PART R32

APPLICATION OF THIN ASPHALT SURFACINGS

CONTENTS

1. GENERAL

.1 This Part specifies the requirements for the application of Thin Asphalt Surfacing, defined as one of the following:

(a) Thin Open Graded Hot mix (e.g. Novachip or similar)

(b) Thin Dense Graded Warm Mix (e.g. Maxi Skid Resistant Asphalt or similar)

(c) Thin Open Graded Cold mix (e.g. Koltec or similar).

.2 It does not cover Cape Seals (refer Part R31 "Application of Cape Seals") or Slurry Surfacing (refer Part R29 "Application of Slurry Surfacing").

.3 The types of pavement treatment that are to be used at each site are specified in **Contract Specific Requirements** “Pavement Work”.

2. QUALITY REQUIREMENTS

.1 The Contractor must prepare and implement a Quality Plan that includes detailed procedures for:

(a) Provision for traffic (if not covered in the Traffic Management Plan);

(b) Cleaning and preparing the existing surface;

(c) Tack coating;

(d) Method of ensuring existing cracks are sealed;

(e) Placing the mix;

(f) Level control and compaction;

(g) Finished Thin Asphalt Surfacing properties; and

(h) Sampling and testing.

.2 If not submitted beforehand, the procedures must be submitted at least 28 days prior to the commencement of site work.

.3 Provision of the procedures listed in this Clause shall constitute a **HOLD POINT**.

3. MATERIALS

.1 Aggregate must comply with Part R15 "Supply of Pavement Materials".

.2 Binder, Flux and Cutter must comply with Part R25 "Supply of Bituminous Materials".

4. CONSTRAINTS TO WORK

General

.1 Open graded asphalt must not be placed between April and October inclusive.

.2 Modified binder Hot Mixes must not be used when the time between batching and delivery into the paver hopper exceeds 3 hours, unless the Contractor can demonstrate that such a mix can be adequately compacted.

Temperature Restrictions for Hot Mix

.3 Hot Mix must only be placed at temperatures which conform with AS 2734, Clause 7.6 "Asphalt Temperatures".

.4 The minimum mix temperature referred to in AS 2734, Table 7.1 must be the temperature of the mix at the time that it is first placed on the surface.

.5 Minimum temperatures for mixes containing C320 and C600 binder must be 10°C higher than in AS 2734, Table 7.1, whereas for mixes incorporating modified binders the temperatures must be 20°C higher. The range of mix temperatures must be highlighted accordingly.

.6 Temperatures for open graded mixes, including those with modified binders must be as indicated in AS 2734.

.7 Asphalt less than 100 mm thick must not be placed when the pavement temperature (measured in the shade) falls below 10^{o}C.

Wearing Course Restrictions

.8 The wearing course must not be placed on a PMB seal until a minimum of one day trafficking has elapsed or until the aggregate is fully embedded into the binder.

.9 Refer to Part CH20 "Provision for Traffic" for other constraints relating to traffic control.

5. DESIGN OF MIX

Cold Mixes and Warm Mixes

.1 The design of the mix must be undertaken by the Contractor in accordance with this Specification and where appropriate, APRG Report No. 18 "Australian Provisional Guide - Selection and Design of Asphalt Mixes" (APRG18). At least 14 days before commencing production of the mix surfacing, the Contractor must submit details of the design, including mix design parameters including:

(a) Aggregate Grading

(b) Binder Content (by mass of the total mix).

.2 If the Contractor proposes to vary the proportions of the constituents in a nominated mix/rate or proposes to change the source of supply of any constituent, the Contractor must submit a new design.

.3 Submission of the details of the design, test results and any changes to the design shall constitute a **HOLD POINT**.

Hot Mixes

.4 Hot mixes must be design to meet the requirements of Part R27 "Supply of Asphalt".

6. MANUFACTURE OF MIXES

.1 The product must be prepared in a manufacturing plant or blending plant of proven performance. Manufacturing variations must not exceed the limits specified by the contractor in the detailed mix design.

.2 Hot Mixes must be stored in accordance with AS 2150, Section 7. Mixes must be transported in a manner that does not result in the deterioration, contamination, or segregation of the mix.

7. PLACEMENT OF MIX

General

.1 The contractor must spread the mix so as to:

(a) Minimise segregation and loss of materials;

(b) Produce a homogeneous product; and

(c) Achieve the mix designs' target relative compaction for dense graded mixes or air void content for open graded mixes.

.2 Spreading methods must follow the guide for good practice as set out in AS 2150, Section 12 "Spreading". The paver must be a self-propelled paving machine with automatic level control. Hand placement of mix must only be used for minor correction of existing surface and in areas where placement with a paver is impracticable

Preparation of the Surface

.3 Prior to the application of the surfacing, the Contractor must clean the existing surface by a method which ensures that the surface is clean and free of loose stones, dirt and foreign materials. The method of cleaning must ensure that damage to surfaces is prevented and that proper adhesion of the product can be achieved.

