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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 8400m² to 15,000m².

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

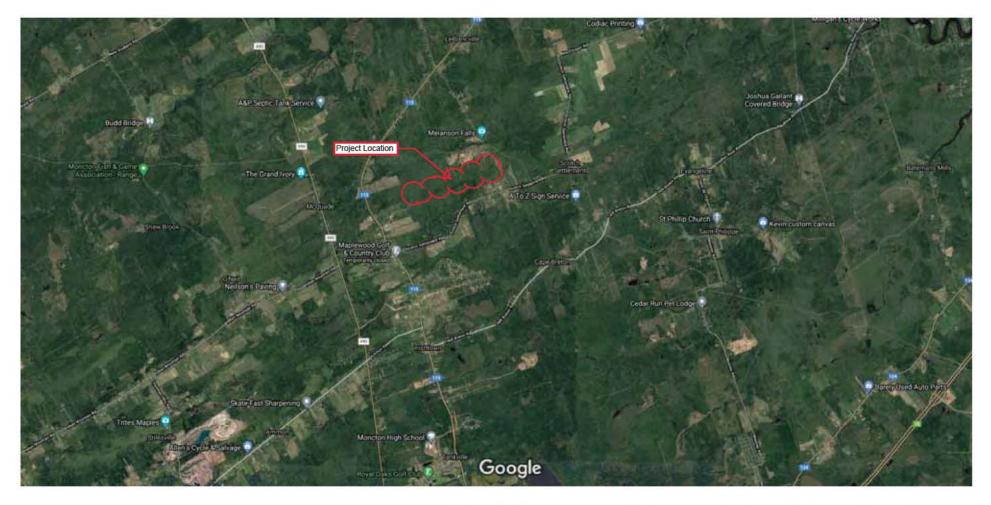
The project site is not located within Zone A or Zone B of a protected coastal area. There are no mapped wetlands on the property that were identified through GeoNB mapping. Details of field work by a local wetland delineator are discussed later in the document.

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 150m² home on every lot is typically less than ten percent of the total site



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 guarry.

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 m³/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.

- 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
- 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.</p>

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.

- 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

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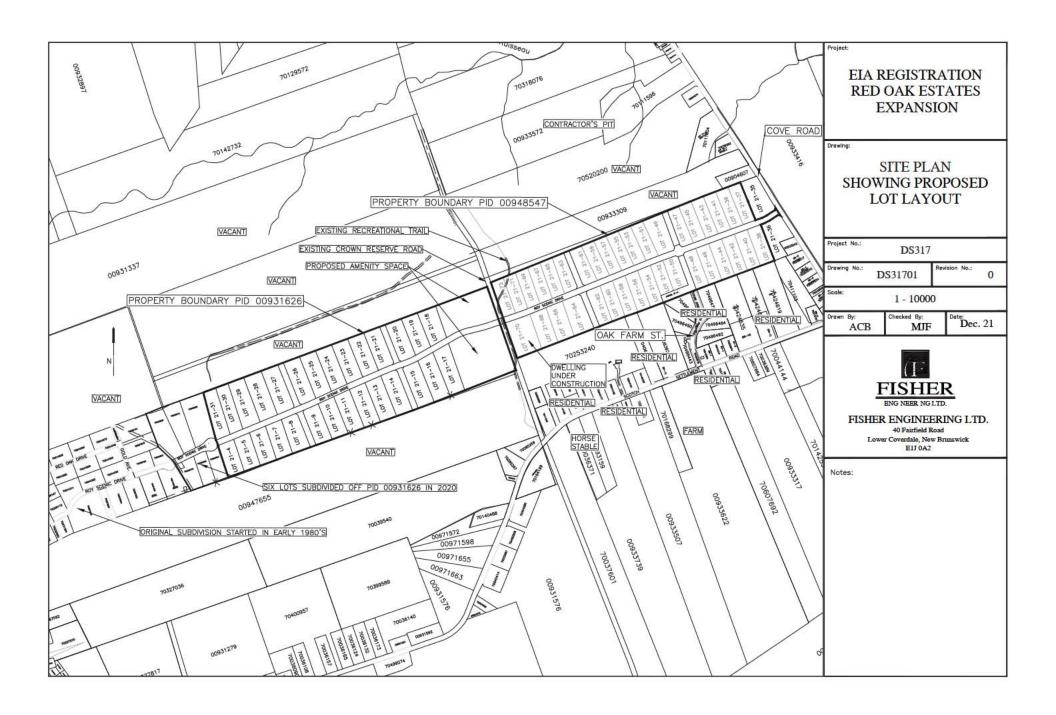
Dec. 30th, 2021

