STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
SUPPLEMENT 1064

PROCEDURES FOR RIGID PAVEMENT THICKNESS DETERMINATION

April 18, 2008

1064.01 General
1064.02 Equipment
1064.03 Determining Core Locations

1064.01 General. According to 451.17 of the Construction and Materials Specifications, the Contractor is responsible for coring the concrete pavement at the direction of the Engineer. The Engineer determines the locations that the cores will be taken as per this Supplement and measures the 4 inch (100 mm) cores according to AASHTO T148 to the nearest 0.1 inch (1 mm).

This Supplement specifies the equipment to be furnished by the Contractor, and the procedure that the Engineer is to use in determining the core locations.

1064.02 Equipment. Equipment to be furnished by the Contractor that is required for sampling and measuring cores includes:
   1. Portable core drilling equipment and water supply having sufficient capacity to drill the entire thickness of the concrete.
   2. 4 inch (100 mm) diameter core bits.
   3. Measuring device to measure to the nearest 0.1 inch (1 mm), (AASHTO T 148).

Equipment that is to be furnished by the Department will include:
   4. Ruler - readable to the nearest 0.1 inch (1 mm)
   5. Measuring Wheel.

1064.03 Determining Core Locations. In addition to 451.17, the Engineer will use the following procedure in determining the core locations, and recording the results:

1. From project documents, determine the quantity of rigid pavement or base that needs to be cored. Separate into categories such as:
   A. Item (ie. 451, 452, 305 ...)
   B. Type (ie. Mainline, shoulder, ramp ...)
   C. Design Thickness.
   D. Reference Number.
   E. Limits of the Rigid Pavement
F. Location Description (ie. Street name, route number, direction ...)

2. From project records, determine the following information:
   A. Placement Width.
   B. Placement Dates.
   C. Job Mix Formula(s) (JMF)
   D. Station Limits of each JMF

3. Determine the beginning and ending stations for each separate item, thickness and type of rigid pavement. Determine how many cores need to be taken from each item as per 451.17. This is determined by dividing the quantity of pavement by 2000 sq. yds (1650 m$^2$) lots.

4. Determine the station limits of each lot of rigid pavement or base that a core will represent. The determining factor is the placement width. A core should be taken in the middle of a lane. Therefore, if the pavement was placed in 12 ft (3.6 m) widths (1 lane), the lot length should be determined from the width of the one lane and the core shall be taken at the middle of the lane. If the pavement was placed in 24 ft (7.3 m) widths (2 lanes), the cores should still be taken out of the middle of the lanes. The lane that the core is taken from should be determined by the last digit in the random number. The core should be taken from the left lane if the last digit is an odd number and from the right lane if it is even.

5. Determine the core location for the lot. A four digit number is arbitrarily selected from the random number chart. This number is multiplied by the length of the lot and added to the beginning station.

6. Record the information on the PC Core Form along with the placement dates and location description. Use the following guidelines:
   A. Core Number - Used to keep numeric record of the cores.
   B. Beginning Station - This establishes the beginning station of the lot. Different types of pavement (for example: ramps, shoulders) should be separate from mainline cores while determining core locations.
   C. Placement Width - Taken from project records.
   D. Lot Length - Dependant upon placement width. Lot size [2000 sq. yd (1650 m$^2$)] divided by the placement width.
   E. Ending Station - The station at the end of the lot. Add the lot length to the beginning station. This becomes the beginning station for the next lot.
   F. Random Number - A four digit number taken from a random number chart. Each core should have a different random number. The first number should be determined randomly; then, use the next number in sequence for the following lot.
   G. Core Location - Location that the core is to be taken. Lot Length x Random No. + Beginning Station.
   H. Placement Date - To be determined from project records. This date is needed to collect data from TE-45.
I. **Location Description** - Description of where the core is to be taken. Locations on a two lane pavement can be indicated by direction [i.e.: East bound (EB) or North bound (NB)]. Multiple lane pavement core locations should be indicated by numbering lanes (1, 2, 3...) from left to right while looking up-station. Shoulders and berms that are to be cored should be labeled with the direction.

J. **Measured length** - The core should be measured and recorded to the nearest 0.1 inch (1 mm) using a ruler with appropriate graduations by taking three readings around the circumference of the core and calculating the average length. Cores that are deficient in length by 0.5 inch (13 mm) or more, or if there is a question about the accuracy of the measurement using the ruler, shall be measured in accordance with AASHTO T 148.

K. **Deduction Cores** - When a randomly selected scheduled core is deficient in length by 0.5 to 1.0 inch (13 to 25 mm), obtain additional cores as per 451.17.A1-2 and record the core length on the PC Core form. Record the limits of the deduction in the remarks. Flag the initial and resulting cores with a “D” (for deduction) in the “core no.” column and indicate that they are deductions in the “location description” column. Indicate the limits of the deductions in the remarks.

L. **Deficient Cores** - When a randomly selected scheduled core is deficient in length by more than 1.0 inch (25 m), obtain additional cores as per 451.17.A1-2 using 1.0 inch (25 mm) as the limit of the deficiency and record the core length on the PC Core form. Record the limits of the removal in the remarks. Flag the initial and resulting cores with a “DF” (for Deficient) in the “Core No.” column and indicate that they are removed cores in the “location description” column. Indicate the limits of the removal in the remarks. Once the section of pavement is removed and replaced, re-core the pavement at the originally selected locations.

M. **Report** - Enter information into Construction Management System PC Core screen and forward completed copies of the PC Core Form to the Office of Materials Management, Cement & Concrete Section. Categories with an asterisk are required information for CMS.
**OHIO DEPARTMENT OF TRANSPORTATION**

**RIGID PAVEMENT CORE LOCATIONS**

**Sample I.D. # __________**

**Project No. ______________** County, Route ____________

Reference No. __________

**Item No. __________**

*Design Thick.______________

**No. of Cores __________** JMF ____________

*Material Code ______________________________

**Concrete Producer __________________________________**

**Contractor __________________________________________________**

**Fine Agg. Source __________________________________**

**Coarse Agg. Source __________________________________**

Size __________

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<table>
<thead>
<tr>
<th>*CORE NO.</th>
<th>BEGIN STATION</th>
<th>PLACE WIDTH</th>
<th>LOT LENGTH</th>
<th>END STATION</th>
<th>RANDOM NUMBER</th>
<th>*CORE LOCATION</th>
<th>PLACE DATE</th>
<th>LOCATION DESCRIPTION</th>
<th>MEASURED LENGTH*</th>
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**REMARKS: ________________________________________________________________**
How to determine random numbers for purpose of determining core locations:

1. Randomly select a starting number from the table.
2. The following number can be the next number in that row or in that column. The choice is purely a matter of preference as long as the chosen method is consistently followed.
3. The number chosen shall be treated as a decimal and multiplied by the length of the lot.
4. That length shall be added to the lot’s beginning station. This is the core location for that lot.