

Specification for Engineered Seal Coat - 4230

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1 GENERAL

1.1 Description

- 1.1.1 The Work shall consist of the design, material supply and construction of a Seal Coat comprised of asphalt binder, fibreglass reinforcement (if applicable) and aggregate on a prepared surface

1.2 Definitions

- 1.2.1 The following definitions shall apply for this Specification:

1.2.1.1 Binder is asphalt emulsion material as described in Section 4230.3.2.

1.2.1.2 Seal Coat is a surface treatment that consists of layers of Binder, aggregate and perhaps other additive materials as an integrated treatment.

1.2.1.3 Single Chip Seal Coat is a Seal Coat constructed using a single application of Binder followed by a single application of Type 97 aggregate.

1.2.1.4 Sandwich Chip Seal Coat is a Seal Coat constructed using a layer of Type 97 aggregate followed by a single application of Binder and a

second layer of smaller aggregate as described in Section 4230.3.4.4.

- 1.2.1.5 Double Chip Seal Coat is a Seal Coat constructed using two applications of Binder and two layers of aggregate. The first application of Binder is applied followed by a layer of Type 97 aggregate followed by the second application of Binder and then a second layer of smaller aggregate as described in Section 4230.3.4.4.
- 1.2.1.6 Graded Aggregate Seal Coat is a Seal Coat constructed using a single application of Binder followed by a single layer of Type 94, Type 95, Type 117 or Type 118 aggregate.
- 1.2.1.7 Racked-in Chip Seal Coat is a Seal Coat constructed using a single application of Binder followed by a layer of Type 97 aggregate at 70-90% coverage. The gaps in the mosaic are then filled by a second layer of smaller aggregate as described in Section 4230.3.4.4.
- 1.2.1.8 Fibre Reinforced Seal Coat is a Seal Coat that incorporates fibreglass strands into the Binder.
- 1.2.1.9 Sweeping is the removal of all loose aggregate and debris from the roadway.
- 1.2.1.10 Business Day is any weekday excluding statutory Holidays and the provincial government's Floating Holiday.
- 1.2.1.11 Quality Control is the testing and inspection performed by the Contractor, Engineer, or third party to determine and monitor the characteristics, properties, and distribution rates of the materials used in the Work.

1.3 Contractor Obligations

- 1.3.1 The Contractor shall be responsible for:
 - 1.3.1.1 the Seal Coat design(s);
 - 1.3.1.2 the selection, supply and quality of all materials required to complete the Work;

- 1.3.1.3 developing the Quality Control Plan and the control and application of materials and other related operations;
- 1.3.1.4 ensuring conformance to all dust control and loose aggregate requirements; and
- 1.3.1.5 all warranty repairs required during the warranty period.
- 1.3.2 The Contractor shall advise the Engineer in writing at least five (5) Business Days prior to:
 - 1.3.2.1 the start of any on-site construction activities and associated sampling, testing, and inspections; and
 - 1.3.2.2 the start of any repairs or warranty activities.

2 DESIGN REQUIREMENTS

2.1 General

- 2.1.1 The design of a Seal Coat requires the application rates for layers of Binder, fibreglass and aggregate material to be determined by the Contractor as an integrated system; including allowances to address any existing roadway, pavement surface, traffic and environmental conditions.
 - 2.1.1.1 For each site listed in the Schedule of Quantities, one of the following Seal Coat design types shall be identified in the design:
 - 2.1.1.1.1 Single Chip Seal Coat
 - 2.1.1.1.2 Sandwich Chip Seal Coat
 - 2.1.1.1.3 Double Chip Seal Coat
 - 2.1.1.1.4 Graded Aggregate Seal Coat
 - 2.1.1.1.5 Racked-in Chip Seal Coat
 - 2.1.1.2 The Engineer will provide the Contractor with available Ministry roadway condition, pavement surface condition and traffic information upon request. The Ministry does not guarantee the accuracy of this information and the Contractor is expected to conduct its own field investigation.

