

Master Specification Part RD-PV-C5

Construction of Minor Pavements

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RD-PV-C5 Construction of Minor Pavements

1 General

- a) This Master Specification Part sets out the requirements for the construction of minor pavements (including footpaths, verges, property driveways, egress and parking bays, median and traffic island infill and block paving) including:
 - i) the requirements for the finished surface, as set out in section 2;
 - ii) the compaction requirements, as set out in section 3;
 - iii) the requirements for rubble surface, as set out in section 4;
 - iv) the requirements for bitumen treated surfaces, as set out in section 5;
 - v) the requirements for asphalt, as set out in section 6;
 - vi) the requirements for concrete, as set out in section 7;
 - vii) the requirements for block paving, as set out in section 8; and
 - viii) the Hold Points requirements, as set out in section 9.
- b) This Master Specification Part does not apply to paths used for both cycling and pedestrians (shared path) which are covered in RD-PV-C4 "Construction of Shared Path Pavements".
- c) The construction of minor pavements must comply with the Reference Documents, including:
 - i) AGPT Part 4B: Asphalt;
 - ii) AS 2150 Asphalt - A guide to good practice; and
 - iii) CMAA PA02 Concrete Segmental Pavements Design Guide for Residential Accessways and Roads.

2 Finished surface

- a) If a design cross section report and geometric details are included in the Contract Documents, the levels specified therein take precedence over any sketches.
- b) The Contractor must ensure that the finished surface of the minor pavements complies with the following:
 - i) it must not vary more than 10 mm over a 3 m straight edge;
 - ii) where a design finished level is specified in the Contract Documents, it must be constructed within ± 10 mm for all pavement surfaces;
 - iii) it must drain to the top of any adjoining kerb;
 - iv) it must be free draining so that water does not pond on the surface;
 - v) it must be free of irregularities that could present tripping hazards to users;
 - vi) it must smoothly abut any existing driveways and footpaths adjoining the new surface; and
 - vii) the surface finish must have adequate surface texture and friction to not present a safety risk to users.

3 Compaction

The Contractor must ensure that rubble, sand and bitumen treated sand pavement layers (including base and subbase) of the minor pavements are compacted at OMC and comply with Table RD-PV-C5 3-1.

Table RD-PV-C5 3-1 Compaction requirements

Plant ⁽¹⁾	Minimum number of passes thickness 50 - 120 mm	Thickness >120 mm
Small vibration plate (approx. mass 90 kg - wacker VPA 90 or equiv.) ⁽¹⁾	6	6
Large vibration late (approx. mass 300 kg - wacker BPU 3345 or equiv.)	3	4
Small twin drum footpath roller Minimum 1 t (e.g. Ingersoll Rand DD12)	2	3
3 tonne vibrating roller class VR10 (e.g. Ingersoll RandDD22)	2	3

Table notes:

(1) The small vibration plate can only be used in areas inaccessible to larger plant.

4 Rubble surface

The Contractor must ensure that rubble minor pavements comply with Table RD-PV-C5 4-1.

Table RD-PV-C5 4-1 Rubble surfaces

	Footpaths	Driveways
Material	PM2/20 or PM3/20	PM2/20
Minimum thickness (mm)	125	150

5 Bitumen treated surfaces

- The Contractor must ensure that bitumen treated minor pavements comply with Table RD-PV-C5 5-1.
- If cold planed asphalt is used, the Contractor must ensure that it is shaped and compacted to produce a tight dense surface.

Table RD-PV-C5 5-1 Bitumen treated surfaces

	Footpaths	Median and traffic island infill
Surface layer:		
Material	Sa C type C sand, with the addition of 3% bitumen (i.e. Sa C B3)	Sa C type C sand with the addition of 3% bitumen (i.e. Sa C B3)
Thickness (mm) min	100	50
Subbase:		
Material	Not required	Cold planed asphalt or PM3/20, class 3 pavement material
Minimum thickness (mm)	-	90 mm

6 Asphalt

- The Contractor must ensure that asphalt mix must comply with RD-BP-S2 "Supply of Asphalt" and Table RD-PV-C5 6-1.
- The Contractor must ensure that:

- i) subgrade is trimmed and compacted with at least 1 pass of the compaction plant;
- ii) base and subbase comply with section 3;
- iii) asphalt compaction is carried out using a minimum 2 passes of a steel double drum, vibrating footpath roller; and
- iv) the surface of the finished asphalt is free of:
 - A. segregated or “bony” areas;
 - B. soft and “fatty” areas;
 - C. ravelling and loose material;
 - D. surface cracking;
 - E. shoving; and
 - F. ruts.

