

## **SECTION 515 -- ARMOR COAT**

### **515.01 -- Description**

Armor coat is the sprayed application of asphaltic material with a covering of aggregate at the locations shown in the plans or as directed by the Engineer.

### **515.02 -- Material Requirements**

1. Armor coat asphaltic material shall be the type and grade shown in the plans and shall conform to the requirements of Section 1032 or the special provisions.

2. Aggregate for armor coat shall conform to the requirements of Subsection 1033.02, Paragraphs 1., 2., and 7., and Table 1033.06.

### **515.03 -- Construction Methods**

1. The Contractor shall furnish and place the armor coat as indicated in the plans.

2. Emulsified asphaltic material shall be applied at the appropriate temperature.

3. The surface shall be prepared as prescribed in Section 501.

4. Armor Coat Application:

a. (1) The Contractor shall demonstrate the ability to distribute a uniform coat of asphaltic material before beginning work. A coat of the specified asphaltic material shall be applied to a test strip of tar paper or other suitable material. The strip shall be 3 m long and as wide as the spray bar. If the Engineer determines the application to be unsatisfactory, the Contractor will be required to adjust the equipment and repeat the test procedure until satisfactory results are obtained. The Contractor shall properly dispose of the test strip after use.

(2) Asphaltic materials shall be applied with an approved pressure distributor at the rate designated by the Engineer. Generally, the application rate will be 1.00 to 1.50 L/m<sup>2</sup> when applied on bituminous sand base and from 0.75 to 1.50 L/m<sup>2</sup> when applied on other surfaces. The distributor shall be shut off before the tank is entirely empty.

(3) Special care shall be taken to secure an overlap of adjoining longitudinal applications.

(4) Hand sprayers shall be used in applying asphaltic materials to small or irregular sections.

b. The cover aggregate shall be applied immediately (within 1 minute) after the application of the asphaltic material.

c. The application of asphaltic materials shall be allowed only when:

(1) The ambient temperature is above 15°C.

(2) The surface is dry. The Engineer may allow the application of emulsified asphalt to a damp surface if all standing water has been removed from the surface with squeegees and no further precipitation is expected.

d. (1) The Contractor shall conduct the operations to minimize construction traffic on completed portions of the armor coat. Armor coat equipment will not be allowed to travel on uncovered asphaltic materials.

(2) Application widths shall coincide with existing traffic lane lines to the maximum extent possible. The armor coat shall be applied to one-half of the width of the surface at a time, confining traffic to the portion of the surface not being treated.

(3) When armor coat is required on both roadway and surfaced shoulders, armor coat materials shall be applied to the shoulder's full width before armor coat materials are applied on any section of the adjacent traffic lane. Application widths shall coincide with lane and shoulder widths.

(4) Traffic will not be allowed on the completed armor coat until the aggregate is well embedded in the bituminous material.

e. The aggregates for the armor coat shall be distributed uniformly over the surface at the rate specified by the Engineer, generally from 8 to 15 kg/m<sup>2</sup>. An aggregate spreader conforming to the requirements of Section 501 shall be used. For irregular areas, the Contractor may employ hand methods to provide uniform distribution.

f. The moisture content of mineral aggregate for armor coat, at the time of application, shall be satisfactory to the Engineer. If the aggregate is dry, water shall be applied to thoroughly and uniformly moisten the aggregate before application.

#### 5. Armor Coat Rolling:

a. (1) The Contractor shall perform all rolling with self-propelled, multiple-wheel, pneumatic-tired rollers.

(2) Rolling operations shall be arranged to ensure uniform rolling of all portions of the area to which armor coat materials have been applied.

(3) Rolling operations shall provide uniform embedment of the aggregate.

(4) Immediately after the armor coat materials have been distributed and before traffic is allowed upon the surface, the rolling shall begin.

(5) Rolling shall be completed during daylight hours and under favorable weather and temperature conditions during the day on which the armor coat materials are applied.

b. (1) The entire area shall be rolled within 15 minutes after the cover material is applied and an additional 4 full rolling coverages shall be made within 1 hour after the cover material is applied.

(2) As soon as the emulsified asphalt has set and no further aggregate can be embedded, but by the day following the application of the armor coat materials, all loose aggregate shall be gently swept from the roadway surface by the Contractor. Care shall be taken to avoid dislodging embedded aggregate.

(3) Sweeping will be conducted between 8 a.m. and 7 p.m.

#### **515.04 -- Method of Measurement**

1. The emulsified asphalt is measured in kiloliters. Refinery certified volume shall be used as a basis of measurement of the emulsified asphalt if the entire shipment is used.

2. a. Aggregate for armor coat will be measured by the cubic meter at the point of delivery. The Contractor is required to strike off the materials to uniform height for volume determination.

b. The Contractor may request early sampling and testing at the point of delivery, in which case the aggregate shall be stored in lot size stockpiles.

c. The basic sampling frequency shall be 4 random samples for each "Lot" of 300 m<sup>3</sup>.

#### **515.05 -- Basis of Payment**

1. <u>Pay Item</u>	<u>Pay Unit</u>
Armor Coat Emulsified Asphalt	Kiloliter (kL)
Armor Coat Aggregate	Cubic Meter (m <sup>3</sup> )

2. a. Aggregate lot payment amounts shall be paid for at the contract unit price per cubic meter for the item, "Armor Coat Aggregate", less any sum deducted when materials average more than 5 percentage points above the target value on the 2.00 mm sieve. The target values are shown in Section 1033, Table 1033.06. Deductions will be made in accordance with Table 515.01.

**Table 515.01**

<b>Armor Coat Aggregate Deductions</b>	
<b>Total Average Percent Passing The 2.00 mm Sieve</b>	<b>Percent Deduction</b>
35.0 or Less	0
More than 35.0 to 38.0	10
More than 38.0 to 41.0	25
More than 41.0 to 44.0	50
More than 44.0 to 100	Reject

b. Aggregate payment deductions are based on the average percent passing the 2.00 mm sieve as shown in Table 515.01. The average shall be computed by adding the percent passing on the 2.00 mm sieve of each of the individual 4 samples representing the "Lot" (300 m<sup>3</sup>) in Table 515.01 and dividing this sum by 4. The computations for deduction shall be applied separately for each "Lot" (300 m<sup>3</sup>). If the final lot or the total quantity for the project is less than 300 m<sup>3</sup>, a minimum of 2 samples, or 1 sample for each 75 m<sup>3</sup>, shall be tested. The average of the test results shall be used to compute the deduction.

3. a. Any lot of armor coat emulsified asphalt which is determined to be out of the specified property limits defined in Tables 503.01A and B shall also have its payment adjusted by the appropriate pay factors in Tables 503.01A and B.

b. Asphalt materials used in the test strip are subject to the payment adjustments in Tables 503.01A and B.

4. All test strips are subsidiary to the armor coat pay items.

5. Payment is full compensation for all work prescribed in this Section.