- 2.1.1.3 The design shall indicate whether fibreglass reinforcement is included and the application rate for the layer of fiberglass if applicable.
- 2.1.1.4 The allowable Seal Coat design type(s) for each particular site(s) within the Contract will be as indicated in the Schedule of Quantities and/or Special Provisions.
- 2.1.1.5 The Design Report shall be signed and sealed by a registered Professional Engineer qualified to practice in the Province of Saskatchewan.
- 2.1.1.6 The Contractor shall follow a recognized Seal Coat design methodology.

2.2 Design Report Submission Requirements

- 2.2.1 The Seal Coat Design Report shall include design details for each site listed in the Schedule of Quantities. The Seal Coat Design Report shall include:
 - 2.2.1.1 Contractor name
 - 2.2.1.2 Contract number
 - 2.2.1.3 Date of submission
 - 2.2.1.4 Highway number, control section, and project limits
 - 2.2.1.5 Professional Engineer's signature and seal
 - 2.2.1.6 Name of the Seal Coat design methodology(ies) used
 - 2.2.1.7 The printed name and signature of the Contractor's laboratory representative providing the material testing.
 - 2.2.1.8 Aggregate gradations shall be reported for all aggregates including the percent passing each sieve in accordance with the requirements for Sieve Analysis (STP 206-1).
 - 2.2.1.9 For designs that specify fibreglass material; include the name of fibreglass supplier with typical test results and a statement from the supplier stating that the fibreglass is suitable for use in a Fibre Reinforced Seal Coat.

- 2.2.1.10 The following information for each site within the Contract:
 - 2.2.1.10.1 Type of Seal Coat application
 - 2.2.1.10.2 Binder information including supplier name and address of production facility, type, source, and design application rate (L/m²) and application temperature
 - 2.2.1.10.3 Name and location of all sources, gradation and applicable physical properties of the aggregate, design application rates (kg/m²), and the percent coverage of each aggregate
 - 2.2.1.10.4 If applicable, the fibre application rate and fibre strand length
 - 2.2.1.10.5 Results of a compatibility test for graded aggregate and chip seals, and the results of an adhesivity test for chip seals
 - 2.2.1.10.6 Adhesion agent type and quantity (if applicable)
 - 2.2.1.10.7 Adjustment factors for existing pavement surface and climate (if applicable)
 - 2.2.1.10.8 Other assumptions or design inputs (if applicable)
 - 2.2.1.10.9 List of recommended repairs required by the Ministry prior to construction of the Seal Coat
 - 2.2.1.10.10 Sweeping requirements
 - 2.2.1.10.11 Traffic control requirements
- 2.2.2 The Contractor shall submit the Seal Coat Design Report to the Engineer a minimum of 10 Business Days prior to the start of operations for Seal Coat construction.
- 2.2.3 Seal Coat shall only be placed after the Engineer has issued authorization to proceed in writing. Authorization to proceed, or notice of non-conformance, will be issued within five (5) Business Days of receipt of the Seal Coat Design Report.

- 2.2.4 All component materials used in the Seal Coat design(s) shall be representative of the materials proposed by the Contractor for use on the Contract.

3 MATERIALS

3.1 Description

- 3.1.1 Seal Coat materials shall consist of Binder, aggregate, and fibreglass material if applicable.

3.2 Binder

- 3.2.1 The Binder for Chip Seal systems shall be a cationic rapid setting polymer modified emulsified asphalt.
 - 3.2.1.1 The cationic rapid setting polymer modified emulsified asphalt shall adhere to the recommended properties as outlined in the International Slurry Seal Association's "Recommended Performance Guideline for Chip Seal A 165", Section 5.2.1, where applicable, or shall be approved in the Design Report by the Engineer.
- 3.2.2 The Binder for Graded Aggregate Seal Coat shall be a high float polymer modified emulsified asphalt in accordance with the requirements of High Float Polymer Modified Emulsified Asphalt (SMM 103-3.3) where applicable.
- 3.2.3 Pay reductions for asphalt materials not meeting the specified requirements will be applied to the Contractor's final payment.

