

TECHNICAL SPECIFICATIONS
FOR
REWORKING AND RESURFACING EXISTING ASPHALT PAVEMENTS

1. Description

This work shall consist of heating and scarifying an existing asphaltic concrete pavement, the addition of an asphalt or emulsified asphalt recycling agent, the redistribution of the heated and scarified processed material, and the overlay with an asphaltic concrete surface course in a single operation.

2. Materials

- (a) Asphalt Recycling Agent shall be a soft asphalt cement, or asphalt cement blended, as required, with a softening agent or flux oil and which will meet the following requirement:

Absolute Viscosity, (V60) (after thin film oven test)	3:1 Ratio Min.
Smoke Point	260° F Min.
Flash Point	400° F Min.
Solubility	97.5%

The asphalt recycling agent shall contain an approved anti-stripping agent.

Silicone shall be added to the asphalt recycling agent at the rate of 25 cubic centimeters silicone mixed to each 5,000 gallons of asphalt recycling agent. If a dispersing fluid is used in conjunction with the silicone, the resulting mixture containing the full 25 cubic centimeters of silicone shall be added in accordance with the manufacturer's recommendation. The blending of the silicone mixture with the asphalt recycling agent shall be accomplished by the asphalt producer prior to shipment. The producer shall certify in writing the compliance with the above requirements.

- (b) Emulsified Asphalt Recycling Agent shall meet the following requirements:

Storage Stability (24 hrs)	1.0% max
Sieve Test	0.1% max
Residue by Evaporation	65% min

Residue from the emulsified asphalt recycling agent shall meet requirements of Federal Department of Transportation Specifications, 329-34.1

The emulsified asphalt recycling agent shall contain an approved anti-stripping agent.

Silicone shall be added to the base stock of asphalt prior to emulsifying at the rate of 25 cubic centimeters of silicone mixed to each 5,000 gallons of asphalt. If a dispersing fluid is used in conjunction with the silicone, the resulting mixture containing the full 25 cubic centimeters of silicone shall be added in accordance with the manufacturer's recommendations. The blending of the silicone mixture with the emulsified asphalt recycling agent shall be accomplished by the producer prior to shipment. The producer shall certify in writing the compliance with the above requirements.

- (c) The Recycling agent shall be of the type and grade capable of producing a resultant viscosity (140° F) of from 3,000 to 6,000 poises in the recycled pavement when applied at a rate not to exceed 0.1 gallon per square yard.
- (d) Asphaltic Concrete Surface course shall conform to the requirements set forth in Section 10 of these Specifications for the Grading specified.

3. Equipment

The equipment used to recycle and resurface the existing asphaltic concrete pavement shall be of the type specifically designed and built for this specific purpose. The equipment must be capable of a continuous single pass, multi-step process of heating, scarifying, application of recycling agent, redistribution of the existing pavement materials, and the placement of an asphaltic concrete surface source. The single pass of the multi-step process shall be a minimum of 10 feet in width.

The equipment must also be capable of raising and lowering sections of the scarifiers in order to recycle the material around manholes, and other obstacles as required on City streets. The machine shall be equipped with Transverse augers, leveling blade, receiving hopper, and screed for the placement of the Asphaltic Concrete Surface Course over the recycled layer. The screed shall be a 4 foot section heated vibratory screed equipped with crown controls on each section and be capable of adjustment to regulate the thickness of the Asphaltic Concrete Surface Course in order to produce the specified longitudinal grade and transverse cross section.

The machine shall be on the site in operating condition sufficiently in advance of beginning of the surface recycling project to allow for full evaluation. As required by the Engineer, the Contractor shall demonstrate the equipment proposed for use that will achieve the results specified.

4. Construction Requirements

- (a) Prior to beginning the recycling and resurfacing operation, the existing pavement shall be cleaned so as to be reasonably free from sand, dirt, and other deleterious materials that would affect the quality of the recycled mix.
- (b) The entire width of pavement surface being processed in a single pass shall be uniformly heated by indirect heat in such a manner as to soften the existing pavement to the extent that it can be scarified to a minimum depth of 1 inch. The operation

must be conducted in a manner such that the existing pavement is not damaged by exposure to direct heat or heat of excessive intensity or prolonged duration.

- (c) Immediately following heating, the existing pavement shall be scarified in a manner which will result in a layer of uniformly loosened material without appreciable ridges of undistributed material and to a depth of at least one inch, but in no case to a depth less than that which will produce sufficient scarified material to allow the pavement surface to be restored to the shape specified. The heated and scarified material shall then be distributed by transverse augers over the width being processed so as to form a uniform cross section.
- (d) An approved recycling agent as specified in item 2 shall be applied uniformly to the scarified material. The exact amount of recycling agent will be determined by an approved testing laboratory to meet the requirements set forth in 2(c) of this section.
- (e) The Asphaltic Concrete Surface Course shall be placed in the same operation as recycling and addition of the recycling agent, and shall be placed immediately after the scarified material is distributed over the area being processed such that the scarified material shall be hot enough to be properly compacted. The scarified material shall be compacted in conjunction with the compaction of the new Asphaltic Concrete Surface Course.

The rolling pattern required to achieve compaction shall be established by the Contractor using the Nuclear Density Backscatter Method as specified by FM-1-T238 (Method B, D.D.O.T.); This is accomplished by recording the nuclear density measurement after each roller pass until no additional increase in density is obtained and the highest density obtained is in excess of 85% of the theoretical density. The compactive effort applied at this point will become the rolling pattern and will be applied at the relative same temperature uniformly throughout the project.

5. Method of Measurement

The reworking and resurfacing of existing asphaltic concrete pavement shall be measured in square yards for the recycled pavement. The Asphaltic Concrete Surface Course shall be measured by the Ton of 2,000 pounds as provided for in section 10 of these Specifications.

6. Basis of Payment

The accepted quantity of recycled pavement in place will be paid for at the contract unit price per square yard.

The accepted quantity of Asphaltic Concrete Surface Course placed in the single operation over the recycled pavement will be paid for at the Contract unit price per ton for each "Grading" listed in the Bid Schedule and constructed in accordance with the Plans and/or these Specifications, or under the direction of the Engineer.