

SECTION THIRTEEN

PRIMING, PRIMER SEALING AND SEALING

13.01 GENERAL

This section covers the requirements for priming, primer sealing and sealing. The requirements relate to supply of bituminous materials, preliminary work, cleaning of the surface to be treated, and supply, delivery and application of bituminous materials and aggregates.

13.02 DEFINITIONS

Priming

The application of primer to a pavement.

Primer sealing

The application of primerbinder to a pavement and the covering of the primerbinder with aggregate.

Sealing

The application of binder to a pavement and the covering of the binder with aggregate.

Cutting back

The addition of cutter to bitumen.

Fluxing

The addition of flux oil to bitumen.

Binder

Bitumen, bitumen emulsion or bitumen fluxed and/or cutback.

Residual binder

Binder which includes bitumen proprietary grades of modified bitumen, and flux oil but not cutter granulated rubber or other additives. In the case of bitumen emulsion, it is binder which remains after water has separated.

Bituminous Materials

Primer, Primerbinder, Binder or a mixture of binder with cutter, flux oil, adhesion agent binder modifiers such as rubber and polymer or special additives.

Aggregate

One sized crushed rock particles used to cover the hot film of primerbinder or binder.

Adhesion Agent

A wetting agent which promotes adhesion of binder or primerbinder to stone.

13.03 BITUMINOUS MATERIALS

(a) Supply

Unless otherwise specified, bituminous materials shall be supplied by the Contractor.

Any offer to supply a material which is subject to approval by the Superintendent or which does not comply with the requirements of Clause 13.03(b) to Clause 13.03(l) inclusive shall be accompanied by a statement setting out the properties of the material.

(b) Primer

The primer to be used shall be one of the following:

- (i) Medium curing cutback bitumen complying with the requirements of Australian Standard 2157 - Cutback Bitumen. The grade of cutback bitumen shall be in accordance with Table 13.031.

Table 13.031

Primer Classification	Grade of Cutback Bitumen	Viscosity at 60°C (Pa.s.)
Very Light	AMC 00	0.008 - 0.016
Light/Medium	AMC 0	0.025 - 0.050
Heavy	AMC 1	0.060 - 0.120

- (ii) Proprietary grades of special cutback bitumen, provided that the proprietary product is approved by the Superintendent. The viscosity shall be in accordance with Table 13.032.

Table 13.032

Primer Classification	Viscosity at 60°C (Pa.s.)
Very Light	0.010 - 0.015
Light	0.015 - 0.025
Light/Medium	0.030 - 0.050
Medium	0.055 - 0.075
Heavy	0.085 - 0.115

- (iii) Field produced medium curing cutback bitumen primers manufactured by blending Class 170 bitumen and cutter in accordance with Table 13.033.

Table 13.033

Classification	Parts by volume at 15°C		Equivalent % of Cutter in Mixture
	Class 170 bitumen	Cutter	
Very Light	100	130	56
Light/Medium	100	80	44
Heavy	100	50	34

- (iv) Field produced slow curing cutback bitumen primer manufactured by blending Class 170 bitumen, flux oil and cutter in accordance with Table 13.034.

Table 13.034

Primer Classification	Approximate Viscosity Range Pa.s. @ 60°C	Field Produced Cutback Bitumen Parts by Volume at 15°C		
		Class 170 Bitumen	Flux Oil	Cutter
Very Light	0.012 - 0.018	100	60	80
Light	0.02 - 0.06	100	60	50
Medium	0.06 - 0.10	100	45	35
Heavy	0.20 - 0.40	100	30	25

- (c) Primerbinder

The primerbinder to be used shall be one of the following:

- (i) Medium curing cutback bitumen complying with the requirements of Australian Standard 2157 - Cutback Bitumen. The grade of cutback bitumen shall be in accordance with Table 13.035.

