Appendix O:
Watermain Assessment
This memo provides a summary of the conceptual watermain design developed for the proposed trunk watermain to be implemented along Bayview Drive (between Big Bay Point Road and Little Avenue) in conjunction with the proposed transportation improvements identified in the *Bayview Drive & Big Bay Point Road Class EA Phases 3 & 4 Report*.

**Existing Conditions**

The existing City infrastructure along Bayview Drive through the study area includes a 300 mm watermain with water services to adjacent properties. The watermain is located on the west side of Bayview Drive. The existing watermain has been identified for replacement due to its age and deteriorating condition. The *City of Barrie Water Storage & Distribution Master Plan* recommends replacing the existing 300 mm watermain with a new 400 mm transmission watermain. The increased capacity is required to accommodate future intensification and growth in the Annexed Lands.

**Conceptual Watermain Design — Preferred Alignment**

Upon review of the City of Barrie engineering standards, proposed infrastructure improvements and the locations of the existing watermain and other underground utilities, and with additional consideration given to the potential widening of Bayview Drive to 5-lanes beyond 2031, it is recommended that the proposed 400 mm trunk watermain be located on the west side of Bayview Drive, offset approximately 4.6 metres from the west property line (measure property line to centre of

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1 *City of Barrie Water Storage & Distribution Master Plan. AMEC Environment & Infrastructure. (October 2013)*

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watermain), at a minimum depth of 1.7 metres. This alignment is consistent with the City standard BSD-06A, which reflects the standard cross-section for a 14.0 meter asphalt road with 26.0 metre right-of-way (similar to the cross-section of the preferred solution for Bayview Drive, as identified in the Bayview Drive & Big Bay Point Road Class EA Phases 3 & 4 Report). The 4.6 metre offset from property line places the watermain behind the back of curb and within the boulevard area. A typical cross-section of the preferred solution for Bayview Drive, including the proposed watermain location, has been appended to this memo, along with plan and profile drawings which illustrate the proposed alignment.

The watermain is located (for the most part) within the boulevard area, thus avoiding the travel lanes, bicycle lane and sidewalk. Placing the watermain within the boulevard is generally preferred as it allows future maintenance to occur with no (or minimal) impact to the vehicular/bicycle/pedestrian infrastructure. It is noted that the watermain location as proposed also remains clear of the proposed stormwater management Low Impact Design features (LIDs) to be implemented along Bayview Drive.

Locating the watermain on the west side of Bayview Drive is preferred for the following reasons:

- the topography on the east of Bayview Drive varies more so than on the west side, which would result in areas of deeper watermain construction to ensure sufficient coverage is provided through the shallow sections (while the watermain will generally follow the topography, there are limitations with respect to changes in the vertical alignment that can be introduced);
- there would be a greater number of utility conflicts along the east side of Bayview Drive as compared to the west side (i.e. hydro poles and 200 mm gas main);
- the selection of an appropriate alignment along the east side is more challenging given the required relocation of existing hydro poles necessary to accommodate the proposed transportation improvements (pole relocation will not be identified until the detailed design stage);
- given the close proximity of existing buildings and parking lots along the west side of Bayview Drive, the future widening to 5-lanes (i.e. beyond 2031) would likely be to the east and thus locating the watermain along the east side of Bayview Drive could potentially result in conflict with future infrastructure improvements (i.e. if/when widened to 5-lanes);
- the majority of existing development requiring water service is located on the west side of Bayview Drive and thus a watermain on the west side will reduce the number of road crossings required for service laterals; and
- provision of watermain on the west side is consistent with City standards.

Summary

It is recommended that the 400mm trunk watermain on Bayview Drive be located on the west side of Bayview Drive, offset 4.6 metres from the property line and buried to a minimum depth of 1.7 metres. This alignment is consistent with City standards for a road reflective of Bayview Drive and further
minimizes conflict with utilities and other proposed infrastructure improvements identified in the Bayview Drive & Big Bay Point Road Class EA Phases 3 & 4 Report.