



## Section 7: Roadway pavements

Sutherland Shire Public Domain Technical Manual  
Part D: Specification

**SUTHERLANDSHIRE**

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Part D: Specification**

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## Section 7: Roadway pavements

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## 7 Roadway pavements

### 7.1 Scope

The works covered by this Section of the *specification* comprise the construction of flexible and rigid road pavements.

### 7.2 Standards and guidelines

Unless stated otherwise in this *specification*, in the drawings or elsewhere in the documents, work shall comply with the current edition of the relevant Australian Standards and/or RMS Standards.

The following table indicates the Australian Standards and RMS Standards applicable to this section. This table is not exhaustive and may not include all standards which may apply to the work to be undertaken.

AS 1141	<i>Methods of sampling and testing aggregates</i>
AS 1160	<i>Bitumen emulsions for pavement construction and maintenance</i>
AS 1289	<i>Methods of testing soils for engineering purposes</i>
AS 1478.1	<i>Chemical admixtures for concrete, mortar and grout - Admixtures for concrete</i>
AS 1428.2	<i>Design for access and mobility</i>
AS 1672	<i>Limes and limestones</i>
AS 2758	<i>Aggregates and rock for engineering purposes</i>
AS 2891	<i>Methods of sampling and testing asphalt</i>
AS 3582	<i>Supplementary cementitious materials for use with portland and blended cement</i>
AS/NZS 3661	<i>Slip resistance of pedestrian surfaces</i>
AS 3972	<i>Portland and blended cement</i>
AS 4455	<i>Masonry units, pavers, flags and segmental retaining wall units</i>
AS/NZS 4456	<i>Masonry units and segmental pavers and flags – methods of test</i>

<i>BSEN</i>	<i>British Standard: Pigments for the colouring of building materials based on cement and/or lime. Specifications and methods of test.</i>
<i>RMS QA 3051</i>	<i>Granular base and subbase materials</i>
<i>RMS QA 3071</i>	<i>Selected material in formation</i>
<i>RMS QA 3152</i>	<i>Aggregates for asphalt</i>
<i>RMS QA 3153</i>	<i>Reclaimed asphalt pavement materials</i>
<i>RMS QA 3154</i>	<i>Recycled glass aggregates</i>
<i>RMS QA 3201</i>	<i>Concrete for maintenance</i>
<i>RMS QA 3204</i>	<i>Joint fillers for concrete pavement and structures</i>
<i>RMS QA 3211</i>	<i>Cement, binders, and fillers</i>
<i>RMS T116</i>	<i>Recycled stone aggregates</i>
<i>RMS R106</i>	<i>Sprayed bituminous surfacing (with cutback bitumen)</i>
<i>RMS R83</i>	<i>Jointed concrete base</i>
<i>RMS R116</i>	<i>Asphalt (dense graded and open graded)</i>
<i>RMS T160</i>	<i>Benkelman beam deflection test</i>

### **7.3 Materials**

#### **7.3.1 Base and sub-base materials**

All base and sub-base materials shall comply with RMS QA Specification 3051 Granular base and sub-base materials for surfaced road pavements.

DGB20 and DGS40 materials shall comply with AS1289.3.6.1 and AS1289.3.6.3 respectively.

Recycled Concrete Base Course materials shall comply with AS2758.

#### **7.3.2 Asphaltic concrete**

Asphaltic concrete shall comply with *RMS QA Specification R116 Heavy Duty Dense Graded Asphalt Concrete*:

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### ***Recycled materials***

Council encourages the use of recycled materials complying with *RMS QA Specification 3051, RMS T116* and *R116*.

Reclaimed asphalt pavement (RAP) may also be used up to 20% of the total mix as approved by *Council's representative*. The materials must conform to the AAPA (Australian Asphalt Pavement Association) Standard for RAP Materials.

Council prefers and encourages the use of a warm mix asphalt comprising reclaimed asphalt pavement (RAP) as recommended by the Australian Asphalt Pavement Association (AAPA) as follows:

- **30%** RAP for base-courses with the use of “a bitumen binder one class softer than otherwise specified which will compensate for the influence of hardened binder in the RAP, and produce asphalt mixes of comparable stiffness, fatigue resistance and deformation resistance to mixes manufactured with virgin materials.”(AAPA, National Asphalt Specification 2nd edition, 2004)
- 15% RAP for wearing courses and applications that will experience high shear forces with Council's approval.

