

City of **Perth**

Design and Construction Note Book 400

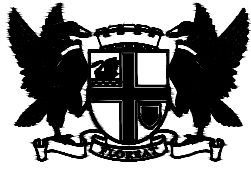
Standard Kerb Types
and Installation Details

Version 1.2

Book 400 - Amendments

Version 1.0

V1.0	Book 400 <i>Issued For Use</i>	29/06/2018
V1.1	Book 400 <i>Backdrafted Re-Issued For Use</i>	17/10/2018
V1.1	403.01, 03 & 04 <i>In-situ kerb details updated - addition of fibre reinforcement and keying</i>	09/06/2021
V1.2	401.05 & 402.00 <i>Motor details amended on 401.05. Nominated supplier added and concrete strength increased to 40MPa for precast kerbs (402.00).</i>	17/11/2021



City of Perth

Design and Construction Note

400.01

Standard Kerb Types and Installation Details

Index

Reviewed: 17/10/2018

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401.00 Standard Granite Kerbs

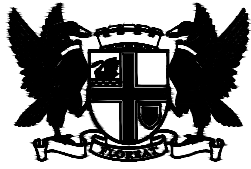
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Standard Kerb Types and Installation Details
Foreword

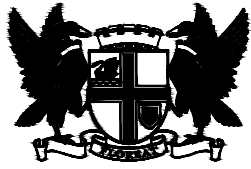
The City of Perth has adopted an approach for street enhancement projects to introduce more resilient granite kerbs to city centre streets; maintaining exposed aggregate concrete footpaths for the majority of situations; and identifying high profile locations for granite footpaths. This approach provides for a staged transition towards full granite footpaths in the future.

The kerb material required for street enhancement projects varies depending on the level of amenity proposed, as addressed in *Book 300 - Standard Footpath Design and Installation Details*. The various levels of amenity call for three types of kerb material to be used in street enhancement projects and can be found in the following chapters:

- *Chapter 401 - Standard Granite Kerbs*
- *Chapter 402 - Standard Precast Concrete Kerbs*
- *Chapter 403 - Standard In-situ Concrete Kerbs*

These chapters set out the standard dimensions and installation details for the different kerb types.

For further information regarding footpath design and installation details refer:
Book 300 - Standard Footpath Design and Installation Details



City of Perth

Design and Construction Note

401.00

Standard Kerb Types and Installation Details

Granite Kerb

Material Specification

Reviewed: 17/10/2018

Granite Kerbs

1) Performance Specification:

Bulk Specific Gravity	Minimum 2.7 t/m ³	Tested by Std ASTM C97
Water Absorption (mean)	(% by weight) 0.12%	Tested by Std ASTM C97
Modulus of Rupture (Dry)	15MPa	Tested by Std ASTM C99
Modulus of Rupture (Soaked)	12Mpa	Tested by Std ASTM C99
Compressive Strength	140MPa	Tested by Std ASTM C99
Slip resistance	Minimum - W rating	

Granite Kerbs must comply with the minimum specification requirements as set out in *ASTM C615/C615M-11 - Standard Specification for Granite Dimension Stone*.

2) Testing of Paving:

All proposed kerbs must have test results to confirm the above properties are fulfilled. Testing to be irrespective of orientation and be performed on exfoliated finished samples. The required methods and standards of testing are:

ASTM Standards:

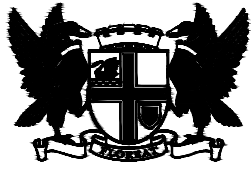
C97/C97M	<i>Test methods for absorption and bulk specific gravity of dimension stone.</i>
C99/C99M	<i>Test method for modulus of rupture of dimension stone.</i>
C119	<i>Terminology relating to dimension stone.</i>
C170/C170M	<i>Test method for compressive strength of dimension stone.</i>
C241/C241M	<i>Test method for abrasion resistance of stone subjected to foot traffic.</i>
C880/C880M	<i>Test method for flexural strength of dimension stone.</i>
D7102	<i>Test method –intact rock core specimens.</i>

Australian Standards:

AS4586-2004	<i>Slip resistance classification of new pedestrian surface materials</i>
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3) Approval of Test Results:

The appropriate specimens should be prepared from the supplied samples and the above test work has to be done prior to supply of paving.



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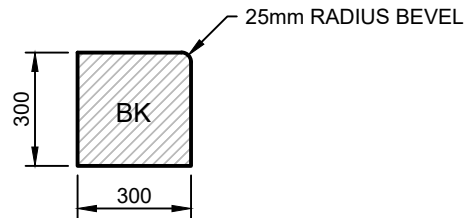
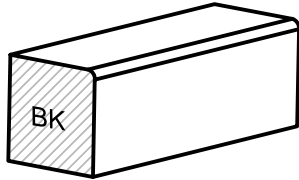
Design and Construction Note

401.01

Standard Kerb Types and Installation Details

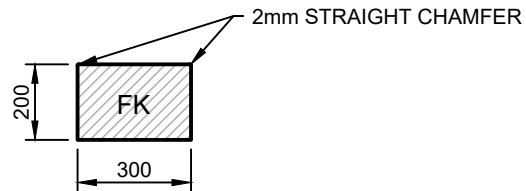
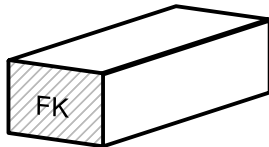
Granite Kerb Types

Reviewed: 17/10/2018



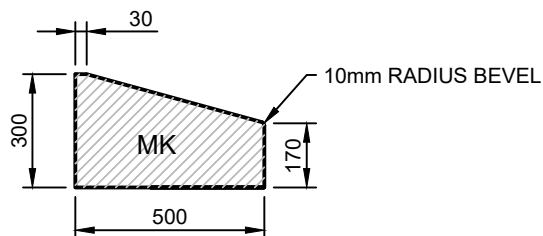
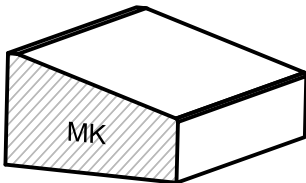
BARRIER KERB

- LENGTH VARIES: 800-1200mm



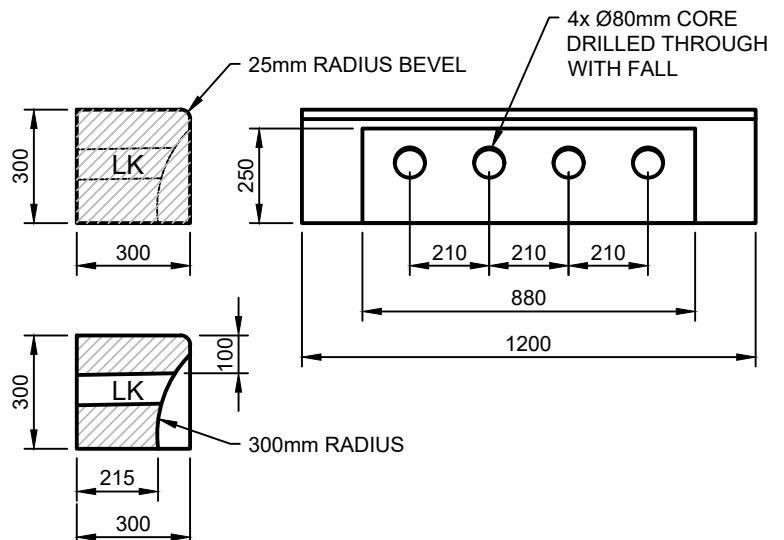
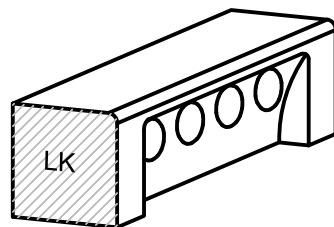
FLUSH KERB

- LENGTH VARIES: 800-1200mm



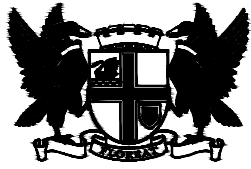
MOUNTABLE KERB

- LENGTH VARIES: 800-1200mm



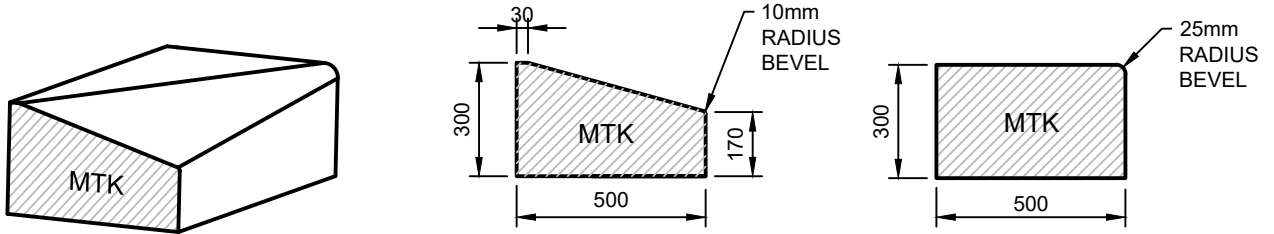
LINTEL KERB

- LENGTH: 1200mm



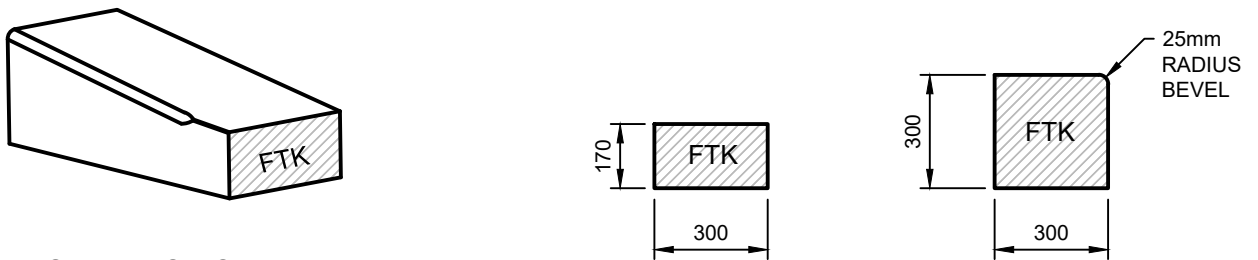
City of Perth

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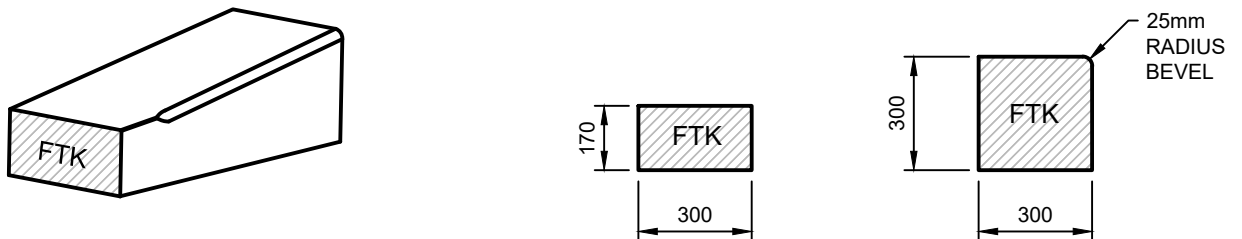
MOUNTABLE TRANSITION KERB

- LENGTH: 800mm



FLUSH TRANSITION KERB (TYPE A)

