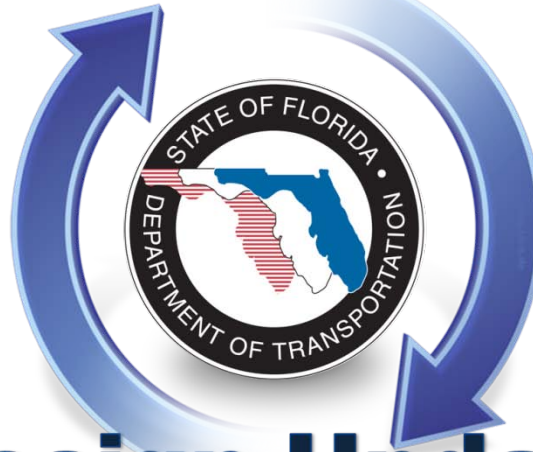


2014 Structures Related Design Standards Updates



Design Update Training

Gevin J. McDaniel, P.E.
State Structures Design Office
gevin.mcdaniel@dot.state.fl.us
(850) 414-4284

Introduction:

- u Guide to FDOT Publications*
- u Website navigation specific to structures related Design Standards and their support documents. (Emphasis on IDS)*
- u Developmental Design Standards (DDS) – No new DDSs*
- u Mobile Webpage*
- u General Revisions to structures related Design Standards*
- u Significant changes to structures related Design Standards*



Guide to FDOT Publications

Speaking to the Designer:

- Structures Manual
- Plans Preparations Manual
- Basis of Estimates
- Instructions for Design Standards
- Design Bulletins
- Other design manuals such as Traffic Engineering, Drainage, Pavement, Soils and Foundations, etc.

Speaking to the Contractor/Manufacturer's: Designers must be familiar with each of these components, but direction to, or information for designers are not (should not be) included in these documents.

- Design Standards
- Specifications
- Materials Manual
- Qualified Products

Speaking to the CEI:

- Construction Project Administration Manual (CPAM)
- Construction Memos



Guide to FDOT Publications

Instructions for Design Standards (IDS):

Provides specific instructions to assist the Design Engineer of Record in properly incorporating the associated Design Standards into the Contract Plans.

Design Standards:

Established to ensure uniform application of standard designs and details in the preparation of Contract Plans.

True or False?

*When available, the **IDS** is a design contract document and must be followed to ensure proper use of the associated Design Standard.*



Guide to FDOT Publications

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Design Standards:

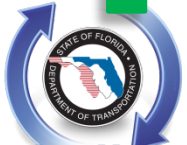
Established to ensure uniform application of standard designs and details in the preparation of Contract Plans.

True or False?

*When available, the **IDS** is a design contract document and must be followed to ensure proper use of the associated Design Standard.*

TRUE:

The IDS is in the boilerplate language for all design standard scope of services. They are extremely important to ensure proper use of each associated Design Standard.



Website Navigation

Office of Design


Office of Design / Design Standards

Design Standards



Design Standards Procedure (Topic Number: 625-010-003)

Current Design Standards

| Year | Design Standards eBooklet | Revised Index Drawings | Developmental Design Standards |  Select the desired Current Design Standards eBooklet (DSeB), Revised Index Drawings (RID) or Developmental Design Standards (DDS) by clicking on their underlined symbol. |
|------|---------------------------|------------------------|--------------------------------|---|
| 2013 | <u>DSeB</u> | <u>RID</u> | <u>DDS</u> | |

Historical Design Standards

| Fiscal Year | Design Standards eBooklet | Design Standards Revisions |
|-------------|---------------------------|----------------------------|
| 2012/13 | <u>DSeB</u> | <u>DSR</u> |

| Year | Design Standards Booklet | Design Interim Standards | -- | Design Standards Modifications | | | |
|---|--------------------------|--------------------------|-----|---|---------------------|-------------------------|---------------------|
| Select the desired Historical Standard Booklet, Interim Standards or Standards Modification by clicking on their underlined symbol. | | | | The dates shown under Standards Modifications are the effective dates of the Modifications. | | | |
| 2010 | <u>S</u> | <u>I</u> | N/A | <u>1-Jan-12</u> | <u>1-Jul-11</u> | <u>1-Jan-11</u> | <u>1-Jul-10</u> |
| 2008 | <u>S</u> | <u>I</u> | N/A | <u>1-Jan-10</u> | <u>1-Jul-09</u> | <u>1-Jan-09</u> | <u>1-Jul-08</u> |
| 2006 | <u>S</u> | <u>I</u> | N/A | <u>1-Jan-08 Eng</u> | <u>1-Jul-07 Eng</u> | <u>1-Jan-07 Eng</u> | <u>1-Jul-06 Eng</u> |
| 2004 | <u>S</u> | <u>I</u> | N/A | <u>1-Jan-06 English</u> | | <u>1-Jul-05 English</u> | |
| 2002 | <u>S</u> | <u>I</u> | N/A | N/A | | | |
| 2000 | <u>S</u> | <u>I</u> | N/A | <u>1-Jan-06 Metric</u> | | <u>1-Jul-05 Metric</u> | |



Design Standards Website:

<http://www.dot.state.fl.us/rddesign/DesignStandards/Standards.shtm>



Website Navigation

Office of Design

Office of Design / Design Standards

Design Standards



INDUSTRY REVIEW

[Origination Form - Instructions - Example](#)

[Current Submittals Under Review](#)

[Submittal History](#)

CURRENT

| Year | eBooklet | Revised Index Drawings | Developmental Design Standards | Design Standards Procedure (Topic Number: 625-010-003) |
|------|----------|------------------------|--------------------------------|---|
| 2014 | DSeB | RID | DDS | |

HISTORICAL

| Year | eBooklet | Revised Index Drawings | |
|-------------|----------|----------------------------|--|
| 2013 | DSeB | RID | |
| Fiscal Year | eBooklet | Design Standards Revisions | |
| 2012/13 | DSeB | DSR | |

| Year | Design Standards Booklet | Design Interim Standards | -- | Design Standards Modifications | | | |
|---|--------------------------|--------------------------|-----|--|------------------------------|----------------------------------|------------------------------|
| Select the desired Historical Standard Booklet, Interim Standards or Standards Modification by clicking on their underlined symbol. | | | | The dates shown under Design Standards Modifications are the effective dates of the Modifications with detailed content. | | | |
| 2010 | S | I | N/A | 1-Jan-12 | 1-Jul-11 | 1-Jan-11 | 1-Jul-10 |
| 2008 | S | I | N/A | 1-Jan-10 | 1-Jul-09 | 1-Jan-09 | 1-Jul-08 |
| 2006 | S | I | N/A | 1-Jan-08 Eng | 1-Jul-07 Eng | 1-Jan-07 Eng | 1-Jul-06 Eng |
| 2004 | S | I | N/A | 1-Jan-06 English | | 1-Jul-05 English | |
| 2002 | S | I | N/A | N/A | | | |
| 2000 | S | I | N/A | 1-Jan-06 Metric | | 1-Jul-05 Metric | |

