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## SECTION 408 - SPRAYED BITUMINOUS SURFACINGS

### 408.01 GENERAL

This section covers the requirements for materials, design and application of sprayed bituminous surfacings including primes, primers and sprayed seals of various types.

### 408.02 DEFINITIONS

#### **Adhesion Agent:**

A wetting agent designed to promote adhesion of binder or primerbinder to stone.

#### **Aggregate Retention:**

Retention of aggregate particles by the binder or primerbinder under normal traffic conditions. The degree of aggregate stripping is measured to assess aggregate retention.

#### **Polymer Modified Binder (PMB)**

A bituminous binder with altered or enhanced properties achieved by the addition of a polymer or crumb rubber.

#### **Prime:**

The application of a bituminous primer as a preliminary treatment without cover aggregate to a prepared granular pavement base or concrete surface.

#### **Primerseal:**

The application of a bituminous primerbinder and covered with sand or aggregate to provide a temporary bituminous surfacing to a prepared bound or unbound granular pavement base.

#### **Residual Binder:**

The volume of bituminous binder at 15° C including the volume of any polymer, granular rubber and flux oil but does not include the volume of any cutter, water, emulsifier or adhesion agent.

#### **Sprayed Seal:**

The sprayed application of bituminous binder to a pavement surface followed by an application of aggregate to form an all-weather skid resistant road surfacing.

Types of sprayed seals include:

- Conventional (C), where the bituminous binder is Class 170 bitumen;
- High Stress Seal (HSS), where the bituminous binder is a lightly modified PMB or has five parts of crumbed rubber added to aid aggregate retention on heavily trafficked roads;
- Strain Alleviating Membrane (SAM), where the bituminous binder is a heavily modified PMB, or has 18 parts of crumbed rubber added to treat cracked pavements;
- Strain Alleviating Membrane Interlayer (SAMI), where the bituminous binder is a heavily modified PMB or has 20 parts crumbed rubber added to inhibit cracks reflecting through to an overlying surface;
- A Geotextile Reinforced Seal (GRS) is a type of SAM or SAMI seal where the bituminous binder is reinforced with a geotextile fabric to treat extensively cracked pavements;
- A Fibreglass Reinforced Seal (FRS) is a type of SAM or SAMI seal where the bituminous binder is reinforced by the inclusion of chopped fibreglass strands to treat cracked pavements.

**Surface Enrichment (SE)**

A light application of cutback bitumen or bitumen emulsion to an existing highly textured bituminous surfacing in very low or non-trafficked areas to rejuvenate an existing sprayed seal or asphalt surface.

**Surface Pre-Treatments**

Surface pre-treatments include any sprayed bitumen, aggregate, combination of sprayed bitumen and aggregate, or other treatment approved by the Superintendent.

**Surface Texture**

The mean height of aggregate particles above the level of the binder as determined by the VicRoads' test for surface texture testing as listed in Section 175.

**408.03 COMMENCEMENT OF WORK****(a) Periodic Resurfacing and Maintenance Works**

**Within 2 weeks of the Date of Award of Contract the Contractor shall submit to the Superintendent for review the sealing program for the whole of the works.**

During the period of the Contract, the Contractor shall submit by the preceding Thursday a detailed program of planned sealing jobs for the following week for review by the Superintendent, including planned dates for each sealing job.

**(b) Construction Projects**

**The Contractor shall include details of all sprayed bituminous surfacing works on the Construction Program.**

During the period of the Contract, the Contractor shall submit by the preceding Thursday a detailed program of planned sprayed bituminous surfacing works for the following week for review by the Superintendent, including the planned sprayed bituminous surfacing works for each day.

**On the day prior to the works being carried out, the Contractor shall provide written confirmation of the works that will be undertaken the following day and obtain agreement from the Superintendent to any variation in the design rates of application to those provided under Clause 408.10(a).**

**HP Work shall not commence until the Contractor and the Superintendent have agreed that the road or pavement surface is fit and ready for surfacing.**

**408.04 LIMITS OF WORK**

Where the Job Items are detailed in Table 408.161, the limits of work at the start and finish chainages plus the limit in any side road have been marked on the pavement surface.

The Works shall include all existing tapers, bell mouths at intersecting roads, pavement widenings (turn lanes), traffic lanes and sealed shoulders.

