



Western Australia

IPWEA

INSTITUTE OF PUBLIC WORKS
ENGINEERING AUSTRALASIA



**INSTITUTE OF PUBLIC WORKS
ENGINEERING AUSTRALASIA
(WA)**

**AUSTRALIAN FLEXIBLE
PAVEMENT ASSOCIATION
(WA BRANCH)**

**TECHNICAL SPECIFICATION, TENDER FORM AND SCHEDULE
FOR SUPPLY AND LAYING OF ASPHALT SURFACING**

Revision No 5
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TECHNICAL SPECIFICATION, TENDER FORM AND SCHEDULE FOR SUPPLY AND LAYING OF ASPHALT SURFACING

FOREWORD

This specification has been produced jointly by the Institute of Public Works Engineering Australia WA Division (IPWEA) and the Australian Flexible Pavement Association WA Branch (AfPA) to complement Australian Standards AS 2150 – Hot Mix Asphalt – A Guide to Good Practice and AAPA Stone Mastic Asphalt Design & Application Guide – 2000.

This document is the sixth revision of the original IPWEA Asphalt Specification produced in December 1995 and based on the very original AAPA specification which had been in use by both Local Government and private sector for some 20 years previous. This revision has been undertaken by IPWEA and AfPA jointly through an expert technical committee.

This Specification is a stand-alone document, and no part should be altered. Any user wishing to make variations must nominate all variances in the Table of **Variations to Specification** in **Appendix 1**.

The specification is applicable to all asphalt surfaces including but not limited to roads, paths, car parks and sporting surfaces but not airport runways and taxi ways.

The issue of penalty deductions for pavements not meeting the required conformance criteria is an important issue. Most contractors involved in the industry are highly professional organisations committed to providing a high standard of service to their customers. Penalty deductions should be given careful consideration before application, and it is recommended that the Superintending Officer apply penalties prudently, specifically in cases where Contractors are continuously failing to meet the specification requirements and are not making any effort to overcome the problem. It would not be recommended that penalty deductions be made for isolated occurrences of conditional conformance or when there is obvious effort by the Contractor to determine the cause of a problem and work towards a solution.

RECORD OF REVISIONS

REVISION No.	DATE	DETAILS
0	December 1995	Original Version.
1	May 1998	Testing requirements modified; several minor amendments.
2	April 2002	Amended clauses and tables throughout.
3	March 2012	Major re write
4	September 2015	Major rewrite and inclusion of warm mix asphalt
5	December 2022	Further updating of specification to current standards

**TECHNICAL SPECIFICATION, TENDER FORM AND SCHEDULE
FOR SUPPLY AND LAYING OF HOT ASPHALT SURFACING**

1. GENERAL

1.1 Reference Documents

1.1.1 Standards

Australian Standards

AS 2150:2020 - Asphalt – A guide to Good Practice

AS 2008 - Residual Bitumen for Pavements

AS 1160 - Bituminous Emulsions for the Construction & Maintenance of Pavements

1.1.2 Other Specifications and Guides

MRWA 510 – Asphalt Intermediate Course

AfPA RAP Management Plan

AfPA Stone Mastic Asphalt Design & Application Guide

1.1.3 Test Methods

AS/NZS 2891.10 Moisture content of asphalt

Main Roads WA

- | | |
|----------|--|
| WA 210.1 | Particle Size Distribution of Aggregates |
| WA 212.1 | Aggregate Moisture Content: Convection Oven Method |
| WA 212.2 | Aggregate Moisture Content: Microwave Oven Method |
| WA 341.1 | Colour Saturation of Laterite Asphalt |
| WA 701.1 | Sampling and Storage of Asphalt |
| WA 705.1 | Preparation of Asphalt for Testing |
| WA 730.1 | Bitumen Content & Particle Size Distribution of Asphalt & Stabilised Soil, Centrifuge Method |
| WA 731.1 | Stability & Flow of Asphalt: Marshall Method |
| WA 732.2 | Maximum Density of Asphalt: Rice Method |
| WA 733.1 | Bulk Density and Void Content of Asphalt |

Australian Standard asphalt and bitumen test methods may be used in lieu of MRWA test methods.

1.2 Interpretation of Terms

“Australian Standard (AS)” refers to, the quoted Australian Standard document, current at October 2022.

“All tonnages” - Where all tonnages is included in the schedule of rates, the Contractor will charge these rates when the Local Government presents the contractor with a programme of works, not including hand work, that totals more than 650 tonne. The contractor shall have the sole discretion to submit a tender in such form.

“Contract” - shall mean and include the Tender, Contract, General Conditions, Schedule of Quantities, Schedule of Rates, Specifications and all plans, drawings and other schedules.

“Contractor” - shall mean the person or persons, corporation or corporations whose tender is accepted by the Local Government, and shall include the executors or administrators, successors and assigns of such person or persons, corporation or corporations.

“Local Government” - shall mean the Local Government specified in the General Conditions of Tender and/or Contract.

“Job Mix” - The job mix is the mix design produced within the broad targets of the specification, and subject to tolerance given in Table 13 of AS 2150 except in the case of laterite mixes where AS2150 does not apply.

“Job Size” – shall mean the number of asphalt tonnes laid at one location. If it is possible to lay asphalt at a number of locations in one day and mobilization of machinery is not required, the day’s production shall be considered in total. However, if plant and machinery must be mobilized, the sites shall be considered individually. Where however two different mixes are laid in the same location, such as red medians or cycle lanes in a black asphalt, job size is determined by the tonnes laid of each mix.

“MRWA Test Methods” are the Main Roads WA test method, current at time of tender.

“Mobilization” shall be defined as the requirement for machinery to be transported by truck.

“Pay factor” means the calculated proportion of the whole payment to be paid to the Contractor subject to conformance with this document.

“Payment penalty” means the actual reduction in payment resulting from the pay factor.

“Superintending Officer” - shall mean the nominated Local Government Officer.

“Test Lot” – refers to any area subjected to conformance testing and the extent of the test lot shall be defined by the Superintending Officer. The test lot may be a day’s work on a large job, a single street, or two or more small jobs or streets providing that the mix used is homogeneous within the lot. It may also consist of a subsection of a section of pavement surfacing as determined by the Superintending Officer.

“Works” or “Work” - shall mean the work to be done by the Contractor under the Contract.

1.3 Extent Of Works

As specified in Appendix 2 - Table of special requirements.

1.4 Tender Prices, Mix Designs and Rise and Fall

Tender prices shall be submitted as being fixed for the initial twelve-month period, except for the rise and fall in the cost of bitumen which will constitute an adjustment at any time in the contract period.

