

STRUCTURE BULLETIN

NCDOT Construction Unit

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1. Current Issues
2. New Pile Driving Item
3. Specification Questions
4. New Training



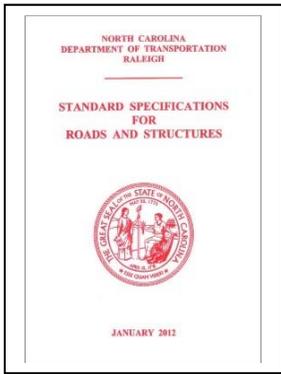
Current Issues: Concrete Mix Designs

Concrete mix designs are no longer assigned to specific contracts. There is now a database of approved mix designs for each plant located at <https://engblp.services.ncdot.gov/EAS/CMD/Main.aspx>.

Inspectors will have to be familiar with the requirements of their specific contract to ensure that any special requirements for a concrete mix are met. An example would be for Concrete Wearing Surface. This Special Provision may be included in a contract where a cored slab, box beam, or existing cast in place deck is to receive a concrete wearing surface overlay. The Special Provision calls for: *"high early strength Class AA concrete and a coarse aggregate gradation of 78M. The Class AA concrete shall contain fly ash or ground granulated blast furnace slag at the substitution rate specified in Article 1024-1 and in accordance with Articles 1024-5 and 1024-6 of the Standard Specifications."* There may be several Class AA mix designs approved for a specific plant, but the inspector must make sure that the mix placed in the overlay uses 78M coarse aggregate.

Pile Driving Equipment Setup:

This new contract item is set up as a per each pay item. For each pile driven, whether it is ten feet long or 100 feet long, the contractor is paid one pile driving equipment setup. If there are eight piles under an end bent the contractor is paid for eight pile driving equipment setups. This item is to reduce the risk associated with pile driving. If a contractor placed the expense of the crane and leads in the per foot item of piles and the contract severely underran piles, then he would lose money. Conversely, if he did this and the pile quantities severely overran, we would pay too much for the item. The addition of the new item ensures that the contractor is paid fairly for the work performed and at the same time reduces the amount paid by the department for risk bid into the items. Be on the lookout for this new special provision and pay item.



Special Provision Questions:

Question: Is the contractor allowed to use a vibratory screed on approach slabs?

Answer: Yes and no. The **2012 Standard Specifications** state "*Finish and groove the reinforced concrete bridge approach slabs in accordance with Article 420-14...*" Section 420-14(B) states that the contractor is supposed to use a "*mechanically operated longitudinal or transverse screed*" and further states not to use a vibratory screed unless specifically approved. Therefore, under the 2012 Standard specifications the contractor should not be using a vibratory screed (think Wacker, Razorback, etc....) on approach slabs unless the engineer specifically allows it. Otherwise they should be using the same screed they finished the deck with (such as Bid-Well or Gomaco).

The **2018 Standard Specifications** state "*Finish and groove the reinforced concrete bridge approach slabs in accordance with Article 420-14; however, for approach slabs of 15 feet or less the contractor may submit an alternate screed type for approval.*" Therefore, under the 2018 Standard Specifications any approach slab over 15 feet long must be finished with the same screed as the deck. Shorter approach slabs may be finished with another method if the engineer approves.

On these shorter approach slabs the engineer may, if he chooses, allow the contractor to use another screed such as the vibratory screed above or, as some contractors have recently requested, use a roller screed. The specific project and the geometry of the approach slab should guide the decision to allow this. A roller screed is basically a single, long roller which spins to finish the slab. While these may work for a vertical tangent, they cannot be graded to finish a vertical curve. A vibratory screed can be set up to finish a vertical curve, but must be graded as a longitudinal screed, such as a Shugart.

If you have any questions about this please contact your Area Construction Engineer or Regional Bridge Construction Engineer.

If you have a topic you would like to see addressed in a future edition of the Structure Bulletin please [email](mailto:acoehran@ncdot.gov) us at either acoehran@ncdot.gov or aeerwood@ncdot.gov

New Training

Several new videos have been added to the [NCDOT Construction Unit Training YouTube playlist](#). These include:

Cored Slab and Box Beam:

1. [Introduction](#)
2. [Tensioning](#)
3. [Grouting](#)
4. [Barrier and Wearing Surface](#)