DILLON CONSULTING

VILLAGE OF PLASTER ROCK

Environmental Impact Assessment (EIA) Registration

Everett Lane Lagoon Decommissioning, Village of Plaster Rock, New Brunswick

April 2021 – 20-3649

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1.0 Introduction

This Environmental Impact Assessment (EIA) Registration document has been developed to initiate the regulatory process for the decommissioning of a wastewater treatment plant (known as Everett Lane Lagoon) and connection of the users to existing wastewater treatment infrastructure in the Village of Plaster Rock, New Brunswick (the Project). The Project involves decommissioning of the lagoon and associated infrastructure and the connection of existing infrastructure servicing the north end of the community to the existing wastewater infrastructure servicing the rest of the community.

The Project is an "undertaking" under item (n) of Schedule A of the New Brunswick *Environmental Impact Assessment Regulation – Clean Environment Act* (EIA Regulation) ["(n) all sewage disposal or sewage treatment facilities, other than domestic, on-site facilities]. As such, the Project must be registered under Section 5(1) of the EIA Regulation.

This EIA Registration document is submitted to the New Brunswick Department of Environment and Local Government (NBDELG) under Section 5(2) of the New Brunswick *Environmental Impact Assessment Regulation* 87-83 of the *Clean Environment Act*. It has been prepared by Dillon Consulting Limited (Dillon) on behalf of the Village of Plaster Rock (the Proponent).

1.1 The Proponent

1.1.1 Name of Proponent

Village of Plaster Rock

1.1.2 Address of Proponent

Village of Plaster Rock (Municipal Office)
159 Main Street,
Plaster Rock, New Brunswick
E7G 2H2

1.1.3 Principal Proponent Contact

The project manager and principal proponent contact for the Project is:

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E7G 2H2
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1.1.4 Principal Contact Person for the EIA Registration

The principal contact for the purposes of the EIA Registration is:

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2.0 Project Description

A description of the Project as currently conceived is provided below, including an overview of the Project, as well as a discussion of the Project location, Project components, and Project phases and activities.

2.1 Project Name

Everett Lane Lagoon Decommissioning

2.2 Project Overview (Nature of the Undertaking)

The village of Plaster Rock (the Village) is divided into three sewer sheds with two wastewater treatment plants (WWTP). The majority of wastewater from the village is treated at the South WWTP located along the southern part of Route 390. Wastewater from a small portion of the northern end of the village is treated at the North WWTP, which consists of a small facultative lagoon (known as Everett Lane Lagoon) and associated piping and infrastructure (Dillon 2019).

The Everett Lane Lagoon is not currently operating within regulatory guidelines under the Approval to Operate for effluent quality, with exceedances of total suspended solids (TSS) and biochemical oxygen demand regularly occurring (Dillon 2019). In June 2018, the Village received a letter from NBDELG requiring a corrective plan be implemented to improve the quality of the North WWTP effluent.

In 2019, Dillon undertook and assessment of the village's wastewater treatment system to identify potential options for improving the effluent quality (Dillon 2019). The assessment concluded that the existing conditions in the lagoon (i.e., size, depth, and configuration) impede the feasibility of process or capacity enhancements to improve the effluent quality (Dillon 2019). Since the South WWTP is operating below its capacity, the Village has thus elected to redirect wastewater from the northern part of the community into the South WWTP, and then to decommission the Everett Lane Lagoon. Redirecting the flow from the North WWTP to the South WWTP is estimated to increase the influent by less than 10% and the remaining capacity in the South WWTP is anticipated to be able to service population increases for the foreseeable future. The additional influent from the North WWTP is not expected to result in the effluent quality exceeding the National Performance Standards for BOD and TSS. A study to confirm this is currently underway.

The Project components required to redirect the wastewater and decommission the Everett Lane Lagoon include the following:

- Construction of a new wastewater pump station and installation approximately 410 metre (m) of sanitary sewer force main to bypass the Everett Lane Lagoon facility, to connect to existing sewer infrastructure. Installation of approximately 20 m of gravity sewer pipe to redirect the existing flow toward the new wastewater pump station and the installation of a utility pole;

- Dewatering, removal, and disposal of sludge from the Everett Lane Lagoon, followed by backfilling, levelling, and grading over the cell to turn the former Everett Lane Lagoon area into a greenspace; and
- Upgrading one existing wastewater pump station associated in the sewershed between the North WWTP and the South WWTP (currently installed on a municipal property) and upgrading the existing piping infrastructure connecting it to the South WWTP collection system on Main Street.

2.3 Project Location and Ownership

The village of Plaster Rock is located in northwestern New Brunswick primarily along the western banks and a smaller portion of the eastern banks of the Tobique River. The Project is located in the northern part of the Village with two distinct areas, one in which the lagoon decommissioning will occur (i.e., the lagoon area) and one in which the pump station and connecting piping will be upgraded (i.e., the pump station area), as described in the Sections below. Collectively, the lagoon area and the pump station area shall be referred to herein as the Project areas.

2.3.1 Lagoon Area

The lagoon area is contained to four land parcels that are owned by the Village located between Harrison Street and Everett Lane, with parcel identifier numbers (PID nos.): 00000003, 03704108, 65204638, and 65204620. The Everett Lane Lagoon is located solely on PID no. 03704108. Wastewater piping infrastructure will be installed between the lagoon area and Harrison Street on a portion of PID no. 00000003 and between the lagoon and Everett Lane on PID nos. 00000003, 65204638, and 65204638 (refer to **Figure 1A**).

2.3.2 Pump Station Area

The pump station area includes PID nos. 65189532, 65159881, and 00000003 on vacant greenspace property. Underground sewer main infrastructure extends east to west, traversing portion of Brook Street, and Pond Street, and portion of Main Street adjacent to PID no. 65202954. All four parcels are owned by the Village (refer to **Figure 1B**).

2.4 Purpose, Rationale, and Need for the Project

The operation of the North WWTP has resulted in exceedances of TSS and biological chemical demand (BOD) at the point of release, which occur on a regular basis. This purpose of this Project is to address the current effluent exceedances of TSS and BOD at the North WWTP so that the effluent is able to meet regulatory guidelines.

VILLAGE OF PLASTER ROCK

EVERETT LANE LAGOON DECOMMISSIONING

PROJECT LOCATION

FIGURE 1A

- Project Location
- Project Footprint - Lagoon Area
- Property Lines
- Street
- Highway

0 25 50 100 Meters

N E S W

SCALE 1:3,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY

MAP CREATED BY: KCE
MAP CHECKED BY: JAB
MAP PROJECTION: NAD 1983 CSRS NEW BRUNSWICK STEREOGRAPHIC

DILLON CONSULTING

PROJECT: 20-3649

STATUS: DRAFT

DATE: 2021-03-05

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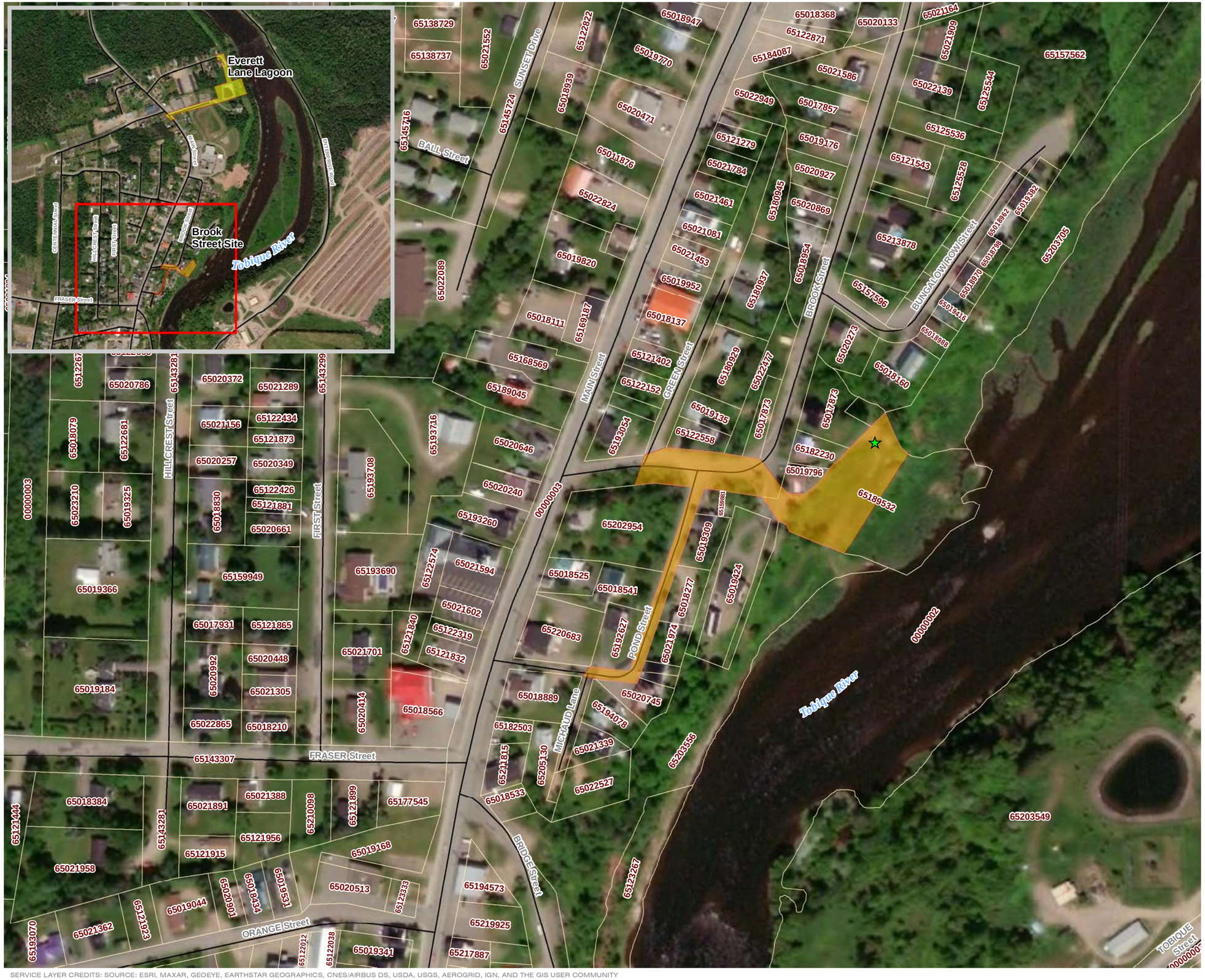

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VILLAGE OF PLASTER ROCK

EVERETT LANE LAGOON DECOMMISSIONING

PROJECT LOCATION

FIGURE 1B

- Project Location
- Project Footprint Pump Station
- Property Lines
- Street
- Highway

0 25 50 100 Meters

N W E S

SCALE 1:2,000

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2.5 Siting Considerations and Alternatives Considered

As part of Dillon's (2019) assessment, three options were considered for redirecting the wastewater from the North WWTP (refer to Figure 1 in Dillon [2019]). Each option was evaluated based on environmental constraints, technical feasibility, economic feasibility, and property ownership. The three options included:

- Option 1: Gravity Sewer Harrison Street to Bungalow Road (East Alignment), which would have included the construction of approximately 830 linear m of sanitary sewer main and trench excavation up to 10 m deep. Difficulties included installing the pipe at a slope of 1% over a distance of 225 m at great depth, which is technically feasible using horizontal directional drilling, but would still be difficult to achieve. In addition, easements from NB Power and private properties would have been required.
- Option 2: Gravity Sewer Harrison Street to Bungalow Road (West Alignment), which would have included the construction of approximately 890 linear metres of sanitary sewer main and trench excavation up to 6 m deep. Difficulties included the locations passing through several private properties and wooded areas, requiring easements and large vegetation/wooded areas; and
- Option 3: Wastewater Pumping Station and Sewer Force Main (i.e., this Project), which includes the construction of a new wastewater pumping station and 410 linear m of new sanitary sewer force main. Difficulties include additional operation costs for the new wastewater pumping station; however; benefits include reduced footprint and clearing on all village owned land and associated reduced environmental impact.

Ultimately, the Project (i.e., Option 3) was selected as the preferred option based on the following considerations:

- The selected layout limits the development areas to already owned municipal lands and does not require any privately-owned land to be expropriated or easements to be required;
- The selected layout maintains appropriate sloping and utilizes existing infrastructure so that new trenches, with substantial excavations, are not required;
- The selected layout limits earth moving activities to previously disturbed areas, to minimize biological disturbance and to limit the potential for impacts to cultural resources;
- The selected layout has a limited requirement for earth moving activities, reducing the potential for impacts to the atmospheric and aquatic environments;
- The selected layout allows for rerouting of traffic with little difficulty while the decommissioning and construction activities are taking place, and reduces the potential for pedestrian and/or vehicular accidents within the Project areas; and
- When compared to the other options, the selected layout has the smallest disturbance of natural habitat (i.e., not roadways or manicured lawns).

2.6 Physical Components and Dimensions of the Project

The Project includes two distinct footprints/areas, referred to as the lagoon area and the pump station area—both are collectively referred to as the Project areas. All Project components are proposed to be installed in areas on municipally owned properties, and in areas that have been previously disturbed and developed for the installation of the existing municipal wastewater system infrastructure.

2.6.1 The Lagoon Area

The existing infrastructure currently located within the lagoon area includes the Everett Lane Lagoon cell and the following associated underground piping (**Figure 2A**):

- Connection piping between Harrison Street and the lagoon;
- An effluent pipe that exits the lagoon from the eastern edge and continues to the upper bank of the Tobique River; and
- Potentially a separate inlet from one private residence on Everett Lane; its presence and/or absence will be confirmed in the spring prior to the Project commencing.

The lagoon area covers an area of approximately 15,000 square metres (m^2) and has a perimeter of approximately 1,000 m.

The Project will include (**Figure 2A**):

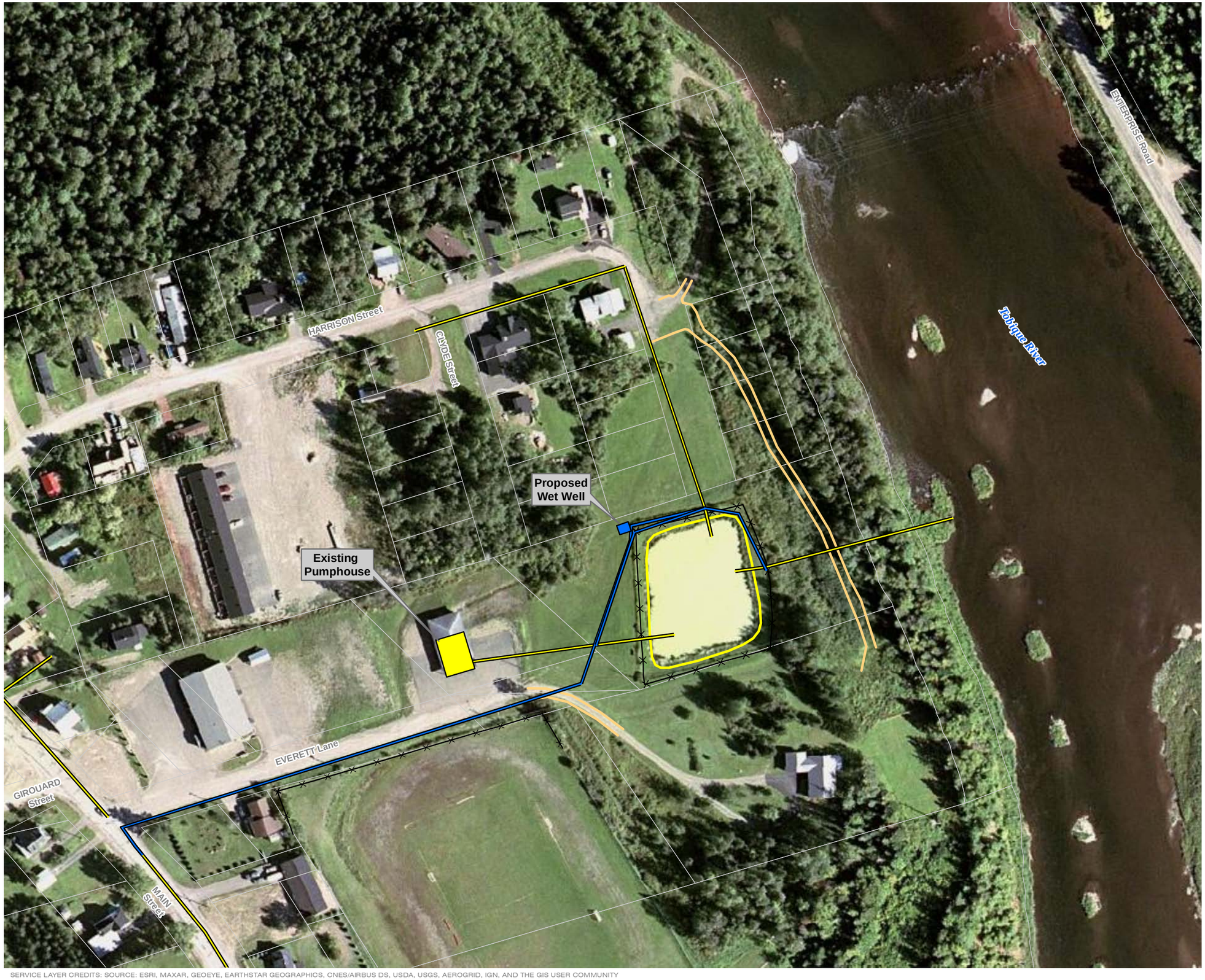
- The installation of a new pump station along the existing piping adjacent to the existing lagoon;
- Connecting the existing lagoon effluent pipe to the new overflow pipe, and repurposing it to be able to handle excess storm water during major storm events; and
- Installing new sewer force main piping from the lagoon area along Everett Lane to connect to existing infrastructure on Main Street.

An emergency generator may be installed at the pump station to provide an emergency back-up power source in the event of future power outages. There is the potential that one adjacent residence discharges directly into the lagoon; if that is the case, new piping will need to be installed to connect this residence to the pump station being installed.

2.6.2 The Pump Station Area

The pump station area is currently located on the greenspace property, while buried underground sewer main infrastructure extends from the pump station to existing wastewater system infrastructure. The pump station area covers an area of approximately 5,600 m^2 and has a perimeter of approximately 772 m (**Figure 2B**).

The Project will include upgrading the existing sewer force main infrastructure and upgrading the existing pump to a modern pump to meet new capacity requirements. An emergency generator may be installed at the pump station to provide an emergency back-up power source in the event of future power outages.



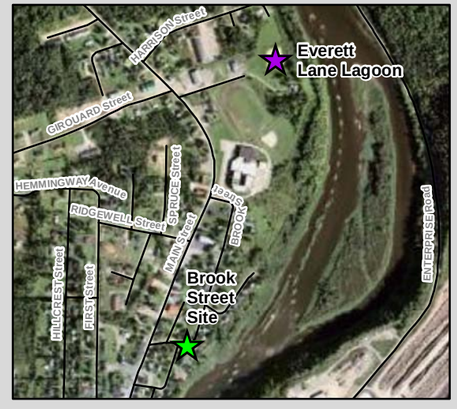
VILLAGE OF PLASTER ROCK

EVERETT LANE LAGOON DECOMMISSIONING

EXISTING AND PROPOSED INFRASTRUCTURE - EVERETT LANE

FIGURE 2A

- Proposed Infrastructure
- Existing Infrastructure
- Proposed Sanitary Pipe 200mm PVC
- Existing Sanitary Pipe
- Fence
- Existing Lagoon Extent
- Gravel Roadway
- Property Lines



0 12.5 25 50 Meters

N W E S

SCALE 1:1,500

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VILLAGE OF PLASTER ROCK

EVERETT LANE LAGOON DECOMMISSIONING

EXISTING AND PROPOSED INFRASTRUCTURE - BROOK STREET

FIGURE 2B

- Proposed Forcemain PVCO 150mm
- Existing Sanitary Pipe
- Property Lines

0 12.5 25 50 Meters

N W E S

SCALE 1:1,000

MAP DRAWING INFORMATION:
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PROJECT: 20-3649
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2.7 Description of Project Phases and Activities

2.7.1 Construction Details

The construction period is anticipated to begin in summer 2021 and extend into late fall 2021. Construction activities will be limited to daylight hours (i.e., 07:00 to 21:00) during weekdays only and will generally exclude holidays. Should construction activities be required for the weekend and/or on holidays for a critical phase or to advance the Project to a critical milestone at a specific time, nearby residents will be notified prior to those days—this is expected to be infrequent, if at all. Access to the construction sites will be provided by municipal roadways, and pedestrian access will be limited where possible by traffic control measures.

2.7.1.1 Lagoon Area Construction

Construction will commence at the lagoon area with the installation of a new pump station adjacent to the lagoon. The pump station will include a below grade concrete cell that will be connected to both sewer main piping to divert flows that would have fed the lagoon to the existing municipal infrastructure system. Subsequently, a wood frame building measuring approximately 3.2 by 3.6 m with a 3.3 m wet well will be constructed above the concrete cell to house the pump and the supervisory control and data acquisition (SCADA) system. All infrastructure will be constructed or installed using standard construction equipment including an excavator or backhoe. Power will be provided to the pump station via connection to the overhead electrical power distribution system, but may also include the installation of a back-up generator. Power will be connected to the pump station by NB Power and a licensed electrical subcontractor acceptable to NB Power.

Following the construction of the pump station, new sewer main piping will be connected from the pump station through Everett Lane to existing infrastructure on Main Street. New piping equal to or smaller than 0.1 m will be installed within the same trench. Alternatively, new piping may be installed using horizontal directional drilling methods and limited excavations at each connection point. Excavated material will be used as backfill for either option. As noted in **Section 2.5.1**, there is a potential that one residence is connected directly to the lagoon; should that be the case, at the time of new sewer main installation, the piping from this residence will be connected directly to the pump station. The existing lagoon effluent pipe (leading to the Tobique River) will be re-purposed to handle excess storm water during major storm events. Following the backfilling of the piping trenches, roadways will be patched or repaved by an experienced paving contractor.

2.7.1.2 Everett Lane Lagoon Dewatering and Decommissioning

The Everett Lane Lagoon will be initially dewatered by pumping liquids into the adjacent, newly constructed pump station (as described above) to be processed by the existing South WWTP. The solids remaining in the lagoon will either remain in place until dried or be removed by standard construction equipment and disposed of at an approved facility. The lagoon area will then be backfilled, graded, and topped with topsoil and seeded with a standard native-mix of grass seed. It is anticipated that the

lagoon liner will remain in place prior to backfilling, and that the site will remain a green zone area following the completion of decommissioning and restoration of the site.

2.7.1.3 Pump Station and Infrastructure Upgrade

The Project will include upgrading the existing sewer force main infrastructure leading to the South WWTP by excavating the existing piping and replacing it with the same or a larger diameter piping of 150 mm in the same trench up to Pond Street. At the Pond Street/Brook Street intersection the new sewer force main will deviate from the existing one and follow Pond Street where a new manhole will be installed on the existing sewer system. The existing pumps will be removed from the pump station and replaced by a modern pump to meet new capacity requirements. A generator may be installed at the pump station to provide an emergency back-up power source in the event of future power outages.

2.7.2 Operation and Maintenance Details

The new pump station has a lifetime of approximately 50 years. In addition, the new pump station will be equipped with a SCADA system which will be checked daily by Village personnel. The new sewer force main has a lifetime of approximately 75 years. Routine maintenance and monitoring of the equipment will typically occur during standard business and is intended to support the operation of the pump station indefinitely. Incremental replacement and upgrades of the infrastructure may be required in future years for continued effective operation or to conform to current standards and maintain regulatory compliance.

2.7.3 Future Modifications, Extensions, or Abandonment

The proposed upgrades are being designed to meet the current and foreseeable future needs of the village and its residents. At this time, it is anticipated that the remaining facilities associated with the Village's wastewater treatment will be operated and maintained in perpetuity to meet the village's needs, and therefore their decommissioning and abandonment are not currently envisioned. The facilities will be operated and maintained until the end of their useful service life in approximately 25 years, at which time upgrades or the decommissioning will take place in accordance with the standards and regulatory requirements that are in place at that time.

3.0 Description of the Existing Environment

A high-level description of the existing environmental conditions at the Project location is provided below, based on information obtained from the literature, past studies, and other secondary sources of information.

3.1 Regional Setting

The Project is located within the Valley Lowlands ecoregion and, more specifically, within the Wapske ecodistrict, which primarily features a low-lying basin surrounded by various rugged terrains (Zelazny 2007). The Tobique River Valley (the Valley) is at a lower elevation than the surrounding terrain, and is greatly influenced and characterized by the Tobique River and various lakes in the area that create an abundance of diverse wetlands with wet and acidic soil (Zelazny 2007). In addition, a history of settlement and other anthropogenic activities such as forest harvesting and agriculture have altered the original landscape and created disturbed areas throughout the region, creating the diversity of forest cover we see today, as described below (Zelazny 2007).

Historically, the Valley supported a large abundance of shade tolerant hardwood and softwoods; however, today it consists of more fragmented wooded areas with less trees and intolerant hardwood species (Zelazny 2007). Tree species include red maple (*Acer rubrum*), pine (*Pinus spp.*), eastern hemlock (*Tsuga canadensis*), white cedar (*Thuja occidentalis*), tamarack (*Larix laricina*), ironwood (*Ostrya virginiana*), white ash (*Fraxinus americana*), prince's pine (*Chimaphila umbellata*), and others (Zelazny 2007).

3.2 Climate

The nearest Environment and Climate Change Canada (ECCC) weather station to the Project areas is located at the St. Leonard Airport (47°09'28.050" N, 67°49'55.014" W), approximately 60 km northwest of the Project area.

According to this station, the annual daily mean temperature (1981-2010) is 3.5 degrees Celsius (°C), with extremes ranging from -38.8°C to 34.6°C (Government of Canada 2019). On average, the warmest periods annually were between June and August, with July being the warmest month with a daily average temperature of 18.0°C (Government of Canada 2019). On average, the coolest periods annually were between December and February, with January being the coldest month with a daily average temperature of -12.6°C.

The historical precipitation data from the St. Leonard Airport station recorded an average of 1,104.1 mm of precipitation per year, with 792.2 mm as rain and 335.0 cm as snowfall (Government of Canada 2019).

3.3 Atmospheric Environment

Existing ambient air quality was evaluated through the two closest NBDELG ambient air monitoring stations to the Project areas:

- The Edmundston ambient air quality monitoring station, located approximately 100 km northwest of the Project in Edmundston, New Brunswick, which reports on nitrogen dioxide (NO_2), ground level ozone (O_3), fine particulate matter ($PM_{2.5}$), and sulphur dioxide (SO_2; and
- The Fredericton ambient air quality monitoring station, located approximately 260 km south of the Project in Fredericton, New Brunswick, which reports on meteorology (i.e., wind speed, wind direction, temperature, relative humidity, barometric pressure), NO_2, O_3, and $PM_{2.5}$ (NBDELG 2020a).

Based on the data provided in NBDELG's most recent annual ambient air quality monitoring report for the year 2018 (NBDELG 2020a), in general, air quality in Edmundston and Fredericton (i.e., populated urban areas with industrial emission sources) can be characterized as good to very good, with occasional periods of lower air quality. By extension, ambient air quality in the Project areas (i.e., a lesser densely populated rural area with little industry) can be inferred to be equivalent to, or better than, that in Edmundston or Fredericton.

Ambient air quality is not anticipated to be adversely affected by the Project; if anything, once the Everett Lane Lagoon is decommissioned, it is expected that occasional odour experienced from time to time in the community will no longer be present, thereby improving the overall air quality at a local level.

3.4 Acoustic Environment

Existing sound quality conditions in the vicinity of the Project areas were not measured for this assessment. Given the rural setting of this Project and the current operation of the site, existing ambient sound pressure levels are expected to minimal and typical of a low population density rural area. Noise emissions are expected periodically for the duration of the construction and decommissioning activities; however, this is expected to be infrequent and of temporary nature only.

3.5 Surface Water and Groundwater

Based upon the New Brunswick Department of Natural Resources, Minerals, Policy, and Planning Divisions Bedrock Geology of Central New Brunswick (NTS 21J), the bedrock underlying the Project areas (NTS 21 J/14) consists of Early Carboniferous limestone and gypsum of the Mabou Group Plaster Rock Formation, as well a coarse to medium grains, terrestrial, and claustic rock (NBDNRED 2020). Soils in the Project areas are from the Kingsclear Association which is a podzol consisting of clay loam from ground moraine and red compact gritty clay with good drainage (Millette and Langmaid 1964).

A watercourse east of Brook Street is located approximately 4 m from the pump station area of the Project, in addition to the Tobique River running parallel to the eastern boundary of the Project area,

located approximately 20 m from the area of disturbance associated with the lagoon area and 11 m from the area of disturbance associated with the pump station area. As the areas of disturbance are within 30 m of a watercourse, a permit under the New Brunswick *Wetland and Watercourse Alteration Regulation* (WAWA) under the *Clean Water Act* is required for carrying out the Project. Although, the Project areas are in close proximity to the Tobique River the banks are heavily sloped towards the river and flooding was not identified as per the NBDELG WAWA Reference Map layer (NBDELG 2020b).

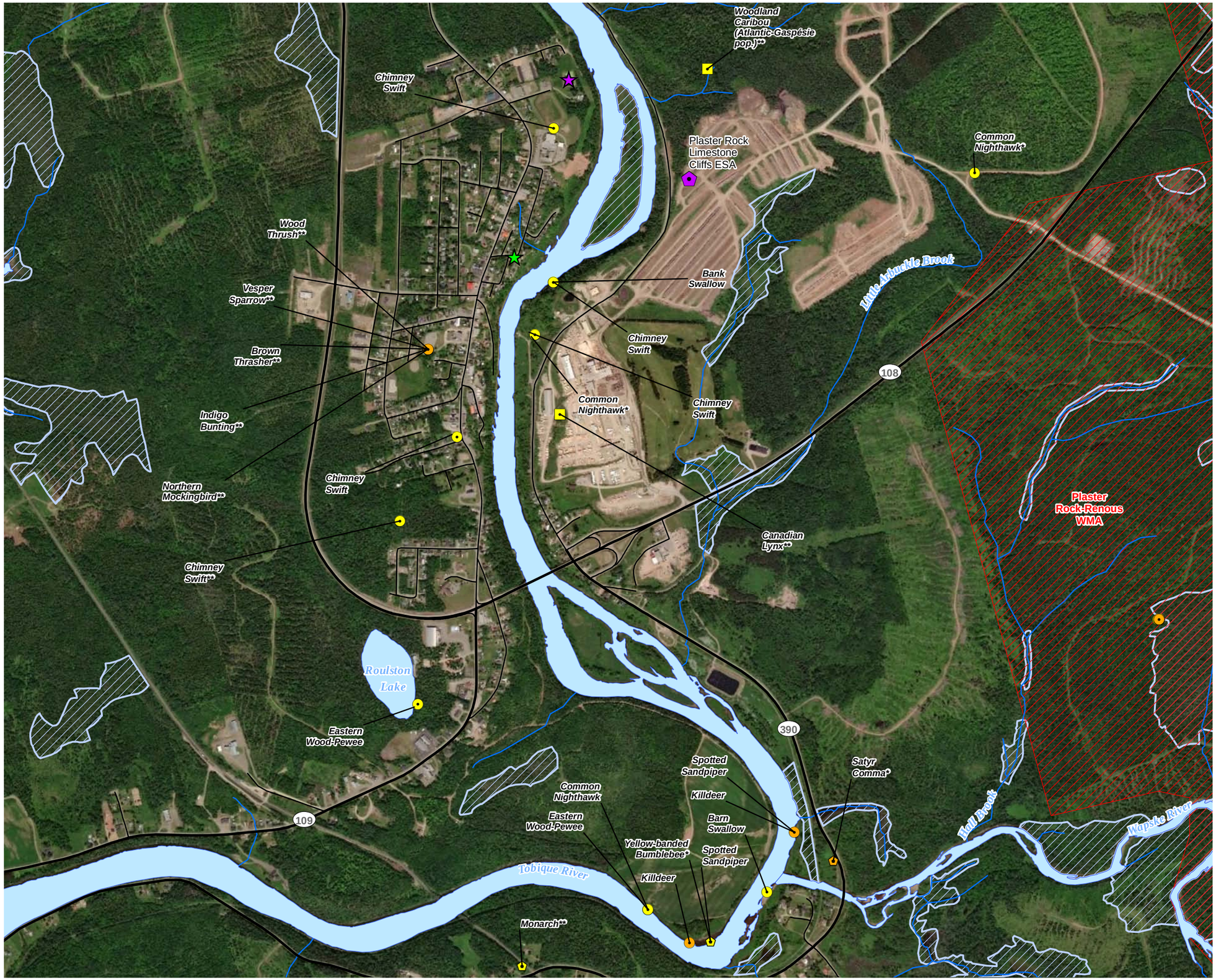
Potable water is supplied to the Project areas by a municipal water supply system for which the municipal wells are greater than 2.5 km north of the North WWTP. The Project areas are not located in a wellfield protected area under the New Brunswick Wellfield Protection Program or a designated watershed under the New Brunswick Watershed Protection Program. As there is no known private potable wells near the Project areas are not expected to influence the groundwater. Additionally, mitigation measures will be in place to limit the potential for accidents and malfunctions to interact with the groundwater.

3.6 Vegetation

The Project consists of two areas, as defined above in **Section 2.3**, surrounded by residential, industrial, and commercial properties, some of which are currently serviced by Everett Lane Lagoon for treatment of their wastewater. The Project will occur within areas owned by the Village or below existing roads. Based upon the footprint required for this Project, the description of the existing environment has been focused on the terrestrial environment within the area of disturbance, specifically the vegetated areas along the banks of the Tobique River.

A desktop assessment was completed to identify environmental constraints at a high level. A field visit was conducted by a Dillon biologist on October 1, 2020, to confirm the findings within the Project areas. Photographs from the field visit are included in **Appendix A**. A description of the localized existing environment based on the desktop assessment and site visit is provided within the following sections.

The land within the Project areas is primarily located on built up areas and/or disturbed areas in industrial, commercial, and residential properties on the western bank of the Tobique River. The vegetation in these areas consist primarily of manicured grass (i.e., lawns) and wildflowers that transition to regenerative weed and shrub species and eventually to a riparian strip of tree species including trembling aspen (*Populus tremuloides*), white birch (*Betula papyrifera*), white spruce (*Picea glauca*), and eastern white cedar (*Thuja occidentalis*). The slope leading to the Tobique River consists primarily of immature hardwood, shrubs, and grass (refer to **Figure 3**). The nearby residential properties are expected to contain ornamental tree, shrub, and herbaceous species. The riparian areas to Tobique River were noted as extremely steep.



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VILLAGE OF PLASTER ROCK

EVERETT LANE LAGOON DECOMMISSIONING

WILDLIFE AND WILDLIFE HABITATS

FIGURE 3

- Brook Street Site
- Everett Lane Lagoon Site
- Street Label
- Highway Label
- Waterbody
- Watercourse
- Wetland (NBDELG 2019)
- Ecologically Significant Area
- Managed Areas

AC CDC Species at Risk (SAR) and Species of Conservation Concern (SOCC) Observations

- Species At Risk, Bird
- SAR, Invertebrate
- SAR, Mammal
- SAR, Reptiles
- Species Of Conservation Concern, Bird
- Species Of Conservation Concern, Invertebrate
- SOCC, Mammal

Note: Mapped points represent locations of survey not location of species observation
* Location of record within 50 to 100m
** Location of record within 100m to 1 km
Locations of species rounded more than 1 km are not mapped

0 125 250 500 Meters

N W E S

SCALE 1:15,000

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PROJECT: 20-3649
STATUS: DRAFT
DATE: 2021-03-03

In this EIA Registration document, we define "species at risk" (abbreviated SAR) as those species that are listed as "Extirpated", "Endangered", or "Threatened" on Schedule 1 of the federal *Species at Risk Act* (SARA) or the New Brunswick *Species at Risk Act* (NB SARA). We also define "species of conservation concern" (abbreviated SOCC) as those species that are not SAR but are listed in other parts of SARA, NB SARA, the Committee on the Standard of Endangered Wildlife in Canada (COSEWIC), or as 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]).

A custom AC CDC report was obtained for a 5 km radius around the Project areas (AC CDC 2020). The report lists historical observations of known observations species of flora and fauna, including rare species, species of conservation concern (i.e., species with S-ranks of S1, S2, or S3), and species at risk within a 5 km radius from the Project site (refer to **Appendix B**). It should be noted that a historical observation of an SAR or SOCC documented in the AC CDC report does not necessarily imply that these species are or will be present in the Project areas, but rather that they were observed at some time in the past has having been present within 5 km of the Project areas. The AC CDC report nonetheless provides useful information as to the types of species that might potentially be present in the Project areas, which informs the field surveys for potential target species of interest.