Table 13.035

Primerbinder Classification	Grade of cutback bitumen	Viscosity at 60°C (Pa.s)	Parts of adhesion agent to be added
Medium	AMC 4	2.0 - 4.0	1.0
Very Heavy	AMC 5	5.5 - 11.0	1.0

- (ii) Proprietary grades of special cutback bitumen provided that the proprietary product is approved by the Superintendent. The viscosity and residue shall be in accordance with Table 13.036.

Table 13.036

Primerbinder Classification	Viscosity at 60°C (Pa.s)	Residue from Distillation to 360°C % (by volume/min)
Light/medium	1.5 - 3.0	80
Heavy	4.0 - 7.0	88

- (iii) Field produced cutback bitumen manufactured by blending Class 170 bitumen and cutter in accordance with Table 13.037.

Table 13.037

Primerbinder Classification	Field Produced Primerbinder (Parts by Volume at 15°C)			Approximate Viscosity Range Pa.s @ 60°C
	Class 170 Bitumen	Cutter	Adhesion Agent	
Medium	100	20	1.0 *	2.1 - 3.1
Heavy	100	15	1.0 *	4.5 - 7.0
* The added parts of adhesion agent is based on normal concentration. The Superintendent shall determine the quantity of more concentrated forms of adhesion agent to be added as specified in Clause 13.03(g).				

- (iv) Bitumen emulsion as specified in Clause 13.03(l).

(d) Bitumen

Bitumen shall be Class 170 complying with the requirements of Australian Standard 2008 - Residual Bitumen for Pavements, with the additional requirement that the minimum time to reach the specified apparent viscosity level shall be 9 days when tested in accordance with Australian Standard 2341.13 - Determination of Durability of Bitumen.

(e) Flux Oil

Flux oil shall be diesel fuel oil, automotive distillate or other similar product approved by the Superintendent and supplied in accordance with Australian Standard 3568 as applicable.

(f) Cutter

Cutter shall comply with Australian Standard 3568 - Oils for Reducing the Viscosity of Residual Bitumen for Pavements.

(g) Adhesion Agent

The type of adhesion agent and the percentage to be added to the binder, primerbinder and/or aggregate precoating material shall be subject to approval by the Superintendent and shall be based on the volume of binder primerbinder or aggregate precoating material at 15°C, and the concentration of the adhesion agent to be added.

(h) Aggregate Precoating Material

Aggregate precoating material shall be distillate or distillate based product, cutback bitumen, or proprietary product as approved by the Superintendent.

(j) Polymer Modified Binder

If the use of polymer modified binder is specified or used in lieu of granulated scrap rubber, the polymer modified binder or polymer additive shall be subject to the approval of the Superintendent. Polymer modified binder shall be handled and used in accordance with the manufacturer's specifications and a Certificate of Quality shall be submitted for each load of polymer modified binder received.

(k) Scrap Rubber

Scrap rubber to be used as a binder additive shall be supplied in accordance with the Latrobe City Council standard specification.

(l) Bitumen Emulsion

Bitumen emulsion of Grade ARS or CRS manufactured from Class 170 bitumen shall be supplied at specified grade in accordance with Australian Standard 1160 - Bitumen Emulsion for Construction and Maintenance of Pavements. The type of bitumen emulsion to be used including any proprietary grades shall be subject to the approval of the Superintendent.

13.04 AGGREGATE

Aggregate shall be supplied by the Contractor. Aggregate supplied by the Contractor shall comply with the Latrobe City Council standard specification Section 15 - Aggregate for Sprayed Bituminous Surfacing.

13.05 PREPARATION OF BITUMINOUS MATERIALS

(a) Temperatures and Heating

Except as otherwise provided below, the temperatures of bituminous materials shall not exceed the upper limits specified in Table 13.051 and, at the time of spraying, shall be within the range specified in that table. Higher temperatures will be permitted for freshly blended field produced cutback bitumen primers and primerbinders provided that the temperature of Class 170 bitumen prior to blending does not exceed 185°C and that the primer or primerbinder is not reheated to a temperature higher than that specified in Table 13.051.