The Superintendent may increase or decrease the limits of work listed in Schedule 1. The Contractor will be notified in writing prior to works commencing of such adjustments to the limits of work for any job. The Contract Sum shall be adjusted on a pro-rata basis using the Item price tendered in Schedule 1 and the difference in area of the revised works.

The areas for items listed in Table 408.161 are accurate to  $\pm 5\%$ .

**408.05 INCLUSION AND DELETION OF JOB ITEMS**

The Superintendent may cancel any work, subject to notice of cancellation being given one week prior to the proposed commencement date.

The Contractor will be notified in writing of such deletion and the Contract Sum adjusted by the price tendered in Schedule 1 for the job item/s deleted.

No additional payment will be made as a result of the deletion of any job item. However, where the deletion of job items results in a Contract Sum reduction of more than 20% of the original Contract Sum, the deletion of job items in excess of this amount will be treated as a variation under Clause 40 of the General Conditions of Contract.

In the event of aggregate having been delivered to a job stacksite and the job is deleted in accordance with this clause, the cost of the removal of the aggregate and any loss of aggregate shall be treated as a variation under Clause 40 of the General Conditions of Contract.

The Superintendent may request the Contractor to undertake additional sealing works at sites not listed in Schedule 1. These works will be treated as a variation under Clause 40 of the General Conditions of Contract.

#### **408.06 CALIBRATION OF BITUMEN SPRAYERS**

All sprayers used for application of bituminous materials shall have a current Certificate of Calibration showing compliance with Austroads Test Methods for Calibration of Bitumen Sprayers as listed in Section 175. The Certificate of Calibration shall be renewed every 12 months. If any sprayer has its spray equipment overhauled or replaced, it shall be issued with a new Certificate of Calibration prior to use.

#### **408.07 BITUMINOUS MATERIALS**

(a) Adhesion Agent

Adhesion agent may be added to the aggregate precoat, binder or primerbinder to promote adhesion to the cover aggregate and/or pavement surface. The type of adhesion agent and the percentage to be used shall be subject to the Contractor providing evidence that the proprietary product has satisfactory field performance. When adhesion agent is added to the binder or primerbinder, the total volume of adhesion agent and diluent shall not exceed 1% by mass of the binder.

(b) Aggregate Precoating Material

Aggregate precoating material shall be distillate or distillate based product, cutback bitumen, emulsion based product or proprietary product subject to the Contractor providing evidence that the proprietary product has demonstrated satisfactory field performance for a period of at least three years. Restricted use of untried products on a trial basis shall be subject to the approval of the Superintendent.

(c) Bitumen

Bitumen shall be Class 170 complying with the requirements of the current Australian Standard for Residual bitumen for pavements as listed in Section 175. In addition, the minimum time to reach the specified apparent viscosity level shall be 9 days when tested in accordance with the Australian Standard.

(d) Bitumen Emulsion

Bitumen emulsion of Grade ARS or CRS shall comply with the requirements of the current Australian Standard for Bituminous emulsions for the construction and maintenance of pavements as listed in Section 175. Any non-standard proprietary grades of bitumen emulsion shall be subject to the Contractor providing evidence that the product has demonstrated satisfactory field performance for a period of at least three years. Restricted use of untried products on a trial basis shall be subject to the approval of the Superintendent.

(e) Cutback Bitumen

Cutback bitumen shall comply with the requirements of the current Australian Standard for Cutback bitumen as listed in Section 175, or an equivalent product subject to the Contractor providing evidence that the proprietary product has demonstrated satisfactory field performance for a period of at least three years. Restricted use of untried products on a trial basis shall be subject to the approval of the Superintendent.

## (f) Cutter

Cutter shall comply with the current Australian Standard for Oils for reducing the viscosity of residual bitumen for pavements as listed in Section 175. Other cutters or methods of temporarily lowering the viscosity of the binder may be used subject to the Contractor providing evidence that such methods or products have demonstrated satisfactory field performance for a period of at least three years. Restricted use of untried products on a trial basis shall be subject to the approval of the Superintendent.

## (g) Flux Oil

Flux oil shall be heavy flux oil supplied in accordance with the current Australian Standard for Oils for reducing the viscosity of residual bitumen for pavements as listed in Section 175. Other materials to achieve equivalent long term softening of the residual binder for low trafficked roads may be used subject to the Contractor providing evidence that the product has demonstrated satisfactory field performance for a period of at least three years. Restricted use of untried products on a trial basis shall be subject to the approval of the Superintendent.

