Lower Trent Region

Conservation Authority

Wetland Offsetting

Policy Document

Approved by

Lower Trent Region Conservation Authority

Board of Directors

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Lower Trent Conservation's Wetland Offsetting Policy

Contents

1.0 Introduction

Wetlands found in the Lower Trent Conservation (LTC) watershed region include *marshes*, *swamps*, *fens* and *bogs*. These vital productive habitats maintain local water sources by capturing rain, snow melt and floodwater while recharging both *surface water* and *groundwater* supplies. During storms, wetlands store water preventing extreme flooding and soil erosion, while maintaining stream flows during drought conditions. Wetlands provide many other important benefits, including critical climate adaptation resiliency across the landscape.

Under the Conservation Authorities Act, "wetland" means land that,

(a) is seasonally or permanently covered by shallow water or has a water table close to or at its surface,

(b) directly contributes to the hydrological function of a watershed through connection with a surface watercourse,

(c) has hydric soils, the formation of which has been caused by the presence of abundant water, and

(d) has vegetation dominated by hydrophytic plants or water tolerant plants, the dominance of which has been favoured by the presence of abundant water,

but does not include periodically soaked or wet land that is used for agricultural purposes and no longer exhibits a wetland characteristic referred to in clause (c) or (d).

Wetlands are regulated by LTC under the *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 163/06).

Wetlands are essential to a prosperous watershed and must be sustained across an interconnected landscape. Due to major historic losses of wetlands in the watershed, any new proposed losses must be offset with a net gain in wetland habitat. Wetland *offsetting* involves the intentional restoration or creation of new wetlands to counterbalance negative ecological and hydrological impacts of wetland destruction, which cannot be avoided under limited, extraordinary cases. *Offsetting* can only be responsibly considered when the requirements for avoidance, minimization and mitigation of negative impacts from *development* cannot be met. The hierarchy of wetland protection includes the following immutable steps:

1. Avoidance - Prevent impacts from occurring by changing project location, scope, or timing of activities.
2. Minimization - Reduce the duration, intensity and/or extent of impacts that cannot be avoided.
3. Mitigation - Rehabilitate or restore features or functions that have been exposed to impacts that could not be avoided or minimized.

4. Offsetting - Create or restore new habitat to compensate for loss that could not be avoided, minimized or mitigated.

There are many uncertainties associated with attempting to replace complex ecosystems like wetlands, which is why *offsetting* must be avoided whenever possible, in favour of protecting and restoring existing wetland habitats. However, if wetland destruction is unavoidable, the goal of wetland *offsetting* should always be the net increase in wetland cover and *wetland function* across the Lower Trent watershed region.

In February 2014, the LTC Board of Directors, passed the resolution:

"That the staff develop draft policies within the new Policies and Procedures Manual for O. Reg. 163/06 for consideration of the Board to increase flexibility regarding development in the vicinity of small wetlands and allow for offsetting measures."

More recently, in April 2021, the LTC Board of Directors, passed the resolution (2021-04-08 RES:G50/21):

"THAT staff investigate the development of an offsetting program to compensate for loss of ecological values due to the imposition of a Ministerial Zoning Order (MZO); and
THAT staff develop a fee schedule and amend hearing guidelines for the management of MZO files be approved."

This policy document draws on the existing ecological offsetting policies developed by other Conservation Authorities including Credit Valley Conservation (2020), Toronto and Region Conservation Authority, Lake Simcoe Region Conservation Authority (2021), and Nottawasaga Valley Conservation Authority (2021). This document also follows 17 of the 20 recommendations made in the ecological *offsetting* framework developed by Wang et al. (2022) for Cataraqui Region Conservation Authority. The three recommendations that have not yet been observed in developing this policy are related to engagement of municipalities, indigenous communities and the public.

2.0 Requirements

Proponents of *development* projects must engage in a consultation process with LTC staff to determine if wetland *offsetting* may be a consideration for a specific proposal. The hierarchy of wetland protection must be followed in the consultation process, with the ultimate goal of avoiding wetland *offsetting*, except for limited predefined circumstances described below.

