

SECTION 35

PRIME, TACK, AND FLUSH SEAL COATS

35.1 DESCRIPTION

A. General:

This work consists of preparing and treating a prepared surface with asphalt material and sand as required.

B. Related Work:

Section 31 - Asphalt Concrete - General
Section 32 - Asphalt Concrete - Class E
Section 33 - Asphalt Concrete - Class G
Section 34 - Asphalt Concrete - Class S
Section 39 - Cold Mix Asphalt Concrete
Section 116 - Aggregates for Asphalt Surface Treatments
Section 118 - Asphalt Material

35.2 MATERIALS

A. Asphalt:

Asphalt of the type specified on the plans shall conform to the requirements of Section 118.

35.3 CONSTRUCTION REQUIREMENTS:

A. Weather and Seasonal Requirements:

1. Tack Coat:

The application of a tack coat will be permitted only:

- a. When air and surface temperature on the project are both at least thirty-five degrees Fahrenheit (35° F.) in the shade.
- b. When conditions are dry, except emulsified asphalt may be applied when the surface is slightly damp.

C. During daylight hours.

- d. When the wind does not adversely affect the spraying operation.

2. Prime Coat:

The application of a prime coat will be permitted only:

- a. When the air and surface temperatures on the project are both at least sixty degrees Fahrenheit (60° F.) in the shade. The temperature requirement may be waived by the Engineer.
- b. When conditions are dry.
- c. During daylight hours.
- d. When wind does not adversely affect the spraying operation.

3. Flush Seal Coat:

The application of a flush seal coat will be permitted only:

- a. When air and surface temperatures on the project are both at least fifty degrees Fahrenheit (50° F.) in the shade.
- b. When the surface is dry or slightly damp.
- c. When the wind does not adversely affect the spraying operations.
- d. During daylight hours.

B. Dilution of Emulsified Asphalt:

Emulsified asphalt shall be diluted and uniformly mixed, prior to application, by adding potable water in the distributor and, if necessary, agitating the mixture. The rate of dilution shall be as directed by the Engineer to fit weather and road surface conditions.

The temperature of the emulsified asphalt and water at the time of dilution shall be sufficient to prevent adverse effects on the mixture and to facilitate mixing.

C. Equipment:

The following minimum equipment or its equivalent as determined by the Engineer shall be furnished by the Contractor:

- 1. A rotary broom with water distribution capability or a vacuum sweeper to remove material with minimal fugitive dust emissions.

2. Equipment for heating the asphalt material in or at the tank car, transport truck or distributor shall be designed and constructed to heat the material without burning, scorching, or overheating, and with positive control of the heat. The introduction of live steam directly into the material will not be permitted.
3. Distributors used in applying the asphalt material shall be self-propelled, equipped with pressure-type mechanical circulating pumps and valves, a heating system and insulated tank that will provide the uniform required temperature throughout the entire contents of the distributor tank. Detachable distributor units separate from the tank will not be allowed.

The distributor shall be designed and constructed to apply the heated asphalt material to the road surface in accurately measured quantities and maintain the specified rate uniformly during the distribution of the entire tank load, regardless of change in gradient, superelevation, direction, or content level in the tank. Calibration runs for verification shall be made at the start of the work, as required by the Engineer.

The spray nozzles shall be designed, sized, and arranged to insure uniform distribution of heated asphalt material at the designated quantities, in an overlapping fan-shaped spray without surge, streaks, ridges, or bare spots. A strainer shall be provided in the discharge line, if required, to prevent nozzles from clogging. The output of each nozzle on the bar shall be the same, and a test shall be made, if required, in advance of use to determine compliance with this requirement. Different sizes, heights, pressures, and settings of nozzles for different designated rates shall be furnished and installed by the Contractor, as required by the Engineer.

The distributor shall be equipped with a tachometer clearly visible to the operator, which will accurately show the speed in feet per minute.

