



**mainroads**  
WESTERN AUSTRALIA

# SPECIFICATION 407

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# KERBING

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<b>REVISION REGISTER</b>			
<b>Clause Number</b>	<b>Description of Revision</b>	<b>Authorised By</b>	<b>Issue Date</b>
407.37.1	Added criteria	PDERS	23/02/2021
407.36.4	Typo corrected “be”		
407.35.2	Added clause on the timing of backfill placement		
407.32.2	Clause 407.32.2 and 407.32.3 renumbered to be sub clauses a. and b. of 407.32.2		
407.07.1	Removal of the use of 12mm wide poly urethane foam		
407.06 & 407.37.4	Concrete strength grade changed from N20 to N32	PDERS	19/09/2019
Whole document	Reformatted	SCO	17/04/2017
Guidance Notes	Change of Specification custodian	RDSM	11/07/2007
Whole document	Complete revision of Issue No 3.0 to new format	MCP	01/08/2006

## Contents

<b>GENERAL</b>	<b>4</b>
407.01 Scope.....	4
407.02 References .....	4
407.03 Definitions .....	4
407.04 –407.05 NOT USED .....	5
<b>PRODUCTS AND MATERIALS</b>	<b>5</b>
407.06 Concrete .....	5
407.07 Joint Fillers and Sealants.....	5
407.08 Curing Compounds.....	5
407.09 Kerb Backfill.....	5
407.10 – 407.25 NOT USED .....	5
<b>CONSTRUCTION</b>	<b>5</b>
407.26 General .....	5
407.27 Setting Out.....	6
407.28 Surface Preparation.....	6
407.29 Extruded Kerbs .....	6
407.30 Kerb Openings.....	6
407.31 Curing .....	6
407.32 Joints .....	7
407.33 Tolerances .....	7
407.34 Special Features.....	7
407.35 Backfilling.....	7
407.36 Medians and Traffic Islands.....	8
407.37 Kerb Repairs.....	8
407.38 – 407.80 NOT USED .....	9
<b>AS BUILT AND HANDOVER REQUIREMENTS</b>	<b>9</b>
407.81 – 407.90 NOT USED .....	9
<b>CONTRACT SPECIFIC REQUIREMENTS</b>	<b>9</b>
407.91 – 407.99 NOT USED .....	9
<b>GUIDANCE NOTES</b>	<b>9</b>
<b>CONTRACT SPECIFIC REQUIREMENTS</b>	<b>10</b>
<b>AMENDMENT CHECKLIST</b>	<b>11</b>

## **SPECIFICATION 407**

### **KERBING**

#### **GENERAL**

##### **407.01 SCOPE**

1. The work under this specification consists of the supply of materials and construction of all types of extruded concrete kerbs and all associated works, all as shown on the Drawings.

##### **407.02 REFERENCES**

1. Australian Standards, MAIN ROADS Western Australia Standards and MAIN ROADS Western Australia Test Methods 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 2876 Concrete Kerbs & Channels (Gutters) - Manually or Machine Placed

###### **MAIN ROADS Test Methods**

WA 110.1 Moisture Content: Convection Oven Method

WA 110.2 Moisture Content: Microwave Oven Method

WA 134.1 Dry Density Ratio

###### **MAIN ROADS Specifications**

Specification 302 EARTHWORKS

Specification 406 ROCK PROTECTION

Specification 505 SEGMENTAL PAVING

Specification 901 CONCRETE - GENERAL WORKS

###### **MAIN ROADS Standard Drawings**

9331-0376 Kerb Types

9331-0377 Kerb Treatments

##### **407.03 DEFINITIONS**

1. Filler - Elastic, tight fitting, non-rotting, non-absorbent material used to provide firm backing, against which the sealant can be tooled off. Filler shall also prevent the sealant from adhering to the bottom of the joint and cause the sealant to fail during the expansion of joints.

2. Sealants - Material used to seal expansion joints to prevent penetration of destructive materials.

**407.04 –407.05 NOT USED**

**PRODUCTS AND MATERIALS**

**407.06 CONCRETE**

1. Concrete shall be Class N32 supplied in accordance with the requirements of Specification 901 CONCRETE - GENERAL WORKS, and shall have a maximum aggregate size of between 6.7mm and 19mm and a slump not exceeding 100mm. **Class**
2. Unless otherwise stated herein, all concrete materials used in the construction of kerbs shall be as described in Specification 901 CONCRETE - GENERAL WORKS.

