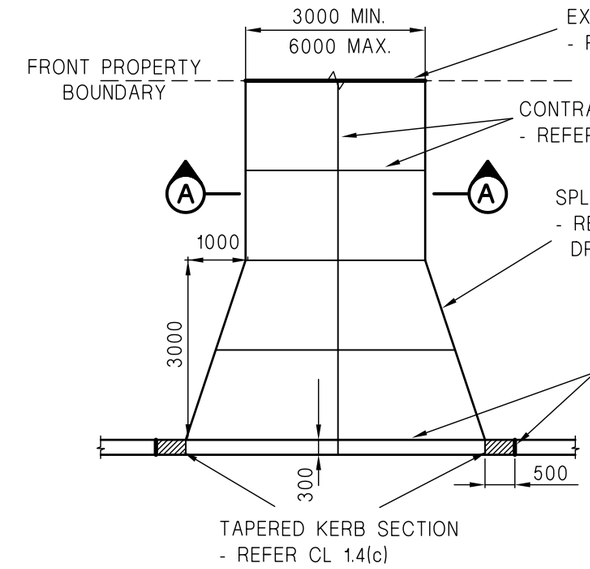
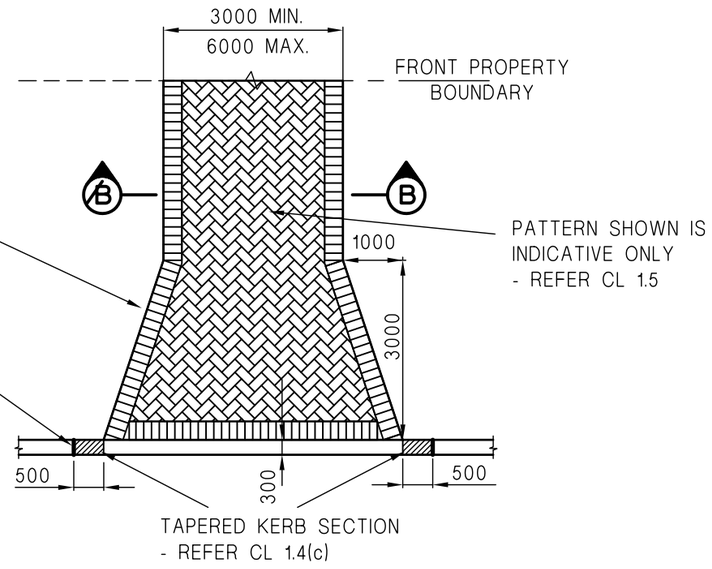
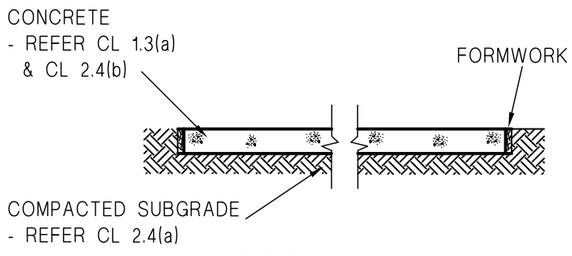


