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## Test Procedure for

# PERMEABILITY OR WATER FLOW OF HOT MIX ASPHALT



## TxDOT Designation: Tex-246-F

**Effective Date: November 2009**

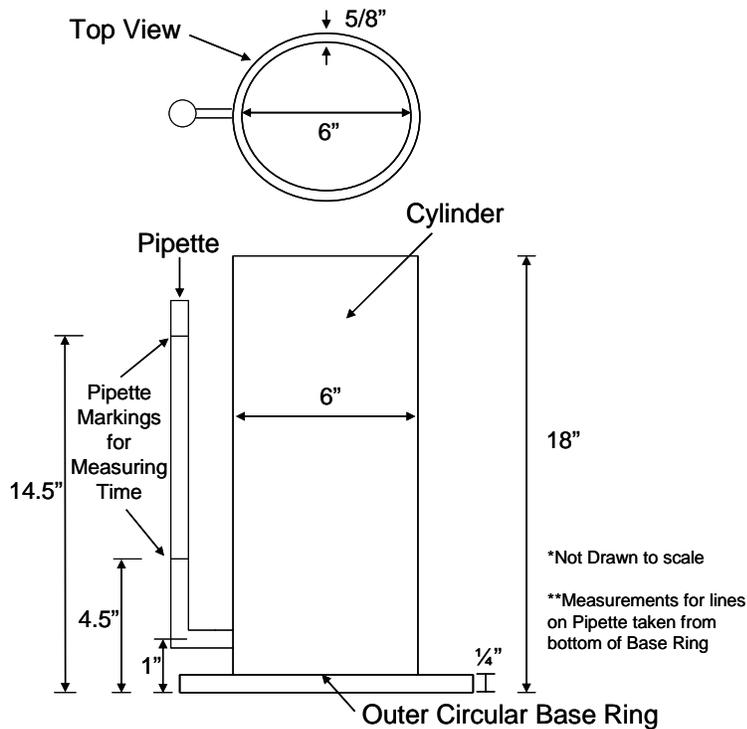
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### 1. SCOPE

- 1.1 Use this test procedure to evaluate the permeability of Permeable Friction Course (PFC) hot mix asphalt. High permeability of PFC mixtures is critical, as the primary purpose of the use of PFC is to drain water off the pavement surface to reduce splash and spray and improve the wet pavement friction to decrease hydroplaning.
    - 1.1.1 Use this test procedure on PFC pavements under construction or on PFC roadways already constructed to test and verify that the compacted mixture has adequate permeability. Use of a cylindrical field permeameter measures permeability or water flow rate as water channels onto the pavement surface.
  - 1.2 The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.
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### 2. APPARATUS

- 2.1 *Cylindrical field permeameter*, used to channel water onto the pavement surface, equipped with a pipette graduated in divisions of 1.0 in. (25mm). (See Figure 1.)
- 2.2 *Stopwatch or timing device*, used to record the time of travel of water in the pipette, graduated in divisions of 1.0 sec.
- 2.3 *Plumber's putty*, used to seal the field permeameter to the pavement surface.



**Figure 1**—Field Permeameter Used to Measure Water Flow Rate

### 3. PROCEDURE

- 3.1 Select an area of the compacted PFC hot mix asphalt pavement after it cools down immediately following roller compaction or of any roadway already constructed. Remove any debris on the pavement surface that can hinder the sealing of the permeameter to the surface of the mat.
- 3.2 Turn the permeameter upside down, so that the bottom of the outer circular base ring is facing upwards, and then place a ring of plumber's putty onto the surface of the outer circular base ring. Use an adequate amount to create a watertight seal between the permeameter and the pavement surface.
- 3.3 Turn the permeameter upside down and push it onto the pavement surface. Use enough force to create a watertight seal between the permeameter and the pavement surface, where the plumber's putty penetrates the surface voids of the pavement surface.
- 3.4 Trim and remove any excess plumber's putty inside the permeameter.
- 3.5 Push on the excess plumber's putty outside the permeameter with the use of a thumb or finger against the outer circular base ring to tighten the seal between the pavement surface and permeameter.
- 3.6 Fill the permeameter with water approximately 1–2 in. (25–50 mm) above the top marking on the pipette.

- 3.7 Start the timing device when the water level reaches the top marking on the pipette.
- 3.8 Stop the timing device when the water level reaches the bottom marking on the pipette.
- 3.9 Record the time the water traveled from the top marking on the pipette to the bottom marking on the pipette.

**Note 1**—Typical range is normally less than 20 sec. for newly constructed PFC mixtures.

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#### 4. ARCHIVED VERSIONS

- 4.1 Archived versions are available.