Invasive Phragmites Control at Long Point Region and Rondeau Provincial Park

Implementation Plan

Ministry of Natural Resources and Forestry
Natural Resource Conservation Policy Branch, Natural Heritage Section
Southern Region, Aylmer District
Ontario Parks, Southwest Zone

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Ontario

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1.0 Background Information

Phragmites and the 2017 Pilot Control Project

European Common Reed, (*Phragmites australis* (Cav.) Trin. Ex Steud) *Phragmites* is an invasive perennial grass that was transported from Eurasia and is causing severe degradation to coastal wetlands and beaches in North America. In 2005, Agriculture and Agri-food Canada identified it as the nation's "worst" invasive plant species.

Once established in an area, Phragmites can rapidly form extensive monocultures that displace native plant and animal species, decreasing biodiversity, and threatening the habitats of numerous provincially and federally-listed Species at Risk.

The Ministry of Natural Resources and Forestry (`the ministry`) has recognized Phragmites as a significant threat to biodiversity and Species at Risk at Long Point and Rondeau coastal marshes. Using currently available management tools, the ministry has been working with several partners in an attempt to eradicate invasive Phragmites from these locations. Efforts have been unsuccessful in controlling the spread of Phragmites, primarily due to the lack of a registered herbicide for use in Canada in wet areas.

To date, over two million dollars has been invested by the ministry and partners to control Phragmites at Long Point and Rondeau. Control efforts in dry areas are compromised by the inability to control Phragmites populations in adjacent aquatic areas. Further, the majority of Phragmites infestations at Long Point and Rondeau occur in aquatic areas.

In 2016, to address the continued and exponential growth of Phragmites in wet areas in Rondeau Provincial Park and the Long Point region, the ministry was approved by Health Canada's Pest Management Regulatory Agency for an Emergency Registration as a pilot project to allow for aerial and ground application of an herbicide (active ingredient glyphosate). In September 2016, aerial herbicide application by helicopter was the primary method of application to access the remote and sensitive terrain at the majority of sites at Rondeau and Long Point. Aerial application is safe and effective as well as the most efficient method of treating large infestations far from roads, trails, and on otherwise un-drivable terrain.

In August 2015, ministry staff completed project requirements under both the Ministry of Natural Resources and Forestry's Class Environmental Assessment for Resource Stewardship and Facility Development and the Class Environmental Assessment for Provincial Parks and Conservation Reserves

In 2017, the ministry applied for a second Emergency Registration of the glyphosate-based herbicide and received approval from the Pest Management Regulatory Agency to continue the pilot project at Rondeau Provincial Park and the Long Point region. While still considered to be a pilot project in 2017, treatment areas will expand within the Long Point Region, now including critical habitats at Turkey Point and within the Lower Big Creek Watershed. As per the requirements for A Class Environmental Assessment for MNRF Resource Stewardship and Facility Development Projects, a Notice of Revised Notice of Completion was posted on June 3rd, 2017 to provide the public with a 30 day comment period regarding the expansion to new areas.

As a result of successful treatment in 2016, the primary method of follow-up herbicide application in 2017 for areas that were already treated will be through ground application. Ground application is better suited in areas near residences, trees, and low density phragmites stands. An aerial program is proposed in areas that have not yet been treated, including portions of the Long Point Crown Marsh and Turkey Point wetland complex. Implementation of this year's pilot project is scheduled to occur between August 15 and October 31, 2017.

2.0 Purpose and Rationale

The purpose of this project is to control invasive Phragmites in Rondeau Provincial Park and the Long Point Region in order to reduce or remove the threat to the biodiversity and ecological integrity of these areas. The tools and techniques used will be applied based on best available information, which are summarized within the document *Invasive Phragmites – Best Management Practices* (MNRF 2011).

The initiation and continuation in 2017 of this pilot project at Rondeau and Long Point is based on the presence of significant natural values and the observed exponential growth of Phragmites in these coastal marshes. Local biologists and scientists have advised that the health of these coastal marshes is at a critical tipping point. If

immediate action is not taken, the provincial, national and global significant values for which these areas are recognized will be permanently lost. Due to the aggressive nature of the invasive plant, if efforts to eradicate are not continued in 2017 the plant will recolonize in areas treated in 2016.

Phragmites threatens both the ecological and recreational importance of the Rondeau Bay and Long Point Bay areas. Stands of Phragmites crowd out native vegetation and hinder native wildlife from using the area, resulting in a decrease in both plant and animal biodiversity. Invasive Phragmites can also lead to changes in hydrology causing boating channels to become overgrown, wetlands to dry up and eliminate nursery and spawning habitats for fish and loss of access points for recreation.