Date

DS317/EIA registration.doc

APPENDIX A

FIGURES



APPENDIX B

SUPPORTING DOCUMENTS

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



October 2021

Approximate Area within Black Outline

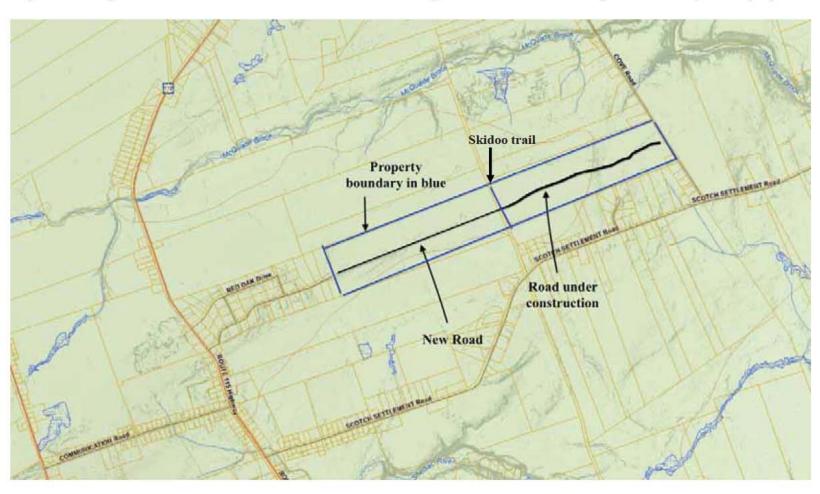
Prepared for Michael Fisher, P.Eng Fisher Engineering Ltd.

Roland Chiasson



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: (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.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

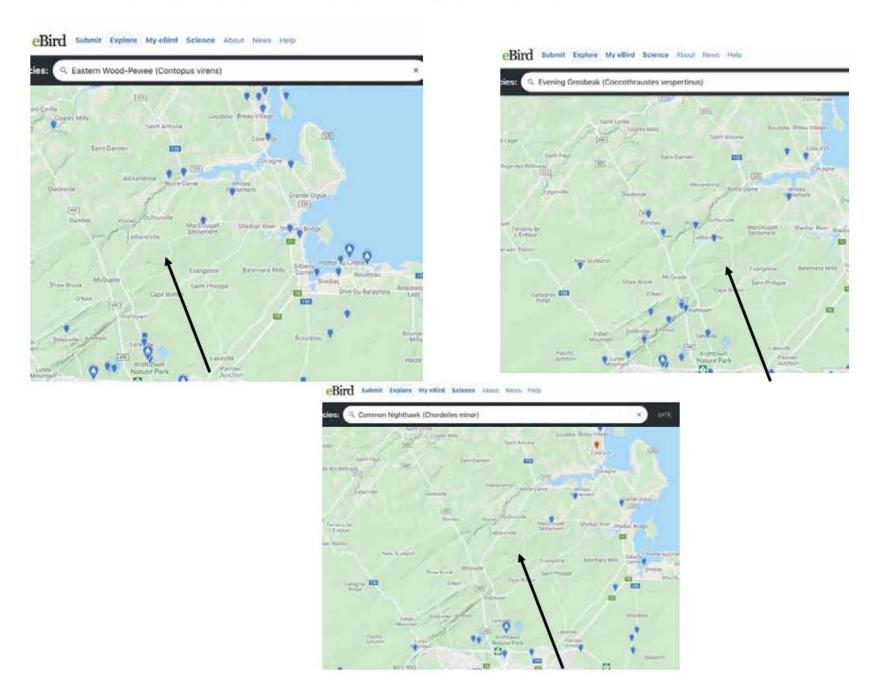
Rare and/or endangered taxa (excluding "location-sensitive" species, section 4.3) within the study area listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation (± the precision, 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)
Α	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
Α	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
Α	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 CrossbillI	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. 342 Highfield Street
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Figures: Appendix A Habitat Photos: Appendix B Plant Community Associations: Appendix C Plant List: Appendix D

<u>Introduction</u>

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 speciesat-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