Design Standards Website:

<http://www.dot.state.fl.us/rddesign/DesignStandards/Standards.shtm>



Support Documents for Structures Related Design Standards

Roadway Design / Design Standards / Design Standards eBooklet 2013

Design Standards eBooklet 2013



You must have the free **Adobe Acrobat Reader** to view and/or print these files. Entire groups may be printed by selecting the group name. The default print size for the Design Standard drawing files is 11 X 17 inches. Any available Instructions for Design Standards (IDS) are listed with their related Index. For questions, please contact the person noted under the area of responsibility listed beside the group headings (click on link for contact information). For use concerning plans incorporation and effective dates for the Design Standards and for information on the Data Tables select the **General Web Site Information** link.

| Design Standards eBooklet | | Index Title | Revision | Design Information | | |
|----------------------------------|--------------|---|----------|------------------------------------|-------------------------|-----------------------|
| Index No | Total Sheets | | | Instructions for Design Stds (IDS) | Data Table Cell Library | Borderless DGNs |
| (PDF) | | | | (PDF) | (ZIP) | (ZIP) Terms of Use |
| Complete eBooklet (268mb) | 932 | | | | | |
| | | * COVER, TABLE OF CONTENTS AND REVISIONS * | | | | |
| Cover | 3 | Booklet Cover | | Cover | | |
| Content | 2 | Table of Contents | | Content | | |
| Revisions | 2 | Booklet Revisions | | Introduction | | |
| | | | | Revisions | | |
| | | * ABBREVIATIONS AND SYMBOLS * | | | | |
| | | Roadway Contact | | | | |

Support Documents include:

- ❖ IDS
- ❖ Data Tables
- ❖ DGN's (see Terms Of Use)

TERMS OF USE

The Microstation Drawings listed with their related Index (as zipped DGN files) are provided for designers who decide to modify a Design Standard to suit project specific requirements. It should be clearly understood that if modifications to the Design Standards are required, the work shall be performed under the direct supervision of a Professional Engineer. If any portion of a Design Standard is modified, the Professional Engineer responsible for the modifications to the drawings becomes the EOR. Use one of the following methods:

Method 1:

Produce a new project specific drawing using the details within the Microstation Drawing as a guide or template. In this event, no reference to the related Design Standard will be called out in the plans. The details in the plans which were created from the Microstation drawing cease to be a standard and the engineer responsible for the modifications to the drawings becomes the EOR for the application of the entire system.

Method 2:

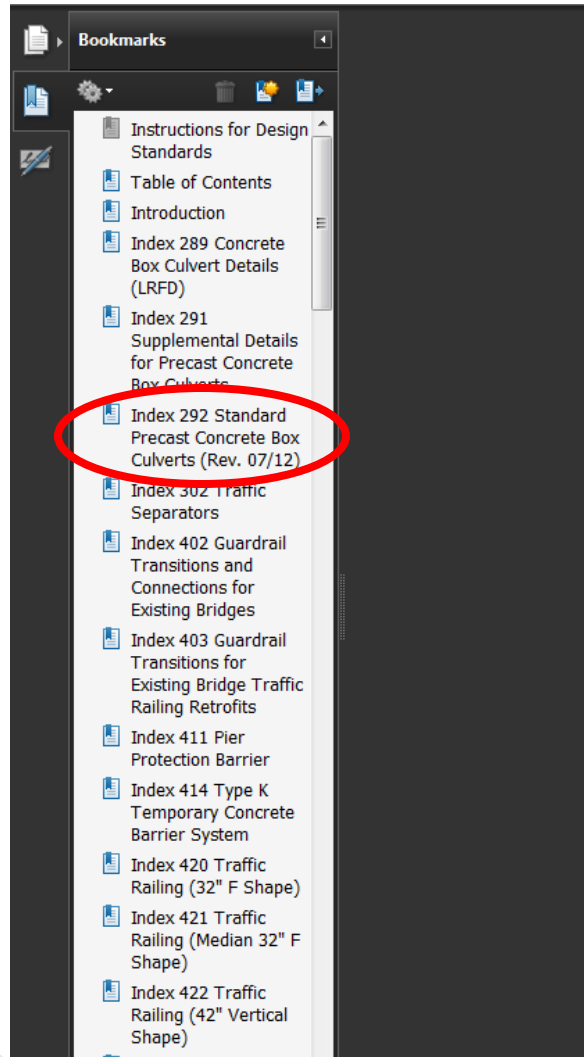
Modify the details and notes within the Microstation Drawing for the project specific requirements. In this event, no reference to the related Design Standard will be called out in the plans. It is important that the plans clearly depict evidence that modifications have been made to the original design standard to avoid any confusion by the user. A plan note indicating the details are based on modifications to the original Design Standard may be appropriate. The details in the plans which were created from the Microstation drawing cease to be a standard and the engineer responsible for the modifications to the drawings becomes the EOR for the application of the entire system, including the applicability and correctness of the unaltered portions of the Microstation Drawings.

Method 3:

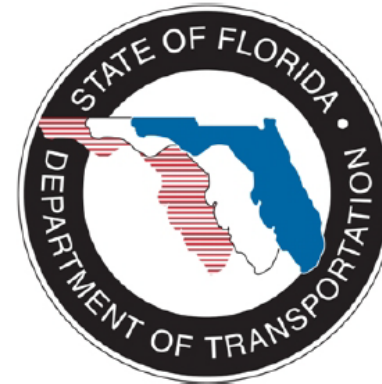
If the required modifications are minor, use the Microstation drawing to create details showing the modifications to the Design Standard on a separate sheet in the plans. In this event, reference the related Design Standard in the plans. Place the modified details in the plans on a sheet entitled, "Modifications to Design Standards Index XXXX". The engineer responsible for the modifications to the Design Standard becomes the EOR for the details on this sheet and for all effects the modification has on other components within the Design Standard.



