BRIDGE STANDARDS UPDATES

Amy Smith, Bridge Standards Engineer
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What is BRG Standards up to these days?

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  - Thickened Slab End Details – Steel Girders and Beams (SGTS)
  - Stone Riprap (SRR)
  - GFRP Slab Top Mat Reinforcement (IGFRP)

- Preparing a release of the Prestressed I-Girder standards
  - 210 designs = 2.5 years of effort
  - Design changes
  - Detailing changes
New standard drawings

- **Misc. Slab Details – Steel Girders and Beams** *(SGMS)*
- **Thickened Slab End Details – Steel Girders and Beams** *(SGTS)*
  - These replace the former SBMS and SBTS.
  - These reflect empirically-reinforced deck design.
  - Use in tandem with upcoming version of IGMS and IGTS.

### Formerly SBMS and SBTS

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New standard drawings

- **Stone Riprap (SRR)**
  - Provides graphics formerly in Spec Book Item 432

![Stone Riprap Diagram]

- FIGURE 1 – TYPE R STONE RIPRAP
- FIGURE 2 – TYPE F STONE RIPRAP
- FIGURE 3 – TYPE F STONE RIPRAP
- FIGURE 4 – COMMON STONE RIPRAP
- FIGURE 5 – PROTECTION STONE RIPRAP
New standard drawings

- **GFRP Slab Top Mat Reinforcement** (IGFRP)
  - Released July 2015
  - *AASHTO LRFD Bridge Design Guide Specification for GFRP-Reinforced Concrete Bridge Decks and Traffic Railings*
  - What is it?
    - Provides details for a deck slab reinforced with GFRP bars
    - Intended for areas where Corrosion Protection Measures are employed
    - Generic details
      - No roadway width specified
      - No beam spacing specified
      - Includes table of bar spacing based on beam spacing
New standard drawings

- **GFRP Slab Top Mat Reinforcement (IGFRP)**
  - How do I use it?

**Include as option to epoxy-coated rebar**
- Detail bridge slab as usual
- Include the _IGFRP_ in plan set
- Contractor can choose between epoxy-coated and GFRP bar

**Detail bridge deck with only GFRP**
- Use the _IGFRP_ as guidance for designing the bridge slab
- Detail bridge slab specifically with GFRP bars
- Don’t include the _IGFRP_ in plan set
Prestressed I-Girder standards

**Design Changes**
- 8 ½” deck slab w/ 2 ½” top cover
  - No more MOD standards for Corrosion Protection Measures
- Empirically-reinforced deck design
- Girders designed in PGSuper

**Detailing Changes**
- Clear cover and out-to-out bar detailing
- Notes grouped: General, Material, Construction...

**Span Sheets**
- PCP shown in superstr cross-section
- Removed Class S Conc from EQ table
- Bars A & T reversed; new size & spacing

**Abutments and Bents**
- Bar spacing at MAX, not EQ SPA
- 1’-0” column below grade for all structures
- 1 ½ turns top and bottom of column and DS spirals
- Reduced column spiral pitch to 3”

Small changes = Big impact
Prestressed I-Girder standards

- Empirically-reinforced deck design
- Bars A & T #4 @ 9” max.
- Additional bars OA in overhang
Prestressed I-Girder standards

- 8 ½” slab; 2 ½” top cover
- Bars A & T reversed
- PCP shown in superstructure cross-section
- Thickened slab not shown

Will be found on the IGMS
Prestressed I-Girder standards

- Bar spacing at MAX, not EQ SPA

OLD

7'-0" with 10 Eq Spa = 8.4"

9 spa @ 8 ½" + 1 spa @ 7 ½" = 7'-0"

OR

1 spa @ 8" + 8 spa @ 8 ½" + 1 spa @ 8" = 7'-0"

this kind of precision is meaningless in the field

NEW

Both of these are acceptable
Prestressed I-Girder standards

- 1’-0” column below grade for all structures
- 1 ½ turns top and bottom of column and DS spirals
- Reduced column spiral pitch to 3”
Prestressed I-Girder standards

Small changes = Big impact

Latest design provisions
Improved durability of bridge decks
Reduced engineering/detailing time
Reflect actual construction practices
Keep up with industry standards
No undue burden of precision for contractors
Questions?

Amy Smith
Bridge Standards Engineer, Bridge Division
(512) 416-2261 | amy.smith@txdot.gov
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