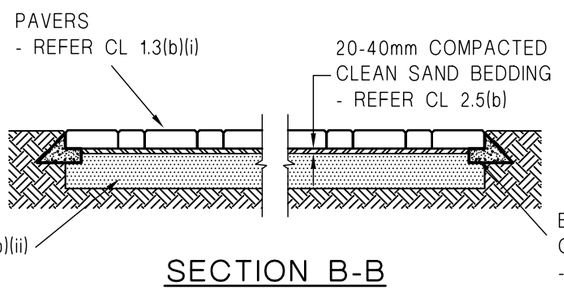
CONCRETE CROSSOVER



BRICK PAVED CROSSOVER



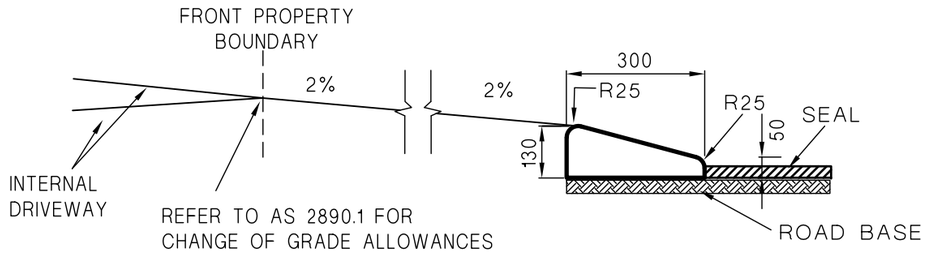
SECTION A-A



SECTION B-B

NOTES

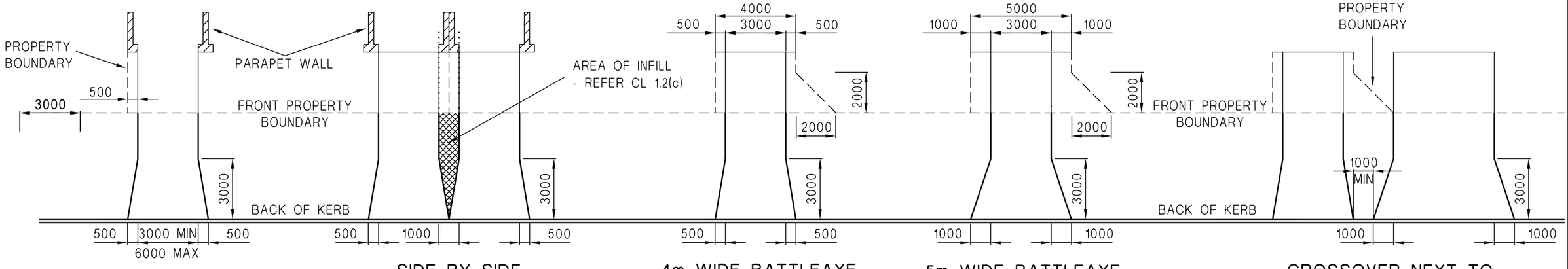
1. THIS PLAN SHALL BE READ IN CONJUNCTION WITH THE WRITTEN SPECIFICATION. ALL REFERENCES IN THIS PLAN ARE TO CLAUSES IN THE WRITTEN SPECIFICATION.
2. ALL DIMENSIONS IN MILLIMETRES.
3. PRIOR TO COMMENCEMENT OF WORKS, AN APPLICATION FOR APPROVAL TO CONSTRUCT CROSSOVER SHALL BE MADE TO THE CITY.
4. ANY VARIATION TO THE DETAILS IN THE WRITTEN SPECIFICATION AND/OR THIS PLAN WILL REQUIRE APPROVAL BY THE CITY OF CANNING IN WRITING PRIOR TO ANY WORKS COMMENCING.
5. ANY CONFLICTING PUBLIC UTILITIES SHALL BE MODIFIED OR RELOCATED AT THE OWNER'S EXPENSE. THE OWNER SHALL LIAISE WITH THE RELEVANT SERVICE AUTHORITY.
6. ON COMPLETION OF WORKS, CONTACT THE CITY ON 1300 422 664 TO ARRANGE FINAL INSPECTION.



MOUNTABLE KERB SECTION

NOTE: IPWEA SUBDIVISION GUIDELINES STANDARD MOUNTABLE KERB MAY BE USED AS AN ALTERNATIVE.