2.1 Offsetting Eligibility

Wetland offsetting can only be applied to a restricted number of scenarios including:

1. Federal, provincial or municipal (public) infrastructure projects.
2. Minister's Zoning Order (Section 28(1) of the Conservation Authorities Act, where a Zoning Order has been made by the Minister of Municipal Affairs and Housing under Section 47 of the Planning Act); and subsequent provincial orders that require the issuance of permits in contravention of Section 28 of the Conservation Authorities Act.
3. Destruction of small wetlands (as defined in the O.Reg. 163/06 Policy Document).

Wetland *offsetting* is not eligible for proposals impacting:

- Provincially *Significant Wetlands* or *Coastal Wetland*s, except for provincial or municipal (public) *infrastructure* projects and *Minister's Zoning Order*s.
- *Irreplaceable wetlands* including *bogs and fens*, as well as wetlands with rare vegetation communities or specialized habitat for wildlife.
- Wetlands culturally valued by First Nations (consultation is recommended to determine if this condition applies).
- Wetlands greater than the total area eligible for offsetting (as defined by the O.Reg. 163/06 Policy Document), including portions of contiguous wetlands and wetland complexes (multiple wetland features within 60 m of each other).

2.2 Permits

Permits under Section 28 of the Conservation Authorities Act, known as the *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 163/06) are required to destroy a regulated wetland. However, a permit to destroy a regulated wetland cannot be issued until the newly created wetland offset is meeting agreed upon *ecologic and hydrologic targets*. If the offset is taking place on the same property as the destruction, then a single permit is required. If the offset is occurring on a separate property on *regulated lands*, then an additional permit to do works in a regulated area would be required. If the offset wetland is not being created in a regulated area, then no permit from LTC is required.

Where permission has been granted by the Board for wetland removal beyond the eligible wetland area as defined by the O.Reg. 163/06 Policy Document, this policy will be followed.

A complete permit application must be submitted for review. Incomplete applications will not be considered.

2.3 Legal agreement

A legal agreement between LTC and the proponent should outline all requirements of the wetland *offsetting* project. This should include the baseline studies of the existing wetland (which will define the ecological and hydrological forms and function targets for the new offset), a wetland design, complete with a *contingency plan*, and a monitoring and maintenance plan aimed at evaluating and meeting targets.

Access for LTC staff to the new wetland feature should be secured on title of the hosting property, for a specified period of time.

Under a MZO, Section 28.0.1 subsections (24) and (25) requires the Conservation Authority to enter into an agreement with respect to the development project with the holder of the permit. The agreement shall set out actions or requirements that the holder of the permit must complete or satisfy to compensate for ecological impacts and any other impacts (e.g., hydrological, and natural hazards) that may result from the development project authorized through an MZO. Subsection (26) states that “No person shall begin a development project until an agreement required under subsection (24) has been entered into”.

3.0 Guidelines

3.1 Ecological Net Gain

Wetland *offsetting* requires ecological and hydrological *net gain* and like-for-like compensation in both wetland form and function. The new wetland features are to be self-sustaining in perpetuity with *climate resilience* incorporated in their design.

3.2 Base-line conditions

The proponent, following consultation with LTC staff, is responsible for describing and quantifying the individual, site-specific wetland forms and functions (i.e. base line conditions) of the feature to be destroyed, through a comprehensive environmental impact study, employing detailed multi-season field studies, carried out by qualified professionals over a minimum on one year, preferably longer. The base-line conditions are to frame the *offsetting* targets. The resulting technical report(s) documenting the wetland parameters must be reviewed by LTC staff (at the proponent's expense), and if satisfactory, would allow for the wetland *offsetting* design plans to be then developed by the proponent with technical support form qualified professionals. The design plans must include a monitoring program to gauge progress of meeting the target ecological and hydrological forms and functions. LTC staff and/or a peer reviewer, will review the *offsetting* plans at the proponent's expense.

Whenever feasible, opportunities to rescue wetland seedbank, soils, and plant material, are encouraged. New wetlands must de designed to be self-sustaining in perpetuity.

3.3 Location

Existing forest or wetland cover cannot be removed to host an *offsetting* project, with the exception of enhancing an existing ecologically degraded or severely impacted wetland or other vegetation community dominated by non-native invasive species.

