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Victoria Park Village – Proposed Development

1159 Victoria Road South, Guelph

UPDATED JANUARY 15, 2016

Second Submission Response Matrix based on Comments received from:

- City of Guelph - Victoria Park Village Subdivision - Stantec's First Submission, comments dated July 10, 2015 (Section A)
- City of Guelph - Victoria Park Village Subdivision – OPA 0502, 23T-0706, ZC 0505 EIR, Engineering and Landscape Plans – Second Submission, comments dated July 10, 2015 (Section B)
- Additional Parks and Recreation email comments dated July 17, 2015 (Section C)
- City of Guelph - Victoria Park Village Traffic Impact Study Review (updated), comments dated August 21, 2014 (Section D)
- Beacon Environmental (Retained by the City of Guelph) – Review Victoria Park Village Updated Environmental Implementation Report (EIR) April 2015, prepared by Stantec Consulting Ltd., comments dated July 9, 2015. (Section E)
- City of Guelph, Helen White Landscape and Parks, comments dated October 21, 2015 (Section F)
- Grand River Conservation Authority – Draft Plan of Residential Subdivision 23T-07506, 1159 Victoria Road South, Guelph, comments dated August 20, 2015 (Section G)
- October 23, 2015 - Follow-Up Parks Comments from Lindsay Sulatycki (Section H)
- Helen White comments dated December 2, December 11, December 15, and December 16 – Relating to Signage & Rest Areas (Section I)
- Environmental Advisory Committee comments dated July 8, 2015 (Section J)
- River Systems Advisory Committee comments dated July 15, 2015 (Section K)



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City of Guelph - Victoria Park Village Subdivision - Stantec's First Submission, comments dated July 10, 2015. (Section A)																			
SWM Report																			
A1	<p>© The Torrance Creek Subwatershed Study (TCSS) Table 6.2.1 specifies volume requirements for Peak Flow Control (1:100-yr. storm) for the development area (I.e. Catchment Area 110, 730 meters cubed per hectare and Catchment Area 106, 780 meters cubed per hectare). Stantec's proposed SWM Design is based on Guelph 3-hour Chicago Storm distribution, which is claimed to generate higher peak flow rates for the proposed development. But it appears that the proposed storage volume in the stormwater management ponds for the 100-yr. event is less than the TCSS requirements as shown below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">SWM Pond</th> <th style="width: 33%;">TCSS Volume Requirements (meters cubed)</th> <th style="width: 33%;">Proposed Pond Volume (meters cubed)</th> </tr> </thead> <tbody> <tr> <td>Pond 100</td> <td>2,869</td> <td>2,585</td> </tr> <tr> <td>Pond 200</td> <td>5,548</td> <td>3,480</td> </tr> <tr> <td>Pond 300</td> <td>2,340</td> <td>1,601</td> </tr> <tr> <td>Pond 400</td> <td>1,014</td> <td>605</td> </tr> <tr> <td>Pond A</td> <td>-</td> <td>2,813</td> </tr> </tbody> </table> <p>Stantec relied on the TCSS flow rates for the pre development conditions however no pre development modeling was conducted.</p> <p>Please, justify use of lesser pond volumes</p> <p>® The hydrologic modeling has been updated using the 48-hour Hurricane Hazel adjusted rainfall events for the 2-100-year storms as per the original TCSS hydrologic model (Section 4.6.3 of the TCSS). Rainfall factors were taken from Table 4.6.3 of the TCSS.</p> <p>® The 100-year volumes in the table above are presented in Table 6.2.1 of the TCSS. Section 6.2.1 states "These values represent the volumes for controlling the 1:100-yr. design event to existing levels. They are conceptual and should be used as a guide only. Design values must be developed through a detailed stormwater management study." In addition, the Study states "To maintain consistency in modelling, the peak flows calculated in this study should be used as targets in future modelling. The target flows by subwatershed are provided in Section 4.6 and summarized in Table 6.2.2. The target flow should be pro-rated to the drainage area under consideration using a unit area method." As such, the proposed SWM facilities have been sized for peak flow control while the recommended 100-year unit area volumes from Table 6.2.1 are considered a guide only for conceptual and preliminary design.</p> <p>® The target flow rates for each catchment in the Torrance Creek Subwatershed</p>	SWM Pond	TCSS Volume Requirements (meters cubed)	Proposed Pond Volume (meters cubed)	Pond 100	2,869	2,585	Pond 200	5,548	3,480	Pond 300	2,340	1,601	Pond 400	1,014	605	Pond A	-	2,813
SWM Pond	TCSS Volume Requirements (meters cubed)	Proposed Pond Volume (meters cubed)																	
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	<p>were taken from the GAWSER model provided to Stantec by the GRCA. The pro-rated target rates are provided in Section 4.1 of the revised SWM report.</p>
A2	<p>© The SWM report includes a prohibition of third party reliance. In order to release the condition of third party reliance in favor of the City, either include the City in a sign-off sheet so that they can rely on it or provide a reliance letter.</p> <p>® Qualification note has been revised.</p>
A3	<p>© There are no discussions of servicing in the stormwater management report and no separate report for servicing has been provided. Please, discuss proposed servicing details such as impacts of sanitary sewers under groundwater table and justifications for providing clay collars etc. in the report.</p> <p>® Additional section has been included with the revised FSWM report to outline the servicing details along with justification via email for Anti-Seepage Collars from the Geotechnical consultant Soil-Mat Engineers & Consultants Ltd. document re: <i>SWM Pond Liner and Clay Cut-offs</i>, dated January 13, 2016, as well, recommendation to refer to OPSS 1205. In addition, reference has been made to the Technical Memorandum, prepared by Banks Groundwater Engineering Limited re: <i>Groundwater Monitoring Program</i> dated January 8, 2016.</p>
A4	<p>© The proposed pond outlets for all SWM facilities are perforated CSP riser outlets, which is not a preferable option to the City. Please, explore other alternatives.</p> <p>® SWM facilities outlets have been updated to headwalls based on discussion with the City and reflected within the engineering plans and reports.</p>
A5	<p>© The SWM Facilities sectional elevations are limited to the outlet sections only. Please show complete profile and cross section of the Pond from inlet to outlet illustrate original ground level, water levels and ground water elevation on it.</p> <p>® SWM Facility drawings series C-410 have been updated to show longitudinal profiles with water level elevations as requested.</p>



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Pond 100 Dwg. C-410	
A6	<p>© There is no emergency overflow weir provided for SWM Facility 100; however Stage-Storage-Discharge calculations of the pond show an emergency overflow weir proposed. The larger storm events (greater than 100 Yr.) may cause flooding to the Street 1 and Victoria Road. Please clarify and provide an emergency overflow weir.</p> <p>® The SWM report and engineering drawings have been updated to reflect a series of culverts under Street 1 as an emergency overflow conduit. The hydraulic model CulvertMaster was used to determine the size and number of culverts required to convey the flow from the Regional rainfall event under Street 1 with a freeboard of 0.14 m. They are designed to ensure that water from the pond does not spill over onto the roadway under any rainfall event. The inverts of the pipes are set above the 100-year water level in the pond and will only convey water during rainfall events larger than the 100-year storm or during a blockage of the outlet pipe. Details of the overflow can be found in Section 4.2 and Appendix D of the revised SWM report.</p>
A7	<p>© The outlet of the SWM Facility 100 is in close proximity of inlet, please move the location of outlet at the end of pond to increase flow path.</p> <p>® Although there are no requirements for flow path/travel distance for dry ponds with an upstream OGS, the location of the outlet for Pond 100 has been altered to allow for an increased flow path, refer to Drawing C-410 for details.</p>
A8	<p>© Three inlets are proposed for Pond 100, a major inlet with STC 9000 OGS unit at west of the pond, an inlet with STC 750 OGS unit adjacent to Victoria Road S and a separate inlet for backyard runoff generated from Block 108 at south west corner of the pond. Increasing number of inlets and OGS units will have impacts on the operation and maintenance costs. Therefore, it is recommended to replace inlet at Victoria Road S with DCBS at low point on both side of Street 1 and connect to major inlet through storm sewers. Also, provide RYCBs connections to Block 108 storm sewers in addition to grassed swale to divert flows from proposed inlet to the main inlet on Street 1. In addition, show a major overland flow inlet arrangement in the Pond.</p> <p>® We have eliminated the inlet from the Block 108 and combined the flow into the OGS (STC 9000). The DCB's inlet has not changed per correspondence with the City on Oct. 9, 2015 as there is not a sufficient grade difference to allow the lateral to be collected in the main sewer. Refer to Dwg C-410 for details.</p>



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A9	<p>© In Pond 100, drawdown time for 25mm storm event is about 46 hours using proposed 75mm orifices that are very small in size and may frequently choke. In order to increase orifice sizes, lower down the draw down time to minimum 24 hours as per MOE requirement.</p> <p>® Following discussions with the City and the GRCA, the low-flow outlet orifice has been sized to control peak flows from the SWM Facility to meet target rates. The orifice is 100 mm and provides a 34-hour drawdown time for the 25 mm rainfall event. Please refer to Section 4.2.1 of the revised SWM report for details.</p>
A10	<p>© Pond 100 side slopes are appears to be 4:1 and 3:1. Please, provide 5:1 as per City guidelines.</p> <p>® Per our meeting on Nov. 12, 2015 and subsequent email exchanges with the City on Nov. 16, 2015, a retaining wall has been proposed parallel to the Street 1 complete with railing as requested with 3:1 slope between the wall and ROW with 4:1 slope below the wall to the extended detention water level and 5:1 for the remainder Refer to Dwg C-410 for details. Due to grading limitations and SWM Volume requirements, a retaining wall with a height of 0.9 m is required. The proposed wall is positioned above the highwater level and a permit will be required and secured by the constructor.</p>
Pond 200 Dwg.C-411	
A11	<p>© Provide a proper size OGS unit for pretreatment to control enhance level 1 (i.e. 80% TSS removal) using Fine particle size distribution, in addition to proposed forebay in the Pond 200 and Pond 300.</p> <p>® An OGS unit has been proposed as requested. We note Pond 200 requires an STC14000 to provide 78% TSS removal (does not meet the 'Enhanced' requirement because the catchment area is too large – 7.17 ha and the largest structure available has been specified) for the wetland facility, refer to the SWM report and Dwg. C-411 for details</p>
A12	<p>© A cooling trench is proposed within the pond footprints of SWMF 200. The arrangement of diverting flow from outlet to the trench by reversing flow to the pond is not acceptable. Operation and maintenance of the trench and pipe arrangement will be complicated. Please, relocate the cooling trench out of Pond footprints as proposed in pond 300.</p> <p>® The cooling trench configuration and location has been adjusted to be positioned under the maintenance access and outside slope allowing maintenance of the cooling trench without impact to the pond, as requested and as reflected in the SWM report and Dwg. C-411 for details.</p>



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A13	<p>© It appears that the overland flow inlet is proposed in the forebay of Pond 200. Overland flow currents will cause re suspension of settled particles in the forebay. Please, separate overland flow inlet from the forebay.</p> <p>® Overland flow path has been relocated along maintenance access and directed towards main cell.</p>
A14	<p>© The coefficient of discharge used for weirs in stage-storage-discharge table does not match the Turfstone surface. Please, use appropriate values under stage-storage-discharge calculations.</p> <p>® The broad-crested weir equation has been used to calculate discharge over the emergency overflow weir. The equation is (Open Channel Hydraulics, Chow, 1959):</p> $Q = C_d * L * H^{1.5} \text{ where}$ $C_d = (2/3) * 1.5 * g^{0.5} * [0.65 / (1 + H/H_w)^{0.5}]$ <p>As such, C_d typically ranges between 1.45-1.8 and is more sensitive to changes in the depth of flow over the weir than the material over which it flows. C_d in this analysis has been left at 1.8 as this represents the most conservative estimate for required storage volume in Pond 200.</p>
A15	<p>© Pond 200 side slopes generally appear to be 5:1; however, some of the side slopes are 3:1. Please, refer City's Design Principles for stormwater management guide and provide maximum 5:1 slope.</p> <p>® The side slopes of Pond 200 have been adjusted to average 4:1 as per the City of Guelph Standards, Refer to Dwg C-410 for details.</p>
A16	<p>© Pond 200 storm inlet is partially submerged at 5 year and under 100-yr. it is fully submerged. In order to prevent surcharging of storm sewers upstream, storm pond inlet inverts shall not be lower than the maximum extended detention level.</p> <p>® As discussed during our meeting on Aug. 17/15, storm service lateral are not proposed in the area and therefore there is no concern with the sewer surcharging to the proposed homes.</p>



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Pond 300 Dwg. C-412	
A17	<p>© It appears that the overland flow inlet is discharging in the forebay of Pond 300. Overland flow currents will cause re suspension of settled particles in the forebay. Please, separate overland flow inlet from the forebay.</p> <p>® Overland flow path has been relocated along maintenance access and directed towards main cell.</p>
A18	<p>© Please move the location of outlet of Pond 300 at the east end of pond to increase flow path.</p> <p>® The location of the outlet for Pond 300 remains in the proposed location as designed. The area east of the outlet has been re-graded as the facility is oversized and additional storage area is not required.</p>
A19	<p>© Pond 300 side slopes appear to be 3:1. Please, refer City's Design Principles for stormwater management guide and provide maximum 5:1 slope.</p> <p>® The side slopes of Pond 300 have been adjusted to average 4:1 and 6:1 between the SWM Facility and trail, as per the City of Guelph Standards, Refer to Dwg C-412 for details.</p>
Pond A Dwg C-413	
A20	<p>© There are no discussions on the bathymetry conducted for existing Pond A in the stormwater management report, and there are no data available in the referenced drawings C-050 and C-051; however, a contour map showing elevation table and colour depth information provided to us July 2, 2015 with missing information such as reference benchmark, water levels etc. in order to estimate available capacity in the pond to accommodate storage for the flows from Pond 200 and Pond 300. The requested bathymetry survey data is required to estimate volume/capacity of Pond A and will also be used as baseline data for future pond maintenance. Please, provide all information of bathymetry survey.</p> <p>® Additional Pond A Bathmetry Plan C-414 has been provided, along with, AutoCad file and updated modeling info as requested in the City's email on July 2, 2015. The additional colour bathymetry plan complete with benchmarks, spot sounding elevations, edge of water levels, existing storage volumes, has been provided. SWM Pond A Plan C-413 has been updated to provide proposed water levels, proposed storage volumes and notes the existing groundwater elevations and shown on the pond cross sections.</p>



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A21	<p>© Based on MIDUSS results, it appears that the Pond A is designed for a catchment area of 1.48 ha which does not included the major flows input from Pond 200 and Pond 300. As the pond is designed to contain mainly major flows from adjacent ponds, it is reasonable to estimate all major flows from 10yr, 25yr, 50yr and 100yr. Please, demonstrate that the Pond A has capacity to accommodate all major flows (> 5yr storm) from adjacent ponds in addition to its own catchment area.</p> <p>® The MIDUSS model has been updated to receive major flows from ponds 200. Please refer to Section 4.2.5 and Appendix C of the revised SWM report for details.</p>
A22	<p>© Based on BH2-97 data, groundwater level is 331.66m and proposed permanent pool level (PPL) in the Pond A is about 331.20m. Also, the proposed 100-yr. storm level is about 331.63m. Apparently, the pond will be full of groundwater and there will be no room to store any runoff generated. The groundwater interception by the pond will have negative impacts. Either change PPL that may reduce storage capacity in the pond, alternatively use clay liner to maintain proposed PPL in the pond.</p> <p>® As noted by the Hydrogeologist (email dated Sept. 15/15) the existing pond elevation is controlled by the spill elevation of the outlet stream and in the proposed design the pond is controlled by the outlet structure which is set at +/- the same elevation as the existing/current spill elevation. In the existing/current conditions Pond A receives flows upstream and soil conditions suggest some ground water inflow as well but based on the proposed conditions the stream is being adjusted to bypass the pond, no longer contributing to the pond and the inflow from the ground water will not impact the permanent pool elevation and available storage in the facility.</p> <p>® As per the suggestion from the City via email on Nov. 30, 2015 we have implemented a Vertical Anti-Seepage Cut-off up gradient of the groundwater flow to Pond A, Please refer to the Engineering Plans for details.</p>
A23	<p>© Pond A side slopes appears to be 3:1 at majority of locations. Please, refer City's Design Principles for stormwater management guide and provide maximum 5:1 slope.</p> <p>® The side slopes of Pond A have been adjusted to average 4:1 as per the City of Guelph Standards, Refer to Dwg C-413 for details.</p>



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Pond 400 Dwg C-414	
A24	<p>© In section 4.2 and 4.2.4 of SWM report, it is mentioned that the SWMF 400 is a bioretention pond to provide an enhanced level of water quality control and an oil/grit separator is proposed for pretreatment. However, the details of SWMF 400 (refer Drawing C-414) appears to be a dry pond with arrangements of a perforated CSP riser outlet that discharge minor flows through 75mm orifice 1 at elevation of 333.2m as mentioned in stage-storage-discharge table. Also, overflow weir provided at level of 333.7m which is 0.7m above the bottom of pond not 0.1m as mentioned in the report. The groundwater table is 332.1m and proposed bioretention will provide water quality control and infiltration when the bottom of cell is below groundwater. It is suggested to relocate bioretention cell upstream of the Pond.</p> <p>® As discussed during our meeting on Aug. 17/15 a bioretention feature is not viable within the proposed facility or upstream. Based on our meeting on Nov. 12, 2015 in addition to the infiltration galleries already proposed with in this catchment area, the City is willing to accept permeable pavers along the maintenance access to address their concerns.</p>
A25	<p>© The overflow weir proposed on Pond 400 is broad crested weir overflowing maintenance access; however, it is considered as sharp crested weir under stage-storage-discharge calculations. Please, use proper weir formulae and show sectional details.</p> <p>® The proper weir formula and sectional details for the overflow weir has been provided in the SWM report and details plan.</p>
A26	<p>© Pond 400 storm inlet is submerged at 5yr and under 100yr storm events. In order to prevent surcharging of storm sewers upstream, storm pond inlet inverts shall not be lower than the maximum extended detention level.</p> <p>® As discussed during our meeting on Aug. 17/15, storm service lateral are not proposed in the area and therefore there is no concern with the sewer surcharging to the proposed homes.</p>



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A27	<p>© The proposed outlet of SWM Pond 400 is in closed proximity of the inlet. Please, move the outlet at the end of the pond to increase travel path.</p> <p>® Although there are no requirements for flow path/travel distance for dry ponds with an upstream OGS, the location of the outlet for Pond 400 has been altered as much as possible and limited due to the outlet elevation to allow for an increased flow path, refer to Drawing No. C-414 for details.</p>
MIDUSS	
A28	<p>© Pond A is modeled for only 1.48 hectare area; major flows from Pond 200 and Pond 300 are not included in the Pond design. Please, justify.</p> <p>® The MIDUSS model has been updated. The major flows from Pond 200 discharge to Pond A in addition to the 1.48 ha of land draining directly to Pond A. Please refer to Appendix C of the revised SWM report for MIDUSS output.</p>
A29	<p>© The maximum depth shown in model in Pond 400 is 333.263m. However, Table 11 mention max ponding depth = 0.16m. Verify and correct values.</p> <p>® The design of Pond 400 has been revised to a dry SWM Facility. All details relating to Pond 400 have been updated accordingly. Please refer to Section 4.2.4 of the revised SWM report for details.</p>
A30	<p>© The area mentioned in model is 1.57 hectares for Pond A at 100-yr. storm event. However, the area is not consistent with drainage plan Fig3, which shows 1.48 hectares. Please, rectify</p> <p>® The drainage area for Pond A has been updated to reflect the revised drainage areas. Please refer to Appendix C of the revised SWM report for MIDUSS output.</p>
A31	<p>© The catchment area 600 used in the MIDUSS is not consistent with proposed post development drainage plan Figure 3. Please, verify and adjust accordingly.</p> <p>® Catchment area 600 has been revised as per the updated drainage plan. Please refer to Figure 2.0 and Appendix C of the revised SWM report for details.</p>



