Bridge Field Services Advisory

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Wet Curing Bridge Decks

This Bridge Field Services advisory serves to notify project offices of revisions to specification language, formally included in the October, 2014 errata, which clarifies the intent of wet curing bridge decks as described in subsection 706.03.N.1.b. The last paragraph of the subsection now reads:

> Maintain the wet cure until the concrete attains at least the minimum specified 7-day flexural or compressive strength, and for at least 7 days following concrete placement. Do not remove the wet cure system based on 7-day compressive strengths attained in less than 7 days. **Do not discontinue wet cure nor cast succeeding portions onto the bridge deck prior to completion of the 7-day two-phase continuous wet cure. Ensure excess or ponding water is removed prior to casting of succeeding structure portions.**

The two-phase continuous wet cure is defined in subsection 706.03.N.1.b. The first phase of the wet cure is the single coat of curing compound applied at a rate of one gallon per 150 square feet of surface. The second phase consists of the burlap, soaker hoses and polyethylene film required to ensure uninterrupted wet curing of the bridge deck for 7 days.

Previous language could be interpreted in such a manner as to allow casting of succeeding portions (sidewalks, brush blocks, barrier, etc.) before the end of the 7-day wet cure on bridge decks. The intent of the standard specifications related to this topic is to ensure all bridge deck concrete, less latex modified concrete overlays, receives a minimum of a 7-day continuous wet cure as this is critical to the long term performance and durability of bridge decks. The casting of succeeding portions results in termination of the wet cure at those areas of the bridge deck and makes the deck fascia particularly susceptible to drying out, sacrificing long-term durability. Subsection 706.03.H.1, has also been revised to address the 7-day wet cure requirement.

> Do not cast sidewalk, curb, or barrier pours until the deck concrete attains at least the minimum specified 7-day flexural or compressive strength, and after completion of the 7-day continuous wet cure. **The forming of succeeding portions may occur, provided the wet cure is maintained.**

The *forming* of subsequent pours may take place when the bridge deck attains the minimum specified 7-day flexural strength, as long as the wet cure can be maintained in such a manner that the deck concrete is continuously, visibly wet during the forming operation and inside the forms. This can be accomplished by allowing the contractor to remove the burlap and polyethylene film; however, keeping the soaker hoses functioning.

If at any time any portion of the bridge deck is not maintained continuously wet, the Contractor must be directed to put the wet burlap and polyethylene film back in place. *Placing* concrete on new bridge decks is not allowed until after the 7-day wet cure has been complete. If the contractor chooses to install form work (and maintain the wet cure) prior to the end of the 7-day wet cure, they must immediately layout the wet cure in such a manner that keeps the concrete within the formwork wet, to the Engineer's satisfaction.

Other top surfaces, such as sidewalks, parapets, brush blocks, etc. must be cured per 706.03.N.2. For these other top surfaces that may receive a succeeding portion, for example, where bridge barrier railing is to be cast on top of sidewalk, it is acceptable to temporarily stop the wet cure and cast succeeding portions provided the 7 day flexural or compressive strength has been reached. The wet cure must only be stopped at the portion receiving the succeeding portion, and must be started again once all necessary concrete can support it.

Per subsection 706.03.H.1, last paragraph, heavy equipment is not allowed on the bridge deck until deck concrete attains at least the 28-day flexural or compressive design strength, and after completion of the 7-day wet cure. If contractor equipment is needed to install form work prior to the end of the 7-day continuous wet cure, it must comply with Table 104-1, *Loads Permitted to Cross Structures as Concrete Gains Strength,* of the Standard Specifications for Construction.

Please contact Bridge Field Services with questions regarding the curing of bridge decks and the casting of succeeding portions.