- LENGTH: 800mm (Pedestrian Ramps)
1200mm (Vehicle Ramps/Cross-overs)



FLUSH TRANSITION KERB (TYPE B)

- LENGTH: 800mm (Pedestrian Ramps)
1200mm (Vehicle Ramps/Cross-overs)



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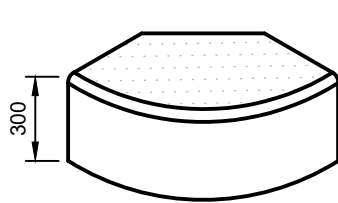
Design and Construction Note

401.03

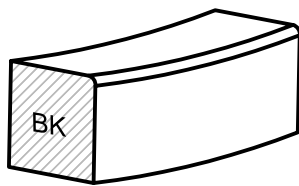
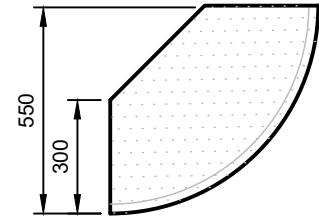
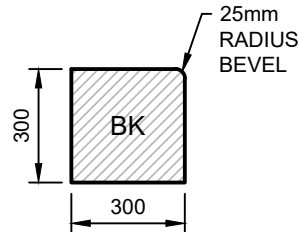
Standard Kerb Types and Installation Details

Granite Radius Kerbs

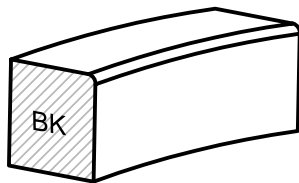
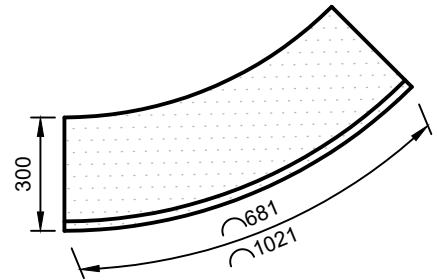
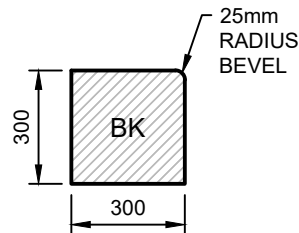
Reviewed: 17/10/2018



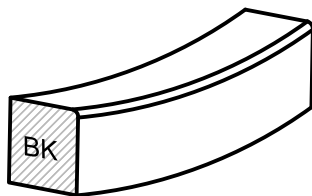
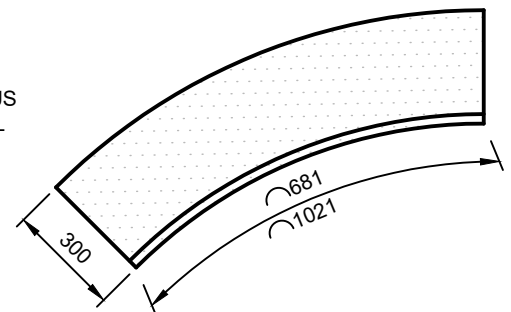
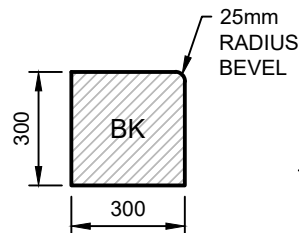
550mm RADIUS PIECE



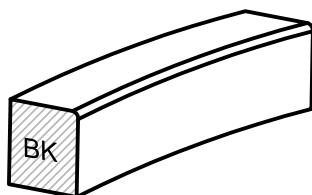
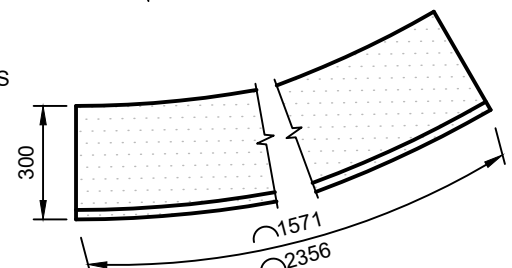
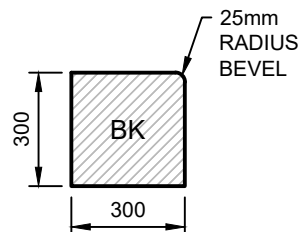
1300mm RADIUS PIECE - CONVEX



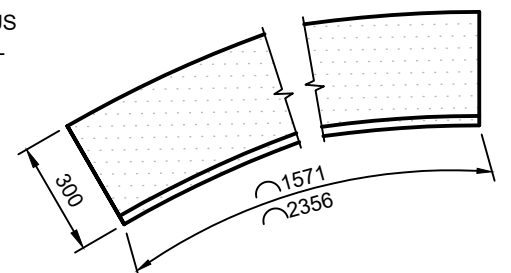
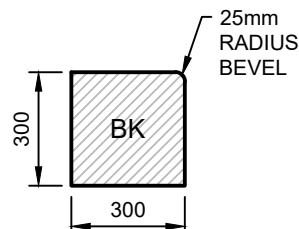
1300mm RADIUS PIECE - CONCAVE



3000mm RADIUS PIECE - CONVEX

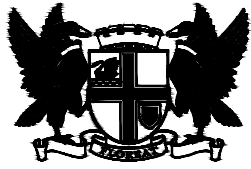


3000mm RADIUS PIECE - CONCAVE



General Note:

1. These standard pieces are to be used for square and splayed parking bays. For more information on parking bays in areas with granite kerbs refer *Design & Construction Notes: Book 300 - Standard Footpath Design and Installation Details*
2. Other standard granite kerb radii (2m, 3m, 5m, 6m, 7m, 9m, 10m & 20m) convex or concave are available. These are costed per linear metre and procured on a project by project basis.



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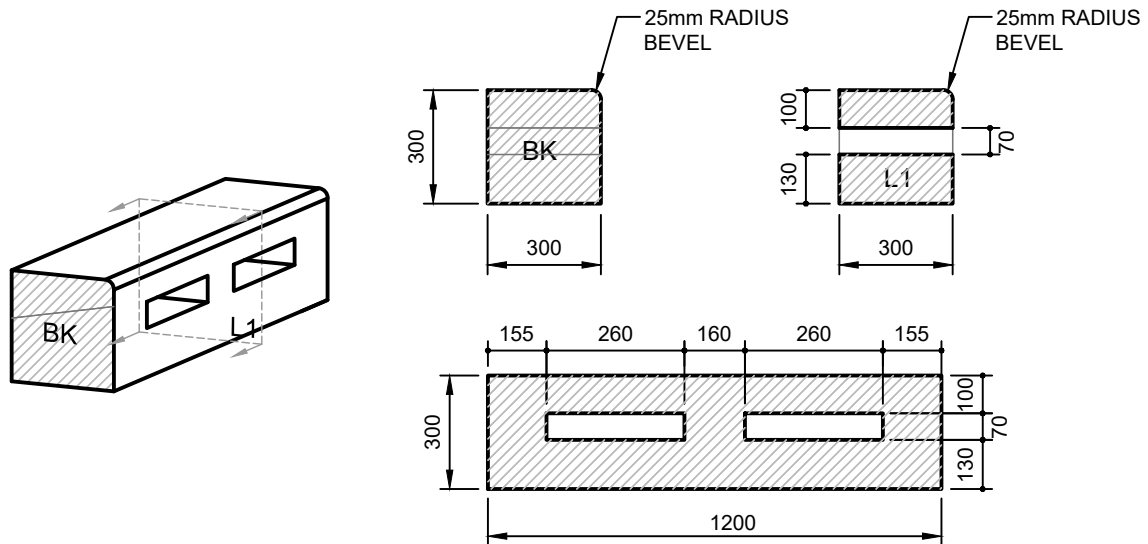
Design and Construction Note

401.04

Standard Kerb Types and Installation Details

Granite Lintel Kerbs

Reviewed: 17/10/2018

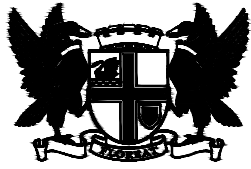


LINTEL KERB FOR SIDE ENTRY DRAINAGE

- LENGTH: 1200mm

General Note:

1. For more information on the installation of the Water Harvesting Lintel Kerb and surrounding 'Water Harvesting' structures, Refer *Design & Construction Note 702.03 Water Harvesting Tree-Pit*
2. For more information on the installation of the Side Entry Drainage Lintel Kerb and surrounding drainage structures, Refer *Design & Construction Note 202.09 Standard Side Entry Pit - Granite Kerb*



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Design and Construction Note