The ministry and other organizations have been working to ensure that ecological integrity is maintained in these areas by controlling Phragmites where it occurs on dry land using a variety of techniques including a combination of herbicide, mechanical controls, and prescribed burns. However, the success of these control activities has been limited due to the lack of registered herbicides for use in aquatic habitats in Canada. This has restricted the extent of control activities and enabled Phragmites to continue to spread and thrive in these coastal marsh areas, contributing to ongoing degradation of ecological integrity.

Registration of herbicide products is a federal matter conducted by Health Canada's Pest Management Regulatory Agency. Following a successful Emergency Registration in 2016, the ministry received a second approval from the Pest Management Regulatory Agency in 2017 to use a herbicide in wetland areas of Long Point Bay and Rondeau Provincial Park as an expansion to the initial pilot project. The basis of the emergency is due to the imminent threat that Phragmites poses to species at risk within these sensitive wetland complexes. If action is not taken to control Phragmites, these species are at imminent risk of extirpation at these sites.

The proposed herbicide is approved for aquatic use in the United States (the U.S.), by the Environmental Protection Agency, and is considered to be environmentally safe and extremely effective in coastal wetland restoration efforts. It has been used successfully by several U.S. states for controlling Phragmites in coastal wetland areas in the Lake Erie basin.

This pilot project will build upon previous and on-going Phragmites control efforts that have been undertaken in both regions.

2.1 Rondeau Provincial Park

The colonization and expansion of Phragmites in the wetland habitats at Rondeau Provincial Park is a significant threat because these wetlands are recognized globally, nationally and provincially as important areas for biodiversity. Rondeau is ranked as a provincially-significant Life Science Area of Natural and Scientific Interest and a Provincially Significant Wetland. It is also a globally significant Important Bird Area for congregatory species, as well as for waterfowl and migratory land bird concentrations. The variety of habitats within this Important Bird Area contributes to significant bird diversity. Every year, thousands of migrating waterfowl use the area as a stopover and rest point during their travels. The Rondeau Bay wetlands are also home to 17 species on the Species at Risk in Ontario List, which are dependent on the wetland to fulfill one or more of their life functions (e.g. breeding, hibernation, birthing, foraging, etc.).

The threat from Phragmites encroachment and dominance within the Rondeau wetlands also impacts tourism, socio-economic values for the area, and recreational opportunities that are well known to anglers, naturalists, vacationers, and waterfowl hunters, resulting in reductions in aesthetic view-scapes, and increased difficulties for boat launching and shoreline recreational fishing. Rondeau Bay is also a critical area for fish that are harvested through the commercial fisheries on Lake Erie, which is a multi-million dollar industry that stands to be significantly impacted by Phragmites encroachment in shallow waters targeted by many fish species as spawning and nursery areas.

2.2 Long Point Region

The Long Point Region (including the Turkey Point wetland complex and lower Big Creek watershed) is internationally recognized under the United Nations Educational, Scientific and Cultural Organization's World Biosphere Reserve program, and under the Ramsar Convention as an internationally important wetland. Additionally, these areas are designated as Provincially Significant Wetlands, and a Provincial Life Science Area of Natural and Scientific Interest.

The Long Point Region sand spits and associated marshes are also globally significant Important Bird Areas for threatened and congregatory species, waterfowl

concentrations, and migratory land bird concentrations. The Long Point peninsula itself is a significant migratory bird hotspot that attracts birders from around the world who contribute to the local economy.

Additionally, the Long Point area provides many recreational and tourism opportunities, including angling, waterfowl hunting, camping, hiking, nature appreciation, and several water sports. It is also critical spawning and nursery grounds supporting the important Lake Erie commercial fishing industry and several non-commercial fisheries.

3.0 Project Description

The Ministry of Natural Resources and Forestry has considered the use of all approved methods and tools for Phragmites control, in order to attempt to manage Phragmites occurring on Crown lands. Tools and methods currently registered and available for use are outlined in detail within the guidance document “Invasive Phragmites – Best Management Practices” (Ministry of Natural Resources and Forestry 2011).

Because no single control mechanism is effective on its own for this species, an Integrated Pest Management approach will be taken to control Phragmites. Control actions may include any combination of cultural control (e.g., burning), mechanical control (e.g., rolling or cutting) and chemical control (e.g., herbicide application).

