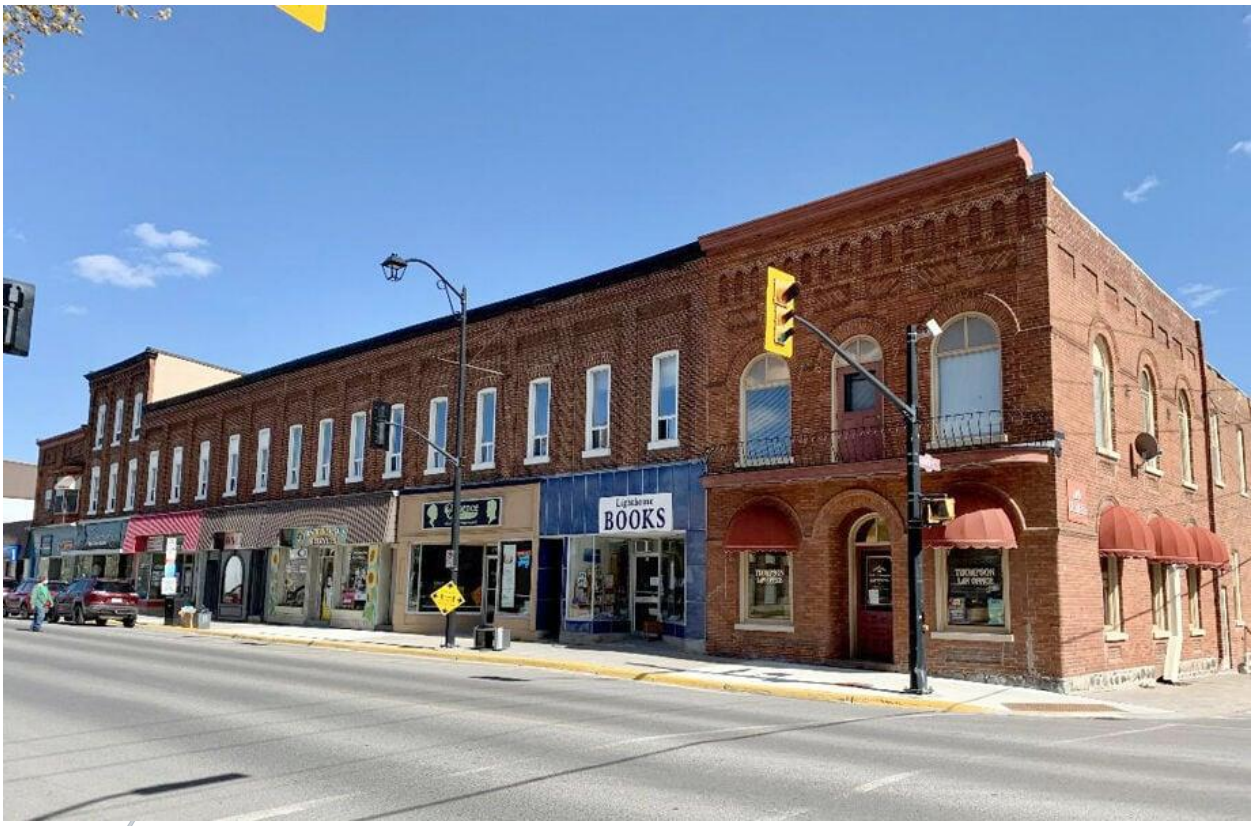

Municipality of Brighton Storm Pond Annual Report 2023

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Introduction

In recent years, as a condition of Ontario Regulation 208/19, the Ministry of Environment, Conservation and Parks (MECP) requires and has issued new Consolidated Linear Infrastructure-Environmental Compliance Approvals (CLI-ECAs). In accordance with these provincial guidelines the Municipality of Brighton is required to provide an annual report. This report covers the period from January 1st, 2023, to December 31st, 2023, and is required to be submitted to the MECP by April 30th, 2024, and to be posted on the Municipality's website.

The CLI-ECA for all municipality's is issued under the following:

- The Environmental Protection Act (EPA); and,
- The Ontario Water Resources Act (OWRA).

Identified as having an agreement with a municipality under the Planning Act or the Development Charges Act, "prescribed persons" are defined under Ontario Regulation 208/19, Environmental Compliance Approval in Respect of Sewage Works. The CLI-ECA issued through the Ministry of the Environment, Conservation and Parks (MECP) is a single approval for the entire stormwater management system. When criteria arise, the CLI-ECA includes conditions requiring municipalities and prescribed persons, such as developers, to modify the stormwater management.

The Municipality of Brighton is committed to maintain and improve its stormwater management facilities, stormwater ponds, oil grit separators, etc. Staff are presently being put in place to ensure compliance requirements are met and that the recommendations as outlined in the Stormwater Master Plan of 2019 are adhered to. As stipulated therein, protecting the natural resources in and around Brighton, its wetlands, creeks, rivers, and watersheds is of paramount importance.

Reporting Requirements

Section 4.0 of the CLI-ECA requires the Municipality of Brighton to come up with and implement a Monitoring Plan in alignment with the Ministry of Environment, Conservation and Parks (MECP) guidance document. The MECP has yet to release a document to guide municipalities/jurisdictions in so doing.

Challenges and Constraints (Operationally)

Storm water ponds acquire sediment that has piled up over many years. This accumulation of sediment needs to be removed on occasion for the storm water ponds to function as designed. During the recent past, municipalities/jurisdictions were able to remove sediment build-up and other built-up material from storm ponds/sites and then have these materials disposed. Under the MECP's most recent Excess Soils Regulation, (O. Reg. 406/15), municipalities/jurisdictions require oversight by qualified persons (QPs) for sampling, handling and disposal requirements as related to materials/sediments, etc., being removed from site/stormwater ponds and/or kept on-site. These additional measures come with substantial costs and staff will be developing a plan and a schedule to clean-out storm ponds, oil grit separators. These items are being included in the budget process but will most likely become a considerable and growing cost item in years to come.

