FISHER ENGINEERING LTD.

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Lower Coverdale, New Brunswick E1J 0A2
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December 30th, 2021 File: DS317

Ms. Crystale Harty
Acting Director
Project Assessment Branch
Department of Environment
20 McGloin Street
PO Box 6000
Fredericton, NB E3B 5H1

Attention: Ms. Harty:

RE: Red Oak Estates Subdivision, Irishtown, NB

Enclosed is an electronic copy of the registration document for the above noted undertaking. Once an EIA file number is assigned, the fee will be paid on line.

If you have any questions or require further details, please do not hesitate to contact the undersigned.

Michael Fisher, P. Eng.

MJF

Enclosures

cc: Mr. Trevor Dow, 628643 NB Inc.

EIA Registration
Red Oak Estates Subdivision

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EIA Registration
Red Oak Estates Subdivision

Pursuant to Section 5(2) of
The Environmental Impact Assessment Regulation 87-83
Clean Environment Act

1 The Proponent

Name: 628643 NB Ltd.

Address: 79 Hillview Ave. Hillsborough**,** NB E4H 2V8

Chief Executive Officer: Trevor Dow, (506) 988-2385

Principal Contact Person for Purposes of EIA: Trevor Dow, (506) 988-2385 and Michael Fisher, Fisher Engineering Ltd. (506) 863-1991.

Property Ownership: Same as Proponent

2 The Undertaking

Name: Red Oak Estates Subdivision

Project Overview: Red Oak Estates Subdivision was started in the early 1980's and later expanded in 1988 and 1992 with a total of 37 lots. The subdivision was not expanded since that time. In 2020, the proponent purchased the adjacent parcel (PID 00931626) to the original subdivision and received approval in 2020 for a six lot expansion. That work included the extension of Roy Scenic Drive 190m to make the current cul-dul sac the maximum allowable length by the New Brunswick Department of Transportation and Infrastructure of 365m. At that time the proponent was planning to utilize an existing crown reserve road that abuts the eastern end of the property to exit onto Scotch Settlement Road. This exit would have allowed the developer to extend Roy Scenic an additional 1.2km and have the second exit onto an existing public street. Preliminary discussions with the New Brunswick Department of Environment and Local Government indicated that the proposed expansion on PID 00931626 only would not have resulted in a trigger for an EIA review. Based on these discussions the proponent moved forward with preliminary road work in anticipation of expansion. However, following discussions with the Department of Transportation, the proponent's use of the existing crown reserve road as a public access was not approved as the exit location onto Scotch Settlement was rejected. This forced the proponent to purchase the adjacent property to the east in 2021, which will allow for exits onto existing public roads including Cove Road and Oak Farm Street.

With this additional land purchase, the proposed expansion will include an additional 62 residential building lots. The development will be extended Roy Scenic Drive

approximately 2.5km through to exits onto Cove Road and Oak Farm Street. The lots sizes within the subdivision range from 8400m^2 to 15,000m^2.

Purpose/Rationale/Need: With the success the proponent had developing the last six lots; he realizes the demand for residential lots in the immediate area. The subdivision area is attractive for families due to the short commute to downtown Moncton and the fact that the Moncton High School is located within 10km of the site. Residential housing in the area has increased over the last few years with homes being built in the $400,000-$600,000 range. The project will provide a large economic benefit for the local community for many years.

Project Location: The subdivision is located approximately 5.0 km north of Moncton's City limits and is on the east side of highway 115 in Irishtown, NB (Figure 1, Figure 2 – Appendix A). The subject property consists of two parcels identified by Service New Brunswick is PID 00931626 and PID 00948547. Combined the subject parcels covers an approximate area of 83.7 hectares.

Siting Considerations: The project location was chosen because of the proximity to the City of Moncton. The land is currently zoned, Agricultural – Zone A, which permits single unit residential dwellings. The site is easily accessible off highway 115 through the existing street network within Red Oak Subdivision including the main throughway Roy Scenic Drive that will be extended as part of this work.

The proposed development will adhere to the required conditions and setbacks as outlined in the following regulations in the New Brunswick Community Planning Act:

- Greater Moncton Planning Area Rural Plan Regulation
- Regulation 88-3, Greater Moncton Planning District Order.
- Regulation 84-292, Provincial Setback Regulation
- Regulation 80-159, Provincial Subdivision Regulation

The project site is not located within Zone A or Zone B of a protected coastal area. There are no mapped wetlands on the property that were identified through GeoNB mapping. Details of field work by a local wetland delineator are discussed later in the document.

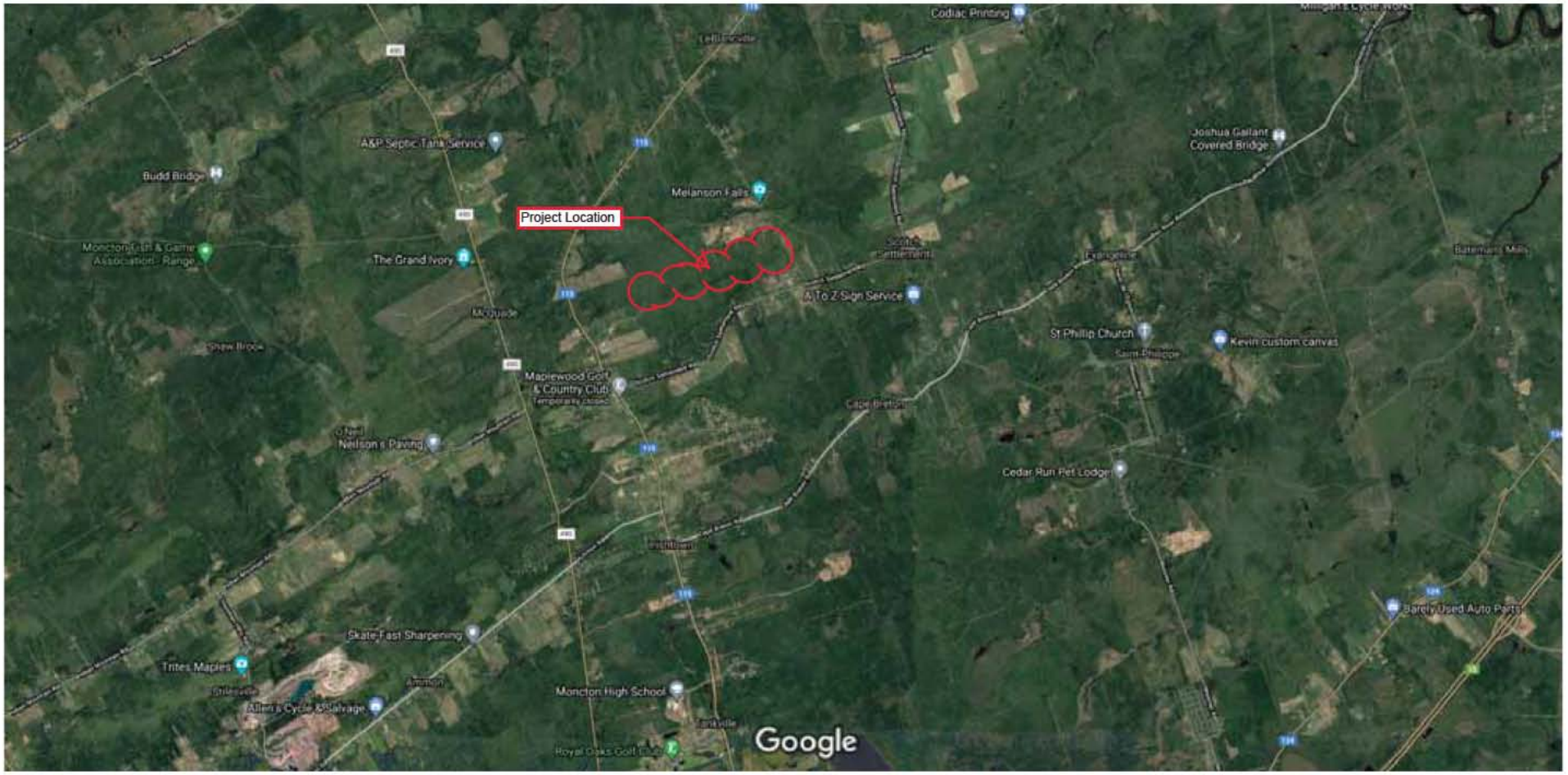
The proponent is aware that the project is located in an agricultural area and that there is the potential for odours, dust and other agricultural-related issues on neighbouring properties. As such, each prospective landowner will be required to sign a letter stating that there are aware of the potential and that acceptable farming practices are protected by the Agricultural Operation Practices Act.

Physical Components and Dimensions of the Project: A conceptual plan showing the proposed development and associated physical components and infrastructure is presented in Figure 2. The proposed extension of the existing road (Roy Scenic Drive) will be constructed to New Brunswick Department of Transportation and Infrastructure (NBDTI) standards. This is consistent to the standards that were followed during the small extension of the road network that was completed and approved in 2020. There will be approximately 2.5 km of roads constructed within this subdivision associated with this project. The entire road network is required to be constructed through to Cove Road

to ensure that there is a second exit on Roy Scenic Drive. All of the roads within the subdivision will be chip sealed as per NBDOT standards. There will be no sidewalks installed and all electrical will be on overhead power poles provide by New Brunswick Power. Water and sanitary will be provided by individual wells and septic systems respectively. Drainage ditches will be installed for storm water runoff. As part of the New Brunswick Department of Transportation requirements, detailed plan/profile drawings and a drainage report are required prior to each phase of proposed road construction being approved.

All of the lots proposed within this subdivision will be sold as forested, which is consistent with the surrounding properties. Property owners who have developed in the area are tending to leave as many of the trees as possible to maintain their privacy. By maintaining the natural landscape, the development is more attractive to homeowners who are looking to locate outside the city. The estimated total area of impervious surfaces including the roads and rooftops for an average 150m^2 home on every lot is typically less than ten percent of the total site

Google Maps FIGURE 1 - SITE LOCATION PLAN



Imagery ©2021 CNES / Airbus, Landsat / Copernicus, Maxar Technologies, Map data ©2021 1 km

Construction Details:
Typically, construction work will consist of three main tasks:
Task 1: clearing and grubbing of the right-of-way for the roads. The majority of the clearing has already been completed by the proponent as the proposed road is located along the former woods road that was present prior to the proponent purchasing the properties. In addition, the proponent was moving ahead with work on PID 00931626 ahead of the NBDTI decision to not allow for the exit onto Scotch Settlement Road. What remaining grubbing work would be completed prior to any subgrade work in the early spring.
Task 2: subgrade work, 3-4 weeks during the spring/early summer.
Task 3: installation of granular sub base material, 1-2 weeks during the summer months (July-August). This construction work is planned for 2022 following receipt of a certificate of determination.

The potential sources of pollutants generated during the construction phases are discussed in Section 4.

Typical hours of construction are Monday to Friday 7:30am to 5:00pm. The anticipated equipment that will be used includes an excavator, bulldozer, and several dump trucks. Fill material required for the road construction will include both base and subbase granular material. The proponent intends to purchase any required granular material from a local quarry.

Operation and Maintenance Details: Since the subdivision will be serviced with individual private wells the New Brunswick Department of Environment (NBDELG) require that a groundwater exploration program be completed, which will show that the surrounding aquifer can support the proposed expansion of the 62 lot development. The exploration program will follow the NBDELG Water Supply Assessment Guideline. The exploration program will consist of drilling test wells at strategic locations across the property and performing a minimum of two 6hr pumping tests. The pumping test data will be analyzed to determine the long-term sustainability of the aquifer. Pumping test(s) will be conducted as outlined in the guideline and will be performed during February/March of 2022 when groundwater recharge is minimal. The estimated water requirement for the proposed 62 lots is 83.7 m^3/day (12.8 igpm), which is based on a per person water usage of 450 Litres per day and an average of 3 people per household. A WSSA application to complete the hydrogeological assessment for this development is attached is Appendix C.

All of the lots in the proposed subdivision will have residential onsite septic system because there is no municipal system available. Each lot in the subdivision must be evaluated for an on-site septic system prior to approval. If the soils encountered are found to be poor and not suitable for a proposed disposal system, the lot sizes will be increased accordingly. In addition, the installation of an on-site septic system requires an application be submitted by a licensed sewage installer to the NB Department of Public Safety for review and acceptance.

With the roads being constructed to NBDTI standards they will be considered public and operation and maintenance including plowing will become the responsibility of the NBDTI. Design of the subdivision roads must follow the NBDTI minimum standards for the Construction of Subdivision Roads and Streets. As part of the approval process with NBDTI, engineered plans along with a drainage report will be required to be approved by the department prior to construction. This process ensures that all roads / culverts /

drainage is designed appropriately and that any impacts are mitigated as work also must follow the New Brunswick Department of Transportation Environmental Management Manual.

Project Related Documents: Overdale Environmental Inc. was retained to complete a rare vascular plant survey and wetland delineation report. The Aster Group was retained to complete a Preliminary Migratory Bird Study. These documents are attached in Appendix B with the results discussed in the following section.

3 Description of the Existing Environment

Physical and Natural Features:

- Based on 1:50,000 scale mapping the surface elevation across the site ranges from 101 and 90m metres above mean sea level.

- The subject property is located within the drainage area of Shediac River. A tributary to Shediac River, McQuade Brook is located near the eastern property boundary. Surface water drainage across the western portion of the site is southeasterly. While the eastern portion of the development drains northeasterly. There are several manmade depressions across the site from former foresting activities that have alternated the natural drainage patterns through the property.

- Shallow groundwater flow across the property is expected to follow the local topography, which slopes toward a tributary to Shediac River. Deeper groundwater likely flows in the same easterly direction toward the Shediac River. The area to the southwest that could potentially contribute groundwater to the study area is residential and forested.

- Regional bedrock mapping indicates that the subject property is located between to Faults. The O'Neil Fault is located north of the subject property and the Gorge Fault is located south. Both of these faults are orientated in a northeast/southwest direction. The bedrock unit occupying the site is mapped as belonging to the Albert Formation consisting of siltstone, mudstone and shale. (Johnson and Peter, 1997).

- Surficial geological mapping indicates that the area is underlain by late Wisconsinan age morainal sediments consisting of hummocky, ribbed and rolling ablation till some lodgement till, minor silt, sand, gravel, and boulders generally thicker than 1.5m (Rampton, 1984).

- There are no municipal wells, municipal wellfields, or protected watersheds within 500 metres of the subject site. Surrounding properties rely on private wells to supply potable water. Within 500 metres of the subject site there are approximately 100 residential groundwater users, an agricultural farm, horse barn, and contractors pit.

- There were five small wetlands identified on the subject properties. All of the wetlands were less than a hectare and not associated with any watercourses. See attached wetland delineation report.

- A summary of the findings of a requested search of the Atlantic Canada Conservation Data Centre (ACCDC) databases is presented below:

  Within the subject site boundaries:
  - There were no rare and endangered taxa records,
  - No Environmentally significant Areas, and;
  - No managed areas.

  The findings within a 5km radius include the following:
  - No records of either vascular or nonvascular flora.
  - Twenty-eight records of 14 vertebrate and 0 records of invertebrate fauna.
  - There are no known or managed areas within 5km of the subject property.
  - There were 12 records of 7 Threatened or Special concern Fauna within 5km of the property boundary. The closest record was 4.1km from the property. The recorded Fauna include the following:
    1. Eastern Meadowlark
    2. Bank Swallow
    3. Bobolink
    4. Barn Swallow
    5. Evening Grosbeak
    6. Common Nighthawk
    7. Eastern Wood-Pewee

    Further discussion on the listed birds is presented in the attached Preliminary Migratory Bird Study. Due to timing, the bird study was only conducted in October 2021.

The NBDELG species at Risk database identified no records on the subject site. In addition, there were no reported deer yards on Crown Land within 5 km of the site.

The following are some of the references and personnel that were contacted and used in order to gather information regarding the physical and natural features of the subject and surrounding properties.

1. Atlantic Canada Conservation Data Centre – ACCDC databases.
2. Environment Canada Species at Risk website - http://www.sararegistry.gc.ca
3. Canadian Species at Risk. Committee on the Status of Endangered Wildlife in Canada. Web site: http://www.cosewic.gc.ca
4. Canadian Wildlife Service website - http://www.naturecanada.ca
5. Department of Environment Government website – designated wellfields - http://www.gnb.ca/0009/0371/0001/0003.html, and protected watersheds - http://www.gnb.ca/0009/0371/0004/0003.html.
6. Department of Environment and Local Government.
7. Department of Transportation and Infrastructure

Cultural Features: None observed or reported on the subject site or adjacent properties

Existing and Historic Land Uses: Historical information was obtained through a review of historical aerial photos (1945 through 2020). The residential development to the west within Red Oak adjacent Rte. 115 was started in the early 1980's and later expanded in 1988 and 1992, with a total of 37 residential lots. The adjacent subdivision did not have any future activity until 2020 when 6 new lots were created on the extension of Roy Scenic Drive. The subject properties were historically treed with evidence of harvesting activities occurring in the past. Aerial photos suggest that the majority of the immediate adjacent surrounding land use has been treed and vacant over the past seventy-five years. There have been farming activities occurring on nearby roads including Rte. 115, Scotch Settlement and Cove Road in the past. Currently there is one farm and a horse stable operation located within 500m of the site.

The application is aware of the Agricultural Operation Practices Act that states "*A person who carries on an agricultural operation using acceptable farm practices is not liable in nuisance to any person for any odour, noise, dust, vibration, light, smoke or other disturbance resulting from the agricultural operation and shall not be prevented by injunction or other order of a court from carrying on the agricultural operation because it causes or creates odour, noise, vibration, dust, light, smoke or other disturbance that constitutes a nuisance".*

4 Summary of Environmental Impacts

Potential Environmental Impacts associated with the construction activities are listed below:

1. Site drainage from construction activities could affect water quality in the nearby tributary to Shediac River.
2. Air Quality issues caused by increased particulate matter (dust) from construction activities, and emissions from heavy equipment. In addition, the use of heavy equipment may increase the ambient noise and vibration in the immediate area.
3. Accidental release of hazardous materials such as fuels, lubricants, cement, concrete additives and agents, solvents and paints.
4. Wildlife fragmentation will occur as a result of the decrease in the amount of green spaces.

5 Summary of Proposed Mitigation

The potential environmental impacts listed in Section 4 are discussed further below along with any proposed mitigation.

1. Site drainage affecting water quality: There is one small unmapped watercourse that bisects the property near the eastern end and five identified small wetlands (<1ha) on the subject properties. These were identified during the wetland delineation work. The majority of the work will be completed outside a 30 metre natural buffer around the watercourse with the exception of where the proposed road will cross it. All of the mapped wetlands fall outside the proposed right of way for the extension of Roy Scenic Drive. There will be no disturbance to these small wetlands associated with the proposed road construction.

In order to minimize the potential impacts during construction, The New Brunswick Department of Transportation Environmental Management Manual will be used as a guide during the construction phase. Sedimentation and erosion control will be implemented for the project which will include both temporary and permanent erosion control structures for ditches that convey surface water potentially laden with sediment. Structures will be routinely monitored and accumulated sediment will be removed when required.

2. Air Quality: Construction activities will occur typically between 7am and 5 pm Monday to Friday. Equipment used will consist of an excavator, dozer, and a few dump trucks. The increased noise and vibration caused by this development is expected to be minimal and similar to the existing conditions.

   Particulate generation primarily occurs during the excavation and backfilling operations. Site and weather conditions contribute to the effect particulate matter has on the surrounding environment, i.e. wind and rain directions. Dust will be minimized with the use of water sprays if required.

3. Accidental release of hazardous materials: In order to minimize the risk of a release of hazardous materials the following best management practices will be employed during any onsite work.
   - Refuelling of equipment will take place in designated areas where an impermeable surface will be prepared so that a release of fuel or oil does not enter the surface water. The refuelling areas will be located on level terrain and a minimum of 30 metres from any surface water.
   - Except for fuel tanks, petroleum products will not be stored onsite.
   - Any required maintenance work would be performed offsite.

   The latest CSA standard for emergency response planning will be reviewed prior to construction. The following standard emergency spill response measures will be followed.

   - During construction absorbent material will be kept on-site at all times for immediate response in the event of a spill.
   - In the event of a spill, all work will be stopped and a supervisor notified immediately.
   - A record of the incident will be taken which will include the personnel and machinery involved, spill containment measures employed, quantity and type of material spilled, date and time of occurrence, and agencies notified.

   All necessary actions will be taken to stop the spread of spilled material. Actions may involve ditching, blocking drainage pathways, and using absorbent materials.

   Any spills or leaks, such as those from machinery or fuel storage tanks, will be promptly contained and cleaned up. Actions may involve ditching, blocking drainage pathways, and using absorbent materials. In addition, any spills or leaks will be reported to the 24-hour environmental emergencies reporting system (1-800-565-1633) and to the NBDELG Regional Office in Moncton (506-856-2374).

4. Wildlife fragmentation: The proposed road construction will occur in 2022 with recent clearing activities having already been completed within the proposed road right of way. Wildlife fragmentation is possible; however, with only one road proposed within the development and the large proposed lots (>2acres) the proponent is doing all they can to minimize the potential fragmentation. In addition, the proponent is leaving two large

areas near the centre of the development open as amenity space. All of the clearing activities that are required for this project have been completed. All activities will be planned and conducted in a manner that allows compliance with the *Migratory* Birds Convention Act *(*MBCA).

In addition to the above noted mitigation measures, the following standard NBDTI EMM Mitigative measures will be followed throughout the life of the project:

5.3 – Clearing
5.4 – Culverts
5.6 – Dust Control
5.7 – Erosion and Sediment Management
5.8.1 – Excavation
5.10 – Fire Prevention and Contingency
5.11 – Grubbing
5.12 – Spill Management
5.13 – Storage & handling of Petroleum Products
5.14 - Storage and Handling of other Dangerous Materials
5.23 – Working Near Environmentally Sensitive Areas.

The proponent will regularly consult Environment Canada's local forecast at http://www.weatberoffice.ec.gc.ca/ so that construction-related activities can be scheduled accordingly.

6 Public Involvement

The following stakeholders will be contacted directly via a letter in order to obtain input on the project:

- Elected officials, the local service district, Southeast Regional Planning Commission, First Nations representative and residents within 100metres or abutting the subject property.

The letter will outline the scope of the project and will include a schematic of the development. Contact information for any comments will also be provided. The public will be given thirty days to provide comments. Once the comments have been received, a report will be prepared regarding the public's input. The report will be submitted within sixty days of project registration.

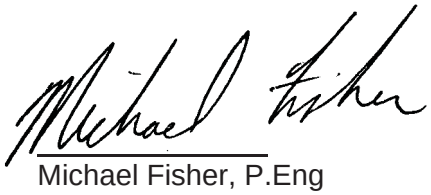
7 Approval of the Undertaking

Approvals will be required from the following authorities: New Brunswick Department of Environment, New Brunswick Department of Transportation and Infrastructure, and the Southeast Regional Service Commission.

8 Funding

No applications for a grant or loan of capital funds from a government agency have or will be submitted. 628643 NB Ltd will be funding the project.

9 Signature



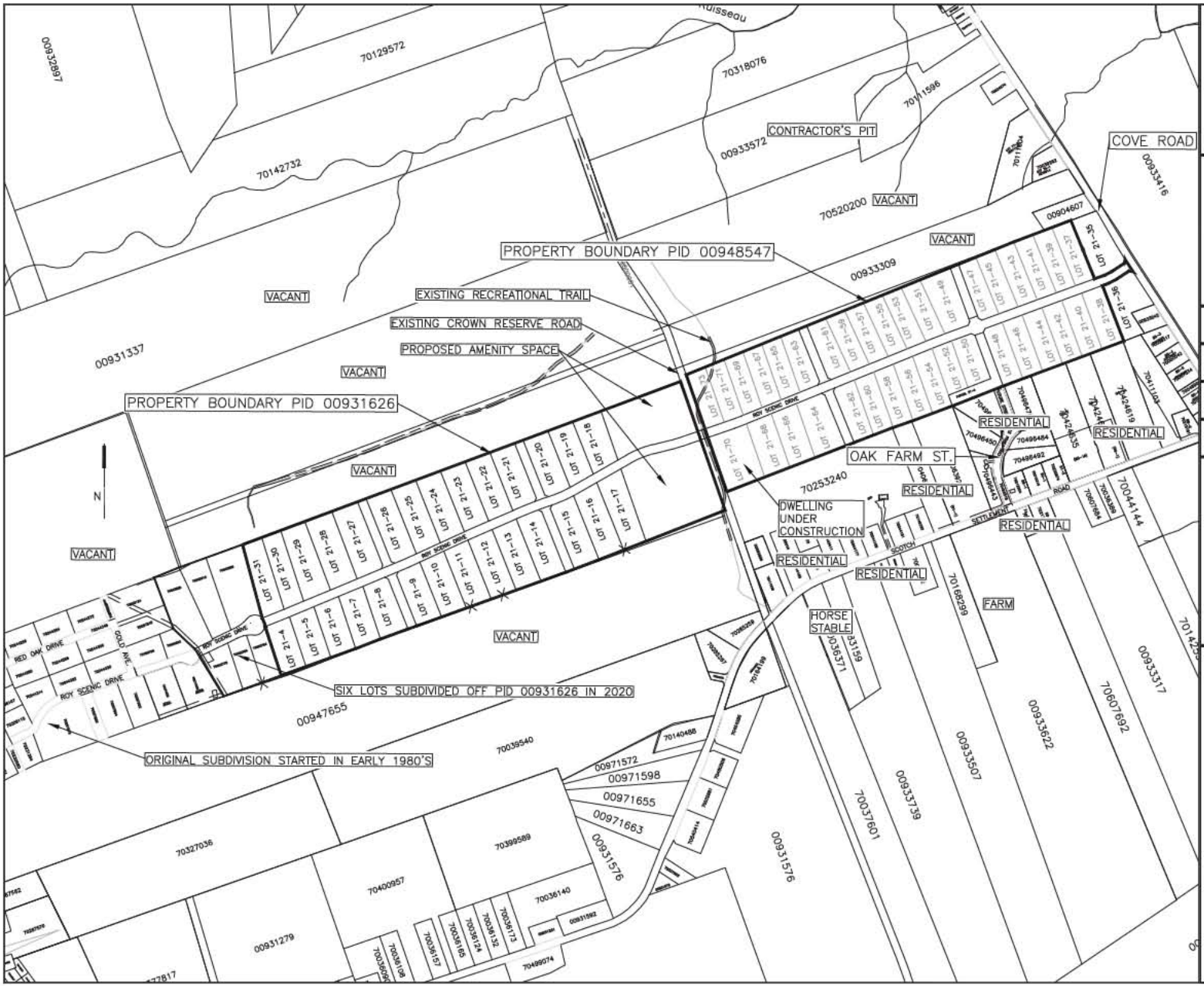
Michael Fisher, P.Eng

Dec. 30th, 2021
Date

DS317/EIA registration.doc

APPENDIX A

FIGURES



Project:

EIA REGISTRATION RED OAK ESTATES EXPANSION

Drawing:

SITE PLAN SHOWING PROPOSED LOT LAYOUT

Project No.:	DS317
Drawing No.:	DS31701
Revision No.:	0
Scale:	1 - 10000
Drawn By:	ACB
Checked By:	MJF
Date:	Dec. 21

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Notes:

APPENDIX B

SUPPORTING DOCUMENTS

Preliminary Migratory Bird Study Near Scott Settlement, Irishtown, New Brunswick

October 2021

Approximate Area within Black Outline

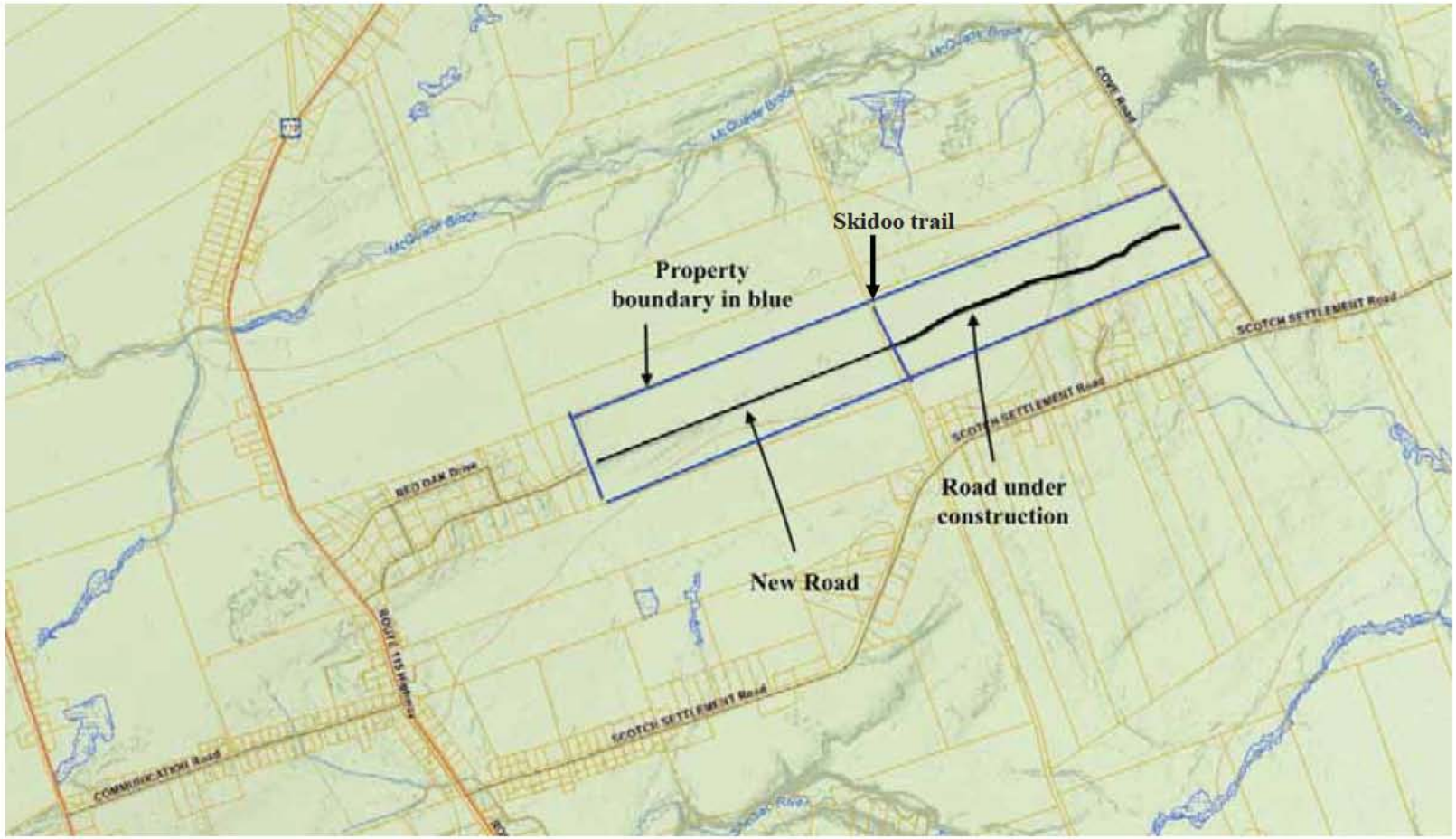
Prepared for Michael Fisher, P.Eng
Fisher Engineering Ltd.

Roland Chiasson

GROUPE ASTER GROUP

Introduction and Study Area

The two study lots are located near Scott Settlement just north of Irishtown, New Brunswick. The plan is to continue building new homes and a road extension. Please see image below for location. The two PID numbers are 00931626 and 00948547. The combined properties are about 1.5 km long by about 600 metres wide. The map below shows the road development on the left side. Along this road there are homes presently being built. From about the middle of the property, a blaze line has been cut and some tree cutting has begun on the right side to continue the road. A skidoo trail running south to north cuts through the boundary of the properties.

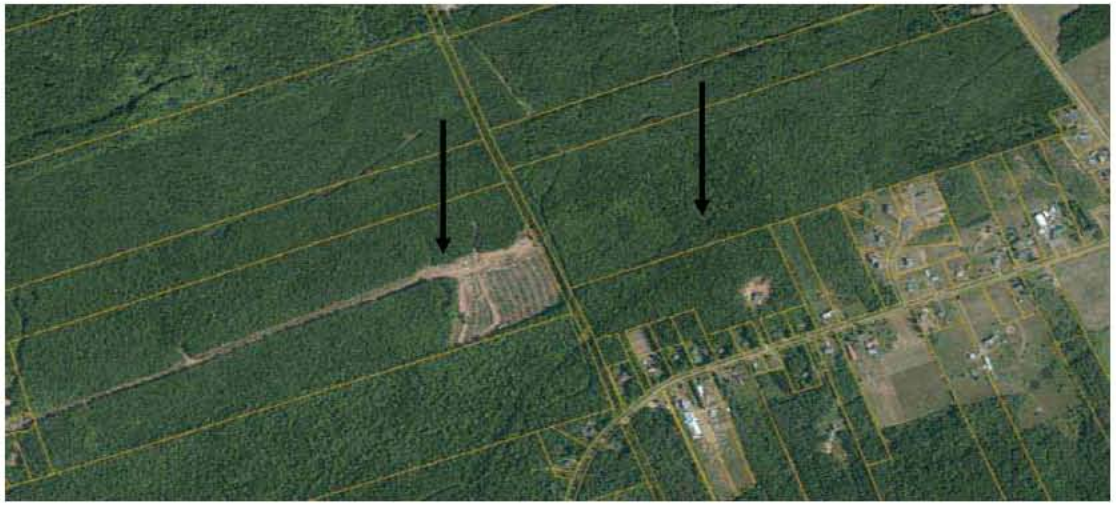


Methods

Bird information from the Atlantic Canada Conservation Data Centre (AC CDC) and e-bird was reviewed. For more information about AC CDC please visit: (http://accdc.com) and for e-bird visit: (https://ebird.org/explore). Google Earth and topographical maps were analyzed for potential species at risk habitat. The Maritime Bird Breeding Atlas (MBBA) was also consulted. Information about MBBA can be found here: (https://www.mba-aom.ca) A search for potential species at risk habitat was carried out, in the field, on September 24, 2021. Birds observed were recorded. Habitat notes were also recorded.

Results

An analysis of the habitat based on an image from Google Earth, a topographical map and a site visit revealed that some nesting habitat is available for some of the birds listed on the AC CDC list, shown below. The remaining forest lands have patches of old growth (100 years or so) and younger forest (about 20-30 years old—see photos below). The forest is mixed but no wetlands or extensive forested wetlands were present. However, some of the forest ground was wet, suggesting the water table is close to the surface. On the East side, a small creek drains out of the property going north-east. The AC CDC lists several rare bird species that have been seen within five kilometers of the site. Environment and Climate Change Canada define the breeding period from mid-April to the end of August (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html#toc1).



Black Arrows point toward the interior of each lot ***Example of forest on site***

Based on the AC CDC list (please see below) and what habitat is available, the site could potentially have the following species at risk breeding: Eastern Wood-Pewee (*Contopus virens*), Common Nighthawk (*Chordeiles minor*) and Evening Grosbeak (*Coccothraustes vespertinus*). Habitat for the other species on the AC CDC list is not present at this site. For more information on the federal listing of species at risk, please visit: https://species-registry.canada.ca/index-en.html#/species?ranges=8&taxonomyId=2&sortBy=commonNameSort&sortDirection=asc&pageSize=10.

