

Upper Thames River Conservation Authority

Operational Plan for Erosion Control Structures

December 6, 2024

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1. Purpose of Operational Plan

Ontario Regulation 686/21 requires that a Conservation Authority (CA) provide programs and services that support the operation, maintenance, repair, and decommissioning of the following types of infrastructure the CA owns or manages:

- Any water control infrastructure, the purpose of which is to mitigate risks to life and damage to property resulting from flooding or to assist in flow augmentation.
- Any erosion control infrastructure.

Programs and services provided shall include the development and implementation of an operational plan on or before December 31, 2024.

Many erosion control structures in the Upper Thames River Conservation Authority (UTRCA) watershed are not owned by the UTRCA but are managed through an agreement with the owner. These structures also require Operational Plans.

2. Purpose of Structure

The erosion control structures (ECS) included in this plan were built by the UTRCA or municipalities for the purpose of reducing the risk from erosion along riverbanks. Many of these structures reduce erosion risk to important infrastructure.

Many ECS were constructed through UTRCA projects funded by the province, with the local share provided by municipal levies from the benefiting local municipality. Conservation Authorities were able to access provincial funding for construction of flood and erosion control measures until the mid-1990s. The UTRCA utilized this funding to further the development of erosion structures in or near the City of London. With limited funding available for the operation and maintenance of flood and erosion control structures, it is important to work collaboratively with the benefiting local municipality to ensure that maintenance is undertaken in an efficient and effective manner.

The UTRCA has been involved with the construction or maintenance of the structures listed in Table 1.

Table 1. Erosion control structures with UTRCA involvement in construction, operation, or maintenance

Name (municipality)	Location	Description
Becker Street EC (London)	West bank of the South Thames River at the Forks	Often considered as part of the Ridout Street EC
Benson Crescent EC (London)	North Thames River, downstream (west) of Highbury Avenue, along Benson Crescent	Rip-rap (325 m)
Corley Drive EC (London)	North bank of a tributary to the North Thames River along Corley Drive in the Medway Valley Heritage Forest Environmentally Significant Area	Rip-rap, vegetated earth (410 m)
Greenway Park EC (London)	South bank of the Thames River upstream of Wonderland Road North in Greenway Park	Rip-rap, vegetated earth (770 m)
Harris Park EC (London)	East bank extending from the Forks along the North Thames River from York Street to Blackfriars	Gabion baskets, vegetated earth, rip-rap (975 m) Currently being rehabilitated by City of London
Mount St Joseph EC (London)	North bank of the North Thames River immediately east of Richmond Street and south of Windermere Road, adjacent to the former Mount St Joseph	Gabions (120 m)
North Bank (London)	North bank of the Thames River west of the Forks, between Dundas Street and Wharncliffe Road	Gabions, vegetated earth (475 m) To be replaced as part of ongoing West London Dyke reconstruction
Pond Mills EC (London)	South bank of the South Thames River, upstream (east) of Egerton Street along Pond Mills Road	Grout filled mattress, concrete rip-rap (483 m)
Ridout Street EC (London)	- South bank of the South Thames River from 200 m upstream of Ridout Street to about 100 m downstream of Ridout St. - West bank of the South Thames River from south of Horton Street to the railway tracks south of York Street, and again along the west bank from York St to the Forks (often referred to as Becker Street EC). - North bank, becoming east bank of the South Thames River from Ridout Street to York Street.	Vegetated earth, armour stone, gabion, concrete revetment, sheet pile wall (1365 m) Parts may have been affected by recent construction associated with Ridout Street bridge replacement

Name (municipality)	Location	Description
River Road EC (Middlesex Centre)	North bank of the Thames River upstream of Oxford Street West on Old River Road	Rip-rap (275 m) Currently being reconstructed by Municipality of Middlesex Centre
Springbank EC (London)	South bank of the Thames River in Springbank Park downstream of Springbank Dam, upstream of Boler Road	Grout filled mattress and rip- rap Currently being naturalized and part of Springbank Dam decommissioned by City of London
St Peter's EC (London)	South bank of the North Thames River north of Epworth Avenue and Waterloo Street	Gabion basket groins, vegetated earth (200 m)
Wychwood EC (London)	West bank of a tributary of the North Thames River from Wychwood Place within the Medway Valley Heritage Forest Environmentally Significant Area	Rip-rap, vegetated earth (180 m)

3. Level of Service

Level of Service (LOS) refers to the ability of an asset or its components to perform the role for which it was designed and to the level or quantity of use for which it was intended. The amount of attention to, and funding for, operation and maintenance must be reflective of the importance of this asset.

For ECS, the performance measures informing the LOS are rather limited. LOS focuses on whether the ECS is able to reduce the risk from erosion to the infrastructure or amenities that the ECS was intended to protect. There are very few standards to which they may be assessed other than whether they still perform their intended function. A large part of being able to perform their intended function is whether the structure is maintained to a level to be operationally reliable. To meet this objective, its condition should be fair or better.