In August-October 2017, the ministry in collaboration with the Nature Conservancy of Canada will undertake control of Phragmites using a variety of methods of herbicide application, as per the conditions that have been prescribed by the Pest Management Regulatory Agency on the product label, and as permitted by the Ministry if the Environment & Climate Change (MOECC) through their Permit(s) to Perform an Aquatic Extermination. The Nature Conservancy of Canada is the leading partner on this project in terms of coordination and treatment of Phragmites on private lands. The project will also undertake a fish monitoring plan, as per conditions prescribed by Fisheries and Oceans Canada.

Herbicides will be applied either aerially or by ground methods. Aerial application of the herbicide by helicopter is necessary to access the remote and sensitive terrain at some sites in Turkey Point and Long Point. It can be used safely and is the most effective method of treating infestations far from roads, and trails, and on otherwise un-

drivable terrain. It should be noted that the herbicide will be applied directly to the dense canopy of Phragmites, and that herbicide will not be sprayed in open water areas.

It is anticipated for 2017 that most of the aerial application of herbicide will occur at the Long Point Crown Marsh and the Turkey Point Wetland complex (see Figures 2 and 5). Ground application of herbicide may occur as a complementary activity to aerial treatment in any of the areas highlighted for the Long Point Region, including the Crown Marsh (see Figure 2), the tip of Long Point (see Figure 3) and Long Point Company lands Figure 4), Turkey Point complex (Figure 5), and Lower Big Creek watershed (Figure 6).

Work related to the 2017 pilot project for control of Phragmites at Rondeau Provincial Park will occur within the regulated park boundary. Ground herbicide application may occur in any of the areas identified in Figure 1.

If conditions and resources permit, following the herbicide treatment of Phragmites, it will be cut or rolled (no earlier than 3-4 weeks after pesticide treatment to ensure sufficient transport of the herbicide to the root system) and then burned during the appropriate window. Sites will be checked post-treatment, to document success or need for repeat treatments (i.e. presence/absence of Phragmites).

4.0 Environmental Mitigation

4.1 Chemical Control

An herbicide (Roundup® Custom For Aquatic & Terrestrial Use Liquid Herbicide, Registration Number 32356 Pest Control Products Act; active ingredient glyphosate) will be used in this project. This use will follow all requirements of the Ontario Pesticides Act, the federal Pest Control Products Act, and all other relevant legislation. Use of this pesticide will be done following Integrated Pest Management principles including:

1. Focusing control actions to vulnerable stages of the target plant;
2. Using appropriate application technology to minimize non-target impacts;
3. Monitoring weather and only applying when off-target deposition can be minimized;
4. Integrating herbicide control with other physical methods (rolling, burning) to maximize effectiveness;

5. Associated monitoring of effects on soil, water and wildlife
6. Monitoring, evaluation and reporting of the results of this spray program.

4.2 Reducing Non-target Impacts to Wildlife and Plants

4.2.1 Herbicide Application Area

Herbicide application will be targeted to areas dominated by dense stands of Phragmites and will not be sprayed in open water areas. All efforts will be undertaken to minimize non-target impacts to other plant species. The timing of herbicide application will also assist to avoid impacts to the majority of native plants as they will be entering dormancy for the winter.

4.2.2 Herbicide Application Timing

In order to avoid impacts to recreational hunting within regulated waterfowl hunting units, herbicide application will be completed sometime between August 15 - October 31, outside of regulated hunting days (September 9, 10, 16, and 17) for Rondeau Provincial Park.

For Long Point Crown Marsh, aerial herbicide application is targeted to occur outside of regulated hunting days between September 11th and October 31st. Ground herbicide application may occur any time between August 15th – October 31st, 2017; however, the majority of ground treatment will most likely occur by the end of September in order to retain the integrity of project monitoring.

Operations in the private lands of the Turkey Point Wetland Complex may occur between September 5th and October 31st. Hunting season for waterfowl opens on September 23rd and aerial treatment will most likely be completed by this date.

The wetlands in Lower Big Creek will be treated by ground and will occur after treatment of the Long Point Crown Marsh and Turkey Point Wetland Complex is complete. This may occur in mid-September-October 31st. There is an open season for waterfowl in this area starting on September 23, 2017. To mitigate impacts to hunters, ground treatment will occur mid-day to avoid peak activity of hunting at dawn and dusk.

This timing window is ideal for minimizing indirect impacts, as bird breeding/nesting seasons are completed, amphibians and reptiles will be staging (preparation stages for

hibernation), most native plants have senesced and insects have completed the majority of their life stages.