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A32	<p>© The proposed catchment ID 201 area (i.e. 6.92 hectares) for Pond 200 consists of various land uses, such as apartments, townhouses, single family units and park block. Divide the CID 201 into smaller areas based on land use and run the hydrologic model using corresponding City standard percentage impervious.</p> <p>® The proposed Catchment 201 has been split into four (4) different catchments with different land uses. Please refer to Section 4.1.2 and Appendix C of the revised SWM report for details.</p>
Cooling Contact Trench	
A33	<p>© Cooling trenches are proposed for SWM facilities 200 and 300 to mitigate thermal impact of the stormwater. The trenches are designed to ensure complete mixing of groundwater and runoff. The theory suggest the heat transfer from the water to surrounding media by increasing retention time through trench internal material (i.e. sand, gravels and larger stone) that provides the cooling benefits prior to discharging to receiving system. The proposed cooling trenches with invert below the groundwater table will intercept groundwater that disrupt the natural flow of groundwater to the wetland and had negative thermal impacts (warming) on the groundwater especially, in dry period. If bottom of the trench is above the groundwater table, it will reduce volume of warm runoff by infiltration. Therefore, the outlet cooling trenches having inverts below groundwater table is not preferable option to the City.</p> <p>® Recent monitoring data for similar designs in the area has been provided to the GRCA and the City to show the effectiveness of the thermal mitigation design. The GRCA are generally satisfied with the results, and, as such, the design has not been changed significantly. Per our meeting on Nov. 12, 2015 the gallery for Pond 300 is acceptable barring minor adjustments to enlarge the contact surface. With respect to Pond 200 the City requested to keep the cooling trench MH's and appurtenances out of the wetted perimeter of the SWM Pond. The outlet of the cooling trench is not below the groundwater table and no groundwater discharge drainage is anticipated to occur per the City's concerns via email on Oct. 9, 2015. A thorough monitoring program has been provided to ensure the proposed thermal mitigation is functioning as designed. Consideration of residence time in the design has been included in Appendix G of the revised SWM report.</p>



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A34	<p>© In section 6.2 of SWM report, it is mentioned that, data loggers will be installed in late April and removed in October. Proponent should ensure a third party long term performance monitoring of cooling trenches that will continue for a period of two years beyond 75 percent build out of the development.</p> <p>® The performance monitoring duration has been updated per the City's request.</p>
Sanitary Sewer Design Sheet	
A35	<p>© The sanitary area coefficients used for Block 101 to Block 105 on Street 8 are not consistent with City Standards. Please, incorporate changes and update design statement accordingly.</p> <p>® Design sheet and area plan has been revised.</p>
A36	<p>© Please, include 7 hectares of future developments sanitary flow allowance for southern property and provide sanitary sewer stub at property boundary as per previous MCI submissions.</p> <p>® Design sheet and area plan has been revised.</p>
Storm Sewer Design Sheet	
A37	<p>© Add Catchment ID numbers on drainage plans and add a column in the design statement.</p> <p>® No action required, as discussed during our meeting on Aug. 17/15.</p>
A38	<p>© The City will not allow a separate inlet in the pond for Block 108 rear yards; please include this area into the Block 108 Plug. Also, no major flow of Block 106 should be discharged to the SWM100. Please, update the design statements accordingly.</p> <p>® Similar to comment/response #A8, the grading and servicing for Block 108 has been revised such to direct flows to Street 1, thus increasing the height of the retaining wall within the site.</p>
A39	<p>© Minimum time of entry (Tc) used in the design statement is not consistent to 5 minutes at numbers of locations; please, use same minimum time of entry throughout the design statement.</p> <p>® Proposed design follows City standards noted under Section 26A Page 8 of 17, of 10 min for Parks and signal family. No action required.</p>



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A40	<p>© There are some areas that are not included into storm sewer design sheet on southern property boundary. Please, Justify.</p> <p>® As discussed during our meeting on Aug. 17/15, the areas not included into the storm sewer design sheet are areas within the woodlot or hedgerow along the south property line that cannot be altered and currently drains to the south.</p>
A41	<p>© Please change the Park description in the design statement as Block 109.</p> <p>® Park has been changed to Block 109 in the Design Sheets.</p>
Sump Pumps	
A42	<p>© It appears that the basements of the proposed lots along the Street 5, Street 4 and Street 8 are below the groundwater level. The proposed sump pumps will cause permanent dewatering at seasonal high groundwater level. The permanent dewatering is not an acceptable option to the City. Please, demonstrate that all basements are 0.5m above the seasonal high groundwater level; otherwise Basements will not be allowed.</p> <p>® Dwg. No. C-131 has been misinterpreted. The basement floor elevations are designed to be above the HGWL, refer to Infiltration Plan C-420 for HGWL elevation vs. proposed finished grades. As requested by the City during our meeting on Aug. 17, 2015, proposed underside of footing elevations have been added to Dwg. No. C-131 for clarity.</p>
Water Balance	
A43	<p>© In the pre development water balance analysis the site topography used was 'hilly land'; however, based on existing site topography map, the site can be considered as 'rolling land' that will result in a 10% increase in recharge rate under pre development conditions. Please use appropriate topographical factor and update the analysis accordingly.</p> <p>® The pre-development topography has been revised to 'hilly land'. Please refer to Section 4.5 and Appendix F of the revised SWM report for details.</p>



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Infiltration Galleries Dwg Nos. C-420 & 421	
A44	<p>© The groundwater is very near to bottom of infiltration galleries in most of the lots along the perimeter of the development. Please ensure 1.0 metre separation from groundwater level and submit design of infiltration galleries based on on-site infiltration tests.</p> <p>® The proposed grading has been adjusted to allow for the required 1.0 m vertical separation between the bottom of the infiltration trench and the HGWL. On site soil testing will be completed during area grading construction to ensure appropriate material is placed within the infiltration gallery areas and prior to the construction of the galleries.</p>
A45	<p>© Typical siting plan for infiltration trench shows 1.0 metre wide clay cutoff between the galleries. Please do not provide 1m lot line plug but rather separate each lot infiltration gallery.</p> <p>® The design detail has been altered to show separate infiltration trenches for each lot and we have removed the reference to the use of clay cut offs.</p>
A46	<p>© The proposed arrangements of roof leaders and downspout connections to the infiltration galleries and sump pump connection to the downspout are not acceptable option. Also, include note that onsite infiltration tests will be conducted prior to construction and bottom of gallery shall be 1.0 metre above the seasonal high groundwater level.</p> <p>® The proposed arrangement for roof leaders and sump pumps has been revised as agreed upon during the meeting with the City on Nov. 17, 2015. The result is all downspouts will be connected to the infiltration galleries in the rear yards complete with downspout overflow at grade per the proposed detail. The foundation drains will be pumped to the surface via a sump pump and the flow will be directed to the rear lot. Where houses back onto one another split grading has been provided along with a rear lot catchbasins.</p>



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A47	<p>© Extend clay cut-off collar to the bottom of basement level to protect sump pump continuous discharge and provide hydrogeologists support of this use.</p> <p>® The detail shown is not to scale and we believe this gives a false view of how the infiltration trenches will be positioned in relation to the foundation. The conveyance pipe from the house foundation will drain via gravity (to an elevation below the foundation) to the infiltration trench in the rear of the yard in which the top is only 0.2 m above the inlet therefore the ground water as described cannot intercept the foundation. The anti-seepage collars are put in place to ensure water will not travel along the pipe should the trench surcharge. The infiltration trench detail shows that a 6:1 slope as per comments received Oct. 9, 2015, measured from the bottom of the trench does not intercept the house foundation.</p>
A48	<p>© Show target recharge rates on each block to be maintained through proposed infiltration galleries at Site Plan stage.</p> <p>® Target infiltrations rates have been added to the Engineering Plans refer to Dwg. Nos. C-420 & 421.</p>
A49	<p>© The multi-block infiltration calculations provided in the Appendix F of SWM report are based on average hydraulic conductivity of the site. Based on water balance analysis, target recharge rate should be mentioned on each block as reference and the percolation rates should be estimated based on on-site infiltration tests at Site Plan stage.</p> <p>® See comment #A48 above.</p>
A50	<p>© The proposed infiltration galleries on Lot 29 and Lot 30 appear adjacent to the toe of the building foundations that may be discharging percolated water to the ground by sump pumps. Please adjust the location away from building foot prints.</p> <p>® Infiltration trenches for Lots 29 & 30 have been shifted to 3 m from the rear lot line. MOE requirement of 4m separation will dictate back of house location during Site Plan review.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
Second Submission Response Matrix based on Comments**

A51	<p>© Provide clay cut-off on both sides of the infiltration galleries for Lots 34 and 35 to protect Lot 33 foundation drain interception of percolated water and provide hydrogeologist support for this use</p> <p>® MOE requirement of min 4 m separation is provided. Actual separation = 3 m to rear lot line + 1.2 m side yard setback = 4.2 m from gallery to foundation. Hydrogeologist email from Sept. 15/15 believes this is not an item of concern.</p>
A52	<p>© Provide clay cut-off on both sides for the infiltration galleries of Lots 31 and 32 to protect Lot 33 foundation drain interception of percolated water and provide hydrogeologist support for this use.</p> <p>® MOE requirement of min 4 m separation is provided. Actual separation = 3 m to rear lot line + 1.2 m side yard setback = 4.2 m from gallery to foundation.</p>
Roads and Servicing	
A53	<p>© It appears that there are no changes incorporated at the Victoria Road intersection as requested under TIS comments. Please ensure comments are addressed and make changes accordingly (our old TIS comments are attached for your reference).</p> <p>® A 3.3 m wide, 50 m southbound right turn land and 60 m taper lane has been provided along Victoria Road as requested per Gwen Zhang's email dated Oct. 19/2015.</p>
A54	<p>© The minor flows from the catchment areas (DCB 274 – STC 273) should be diverted to the main inlet through storm sewer on Street 1.</p> <p>® Per response to comment #A8, direct outlet to SWM Facility 100 remains as designed due to potential of conflict with the outlet pipe.</p>
A55	<p>© Provide water servicing Stub connection for block 107 & 108 from northern watermains only.</p> <p>® A water service has been provided for Block 107 &108.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
Second Submission Response Matrix based on Comments**

A56	<p>© There is no water connection proposed for the Park Block 109.</p> <p>® A water service has been provided for Block 109 and the location coordinated with Helen White.</p>
A57	<p>© Show both watermains on the profile.</p> <p>® The Street 1 Plan & Profile has been updated to reflect the two watermains as requested.</p>
A58	<p>© On Street 2, extend sanitary sewer to the southern property boundary and incorporate 7.0 hectares sanitary area for external developments.</p> <p>® The sanitary sewer has been extended to the southern property boundary on Street 2 as requested.</p>
A59	<p>© On Street 2, continue 200mm WM to the southern property boundary for future development external area.</p> <p>® The watermain has been extended to the southern property boundary on Street 2 as requested.</p>
A60	<p>© On Street 2, road and servicing need to be build up to property limits, otherwise Block 105 will not be permitted.</p> <p>® Security will be posted for works up to the Draft Plan limit. Limit of work based on keeping disturbance within property limits such to not disturb the lands to the south. The grading design for the adjacent lots remains the same under Interim and ultimate conditions as shown on the Lot Grading Plans.</p>
A61	<p>© On Street 5, there appears to be a depression on the road profile adjacent to the southern property. Please, ensure avoiding any depression within the section and make changes accordingly.</p> <p>® The road profile depression prior to intersections is standard profile design practice per City acknowledgment via email Oct. 9, 2015.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
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A62	<p>© On Street 5, maximum allowable path provided to catch basin spacing do not meet City standard requirements. Please, provide storm sewers and catch basins arrangements on the street.</p> <p>® Per the City standards, max 90m spacing is allowed between structures or from a high point to the first structures, for sections of road 8.8m wide and less than 5%. Pg. 13 of 17 #5 and acknowledged by the City via email Oct. 9, 2015</p>
A63	<p>© Move proposed sidewalks on Street 8 to north side of the road.</p> <p>® Right of way enlarged to 17 m ROW to accommodate units fronting from Townhome site Block 106. Sidewalk and curb alignment remains the same as the 15 m ROW such to align with Street 4.</p>
A64	<p>© A 79m – 375mm storm sewer is proposed at the property boundary to convey 100-yr. storm. Provide 6m easement on the development side along proposed storm sewer alignment for Street 7 and Street 6.</p> <p>© A 6 m easement has been provided as requested.</p>
A65	<p>© It appears only one DCBMH on each turning circle are proposed on Street 6 and 7 to capture 100-yr. storm event. In order to maintain maximum allowable ponding depth of 0.3m, provide additional DCBs on both turning circles.</p> <p>® 100-yr. flow is only captured (piped) from Street 6. 100-yr. flow from Street 7 is conveyed overland to SWM Facility 400. We understand the capacity of one DCB is sufficient to capture the 100-yr. flows but will provide an additional DCB as requested. Although the storm pipe on Street 7 is designed to convey the 100-yr. storm the City expressed concerns with where the flow would spill overland if the DCB where blocked. Per our discussion during our meeting on Nov. 12, 2015 calculation outlining the anticipated depth of flow should the sewer system fail during a major event for the swale between Lots 88 & 89 to the rear yard and out to the open space has been added to the Final Stormwater Management Report and cross sections shown on Drg. No. C-208 confirming the flow depth is no cause for concern.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
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A66	<p>© The emergency overflow route designed for Street 7 will require a 6.0 meter wide land transfer in favor of the City with fence and gate arrangements. Also, show the channel section details.</p> <p>® See response to comment #A65 above.</p>
A67	<p>© Clay cut-off collars are proposed for the sections of sanitary sewer at the locations where the depth of groundwater is above the sewers. However, there are no recommendations for Clay Collar in the Geotechnical report dated June 8, 2006 prepared by CVD. Please provide Geotechnical or Hydrogeological support for this use.</p> <p>® Refer to response #A3 related to Geotechnical recommendation of the use of Anti-Seepage Collars</p>
A68	<p>© The road layers thickness illustrated on the drawings are not as per City Standards; remove trees and cross sectional points. Also, for Street 1; typical X-Section should be 12m Roads – 26 ROW (Refer SD-49bb).</p> <p>® Road structure was based on Geotech's recommendations. Will reduce to City standards.</p> <p>® Cross section reflects tree locations in accordance with street tree plan; trees will be removed from the sections to avoid confusion. Cross section points will remain as they are provided to provide support during construction.</p> <p>® Street 1 cross section matches City Standards.</p>
A69	<p>© It appears the proposed turning circle curb radius is not meeting City Standards. Please provide the 18.5m property line turning circle radius with a 16m curb radius.</p> <p>® 18.5 m property line radius along with 16m curb radius has been revised as requested.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
Second Submission Response Matrix based on Comments**

Grading Plan	
A70	<p>© Ponding on backyards of Block 102 to Block 105 at 100-yr. event is not acceptable. Please, propose alternatives measures.</p> <p>® Due to matching existing grades the 100-yr. flow will need to be piped per our meeting on Nov. 12, 2015. 3.0 m wide easements have been proposed for the rear yard catchbasins between the townhomes directing drainage to Street 8. The pipe is proposed to be concrete encased.</p>
A71	<p>© The Type A grading (back to front) on Street 3 and Street 5 will not work with the infiltration galleries that are proposed to be connected with pipe from rooftop downspouts. Please, use split grading type B/D that discharges rooftop runoff by gravity.</p> <p>® Refer to comment #A46 above.</p>
A72	<p>© The proposed driveways slopes on Block 101 to 105 exceed 6% at majority of lot locations. Also, backyard slope exceed 6%. Please try to bring the driveway slopes to not exceed 6%.</p> <p>® The driveway slopes for Block 101 to 105 have been altered to be less than 6% and rear yard grades to meet the maximum 6% grade.</p>
A73	<p>© Provide overland flow route for Block 101 to 105 in order to avoid ponding on the backyard of the lots.</p> <p>® See response to comment #A70 above.</p>
A74	<p>© Provide drainage to the area behind the retaining wall and property line along Block 108.</p> <p>® See response to comment #A40 above.</p>
A75	<p>© The Lots 32, 49 and 50 on Street 4 and Lots 53 to 57 do not appear to be type A. Please update it.</p> <p>® The Lot Grading Plans (C-400-404) have been revised to show the correct lot grading types.</p>



Reference: **Victoria Park Village, Guelph – Proposed Development
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City of Guelph - Victoria Park Village Subdivision – OPA 0502, 23T-0706, ZC 0505 EIR, Engineering and Landscape Plans – Second Submission, comments dated July 10, 2015 (Section B)	
General	
B1	<p>© Given that all the open space trails are in one phase and the close interrelationship between planting, environmental features, Basic Trail and final trail work – I recommend that the City trails be constructed in a subdivision contract with funding from the City’s capital budget. The trails can then all be built prior to lot build-out which avoids conflicts between the parties, is a marketing feature, reduces environmental impact, and saves developer cost to topsoil and seed these routes</p> <p>® The developer would prefer the trails to be constructed at the onset of the development. Portions of trails to be constructed under City contract have been labeled as “Future City Trail”.</p>
Grading and Drainage Plans	
B2	<p>© Provide water and electric service to park.</p> <p>® Refer to engineering response to comment #A56 above related to the water service. With respect to the hydro service, this will be coordinated with Guelph Hydro.</p>
B3	<p>© Label stonedust trails as ‘future City trail’ – unless installing these in subdivision contract as recommended above.</p> <p>® Engineering and landscape plans have been updated with labels as requested.</p>
B4	<p>© East stonedust trail – Provide preliminary block grading sufficient to prevent erosion of trail in area without swale as noted.</p> <p>® The grading plans have been updated to show additional grading detail to illustrate how surface water will be conveyed along northeast side of Block 107 to the adjacent trail swale system rather than sheet flowing over the future City trail.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
Second Submission Response Matrix based on Comments**