Materials shall be heated at a rate not exceeding 40°C per hour and mixing shall continue until the load of material is at a uniform temperature.

Bituminous material containing adhesion agent which has been reheated or stored for more than 6 hours shall not be used without the addition of fresh adhesion agent.

Table 13.051 - Spraying Temperatures of Bituminous Materials

Material	Temperature °C	
	Minimum	Maximum
Very light primer	-	30
Light primer	-	35
Medium primer	35	55
Heavy primer	60	80
Light/medium cutback bitumen primerbinder	120	135
Heavy cutback bitumen primerbinder	140	155
Bitumen emulsion: 60% bitumen content	40	60
70% bitumen content	70	90
Class 170 bitumen	178	185
Fluxed and/or cutback bitumen binder	See Table 13.052	See Table 13.052

For fluxed and/or cutback bitumen binder, the spraying temperature shall be determined from Table 13.052.

Table 13.052 - Spraying Temperatures of Fluxed and/or Cutback Bitumen Binder

Cutter, Parts by Volume per 100 parts of Class 170 Bitumen at 15°C	Flux Oil, Parts by Volume per 100 parts of Class 170 Bitumen at 15°C					
	0		2		4	
	Min °C	Max °C	Min °C	Max °C	Min °C	Max °C
0	178	185	170	184	166	180
2	170	184	166	180	162	178
4	166	180	162	178	160	174
6	162	178	160	174	158	172
8	160	174	158	172	154	170
10	158	172	154	170	152	168
12	154	170	152	168	150	164
14	152	168	150	164	148	162
16	150	164	148	162	144	160
18	148	162	144	160	142	158
20	144	160	142	158	140	156
22	142	158	140	156	138	154
24	140	156	138	154	136	152
26	138	154	136	152	134	150
28	136	152	134	150	132	148
30	134	150	132	148	130	146

(b) Fluxing and/or Cutting Back of Binder and Addition of Adhesion Agent

Unless otherwise specified or directed, the proportions of flux oil and/or cutter shall be as specified in Table 13.053. These rates may be varied for very light rates of application and for delayed opening to traffic.

Adhesion agent shall be added to the binder in accordance with Clause 13.03(g) at a rate of one part of adhesion agent at normal concentration for every 200 parts of bitumen for all damp or wet aggregate and for aggregate containing quartz or for other types of aggregate as specified or directed.

The fluxing, cutting back and addition of adhesion agent and the binder and added materials shall be continuously mixed until the whole load of material is homogenous with additional heating as required to meet the spraying temperature range as specified in Table 13.052.

Table 13.053 - Parts by volume of Flux Oil and Cutter per 100 Parts of Bitumen at 15°C

(i) Size 7 Aggregate and Smaller

Air Temp. in °C	Under 150 vehicles per day		150-500 vehicles per day		500-1000 vehicles per day		Over 1000 vehicles per day	
	Flux Oil	Cutter	Flux Oil	Cutter	Flux Oil	Cutter	Flux Oil	Cutter
15-20	4	12	2	12	-	12	-	10
20-25	4	8	2	8	-	8	-	6
25-30	4	6	2	6	-	6	-	4
30-35	4	4	2	4	-	4	-	2
35+	4	2	2	2	-	2	-	-

(ii) Size 10 Aggregate and Larger

Air Temp. in °C	Under 150 vehicles per day		150-500 vehicles per day		500-1000 vehicles per day		Over 1000 vehicles per day	
	Flux Oil	Cutter	Flux Oil	Cutter	Flux Oil	Cutter	Flux Oil	Cutter
15-20	4	10	2	10	-	10	-	8
20-25	4	6	2	6	-	6	-	4
25-30	4	4	2	4	-	4	-	2
30-35	4	2	2	2	-	2	-	-
35+	4	-	2	-	-	-	-	-

(c) Blending of Primer and Primerbinder

Where primer or primerbinder is blended in a sprayer, road tanker or storage tanker, the mixture shall be circulated until a homogenous mixture is achieved.

