

**ALDOT-419**  
**EXTRACTING, TRANSPORTING, AND TESTING CORE SAMPLES**  
**FROM SOIL-CEMENT**

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## 1. Scope

- 1.1. This procedure shall establish the parameters to be used in extracting, transporting, and testing core samples from soil-cement.

## 2. Referenced Documents

### 2.1. ALDOT Specifications:

- 2.1.1. Section 304 Soil-Cement.

### 2.2. ALDOT Procedures:

- 2.2.1. ALDOT-249 Procedure for Acceptance of Fine and Coarse Aggregates

### 2.3. AASHTO Standards:

- 2.3.1. T 22 Compressive Strength of Cylindrical Concrete Specimens.
- 2.3.2. T 24 Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- 2.3.3. T 231 Capping Cylindrical Concrete Specimens.

## 3. Extraction of Core Samples

- 3.1. The Project Engineer will designate the area to be cored.
- 3.2. Soil-Cement cores shall be extracted as the frequency specified in Section 304.
- 3.3. The size of the soil-cement cores shall be as specified in Section 304. Coring equipment shall be as specified in AASHTO T 24.
- 3.4. The coring operation shall be performed by the contractor under the observance of an ALDOT representative.
- 3.5. Coring shall be done dry. If the extraction of the core samples can not be performed dry, a minimum amount of water at a low flow shall be allowed.
- 3.6. Seal all cores samples in plastic bags to minimize moisture loss. If water was used during the coring operation, the surface of the cores samples shall be let to air dry in the shade for 30 minutes before placing them in a plastic bag.

#### **4. Transporting Core Samples**

- 4.1. The Contractor shall provide a covered wooden box big enough to place the core samples.
- 4.2. The core samples shall be placed in a horizontal position with at least half of their diameter embedded in a pre-dampened bed of sand.
- 4.3. The cores samples shall be transported immediately after placing them in the covered wood box.
- 4.4. Extreme care shall be taken when placing the samples in the box and also during their removal.
- 4.5. Extreme care shall be taken in the rideability during the transportation of the samples to prevent damage from jarring.

#### **5. Core Sample Preparation**

- 5.1. Remove sample from the box and plastic bag.
- 5.2. Dry saw the sample's bottom surface to remove any irregularities from the bottom surface. Make sure the surface is square. If dry sawing can not be performed, then a minimum amount of water at a low flow shall be used.
- 5.3. All cores will be tested using sulfur mortar only. Cap both ends of the cores as per AASHTO T 231 using sulfur mortar after dry sawing. Cores should sit at room temperature until they have dried to a constant mass before capping both ends.
- 5.4. Sawing equipment shall meet the requirements of AASHTO T 24.

#### **6. Core Sample Testing**

- 6.1. Cores shall be tested for compressive strength when they have obtained a constant mass and the sulfur mortar caps have been allowed to harden according to AASHTO T 231.
- 6.2. Testing equipment shall meet the requirements of AASHTO T 22.
- 6.3. Personnel performing compressive strength testing shall be ALDOT Concrete Strength certified technician.
- 6.4. For screw type testing machines, the moving head shall travel at a rate of .05 inch per minute. For hydraulic-operated machines, the load shall be applied at a rate of movement corresponding to a loading rate on the specimen within the range of 20 to 50 psi/s.

- 6.5. Rate of loading shall be applied continuously and at the same rate throughout the testing of the sample.
- 6.6. Report the compressive strength of the sample to nearest tenth psi. If the specimen length-to-diameter ratio is less than 2 to 1 a correction factor as shown in AASHTO T 22 shall be applied to the compressive strength results.

## **7. Repair of Core Sample Holes**

- 7.1. The Contractor shall be responsible for repairing the core holes immediately after the cores have been extracted without any extra compensation from the Department.
- 7.2. Core holes shall be filled with the same mix of soil-cement used during placement.
- 7.3. The soil-cement mix shall be placed in increments of three inch layers at a time. Each layer shall be packed in place with small tools and consolidated by tamping.
- 7.4. Other repair methods may be used if requested in writing to, and approved by, the State Materials and Tests Engineer. Alternate repair procedures shall not be used until approved by the State Materials and Tests Engineer.