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	# recs	Distance (km)

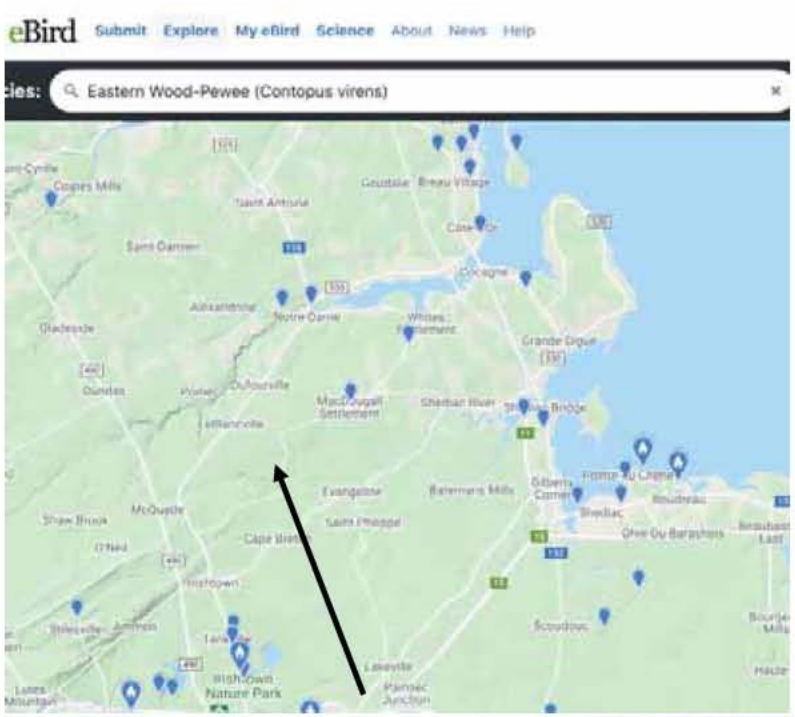
4.2 FAUNA

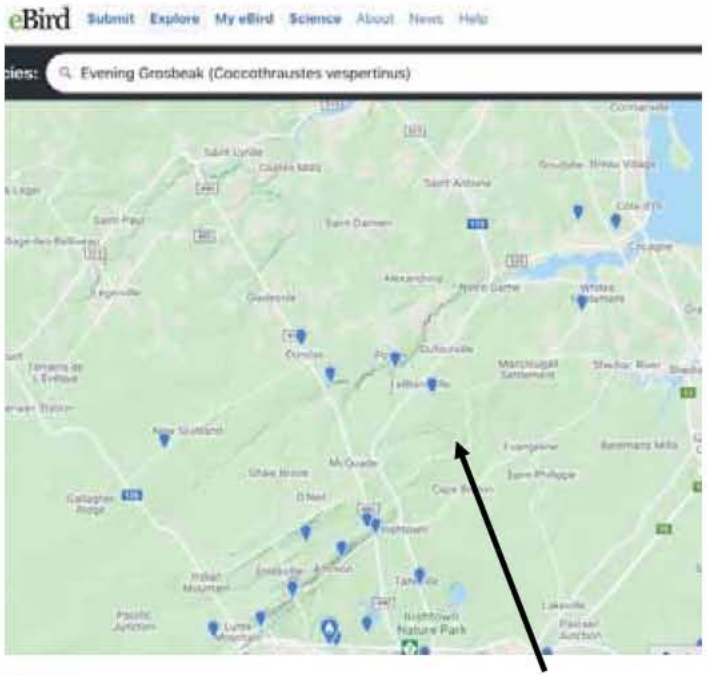
	Scientific *Name*	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
A	*Sturnella magna*	Eastern Meadowlark	Threatened	Threatened	Threatened	S1B,S1M	1	4.8 ± 0.0
A	*Riparia riparia*	Bank Swallow	Threatened	Threatened		S2S3B,S2S3M	1	5.0 ± 7.0
A	*Dolichonyx oryzivorus*	Bobolink	Threatened	Threatened	Threatened	S3B,S3M	3	4.1 ± 0.0
A	*Hirundo rustica*	Barn Swallow	Special Concern	Threatened	Threatened	S2B,S2M	3	5.0 ± 7.0
A	*Coccothraustes vespertinus*	Evening Grosbeak	Special Concern	Special Concern		S3B,S3S4N,SUM	1	5.0 ± 7.0
A	*Chordeiles minor*	Common Nighthawk	Special Concern	Threatened	Threatened	S3B,S4M	2	5.0 ± 7.0
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern	Special Concern	Special Concern	S4B,S4M	1	5.0 ± 7.0
A	*Progne subis*	Purple Martin				S1B,S1M	2	3.7 ± 7.0
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B,S2S3M	3	5.0 ± 7.0
A	*Charadrius vociferus*	Killdeer				S3B,S3M	3	5.0 ± 7.0
A	*Tringa semipalmata*	Willet				S3B,S3M	1	3.3 ± 19.0
A	*Piranga olivacea*	Scarlet Tanager				S3B,S3M	2	4.6 ± 0.0
A	*Molothrus ater*	Brown-headed Cowbird				S3B,S3M	3	3.3 ± 19.0
A	*Gallinago delicata*	Wilson's Snipe				S3S4B,S5M	2	5.0 ± 7.0

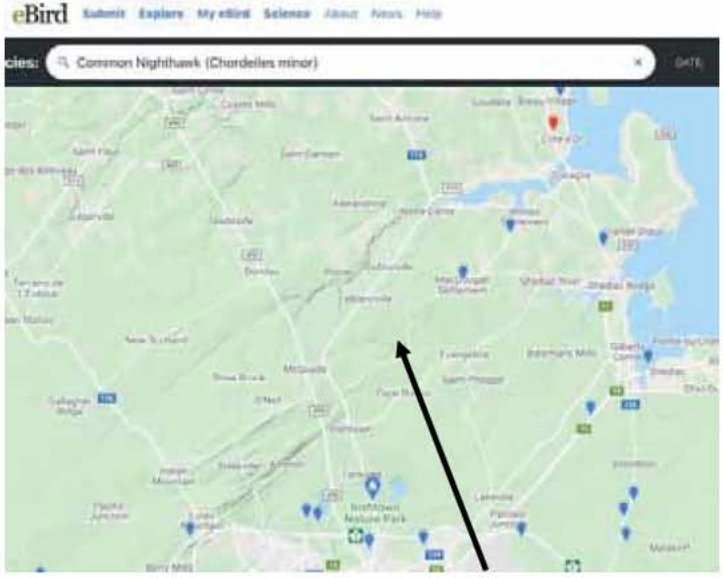
Eastern Wood-Pewee live in forest stands of intermediate age and in mature stands with little understory vegetation, found in certain parts of this site. There are a few open areas on site which could provide nesting habitat for Common Nighthawk. Evening Grosbeak breeding habitat appears be present on site, as they often like open, mature mixed forests, where Balsam Fir and/or White Spruce are dominant.

The Maritime Bird Breeding Atlas shows the above three species at risk as probably nesting in this area (https://www.mba-aom.ca/jsp/map.jsp). In addition, local e-bird distribution maps (please see below) show that these three species at risk do occur within five kilometers distance from the site. Some of the sightings for Evening Grosbeak are outside of the breeding season suggesting a lower probability of nesting at this site. for this species. Observations for the other two species at risk are during their breeding seasons.

The black arrows on the maps below show where the study area is approximately located. The blue tear drops represents the location of an observation submitted by a birder. E-bird has no bird records for this site.







The table below lists the fourteen bird species that were observed during a site visit on September 24, 2021. Several of the species in the list prefer rare older stands of forest, such as Pileated Woodpecker and White-winged Crossbill, others are either residents or migratory. No colonial nesting birds or raptor nest (eagles & hawks) were found.

Please note: This survey does not qualify as an official bird survey because the breeding season is over, and many species have already migrated.

Bird Species Observed	**Latin Name**	**#**	**Comments**	**Bird Species Observed**	**Latin Name**	**#**	**Comments**
Black-capped Chickadee	*Poecile atricapillus*	2	Calling, resident	Red-breasted Nuthatch	*Sitta canadensis*	4	Feeding, resident
Blue-headed Vireo	*Vireo solitarius*	1	Singing, migratory	Red-tailed Hawk	*Buteo jamaicensis*	1	Flyby, migratory
Dark-eyed Junco	*Junco hyemalis*	4	Feeding, migratory	Ruffed Grouse	*Bonasa umbellus*	1	Flushed, resident
Hairy Woodpecker	*Dryobates villosus*		Calling, resident	White-throated Sparrow	*Zonotrichia albicollis*	4	Feeding, migratory
Mourning Dove	*Zenaida macroura*	1	Perched, resident	White-winged Crossbilll	*Loxia leucoptera*	4	Feeding on spruce cones, resident
Pileated Woodpecker	*Dryocopus pileatus*	1	Feeding on an old maple, resident	Yellow-bellied Sapsucker	*Sphyrapicus varius*	1	Calling, migratory
Purple Finch	*Haemorhous purpureus*	2	Singing, migratory	Yellow-rumped Warbler	*Setophaga coronate*	4	Feeding & calling, migratory

Conclusion and Recommendations:
Based on Atlantic Canada Conservation Data Centre, e-bird, and the potential habitat for these species at risk; Eastern Wood-Pewee (*Contopus virens*), Common Nighthawk (*Chordeiles minor*) and Evening Grosbeak (*Coccothraustes vespertinus*), two things are recommended for the month of June —**a dawn breeding bird survey and a Common Nighthawk dusk breeding bird survey.**

Recognized early morning breeding bird survey protocols such as point counts, (stationary locations to record birds based on visual observation and their sounds) random sampling, and Breeding Bird Atlas census techniques are recommended. Point Counts will be based on the standard North American Breeding Survey protocol. (https://www.canada.ca/en/environment-climate-change/services/bird-surveys/landbird/north-american-breeding.html). Point Counts, in addition to detecting most breeding birds, will detect species at risk like Evening Grosbeaks and Eastern Wood-Pewee. Up to 20-point counts will be carried out. The total number of individual bird species heard or seen during a ten-minute observation period will be recorded and GPS referenced. Point Counts will be at least 200 metres apart in forested areas. The distribution of point counts will provide complete coverage of the site, except where vegetation has been removed.

Maritime Breeding Bird Atlases breeding codes will be used to record evidence of nests and nesting activities (http://www.mba-aom.ca/jsp/codes.jsp?lang=en&pg=breeding).

Incidental Observations will also be recorded separately but still geo-referenced.

Recognized Common Nighthawk counts, four survey locations in total will be carried out at dusk, during or close to a full moon night in June. Nighthawks are more vocal and visible at dusk during their breeding season in June. (https://www.thelandbetween.ca/wp-content/uploads/2020/05/TLB-Nightjar-Survey-Protocol-1.pdf).

A written report will follow with recommendations, within a week of field work.

VASCULAR PLANT SURVEY: IRISHTOWN, NB

November 29, 2021

For

Fisher Engineering Ltd.
40 Fairfield Road
Lower Coverdale, NB
E1J 0A2
By

Theo Popma MSc. (Wetland Delineator) at Overdale Environmental Inc.
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Moncton, NB
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Figures:	Appendix A
Habitat Photos:	Appendix B
Plant Community Associations:	Appendix C
Plant List:	Appendix D

Introduction

A survey for Rare Vascular Plants was conducted on PIDs 00931626 and 00948547 (Figure 1) by Theo Popma of Overdale Environmental Inc. on Sept. 13, 17, 29 and Oct. 2, 2021.Surveys were conducted in conjunction with Wetland Delineations for the same area. The survey area comprised approximately 80 hectares.

Results:

135 species of vascular plants were identified during the survey (Appendix D). None were found to be species of conservation concern. Individual habitat-types were defined by their different species associations and according to their locations (Appendix B, C).

Discussion:

The site largely constitutes a hardwood-dominated ridge which slopes gently off to the south. The entire site appears to have been nearly completely deforested prior to 2004 according to historical aerial photos. Clearing for the central roadway as seen in the 2001 Google Earth maps has now progressed to encompass most of the central regions of both PIDs in the survey area.

Although 18 specific habitats were distinguished during the survey, many of these constitute slight variations on the common theme of mixed, moderate-aged regenerating upland forest habitat. These forests were largely dominated by Red Oak (*Quercus rubra*), Balsam Fir (*Abies balsamea*), Red Maple (*Acer rubrum*), Yellow Birch (*Betula alleghaniensis*) and White Birch (*Betula papyrifera*). Trembling Aspen (*Populus tremuloides*) was also present in more disturbed areas near habitations and roadways. Eastern Hemlock (Tsuga canadensis) was also present but more abundant along the property boundary where there had been less deforestation in the past.

Forested wetland is also present in several isolated locations and is described in more detail in the Wetland Delineation Report also provided. Riparian habitat was limited to a small stream with no associated wetland which appears to be ephemeral at its north end. This is to say that overall diversity for the site was relatively low. The understory was sparsely vegetated by shrubs and herbs even in seepy areas. It should be noted that skidder tracks still remain over much of the site and are still capable of causing poor drainage of water in their compressions/depressions.

Potential for rare plants was determined to be fair, although no records within 5km of the center of the survey area are tracked by the ACCDC. However, the presence of tolerant hardwoods including Sugar Maple (*Acer saccharum*), Yellow Birch (*Betula alleghaniensis*) and Ironwood (*Ostrya virginiana*) suggest that some richness may be present in the region. These species dominate seepy areas along the southern boundary of the site which are the most biodiverse. However, this may be due partially to the recent clearing of upslope forest which has affected drainage and sedimentation of this area.

Field-based species determinations were sufficient to rule out a few potential species-at-risk of similar appearance to more common plants. Lance-leaved Aster (*Symphyotrichum lanceolatum*) was ruled as Small White Aster (*Symphyotrichum racemosum*). Southern Arrow-Wood (*Viburnum dentatum*) was ruled out as Northern Arrow-Wood (Viburnum recognitum). And Pinesap (*Monotropa hypoithys*) was ruled out as Spotted Coralroot (*Corallorhiza maculata*).

Conclusion

Although several similar mixed forested habitats were surveyed, no vascular plant species of conservation concern were identified. Potential for species at risk was found to be moderate due to the presence of some seepy areas dominated by tolerant hardwood along the southern boundary.

It is recommended this report be provided to DELG for review along with the digital map files attached.

Closing

We trust this information meets your current needs. Please feel free to contact us via telephone at (506) 227-7605 or by email at tpopma@nb.sympatico.ca with any questions or comments.

Sincerely,

Theo Popma BSc, MSc.
President, Overdale Environmental Inc.

APPENDIX A

FIGURES

Figure 1. Survey Area

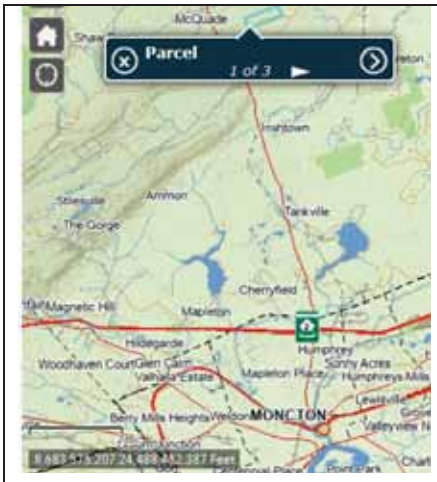

Figure 1	Survey Location	Irishtown, NB	Overdale Environmental Inc.

Figure 2. Habitat Map

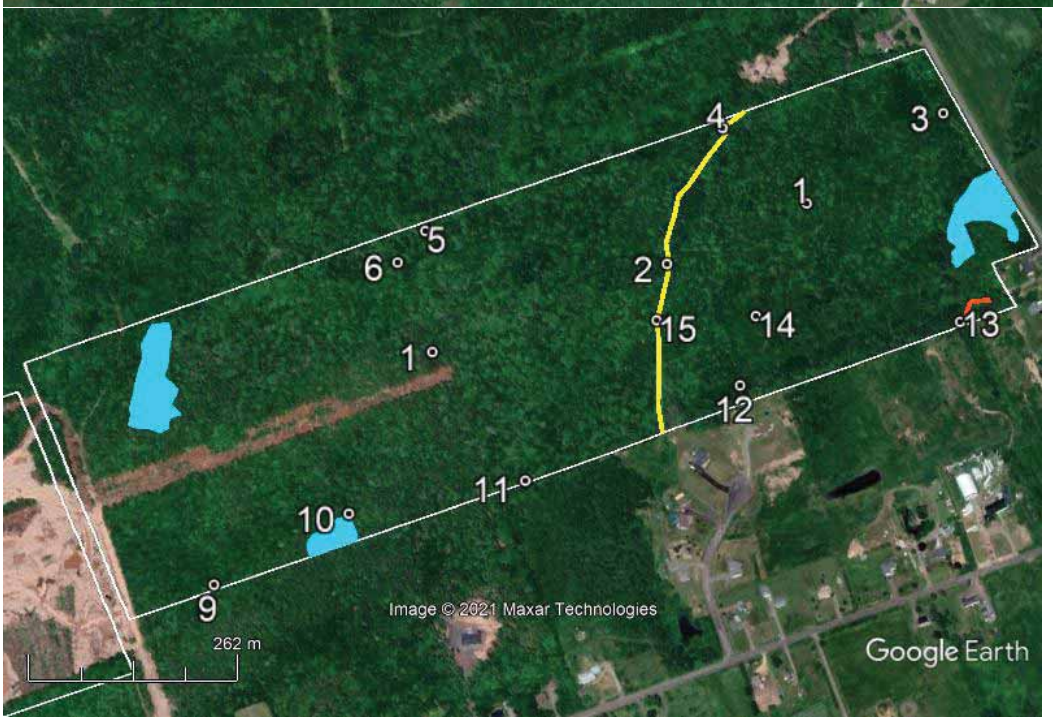

Figure 2	Habitat Map	Blue: Forested Wetlands Yellow Line: Stream Red Line: Ditch Numbers: Habitats	Overdale Environmental Inc.

APPENDIX B

HABITAT PHOTOS

Habitat 1	Irishtown Rare Plants Survey	Mixed Intolerant Hardwood and Softwood Forest	

Habitat 2	Irishtown Rare Plants Survey	Stream	

Habitat 3	Irishtown Rare Plants Survey	Open Red Oak Sapling	

Habitat 4	Irishtown Rare Plants Survey	Ephemeral Stream	

Habitat 5	Irishtown Rare Plants Survey	Dry Balsam Fir	

Habitat 6	Irishtown Rare Plants Survey	Clearing/Skid/Road/Linear	

Habitat 7	See Wetland Delineation Report	Forested Wetland	Irishtown Rare Plants Survey

Habitat 8	Irishtown Rare Plants Survey	Mixed Older Regen	

Habitat 9	Irishtown Rare Plants Survey	Hemlock and young mixed Forest	

Habitat 10	Irishtown Rare Plants Survey	Older Hemlock and mix	

Habitat 11	Irishtown Rare Plants Survey	Upland YB, Hemlock	

Habitat 12	Irishtown Rare Plants Survey	Trembling Aspen	

Habitat 13	Irishtown Rare Plants Survey	Ditch	

Habitat 14	Irishtown Rare Plants Survey	Red Maple Opening no hydrology	

Habitat 15	Irishtown Rare Plants Survey	Mature Open Mixed Forest	

Habitat 16	Irishtown Rare Plants Survey	Mixed Tolerant and Intolerant hardwood	

Habitat 17	Irishtown Rare Plants Survey	Seepy, less than 1 hectare	

Habitat 18	Irishtown Rare Plants Survey	Tolerant hardwood ironwood	

APPENDIX C

HABITAT TYPES

Index	Habitat	*Species Name*	Common Name	Srank
1	Mixed Intolerand Hardwood and Softwood	*Abies balsamea*	Balsam Fir	S5
		Acer rubrum	Red Maple	S5
		Betula populifolia	Gray Birch	S5
		Betula papyrifera	Paper Birch	S5
		Populus tremuloides	Trembling Aspen	S5
		Quercus rubra	Northern Red Oak	S5
		Betula alleghaniensis	Yellow Birch	S5
		Tsuga canadensis	Eastern Hemlock	S5
		Trillium undulatum	Painted Trillium	S5
		Maianthemum canadense	Wild Lily-of-The-Valley	S5
		Trientalis borealis	Northern Starflower	S5
		Aralia nudicaulis	Wild Sarsaparilla	S5
		Clintonia borealis	Yellow Bluebead Lily	S5
2	Stream	*Alnus incana*	Speckled Alder	S5
		Carex intumescens	Bladder Sedge	S5
		Glyceria canadensis	Canada Manna Grass	S5
		Carex gynandra	Nodding Sedge	S5
		Symphyotrichum lanceolatum	Lance-leaved Aster	S5
3	Open Oak Sapling	*Quercus rubra*	Northern Red Oak	S5
		Populus tremuloides	Trembling Aspen	S5
		Acer rubrum	Red Maple	S5
		Abies balsamea	Balsam Fir	S5
		epipactis helleborine	Helleborine	SNA
		Viburnum opulus	Highbush Cranberry	S5
		Carex brunnescens	Brownish Sedge	S5
4	Ephemera l Stream	*Mitchella repens*	Partridgeberry	S5
		Populus tremuloides	Trembling Aspen	S5
		Acer rubrum	Red Maple	S5
		Fraxinus americana	White Ash	S5
		Cornus canadensis	Bunchberry	S5
		Prunella vulgaris	Common Self-heal	S5
		Carex gracillima	Graceful Sedge	S5
5	Dry Balsam Fir	*Abies balsamea*	Balsam Fir	S5
		Populus tremuloides	Trembling Aspen	S5
6	Roads, Clearings	*Spiraea tomentosa*	Steeplebush	S5
		Lycopus uniflorus	Northern Water Horehound	S5
		Doellingeria umbellata	Hairy Flat-top White Aster	S5

Index	Habitat	*Species Name*	Common Name	Srank
		Juncus effusus	Soft Rush	S5
		Dulichium arundinaceum	Three-Way Sedge	S5
		Polygonum sagittatum	Arrow-leaved Smartweed	S5
7	Forested Wetland	*Picea rubens*	Red Spruce	S5
		Viburnum nudum	Northern Wild Raisin	S5
		Abies balsamea	Balsam Fir	S5
		Acer rubrum	Red Maple	S5
		Osmunda cinnamomea	Cinnamon Fern	S5
		Cornus canadensis	Bunchberry	S5
8	Mixed Older Regen	*Acer spicatum*	Mountain Maple	S5
		Picea rubens	Red Spruce	S5
		Picea glauca	White Spruce	S5
		Acer rubrum	Red Maple	S5
		Betula papyrifera	Paper Birch	S5
		Betula alleghaniensis	Yellow Birch	S5
		Acer saccharum	Sugar Maple	S5
		Fagus grandifolia	American Beech	S5
		Monotropa uniflora	Indian Pipe	S5
		Thelypteris noveboracensis	New York Fern	S5
9	Hemlock	*Tsuga canadensis*	Eastern Hemlock	S5
		Betula papyrifera	Paper Birch	S5
		Betula alleghaniensis	Yellow Birch	S5
		Acer rubrum	Red Maple	S5
		Abies balsamea	Balsam Fir	S5
10	Older Hemlock	*Tsuga canadensis*	Eastern Hemlock	S5
		Acer rubrum	Red Maple	S5
		Pteridium aquilinum	Bracken Fern	S5
11	Dry Upland Yellow Birch	*Betula alleghaniensis*	Yellow Birch	S5
		Tsuga canadensis	Eastern Hemlock	S5
		Acer rubrum	Red Maple	S5
		Betula papyrifera	Paper Birch	S5
		Abies balsamea	Balsam Fir	S5
12	Trembling Aspen	*Populus tremuloides*	Trembling Aspen	S5
		Acer rubrum	Red Maple	S5
		Fraxinus americana	White Ash	S5
		Doellingeria umbellata	Hairy Flat-top White Aster	S5
		Solidago canadensis	Canada Goldenrod	S5

Index	Habitat	*Species Name*	Common Name	Srank
		Solidago rugosa	Rough-stemmed Goldenrod	S5
		Spiraea alba	White Meadowsweet	S5
		Frangula alnus	Glossy Buckthorn	SNA
		Potentilla simplex	Old Field Cinquefoil	S5
		Malus sp.	#N/A	#N/A
13	Ditch	*Sorbus americana*	American Mountain Ash	S5
		Cornus sericea	Red Osier Dogwood	S5
14	Red Maple Clearing	*Acer rubrum*	Red Maple	S5
		Sorbus americana	American Mountain Ash	S5
		Viburnum dentatum	Southern Arrow-Wood	SNA
15	Mature Open Mixed Forest	*Acer rubrum*	Red Maple	S5
		Acer spicatum	Mountain Maple	S5
		Acer pensylvanicum	Striped Maple	S5
		Quercus rubra	Northern Red Oak	S5
		Abies balsamea	Balsam Fir	S5
		Betula papyrifera	Paper Birch	S5
		Tsuga canadensis	Eastern Hemlock	S5
		Betula alleghaniensis	Yellow Birch	S5
16	Mixed Softwood and Tol. and Intol. hardwood	*Betula papyrifera*	Paper Birch	S5
		Quercus rubra	Northern Red Oak	S5
		Acer rubrum	Red Maple	S5
		Betula alleghaniensis	Yellow Birch	S5
		Populus tremuloides	Trembling Aspen	S5
17	Seeps, < 1 hectare	*Toxicodendron rydbergii*	Northern Poison Oak	S5
		Acer spicatum	Mountain Maple	S5
18	Tolerant hardwood	*Ostrya virginiana*	Ironwood	S4S5
		Acer saccharum	Sugar Maple	S5

APPENDIX D

PLANT LIST

Scientific Name	Common Name	Srank	GSrank	Sprot
Monotropa hypopithys	Pinesap	S4	4 Secure	0
Ostrya virginiana	Ironwood	S4S5	4 Secure	0
Viola pubescens	Downy Yellow Violet	S4S5	4 Secure	0
Abies balsamea	Balsam Fir	S5	4 Secure	0
Acer pensylvanicum	Striped Maple	S5	4 Secure	0
Acer rubrum	Red Maple	S5	4 Secure	0
Acer saccharum	Sugar Maple	S5	4 Secure	0
Actaea rubra	Red Baneberry	S5	4 Secure	0
Agrostis perennans	Upland Bent Grass	S5	4 Secure	0
Agrostis stolonifera	Creeping Bent Grass	S5	4 Secure	0
Alnus incana	Speckled Alder	S5	4 Secure	0
Amelanchier laevis	Smooth Serviceberry	S5	4 Secure	0
Anaphalis margaritacea	Pearly Everlasting	S5	4 Secure	0
Aralia nudicaulis	Wild Sarsaparilla	S5	4 Secure	0
Betula alleghaniensis	Yellow Birch	S5	4 Secure	0
Betula papyrifera	Paper Birch	S5	4 Secure	0
Betula populifolia	Gray Birch	S5	4 Secure	0
Bidens frondosa	Devil's Beggarticks	S5	4 Secure	0
Calamagrostis canadensis	Bluejoint Reed Grass	S5	4 Secure	0
Carex brunnescens	Brownish Sedge	S5	4 Secure	0
Carex crinita	Fringed Sedge	S5	4 Secure	0
Carex debilis	White-edged Sedge	S5	4 Secure	0
Carex disperma	Two-seeded Sedge	S5	4 Secure	0
Carex gracillima	Graceful Sedge	S5	4 Secure	0
Carex gynandra	Nodding Sedge	S5	4 Secure	0
Carex intumescens	Bladder Sedge	S5	4 Secure	0
Carex trisperma	Three-seeded Sedge	S5	4 Secure	0
Chamerion angustifolium	Fireweed	S5	4 Secure	0
Chrysosplenium americanum	American Golden Saxifrage	S5	4 Secure	0
Clintonia borealis	Yellow Bluebead Lily	S5	4 Secure	0
Cornus canadensis	Bunchberry	S5	4 Secure	0
Cornus sericea	Red Osier Dogwood	S5	4 Secure	0
Corylus cornuta	Beaked Hazel	S5	4 Secure	0
Cypripedium acaule	Pink Lady's-Slipper	S5	4 Secure	0
Danthonia spicata	Poverty Oat Grass	S5	4 Secure	0
Doellingeria umbellata	Hairy Flat-top White Aster	S5	4 Secure	0
Drosera rotundifolia	Round-leaved Sundew	S5	4 Secure	0
Dryopteris cristata	Crested Wood Fern	S5	4 Secure	0
Dryopteris intermedia	Evergreen Wood Fern	S5	4 Secure	0
Dryopteris intermedia	Evergreen Wood Fern	S5	4 Secure	0
Dulichium arundinaceum	Three-Way Sedge	S5	4 Secure	0

Scientific Name	Common Name	Srank	GSrank	Sprot
Epilobium palustre	Marsh Willowherb	S5	4 Secure	0
Equisetum sylvaticum	Woodland Horsetail	S5	4 Secure	0
Erechtites hieraciifolia	Eastern Burnweed	S5	4 Secure	0
Eurybia macrophylla	Large-leaved Aster	S5	4 Secure	0
Euthamia graminifolia	Grass-leaved Goldenrod	S5	4 Secure	0
Fagus grandifolia	American Beech	S5	4 Secure	0
Fragaria virginiana	Wild Strawberry	S5	4 Secure	0
Fraxinus americana	White Ash	S5	4 Secure	0
Galium trifidum	Three-petaled Bedstraw	S5	4 Secure	0
Gaultheria hispidula	Creeping Snowberry	S5	4 Secure	0
Geum aleppicum	Yellow Avens	S5	4 Secure	0
Glyceria canadensis	Canada Manna Grass	S5	4 Secure	0
Glyceria grandis	Common Tall Manna Grass	S5	4 Secure	0
Glyceria melicaria	Slender Manna Grass	S5	4 Secure	0
Gymnocarpium dryopteris	Common Oak Fern	S5	4 Secure	0
Impatiens capensis	Spotted Jewelweed	S5	4 Secure	0
Juncus brevicaudatus	Narrow-Panicled Rush	S5	4 Secure	0
Juncus effusus	Soft Rush	S5	4 Secure	0
Juncus tenuis	Slender Rush	S5	4 Secure	0
Kalmia angustifolia	Sheep Laurel	S5	4 Secure	0
Lonicera canadensis	Canada Fly Honeysuckle	S5	4 Secure	0
Luzula multiflora	Common Woodrush	S5	4 Secure	0
Lycopodium dendroideum	Round-branched Tree-clubmoss	S5	4 Secure	0
Lycopus uniflorus	Northern Water Horehound	S5	4 Secure	0
Maianthemum canadense	Wild Lily-of-The-Valley	S5	4 Secure	0
Mitchella repens	Partridgeberry	S5	4 Secure	0
Mitella nuda	Naked Bishop's-Cap	S5	4 Secure	0
Monotropa uniflora	Indian Pipe	S5	4 Secure	0
Nemopanthus mucronatus	Mountain Holly	S5	4 Secure	0
Onoclea sensibilis	Sensitive Fern	S5	4 Secure	0
Osmunda cinnamomea	Cinnamon Fern	S5	4 Secure	0
Osmunda cinnamomea	Cinnamon Fern	S5	4 Secure	0
Phalaris arundinacea	Reed Canary Grass	S5	4 Secure	0
Picea mariana	Black Spruce	S5	4 Secure	0
Picea rubens	Red Spruce	S5	4 Secure	0
Pinus strobus	Eastern White Pine	S5	4 Secure	0
Poa pratensis	Kentucky Blue Grass	S5	4 Secure	0
Polygonum sagittatum	Arrow-leaved Smartweed	S5	4 Secure	0
Polystichum acrostichoides	Christmas Fern	S5	4 Secure	0
Populus tremuloides	Trembling Aspen	S5	4 Secure	0

Scientific Name	Common Name	Srank	GSrank	Sprot
Potentilla simplex	Old Field Cinquefoil	S5	4 Secure	0
Prenanthes altissima	Tall Rattlesnakeroot	S5	4 Secure	0
Prunella vulgaris	Common Self-heal	S5	4 Secure	0
Prunus virginiana	Chokecherry	S5	4 Secure	0
Prunus virginiana	Chokecherry	S5	4 Secure	0
Pteridium aquilinum	Bracken Fern	S5	4 Secure	0
Pyrola elliptica	Shinleaf	S5	4 Secure	0
Quercus rubra	Northern Red Oak	S5	4 Secure	0
Ranunculus abortivus	Kidney-Leaved Buttercup	S5	4 Secure	0
Ribes glandulosum	Skunk Currant	S5	4 Secure	0
Rubus allegheniensis	Alleghaney Blackberry	S5	4 Secure	0
Rubus idaeus	Red Raspberry	S5	4 Secure	0
Rubus pubescens	Dwarf Red Raspberry	S5	4 Secure	0
Salix bebbiana	Bebb's Willow	S5	4 Secure	0
Salix discolor	Pussy Willow	S5	4 Secure	0
Salix eriocephala	Cottony Willow	S5	4 Secure	0
Scirpus cyperinus	Common Woolly Bulrush	S5	4 Secure	0
Scirpus microcarpus	Small-fruited Bulrush	S5	4 Secure	0
Scutellaria lateriflora	Mad-dog Skullcap	S5	4 Secure	0
Solidago canadensis	Canada Goldenrod	S5	4 Secure	0
Solidago flexicaulis	Zigzag Goldenrod	S5	4 Secure	0
Solidago rugosa	Rough-stemmed Goldenrod	S5	4 Secure	0
Sorbus americana	American Mountain Ash	S5	4 Secure	0
Spiraea alba	White Meadowsweet	S5	4 Secure	0
Spiraea tomentosa	Steeplebush	S5	4 Secure	0
Streptopus lanceolatus	Rose Twisted-stalk	S5	4 Secure	0
Symphyotrichum lanceolatum	Lance-leaved Aster	S5	4 Secure	0
Symphyotrichum lateriflorum	Calico Aster	S5	4 Secure	0
Symphyotrichum novi-belgii	New York Aster	S5	4 Secure	0
Symphyotrichum puniceum	Purple-stemmed Aster	S5	4 Secure	0
Taxus canadensis	Canada Yew	S5	4 Secure	0
Thelypteris noveboracensis	New York Fern	S5	4 Secure	0
Toxicodendron rydbergii	Northern Poison Oak	S5	4 Secure	0
Triadenum fraseri	Fraser's Marsh St John's-wort	S5	4 Secure	0
Trientalis borealis	Northern Starflower	S5	4 Secure	0
Trillium undulatum	Painted Trillium	S5	4 Secure	0
Tsuga canadensis	Eastern Hemlock	S5	4 Secure	0
Typha angustifolia	Narrow-Leaved Cattail	S5	4 Secure	0
Vaccinium myrtilloides	Velvet-leaved Blueberry	S5	4 Secure	0
Veronica officinalis	Common Speedwell	S5	7 Exotic	0

Scientific Name	Common Name	Srank	GSrank	Sprot
Viburnum lantanoides	Hobblebush	S5	4 Secure	0
Viburnum opulus	Highbush Cranberry	S5	4 Secure	0
Agrostis capillaris	Colonial Bent Grass	SNA	7 Exotic	0
Epipactis helleborine	Helleborine	SNA	7 Exotic	0
Euphrasia nemorosa	Common Eyebright	SNA	7 Exotic	0
Frangula alnus	Glossy Buckthorn	SNA	7 Exotic	0
Hieracium piloselloides	Tall Hawkweed	SNA	7 Exotic	0
Leucanthemum vulgare	Oxeye Daisy	SNA	7 Exotic	0
Malus pumila	Common Apple	SNA	7 Exotic	0
Ranunculus acris	Common Buttercup	SNA	7 Exotic	0
Sedum acre	Mossy Stonecrop	SNA	7 Exotic	0
Taraxacum officinale	Common Dandelion	SNA	7 Exotic	0
Viburnum dentatum	Southern Arrow-Wood	SNA	0	0
Viola sp.	Violet	#N/A	#N/A	#N/A

WETLAND DELINEATION REPORT: IRISHTOWN, NB

November 27, 2021

For

Fisher Engineering Ltd.
40 Fairfield Road
Lower Coverdale, NB
E1J 0A2

By

Overdale Environmental Inc.
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Figures:	Appendix A
Site-Photos and Datapoint Photos:	Appendix B
Wetland Data Sheets:	Appendix C
Background Information:	Appendix D
Google Earth Files:	Attachment

Introduction

A Wetland Delineation survey was conducted on PIDs 00931626 and 00948547 (Figure 1) by Theo Popma of Overdale Environmental Inc. on Sept. 13, 17, 29 and Oct. 2, 2021. A Rare Plants survey was also conducted during these site visits. Mr. Popma is a recognized wetland delineator in the province of New Brunswick. Weather conditions were generally a mix of sun and cloud with temperatures around 25C. There was rain and thundershowers intermittently during this time.