Support Documents for Structures Related Design Standards



FLORIDA DEPARTMENT OF TRANSPORTATION



INSTRUCTIONS FOR DESIGN STANDARDS

2013

FOR USE WITH ALL INCLUDED INDEXES OF THE
FDOT DESIGN STANDARDS 2013

The Office of Design
Florida's Transportation Engineers



Support Documents for Structures Related Design Standards

| * PRESTRESSED CONCRETE BEAMS * | | | Structures Contact | | | |
|--------------------------------|---|--|--------------------|-----------|-----------|-----------|
| 20005 | 1 | Prestressed I-Beam Temporary Bracing | | IDS-20005 | CEL-20005 | DGN-20005 |
| 20010 | 2 | Typical Florida I-Beam Details and Notes | | | | DGN-20010 |
| 20036 | 2 | Florida-I 36 Beam - Standard Details | | | | DGN-20036 |
| 20045 | 2 | Florida-I 45 Beam - Standard Details | | | | DGN-20045 |
| 20054 | 2 | Florida-I 54 Beam - Standard Details | | | | DGN-20054 |
| 20063 | 2 | Florida-I 63 Beam - Standard Details | | IDS-20010 | CEL-20010 | DGN-20063 |
| 20072 | 2 | Florida-I 72 Beam - Standard Details | | | | DGN-20072 |
| 20078 | 2 | Florida-I 78 Beam - Standard Details | | | | DGN-20078 |
| 20084 | 2 | Florida-I 84 Beam - Standard Details | | | | DGN-20084 |
| 20096 | 2 | Florida-I 96 Beam - Standard Details | | | | DGN-20096 |
| 20199 | 1 | Build-Up & Deflection Data for Florida-I Beams | | IDS-20199 | CEL-20199 | DGN-20199 |
| 20210 | 2 | Typical Florida U Beam Details and Notes | | | | DGN-20210 |
| 20248 | 3 | Florida U 48 Beam - Standard Details | | | | DGN-20248 |
| 20254 | 3 | Florida U 54 Beam - Standard Details | | IDS-20210 | CEL-20210 | DGN-20254 |
| 20263 | 3 | Florida U 63 Beam - Standard Details | | | | DGN-20263 |
| 20272 | 3 | Florida U 72 Beam - Standard Details | | | | DGN-20272 |
| 20299 | 1 | Build-up and Deflection Data for Florida U Beams | | IDS-20299 | CEL-20299 | DGN-20299 |

Individual IDS

Individual MicroStation Cell (Data Table)

Index DGN (without the Border)



Support Documents for Structures Related Design Standards

Engineering/CADD System Office

Office Manager
Bruce Dana, P.E.
Statewide CADD
Coordinator

1320 Executive Ctr. Dr.,
Tallahassee, FL 32301

Tel: 850-245-1600
Fax: 850-245-1601
[E-Mail Us](#)

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Welcome

The Engineering CADD Systems Offices'(ECSO) mission is to coordinate and manage computer-based technology to provide the Department's engineering community with engineering / CADD oriented applications, support and training; to be used in the planning, design, construction, and maintenance of transportation facilities.

News

The CADD Production Criteria Handbook (CPCH) for FDOT2010 MR4 is now available!

Posted: May 08, 2013

The FDOT 2012 Civil 3D CADD State Kit is now available!

Posted: April 30, 2013

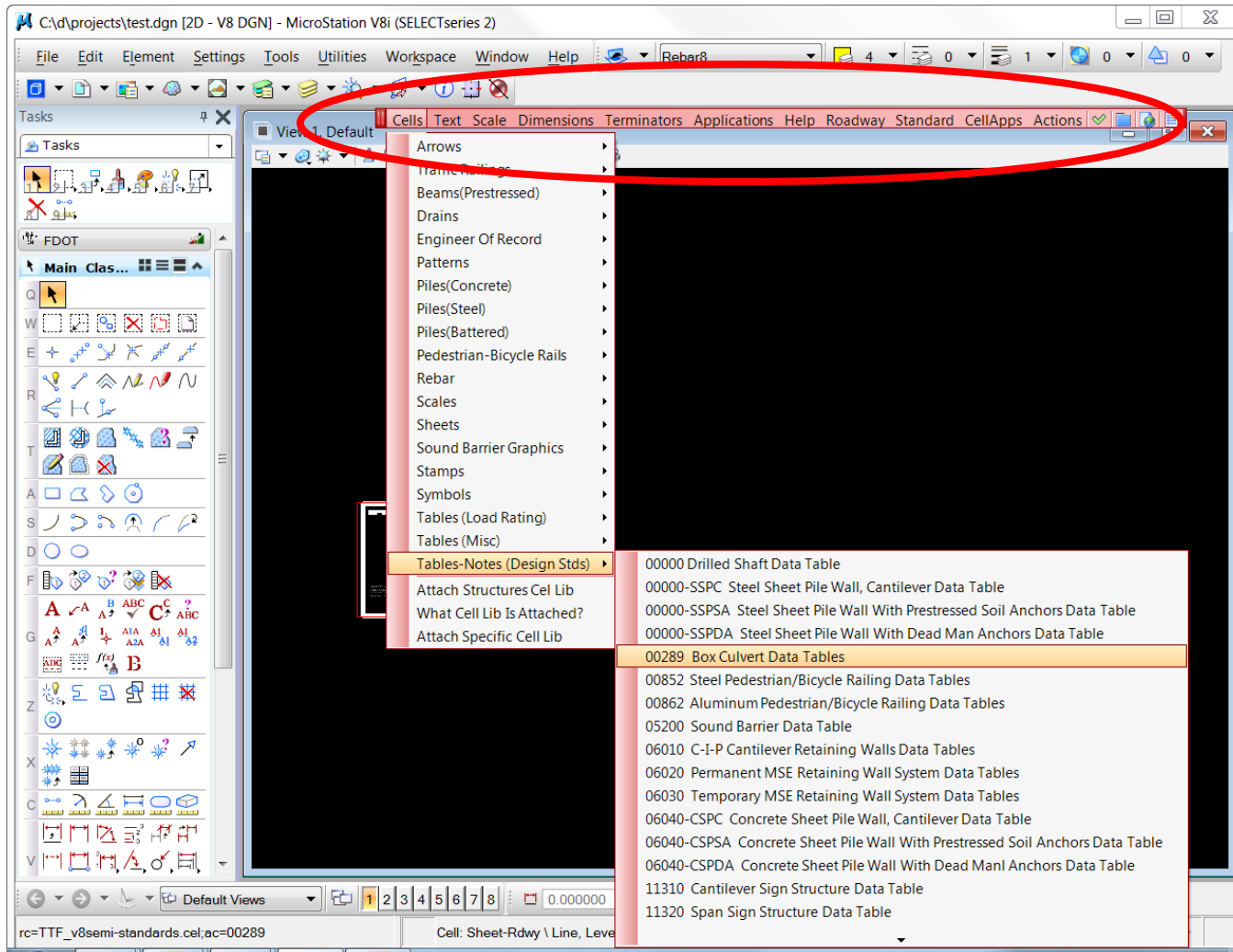
The FDOT2010 MR4 CADD Software Suite (version 2010.04.00) is now available!

Posted: January 31, 2013

<http://www.dot.state.fl.us/ecso/>



Must manually replace "cells.xml" with file from SDO website





Structures Design

Office Manager
Robert Robertson, P.E.
State Structures Design
Engineer

605 Suwannee Street
Tallahassee, FL 32399

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[E-Mail Us](#)

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- Invitation to Innovation
- Bulletins
- Software
- Structures Manual
- Design Standards

Welcome

The Structures Design Office provides design guidance and technical assistance for structural, geotechnical, mechanical and electrical issues related to structural design and construction..