**407.07 JOINT FILLERS AND SEALANTS**

1. Joint fillers shall comprise of a closed cell polyethylene rod of 10 mm diameter. **Filler**
2. Joint sealing compound for surface sealing shall be a grey butyl mastic sealant. **Sealer**

**407.08 CURING COMPOUNDS**

1. Concrete curing compounds shall be based on an aliphatic alcohol for application in spray form.

**407.09 KERB BACKFILL**

1. Kerb backfill material shall consist of an embankment quality material in accordance with Specification 302 EARTHWORKS.

**407.10 – 407.25 NOT USED**

**CONSTRUCTION**

**407.26 GENERAL**

1. Kerbs on straight alignments exceeding 10m and on curves of radii exceeding 3m shall be placed by an extrusion machine. **Machine Placed**
2. Where the kerb is on a straight line of 10m or less, or on a radius of 3m or less, or where the lack of clearance prevents the kerb being placed by an extrusion machine, the section of kerb may be hand placed. Hand placed kerb shall be rodded and shaped, to give a finished kerb meeting the requirements of this Specification. **Hand Placement**
3. The shape and dimensions of the kerb shall be in accordance with the Drawings. **Shape & Dimensions**

### **407.27 SETTING OUT**

1. Setting out of the kerb shape, profile and alignment shall be carried out on the rear of the kerb. Spikes and nails shall not be driven into the pavement surface.

### **407.28 SURFACE PREPARATION**

1. The surface to receive kerbing shall normally be a bituminous aggregate seal. **Receiving Surface**
2. The Contractor shall clean the area between the receiving surface and the new kerb of all loose sand, stones, dust and other foreign matter and shall wet the surface with water immediately prior to placement of the new kerbing. **Cleaning**

### **407.29 EXTRUDED KERBS**

1. Extruded kerbs shall be laid by a suitable extrusion machine. No dowels are required. **Machine Laid**
2. Extruded kerbs shall be dense with regular sides, edges and chamfers finished to a fine surface free from blow holes and dragging and shall be impervious. Finishing with grout will not be permitted. **Finish**
3. The constituents of the concrete mix shall be as described in Specification 901 CONCRETE - GENERAL WORKS. The mix for extruded kerbs shall be designed by the Contractor, who shall prepare, place and compact trial mixes using the same extrusion machine as will be used in the Works. **Concrete Mix**

### **407.30 KERB OPENINGS**

1. Kerb openings shall be located and installed in accordance with the Drawings. **Openings**
2. Any associated rock protection shall be in accordance with Specification 406 ROCK PROTECTION. **Rock Protection**

### **407.31 CURING**

1. All exposed faces of the completed kerb shall be kept permanently wet for the curing period of a minimum 72 hours after placing. Concrete may be cured by spraying with approved curing compounds. **Concrete Protection**
2. Any water applied shall not cause erosion of the concrete surface.
3. The concrete shall be protected within 15 minutes after completion of casting the kerb.
4. The kerb shall be protected from rain for at least twenty four (24) hours following placement. **Rain**
5. The kerb shall be protected from traffic for a period of twelve (12) hours following placement. **Traffic**

### 407.32 JOINTS

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Immediately after placing the kerbing, contraction joints shall be formed by grooving the exposed faces of the kerbs. Contraction joints shall be formed at spacings not exceeding 4m.</li> </ol>   | <b><i>Contraction</i></b>  |
| <ol style="list-style-type: none"> <li>2. Expansion joints are to be constructed as follows:             <ol style="list-style-type: none"> <li>a. Not less than 24 hours nor more than 72 hours after placing of concrete, expansion joints shall be constructed at the mid point between contraction joints by sawing a 6 mm wide gap through the full cross section of the kerb. Kerb cutting shall be carried out with water to minimise dust in the sawing process.</li> <li>b. An approved joint filler shall then be forced into the sawn joint such that a 12 mm deep space remains to the concrete surface. This space shall be completely filled with an approved joint sealant such as Sikaflex construction polyurethane joint sealant or equivalent approved by the Superintendent and used as per manufacturer’s instructions.</li> </ol> </li> </ol> | <b><i>Expansion<br/>Joints</i></b><br><br><b><i>Fillers &amp;<br/>Sealants</i></b> |

