor bolts for Type 1 thru Type 4 on all sections thru Parallel Wingwalls. Reinforcement for optional adhesive anchorage matched details shown for Type 1 thru Type 4 and on Typical Section Thru Parallel Wingwalls.

Cast-in-Place & Formed Hole Anchor Bolt Options

Applies to TB6315 and TB631 traffic rails.

The use of the T631LS rail is restricted to speeds of 45 mph or less.

Texas Department of Transportation

Box Culvert

Mounting Details for Type T631LS & T631 Rails (CURBS 5' TALL AND LESS ONLY)

T631-CM

1.5" is equal to the sculpted top slab thickness. For precast boxes with slab bases less than 1.5", see SCP-MD standard for additional details.
2. Adjust normal culvert slab bars as necessary to clear obstructions.
3. Place normal culvert curb Bars K as shown.
4. Place Bars S as shown. Tilt hooks as necessary to maintain cover.
5. Additional Bars H (#4) as required to maintain 12" Max. Adjust length of Bars as necessary to maintain clear cover.
6. Optional Bars are to be used only for precast box culverts with 3'-0" closure pour.
7. "C" plus "C" is greater than 8", provide reinforcement per T3612 1 mounting and anchor bolts per T3612 2 mounting.
8. Quantities shown are for Contractor's information only. Quantities are shown for lower part of curb length. The value for each section type in table can be interpolated for TYPE 1 mounting and anchor bolts per TYPE 2 mounting.
9. Optional adhesive anchor system must be Dia ASTM A193 Gr 87 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM F436) and one regular lock washer placed under each heavy hex nut. Nuts must conform to ASTM F436 requirements.
10. Minimum adhesive anchor embedment depth is 4". Anchor adhesive chosen must be able to achieve a nominal bond strength in tension of a single anchor. Max. 8" thick (large enough to be accounted for). Subtract signed and scaled calculations or the manufacturer's published structure showing the proposed anchor's adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including pole size, drilling, and placement is at the Contractor's responsibility, as directed.