SHIRE OF IRWIN
DONGARA-PORT DENISON
A BRILLIANT BLEND

Standard Vehicle Crossover Specifications

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PART 1 - GENERAL

1.0 OBJECTIVE

The purpose of this specification is to ensure that vehicle crossings are constructed and maintained to a safe and efficient standard in accordance with the requirements of the Shire of Irwin (hereinafter referred to as the Shire).

This document contains comprehensive technical information on crossovers, installation procedures, permissible materials, guidelines and specifications applicable to the construction of crossovers in the Shire.

1.1 DEFINITIONS

Applicant means the person who makes application to the Shire to construct a crossover;

Shire means the Shire of Irwin;

Contractor means the person or company who will be responsible for construction of the crossover;

Crossing has the same meaning as Crossover;

Crossover means that section of the 'drive in' to a property that replaces the verge and footpath or will ultimately form part of the future footpath;

Footpath means the paved or made portion of a thoroughfare used or intended for use by pedestrians and cyclists;

Local Government means the local government of the Shire of Irwin;

Local Government Act means the Western Australian Local Government Act 1995;

Subsidy means the contribution that the Shire is prepared to make towards the cost of an approved crossover;

Verge means that portion of a thoroughfare which lies between the boundary of a carriageway and the adjacent property boundary but does not include a footpath.

1.2 STATUTORY REQUIREMENTS

Under the provisions of Schedule 9.1, Clause 7 of the Local Government Act 1995 and Regulation 12, 13 and 15 of the Local Government (Uniform Local Provisions) Regulations 1996, all landowners within the Shire of Irwin must make application to Council to construct a vehicle crossover.

All crossovers must be constructed to the satisfaction of the Shire's Director Planning and Infrastructure or his/her nominated representative.

1.2.1 Council Subsidy

Schedule 9.1, Clause 7(4) of the Local Government Act 1995 states:

Regulations may provide for the local government to bear some of the cost of making a crossing in certain circumstances.
Regulation 15 of the Local Government (Uniform Local Provisions) Regulations 1996 states:

(1) Where -

(a) a local government -

(i) under regulation 12 constructs or approves the construction of; or

(ii) under regulation 13(1) requires the construction of,

a crossing giving access from a public thoroughfare to private land or a private thoroughfare serving the land;

(b) the crossing is the first crossing in respect of the land; and

(c) the crossing is a standard crossing or is of a type that is superior to a standard crossing,

the local government is obliged to bear 50% of the cost, as estimated by the local government, of a standard crossing, but otherwise the local government is not obliged to bear, nor prevented from bearing, any of the cost.

(2) In subregulation (1) -

"first crossing" in respect of land, means the first crossing to the land or a private thoroughfare serving the land constructed under regulation 12 or section 358 [2] of the Local Government Act 1960 as in force at any time before 1 July 1996;

"standard crossing" means, subject to any local law as to what is or is not a standard crossing, a crossing of a kind that the local government, by resolution, decides is a standard crossing.

1.2.2 Standard Crossing

Council has resolved that a **standard crossing** has the following features:

I. concrete or brick paved;

II. width at the property boundary of 3.0 meters; and

III. 1.5 metre wide tapers or wings at the crossover entrance;

IV. where constructed in concrete, the crossover shall be standard grey in colour; and

V. brick paved crossovers to have a 1.0 meter wide concrete apron at the crossover entrance.

1.3 HOW TO APPLY FOR A CROSSOVER

If it is the first vehicle crossing constructed to the premises, the Shire of Irwin may contribute 50% towards the construction cost of a residential crossover. The contribution is determined at the time of the inspection and is calculated on a standard 3.0 metres wide crossover. Currently, only crossovers constructed to residential properties are eligible for a Council contribution of 50%.

Written approval by the Shire of Irwin **must** be obtained prior to construction of a new/additional crossover commencing. To obtain written approval complete a **Crossover Application** form and lodge it with the Shire. Crossover Application forms received after construction has commenced will not be eligible for a subsidy and may be subject to removal, if deemed by Council to be dangerous in location, design or construction.

To claim Council contribution, complete a **Crossover Reimbursement** form**,** attach all receipts for the labour and materials and lodge it with the Shire after completion of the crossover. Application for a contribution must be made in writing and submitted within six (6) months of the date that the crossing was constructed.

Upon receipt of the crossover reimbursement form, a site inspection will be undertaken by an Officer from the Works Department to verify that the crossing has been constructed in accordance with the specification. Should the constructed crossover comply with all of the Shire's requirements, then the subsidy payment will be forwarded to the property owner by mail.

