

NC DOT / PCI Joint Technical Committee Meeting

Structures Design Conference Room
January 25, 2006 2:00 PM

Submitted by
Tom Koch, Member

Attendees:

NCDOT: David Greene, Trudy Mullins, Tom Koch, Gichuru Muchane

G/C PCI: John Beck, Peter Finsen, Richard Potts, Jeff White

Old Business

1. Web Splitting

Tom Koch discussed the new web splitting policy implementation, as presented to the committee in the last meeting.

Engineering Development is in the process of developing a special provision in which repairs for the web splits will be explicitly specified. Essentially, the idea is to epoxy inject any crack greater than 10 mils, and any crack less than 10 mils need not be repaired. This is in agreement with the latest draft of the PCI repair manual, which has not yet been officially released. The only question is how to treat cracks in girders in corrosive environments. Mr. Koch stated that the provision may state that cracks greater than 7 mils and less than 10 mils would have to be coated with epoxy paint if the girder contained Calcium nitrite.

A draft provision will be ready for the full committee meeting on February 15th.

2. Box Beams

Mr. Koch stated that a local box beam project is under construction and its close proximity has helped the Department to learn from the project. So far, the only issues that have arisen about the project are with the raked finish on the top of the beams. It appears the surfaces were raked too soon after concrete placement, and the raked grooves did not fully maintain their profile or shape. This is an important issue for box beams with concrete overlay, since the raked finish is a key element to maintaining a good bond.

Mr. Koch also stated that some other things may be changed with the overlay policy and provision, such as the rebar and beam bolster spacing.

No action is required.

3. Design and Development of full depth precast panels for IBRC project

Mr. Koch also discussed the design and development of a full depth precast panel bridge to be used in Martin County (B-4188). The experimental design is anticipated to be part of the IBRC program and is engineered to be suitable for fast track construction projects. The design consists of full-width precast concrete deck sections which are to be placed on rolled beams. The panels, which are 8 feet long, are post-tensioned longitudinally and attached to the girder by means of grout pockets and shear studs.

Peter stated that he would send Tom a PCI produced informational DVD of precast concrete slabs.

No action is required.

New Business

4. Detensioning sequence

Tom Koch stated that DOT's goals is to show detensioning sequences on the plans, to eliminate the need for a submittal by the precast producers.

The committee discussed the implementation of this idea. Richard Potts stated that the elongation and detensioning calculations are typically submitted together. Elongation calculations are required for draped strand arrangement only and are not required for straight strand patterns. The PCI members also stated that cored slab detensioning sequences for all strand arrangements have been determined and are on file at the plant. Submitting the proposed sequence in these instances is largely a formality.

Reid Castrodale was not able to make the meeting, but called Tom prior to the meeting to suggest a research paper on the subject. The paper, written by a team of researchers including Cathy French of the University of Minnesota, was published in the PCI journal in 1997. The paper makes numerous recommendations on release methodology for reducing end cracking in prestressed girders.

Mr. Koch agreed to review the recommendations and to include the full committee on any changes in current practice.

5. Three Bearing concept for Box Beam girders

The committee discussed a Paper that explores the use of three bearings for box beams. The paper advocates a "tripod" concept, in which one end of the box beam is supported by two elastomeric bearings and one end is supported by one elastomeric bearing. The bearings in the study utilize round or square reinforced designs. This arrangement is meant to improve box beam stability and to eliminate the rocking of the beam on the bearing due to an uneven, skewed or steeply graded bottom surface .

Tom said the Department has had problems recently with a heavily skewed cored slab structure that required shim plates between the bearing and the cap, and said the Department would not rule out their use on a trial project. The paper does, however, base its conclusions on results from much wider slabs and boxes than the 36" wide boxes used by NCDOT, so the applicability of this detail to NC's slabs and boxes may be limited.

6. NC Conference for Rapid and Accelerated Construction

Peter Finsen offered to sponsor a one day conference in November to discuss Rapid and accelerated construction techniques. The conference may be a joint AGC-PCI-DOT conference and will feature several industry experts.

The DOT representatives expressed interest in Peter's offer and tentatively scheduled it for November 1st and 2nd , 2006.

Further details are still to be worked out.

7. Adjourn

The meeting was adjourned at approximately 4:00 PM.