

Storm Pond Vegetation Control

ISSUE

The purpose of this report is to present the findings of an assessment of vegetation removal, including cattails from storm water ponds in residential neighbourhoods, particularly those near schools.

BACKGROUND

History

At its meeting on April 30, 2018, City Council approved implementing the Storm Water Pond Safety Review findings. The review included recommendations to assess maintenance options for cattails and alternative edging for the Dundonald and Lakeview storm ponds near schools. The Administration committed to bringing back a report to City Council on the study findings.

The Dundonald Pond was built initially as a dry pond in 1983, and was reconstructed as a wet pond in 2005 with grass edging. The landscape consultant involved in the reconstruction recommended that vegetation edging around Dundonald Pond was superior to rock edging from an environmental design perspective for erosion control. Rock edging was also deemed to present a safety hazard for slipping and falling. The Lakeview Pond was constructed in 1979 and has grass, reeds, and some riprap edging. Cattails have grown around the edge of both ponds, but there are still areas with access for permitted recreation activities.

Current Status

Water & Waste Operations completed a Storm Pond Vegetation Feasibility Study, which reviewed growth of cattails and other vegetation in eight storm water ponds in residential neighbourhoods. Of the eight assessed storm water ponds, Dundonald Pond had the highest percentage of vegetation growth relative to overall surface area of the pond (21%), followed by Lakeview Pond (16%). Vegetation growth in other storm water ponds covered less than 12% of pond areas. Appendix 1 provides a summary of the vegetation levels in residential neighbourhood storm ponds.

The Storm Pond Vegetation Feasibility Study assessed costs and feasibility of two available control measures:

- Diquat herbicide application; and
- Aquatic cutting.

The application of diquat is preferred over aquatic cutting. Aquatic cutting on its own was not recommended because the cost is approximately five times more than the cost of herbicide application; and variables, such as strength, thickness, and height of the cattails, could further impact timing and increase the cost.

Public Engagement

Stakeholder consultations identified polarized perceptions about natural vegetation (cattails and willows) around the ponds. The natural vegetation was supported by those

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who perceived positive contributions to safety, aesthetics, and the environment, while others perceived the vegetation negatively. Of those who responded to a Dundonald Community Association survey, 71% supported changes to remove the existing vegetation and add landscaping with low lying plants and gravel, 13% supported the natural look of the pond, and 16% had no preference. Feedback from the Lakeview Community Association and a recreational-use representative indicated support for keeping the existing vegetation in the Lakeview storm water pond.

City of Saskatoon's Current Approach

The Green Infrastructure Strategy recommends naturalization of storm ponds to improve water quality and habitat, while balancing community recreation and other uses. Current storm pond design discourages widespread cattail growth by limiting the amount of shallow pond depth where cattails can grow. Of the City of Saskatoon's 28 wet ponds; 3 ponds have rock or gravel edging; 7 ponds are naturalized; and 18 ponds, including Lakeview and Dundonald, have mixed vegetation edging. Appendix 2 provides pictures with examples of pond vegetation and edging.

Approaches in Other Jurisdictions

Naturalized storm water ponds are common in other jurisdictions because of their environmental benefits. Cattails are generally considered a positive species that contribute to habitat for birds and wildlife and nutrient uptake, which improves water quality. Diquat is used by some municipalities in Alberta for removing cattails. Winnipeg has used dense upland grasses as an edging to deter people from approaching the storm pond shoreline. Winnipeg's preferred maintenance is spot application of herbicide with controlled burns, as required.

OPTIONS

Option 1: Retain Existing Vegetation and Edging and Current Maintenance Practices

The Administration will continue to balance factors related to safety, the environment, citizen preferences, recreation, pond performance, and available resources in maintaining storm water ponds. A number of measures to improve safety near storm water ponds were identified through the Storm Water Pond Safety Review in 2018 including increased education and awareness, signage, maintenance, updates to guidelines for recreational use and modifications to planning and design standards for the construction of future ponds. In addition, at Dundonald Storm Pond, a partial fence was installed to create a further visual and physical barrier between the adjacent playground and the pond. Appendix 3 provides a detailed summary of the advantages and disadvantages of cattails in storm water ponds.

Existing natural vegetation with cattails and willows can contribute to safety by providing a natural barrier to pond entry. Cattails have environmental benefits for water quality by absorbing phosphorus, nitrogen, and other elements. They also reduce toxic algae growth and odour. The existing vegetation provides habitat for wildlife and many bird species, which offer opportunities for bird watching. The existing vegetation provides a natural ambience that is preferred by some people. This option is typically supported by citizens who prefer minimal or no use of herbicides.