A wetland *offsetting* project is to be located as close to the destroyed wetland as possible, in order to replace the ecologic and *hydrologic function*s being lost in the *drainage area*. The feature(s) must be constructed in site conditions that will allow for *wetland hydrology* to persist and maintain wetland conditions in perpetuity.

The following are the offsetting site location criteria:

- on the same property as the impacted wetland,
- alternatively in the same *sub-watershed*, and
- on public, or private land, with an established *conservation easement* (registered on title, with all associated costs at the proponent's expense) to allow LTC staff wetland access for a specified period of time.

3.4 Offsetting Ratios

To account for the time lag in replacing ecosystem function as well as uncertainties around successful feature establishment, marsh wetland *offsetting* area minimum ratios are 1:2 (destroyed : created); *swamp* wetland *offsetting* area minimum ratios are 1:3 (destroyed : created). In addition, vegetated setback areas of a minimum of 30 m width around the created wetland features are required (See section 3.5).

The proponent is responsible for purchasing or securing the required wetland *offsetting* project land base, at their expense.

3.5 Setbacks

All created wetlands require a regulated 30 m minimum vegetated setback to be established around the new feature. The setback is to be seeded and/or planted with appropriate *native vegetation*, if it is not already occurring on site. Planted vegetation may require browse protection while establishing, including deer fencing, tree shelters, and rodent guards.

Both the newly constructed wetland and its vegetated setback features will be regulated under Ontario Regulation 163/06 of the Conservation Authorities Act, and should be zoned as "Environmental Protection" by the municipality and identified on wetland mapping.

The new wetland feature should be at least 30 m away from neighbouring property boundaries.

3.6 Timelines

The wetland *offsetting* project must be constructed and meeting established wetland form and function targets, before the impacted wetland feature can be destroyed. Only then, can a permit to destroy a regulated wetland feature be sought. The permit has a two-year lifespan.

3.7 Responsibilities

All wetland *offsetting* projects are to be proponent led, with technical support from retained qualified professionals, and in consultation with LTC staff. The proponent is wholly responsible for all costs of the wetland *offsetting* process including: technical reviews, project design, construction, permits, *conservation easement* establishments, legal fees, annual monitoring and maintenance.

LTC staff and/or peer reviewers, will review wetland *offsetting* proposals, wetland destruction permits, *offsetting* designs, construction plans, maintenance and monitoring reports. These services will be provided for a fee at the expense of the proponent.

LTC will not accept cash in lieu for wetland *offsetting* projects. However, proponents must provide security deposits to LTC to be held until wetland *offsetting* projects achieve established ecologic and hydrologic targets.

4.0 Monitoring and Maintenance

The monitoring program assessing progress on the establishment of target forms and functions must be developed and reviewed as part of the wetland *offsetting* project design. The proponent must monitor the new wetland feature annually for a minimum of 5 years to ensure that its forms and functions are effectively replacing those which were destroyed and lost. If a newly created wetland is not functioning as expected, the *offsetting* project is not completed.

Reporting on monitoring findings and steps taken to correct issues, is to be completed and submitted annually by the proponent, for LTC staff review, at the proponent's expense. The proponent is required to fix problems with the constructed wetland, if it is not performing according to the approved design plan, including a new wetland construction attempt if necessary. Contingency measures and continual improvements can be part of an *adaptive management* approach in wetland *offsetting* projects to address threats and unknowns.

Ongoing *water balance* monitoring is required for the duration of the monitoring period.

An 80% survival of plant material both in the wetland and vegetated setback is expected five years following planting. Replanting is required if the survival targets are not met each monitoring year. Invasive plant control must be part of the monitoring and maintenance period. Browse and predation protection, such as deer fencing, tree shelters or rodent guards, should be applied to reduce mortality.

5.0 Summary

Wetland *offsetting* is reserved for limited select circumstances, following the application of the *mitigation* hierarchy. LTC staff should review the Wetland Offsetting policy regularly to make improvements ensuring the ecological *net gain* goal of *offsetting* is achieved across the Lower Trent watershed. Communicating and collaborating with other Conservation Authorities who have experience with *offsetting* projects is also advised.

The following brief summary outlines the procedural steps involving wetland *offsetting*.