At the end of each 12-month period of the contract, an increase in the tender price based on CPI (Perth) shall be applied based on the initial tender price. All increases must be submitted for approval within 60 days of occurrence and contract anniversary date in the case of CPI.

Adjustments for the cost of bitumen will only be allowed if the cost has increased or decreased by \$20/tonne or more and in such cases the full cost increase or decrease to the nearest dollar shall be applied.

At each request for a price increase due to the rise and fall in the price of bitumen, the contractor shall supply supporting documentation for the nominated bitumen supplier.

Should it be discovered that the Contractor has not passed on to the Local Government any price reduction due to a fall in the price of bitumen, then the Local Government may immediately terminate the contract, and the contractor shall, whether the contract is terminated or not, pay to the Local Government the sum determined as being overpaid to the Contractor.

The calculation for the new contract prices for bitumen variation shall be as follows: -

$$P = A + (B_c \times B_v)$$

The annual calculation for the new contract prices for CPI shall be as follows: -

$$P = A + (I \times CPI)$$

Where:

P = adjusted or new price.

I = initial tender price or adjusted tender price for CPI only from previous years adjustment/s at end of each year.

A = tender price or existing price from previous adjustment.

B_c = the percentage bitumen content by mass of mix as ascertained in Clause 3.2 Job Mixes.

B_v = the variance in the cost of bitumen from tender price or previous varied price.

CPI = variation in Consumer Price Index for Perth as published by Australian Bureau of Statistics for the previous 12-month period.

As there may not be a correspondence between tender anniversary date and CPI publications the previous known 12-month figures shall be used for the calculation.

Tender prices for each mix design shall be submitted on the Form of Tender in Appendix 4, along with associated mix designs specifying bitumen content within each mix which shall be used in the bitumen price variation process. Tenderers shall provide prices for each of the mixes designed to this specification. The tenderer shall provide prices for any additional mix types specified in the Table of Special Requirements in Appendix 2 and shall include any additional costs that may be applicable resulting from Variations to Specification in Appendix 1. Any additional information required by the Table of Special Requirements should be appended to the Tender Form.

Contracts may be awarded for a period of up to 5 years.

Where the contractor elects, a uniform price for all tonnages may be submitted, and the Local Government may elect to accept the tender based on "All Tonnages" OR "Job Size" but once the tender is accepted, the method shall remain binding. The contractor must submit prices based on the Job Size listed in the schedule of rates but is not required to submit a price for all tonnages.

1.5 General Conditions of Tender / Contract

Where applicable this specification should be read in conjunction with the Local Government's General Conditions of Tender and/or Contract.

2. MATERIALS

2.1 Aggregate

All aggregates used except for laterite will meet the requirements of AS 2758.5 – Asphalt Aggregates. The aggregate shall be produced from a source rock designated in the table of special requirements (Appendix 2). All laterite mixes shall be submitted to the Superintending Officer and must meet the requirements of 3.2 Job Mixes.

2.2 Reclaimed Asphalt Pavement

Processed Reclaimed Asphalt Pavement (RAP) may be added to the mix in proportions of up to 15% by mass with no changes to the job mix. Where RAP at greater than 15% is used, a specific job mix shall be approved by the Local Government. Such job mix shall include a RAP management plan in accordance with the AfPA RAP Management Guidelines.

RAP shall not be used in SMA asphalt.

2.3 Bitumen

Bitumen will be Class 170 or 320 (as specified for the mix types in Appendix 3) unless otherwise directed by the Superintending Officer and will meet the requirements of AS 2008 – Residual Bitumen for Pavements. Where Class 170 is specified, Class 320 may be substituted in lieu of Class 170 with prior approval by the Superintending Officer, but Class 170 may not be substituted for Class 320.

Crumb rubber binder S45R shall meet the requirements of Main Roads Specification 511 10/4287

Polymer modified binders (plastomers or elastomers) shall meet the requirements of Austroads AGPT – T190 unless specified otherwise by the Superintending Officer.

3. MIX DESIGNS

3.1 General

All mix supplied for this contract will generally be as detailed in Appendix 3, though other mix types may be used at the direction of the Superintending Officer.

Other than the requirements in Clauses 1.2, 2.1 and 3.2, Laterite mixes, in general, shall conform to the same requirements as the dense graded mix in Appendix 3. Where the mix is being designed to conform with heavy duty applications ($> 1 \times 10^6$ ESA's over a 20 year design life) in accordance with 3.1, up to 30% by mass of combined coarse and fine granite may be incorporated in the mix design.

3.2 Job Mixes

Prior to the commencement of the Contract, the Contractor will submit 'Job Mixes' for each mix type which conform to the properties listed in Appendix 4 'Job Mixes' shall be resubmitted prior to any subsequent changes due to mix re-designs.

The grading curve of the aggregate shall not vary from the low limit on one size of sieve to the high limit on adjacent sieves, or vice versa. The particle size distribution of the aggregates when plotted, shall give a smooth curve throughout the whole range of sieve sizes.

On written acceptance of a 'Job Mix', the permissible variation of aggregate grading and bitumen content shall not exceed Table 13 of AS 2150. The minimum calculated bitumen film thickness shall be 7.5 micron using the Austroads test method AGPT/T237.

In the case of laterite mixes, the bitumen tolerance of the job mix shall be $\pm 1\%$ of the target.

The calculated bitumen film thickness is a required design property of the job mix but is not to be used as a conformance requirement of the mix. However, it may be used to accept a mix where other properties such as particle size distribution or bitumen content fall out of the specified range.

3.3 Alternative Mixes

Should Tenderers wish to submit alternative mix designs which are outside of the specifications, details of the mix designs and tender prices shall be included. Mixes with properties other than those listed in Appendix 3 may be specified and these shall be listed in the Table of Special Requirements (Appendix 2).

All alternative mixes must be approved by the Local Government and certified as “fit for purpose” by a suitably qualified professional.

All tenders will be evaluated based on conforming prices as listed in Appendix 4. However, Local Government may consider alternatives during the contract after full evaluation of an alternative and accordingly alternative submissions are encouraged.

Where alternative mixes are proposed for roads where the 20-year design traffic loading is over 1×10^7 ESA, or the road is subject to regular use by Restricted Access Vehicles under concessional loading, the mix design shall be supported by laboratory testing including fatigue and wheel tracking tests. Where the mix is to be used for structural layers, testing for modulus, temperature sensitivity and speed factors would also be required.

