SPECIFICATION FOR THE CONSTRUCTION OF VEHICLE CROSSOVERS

OVERVIEW

This document is designed to assist property owners and contractors to construct an appropriate crossover to the Shire of Plantagenet specifications.

The crossover is the section of driveway that extends from the road to the front boundary, across the Council verge.

Prior to constructing a crossover the owner must submit an application and receive the approval of the Local Government pursuant to *Schedule 9.1 Clause 7 of the Local Government Act 1995 and the Local Government (Uniform Local Provisions) Regulations 1996.* An application form for crossover construction approval is available from the Shire of Plantagenet, Lowood Road, Mount Barker.

Owners may have their crossover constructed to the Council's specification by contractors. Should you elect to do this you must ensure that your contractor is in possession of and complies with the Council's Specification for the Construction of a Vehicle Crossover. Crossovers not constructed to this standard are **NOT** eligible for the Council's contribution and the Council may require the removal of the crossover.

When a contractor is engaged, full payment will be made by the applicant directly to that contractor.

The applicant should then submit the "Application for Vehicle Crossover Subsidy" form. A copy of the receipt received from the contractor must be attached to the application for the Council subsidy.

On receipt of the application the crossover will be inspected by Council staff, and if the crossover conforms to the specification, the applicant will receive the Council's contribution.

The subsidy will only be paid on applications received within six (6) months of construction of the crossover.

1. GENERAL

1.1 This specification sets out the minimum standards for the construction and completion of a vehicle crossover from the edge of the road pavement to the road reserve/property boundary, under the provisions of *Section 12 of the Local Government (Uniform Local Provisions) Regulations 1996* as may be amended.

1.2 It is Council policy not to construct crossovers in urban areas. The crossover must be constructed by a contractor or by the applicant.

1.3 In rural zones crossovers may be constructed by the applicant or their contractor or by the Shire, depending on the availability of plant.

1.4 A subsidy is payable only on the first crossover constructed to any lot or location.

1.5 Where the Council is able to construct a rural crossover, this will be charged at private works cost plus 20%.

2. LOCATION

2.1 Crossovers shall be located in such a position as not to cause interference to public utility facilities and shall not be closer than 10.0m from the property line intersection point at corner sites unless approved by the Council.

2.2 Crossovers are not to be sited in a position where they may constitute a traffic hazard.

2.3 Crossovers shall be constructed at 90 degrees to the edge of the pavement.

3. CULVERTS

3.1 Where a road or street in which the crossing is constructed is not drained by underground drainage, a pipe of a minimum length of 4.0m (in Urban area), 5.0m (in Rural area) is to be set in the crossing. Where no drain exists the Council will, where required, cut connecting drains when crossings have been completed. The size of the pipe will be determined by the Council, and will in no case be less than 225mm diameter. **IT IS ESSENTIAL THAT ADVICE BE SOUGHT FROM THE COUNCIL REGARDING PIPE SIZES TO BE USED.**

3.2 Pipe lengths are to be laid with watertight joints in accordance with the manufacturer's recommendations and are to have a minimum cover of 300mm.

3.3 Headwalls of grouted pitched stone or concrete are to be provided at each end of the pipe. These are to be of sufficient standard to prevent any erosion problems.

4. LEVELS

4.1 In Urban areas the crossing at the boundary line is to have the same longitudinal grade (slope) as the adjacent roadway i.e. the level for each edge of the crossover is to be taken separately from the centreline of the road.

4.2 Crossfall should be a 2% grade and be such that any stormwater falling onto the surface will drain off into the road reserve or out onto the road surface.

Finished crossover levels must not impede the flow of stormwater or in any way be detrimental to adjoining properties.

4.3 Where there is existing mountable kerbing or a footpath is in place these shall be taken as the level control.

4.4 Where there is fall away from the road, i.e. the property is on the low side of the road, and where mountable kerbing does not exist, the crossover may be required to be formed to suit the cross section of future kerbing and footpath.

4.5 In difficult locations or where there is any doubt over levels Council advice is to be sought before work is commenced.