### 407.33 TOLERANCES

- |  |                           |
|--|---------------------------|
| <ol style="list-style-type: none"> <li>1. All kerbing shall be placed within 20mm of its true plan position on the ground, and the rate of deviation from its true line shall not exceed 1 in 300. The road face and the back face of the finished kerbing shall be parallel.</li> </ol> | <b><i>Tolerances</i></b>  |
| <ol style="list-style-type: none"> <li>2. The profile of finished kerbing shall not be less than that shown in the Drawings.</li> </ol>  | <b><i>Kerb Depth</i></b>  |
| <ol style="list-style-type: none"> <li>3. The top surface shall be parallel to the ruling grade of the pavement and shall be free from depressions exceeding 5mm when measured from a 3m long straight edge.</li> </ol>  | <b><i>Top Surface</i></b> |

### 407.34 SPECIAL FEATURES

1. Special features such as pram ramps, transitions, and end treatments shall be formed into the kerbing as required according to the details shown on the Drawings.

### 407.35 BACKFILLING

- |  |                        |
|--|------------------------|
| <ol style="list-style-type: none"> <li>1. Where required, the area behind kerbs shall be backfilled with suitable select fill quality material or as directed by the Superintendent and compacted in accordance with the Specification 302 EARTHWORKS. The surface shall be constructed to the finished lines and levels shown in the Drawings.</li> </ol>               | <b><i>Material</i></b> |
| <ol style="list-style-type: none"> <li>2. Kerbs are not to be backfilled before a minimum of 72 hours after they have been laid.</li> </ol>  | <b><i>Timing</i></b>   |
| <ol style="list-style-type: none"> <li>3. Any kerb sections dislodged during backfilling or otherwise misaligned shall be removed and re-laid at no cost to the Principal. Care shall be taken in backfilling to ensure that no damage, defacement or staining is caused to the kerbs and that the compaction requirements of the Specification are achieved.</li> </ol> | <b><i>Damage</i></b>   |

### 407.36 MEDIANS AND TRAFFIC ISLANDS

- |  |                            |
|--|----------------------------|
| 1. Merging noses, approach noses, ramps, traffic island infill slabs, and other areas of medians and traffic islands as shown in the Drawings shall be constructed of insitu concrete.   | <b><i>In-Situ</i></b>      |
| 2. The thickness of concrete shall exceed 100mm, except where otherwise detailed in the Drawings. The level of concrete infill shall be within +5mm and -0mm of the surrounding surface level.   | <b><i>Thickness</i></b>    |
| 3. Select fill material shall be placed following the installation and setting of associated kerbing prior to placing of concrete slab, except where otherwise detailed in the Drawings, in accordance with Specification 302 EARTHWORKS. The backfill material shall be supplied, placed, levelled and compacted by the Contractor. | <b><i>Backfill</i></b>     |
| 4. The finished surface of the concrete shall be true and even without projections or irregularities and shall have a deep brush textured finish.  | <b><i>Finish</i></b>       |
| 5. An expansion joint 10mm wide shall be constructed between the extruded kerbing and the concrete infill. Approved joint filler shall be forced into the joint such that a 12mm deep groove remains. This groove shall be filled, after cleaning, with an approved joint sealant.   | <b><i>Expansion</i></b>    |
| 6. Immediately after placing concrete, tooled contraction joints shall be formed at 2m maximum intervals. Joint edges shall be neatly pointed.   | <b><i>Contraction</i></b>  |
| 7. Grabrail and bollard sleeves, where required, shall be cast into ramps or concrete infill in accordance with the Drawings.  | <b><i>Sleeves</i></b>      |
| 8. Paving unit infill to such areas shall be constructed in accordance with Specification 505 SEGMENTAL PAVING.  | <b><i>Paving Units</i></b> |

