

**Functional Servicing and Stormwater Management Report (FSSR) - 3<sup>rd</sup> Sub  
PARCEL 8 - RESIDENTIAL SUBDIVISION, CITY FILE NO:  
TACCGATE Developments Inc.**

Comment #	City Comments (June 15th, 2022)	Comment Responses - May 9, 2023
<b>Development Services</b>		
<b>General Comments</b>		
1	Comment 2 from our previous letter dated March 13, 2020 has not been addressed. As per the attached Development Services User Fee Schedule, a fee of \$7,500.00, for the review of a new study, is required for the original submission of the FSSR.	The review fee will be couriered directly by TACCGATE.
2	Comment 5 from our previous letter dated March 13, 2020 has not been addressed. The City requires a Traffic Sensitivity Analysis, which shall include: a Traffic Impact Study, an Intersection Control Plan, a Traffic Signal Implementation Program, a Traffic Management Implementation Plan, a Trantation Planning Exercise, a Transportation Demand Management Plan and Parking Management Plan as per Condition 67 from the Conditions of Draft Approval.	Please refer to the transporation package in the submission link for the requested information.
3	Comment 16 from our previous letter dated March 13, 2020 has not been addressed. Provide written confirmation from a Traffic Engineer that the configuration of the intersections on Golden Locust Avenue, Doverwood Avenue and Eveningstar Boulevard, where there is a transition from a 20m ROW to a 17m ROW, is acceptable.	Please refer to the transporation package in the submission link for the requested information.
<b>Functional Servicing and Stormwater Management Report (FSSR)</b>		
4	Update the report as required to reflect the current owner.	FSSR report has been revised and addressed to TACCGATE Developments Inc.
<b>Functional Grading Plan (GR-01 to GR-04)</b>		
5	Ensure all comments are incorporated onto the updated functional grading plan.	All comments have been incorporated into the updated functional grading plans.
<b>Seaton R.O.W. Details (1201)</b>		
6	Ensure all comments are incorporated onto the updated Seaton R.O.W. details.	Comments noted to be addressed for FSSR resubmission will be incorporated by GEI. FSSR resubmission to have updated ROW details.
<b>Functional Road Profile (P01 to P04)</b>		
7	Ensure all comments are incorporated onto the updated functional road profile.	Comments noted to be addressed for FSSR resubmission will be incorporated by GEI. FSSR resubmission to have updated functional road profiles.
<b>Functional Overland Conveyance Capacity Plan (OCCP01)</b>		
8	Ensure all comments are incorporated onto the updated functional overland conveyance capacity plan.	An updated overland conveyance capacity plan will be included in the submission package - GEI
<b>Functional Servicing Plan (SERV-01 to SERV-02)</b>		
9	The legend shall differentiate between proposed City storm sewers and proposed Regional storm sewers.	The legend has been revised to differentiate between the proposed City storm sewers and proposed Regional storm sewers
<b>Water Resources Comments</b>		
The following comments pertain to the functional design which must be addressed prior to proceeding with detailed design.		
1	The water balance criteria has not been addressed and deferring the design to the detailed design stage, as proposed in the Comment Response Matrix and Section 5.2.1 of the FSSR, is not acceptable. The proponent must prepare a functional design demonstrating how the water balance criteria shall be achieved. Furthermore, the LID strategy identified throughout Sections 4.3.5 and 5.2.1 of the FSSR and the Draft Hydrogeological Investigation is not consistent. Revise the FSSR along with supporting figures, plans, details, and calculations for consistency.	The FSSR has been revised to include conceptual level calculations to demonstrate how the water balance criteria will be met in the proposed design. The LID design, and the Feature Based Water Balance design have been coordinated with the Hydrogeologist and an updated FSSR and Hydrogeological Investigation report have been enclosed in this submission pacakge.
2	Submit an addendum to the FSSR, including figures, plans, details, and supporting calculations, addressing the above-noted comment.	The FSSR has been updated to include revised figures, plans, details and conceptual level calculations in support of the proposed LID design.
3	Submit a sealed, signed, and dated Hydrogeological Investigation in support of the above-noted Addendum/FSSR as opposed to the submitted "Draft" version.	GEI has been retained to provide an updated Hydrogeological Investigation report for this site. The final copy of this report has been enclosed in the submission pacakge.

Considerations for Detailed Design		
General		
4	Please be advised that detailed design information, such as outlet control structures, detailed grading, specifications, standard details, etc., was not reviewed as part of the functional design and shall be deferred to the detailed design stage.	Acknowledged.