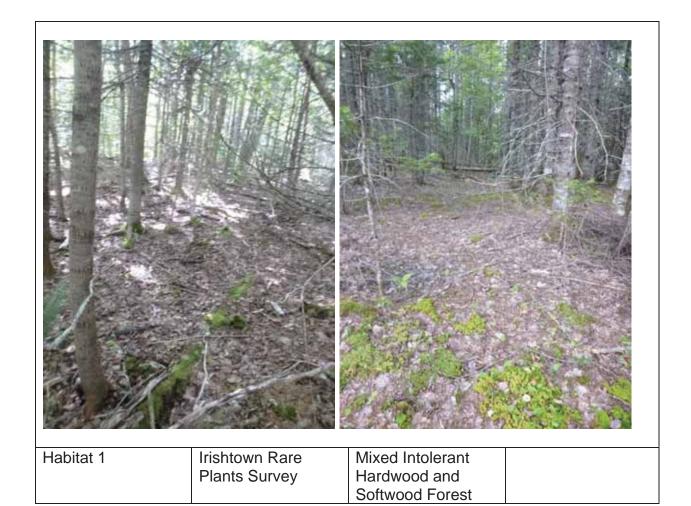
Figure 1. Survey Area

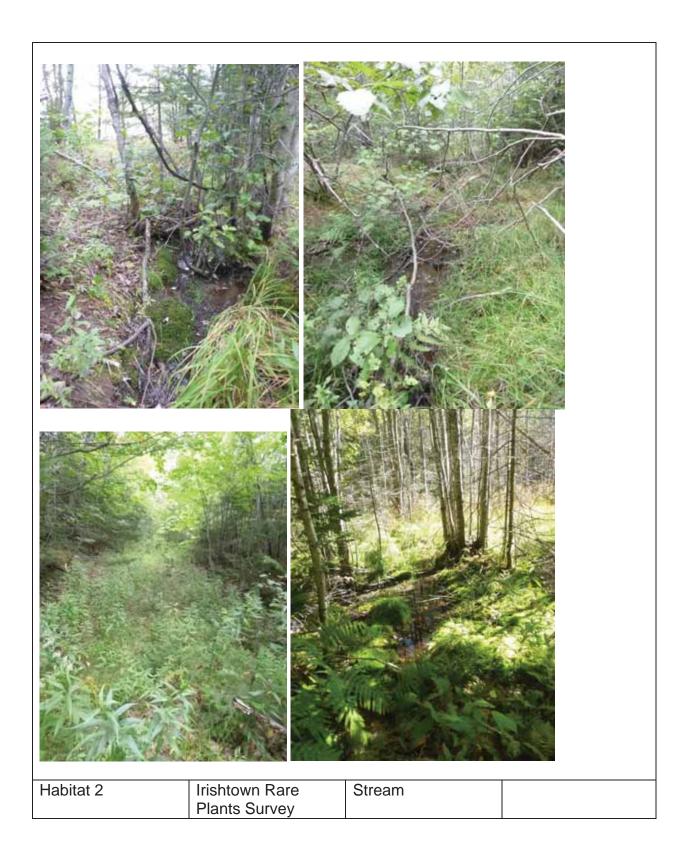


Figure 2. Habitat Map



APPENDIX B
HABITAT PHOTOS







Habitat 3

Irishtown Rare Plants Survey Open Red Oak Sapling







H	ab	ıta	t 4
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Irishtown Rare Plants Survey

Ephemeral Stream



Habitat 5

Irishtown Rare Plants Survey

Dry Balsam Fir





Habitat 6	Irishtown Rare	CIE
	Plants Survey	

Clearing/Skid/Road/Linear







Habitat 8

Irishtown Rare Plants Survey

Mixed Older Regen



Habitat 9

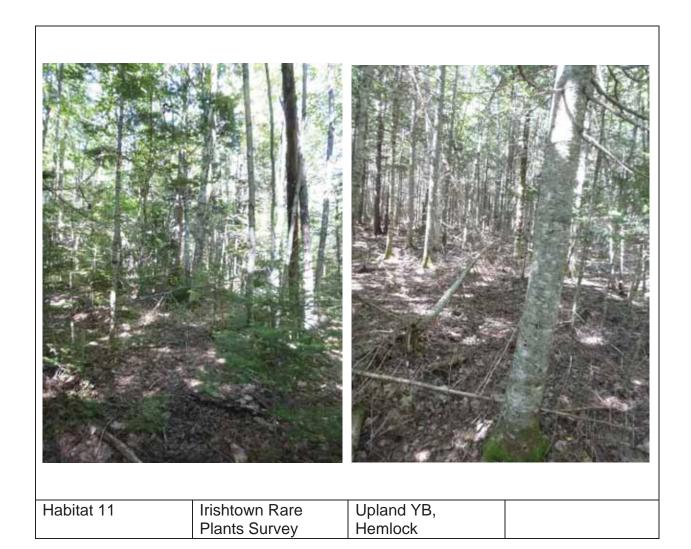
Irishtown Rare Plants Survey Hemlock and young mixed Forest