4. SAMPLING AND TESTING

The contractor shall be responsible for sampling and testing of the asphalt supplied to the Local Government. The contractor shall organise testing by a laboratory accredited by the National Association of Testing Authorities of Australia (NATA). The laboratory must have included in its Scope of Accreditation the current test methods requested by this specification.

For testing the production mix, the contractor shall sample production lots at the production plant, at the minimum frequencies set out in the Quality Plan and Inspection Test Plan supplied by the Contractor. If during the duration of the Contract, the Contractor makes changes to the quality plan, these changes shall be referred to the Superintending Officer, who shall have the right to reject the changes if it is considered the changes will result in greater risk to the client.

The testing frequency requirement shall apply to each asphalt mix type. The test results shall be related to production intervals with samples representing the full lot of production of the specific mix.

The costs associated with the lot sampling and testing of the production mix shall be borne by the contractor.

Where the Contractor is directed to undertake compliance testing, and this testing is not part of the Contractor’s Quality Assurance System, the cost of the compliance testing shall be paid by the Local Government.

When the Local Government requires audit testing, the cost of testing shall be paid by the Local Government.

Unless otherwise approved by both parties, sampling of the mix for audit testing and normal quality control and compliance testing shall be carried out at the production plant and in accordance with the company’s safety management procedures.

5. DISPUTE RESOLUTION

This specification covers the basic requirements of the technical aspect of the manufacture and laying of asphalt. The acceptance criteria places significant reliance on the contractor's quality plans. Under the Contractor's quality plan, not every project will necessarily be tested. If within a period of twelve months after completion of any project unacceptable performance by way of shoving, flushing, stripping or ravelling of aggregate, Local Government reserves the right to treat this in accordance with the following procedure.

If a payment penalty or rejection of work or requirement for warranty is in dispute, the Contractor may apply to have a retest carried out at the Contractor's cost. The retest shall consist of removal of a random sample of the compacted asphaltic mat (1m x 1m). This shall be divided into two samples, one sample to be tested by a laboratory of the Contractor's choice, and the other sample tested by a laboratory of Local Government's choice. These tests are to be carried out in accordance with the current Australian and/or Main Roads WA standard. The mean result of the two tests shall be the definitive result.

The Superintending Officer and or the Contractor may witness any testing that is part of dispute procedures.

The costs of retesting shall remain the responsibility of the Contractor should the rejection of work be confirmed, otherwise they shall be borne by Local Government.

Where the Contractor considers that failure to achieve the specified quality of the asphaltic mat is due to deficiencies in the base preparation, the Contractor shall arrange independent testing of the base compaction by a NATA registered laboratory. If the base work is found to be deficient, the cost of the additional testing and any remedial measures shall be borne by the Local Government.

Alternatively, either party may request the pavement and test results be referred to an independent specialist Consultant who shall be agreed by both parties to examine and report on the suitability of the asphalt surface or underlying pavement if that is in dispute.

The findings of the specialist Consultant shall be binding.

6. MANAGEMENT SYSTEMS

At the tender submission the Contractor shall supply all the documentation listed below in relation to its management systems for quality, safety and environment.

Any new Company who wishes to submit a tender may do so by submitting documentary evidence of its management systems currently in place and an undertaking that it will complete its third-party accreditation within the first year of contract.

6.1 Quality management

The Contractor shall supply to the Superintending Officer a copy of the Contractors third party certification to AS/NZS ISO 9001 (current version) and Quality Management Plan.

The Contractor's Quality Assurance System shall include a Process Control System conforming to the requirements of ISO 9001 - Quality Systems for Production and Installation and the AAPA publication Asphalt Plant Process Control Guide.

The Contractor's process control records may be made available to the Local Government and in all cases the control intervention levels should be within the limits of the specification.

The Contractor's Quality Assurance System shall be used to identify areas/ lots of suspect mix where audit testing shows that the mix does not meet the specification.

6.2 Safety Management

The Contractor shall supply to the Superintending Officer a copy of the Contractors third party certification to AS/NZS 4801 (current version) including:

- Health and Safety Management Plan pursuant to the current Work Health & Safety Act.
- Cyclone Contingency Plan in the case where the Local Government is in a designated cyclone region.

6.3 Environmental Management

The Contractor shall supply to the Superintending Officer a copy of the Contractors third party certification to AS/NZS ISO 14001 (current version) including the Environmental Management Plan.

7. MANUFACTURE

7.1 Applicable Standards

7.1.1 Hot Mix Asphalt

All mixes shall be manufactured according to the requirements of AS 2150, except in the case of Stone Mastic Asphalt, which shall be manufactured in accordance with the table 3.3 shown in Appendix 3 of this specification.

7.1.2 Warm Mix Asphalt

Warm Mix Asphalt (WMA) is asphalt which contains an additive, or uses a manufacturing process, that allows the asphalt mix to be produced and placed at lower temperatures than Hot Mix Asphalt (HMA). The maximum moisture content of the mix shall not exceed 0.5% by mass.

Where warm mix asphalt is used, all the requirements for hot mix asphalt shall apply, except for the temperature requirements.

7.1.3 Polymer Modified Bitumen Asphalts

Polymer modified bitumen asphalts generally fall into one of two categories:

- Plastomeric types (such as EVA) which increase modulus, improve rut resistance and resistance to shear forces from turning traffic
- Elastomeric types (such as SBS) which may decrease modulus, but improve fatigue life, rut resistance and resistance to shear forces from turning traffic

Care must be taken to ensure that the modified bitumen is well blended, and it shall be the responsibility of the Contractor to ensure the correct grade of polymer and blending is achieved.

All polymer modification, unless otherwise agreed with the Superintending Officer, shall be by wet methods where polymers are pre-blended into the bitumen before manufacture of asphalt.

Where there is evidence of separation of the polymer from the bitumen such that the desired properties are not achieved, the mix shall be removed and replaced by the contractor at no cost to the Principal.

7.1.4 Crumbed Rubber Asphalts

Unless otherwise agreed with the Superintending Officer, crumbed rubber asphalts shall be manufactured using the wet method.

Crumb rubber asphalt shall comply with the requirements of this specification in all respects and irrespective of the manufacturing method, the binder shall be S45R manufactured by a supplier with a Quality System compliant with AS/NZS ISO 9001

8. PREPARATION

8.1 Programming

Prior to commencement of any works in this Contract a “pre start” meeting will be held to determine procedure and protocol for programming and allocating work together with the regularity, if any of ongoing programming meetings.

Prior to the commencement of each project throughout the Contact period, a prestart meeting shall be held with the Superintending Officer to determine specific requirements.

