

- B. **Blotter Material.** Blotter Material will be measured by the Ton or Cubic Yard according to Section 109.
- C. **Water.** Water will be measured according to Section 216.

#### 401.06 BASIS OF PAYMENT.

Payment will be made at the Contract Unit Price for the following:

<b>Pay Item</b>	<b>Pay Unit</b>
---Asphalt Cement	Ton or Gallon
Liquid Asphalt	Ton or Gallon
---Emulsified Asphalt	Ton or Gallon
Blotter Material	Ton or Cubic Yard
Water	M. Gallons

This payment will be full compensation for all labor, equipment, and materials necessary to complete the work.

## SECTION 402 COLD BITUMINOUS PAVEMENT

#### 402.01 DESCRIPTION.

This work consists of constructing one or more courses of cold bituminous mixture on a prepared foundation.

#### 402.02 MATERIALS.

- A. **Bitumen.** The type and grade of bitumen will be specified. Bitumen shall meet and will be accepted according to Section 818. Bitumen will be conditionally accepted at the Project and sampled according to Department procedures.
- B. **Aggregate.** Aggregates shall meet Section 816 for the class of aggregate specified. The aggregate will be accepted prior to the addition of bitumen. Acceptance will be based on periodic samples of the windrow after all aggregates have been blended for each lift, or taken from the stationary plant if a plant is used. The maximum size aggregate shall be 5/8 inch.

#### 402.03 EQUIPMENT.

Equipment shall meet the following:

<b>Item</b>	<b>Section</b>
General	151.01
Self-Propelled Pneumatic-Tired Rollers	151.02 B
Smooth-Faced Steel Wheel Rollers - Tandem - Type A	151.02 C.2
Vibratory Rollers	151.02 D
Material-Hauling Equipment	151.03 B
Liquid Bitumen Distributors	151.05
Hot Bituminous Equipment	152

**402.04 CONSTRUCTION REQUIREMENTS.**

- A. **Pit Operations.** Stripping of the pit and pit operations shall be conducted according to Section 106.02. The Contractor shall furnish the necessary equipment and be responsible for the method of pit operations that produces an aggregate of uniform gradation and quality meeting the Specifications.
- B. **Conditioning Existing Surface.** When an existing bituminous surface was constructed under another Contract and it becomes impractical to correct local irregularities with a leveling course or the normal surfacing course, the surface shall be brought to uniform cross-section by patching with bituminous material. The mixture shall be thoroughly tamped or rolled and be the same mixture as specified for the next course. Where the existing surface is broken or shows instability, the material shall be removed, disposed, and replaced with the same mixture as specified for the next course.

To provide bond, the longitudinal or transverse joint shall be sprayed with a light coating of bitumen applied to the exposed edge before the joint is made.

The existing surface shall meet the approval of the Engineer before placing any material.

- C. **Heating of Bitumen.** The bitumen shall be heated to avoid local overheating and provide a continuous supply of bitumen to the mixer at a uniform temperature.
- D. **Hauling and Mixing Aggregates.** Hauling of materials through the paving operation or over the completed surfacing should be avoided.

If 2 or more materials are combined on the roadbed to make the total aggregate, each material shall be placed in a uniform windrow before combining. When 2 or more materials are combined at the production plant, each material shall be added with a separate mechanical feeder and conveyor or other methods which achieves the specified results.

After all aggregates have been placed on the roadbed, the entire windrow shall be manipulated until the combined materials meet the required gradation. When traveling mixers are used, pre-mixing of aggregates may be eliminated if mixing can be obtained without segregation.

E. **Mixing of Aggregates and Bitumen.**

1. **General.** Before addition of bitumen to the aggregate, the surface moisture of the aggregate shall be 3% or less based on the dry weight of the aggregate unless emulsified or foamed asphalt is used. If adequate mixing cannot be obtained at a moisture content of 3%, the moisture shall be reduced until a satisfactory mix is secured. When emulsified asphalt or foamed asphalt is used, the moisture content in the mix shall be approved by the Engineer. Mixing shall be done by either motor graders, traveling mixers, or stationary mixing plants. Mixing shall continue until the aggregate is uniformly coated.

At the end of each day, or when work is interrupted, all loose material shall be bladed and retained in a windrow until operations are resumed. During mix-

ing operations, care shall be taken to avoid cutting into the underlying course or contaminating the bituminous mixture.

If the mixture has excessive, deficient, or a non-uniform distribution of bitumen, additional aggregate or bitumen shall be added as required and the mixture remixed until a uniform mix is obtained. If excessive quantities of moisture or volatile matter exist, the mixture shall be bladed, aerated, or otherwise manipulated until it can be properly laid without shoving or rutting.

2. **Blade Mix.** This method shall be according to Section 402.04 E.1 and the following: Before adding bitumen, the aggregate shall have a uniform gradation and the windrow shall be uniform in cross section. Mixing shall be completed the same day it is started.
  3. **Traveling Mixer.** This method shall be according to Section 402.04 E.1 and the following: Before adding bitumen, the windrow shall be uniform in cross section. If the material processed and deposited by the traveling mixer is not uniformly and thoroughly mixed, further mixing shall be done.
  4. **Stationary Plant.** This method shall be according to Section 402.04 E.1.
- F. **Spreading and Finishing.** Spreading and finishing shall be performed without segregation. The material shall be shaped and compacted so the completed course conforms to the required grade and cross section within tolerances specified. Thicknesses shown on the typical section for surfacing on the Plans are a minimum. It is intended that the Plan tonnages provided in the Proposal Form be used uniformly throughout the Project.

