MAY 6, 2022

PROJECT NO: 1622-5749

SENT VIA EMAIL:
JILL.HOGAN@MILTON.CA

Town of Milton
150 Mary Street
Milton, ON L9T 6Z5

Attention: **Jill Hogan, Commissioner, Development Services**

RE: **STORMWATER MANAGEMENT CONCEPT**
REGIONAL OFFICIAL PLAN AMENDMENT
MILTON EDUCATION VILLAGE SECONDARY PLAN LANDS

Dear Jill,

Thank you for the opportunity to provide commentary regarding the proposed stormwater management concept as part of the development of the Milton Education Village ("MEV") Secondary Plan within which the campuses of Laurier and Conestoga will be located. We understand that the Town has filed a Regional Official Plan Amendment ("ROPA") application to allow for Green Infrastructure on defined Greenbelt lands, adjacent to the MEV's urban area, and that you are seeking additional technical guidance and expertise to support the proposed stormwater management concept.

As you are aware, I have been practicing stormwater management in the context of land development in Ontario for over twenty years. During my time as a practicing Water Resources Engineer, I have witnessed limited progress in terms of research, innovation, and deployment of Green Infrastructure for larger scale land developments, such as that proposed across the MEV lands. The fact remains that we continue to design and implement stormwater management measures for large developments based on the 2003 stormwater management guidelines of the Ministry of Environment, Conservation and Parks ("MECP"), despite some advancements and updates to other local stormwater management guidelines. Consequently, I have been working with Laurier and Western on separate federally funded stormwater management research projects across Ontario for the past four years to improve the future of stormwater management in Ontario.

The development of the MEV lands presents a unique opportunity to contribute to the future of stormwater management in Ontario for several reasons that are explained in this letter. First and foremost, the proximity of the development lands to the natural heritage features within the defined Greenbelt lands offers a unique opportunity to develop and implement research activities that study the effects of urban development and associated stormwater management practices in a manner that is isolated from any other material urban developments. This unique isolation is a long-term condition given that the MEV lands are situated at the western edge of the urban boundary of Milton where further urban developments are restricted due to the Greenbelt Plan policies. This isolation affords researchers the ability to test hypothesis and design field-scale experiments related to stormwater management without interference or contamination due to other proximate urban developments, which is the case in other parts of Milton and the GTA that are entirely or almost entirely built-out.

2800 High Point Dr., Suite 100
Milton, ON L9T 6P4
T. 905.875.0026
F. 905.875.4915
cfcrozier.ca

CROZIER
CONSULTING ENGINEERS

Development pressures are being experienced in many municipalities across Ontario, especially those surrounding the GTA. These pressures are leading to land development of varying forms in and around natural heritage features and the implementation of Green Infrastructure without a focus on long-term study, innovation, and adaptation. As development pressures continue to intensify, our collective knowledge of the ability of Green Infrastructure to preserve or enhance the function of adjacent natural heritage features must follow suit. In this case where a sophisticated post-secondary campus would exist as a steward of the lands, the intimate location of the stormwater management or Green Infrastructure on the Greenbelt lands between the MEV lands and the protected natural heritage features, truly provides a unique opportunity for advanced study, public education, and innovation towards guiding future development across all of Ontario for decades ahead without compromising the integrity of the Greenbelt lands.

The area proposed for a stormwater management pond within the Greenbelt lands is in fact located within the table lands immediately adjacent to, but outside the local natural heritage features. This offers an intimate setting for research that extends beyond *stormwater management* research and into fields of study such as environmental chemistry, ecology, and botany, among others, where research questions can be posed, evaluated and valuable insights gained for implementation within both existing and proposed communities across Ontario resulting in significant positive implications to the environment province wide. Moreover, the same research could not be facilitated in its rigor at locations far from research and educational institutions.

If the proposed stormwater management pond location was restricted to the limit of the urban boundary, it would eliminate the opportunity to study the delicate interface between built form and associated stormwater management measures with the natural heritage features of the Greenbelt, and further eliminate the possibility of introducing broad research benefits to communities across Ontario.

There are significant gaps in our understanding of the impacts and integration of Green Infrastructure within or adjacent to natural heritage systems where the goals include sustainable development, environmental health, and public education. The water quality and water quantity parameters that could be examined within research facilities such as those proposed as part of the Centre for Urban Watershed Research ("CUWR") are numerous. A sampling of some of the potential future research areas that could address many existing gaps include the following:

- Evaluating long-term impacts of chlorides from controlled urban environments on aquatic ecosystems.
- Long-term adaptation of cold-tolerant wetland plant species within SWM ponds and surrounding natural heritage systems and their impact on the broader environment
- Optimizing SWM pond discharge configurations, forms and functions at the interface of natural heritage systems
- Understanding the role of Green Infrastructure and stormwater management on surface water / groundwater interactions in terms of water quality and quantity and ecosystem health

Climate change and its impact on stormwater management and natural heritage features in Ontario is an area that has seen limited research investment. Since we began our stormwater management research with Laurier in 2018, we have experienced a changing climate in such a short period of time, and we have observed first-hand the impacts of deteriorated stormwater outputs to natural heritage systems year-round. The ability for natural heritage systems to adapt to stormwater outputs is not well known, and so again, the intimate setting described above provides a unique opportunity to study the potential benefits of measures such as cold-tolerant wetland plants within stormwater management ponds to improve year-round function of ponds and minimize their impact on adjacent natural heritage features. There are so many other field-scale research opportunities across disciplines which could be deployed to study climate change challenges and solutions, but their effectiveness is dependent upon having sufficient stormwater flow inputs, close access to nature heritage features for discharge of flow outputs, and proximity to research and laboratory facilities for robust examination, all of which are possible with the location of the stormwater management pond on the table lands within the Greenbelt lands, as proposed.

I trust this provides you with an understanding of the technical merits of locating the proposed stormwater management pond for the MEV development onto the Greenbelt lands for the purposes of advancing the future of stormwater management through advanced research, public outreach, and education.

It is my opinion that the opportunity before the Town, Laurier, Conestoga, and many other stakeholders is a unique one that should receive due consideration given so many potential benefits to the environments and residents of Ontario.

Yours truly,

C.F. CROZIER & ASSOCIATES INC.

Nick Mocan, M.Sc., P.Eng.
President

NM/cj

cc Ulrike Gross, Wilfrid Laurier University, ulgross@wlu.ca

I:\1600\1622-Wilfrid Laurier University\5749 - WLU Milton Campus\Letters\2022.05.06_(1622-5749)_SWM Concept MEV.docx