## (h) Geotextile Fabric

The geotextile fabric used for a geotextile reinforced seal as a SAM or SAMI shall be a non-woven needle punched fabric. The mass of the fabric shall be a minimum of 135 g/m<sup>2</sup> for seals of nominal maximum size of 14 mm and under, and 175 g/m<sup>2</sup> for seals of nominal maximum size of larger than 14 mm. The geotextile fabric shall have a melting point (determined in accordance with the requirements of the current Australian Standard for Geotextiles – Method of test as listed in Section 175) at least 10°C above the maximum binder spraying temperature.

## (i) Polymer Modified Binder (PMB)

The grade of PMB shall comply with the requirements of the Austroads Guide to the Selection and Use of Polymer Modified Binders and Multigrade Bitumens as listed in Section 175.

Unless otherwise specified in Table 408.161, one of the following Grades of PMB shall be used:

## (i) HSS treatments

Grade S10E, S35E, five parts crumbed rubber, or alternative as approved by the Superintendent.

If crumb rubber is used to field produce a rubber modified PMB, the amount of added crumb rubber shall not be less than five parts by mass of binder. The volume of carrier oil used before any cutting oil is added shall not exceed four parts by volume of binder.

## (ii) SAM treatments

Grade S45R, S20E, 18 parts crumbed rubber, or alternative as approved by the Superintendent.

If crumb rubber is used to field produce a rubber modified PMB, the amount of added crumb rubber shall not be less than 18 parts by mass of binder. The volume of carrier oil used before any cutting oil is added shall not exceed four parts by volume of binder.

## (iii) SAMI treatments

Grade S25E, 20 parts crumbed rubber or alternative as approved by the Superintendent.

If crumb rubber is used to field produce a rubber modified PMB, the amount of added crumb rubber shall not be less than 20 parts by mass of binder. The volume of carrier oil used before any cutting oil is added shall not exceed four parts by volume of binder.

Unless otherwise specified in Table 408.161, unmodified Class 170 bitumen binder shall be used for all geotextile reinforced seals

Alternative PMBs to those specified shall comply with the test requirements specified in Table 408.071.

**Table 408.071 - Minimum Requirements for Alternative Binders**

Property	HSS Treatment	SAM Treatment	
		Rubber (R)	Elastomeric (E)
Minimum Consistency at 60°C (Pa.s)	NA	2600	2000
Minimum Consistency at 45°C (Pa.s)	2000	Not Applicable	Not Applicable
Maximum Stiffness at 15°C (kPa)	80	180	130
Minimum Elastic Recovery at 15°C 100s (%)	Not Applicable	40	70
Minimum Torsional Recovery at 25°C, 30s (%)	20	25	48
Minimum Softening Point (°C)	48	55	70

Alternative or 'ungraded' PMBs which do not comply with specified test requirements, shall not be used without approval by the Superintendent and will be subject to the Contractor providing evidence that the product has delivered satisfactory field performance for a period of at least three years. Restricted use of untried products at nominated trial sites shall be subject to the approval of the Superintendent.

(j) Primer

The primer shall be cutback bitumen complying with the requirements of subparagraph (e) of this clause and shall be of a suitable grade to ensure penetration into the pavement surface and when cured, be waterproof, of uniform appearance and capable of providing a strong bond between the bituminous surfacing and the pavement. Proprietary grades of bitumen emulsion may be accepted by the Superintendent as an alternative to cut back bitumen if evidence is provided to show that the emulsion product meets the same functional requirements and delivers the equivalent amount of bitumen residue to the road surface.

(k) Primerbinder

The primerbinder to be used shall be a cutback bitumen or a bitumen emulsion. The primerbinder shall be waterproof and capable of penetrating into and adhering to the pavement surface while retaining sufficient binder on the surface to hold the aggregate in place.

#### 408.08 AGGREGATE

(a) Aggregate Specification

Aggregate shall comply with sections:

- 801 - Source Rock for the Production of Crushed Rock and Aggregates,
- 831 - Aggregate for Sprayed Bituminous Surfacing, and
- 832 - Sands for Sprayed Bituminous Surfacing.

