

CONSTRUCTION OF RIGHTS OF WAY

GENERAL

When a Right-of-Way (ROW) is to be utilised for access to a new development or subdivision, the City will require that the portion of the Right of Way directly abutting the lot be constructed and drained at the developer's cost and to the standards and satisfaction of the City's Manager Engineering Operations. The remainder of the Right of Way, to the nearest gazetted road, is to be made trafficable by the applicant. To comply with this requirement, a number of conditions pertaining to the required works must be satisfied prior to commencement of the development or the City issuing clearance of a conditionally approved subdivision.

APPROVAL AND INSPECTION REQUIREMENTS

1. Plans for the construction and drainage of the ROW are to be prepared in accordance with the specifications and standards set out in this document.
2. The plans are to be submitted to the City for approval by the Senior Engineer, Approvals Business Unit.
3. Where construction of the ROW is required as a condition of an approval to commence development, a refundable Performance Bond equal to the City's estimated cost of the works is to be deposited with the City by the owner/developer at the time an application for a building permit is made as security to ensure satisfactory completion of the works. The owner/developer is to enter into a standard form agreement '*Bonding Agreement – Right of Way Construction*' with the City with respect to the use of the Performance Bond at the time of lodging the Bond.
4. An inspection fee calculated in accordance with section 158 of the Planning and Development Act 2005 (as amended) is payable to the City upon approval of the plans. The fee is as follows:
 - 4.1 Where the person has not engaged a consulting engineer and clerk of works to design and supervise the construction and drainage, the amount is to be 3% of the cost of the construction and drainage as estimated by the local government;
 - 4.2 Where the person has engaged a consulting engineer and clerk of works to design and supervise the construction and drainage, the amount is to be 1.5% of the cost of the construction and drainage as estimated by the local government.
5. Works on the ROW must not commence until:
 - 5.1 The relevant plans have been approved by the City;

- 5.2 The inspection fee has been paid to the City; and
 - 5.3 A pre-start meeting has been carried out with the City's Engineer Subdivisions and Development Works (a minimum 24 hours' prior notice required).
6. On completion of the works, the City's Engineer Subdivisions and Development Works is to be contacted for inspection of the completed works (a minimum of 24 hours' prior notice required).

Please note for the following stages the contractor is to certify and submit a checklist (refer to Attachment F) that he has completed these works in accordance to the City of Stirling approved plans:

- (i) Preparation of sub-grade for correct level and compaction (compacted to achieve a rate of 9 blows/300mm as measured on a Standard Perth Penetrometer);*
 - (ii) Placement of stormwater drainage in accordance with the approved plans and the correct compaction for sub-grade is achieved when backfilled (must achieve a rate of 9 blows/300mm as measured on a Standard Perth Penetrometer);*
 - (iii) Placement of sub-base in accordance with the approved plans and the correct maximum dry density is not less than 95% (MDD) when tested;*
 - (iv) Placement of asphalt material as per the approved plan;*
 - (v) Placement of kerbing and edge restraints in accordance with the City of Stirling specifications and approved plans; and*
 - (vi) All materials which are part of construction are in accordance with the City of Stirling specifications.*
7. At all times the construction standards and procedure must be to the satisfaction of the City's Manager Engineering Operations.
8. *Where the ROW construction has been required as a condition of a Western Australian Planning Commission subdivision approval, please ensure that the supervision inspection fee has been paid and a final inspection has been carried out by the City's Engineer Subdivisions and Development Works and the works deemed to be satisfactory **prior to lodging a subdivision clearance request** for the subdivision condition to be cleared by the City.*

DESIGN STANDARDS AND REQUIREMENTS

1. Details

Plans are to be drawn at a scale of 1:100 plan and must show the following information in addition to design details: (Refer to Attachment A, for Typical Plan – R.O.W. Construction)

- (i) All streets and roads abutting the ROW
(Locality Plan to be provided if ROW does not show a street frontage);
- (ii) All lots facing the ROW;
- (iii) All lot numbers and house numbers;
- (iv) Any public utility services within the ROW and abutting streets;
- (v) Any existing fences, walls, vehicular access points;
- (vi) Bench mark or datum used; and
- (vii) Spot or contour levels up to 2m inside adjoining properties where proposed ROW works impact on that property.