4.2.3 Prescribed Burning Timing

Prescribed burns for Phragmites are typically undertaken during the winter months (January – March). The ministry will aim to burn the treated sites during this timing window, unless new information comes forward indicating that an alternate burning window is more effective and will not result in impacts to non-target plants and wildlife. Use of data loggers during winter burns has shown that below ground temperature increases from fire are minor in nature, and are limited to ~1 inch depths from the surface. Therefore, the ministry is confident that winter burns are unlikely to have negative impacts on hibernating species.

4.2.4 Motorized Access

In order to reduce impacts to wildlife, any motorized access for the purpose of Phragmites control will be limited to:

- Lightweight, slow-moving vehicles with tracks (e.g. specialized Argo, Marsh Master etc.), or
- Boats

5.0 Monitoring

Although the pilot project's proposed use of herbicide containing glyphosate in aquatic habitats for control of Phragmites is not unique in the United States, 2016 marked the first time this work has been undertaken in Canada. Combined with 2017, the results of this pilot project may inform similar control initiatives in the future within Ontario, and Canada. Thus, the Ministry of Natural Resources and Forestry has formed a partnership with the University of Waterloo, and created a Monitoring Plan to assess the following:

1. Efficacy of the herbicide treatment – continuation of surveys of vegetation plots established in 2016 to assess changes in the vegetation communities as a result of the project

2. Effects of the control activity on sensitive emergency coastal marsh communities, including benthic invertebrates;
3. Fate of glyphosate, AMPA and the adjuvant in water and sediment at the treatment sites, and their dispersal from treatment sites; and
4. Assessment of risks of the herbicide application to biofilms and the wetland food-web (including amphibians)

In addition, the ministry will also be monitoring impacts on local fish populations pre- and post-treatment according to conditions and monitoring direction set out by the Department of Fisheries and Oceans (DFO). Analysis of aerial imagery captured in the following year will also occur to assess the presence of drift and effects on native plant communities adjacent to the aerial herbicide application sites. As in 2017, this occurred through aerial surveys and UAV monitoring. Analysis through satellite imagery may also be available in the future. Water samples from shoreline residences adjacent to treatment areas at Lower Big Creek, Turkey Point, and Long Point will also be analyzed to determine glyphosate presence and/or concentration.

6.0 Communications and Notification

Pesticide use notification plans for Rondeau Provincial Park and Long Point have been prepared in accordance with the requirements of the Ontario Pesticides Act, 1990.

All notification actions are designed to meet the public's general right to know about herbicide applications made to outdoor public places that are owned or controlled by public authorities, and allow members of the public to take action to avoid potential contact with herbicides, if they wish. The Ministry of Natural Resources and Forestry will ensure that herbicides are applied to public places in a safe, responsible manner, minimizing harm to the community and the environment.

The ministry will notify members of the public and the following stakeholder groups about herbicide applications made for the purpose of controlling Phragmites in aquatic areas at Rondeau Provincial Park and Long Point Region prior to the commencement of any work:

Long Point:

- Residents of Long Point

- Residents of Turkey Point
- Any resident within 800 m of a herbicide application area
- Turkey Point Property Owners Association
- Long Point Ratepayers Association
- Boaters
- Waterfowl Hunters
- Municipality, Health Unit, Ontario Provincial Police, Fire Department, local hospitals
- Bird Studies Canada
- Long Point Provincial Park staff, Day users and Campers

Rondeau:

- Campers
- Park Day Users
- Cottage Leaseholders and Other Tenure Holders
- Park Staff
- Friends of Rondeau
- Boaters (including the Rondeau Yacht Club)
- Waterfowl Hunters
- Municipality, Health Unit, Ontario Provincial Police, Chatham-Kent Police Service, Fire Department

Notification arrangements have been based on the ministry's assessment of the level of usage of the areas where pesticide may be used and the extent to which activities generally undertaken in these areas could lead to the potential for contact with herbicides.

7.0 Safety Plan

The contractor responsible for the aerial and ground herbicide application is required to provide a safety plan to be approved by the ministry.

Prior to commencement of the project, the local municipalities, health units, Ontario Provincial Police, fire departments and hospitals at Rondeau and Long Point will be notified. The local health authorities will also be provided with toxicological information

about glyphosate prior to initiation of the project to ensure they are prepared to address health concerns from the public.

Local residents, park visitors, and other stakeholders will be provided with contact information for the MOECC's Spills Action Centre and the local Pesticide Specialist.