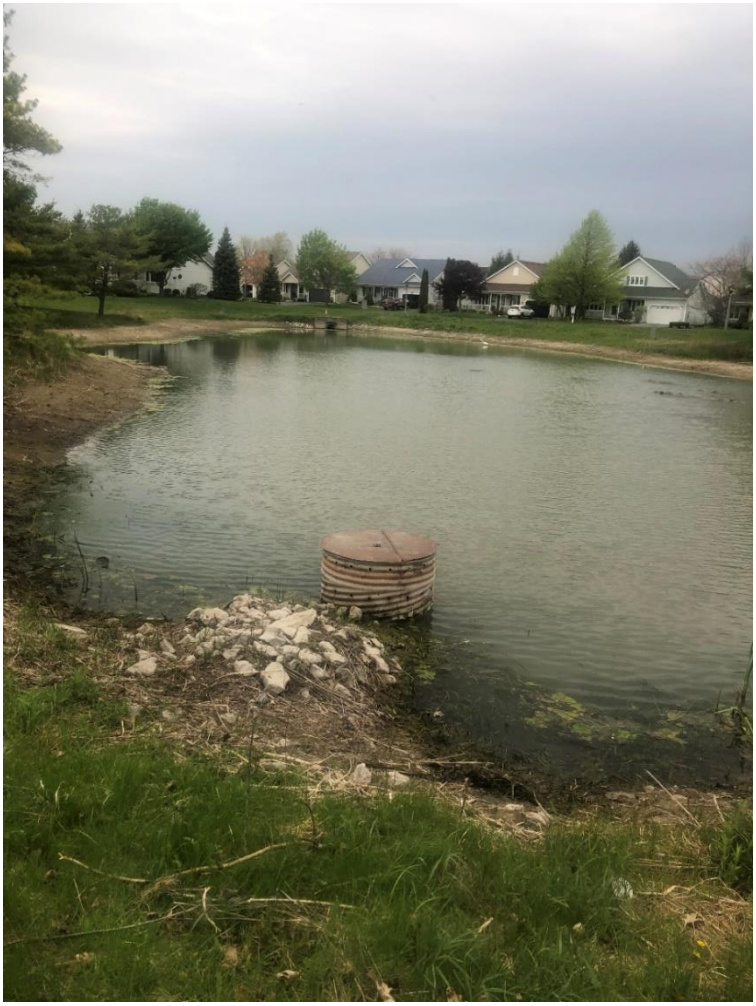
Inspection Results and Maintenance

The Municipality of Brighton staff has monitored and inspected municipal stormwater ponds and oil grit separators throughout 2023. Please refer to the following:

1. Brighton by the Bay Wetland (BBTB) – ECA# 3016-A7FQ2G

The Brighton by the Bay Wetland is located at the northwest corner of Mills Rd. and Sandpiper Way. It is designed to control the quality and quantity of runoff from the Brighton by the Bay and Presqu'ile Place subdivisions.

The wetland consists of one inlet discharging stormwater into the forebay located in the north portion of the pond. An inlet diversion weir in the manhole just upstream of the pond directs low flows to the wetland while allowing large rain events to by-pass the wetland and drain directly to the sewer on Mills Rd. There is one outlet structure at the south end of the pond, made from a perforated steel riser, connected to a 6" cast iron pipe that ultimately discharges stormwater into Presqu'ile Bay Marsh (Lake Ontario), in the marina located east of the Harbour St. and Marina Dr. intersection. This outlet structure is surrounded by rip-rap stone, lined with filter cloth, that is designed to keep vegetation, snails, debris, etc. from plugging up the perforated drain holes.

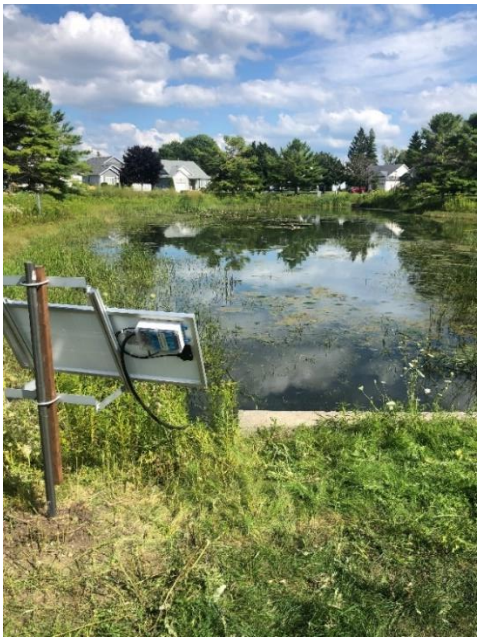


Some of the challenges that the BBTB Storm Pond faced in 2023 are like those that have been associated with this pond in previous years:

- Excessive floating algae, especially in the outlet area;
- Plugged holes at the outlet drain;
- High water levels; and,
- Abundance of unwanted, noxious thistle weeds

The excessive floating algae is a result of warm temperatures in the summer months, stagnant water due to low flow/draining, abundance of vegetation around the pond, build-up of sediment/vegetation in the forebay, or any combination of these factors. This problem can be minimized by keeping the drain holes in the outlet clear, however, this often is not enough.

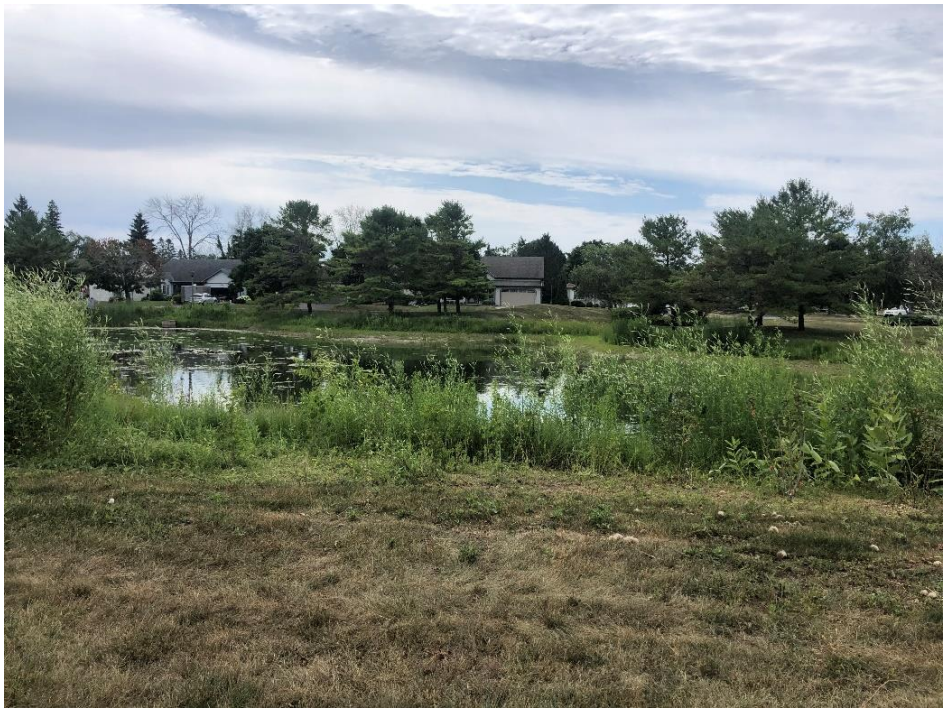
So, to mitigate some of the prevailing and limiting issue, the Municipality of Brighton contracted “Blue Frog Water Gardens Pond Services” to install an air diffused, bubbler aerator system in the forebay of the pond. This is used to keep the water moving in the pond, thus minimizing the ability of algae to form due to stagnant water. It runs on solar power, making it energy efficient. It was successful to a degree, however, it likely is not powerful/large enough to protect the entire pond from algae. To account for this, staff also used “Blue Frog Water Gardens Pond Services” to cleanout the pond every month, by removing excessive vegetation, clean out the forebay sediment, add pond conditioners to aid with algae growth, etc. This helped the pond a lot, so these services will likely be utilized again this year.