5	The FSSR and Geotechnical Reports provided in Appendix A indicate that an impermeable liner is not required for SWMF#24. As outlined in the City's comment letter for the Neighbourhood Functional Servicing Report for Seaton Neighbourhood (NFSSR) 16 (September 30, 2013), there are serious concerns with the known presence of a high groundwater table within the development area and SWMF blocks. Discussion regarding the need for pond liners should be broadened to include consideration of the implications of not having a liner on operations and maintenance - specifically, if there is high groundwater, this will make pond cleanouts more difficult. The City's preference at this stage would be that a liner is required wherever the groundwater table is above the pond bottom. The design shall be subject to hydrogeological/geotechnical peer review at the proponent's expense.	Noted. Requirements for an impermeable liner to be finalized during detailed design.
6	Quality controls for the Park Block, specifically the City's Recreation Complex and associated parking area, must be provided via SWMF#24 as opposed to installing two separate OGS units as proposed in Section 6.2.2 of the SWM Report. Revise the design accordingly.	Quality Controls for the Park Block have been addressed in the memo dated August 11, 2022. Measures such as enhanced grass swale + an OGS sized for any parking area within the recreation complete to achieve 80% TSS Removal.
7	The proposed outfall must be adequately protected from erosive forces to prevent scouring and undermining. The design of the outfall must incorporate flow dispersion and erosion protection via control measures such as a plunge pool.	Plunge pool will be appropriately sized (GEI). Outfall channel to be finalized during detailed design stage.
8	Please be advised that rip-rap shall not be accepted for erosion protection at spillways and overland flow routes. Please revise to match City Standards i.e., topsoil and sod over a cellular confinement system.	Terrafox flexamat will be used along spillways and overland flow routes. Native seeding mixes proposed (will be confirmed by a Landscape Architect)
9	All overland flow routes must be clearly defined and detailed. Provide cross-sections, curb cut lengths, dimensions, calculations, etc., to support the design.	Noted. Will be provided during detailed design.
10	The City requires easements over the entire length of the natural channel, access roads, outfalls, LIDs and all other infrastructure located outside of the development limits on provincial lands.	Noted. Will be provided during detailed design. Easement locations to be coordinated with RPE
11	Please be advised, in accordance with the City's SWM Design Guidelines, a PCSWMM model shall be required at detailed design for the Dual Drainage Analysis. The subdivision model shall be based off of the Alexander Knox Road Assignment 7B model.	PCSWMM model will be submitted during the detailed design stage
12	For SWMF and Grading plans, the existing contours must be shown and labeled on the appropriate drawings.	Existing contours will be shown - GEI
13	Label all side slopes.	All side slopes have been labelled in the figures.
SWMF General		
14	The access road alignment to the bottom of the forebay shall be straight. Eliminate the bend.	The access road alignment along the forebay has been modified as requested.
15	The minimum diameter for control structures shall be 2400mm in accordance with City Standard P-1001.	The proposed control structure has been updated to 2400mm.
16	The plans must show the servicing and grading information adjacent to the SWMFs.	The SWMF drawings have been revised to show servicing and grading information.
17	The plans must include a SWMF Operating Characteristics table matching the calculations in the SWM Report.	The proposed SWMF Operating Characteristics have been included in the drawings.
18	Show and label the groundwater levels on all details, sections, and profiles related to the SWMFs or LIDs.	
19	The SWMF Design Calculations have been scattered between Appendix C-0 and C-2 of the FSSR. Review and move to single location with an appropriately titled Appendix.	SWMF design calculations are consolidated into Appendix C-0
SWMF 24		
20	The SWMF, access road, and outfall channel shall be fenced as per Section 5.4.10 of the City's SWM Design Guidelines. Special considerations along overland flow routes and emergency spillways require modified details, cross-sections, and calculations.	The requested details will be provided during detailed design stage.
21	The maximum allowable depth from the 100-YR HWL (177.02) to the pond bottom (172.00) exceeds the 4.5m criteria identified in Table 7 of the SWM Design Guidelines. Due to site specific constraints, the City shall allow a 5.00m maximum depth. Revise the design accordingly.	100-YR HWL of SWMF24 has been revised to 177.00m.
22	Revise the permanent pool such that the 3.0m thermal mitigation deep pool is localized to the southern half of the main cell in order to reduce the amount of permanent pool volume required to be drained during maintenance operations. Maintain the forebay bottom elevation in the northern half of the main cell.	SWMF 24 Pond grading has been revised with the 3.0m deep pool localized to the southern half of the pond.
23	Interim SMWF 24 has been reviewed/approved under FB10-2020 and shall only be referenced on the ESC plans. Otherwise all references on the detailed design plans and SWM Report must be omitted.	SWM Pond drawings do not reference the interim SWMF WL

24	Remove all references to interim high water levels (HWL) shown on the plan.	References to the interim HWL has been removed on the plan.