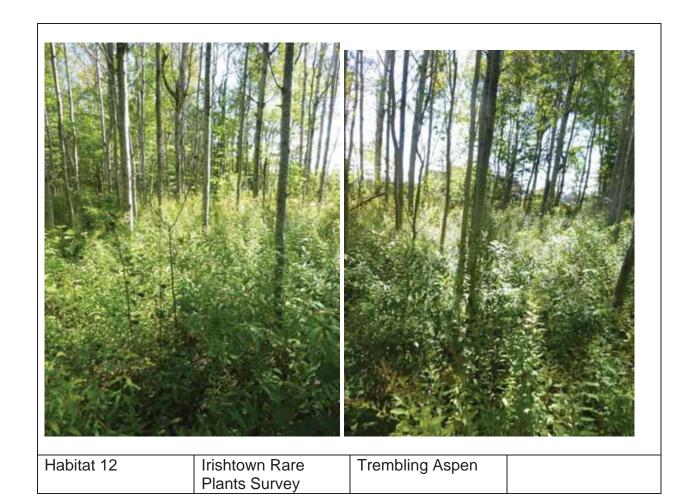


Habitat 10

Irishtown Rare Plants Survey

Older Hemlock and mix









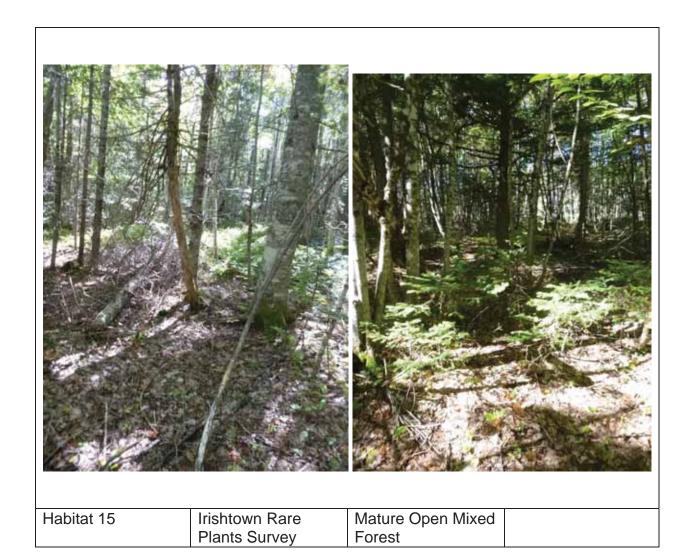
Habitat 13	Irishtown Rare	Ditch	
	Plants Survey		



Habitat 14

Irishtown Rare Plants Survey

Red Maple Opening no hydrology







Habitat 16

Irishtown Rare Plants Survey Mixed Tolerant and Intolerant hardwood





Habitat 18 Irishtown Rare Plants Survey Tolerant hardwood ironwood

APPENDIX C
HABITAT TYPES

Index	Habitat	Species Name	Common Name	Srank
1	Mixed	Abies balsamea	Balsam Fir	S5
	Intolerand	Acer rubrum	Red Maple	S5
	Hardwood and	Betula populifolia	Gray Birch	S5
	Softwood	Betula papyrifera	Paper Birch	S5
	33.1334	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	Quercus rubra	Northern Red Oak	S5
	Sapling	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	Mitchella repens	Partridgeberry	S5
	l Stream	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	Abies balsamea	Balsam Fir	S5
	Balsam Fir	Populus tremuloides	Trembling Aspen	S5
6	Roads,	Spiraea tomentosa	Steeplebush	S5
	Clearings	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	S5
			Smartweed	
7	Forested	Picea rubens	Red Spruce	S5
	Wetland	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	Acer spicatum	Mountain Maple	S5
	Older	Picea rubens	Red Spruce	S5
	Regen	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	Tsuga canadensis	Eastern Hemlock	S5
	Hemlock	Acer rubrum	Red Maple	S5
		Pteridium aquilinum	Bracken Fern	S5
11	Dry	Betula alleghaniensis	Yellow Birch	S5
	Upland	Tsuga canadensis	Eastern Hemlock	S5
	Yellow	Acer rubrum	Red Maple	S5
	Birch	Betula papyrifera	Paper Birch	S5
		Abies balsamea	Balsam Fir	S5
12	Trembling	Populus tremuloides	Trembling Aspen	S5
	Aspen	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	S5
			Goldenrod	
		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	Acer rubrum	Red Maple	S5
	Maple	Sorbus americana	American Mountain Ash	S5
	Clearing	Viburnum dentatum	Southern Arrow-Wood	SNA
15	Mature	Acer rubrum	Red Maple	S5
	Open	Acer spicatum	Mountain Maple	S5
	Mixed Forest	Acer pensylvanicum	Striped Maple	S5
	Forest	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	Betula papyrifera	Paper Birch	S5
	Softwood	Quercus rubra	Northern Red Oak	S5
	and Tol. and Intol.	Acer rubrum	Red Maple	S5
	hardwood	Betula alleghaniensis	Yellow Birch	S5
	Harawood	Populus tremuloides	Trembling Aspen	S5
17	Seeps, < 1	Toxicodendron rydbergii	Northern Poison Oak	S5
	hectare	Acer spicatum	Mountain Maple	S5
18	Tolerant	Ostrya virginiana	Ironwood	S4S5
	hardwood	Acer saccharum	Sugar Maple	S5
		1	1	

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
Siyoona sanaasnoo	Common Tall Manna		1 000010	
Glyceria grandis	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
	Round-branched Tree-			
Lycopodium dendroideum	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
	Rough-stemmed			
Solidago rugosa	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
Texted de l'aren Tyabergii	Fraser's Marsh St John's-	00	4 000010	
Triadenum fraseri	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

Ву

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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	J	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	J	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.

Hazima

President, Overdale Environmental Inc.

APPENDIX A
FIGURES

APPENDIX A: FIGURES

Figure 1. Survey Area



Figure 2. GeoNB Wetlands Map



Figure 3. Wetland Delineation Schematics.

