Lake Simcoe Region Conservation Authority Technical Review – Engineering

Site Address: 181 Toronto St S	**Date:** April 11, 2024	**LSRCA File #:** SD-220826-071322	**Municipal Ref #:** SUB 2022-02
Application Type: Subdivision	**APID:** 220826	**Submission #:** SECOND	**Municipality:** Uxbridge

***These comments are in support of Site Plan approval.

Documents Reviewed (11-APRIL-2024):

- **REPORT**: Counterpoint, "Stormwater Management and Functional Servicing Report in support of Site Plan application", dated November 24, 2023
- **ENGINEERING DRAWING SET**: engineer stamped dated Nov. 24/23
- **COMMENT MATRIX**: dated 2024.03.07

Documents Reviewed (17-AUGUST-2022):

- **SWM REPORT** (included engineering drawings): Counterpoint, "Stormwater Management and Functional Servicing Report in support of Site Plan application", dated May 16th, 2021

Background Information:

- Not regulated for floodplain OR meander belt (Uxbridge Brook)
- 0.3Ha
- LSPOP is applicable and LSPP 4.8
- 1 underground Stormtech SC-310 to infiltrate clean roof runoff
- 1 underground Stormtech MC-3500 to detain flows up to and including the 100-year storm
- Isolator row, CB shields

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* Provide a detailed response to each comment. The previous responses (dated 2024.03.07) were short without much description.							
E1.	SWM Report	Appendix B	Page 18 of 56	**Water Quantity Control**: In appendix B (page 18 of 56) the calculations provided determine the allowable / pre-development flow rate associated with only the 5-year storm event. As per section 3.2.1 of LSRCA's SWM guidelines (2022) "if a site is not accounted for within a downstream SWM facility than quantity control will be required as per this section. Additionally, this may require over-control such as controlling the flows to a minimum of: the 2-year pre-development flow rate…"" Meaning post-to pre-development peak flow is required for the 2-year storm event regardless of the ex. storm sewer being sized to accommodate the 5-year flows from the subject site. Please provide supporting calculations demonstrating the proposed SWM	The current design proposes overcontrolling the site from 100-year post to meet the 5-year pre-development peak flow. Durham region has commented that this approach seems acceptable.	**Not Addressed.** As per LSRCA's April 2022 guidelines (section 3.2.1), "if a site is not accounted for within a downstream SWM facility than quantity control will be required as per this section". In other words, please demonstrate the 2-year post-development flow will not exceed the 2-year pre-development flow rate, in addition to the 5 through 100-	Noted. A summary table has been provided for the 2-100-year pre-development and post-development release rates. See **Table 1** on **pg 7 of 87** of the SWM report. Calculations are provided on **pg 20-29** in **Appendix B**

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				facilities are designed to achieve the 2-year pre-development flows in addition to the 5-year storm event (in which calculations have already been provided). In your response, please indicate where to locate the requested information and what has altered from the original design.		year storm post-development peak flow rates not exceeding the pre-development peak flow rates. Revise all applicable material, calculations, drawings, etc.	
E2.	SWM Report			**Water Quantity Control Criteria:** Please provide a stage-storage-discharge table for the proposed underground Stormtech chamber. Please indicate if a control structure is needed at the downstream end of the chamber to control the flows to the 2 and 5-year allowable storm flows. Update the servicing plan, if required.	Stage storage provided.	**Not Addressed.** Section 5.0 of the SWM report does not indicate if a control structure/measure is needed to control post-development flows. Please state which measure is proposed within section 5.0, if applicable. LSRCA staff could not locate the requested S/S/D table for associated with the flow control measure and the underground chamber. Please specify exactly where this information can be seen (i.e., on page xx of 81).	See stage storage for the water quantity stormtech chamber on **pg 50 of 87** in **Appendix B** of the SWM report.
E3.	SWM Report	Section 5.0	Page 5	**Water Quantity Control using Infiltration Measures (for the Rooftops)**: Please note that if a credit for infiltration is desired (for the rooftops) to address the water quantity criteria, it will be necessary to follow the requirements as laid out in Appendix B of the April 2022 LSRCA SWM Technical Guidelines. If the intent is not to obtain an infiltration credit to address the water quantity control criteria, please state such and indicate how and where it will be accounted for. Please keep in mind LSRCA SWM guideline April 2022, section 3.2.1 states "Infiltration measures may be considered for peak flow control credits, subject to the conditions as described in Appendix B." guidelines. Please provide all supporting information, documentation, findings, etc. to support the constraints / criteria outlined in Appendix B.	Infiltration and supporting documents updated to meet LSRCA criteria.	**Partially Addressed.** LSRCA staff is under the impression the SWM report no longer accounts for the volume provided within the infiltration chamber towards the required storage to address the water quantity control criteria. Please clarify. If it is counted towards achieving water quantity than provide a detailed matrix, within the text of the report, outlining how each item is addressed in Appendix B.	The chamber (Stormtech Chamber: SC-310) is not used for quantity control. It is only used to address water balance and volume control requirements.