(b) Aggregate Precoating

Unless otherwise specified, the Contractor shall either supply plant precoated aggregate from the aggregate supplier or field precoated aggregate from the stacksite.

**408.09 USE OF STACKSITES**

## (a) General

VicRoads stacksites available for use by the Contractor for stockpiling of aggregate prior to placement are shown in Table 408.162.

No guarantee is given or implied that the available stacksites are suitable for the Contractor's operations or that they are of sufficient capacity to accommodate any or all of the quantities needed by the Contractor.

Any stacksites used by the Contractor during the Contract shall be cleaned and returned to their original condition within four weeks of completion of the use of that stacksite for works under this contract. Where the Contractor does not clean any stacksite used as specified, the Superintendent may arrange for it to be done by others at the Contractor's expense.

No additional stacksites are to be constructed on the road reserve.

The use of stacksites on other road reserves (such as municipal stacksites), or on other public or private land require the approval of the relevant authority or owner prior to use for items under this Contract.

## (b) Stacks

Stacks shall be so placed that they do not unduly reduce sight distance at locations such as intersections and curves. Stacks shall not be placed under or immediately adjacent to power lines or under trees or structures where the overhead clearance is less than 6 m. Stacks shall be placed clear of the road formation, drains, gateways and side tracks and the toes of the stacks shall be not less than 1 m from any obstructions which could impede the operation of mechanical loading equipment.

**408.10 APPLICATION OF BITUMINOUS MATERIAL, AGGREGATE AND GEOTEXTILES**

## (a) Design Rates of Application

The Contractor shall determine the design rates of application for primer, primerbinder, binder, surface pre-treatments, remedial works and aggregate in accordance with the procedures set out in the current Update of the Austroads Sprayed Seal Design Method as listed in Section 175.

Unless otherwise specified, all rates of application of bituminous material shall be expressed in litres/m<sup>2</sup>. In the case of binder, rates of application shall refer to residual binder at 15°C.

Traffic data and default rates of application for bituminous material are specified in Table 408.161.

**At least one week prior to the commencement of work, the Contractor shall submit the design rates of application for bituminous material, aggregate, and rates for pre-treatment for review by the Superintendent.**

## (b) Surface Pre-treatment

Surface pre-treatments to correct variable surface texture shall be allowed for by the Contractor and carried out as part of the works to meet the requirements of Surface Texture and Aggregate Loss specified in Tables 408.122 and 408.123. Where the Superintendent has included a requirement for pre-treatment in Table 408.161 this does not limit the Contractor's responsibility for pre-treatments on all jobs. The cost of surface pre-treatments shall be included in the lump sum works.

The acceptance criteria for Surface Texture and Aggregate Loss specified in Tables 408.122 and 408.123 will not be waived for any job item unless these requirements are waived in Table 408.161 or elsewhere in the specification.

## (c) Geotextiles

Geotextile reinforced seals shall be placed at a minimum pavement temperature of 20°C. Geotextile fabric shall be fixed to the pavement surface free of wrinkles and/or folds. This minimum temperature requirement shall not apply where the geotextile is placed as a Strain Alleviating Membrane Interlayer (SAMI) treatment underneath an asphalt wearing course.

Transverse joints shall be butt jointed.

Longitudinal joints in geotextile fabric shall be overlapped by approximately 150 mm and be located along lane lines. The Contractor shall make an allowance for additional binder to be applied along the joint so that both geotextile layers are adequately saturated with bitumen. This allowance shall be included in the Contractor's seal design.

Unless otherwise specified in Table 408.161, unmodified Class 170 bitumen binder shall be used for all geotextile reinforced seals.

**408.11 REMOVAL OF LOOSE AGGREGATE**

The Contractor shall remove and dispose of all loose aggregate, within the maximum time limits as specified in Table 408.111 below. This includes loose aggregate on all trafficked areas, and areas where loose aggregate has been swept, or moved by traffic onto sealed shoulders or non trafficked areas, or into other areas such as concrete channels, traffic islands, medians, open drains, footpaths, nature strips, or verges.

