FY 2018-19 Standard Plans Update Training

Structures Design Office Updates
(December, 2017)

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Structures Design Standards Group
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(850) 414-4272
• Global Changes
  ✓ Numbers, Titles, & Abbreviations
  ✓ Standard Plans in Structures Component Plan Set
• Brief **BriExit** Overview
• Discontinued *Design Standards*
• Minor *Standard Plans* Revisions
• Major *Standard Plans* Revisions
• *SPI* Revisions
• *Cell* Revisions (Data Tables)
• *Developmental Design Standards/Standard Plans*
• Looking Ahead

Welcome to BriExit 2018
Including **Bridge Design Standards** in **Structures Plans** component

- **Why?**
  - **Satisfy customer needs:**
    - **Maintenance Office**’s custodian of bridge records for preservation of assets;
    - **Contractor**’s convenience for construction;
    - **Designer**’s reliability for developing future rehabilitation or widening projects based on accurate bridge records.
    - and more…

- **How?**
  - …and still be true to the **One FDOT** principle.
BriExit Overview

BriExit 2018

(Non-contract documents – See Structures Component of Contract Plans)
http://www.fdot.gov/design/standardplans/current/default.shtm#Bridges

Standard Plans for Bridge Construction

The Standard Plans for Bridge Construction shown on this site are for designers to use in preparing contract plans only and are not for direct use by the contractor. The required Standard Plans for Bridge Construction for projects are included in the Structures Component of the Contract Plan set.

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<th>Standard Plans Index</th>
<th>Revision Errata</th>
<th>Index Title</th>
<th>Design Standards Index</th>
<th>Standard Plans Instructions</th>
<th>Design Tools</th>
<th>Contact</th>
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Support Detail

Cover FY 2018-19 Cover Sheet

TOC Bridge Table of Contents - Bridge Construction

Crosswalk Crosswalk of Design Standards Index to Standard Plans

Revisions Revision History Log

General Construction Operations

Maintenance of Traffic

102-200 Temporary Detour Bridge General Notes and Details
102-210 Temporary Detour Bridge - Timber Pile Foundations
102-220 Temporary Detour Bridge - Steel H Pile Foundations
102-230 Temporary Detour Bridge - Steel Pile Pipe Foundations
102-240 Temporary Detour Bridge Thrie - Beam Guardrail

Structures

Concrete Structures

400-090 Approach Slabs (30 ft.) Flexible Pavement Approaches
400-091 Approach Slabs (30 ft.) Rigid Pavement Approaches
400-289 Concrete Box Culvert Details
400-291 Precast Concrete Box Culverts Supplemental Detail
400-292 Standard Precast Concrete Box Culverts
400-510 Composite Elastomeric Bearing Pads - Prestressed Florida-I and AASHTO Type II Beams
415-001 Bar Bonding Details (Steel)

Precast Prestressed Concrete Construction

450-010 Florida-I Beam - Typical Details and Notes 20010
• Name changes coming for July 2018!

FY 2018-19 Standard Plans - for Road and Bridge Construction

FY 2016-17 Design Standards
Effective for Projects with Lettings in the Fiscal Year (FY) from July 1, 2016 through June 30, 2017

State of Florida Department of Transportation
Office of Design
Mail Station 32
605 Suwannee Street
Tallahassee, Florida 32399-0450

For Construction and Maintenance Operations
Topic No. 625-010-003
Also see Structures Design Bulletin 17-09/Production Support Bulletin 17-01

INDEX OF STRUCTURE PLANS

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CONTRACT PLANS

FINANCIAL PROJECT ID 415489-3-52-01
FINANCIAL PROJECT ID 415489-3-52-02
FINANCIAL PROJECT ID 415489-3-52-04

HILLSBOROUGH COUNTY (10010)
STATE ROAD NO. 43 (US 301)
FROM SR 674 TO SOUTH OF BALM RD.