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E4.	SWM Report	Appendix B	Page 24 of 56	**Infiltration Trench Sizing (for the Rooftops):** To achieve the water quantity control criteria using the proposed infiltration trench, the trench needs to be designed as per appendix B (100% of the design infiltration amount to a maximum of 25mm). Additionally, please omit the "required storage calculations" provided in appendix B (page 24 of 56) of the SWM report as they are not relevant.	Drawings and report updated.	**Partially Addressed.** LSRCA staff is under the impression that water quantity control is no longer accounted for in the infiltration trench. Please clarify.	The chamber is not used for quantity control. Please see response to comment above.
E5.	SWM Report	Appendix B		**a, b, c values:** Please provide an excerpt from the township of Uxbridge engineering standards showing the applicable a, b, c values used in Appendix B. Please keep in mind, the SWM report needs to be a stand-alone document.	Provided in the appendixes of the report.	**Not Addressed.** LSRCA staff could not locate the requested excerpt. Please specify exactly where to find this in the SWM report (i.e., on page xx out of 81).	Noted. Rainfall intensities are provided in **Appendix B** (pg 44 out of 87) of the SWM Report
E6.	SWM Report			**Composite Runoff Coefficients:** Please demonstrate that the composite runoff coefficients have been increased for the 25-, 50- and 100-year storm events as per the MTO Design Chart 1.07. Please revise all SWM calculations, as necessary.	Summary table of runoff coefficients is now provided with revisions per MTO design chart.	**Addressed.**	
E7.	SWM Report			**Water Quality:** Please provide supporting calculations demonstrating how section 3.3.1 of LSRCA SWM guidelines (April 2022) will be achieved.	Additional detail and calculations provided in report quality control section and appendices.	**Addressed.** Due to Bill 23, the Town is to ensure the proposed treatment train meets the MECP water quality criteria.	
E8.	SWM Report	Appendix B		**Phosphorus Reduction (Land Use):** The land use description used for the subject site's phosphorus removal calculations are low intensity development AND sod farm (on page 44 of 56). Please provide supporting documentation from the Hutchinson report titled "Phosphorus Budget Tool in support of Sustainable Development for the lake Simcoe Watershed", dated March 30, 2012 demonstrating / justifying the correct land uses represents the proposed development. Please update the phosphorus calculations, if required.	Phosphorus calculation updated with correct and justified land uses.	**Addressed.** Pre-development land use is shown as "low intensity development" and the post-development land use is "high intensity development".	

