

404-R-554 SEAL COAT

(Adopted 07-17-08)

The Standard Specifications are revised as follows:

SECTION 404, BEGIN LINE 1, DELETE AND INSERT AS FOLLOWS:

SECTION 404 – SEAL COAT**404.01 Description**

This work shall consist of one or more applications of asphalt material, each followed by an application of cover aggregate in accordance with 105.03.

404.02 Quality Control

Seal coat shall be constructed according to a quality control plan, QCP, prepared and submitted by the Contractor in accordance with ITM 803; Contractor Quality Control Plan for Seal Coat. The QCP shall be submitted to the Engineer at least 15 days prior to commencing seal coat operations.

MATERIALS**404.0203 Asphalt Material**

The type and grade of asphalt material shall be in accordance with the following:

Asphalt Emulsion, RS-2, AE-90, AE-90S, or HFRS-2.....902.01(b)

404.0304 Cover Aggregate

Aggregate shall be in accordance with the following requirements. When slag is used as an alternate to natural aggregate, adjustments will be made in accordance with 904.01, to compensate for differences in specific gravity.

Coarse Aggregates, Class B or Higher

Size No. 8, 9, 11, or 12904

Fine Aggregate

Size No. 23 or 24904

The types of seal coats shall be as follows:

TYPE (see Note 1)	APPLICATION	COVER AGGREGATE SIZE NO. AND COURSE	RATES OF APPLICATION PER SQUARE YARD (SQUARE METER)	
			AGGREGATE lb (kg)	ASPHALT MATERIAL GALLON (LITER) AT 60°F (16°C)
1 or 1P (see Note 2)	Single	23, 24	12-15 (5.4-6.8)	0.12-0.16 (0.45-0.61)
2 or 2P	Single	12	14-17 (6.4-7.7)	0.29-0.33 (1.09-1.25)
3 or 3P	Single	11	16-20 (7.3-9.1)	0.36-0.40 (1.36-1.51)

4 or 4P	Single	9	28-32 (12.7-14.5)	0.63-0.68 (2.38-2.57)
5 or 5P	Double	Top – 12 Bottom – 11	16-19 (7.3-8.6) 16-20 (7.3-9.1)	0.33-0.37 (1.25-1.40) 0.36-0.40 (1.36-1.51)
6 or 6P	Double	Top – 11 Bottom – 9	18-22 (8.2-10.0) 28-32 (12.7-14.5)	0.41-0.46 (1.55-1.74) 0.63-0.68 (2.38-2.57)
7 or 7P	Double	Top – 11 Bottom – 8	18-22 (8.2-10.0) 28-32 (12.7-14.5)	0.41-0.46 (1.55-1.74) 0.63-0.68 (2.38-2.57)
* Only AE 90 or AE 150 shall be used for seal coat, type 1. Note 1 – AE-90S shall be used for Type P Seal Coats. Note 2 – HFRS-2 shall not be used with Type 1 Seal Coat.				

CONSTRUCTION REQUIREMENTS

404.0405 Weather Limitations

Asphalt material shall not be applied on a wet surface, or when other weather conditions would adversely affect the seal coats. Seal coats shall not be placed when the ambient or ~~base pavement~~ temperature is below 40°F (4°C) ~~60°F (14°C)~~. ~~If seal coats are placed when the ambient or base temperature is between 40°F (4°C) and 60°F (16°C), the cover aggregate shall be heated to between 120°F (49°C) and 150°F (66°C).~~ Seal coat shall not be applied to travel lanes or auxiliary lanes before May 1 or after October 1, but may be applied to shoulders within the above temperature range.

404.0506 Equipment

A distributor, rotary power broom, pneumatic tire roller, and aggregate spreader in accordance with 409.03 shall be used.

404.0607 Preparation of Surface

Surfaces to be sealed shall be *patched as shown on the plans or as directed*, brought to proper section and grade, *and compacted*, ~~cleaned as required, and approved.~~

The surface shall be cleaned of all loose material prior to seal coat application. Sealing operations may not commence until the surface is approved.

All castings, detector housings, and snowplowable raised pavement markers shall be covered prior to applying the asphalt material to prevent coating with seal coat. These coverings shall be removed prior to opening to unrestricted traffic.