B5	<p>© East stonedust trail – 3:1 slope directly adjacent to trail is too steep: unsafe for trail users, unsafe to mow, no passing space for maintenance vehicles. Decrease to 4:1 or Provide flat mow strip next to trail- ideally 1m, min. 0.3m.</p> <p>® Per our meeting on Sept. 17/15 and subsequent City response email dated Oct. 2/15, our proposed grading plans have been adjusted to show a 0.3m mow strip and 3:1 maximum slope with additional plantings along east side of the limestone screenings trail to south of tributary as part of buffer planting on C-465.-Planting has been adjusted to deter pedestrian access within the SWM Block limits while respecting trail setback requirements. Refer to L-463 for adjusted planting. No pedestrian access signage has been provided on L-432.</p>
B6	<p>© East stonedust trail – 5% longitudinal slope will erode. Reduce to under 5% slope (preferred) or asphalt this section.</p> <p>® The trail slope has been reduced where possible and areas of 5% slope or greater specified with an asphalt surface.</p>
B7	<p>© Provide rodent grates on all trail culverts (same detail as Northern Hts trails)</p> <p>® The trail culverts have been updated to include for rodent grates.</p>
B8	<p>© East trail crossing (street to Victoria RD) – provide appropriate location and facilities in consultation with all relevant City staff and meet accessibility requirements. Park planning prefers a location in the area shown, asphalt ramps and pedestrian refuge in centre of street and/or pedestrian signal.</p> <p>® All sidewalk locations, ramps and gates have been updated based on City redline plan dated Oct. 9, 2015. 3.0 m wide asphalt trail has been shown but needs to be vetted with utilities upon their review.</p>
B9	<p>© Trail crossing at wildlife corridor – provide appropriate location and facilities in consultation with all relevant City staff and meet accessibility requirements. Park planning prefers a location in the area shown, 3m asphalt ramp on trial side, 1.5m concrete ramp on south side, pedestrian refuge in centre of street if space.</p> <p>® Note response to comment #B8 above.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
Second Submission Response Matrix based on Comments**

B10	<p>© Trail crossing at east cul-de-sac – provide appropriate facilities in consultation with all relevant City staff and meet accessibility requirements. Park planning prefers 1.5m concrete ramps on both sides and 3-way stop.</p> <p>® Note response to comment #B8 above.</p>
B11	<p>© PTC – use access space to lengthen trail slightly to reduce slope and add straight 2m trail section to prevent worn turf. Make side slopes continuous.</p> <p>® The PTC has been revised to reduce slope see Drawing C-404 for details.</p>
B12	<p>© PTC – 3:1 slope adjacent to trail does not meet City swm guidelines – adjust slope.</p> <p>® Per our meeting on Sept. 17/15 and subsequent City response email dated Oct. 2/15, the plans have been updated to show a 0.3 m mow strip along the Primary Trail Connection and transition slopes have reduced to meet Design Principles for Stormwater Management Facilities – (Fig. 4).</p>
B13	<p>© PTC – Show light pole locations and provide proof that the Primary trail and bridge design works for Guelph Hydro maintenance crew access.</p> <p>® Will coordinate with Guelph Hydro.</p>
B14	<p>© Provide detailed plans for the PTC bridge and footings. Please consult staff re: the elevation of the bridge deck before proceeding with the final design. The bridge cannot be flooded at any time – it is part of the Safe Route to School. Timber decking may not be desirable from a maintenance perspective – discuss rationale for this with staff</p> <p>® Detail plans for the PTC bridge and footing to be provided once the City confirms they are satisfied with the general location of the proposed bridge.</p> <p>® Current hydrology calculations confirms that the bridge abutment (334.1± elevation) is well above the anticipated regional flood elevation (331.85± elevation).</p> <p>® As per Helen’s email on Nov. 10, 2015 indicating that the bridge decking material was our decision and should reflect the City’s request to be made of durable material that is slip resistant, that said we have chosen to propose steel decking as specified by the manufacturer.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
Second Submission Response Matrix based on Comments**

B15	<p>© Label future PTC. Show staging of the PTC work (footings then deck and trail) and include appropriate treatment for temporary dead ends of the swm routes that meet the PTC to minimize ad-hoc pedestrian access from these to the open space until the PTC is built – or ideally build PTC surface to connect these to the road.</p> <p>® PTC from the road to the SWM Facility access for Pond 300/Pond A will be constructed by the developer as part of the subdivision works. No temporary dead ends will be required.</p>
B16	<p>© Show sidewalk on Street 6 – this is a Safe Route to School and PTC</p> <p>® A sidewalk has been added to Street 6 as requested.</p>
B17	<p>© Remove 2 extra lots.</p> <p>® Additional lots have been shown as blocks at this time and landscaped as per open space requirements Refer to Drg. Nos. L-463 & L 464 for planting plans and Drg. No. L-466 for seeding/sodding limits.</p>
B18	<p>© SWM 400 – Turfstone weir material is inaccessible and damages trail groomer in an asphalt trail. Pipe this drainage under trail if possible and pave it.</p> <p>® Per our meeting on Sept. 17/15 and subsequent City response email dated Oct. 2/15, Pond Turfstone weir is not considered a trail, therefore, no change is required</p>
B19	<p>© SWM 100 – As the trail in this SWM will be a Forestry maintenance access, it is to be included in the subdivision work and 3m wide.</p> <p>® SWM trail/access has been revised from a 2.4 m wide access to 3.0 m wide as requested.</p>
B20	<p>© SWM 100 – Remove overland flow from townhouse block over trail – pipe it to SWM.</p> <p>® See response to Engineering comment #A8 above.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
Second Submission Response Matrix based on Comments**

B21	<p>© SWM 100 – End trail at TPZ and install barrier. Extend demarcation fence to Ms Staples’ fence and provide private side maintenance access to area behind retaining wall.</p> <p>® Per our meeting on Sept. 17/15 and subsequent City response email dated Oct. 2/15, the drawings have been updated to show the trail stopping short of current location/tree dripline and a fence return connecting the retaining wall to the adjacent property line fence. A private property/no trespassing sign is to be located on the property line fence in this location. Refer to Drg. No. L-430 for proposed fencing limits and proposed signage.</p>
B22	<p>© SWM 100 – 3:1 slope adjacent to trail does not meet City swm guidelines – adjust slope. Trail can be adjacent to fence.</p> <p>® Per our meeting on Sept. 17/15 and subsequent City response email dated Oct. 2/15, the maintenance access has been shifted over to the fence and 0.3 m mow strip provided. See response to Engineering comment #A10 above regarding SWM Facility slopes.</p>
B23	<p>© Double fence and retaining wall in Block 108 creates an area that is difficult to access and will be a debris-collecting maintenance issue and potential source of conflict between several owners. Also MS Staples’ fence will cause impacts to her own woodlot – of which she may not be aware. Recommend consultation with City and adjacent owner to arrange mutually agreeable solution to avoid these issues.</p> <p>® Per our meeting on Sept. 17/15 and subsequent City response email dated Oct. 2/15, drawings have been updated to show a fence return from the retaining wall to the adjacent property line fence.</p> <p>® Based on email dated Oct. 19/15 the City confirmed the installation of a second fence along the boundary of the adjacent property is not required, specifically adjacent to the Townhouse Block 108 where a retaining wall and fence will be required. Refer to Drg. No. L-430 for proposed fencing limits.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
Second Submission Response Matrix based on Comments**

B24	<p>© Park – remove retaining wall and adjust grades to suit. Reduce other slopes as noted. Drain park on public lands – infiltrate to benefit woodlot and water balance instead of CB's if possible. Adjust toe of slope in area shown to better protect woodlot.</p> <p>® Park Grading has been redesigned to minimize eliminate the retaining wall based on the grading concept figure as a result of the Oct. 2, 2015 site meeting with City staff and subsequent email correspondence.</p>
B25	<p>© Provide flat grading for concrete sign pads – many of them are on 3:1 slopes.</p> <p>® The grading plan has been updated accordingly with maximum 2% slope on concrete signage pads.</p>
B26	<p>© West stonedust trail – adjust side slopes and alignment as shown. Note as 'future' unless installing in subdivision contract.</p> <p>® Trail will be labeled as "Future City Trail" as noted in response #B1 above. Side slopes will be reduced to 4:1 as noted in the City redlines.</p>
B27	<p>© Change trail curb ramp materials as noted.</p> <p>® Based on our meeting on Sept. 17, 2015 it is understood the preferred curb ramp material is concrete as originally shown on the proposed plans with the exception of the ramp for SWM 100 being asphalt.</p>
B28	<p>© Add general note that all trail barriers shall be 2m from sidewalk, contact Helen White to review location prior to installation.</p> <p>® Trail barriers will be positioned 2m from sidewalk and additional note added to the barrier detail on Drg. No. L-502.</p>
B29	<p>© SWM 300 – 3:1 slope directly adjacent to west side of trail is too steep: unsafe for trail users, unsafe to mow, no passing space for maintenance vehicles. Decrease to 4:1 or Provide flat mow strip next to trail – ideally 1m, min. 0.3m.</p> <p>® A 0.3 m mow strip and 4:1 slope has been provided as requested.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
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B30	<p>© SWM 300 – 3:1 slope adjacent to east side of trail does not meet City SWM standards – adjust.</p> <p>® Per our meeting on Sept. 17/15 and subsequent City response email dated Oct. 2/15, see response to Engineering comment #A19 above related to SWM Pond 300 sloping along with a 0.3 m mow strip as requested.</p>
B31	<p>© SWM 300 – Turfstone weir material is inaccessible and damages trail groomer in an asphalt trail. Pipe this drainage under trail if possible and pave it.</p> <p>® Weir material to be revised to Asphalt as requested by the City.</p>
B32	<p>© SWM 200 – Fill gap between trail and fence with asphalt swm route material to avoid maintenance issue.</p> <p>® Drawings have been updated to show trail edge against fence line to eliminate grass strip.</p>
B33	<p>© SWM 200 – 3:1 slope adjacent to north side of trail does not meet City SWM standards – adjust.</p> <p>® Per our meeting on Sept. 17/15 and subsequent City response email dated Oct. 2/15, see response to Engineering comment #A15 above related to SWM Pond 300 along with a 0.3 m mow strip as requested.</p>
B34	<p>© Turfstone swm route – add pedestrian barriers to prevent pedestrian use and ad-hoc trails in channel – consult environmental planner.</p> <p>® Per our meeting on Sept. 17/15 and subsequent City response email dated Oct. 2/15, turfstone material to remain as proposed, additional trail signage to be provided at both ends of maintenance route and seed mix over turfstone to remain as proposed. Refer to Drg. Nos. L-430 & L-431 for proposed signage locations and Drg. Nos. L-501 and L504 for details.</p>
B35	<p>© Details – Use city trail barrier detail and edit asphalt trail details as noted – to be consistent with details in landscape plans. Remove stonedust trail detail – unless installing these in subdivision contract as recommended above.</p> <p>® Barrier and asphalt trail details have been updated as requested. Stonedust trail detail has remained on landscape plans as requested. Refer to Dg. Nos. L-501 & L-502.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
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B36	<p>© Erosion control plan – Add label “no topsoil or material storage on park block” .</p> <p>® Additional noted has been added onto the Erosion Control Plan</p>
Landscape Plans	
B37	<p>© Note that Park Planning does not review Street Tree plans. Refer to comments on these from Environmental Planner.</p> <p>® City to review and comment on street tree plan once utility location is known.</p>
B38	<p>© Incorporate FADM trailhead signage requirements (updated since the last submission to meet AODA Built Standard) –e.g. trail slope, length, tactile map, etc. Consult staff on layout.</p> <p>® Signage has been updated to meet FADM requirements as requested and as per further direction from Helen White – correspondence dated December 2 & 11, 2015 (provided in Section I, below). Refer to L-432 & L- 433 for proposed signage locations and Drg. Nos. L-502, L-503, & L-504 for signage and pad layout details.</p>
B39	<p>© L-430 – Fence retaining wall area; address double fence area, fence edits. Trail crossing to be addressed – as above.</p> <p>® Refer to response to comment #B23 above.</p>
B40	<p>© L-431 – address bridge decking material question above, trail crossing, turfstone, sidewalk.</p> <p>® Refer to response to comment #B14 above.</p>
B41	<p>© L-433, L-432 – add sign note, address trailhead sign matter above.</p> <p>® Drawings have been updated to address signage notes per redline mark-up. Refer to drawings Drg. Nos. L-432 & L-433.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
Second Submission Response Matrix based on Comments**

B42	<p>© L-462 – ensure pad locations work with grading, change tree caliper to 60mm near trails and sidewalks, and adjust planting if required due to swm slope change.</p> <p>® Per our meeting on Sept. 17/15 and subsequent City response email dated Oct. 2/15, drawings have been updated to show 60 mm caliper trees adjacent to sidewalks and SWM trails and access routes and 50 mm caliper in other locations. Refer to Grading Plans C-400 series for proposed pad grading and SWM Planting Plans Drg. Nos.L-462, L-463, & L-464. Planting layout has been adjusted as per revisions to SWM pond and slopes. Refer to Drg. No. L-462.</p>
B43	<p>© L-463 – change tree caliper to 60mm near trails and sidewalks, add planting as noted in PTC access area for shade, screening – outside sightline zone, add barriers to turfstone route if required, and shrubs to prevent ad hoc trails in channel, verify plant list numbers, adjust planting if required due to swm slope change.</p> <p>® Caliper revisions have been made as requested. See response to comment response#B42 above. Planting has been added outside sightline on west side of PTC connection as requested. Barriers not required as per comment response #B34 above. Shrubs and trees have been added to Drg. No. L-467 to prevent access to realigned stream channel. Plant list has been verified and updated with current quantities and densities. Planting layout has been adjusted as per revisions to SWM pond and slopes. Refer to Drg. No. L-463.</p>
B44	<p>© L-464 – change tree caliper to 60mm near trails and sidewalks, remove shrubs on townhouse block wall if disturbing tree roots, adjust planting if required due to swm slopes change.</p> <p>® The shrubs have been removed from the townhouse block wall to prevent disturbance to adjacent tree root zones. Access has been prevented with chain link fence returns at this location. Refer to Drg. No. L-430 for proposed fencing limits behind townhouse block.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
Second Submission Response Matrix based on Comments**

B45	<p>© L-466 – Explain rationale for choice of turfstone and trail access point seed mixes to staff, add sod at PTC entry, adjust seed mixes if required due to swm slope change.</p> <p>® Per our meeting on Sept. 17/15 and subsequent City response email dated Oct. 2/15, sod limit to be PTC entry area to be confirmed by the City once the PTC design is finalized and open space limits are confirmed. Refer to Drg. No. L-466 for proposed sodding limits. Seed mix for area under the PTC bridge has been identified on Drg. No. L-466.</p> <p>As confirmed with Ontario Seed Company, no native seed mix will provide thick cover in a short time frame. Native seed mixes require several years to become fully established. This is a reason for including the annual cover crop with the proposed permanent seed mix to promote establishment of the native seed while providing temporary cover. Seed mix # 3 can be cut a few times annually as needed. No change is required to seed mixes due to SWM slope change.</p>
B46	<p>© L-465 – Add sod at south boundary of park up to Tree Protection Zone, adjust seed mixes if required due to swm slope changes and other comments, edit note.</p> <p>® Sod has been added to limit of grading at south boundary of park. Refer to Drg. No. L-465. No changes required due to SWM slope revisions. Note has been revised as per redline drawing.</p>
B47	<p>© L-500 – Add notes.</p> <p>® Drawings have been updated to add notes per redline mark ups. Refer to Drg. No. L-500.</p>
B48	<p>© L-501 – Edit barn swallow detail if possible to make it more durable and less vandal-prone, edit fence detail to meet SD-33, edit trail detail.</p> <p>® Details for the construction of the barn swallow house have been updated based on the detail and comments provided by April Nix on Sept. 30/15. Fence detail has been revised per SD-33. Refer to Drg. No. L-501.</p>
B49	<p>© L-502 – Edit trail barrier to meet SD-87.</p> <p>® Trail barrier detail has been updated as requested. Refer to Drg. No.L-502.</p>



**Reference: Victoria Park Village, Guelph – Proposed Development
Second Submission Response Matrix based on Comments**

B50	<p>© L-502 – Edit trail rules sign and concrete pad to meet FADM.</p> <p>® Signage and concrete pad has been updated to meet FADM requirements as requested. Refer to Drg. No. L-502.</p>
B51	<p>© L-503 – Edit sign details as shown.</p> <p>® Drawing have been updated based on City redline comments and as per further correspondence from Helen White dated December 2, 2105. Refer to Drg. No.L-503 and Section I below.</p>
B52	<p>© L-902 – Inventory any missing hazard trees that may need removal or pruning and remove any ash in the areas shown.</p> <p>® Hazard trees and Ash Management Areas have been identified on Drg. Nos. L-900 and L-902. Detailed recommendations and timing have been addressed in the revised Tree Management Report.</p>
Cost Estimates	
B53	<p>© The unit rates are fine. I will review totals at final submission</p> <p>® No action</p>
EIR	
B54	<p>© Section 3.6 – Monitoring schedule for ad hoc trails and a deterrence/treatment strategy if they develop (blocking with brush, etc.) should be outlines. Also put this on the landscape plans. Prefer a 10 year span, as with other monitoring.</p> <p>® Monitoring schedules have been updated to review for ad hoc trails.</p>
B55	<p>© Section 4.8 – Full design and details of the pedestrian bridge and adjacent trail are required.</p> <p>® Pedestrian Bridge design details to follow confirmation of PTC alignment. No action until City confirms they are satisfied with the location prior to moving forward with full detail design of bridge and materials.</p>



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B56	<p>© Section 4.8 – Prevention and monitoring of ad-hoc trails in the stream channel is not addressed. I believe that there will be great interest from the public in walking down the channel valley next to the stream – particularly for dog walking as the turfstone route will make a nice level loop from adjacent trails and there will be many side routes to the stream from the swm route as dogs like water. There is nothing that will prevent all pedestrian access unless you fence the whole corridor (not preferable from aesthetic and maintenance perspectives) but if this is a serious environmental concern, you may want to consider pedestrian barriers on the turnstone swm route and also some dense plantings to deter access at either end and more between the swm route and the stream.</p> <p>® Per the City email dated Oct. 9, 2015, no barriers are to be added to the turfstone route. Monitoring of ad-hoc trails has been added to the EIR.</p>
Additional Parks and Recreation email comments dated July 17, 2015 (Section C)	
C1	<p>© L-463- the armourstone blocks along open space access should extend for entire final width of the access, including the 2 lots being removed</p> <p>® Limits of armour stone blocks have been updated as requested. Refer to Drg. No. L-431.</p>
C2	<p>© L-465- please add general notes about the park block:</p> <p>® Redline comments have been addressed on Drg. No.L-468.</p>
C3	<p>© Topsoil and sod to be to City specifications. (Same as provided for Northview subdivision park – if you need them again let me know.)</p> <p>® Additional notes added to Drg. No. L-468 regarding the park block topsoil and sod. Sodding limits provided on Drg. No. L-465.</p>
C4	<p>© Alleviate any compaction of subgrade and pick stones over 25mm from subgrade – to 300mm depth.</p> <p>® Additional note added to Drg. No. L-468 regarding the park block.</p>



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C5	<p>© Park acceptance will be based on satisfactory:</p> <ul style="list-style-type: none">- pre- and post- topsoil topographic surveys or test holes to demonstrate the topsoil depth- nutrient tests of placed topsoil- pre- and post- sodding city inspections <p>® Additional note added to Drg. No. L-468 regarding the park block</p>
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City of Guelph - Victoria Park Village Traffic Impact Study Review (update), comments dated August 21, 2014 (Section D)	
D1	<p>© At the Victoria Road entrance, the following operational and geometric improves should be implemented:</p> <ul style="list-style-type: none">• Stop sign control for the entrance as traffic signals are not warranted;• One inbound and two outbound lanes (separate left turn lane and right turn lane);• A 40m northbound left turn storage along Victoria Road;• A 60m southbound right turn taper along Victoria Road. The provision has been made for this taper during recent Victoria Road reconstruction. The developer is responsible for the design and construction of ultimate curb and sidewalk to accommodate this taper. City staff will review the design plans and provide construction supervision to ensure the construction is performed according to the City's standards. <p>® Refer to response to Comment #A53 above.</p>
D2	<p>© The modifications at the Arkell Road entrance(s) will be determined in conjunction with the traffic operation review for another future subdivision to the immediate south. The developer is required to share in the actual cost incurred in the design and construction of identified improvements.</p> <p>® Noted.</p>



