

9.0 WATERCOURSE CROSSING

9.1 GENERAL

In addition to the requirements specified in this section, all designs must be in accordance with Watercourse Protection and Crossing Bylaw No. 8441. Where there is a conflict between the information contained in this section and City Bylaws, the provisions of Watercourse Protection and Crossing Bylaw No. 8441 shall take precedence.

9.2 DRAFTING REQUIREMENTS

Please comply with requirements as set out in Section 1.5.

Exceptions

- Size: A2 (420 x 594mm)

Other Requirements

- Offset from road edge to centerline of watercourse is to be shown
- All existing pipes and manholes are to be shown, noting inside diameter and direction of flow by invert elevation
- Width of shoulder is to be shown

9.3 MINIMUM SURVEY REQUIREMENTS

Please comply with requirements as set out in Section 2.0, where applicable.

Exceptions

- If the watercourse is not located within a Riparian Management Area (RMA), the extent of the field survey shall be a minimum of one lot on each side of the property where the watercourse crossing will be constructed.

Other Requirements

- Invert and top of bank elevations must be taken at intervals no greater than 5 m apart.

9.4 BRIDGE

Bridge designs shall be in accordance with good engineering practices and must be prepared, signed & sealed by a Professional Engineer.

Other Requirements

- The existing watercourse cross-section must remain intact

- The bridge design shall not obstruct the flow of the watercourse
- The bridge shall be located no closer than 3.0 m from an adjacent watercourse crossing and 1.5 m from the adjacent property line
- 3.0m clearance is required from all service connections (water, gas, etc.), unless otherwise approved by the Governing Authority

9.5 CULVERT

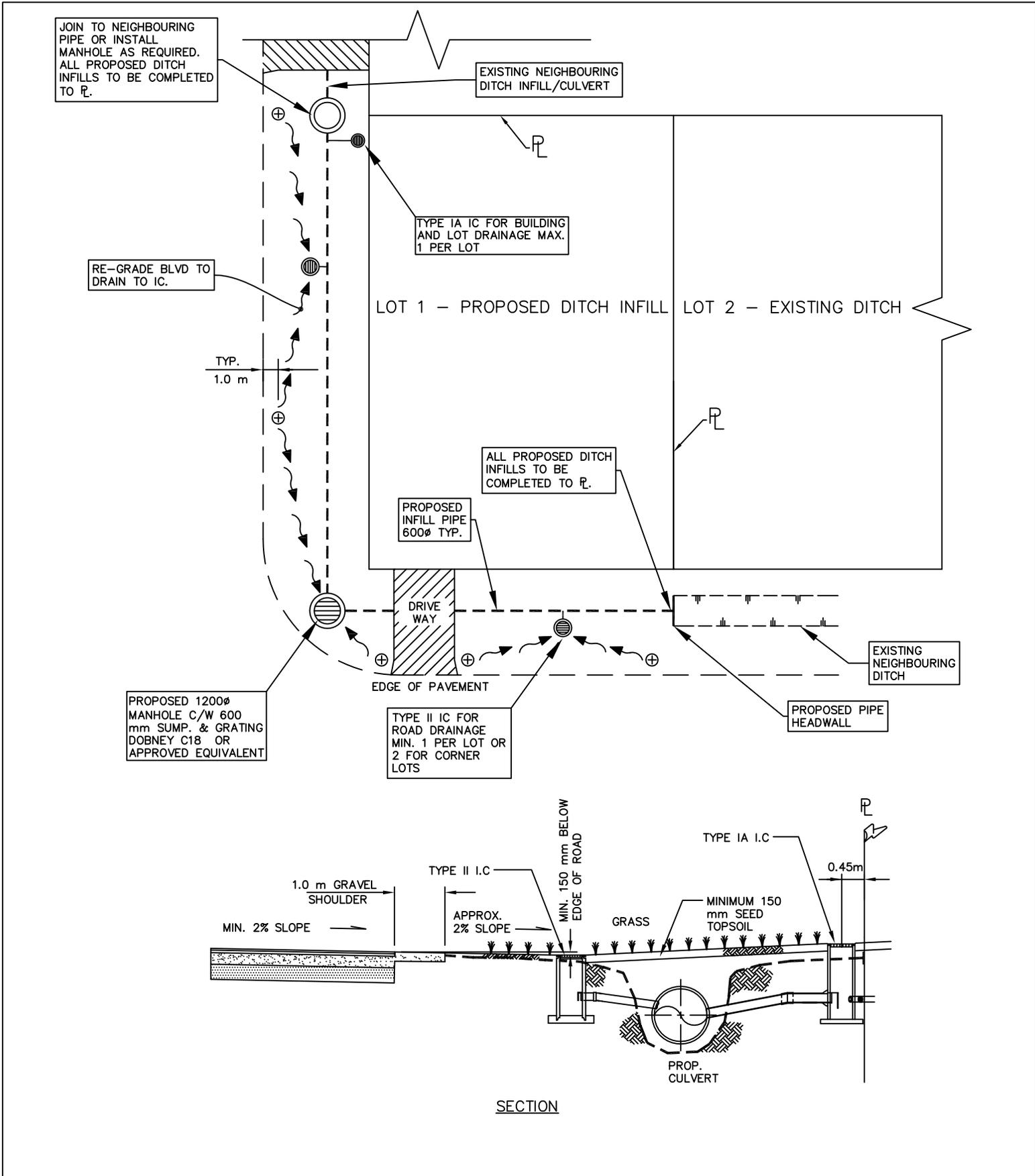
Please comply with requirements as set out in Section 3.0, where applicable.

Exceptions

- If the watercourse is located outside of a RMA then a capacity analysis may not be required, however, it shall be the responsibility of the Professional Engineer to ensure that the minimum size of 600mm can service the property without any detrimental impact to other properties and the City's drainage system.

Other Requirements

- If the watercourse is located within a RMA then the culvert diameter should be designed to maintain a 0.05% hydraulic grade line during a storm event, however the culvert may be placed at the existing grade line of the watercourse
- Horizontal alignment of existing watercourse must remain intact
- Manholes shall have a 600mm sump
- Road runoff and property runoff must be directed to an open watercourse and/or a Type 2 inspection chamber by providing a swale between the road edge and the new culvert. refer to drawing WC-1-DS (page 9-3). In the case of corner lots, a minimum of one inspection chamber per road side boulevard is required.
- Where possible, culverts fronting two adjacent properties shall be joined on City land at the extension of the property line between the two adjacent properties.
- ~~If the culverts cannot be joined, the culvert shall be located no closer than 3.0 m from an adjacent watercourse crossing~~
- If the applicant agrees with the adjacent owner to extend the culvert beyond the bordering property line to complete the join, the adjacent owner shall be required to complete a letter and the applicant must provide the City with a copy. At a minimum, the letter must include:
 - Name of the owners
 - Civic addresses and legal descriptions of adjacent properties
 - Adjacent owners granting permission to allow the construction of the watercourse crossing along their property frontage to complete the join
 - Adjacent owners accepting ownership and maintenance obligations regarding the watercourse crossing constructed along his/her/its/their property frontage as specified in Watercourse Protection and Crossing Bylaw No. 8441



City of Richmond

TITLE: WATERCOURSE CROSSING DETAIL DRAWING		
DESIGN:		
DRAWN: Y.J	DWG. No. WC-1-DS	
CHECKED: S.S	SCALE: N.T.S.	DATE: NOVEMBER 2014
ENGINEER:	SEC. No.	SHT. No. 1 OF 1