CROSSOVER LAYOUT REQUIREMENTS FOR PARAPET WALL GARAGE AND BATTLEAXE DEVELOPMENT



PARAPET WALL GARAGE

SIDE BY SIDE PARAPET WALL GARAGES

4m WIDE BATTLEAXE DEVELOPMENT

5m WIDE BATTLEAXE DEVELOPMENT

CROSSOVER NEXT TO BATTLEAXE DRIVEWAY

REV.	AMENDMENTS	DRAWN	AUTH'D	DATE
	SUPERSEDES PLAN C1633 AND C1640	CPG	TB	JAN'05
1	INCORPORATES STD 04 & REFERS TO SPECIFICATION CLAUSES	CPG	BM	8.11.17

SHEET 01 OF 01

NOT TO SCALE

DESIGNED	ST	MAR'05
DRAWN	RD/CPG	MAR'05
CHECKED	C GOMES	1/3/05
RECOMMENDED	T BOZICH (MANAGER)	1/3/05
APPROVED	S TRINCA (EXECUTIVE)	1/3/05

CITY OF CANNING

RESIDENTIAL CROSSOVER STANDARD DETAILS

FILE No.	PLAN No.	REVISION	ORIGINAL
CAD179	STD 01	1	A3

CITY OF CANNING

CROSSOVER SPECIFICATIONS RESIDENTIAL

1.0 CROSSOVER

1.1 Crossover Location and Position

a) Crossovers shall be aligned at right angles to the street alignment wherever possible.

b) For a standard crossover, the minimum setback to the side boundary of the property as measured along the front property line is 1.0m. For crossovers servicing a parapet wall garage or a battle-axe driveway where the access way width is 4.0m wide, the minimum clearance is 0.5m.

c) For corner lots, lots with access to a right of way (ROW) and lots with access to more than one street, the location of the crossover to be as per the Residential Design Codes of Western Australia as outlined below.

- Where available, from a right-of-way available for lawful use to access the relevant lot and which is adequately paved and drained from the property boundary to a constructed street;
- From a secondary street where no right-of-way exists; or
- From the primary street frontage where no secondary street or right-of-way exists. Please note that the primary street is determined by the orientation of the major entry (front door).

d) All elements of the crossovers shall be located at a minimum distance to infrastructure / obstructions as follows:

- Side-entry and utility pits: 0.5m
- Street trees: 2.0m
- Street poles: 0.5m (as per the R-Codes)
- Bus stops: 1.0m
- Bus shelters: 1.5m

If crossovers must be constructed within this distance, the infrastructure / obstruction shall be relocated wherever possible at the cost of the applicant with the approval of the authority owning the respective infrastructure. Approval is required prior to conducting any works on site.

1.2 Crossover Shape

a) The minimum width of crossover shall be 3.0m as measured along the front boundary. The maximum width shall be 6.0m.

b) Crossover splays shall be 1.0m wide along the kerbline by 3.0m in length. For developments with parapet wall garages and battle-axe driveways where the access way is 4.0m wide, the crossover splays shall be 0.5m wide by 3.0m in length.

c) Where the distance between 2 adjacent crossovers is 1.0m as measured along the front boundaries, the space between the crossovers shall be paved in a different colour.

1.3 Crossover profile

a) Concrete crossovers shall be a minimum of 100mm deep.

b) Brick paved crossover:

i) Pavers shall be a minimum of 60mm thick concrete or approved clay bricks. Paving bricks less than 60mm thick must satisfy the manufacturer's specifications for vehicle loading. Approval of paving bricks is required from the City prior to works commencing.

ii) Base material shall be a minimum of 100mm thick and shall consist of compacted crushed limestone or roadbase to the City of Canning or Main Roads WA specifications. A recognised recycled material with a Main Roads WA certificate may be used as an alternative base course.

c) The maximum crossover gradient from the kerbline to the property boundary is 2.0%. Any deviation from this requirement must be approved by the City's Development Engineers.

d) The maximum change of grade along a crossover and driveway shall meet the requirement of Australian Standard (AS) which is AS 2890.1. This is to prevent bottoming or scraping of vehicles. If these conditions are not able to be satisfied, a grade transition will be required either via a vertical curve or intermediate straight sections.

e) Crossovers shall provide a non-slip surface finish.