2. Longitudinal Grades

The ROW must be designed to produce the best possible grades to suit the natural ground conditions particularly along property boundaries. Care must be exercised to match existing features such as entrances to properties and property fences.

The maximum longitudinal grade should not be greater than 12%, and the minimum should not be less than 0.5%. It should be the object of the designer not to appreciably alter levels in the ROW adjacent to abutting properties. If major alterations to levels are necessary to adjoining properties a retaining wall may be required and will require written permission of the affected property owners.

3. Cross Section

Where possible the ROW shall be “V” shaped with suitable cross-fall towards the centre. Where this cannot be attained a one-way cross-fall may be allowed. Approval should be sought from the City’s Senior Engineer, Approvals Business Unit for any variation in the typical cross-section.

A 3.0% grade is the preferred cross-fall, however the cross-fall can vary from a maximum of 5.0% to 0.5%, with every 1% change in grade to occur over a distance of 10m (i.e. 0.1% change in grade per metre).

(Refer to Attachment B, for Typical Cross-sections).

4. Vehicle Access – Private Lot to ROW

A concrete vehicle crossover apron shall be provided from the property boundary line to the ROW kerb alignment as part of the ROW construction to the satisfaction of the City's Manager Engineering Operations.

The crossover apron is to tie into the ROW design levels and the proposed driveway levels, with an adequate "roll-over" if on the low side of the ROW to prevent runoff down the driveway or across the verge whilst maintaining suitable vehicle clearances (refer to Attachment C for Typical Crossover Apron Plan and Kerb Detail).

5. Vehicle Access – ROW to Public Road

The vehicle access from the road reserve boundary line adjacent to the ROW to the road carriageway edge is to be either in the form of (i) a concrete crossover or (ii) an intersection treatment, depending on the designated category of the ROW being constructed.

For a ROW designated as Category 1, 2 or 3, if there is no existing vehicle access established between the ROW to be constructed and the road carriageway edge, the owner *may* install this as part of the proposed works. In this case the vehicle access shall be constructed in the form of an intersection treatment (refer to Attachment D, for Typical Intersection Treatments).

For a ROW designated as Category 4 or 5, if there is no existing vehicle access established between the ROW to be constructed and the road carriageway edge, the vehicle access shall be constructed as part of the ROW construction by the owner/developer in the form of a concrete crossover in accordance with the City's *Technical Specifications for Non-Residential Crossovers* across the full width of the ROW to the satisfaction of the City's Manager Health and Compliance. A copy of the specification is available on the City's website www.stirling.wa.gov.au.

Please contact the City's Customer Contact Centre on 9205 8555 to confirm a ROW's designated category, or go to 'StirlingMaps' on the City's website www.stirling.wa.gov.au to view the information on the online map.

6. Drainage

Stormwater drainage shall be installed within each separately constructed section of the ROW to capture and infiltrate all runoff generated within that section of the ROW. Infiltration shall be provided by the installation of trafficable reinforced concrete soakwells that are:

- fitted with AS 3996:2006 compliant wave grates

- wave grate raised (100mm minimum) for flush finish of pavement
- installed upon either:
 - reinforced precast soakwell base with central opening, or
 - cast insitu or precast concrete bearer blocks
 - block dimension – 300mm x 300mm x 150mm
 - block spacing – 5 blocks per liner evenly spaced
- 150mm thick layer of crushed aggregate (14mm nominal size) placed in opening at base of soakwell.

All abutting private properties shall be required to contain stormwater runoff on site with no surface runoff or piped drainage connections from abutting properties permitted to discharge into the ROW.

Minimum required soakwell capacities shall be in accordance with the City of Stirling Minimum Requirements For On-Site Drainage (refer to Attachment E). Where adverse ground conditions and/or high ground watertable conditions exist additional soakwell storage volume may be required to the satisfaction of the City's Senior Engineer, Approvals Business Unit.

7. Pavement

The contractor shall be fully aware of existing conditions, including fences adjacent to the ROW and the locations of services. Any damage caused to services, fences or other property associated with the ROW construction is the responsibility of the contractor. All damage must be rectified and be to the satisfaction of the City's Manager Engineering Operations.

The full width of the ROW is to be paved unless approval is obtained from the City's Senior Engineer, Approvals Business Unit to pave less than the full width.