The option of retaining the existing naturalized vegetation does not address the preference of some citizens in the Dundonald neighbourhood who advocated for cattail and willow removal.

Option 2: Remove Dundonald Storm Water Pond's Natural Vegetation as Pilot Project

Cattails, willows, and other vegetation could be removed using the herbicide diquat and manual removal. Application of diquat is normally recommended for late June, followed by manual removal of the vegetation two to three weeks later, and a final inspection and removal in late August. All removed vegetation would be hauled to the Compost Depot where diquat has been approved for composting.

The Dundonald Pond attracts many bird species, including red-winged blackbirds, pelicans, herons, and others that are protected under the Federal Migratory Birds Convention Act and Saskatchewan's Wildlife Act. The recommended timing of the herbicide treatment corresponds with the peak nesting season for the Saskatoon region; therefore, the area will need to be surveyed prior to diquat application. Delays in herbicide application and vegetation removal activities will be required if active nests and/or young birds are detected.

The Dundonald Pond could be considered suitable as a pilot project to remove the existing vegetation because it is the only storm water pond in a residential neighbourhood with more than 20% vegetation, and because of the higher level of support for cattail removal in the neighbourhood. This option would be supported by the citizens who advocated for removing the cattails, but would be opposed by people who prefer the naturalized aesthetics and by those who are opposed to the use of herbicides. Although diquat would be diluted to levels that are non-toxic to people or animals, use of a chemical could generate public concerns about the risks to health and the environment.

As part of a pilot project, further assessment of alternative rock edging and native grasses will be undertaken. Although alternative edging will slow the growth of cattails, regular removal will likely be needed to minimize their spread in the future.

RECOMMENDATION: That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the Administration proceed with Option 1 to retain existing naturalized vegetation and edging of storm water ponds and current maintenance practices.

RATIONALE

Both options are viable with different impacts on safety, aesthetics, the environment, recreation, and maintenance. Option 1 is recommended because it supports the Green Infrastructure Strategy, which endorses naturalization of storm ponds to improve water quality and habitat, while balancing community recreation and other uses. Option 1 ensures continued bird and other wildlife habitat and provides passive recreation, such as birdwatching opportunities. Although support among citizens who provided feedback was higher for removing cattails in the Dundonald Pond, removing the cattails is also expected to generate citizen opposition, particularly by those who are opposed to herbicide use.

FINANCIAL IMPLICATIONS

Option 1 will have no incremental costs. If Option 2 is approved, the estimated cost for cattail removal would be about \$10,000, including surveying for active nests or young birds, communication, administration, and contracting for the herbicide application and vegetation removal. Additional costs for alternative edging is expected to cost up to \$60,000, depending on the outcome of the assessment.

If Option 2 is approved, funding for the pilot project would be provided from Capital Project #1621 – TU – Storm Sewer Pond Preservation, which would reduce funding for other work to maintain storm pond performance. Future costs would be about \$10,000 each year the cattails are removed, and additional maintenance costs may be incurred for algae removal. Any future ongoing maintenance will require an increase in the Water & Waste Operations' budget or reduction in other maintenance activities.

ADDITIONAL IMPLICATIONS/CONSIDERATIONS

Highlights of Triple Bottom Line considerations are as follows:

- **Environmental Health and Integrity:** Option 1 contributes more towards healthy ecosystems and clean water.
- **Social Equity and Well Being:** The two options contribute differently to safety and quality of life, depending on perceptions as described in Appendix 3. If Option 2 is approved, appropriate measures will need to be in place for any physical distancing required at the time.
- **Economic Benefits:** Option 1 is the lower cost option.
- **Good Governance:** Option 2 will address the preferences expressed by several Dundonald neighbourhood citizens during consultations; however, some opposition to the cattail removal is also likely. The vegetation removal as a pilot project could provide lessons learned for other storm water ponds.

COMMUNICATION ACTIVITIES

After City Council makes its decision, the information will be communicated to the Dundonald Community Association and the adjacent schools. If any removal work is scheduled, notices would be delivered to residential and commercial properties in the immediate area to let them know what to expect. Signs at all access points would warn people of any hazards that may exist during the work.

APPENDICES

1. Vegetation in Residential Neighbourhood Storm Water Ponds
2. Storm Water Pond Pictures
3. Advantages and Disadvantages of Cattails in Storm Water Ponds

Report Approval

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