



April 26, 2024

MEMORANDUM: Supplemental Cementitious Materials (SCM) Content for High Early Strength (HES) Concrete Mixture Designs

Background:

This memorandum is relevant for projects using HES concrete mixture designs during the construction season. Regional Technical Services Section (TSS) staff can use this to assist Project Development Section (PDS) staff on a per-project basis when a change of conditions necessitates its use. When a HES concrete mixture is requested or directed to be used instead of an established concrete mixture, additional cement is required to be added. However, the Wisconsin Department of Transportation (WisDOT) Standard Specifications (SS) 501.3.2.2.2(1) requires replacing 15 to 30 percent by weight of the total cementitious material content with approved SCMs for class I concrete as specified in SS 715. To remain in compliance with SS 501.3.2.2.2(1), this memorandum guides how to handle different HES scenarios.

Handling HES Concrete Mixture Design changes:

HES Bid item INCLUDED in "Schedule of Items" of the Proposal (ex: 415.1080 Concrete Pavement HES 8-Inch)

- Contractor will follow all the SS requirements and maintain the 15% minimum SCM requirement for the HES mix per SS 501.3.2.2.2(1).

HES Bid item NOT INCLUDED in "Schedule of Items" of the Proposal

- A request or directive to use a HES concrete mixture instead of regular concrete was made during a project.
 - If the contractor requests, send an email to the department for the engineer's approval, including the justification for using the HES concrete mixture and its intended location(s).
 - When the department directs, they will inform the contractor about the location(s) where the HES concrete mixture is required and document the information in the project records.
 - The contractor will need to ensure that the intended HES concrete mixture is also submitted on the appropriate Concrete Mix Design Form (DT2220 or DT2221). If not previously submitted, the contractor will amend the appropriate DT concrete mixture design form and QC plan.
 - Mixture design is required to have an additional cement per SS.
 - Due to the HES item not being included at the time of LET, the contractor is not required to maintain the minimum 15% SCM content. This is due to the change of conditions to the contract and lack of time available to trial batch a new mixture design to ensure minimum 15% SCM for a HES concrete mixture design.
 - If the contractor initiates the use of HES concrete mixture request, add the following bid item to be paid at the same unit price as the original bid item:
 - SPV.0180.XX Concrete Pavement X-inch- HES Contract
 - When directed by the department, the department will process a change order to include the appropriate HES bid item. This will constitute a change of conditions and therefore, a new unit price will be established for the HES concrete mixture.
 - Separate lots/sublots are required. Incentives will not apply to the HES concrete mixture.

The provided guidance is a best practice to follow during the construction season and is not contractual. Please contact BTS - Concrete Materials Unit if there are questions related to this memo.