The following procedure is a guide to the construction of the ROW pavement:

- (i) excavate material to subgrade level and compact;
- (ii) **sub-base** - sub-base pavement to consist of 150mm minimum compacted depth of limestone and extending 2.0m beyond the edge of the construction area;
- (iii) **base-course** – 40mm thicklift (min 14mm aggregate);
- (iv) **Tack-coat** - the total width of the ROW is to be treated;
- (v) **wearing surface** - minimum consolidated depth of 25mm bituminous concrete (with 10mm granite aggregate) for the full width of the ROW;
- (vi) cleaning up - all excess material and debris is to be removed from the site.

8. Kerbing

All kerbing is to be provided in compliance with the approved City of Stirling standard kerb profiles as detailed on Attachment C.

A 100mm thick concrete apron (refer to Attachment C for Typical Crossover Apron Plan and Detail) is to be provided at all vehicle access points within the section of ROW to be constructed as shown on Attachment A, satisfying the following:

- (i) a 25mm lip at the kerb face;
- (ii) an adequate rollover to provide sufficient stormwater freeboard if on the low side of the ROW;
- (iii) tying in to existing internal driveway levels, and
- (iv) maintaining adequate vehicle clearances.

ATTACHMENTS

ATTACHMENT A - Typical Plan – ROW Construction

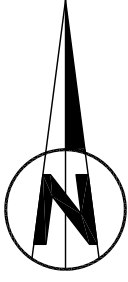
ATTACHMENT B - Typical Cross-sections

ATTACHMENT C - Typical Crossover Apron Plan and Kerb Detail

ATTACHMENT D - Typical Intersection Treatments

ATTACHMENT E - Minimum Requirements for On Site Drainage

ATTACHMENT F - Checklist for the Completion of Rights of Way (ROW)