5. DIMENSIONS

5.1 The minimum width for residential crossovers is to be 3.0m at the property boundary and 6.0m at the road edge. Rural crossovers should be 4.5m with 6.0m entry radii at the road shoulder, and a minimum 6.0m length of culvert at the drain line. See Schedule of Requirements.

5.2 The maximum width is 6.0m for Residential crossovers, 7.4m for Rural crossovers and 9.0m for Commercial or Industrial owners.

6. CONCRETE CROSSOVERS

6.1 Concrete is to have a minimum compressive strength of 28Mpa.

6.2 The minimum thickness of concrete crossovers is to be 100mm. Excavation work shall be executed to provide for a consolidated sound base free of depressions or soft spots or any other deleterious material to achieve the thickness of 100mm for Residential crossovers and a minimum 150mm using F62 mesh for Commercial crossovers. The base shall be thoroughly consolidated and evenly moistened but not saturated prior to placing of concrete.

6.3 The concrete is to be treated to achieve a non-slip finish. The concrete may be coloured to suit the owner's requirements.

6.4 Contraction joints are to be ruled with a jointing tool at maximum 2.0m centres. An expansion joint is required at the property boundary and where constructed to existing kerbing and shall be a full depth joint 14mm wide and filled with bitumen impregnated concrete or similar.

6.5 Where barrier or semi mountable kerbing is in place at the crossover location, that kerbing shall be removed in all cases. A water channel shall be restored by creating a lip 20mm in height. Any damage caused by removal of the kerbing is not to be reinstated by concrete but to be reported to the Shire of Plantagenet. Mountable kerbing is not to be removed.

Where the road is unkerbed and is less than 7.4m in width the concrete crossover is to commence 3.7m from the centre of the road and the area between the crossover and the edge of bitumen is to be sealed in bitumen.

7. BITUMINOUS SEALED CROSSOVERS

7.1 The site of the crossover is to be suitably prepared for the required depth of gravel. The site shall be cleared of all vegetation, roots etc, and the subgrade formed to the levels and grades as required, being excavated or filled as the case may be. The formation is to be consolidated prior to receiving base course.

7.2 Sealed crossovers shall have a pavement thickness of not less than 150mm compacted gravel or other approved base course material. The gravel is to be good quality laterite gravel, free from injurious amounts of clay, vegetation, silt etc. The gravel is to be spread, rolled, waterbound and corrected as necessary to shape and grade.

7.3 The finished surface is to be watered and rolled with a vibrating roller. The surface is to be slurried and swept clean of any loose material.

7.4 Kerbing is to consist of 100mm x 25mm merchantable quality jarrah and is to be placed on all construction edges and supported by 50mm x 25mm x 300mm jarrah legs at maximum 2.0m spacing. The kerbing is to finish proud of the consolidated gravel surface so that the finish is flush with the top of the timber kerbing.

7.5 The bituminous concrete surfacing is to be provided from an approved plant. Prior to laying the bituminous concrete a tack coat of ferolas or similar material is required at a rate of 0.9 litres/m^2.

The aggregate material may be Granite. The material is to be laid at a temperature not less than 160 degrees C (320 degrees F) spread to an even thickness to provide a finished, consolidated thickness of 20mm by vibration. The thickness of the material is to be even and this is to be maintained by approved techniques.

The finished work shall be undertaken while the material is hot, to produce a fine, dense, smooth surface, free of surface voids. Cold mix can be used. Where cold mix is used it must comply with the grading specification for 5mm B.C. and be applied to the prepared base as above. Surfacing using cold mix is to be protected from vehicle use for 48 hours to allow curing to take place.

7.6 Alternatively the sealed surface can be a two coat aggregate seal using bitumen emulsion at a rate of 1.2 litres/m^2 and spreading 10mm road metal and brooming lightly immediately after spraying. Roll immediately after brooming with a steel drum roller with a minimum weight of 4 tonnes or preferably with a vibrating roller. The second spray should be at a rate of 1 litre/m^2 and spreading 7mm road metal and brooming and rolling of metal as per the first seal. The finished surface is to be swept clean of any loose material. See Schedule of Requirements for rural and commercial bitumen application rates.

7.7 Bitumen emulsion is to be R.S.K. cationic emulsion, rapid setting with low viscosity and a breaking period of approximately 3 minutes.