News

- Structures Design Bulletin 13-03**
Posted: April 9, 2013
Concrete Surface Finish Requirements.
- Structures Design Bulletin 13-02**
Posted: March 21, 2013
Direction to Design-Build and Public-Private-Partnership Project Phase Reviewers - Modifications to the Electronic Review Comment System (ERC).
- Structures Design Bulletin 13-01**
Posted: March 5, 2013
Median Barrier Mounted Overhead Sign Structures.
- Soils and Foundation Handbook 2013**
Posted: January 3, 2013
Soils and Foundation Handbook 2013 released. .
- FDOT Structures Manual - January 2013**
Posted: December 18, 2012
The Florida Department of Transportation Structures Design Office has officially released the January 2013 Structures Manual with an effective date of January 1, 2013. .



Structures Design

Structures Design

More...



Approved Post-Tensioning Systems

Post Tensioning Issues

Structures Design Standards Details & Data Tables

Every Day Counts Training - Prefabricated Bridge Elements & Systems

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Florida Department of Transportation
Consistent. Predictable. Repeatable.

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Support Documents for Structures Related Design Standards



Support Documents for Structures Related Design Standards

Also available on the Structures Office website: MicroStation cell libraries; .pdf's of Load Rating Tables (since not associated with a particular Design Standard); and Structures Bar Menu **cells.xml** file (Data Tables pull-down menu update for FDOT2010 MR3 CADD Software download):

3.) FDOT Structures Menu Data Tables not included in the IDS:

(available in Microstation TTF_v8semi-standards.cel Cell Library)

[Drilled Shaft Data Tables \(last revision: Jan 2012 - PDF\)](#)

(.11MB)

[Steel Sheet Pile Walls Data Tables \(last revision: July 2012 - PDF\)](#)

(.50MB)

[LRFR Summary Tables \(last revision: January 2012 - PDF\)](#)

(1.3MB)

4.) FDOT Structures Menu v8 Structures Cell Library:

(in Microstation or AutoCAD format on request. Includes Key Sheet cell updates based on RDB 12-16/SDB 12-13.)

[TTF_v8Structures.cel \(FDOT2010 post MR3\)](#)

(1.0MB zip)

5.) FDOT True Type Fonts:

(Copy these files into the C:\Windows\Fonts directory to correctly display the .dgn's dated July 2011 or later. These files are automatically included in the FDOT2010 CADD Software download)

[FDOT True Type Fonts](#)

(1.4MB zip)

6.) FDOT Structures Menu UI:

(Copy the cells.xml file into the \FDOT2010\MENU\UI\Menus\Structures folder to correctly display the pull down menu for the Data Tables cells that were released in July 2012 for the 2013 Design Standards and the new Key Sheet text cell resulting from RDB 12-16/SDB 12-13. This file was not updated in the FDOT2010 MR3 CADD Software download)

[cells.xml](#)

(4KB zip)

7.) Training Presentations of Interim Changes:

(links to the Roadway Design Office Training web sites)

[2007 Design Update Training \(January 2006, July 2006 & January 2007 Interims\)](#)

[2009 Design Update Training \(January 2008, July 2008 & January 2009 Interims\)](#)

[2010 Design Update Training \(July 2009 & January 2010 Interims\)](#)

[2011 Design Update Training \(July 2010 & January 2011 Interims\)](#)

[2012 Design Update Training \(July 2011 & FY2012/2013 Design Standards\)](#)

[2013 Design Update Training \(2013 Design Standards\)](#)

Structures Design

Structures Design Standards

PLEASE READ THE FOLLOWING BEFORE DOWNLOADING MICROSTATION

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

[Design Standards webpage](#)

Design Standards depict common structural component Contract Plans to the official Design Standards as specified. Design Standards require the designer to complete a Design Standard available on the FDOT Structures bar menu within the Structures bar menu, the latest cell library can be downloaded from the [Design Standards webpage](#) for FY2012/2013 and later.

1.) Structures Related Design Standards Details:

(see [Design Standards website](#) for FY 2012/2013 and later Design Standards Details & Revisions)

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

2.) FDOT Structures Menu Data Table Cell Libraries:

(in Microstation format. PDF examples are available in the [Instructions for Design Standards \(IDS\)](#).)

[TTF_V8semi-standards.cel v2013.1 \(July 2012 - For use with 2013 Design Standards. Included in FDOT2010 MR3 CADD Software Release\)](#)

(0.9MB zip)

[TTF_V8semi-standards.cel v2012.1 \(January 2012 - For use with FY2012/2013 Design Standards. Included in FDOT2010 MR2 CADD Software Release\)](#)

(0.8MB zip)




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Welcome

The Office of Design leads, guides and supports the design community to deliver innovative transportation solutions.

News

Design Training Expo 2013 - June 12-14 at the Omni at ChampionsGate
Posted: April 23, 2013

The 2013 Design Training Expo will be held on June 12-14 at the Omni at ChampionsGate. This comprehensive training event registration is free and the parking is complimentary.



Mobile Webpage – Simple, Direct Access

- u Collection of links to FDOT publications most commonly used in the field.
- u We value feedback. Please take the quick 3 question survey and leave comments.

Tips:

- u Download free Adobe Reader App for optimal viewing. It also saves files in “Recents” for quick future access.
- u Use iBooks App to store PDF manuals on your “bookshelf” for quick future access.

Home Page for access to all content. Adobe Reader must be installed for optimal viewing.

[Click here to take a survey](#)

Construction

[Construction Memos \(Link to Webpage\)](#)
CPAM (7.13 MB)

[Individual Chapters \(Link to Webpage\)](#)

[Design Standards eBooklet](#)

- [2014 \(Link to Webpage\)](#)
- [2013 \(Link to Webpage\)](#)
- [FY 2012/2013 \(Link to Webpage\)](#)

[Materials Manual \(Link to Webpage\)](#)
2013 Standard Specifications eBook (6.3 MB)

[Additional Specifications \(Link to Webpage\)](#)
[Additional Construction Office Manuals \(Link to Webpage\)](#)

Design

[Basis of Estimates Manual, Chapter 11-20 \(3.82 MB\)](#)
[Florida Greenbook \(4 MB\)](#)

[Instructions for Design Standards](#)

- [2014 \(11 MB\)](#)
- [2013 \(10 MB\)](#)
- [FY 2012/2013 \(11 MB\)](#)

[Plans Preparation Manual \(Link to Webpage\)](#)

- [Vol. 1 \(9 MB\)](#)
- [Vol. 2 \(12 MB\)](#)

[Soils and Foundations Handbook \(6.84 MB\)](#)

[Structures Manual](#)

- [Vol. 1 SDG \(2.44 MB\)](#)
- [Vol. 2 SDM \(6.81 MB\)](#)
- [Vol. 9 LTS-5 \(0.2 MB\)](#)

[Additional Office of Design Publications \(Link to Webpage\)](#)



General Revisions

- u Survey Elevation Markers placed on bridge railings were no longer being used and not required on new construction. They need not be replaced for railing retrofits.
- u Specifications for Welded Wire Reinforcement (WWR) are centrally located in Specification Section 931.
- u Removed surface finish requirements from Design Standards for walls, railings, etc. Guidance is now provided in the Structures Manual to include project specific details in the plans. See Structures Design Bulletin (SDB) 13-03 (Roadway Design Bulletin 13-04).
- u Reorganized Index 501 and updated Approved Geosynthetic Product Tables.
- u “Pull boxes” for utilities have been renamed to “Embedded Junction Box(es) (EJB)” to clarify usage and align with changes to Specification Section 630.
- u Quantity Boxes have been removed from Data Tables. A summary of all quantities will be shown in a single location within the plans. See SDB 13-12 for more information.