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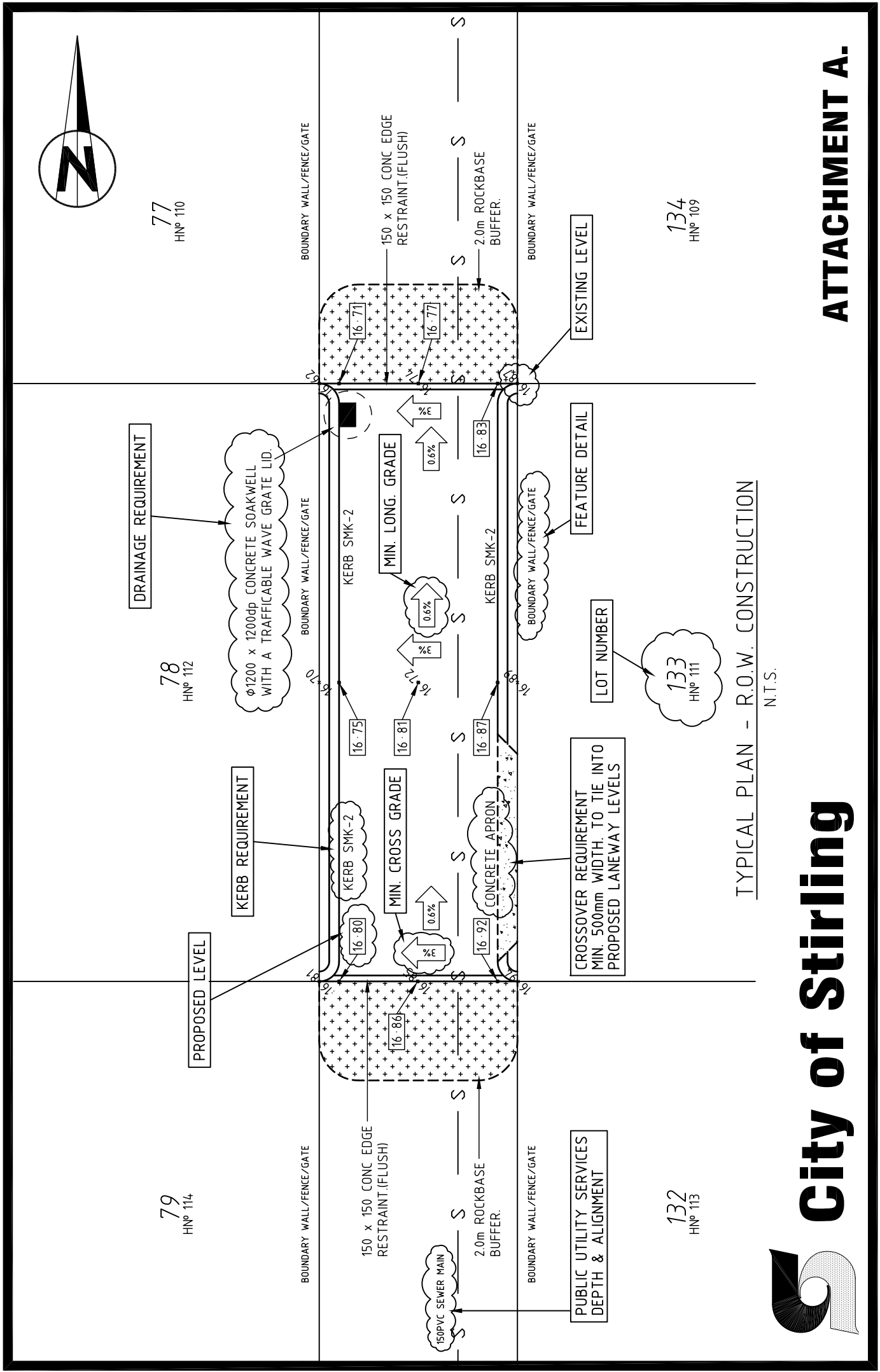
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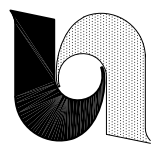
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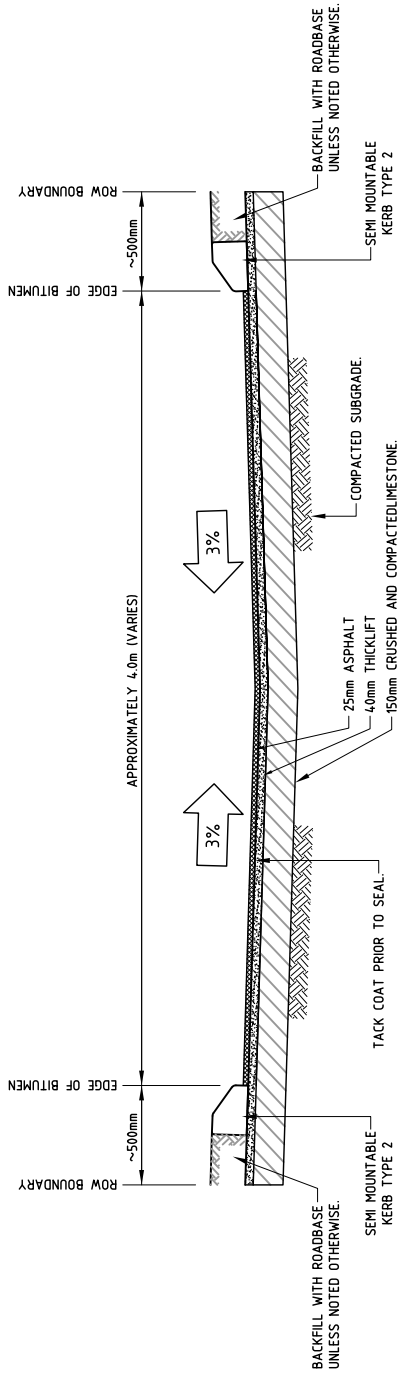


TYPICAL PLAN - R.O.W. CONSTRUCTION
N.T.S.