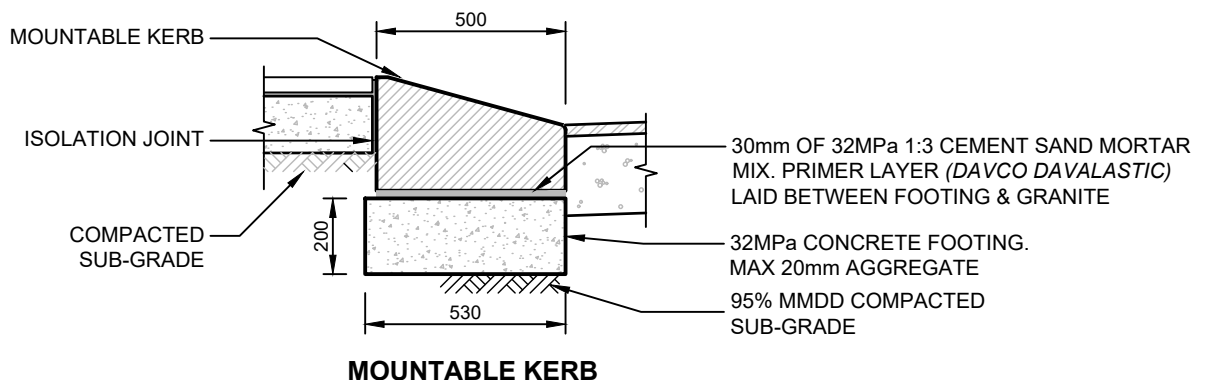
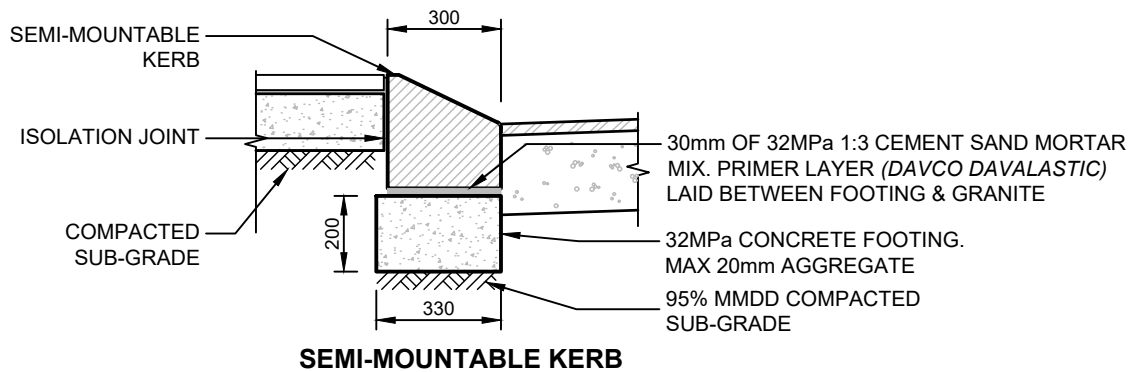
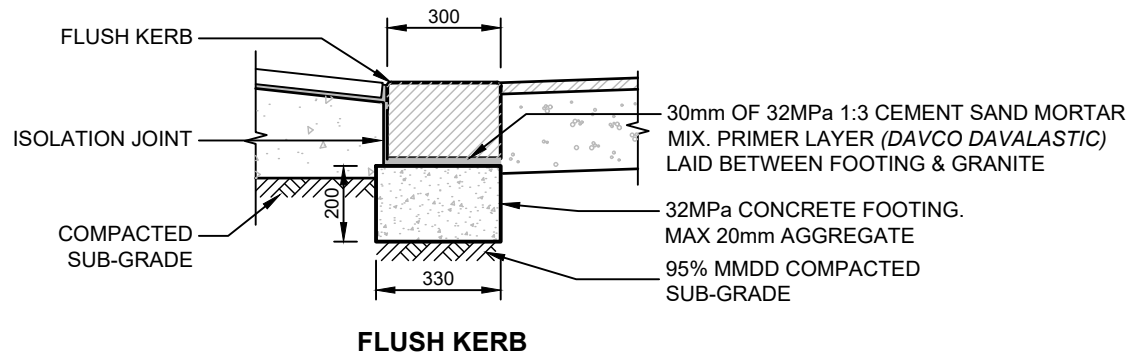
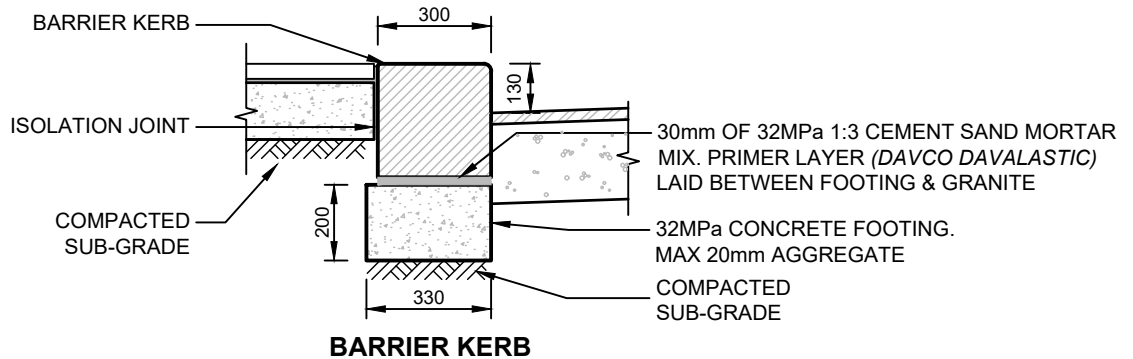
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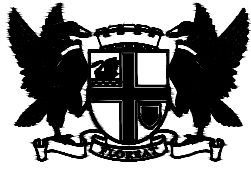
Standard Kerb Types and Installation Details

Granite Kerb and Footing

Cross-Sections

Reviewed: 17/11/2021





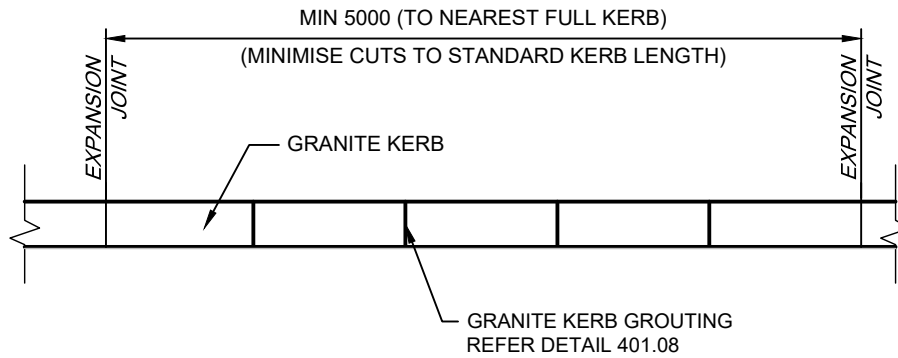
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Design and Construction Note

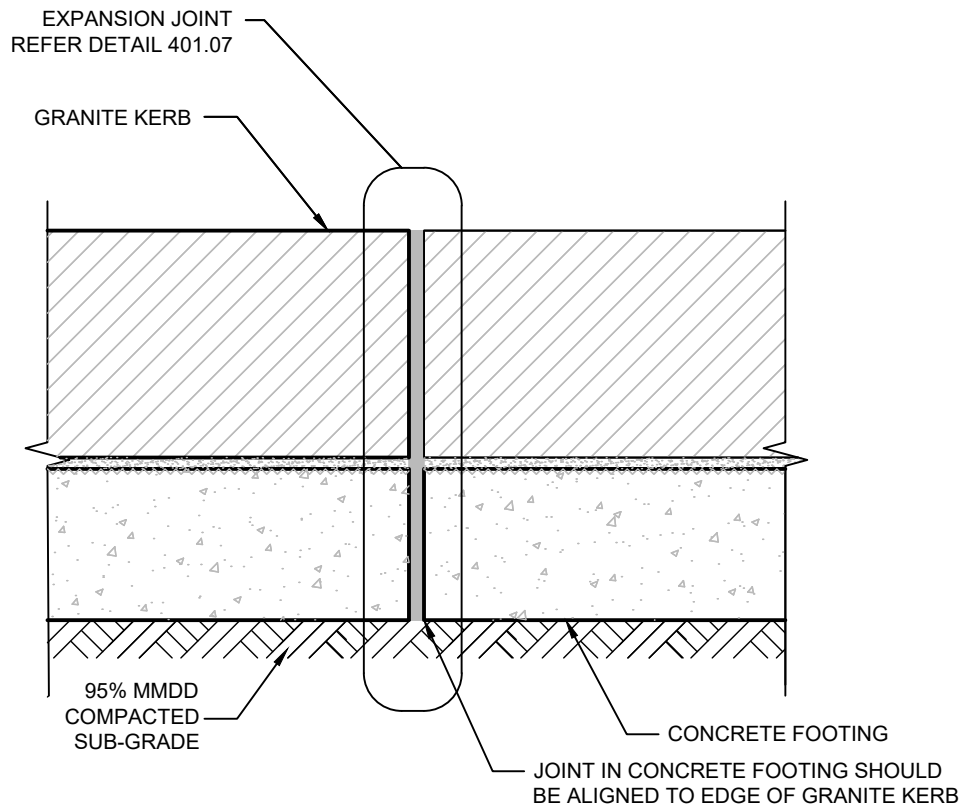
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Standard Kerb Types and Installation Details Granite Kerb Grout Joints and Expansion Joints

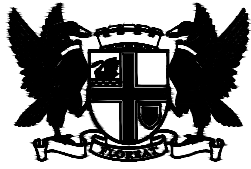
Reviewed: 17/10/2018



PLAN - GRANITE KERB GROUT AND EXPANSION JOINTS



ELEVATION - TYP EXPANSION JOINT



City of Perth

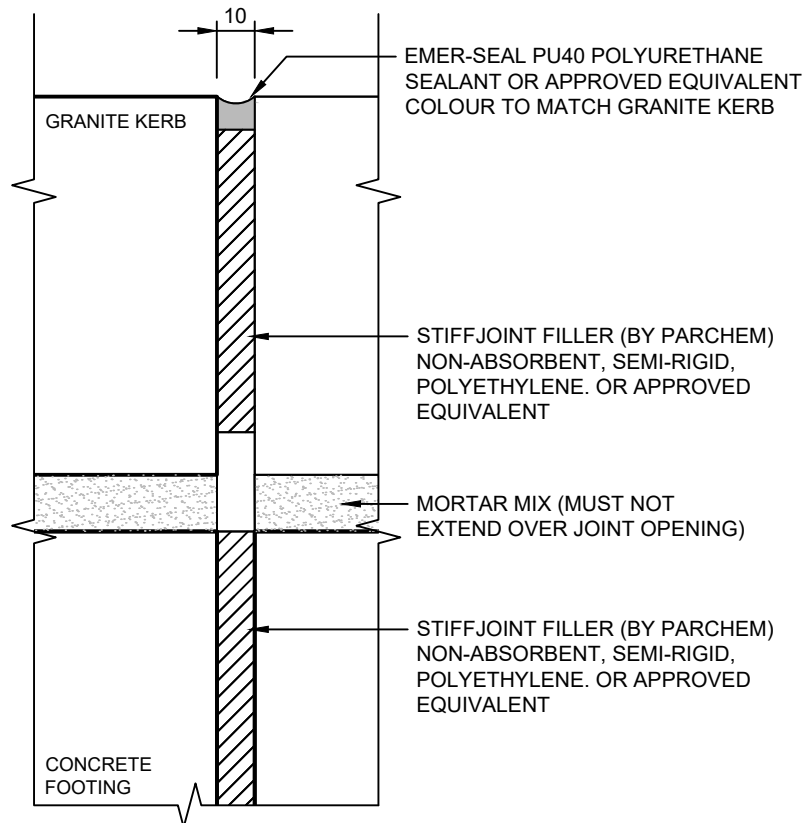
Design and Construction Note

401.07

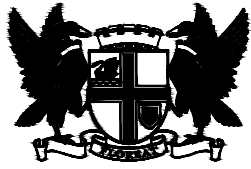
Standard Kerb Types and Installation Details

Standard Granite Kerb Grout and Expansion Joints

Reviewed: 17/10/2018



**THROUGH GRANITE & CONCRETE FOOTING
TYP EXPANSION JOINT DETAILS**



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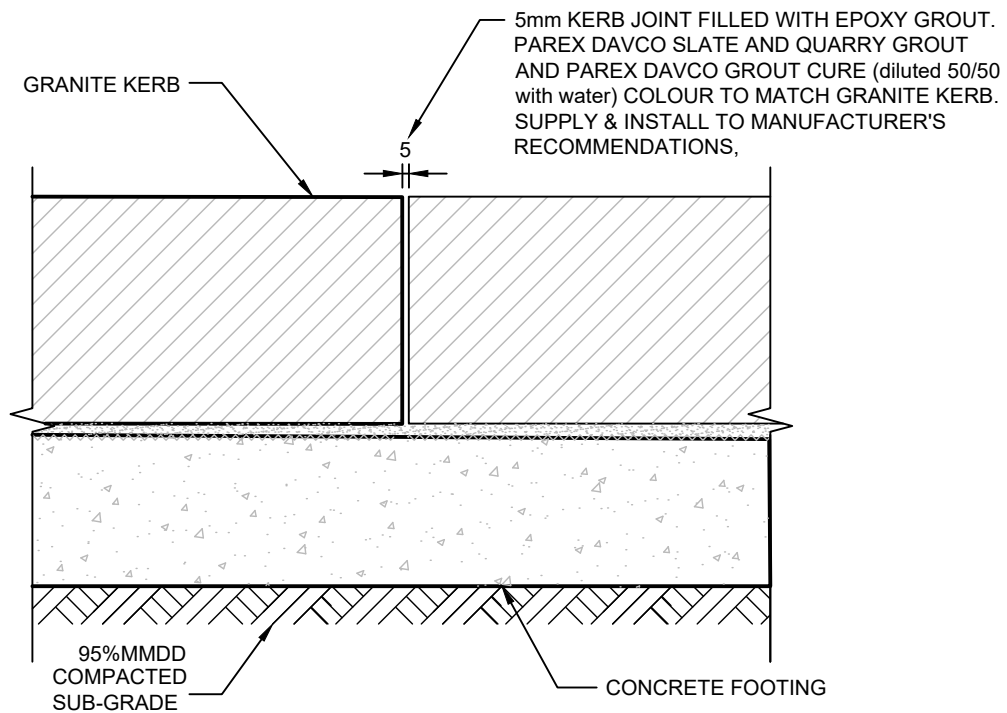
Design and Construction Note

401.08

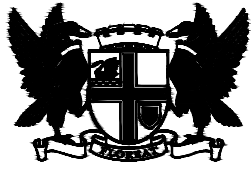
Standard Kerb Types and Installation Details

Standard Granite Kerb Grout and Expansion Joints

Reviewed: 17/10/2018



TYP GROUTING DETAILS



City of Perth

Design and Construction Note

402.00

Standard Kerb Types and Installation Details

Precast Concrete Kerbs

General Specification

Reviewed: 17/11/2021

Precast Concrete Kerbs

1) Concrete

All concrete used in the manufacture of precast kerbing shall have a minimum compressive strength of 40MPa at 28 days. It shall have a maximum aggregate size of 14mm.