The AC CDC report (AC CDC 2020) included one historical record of a flora SOCC under COSEWIC with a *Threatened* status present within 5 km of the Project areas, namely black ash (*Fraxinus nigra*). The report also included 16 vascular plant SOCC historically observed within a 5 km radius of the Project areas, none of which were historically recorded within the Project areas boundaries or observed during the field visit conducted October 1, 2020 by a Dillon biologist[1]. The locations of the historical records of flora SOCC within 1 km of the Project areas are shown on **Figure 3**. In addition, no flora SAR were observed during the field visit.

The historical observations of flora SAR and SOCC species within 5 km of the Project areas, as identified in the AC CDD (2020) report, have been listed in **Table 3-1** along with a description of their habitats and an opinion of their potential to occur within the Project areas based on the habitats present in those areas.

[1] It is acknowledged that identifying vegetation species this late in the season after plants are no longer flowering and after the potential occurrence of frost is challenging and that such surveys should generally be ascribed a low level of confidence. However, the site visit on October 1, 2020 did provide some useful information in terms of understanding the landforms and features of the Project areas and to supplement the AC CDC observations.

Table 3–1: Historical Observations of Vascular Plant (Flora) Species at Risk or Species of Conservation Concern within 5 km of the Project Areas

Species	Status[1]	Habitat	Potential to Occur within Project Areas
Astragalus eucosmus (elegant milk-vetch)	**S-Rank:** S2/2 May Be At Risk	Gravel strands, calcareous shores and ledges (Hinds 2000).	This habitat may occur along the Tobique River bank, outside of the Project areas.
Calypso bulbosa var. americana (calypso spp.)	**S-Rank:** S2/2 May Be At Risk	Wet areas including swamps and damp forests (Hinds 2000).	This habitat does not occur in the Project areas.
Carex concinna (beautiful sedge)	**S-Rank:** S2/3 Sensitive	Forests and wooded areas, often on calcareous substrate (Walsh 1994).	This habitat may occur along the Tobique River banks or within the forest stand, outside of the Project areas.
Coptidium lapponicum (lapland buttercup)	**S-Rank:** S1/2 May Be At Risk	Wet meadows, ponds, and streams (Hinds 2000).	This habitat does not occur in the Project areas.
Crataegus submollis (Québec hawthorn)	**S-Rank:** S3?/3 Sensitive	Rich alluvial thickets and pastures (Hinds 2000).	This habitat does not occur in the Project areas.
Cypripedium parviflorum var. makasin (small yellow lady's-slipper)	**S-Rank:** S2/2 May Be At Risk	Seepage areas in rich coniferous or mixed woods (Hinds 2000).	This habitat does not occur in the Project areas.
Cypripedium reginae (showy lady's-slipper)	**S-Rank:** S3/3 Sensitive	Seepage areas in rich coniferous or mixed woods (Hinds 2000).	This habitat may occur along the Tobique River bank, outside of the Project areas.
Fissidens taxifolius (yew-leaved pocket moss)	**S-Rank:** S1S2/2 May Be At Risk	Common and widespread moss, found on bare soil in wooded areas (OMLA 2020)	This habitat may occur along the Tobique River bank, outside of the Project areas.
Fraxinus nigra (black ash)	**COSEWIC:** Threatened S-Rank: S4S5/4 Secure	Swamps and river bottomlands (Hinds 2000).	This habitat does not occur in the Project areas.
Galearis rotundifolia (small round-leaved orchid)	**S-Rank:** S2/2 May Be At Risk	Part shade, shade; coniferous swamps, peat bogs, and fens (Minnesota Wildflowers 2020a).	This habitat does not occur in the Project areas.
Oxytropis campestris var. johannensis (field locoweed)	**S-Rank:** S2/3 Sensitive	Circumneutral river shore outcrops (usually calcareous slate) and gravel/cobble river beaches (Haines 2001).	This habitat does not occur in the Project areas.
Oxytropis deflexa var. foliolosa (nodding locoweed)	**S-Rank:** S1/2 May Be At Risk	Gravelly, dry, limestone-derived slopes in the alpine zone (MFG n.d.).	This habitat does not occur in the Project areas.

Species	Status[1]	Habitat	Potential to Occur within Project Areas
Salix candida (sage willow)	**S-Rank:** S2/3 Sensitive	Sun; wet; calcareous fens, swamps, wet meadows, floating mats, shores, peatlands (Minnesota Wildflowers 2020b).	This habitat does not occur in the Project areas.
Scrophularia lanceolata (lance-leaved figwort)	**S-Rank:** S2/3 Sensitive	Part shade, sun; open woods, thickets, roadsides, railroads, open fields (Minnesota Wildflowers 2020c).	This habitat does occur and the species may be found in the Project areas.
Shepherdia canadensis (soapberry)	**S-Rank:** S2/3 Sensitive	Calcareous ledges, slopes and in open woods (Hinds 2000).	This habitat may occur along the Tobique River banks or within the forest stand, outside of the Project areas.
Solidago racemosa (racemose goldenrod)	**S-Rank:** S2/2 May Be At Risk	Gravel strands, calcareous shores and ledges (Hinds 2000).	This habitat may occur along the Tobique River banks, outside of the Project areas.

Note:

[1] AC CDC S-Ranks as follows: S1: extremely rare in province; S2: rare in province; S3: uncommon in province; S4: widespread, common and apparently secure in province; S5: widespread, abundant and demonstrably secure in province S#S# = a numeric range rank used to indicate any range of uncertainty about the status of the species or community. B= Breeding, N = Nonbreeding, M = Migrant, U = Unrankable. (AC CDC 2020)

3.7 Wetlands

Although the region boasts an abundance of wetlands, based on the NBDELG WAWA Reference Map layer (NBDELG 2020b), there are no known wetlands located within the Project areas, the closest one being approximately 0.11 km to the east around the island in the Tobique River (refer to **Figure 3**). As required by NBDELG's new Protocol for Wetland Delineation in New Brunswick, the Project areas were assessed October 1, 2020 to confirm the provincial WAWA Reference Map. No wetlands were identified on either of the Project areas during the field visit. As such, wetlands will not be discussed further in the remainder of this EIA Registration document.

3.8 Wildlife and Wildlife Habitat

As detailed above in **Section 2.3**, the Project is divided into two main areas in industrial, commercial, and residential properties on the western bank of the Tobique River. The vegetation in these areas are primarily manicured grass (i.e., lawns) and wildflowers that transition to regenerative weed and shrub species and eventually to a riparian strip of tree species along the Tobique River.

A review of the AC CDC database (AC CDC 2020; **Appendix B**) indicated that fauna SAR and SOCC including migratory birds have been historically observed within 5 km of the Project areas. Historical observations of SAR and SOCC fauna species have been listed in **Table 3-2** with a description of their habitats and an opinion of their potential to occur within the Project areas based on the habitats

present. The locations of the historical records within 1 km of the Project areas are shown in **Figure 4**. In addition, the bald eagle (*Haliaeetus leucocephalus*) has been identified as a location sensitive species to the Project areas by AC CDC. Bald eagles typically nest in large, tall conifers near or adjacent to a body of water and as such this species may nest along the forested Tobique River banks, outside of the Project areas.

Table 3–2: Historical Observations of Wildlife (Fauna) Species at Risk or Species of Conservation Concern within 5 km of the Project Areas

Species	Status[1, 2]	Habitat	Potential to Occur within Project Areas
Bombus terricola (yellow-banded bumblebee)	**COSEWIC**: Special Concern **SARA:** Special Concern **S-Rank:** S3?/3 Sensitive	Found in mixed woodlands, particularly for nesting and overwintering, as well as a variety of open habitat such as native grasslands, farmlands and urban areas (Ontario 2019a)	This habitat does occur and the species may be found in the Project areas.
Cardellina canadensis (Canada warbler)	**COSEWIC**: Threatened **SARA:** Threatened **NB SARA:** Threatened **S-Rank:** S3B,S3M/1 At Risk	Typically breeds throughout Maritimes and southeastern Canada. Typical habitat includes a variety of forest types (COSEWIC 2008). They prefer wet mixed forest with well-developed shrub layer as well as regenerating areas.	This species may nest along the forested Tobique River banks, outside of the Project areas.
Chaetura pelagica (chimney swift)	**COSEWIC**: Threatened **SARA:** Threatened **NB SARA:** Threatened **S-Rank:** S2S3B,S2M/1 At Risk	Historically, the chimney swift used mainly large hallow trees for nesting sites but have adopted chimneys as preferred nesting sites. They are generally associated with urban and rural areas where chimneys are available for nesting and roosting. Chimney swifts are aerial foragers and tend to concentrate near water where insects are abundant (COSEWIC 2007a).	This species may forage along the Tobique River banks, outside of the Project areas.
Charadrius vociferous (killdeer)	**S-Rank:** S3B,S3M/3 Sensitive	This species of shorebird is somewhat peculiar in that it inhabits primarily dry habitats. Killdeer breed across New Brunswick showing a preference for dry, barren type habitats such as sandbars, mudflats, grazed fields, athletic fields, graveled areas, parking lots and golf courses. They build their nest directly on the ground and rely on cryptic camouflage patterns to evade detection and predation (Erskine 1992; Stewart et al. 2015; Sibley 2016).	This habitat does occur in and around the Project areas as such the species may be found in the area.

Species	Status[1, 2]	Habitat	Potential to Occur within Project Areas
Chordeiles minor (common nighthawk)	**COSEWIC**: Special Concern **SARA:** Threatened **NB SARA:** Threatened **S-Rank:** S3B,S4M/1 At Risk	Common nighthawk typically breeds throughout the Maritimes and nests on the ground in open vegetation free habitats (COSEWIC 2007b).	This habitat does occur and the species may nest in the Project areas.
Contopus virens (eastern wood-pewee)	**COSEWIC:** Special Concern **SARA:** Special Concern **NB SARA:** Special Concern **S-Rank:** S4B,S4M/4 Secure	The Eastern wood-pewee is often associated with the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in forest stands of intermediate age and in mature stands with little understory vegetation. During migration, a variety of habitats are used, including forest edges and early successional clearings (COSEWIC 2012a).	This species may nest along the forested Tobique River banks, outside of the Project areas.
Danaus plexippus (monarch)	**COSEWIC**: Endangered **SARA:** Special Concern **NB SARA:** Special Concern **S-Rank:** S3B,S3M/3 Sensitive	Caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers (Ontario 2019b).	This habitat may occur and the species may be found in the Project areas.
Dolichonyx oryzivorus (bobolink)	**COSEWIC**: Threatened **SARA:** Threatened **NB SARA:** Threatened **S-Rank:** S3B,S3M/3 Sensitive	Typically nest in lush meadows, open grasslands, and hayfields (COSEWIC 2010).	This habitat may occur and the species may be found in the Project areas.
Eremophila alpestris (horned lark)	**S-Rank:** S1B,S4N,S5M/2 May Be At Risk	Horned larks only began breeding in New Brunswick in the early 1900s when forests were cleared for farm and pastureland. They show a strong preference for dry, sparsely vegetated, open habitats such as coastal barrens, dunes, agricultural fields and airports (Erskine 1992; Stewart et al. 2015; Sibley 2016).	This habitat does not occur in the Project areas.
Hirundo rustica (barn swallow)	**COSEWIC**: Threatened **SARA:** Threatened **NB SARA:** Threatened **S-Rank:** S2B,S2M/3 Sensitive	Typically nest on human-made structures such as abandoned buildings or barns and forages in open areas (COSEWIC 2011).	There are no human-made structures in the Project areas, as such it is not anticipated this species will be affected.

Species	Status[1, 2]	Habitat	Potential to Occur within Project Areas
Hylocichla mustelina (wood thrush)	**COSEWIC:** Threatened **SARA**: Threatened **NB SARA:** Threatened **S-Rank:** S1S2B,S1S2M/2 May Be At Risk	Wood Thrush nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Large forest mosaics are preferred, but they may also nest in small forest fragments (COSEWIC 2012b).	This species may nest along the forested Tobique River banks, outside of the Project areas.
Lynx Canadensis (Canada lynx)	**COSEWIC:** Not At Risk **NB SARA:** Endangered **S-Rank:** S3/1 At Risk	Canada lynx generally inhabit forested wilderness areas favouring old growth boreal forests, but can be found in other habitats as long as they contain minimal forest cover and adequate numbers of prey (CWF 2020).	This habitat does not occur in the Project areas.
Mimus polyglottos (northern mockingbird)	**S-Rank:** S2B,S2M/3 **Sensitive**	The northern mockingbird is generally inhabits areas with open ground and shrubby vegetation, often including urban and suburban areas. They breed in open, shrubby habitats and often near human development and landscaping (Erskine 1992; Stewart et al. 2015; Sibley 2016).	This habitat does occur and the species may nest in the Project areas.
Petrochelidon pyrrhonota (cliff swallow)	**S-Rank:** S2S3B,S2S3M/3 Sensitive	Cliff swallows are colonial nesters that use available mud, vegetation and their specialized saliva built hollow, gourd-like nest structures. Their colonies were once restricted to natural cliff faces and overhangs, however, they now often nest on buildings and other human-made structures (Erskine 1992; Stewart et al. 2015; Sibley 2016).	This habitat does not occur in the Project areas
Pooecetes gramineus (vesper sparrow)	**S-Rank:** S2B,S2M/May Be At Risk	Vesper sparrow nests on the ground in sparsely vegetated grassland with scattered trees and shrubs (i.e., mixed height). Although the Vesper Sparrow appears to prefer grasslands far from urban areas, it is also known to use fence posts, wire fences, and other human-made structures for singing perches (Cornell University 2019a).	This habitat does occur and the species may nest in the Project areas.

Species	Status[1, 2]	Habitat	Potential to Occur within Project Areas
Riparia (bank swallow)	**COSEWIC:** Threatened **SARA:** Threatened **S-Rank:** S2S3B,S2S3M/3 Sensitive	Typically nest in steep embankments along eroding river/ocean shore and forage in open areas (COSEWIC 2013).	This species may nest along the Tobique River banks, outside of the Project areas.
Toxostoma rufum (brown thrasher)	**S-Rank:** 2B,S2M/3 Sensitive	The brown thrasher is a reclusive species is typically found along dense forest edges, in thickets or swales and in overgrown clearings. They will usually nest low in a thorny shrub, but will sometimes nest directly on the ground (Erskine 1992; Stewart et al. 2015; Sibley 2016).	This habitat does not occur in the Project areas.
Tyrannus (eastern kingbird)	**S-Rank:** S3S4B,S3S4M/3 Sensitive	Eastern kingbird breed in open habitats such as yards, fields, pastures, grasslands, or wetlands, and are especially abundant in open places along forest edges or water (Cornell University 2019b).	This habitat does occur and the species may nest in the Project areas.

Notes:

[1] AC CDC S-Ranks as follows: S1: extremely rare in province; S2: rare in province; S3: uncommon in province; S4: widespread, common and apparently secure in province; S5: widespread, abundant and demonstrably secure in province S#S# = a numeric range rank used to indicate any range of uncertainty about the status of the species or community. B= Breeding, N = Nonbreeding, M = Migrant, U = Unrankable. (AC CDC 2020).

[2] Species at risk are those species that are listed as "Extirpated", "Endangered", or "Threatened" on Schedule 1 of the federal *Species at Risk Act* (SARA) or the New Brunswick *Species at Risk Act* (NB SARA) and species of conservation concern are those species listed by the Committee on the Standard of Endangered Wildlife in Canada (COSEWIC), or as regionally rare or endangered by the Atlantic Canada Conservation Data Centre (AC CDC).

In combination with the SAR and SOCC listed in **Table 3-2**, migratory bird species that have occurred within 5 km of the Project areas include (but are not limited to): wood thrush (*Hylocichla mustelina*), barn swallow (*Hirundo rustica*), chimney swift (*Chaetura pelagica*), bank swallow (*Riparia riparia*), Canada warbler (*Cardellina canadensis*), bobolink (*Dolichonyx oryzivorus*), common nighthawk (*Chordeiles minor*), Eastern wood-pewee (*Contopus virens*), horned lark (*Eremophila alpestris*), northern mockingbird (*Mimus polyglottos*), brown thrasher (*Toxostoma rufum*), vesper sparrow (*Pooecetes gramineus*), cliff swallow (*Petrochelidon pyrrhonota*), killdeer (*Charadrius vociferous*), warbling vireo (Vireo gilvus), indigo bunting (*Passerina cyanea*), Baltimore oriole (*Icterus galbula*), Eastern kingbird (*Tyrannus tyrannus*), spotted sandpiper (*Actitis macularius*), and Wilson's snipe (*Gallinago delicata*) (AC CDC 2020, **Figure 4**).

VILLAGE OF PLASTER ROCK

EVERETT LANE LAGOON DECOMMISSIONING

VEGETATION AND WETLANDS

FIGURE 4

- Brook Street Site
- Everett Lane Lagoon Site
- Street Label
- Highway Label
- Waterbody
- Wetland (NBDELG 2019)
- Watercourse
- Ecologically Significant Area
- Managed Areas

AC CDC Species at Risk (SAR) and Species of Conservation Concern (SOCC) Observations

- Species At Risk, Vascular Plant
- Species of Conservation Concern, Nonvascular Plant
- Species Of Conservation Concern, Vascular Plant

Note: Mapped points represent locations of survey not location of species observation

* Location of record within 50 to 100m
** Location of record within 100m to 1 km
Locations of species rounded more than 1 km are not mapped

0 250 500 1,000 Metres

N W E S

SCALE 1:18,030

MAP DRAWING INFORMATION:
DATA PROVIDED BY

MAP CREATED BY: KCE
MAP CHECKED BY: JAB
MAP PROJECTION: NAD 1983 CSRS NEW BRUNSWICK STEREOGRAPHIC

DILLON CONSULTING

PROJECT: 20-3649
STATUS: DRAFT
DATE: 2021-03-03

SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
FILE LOCATION: E:\SHARED DRIVES\203649_PLASTER_ROCK_WWTP_EIA\PRODUCT\INTERNAL\203649_PLASTER_ROCK_WWTP_EIA_VEG_WETLAND_20210120_V3.MXD

No rare fauna species were observed during the field visit conducted on October 1, 2020 by a Dillon biologist. Ducks were noted using the Everett Lane Lagoon; however, it is anticipated that once the lagoon is decommissioned, they will use more preferred habitat nearby. Overall, based on visual observations within the Project areas during the field visit on October 1, 2020, and the limited available habitat within the Project areas, it is unlikely that nesting bird species would occur in these areas. In addition, no bird nests or signs of bird nesting activity were observed within the Project areas, during the field visit. However, there is potential for bird nesting in subsequent breeding seasons and/or foraging within the Project areas.

Based on the Government of Canada's ECCC calendar for specific "nesting zones" across Canada, the Project areas is located within "Nesting Zone C4" which identifies the April 15 to August 31 period as a sensitive nesting period for the area (ECCC 2018).

3.9 Environmentally Sensitive Areas

There is one Environmentally Significant Area (ESA) located near the Project. The Plaster Rock Limestone Cliffs ESA is located to the east of the Project areas, across the Tobique River, approximately 0.55 km from the lagoon area and 0.69 km from the pump station area (refer to **Figure 4**). Given the distances between the area of disturbance and the cliffs, the Project will not interact directly with this ESA.

A desktop review indicated there are no Important Bird Areas (IBA) in the Project areas and there are no IBAs located within 10 km of the Project areas. In addition, there are no Protected Natural Areas (PNAs) within 10 km of the Project areas. The review did, however, indicate the Plaster Rock-Renous Wildlife Management Area (WMA) is located to the east of the Project areas, across the Tobique River, approximately 1.7 km from the lagoon area and 1.6 km from pump station area (refer to **Figure 4**). The Project will not directly interact with this WMA.

3.10 Fish and Fish Habitat

The Project areas are located along the western bank of the Tobique River situated within the Saint John River basin. The Tobique River flows for 148 km, rising from Nictau Lake in Mount Carleton Provincial Park to Perth-Andover where it meets the Saint John River. The Tobique River is home to smallmouth bass (*Micropterus dolomieu*), Atlantic salmon (*Salmo salar*), and trout, among others.

There are 53 fish species identified within the Saint John River basin, the greatest natural diversity of freshwater fish in Maine and Atlantic Canada (CRI 2011). The Canadian Rivers Institute (CRI 2011) indicates that many stable and healthy populations and communities exist throughout the basin; however, some populations demonstrate signs of stress. Key stressors to the fish populations within the basin include poor management of wastewater, river flow, and fish passage (CRI 2011).

The AC CDC (2020) report did not report any fish SAR or SOCC within 5 km of the Project areas. In addition, the Department of Fisheries and Oceans Canada's (DFO) aquatic species at risk map did not report any fish species at risk or critical habitat for species at risk.

The areas of disturbance will be 20 m from the lagoon area to the Tobique River, and 11 m from the pump station area to the Tobique River. In addition, the decommissioning of Everett Lane Lagoon will remove the current release of effluent from the lagoon currently being discharged over the sloping banks into the Tobique River, thereby eliminating interactions between treated wastewater and the Tobique River, fish, and fish habitat at this location. As the areas of disturbance are within 30 m of a watercourse, a WAWA permit under the *Clean Water Act* is required to carry out the Project; however, the Project is not expected to physically interact with the Tobique River, fish, or fish habitat.

3.11 Indigenous Communities

The entire province of New Brunswick is unceded territory of the Indigenous peoples and is subject to the Peace and Friendship Treaties signed by the Wabanaki Confederacy, which was an alliance between the Atlantic region's Indigenous nations (i.e., Wolastoqey (Maliseet), Mi'kmaq, Peskotomuhkati (Passamaquoddy), and Penobscot Nations [GNB 2020]).

The Tobique River was traditionally used as transportation routes and sources of food through hunting, fishing, and gathering; specifically, the Tobique River was a part of portage routes branching from the Saint John River (Zelazny 2007). As such, there is a potential for archaeological sites as well as Indigenous traditional uses along the Tobique River, including the Project areas. It is however noted, that the Project areas, including the areas of disturbances, have been previously disturbed for several decades to facilitate various development in the area including the installation of the existing municipal wastewater system infrastructure. Neither the current state of the area nor the Project activities are anticipated to affect Indigenous traditional uses along the Tobique River and upon completion of the Project potential for traditional uses within the Project areas will continue to be similar to current uses.

3.12 Heritage Resources

Based on the proximity to the Tobique River, there is potential for Indigenous cultural heritage resources (both pre-contact and historic) or Euro-Canadian resources to exist within the Project areas, despite their disturbed nature. Areas with high potential for archaeological and cultural resources may be found along the shoreline of waterbodies such as the Tobique River.

According to the 2021 Archeological Impact Assessment (AIA) conducted for the Project in 2020, there are two documented archeological sites within a 5 km of the Project areas, both of which are Pre-contact in nature; however, there are no documented sites on or adjacent to the Project areas (refer to **Appendix C**; Colbr 2021).

Desktop review indicated a moderate level of development in and around the Project areas from agricultural use to the urban development in the 1940s (Colbr 2021). Most of the Project areas were either not suitable for archeological investigations due to the slope of the banks leading to the Tobique River in addition to the highly disturbed history of the areas. Harrison Street had minimal disturbance and investigations were conducted; however no archeological materials were found (Colbr 2021).

Overall, the AIA did not identify any cultural heritage or archaeological resources located within the Project areas and no further archeological investigations are recommended prior to the start of the Project (refer to **Appendix C**; Colbr 2021).

3.13 Socio-Economic Environment

Based on the 2016 Census, the population of the Village of Plaster Rock was 1,023, which was slightly below the population of the 2011 census (Statistics Canada 2017). Almost 35% of the population is over 60 years in age, and as with many rural areas in New Brunswick many young adults are moving to larger municipalities for employment opportunities.

The Project areas are surrounded by residential, industrial, and commercial properties including, but not limited to, a church, school athletic field, landscaped lawns, and asphalt paved roads, some of which are currently serviced by Everett Lane Lagoon for their wastewater (refer to **Figure 5**).

The Tobique River is located approximately 20 m east of the lagoon area and 11 m east of the pump station area and is frequently used for recreational purposes. Particularly during the ice-free season, the Tobique River is used for recreational fishing, boating, swimming, and other water-based transportation and recreational activities.

VILLAGE OF PLASTER ROCK

EVERETT LANE LAGOON DECOMMISSIONING

LAND USE

FIGURE 5

- Brook Street Site
- Everett Lane Lagoon
- Project Footprint Pump Station
- Project Footprint - Lagoon Area
- Property Lines
- Street
- Highway
- Watercourse

Land Use Designation

- Residential
- Commercial
- Recreational
- Municipal

0 25 50 100 Meters

N W E S

SCALE 1:5,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY

MAP CREATED BY: KCE
MAP CHECKED BY: JAB
MAP PROJECTION: NAD 1983 CSRS NEW BRUNSWICK STEREOGRAPHIC

DILLON CONSULTING

PROJECT: 20-3649
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SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
FILE LOCATION: E:\SHARED DRIVES\203649_PLASTER_ROCK_WWTP_EIA\PRODUCT\INTERNAL\203649_PLASTER_ROCK_WWTP_EIA_LAND_USE_20201221.MXD

4.0 Assessment of Project Interactions with the Environment

Environmental features deemed to have specific value to the ecosystem, societal well-being, heritage and/or culture, or are afforded protection by legislation, are identified as Valued Components (VC).

An assessment of potential environmental effects during each phase of the Project, as well as potential accidental events and malfunctions, on the identified VCs has been undertaken below in this chapter as there is a potential for the local environment within the vicinity of the Project areas to be affected by the Project. We first assess the potential environmental interactions of the Project as planned during the applicable Construction and Operation and Maintenance activities. Then, we assess potential environmental interactions of the Project during accidents, malfunctions, and unplanned events.

Mitigation is identified for each interaction and/or effect in an attempt to prevent the interaction from occurring if possible, or to reduce the severity, magnitude or duration of the interaction. Best management practices (based on industry guidelines and regulatory guidance documents) have been identified as appropriate mitigation measures. In addition, several provincial and federal Acts, codes, regulations and guidelines may require appropriate actions be conducted as mitigation measures prior to or during the interaction and have been consulted in the development of the mitigation measures.

4.1 Project Interactions with the Environment

The following environmental features in **Table 4-1** have been identified as VCs in relation to the Project activities associated with Everett Lane Lagoon decommissioning and wastewater treatment infrastructure upgrades. The assessment involves identifying the potential for the Project to interact with the VCs.

As each phase of the Project involves different activities, and potentially different interactions with the VCs, the assessment was completed in consideration of each of the Project phases (Construction, and Operation and Maintenance) as well as for Accidents, Malfunctions, and Unplanned Events. The potential interactions between the Project and the VCs are presented in **Table 4-1** below.

Table 4–1: Potential Project Interactions with Valued Components

Valued Components	Rationale for Selection of the VC	Project Phases		
		Construction	Operation and Maintenance	Accidents, Malfunctions, and Unplanned Events
Atmospheric Environment	Emissions of particulate matter (e.g., dust) related to Project activities may interact with the atmospheric environment and adjacent receptors through excavation and installation of new infrastructure.	X	-	X
Acoustic Environment	Sound and vibration related to Project activities may interact with adjacent receptors through the installation of new infrastructure and decommissioning of the Everett Lane Lagoon.	X	-	X
Surface Water and Groundwater	The Project may interact with surface water and groundwater from physical alterations of the Project areas near the Tobique River and an unnamed watercourse in pump station area and through physical alterations of the Project areas through excavation and installation of new infrastructure (i.e., pump station, piping).	X	-	X
Vegetation	The Project may interact with some vegetation (mainly manicured grass) including some riparian vegetation due to physical alterations of the Project areas.	X	-	-
Wetlands	Projects proposed within 30 m of a wetland must apply for a permit under the *WAWA Regulation* under the *Clean Water Act.*	-	-	-
Wildlife and Wildlife Habitat	Physical alteration of the Project site during decommissioning may result in limited loss of wildlife habitat (i.e., Everett Lane Lagoon), and Project activities may interact with wildlife (e.g., sensory disturbance due to Project activities).	X	-	-
Fish and Fish Habitat	The Project may have limited interactions with fish and fish habitat due to the proximity of the activities to the Tobique River.	X	-	X

Valued Components	Rationale for Selection of the VC	Project Phases		
		Construction	Operation and Maintenance	Accidents, Malfunctions, and Unplanned Events
Indigenous Communities	The Project is located in the Saint John River basin, within the recognized traditional territory of the Wolastoqey (Maliseet) Nation. The Project areas may have been historically and/or currently used by, Indigenous persons for practicing traditional activities such as hunting, fishing, trapping, and gathering through the practice of unextinguished Aboriginal and treaty rights.	-	-	-
Heritage Resources	The Project may interact with paleontological and/or archeological resources (including pre-contact sites, protected under the New Brunswick *Heritage Conservation Act*) due to the location of the Project and the Project's proximity to the Tobique River.	X	-	X
Socio-economic Environment	The Project will interact with labour and economy through the generation of employment opportunities and will result in change in land use with the decommissioning of the Everett Lane Lagoon.	X	-	-

Note:
X = potential interaction to be evaluated further.
- = no interaction anticipated; not discussed further.

As noted in the table above, there are no wetlands in proximity of the Project areas and no anticipated negative interactions with Indigenous communities. As such, wetlands are not expected to be affected by the Project, and will therefore not be discussed further in this document.

As described in **Section 2.6.2**, the Operation and Maintenance phase of the Project entails routine maintenance and monitoring of the equipment including checking the new pump station SCADA system daily which is intended to support the operation of the new upgrades. The new pump station has a lifetime of approximately 50 years and the new sewer force main has a lifetime of approximately 75 years. All environmental disturbance associated with the Project will occur as part of the Construction phase, and once construction is complete, there be no further planned interaction between the environment and the Project elements as these components will remain passive (e.g., operation of pumps, conveyance of water, etc.). As such, interactions with the VCs selected above are

not anticipated to interact with the Operation and Maintenance phase of the Project as there are no physical alterations directly interacting with surface water, groundwater, fish and fish habitat, wildlife and wildlife habitat, or heritage resources; or ongoing activities interacting with emissions related to the atmospheric and acoustic environments. Further, the Project areas may have been historically and/or currently used by Indigenous persons for practicing traditional activities such as hunting, fishing, trapping, and gathering; however, the Project is not anticipated to interfere with these practices other than during the construction phase.

In light of the above, all entries in **Table 4-1** above where no interaction was identified (i.e., all activities not marked with an "X") are not expected to result in substantive or measurable environmental effects and will thus not be discussed further in this document.

4.2 Standard Mitigation for Potential Environmental Effects

The following mitigation measures have been identified to reduce the likelihood of occurrence, or minimize the potential extent of effects of the Project on the VCs identified during the identification of potential environmental effects in **Section 4.1**. The focus here is on "standard" mitigation measures, which have been proven and demonstrated through widespread implementation on construction projects as being effective at mitigating/reducing environmental effects, including best management practices. A list of key standard mitigation measures applicable to more than one VC is provided below:

- The Project footprint will be limited to that which is necessary to enable the Project to be carried out;
- Construction activities will be carefully timed to avoid sensitive migration or breeding periods for specific wildlife species (e.g., clearing activity prohibited between early April and late August to avoid sensitive bird breeding periods);
- Construction activities will be carried out exclusively between the hours of 07:00 to 21:00, Monday to Friday and on holidays;
- The contractor will ensure that there is basic fire-fighting equipment available on-site and all personnel will be familiar with the equipment and equipment location the event of an accidental fire;
- The contractor will be required to provide spill response training to construction personnel and will ensure that spill response equipment is readily available on-site and each piece of machinery is equipped with a spill response kit;
- Remedial action, or engineered controls, for any spills or leaks that occur will be completed;
- During construction, nearby residents will be notified of the schedule for construction activities and the likely duration;
- Proper labeling of chemical storage containers will be completed and appropriate material safety data sheets (MSDS) for stored chemicals will be stored on-site to reduce likelihood of accidents or spills and to ensure the safety of workers on-site;

- Proper erosion sediment control (ESC) measures will be installed and checked regularly during the Construction phase and prior to and after storm events to ensure they are continuing to operate properly to minimize potential effects to adjacent habitat;
- A plan for handling fill and construction materials for the site will be communicated to the contractor (i.e., if stockpiling is required, materials will be stored away from any watercourse or removed from site to a predetermined location) with an intent to minimize soil stockpiled, and the duration that soil is stockpiled at the site; and
- Exposed soils will be stabilized as soon as practical to minimize emissions of fine particulate matter and soil erosion.

4.3 Assessment of Project Interactions with the Environment

Potential effects and mitigation measures specific to each VC is discussed within the following sub-sections. Residual effects after mitigation has been applied are discussed.

4.3.1 Atmospheric Environment

4.3.1.1 Potential Effects

Temporary interactions with the atmospheric environment are anticipated during the Construction phase of the Project only, through the excavation and installation of new infrastructure including the new pump station in the lagoon area and the new piping in both Project areas as well as the decommissioning of Everett Lane Lagoon through the filling of the lagoon once it has been fully decommissioned. These activities require excavation/digging and the use of heavy machinery and equipment (i.e., excavator, back-hoe, crane, trucks, etc.), all of which may increase emissions of nitrogen oxides (NO_X), carbon monoxide (CO), volatile organic compound (VOCs), and SO_2 associated with the burning of fossil fuels in such equipment. In addition, these earth moving activities and related transportation on portions of unpaved roads may result in the release of fugitive dust.

4.3.1.2 Mitigation

During the Construction phase of the Project, the following mitigation measures for the atmospheric environment will be employed:

- Construction activities will be carried out exclusively between the hours of 07:00 to 21:00, Monday to Friday and on holidays;
- Contractors are to ensure that vehicles, tools, and equipment will be properly maintained according to emission and noise suppression standards;
- A plan for handling soil and construction materials for the site will be developed (i.e. excavated soil and rock will be stockpiled away from any watercourse or wetland in predefined areas or removed from site to a predetermined location) with an intent to minimize soil stockpiled, and duration soil is stockpiled, at the site;

- All construction/maintenance equipment will be turned off when not in active use to minimize idling;
- Monitoring of weather (wind conditions) and stabilization of soil stockpiles and bare slopes to minimize a potential increase in fine particulate matter;
- Stockpiled materials will be limited to the extent possible in volume and duration;
- Exposed soils will be stabilized as soon as practical; and
- Water will be used to reduce dust, where necessary.

4.3.1.3 Residual Effects

Construction activities have the potential to result in temporary changes to the local air quality, primarily due to dust and combustion gas emissions. The emission of air contaminants from construction activities will be limited to the periods when such activities are taking place, and effects are anticipated to be very localized to the Project footprint and perhaps areas immediately adjacent to them. However, once the Project is complete and will continue to operate as its pre-construction state, the residual effects are not anticipated from the Project. As described above, no interactions will occur during the Operation and Maintenance phase.

With the implementation of the planned mitigation indicated above, interactions between the Project and the atmospheric environment are not anticipated to be substantive and are limited to the local environment temporarily during the Construction phase only.

4.3.2 Acoustic Environment

4.3.2.1 Potential Effects

Temporary interactions with the acoustic environment are anticipated during the Construction phase of the Project only, primarily as a result of heavy equipment used to carry out excavation and installation of new infrastructure (i.e., pump station and piping) as well as the decommissioning of Everett Lane Lagoon (i.e., pumping out and filling in the lagoon), thereby increasing the potential for elevated noise levels.

4.3.2.2 Mitigation

During the Construction phase of the Project, the following mitigation measures for the acoustic environment will be employed:

- Construction activities will be carried out exclusively between the hours of 07:00 to 21:00, Monday to Friday and on holidays so as to reduce noise disturbance to nearby residences;
- A noise reduction plan will be established and communicated to the contractors prior to construction;
- During construction, nearby residents will be notified of the schedule for construction activities and the likely duration;

- Contractors are to ensure that vehicles, tools, and equipment will be properly maintained according to emission and noise suppression standards;
- All construction/maintenance equipment will be turned off when not in active use to minimize idling; and
- Complaints related to noise from the construction will be recorded and addressed by the contractor.

4.3.2.3 Residual Effects

Construction activities have the potential to result in temporary changes to the local acoustic environment due to noise emissions from the operation of heavy equipment associated with construction activities. Noise emissions from construction activities are expected to be limited to the periods when such activities are taking place, and effects are anticipated to be localized to the Project footprint and perhaps areas immediately adjacent to them. Frequent release of noise levels associated with Project activities that could cause nuisance of substantial loss of enjoyment of nearby properties is not expected. However, once the Project is complete, elevated noise levels are not anticipated from the Project. As described above, no interactions will occur during the Operation and Maintenance phase, given the passive nature of Project components during this phase.

With the implementation of the planned mitigation indicated above, interactions between the Project and the acoustic environment are not anticipated to be substantive and are limited to the local environment temporarily during the Construction phase only.

4.3.3 Surface Water and Groundwater

4.3.3.1 Potential Effects

Potential temporary interactions with surface water from physical alterations of the Project areas during the Construction phase are anticipated due to the Project's proximity to the Tobique River and an unnamed watercourse in pump station area. In addition, excavations to below ground physical alterations during the Construction phase of the Project for of new infrastructure (i.e., pump station and piping) may result in interactions with surface water and groundwater. Potential environmental effects may include erosion and sedimentation of exposed soils through excavations and stockpiling of fill/excavated materials.

