



MEMORANDUM

TO: District Engineers

DATE: December 9, 2010

FROM: David P. Hohmann, P.E.

SUBJECT: Revised Prestressed Concrete I-Girder Standard Drawings

Revised prestressed concrete I-girder standard drawings are posted on the TxDOT web site and are available for immediate use.

Key revisions appear in both initial and 28-day concrete strength, appearing on all standard drawings with an **IGSD** prefix and standard drawing **IGND**.

A higher allowable compressive stress limit is used for determining initial concrete strength, f'_{ci} , based on recommendations in Research Report 0-5197-1, "Effects of Increasing the Allowable Compressive Stress at Release of Prestressed Concrete Girders". This revision requires lower initial concrete strengths than the previous designs in many instances.

A lower maximum shear stress limit is used in determining adequacy of the 28-day concrete strength, f'_c , due to a change in the AASHTO LRFD Bridge Design Specifications. The reduction in maximum shear stress, $0.18f'_c$ from $0.25f'_c$, now requires higher 28-day concrete strengths than the previous designs in a limited number of instances.

Other revisions include:

- **IGCS:** Provides new limits for maximum unit length governed by roadway grade. These new factors allow longer unit lengths for most bridges than the previous limit.
- **IGD:** Details additional top flange reinforcement which can be used at the fabricator's option to control cracking that may occur during form removal. The additional reinforcement is not required.
- **IGEB:** Beveled steel sole plates for bearings are required when girder slopes exceed 5 percent. Beveled steel sole plate details are provided on this standard drawing.

The Standard Bridge spreadsheet tool, **std-brg.xls**, does not accommodate beveled steel sole plates although it will be revised in the near future to do so. In the interim, for bridges with girder slopes exceeding 5 percent, this spreadsheet can still be used to

assist in determining bearing seat elevations, although the elevations it provides would need to be reduced by 0.083-ft to account for the additional bearing thickness introduced by beveled sole plates.

Abutment standard drawings with an **AIG** prefix will need modification if girder slopes exceed 5 percent as their details do not include the extra bearing thickness from beveled sole plate use.

These revised standard drawings apply to construction projects beginning with the June 2011 letting. Prior use is at the option of each District.

These and other bridge standard drawings are available on the Bridge Standards web pages in MicroStation® “dgn” and Adobe® Acrobat® “pdf” formats. See <http://www.dot.state.tx.us/business/standardplanfiles.htm> .

For questions or comments concerning these standard drawings, please contact John M. Holt, P.E., at (512) 416-2212 or Jon Ries, at (512) 416-2191.

Note: Original Signed By David P. Hohmann

cc: Federal Highway Administration
Bridge Design Consultants
Administration
Division and Office Directors
Directors of Transportation Planning and Development
District Bridge Engineers
Bridge Division Employees