2) Mixing

The mixing shall be done with approved mechanical equipment and the quality of the concrete shall be in accordance with AS1379-1997. Compaction of the poured material shall be effected by an approved type vibrator. Care is to be taken to ensure that the materials are not separated by excessive vibration.

3) Casting Mould

The mould shall be of an approved strength and stiffness to resist vibration and ramming stresses. The mould shall be close-jointed to prevent leakage.

4) Tolerances

The finished kerb shall conform to the following tolerances:

length: ±3.0mm

width: ±1.5mm

height : ±3.0mm

5) Demarcation

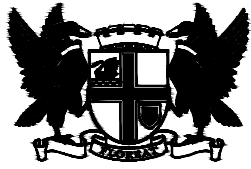
Curved kerbs shall have the radius clearly marked on one of the unexposed faces.

6) Nominated Supplier

Perth Terrazzo and Concrete Solutions

Angelo Versace (Mob. 0487 081 110)

Misty Richards (Mob. 0429 311 775)

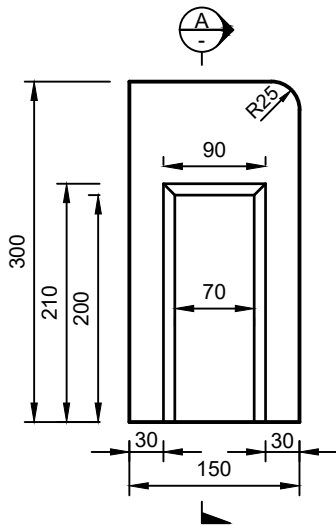


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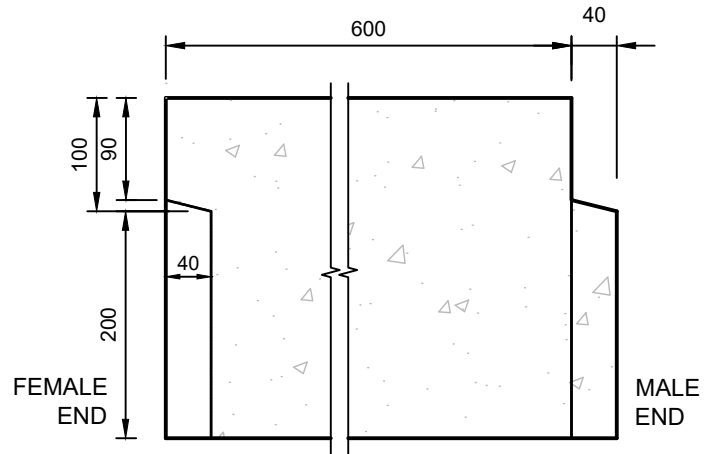
Design and Construction Note 402.01

Standard Kerb Types and Installation Details
Precast Concrete Barrier Kerb

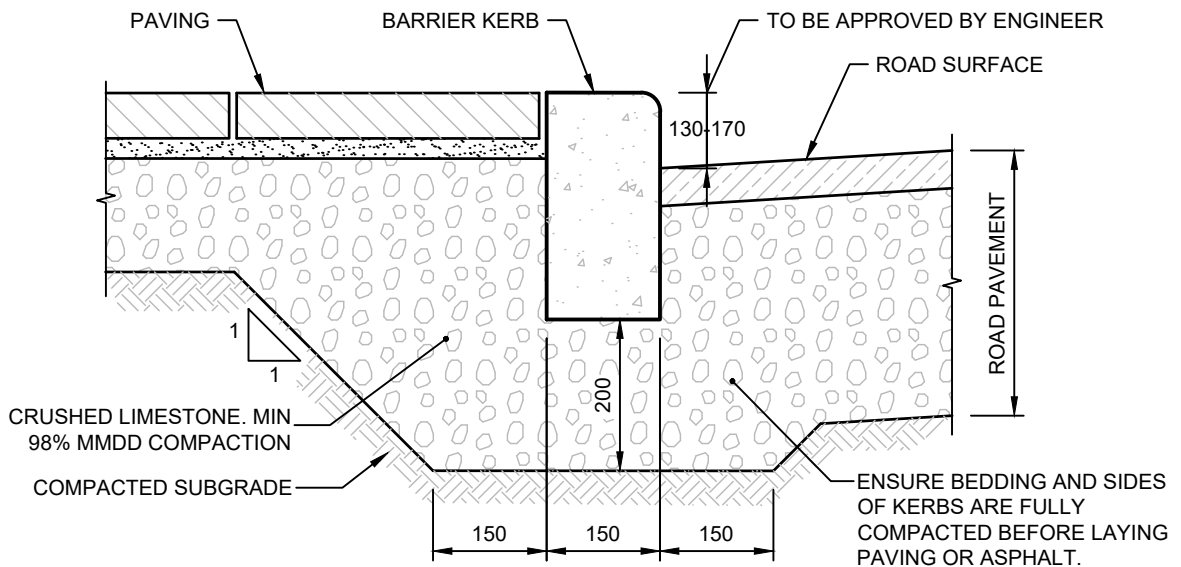
Reviewed: 17/10/2018



END ELEVATION



SECTION A



PRECAST BARRIER KERB LENGTH: 600mm

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer *Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification*.
2. Kerb heights at bus stops shall be 170mm.



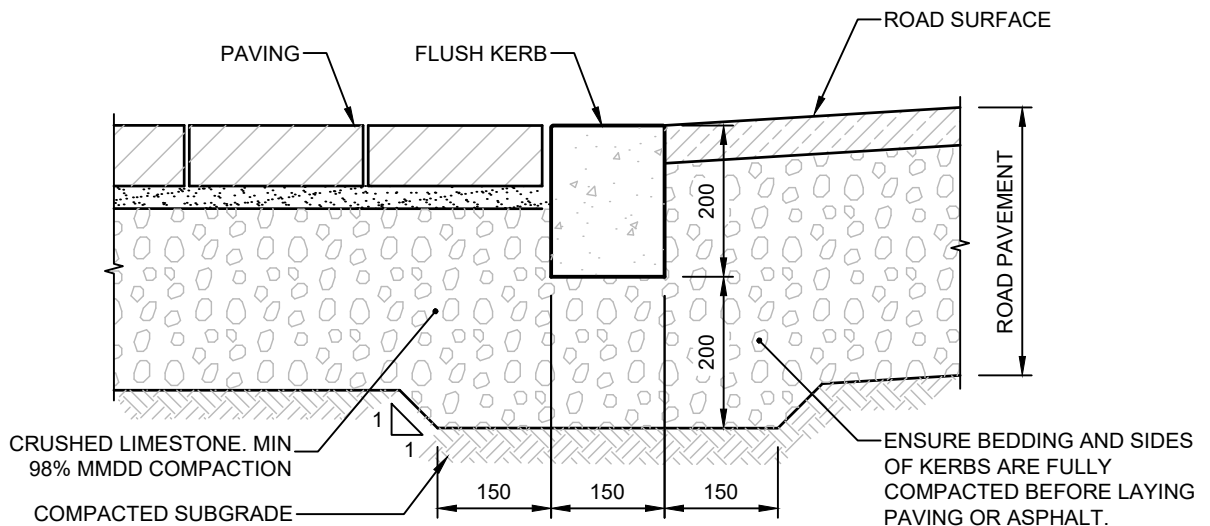
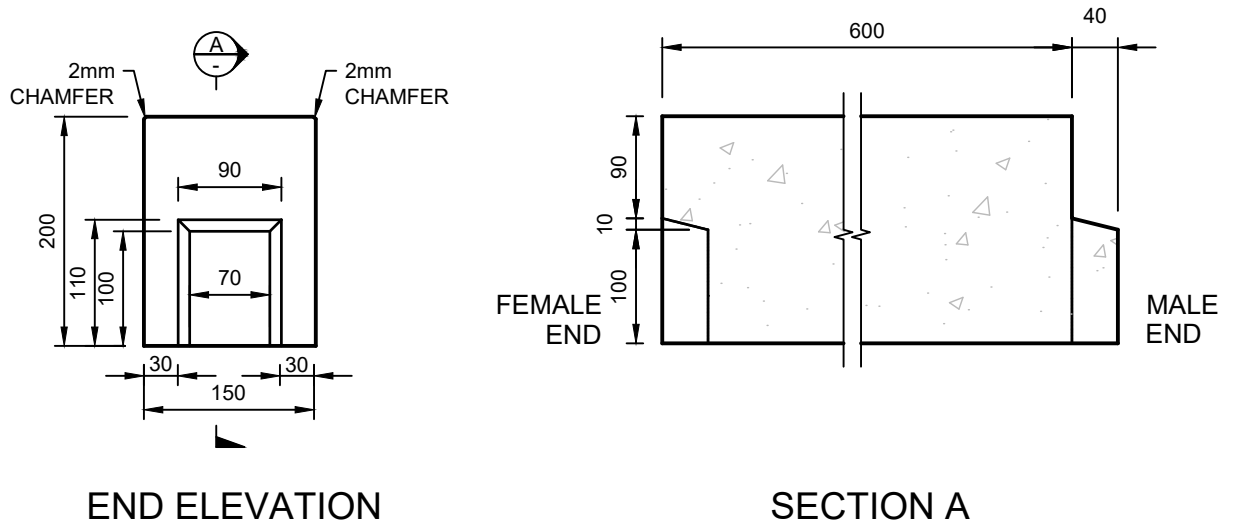
City of Perth

Design and Construction Note

402.02

Standard Kerb Types and Installation Details Precast Concrete Flush Kerb

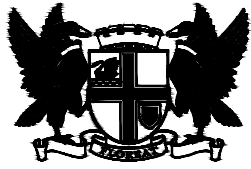
Reviewed: 17/10/2018



PRECAST FLUSH KERB LENGTH: 600mm

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer *Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification*.



