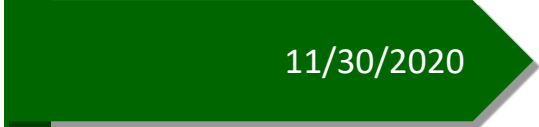


Appendix F

Terrestrial Environment Report: Vegetation and Wetlands



11/30/2020

Terrestrial Environment Report: Vegetation and Wetlands

Milltown Generating Station Decommissioning Project,
Milltown, NB



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Project No. 20-0160



B O R E A L
E N V I R O N M E N T A L

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APPENDICES

Appendix A Plant List

Appendix B Atlantic Canada Conservation Data Centre Report

1 Introduction

This document is a supplementary technical report that is intended to support the environmental impact assessment (EIA) registration document and other environmental permitting applications for the Milltown Generation Station Decommissioning Project (the Project) proposed by the New Brunswick Power Corporation (NB Power) in the neighbourhood of Milltown, in the Town of St. Stephen, Charlotte County, New Brunswick, Canada.

The Project is situated on the international boundary between Canada and the United States of America, within the wetted portion of the St. Croix River (also known as the Skutik by the Peskotomuhkati [Passamaquoddy] First Nation). Because of this physical location, the Project is subject to the regulatory review and approval processes by Canadian, U.S.A., and international jurisdictions.

In Canada, the Project is an “undertaking” under item (b) of Schedule A of the *New Brunswick Environmental Impact Assessment Regulation – Clean Environment Act* (EIA Regulation) [“(b) all electric power generating facilities with a production rating of three megawatts or more”]. Dillon Consulting Limited (Dillon) was retained by NB Power to complete natural environment surveys in support of a provincial EIA registration and other Canadian and U.S.A. environmental permitting requirements for the Project. Boreal Environmental Inc. (Boreal) was subcontracted to conduct certain elements of the study including conducting field work for the Vegetation and Wetlands study and associated data analysis and reporting to characterize site-specific environmental conditions. The information collected for this study will be provided to regulatory agencies in the U.S.A., in particular the Maine Department of Environmental Protection (DEP), the United States Army Corps of Engineers (USACE), and the National Oceanic and Atmospheric Administration—National Marine Fisheries Service (NOAA-NMFS), as supporting information in their review of U.S.A. permit applications for the Project.

Vegetation and wetlands are considered an important feature and valued component (VC) of the environment and thus make up a key part of the assessment of the Project’s potential effects on the environment. This technical report provides a summary of vegetation and wetland field surveys of the Milltown Generating Station’s properties that are located on the Canadian side of the international boundary, which were conducted in support of the Project’s EIA registration and environmental permit applications. This technical report includes: a brief description of the Project; a description of the regulatory framework; survey scope and methodology; a summary of the results; and discussion thereof. The assessment of residual effects (including potential interactions and mitigation) of the Project on vegetation and wetlands is addressed within the main body of the Project’s EIA registration document.

Though other focused environmental surveys were completed concurrently, the focus of this technical report is on vegetation and wetlands. The remaining field surveys (i.e., wood turtles, bats, birds, and fish and fish habitat) are summarized in separate technical reports that are also intended to support the EIA registration and other environmental permits.

1.1 Project Overview

This Project overview is an abbreviated summary for the purposes of this technical report. For a detailed description of the Project facilities/components, phases and activities, the reader is referred to the EIA registration document (Dillon 2020).

The Project will be carried out in the neighbourhood of Milltown, in the Town of St. Stephen, Charlotte County, New Brunswick, Canada as well as in the City of Calais, Washington County, Maine, U.S.A. The parcel identifiers (PID) of the properties owned by NB Power in Canada and which are associated with the Milltown Generating Station (the Milltown Station), as referenced by Service New Brunswick, are PID Nos. 01311208, 15043961, 15086127, 01310713, 01309988, and 15086119. The Milltown Station is situated on the international boundary between Canada and the United States of America (U.S.A.). On the Canadian side of the Canada/U.S.A. international boundary, the land at the Milltown Station site has an area of approximately 5.86 hectares (ha). In addition, NB Power owns a submerged water lot of the Canadian portion of the Skutik/St. Croix River bed, with an approximate area of 2.0 ha.

Physical infrastructure on the U.S.A. side of the international boundary will be managed separately through the applicable U.S.A./State permitting processes.

The Milltown Station is comprised of the following existing facilities located on both sides of the international boundary:

- Powerhouses and related equipment: Powerhouses A, B, and C contain the turbine-generators and other mechanical and electrical systems and instrumentation, including: control room, motor control centres, various instrumentation, and related systems. In addition, there is office space, a lunch room, washrooms, and related amenities.
- Dam and related structures: the dam, which retains water in a relatively small impoundment, includes: a gated spillway with gate house, a rollway with flashboards, a spillway with stop logs, and an impoundment. The impoundment extends approximately 450-500 m upstream of the Milltown Station (i.e., the head of the impoundment is at the nearest upstream rapids located near some small islands in the river, known locally as Milltown Rapids), and has a surface area of approximately 6 ha.
- Fish passage facilities: An upstream pool-and-weir fishway adjacent to Powerhouse A, and a downstream fishway located at the gated spillway.
- Electrical substation: An electrical substation (terminal) is located on-site which connects the Milltown Station to the remainder of the New Brunswick electrical grid.
- Other related facilities and infrastructure: other facilities and infrastructure include a security guard house, security gate, perimeter fencing, navigational safety buoys in the impoundment, retaining walls, parking and related facilities, and other facilities typical of industrial facilities.

As currently envisioned by NB Power, decommissioning of the Milltown Station (i.e., the Project) will involve the full dismantling and removal of all equipment, buildings, and structures associated with the existing Milltown Station in both Canada and the United States (except for the on-site electrical substation which will remain in place), including a full bank-to-bank decommissioning of all structures within the Skutik/St. Croix River. All structures and mechanical and electrical components associated with the powerhouses, gate house, gated spillway, rollway, stop log spillway, dam, fishways, and other structures will be dismantled, demolished, and removed, and limited restoration of the site and the river at the location of the Milltown Station will be conducted with the ultimate goal of the Project to remove all human-made structures that obstruct fish passage so as to allow fish to naturally access the upstream reaches of the Skutik/St. Croix River.

While the Milltown Station was reportedly built atop a natural waterfall (Salmon Falls), the full removal of the Milltown Station, dam, and associated components will be carried out with the intention to allow the unimpeded ability for diadromous (migrating) fish that are able to ascend the falls to voluntarily access a further 16 kilometres (km) of the Skutik/St. Croix River and its tributaries (i.e., up to the next upstream natural or human-made obstruction) in order to carry out their lifecycle processes.

