Florida Department of Transportation

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STRUCTURES DESIGN BULLETIN 16-09
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TO: District Directors of Transportation Operations, District Directors of Transportation Development, District Design Engineers, District Construction Engineers, District Structures Design Engineers, District Maintenance Engineers

FROM: Robert V. Robertson, P. E., State Structures Design Engineer

COPIES: Brian Blanchard, Tom Byron, Tim Lattner, David Sadler, Bruce Dana, Gregory Schiess, SDO Staff, Jeffrey Ger (FHWA)

SUBJECT: Developmental Design Standards: Index D22420 – Traffic Railing (32" F Shape – GFRP Reinforced), Index D22900 – Approach Slabs – GFRP Reinforced (Flexible Pavement Approaches), and revisions to Index D22440 - Precast Concrete CFRP/GFRP Sheet Pile Wall

REQUIREMENTS

This ***Design Bulletin*** introduces two new and one revised ***Developmental Design Standards (DDS):***

1. *New* Index D22420 – Traffic Railing (32" F Shape – GFRP Reinforced), with its ***Instructions for Developmental Design Standards (IDDS).***
2. New Index D22900 – Approach Slabs – GFRP Reinforced (Flexible Pavement Approaches), with its ***Instructions for Developmental Design Standards (IDDS).***
3. Revised Index D22440 – Precast Concrete CFRP/GFRP Sheet Pile Wall, with its ***Instructions for Developmental Design Standards (IDDS).***

These documents are available for viewing on the ***DDS*** webpage.

COMMENTARY

The ***DDS*** Index D22420 provides details for alternate Glass Fiber Reinforced Polymer (GFRP) Reinforcement for 32" F shape traffic railings for use in extremely aggressive environments.

The ***DDS*** Index D22900 provides details for alternate Glass Fiber Reinforced Polymer (GFRP) Reinforcement for flexible pavement approach slabs for use in extremely aggressive environments.

The ***DDS*** Index D22440 is revised to provide details for the alternate Type "H" Standard Section carbon-steel prestressed concrete sheet pile with enhanced concrete cover, GFRP stirrups and GFRP supplemental reinforcing.

BACKGROUND

The ***DDS*** Index D22420 reinforcing details are based on the geometry of the Index 420 - 32" F Shape Traffic Railings (TL-4) and GFRP reinforcing based on successful crash tests of 42" TL-5 traffic railings in November 2010 and December 2011 at Texas Transportation Institute.

The ***DDS*** Index D22900 provides a corrosion resistant alternative for the traditional steel reinforced approach slab based on equivalent strength analysis.

The ***DDS*** Index D22440 provides a corrosion resistant alternative for the traditional prestressed/ reinforced concrete sheet piles, with Type "H" (hybrid) now providing an economical alternative steel strand option to the Type "A" that uses CFRP prestressing strands.

IMPLEMENTATION

These ***DDS***s and associated ***IDDS***s are available for use on applicable current or future projects with approval from the Structures Design Office. Follow the Usage Process as outlined in the link at the top of the DDS webpage.

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