3.3 Fibreglass Material

- 3.3.1 The fibreglass shall be manufactured for use in a Fibre Reinforced Seal Coat and shall be a Type E fibre, in accordance with the requirements of Standard Specification for Glass Fiber Strands (ASTM D578)
- 3.3.2 Fibreglass material shall be cut into lengths of 50 mm to 100 mm.

3.4 Aggregate

- 3.4.1 Seal Coat aggregate shall be composed of sound, hard and durable particles of gravel and rock free from injurious quantities of elongated, soft or flaky

particles, sand, shale, loam, clay balls and organic or other deleterious material.

3.4.1.1 Aggregates containing any types of slags shall not be used.

3.4.1.2 Aggregates that have become mixed with foreign matter of any description shall not be used.

3.4.2 Raw aggregate shall be screened over a maximum 9.0 mm square opening or a 5.0 mm slotted opening screen prior to crushing. The aggregate shall be processed from the material retained on the screen used. Type 97 aggregate shall be washed in order to meet the specified gradation.

3.4.3 Seal Coat aggregate shall comply with the requirements listed in Tables 4230.3.T1 and 4230.3.T2. No tolerances will be allowed for the aggregate gradations shown in Table 4230.3.T1.

TABLE 4230.3.T1

SEAL COAT AGGREGATE GRADATION

Sieve Designation	Percent By Weight Passing Canadian Metric Sieve Series				
	Type 94	Type 95	Type 97	Type 117	Type 118
12.5 mm	100.0		95.0 – 100.0	100	100
9.0 mm		100.0	75.0 – 95.0		
5.0 mm	0 – 40.0	0 – 40.0	0 – 15.0	35.0 – 70.0	25.0 – 65.0
2.0 mm	0 – 25.0	0 – 25.0		20.0 – 55.0	10.0 – 45.0
71 um	0 – 5.0	0 – 5.0	0 – 0.5	0 – 10.0	0 – 6.0

TABLE 4230.3.T2**SEAL COAT AGGREGATE PHYSICAL REQUIREMENTS**

Physical Property	Test No.	Type 94	Type 95	Type 97	Type 117	Type 118
Minimum Sand Equivalent	STP 206-5	55	55	-	45	45
Minimum Fractured Faces (%)	STP 206-14	70	70	90	50	50
Maximum Lightweight Pieces (%)	STP 206-9	5	5	5	5	5
Maximum Lightweight Pieces + Other Deleterious Material (%)*	STP 206-09 & STP 206-15	10	10	10	10	10
Maximum Absorption (%)	ASTM C127	-	-	1.75	-	-
Maximum Flakiness Index	ATT 49**	-	-	25	-	-
Maximum Loss by Micro-Deval Abrasion Loss (%)	ASTM D6928	-	-	17	-	-
Maximum Loss by Magnesium Sulphate Soundness (%)	ASTM C88	-	-	12	-	-
Maximum Stripping Potential (%)	STP 204-16	20	20	20	20	20

* Deleterious material includes all other injurious material other than lightweight pieces.

** Alberta Transportation Test

3.4.4 Where a Racked-in, Double or Sandwich Chip Seal Coat is selected, the following shall apply for the second application of aggregate:

3.4.4.1 The median size shall be between 30% and 50% of the median size of the Type 97 first application of aggregate.

3.4.4.2 The maximum amount by weight passing the 71 µm sieve shall be 0.5%.

- 3.4.4.3 The amount by weight passing the 5.0 mm sieve shall be between 75% and 100%.

4 EQUIPMENT

4.1 General

- 4.1.1 All equipment shall be maintained in good working condition at all times.

