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Subject CTB Sampling and Testing instructions

This e-mail will address some concerns and issues associated with CTB including:

- Mix Design review and Approval
- OHD L-53, "Method of Test for Cement-Treated Base Mix Design" Revision
- CTB Testing responsibility
- SiteManager adjustments to Contract Sampling and Testing Requirements
- SiteManager documentation of test results

Reference Documents:

- Special Provision 317-8(a-b)99
- OHD L-53 (revised 7/24/2009) <http://www.okladot.state.ok.us/materials/pdfs-ohdl/ohdl53.pdf>
- Standard Specifications 701.15, 701.05, 701.06

Mix Design Review and Approval:

It is the Resident Engineer's responsibility for review and approval of CTB mix designs. Please pay close attention to the mix design requirements in OHD L-53, especially section 7. The lab doing the mix design must have the proper molds to conduct this testing. Verify the proposed aggregates meet the requirements of 701.15. The coarse aggregate must be an approved concrete aggregate. If you have any questions when reviewing the mix design, contact Chris Clarke in the Soils Branch of the Materials Division (405-522-4994).

OHD L-53 Revision:

A minor change to the procedure (see note 8, section 5.6) removes the requirement to soak the specimens four hours prior to testing. This revision was made at the recommendation of the Soils Lab. It is recommended to begin utilizing this revised method for all testing.

What hasn't changed?: The molds and molding procedures used for mix design and for acceptance testing in the field are described in OHD L-53. The molds are similar but not the same as a standard proctor mold. It is important the contractor understands the molds specified this procedure must be used.

CTB Testing Responsibility:

Section 317.04B of the special provision provides direction to the contractor to test in accordance with OHD L-53. This has been interpreted to mean the contractor is responsible for testing the CTB. OHD L-53 deals primarily with the compaction of the mix in specified molds to determine maximum density, optimum moisture, and strength; therefore the contractor is responsible for the field molding of CTB specimens for density, and strength determination. The Residency personnel shall witness this compaction and strength testing activity by the contractor's personnel. Verify the Contractor is using the proper size molds as specified in OHD L-53. The Residency personnel should be responsible for the aggregate testing and the nuclear density (in-place density) testing.

SiteManager adjustments to Contract S&T Requirements:

The original default S&T requirements were established based on one of the first CTB projects. Many of the current projects have a CTB thickness of 4". Review the special instructions in the Contract Sampling and Testing requirements window for the aggregate (aggr011) material code and adjust the conversion factor if necessary. This may have the affect of reducing the number of aggregate tests required on the project.

SiteManager documentation of test results:

Given the lack of knowledge about the performance or durability of CTB, it is important to accurately document the sampling and testing of this material. As we gather data that can be analyzed (SiteManager database) it should be possible to review material specifications and testing requirements and make adjustments as we learn more about this material. Therefore it is essential to create accurate sample records and input material test results in the SiteManager test templates in accordance with the S&T requirements.

Residency Testing personnel should be familiar with the T27 template, the Sand equivalent template (C93004) and nuclear density template (C95001).

A new template (C95002) has been developed to capture information about the maximum density, optimum moisture and strength testing of the field molded specimens. While this testing will be conducted by Contractor personnel, it is required

that the Residency personnel fill out sample records and templates to capture this testing so a collection of historical data can be gathered for future analysis.

You should be aware that SiteManager restricts access to template data entry based on certification of technicians. The new test template C95002 has not been assigned to any technicians yet as there is no certification at this time, therefore it will be necessary to contact the Materials Division (e-mail dconaway@odot.org), and let us know what technician will be entering this data in the template so we can set up the necessary security access for them.

This e-mail is originally being sent to the Residencies with projects containing CTB, and to all of the Division Construction Engineers. Forward this information as necessary, especially to lab and inspection personnel.

Contact the Materials Division if there are further questions.

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