UPPER THAMES RIVER CONSERVATION AUTHORITY

Thames Canadian Heritage River

"Inspiring a Healthy Environment"

Stormwater Management Checklist

The following checklist has been compiled by the Upper Thames River Conservation Authority (UTRCA) to assist applicants in the preparation of technical studies needed to form part of a complete application. This checklist is required to be reviewed by UTRCA staff prior to preparation or submission of this study.

Internal Technical Review Team

Date Prepared: _____

UTRCA File Handler: _____

UTRCA Technical Reviewed: _____

Applicant Information (signed Landowner Authorization Form may be required)

Landowner: _____ Email: _____

Applicant: _____ Email: _____

Consultant: _____ Email: _____

Lands Subject To Application

Address: _____ Municipality: _____

Lot: _____ Concession: _____ Property Size: _____

Proposed Project Works: _____

Important Dates

Scoping Meeting: _____ Site Visit (if required): _____

Checklist

Report Introduction

- ☐ 1. Objective(s): purpose of the report and description of the proposed development
- ☐ 2. Location of Subject Lands: municipal address and/or legal description
- ☐ 3. Physical Environment: description of soils and geology, surface water and drainage, and groundwater conditions
- ☐ 4. Regulated Features: describe any natural hazards present on the subject or adjacent lands (floodplain, watercourse(s), erosion, valleylands, and wetlands)
- ☐ 5. Description of existing and proposed conditions
- ☐ 6. Description of existing and proposed drainage pattern, including external drainage areas (if any)
- ☐ 7. Referenced documentation: description of referenced background studies, reports, documents, Environmental Assessments (EA), watershed/sub-watershed studies, etc.
- ☐ 8. Professional Engineering Certification: report and all engineered drawings to be signed, sealed and dated by a qualified Professional Engineer of Ontario
- ☐ 9. Drinking Water Source Protection: As required by the Consolidated Linear Infrastructure – Environmental Compliance Approval (i.e., CLI-ECA) under Schedule E Section 8.2.1, list any vulnerable areas as per the *Clean Water Act, 2006* where works are within any of the following: IPZ1, IPZ2, WHPA or HVA

Report Design Criteria

- ☐ 10. Minor and Major System Conveyance: designed to safely convey stormwater flows from minor and major storm events to a designated outlet, without negatively impacting adjacent lands or receiving watercourse/feature, and outlining capacity of receiving stormwater infrastructure
- ☐ 11. Quantity Control: post-development peak flows must not exceed the pre-development peak flows for all design storms up to and including the 2-, 5-, 10-, 25-, 50-, 100-, and 250-year events. Provide pre- and post-development flows formatted in a table with the corresponding design storms
- ☐ 12. Quality Control: enhanced level treatment (80% long term average Total Suspended Solids removal) is required, as per Ministry of Environment, Conservation, and Parks's (MECP) technical guidelines, unless identified by referenced documentation above
- ☐ 13. Design Calculations: supporting calculations for the design and sizing of proposed storm water management (SWM) infrastructure/facility, including runoff coefficients, imperviousness, Intensity-Duration-Frequency parameters, type of design storm, Antecedent Moisture Conditions, time of concentration, time to peak, Curve Number, Initial Abstration, etc.

- ☐ 14. Stormwater Management Computer Modeling: detailed hydrologic and/or hydraulic computer modeling analysis including routing schematic under the pre- and post-development conditions, and input/output details
- ☐ 15. Feature-Based Water Balance:
    a. Estimation of the pre- and post-development water balance components (precipitation, infiltration, runoff, evapotranspiration), infiltration factor, surplus water, and catchment areas to feature(s); and,
    b. Ensure annual and monthly calculations are provided to maintain all components of water interacting with the feature(s)
- ☐ 16. Low Impact Development (LID):
    a. Consideration of LID measures to meet the requirement of water balance estimates; and,
    b. Information on design with cross-sections, location and other relevant details
- ☐ 17. Operations and Maintenance: Description of provisions for proper operation and routine/non-routine maintenance to ensure the SWM infrastructure can perform as designed
- ☐ 18. Connection to Other Technical Reports: ensure that the details provided are cross-referenced for consistency across other technical reports that have been identified as a requirement for a complete application (Hydrogeological Assessment, Environmental Impact Study, etc.)

Figures/Drawings

- ☐ 19. Site/Concept Plan: general layout of subject lands and proposed development, with delineation of regulated features and associated setbacks
- ☐ 20. Pre-development Catchment Drawing(s): existing catchment areas, including externals areas, and IDs supported by contour information
- ☐ 21. Post-Development Catchment Drawing(s): proposed catchment areas, including external areas, and IDs supported by grading information and minor/major flow routes
- ☐ 22. Servicing Plan: general configuration of storm sewer network, with flow direction
- ☐ 23. SWM Facility Design Details: proposed SWM facility location and detailed drawings of cross-sections showing inlet and outlet details, 100-year and 250-year water surface elevations, forebay design including settling length, stage-discharge curve with storm events, inlet and outlet configuration, energy dissipation (if any), etc.
- ☐ 24. Riprap sizing, if any
- ☐ 25. Hydrographs at the pond/site outlet for all the design storms up to and including the 2-, 5-, 10-, 25-, 50-, 100-, and 250-year events, and the 25 mm storm
- ☐ 26. Erosion and Sediment Control (ESC): details of proposed ESC measures including notes, standards, inspection, monitoring, reporting, staging, etc.
- ☐ 27. Landscape Plan: proposed vegetation and landscaping adjacent to SWM ponds to aid in reducing sedimentation and erosion

Other Comments

Disclosure

Please note that each technical submission is different, and local characteristics of each site may change the scope of work. This checklist is intended to ensure that some of the more critical information required for the preparation of a SWM report has been considered. Please refer to the UTRCA's Stormwater Management Submission Guidelines (2024) for additional details on these requirements.

The purpose of this checklist is to outline the requirements specific to the Conservation Authority. A separate, standalone report is not required to be prepared for the Conservation Authority versus other agencies. This checklist does not preclude the applicant/author from including requirements of other agencies within the report.

Please ensure this form is enclosed as an appendix to the submitted report, and/or provided to UTRCA upon submission of a planning and/or permit application. As this application is still in the pre-consultation stage, the UTRCA requirements are subject to change pending further consultation and revisions to the proposed development. If any omissions are noted to these basic items, the submission will **not** be deemed complete, and will be returned to the applicant/consultant for revisions.