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	<p>Beacon Environmental (Retained by the City of Guelph) - Victoria Park Village Updated Environmental Implementation Report (EIR) April 2015, prepared by Stantec Consulting Ltd., comments dated July 9, 2015 (Section E)</p>
	<p>Natural Heritage Comments on the EIR</p>
<p>E1</p>	<p>© Concerns about water balance (infiltration in particular). Section 1.5, item (e), identifies the need for the EIR to ensure that the site design does not negatively impact the environmental features being protected or their functions “particularly as it relates to hydrology and hydrogeology”. In addition, requirement #10 from the OMB includes the need to satisfy the City “with respect to managing the expected high groundwater conditions”.</p> <p>We appreciate that LID measures in the form of extensive infiltration trenches have been incorporated into the site design – this is an improvement over the last submission. However, City Engineering has advised that the bottom of many of these trenches are in areas where the high groundwater table is too close to the surface to allow these trenches to function properly (i.e., less than 1.0 m separation). Therefore, the water balance with “enhanced infiltration” as presented in the EIR is not accurate or acceptable.</p> <p>The proposed LID within the current site design needs to be revisited to ensure only infiltration trenches whose bottoms are at least 1.0 m above the high groundwater table are included in the design. The water balance (e.g., Table 4.1) will need to be updated accordingly.</p> <p>® See response to Engineering comment #A44 above.</p>
<p>E2</p>	<p>© Need for further consideration of balancing SWM functions and turtle habitat functions.</p> <p>a. Pond A has been confirmed as Significant Wildlife Habitat (SWH), specifically overwintering habitat for Snapping Turtle. As stated in the EIR, the SWM Plan was to be revised such that Pond A only receives “periodic overflow for quantity control during larger rain events” (p. 1.3). Despite the original request that inputs be limited to 25-yr storm events and greater, correspondence with A. Labbé included in the EIR (dated October 22, 2013) indicates that it is acceptable for Pond A to receive water from 10-yr events and greater (contingent on the provision of baseline data collection and post-construction monitoring, as per point 3). It is our understanding that this requirement was a basis for City staff’s acceptance of the EIS and a basis for the City’s decision to support approval of the revised Draft Plan of Subdivision for the site. However, Pond A appears to be designed to receive 5-yr storm events (and greater) (Section 4.2.1.5). This raises concerns about potential impacts to the Pond’s SWH functions, as well as questions about the frequency of water (likely warm water) being outlet to the new creek channel, which is supposed to be cool or cold water. In addition, Section</p>



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	<p>4.2.1.5 indicates a weir is included in the design of Pond A even though Section 1.5 (f) indicates weirs and other structures are to be excluded from Pond A. This structure also raises some concerns related to compromising the pond's habitat functions. An alternate design that only receives 10-yr storm events and greater needs to be considered.</p> <p>® See response to Engineering comment #A21 above.</p> <p>b. Pond C is also identified as SWH overwintering habitat for Snapping Turtle (Section 2.5.4.2), however there is no discussion in the text or indication in the drawings that protection of this habitat has been considered (Section 5.5) and it is not identified as SWH on Figure 2. The EIR needs to speak to how the overwintering habitat requirements for Snapping Turtle (and potentially other turtles) in Pond C will be addressed.</p> <p>® Revised EIR to be provided under a separate cover.</p>
E3	<p>© Need for alternate and additional thermal mitigation of water going to the proposed creek. Section 1.5, item (i), identifies the "evaluation of suitable thermal mitigation measures" related to the storm water proposed for release into the proposed natural channel as an item to be included in the EIR. The EIR proposes two measures in this regard – cooling trenches within two of the SWM Ponds, and planting of large and medium-sized caliper trees, as well as shrubs and aquatic vegetation concurrently with the creek creation. The proposed plantings will, over time, assuming there is good establishment, provide this function. However, in the interim it will be important that the water being released into the creek is as cool as possible. The City's Engineers have expressed concern that the approach and design for the cooling trenches (as described in Section 4.4) will not be effective and is inappropriate because (a) the design is within the Pond itself, and (b) relies on the forced mixing of stormwater with groundwater. An alternate approach to thermal mitigation, in addition to plantings for shade, needs to be identified and incorporated into the SWM plan.</p> <p>® See response to Engineering comment #A33 above.</p>



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E4	<p>© Missing baseline information for Pond A and creek / tributary. Various prior comments from the City (e.g., Aug. 21, 2013 EAC minutes; Oct. 22, 2013 from the City) have requested collection of baseline information to be used in future monitoring; however some pieces of this information remain lacking.</p> <p>a. Collection of baseline information on the ecological functions of Pond A: - We appreciate that documentation of some habitat use by Snapping Turtles has been provided, however water quality assessments and fish community assessments are both lacking. These baseline data are considered necessary to inform future monitoring. - As per the GRCA comment (June 13, 2013), the proposed alterations to Pond A should factor in the resident fish population, as some species may require special treatment. This requires knowledge of this population, and it does not appear as if fish sampling has been undertaken since the Torrance Creek Subwatershed Study (SWS) in 1997. This gap needs to be filled as part of the EIR.</p> <p>® Revised EIR to be provided under a separate cover.</p> <p>b. The aquatic existing conditions (Section 2.6) provides some of the historical context related to land use and connectivity, as well as thermal regimes documented by the Torrance Creek SWS (1997 – 1998) (outlined in the Natural Channel Design report). However, given that this information is almost 20 years old, an updated assessment of both the thermal regimes and the fish communities in the watercourses on-site (including the West Course tributary) is needed to understand the current aquatic system and inform future works and monitoring. This is particularly important given that any fish from upstream will be introduced to the created channel along with fish from Pond A. - Section 2.6, 2nd paragraph notes that the West Course Tributary may be coolwater but that further work would be needed to confirm this. This type of data is important baseline to have, as this water will also feed into the new Torrance Creek channel. - The description of the thermal regimes for the reaches on site is outdated and not consistent throughout the EIR. Section 2.6 indicates coldwater upstream of the ponds and then mixed. Section 4.4 says coolwater through the subject property and coldwater upstream. The NCD Report Figure 4.9.1 indicates Torrance Creek is warmwater from about the Arboretum Wood Tributary to its confluence at the Eramosa, however the Torrance SWS text indicates it is mixed water. The text should be clarified/made consistent and a figure should be added that illustrates the current thermal regimes of watercourses on-site verified with recent assessments. - Section 6.1 should consider the specific fish communities both upstream and downstream.</p> <p>® Revised EIR to be provided under a separate cover.</p>
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**Reference: Victoria Park Village, Guelph – Proposed Development
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E5	<p>© Concerns about protection of significant woodland off-site adjacent to Blocks 131 and 133. The provision of an appropriate zoning setback from this woodland was originally overlooked and to be determined as part of the EIR. EAC minutes from Aug. 21, 2013 recommend a 10 m zoning setback in Block 133 and a 5 m zoning setback to Block 131 from the property line which precludes structures.</p> <p>The text (Section 5.4, and the Tree Preservation Plan – Appendix E) recommends a 10 m zoning “setback buffer” from any residential dwelling or driveway/roadway to the dripline, with no “structures” permitted in the setback, and then a 5 m “no touch” setback from the property line. However, the 10 m setback includes a retaining wall. This retaining wall runs close to, and in some locations, within the dripline. In addition, a fence is proposed along the property line that runs through the woodland dripline, and possibly through the stems of some trees (Section 5.3.2) (ref. Drawings C-400 and C-401). It is not clear how this would not be expected to have an impact on the woodland edge, and how both the structures could be installed without damage to or the removal of any trees.</p> <p>In addition, tree protection fencing is recommended within the dripline “but outside the structural root plate” (Section 5.7), which will introduce yet another disturbance within the dripline of these trees. Is there any technical or scientific literature to support protection of the structural root plate alone as being effective to ensure long-term protection of the tree?</p> <p>It is understood that there is currently a driveway that runs along the woodland edge in this location, and that removal of this driveway will necessarily cause some disturbance. However, the introduction of a retaining wall that is partially within the dripline combined with a fence that is entirely within the dripline is not considered appropriate within a significant woodland edge. Grading and site plans in this area should be revised to provide more appropriate protection of the significant woodland edge adjacent to Blocks 131 and 133. This should exclude structures of all types (including fences and retaining walls) from within the dripline.</p> <p>® The wall location has been adjusted to minimize its length and disturbance to the trees along the woodland edge. The wall is to be constructed 5.0 m from the property limit with the exception of the western limit which is only 2 m from the property line. During the site review on October 2, 2015 this location and site conditions was reviewed with City staff acknowledging the encroachment within this area as the woodland trees are setback from the property line, which limits the impact to this area. All work is to be completed from the development site and be completed under the supervision of the consulting arborist. The revised Tree Management Report provides specific recommendations for the work within this area.</p>
E6	<p>© Missing background information required</p> <p>a. Section 2.5 should include a section on fisheries data summarized from available background information.</p>



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	<p>Ⓜ Revised EIR to be provided under a separate cover.</p> <p>b. Appendix A: The comment response matrix #3 indicates groundwater upwelling areas are mapped on Figure 2, but they are not, and the responses to #4 and #5 indicate there are no springs. This seems to contradict the statement in Section 2.6 that “the presence of watercress suggests groundwater upwelling within the subject property”. Please clarify whether or not there are groundwater upwellings on the site and how these differ from springs.</p> <p>Ⓜ Revised EIR to be provided under a separate cover.</p>
E7	<p>Ⓞ Possible lot encroachment into PSW buffer. In looking at the EIS Addendum, it appears as if one of the rear lots to Street No. 6 north of the re-aligned creek (just east of the trail) extends within the 30 m PSW buffer. This lotting has not changed in the current EIR. This should be confirmed, and if it is the case, to the lot line should be adjusted to maintain the required 30 m PSW buffer.</p> <p>Ⓜ A part of approved draft plan.</p>
E8	<p>Ⓞ Minor revision to tree compensation numbers required. The tree inventory and preservation plan (Appendix E) excludes Ash in fair to excellent condition, however the City requires compensation for these trees. That appears to be an additional 25 trees. Please revise the tree inventory table and tree compensation numbers to identify Ash in fair to excellent condition require compensation.</p> <p>Ⓜ The Ash trees that are noted in fair to excellent condition have been included in the overall compensation totals for the site.</p>



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E9	<p>© Proposed construction and activity schedule requires revision. There are a number of proposed activities for this site that need to be carefully coordinated and implemented in order to avoid and minimize impacts to the significant woodlands and significant wetlands, as well as habitat for fish, turtles and breeding birds. Table 5.1 includes a very high level overview of proposed activities, while drawings C-600 and C-601, as well as C-721 and C-722 provide a fair bit of very site-specific detail. However, there is not a detailed construction sequencing plan to effectively guide the implementation of these drawings.</p> <p>A more comprehensive and detailed construction sequencing plan is required to help ensure that all proposed works are integrated, and that natural heritage timing windows are adhered to and coordinated with overall project phasing. For example, some of the gaps identified include:</p> <ul style="list-style-type: none">- Table 5-1 does not include landscaping activities (many of which are to occur concurrently with construction), baseline groundwater or water quality monitoring data collection, or any referencing to phasing.- Salvage of on-site biological materials (e.g., live in particular) is not considered- Table 5-1 does not include specific seasonal timing windows (e.g., fisheries timing window, breeding birds timing window, installation of exclusion fencing between April 1st and May 1st around Ponds A and possibly C, etc.). The timing proposed in Table 5.1 also needs to be revised. <p>® Revised EIR to be provided under a separate cover.</p>
E10	<p>© Planting densities north of the proposed channel seem low. In the response matrix – Appendix J – comment 52, the City previously commented about planting densities being insufficient. While the “nucleation” cell approach is acceptable, the overall number of nucleation cells and spacing between them, particularly north of the proposed channel, seems low (L-462 through L-467). If shade is going to be the primary mechanism for trying to maintain a cool to cold water creek which is receiving treated stormwater, then it will be critical that there is adequate vegetation cover established as early on as possible. Planting densities, particularly north of the proposed channel, should be increased to help ensure the thermal mitigation provided by shade is adequate.</p> <p>® Revised EIR to be provided under a separate cover.</p>



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E11	<p>© De-watering information requires clarification. The information provided regarding anticipated de-watering is not consistent and needs to be clarified. For example, Section 5.2 states (1st para) “dewatering may be required in isolated areas where excavation for water mains and sanitary sewers extends below the water table” and (3rd para) “is expected to be minimal”. Section 6.2 states the “majority of the watercourse construction will occur in the dry”. However, Section 6.3 indicates that temporary dewatering will likely be required for works associated with Ponds A, B and C. Furthermore, as indicated in the NCD comments below, there is concern that more extensive de-watering will be required in association with the new creek construction than anticipated.</p> <p>® Revised EIR to be provided under a separate cover.</p>
E12	<p>© Preliminary comments from City Parks and Recreation. Parks is generally satisfied with the locations of the trails, but have identified the following preliminary issues and concerns (with more detailed comments to follow):</p> <p>a. We appreciate the efforts to direct drainage from the lots under the trail to avoid washouts (swale near rear of lots with culverts under trail). However the details of this approach need to be further reviewed to determine if the approach is fully functional and will avoid erosion at the outlets.</p> <p>® Rip Rap has been provided at the Trail culvert outlets</p> <p>b. The longitudinal trail grades appear to be improved (i.e., less steep than shown on previous submission); however these improved grades are dependent on the suitability of the overall grades of the subdivision which needs to be confirmed through formal comments from City Engineering. This is of particular concern with the Primary Trail Connection across the wildlife corridor.</p> <p>® Noted, please refer to current design.</p> <p>The portion of the trail system adjacent to 3:1 slopes, particularly in the SWM areas, does not meet City SWM standards. While railings could be implemented in these cases they are not an preferred solution for several reasons – cost, safety, maintenance, etc.</p> <p>® The 3:1 slopes have been revised to meet the City standards of 4:1 average.</p> <p>c. Park grades appear to be better than previous submission, however City staff is concerned about the 50 m long retaining wall in the park block adjacent to the woodlot for both maintenance cost and woodlot protection reasons. It is recommended that this be reduced or eliminated.</p>



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	<p>® Refer to response to park planning comments #B24 above.</p> <p>d. There is concern about the elevation of the bridge above flood levels; more detailed information is required on the bridge design and location to confirm feasibility.</p> <p>® Refer to comment #B14 above.</p> <p>e. The turfstone SWM route adjacent to Pond A appears to require further treatments at its ends to deter its use as a trail.</p> <p>® Pond A Trail surface treatment remains as Turfstone as discussed with the City.</p>
E13	<p>© Compliance Monitoring (During Construction).</p> <p>a. Generally, the compliance monitoring program in Section 8.1 includes a number of components which are appropriate and have been requested through previous comments, including mitigation measures for Snapping Turtles and their habitat. However the following gaps have been identified:</p> <ul style="list-style-type: none">- Inspection monitoring of plantings and other landscaping works to be implemented concurrently with construction should also be included.- Aquatic monitoring of watercourse re-alignment should specify measures, as discussed in the NCD Brief comments below. <p>® Revised EIR to be provided under a separate cover.</p> <p>b. The details regarding turtle monitoring during construction (Section 8.1.1) are appropriate and should be included in the training and information package to be provided to construction workers.</p> <p>® Noted.</p>



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E14	<p>© Performance Monitoring (Post-Construction).</p> <p>a. Generally, the performance monitoring program in Section 8.2 includes a number of components which are appropriate and have been requested through previous comments. However the following gaps have been identified:</p> <ul style="list-style-type: none">- Monitoring of the re-constructed channel for water flows, quality and fish habitat (see more detailed comments on the NCD Brief below) should also be included.- Terrestrial monitoring should include the dripline and setback of the Significant Woodland off-site south of Blocks 131 and 133.- Pond A water quality monitoring should include monitoring both within the pond itself and at the outlet (Section 8.2.1.1).- Similarly, water quality monitoring for the other SWM facilities with outlets to the new creek should be undertaken within the ponds and at the outlets to ensure effective quality control in addition to quantity (Section 8.2.2). <p>® Revised EIR to be provided under a separate cover.</p> <p>b. In general Table 8.2 addresses all the key areas for performance monitoring, however the following refinements to the proposed timing of monitoring activities are recommended:</p> <ul style="list-style-type: none">- Assessing for encroachments in years 1, 2 and 3 will also likely be pre-mature in a number of areas as housing will not all be built; therefore we recommend encroachment monitoring also be undertaken in years 1, 5 and 10.- Similarly, to assess the effectiveness of the creek re-alignment with respect to aquatic habitat and fish community, monitoring is recommended in years 1, 3 and 10 (although GRCA and DFO will make the ultimate decision on this component). <p>® Revised EIR to be provided under a separate cover.</p> <p>c. More specifics regarding the new channel monitoring should be included as suggested in the NCD comments below.</p> <p>® Revised EIR to be provided under a separate cover.</p>
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E15	<p>© Incomplete Demonstration of Policy Compliance. Section 1.5, item (a) states that the EIR is to “demonstrate how policies and the conditions of approval have been met”. The need to obtain permits from GRCA and under the ESA, and authorization from DFO is adequately addressed, and the applicable policies of the PPS are mentioned in a few locations (e.g., Section 2.5.2). However, the policy compliance section (Section 9.1):</p> <ul style="list-style-type: none">- indicates conformity with the applicable zoning but does not demonstrate how the conditions of approval have been met, and- speaks to conformity with the PPS, but not the applicable City Greenlands policies. <p>Two tables, one that summarizes how the conditions of approval have been met, and one that summarizes compliance with all of the applicable policies and regulations (including the City’s Greenlands policies) would be helpful in providing this information concisely. The policy compliance table should refer back to the policies and regulations cited in Section 2 of the EIS Addendum (July 25, 2013).</p> <p>In addition, a statement that provides the big picture policy context would be useful, such as an updated version of the two paragraphs from Section 2.2 of the EIS Addendum (July 25, 2013).</p> <p>® Revised EIR to be provided under a separate cover.</p>
E16	<p>© MINOR COMMENTS – EIR</p> <ul style="list-style-type: none">- P. 1.2, 3rd para: the Nov. 2009 report was an EIS not an EIA- P. 1.7: Appendix B does not include any comments from Nov. 14, 2013 or the OMB conditions – these are requested for the next submission.- P. 2.2, Section 2.3: should also include a sentence or two regarding the groundwater elevations based on the more current work done by Banks (2015, Appendix C).- Section 2.5.1: should include a statement of when the wetland boundary staking took place with GRCA.- Section 2.5.3: the last sentence should indicate that the one locally rare species was found within a PSW/significant woodland feature identified for protection.- Section 2.5.4, last paragraph: the notes in Appendix K appear to indicate there is also likely habitat for Midland’s Painted Turtle. This should be stated here, particularly since it appears as if the 2014 surveys were limited to a single visit in June.- Section 5.1, 3rd bullet: typo in “Greater”- Section 5.3.1: it is not accurate to state that the 30 m buffers to the PSW have been treated as “no touch” as there will be grading as well as trails and SWM facilities.- Section 7.2: The turtle habitat assessment date provided in Appendix K indicates that Midland’s Painted Turtles also likely use this habitat, and this species does typically bask, therefore inclusion of basking structures as part of the proposed enhancements should be re-considered.