New Design Standards Indexes 404, 405 and 477

- u Developed to compliment/support the policy of Practical Design
- u Indexes 404 (Narrow and Recessed Curbs) and 405 (Wide Curbs) are new Indexes and are solutions for bridge traffic railing approach and trailing end transition treatments for RRR Projects where the railing on the bridge structure will not be modified or improved.
- u Index 477 has been migrated from the DDS and uses a thrie-beam panel attached to the railing to improve the crashworthiness and slightly increase the strength. This Index also includes details for approach and trailing end transitions.
- u See the IDS for each Index to determine applicability.
- u These Indexes may only be used with railings having structurally continuous top rails.



New Design Standards Indexes 404, 405 and 477

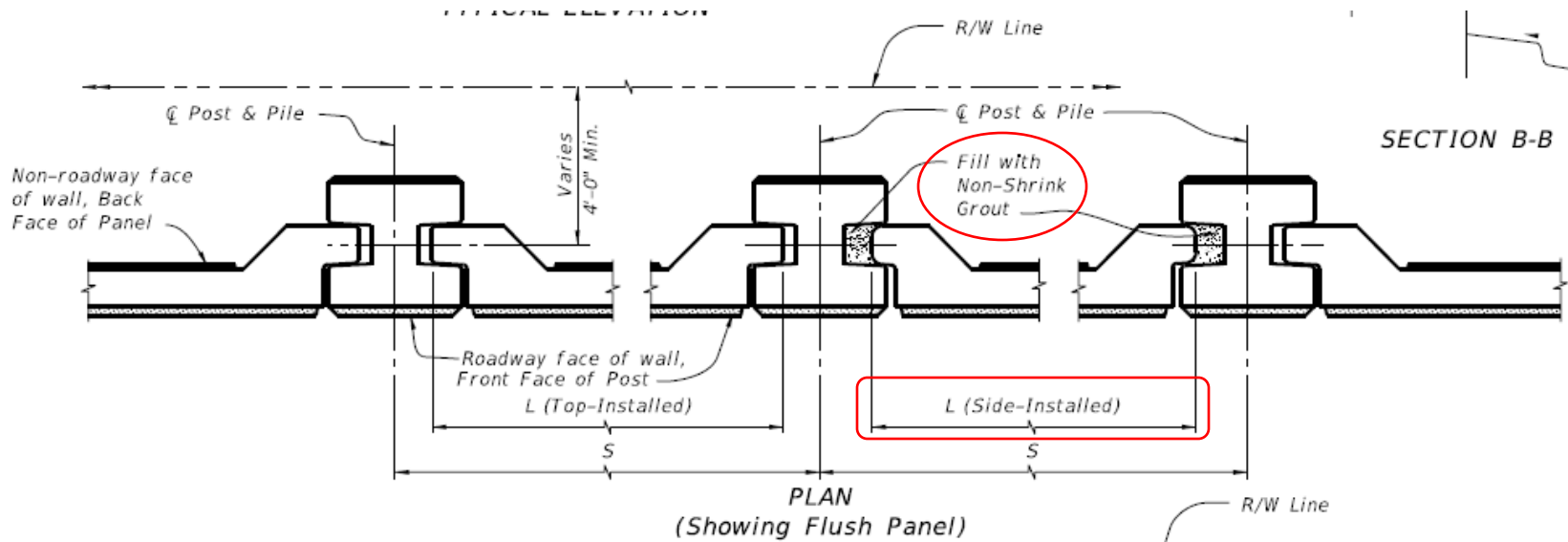
For railings having discontinuous top rails, the bridge railings most likely need improvement for RRR Projects. Use Indexes 470-476 or Index 480 Series.



Index 5200

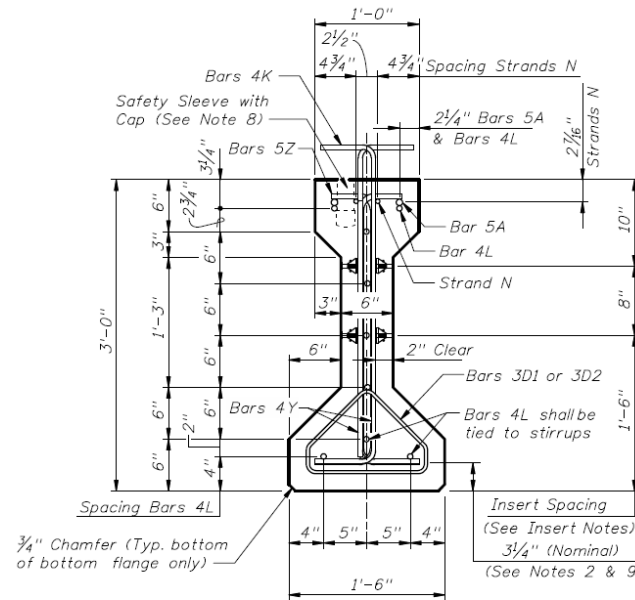
Sound Barriers => Noise Walls

u Added Side-Installed Panels:



AASHTO TYPE II BEAMS

u *They're Back!!*



END VIEW

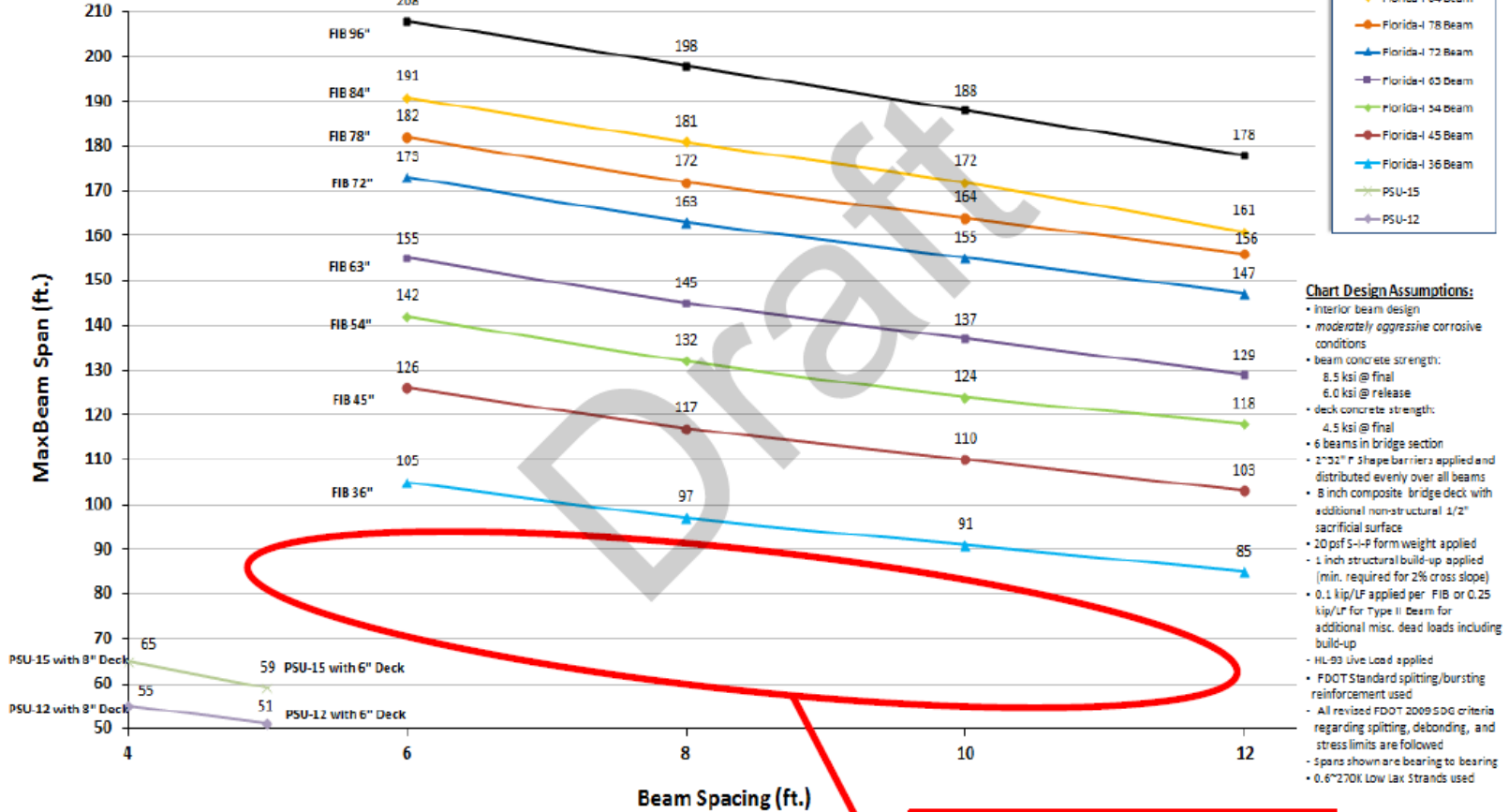
- u *For short-medium span (50'-85') bridges where efficiency of FIB-36 is not optimized.*
- u *See Structures Design Bulletin (SDB) 13-11 for complete details on Implementation.*



AASHTO TYPE II BEAMS

Florida-I Beam Estimated Maximum Span Lengths

*Moderately Aggressive Environment, FDOT Limits with 8.5 ksi Concrete



- Chart Design Assumptions:**
- interior beam design
 - moderately aggressive corrosive conditions
 - beam concrete strength: 8.5 ksi @ final, 6.0 ksi @ release
 - deck concrete strength: 4.5 ksi @ final
 - 6 beams in bridge section
 - 2" x 2" x 8" shape barriers applied and distributed evenly over all beams
 - 8 inch composite bridge deck with additional non-structural 1/2" sacrificial surface
 - 20 psf S-I-P form weight applied
 - 1 inch structural build-up applied (min. required for 2% cross slope)
 - 0.1 kip/LF applied per FIB or 0.25 kip/LF for Type II beam for additional misc. dead loads including build-up
 - HL-93 Live Load applied
 - FDOT Standard splitting/bursting reinforcement used
 - All revised FDOT 2009 SDC criteria regarding spitting, debonding, and stress limits are followed
 - spans shown are bearing to bearing
 - 0.6" x 270K Low Lax Strands used

Span Range Gap

The AASHTO Type II Beam nicely fills the efficiency gap



AASHTO TYPE II BEAMS

AASHTO Type II and Florida-I Beam Estimated Maximum Span Lengths

*Moderately Aggressive Environment, FDOT Limits with 8.5 ksi Concrete

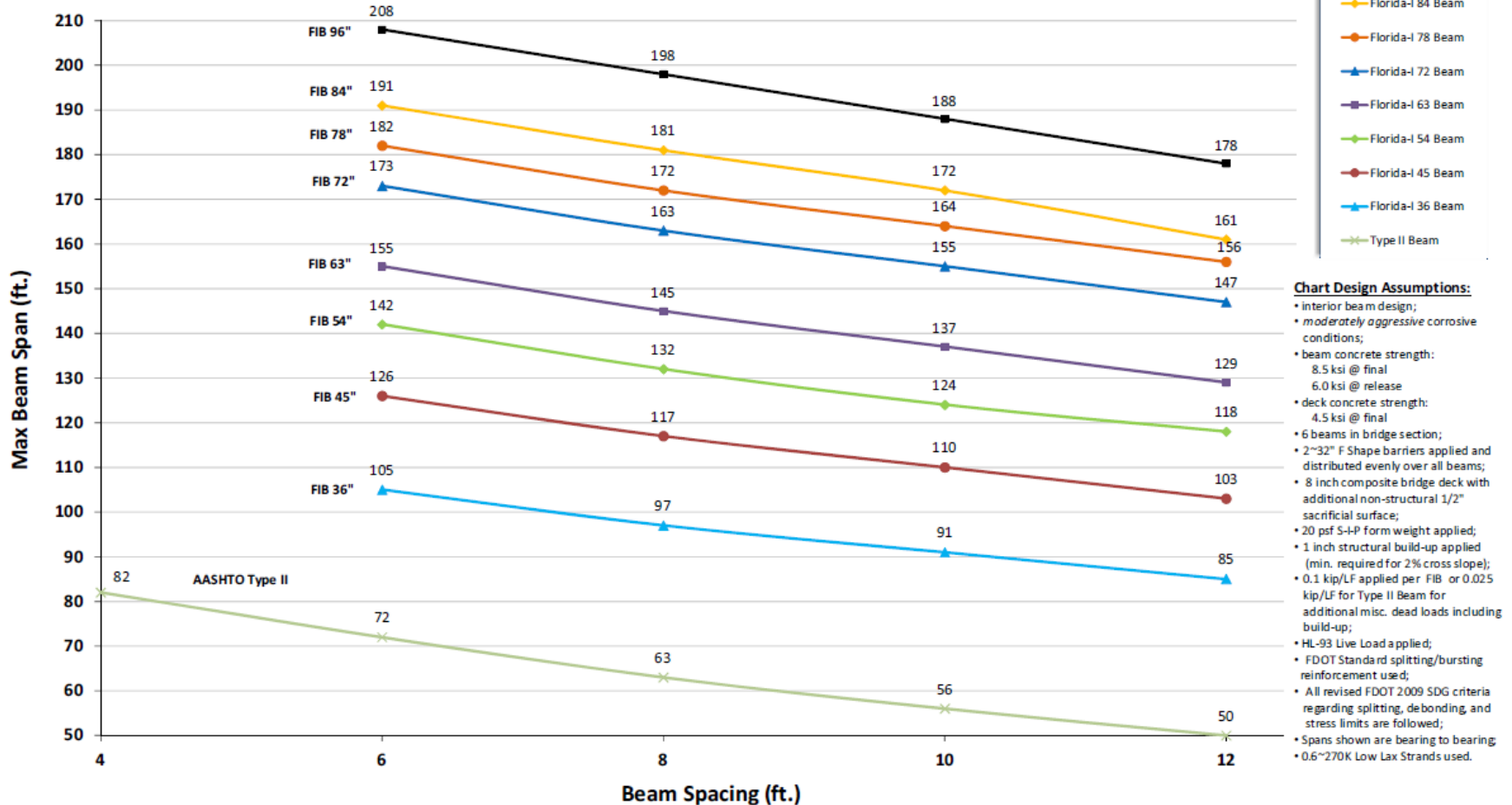
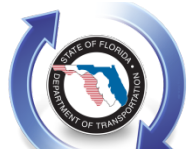