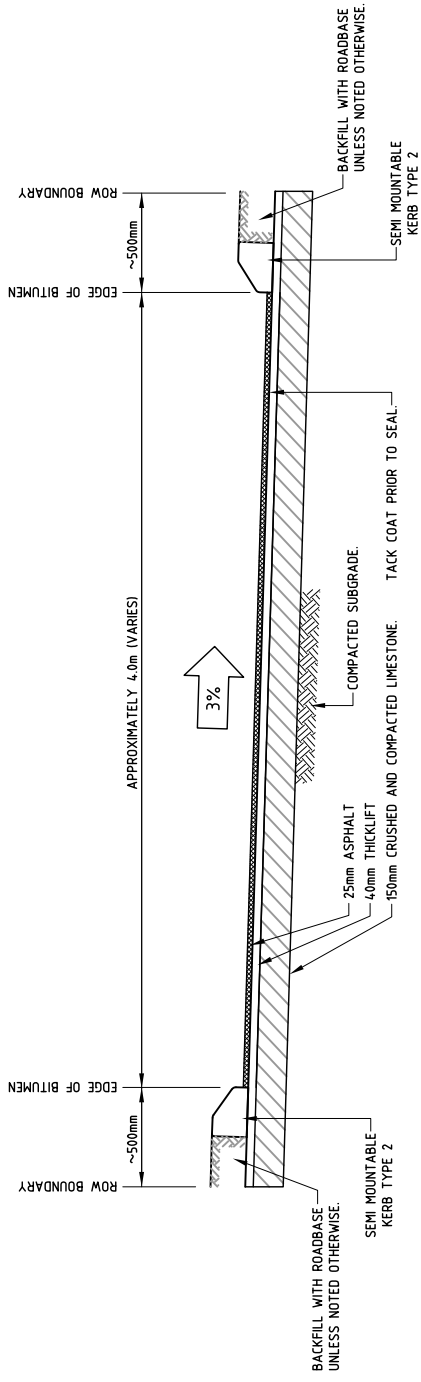
City of Stirling

ATTACHMENT A.



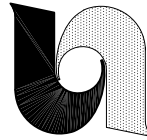
TYPICAL CROSS SECTION - CENTRALLY DRAINED

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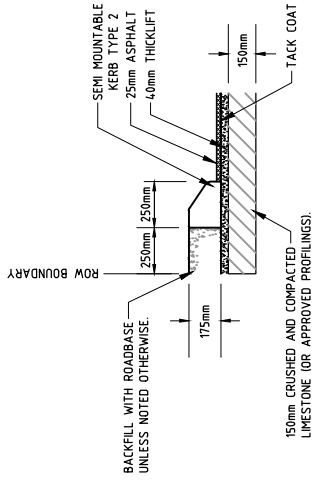
TYPICAL CROSS SECTION - ONE WAY CROSSFALL

N.T.S.



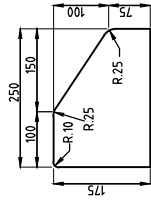
City of Stirling

ATTACHMENT B.



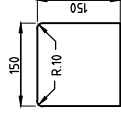
KERB DETAIL SMK-2

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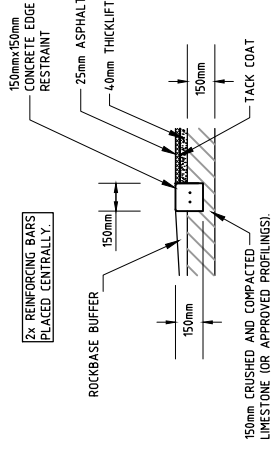
CONSTRUCTION DETAIL SMK-2

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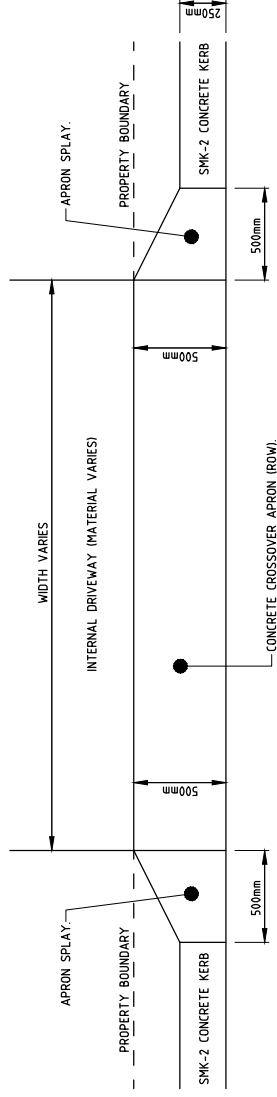
CONSTRUCTION DETAIL EDGE RESTRAINT

N.T.S.