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	<p>© - Dwg C-722: lists the in-water fisheries timing window as July 1 – Sept 15 whereas most places in the text indicate it is Sept 30 (except for the NCD brief). This needs to be corrected.</p> <p>® Revised EIR to be provided under a separate cover.</p>
Fluvial Geomorphology Comments on the Proposed Natural Channel Design and Implementation	
E17	<p>© Design approach should be based on more site-specific metrics. Given the degree of historical alteration that is prevalent in low order streams across Southern Ontario, and the inherent variability of watercourses with respect to geology, drainage area, slope and valley form, it is our experience that there are very few true reference reach conditions in S. Ontario. It is also important understand the watercourse system proposed for realignment in order to ensure reference reach parameters are appropriate, or scaled appropriately to the channel design. Additional clarification should be provided in the design report to identify how the reference reach provided an appropriate surrogate for the design (i.e., drainage area, geology, hydraulics) and, if certain parameters were scaled, how this data was scaled to best reflect the Torrance Creek system. For example, the estimated discharge for the reference reach and design channel appear to be the same, although the drainage areas are significantly different.</p> <p>a. Based on the photos provided in Appendix A, the reference reach appears to be much larger than the designed system based on photos provided. The report should clarify how the reference reach flows are within range of Torrance Creek.</p> <p>® The reference reach (Clythe Creek) is larger than the Torrance Creek. A typo occurred in the appendix pages (NCD sheets) which resulted in the flowrates for Clythe and Torrance Creek being the same. This has been updated. Revised Natural Channel Report to be provided under a separate cover.</p> <p>b. The report indicates that bankfull channel dimensions could not be obtained within the property limit due to a lack of indicators and riffle areas. It is not necessary to obtain reference bankfull dimensions from riffle areas to develop a channel design; certain systems such as first order streams do not have sufficient slope, flow or boundary materials to develop pool-riffle morphology. Detailed data collection from the open section of channel within the subject lands, as well as the reach downstream of the property (including measured cross-sections) should be captured and then compared to post-development flows in order to inform the channel design and confirm the design discharge for the relocated channel.</p>



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	<p>® Detailed information was obtained from the downstream reach of Torrance Creek. The report has been updated to include additional information that guided the channel design.</p>
E18	<p>© Some additional data required to inform the channel design</p> <p>a. Section 2 of the report discusses the inclusion of building footprints and vegetation limits into the topographic mapping, but did not identify the inclusion of any relevant watercourse information (specifically, centerline and bank elevations at the upstream and downstream tie-in locations, as well as the confluence with the West Course tributary) that would be required to support the design. Based on a review of the detailed design drawings, topographic information presented in the detailed design drawings does not clarify whether a sufficient level of topographic detail was available to support the natural channel design. Additional information should be provided in the design brief to clarify the scale and scope of topographic survey undertaken to support the channel and corridor design.</p> <p>® Existing topo of the subject lands was collected by Metropolitan at the beginning of the project. Stantec has verified this survey by undertaking a site visit to confirm tie elevations. The report has been updated to include more discussion about the existing watercourse survey undertaken on site.</p> <p>b. The West Course tributary of Torrance Creek was not evaluated at the same level of detail as the main watercourse. While it is understood that this tributary represents a partially piped, manmade system, the report should document the existing form (dimensions) and function (flow contributions to Torrance Creek) of the open portion of the West Course watercourse in order to provide a level of confidence that the proposed design is feasible, and support the evaluation of potential impacts and opportunities associated with the proposed development from a geomorphic perspective.</p> <p>® Existing survey was gathered for the West Course tributary. This survey helped guide the channel design and confluence design with the main branch of Torrance Creek. Further description of the West Course tributary has been provided in the report.</p> <p>c. Section 4.1.1 indicates that pool data was not collected in either Reach 4a or the reference reach in support of the channel design. Further, riffle widths and depths were not reported separately; only cross-sectional areas are provided. It is, therefore, difficult to understand whether the proposed riffle and dimensions are representative of either the existing or the reference reach conditions. Additional rationale or information should be presented in the design brief to clarify how the pool dimensions were determined. Additional details should be provided on the channel design drawings to transition from the existing watercourse to the designed channel, as well as the confluence with the West Course tributary and the designed channel.</p>



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	<p>The current design drawings do not extend beyond the designed channel, and it is difficult to determine the appropriateness of the proposed grades.</p> <p>® Pool data was collected in both reference reaches (Reach 4a and Clythe Creek). This information has been included in the NCD report.</p> <p>As discussed under comment 18A, existing survey for the channel does extend beyond the proposed channel. Stantec completed additional survey at the upstream and downstream portion of the project to confirm the existing survey collected by Metropolitan.</p> <p>d. Section 4.1.2 of the report did not discuss the inclusion of a surveyed watercourse centerline (long profile) and bankfull indicators to determine governing energy gradients for the channel design. This information informs the determination of a design discharge for the low flow (bankfull) channel. The design brief should be revised to include a surveyed watercourse centerline (long profile) and bankfull indicators, as well as a discussion on the proposed post-development design flows considering groundwater and stormwater inputs.</p> <p>® A thalweg was surveyed in both reference reaches (Reach 4a and Clythe Creek). This information has been included in the NCD report.</p> <p>Deep pools were included in order to enhance potential mixing of surface water and groundwater to reduce water temperatures in the channel and improve conditions for fish.</p> <p>The channel has capacity for the stormwater outlets that discharge to the floodplain (reference SWM Report). Energy dissipation and outlet channels have been provided at storm outlets. The outlet channels have been designed to enter the watercourse at riffles to maintain stability.</p>
E19	<p>© Some hydraulic analysis required.</p> <p>Section 4.2.1, only provides a summary of pre-development flows. Additional justification for the proposed channel dimensions should be provided in the form of post-development modelled flows (typically based on a 1.5 to 2 yr storm event) and the proposed bankfull channel gradient. Without this information it is difficult to confirm whether the proposed riffle and pool dimensions are appropriately sized and reflective of local hydraulic conditions.</p> <p>The channel has been sized to the bankfull event.</p>



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E20	<p>© Additional information required to support some channel design elements.</p> <p>a. The design appears to have a moderately sinuous channel that extends to the valley walls in several sections. The report indicates that the channel is to be 'dynamically stable', however, it appears that the channel has been designed with a factor of safety to remain stable. Given the tendency of natural channels to migrate, the report should provide clarification with respect to the designed channel sinuosity, design elements, proximity to valley walls, potential hazards and long-term integrity of the system in order to clarify how the proposed meander geometry and channel morphology achieve the design objective of a dynamically stable system.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p> <p>b. While the design brief describes a riffle-pool morphology, the long profile indicates more of a run-glide morphology with four deeper pool features. Riffle designs typically incorporate crests which provide the stability and grade control required to maintain channel form. In order to perform as intended, the crests should backwater to the next upstream riffle feature. The design brief should clarify how the proposed riffles will ensure the long-term stability of the channel bed.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p> <p>c. Section 4.4: Additional justification should be provided for the selection of the proposed bed and bank treatments, given that the feature is a first order, poorly defined stream. Specifically: J-hooks – it is presumed that these elements are meant to support the pool features; however, the J-hooks to not consistently align with the four isolated 0.5 m pools; clarification is needed regarding how the location of these features was determined, why they were prescribed, and how they will support the long-term functioning of the system, referencing local hydraulics. Wood debris with sod mats – there is concern that the proposed channel dimensions may not be deep enough to support functional construction of these features along the channel banks. Please verify.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p> <p>d. Detailed design cross-sections (Drawings C-710 to C-712) should extend beyond the top of bank to include relevant offline ponds, given their proximity to top of slope and considerations with respect to erosion hazards, particularly in consideration of potential groundwater interaction considerations.</p> <p>® Revised cross-section showing more of the site have been included in the report.</p>
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E21	<p>© Additional information required to regarding the pedestrian crossing. The 35 m span of the proposed pedestrian crossing is more than adequate to address geomorphic requirements; however it appears that the bridge is not centered on the channel planform, which is not ideal, and footing locations have not been identified. Additional justification should be included in the report to clarify how the crossing span and footing locations relative to the channel address any potential long-term maintenance/erosion concerns. Also, additional detail (i.e., general arrangement drawing level) should be provided in the design drawing package for the pedestrian crossing to confirm the appropriateness of the span location.</p> <p>® The proposed pedestrian abutment is 4 m from the wood toe protection at the bridge</p>
E22	<p>© Need to consider groundwater interaction more carefully.</p> <p>a. Section 4.3.2 discusses potential for groundwater interaction within the constructed channel. Additional information should be provided in the design brief, referencing the hydrogeology report, including geologic conditions and groundwater elevations, to clarify how anticipated groundwater issues will be addressed during construction. This should also be discussed with respect to the design discharge for the bankfull channel.</p> <p>® Additional monitoring wells were installed in the proposed stream corridor in January 2015 and January 2016. Banks Groundwater Engineering Limited will be providing input that will discuss the potential for groundwater during construction and assessing the requirements for a PTTW for groundwater.</p> <p>b. The report notes that construction will be undertaken “in the dry”, however it is difficult to understand how this will be achieved with the information provided. The report should provide:</p> <ul style="list-style-type: none">-additional detail regarding dewatering requirements to address groundwater discharge (particularly given that floodplain elevations as proposed range between 330-331.8 masl, while groundwater table elevations as reported in the hydrogeology report range between 331.27-333.39 masl), and-a detailed phasing and dewatering drawing should be provided with respect to the proposed channel creation. <p>® Possible pumping during construction may occur, but it is anticipated that the channel can be built offline in dry conditions. Based on the results of the hydrogeological finding.</p> <p>© There is limited discussion on the geologic conditions of the proposed corridor, which has a significant role on the long-term integrity of the system.</p>



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	<p>® Revised Natural Channel Report to be provided under a separate cover.</p>
E23	<p>© Lack of detail regarding stormwater inputs to the channel.</p> <p>a. Section 4.9 of the report should include details on how flows released from the SWM ponds will be accommodated by the designed channel, including flow volume and flow delivery, considering that the channel may migrate over time.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p> <p>b. A number of SWMF outfalls are proposed to the corridor. Detailed design sections should be provided for each of the outfall locations in order to understand how this infrastructure will be integrated into the corridor. Per Drawing C-703, SWMF 200 appears to outlet to the West Course tributary. If this is the case, the EIR and channel design report should provide additional information on the tributary in order to understand how any proposed stormwater contributions may impact this watercourse.</p>
E24	<p>© Consideration of aquatic habitat needed. In general, the report should include goals and objectives to address the target fish community and thermal regime as outlined in the EIR, and clarify how the proposed design and design elements support this community.</p> <p>® Revised EIR to be provided under a separate cover.</p>
E25	<p>© Need to address erosion hazard as well as ESC concerns.</p> <p>a. Typically, channel design briefs provide text regarding how the proposed floodplain width addresses erosion hazard requirements (i.e., belt width as a minimum floodplain dimension based on post-development flow conditions). Floodplain dimensions should be shown on the planview drawings in selected locations and the design brief should be revised to speak to how the corridor design addresses erosion hazard requirements under Provincial Policy Statement (2014).</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p> <p>b. Given the extent of the proposed channel corridor, the report should clearly discuss the appropriateness of the design with respect to long-term channel migration, proximity to valley walls, the requirement for the application of factors of safety with bioengineered structures, and geological and basin setting.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>



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	<p>® Revised Natural Channel Report to be provided under a separate cover.</p>
E26	<p>© Lack of conclusion demonstrating how NCD objectives are being met. While the report identifies goals and objectives for the design, a summary or conclusion section clearly outlining how the channel design meets these stipulated goals and objectives – specifically in relation to the meander belt width, replication of groundwater input and incorporation of stormwater infrastructure should also be provided.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
E27	<p>© MINOR COMMENTS – NATURAL CHANNEL DESIGN REPORT -Section 3.2: Based on information presented in the EIR, the timing window for construction should be July 1 to Sept. 30th. The design brief and drawings should be revised to be consistent with the EIR.</p> <p>© Revised Natural Channel Report to be provided under a separate cover.</p> <p>© -Section 4.3.3: Table 4 should include bankfull widths, gradients and basic hydraulic parameters (e.g., flow, velocity, shear stress) in order to ensure that the proposed channel design will meet the identified design goals and objectives.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p> <p>© -Section 4.3.5: Table 5 – additional supporting post-development hydraulic data should be provided to inform the selection of the proposed substrate gradation. Information regarding the models or approach used to calculate substrate sizing should also be provided.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p> <p>© -Section 4.6.2: The report provides regional floodline elevations under the proposed condition. Regional floodline elevations under the proposed condition should be provided on the detailed design drawing corridor cross-sections. It would also be useful to show the 2-year flow elevations in relation to the designed channel.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p> <p>© -The post-construction monitoring and performance program should include an as-built survey.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>



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	<p>© -Appendix A: Additional photos would be helpful to allow the reviewer to visualize the system.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p> <p>© -Appendix A: A map illustrating the location of the reference reach relative to the study area would be helpful to the reader.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p> <p>© -Appendix B: Pool bank treatments should extend into riffle sections to stabilize the treatments.</p> <p>® Revised Natural Channel Report to be provided under a separate cover..</p> <p>© -Appendix B: J-hooks appear to require excavation 1 m below the channel invert. Additional detail should be provided to clarify how these design elements tie into riffle features. There also appears to be an inconsistency on the proposed boulder sizing on the drawings and in the design report.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p> <p>© -Appendix B: Given the minimal release rates from the outfalls, it is suggested that the SWMF outfall plunge pools could be planted with native vegetation to enhance these features.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
E28	<p>© MINOR COMMENTS – NATURAL CHANNEL DESIGN (NCD) COMPONENTS OF THE EIR. -P. 1.6 of the EIR indicates that the NCD was completed by a 'qualified Geomorphologist' – please qualify this statement. In Ontario, qualified Geomorphologists are licensed under the Association of Professional Geoscientists.</p> <p>® The EIR will be revised to indicate the NCD was completed by a Natural Channel Design Engineer.</p> <p>© -P. 8.2 of the EIR - NCD should be included in performance monitoring bulleted list; design tolerances, triggers and mitigation measures should be discussed in association with the NCD performance monitoring.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>



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City of Guelph, Helen White Landscape and Parks, comments dated October 21, 2015 (Section F)	
Primary Trail Connection from Street 5, to Phase 2, adjacent to Lots 15-16 crossing over Torrance Creek	
F1	<ul style="list-style-type: none">© Adjust grading to provide a low point between SWM Pond 300 and SWM Pond A, as indicated on the redline markup part plot.® Grading Plan has been adjusted to accommodate the low point, see drawing C-401 for details
F2	<ul style="list-style-type: none">© Adjust location of sign pad to an area of trail with 2% grade® Grading plans and landscape plans have been adjusted to accommodate accessible signage pads and locations. Refer to Drg. Nos. L-432 and L-433 for signage locations and Drg. Nos. C-400 - 404 for grading of pads.
F3	<ul style="list-style-type: none">© Ensure 20m clear sightline as indicated on the redline part plot.® Planting Plans have been adjusted to provide the 20 m clear sightline. Refer to Drg. Nos. L-462, L-463, & L-467.
F4	<ul style="list-style-type: none">© Add rest area's in locations identified on red line markup part plot.® A rest area with a bench has been provided at the PTC, as requested and indicated on the City provided redline. Refer to C-404 for grading and proposed elevations and L-502 for bench pad detail.
F5	<ul style="list-style-type: none">© Add rub rails in locations identified on red line markup part plot.® Grading Plans and Landscape Plans have been adjusted to show the rub rails.



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GRCA – Draft Plan of Residential Subdivision, 23T-07506 1159 Victoria Road South, Guelph, comments dated August 20, 2015 STORMWATER MANAGEMENT (Section G)	
G1	<p>© Please provide copies of the rainfall files read into the hydrologic models, or preferably directly input rainfall IDF parameters into the hydrologic models.</p> <p>® As discussed in Section 4.1 of the revised SWM Report, the input rainfall is an adjusted Regional storm distribution as per the requirements in the TCSS. The rainfall files have been included in Appendix B of the SWM report.</p>
G2	<p>© We are no longer able to accept the methodology employed to design cooling trenches as supplied in Appendix G of the SWM report. Although commonly used in recent years, this method incorrectly assumes that stone within the trench does not increase in temperature during operation and also gives no consideration to the duration of contact time needed to transfer heat to the stone.</p> <p>® Following discussion with GRCA staff on November 10, 2015, recent monitoring data for similar designs in the area has been provided to the GRCA and the City to show the effectiveness of the thermal mitigation design. The GRCA are generally satisfied with the results, and, as such, the design has not been changed significantly. As discussed with the GRCA, additional consideration of residence time within the cooling trench has been added to the analysis to show the necessary time for cooling of stormwater. In addition, the analysis accounts for the heating of the stone in the trench and the cooling provided by the surrounding area. As cooling trench designs are still being refined, additional monitoring data is required to improve on the design. A thorough monitoring program has been provided to ensure the proposed thermal mitigation is functioning as designed during and after construction. Cooling trench calculations are provided in Appendix G of the revised SWM report.</p>
G3	<p>© We may however be able to support the resultant plans for the proposed cooling trenches in Ponds 200 and 300 provided the following comments are considered:</p> <p>a. Confirmation is needed that proposed clay liner, shown in drawings at the permanent pool level, is of sufficient height in the pond sides to prevent seasonally high ground water from entering the ponds. Experience has shown that ponds subject to continuous inflow from ground water quickly result in no benefit from cooling trenches. Typically a cooling trench can only be relied on to discharge cool water of little more than the volume of water resident in the trench between rainfall events, provided there is always water in the trench which we understand is the case for the proposed development.</p>



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	<p>b. Bottom draw pond outlets (not feasible for constructed wetlands) and mixing with ground water intercepted by the trench are also known to be beneficial.</p> <p>c. From recent research it is understood that the proposed cooling trench style, with a wide base to increase contact area with underlying cool ground, performs better than a trench with a narrow base even if it has the same internal volume.</p> <p>® The clay liners have been designed by a geotechnical engineer and provide sufficient protection to the ponds to prevent the seepage of groundwater into the permanent pool volume. In addition, the design of the cooling trenches maximize the available surface area to the extent possible while remaining within the SWM blocks and out of the permanent pool area (for ease of maintenance). Refer to Appendix G of the revised SWM report for cooling trench design details.</p>
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G4	<p>© Based on the preceding comment we typically ask that the resident volume in each cooling trench be at least equal to the runoff volume from a water quality event for which the 25mm, 4 hour storm which is also recommended in the Torrance Creek Subwatershed Study as the extended detention Volume. As there will be considerable infiltration across the site that is not accounted for in the hydrologic modelling, the volume of infiltration may be considered in the cooling trench design. However, in order to be conservative, we suggest that this consideration not result in smaller trenches than currently proposed.</p> <p>® Following discussion with GRCA staff on November 10, 2015, further research was completed to show the 25 mm rainfall event is a 'significant' rainfall event and should not be considered a 'thermal' event. As outlined in Section 4.4 of the <i>SWMPD Manual</i> (MOECC, 2003), subsurface trench outlets should be designed to accommodate frequent events (i.e., less than or equal to 10 mm) as this will have a greater effect on the thermal regime of the receiving water.</p>
G5	<p>© Given that Pond 300's design has a maximum pond head of only 0.1 m above the permanent pool to drive flow through the cooling trench before it begins to bypass through the second outlet orifice, please investigate the feasibility of increasing the head difference between the two orifices or provide an assessment of hydraulic performance limitations of the proposed design that accounts for the impact of gradual accumulation of fine sediment in the systems perforated pipes.</p> <p>a. The above concern does not exist for Pond 200 which has a 0.4m head driving the first stage of runoff through its cooling trench.</p> <p>® The second outlet orifice in Pond 300 has been increased to provide 0.45 m of head above the first (low-flow or water quality) orifice outlet. It is believed this is sufficient head to allow flow to pass through the proposed cooling trench.</p>
G6	<p>© We recommend that planting plans C-462 and C-463 include shallow water vegetation to shade the wetland portions of SWM facilities 200 and 300. This is to mitigate the impact of heat waves that are known to cause open water pond temperatures to rise above 30°C, ensure that infiltration characteristics are not compromised, and enhanced where</p> <p>® Shallow water plantings have been proposed and are included on the Drg. Nos. L-462-463.</p>
G7	<p>© Appendix E of the SWM report contains sizing information for three oil and grit separator units. Please identify the location and catchment area of the unit associated with a SWM Facility 100B.</p>