Protection of Road Fixtures

.4 The Contractor must prevent primer, binder, aggregate or other material used on the work from entering or adhering to gratings, hydrants or valve boxes, inspection pit covers, kerbs and other road fixtures.

Layer Thickness

.5 Where the surfacing is to be placed to a nominal thickness, the thickness must be determined from the spread rate using an agreed density for the surfacing.

8. SAMPLING AND TESTING

General

.1 The Contractor must conduct sampling and testing of the mix during manufacture. The size of lots must be in accordance with Table 8.1:

TABLE 8.1
LOT SIZE

DAILY PRODUCTION QUANTITY (TONNES)	MAXIMUM LOT SIZE (TONNES)
0-100	50
101 – 300	100
301 – 600	150
> 600	200

.2 Sampling must be undertaken on a random basis. Testing must be undertaken for the properties listed in Clause 13 "Verification Requirements".

9. PROPERTIES OF FINISHED SURFACING

General

.1 The intent of the work is to produce a thin, durable surfacing layer that has sufficient bond strength, impermeability, rideability and skid resistance. The work must comply with the requirements specified in:

(a) Clause 13 "Verification Requirements" at Practical Completion; and

(b) Clause 9.2 "Surface Characteristics" for a period of 12 months after the date of practical completion.

.2 Any measurement required for compliance with this clause must be taken in the middle of the left hand side wheelpath as best can be judged on site.

Surface Characteristics

.3 The finished surface must be free of the following defects:

(a) segregated on 'bony' areas

(b) soft areas

(c) 'fatty' areas

(d) ravelling and loss of material

(e) surface cracking

(f) shoving

(g) ruts.

.4 The existence of any defects must be determined by visual inspection.

10. RECORDS OF WORK

.1 The Contractor must complete Daily Record Sheets, or an approved equivalent, which must then be certified correct by the Contractor and forwarded at the completion of a day's work. Details of all materials applied must be recorded immediately after each application.

11. TEST PROCEDURES

.1 In addition to the test procedures specified in Part R25 "Supply of Bituminous Materials", the Contractor must use the following test procedures (refer http://www.dpti.sa.gov.au/contractor_documents) to verify conformance with the Specification:

TEST		TEST PROCEDURE
AGGREGATE GRADING		AS 1141.11
BINDER CONTENT:	Pressure Filtration Method Ignition Oven Method	TP 470 AST 04:1999
MOISTURE CONTENT:	Oven Drying Method Microwave Method	AS 1289.2.1.1 AS 1289.2.1.4
DETERMINATION OF AVERAGE TEXTURE DEPTH OF A PAVEMENT SURFACE USING THE SAND PATCH METHOD		TP 346
CALCULATION OF VOIDS		AS 2891.8

12. HOLD POINTS

.1 The following is a summary of Hold Points referenced in this Part:

CLAUSE REF.	HOLD POINT	RESPONSE TIME
2	Submission of Procedures (if not in Post Tender Submission)	7 days
5.3	Submission of mix details, test results and any changes to the mix design	7 days

13. VERIFICATION REQUIREMENTS AND RECORDS

.1 The Contractor must supply written verification that the following requirements have been complied with and supply the verification with the lot package.

CLAUSE REF.	SUBJECT	PROPERTY	TEST PROCEDURE	TEST FREQUENCY	ACCEPTANCE LIMITS
4.1	Supply of surfacing	Variation of actual combined aggregate grading from the nominated aggregate grading	AS 1141.11	One per lot	As specified in AS 2150, Table 7.
		Variation of actual binder content from the nominated binder content	TP 470	One per lot	As specified in AS 2150, Table 7.
		Air Voids	AS 2891.8	One per lot	All tests between 18% and 25% (TOGAS only)
7.5	Placement of surfacing to nominal thickness	Average Layer Thickness	ASTM D3549	Lot < 100 tonne: 4 per lot Lot 100 – 300 tonne: 6 per lot Lot >300 tonne: 6 plus one for each additional 100 tonne	±-10% nominal thickness
7.5		Minimum Layer Thickness	ASTM D3549	As above	Nominal thickness minus 5 mm
8.	Surface Finish	Longitudinal Evenness	Deviation under a 1.2 m straight edge	6 random measurements per lot and specific measurements at joints	Max of 5 mm deviation
8.		Transverse Evenness	Deviation under a 1.2 m straight edge	6 random measurements in left hand wheel paths per lot	Max of 5 mm deviation, excluding designed points of crossfall change