25	Relocate the forebay dewatering sump next to the access road for ease of use/access.	The forebay dewatering sump has been relocated.
26	Although the outfall has been relocated further downstream the channel, as previously requested/commented on, the proposed design still does not drain the SWMF by gravity during maintenance operations. Revise the design accordingly.	GEI to finalize outlet structure design during detailed design
27	Revise the location of the outfall such that it is not blocking the emergency spillway channel.	GEI to revise headwall location outside of the spillway
28	In accordance with the SWM Design Guidelines and as shown on P-1000, the emergency spillway crest shall be set at the 100-YR HWL.	The emergency spillway crest are set at the 100-YR HWL for SWMF23 and SWMF24
29	Provide emergency spillway channel conveyance capacity calculations and cross-sections.	Emergency spillway calculations are provided in Appendix C-0.
30	The current 1:750 scale and orientation of the plan is unacceptable. Re-orient the plan i.e., rotate roughly 90 degrees, to fit within a 1:500 viewport.	The SWMF drawings have been re-oriented and revised to have a scale of 1:500
31	Provide a cross-section through the maximum berm height.	Additional sections along the SWMF will be provided during the detailed design stage.
<b>SWMF 23</b>		
32	Widen the emergency spillway to provide 0.20m maximum flow depth in accordance with the City Standard P-1000.	Emergency spillway maximum flow depth does not exceed 0.20m for SWMF23
33	The dry pond shall not be fenced.	Noted. Fencing has been removed on all GEI Plans
34	Based on the Orifice Control Calculations provided in Appendix C, the Burkholder Drive enhanced swale appears oversized. According to the Comment Response Matrix, "the swale cannot be regraded due to the depth of the storm sewer", which is acknowledged, however this does not address the excessive freeboard and cut on the east side. Furthermore, the southern portion of the swale, beyond the 100-YR HWL shall be designed for flow conveyance. Revise the design to optimize sizing and provide a freeboard of 0.3m max. above the 100-YR HWL.	Burkholder swale design and calcs deferred to a different project and wont be addressed in this FSSR.
35	The proposed outfall and discharge points off Burkholder Drive must be adequately protected from erosive forces to prevent scouring and undermining. The design of the outfall/outlets must incorporate flow dispersion and erosion protection via control measures. Provide supporting calculations.	Burkholder swale design and calcs deferred to a different project and wont be addressed in this FSSR.
36	Include the active length of swale storage, which varies with water level, in the stage-storage-discharge table.	Burkholder swale design and calcs deferred to a different project and wont be addressed in this FSSR.
37	Provide details of how the swale volume was calculated in the stage-storage-discharge table.	Burkholder swale design and calcs deferred to a different project and wont be addressed in this FSSR.
38	Provide a Plan & Profile drawing of the Burkholder Drive swale extending through the outfall/channel up to the creek.	Burkholder swale design and calcs deferred to a different project and wont be addressed in this FSSR.
39	Show and label the HWLs in plan view.	Burkholder swale design and calcs deferred to a different project and wont be addressed in this FSSR.
40	Provide cross sections along the width of the swale at each storm sewer discharge point encompassing Burkholder Drive and at least 10m of existing ground beyond the east limit of the swale. HWLs must be shown.	Burkholder swale design and calcs deferred to a different project and wont be addressed in this FSSR.
41	The plan must include a SWMF Operating Characteristics table matching the calculations in the SWM Report.	Burkholder swale design and calcs deferred to a different project and wont be addressed in this FSSR.
42	Provide details and calculations for the emergency spillway.	Burkholder swale design and calcs deferred to a different project and wont be addressed in this FSSR.
43	The minimum diameter for control structures shall be 2400mm in accordance with City Standard P-1001.	Burkholder swale design and calcs deferred to a different project and wont be addressed in this FSSR.
<b>SWM Report Calculations</b>		
44	The imperviousness calculations provided in Appendix C-0 must be accompanied by a drawn-to-scale, dimensioned figure for each lot/zoning type.	Detailed imperviousness calculations will be provided in the detailed design stage.
45	Appendix C includes imperviousness values generated from Table 9 of the City's SWM Design Guidelines using the Total Imperviousness Conversion Equation, which is not acceptable, as these runoff coefficients are intended to be used with the Rational Method for storm sewer sizing. All modeling i.e., VO and PCSWMM, must use values based on detailed imperviousness calculations.	Imperviousness values will be updated in the detailed design stage.
46	The TIMP estimated for Open Space Block and Parks has been underestimated. The City anticipates impervious surfaces such as walkways, shade structures, playgrounds, etc. and the imperviousness values must be revised to reflect this. Update the calculations for catchment A-23 provided in Appendix C-0 accordingly.	TIMP of park space within catchment A-23 has been updated to 63%.