4.3.3.2 Mitigation

During the Construction phase and Operation and Maintenance phases of the Project, the following mitigation measures for surface water and groundwater will be employed:

- Proper ESC measures will be installed and checked regularly during the Construction phase and prior to and after storm events to ensure they are continuing to operate properly to minimize potential effects to adjacent habitat;

- A plan for handling fill and construction materials for the site will be communicated to the contractor (i.e., if stockpiling is required, materials will be stored away from any watercourse or removed from site to a predetermined location) with an intent to minimize soil stockpiled, and the duration that soil is stockpiled at the site;
- Exposed soils will be stabilized as soon as practical to minimize emissions of fine particulate matter and soil erosion;
- Proper labeling of chemical storage containers will be completed and appropriate material safety data sheets (MSDS) for stored chemicals will be stored on-site to reduce likelihood of accidents or spills and to ensure the safety of workers on-site;
- Where appropriate secondary containment containers and spill prevention measures will be employed;
- A WAWA permit under the *Clean Water Act* will be obtained prior to any work within 30 m of a watercourse. Additional mitigation measures as outlined in the conditions of approval of the WAWA will be adhered to and a copy of the site-specific WAWA permit will be kept on site;
- Fill and excavated materials will not be stockpiled for long periods of time to reduce the likelihood of sedimentation. Fill/excavation material piles will be covered with tarps if left standing for more than 24 hours;
- No refueling or maintenance of equipment or machinery will occur within 30 m of the river and where possible will be completed over an impermeable surface;
- Weather will be monitored and additional erosion control measures such as the installment of hay bales and check dams/silt fences will be employed, as appropriate, should stockpiled fill be present in unexpected heavy rain events; and
- Work will not be conducted during heavy rain events to minimize the movement of exposed soils.

4.3.3.3 Residual Effects

Construction activities have the potential to result in changes to surface water and groundwater without the proper mitigation employed. In addition, during the Construction phase, the existing lagoon effluent pipe (leading to the Tobique River) will be re-purposed from being used for treated wastewater to instead be able to handle excess storm water during major storm events, thereby improving interactions between the current lagoon and the Tobique River. As described above, no interactions will occur during the Operation and Maintenance phase due to the passive nature of that phase. Although the Project areas are within 30 m of a watercourse (i.e., unnamed watercourse and the Tobique River), no Project activities will occur in the watercourses themselves. With the implementation of the planned mitigation indicated above, including obtaining a WAWA permit for any activity carried out within 30 m of a watercourse, interactions between the Project and surface water and groundwater are not anticipated to be substantive and are limited to the local environment temporarily during the Construction phase only.

4.3.4 Vegetation

4.3.4.1 Potential Effects

Although excavation is anticipated for new infrastructure including the pump station and piping additions/upgrades, no significant vegetation is proposed to be removed for the Project. The areas of disturbance are located within existing asphalt roads and/or manicured grasses and landscaped yards with regenerative, grass, or wildflower species. Once construction is complete, any excavated areas will be returned to their pre-construction state and either re-paved or graded and seeded. In addition, once the Everett Lane Lagoon is fully decommissioned, the existing space will be graded, filled, and seeded to become an addition to the green space in the area. As such, there is not anticipated to be any substantive additional effects to vegetation during the Project.

4.3.4.2 Mitigation

In general, ground disturbance will be minimized where possible, and areas with trees and shrubs will be avoided. General mitigation measures for the terrestrial environment include the following:

- Where possible, vegetation will be preserved to maintain wildlife habitat;
- The Project footprint will be limited to that which is absolutely necessary to enable the Project to be carried out;
- Proper labeling of chemical storage containers will be completed and appropriate material safety data sheets (MSDS) for stored chemicals will be stored on-site to reduce likelihood of accidents or spills and to ensure the safety of workers on-site;
- Where appropriate secondary containment containers and spill prevention measures will be employed;
- A plan for handling fill and construction materials for the site will be communicated to the contractor (i.e., if stockpiling is required, materials will be stored away from any watercourse or removed from site to a predetermined location) with an intent to minimize soil stockpiled, and the duration that soil is stockpiled at the site;
- There may be very limited tree clearing or grubbing for the new pump station associated with the Project;
- The source of any new fill material will be approved and the material shall be inspected prior to construction;
- Roads, dust and erosion/sedimentation measures will be monitored and mitigated with hay bales as required; and
- Existing roads and trails will be utilized to limit disturbance off the project footprint.

4.3.4.3 Residual Effects

As there will be little to no clearing of vegetation and the Project activities during the Construction phase will be contained to developed areas, the mitigation proposed above will reduce the potential effects to

vegetation in the area. In addition, as described above, no interactions will occur during the Operation and Maintenance phase. With the implementation of the planned mitigation indicated above, the residual interactions of the Project with vegetation are not anticipated to be substantive.

4.3.5 Wildlife and Wildlife Habitat

4.3.5.1 Potential Effects

Due to the urban/developed nature of the Project areas and the limited presence of wildlife including migratory birds in them, there is low potential for wildlife to be affected during the Project. Potential temporary interactions with wildlife and wildlife habitat during the Construction phase of the Project include limited loss of wildlife habitat (i.e., decommissioning of the lagoon) and construction activities interacting with wildlife (e.g., sensory disturbance). In addition, if wildlife are attracted to the site for food, collisions could occur. Without mitigation, the potential environmental effects to priority wildlife may include temporary disturbance of foraging fauna during Project activities, harm to wildlife from construction equipment, or permanent destruction of nests.

4.3.5.2 Mitigation

During the Project activities, the following mitigation measures for wildlife and wildlife habitat will be applied:

- Vegetation will be retained where possible to maintain wildlife habitat;
- The Project footprint will be limited to that which is absolutely necessary to enable the Project to be carried out;
- If possible, construction work will start prior to the commencement of the breeding bird season;
- There may be very limited tree clearing or grubbing for the new pump station associated with the Project;
- Existing roads and trails will be utilized to limit disturbance off the project footprint and minimize the interactions with wildlife and wildlife habitat;
- To minimize wildlife encounters, the site and working areas shall be kept clean of food scraps and garbage and will be removed from the site daily;
- In the case of wildlife encounters, the following shall be implemented:
    - No attempt will be made by any worker at the Project site to chase, catch, divert, follow or otherwise harass wildlife by vehicle or on foot,
    - Equipment and vehicles will yield the right-of-way to wildlife, and
    - If a SAR or a nest of any bird is encountered during activities, work around the nest shall cease until the Village dispatches a qualified biologist to assess the situation and appropriate mitigation is applied.

- The Project areas will be visually checked on a daily basis for nesting migratory birds. Should a nesting migratory bird be identified within the work area, ECCC/Canadian Wildlife Service (CWS) will be notified and an appropriate no-work buffer zone (in consultation with ECCC/CWS) will be applied around the nest until the nest has been fledged. No flagging of the nest will occur to minimize chances of predation;
- Fill and excavated materials will not be stockpiled for long periods of time to deter the potential for nesting by bank swallows or other ground nesting species (e.g., common nighthawk). Fill/excavation material piles will be covered with tarps if left standing for more than 24 hours;
- To minimize disruptions with wildlife activity at night, the Project construction activities will be limited to daylight hours. If night work is required, approval from the Village will be required. Lighting requirements will meet ECCC standards to minimize the potential impacts to migratory birds and bat;
- All workers will adhere to the provincial and federal *Species at Risk Acts*;
- All workers will adhere to the *Migratory Birds Convention Act*, 1994 and the *Migratory Birds Regulations*; and
- Any nuisance wildlife as identified under the *Nuisance Wildlife Regulation* (97-141) of the *Fish and Wildlife Act* identified as disrupting Project-related activities may only be removed by a licensed Nuisance Wildlife Control Officer or a licensed trapper.

4.3.5.3 Residual Effects

The Construction phase of the Project will result in modest loss of low quality bird habitat (i.e., grass lawn and stagnant wastewater lagoon) within the Project areas, though it is possible that birds may interact with components of the Project such as nesting within stockpiled fill or within gravel areas within the Project areas. In addition, as described above, no interactions will occur during the Operation and Maintenance phase. It is not expected that birds rely on the habitat within the Project areas for foraging or their lifecycle purposes and the largely forested area and riparian areas surrounding the Project areas are expected to offer an abundance of higher quality habitat (i.e., treed riparian area, hay field, shrubby areas, and Plaster Rock Renous WMA).

Therefore, with proposed mitigation, the residual interactions of the Project with wildlife and wildlife habitat are not anticipated to be substantive.

4.3.6 Fish and Fish Habitat

4.3.6.1 Potential Effects

Though no in-water work is required for the Project, temporary interactions with fish and fish habitat during the Construction phase of the Project are anticipated due to the some activities being conducted within 30 m of the Tobique River. As such, there is potential for runoff from the Project areas to reach the Tobique River if appropriate mitigation measures are not in place.

4.3.6.2 Mitigation

During the Construction phase, the following general mitigation measures for the aquatic environment will be applied:

- No work is to be conducted within 30 m of the Tobique River or other watercourse without first obtaining and complying with a WAWA permit;
- Soil will not be stockpiled within 30 m of the Tobique River;
- All chemicals and petroleum products will be managed in accordance with manufacturer specifications and stored more than 30 m from the Tobique River;
- Refueling equipment and vehicles will be conducted more than 30 m from Tobique River and where possible over an impermeable surface;
- All waste materials will be secured and/or stabilized until they can be transported offsite for disposal to prevent them from entering any aquatic habitat;
- Ground disturbance work will not be completed during significant storm events;
- ESC structures will follow specifications as outlined in the WAWA technical guidelines and will be inspected weekly, as well as prior to heavy rainfall (>25 mm over 24 hours) events to ensure they are continuing to operate properly;
- Routine maintenance of ESC measures will be performed to address concerns identified during the inspections to ensure they are continuing to operate properly;
- In the event of a significant ESC failure that results in noncompliance with a permit/approval, all work will be immediately stopped, and all available resources will immediately focus on mitigating the failure(s) in an effort to minimize negative impacts; and
- Where appropriate, siltation prevention measures (i.e., silt fences) shall be installed. Sediment control structures shall be monitored and maintained on a daily basis.

4.3.6.3 Residual Effects

Due to existing infrastructure and siting considerations for the Project, Project activities will occur outside inside of the 30m buffer of the Tobique River. There is a potential for sediment laden runoff from the Project site to reach the Tobique River; however, by limiting the timing of soil disturbance activities to avoid high precipitation events and installing sediment control measures run off from the Project areas, these interactions will be limited and controlled. In addition, during the Construction phase the existing lagoon effluent pipe (leading to the Tobique River) will be re-purposed from being used for treated wastewater to instead be able to handle excess storm water during major storm events, thereby improving interactions between the current lagoon and fish and fish habitat. As described above, no interactions will occur during the Operation and Maintenance phase.

With the implementation of these mitigation measures, interactions between the Project and the fish and fish habitat are not anticipated to be substantive.

4.3.7 Heritage Resources

4.3.7.1 Potential Effects

The Project has the potential to interact with heritage resources via accidental discovery of archaeological resources during excavation activities; however, it is unlikely that heritage resources will be encountered in the Project areas as this is located entirely on previously disturbed land. However, any ground moving activity, such as excavation, has the potential to uncover previously undiscovered heritage resources. Without mitigation, environmental effects include the potential permanent destruction of any previously undiscovered archaeological or palaeontological resources that might be present within the Project areas.

4.3.7.2 Mitigation

If heritage or cultural features are identified at any point over the course of the Project, the following mitigation measures for archaeological resources will be employed:

- Ground intrusive work activities will not exceed the predefined Project areas;
- Work in the area must cease immediately and the Archaeology and Heritage Branch of the New Brunswick Department of Tourism, Heritage and Culture will be contacted at (506) 453-2738 for further mitigation;
- Until a qualified archaeologist arrives at the scene, no one shall disturb, move or re-bury any uncovered artifact;
- Activities at the site may resume only when authorized by Archaeological Services and once mitigation measures have been completed;
- If bones or human remains are found, work in the area must cease, and the RCMP shall be immediately notified;
- No one shall disturb, move or rebury any uncovered human remains;
- If the discovered resources are related to Indigenous culture, the New Brunswick Department of Aboriginal Affairs will be contacted to determine how best to proceed with respect to repatriation of the resources; and
- The New Brunswick Museum of the New Brunswick Department of Tourism, Heritage and Culture will be notified at 506-643-2300, should fossils be encountered during the ground intrusive work.

4.3.7.3 Residual Effects

Given the history of the Project areas, the potential to encounter previously undiscovered heritage resource during the Construction phase of the Project is believed to be very low, despite the proximity of the Project areas to the Tobique River (note: all areas within 80 m of a watercourse are considered to have elevated archaeological potential until an AIA determines those areas to be of low potential). As described above, no interactions will occur during the Operation and Maintenance phase. In addition,

results of the AIA indicated no that there are no known cultural heritage or archaeological resources located within the Project areas and no further archeological investigations are recommended prior to the start of the Project.

With the implementation of mitigation measures, contingency and emergency response procedures, and best practices, the residual environmental interactions of the Project on heritage resources during the Construction phase of the Project are not anticipated to be substantive.

4.3.8 Socio-Economic Environment

The Project has the potential to interact with the socio-economic environment, which includes land use, employment, and the local economy as well as the ongoing presence of the Project. Without mitigation, the Project may result in environmental effects to the socio-economic environment such as temporary noise disruption from construction equipment, or incompatible land uses. However, given that the Project is intended to improve wastewater infrastructure in the village to the benefit of its residents, interactions with the socio-economic environment are generally expected to be positive.

4.3.8.1 Mitigation

During the Construction and Operation and Maintenance phases, the following general mitigation measures for the socio-economic environment will be applied:

- Local residents will be notified of the Project, including planned activities and planned schedule. Refer to the Public Involvement section below;
- Adjacent residents will be re-notified immediately before the commencement of construction activities (i.e., when the contractor is retained and the schedule is finalized);
- Construction activities will be limited to daytime hours unless absolutely necessary and nighttime work will be approved by the Village;
- Detour signs will be posted during Construction to minimize traffic within the construction site;
- Truck drivers will adhere to posted speed limits and warning signage and adjust driving to meet weather and road conditions;
- All necessary permits will be obtained and industry best practices will be followed for special moves or traffic interruptions on public roads;
- Where possible the local workforce will be sourced to fill the employment opportunities; and
- The zoning for the Project is appropriate with surrounding land uses, so that incompatible land uses are not expected to occur.

4.3.8.2 Residual Effects

The development of the Project has the potential to interact with the socio-economic environment through temporary disturbance such as noise or dust; however, the Construction phase of the Project will be temporary and the ongoing operation (i.e., intermittent maintenance activities) of the pump station is expected to result in minimal to no disruptions. Furthermore, the Project will provide a more

sustainable and safe wastewater treatment system that adheres to regulatory guidelines for the residents using municipal services within the village, a positive environmental interaction. Therefore, with proposed mitigation, the residual interactions of the Project with the socio-economic environment are not expected to be substantive.

4.4 Assessment of Potential Project Interactions with the Environment as a Result of Accidents, Malfunctions, and Unplanned Events

There is a potential for accidents, malfunctions, or unplanned events related to any construction project. Without mitigation, the Project could interact with the following VCs as a result of accidents, malfunctions, or unplanned events associated with the Project activities.

- In the event of a power outage/failure at either pump stations in the lagoon area or the pump station area due to an emergency situation, the use of the backup generator may be required. Generators release noise and combustion gases from the burning of fossil fuels, which has the potential to interact with the atmospheric and acoustic environments on a short-term, temporary, and localized basis.
- In the event of the failure of ESC measures, the discharge of runoff containing sediment to watercourses (i.e., surface water) and fish and fish habitat during storm events or spring runoff may result in the degradation of those VCs on a temporary basis.
- The accidental release of a hazardous materials through spills could affect groundwater, surface water, and fish and fish habitat through runoff or direct interactions at those VCs from a localized spill meandering into the receiving potable water supply, watercourses, potentially resulting in degradation of water quality or even mortality of fish.
- Several factors including but not limited to the accumulation of waste on-site, accumulation of fill and materials for long periods of time, and minimizing disruptions at night (i.e., lights pointed up) can all increase the potential for interactions with wildlife (i.e., birds), potentially causing avoidance, sensory disturbance, or even mortality.
- Although the results of the AIA concluded that there is a low potential for discovery of archaeological resources as a result of the Project, there is always the possibility to uncover previously undiscovered heritage resources through ground breaking or earth moving activities.

To limit these accidents, malfunctions, and unplanned events during the Project, the following mitigation measures (in addition to those listed in **Section 4.3**) will be followed:

- Construction of the ESC measures using quality materials and sound and proven construction practices in accordance with industry best practice;
- Periodic inspection and maintenance (as required) of the ESC measures, particularly following each precipitation event;
- Storage of chemicals and fuels shall be in an area away from the surrounding terrestrial environment, or direct pathways (i.e., ditches) to the surrounding environment;

- The volume of chemicals and fuels stored on site will be minimized to the extent possible;
- Where appropriate secondary containment containers and spill prevention measures will be employed;
- To avoid/minimize potential hazardous materials spills, spill response kits will be available within the proposed Project areas during all phases of the Project;
- Any spills or leaks that occur will be reported to the appropriate regulatory authorities, if applicable, as soon as possible;
- Remedial action, or engineered controls, for any spills or leaks that occur will be completed.
- If contaminated soil is encountered, it will be reported to NBDELG and managed utilizing the Atlantic Risk Based Corrective Action Framework;
- Refueling, oiling, and maintenance of equipment will be completed in specifically designated areas located at least 30 m away from any watercourse, wetland, or well to minimize potential effects that could arise in the event of a spill;
- Servicing of equipment will be completed off-site by a licensed mechanic; however if required to be completed on-site, the work will be completed over an impervious surface or trap;
- Rubbish and waste materials will be kept at minimum quantities and burning of this material will be prohibited;
- Waste materials will be collected on a regular basis and disposed of at an appropriate approved facility;
- No materials will be burned on site;
- If work is required at night, the area will be appropriately lit with shielded lights pointing downwards;
- Oily rags will be stored in approved receptacles and disposed of at approved waste facilities;
- Chemical and petroleum hydrocarbons will be stored in appropriate containers and in specifically designated areas to reduce potential for leaks. Where applicable, secondary containment of chemicals or petroleum hydrocarbons will be employed;
- Work entailing use of toxic or hazardous materials, chemicals, or otherwise creating hazard to life, safety of health, will be conducted in accordance with National Fire Code of Canada to minimize the potential for spills or fires; and
- If fuel storage is required onsite, double walled fuel storage tanks will be required.

With the implementation of the planned mitigation, and with the careful development and implementation of contingency and emergency response plans to be applied in the unlikely occurrence of an accident, malfunction, or unplanned event, interactions between the Project and the environment arising from an accidental event are not anticipated to be substantive.

5.0 First Nation Consultation

The entire province of New Brunswick is currently unceded territory and is subject to the Peace and Friendship Treaties signed by the British with the Wabanaki Confederacy in 1752 and renewed in specific agreements thereafter. Section 35 of the *Constitution Act, 1982* recognizes and affirms the existing Aboriginal rights and title of the Aboriginal peoples of Canada, and the Supreme Court of Canada has confirmed that Mi'kmaq and Wolastoqey First Nations continue to have treaty rights to carry out traditional activities (including the right to hunt, trap, fish, and gather towards earning a moderate livelihood). The Supreme Court of Canada has also held that the Crown (including the Governments of Canada and New Brunswick) has a duty to consult with First Nations, and accommodate them as necessary, for any power, duty or function they may exercise that may affect Aboriginal or treaty rights. Along with these treaty rights, First Nations maintain that they continue to hold Aboriginal rights and title throughout their traditional territory, including on privately-owned land.

Thus, the Province of New Brunswick has a legal duty to consult, and where appropriate accommodate, with First Nations when it makes a decision that may affect Aboriginal or treaty rights. Several aspects of the duty to consult that can be delegated to the proponent, in this case the Village, by the Crown include:

- Notification of a project, and information exchange;
- Assessment of the potential adverse effects from the project;
- Responding to concerns raised by First Nation communities; and
- Revisiting project plans to avoid or minimize negative effects posed by the Project.

The planned approach to the delegated aspects of the duty to consult in respect of the EIA of the Project is described in this section.

5.1 Overall Approach

The Project areas are located within the traditional territory of the Wolastoqey Nation which is comprised of six communities: Oromocto, St. Mary's, Kingsclear, Woodstock, Tobique, and Madawaska, with the Tobique First Nation community located closest to the Project. As such, the Village will undertake consultation with all six member communities of the Wolastoqey Nation.

To openly engage with the Wolastoqey Nation, the Village will introduce the proposed Project to each community and the Wolastoqey Nation in New Brunswick (WNNB) by direct written communication (i.e., letters) and provide them with a copy of this EIA Registration document. The Project notification will include:

- Brief description of the proposed Project;
- Description of the Project location (with maps included);

- Status of the Provincial Regulatory Approval process; and
- A method for accessing a copy of the EIA registration document.

In accordance with the Consultation Contact Protocol (November 2019), the WNNB will also be copied on the letters. A copy of the letters is provided in **Appendix D**.

Questions, comments and concerns that are raised by the Nation will be documented and included in the Public Consultation Summary Report, unless they are of a confidential nature. The questions, comments or concerns raised will be responded to in a timely manner either in writing or by personal conversation.

6.0 Public Involvement

In accordance with the EIA Regulation, direct communication with stakeholders (local residents, elected officials, businesses, etc.) is required. The planned approach to public and stakeholder notification in respect of the EIA review of the Project is described in this section. Evidence of notification and a summary report detailing engagement efforts and comments received will be provided to the NBDELG within 60 days following registration of the Project.

6.1 Communications Objectives

The following objectives have been established to ensure effective communications with the stakeholders and public:

- Keep the public informed about the proposed project through timely and meaningful information release(s);
- Consult with affected stakeholders in a timely manner in an effort to mitigate impacts; and
- Provide the public and interested stakeholder groups with opportunities to be involved and learn more about the proposed Project.

6.2 Communications to Area Residents

Residents directly adjacent to the Project areas will be made aware of the proposed Project, and its location, through direct written communications (i.e., letter). A news release with the Project details will also be displayed on the Village of Plaster Rock's website at: http://plasterrockvillage.com/. In addition, interested residents will be given the option to review the EIA document at either the Village of Plaster Rock office located at 159 Main Street or via an electronic version of the document, available to download on the NBDELG's website. The residents will be directed to contact Patty St. Peter, should they have any questions about the Project.

Direct written communication (i.e., letters and news release) will be included in **Appendix D** and will include the following:

- Brief description of the proposed Project;
- Description of the Project location;
- Map showing the location of the Project components;
- Status of the Provincial Regulatory Approval process;
- Statement indicating that members of the general public can ask questions and/or raise concerns with the proponent regarding any and all environmental impacts; and
- Date that the public comment period expires.

Feedback received during the 45 day comment period will be documented in a database and responded to in writing or via personal conversation. A summary report documenting the notification efforts and feedback received during the first 45 days of the comment period following submission of the EIA Registration document will be prepared and submitted to NBDELG for review within 60 days following registration of the Project, so that the information can be considered in the course of decision-making in respect of the Project.

7.0 Other Information

7.1 Documents Related to the Undertaking

The following documents are related to the undertaking:

- This EIA Registration;
- Phase I Archeological Impact Assessment: Plaster Rock North Lagoon Decommissioning Project: Manual Testing/Screening for Archeological Impact Assessment, Victoria Country, New Brunswick (refer to **Appendix C**; Colbr 2021); and
- Village of Plaster Rock: North WWTP (Everett Lane) Decommissioning Assessment (Dillon 2019).

7.2 Approval of the Project

The following permits and approvals will be obtained once the Certificate of Determination is received and prior to proceeding with the physical components of the Project:

- Approval to Construct from NBDELG; and
- Watercourse and Wetland Alteration Permit from NBDELG.

7.3 Funding

The Project was approved trough the Integrated Bilateral Agreement for the Investing in Canada Infrastructure Program (ICIP) under the Rural and Northern Communities Stream, as such the federal government will contribute 60% of the funding, the province of New Brunswick will contribute 33.33% of the funding, and the municipality has borrowed the remaining 6.67% to fund the Project.

7.4 Signature of Proponent

Patty St Peter

Patty St. Peter

April 8/2021.

Date of Signature

8.0 Closure

Any effects to the surrounding environment related to this Project are anticipated to be minimal due to the existing environment and its history. Potential impacts to the environment that may arise from this work can be appropriately mitigated as outlined in this report and as a result, minimal impacts are anticipated to the environment from this Project.

This report was prepared by Dillon on behalf of the Village of Plaster Rock. Dillon 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. Dillon assumes no responsibility for conditions which were beyond its scope of work. There is no warranty expressed or implied by Dillon.

The material in the report reflects Dillon's best judgment in light of the information available to Dillon at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Yours truly,

DILLON CONSULTING LIMITED

Kristin Banks, P.Eng.
EIA Lead for Project, Dillon Consulting Limited

Appendix A

Site Visit Photos – October 1, 2020

Photo 1 - Looking southeast at the Everett Lane Lagoon (October 2020).

Photo 2 – Looking west down Everett Lane (October 2020).

Photo 3 – Looking east toward the Tobique River showing the land surrounding Everett Lane Lagoon (October 2020).

Photo 4 – Looking southwest towards Everett Lane from northwest corner of Everett Lane Lagoon (October 2020).

Photo 5 – Looking northeast across Tobique River towards Enterprise Road (October 2020).

Photo 6 – Looking west down Harrison Road (October 2020).

Photo 7 – Looking north toward the Tobigue River from an access road at the end of Harrison Street (October 2020).

Photo 8 – Looking west down Brook Street towards the Tobique River (October 2020).

Photo 9 – Looking southwest down Brook Street with the Tobique River to the left (October 2020).

Photo 10 – Looking southeast across the Tobique River from the end of Bungalow Row Street (October 2020).

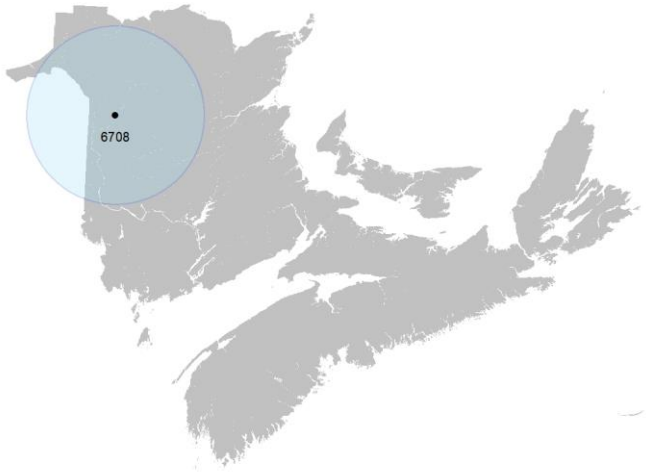
Appendix B

Atlantic Canada Conservation Data Centre Report

DATA REPORT 6708: Plaster Rock, NB

Prepared 25 September 2020
by J. Churchill, Data Manager

CONTENTS OF REPORT



Map 1. A 100 km buffer around the study area

1.0 PREFACE

The Atlantic Canada Conservation Data Centre (AC CDC; www.accdc.com) is part of a network of NatureServe data centres and heritage programs serving 50 states in the U.S.A, 10 provinces and 1 territory in Canada, plus several Central and South American countries. The NatureServe network is more than 30 years old and shares a common conservation data methodology. The AC CDC was founded in 1997, and maintains data for the jurisdictions of New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador. Although a non-governmental agency, the AC CDC is supported by 6 federal agencies and 4 provincial governments, as well as through outside grants and data processing fees.

Upon request and for a fee, the AC CDC queries its database and produces customized reports of the rare and endangered flora and fauna known to occur in or near a specified study area. As a supplement to that data, the AC CDC includes locations of managed areas with some level of protection, and known sites of ecological interest or sensitivity.

1.1 DATA LIST

Included datasets:

Filename	Contents
PlasterRockNB_6708ob.xls	Rare and legally protected Flora and Fauna in your study area
PlasterRockNB_6708ob100km.xls	A list of Rare and legally protected Flora and Fauna within 100 km of your study area
PlasterRockNB_6708ma.xls	Managed Areas in your study area
PlasterRockNB_6708sa.xls	Significant Natural Areas in your study area
PlasterRockNB_6708ff.xls	Rare and common Freshwater Fish in your study area (DFO database)

1.2 RESTRICTIONS

The AC CDC makes a strong effort to verify the accuracy of all the data that it manages, but it shall not be held responsible for any inaccuracies in data that it provides. By accepting AC CDC data, recipients assent to the following limits of use:

a) Data is restricted to use by trained personnel who are sensitive to landowner interests and to potential threats to rare and/or endangered flora and fauna posed by the information provided.
b) Data is restricted to use by the specified Data User; any third party requiring data must make its own data request.
c) The AC CDC requires Data Users to cease using and delete data 12 months after receipt, and to make a new request for updated data if necessary at that time.
d) AC CDC data responses are restricted to the data in our Data System at the time of the data request.
e) Each record has an estimate of locational uncertainty, which must be referenced in order to understand the record's relevance to a particular location. Please see attached Data Dictionary for details.
f) AC CDC data responses are not to be construed as exhaustive inventories of taxa in an area.
g) The absence of a taxon cannot be inferred by its absence in an AC CDC data response.

1.3 ADDITIONAL INFORMATION

The accompanying Data Dictionary provides metadata for the data provided.

Please direct any additional questions about AC CDC data to the following individuals:

Plants, Lichens, Ranking Methods, All other Inquiries
Sean Blaney, Senior Scientist, Executive Director
Tel: (506) 364-2658
sean.blaney@accdc.ca

Animals (Fauna)
John Klymko, Zoologist
Tel: (506) 364-2660
john.klymko@accdc.ca

Plant Communities
Sarah Robinson, Community Ecologist
Tel: (506) 364-2664
sarah.robinson@accdc.ca

Data Management, GIS
James Churchill, Data Manager
Tel: (902) 679-6146
james.churchill@accdc.ca

Billing
Jean Breau
Tel: (506) 364-2657
jean.breau@accdc.ca

Questions on the biology of Federal Species at Risk can be directed to AC CDC: (506) 364-2658, with questions on Species at Risk regulations to: Samara Eaton, Canadian Wildlife Service (NB and PE): (506) 364-5060 or Julie McKnight, Canadian Wildlife Service (NS): (902) 426-4196.

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in New Brunswick, please contact Hubert Askanas, Energy and Resource Development: (506) 453-5873.

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in Nova Scotia, please contact Donna Hurlburt, NS DLF: (902) 679-6886. To determine if location-sensitive species (section 4.3) occur near your study site please contact a NS DLF Regional Biologist:

Western: Emma Vost
(902) 670-8187
Emma.Vost@novascotia.ca

Western: Sarah Spencer
(902) 541-0081
Sarah.Spencer@novascotia.ca

Central: Shavonne Meyer
(902) 893-0816
Shavonne.Meyer@novascotia.ca

Central: Kimberly George
(902) 890-1046
Kimberly.George@novascotia.ca

Eastern: Harrison Moore
(902) 497-4119
Harrison.Moore@novascotia.ca

Eastern: Maureen Cameron-MacMillan
(902) 295-2554
Maureen.Cameron-MacMillan@novascotia.ca

Eastern: Elizabeth Walsh
(902) 563-3370
Elizabeth.Walsh@novascotia.ca

For provincial information about rare taxa and protected areas, or information about game animals, fish habitat etc., in Prince Edward Island, please contact Garry Gregory, PEI Dept. of Communities, Land and Environment: (902) 569-7595.

2.0 RARE AND ENDANGERED SPECIES

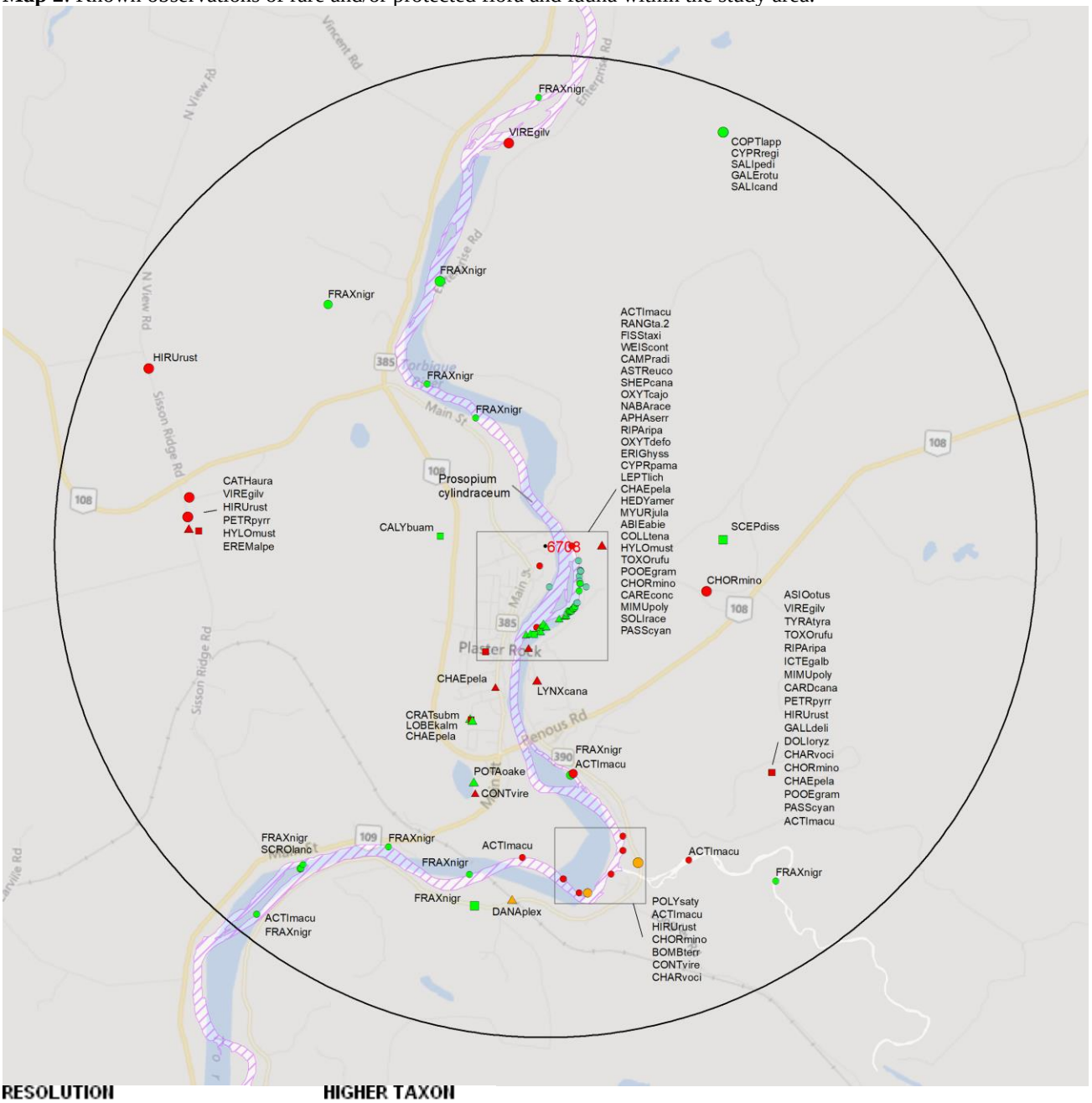
2.1 FLORA

The study area contains 67 records of 22 vascular, 14 records of 8 nonvascular flora (Map 2 and attached: *ob.xls).

2.2 FAUNA

The study area contains 68 records of 24 vertebrate, 3 records of 3 invertebrate fauna (Map 2 and attached data files - see 1.1 Data List). Please see section 4.3 to determine if 'location-sensitive' species occur near your study site.

Map 2: Known observations of rare and/or protected flora and fauna within the study area.



