



mainroads
WESTERN AUSTRALIA

SPECIFICATION 505

SEGMENTAL PAVING

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REVISION REGISTER			
Clause Number	Description of Revision	Authorised By	Issue Date
505.02	Added reference to Specification 606	MME	25/03/2026
505.06	Replaced reference to AS 1428.4 with Specification 606		
Whole document	Reformatted	SCO	22/05/2017
505.26	Replaced reference to AS 1289 with Spec 501	PMP	20/05/2009
505.09	Type A replaced by Type GP		
505.02	Deleted reference to AS 1289		
Clauses added	The following Clauses have been added – 505.06.2, 505.10 and 505.11		
Whole document	Complete revision of Issue 2.0 to new format	MCP	01/08/2006

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SPECIFICATION 505

SEGMENTAL PAVING

GENERAL

505.01 SCOPE

1. The work under this specification consists of the supply and laying of segmental paving (unit paving) at the locations shown on the Drawings.

505.02 REFERENCES

1. Australian Standards, Main Roads Western Australia Test Methods, Main Roads Western Australia Standards and Main Roads Western Australia Specifications are referred to in abbreviated form (e.g. AS 1234, MRS 67-08-43 or WA 123). For convenience, the full titles are given below:

Australian Standards

AS 3972 Portland and Blended Cements

MAIN ROADS Specifications

Specification 501 PAVEMENTS

Specification 606 TACTILE GROUND SURFACE INDICATORS

505.03 – 505.05 NOT USED

PRODUCTS AND MATERIALS

505.06 PAVING UNITS

1. Paving units and tactile ground surface indicator tiles shall be supplied to the dimensions and colours as shown on the Drawings. The paving units shall be guaranteed colour fast, with little or no tendency for efflorescence. Paving units shall have bevelled or round edges on both horizontal and vertical faces. The plan width of all bevelled and rounded surfaces shall not exceed 5 mm. All technical performance characteristics (e.g. compressive and transverse strengths) shall be supplied with the Tender.
2. Tactile ground surface indicator tiles are to be supplied and installed in accordance with Specification 606 TACTILE GROUND SURFACE INDICATORS.

***Paver
Requirements***

505.07 BEDDING SAND

1. Bedding sand shall be evenly graded sand free of organics and deleterious materials. The sand shall have 100% passing a 4.75 mm sieve and shall have a maximum of 5% passing a 0.075 mm sieve. Stockpiled sand shall be kept at a constant, moisture content in the range 4 - 8% by mass.

505.08 WATER

1. The water shall be clean and compatible with the component materials.

505.09 CEMENT

1. All cement for mortar shall comply with the requirements of Type GP as specified in AS 3972.

505.10 JOINT FILLING SAND

1. Joint filling sand shall consist of predominately fine grained sand. The sand shall be white or pale grey colour. The sand shall have a minimum of 95% passing a 1.18 mm sieve and shall have a maximum of 10% passing a 0.75 mm sieve. Stockpiled joint filling sand shall be kept clean and dry prior to use.

505.11 EXPANSION JOINT

1. Where expansion joints are required, expansion joints shall consist of 14 mm polystyrene strips or other approved material for the full depth of the paving units.

505.12 – 505.25 NOT USED

CONSTRUCTION

505.26 PREPARATION OF SUB-GRADE

1. Where the existing sub-grade, sub-base or basecourse has been disturbed, it shall be reshaped to true and even falls to suit the design levels. The surface shall be compacted as necessary to comply with the requirements of Specification 501 PAVEMENTS for density and shape.

Re-shaping

505.27 CUTTING

1. The border of all paving panels which require cutting shall be set out free of wavers, and the ends of the planting beds shall be scribed with a flowing symmetrical curve.
2. A constant width from kerbs shall be maintained as shown on the Drawings. Paving units forming curves shall be radially cut, such that the units are taper cut on both sides to provide tight joints around all curves on header courses and the main body of the paving.

Borders

Taper Cuts

505.28 LAYING

1. Bedding sand 30 mm thick shall be screeded slightly ahead of the laying of pavers and maintained in a loose condition and protected from compaction.
2. Pavers shall be placed on the screeded bedding sand by hand. Full-size pavers shall be laid first. All unrestrained header edge courses shall be bedded in a 6:1 sand:cement mortar. Closure units shall be cut with a saw and fitted last. There shall be no mortar infill.

