

March 1, 2002

MEMORANDUM

TO: District Structures Design Engineers
(Gerard Moliere, Rod Nelson, John Golden, John Danielsen,
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District Structures and Facilities Engineers
(Pepe Garcia, Bud Rosier, John Locke, Jorge Martos,
Ben McKinney, Frank Guyamier, Tom Reynolds)
District and Central Office Construction Engineers
(Dan Foss, Henry Haggerty, Steve Benak, Jennifer Olson,
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And Anath Prasad)

FROM: William N. Nickas, State Structures Design Engineer

COPIES: Secretary Tom Barry, Assistant Secretary Ken Morefield, District Secretaries (David Twiddy, Aage Schroder, Edward Prescott, Rick Chesser, Mike Snyder, Jose Abreu, Ken Hartmann, Jim Ely) Freddie Simmons, Bill Albaugh, Bill Domico, Jack Evans, Bob Nichols, Larry Sessions, Marcus Ansley, Doug Edwards (FHWA), Greg Xanders, Sharon Holmes, Henry Bollmann, Steve Plotkin, Tom Andres, Robert Robertson, Tony Mireles, Duane Brautigam

**SUBJECT: Temporary Design Bulletin C02-02
Post-Tensioned Issues**

The Department of Transportation continues to study post-tensioning issues including, most recently, the Sunshine Skyway foundations which have been reviewed extensively. The attached two-volume report is provided to explain the findings. As a result of these findings, the Temporary Design Bulletin C00-5 temporary restrictions have been incorporated into the "Structures Design Guidelines" as permanent FDOT requirements.

The next three documents are the first installment of the five documents discussed in the November 6, 2001 Design Bulletin extending the previously referenced Bulletins C00-5 and C01-01. These enhancement details and design requirements are to be utilized and incorporated in future projects. These reports contain most of the information compiled by FDOT and its consultants over the last 15 months. A schedule of implementation has not been developed at this time since Specification and Standards development issues have not been completely identified and defined.

Initial conversations have occurred with post-tensioning suppliers concerning needed hardware modifications. Until final contract requirements and needed appliances are developed and incorporated into the Qualified Products List (QPL), only partial utilization of the enhanced post-tensioning systems is possible; therefore, anchorages and grouting will need to be in accordance with the DB-C01-1 which requires either blisters or grouting before the next erection sequence.

Over the last 15 months, many post-tensioning applications have been investigated. These inspections have been analyzed and re-analyzed for root-cause findings. While the temptation was to pursue exhaustive and expensive solutions like stainless steel strands and/or electrically isolated tendons, Department and consulting engineers have presented strategies that, once fully incorporated, should lead to economical solutions that will meet the required life expectancy. While these documents are not perfect, FDOT feels the experience and findings illustrated are important enough to share in their current form.

These reports are intended to continue the improvement of post-tensioned bridges in Florida by explaining five important strategies. The deployment of these five strategies is carefully explained in all stages of a bridge's life. (See November 6, 2001 memo.) Please stay in touch for the remaining two (2) volumes of this post-tensioning series.

A rollout meeting is being scheduled in April for Designers, Contractors and Inspection Staff to review in detail these important findings.

WNN:nh

Attachments:

Sunshine Skyway Bridge Post-Tensioned Tendons Investigation

Part 1 General Introduction (Dated Feb 6, 2002)

Part 2 Investigation of the High-Level Approach Span Piers (Dated Feb. 13, 2002)

New Directions for Florida Post-Tensioned Bridges

Volume 1 of 5: Post-Tensioning in Florida Bridges (Dated Feb. 15, 2001)

Volume 2 of 5: Design and Detailing of Post-Tensioning in Florida Bridges
(Dated Feb. 18, 2002)

Volume 3 of 5: Construction Inspection of Florida Post-Tensioned Bridges
(Dated Feb. 21, 2002)