8.2 Site Inspection and base condition

The quality of the base, either new or old will influence the level of compaction and ride quality of the finished asphalt mat.

The Superintending Officer accepts full responsibility for the quality of the surface to be overlaid. Where the Superintending Officer is aware of any deficiencies in the surface, these will be brought to the attention of the Contractor and confirmed in writing or by email.

The Contractor will inspect every paving job with the Superintending Officer prior to paving commencing. Should the Contractor be concerned with any aspect of the surface preparation, base construction or irregularities in the base prior to or during paving operations, such concerns shall be brought to the attention of the Superintending Officer. This shall be confirmed in writing or by email 48 hours prior to asphalt being laid.

Where the Superintending Officer directs that the works be halted to allow for the remediation of the base, the Contractor shall be compensated for any costs of establishment and loss of time.

8.3 Keying In

The Local Government will be responsible for keying in work at each end of the job and at any intersections where overlay of the intersecting street is not to be included in the work. This may be done by burning and 'chasing' or milling and removing the existing asphalt. The method used will be that agreed with the Superintending Officer. Alternative methods may also be negotiated between the Contractor and the Superintending Officer.

The responsibility for keying in may also be passed on to the Contractor and the cost will be paid by the Local Government at pre-determined rates.

8.4 Sweeping

The Local Government shall be responsible for the mechanical sweeping of pavements within 24 hours prior to asphalt laying. Where some areas may have incurred minor unsuspected entry of debris and they can easily be swept by hand, this work shall be undertaken by the contractor without further charge to Local Government.

However, where a pavement has or is likely to incur a significant entry of debris, the pavement shall be mechanically swept immediately prior to the asphalt laying shift at the Local governments expense.

8.5 Tack Coat

Tack Coat shall be sprayed in accordance with AS 2150 - Hot-mix Asphalt – A Guide to Good Practice, Section 11.

Material shall be a bitumen emulsion and shall be in accordance with AS 1160 – Bituminous Emulsions for the Construction and Maintenance of Pavements.

The application rate shall generally be sufficient to fully coat the surface with a residual binder content of 0.10 litres per square metre, except between structural layers where the rate shall be 0.18 litres per square metre. However, the application rate may be varied or even omitted to suit conditions when approved or instructed by the Superintending Officer.

Tack coat shall be evenly applied of the total width of the spray run. Tack coat that demonstrates streaks of light and heavy application shall be allowed to dry and a second application of half rate shall be applied.

Contractors are encouraged to adopt trackless tack coat technology during the period of the Contact, if not already adopted.

8.6 Corrector Course

When directed by the Superintending Officer, prior to asphalt laying, a separate regulating course shall be placed for correction of both longitudinal and transverse pavement shape. Unless otherwise directed, the maximum compacted thickness of any one layer of corrector course shall not exceed five times the size of the largest aggregate in the asphalt used.

In the case that the Superintending Officer instructs the contractor to supply and lay a corrector course due to ride quality inconsistency in the receiving surface, then the ride quality of the wearing surface shall become the responsibility of the contractor, unless otherwise agreed.

The “prestart” meeting between the Superintending Officer and Contractor should include a walk-through of the receiving surface, identification of ride quality inconsistencies and discussions regarding a method(s) to improve ride quality. Upon reaching an agreement on a method(s) of ride quality improvement the contractor shall apply those methods to applicable asphalt laying.

9. LAYING OF MIX

9.1 Undue Delays

Should the Contractor be unable to carry out the required works within 14 days of request in situations where a road is under construction, or within 28 days for routine maintenance overlays, Local Government reserves the right to obtain the services of another Contractor after consultation with the Contractor. Alternatively, the Contractor may supply the service by using any other Contractor approved by the Superintending Officer and additional costs incurred shall be the responsibility of the Contractor.

In an emergency, where un-scheduled works arise that are beyond the control of the superintending officer to foresee, the Local Government may obtain the services of another contractor, at its own expense, should the Contractor be unable to supply in any period that is determined by the Superintending Officer.

9.2 Delivery

All mix shall be delivered according to the requirements of AS 2150 - Hot Mix Asphalt, Guide to Good Practice, Section 8, unless otherwise directed by the Superintending Officer. Delivery shall be made during the hours approved by the Superintending Officer.

9.3 Weather Conditions

The receiving surface on which asphalt is to be laid shall be dry and free from ponding water. The Superintending Officer reserves the right to stop paving operations under adverse weather conditions. Asphalt that has been produced prior to the Superintending Officer's directive to cease work may still be laid.

Asphalt shall not be laid if the host surface temperature is below 10 degrees Celsius, or if cold winds chill the surface to the extent that spreading and compaction is adversely affected. For asphalt layers thicker than 40mm and/or if a warm mix additive is used, the temperature requirements may be relaxed to 5C at the discretion of the Superintending Officer. Notwithstanding, this does not absolve the contractor's conformance requirements.

9.4 Protection of Drains & Removal of Debris

During the progress of the work the Contractor shall cover all drainage gullies and at the completion of the day's work, remove all sweepings, spoil and excess or rejected material from the site to the satisfaction of the Superintending Officer. The disposal of such materials shall be in accordance with any requirements of Local Government and at the Contractors expense.

9.5 Traffic Management/Control

Traffic management can be a significant cost and can require a significant lead-time on any project but can vary in extremes depending on road layout and importance, and cannot be included in the tender price.

The Superintending Officer (Local Government) shall be responsible for all traffic management and control in accordance with the requirements of the current version of the MRWA Traffic Management for Works on Roads Code of Practice. The Contractor and the Local Government have a duty of care to ensure safety of workers and public, and therefore the Contractor must bring any concerns regarding traffic management to the attention of the Superintending Officer. Works should not proceed until both parties have agreed on traffic management and site safety.

An approved Traffic Management Plan (TMP) is required for all asphalt and pavement preparation works. Some TMP's require MRWA approval and/or Roadworks Traffic Manager (RTM) endorsement. A copy of the approved TMP shall be provided to the contractor.

9.6 Joints

Unless otherwise directed by the Superintending Officer, longitudinal joints shall be:

- continuous and parallel,
- within 150mm of line of change in crossfall,
- offset by at least 150mm from joints in underlying layers,
- located away from traffic wheel paths, and
- located beneath proposed traffic line markings where feasible, in the case of a wearing course.

Where practical, adjacent paving runs will be completed to within 5 metres of each other daily. However, where the paving thickness is equal to or less than 40mm longitudinal joints which are greater than 5 metres in length may be ramped down and milled out prior to continuing. This can also be done when the Contractor has been caught in the rain and is unable to square off the paving runs.

