



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
NASHVILLE, TENNESSEE 37243-0350

INSTRUCTIONAL BULLETIN NO. 05-15

Regarding Computations for Micro-Surfacing

Effective for the April 22, 2005 Letting, Sections 4-414.05 on pages 4-53 of the English and Metric Design Guidelines shall be modified.

Attached are copies of pages 4-53 through 4-54 in both the English and Metric Design Guidelines intended to replace these pages in your guidelines.



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Design Division

JW:mbd

Attachments

March 2, 2005

TDOT - ROADWAY DESIGN GUIDELINES

English

Revised: 03/02/05

4-414.05 COMPUTATIONS FOR MICRO-SURFACING

Item No. 414-03.01 Emulsified Asphalt for Micro-Surfacing

0.12 x Below aggregate quantity = Tons

NOTE: Application rate based on 12 percent of the dry weight of the aggregate.

Item No. 414-03.02 Aggregate for Micro-Surfacing

$$\frac{\text{Surface area (Sq. Yd.)} \times \text{XX Lb./ Sq. Yd.}}{2,000 \text{ Lb./ Ton}} = \text{Tons}$$

NOTE: Application rate of 30 pounds (approximate depth 0.375") per square yard shall be used if plans require a leveling mixture (14 pounds per square yard) and a surface mixture (16 pounds per square yard) to be placed, or 22 pounds (approximate depth 0.275") per square yard if only a surface mixture is to be placed, unless otherwise specified.

Item No. 403-01 Bituminous Material for Tack Coat (TC) to be used with Micro-Surfacing

$$\frac{\text{Surface area (Sq. Yd.)} \times \text{*rate (Gal./ Sq. Yd.)}}{231 \text{ Gal./ Sq. Yd.}} = \text{Tons}$$

* Rate 0.05 - 0.10 (Gal./Sq. Yd.)

4-415.00 COLD PLANING OF BITUMINOUS PAVEMENT

On projects having 2,000 Tons or more of cold planed material, it shall be paid for by the Ton. This shall be calculated using 105 Lb./S.Y/Inch of estimated depth to be cold planed, converted to Tons.

This shall be measured and paid for under Item No. 415-01.01, Cold Planing of Bituminous Pavement per Ton.

On projects where the required depth of cold planing is known and the quantity is less than 2,000 Tons, it may be paid for by the square yard. The Regional Construction Office shall be consulted prior to using this unit of measure. Depth of Cold Planing must be specified on the plans.

This shall be measured and paid for under Item No. 415-01.02 Cold Planing of Bituminous Pavement per Square Yard.

On projects having less than 2,000 Tons of cold planed material, and where no scales are readily available (check with the Regional Construction Office), and the required depth is not known, it shall be paid for by the cubic yard.

This shall be measured and paid for under Item No. 415-01.03, Cold Planing of Bituminous Pavement per Cubic Yard.

CHAPTER 5 - RIGID PAVEMENT

4-501.00 PORTLAND CEMENT CONCRETE PAVEMENT (See 4-905.00)

4-502.00 COMPUTATIONS FOR UNDERSEALING CONCRETE PAVEMENT

NOTE: The quantities are listed in the order of computation procedure.

Item No. 502-02 Holes

$$\frac{\text{Length of project (ft) x number of lanes x 4 holes/slab}}{\text{Length of slabs}} = \text{Each}$$

Item No. 502-10 Cement-Fly Ash Grout

- (a) Cubic feet/hole x number of holes = Cubic Feet
- (b) Use one of the following values as directed on the Construction Field Review:
 1. Concrete pavement in worse than average condition.
0.4 - 0.5 cubic feet/hole
 2. Concrete pavement in average condition.
0.4 cubic feet/hole
 3. Concrete pavement in better than average condition.
0.3 - 0.4 cubic feet/hole

NOTE: Pavement with cement-treated bases shall fall within the better than average range.

4-414.05 COMPUTATIONS FOR MICRO-SURFACING

Item No. 414M03.01 Emulsified Asphalt for Micro-Surfacing

0.12 x Below Aggregate Quantity = Tonnes

NOTE: Application rate based on 12 percent of the dry weight of the aggregate.

Item No. 414M03.02 Aggregate for Micro-Surfacing

$\frac{\text{Surface area (m}^2\text{)} \times \text{XX kg/m}^2}{1000 \text{ kg/ Tonne}} = \text{Tonnes}$

NOTE: Application rate of 16.3 kg (approximate depth 9.5 mm) per square meter shall be used if plans require a leveling mixture (7.6 kg per square meter) and a surface mixture (8.7 kg per square meter) to be placed, or 12 kg (approximate depth 7.0 mm) per square meter if only a surface mixture is to placed, unless otherwise specified.

Item No. 403M01 Bituminous Material for Tack Coat (TC) to be used with MicroSurfacing

$\frac{\text{Surface area (m}^2\text{)} \times \text{*rate (L/m}^2\text{)}}{964 \text{ L/ Tonne}} = \text{Tonnes}$

* Rate 0.23 - 0.45 (L/m²)

4-415.00 COLD PLANING OF BITUMINOUS PAVEMENT

On projects having 2000 Tonnes or more of cold planed material, it shall be paid for by the Tonne. This shall be calculated using 2.24 kg/m²/mm of estimated depth to be cold planed, converted to Tonnes.

This shall be measured and paid for under Item No. 415M01.01, Cold Planing of Bituminous Pavement per Tonne.

On projects where the required depth of cold planing is known and the quantity is less than 2000 Tonnes, it may be paid for by the square meter. The Regional Construction Office shall be consulted prior to using this unit of measure. Depth of Cold Planing must be specified on the plans.

This shall be measured and paid for under Item No. 415M01.02, Cold Planing of Bituminous Pavement per Square Meter.

On projects having less than 2000 Tonnes of cold planed material, and where no scales are readily available (check with the Regional Construction Office), and the required depth is not known, it shall be paid for by the cubic meter.

This shall be measured and paid for under Item No. 415M01.03, Cold Planing of Bituminous Pavement per Cubic Meter.

TDOT - ROADWAY DESIGN GUIDELINES

Metric

Revised: 03/02/05

CHAPTER 5 - RIGID PAVEMENT

4-501.00 PORTLAND CEMENT CONCRETE PAVEMENT (See 4-905.00)

4-502.00 COMPUTATIONS FOR UNDERSEALING CONCRETE PAVEMENT

NOTE: The quantities are listed in the order of computation procedure.

Item No. 502M02 Holes

$$\frac{\text{Length of project (m) x number of lanes x 4 holes/slab}}{\text{length of slabs}} = \text{Each}$$

Item No. 502M10 Cement-Fly Ash Grout

- (a) Cubic meters/hole x number of holes = Cubic Meters
- (b) Use one of the following values as directed on the Construction Field Review:
1. Concrete pavement in worse than average condition.
0.011 - 0.014 cubic meters/hole
 2. Concrete pavement in average condition.
0.011 cubic meters/hole
 3. Concrete pavement in better than average condition.
0.008 - 0.011 cubic meters/hole

NOTE: Pavement with cement-treated bases shall fall within the better than average range.