1.2 Project Development Area

The Project Development Area (PDA) is defined as the area of physical disturbance (or physical footprint) associated with the Project. In Canada, the PDA on land consists of an area of approximately 1.4 ha (i.e., a portion of the Milltown site within the larger 5.86 ha properties associated with the Milltown Station) that will be directly affected by Project activities, and includes all Milltown Station-related facilities that will be decommissioned and removed as well as areas to be used as laydown/temporary storage for the decommissioning activities. In addition, the portion of the PDA located within the St. Croix River itself (Canadian side of the international boundary only) that will be directly affected by Project activities is approximately 0.54 ha.

The portion of the PDA located within the Skutik/St. Croix River itself (Canadian side only of the International Boundary Commission's official boundary line) that will be directly affected by Project activities is approximately 0.4 ha. The portion of the PDA that is within the U.S.A. side of the International Boundary Commission's official boundary line, within the St. Croix River is 0.13 ha.

The Canadian portion of the PDA for the Project is presented on Figure 1. The study area (discussed below in Section 3.0) was based on the extent of the PDA plus any riparian area that might experience direct or indirect changes as a result of the project. The area of physical disturbance associated with the Project (i.e., PDA) on the U.S.A. side of the international boundary is shown for illustrative purposes on Figure 2.

1.3 Overview of Regulatory Framework

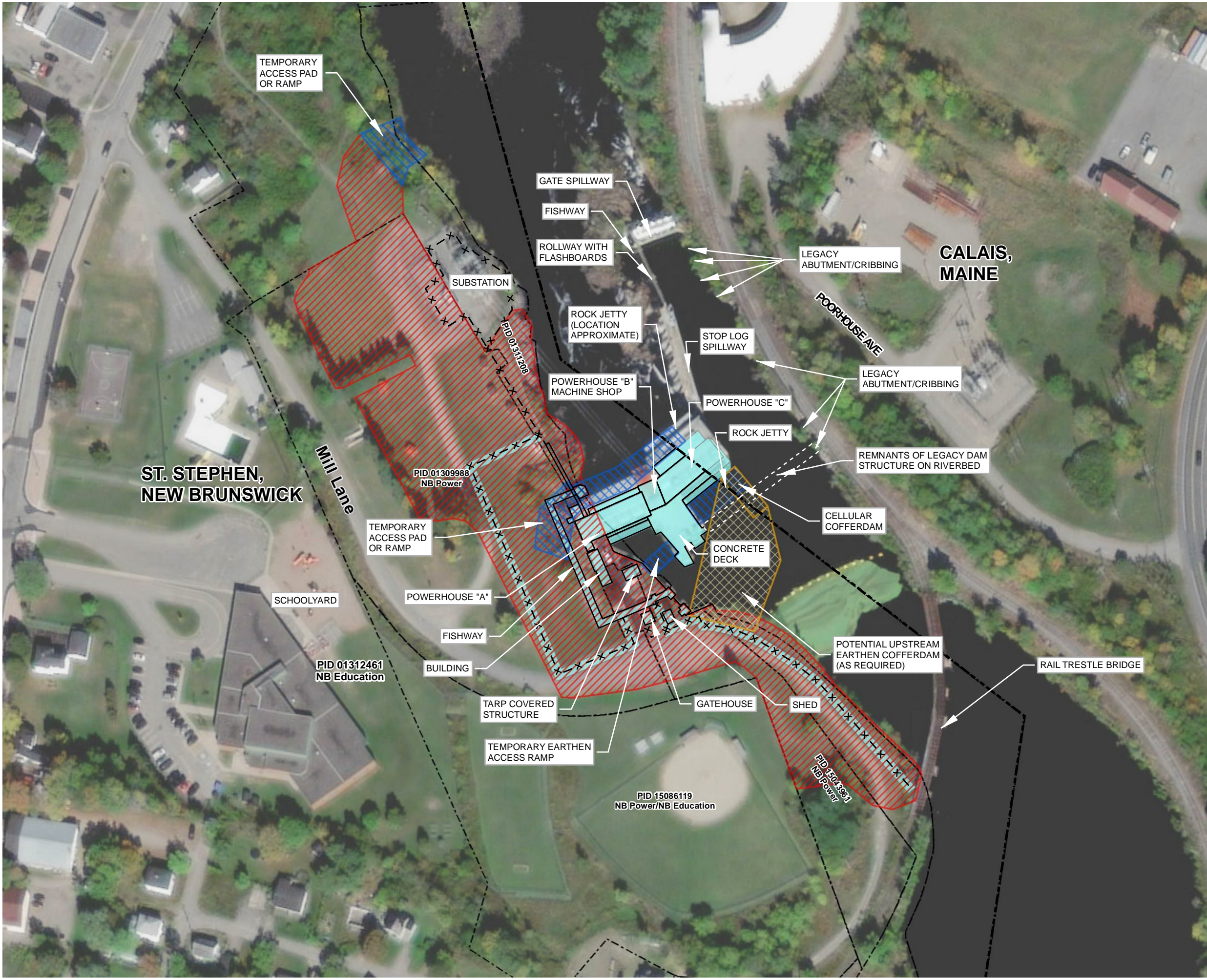
Because the Milltown Station is situated on the international boundary between Canada and the U.S.A., the Project is subject to both federal and provincial Canadian environmental permitting and EIA processes as well as federal, state, and local U.S.A. environmental permitting processes, and international jurisdictions.

The New Brunswick *Environmental Impact Assessment Regulation – Clean Environment Act*, administered by the New Brunswick Department of Environment and Local Government (NBDELG), establishes the EIA process in New Brunswick. The EIA Regulation requires that all “undertakings” listed on Schedule A of the EIA Regulation (including their proposed construction, operation, modification, extension, abandonment, demolition, or rehabilitation) require registration. The following item under Schedule “A” of the EIA regulation applies to the Project: “(b) all electric power generating facilities with a production rating of three megawatts or more” (for the physical decommissioning, demolition, abandonment, and rehabilitation work associated with the Milltown Station).

Additionally, wetlands are protected by the New Brunswick *Watercourse and Wetland Alteration Regulation – Clean Water Act* under the mandate set by the New Brunswick Wetlands Conservation Policy. Projects under federal review are subject to Canada’s Federal Policy on Wetland Conservation. Some plant species are designated as species at risk (SAR) and are protected under one or both of the federal *Species at Risk Act* (SARA) and New Brunswick *Species at Risk Act* (NB SARA).

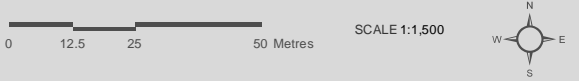
Within the U.S.A., wetlands are protected federally through Section 404 of the *Clean Water Act*. Endangered species including designated plant species are protected under the US *Endangered Species Act*.

Furthermore, the Milltown dam itself is regulated by the International Joint Commission (IJC), who is mandated by the Boundary Waters Treaty to maintain water levels in watercourses and water bodies that form an international boundary.



- x — Fence
- - - Canada-USA Border
- ▨ Laydown/Access
- ▩ Earthen Structures
- ▭ Infrastructure to be Decommissioned/Removed
- ▭ Potential Cofferdam
- ▭ Property Parcels

* Project components on the US side of the International Boundary are not included in the scope of this EIA, but will be subject to applicable US permitting.