4.2 Binder Distributor and Binder/Fibreglass Combo Distributor

- 4.2.1 The Contractor shall supply a self-powered pressure asphalt distributor which shall:
- 4.2.1.1 be capable of maintaining a uniform speed and be equipped with a device that measures the truck speed in metres per minute and distance travelled in metres.
 - 4.2.1.2 have a minimum Binder capacity of 4 500 litres.
 - 4.2.1.3 have a heating system capable of applying even heat to the Binder.
 - 4.2.1.4 have a device capable of measuring the Binder temperature in the tank.
 - 4.2.1.5 have a positive displacement asphalt pump with separate power unit or hydrostatic drive.
 - 4.2.1.6 be equipped with a gauge that measures spray bar pressure.
 - 4.2.1.7 have a spray bar that is capable of being maintained at a constant height throughout the entire operation.
 - 4.2.1.8 have an adjustable length spray bar on which the nozzles on any portion may be closed off.
 - 4.2.1.9 have a spray bar that has been provided with a positive shutoff to prevent leaking.
 - 4.2.1.10 have spray bar nozzles that are of the same manufacture, type and size and are in good working condition.
 - 4.2.1.11 have a device capable of measuring spray nozzle angle.

- 4.2.1.12 have nozzles that have been set in the spray bar so that the nozzle slots make the same angle (15 to 30 degrees) with the longitudinal axis of the spray bar.
- 4.2.2 Where a Fibreglass Reinforced Seal Coat is being applied, the Contractor shall supply a self-powered pressure Binder/fibreglass distributor specifically manufactured for producing a Fibre Reinforced Seal Coat. In addition to Section 4230.4.2.1, the Binder/fibreglass distributor shall:
 - 4.2.2.1 be capable of spraying approximately half of the required Binder from a primary set of nozzles and the remaining half from a secondary set of nozzles.
 - 4.2.2.2 be capable of chopping the fibreglass strands into uniform lengths between 50 mm and 100 mm, as specified in the Design Report, and placing the fibreglass strands into a random mat arrangement between the two layers of Binder in a continuous and uniform manner across the entire width of the Binder at the specified rates contained in the Seal Coat Design Report.
 - 4.2.2.3 be capable of spraying the fibreglass strands between the two sets of Binder spray nozzles.
 - 4.2.2.4 have a minimum fibreglass capacity of 150 kg.
- 4.2.3 The Contractor shall verify that the distributor's settings and attachments, including but not limited to pumps and spray bars, are in accordance with the approved calibration method.

4.3 Aggregate Spreader

- 4.3.1 The Contractor shall supply sufficient self-propelled aggregate spreaders capable of spreading the aggregate at a uniform rate in one application over the full width of the applied Binder to ensure that the final surface is completed at the end of each day.
- 4.3.2 The spreaders shall be equipped with controls for adjusting width and rate of spread, and a hook or clamp mechanism which enables the towing of the trucks.

4.4 Calibration of Equipment

- 4.4.1 The Contractor shall provide the Engineer with a certificate of calibration conforming to ASTM methodologies D2995 and D5624 and verified by a Professional Engineer for the Binder/fibreglass distributor and chip spreader, which was performed in the year construction is to be carried out, prior to starting the Work.
- 4.4.2 At the start of each Project section, and as deemed necessary by the Engineer, the Contractor shall verify the emulsion and aggregate application rates in accordance with the requirements for Seal Coat Aggregate From The Roadway (STP 105-1) and Distributor Application Rate (STP 203-20).
- 4.4.3 The Contractor shall recalibrate equipment if deemed necessary by the Engineer.

4.5 Rollers

- 4.5.1 The Contractor shall supply sufficient self-propelled pneumatic-tired rollers to meet the production rate. The pneumatic-tired rollers shall be a minimum mass of 9,000 kg. Pull type or wobble type rollers shall not be used. Steel drum rollers with rubber liners may be used but only if used in association with pneumatic-tired rollers which are to be used to initiate the aggregate embedment.

