



MEMORANDUM

Date: April 13, 2018

To: Matt Craig, Manager, Planning and Regulations
Mississippi Valley Conservation Authority

From: John Price, P. Eng., Director, Water Resources
Engineering Mississippi Valley Conservation Authority

Re: **KNL Stage 9 Development**
Kanata Lakes North

The Mississippi Valley Conservation Authority (MVCA) has been involved in the review of the proposed residential development known as KNL Stage 9 in the Kanata Lakes area. The site is located north of the existing Beaver Pond stormwater management facility, east of Goulbourn Forced Road and south of the existing railway line. Most of the existing site is tributary to the Kizell Drain with a small portion tributary to Shirley's Brook.

As part of our Memorandum of Understanding (MOU) with the City of Ottawa and our commenting role under the *Planning Act*, the MVCA reviewed the development proposal including the proposed stormwater management system. This review was undertaken within the context of the natural hazards, natural heritage and water and quantity policies of the *Provincial Policy Statement* under Section 3 of the *Planning Act*. A letter summarizing the comments of the MVCA, dated July 5, 2017 was submitted to the City of Ottawa. The excerpt below, from the July 5, 2017 letter, includes the specific comments regarding the stormwater management system proposed for the development. We have not received a revised Stormwater Management report, but, the comments listed below should be addressed prior to final approval under the *Planning Act*.

Stormwater Management

MVCA staff has reviewed the Study with a focus on stormwater quantity and quality management. As outlined in the report, the majority of the site is proposed to outlet to the existing Beaver Cell for stormwater quantity and quality control. The remaining site area is proposed to outlet to either Shirley's Brook or Kizell Drain using oil and grit separators for stormwater quality treatment.

MVCA offers the following comments for your consideration:

1. It is noted that there is an increase in flows at the outlet of the Beaver Pond, location KFP1, however this outflow is below the allowable release rate of 0.96 cms during the 1:100 year event. Clarify the requirement for the replacements of the March Road culvert and the K4 culvert and if these must be completed prior to the development of Stage 9. Additionally, a pre-development drainage plan as well as a post-development plan clearly showing the drainage areas from Table 6-1 and 6-2 as well as the flow locations should be provided for clarity.
2. It is noted from the report that areas tributary to Shirley's Brook are to remain tributary to Shirley's Brook for the development of Stage 9. However, from Figure 1 and Drawing 750, it appears the major system flows from an area currently tributary to Kizell Drain will be diverted to Shirley's Brook. For clarity, a pre-development drainage plan and a post-development plan clearly showing the drainage areas from Tables 7-1 and 7-2 as well as the flow locations from Tables 7-3 and 7-4 should be provided. A table comparing the pre-development flows to the post-development for each outlet location to Shirley's Brook should be provided.
3. We have received a Section 28 application for Stormwater infrastructure and discharge into Kizell Drain, Shirley's Brook and the Beaver Cell. These applications are presently under review. As part of the application we have reviewed the *Kanata Lakes North Design Brief – KNL Stage 9* prepared by IBI Group (February, 2017)
4. The MVCA assumes that LID techniques will be considered and implemented where feasible to assist in achieving infiltration and water balance targets.

Excerpt from the July 5, 2017 letter for Part Lot Control Application D07-15-17-001 and D07-08-17-0010 300 Goulbourn Road

As detailed in the third comment above, a permit under Section 28 of the *Conservation Authorities Act* (Ontario Regulation 153/06), is required for components of the development. Three separate permits have been issued by the MVCA in relation to the Stage 9 development. The trigger for and focus of the review and approval for these permits were the physical outlets to the Beaver Pond, Kizell Drain and Shirley's Brook. Specifically, applications must demonstrate no adverse impact on the control of flooding, erosion, pollution or conservation of land. Again the review of these permit applications is limited to the impact of the physical construction of these outlets. These permits were issued on July 5, 2017 and expire on July 5, 2019.

The flood plain mapping studies for Shirley’s Brook and Watts Creek/Kizell Drain were updated in 2017. As recommended in the *Technical Guide River and Stream Systems: Flooding Limit* (MNRF 2002) guideline, the flood plain analyses assumed a future urbanization scenario for the calculation and delineation of the Regulatory (1:100 year) flood plain. Below is an excerpt from the *Watts Creek/Kizell Drain Flood Plain Mapping Study* which describes the future urbanization scenario used in the analysis.

Kanata Lakes Development

The main focus of potential future development is residential development at the upstream end of Kizell Drain north of the Beaver Pond and Kizell Cell. Specifically Stages 7, 8 and 9 of the Kanata Lakes development (see Figure 2 below). Under existing conditions, most of Phase 9 is tributary to the Beaver Pond and most of Phase 7 and all of Phase 8 is tributary to Shirley’s Brook. The drainage outlet of these future development areas is presently under discussion. Therefore, to include the most conservative scenario in the context of the flood plain analysis and delineation of Kizell Drain/Watts Creek, the following was assumed in the hydrologic model:

1. The minor and major drainage system for Stage 9 was assumed tributary to the Beaver Pond. This sub-catchment replaces sub-catchment 8 (see Figure C-1-1 in Appendix A) and most of sub-catchment KD-2A-1 (Drainage area reduced to 6.9 ha).

2. The minor and major drainage system for Stage 7 was assumed tributary to the Kizell Cell. This sub-catchment results in sub-catchment 11 (see Figure C-1-1 in Appendix A) being reduced in area from 46.2 ha to 35.3 ha.
3. Minor drainage system (up to the 5 year return period flow) for Stage 8 tributary to the Kizell Drain.

The Stages 7, 8 and 9 sub-catchments were inserted in the SWMHYMO model after the representation of the sub-surface storage (i.e. hydrographs added directly to the Beaver Pond or the Kizell Cell and not routed through the sub-surface storage component). The above is a simplification of the overall proposed potential future development drainage system but is an adequate representation for this flood plain analysis. Again, this scenario is not to be interpreted as an endorsement by the MVCA of the overall drainage system when these lands are developed, but, as stated, a reasonably conservative scenario for the delineation of flood lines. The specific drainage and storm water management system will be determined by the municipality through the review process for the subdivision application under *Planning Act*.

Based on the information presented in this memorandum, MVCA engineering staff do not have concerns with the Environmental Compliance Approval (ECA) being submitted to the Ministry of the Environment and Climate Change (MOECC) for their review and potential approval of the overall stormwater management and conveyance system for the Stage 9 development proposal.

A handwritten signature in blue ink that reads "John Price". The signature is written in a cursive, flowing style.

Director, Water Resources Engineering
Mississippi Valley Conservation Authority