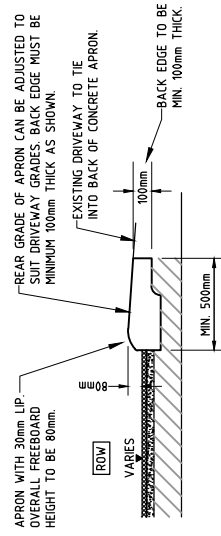
EDGE RESTRAINT DETAIL

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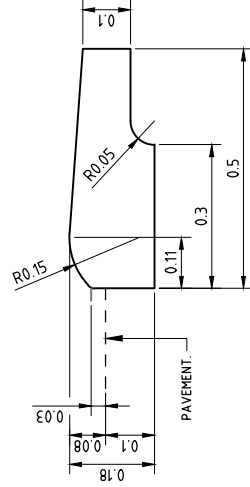
CONCRETE APRON-PLAN VIEW

N.T.S.



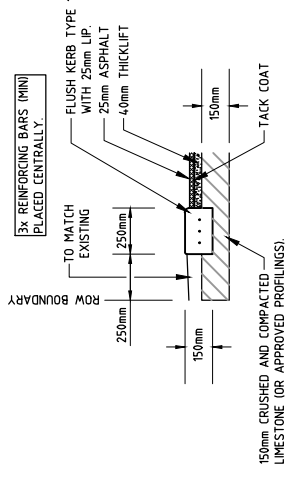
CONCRETE APRON-LOW SIDE ONLY

N.T.S.



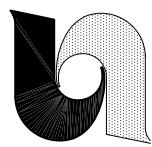
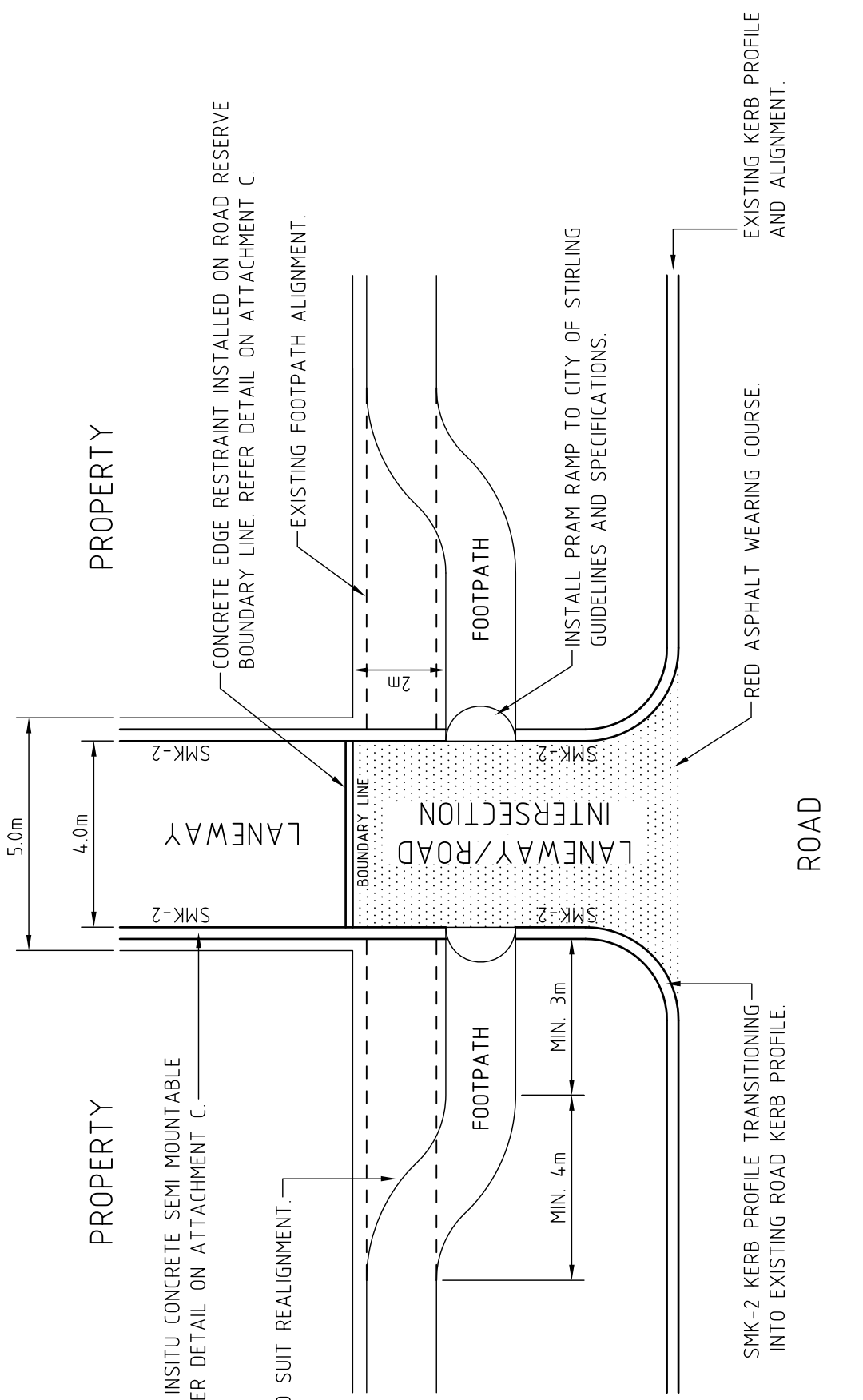
CONSTRUCTION DETAIL CONCRETE APRON-LOW SIDE

