New Standards

Presented by:

Amy Eskridge, P.E.
Overview

- Prestressed I-Girders
- Decked Slab Beams
Prestressed I-Girder

TYPE T x 28, T x 34 & T x 40

TYPE T x 46 & T x 54

TYPE T x 62 & T x 70
Nomenclature

New  I-Girder

I GD, I GEB, I GMS, I GND, A I G

Old  I-Beam

I BD, I BEB, I BMS, I BND, A I B
Prestressed I-Girder

- Benefits of the new sections
  - Improved L/D ratios
  - Wider girder spacing
  - Better stability
  - Better durability
New Standard Drawings

- 0°, 15°, 30°, and 45° skews
- Spans 40’ to 125’
- Tx28 through Tx54
<table>
<thead>
<tr>
<th>Girder Type</th>
<th>Initial Letting</th>
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</thead>
<tbody>
<tr>
<td>Tx46 and Tx62</td>
<td>Dec 2007</td>
</tr>
<tr>
<td>Tx28, Tx34, and Tx70</td>
<td>Sept 2008</td>
</tr>
<tr>
<td>Tx40 and Tx54</td>
<td>Sept 2010</td>
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</tbody>
</table>
# Standard “Retirement”

<table>
<thead>
<tr>
<th>Standard</th>
<th>Proposed Date</th>
<th>New Standard</th>
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</thead>
<tbody>
<tr>
<td>24’ Rdwy, Ty IV</td>
<td>Jan 2009</td>
<td>Tx46</td>
</tr>
<tr>
<td>all Ty A, B, C</td>
<td>Oct 2009</td>
<td>Tx28 and Tx34</td>
</tr>
<tr>
<td>other Ty IV</td>
<td>Oct 2011</td>
<td>Tx54</td>
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</tbody>
</table>
Design with PSTRS14

Figure 14 – Standard TxDiGital Cross Section Properties

Figure 15 – Standard TxDiGital Strand Layout
IGD - Girder Details

- Shear

- No blockout for thickened slab
IGTS – Thickened Slab Details

- Min 2” haunch at CL bearing

**TYPICAL TRANSVERSE SECTION**
(Showing Prestressed Conc I-Girders at & Brg)
IGTS – Thickened Slab Details

- Tightened spacing of #5 bars
IGEB - Bearing Details

- Nominal CL 12” everywhere
- End offset 3” everywhere
IGEB - Bearing Details

- Min substructure widths increased

<table>
<thead>
<tr>
<th>Girder Type</th>
<th>Abutments Face of Bkwl to Face of Cap</th>
<th>Int Bents Overall Cap Width</th>
<th>Inv-T Bents Corbel Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tx28 thru Tx54</td>
<td>1’-9”</td>
<td>3’-6”</td>
<td>1’-10 ½”</td>
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<tr>
<td>Tx62 &amp; Tx70</td>
<td>2’-0”</td>
<td>4’-0”</td>
<td>2’-1 ½”</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Beam Type</th>
<th>Abutments Face of Bkwl to Face of Cap</th>
<th>Int Bents Overall Cap Width</th>
<th>Inv-T Bents Corbel Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, B, &amp; C</td>
<td>1’-4 ½”</td>
<td>2’-9”</td>
<td>1’-8”</td>
</tr>
<tr>
<td>IV</td>
<td>1’-7 ½”</td>
<td>3’-3”</td>
<td>1’-10”</td>
</tr>
<tr>
<td>VI</td>
<td>1’-10 ½”</td>
<td>3’-9”</td>
<td>2’-0”</td>
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</table>
**IGMS – Misc Slab Details**

- Overhang bracket note

<table>
<thead>
<tr>
<th>DECK FORMWORK NOTES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhang bracket hangers are limited to a safe working load of 4,000 lbs. applied to and along the axis of a coil rod at 45 degrees from vertical, regardless of higher loads permitted by hanger manufacturers. Space hangers accordingly.</td>
</tr>
</tbody>
</table>
- **IGND** – Non-Standard Spans
- **IGCS** – Continuous Slab
- **MEBR(C)** – added TxGirders, added horizontal bracing detail
Abutments/Bents