The Local Government will be responsible for the preparation of longitudinal joints where new work abuts old work such as that encountered in road widenings.

9.7 Survey Control

Where the Local Government has provided survey control, it shall be the Contractor's responsibility to ensure that the levels are maintained to within $\pm 10\text{mm}$ of the survey control points provided also that two consecutive survey points do not go from positive to negative or vice versa. Inability to maintain the required level may result in rejection of this section. The requirement of achieving level control may constitute a variation in rates.

9.8 Precautions with Stone Mastic Asphalt (SMA)

SMA has high binder contents requiring manufacture to very high tolerances and non-standard compaction methods. In warmer weather SMA requires time to allow the mix to cool before opening to traffic. If the mix is not allowed to cool, traffic can cause excess bitumen to migrate to the surface of the matt and flushing can occur.

Where the road is of greater hierarchy than a local distributor, a significant bus route, industrial road or a cul-de-sac bowl, the Contractor shall ensure that sufficient time is left to allow the mix to cool to less than 50°C prior to opening to traffic.

The contractor together with Local Government should also consider:

- Avoiding laying during very hot weather
- Heavy gritting if the pavement needs to be trafficked prior to cooling.
- Consider the use of PMB in extreme conditions such as roundabouts, heavily trafficked intersections' intersection approaches and cul-de-sac bowls.

9.9 Delivery Dockets

A delivery docket showing the empty and loaded masses of the vehicle shall be handed to the Superintending Officer at the point of delivery by the Contractor's representative. In addition, the following written information shall be supplied:

- delivery docket number,
- the date and time of loading,
- the name of the supplier,
- the identification number of the vehicle,
- the size and Marshall blows of the asphalt and the location reference of the plant at which the asphalt was manufactured,
- the temperature of the asphalt.

10. ACCEPTANCE OF ASPHALT SUPPLY

10.1 Grading And Bitumen Content

When the results of an individual test undertaken by the Local Government or the Contractor show that the mix does not meet the specification and where the Contractor has in place a Process Control System as part of an accredited Quality Assurance System, the Superintending Officer shall take into consideration the Process Control Records before deciding on a course of action.

If minor non-conformances are detected by either the Local Government's or the Contractor's testing, the Local Government may request that the Contractor produce evidence that corrective and/or preventative action, in accordance with their management systems have been taken in order to achieve specified requirements.

Table 10.1 provides a guideline for the treatment of more significant non-conformances of mix properties.

TABLE 10.1 – SUGGESTED ACTIONS FOR DEVIATIONS IN MIX PROPERTIES

Property	Deviation from Specified Limits in job mix	Action
Bitumen Content	>0.3% below minimum	A penalty equal to $4.8 \times (\%) \text{age below} \times \text{bitumen price per tonne}$ is to be applied.
	> 0.5% below minimum	Negotiated settlement using dispute resolution or specialist technical advice at contractor's cost. A penalty equal to $4.8 \times (\%) \text{age below} \times \text{bitumen price per tonne}$ is to be applied should the mix be accepted.
	>0.3% above maximum	If air voids not conforming, 5 year written guarantee against flushing or shoving for all mixes.
Particle Size Distribution	Single Sieve: >5% on 2.36mm or greater >3% on 1.18mm or under	Seek 5 year written guarantee if air voids are conforming and bitumen film thickness < 7.5µm min.
	>10% Cumulative	
	Single Sieve: >8% on 2.36mm or greater >5% on 1.18mm or under	Negotiated settlement using dispute resolution or specialist technical advice at contractors cost
	>15% Cumulative	
Filler Content (75 micron)	>1.0% below minimum	Seek 5 year written guarantee if air voids are non-conforming.
	> 1.0% above maximum	Seek 5 year written guarantee if air voids are non-conforming and bitumen film thickness < 6.5µm min.

For conformance conditions that are not covered in the above table, a negotiated agreement may be reached which may necessitate the obtaining of expert advice from a mutually agreed source. The cost of providing expert advice shall be the responsibility of the Contractor.

Where a 5-year guarantee is applied, the terms of the guarantee shall be to the satisfaction of the Superintending Officer.

10.2 Marshall Characteristics

The Marshall characteristics of voids, stability, flow and quotient of a test lot when tested in accordance with the current Australian and/or Main Roads WA Standard, shall form part of the determination for quality level of the asphalt.

The Marshall quotient is the calculated ratio of stability to flow which represents an approximation of the ratio of load to deformation and may be used as a measure of the asphalt's resistance to permanent deformation under load.

11. ACCEPTANCE OF ASPHALT IN SITU

Acceptance of the in situ laid asphalt shall be determined in accordance with either Clause 11.1 Density or Clause 11.2 Voids as directed by the Superintending Officer.

11.1 Density

Density (compaction) shall be judged at one of three quality levels:

- Conformance
- Conditional Conformance
- Non-Conformance

The Characteristic Percent Marshall Density (Compaction), compared to the Marshall density of a sample of the mix, for any test lot of a minimum of 6 (six) Core Density tests shall be deemed to be conforming if it attains the minimum value required for the mix type as shown in Table 11.1.1. Payment for conforming work shall be at the scheduled rate.

Where a Characteristic Percent Marshall Density is less than the specified density the quality level shall be deemed to be either non-conforming or conditionally conforming depending on the difference between the Characteristic Percent Marshall Density and the specified density. The tolerances applicable to conditional conformance are given in Table 11.1.2. A Pay Factor, as shown in Table 11.1.2 shall be applied for work at the appropriate conformance level in accordance with these tolerances. The pay factor shall reflect the lower level of serviceability of conditionally conforming asphalt.

Where any test lot of asphalt work is deemed non-conforming, the Contractor shall arrange, at the Contractor's expense, for the test lot to be removed and replaced with fresh asphalt and retested. Removal shall be carried out so as not to damage the underlying layers or any road fixtures, such as gully gratings. Any such damage shall be repaired at the Contractor's expense. Alternatively, the pay factor shall apply.

TABLE 11.1.1 DENSITY REQUIREMENTS

Marshall Blows	Characteristic % Marshall Density (Rc %)
35	95.0
50 (including SMA)	94.5
75	94.0

The Characteristic Percent Marshall Density, R_{ct} , of a test lot shall be calculated thus:

$$R_{ct} = R - K \times S$$

where:

R is the mean of the values of the individual core densities expressed as a percentage of the Marshall Density tests on the lot being assessed, reported to the nearest 0.1 percent.