Table 2 provides the preliminary level of service for the erosion control structures.

Table 2. Preliminary Level of Service

Name (municipality)	Erosion Risk Reduction?	Condition Fair or Better?	Preliminary Level of Service	Comments
Becker Street EC (London)	Yes	Yes	Moderate	Assessed as part of Ridout St EC below
Benson Crescent EC (London)	Yes	Yes	Moderate	Protecting residential development
Corley Drive EC (London)	Yes	Yes	Moderate	Protecting residential development
Greenway Park EC (London)	Yes	Yes	Low	Protecting parkland
Harris Park EC (London)	Yes	No	Low	Protecting parkland
Mount St Joseph EC (London)	Yes	Yes	Moderate	Steep slope with institutional use at top
North Bank (London)	Yes	Yes	Moderate	Toe protection for dyke, may get replaced with dyke upgrades
Pond Mills EC (London)	Yes	Yes	Moderate	Steep, tall slope with road at top
Ridout Street EC (London)	Yes	3 sections Yes 4 sections No	Moderate	Multiple sections protecting various infrastructure
River Road EC (Middlesex Centre)	Yes	Yes	Moderate	Protecting roadway, being rehabilitated as part of roadway improvements
Springbank EC (London)	Yes	N/A	Low	Being naturalized as part of Springbank Dam decommissioning
St Peter's EC (London)	Yes	Yes	Moderate	Steep slope with institutional use at top
Wychwood EC (London)	Yes	No	Moderate	Protecting residential development

Level of Service will be further considered through Asset Management Planning, and this section will be updated to reflect that ongoing work.

3.1. Service Life

The service life of ECS, such as these, is difficult to estimate and will depend, among other things, on the type of erosion control structure. The Ministry of Natural Resources

Technical Guide River & Stream Systems: Erosion Hazard Limit suggests a typical design life of 25 to 50 years due, in part, to the natural processes and their interaction with the structures. Many of these structures were constructed in the period from 1970-2000 and, as such, may be nearing their service life.

Regular inspection will be important to assess the state of each erosion control structure, identify maintenance needed, and further assess service life. Internal inspections have been carried out by UTRCA and external inspections have been undertaken by either the UTRCA or the City of London.

Service life will be further assessed through Asset Management Planning and this section will be updated to reflect that ongoing work.

4. Stakeholders and Beneficiaries

Each of the ECS provides erosion risk reduction to those structures or infrastructure that are protected by the ECS. As such, the primary beneficiaries are the landowners, residents, and businesses with property protected by the structure or the municipality whose infrastructure is protected. While these ECS provide erosion risk reduction for the properties behind them, they do not remove those properties from the erosion hazard and, as such, those properties may be regulated.

These structures are owned by the local municipality. UTRCA operating and maintenance costs, not funded from provincial sources, are levied against the municipalities in which they are located (benefit-based).

4.1. Communication with Stakeholders

It is important that erosion control structure maintenance be coordinated between the UTRCA and municipalities that own them.

5. Operations

Erosion control structures are not actively operated.

6. Routine Maintenance

Routine inspection and maintenance are important to ensure the erosion control structures are able to meet their purposes. Routine inspections are generally undertaken by UTRCA engineering staff. Every five to 10 years, an external engineering inspection should be undertaken.

Surveillance following significant flood events is also important.

7. Emergency Planning

Emergency planning is not generally applicable to this type of structure.

8. Roles and Responsibilities

The ownership of erosion control structures built by the UTRCA rests with the municipality. Through a memorandum of understanding with the City of London, UTRCA shares responsibilities related to the maintenance of London ECS.

Erosion control structures operated or maintained by the UTRCA through agreement with the municipality that owns the structure are eligible for provincial funding (such as section 39 operations and maintenance funding and Water and Erosion Control Infrastructure (WECI) funding for major maintenance). Operating funding is very limited given the reduction in grant amounts and steadily increasing costs. Also, these structures rank poorly in the WECI major maintenance funding program.

As passive structures, there are generally no physical operations required for ECS. Operational costs are limited to inspections and maintenance.

In June 2017, a Memorandum of Understanding (MOU) was signed between London and UTRCA which outlines the shared responsibilities related to the operation and maintenance of the ECS. This agreement was intended to facilitate and define the cooperative efforts, consider infrastructure owned by the City, document responsibilities, operationalize the other agreements and contracts, document the intent to add other structures, and provide administrative procedures. The MOU documents background and supporting information to ensure that both parties have a shared understanding. This agreement allows the City and UTRCA to best utilize funding available for the continued operation and maintenance of the structures. It identifies that operation and routine maintenance are managed and planned by the UTRCA and maximizes the use of both UTRCA and City resources. It specifies a level of cooperation when it comes to major/capital maintenance.

London is responsible for the local share of these operation and maintenance costs, though the UTRCA benefit-based levy.