- Max. abut foundation spacing 11’
- Bearing seat 3’-0”
- Column dia. 6” less than cap
Spans

- Standard 8” slab

- Overhang

<table>
<thead>
<tr>
<th>Girder Type</th>
<th>Usual</th>
<th>Minimum</th>
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<tbody>
<tr>
<td>Tx28 - Tx54</td>
<td>3’</td>
<td>2’</td>
</tr>
<tr>
<td>Tx62 - Tx70</td>
<td>3.5’</td>
<td>2’</td>
</tr>
</tbody>
</table>

- Deck drains
Widenings

- Use TxGirders for all
- No diaphragm hole details included
Decked Slab Beam

INTERIOR BEAM

EXTERIOR BEAM
2006 PCI Design Award
Battleground Creek
Decked Slab Beam

- 2 depths
- 3 widths

<table>
<thead>
<tr>
<th>Beam Type</th>
<th>&quot;A&quot;</th>
<th>&quot;B&quot;</th>
<th>&quot;C&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>6DS20</td>
<td>6' - 5 3/4&quot;</td>
<td>9&quot;</td>
<td>1' - 0&quot;</td>
</tr>
<tr>
<td>7DS20</td>
<td>7' - 5 3/4&quot;</td>
<td>1' - 3&quot;</td>
<td>1' - 0&quot;</td>
</tr>
<tr>
<td>8DS20</td>
<td>7' - 11 3/4&quot;</td>
<td>1' - 6&quot;</td>
<td>1' - 0&quot;</td>
</tr>
<tr>
<td>6DS23</td>
<td>6' - 5 3/4&quot;</td>
<td>9&quot;</td>
<td>1' - 3&quot;</td>
</tr>
<tr>
<td>7DS23</td>
<td>7' - 5 3/4&quot;</td>
<td>1' - 3&quot;</td>
<td>1' - 3&quot;</td>
</tr>
<tr>
<td>8DS23</td>
<td>7' - 11 3/4&quot;</td>
<td>1' - 6&quot;</td>
<td>1' - 3&quot;</td>
</tr>
</tbody>
</table>
Decked Slab Beam

- Benefits of the new sections
  - Reduce number of beams
  - Eliminate CIP concrete
  - Rapid installation
  - Shallow superstructure
  - On-system/off-system
Decked Slab Beam

TYPICAL TRANSVERSE SECTION
New Standard Drawings

- 24’ Rdwy
- 0°, 15°, and 30° skews
- Spans 30’ to 60’
- 6DS20 and 6DS23
BDSB - Bent Details

1. Do not cast earwalls until beams are erected in their final position.
ADSB – Abut Details

- Backwall height not based on “y”
- Always fixed dimension

SECTION A-A

2) 1’-8" with 6DS20, 1’-11" with 6DS23
SDSB - Span Details

Binder Width 4" greater than fabric width
Center Fabric Over Joint

1/2" Saw Cut Opening in ACP Above Joint

Class 3 Joint Sealer (Hot Paured Rubber)

Surface Treatment

1 1/4" Dia Backer Rod

Abutment Backwall or DS Beam

Clean all debris from joint extending down to the top of cap

1" Joint

24" Fabric Joint Underseal

ACP Overlay

Fabric Joint Seal
SDSB – Span Details

LATERAL CONNECTOR DETAILS

(deformed bar anchors not shown for clarity)
DSBRA – Rail Details
“Things to AVOID”

- Horizontal curve
- Change in cross-slope
- Skew w/ vertical curve
“Things to AVOID”

- Skipping ACP topping

Simple Geometry
Wrap-up

Begin using NOW

Improved span, spacing

New design parameters

Coming soon

Great for short, simple crossings
Questions ?

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  - (512) 416-2261