K is,

0.68 in the case of District Distributor Roads

0.5 in the case of Local Roads

S is the standard deviation of the values of the individual core densities expressed as a percentage of the Marshall Density tests on the lot being assessed, calculated in accordance with the standard deviation calculation below and reported to the nearest 0.1 percent.

TABLE 11.1.2 PAYMENT FACTORS FOR CHARACTERISTIC DENSITY

Characteristic Percent Marshall Density	Quality Level	Payment Factor
R _{ct} equal to or greater than R _c	Conformance	1.0
R _{ct} less than R _c and greater or equal to R _c - 3%	Conditional Conformance	1 - 0.066(R _c - R _{ct})
R _{ct} less than R _c - 3%	Non-conformance	0.8

Rounding of all calculations should be in accordance with AS 2706 - Numerical Values - Rounding the Interpretation of Limiting Values.

Standard Deviation

Where specified, the standard deviation(s) of the distribution of the values shall be calculated as:

$$S = \sqrt{\sum_{i=1}^n \frac{(x_i - x_{av})^2}{(n - 1)}}$$

where:

x_i is an individual result

x_{av} is the mean of n results

n is the number of results from one lot

Outlying Core

Where the density of 1 individual core only is significantly removed from that of the remainder of the cores, and that core density is less than the mean density - 1.65s or greater than the mean density + 1.65s, then that core may be deemed suspect. At the discretion of the Superintending Officer the suspect core may be disregarded, and the following equation for a 5 core test lot used to determine the Characteristic Percent Marshall Density:

$$R_{ct} = R - 0.88s$$

Alternatively, the Superintending Officer may direct that two additional cores be cut 1m either side of the suspect core, and the mean density of these two cores be used in place of the suspect core density.

Any outlying core removed from density considerations shall also be disregarded in consideration of matt voids.

11.2 Asphaltic In Situ Voids

There are two considerations with voids in an asphalt mix, Marshall Voids and in situ voids. Marshall Voids are the voids in laboratory compacted plant produced asphalt samples. These voids are designed to have specified air voids after 35,50 or 75 blows of a Marshall hammer on each face of a cylindrical sample.

Marshall voids are determined by the mix composition, together with the number of Marshall blows. Mat voids, or in situ voids are the air voids in the field mix after the mix

has been compacted. These voids are generally determined by testing cores cut from the asphalt mat, or some other non-destructive density testing.

It should also be noted that, in some mixes, excessively low in situ voids result in a risk of early deformation and/or flushing, however high in situ voids in an overlay, as distinct from structural layers, may have little bearing on the life of the surface.

However high voids in heavy traffic situations may significantly reduce asphalt fatigue life.

11.2.1 Determination of characteristic In Situ Voids

The characteristic asphaltic mat voids are taken as the average in situ voids of a sample test lot. A test lot shall be a minimum of a 6-core sample set or a minimum of 6 determinations of density and voids determined by non-destructive test methods. Where non-destructive test methods are used, the method shall be approved by the Superintending Officer

Contractors, in collaboration with Local Governments are encouraged to work towards non-destructive density and in situ air void testing.

The Superintending Officer shall be responsible for characteristic in situ voids audit testing. The number of cores to be cut shall be determined by the job size. Where a single job size is 100 tonne or less, initial conformance testing shall be determined on 3 cores. However, should conditional or non-conformance be determined, then conformance shall be based on 6 cores.

For any job size over 300 tonne, initial conformance shall be determined on 6 cores. However, should conditional or non-conformance be determined, then acceptance shall be based on 10 cores.

11.2.2 Outlying Core

Where the insitu voids of one (1) individual core only exceeds the average by more than a factor of 1.3 times the mean, it is likely that the core has been damaged and may not be representative of the voids at that location and may be deemed a suspect core.

At the discretion of the Superintending Officer the suspect core may be disregarded, and the average of the 5-core test lot used to determine the characteristic insitu voids.

Alternatively, the Superintending Officer may direct that two additional cores be cut 1m either side of the suspect core, and the mean density of these two cores be used in place of the suspect core density.

Where the additional cores confirm that the core is representative, it shall be included in the determination of mean density.

11.2.3 Conformance

The determination of Conformance, Conditional Conformance and Non-Conformance will be in accordance with Table 11.2.1

TABLE 11.2.1 PAYMENT FACTORS FOR NON-CONFORMANCE IN ASPHALT IN SITU VOIDS

Mix specification	Conformance	Conditional conformance		Non-Conformance	
DGA 35 blow Marshall wearing course	2.5% - 8.0%	>8.0% - 10.0%	>10.0% - 12.0%	>12.0%	<2.5%
DGA AC 50 blow Marshall wearing course	3.5% - 11.0%	>11.0% - 12.0%	>12.0% - 14.0%	>14.0%	<3.5%
DGA RAC 50 blow Marshall wearing course	3.0% - 10.0%	>10.0% - 11.0%	>11.0% - 13%	>13.0%	<3.0%
DGA 75 blow Marshall wearing course	3.5% - 11.0%	>11.0% - 12.0%	>12.0% - 14%	>14.0%	<3.5%
SMA 50 blow Marshall wearing course	3.5% - 11.0%	>11.0% - 12.0%	>12.0% - 14%	>14.0%	<3.5%
5 or 7 SMA 50 blow Marshall low voids as an interlayer	1.5% - 6.0%	6.0% - 7.0%	See Note 1 Below	<1.5%	
DGA 75 blow Marshall intermediate course	3.0% - 7.0%	>7.0% - 8.0%	>8.0% - 10.0%	>10.0%	<3.0%
DGA 35 blow Marshall fatigue layer	1.5% - 7.0%	>7.0% - 8.0%	>8.0% - 10%	>10.0%	<1.5%
Pay factor	1	0.95	0.9	Remove or not pay or negotiated payment/warranty	1.0 with 5-year warranty

¹ For SMA as an interlayer which has mat voids >7.0%, the contractor shall at the contractors cost spray a tack coat which provides a residual binder of 0.25 litres per square metre. The pay factor for the work shall be at 0.8.

No penalties shall be applied to Lateritic mixes for conditional conformance, and for non-conformance the penalty shall be 0.95

11.3 Thickness

11.3.1 Recommended layer thickness

The recommended layer thickness for dense graded asphalt is a minimum of 3 to a maximum of 5 times the maximum nominal aggregate size.

The recommended layer thickness for open graded asphalt or stone mastic asphalt is a minimum of 3.0 to a maximum of 6 times the maximum nominal aggregate size.