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Design and Construction Note

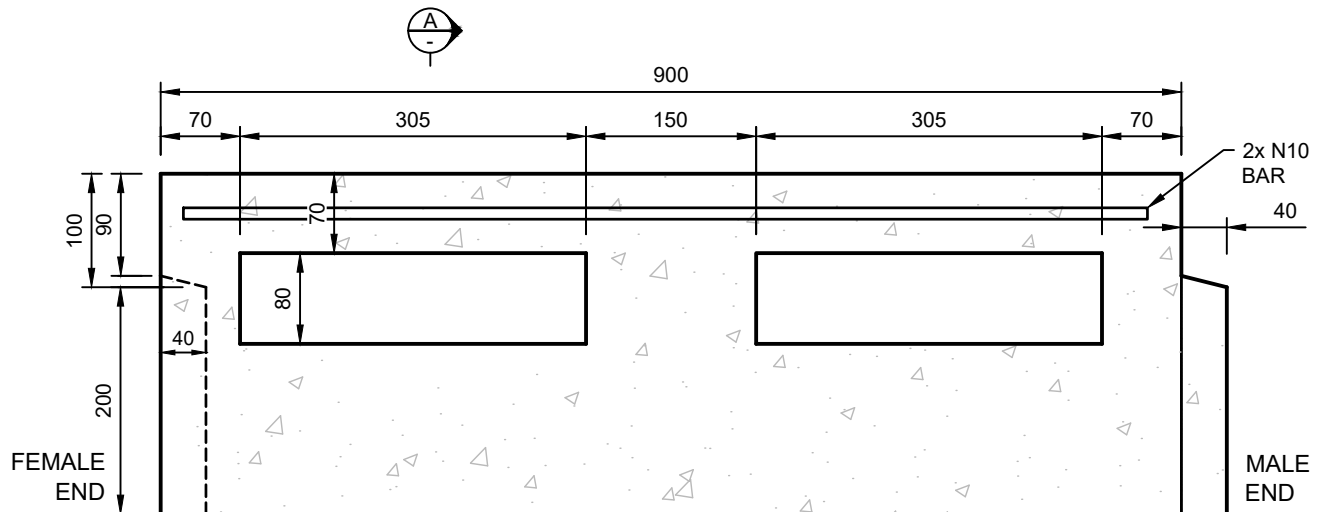
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Standard Kerb Types and Installation Details

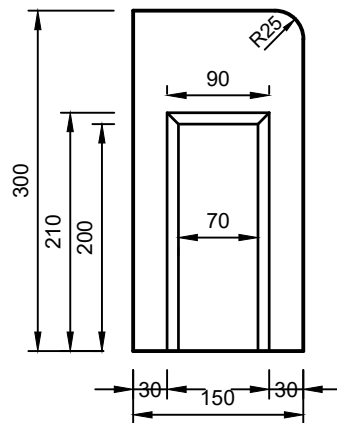
Precast Concrete Lintel Kerb

For Side Entry Drainage

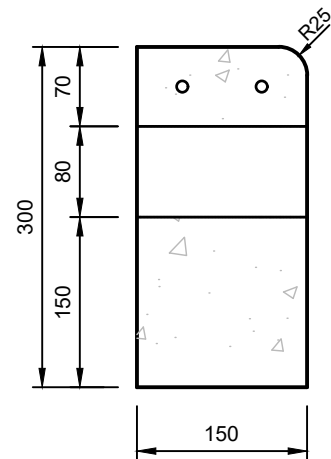
Reviewed: 17/10/2018



FRONT ELEVATION



END ELEVATION



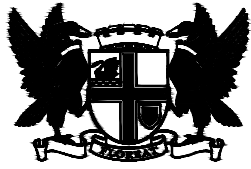
SECTION A

PRECAST CONCRETE LINTEL KERB

LENGTH: 900mm

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer *Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification*.



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Design and Construction Note

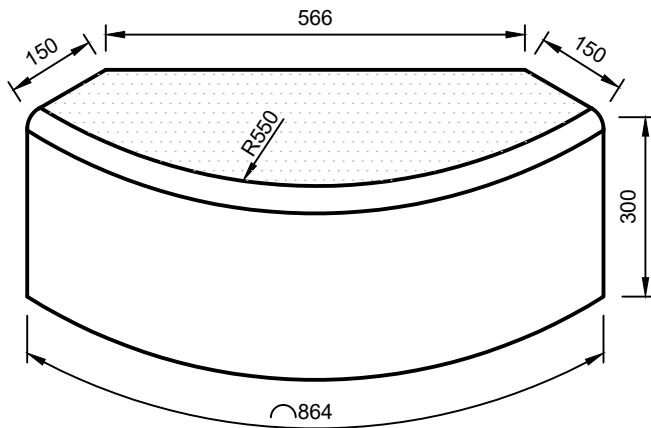
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Standard Kerb Types and Installation Details

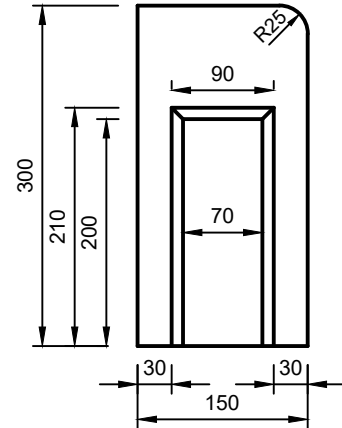
Precast Concrete Radius Kerb

0.55m Radius

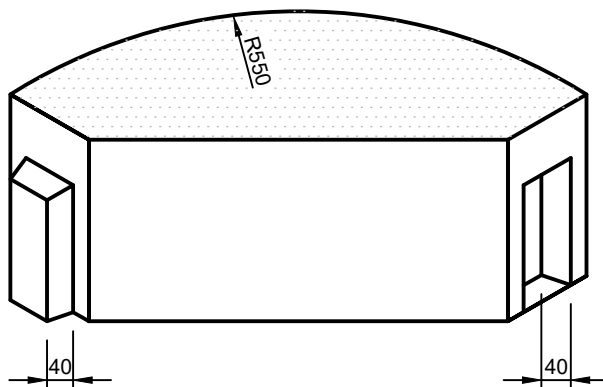
Reviewed: 17/10/2018



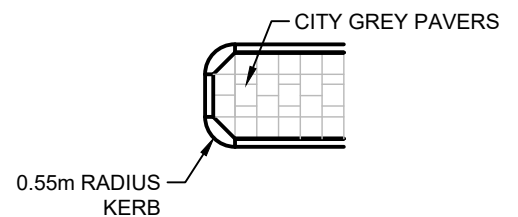
FRONT ISOMETRIC VIEW



END ELEVATION



REAR ISOMETRIC VIEW



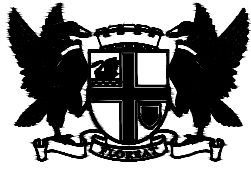
TYPICAL USE

PRECAST CONCRETE RADIUS KERB - 0.55m RADIUS

ARC LENGTH: 864mm
QTY PER QUADRANT: 1

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer *Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification*.



City of Perth

Design and Construction Note

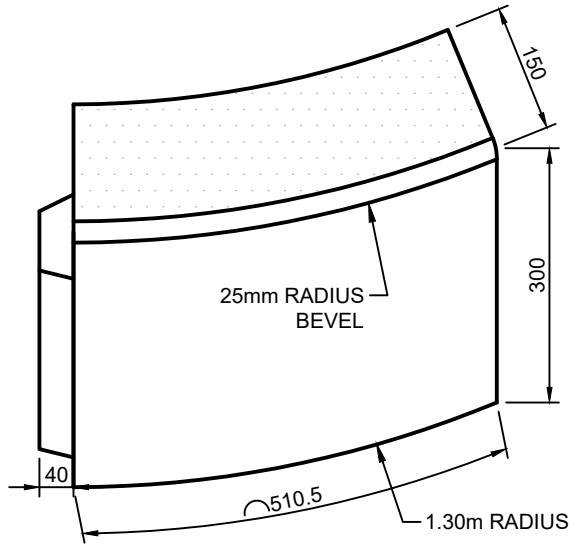
402.05

Standard Kerb Types and Installation Details

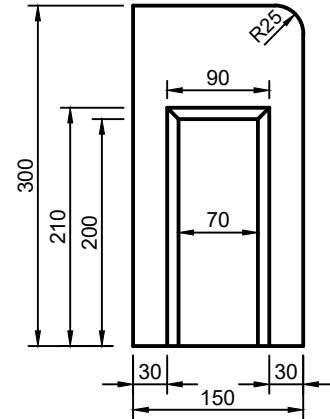
Precast Concrete Radius Kerb

1.30m Radius

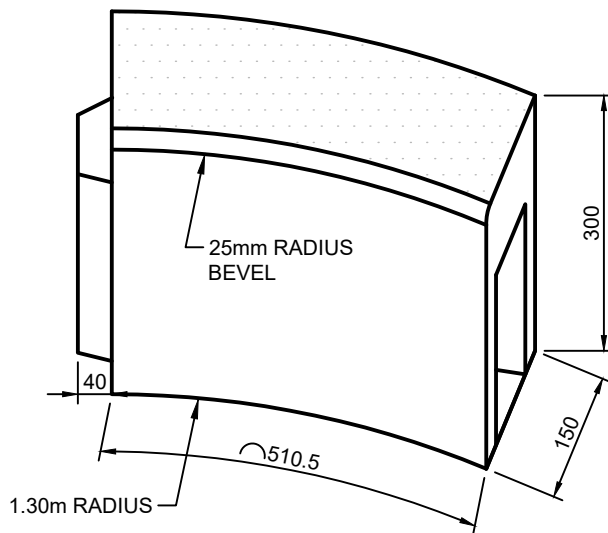
Reviewed: 17/10/2018



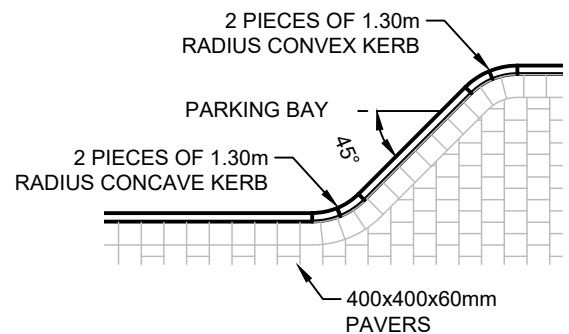
CONVEX KERB



END ELEVATION



CONCAVE KERB



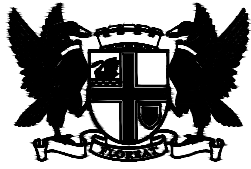
TYPICAL USE

PRECAST CONCRETE RADIUS KERB - 1.30m RADIUS

ARC LENGTH: 510.5mm
QTY PER QUADRANT: 4
CONVEX & CONCAVE

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer *Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification*.