### ***Warm mix asphalt***

Warm mix asphalt shall be manufactured with the aid of appropriate additives so that the workability and durability of the asphalt mix remains intact. The quality of the warm mix asphalt must meet the current Australian Standard.

#### **7.3.3 Concrete**

Refer to Section 4: Concrete works.

#### **7.3.4 Unit pavers – Natural stone or manufactured**

Refer to Section 6: Footpath Pavements

#### **7.3.5 Paint for asphalt**

For details on asphalt paint and thermoplastic paint, refer to Section 12: Linemarking.

### 7.3.6 Sampling and testing of granular material

All granular material shall comply with Australian Standard *AS1141*. All tests shall be conducted by NATA accredited laboratory (or SSC laboratory). Testing shall be carried out in accordance with *AS2891*.

## 7.4 Construction

### 7.4.1 General

This section includes the construction of roadways from the sub-grade to the surface finish.

### 7.4.2 Preparation of sub-grade

Refer to Section 2 Earthworks for preparation of sub-grade.

### 7.4.3 Construction of base course layers

Construction of base course layers shall comply with *RMS R71 Construction of Unbound and Modified Pavement Course*. Where base course is specified to be bound such as cement stabilised the works shall comply with *RMS R73 Construction of Plant Mixed Heavily Bound Pavement Course*.

**NOTE:** Bound or stabilised materials are to be used only where shown in the approved drawings. Both bound and unbound pavement courses shall comply with the compaction requirements specified in the following table:

Compaction requirements	
Layer	Minimum compaction
DGS 40 Sub-base	100%
DGB 20 Base	100%

### 7.4.4 Flexible road pavement

#### *Material types and minimum layer thicknesses*

The material and layer thickness shall be as shown in the *approved design drawings*.



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### 7.4.5 Rigid road pavement

The concrete shall be supplied, placed, compacted and tested as described in Section 4 Concrete Works and in the approved design drawings.

Asphalt for deeplift and full depth asphalt pavements shall be supplied placed and compacted as detailed above and in the approved design drawings.

### 7.4.6 Restoration of road pavements following trenching for utility services

All trenches cut for installation of services are to be restored to their existing road surface level and configuration.

The following procedure shall be followed for the cutting of road pavements, trenching, backfilling and pavement restoration:

#### *Asphaltic concrete pavements*

- Saw cut or mill existing pavement to width of proposed trench plus 200mm minimum each side. Refer Section 2 Earthworks for saw cutting.
- Excavate trench and install service(s) without damaging the edges of the remaining asphalt. Refer Section 2 Earthworks for excavation for trenches.
- Place and compact fill in the pipe zone area in accordance with the utility service provider's requirements and level the surface above the pipe zone.
- Backfill the trench from top of the pipe zone to road formation or sub-grade level using granular material compacted to 100% standard maximum dry density (CBR4). Refer to Section 2 Earthworks for placing and compacting fill.
- Following compaction of the fill material, the trench shall be restored back to the original road surface level using like materials and layer thicknesses.

Where the disturbance to the pavement is along the length of the roadway, the full width of the traffic lane containing the disturbance shall be milled to a depth of 40mm and a 40mm thick asphalt surface course shall be laid over the full width of the traffic lane. Hot bitumen shall be poured along the full length of the joint between new and old asphalt.

Where the disturbance is transverse to the roadway, the surface course within 200mm of the edge of the trench shall be milled to a depth of 40mm and a 40mm thick asphalt surface course shall be laid over the trench and the milled area. Hot bitumen shall be poured along the full length of the joint between new and old asphalt.

### **Cement Concrete Pavements**

Where a concrete road pavement is disturbed by trenching, each slab disturbed shall be fully demolished and replaced. The edges of undisturbed slabs on both the approach and departure side of the disturbed slab shall be drilled parallel to the centreline of the roadway and parallel to the road surface ready to accept 20mm diameter round, hot dip galvanized dowels. Dowels shall be inserted into the holes prior to pouring of concrete for the reinstated slab. Tie bars in adjacent slabs and in kerb & gutter shall be retained or replaced using epoxy grout. Where adjacent slabs across the road carriageway are disturbed, a longitudinal joint positioned to match longitudinal that existed prior to disturbance shall be formed. The longitudinal joint shall be tied using 1000mm long 12mm diameter deformed bars.

Reinstatement of concrete road pavement shall match the existing layer thicknesses.

## **7.5 Quality**

### **7.5.1 Thickness of asphalt**

The *contractor* shall submit copies of the delivery dockets for asphalt supply to the *PDC* who shall certify that the volume of material delivered to the site is sufficient to provide the design thickness.