The plugged outlet drain holes are most often a result of snail shells that accumulate in the outlet area, that are too large to pass through the holes. This problem is easily rectified by manually cleaning off the outlet structure with a shovel. The high-water level issue usually occurs in the springtime, when we seem to get a lot of precipitation which in turn keeps the Lake Ontario water level high until the dry season arrives. Since this pond is connected to the lake downstream, if the lake level is high, the pond level will remain high. Unfortunately, the only way to rectify this issue is to let mother nature take its course, and when the lake level lowers, it then allows the water to properly drain out of the pond, which then lowers the pond water level.

The last main issue, the abundance of noxious thistle weeds, is a result of seeds from these plants being airborne and spreading around the pond. Initially, staff investigated spraying

these weeds with a pesticide, however, it was determined that this was not a viable option due to proximity of good vegetation, and the wildlife that frequents this pond. Therefore, we ended up hand-pulling the weeds from the inlet and outlet pond edges, which significantly improved the appearance of the pond.



Overall, the Brighton by the Bay storm pond performed well in 2023, even with its aesthetic concerns by the residents. The ongoing concerns should be alleviated by a full forebay cleanout, further pond cleaning by Blue Frog Water Gardens, addition of more aeration, etc.

2. Harbourpoint Storm Pond – ECA# 5953-5S4HBX

The Harbourpoint Storm Pond (HSP)is located north of Raglan St. East and south of Beacon Dr. It is designed to control the quality and quantity of runoff from the Harbourpoint and surrounding subdivisions that drain into HSP.

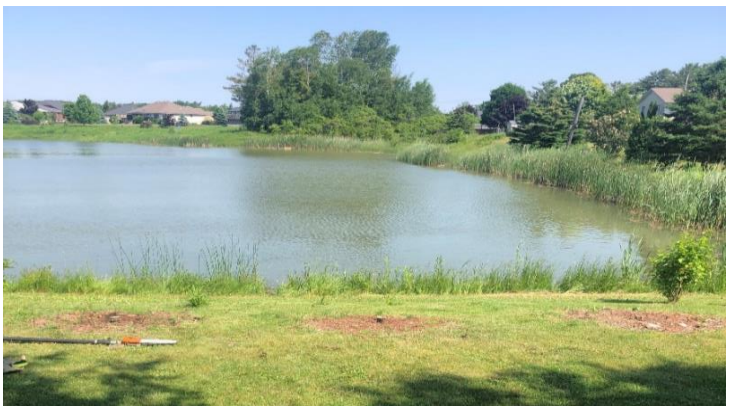
The pond consists of an inlet on the northwest shoreline, a forebay in the northwest area, and an outlet structure in the southeast corner. The outlet structure is made of concrete, with a smaller, circular drain opening as well as a large, rectangular shaped drain opening with a steel grate in it. This is connected to a large pipe that ultimately discharges stormwater into Presqu'ile Bay Marsh (Lake Ontario), located east of the Harbour St. and

Cedar St. intersection. It should also be noted that this pond was expanded in 2019 to account for future development in the area.

This storm pond performed quite well in 2023, with the only legitimate performance issue being the occasionally plugged-up circular opening in the outlet structure with vegetation. This issue is easily rectified by simply using a shovel or your hands to push or remove the vegetation out of the opening and outlet area, which was done twice in 2023 as needed. This issue is not serious, as there is also the large, rectangular opening in the outlet that can easily handle the water should the smaller opening become fully plugged.

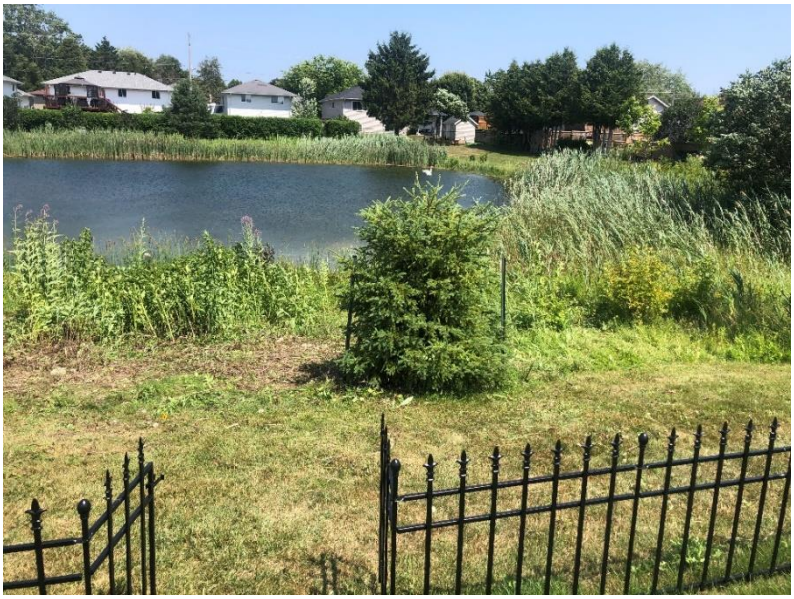
The main issues surrounding this pond are strictly aesthetic, and they include:

- Dead trees;
- Excessive noxious thistles along the west shoreline;
- Abundance of ragweed along the north shoreline and the northwest corner of the pond that block resident's view of the pond; and,
- Access road/trail to the pond from Beacon Dr.

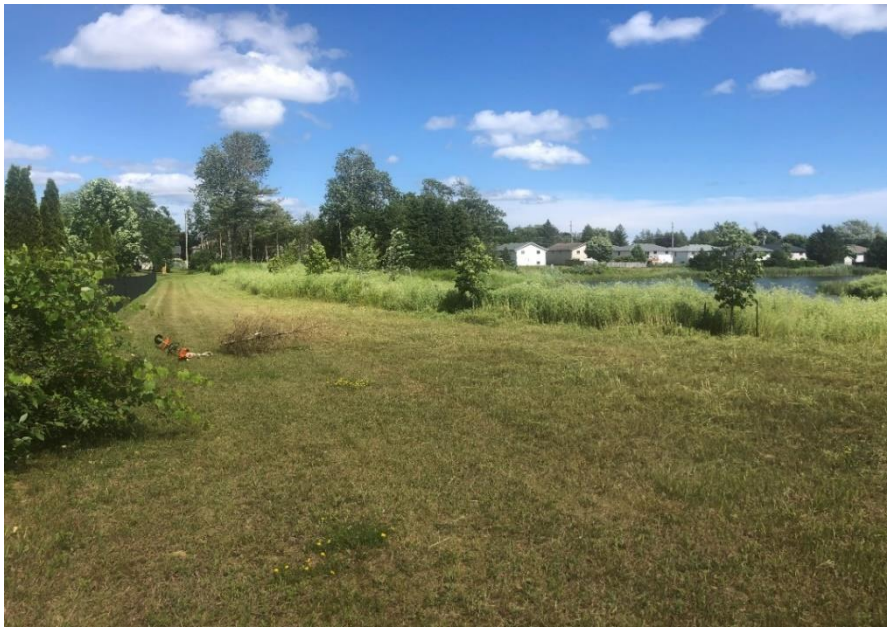


The dead trees, a total of 4 small trees, were easily removed with a chainsaw to provide a more aesthetically pleasing view for residents.