4.6 Power Brooms

- 4.6.1 The Contractor shall supply sufficient mechanically operated, rotary-type power brooms to meet the specified Sweeping requirements. The brooms shall be equipped with the following:
 - 4.6.1.1 A broom wider than the width of the power unit when the broom is mounted in front of the power unit.
 - 4.6.1.2 A flashing or rotating amber light with not less than 55 W halogen bulbs and mounted not less than 2.5 metres above the ground surface.
 - 4.6.1.3 Devices that enable the operator to control the action of the broom from the towing unit for a pull type power broom.

5 CONSTRUCTION

5.1 Seal Coat Limitations

- 5.1.1 Seal Coat operations shall only occur from May 16th to August 31st inclusive. Asphalt material shall not be applied on a wet surface, or when weather is misty, rainy, or if rain is impending.

5.2 Preparation of Existing Surface

- 5.2.1 The Contractor is responsible for coordinating operations with local Ministry Section Offices for sites where repair work is required prior to placing the Seal Coat.
 - 5.2.1.1 The Contractor shall provide the Ministry Section Office with at least 10 Business Days notice prior to having the repair work completed.
- 5.2.2 The Contractor shall prepare the surface prior to applying the Seal Coat. The Contractor is to ensure the surface is swept clean of dust, dirt, oil, loose aggregate, mud, excess moisture, and foreign materials.

5.3 Longitudinal Seams

- 5.3.1 Longitudinal seams on the Seal Coat will only be permitted on the edge of any Lane.

5.4 Application of Binder

- 5.4.1 The application rate of the Binder will be considered acceptable when it is uniform across the width of application, and the rate of application is within a tolerance of $\pm 5\%$ of the specified rate in the Design Report.
- 5.4.2 Any adjustments in the field to the approved Seal Coat design shall be approved by the Engineer.
- 5.4.3 At the start of daily operations, the Binder application shall be started on a strip of building paper unless the Contractor can demonstrate to the Engineer that an acceptable joint can be obtained without building paper. The paper shall be removed and disposed of following the Binder application.
- 5.4.4 For stops and starts during the day, there shall be no aggregate spread at the stop of operations over the area to be overlapped with emulsion at the re-start of operations.

- 5.4.5 The spray pattern shall provide adequate overlapping coverage to avoid aggregate loss at the longitudinal joint.
- 5.4.6 The Contractor shall remove any splattered Binder from structures, wheel guards, curbs, guardrail, and other roadway appurtenances.
- 5.4.7 Binder shall not be spilled, sprayed, or tracked on completed sections of Seal Coat.
- 5.4.8 The Engineer may direct the Contractor to apply a light flush coat of emulsified asphalt to the final surface of Racked-in Chip Seal Coat or Single Chip Seal Coat. The flush coat shall be applied in accordance with Specification 4000 For Asphalt Prime, Tack And Flush Coat.
 - 5.4.8.1 Contrary to Specification 4000.2.1, the Contractor shall supply the emulsion material for the flush coat, which may be a cationic or anionic slow setting type.
 - 5.4.8.2 The emulsified asphalt shall comply with the most recent requirements of ASTM Specification D2397 for cationic slow setting type and ASTM Specification D977 for anionic slow setting type.
 - 5.4.8.3 Contrary to Specification 4000.3.6.2.1, the Contractor shall provide the source for the blotter sand if deemed necessary. Contrary to Specification 4000.5.2, there will be no direct payment for screening the blotter sand.

5.5 Application of Fibreglass

- 5.5.1 The application rate of the fibreglass will be considered acceptable when the rate of application is within a tolerance of $\pm 5\%$ of the specified rate in the Design Report. The length of fibreglass strands shall be within a tolerance of ± 10 mm of the length specified in the Design Report.
- 5.5.2 The fibreglass strands are to be placed between the two layers of Binder in a continuous and uniform manner with random orientation across the entire width of the Binder application.
- 5.5.3 Adjustments to the fibreglass application rate during construction from the approved Seal Coat design shall be approved by the Engineer.

5.6 Application of Aggregate

- 5.6.1 The application rate of the aggregate will be considered acceptable when the rate of application is within a tolerance of $\pm 10\%$ of the specified rate in the Design Report.
- 5.6.2 Adjustments to the aggregate application rate in the field from the approved Seal Coat Design shall be approved by the Engineer.