In order to account for rapid temperature drop when thin layers are proposed, the minimum recommended layer thickness is 30mm. Where the Superintending Officer

specifies a layer thickness of less than 30mm, the ability to achieve compaction is compromised and the accuracy of any core testing is suspect. For layers less than 30mm, conformance and conditional conformance shall be increased by 1%.

11.3.2 10.5.2 Determination of layer thickness

The nominal thickness (NT) of asphalt to be laid shall be specified by the Superintending Officer. It should be noted that the nominal thickness will be greater than the minimum desired thickness, and the Superintending Officer should specify a nominal thickness greater than the required minimum thickness taking into account the roughness of the surface to be overlaid.

On any specific occasion the Superintending officer may request the Contractor to try and achieve a required spread rate. After consultation and agreement between the Superintending Officer and Contractor's representative, the contractor shall make its best endeavour to achieve the required spread rate. Where the Superintending Officer has requested a specific spread rate, the Local Government shall take responsibility for the performance of such works.

Where the average thickness exceeds the nominal thickness by more than 15% excluding corrector, and the Contractor has not raised concerns regarding the existing pavement levels, the Local Government shall only be required to pay for that portion of the mix as determined by the following equation:

$$\text{Area} \times 1.15\text{Nt}/1000 \times 2.4 \times \text{tender rate for mix.}$$

Where the average thickness is less than the nominal thickness by more than 10%, or an individual core is less than 20% of the nominal thickness, the Superintending Officer shall direct the Contractor to undertake one of the following actions:

1. Additional cores shall be taken to identify the extent of any thin lots, and the thin lot shall be overlaid or milled and replaced to the specified thickness
2. An overlay of the same mix type shall be laid, and the Contractor paid for the portion of the asphalt that raises the mean asphalt thickness to the nominal thickness plus 10%.
3. The Superintending Officer may agree a negotiated penalty with the Contractor

In the case of non-destructive testing, there is no method of determining the asphalt thickness at any specific location. Where non-destructive testing is undertaken, the mean matt thickness shall be determined from the calculated volume and the measured area of the lot.

The mean density (tonnes/m³) shall be determined from the non-destructive test data. The nominal thickness (NT) shall be determined by the following formula:

$$NT = \frac{\text{Tonnes laid /mean density}}{\text{Area of lot}} \times 1000$$

11.4 Shape

Provided that the base pavement conforms with the requirements for the intermediate course as defined in Table 15 of AS 2150, the shape of the asphalt wearing course shall conform to the values as detailed in Table 15 of AS 2150.

12. PAYMENT

Payment shall be made based on the actual mass of asphalt used unless the pavement is considered a conditional conformance or non-conformance pavement where a proportional factor shall apply. The final payment factor shall be the worst individual or lowest of all payment factors.

Payment shall be paid at the rate applicable for the job size as tendered in the Form of Tender plus price variations applicable at the time of laying the asphalt. The job size shall be taken as the amount laid in a single shift, but where equipment is required to be remobilised between sites, then the job size shall be that for each individual location.

Where a job requires different asphalt mixes across the road surface, such as the case with red laterite cycle lanes and or medians, with granite running lanes, or bus bays, etc., each type of asphalt shall be considered as a separate job and payment shall be made at the rate applicable for tonnes of that mix laid. (e.g. if 270T of granite asphalt is laid, and 55T of laterite asphalt is laid, then the payment for the granite asphalt will be paid at the 200T-300T rate and the laterite asphalt at the 50T-100T rate)

13. GUIDE TO TENDER EVALUATION

Tenders will be evaluated such that the Local Government is most likely to receive best value for money from its Contractor. It is considered that the best value for money is derived from more than just the lowest price. Accordingly in the tender evaluation process Local Government will take the following into consideration: -

- Price
- Company experience
- Experience of key personnel
- Financial Stability
- Innovation
- Commitment to research and development
- Management Systems including
 - Quality
 - Safety
 - Environment

Appendix 1 – Variation to specification

Any changes to clauses, mix designs or any other special requirements are to be listed here

Appendix 2 – Table of Special Requirements

Clause	Description	Requirement
1.3	Extent of Work	
2.1	Aggregate Type – Granite, Diorite, or Basalt	
3.3	Alternative Mixes	
8.3	The responsibility for keying in (Contractor or Local Government)	

Appendix 3 – Asphalt Mixes

3.1. DENSE GRADED: Highways, Arterial, Industrial and Distributor Roads

Property	Mix Designation		
	DG10	DG14	DG20
Grading Limits % passing AS Sieve			
26.5mm			100
19.0mm		100	90-100
13.2mm	100	85-10090-100	75-9071-86
9.5mm	90-100	70-8572-83	60-8048-83
6.7mm	70-9068-82	62-7554-71	50-7046-64
4.75mm	58-7650-70	53-7043-61	40-6037-55
2.36mm	40-5832-51	35-5228-45	25-4324-42
1.18mm	27-4422-40	24-4019-35	18-3515-32
600µm	17-3515-30	15-3013-27	14-2710-24
300µm	11-2410-22	10-249-20	9-217-17
150µm	7-166-14	7-166-13	6-154-12
75µm	4-7	4-7	3-73-6
Bitumen Content	5.0-7.05.0-6.5	4.5-6.54.5-6.0	4.0-6.0
Marshall Voids (%)	4.0-6.03-6	4.0-6.03-6	4.0-6.03-6
Voids in Mineral Aggregates (Min)	1516	1415	14
Refusal voids (350 cycles gyropac) 75 blow Marshal mixes (design only)	2.5	2.5	2.5
Minimum Marshall Stability	50 blow 75 blow	6.5kN 8.0kN	6.5kN 8.0kN
Marshall Flow (mm)		2.0-4.0	2.0-4.0
Marshall Quotient (min) (kN/mm)	50 blow 75 blow	1.7 2.0	1.7 2.0

Recommendations for 20-year design traffic

Range/Type	Mix	Bitumen Type
Heavy truck traffic	75 blow	Class 320
Less than 2,000,000 ESA	50 blow	Class 170
Greater than 2,000,000 ESA	75 blow	Class 320
Maintenance	50 blow	Class 170
Intersections	75 blow	Class 320

