PART R29

SLURRY/MICRO SURFACING

CONTENTS

1. GENERAL

.1 This Part specifies the requirements for the design, supply and application of bituminous slurry/micro surfacing. It does not cover Cape Seals (refer Part R31 "Application of Cape Seals") or other forms of thin surfacing less than 30 mm nominal thickness.

.2 The design, supply and application of slurry/micro surfacing must be undertaken in accordance with Austroads AP-T26 "Guidelines and Specification for Bituminous Slurry Surfacing" (AP-T26).

.3 Unless specified otherwise in the **Contract Specific Requirements**, all surfacing under this Contract must be micro surfacing.

.4 The following definitions apply to this contract:

"Microsurfacing" means a bituminous slurry surfacing that contains polymer modified emulsion which is capable of being spread in variably thick layers for rut filling, correction courses and for wearing courses requiring good texture.

"Slurry" means a stable suspension of aggregate and filler in a less dense, liquid bitumen emulsion.

2. QUALITY REQUIREMENTS

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

(a) processes which will ensure consistency in the manufacture of the slurry/micro surfacing layer and in particular must cover such aspects as maximum and minimum pavement temperatures, drainage, coating of the individual stones and the quality assurance of raw material feed stock;

(b) method of cleaning the existing surface of the road; and

(c) method of placing and spreading of mix including the maximum layer thickness for each mix size and the minimum time between the placement of layers.

.2 If not provided previously 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" for asphalt aggregates and Part 5 "Materials" of AP-T26. Where a conflict arises between these documents AP-T26 must take precedence.

.2 Binder must comply with Part R25 "Supply of Bituminous Materials".

4. CONSTRAINTS TO WORK

.1 Trafficking of the surface will not be permitted until the application of the slurry/micro surfacing is complete and has had sufficient time to cure.

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

5. DESIGN OF MIX

.1 The design of the slurry/micro surfacing must be undertaken by the Contractor in accordance with Part 6 "Mix Design" of AP-T26.

.2 The Contractor must prepare a trial batch of each proposed mix produced by the mixing plant from which the slurry/micro surfacing layer is to be supplied. Test results of the following properties must be submitted from each trial batch:

(a) Aggregate Grading; and

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

.3 At least 14 days before commencing production of the slurry/micro surfacing, the Contractor must submit:

(a) details of the design, vide Part 6.3 "Mix Design Submission" of AP-T26, including evidence of past performance, the mix design parameters and test results; and

(b) details of the mix (size, type and aggregate source) to be placed at each site.

.4 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.

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

6. MANUFACTURE OF MIXES

.1 The product must be prepared in a manufacturing plant or blending plant of proven performance which must be calibrated as per the requirements of Part 7 "Plant" of AP-T26.

.2 Prior to commencement of work the Contractor must provide paving unit calibration documentation with the component materials of the approved mix.

.3 Manufacturing variations must not exceed the limits specified in Table V "Maximum Permitted Variations from Job Mix Design" of AP-T26.

7. SAMPLING AND TESTING

General

.1 The Contractor must conduct sampling and testing of the mix in accordance with Part 9 "Sampling and Testing" of AP-T26. Sampling must be undertaken on a random basis.

Audit Samples

.2 The Contractor must provide duplicate samples from each lot for product auditing purposes and provide notification when sampling has occurred.

.3 All samples must be delivered to the DPTI Laboratory at 19 Bridge Road, Walkley Heights at a minimum of weekly intervals. The samples will be stored at the Principal's expense.

.4 The Contractor must provide documentation to confirm that the samples have been received at the DPTI Laboratory, and submit this as part of the Lot package.

.5 All samples must be clearly marked and traceable to the relevant Lot in accordance with Part G20 "Quality System Requirements".

8. APPLICATION OF PRODUCT

.1 The Contractor must apply the product in accordance with Part 8 "Field Application" of AP-T26.

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, permeability, rideability and skid resistance.

.2 The work must comply with the requirements specified in:

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

(b) Clause 9.2 "Surface Characteristics" and Clause 9.3 "Texture" for a period of 12 months after the Date of Practical Completion.

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 in the first instance be determined by visual inspection. Where deemed necessary by the Superintendent the Contractor must undertake testing indicated in Clause 13 "Verification Requirements" and Clause 9.3 "Texture".

Texture

.5 The texture of the finished wearing surface at the end of the defects liability period must be no less then the values listed in Table 9.5.

TABLE 9.5 – SURFACE TEXTURE REQUIREMENTS FOR WEARING COURSES

Mix Size	Texture	
	90 km/h or less	More than 90 km/h
Size 4 & 5	0.4 mm	n.a*
Size 7 & 10	0.8 mm	1.0mm

* Use of this size mix in this speed environment is not recommended.

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.

.2 Details of all materials applied must be recorded immediately after each application.

11. TEST PROCEDURES

.1 In addition to the test procedures specified in AP-T26, Part R25 "Supply of Bituminous Materials" and/or Part R26 "Application of Sprayed Bituminous Surfacing, 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
Traffic Time (Set & Cure for Bituminous Slurry)		AG:PT/T271
Wear Loss (Abrasion Loss of Bituminous Slurry)		AG:PT/T272
Excess Binder in Bituminous Slurry		AG:PT/T273

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	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
3 & 8	Supply of Slurry/Micro Surfacing	Component material supply	In accordance with Table VII "Minimum Testing and Verification Frequency" of AP-T26		
		Production and laying	In accordance with Table VII "Minimum Testing and Verification Frequency" of AP-T26		
9.	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
		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
		Crossfall *	Measurement with "smart level" or similar	6 random measurements per lot	Crossfall must be a minimum of 3% (excluding superelevated curves), and must allow for continuous water drainage without ponding
		Texture depth	TP 346	4 random measurements in left hand wheel paths and 2 random measurements in right hand wheel paths per lot	In accordance with Clause 9.3 "Texture"
		Skid Resistance**	British Pendulum (BP)	4 random measurements in left hand wheel paths and 2 random measurements in right hand wheel paths per lot m	BP 55 to 60 International Friction Index
		Skid Resistance**	Griptester	Measurements in left hand wheel path in outermost lane in each direction	Grip Number greater than 0.60 (target values only, not acceptance limits)

* Shape correction contracts only.

** These tests do not form part of the acceptance criteria, but the Principal may undertake the tests for research purposes.