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3.31 ASPHALT PAVEMENT CRACK SEALING

3.31.1 GENERAL

The purpose of crack sealing is to prolong the life of existing pavements by preventing moisture from penetrating the roadway structure, and by preventing the spalling of material from the edges of the cracks.

The Work shall consist of sealing cracks with crack sealant between the limits shown on the plans or as directed by the Consultant.

3.31.2 MATERIALS

The Contractor shall supply all materials necessary for the Work including the crack sealant.

The Contractor shall choose the crack sealant to be used from the following list of approved products:

MANUFACTURER	SPECIFICATION CONFORMANCE
Cold Pour	**EC-101** Cold Pour Rubber Filled Bituminous Emulsified Pavement Crack Sealant
M&M Asphalt	
Ace Asphalt & Maintenance Ltd.	
McAsphalt Industries Limited	
Pounder Emulsions Limited	
Elsro Construction Products	
Hot Pour	**HC-200** Hot Pour Bituminous Pavement Crack Sealant
Husky Oil Marketing Company	
Elsro Construction Products	

The Contractor shall provide the Consultant with the following information 5 days prior to commencing the Work:

- Name and mailing address of crack sealant supplier and manufacturer
- Name of crack sealant product to be supplied
- Written confirmation from the manufacturer that the crack sealant to be supplied meets all specified requirements along with test results that demonstrate that the product meets all specified requirements.

The Contractor shall verify that all crack sealant delivered and used in the Work is the type and grade ordered.

The Contractor shall supply the Consultant with the manufacturer's quality control test results (as identified in Table 3.31.2) for each batch of crack sealant. These test results shall be supplied at the time of delivery of each batch of crack sealant to the Work.

Table 3.31.2

PRODUCT	QUALITY CONTROL TESTING REQUIREMENTS	
COLD POUR	a) Uniformity	EC-101
	b) Viscosity	ASTM D562
	c) Solids Content	ASTM D244
	d) Rate of Curing (24 hour)	EC-101
HOT POUR	a) Softening Point	ASTM D36
	b) Penetration @ 25°C	ASTM D5
	c) Viscosity	ASTM D2170

When necessary, the Contractor shall supply one of the following blotting agents:

- screened sand with a maximum topsize of 2 mm
- cement
- flyash

The use of other products shall be subject to the approval of the Department

3.31.3 EQUIPMENT

The Contractor shall supply all equipment necessary for completion of the Work including but not limited to the melting kettle (Hot Pour only), crack sealing equipment and all related equipment such as fork lifts, hoists, and transport vehicles.

The melting kettle shall consist of a double jacketed oil bath kettle with continuous agitation equipment to prevent localized heating. The kettle must be equipped with two thermometers to show the temperature of the crack sealant and the temperature of the heat transfer oil.

Application equipment must be capable of regulating the application of crack sealant directly to the road.

3.31.4 CRACK SEALING

All Work shall be performed during daylight hours only. No Work shall be performed if the visibility is less than 700 metres. No Work shall be performed during rain or snow or when the pavement surface or cracks are wet. The maximum work area shall be 3 km in length.

Crack sealant shall not be applied when the atmospheric temperature at the construction site is below 0° Celsius.

All cracks within the entire width of the pavement surface, which are 5 mm and greater in width shall be sealed.

Prior to the application of crack sealant, the Contractor shall ensure that the road surface adjacent to the cracks is clean.

Hotpour crack sealant shall be heated to the temperature specified by the manufacturer. Overheating will not be permitted.

Crack sealant shall be applied within the manufacturer's specified temperature range.

Crack sealant shall be applied so that the crack is flush filled immediately following application and a thin overband of sealant extends approximately 25 mm beyond the edges of the crack.

Excess crack sealant shall be removed from the pavement surface immediately following application. Removal shall involve the use of a squeegee, starting from the centerline and proceeding to the shoulder.

Traffic shall be kept off sealed cracks until the crack sealant will not track under the action of traffic. At locations such as intersections where this is not practical, the Contractor shall prevent tracking by applying a blotting agent to the crack sealant.

Fuel, asphalt and any other spills shall be cleaned up to the satisfaction of the Consultant at the Contractor's expense.

Work that does not meet the foregoing requirements shall be repaired or reconstructed to the satisfaction of the Consultant and at the Contractor's expense.

3.31.5 ACCEPTANCE SAMPLING AND TESTING

3.31.5.1 **Acceptance Sampling and Testing of Crack Sealant**

All crack sealant supplied shall be subject to inspection, sampling and testing by the Department and the Contractor shall cooperate in the inspection and sampling process. The Contractor shall obtain two representative samples of crack sealant material in accordance with ATT-42 for each Lot of production.

A Lot is defined as a day's production of at least 5 km of roadway. If a day's production is less than 5 km, it shall be added to the production of subsequent days until a minimum of 5 km is obtained for the Lot. If the last day's production is less than 5 km, it shall be added to the previous Lot.

The Department will determine the frequency of testing of sealant. Cold Pour materials that do not conform to the specification limits shall result in a unit price adjustment for each km of roadway in the Lot in accordance with Table 3.31.6.

3.31.5.2 **Appeal of Acceptance Test Results and Appeal Testing**

The following procedures will apply for an appeal:

(i) Appeals will only be considered if the Contractor can demonstrate to the satisfaction of the Consultant that there is sufficient cause to support the appeal.

(ii) Acceptance test results for any penalized Lot may be appealed only once.

(iii) The Contractor shall serve notice of an appeal to the Consultant, in writing, within 24 hours of receipt of the test results.

(iv) For an appeal of the materials characteristics testing, the Consultant will conduct a retest on the duplicate material sample for the Lot.

(vii) The results of the original measurements will be averaged with the results of the new tests and the new averages shall form the basis for payment.

3.31.6 MEASUREMENT AND PAYMENT

Measurement will be made of the length of roadway, in kilometres, on which crack sealing has been performed.

A roadway will include all travel lanes, shoulders, acceleration and deceleration lanes, truck turnouts and intersections. A divided or twinned highway will be considered two separate roadways.

Payment will be made at the unit price bid per kilometre for "Crack Sealing" subject to the unit price adjustments specified herein. This payment will be full compensation for cleaning the road surface adjacent to the cracks, supplying and applying the crack sealant, quality control, traffic accommodation and signing.

The following unit price adjustments apply only to EC-101 or other approved cold pour materials and do not relieve the Contractor of the requirements to complete the Work in accordance with these specifications.

Table 3.31.6
LOT UNIT PRICE ADJUSTMENTS

Requirement	Unit Price Adjustment
Solids (%)	
≥ 59	No Adjustment
58.9 to 54.0	5 %
53.9 to 49.0	10 %
< 49	15 %

The unit price applicable to each Lot quantity of "Crack Sealing" shall be as follows:

Lk = BP - (BP * AF)

Where Lk is the Lot Unit Price per kilometre;
BP is the Contract Bid Price per kilometre; and
AF is the Adjustment Factor for the Crack Sealant.