Table RD-PV-C5 6-1 Asphalt minor pavements

	Footpaths	Residential / light duty driveways	Heavy duty driveways
Surface course			
Material	FineAC7 (C170)	FineAC7 (C170)	AC10M (C320)
Thickness (mm) min	25	30	35
Base			
Material	PM2/20 or PM3/20	PM2/20 to 96% RMC	PM2/20 to 96% RMC
Minimum thickness (mm)	100	150	125
Subbase			
Material	Not required	Not required	PM2/20 to 95%
Thickness (mm) min	-	-	150
Total minimum thickness (mm)	125	180	310

7 Concrete

- a) The Contractor must ensure that concrete minor pavements:
 - i) comply with Table RD-PV-C5 7-1; and
 - ii) are constructed on a subbase of PM2/20 or PM3/20.
- b) The Contractor must ensure that the concrete complies with:
 - i) ST-SC-S1 “Normal Class Concrete”; or
 - ii) ST-SC-S2 “Geopolymer Concrete”.
- c) The Contractor must ensure that:
 - i) reinforcing is placed centrally and on spacers;
 - ii) all shrinkage grooves and edges are tool finished;
 - iii) the surface is finished to a non-slip texture and be protected from damage for the first 2 days after placing the concrete;
 - iv) for un-reinforced footpaths the length to width ratio of the distance between the shrinkage grooves do not exceed 1.3: 1. Expansion joints 12 mm wide and full depth of the concrete must be provided at no more than 6 m intervals and filled with bitumen or other flexible material; and

- v) reinforced footpaths with cycle usage comply with RD-PV-C4 “Construction of Shared Path Pavements”.

Table RD-PV-C5 7-1 Concrete minor pavements

	Footpaths	Footpaths with significant cycle usages	Light duty driveways	Heavy duty driveways
Minimum concrete thickness (mm)	75	100	125	180
Minimum concrete class	25	25	25	32
Reinforcing	-	SL62	SL72	SL82
Subbase minimum thickness (mm)	50	75	100	100
Spacing of shrinkage grooves (contraction joints) (m)	1.2	4	3-4	3-4
Total minimum thickness (mm)	125	175	225	280

8 Block paving

8.1 General

- a) The Contractor must ensure that block paved minor pavements comply with Table RD-PV-C5 8-1 and CMAA PA02 Concrete Segmental Pavements Design Guide for Residential Accessways and Roads.
- b) The Contractor must ensure that base and subbase also comply with section 3.

Table RD-PV-C5 8-1 Block paving minor pavements

	Footpaths ⁽¹⁾	Residential / light duty driveways ⁽¹⁾	Heavy duty driveways ⁽¹⁾
Pavers			
Type and Minimum	Concrete	Segmented type A interlocking concrete ⁽¹⁾	Segmented type A interlocking concrete ⁽¹⁾
Thickness (mm)	60	60	80
Bedding			
Material	Sa C type C Sand	Sa C type C sand	Sa C type C sand
Thickness (mm)	25	25	25
Base			
Material	PM2/20 or PM3/20	PM2/20 to 95%	PM2/20 to 95%
Thickness (mm)	50	100	150
Total minimum thickness (mm)	135	185	255

Table notes:

(1) Refers to CMAA paver type categories, outlined in CMAA PA02 Concrete Segmental Pavements Design Guide for Residential Accessways and Roads.

8.2 Materials

- a) The Contractor must ensure that block paved minor pavements satisfy the following requirements:
- i) jointing sand must meet grading envelope for joint grading sand as required by CMAA PA02 Concrete Segmental Pavements Design Guide for Residential Accessways and Roads; and

- ii) bedding and jointing sand must be free of soluble salts or contaminants likely to cause efflorescence or staining.
- b) If the Contractor proposes to use a paver other than that specified in the Contract Documents, a sample of the proposed paver must be supplied to the Principal and approval obtained 4 weeks prior to placement of the pavers.
- c) Where section 8.2b) applies, submission of the sample constitutes a **Hold Point** and placement of the pavers must not take place until the Hold Point is released.

8.3 Laying paving units

The Contractor must ensure that the following paving unit requirements are satisfied:

- a) paving units must be placed on the uncompacted screeded sand bed to the specified laying pattern;
- b) paving units must be placed to achieve gaps nominally 2 mm to 4 mm wide between adjacent units such that all joints are correctly aligned and to fit sufficient jointing sand to lock pavers into place;
- c) except where it is necessary to correct any minor variations occurring in the laying bond, the paving units must not be hammered into position. Where adjustment of position is necessary care must be taken to avoid premature compaction of the sand bedding;
- d) all unsupported edges must have a concealed reinforced concrete edging of sufficient depth and width to laterally support the pavers. Cement mortar for concealed edging must comprise 3 parts type Sa C sand and one part cement;
- e) footpaths must have one row of header bricks along each edge;
- f) medians and traffic islands must have one row of header bricks around the perimeter; and
- g) tree opening must have one row of header bricks around the perimeter of the opening.