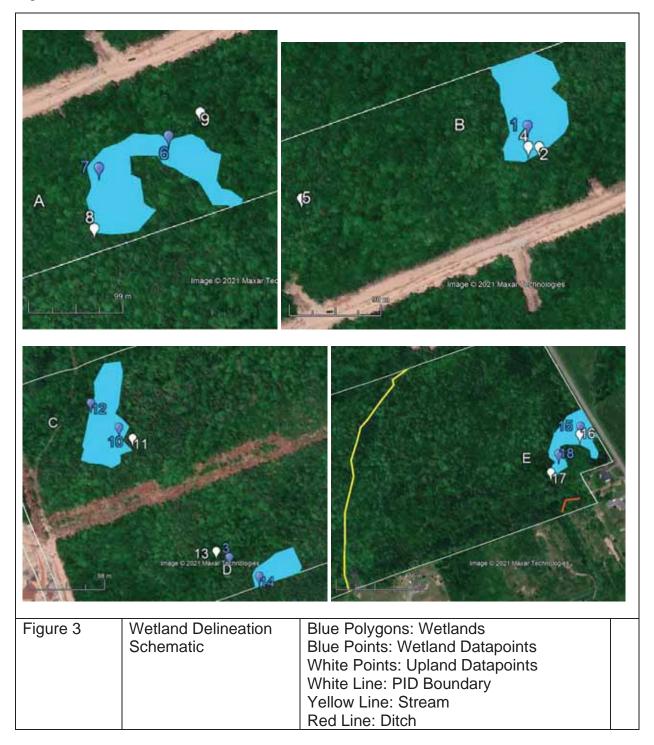
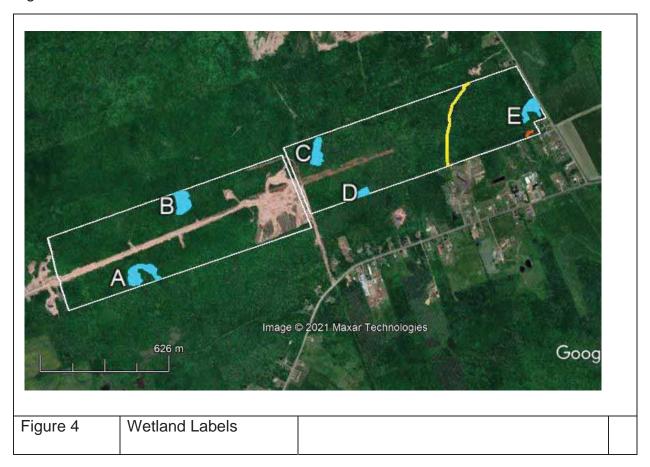


Figure 4. Wetland Locations.

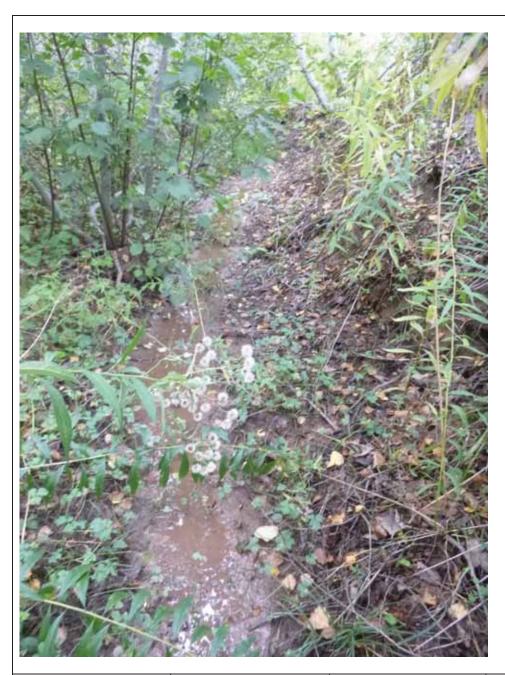


APPENDIX B

DATAPOINT PHOTOS



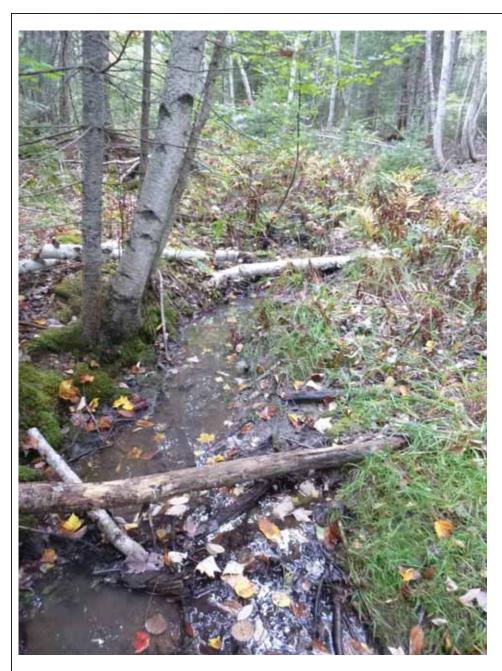
Site Photo 1 Deforestation Central roadway