Chart Design Assumptions:

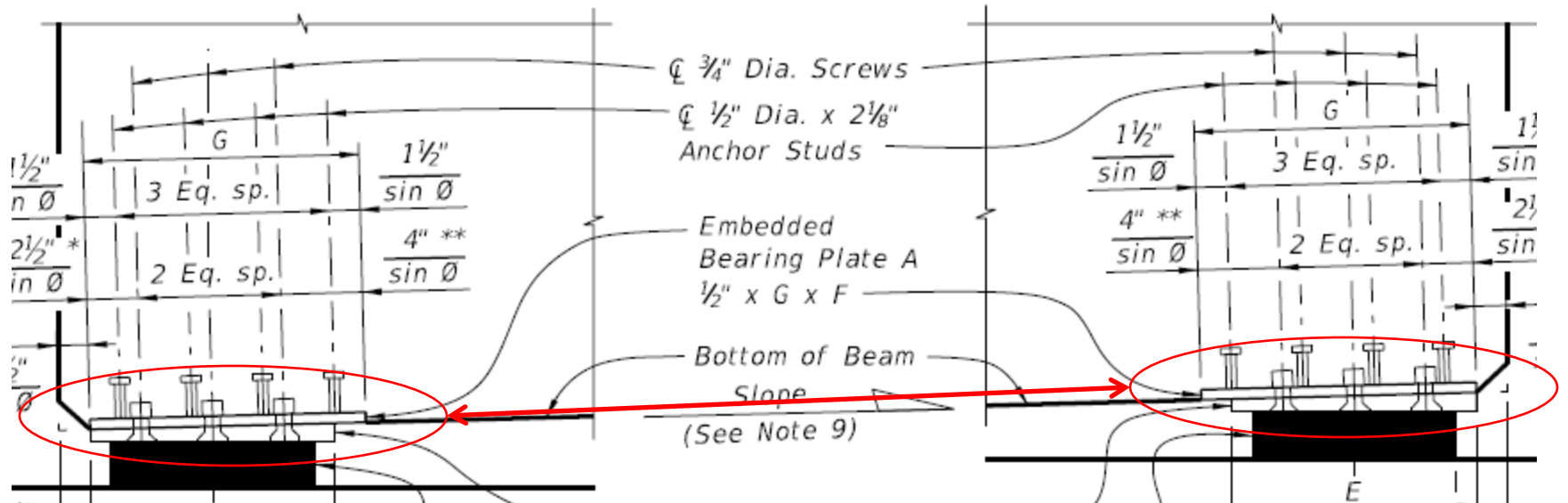
- interior beam design;
- moderately aggressive corrosive conditions;
- beam concrete strength: 8.5 ksi @ final, 6.0 ksi @ release
- deck concrete strength: 4.5 ksi @ final
- 6 beams in bridge section;
- 2~32" F Shape barriers applied and distributed evenly over all beams;
- 8 inch composite bridge deck with additional non-structural 1/2" sacrificial surface;
- 20 psf S-I-P form weight applied;
- 1 inch structural build-up applied (min. required for 2% cross slope);
- 0.1 kip/LF applied per FIB or 0.025 kip/LF for Type II Beam for additional misc. dead loads including build-up;
- HL-93 Live Load applied;
- FDOT Standard splitting/bursting reinforcement used;
- All revised FDOT 2009 SDG criteria regarding splitting, debonding, and stress limits are followed;
- Spans shown are bearing to bearing;
- 0.6~270K Low Lax Strands used.