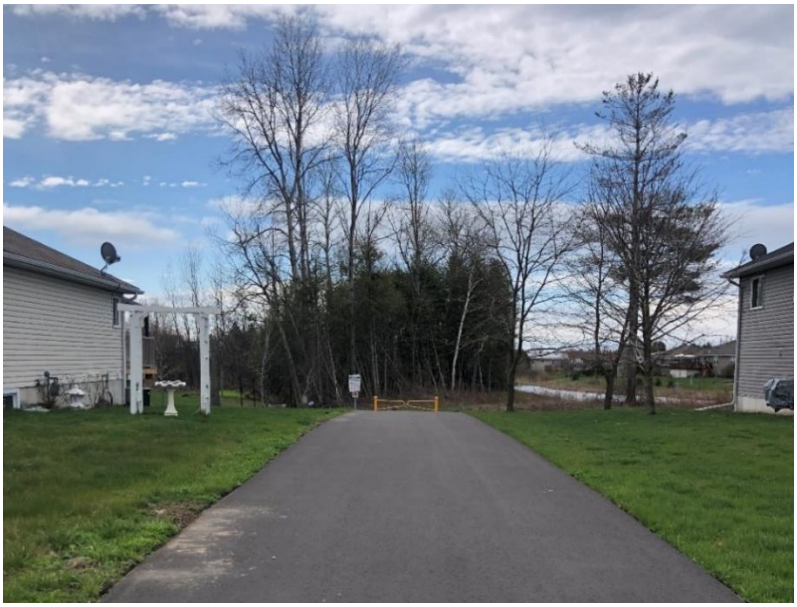
When it came to the noxious thistles issue, the same approach that was used at Brighton-By-the Bay Stormwater Pond, was also used here. We had to remove them by hand due to their proximity to other good vegetation that we did not want to disturb by spraying pesticides. The main area of focus was the west shoreline of the pond, where resident's houses backed on to the pond.



Multiple weed whackers were used to cut down the tall ragweed located on the north shoreline and northwest corner of the storm pond. These plants were quite tall, thus limiting the view for some residents backing on to this area of the pond. The plants were, however, effective in limiting the goose activity around the area, which was beneficial to some residents who did not want any geese in their backyard. So, in saying that, we had to ensure to leave some ragweed there and not cut too much of it down, and we feel that was executed.



Lastly, after a couple unsuccessful attempts in previous years to re-seed the grass located on the access road/path, we decided on a more permanent fix to close the book on this issue. The road/path was paved, thus providing easier access for maintenance vehicles while also making it more visually pleasing to residents.



To conclude, it is fair to say that the Harbourpoint storm pond remains one of Brighton's best looking, and most importantly, best performing storm ponds. It is home to multiple species of birds, such as mute swans, ducks, geese, etc. that make it a viewing experience, without sacrificing its main objective in dealing with storm water.

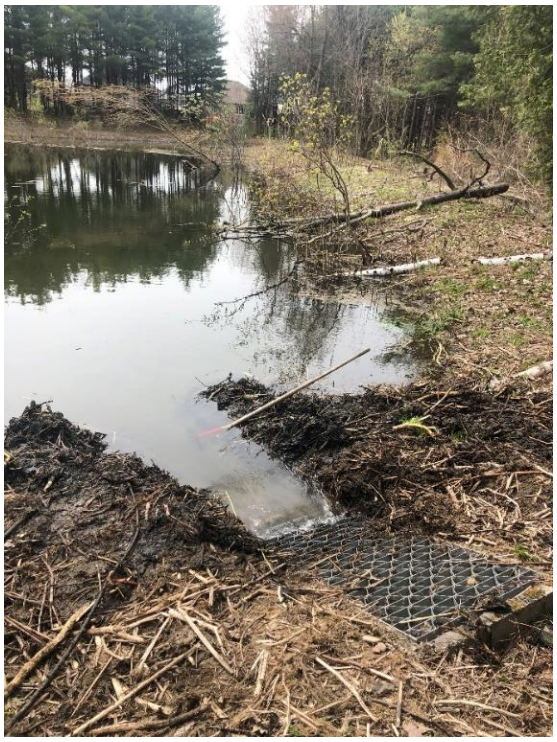
3. Forest Hill Storm Pond – ECA# 4771-8DXL22

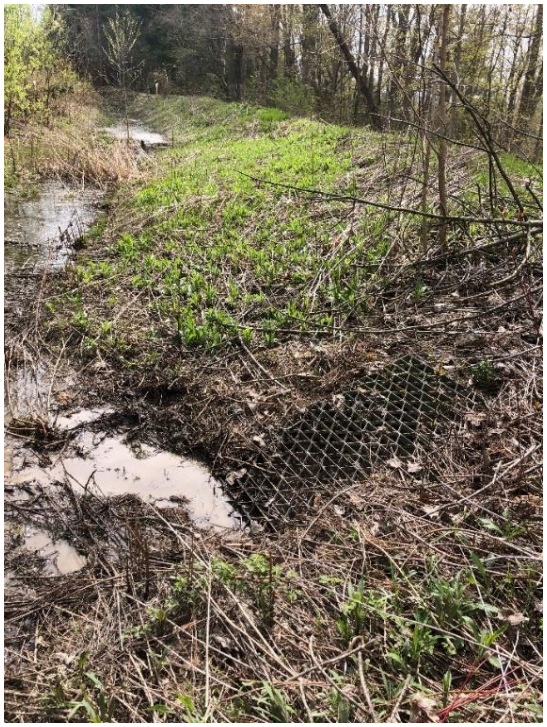
The Forest Hill Storm Pond consists of two separate ponds, a wet and a dry pond, both of which are located north of Castle Ridge. The wet pond is designed to control the quality and quantity of runoff from the Forest Hill subdivision, while the dry pond is responsible for the runoff coming from the west side of the subdivision. Both ponds ultimately discharge to Butler Creek.

