

## MINUTES OF DOT-AGC BRIDGE DESIGN SUBCOMMITTEE MEETING

The DOT-AGC Joint Bridge Design Subcommittee met on July 25<sup>th</sup> 2001. Those in attendance were:

Tim Rountree	State Bridge Design Engineer
Berry Jenkins	Manager of Highway Heavy Division, Carolinas Branch AGC (Co-Chairman)
Ron Shaw	Lee Construction Company of Carolinas
Michael Dane	Dane Construction, Inc.
Kevin Burns	R. E. Burns & Sons Co.
Victor Barbour	State Design Services Engineer
Ellis Powell	State Bridge Construction Engineer
Greg Perfetti	Assistant State Bridge Design Engineer
Ricky Keith	Assistant State Bridge Design Engineer
Paul Lambert	Structure Design Project Engineer
Tom Koch	Structure Design Project Engineer
Mohammed Mulla	State Soils and Foundations Engineer
Chris Kreider	Soils and Foundations Engineer
Nilesh Surti	Soils and Foundations Engineer
Rodger Rochelle	Structure Design Project Design Engineer (Secretary)

The following items of business were discussed:

1. The minutes of the July 25, 2001 meeting were accepted.
2. *Standard Shoring Design Update*

Mr. Rochelle distributed a preliminary drawing illustrating standard shoring designs for driven cantilever shoring. The standard shoring designs will be placed in every contract similar to Roadway Standard Drawings. Also distributed were draft plan notes to be used in conjunction with the drawings and a Standard Shoring Selection Form to be submitted by the Contractor one week prior to the use of any standard shoring design. Mr. Barbour emphasized the importance of establishing this policy soon and allowing it to evolve. A copy of the selection form will be sent to the Soils and Foundations Section and be used to monitor the implementation of these standard designs and aid in the evolution of this policy.

Mr. Mulla explained that developing a second table for embedment depths for drilled piles is difficult without knowing what diameter shaft and backfill material would be used. Instead, he proposed that a submittal be required when rock is encountered. After considerable discussion, it was decided that the shaft diameter and possible backfill materials could be identified on the plans such that standard embedment depths for drilled piles may still be possible. Mr. Mulla agreed to explore this option. In general, Soils and Foundations will look further into the issue of allowing standard designs when

rock is encountered and revise the notes accordingly. Additionally, a submittal for installation procedure in rock would not be required.

Mr. Mulla also stated that these standard shoring designs are not applicable to railroad shoring. Furthermore, for the standard shoring designs to be applicable statewide, the soil parameters used in the designs must be based on a 2:1 slope.

Mr. Barbour emphasized that the Contractor will always have the option to submit an alternate shoring design. The standard shoring designs may be more expensive on projects with large amounts of shoring, but at least that economical choice would now be available to the Contractor.

Mr. Rochelle reiterated that tieback designs have not been included in these standard designs yet. The effort is concentrated on getting the cantilever shoring standardized prior to development of the tieback standards.

### 3. *Culvert Excavation*

Mr. Burns reported on the dilemma faced when unsuitable material is encountered during culvert excavation on lump sum grading contracts. It was reiterated that this situation occurs often and does not provide the culvert contractor compensation for replacing this material. Mr. Burns stated that there is no simple way to handle the problem contractually. Instead he asked that the Roadway Design Unit include this material in their borrow quantities. Mr. Barbour stated that conflicts arose in the past as to whether the roadway or culvert contractor was entitled to the payment for that portion of the borrow material. It was decided that no action would be taken on this issue.

### 4. *OSHA Shear Stud Requirements*

Mr. Rochelle updated the committee on the OSHA requirement to weld shear studs to steel girders in the field. The effective date for this requirement is January 18, 2002. The new requirement does not apply to those projects designed before January 18, 2001 nor those projects for which steel erection begins before January 18, 2002. Mr. Jenkins distributed a copy of some discussions that have taken place regarding the new requirement. Furthermore, opposition is mounting against this requirement as it pertains to bridge construction. At this time, pending the outcome of this opposition, Structure Plans will not be revised to require field welding of these studs. Mr. Rountree agreed to brief Len Hill as to the status and sensitivity of this issue. Mr. Rochelle offered to provide a link to the OSHA website from the Structure Design website to facilitate future updates on the ruling.

## 9. *Other*

### i. *Pile Tonnage*

Mr. Powell discussed concerns regarding the specification of 60 tons per pile on 12" steel piles. This tonnage makes it difficult for the contractor to satisfy both the driving tables and the list of approved hammers. A reduction to 50 tons per pile would not adversely affect the cost of the bridge while allowing the Contractor more flexibility in driving.

Mr. Rochelle stated that a policy had been implemented several months ago to allow the Soils and Foundation Section to specify 50 tons per pile on 10" steel piles on small bridge replacement projects. It was decided to extend this policy further and call for 50 tons per pile on 12" piles as a minimum on all bridge replacement projects. The 10" piles will no longer be specified. For other projects where an obvious benefit exists by calling for higher tonnage, it was proposed that 50 ksi steel be considered for the 12" piles. The Contractors present agreed to research the availability of the 50 ksi piles. For economical reasons, 60 tons will still be considered for 12" piles on large projects. Mr. Rountree will discuss these policy revisions with Paul Simon, as the higher tonnage was imposed by the FHWA.

### ii. *Vibratory Hammers*

Mr. Shaw inquired as to the possibility of using vibratory hammers to set the pile to a maximum of half its length. Mr. Mulla stated that this is often acceptable but that an analysis still is necessary for the remainder of the driving. The intent to use a vibratory hammer and the limits to which it will be used should be clearly disclosed in the initial submittal.

### iii. *Lump Sum Bridge Projects*

The alternative bidding concept ("Innovative Contracting") is moving forward, one aspect of which is lump sum bridge projects. Several candidate projects for this approach have been identified and contract specifications are under development.

### iv. *Guardrail Transitions*

In accordance with NCHRP 350, Mr. Rountree announced that all bridge plans will reflect new details for guardrail transitions on the approach slab, beginning with the January 2002 letting.

### v. *Next Meeting*

The next meeting is scheduled for September 26<sup>th</sup> at 10:00 am in the Structure Design Unit Conference Room C.