MAP DRAWING INFORMATION: ESRI, DIGITALGLOBE, GEOEYE, EATHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
 DATA PROVIDED BY: NEW BRUNSWICK POWER, DILLON CONSULTING, NB DEPARTMENT OF NATURAL RESOURCES, INTERNATIONAL BOUNDARY COMMISSION

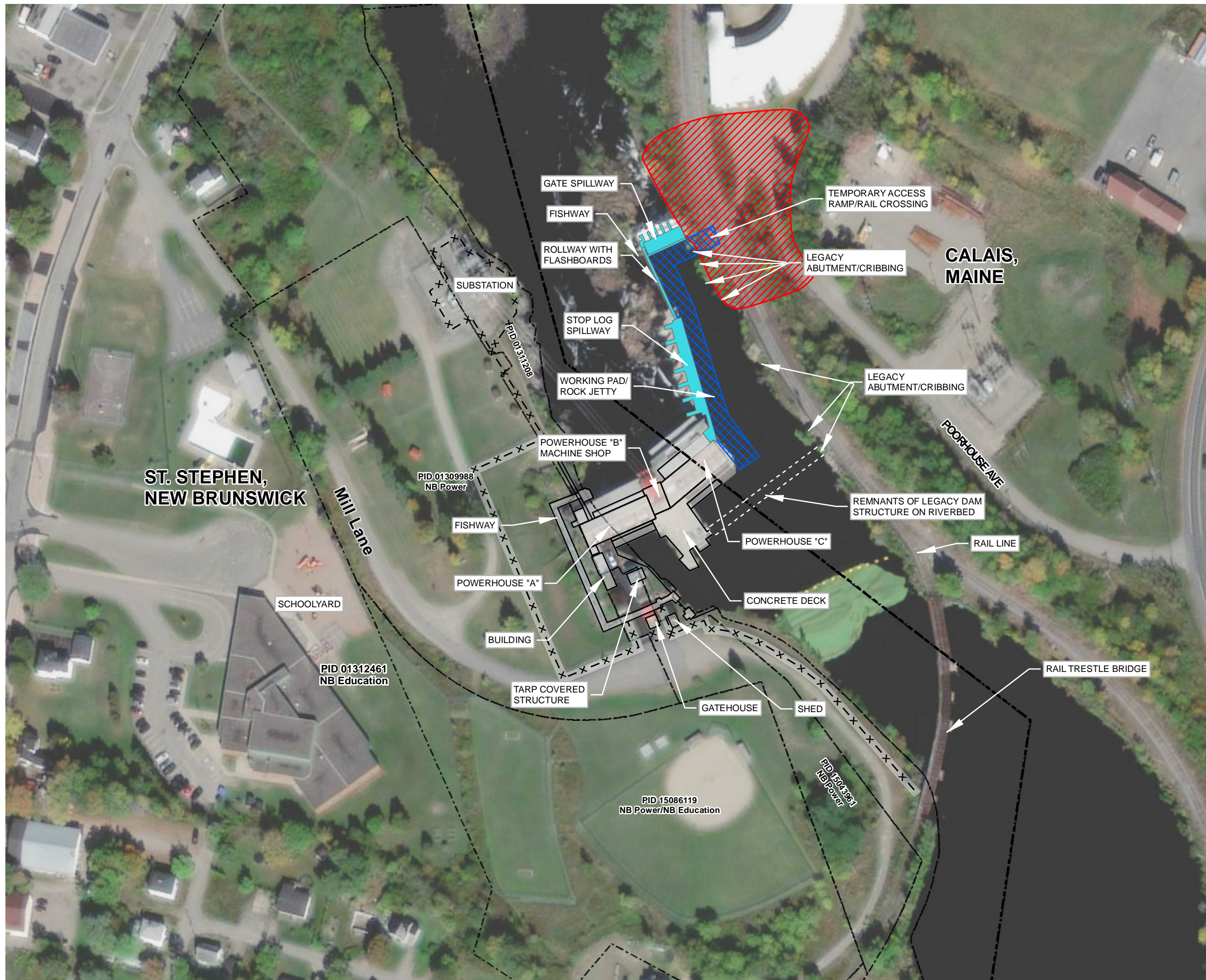
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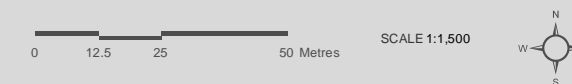


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- x — Fence
- - - Canada-USA Border
- [Red Hatched Box] Laydown/Access Area
- [Blue Hatched Box] Earthen Structures
- [Cyan Box] Infrastructure to be Decommissioned/Removed
- [Dashed Line Box] Property Parcels

* Project components on the US side of the International Boundary are not included in the scope of this EIA, but will be subject to applicable US permitting.



MAP DRAWING INFORMATION: ESRI, DIGITALGLOBE, GEOEYE, EATHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
DATA PROVIDED BY: NEW BRUNSWICK POWER, DILLON CONSULTING, NB DEPARTMENT OF NATURAL RESOURCES, INTERNATIONAL BOUNDARY COMMISSION

MAP CREATED BY: SCM
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PROJECT: 19-1594
DATE: 2020-11-30

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2 Scope of Work

The New Brunswick “Guide to Environmental Impact Assessment in New Brunswick” (EIA Guide; NBDELG 2018) as well as other environmental permitting in both Canada and the U.S.A. requires that physical and natural features be described and assessed to support assessment of environmental effects and permitting including, where appropriate, the collection of field data during appropriate seasonal windows. This information typically includes the following:

- The type and extent of wetland habitat;
- Presence of, or potential for, plant species of conservation concern (SOCC) and species at risk (SAR) or their habitat; and
- Presence of critical, sensitive, or otherwise designated protected habitat.

The scope of work for the vegetation and wetland surveys for this project is based upon an understanding of the nature of the Project, the extent of the PDA, as well as Dillon’s and Boreal’s experience in assessing similar landscapes/natural systems. For the purposes of this report and in support of the EIA registration for the Project, the scope of assessment for vegetation and wetlands considers the following:

- Wetlands – Wetlands are defined under the *Clean Water Act* as “land that (a) either periodically or permanently, has a water table at, near or above the land’s surface or that is saturated with water, and (b) sustains aquatic processes as indicated by the presence of hydric soils, hydrophytic vegetation and biological activities adapted to wet conditions” (*Clean Water Act* 1989);
- Plant Species of Conservation Concern and Species at Risk – This study focusses on plant species of whose local or regional populations may be at risk of extirpation due to human activities. We define “species at risk” (abbreviated SAR) as those species that are listed as “Extirpated”, “Endangered”, or “Threatened” on Schedule 1 of the *Species at Risk Act* (SARA) or the New Brunswick *Species at Risk Act* (NB SARA). We also define “species of conservation concern” (SOCC) as those species that are not SAR but are listed in other parts of SARA, NB SARA, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), or are regionally rare or endangered by the Atlantic Canada Conservation Data Centre (AC CDC) (i.e., those species with AC CDC S-ranks of “extremely rare” [S1], “rare” [S2], or “uncommon” [S3]); and
- Critical or Sensitive Habitats – These would include:
 - vegetation communities designated as protected Critical Habitat as defined under Section 2 of the SARA;
 - any Environmentally Significant Areas (ESAs) noted for the support of rare plants (Tims and Craig 1995);
 - provincially designated Protected Natural Areas (PNAs);

- other vegetation communities with a high concentration and diversity of plant SOCC; and
- habitats identified as protected or managed by federal and provincial authorities or non-governmental organizations (e.g., Nature Trust of New Brunswick).