Pressure metering distributors shall be furnished with an accurate pressure gauge showing the distribution pressure. Volume metering distributors shall be furnished with a pump tachometer or volume meter showing the volume furnished. The required equipment for the distributor shall also include an accurate mercury-actuated thermometer showing the temperature of the material in the tank and a contents gauge showing the number of gallons in the tank at any content level.

The distributor shall be equipped with adjustable spray bars so arranged that application width will be available in two (2) foot intervals from four (4) feet to at least sixteen (16) feet.

The distributor spray bars shall be capable of operating at a constant controlled height and shall be of the full circulating type. Each nozzle of the distributor bar shall be equipped with a cutoff valve, which stops the flow immediately without dripping. Compliance with these requirements must be proven before the distributor can be used.

D. Surface Preparation:

Surfaces to receive tack and flush seal coats shall be lightly sprinkled with water, if necessary, to prevent excessive fugitive dust emissions, and thoroughly swept with a rotary broom and cleaned of all loose and adhering foreign material. Surfaces to receive a prime coat shall be satisfactorily compacted and cured and, if necessary, lightly sprinkled with water to prevent excessive fugitive dust emissions. Operations shall be in accordance with applicable dust permits.

E. Application of Asphalt:

Adjacent appurtenances shall be protected from the splatter of asphalt. The Engineer will specify the temperature range within which the asphalt shall be maintained at the time of application. Asphalt shall be applied by means of a pressure distributor in a uniform and continuous manner. Specified rates shall be applied unless otherwise ordered by the Engineer.

Unauthorized increases in rates will not be eligible for payment.

The angle of the spray nozzles and the height of the spray bar shall be set to obtain uniform distribution. The distributor shall be traveling at the proper speed when the spray bar is opened. The edges of the spread shall not appreciably overlap. Areas inaccessible to the distributor shall be covered by hand-spray methods. When the distributor is not in operation, it shall be parked off the roadbed or drip pans shall be placed under the spray bar.

Tack shall be applied when the mat has become dirty, or when the mat has been uncovered for more than 24 hours, or when directed by the Engineer.

Tack application ahead of mat laydown shall be limited by job conditions and be subject to approval by the Engineer. Tack application ahead of mat lay down shall not exceed the amount estimated for one day's operation.

Tacked areas, which are unsatisfactory, shall be retacked. Required retacking, which is not the fault of the Contractor will be paid for at the contract unit price for tack asphalt.

F. Traffic Control:

The Contractor shall provide proper flaggers, signs, and barriers to warn, direct, and prevent traffic from getting onto the freshly applied asphalt until it has penetrated or hardened suitably.

35.4 METHOD OF MEASUREMENT

A. Prime Coat:

Prime coat will be measured to the nearest gallon of asphalt material. Contractor shall provide Engineer with valid quantity tickets for prime coat, furnished and installed, showing gross, tare and net weights, project, truck, time, and initials of scale operator. Weighing shall be done on a SDDOT certified scale.

B. Tack Coat:

Tack coat will be measured to the nearest gallon of asphalt material. Contractor shall provide Engineer with valid quantity tickets for tack coat, furnished and installed, showing gross, tare, and net weight, project, truck, time, and initials of scale operator. Weighing shall be done on a SDDOT certified scale.

C. Flush Seal:

Flush seal will be measured to the nearest square yard of asphalt material.

35.5 BASIS OF PAYMENT

A. Prime Coat:

The accepted quantities of prime coat will be paid for at the contract price per gallon of asphalt material complete in place as computed from valid weigh tickets. Tickets received after forty-eight hours will not be considered valid.

B. Tack Coat:

The accepted quantities of tack coat will be paid for at the contract price per gallon of asphalt material complete in place as computed from valid weigh tickets. Tickets received after forty-eight hours will not be considered valid.

C. Flush Seal:

The accepted quantities of flush seal will be paid for at the contract price per square yard to the nearest square yard complete in place.

END OF SECTION