Results

See Figure 3 for diagrams of wetland boundaries.

Site-photos and photos at each datapoint location are shown in Appendix B. Datasheets are shown in Appendix C.

Datapoints are summarized in Table 1, below.

	Dominant Vegetation Species				Hydrology			Soil			FINAL
DP	Tree	Shrub	Herb	W/U	1°	2°	W/U	Indicator	W/U	DP	W/U
1	Red Spruce	Mountain Holly	Cinnamon Fern	W	sat, wt, svd, wsl		W	Hist	W	1	W
2	White Birch	Balsam Fir	Starflower	W	none		W	none	U	2	U
3	Red Maple	Red Maple	Bunchberry	W	svd, wsl		W	DM	W	3	W
4	Yellow Birch	Balsam Fir	none	W	none		U	DM	W	4	U
5	NA				wsl, svd		W	none	U	5	U
6	Red maple	Red Maple	Strawberry	W	sat, wt, svd, wsl		W	DM	W	6	W
7	Balsam Fir	Balsam Fir	Lilly of the Valley	W	svd, wsl, sat	stunted	W	DM	W	7	W
8	Red Maple	Red Maple	Wood Fern	W	wsl, svd		W	none	U	8	U
9	Trembling Aspen	Balsam Fir	Sarsasparilla	W	svd, wsl	stunted	W	none	W	9	W
10	Red Spruce	Red Spruce	Three-seeded Sedge	W	sat, svd, wsl		W	hist	W	10	W
11	Hemlock	White Birch	Bunchberry	W	none		U	none	U	11	U
12	White Ash	White Ash	Starflower	W	svd, wsl	stunted	W	DM	W	12	W
13	Red Maple	Red Maple	Starflower	W	svd, wsl		W	none	U	13	U
14	Red Spruce	Red Spruce	Cinnamon Fern	W	sat, wsl, svd		W	DM	W	14	W
15	Red Maple	Red Maple	Red Raspberry	W	svd, wsl	stunted	W	DM	W	15	W
16	Red Maple	White Birch	Lilly of the Valley	W	svd, wsl		W	none	U	16	U
17	Gray Birch	Gray Birch	Dwarf Raspberry	W	none		U	DM	W		U
18	Red Maple	Red Maple	Manna Grass	W	svd	stunted	W	DM	W		W

Discussion:

The site was found to be generally an upland ridge environment dominated mostly by Red Oak (*Quercus rubra*). There is some slight sloping towards the south and a small stream flowing through the eastern PID. Large scale development has already begun throughout the site some of which is visible on Google Earth imagery for 2021. Clearing and grubbing for the continuation of the central roadway has continued to the east as well. Nearly the entire site was apparently clearcut as recently as 2004 according to historical aerial photos.

Five small wetlands were identified and delineated which are labelled A - E in Figure 4. None of these were associated with the stream and all of them were less than 1 hectare in size. All of them are forested wetlands which appear to have been at least partially cleared before 2004.

Generally, water-stained leaves and sparsely vegetated depressions were common throughout the site, even in upland areas, due to the compression of soils by old skidder tracks. Hydrological indicators were therefore not the determining factor at most of the sample locations. Rather, soils were the most informative indicator, as usual, with Depleted Matrices being the most common. Specifications for this indicator were referenced in the Field Indicators for Hydric Soils in the United States (v. 8.1, 2017).

Wetland A, in addition to the human impacts already mentioned, was experiencing some sedimentation in surface runoff from the nearby clearing for the roadway (Site Photo). This runoff was also affecting drainage and soil saturation since the wetland is directly downhill from the disturbance. As a result of this, some degree of upland inclusion is present. The presence of depleted soils here was generally found to correspond to a more open forest canopy, increased spacing between trees and more

pronounced indications of soil saturation at the surface. These indicators were therefore used when delineating the wetland boundary.

Wetland B was atypical since berms and skids are present. This wetland is shrubbier in the understory than the surrounding coniferous forest, making delineation relatively straightforward. Soils were much more organic here than most other locations.

Wetland C also had organic soils but was less shrubby in the understory than Wetland B. Surface hydrology and saturation provided a relatively clear indication of the location of the wetland boundary, however this was sometimes obscured by the presence of a nearby dirt road which was collecting water.

Wetland D appears not to have been as heavily impacted by skidders as the other wetlands. However, a clearing just outside its boundary was shown to be a confusing combination upland and wetland soil indicators within a few meters of each other (Datapoints 3 and 13). This discrepancy seemed to be due to the depth of skidder tracks between clumps of trees. Since this area was only a few tens of square meters, it was simply excluded from the full extent of the Wetland D.

Wetland E was again found to be an atypical wetland due to historical clearing. It should be noted that saturated soils weren't present at any of the sampling locations. Generally, soil sampling showed that wetland habitats corresponded to the presence of open and dominant Red Maple whereas uplands were lacking in sparsely-vegetated depressions.

Conclusion:

Five atypical wetlands were identified and delineated which were all found to be less than 1 hectare in size and not associated with any watercourses. A small watercourse was found to traverse the site and some artificial drainage ditching was also present at the eastern edge (see Site Photos).

It is recommended that this report be provided to the NB Dept. of Environment and Local Government for review.

Closing

We trust this information meets your current needs. Please feel free to contact us via telephone at (506) 227-7605 or by email at tpopma@nb.sympatico.ca with any questions or comments.

Sincerely,

Theo Popma BSc, MSc.
President, Overdale Environmental Inc.

APPENDIX A

FIGURES

APPENDIX A: FIGURES

Figure 1. Survey Area

Figure 1	Survey Location		Overdale Environmental Inc.

Figure 2. GeoNB Wetlands Map

Figure 2	GeoNB Wetland Map		Overdale Environmental Inc.

Figure 3. Wetland Delineation Schematics.

Figure 3	Wetland Delineation Schematic	Blue Polygons: Wetlands Blue Points: Wetland Datapoints White Points: Upland Datapoints White Line: PID Boundary Yellow Line: Stream Red Line: Ditch	

Figure 4. Wetland Locations.

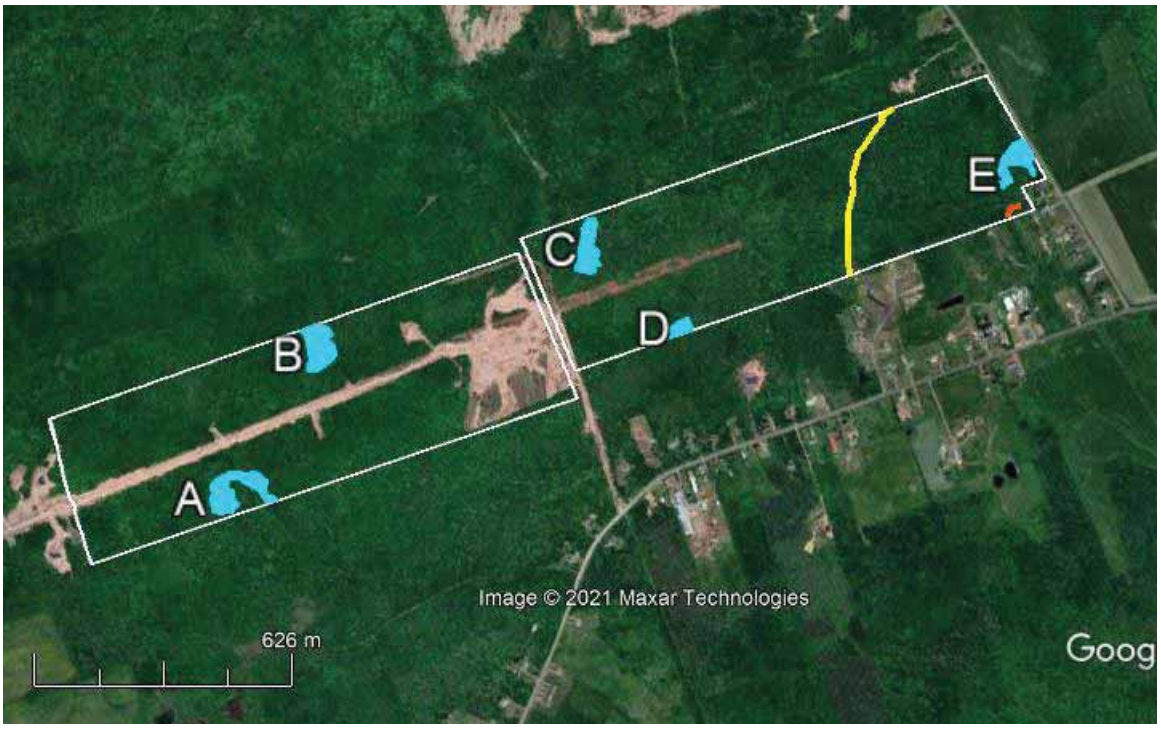


Figure 4	Wetland Labels		

APPENDIX B

DATAPOINT PHOTOS

Site Photo 1	Deforestation	Central roadway	

Site Photo 2	Drainage Ditch	Eastern Corner	

Site Photo 3	Stream Channel		

Site Photo 4	Overland Sedimentation	Wetland A	

Datapoint 1	Waypoint 993	Wetland	

Datapoint 2	Waypoint 994	Upland	

Datapoint 3	Waypoint 1210	Wetland	

Datapoint 4	Waypoint 1419	Upland	

Datapoint 5	Waypoint 1442	Upland	

Datapoint 6	Waypoint 1443	Wetland	

Datapoint 7	Waypoint 1453	Wetland	

Datapoint 8	Waypoint 1457	Upland	

Datapoint 9	Waypoint 1475	Upland	

Datapoint 10	Waypoint 1533	Wetland	

Datapoint 11	Waypoint 1534	Upland	

Datapoint 12	Waypoint 1545	Upland	

Datapoint 13	Waypoint 1558	Upland	

Datapoint 14	Waypoint 1559	Wetland	

Datapoint 15	Waypoint 1572	Upland	

Datapoint 16	Waypoint 1573	Upland	

Datapoint 17	Waypoint 1578	Upland	

Datapoint 18	Waypoint 1579	Wetland	No habitat photo available

APPENDIX C

WETLAND DATASHEETS

Project Site:	Irishtown			Date:	September 13 2021	Sample Point:	1	Page	1	WPT #:	993
Client/owner	Fisher			Field Inves igator(s):	Theo Popma						
County:	Westmorland			Coordinates:	2631959.566, 7470826.851						
PID	931626			Do normal environmental conditions exist on-site?		Yes	x	No			

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [ ] No [x] Explain:

Is his a poten ial **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule)	Yes	x	No		
We land Hydrology	Yes	x	No		
Hydric Soils	Yes	x	No		

Wetland Determination

[x] **YES** [ ] **NO**

Wetland Type: forested we land

Rational for Determination: forest dominated

Vegetation

Tree Stratum: (Plot size: 9m2)		%Cover		Dominant Species	Indicator Status
1	*Picea rubens*	15		x	*fac*
2					
3					
4					
5					
6					
		15	=	**Total Cover**	
Shrub Stratum: (Plot size: 5m2)					
1	*Nemopanthus mucronatus*	10		x	*fac*
2	*Picea rubens*	10		x	*fac*
3	*Viburnum nudum*	10		x	*fac*
4	*Abies balsamea*	10		x	*fac*
5	*Acer rubrum*	10		x	*fac*
		50	=	**Total Cover**	
Herb Stratum: (Plot Size: 1m2)					
1	*Osmunda cinnamomea*	20		x	*fac*
2	*Cornus canadensis*	5		x	*fac*
3					
4					
5					
		25	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species hat are OBL,FACW,FAC: 8

Total # of Dominant Species across all strata: 8

% of Dominant Species hat are OBL,FACW,FAC: 100

Prevalence Index Worksheet:

Total %Cover of:		Mul iply by:	
OBL Species	x 1 =		0
FACW Species	x 2 =		0
FAC Species	x 3 =		0
FACU Species	x 4 =		0
ULP Species	x 5 =		0
Column Totals:	0		0

Hydrophytic Vegetation Indicators:

[ ] Rapid Test for Hydrolic Vegetation

[x] Dominance Test is >50%

[ ] Prevalence Index is≤3.0[1]

[ ] Morphological Adaptations[1](explain)

[ ] Problema ic Hydrophytic Vegeta ion[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problema ic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 1 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
x	High Water Table (A2)		Aquatic Fauna (B13)
x	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes		No	x	Depth
Satura ion Present?	Yes	x	No	5	Depth
Watertable Present?	Yes	x	No	10	Depth

Hydrology Present? **Yes** x **No**

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 30	organic							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

x	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)		Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** **Yes** x **No**

Comments:

Project Site:	Irishtown			Date:	September 13 2021		Sample Point:	2	Page	1	WPT #:	994
Client/owner	Fisher			Field Inves igator(s):	Theo Popma							
County:	Westmorland			Coordinates:	2631972.494, 7470803.560							
PID	931626			Do normal environmental conditions exist on-site?			Yes	x	No			

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [ ] No [x] Explain:

Is his a poten ial **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule)	Yes	x	No		
We land Hydrology	Yes		No	x	
Hydric Soils	Yes		No	x	

Wetland Determination

[ ] **YES** [x] **NO**

Wetland Type: N/A

Rational for Determination: Upland characteristics

Vegetation

	Tree Stratum: (Plot size: 9m2)		%Cover		Dominant Species		Indicator Status
1	*Betula papyrifera*		10		x		*facu*
2	*Acer rubrum*		10		x		*fac*
3	*Abies balsamea*		10		x		*fac*
4							
5							
6							
			30	=	**Total Cover**		
	Shrub Stratum: (Plot size: 5m2)						
1	*Abies balsamea*		10		x		*fac*
2	*Betula alleghaniensis*		10		x		*fac*
3	*Betula papyrifera*		10		x		*facu*
4	*Acer rubrum*		10		x		*fac*
5							
			40	=	**Total Cover**		
	Herb Stratum: (Plot Size: 1m2)						
1	*Trientalis borealis*		5		x		*fac*
2	*Maianthemum canadense*		5		x		*fac*
3							
4							
5							
			10	=	**Total Cover**		

Comments

Dominance Test Worksheet:

# of Dominant Species hat are OBL,FACW,FAC: 7

Total # of Dominant Species across all strata: 9

% of Dominant Species hat are OBL,FACW,FAC: 77.8

Prevalence Index Worksheet:

Total %Cover of:		Mul iply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Hydrophytic Vegetation Indicators:

[ ] Rapid Test for Hydrolic Vegetation

[x] Dominance Test is >50%

[ ] Prevalence Index is≤3.0[1]

[ ] Morphological Adaptations[1](explain)

[ ] Problema ic Hydrophytic Vegeta ion[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problema ic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 2 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

___	Surface Water (A1)	___	Water Stained Leaves (B9)
___	High Water Table (A2)	___	Aquatic Fauna (B13)
___	Satura ion (A3)	___	Marl Deposits (B15)
___	Watermarks	___	Hydrogen Sulfide Odor (C1)
___	Sediment Deposits (B2)	___	Oxidized Rhizospheres on Living Roots (C3)
___	Drift Deposits (B3)	___	Presence of Reduced Iron (C4)
___	Algal Mat of Crust (B4)	___	Recent Iron reduc ion in tilled Soils (C6)
___	Iron Deposits (B5)	___	Thin Muck Surface (C7)
___	Inunda ion Visible on Aerial Imagery (B7)	___	O her (Explain in Remarks)
___	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

___	Surface Soil Cracks (B6)	___	Stunted or Stressed Plants (D1)
___	Drainage Patterns (B10)	___	Geomorphic Position (D2)
___	Moss Trim Lines (B16)	___	Shallow Aquitard (D3)
___	Dry-Season Water Table (C2)	___	Microtopographic Relief (D4)
___	Crayfish Burrows (C8)	___	FAC-Neutral Test (D5)
___	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0
B	UPL, FACU	0
A>B:	=hydric	

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth ___	
Satura ion Present?	Yes ___	No ___	Depth ___	
Watertable Present?	Yes ___	No ___	Depth ___	**Hydrology Present?** **Yes** ___ **No** x

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features					
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 5	organic							
5	7.5YR 4/3							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___	Histic Epipedon (A2)	___	Stripped Matrix (S6)		
___	Black Histic (A3)	___	Dark Surfaces (S7)	___	Coast Prairie Redox (A16)
___	Hydrogen Sulfide (A4)	___	Polyvalue Below Surface (S8)	___	5cm Mucky Peat or Peat (S3)
___	Stratified Layers (A5)	___	Thin Dark Surface (S9)	___	Iron-Manganese Masses (F12)
___	Depleted Below Dark Surface (A11)	___	Loamy Gleyed Matrix (F2)	___	Piedmont Floodplain Soils (F19)
___	Thick Dark Surface (A12)	___	Depleted Matrix (F3)	___	Red Parent Material (F21)
___	Sandy Mucky Mineral (S1)	___	Redox Dark Surface (F6)	___	Very Shallow Dark Surface (F22)
___	5cm Mucky Peat or Peat (S3)	___	Depleted Dark Surface (F7)	___	Other (explain)
___	Sandy Gleyed Matrix (S4)	___	Redox Depressions (F8)		

Restrictive Layer Type (if observe Depth: **Hydric Soil Present?** **Yes** ___ **No** x

Comments:

Project Site:	Irishtown		Date:	September 17 2021	Sample Point:	3	Page	1	WPT #:	1210
Client/owner	Fisher		Field Investigator(s):	Theo Popma						
County:	Westmorland		Coordinates:	2632775.821, 7470924.600						
PID	948547		Do normal environmental conditions exist on-site?		Yes	x	No			

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Deforested

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes	x	No	
Hydric Soils	Yes	x	No	

Wetland Determination

[x] **YES** [ ] **NO**

Wetland Type: Forested Wetland

Rational for Determination: Regenerating cut wi h saplings/trees

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Acer rubrum*	15		x	*fac*
2					
3					
4					
5					
6					
		15	=	**Total Cover**	
	Shrub Stratum: (Plot size: 5m2)				
1	*Acer rubrum*	10		x	*fac*
2	*Betula papyrifera*	10		x	*facu*
3	*Abies balsamea*	10		x	*fac*
4					
5					
		30	=	**Total Cover**	
	Herb Stratum: (Plot Size: 1m2)				
1	*Cornus canadensis*	10		x	*fac*
2	*Rubus pubescens*	10		x	*fac*
3	*Doellingeria umbellata*	5			*fac*
4	*Maianthemum canadense*	5			*fac*
5					
		30	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	5
Total # of Dominant Species across all strata:	6
% of Dominant Species that are OBL,FACW,FAC:	83.3

Prevalence Index Worksheet:

Total %Cover of:	Multiply by:	
OBL Species	x 1 =	0
FACW Species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
ULP Species	x 5 =	0
Column Totals: 0		0

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegeta ion
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 3 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes	No	x	Depth	
Satura ion Present?	Yes	No	x	Depth	
Watertable Present?	Yes	No	x	Depth	

Hydrology Present? Yes x No

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 8	organic							
8 to 20	7.5YR 4/2							
20	7.5YR 4/4							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)	x	Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** Yes x No

Comments:

Project Site:	Irishtown		Date:	September 29 2021	Sample Point:	4	Page	1	WPT #: 1419
Client/owner	Fisher		Field Investigator(s):	Theo Popma					
County:	Westmorland		Coordinates:	2631960.680, 7470803.860					
PID 931626			Do normal environmental conditions exist on-site?		Yes	x	No		

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [ ] No [x] Explain:

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes		No	x
Hydric Soils	Yes	x	No	

Wetland Type: N/A

Rational for Determination: Upland characteris ics

Wetland Determination

[ ] **YES** [x] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Betula alleghaniensis*	10		x	*fac*
2	*Betula papyrifera*	10		x	*facu*
3	*Abies balsamea*	10		x	*fac*
4	*Populus tremuloides*	10		x	*fac*
5	*Quercus rubra*	10		x	*facu*
6					
		50	=	**Total Cover**	

	Shrub Stratum: (Plot size: 5m2)				
1	*Abies balsamea*	10		x	*fac*
2	*Betula papyrifera*	10		x	*facu*
3	*Betula alleghaniensis*	10		x	*fac*
4	*Quercus rubra*	10		x	*facu*
5					
		40	=	**Total Cover**	

	Herb Stratum: (Plot Size: 1m2)				
1					
2					
3					
4					
5					
		0	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	5
Total # of Dominant Species across all strata:	9
% of Dominant Species that are OBL,FACW,FAC:	55.6

Prevalence Index Worksheet:

Total %Cover of:	Multiply by:	
OBL Species	x 1 =	0
FACW Species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
ULP Species	x 5 =	0
Column Totals: 0		0

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegeta ion
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 4 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

___	Surface Water (A1)	___	Water Stained Leaves (B9)
___	High Water Table (A2)	___	Aquatic Fauna (B13)
___	Satura ion (A3)	___	Marl Deposits (B15)
___	Watermarks	___	Hydrogen Sulfide Odor (C1)
___	Sediment Deposits (B2)	___	Oxidized Rhizospheres on Living Roots (C3)
___	Drift Deposits (B3)	___	Presence of Reduced Iron (C4)
___	Algal Mat of Crust (B4)	___	Recent Iron reduc ion in tilled Soils (C6)
___	Iron Deposits (B5)	___	Thin Muck Surface (C7)
___	Inunda ion Visible on Aerial Imagery (B7)	___	O her (Explain in Remarks)
___	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

___	Surface Soil Cracks (B6)	___	Stunted or Stressed Plants (D1)
___	Drainage Patterns (B10)	___	Geomorphic Position (D2)
___	Moss Trim Lines (B16)	___	Shallow Aquitard (D3)
___	Dry-Season Water Table (C2)	___	Microtopographic Relief (D4)
___	Crayfish Burrows (C8)	___	FAC-Neutral Test (D5)
___	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes ___	No x	Depth ___		
Satura ion Present?	Yes ___	No x	Depth ___	**Hydrology Present?**	**Yes** ___ **No** x
Watertable Present?	Yes ___	No x	Depth ___		

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 7	organic							
7 to 13	7.5YR 5/2							
13	5YR 4/4							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___	Histic Epipedon (A2)	___	Stripped Matrix (S6)		
___	Black Histic (A3)	___	Dark Surfaces (S7)	___	Coast Prairie Redox (A16)
___	Hydrogen Sulfide (A4)	___	Polyvalue Below Surface (S8)	___	5cm Mucky Peat or Peat (S3)
___	Stratified Layers (A5)	___	Thin Dark Surface (S9)	___	Iron-Manganese Masses (F12)
___	Depleted Below Dark Surface (A11)	___	Loamy Gleyed Matrix (F2)	___	Piedmont Floodplain Soils (F19)
___	Thick Dark Surface (A12)	x	Depleted Matrix (F3)	___	Red Parent Material (F21)
___	Sandy Mucky Mineral (S1)	___	Redox Dark Surface (F6)	___	Very Shallow Dark Surface (F22)
___	5cm Mucky Peat or Peat (S3)	___	Depleted Dark Surface (F7)	___	Other (explain)
___	Sandy Gleyed Matrix (S4)	___	Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** | **Yes** x **No** ___

Comments:

Project Site:	Irishtown		Date:	September 29 2021	Sample Point:	5	Page	1	WPT #: 1442
Client/owner	Fisher		Field Investigator(s):	Theo Popma					
County:	Westmorland		Coordinates:	2631716.836, 7470742.558					
PID 931626			Do normal environmental conditions exist on-site?		Yes	x	No		

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [ ] No [x] Explain:

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes	x	No	
Hydric Soils	Yes		No	x

Wetland Type: N/A

Rational for Determination: Upland characteris ics

Wetland Determination

[ ] **YES** [x] **NO**

Vegetation

Tree Stratum: (Plot size: 9m2)		%Cover		Dominant Species	Indicator Status
1	*not sampled*				
2					
3	*see photo*				
4					
5					
6					
		0	=	**Total Cover**	

Shrub Stratum: (Plot size: 5m2)					
1					
2					
3					
4					
5					
		0	=	**Total Cover**	

Herb Stratum: (Plot Size: 1m2)					
1					
2					
3					
4					
5					
		0	=	**Total Cover**	

Comments: Not sampled ; see photo (hydric veg)

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:

Total # of Dominant Species across all strata:

% of Dominant Species that are OBL,FACW,FAC: ####

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Hydrophytic Vegetation Indicators:

- [x] Rapid Test for Hydrolic Vegeta ion
- [ ] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 5 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes		No	x	Depth
Satura ion Present?	Yes		No	x	Depth
Watertable Present?	Yes		No	x	Depth

Hydrology Present? Yes x No

Comments: In skids

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 6	organic							
6	7.5YR 3/3							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)		Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** Yes No x

Comments:

Project Site:	Irishtown		Date:	September 29 2021	Sample Point:	6	Page	1	WPT #: 1443
Client/owner	Fisher		Field Investigator(s):	Theo Popma					
County:	Westmorland		Coordinates:	2631786.915, 7470541.937					
PID 931626			Do normal environmental conditions exist on-site?		Yes	x	No		

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Clearing, skids

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes	x	No	
Hydric Soils	Yes	x	No	

Wetland Type: Forested wetland

Rational for Determination: Sparse canopy

Wetland Determination

[x] **YES** [ ] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Acer rubrum*	10		x	*fac*
2	*Betula papyrifera*	10		x	*facu*
3	*Abies balsamea*	10		x	*fac*
4					
5					
6					
		30	=	**Total Cover**	
	Shrub Stratum: (Plot size: 5m2)				
1	*Acer rubrum*	10		x	*fac*
2	*Fraxinus americana*	10		x	*fac*
3	*Betula alleghaniensis*	10		x	*fac*
4	*Corylus cornuta*	10		x	*fac*
5	*Acer saccharum*	10		x	*facu*
		50	=	**Total Cover**	
	Herb Stratum: (Plot Size: 1m2)				
1	*Fragaria virginiana*	10		x	*fac*
2	*Dryopteris intermedia*	10		x	*fac*
3	*Glyceria canadensis*	10		x	*obl*
4					
5					
		30	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	9
Total # of Dominant Species across all strata:	11
% of Dominant Species that are OBL,FACW,FAC:	81.8

Prevalence Index Worksheet:

Total %Cover of:	Multiply by:	
OBL Species	x 1 =	0
FACW Species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
ULP Species	x 5 =	0
Column Totals: 0		0

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegeta ion
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 6 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
x	Satura ion (A3)		Marl Deposits (B15)
x	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0
B	UPL, FACU	0
A>B:	=hydric	

Field Observations:

Surface Water Present?	Yes		No	x	Depth
Satura ion Present?	Yes	x	No		Depth 5
Watertable Present?	Yes	x	No		Depth 10

Hydrology Present? **Yes** x **No**

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 6	organic							
6 to 19	7.5YR 3/2							
19	7.5YR 4/2							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)	x	Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe Depth: **Hydric Soil Present?** **Yes** x **No**

Comments:

Project Site:	Irishtown			Date:	September 29 2021	Sample Point:	7	Page	1	WPT #:	1453
Client/owner	Fisher			Field Investigator(s):	Theo Popma						
County:	Westmorland			Coordinates:	2631714.207, 7470506.680						
PID	931626			Do normal environmental conditions exist on-site?			Yes	x	No		

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Normal, but wet compared to last year, which was very hot and dry

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes	x	No	
Hydric Soils	Yes	x	No	

Wetland Determination

[x] **YES** [ ] **NO**

Wetland Type: Forested wetland

Rational for Determination: Sparse canopy

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Abies balsamea*	10		x	*fac*
2	*Fraxinus americana*	10		x	*fac*
3	*Acer rubrum*	10		x	*fac*
4	*Betula alleghaniensis*	10		x	*fac*
5					
6					
		40	=	**Total Cover**	
	Shrub Stratum: (Plot size: 5m2)				
1	*Abies balsamea*	10		x	*fac*
2	*Fraxinus americana*	10		x	*fac*
3	*Acer rubrum*	10		x	*fac*
4					
5					
		30	=	**Total Cover**	
	Herb Stratum: (Plot Size: 1m2)				
1	*Mitchella repens*	5		x	*facu*
2	*Maianthemum canadense*	5		x	*fac*
3	*Dryopteris intermedia*	5		x	*fac*
4					
5					
		15	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	9
Total # of Dominant Species across all strata:	10
% of Dominant Species that are OBL,FACW,FAC:	90

Prevalence Index Worksheet:

Total %Cover of:	Multiply by:	
OBL Species	x 1 =	0
FACW Species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
ULP Species	x 5 =	0
Column Totals: 0		0

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegeta ion
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 7 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
x	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)	x	Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes		No	x	Depth
Satura ion Present?	Yes	x	No		Depth 10
Watertable Present?	Yes		No	x	Depth

Hydrology Present? Yes x No

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 3	organic							
3	7.5YR 4/2	80						
3	7.5YR 3/2	20						

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)	x	Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** Yes x No

Comments:

Project Site:	Irishtown		Date:	September 29 2021	Sample Point:	8	Page	1	WPT #:	1457
Client/owner	Fisher		Field Investigator(s):	Theo Popma						
County:	Westmorland		Coordinates:	2631710.029, 7470442.770						
PID	931626		Do normal environmental conditions exist on-site?		Yes	x	No			

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Clearing, skids

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes	x	No	
Hydric Soils	Yes		No	x

Wetland Type: N/A

Rational for Determination: Upland characteris ics

Wetland Determination

[ ] **YES** [x] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Acer rubrum*	10		x	*fac*
2	*Picea mariana*	10		x	*facw*
3	*Betula papyrifera*	10		x	*facu*
4	*Abies balsamea*	10		x	*fac*
5					
6					
		40	=	**Total Cover**	

	Shrub Stratum: (Plot size: 5m2)				
1	*Acer rubrum*	10		x	*fac*
2	*Picea rubens*	10		x	*fac*
3	*Betula papyrifera*	10		x	*facu*
4	*Abies balsamea*	10		x	*fac*
5					
		40	=	**Total Cover**	

	Herb Stratum: (Plot Size: 1m2)				
1	*Dryopteris intermedia*	5		x	*fac*
2	*Osmunda cinnamomea*	5		x	*fac*
3					
4					
5					
		10	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC: 8

Total # of Dominant Species across all strata: 10

% of Dominant Species that are OBL,FACW,FAC: 80

Prevalence Index Worksheet:

Total %Cover of:	Multiply by:	
OBL Species	x 1 =	0
FACW Species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
ULP Species	x 5 =	0
Column Totals: 0		0

Hydrophytic Vegetation Indicators:

[ ] Rapid Test for Hydrolic Vegeta ion

[x] Dominance Test is >50%

[ ] Prevalence Index is≤3.0[1]

[ ] Morphological Adaptations[1](explain)

[ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 8 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes		No	x	Depth
Satura ion Present?	Yes		No	x	Depth
Watertable Present?	Yes		No	x	Depth

Hydrology Present? Yes x No

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 6	organic							
6	7.5YR 4/3							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)		Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** Yes No x

Comments:

Project Site:	Irishtown		Date:	Septmeber 29 2021	Sample Point:	9	Page	1	WPT #: 1475
Client/owner	Fisher		Field Investigator(s):	Theo Popma					
County:	Westmorland		Coordinates:	2631819.628, 7470567.326					
PID 931626			Do normal environmental conditions exist on-site?		Yes	x	No		

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Clearing, skids

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes	x	No	
Hydric Soils	Yes		No	x

Wetland Type:

Rational for Determination:

Wetland Determination

[ ] **YES** [x] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Populus tremuloides*	15		x	*fac*
2	*Betula papyrifera*	10		x	*facu*
3	*Acer saccharum*	10		x	*facu*
4					
5					
6					
		35	=	**Total Cover**	
	Shrub Stratum: (Plot size: 5m2)				
1	*Abies balsamea*	10		x	*fac*
2	*Betula alleghaniensis*	10		x	*fac*
3	*Fraxinus americana*	5			*fac*
4	*Acer spicatum*	5			*fac*
5					
		30	=	**Total Cover**	
	Herb Stratum: (Plot Size: 1m2)				
1	*Aralia nudicaulis*	5		x	*fac*
2	*Toxicodendron rydbergii*	5		x	*fac*
3	*Cornus canadensis*	5		x	*fac*
4	*Rubus pubescens*	5		x	*fac*
5					
		20	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC: 7

Total # of Dominant Species across all strata: 9

% of Dominant Species that are OBL,FACW,FAC: 77.8

Prevalence Index Worksheet:

Total %Cover of:		Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegeta ion
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 9 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)	x	Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes	No	Depth	
Satura ion Present?	Yes	No	Depth	
Watertable Present?	Yes	No	Depth	

Hydrology Present? Yes x No

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 15	organic							
15	7.5YR 3/1	60						
15	7.5YR 4/3	40						

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)		Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** Yes No x

Comments:

Wetland Determination
(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No		
We land Hydrology	Yes	x	No		
Hydric Soils	Yes	x	No		

Wetland Type: Forested wetland

Rational for Determination: Coniferous trees

Wetland Determination

x **YES** ☐ **NO**

Vegetation

Tree Stratum: (Plot size: 9m2)		%Cover		Dominant Species		Indicator Status
1	*Picea rubens*	10		x		*fac*
2						
3						
4						
5						
6						
		10	=	**Total Cover**		
Shrub Stratum: (Plot size: 5m2)						
1	*Picea rubens*	30		x		*fac*
2	*Acer rubrum*	5				*fac*
3	*Acer spicatum*	5				*fac*
4						
5						
		40	=	**Total Cover**		
Herb Stratum: (Plot Size: 1m2)						
1	*Carex trisperma*	5		x		*obl*
2						
3						
4						
5						
		5	=	**Total Cover**		

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	3
Total # of Dominant Species across all strata:	3
% of Dominant Species that are OBL,FACW,FAC:	100

Prevalence Index Worksheet:

Total %Cover of:	Multiply by:	
OBL Species	x 1 =	0
FACW Species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
ULP Species	x 5 =	0
Column Totals: 0		0

Hydrophytic Vegetation Indicators:

- x Rapid Test for Hydrolic Vegeta ion
- x Dominance Test is >50%
- ___ Prevalence Index is≤3.0[1]
- ___ Morphological Adaptations[1](explain)
- ___ Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 10 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
x	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	

A>B:=hydric

Field Observations:

Surface Water Present?	Yes		No x	Depth	
Satura ion Present?	Yes x		No	Depth	10
Watertable Present?	Yes		No x	Depth	

Hydrology Present? **Yes** x **No**

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 30	organic							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

x	Histosol (A1)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)		Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** **Yes** x **No**

Comments:

Project Site:	Westmorland			Date:	October 2 2021	Sample Point:	11	Page	1	WPT #:	1534
Client/owner	Fisher			Field Investigator(s):	Theo Popma						
County:	Westmorland			Coordinates:	2632645.718, 7471077.208						
PID	948547			Do normal environmental conditions exist on-site?			Yes	x	No		

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Clearing, roads

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes		No	x
Hydric Soils	Yes		No	x

Wetland Type: N/A

Rational for Determination: Upland characteris ics

Wetland Determination

[ ] **YES** [x] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Tsuga canadensis*	10		x	*facu*
2	*Acer rubrum*	10		x	*fac*
3	*Betula papyrifera*	10		x	*facu*
4	*Picea mariana*	10		x	*facw*
5	*Abies balsamea*	5			*fac*
6					
		45	=	**Total Cover**	

	Shrub Stratum: (Plot size: 5m2)				
1	*Betula papyrifera*	10		x	*facu*
2	*Acer rubrum*	5		x	*fac*
3	*Picea rubens*	5		x	*fac*
4	*Quercus rubra*	5		x	*facu*
5					
		25	=	**Total Cover**	

	Herb Stratum: (Plot Size: 1m2)				
1	*Cornus canadensis*	5		x	*fac*
2					
3					
4					
5					
		5	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC: 5

Total # of Dominant Species across all strata: 9

% of Dominant Species that are OBL,FACW,FAC: 55.6

Prevalence Index Worksheet:

Total %Cover of:	Multiply by:	
OBL Species	x 1 =	0
FACW Species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
ULP Species	x 5 =	0
Column Totals: 0		0

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegeta ion
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 11 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

___	Surface Water (A1)	___	Water Stained Leaves (B9)
___	High Water Table (A2)	___	Aquatic Fauna (B13)
___	Satura ion (A3)	___	Marl Deposits (B15)
___	Watermarks	___	Hydrogen Sulfide Odor (C1)
___	Sediment Deposits (B2)	___	Oxidized Rhizospheres on Living Roots (C3)
___	Drift Deposits (B3)	___	Presence of Reduced Iron (C4)
___	Algal Mat of Crust (B4)	___	Recent Iron reduc ion in tilled Soils (C6)
___	Iron Deposits (B5)	___	Thin Muck Surface (C7)
___	Inunda ion Visible on Aerial Imagery (B7)	___	O her (Explain in Remarks)
___	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

___	Surface Soil Cracks (B6)	x	Stunted or Stressed Plants (D1)
___	Drainage Patterns (B10)	___	Geomorphic Position (D2)
___	Moss Trim Lines (B16)	___	Shallow Aquitard (D3)
___	Dry-Season Water Table (C2)	___	Microtopographic Relief (D4)
___	Crayfish Burrows (C8)	___	FAC-Neutral Test (D5)
___	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes ___	No x	Depth		
Satura ion Present?	Yes ___	No x	Depth		
Watertable Present?	Yes ___	No x	Depth	**Hydrology Present?**	**Yes** ___ **No** x

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 6	organic							
6	7.5YR 2.5/3							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___	Histic Epipedon (A2)	___	Stripped Matrix (S6)		
___	Black Histic (A3)	___	Dark Surfaces (S7)	___	Coast Prairie Redox (A16)
___	Hydrogen Sulfide (A4)	___	Polyvalue Below Surface (S8)	___	5cm Mucky Peat or Peat (S3)
___	Stratified Layers (A5)	___	Thin Dark Surface (S9)	___	Iron-Manganese Masses (F12)
___	Depleted Below Dark Surface (A11)	___	Loamy Gleyed Matrix (F2)	___	Piedmont Floodplain Soils (F19)
___	Thick Dark Surface (A12)	___	Depleted Matrix (F3)	___	Red Parent Material (F21)
___	Sandy Mucky Mineral (S1)	___	Redox Dark Surface (F6)	___	Very Shallow Dark Surface (F22)
___	5cm Mucky Peat or Peat (S3)	___	Depleted Dark Surface (F7)	___	Other (explain)
___	Sandy Gleyed Matrix (S4)	___	Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** | **Yes** ___ **No** x

Comments:

Project Site:	Irishtown		Date:	October 2 2021	Sample Point:	12	Page	1	WPT #:	1545
Client/owner	Fisher		Field Investigator(s):	Theo Popma						
County:	Westmorland		Coordinates:	2632590.429, 7471121.593						
PID	948547		Do normal environmental conditions exist on-site?			Yes	x	No		

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Clearing, roads

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes	x	No	
Hydric Soils	Yes	x	No	

Wetland Type: Forested wetland

Rational for Determination: Trees dominant

Wetland Determination

[x] **YES** [ ] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Fraxinus americana*	5			*fac*
2	*Betula populifolia*	5			*fac*
3	*Acer rubrum*	10		x	*fac*
4	*Abies balsamea*	10		x	*fac*
5					
6					
		30	=	**Total Cover**	

	Shrub Stratum: (Plot size: 5m2)	%Cover		Dominant Species	Indicator Status
1	*Fraxinus americana*	5			*fac*
2	*Betula populifolia*	5			*fac*
3	*Acer rubrum*	5			*fac*
4	*Abies balsamea*	10		x	*fac*
5	*Quercus rubra*	5			*facu*
		30	=	**Total Cover**	

	Herb Stratum: (Plot Size: 1m2)	%Cover		Dominant Species	Indicator Status
1	*Trientalis borealis*	5		x	*fac*
2	*Doellingeria umbellata*	5		x	*fac*
3	*Maianthemum canadense*	5		x	*fac*
4	*Carex intumescens*	5		x	*fac*
5					
		20	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC: 7

Total # of Dominant Species across all strata: 7

% of Dominant Species that are OBL,FACW,FAC: 100

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegeta ion
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 12 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)	x	Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes	No	x	Depth	
Satura ion Present?	Yes	No	x	Depth	
Watertable Present?	Yes	No	x	Depth	

Hydrology Present? Yes x No

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 5	organic							
5 to 20	10YR 5/2	70						
5 to 20	parent	30						
20	parent							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)	x	Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** Yes x No

Comments:

Project Site:	Irishtown		Date:	October 2 2021	Sample Point:	13	Page	1	WPT #: 1558
Client/owner	Fisher		Field Investigator(s):	Theo Popma					
County:	Westmorland		Coordinates:	2632758.058, 7470932.330					
PID 948547			Do normal environmental conditions exist on-site?		Yes	x	No		

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Deforestaion

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes	x	No	
Hydric Soils	Yes		No	x

Wetland Type: N/A

Rational for Determination: Upland characteris ics

Wetland Determination

[ ] **YES** [x] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Acer rubrum*	10		x	*fac*
2	*Betula populifolia*	10		x	*fac*
3					
4					
5					
6					
		20	=	**Total Cover**	
	Shrub Stratum: (Plot size: 5m2)				
1	*Acer rubrum*	5		x	*fac*
2	*Betula populifolia*	10		x	*fac*
3	*Amelanchier laevis*	5		x	*fac*
4	*Betula papyrifera*	5		x	*facu*
5					
		25	=	**Total Cover**	
	Herb Stratum: (Plot Size: 1m2)				
1	*Cornus canadensis*	15		x	*fac*
2	*Trientalis borealis*	5		x	*fac*
3					
4					
5					
		20	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC: 7

Total # of Dominant Species across all strata: 8

% of Dominant Species that are OBL,FACW,FAC: 87.5

Prevalence Index Worksheet:

Total %Cover of:	Multiply by:	
OBL Species	x 1 =	0
FACW Species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
ULP Species	x 5 =	0
Column Totals: 0		0

Hydrophytic Vegetation Indicators:

[ ] Rapid Test for Hydrolic Vegeta ion

[x] Dominance Test is >50%

[ ] Prevalence Index is≤3.0[1]

[ ] Morphological Adaptations[1](explain)

[ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 13 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes	No	x	Depth	
Satura ion Present?	Yes	No	x	Depth	
Watertable Present?	Yes	No	x	Depth	

Hydrology Present? Yes x No

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
	no deple ion							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)		Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** Yes No x

Comments: No depletion

Project Site:	Irishtown			Date:	October 2 2021		Sample Point:	14	Page	1	WPT #:	1559
Client/owner	Fisher			Field Investigator(s):	Theo Popma							
County:	Westmorland			Coordinates:	2632815.224, 7470901.107							
PID	948547			Do normal environmental conditions exist on-site?			Yes	x	No			

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [ ] No [x] Explain:

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes	x	No	
Hydric Soils	Yes	x	No	

Wetland Determination

[x] **YES** [ ] **NO**

Wetland Type: Forested wetland

Rational for Determination: Trees dominant

Vegetation

	Tree Stratum: (Plot size: 9m2)		%Cover		Dominant Species	Indicator Status
1	*Picea mariana*		15		x	*facw*
2	*Abies balsamea*		15		x	*fac*
3	*Betula papyrifera*		15		x	*facu*
4	*Pinus resinosa*		15		x	*facu*
5	*Acer rubrum*		15		x	*fac*
6						
			75	=	**Total Cover**	
	Shrub Stratum: (Plot size: 5m2)					
1	*Picea rubens*		15		x	*fac*
2	*Abies balsamea*		15		x	*fac*
3	*Nemopanthus mucronatus*		15		x	*fac*
4						
5						
			45	=	**Total Cover**	
	Herb Stratum: (Plot Size: 1m2)					
1	*Osmunda cinnamomea*		10		x	*fac*
2	*Cornus canadensis*		20		x	*fac*
3						
4						
5						
			30	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	8
Total # of Dominant Species across all strata:	10
% of Dominant Species that are OBL,FACW,FAC:	80

Prevalence Index Worksheet:

Total %Cover of:	Multiply by:	
OBL Species	x 1 =	0
FACW Species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
ULP Species	x 5 =	0
Column Totals: 0		0

Hydrophytic Vegetation Indicators:

[ ]	Rapid Test for Hydrolic Vegeta ion
[x]	Dominance Test is >50%
[ ]	Prevalence Index is≤3.0[1]
[ ]	Morphological Adaptations[1](explain)
[ ]	Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 14 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
x	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes		No x	Depth	
Satura ion Present?	Yes x		No	Depth	10
Watertable Present?	Yes		No x	Depth	

Hydrology Present? Yes x No

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 10	organic							
10 to 20	7.5YR 4/1							
20	7.5YR 4/1	70						
20	7.5YR 4/3	30						

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)	x	Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** Yes x No

Comments:

Project Site:	Irishtown		Date:	Oct. 2, 2021	Sample Point:	15	Page	1	WPT #:	1572
Client/owner	Figher		Field Investigator(s):	Theo Popma						
County:	Westmorland		Coordinates:	2633669.633, 7471356.044						
PID	948547		Do normal environmental conditions exist on-site?		Yes	x	No			

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Cut, skids, road

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophytic Vegetation (50/20 rule)	Yes	[x]	No	[ ]
We land Hydrology	Yes	[x]	No	[ ]
Hydric Soils	Yes	[x]	No	[ ]

Wetland Determination

[x] **YES** [ ] **NO**

Wetland Type: Foreste Wetland

Rational for Determination: Tree and Saplings dominant

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Acer rubrum*	10		x	*fac*
2	*Betula populifolia*	10		x	*fac*
3	*Populus tremuloides*	10		x	*fac*
4					
5					
6					
		30	=	**Total Cover**	
	Shrub Stratum: (Plot size: 5m2)				
1	*Acer rubrum*	5		x	*fac*
2	*Betula populifolia*	5		x	*fac*
3	*Populus tremuloides*	5		x	*fac*
4	*Alnus incana*	5		x	*facw*
5	*Spiraea alba*	5		x	*fac*
		25	=	**Total Cover**	
	Herb Stratum: (Plot Size: 1m2)				
1	*Rubus idaeus*	10		x	*fac*
2	*Rubus pubescens*	10		x	*fac*
3	*Dryopteris intermedia*	10		x	*fac*
4	*Cornus canadensis*	10		x	*fac*
5					
		40	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species hat are OBL,FACW,FAC:	12
Total # of Dominant Species across all strata:	12
% of Dominant Species hat are OBL,FACW,FAC:	100

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegetation
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3 0[1]
- [ ] Morphological Adapta ions[1](explain)
- [ ] Problema ic Hydrophy ic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problema ic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 15 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes	No	x	Depth	
Satura ion Present?	Yes	No	x	Depth	
Watertable Present?	Yes	No	x	Depth	

Hydrology Present? Yes x No

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
5cm	Organic							
5cm - 10YR	4/1							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)	x	Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** Yes x No

Comments:

Project Site:	Irishtown		Date:	October 2 2021	Sample Point:	16	Page	1	WPT #: 1573
Client/owner	Fisher		Field Investigator(s):	Theo Popma					
County:	Westmorland		Coordinates:	2633668.634, 7471341.791					
PID 948547			Do normal environmental conditions exist on-site?		Yes	x	No		

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Cutover, road

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No		
We land Hydrology	Yes	x	No		
Hydric Soils	Yes		No	x	

Wetland Type: N/A

Rational for Determination: Upland characteris ics

Wetland Determination

[ ] **YES** [x] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Acer rubrum*	5		x	*fac*
2	*Populus tremuloides*	5		x	*fac*
3					
4					
5					
6					
		10	=	**Total Cover**	
	Shrub Stratum: (Plot size: 5m2)				
1	*Betula papyrifera*	10		x	*facu*
2	*Acer rubrum*	10		x	*fac*
3	*Populus tremuloides*	10		x	*fac*
4	*Fraxinus americana*	10		x	*fac*
5	*Amelanchier laevis*	10		x	*fac*
		50	=	**Total Cover**	
	Herb Stratum: (Plot Size: 1m2)				
1	*Maianthemum canadense*	5		x	*fac*
2	*Dryopteris intermedia*	5		x	*fac*
3	*Carex interior*	5		x	*obl*
4					
5					
		15	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC: 9

Total # of Dominant Species across all strata: 10

% of Dominant Species that are OBL,FACW,FAC: 90

Prevalence Index Worksheet:

	Total %Cover of:	Multiply by:	
OBL Species		x 1 =	0
FACW Species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
ULP Species		x 5 =	0
Column Totals:	0		0

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegeta ion
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 16 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)	x	Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes	No	x	Depth	
Satura ion Present?	Yes	No	x	Depth	
Watertable Present?	Yes	No	x	Depth	

Hydrology Present? Yes x No

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
	no deple ion							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)		Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** Yes No x

Comments: No depletion

Project Site:	Irishtown		Date:	October 2 2021	Sample Point:	17	Page	1	WPT #: 1578
Client/owner	Fisher		Field Investigator(s):	Theo Popma					
County:	Westmorland		Coordinates:	2633617.503, 7471269.957					
PID 948547			Do normal environmental conditions exist on-site?		Yes	x	No		

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Cutover, road

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes		No	x
Hydric Soils	Yes	x	No	

Wetland Type: N/A

Rational for Determination: Upland characteris ics

Wetland Determination

[ ] **YES** [x] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Betula populifolia*	5		x	*fac*
2	*Populus tremuloides*	10		x	*fac*
3	*Salix bebbiana*	10		x	*fac*
4					
5					
6					
		25	=	**Total Cover**	
	Shrub Stratum: (Plot size: 5m2)				
1	*Betula populifolia*	10		x	*fac*
2	*Populus tremuloides*	10		x	*fac*
3	*Alnus incana*	15		x	*facw*
4	*Spiraea alba*	15		x	*fac*
5					
		50	=	**Total Cover**	
	Herb Stratum: (Plot Size: 1m2)				
1	*Rubus pubescens*	10		x	*fac*
2	*Fragaria virginiana*	10		x	*fac*
3	*Potentilla simplex*	10		x	*upl*
4	*Doellingeria umbellata*	10		x	*fac*
5					
		40	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC: 10

Total # of Dominant Species across all strata: 11

% of Dominant Species that are OBL,FACW,FAC: 90.9

Prevalence Index Worksheet:

Total %Cover of:	Multiply by:	
OBL Species	x 1 =	0
FACW Species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
ULP Species	x 5 =	0
Column Totals: 0		0

Hydrophytic Vegetation Indicators:

- [ ] Rapid Test for Hydrolic Vegeta ion
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 17 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

___	Surface Water (A1)	___	Water Stained Leaves (B9)
___	High Water Table (A2)	___	Aquatic Fauna (B13)
___	Satura ion (A3)	___	Marl Deposits (B15)
___	Watermarks	___	Hydrogen Sulfide Odor (C1)
___	Sediment Deposits (B2)	___	Oxidized Rhizospheres on Living Roots (C3)
___	Drift Deposits (B3)	___	Presence of Reduced Iron (C4)
___	Algal Mat of Crust (B4)	___	Recent Iron reduc ion in tilled Soils (C6)
___	Iron Deposits (B5)	___	Thin Muck Surface (C7)
___	Inunda ion Visible on Aerial Imagery (B7)	___	O her (Explain in Remarks)
___	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

___	Surface Soil Cracks (B6)	___	Stunted or Stressed Plants (D1)
___	Drainage Patterns (B10)	___	Geomorphic Position (D2)
___	Moss Trim Lines (B16)	___	Shallow Aquitard (D3)
___	Dry-Season Water Table (C2)	___	Microtopographic Relief (D4)
___	Crayfish Burrows (C8)	___	FAC-Neutral Test (D5)
___	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0
B	UPL, FACU	0
A>B:=hydric		

Field Observations:

Surface Water Present?	Yes ___	No x	Depth ___		
Satura ion Present?	Yes ___	No x	Depth ___		
Watertable Present?	Yes ___	No x	Depth ___	**Hydrology Present?**	**Yes** ___ **No** x

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 5	organic							
5	7.5YR 4/2							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___	Histic Epipedon (A2)	___	Stripped Matrix (S6)		
___	Black Histic (A3)	___	Dark Surfaces (S7)	___	Coast Prairie Redox (A16)
___	Hydrogen Sulfide (A4)	___	Polyvalue Below Surface (S8)	___	5cm Mucky Peat or Peat (S3)
___	Stratified Layers (A5)	___	Thin Dark Surface (S9)	___	Iron-Manganese Masses (F12)
___	Depleted Below Dark Surface (A11)	___	Loamy Gleyed Matrix (F2)	___	Piedmont Floodplain Soils (F19)
___	Thick Dark Surface (A12)	x	Depleted Matrix (F3)	___	Red Parent Material (F21)
___	Sandy Mucky Mineral (S1)	___	Redox Dark Surface (F6)	___	Very Shallow Dark Surface (F22)
___	5cm Mucky Peat or Peat (S3)	___	Depleted Dark Surface (F7)	___	Other (explain)
___	Sandy Gleyed Matrix (S4)	___	Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** | **Yes** x **No** ___

Comments:

Project Site:	Irishtown			Date:	October 2 2021		Sample Point:	18	Page	1	WPT #:	1579
Client/owner	Fisher			Field Investigator(s):	Theo Popma							
County:	Westmorland			Coordinates:	2633630.562, 7471304.377							
PID	948547			Do normal environmental conditions exist on-site?			Yes	x	No			

If no, explain: Normal, but wet compared to last year, which was very hot and dry

Atypical Situation? Yes [x] No [ ] Explain: Cutover, road

Is his a potential **Problem Area?** Yes [ ] No [x] Explain:

Wetland Determination

(Check One Only For Each Criteria)

Dominant Hydrophy ic Vegetation (50/20 rule)	Yes	x	No	
We land Hydrology	Yes	x	No	
Hydric Soils	Yes	x	No	

Wetland Type: Forested wetland

Rational for Determination: Tree cover

Wetland Determination

[x] **YES** [ ] **NO**

Vegetation

	Tree Stratum: (Plot size: 9m2)	%Cover		Dominant Species	Indicator Status
1	*Acer rubrum*	10		x	*fac*
2	*Populus tremuloides*	10		x	*fac*
3					
4					
5					
6					
		20	=	**Total Cover**	
	Shrub Stratum: (Plot size: 5m2)				
1	*Acer rubrum*	10		x	*fac*
2					
3					
4					
5					
		10	=	**Total Cover**	
	Herb Stratum: (Plot Size: 1m2)				
1	*Glyceria canadensis*	30		x	*obl*
2	*Doellingeria umbellata*	10			*fac*
3	*Rubus pubescens*	10			*fac*
4	*Dryopteris intermedia*	10			*fac*
5					
		60	=	**Total Cover**	

Comments

Dominance Test Worksheet:

# of Dominant Species that are OBL,FACW,FAC:	4
Total # of Dominant Species across all strata:	4
% of Dominant Species that are OBL,FACW,FAC:	100

Prevalence Index Worksheet:

Total %Cover of:	Multiply by:	
OBL Species	x 1 =	0
FACW Species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
ULP Species	x 5 =	0
Column Totals: 0		0

Hydrophytic Vegetation Indicators:

- [x] Rapid Test for Hydrolic Vegeta ion
- [x] Dominance Test is >50%
- [ ] Prevalence Index is≤3.0[1]
- [ ] Morphological Adaptations[1](explain)
- [ ] Problematic Hydrophytic Vegetation[1](explain)

[1]Indicators of hydric soil and weland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** x **No**

Hydrology Sample Point: 18 Page 2

Primary Hydrological Indicators: (minimum of one is required; check all that apply)

	Surface Water (A1)		Water Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
	Satura ion (A3)		Marl Deposits (B15)
	Watermarks		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat of Crust (B4)		Recent Iron reduc ion in tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inunda ion Visible on Aerial Imagery (B7)		O her (Explain in Remarks)
x	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators: (minimum of two required)

	Surface Soil Cracks (B6)	x	Stunted or Stressed Plants (D1)
	Drainage Patterns (B10)		Geomorphic Position (D2)
	Moss Trim Lines (B16)		Shallow Aquitard (D3)
	Dry-Season Water Table (C2)		Microtopographic Relief (D4)
	Crayfish Burrows (C8)		FAC-Neutral Test (D5)
	Satura ion Visible on Aerial Imagery (C9)		

A	OBL, FACW	0	
B	UPL, FACU	0	
A>B:=hydric			

Field Observations:

Surface Water Present?	Yes	No	x	Depth	
Satura ion Present?	Yes	No	x	Depth	
Watertable Present?	Yes	No	x	Depth	

Hydrology Present? Yes x No

Comments:

Soil Profile

Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators)

Depth(cm)	Matrix		Redox Features				
	Color(moist)	%	Color(moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 to 4	organic							
4 to 29	7.5YR 4/2							
29	mottled with 5/2, 5/4							

[1]Type: C=Concentration, D=Deple ion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Loca ion: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

	Histic Epipedon (A2)		Stripped Matrix (S6)		
	Black Histic (A3)		Dark Surfaces (S7)		Coast Prairie Redox (A16)
	Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		5cm Mucky Peat or Peat (S3)
	Stratified Layers (A5)		Thin Dark Surface (S9)		Iron-Manganese Masses (F12)
	Depleted Below Dark Surface (A11)		Loamy Gleyed Matrix (F2)		Piedmont Floodplain Soils (F19)
	Thick Dark Surface (A12)	x	Depleted Matrix (F3)		Red Parent Material (F21)
	Sandy Mucky Mineral (S1)		Redox Dark Surface (F6)		Very Shallow Dark Surface (F22)
	5cm Mucky Peat or Peat (S3)		Depleted Dark Surface (F7)		Other (explain)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)		

Restrictive Layer Type (if observe | Depth: | **Hydric Soil Present?** Yes x No

Comments:

APPENDIX D

BACKGROUND INFORMATION

APPENDIX D: BACKGROUND INFORMATION

Legislation

These identified wetlands are subject to the *Watercourse and Wetland Alteration Regulation* (REG # 90-80), of the New Brunswick *Clean Water Act.* Any proposed alteration within these areas or within the 30 meter regulated upland buffer requires permitting through the Department of Environment, Watercourse and Wetlands Alteration Program. These areas may also be subject to *Environmental Impact Assessment* (REG 87-83) of the New Brunswick *Clean Environment Act* and other *Acts* and Regulations. It is the responsibility of the proponent to ensure that all regulatory requirements are met prior to development within these areas.

Methodology

Surveys were conducted according to the guidelines established by NBDELG based on the US Army Corps of Engineer Wetland Delineation Manual (1987), Field Indicators of Hydric Soils in the United States and Lichvar, 2005. The Flora of NB (Hinds, 2000) was consulted for plant identification.

Datapoints were analyzed for soil, hydrology and vegetation characteristics at several different locations (Figure 3). Color of soil strata are described in terms of texture, ‘value’ and ‘chroma’ according to a Munsell Soil Color Chart. The wetland delineation line was then completed by walking with a handheld Garmin 64ST GPS unit.

Datapoint locations and boundary-flag positions are provided as an attachment to this digital document as a Google Earth File. Coordinates are in UTM NAD83.

Wetland habitat was identified by establishing the presence of dominating hydric vegetation, of hydric soils and of hydrological markers such as surface water, soil saturation and channeling. The wetland edge was identified with paired Data Points (DPs) (wetland and upland) which straddled the boundary. Data sheets are included in Appendix C.

Sources:

The Canadian Wetland Classification System, 2nd ed. 1997. National Wetlands Working Group. Wetlands Research Center, University of Waterloo, ONT.
Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.
Field Indicators of Hydric Soils in the United States. 2006.
Hinds, H. 2000. The Flora of New Brunswick.
Lichvar, R., 2005. Wetland Identification, Delineation and Classification. Humbolt Field Research Institute, Steuben, ME, USA.
U.S. Army Corps of Engineers. 200X. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-0X-XX. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
US Army Corps of Engineer Wetland Delineation Manual. 1987.
US Department of Fish and Wildlife. 1988. National List of Plant Species that occur in Wetlands
Regional Supplement to the Corps of Engineers Wetland Delineation Manual:Atlantic and Gulf Coastal Plain Region. 2010

DATA REPORT 7074: Irishtown, NB

Prepared 4 October 2021
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
IrishtownNB_7074ob xls	Rare or legally-protected Flora and Fauna in your study area
IrishtownNB_7074ob100km xls	A list of Rare and legally protected Flora and Fauna within 100 km of your study area

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

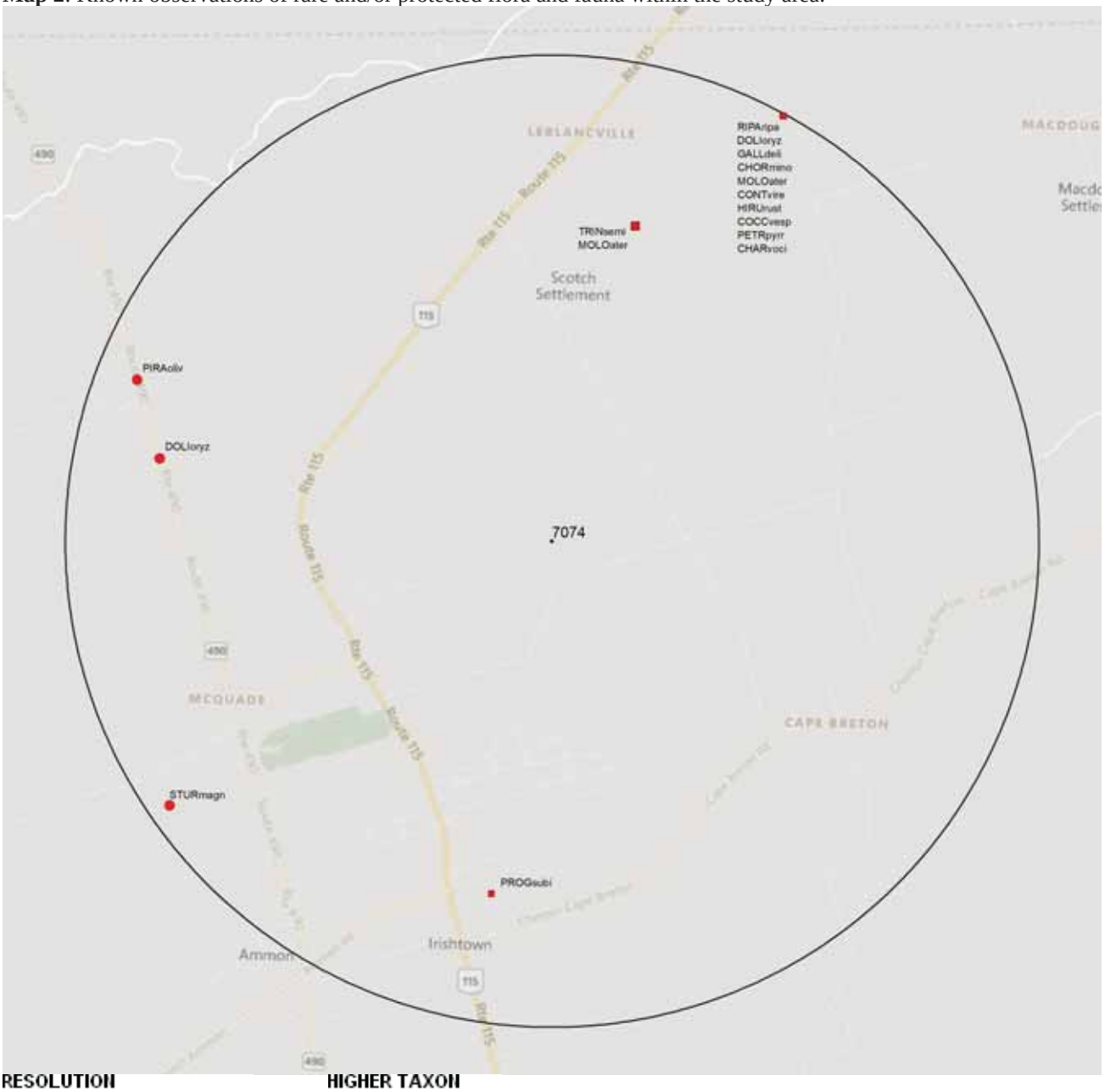
2.1 FLORA

The study area contains no records of vascular, no records of nonvascular flora (Map 2 and attached: *ob.xls).

2.2 FAUNA

The study area contains 28 records of 14 vertebrate, no records of 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.

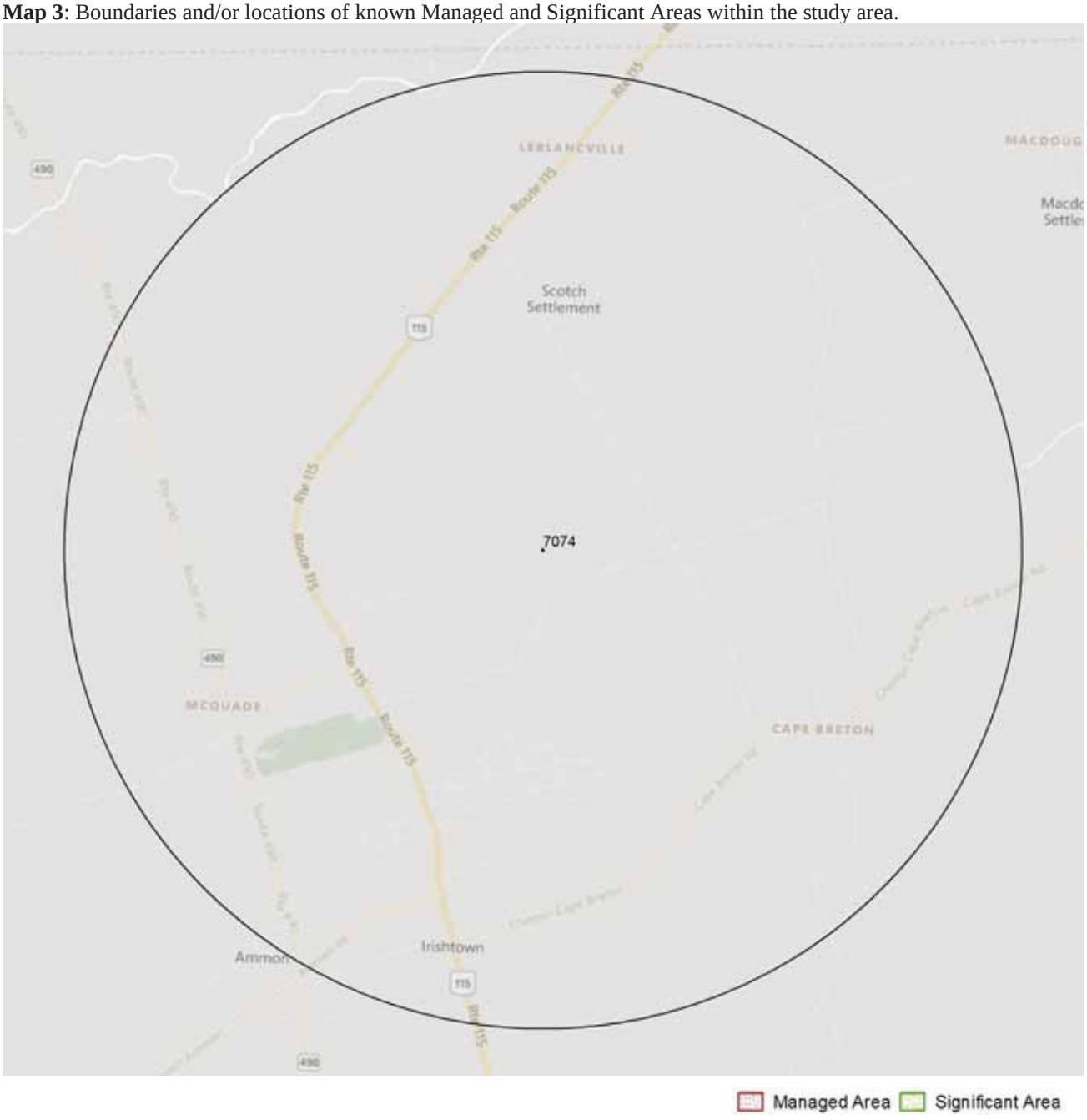


3.0 SPECIAL AREAS

3.1 MANAGED AREAS
The GIS scan identified no managed areas in the vicinity of the study area (Map 3).

3.2 SIGNIFICANT AREAS
The GIS scan identified no biologically significant sites in the vicinity of the study area (Map 3).

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	# recs	Distance (km)

4.2 FAUNA

	Scientific *Name*	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
A	*Sturnella magna*	Eastern Meadowlark	Threatened	Threatened	Threatened	S1B,S1M	1	4.8 ± 0.0
A	*Riparia riparia*	Bank Swallow	Threatened	Threatened		S2S3B,S2S3M	1	5.0 ± 7.0
A	*Dolichonyx oryzivorus*	Bobolink	Threatened	Threatened	Threatened	S3B,S3M	3	4.1 ± 0.0
A	*Hirundo rustica*	Barn Swallow	Special Concern	Threatened	Threatened	S2B,S2M	3	5.0 ± 7.0
A	*Coccothraustes vespertinus*	Evening Grosbeak	Special Concern	Special Concern		S3B,S3S4N,SUM	1	5.0 ± 7.0
A	*Chordeiles minor*	Common Nighthawk	Special Concern	Threatened	Threatened	S3B,S4M	2	5.0 ± 7.0
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern	Special Concern	Special Concern	S4B,S4M	1	5.0 ± 7.0
A	*Progne subis*	Purple Mar in				S1B,S1M	2	3.7 ± 7.0
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B,S2S3M	3	5.0 ± 7.0
A	*Charadrius vociferus*	Killdeer				S3B,S3M	3	5.0 ± 7.0
A	*Tringa semipalmata*	Willet				S3B,S3M	1	3.3 ± 19.0
A	*Piranga olivacea*	Scarlet Tanager				S3B,S3M	2	4.6 ± 0.0
A	*Molothrus ater*	Brown-headed Cowbird				S3B,S3M	3	3.3 ± 19.0
A	*Gallinago delicata*	Wilson's Snipe				S3S4B,S5M	2	5.0 ± 7.0

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 Tur le			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
14	Lepage, D. 2014. Maritime Breeding Bird Atlas Database. Bird Studies Canada, Sackville NB, 407,838 recs.
12	Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.
2	eBird. 2014. eBird Basic Dataset. Version: EBD_relNov-2014. Ithaca, New York. Nov 2014. Cornell Lab of Ornithology, 25036 recs.

