

MATERIALS DIVISION



MEMORANDUM

GENERAL SUBJECT: Revision of Materials MOI to Add Detail Requirements for Crushed Hydraulic Cement Concrete for Subbase and Aggregate Base	NUMBER: MD 376-14
SPECIFIC SUBJECT: Revise Section 309.05 to Materials MOI to Add Detail on Laboratory Tests and Source Testing Frequency	DATE: June 4, 2014
DIRECTED TO: District Materials Engineers	SIGNATURE: Charles A. Babish, PE <i>Signature on original copy of memorandum</i>

This Memorandum notifies the users of the Materials Division Manual of Instructions that Section 309.05 has been revised to better detail laboratory test methods and source acceptance testing frequency for using Crushed Hydraulic Cement Concrete (CHCC) for use as road subbase and aggregate base.

Revise Section 309.05 of the MOI

Sec. 309.05 Use of Crushed Hydraulic Cement Concrete for Embankment Fill, Subbase or Aggregate Base Material

Crushed Hydraulic Cement Concrete (CHCC) may be used as embankment fill per the requirements of Section 303, Earthwork, of the VDOT Road and Bridge Specifications.

In order to use CHCC as subbase or aggregate base material, it must be properly sampled, tested, and maintained. The first step in accomplishing this is to classify CHCC into one of two categories based upon its origin, either Known Source CHCC or Unknown Source CHCC.

Known Source CHCC is CHCC from VDOT demolition projects, such as when concrete pavement or bridge components are being removed or replaced. To maintain Known Source status this material must be stockpiled separately from Unknown Source material.

Unknown Source CHCC is CHCC from unknown or multiple sources, such as curb and gutter or sidewalk material, or demolition of commercial or residential structures, washout/bring back from concrete trucks, and CHCC composed of material from multiple sources.

CHCC shall be sampled to ensure that source properties are consistent and meet the VDOT requirements as stated in Section 208 of the VDOT Road and Bridge Specifications, Subbase and Aggregate Base Material. *These tests are magnesium sulfate soundness (AASHTO T 104), Atterberg limits (VTM -7/AASHTO T89), Los Angeles Abrasion (AASHTO T 96), and flat and elongated particles (ASTM D 4791).* These tests shall be performed by a laboratory meeting the requirements of AAHTO R 18 and certified to perform these tests. All testing will be performed at the CHCC material supplier's expense.

These samples shall be obtained during the crushing of the CHCC stockpile to ensure that the entire stockpile is adequately tested. Samples shall be obtained either from the belt feeding the stockpile or from material after it has been placed on the stockpile. Each sample shall weigh from 75 to 100 lbs. If samples cannot be obtained during the construction of the stockpile, then samples shall be obtained from a completed stockpile in accordance with the following procedure:

- (1) The completed stockpile shall be measured and the total tonnage of material determined to a reasonable accuracy, to within at least 500 tons.
- (2) The total tonnage shall be divided by the sampling frequency for the type of CHCC to determine the number of source property samples to obtain.
- (3) The samples shall be obtained from the stockpile in the manner described in Sec. 308.05(a). The samples shall be obtained by a Certified Central Mix Aggregate Technician or a VDOT Materials Representative.
- (4) The stockpile shall have been sampled no more than two (2) years prior to the start of its incorporation into the project construction, and at least one (1) time per year thereafter during the course of the project to ensure its source properties meet specification requirements.

CHCC samples obtained for source property testing shall be tested in accordance with Section 208 of the VDOT Road and Bridge Specifications. *Known Source CHCC shall be sampled at the rate of 1*

sample per 16,000 tons of material, and Unknown Source CHCC shall be sampled at the rate of 1 sample per 4,000 tons of material. All testing will be performed at the CHCC material supplier's expense. Once a CHCC stockpile has been constructed and samples have been obtained for source property testing, no additional material may be added to that stockpile without approval from the Engineer. In order to add additional CHCC material to the stockpile, the new material must be stockpiled separately and tested in accordance with this specification. If the source properties are found to meet VDOT specifications for aggregate base and subbase, then the additional stockpile may be incorporated into the existing stockpile.

Sampling, testing, and inspection for acceptance of lots of subbase or aggregate base material, whether consisting solely of CHCC or a mixture of virgin aggregate and CHCC, shall be handled in the same manner as for dense-graded aggregate per Secs. 308 and the rest of this Sec. 309 and Section 208 of the VDOT Road and Bridge Specifications, except that liquid limit requirements will be handled as per the VDOT Special Provision for CHCC (Used as Subbase and Aggregate Base Material).

cy: Commissioner
Chief Engineer
Chief of Operations
Division Administrators
Residency Administrators
District Materials Engineers
District Construction Engineers
District Maintenance Engineers
Areas Construction Engineers
Virginia Asphalt Association
Virginia Transportation Research Council
Virginia Ready-Mixed Concrete Association
Precast Concrete Association of Virginia
Virginia Transportation Construction Alliance
Virginia Dept. of Minority Business Enterprise
Federal Highway Administration
American Concrete Paving Association
NE Chapter, Southern Region
Old Dominion Highway Contractors Association