1.3.1 Contacts

Queries on all matters related to crossovers, including requests for information, application forms, notification for inspections and as otherwise described in this document should be directed to:

☑ Shire of Irwin Customer Service Office on 99 270 000

1.4 TYPE AND METHOD OF CONSTRUCTION

Crossovers to residential properties must be constructed in either concrete or brick paving. For commercial and industrial properties, crossovers may only be constructed in asphalt, concrete, or brick paving. Bitumen sealed crossovers are discouraged for commercial and industrial properties. The construction of crossovers shall be executed in accordance with this specifications and any variance must first be approved in writing by the Director Planning and Infrastructure or their representative.

Crossovers can be constructed in either the following ways:

1. Privately constructed –

a) The applicant constructs the crossover; or

b) The owner/agent arranges for a private contractor to construct a concrete or brick paved crossover.

1.5 BUILDING APPLICATION

A Building Application is for construction works inside the property boundary and does not include approval for the construction of a crossover. Hence, a separate application is required for the construction of a crossover within the road verge, which is vested with the Shire of Irwin.

1.6 MAINTENANCE RESPONSIBILITY

The crossover is that section of driveway that extends from the road kerb to the front or side property boundary line, across the verge. The property owner is responsible for the cost of construction and all future maintenance and repairs to the crossover, including any damage resulting from the roots of street trees. The Shire will not undertake any maintenance or repairs to the crossover or accept any liability as a result of poorly constructed or maintained crossovers.

1.7 PROTECTION OF EXISTING SERVICES, STREET TREES AND THE PUBLIC

I. Existing services within the vicinity of the proposed crossover shall be protected at all times. The owner or authorised representative may be contacted to provide advice in relation to the protection of services;

II. Where damage is caused to the Shire's infrastructure (i.e. kerb, pathway, road etc) as a result of the construction of the crossover, the infrastructure shall be repaired to the satisfaction of the Director Planning and Infrastructure.

III. Conflicting public utility services shall be adjusted or relocated at the applicant's expense, subject to formal approval of the relevant authority;

IV. The Shire's existing drainage structures (i.e. pits) that conflict with the location of the proposed crossover are to be adjusted by the Shire's Works Department and all costs associated with this work shall be borne by the Applicant;

V. The removal, adjustment, or reinstatement of reticulation is the responsibility of the Applicant;

VI. Street trees shall not be removed without the prior approval of the Shire's Director Planning and Infrastructure or his/her nominated representative. Crossovers shall be located a minimum of 1.5 metre from a tree and removal will only be undertaken where it can be demonstrated that this is the only option available. All costs associated with the removal of the street tree shall be borne by the Applicant;

VII. The Applicant shall be responsible for the protection of the public at all times. Signage, lighting, barricades, and/or any other protection measure deemed necessary shall be provided by the applicant to ensure that the public are protected during the execution of the works;

VIII. Safe access for pedestrians on the verge shall be maintained at all times. The Shire will not permit pedestrians being forced to walk on the road pavement unless appropriate measures are put in place for the protection of pedestrians; and

IX. Vehicle crossings abutting major roads shall be subject to the approval of Main Roads WA in conjunction with the Shire of Irwin.

1.8 LEVELS, SHAPE AND DRAINAGE

The levels and shape of the crossover shall be as shown in Attachments 2 and 4. The standard longitudinal slope shall be positive 2% (1:50) from the top of kerb. However for the verges having natural gradients above 2%, the first 3.0m of the crossing from the top of the kerb or road edge shall have positive 2% and the reminder of the crossing to the property boundary line and beyond shall be formed as shown in Attachments 2 and 4.

Where the difference in level between the front boundary and the road edge exceeds the above gradients, or the house finished floor is considerably lower than the road level, grated drains are to be installed at the property boundary connected to a soakwell. The soakwell shall be placed inside the property boundary and not on the verge unless authorised by the Director Planning and Infrastructure or his/her representative.

In no case shall the crossover junction at the property boundary be stepped unless specifically authorised by the Director Planning and Infrastructure or his/her authorised representative.

1.9 EXCAVATION, FILLING AND COMPACTION

Excavation shall be cleanly and evenly executed, watered and vibrator rolled to give a compaction of 95% maximum dry density as determined by modified compaction test under 12A or SAA Standard A89 – 1996 to provide for a sound base free of depressions, soft spots and any deleterious materials to accommodate a minimum 100mm thick concrete pavement (residential crossing), minimum 150mm thick concrete pavement (commercial / industrial crossing) or 190mm for brick paving (100mm deep base layer, 30mm sand and 60mm brick). The sub-grade, including any filling shall be moistened and thoroughly compacted using a 300mm plate compactor over a minimum of two passes.

All surplus material resulting from site preparation and construction of the crossing is deemed to be the property of the Contractor and shall be completely removed from the site at the expense of the Contractor.