13.06 PRECOATING OF AGGREGATE

For sealing, aggregate which has not been previously precoated with cutback bitumen, shall be precoated with material as specified in Clause 13.03(h). Adhesion agent shall be added to the aggregate precoating material if specified or directed by the Superintendent.

Such precoating shall be carried out during the loading operation so that each aggregate particle is uniformly coated.

13.07 RATES OF APPLICATION

(a) General

Unless otherwise specified, all rates of application of bituminous material will be expressed in terms of volume at 15°C per unit area (l/m²). In the case of binder, rates of application refer to residual binder. Where it is necessary to apply correction factors for temperatures other than 15°C, the appropriate multiplier from Tables 13.071 or 13.072 shall be used.

(b) Contractor Design

The rates of application of bituminous surfacing material and aggregate shall be determined by the Contractor. The rates shall be determined in accordance with the procedures specified in the VicRoads Bituminous Surfacing Manual or other approved standard.

Table 13.071 - Volume Correction - Bitumen

Multiplier for Converting Volume at Temperature above 15°C to Volume at 15°C						Multiplier for Converting Volume at 15°C to Volume at Temperature above 15°C					
Temp 0°C	Multi-plier	Temp 0°C	Multi-plier	Temp 0°C	Multi-plier	Temp 0°C	Multi-plier	Temp 0°C	Multi-plier	Temp 0°C	Multi-plier
15	1.0000	90	0.9536	170	0.9060	15	1.0000	90	1.0487	170	1.1038
		92	0.9524	172	0.9048			92	1.0500	172	1.1052
		94	0.9512	174	0.9037			94	1.0513	174	1.1066
16	0.9994	96	0.9500	176	0.9025	16	1.0006	96	1.0526	176	1.1080
18	0.9981	98	0.9488	178	0.9014	18	1.0019	98	1.0540	178	1.1094
20	0.9969	100	0.9476	180	0.9002	20	1.0031	100	1.0553	180	1.1109
22	0.9956	102	0.9464	182	0.8990	22	1.0044	102	1.0566	182	1.1123
24	0.9943	104	0.9452	184	0.8979	24	1.0057	104	1.0580	184	1.1137
26	0.9931	106	0.9440			26	1.0069	106	1.0593		
28	0.9918	108	0.9428			28	1.0083	108	1.0607		
30	0.9906	110	0.9416	185	0.8973	30	1.0095	110	1.0620	185	1.1144
32	0.9894	112	0.9404			32	1.0107	112	1.0634		
34	0.9881	114	0.9391			34	1.0120	114	1.0648		
36	0.9869	116	0.9379	186	0.8967	36	1.0133	116	1.0662	186	1.1152
38	0.9856	118	0.9368	188	0.8956	38	1.0146	118	1.0675	188	1.1166
40	0.9844	120	0.9356	190	0.8944	40	1.0158	120	1.0688	190	1.1181
42	0.9832	122	0.9344	192	0.8932	42	1.0171	122	1.0702	192	1.1196
44	0.9819	124	0.9332	194	0.8921	44	1.0184	124	1.0716	194	1.1210
46	0.9807	126	0.9302	196	0.8909	46	1.0197	126	1.0730	196	1.1225
48	0.9794	128	0.9308	198	0.8898	48	1.0210	128	1.0743	198	1.1238