1. Consult with LTC to discuss *development* project.
2. Strictly follow hierarchy of wetland protection.
3. Proponent to complete comprehensive technical field studies to characterize the to-be-destroyed wetland's ecological and hydrological forms and functions.
4. LTC staff and/or peer reviewer to review wetland characterization field studies findings. If the field study findings are deemed complete and are accepted by LTC, the proponent can proceed to secure a suitable site and develop a detailed technical wetland *offsetting* design, construction, monitoring and maintenance plan.
5. All parties sign a legally binding wetland *offsetting* agreement.
6. LTC staff and/or peer reviewers, review the wetland offset design plan. If the plan is accepted, the proponent can apply for a permit to construct a new wetland (if working in a regulated area).
7. Securities are collected from the proponent to be held in trust until the project is completed to the satisfaction of LTC.
8. Once ecologic and hydrologic *offsetting* targets are met, a complete permit application for the destruction of a regulated wetland must be submitted to LTC for approval.
9. LTC staff and/or peer reviewers inspect the new wetland during construction and at completion.
10. The proponent monitors, maintains and reports to LTC on the new wetland annually for 5 years. If the new wetland is not meeting the *offsetting* targets during the monitoring period, adjustments must be made to correct issues, including a new attempt if necessary. Once after 5 years of monitoring, the new wetland is meeting the *offsetting* targets, the project is deemed complete. Securities are returned.
11. Proponent to finance and lead all aspects of the wetland *offsetting* project including but not limited to: technical reviews, land purchase, legal requirements, construction, monitoring and maintenance. All of LTC's expenses related to the wetland offsetting project are to be covered by the proponent.

6.0 References

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Glossary

Adaptive management: A systematic approach to improving management and accommodating change by learning from the outcome of management interventions.

Bog: Wetland that meets the following criteria according to the Ontario Wetland Evaluation System. If the first 5 are not met, it is likely not a bog. 1. Raised peat hummocks are present. 2. The wetland is ombrotrophic, i.e., dependent on atmospheric moisture for its nutrients 3. There is low plant diversity (usually less than 14 species of vascular plants) 4. Few or no fen indicator plant species are present 5. Few or no tamaracks (*Larix laricina*) or eastern white cedar are present. 6. Low pH (often less than 4.7) 7. Tree cover does not exceed 25 %.

Climate resilience: the ability to recover from, or to mitigate vulnerability to, climate-related shocks such as floods and droughts.

Coastal wetland: means a) any wetland that is located on one of the Great Lakes or their connecting channels (Lake St. Clair, St. Marys, St. Clair, Detroit, Niagara and St. Lawrence Rivers); or b) any other wetland that is on a tributary to any of the above-specified water bodies and lies, either wholly or in part, downstream of a line located 2 kilometres upstream of the 1:100 year floodline (plus wave run-up) of the large water body to which the tributary is connected.

Conservation easement: the right for one property owner to enter another's without permission, in this context, for the purpose of monitoring wetland offsetting projects.

Contingency plan: a plan designed to take account of a possible future event or circumstance that may affect the expected offsetting outcome.

Development: a) the construction, reconstruction, erection or placing of a building or structure of any kind, b) any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure, c) site grading, or d) the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.

Drainage area: an area occupied by a closed drainage system, especially a region that collects surface runoff and contributes it to a stream channel, lake or other body of water. Also known as a "catchment" or "watershed." Divisions of this basin are known as "subcatchments" or "subwatersheds."

Ecologic and hydrologic targets: agreed upon measures and goals of ecological and hydrological form and function for a wetland offset, based on comprehensive baseline conditions ascertained for wetlands being considered for destruction.

Ecological function: means the natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes. These may include biological, physical and socio-economic interactions.

Fen: The Ontario Wetland Evaluation System defines fens as peatlands characterized by surface layers of poorly to moderately decomposed peat, often with well-decomposed peat near the base. Fen peats

generally consist of mosses and sedges. Sphagnum, if present, is usually composed of different Sphagnum species than occur in bogs

Groundwater - Water that occurs below the earth's surface. It originates as precipitation, runoff, and snowmelt, which infiltrates vertically downward into the ground via gravity to the water table.

Hydrologic feature: includes permanent or intermittent watercourse, lake, seepage area or spring, and wetland.