It is understood that natural systems have some degree of interconnectivity. The vegetation and wetlands VC is most specifically directly connected to the terrestrial areas along the Skutik/St. Croix River, but can extend into the aquatic environment and derives its much of character from the hydrology of the river and the movement of ice in winter and spring. The use of these vegetated habitats by wildlife and aquatic species are described in separate reports.

Vegetation and wetland habitat surveys were conducted at various times during the 2020 field season, as detailed later in Section 4 of this report.

The properties and riparian portions of the River on the U.S.A. side of the international boundary were not included within the scope of the vegetation and wetlands technical field surveys and studies discussed herein, due to the relatively homogeneous nature of the river banks and related habitats on both sides of the international boundary line as well due to border restrictions, specifically a closed international border at the time of the surveys due to the COVID-19 pandemic. Nonetheless, the information presented herein is believed to be relevant and sufficient to inform the regulatory processes on the U.S.A. side of the international boundary. The concept of conducting field surveys on Canadian side of the international boundary only was discussed with the Maine DEP and was determined to be acceptable. Certain aspects of the Project and VCs that are located within U.S.A. jurisdiction will be assessed as applicable following U.S.A. protocols and regulatory permitting processes, and will be summarized in separate documents as required.

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3 Methodology

3.1 Study Area

The spatial extent of the vegetation and wetlands study area encompasses approximately 7.7 ha, extending 560 m upstream and 450 m downstream of the Milltown Station along the Skutik/St. Croix River. The study area was within the confines of the Canadian side only of the International Boundary Commission's official boundary line. Figure 3 shows the extent of the study area.

3.2 Desktop Review

Sources of readily available information from reputable sources on the ecological setting of the Skutik/St. Croix River were consulted in advance of field surveys. These information sources included:

- Known locations of previous records of plant SOCC and SAR, and sensitive habitats such as ESAs from the Atlantic Canada Conservation Data Centre (AC CDC) included in Appendix A; and
- Aerial imagery and provincial wetland mapping available on the online provincial geographic information gateway: GeoNB, hosted by Service New Brunswick.

3.3 Field Surveys

Boreal's terrestrial ecologist conducted vegetation and wetland surveys during the 2020 field season over the full extent of the study area shown on Figure 3. The survey dates were spread out over the length of the growing season in order to capture the optimal survey periods for various species with differing rates of development. Early surveys were conducted on June 18, 19, and 23, 2020, with additional surveys conducted on July 15, August 20, August 31, and September 1, 2020. NB Power's Indigenous field liaison accompanied Boreal staff for some of these surveys.

The surveys were conducted both by water (from a boat) and on land, including an island in the river located at the southern extent of the Study Area. Land surveys were conducted in a random meandering fashion focusing on unique habitats within the Study Area, while shoreline surveys within the headpond were conducted by scanning the shoreline from a boat. Specimens were collected for species that could not be identified in the field for more in-depth examination and identification. During the surveys, all vascular plant species encountered were recorded and specific location data were recorded for each SOCC and/or SAR location. Information on major plant community types and their extent and location were recorded.

During these surveys, any wetlands encountered would be delineated in accordance with the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the Draft Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (U.S. Army Corps of Engineers 2008). This is the accepted methodology for delineating wetlands in the province of New Brunswick.

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**Milltown Generating Station
Decommissioning Project**

Figure 3

St. Stephen, NB November 30, 2020





Imagery source: Esri


 Study Area

 Project Development Area

Vegetation Communities

 Immature hardwood

 Non-vegetated

 Lawn and weedy vegetation

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4 Results and Discussion

The Project is located within the Valley Lowlands Ecoregion, and specifically within the Magaguadavic Ecodistrict. This Ecodistrict is characterized by low relief, many wetlands, and meandering streams (Zelazny, 2007). Because the project is in the southwestern corner of the province of New Brunswick, the area has a relatively warm climate further moderated by the nearby ocean. There are several plant species that are at their northern range limit in this area and are considered rare because their provincial range is restricted to this area. Such species include nannyberry (*Viburnum lentago*), northern arrowwood (*Viburnum recognitum*), lanceleaf loosestrife (*Lysimachia hybrida*), sweet wood reed grass (*Cinna arundinacea*), and cardinal flower (*Lobelia cardinalis*). While rare in New Brunswick, many of these species are common further south. Likewise, some plants occurring in this area are near their southern range limits and are considered very rare where they occur along the Maine side of the River. There are two species listed as Endangered in Maine known to occur along the Skutik/St. Croix River (Vasey's rush [*Juncus vaseyi*] and white adder's-mouth [*Malaxis monophyllos*]). Neither of these are listed as Endangered in New Brunswick.

The PDA is located within a developed portion of Milltown and is primarily occupied by maintained lawns, roads, and weedy roadside vegetation communities. Within the PDA there is little native woody vegetation community along the shore of the River, but to the north and south of the PDA and within the study area, there is a fringe of riparian tree and shrub habitat that is dominated by native species (shown as Immature Hardwood on Figure 3). In the understory of the hardwood vegetation type, there is an abundance of the invasive shrub glossy buckthorn (*Frangula alnus*) and multiflora rose (*Rosa multiflora*), which has the potential to eventually displace native forest communities because of their ability to dominate shaded forest understories and prevent regeneration of native species. While scattered throughout the study area, glossy buckthorn is particularly prevalent in the understory on the island at the south of the PDA. Similarly, multiflora rose is also scattered throughout the study area but most prevalent in the understory of the hardwood type below the dam.

Many of the rare plant species known to occur in this area occur along banks of the Skutik/St. Croix River in riparian wetlands or on the rocky mineral soil of the ice scour zone.

4.1 Wetlands

A desktop review of provincial wetland mapping indicated that no suspected wetlands were present in the PDA or study area. During the course of fieldwork, no wetlands were encountered within the study area (Figure 4). Throughout the study area, the banks of the Skutik/St. Croix River tend to be steep with an abrupt transition between upland and water so that riparian wetlands are not present. Likewise, the island located at the southern end of the study area rises abruptly from the water and is well drained and bouldery. Within the PDA, much of the shoreline on the Canadian side of the river is comprised of fill with steep embankments. Outside the PDA, the shoreline tends to be exposed boulders and bedrock where

the winter ice scours the shoreline. The river was generally fast moving and there was insufficient aquatic vegetation below the waterline to be considered wetland and any location.