8.0 Contact Information

For more information about this project, please contact:

Rondeau Provincial Park:

Brad Connor, Rondeau Provincial Park Superintendent

Phone: 519-674-1760

Email: brad.connor@ontario.ca

Long Point:

Project Supervisor

Phone: 519-670-3834

Email: longpointphragproject@ontario.ca

9.0 Mapping

9.1 Rondeau Provincial Park

Proposed Ground Treatment Sites

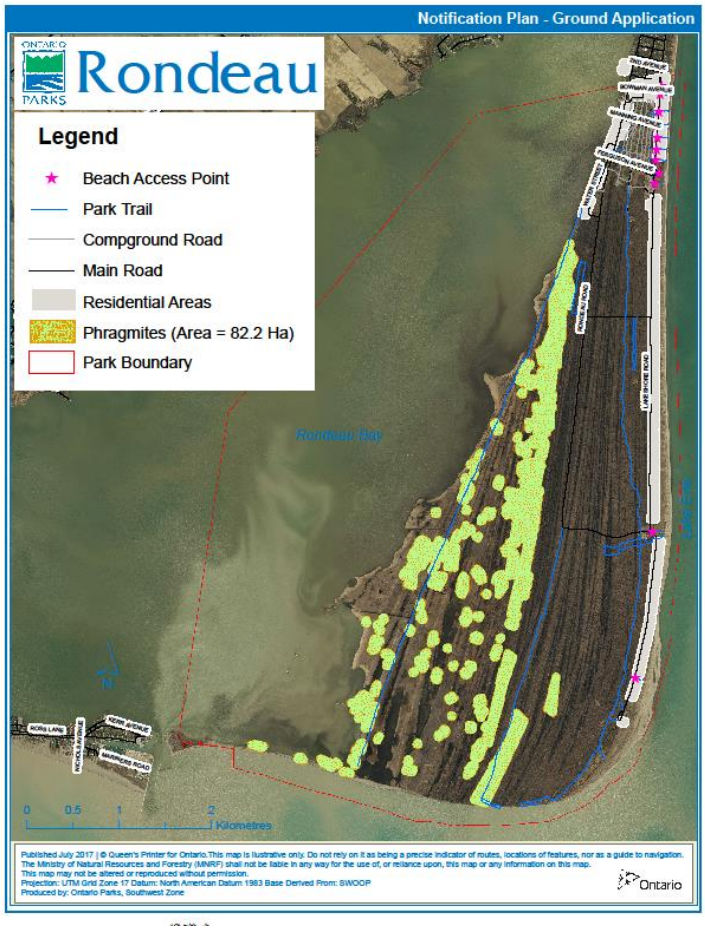

Figure 1: A map of Rondeau Provincial Park depicting proposed ground herbicide treatment sites for 2017 with the addition of a 45 metre buffer to mitigate impacts to non-target vegetation.