City of Perth

Design and Construction Note

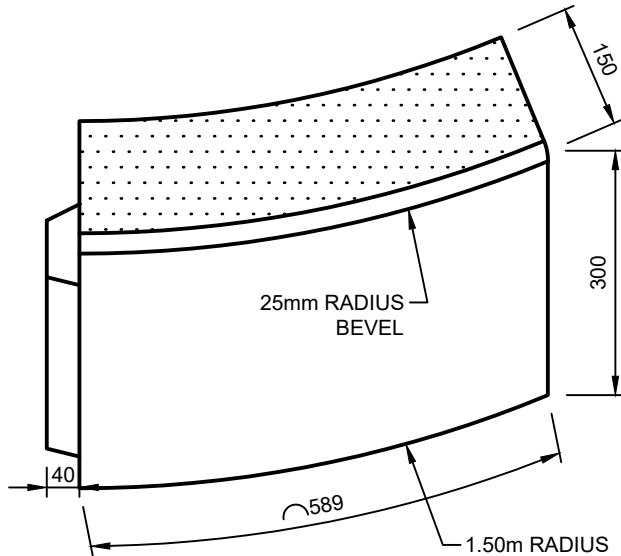
402.06

Standard Kerb Types and Installation Details

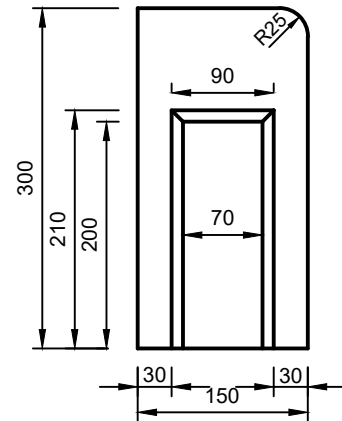
Precast Concrete Radius Kerb

1.50m Radius

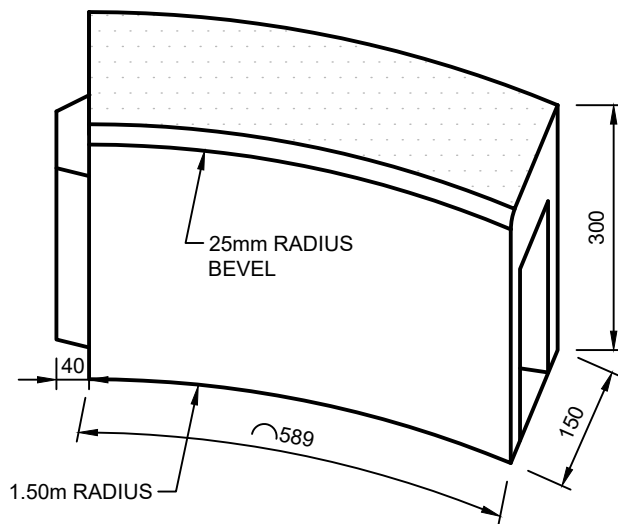
Reviewed: 17/10/2018



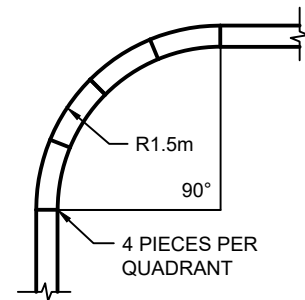
CONVEX KERB



END ELEVATION



CONCAVE KERB



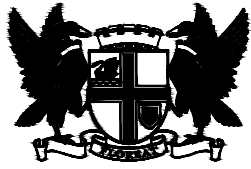
QUADRANT

PRECAST CONCRETE RADIUS KERB - 1.50m RADIUS

ARC LENGTH: 589mm
QTY PER QUADRANT: 4
CONVEX & CONCAVE

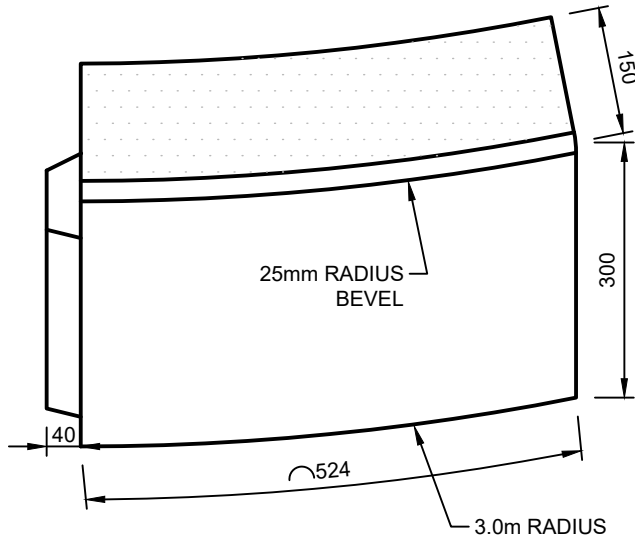
General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer *Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification*.

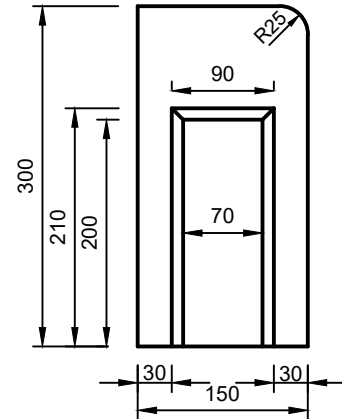


City of Perth

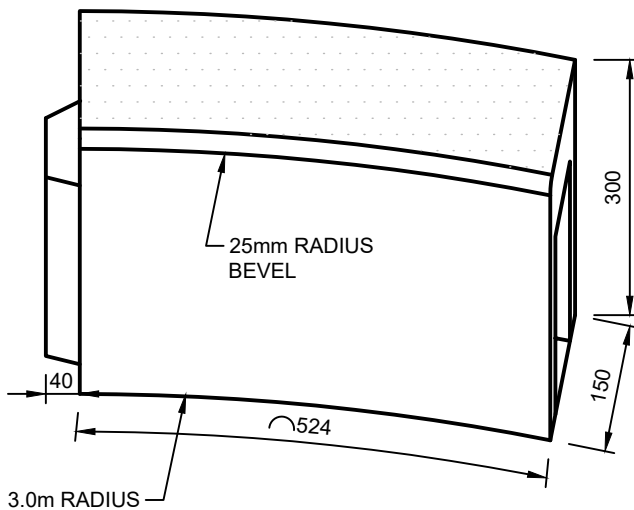
Design and Construction Note
402.07
Standard Kerb Types and Installation Details
Precast Concrete Radius Kerb
3.0m Radius
Reviewed: 17/10/2018



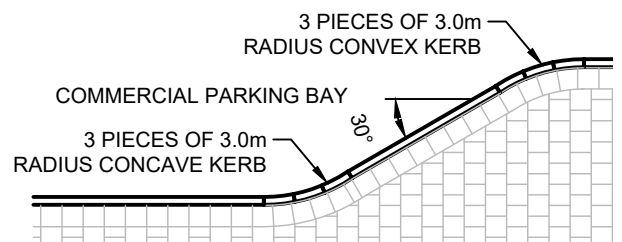
CONVEX KERB



END ELEVATION



CONCAVE KERB



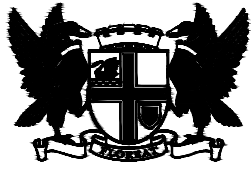
TYPICAL USE

PRECAST CONCRETE RADIUS KERB - 3.0m RADIUS

ARC LENGTH: 524mm
QTY PER QUADRANT: 6
CONVEX & CONCAVE

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer *Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification*.



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Design and Construction Note

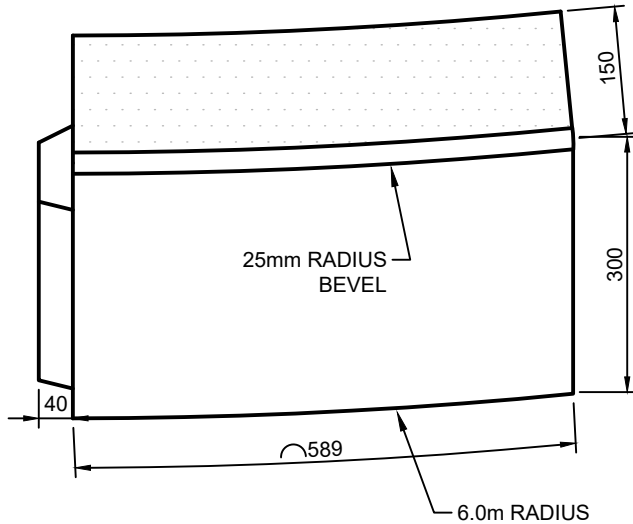
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Standard Kerb Types and Installation Details

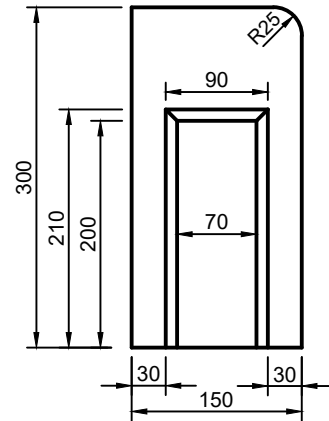
Precast Concrete Radius Kerb

6.0m Radius

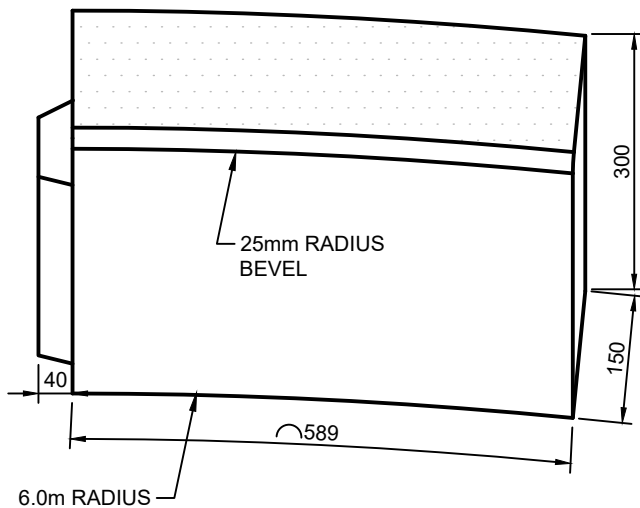
Reviewed: 17/10/2018



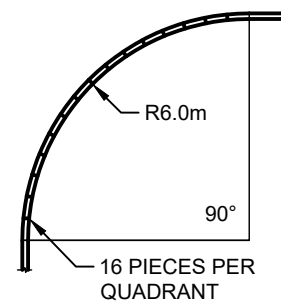
CONVEX KERB



END ELEVATION



CONCAVE KERB



QUADRANT

PRECAST CONCRETE RADIUS KERB - 6.0m RADIUS

ARC LENGTH: 589mm
QTY PER QUADRANT: 16
CONVEX & CONCAVE

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer *Design and Construction Note 402.00 - Precast Concrete Kerbs General Specification*.