Multiplier for Converting Volume at Temperature above 15°C to Volume at 15°C						Multiplier for Converting Volume at 15°C to Volume at Temperature above 15°C					
Temp 0°C	Multiplier	Temp 0°C	Multiplier	Temp 0°C	Multiplier	Temp 0°C	Multiplier	Temp 0°C	Multiplier	Temp 0°C	Multiplier
50	0.9782	130	0.9296	200	0.8886	50	1.0223	130	1.0757	200	1.1254
52	0.9770	132	0.9284	202	0.8874	52	1.0235	132	1.0771	202	1.1269
54	0.9757	134	0.9272	204	0.8863	54	1.0249	134	1.0785	204	1.1283
56	0.9745	136	0.9260	206	0.8851	56	1.0262	136	1.0799	206	1.1298
58	0.9732	138	0.9248	208	0.8840	58	1.0275	138	1.0813	208	1.1312
60	0.9720	140	0.9236	210	0.8829	60	1.0288	140	1.0827	210	1.1326
62	0.9708	142	0.9224	212	0.8817	62	1.0301	142	1.0841	212	1.1342
64	0.9695	144	0.9213	214	0.8806	64	1.0315	144	1.0854	214	1.1356
66	0.9683	146	0.9201	216	0.8794	66	1.0327	146	1.0868	216	1.1371
68	0.9670	148	0.9189	218	0.8783	68	1.0341	148	1.0883	218	1.1386
70	0.9658	150	0.9177	220	0.8772	70	1.0354	150	1.0897	220	1.1400
72	0.9646	152	0.9165	222	0.8760	72	1.0367	152	1.0911	222	1.1416
74	0.9634	154	0.9154	224	0.8749	74	1.0380	154	1.0924	224	1.1430
76	0.9622	156	0.9142	226	0.8737	76	1.0393	156	1.0939	226	1.1446
78	0.9609	158	0.9130	228	0.8726	78	1.0407	158	1.0953	228	1.1460
80	0.9597	160	0.9118	230	0.8715	80	1.0420	160	1.0967	230	1.1474
82	0.9585	162	0.9106	232	0.8704	82	1.0433	162	1.0982	232	1.1489
84	0.9573	164	0.9095	234	0.8693	84	1.0446	164	1.0995	234	1.1504
86	0.9561	166	0.9083	236	0.8681	86	1.0459	166	1.1010	236	1.1519
88	0.9548	168	0.9072	238	0.8670	88	1.0473	168	1.1023	238	1.1534

Table 13.072 - Volume Correction Tables - Bitumen Emulsion

Bitumen Content - 60%

A		B	
Table for calculating the volume of bitumen emulsion at a temperature above 15°C TO its volume at 15°C		Table for calculating the volume of bitumen emulsion at a temperature above 15°C FROM its volume at 15°C	
Temperature °C	Multiplier	Temperature °C	Multiplier
15	1.0000	15	1.0000
20	0.9975	20	1.0025
25	0.9951	25	1.0049
30	0.9926	30	1.0075
35	0.9901	35	1.0100
40	0.9877	40	1.0125
45	0.9852	45	1.0150
50	0.9827	50	1.0176
55	0.9802	55	1.0202
60	0.9778	60	1.0227
65	0.9753	65	1.0253
70	0.9728	70	1.0279

Bitumen Content - 70%

A		B	
Table for calculating the volume of bitumen emulsion at a temperature above 15°C TO its volume at 15°C		Table for calculating the volume of bitumen emulsion at a temperature above 15°C FROM its volume at 15°C	
Temperature °C	Multiplier	Temperature °C	Multiplier
15	1.0000	15	1.0000
20	0.9973	20	1.0027
25	0.9946	25	1.0054
30	0.9919	30	1.0082
35	0.9892	35	1.0109
40	0.9866	40	1.0136
45	0.9839	45	1.0164
50	0.9812	50	1.0192
55	0.9784	55	1.0221
60	0.9758	60	1.0248
65	0.9731	65	1.0276
70	0.9704	70	1.0305
75	0.9677	75	1.0334
80	0.9650	80	1.0363
85	0.9624	85	1.0391
90	0.9597	90	1.0420

13.08 COMMENCEMENT OF WORK

The Contractor shall submit details of the proposed sequence of bituminous surfacing work to the Superintendent for review, prior to the commencement of work.