4.2 Vegetation

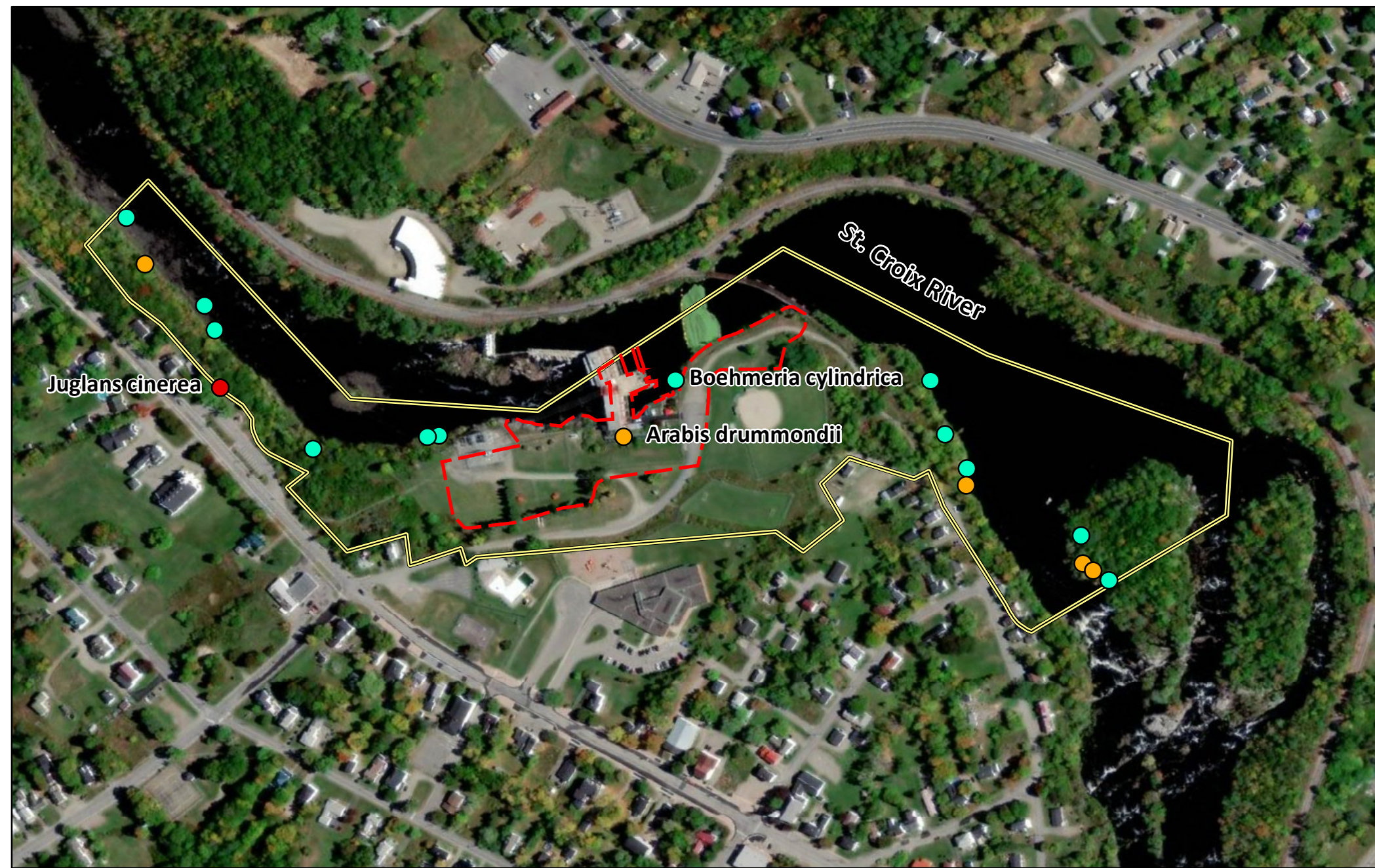
A review of the AC CDC data report (Appendix B) found that there are a total of 368 records of 35 different species of vascular plant SOCC were known to occur within a 5 km radius of the PDA. Most of these SOCC plants are shown to occur with high frequency along the shorelines of the Skutik/St. Croix River. Many of these species are classified as SOCC by virtue of their limited provincial range. In addition to these SOCC, there are 14 records of the SAR black ash (*Fraxinus nigra*), which is listed Threatened under SARA. Black ash was assessed as Threatened largely because of the threat posed by the recent Canadian introduction of the invasive the Emerald Ash Borer (*Agrilus planipennis*) which has the potential to decimate native ash species throughout much of their North American range. None of the known records of black ash in the report are within the study area.

During the course of the seven days of fieldwork, a total of 166 plant species were recorded. Of these, 54 species were not native to New Brunswick. There were a total of 10 plant SOCC and one SAR recorded within the study area (Table 1).

TABLE 1: PLANT SAR AND SOCC FOUND WITHIN THE LAA

Scientific Name	Common Name	SAR	S Rank	Status
<i>Juglans cinerea</i>	Butternut	<i>Endangered</i>	S1	At Risk
<i>Arabis drummondii</i>	Drummond's rockcress		S2	Sensitive
<i>Viburnum lentago</i>	Nannyberry		S2	Secure
<i>Viburnum recognitum</i>	Northern arrow-wood		S2	Secure
<i>Boehmeria cylindrica</i>	Small-spike false-nettle		S3	Sensitive
<i>Cornus obliqua</i>	Silky dogwood		S3	Sensitive
<i>Salix nigra</i>	Black willow		S3	Sensitive
<i>Carex lupulina</i>	Hop sedge		S3	Secure
<i>Carex tuckermanii</i>	Tuckerman's sedge		S3	Secure
<i>Lobelia cardinalis</i>	Cardinal flower		S3	Secure
<i>Penthorum sedoides</i>	Ditch stonecrop		S3	Secure

* No New Brunswick Species at Risk were found within the study area.




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**Milltown Generating Station
Decommissioning Project**

Figure 4


St. Stephen, NB November 30, 2020





Imagery source: Esri

 Study Area

 Project Development Area

 SAR: *Juglans cinerea* (Butternut)

 SOCC: S2 Plants

 SOCC: S3 Plants

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The single SAR record was for butternut (*Juglans cinerea*) ranked as S1 by the AC CDC and listed as Endangered under SARA. Butternut were assessed as Endangered due to the spread of an introduced disease that is causing steep population declines in Canada. The location of the single, apparently healthy butternut tree sapling is shown on Figure 4 as being approximately 200 m north of the PDA along the top of the river bank. The individual tree appeared to have been planted there as there were no other larger butternut trees nearby and it was located on the edge of a maintained lawn.

