SECTION 501 -- GENERAL REQUIREMENTS

501.01 -- General

1. Bituminous surfacing work will include the application of prime coats, tack coats, fog seals, slurry seals, and armor coats and the construction of bituminous sand base courses and asphaltic concrete surface and base courses. The work shall be done in accordance with the plans and these *Specifications*.

2. Before the application of asphaltic materials, the Contractor shall clean the surface to be treated with mechanical brooms or hand tools as necessary to remove all foreign materials (vegetation, loose surface materials, dirt, mud, and old crack sealant). Any surfacing materials not securely bonded to the surface shall be removed. Material cleaned from the surface shall be swept to the sides or windrowed as required.

3. Stockpiling is not allowed in aquatic areas, including rivers, streams, and wetlands. Techniques should be employed to prevent petroleum, chemicals, harmful materials, and excessive suspended solids from entering waterways.

4. The Contractor shall protect all structures and roadway appurtenances like signs, guardrails, and curbs when bituminous materials are used. If any items are damaged by the Contractor or because of the Contractor's negligence, then they shall be repaired or replaced at no additional cost to the Department.

5. Asphaltic concrete operations shall not be allowed between sunset and sunrise without permission of the Engineer.

6. The Contractor shall apply asphaltic materials within the temperature ranges shown in Table 501.01 or within written manufacturer recommended temperatures so that uniform mixing and spreading is attained.

Table 501.01

Required Asphaltic Temperatures			
		Temperature (°C)	
Asphaltic Material	**Grade**	**Minimum**	**Maximum**
Emulsified	All	40	104
MC	70	40	120
MC	250	65	135
MC	800	80	150
Asphalt Cements	All	120	200

7. Table 501.02 shall be used when there is a need to restrict the routine placement of asphaltic concrete as a result of cold temperatures. Other conditions, such as wind velocity, cloud cover, and other project specific conditions, will be considered by the Engineer when determining the need to restrict the placement of asphaltic concrete.

Table 501.02

Cold Weather Asphaltic Concrete Placement	
Lift Thickness	**Minimum Surface Temperatures**
Less than 50 mm	7°C
50 to 75 mm	3°C
Greater than 75 mm	2°C

8. a. All volumes of asphaltic materials (except tack coat and fog seal) shall be measured at 15°C.

b. If the temperature is other than 15°C, then the measured volume shall be corrected as follows:

Calculated Volume for Payment		
Pay Volume	=	AV [1.00000 + [.00045 (15°C - T)]]
T	=	Asphaltic Material Temperature in Degrees Celsius
AV	=	Actual Volume at Field Temperature (T)

501.02 -- Equipment

1. All equipment shall be adequate for its intended purpose and shall be maintained in satisfactory working condition.

2. The Contractor shall be responsible for all equipment calibrations.

3. The hauling equipment shall consist of trucks equipped for dumping material into spreader boxes or in a windrow. They shall be constructed and maintained to prevent loss of materials during hauling operations.

4. Equipment used for heating asphaltic materials shall be able to heat the material properly. The equipment shall be provided with an accurate thermometer or other approved temperature measuring device to indicate the temperature of the asphaltic material in the unit. The use of equipment or methods which will introduce moisture or damage the material will not be allowed.

5. a. All distributors and supply tanks shall be mounted on pneumatic tired trucks or trailers. The units shall be designed to avoid roadbed rutting or other damage. They shall be powered to maintain the required speed for effective operation.

b. Distributors shall be equipped with the following devices:

(1) Tachometer and distribution tables.

(2) Pressure gauges or pump control devices capable of maintaining uniform distribution of required quantities.

(3) Adjustable length, full circulating, rotating spray bars with rotating nozzles.

(4) Heating coils and a burner or approved auxiliary heating device.

(5) Thermometer well and an accurate thermometer.

(6) Suitable opening in the dome.

(7) Calibrated measuring stick.

c. The spray bar length shall allow adjustable increments of approximately 300 mm for any length up to 3 m. All nozzles shall be adjustable vertically to various heights above the road surface and shall be able to conform to the roadway crown and provide uniform coverage. The spray bar shall be designed to shift laterally during operation. The spray bars and nozzles shall be constructed to prevent clogging. The distributor shall be equipped with a full circulating type spray bar having positive shut-off devices to prevent dripping after the flow is shut off.

d. The Contractor shall furnish certified copies of the distributor and supply tank calibrations to the Engineer.

6. a. Aggregate spreaders shall be self-propelled and designed, equipped, coordinated, and operated so that the aggregate will be spread uniformly and continuously over the full width of the asphaltic material in one operation.

b. (1) The spreading hopper shall be equipped with adjustable cutoff gates to allow spreading of aggregate over the required width of asphaltic material.

(2) The unit shall be able to spread the aggregate uniformly at the required rate.

(3) The unit shall have a rear hopper to receive the aggregate from the haul trucks.

(4) The aggregate shall be transferred from the receiving hopper to the spreading hopper without segregation.

(5) A grill shall be mounted over the spreading hopper with openings that will retain all oversize and foreign objects.

7. Mechanical brooms shall be power-driven rotary brooms equipped with a shield to prevent damage to the operator and motorists.

8. In urban areas, sweepers must be designed to operate near vehicles, pedestrians, and other typical obstacles.

9. Truck beds or other equipment with which the bituminous mixture comes in contact may only be cleaned with products from the NDR Approved Products List. Diesel fuel may be used as a cleaning solvent only at the end of the work day to avoid contaminating the asphaltic materials. Diesel fuel shall be used in accordance with all applicable environmental laws and regulations.