RESOLUTION

- 4.7 within 50s of kilometers
- 4.0 within 10s of kilometers
- 3.7 within 5s of kilometers
- 3.0 within kilometers
- 2.7 within 500s of meters
- 2.0 within 100s of meters
- 1.7 within 10s of meters

HIGHER TAXON

- vertebrate fauna
- invertebrate fauna
- vascular flora
- nonvascular flora

3.0 SPECIAL AREAS

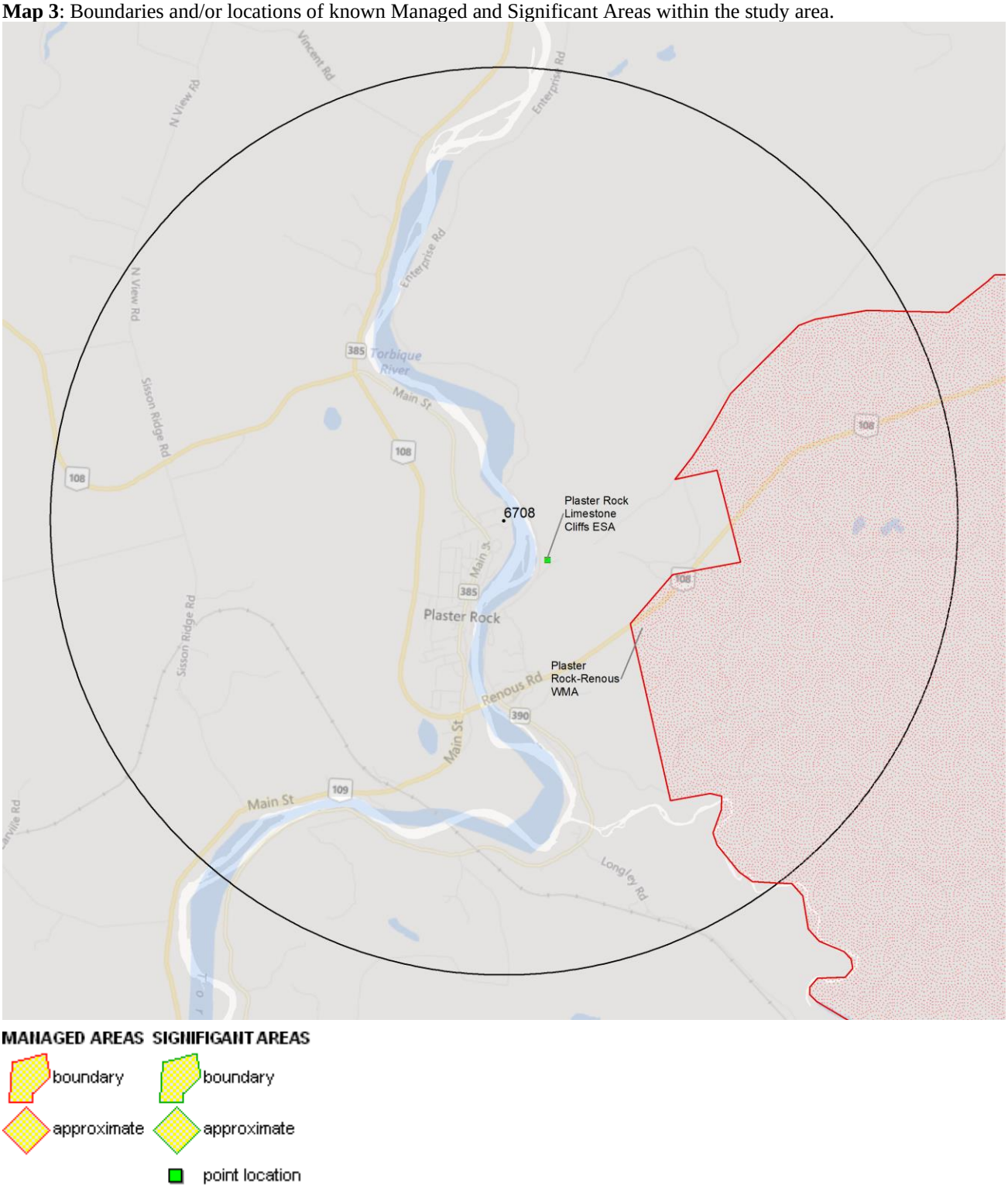
3.1 MANAGED AREAS

The GIS scan identified 1 managed area in the vicinity of the study area (Map 3 and attached file: *ma*.xls).

3.2 SIGNIFICANT AREAS

The GIS scan identified 1 biologically significant site in the vicinity of the study area (Map 3 and attached file: *sa*.xls).

Map 3: Boundaries and/or locations of known Managed and Significant Areas within the study area.



4.0 RARE SPECIES LISTS

Rare and/or endangered taxa (excluding "location-sensitive" species, section 4.3) within the study area listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation (± the precision, in km, of the record). [P] = vascular plant, [N] = nonvascular plant, [A] = vertebrate animal, [I] = invertebrate animal, [C] = community. Note: records are from attached files *ob.xls/*ob.shp only.

4.1 FLORA

	Scientific *Name*	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
N	*Aphanorrhegma serratum*	a Moss				S1	5 Undetermined	1	0.5 ± 0.0
N	*Collema tenax*	Soil Tarpaper Lichen				S1		4	0.4 ± 0.0
N	*Campylium radicale*	Long-stalked Fine Wet Moss				S1S2	5 Undetermined	1	0.4 ± 0.0
N	*Fissidens taxifolius*	Yew-leaved Pocket Moss				S1S2	2 May Be At Risk	1	0.4 ± 0.0
N	*Leptogium lichenoides*	Tattered Jellyskin Lichen				S3	5 Undetermined	3	0.4 ± 0.0
N	*Myurella julacea*	Small Mouse-tail Moss				S3S4	4 Secure	1	0.7 ± 0.0
N	*Weissia controversa*	Green-Cushioned Weissia				S3S4	4 Secure	2	0.4 ± 0.0
N	*Abietinella abietina*	Wiry Fern Moss				S3S4	4 Secure	1	0.7 ± 0.0
P	*Fraxinus nigra*	Black Ash	Threatened			S4S5	4 Secure	12	1.5 ± 0.0
P	*Oxytropis deflexa var. foliolosa*	Nodding Locoweed				S1	2 May Be At Risk	8	0.9 ± 0.0
P	*Coptidium lapponicum*	Lapland Buttercup				S1	2 May Be At Risk	6	4.6 ± 0.0
P	*Solidago racemosa*	Racemose Goldenrod				S2	2 May Be At Risk	7	0.5 ± 0.0
P	*Shepherdia canadensis*	Soapberry				S2	3 Sensitive	2	0.5 ± 0.0
P	*Astragalus eucosmus*	Elegant Milk-vetch				S2	2 May Be At Risk	1	0.7 ± 0.0
P	*Oxytropis campestris var. johannensis*	Field Locoweed				S2	3 Sensitive	1	0.8 ± 1.0
P	*Salix candida*	Sage Willow				S2	3 Sensitive	1	4.6 ± 0.0
P	*Scrophularia lanceolata*	Lance-leaved Figwort				S2	3 Sensitive	3	4.1 ± 0.0
P	*Carex concinna*	Beautiful Sedge				S2	3 Sensitive	3	0.7 ± 0.0
P	*Galearis rotundifolia*	Small Round-leaved Orchid				S2	2 May Be At Risk	1	4.6 ± 0.0
P	*Calypso bulbosa var. americana*	Calypso				S2	2 May Be At Risk	1	1.1 ± 5.0
P	*Cypripedium parviflorum var. makasin*	Small Yellow Lady's-Slipper				S2	2 May Be At Risk	2	0.7 ± 0.0
P	*Erigeron hyssopifolius*	Hyssop-leaved Fleabane				S3	4 Secure	3	0.7 ± 0.0
P	*Nabalus racemosus*	Glaucous Rattlesnakeroot				S3	4 Secure	1	0.9 ± 5.0
P	*Hedysarum americanum*	Alpine Hedysarum				S3	4 Secure	9	0.7 ± 0.0
P	*Salix pedicellaris*	Bog Willow				S3	4 Secure	1	4.6 ± 0.0
P	*Cypripedium reginae*	Showy Lady's-Slipper				S3	3 Sensitive	1	4.6 ± 0.0
P	*Sceptridium dissectum*	Dissected Moonwort				S3	4 Secure	1	1.8 ± 10.0
P	*Crataegus submollis*	Quebec Hawthorn				S3?	3 Sensitive	1	1.9 ± 1.0
P	*Lobelia kalmii*	Brook Lobelia				S3S4	4 Secure	1	1.9 ± 1.0
P	*Potamogeton oakesianus*	Oakes' Pondweed				S3S4	4 Secure	1	2.5 ± 1.0

4.2 FAUNA

	Scientific *Name*	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
A	*Rangifer tarandus pop. 2*	Woodland Caribou (Atlantic-Gasp ├⌐sie pop.)	Endangered	Endangered	Extirpated	SX	0.1 Extirpated	1	0.6 ± 1.0
A	*Hylocichla mustelina*	Wood Thrush	Threatened	Threatened	Threatened	S1S2B,S1S2M	2 May Be At Risk	3	1.2 ± 7.0
A	*Hirundo rustica*	Barn Swallow	Threatened	Threatened	Threatened	S2B,S2M	3 Sensitive	5	3.3 ± 7.0
A	*Chaetura pelagica*	Chimney Swift	Threatened	Threatened	Threatened	S2S3B,S2M	1 At Risk	6	0.2 ± 0.0
A	*Riparia riparia*	Bank Swallow	Threatened	Threatened		S2S3B,S2S3M	3 Sensitive	2	0.8 ± 0.0
A	*Cardellina canadensis*	Canada Warbler	Threatened	Threatened	Threatened	S3B,S3M	1 At Risk	1	3.3 ± 7.0
A	*Dolichonyx oryzivorus*	Bobolink	Threatened	Threatened	Threatened	S3B,S3M	3 Sensitive	1	3.3 ± 7.0
A	*Chordeiles minor*	Common Nighthawk	Special Concern	Threatened	Threatened	S3B,S4M	1 At Risk	7	1.0 ± 0.0
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern	Special Concern	Special Concern	S4B,S4M	4 Secure	2	2.6 ± 0.0
A	*Lynx canadensis*	Canadian Lynx	Not At Risk		Endangered	S3	1 At Risk	2	1.4 ± 1.0
A	*Eremophila alpestris*	Horned Lark				S1B,S4N,S5M	2 May Be At Risk	1	3.5 ± 7.0

	Scientific *Name*	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)
A	*Mimus polyglottos*	Northern Mockingbird				S2B,S2M	3 Sensitive	2	1.2 ± 7.0
A	*Toxostoma rufum*	Brown Thrasher				S2B,S2M	3 Sensitive	2	1.2 ± 7.0
A	*Pooecetes gramineus*	Vesper Sparrow				S2B,S2M	2 May Be At Risk	2	1.2 ± 7.0
A	*Asio otus*	Long-eared Owl				S2S3	5 Undetermined	1	3.3 ± 7.0
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B,S2S3M	3 Sensitive	3	3.3 ± 7.0
A	*Cathartes aura*	Turkey Vulture				S3B,S3M	4 Secure	1	3.7 ± 0.0
A	*Charadrius vociferus*	Killdeer				S3B,S3M	3 Sensitive	4	3.2 ± 0.0
A	*Vireo gilvus*	Warbling Vireo				S3B,S3M	4 Secure	3	3.3 ± 7.0
A	*Passerina cyanea*	Indigo Bunting				S3B,S3M	4 Secure	4	1.2 ± 7.0
A	*Icterus galbula*	Baltimore Oriole				S3B,S3M	4 Secure	2	3.3 ± 7.0
A	*Tyrannus tyrannus*	Eastern Kingbird				S3S4B,S3S4M	3 Sensitive	1	3.3 ± 7.0
A	*Actitis macularius*	Spotted Sandpiper				S3S4B,S5M	4 Secure	11	0.3 ± 0.0
A	*Gallinago delicata*	Wilson's Snipe				S3S4B,S5M	4 Secure	1	3.3 ± 7.0
I	*Danaus plexippus*	Monarch	Endangered	Special Concern	Special Concern	S3B,S3M	3 Sensitive	1	3.6 ± 2.0
I	*Bombus terricola*	Yellow-banded Bumblebee	Special Concern	Special Concern		S3?	3 Sensitive	1	3.6 ± 0.0
I	*Polygonia satyrus*	Satyr Comma				S3	4 Secure	1	3.4 ± 0.0

4.3 LOCATION SENSITIVE SPECIES

The Department of Natural Resources in each Maritimes province considers a number of species "location sensitive". Concern about exploitation of location-sensitive species precludes inclusion of precise coordinates in this report. Those intersecting your study area are indicated below with "YES".

New Brunswick

Scientific *Name*	Common Name	SARA	Prov Legal Prot	Known within the Study Site?
Chrysemys picta picta	Eastern Painted Turtle			No
Chelydra serpentina	Snapping Turtle	Special Concern	Special Concern	No
Glyptemys insculpta	Wood Turtle	Threatened	Threatened	No
Haliaeetus leucocephalus	**Bald Eagle**		**Endangered**	**YES**
Falco peregrinus pop. 1	Peregrine Falcon - anatum/tundrius pop.	Special Concern	Endangered	No
Cicindela marginipennis	Cobblestone Tiger Beetle	Endangered	Endangered	No
Coenonympha nipisiquit	Maritime Ringlet	Endangered	Endangered	No
Bat hibernaculum or bat species occurrence		[Endangered][1]	[Endangered][1]	No

1 *Myotis lucifugus* (Little Brown Myotis), *Myotis septentrionalis* (Long-eared Myotis), and *Perimyotis subflavus* (Tri-colored Bat or Eastern Pipistrelle) are all Endangered under the Federal Species at Risk Act and the NB Species at Risk Act.

4.4 SOURCE BIBLIOGRAPHY

The recipient of these data shall acknowledge the AC CDC and the data sources listed below in any documents, reports, publications or presentations, in which this dataset makes a significant contribution.

# recs	CITATION
29	Klymko, J. 2020. Atlantic Canada Conservation Data Centre zoological fieldwork 2019. Atlantic Canada Conservation Data Centre.
27	Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.
14	Blaney, C.S.; Mazerolle, D.M.; Belliveau, A.B. 2014. Atlantic Canada Conservation Data Centre Fieldwork 2014. Atlantic Canada Conservation Data Centre, # recs.
14	Lepage, D. 2014. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 407,838 recs.
14	Neily, T.H. 2017. Maritmes Lichen and Bryophyte records. Atlantic Canada Conservation Data Centre, 1015 recs.
10	Goltz, J.P. 2012. Field Notes, 1989-2005. , 1091 recs.
8	Benedict, B. Connell Herbarium Specimens. University New Brunswick, Fredericton. 2003.
5	Clayden, S.R. 1998. NBM Science Collections databases: vascular plants. New Brunswick Museum, Saint John NB, 19759 recs.
5	eBird. 2014. eBird Basic Dataset. Version: EBD_relNov-2014. Ithaca, New York. Nov 2014. Cornell Lab of Ornithology, 25036 recs.
4	Blaney, C.S.; Mazerolle, D.M. 2009. Fieldwork 2009. Atlantic Canada Conservation Data Centre. Sackville NB, 13395 recs.
3	Hinds, H.R. 1999. Connell Herbarium Database. University New Brunswick, Fredericton, 131 recs.

# recs	CITATION
3	Sollows, M.C,. 2008. NBM Science Collections databases: mammals. New Brunswick Museum, Saint John NB, download Jan. 2008, 4983 recs.
3	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc, 6042 recs. https://doi.org/10.1037/arc0000014.
2	Benedict, B. Connell Herbarium Specimens (Data) . University New Brunswick, Fredericton. 2003.
2	e-Butterfly. 2016. Export of Maritimes records and photos. Maxim Larrivee, Sambo Zhang (ed.) e-butterfly.org.
2	Hinds, H.R. 1986. Notes on New Brunswick plant collections. Connell Memorial Herbarium, unpubl, 739 recs.
1	Benedict, B. Connell Herbarium Specimen Database Download 2004. Connell Memorial Herbarium, University of New Brunswick. 2004.
1	Cronin, P. et.al. 1998. Fish Species Management Plans (draft). NB DNRE Internal Report. Fredericton, 164pp.
1	Erskine, A.J. 1999. Maritime Nest Records Scheme (MNRS) 1937-1999. Canadian Wildlife Service, Sackville, 313 recs.
1	Manthorne, A. 2014. MaritimesSwiftwatch Project database 2013-2014. Bird Studies Canada, Sackville NB, 326 recs.
1	Pardieck, K.L. & Ziolkowski Jr., D.J.; Hudson, M.-A.R. 2014. North American Breeding Bird Survey Dataset 1966 - 2013, version 2013.0. U.S. Geological Survey, Patuxent Wildlife Research Center <www.pwrc.usgs.gov/BBS/RawData/>.
1	Quo Vadis 2.0
1	Sabine, M. 2016. Black Ash records from the NB DNR Forest Development Survey. New Brunswick Department of Natural Resources.
1	Shortt, R. Connell Herbarium Black Ash specimens. University New Brunswick, Fredericton. 2019.
1	Stantec. 2014. Energy East Pipeline Corridor Species Occurrence Data. Stantec Inc., 4934 records.
1	Tims, J. & Craig, N. 1995. Environmentally Significant Areas in New Brunswick (NBESA). NB Dept of Environment & Nature Trust of New Brunswick Inc.

5.0 RARE SPECIES WITHIN 100 KM

A 100 km buffer around the study area contains 13208 records of 109 vertebrate and 501 records of 50 invertebrate fauna; 10746 records of 290 vascular, 521 records of 150 nonvascular flora (attached: *ob100km.xls).

Taxa within 100 km of the study site that are rare and/or endangered in the province in which the study site occurs (including “location-sensitive” species). All ranks correspond to the province in which the study site falls, even for out-of-province records. Taxa are listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation (± the precision, in km, of the record).