Only two plant SOCC were found within the PDA: small-spike false-nettle (S3) and Drummond's rock cress (S2). The Drummond's rockcress is ranked S2 by the AC CDC as it is only found in a small number of locations in the province. Its provincial distribution is scattered, with occurrences across the province, typically occurring on rocky shorelines of larger rivers and waterbodies, but occasionally occurring away from water. Within the PDA, 22 individual Drummond's rockcress plants were found in a small area immediately adjacent to the generating station in a rock cut trench near the fish ladder. The location near the water suggests that this population may disseminate seed by way of water and additional plants may also be located upstream and downstream but there are no prior records of this species occurring in this area.

Small-spike false-nettle was found at one location just above the dam along the shoreline of the impoundment but was also found to be abundant throughout the study area. This plant is ranked S3 by the AC CDC and its provincial population is considered secure. A small change in local numbers of individual plants is unlikely to have a measurable effect on the local population.

Other rare plants found within the study area are all known to occur frequently along the Skutik/St. Croix River, according to the AC CDC data report (Appendix B). Drummond's rockcress, nannyberry, northern arrow-wood, and silky dogwood area all species whose provincial range is limited to the southwest corner of the province which represents their northern range limit. Across the border in Maine, they are not considered to be rare.

Many of the plants rely on some combination of ice scouring and water movement to spread, germinate and grow. Drummond's rockcress, small-spike false-nettle, ditch stonecrop, and cardinal flower all tend to occur along the ice scour zone where the soil is thin and gravelly or rocky, and the competition from woody plants is minimal. The shrubs such as silky dogwood, nannyberry, and northern arrowwood tend to grow along the top of the banks just above the scour zone.

While most of the SOCC were found in small numbers at specific locations, small-spike false-nettle was found at numerous locations along the length of the river within the study area, but mostly outside the PDA (Figure 4).

While there were numerous plant species identified within the study area that have edible qualities and medicinal qualities, there are a few species present in sufficient quantities to be noteworthy, these include small-spike false-nettle, Jerusalem artichoke, and common boneset. Other traditionally valued but rare

species include silky dogwood, nannyberry, and northern arrowwood. Although a traditional knowledge study was not completed for the Project to date, ongoing consultation with the Peskotomuhkati and other First Nations groups may provide more insight into traditional plant uses within the region.

4.3 Critical or Sensitive Habitat

The AC CDC data report indicates that there are two Environmentally Significant Areas located within 5 km of the PDA. Dennis Stream ESA and the St. Croix River Estuary ESA are situated along the riparian zone of the estuary to the east of the PDA, downstream of St. Stephen. The closest of these is nearly 2.5 km downstream of the PDA. There is no critical habitat for plant species as designated under SARA or NB SARA within 5 km of the PDA.

The St. Croix River could be considered an unusual or unique habitat based on the frequency and number of rare plants found along its banks that do not tend to be found in other parts of the province, although it has no official designation as such. It is noteworthy, however, that the AC CDC report in Appendix B shows somewhat of a gap in these rare plant records within the PDA. This is likely due to a combination of the presence of the dam interrupting the natural movement of ice in the river which many of these rare plant species depend on to propagate, and the extend of development along the shoreline. There are no other designated special habitats related to unique vegetation communities or rare plants within the study area.

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5 Summary and Conclusion

This technical report is intended to support the environmental impact assessment (EIA) registration document and other environmental permitting applications for the Milltown Generation Station Decommissioning Project in Milltown, New Brunswick, Canada and is a part of a series of reports summarizing studies of the various VCs identified as part of the scope of the EIA.

Surveys for vegetation and wetlands were carried out over several days in June, July, August, and September of 2020, where a total of 166 vascular plants species were identified within the LAA. Of these, there were a total of 10 SOCC and one SAR (butternut). Within the PDA, there are only two records of SOCC including Drummond's rockcress (S2) and small-spike false-nettle (S3). The single SAR found was a butternut sapling located near the edge of a residential lawn downstream of the dam. This individual was likely planted. No critical habitat, protected areas, or unique habitat designation related to vegetation and/or rare plants is present within the study area.

No wetlands were identified within the study area.

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6 Closure

This report was prepared by Boreal Environmental (Boreal) for Dillon Consulting Limited (Dillon) on behalf of the New Brunswick Power Corporation, in support of the EIA and permitting of the Milltown Generating Station Decommissioning Project. Boreal has used the degree of care and skill ordinarily exercised under similar circumstances at the time the work was performed by reputable members of the environmental consulting profession practicing in Canada. Neither Boreal nor Dillon assumes no responsibility for conditions which were beyond its scope of work. There is no warranty expressed or implied by Boreal or Dillon.

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Yours truly,

BOREAL ENVIRONMENTAL for DILLON CONSULTING LIMITED

A handwritten signature in blue ink that reads "Derrick Mitchell". The signature is written in a cursive, flowing style.

Derrick Mitchell, R.P.F.
Ecologist, Boreal Environmental

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7 References

AC CDC (Atlantic Canada Conservation Data Centre). 2020. DATA REPORT 6538: Milltown, NB. January 2020 Data Request.

Clean Water Act, SNB 1989, c C-6.1, <http://canlii.ca/t/533rs>. Retrieved on 2020-11-25

Dillon (Dillon Consulting Limited). 2020. Environmental Impact Assessment (EIA) Registration, Milltown Generating Station Decommissioning Project, Milltown, New Brunswick. Prepared by Dillon Consulting Limited on behalf of the New Brunswick Power Corporation, Fredericton, New Brunswick. December 2020.

ECCC (Environment and Climate Change Canada). 2018. Species at Risk Public Registry. Accessed at http://www.sararegistry.gc.ca/sar/index/default_e.cfm. Accessed May 2018.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Waterways Experiment Station Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A176 912.

NBDELG (New Brunswick Department of Environment and Local Government). 2012. Watercourse and Wetlands Alteration Technical Guidelines. Sustainable Development, Planning and Impact Evaluation Branch. Available at: <http://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/Water-Eau/WatercourseWetlandAlterationTechnicalGuidelines.pdf>.

NBDELG (New Brunswick Department of Environment and Local Government). 2018. A Guide to Environmental Impact Assessment in New Brunswick. Available at: <http://www.gnb.ca/0009/0377/0002/0002-e.asp>. Accessed June 2018.

Tims, J. and N. Craig. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc, 6042 recs.

United States Army Corps of Engineers. 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Draft), ed. J.S. Wakely, R.W. Lichvar and C.V. Noble. Vicksburg, MS: US Army Engineer Research and Development Center.

