

MINUTES

SCDOT – PCI Joint Committee Meeting

SCDOT Office of Materials and Research, Columbia SC

May 9, 2013 – 1:30 PM

Dr. Castrodale welcomed attendees and called the meeting to order at 1:32 PM. A sign-in sheet was circulated. All attendees introduced themselves.

The following members (or representatives) were present:

SCDOT

Bener Amado	Pre-Construction – RPG-2, Co-Chair
David Rister	Bridge Construction
Barry Bowers	Pre-Construction Support
Jim McCabe	Office of Materials and Research
Aly Hussein	Office of Materials and Research, Secretary

PCI

Reid Castrodale	Castrodale Engineering Consultants, Co-Chair
Peter Finsen	Executive Director, Georgia/Carolinas PCI
Jeff White	Prestress of the Carolinas
J.R. Parimuha	Florence Concrete Products, Inc.
Jason Moore	Tekna Corporation

USC

Paul Ziehl
Aaron Larosche

FHWA

Minutes of Last Meeting

The minutes of November 1, 2012 meeting were reviewed. There was one revision in item 01-6 requested by Barry Bowers. Following is the revision:

01-6 *SCDOT Bridge Design Manual*

SCDOT Bridge Manual is being updated and the first draft chapter will be sent out in January 2013 for review. Additionally, seismic and geotechnical manuals are being revised. Peter will send an email to Barry in case the industry needs to look at both seismic and geotechnical manuals.

Old Business

92-13 *Strand Slippage in Prestressed Piles*

Aaron Larosche mentioned that they (USC) had collected some data on the piles for his research project, but there were some problems so the data was not reliable.

Producers were asked to email the measurements to Aly Hussein, including the following:

- Measurements before and after releasing the strands at both ends of the bed.
- The slip (before – after).
- Length of the bed.
- Size of the piles.
- Length of the piles.
- A sketch showing the pattern of releasing strands.

It was suggested that Standard Concrete Products could send information regarding the H-columns for the I-20 soundwalls.

Note: Strands should be released at the same pattern and time at both ends of the bed.

00-1 *PCI Bridge Design Manual*

A couple of more chapters have come out and have been reviewed this year. This item will be removed from the regular (dated) agenda and included as an informational item when needed.

01-6 *SCDOT Bridge Design Manual*

Chapter 5 of the Bridge Design Manual (BDM) - Structural Concrete, will be out for review next week.

02-2 *Prefabrication of Bridge Elements for Rapid Construction*

David Rister reported that the EDC committee met and discussed various options to speed construction. The committee includes SCDOT, contractor, and consultant representation. The Department is looking for a suitable location for a slide-in installation. Items of discussion included continued use of various precast bridge elements (cored slabs, beams, caps, approach slabs) and enhancing specifications to allow quicker erection. Goals were established that continue along current EDC goals of continued/increased usage of prefabricated elements and design build construction.

Crowder was the low bidder for the S-32 project. They have proposed a VE to use CIP caps and flat slabs for all but 1 of the bridges. A major reason for the VE appears to be the requirement to cast a slab on top of the precast slab design. Providing temporary support for the precast caps and the use of a two-piece cap were also issues. The Department thinks that a smaller contractor would probably have built the project as designed. Bener Amado offered to send the bid tabs to Peter shortly after the meeting.

Jason Moore asked about the outcome of the project with precast approach slabs. The resident felt the use of precast slabs did not save much time. There were apparently some fit up issues at the bent cap. The slabs are being monitored by Dr. Paul Ziehl (USC) to determine their performance.

Barry Bowers stated his team was looking at precast caps for non-seismic, lower ADT sites. The big issue they are encountering is weight. Contractors suggested that the end bent cap might be a good candidate for precasting. The contractors are concerned that the caps may govern the crane size where pile-driving considerations typically govern crane size.

One concern was balancing contractor capability/manpower with precast/cast-in-place element usage.

Also discussed was the Newbury/Decked Bulb Tee project – (Reid Castrodale/Paul Ziehl) – being designed with an attempt to use shallow, stout, heavy deck girders (Type III with deck cast on).

06-2 *Regional Standardization - PCEF*

As discussed in prior meetings, PCI is allowing state-specific additions to the standard inspection criteria for plant certification. These would be added to the QSM for each plant, and inspected during PCI's third party certification inspections.

SCDOT has indicated an interested and Aly Hussein and Jim McCabe are reviewing PCI quality manuals and the prototype (ILDOT) state-specific items to identify items for this option.

NCDOT is also exploring state-specific issues. GDOT indicated they have not had time to look at the issue due to changes (reductions) in personnel.