1.10 REMOVAL OF EXISTING KERBING AND FOOTPATH

1.10.1 Kerbing

Where kerbing is in place at the crossing entrance, the length of kerbing equal to the appropriate entrance width of the crossing shall be removed and replaced with a 1.0 meter wide concrete apron in accordance with Attachments 1 and 3.

1.10.2 Cutting of Kerb

Where kerbing is to be removed, it shall be neatly cut and removed carefully so as to not disturb the wearing surface and road pavement. Where any doubt exists regarding the removal of kerbing, advice shall be obtained from the Director Planning and Infrastructure or his/her nominated representative and such work shall meet his/her satisfaction.

1.10.3 Existing Footpath

Generally, an existing footpath should be left in place if it is insitu concrete, is in good condition, and is a minimum of 100mm thick adjacent to the property boundary line or kerb, and is not a slab footpath. Where slab footpaths exist they shall be completely removed and disposed of at the contractor's expense.

Where deemed absolutely necessary and approved by the Director Planning and Infrastructure or his/her nominated representative, existing footpaths may be removed by neatly saw cutting the existing footpath to allow construction of the new crossover. The footpath shall be cut perpendicular to the existing footpath alignment and 12mm expansion joints shall be constructed either side of the crossover.

Where the footpath is damaged on respective sides of the proposed crossover, the footpath shall be removed back to the nearest construction/expansion joint and the section of path relayed to meet the requirements of the specification and satisfaction of the Director Planning and Infrastructure or his/her nominated representative.

The expansion joint shall be continuous from 'form to form' and extend vertically for the full depth of the slab. The joint shall not protrude above the surface of the crossover or abutting kerb.

1.10.4 Path Reinstatement (Concrete and Brick Paved)

Where the existing footpath or dual use path is pre-cast concrete slabs, these may be discarded or otherwise disposed of to the satisfaction of the Shire. The slabs shall be replaced by the crossover and the junction with the path made good to the satisfaction of the Director Planning and Infrastructure or his/her nominated representative.

Where the existing footpath or dual use path (DUP) is insitu concrete, is in good condition, and is a minimum of 100mm thick adjacent to the property boundary line or kerb, the crossover shall be constructed either side of the concrete path and match up with it provided the grade of the crossover from the property boundary to road channel does not exceed 4%.

Where the existing footpath or DUP is insitu concrete is in poor condition, or less than 100mm thick adjacent to the property boundary line or kerb, the pathway shall be neatly sawn cut along the alignment of the crossover to provide the necessary opening. The section of redundant path shall then be removed and reinstated up to the edge and level of the new crossing.

The path shall be kept in a safe condition at all times until reinstatement work is completed and appropriate signage installed warning pedestrians of construction works. All surplus material resulting from the removal of concrete pathway is deemed to be the property of the Contractor and shall be completely removed from the site at the expense of the Contractor.

1.12 CROSSING ENTRANCE

Where kerbing has been removed to permit the construction of a crossing, the water channel shall be restored by constructing a crossing entrance shown on Attachment 1 and 3.

A lip 25mm high shall be created between the road surface and the top of the front edge of the crossing entrance to allow for the future resurfacing of the road. Brick pavers shall not be permitted on the crossing entrance. Instead a one (1) meter concrete apron must be installed as shown on Attachment 1.

Any damage caused to the edge of the road surface shall not be corrected with concrete. The Director Planning and Infrastructure shall be advised of the damage and such damage will be repaired by the Shire with all of the costs associated with the repair to be met by the Contactor.

1.13 WIDE CROSSINGS (CONCRETE AND BRICK PAVED)

Where two residential crossings abut each other, they may be combined, providing that the combined width does not exceed 8.0 meters. Where the combined width is likely to exceed 8.0 meters, a pedestrian refuge of 2.0 metres minimum width shall separate the two (2) crossings.

1.14 PROTECTION OF WORKS AND PUBLIC

All signage installed to manage the traffic and pedestrians must comply with the current Australian Standards. Care shall be taken during construction of the crossing to protect the public from any accident and the works from damage.

1.15 DAMAGE TO EXISTING FACILITIES

Care shall be taken to avoid damage to any public facilities located in the verge. Therefore, the Contractor should contact “Dial Before You Dig” to obtain information about the location of all services in the area prior to undertaking any excavation.
The constructor shall repair any damage caused during construction to a standard acceptable to the owner of the facility.

PART 2: TECHNICAL SPECIFICATION - CONCRETE CROSSOVERS

2.01 RESIDENTIAL CROSSOVERS

Ready mixed concrete shall comply with AS1379-1997.

