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VIA: E-MAIL

Mr Laurent Jolliet Project Manager, Infrastructure Policy City of Ottawa 110 Laurier Avenue West Ottawa, ON K1P 1J1

Dear Mr. Jolliet:

Re: Addendum to Stormwater Management Strategy Report, Arcadia Residential Stages 3, 4, 5 and Commercial Stage 2, May 22, 2018

In May 2018, the Stormwater Management Strategy Report for the Arcadia development was issued. Since then, a number of changes have occurred within the servicing approach, which affect the preferred strategy. This Letter Addendum confirms the effects of those changes on the servicing strategy.

The Stormwater Management Strategy Report set out the rationale for adopting a two-pond strategy for servicing of the Arcadia developments. The original Master Servicing Study for the area, the Kanata West Master Servicing Study, only identified one pond to service all of the Minto lands down to Feedmill Creek. The Stormwater Management Strategy Report compared conceptual models of an updated one-pond concept, a two-pond concept and the KWMSS one-pond concept. The two-pond strategy was the preferred solution as it provided for lower HGLs at Campeau Drive and allowed the designed road alignment to maintain clearance to the HGL. Furthermore, this preferred solution provided a reduced length of submergence in the sewer system when compared to a one-pond strategy. In terms of maintenance, reducing the length of submergence is generally targeted.

Lowered Normal Water Levels

After issuing the Strategy Report, discussions were held between the City of Ottawa, J.L. Richards and Minto. As part of these discussions, it was agreed that the normal water levels (NWLs) in the SWM facilities, which are typically set above the 1:2 year water level in the Carp River, could be slightly lowered to improve the hydraulic operation of the pond while respecting the land availability. The NWLs could be lowered to 50 mm below the 1:2 year water level in the Carp River which would still be above the normal water level in the Carp River. The previous and revised water levels are shown in the table below:

	Carp 1:2 year HGL (m)	Previous NWL (m)	Revised NWL (m)
Paine Pond	92.7	92.7	92.65
Campeau Drive Pond	92.84	92.9	92.79



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Although the ponds' NWLs have been altered this has not changed the maximum HGL in the ponds in the 1:100 year event. These have remain unchanged at around 92.53 m in the Paine Pond and 93.65 m in the Campeau Pond. The reduction in NWL has allowed additional volume in the pond which has improved the water quantity control of the pond. Since the maximum water surface level in the pond has not changed, the impact of the two-pond concept on the HGLs at Campeau Drive has not changed. Therefore, the modification in NWL does not affect the outcome of the Strategy Report in recommending the two-pond concept.

Reduced Submergence in the Minor System

The two-pond servicing option recommended in the Strategy Report had a reduced level of submergence in the minor system when compared to the updated one-pond concept, 1610 m of submergence compared to 1,710 m of submergence in the updated one-pond concept. However, the length of submergence calculated in the strategy report was greater than that envisaged in the one-pond concept developed in the KWMSS.

The length of submergence in the KWMSS was developed under a different conceptual street layout and grading, which affects the lengths of storm sewers servicing the pond. In the KWMSS, the location approximately equivalent to the intersection of Clonrush Way and Calvington Avenue has a sewer invert of 93.22 m; however, the invert of this existing sewer is 91.45 m at that location, some 1.5 m lower. The lowered depth of the sewers is partly due to the restricted grade raises imposed on the site after further geotechnical investigations carried out after the KWMSS.

The existing inverts in the system result in a constraint with the normal water level in the pond which means that there is an increase in submergence compared to the KWMSS.

The reduction in normal water level, as discussed above, will offer a slight reduction of submergence in the system. With storm sewers on a grade of close to 0.35%, a water level reduction of 0.05 m will result in reduction in submergence of 14 metres. This reduction in submergence on both the updated one pond concept and the two-pond concept would not have changed the outcome of the report to recommend the two-pond concept.

Summary

The May 2018 SWM Strategy report identified two key advantages of the two-pond strategy compared to the one-pond strategy. The key advantages were that:

- The two-pond concept provides the lowest HGL at Campeau Drive, which minimized implications for the Campeau Drive design.
 - o Campeau Drive Design Elevation: 94.30 m
 - HGL under one-pond strategy: 94.39 m
 - HGL under two-pond strategy: 93.81 m

The two-pond concept allows for freeboard of up to 500 mm at Campeau Drive.

• The two-pond strategy reduced the lengths of submergence compared to the one-pond strategy:



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	One-Pond Strategy	Two-Pond Strategy
Length of Submerged Sewer (m)	1,696	1,596
Length of 100% Submerged Sewer (m)	1,251	346

The lengths of submergence and standing water in storm sewers are reduced by up to 100 metres (or 6%), and the length of completely submerged sewer is reduced by up to 900 m (or 72%), resulting in reduced maintenance costs.

The two key advantages from the SWM strategy report are unchanged and continue to support the two-pond strategy.

Yours very truly,

J.L. RICHARDS & ASSOCIATES LIMITED

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