



# *City of Estevan*

## Construction Specifications

SECTION 2221

**ASPHALT STABILIZED GRANULAR BASE (ASGB)**

**1.0 General**

This section governs the placement of asphalt stabilized granular base course materials immediately following completion of granular subbase or granular base course.

**2.0 Materials**

ASGB shall consist of an intimate mixture of crushed aggregate and cutback or emulsified asphalt, produced by plant-mixing at elevated temperatures and placed in layers upon a previously prepared surface, compacted and finished as specified herein.

**2.1 Aggregate**

Crusher run aggregate without binder, uniform in quality and consisting of hard, strong, durable aggregate, uniformly graded, free of soft or organic materials or materials that break up when alternately frozen and thawed or wetted and dried or other deleterious materials conforming to Section 1090 - GRANULAR MATERIALS AND AGGREGATES.

**2.2 Asphaltic Binder**

Asphaltic binder shall be MC-250 or MC-800, be uniform in character, free of water and shall not foam when heated to the application temperature range recommended by the Asphalt Institute, and conform to the following specifications:

ASTM CHARACTERISTICS	ASTM TEST METHOD	SPECIFICATIONS			
		MIN	MC250 MAX	MIN	MC800 MAX
Flash Point, Open Tag, O°C	D1310	65		65	
Kinematic Viscosity @ 60°C, mm <sup>2</sup> /s	D2170	250	500	800	1600
Distillation Test:					
% by volume of total distillate to 360°C	D402				
to 225°C			10		
to 260°C		15	55		35
to 315°C		60	87	45	80
Residue from distillation to 360°C,					
Volume % by difference		67		75	
Test on Residue from Distillation:					
a) Penetration @ 25°C, 100g, 5s,dmm	D5	120	250	120	250
b) Ductility @ 25°C, cm(*)	D113	100		100	
c) Solubility in Trichloroethylene, % by mass	D2042	99.5		99.5	
Water % by mass or volume	D95		0.2		0.2
Delivery Temperature, °C		75	95	90	110

\* for Ductility @ 25°C <100, material is acceptable if ductility at 15°C.

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#### **2.3 Mix Design**

Provisions shall be as outlined in 2.4 DESIGN SECTION 2320 ASPHALTIC CONCRETE PAVEMENT. The mix for Minimum 50 Blow Marshall Stability, shall conform to the following criteria  
Marshall Stability (N) = 6700 Newtons for MC250 or MC800  
% Air Voids of Total Mix = 3-6%  
Minimum V.M.A. (Max. Agg.) = 14.5%  
Maximum Flow = 5mm  
Minimum Flow = 2mm

#### **2.4 Job Mix Formula**

Provisions shall be as outlined in 2.4 MIX DESIGN SECTION 2320 ASPHALTIC CONCRETE PAVEMENT.

### **3.0 MIX PRODUCTION**

#### **3.1 Mixing Plant Requirements**

The mixing plant shall conform to the provisions of 3.0 ASPHALTIC CONCRETE PRODUCTION SECTION 2320 ASPHALTIC CONCRETE PAVEMENT. Temperature control shall conform to Asphalt Institute recommendations for the grade of binder selected and shall not exceed 100°C for any ingredient at the time of mixing.

The drying and mixing process shall not reduce the cutback level to such a degree that the mix cannot be properly placed. Up to the time of spreading and placing material that is to be blade laid, the amount of cutback in the mix shall be maintained at:

- 40% - 70% (of original weight)-MC250
- >75% (of original weight)-MC800
- Moisture Content @ Plant discharge <1%

#### **3.2 Quality Control**

Before commencing hot mix production, submit to the Engineering Services Division a quality control plan to include a testing schedule.

#### **3.3 Stockpiling**

Stockpiles shall be built over the entire Stockpile base in successive layers not exceeding 2 metres thickness. Stacking conveyors shall be used to build stockpiles with an initial free fall of 3.5 metres and not exceeding 2.0 metres free fall thereafter up to a maximum stockpile height of 8 metres. No equipment shall be permitted upon ASGB stockpiles at any time.

Mixing or stockpiling shall not be carried out during periods of rain.

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#### **4.0 Installation**

**4.1** Asphalt Stabilized Granular Base may be laid by spreader or blade laid. Place the mix uniformly on the prepared and approved surface at a rate of application that yields the specified compacted thickness.

**4.2** Spread and compact ASGB only when the ambient temperature is 5°C or greater and its moisture content is 1% or less.

**4.3** Do not use vibratory compaction equipment unless specifically approved by the Engineering Services Division in writing.

Spread and compact to specified grade and cross section, keeping the mix stable, uniform in depth, gradation, density and asphalt content at specified values. Ensure that the finished surface is smooth, waterproof and free of roller and tire marks.

**4.4** No specific provisions regarding temperature of mix when laid, spread, or compacted are made herein.

**4.5** Provisions for this work, other than those above shall conform to those outlined in 4.0 INSTALLATION OF SECTION 2320 - ASPHALTIC CONCRETE PAVEMENT.

**4.6** Apply seal coat in conformance with SECTION 2310 - ASPHALTIC PRIME, TACK AND SEAL COATS. Do not allow traffic on the sealed surface until the coat has set and cured.

#### **5.0 Tolerances**

The finished surface shall not vary more than 10mm from the required elevations, be neither consistently high or consistently low from design grade and shall not show depressions or bumps in excess of 10mm under a 3 metre long straight edge placed parallel to the road centre line.

The average asphalt stabilized base course thickness must meet or exceed the required thickness and in no case shall any individual core thickness reduction exceed 10mm.

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**6.0 Measurement and Payment**

**6.1** The following work items in this section shall be paid in accordance with the Contract Unit Prices, which shall be deemed full compensation for all labour, materials, equipment, supplies, superintendance, overhead and profit for all work incidental to the supply, installation, completion and maintenance during the warranty period of the respective items:

- (i) Asphalt Stabilized Granular Base shall be paid on the basis of measured area in square metres of specified thickness and Marshall Stability;
- (ii) Asphalt Stabilized Granular Base shall be paid on the basis of tonnes of mix placed, calculated from the weights marked on delivery tickets of mix delivered to the site of the work and certified by the Engineering Services Division.

The Contract Unit Price shall be deemed to include all work items in this section incidental to a complete installation.