STRUCTURE PLANS

SR 43 (US 301) OVER BIG BULLFROG CREEK
(BRIDGE NO. 100008)

INDEX 400-090 THRU 471-030 (20010–THRU 21930) STANDARD PLANS FOR BRIDGE CONSTRUCTION
Also see Structures Design Bulletin 17-09/Production Support Bulletin 17-01

Index 400-090 (20900) Approach Slabs (Flexible Pavement Approaches)
Index 400-510 (20510) Composite Elastomeric Bearing Pads-Prestressed Florida-I & AASHTO Type II Beams
Index 415-001 (21300) Standard Bar Bending Details
Index 450-010 (20010) Typical Florida-I Beam Details and Notes
Index 450-036 (20036) Florida-I 36 Beam - Standard Details
Index 450-199 (20199) Build-Up & Deflection Data For Prestressed I-Beams
Index 450-512 (20512) Bearing Plates (Type 2) - Prestressed Florida-I & AASHTO Type II Beams
Index 455-601 (20600) Notes and Details For Square Prestressed Concrete Piles
Index 455-602 (20601) Square Prestressed Concrete Pile Splices
Index 455-603 (20602) EDC Instrumentation For Square Prestressed Concrete Piles
Index 455-624 (20624) 24” Square Prestressed Concrete Pile
Index 458-110 (21110) Poured Joint With Backer Rod Expansion Joint System
Index 471-030 (21930) Fender System - Prestressed Concrete Piles
BriExit Tools

Pay Item – Index Crosswalk Application (**StandardsPlansPackager**) to pull PDF’s into Structures Plans Component:

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<thead>
<tr>
<th>Pay Item #</th>
<th>Pay Item Description</th>
<th>SPI#</th>
<th>DSI#</th>
<th>Standard Description</th>
<th>SPI#</th>
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<td>0400- 4- 1</td>
<td>Concrete Class IV, Culverts</td>
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<td>Concrete Traffic Railing - Bridge, Retrofit - Post &amp; Beam Railing</td>
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<td>521-405</td>
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<td>Guardrail Transitions - Existing Post &amp; Beam Bridge Railings (Wide Curbs)</td>
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BridgExit Tools

CADD Manual Sheet Ordering Sequence:


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<td>MOVABLE BRIDGE - ELECTRICAL</td>
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<td>BW.##</td>
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<td>Anchored Sheet Pile Wall</td>
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<td>W1.##W2.##.....</td>
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<td>BW.##</td>
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Standards Plans Packager Program (Tool):

• for compiling Structures Standard Plans (Indexes) for the Structures Component Plans

http://www.fdot.gov/structures/CADD/standards/CurrentStandards/MicrostationDrawings.shtm

PLEASE READ THE FOLLOWING BEFORE DOWNLOADING MICROSTATION DRAWINGS

The official Design Standards are available at the Roadway Office website:

Design Standards webpage

Design Standards depict common structural components or elements suitable for standardization. Their use is by reference in the Contract Plans to the official Design Standards as specified in the Plans Preparation Manual (Volume II, Section 3.8). Some "Structures" Design Standards require the designer to complete a Data Table(s) and include in the Contract Plans. These Data Tables should be available on the FDOT Structures bar menu within the TTF_V8semi-standards.cell library. If a Data Table is not included in the FDOT Structures bar menu, the latest cell library can be downloaded from the link provided below or individual cells can be downloaded from the Standard Plans webpage for FY2012/2013 and later.

1.) Structures Related Design Standards Details:

(see Standard Plans website for FY 2012/2013 and later Design Standards Details & Revisions)

(see Archived Drawings for 2010/2011 and earlier Design Standards Details & Interims)

Structures Standard Plans Packager Program (used to bundle Bridge Standard Plans into a PDF file for Structures Component)
Standards Plans Quantities Issues:

- **Box Culverts** (See *FDM & BOE*) place in the Structures Component Plans
  - “Box Culvert Data Table” & Index 400-289, (400-290, 400-291 when applicable).
  - Notes & additional details

- **Box Culvert Quantities:**
  - Bridge Culvert (*Bridge #*) --> Structures Component *(similar to conventional bridge)*
  - Smaller Culverts (*no Bridge #*) --> Roadway Component *(similar to retaining walls)*