**Table 408.111 - Maximum Time Limit for Removal of Loose Aggregate**

Traffic Volume (AADT) *	Maximum Time Limit
>5000 and all Freeways	Within 8 hours of sealing
>2000 to 5000	Within 24 hours of sealing
>500 to 2000	Within 48 hours of sealing
< 500	Within 5 days of sealing

\* Annual Average Daily Traffic - refer to Table 408.161 for AADT for each Job Item

Until loose aggregate is removed from the sealed surface, traffic speed shall be controlled by signing and installation of road works speed limits in accordance with the VicRoads Work Site Traffic Management Code of Practice.

Loose aggregate shall not be removed until the aggregate has properly bedded down into the binder by either trafficking or additional rolling. Any damage to the seal resulting from removal of loose aggregate shall be repaired by the Contractor.

Rotary brooms and/or suction sweepers are permitted to remove loose aggregate from the trafficked areas unless suction sweepers or other means of removal are specified in Table 408.161.

Loose aggregate may be temporarily dumped at the stack sites nominated in Table 408.162.

For seals of nominal size 10 mm and over, including multiple application seals:

After the removal of loose aggregate and at any time during the Defects Liability Period of the Contract, no more than 40 loose stones in any square metre of pavement shall remain. This includes stones that have originated from the area sealed under the Contract and which have accumulated on adjacent sealed areas such as intersections, additional traffic lanes (in either direction), shoulders, and flanks.

On job items where 40 loose stones or more are measured warning signs shall be erected within eight hours, and the site shall be re-swept, or the loose stones removed within 48 hours of measurement.

For seals of nominal size 7 mm and under:

After the removal of loose aggregate and at any time during the Defects Liability Period, no more than 60 loose stones in any square metre of pavement shall remain. This includes stones that have originated from the area sealed under the Contract and which have accumulated on adjacent sealed areas such as intersections, additional traffic lanes (in either direction), shoulders, and flanks.

On job items where 60 loose stones or more are measured warning signs shall be erected within eight hours, and the site shall be re-swept, or the loose stones removed within 48 hours of measurement.

**408.12 ACCEPTANCE OF WORK**

## (a) Rates of Application for Binder

The Contractor shall produce evidence to show that the actual rate of application for a particular job, or segments of a job with different design rates of application, complies with the design rates of application. ~~Variation between the actual rates and the design rates will be assessed in accordance with Table 408.121.~~

~~If a payment deduction or rectification is required in respect of unsatisfactory surface texture or aggregate loss as specified in parts (b) and (c) of this clause, deductions under Table 408.121 will not be applied.~~

**Table 408.121 — Variation in Rates of Application of Bituminous Material**

<b>Variation from the Design Rates of Application for Bituminous Material (l/m<sup>2</sup>)*</b>	<b>Assessment</b>
<0.1 l/m <sup>2</sup> below the design rate of application	Accept
>0.1 l/m <sup>2</sup> to 0.2 l/m <sup>2</sup> below the design rate of application	Deduct \$0.50/m <sup>2</sup> for the affected area provided that minimum texture and aggregate retention requirements are met
>0.2 l/m <sup>2</sup> below the design rate of application	Deduct \$1.00/m <sup>2</sup> for the affected area provided that minimum texture and aggregate retention requirements are met

\* — The variation from the Design Rate of Application for SAM seals or SAMIs may be increased by 0.05 l/m<sup>2</sup>.

Acceptance or otherwise of the criteria specified in Table 408.121 shall not relieve the Contractor from its obligations under the Defects Liability Period.

## (b) Surface Texture

Acceptance of work for surface texture and surface enrichment shall be based on visual assessment, however in marginal cases the Superintendent may request that nominated areas be tested in accordance with VicRoads Test Method for Surface Texture of Sprayed Seals as listed in Section 175 and assessed in accordance with Table 408.122. The test lot size shall not be less than 100 m of single traffic lane or more than 600 m of single traffic lane. For any testing undertaken on areas other than within traffic lanes, the minimum lot size shall be not less than 400 m<sup>2</sup> or more than 2500 m<sup>2</sup>.