5.7 Sweeping

- 5.7.1 The Seal Coat shall be swept as follows:
 - 5.7.1.1 The first Sweeping shall be a light Sweeping and shall not commence until the Seal Coat has set or as per design recommendations. The first Sweeping shall not dislodge aggregate that was embedded into the Seal Coat.
 - 5.7.1.2 The second Sweeping shall commence within 24 hours after the first Sweeping is completed.
 - 5.7.1.3 If the Engineer deems necessary, the Contractor shall perform a third Sweeping which would commence within 36 to 72 hours after the second Sweeping is completed.
- 5.7.2 The maximum length of Seal Coat that has not received its first Sweeping shall not at any time exceed 8 km.
- 5.7.3 The maximum the length of Seal Coat on a Project on which both the first and second Sweepings have not been completed shall not exceed 15 km at any time.
- 5.7.4 The Contractor may be required to use water for dust abatement during the Sweeping process when directed by the Engineer. The Work shall be in accordance with Specification 2500 For Watering with the following exceptions:
 - 5.7.4.1 The Contractor shall furnish the source of water.
 - 5.7.4.2 The repair, maintenance and construction of haul roads for water sources shall be in accordance with General Provision 1300.7.1.4.

- 5.7.4.3 Watering for dust abatement during the Sweeping process will be considered as a subsidiary obligation of the Contractor under this Contract.

5.8 Traffic Control

- 5.8.1 The Contractor shall not allow traffic on uncovered surfaces of fresh asphalt.
- 5.8.2 The Contractor shall not allow traffic on the Seal Coat until rolling is completed.
- 5.8.3 All equipment shall use approaches to turn around.
- 5.8.4 The Contractor shall supply and operate pilot vehicles in accordance with the following:
 - 5.8.4.1 Both directions of traffic shall be piloted until the first sweeping is completed excepting the period between dusk and dawn.
 - 5.8.4.2 All piloting on unswept Seal Coat shall be conducted at speeds not exceeding 40 km/h.

6 QUALITY ASSURANCE

- 6.1 The Contractor shall submit to the Engineer a Quality Control Plan that shall define how the work will be carried out in the field. The Quality Control Plan shall address: longitudinal joints, sweeping, transverse joints, work on bridges, calibration of equipment, etc.
- 6.2 The Contractor shall demonstrate to the Engineer satisfactory compliance of the distribution rates in the Design Report for Binder, fibreglass (if applicable), and aggregate materials for the Seal Coat.
- 6.3 The Contractor shall demonstrate to the Engineer satisfactory compliance of material types and properties.
- 6.4 The Contractor shall provide the Engineer reasonable access to the construction project, equipment, and all construction materials for quality assurance and sampling purposes.

7 COMPLETION AND ACCEPTANCE OF WORK

- 7.1 The Seal Coat will be considered acceptable after the final Sweeping if there is no streaking or ravelling, the finished surface has a uniform and even texture, there are no

surface defects, the seams are straight, there are no gaps between or excessive overlap of the seams, the ride is smooth, there are no bleeding areas and loose aggregate is not evident.

- 7.1.1 Work that does not meet these requirements shall be repaired or reconstructed to the satisfaction of the Engineer at no direct expense to the Ministry.
- 7.2 The Contractor shall provide the Engineer 3 Business Days notice following completion of Work on any site, to arrange for a Final Acceptance inspection of that site.
- 7.3 Upon completion of Work, the Contractor shall submit a Final Report to the Engineer that summarizes the Work completed including Contract Number and Control Section, construction limits, daily weather conditions, total daily quantities for all materials, and any other information deemed important by the Engineer.
 - 7.3.1 If a satisfactory Final Report has not been submitted within 5 Business Days of receiving Final Acceptance of the Work, the Final Acceptance date will be moved forward by a period equal to the delay for the purposes of determining the completion date, liquidated damages and warranty period.