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**0081 SUMMARY OF STRUCTURES**

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<th>ALT</th>
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<th>ITEM DESCRIPTION</th>
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</table>
For more information:

Steve Nolan, P.E.
State Structures Design Office
Steven.nolan@dot.state.fl.us
(850) 414-4272

Don’t forget to include the Index 20000 series + (Bridge Standards) in the Structures Component Plans.
Number & Naming Changes

- Grouped by controlling Specification Number – NOT the Pay Item Number
- Last 3 number may be the same or similar to the previous **DS Index #’s**
  
  ( ### - ### )

**Bullet Railing & 27” Concrete Parapet** *(previous 800 series)* - split to relevant **Traffic Railing** and **Ped. Railing** specs:
  - Concrete Parapet  **521-820** ← *(DS 820)*
  - Bullet Rails  **515-021 & 515-022** ← *(DS 821 & 822)*

**Walls** -
grouped together differently, but logically *(previously 6000 series):*
  - C-I-P Cantilever & Gravity Walls  **400-010 & 400-011** ← *(DS 6010 & 6011)*
  - Precast Sheet Pile Walls  **455-400 & 455-440** ← *(DS 6040 & 22440)*
  - MSE Walls  **548-020 & 548-030** ← *(DS 6020 & 6030)*

**Conventional & FRP precast elements** *(previously 22000 series)* - grouped together by controlling specification but separated by material type:
  - Piles  **455-000 series & 455-100 series**
  - Sheet Pile Walls  **455-400 & 455-440**

**Composite Bearing Pads** – no separate construction spec:
  -  **400-510** ← *(DS 20510, associated to concrete, not with prestressed beams)*
Purpose of Index Title Changes:

- Searchability
- Consistency
- Classification

Example: Subject - Description
- Typical Florida-I Beam Details and Notes
  → Florida-I Beam – Typical Details & Notes

Example: Subject - Classification
- Precast Sheet Pile Walls (Conventional)
- Precast Sheet Pile Walls (CFRP/GFRP & HSSS/GFRP)
## Revision Log


### STANDARD PLANS
**FY 2018-19 REVISIONS LOG**

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<td>425-053</td>
<td>Sheet 1: Changed GENERAL NOTE 1 - &quot;clearance/gap from 1&quot; to 5/8&quot; to be consistent with Index 425-031.</td>
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<tr>
<td>280</td>
<td>430-001</td>
<td>Sheet 1: Updated the Notes for the &quot;DISSIMILAR TYPES&quot; detail.</td>
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<td>20010</td>
<td>450-010</td>
<td>Changed Title: Florida-I Beam - Typical Details and Notes.</td>
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<td>20199</td>
<td>450-199</td>
<td>Changed Title: Prestressed I-Beams Build-Up and Deflection Data.</td>
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<td>455-001</td>
<td>Changed Title: Square Prestressed Concrete Piles – Typical Details &amp; Notes.</td>
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<tr>
<td>20602</td>
<td>455-003</td>
<td>Changed Title: Square Prestressed Concrete Piles – EDC Instrumentation.</td>
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<tr>
<td>20631</td>
<td>455-031</td>
<td>Changed Title: 30' Square Prestressed Concrete Pile - High Moment Capacity.</td>
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<tr>
<td>22600</td>
<td>455-101</td>
<td>Changed Title: Square CFRP &amp; SS Prestressed Concrete Piles – Typical Details &amp; Notes.</td>
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<tr>
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<td>Sheet 1: Corrected Note 6 (Spec 962 to 926).</td>
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<tr>
<td>6040</td>
<td>455-400</td>
<td>All Sheets: Changed Title: Precast Concrete Sheet Pile Wall (Conventional). Sheet 1: Changed MATERIALS note.</td>
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<tr>
<td>22440</td>
<td>455-440</td>
<td>Changed Title: Precast Concrete Sheet Pile Wall (CFRP/GFRP &amp; HSSS/GFRP).</td>
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<td>21100</td>
<td>458-100</td>
<td>Changed Title: Expansion Joint System – Strip Seal.</td>
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<tr>
<td>21110</td>
<td>458-110</td>
<td>Changed Title: Expansion Joint System – Poured Joint with Backer Rod.</td>
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</table>
Discontinued the following Traffic Railings:

- 32” F Shape (DS Index 420)
- 32” F Shape Median (DS Index 421)
- 42” F Shape (DS Index 422)
- Corral (DS Index 424)

Changes to remove details for those railings and add details for Single-Slope Traffic Railings/Concrete Barriers:

- 521-660 Light Pole Pedestal – Bridge
- 400-289 Box Culverts
- 515-### Bridge Railings ............etc.

Continuing to work towards consistency between Indexes, Instructions, and Specifications

**Editorial:** Revised Neoprene Pads to Bearing Pads for Ancillary Structures to match Spec. language (460-470 & 550-010, 011, 012, & 534-250).

**Railings vs. Barriers:** Joint effort in cooperation with Roadway and Specifications - the following rule of thumb:

- If located on a Bridge or Approach Slab = Traffic Railing
- If located on a wall or shoulder = Concrete Barrier

**Examples:**
- Concrete Barriers with Junction Slab
- Concrete Barrier/Noise Wall (Junction Slab, L, T, or Trench Footings)
- Traffic Railing/Noise Wall (Bridge and Approach Slab)
• **Index 515-021 & 022: Bullet Railing**
  - Changed/Added additional post “Type” (Single-Slopes), due to change from 32” to 36” height
  - Dual dimensioned as necessary

• **Index 521 series: Traffic Railings**
  - Removed “Delineator Spacing” Table – see Specifications *(Section 705 ?)*
  - Added height transitions (2” for future asphalt overlay)
  - Added 3rd row of conduit
  - Changed anchorage reinf. (Bars 4V)

• **Index 521-820 (27” Concrete Parapet)**
  - Changed post names
    (changes due to single-slope)
The document contains minor revisions to the construction specifications for various components, including:

**Index 534-200: Noise Walls**
- Updates to component tables rebar sizes and lengths
- Cover in H-post for large size bars (#11’s)

**Index 534-250: Perimeter Walls**
- Increased distance to first shear (tie) bar below precast section for 45° corner posts.

**Index 550-010: Bridge Fencing (Vertical)**
- Added Brace Rails to Expansion Assembly Detail

**Index 550-010 thru 550-012: Bridge Fencing**
- Changed 32” F-Shape to 36” Single-Slope
New Bride Fencing Type

Index 515-013: Bridge Fencing (Over Railroad):

- For use when required by Railroad Permitting authority when no sidewalk is provided
- Curved Top adjacent to traffic
Major Changes for Traffic Railing/Noise Walls

**Index 521-509: Traffic Railing/Noise Wall (8’-0’):**

- Modified lower traffic railing shape (36” Single-Slope)
- Wall similar to previous standards for traffic railing/noise wall
  - ✓ Bridge and Approach Slab
  - ✓ Must be included in the Structures Component Plans
  - ✓ Conduit can now fit in the Traffic Railing portion.
Major Changes for Concrete Barrier/Noise Walls

**Index 521-510 & 521-511: now called Concrete Barrier/Noise Walls**

- Concrete Barrier (36” Single-Slope)
- Wall similar to previous standards for traffic railing/noise wall (8’-0” and 14’-0”)
  - Use with Index 521-512, 513, 514 or 515 (footings)
  - Roadway Component Plans (i.e. do not include Standard Plans PDF’s)
**Toe Transitions for Traffic Railings & Concrete Barriers**

*All* traffic railings and concrete barriers connected to guardrail:

✓ Toe transition is now 3” over 3’-0”.

For Railing End Transition see Detail “A” (Typical when Guardrail Connection required)

Guardrail Connection (When called for in Plans)

Begin or End Approach Slab or Begin or End Railing on Retaining Wall

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For Railing End Transition see Detail “A” (Typical when Guardrail Connection required)

Guardrail Connection (When called for in Plans)

Begin or End Approach Slab or Begin or End Railing on Retaining Wall
Major Changes/New Standards (cont.)