City of Perth

Design and Construction Note

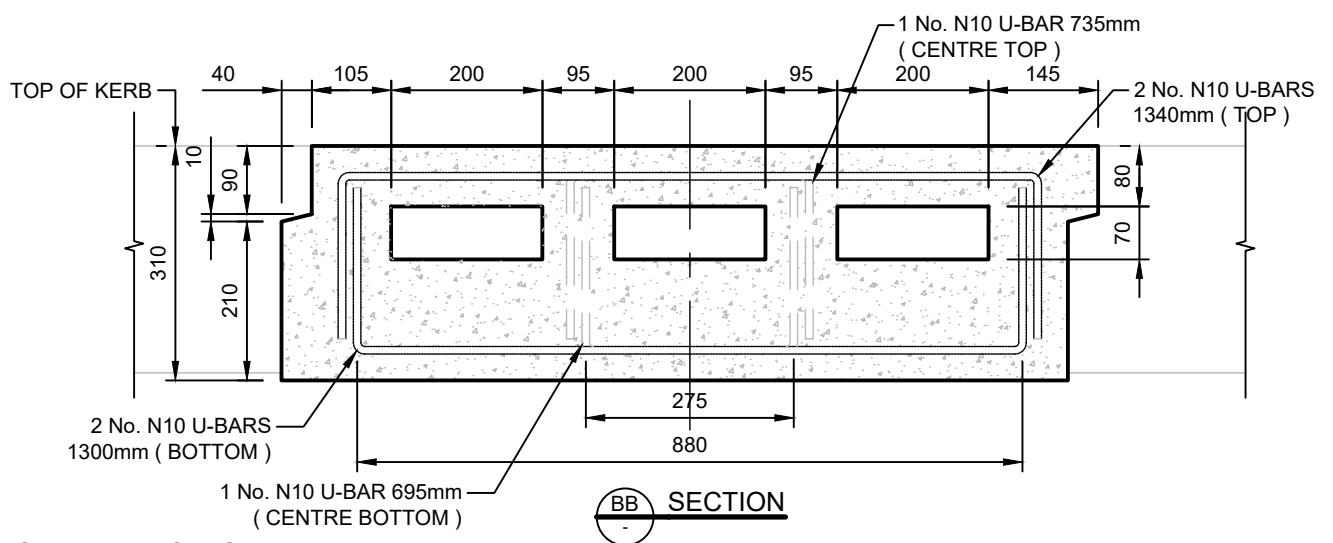
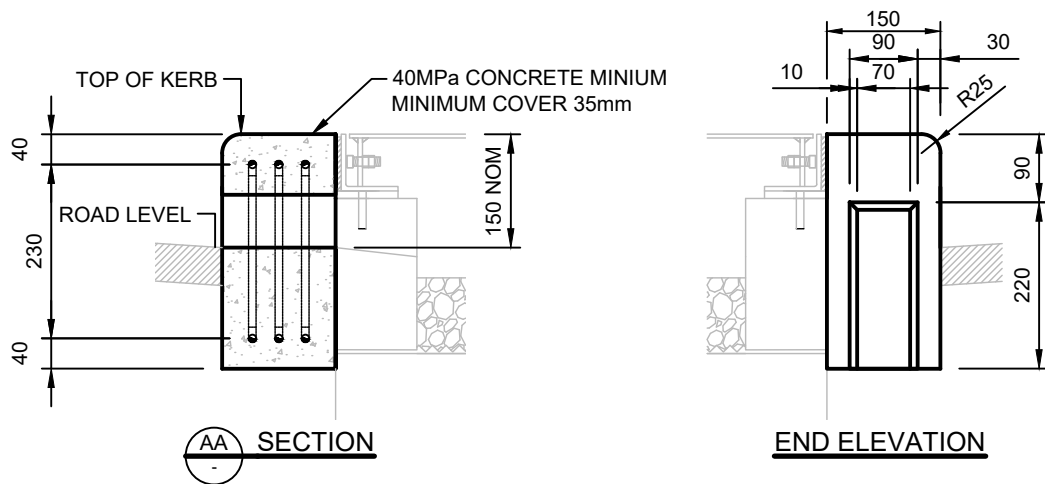
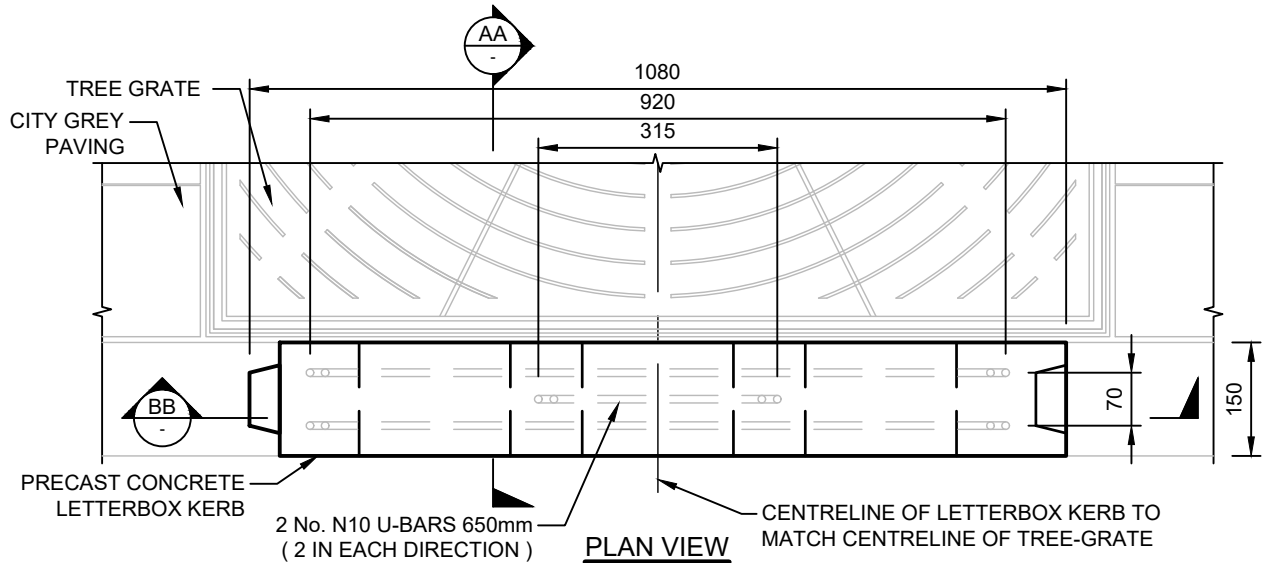
402.09

Standard Kerb Types and Installation Details

Concrete Pre-Cast Kerb

Water Harvesting - Concrete Kerb

Reviewed: 17/10/2018



GENERAL NOTES

1. 40MPa Concrete minimum.
2. 35mm Minimum cover.
3. 200mm Minimum lap.



City of Perth

Design and Construction Note

403.00

Standard Kerb Types and Installation Details

In-situ Concrete Kerbs

General Specification

Reviewed: 09/06/2021

In-situ Concrete Kerbs

1) Use of In-situ Concrete Kerbs

In-situ concrete kerbs is the preferred method of construction for semi-mountable and mountable kerbs in areas where concrete kerbs are to be used.

Generally, in-situ kerbs shall only be used in locations when there is no possibility of using standard precast kerbs; for reasons such as precast radius pieces do not fit (and cannot be altered to fit) for on-site requirements.

2) Concrete

All concrete used in the manufacture of in-situ kerbing shall have a minimum compressive strength of 32MPa at 28 days in accordance with AS1379 with Fibre Reinforcement at a mixing rate of 0.9kg/m³. It shall have a maximum aggregate size of 10mm & slump 60mm maximum.

3) Bedding and Keying In

In-situ concrete kerbs shall be laid directly on to the base course material. Surface to receive kerb shall be swept clean of sand, loose stone and other foreign material prior to installation. Kerbs shall be keyed at curve radii less than 40m, car embayments and traffic islands.

4) Tolerances

The kerb shall have no deviation exceeding 5mm to the design line & level.

5) Shrinkage Joints

Shrinkage joints shall be provided at 1000mm intervals, sawn at right angles to the longitudinal line of the kerb.

6) Expansion Joints

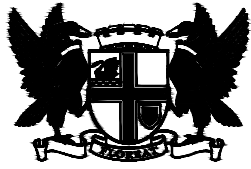
Expansion joints shall be provided at 2000mm intervals and are to be sawn with a diamond saw, not less than 12 hours after the kerbing has been initially placed. The width of the joint shall be 7mm, extending the full section of the kerb except at gully pits and tangent points, where the expansion joints should be formed to be 13mm wide.

All expansion joints shall be sealed with a strip of 'Sarmprene' foam to a depth of 25mm and top sealed with 'Butyle' mastic seal. The seal shall finish 3mm below the face and top of the kerb.

6) Curing

After initial set, Concrete surfaces shall be cured for a minimum period of 7 days with a sprayed application of *CALCURE CR* or approved equivalent, applied by the method and rate specified by the manufacturer. Curing compound is to be applied not less than two hours after surface finishing of the concrete.

