

Section 2116. Full Depth Reclamation

2116.01 DESCRIPTION.

Reclaim existing asphalt pavement to the width and depth specified in the contract documents. Mix the reclaimed material in-place with an asphalt stabilizing agent, additional materials (when specified), and water (if required). Compact this mixture.

2116.02 MATERIALS.

A. Asphalt Stabilizing Agent.

1. Unless specified otherwise in the contract documents, the asphalt stabilizing agent may, at the Contractor's option, be either of the following:
 - a. Emulsified Asphalt (HFMS-2s) meeting the requirements of [Section 4140](#).
 - b. Foamed Asphalt using PG 52 -34 or PG 46 -34 asphalt binder meeting the requirements of [Section 4137](#).
2. Unless stated otherwise in the contract documents, use the residual asphalt application rate of 3.0%, by dry mass to determine the estimated plan quantity of asphalt stabilizing agent.

B. Pulverized Bituminous Material.

Ensure the reclaimed paving material conforms to the following gradation. The gradation may be revised with the Engineer's approval, but ensure the top size of the material does not exceed 25% of the depth of the compacted recycled mat.

Sieve Size	% Passing
1 1/2 inch (37.5 mm)	98 to 100
1 inch (25 mm)	90 to 100

C. Mineral Stabilizing Agents.

A mineral stabilizing agent may be required by the mix design. When specified, the agent may be from any locally available commercial source meeting the following criteria:

1. Portland cement meeting ASTM Type I.
2. Fly ash may come from any available source.
3. Hydrated lime meeting the requirements of [Article 4193](#).
4. Limestone fines from limestone crushing operations.

D. Mix Design.

The contract documents will specify the mix design for the reclaimed mixture. The mix design establishes the depth of milling, the amount of added material, and the amount of residual asphalt to incorporate into the milled material and the optimum laboratory compaction moisture.

2116.03 CONSTRUCTION.

A. General.

1. Perform full depth reclamation between April 1 and November 1 unless otherwise specified in the contract documents.
2. Do not perform reclaiming operations when the weather conditions are such that proper mixing, shaping, and compacting the reclaiming material cannot be accomplished.

B. Equipment.

1. Furnish a self-propelled machine capable of reclaiming the existing paving material to the width and depth shown in the contract documents. Ensure the machine meets the following:
 - a. Equipped with automatic depth control and maintain a constant cutting depth and width.

weather conditions, or other controlling factors, the Engineer may require construction of test strips to check target density.

F. Quality Control.

1. Control the residual asphalt content to be within $\pm 0.5\%$ of the target established by the design.
2. Control the mineral stabilizing agent to be within $\pm 0.5\%$ of the target established by the design.
3. For foamed asphalt, ensure the asphalt binder is maintained at a temperature within $\pm 20^\circ\text{F}$ (10°C) of the optimum temperature established by the design. The Engineer may verify the foaming characteristics of each new tanker load, by measuring a sample from the equipment's test nozzle.
4. Ensure the crown of the compacted reclaimed mat is within 6 inches (150 mm) of the centerline reestablished by construction survey, unless specified otherwise in the contract documents. Measure the profile along the center of each lane of the compacted reclaimed mat with a profilograph. Correct bumps and dips greater than 1 inch (25 mm). Ensure the cross-slope of the compacted reclaimed mat is within 1 inch (25 mm) of the designated slope.
5. Unless specified otherwise in the contract documents, perform nuclear gauge moisture and density tests every 500 feet (150 m) per lane at locations determined by the Engineer, according to [Materials I.M. 504](#). The Quality Index for density will not apply. Remix and compact sections of reclaimed mat that do not achieve minimum density criteria.

2116.04 METHOD OF MEASUREMENT.

Measurement will be as follows:

A. Full Depth Reclamation.

Square yards (square meters) satisfactorily completed computed from the measured longitudinal length of pavement reclaimed to the nearest 0.1 foot (0.1 meter) and the width of pavement specified in the contract documents.

B. Asphalt Stabilizing Agent.

Tons (megagrams) or gallons (liters) measured through a calibrated pump used for metering the total delivery of the agent or by delivery tanker quantity.

C. Mineral Stabilizing Agent.

Dry tons (megagrams) by delivery tanker quantity.

2116.05 BASIS OF PAYMENT.

Payment will be the contract unit price as follows:

A. Full Depth Reclamation.

1. Per square yard (square meter).
2. Payment is full compensation for all labor, equipment, and materials necessary for preparation, reclaiming, shaping, and compaction of the reclaimed material.

B. Asphalt Stabilizing Agent.

1. Per ton (megagram) or gallon (liter).
2. Payment is full compensation for all labor, equipment, and materials necessary for furnishing the agent and application of the agent into the reclaimed material.

C. Mineral Stabilizing Agent.

1. Per dry ton (megagram).

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2. Payment is full compensation for all labor, equipment, and material necessary for furnishing the agent and application of the agent into the reclaimed material.