### 407.37 KERB REPAIRS

- |   |                               |
|---|-------------------------------|
| 1. Cracked, broken or damaged kerbing shall be removed and disposed of to the Contractor's spoil site at no cost to the Principal. The grinding of a groove to any cracked, broken or damaged kerb and then patching of the surface finish is not acceptable.       | <b><i>Damaged Kerbing</i></b> |
| 2. The exposed concrete repair surface shall be roughened to remove all laitance and expose the aggregate to provide a thorough bond with concrete cast subsequently. The roughened surface shall be cleaned with water to remove loose chips and foreign material. | <b><i>Repair</i></b>          |
| 3. Immediately before fresh concrete is cast against the existing surface, the existing surface shall be thoroughly wetted.   | <b><i>Wetting</i></b>         |
| 4. Class N32 concrete or rapid setting concrete products of like strength, shall be placed and compacted in accordance with Specification 901 CONCRETE – GENERAL WORK.  | <b><i>Placement</i></b>       |



**407.38 – 407.80 NOT USED**

## **AS BUILT AND HANDOVER REQUIREMENTS**

**407.81 – 407.90 NOT USED**

## **CONTRACT SPECIFIC REQUIREMENTS**

**407.91 – 407.99 NOT USED**

## **GUIDANCE NOTES**

### **FOR REFERENCE ONLY – DELETE GUIDANCE NOTES FROM FINAL DOCUMENT**

1. All edits to downloaded Specifications shall 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 documents with tracked changes shall be submitted to the Project Manager for review, prior to printing the final batch of documents. When this final printing is carried out, the tracked changes option is to be turned off.
4. Before printing accept all changes in the document, turn off *Track Changes* and refresh the Table of Contents.
5. The Custodian of this specification is Senior Road Engineer.

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### **1. TEMPORARY KERBING – Clause 407.91**

If temporary kerbing is required, particularly if to be left in place after the completion of the Works pending a later addition to or finalisation of the road design, Clause 407.91 (see over) could be added to the Section CONTRACT SPECIFIC REQUIREMENTS.

## 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.

### **407.91      TEMPORARY KERBING**

1. Temporary kerbing shall be installed where shown on the Drawings in accordance with the requirements for permanent kerbing. Temporary kerbing shall be laid on a bond breaker membrane between the kerbing and the surface to prevent adhesion to the surface and to assist future removal.
2. When the concrete has set, a suitable fill material shall be placed between the permanent kerbing and the temporary kerbing, and left flush with the top of the kerbing.

## AMENDMENT CHECKLIST

Specification No. **407** Title: **KERBING** Revision No: \_\_\_\_\_

Project Manager: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Checked by: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Contract No: \_\_\_\_\_ Contract Description: \_\_\_\_\_

ITEM	DESCRIPTION	SIGN OFF
<i>Note: All changes/amendments must be shown in Tracked Changes mode until approved.</i>		
1.	Project Manager has reviewed Specification and identified Additions and Amendments.	
2.	<b>CONTRACT SPECIFIC REQUIREMENTS</b> addressed? Contract specific materials, products, clauses added? (Refer Specification Guidance Notes for guidance).	
3.	Any unlisted materials/products proposed and approved by the Project Manager? If "Yes" provide details at 16.	
4.	Standard clauses amended? <b>MUST SEEK</b> approval from Manager Contracts	
5.	Clause deletes shows as " <b>NOT USED</b> ".	
6.	Appropriate <b>INSPECTION AND TESTING</b> parameters included in Spec 201 (Text Methods, Minimum Testing Frequencies verified).	
7.	<b>ANNEXURES</b> completed (refer Specification Guidance Notes).	
8.	<b>HANDOVER</b> and <b>AS BUILT</b> requirements addressed.	
9.	Main Roads QS has approved changes to <b>SMM</b> .	
10.	Project Manager certifies completed Specification reflects intent of the design.	
11.	Completed Specification – independent verification arranged by Project Manager.	
12.	Project Manager's review completed.	
13.	<b>SPECIFICATION GUIDANCE NOTES</b> deleted.	
14.	<b>TABLE OF CONTENTS</b> updated.	
15.	<b>FOOTER</b> updated with Document No., Contract No. and Contract Name.	
16.	Supporting information prepared and submitted to Project Manager.	
Further action necessary:		

Signed: \_\_\_\_\_ (*Project Manager*) Date: \_\_\_\_\_