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	*Myotis lucifugus*	Little Brown Myotis	Endangered	Endangered	Endangered	S1	1 At Risk	4	57.9 ± 1.0	NB
A	*Myotis septentrionalis*	Northern Long-eared Myotis	Endangered	Endangered	Endangered	S1	1 At Risk	2	30.9 ± 1.0	NB
A	*Salmo salar pop. 1*	Atlantic Salmon - Inner Bay of Fundy pop.	Endangered	Endangered	Endangered	S2	2 May Be At Risk	429	51.4 ± 50.0	NB
A	*Icteria virens*	Yellow-Breasted Chat	Endangered	Endangered		SNA	8 Accidental	1	74.3 ± 7.0	NB
A	*Rangifer tarandus pop. 2*	Woodland Caribou (Atlantic-Gasp ├⌐sie pop.)	Endangered	Endangered	Extirpated	SX	0.1 Extirpated	4	0.6 ± 1.0	NB
A	*Emydoidea blandingii*	Blanding's Turtle - Nova Scotia pop.	Endangered	Endangered				1	75.7 ± 1.0	NB
A	*Sturnella magna*	Eastern Meadowlark	Threatened	Threatened	Threatened	S1B,S1M	2 May Be At Risk	22	24.6 ± 7.0	NB
A	*Ixobrychus exilis*	Least Bittern	Threatened	Threatened	Threatened	S1S2B,S1S2M	1 At Risk	5	60.9 ± 7.0	NB
A	*Hylocichla mustelina*	Wood Thrush	Threatened	Threatened	Threatened	S1S2B,S1S2M	2 May Be At Risk	176	1.2 ± 7.0	NB
A	*Antrostomus vociferus*	Eastern Whip-Poor-Will	Threatened	Threatened	Threatened	S2B,S2M	1 At Risk	14	13.2 ± 7.0	NB
A	*Hirundo rustica*	Barn Swallow	Threatened	Threatened	Threatened	S2B,S2M	3 Sensitive	602	3.3 ± 7.0	NB
A	*Catharus bicknelli*	Bicknell's Thrush	Threatened	Threatened	Threatened	S2B,S2M	1 At Risk	677	23.8 ± 7.0	NB
A	*Glyptemys insculpta*	Wood Turtle	Threatened	Threatened	Threatened	S2S3	1 At Risk	44	30.6 ± 1.0	NB
A	*Chaetura pelagica*	Chimney Swift	Threatened	Threatened	Threatened	S2S3B,S2M	1 At Risk	241	0.2 ± 0.0	NB
A	*Riparia riparia*	Bank Swallow	Threatened	Threatened		S2S3B,S2S3M	3 Sensitive	263	0.8 ± 0.0	NB
A	*Cardellina canadensis*	Canada Warbler	Threatened	Threatened	Threatened	S3B,S3M	1 At Risk	888	3.3 ± 7.0	NB
A	*Dolichonyx oryzivorus*	Bobolink	Threatened	Threatened	Threatened	S3B,S3M	3 Sensitive	386	3.3 ± 7.0	NB
A	*Anguilla rostrata*	American Eel	Threatened		Threatened	S4	4 Secure	8	24.7 ± 0.0	NB
A	*Histrionicus histrionicus pop. 1*	Harlequin Duck - Eastern pop.	Special Concern	Special Concern	Endangered	S1B,S1S2N,S2M	1 At Risk	1	95.4 ± 7.0	NB
A	*Asio flammeus*	Short-eared Owl	Special Concern	Special Concern	Special Concern	S2B,S2M	3 Sensitive	11	41.8 ± 7.0	NB
A	*Bucephala islandica (Eastern pop.)*	Barrow's Goldeneye - Eastern pop.	Special Concern	Special Concern	Special Concern	S2M,S2N	3 Sensitive	2	40.1 ± 1.0	NB
A	*Chelydra serpentina*	Snapping Turtle	Special Concern	Special Concern	Special Concern	S3	3 Sensitive	4	64.4 ± 0.0	NB
A	*Euphagus carolinus*	Rusty Blackbird	Special Concern	Special Concern	Special Concern	S3B,S3M	2 May Be At Risk	292	5.6 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	*Contopus cooperi*	Olive-sided Flycatcher	Special Concern	Threatened	Threatened	S3B,S3M	1 At Risk	819	7.8 ± 0.0	NB
A	*Coccothraustes vespertinus*	Evening Grosbeak	Special Concern	Special Concern		S3B,S3S4N,SUM	3 Sensitive	396	7.8 ± 7.0	NB
A	*Chordeiles minor*	Common Nighthawk	Special Concern	Threatened	Threatened	S3B,S4M	1 At Risk	332	1.0 ± 0.0	NB
A	*Phalaropus lobatus*	Red-necked Phalarope	Special Concern	Special Concern		S3M	3 Sensitive	2	49.3 ± 0.0	NB
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern	Special Concern	Special Concern	S4B,S4M	4 Secure	489	2.6 ± 0.0	NB
A	*Podiceps auritus*	Horned Grebe	Special Concern	Special Concern	Special Concern	S4N,S4M	4 Secure	3	85.4 ± 2.0	NB
A	*Bubo scandiacus*	Snowy Owl	Not At Risk			S1N,S2S3M	4 Secure	5	33.3 ± 0.0	NB
A	*Accipiter cooperii*	Cooper's Hawk	Not At Risk			S1S2B,S1S2M	2 May Be At Risk	12	28.7 ± 7.0	NB
A	*Aegolius funereus*	Boreal Owl	Not At Risk			S1S2B,SUM	2 May Be At Risk	5	71.1 ± 7.0	NB
A	*Sorex dispar*	Long-tailed Shrew	Not At Risk			S2	3 Sensitive	25	39.8 ± 1.0	NB
A	*Buteo lineatus*	Red-shouldered Hawk	Not At Risk			S2B,S2M	2 May Be At Risk	15	25.6 ± 7.0	NB
A	*Chlidonias niger*	Black Tern	Not At Risk			S2B,S2M	3 Sensitive	3	95.4 ± 0.0	NB
A	*Lynx canadensis*	Canadian Lynx	Not At Risk		Endangered	S3	1 At Risk	106	1.4 ± 1.0	NB
A	*Desmognathus fuscus (Quebec/New Brunswick pop.)*	Northern Dusky Salamander (Quebec/New Brunswick pop.)	Not At Risk			S3	3 Sensitive	1	79.1 ± 0.0	NB
A	*Sterna hirundo*	Common Tern	Not At Risk			S3B,SUM	3 Sensitive	40	33.4 ± 7.0	NB
A	*Podiceps grisegena*	Red-necked Grebe	Not At Risk			S3M,S2N	3 Sensitive	2	86.4 ± 0.0	NB
A	*Haliaeetus leucocephalus*	Bald Eagle	Not At Risk		Endangered	S4	1 At Risk	251	3.2 ± 0.0	NB
A	*Puma concolor pop. 1*	Eastern Cougar	Data Deficient		Endangered	SNA	5 Undetermined	28	8.1 ± 1.0	NB
A	*Salmo salar*	Atlantic Salmon	E,T,SC			S2S3	2 May Be At Risk	2032	7.7 ± 0.0	NB
A	*Thryothorus ludovicianus*	Carolina Wren				S1	8 Accidental	29	82.9 ± 7.0	NB
A	*Salvelinus alpinus*	Arctic Char				S1	3 Sensitive	10	67.4 ± 1.0	NB
A	*Synaptomys borealis sphagnicola*	Northern Bog Lemming				S1		4	64.7 ± 1.0	NB
A	*Tringa melanoleuca*	Greater Yellowlegs				S1?B,S5M	4 Secure	28	49.3 ± 0.0	NB
A	*Gallinula galeata*	Common Gallinule				S1B,S1M	3 Sensitive	1	64.2 ± 0.0	NB
A	*Antigone canadensis*	Sandhill Crane				S1B,S1M	8 Accidental	2	42.2 ± 7.0	NB
A	*Progne subis*	Purple Martin				S1B,S1M	2 May Be At Risk	68	27.4 ± 7.0	NB
A	*Oxyura jamaicensis*	Ruddy Duck				S1B,S2S3M	4 Secure	5	46.8 ± 7.0	NB
A	*Aythya affinis*	Lesser Scaup				S1B,S4M	4 Secure	8	31.9 ± 0.0	NB
A	*Eremophila alpestris*	Horned Lark				S1B,S4N,S5M	2 May Be At Risk	50	3.5 ± 7.0	NB
A	*Chroicocephalus ridibundus*	Black-headed Gull				S1N,S2M	3 Sensitive	1	24.3 ± 0.0	NB
A	*Butorides virescens*	Green Heron				S1S2B,S1S2M	3 Sensitive	16	31.0 ± 7.0	NB
A	*Nycticorax nycticorax*	Black-crowned Night-heron				S1S2B,S1S2M	3 Sensitive	17	46.8 ± 7.0	NB
A	*Empidonax traillii*	Willow Flycatcher				S1S2B,S1S2M	3 Sensitive	12	53.9 ± 2.0	NB
A	*Stelgidopteryx serripennis*	Northern Rough-winged Swallow				S1S2B,S1S2M	2 May Be At Risk	7	55.7 ± 7.0	NB
A	*Troglodytes aedon*	House Wren				S1S2B,S1S2M	5 Undetermined	6	46.8 ± 7.0	NB
A	*Calidris bairdii*	Baird's Sandpiper				S1S2M	3 Sensitive	4	79.1 ± 0.0	NB
A	*Microtus chrotorrhinus*	Rock Vole				S2?	5 Undetermined	35	9.8 ± 1.0	NB
A	*Cistothorus palustris*	Marsh Wren				S2B,S2M	3 Sensitive	3	92.3 ± 7.0	NB
A	*Mimus polyglottos*	Northern Mockingbird				S2B,S2M	3 Sensitive	53	1.2 ± 7.0	NB
A	*Toxostoma rufum*	Brown Thrasher				S2B,S2M	3 Sensitive	79	1.2 ± 7.0	NB
A	*Pooecetes gramineus*	Vesper Sparrow				S2B,S2M	2 May Be At Risk	38	1.2 ± 7.0	NB
A	*Mareca strepera*	Gadwall				S2B,S3M	4 Secure	1	90.3 ± 0.0	NB
A	*Pinicola enucleator*	Pine Grosbeak				S2B,S4S5N,S4S5M	3 Sensitive	119	11.4 ± 7.0	NB
A	*Tringa solitaria*	Solitary Sandpiper				S2B,S5M	4 Secure	43	39.2 ± 7.0	NB
A	*Anser caerulescens*	Snow Goose				S2M	4 Secure	2	73.3 ± 0.0	NB
A	*Phalacrocorax carbo*	Great Cormorant				S2N,S2M	4 Secure	1	40.1 ± 1.0	NB
A	*Asio otus*	Long-eared Owl				S2S3	5 Undetermined	15	3.3 ± 7.0	NB
A	*Picoides dorsalis*	American Three-toed Woodpecker				S2S3	3 Sensitive	73	33.8 ± 7.0	NB
A	*Spatula clypeata*	Northern Shoveler				S2S3B,S2S3M	4 Secure	18	31.0 ± 7.0	NB
A	*Myiarchus crinitus*	Great Crested Flycatcher				S2S3B,S2S3M	3 Sensitive	71	5.7 ± 0.0	NB
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B,S2S3M	3 Sensitive	218	3.3 ± 7.0	NB
A	*Pluvialis dominica*	American Golden-Plover				S2S3M	3 Sensitive	3	80.8 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
A	*Calcarius lapponicus*	Lapland Longspur				S2S3N,SUM	3 Sensitive	1	77.8 ± 2.0	NB
A	*Loxia curvirostra*	Red Crossbill				S3	4 Secure	60	7.9 ± 0.0	NB
A	*Spinus pinus*	Pine Siskin				S3	4 Secure	218	8.3 ± 7.0	NB
A	*Prosopium cylindraceum*	Round Whitefish				S3	4 Secure	5	20.9 ± 1.0	NB
A	*Salvelinus namaycush*	Lake Trout				S3	3 Sensitive	6	33.9 ± 0.0	NB
A	*Eptesicus fuscus*	Big Brown Bat				S3	3 Sensitive	1	23.7 ± 0.0	NB
A	*Cathartes aura*	Turkey Vulture				S3B,S3M	4 Secure	66	3.7 ± 0.0	NB
A	*Rallus limicola*	Virginia Rail				S3B,S3M	3 Sensitive	16	27.6 ± 7.0	NB
A	*Charadrius vociferus*	Killdeer				S3B,S3M	3 Sensitive	375	3.2 ± 0.0	NB
A	*Coccyzus erythropthalmus*	Black-billed Cuckoo				S3B,S3M	4 Secure	33	17.7 ± 7.0	NB
A	*Vireo gilvus*	Warbling Vireo				S3B,S3M	4 Secure	96	3.3 ± 7.0	NB
A	*Piranga olivacea*	Scarlet Tanager				S3B,S3M	4 Secure	272	7.4 ± 0.0	NB
A	*Passerina cyanea*	Indigo Bunting				S3B,S3M	4 Secure	40	1.2 ± 7.0	NB
A	*Molothrus ater*	Brown-headed Cowbird				S3B,S3M	2 May Be At Risk	129	7.8 ± 7.0	NB
A	*Icterus galbula*	Baltimore Oriole				S3B,S3M	4 Secure	105	3.3 ± 7.0	NB
A	*Somateria mollissima*	Common Eider				S3B,S4M,S3N	4 Secure	2	66.5 ± 0.0	NB
A	*Setophaga tigrina*	Cape May Warbler				S3B,S4S5M	4 Secure	167	6.5 ± 0.0	NB
A	*Anas acuta*	Northern Pintail				S3B,S5M	3 Sensitive	9	43.9 ± 1.0	NB
A	*Mergus serrator*	Red-breasted Merganser				S3B,S5M,S4S5N	4 Secure	29	32.9 ± 7.0	NB
A	*Arenaria interpres*	Ruddy Turnstone				S3M	4 Secure	4	79.1 ± 0.0	NB
A	*Phalaropus fulicarius*	Red Phalarope				S3M	3 Sensitive	1	79.1 ± 0.0	NB
A	*Melanitta americana*	Black Scoter				S3M,S1S2N	3 Sensitive	1	94.4 ± 2.0	NB
A	*Bucephala albeola*	Bufflehead				S3M,S2N	3 Sensitive	6	45.6 ± 0.0	NB
A	*Calidris maritima*	Purple Sandpiper				S3M,S3N	4 Secure	1	40.1 ± 1.0	NB
A	*Synaptomys cooperi*	Southern Bog Lemming				S3S4	4 Secure	1	74.6 ± 0.0	NB
A	*Tyrannus tyrannus*	Eastern Kingbird				S3S4B,S3S4M	3 Sensitive	347	3.3 ± 7.0	NB
A	*Actitis macularius*	Spotted Sandpiper				S3S4B,S5M	4 Secure	448	0.3 ± 0.0	NB
A	*Gallinago delicata*	Wilson's Snipe				S3S4B,S5M	4 Secure	257	3.3 ± 7.0	NB
A	*Larus delawarensis*	Ring-billed Gull				S3S4B,S5M	4 Secure	55	31.9 ± 0.0	NB
A	*Setophaga striata*	Blackpoll Warbler				S3S4B,S5M	4 Secure	747	8.3 ± 7.0	NB
A	*Pluvialis squatarola*	Black-bellied Plover				S3S4M	4 Secure	1	79.1 ± 0.0	NB
A	*Calidris pusilla*	Semipalmated Sandpiper				S3S4M	4 Secure	15	49.3 ± 0.0	NB
A	*Calidris melanotos*	Pectoral Sandpiper				S3S4M	4 Secure	7	80.8 ± 0.0	NB
A	*Calidris alba*	Sanderling				S3S4M,S1N	3 Sensitive	4	79.1 ± 0.0	NB
C	*Acer saccharum - Fraxinus americana / Gymnocarpium dryopteris - Deparia acrostichoides Forest*	Sugar Maple - White Ash / Common Oak Fern - Silvery Glade Fern Forest				S3		2	65.4 ± 0.0	NB
I	*Cicindela marginipennis*	Cobblestone Tiger Beetle	Endangered	Endangered	Endangered	S1	1 At Risk	22	53.1 ± 0.0	NB
I	*Danaus plexippus*	Monarch	Endangered	Special Concern	Special Concern	S3B,S3M	3 Sensitive	19	3.6 ± 2.0	NB
I	*Ophiogomphus howei*	Pygmy Snaketail	Special Concern	Special Concern	Special Concern	S2	2 May Be At Risk	2	94.2 ± 0.0	NB
I	*Alasmidonta varicosa*	Brook Floater	Special Concern	Special Concern	Special Concern	S2	3 Sensitive	10	90.2 ± 0.0	NB
I	*Bombus terricola*	Yellow-banded Bumblebee	Special Concern	Special Concern		S3?	3 Sensitive	18	3.6 ± 0.0	NB
I	*Coccinella transversoguttata richardsoni*	Transverse Lady Beetle	Special Concern			SH	2 May Be At Risk	2	25.8 ± 1.0	NB
I	*Lycaena dorcas*	Dorcas Copper				S1	2 May Be At Risk	14	64.0 ± 1.0	NB
I	*Erora laeta*	Early Hairstreak				S1	2 May Be At Risk	13	58.0 ± 0.0	NB
I	*Somatochlora septentrionalis*	Muskeg Emerald				S1	2 May Be At Risk	4	56.9 ± 0.0	NB
I	*Leucorrhinia patricia*	Canada Whiteface				S1	2 May Be At Risk	7	85.2 ± 1.0	NB
I	*Plebejus saepiolus*	Greenish Blue				S1S2	4 Secure	22	39.7 ± 2.0	NB
I	*Cicindela ancocisconensis*	Appalachian Tiger Beetle				S2	5 Undetermined	3	53.1 ± 0.0	NB
I	*Encyclops caerulea*	a Longhorned Beetle				S2		2	81.4 ± 0.0	NB
I	*Satyrium calanus*	Banded Hairstreak				S2	3 Sensitive	4	81.5 ± 0.0	NB
I	*Aeshna juncea*	Rush Darner				S2	3 Sensitive	9	56.9 ± 0.0	NB
I	*Somatochlora brevicincta*	Quebec Emerald				S2	5 Undetermined	8	52.5 ± 0.0	NB
I	*Hetaerina americana*	American Rubyspot				S2	3 Sensitive	1	82.1 ± 0.0	NB
I	*Coenagrion interrogatum*	Subarctic Bluet				S2	3 Sensitive	13	10.8 ± 1.0	NB
I	*Ischnura posita*	Fragile Forktail				S2	2 May Be At Risk	1	96.6 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
I	*Callophrys henrici*	Henry's Elfin				S2S3	4 Secure	5	44.6 ± 0.0	NB
I	*Ceruchus piceus*	a Stag Beetle				S3		1	88.1 ± 0.0	NB
I	*Hesperia sassacus*	Indian Skipper				S3	4 Secure	3	64.6 ± 7.0	NB
I	*Euphyes bimacula*	Two-spotted Skipper				S3	4 Secure	3	73.3 ± 7.0	NB
I	*Papilio brevicauda bretonensis*	Short-tailed Swallowtail				S3	4 Secure	1	7.4 ± 1.0	NB
I	*Satyrium acadica*	Acadian Hairstreak				S3	4 Secure	9	36.6 ± 7.0	NB
I	*Callophrys polios*	Hoary Elfin				S3	4 Secure	15	25.8 ± 0.0	NB
I	*Callophrys eryphon*	Western Pine Elfin				S3	4 Secure	18	62.1 ± 1.0	NB
I	*Speyeria aphrodite*	Aphrodite Fritillary				S3	4 Secure	12	5.3 ± 0.0	NB
I	*Boloria eunomia*	Bog Fritillary				S3	5 Undetermined	26	9.1 ± 0.0	NB
I	*Boloria bellona*	Meadow Fritillary				S3	4 Secure	21	35.9 ± 0.0	NB
I	*Boloria chariclea*	Arctic Fritillary				S3	4 Secure	26	46.1 ± 7.0	NB
I	*Polygonia satyrus*	Satyr Comma				S3	4 Secure	17	3.4 ± 0.0	NB
I	*Polygonia gracilis*	Hoary Comma				S3	4 Secure	37	45.0 ± 2.0	NB
I	*Nymphalis l-album*	Compton Tortoiseshell				S3	4 Secure	12	49.0 ± 1.0	NB
I	*Gomphus vastus*	Cobra Clubtail				S3	3 Sensitive	1	54.6 ± 0.0	NB
I	*Gomphus abbreviatus*	Spine-crowned Clubtail				S3	4 Secure	8	15.7 ± 0.0	NB
I	*Gomphaeschna furcillata*	Harlequin Darner				S3	5 Undetermined	1	98.5 ± 0.0	NB
I	*Somatochlora albicincta*	Ringed Emerald				S3	4 Secure	31	30.6 ± 0.0	NB
I	*Somatochlora cingulata*	Lake Emerald				S3	4 Secure	23	11.4 ± 0.0	NB
I	*Somatochlora forcipata*	Forcipate Emerald				S3	4 Secure	9	30.3 ± 1.0	NB
I	*Williamsonia fletcheri*	Ebony Boghaunter				S3	4 Secure	3	66.7 ± 0.0	NB
I	*Lestes eurinus*	Amber-Winged Spreadwing				S3	4 Secure	6	43.4 ± 0.0	NB
I	*Enallagma geminatum*	Skimming Bluet				S3	5 Undetermined	4	49.9 ± 0.0	NB
I	*Enallagma signatum*	Orange Bluet				S3	4 Secure	3	68.5 ± 0.0	NB
I	*Stylurus scudderi*	Zebra Clubtail				S3	4 Secure	2	88.5 ± 0.0	NB
I	*Alasmidonta undulata*	Triangle Floater				S3	3 Sensitive	4	32.9 ± 0.0	NB
I	*Leptodea ochracea*	Tidewater Mucket				S3	4 Secure	5	86.5 ± 1.0	NB
I	*Pantala hymenaea*	Spot-Winged Glider				S3B,S3M	4 Secure	2	68.7 ± 0.0	NB
I	*Satyrium liparops*	Striped Hairstreak				S3S4	4 Secure	15	28.1 ± 2.0	NB
I	*Cupido comyntas*	Eastern Tailed Blue				S3S4	4 Secure	4	63.4 ± 0.0	NB
N	*Anzia colpodes*	Black-foam Lichen	Threatened	Threatened		S1S2	5 Undetermined	1	84.3 ± 0.0	NB
N	*Fuscopannaria leucosticta*	White-rimmed Shingle Lichen	Threatened			S2	2 May Be At Risk	20	66.4 ± 0.0	NB
N	*Aphanorrhegma serratum*	a Moss				S1	5 Undetermined	2	0.5 ± 0.0	NB
N	*Arctoa fulvella*	a Moss				S1	2 May Be At Risk	2	64.7 ± 1.0	NB
N	*Campylium halleri*	Haller's Fine Wet Moss				S1	2 May Be At Risk	2	29.9 ± 1.0	NB
N	*Drepanocladus capillifolius*	Hair Hook Moss				S1	5 Undetermined	1	11.4 ± 1.0	NB
N	*Grimmia donniana*	Donn's Grimmia Moss				S1	2 May Be At Risk	4	64.6 ± 0.0	NB
N	*Grimmia incurva*	Black Grimmia				S1	2 May Be At Risk	4	64.6 ± 0.0	NB
N	*Grimmia unicolor*	a Moss				S1	2 May Be At Risk	1	29.5 ± 1.0	NB
N	*Hypnum recurvatum*	Recurved Plait Moss				S1	2 May Be At Risk	3	29.9 ± 1.0	NB
N	*Kiaeria starkei*	Starke's Fork Moss				S1	2 May Be At Risk	1	64.7 ± 1.0	NB
N	*Placynthium asperellum*	Lilliput Ink Lichen				S1		1	40.8 ± 0.0	NB
N	*Collema tenax*	Soil Tarpaper Lichen				S1		5	0.4 ± 0.0	NB
N	*Cetraria ericetorum ssp. ericetorum*	a Lichen				S1		2	66.9 ± 20.0	NB
N	*Atrichum angustatum*	Lesser Smoothcap Moss				S1?	2 May Be At Risk	1	86.5 ± 2.0	NB
N	*Bryum pallens*	a Moss				S1?	2 May Be At Risk	3	30.0 ± 1.0	NB
N	*Catoscopium nigritum*	Black Golf Club Moss				S1?	2 May Be At Risk	5	30.0 ± 1.0	NB
N	*Cinclidium stygium*	Sooty Cupola Moss				S1?	2 May Be At Risk	2	8.0 ± 0.0	NB
N	*Dicranum bonjeanii*	Bonjean's Broom Moss				S1?	2 May Be At Risk	2	31.4 ± 1.0	NB
N	*Entodon brevisetus*	a Moss				S1?	2 May Be At Risk	1	38.6 ± 1.0	NB
N	*Eurhynchium hians*	Light Beaked Moss				S1?	2 May Be At Risk	1	65.4 ± 0.0	NB
N	*Paludella squarrosa*	Tufted Fen Moss				S1?	2 May Be At Risk	1	8.0 ± 0.0	NB
N	*Seligeria recurvata*	a Moss				S1?	2 May Be At Risk	5	30.0 ± 1.0	NB
N	*Splachnum sphaericum*	Round-fruited Dung Moss				S1?	3 Sensitive	1	32.4 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
N	*Timmia megapolitana*	Metropolitan Timmia Moss				S1?	2 May Be At Risk	3	21.3 ± 1.0	NB
N	*Rhizomnium pseudopunctatum*	Felted Leafy Moss				S1?	2 May Be At Risk	1	67.2 ± 1.0	NB
N	*Euopsis granatina*	Lesser Rockbud Lichen				S1?		1	94.7 ± 0.0	NB
N	*Spilonema revertens*	Rock Hairball Lichen				S1?		1	94.7 ± 0.0	NB
N	*Peltigera venosa*	Fan Pelt Lichen				S1?	5 Undetermined	3	99.5 ± 0.0	NB
N	*Cetraria arenaria*	Sand-loving Icelandmoss Lichen				S1?		1	79.8 ± 0.0	NB
N	*Lophozia heterocolpos*	Whip Notchwort				S1S2	6 Not Assessed	2	88.7 ± 0.0	NB
N	*Metacalypogeia schusterana*	Schuster's Pouchwort				S1S2	6 Not Assessed	3	90.9 ± 1.0	NB
N	*Calliergon richardsonii*	Richardson's Spear Moss				S1S2	2 May Be At Risk	4	8.1 ± 0.0	NB
N	*Campylium radicale*	Long-stalked Fine Wet Moss				S1S2	5 Undetermined	2	0.4 ± 0.0	NB
N	*Distichium inclinatum*	Inclined Iris Moss				S1S2	2 May Be At Risk	1	99.9 ± 1.0	NB
N	*Ditrichum pallidum*	Pale Cow-hair Moss				S1S2	2 May Be At Risk	2	62.9 ± 0.0	NB
N	*Drummondia prorepens*	a Moss				S1S2	2 May Be At Risk	1	75.3 ± 1.0	NB
N	*Fissidens taxifolius*	Yew-leaved Pocket Moss				S1S2	2 May Be At Risk	4	0.4 ± 0.0	NB
N	*Grimmia longirostris*	a Moss				S1S2	2 May Be At Risk	1	29.9 ± 1.0	NB
N	*Hygrohypnum bestii*	Best's Brook Moss				S1S2	3 Sensitive	1	30.0 ± 10.0	NB
N	*Oncophorus virens*	Green Spur Moss				S1S2	2 May Be At Risk	3	30.0 ± 1.0	NB
N	*Platydictya confervoides*	a Moss				S1S2	3 Sensitive	5	29.9 ± 1.0	NB
N	*Seligeria brevifolia*	a Moss				S1S2	3 Sensitive	2	85.2 ± 1.0	NB
N	*Sphagnum platyphyllum*	Flat-leaved Peat Moss				S1S2	5 Undetermined	1	93.0 ± 1.0	NB
N	*Timmia austriaca*	Austrian Timmia Moss				S1S2	2 May Be At Risk	2	91.4 ± 1.0	NB
N	*Timmia norvegica var. excurrens*	a moss				S1S2	2 May Be At Risk	1	99.6 ± 0.0	NB
N	*Tomentypnum falcifolium*	Sickle-leaved Golden Moss				S1S2	2 May Be At Risk	2	28.9 ± 1.0	NB
N	*Hamatocaulis vernicosus*	a Moss				S1S2	2 May Be At Risk	2	8.0 ± 0.0	NB
N	*Bryohaplocladium microphyllum*	Tiny-leaved Haplocladium Moss				S1S2	2 May Be At Risk	7	21.0 ± 1.0	NB
N	*Cystocoleus ebeneus*	Rockgossamer Lichen				S1S2		2	54.4 ± 0.0	NB
N	*Anaptychia crinalis*	Hanging Fringed Lichen				S1S2	5 Undetermined	1	40.9 ± 0.0	NB
N	*Frullania selwyniana*	Selwyn's Scalewort				S1S3	6 Not Assessed	1	40.9 ± 0.0	NB
N	*Lophozia obtusa*	Obtuse Notchwort				S1S3	6 Not Assessed	1	67.7 ± 0.0	NB
N	*Anomodon viticulosus*	a Moss				S2	2 May Be At Risk	3	77.2 ± 0.0	NB
N	*Cirriphyllum piliferum*	Hair-pointed Moss				S2	3 Sensitive	2	28.3 ± 1.0	NB
N	*Didymodon ferrugineus*	a moss				S2	3 Sensitive	3	30.0 ± 1.0	NB
N	*Ditrichum flexicaule*	Flexible Cow-hair Moss				S2	3 Sensitive	7	29.9 ± 1.0	NB
N	*Fontinalis hypnoides*	a moss				S2	3 Sensitive	1	83.7 ± 15.0	NB
N	*Anomodon tristis*	a Moss				S2	2 May Be At Risk	1	40.7 ± 0.0	NB
N	*Hypnum pratense*	Meadow Plait Moss				S2	3 Sensitive	4	60.8 ± 1.0	NB
N	*Isopterygiopsis pulchella*	Neat Silk Moss				S2	3 Sensitive	2	60.2 ± 1.0	NB
N	*Meesia triquetra*	Three-ranked Cold Moss				S2	2 May Be At Risk	1	20.5 ± 100.0	NB
N	*Physcomitrium immersum*	a Moss				S2	3 Sensitive	1	30.0 ± 1.0	NB
N	*Pohlia elongata*	Long-necked Nodding Moss				S2	3 Sensitive	1	92.1 ± 2.0	NB
N	*Pohlia sphagnicola*	a moss				S2	3 Sensitive	1	69.9 ± 1.0	NB
N	*Seligeria calcarea*	Chalk Brittle Moss				S2	3 Sensitive	1	82.7 ± 0.0	NB
N	*Sphagnum centrale*	Central Peat Moss				S2	3 Sensitive	1	8.4 ± 0.0	NB
N	*Tayloria serrata*	Serrate Trumpet Moss				S2	3 Sensitive	1	63.1 ± 0.0	NB
N	*Tortula mucronifolia*	Mucronate Screw Moss				S2	3 Sensitive	4	30.0 ± 1.0	NB
N	*Zygodon viridissimus var. rupestris*	a moss				S2	3 Sensitive	2	26.3 ± 0.0	NB
N	*Anomobryum filiforme*	a moss				S2	5 Undetermined	1	30.0 ± 1.0	NB
N	*Leptogium milligranum*	Stretched Jellyskin Lichen				S2	5 Undetermined	2	56.0 ± 0.0	NB
N	*Nephroma laevigatum*	Mustard Kidney Lichen				S2	2 May Be At Risk	1	55.5 ± 0.0	NB
N	*Peltigera lepidophora*	Scaly Pelt Lichen				S2	5 Undetermined	8	21.5 ± 0.0	NB
N	*Barbilophozia lycopodioides*	Greater Pawwort				S2?	6 Not Assessed	2	35.6 ± 1.0	NB
N	*Anomodon minor*	Blunt-leaved Anomodon Moss				S2?	2 May Be At Risk	2	21.3 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
N	*Bryum pallescens*	Pale Bryum Moss				S2?	5 Undetermined	1	30.0 ± 1.0	NB
N	*Dicranum spurium*	Spurred Broom Moss				S2?	3 Sensitive	1	94.6 ± 0.0	NB
N	*Hygrohypnum montanum*	a Moss				S2?	3 Sensitive	2	61.9 ± 0.0	NB
N	*Schistostega pennata*	Luminous Moss				S2?	3 Sensitive	3	63.9 ± 0.0	NB
N	*Seligeria campylopoda*	a Moss				S2?	3 Sensitive	5	29.9 ± 1.0	NB
N	*Seligeria diversifolia*	a Moss				S2?	3 Sensitive	2	81.7 ± 1.0	NB
N	*Trichodon cylindricus*	Cylindric Hairy-teeth Moss				S2?	3 Sensitive	3	65.8 ± 0.0	NB
N	*Plagiomnium rostratum*	Long-beaked Leafy Moss				S2?	3 Sensitive	3	39.3 ± 1.0	NB
N	*Collema leptaleum*	Crumpled Bat's Wing Lichen				S2?	5 Undetermined	4	65.4 ± 0.0	NB
N	*Imshaugia placorodia*	Eyed Starburst Lichen				S2?	5 Undetermined	1	40.5 ± 0.0	NB
N	*Bryum uliginosum*	a Moss				S2S3	3 Sensitive	2	29.9 ± 1.0	NB
N	*Bryum weigelii*	Weigel's Bryum Moss				S2S3	3 Sensitive	1	81.3 ± 3.0	NB
N	*Calliergonella cuspidata*	Common Large Wetland Moss				S2S3	3 Sensitive	2	8.4 ± 0.0	NB
N	*Campylium polygamum*	a Moss				S2S3	3 Sensitive	3	30.0 ± 10.0	NB
N	*Didymodon rigidulus*	Rigid Screw Moss				S2S3	3 Sensitive	6	29.9 ± 1.0	NB
N	*Fissidens bushii*	Bush's Pocket Moss				S2S3	3 Sensitive	4	51.5 ± 0.0	NB
N	*Orthotrichum speciosum*	Showy Bristle Moss				S2S3	5 Undetermined	5	38.5 ± 2.0	NB
N	*Pohlia proligera*	Cottony Nodding Moss				S2S3	3 Sensitive	1	92.1 ± 2.0	NB
N	*Saelania glaucescens*	Blue Dew Moss				S2S3	3 Sensitive	2	77.2 ± 0.0	NB
N	*Scorpidium scorpioides*	Hooked Scorpion Moss				S2S3	3 Sensitive	4	8.0 ± 0.0	NB
N	*Sphagnum subfulvum*	a Peatmoss				S2S3	2 May Be At Risk	1	65.5 ± 0.0	NB
N	*Taxiphyllum deplanatum*	Imbricate Yew-leaved Moss				S2S3	3 Sensitive	2	71.6 ± 5.0	NB
N	*Plagiomnium drummondii*	Drummond's Leafy Moss				S2S3	3 Sensitive	2	50.5 ± 3.0	NB
N	*Cyrtomnium hymenophylloides*	Short-pointed Lantern Moss				S2S3	3 Sensitive	2	40.1 ± 0.0	NB
N	*Dendriscocaulon umhausense*	a lichen				S2S3	3 Sensitive	2	40.1 ± 0.0	NB
N	*Punctelia caseana*					S2S3		3	56.0 ± 0.0	NB
N	*Hypnum curvifolium*	Curved-leaved Plait Moss				S3	3 Sensitive	1	65.4 ± 0.0	NB
N	*Tortella fragilis*	Fragile Twisted Moss				S3	3 Sensitive	5	26.5 ± 2.0	NB
N	*Hymenostylium recurvirostre*	Hymenostylium Moss				S3	3 Sensitive	5	29.9 ± 1.0	NB
N	*Collema nigrescens*	Blistered Tarpaper Lichen				S3	3 Sensitive	8	65.6 ± 0.0	NB
N	*Solorina saccata*	Woodland Owl Lichen				S3	5 Undetermined	21	39.8 ± 0.0	NB
N	*Ahtiana aurescens*	Eastern Candlewax Lichen				S3	5 Undetermined	2	46.7 ± 0.0	NB
N	*Cladonia strepsilis*	Olive Cladonia Lichen				S3	4 Secure	1	76.3 ± 0.0	NB
N	*Leptogium lichenoides*	Tattered Jellyskin Lichen				S3	5 Undetermined	4	0.4 ± 0.0	NB
N	*Nephroma resupinatum*	a lichen				S3	3 Sensitive	5	56.0 ± 0.0	NB
N	*Usnea strigosa*	Bushy Beard Lichen				S3	5 Undetermined	1	55.4 ± 0.0	NB
N	*Leptogium laceroides*	Short-bearded Jellyskin Lichen				S3	3 Sensitive	4	40.9 ± 0.0	NB
N	*Peltigera membranacea*	Membranous Pelt Lichen				S3	5 Undetermined	7	48.4 ± 0.0	NB
N	*Bryum amblyodon*	a Moss				S3?	4 Secure	1	40.5 ± 0.0	NB
N	*Leptogium subtile*	Appressed Jellyskin Lichen				S3?	5 Undetermined	1	96.1 ± 0.0	NB
N	*Anomodon rugelii*	Rugel's Anomodon Moss				S3S4	3 Sensitive	11	26.0 ± 0.0	NB
N	*Barbula convoluta*	Lesser Bird's-claw Beard Moss				S3S4	4 Secure	2	30.3 ± 1.0	NB
N	*Brachythecium velutinum*	Velvet Ragged Moss				S3S4	4 Secure	2	75.0 ± 3.0	NB
N	*Calliergon giganteum*	Giant Spear Moss				S3S4	3 Sensitive	1	20.2 ± 3.0	NB
N	*Dicranella cerviculata*	a Moss				S3S4	3 Sensitive	2	96.2 ± 1.0	NB
N	*Dicranella varia*	a Moss				S3S4	4 Secure	8	29.9 ± 1.0	NB
N	*Encalypta ciliata*	Fringed Extinguisher Moss				S3S4	3 Sensitive	1	71.6 ± 5.0	NB
N	*Fissidens bryoides*	Lesser Pocket Moss				S3S4	4 Secure	5	77.2 ± 0.0	NB
N	*Helodium blandowii*	Wetland-plume Moss				S3S4	4 Secure	4	9.5 ± 3.0	NB
N	*Heterocladium dimorphum*	Dimorphous Tangle Moss				S3S4	4 Secure	2	83.7 ± 15.0	NB
N	*Isopterygiopsis muelleriana*	a Moss				S3S4	4 Secure	4	83.7 ± 15.0	NB
N	*Myurella julacea*	Small Mouse-tail Moss				S3S4	4 Secure	6	0.7 ± 0.0	NB
N	*Physcomitrium pyriforme*	Pear-shaped Urn Moss				S3S4	3 Sensitive	2	70.5 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
N	*Pogonatum dentatum*	Mountain Hair Moss				S3S4	4 Secure	2	64.5 ± 0.0	NB
N	*Splachnum rubrum*	Red Collar Moss				S3S4	4 Secure	1	90.3 ± 2.0	NB
N	*Tomentypnum nitens*	Golden Fuzzy Fen Moss				S3S4	4 Secure	4	8.0 ± 0.0	NB
N	*Weissia controversa*	Green-Cushioned Weissia				S3S4	4 Secure	4	0.4 ± 0.0	NB
N	*Abietinella abietina*	Wiry Fern Moss				S3S4	4 Secure	7	0.7 ± 0.0	NB
N	*Trichostomum tenuirostre*	Acid-Soil Moss				S3S4	4 Secure	3	83.7 ± 15.0	NB
N	*Limprichtia revolvens*	a Moss				S3S4	4 Secure	2	8.0 ± 0.0	NB
N	*Rauiella scita*	Smaller Fern Moss				S3S4	3 Sensitive	5	26.0 ± 0.0	NB
N	*Pannaria rubiginosa*	Brown-eyed Shingle Lichen				S3S4	3 Sensitive	12	40.9 ± 0.0	NB
N	*Pseudocyphellaria holarctica*	Yellow Specklebelly Lichen				S3S4	3 Sensitive	8	21.5 ± 0.0	NB
N	*Leptogium teretiusculum*	Beaded Jellyskin Lichen				S3S4	5 Undetermined	1	99.9 ± 0.0	NB
N	*Vahliella leucophaea*	Shelter Shingle Lichen				S3S4	5 Undetermined	7	54.4 ± 0.0	NB
N	*Montanelia panniformis*	Shingled Camouflage Lichen				S3S4	5 Undetermined	1	54.4 ± 0.0	NB
N	*Nephroma parile*	Powdery Kidney Lichen				S3S4	4 Secure	7	26.3 ± 0.0	NB
N	*Protopannaria pezizoides*	Brown-gray Moss-shingle Lichen				S3S4	4 Secure	6	21.7 ± 0.0	NB
N	*Fuscopannaria sorediata*	a Lichen				S3S4	5 Undetermined	1	40.8 ± 0.0	NB
N	*Pannaria conoplea*	Mealy-rimmed Shingle Lichen				S3S4	3 Sensitive	11	37.4 ± 0.0	NB
N	*Anaptychia palmulata*	Shaggy Fringed Lichen				S3S4	3 Sensitive	3	52.9 ± 0.0	NB
N	*Dermatocarpon luridum*	Brookside Stippleback Lichen				S3S4	4 Secure	67	7.2 ± 0.0	NB
N	*Leucodon brachypus*	a Moss				SH	2 May Be At Risk	1	90.1 ± 10.0	NB
N	*Orthotrichum gymnostomum*	a Moss				SH	2 May Be At Risk	1	88.5 ± 10.0	NB
P	*Juglans cinerea*	Butternut	Endangered	Endangered	Endangered	S1	1 At Risk	630	21.3 ± 1.0	NB
P	*Pedicularis furbishiae*	Furbish Lousewort	Endangered	Endangered	Endangered	S1	1 At Risk	55	23.7 ± 0.0	NB
P	*Fraxinus nigra*	Black Ash	Threatened			S4S5	4 Secure	1003	1.5 ± 0.0	NB
P	*Isoetes prototypus*	Prototype Quillwort	Special Concern	Special Concern	Endangered	S2	1 At Risk	1	56.8 ± 0.0	NB
P	*Symphyotrichum anticostense*	Anticosti Aster	Special Concern	Special Concern	Endangered	S2S3	1 At Risk	121	23.5 ± 0.0	NB
P	*Pterospora andromedea*	Woodland Pinedrops			Endangered	S1	1 At Risk	11	81.4 ± 0.0	NB
P	*Cryptotaenia canadensis*	Canada Honewort				S1	2 May Be At Risk	9	21.9 ± 0.0	NB
P	*Sanicula trifoliata*	Large-Fruited Sanicle				S1	2 May Be At Risk	23	42.7 ± 0.0	NB
P	*Arnica lonchophylla*	Northern Arnica				S1	2 May Be At Risk	11	40.7 ± 5.0	NB
P	*Hieracium robinsonii*	Robinson's Hawkweed				S1	3 Sensitive	3	30.0 ± 1.0	NB
P	*Symphyotrichum laeve*	Smooth Aster				S1	5 Undetermined	5	31.9 ± 1.0	NB
P	*Canadanthus modestus*	Great Northern Aster				S1	2 May Be At Risk	29	70.2 ± 0.0	NB
P	*Betula glandulosa*	Glandular Birch				S1	2 May Be At Risk	28	64.5 ± 0.0	NB
P	*Andersonglossum boreale*	Northern Wild Comfrey				S1	2 May Be At Risk	19	29.8 ± 1.0	NB
P	*Cardamine concatenata*	Cut-leaved Toothwort				S1	2 May Be At Risk	15	31.2 ± 0.0	NB
P	*Draba cana*	Lance-leaved Draba				S1	2 May Be At Risk	1	92.6 ± 1.0	NB
P	*Moehringia macrophylla*	Large-Leaved Sandwort				S1	2 May Be At Risk	2	92.8 ± 0.0	NB
P	*Chenopodiastrum simplex*	Maple-leaved Goosefoot				S1	2 May Be At Risk	1	95.1 ± 0.0	NB
P	*Blitum capitatum*	strawberry-blite				S1	2 May Be At Risk	8	25.5 ± 0.0	NB
P	*Drosera anglica*	English Sundew				S1	2 May Be At Risk	5	8.4 ± 0.0	NB
P	*Drosera linearis*	Slender-Leaved Sundew				S1	2 May Be At Risk	4	8.3 ± 0.0	NB
P	*Vaccinium boreale*	Northern Blueberry				S1	2 May Be At Risk	17	65.3 ± 0.0	NB
P	*Vaccinium uliginosum*	Alpine Bilberry				S1	2 May Be At Risk	6	64.6 ± 0.0	NB
P	*Hylodesmum glutinosum*	Large Tick-trefoil				S1	2 May Be At Risk	8	75.9 ± 0.0	NB
P	*Oxytropis deflexa var. foliolosa*	Nodding Locoweed				S1	2 May Be At Risk	8	0.9 ± 0.0	NB
P	*Gentiana rubricaulis*	Purple-stemmed Gentian				S1	2 May Be At Risk	1	77.2 ± 0.0	NB
P	*Ribes cynosbati*	Prickly Gooseberry				S1	2 May Be At Risk	1	85.7 ± 0.0	NB
P	*Hepatica acutiloba*	Sharp-lobed Hepatica				S1	2 May Be At Risk	11	55.1 ± 0.0	NB
P	*Coptidium lapponicum*	Lapland Buttercup				S1	2 May Be At Risk	29	4.6 ± 0.0	NB
P	*Amelanchier fernaldii*	Fernald's Serviceberry				S1	2 May Be At Risk	1	68.7 ± 0.0	NB
P	*Galium brevipes*	Limestone Swamp Bedstraw				S1	2 May Be At Risk	3	55.7 ± 0.0	NB
P	*Agalinis purpurea var.*	Small-flowered Purple False				S1	2 May Be At Risk	3	25.8 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
	parviflora	Foxglove								
P	*Viola canadensis*	Canada Violet				S1	2 May Be At Risk	87	15.6 ± 0.0	NB
P	*Alisma subcordatum*	Southern Water Plantain				S1	5 Undetermined	1	86.3 ± 1.0	NB
P	*Carex annectens*	Yellow-Fruited Sedge				S1	2 May Be At Risk	1	85.5 ± 0.0	NB
P	*Carex blanda*	Eastern Woodland Sedge				S1	2 May Be At Risk	2	85.3 ± 0.0	NB
P	*Carex cephaloidea*	Thin-leaved Sedge				S1	2 May Be At Risk	29	22.0 ± 0.0	NB
P	*Carex merritt-fernaldii*	Merritt Fernald's Sedge				S1	2 May Be At Risk	1	54.0 ± 0.0	NB
P	*Carex media*	Intermediate Sedge				S1	2 May Be At Risk	7	54.3 ± 0.0	NB
P	*Carex scirpoidea*	Scirpuslike Sedge				S1	2 May Be At Risk	2	28.3 ± 1.0	NB
P	*Carex sterilis*	Sterile Sedge				S1	2 May Be At Risk	13	23.5 ± 0.0	NB
P	*Carex grisea*	Inflated Narrow-leaved Sedge				S1	2 May Be At Risk	5	21.9 ± 0.0	NB
P	*Carex saxatilis*	Russet Sedge				S1	2 May Be At Risk	6	50.1 ± 0.0	NB
P	*Carex bigelowii*	Bigelow's Sedge				S1	2 May Be At Risk	7	64.4 ± 0.0	NB
P	*Rhynchospora capillacea*	Slender Beakrush				S1	2 May Be At Risk	5	29.7 ± 1.0	NB
P	*Sisyrinchium angustifolium*	Narrow-leaved Blue-eyed-grass				S1	2 May Be At Risk	1	87.8 ± 0.0	NB
P	*Juncus stygius ssp. americanus*	Moor Rush				S1	2 May Be At Risk	1	47.7 ± 10.0	NB
P	*Juncus subtilis*	Creeping Rush				S1	2 May Be At Risk	3	80.0 ± 0.0	NB
P	*Oreojuncus trifidus*	Highland Rush				S1	2 May Be At Risk	9	79.7 ± 0.0	NB
P	*Allium canadense*	Canada Garlic				S1	2 May Be At Risk	3	99.5 ± 0.0	NB
P	*Malaxis monophyllos var. brachypoda*	North American White Adder's-mouth				S1	2 May Be At Risk	10	72.9 ± 0.0	NB
P	*Platanthera macrophylla*	Large Round-Leaved Orchid				S1	2 May Be At Risk	2	7.2 ± 1.0	NB
P	*Dichanthelium xanthophysum*	Slender Panic Grass				S1	2 May Be At Risk	6	61.6 ± 0.0	NB
P	*Elymus hystrix*	Spreading Wild Rye				S1	2 May Be At Risk	31	44.8 ± 0.0	NB
P	*Festuca subverticillata*	Nodding Fescue				S1	2 May Be At Risk	38	22.3 ± 0.0	NB
P	*Potamogeton nodosus*	Long-leaved Pondweed				S1	2 May Be At Risk	10	81.5 ± 0.0	NB
P	*Dryopteris clintoniana*	Clinton's Wood Fern				S1	2 May Be At Risk	13	41.4 ± 0.0	NB
P	*Gymnocarpium continentale*	Nahanni Oak Fern				S1	2 May Be At Risk	5	40.1 ± 0.0	NB
P	*Gymnocarpium robertianum*	Limestone Oak Fern				S1	2 May Be At Risk	5	16.2 ± 0.0	NB
P	*Huperzia selago*	Northern Firmoss				S1	2 May Be At Risk	10	23.2 ± 0.0	NB
P	*Botrychium lunaria*	Common Moonwort				S1	2 May Be At Risk	7	15.4 ± 0.0	NB
P	*Sceptridium oneidense*	Blunt-lobed Moonwort				S1	2 May Be At Risk	4	78.0 ± 0.0	NB
P	*Sceptridium rugulosum*	Rugulose Grapefern				S1	2 May Be At Risk	4	79.4 ± 0.0	NB
P	*Polygonum aviculare ssp. neglectum*	Narrow-leaved Knotweed				S1?	5 Undetermined	1	75.8 ± 1.0	NB
P	*Galium trifidum ssp. subbiflorum*	Three-petaled Bedstraw				S1?	5 Undetermined	3	68.7 ± 0.0	NB
P	*Carex laxiflora*	Loose-Flowered Sedge				S1?	5 Undetermined	3	56.2 ± 0.0	NB
P	*Carex appalachica*	Appalachian Sedge				S1?	5 Undetermined	1	84.2 ± 0.0	NB
P	*Sisyrinchium mucronatum*	Michaux's Blue-eyed-grass				S1?	5 Undetermined	3	82.8 ± 0.0	NB
P	*Micranthes virginiensis*	Early Saxifrage				S1S2	2 May Be At Risk	1	84.3 ± 0.0	NB
P	*Carex crawei*	Crawe's Sedge				S1S2	2 May Be At Risk	2	98.3 ± 0.0	NB
P	*Cuscuta cephalanthi*	Buttonbush Dodder				S1S3	2 May Be At Risk	10	27.7 ± 0.0	NB
P	*Osmorhiza depauperata*	Blunt Sweet Cicely				S2	3 Sensitive	3	52.5 ± 10.0	NB
P	*Osmorhiza longistylis*	Smooth Sweet Cicely				S2	3 Sensitive	13	10.6 ± 0.0	NB
P	*Sanicula odorata*	Clustered Sanicle				S2	2 May Be At Risk	29	21.9 ± 1.0	NB
P	*Solidago racemosa*	Racemose Goldenrod				S2	2 May Be At Risk	39	0.5 ± 0.0	NB
P	*Ionactis linariifolia*	Flax-leaved Aster				S2	3 Sensitive	12	79.2 ± 0.0	NB
P	*Pseudognaphalium macounii*	Macoun's Cudweed				S2	3 Sensitive	1	81.4 ± 0.0	NB
P	*Impatiens pallida*	Pale Jewelweed				S2	2 May Be At Risk	12	14.2 ± 1.0	NB
P	*Betula minor*	Dwarf White Birch				S2	3 Sensitive	24	35.8 ± 0.0	NB
P	*Boechera stricta*	Drummond's Rockcress				S2	3 Sensitive	5	29.8 ± 0.0	NB
P	*Stellaria longifolia*	Long-leaved Starwort				S2	3 Sensitive	5	56.6 ± 0.0	NB
P	*Hypericum x dissimulatum*	Disguised St. John's-wort				S2	3 Sensitive	1	69.5 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Triosteum aurantiacum*	Orange-fruited Tinker's Weed				S2	3 Sensitive	170	27.6 ± 0.0	NB
P	*Viburnum lentago*	Nannyberry				S2	4 Secure	29	77.2 ± 0.0	NB
P	*Shepherdia canadensis*	Soapberry				S2	3 Sensitive	19	0.5 ± 0.0	NB
P	*Astragalus eucosmus*	Elegant Milk-vetch				S2	2 May Be At Risk	14	0.7 ± 0.0	NB
P	*Oxytropis campestris*	Field Locoweed				S2	3 Sensitive	6	69.2 ± 0.0	NB
P	*Oxytropis campestris var. johannensis*	Field Locoweed				S2	3 Sensitive	44	0.8 ± 1.0	NB
P	*Quercus macrocarpa*	Bur Oak				S2	2 May Be At Risk	1	30.8 ± 1.0	NB
P	*Gentiana linearis*	Narrow-Leaved Gentian				S2	3 Sensitive	21	65.3 ± 1.0	NB
P	*Myriophyllum humile*	Low Water Milfoil				S2	3 Sensitive	1	79.9 ± 1.0	NB
P	*Nuphar x rubrodisca*	Red-disk Yellow Pond-lily				S2	3 Sensitive	9	35.8 ± 5.0	NB
P	*Aphyllon uniflorum*	One-flowered Broomrape				S2	3 Sensitive	5	24.2 ± 0.0	NB
P	*Polygaloides paucifolia*	Fringed Milkwort				S2	3 Sensitive	1	54.4 ± 0.0	NB
P	*Polygala senega*	Seneca Snakeroot				S2	3 Sensitive	51	27.1 ± 100.0	NB
P	*Persicaria amphibia var. emersa*	Long-root Smartweed				S2	3 Sensitive	5	27.7 ± 0.0	NB
P	*Podostemum ceratophyllum*	Horn-leaved Riverweed				S2	3 Sensitive	4	81.3 ± 1.0	NB
P	*Anemone multifida*	Cut-leaved Anemone				S2	3 Sensitive	73	15.4 ± 0.0	NB
P	*Hepatica americana*	Round-lobed Hepatica				S2	3 Sensitive	29	45.4 ± 1.0	NB
P	*Crataegus scabrida*	Rough Hawthorn				S2	3 Sensitive	3	47.9 ± 1.0	NB
P	*Rosa acicularis ssp. sayi*	Prickly Rose				S2	2 May Be At Risk	35	58.4 ± 0.0	NB
P	*Galium kamtschaticum*	Northern Wild Licorice				S2	3 Sensitive	11	46.2 ± 4.0	NB
P	*Salix candida*	Sage Willow				S2	3 Sensitive	36	4.6 ± 0.0	NB
P	*Castilleja septentrionalis*	Northeastern Paintbrush				S2	3 Sensitive	31	24.3 ± 0.0	NB
P	*Scrophularia lanceolata*	Lance-leaved Figwort				S2	3 Sensitive	12	4.1 ± 0.0	NB
P	*Dirca palustris*	Eastern Leatherwood				S2	2 May Be At Risk	95	23.1 ± 0.0	NB
P	*Phryma leptostachya*	American Lopseed				S2	3 Sensitive	99	22.0 ± 0.0	NB
P	*Verbena urticifolia*	White Vervain				S2	2 May Be At Risk	19	27.0 ± 1.0	NB
P	*Viola novae-angliae*	New England Violet				S2	3 Sensitive	22	77.3 ± 0.0	NB
P	*Symplocarpus foetidus*	Eastern Skunk Cabbage				S2	3 Sensitive	1	99.4 ± 0.0	NB
P	*Carex comosa*	Bearded Sedge				S2	2 May Be At Risk	8	65.0 ± 0.0	NB
P	*Carex concinna*	Beautiful Sedge				S2	3 Sensitive	46	0.7 ± 0.0	NB
P	*Carex granularis*	Limestone Meadow Sedge				S2	3 Sensitive	23	60.8 ± 0.0	NB
P	*Carex gynocrates*	Northern Bog Sedge				S2	3 Sensitive	49	6.7 ± 0.0	NB
P	*Carex hirtifolia*	Pubescent Sedge				S2	3 Sensitive	59	21.9 ± 0.0	NB
P	*Carex livida*	Livid Sedge				S2	3 Sensitive	34	6.8 ± 0.0	NB
P	*Carex plantaginea*	Plantain-Leaved Sedge				S2	3 Sensitive	173	18.3 ± 0.0	NB
P	*Carex prairea*	Prairie Sedge				S2	3 Sensitive	44	6.8 ± 0.0	NB
P	*Carex rostrata*	Narrow-leaved Beaked Sedge				S2	3 Sensitive	14	8.9 ± 0.0	NB
P	*Carex sprengelii*	Longbeak Sedge				S2	3 Sensitive	58	22.0 ± 0.0	NB
P	*Carex tenuiflora*	Sparse-Flowered Sedge				S2	2 May Be At Risk	28	6.3 ± 0.0	NB
P	*Carex albicans var. emmonsii*	White-tinged Sedge				S2	3 Sensitive	3	15.9 ± 1.0	NB
P	*Eriophorum gracile*	Slender Cottongrass				S2	2 May Be At Risk	12	65.5 ± 0.0	NB
P	*Elodea nuttallii*	Nuttall's Waterweed				S2	3 Sensitive	39	8.0 ± 0.0	NB
P	*Juncus vaseyi*	Vasey Rush				S2	3 Sensitive	10	57.8 ± 0.0	NB
P	*Allium tricoccum*	Wild Leek				S2	2 May Be At Risk	13	68.6 ± 0.0	NB
P	*Galearis rotundifolia*	Small Round-leaved Orchid				S2	2 May Be At Risk	20	4.6 ± 0.0	NB
P	*Calypso bulbosa*	Calypso				S2	2 May Be At Risk	2	64.8 ± 0.0	NB
P	*Calypso bulbosa var. americana*	Calypso				S2	2 May Be At Risk	45	1.1 ± 5.0	NB
P	*Coeloglossum viride*	Long-bracted Frog Orchid				S2	2 May Be At Risk	10	39.3 ± 1.0	NB
P	*Cypripedium parviflorum var. makasin*	Small Yellow Lady's-Slipper				S2	2 May Be At Risk	39	0.7 ± 0.0	NB
P	*Galearis spectabilis*	Showy Orchis				S2	2 May Be At Risk	75	7.3 ± 1.0	NB
P	*Goodyera oblongifolia*	Menzies' Rattlesnake-				S2	3 Sensitive	5	7.1 ± 0.0	NB