47	Stage-Storage-Discharge and Stage-Volume curves provided in the Appendices shall be at 0.05m increments	Stage-Storage-Discharge curves have been updated to be at 0.05m increments.
<b>Capital Projects</b>		
<b>General Comments</b>		
1	No comments.	Acknowledged.
<b>Traffic Comments</b>		
2	Show the proposed road right of ways, the pavement widths, and curb radii of the proposed roads on the plans.	All FSSR Figures show these details - GEI Drafting

3	Provide a proposed traffic signage plan including proposed/existing signals, stop signs, parking and all the required signage.	A Pavement Marking and signage plan will be provided during detailed design stage									
4	As per the City of Pickering Official Plan, Peter Matthews Drive is a Type B Arterial Road. Confirm if the distance from Ganet Mews to Peter Matthews Drive is as per the Transportation Association of Canada (TAC) Guidelines. The left turning vehicles into Ganet Mews may have some issues and create a back up of traffic on Peter Matthews Drive.	Please refer to the transportation package in the submission link for the requested information.									
5	Confirm if the distance from Advent Mews to Alexander Knox Road is as per the TAC Guidelines.	Please refer to the transportation package in the submission link for the requested information.									
6	Confirm if the sight distance provided at the proposed intersections is as per the TAC Guidelines and there are no sightline issues.	Please refer to the transportation package in the submission link for the requested information.									
<b>Landscape and Parks Development Comments</b>											
1	No comments.										
<b>Development Services</b>											
<b>General Comments</b>											
1	The Environmental Noise Assessment currently on file with the City is dated April 2013. The report is to be updated to reflect the most current design.	Please refer to the submission package for the updated noise report.									
2	For roof leaders connecting to RDC sewers, separate RDC service connections are required in addition to the typical storm service connections. A typical service connection detail must be provided at the detailed design stage.	Noted - additional details for the service connections will be provided during detailed design stage.									
3	Fencing will be required for blocks that are adjacent to or backing onto SWM Blocks, Village Greens, Park Block, Walkway Block and Trail Heads.	Noted - fencing plan will be prepared as part of the detailed design stage.									
4	Please note that due to the large amounts of fill being proposed to match boundary conditions, engineered fill certification from an on-site Geotechnical Engineer will be required prior to the City issuing Building Permits.	Engineering fill certification will be provided by a qualified geotechnical engineer at the time of construction.									
5	The minimum K values have been changed in the revised Engineering Design Criteria. The following table summarizes the minimum K values that are to be used: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>K Values</th> <th>Collector (Residential)</th> <th>Local (Residential)</th> </tr> </thead> <tbody> <tr> <td>Minimum K<sub>sag</sub></td> <td>9</td> <td>6</td> </tr> <tr> <td>Minimum K<sub>crest</sub></td> <td>10</td> <td>7</td> </tr> </tbody> </table>	K Values	Collector (Residential)	Local (Residential)	Minimum K <sub>sag</sub>	9	6	Minimum K <sub>crest</sub>	10	7	The proposed road design has been updated to meet the City criteria.
K Values	Collector (Residential)	Local (Residential)									
Minimum K <sub>sag</sub>	9	6									
Minimum K <sub>crest</sub>	10	7									
6	All profile grade changes greater than or equal to 1.0% shall be designed with vertical curves as per the geometric design table provided in the updated Engineering Design Criteria.	The proposed road design has been updated to meet the City criteria.									
7	The double catch basins at Advent Mews and Golden Locust Avenue do not connect to a storm sewer. Verify if a double catch basin is necessary.	All relevant drawings have been updated to show CB leads connected to the storm sewer									
8	It appears some double catch basins may not be necessary. One case is the catch basins, east of the Doverwood Avenue and Golden Locust Avenue intersection. The use of two double catch basins at an intersection such as Coral Trail and Evening Star Boulevard, may not be necessary.	Catch basins provided have been optimized, and will be refined further during detailed design stage.									
9	Permission from Infrastructure Ontario (IO) will be required to construct the pond, infiltration trenches, access road and outfall from the pond within the NHS. In addition, approvals from Toronto & Region Conservation Authority (TRCA) and the Ministry of Natural Resources and Forestry (MNR) will be required.	Noted - Concurrent coordination with all approval agencies are ongoing and all required clearance will be obtained prior to commencement of works.									
10	Permission from IO will also be required for all offsite grading. In addition, approvals from TRCA and MNR will be required.	Noted - Concurrent coordination with all approval agencies are ongoing and all required clearance will be obtained prior to commencement of works.									