See IDS-20010 or IDS-20120 for span length charts

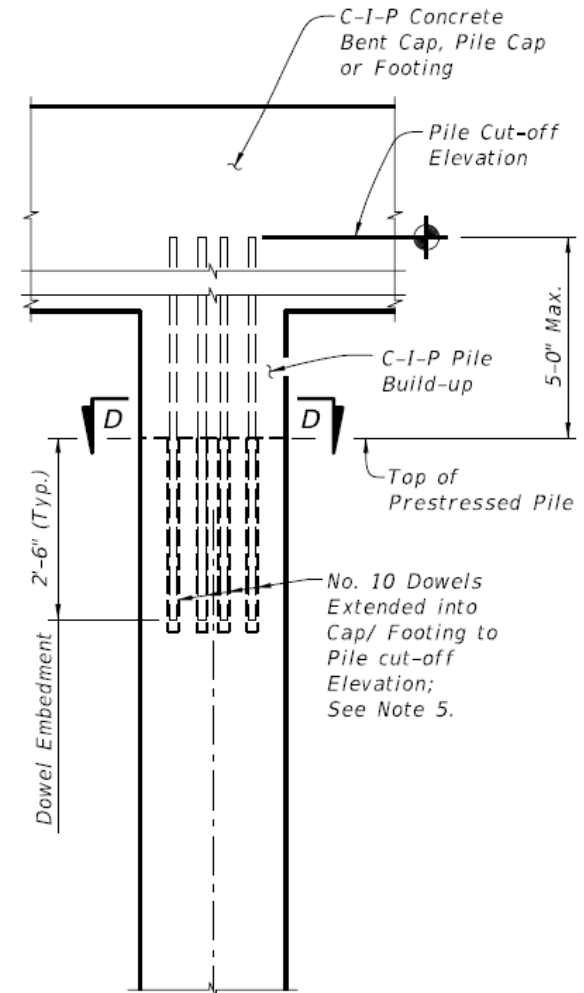
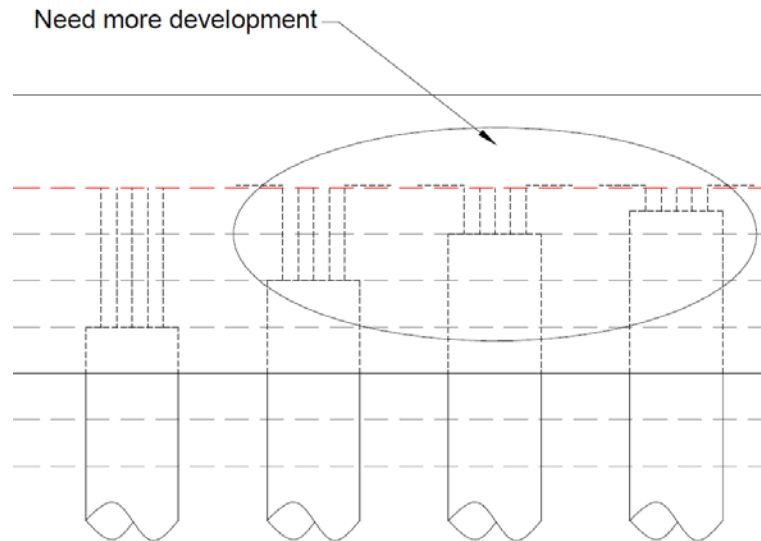
Index 20511 & 20512

- u Industry requested beveled bearing plates which could be used on either end of beam.
 - “Plate B” was modified to accommodate this request
- u Updated to include AASHTO Type II Beams



Index 20601

- u Slightly increased the allowable length for pile build-up.
- u Allow for overlap of 1'-0" where contractor has options for either CIP build-up or non-drivable splice.
- u Considered pinned, fixed, tension and compression pile conditions.
- u Added Note 5 to address requirements for tension piles terminating less than 3 feet from the cut-off elevation.

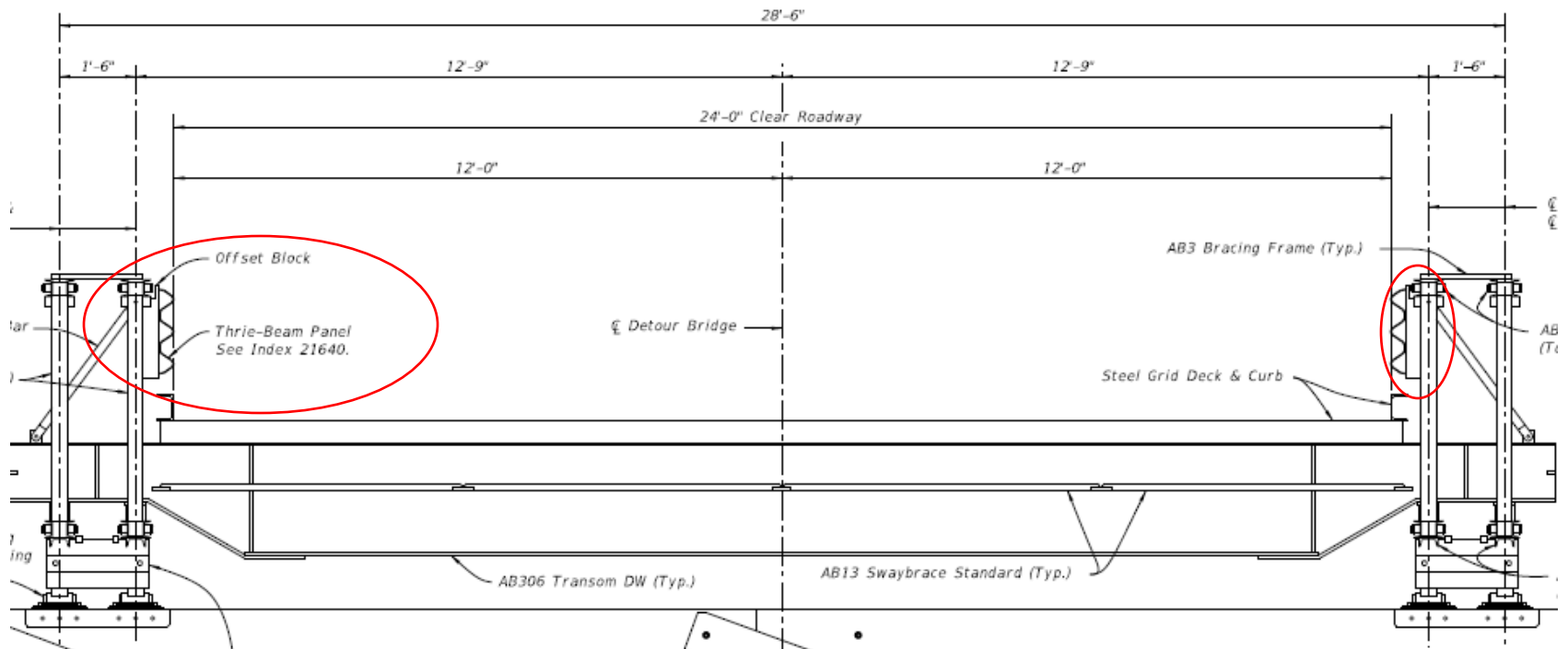


UNFORESEEN
REINFORCED C-I-P
PILE BUILD-UP DETAIL



Index 21600 Series

- u Added Thrie-Beam Panel; fully detailed in new Index 21640 with approach and trailing end transitions included.

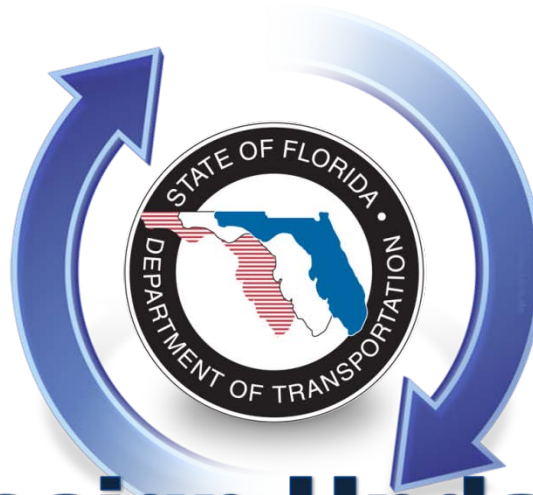


- u Thrie beam panels improve the crashworthiness of the temporary bridges and provide increased protection against impact to the main structural elements.



Questions?

Please feel free to contact me anytime using my information below:



Design Update Training

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