All concrete used in the crossing shall develop a minimum compressive strength of 20 Megapascals (Mpa) at 28 days and shall have high early strength additive to give rapid hardening. All concrete used shall have a maximum slump of 75mm delivered by transit truck from an approved mixing plant.

The concrete thickness shall be a minimum of 100mm. However, commercial/industrial crossovers shall be designed to meet the requirements of traffic loads and suitable access; therefore the thickness and reinforcing noted above are only the minimum standards.

Hand or machine mixing of concrete on site **is not** permitted. Documentation on the concrete used for the construction of the vehicle crossing shall be made available to the Director Planning and Infrastructure or his/her appointed representative when requested.

The minimum and maximum widths at the property boundary (excluding splays or wings) for residential crossovers are 3.0 metres and 6.0 metres respectively.

2.02 COMMERCIAL AND INDUSTRIAL CROSSOVERS

Ready mixed concrete shall comply with AS1379-1997.

All concrete used in the crossing shall develop a minimum compressive strength of 25 Megapascals (Mpa) at 28 days and shall have high early strength additive to give rapid hardening. All concrete used shall have a maximum slump of 75mm delivered by transit truck from an approved mixing plant.

The concrete thickness shall be a minimum of 150mm, with F72 reinforcing mesh. However, commercial/industrial crossovers shall be designed to meet the requirements of traffic loads and suitable access; therefore the thickness and reinforcing noted above are only the minimum standards.

Hand or machine mixing of concrete on site **is not** permitted. Documentation on concrete used for the construction of the vehicle crossing shall be made available to the Director Planning and Infrastructure or his/her appointed representative when requested.

The minimum and maximum widths at the property boundary (excluding splays or wings) for commercial crossovers are 6.0 metres and 10.0 metres respectively, for one and two way traffic flow.

2.1 PLACING CONCRETE

The base shall be thoroughly and evenly moistened, but not saturated, prior to placing the concrete. In addition, deleterious material shall be removed from the base before pouring the concrete.

The concrete shall be evenly placed to the depth specified in one continuous operation, and shovelled into position continuously and spaded, or vibrated, especially at the edges, to give maximum density. No break in operations shall be permitted from the time of placing to finishing except as authorised by the Director Planning and Infrastructure or his/her nominated representative.

2.2 PLACING CONCRETE IN HIGH TEMPERATURE

Concrete shall not be placed on days for which the official forecasted temperature is higher than 35 degrees Celsius, unless the following requirements are adhered to:

I. The formwork shall be continuous sprayed with water in advance of the placement of concrete. Excess water shall be removed from the inside of the formwork immediately prior to the placement of concrete.

II. Steel reinforcement and metal formwork shall be suitably protected from the effects of excessive temperature.

III. Suitable barriers shall be provided to protect the freshly placed concrete from the environment, until the concrete has hardened sufficiently to allow curing to begin.

IV. The concrete shall be held to a temperature not higher than 32 degrees Celsius when placed by:
   a. Using chilled water for mixing; or
   b. Spraying the coarse aggregate with cold water; or
   c. Covering the container in which the concrete is transported to the formwork; or
   d. Using any combinations of these methods.

V. The concrete shall be mixed, transported, placed, compacted and finished as rapidly as possible, and then immediately curing shall begin. Concrete shall not be allowed to dry out before curing begins.

VI. Curing compounds shall not be used as an alternative to the requirements of (iii) and (iv) above.

2.3 FINISHING CONCRETE

The finish shall be obtained by screeding to the correct levels and wood floating to provide a non-slip dense surface free of any depressions, float marks, irregularities, honeycomb sections or slurry liable to cause excessive surface wear.

A steel trowel finish is not permitted on a vehicle crossing. The surface shall be treated with a transverse brooming tool to provide a non-slip, dense surface free of any depressions, marks, jointing marks, honeycomb sections or accumulation of find dusty accretions liable to excessive surface water. The final surface finish shall be to the entire satisfaction of the Director of Planning and Infrastructure or his/her nominated representative who reserves the right to require the removal of or the correction of any surface deficiencies or finish.

Colouring and texturing of the surface is permissible at full cost to the owner, that is, Council will not subsidise the cost of surface colouring or texturing.

Concrete edges shall be finished with a 100mm wide edging tool.

Light vehicles should refrain from traversing the concrete for at least three (3) days and heavy vehicles for seven (7) days.

2.4 JOINTING CONCRETE

I. Contraction joints shall be made with an approved jointing tool. The distance either laterally or longitudinally between contraction joints shall not exceed 2.0 metres.

II. Expansion joints shall be full depth joints of a minimum 14mm width and shall be filled with bitumen-impregnated canite or similar approved material and located at the property boundary and at the ends of existing kerbing where kerbing has been removed. Long crossing shall have expansion joints at 6.0 metre maximum spacing.

