



## 4120 - SPECIFICATION FOR THE PRODUCTION AND STOCKPILING OF BITUMINOUS MIX

### 4120 - 1 DESCRIPTION

- 1.01 The work shall consist of aggregate supplied from a stockpile and mixed with bituminous binder in a central plant and placed in a stockpile.
- 1.02 In Section 1, 2 and 3 of this Specification, the following definitions will apply:

**Bituminous Aggregate** - the crushed aggregate in stockpile

**Bituminous Mix** - the mix after the addition of bituminous binder

### 4120 - 2 MATERIALS

- 2.01 Bituminous aggregate shall be obtained from Department stockpiles shown on the plans or in the special provisions.
- 2.02 The Department will select and pay for the bituminous binder. The bituminous binder will usually be an MC or SC type of cut back asphalt.

### 4120 - 3 CONSTRUCTION

#### General

- 3.01 The bituminous mix design will be established by the Engineer. During the course of the work, the bituminous mix design may be adjusted if necessary.
- 3.02 Bituminous binder shall be stored in tanks provided with adequate heating and positive control of temperature.
- 3.03 Storage tanks shall be provided by the Contractor.
- 3.04 Storage tanks shall not be partitioned to store more than one (1) bituminous material.
- 3.05 Mixing operations shall be performed in a stationary mixing plant.
- 3.06 The removal of bituminous aggregate from the stockpile shall be performed with a front end loader unit only, unless prior approval is obtained from the Engineer to use other type of equipment.

#### Plant Requirements

- 3.07 The bituminous aggregate shall be fed to the drier or drum-mixer at a uniform rate.
- 3.08 A heat sensing device shall be installed to indicate the temperature of the dried aggregate at the discharge end of a drier, and to indicate the temperature of the bituminous mix at the discharge end of a drum mixer.
- 3.09 On continuous mix plants and drum-mixers the aggregate and asphalt feeds shall be positively interlocked.

3.10 The asphalt pump shall be the positive displacement type.

3.11 The mixer shall be a twin-shaft pugmill or a drum-mixer.

### Plant Operation

3.12 Temperatures shall be controlled in accordance with the following limits:

| Type of Bituminous Binder | DEGREES CELSIUS                      |                             |  |
|---------------------------|--------------------------------------|-----------------------------|--|
|                           | Maximum Temperature of Dry Aggregate | Asphalt Storage Temperature | Maximum Temperature of Bituminous Mix at Discharge End of Drum - Mixer |
| MC - 200                  | 120                                  | 60 - 100                    | 100  |
| MC - 500                  | 120                                  | 80 - 120                    | 100  |
| SC - 200                  | 120                                  | 60 - 100                    | 100  |
| SC - 500                  | 120                                  | 80 - 120                    | 100  |
| HF - 300 M                | 120                                  | 50 - 95                     | 100  |

3.13 The bituminous aggregate, immediately before entering a pugmill, shall contain not more than one (1) percent moisture by weight.

3.14 For a drum mixer the bituminous mix shall contain not more than one and one-half (1 1/2) percent and not less than one-half (1/2) percent moisture by weight. The aggregate shall enter the drum at the burner end and travel parallel to the flame and exhaust gas stream. The asphalt shall enter the drum by way of a nozzle which may be moved along the length of the drum. Heating shall be controlled to prevent excessive oxydization of the asphalt.

3.15 Aggregate particles shall not be coated with residue from improper fuel combustion.

3.16 Regardless of the method of mixing a uniform mixture shall be produced in which all particles are thoroughly coated. The mixing time will be increased if the bituminous mix aggregate is not completely coated with the bituminous binder.

3.17 The percentage of bituminous binder added shall not vary by more than one-half (1/2) of one percent from the design percentage.

## **Stockpiling**

- 3.18 Stockpiles shall not be constructed at locations or by methods that will interfere with or damage any utilities such as power lines, telephone lines, pipe lines, and underground utilities.
- 3.19 If clearing and grubbing are required at the stockpile site, the work shall be performed in accordance with the requirements for Clearing and Grubbing (Specification 2000).
- 3.20 The floor of the stockpile shall be shaped to a uniform smooth surface and graded to ensure positive drainage, at no direct expense to the Department.
- 3.21 The bituminous mix shall be stockpiled from a conveyor belt directly from the discharge end of the mixing plant.
- 3.22 The bituminous mix in the stockpile shall not be moved or compacted. The free fall distance from the conveyor belt to the stockpile shall be not more than two (2) metres. The height of the stockpile shall be not less than four (4) metres. The completed stockpile (s) shall be constructed to occupy the smallest feasible area.
- 3.23 If different types of bituminous mix are to be stockpiled, the stockpiles shall be located and constructed so that no intermingling of material will occur.

## **4120 - 4 MEASUREMENT**

- 4.01 The bituminous mix will be measured in tonnes or in litres of bituminous binder added to the bituminous aggregate.

## **4120 - 5 PAYMENT**

- 5.01 Payment for BITUMINOUS MIX IN PLACE IN THE STOCKPILE will be at the contract unit price per tonne or per litre of bituminous binder added to the bituminous aggregate as specified in the tender form. The unit price will be full compensation for removal from stockpile and drying the aggregate; heating and storing the bituminous binder; and mixing and stockpiling the bituminous mix.