8. BRICK PAVED CROSSOVERS

8.1 Where, in the opinion of the Council, suitable sub-grade materials (i.e. gravels, loamy gravels) exist, the site is to be excavated to a depth being the sum of the depth of the paving blocks plus 30mm below the required finish level.

Where the sub-grade is not of sufficient bearing strength to adequately support the paving under load, a minimum of 100mm consolidated thickness of approved base course material (i.e. approved road making gravel or road base) is to be spread, rolled, waterbound and levelled to conform to proposed finished shape and grade of crossover.

8.2 Prior to commencement of block laying, 30mm of sand is to be spread over sub-grade or base course. This is to be screeded to level and grade and compacted. Gaps between paving units are to be maximum of 2mm.

8.3 After units are laid they should be consolidated using a plate compactor. Two passes are required to achieve desirable amount of compaction and uniform surface.

8.4 Prior to compaction, joints should be filled with fine sand, free from salts and contamination. Bricklayers sand is suitable. This should be brushed onto joints. This may need to be repeated after an interval of some days.

8.5 The perimeter of all paved areas must be provided with a restraining barrier. Restraints must be robust enough to withstand vehicle impact and prevent any lateral movement of the bricks as this movement could cause pavement failure.

Mountable road kerbs provide adequate restraint on the crossover road interface. The remaining sides must be supported by a concrete beam or other approved methods.

8.6 With rectangular shaped bricks a structural pavement is best achieved by laying down pavers in herringbone configurations. Field trials have shown that bricks laid with their long axis at 45 degrees to the direction of traffic give the best performance followed by pavers laid with the long axis at 90 degrees to traffic flow. Stretcher bond pattern is the next most effective followed by basket weave.

8.7 In general, it is required that the wet strength of the pavers to be used is a minimum of 25Mpa.

Interlocking units which key into each other on all four faces, and interlocking units which fit into each other on only two faces, will be a minimum of 65mm in thickness. Rectangular units (solid) will be a minimum of 65mm in thickness. See Schedule of Requirements for residential, rural and commercial minimum thicknesses.

8.8 It is to be noted that the Council reserves the right to reject paving units which in the opinion of the Council are not acceptable for use in vehicle crossing places. If in doubt about the paving units to be used, advice should be sought from the Manager Works and Services.

SCHEDULE OF REQUIREMENTS

ALL CROSSOVERS			
ITEM	**RESIDENTIAL**	**RURAL**	**COMMERCIAL**
Minimum width	3.0 metres	4.5 metres with 6.0 metres entry radii at the road shoulder	6.0 metres
Maximum width	6.0 metres	7.4 metres	9.0 metres
Alignment of crossover	90 degrees to the property line unless otherwise approved by Manager of Works and Services		
CONCRETE			
ITEM	**RESIDENTIAL**	**RURAL**	**COMMERCIAL**
Minimum thickness	100mm	100mm	150mm
Steel Reinforcement	F62 mesh	F62 mesh	F62 mesh
Minimum high strength at 28 days	28Mpa	28Mpa	28Mpa
BITUMINOUS SEAL			
ITEM	**RESIDENTIAL**	**RURAL**	**COMMERCIAL**
Bitumen Application	1.2 litres/m^2 first coat	1.2 litres/m^2 first coat	1.4 litres/m^2 first coat
	1 litre/m^2 second coat	1 litre/m^2 second coat	1 litre/m^2 second coat
Stone Size	10mm first coat	14mm first coat	14mm first coat
	7mm second coat	10mm second coat	10mm second coat
BRICK PAVE			
ITEM	**RESIDENTIAL**	**RURAL**	**COMMERCIAL**
Minimum compacted thickness of base	100mm	100mm	200mm
Minimum thickness - concrete paver units interlocking on two faces	65mm	65mm	80mm
Minimum thickness - concrete paver units interlocking on four faces	65mm	65mm	80mm
Minimum thickness – concrete paver unkeyed	65mm	65mm	80mm
Sand Bedding	30mm	30mm	30mm
Minimum high strength at 28 days	25Mpa	25Mpa	25Mpa