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	<p>® The catchment area associated with the STC750 sized for treatment of 0.31 ha of roadway is located at the entrance of the subdivision at Victoria Road and includes 0.15 ha and 0.16 ha areas. Please refer to Drawing C-120.</p>
G8	<p>© We endorse the SWM plans proposed use of infiltration galleries throughout the lots and multi-block areas along with the need for a geotechnical engineer to be on-site during area grading to ensure that infiltration characteristics are not compromised, and enhanced where possible</p> <p>® Agreed. A geotechnical engineer is required to be on-site during installation of the infiltration system to ensure all infiltration assumptions a valid.</p>
G9	<p>© We concur with the SWM reports specified inspection of erosion and sediment controls after any significant rainfall of 13mm or greater. This also needs to be specified in Drawing C-602 as well the need for inspections after snow melt events.</p> <p>® The implementation schedule on C-602 has been updated as requested.</p>
G10	<p>© The detail for a storm service outlet intended for Drawing C-602 is missing.</p> <p>® Details provided on C-602.</p>
G11	<p>© Typo. The cooling trench detail in Drawing C-412 has MH 300 at the trench outlet. In the pond plan view this is MH 308.</p> <p>® Drawing C-412 has been updated.</p>
Natural Channel Design	
G12	<p>© There is an error at cross-section 67 that results in no water in the channel (see attached). Bank stations appear to be in the wrong locations. Also Section 68 appears to have illogical ineffective flow areas.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>



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G13	<p>© We would also like to receive the existing and proposed flood lines as well as new cross-section locations in an electronic format that can be imported to ESRI ArcMap. When the modelling corrections are complete please provide the latest flood line mapping.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
G14	<p>© For ease of review we prefer shape files georeferenced to the following standard:</p> <ul style="list-style-type: none">○ Name: NAD83 UTM zone 7N○ EPSG:26917○ Geodetic CRS: NAD83○ Datum: North American Datum 1983○ Ellipsoid: GRS 1980○ Unit: meter <p>® Revised Natural Channel Report to be provided under a separate cover.</p>



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G15	<p>© Please provide one separate copy of Floodplain Location Plan Drawing C-730. This will be scanned, geo-referenced and used in conjunction with shape files of flood lines and cross- sections for viewing of proposed topography and verification of shape file importation.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
G16	<p>© Typos: Construction Sequencing notes in Drawing C-722 refer to drawing C-600 instead of C-602.</p> <p>® Noted</p>
G17	<p>© Appendix I Natural Channel Design Report: Stantec Section 4.7 Vegetation and Planting Plan, to aid in thermal protection through shading of the new channel, tall stock or caliper sized planting should be used .as close as possible to the creek.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
Environmental Implementation Report (EIR)	
G18	<p>© Section 4.3 Hydroperiod: The EIR does not adequately address previous GRCA comments (April 4, 2014) regarding impacts of altered hydrology. The report acknowledges a surplus of recharge from May to October but fails to identify and interpret how the existing wetland vegetation community may be affected by the permanent increase in water during the sensitive growing period. The existing vegetation community will have a range of tolerance for alteration in water levels (inundation and drought) and duration of change. Please quantify and interpret the existing vegetation community and expected response to the acknowledged surplus of recharge water directed towards the wetland feature.</p> <p>® Revised EIR to be provided under a separate cover.</p>
G19	<p>© Section 5.2 Dewatering: The report states that "clay cut-off collars will be considered in areas where services are below ground water table to prevent the preferred movement of groundwater". It should be that anti-seepage collars be used on all underground services that interact with the water table to prevent interference with groundwater movement. The finalized dewatering plan should be prepared and submitted for review at the detailed design stage to ensure that wetland and stream hydrology is not impacted.</p>



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	<p>® The term anti-seepage has been added to the reports and drawings as requested.</p>
G20	<p>© Stantec Drawings C-100 the proposed 450mm CSP extension near Victoria Road should be terminated outside of the 10m wetland setback not between the 10m wetland setback not between the 10m setback and the wetland boundary. An increased distance will allow for discharge water to disperse and not concentrate at the wetland limit.</p> <p>® The 450 mm dia. CSP has been reduced as requested see Drg. No. C-200 for details.</p>
G21	<p>© We note that monitoring is proposed until 75% completion. We would request that monitoring be maintained until 90% build out; or if 75% build out has taken place then sufficient justification provided that the overall function of the Stormwater Management Strategy is operated as proposed and that stabilization and suitable permeable soils have been implemented for the remaining areas.</p> <p>® Agreed. Monitoring is proposed to be provided until 90% build-out is complete at which point a post-construction monitoring program should commence. Details of the monitoring program should be finalized with the GRCA and the City of Guelph in order to encompass all water quantity and water quality monitoring concerns prior to construction.</p>
G22	<p>© Section 8.2.3 Groundwater Monitoring, the existing network of monitoring wells should be reviewed in conjunction with the proposed grading plan to ensure that adequate long term monitoring can occur. If existing baseline monitoring wells are identified to be impacted by grading activities, suitable alternative stations should be identified and installed now to allow proper long term comparison of data.</p> <p>® Revised EIR to be provided under a separate cover.</p>
G23	<p>© Section 8.1 Compliance Monitoring, it should clearly state that monitoring of the imported fill material will be carried out by a qualified Geo-technical Engineer or equivalent to ensure infiltration and drainage performance is maintained.</p> <p>® Noted.</p>



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G24	<p>® Appendix G Final Storm water Management Report, Section 6.2 Cooling Trench, performance threshold parameters should be identified beforehand to determine if the cooling trench is performing adequately. These thresholds will also assist in identifying if corrective action is required.</p> <p>® As outlined in Section 8.2 of the SWM report, pressure/temperature dataloggers are proposed to be installed to monitor the performance of the cooling trenches and their effect on Torrance Creek and the natural system. Because the design of cooling trenches is still being refined, a contingency plan is recommended. In the event that the cooling trenches exceed the target temperature by greater than one (1) degree for more than two (2) consecutive monitoring seasons, the following contingency measures should be considered for potential implementation:</p> <ul style="list-style-type: none">● Night Time release - This would involve retrofitting the existing outlet structure to hold back stormwater during the hot summer days and release it during the cooling night● Shading - This could be accomplished through planting vegetation and/or trees along the banks of the SWM Facility to shade the pond or through the use of floating vegetated islands● Increasing the size of the Cooling Trench - This would involve expanding the infiltration trench to increase the amount of contact time for further cooling <p>In the situation that the cooling trench is not functioning properly, these contingency measures would need to be analyzed further to determine which strategy would be the best for this site in terms of feasibility, cost and temperature reduction. This would require further discussion with both the City and the GRCA.</p>
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	Recommendations
G25	<ul style="list-style-type: none">© Section 5.3.2 Access Control Fencing, along with the prescribed rear lot fencing it should be clearly stated that no gates are allowed to be installed to prevent encroachment into the prescribed buffers and natural areas.® Revised EIR to be provided under a separate cover.
G26	<ul style="list-style-type: none">© The EIR is lacking in details for the proposed trail system. The only details are provided in the landscape plan drawings L-430 and L-431.® Revised EIR to be provided under a separate cover.
G27	<ul style="list-style-type: none">© Appendix G Final Stormwater Management Report, Stantec, Section 4.2 Stormwater Management Strategy, where possible the access roads should have minimal asphalt surfaces to facilitate infiltration and slow down runoff.® The access road for Pond 200 is turfstone where possible (not part of the trail network) and the access road for Pond 400 is proposed to be permeable pavement to encourage infiltration. All other pond access roads are asphalt as they are part of the trail network.



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October 23, 2015 - Follow-Up Parks Comments from Lindsay Sulatycki (Section H)	
H1	<p>© One of the most important design criteria to the UGDSB is a clear sightline from Street 5 to as much of the trail as possible. Police Services confirmed the importance of this requirement during their review of the project. During preliminary design this view corridor was established at approximately 20m wide - centred on and aligned with the main portion of the trail across the stream. The proposed future lot to the east of the trail is therefore obstructing this sightline so must be permanently removed.</p> <p>® The redesign provides a clear site lines as shown on Drg. No. L-431. The eastern lot has been removed and the park has been graded into the former lot area.</p>
H2	<p>© We are unclear how the drainage is being handled on and around the PTC to prevent drainage off the lots entering the open space and prevent ponding on the trail. The City standards for switchback trails (Guelph Trail Master Plan – p. 59 and Fig. 5-18) indicate that drainage must be “removed from the trail bed at regular intervals reducing its erosive power.” This is especially important as year-round use is required and intermittent melt from snow storage areas along the trail may create point sources flowing over it. Please consider additional measures to intercept drainage over trail. Provide further detail on the PTC grading and drainage - including centreline profile, spot elevations every 5m at trail centreline and edges. Provide proposed contours to clarify the south switchback section. Include building outlines and spot grades on the lots adjacent to the trail. Ensure that entire trail surface is max 5%.</p> <p>® We have provided detailed spot elevations, slopes and contours on Drg. No. C-404 the plan as per the City request. The trail grades do not exceed 5%. The trail has been crowned with side swales to collect any water within this area. We have not provided a centreline profile at this time.</p>
H3	<p>© City switchback standards (reference above) recommend that the outer bends be flattened and widened to provide resting opportunities. The AODA Built Standard legislation now requires consultation with accessibility committees regarding features for trails constructed from 2016 onward. AAC resolution: The City of Guelph Accessibility Advisory Committee recommends that rest areas are needed to ensure equal access for all populations. At least two rest areas shall be included in the 1:20 slope part of the trail that is 70 m long at the Victoria Park Village Primary Trail. However if the inclusion of two or more rest areas create a condition that increases the slope or length of the trail, then reducing the number of rest areas will be acceptable however at least one rest area shall remain at minimum. Further, handrails shall be included to facilitate a sense of stability for a person with a disability, notably in areas where a change in grade is close to the walking surface of the trail. Handrail and rest area are defined in the City’s Facility Accessibility Design Manual. One rest area is to overlook the stream corridor for those who cannot negotiate the entire route. See attached redline.</p>



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	<p>® The switchbacks have been reduced as much as possible. The curves have been designed to meet the minimum radius for trails. We have provided a rest area midway on the switchbacks and there is a pad between the SWM ponds that will have educational signage but can provide a location of rest for trail users. We have not included hand rails at this time and would like the City to review the redesigned trail to confirm that they are required with the redesign.</p>
H4	<p>© Winter maintenance: I confirmed that the equipment details previously provided are still valid. A snow blower attachment is preferred for removal. Need 2m gently sloped, well drained space on both sides for snow storage. Given the challenges of winter maintenance in this location staff would like a way to close the PTC from street to street in case conditions are too hazardous. Please switch the standard trail barriers at both ends to a version that can be closed to pedestrians. Some additional wording on the trail signage is needed to address alternative salt plan.</p> <p>® The redesign of the trail includes swales along both sides to facilitate the winter maintenance.</p>
H5	<p>© The property line at west side is too tight to the trail and the side slope is too steep. Move permanent boundary west to allow space for snow storage with free drainage to north, rub rail, mow strip, hydro servicing (off the trail), rest area, offset to prevent impacts on adjacent lots from trail e.g. blowing snow and debris from trail cleaning, drainage and screening for visual, lights, noise.</p> <p>® The trail redesign has been relocated to address this concern.</p>
H6	<p>© Upon further consideration a straight-through option is not preferred to address short cutting between trail curves on the southerly section. Instead provide suitable treatments to deter short cutting while allowing good sightlines above 0.8m and avoiding hazard to trail users e.g. bike upset. There is a City standard rub rail (reference above) required 1m from outer edges of the trail. Consider if suitable for this purpose and/or landscaping. Provide maintenance access through/around treatments.</p> <p>® The trail redesign has been relocated to address this concern by changing the switchbacks, altering the grades and limiting the desire to cut through the middle of the trail.</p>



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H7	<p>© Now that the south section has a more reasonable configuration maintenance staff requested that design allow for construction vehicles for trail repair/replacement and larger maintenance vehicles: 1.5 ton dump truck and 5 ton chipper.</p> <p>® The redesign will accommodate vehicles. However, it should be noted that if handrails are added this access will be limited as a result.</p>
H8	<p>© Ensure crane access for future bridge replacement.</p> <p>® Crane access will be required to place the bridge structure. We have no concerns with this based on the current PTC alignment and design</p>
H9	<p>© Incorporate lighting and Guelph Hydro access requirements for whole trail.</p> <p>® This will be addressed once a final trail layout is agreed upon by the City.</p>
H10	<p>© Verify that standard City curb ramp detail meets the loading requirements.</p> <p>® Will be confirmed as part of the final submission.</p>
<p>Helen White comments dated: Dec. 2, Dec. 11, Dec. 15, Dec 16 – Relating to Signage & Rest Areas (Section I)</p>	
I1	<p>© One large tactile map sign showing all trails in the development and major elements labelled to help people find the trails (trail names, street names, development and open space blocks, maintenance access-only routes, etc.)</p> <p>a. Locate it at the trail heading north from Street 1 facing oncoming traffic parallel to trail on west side, 5m north of the sidewalk.</p> <p>b. This sign will have all tactile text which has a specific fixed height – noted in FADM. Symbols can be used to save space. Use ‘for more information...’ wording at bottom and Braille. The text needs to be in reaching distance – see FADM Fig. 4.1.19 and 4.4.12. The sign plate will be by Eye Catch Signs. All these aspects will affect sign size.</p> <p>® A draft layout of the Trail Map has been provided in detail LD-31 on L-504. Due to grading constraints and a maximized trail slope, the signage has been oriented off the adjacent sidewalk, north of Street 1 to meet the pad accessibility requirements. Tactile text and Grade 2 Braille has been provided for the pertinent trail information of the sign and the overall sign has been sized accordingly to accommodate this information. This sign cannot be completed in detail design until the connecting trail system to adjacent developments has been developed/established.</p>



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12	<p>© Use Fontasy frames for all signs –similar to F40 but vertical. Dimension from bottom of sign to the ground: 685mm minimum to allow wheelchairs. Dimension between double posts: 760mm. Please also add these dimensions to the F40 detail.</p> <p>® Fontasy frames have been specified for all accessible signage. Dimensions have been provided for noted distances. Refer to details on Drg. No. L-502.</p>
13	<p>© Pads: A wheelchair has to be able to pull up under them and turn sideways-on if needed for larger signs (sideways-on allows further reach). See FADM figures above. Check your pad details for this and for the pedestal spacing above.</p> <p>® Pads have been revised to accommodate side reach accessibility requirements. Refer to Drg. No. L-502.</p>
14	<p>© Smaller signs at each entry point of the trails from roadways and at each trail fork. These do not have a map. They are fully tactile text. Include all FADM required trail information and trail rules. Remove the existing trail rules sign detail. Symbols can be used to save space. Meet FADM reach requirements. The sign plate will be Fontesy sunglaze. All these aspects will affect sign size.</p> <p>® Trailhead signage has been provided at each entrance point of each trail and at each trail fork. These signs include space for the FADM required trail information and trails rules signage and have been designed to meet reach requirements. Signage shall be Fontasy Sunglaze Enamel, as per City request. Accessibility data for signage can be found in Table 1.0. Refer to Drg. Nos. L-432 & L-433 for proposed locations and detail LD-27 on Drg. No. L-503.</p>
15	<p>© Turfstone maintenance routes need signage at entry points indicating that these are maintenance access routes, not trails, and they are not designed to meet accessibility standards. This can go on other signs already at these spots or be traffic signs with no tactile text.</p> <p>® “Maintenance Access Only / Not Accessible” signage has been provided on the plans. Refer to Drg. Nos.L-432 & L-433 for proposed locations and detail LD-30 on Drg. No. L-504.</p>
16	<p>© Natural area and swm education signs: it recently came to our attention that the sign titles and the ‘for more information...’ wording at bottom now need to be tactile text and that Grade 2 Braille has a fixed height. Please note this on sign layout labels and ensure that layout accommodates them.</p> <p>® Educational signage has been revised to include this text in a tactile format as well as fixed height Grade 2 Braille. Refer to details LD-23 through LD-26 on Drg. No. L-503.</p>



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17	<p>© The accessibility coordinator noticed that there are no rest spots on the secondary trails. In accordance with the new legislation we have to consult our Accessibility Committee on this and she expects they will require it. As these will be standard bench pads you may wish to consider if this can be dealt with during detailed design for each phase. If so add a note to the plans indicating that these will be required – at spacing to be determined during detailed design for each subdivision phase. Add a typical Guelph bench pad detail. If you need one let me know.</p> <p>® Additional rest spots have not been provided along the secondary trails at this time and we wish to review the criteria with the City. A bench pad detail has been added to the drawing package. Refer to detail LD-23 on Drg. No.L-502.</p>
18	<p>© In response to Stantec correspondence regarding the use of Fontasy Trailkey Signage:</p> <ul style="list-style-type: none">a. we agree they would be an efficient way to convey information – especially for trail forks where two sets of accessibility information are needed, pictograms, larger text for trail name, trail destination, logo - so all sides will be used.b. plan view of the sign shows that the sign is too close to the trail to meet our standards.c. for a side reach-only option like this, the wheelchair or scooter has to pull up parallel to all faces of the sign within reach distance – on a 2% max. slope pad that will remain entirely level with the trail surface. This means that the pad has 2000 mm from sign to outer edged. On the trail side, the pad has to allow enough room for wheelchairs and scooters to pull up beside it off the trail and meet GTMP requirement – 600 mm minimum from edge of trail to signs. The wheelchair turning room on that side can be on the trail.d. <p>® Due to the maximized slopes of most trails, the four-side trail key signage on an accessible pad could not be accommodated due to grading constraints. Refer to Detail LD-27 on drawing L-502 for proposed trailhead signage.</p>



