

TRANSMITTAL MEMORANDUM 03-02

MEMO TO: Design Consultants &
Division of Bridge Design Staff

FROM: Stephen E. Goodpaster
Director
Division of Bridge Design

DATE: September 26, 2003

SUBJECT: Policies and Procedures to be Incorporated into
Structure Effective October 1, 2003

The following policies and procedures shall be incorporated into structure plans effective January 1, 2004.

CHANGES IN PERSONNEL

Mr. Jim King and Mr. Bill Hornbeck have retired from this office effective September 1, 2003. Mr. Allan Frank will assume Jim King's duties and Mr. Mark Hite will assume the duties of Bill Hornbeck.

STRUCTURAL STEEL DIAPHRAGMS FOR PCI-BEAMS

The base sheets for steel intermediate diaphragms for concrete bridges have been revised. These details have been modified to conform to AASHTO Specifications as a structural connection. Only details used on the base sheets are to be used on concrete bridge structures and shop drawings are now required to be submitted to the Division of Bridge Design to ensure the use of these details. The base sheets are available by emailing a request to Larry.Graves@mail.state.ky.us or by downloading from the Division's website.

CAMBER FOR PRESTRESSED PCI-BEAMS

A new column has been added to the beam information on the PCI-Beam base sheets. This column, which is titled "Maximum Allowable Camber", takes into account the haunch, deflection assumed in construction elevations, effects of vertical curve, roadway cross slope and the beam centerline not paralleling the roadway centerline. Notes on the elevation sheet have been revised to refer to this value (notes are attached).

The purpose of this column is to assist the resident in determining whether the grade needs to be adjusted due to excessive beam camber.

LONGITUDINAL PHASED CONSTRUCTION JOINT IN CONCRETE DECKS

PCIB (Concrete) Designers should make every effort to locate longitudinal phased construction joints as close as possible to the Centerline of Beams. The inclusion of an extra line of beams may be required to satisfy this detail.

Steel Phase construction joints should be located to provide symmetrical loading on all phases. This should include the use of closure pours between phases.

In any case, the designer should consider phased construction issues in the design of the girders. These issues include but are not limited to:

1. The dead weight of temporary barriers causing additional deflections on newly poured spans.
2. Additional camber growth in PCI-Beams in subsequent phases.
3. Forming of subsequent phase slabs from previous phase slab Pours.

FATIGUE TRUCK

The AASHTO design truck for fatigue shall be HS 25.

PRACTICAL CONCRETE STRENGTHS FOR PRESTRESSED PCI-BEAMS

Fabricators have advised that the practical concrete strengths for prestressed PCI-Beams are 6000 psi at release and 8000 psi at service. These are strengths that can be typically achieved at the plants with no additional effort.

The designer should keep in mind that strengths above these limits could require additional effort and increased cost in the production of these beams.

ISLAND CURB AT BRIDGE ENDS

If Guardrail Connector to Bridge End Type A or A-1 is utilized in plans, then note that Std. Dwg. RBC-001-08 states that 25'-0" of island curb is to be constructed regardless of the use of a curb box inlet. Therefore, Std. Dwg. BGX-011-04 or BGX-014-02 is to be used and detailed on plans to show bridge and drainage details to match the island curb.

CHANGE IN HORIZONTAL ACCELERATION (A)

The Horizontal Accelerations for Calloway and Union shall be .15g as opposed to the .09g designated in Exhibit 66-04-01 of the Bridge Design Guidance Manual.

AASHTO SPECIFICATIONS

The 2002 AASHTO Standard Specifications 17th edition is available for order. Designers shall use these specifications in all designs. Order information may be obtained on the AASHTO website @www.aashto.org.

In addition AASHTO has issued a new specification for Highway Signs, Luminaries and Traffic Signals.

As a general comment, designers are advised that base sheets are available on the divisions web site and are revised from time to time. The designer should monitor the status of the base sheets to ensure that the current sheets are used in structure plans.

SEG/rrm

Attachment

Notes for Elevations taken on Prestressed Concrete Beams

Take elevations on top of beam at points indicated by the grid layout. The beam elevations are to be read to three decimals, and entered in tables under "Top of Beam" elevations.

Compute dimension "X" as follows: "Construction Elevation" minus "Top of Beam" elevation equals dimension "X". Construction Elevations include camber due to weight of the concrete slab and barrier. Measuring of dimension "X" gives the final check on beam tolerances for camber, beam damage, and errors in erection that produce reverse cambers, sags, and unsightly fascia beams.

For setting templates, measure dimension "X" above top of beams for top of template. Do not set template by elevations.

Temporary supports or shoring will not be permitted under the girders when pouring the concrete floor slab or when taking "Top of Beam" elevations.

Construct barrier to roadway grade. Do not add camber to barrier.

Note to Resident: The "Maximum Allowable Camber" shown on the beam sheet is the amount of camber, measured prior to casting the deck, above which the beam will begin to encroach into the slab.