5.0 RARE SPECIES WITHIN 100 KM

A 100 km buffer around the study area contains 57309 records of 142 vertebrate and 1372 records of 81 invertebrate fauna; 9260 records of 313 vascular, 2070 records of 192 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	# recs	Distance (km)	Prov
A	*Myotis lucifugus*	Little Brown Myotis	Endangered	Endangered	Endangered	S1	18	34.0 ± 1.0	NB
A	*Myotis septentrionalis*	Northern Long-eared Myotis	Endangered	Endangered	Endangered	S1	12	34.0 ± 1.0	NB
A	*Perimyotis subflavus*	Eastern Pipistrelle	Endangered	Endangered	Endangered	S1	17	29.8 ± 1.0	NB
A	*Charadrius melodus melodus*	Piping Plover melodus ssp	Endangered	Endangered	Endangered	S1B,S1M	2058	17.9 ± 0.0	NB
A	*Dermochelys coriacea (Atlantic pop)*	Leatherback Sea Turtle - Atlantic pop.	Endangered	Endangered	Endangered	S1S2N	5	47.4 ± 1.0	NB
A	*Salmo salar pop. 1*	Atlantic Salmon - Inner Bay of Fundy pop.	Endangered	Endangered	Endangered	S2	641	11.9 ± 1.0	NB
A	*Salmo salar pop. 7*	Atlantic Salmon - Outer Bay of Fundy pop.	Endangered		Endangered	SNR	400	27.5 ± 0.0	NB
A	*Rangifer tarandus pop. 2*	Woodland Caribou (Atlan ic-	Endangered	Endangered	Extirpated	SX	2	22.2 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
		Gasp ├⌐sie pop.)							
A	*Lanius ludovicianus*	Loggerhead Shrike	Endangered	Endangered		SXB,SXM	1	10.6 ± 0.0	NB
A	*Sturnella magna*	Eastern Meadowlark	Threatened	Threatened	Threatened	S1B,S1M	46	4.8 ± 0.0	NB
A	*Ixobrychus exilis*	Least Bittern	Threatened	Threatened	Threatened	S1S2B,S1S2M	19	17.1 ± 0.0	NB
A	*Hylocichla mustelina*	Wood Thrush	Threatened	Threatened	Threatened	S1S2B,S1S2M	83	8.9 ± 2.0	NB
A	*Asio flammeus*	Short-eared Owl	Threatened	Special Concern	Special Concern	S2B,S2M	49	16.8 ± 64.0	NB
A	*Antrostomus vociferus*	Eastern Whip-Poor-Will	Threatened	Threatened	Threatened	S2B,S2M	28	13.8 ± 7.0	NB
A	*Catharus bicknelli*	Bicknell's Thrush	Threatened	Threatened	Threatened	S2B,S2M	12	7.8 ± 2.0	NB
A	*Oceanodroma leucorhoa*	Leach's Storm-Petrel	Threatened			S2B,SUM	1	30.8 ± 0.0	NB
A	*Glyptemys insculpta*	Wood Turtle	Threatened	Threatened	Threatened	S2S3	714	8.2 ± 0.0	NB
A	*Chaetura pelagica*	Chimney Swift	Threatened	Threatened	Threatened	S2S3B,S2M	202	15.0 ± 0.0	NB
A	*Riparia riparia*	Bank Swallow	Threatened	Threatened		S2S3B,S2S3M	1716	5.0 ± 7.0	NB
A	*Acipenser oxyrinchus*	Atlantic Sturgeon	Threatened		Threatened	S3	1	28.8 ± 1.0	NB
A	*Dolichonyx oryzivorus*	Bobolink	Threatened	Threatened	Threatened	S3B,S3M	2129	4.1 ± 0.0	NB
A	*Limosa haemastica*	Hudsonian Godwit	Threatened			S3S4M	438	22.9 ± 0.0	NB
A	*Anguilla rostrata*	American Eel	Threatened		Threatened	S4	7009	11.9 ± 1.0	NB
A	*Tringa flavipes*	Lesser Yellowlegs	Threatened			S4M	1720	16.2 ± 0.0	NB
A	*Coturnicops noveboracensis*	Yellow Rail	Special Concern	Special Concern	Special Concern	S1?B,SUM	5	46.1 ± 0.0	NB
A	*Histrionicus histrionicus pop. 1*	Harlequin Duck - Eastern pop.	Special Concern	Special Concern	Endangered	S1B,S1S2N,S2M	5	27.0 ± 0.0	NB
A	*Hirundo rustica*	Barn Swallow	Special Concern	Threatened	Threatened	S2B,S2M	1590	5.0 ± 7.0	NB
A	*Bucephala islandica (Eastern pop)*	Barrow's Goldeneye - Eastern pop.	Special Concern	Special Concern	Special Concern	S2M,S2N	112	13.7 ± 5.0	NB
A	*Salmo salar pop. 12*	Atlantic Salmon - Gaspe - Southern Gulf of St Lawrence pop.	Special Concern		Special Concern	S2S3	13	17.5 ± 50.0	NB
A	*Balaenoptera physalus*	Fin Whale	Special Concern	Special Concern		S2S3	1	67.6 ± 1.0	NB
A	*Chelydra serpentina*	Snapping Turtle	Special Concern	Special Concern	Special Concern	S3	7	22.6 ± 1.0	NB
A	*Euphagus carolinus*	Rusty Blackbird	Special Concern	Special Concern	Special Concern	S3B,S3M	127	10.6 ± 0.0	NB
A	*Contopus cooperi*	Olive-sided Flycatcher	Special Concern	Threatened	Threatened	S3B,S3M	565	6.1 ± 7.0	NB
A	*Cardellina canadensis*	Canada Warbler	Special Concern	Threatened	Threatened	S3B,S3M	681	6.1 ± 7.0	NB
A	*Coccothraustes vespertinus*	Evening Grosbeak	Special Concern	Special Concern		S3B,S3S4N,SUM	343	5.0 ± 7.0	NB
A	*Chordeiles minor*	Common Nighthawk	Special Concern	Threatened	Threatened	S3B,S4M	245	5.0 ± 7.0	NB
A	*Phalaropus lobatus*	Red-necked Phalarope	Special Concern	Special Concern		S3M	22	25.8 ± 0.0	NB
A	*Phocoena phocoena*	Harbour Porpoise	Special Concern		Spec.Concern	S4	4	47.5 ± 0.0	NB
A	*Chrysemys picta picta*	Eastern Painted Tur le	Special Concern			S4	25	16.5 ± 0.0	NB
A	*Contopus virens*	Eastern Wood-Pewee	Special Concern	Special Concern	Special Concern	S4B,S4M	747	5.0 ± 7.0	NB
A	*Podiceps auritus*	Horned Grebe	Special Concern	Special Concern	Special Concern	S4N,S4M	53	19.5 ± 1.0	NB
A	*Hemidactylium scutatum*	Four-toed Salamander	Not At Risk			S1?	4	76.5 ± 0.0	NB
A	*Falco peregrinus pop. 1*	Peregrine Falcon - anatum/tundrius	Not At Risk	Special Concern	Endangered	S1B,S3M	257	13.9 ± 5.0	NB
A	*Bubo scandiacus*	Snowy Owl	Not At Risk			S1N,S2S3M	51	10.8 ± 0.0	NB
A	*Accipiter cooperii*	Cooper's Hawk	Not At Risk			S1S2B,S1S2M	6	17.0 ± 0.0	NB
A	*Fulica americana*	American Coot	Not At Risk			S1S2B,S1S2M	65	16.5 ± 0.0	NB
A	*Aegolius funereus*	Boreal Owl	Not At Risk			S1S2B,SUM	11	45.6 ± 0.0	NB
A	*Sorex dispar*	Long-tailed Shrew	Not At Risk			S2	3	47.3 ± 1.0	NB
A	*Buteo lineatus*	Red-shouldered Hawk	Not At Risk			S2B,S2M	24	10.6 ± 0.0	NB
A	*Chlidonias niger*	Black Tern	Not At Risk			S2B,S2M	187	17.4 ± 7.0	NB
A	*Lynx canadensis*	Canadian Lynx	Not At Risk		Endangered	S3	23	26.6 ± 10.0	NB
A	*Desmognathus fuscus - Quebec / New Brunswick population*	Northern Dusky Salamander - Quebec / New Brunswick population	Not At Risk			S3	1	72.9 ± 0.0	NB
A	*Sterna hirundo*	Common Tern	Not At Risk			S3B,SUM	718	16.1 ± 1.0	NB
A	*Podiceps grisegena*	Red-necked Grebe	Not At Risk			S3M,S2N	51	17.4 ± 3.0	NB
A	*Lagenorhynchus acutus*	Atlantic White-sided Dolphin	Not At Risk			S3S4	2	45.4 ± 1.0	NB
A	*Haliaeetus leucocephalus*	Bald Eagle	Not At Risk		Endangered	S4	1330	3 3 ± 10.0	NB
A	*Canis lupus*	Gray Wolf	Not At Risk		Extirpated	SX	2	59.2 ± 100.0	NB
A	*Puma concolor pop. 1*	Eastern Cougar	Data Deficient		Endangered	SNA	118	5.2 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
A	*Calidris canutus rufa*	Red Knot rufa subspecies	E,SC	Endangered	Endangered	S2M	726	22.9 ± 0.0	NB
A	*Morone saxatilis*	Striped Bass	E,SC			S3	8642	28.8 ± 0.0	NB
A	*Salmo salar*	Atlantic Salmon	E,T,SC			S2S3	1	94.4 ± 0.0	NB
A	*Thryothorus ludovicianus*	Carolina Wren				S1	10	17.0 ± 0.0	NB
A	*Salvelinus alpinus*	Arctic Char				S1	3	79.4 ± 1.0	NB
A	*Vireo flavifrons*	Yellow-throated Vireo				S1?B,S1?M	4	16.0 ± 0.0	NB
A	*Tringa melanoleuca*	Greater Yellowlegs				S1?B,S5M	2520	15.1 ± 0.0	NB
A	*Aythya americana*	Redhead				S1B,S1M	10	28.0 ± 0.0	NB
A	*Gallinula galeata*	Common Gallinule				S1B,S1M	53	18.9 ± 0.0	NB
A	*Antigone canadensis*	Sandhill Crane				S1B,S1M	26	18.7 ± 0.0	NB
A	*Bartramia longicauda*	Upland Sandpiper				S1B,S1M	56	14.2 ± 0.0	NB
A	*Phalaropus tricolor*	Wilson's Phalarope				S1B,S1M	33	25.8 ± 0.0	NB
A	*Leucophaeus atricilla*	Laughing Gull				S1B,S1M	9	15.8 ± 1.0	NB
A	*Progne subis*	Purple Mar in				S1B,S1M	117	3.7 ± 7.0	NB
A	*Oxyura jamaicensis*	Ruddy Duck				S1B,S2S3M	110	17.1 ± 0.0	NB
A	*Aythya affinis*	Lesser Scaup				S1B,S4M	174	17.1 ± 30.0	NB
A	*Aythya marila*	Greater Scaup				S1B,S4M,S2N	12	23.0 ± 1.0	NB
A	*Eremophila alpestris*	Horned Lark				S1B,S4N,S5M	72	10.6 ± 0.0	NB
A	*Sterna paradisaea*	Arctic Tern				S1B,SUM	24	13.1 ± 7.0	NB
A	*Fratercula arctica*	Atlantic Puffin				S1B,SUN,SUM	3	71.1 ± 11.0	NB
A	*Chroicocephalus ridibundus*	Black-headed Gull				S1N,S2M	14	15.3 ± 0.0	NB
A	*Branta bernicla*	Brant				S1N,S2S3M	36	19.5 ± 1.0	NB
A	*Butorides virescens*	Green Heron				S1S2B,S1S2M	8	17.4 ± 7.0	NB
A	*Nycticorax nycticorax*	Black-crowned Night-heron				S1S2B,S1S2M	5	10.6 ± 0.0	NB
A	*Empidonax traillii*	Willow Flycatcher				S1S2B,S1S2M	82	8.8 ± 7.0	NB
A	*Stelgidopteryx serripennis*	Northern Rough-winged Swallow				S1S2B,S1S2M	6	18.3 ± 0.0	NB
A	*Troglodytes aedon*	House Wren				S1S2B,S1S2M	12	13.1 ± 7.0	NB
A	*Rissa tridactyla*	Black-legged Kittiwake				S1S2B,S4N,S5M	3	24.2 ± 0.0	NB
A	*Calidris bairdii*	Baird's Sandpiper				S1S2M	51	24.5 ± 0.0	NB
A	*Cistothorus palustris*	Marsh Wren				S2B,S2M	82	17.4 ± 7.0	NB
A	*Mimus polyglottos*	Northern Mockingbird				S2B,S2M	138	6.1 ± 7.0	NB
A	*Toxostoma rufum*	Brown Thrasher				S2B,S2M	31	27.3 ± 7.0	NB
A	*Pooecetes gramineus*	Vesper Sparrow				S2B,S2M	122	6.1 ± 7.0	NB
A	*Mareca strepera*	Gadwall				S2B,S3M	381	13.9 ± 5.0	NB
A	*Pinicola enucleator*	Pine Grosbeak				S2B,S4S5N,S4S5M	35	13.1 ± 7.0	NB
A	*Tringa solitaria*	Solitary Sandpiper				S2B,S5M	185	10.6 ± 0.0	NB
A	*Anser caerulescens*	Snow Goose				S2M	24	19.0 ± 5.0	NB
A	*Phalacrocorax carbo*	Great Cormorant				S2N,S2M	49	15.2 ± 2.0	NB
A	*Somateria spectabilis*	King Eider				S2N,S2M	4	20.2 ± 0.0	NB
A	*Larus hyperboreus*	Glaucous Gull				S2N,S2M	94	10.6 ± 0.0	NB
A	*Asio otus*	Long-eared Owl				S2S3	29	15.4 ± 0.0	NB
A	*Picoides dorsalis*	American Three-toed Woodpecker				S2S3	16	31.7 ± 7.0	NB
A	*Spatula clypeata*	Northern Shoveler				S2S3B,S2S3M	462	14.9 ± 0.0	NB
A	*Myiarchus crinitus*	Great Crested Flycatcher				S2S3B,S2S3M	67	9.5 ± 7.0	NB
A	*Petrochelidon pyrrhonota*	Cliff Swallow				S2S3B,S2S3M	585	5.0 ± 7.0	NB
A	*Pluvialis dominica*	American Golden-Plover				S2S3M	219	19.5 ± 1.0	NB
A	*Calcarius lapponicus*	Lapland Longspur				S2S3N,SUM	43	10.6 ± 0.0	NB
A	*Cepphus grylle*	Black Guillemot				S3	40	54.3 ± 7.0	PE
A	*Loxia curvirostra*	Red Crossbill				S3	160	13.6 ± 7.0	NB
A	*Spinus pinus*	Pine Siskin				S3	423	8.8 ± 7.0	NB
A	*Salvelinus namaycush*	Lake Trout				S3	1	40.0 ± 0.0	NB
A	*Sorex maritimensis*	Maritime Shrew				S3	144	48.3 ± 0.0	NB
A	*Eptesicus fuscus*	Big Brown Bat				S3	11	12.3 ± 10.0	NB
A	*Cathartes aura*	Turkey Vulture				S3B,S3M	171	13.9 ± 0.0	NB
A	*Rallus limicola*	Virginia Rail				S3B,S3M	341	15.8 ± 7.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
A	*Charadrius vociferus*	Killdeer				S3B,S3M	1035	5.0 ± 7.0	NB
A	*Tringa semipalmata*	Willet				S3B,S3M	1128	3 3 ± 19.0	NB
A	*Coccyzus erythropthalmus*	Black-billed Cuckoo				S3B,S3M	174	8.8 ± 7.0	NB
A	*Vireo gilvus*	Warbling Vireo				S3B,S3M	89	9.5 ± 7.0	NB
A	*Piranga olivacea*	Scarlet Tanager				S3B,S3M	56	4.6 ± 0.0	NB
A	*Passerina cyanea*	Indigo Bunting				S3B,S3M	58	9.5 ± 7.0	NB
A	*Molothrus ater*	Brown-headed Cowbird				S3B,S3M	310	3 3 ± 19.0	NB
A	*Icterus galbula*	Baltimore Oriole				S3B,S3M	122	6.1 ± 7.0	NB
A	*Somateria mollissima*	Common Eider				S3B,S4M,S3N	204	13.3 ± 0.0	NB
A	*Setophaga tigrina*	Cape May Warbler				S3B,S4S5M	338	14.6 ± 7.0	NB
A	*Anas acuta*	Northern Pintail				S3B,S5M	167	10.6 ± 0.0	NB
A	*Mergus serrator*	Red-breasted Merganser				S3B,S5M,S4S5N	332	13.1 ± 7.0	NB
A	*Arenaria interpres*	Ruddy Turnstone				S3M	1052	16.2 ± 0.0	NB
A	*Phalaropus fulicarius*	Red Phalarope				S3M	5	40.1 ± 0.0	NB
A	*Melanitta americana*	Black Scoter				S3M,S1S2N	277	14.2 ± 0.0	NB
A	*Bucephala albeola*	Bufflehead				S3M,S2N	120	13.7 ± 5.0	NB
A	*Calidris maritima*	Purple Sandpiper				S3M,S3N	102	20.8 ± 0.0	NB
A	*Uria lomvia*	Thick-billed Murre				S3N,S3M	1	85.3 ± 0.0	NS
A	*Synaptomys cooperi*	Southern Bog Lemming				S3S4	89	48.3 ± 0.0	NB
A	*Tyrannus tyrannus*	Eastern Kingbird				S3S4B,S3S4M	606	6.1 ± 7.0	NB
A	*Actitis macularius*	Spotted Sandpiper				S3S4B,S5M	982	6.1 ± 7.0	NB
A	*Gallinago delicata*	Wilson's Snipe				S3S4B,S5M	1154	5.0 ± 7.0	NB
A	*Larus delawarensis*	Ring-billed Gull				S3S4B,S5M	461	11.9 ± 0.0	NB
A	*Setophaga striata*	Blackpoll Warbler				S3S4B,S5M	66	23.1 ± 7.0	NB
A	*Pluvialis squatarola*	Black-bellied Plover				S3S4M	2068	17.7 ± 0.0	NB
A	*Calidris pusilla*	Semipalmated Sandpiper				S3S4M	2666	15.4 ± 0.0	NB
A	*Calidris melanotos*	Pectoral Sandpiper				S3S4M	474	15.0 ± 1.0	NB
A	*Calidris alba*	Sanderling				S3S4M,S1N	1577	19.5 ± 1.0	NB
A	*Morus bassanus*	Northern Gannet				SHB,S5M	198	19.5 ± 1.0	NB
I	*Bombus (Psithyrus) bohemicus*	Gypsy Cuckoo Bumble Bee	Endangered	Endangered		S1	5	18.0 ± 5.0	NB
I	*Gomphus ventricosus*	Skillet Clubtail	Endangered	Endangered	Endangered	S1S2	2	61.5 ± 0.0	NB
I	*Danaus plexippus*	Monarch	Endangered	Special Concern	Special Concern	S3B,S3M	226	11.9 ± 0.0	NB
I	*Cicindela marginipennis*	Cobblestone Tiger Beetle	Special Concern	Endangered	Endangered	S1	65	96.2 ± 0.0	NB
I	*Ophiogomphus howei*	Pygmy Snaketail	Special Concern	Special Concern	Special Concern	S2	27	82.4 ± 0.0	NB
I	*Alasmidonta varicosa*	Brook Floater	Special Concern	Special Concern	Special Concern	S2	34	13.6 ± 0.0	NB
I	*Lampsilis cariosa*	Yellow Lampmussel	Special Concern	Special Concern	Special Concern	S2	23	72.6 ± 0.0	NB
I	*Bombus terricola*	Yellow-banded Bumblebee	Special Concern	Special Concern		S3?	156	22.1 ± 0.0	NB
I	*Coccinella transversoguttata richardsoni*	Transverse Lady Beetle	Special Concern			SH	31	13.0 ± 0.0	NB
I	*Appalachina sayana*	Spike-lip Crater	Not At Risk			S3?	1	85.3 ± 1.0	NB
I	*Erora laeta*	Early Hairstreak				S1	1	8.3 ± 1.0	NB
I	*Leucorrhinia patricia*	Canada Whiteface				S1	10	65.2 ± 1.0	NB
I	*Arigomphus furcifer*	Lilypad Clubtail				S1	1	97.8 ± 0.0	NB
I	*Plebejus saepiolus*	Greenish Blue				S1S2	2	37.7 ± 7.0	NB
I	*Cicindela ancocisconensis*	Appalachian Tiger Beetle				S2	2	74.0 ± 0.0	NB
I	*Satyrium calanus*	Banded Hairstreak				S2	1	98.1 ± 7.0	NB
I	*Strymon melinus*	Grey Hairstreak				S2	2	14.6 ± 2.0	NB
I	*Somatochlora brevicincta*	Quebec Emerald				S2	2	14.9 ± 0.0	NB
I	*Somatochlora tenebrosa*	Clamp-Tipped Emerald				S2	8	15.0 ± 1.0	NB
I	*Ladona exusta*	White Corporal				S2	1	52.2 ± 0.0	NB
I	*Coenagrion interrogatum*	Subarc ic Bluet				S2	3	73.6 ± 1.0	NB
I	*Ischnura posita*	Fragile Forktail				S2	5	16.2 ± 0.0	NB
I	*Chrysops delicatulus*	a Horse Fly				S2S3	1	79.9 ± 1.0	NB
I	*Callophrys henrici*	Henry's Elfin				S2S3	13	6.5 ± 0.0	NB
I	*Psyrassa unicolor*	a Longhorned Beetle				S3	1	22.1 ± 0.0	NB
I	*Elaphrus americanus*	a Ground Beetle				S3	1	57.8 ± 0.0	NB
I	*Agonum crenistriatum*	a Ground Beetle				S3	1	13.8 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
I	*Agonum consimile*	a Ground Beetle				S3	1	13.8 ± 1.0	NB
I	*Lachnocrepis parallela*	a Ground Beetle				S3	1	55.4 ± 0.0	NB
I	*Dyschirius setosus*	a Ground Beetle				S3	3	55.4 ± 0.0	NB
I	*Harpalus fulvilabris*	a Ground Beetle				S3	1	57.3 ± 0.0	NB
I	*Olisthopus parmatus*	a Ground Beetle				S3	1	36.6 ± 0.0	NB
I	*Amara pallipes*	a Ground Beetle				S3	2	13.8 ± 1.0	NB
I	*Carabus maeander*	a Ground Beetle				S3	1	13.8 ± 1.0	NB
I	*Carabus serratus*	a Ground Beetle				S3	1	19.4 ± 1.0	NB
I	*Hippodamia parenthesis*	Parenthesis Lady Beetle				S3	14	12.9 ± 0.0	NB
I	*Xylotrechus undulatus*	a Longhorned Beetle				S3	2	29.7 ± 1.0	NB
I	*Calathus gregarius*	a Ground Beetle				S3	1	70.6 ± 1.0	NB
I	*Gonioctena americana*	a Leaf Beetle				S3	1	56.2 ± 0.0	NB
I	*Naemia seriata*	a Ladybird beetle				S3	9	48.0 ± 0.0	NB
I	*Beckerus appressus*	A Click Bee le				S3	1	70.7 ± 0.0	NB
I	*Saperda lateralis*	a Longhorned Beetle				S3	1	65.6 ± 0.0	NS
I	*Trachysida aspera*	a Longhorned Beetle				S3	1	62.1 ± 0.0	NB
I	*Dicerca caudata*	Tailed Jewel Borer				S3	1	49.4 ± 0.0	NB
I	*Enoclerus muttkowskii*	a Checkered Beetle				S3	2	16.1 ± 0.0	NB
I	*Hesperia sassacus*	Indian Skipper				S3	4	53.4 ± 0.0	NB
I	*Euphyes bimacula*	Two-spotted Skipper				S3	20	9.3 ± 0.0	NB
I	*Papilio brevicauda bretonensis*	Short-tailed Swallowtail				S3	16	30.3 ± 0.0	NB
I	*Lycaena hyllus*	Bronze Copper				S3	162	8.4 ± 2.0	NB
I	*Lycaena dospassosi*	Salt Marsh Copper				S3	117	20.2 ± 0.0	NB
I	*Satyrium acadica*	Acadian Hairstreak				S3	15	12.3 ± 0.0	NB
I	*Callophrys polios*	Hoary Elfin				S3	14	11.3 ± 0.0	NB
I	*Plebejus idas*	Northern Blue				S3	10	84.1 ± 0.0	NS
I	*Plebejus idas empetri*	Crowberry Blue				S3	29	50.8 ± 7.0	NB
I	*Speyeria aphrodite*	Aphrodite Fritillary				S3	17	8.2 ± 0.0	NB
I	*Boloria bellona*	Meadow Fritillary				S3	6	89.6 ± 1.0	NB
I	*Boloria chariclea*	Arctic Fritillary				S3	10	42.1 ± 7.0	NB
I	*Polygonia satyrus*	Satyr Comma				S3	5	48.6 ± 5.0	NB
I	*Polygonia gracilis*	Hoary Comma				S3	4	62.1 ± 15.0	NB
I	*Nymphalis l-album*	Compton Tortoiseshell				S3	10	12.3 ± 10.0	NB
I	*Gomphus vastus*	Cobra Clubtail				S3	3	98.8 ± 0.0	NB
I	*Gomphus abbreviatus*	Spine-crowned Clubtail				S3	10	74.0 ± 0.0	NB
I	*Gomphaeschna furcillata*	Harlequin Darner				S3	6	13.9 ± 0.0	NB
I	*Dorocordulia lepida*	Petite Emerald				S3	5	47.5 ± 1.0	NB
I	*Somatochlora cingulata*	Lake Emerald				S3	4	67.0 ± 1.0	NB
I	*Somatochlora forcipata*	Forcipate Emerald				S3	9	19.6 ± 0.0	NB
I	*Williamsonia fletcheri*	Ebony Boghaunter				S3	19	8.5 ± 2.0	NB
I	*Lestes eurinus*	Amber-Winged Spreadwing				S3	32	14.6 ± 1.0	NB
I	*Enallagma geminatum*	Skimming Bluet				S3	5	84.0 ± 0.0	NB
I	*Enallagma signatum*	Orange Bluet				S3	4	45.5 ± 0.0	NB
I	*Stylurus scudderi*	Zebra Clubtail				S3	11	12.7 ± 0.0	NB
I	*Alasmidonta undulata*	Triangle Floater				S3	46	29.5 ± 1.0	NB
I	*Leptodea ochracea*	Tidewater Mucket				S3	50	43.6 ± 1.0	NB
I	*Neohelix albolabris*	Whitelip				S3	1	95.0 ± 0.0	NB
I	*Pantala hymenaea*	Spot-Winged Glider				S3B,S3M	6	15.3 ± 0.0	NB
I	*Collops vittatus*	Banded Soft-winged Flower Beetle				S3S4	1	12.2 ± 3.0	NB
I	*Hemicrepidius memnonius*	a Click Beetle				S3S4	3	22.1 ± 0.0	NB
I	*Bolitophagus corticola*	a Darkling Beetle				S3S4	1	22.1 ± 0.0	NB
I	*Satyrium liparops*	Striped Hairstreak				S3S4	34	8.4 ± 0.0	NB
I	*Satyrium liparops strigosum*	Striped Hairstreak				S3S4	4	8.4 ± 0.0	NB
I	*Cupido comyntas*	Eastern Tailed Blue				S3S4	10	52.8 ± 0.0	NB
N	*Erioderma mollissimum*	Graceful Felt Lichen	Endangered	Endangered	Endangered	SH	2	79.7 ± 1.0	NB
N	*Erioderma pedicellatum*	Boreal Felt Lichen - Atlantic	Endangered	Endangered	Endangered	SH	2	94.2 ± 0.0	NS

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
	(Atlantic pop)	pop.							
N	*Peltigera hydrothyria*	Eastern Waterfan	Threatened	Threatened		S1	787	40.0 ± 0.0	NB
N	*Pannaria lurida*	Wrinkled Shingle Lichen	Threatened	Threatened		S1?	6	31.3 ± 1.0	NB
N	*Anzia colpodes*	Black-foam Lichen	Threatened	Threatened		S1S2	13	37.4 ± 0.0	NB
N	*Fuscopannaria leucosticta*	White-rimmed Shingle Lichen	Threatened			S2	86	51.0 ± 0.0	NB
N	*Pectenia plumbea*	Blue Felt Lichen	Special Concern	Special Concern	Special Concern	S1	13	71.6 ± 0.0	PE
N	*Pseudevernia cladonia*	Ghost Antler Lichen	Not At Risk			S2S3	13	71.1 ± 0.0	NB
N	*Aloina rigida*	Aloe-Like Rigid Screw Moss				S1	1	56.7 ± 0.0	NB
N	*Arrhenopterum heterostichum*	One-sided Groove Moss				S1	1	69.2 ± 0.0	NB
N	*Campylostelium saxicola*	a Moss				S1	1	71.7 ± 0.0	NB
N	*Dicranoweisia crispula*	Mountain Thatch Moss				S1	1	70.3 ± 0.0	NB
N	*Didymodon rigidulus var. gracilis*	a moss				S1	1	77.7 ± 1.0	NB
N	*Syntrichia ruralis*	a Moss				S1	1	77.4 ± 0.0	NB
N	*Zygodon viridissimus var. viridissimus*	a Moss				S1	1	70.3 ± 0.0	NB
N	*Enchylium tenax*	Soil Tarpaper Lichen				S1	1	69.4 ± 0.0	PE
N	*Sticta fuliginosa*	Peppered Moon Lichen				S1	10	87.5 ± 0.0	NB
N	*Cladonia straminea*	Reptilian Pixie-cup Lichen				S1	5	63.7 ± 1.0	NB
N	*Coccocarpia palmicola*	Salted Shell Lichen				S1	1	63.7 ± 1.0	NB
N	*Peltigera malacea*	Veinless Pelt Lichen				S1	2	75.1 ± 1.0	NB
N	*Bryoria bicolor*	Electrified Horsehair Lichen				S1	1	75.1 ± 1.0	NB
N	*Hygrobiella laxifolia*	Lax Notchwort				S1?	1	75.9 ± 1.0	NB
N	*Bartramia ithyphylla*	Straight-leaved Apple Moss				S1?	2	71.2 ± 1.0	NB
N	*Dicranum bonjeanii*	Bonjean's Broom Moss				S1?	1	94.0 ± 1.0	NB
N	*Dicranum condensatum*	Condensed Broom Moss				S1?	3	70.4 ± 0.0	NB
N	*Entodon brevisetus*	a Moss				S1?	1	62.5 ± 10.0	NB
N	*Oxyrrhynchium hians*	Light Beaked Moss				S1?	1	80.9 ± 0.0	NB
N	*Homomallium adnatum*	Adnate Hairy-gray Moss				S1?	4	40.2 ± 1.0	NB
N	*Plagiothecium latebricola*	Alder Silk Moss				S1?	2	65.2 ± 0.0	NB
N	*Rhytidium rugosum*	Wrinkle-leaved Moss				S1?	2	77.6 ± 1.0	NB
N	*Seligeria recurvata*	a Moss				S1?	3	33.1 ± 15.0	NB
N	*Rhizomnium pseudopunctatum*	Felted Leafy Moss				S1?	1	67.4 ± 0.0	NB
N	*Heterodermia squamulosa*	Scaly Fringe Lichen				S1?	2	94.9 ± 1.0	NS
N	*Cephaloziella spinigera*	Spiny Threadwort				S1S2	2	53.3 ± 0.0	NB
N	*Odontoschisma francisci*	Holt's Notchwort				S1S2	4	61.4 ± 0.0	NB
N	*Harpanthus flotovianus*	Great Mountain Flapwort				S1S2	2	63.5 ± 1.0	NB
N	*Jungermannia obovata*	Egg Flapwort				S1S2	1	72.8 ± 0.0	NB
N	*Odontoschisma sphagni*	Bog-Moss Flapwort				S1S2	1	79.3 ± 0.0	NB
N	*Pallavicinia lyellii*	Lyell's Ribbonwort				S1S2	2	62.5 ± 1.0	NB
N	*Radula tenax*	Tenacious Scalewort				S1S2	1	72.8 ± 0.0	NB
N	*Reboulia hemisphaerica*	Purple-margined Liverwort				S1S2	1	77.7 ± 0.0	NB
N	*Brachythecium acuminatum*	Acuminate Ragged Moss				S1S2	2	73.0 ± 2.0	NB
N	*Ptychostomum salinum*	Saltmarsh Bryum				S1S2	1	76.8 ± 1.0	NB
N	*Distichium inclinatum*	Inclined Iris Moss				S1S2	5	77.7 ± 1.0	NB
N	*Ditrichum pallidum*	Pale Cow-hair Moss				S1S2	1	65.0 ± 1.0	NB
N	*Drummondia prorepens*	a Moss				S1S2	1	71.7 ± 0.0	NB
N	*Hygrohypnum bestii*	Best's Brook Moss				S1S2	5	65.7 ± 0.0	NB
N	*Seligeria brevifolia*	a Moss				S1S2	4	70.0 ± 0.0	NB
N	*Timmia norvegica*	a moss				S1S2	3	77.9 ± 0.0	NB
N	*Timmia norvegica var. excurrens*	a moss				S1S2	1	77.9 ± 0.0	NB
N	*Tortella humilis*	Small Crisp Moss				S1S2	7	69.0 ± 1.0	NB
N	*Pseudotaxiphyllum distichaceum*	a Moss				S1S2	2	34.1 ± 1.0	NB

