

**Review of EIS by AECOM, dated May 18, 2018; EXP Hydrogeology Assessment and Water Balance report dated April 2018; and, EXP Geotechnical Investigation (Slope Assessment) report dated May 2018.**

All received at EEPAC's March 2019 meeting

Reviewed by C. Dyck, S. Hall, B. Krichker, S. Levin, K. Moser, and I. Whiteside

**Theme 1 – Buffer Surrounding the Ravine**

The EIS refers to the development limit based on a 10-meter buffer from the Significant Woodland boundary on the west side, and a 12-meter buffer from the boundary of the Significant Woodland on the east side, whereas in other documents, the greater of the erosion hazard limit and the buffer from the Significant Woodland is the basis for the development limit. The EIS did not provide a map that indicated both the erosion hazard limit and the buffer from the Woodland, so it was difficult to determine which would be the basis for the ultimate buffer surrounding the ravine system.

Furthermore, EEPAC has concern regarding the basis for the erosion hazard limit. The Slope Stability report states that, at present, there is 'very little water' in the ravine, and when water is present, the 'watercourse is marshy in nature, with very low velocity water rather than a stream condition with higher water flow velocities'. These factors allowed EXP to conclude that a toe erosion allowance of 2m was appropriate. The Slope Stability report further recommends that 'uncontrolled surface water flows over the face of the slope should be minimized, to reduce the risk of surface erosion' and that any water collected '(must) be re-directed away from the (ravine) slope'.

In short, the basis for the erosion hazard limit appears to be a status quo regime with respect to water flows into the ravine. However, the stormwater management plan for the site suggests that flows into the ravine may in fact increase and could impact overall slope stability. Water from the stone infiltration galleries behind lots at the south of the development will be routed to stone infiltration galleries behind the multi-unit block on the west-side of the ravine (as indicated on Figure 3 of Appendix I of the Hydrogeology Assessment). These stone infiltration galleries to the west of the ravine will also collect runoff from the condo road. When the infiltration galleries at the west of the ravine are at capacity, overflow outlets will direct the overflow to the ravine system. The slope stability report does not appear to incorporate this potential for increased flow into the ravine system.

Recommendations:

1. Prepare a site plan that indicates both the erosion hazard limit and the buffer from the Significant Woodland to clearly delineate the limiting factor for the development limit. The limiting factor should be the wider of the two.
2. Incorporate post-development site conditions/ ravine flow regime into the slope stability report and re-evaluate whether the proposed erosion hazard limit is sufficient to address post development site conditions.
3. The Clean equipment protocol be followed during construction to reduce the possibility of phragmites and other invasive species spreading in an area close to the Significant Woodland and the Meadowlily Woods ESA.

**Theme 2 – Development within the Buffer**

The site development plan includes a proposed trail on the easterly perimeter of the ravine, a possible crossing (a bridge approximately 55 m long) of the ravine corridor near the north end of the site, and further trails along the west side of the ravine, to the north of the hydro corridor. These trails and the bridge will be located largely within the buffer surrounding the Significant Woodland and/or the erosion hazard limit. EEPAC's concern regarding these proposed trails are threefold:

- a. As the EIS notes, '...impacts from development on a natural feature or function can often be avoided or mitigated if an area of land is maintained in an undeveloped state'. The EIS goes on to state on page 48 that the pathway being proposed for construction in the buffer 'would result in the removal of the total available amount of space for vegetation plantings.' The proposed pathway within the buffer will have a negative impact on the overall ecological health of the Significant Woodland.
- b. The City's Environmental Management Guidelines state on page 122 that impervious surfaces are not permitted in the buffer.

- c. The slope stability report states that any permanent structures must be located outside of the erosion hazard limit. Portions of the pathway as well as footings for the bridge appear to be located within the erosion hazard limit.
- d. It appears the development to the east has a road with a sidewalk making the pathway extraneous.

Recommendations:

4. Relocate the proposed pathway outside of the buffer and use the roadway to the east as the connection to the TVP. Ensure that any footings for the proposed bridge are located outside of the buffer and the erosion hazard limit.

**Theme 3 – Post Development Stormwater Management**

Portions of the site will use LID measures as primary method of stormwater management (Area A2 and Area A3, with a combined area of ~4.6 ha), with overflow into the ravine. Furthermore, post development infiltration for the site as a whole will be 68% with the proposed LID measures (51% without), well below the minimum target of 80%. EEPAC has concerns that the stormwater management strategy is predicated on the long-term successful implementation of LID measures whose long term efficacy has not been demonstrated, and as such, run-off towards the ravine system may increase with time as infiltration decreases. Furthermore, the LID measures appear to be located on private property. The eventual home owners may lack the expertise to properly maintain the system.

Recommendations:

5. Redesign the stormwater management system such that it meets the minimum requirement of achieving an 80% post-development infiltration rate. This is also recommendation 5, page 48 of the EIS.
6. As recommended on page 48 of the EIS, an updated water balance be completed as part of the final design.
7. Should the revised stormwater management plan include LID systems, these systems be placed on public property, as the eventual homeowner may lack the desire or skill to maintain the LID measures and run-off may consequently increase over time as the efficacy of the LID measures wane.

**Theme 4 – Butternut Tree Preservation**

An endangered species, a butternut, was observed along the eastern edge of the Woodland. The EIS notes variously that the butternut is being retained (page 29, second paragraph), and then subsequently, that it is a non-retainable specimen (page 32, section 3.2 second bullet point). The EIS did not provide a butternut health assessment but did indicate that the development would not affect the tree.

Recommendation:

8. Given the tree will be retained, ensure that the proposed buffer zone is at least 25m to protect the tree.

**Theme 5 – Environmental Management Plan**

Recommendation 9 on page 50 of the EIS recommends that an Environmental Management Program should be developed to monitor the success of the implementation of protection and mitigation measures. EEPAC agrees with this recommendation. It further recommends:

Recommendation:

9. An Environmental Management Program to the satisfaction of the City be included as a condition of development.

**Theme 6 – Construction Impacts**

EEPAC is concerned that the EIS leaves open (p. 39) that construction will take place within the buffer. This should not occur even if it means redesigning the development.

**Theme 7 – Post Construction Impacts**

EEPAC agrees with the suggestions in the EIS that the use of commercial fertilizers and salts and other additives for the control of ice and snow be limited. However, the EIS is silent as to how this should be accomplished.

Recommendations:

10. The homeowner brochure recommended in the EIS include information on why homeowners should limit their use of fertilizers as well as salt and other additives for snow removal because they will

disrupt the natural feature and its functions because water will run into the ravine because of the use of LID measures.

11. Signage be posted at both ends of the proposed bridge explaining the significance of the feature and the nearby Environmentally Significant Area. The text should be to the satisfaction of the City and the requirement be included in the development agreement
12. Prior to assumption, the proponent deliver to each residence a copy of the City's "Living with Natural Areas" brochure. This requirement is to be included in the development agreement.