**Table 408.122 - Test Requirements for Surface Texture**

<b>Treatment</b>	<b>Mean Texture Depth (mm)</b>				<b>Action Required</b>
	<b>Size 5</b>	<b>Size 7</b>	<b>Size 10</b>	<b>Size 14</b>	
Seals (All Types) <sup>(1)</sup>	1.0 to 1.6	1.3 to 1.8	1.5 to 2.5	2.0 to 4.0	Accept
	0.8 to 1.0 or 1.6 to 1.8	1.2 to 1.3 or 1.8 to 2.0	1.3 to 1.5 or 2.5 to 3.0	1.7 to 2.0 or 4.0 to 4.5	The Superintendent may require rectification of the works or elect to reduce payment for the lot by \$1.00/m <sup>2</sup>
	< 0.8 or > 1.8	< 1.2 or > 2.0	<1.3 or > 3.0	< 1.7 or > 4.5	Work to be rectified
Primerseals <sup>(2)</sup>	N/A	1.0 to 2.0	1.2 to 3.0	N/A	Accept
	N/A	< 1.0 or > 2.0	< 1.2 or > 3.0	N/A	Work to be rectified
Surface Enrichment <sup>(1)</sup>	N/A		0.8		Accept
	N/A		< 0.8		Work to be rectified

Notes: (1) Surface texture measurements for seals and surface enrichment may be undertaken at any time during the Defects Liability Period, but final acceptance of works is not affected until the end of the Defects Liability Period.



- (2) Surface texture measurements for primerseals shall be undertaken no sooner than 10 weeks after placement, and no later than 15 weeks after placement. If tests are not undertaken in this period and later test results require the works to be rectified, the later test results are to be used for acceptance of the works.

(c) Aggregate Retention

Acceptance of work for aggregate retention shall be based on visual assessment however in marginal cases, the Superintendent may request that nominated areas be tested in accordance with the VicRoads Test Method for Stripping of Aggregate from Sprayed Seals as listed in Section 175 and assessed in accordance with Table 408.123. Depending on the measured Degree of Aggregate Stripping, the Contractor shall take action as specified in Table 408.123. The test lot size shall not be less than 100 m of single traffic lane or more than 600 m of single traffic lane. For any testing undertaken on areas other than within traffic lanes, the minimum lot size shall be not less than 400 m<sup>2</sup> or more than 2500 m<sup>2</sup>.

**Table 408.123 - Assessment of Aggregate Retention**

Degree of Aggregate Stripping	Action Required
0 to 2	Accept
3 to 5	Work to be re-tested within one month prior to the end of the Defects Liability Period. If the Degree of Aggregate Stripping has increased since it was last tested, the work shall be rectified before the end of the Defects Liability Period.
Greater than 5	Work shall be rectified within 5 days.

Note: Aggregate retention measurements may be undertaken at any time during the Defects Liability Period, but final acceptance of works is not affected until the end of the Defects Liability Period.

(d) Visual Uniformity

The Contractor shall provide a surface with uniform colour and texture to provide a consistent appearance and unless agreed otherwise by the Superintendent, aggregate for each job item including aggregate used for repairs and remedial works shall be supplied from the same source.

#### 408.13 MAINTENANCE OF SEALS

The Contractor shall be responsible for the monitoring and maintenance of seals from the time of application until the end of the Defects Liability Period. Monitoring of seals shall include regular and timely inspection of work, management of traffic, and monitoring of any deterioration in the surface condition.

The Contractor shall carry out any work necessary to protect and maintain the seal or to effect repairs to any seal failure. Such failures include but are not limited to, potholing, emulsification, flushing, bleeding, fatty areas, significant areas of bitumen on kerb and channel, excess bitumen without aggregate cover at the start/finish of runs, aggregate stripping, non-uniform aggregate spreading and streaking of aggregate but do not include pavement failures or events beyond the reasonable control of the Contractor.

**HP The Contractor shall advise the Superintendent in writing of the proposed treatment to effect the above work before undertaking the work.**

**HP Where the treatment for protection or repair of a seal involves the application of a further seal coat, the Contractor shall obtain the agreement of the Superintendent of the proposed treatment before undertaking the work.**

The Contractor shall undertake the protection or repair work within 48 hours of notification by the Superintendent.

For urgent repairs, the Contractor shall take action to preserve the work and make the road safe within two hours of being notified or becoming aware of the problem.

Payment will be made for the cost of repairs undertaken by the Contractor and approved by the Superintendent for damages that are the result of incidents outside the Contractor's control, including but not limited to, damage caused by others involving oil spills, accidents, vehicle fire or tearing due to heavy braking and skidding.