404.0708 Applying Asphalt Material

Asphalt material shall be applied in a uniform continuous spread over the section to be treated. The quantity of asphalt material to be applied per square yard (square meter) shall be ~~as directed in accordance with the QCP~~. During application, minor adjustments to the application rate shall be made in accordance with the QCP.

The asphalt material shall not be spread over a greater area than that which can be covered with the cover aggregate that is in trucks at the site. ~~It shall not be spread more than 500 ft (150 m) ahead of the aggregate spreader.~~

The spread of the asphalt material shall be no wider than the width covered by the cover aggregate from the spreading device. Operations shall not proceed such that asphalt material is allowed to chill, set up, dry, or otherwise impair retention of the cover coat.

404.0809 Application of Cover Aggregate

~~Immediately following~~ *Within 1 min of* the application of the asphalt material, cover aggregate shall be spread in quantities as ~~directed~~ *required*. Spreading shall be accomplished such that the tires of the trucks or aggregate spreader do not contact the uncovered and newly applied asphalt material.

~~Rolling shall consist of at least three complete roller coverages and be completed within 30 min after the cover aggregate is applied. The rollers shall not be operated at speeds that will displace the cover aggregate from the asphalt material.~~

~~The seal coat shall be protected by the restriction of traffic or by controlling traffic speed until the asphalt material has cured or set sufficiently to hold the cover aggregate without displacement.~~

~~Excess cover aggregate shall be removed from the pavement surface by light brooming on the day following placement of the seal coat. The brooming shall not displace the imbedded aggregate.~~

404.10 Rolling Operation

The aggregate shall be seated with at least three roller applications. A roller application is defined as one pass of the roller over the width sealed. The first roller application shall be completed within 2 min of aggregate application, with the final application completed within 30 min after the cover aggregate is applied. The rollers shall not be operated at speeds that will displace the cover aggregate from the asphalt material.

404.11 Sweeping Operation

Excess cover aggregate shall be removed from the pavement surface by brooming no later than the morning after placement of the seal coat. The brooming shall not displace the imbedded aggregate. A second brooming operation shall be performed prior to opening to unrestricted traffic in accordance with 101.33.

404.12 Protection of Surface

Traffic shall not be permitted on the freshly sealed surfaces until final rolling application is complete. The seal coat shall be protected by keeping traffic off of the freshly sealed surface or by controlling traffic speed in accordance with the QCP. Traffic shall not displace the imbedded aggregate.

Any areas with minor bleeding will be covered with fine aggregate or other approved blotting material.

404.0913 Method of Measurement

~~Asphalt material and cover aggregate will be measured by the ton (megagram). Seal coat will be measured by the square yard (square meter) of the seal coated surface.~~

Patching will be measured in accordance with 304.06.

~~If measurement of seal coat is made by the square yard (square meter), the quantity for each day's placement will be the least of the following:~~

- ~~(a) the measured square yards (square meters) within the specified limits;~~
- ~~(b) the calculated square yards (square meters) based on the amount of aggregate used, divided by the minimum amount of aggregate per square yard (square meter) specified in 404.03; or~~
- ~~(c) the calculated square yards (square meters) based on the amount of asphalt material used, divided by the minimum amount of asphalt material per square yard (square meter) specified in 404.03.~~

404.1014 Basis of Payment

~~The accepted quantities of asphalt material and cover aggregate will be paid for at the contract unit price per ton (megagram). Seal coat will be paid for at the contract unit price per square yard (square meter) complete in place. If slag is used as a cover aggregate, and payment will be made per ton (megagram), the pay quantity will be adjusted in accordance with 904.01.~~

~~If seal coat is paid for by the square yard (square meter) and if so directed, asphalt material in excess of the limits set out in 404.03 will be paid for at the Contractor's invoice price, plus 20%.~~

Patching will be paid for in accordance with 304.07.

Payment will be made under:

Pay Item	Pay Unit Symbol
Asphalt for Seal Coat	TON (Mg)
Cover Aggregate, Seal Coat	TON (Mg)
Seal Coat, _____ type	SYS (m2)
Seal Coat, _____ P..... type	SYS (m2)

The cost of determination of asphalt material and cover aggregate application rates, sweeping and rolling operations, blotting material, and other incidentals shall be included in the cost of the pay items.

The Contractor shall adjust application rates as required by the Engineer within the limits set out herein. No additional payment will be made for additional materials necessary to meet the required application rates within the specified limits.