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		plantain								
P	*Spiranthes lucida*	Shining Ladies'-Tresses				S2	3 Sensitive	21	10.7 ± 50.0	NB
P	*Agrostis mertensii*	Northern Bent Grass				S2	2 May Be At Risk	7	59.5 ± 0.0	NB
P	*Dichanthelium linearifolium*	Narrow-leaved Panic Grass				S2	3 Sensitive	4	85.6 ± 0.0	NB
P	*Elymus canadensis*	Canada Wild Rye				S2	2 May Be At Risk	8	47.7 ± 1.0	NB
P	*Piptatheropsis canadensis*	Canada Ricegrass				S2	3 Sensitive	4	79.9 ± 0.0	NB
P	*Poa glauca*	Glaucous Blue Grass				S2	4 Secure	15	29.0 ± 0.0	NB
P	*Schizachyrium scoparium*	Little Bluestem				S2	3 Sensitive	67	23.8 ± 0.0	NB
P	*Piptatheropsis pungens*	Slender Ricegrass				S2	2 May Be At Risk	8	58.7 ± 0.0	NB
P	*Potamogeton vaseyi*	Vasey's Pondweed				S2	3 Sensitive	2	77.9 ± 0.0	NB
P	*Asplenium trichomanes*	Maidenhair Spleenwort				S2	3 Sensitive	4	73.2 ± 0.0	NB
P	*Woodsia alpina*	Alpine Cliff Fern				S2	3 Sensitive	47	30.9 ± 0.0	NB
P	*Diphasiastrum sitchense*	Sitka Ground-cedar				S2	3 Sensitive	19	44.3 ± 0.0	NB
P	*Botrychium minganense*	Mingan Moonwort				S2	3 Sensitive	26	14.8 ± 0.0	NB
P	*Selaginella selaginoides*	Low Spikemoss				S2	3 Sensitive	7	46.7 ± 0.0	NB
P	*Toxicodendron radicans var. radicans*	Eastern Poison Ivy				S2?	3 Sensitive	1	64.1 ± 0.0	NB
P	*Symphyotrichum novi-belgii var. crenifolium*	New York Aster				S2?	5 Undetermined	1	81.5 ± 1.0	NB
P	*Galium obtusum*	Blunt-leaved Bedstraw				S2?	4 Secure	2	87.2 ± 0.0	NB
P	*Salix myricoides*	Bayberry Willow				S2?	3 Sensitive	57	22.0 ± 0.0	NB
P	*Platanthera huronensis*	Fragrant Green Orchid				S2?	5 Undetermined	7	22.6 ± 0.0	NB
P	*Solidago altissima*	Tall Goldenrod				S2S3	4 Secure	90	24.3 ± 0.0	NB
P	*Callitriche hermaphroditica*	Northern Water-starwort				S2S3	4 Secure	11	5.3 ± 0.0	NB
P	*Lonicera oblongifolia*	Swamp Fly Honeysuckle				S2S3	3 Sensitive	150	5.4 ± 0.0	NB
P	*Epilobium coloratum*	Purple-veined Willowherb				S2S3	3 Sensitive	10	16.0 ± 0.0	NB
P	*Rumex pallidus*	Seabeach Dock				S2S3	3 Sensitive	1	50.0 ± 0.0	NB
P	*Rumex occidentalis*	Western Dock				S2S3	2 May Be At Risk	25	67.7 ± 0.0	NB
P	*Amelanchier gaspensis*	Gasp ├⌐ Serviceberry				S2S3	5 Undetermined	4	79.1 ± 0.0	NB
P	*Rubus pensilvanicus*	Pennsylvania Blackberry				S2S3	4 Secure	1	7.3 ± 1.0	NB
P	*Galium labradoricum*	Labrador Bedstraw				S2S3	3 Sensitive	96	6.6 ± 0.0	NB
P	*Valeriana uliginosa*	Swamp Valerian				S2S3	3 Sensitive	71	5.6 ± 5.0	NB
P	*Carex adusta*	Lesser Brown Sedge				S2S3	4 Secure	9	10.2 ± 0.0	NB
P	*Scirpus atrovirens*	Dark-green Bulrush				S2S3	5 Undetermined	94	22.6 ± 0.0	NB
P	*Juncus brachycephalus*	Small-Head Rush				S2S3	3 Sensitive	79	22.4 ± 0.0	NB
P	*Corallorhiza maculata var. occidentalis*	Spotted Coralroot				S2S3	3 Sensitive	6	63.9 ± 0.0	NB
P	*Corallorhiza maculata var. maculata*	Spotted Coralroot				S2S3	3 Sensitive	6	30.5 ± 0.0	NB
P	*Neottia auriculata*	Auricled Twayblade				S2S3	3 Sensitive	9	9.6 ± 0.0	NB
P	*Spiranthes cernua*	Nodding Ladies'-Tresses				S2S3	3 Sensitive	16	14.7 ± 0.0	NB
P	*Eragrostis pectinacea*	Tufted Love Grass				S2S3	4 Secure	2	23.9 ± 0.0	NB
P	*Stuckenia filiformis*	Thread-leaved Pondweed				S2S3	3 Sensitive	6	41.6 ± 0.0	NB
P	*Potamogeton praelongus*	White-stemmed Pondweed				S2S3	4 Secure	14	7.6 ± 1.0	NB
P	*Isoetes tuckermanii ssp. acadiensis*	Acadian Quillwort				S2S3	3 Sensitive	1	84.5 ± 0.0	NB
P	*Ophioglossum pusillum*	Northern Adder's-tongue				S2S3	3 Sensitive	36	14.8 ± 0.0	NB
P	*Panax trifolius*	Dwarf Ginseng				S3	3 Sensitive	5	82.7 ± 9.0	NB
P	*Arnica lanceolata*	Lance-leaved Arnica				S3	4 Secure	57	18.3 ± 0.0	NB
P	*Artemisia campestris ssp. caudata*	Tall Wormwood				S3	4 Secure	15	23.8 ± 0.0	NB
P	*Artemisia campestris*	Field Wormwood				S3	4 Secure	7	29.7 ± 0.0	NB
P	*Erigeron hyssopifolius*	Hyssop-leaved Fleabane				S3	4 Secure	85	0.7 ± 0.0	NB
P	*Nabalus racemosus*	Glaucous Rattlesnakeroot				S3	4 Secure	30	0.9 ± 5.0	NB
P	*Tanacetum bipinnatum ssp. huronense*	Lake Huron Tansy				S3	4 Secure	135	18.9 ± 0.0	NB
P	*Tanacetum bipinnatum*	Lake Huron Tansy				S3	4 Secure	1	69.5 ± 0.0	NB
P	*Symphyotrichum boreale*	Boreal Aster				S3	3 Sensitive	127	8.3 ± 0.0	NB

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P	*Betula pumila*	Bog Birch				S3	4 Secure	15	11.7 ± 0.0	NB
P	*Turritis glabra*	Tower Mustard				S3	5 Undetermined	23	9.1 ± 1.0	NB
P	*Arabis pycnocarpa*	Cream-flowered Rockcress				S3	4 Secure	24	29.7 ± 0.0	NB
P	*Cardamine maxima*	Large Toothwort				S3	4 Secure	99	36.9 ± 0.0	NB
P	*Subularia aquatica ssp. americana*	American Water Awlwort				S3	4 Secure	1	67.6 ± 1.0	NB
P	*Hudsonia tomentosa*	Woolly Beach-heath				S3	4 Secure	5	79.8 ± 0.0	NB
P	*Penthorum sedoides*	Ditch Stonecrop				S3	4 Secure	1	88.9 ± 1.0	NB
P	*Elatine minima*	Small Waterwort				S3	4 Secure	1	49.5 ± 0.0	NB
P	*Astragalus alpinus*	Alpine Milk-vetch				S3	4 Secure	1	69.2 ± 0.0	NB
P	*Astragalus alpinus var. brunetianus*	Alpine Milk-Vetch				S3	4 Secure	83	22.0 ± 0.0	NB
P	*Hedysarum americanum*	Alpine Hedysarum				S3	4 Secure	155	0.7 ± 0.0	NB
P	*Gentianella amarella*	Northern Gentian				S3	4 Secure	6	15.4 ± 0.0	NB
P	*Gentianella amarella ssp. acuta*	Northern Gentian				S3	4 Secure	13	14.8 ± 0.0	NB
P	*Geranium bicknellii*	Bicknell's Crane's-bill				S3	4 Secure	3	85.6 ± 0.0	NB
P	*Myriophyllum verticillatum*	Whorled Water Milfoil				S3	4 Secure	3	70.5 ± 0.0	NB
P	*Stachys hispida*	Smooth Hedge-Nettle				S3	3 Sensitive	64	22.2 ± 0.0	NB
P	*Nuphar microphylla*	Small Yellow Pond-lily				S3	4 Secure	16	36.4 ± 1.0	NB
P	*Epilobium hornemannii*	Hornemann's Willowherb				S3	4 Secure	18	59.0 ± 0.0	NB
P	*Epilobium strictum*	Downy Willowherb				S3	4 Secure	46	11.7 ± 0.0	NB
P	*Polygala sanguinea*	Blood Milkwort				S3	3 Sensitive	4	87.8 ± 1.0	NB
P	*Fallopia scandens*	Climbing False Buckwheat				S3	4 Secure	9	28.7 ± 0.0	NB
P	*Littorella americana*	American Shoreweed				S3	4 Secure	2	49.1 ± 1.0	NB
P	*Primula mistassinica*	Mistassini Primrose				S3	4 Secure	45	24.3 ± 0.0	NB
P	*Pyrola minor*	Lesser Pyrola				S3	4 Secure	30	7.3 ± 1.0	NB
P	*Clematis occidentalis*	Purple Clematis				S3	4 Secure	19	25.5 ± 5.0	NB
P	*Ranunculus gmelinii*	Gmelin's Water Buttercup				S3	4 Secure	25	39.8 ± 0.0	NB
P	*Thalictrum confine*	Northern Meadow-rue				S3	4 Secure	47	7.4 ± 1.0	NB
P	*Amelanchier canadensis*	Canada Serviceberry				S3	4 Secure	2	86.7 ± 7.0	NB
P	*Rosa palustris*	Swamp Rose				S3	4 Secure	1	64.4 ± 0.0	NB
P	*Rubus occidentalis*	Black Raspberry				S3	4 Secure	129	7.4 ± 1.0	NB
P	*Galium boreale*	Northern Bedstraw				S3	4 Secure	16	10.1 ± 0.0	NB
P	*Salix pedicellaris*	Bog Willow				S3	4 Secure	41	4.6 ± 0.0	NB
P	*Salix interior*	Sandbar Willow				S3	4 Secure	117	22.3 ± 0.0	NB
P	*Parnassia glauca*	Fen Grass-of-Parnassus				S3	4 Secure	181	23.7 ± 0.0	NB
P	*Boehmeria cylindrica*	Small-spike False-nettle				S3	3 Sensitive	9	82.4 ± 0.0	NB
P	*Pilea pumila*	Dwarf Clearweed				S3	4 Secure	31	49.1 ± 0.0	NB
P	*Viola adunca*	Hooked Violet				S3	4 Secure	14	57.6 ± 0.0	NB
P	*Viola nephrophylla*	Northern Bog Violet				S3	4 Secure	235	22.0 ± 0.0	NB
P	*Carex arcta*	Northern Clustered Sedge				S3	4 Secure	9	27.1 ± 0.0	NB
P	*Carex capillaris*	Hairlike Sedge				S3	4 Secure	179	27.7 ± 3.0	NB
P	*Carex chordorrhiza*	Creeping Sedge				S3	4 Secure	78	6.0 ± 0.0	NB
P	*Carex conoidea*	Field Sedge				S3	4 Secure	8	84.5 ± 0.0	NB
P	*Carex eburnea*	Bristle-leaved Sedge				S3	4 Secure	102	23.5 ± 0.0	NB
P	*Carex exilis*	Coastal Sedge				S3	4 Secure	40	7.8 ± 0.0	NB
P	*Carex garberi*	Garber's Sedge				S3	3 Sensitive	44	23.8 ± 0.0	NB
P	*Carex haydenii*	Hayden's Sedge				S3	4 Secure	44	23.6 ± 0.0	NB
P	*Carex michauxiana*	Michaux's Sedge				S3	4 Secure	9	50.2 ± 0.0	NB
P	*Carex ormostachya*	Necklace Spike Sedge				S3	4 Secure	29	16.6 ± 0.0	NB
P	*Carex rosea*	Rosy Sedge				S3	4 Secure	241	7.0 ± 0.0	NB
P	*Carex tenera*	Tender Sedge				S3	4 Secure	15	6.3 ± 0.0	NB
P	*Carex tuckermanii*	Tuckerman's Sedge				S3	4 Secure	18	13.6 ± 1.0	NB
P	*Carex vaginata*	Sheathed Sedge				S3	3 Sensitive	38	6.6 ± 0.0	NB
P	*Carex wiegandii*	Wiegand's Sedge				S3	4 Secure	8	6.3 ± 0.0	NB
P	*Carex atratiformis*	Scabrous Black Sedge				S3	4 Secure	131	40.4 ± 0.0	NB
P	*Cyperus dentatus*	Toothed Flatsedge				S3	4 Secure	1	25.2 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	Prov GS Rank	# recs	Distance (km)	Prov
P	*Cyperus esculentus*	Perennial Yellow Nutsedge				S3	4 Secure	16	23.6 ± 0.0	NB
P	*Cyperus esculentus var. leptostachyus*	Perennial Yellow Nutsedge				S3	4 Secure	18	22.2 ± 0.0	NB
P	*Eleocharis intermedia*	Matted Spikerush				S3	4 Secure	30	19.6 ± 5.0	NB
P	*Eleocharis quinqueflora*	Few-flowered Spikerush				S3	4 Secure	61	8.4 ± 0.0	NB
P	*Rhynchospora capitellata*	Small-headed Beakrush				S3	4 Secure	49	60.3 ± 0.0	NB
P	*Rhynchospora fusca*	Brown Beakrush				S3	4 Secure	8	48.5 ± 1.0	NB
P	*Trichophorum clintonii*	Clinton's Clubrush				S3	4 Secure	120	18.3 ± 0.0	NB
P	*Lemna trisulca*	Star Duckweed				S3	4 Secure	1	61.1 ± 0.0	NB
P	*Triantha glutinosa*	Sticky False-Asphodel				S3	4 Secure	178	8.0 ± 0.0	NB
P	*Cypripedium reginae*	Showy Lady's-Slipper				S3	3 Sensitive	140	4.6 ± 0.0	NB
P	*Liparis loeselii*	Loesel's Twayblade				S3	4 Secure	19	5.6 ± 0.0	NB
P	*Platanthera blephariglottis*	White Fringed Orchid				S3	4 Secure	22	7.3 ± 1.0	NB
P	*Platanthera grandiflora*	Large Purple Fringed Orchid				S3	3 Sensitive	6	73.4 ± 0.0	NB
P	*Bromus latiglumis*	Broad-Glumed Brome				S3	3 Sensitive	102	23.8 ± 0.0	NB
P	*Dichanthelium depauperatum*	Starved Panic Grass				S3	4 Secure	4	71.1 ± 0.0	NB
P	*Muhlenbergia richardsonis*	Mat Muhly				S3	4 Secure	94	23.2 ± 0.0	NB
P	*Potamogeton obtusifolius*	Blunt-leaved Pondweed				S3	4 Secure	26	28.1 ± 0.0	NB
P	*Potamogeton richardsonii*	Richardson's Pondweed				S3	3 Sensitive	8	8.0 ± 0.0	NB
P	*Adiantum pedatum*	Northern Maidenhair Fern				S3	4 Secure	476	15.9 ± 1.0	NB
P	*Cryptogramma stelleri*	Steller's Rockbrake				S3	4 Secure	32	29.3 ± 1.0	NB
P	*Asplenium viride*	Green Spleenwort				S3	4 Secure	21	64.6 ± 0.0	NB
P	*Dryopteris fragrans*	Fragrant Wood Fern				S3	4 Secure	66	16.9 ± 5.0	NB
P	*Dryopteris goldiana*	Goldie's Woodfern				S3	3 Sensitive	325	21.6 ± 0.0	NB
P	*Woodsia glabella*	Smooth Cliff Fern				S3	4 Secure	23	20.8 ± 0.0	NB
P	*Equisetum palustre*	Marsh Horsetail				S3	4 Secure	40	23.8 ± 0.0	NB
P	*Isoetes tuckermanii ssp. tuckermanii*	Tuckerman's Quillwort				S3	4 Secure	2	66.9 ± 10.0	NB
P	*Diphasiastrum x sabinifolium*	Savin-leaved Ground-cedar				S3	4 Secure	22	29.5 ± 5.0	NB
P	*Huperzia appressa*	Mountain Firmoss				S3	3 Sensitive	7	50.4 ± 0.0	NB
P	*Sceptridium dissectum*	Dissected Moonwort				S3	4 Secure	30	1.8 ± 10.0	NB
P	*Botrychium lanceolatum*	Triangle Moonwort				S3	3 Sensitive	5	9.8 ± 0.0	NB
P	*Botrychium lanceolatum ssp. angustisegmentum*	Narrow Triangle Moonwort				S3	3 Sensitive	17	22.3 ± 0.0	NB
P	*Botrychium simplex*	Least Moonwort				S3	4 Secure	47	26.4 ± 0.0	NB
P	*Polypodium appalachianum*	Appalachian Polypody				S3	4 Secure	36	17.6 ± 0.0	NB
P	*Crataegus submollis*	Quebec Hawthorn				S3?	3 Sensitive	3	1.9 ± 1.0	NB
P	*Mertensia maritima*	Sea Lungwort				S3S4	4 Secure	1	91.2 ± 50.0	NB
P	*Lobelia kalmii*	Brook Lobelia				S3S4	4 Secure	163	1.9 ± 1.0	NB
P	*Myriophyllum sibiricum*	Siberian Water Milfoil				S3S4	4 Secure	8	65.2 ± 0.0	NB
P	*Stachys pilosa*	Hairy Hedge-Nettle				S3S4	5 Undetermined	95	22.2 ± 0.0	NB
P	*Stachys pilosa var. pilosa*	Marsh Hedge-Nettle				S3S4	5 Undetermined	1	54.5 ± 1.0	NB
P	*Drymocallis arguta*	Tall Wood Beauty				S3S4	4 Secure	57	12.2 ± 0.0	NB
P	*Rubus chamaemorus*	Cloudberry				S3S4	4 Secure	1	65.4 ± 0.0	NB
P	*Geocaulon lividum*	Northern Comandra				S3S4	4 Secure	17	6.3 ± 0.0	NB
P	*Cladium mariscoides*	Smooth Twigrush				S3S4	4 Secure	47	6.1 ± 0.0	NB
P	*Eriophorum russeolum*	Russet Cottongrass				S3S4	4 Secure	3	12.3 ± 10.0	NB
P	*Spirodela polyrhiza*	great duckweed				S3S4	4 Secure	7	52.1 ± 0.0	NB
P	*Corallorhiza maculata*	Spotted Coralroot				S3S4	3 Sensitive	19	7.6 ± 1.0	NB
P	*Calamagrostis stricta*	Slim-stemmed Reed Grass				S3S4	4 Secure	9	25.6 ± 0.0	NB
P	*Calamagrostis stricta ssp. stricta*	Slim-stemmed Reed Grass				S3S4	4 Secure	1	89.5 ± 0.0	NB
P	*Potamogeton oakesianus*	Oakes' Pondweed				S3S4	4 Secure	1	2.5 ± 1.0	NB
P	*Botrychium lineare*	Narrow-leaved Moonwort				SH	2 May Be At Risk	1	99.7 ± 5.0	NB
P	*Solidago ptarmicoides*	Upland White Goldenrod				SX	0.1 Extirpated	3	86.5 ± 10.0	NB
P	*Celastrus scandens*	Climbing Bittersweet				SX	0.1 Extirpated	1	87.5 ± 1.0	NB

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Appendix C

Phase I Archaeological Impact Assessment: Plaster Rock North Lagoon Decommissioning Project

Phase I Archaeological Impact Assessment:

Plaster Rock North Lagoon Decommissioning Project: Manual Testing/Screening for Archaeological Impact Assessment, Victoria County, New Brunswick

Prepared by:
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January 11, 2021

AFRP No: 2020NB062 & 2020NB065

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Executive Summary

This report describes the Phase I of the Archaeological Impact Assessment (AIA) completed for Dillon Consulting Ltd. (Dillon) and their client, the Village of Plaster Rock, for the proposed decommissioning of the existing north lagoon of the Village of Plaster Rock Wastewater Treatment Facility (WwTF) at the terminus of Everette Lane in Plaster Rock, Victoria County, New Brunswick (hereafter referred to as the Project Area or PDA). The Project Area is located approximately 30-kilometers northeast of Perth-Andover, New Brunswick. The following report outlines the findings from an archaeological pedestrian survey (Phase I AIA) of three sections within the proposed disturbance area (PDA) as well as the subsequent archaeological sub-surface testing within one of said sections. Additionally, this report includes recommendations for future work, if any. All fieldwork was completed by Vanessa P. Sullivan, RPA (Project Archaeologist) with assistance from Chelsea Colwell-Pasch, RPA (Senior Archaeologist and Project Manager), Mike Pasch (Archaeological Field Technician), and Ward Biskup (Archaeological Field Technician) of Colbr Consulting, Inc. (Colbr) under Archaeological Field Research Permit (AFRP) No. 2020NB062 and 2020NB065.

The pedestrian survey portion of this AIA investigated three sections within the PDA and determined areas of elevated archaeological potential. Based on the pedestrian survey results, as well as consultation with Dillon, the Village of Plaster Rock, and New Brunswick Heritage and Archaeological Services Branch (HASB), manual archaeological testing/screening in one section, the Harrison Street Lawn area, was conducted. In total, 27 test-pits were excavated during the sub-surface archaeological investigation. Colbr consulted with HASB to determine an appropriate strategy for testing. All field procedures and methodologies followed the HASB *Guidelines and Procedures for Conducting Professional Archaeological Assessments in New Brunswick* (HASB 2012).

The pedestrian survey of the Project Area took place on October 27th, 2020, and subsequent manual archaeological testing/screening took place on November 19th and 20th, 2020. The presence/absence sub-surface testing of 27 test-pits within the Harrison Street Lawn area resulted in 6 positive test-pits and the identification of cultural materials. In total, 22 items were recovered; however, all materials were determined to be mid- to late-20th century materials and refuse or not archaeologically significant. As such, no further archaeological investigation within the Project Area is recommended prior to project construction.

Introduction

Dillon Consulting Ltd. (Dillon) on behalf of the Village of Plaster Rock, New Brunswick, is proposing to decommission the existing north lagoon of the Village of Plaster Rock Wastewater Treatment Facility (WwTF) at the terminus of Everette Lane in Plaster Rock, Victoria County, New Brunswick (Appendix A: Project Plans; Appendix B: Figures 1-3). The proposed Project is an "undertaking" under the New Brunswick's *Environmental Impact Assessment Regulation* (Regulation 87-83) of the *Clean Environment Act* (R.S.N.B. 1973, c. C-6). As part of an Environmental Impact Assessment (EIA), Regulation 87-83 mandates that archaeological resources be taken into consideration. The potential for a Project Area to contain significant archaeological resources is assessed through the preparation and review of an Archaeological Impact Assessment (AIA). Protocols for the AIA are outlined in the Government of New Brunswick, Heritage and Archaeological Services Branch (HASB) 2012 *Guidelines and Procedures for Conducting Professional Archaeological Assessments in New Brunswick* (*Archaeological Guidelines*). Per the *Archaeological Guidelines* (HASB 2012), an AIA is to be completed by a qualified archaeologist and, in adherence to the New Brunswick *Heritage Conservation Act* (2010), all individuals conducting archaeological field research must hold an Archaeological Field Research Permit (AFRP) as well as be registered and in 'Good Standing' with the Register of Professional Archaeologists (RPA).

This report describes the Phase I of the AIA completed for Dillon and their client, the Village of Plaster Rock, for the proposed decommissioning of the existing north lagoon of the Village of Plaster Rock Wastewater Treatment Facility (WwTF) at the terminus of Everette Lane in Plaster Rock, Victoria County, New Brunswick (hereafter referred to as the Project Area or PDA). The Project Area is located on Property Identification Number (PID) 65125288, is situated on a terrace above the western bank of the Tobique River (Google Earth 2021; NTS 2013; Appendix A: Project Plans Parts I-II; Appendix B: Figures 1-3). The Project Area is located approximately 30-kilometers northeast of Perth-Andover, New Brunswick. The following report outlines the findings from an archaeological pedestrian survey (Phase I AIA) in the proposed disturbance area (PDA) and the subsequent archaeological sub-surface testing between Harrison Street and the northside of the lagoon. Additionally, this report includes recommendations for future work, if any. All fieldwork was completed by Vanessa P. Sullivan, RPA (Project Manager and Archaeologist) with assistance from Chelsea Colwell-Pasch, RPA (Senior Archaeologist and Project Manager), Mike Pasch (Archaeological Field Technician), and Ward Biskup (Archaeological Field

Technician) of Colbr on November 19th and November 20th, 2020 under AFRP No. 2020NB062 and 2020NB065. All field methods and procedures followed the *Archaeological Guidelines* (HASB 2012).

Proposed Project

Dillon and their client, the Village of Plaster Rock, are proposing to decommission the existing north lagoon of the Village of Plaster Rock WwTF at the terminus of Everette Lane in Plaster Rock, Victoria County, New Brunswick (Appendix A: Project Plans-Part I-II; Appendix B: Figures 1-3). The decommissioning of the lagoon involves connecting the current lagoon supply pipes to existing infrastructure, as outlined in 'Option 3' of Dillon's proposed routes (Appendix A: Project Plans-Part I). The footprint for this undertaking is to extend east along Everett Lane from Main Street to the lagoon, and south along landscaped lawn from the terminus of Harrison Street to the lagoon (Appendix A: Project Plans-Part II). Preliminary plans for this work have been provided by Dillon and the Village of Plaster Rock (Appendix A: Project Plans-Part I-II). Using these project plans, the PDA was divided into three study areas and assessed for archaeological potential. The three areas include: Everette Lane, the Harrison Street Lawn, and the North Lagoon—the PDA boundaries have been outlined by Colbr (Appendix B: Figure 3).

The three sections—Everette Lane, the Harrison Street Lawn, and the North Lagoon—equate to an approximately 12,899^2-meter area (Appendix B: Figure 3). The Everette Lane area is 4,231^2-meters and consists of an existing asphalt-paved road and utilities. The lane has a number of residential, commercial, and municipal properties on either side of it, including a church and a school athletic field. Everette Lane is considered to be highly disturbed and is within a low archaeological potential area. The North Lagoon area is 5,900^2-meters and primarily consists of the existing lagoon. Surrounding the lagoon is a raised anthropogenic berm. Landscaped lawn extends to the north, west, and south of the berm. To the east of the lagoon is excessively sloped terrain with a transmission corridor extending to the north and south. The Tobique River is located at the base of the slope-side, within 80-meters of the PDA's eastern edge. The proximity of the Tobique River to the PDA increases the archaeological sensitivity as per the *Archaeological Guidelines* (HASB 20212). Lastly, the Harrison Street Lawn area is 2,768^2-meters and consists mostly of a landscaped lawn. At the northern edge of this area is an asphalt-paved road, residential structures, a former dirt-road, and above-ground utilities. Similar to the North Lagoon area,

the eastern edge of the lawn excessively slopes down to the Tobique River to the east (greater than a 25° slope). Although the northern portion of the Harrison Street section is thought to have been previously disturbed, the lawn between the Harrison Street terminus and the North Lagoon appears to have been subjected to minimal prior ground disturbance; therefore, has elevated archaeological potential.

Based on the pedestrian survey results, and in consultation with Dillon, the Village of Plaster Rock, and HASB; a total of 30 test-pits within the Harrison Street Lawn area were proposed (See 'Methodology' and 'Findings' report sections: Pages 7 and 10). Manual archaeological testing/screening along the Harrison Street lawn of the Project Area was completed in late November 2020 to determine if archaeological resources are present in locations where elevated archaeological potential had been identified during the pedestrian survey in late October 2020. Colbr consulted with HASB to determine an appropriate testing strategy for sub-surface testing. All field procedures and methodologies followed the *Archaeological Guidelines* (HASB 2012). The proposed project construction is planned to begin in 2021. Note: if the plans provided by Dillon and the town of Plaster Rock after the submittal of this AIA are outside of the assessed areas then any new areas will require archaeological consultation prior to beginning construction.

Project Area

Physical Description

The PDA falls within the Northern Forests ecological region of North America and the Atlantic Maritime (Acadian Forest) terrestrial ecozone of Canada (Zelazny 2007: 72). New Brunswick falls within the temperate broad-leaved forest category; however, it has many boreal forest elements like the prominence of fir and spruce species (Zelazny 2007: 72). The Appalachian Mountains remained above sea level since the post-glacial period which resulted in a north-south migration corridor thus blending northern and southern flora and fauna elements in the Atlantic region (Zelazny 2007: 72). In New Brunswick, the ecoregions climatic gradients are characterized based on a combination of elevation above sea level and proximity to the ocean.

The PDA falls within the Valley Lowlands Ecoregion (VLE) (Ecoregion 5) and, within this ecoregion, the Waspe Ecodistrict (Ecodistrict 5.1). The VLE is the largest ecoregion in New Brunswick and consists of a varied and diverse landscape (Zelazny 2007:193). Within the vicinity of the Project Area the bedrock consists of stratified rock dating to the early Carboniferous period from the Plaster Rock Formation within the Mabou Group. The Plaster Rock Formation is made up limestone and gypsum sedimentary rocks (Smith and Fyffe 2006; Wheeler et. al 1996; Zelazny 2007:197). Soils within the Project Area are from the Kingsclear Association (Millette and Langmaid 1964). The Kingsclear Association is a podzol made up of clay loam with parent material from a ground moraine and red compact gritty clay. This soil type has good drainage and is typically found on gently rolling topography.

Water sources are abundant in the region, as the PDA is located along the western bank of the Tobique River. Many branches of the Tobique River course throughout the region (Appendix B: Figure 1; NTS 2013). These rivers, brooks, channels, confluences, and all of their associated tributaries are located within the Saint John/Wolastoq watershed's middle basin. Such water sources would have made the vicinity attractive for Indigenous and European groups alike and heightens the archaeological sensitivity in the region.

Past and Present Land Use

Archaeological evidence indicates that the first peoples to inhabit New Brunswick likely arrived during the Pleistocene, approximately 11,000 years before present (B.P.). Given that much of northwestern New Brunswick was covered by a glacier until around 10,600 years B.P., habitation from 9,000 years B.P. (following the end of the Younger Dryas or interstadial warm period) is more likely (Bonnichsen et al. 1985; Cwyner et al.1994; Seaman 2006; Suttie et al. 2013). More specifically, the PDA falls within traditional Wolastoqey lands, who traditionally and currently inhabit the Saint John (Wolastoq) River Valley. The name "Wolastoqey" means "people of the beautiful river" (Rayburn 1975). The precontact archaeological record within the Saint John/Wolastoq watershed is abundant, with habitation by indigenous peoples for the region dating back over 3,500 years (Zelazny 2007).

Tobique First Nation is the nearest First Nation community to the Project Area, located along the Tobique and Saint John/Wolastoq River confluence and approximately 24.40-kilometers southwest of the PDA. The Tobique River represented the initial leg in a series of 'aboriginal portage routes' that

branched from the Saint John/Wolastoq River watershed to the Restigouche, Miramichi or Nepisiguit River systems (Zelazny 2007: 200). The Tobique River is named after Wolastoqey chief Noel Tobec (1706-1767) who lived at the mouth of the river (Rayburn 1975: 272). There have been two documented archaeological sites within a 5-kilometer radius of the PDA (Table 1), both of which are pre-contact in nature. Despite the known archaeological sites in the region, there are no documented archaeological sites on or adjacent to the Project Area.

Table 1: Registered archaeological sites within 5kms of the PDA.

Borden Number	Distance and Direction from PDA	Context
CfDu-3	S/SE 2.60km	Pre-contact
CfDu-6	S 3.14km	Pre-Contact

Archaeological site CfDu-6, located 3.14-kilometers south of the PDA, is thought to have been an occupation site, yielding materials possibly from the Late Archaic period (4500-3800 BP per Blair 2004:218). Information for the other identified archaeological site, CfDi-3, is limited—no conclusions regarding period or cultural association have been made. Despite this, the presence of archaeological sites in the vicinity suggests extensive use of the region by Indigenous groups, especially along the banks of the Tobique River and its tributaries. The Tobique River played an integral role in the region's historic development and its banks were likely often used for use and settlement—the presence of water resources in the immediate vicinity heightens the archaeological sensitivity of the PDA, as is exemplified by the Government of New Brunswick's archaeological predictive model (Appendix B: Figure 4).

European settlement in the region began in the 1600s with temporary Acadian settlements (Zelazny 2007: 200). The PDA is located in Victoria County, which was established in 1844. The county was formerly part of Carleton County and originally a part of York County. More specifically, the Project Area is within Gordon Parish, which was established in 1863. The parish was named for Arthur Charles Hamilton Gordan, the first Baron Stanmore and lieutenant-governor of New Brunswick from 1861 to 1866 (PANB 2021a). Though European settlement in the region (known as the Wapskehegan Valley) began in the late 1600s, it was the logging industry in the 1800s that brought about a significant population influx (Zelazny 2007: 200). Due to the abundance of red and white pines, the valley became one of the most felled sites in the province by the early 19th century. In 1881, the first Euro-Canadian settlers, Hezekiah Day and his two brothers, came to Plaster Rock (Village of Plaster Rock 2021). The village got its name from the plaster found in the hills and nearby river banks (PANB 2021b).

In the mid-1800s the vicinity around Plaster Rock was prospected for its gypsum deposits—this warranted the need to transport materials from the vicinity to other parts of New Brunswick. In response, the Tobique Valley Railway (TVR) was established in 1885 as a means to connect the New Brunswick Railway to Plaster Rock, with a junction at Perth-Andover—a total distance of 28-miles (VMC 2021). The TRV completed construction in 1893 and opened in 1894. The TVR was leased in 1897 to the Canadian Pacific Railway (CPR) and then abandoned in 1991 (VMC 2021). New Brunswick then repurposed the line to be a part of the Sentier NB Recreation Trail in 1994. Plaster Rock was not officially incorporated as a village until 1966 (Village of Plaster Rock 2021). Despite the vicinity's active role in the logging, mining, and railroad industries, a review of the Canada's Historic Places and New Brunswick Register of Historic Places databases showed no registered historic places within the immediate area of the PDA.