#### **408.14 RECORDS**

The Contractor shall forward to the Superintendent a Job Completion Report (Sealing) using the proforma included as Attachment A to this Section 408, or an equivalent proforma as approved by the Superintendent, for each job item in Schedule 1. The completed form shall be submitted within seven days of completion of sealing each job.

The Contractor shall show and certify by initialling each item on the above Job Completion Report (Sealing) the actual status of the item compared to the specified requirement for that item, and sign and date the report prior to forwarding to the Superintendent.

The Contractor shall ensure that where a representative of the Superintendent is on site during the works, that officer validates the works as provided on the Job Completion Report (Sealing).

#### **408.15 DEFECTS LIABILITY PERIOD**

All defects shall be rectified within six months of the due date for conclusion of the Defects Liability Period with an agreed corrective action. This does not limit the contractors responsibly to undertake protection or urgent repair works under Clause 408.13. The defects liability period for repaired work shall recommence on the date of repair in accordance with the provisions of Clause 37 of the General Conditions of Contract.

The Contractor shall carry out at least two inspections of each job during the Defects Liability Period and provide a condition report to the Superintendent. The condition report shall detail the condition of the seal, any defects and the proposed corrective action.

## 408.16 SCHEDULE OF DETAILS

Table 408.161 - Schedule of Details **##Consultant to help provide details**

Job Item (refer Sch 1)	Freeway, Highway or Road Name	Map Ref VicRoads/ Melway Directories		Chainage km	Approx Length m	Approx Width m	Approx Area m <sup>2</sup>	Treatment Type (2)	Treatment Description (3)	Single or Two Application (4)	Agg Sizes mm	Min Agg Class (A, B or C)	Traffic Data			Agg Precoat Y/N?	Default Binder Rates of Application l/m <sup>2</sup>	Pre-treat Y/N?	Other Requirements
		Road No. (and Linking Victoria Classification)	Map & Ref (1)										24 hr AADT (5)	% EHV	24 hr AADT/ Lane (6)				
1	All Roads		100-G7	7.00-8.00	1000	7.4	7400	FS	C	S	10	B	NA	NA	NA		1.2		
2	Western Highway	2520 (A8)	150-B6	161.0-162.0															
	2.1 Lane 1 (slow lane)			161.0-162.0	1000	3.7	3700	R	GRS	D	14/7	A					1.0		Min. PSV of ##: is required for aggregate
	2.2 Lane 2 (passing lane)			161.0-162.0	1000	3.7	3700	R	SAM	S	14	A					1.1		PMB Grade ##: is required
	2.3 Lane 3 (reverse direction)			161.0-162.0	1000	3.7	3700	R	HSS	S	10	A					1.2		
	2.4 Shoulders x 2			161.0-162.0	1000	2 x 2.4	4800	R	SE	S	N/A	N/A					1.4		
3	Mallee Highway	2650 (B12)	11-C3	120-121	1000	7.4	7400	R	SAM	S	14	B					1.9		

If any space is left blank it shall be read as "Not Applicable."

## Notes on Table 408.161

- (1) The map references refer to either the Melway Street Directory or the VicRoads Country Directory.
- (2) Treatment Type - Prime Only (PO), Primerseal (PS), Prime and Seal (P&S), Final Seal (FS), Reseal (R).
- (3) Treatment Description - Conventional (C), High Strength Seal (HSS), Strain Alleviating Membrane (SAM), Strain Alleviating Membrane Interlayer (SAMI), Geotextile Reinforced Seal (GRS), Fibreglass Reinforced Seal (FRS), Surface Enrichment (SE).
- (4) Single or Two Application - Single(S) or Double Application (D) of Binder and Aggregate.
- (5) AADT is the Annual Average Daily (24 hr) Traffic and % EHV is the percentage of the AADT calculated from number of heavy vehicles and large heavy vehicles.
- (6) AADT / lane is the Average Annual Daily (24 hr) Traffic for the traffic lane being considered. Where this is not given it shall be proportioned by the Contractor from the AADT figures.
- (7) Typical 'Other Requirements' include: Specific PMB Grade (Cl. 408.03(i)), Aggregate PSV > 48 (Cl. 801.03(d)), If plant precoated aggregate is specifically required (Cl. 408.09(b)), Need for gritting of trafficked areas for Prime Only treatments (PO), Notification to abutting landowners, Placement of variable message boards or other additional advisory signs, suction sweeper required (Cl. 408.10).