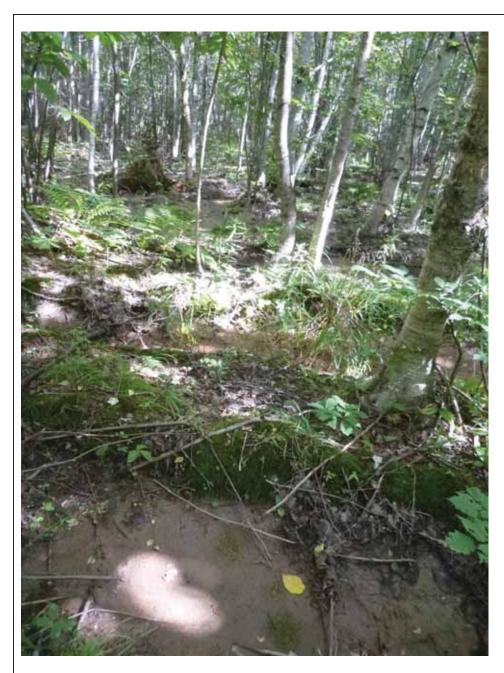
Site Photo 2

Drainage Ditch

Eastern Corner

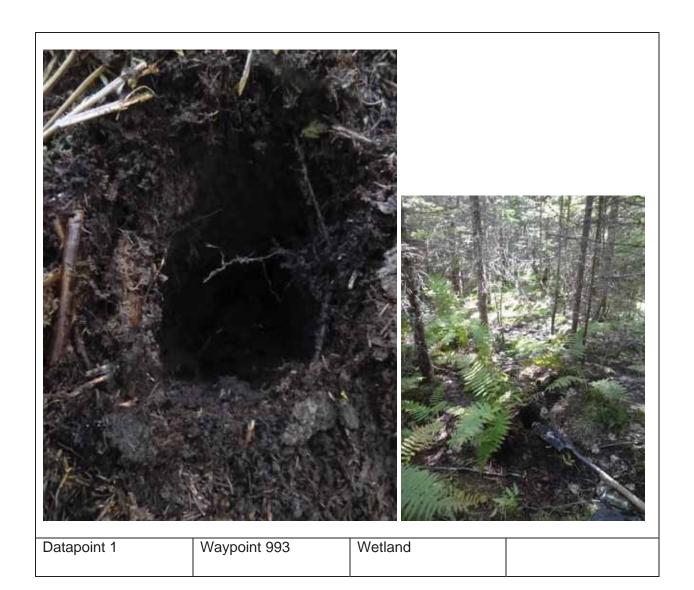


Site Photo 3 Stream Channel



Site Photo 4

Overland Sedimentation Wetland A







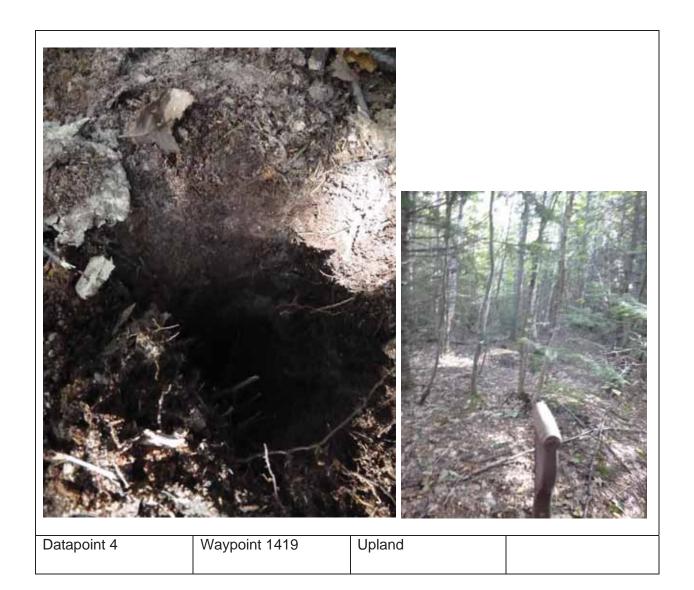
Datapoint 2

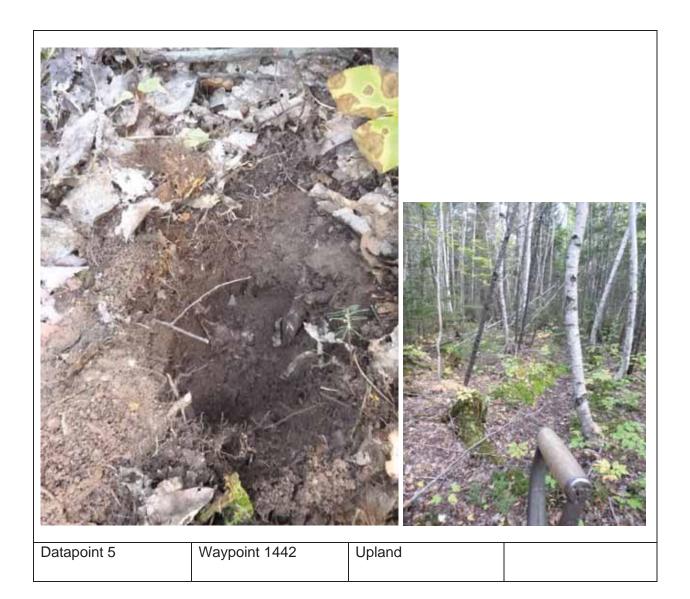
Waypoint 994

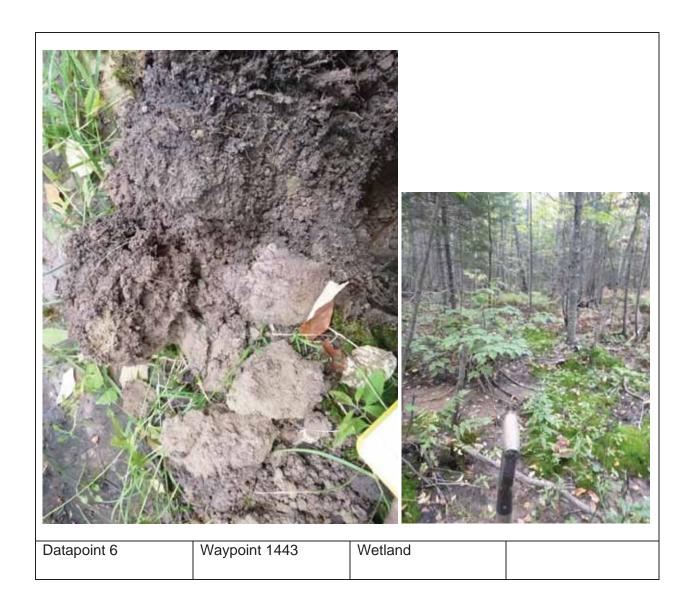
Upland



