



SPECIFICATIONS

AusSpec Asset Owner Specifications
(Roadworks & Drainage)

AusSpec Development Construction Specifications
(Roadworks & Drainage)

PRSC 100 Roadworks Specifications

PRSC 400 Water Supply Specifications

PRSC 500 Sewerage Specifications



PRSC 100

ROADWORKS SPECIFICATIONS

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| 101 | Manufacture of Asphaltic Concrete |
| 102 | Delivery and Laying of Asphaltic Concrete |
| 103 | Sprayed Bitumen Surfacing |

PINE RIVERS SHIRE COUNCIL

PRSC 101 - MANUFACTURE OF ASPHALTIC CONCRETE



PRSC 101 MANUFACTURE OF ASPHALTIC CONCRETE

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1.0.0 PURPOSE

- 1.1.0** The purpose of this specification is to set down requirements for the manufacture of asphaltic concrete associated with road, car park and driveway (access) surfacing works.

2.0.0 SCOPE

- 2.1.0** This specification shall apply to works to be constructed by contract, subcontract or direct labour.
- 2.2.0** This specification shall apply to works being constructed directly by the Pine Rivers Shire Council or other authority or for a principal who will hand over the ownership of the constructed works to the Pine Rivers Shire Council or who will retain ownership.

3.0.0 REFERENCES

- 3.1.0** The following shall apply: -
- | | |
|----------------|--|
| AS 2124 - 1992 | General Conditions of Contract |
| AS 3900 | Quality Management and Quality Assurance Standards |
| ISO 9000 | Quality Management and Quality Assurance Standards |
- 3.2.0** The following shall apply when the respective materials have been specified or approved for use. Where the editions listed have been superseded or replaced, then any later copy of the standards shall apply in their place:-
- | | |
|--------------------------------|--|
| AS 1141-1999 | Methods for Sampling and Testing Aggregates |
| AS 2008-1997 | Residual Bitumen for Pavements |
| AS 2150-1995 | Hot Mix Asphalt |
| AS 2758
2758.5-1996 | Aggregates and Rock for Engineering Purposes
Asphalt Aggregates |
| AS 2891 | Methods of Sampling and Testing Asphalt (Set) |
| BCC Modified
ASTM 2041 1989 | Specific Gravity of Bituminous Paving Mixtures |

4.0.0 DEFINITIONS

4.1.0 For the purpose of this specification the following definitions shall apply: -

- ❖ **Premises** - any parcel of land improved or unimproved, for which there is a property description
- ❖ **Director, Assets and Infrastructure Services Division** - the person occupying that position within the Pine Rivers Shire Council, or their nominated representative
- ❖ **Pine Rivers Shire Council engineer** - the engineer employed by the Pine Rivers Shire Council to approve, supervise or inspect the works, or their nominated representative
- ❖ **Consulting Engineer** - the registered professional engineering company or registered professional engineer engaged by the principal to carry out the investigation and design of the water supply works to be constructed by the principal. When engaged for the construction phase, the company or engineer shall act as superintendent for the purpose of works carried out by contract.
- ❖ **Contract, Contractor, Principal and Superintendent** - as defined in AS 2124

5.0.0 GENERAL

5.1.0 The asphaltic concrete shall be a composite of mineral aggregate, mineral filler and bituminous binder proportioned and combined in an approved mixing plant in accordance with the requirements of this specification.

6.0.0 MATERIALS – QUALITY STANDARDS

6.1.0 MINERAL AGGREGATES

6.1.1 COARSE AGGREGATES

Coarse aggregate shall have two crushed faces of particle sizes greater than 4.75 mm. It shall be clean, hard, angular, durable and free of laminated particles, clay or clay balls or aggregations of fine materials, soil and vegetable matter.

Its properties shall conform to the standards in Table 6.0:-

Table 6.0

PROPERTY	ACCEPTANCE LIMITS	TEST PROCEDURE
Flakiness Index	35% maximum	Test AS 1141.15
Ten percent fines value (wet)	150 kN minimum	Test Q205B
Los Angeles abrasion	30% maximum	Test AS 1141.23
Polished aggregate friction value (wearing courses)	40% minimum	Test AS 1141.42

6.1.2 FINE AGGREGATE

The fine fraction of the mineral aggregate shall consist of all particles passing the 4.75 mm sieve. It shall consist of natural sand and/or manufactured material from crushed stone. It shall be clean, hard, durable, moderately sharp and free from clay, soil, organic or vegetable matter or aggregations of fine material.

6.1.3 MINERAL FILLER

Shall comply with the current Australian Standard AS 2357.

6.2.0 BINDER

6.2.1 The bitumen shall be a residual bitumen of C170 or C320 class, complying with Australian Standard AS 2008.

6.2.2 The determination of the class of bitumen shall depend on the classification of the road by its traffic function. Refer to Table 9.0, Section 9.1.0 of this specification. The superintendent shall specify which class of bitumen shall be used for each individual job.