2.4 CURING CONCRETE

The concrete crossing shall be cured either by water sprayed on the exposed concrete surface after setting or be covered with plastic film immediately after finishing and be cured for at least 3 days.

As stated in clause 2.3, *light vehicles should refrain from traversing the concrete for at least three (3) days and heavy vehicles for seven (7) days.*

2.5 AESTHETICS

If due to the alignment of the road or boundary or any other reason the installation of a standard crossover shape is difficult or would result in a shape that detracts from the specification, the Contractor must make immediate contact with the Shire and must not proceed with the work until the crossover alignment has been approved by the Director Planning and Infrastructure or his/her nominated representative.

PART 3: TECHNICAL SPECIFICATION - BRICK PAVED CROSSOVERS

3.0 PAVER TYPE AND THICKNESS

All materials used in the construction of brick paved crossovers shall be concrete or clay pavers in accordance with the manufactures specifications and any materials used which is inferior to those specified or directed by the Shire shall be liable to rejection and replacement at the Contractors costs.

Minimum 60mm heavy duty rectangular or square concrete or clay pavers are to be used.

3.1 BASE LAYER PREPARATION

The base layer shall comprise minimum 100mm deep limestone, gravel or road base and compacted to provide a consolidated, sound base free of depressions, soft spots and any deleterious materials.

The base material shall be loosely spread in a single layer to the required level and compacted using overlapping passes of a vibrating plate compactor or suitable vibrating/pedestrian roller.

The base finished surface shall be trimmed so that it does not deviate by more than 10mm from the base of a 2.0m long straight edge placed in any direction.

3.2 EDGE RESTRAINT

The perimeter of the crossover shall be provided with concrete restraining barriers. Restraints shall be robust enough to withstand vehicle impact and prevent the lateral movement of bricks as such movement could cause pavement failure. Visible concrete edge restraints shall be installed to the **same** level as the brick pavement.

The Contractor must construct a 1.0 metre wide concrete apron at the crossover entrance as per attachment 1 and 2. The concrete shall be parallel to the roadway and blend into the existing kerbing at respective ends or blend back into the road surface. Paving bricks shall be laid commencing from the rear face of the concrete apron.

The perimeter of all paved areas shall be provided with a header course laid on a solid brick or concrete footing to prevent lateral movement of the bricks. Header bricks shall be mortared to the footing.

3.3 BEDDING LAYER

The bedding material needs to be well graded sand passing a 5mm sieve or blue metal dust. Bricklayers sand and single sized dune sands are not suitable for use. The bedding sand shall be non-plastic and free from deleterious materials such as stones, tree roots, clay lumps and excessive organic material.

At the time of placing, the sand should have uniform moisture content. The sand must be screed slightly ahead of laying and protected from the compaction. The pre-depth of the sand bedding layer shall be 30mm minimum (+/- 5mm) just before the laying of bricks.

3.4 LAYING OF PAVERS

Bricks can be either clay or concrete, rectangular or interlocking. Bricks shall be placed on the bedding by hand with 2 to 4mm gaps between adjacent bricks. All full bricks shall be laid first. Closure bricks shall be cut with a saw and fitted subsequently. It is desirable that bricks be laid to the herringbone pattern as superior strength is obtained, however, other patterns that achieve the necessary interlocking characteristics are acceptable.

3.5 COMPACTION AND JOINT FILLING

The bricks shall be immediately compacted and brought to level by not less than three (3) passes of the vibrating plate compactor. The plate should have sufficient area to simultaneously cover twelve (12) bricks. To prevent damage to pavers, sheets of plywood of 12mm minimum thickness should be laid on the bricks to prevent the compactor coming into contact with the paved surface.

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.

Ideally, the sand used for joint filling should be finer than the bedding layer with a nominal maximum particle size of 2mm. Sand used for joint filling should be free from salts or contaminants likely to cause efflorescence. However, the use of bricklayer's sand or the addition of a small amount of silty material to the joint filling sand can be of benefit in reducing water penetration in the early life of the pavement.