09-1 *Accelerated Bridge Construction Project – A Precast Alternate for Flat Slab Spans*

Barry Bowers reported that SCDOT was awarded an Innovative Bridge Research and Deployment Program (IBRD) grant from the Federal Highway Administration to evaluate alternative superstructure types that can be used to accelerate bridge construction. The new system is being designed for a bridge replacement project in Lancaster County which is tentatively scheduled to be let in the summer of 2014. SCDOT plans to detail modified NEXT D sections on one 40-ft end span and the typical precast cored-slab section with a modified shear key and post-tensioning on the other 40-ft end span. The cored slab may be detailed as solid to accommodate additional transverse ties. The bridge also has two 70-ft interior spans consisting of the typical cored slab sections with no modifications to the section geometry. Clemson University will instrument and monitor the performance of the spans. They are trying to lay out the bridge to avoid joints in the wheel paths, since joints have been a source of problems with cored slabs.

Barry indicated that a meeting was scheduled in two weeks to discuss the project design and that he will solicit input from the industry. G/C PCI will be happy to review proposed details and provide comments.

12-1 *Tentative Letting List*

Jeff White sent a sample copy of an NCDOT letting to Bener Amado. Both Bener and Barry looked at it and made some modifications and passed it on, toward the purpose of improving the

level of information listed. Barry will follow up and report to the committee by next meeting. There are concerns about some details, which hopefully it will be resolved by next meeting.

12-2 *Electronic Shop Drawings*

The S-31 project with precast slabs was selected as a pilot project. The Preconstruction meeting has been scheduled for May 13, 2013. The contractor, designer, and consultant will create a link to documents and will see how it goes. It seems that this process will eliminate the transmission time and number of copies (duplicates).

Jeff White summarized the NCDOT process as 1) Print out a copy; 2) Stamp; 3) Scan the stamped copy; 4) Send back to RCE. This process will save plenty of time, where time is the biggest issue! The white paper from NCDOT will be attached to the minutes of this meeting when it is posted on the website.

13-1 *Fabrication from Contract Drawings*

This topic has been discussed at the G/C PCEF meetings. SCDOT has discussed this with the RPGs, but they are not in favor of it.

It was suggested that the idea be tried for one project. Several concerns were raised about consistency of drawing appearance and having the prestressers catch any potential problems with the plans. SCDOT's standard plans help with consistency and the prestressers will still be going through the plans and will notify the Department if there are any problems. Contract plan sheets can be scanned and miscellaneous details and embeds, as well as elongation calculations, detensioning sequence, framing plan and pick points can be added. Producers indicated that the cost to produce shop drawings for SCDOT is about twice the cost for NCDOT projects.

Jason Moore agreed to compile a proposed typical submittal and forward to Barry Bowers so he can take it to the 4 RPGs to get their comments.

New Business

New Projects

- A large cored slab project (Charleston County) using 10 ksi for 70-ft spans.
- A prestressed girder project in Darlington.
- Some projects with shorter beams will be in next few lettings.
- Long term funding for bridges with \$120 million proposed at State House.
- New BR list has been approved, but none of the bridges have been programmed and cannot get to consultants yet.
- RFQ for D/B Wando River Bridge (S-41) has gone out, which is a high level fixed span in Beaufort and Charleston County.
- The US 701 bridge in Horry and Georgetown counties is expected to cost \$35 million. The project is in the environmental permitting phase and is expected to go to design in early to mid 2014. It is expected to include 5-6,000 ft of bridges
- 95/301- two bridges.
- 385/85 interchange section – D/B is on the website.
- Federal annual budget is \$125 million (BR and STIP), but includes inspection and 20% to 30% was for rehab and ratings.
- Richland County passed a sales tax – some of their projects will show up in the SCDOT lettings.

For information:

- PCI State of the Art Report on Precast Pavements has been published – 4 copies are to be supplied to SCDT through FHWA (digital).
- PCI Convention: scheduled for September 21 through 24 in Grapevine, TX. PCI will support up to 4 DOT personnel from each DOT (SCDOT, NCDOT, GDOT). Peter will send a letter shortly with the information/invitation.
- Peter announced that Clemson (impact resistance of insulated sandwich wall panels) and UNCC (investigation of geopolymer cement concrete) each received a PCI research Jenny Fellowship, but neither project is bridge related.
- Peter described the UNCC project for the Solar Decathlon competition in Irvning, CA, sponsored by the US DOE. They have designed a precast concrete house using geopolymer cement concrete (no portland cement) floors and insulated sandwich wall panels, with a capillary tubing system embedded to take water from the solar collectors in winter to charge the thermal mass walls, and extract heat through heat exchangers to cool the walls in summer.

Next Meeting

The next meeting is scheduled for Thursday, November 7, 2013 at 1:30 PM.

The meeting was adjourned at 3:55 PM.