Table 408.162 — Stacksite Locations

Stacksite No.	Map Reference *		Location and General Description	Additional Restrictions on Use and Cleaning Up of Stacksites
	Map No.	Grid Ref.		
±	100	G8	Birchip Rainbow Road approx. 9.0 km / north side	Remnant aggregate shall be removed from the stacksites within two weeks rather than four weeks
N/A			Contractor to obtain approval to selected stacksites	

\* The Map References refer to either the Melway Street Directory or the VicRoads Country Directory

ATTACHMENT A TO SECTION 408

JOB COMPLETION REPORT (SEALING) – TO BE COMPLETED BY CONTRACTOR

CONTRACT No. ....

JOB SPECIFICS	
Job No: _____	Treatment: _____
Road Name: _____	Seal Date: _____
Start Chainage: _____	Stacksite Location: _____
End Chainage: _____	

EXISTING CONDITIONS (circle or fill in)						
Weather:	Sunny	Clear	O'Cast	Windy	Showers	Wet
Air Temp:			Pavement Temp:			
Pavement:	Isolated stone loss	stripping	flushed wheel paths	flushed	patching	cracking
Regulatory Speed Limit:	100 km	80 km	60 km	40 km	< 40 km	other
Aggregate Conditions:	clean	dry	dusty	dirty	damp	wet
Aggregate Pre-coat:	pre-delivery	onsite	no pre-coat			
NCR Required?	Yes	No	Reasons:			NCR No:

TRAFFIC CONTROL (circle or fill in)						
Subcontractor Managing Traffic Control?		Yes / No	Subcontractor:		Subcontractor Initials:	
SIGNS						
During Work	Installed to WTM Code	Yes / No	Date / Time Installed:	Speed Limit		km/hr
	Removed	Yes / No	Date / Time Removed:	TMP No. Used		
After Work	Installed to WTM Code	Yes / No	Date / Time Installed:	Speed Limit		km/hr
	Removed	Yes / No	Date / Time Removed:	TMP No. Used		
Traffic	Delays	Average Delay to Vehicles: _____ minutes				
	Queues	Average Queue Length: _____ vehicles				

SEALING WORKS						
RUN NO.	Pre-treatment / Run 1	Run 2	Run 3	Run 4	Run 5	Totals
Start Chainage						
End Chainage						
Lane Description						
Air Temperature						
Pavement Temperature						
Length (m)						
Width (m)						
Area (m <sup>2</sup> )						
Binder Type						
Tank Dip Start (litres)						
Tank Dip End (litres)						
Quantity Sprayed (litres)						
Actual Application Rate (l/m <sup>2</sup> )						Average
Design Application Rate (l/m <sup>2</sup> )						Average
Mix - Bitumen/Flux Oil/Cutter/Additive	100 / / /	100 / / /	100 / / /	100 / / /	100 / / /	

AGGREGATE						
Aggregate Size						
Quantity (m <sup>3</sup> )						
Average Least Dimension (ALD)						
Aggregate Design Spread Rate (m <sup>2</sup> /m <sup>3</sup> )	/ ALD	/ ALD	/ ALD	/ ALD	/ ALD	
Actual Design Spread Rate (m <sup>2</sup> /m <sup>3</sup> )	/ ALD	/ ALD	/ ALD	/ ALD	/ ALD	
Rolling Time (hrs)						

DELINEATION						
	Existing RRPMS	Removed	Yes / No	Date:		
	TRRPMs	Installed	Yes / No	Date:	Spacings:	m
		Uncovered	Yes / No	Date:		
	Reinstatement	Pavement Markings - 1 <sup>st</sup> Coat		Specified Date Due:		
				Actual Date Done:		
		Pavement Markings - 2 <sup>nd</sup> Coat		Specified Date Due:		
				Actual Date Done:		
	RRPMs		Specified Date Due:			
			Actual Date Done:			
	Weather Delays to Linemarking: _____ days					

I, ..... certify the above details as correct  
(Contractor's Representative, print name)

..... / /  
(Contractor's Representative, signed)

I, ..... concur with the above  
(Superintendent's Representative, print name)

..... / /  
(Superintendent's Representative, signed)