AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

November 18, 2019 AEC 11-237

Orangeville Highlands Limited c/o
Ventawood Management Inc.
2458 Dundas Street W
Mississauga ON
L5K 1R8

Attention: Carmen Jandu, MCIP RPP

Re: **Orangeville Highlands Phase 2: Response to Agency Comments**
Part of Lot 2, Concession 3 WHS
Town of Orangeville

Dear Ms. Jandu:

The purpose of this letter is to provide a response to comments circulated by the Credit Valley Conservation Authority (CVC – June 21, 2019) and the Town of Orangeville (Town – October 29, 2019) related to their hydrogeological / water balance review comments associated with the submission of the Azimuth Hydrogeological Addendum Report (April 8, 2019). This response addresses specific remaining questions outlined in their June 2019 correspondence. For your convenience, the original comments are provided in italics and Azimuth's response is provided below.

CVC Comments (June 21, 2019)
Hydrogeology

Comment 1. *The water balance, feature based water balance and hydrogeology report is satisfactory. The report suggests that the infiltration deficit within the WHPA Q1/Q2 area can be reduced from 18% to 12% if flows from LID 13 are directed to this WHPA-Ql and Q2 area. As such, the flows from LID 13 are to be directed to the WHPA-Ql and Q2 area to be confirmed at detailed design.*

Azimuth Response: We acknowledge this comment and agree flows can be confirmed at detailed design.

Water Balance

Comment 8. How was the infiltration gain of 19,461 m3 / yr calculated as referenced in the Urbantech FSR and the Azimuth Hydrogeological Addendum?

a. *Please provide a breakdown or sample calculation.*

Azimuth Response: We have appended the tab from our water balance spreadsheet that summarizes the calculations for each LID / Catchment area. It is also noted that the additional information including variables and assumptions used in the calculations summarized in Section 4.1 of the Hydrgeological Addendum Report are provided in this appended summary page.

b. *Please identify whether the proposed development is to be constructed in separate stages. If so, the water balance is to be maintained at each stage of the development. Please identify what LIDs are sufficient to meet the water balance at each stage (i.e. the water balance for the roads is provided for by LIDs on the residential blocks, if the roads are constructed first, how will water balance be maintained prior to the construction of LIDs on the residential blocks?). An interim water balance may be required if water balance cannot be maintained at each stage of the development .*

Azimuth Response: The staging of the development is not known at this time. This is something that could be better addressed at detailed design.

Ecology
Drainage Features & Wetland Creation

Comment 4. Wetland Creation: Based on the response provided, it's our understanding that hydrology of the created wetland will be achieved by a combination of both high seasonal groundwater and surface water inputs, and that these inputs would be sufficient to maintain hydric soils/wetland vegetation. Please confirm whether this is correct and confirm that the feature would not intersect with the permanent groundwater table.

Azimuth Response: The seasonally high water table at the closest monitoring well (MW-3), which is within 40 m of the proposed wetland feature is 430.35 masl, while the more permanent water level is approximately 420.2 masl and consistent into the summer months based on the data collected in 2017. If the ground surface of the wetland is constructed to an elevation of approximately 420.2 masl, this along with surface runoff contributions should maintain saturated to moist soils which will contribute to the growth and maintenance of wetland vegetation.

Town Comments (October 29, 2019)
Development Concept Plan

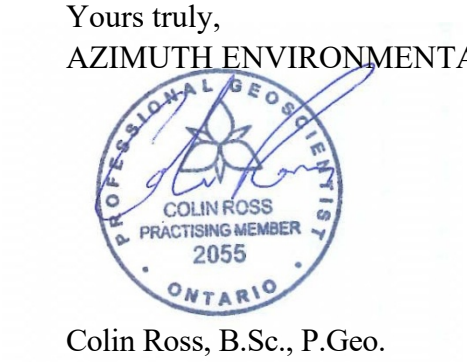
Comment 4. *Received. There are no comments regarding the development concept plan. However, the submission documentation (Planning Justification Report Addendum and Urban Design Brief) suggests that the proposed apartment buildings on Blocks 22 and 23 will contain one level of below-grade parking. Staff support the development of below-grade parking as part of any future site plan application for the development of these blocks as this would decrease the amount of surface parking area required for the apartment dwelling units.*

Although the submission proposes below-grade parking, the supporting Hydrogeological Addendum report does not address the potential viability of accommodating below-grade parking in proximity to the seasonally-high groundwater table. It only addresses the depth of basement and retaining wall footings, as well as construction excavation above the groundwater table. Further confirmation should be provided on the viability of accommodating below-grade parking relative to groundwater table elevations for this portion of the site.

Azimuth Response: Details of the underground parking were not available at the time of the report issuance. The base elevations are still not available, however, a review of the high water table elevations at Block 22 (422 - 423.25 masl) and Block 23 (~426 masl) would be approximately 2.3 m and 3.7 m below the proposed grade in those locations. Given underground parking depths are typically about 3 m for each level, there may be encroachment with the high water table, depending on the final proposed underground parking base elevation. The elevations could be revised during detailed design to accommodate the water table elevations through increasing the footing depths, lining the foundation or establishment of permanent dewatering. However, in the case of permanent dewatering, these volumes would need to be included in the revised water

balance assessment and potentially mitigated through additional infiltration facilities beyond the footprint of the apartment building.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.



Colin Ross, B.Sc., P.Geo.
Hydrogeologist