1.4 Crossover kerbing

a) Existing fully mountable kerbing where the crossover is to be located shall not be removed without approval from the City. Where a fully mountable kerb exists, the crossover is to abut the existing kerb.

b) Existing semi-mountable and barrier kerbing where the crossover is to be located shall

be removed and replaced with the crossover kerb type as shown on the 'City of Canning Residential Crossover Standard Details'.

c) Where an adjacent kerb is of dissimilar type, a 500mm long taper shall be constructed from the edge of the crossover kerb to the adjoining kerb.

1.5 Brick Pavement Pattern

Whilst the City does not specify a pattern requirement, a 45 or 90 degree herringbone pattern is preferred because the pattern tightly interlocks the bricks and it can handle significant weight, which is ideal for driveways. Crossovers at the Canning City Centre Area are to be brickpaved and are to match the type, pattern and colour as required under the *Canning City Centre Public Realm Style Guide*.

1.6 Existing Paths

In order to reinforce priority to cyclists and pedestrians, where there is an existing footpath or shared path that is in-situ concrete, in good condition and is over 100mm thick, then the footpath shall be preserved unless agreed otherwise by the City. The crossing shall be constructed on both sides of the concrete path and made to match.

The existing path shall only be removed and replaced if it falls under any of the following conditions:

i) Is damaged or less than 100mm thick for residential crossovers;
ii) Not in-situ concrete;
iii) Has an incorrect gradient; or
iv) Is immediately behind the kerb and is required to be reconstructed to accommodate construction of the new crossover.

Footpaths identified for removal are to be assessed by the City prior to commencement of crossover construction.

1.7 Redundant Crossovers

Any redundant crossovers shall be removed and the kerb, verge and footpath (if present) reinstated to fit in with the surrounding form/development pattern. Where the redundant crossover previously crossed the footpath, a new section of footpath is to be constructed on both sides of the existing concrete path and made to match.

2.0 Construction

2.1 Protection of Works

The Contractor shall provide for the safety of the public at all times around the works by erection of adequate signs, barricades, flashing warning lights or any other necessary safety items. Footpaths shall be kept in a safe condition for public use at all times. Where a footpath is to be closed, an alternative link is to be provided.

2.2 Utility Services within the verge

It is the responsibility of the applicant to liaise with utility service providers regarding infrastructure that may be buried within the verge. This can be achieved using the free 'Dial Before You Dig' service at www.1100.com.au.

2.3 Excavation

a) Excavation shall be shaped to the required dimensions and levels to allow for pavement thickness. The base of the excavation shall be compacted to a minimum of eight (8) blows per 300mm of the standard Perth Sand Penetrometer and shall be executed cleanly and efficiently to provide for a consolidated sound base free of depressions, soft spots or any deleterious materials.

b) The contractors shall be responsible in ensuring that all excavated material is removed from the site at the same time as the excavation is carried out. No excavated material shall be stockpiled on site or buried within the verge.

c) Existing non-fully mountable kerbing is to be cut with a concrete saw and removed without damage to road pavement, remaining kerbing or existing services. To facilitate neat removal and subsequent reinstatement, the concrete or bitumen to be removed, shall be completely separated from the adjoining concrete or bitumen by means of a concrete or bitumen saw.

d) When an existing concrete path has a thickness of 100m or more, is in good condition, and is adjacent to the lot boundary or kerbline, the crossing shall be constructed either side of the concrete path.

e) When an existing concrete path is damaged, is less than 100mm thick, has an incorrect gradient, and/or where the removal of the path is necessary for the construction of the crossover to take place, the existing path shall be removed and replaced with a new path constructed to the City's standard. The crossover should never take precedence over the path (AS 1428.1).