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N	*Umbilicaria vellea*	Grizzled Rocktripe Lichen				S1S2	1	77.2 ± 1.0	NB
N	*Pilophorus cereolus*	Powdered Matchstick Lichen				S1S2	1	47.2 ± 5.0	NB
N	*Peltigera scabrosa*	Greater Toad Pelt Lichen				S1S2	4	62.0 ± 1.0	NB
N	*Tritomaria scitula*	Mountain Notchwort				S1S3	1	68.9 ± 1.0	NB
N	*Amphidium mougeotii*	a Moss				S2	11	67.3 ± 0.0	NB
N	*Anomodon viticulosus*	a Moss				S2	2	48.3 ± 10.0	NB
N	*Cirriphyllum piliferum*	Hair-pointed Moss				S2	4	49.1 ± 1.0	NB
N	*Dicranella palustris*	Drooping-Leaved Fork Moss				S2	7	63.5 ± 1.0	NB
N	*Didymodon ferrugineus*	Rusty Beard Moss				S2	1	77.4 ± 0.0	NB
N	*Anomodon tristis*	a Moss				S2	3	70.4 ± 10.0	NB
N	*Hypnum pratense*	Meadow Plait Moss				S2	1	74.0 ± 0.0	PE
N	*Isopterygiopsis pulchella*	Neat Silk Moss				S2	7	68.2 ± 1.0	NB
N	*Orthotrichum speciosum*	Showy Bristle Moss				S2	6	48.5 ± 4.0	NB
N	*Platydictya jungermannioides*	False Willow Moss				S2	4	33.1 ± 15.0	NB
N	*Pohlia elongata*	Long-necked Nodding Moss				S2	14	69.2 ± 0.0	NB
N	*Pohlia sphagnicola*	a moss				S2	1	65.9 ± 0.0	NB
N	*Seligeria calcarea*	Chalk Brittle Moss				S2	2	63.5 ± 0.0	NB
N	*Sphagnum centrale*	Central Peat Moss				S2	7	64.3 ± 1.0	NB
N	*Sphagnum flexuosum*	Flexuous Peatmoss				S2	4	44.3 ± 10.0	NB
N	*Tayloria serrata*	Serrate Trumpet Moss				S2	7	47.1 ± 100.0	NB
N	*Tetrodontium brownianum*	Little Georgia				S2	13	68.6 ± 0.0	NS
N	*Thamnobryum alleghaniense*	a Moss				S2	22	38.8 ± 0.0	NB
N	*Ulota phyllantha*	a Moss				S2	4	77.7 ± 0.0	NB
N	*Anomobryum julaceum*	Slender Silver Moss				S2	3	77.7 ± 1.0	NB
N	*Cladonia macrophylla*	Fig-leaved Lichen				S2	3	69.7 ± 1.0	NB
N	*Leptogium milligranum*	Stretched Jellyskin Lichen				S2	21	28.8 ± 0.0	NB
N	*Nephroma laevigatum*	Mustard Kidney Lichen				S2	29	62.1 ± 0.0	PE
N	*Anacamptodon splachnoides*	a Moss				S2?	2	47.1 ± 1.0	NB
N	*Andreaea rothii*	a Moss				S2?	5	67.3 ± 0.0	NB
N	*Anomodon minor*	Blunt-leaved Anomodon Moss				S2?	1	47.4 ± 1.0	NB
N	*Ptychostomum pallescens*	Tall Clustered Bryum				S2?	1	56.8 ± 100.0	NB
N	*Dichelyma capillaceum*	Hairlike Dichelyma Moss				S2?	1	62.2 ± 3.0	NB
N	*Hygrohypnum montanum*	a Moss				S2?	2	66.8 ± 1.0	NB
N	*Sphagnum angermanicum*	a Peatmoss				S2?	2	61.4 ± 10.0	NB
N	*Trichodon cylindricus*	Cylindric Hairy-teeth Moss				S2?	2	33.1 ± 15.0	NB
N	*Plagiomnium rostratum*	Long-beaked Leafy Moss				S2?	5	73.1 ± 0.0	NB
N	*Ramalina labiosorediata*	Chalky Ramalina Lichen				S2?	1	74.8 ± 1.0	NB
N	*Collema leptaleum*	Crumpled Bat's Wing Lichen				S2?	11	69.2 ± 0.0	NB
N	*Imshaugia placorodia*	Eyed Starburst Lichen				S2?	1	69.9 ± 0.0	PE
N	*Nephroma arcticum*	Arctic Kidney Lichen				S2?	2	73.3 ± 1.0	NB
N	*Ptychostomum cernuum*	Swamp Bryum				S2S3	1	77.7 ± 0.0	NB
N	*Calliergonella cuspidata*	Common Large Wetland Moss				S2S3	2	48.5 ± 5.0	NB
N	*Drepanocladus polygamus*	Polygamous Hook Moss				S2S3	2	70.2 ± 0.0	NB
N	*Palustriella falcata*	a Moss				S2S3	2	75.1 ± 0.0	NB
N	*Didymodon rigidulus*	Rigid Screw Moss				S2S3	8	73.0 ± 2.0	NB
N	*Ephemerum serratum*	a Moss				S2S3	3	73.7 ± 0.0	PE
N	*Orthotrichum elegans*	Showy Bristle Moss				S2S3	2	49.5 ± 0.0	NB
N	*Pohlia proligera*	Cottony Nodding Moss				S2S3	13	33.1 ± 15.0	NB
N	*Codriophorus fascicularis*	Clustered Rock Moss				S2S3	3	70.3 ± 0.0	NB
N	*Racomitrium affine*	a Moss				S2S3	1	64.6 ± 1.0	NB
N	*Saelania glaucescens*	Blue Dew Moss				S2S3	2	70.3 ± 0.0	NB
N	*Sphagnum subfulvum*	a Peatmoss				S2S3	3	65.2 ± 0.0	NB
N	*Taxiphyllum deplanatum*	Imbricate Yew-leaved Moss				S2S3	2	72.8 ± 1.0	NB
N	*Zygodon viridissimus*	a Moss				S2S3	3	70.1 ± 0.0	NB
N	*Schistidium agassizii*	Elf Bloom Moss				S2S3	3	64.6 ± 1.0	NB

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N	*Loeskeobryum brevirostre*	a Moss				S2S3	10	67.3 ± 0.0	NB
N	*Cyrtomnium hymenophylloides*	Short-pointed Lantern Moss				S2S3	7	63.7 ± 0.0	NB
N	*Cetrariella delisei*	Snowbed Icelandmoss Lichen				S2S3	2	44.3 ± 0.0	NB
N	*Cladonia acuminata*	Scantily Clad Pixie Lichen				S2S3	2	77.2 ± 1.0	NB
N	*Cladonia ramulosa*	Bran Lichen				S2S3	4	71.9 ± 1.0	NB
N	*Cladonia sulphurina*	Greater Sulphur-cup Lichen				S2S3	5	61.7 ± 1.0	NB
N	*Dendriscocaulon umhausense*	a lichen				S2S3	1	72.1 ± 0.0	NB
N	*Parmeliopsis ambigua*	Green Starburst Lichen				S2S3	1	80.4 ± 1.0	NB
N	*Sphaerophorus globosus*	Northern Coral Lichen				S2S3	13	62.9 ± 0.0	NB
N	*Hypnum curvifolium*	Curved-leaved Plait Moss				S3	7	67.3 ± 0.0	NB
N	*Tortella fragilis*	Fragile Twisted Moss				S3	1	77.9 ± 0.0	NB
N	*Schistidium maritimum*	a Moss				S3	6	67.4 ± 0.0	NB
N	*Hymenostylium recurvirostre*	Hymenostylium Moss				S3	6	78.2 ± 1.0	NB
N	*Collema nigrescens*	Blistered Tarpaper Lichen				S3	5	72.1 ± 0.0	NB
N	*Solorina saccata*	Woodland Owl Lichen				S3	6	77.2 ± 1.0	NB
N	*Ahtiana aurescens*	Eastern Candlewax Lichen				S3	3	66.7 ± 0.0	NB
N	*Normandina pulchella*	Rimmed Elf-ear Lichen				S3	8	71.9 ± 1.0	NB
N	*Cladonia farinacea*	Farinose Pixie Lichen				S3	6	70.7 ± 1.0	NB
N	*Hypotrachyna catawbiensis*	Powder-tipped Antler Lichen				S3	16	76.8 ± 0.0	NB
N	*Scytinium lichenoides*	Tattered Jellyskin Lichen				S3	6	77.2 ± 1.0	NB
N	*Nephroma bellum*	Naked Kidney Lichen				S3	5	69.4 ± 1.0	NB
N	*Peltigera degenii*	Lustrous Pelt Lichen				S3	3	72.0 ± 1.0	NB
N	*Usnea strigosa*	Bushy Beard Lichen				S3	34	20.8 ± 0.0	NB
N	*Stereocaulon condensatum*	Granular Soil Foam Lichen				S3	8	56.8 ± 0.0	NB
N	*Leptogium laceroides*	Short-bearded Jellyskin Lichen				S3	14	64.3 ± 0.0	PE
N	*Peltigera membranacea*	Membranous Pelt Lichen				S3	23	38.9 ± 0.0	NB
N	*Cladonia botrytes*	Wooden Soldiers Lichen				S3	3	45.5 ± 0.0	NB
N	*Cladonia carneola*	Crowned Pixie-cup Lichen				S3	2	71.1 ± 0.0	NB
N	*Cladonia deformis*	Lesser Sulphur-cup Lichen				S3	8	68.5 ± 0.0	NB
N	*Aulacomnium androgynum*	Little Groove Moss				S3?	9	33.1 ± 15.0	NB
N	*Dicranella rufescens*	Red Forklet Moss				S3?	1	77.9 ± 0.0	NB
N	*Rhytidiadelphus loreus*	Lanky Moss				S3?	3	77.4 ± 0.0	NB
N	*Sphagnum lescurii*	a Peatmoss				S3?	8	56.8 ± 0.0	NS
N	*Scytinium subtile*	Appressed Jellyskin Lichen				S3?	12	57.0 ± 0.0	PE
N	*Rostania occultata*	Crusted Tarpaper Lichen				S3?	4	71.3 ± 0.0	PE
N	*Stereocaulon subcoralloides*	Coralloid Foam Lichen				S3?	1	74.8 ± 1.0	NB
N	*Barbula convoluta*	Lesser Bird's-claw Beard Moss				S3S4	1	48.5 ± 15.0	NB
N	*Brachytheciastrum velutinum*	Velvet Ragged Moss				S3S4	2	70.6 ± 1.0	NB
N	*Calliergon giganteum*	Giant Spear Moss				S3S4	1	71.4 ± 0.0	PE
N	*Dicranella cerviculata*	a Moss				S3S4	3	67.4 ± 2.0	NB
N	*Dicranella varia*	a Moss				S3S4	2	64.4 ± 0.0	PE
N	*Dicranum majus*	Greater Broom Moss				S3S4	22	63.7 ± 0.0	NB
N	*Dicranum leioneuron*	a Dicranum Moss				S3S4	3	25.4 ± 0.0	NB
N	*Encalypta ciliata*	Fringed Extinguisher Moss				S3S4	1	77.4 ± 0.0	NB
N	*Fissidens bryoides*	Lesser Pocket Moss				S3S4	4	45.9 ± 5.0	NB
N	*Elodium blandowii*	Blandow's Bog Moss				S3S4	1	72.9 ± 0.0	PE
N	*Heterocladium dimorphum*	Dimorphous Tangle Moss				S3S4	6	49.5 ± 0.0	NB
N	*Isopterygiopsis muelleriana*	a Moss				S3S4	16	63.7 ± 0.0	PE
N	*Myurella julacea*	Small Mouse-tail Moss				S3S4	2	77.9 ± 0.0	NB
N	*Physcomitrium pyriforme*	Pear-shaped Urn Moss				S3S4	3	45.8 ± 0.0	NB
N	*Pogonatum dentatum*	Mountain Hair Moss				S3S4	4	71.6 ± 0.0	NB
N	*Sphagnum compactum*	Compact Peat Moss				S3S4	6	45.2 ± 0.0	NB
N	*Sphagnum quinquefarium*	Five-ranked Peat Moss				S3S4	2	49.5 ± 0.0	NB

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N	*Sphagnum torreyanum*	a Peatmoss				S3S4	2	51.3 ± 0.0	NB
N	*Sphagnum austinii*	Austin's Peat Moss				S3S4	1	56.8 ± 0.0	NS
N	*Sphagnum contortum*	Twisted Peat Moss				S3S4	1	51.3 ± 0.0	NB
N	*Tetraphis geniculata*	Geniculate Four-tooth Moss				S3S4	13	48.5 ± 15.0	NB
N	*Tetraplodon angustatus*	Toothed-leaved Nitrogen Moss				S3S4	2	69.3 ± 0.0	NB
N	*Weissia controversa*	Green-Cushioned Weissia				S3S4	1	78.2 ± 1.0	NB
N	*Abietinella abietina*	Wiry Fern Moss				S3S4	1	77.9 ± 0.0	NB
N	*Trichostomum tenuirostre*	Acid-Soil Moss				S3S4	3	70.3 ± 0.0	NB
N	*Rauiella scita*	Smaller Fern Moss				S3S4	1	64.6 ± 0.0	NB
N	*Pannaria rubiginosa*	Brown-eyed Shingle Lichen				S3S4	22	69.3 ± 0.0	PE
N	*Pseudocyphellaria holarctica*	Yellow Specklebelly Lichen				S3S4	84	21.3 ± 0.0	NB
N	*Ramalina thrausta*	Angelhair Ramalina Lichen				S3S4	13	62.0 ± 1.0	NB
N	*Hypogymnia vittata*	Slender Monk's Hood Lichen				S3S4	26	62.0 ± 1.0	NB
N	*Scytinium teretiusculum*	Curly Jellyskin Lichen				S3S4	13	62.4 ± 0.0	PE
N	*Montanelia panniformis*	Shingled Camouflage Lichen				S3S4	5	64.0 ± 1.0	NB
N	*Cladonia floerkeana*	Gritty Bri ish Soldiers Lichen				S3S4	4	71.3 ± 1.0	NB
N	*Vahliella leucophaea*	Shelter Shingle Lichen				S3S4	11	39.0 ± 0.0	NB
N	*Xylopsora friesii*	a Lichen				S3S4	1	77.2 ± 1.0	NB
N	*Nephroma parile*	Powdery Kidney Lichen				S3S4	14	30.5 ± 0.0	NB
N	*Protopannaria pezizoides*	Brown-gray Moss-shingle Lichen				S3S4	23	39.9 ± 0.0	NB
N	*Usnea subrubicunda*	Reddish Beard Lichen				S3S4	2	92.3 ± 3.0	NS
N	*Stereocaulon paschale*	Easter Foam Lichen				S3S4	1	46.3 ± 1.0	NB
N	*Pannaria conoplea*	Mealy-rimmed Shingle Lichen				S3S4	39	40.6 ± 0.0	NB
N	*Physcia tenella*	Fringed Rosette Lichen				S3S4	7	53.5 ± 0.0	PE
N	*Anaptychia palmulata*	Shaggy Fringed Lichen				S3S4	21	51.1 ± 0.0	NB
N	*Peltigera neopolydactyla*	Undula ing Pelt Lichen				S3S4	10	63.7 ± 1.0	NB
N	*Cladonia cariosa*	Lesser Ribbed Pixie Lichen				S3S4	4	47.2 ± 0.0	NB
N	*Hypocenomyce scalaris*	Common Clam Lichen				S3S4	1	74.8 ± 1.0	NB
N	*Dermatocarpon luridum*	Brookside Stippleback Lichen				S3S4	109	6.1 ± 0.0	NB
N	*Leucodon brachypus*	a Moss				SH	12	62.2 ± 0.0	NB
N	*Splachnum luteum*	Yellow Collar Moss				SH	1	56.8 ± 100.0	NB
N	*Cyrto-hypnum minutulum*	Tiny Cedar Moss				SH	3	67.9 ± 10.0	NB
P	*Juglans cinerea*	Butternut	Endangered	Endangered	Endangered	S1	59	46.8 ± 1.0	NB
P	*Symphyotrichum laurentianum*	Gulf of St Lawrence Aster	Threatened	Threatened	Endangered	S1	44	61.1 ± 0.0	NB
P	*Fraxinus nigra*	Black Ash	Threatened			S4S5	342	6.2 ± 0.0	NB
P	*Lechea maritima var. subcylindrica*	Beach Pinweed	Special Concern	Special Concern	Special Concern	S2	952	29.4 ± 0.0	NB
P	*Symphyotrichum subulatum (Bathurst pop)*	Bathurst Aster - Bathurst pop.	Not At Risk		Endangered	S2	79	45.3 ± 0.0	NB
P	*Eriocaulon parkeri*	Parker's Pipewort	Not At Risk		Endangered	S2	83	98.2 ± 0.0	NB
P	*Cryptotaenia canadensis*	Canada Honewort				S1	2	79.3 ± 1.0	NB
P	*Antennaria howellii ssp. petaloidea*	Pussy-Toes				S1	2	85.5 ± 5.0	PE
P	*Bidens discoidea*	Swamp Beggarticks				S1	2	86.7 ± 0.0	NB
P	*Bidens eatonii*	Eaton's Beggarticks				S1	5	98.4 ± 0.0	NB
P	*Pseudognaphalium obtusifolium*	Eastern Cudweed				S1	28	34.1 ± 5.0	NB
P	*Hieracium robinsonii*	Robinson's Hawkweed				S1	12	64.4 ± 0.0	NB
P	*Solidago multiradiata*	Mul i-rayed Goldenrod				S1	19	40.7 ± 0.0	NB
P	*Symphyotrichum subulatum (non-Bathurst pop)*	Annual Saltmarsh Aster				S1	12	73.8 ± 0.0	NB
P	*Betula michauxii*	Michaux's Dwarf Birch				S1	3	85.3 ± 0.0	NB
P	*Barbarea orthoceras*	American Yellow Rocket				S1	1	87.5 ± 1.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
P	*Draba arabisans*	Rock Whitlow-Grass				S1	18	69.6 ± 0.0	NB
P	*Draba glabella*	Rock Whitlow-Grass				S1	3	77.6 ± 0.0	NB
P	*Stellaria crassifolia*	Fleshy S itchwort				S1	4	19.4 ± 5.0	NB
P	*Chenopodiastrum simplex*	Maple-leaved Goosefoot				S1	6	44.8 ± 5.0	NB
P	*Suaeda rolandii*	Roland's Sea-Blite				S1	13	20.3 ± 0.0	NB
P	*Hypericum virginicum*	Virginia St. John's-wort				S1	2	59.3 ± 0.0	NS
P	*Corema conradii*	Broom Crowberry				S1	22	84.4 ± 0.0	PE
P	*Vaccinium boreale*	Northern Blueberry				S1	5	40.1 ± 1.0	NB
P	*Vaccinium corymbosum*	Highbush Blueberry				S1	1	62.7 ± 0.0	NS
P	*Vaccinium uliginosum*	Alpine Bilberry				S1	1	93.0 ± 1.0	PE
P	*Euphorbia polygonifolia*	Seaside Spurge				S1	25	63.0 ± 10.0	NB
P	*Lespedeza capitata*	Round-headed Bush-clover				S1	1	99.9 ± 0.0	NB
P	*Bartonia virginica*	Yellow Bartonia				S1	3	94.1 ± 1.0	NB
P	*Proserpinaca pectinata*	Comb-leaved Mermaidweed				S1	2	86.2 ± 5.0	NS
P	*Polygonum douglasii*	Douglas Knotweed				S1	1	77.5 ± 0.0	NB
P	*Primula laurentiana*	Laurentian Primrose				S1	16	71.0 ± 3.0	NB
P	*Ranunculus sceleratus*	Cursed Buttercup				S1	1	88.8 ± 100.0	NB
P	*Amelanchier fernaldii*	Fernald's Serviceberry				S1	2	37.8 ± 1.0	NB
P	*Crataegus jonesiae*	Jones' Hawthorn				S1	1	72.7 ± 1.0	NB
P	*Dryas integrifolia*	Entire-leaved Mountain Avens				S1	15	40.1 ± 3.0	NB
P	*Potentilla canadensis*	Canada Cinquefoil				S1	1	85.6 ± 0.0	NB
P	*Rubus flagellaris*	Northern Dewberry				S1	3	36.1 ± 1.0	NB
P	*Geum fragarioides*	Barren Strawberry				S1	1	51.7 ± 1.0	NB
P	*Salix myrtillifolia*	Blueberry Willow				S1	25	40.8 ± 0.0	NB
P	*Saxifraga paniculata ssp. laestadii*	Laestadius' Saxifrage				S1	31	75.2 ± 0.0	NB
P	*Agalinis purpurea var. parviflora*	Small-flowered Purple False Foxglove				S1	59	23.9 ± 0.0	NB
P	*Carex annectens*	Yellow-Fruited Sedge				S1	3	28.5 ± 0.0	NB
P	*Carex atlantica ssp. atlantica*	Atlantic Sedge				S1	8	47.6 ± 0.0	NB
P	*Carex backii*	Rocky Mountain Sedge				S1	3	49.2 ± 0.0	NB
P	*Carex merritt-fernaldii*	Merritt Fernald's Sedge				S1	1	49.7 ± 0.0	NB
P	*Carex scirpoidea*	Scirpuslike Sedge				S1	6	81.8 ± 0.0	NB
P	*Carex sterilis*	Sterile Sedge				S1	1	46.5 ± 2.0	NB
P	*Carex grisea*	Inflated Narrow-leaved Sedge				S1	1	80.3 ± 5.0	NB
P	*Cyperus diandrus*	Low Flatsedge				S1	4	98.9 ± 0.0	NB
P	*Cyperus bipartitus*	Shining Flatsedge				S1	9	98.4 ± 0.0	NB
P	*Eleocharis flavescens var. olivacea*	Bright-green Spikerush				S1	8	98.9 ± 0.0	NB
P	*Scirpus pendulus*	Hanging Bulrush				S1	9	48.2 ± 0.0	NB
P	*Schoenoplectiella smithii var. leviseta*	Smi h's Bulrush				S1	17	98.9 ± 0.0	NB
P	*Schoenoplectiella smithii var. leviseta*	Smi h's Bulrush				S1	28	98.2 ± 0.0	NB
P	*Sisyrinchium angustifolium*	Narrow-leaved Blue-eyed-grass				S1	3	51.4 ± 0.0	NB
P	*Juncus greenei*	Greene's Rush				S1	10	43.9 ± 10.0	NB
P	*Juncus stygius ssp. americanus*	Moor Rush				S1	17	43.9 ± 10.0	NB
P	*Goodyera pubescens*	Downy Rattlesnake-Plantain				S1	12	44.0 ± 5.0	NB
P	*Malaxis monophyllos var. brachypoda*	North American White Adder's-mouth				S1	1	72.9 ± 0.0	PE
P	*Malaxis monophyllos*	White Adder's-mouth				S1	1	37.7 ± 0.0	NB
P	*Platanthera flava*	Southern Rein-Orchid				S1	1	37.7 ± 0.0	NB
P	*Platanthera macrophylla*	Large Round-Leaved Orchid				S1	12	37.4 ± 0.0	NB
P	*Bromus pubescens*	Hairy Wood Brome Grass				S1	2	65.2 ± 0.0	NB

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P	*Calamagrostis stricta ssp. inexpansa*	Slim-stemmed Reed Grass				S1	3	50.5 ± 1.0	NB
P	*Catabrosa aquatica*	Water Whorl Grass				S1	2	91.7 ± 5.0	PE
P	*Danthonia compressa*	Flattened Oat Grass				S1	15	40.8 ± 0.0	NB
P	*Festuca subverticillata*	Nodding Fescue				S1	6	96.6 ± 0.0	NS
P	*Zizania aquatica var. brevis*	St. Lawrence Wild Rice				S1	10	98.9 ± 0.0	NB
P	*Potamogeton friesii*	Fries' Pondweed				S1	9	47.8 ± 0.0	NB
P	*Potamogeton nodosus*	Long-leaved Pondweed				S1	4	94.8 ± 0.0	NB
P	*Cystopteris laurentiana*	Laurentian Bladder Fern				S1	1	80.6 ± 1.0	NB
P	*Dryopteris filix-mas ssp. brittonii*	Britton's Male Fern				S1	2	41.2 ± 1.0	NB
P	*Schizaea pusilla*	Little Curlygrass Fern				S1	9	70.8 ± 0.0	NB
P	*Bidens heterodoxa*	Connecticut Beggar-Ticks				S1?	8	74.4 ± 0.0	NB
P	*Polygonum aviculare ssp. neglectum*	Narrow-leaved Knotweed				S1?	4	23.7 ± 0.0	NB
P	*Selaginella rupestris*	Rock Spikemoss				S1S2	9	74.4 ± 1.0	NB
P	*Coryphopteris simulata*	Bog Fern				S1S2	12	42.5 ± 0.0	NB
P	*Cuscuta cephalanthi*	Buttonbush Dodder				S1S3	16	18.7 ± 0.0	NB
P	*Eriophorum russeolum ssp. albidum*	Smooth-fruited Russet Cottongrass				S1S3	13	19.4 ± 0.0	NB
P	*Spiranthes arcisepala*	Appalachian Ladies'-tresses				S1S3	7	46.7 ± 0.0	NB
P	*Spiranthes incurva*	Sphinx Ladies'-tresses				S1S3	1	21.0 ± 0.0	NB
P	*Neottia bifolia*	Southern Twayblade			Endangered	S2	50	19.3 ± 0.0	NB
P	*Osmorhiza longistylis*	Smooth Sweet Cicely				S2	5	82.4 ± 1.0	NS
P	*Ionactis linariifolia*	Flax-leaved Aster				S2	28	59.6 ± 5.0	NB
P	*Symphyotrichum racemosum*	Small White Aster				S2	2	87.9 ± 0.0	NB
P	*Symphyotrichum subulatum*	Annual Saltmarsh Aster				S2	76	90.1 ± 0.0	NB
P	*Pseudognaphalium macounii*	Macoun's Cudweed				S2	44	44.0 ± 5.0	NB
P	*Impatiens pallida*	Pale Jewelweed				S2	4	81.5 ± 0.0	NB
P	*Boechera stricta*	Drummond's Rockcress				S2	12	48.9 ± 0.0	NB
P	*Sagina nodosa*	Knotted Pearlwort				S2	2	83.2 ± 0.0	PE
P	*Sagina nodosa ssp. borealis*	Knotted Pearlwort				S2	2	83.2 ± 0.0	PE
P	*Stellaria longifolia*	Long-leaved Starwort				S2	10	22.8 ± 2.0	NB
P	*Atriplex glabriuscula var. franktonii*	Frankton's Saltbush				S2	5	23.4 ± 0.0	NB
P	*Oxybasis rubra*	Red Goosefoot				S2	12	21.6 ± 0.0	NB
P	*Hypericum x dissimulatum*	Disguised St. John's-wort				S2	3	65.6 ± 1.0	NB
P	*Triosteum aurantiacum*	Orange-fruited Tinker's Weed				S2	7	36.1 ± 0.0	NB
P	*Viburnum lentago*	Nannyberry				S2	1	70.0 ± 0.0	NB
P	*Viburnum recognitum*	Northern Arrow-Wood				S2	1	39.7 ± 0.0	NB
P	*Shepherdia canadensis*	Soapberry				S2	42	36.2 ± 0.0	NB
P	*Oxytropis campestris var. johannensis*	Field Locoweed				S2	1	96.6 ± 0.0	NB
P	*Quercus macrocarpa*	Bur Oak				S2	3	78.0 ± 0.0	NB
P	*Gentiana linearis*	Narrow-Leaved Gentian				S2	1	41.5 ± 50.0	NB
P	*Myriophyllum humile*	Low Water Milfoil				S2	1	67.7 ± 1.0	NB
P	*Proserpinaca palustris*	Marsh Mermaidweed				S2	1	90.1 ± 0.0	NB
P	*Hedeoma pulegioides*	American False Pennyroyal				S2	2	77.8 ± 0.0	NB
P	*Nuphar x rubrodisca*	Red-disk Yellow Pond-lily				S2	16	9.1 ± 0.0	NB
P	*Aphyllon uniflorum*	One-flowered Broomrape				S2	1	97.6 ± 1.0	NB
P	*Polygaloides paucifolia*	Fringed Milkwort				S2	8	69.6 ± 1.0	NB
P	*Persicaria amphibia var. emersa*	Long-root Smartweed				S2	2	87.5 ± 0.0	NB
P	*Persicaria careyi*	Carey's Smartweed				S2	8	22.8 ± 2.0	NB
P	*Anemone parviflora*	Small-flowered Anemone				S2	9	41.1 ± 0.0	NB
P	*Hepatica americana*	Round-lobed Hepatica				S2	1	93.9 ± 1.0	NB

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P	*Ranunculus flabellaris*	Yellow Water Buttercup				S2	1	32.0 ± 0.0	NB
P	*Crataegus scabrida*	Rough Hawthorn				S2	6	42.5 ± 1.0	NB
P	*Crataegus succulenta*	Fleshy Hawthorn				S2	2	66.5 ± 0.0	PE
P	*Salix candida*	Sage Willow				S2	1	97.9 ± 0.0	PE
P	*Agalinis neoscotica*	Nova Scotia Agalinis				S2	1	57.8 ± 0.0	NS
P	*Euphrasia randii*	Rand's Eyebright				S2	6	70.0 ± 0.0	PE
P	*Scrophularia lanceolata*	Lance-leaved Figwort				S2	2	77.6 ± 1.0	NB
P	*Dirca palustris*	Eastern Leatherwood				S2	1	30.7 ± 1.0	NB
P	*Sagittaria montevidensis ssp. spongiosa*	Spongy Arrowhead				S2	111	36.0 ± 0.0	NB
P	*Symplocarpus foetidus*	Eastern Skunk Cabbage				S2	128	49.1 ± 18.0	NB
P	*Carex comosa*	Bearded Sedge				S2	7	50.1 ± 0.0	NB
P	*Carex granularis*	Limestone Meadow Sedge				S2	11	28.5 ± 0.0	NB
P	*Carex gynocrates*	Northern Bog Sedge				S2	1	77.6 ± 1.0	NB
P	*Carex hirtifolia*	Pubescent Sedge				S2	6	36.2 ± 0.0	NB
P	*Carex livida*	Livid Sedge				S2	9	55.9 ± 0.0	NS
P	*Carex plantaginea*	Plantain-Leaved Sedge				S2	3	78.7 ± 0.0	NB
P	*Carex rostrata*	Narrow-leaved Beaked Sedge				S2	2	50.1 ± 5.0	NB
P	*Carex sprengelii*	Longbeak Sedge				S2	2	83.7 ± 0.0	NB
P	*Carex tenuiflora*	Sparse-Flowered Sedge				S2	10	47.2 ± 10.0	NB
P	*Carex albicans var. emmonsii*	White-tinged Sedge				S2	10	14.9 ± 0.0	NB
P	*Cyperus squarrosus*	Awned Flatsedge				S2	1	96.9 ± 0.0	NB
P	*Eriophorum gracile*	Slender Cottongrass				S2	51	26.4 ± 0.0	NB
P	*Blysmopsis rufa*	Red Bulrush				S2	32	51.6 ± 0.0	NB
P	*Juncus vaseyi*	Vasey Rush				S2	14	13.6 ± 0.0	NB
P	*Allium tricoccum*	Wild Leek				S2	17	39.7 ± 0.0	NB
P	*Galearis rotundifolia*	Small Round-leaved Orchid				S2	3	56.5 ± 0.0	NB
P	*Calypso bulbosa var. americana*	Calypso				S2	3	43.0 ± 5.0	NB
P	*Coeloglossum viride*	Long-bracted Frog Orchid				S2	5	38.2 ± 10.0	NB
P	*Cypripedium parviflorum var. makasin*	Small Yellow Lady's-Slipper				S2	2	27.4 ± 0.0	NB
P	*Goodyera oblongifolia*	Menzies' Rattlesnake-plantain				S2	2	71.8 ± 0.0	PE
P	*Spiranthes lucida*	Shining Ladies'-Tresses				S2	3	44.7 ± 1.0	NB
P	*Spiranthes ochroleuca*	Yellow Ladies'-tresses				S2	16	15.4 ± 0.0	NB
P	*Dichanthelium linearifolium*	Narrow-leaved Panic Grass				S2	1	89.0 ± 0.0	NB
P	*Elymus canadensis*	Canada Wild Rye				S2	1	17.1 ± 1.0	NB
P	*Piptatheropsis canadensis*	Canada Ricegrass				S2	4	17.0 ± 10.0	NB
P	*Puccinellia phryganodes ssp. neoarctica*	Creeping Alkali Grass				S2	2	37.4 ± 1.0	NB
P	*Poa glauca*	Glaucous Blue Grass				S2	10	73.4 ± 0.0	NB
P	*Puccinellia nutkaensis*	Alaska Alkaligrass				S2	3	25.6 ± 1.0	NB
P	*Schizachyrium scoparium*	Little Bluestem				S2	27	88.6 ± 0.0	NB
P	*Zizania aquatica var. aquatica*	Eastern Wild Rice				S2	5	41.7 ± 0.0	NB
P	*Piptatheropsis pungens*	Slender Ricegrass				S2	5	48.9 ± 0.0	NB
P	*Potamogeton vaseyi*	Vasey's Pondweed				S2	1	60.0 ± 0.0	PE
P	*Asplenium trichomanes*	Maidenhair Spleenwort				S2	12	49.4 ± 1.0	NB
P	*Anchistea virginica*	Virginia chain fern				S2	30	51.4 ± 0.0	NB
P	*Woodsia alpina*	Alpine Cliff Fern				S2	5	64.5 ± 0.0	NB
P	*Diphasiastrum sitchense*	Sitka Ground-cedar				S2	4	40.0 ± 0.0	NB
P	*Selaginella selaginoides*	Low Spikemoss				S2	8	73.4 ± 0.0	NB
P	*Toxicodendron radicans var. radicans*	Eastern Poison Ivy				S2?	10	29.9 ± 0.0	NB
P	*Symphyotrichum novi-belgii*	New York Aster				S2?	5	58.2 ± 0.0	NB