N.T.S.



KERB DETAIL FK-1

N.T.S.



City of Stirling

ATTACHMENT D.



MINIMUM REQUIREMENTS FOR ON SITE DRAINAGE

1. Included with the plans must be a site plan showing the following drainage details:
 - 1.1 Existing ground levels or contours in AHD.
 - 1.2 Proposed levels of paved or concrete areas.
 - 1.3 Details of roof and pavement drainage disposal.
 - 1.4 Size (depth of diameter) and locations of all soak wells.
 - 1.5 Minimum size soakwell allowable for roof water disposal is:

900mm diameter x 600mm deep

NOTE: The following formula shall be used to determine the soakwell capacities required:

$$\text{Impervious Area (m}^2\text{)} \times 0.015\text{m} = \text{Capacity Required m}^3$$

2. The following conditions shall also apply:
 - 2.1 All soakwells installed in paved or concreted areas are to be provided with trafficable lids and made accessible for the maintenance purposes,
 - 2.2 Soakwells to be no closer than 1.0 metre to a footing or boundary.
 - 2.3 All soakwells used shall be of an approved manufacture and standard.
 - 2.4 All soakwells installed within flexible pavement areas (bitumen or brick paving) shall be provided with an approved base to prevent any subsidence of the well liners.



SOAKWELL SIZES AND CAPACITIES

Diameter (mm)	Depth (mm)	Capacity (m³)
900	600	0.38
900	900	0.57
900	1200	0.76
1070	600	0.54
1070	1200	1.09
1200	600	0.68
1200	900	1.02
1200	1200	1.36
1200	1500	1.70
1500	600	1.06
1500	1200	2.10
1500	1500	2.65
1800	600	1.53
1800	900	2.29
1800	1200	3.05
1800	1800	4.58

CHECKLIST FOR THE COMPLETION OF RIGHTS OF WAY (ROWS)

The City's Engineer Subdivisions and Development Works must be notified a minimum of 24 hours prior to commencement of works at a pre-start meeting and at the completion of works.

Upon completion of the private Right of Way (ROW), the following details and checklist must be completed and certified by the Contractor:

Address of the Right of Way Construction:

Contractor Details:

Company name: _____

Address: _____

Phone number: _____

Signature of Contractor certifying checklist: _____

Owners Details:

Name: _____

Address: _____

Phone number: _____

Checklist (please tick box to certify):

- Preparation of sub-grade for correct level and compaction (compacted to achieve a rate of 9 blows/300 mm as measured on a Standard Perth Penetrometer);
- Placement of stormwater drainage in accordance with the approved plans and the correct compaction for sub-grade is achieved when backfilled (must achieve a rate of 9 blows/300 mm as measured on a Standard Perth Penetrometer);
- Placement of sub-base in accordance with the approved plans and the correct maximum dry density is not less than 95% (MDD) when tested;
- Placement of asphalt material as per the approved plan;
- Placement of kerbing and edge restraints in accordance with the City's specifications and approved plans; and
- All materials (which are part of construction) are in accordance with the City of Stirling specifications.

The construction standards and procedure must be to the satisfaction of the City's Manager Engineering Operations or his representative, at all times. When ticking the boxes in the checklist, reference must be made to the information sheet for "Construction of Rights of Way" and its attachments.

Office use only:

Inspection fee paid: Yes No