PART 4 - SUMMARY OF MAIN REQUIREMENTS

4.0. RESIDENTIAL CROSSOVERS

Concrete & Brick Paved Crossovers

- □ Written approval by the Shire of Irwin must be obtained prior to construction of a new/additional crossover
- □ To obtain written approval complete a Crossover Application form and lodge it with the Shire
- □ To claim Council contribution, complete a Crossover Reimbursement form**,** attach all receipts and lodge it with the Shire after completion of the crossover
- □ Application for a contribution must be made in writing and submitted within six (6) months of the date that the crossing was constructed
- □ Standard width of crossover at front boundary - 3.0 meters
- □ Maximum width of crossover (unless written permission has been obtained) at front boundary - 6.0 meters
- □ Grated drains to be installed at the property boundary connected to a soakwell
- □ The soakwell to be placed inside the property boundary and not on the verge
- □ Concrete wings to be 1.5m wide on both sides of crossover

Concrete Crossovers

- □ Concrete depth minimum 100mm
- □ Surface finish - Transverse broomed

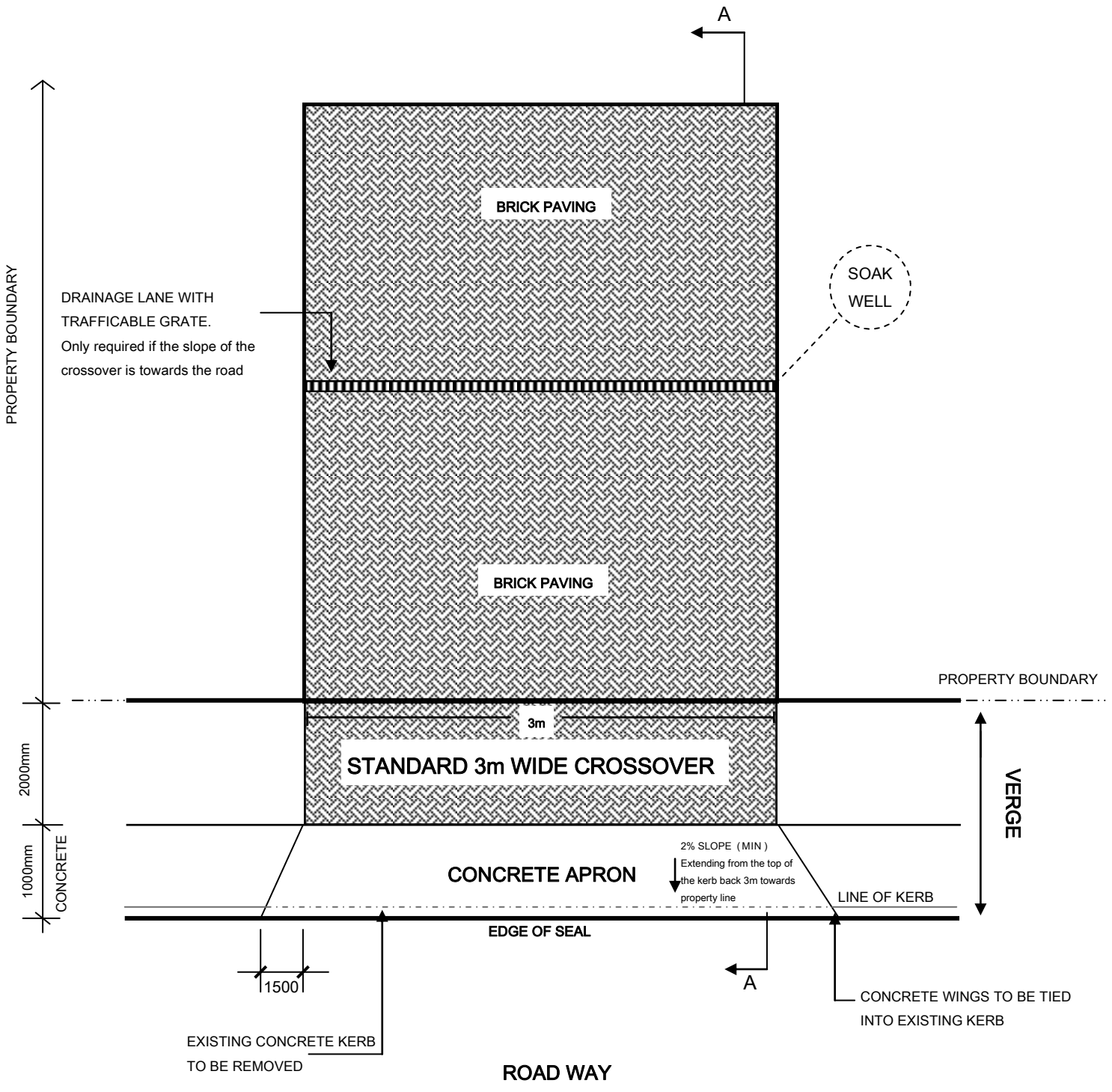
Brick Paved Crossovers

- □ 60mm thick bricks and classified as heavy duty by the manufacturer
- □ 1.0 meter wide concrete apron at the entrance to the crossover
- □ Visible concrete edge restraints to the same level as the brick pavement to prevent lateral movement