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	var. crenifolium								
P	*Humulus lupulus var. lupuloides*	Common Hop				S2?	2	43.9 ± 5.0	NB
P	*Crataegus macrosperma*	Big-Fruit Hawthorn				S2?	2	18.5 ± 0.0	NB
P	*Rubus x recurvicaulis*	arching dewberry				S2?	4	16.9 ± 0.0	NB
P	*Galium obtusum*	Blunt-leaved Bedstraw				S2?	9	17.7 ± 10.0	NB
P	*Salix myricoides*	Bayberry Willow				S2?	2	40.8 ± 1.0	NB
P	*Carex vacillans*	Estuarine Sedge				S2?	4	47.2 ± 0.0	NB
P	*Platanthera huronensis*	Fragrant Green Orchid				S2?	4	71.5 ± 0.0	NB
P	*Solidago altissima*	Tall Goldenrod				S2S3	3	49.0 ± 0.0	NB
P	*Callitriche hermaphroditica*	Northern Water-starwort				S2S3	8	51.1 ± 0.0	NB
P	*Elatine americana*	American Waterwort				S2S3	18	40.6 ± 2.0	NB
P	*Bartonia paniculata*	Branched Bartonia				S2S3	2	70.7 ± 0.0	NS
P	*Bartonia paniculata ssp. iodandra*	Branched Bartonia				S2S3	24	67.1 ± 0.0	NB
P	*Geranium robertianum*	Herb Robert				S2S3	74	56.4 ± 0.0	PE
P	*Epilobium coloratum*	Purple-veined Willowherb				S2S3	27	43.2 ± 1.0	NB
P	*Rumex persicarioides*	Peach-leaved Dock				S2S3	28	18.0 ± 1.0	NB
P	*Rumex pallidus*	Seabeach Dock				S2S3	7	39.6 ± 0.0	NB
P	*Rubus pensilvanicus*	Pennsylvania Blackberry				S2S3	35	34.2 ± 0.0	NB
P	*Galium labradoricum*	Labrador Bedstraw				S2S3	14	35.2 ± 0.0	NB
P	*Carex adusta*	Lesser Brown Sedge				S2S3	12	9.9 ± 0.0	NB
P	*Scirpus atrovirens*	Dark-green Bulrush				S2S3	2	60.9 ± 0.0	PE
P	*Corallorhiza maculata var. occidentalis*	Spotted Coralroot				S2S3	14	6 2 ± 10.0	NB
P	*Corallorhiza maculata var. maculata*	Spotted Coralroot				S2S3	3	69.6 ± 0.0	NB
P	*Neottia auriculata*	Auricled Twayblade				S2S3	8	75.1 ± 0.0	NB
P	*Spiranthes cernua*	Nodding Ladies'-Tresses				S2S3	19	37.5 ± 0.0	NB
P	*Eragrostis pectinacea*	Tufted Love Grass				S2S3	5	12.6 ± 0.0	NB
P	*Stuckenia filiformis*	Thread-leaved Pondweed				S2S3	2	22.3 ± 1.0	NB
P	*Potamogeton praelongus*	White-stemmed Pondweed				S2S3	12	56.5 ± 0.0	NS
P	*Ophioglossum pusillum*	Northern Adder's-tongue				S2S3	5	62.5 ± 50.0	NS
P	*Panax trifolius*	Dwarf Ginseng				S3	36	8.8 ± 0.0	NB
P	*Artemisia campestris ssp. caudata*	Tall Wormwood				S3	43	65.3 ± 0.0	NB
P	*Artemisia campestris*	Field Wormwood				S3	6	79.2 ± 0.0	NB
P	*Bidens hyperborea*	Estuary Beggar icks				S3	131	17.7 ± 1.0	NB
P	*Erigeron hyssopifolius*	Hyssop-leaved Fleabane				S3	98	37.3 ± 1.0	NB
P	*Nabalus racemosus*	Glaucous Rattlesnakeroot				S3	8	88.2 ± 0.0	NB
P	*Symphyotrichum boreale*	Boreal Aster				S3	12	35.0 ± 0.0	NB
P	*Betula pumila*	Bog Birch				S3	174	19.3 ± 0.0	NB
P	*Turritis glabra*	Tower Mustard				S3	1	87.7 ± 0.0	NB
P	*Arabis pycnocarpa*	Cream-flowered Rockcress				S3	17	18.2 ± 0.0	NB
P	*Cardamine maxima*	Large Toothwort				S3	8	83.1 ± 0.0	NB
P	*Subularia aquatica ssp. americana*	American Water Awlwort				S3	2	68.5 ± 0.0	NB
P	*Stellaria humifusa*	Saltmarsh Starwort				S3	15	19.5 ± 5.0	NB
P	*Ceratophyllum echinatum*	Prickly Hornwort				S3	33	7.8 ± 0.0	NB
P	*Hudsonia tomentosa*	Woolly Beach-heath				S3	412	23.6 ± 0.0	NB
P	*Cornus obliqua*	Silky Dogwood				S3	55	70.4 ± 0.0	NB
P	*Crassula aquatica*	Water Pygmyweed				S3	43	40.9 ± 0.0	NB
P	*Rhodiola rosea*	Roseroot				S3	73	69.0 ± 0.0	NB
P	*Penthorum sedoides*	Ditch Stonecrop				S3	27	33.2 ± 0.0	NB
P	*Elatine minima*	Small Waterwort				S3	3	69.1 ± 0.0	NB
P	*Geranium bicknellii*	Bicknell's Crane's-bill				S3	26	9.9 ± 0.0	NB
P	*Myriophyllum farwellii*	Farwell's Water Milfoil				S3	12	41.1 ± 0.0	NB
P	*Myriophyllum heterophyllum*	Variable-leaved Water Milfoil				S3	11	88.2 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
P	*Myriophyllum verticillatum*	Whorled Water Milfoil				S3	14	52.0 ± 1.0	NB
P	*Teucrium canadense*	Canada Germander				S3	129	14.1 ± 0.0	NB
P	*Nuphar microphylla*	Small Yellow Pond-lily				S3	8	50.3 ± 5.0	NB
P	*Epilobium hornemannii*	Hornemann's Willowherb				S3	5	74.7 ± 0.0	NB
P	*Epilobium hornemannii ssp. hornemannii*	Hornemann's Willowherb				S3	1	74.7 ± 0.0	NB
P	*Epilobium strictum*	Downy Willowherb				S3	27	19.9 ± 0.0	NB
P	*Polygala sanguinea*	Blood Milkwort				S3	64	16.6 ± 0.0	NB
P	*Persicaria arifolia*	Halberd-leaved Tearthumb				S3	142	19.7 ± 0.0	NB
P	*Persicaria punctata*	Dotted Smartweed				S3	71	40.8 ± 0.0	NB
P	*Fallopia scandens*	Climbing False Buckwheat				S3	77	22.8 ± 2.0	NB
P	*Samolus parviflorus*	Seaside Brookweed				S3	185	11.0 ± 0.0	NB
P	*Pyrola minor*	Lesser Pyrola				S3	5	59.3 ± 0.0	NS
P	*Clematis occidentalis*	Purple Clematis				S3	16	48.5 ± 0.0	NB
P	*Ranunculus gmelinii*	Gmelin's Water Buttercup				S3	50	24.0 ± 1.0	NB
P	*Thalictrum confine*	Northern Meadow-rue				S3	2	90.6 ± 0.0	NB
P	*Amelanchier canadensis*	Canada Serviceberry				S3	20	21.7 ± 0.0	NB
P	*Rosa palustris*	Swamp Rose				S3	7	50.1 ± 0.0	NB
P	*Rubus occidentalis*	Black Raspberry				S3	2	48.1 ± 0.0	NB
P	*Sanguisorba canadensis*	Canada Burnet				S3	17	70.7 ± 0.0	NB
P	*Galium boreale*	Northern Bedstraw				S3	5	68.4 ± 5.0	NS
P	*Salix nigra*	Black Willow				S3	32	78.3 ± 0.0	NB
P	*Salix pedicellaris*	Bog Willow				S3	71	20.2 ± 0.0	NB
P	*Salix interior*	Sandbar Willow				S3	2	36.8 ± 1.0	NB
P	*Comandra umbellata*	Bastard's Toadflax				S3	57	19.1 ± 0.0	NB
P	*Limosella australis*	Southern Mudwort				S3	156	11.3 ± 0.0	NB
P	*Pilea pumila*	Dwarf Clearweed				S3	77	33.5 ± 0.0	NB
P	*Viola adunca*	Hooked Violet				S3	5	49.6 ± 0.0	NB
P	*Viola nephrophylla*	Northern Bog Violet				S3	14	64.7 ± 0.0	PE
P	*Carex arcta*	Northern Clustered Sedge				S3	10	44.6 ± 5.0	NB
P	*Carex capillaris*	Hairlike Sedge				S3	13	69.9 ± 0.0	NS
P	*Carex chordorrhiza*	Creeping Sedge				S3	74	48.1 ± 0.0	NB
P	*Carex conoidea*	Field Sedge				S3	9	28.5 ± 0.0	NB
P	*Carex eburnea*	Bristle-leaved Sedge				S3	18	47.1 ± 100.0	NB
P	*Carex exilis*	Coastal Sedge				S3	6	76.2 ± 0.0	NS
P	*Carex garberi*	Garber's Sedge				S3	1	21.4 ± 0.0	NB
P	*Carex haydenii*	Hayden's Sedge				S3	10	13.4 ± 0.0	NB
P	*Carex lupulina*	Hop Sedge				S3	21	33.2 ± 0.0	NB
P	*Carex michauxiana*	Michaux's Sedge				S3	18	51.1 ± 1.0	NB
P	*Carex ormostachya*	Necklace Spike Sedge				S3	4	33.0 ± 1.0	NB
P	*Carex rosea*	Rosy Sedge				S3	9	75.4 ± 0.0	NB
P	*Carex tenera*	Tender Sedge				S3	13	13.4 ± 0.0	NB
P	*Carex tuckermanii*	Tuckerman's Sedge				S3	24	39.9 ± 10.0	NB
P	*Carex wiegandii*	Wiegand's Sedge				S3	178	14.7 ± 0.0	NB
P	*Carex recta*	Estuary Sedge				S3	18	11.3 ± 0.0	NB
P	*Carex atratiformis*	Scabrous Black Sedge				S3	3	96.9 ± 0.0	NS
P	*Cyperus dentatus*	Toothed Flatsedge				S3	99	41.6 ± 1.0	NB
P	*Cyperus esculentus var. leptostachyus*	Perennial Yellow Nutsedge				S3	7	53.6 ± 0.0	NB
P	*Eleocharis intermedia*	Matted Spikerush				S3	1	65.5 ± 0.0	NB
P	*Rhynchospora capitellata*	Small-headed Beakrush				S3	7	77.3 ± 1.0	NB
P	*Rhynchospora fusca*	Brown Beakrush				S3	10	56.1 ± 0.0	NS
P	*Trichophorum clintonii*	Clinton's Clubrush				S3	25	74.6 ± 0.0	NB
P	*Bolboschoenus fluviatilis*	River Bulrush				S3	4	32.2 ± 1.0	NB
P	*Schoenoplectus torreyi*	Torrey's Bulrush				S3	5	8.6 ± 0.0	NB
P	*Lemna trisulca*	Star Duckweed				S3	19	29.9 ± 0.0	NB
P	*Cypripedium reginae*	Showy Lady's-Slipper				S3	38	22.4 ± 0.0	NB
P	*Liparis loeselii*	Loesel's Twayblade				S3	35	19.2 ± 0.0	NB

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
P	*Platanthera blephariglottis*	White Fringed Orchid				S3	622	10.4 ± 0.0	NB
P	*Platanthera grandiflora*	Large Purple Fringed Orchid				S3	41	9.2 ± 1.0	NB
P	*Bromus latiglumis*	Broad-Glumed Brome				S3	29	30.6 ± 0.0	NB
P	*Calamagrostis pickeringii*	Pickering's Reed Grass				S3	32	20.1 ± 0.0	NB
P	*Dichanthelium depauperatum*	Starved Panic Grass				S3	19	32.1 ± 0.0	NB
P	*Potamogeton obtusifolius*	Blunt-leaved Pondweed				S3	37	33.6 ± 0.0	NB
P	*Potamogeton richardsonii*	Richardson's Pondweed				S3	2	95.3 ± 0.0	NB
P	*Xyris montana*	Northern Yellow-Eyed-Grass				S3	253	13.7 ± 0.0	NB
P	*Zannichellia palustris*	Horned Pondweed				S3	71	11.2 ± 0.0	NB
P	*Adiantum pedatum*	Northern Maidenhair Fern				S3	1	93.9 ± 1.0	NB
P	*Cryptogramma stelleri*	Steller's Rockbrake				S3	6	98.2 ± 0.0	NB
P	*Asplenium viride*	Green Spleenwort				S3	9	49.3 ± 1.0	NB
P	*Dryopteris fragrans*	Fragrant Wood Fern				S3	90	62.9 ± 0.0	NB
P	*Woodsia glabella*	Smooth Cliff Fern				S3	67	63.3 ± 0.0	NB
P	*Isoetes tuckermanii ssp. tuckermanii*	Tuckerman's Quillwort				S3	4	67.1 ± 0.0	NB
P	*Diphasiastrum x sabinifolium*	Savin-leaved Ground-cedar				S3	16	38.3 ± 0.0	NB
P	*Huperzia appressa*	Mountain Firmoss				S3	37	75.0 ± 0.0	NB
P	*Sceptridium dissectum*	Dissected Moonwort				S3	6	22.7 ± 2.0	NB
P	*Botrychium lanceolatum ssp. angustisegmentum*	Narrow Triangle Moonwort				S3	15	39.2 ± 0.0	NB
P	*Botrychium simplex*	Least Moonwort				S3	6	46.9 ± 0.0	NB
P	*Polypodium appalachianum*	Appalachian Polypody				S3	27	42.5 ± 1.0	NB
P	*Mertensia maritima*	Sea Lungwort				S3S4	7	56.7 ± 0.0	NB
P	*Lobelia kalmii*	Brook Lobelia				S3S4	1	100.0 ± 10.0	NB
P	*Suaeda calceoliformis*	Horned Sea-blite				S3S4	42	14.7 ± 5.0	NB
P	*Myriophyllum sibiricum*	Siberian Water Milfoil				S3S4	8	63.5 ± 0.0	NS
P	*Stachys pilosa*	Hairy Hedge-Nettle				S3S4	17	94.5 ± 0.0	NB
P	*Utricularia gibba*	Humped Bladderwort				S3S4	4	41.9 ± 0.0	NB
P	*Rumex fueginus*	Tierra del Fuego Dock				S3S4	134	13.6 ± 0.0	NB
P	*Rubus chamaemorus*	Cloudberry				S3S4	187	13.6 ± 0.0	NB
P	*Geocaulon lividum*	Northern Comandra				S3S4	48	18.5 ± 0.0	NB
P	*Juniperus horizontalis*	Creeping Juniper				S3S4	25	38.1 ± 1.0	NB
P	*Cladium mariscoides*	Smooth Twigrush				S3S4	7	42.7 ± 1.0	NB
P	*Eriophorum russeolum*	Russet Cottongrass				S3S4	350	15.6 ± 0.0	NB
P	*Eriophorum russeolum ssp. russeolum*	Russet Cottongrass				S3S4	53	33.0 ± 0.0	NB
P	*Triglochin gaspensis*	Gasp ├⌐ Arrowgrass				S3S4	78	29.2 ± 0.0	NB
P	*Spirodela polyrhiza*	Great Duckweed				S3S4	15	48.9 ± 0.0	NB
P	*Corallorhiza maculata*	Spotted Coralroot				S3S4	23	40.9 ± 10.0	NB
P	*Calamagrostis stricta*	Slim-stemmed Reed Grass				S3S4	32	19.2 ± 2.0	NB
P	*Calamagrostis stricta ssp. stricta*	Slim-stemmed Reed Grass				S3S4	17	51.2 ± 0.0	NB
P	*Distichlis spicata*	Salt Grass				S3S4	108	13.9 ± 0.0	NB
P	*Potamogeton oakesianus*	Oakes' Pondweed				S3S4	14	23.4 ± 0.0	NB
P	*Montia fontana*	Water Blinks				SH	4	19.2 ± 1.0	NB
P	*Brachyelytrum erectum*	Bearded Shorthusk				SH	2	22.8 ± 2.0	NB
P	*Agalinis maritima*	Saltmarsh Agalinis				SX	2	56.2 ± 50.0	NB

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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.

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30	Cowie, F. 2007. Electrofishing Population Estimates 1979-98. Canadian Rivers Institute, 2698 recs.
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30	Newell, R.E. 2005. E.C. Smith Digital Herbarium. E.C. Smith Herbarium, Irving Biodiversity Collection, Acadia University, Web site: http://luxor.acadiau.ca/library/Herbarium/project/. 582 recs.
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11	Pronych, G. & Wilson, A. 1993. Atlas of Rare Vascular Plants in Nova Scotia. Nova Scotia Museum, Halifax NS, I:1-168, II:169-331. 1446 recs.
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7	Munro, Marian K. Tracked lichen specimens, Nova Scotia Provincial Museum of Natural History Herbarium. A lantic Canada Conservation Data Centre. 2019.
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6	Gowan, S. 1980. The Lichens of Kouchibouguac National Park, Parts I (Macrolichens) & II (Microlichens). National Museum of Natural Sciences. Ottawa, ON, 7 recs.
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5	Bastien, D. 2017. Rare Peatland plant observations. Pers. comm. to H. Askanas, New Brunswick Department of Energy and Resource Development.
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4	Hicklin, P.W. 1995. The Maritime Shorebird Survey Newsletter. Calidris, No. 3. 6 recs.
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4	Phillips, B. 2017. Emails to John Klymko regarding Eastern Waterfan (Peltigera hydrothyria) occurrences in Fundy National Park. Fundy Biosphere Reserve, 3 recs.
4	Popma, K. 2001. Phalarope & other bird observations in Westmorland Co. , Pers. comm. to K.A. Bredin. 5 recs.
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4	Webster, R.P. 2006. Survey for Suitable Salt Marshes for the Mari ime Ringlet, New Populations of the Cobblestone Tiger Beetle, & New Localities of Three Rare Butterfly Species. New Brunswick WTF Report, 28 recs.
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3	Golder Associates. 2018. Dorchester wind turbine bat detections. Owens, Luke, Firman, Mitch, Melcher, Heather (ed.) Golder Associates Ltd.
3	Grondin, P. & Blouin, J-L., Bouchard, D.; et al. 1981. Description et cartographie de la vegetation du cordon littoral. Parc National de Kouchibouguac. Le Groupe Dryade, 57 pp.
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3	Kennedy, Joseph. 2010. New Brunswick Peregrine records, 2010. New Brunswick Dept Natural Resources, 16 recs (11 active).
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3	Nye, T. 2002. Wood Turtle observations in Westmorland, Queens Cos. , Pers. com. to S.H. Gerriets, Dec. 3. 3 recs.
3	Olsen, R. Herbarium Specimens. Nova Scotia Agricultural College, Truro. 2003.
3	Richardson, D., Anderson, F., Cameron, R, Pepper, C., Clayden, S. 2015. Field Work Report on the Wrinkled Shingle lichen (Pannaria lurida). COSEWIC.
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3	Speers, L. 2001. Butterflies of Canada database. Agriculture & Agri-Food Canada, Biological Resources Program, Ottawa, 190 recs.
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2	Boyne, A.W. & Grecian, V.D. 1999. Tern Surveys. Canadian Wildlife Service, Sackville, unpublished data. 23 recs.
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2	Parker, M. 2016. Wood turtle (Glyptemys insculpta) Visual Surveys at Black, Wallace, Musquodobit and Sackville Rivers, Nova Scotia. East Coast Aquatics Inc., 3 records.
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2	Stevens, C. 1999. Cam Stevens field data from PEI vegetation plots. Sent along with specimens to C.S. Blaney. UNB masters research project, 732 recs.
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1	Amirault, D.L. 2003. 2003 Peregrine Falcon Survey. Canadian Wildlife Service, Sackville, unpublished data. 7 recs.
1	Amiro, Peter G. 1998. Atlantic Salmon: Inner Bay of Fundy SFA 22 & part of SFA 23. Dept of Fisheries & Oceans, Atlantic Region, Science Stock Status Report D3-12. 4 recs.
1	Bagnell, B.A. 2003. Update to New Brunswick Rare Bryophyte Occurrences. B&B Botanical, Sussex, 5 recs.
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1	Bredin, K.A. 2000. NB & NS Bog Project, fieldwork. Atlantic Canada Conservation Data Centre, Sackville, 1 rec.
1	Bredin, K.A. 2001. NB Freshwater Mussel Fieldwork. Atlantic Canada Conservation Data Centere, 16 recs.
1	Bredin, K.A. 2002. NB Freshwater Mussel Fieldwork. Atlantic Canada Conservation Data Centere, 30 recs.
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1	Cameron, R.P. 2014. 2013-14 rare species field data. Nova Scotia Department of Environment, 35 recs.
1	Cameron, R.P. 2018. Degelia plumbea records. Nova Scotia Environment.
1	Chaput, G. 1999. Atlan ic Salmon: Miramichi & SFA 16 Rivers. Dept of Fisheries & Oceans, Atlantic Region, Science Stock Status Report D3-05. 6 recs.
1	Chris ie, D.S. 2000. Christmas Bird Count Data, 1997-2000. Nature NB, 54 recs.
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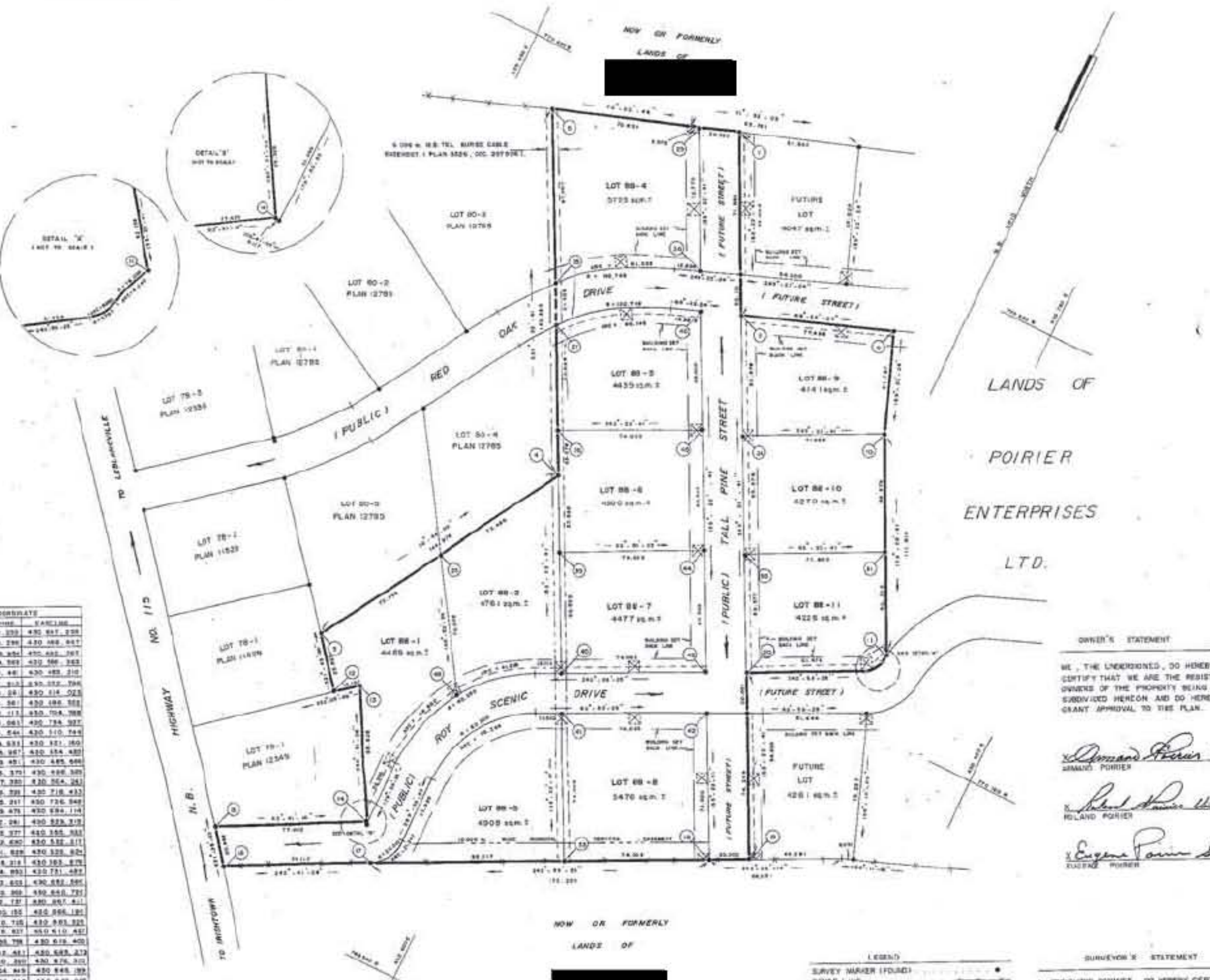


N.B. GRID COORDINATE		
STATION	NORTHING	EASTING
MON 133	768 160.250	430 847.239
MON 8231	769 188.296	430 188.847
[illegible]	770 273.954	430 482.767
[illegible]	770 224.569	430 586.363
[illegible]	770 170.461	430 485.210
[illegible]	770 101.313	430 372.786
[illegible]	770 119.261	430 114.023
[illegible]	770 146.361	430 186.302
[illegible]	770 198.113	430 704.788
[illegible]	770 149.061	430 734.327
[illegible]	770 206.544	430 110.744
[illegible]	770 264.531	430 321.150
[illegible]	770 304.967	430 354.482
[illegible]	769 360.451	430 485.666
[illegible]	769 363.370	430 496.305
[illegible]	768 387.380	430 564.263
[illegible]	770 085.325	430 718.433
[illegible]	770 275.217	430 726.548
[illegible]	770 159.475	430 694.114
[illegible]	770 142.261	430 523.313
[illegible]	770 225.377	430 565.502
[illegible]	770 272.430	430 532.217
[illegible]	770 291.529	430 525.624
[illegible]	770 355.213	430 383.875
[illegible]	770 364.893	430 731.487
[illegible]	770 033.633	430 682.586
[illegible]	770 283.369	430 640.721
[illegible]	770 212.737	430 867.411
[illegible]	770 330.155	430 866.181
[illegible]	770 170.725	430 883.321
[illegible]	770 119.937	430 610.457
[illegible]	770 085.798	430 619.400
[illegible]	770 132.481	430 685.273
[illegible]	770 150.360	430 676.311
[illegible]	770 204.845	430 845.199
[illegible]	770 288.517	430 632.086
[illegible]	770 312.176	430 599.308
[illegible]	770 083.213	430 567.840

LEGEND

SURVEY MARKER (FOUND)
FENCE LINE
JOINT UTILITY EASEMENT
BOUNDARY LINE
RADIUS
TABULATED COORDINATE
EASEMENT BLOCK
SQUARE METER
BURIED CABLE EASEMENT
BUILDING SET BACK LINE
MUNICIPAL SERVICES EASEMENT

LOCALITY SKETCH

SCALE KILOMETER

SUBDIVISION PLAN OF RED OAK SUBDIVISION

UNIT NO. 1

PROPERTY LOCATED AT EAST OF N.B. HIGHWAY NO. 115 (IRISHTOWN ROAD), PARISH OF MONCTON, COUNTY OF WESTMORLAND, PROVINCE OF NEW BRUNSWICK.

DEED DATA

GRANTOR - CENTRAL TRUST COMPANY
GRANTEE - POIRIER ENTERPRISES LTD
DATED - SEPTEMBER 29, 1987.
REGISTERED - NOVEMBER 13, 1987.
DEED NO. - 458 110
BOOK NO. - 1313
PAGE NO. - 461 - 466

PURPOSE OF PLAN

- TO CREATE LOT 88-1 TO LOT 88-11 FOR RESIDENTIAL PURPOSES.
- TO CREATE 20.000 METER WIDE PUBLIC STREETS AS SHOWN.
- TO CREATE 3.000 METER WIDE JOINT UTILITY EASEMENTS AS SHOWN.
- TO CREATE EASEMENT BLOCKS AS SHOWN.
- TO CREATE 10.000 m. WIDE MUNICIPAL EASEMENT AS SHOWN.

OWNER'S STATEMENT

WE, THE UNDERSIGNED, DO HEREBY CERTIFY THAT WE ARE THE REGISTERED OWNERS OF THE PROPERTY BEING SUBDIVIDED HEREON AND DO HEREBY GRANT APPROVAL TO THIS PLAN.

x Armand Poirier Pres.
ARMAND POIRIER

x Roland Poirier
ROLAND POIRIER

x Eugene Poirier
EUGENE POIRIER

NOTE

- ALL LOTS ARE SUBJECT TO 7.500 METER WIDE BUILDING SET BACK LINE.
- ALL EASEMENT BLOCKS TO BE 6.000 m. x 5.000 m. FOR GUYING PURPOSES.
- ALL MEASUREMENTS ARE IN METRIC UNLESS OTHERWISE STATED.
- ALL AZIMUTH AND COORDINATE VALUES ARE CALCULATED IN REFERENCE TO N.B. GRID MONUMENT NO. 133 AND NO 8231.
- LANDS DEALT WITH BY THIS PLAN BOUNDED THUS

SURVEYOR'S STATEMENT

I, CREIGHTON CORMIER, DO HEREBY CERTIFY THAT THIS PLAN, AS DELINEATED BY HEAVY LINES, IS CORRECT TO THE BEST OF MY KNOWLEDGE AND THAT THE CORNERS ARE MARKED AS SHOWN. PERIPHERAL INFORMATION IS FOR REFERENCE ONLY.

x [signature]
CREIGHTON CORMIER N.B.L.S.

PLAN PREPARED BY

CORMIER SURVEY LTD.

36 ALMA STREET, MONCTON, N.B. E1C 4Y1
TEL. (506) 857-3456

FILE NO. 8081 ; PLAN SCALE 1:1000
SCALE 20 10 0 20 40 METER
CAL. & DRAWN BY - SHON YEUNG.
DATED - OCT 21, 1988.

ENDORSEMENT

N.B. TEL EASEMENT APPROVAL :
(5.095 m. WIDE BURIED CABLE EASEMENT)
B.B. Fearon 88-10-24
F. B. FEARON

MSA4494 13/33/88PLAN 11.31

N.B.E.P.C. EASEMENT APPROVAL :
- 3.000 m. WIDE JOINT UTILITY EASEMENTS
- 6.000 m. X 6.000 m. GUYING ANCHOR EASEMENT BLOCKS

David M LeBlanc
DAVID M. LEBLANC

GREATER MONCTON PLANNING COMMISSION APPROVAL :

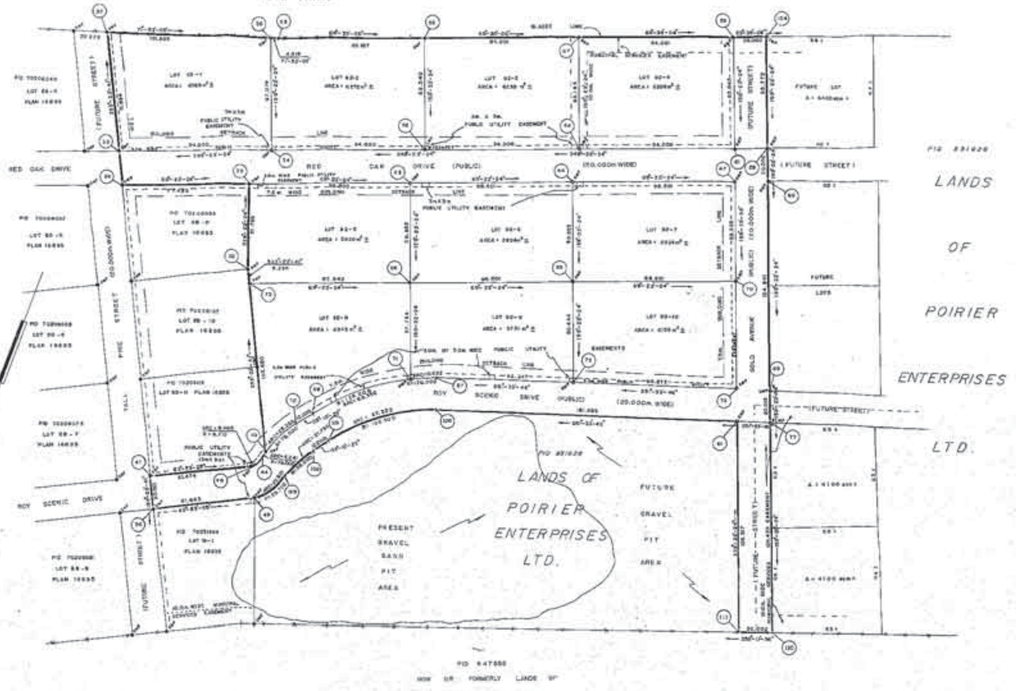
APPROVED
Date Nov. 17 1988

REGISTRY OFFICE COUNTY OF WESTMORLAND APPROVAL :

#16895
Received and filed at
Moncton, N. B.
the 16 day of November
A. D. 19 88 at 3:37 o'clock P.M.
Registrar

1988 11 09

PLAN VALIDATION SEAL APPROVAL :



NOTE :

- ALL MEASUREMENTS ARE IN METRIC UNLESS OTHERWISE STATED.
- ALL AZIMUTH AND COORDINATE VALUES ARE CALCULATED IN REFERENCE TO N.B. GRID MONUMENT NO. 133 AND NO. 2281.
- LANDS DEALT WITH BY THIS PLAN BOUNDED THUS
- ALL LOTS ARE SUBJECT TO 7.500 METER WIDE BUILDING SET BACK LINE.

LEGEND :

SURVEY MARKER (FOUND)	●
SURVEY MARKER (PLACED)	○
WIRE FENCE LINE	
AREA	A
SQUARE METER	m²
RADIUS	R
TABULATED COORDINATE	
BUILDING SET BACK LINE	
BOUNDARY LINE	
HORIZONTAL SCALE FACTOR	H. S. F.
MONUMENT	MON

NOTE :

PUBLIC UTILITY EASEMENTS DESIGNATED PURSUANT TO REGULATION 84-217, SECTION 6, UNDER THE COMMUNITY PLANNING ACT.

UTILITIES APPROVAL

APPROVED : June 23/92

THE NEW BRUNSWICK ELECTRIC POWER COMMISSION.

BY: [signature]

APPROVED :

THE NEW BRUNSWICK TELEPHONE COMPANY LIMITED

BY: [signature]

MUNICIPAL SERVICES EASEMENT

MUNICIPAL SERVICES EASEMENTS DESIGNATED PURSUANT TO REGULATION 84-217, SECTION (4) UNDER THE COMMUNITY PLANNING ACT 1973.

PURPOSE OF PLAN :

- TO CREATE LOT 92-1 TO LOT 92-10 FOR RESIDENTIAL PURPOSES.
- TO CREATE 20.000 METER WIDE PUBLIC STREETS AS SHOWN.
- TO CREATE 3.000 METER BY 3.000 METER PUBLIC UTILITY EASEMENTS.
- TO CREATE 3.000 METER WIDE PUBLIC UTILITY EASEMENTS AS SHOWN.
- TO CREATE A 20.000m. FUTURE STREETS AS SHOWN.
- TO CREATE 10.0m WIDE MUNICIPAL SERVICES EASEMENTS AS SHOWN.

1992.07.14

OWNER STATEMENT :

WE, THE UNDERSIGNED, DO HEREBY CERTIFY THAT WE ARE THE REGISTERED OWNERS OF THE PROPERTY BEING SUBDIVIDED HEREON AND DO HEREBY GRANT APPROVAL TO THIS PLAN.

X [signature] ARMAND POIRIER PRESIDENT

X [signature] ROLAND POIRIER VICE PRESIDENT

X [signature] EUGENE POIRIER SECRETARY TREASURER

SURVEYOR STATEMENT :

I, CREIGHTON CORMIER, DO HEREBY CERTIFY THAT THIS PLAN AS DELINEATED BY HEAVY LINES, IS CORRECT TO THE BEST OF MY KNOWLEDGE AND THAT THE CORNERS ARE MARKED AS SHOWN. PERIPHERAL INFORMATION IS FOR REFERENCE ONLY.

[signature]
CREIGHTON CORMIER N.B.L.S.

CAUTION

The lot(s) shown on this plan have not been approved as suitable for an on-site sewage disposal system. Approval of the district medical health office may be required for such installation.