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

13.09 SWEEPING AND CLEANING

The surface to be sprayed shall be swept clean and be free of dust, dirt, clay and deleterious materials.

13.10 CONDITIONS FOR SPRAYING

(a) Pavement

The surface on which primer or binder is to be applied shall be dry. The surface on which primerbinder is to be applied shall be damp.

(b) Ambient Temperature

Unless otherwise approved by the Superintendent, spraying shall not be carried out when the air temperature is less than that specified in Table 13.121, except that:

- (i) primersealing may be carried out when the air temperature is between 5°C and 15°C if the work is so arranged that the aggregate is applied to the primer binder within ten minutes of spraying;
- (ii) sealing with high binder content CRS emulsions may be carried out when the air temperature is not less than 8°C.

Table 13.121

Type of Work	Air Temperature °C (min)
Priming	10
Primer sealing	15
Sealing	15

13.11 SPRAYING AND COVERING

(a) General

Work shall not proceed until there is sufficient material, suitable plant and personnel on site to carry out the works as specified.

(b) Spraying of Bituminous Material

Bituminous material shall be sprayed uniformly to the specified areas using a sprayer certified and calibrated to produce a film of material of consistent application over the road surface at the design rate of application.

The work shall be so planned as to minimise spraying by hand and hand spraying in the wheel paths shall be avoided.

Each sprayer run shall overlap any adjacent run by 50 mm to 100 mm.

Except where the surface to be primed abuts an existing edging, structure or bituminous surface, the primer shall be applied at least 100 mm wider than the width of the proposed seal.

Spraying of any load of primerbinder or binder shall not commence unless sufficient aggregates to cover the area to be sprayed is at the work site in trucks.

The work shall be carried out in such a manner as to minimise the number of cold joints in the work. Unless otherwise specified, all joints shall be located at the traffic lane lines or the centre of a traffic lane.

Traffic shall be stopped while spraying is in progress. Unless otherwise specified, traffic shall not be stopped for more than 15 minutes while material is being sprayed and covered.

(c) Papering and Other Protection

The Contractor shall lay paper at the start and finish of each sprayer run to ensure a clean cut-on and cut-off. The paper shall be Kraft 215 g/m² or an equivalent.

Edgings, raised pavement markers, adjoining structures and drainage pit covers and sections of roadway not required to be treated shall be protected from splash and all necessary precautions shall be taken to protect traffic and parked vehicles from airborne bituminous material.

For primersealing and sealing, paper used for cut-ons, cut-offs and protection of edgings and structures shall be held in place by weighting down with small quantities of aggregate from the same stockpile as used for the work.

At the cessation of work each day, the Contractor shall remove from the site all paper and other protective materials.

(d) Loading of Aggregates

Aggregates shall be screened to remove undersize material as part of the loading operation. The size of wire screens to be used to remove undersize material are:

- | | | |
|-------|-------------------------------|-----------------------|
| (i) | Size 16 aggregate or larger | - 9.0 mm |
| (ii) | Size 10 and Size 14 aggregate | - 6.3 mm |
| (iii) | Size 5 and size 7 aggregate | - 3.15 mm |
| (iv) | Sand | - No screen required. |

The Contractor shall be responsible for replacing or cleaning aggregate contaminated as a result of the Contractor's operations, and if conditions of the stacksite permit, for windrowing and winning any excess material left on stacksite floors.

Aggregate shall be precoated in accordance with Clause 13.06.

(e) Spreading of Aggregates

Spreading of aggregates shall be carried out using aggregate spreaders. All binder or primerbinder shall be fully covered with aggregate within 20 minutes of spraying.

Aggregates shall be spread at the design application rate to evenly cover the film of bituminous material in a uniform mat. Any aggregate spilt on areas to be treated, shall be removed prior to further spraying over such areas.

(f) Gritting of Primed Surfaces

In locations requiring the passage of traffic or where directed by the Superintendent, primed surfaces shall be gritted. At least two hours shall elapse between application of primer and grit unless otherwise directed.

