

NCDOT - G/C PCI Joint Meeting

Thursday, November 16, 2017; 1:30pm

Minutes

1. Self-introductions were made.

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|-----------------|----------------------------------|--|
| Gichuru Muchane | NCDOT – SMU | gmuchane@ncdot.gov |
| Trey Carroll | NCDOT - SMU | thcarroll1@ncdot.gov |
| Madonna Rorie | NCDOT – SMU | mrorie@ncdot.gov |
| Chris Peoples | NCDOT – MTU | cpeoples@ncdot.gov |
| Cabell Garbee | NCDOT – MTU | cgarbee@ncdot.gov |
| Bobby Watkins | NCDOT – MTU | bwatkins@ncdot.gov |
| Peter Finsen | G/C PCI | peter.finsen@gcpci.org |
| Reid Castrodale | Castrodale Engineering / G/C PCI | reid.castrodale@castrodaleengineering.com |
| Jeff White | Prestress of the Carolinas | jeff.white@prestressotc.com |
| Tommy Currence | Prestress of the Carolinas | tommy.currence@prestressotc.com |
| Travis Overcash | Utility Precast | utilityprecast@hotmail.com |
| J. R. Parimuha | Florence Concrete Products | jrparimuha@yahoo.com |
| Richard Potts | Standard Concrete Products | rpotts@standardconcrete.org |
| Chris Arca | Coastal Precast Systems | carca@cpsprecast.com |
| Romeo Garcia | FHWA – HQ | romeo.garcia@dot.gov |

Cabell Garbee will chair this meeting now. G/C PCI should send Cabell agenda items; structures and geotechnical agenda items should go through Trey Carroll. Minutes should be put out as quickly as possible, so items can be addressed appropriately. Chris Peoples indicated that NCDOT was committed to continuing these meetings, since it has been a valuable partnership for all parties. It was agreed that G/C PCI will provide the minutes for this meeting. Peter Finsen requested that NCDOT consider those who should attend the meeting. Gichuru Muchane agree to reach out to Maintenance and Construction to see who should be attending from their offices.

2. RFID/Barcode Information – Cabell Garbee indicated that the system seems to be working well. Data is moving through the system. Some struggle with plants that are using Titan; the two systems are not working well yet, but they are working with it. Expect to be using the Idencia system by January 1. Bobby Watkins reported that implementation is going better for prestress plants than it did for precast plants. The main issues that remain are related to data exchange between Titan and Idencia. Progress has been slow in implementing this system – it was first considered 6 years ago.

It was noted that this topic should be revisited at the next PCEF meeting, since the system should be fully implemented. SCDOT has a difficulty because they are using AASHTO software instead of an inhouse system like NCDOT's HICAMS, which can be modified. The AASHTO software cannot be easily modified.

The durability of the tags was discussed since there seem to be some issues with the plastic holders for the RFID and barcode. Idencia claims that the problems have been fixed. It is reported that some tags are popping off. NCDOT has a tag replacement policy in place.

The location of the tags was also discussed. It is easiest to float the tag in on the top surface. However, for BT-72 girders with the tag on the top, the worker needs a ladder to read from the top. NCDOT is willing to consider other options for placement. Need to consult earlier meeting minutes for locations. Prestressers should develop a proposal for tag location and forward to Cabell.

3. Top Strands – G/C PCI provided NCDOT with some suggested revisions to standard drawings and Section 6.3.1.2 of the Structure Design Manual (SDM) to clarify requirements regarding the number of strands in the top of bulb-tee girders. The current note in the SDM is in the section on Draped Strands but should apply to all girders. Furthermore, two strands are used for AASHTO shapes, but four should be used for bulb-tees. The two outside strands are fully tensioned in the bulb-tees, but the two inner strands are not fully tensioned. SCDOT shows these strands as well as the location of the top draped strands in their standard drawings. The note also indicates that the “strands shall be pulled to a load of 4500 lbs.” It was suggested that this be changed to “pulled to a load of at least 4500 lbs.” which would allow fully tensioned strands. It was noted that the preload force for strands varies with the bed length, so it would be useful to allow the strands to remain at the preload force rather than specifying a force of 4500 lbs. A preload of 4000 lbs is frequently used.
4. Florida I-Beams (FIBs) – G/C PCI asked NCDOT about their plans for allowing use of the FIBs since they typically have some details that differ from those used by NCDOT. Trey Carroll indicated that they are continuing to work on their own details which they will pass on to G/C PCI for review prior to adding them to the other NCDOT standard shapes. The bottom row of strands is placed 2” above the bottom of the girder. It was also recommended that the bottom flange confinement reinforcement not be required to extend the full length of the girder as is required by FDOT since this raises the cost of girders.
5. Standard Specifications – At the last meeting, NCDOT indicated that G/C PCI would be given an opportunity to review the specifications prior to publication. However, the 2018 edition of the Standard Specifications is already completed and is posted on the NCDOT website. NCDOT indicated that the specifications are a living document, so G/C PCI can provide comments at any time that will be considered. NCDOT fully intends to include industry in reviews of changes to the specifications. It is likely that the changes considered for 2018 were not significant and were mostly incorporating special provisions into the specifications.