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E9.	SWM Report	Appendix B	Page 44 of 56	**Phosphorus Reduction (BMPs):** The BMP selected for the subject site's phosphorus removal calculations was perforated pipe infiltration / exfiltration system. This type of system is a 3rd pipe and does not represent the BMPs proposed (i.e. infiltration trench and underground infiltration chamber / Stormtech chamber). Please consult appendix E of LSRCA SWM guidelines (April 2022) which specifies supported phosphorus percentage removal for various mitigation measures. Please also note, LSRCA will reward 0.021kg/CB shield per year of phosphorus removal. Please check if the Stormtech chamber verification statement mentions the associated phosphorus removal percentage, which could be used in the calculations.	Calculations updated.	**Partially Addressed.** LSRCA agrees the infiltration chamber can be credited 60% P reduction (as shown in the calculations). Please provide supporting documentation that the Stormtech chamber isolator ROW will achieve a P reduction of 79%. Please separate out the CB shields in the calculations as they are rewarded 0.021kg/CB shield per year. Revise the calculations and LSPOP offsetting fee accordingly.	The CB shield removal of 0.021kg/CB was calculated separately. The total <u>composite</u> removal efficiency of the CB shield and isolator row was calculated as 79%. The 79% is not referencing the isolator row alone. The isolator row is only credited 60% in the calculation.
E9a.						**CB Shields** Please indicate which drawing shows or identifies where the CB shields are to be installed and how many.	The CB shield is to be placed on all proposed inlet structures on site. A typical note is provided on the servicing plan (**Drawing C-2**) in **Appendix E (pg 81 of 87)**. There is a total of 6 inlet structures on site.
E10.	SWM Report	Appendix B	Page 45 of 56	**LSPOP Compensation:** Once the two comments above (E8. And E9.), pertaining to land use and phosphorus reduction, are addressed the recharge compensation form will need to be revised accordingly.	Noted and updated.	**Partially Addressed.** Please note, this criterion has recently been altered due to the passing of Bill 23. To achieve 4.8-DP(e) in the Lake Simcoe Protection Plan; please demonstrate how the phosphorus loading shall be minimized, by demonstrating	Additional measures have been evaluated. No additional measures can be introduced due to site restrictions. The phosphorous offsetting was calculated as **$6,072.63** to compensate for the excess phosphorous that

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						the post development loading is at or below the pre-development loading (i.e., post to pre). Please revisit the phosphorus budget and consider additional mitigation measures to achieve post to pre phosphorus loading rates. Additionally, the phosphorus offsetting policy has also been recently updated. "Any remaining stormwater phosphorus load that cannot be controlled to meet pre-development phosphorus loading levels would trigger the need for an offset to achieve pre-development phosphorus loading levels". Please reference the new policy on our website and revise the report and calculations accordingly.	cannot be removed to match existing conditions. See **pg 9 and 10** of SWM Report for summary of results. See calculations provided in **Appendix B, pg 51 of 87.**
E11.	SWM Report		Page 5 and 7	**Volume Control:** Please revise the text of the report as volume control requirement for the site is not as stated on page 7 of the SWM report. The requirement is not the 5mm retention with best efforts for 25mm. As per section 3.2.4 of LSRCA SWM guidelines, "new, nonlinear developments, on sites without restrictions, shall capture and retain/treat on site, the post-construction direct runoff volume from 25mm of rainfall from all impervious surfaces". Please revise the text of the report on page 7 (section 5.0) and on page 5 (section 4.0).	Report volume control section has been revised.	**Addressed.** Section 6.0 outlines the feasible volume control target for the site is 18.75m^3. This equals roughly 9.4mm of rainfall, falling somewhere between alternative #1 and alternative #2 (due to site constraints).	