8 WARRANTY REQUIREMENTS

8.1 Warranty Period

- 8.1.1 The warranty period shall be 24 months following Final Acceptance of all Work under the Contract by the Engineer. If warranty repairs are identified within 30 days of the end of the 24-month period, the warranty period shall be extended to include such warranty repairs. The warranty work shall be completed between May 16th and August 31st inclusive.

8.2 Warranty Exemption

- 8.2.1 Shaving of the Seal Coat surface during snow and ice removal operations is exempt from the warranty requirements.

8.3 Warranty Repairs

- 8.3.1 The Engineer may inform the Contractor of necessary warranty repairs in writing anytime during the warranty period.
- 8.3.2 The Contractor shall repair and correct surface defects or deficiencies in the Work within 30 days of notification from the Engineer.

8.3.3 If the Contractor fails to complete the repairs or to complete the repairs to the satisfaction of the Engineer, the Performance Bond will be called upon to ensure completion of the repairs.

8.3.4 Warranty repairs shall be made according to Table 4230.8.T3.

TABLE 4230.8.T3
WARRANTY REPAIRS

Surface Defect	Severity	Description	Required Repair
Loss of Cover Aggregate	Minor	Seal Coat aggregate has begun to wear away but has not progressed significantly. This would represent roughly 20% or less of aggregate loss.	No action required
	Severe	Seal Coat aggregate has worn away with extensive loss of coarse aggregate. This would represent greater than 20% aggregate loss.	Seal Coat of the affected area
Bonding		Seal Coat has separated from the underlying surface.	Existing Seal Coat to be removed and affected area to be resealed.
Flushing, Bleeding or Streaking	Minor	Seal Coat surface presents uneven discoloration due to excess Binder.	No action required.
	Severe	Seal Coat surface has a shiny appearance due to excess Binder. Aggregate may be obscured by excess Binder and tire marks may become evident in warm weather. Frequent, or extensive (Note 1) Intermittent (Note 2)	Seal Coat of the affected area
Notes: 1. Area of the repair or replacement shall not be less than one lane width by 50 m in length.			

2. Area of the repair or replacement shall not be less than one lane width by 10 m in length. If there is less than 10 m between two sections in the lane designated for repair or replacement, the repair or replacement shall be continuous.

- 8.3.5 The length of a repair shall be sufficient to eliminate all surface defects as described.
- 8.3.6 The width of a repair area shall not be less than one lane width unless approved by the Engineer.
- 8.3.7 The method of repair shall be approved by the Engineer, and be compatible with the Seal Coat system.
- 8.3.8 Repairs shall be approved by the Engineer.

8.4 Performance Bond and the Labour & Materials Payment Bond

- 8.4.1 The Performance Bond and the Labour and Material Payment Bond shall remain in full force and virtue until the end of the warranty period as stipulated in Section 4230.8.1.1.

9 MEASUREMENT

- 9.1 Measurement of Engineered Seal Coat will be by the square metre.

10 PAYMENT

- 10.1 Payment for Engineered Seal Coat will be at the contract unit price per square metre and will include full compensation for the Seal Coat Design(s) and all materials, equipment and labour necessary to complete the Work, including the fibreglass reinforcement if applicable.
- 10.2 The processed Seal Coat aggregate and hauling of Seal Coat aggregate will be paid for on an interim basis on progressive estimates.
- 10.2.1 Interim payments will be made in accordance with the Rates and Surcharges in the Special Provisions.
- 10.2.2 Quantities for interim payments will be limited to the tendered quantity of Seal Coat multiplied by 20 kilograms.

- 10.2.3 Payments pursuant to the above will be deducted from subsequent progressive estimates as the aggregate is incorporated into the Work and these payments will not appear on the final estimate.
- 10.3 Payment for the flush coat (if necessary) will be at the contract unit price per tonne for Flush Coat, Contractor Supply and will include full compensation for all materials, equipment and labour necessary to complete the Work.