6. Debonding for Web Splitting – G/C PCI expressed concern about structural impact of debonding 50% of strands at ends of bulb-tees to control web splitting, since this would significantly reduce the capacity of the girder at the ends. Some producers have found that debonding less than 50% is also effective. This applies to both straight and draped designs, although the debonding designed into straight strand girders generally helps. It was noted that the cracks often do not appear for several weeks after fabrication, which often means that fabrication of the strand pattern has been completed prior to cracking being observed, so the debonding is not implemented.

The possible use of silane sealers on girders when cracking appears was discussed. This had been considered several years ago along with an allowable crack width. However, NCDOT then decided that the standard specifications would not allow cracks of any width. It was asked if the topic could be reconsidered.

7. Shrinkage Crack Control – Chris Arca mentioned that they had used ConFilm, an evaporation reducing product (that now has been renamed), to reduce potential shrinkage cracking on slabs. They had requested to use it for top flanges of girders which are also subject to shrinkage cracking if the conditions were right. Cabell Garbee responded by describing the process for evaluating new products, which involves both M&T and SMU. Every two years, suppliers of materials on the list are contacted to request updated information including any name change. The requests are not always successful. If a product with the new name is not on the list, it is fairly simple to get the name changed and have it added to the list.
8. Standard End Zone Reinforcement Details – The FDOT standards for FIBs have standard end zone reinforcement details, so it was asked if NCDOT would consider using similar details for other sections. The NCDOT girder standards already have standard reinforcement details. There are no welded wire reinforcement standards yet, but they will look at it.
9. Rubbing Girders – New OSHA standards for silica dust have made it more difficult to rub girders. Other operations in the plant like grinding and cutting concrete have been addressed by development of new equipment that can capture the dust, but there is no such solution for rubbing girders. Furthermore, girders are placed as close as possible in storage, so the spaces between them, where the rubbing must take place, become confined spaces which elevate the risks for silica. Therefore, it was asked if rubbing is required for all girders. It was

suggested that perhaps rubbing could be limited to the exterior faces of fascia girders to reduce the amount of rubbing required. NCDOT agreed to consider the recommendation.

10. Lateral Stability of Girders – Trey Carroll reported that the capability to evaluate lateral stability for lifting is being added to the NCDOT girder design program. Once this is implemented, they will move to develop a policy. They anticipate lifting loops located at about 1.5 times the girder height. NCDOT requested input from prestressers regarding the issues and limits to consider, such as where lift points should be located.
11. FHWA – Romeo Garcia reported that FHWA is developing a report on using bridge bundling to reduce overall project costs.
12. Project Letting Update – Several projects are expected to be in 2018 lettings: I-440 (Blue Ridge to Hillsboro); US 64 in Wadesboro; some bridges let as design/build projects. A number of projects are farther out.

The Department is not designing many bridges in house any more. Most are going to consultants with only a few kept in house to maintain their expertise.

13. Prestressed Concrete Bridge Design Seminar – Several topics were noted as potential topics for discussion at the next seminar: Standard end zone reinforcement and top strands.
14. PCI Convention – Peter Finsen indicated that G/C PCI is offering to support four people from NCDOT to attend the next convention, which will be in Denver, CO, on February 20-24, 2018.
15. Action Items:
 - a. G/C PCI to provide comments on placement of RFID tags in products
 - b. Review minutes of previous meetings to determine the agreed locations for tags
 - c. NCDOT to send FIB details to G/C PCI for review prior to posting
 - d. NCDOT to consider welded wire reinforcement option for girders
 - e. NCDOT to consider modifying requirements for rubbing girders, possibly limiting to exterior faces only
 - f. G/C PCI to identify issues or limits related to lateral stability, including the location of lifting loops
 - g. Gichuru Muchane agreed to reach out to Maintenance and Construction regarding attending meetings
 - h. Reid Castrodale to prepare minutes from meeting

16. Future Meetings: Thursday, March 29, 2018 @ 1:30pm

17. Meeting Adjourned - 3:45 pm