The wet pond consists of one main inlet, located in the southwest corner of the pond, as well as a smaller culvert inlet along the south shoreline. Both inlets discharge into a small forebay, making up the south end of the pond. There is one outlet at the northwest corner of

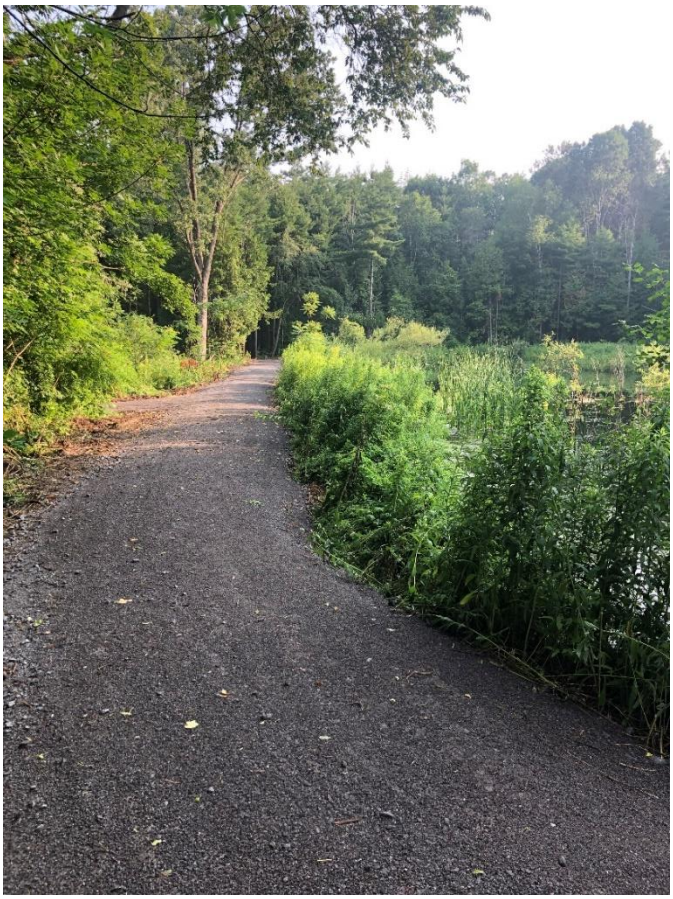
the pond in the form of a steel, grated drain set on an angle to allow water to fall into it and drain out. This connects to a manhole just downstream, which then leads the water towards Butler Creek. There is also an overflow by-pass located on the west shore that runs under the trail, designed to drain water out of the pond should the water level get too high.

The dry pond looks like a ditch, has one inlet on the west side and one outlet on the east side. The outlet consists of an angled, grated drain that directs the water down a hill (made up of riprap) that then falls into Butler Creek.

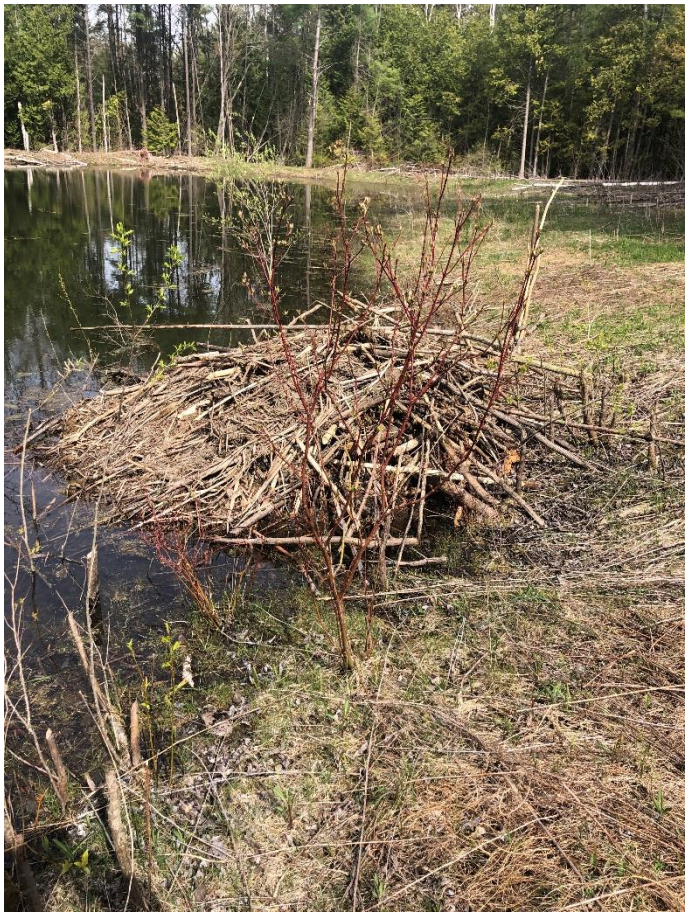




The major project that was completed in 2023 at Forest Hill Storm Pond was the addition of a gravel walking trail as part of the subdivision agreement. The trail runs along the south and west shorelines of the wet pond, circles around through the forest to the north, and continues west through the forest, ultimately leading to George St. (Highway 30). This trail provides residents with a scenic route, perfect for dog walks, running, etc.



This pond generally performs very well and is quite visually appealing, however, there is one major factor that complicates matters a bit – beavers. They have a lodge located on the east shore of the pond, and the main issue they cause is that they consistently dam up the outlet with sticks, branches, mud, etc., which in turn does not allow the pond to properly drain, resulting in an elevated water level. Another minor issue they create is the amount of fallen trees that they have cut down around the pond.



To deal with this issue in a humane manner, the municipality has contracted a wildlife trapper to catch and relocate the beavers. The trapper was successful in trapping and relocating eight (8) beavers in 2023. Unfortunately, with the beavers able to reproduce quickly, the trapper was not able to get ahead of them, leaving more beavers that continue to make this pond their home.

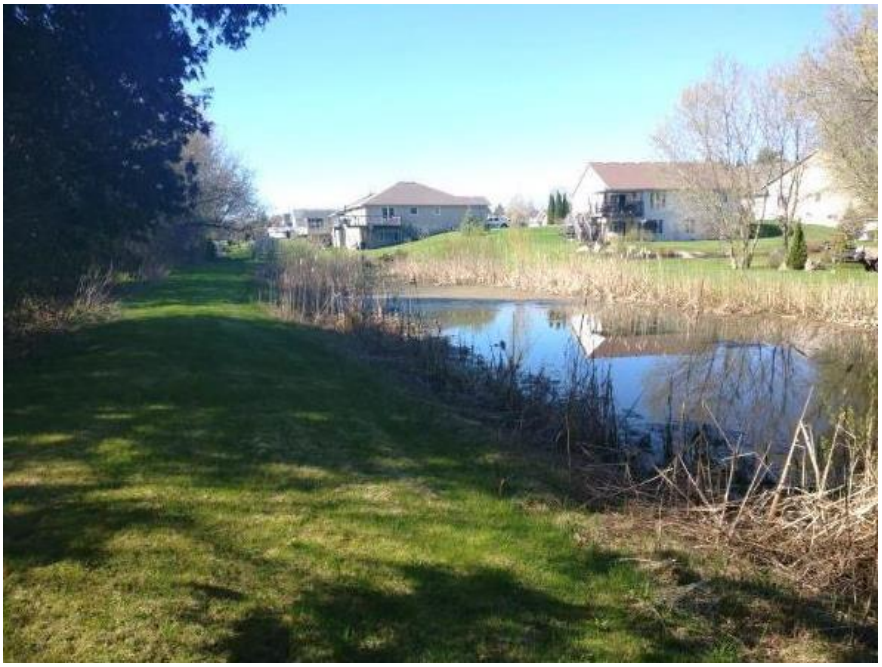
The outlet was manually cleared multiple times in 2023 that allowed the water level to come down, although this was short-lived as the beavers are extremely quick at plugging up the outlet drain after it is cleared. This process often takes them less than a day to do, which does not leave sufficient time for the pond drain down completely.