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E12.	SWM Report			**Volume Control:** Please provide supporting calculations justifying that 0.18ha of the site is impervious. Additional, provide calculations showing the available storage in the infiltration Stormtech underground chamber used to achieve the volume control target. Ideally, there should be an entire section dedicated only to the volume control discussion within the SWM report.	Report updated and additional information added to drawings for clarification.	**Partially Addressed.** LSRCA could not locate the requested calculations showing the available storage in the underground Stormtech infiltration chamber used to achieve the volume control target. Please provide a design detail of the infiltration chamber (i.e., dimensions, elevations, media layers, depth to seasonal high groundwater, etc.). Please ensure to address LSRCA's hydrogeologist comments.	For details on Chamber (SC-310), refer to specifications and stage storage provided on **pg 50 of 87** of the SWM report located in **Appendix B** of the SWM report Please see detail provided in **Drawing C-2 (Servicing Plan)** provided in **Appendix E (pg 81 of 87)** of the SWM report. Details of dimensions are also provided in sizing documents provided on **pg 45-49** in the SWM report in **Appendix B**
E13.	SWM Report			**Volume Control:** As per *LSRCA Technical Guidelines for Stormwater Management Submission, April 2022* section 3.2.4 for new, nonlinear developments, on sites without restrictions, shall capture and retain/treat on site, the post-construction direct runoff volume from 25mm of rainfall from all impervious surfaces. If this criterion can not be achieved, due to site constraints or restrictions, then the various alternatives listed under section 3.2.6 must be evaluated. If the full compliance is not possible due to any of the factors listed at the end of Section 3.2.6, the proponent must document the reason. Submit all supporting information for the selected alternative(s).	Noted. Report updated per LSRCA criteria.	**Addressed.** Section 6.0 outlines the feasible volume control target for the site is 18.75m^3. This equals roughly 9.4mm of rainfall, falling somewhere between alternative #1 and alternative #2 (due to site constraints).	
E14.	SWM Report			**Stormtech underground chamber:** Please confirm the Stormtech underground chamber will be an infiltration facility. Please provide a supporting drawing, with dimensions and elevations and/ or cross-section, showing where the 12m^3 of storage will be provided to address volume control within the Stormtech chamber.	The 25mm event from the rooftops will be infiltrated into SC-310 chambers. The MC-3500 chambers will not provide infiltration.	**Partially Addressed.** Thank-you for the clarification between the 2 underground chambers.	Please see detail provided in **Drawing C-2 (Servicing Plan)** provided in **Appendix E (pg 81 of 87)** of the SWM report. Details of dimensions are also

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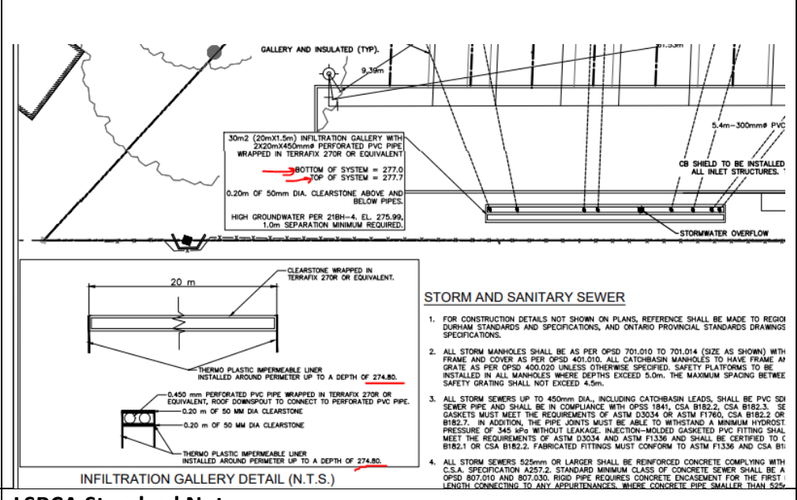
						Please provide a response to the second half of the original comment.	provided in sizing documents provided on **pg 45-50** of the SWM Report in **Appendix B**
E15.	Drawing C-2	Servicing Plan		**Drawing C-2 (Servicing Plan):** Please ensure the proposed infiltration gallery follows the general specifications / design outlined on the Sustainable Technologies Elevuation Program website, the MOE 2003 manual or the Low Impact Development Stormwater Management Planning and Design Guide, 2010. There should be storage below the perforated PVC pipes, as volume control is only acounted for in the storage volume below the pipes. Please adjust the infiltation gallery design detail accordinly. Note, based on the current design, the storage depth below the pipes is 0.2m. Additionally, the elevations specified on the drawing don't match those shown in the design detail. Please correct. 	Noted.	**Not Addressed.** LSRCA could not locate the infiltration gallery design detail. Please provide.	Please see detail provided in **Drawing C-2 (Servicing Plan)** provided in **Appendix E (pg 81 of 87)** of the SWM report. Details of dimensions are also provided in sizing documents provided on **pg 45-50** in **Appendix B**
E16.	Drawing C-2	Erosion and Sediment Control Plan		**LSRCA Standard Notes:** Please include the LSRCA standard notes detail (LSRCA-ESC-1) on the applicable ESC drawing.	Added to drawing.	**Addressed.**	
E17.				**Operations and Maintenance Manual:** Please include an operations and maintenance manual for all the SWM	Stormtech inspection and maintenance criteria provided in appendices.	**Not Addressed.**	Please see OMM documents provided in