Zelazny, V.F. 2007. Our Landscape Heritage: The Story of Ecological Land Classification in New Brunswick. Chapter 11. Retrieved from: <http://www2.gnb.ca/content/dam/gnb/Departments/nr-rn/pdf/en/ForestsCrownLands/ProtectedNaturalAreas/OurLandscapeHeritage/Chapter11-e.pdf>

(Please refer to EIA Registration Appendix A)

Appendix A

Plant list

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Scientific Name	Common Name	SARA Status	AC CDC S-Rank	Status
<i>Juglans cinerea</i>	Butternut	Endangered	S1	At Risk
<i>Arabis drummondii</i>	Drummond's Rockcress		S2	Sensitive
<i>Viburnum lentago</i>	Nannyberry		S2	Secure
<i>Viburnum recognitum</i>	Northern Arrow-wood		S2	Secure
<i>Boehmeria cylindrica</i>	Small-spike False-nettle		S3	Sensitive
<i>Cornus obliqua</i>	Silky Dogwood		S3	Sensitive
<i>Salix nigra</i>	Black Willow		S3	Sensitive
<i>Carex lupulina</i>	Hop Sedge		S3	Secure
<i>Carex tuckermanii</i>	Tuckerman's Sedge		S3	Secure
<i>Lobelia cardinalis</i>	Cardinal Flower		S3	Secure
<i>Penthorum sedoides</i>	Ditch Stonecrop		S3	Secure
<i>Circaea lutetiana</i>	Broad-leaved Enchanter's Nightshade		S4	Secure
<i>Equisetum pratense</i>	Meadow Horsetail		S4	Secure
<i>Fraxinus pennsylvanica</i>	Red Ash		S4	Secure
<i>Tilia americana</i>	White Basswood		S4	Secure
<i>Ulmus americana</i>	White Elm		S4	Secure
<i>Verbena hastata</i>	Blue Vervain		S4	Secure
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane		S4	Secure
<i>Asclepias syriaca</i>	Common Milkweed		S4S5	Secure
<i>Fraxinus americana</i>	White Ash		S4S5	Secure
<i>Acer saccharum</i>	Sugar Maple		S5	Secure
<i>Alisma triviale</i>	Northern Water Plantain		S5	Secure
<i>Alnus incana</i>	Speckled Alder		S5	Secure
<i>Amelanchier bartramiana</i>	Bartram's Serviceberry		S5	Secure
<i>Athyrium filix-femina</i>	Common Lady Fern		S5	Secure
<i>Betula populifolia</i>	Gray Birch		S5	Secure
<i>Bidens cernua</i>	Nodding Beggarticks		S5	Secure
<i>Bidens frondosa</i>	Devil's Beggarticks		S5	Secure
<i>Bromus ciliatus</i>	Fringed Brome		S5	Secure
<i>Calamagrostis canadensis</i>	Bluejoint Reed Grass		S5	Secure
<i>Cardamine pensylvanica</i>	Pennsylvania Bittercress		S5	Secure
<i>Carex crawfordii</i>	Crawford's Sedge		S5	Secure
<i>Carex crinita</i>	Fringed Sedge		S5	Secure
<i>Carex echinata</i>	Star Sedge		S5	Secure
<i>Carex gynandra</i>	Nodding Sedge		S5	Secure
<i>Carex lurida</i>	Sallow Sedge		S5	Secure
<i>Carex pallescens</i>	Pale Sedge		S5	Secure
<i>Carex projecta</i>	Necklace Sedge		S5	Secure
<i>Carex scoparia</i>	Broom Sedge		S5	Secure
<i>Carex torta</i>	Twisted Sedge		S5	Secure
<i>Chelone glabra</i>	White Turtlehead		S5	Secure

Scientific Name	Common Name	SARA Status	AC CDC S-Rank	Status
<i>Cicuta maculata</i>	Spotted Water-hemlock		S5	Secure
<i>Clematis virginiana</i>	Virginia Clematis		S5	Secure
<i>Comptonia peregrina</i>	Sweet-fern		S5	Secure
<i>Cornus sericea</i>	Red Osier Dogwood		S5	Secure
<i>Diervilla lonicera</i>	Northern Bush Honeysuckle		S5	Secure
<i>Dulichium arundinaceum</i>	Three-way Sedge		S5	Secure
<i>Echinocystis lobata</i>	Wild Cucumber		S5	Secure
<i>Epilobium ciliatum</i>	Northern Willowherb		S5	Secure
<i>Equisetum arvense</i>	Field Horsetail		S5	Secure
<i>Equisetum fluviatile</i>	Water Horsetail		S5	Secure
<i>Eupatorium maculatum</i>	Spotted Joe-pye-weed		S5	Secure
<i>Eupatorium perfoliatum</i>	Common Boneset		S5	Secure
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod		S5	Secure
<i>Festuca rubra</i>	Red Fescue		S5	Secure
<i>Fragaria virginiana</i>	Wild Strawberry		S5	Secure
<i>Galium palustre</i>	Common Marsh Bedstraw		S5	Secure
<i>Galium triflorum</i>	Three-flowered Bedstraw		S5	Secure
<i>Geum aleppicum</i>	Yellow Avens		S5	Secure
<i>Glyceria grandis</i>	Common Tall Manna Grass		S5	Secure
<i>Glyceria striata</i>	Fowl Manna Grass		S5	Secure
<i>Ilex verticillata</i>	Common Winterberry		S5	Secure
<i>Impatiens capensis</i>	Spotted Jewelweed		S5	Secure
<i>Juncus effusus</i>	Soft Rush		S5	Secure
<i>Juncus filiformis</i>	Thread Rush		S5	Secure
<i>Leersia oryzoides</i>	Rice Cut Grass		S5	Secure
<i>Lysimachia terrestris</i>	Swamp Yellow Loosestrife		S5	Secure
<i>Maianthemum canadense</i>	Wild Lily-of-The-Valley		S5	Secure
<i>Mimulus ringens</i>	Square-stemmed Monkeyflower		S5	Secure
<i>Myosotis laxa</i>	Small Forget-Me-Not		S5	Secure
<i>Oenothera biennis</i>	Common Evening Primrose		S5	Secure
<i>Osmunda regalis</i>	Royal Fern		S5	Secure
<i>Oxalis stricta</i>	European Wood Sorrel		S5	Secure
<i>Phalaris arundinacea</i>	Reed Canary Grass		S5	Secure
<i>Picea glauca</i>	White Spruce		S5	Secure
<i>Pinus strobus</i>	Eastern White Pine		S5	Secure
<i>Poa pratensis</i>	Kentucky Blue Grass		S5	Secure
<i>Populus balsamifera</i>	Balsam Poplar		S5	Secure
<i>Populus tremuloides</i>	Trembling Aspen		S5	Secure
<i>Potentilla norvegica</i>	Rough Cinquefoil		S5	Secure
<i>Potentilla simplex</i>	Old Field Cinquefoil		S5	Secure
<i>Prunus pensylvanica</i>	Pin Cherry		S5	Secure
<i>Prunus serotina</i>	Black Cherry		S5	Secure