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7.5.2 Schedule of hold points and check points—road pavements

General	
<b>1. Work Process:</b>	<b>Supply of granular material</b>
<i>Hold point or check point:</i>	<i>Check point</i>
Notice:	NA
Authorisation:	The <i>Contractor</i> shall provide the <i>PCA</i> a copy of the grading curves and test results for each type of granular material to be supplied to the works.
<b>2. Work Process:</b>	<b>Compaction of subgrade</b>
<i>Hold point or check point:</i>	<i>Check point</i>
Notice:	NA
Authorisation:	Density testing by a NATA accredited laboratory (or SSC laboratory) is to be completed or test samples are to be taken as appropriate prior to proceeding with works that will reduce access to the subgrade. Works may progress at the <i>contractor's</i> risk following sampling.

<b>Flexible pavement and deeplift asphalt pavements</b>	
<b>3. Work Process:</b>	<b>Construction of sub-base and basecourse layers</b>
<i>Hold point or check point:</i>	<i>Check point</i>
Notice:	NA
Authorisation:	
<b>4. Work Process:</b>	<b>Asphaltic concrete compliance with specification</b>
<i>Hold point or check point:</i>	<i>Check point</i>
Notice:	NA
Authorisation:	The contractor shall provide evidence from the supplier that the AC is in conformance with the specification.
<b>5. Work Process:</b>	<b>Asphaltic concrete temperature at time of paving</b>
<i>Hold point or check point:</i>	<i>Check point</i>
Notice:	NA
Authorisation:	The <i>contractor</i> shall provide results of temperature testing by a NATA registered laboratory (or SSC laboratory) certifying the temperature at the time of paving is in accordance with the AS.

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<b>6. Work Process:</b>	<b>Final Inspection and Certification of all Works</b>
<i>Hold point or check point:</i>	<i>Hold point</i>
Notice:	Seven (7) working days prior to final inspection.
Authorisation:	The <i>PDC</i> will submit to <i>Council's representative</i> a complete set of the certification reports and associated test results. <i>Council's representative</i> will review the submitted certification, test results and reports and will carry out a final site inspection with the <i>PCA</i> prior to release of this <i>Hold point</i> .

<b>Cement concrete pavements</b>	
<b>7. Work Process:</b>	<b>Fix formwork</b>
<i>Hold point or Check point:</i>	<i>Hold point - PDC</i>
<i>Required Notice:</i>	By arrangement with <i>PDC</i>
Authorisation:	The <i>PDC</i> shall check the formwork for location and levels using fixed marks or set-out marks. If there are insufficient marks available, a land survey is to be completed. The <i>PDC</i> shall certify the formwork before reinforcing steel is fixed.

<b>8. Work Process:</b>	<b>Fix reinforcing steel</b>
<i>Hold point or Check point:</i>	<i>Hold point - PDC</i>
Authorisation:	By arrangement with <i>PDC</i>
Authorisation:	The <i>PDC</i> shall check the size, location and level of reinforcing bars for compliance with the approved location and levels relative to the formwork. The <i>PDC</i> shall certify the size, location and levels of reinforcing before authorising the placing of concrete.
<b>9. Work Process:</b>	<b>Placing of concrete</b>
<i>Hold point or Check point:</i>	<i>Check point</i>
<i>Required Notice:</i>	By arrangement with <i>PDC</i>
Authorisation:	The <i>contractor</i> shall keep on site and make available for inspection a log book recording each placement of concrete. Log book to be provided to the <i>PCA</i> for incorporation into the documents to be presented to <i>Council</i> in support of certification
<b>10. Work Process:</b>	<b>Sampling and testing of concrete</b>
<i>Hold point or Check point:</i>	<i>Check point</i>
<i>Required Notice:</i>	NA
Authorisation:	The compressive strength of concrete shall be tested by a NATA registered (or SSC laboratory) for compliance with the specification.

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11. Work Process:	Final Inspection and/or certification of all works
<i>Hold point or Check point</i>	<i>Check point</i>
<i>Required Notice:</i>	The <i>PDC</i> will submit a complete set of relevant certificates, reports and test results for all the above-mentioned <i>hold points</i> and <i>check points</i> at least (7) working days prior to commencement of the final inspection.
Authorisation:	Prior to authorising the release of the <i>hold point</i> , <i>Council's representative</i> will carry out a final site inspection and review the <i>PDC's</i> certifications, reports and associated test results for all the above <i>hold points</i> and <i>check points</i> .