3.2. DENSE GRADED: Residential Streets/Cul-de-sacs/Recreational areas

Property	Mix Designation			
	DG5	DG7	RDG10	RDG14
Grading Limits % passing AS Sieve				
19.0mm				100
13.2mm			100	90-100
9.5mm		100	95-10090-100	70-9072-89
6.7mm	100	80-10085-100	80-9568-87	62-7554-79
4.75mm	85-100	70-9070-87	65-8050-76	47-6743-69
2.36mm	55-75	45-6044-65	45-6032-57	34-5228-53
1.18mm	38-57	35-5029-48	35-5022-42	25-4119-40
600 μ m	26-43	22-3519-35	25-4015-31	16-3213-30
300 μ m	15-28	14-2512-25	15-2510-23	9-219-22
150 μ m	8-18	8-16	7-156-14	5-136-15
75 μ m	4-11	5-8	4-7	4-7
Bitumen Content	5.0-7.05.5-7.0	5.0-7.05.5-7.0	5.0-7.05.0-6.5	4.5-6.54.5-6.3
Marshall Voids (%)	35 blow 50 blow	2.5-4.5 3.0-5.0	2.5-4.5 3.0-5.0	2.5-4.5 3.0-5.0
Voids in Mineral Aggregate (VMA) (%)	35 blow 50 blow	-	17	16
Minimum Marshall Stability	35 blow 50 blow	4.0kN 5.0kN	4.0kN 5.5kN	5.5kN 6.5kN
Marshall Flow (mm)	35 blow 50 blow	2.0-5.0 2.0-4.0	2.0-5.0 2.0-4.0	2.0-5.0 2.0-4.0
Marshall Quotient (min) (kN/mm)	35 blow 50 blow	1.0 1.7	1.0 1.7	1.0 1.7

Recommendations for 20-year design traffic

Range/Type	Mix	Bitumen Type
Greater than 500,000 ESA	Use distributor road mix	
Greater than 50,000 ESA	50 blow	Class 170
Less than 50,000 ESA	35 blow	Class 170
Maintenance	50 blow	Class 170

3.3. STONE MASTIC ASPHALT

Property	Mix Designation			
	SM5	SM7	SM10	SM14
Grading Limits % passing AS Sieve				
26.5mm				
19.0mm				100
13.2mm			100	90-100
9.5mm		100	90-100	30-40
6.7mm	100	90-100	25-40	20-30
4.75mm	90-100	25-45	18-30	18-30
2.36mm	25-40	15-28	15-28	15-28
1.18mm	13-24	13-24	13-24	13-24
600µm	12-21	12-21	12-21	12-21
300µm	10-18	10-18	10-18	10-18
150µm	9-14	9-14	9-14	9-14
75µm	8-12	8-12	8-12	8-12
Bitumen Content	6.0- 9.5	6.0- 9.0	6.0-8.0	5.5-7.5
Marshall Voids (%) 50 blow (normal)	3.0-5.5	3.0-5.5	3.0-5.5	3.0-5.5
Low Voids as an interlayer	1.0-3.5	1.0-3.5		
VMA (min) (%)	19	19	18	17
Binder Drain down (max) (%)	0.3	0.3	0.3	0.3

Recommendations:

Range/Type	Mix	Bitumen Type
Special applications requiring good, rut resistance and fatigue performance	50 blow	Class 320

Low voids SMA may be used as a strain and crack attenuating interlayer (SCAI). This mix is designed to be a crack attenuating and or waterproofing layer for environmental cracking. It performs as a SAMI but does not have the disadvantage of loose stone and safety issues as sprayed seal options. To achieve waterproofing or reduced moisture infiltration it is imperative that the in-situ voids as specified in Clause 10.3.3. and Table 10.2 are achieved.

To achieve low in situ voids and to try to counter the problem with varying host surface thicknesses, particularly in rutted surfaces it is permissible to employ a multi tyred roller in the compaction process. The use of multi tyred rollers shall stop immediately there is any sign of significant flushing in the surface.

As SMA, particularly with high binder content is difficult to compact during cold (winter) and/or windy conditions, it is highly recommended that a Warm Mix Asphalt additive be used in the production process.

Appendix 4 – Form of Tender

INSERT LOCAL GOVERNMENT NAME AND LOGO

TENDER FORM FOR TENDER NO

for the SUPPLY and LAYING of HOT ASPHALT SURFACING

**LOCAL GOVERNMENT NAME
ADDRESS**

I/We _____, the undersigned, offer, undertake and agree, to supply and deliver in accordance and conformity in all respects with the Technical Specification all such quantities as may be ordered by the Local Government, of those items for which a price has been tendered on the attached Schedule of Rates.

This offer shall be deemed a separate offer in respect to each price endorsed by me/us on the aforesaid Schedule and may be accepted in respect to any or all of the items for which a price has been tendered.

I/We acknowledge that no tender may be deemed to be accepted until the tenderer is so advised in writing. However, in the event of acceptance of any tender offered on attached Schedule, I/We, the undersigned, agree to attend at a time mutually agreed, but within 1 month of the Local Government's acceptance of tender, at the Local Government offices, for the purpose of signature to a Memorandum of Agreement to incorporate such tender as a binding contract.

SIGNATURE OF TENDERER: _____ DATE: _____

PRINT NAME: _____

ADDRESS: _____

_____ POST CODE _____

TELEPHONE: _____

Schedule of Rates

Mix Type	Marshall Blow	Job Size (Tonnes)							
		0-10	10-20	20-50	50-100	100-200	200-300	300-400	400+
DG20	50								
DG20	75								
DG14	50								
DG14	75								
RDG14	35								
RDG14	50								
DG10	50								
DG10	75								
RDG10	35								
RDG10	50								
DG7	35								
DG7	50								
DG5	35 (Handwork)								
DG5	50 (Handwork)								
SM14	50								
SM10	50								
SM7	50								

Schedule of Rates

SURCHARGE FOR POLYMER MODIFIED MIXES

Polymer modified mixes shall incur an additional cost per tonne laid in accordance with the following schedule. Tenderers may add additional proprietary products to the schedule.

Polymer type	Additional cost/tonne laid
A10E	
A15E	
A20E	
A25E	
A35P	
Crumb Rubber Modified asphalt (Dense Grade)	
Crumb Rubber Modified asphalt (Gap Grade Grade)	

WEEKEND OPENING FEE

Where the Superintending Officer has specifically programmed the works, the weekend and public holiday surcharge shall be a lump sum of:

\$ _____

Where the Superintending Officer has specifically programmed the works, the night works surcharge shall be a lump sum of:

\$ _____

SUPPLY ON LOCAL GOVERNMENT TRUCKS EX-PLANT

Mix Type	Marshall Blow	Tender Price (\$ / tonne)
DG14	35	
AC14	50	
DG14	75	
RDG14	35	
RDG14	50	
DG10	35	
DG10	50	
DG10	75	
RDG10	35	
RDG10	50	
DG7	35	
DG7	50	
DG5	50	
DG5	35	

SIGNATURE OF TENDERER _____

FOR _____