2.4 Concrete Crossover

a) **Compaction** – The subgrade shall be compacted to a minimum of 95% maximum dry density. This corresponds to a Perth penetrometer reading of eight (8) blows per 300mm.

b) **Concrete** – All concrete used shall develop compressive strength of 25 MPa at 28 days. The concrete to be used shall be composed of a mixture of sand, cement, aggregate and water to give strength specified with a maximum slump of 80mm. Concrete and its placement shall conform to AS 1379 (1991) and AS 3600 (1988) respectively.

c) **Placing concrete** – The base shall be thoroughly and evenly moistened, but not saturated, prior to placing concrete. All stones or other deleterious materials shall be removed from the base prior to pouring concrete. Concrete shall be evenly placed to the depth specified and shovelled into position continuously and spaded, especially at all edges, to give maximum density. No concrete shall extend onto the road surface. No break in operation shall be permitted from time of placing concrete to finishing.

d) **Kerbing** – Where existing kerb is of a type other than fully mountable it is to be removed and replaced with the crossover kerb type as shown on City of Canning Residential Standard Crossover Details. Existing fully mountable type kerb shall not be removed without the approval from the City.

e) **Jointing** – Expansion joints shall be full depth joints and filled with bitumen-impregnated canite or similar approved material and butyl mastic sealer. Expansion joints should be located at:

f) The lot boundary and both sides of a path where there is a path and also at the back of the kerb section adjoining the crossing.

g) Where it adjoins rigid structure or any public utility structure.

   i. The ends of the existing kerbing where kerbing has been removed.
   ii. 6m maximum spacing on long crossings.
   iii. Contraction joints shall be made with an approved jointing tool with 2m maximum spacing either laterally or longitudinally.

h) **Finishing** – Surface finish shall be obtained by screeding to the correct levels and finished with a transverse brooming tool to provide a non-slip dense surface, free of any depressions, float marks, irregularities, honeycomb sections or slurry likely to cause excessive surface wear.

i) **Specialised Materials** - Liquid limestone and exposed aggregate concrete materials may be used in place of concrete. It may become necessary for sections of the crossover to be reinstated as a result of works undertaken by the City or another Utility.

   Only the affected area will be reinstated and matching the existing finish will most likely not be possible.

2.5 Brick Paved Crossover

a) **Base Course** – Base material shall be compacted to give a 100mm thickness and shall be trimmed to an even surface to conform with the finished surface levels.

b) **Bedding layer** – The bedding layer shall have a pre-compacted depth of 20mm to 40mm, such that the final compacted thickness is within a tolerance of 25mm ± 10mm. The bedding layer shall be well-graded concreting sand, free of deleterious soluble salts and other contaminants. The sand should be of uniform moisture content, and is to be spread over the compacted base course and screeded in a loose condition.

c) **Laying** – The paving units shall be laid onto the loose bedding sand with a gap of approximately 2mm – 4mm between adjacent bricks. Part bricks shall be neatly cut to size with a hydraulic guillotine, bolster or saw.

d) **Compaction** – The pavement should be compacted and brought to level by not less than three passes of the vibrating plate compactor. Plywood of 12mm thickness shall be used either attached to the base of the compactor or laid on the bricks as a cushion to prevent damage to the surface.

e) **Joint filling** – The sand used for joint filling should be finer than the bedding layer. As soon as possible after compaction, dry sand for joint filling shall be broomed over the pavement and into the joints. Excess sand shall be removed as soon as the joints are filled.

f) **Edge restraint** – Edge restraints shall be provided to withstand vehicle impact and prevent lateral movement of the paving bricks. The edge restraints shall be a 20 MPa, 100mm thick concrete wedge which shall extend 100mm under the brick and 100mm beyond the header course and shall rise to a minimum of 20mm from the bottom of the header course.

g) **Kerbing** – Where existing kerb is of a type other than fully mountable it is to be removed and replaced with the crossover kerb type as shown on City of Canning Residential Crossover Standard Detail. Existing fully mountable type kerb shall not be removed without approval from the City.

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