(g) Rolling

Rolling shall be carried out with self propelled pneumatic tyred multi-wheeled rollers with a tare not less than 6 tonnes and with the rear wheels offset relative to the front wheels to give overlapping tyre paths.

Rolling shall commence as close as practical behind the aggregate spreaders and shall continue uniformly over the whole area in accordance with the requirements set out in Table 13.11.

Table 13.11 - Minimum Rolling Requirements

Aggregate Size	Traffic Volume AADT/Lane		
	<300	300 - 1200	>1200
7 mm or smaller	2,700	3,300	4,000
10 mm	2,000	2,500	3,000
14 mm	1,500	2,000	2,500
Maximum area (m ²) per one roller per hour			

The number of rollers provided shall be such that the required rolling is completed within two hours of the binder being sprayed.

(h) Drag Brooming

When size 10 or smaller aggregates are used, drag brooming shall be done in conjunction with rolling to ensure that a uniform distribution of aggregates is achieved.

13.12 REMOVAL OF EXCESS AGGREGATE

The Contractor shall remove the excess aggregate from the pavement, pits, kerb and channel and concrete paving by use of a suction sweeper/cleaner.

Excess aggregate shall not be removed until the aggregate has properly bedded into the binder by either trafficking or additional rolling, and shall be removed from the completed seal or primerseal as specified in table 13.12.

Table 13.12 - Removal of Loose Aggregate

Traffic Volume AADT	Time Period	
	From Running Lanes	From Site
>10,000 and all freeways	One day of sealing	5 days
>1,000 and <10,000	Within one day of sealing	7 days
<1,000	Within five working days of sealing	14 days

Suction sweeping or brooming shall continue until no more than 40 loose stones remain in any square of pavement.

The Contractor shall at no cost to Latrobe City Council, repair any damage done to the seal or primerseal due to the removal of excess aggregate by suction only. Excess aggregate removed from the pavement shall become the property of the Contractor and removed from the site.

Non-trafficked areas shall be given shall be given two roller passes within two hours after removing the excess aggregate from the seal or primerseal.

13.13 SUPERVISION

The Contractor shall afford the Superintendent every facility to check rates of application, temperatures and quantities and to take samples.

13.14 TESTING AND ACCEPTANCE

(a) Samples

When requested by the Superintendent at any time during the Contract, the Contractor shall provide up to three one litre samples of each bituminous material required under the Contract.

(b) Tests

The Contractor shall provide certification of specification compliance for each delivery of primer, primerbinder or binder supplied to the work site.

All tests shall be conducted in accordance with VicRoads relevant test method and Codes of Practice.

(c) Inspection

Prior to the Contractor leaving the site, the work shall be jointly inspected by the Superintendent and the Contractors representative to identify any defects in the work requiring immediate rectification to avoid rapid deterioration of the road surface or danger to road users.

(d) Acceptance of Work

Further to the provisions of Clause 13.14(c) and Clause 30 of the General Conditions of Contract, work shall be assessed in accordance with Tables 13.141 and 13.142.

Table 13.141 - Application of Bituminous Material

Variation from the design rates of application *	Assessment
Not more than 0.05 l/m ² below or 0.1 l/m ² above.	Accept
Between 0.05 l/m ² and 0.1 l/m ² below or between 0.1 l/m ² and 0.15 l/m ² above.	Rectify work or accept at 90% payment.
Between 0.1 l/m ² and 0.2 l/m ² below or between 0.15 l/m ² and 0.25 l/m ² above.	Rectify work
*For modified binders, variation from specified rates of application may be increased or decreased by an additional 0.05 l/m ² from these shown in Table 13.141.	

Table 13.142 - Application of Aggregate

Variation From The Design Rates Of Application	Assessment
Not more than 10% above or 5% below.	Accept
More than 5% below.	Contractor to rectify work as directed by the Superintendent at no cost to Council.