SHIRE OF IRWIN

Standard Paved Crossover Specifications

Attachment 1

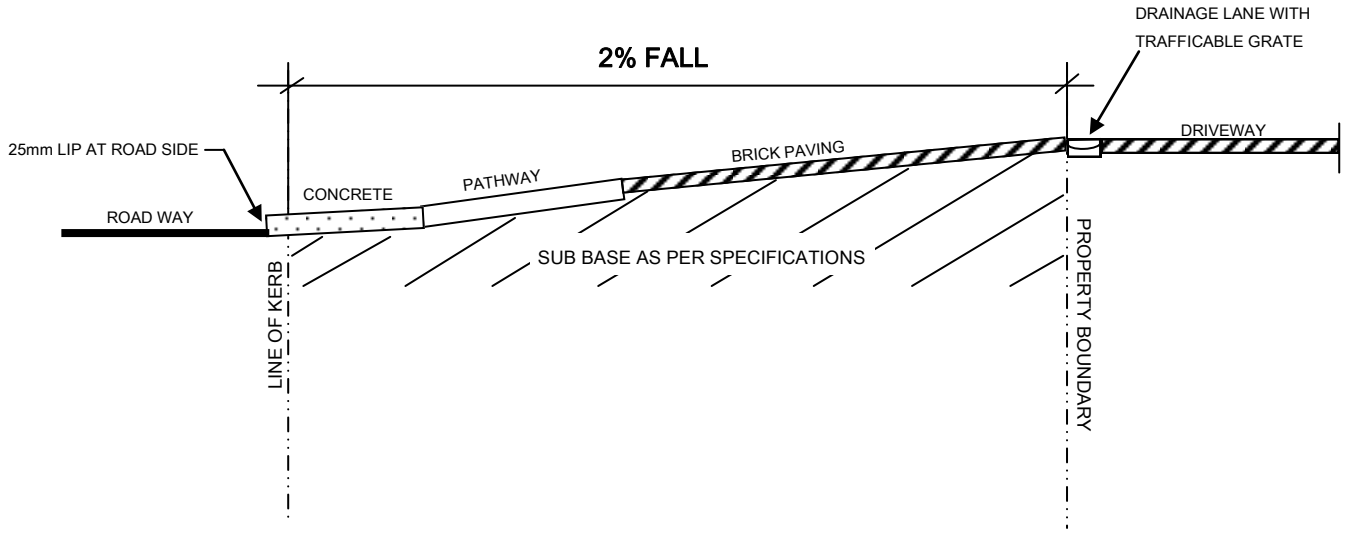


PLAN VIEW 1.0

SHIRE OF IRWIN

Standard Paved Crossover Specifications

Attachment 2



2% Fall taken from the top of the paving at the property boundary to the top of the kerb at the road side.