Furthermore, a review of historic aerials shows that the vicinity of the PDA was primarily used for agricultural purposes up until at least 1945 (Appendix B: Figure 5) and then underwent moderate urban development. Harrison Street, in the northern portion of the PDA, was constructed between 1945 and 1955, with the road extending eastward from its terminus down to the Tobique River (Appendix B: Figures 5 and 6). The WwTF North Lagoon was installed sometime between 1955 and 1965 (Appendix B: Figures 6 and 7). Between 1965 and 1977, the utility corridor that stretches along the eastern edge of the PDA was constructed (Appendix B: Figures 7 and 8). The eastern end of Everette Street was not developed until the last quarter of the 20th century (Appendix B: Figure 9). Lastly, LiDAR imagery further illustrates the development of the WwTF North Lagoon and the vicinity surrounding the PDA (Appendix B: Figure 10). Most notably, the image shows a steep slope extending from the eastern edge of the PDA down to the Tobique River. Furthermore, the LiDAR shows a substantial amount of leveling, grading, and infilling, especially in areas west of the lagoon. Disturbance within the Project Area likely occurred from installation of the WwTF North Lagoon, as well as from development of Harrison Street and Everette Lane, and all associated structures, infrastructure, and utilities. Artifacts, if any, may be within a disturbed sub-surface context. Areas of the PDA that were subjected to limited development—primarily the Harrison Street Lawn area—are likely to have had limited prior ground disturbance; thus, artifacts may be *in situ* if present.

METHODOLOGY

Documentary Research

Documentary research was undertaken by Chelsea Colwell-Pasch, M.M.A., RPA and Vanessa P. Sullivan, M.A., RPA between October 2020 and January 2021. Documentary research included a review of the following sources: Project maps and plans provided by NBDTI; HASB files including the Borden Map file, Archaeological Projects Manuscripts, the New Brunswick Archaeological file; Historic Maps on file with the Historic Places Section; the New Brunswick Historic Places Database (online); the Canadian Register of Historic Places (online); the National Archives of Canada (online); historic aerial photographs on file the Department of Natural Resources and Energy Development, and LiDAR imagery from the Government of New Brunswick. Archaeological predictive modeling was provided by HASB. Predictive modelling evaluates existing conditions such as archaeological sites, geographic, and geologic conditions in New Brunswick and ranks areas as having "high", "medium," or "low" archaeological potential. The model generally concludes that areas within 80-meters of a current or ancient watercourses and areas that are flat and elevated have a higher propensity for precontact sites being found. Currently only desktop studies increase the likelihood of predicting historical sites.

Documentary research indicated that there has been a moderate level of development within the vicinity of the Project Area, suggesting that the PDA would have been subject to prior ground disturbance. Activities that may have caused disturbance include the development of Harrison Street, Everette Lane, the WwTF North Lagoon, and all associated structures, infrastructure, and utilities. Despite this, the one section of the PDA that appears to have undergone little, if any, development is the lawn extending between the North Lagoon and Harrison Street, which is located within an area of medium archaeological sensitivity. Adding to the archaeological sensitivity, a review of topographic maps and the regions environmental features indicate that there are numerous water sources within the vicinity as well as raised topography that would have made the landscape preferable for use. The dry, relatively flat terrain within the PDA would have made the area ideal for use and settlement activities. For the aforementioned reasons, the archaeological sensitivity is considered to be moderate to high. A pedestrian survey of the PDA was required to further assess the site conditions and archaeological potential.

Preliminary Field Investigation

The preliminary field investigation, or pedestrian survey, included Colbr archaeologist, Vanessa P. Sullivan walking over the entirety of the PDA in 10-meter intervals. Each section of the PDA, as well as the surrounding areas, were photographed and field notes were taken. Observation regarding existing ground conditions, environmental features, prior ground disturbance, and the presence/ absence of historic structures or archaeological features were recorded. Furthermore, a Global Positioning System (GPS) track log was enabled during the survey and waypoints were taken of any important features/objects. Surface-find artifacts were to be collected, analyzed, and recorded; however, no artifacts were identified. The pedestrian survey indicated that additional archaeological testing, in the form of 30 test-pits, was needed to assess the presence/absence of cultural materials within the Project Area. One area of heightened archaeological potential was identified—the Harrison Street Lawn area—within which a total of 30 test-pits were proposed on a medium potential 10-meter grid system (See 'Findings' section: Page 10).

Sub-surface Testing

Prior to sub-surface testing, test-pits were flagged by Colbr along a 10-meter by 10-meter grid within the Harrison Street portion of the PDA. The pin-flags were placed in alignment with the slope-side along the eastern edge of the PDA and extended N/NW to S/SE. A total of 27 pin-flags were placed, as the remaining three could not be excavated due to the presence of paved asphalt at the terminus of Harrison Street. A manual excavation strategy was implemented to complete all sub-surface testing for Phase I of this project. Excavation included the use of round and square hand-shovels to excavate 50-centimeter (cm) by 50cm square test-pits at stratigraphic intervals. Test-pits were dug by Colbr's field crew: Vanessa P. Sullivan, Chelsea Colwell-Pasch, Mike Pasch, and Ward Biskup. Test-pit depth ranged from 26cm to 68cm Depth Below Surface (DBS), with the average of 38.56cm DBS. Excavation of a test-pit was considered complete when cultural resource bearing soils ceased to be present (referred to as archaeological bottom), which was determined by Vanessa P. Sullivan, of Colbr, to be at a red compact clay boundary (Appendix C; Photo 13). Clay was encountered at depths between 19cm and 53cm DBS, with an average of 29.37cm DBS. The deepest soils were observed in the southeastern corner of the

lawn, at the edge of the North Lagoon berm where the topography begins to slope down towards the Tobique River.

All materials and sediments removed from each test-pit was then screened by hand on ¼" mesh, standard rocking, 2-leg, sifting screens by Colbr's field-crew for the presence/absence of cultural materials. Additionally, all test-pit profiles were photographed and then recorded on an STP form, modified from the standard HASB's "New Brunswick Archaeological STP Form" (HASB 2012). Furthermore, a GPS track log was recorded during the testing and waypoints were taken over all test-pits. Field notes were taken throughout the entirety of the archaeological survey. Artifacts were collected, analyzed, recorded, and are to be archived by HASB. All artifact cataloguing was completed by Shannon Williams, BA of Colbr in our laboratory post-field. In adherence to the *Archaeological Guidelines*, test-pits were excavated in areas designated as "medium" potential at 10-meter intervals (HASB 2012). Following excavation, each test-pit was backfilled and the location was returned to as close to its original topography and appearance as possible.

FINDINGS

Colbr completed the pedestrian survey portion of this AIA on October 27th, 2020 for all sections of the PDA. Additionally, Colbr completed manual archaeological sub-surface testing within one of the said sections between November 19th and 20th, 2020 (Appendix B: Figures 11 and 12; Appendix C: Photos 1-16). A total of 27 test-pits were excavated throughout the PDA. The details of both the pedestrian survey and the subsequent sub-surface testing results are outlined below.

Everette Lane Area

The Everette Lane area is 4,231^2-meters and consists of an existing paved road and utilities (Appendix B: Figure 3; Appendix C: Photos 1-3). The lane, developed in the last quarter of the 20th century, extends east from Main Street and terminates just west of the WwTF North Lagoon (Appendix B: Figures 8 and 9). There are a number of residential, commercial, and municipal properties on either side of Everette Lane, including a church and a school athletic field. Everette Lane is considered to be

highly disturbed and is within a low archaeological potential area (Appendix B: Figures 4 and 11). Due to the observed prior ground disturbance and the presence of asphalt pavement along the road, there were no areas deemed suitable for archaeological testing. Based on the pedestrian survey findings, no additional archaeological investigation is recommended in the Everette Lane Area.

North Lagoon Area

The North Lagoon area is 5,900^2-meters and primarily consists of the existing lagoon that was constructed between 1955 and 1965 (Appendix B: Figures 6 and 7; Appendix C: Photos 4-5). Surrounding the lagoon is a raised anthropogenic berm presumed to create the lagoon walls and retain wastewater. Landscaped lawn extends to the north, west, and south of the berm. To the east of the lagoon is excessively sloped terrain (greater than a 25° slope) with a transmission corridor extending to the north and south (Appendix C: Photos 6-7). The Tobique River is located approximately 50-meters below at the base of the slope-side, within 80-meters of the PDA's eastern edge (Appendix C: Photos 8). The proximity of the Tobique River to the PDA would typically increase the archaeological sensitivity (Appendix B: Figures 4 and 11). Despite this, areas within 80-meters of the river consists of the eastern portion of the lagoon and a slope-side; therefore, archaeological sensitivity remains low. Due to the observed prior ground disturbance and the presence of sloped topography, there were no areas deemed suitable for archaeological testing. Based on the pedestrian survey findings, no additional archaeological investigation is recommended in the North Lagoon Area.

Harrison Street Lawn Area

The Harrison Street Lawn area is 2,768^2-meters and consists mostly of a landscaped lawn that stretches between the terminus of Harrison Street and the WwTF North Lagoon (Appendix C: Photos 9-11). At the northern edge of this area is an asphalt-paved road (Harrison Street), residential structures, a former dirt-road extending down to the Tobique River, and utilities. Harrison Street was constructed between 1945 and 1955 (Appendix B: Figures 5 and 6). Similar to the North Lagoon area, the eastern edge of the lawn excessively slopes eastward down to the Tobique River at a slope greater than 25°, making it untestable as per the *Archaeological Guidelines* (HASB 2012; Appendix C: Photo 12). Although

the northern portion of the Harrison Street section is thought to have been previously disturbed, the lawn between the Harrison Street terminus and the North Lagoon appears to have been subjected to minimal prior ground disturbance resulting in elevated archaeological potential (Appendix B: Figures 4 and 11). The findings of the pedestrian survey concluded that the Harrison Street Lawn area was suitable for archaeological testing.

A total of 30 test-pits were recommended within the Harrison Street Lawn area. Prior to commencing sub-surface archaeological testing, a 10-meter by 10-meter grid for medium potential areas was laid across the entirety of the lawn between the WwTF North Lagoon and the terminus of Harrison Street. The grid resulted in the placement of 27 test-pits. Testing was conducted on November 19th and 20th, 2020. There was one primary stratigraphic profile within the lawn area (Appendix C: Photo 13). This profile consisted of an average 4.88cm depth below surface (DBS) of O-Horizon over an average of 28.65cm DBS of B Horizon (brown loam or brown loamy clay), underlain by an average of 38.56cm DBS of a red compacted clay.

The depth of the B Horizon increases along the edge of the slope-side in the eastern portion of the PDA. Given the B Horizon depth, paired with the shallow O-Horizon, it is thought that the overall vicinity has been graded, resulting in the removal of the natural O-Horizon and portions of the B-Horizon. Additionally, anthropogenic gravel fill was encountered in test-pits 01, 03, 15, 17, and 19 to a depth of 25cm DBS. These test-pits were located along the edges of the WwTF North Lagoon anthropogenic berm and in close proximity to Harrison Street. Overall, the archaeological bottom was encountered at depths ranging between 19cm to 53cm DBS, with an average of 29.37cm DBS. Test-pits in the Harrison Street Lawn area ranged in depths between 26cm and 68cm DBS, with an average of 38.56cm DBS.

Of the 27 test-pits excavated in the Harrison Street Lawn area, 6 test-pits were found to be positive for mid- to late-20th century cultural material and refuse (Appendix B: Figure 12). In total, 22 items were identified in the Harrison Street Lawn area with all materials having been recovered for further analysis (Appendix D: Catalogue). Materials included: Bone (n=3), clay (n=10), glass (n=7), metal (n=1), and plastic (n-1). Clay made up 45.45% of all materials identified, glass made up 31.82% of all materials identified, and bone, metal and plastic made up 22.73% of all identified materials, respectively (Appendix C: Photo 14-16). Although the stratigraphy within the Harrison Street Lawn area remains for

the most part undisturbed, the analysis of cultural materials concludes that there were no significant archaeological materials identified.

RESOURCE SIGNIFICANCE AND INTEGRITY VALUE

Colbr completed a pedestrian survey of the Project Area to determine areas of elevated archaeological potential. Furthermore, Colbr conducted subsequent manual archaeological testing/ screening of this Project Area to determine if cultural resources are present/absent within the Harrison Street Lawn area, which was identified as being archaeologically sensitive. A total of 27 test-pits were excavated throughout the PDA (Appendix B: Figure 12). The testing resulted in the identification of 22 items during the sub-surface survey, all of which were recovered for further analysis and documentation (Appendix D: Catalogue). Materials included: Bone (n=3), clay (n=10), glass (n=7), metal (n=1), plastic (n-1). Clay made up 45.45% of all materials identified, glass made up 31.82% of all materials identified, and bone, metal and plastic made up 22.73% of all identified materials, respectively (Appendix C: Photos 14-16).

The clay fragments were all identified in test-pit 17 within a disturbed sub-surface context and were part of a clay utility pipe (Appendix C: Photo 14). The bone fragments were identified in test-pit 11 along with some charcoal flecks (Appendix C: Photo 15). The bone fragments are too small to identify; however, are not human in nature. Lastly charcoal was observed in test-pits 03, 09, 11, and 17. The charcoal was not associated with a feature; however, the lawn looks to have been used for the burning of brush and vegetation. It is likely that the observed charcoal was associated with a recent and controlled fire. All identified materials appear to have been the result of recent deposition. Furthermore, none of the materials recovered are archaeologically significant. As such, no further archaeological investigation within the Project Area is recommended prior to project construction.

IMPACT IDENTIFICATION AND ASSESSMENT

The primary focus of Phase I of this AIA was to determine the impact construction would have on any archaeological resources within the PDA. The pedestrian survey of the Project Area took place on

October 27th, 2020, and subsequent manual archaeological testing/screening took place on November 19th and 20th, 2020. The sub-surface testing of 27 test-pits within the Harrison Street Lawn area resulted in 6 positive test-pits and identification of cultural materials; however, upon analysis these items were determined to primarily be mid- to late-20th century materials and refuse or not archaeologically significant. As such, Operation, Maintenance and Rehabilitation (OMR) activities are not expected to have an impact on significant cultural materials.

CONCLUSION AND RECOMMENDATIONS

The pedestrian survey of the Project Area took place on October 27th, 2020, and subsequent manual archaeological testing/screening took place on November 19th and 20th, 2020. The sub-surface testing of 27 test-pits within the Harrison Street Lawn area resulted in 6 positive test-pits and the identification of cultural materials. In total, 22 items were recovered; however, all materials were determined to be mid- to late-20th century materials and refuse or not archaeologically significant. As such, no further archaeological investigation within the Project Area is recommended prior to project construction.

Note: In alignment with the New Brunswick *Heritage Conservation Act* (2010), should any cultural resources be accidently identified during construction (including but not limited to, artifacts, structures, and/or features) all work must stop and HASB is to be contacted immediately to determine appropriate mitigation measures. Furthermore, in the unlikely event that human remains are accidently uncovered, all work must stop and the RCMP or municipal police force must be informed immediately in adherence to Section 182(b) of the *Criminal Code of Canada* and Section 11 of the *Heritage Conservation Act* (2010). Consultation with HASB, the Coroner's Office and the Chief Medical Officer of New Brunswick may also be required.

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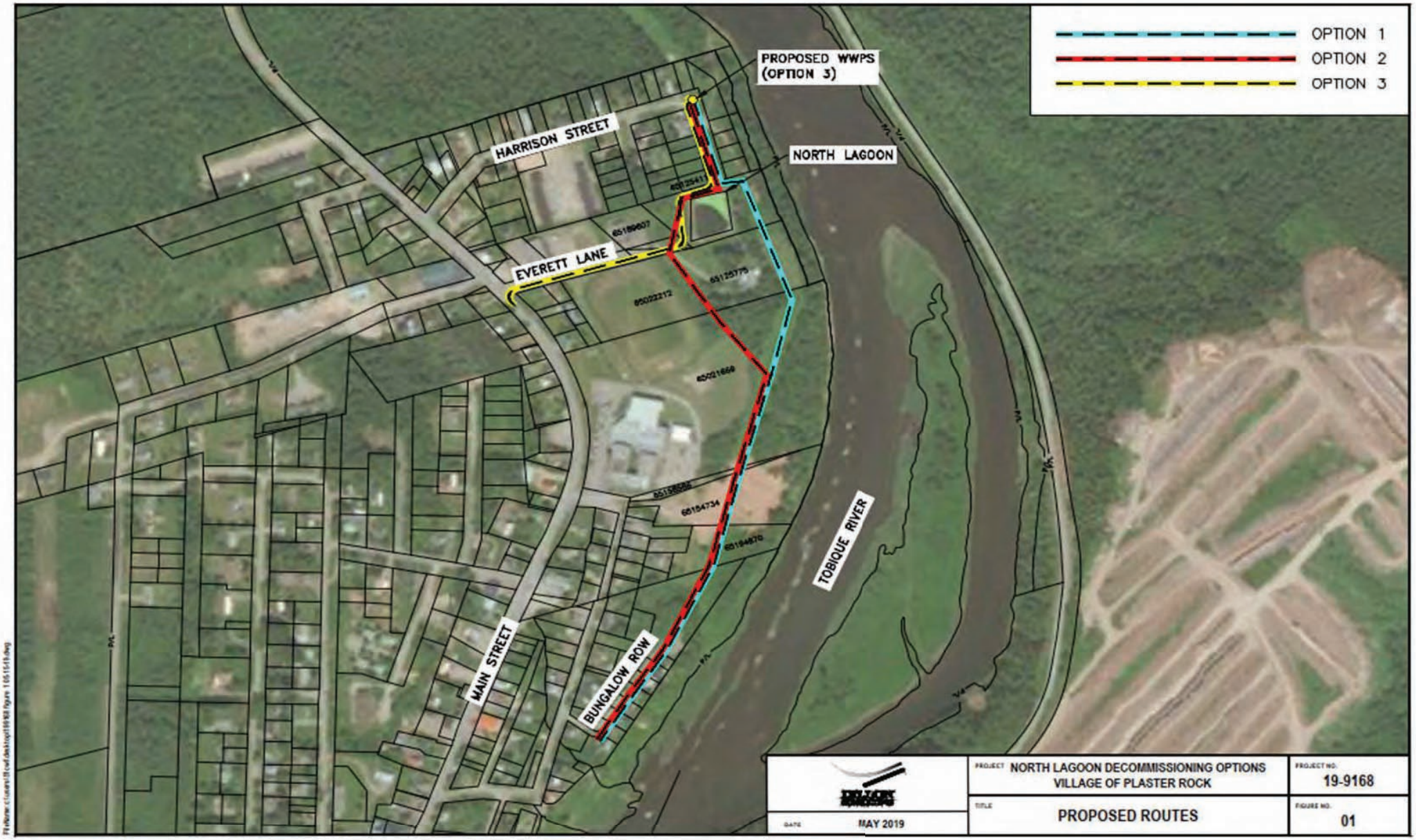
Appendix A:

Project Plans


OPTION 1
OPTION 2
OPTION 3
PROPOSED WWPS
(OPTION 3)
HARRISON STREET
NORTH LAGOON
EVERETT LANE
TOBIQUE RIVER
MAIN STREET
BUNGALOW ROW
PROJECT NORTH LAGOON DECOMMISSIONING OPTIONS
VILLAGE OF PLASTER ROCK
PROJECT NO. 19-9168
TITLE PROPOSED ROUTES
FIGURE NO. 01
DATE MAY 2019

DILLON CONSULTING

DATE	SEPTEMBER 2020	PROJECT	NORTH LAGOON DECOMMISSIONING OPTIONS VILLAGE OF PLASTER ROCK
		TITLE	POTENTIAL FOOTPRINT
		PROJECT NO.	T.B.D.
		FIGURE NO.	1

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Appendix B:

Figures

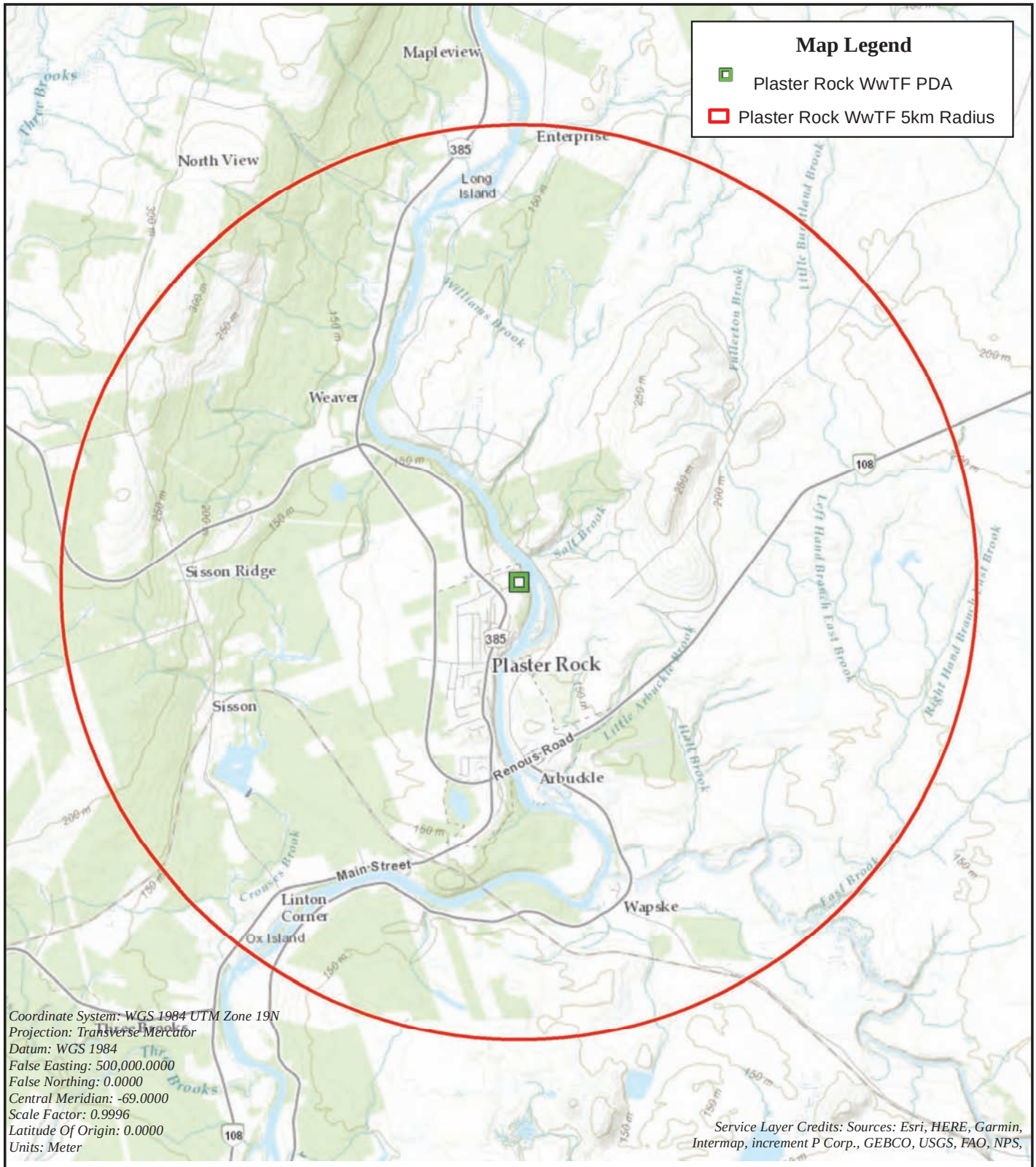


Figure 1 - Plaster Rock North Lagoon Decommissioning Project: Topographic Map of PDA with 5km Radius

Plaster Rock, Victoria County, New Brunswick

Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

1:55,199

0 0.5 1 2 3 4 Kilometers

N

Created By: Vanessa P. Sullivan
Date: January 08, 2021

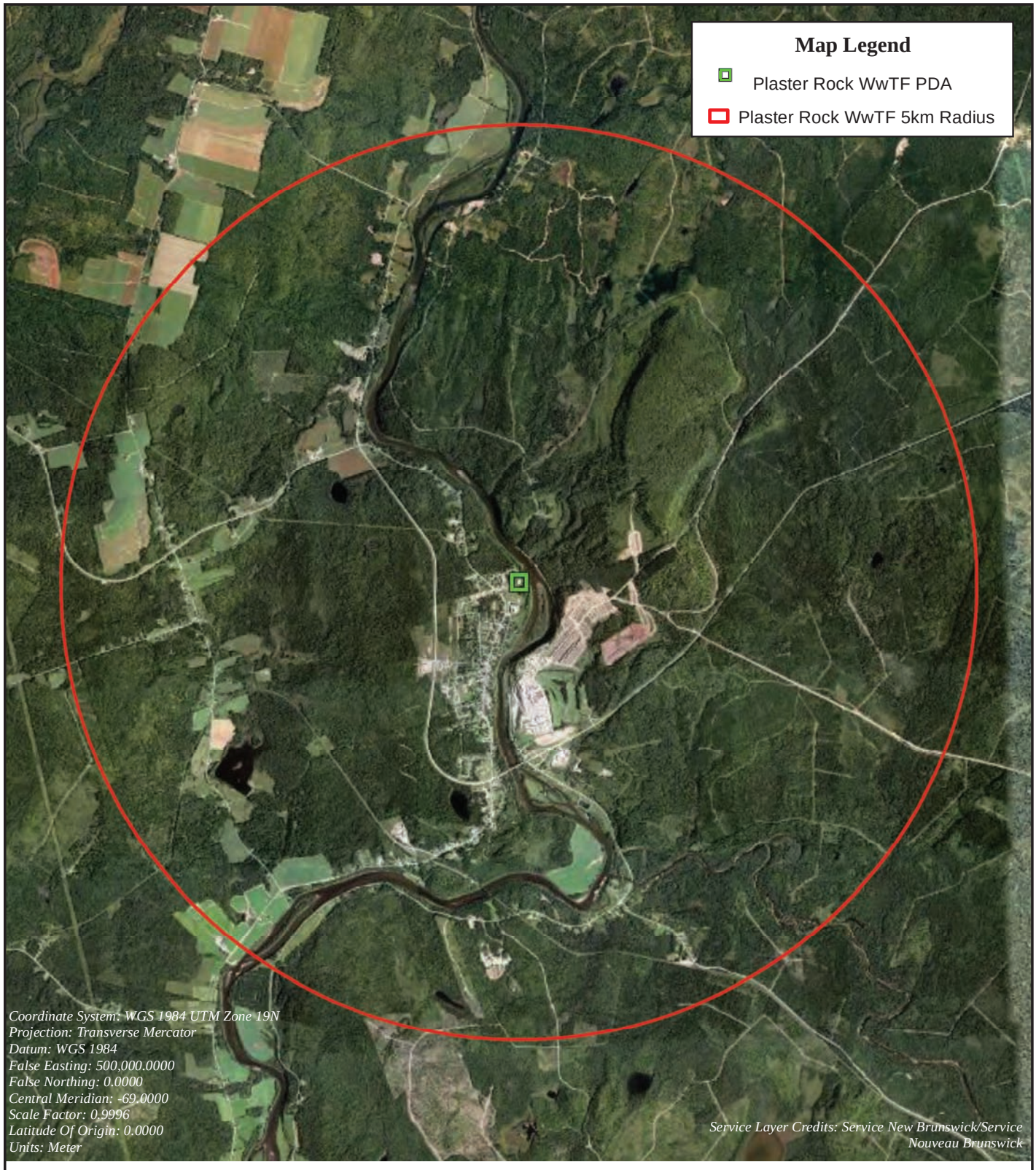


Figure 2 - Plaster Rock North Lagoon Decommissioning Project: Aerial Map of PDA with 5km Radius

Plaster Rock, Victoria County, New Brunswick

Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

1:55,199

0 0.5 1 2 3 4 Kilometers

N

Created By: Vanessa P. Sullivan
Date: January 08, 2021

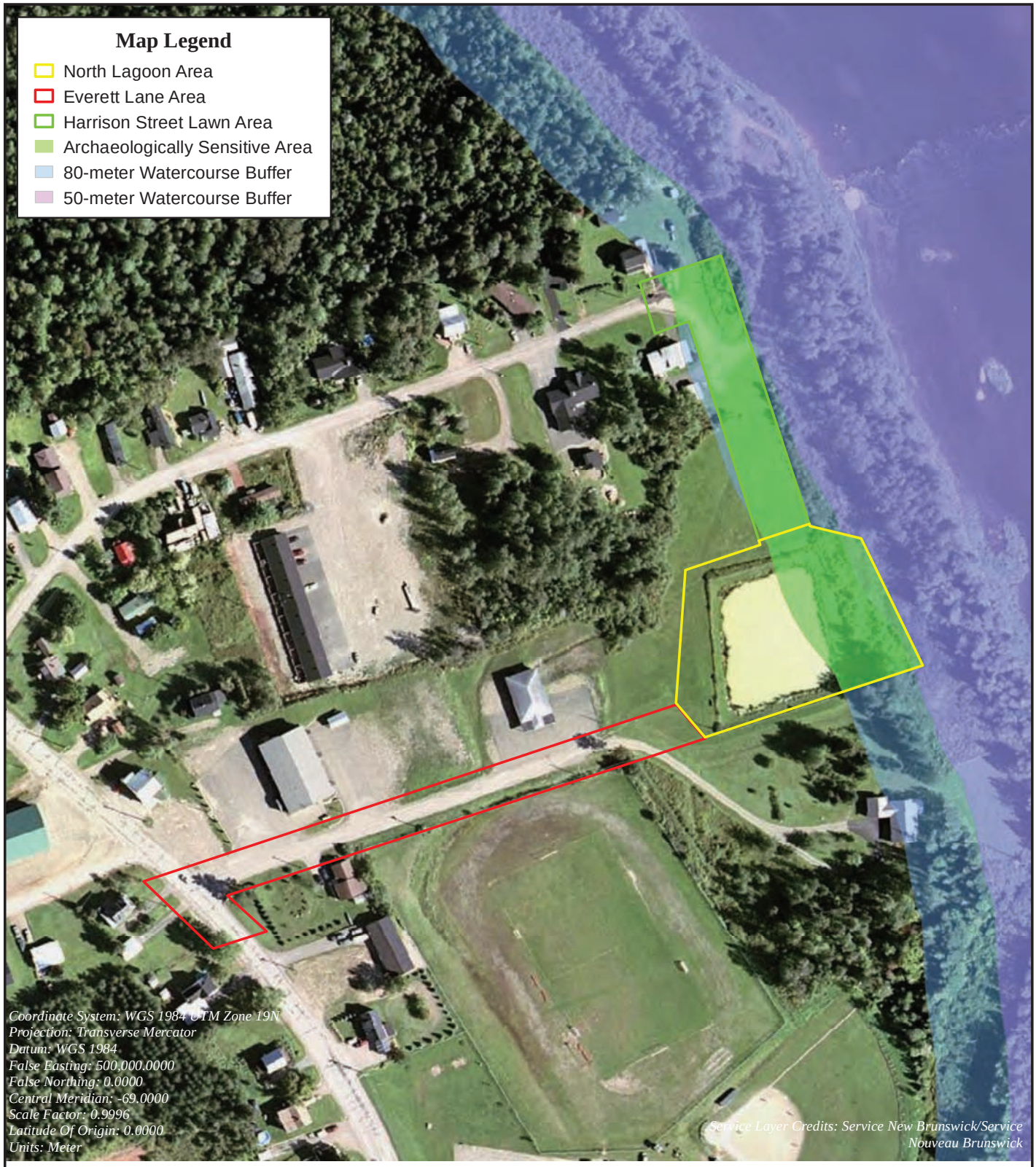


Figure 3 - Plaster Rock North Lagoon Decommissioning Project: Archaeological Assessment Study Areas

Plaster Rock, Victoria County, New Brunswick

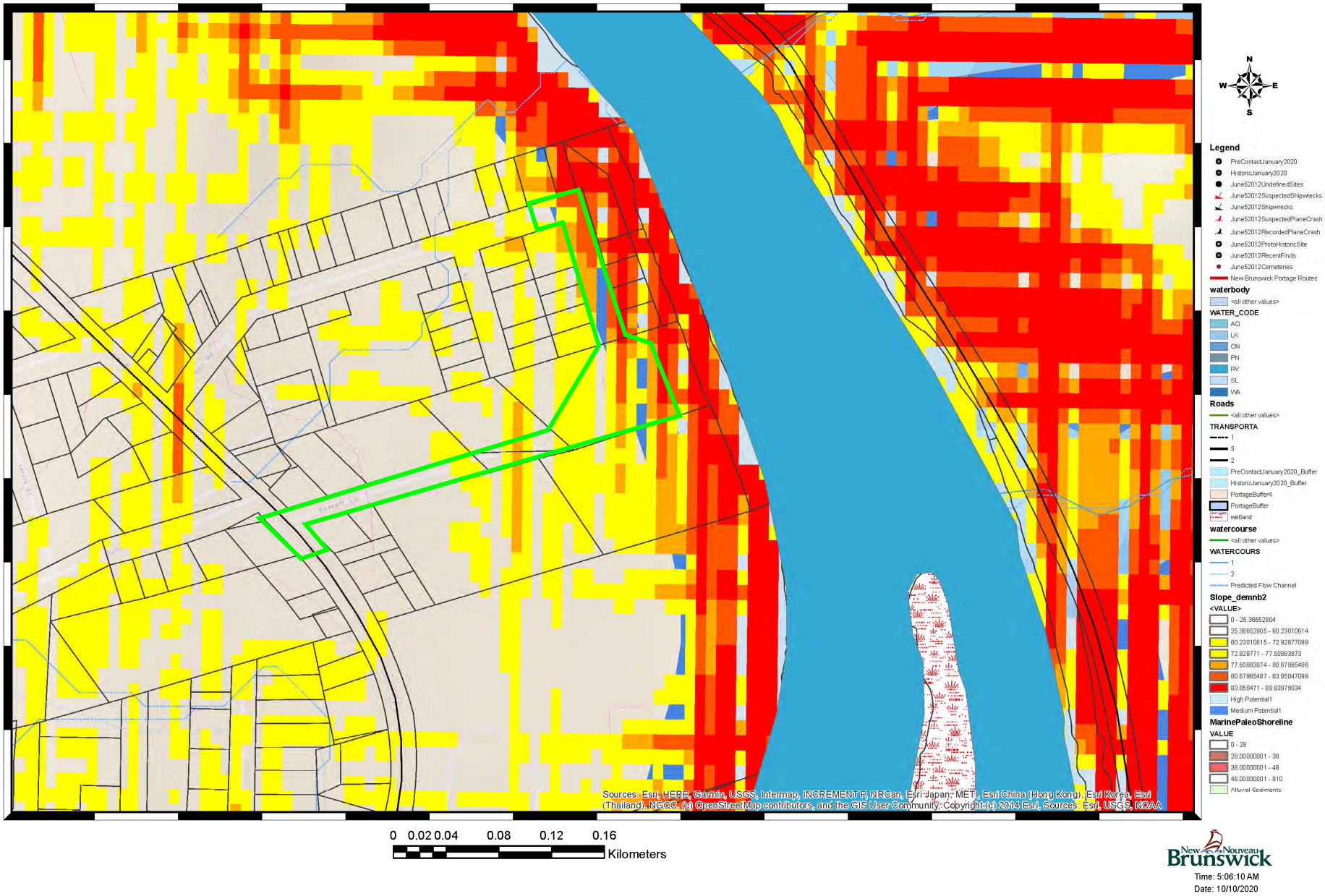
Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

1:2,070

0 20 40 80 120 160 Meters

N

Created By: Vanessa P. Sullivan
Date: January 08, 2021



Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

Figure 4 – Plaster Rock North Lagoon Decommissioning Project: The ASB predictive model for the PDA, outlined in green (On file with Government of New Brunswick)

Plaster Rock, Victoria County, New Brunswick

N

Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

Figure 5 – Plaster Rock North Lagoon Decommissioning Project: Aerial photo of the PDA and vicinity in 1945 (On file with Government of New Brunswick)