8.4 Block paving around service inspection pits

- a) Where an existing Utility Service inspection pit is greater than 10 mm above or below the proposed footpath level, the Contractor must adjust the Utility Service inspection pit so that it is flush with the new footpath levels and comply with any requirement of the Utility Service Authority for adjusting the pit.
- b) The Contractor must ensure that the level of block paving placed around small square steel Utility Service inspection pits and steel stormwater channels matches the pits or channel. The edge of the paving must not be greater than 4 mm from the pit or channel, either vertically or horizontally. The Contractor must make allowance to cut, if necessary, the paving units around these pits or channels.
- c) The Contractor must ensure that concrete infill is placed around Utility Service inspection pits (other than those referred to in section 8.4b)), survey marks, poles and street furniture within the paved area as shown in Appendix 1: Concrete service inspection pit surrounds.
- d) Concrete infill must be grade 25 (or a 1:2:3 mix of cement, sand and 10 mm aggregate) and must be placed to a minimum depth of 75 mm. The concrete must be coloured to match the surrounding block paving.

8.5 Block paving abutting boundary structures and kerb

- a) The Contractor must ensure that block paving is placed such that joints between paving units and boundary structures or kerb is no greater than 4 mm.
- b) Where it is impracticable to cut blocks to the shape required, the Contractor must ensure that gaps up to 50 mm are infilled using mortar (1 cement:3 sand) coloured to match the paving units.

8.6 Compaction and joint filling of block paving

The Contractor must ensure that the following block paving compaction and joint filling requirements are satisfied:

- a) paving units must be compacted to achieve consolidation of the sand bedding by 3 passes of a suitable vibrating plate compactor. The compactor must be a high frequency, low amplitude mechanical flat plate vibrator;
- b) compaction must proceed as closely as practicable following laying. Compaction must not be attempted within 1 m of the laying face and must continue until lipping has been eliminated between adjoining units;
- c) any units which are structurally damaged during compaction must be immediately replaced;
- d) as soon as practical after compaction, sand for joint filling must be spread over the paving. The jointing sand must be broomed in a dry condition into the joints and one pass of the plate vibrator will be made to compact the jointing sand; and
- e) joints between block paving and concrete edging greater than 4 mm must be filled with a 1:3 mix of cement and sand and watered in.

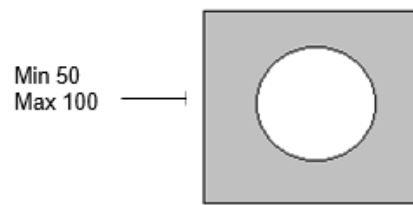
9 Hold Points

Table RD-PV-C5 9-1 details the review period or notification period, and type (documentation or construction quality) for each Hold Point referred to in this Master Specification Part.

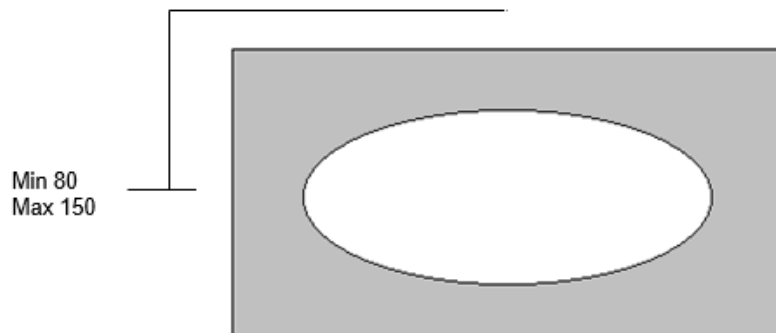
Table RD-PV-C5 9-1 Hold Points

Section reference	Hold Point	Documentation or construction quality	Review period or notification period
8.2c)	Submission of proposed alternative paver	Documentation	5 Business Days review

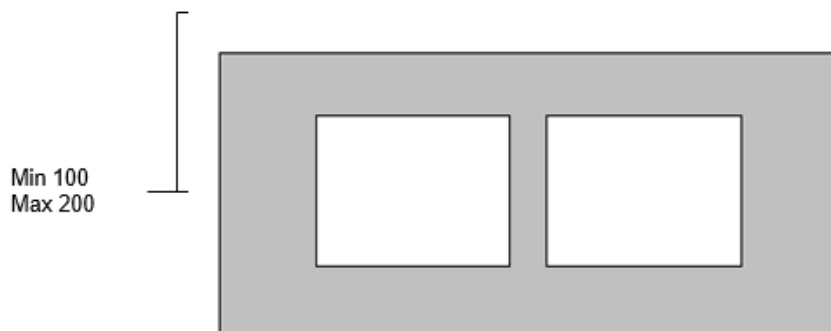
10 Appendix 1: Concrete service inspection pit surrounds



Small Pits
(Up to 300 x 300)



Medium Pits
(Up to 1 000 x 600)



Large Pits
(Up to 1 800 x 1 000)

Notes:

1. Sketch not to scale – shapes shown are representative only.
2. All measurements are in millimetres.