SECTION A - A

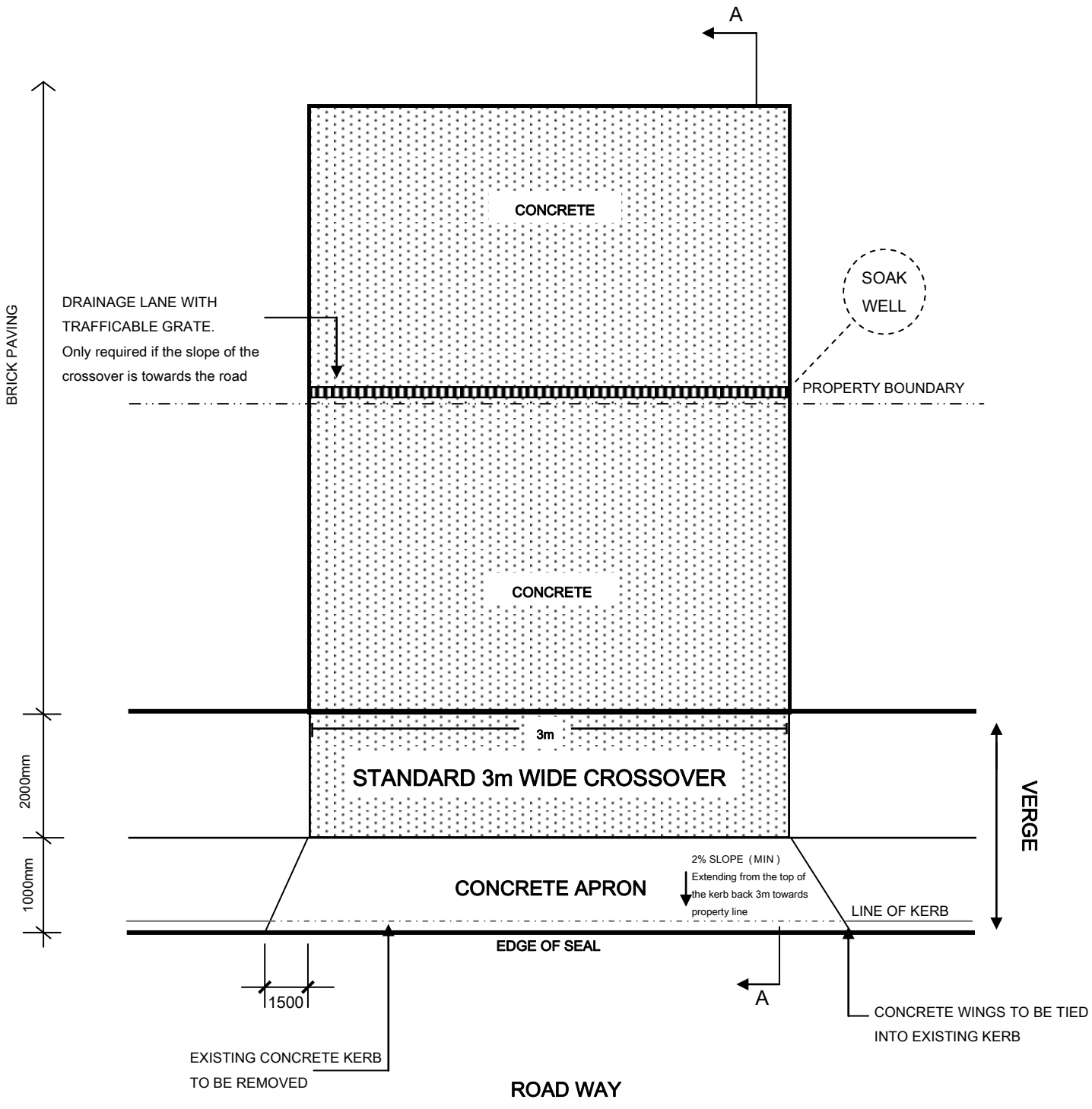
OF

PLAN VIEW 1.0

SHIRE OF IRWIN

Standard Concrete Crossover Specifications

Attachment 3

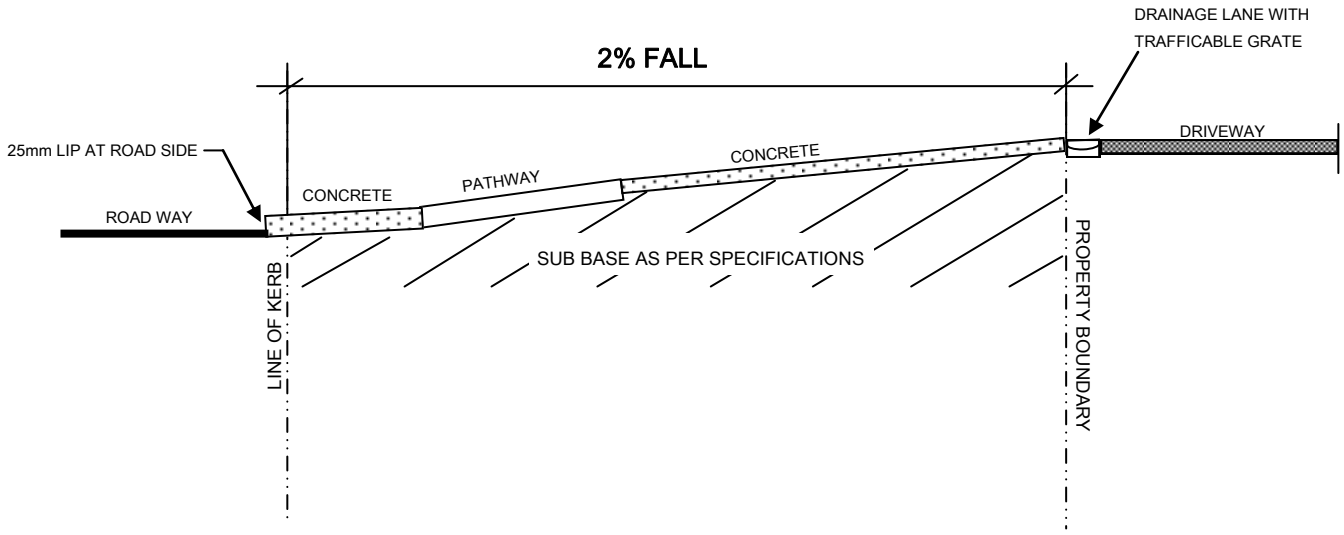


PLAN VIEW 2.0

SHIRE OF IRWIN

Standard Concrete Crossover Specifications

Attachment 4



2% Fall taken from the top of the paving at the property boundary to the top of the kerb at the road side.

SECTION A - A

OF

PLAN VIEW 2.0