MINUTES OF DOT-AGC BRIDGE DESIGN SUBCOMMITTEE MEETING

The DOT-AGC Joint Bridge Design Subcommittee met on October 11th, 2006. Those in attendance were:

Berry Jenkins	Manager of Highway Heavy Division, Carolinas Branch AGC (Co-Chairman)
Greg Perfetti	State Bridge Design Engineer (Co-Chairman)
Chris Britton	Taylor & Murphy Construction Co.
Randall Gattis	Sanford Contractors
Mark Johnnie	Balfour Beatty
George White	Blythe Construction
Pete Weber	Dane Construction, Inc.
Ron Hancock	State Bridge Construction Engineer
Allen Raynor	Asst. State Bridge Design Engineer
Tom Koch	Structure Design Project Engineer
Paul Lambert	Structure Design Project Engineer
Scott Hidden	Support Services Supervisor – Geotech. Eng. Unit
Chris Krieder	Regional Operations Engineer – Geotech. Eng. Unit
Gichuru Muchane	Structure Design Engineer

During the review of the August 9th meeting minutes, the following items were discussed:

1. *New AGC-DOT Committee Members*
   Mr. Jenkins announced that the contractor representation on the AGC-DOT committee had been increased from four to eight members, with one rotating member. This change will assure more consistent contractor representation at each meeting.

   Mr. Jenkins introduced three new committee members – Mr. Pete Weber, Mr. George White, and Mr. Mark Johnnie. The fourth new member, Mr. Paul Newman, was not in attendance.

2. *Increased Pile Tonnage Projects*
   Mr. Perfetti noted that Structure Design would follow up on the suggestion to investigate whether 12" piles would work for the interior bents on project B-4174.

3. *Policy on Temporary Shoring*
   Mr. Hidden reported that the policy on temporary shoring had been implemented during the week of August 1, 2006, and is effective with the December 2006 letting. Mr. Hidden stated that the standard temporary shoring selection form and the standard temporary MSE wall selection form are available via the Geotechnical Engineering Unit's web site, and the Oregon barrier rail details are available via the Traffic Control Unit's web site. The respective web sites URLs are http://www.ncdot.org/doh/preconstruct/highway/geotech/formprovdet/ and http://www.ncdot.org/doh/preconstruct/wztc/DesRes/English/DesResEng.html. He added that the structure plans will show a line denoting shoring, but the standard shoring details will be included in the two-series roadway plans.

   Mr. Kreider noted that contractors have the option to utilize standard temporary MSE wall details on current projects.

Contractors requested the Department give a training class on temporary shoring. Mr. Hancock stated that temporary shoring would be covered during the winter 2007 DOT-CAGC joint conference.

The minutes of the August 9th, 2006 meeting were approved.

The following items of new business were discussed:

1. *Increased Pile Tonnage Comparison*
   Mr. Hidden distributed and discussed tabulated data showing the estimated pile savings for the four trial projects (B-3621 – let 2/07, B-4076 – let 4/07, B-4155 – let 5/07, and B-4174 – let 3/07) the Department will let with increased pile tonnages. The data showed savings ranging from 60 to 195 linear feet of steel H-piles per project.

   Contractors inquired if the Department permits use of vibratory hammers. Mr. Hidden noted that the Department considers this on a case by case basis depending on the contribution of skin friction to the design, but vibratory hammers are generally acceptable in the top portion of the pile.

2. *Geotechnical Subcontractor Prequalification Requirements*
   Mr. Hidden informed the committee that the Geotechnical Engineering Unit has developed subcontractor and personnel prequalification requirements for specialty geotechnical work items. These requirements are consistent with Section 102-2B of the Standard Specifications. To this end, several new work codes have been created on the documents submitted to the Contractual Service Unit.

3. *Piles with Embedded Data Collectors*
   Mr. Hidden distributed some information on wireless embedded pile sensor systems. He informed the committee that the Geotechnical Engineering Unit (GEU) would be evaluating this smart pile technology on project B-1381 – NC 411 over the Black River in Sampson County. The project will be let in March 2007. The project will utilize 12" concrete piles at the end bents. At each end bent one of the piles will include the embedded data collectors, which utilize wireless technology to collect and transmit pile data during pile driving. This data will be compared to Pile Driving Analyzer (PDA) data, which will be collected concurrently with the smart pile data.

   Contractors noted that this technology would minimize the need to climb 60 - 70 feet to attach accelerometers for PDAs.

4. *Continuous Flight Auger Piles*
   Mr. Hidden gave a presentation on continuous flight auger (CFA) piles. The presentation discussed the advantages and disadvantages of CFA piles. Mr. Hidden stated that the Department is considering using CFA piles for sound barrier wall and bridge foundations, typically to replace end bents on driven piles in areas where vibrations are a concern. He also distributed a draft special provision for CFA piles, and he discussed the section on CFA pile subcontractor prequalification requirements. Mr. Hidden also solicited contractors' comments on the draft provision.

Mr. Hidden also distributed the Grout for Structures special provision that would be used in conjunction with the CFA Piles special provision. He noted that the special provision is for truck delivered grout and does not address packaged grout.

5. *Adhesive Anchors*
   Mr. Koch discussed recent issues regarding failure of adhesive anchors in service. He noted that the Department currently requires field testing anchors that are under direct traffic loads. He added that the Department was considering requiring some level of testing on all applications. Mr. Perfetti stated that the FHWA may issue a directive after the Boston "Big Dig" forensic investigation is completed. This item will be reviewed in more detail when proposed changes are finalized.

6. *Rails on Temporary Bridges*
   Mr. Koch informed the committee that the special provision for Construction, Maintenance and Removal of Temporary Structure was undergoing some revisions to address FHWA concerns regarding the type of bridge rails required on temporary structures. Mr. Koch stated that as a minimum, Test Level 2 (TL-2) rail would be required, however on roads with large volumes of vehicular or truck traffic, a TL-3 rail would be required. In addition, when using truss type temporary bridges, such as Mabey or Acrow, if the rail is attached to the truss, the truss must also be designed to handle TL-2 or TL-3 loading. Based on conversations with Mabey and Acrow, this may require an anchored rail, which will require the decking to be purchased, or providing a slide distance for the rail, which will require a wider bridge than that needed to accommodate traffic. Contractors need to be aware of this requirement when pricing temporary structures because the costs is considered incidental to the entire temporary bridge and will not be considered extra work.

7. *Next Meeting*
   The next meeting is scheduled for December 13th, 2006 in the Structure Design Conference Room B.