If moisture content is excessive and compaction cannot be obtained with the normal operation, the material shall be aerated to remove excess moisture, relaid, and recompact.

If the thickness of the completed course exceeds 3 inches, the material shall be spread and compacted in 2 or more equal lifts as specified. After compaction, the elevation of the finished surface shall not vary by more than 0.06 foot from the prescribed elevation at any point.

The mixed material in windrows shall not exceed 3 miles and the mixture shall be laid while the material is in a workable condition and can be compacted to the required density.

- G. **Compaction.** The following equipment shall be the minimum furnished:

1. One pneumatic tired roller meeting Section 151.02 B.
2. One steel wheeled roller meeting to Section 151.02 C.2.

All equipment used shall be operated to produce uniform compaction throughout the entire section. The method and sequence of roller operation shall be approved by the Engineer. The pneumatic tired roller shall be operated with tire pressures at 90 psi or at the maximum psi the surfacing will support as determined by the Engineer.

The desired degree of compaction will have been reached when the surface is tightly bound and shows minimal displacement under operation of the roller meeting Section 151.02 B.

The final rolling shall be done with the roller meeting Section 151.02 C.2 and shall continue until roller marks have been eliminated. Density tests may be taken to assure uniform compaction is obtained.

- H. **Completed Surface.** The surface of the course shall be smooth, uniform and true to plan crown, alignment and grade. Any low, high, or defective places shall be remedied by patching or removing and replacing the area with fresh mixture compacted to conform with the surrounding area. The patches shall be thoroughly bonded to the surface. The finished pavement shall be free from irregularities exceeding 1/4 inch as measured with a 10-foot straightedge parallel and perpendicular to the centerline of the roadway.
- I. **Maintenance of Completed Surface.** Upon completion of the final rolling and finishing, the surface shall be maintained at the Contractor's expense until the work is accepted by the Department. Maintenance shall include the repairing of areas displaced due to traffic or succeeding construction operations and shall include, if necessary, the removing, resspreading, reshaping, and recompacting of such areas.
- J. **Limitations.** Bitumen shall be applied to the aggregate only when the atmospheric temperature is above 50°F. for blade mixing and above 45°F. when either traveling mixers or stationary plant mixing are used.

Materials shall not be mixed or laid when it is raining or when the roadbed or mixture is frozen. The presence of frost particles in the roadbed or in the material is sufficient evidence of being frozen.

Traffic shall be controlled by the Contractor to prevent damage to the surface during lay down and compaction.

**402.05 METHOD OF MEASUREMENT.**

- A. **Cold Bituminous Pavement.** Cold Bituminous Pavement will be measured by the Ton according to Section 109. Batch weights will not be permitted as a method of measurement. The Tonnage will be the weight used in the accepted pavement and no deduction will be made for the weight of bitumen in the mixture. When road mix or a traveling mixer is used, measurement will be based on the Tons of aggregate hauled plus the Tons of bitumen added to the aggregate on the roadway.
- B. **Bitumen.** Bitumen will be measured according to Section 109 and the quantity of bitumen will be the number of Tons or Gallons used in the accepted work.

**402.06 BASIS OF PAYMENT.**

Payment will be made at the Contract Unit Price for the following:

<b>Pay Item</b>	<b>Pay Unit</b>
Cold Bituminous Pavement	Ton
---Liquid Asphalt	Ton or Gallon
---Emulsified Asphalt	Ton or Gallon
---Asphalt Cement	Ton or Gallon

This payment will be full compensation for all labor, equipment, and materials necessary to complete the work.

Patching or leveling of an existing bituminous surface constructed under a previous Contract will be paid for according to the following provisions:

- A. If no excavation is required, payment will be made at the Contract Unit Prices for the materials used in the repair.
- B. When the patching requires excavation, the method and site of disposal of the waste materials shall be subject to the approval of the Engineer, and:
  - 1. Payment for prime, tack, and the bitumen in the mix used in the repair will be made at the Contract Unit Prices for those items.
  - 2. If the excavated material is disposed of within the Right of Way adjacent to the work site, payment for the bituminous mixture used in the repair will be made per Ton as follows: Contract Unit Price plus the price per Ton listed in the "Price Schedule PS-1."
  - 3. If the excavated material is loaded and hauled to a disposal area not adjacent to the work site, payment for the bituminous mixture used in the repair will be made per Ton as follows: Contract Unit Price plus the price per Ton listed in the "Price Schedule PS-1."
  - 4. If aggregate is used for a portion of the backfill, or for other reasons B.2 and B.3 above are not applicable, the repair work will be paid for under Section 104.03 D.
- C. Payment as provided above will be considered full compensation for the excavation, haul, and disposal of the waste material, preparation of the area to be repaired, and for furnishing and placing the materials used in the repair.

## SECTION 403 STOCKPILED HOT BITUMINOUS MIX

### 403.01 DESCRIPTION.

The work consists of aggregate and bituminous material mixed in a central mixing plant and stockpiled as specified in the Contract.

### 403.02 MATERIALS.

- A. **Bitumen.** Bitumen shall meet and will be accepted according to Section 818 and will be of the type and grade specified. Bitumen will be conditionally accepted at the Project and sampled according to Department procedures.
- B. **Aggregate.** Aggregate shall meet Section 816 for the class of aggregate or the gradation specified. The material will be tested before production can begin. After