For more information about kerbing design refer to www.mainroads.wa.gov.au



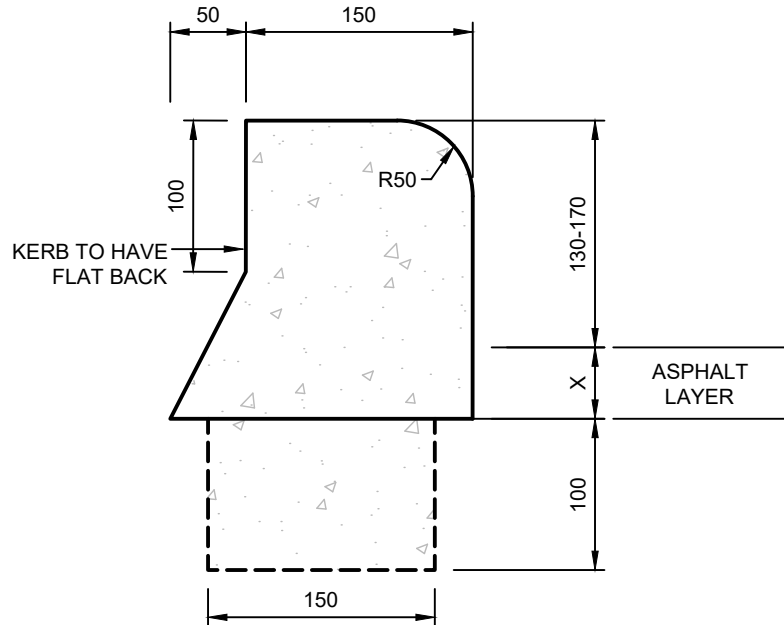
City of Perth

Design and Construction Note

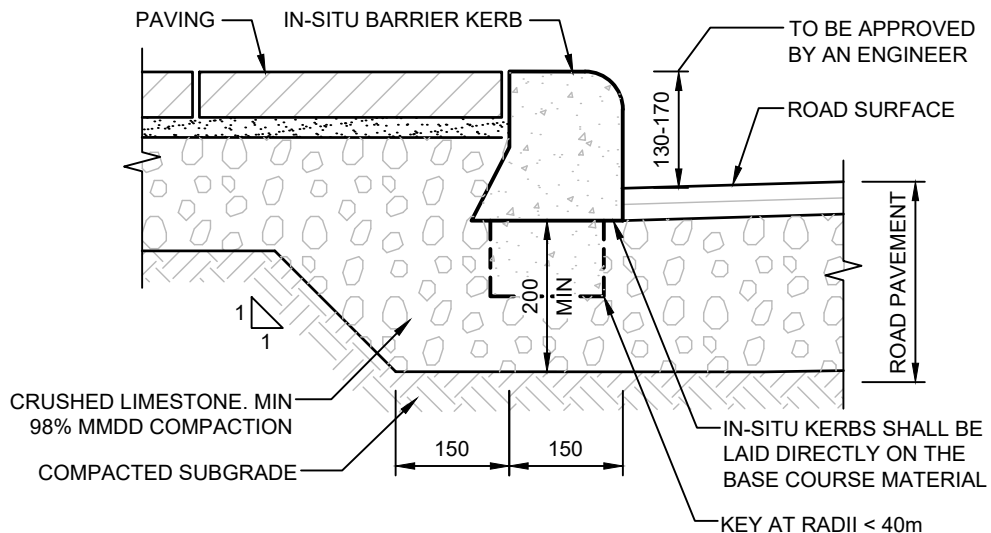
403.01

Standard Kerb Types and Installation Details In-situ Concrete Barrier Kerb

Reviewed: 09/06/2021



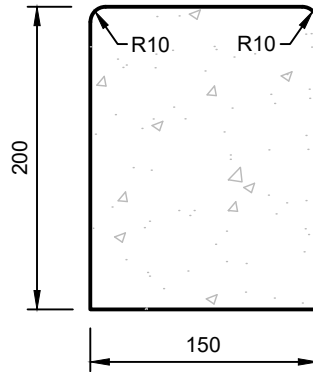
KERB DIMENSIONS



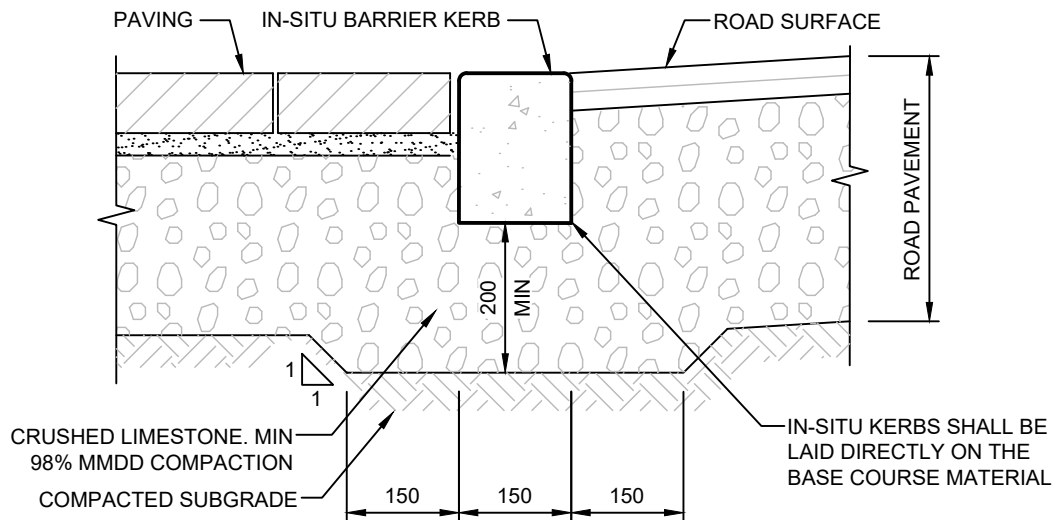
IN-SITU CONCRETE BARRIER KERB

General Note:

1. For more information on concrete, mixing and tolerances of in-situ concrete kerbs refer *Design and Construction Note 403.00 - In-situ Concrete Kerbs General Specification*.
2. Kerb height at bus stops shall be 170mm.



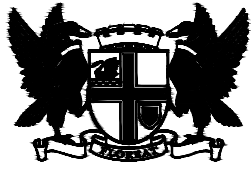
KERB DIMENSIONS



IN-SITU CONCRETE FLUSH KERB

General Note:

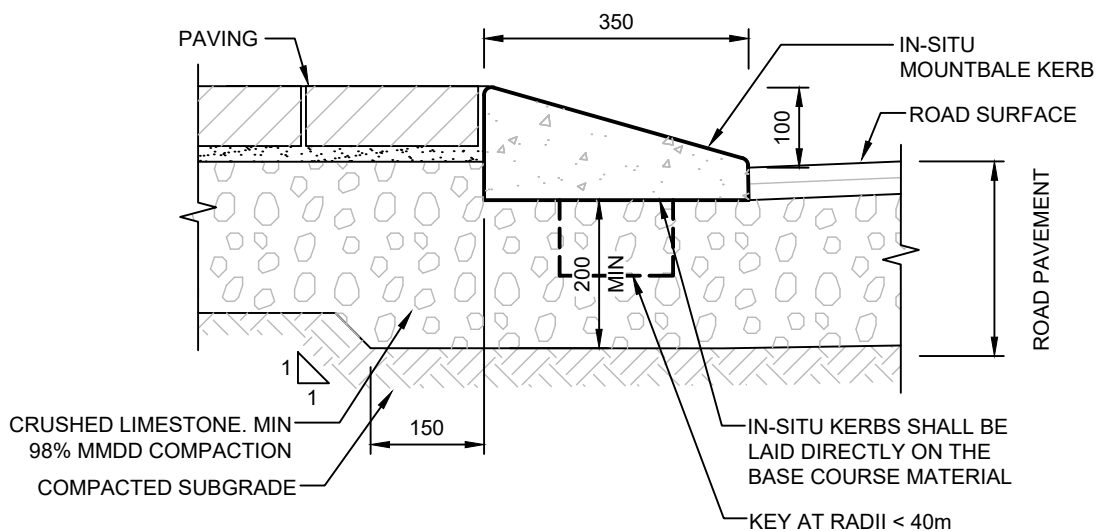
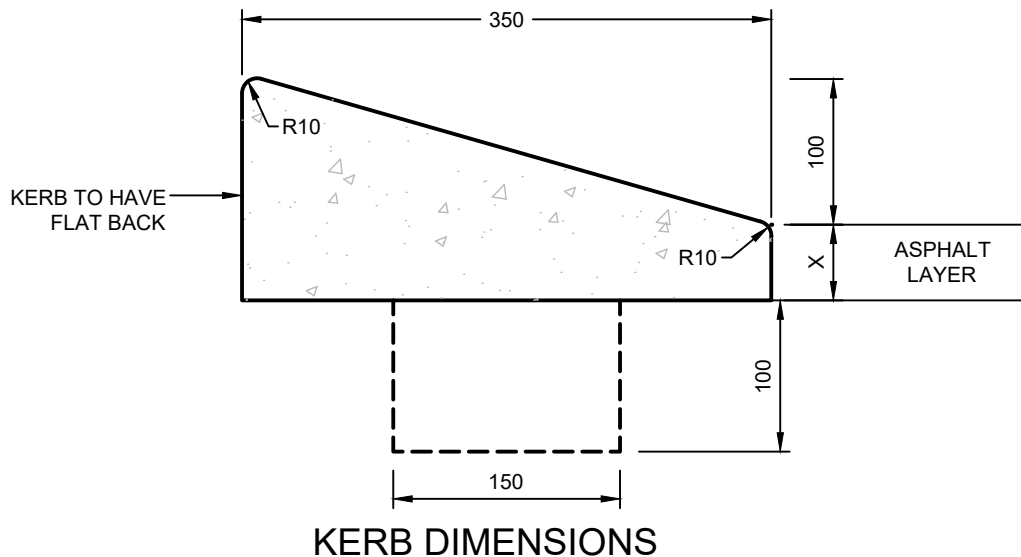
1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer *Design and Construction Note 403.00 - In-situ Concrete Kerbs General Specification*.



City of Perth

Design and Construction Note 403.03 Standard Kerb Types and Installation Details In-situ Concrete Mountable Kerb

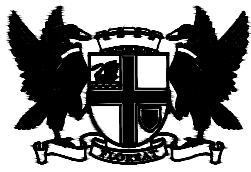
Reviewed: 09/06/2021



IN-SITU CONCRETE MOUNTABLE KERB

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer *Design and Construction Note 403.00 - In-situ Concrete Kerbs General Specification*.



City of Perth

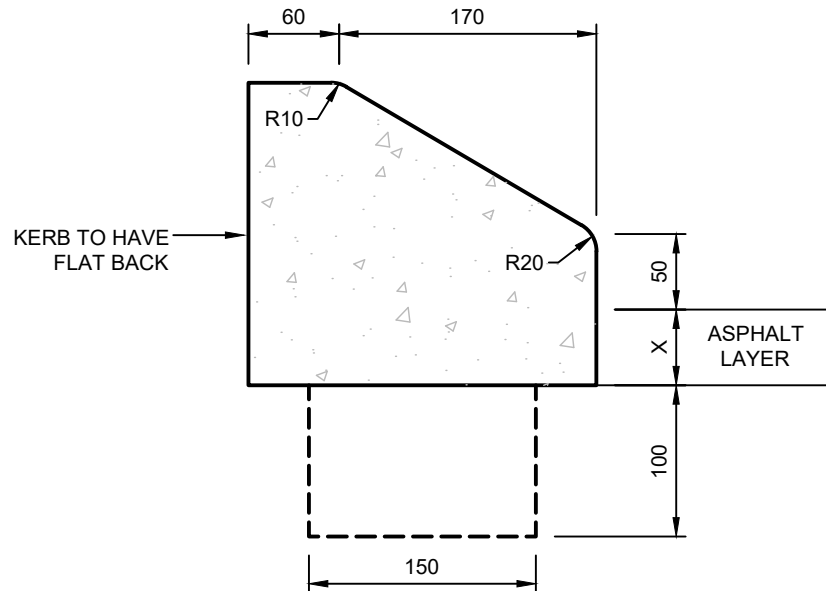
Design and Construction Note

403.04

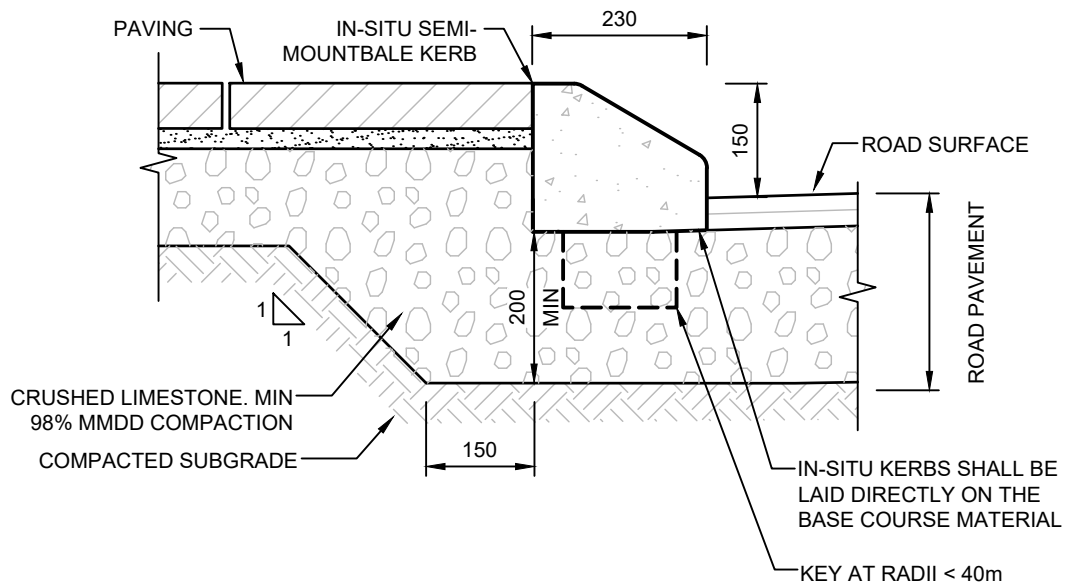
Standard Kerb Types and Installation Details

In-situ Concrete Semi-Mountable Kerb

Reviewed: 09/06/2021



KERB DIMENSIONS



IN-SITU CONCRETE SEMI-MOUNTABLE KERB

General Note:

1. For more information on concrete, mixing and tolerances of precast concrete kerbs refer *Design and Construction Note 403.00 - In-situ Concrete Kerbs General Specification*.