7.0.0 QUALITY ASSURANCE

7.1.0 DESIGN OF ASPHALTIC CONCRETE MIXTURE

7.1.1 The Marshall design method shall be adopted for the proposed mixture design.

7.2.0 ACCEPTANCE DESIGN STANDARDS

7.2.1 The mixture shall, when compacted by 50 blows each end of specimen, satisfy the requirements in Table 7.0:-

Table 7.0

	TYPE 1 & 2		TYPE 3 & 4	
	MIN	MAX	MIN	MAX
Marshall stability of mixes AS 2891.5 – 1993 Appendix C	4 kN	-	5 kN	-
Flow of mixes AS 2891.5 – 1993 Appendix C	2 mm	4 mm	2 mm	4 mm
Air voids in laboratory compacted mix	2%	5%	3%	7%

7.3.0 GRADING LIMITS OF MIXES

7.3.1 The grading limits for the various types of mixes to be used are shown in Table 7.1.

Table 7.1

SIEVE	TYPE 1	TYPE 2	TYPE 3	TYPE 4
37.5 mm				100
19.0 mm			100	60 – 80
13.2 mm			100	75 – 100
9.5 mm	100	90 – 100	60 – 85	40 – 58
4.75 mm	85 – 100	60 – 80	35 – 55	30 – 48
2.36 mm	55 – 75	38 – 55	20 – 35	22 – 38
0.6 mm	26 – 43	23 – 32	10 – 22	9 – 22
0.3 mm	15 – 28	15 – 23	6 – 16	6 – 16
0.15 mm	8 – 18	7 – 14	4 – 12	4 – 12
0.075 mm	4 – 11	3 – 8	2 – 8	2 – 4

7.4.0 BITUMEN CONTENT AND CLASS

- 7.4.1 The bitumen content for each type of mixture shall be determined by the Marshall design methods within the limits provided in Table 7.2

Table 7.2

MIX TYPE	BITUMEN CONTENT	BITUMEN CLASS
Type 1	5.0% - 7.0%	170
Type 2	4.5% - 6.5%	170 or 320 or multigrade
Type 3	4.0% – 6.0%	320 or multigrade
Type 4	3.0% - 5.0%	320 or multigrade

7.5.0 JOB MIX FORMULA

- 7.5.1 The contractor shall forward details of the proposed mix to the superintendent at least seven days before he proposes to commence work. The details shall use representative materials and proportions together with typical test results which show that the mix complies with the design standard test. Manufacture of the mix shall not commence until the superintendent has approved the proposed mix.

7.6.0 PRODUCTION QUALITY PROCESS CONTROL

- 7.6.1 Samples of the mixture shall be taken at the asphalt plant at the rate of one sample for every 400 tonnes or part thereof produced.
- 7.6.2 The samples shall be tested by a N.A.T.A. registered laboratory for conformity with the requirements of Clause 7.0.0.
- 7.6.3 Tests on the samples shall be carried out in accordance with the following standard test procedures:-
- ❖ two pats shall be made and tested for stability, flow and air voids in accordance with AS 2891.5 - 1993 Appendix C
 - ❖ bulk density, in accordance with AS 2891.5 - 1993 Appendix G
 - ❖ the maximum specific gravity, by BCC modified ASTM 2041 dated 1989, "Specific Gravity of Bituminous Paving Mixtures"
 - ❖ bitumen content and grading, by either AS 2891.3.1-1991 "Bitumen Content and Aggregate Grading - Reflux Method", or by the Brisbane City Council cold extraction methods using methylene chloride

8.0.0 MIXING PLANT AND PROCEDURE

8.1.0 GENERAL

- 8.1.1 Mixing shall be undertaken in an approved batch, continuous or drum type manufacturing plant, in accordance with the requirements of AS 2150, Clause 6 and 7.

8.2.0 POLLUTION CONTROL

- 8.2.1 The plant shall hold a current licence issued by the Pine Rivers Shire Council in accordance with the Environmental Protection Act.
- 8.2.2 The plant shall be operated at all times in accordance with the terms and conditions of the licence, the Environmental Protection Act 1994 and the Environmental Regulations 1998.

8.3.0 TESTING MIX

- 8.3.1 The contractor shall maintain and operate a N.A.T.A. registered or Queensland Department of Transport certified laboratory at or near the mixing plant so as to ensure complete control over the paving mixture produced. Facilities shall be provided to enable the superintendent to take samples of the mix or raw materials at any time.

9.0.0 MIX TYPES

9.1.0 APPLICATION OF MIX DESIGNS

9.1.1 The various mix designs are called up as Types 1 through Type 4. These mix types shall be used on the Pine Rivers Shire Council roads and streets as indicated in Table 9.0 below.

Table 9.0

Road Classification	Mix Type + (Bitumen Class)				
	Type 1 (170)	Type 2 (170)	Type 2 (320)	Type 3 (320)	Type 4 (320)
Urban Access Street / Place	✓	✓			
Urban Collector Street	✓	✓			
Urban Bus Collector		✓			
Urban Trunk Collector		✓	✓ (1)		
Industrial Access Road		✓	✓ (1)	✓	✓
Industrial Collector Road			✓ (1)	✓	✓
Urban Sub-Arterial Road			✓ (1)	✓	✓
Urban Arterial Road			✓ (1)	✓	✓

- (1) Only with approval from a Pine Rivers Shire Council engineer. Where a Type 2 (320) mix is used on Industrial, Arterial and Sub-Arterial roads, the Type 2 mix shall meet the specification requirements or Type 3 and 4 mixes and Section 7.0 of this Specification generally.