FLORIDA DEPARTMENT OF TRANSPORTATION
State Materials Office
5007 NE 39th Avenue
Gainesville, Florida 32609

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Florida Method of Test for Thickness Determination in Soil-Aggregate Bases

Designation: FM 5-534

1. SCOPE

This method presents a procedure for efficiently boring holes to determine the base thickness in all soil-aggregate bases.

2. SIGNIFICANCE AND USE

This method provides a systematic procedure for obtaining consistent and accurate base thickness measurements, which is crucial for ensuring the structural integrity and longevity of roads and other infrastructure. It ensures compliance with specifications for base thickness, an essential aspect of construction quality assurance.

3. EQUIPMENT

3.1 Drill or Auger Machine – A manually thrusted or fixed handheld machine capable of providing rotary motion and equipped to provide actuated thrust in a downward direction, perpendicular to a horizontal plane. Any other drilling apparatus will be permitted as approved by the Department.

3.2 Core Bits – The tip of the coring bit sets for drilling machines shall be diamonds, tungsten carbide, or similar hard materials appropriate to the hardness of the material being drilled. The core bits shall be affixed to a casing of sufficient length to penetrate the full depth of the base and shall be a minimum of three (3) inches in diameter.

3.3 Auger Stem – Solid or hallow stem auger with a spiral blade on the outside of sufficient length to penetrate the full depth of the base with a minimum diameter of three (3) inches.

3.4 Borehole Cleaning Tool – A spoon, trowel or similar tool to remove debris from the bored hole.

3.5 Measuring Device – Appropriate measuring tool(s) such as sliding combination-square; adjustable T-square, carpenter's folding ruler, measuring tape, measuring ruler, calipers, and/or metal straight edge with a minimum measurement resolution of 1/16th of an inch.

4. PROCEDURE

4.1 The thickness of the base shall be measured at random intervals within each LOT. Measurements shall be taken at various points on the cross section such as left, right, and centerline in random order.

4.2 Firmly seat the bit or end of the stem auger vertically on the surface of the base and align the shaft (or rod) axis perpendicular to the surface plane. Activate the machine and apply sufficient downward thrust to cause the bit or tip to cut into the base material with a constant and steady force. Continue in this manner until the entire depth of the base has been penetrated. At this time, remove the drilling unit from the base and extract the material.

Note: Cores are not used for base-thickness determination, however, the core material should be retained for replacement in the hole after use.

4.3 Remove all material from the hole. The hole should be devoid of all particles, rocks, and debris and should be checked for perpendicular alignment from the surface plane of the base. Trim the sides of the hole in order to locate the breakpoint between subgrade and base.

4.4 Measure the distance from the top of the finished base down to that precise point where the base meets the top of the subgrade and shall be along the axis perpendicular to the surface plane. The tool used to measure the base thickness and used at the surface plane must meet the requirements of ***Section 3.5***.

4.5 Round off and record measurements to the nearest 0.1 inch.

5. REPORT

5.1 Test date

5.2 Tester/Technician Identification Number (TIN)

5.3 Location of test (LOT Number, Station Range, Test Station, Offset)

5.4 Measured depth, in inches

5.5 Disposition status