Bedding Sand

Placement

505.29 LAYING PATTERN

1. Unless otherwise shown on the Drawings, the laying pattern shall be 45° herringbone with a single or double header course. ***Herringbone***

505.30 COMPACTION

1. Sheets of plywood of minimum thickness of 12 mm shall be laid on the paved surface to prevent the compactor making direct contact with the paving units. Two passes shall be made with a high frequency low amplitude plate compactor. Any paving units damaged during compaction shall be immediately replaced. ***Use of Plywood***

505.31 JOINT FILLING

1. After initial compaction, joint filling sand shall be spread over the laid pavers and swept into the joints. A further two passes shall be made with the plate compactor, and the process repeated until the joints are completely full. All surplus sand shall be removed.

505.32 DRAINAGE

1. Positive crossfalls shall be created to provide drainage. Where possible, drainage water shall be directed to planting beds if any or to kerbs where there are no planting beds. ***Crossfalls***

505.33 FINISH

1. All paving units shall be laid true to line and shall not deviate more than 5 mm under a 3m straight edge. ***Tolerance***

505.34 NON-CONFORMANCE

1. Any sections of laid paving not meeting the requirements of this specification shall be replaced at no extra cost to the Principal. ***Replacement***

AS-BUILT AND HANDOVER REQUIREMENTS

505.81 – 505.90 NOT USED

CONTRACT SPECIFIC REQUIREMENTS

505.91 – 505.99 NOT USED

GUIDANCE NOTES

FOR REFERENCE ONLY – DELETE GUIDANCE NOTES FROM FINAL DOCUMENT

1. All edits to this specification are to be made using track changes, to clearly show added/ deleted text.
 2. If **all** information relating to a clause is deleted, the clause number should be retained and the words “**NOT USED**” should be inserted.
 3. The proposed document with tracked changes must be submitted to the Project Manager for review, prior to finalising the document.
 4. Once the Project Manager’s review is complete, accept all changes in the document, turn off track changes and refresh the Table of Contents.
 5. The Custodian of this specification is Pavements Manager.
-

CONTRACT SPECIFIC REQUIREMENTS

The following clauses are to be placed under the CONTRACT SPECIFIC REQUIREMENTS, as required. After inserting the clause, change the clause number and heading to style “H2 SP” so it appears in the Table of Contents.

XXX.XX SUB-HEADING (H2 SP)

1. Insert text (Main Table SP)

XXXX

2. Insert text (Main Table SP)

XXX.XX SUB-HEADING (H2 SP)

1. Insert text (Main Table SP)

2. Insert text (Main Table SP)

AMENDMENT CHECKLIST

Specification No. **505** Title: **SEGMENTAL PAVING** Revision No: _____

Project Manager: _____ Signature: _____ Date: _____

Checked by: _____ Signature: _____ Date: _____

Contract No: _____ Contract Name: _____

ITEM	DESCRIPTION	SIGN OFF
<i>Note: All changes/amendments must be shown in tracked changes until approved.</i>		
1.	Project Manager has reviewed the specification and identified additions and amendments.	
2.	Standard clauses amended? MUST SEEK approval from the Specification Custodian.	
3.	Any unlisted materials/products proposed and approved by the Project Manager? If “Yes” provide details at 16.	
4.	Deleted clauses shown as “ NOT USED ”.	
5.	Ensure appropriate INSPECTION AND TESTING parameters are included in Specification 201 (test methods, minimum testing frequencies verified).	
6.	AS-BUILT AND HANDOVER requirements addressed.	
7.	CONTRACT SPECIFIC REQUIREMENTS addressed? Contract specific materials, products, clauses added? (refer Specification Guidance Notes).	
8.	ANNEXURES completed (refer Specification Guidance Notes).	
9.	Estimates Manager has approved changes to SMM .	
10.	Project Manager certifies completed specification reflects intent of the design.	
11.	Independent verification of completed specification arranged by Project Manager.	
12.	Project Manager’s review completed.	
13.	SPECIFICATION GUIDANCE NOTES deleted.	
14.	TABLE OF CONTENTS updated.	
15.	FOOTER updated with Document No., Contract No. and Contract Name.	
16.	Supporting information prepared and submitted to Project Manager.	
Additional information or further action:		

Signed: _____ (*Project Manager*) Date: _____