9.2 Long Point Region

Proposed Aerial Treatment Sites at Long Point Crown Marsh

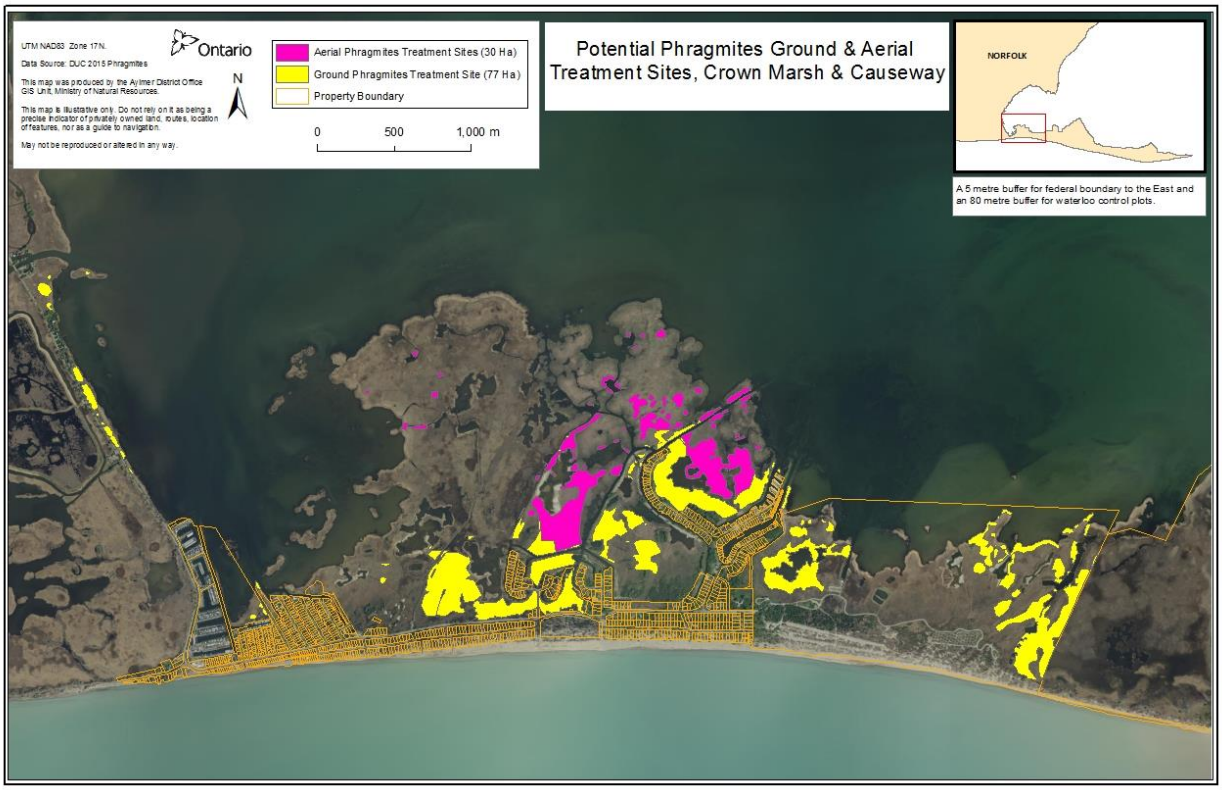

Figure 2: A map of Long Point Crown Marsh and Long Point Provincial Park depicting ground and aerial herbicide treatment sites for 2017.

Proposed Ground Treatment Sites at Long Point Tip

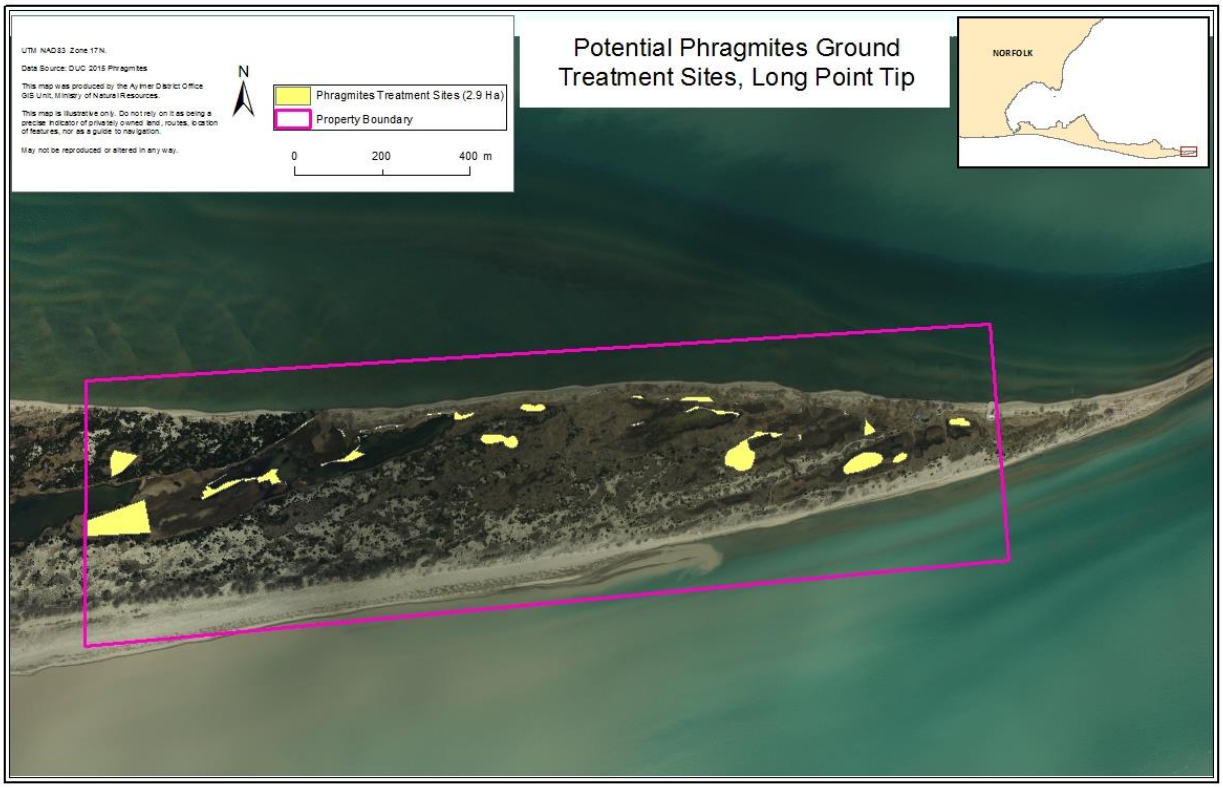

Figure 3: A map of Long Point Tip depicting ground herbicide treatment sites for 2017.