In the end, the Forest Hill Storm Pond performed well in 2023, even with the higher water level. It was never in danger of overflowing thanks to the overflow by-pass outlet on the west shore, and the addition of the walking trail has made this pond and surrounding area a great place to see and enjoy.

4. Butler Street/Lucas Storm Pond – ECA# 3160-57DL8J

The Lucas Storm Pond is located south of Lucas Court cul-de-sac. The pond is designed to control the quality and quantity of runoff from Lucas Court and Megan Court.

The pond consists of two separate inlets, one located at the northeast corner of the pond coming from the sewer system, the other located at the north end coming from the backyard drainage swale. They discharge stormwater into the pond forebay located in the north portion of the pond, before reaching the outlet at the south end. The outlet structure is a perforated steel riser with a grate on top that discharges stormwater to Butler Creek via an outlet pipe. The pond also contains an emergency spillway that runs over top of the outlet pipe that is made up of riprap stone.



In 2023, there were no immediate concerns or complaints coming from residents, as the pond performed well as it has in the past. However, upon inspection, it was noted that the pond is likely due to be cleaned out in the next few years, based upon previous sediment data and projections as well as a visual inspection.

Another minor concern that was noted during the inspection was the overgrowth of vegetation and the presence of small tree branches/sticks in the outlet area. This was not hindering the pond's ability to drain out properly, however, it was also not the most visually appealing, and could potentially cause draining issues in the future. To alleviate this, the vegetation and branches were removed by hand during inspection to prevent any further issues going forward.

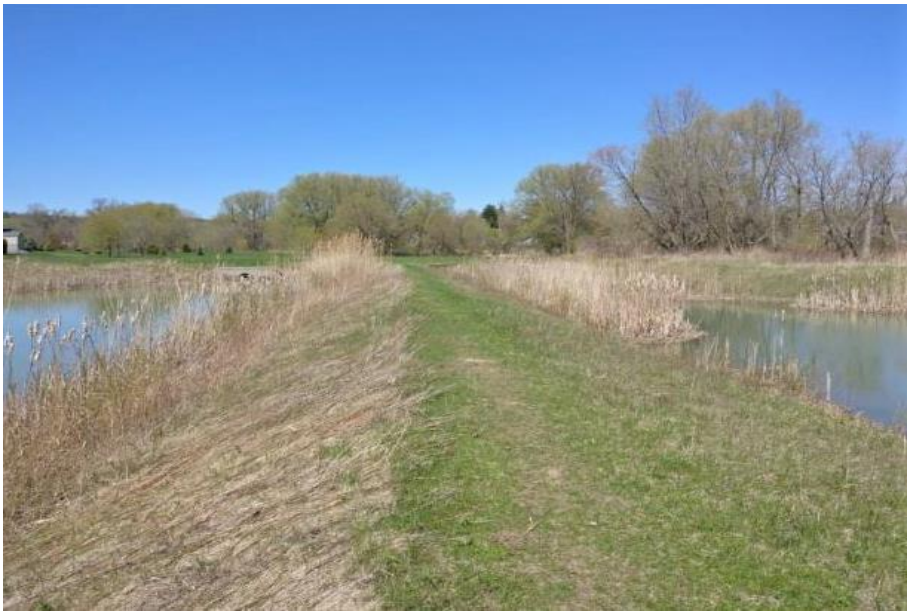
To conclude, the Lucas Pond performed very well in 2023 as it has in previous years. The excessive vegetation around the outlet area will continue to be monitored and dealt with accordingly. The pond cleanout will also be looked at for this coming summer or the year after, if need be, as this will greatly improve the pond's capacity and performance.

5. Orchard Gate Storm Pond – ECA# 3490-6KWMKD

The Orchard Gate Storm Pond is located off the southeast corner of Royal Gala Dr. The pond is designed to control the quality and quantity of runoff from the Orchard Gate and Applewood Meadows subdivision.

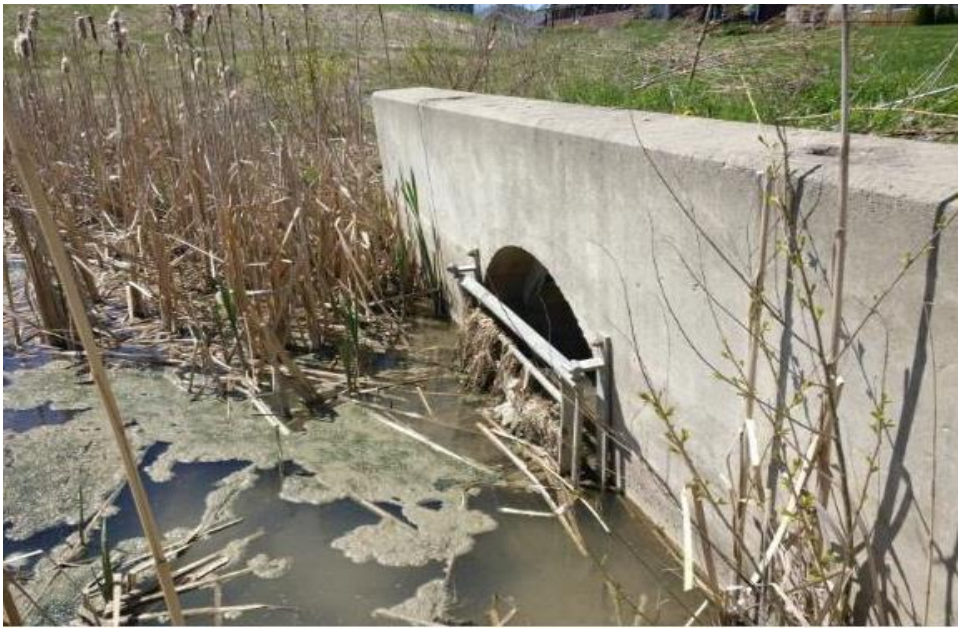
It consists of two cells that work in unison, depending on the flows. So, cell 1 (north) could be considered the forebay, with cell 2 (south) being the main pond. There is a manhole

upstream of the pond that contains a by-pass structure that is designed to direct major flows to the 2nd cell. Under normal (low) flow conditions, both cells receive stormwater into their permanent pool storage, with an equalizing pipe between the two cells designed to keep the water level equal across both cells. The outlet is located at the southeast corner of cell 2 and discharges run-off/stormwater to Butler Creek. The outlet contains an emergency spillway in case the water level gets too high for the outlet to handle.