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19	<p>© It occurred to us that the rest area and sign pads may be combined where both are needed in same area for efficiency. Also now that it looks like there may be quite a few pads to meet the new legislation, I asked our environmental planner to confirm if these need to be worked out before EIR drawings are done, or can be done later with the detailed design.</p> <p>® Note: Helen White confirmed on December 15, 2015. April has confirmed that the bench and sign pads need to be shown in the EIR drawings. Once the EIR is approved and we are not to add anything that would affect the footprint of the development work. You know where the sign pads go – it's just the bench locations to resolve. I will speak to our accessibility coordinator as soon as possible to see if we can assist you with putting these on now instead of waiting until the next submission.</p> <p>® A rest areas and sign pads have been combined where appropriate wherever possible. Refer to Signage Layout Plans, Drg. Nos. L-432 & L-433 for proposed pad and signage locations. Refer to engineering Drg. Nos. C-400 to 404 for proposed accessible pad grading. Signage has been provided at locations requested; however, additional bench locations along the secondary trail have not been accommodated and will be deferred until a future submission.</p>
110	<p>© That the structure be made of cedar/fir (preferably white cedar);</p> <p>® Material has been specified as requested on detail LD-9 on Drg. No. L-501.</p>
111	<p>© Confirm the dimensions of the proposed structure and the number of structures be proposed (it is recognized that this is related to the number of "nests" being replaced and the timing/season when the buildings are removed);</p> <p>® Additional expansion room has been detailed in detail LD-9 on Drg. No. L-501.</p>
112	<p>© That the design detail be stamped/approved by a professional engineer in order to confirm the stability/safety of the structure and the suitability of the proposed footings;</p> <p>® Contractor will provide stamped shop drawings prior to installation of the structure. Refer detail LD-9 on Drg. No. L-501 for note.</p>
113	<p>© That the footing design be confirmed as being suitable for the proposed location (in relation to soils and stability);</p> <p>® See Comment #14 above.</p>



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114	<p>© One other comment put forward during our internal discussion was to see if the plant species proposed in the area between the structure and nearest access road or trail could include species that would further discourage access (i.e. thorn bearing native shrubs like hawthorn, raspberry spp.).</p> <p>® Dense planting is already provided at the nearest trails and includes some thorny species. Refer to Planting Plans, Drg. Nos. L-463 and L-465.</p>
Environmental Advisory Committee comments, dated July 8, 2015 (Section J)	
J1	<p>© Concerns about water balance (infiltration in particular) We appreciate that LID measures in the form of extensive infiltration trenches have been incorporated into the site design – this is an improvement over the last submission. However, City Engineering has advised that the bottom of many of these trenches are in areas where the high groundwater table is too close to the surface to allow these trenches to function properly (i.e., less than 1.0 m separation). The proposed LID within the current site design needs to be revisited to ensure only infiltration trenches whose bottoms are at least 1.0 m above the high groundwater table are included in the design. The water balance (e.g., Table 4.1) will need to be updated accordingly.</p> <p>® See comment response #A44 above.</p>
J2	<p>© Need to better SWM functions and turtle habitat functions</p> <p>a. Pond A has been confirmed as Significant Wildlife Habitat (SWH), specifically overwintering habitat for Snapping Turtle. Despite the original request that inputs be limited to 25-yr storm events and greater, the City has previously agreed that it is acceptable for Pond A to receive water from 10-yr storm events and greater. However, Pond A appears to be designed to receive 5-yr storm events (Section 4.2.1.5). This raises concerns about potential impacts to the Pond's SWH functions, as well as questions about the frequency of water (likely warm water) being outlet to the new creek channel, which is supposed to be cool or cold water. In addition, Section 4.2.1.5 indicates a weir is included in the design of Pond A even though Section 1.5 (f) indicates weirs and other structures are to be excluded from Pond A. This structure also raises some concerns related to compromising the pond's habitat functions. An alternate design for Pond A that only receives 10-yr storm events and greater needs to be considered.</p> <p>c. Pond C is also identified as SWH overwintering habitat for Snapping Turtle (Section 2.5.4.2), however there is no discussion in the text or indication in the drawings that protection of this habitat or mitigation of this habitat loss has</p>



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	<p>been considered (Section 5.5) and it is not identified as SWH on Figure 2. The EIR needs to speak to how the overwintering habitat requirements for Snapping Turtle (and potentially other turtles) in Pond C will be addressed.</p> <p>® Revised EIR to be provided under a separate cover.</p>
J3	<p>© Thermal mitigation of water going to the proposed creek Section 1.5, item (i), identifies the “evaluation of suitable thermal mitigation measures” related to the storm water proposed for release into the proposed natural channel as an item to be included in the EIR. The EIR proposes two measures in this regard – cooling trenches within two of the SWM Ponds, and planting of large and medium-sized caliper trees, as well as shrubs and aquatic vegetation concurrently with the creek creation. The proposed plantings will, over time, assuming there is good establishment, provide this function. However, in the interim it will be important that the water being released into the creek is as cool as possible. The City’s Engineers have expressed concern that the approach and design for the cooling trenches (as described in Section 4.4) will not be effective and is inappropriate because (a) the design is within the Pond itself, and (b) relies on the forced mixing of stormwater with groundwater. An alternate approach to thermal mitigation, in addition to plantings for shade, needs to be identified and incorporated into the SWM plan.</p> <p>® See comment response #G6 above.</p>
J4	<p>© Missing baseline information for Pond A and creek / tributary</p> <p>a. Collection of baseline information on the ecological functions of Pond A: We appreciate that documentation of some habitat use by Snapping Turtles has been provided, however water quality assessments and fish community assessments are both lacking. These baseline data are considered necessary to inform future monitoring. It does not appear as if fish sampling has been undertaken since the Torrance Creek Subwatershed Study (SWS) in 1997. This gap needs to be filled as part of the EIR.</p> <p>b. Given that the information on the thermal regimes of all watercourses on site is almost 20 years old, an updated assessment of both the thermal regimes and the fish communities in these watercourses (including the West Course tributary) is needed to understand the current aquatic system and inform future works and monitoring.</p> <p>® See comment response #A42 above.</p>



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J5	<p>© Concerns about protection of significant woodland off-site</p> <p>The provision of an appropriate zoning setback from this woodland was originally overlooked and to be determined as part of the EIR. EAC minutes from Aug. 21, 2013 recommend a 10 m zoning setback in Block 133 and a 5 m zoning setback to Block 131 from the property line which precludes structures. The text (Section 5.4, and the Tree Preservation Plan – Appendix E) recommends a 10 m zoning “setback buffer” from any residential dwelling or driveway/roadway to the dripline, with no “structures” permitted in the setback, and then a 5 m “no touch” setback from the property line. However, the 10 m setback includes a retaining wall that runs close to, and in some locations, within the dripline. In addition, a fence is proposed along the property line that runs through the woodland dripline (ref. Drawings C-400 and C-401). It is not clear how this would not be expected to have an impact on the woodland edge, and how both the structures could be installed without damage to or the removal of any trees.</p> <p>It is understood that there is currently a driveway that runs along the woodland edge in this location, and that removal of this driveway will necessarily cause some disturbance. However, the introduction of a retaining wall that is partially within the dripline combined with a fence that is entirely within the dripline is not considered appropriate within a significant woodland edge. Grading and site plans in this area should be revised to provide more appropriate protection of the significant woodland edge adjacent to Blocks 131 and 133. This should exclude structures of all types (including fences and retaining walls) from within the dripline.</p> <p>® See comment response #E5 above.</p>
J6	<p>© Missing background information</p> <p>a. Section 2.5 should include a section on fisheries data summarized from available background information.</p> <p>b. Please clarify whether or not there are groundwater upwellings on the site and how these differ from springs (Section 2.6, Appendix A, comment response matrix).</p> <p>® Revised EIR to be provided under a separate cover.</p>
J7	<p>© Possible lot encroachment into PSW buffer</p> <p>In looking at the EIS Addendum, it appears as if one of the rear lots to Street No. 6 north of the re-aligned creek (just east of the trail) extends within the 30 m PSW buffer. This lotting has not changed in the current EIR. This should be confirmed, and if it is the case, to the lot line should be adjusted to maintain the required 30 m PSW buffer.</p> <p>® See comment response #E7 above.</p>



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J8	<p>© Minor revision to tree compensation numbers required The tree inventory and preservation plan (Appendix E) excludes Ash in fair to excellent condition, however the City requires compensation for these trees. That appears to be an additional 25 trees. Please revise the tree inventory table and tree compensation numbers to identify Ash in fair to excellent condition require compensation.</p> <p>® See comment response #E8 above.</p>
J9	<p>© Proposed construction and activity schedule requires revision A more comprehensive and detailed construction sequencing plan is required to help ensure that all proposed works are integrated, and that natural heritage timing windows are adhered to and coordinated with overall project phasing. For example,:</p> <ul style="list-style-type: none">- Table 5-1 does not include landscaping activities, baseline groundwater or water quality monitoring data collection, or any referencing to phasing.- Salvage of on-site biological materials (e.g., live in particular) is not considered- Table 5-1 does not include specific seasonal timing windows (e.g., fisheries timing window, breeding birds timing window, installation of exclusion fencing between April 1st and May 1st around Ponds A and possibly C, etc.).- The timing proposed in Table 5.1 also needs to be revised. <p>® An updated implementation schedule has been revised on Drawing C-602 and will be included in the revised EIR. Revised EIR to be provided under a separate cover.</p>
J10	<p>© Planting densities north of the proposed channel In the response matrix – Appendix J – comment 52, the City previously commented about planting densities being insufficient. While the “nucleation” cell approach is acceptable, the overall number of nucleation cells and spacing between them, particularly north of the proposed channel, seems low (L-462 through L-467). Planting densities, particularly north of the proposed channel, should be increased to help ensure the thermal mitigation provided by shade is adequate.</p> <p>® Revised EIR to be provided under a separate cover.</p>



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J11	<p>© De-watering information requires clarification The information provided regarding anticipated de-watering is not consistent and needs to be clarified (e.g., Section 5.2, Section 6.2, Section 6.3). Furthermore, as indicated in the Natural Channel Design (NCD) comments below, there is concern that more extensive de-watering will be required in association with the new creek construction than anticipated.</p> <p>® Revised EIR to be provided under a separate cover.</p>
J12	<p>© Preliminary comments from City Parks and Recreation Parks is generally satisfied with the locations of the trails, but have identified the following preliminary issues and concerns that relate to natural heritage issues (with more detailed comments to follow):</p> <ul style="list-style-type: none">- We appreciate the efforts to direct drainage from the lots under the trail to avoid washouts (swale near rear of lots with culverts under trail). However the details of this approach need to be further reviewed to determine if the approach is fully functional and will avoid erosion at the outlets.- The longitudinal trail grades appear to be improved (i.e., less steep than shown on previous submission); however these improved grades are dependent on the suitability of the overall grades of the subdivision which needs to be confirmed through formal comments from City Engineering. This is of particular concern with the Primary Trail Connection across the wildlife corridor.- Park grades appear to be better than previous submission, however City staff is concerned about the 50 m long retaining wall in the park block adjacent to the woodlot for both maintenance cost and woodlot protection reasons. It is recommended that this be reduced or eliminated.- There is concern about the elevation of the bridge above flood levels; more detailed information is required on the bridge design and location to confirm feasibility.- The turfstone SWM route adjacent to Pond A appears to require further treatments at its ends to deter its use as a trail. <p>® See comment response #E12 above.</p>



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J13	<p>© Compliance Monitoring (During Construction)</p> <p>a. Generally, the compliance monitoring program in Section 8.1 includes a number of components which are appropriate and have been requested through previous comments, including mitigation measures for Snapping Turtles and their habitat. However the following gaps have been identified:</p> <ul style="list-style-type: none">- Inspection monitoring of plantings and other landscaping works to be implemented concurrently with construction should also be included.- Aquatic monitoring of watercourse re-alignment should specify measures, as discussed in the NCD Brief comments below. <p>b. The details regarding turtle monitoring during construction (Section 8.1.1) are appropriate and should be included in the training and information package to be provided to construction workers.</p> <p>® Revised EIR to be provided under a separate cover.</p>
J14	<p>© Performance Monitoring (Post-Construction)</p> <p>a. Generally, the performance monitoring program in Section 8.2 includes a number of components which are appropriate and have been requested through previous comments. However the following gaps have been identified:</p> <ul style="list-style-type: none">- Monitoring of the re-constructed channel for water flows, quality and fish habitat (see more detailed comments on the NCD Brief below) should also be included.- Terrestrial monitoring should include the dripline and setback of the Significant Woodland off-site south of Blocks 131 and 133.- Pond A water quality monitoring should include monitoring both within the pond itself and at the outlet (Section 8.2.1.1).- Similarly, water quality monitoring for the other SWM facilities with outlets to the new creek should be undertaken within the ponds and at the outlets to ensure effective quality control in addition to quantity (Section 8.2.2). <p>b. In general Table 8.2 addresses all the key areas for performance monitoring, however the following refinements to the proposed timing of monitoring activities are recommended:</p> <ul style="list-style-type: none">- Assessing for encroachments in years 1, 2 and 3 will also likely be pre-mature in a number of areas as housing will not all be built; therefore we recommend encroachment monitoring also be undertaken in years 1, 5 and 10. <p>® Revised EIR to be provided under a separate cover.</p>



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J15	<p>© Incomplete Demonstration of Policy Compliance</p> <p>The need to obtain permits from GRCA and under the ESA, and authorization from DFO is adequately addressed, and the applicable policies of the PPS are mentioned. However, the policy compliance section (Section 9.1) does not demonstrate how the conditions of approval have been met, or speak to conformity with the applicable City Greenlands policies.</p> <p>Two tables, one that summarizes how the conditions of approval have been met, and one that summarizes compliance with all of the applicable policies and regulations (including the City's Greenlands policies) would be helpful in providing this information concisely.</p> <p>MINOR COMMENTS – EIR</p> <ul style="list-style-type: none">- P. 1.2, 3rd para: the Nov. 2009 report was an EIS not an EIA- P. 1.7: Appendix B does not include any comments from Nov. 14, 2013 or the OMB conditions – these are requested for the next submission. - P. 2.2, Section 2.3: should also include a sentence or two regarding the groundwater elevations based on the more current work done by Banks (2015, Appendix C). - Section 2.5.1: should include a statement of when the wetland boundary staking took place with GRCA. - Section 2.5.3: the last sentence should indicate that the one locally rare species was found within a PSW/significant woodland feature identified for protection. - Section 2.5.4, last paragraph: the notes in Appendix K appear to indicate there is also likely habitat for Midland's Painted Turtle. This should be stated here, particularly since it appears as if the 2014 surveys were limited to a single visit in June. - Section 5.1, 3rd bullet: typo in "Greater" - Section 5.3.1: it is not accurate to state that the 30 m buffers to the PSW have been treated as "no touch" as there will be grading as well as trails and SWM facilities. Section 7.2: The turtle habitat assessment date provided in Appendix K indicates that Midland's Painted Turtles also likely use this habitat, and this species does typically bask, therefore inclusion of basking structures as part of the proposed enhancements should be re-considered. - Dwg C-722: lists the in-water fisheries timing window as July 1 – Sept 15 whereas most places in the text indicate it is Sept 30 (except for the NCD brief). This needs to be corrected.
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	<p>FLUVIAL GEOMORPHOLOGY COMMENTS ON THE PROPOSED NATURAL CHANNEL DESIGN AND IMPLEMENTATION</p> <p>To assist the City in reviewing the Victoria Park Village EIR, a review of the Torrance Creek Natural Channel Design (Stantec, April 2015) was undertaken by one of Beacon's Senior Fluvial Geomorphologists. Their comments are summarized below.</p> <p>In general, before this EIR can be approved additional details are required regarding how the proposed channel design elements are appropriate and reflective of a first order watercourse system and post-development in-stream hydraulics in the context of southern Ontario.</p> <p>® Revised EIR to be provided under a separate cover.</p>
J16	<p>© Design approach should be based on more site-specific metrics</p> <p>a. Additional clarification should be provided in the design report to identify how the reference reach provided an appropriate surrogate for the design (i.e., drainage area, geology, hydraulics) and, if certain parameters were scaled, how this data was scaled to best reflect the Torrance Creek system.</p> <p>b. Detailed data collection from the open section of channel within the subject lands as well as the reach downstream of the property (including measured cross-sections) should be captured to inform the channel design and in order to confirm the design discharge for the relocated channel.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>



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J17	<p>© Some additional data required to inform the channel design</p> <p>a. Additional information should be provided in the design brief to clarify the scale and scope of topographic survey undertaken to support the channel and corridor design.</p> <p>b. While it is understood that this tributary represents a partially piped, manmade system, the report should document the existing form (dimensions) and function (flow contributions to Torrance Creek) of the open portion of the West Course watercourse in order to provide a level of confidence that the proposed design is feasible, and support the evaluation of potential impacts and opportunities associated with the proposed development from a geomorphic perspective.</p> <p>c. Section 4.1.1 indicates that pool data was not collected in either Reach 4a or the reference reach in support of the channel design. Additional rationale or information should be presented in the design brief to clarify how the pool dimensions were determined.</p> <p>d. The design brief should be revised to include a surveyed watercourse centerline (long profile) and bankfull indicators.</p> <p>® See comment response #E18 above.</p>
J18	<p>© Some hydraulic analysis required</p> <p>a. Section 4.2.1, only provides a summary of pre-development flows. Additional justification for the proposed channel dimensions should be provided in the form of post-development modelled flows (typically based on a 1.5 to 2 yr storm event) and the proposed bankfull channel gradient.</p> <p>® See comment response #19 above.</p>
J19	<p>© Additional information required to support some channel design elements</p> <p>a. While the design brief describes a riffle pool morphology, the long profile indicates more of a run-glide morphology with four deeper pool features. The design brief should clarify how the proposed riffles will ensure the long-term stability of the channel bed.</p> <p>b. Section 4.4: Additional justification should be provided for the selection of the proposed bed and bank treatments, given that the feature is a first order, poorly defined stream (i.e., J-hooks and wood debris with sod mats).</p>



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	<p>c. Detailed design cross-sections should extend beyond the top of bank to include relevant offline ponds, given their proximity to top of slope and considerations with respect to erosion hazards, particularly in consideration of potential groundwater interaction considerations.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
J20	<p>© Additional information required to regarding the pedestrian crossing</p> <p>a. The 35 m span of the proposed pedestrian crossing is more than adequate to address geomorphic requirements. However additional information is needed to clarify how the crossing span and footing locations relative to the channel address any potential long-term maintenance/erosion concerns, and to confirm the appropriateness of the span location.</p> <p>® See comment response #E21 above.</p>
J21	<p>© Need to consider groundwater interaction more carefully Section 4.3.2 discusses potential for groundwater interaction within the constructed channel. Additional information should be provided in the design brief, referencing the hydrogeology report and groundwater elevations, to clarify how anticipated groundwater issues will be addressed during construction (i.e., specifics of de-watering requirements, a detailed phasing and de-watering drawing for the proposed channel creation).</p> <p>® See comment response #E22 above.</p>
J22	<p>© Lack of detail regarding stormwater inputs to the channel</p> <p>a. Section 4.9 of the report should include details on how flows released from the SWM ponds will be accommodated by the designed channel.</p> <p>b. Detailed design sections should be provided for each of the five outfall locations in order to understand how this infrastructure will be integrated into the corridor.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
J23	<p>© Consideration of aquatic habitat needed</p> <p>a. In general, the report should describe the target fish community and thermal regime as outlined in the EIR, and clarify how the proposed design supports this community and objective.</p> <p>® Revised EIR to be provided under a separate cover.</p>