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				facilities.		LSRCA could not locate the operations and maintenance manuals for the underground storage chambers and CB shields.	**Appendix B, pg 58 of 87** for Stormtech and **pg 62 of 87** for CB shield located in the SWM report.
E18.				**Permit Requirements:** Please note that permit from LSRCA will be required under Ontario Regulation 176/06. For further information please refer to our guidelines posted at: *https://www.lsrca.on.ca/Shared%20Documents/permits/watershed-development-guidelines.pdf?pdf=Watershed-Development-Guidelines* Any work to be completed on the adjacent properties (e.g. Enbridge Easement) in support of the proposed development will require landowner authorization (e.g. construction access) and or a separate permit.	Noted.	**No further action required.**	
E19.				**General Info**: Please ensure that a complete response to each comment is provided with the next submission outlining how each comment has been addressed and where in the text of the report / drawings the comment has been addressed.	Noted.	**Remains Valid.**	
E20.				**General Info**: Please note that additional information has been requested as noted above for LSRCA to further review the application. Once this information has been provided, additional comments may be forthcoming.	Noted.	**Remains Valid.**	

Submission Resubmission Requirements:

1. A completed response matrix including detailed response outlining how each of the comments above have been addressed with reference to applicable reports and drawings.
2. The response matrix is to also include a summary of any additional changes to the design and/or analysis. This includes changes to reports, drawings, details, facility design and changes not identified in the detailed response to comments.
3. Reports and engineering drawings and details are to be signed and sealed by a Professional Engineer.
4. All submissions and reports are to include a digital copy of applicable models.
5. All submission and reports are to include applicable technical components which achieve the minimum requirements outlined in the Lake Simcoe Region Conservation Authority Technical Guidelines for Stormwater Management Submission, April 2022.

Lake Simcoe Region Conservation Authority Technical Review – Engineering

Important Notes and References:

1. Please contact the Lake Simcoe Region Conservation Authority (LSRCA) to scope any required Environmental Impact Study or Natural Heritage Evaluation.
2. The stormwater management submission is required to be prepared in accordance with LSRCA Technical Guidelines for Stormwater Management Submissions. Technical-Guidelines-for-Stormwater-Management-Submissions April 2022
3. Submissions are to be in accordance with the LSRCA Watershed Development Guidelines. Ontario Regulation 179/06 Implementation Guidelines
4. The hydrogeological analysis is required to be prepared in accordance with "Hydrological Assessment Submissions: Conservation Authority" Guidelines for Development Applications." Hydrogeological Guidelines - Hydrological Assessment 2013
5. Where the LSPOP applies, submissions are to be in accordance with the LSPOP found here: Watershed Phosphorus Offsetting Policy May 2023
6. Low Impact Development Treatment Training tool can be found here: LID Treatment Training Tool April 2018
7. Lake Simcoe Region Conservation Authority Review Fees can be found here: Planning Application and Permit-fees January 2022.
8. Please note that the review fees cover two rounds of reviews; third and subsequent submissions will be subject to additional fees per the fee schedule.