This pond performed very well in 2023 and no complaints were received, and inspections revealed no major issues at the pond. The only minor concerns that were noticed during inspections were the presence of the invasive species of plant called “phragmites”, which can take over an area and become the dominant plant. Luckily, the phragmites present at this pond was not overtaking other plants, so it only required to us to keep an eye out for it going forward.

Another small aesthetic concern that was only noticed once during an inspection was the presence of some floating algae on the water surface. This was not a concern as this is normal with storm ponds in the warmer months, and the amount was very minimal.



The last minor item to keep an eye out for was the amount of vegetation at the outlet point of the pond. There were lots of tall cattails ahead of the outlet header, that provide a good filter to the stormwater before it leaves the pond. The water was flowing well, and always was during subsequent inspections so this turned out to be something else to keep an eye on to ensure it never blocked the outlet.

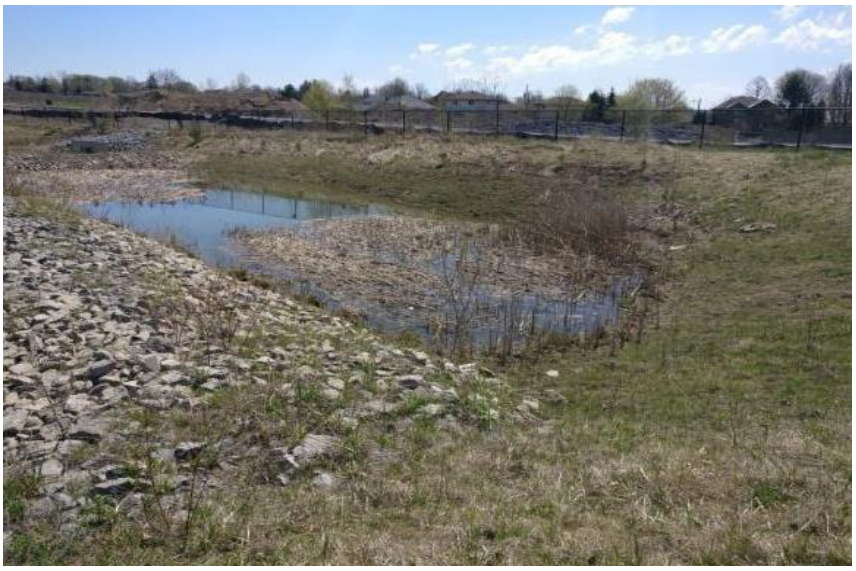
The Orchard Gate Storm Pond performed very well in 2023 and presented us with no major concerns about it, so there is no need at this time for any special projects to be completed here.

6. Tackaberry Ridge Storm Pond – ECA# 5510-AQGKHS

The Tackaberry Ridge Storm Pond was recently assumed by the municipality within the last couple of years, making us responsible for it moving forward.

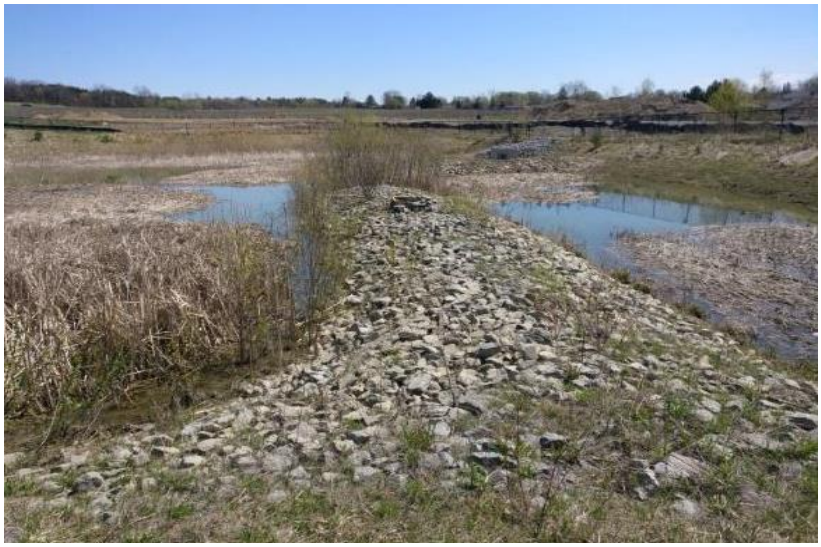
It is located northeast of the Singleton St. and Pinnacle St. North intersection. It is designed to control the quality and quantity of runoff from the Tackaberry Ridge subdivision, and the future development of this subdivision continuing east of the pond.

The pond is comprised of 3 separate cells – cell 1 (a large forebay cell) to the north, cell 2, a smaller cell containing the outlet in the southwest corner, and lastly, a third cell, or "sediment plume", located in the southeast corner. It contains three (3) inlets; one coming from Pinnacle St. North discharging into the forebay cell, another coming from Singleton St. discharging into the sediment plume, and the last one coming from the rear yard drainage swale between the houses to the north that discharges water into the forebay. The outlet is made of concrete and contains multiple orifices containing orifice plates that discharge into the main structure before leaving the pond through a PVC outlet pipe. This pipe then discharges the stormwater to the Pinnacle St. storm sewer that conveys runoff to the Arena Creek near the railway.



As this is a newer pond that was assumed by the municipality over the last few years, it predictably performed well in 2023. No complaints or concerns were brought forward by the residents, and any inspections that took place indicated the same. The one minor concern that was observed during inspections in 2023 was the amount of sediment present around the west inlet, off Pinnacle St. The sediment was very minor, but enough to be noted. It did not impede the flow the water coming into the pond either. Moving forward, this is an issue that will continue to be monitored and addressed as need be.