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J24	<p>© Need to address erosion hazard as well as ESC concerns</p> <p>a. Floodplain dimensions should be shown on the planview drawings in selected locations and the design brief should be revised to speak to how the corridor design addresses erosion hazard requirements under Provincial Policy Statement (2014).</p> <p>b. Given the complexity of the design, a separate phasing and sediment and erosion control plan should be developed for the channel and corridor design for inclusion in the channel design drawing set.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
J25	<p>© 25. Lack of conclusion demonstrating how NCD objectives are being met</p> <p>a. While the report identifies goals and objectives for the design, a summary or conclusion section clearly outlining how the channel design meets these stipulated goals and objectives – specifically in relation to the replication of groundwater input and incorporation of stormwater infrastructure should also be provided.</p> <p>MINOR COMMENTS – NATURAL CHANNEL DESIGN REPORT</p> <p>- Section 3.2: Based on information presented in the EIR, the timing window for construction should be July 1 to Sept. 30th. The design brief should be revised to be consistent with the EIR.</p> <p>- Section 4.3.3: Table 4 should include bankfull widths, gradients and basic hydraulic parameters (e.g., flow, velocity, shear stress) in order to ensure that the proposed channel design will meet the identified design goals and objectives.</p> <p>- Section 4.3.5: Table 5 – additional supporting post-development hydraulic data should be provided to inform the selection of the proposed substrate gradation.</p> <p>- Section 4.6.2: The report provides regional floodline elevations under the proposed condition. Regional floodline elevations under the proposed condition should be provided on the detailed design drawing corridor cross-sections.</p> <p>- The post-construction monitoring and performance program should include an as-built survey.</p> <p>- Appendix A: Additional photos would be helpful to allow the reviewer to visualize the system.</p>



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	<ul style="list-style-type: none">- Appendix A: A map illustrating the location of the reference reach relative to the study area would be helpful to the reader.- Appendix B: Pool bank treatments should extend into riffle sections to stabilize the treatments. - Appendix B: J hooks appear to require excavation 1 m below the channel invert. Additional detail should be provided to clarify how these design elements tie into riffle features. - Appendix B: Given the minimal release rates from the outfalls, it is suggested that the SWMF outfall plunge pools could be planted with native vegetation to enhance these features. - Appendix B: Bankfull cross-sections should provide additional detail regarding substrate, bioengineering treatments, plantings, etc. <p>MINOR COMMENTS – NATURAL CHANNEL DESIGN (NCD) COMPONENTS OF THE EIR</p> <ul style="list-style-type: none">- P. 1.6 of the EIR indicates that the NCD was completed by a ‘qualified Geomorphologist’ – please qualify this statement. In Ontario, qualified Geomorphologists are licensed under the Association of Professional Geoscientists. - P. 8.2 of the EIR - NCD should be included in performance monitoring bulleted list and NCD monitoring should include an as-built survey of the constructed channel <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
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Reference: **Victoria Park Village, Guelph – Proposed Development**
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River Systems Advisory Committee comments, dated July 15, 2015 (Section K)	
K1	<p>© Concerns about water balance (infiltration in particular) We appreciate that LID measures in the form of extensive infiltration trenches have been incorporated into the site design – this is an improvement over the last submission. However, City Engineering has advised that the bottom of many of these trenches are in areas where the high groundwater table is too close to the surface to allow these trenches to function properly (i.e., less than 1.0 m separation). The proposed LID within the current site design needs to be revisited to ensure only infiltration trenches whose bottoms are at least 1.0 m above the high groundwater table are included in the design. The water balance (e.g., Table 4.1) will need to be updated accordingly.</p> <p>® See comment response #A44 above.</p>
K2	<p>© Need to better balance SWM functions and turtle habitat functions</p> <p>a. Pond A has been confirmed as Significant Wildlife Habitat (SWH), specifically overwintering habitat for Snapping Turtle. Despite the original request that inputs be limited to 25-yr storm events and greater, the City has previously agreed that it is acceptable for Pond A to receive water from 10-yr storm events and greater. However, Pond A appears to be designed to receive 5-yr storm events (Section 4.2.1.5). This raises concerns about potential impacts to the Pond's SWH functions, as well as questions about the frequency of water (likely warm water) being outlet to the new creek channel, which is supposed to be cool or cold water. In addition, Section 4.2.1.5 indicates a weir is included in the design of Pond A even though Section 1.5 (f) indicates weirs and other structures are to be excluded from Pond A. This structure also raises some concerns related to compromising the pond's habitat functions. An alternate design for Pond A that only receives 10-yr storm events and greater needs to be considered.</p> <p>b. Pond C is also identified as SWH overwintering habitat for Snapping Turtle (Section 2.5.4.2), however there is no discussion in the text or indication in the drawings that protection of this habitat or mitigation of this habitat loss has been considered (Section 5.5) and it is not identified as SWH on Figure 2. The EIR needs to speak to how the overwintering habitat requirements for Snapping Turtle (and potentially other turtles) in Pond C will be addressed.</p> <p>® Revised EIR to be provided under a separate cover.</p>



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K3	<p>© Thermal mitigation of water going to the proposed creek</p> <p>Section 1.5, item (i), identifies the “evaluation of suitable thermal mitigation measures” related to the storm water proposed for release into the proposed natural channel as an item to be included in the EIR. The EIR proposes two measures in this regard – cooling trenches within two of the SWM Ponds, and planting of large and medium-sized caliper trees, as well as shrubs and aquatic vegetation concurrently with the creek creation.</p> <p>The proposed plantings will, over time, assuming there is good establishment, provide this function. However, in the interim it will be important that the water being released into the creek is as cool as possible. The City’s Engineers have expressed concern that the approach and design for the cooling trenches (as described in Section 4.4) will not be effective and is inappropriate because (a) the design is within the Pond itself, and (b) relies on the forced mixing of stormwater with groundwater. An alternate approach to thermal mitigation, in addition to plantings for shade, needs to be identified and incorporated into the SWM plan.</p> <p>® See comment response #G6 above.</p>
K4	<p>© Missing baseline information for Pond A and creek / tributary</p> <p>a. Collection of baseline information on the ecological functions of Pond A: We appreciate that documentation of some habitat use by Snapping Turtles has been provided, however water quality assessments and fish community assessments are both lacking. These baseline data are considered necessary to inform future monitoring. It does not appear as if fish sampling has been undertaken since the Torrance Creek Subwatershed Study (SWS) in 1997. This gap needs to be filled as part of the EIR.</p> <p>b. Given that the information on the thermal regimes of all watercourses on site is almost 20 years old, an updated assessment of both the thermal regimes and the fish communities in these watercourses (including the West Course tributary) is needed to understand the current aquatic system and inform future works and monitoring.</p> <p>® See comment response #A42 above.</p>
K6	<p>© Missing background information</p> <p>a. Section 2.5 should include a section on fisheries data summarized from available background information.</p> <p>b. Please clarify whether or not there are groundwater upwellings on the site and how these differ from springs (Section 2.6, Appendix A, comment response matrix).</p> <p>® Revised EIR to be provided under a separate cover</p>



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K9	<p>© Proposed construction and activity schedule requires revision A more comprehensive and detailed construction sequencing plan is required to help ensure that all proposed works are integrated, and that natural heritage timing windows are adhered to and coordinated with overall project phasing. For example,:</p> <ul style="list-style-type: none">- Table 5-1 does not include landscaping activities, baseline groundwater or water quality monitoring data collection, or any referencing to phasing.- Salvage of on-site biological materials (e.g., live in particular) is not considered- Table 5-1 does not include specific seasonal timing windows (e.g., fisheries timing window, breeding birds timing window, installation of exclusion fencing between April 1st and May 1st around Ponds A and possibly C, etc.).- The timing proposed in Table 5.1 also needs to be revised. <p>® An updated implementation schedule has been revised on Drg. No. C-602 revised EIR to be provided under a separate cover.</p>
K10	<p>© Planting densities north of the proposed channel In the response matrix – Appendix J – comment 52, the City previously commented about planting densities being insufficient. While the “nucleation” cell approach is acceptable, the overall number of nucleation cells and spacing between them, particularly north of the proposed channel, seems low (L-462 through L-467). Planting densities, particularly north of the proposed channel, should be increased to help ensure the thermal mitigation provided by shade is adequate.</p> <p>® Revised EIR to be provided under a separate cover.</p>
K11	<p>© De-watering information requires clarification The information provided regarding anticipated de-watering is not consistent and needs to be clarified (e.g., Section 5.2, Section 6.2, Section 6.3). Furthermore, as indicated in the Natural Channel Design (NCD) comments below, there is concern that more extensive de-watering will be required in association with the new creek construction than anticipated.</p> <p>® Revised EIR to be provided under a separate cover.</p>



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K13	<p>© Compliance Monitoring (During Construction)</p> <p>a. Generally, the compliance monitoring program in Section 8.1 includes a number of components which are appropriate and have been requested through previous comments, including mitigation measures for Snapping Turtles and their habitat. However the following gaps have been identified:</p> <ul style="list-style-type: none">- Inspection monitoring of plantings and other landscaping works to be implemented concurrently with construction should also be included.- Aquatic monitoring of watercourse re-alignment should specify measures, as discussed in the NCD Brief comments below. <p>b. The details regarding turtle monitoring during construction (Section 8.1.1) are appropriate and should be included in the training and information package to be provided to construction workers.</p> <p>® Revised EIR to be provided under a separate cover.</p>
K14	<p>© Performance Monitoring (Post-Construction)</p> <p>a. Generally, the performance monitoring program in Section 8.2 includes a number of components which are appropriate and have been requested through previous comments. However the following gaps have been identified:</p> <ul style="list-style-type: none">- Monitoring of the re-constructed channel for water flows, quality and fish habitat (see more detailed comments on the NCD Brief below) should also be included.- Terrestrial monitoring should include the dripline and setback of the Significant Woodland off-site south of Blocks 131 and 133.- Pond A water quality monitoring should include monitoring both within the pond itself and at the outlet (Section 8.2.1.1).- Similarly, water quality monitoring for the other SWM facilities with outlets to the new creek should be undertaken within the ponds and at the outlets to ensure effective quality control in addition to quantity (Section 8.2.2). <p>b. In general Table 8.2 addresses all the key areas for performance monitoring, however the following refinements to the proposed timing of monitoring activities are recommended:</p> <ul style="list-style-type: none">- Assessing for encroachments in years 1, 2 and 3 will also likely be pre-mature in a number of areas as housing will not all be built; therefore we recommend encroachment monitoring also be undertaken in years 1, 5 and 10.



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	<p>- Similarly, to assess the effectiveness of the creek re-alignment with respect to aquatic habitat and fish community, monitoring is recommended in years 1, 3 and 10 (although GRCA and DFO will make the ultimate decision on this component).</p> <p>FLUVIAL GEOMORPHOLOGY COMMENTS ON THE PROPOSED NATURAL CHANNEL DESIGN AND IMPLEMENTATION</p> <p>To assist the City in reviewing the Victoria Park Village EIR, a review of the Torrance Creek Natural Channel Design (Stantec, April 2015) was undertaken by one of Beacon's Senior Fluvial Geomorphologists. Their comments are summarized below.</p> <p>In general, before this EIR can be approved additional details are required regarding how the proposed channel design elements are appropriate and reflective of a first order watercourse system and post-development in-stream hydraulics in the context of southern Ontario.</p> <p>® Revised EIR to be provided under a separate cover.</p>
K16	<p>© Design approach should be based on more site-specific metrics Additional clarification should be provided in the design report to identify how the reference reach provided an appropriate surrogate for the design (i.e., drainage area, geology, hydraulics) and, if certain parameters were scaled, how this data was scaled to best reflect the Torrance Creek system. For example, the estimated discharge for the reference reach and design channel appear to be the same, although the drainage areas are significantly different.</p> <p>a. Based on the photos provided in Appendix A, the reference reach appears to be much larger than the designed system based on photos provided. The report should clarify how the reference reach flows are within range of Torrance Creek.</p> <p>b. Detailed data collection from the open section of channel within the subject lands, as well as the reach downstream of the property (including measured cross-sections) should be captured and then compared to post-development flows in order to inform the channel design and confirm the design discharge for the relocated channel.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>



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K17	<p>© Some additional data required to inform the channel design</p> <p>a. Additional information should be provided in the design brief to clarify the scale and scope of topographic survey undertaken to support the channel and corridor design.</p> <p>b. The West Course tributary of Torrance Creek was not evaluated at the same level of detail as the main watercourse. While it is understood that this tributary represents a partially piped, manmade system, the report should document the existing form (dimensions) and function (flow contributions to Torrance Creek) of the open portion of the West Course watercourse in order to provide a level of confidence that the proposed design is feasible, and support the evaluation of potential impacts and opportunities associated with the proposed development from a geomorphic perspective.</p> <p>c. Additional rationale or information should be presented in the design brief to clarify how the pool dimensions were determined.</p> <p>d. Section 4.1.2 of the report did not discuss the inclusion of a surveyed watercourse centerline (long profile) and bankfull indicators to determine governing energy gradients for the channel design. This information informs the determination of a design discharge for the low flow (bankfull) channel. The design brief should be revised to include a surveyed watercourse centerline (long profile) and bankfull indicators, as well as a discussion on the proposed post-development design flows considering groundwater and stormwater inputs.</p> <p>® See comment response #E18 above.</p>
K18	<p>© Some hydraulic analysis required</p> <p>a. Section 4.2.1, only provides a summary of pre-development flows. Additional justification for the proposed channel dimensions should be provided in the form of post-development modelled flows (typically based on a 1.5 to 2 yr storm event) and the proposed bankfull channel gradient. Without this information it is difficult to confirm whether the proposed riffle and pool dimensions are appropriately sized and reflective of local hydraulic conditions.</p> <p>® See comment response #19 above</p>



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K19	<p>© Additional information required to support some channel design elements</p> <p>a. Given the tendency of natural channels to migrate, the report should provide clarification with respect to the designed channel sinuosity, design elements, proximity to valley walls, potential hazards and long-term integrity of the system in order to clarify how the proposed meander geometry and channel morphology achieve the design objective of a dynamically stable system.</p> <p>b. The design brief should clarify how the proposed riffles will ensure the long-term stability of the channel bed.</p> <p>c. Section 4.4: Additional justification should be provided for the selection of the proposed bed and bank treatments, given that the feature is a first order, poorly defined stream. Specifically J-hooks and wood debris with sod mats.</p> <p>d. Detailed design cross-sections (Drawings C-710 to C-712) should extend beyond the top of bank to include relevant offline ponds, given their proximity to top of slope and considerations with respect to erosion hazards, particularly in consideration of potential groundwater interaction considerations.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
K20	<p>© Additional information required to regarding the pedestrian crossing</p> <p>a. The 35 m span of the proposed pedestrian crossing is more than adequate to address geomorphic requirements; however it appears that the bridge is not centered on the channel planform, which is not ideal, and footing locations have not been identified. Additional justification should be included in the report to clarify how the crossing span and footing locations relative to the channel address any potential long-term maintenance/erosion concerns. Also, additional detail (i.e., general arrangement drawing level) should be provided in the design drawing package for the pedestrian crossing to confirm the appropriateness of the span location.</p> <p>® See comment response #E21 above.</p>



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K21	<p>© Need to consider groundwater interaction more carefully</p> <p>a. Section 4.3.2 discusses potential for groundwater interaction within the constructed channel. Additional information should be provided in the design brief, referencing the hydrogeology report, including geologic conditions and groundwater elevations, to clarify how anticipated groundwater issues will be addressed during construction. This should also be discussed with respect to the design discharge for the bankfull channel.</p> <p>b. The report notes that construction will be undertaken “in the dry”, however it is difficult to understand how this will be achieved with the information provided. The report should provide:</p> <ul style="list-style-type: none">- additional detail regarding dewatering requirements to address groundwater discharge (particularly given that floodplain elevations as proposed range between 330-331.8 masl, while groundwater table elevations as reported in the hydrogeology report range between 331.27-333.39 masl), and- a detailed phasing and dewatering drawing should be provided with respect to the proposed channel creation. <p>® See comment response #E22 above.</p>
K22	<p>© Lack of detail regarding stormwater inputs to the channel</p> <p>a. Section 4.9 of the report should include details on how flows released from the SWM ponds will be accommodated by the designed channel, including flow volume and flow delivery, considering that the channel may migrate over time.</p> <p>b. A number of SWMF outfalls are proposed to the corridor. Detailed design sections should be provided for each of the outfall locations in order to understand how this infrastructure will be integrated into the corridor.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
K23	<p>© Consideration of aquatic habitat needed</p> <p>a. In general, the report should include goals and objectives to address the target fish community and thermal regime as outlined in the EIR, and clarify how the proposed design and design elements support this community.</p> <p>® Revised EIR to be provided under a separate cover.</p>



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K24	<p>© Need to address erosion hazard as well as ESC concerns</p> <p>a. Floodplain dimensions should be shown on the planview drawings in selected locations and the design brief should be revised to speak to how the corridor design addresses erosion hazard requirements under Provincial Policy Statement (2014).</p> <p>b. Given the extent of the proposed channel corridor, the report should clearly discuss the appropriateness of the design with respect to long-term channel migration, proximity to valley walls, the requirement for the application of factors of safety with bioengineered structures, and geological and basin setting.</p> <p>c. Given the complexity of the design, a separate phasing and sediment and erosion control plan should be developed for the channel and corridor design for inclusion in the channel design drawing set.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
K25	<p>© 25. Lack of conclusion demonstrating how NCD objectives are being met</p> <p>a. While the report identifies goals and objectives for the design, a summary or conclusion section clearly outlining how the channel design meets these stipulated goals and objectives – specifically in relation to the meander belt width, replication of groundwater input and incorporation of stormwater infrastructure should also be provided.</p> <p>MINOR COMMENTS – NATURAL CHANNEL DESIGN REPORT</p> <p>Section 3.2: the timing window for construction should be July 1 to Sept. 30th.</p> <p>Section 4.3.3: Table 4 should include bankfull widths, gradients and basic hydraulic parameters (e.g., flow, velocity, shear stress) in order to ensure that the proposed channel design will meet the identified design goals and objectives.</p> <p>Section 4.3.5: Table 5 – additional supporting post-development hydraulic data should be provided to inform the selection of the proposed substrate gradation. Information regarding the models or approach used to calculate substrate sizing should also be provided.</p> <p>Section 4.6.2: Regional floodline elevations under the proposed condition should be provided on the detailed design drawing corridor cross-sections. It would also be useful to show the 2-year flow elevations in relation to the designed channel.</p> <p>The post-construction monitoring and performance program should include an as-built survey.</p>



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	<p>Appendix A: Additional photos would be helpful to allow the reviewer to visualize the system.</p> <p>Appendix A: A map illustrating the location of the reference reach relative to the study area would be helpful to the reader.</p> <p>Appendix B: Pool bank treatments should extend into riffle sections to stabilize the treatments.</p> <p>Appendix B: J-hooks appear to require excavation 1 m below the channel invert. Additional detail should be provided to clarify how these design elements tie into riffle features. There also appears to be an inconsistency on the proposed boulder sizing on the drawings and in the design report.</p> <p>Appendix B: Given the minimal release rates from the outfalls, it is suggested that the SWMF outfall plunge pools could be planted with native vegetation to enhance these features.</p> <p>MINOR COMMENTS – NATURAL CHANNEL DESIGN (NCD) COMPONENTS OF THE EIR</p> <p>P. 1.6 of the EIR indicates that the NCD was completed by a 'qualified Geomorphologist' – please qualify this statement. In Ontario, qualified Geomorphologists are licensed under the Association of Professional Geoscientists.</p> <p>P. 8.2 of the EIR - NCD should be included in performance monitoring bulleted list; design tolerances, triggers and mitigation measures should be discussed in association with the NCD performance monitoring.</p> <p>® Revised Natural Channel Report to be provided under a separate cover.</p>
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