Plaster Rock, Victoria County, New Brunswick

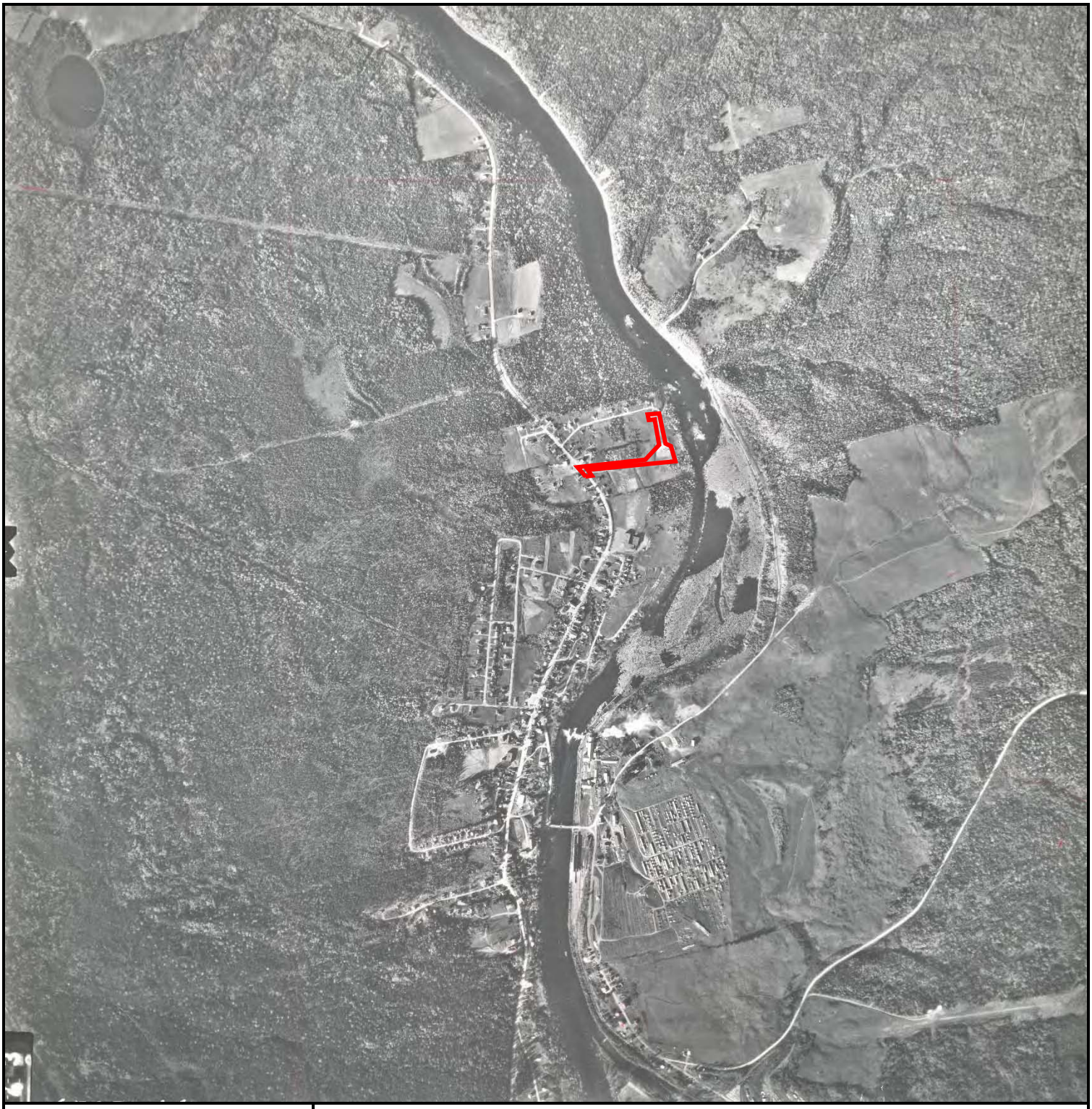
N

Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

Figure 6 – Plaster Rock North Lagoon Decommissioning Project: Aerial photo of the PDA and vicinity in 1955 (On file with Government of New Brunswick)

Plaster Rock, Victoria County, New Brunswick

N



Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

Figure 7 – Plaster Rock North Lagoon Decommissioning Project: Aerial photo of the PDA and vicinity in 1965 (On file with Government of New Brunswick)

Plaster Rock, Victoria County, New Brunswick

N

Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

Figure 8 – Plaster Rock North Lagoon Decommissioning Project: Aerial photo of the PDA and vicinity in 1977 (On file with Government of New Brunswick)

Plaster Rock, Victoria County, New Brunswick

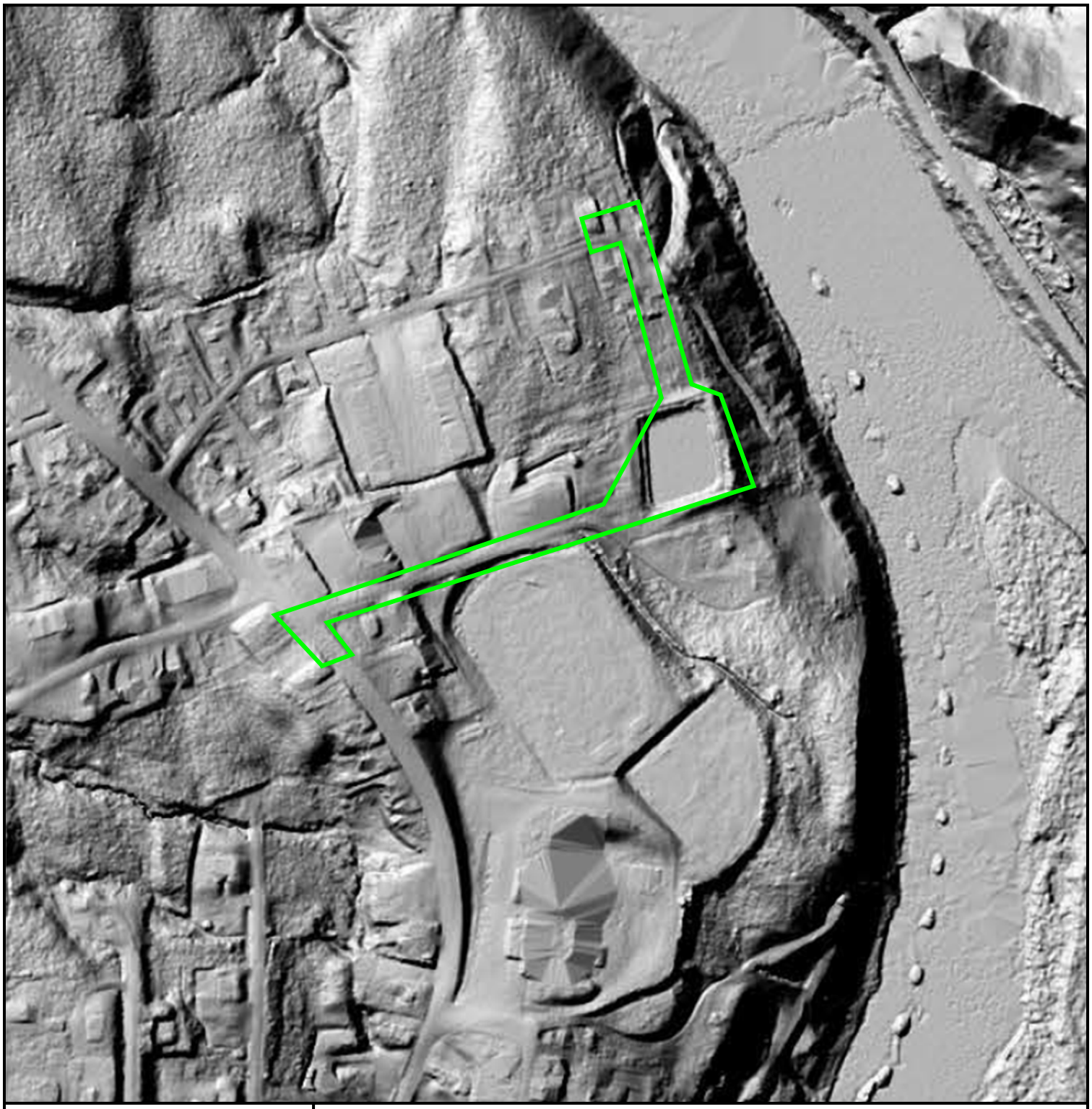
N

Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

Figure 9 – Plaster Rock North Lagoon Decommissioning Project: Aerial photo of the PDA and vicinity in 1996 (On file with Government of New Brunswick)

Plaster Rock, Victoria County, New Brunswick

N



Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

Figure 10 –Plaster Rock North Lagoon Decommissioning Project: LiDAR Image: SNB 2018 LiDAR AOI 1 for the PDA, outlined in green (Government of New Brunswick 2018)

Plaster Rock, Victoria County, New Brunswick

N

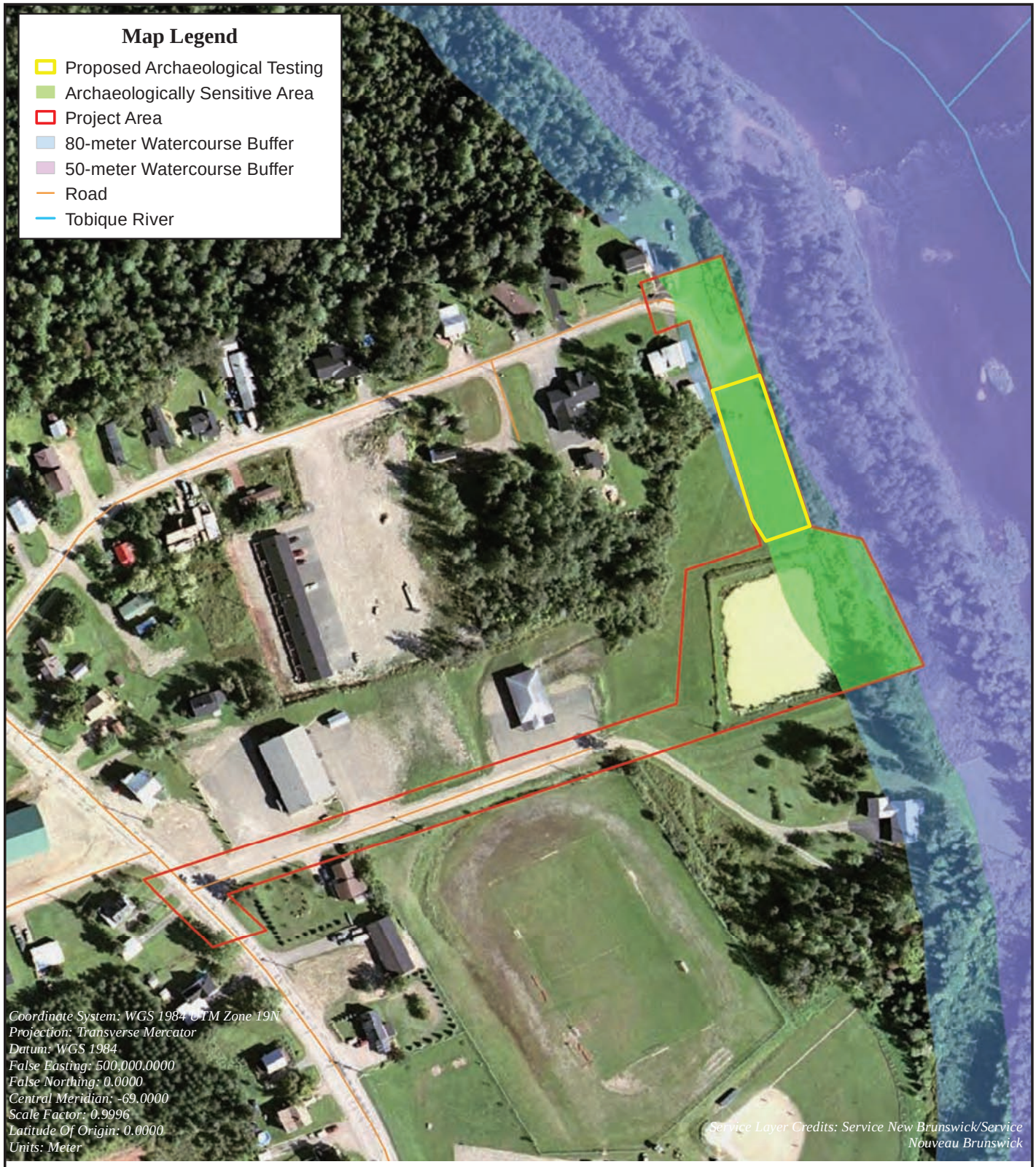


Figure 11 - Plaster Rock North Lagoon Decommissioning Project: Proposed Archaeological Testing in the Project Area

Plaster Rock, Victoria County, New Brunswick

Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

1:2,070

0 20 40 80 120 160 Meters

N

Created By: Vanessa P. Sullivan
Date: October 29, 2020

Figure 12 - Plaster Rock North Lagoon Decommissioning Project: Archaeological Impact Assessment STP Location Map

Plaster Rock, Victoria County, New Brunswick

Colbr Consulting Inc.
31 Mill Street
Fredericton, NB E3A 4L5
(506) 261-4511
www.colbr.ca

1:800

0 5 10 20 30 40 Meters

N

Created By: Vanessa P. Sullivan
Date: October 29, 2020

Appendix C:

Photographs

Photo 1: View east from Main Street along Everette Lane towards the WwTF North Lagoon, depicting development and asphalt-paved roadway.

Photo 2: View west along Everette Lane, depicting development and asphalt-paved roadway.

Photo 3: View east towards the WwTF North Lagoon from the terminus of Everette Lane.

Photo 4: View southeast towards the WwTF North Lagoon, showing the anthropogenic berm surrounding the lagoon.

Photo 5: View northwest from the WwTF, showing the lawn within the low-archaeological potential portion of the PDA.

Photo 6: View south/southeast of the slope-side on the eastern-side of the WwTF North Lagoon.

Photo 7: View south/southeast along the transmission/utility corridor on the eastern side of the WwTF North Lagoon.

Photo 8: View towards the Tobique River from the Harrison Street terminus within the PDA.

Photo 9: View south towards the WwTF North Lagoon from the terminus of Harrison Street.

Photo 10: View north from the WwTF North Lagoon towards the Harrison Street terminus.

Photo11: View north/northwest towards the terminus of Harrison Street, depicting development and asphalt-paved roadway.

Photo 12: View north along the slope-side at the eastern-edge of the Harrison Street Lawn area.

Photo 13: View of test-pit 03 in the Harrison Street Lawn area.

Photo 14: View of clay utility pipe identified in test-pit 17.

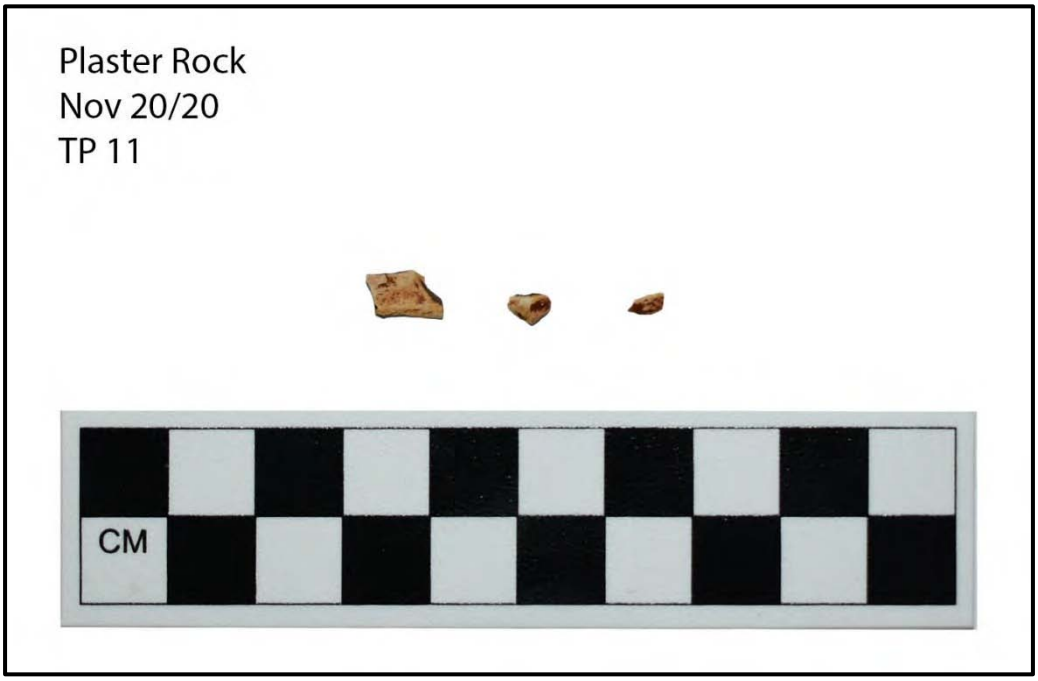


Photo 15: View of unidentified (non-human) bone identified in test-pit 11.

Photo 16: View of bottle glass shards identified in test-pit 20.

Appendix D:

Catalogue

Plaster Rock 2020 Catalogue														
Cat. #	Photo #	MTP #	Class	Subclass	Material	Artifact Type	Subtype	Portion	Length (mm)	Width (mm)	Thickness (mm)	Qty.	Wgt. (g)	Comments
1	PR1	TP24	Modern	Domestic	Glass	Clear Glass	Container Glass	Body Shard	12.5	6.3	5.1	1	0.3	Appears to be modern, very shiny, not aged long
2	PR3	TP17	Modern	Domestic	Plastic	Hard Plastic	White, red, green plastic with sparkle	Fragment	30	10.8	10.8	1	2.1	Cut piece of twisted plastic candy cane toy or decoration
3	PR2	TP20	Modern	Domestic	Glass	Brown Glass	Container Glass	Body Shard	41.4	16	3.8	1	3.6	Appears to be modern, very shiny, not aged long
4	PR2	TP20	Modern	Domestic	Glass	Brown Glass	Container Glass	Body Shard	20.1	10.9	3.8	1	0.7	Appears to be modern, very shiny, not aged long
5	PR2	TP20	Modern	Domestic	Glass	Brown Glass	Container Glass	Base Fragment	42.5	4.8	5	1	5.1	Appears to be modern, very shiny, not aged long
6	PR2	TP20	Modern	Domestic	Glass	Brown Glass	Container Glass	Body Shard	23	19.9	2.9	1	1.5	Appears to be modern, very shiny, not aged long
7	PR2	TP20	Modern	Domestic	Glass	Clear Glass	Container Glass	Body Shard	20	9.9	4.7	1	0.9	Appears to be modern, very shiny, not aged long
8	PR2	TP20	Modern	Domestic	Glass	Clear Glass	Container Glass	Body Shard	36.8	6.3	3	1	2.7	Appears to be modern, very shiny, not aged long
9	PR4	TP3	Organic	Flora	Charcoal	Soft Charcoal	-	Fragment	-	-	-	-	6.2	
10	PR5	TP9	Historic	Activity	Metal	Nail	Large, round headed nail	Complete	103.9	12.6	9	1	14.6	Heavily corroded
11	PR6	TP11	Organic	Faunal	Bone	Animal Bone	Unknown Fragment	Fragment	5.6	3.2	2	1	0	Calcined bone
12	PR6	TP11	Organic	Faunal	Bone	Animal Bone	Unknown Fragment	Fragment	9.7	5.8	2	1	0	Calcined bone
13	PR6	TP11	Organic	Faunal	Bone	Animal Bone	Unknown Fragment	Fragment	4	2.7	1.3	1	0	Calcined bone
14	PR7	TP17	Historic	Domestic	Clay	Pipe	Drain/Sewage pipe	Fragment	75	62	14.8	1	91.1	
15	PR7	TP17	Historic	Domestic	Clay	Pipe	Drain/Sewage pipe	Fragment	93.7	81	14.8	1	188.5	

Plaster Rock 2020 Catalogue														
Cat. #	Photo #	MTP #	Class	Subclass	Material	Artifact Type	Subtype	Portion	Length (mm)	Width (mm)	Thickness (mm)	Qty.	Wgt. (g)	Comments
16	PR7	TP17	Historic	Domestic	Clay	Pipe	Drain/Sewage pipe	Fragment	64	62	14.8	1	89.2	
17	PR7	TP17	Historic	Domestic	Clay	Pipe	Drain/Sewage pipe	Fragment	74	49.9	14.8	1	67	
18	PR7	TP17	Historic	Domestic	Clay	Pipe	Drain/Sewage pipe	Fragment	67.8	49	14.8	1	70.4	
19	PR7	TP17	Historic	Domestic	Clay	Pipe	Drain/Sewage pipe	Fragment	70.4	39	14.8	1	53.1	
20	PR7	TP17	Historic	Domestic	Clay	Pipe	Drain/Sewage pipe	Fragment	46	44.2	14.8	1	51.6	
21	PR7	TP17	Historic	Domestic	Clay	Pipe	Drain/Sewage pipe	Fragment	55.1	33.8	14.8	1	29	
22	PR7	TP17	Historic	Domestic	Clay	Pipe	Drain/Sewage pipe	Fragment	49.9	26.2	14.8	1	22.4	
23	PR7	TP17	Historic	Domestic	Clay	Pipe	Drain/Sewage pipe	Fragment	34.2	33	14.8	1	13.9	

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Appendix D

First Nation Consultation and Public Notification Materials

Village of Plaster Rock
159 Main Street
Plaster Rock, N.B. E7G 2H2
Phone (506) 356-6070, Fax (506) 356-6081

April 1, 2021

[redacted]

Re: Everett Lane Lagoon Decommissioning & Wastewater Treatment System Upgrades

The Village of Plaster Rock (the Village) is currently divided into three sewer sheds with two wastewater treatment plants (WWTP). The majority of wastewater from the Village is treated at the South WWTP located in the southern part of Route 390. In 2019, an engineering assessment was carried out to identify potential options for upgrading the Village's wastewater treatment system, including assessing the feasibility of upgrading the aging North WWTP and its associated Everett Lane Lagoon. Based on the conclusion of the engineering assessment, the Village has elected to redirect wastewater from the northern part of the community into the South WWTP and decommission the aging North WWTP and associated Everett Lane Lagoon (herein referred to as 'the Project').

The proposed Project will include the following components:

- Construction of a new wastewater pump station (approximately 3 m x 3 m building) and installation of new force main to bypass the North WWTP/Everett Lane Lagoon facility;
- Dewatering and removal of sludge from the Everett Lane Lagoon followed by backfilling, levelling, and grading over the cell to turn the area into a greenspace; and
- Upgrading an existing pump station currently installed on a municipal property and upgrading the existing piping infrastructure connecting it to the collection system on Main Street.

The proposed Project includes two distinct footprints/areas, referred to as the lagoon area and the pump station area—both are collectively referred to as the Project areas (see the attached **Figures 1A** and **1B**). All Project components are proposed to be constructed and installed in areas on municipally owned properties, and in areas that have been previously disturbed and developed for the installation of the existing municipal wastewater system infrastructure.

Although the Project areas are contained to previously disturbed areas, it is located within proximity to the Tobique River. Recognizing that the Tobique River was traditionally used as transportation routes and as a source of food, an Archaeological Impact Assessment (AIA) was completed for the Project Areas in 2020 and 2021 by Colbr Consulting Inc. The AIA did not identify any cultural heritage or archaeological resources located within the Project Areas and no further archeological investigations are recommended.

The proposed Project is anticipated to start summer of 2021.

Because the proposed Project will involve decommissioning of a wastewater lagoon as well as the installation and upgrading of below ground sewer mains and other piping infrastructure, an Environmental Impact Assessment (EIA) is required. Assessment work related to the EIA is currently underway and it is anticipated that in the coming weeks, a provincial EIA registration document will be registered for the Project with the New Brunswick Department of Environment and Local Government (NBDELG). Once registered, the EIA registration document will be available for review on the NBDELG website (https://www2.gnb.ca/content/gnb/en/departments/elg/environment/content/environmental_impactassessment/registrations.html). Should you wish to receive a copy of the EIA registration document, please contact the undersigned and we will be happy to provide a copy to you. Additionally, if you would like to discuss the AIA further we would be happy to meet with you at your convenience.

Through this letter, the Village of Plaster Rock wishes to express its willingness to meet and discuss this Project with your community representative(s). Please provide notification of your interest and intent to provide input on the proposed Project by June 7, 2021. In the interim, should you have questions or concerns, please contact the undersigned by phone or email, at your earliest convenience.

Sincerely,

The Village of Plaster Rock

Patty St. Peter
Clerk Manager, Village of Plaster Rock
Office: 506 356 6071
Fax: 506 365 6081
Cao@Plasterrockvillage.ca

Kristin Banks, P.Eng.
Dillon Consulting
Office: 506 444 8820
Cell: 506 238 5790
KBanks@Dillon.ca

KB:jmd:trw
Encl. Figure 1A: Project Location – Lagoon Area
Figure 1B: Project Location – Project Area

[redacted]

Our file: 20-3649

VILLAGE OF PLASTER ROCK

EVERETT LANE LAGOON DECOMMISSIONING

PROJECT LOCATION

FIGURE 1A

- Project Location
- Project Footprint - Lagoon Area
- Property Lines
- Street
- Highway

0 25 50 100 Meters

N W E S

SCALE 1:3,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY

MAP CREATED BY: KCE
MAP CHECKED BY: JAB
MAP PROJECTION: NAD 1983 CSRS NEW BRUNSWICK STEREOGRAPHIC

DILLON CONSULTING

PROJECT: 20-3649
STATUS: DRAFT
DATE: 2021-03-05

SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
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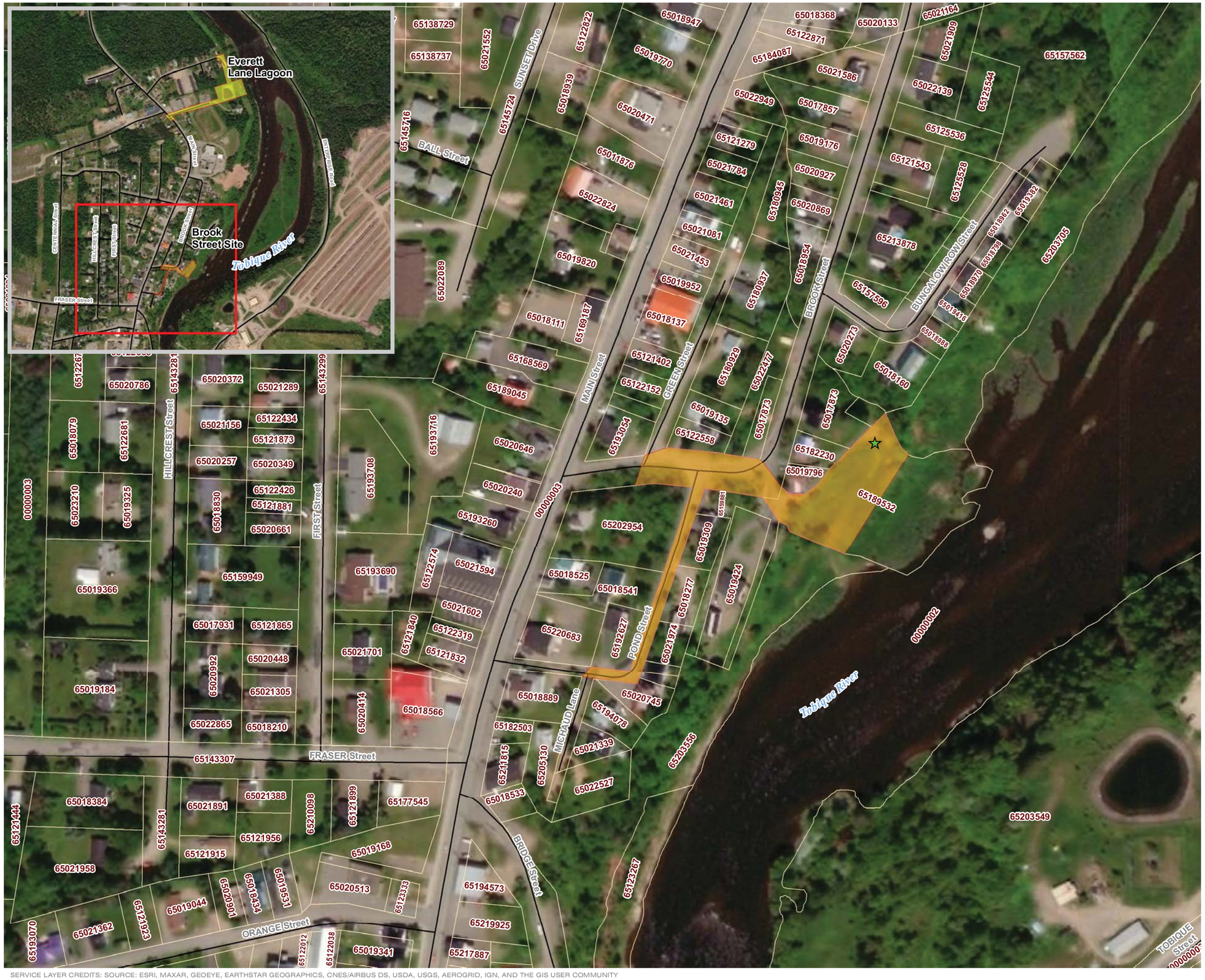

VILLAGE OF PLASTER ROCK

EVERETT LANE LAGOON DECOMMISSIONING

PROJECT LOCATION

FIGURE 1B

- ☆ Project Location
- Project Footprint Pump Station
- Property Lines
- Street
- Highway

0 25 50 100 Meters

N W E S

SCALE 1:2,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY

MAP CREATED BY: KCE
MAP CHECKED BY: JAB
MAP PROJECTION: NAD 1983 CSRS NEW BRUNSWICK STEREOGRAPHIC

DILLON CONSULTING

PROJECT: 20-3649
STATUS: DRAFT
DATE: 2021-03-05

SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
FILE LOCATION: E:\SHARED DRIVES\203649_PLASTER_ROCK_WWTP_EIA\PRODUCT\INTERNAL\203649_PLASTER_ROCK_WWTP_EIA_PROJECT_LOCATION_1B.MXD

Village of Plaster Rock
159 Main Street
Plaster Rock, N.B. E7G 2H2
Phone (506) 356-6070, Fax (506) 356-6081

April 1, 2021

Village of Plaster Rock
PID No. 65125296
159 Main Street
Plaster Rock, NB
E7G 2H2

Attention: To Whom It May Concern

Re: Everett Lane Lagoon Decommissioning & Wastewater Treatment System Upgrades

The Village of Plaster Rock (the Village) is currently divided into three sewer sheds with two wastewater treatment plants (WWTP). The majority of wastewater from the Village is treated at the South WWTP located in the southern part of Route 390. In 2019, an engineering assessment was carried out to identify potential options for upgrading the Village's wastewater treatment system, including assessing the feasibility of upgrading the aging North WWTP and its associated Everett Lane Lagoon. Based on the conclusion of the engineering assessment, the Village has elected to redirect wastewater from the northern part of the community into the South WWTP and decommission the aging North WWTP and associated Everett Lane Lagoon (herein referred to as 'the Project').

The proposed Project will include the following components:

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The proposed Project is anticipated to start summer of 2021.

Because the Project will involve decommissioning of a wastewater lagoon as well as the installation and upgrading of below ground sewer mains and other piping infrastructure, an Environmental Impact Assessment (EIA) is required. Assessment work related to the EIA is currently underway and it is anticipated that in the coming weeks, a provincial EIA registration document will be registered for the Project with the New Brunswick Department of Environment and Local Government (NBDELG). Once registered, the EIA registration document will be available for review on the NBDELG website (https://www2.gnb.ca/content/gnb/en/departments/elg/environment/content/environmental_impactassessment/registrations.html). Should you wish to receive a copy of the EIA registration document, please contact the undersigned and we will be happy to provide a copy to you. Alternatively, a copy will be made available at the Village of Plaster Rock office located at 159 Main Street.

As part of the EIA, a public involvement process involving direct written communication with stakeholders (local residents, businesses, etc.) regarding the EIA is required. The Village of Plaster Rock would like to ensure that individuals or groups are able to obtain information and are able to express concerns that they may have. You are considered an important stakeholder because of the proximity of your property to the proposed Project.

The Village of Plaster Rock welcomes the opportunity to further discuss the proposed upgrade with you. Please contact me (Patty St. Peter), or our consultant (Kristin Banks - Dillon Consulting Limited), at the numbers or emails provided below to arrange a convenient time and location for further discussion. Thank you for your consideration.

Sincerely,

The Village of Plaster Rock

Patty St. Peter
Clerk Manager, Village of Plaster Rock
Office: (506) 356-6071
Fax: (506) 365-6081
Cao@Plasterrockvillage.ca

Kristin Banks, P.Eng.
Dillon Consulting
Office: (506) 444-8820
Cell: (506) 238-5790
KBanks@Dillon.ca

KDB:cab:trw
Encl. Figure 1A: Project Location – Lagoon Area
Figure 1B: Project Location – Project Area
cc: Patty St. Peter, Clerk Manager, Village of Plaster Rock

Our file: 20-3649

VILLAGE OF PLASTER ROCK

EVERETT LANE LAGOON DECOMMISSIONING

PROJECT LOCATION

FIGURE 1A

- Project Location
- Project Footprint - Lagoon Area
- Property Lines
- Street
- Highway

0 25 50 100 Meters

N W E S

SCALE 1:3,000

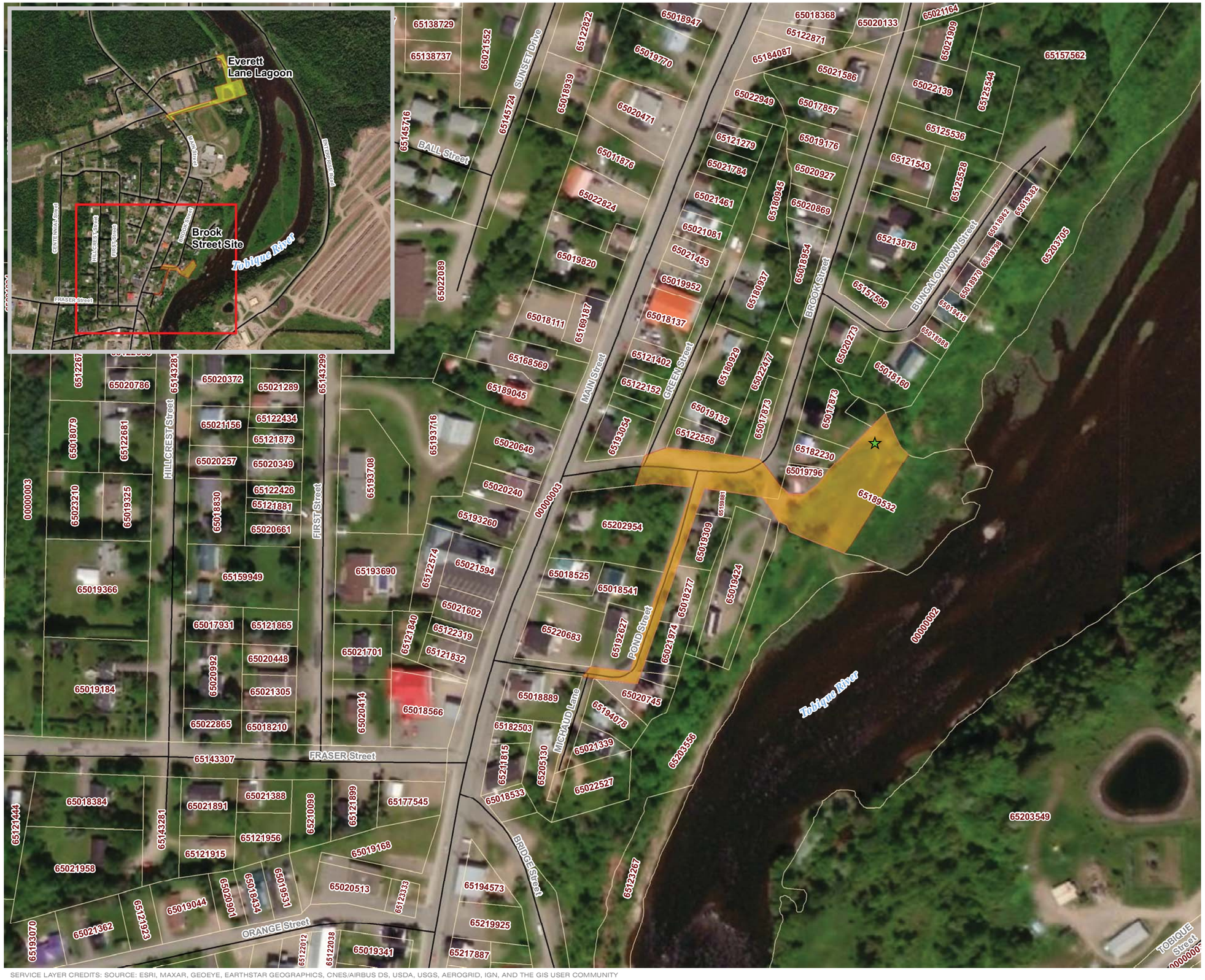
MAP DRAWING INFORMATION:
DATA PROVIDED BY

MAP CREATED BY: KCE
MAP CHECKED BY: JAB
MAP PROJECTION: NAD 1983 CSRS NEW BRUNSWICK STEREOGRAPHIC

DILLON CONSULTING

PROJECT: 20-3649
STATUS: DRAFT
DATE: 2021-03-05

SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
FILE LOCATION: E:\SHARED DRIVES\203649_PLASTER_ROCK_WWTP_EIA\PRODUCT\INTERNAL\203649_PLASTER_ROCK_WWTP_EIA_PROJECT_LOCATION_1A.MXD



VILLAGE OF PLASTER ROCK

EVERETT LANE LAGOON DECOMMISSIONING

PROJECT LOCATION

FIGURE 1B

- ☆ Project Location
- Project Footprint Pump Station
- Property Lines
- Street
- Highway

0 25 50 100 Meters

N W E S

SCALE 1:2,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY

MAP CREATED BY: KCE
MAP CHECKED BY: JAB
MAP PROJECTION: NAD 1983 CSRS NEW BRUNSWICK STEREOGRAPHIC

DILLON CONSULTING

PROJECT: 20-3649
STATUS: DRAFT
DATE: 2021-03-05

SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
FILE LOCATION: E:\SHARED DRIVES\203649_PLASTER_ROCK_WWTP_EIA\PRODUCT\INTERNAL\203649_PLASTER_ROCK_WWTP_EIA_PROJECT_LOCATION_1B.MXD

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