Scientific Name	Common Name	SARA Status	AC CDC S-Rank	Status
<i>Prunus virginiana</i>	Chokecherry		S5	Secure
<i>Rhus typhina</i>	Staghorn Sumac		S5	Secure
<i>Ribes triste</i>	Swamp Red Currant		S5	Secure
<i>Rosa blanda</i>	Smooth Rose		S5	Secure
<i>Rubus idaeus</i>	Red Raspberry		S5	Secure
<i>Salix bebbiana</i>	Bebb's Willow		S5	Secure
<i>Salix discolor</i>	Pussy Willow		S5	Secure
<i>Salix lucida</i>	Shining Willow		S5	Secure
<i>Sambucus racemosa</i>	Red Elderberry		S5	Secure
<i>Scutellaria lateriflora</i>	Mad-dog Skullcap		S5	Secure
<i>Solidago canadensis</i>	Canada Goldenrod		S5	Secure
<i>Solidago juncea</i>	Early Goldenrod		S5	Secure
<i>Sorbus americana</i>	American Mountain Ash		S5	Secure
<i>Sparganium americanum</i>	American Burreed		S5	Secure
<i>Spiraea alba</i>	White Meadowsweet		S5	Secure
<i>Symphyotrichum cordifolium</i>	Heart-leaved Aster		S5	Secure
<i>Symphyotrichum lateriflorum</i>	Calico Aster		S5	Secure
<i>Symphyotrichum puniceum</i>	Purple-stemmed Aster		S5	Secure
<i>Thalictrum pubescens</i>	Tall Meadow-Rue		S5	Secure
<i>Thuja occidentalis</i>	Eastern White Cedar		S5	Secure
<i>Toxicodendron rydbergii</i>	Northern Poison Oak		S5	Secure
<i>Hypericum fraseri</i>	Fraser's St. John's-Wort		S5	Secure
<i>Typha latifolia</i>	Broad-leaved Cattail		S5	Secure
<i>Veronica americana</i>	American Speedwell		S5	Secure
<i>Dichanthelium acuminatum</i>	Woolly panic grass		S5	Secure
<i>Erigeron canadensis</i>	Canada horseweed		S5	Secure
<i>Fallopia cilinodis</i>	Fringed Black Bindweed		S5	Secure
<i>Persicaria sagittata</i>	Arrow-leaved Smartweed		S5	Secure
<i>Potamogeton epihydrus</i>	Ribbon-leaved Pondweed		S5	Secure
<i>Acer negundo</i>	Manitoba Maple		SNA	Exotic
<i>Acer platanoides</i>	Norway Maple		SNA	Exotic
<i>Aegopodium podagraria</i>	Bishop's Goutweed		SNA	Exotic
<i>Angelica sylvestris</i>	Woodland Angelica		SNA	Exotic
<i>Arctium lappa</i>	Great Burdock		SNA	Exotic
<i>Berberis thunbergii</i>	Japanese Barberry		SNA	Exotic
<i>Brassica juncea</i>	Chinese Mustard		SNA	Exotic
<i>Convolvulus arvensis</i>	Field Bindweed		SNA	Exotic
<i>Digitalis purpurea</i>	Purple Foxglove		SNA	Exotic
<i>Euphorbia maculata</i>	Spotted Spurge		SNA	Exotic
<i>Frangula alnus</i>	Glossy Buckthorn		SNA	Exotic
<i>Galeopsis tetrahit</i>	Common Hemp-nettle		SNA	Exotic
<i>Galium mollugo</i>	Smooth Bedstraw		SNA	Exotic

Scientific Name	Common Name	SARA Status	AC CDC S-Rank	Status
<i>Geum urbanum</i>	Wood Avens		SNA	Exotic
<i>Gnaphalium uliginosum</i>	Marsh Cudweed		SNA	Exotic
<i>Helianthus tuberosus</i>	Jerusalem Artichoke		SNA	Exotic
<i>Hesperis matronalis</i>	Dame's Rocket		SNA	Exotic
<i>Hieracium caespitosum</i>	Field Hawkweed		SNA	Exotic
<i>Hypericum perforatum</i>	Common St. John's-wort		SNA	Exotic
<i>Leontodon autumnalis</i>	Fall Dandelion		SNA	Exotic
<i>Leucanthemum vulgare</i>	Oxeye Daisy		SNA	Exotic
<i>Lotus corniculatus</i>	Garden Bird's-foot Trefoil		SNA	Exotic
<i>Lupinus polyphyllus</i>	Large-Leaved Lupine		SNA	Exotic
<i>Lythrum salicaria</i>	Purple Loosestrife		SNA	Exotic
<i>Malus pumila</i>	Common Apple		SNA	Exotic
<i>Melilotus albus</i>	White Sweet-clover		SNA	Exotic
<i>Parthenocissus quinquefolia</i>	Virginia Creeper		SNA	Exotic
<i>Pastinaca sativa</i>	Wild Parsnip		SNA	Exotic
<i>Poa annua</i>	Annual Blue Grass		SNA	Exotic
<i>Poa compressa</i>	Canada Blue Grass		SNA	Exotic
<i>Ranunculus acris</i>	Common Buttercup		SNA	Exotic
<i>Ranunculus repens</i>	Creeping Buttercup		SNA	Exotic
<i>Ribes rubrum</i>	European Red Currant		SNA	Exotic
<i>Robinia pseudoacacia</i>	Black Locust		SNA	Exotic
<i>Rosa multiflora</i>	Multiflora Rose		SNA	Exotic
<i>Rumex acetosa</i>	Garden Sorrel		SNA	Exotic
<i>Rumex crispus</i>	Curled Dock		SNA	Exotic
<i>Rumex obtusifolius</i>	Bitter Dock		SNA	Exotic
<i>Saponaria officinalis</i>	Bouncing-Bet		SNA	Exotic
<i>Silene vulgaris</i>	Bladder Champion		SNA	Exotic
<i>Solanum dulcamara</i>	Bittersweet Nightshade		SNA	Exotic
<i>Sonchus arvensis</i>	Field Sow Thistle		SNA	Exotic
<i>Spergularia rubra</i>	Ruby Sandspurrey		SNA	Exotic
<i>Taraxacum officinale</i>	Common Dandelion		SNA	Exotic
<i>Tilia cordata</i>	Little-leaved Linden		SNA	Exotic
<i>Trifolium hybridum</i>	Alsike Clover		SNA	Exotic
<i>Trifolium repens</i>	White Clover		SNA	Exotic
<i>Verbascum thapsus</i>	Common Mullein		SNA	Exotic
<i>Vicia cracca</i>	Tufted Vetch		SNA	Exotic
<i>Vicia sativa</i>	Common Vetch		SNA	Exotic
<i>Antennaria neglecta</i>	Field Pussytoes		SNA	Exotic
<i>Lemna minor</i>	Lesser Duckweed		SNA	Secure
<i>Crataegus (Hawthorn) spp.</i>	Crataegus (Hawthorn) spp.			
<i>Eleocharis spp.</i>	a Spikerush			

Note: There were no species listed under the New Brunswick *Species at Risk Act* identified during the surveys

Appendix B

Atlantic Canada Conservation Data Centre Report

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