Hydrologic function: The functions of the hydrological cycle that include the occurrence, circulation, distribution, and chemical and physical properties of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere, and water's interaction with the environment including its relation to living things.

Hydrologic linkage: refers to features that are interconnected via surface or ground water processes.

Infrastructure: Means physical structures (facilities and corridors) that form the foundation for development. Infrastructure includes: sewage and water systems, septage treatment systems, stormwater management systems, waste management systems, electricity generation facilities, electricity transmission and distribution systems, communications/telecommunications, transit and transportation corridors and facilities, oil and gas pipelines and associated facilities

Irreplaceable wetland: a wetland such as a bog or fen that cannot be successfully created, nor constructed. As well as a wetland feature with rare vegetation communities or specialized habitat for wildlife.

Lake: any inland body of standing water, usually fresh water, larger than a pool or pond or a body of water filling a depression in the earth's surface.

Marsh: The Ontario Wetland Evaluation System defines marshes as wet areas periodically inundated with standing or slowly moving water, and/or permanently inundated areas characterized by robust emergents, and to a lesser extent, anchored floating plants and submergents. Surface water levels may fluctuate seasonally, with declining levels exposing drawdown zones of matted vegetation or mud flats. Water remains within the rooting zone of plants during at least part of the growing season. The substratum usually consists of mineral or organic soils with a high mineral content, but in some marshes there may be as much as 2 m of peat accumulation. Waters are usually circumneutral to slightly alkaline and there is relatively high oxygen saturation.

Minister's Zoning Order: The *Planning Act* gives the Minister of Municipal Affairs and Housing the authority to control the use of any land in the province. Zoning orders can be used to protect a provincial interest or to help overcome potential barriers or delays to critical projects. If there is a conflict between a minister's zoning order and a municipal bylaw, the minister's zoning order (MZO) prevails. The municipal bylaw remains in effect in all other respects.

Mitigation: Measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/or minimized.

Native vegetation: plant species that are part of the ecological food web in a given area or region, and have coevolved with other species there.

Net gain: A wetland offsetting approach ensures that the replacement ratio for wetlands lost and gained are greater than 1:1.

Offsetting: An approach in which negative impacts on wetlands are offset by the intentional restoration or creation of new wetlands, which can provide positive environmental impacts of an equivalent or greater magnitude and kind. Offsetting should be identified through an Environmental Impact Study and considered only when all other options have been deemed not feasible.

Regulated Lands: The area within which development, interference and alteration activities are regulated by the Conservation Authority.

Seepage areas and springs: sites of emergence of groundwater where the water table is present at the ground surface.

Significant: as per the Provincial Policy Statement, a) in regard to wetlands, coastal wetlands and areas of natural and scientific interest, an area identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the Province, as amended from time to time; b) in regard to woodlands, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. These are to be identified using criteria established by the Ontario Ministry of Natural Resources and Forestry; c) in regard to other features and areas in policy 2.1, ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system; d) in regard to mineral potential.

Surface water - Water-related features on the earth's surface, including headwaters, rivers, stream channels, inland lakes.

Swamp: The Ontario Wetland Evaluation System defines swamps as wooded wetlands with 25% cover or more of trees or tall shrubs. They include both forest swamps (having mature trees) and thicket swamps (or shrub carrs). Thicket swamps are characterized by thick growths of tall shrubs such as willow species, red-osier dogwood, buttonbush and speckled alder.

Watercourse: An identifiable depression in the ground in which a flow of water regularly or continuously occurs.

Water balance – the accounting of inflow and outflow of water in a system according to the components of the hydrologic cycle.

Sub-watershed: An area that is drained by a watercourse and its tributaries, as identified within the Lower Trent watershed region.

Wetland: Lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens. Periodically soaked or wet lands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands for the purposes of this definition.

Wetland hydrology: the presence of water on or near the land surface at a frequency and duration to cause the formation of hydric soils and support a prevalence of vegetation typically adapted to saturated and/or inundated conditions.

Wetland ecological functions: include but are not limited to nutrient storage, biological diversity and habitat for fish and wildlife.

Wetland hydrological functions: include but are not limited to flood reduction, groundwater recharge and flow augmentation, water quality improvements and erosion reduction.