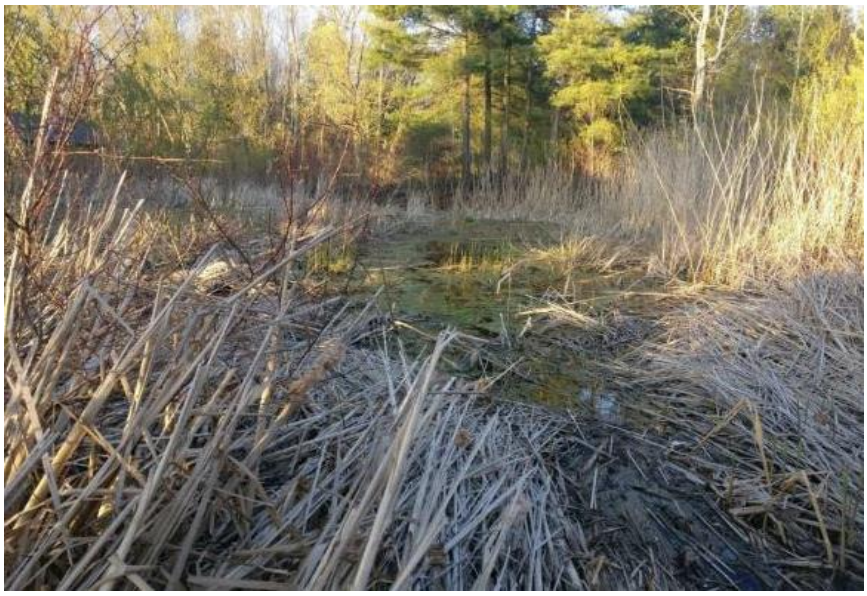
Otherwise, the Tackaberry Ridge storm pond was in excellent shape; vegetation was abundant and healthy, all inlets/outlets were flowing freely, the rip rap spillways were all in great shape, water levels were normal, etc. This is a very good stormwater pond that should continue to perform its function at a high level for many years to come.



7. Roos Storm Pond – ECA# 3617-6HHNWL

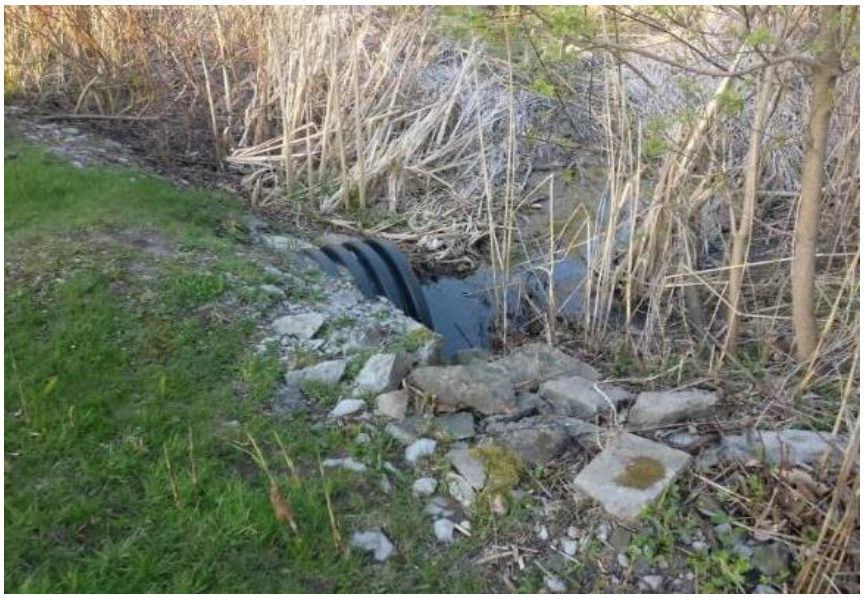
The Roos Storm Pond is located at the southeast corner of the Roos subdivision behind Huron Dr. near the eastern intersection with Iroquois Ave. The pond was constructed in 2006 to control the quality and quantity of runoff from the Roos subdivision before discharging into a southbound ditch through wooded wetlands that ultimately drain to Harbourpoint Storm Pond.

This is a small pond that consists of one cell receiving runoff from the storm sewer on Huron Dr. that discharges into the pond at the southwest corner. The outlet is located on the east side of the pond and consists of a ditch inlet leading to the southbound ditch. There is also an emergency spillway made up of rip rap that is designed to direct water to the ditch in emergency situations when the water level is too high for the pond.



The Roos Storm Pond received no complaints or concerns from residents in 2023, however, there was some concern during inspection regarding the amount of vegetation in and around the pond. The excessive vegetation was prominent around the perimeter of the pond, with some present in the inlet and outlet areas as well. This contributed to an elevated water level at times during the year, especially after rain events. In the summer months, it also made it difficult to manoeuvre around the pond and reach certain areas. It should be noted that during inspection, the water was flowing freely without issue.

To combat this, more attention will need to be paid on removing the excessive vegetation prior to it becoming an issue that affects the water level in the pond. In any event, it will need to be monitored more often and cut back whenever necessary, by hand or by tool.



All in all, the Roos Storm Pond performed adequately and fulfilled its objective without any major issues. The pond was never in danger of overflowing and did not contribute to any stormwater/sewer issues within the Roos subdivision.

OIL GRIT SEPARATORS

We are to implement the monitoring and inspection of all Oil Grit Separators (OGS) within Brighton. This will be part of the implementation of our maintenance plan and schedule on an annual basis. There are six (6) OGS within the community, and all have originated from new developments in Brighton since 2005. They are as follows:

(i) Singleton Street and Thompson Crescent;
(ii) West of Rosslyn Drive;
(iii) North end of Forest Drive;
(iv) West of Mill Pond Court;
(v) Southeast of Dockside Lane; and,
(vi) South of Edgewater Drive.

Stormwater Management System Modifications

Presently, the Municipality of Brighton does not anticipate any modifications to the Stormwater Management System that pose a significant drinking hazard.

Discharge Events/Spills

There were no (zero) spills in 2023.

Complaint Summary

During 2023 we received many inquiries from Brighton residents concerning our stormwater ponds. In addition, we worked alongside and in conjunction with the developers in Brighton to schedule appropriate inspections in accordance with subdivision agreements and assumptions of subdivisions as related to warranty schedules, retention requirements, etc.

Most of the concerns arose from the maintenance of Brighton by the Bay Stormwater Pond as well as the Harbourpoint Storm Pond. There are resident co-ops in the community of Brighton by the Bay and the staff from the Municipality of Brighton work closely to appropriately inform and guide when it comes to agreed maintenance.

It is the intention of staff to work with the Ministry of Environment, Conservation and Parks in addressing any issues (compliance) that may arise and do so in a timely manner. Inspections and inspection reports that do arise have been addressed in timeously and we are making every effort to establish and implement a routine maintenance plan and schedule for all our facilities. In the meantime, we are to place appropriate staff in positions with Environmental Services so that all maintenance plans and schedules can be implemented accordingly.

There have been, heavy rainfall events that have had to potential for flooding. For the moment, our experience has not drawn to our attention to major flooding occurrences, however, a thorough, established and implemented plan and schedule are required in moving forward and to keep the Municipality of Brighton in compliance with all regulations of the Province of Ontario.

In 2023, the Department of Public Works and Infrastructure, our Environmental Services division have installed signage at each stormwater management facility throughout the Brighton community to highlight to residents the purpose of the facility as notified and draw attention to the associated risks and hazards and that these engineered facilities are not intended for recreational purposes. Please see notification and signage as Figure 1.

Figure 1