Height Transitions (Bridge to Roadway)

• **Index 521-427 & 521-428: Single-Slope Traffic Railings**
  - Added Height Transition from 36” Single-Slope to 38” Single-Slope
  - Changed reinforcing details for:
    - Consistency
    - Accommodate more conduits
Index 630-010  Conduit Details
- Embedded:

- Payment is no longer included in the cost of the traffic railing or parapet.
  - Change made in Specification Section 630
- New Pay Item Number in BOE
- Revised notes and added pay item to Instructions (SPI)
- Added third row of conduit for traffic railings, traffic railing/noise walls and concrete parapets.
Standard Plan Instructions (SPI)

- **Added** Pay Item for Conduit Embedded (and Junction Boxes in Concrete to all applicable Indexes)
  - Pay Item: 630-2-16 Conduit, Furnish & Install (Embedded – Railings)
  - Include pay item and quantities for traffic railings or concrete parapets on bridges/approach slabs.

- **Added** instructions for traffic railings on concrete box culverts (See Index 400-289 and “Box Culvert Data Table” Cell)

- **Added** details/clarification in the Design Assumptions and Limitations about sidewalk transitions and optional base to Index 400-090 & 400-091 Approach Slabs

  In the Roadway Plans:

  Include details and payment for the optional base under the approach slab. The minimum structural requirement under the approach slab is Optional Base Group 2. If the optional base group for the roadway approaches is Group 2 or better, the same base group may be continued under the approach slab. Include embankment and optional base for the area of the approach slab in the roadway quantities.
• Changed the Index numbers to match Standard Plans Numbers (Editorial)

• “Box Culvert Data Table” (Index 400-289): Added traffic railings reinforcing detail and note.

• “Build-up & Deflection Data Table” (Index 450-199 & 450-299): Added column:
  - Net Beam Camber (Prestress – Dead Load of Beam) @ Release

2.) FDOT Structures Menu Data Table Cell Libraries:
   (in Microstation format. PDF examples are available in the Standard Plans Instructions (SPI).)
   
   TIF-V8semi-standards.cel v2016.3 (Jan 2016 - For use with FY 2016-17 Design Standards. Included in FDOTSS4 MR1 CADD Software Releases)
   (0.9MB zip)

   TIF-V8semi-standards.cel v2016.4 (Nov 2016 - For use with FY 2017-18 Design Standards. Included in FDOTSS4 MR2 CADD Software Releases, plus missing Data Table 17743 and updated Data Tables 21800B & 21800T)
   (0.9MB zip)

   TIF-StdDataTables.cel v2017.1 (Nov 2017 - For use with FY 2018-19 Standard Plans. Included in FDOTSS4 MR4 CADD Software Releases, plus updated Data Tables 450-199 & 450-299)
   (0.9MB zip)

http://www.fdot.gov/structures/CADD/standards/CurrentStandards/MicrostationDrawings.shtm
Updates on other Developmental Standards in the works:

- **Index D20700 series** – Precast Intermediate Bent Cap;

- **Index D30000 series** – Off-System Bridge Packages (Superstructure):
  - 4 span lengths - 30’, 40’, 50’ (done) and 60’ (pending TBA);
  - 5 bridge clear widths – 15’, 24’, 28, 32’ and 40’;

Join us June 18-20th for “FITS” (Expo) in Orlando !!
Message from the Design Technology Section
(Structures Standards & Computer Applications)

We are here to assist you with your questions and concerns. Please contact us:

• If you have a suggestion:
  • for a new standard or
  • for an improvement to
  • an existing standard.

• If you have any issues during design or construction:
  • Fully explain the issue (photos help);
  • Provide suggestions (if you have any);
  • Provide any documentation that might support a proposed change and assist us during development.

• Anytime you have questions or concerns (but, we recommend always thoroughly reviewing the SPI first).
Questions

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