Proposed Ground Treatment Sites at Long Point Company

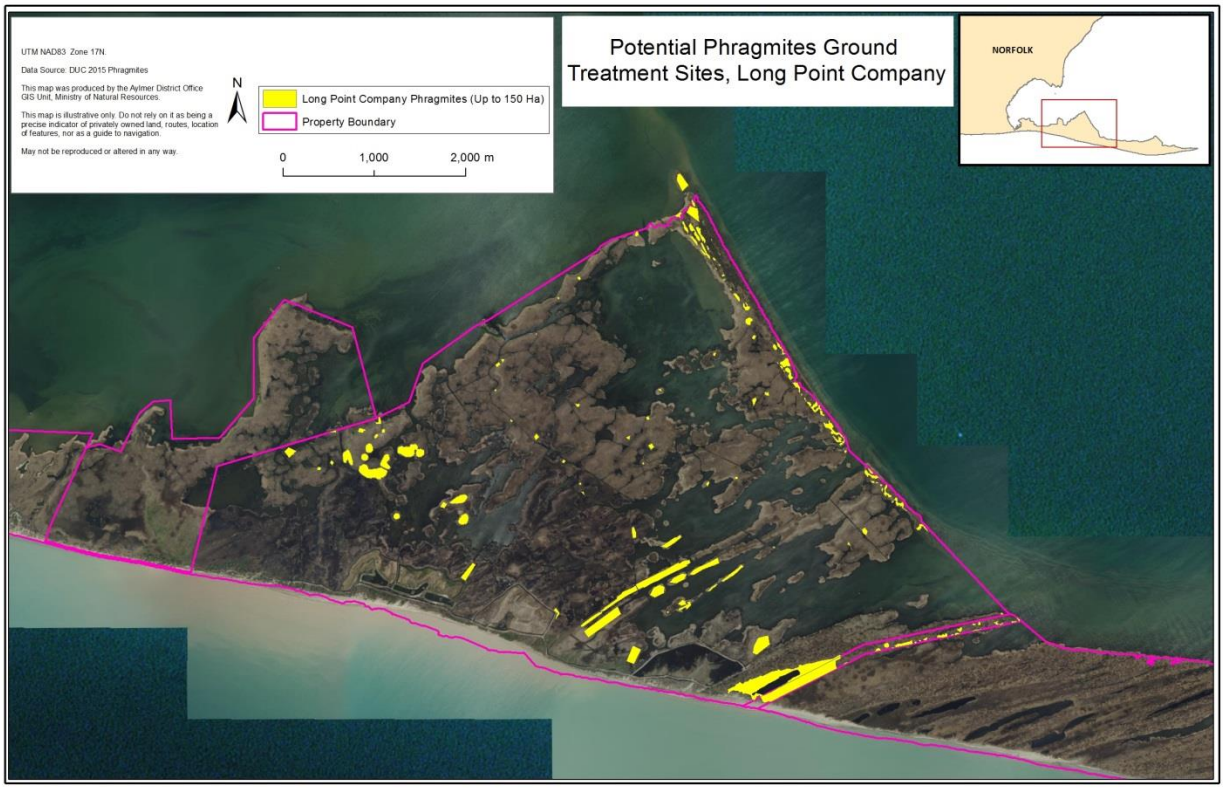

Figure 4: A map of Long Point Company depicting ground herbicide treatment sites for 2017.