APPROVED
[signature]
Kenneth D. Stevens
DEVELOPMENT OFFICER
Date July 15, 1992

RECEIVED AND FILED
DATE July 15/92
TIME 14:00 NUMBER 18807
[signature]
WESTMORLAND COUNTY

LOCALITY SKETCH

SCALE KILOMETER

SUBDIVISION PLAN

RED OAK SUBDIVISION-UNIT NO. 3

PROPERTY LOCATED AT EAST OF N.B. HIGHWAY NO. 115 (IRISHTOWN ROAD), PARISH OF MONCTON, COUNTY OF WESTMORLAND, PROVINCE OF NEW BRUNSWICK. (LOT NO. 92-1 TO NO. 92-10)

DEED DATA

GRANTOR : CENTRAL TRUST COMPANY
GRANTEE : POIRIER ENTERPRISES LTD.
DATED : SEPTEMBER 29, 1987
REGISTERED : NOVEMBER 13, 1987
DEED NO. : 458113
BOOK NO. : 1313
PAGE NO. : 462 - 466

N.B. GRID COORDINATE VALUE

STATION	NORTHING	EASTING
MON 133	769 980.202	430 647.278
MON 2281	769 959.790	430 466.647
[illegible]	770 298.118	430 704.788
[illegible]	770 327.237	430 802.612
[illegible]	770 370.858	430 692.687
[illegible]	770 433.133	430 489.556
[illegible]	770 451.811	430 572.758
[illegible]	770 319.081	430 614.018
[illegible]	770 348.081	430 680.550
[illegible]	770 169.688	430 750.637
[illegible]	770 434.632	430 473.574
[illegible]	770 436.580	430 868.838
[illegible]	770 493.468	430 780.992
[illegible]	770 483.768	430 737.831
[illegible]	770 489.838	430 845.619
[illegible]	770 531.521	430 933.718
[illegible]	770 476.742	430 975.948
[illegible]	770 456.004	430 983.879
[illegible]	770 459.608	430 996.911
[illegible]	770 481.287	430 778.021
[illegible]	770 419.175	430 871.488
[illegible]	770 271.194	430 820.441
[illegible]	770 220.719	430 766.819
[illegible]	770 290.752	430 706.470
[illegible]	770 303.481	430 813.308
[illegible]	770 250.728	430 772.732
[illegible]	770 177.678	430 835.877
[illegible]	770 155.959	430 783.873
[illegible]	770 187.458	430 748.833
[illegible]	770 169.606	430 737.898
[illegible]	770 260.088	430 891.410
[illegible]	[illegible]	[illegible]

PLAN PREPARED BY :

CORMIER SURVEY LTD

36 ALMA STREET, MONCTON, N.B.
E1C 4Y1 TEL: (506) 857-3456

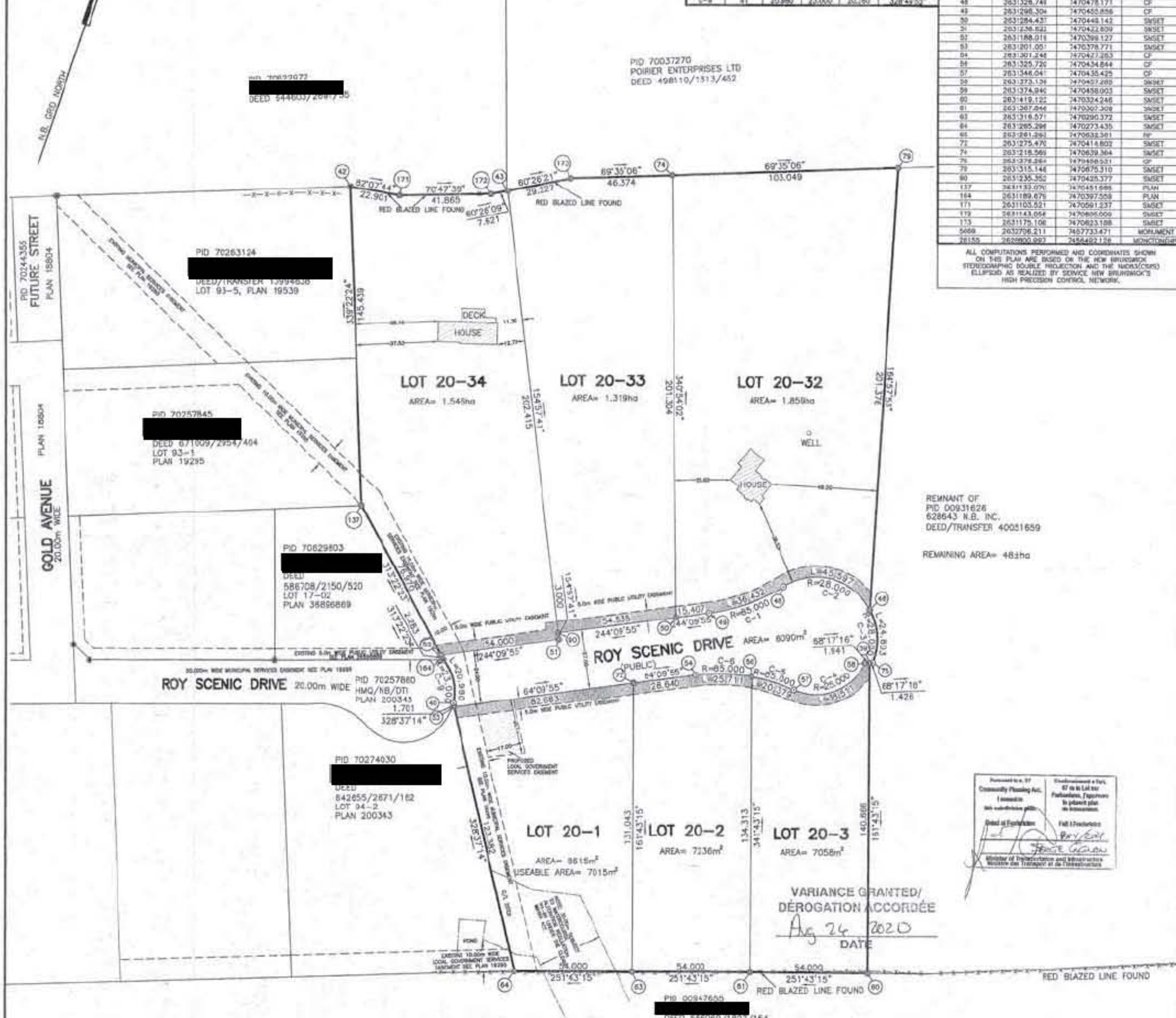
FILE NO. 294 PLAN SCALE 1: 1000

SCALE METERS

CAL. & DRAWN BY : N. BELANGER

DATED : MAY 18, 1992

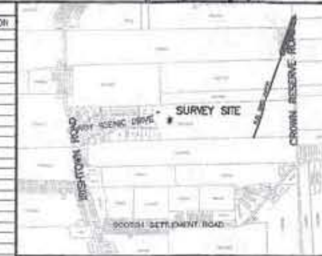
40984982



CURVE TABLE					
CURVE	RP	LENGTH	RADIUS	CHORD	AZIMUTH
C-1	65	36.432	85.000	36.154	51°53'11"
C-2	47	45.597	28.000	40.723	228°15'33"
C-3	47	24.803	28.000	24.000	158°17'16"
C-4	47	36.511	25.000	34.814	51°06'10"
C-5	55	20.379	85.000	20.330	268°21'52"
C-6	56	25.711	85.000	25.813	252°49'50"
C-9	41	20.880	23.000	20.260	328°49'[illegible]

N.B. GRID COORDINATE VALUES NAD83 (CSRS)			
POINT	EASTING (m)	NORTHING(m)	DESCRIPTION
40	2631200.188	7470380.223	CP
41	2631177.254	7470378.204	RP
42	2631080.834	7470588.101	SMFD
43	2631149.885	7470606.769	SMSET
46	2631367.385	7470480.828	SMSET
47	2631348.321	7470450.320	RP
48	2631328.748	7470478.171	CP
49	2631298.304	7470455.856	CP
50	2631284.437	7470449.142	SMSET
51	2631236.822	7470422.609	SMSET
52	2631188.018	7470399.127	SMSET
53	2631201.051	7470378.771	SMSET
54	2631301.248	7470427.263	CP
56	2631325.720	7470434.844	CP
57	2631346.041	7470435.425	CP
58	2631373.138	7470457.280	SMSET
59	2631374.940	7470458.003	SMSET
60	2631419.122	7470324.246	SMSET
61	2631367.846	7470307.309	SMSET
63	2631318.571	7470290.372	SMSET
64	2631265.298	7470273.435	SMSET
65	2631261.293	7470532.361	RP
72	2631275.470	7470414.802	SMSET
74	2631218.569	7470639.364	SMSET
76	2631376.284	7470458.531	CP
79	2631315.148	7470675.310	SMSET
80	2631235.352	7470425.377	SMSET
137	2631133.070	7470451.985	PLAN
164	2631189.679	7470397.558	PLAN
171	2631103.521	7470591.237	SMSET
172	2631143.058	7470605.009	SMSET
173	2631175.108	7470623.188	SMSET
5669	2632706.211	7457733.471	MONUMENT
28155	2628800.993	7456492.128	MONCTONGHPN

ALL COMPUTATIONS PERFORMED AND COORDINATES SHOWN ON THIS PLAN ARE BASED ON THE NEW BRUNSWICK STEREOGRAPHIC DOUBLE PROJECTION AND THE NAD83(CSRS) ELLIPSOID AS REALIZED BY SERVICE NEW BRUNSWICK'S HIGH PRECISION CONTROL NETWORK.



KEY PLAN

LEGEND

STANDARD SURVEY MARKER PLACED (SMSET)
STANDARD SURVEY MARKER FOUND (SMFD)
IRON PIPE FOUND (IPFD)
IRON BAR FOUND (IBFD)
CALCULATED COORDINATE POINT (CP)
TABULATED COORDINATE REFERENCE
CENTRELINE — SANITARY SEWER LINE
EASEMENT — STORM SEWER LINE
FENCE — WATER MAIN
UTILITY LINE
SQUARE METRES m²
NEW BRUNSWICK LAND SURVEYOR NBLS
NBLS REGISTRATION NUMBER #306
ORDINARY HIGH WATER MARK OHWM
PARCEL IDENTIFIER NUMBER PID
SERVICE NEW BRUNSWICK SNB
INSTRUMENT / VOLUME / PAGE 123456/1234/123
DISTANCE OR AZIMUTH CALLED FOR IN DEED (DEED)
CURVE C-1 — SPOT ELEVATION (m)
POINT OF CURVE PC — MANHOLE SANITARY
POINT OF TANGENT PT — MANHOLE STORM
RADIUS POINT RP — CATCHBASIN
LAND DEALT WITH BY THIS PLAN BOUNDED THUS:
LAND DEALT WITH BY THIS PLAN BOUNDED THUS:
UTILITY POLE — WATER VALVE
CIVIC NUMBER 123 — VALVE CHAMBER
HECTARE ha — FIRE HYDRANT

NOTES:

1. AZIMUTHS AND COORDINATES WERE DERIVED FROM SERVICE NEW BRUNSWICK'S HIGH PRECISION CONTROL NETWORK, NAD83(CSRS), REFERENCED TO MONUMENTS 5669 & 28155 (HPN).
2. THE SCALE FACTOR USED IS EQUAL TO 1.000017
3. THE DOCUMENT NUMBERS REFERRED TO ON THIS PLAN ARE THOSE OF THE APPLICABLE COUNTY REGISTRY OFFICE.
4. AZIMUTHS ARE ROUNDED TO THE NEAREST 01'.
5. CERTIFICATION IS NOT MADE AS TO LEGAL TITLE, BEING THE DOMAIN OF A LAWYER, NOR TO THE ZONING AND SETBACK BY-LAWS OR REGULATIONS, BEING THE DOMAIN OF THE DEVELOPMENT OFFICER.
6. CERTIFICATION IS NOT MADE AS TO COVENANTS SET OUT IN THE DOCUMENT(S), NOR TO THE LOCATION OF ANY UNDERGROUND SERVICES AND/ OR FIXTURES, PERMANENT OR OTHERWISE.

PURPOSE OF PLAN:

1. TO CREATE LOTS 20-1, 20-2, 20-3, 20-32, 20-33 & 20-34 FOR RESIDENTIAL BUILDING PURPOSES.
2. TO CREATE A 24.00m PORTION OF ROY SCENIC DRIVE (PUBLIC) PURSUANT TO SECTION 87(3) OF THE COMMUNITY PLANNING ACT, 2017.
4. TO CREATE A PROPOSED 17.00m WIDE LOCAL GOVERMENT SERVICES EASEMENT SHOWN THUS:
3. TO CREATE A 5.0m WIDE PUBLIC UTILITY EASEMENT, PURSUANT TO SECTION 5, REGULATION 84-217, COMMUNITY PLANNING ACT, 2017, SHOWN THUS:

SUBDIVISION PLAN

RED OAK SUBDIVISION
UNIT 2 SUBDIVISION

LOCATED ON THE EAST SIDE OF
ROY SCENIC DRIVE
IRISHTOWN
PARISH OF MONCTON
COUNTY OF WESTMORLAND
PROVINCE OF NEW BRUNSWICK

20 0 20 40 60
SCALE - METRES 1: 1000

DRAWN BY: C. SAULNIER PTech | CHECKED BY: WD

SURVEYOR'S STATEMENT:

I, WARREN E. DAIGLE N.B.L.S., DO HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND ABILITY THIS PLAN CORRECTLY DEPICTS ANY RESEARCH, FIELD WORK AND COMPUTATIONS UNDERTAKEN FOR THIS PROJECT.

DATE: NOVEMBER 10, 2020

WARREN E. DAIGLE N.B.L.S.

SURVEYED BY : WARREN E. DAIGLE N.B.L.S. # 306
FIELD SURVEY COMPLETED : MARCH 12, 2020

DAIGLE SURVEYS LTD
1030 COVERDALE ROAD RIVERVIEW, NB E1B 5C6
TELEPHONE (506) 387-4073 FAX (506) 387-7328

JOB No.: 15332(VB) MAP: 21/02-Y3

PROPERTY INFORMATION

DEED/TRANSFER TO
628643 N.B. INC.

REGISTERED: MAY 6, 2020
INSTRUMENT: 40051659

PID: 00931626

628643 N.B. Inc.

OWNER'S STATEMENT

I, THE UNDERSIGNED, DO HEREBY CERTIFY THAT I REPRESENT THE REGISTERED OWNERS OF THE PROPERTY BEING SUBDIVIDED HEREON AND DO HEREBY GRANT APPROVAL TO THIS PLAN, AS OUR INTERESTS APPEAR.

ROBERT COOKE (PRESIDENT)
FOR: 628643 N.B. INC. (PID 00931626)

PUBLIC UTILITY EASEMENT(S) APPROVAL

PURSUANT TO SECTION 5 OF "DESIGNATED EASEMENTS REGULATION" 84-217 OF THE COMMUNITY PLANNING ACT, 2017, THE PUBLIC UTILITY EASEMENT(S) ON THIS PLAN VEST(S) IN NEW BRUNSWICK POWER CORPORATION and BELL CANADA, WITH THE FILING OF THIS PLAN.

Jan 20/2021
NEW BRUNSWICK POWER CORPORATION
AND BELL CANADA
DATE

PLANNING DEVELOPMENT OFFICER APPROVAL STAMP

APPROUVÉ/APPROVED
JEFFREY J. BOUDREAU
Agent d'aménagement/
Development Officer
Commission de services régionaux du Sud-Est
Southeast Regional Service Commission
Feb. 17, 2021

REGISTRATION STAMP

Plan received and filed/plan reçu et déposé
date/date 2021-02-17
time/heure 10:24:25 number/numéro 40984982
District of New Brunswick/
Circonscription du Nouveau-Brunswick

A.N.B.L.S.
No. 217409
A.A.-G. N.-B.

APPENDIX C

WAWA APPLICATION

Water Supply Source Assessment
Step One Application
Red Oak Estates Subdivision Expansion, Irishtown NB

Pursuant to Section 3(5) of
The Water Quality Regulation 82-126
Clean Environment Act

Please answer the following questions:

1) Name of proponent: 690763 NB Ltd.

2) The proposed water supply is to be used for what purpose?

Individual wells will provide potable water to the proposed 62 additional residential building lots.

3) Required water quantity (in m^3/day):

The estimated water requirement for the proposed 83.7 m^3/day (12.8 igpm), which is based on a per person water usage of 450 Litres per day and an average of 3 people per household which is higher than the 2016 census data for New Brunswick that has an average household size of 2.3.

4) List alternate water supply sources in area (including municipal systems):

The surrounding areas rely on individual wells to provide groundwater for their potable water supply. The nearest municipal system (City of Moncton) infrastructure ends approximately 5 km from the site. There are no plans to extend the infrastructure to the area.

5) Outline proposed work schedule:

The exploration program will consist of drilling test wells at strategic locations across the property and performing pump test(s). Five test wells will be drilled during the winter of 2022 (TW22-1 through TW22-5). The proposed drilling sites are shown on the attached figure. The proposed well locations have been placed outside the small delineated wetland areas on the property.

If conditions permit (i.e. minimal recharge conditions) two separate 12hr pump tests will be performed in the winter of 2022. The intent is to pump TW22-1 and TW22-4 and monitor the response in the surrounding test wells along with one existing well TW22-6. A step-test (three 0.5-hour steps) will be completed at the beginning of the tests to determine the optimum pumping rates. Depending on the response from the observation wells during the tests, additional pump test may be required to characterize the surrounding aquifer across the site. Reporting will be completed once the pumping tests are performed.

6) Discuss area hydrogeology as it relates to the project requirements:

Regional bedrock mapping indicates that the subject property is located between to Faults. The O'Neil Fault is located north of the subject property and the Gorge Fault is located south. Both of these faults are orientated in a northeast/southwest direction. The bedrock unit occupying the site is mapped as belonging to the Albert Formation consisting of siltstone, mudstone and shale. (Johnson and Peter, 1997).

Available domestic well logs from within a 500m radius of the site are summarized in the attached Table 1. Twenty-four well logs were available for review. Well yields range from 3 to 196 m^3/day with a median yield of 33 m^3/day (5.0 igpm). Well depths range from 25.0 to 112.8 m.

Each individual household / lot would require 1.35 m^3/day or 0.206 igpm on a continuous basis. Based on the available well logs, all of the surroundings wells have the estimated safe yield to meet the individual household requirements.

7) Identify any existing pollution or contamination hazards within a (minimum) 500 m radius of the proposed drill targets. If groundwater use problems (quantity or quality) have occurred in the past, then these should be identified. Historical land use that might pose a contamination hazard (i.e. tannery, industrial, disposal, etc.) should also be flagged:

Approximately 100 residential properties are located within a 500 m radius of the development. There do not appear to be any potential sources of contamination on adjacent properties that would be considered up gradient from the site. Historically the site was vacant and forested. North of a portion of the site, approximately 400metres from the property line is a contractor's yard where they have been extracting material.

Water quality in the area overall is generally fair. Elevated levels of arsenic, iron, manganese, fluoride and antimony have been encountered at concentrations above their Health Canada drinking water guidelines in groundwater wells within 500m of the subject property. Groundwater samples will be collected during the pumping test and analyzed for the potable water package as recommended in the WSSA guideline. There were only eight samples within the NBDELG well database for review. The hydraulic testing will provide a more accurate assessment of water quality on the subject property.

8) Identify any watercourse(s) (stream, brook, river, wetland, etc.) within 30 m of the proposed drill targets.

There are no watercourses or delineated wetlands within 30 m of any of the proposed drill targets. GeoNB mapping and the wetland delineation report was used to assist in locating the proposed drill targets.

9) Identify site supervisory personnel involved in the source development (municipal officials, consultants and drillers):

The source development consultant is FISHER ENGINEERING LTD.

10) Attach a 1:10000 map and/or recent air photo clearly identifying the following:
- **proposed drill targets**
- **domestic or production wells within a 500 m radius from the drill target**
- **any potential hazards identified in question 7**

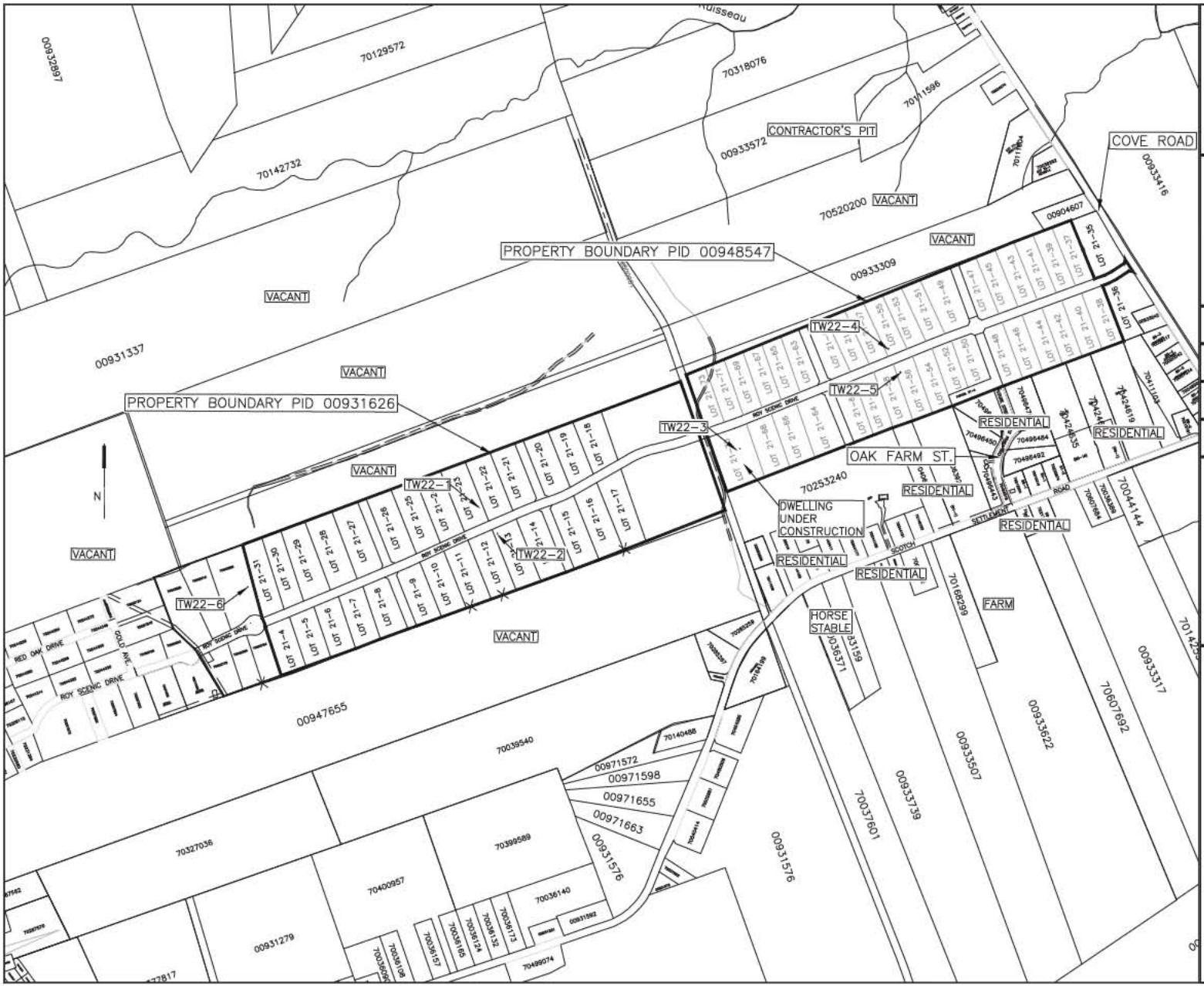
Refer to the attached Figure.

11) Attach a land use / zoning map of the area (if any). Superimpose drill targets on this map.

The proposed development falls within the Southeast Regional Service Commission Planning Area. The subject property and surrounding land is currently zoned Rural Agricultural (Zone A), which permits single unit residential dwellings.

Enclosures

DS317/Water Supply Source Assessment Application.doc



Project:

WSSA APPLICATION RED OAK ESTATES EXPANSION

Drawing:

SITE PLAN SHOWING PROPOSED TEST WELL LOCATIONS

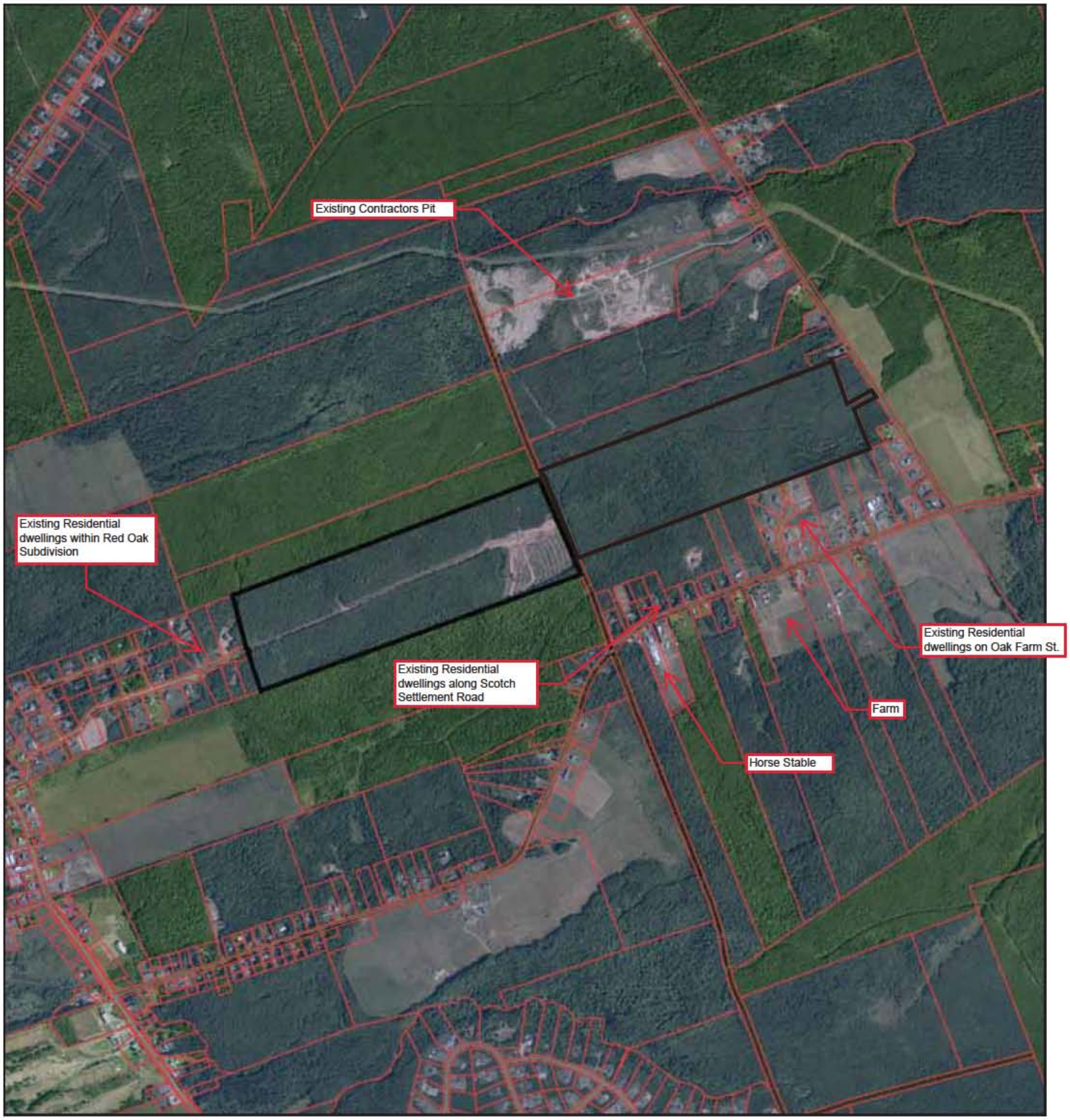
Project No.:	DS317
Drawing No.:	DS31702
Revision No.:	0
Scale:	1 - 10000
Drawn By:	ACB
Checked By:	MJF
Date:	Dec. 21

FISHER
ENG NEER NG LTD.

FISHER ENGINEERING LTD.
40 Fairfield Road
Lower Coverdale, New Brunswick
E1J 0A2

Notes:

Service New Brunswick **Service Nouveau-Brunswick**



Scale/Échelle 1:20000

Date: 2021/12/3 14:29:19

0 500.0 1000.0 1500.0 mètres metres

While this map may not be free from error or omission, care has been taken to ensure the best possible quality. This map is a graphical representation of property boundaries which approximates the size, configuration and location of properties. It is not a survey and is not intended to be used for legal description or to calculate exact dimensions or area.

Même si cette carte n'est peut-être pas libre de toute erreur ou omission, toutes les précautions ont été prises pour en assurer la meilleure qualité poss ble. Cette carte est une représentation graphique approximative des terrains (limites, dimensions, configuration et emplacement). Elle n'a aucun caractère officiel et ne doit donc pas servir à la rédaction de la description officielle d'un terrain ni au calcul de ses dimensions exactes ou de sa superficie.

Table 1 Well Log Summary 500m Radius for PID's 00931626 and 00948547

Well Report	Well	Casing	Rock	Yield	Rock Type
	Depths (m)			m3/day	
624	85.3	6.1	4.6	20	Shale
6676	91.4	13.1	12.2	20	Shale
6687	54.9	6.1	5.5	33	Shale
8884	42.7	7.0	1.2	65	Shale
8888	42.7	9.1	8.2	46	Shale
9810	94.5	9.1	6.1	3	Shale
11390	91.4	7.3	6.1	26	Shale
13630	32.0	6.1	1.2	33	Slate
23898	79.2	6.1	5.2	13	shale
24776	27.4	11.0	3.0	98	Shale
27646	42.7	7.6	5.2	33	Shale
27717	31.1	6.1	1.5	65	Shale
32957	67.1	30.5	7.6	46	Shale
33153	73.8	14.3	1.2	33	Granite
33167	25.0	6.1	0.6	65	Shale
37197	42.7	21.3	0.0	196	Sandstone
42416	61.0	6.1	0.9	13	Shale
90006200	112.8	7.6	4.3	7	Slate
90210100	51.8	8.8	8.8	26	Sandstone
90829100	100.6	6.1	2.7	10	Shale
90940400	31.1	6.7	3.7	65	Sandstone
91148300	50.3	0.0	13.7	65	Shale
91307300	48.8	13.1	12.2	13	Slate
99000179	44.5	13.7	1.2	65	Shale

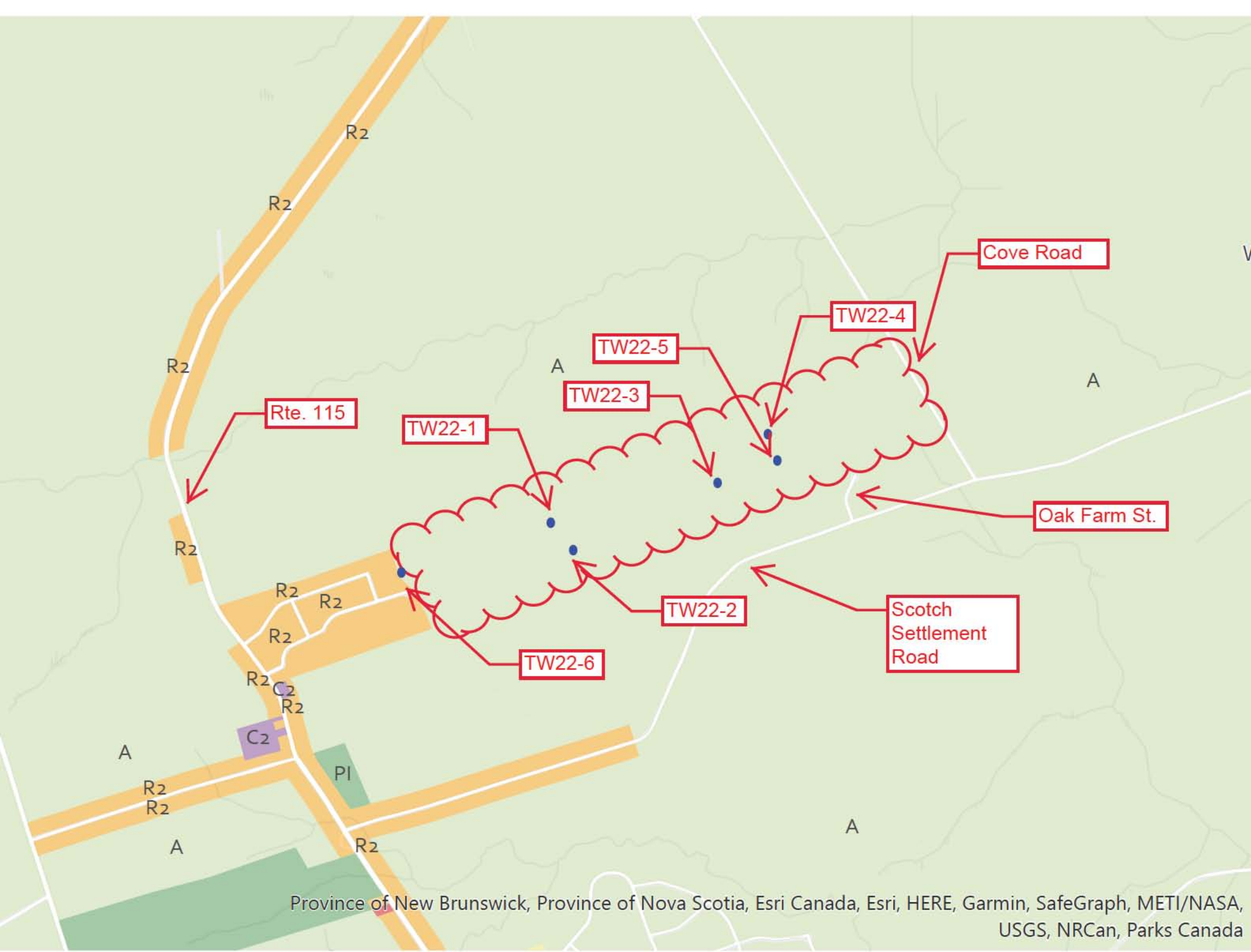
Max	112.8	30.5	13.7	196
Min	25.0	0.0	0.0	3
Average	59.4	9.6	4.9	44
Median	51.1	7.5	4.4	33

Water Quality Results, 500m Radius of PID 00931626 and PID 00948547

Parameter	DWQG	unit	Samples							
Aluminum		µg/L	<0.025	<0.025	0.101	0.032	0.07	<0.025	<0.025	<0.025
Alkalinity		mg/L	171	191	183	162	168	40.1	212	187
Arsenic	10	µg/L	9.1	18	31.8	1.6	3.5	1.5	1	2.79
Boron	5	mg/L	0.073	0.011	0.14	<0.01	0.01	0.54	0.267	<0.2
Barium	2	mg/L	0.107	0.324	0.472	0.092	0.155	0.01	0.108	0.108
Calcium		mg/L	43.6	60.3	34.3	55.1	50.7	0.14	40.9	54.2
Cadmium	7	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloride	250	mg/L	4.33	13.4	18.5	11.8	3.91	164	19.4	9.83
Conductivity		µS/cm	340	405	461	420	363	665	506	423
Chromium	50	µg/L	23	10	3	18	0	10	13	23
Copper	1000	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
E-coli			Ab	Ab	Ab	Ab	Ab	Ab	Ab	Ab
Floride	1.5	mg/L	0.225	0.664	2.42	0.876	1.04	5.49	3.36	1.45
Iron	0.3	mg/L	0.388	0.445	0.78	0.061	0.119	0.05	0.05	0.88
Hardness		mg/L	149	204	148.6	216	188.8	0.382	174.2	217.3
Potassium		mg/L	2.15	0.2	1.72	0.59	0.61	0.138	0.331	0.395
Magnesium		mg/L	9.83	13.1	15.3	19	15.1	0.2	17.5	19.3
Manganese	0.02/0.12	mg/L	0.101	0.07	0.07	0.281	0.083	0.005	0.016	0.073
Sodium	200	mg/L	15.7	8.44	41.5	7.46	6.3	138	49.1	9.34
Nitrite + Nitrate	10	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	5	µg/L	<1	<1	2.7	<1	0.3	<1	<1	<1
pH	7-10.5		7.89	7.99	8.46	7.63	7.89	7.26	8.01	8.13
Antimony	6	µg/L	<1	<1	13.3	<1	3.4	<1	<1	<1
Selenium	50	µg/L	<1.5	<1.5		<1.5		<1.5	<1.5	<1.5
Sulphate	500	mg/L	10.6	9.34	28.4	47	23.72	0.193	23.1	19.3
Turbidity	1	NTU	6	2.8	6.2	4	2	0	0	6
Uranium	20	µg/L	0.6	0.5		0.6				
Zinc	5000	µg/L	5	8	6	50	8	5	10	8.3

DWQG - Canadian Council of Ministers of the Environment Drinking Water Quality Guidelines.

Value does not meet applicable guideline


Cove Road
TW22-4
TW22-5
TW22-3
TW22-1
Rte. 115
Oak Farm St.
TW22-2
Scotch Settlement Road
TW22-6
R2
A
C2
Pl
Province of New Brunswick, Province of Nova Scotia, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, NRCan, Parks Canada