Proposed Aerial and Ground Treatment Sites at Turkey Point Private Lands

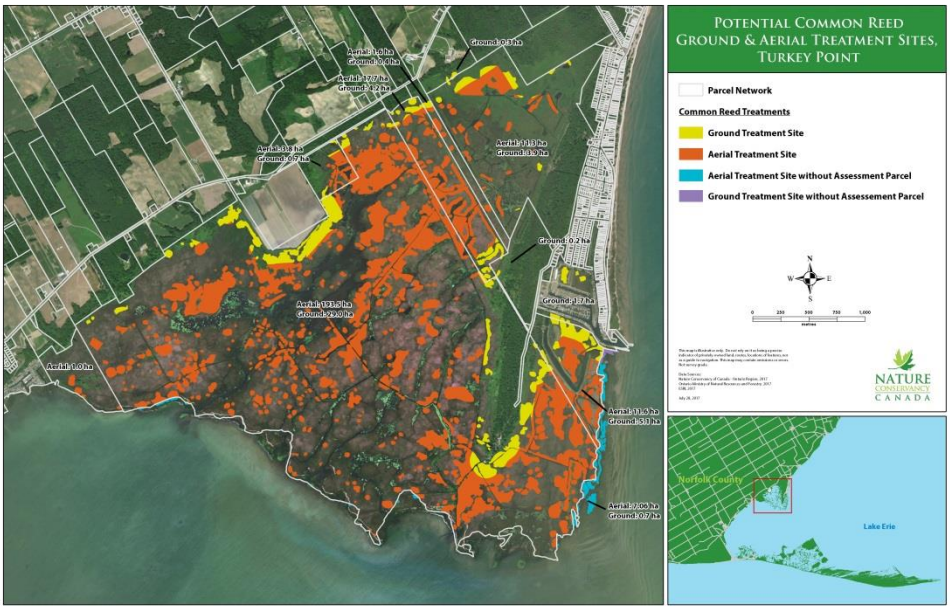

Figure 5: A map of lands in the Turkey Point area depicting both aerial and ground treatment sites for 2017.

Proposed Ground Treatment Sites at Lower Big Creek

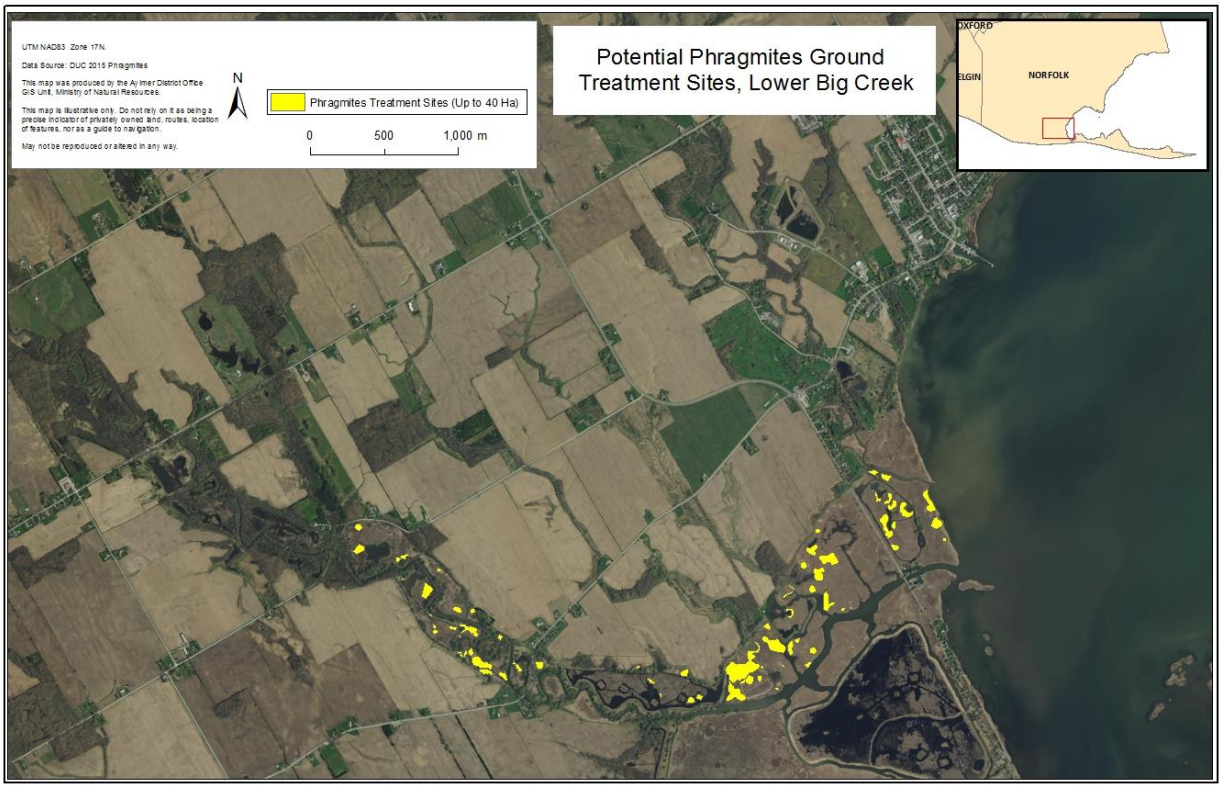

Figure 6: A map of lands in the Lower Big Creek area depicting ground treatment sites for 2017.