Datapoint 3 Waypoint 1210 Wetland



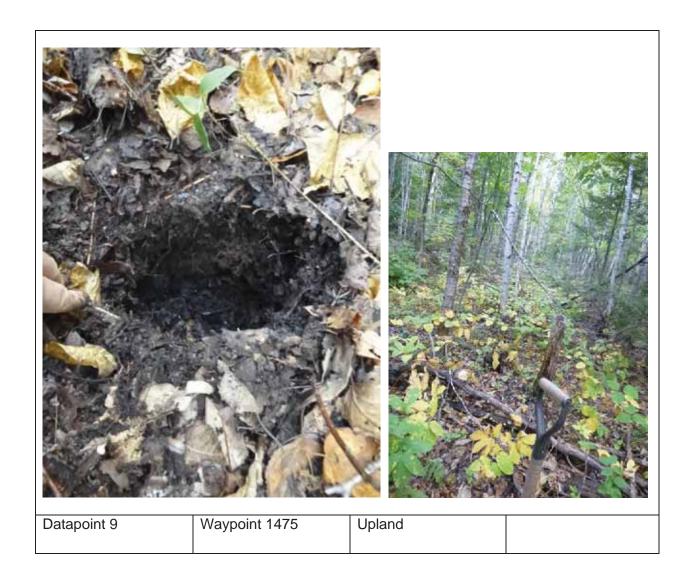


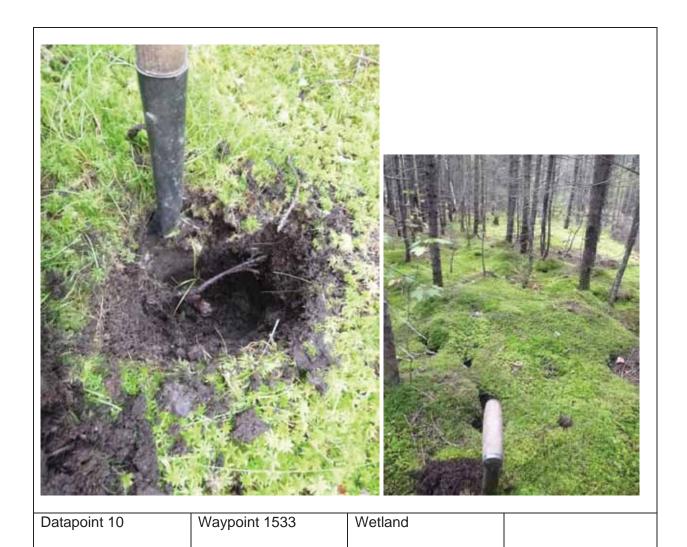




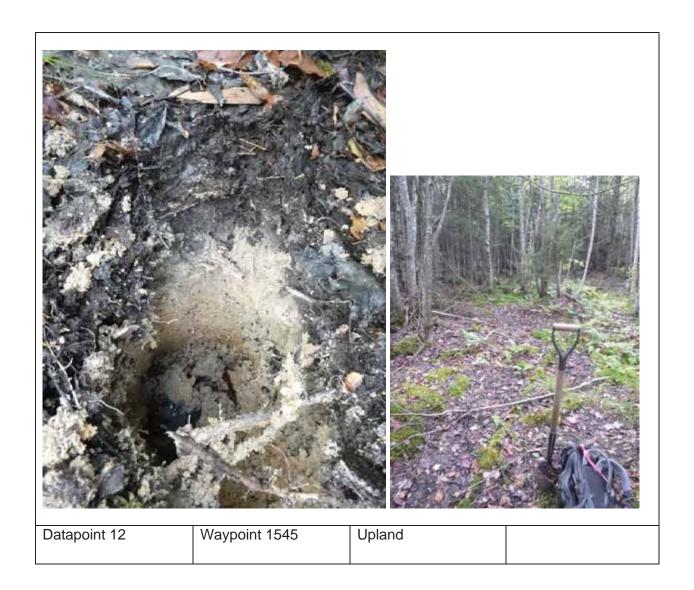
Datapoint 7 Waypoint 1453 Wetland

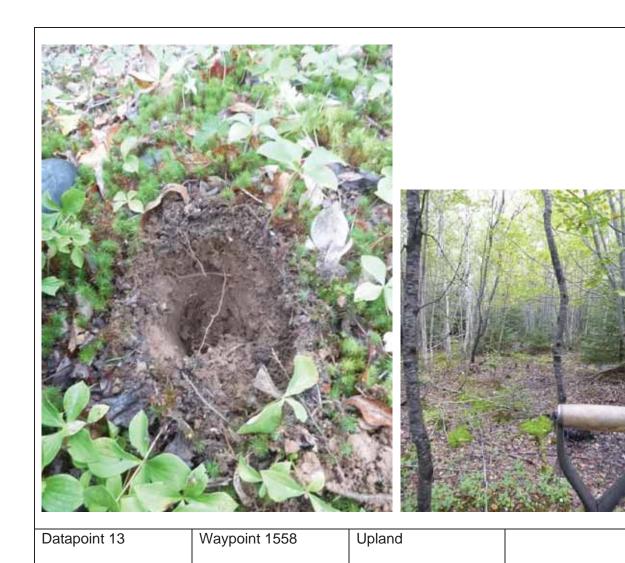


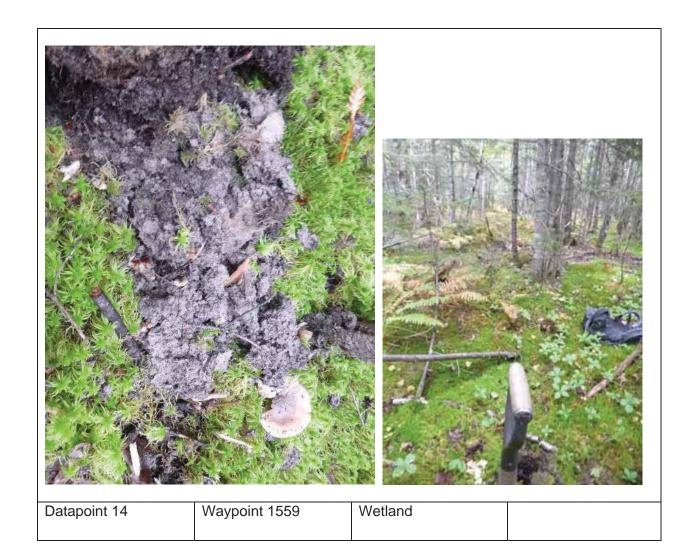


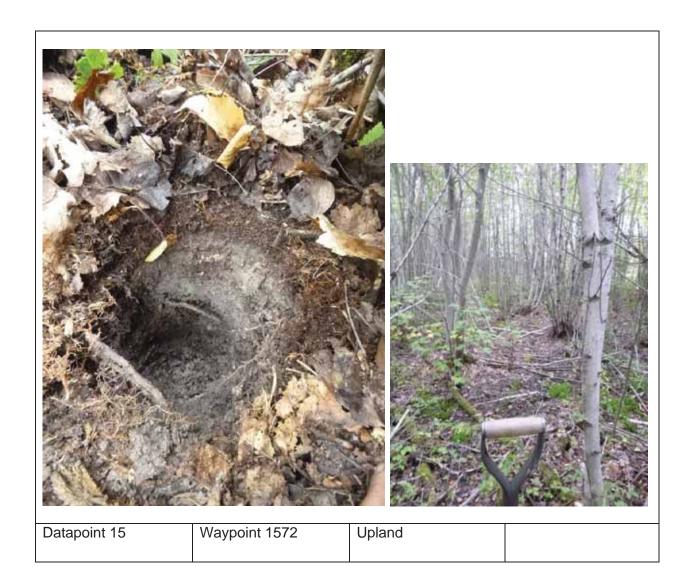




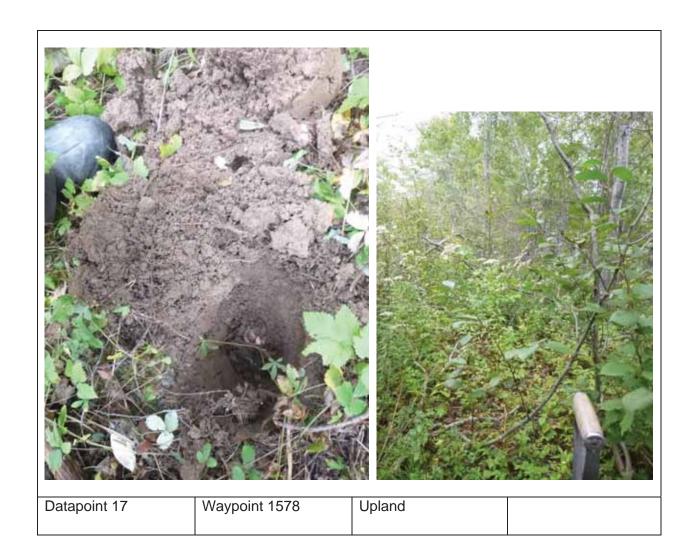














APPENDIX C

WETLAND DATASHEETS

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Х	Satura	ion (A3)							Marl De	posits	(B15)											
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						30		=	Tota	al Co	over							FAC	CUS	peci	ies				x 4 =		0
																			Spe						x 5 =		0
		n: (Plot S)													Col	umn	Tota	ıls:	0					0
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2		bus pube				10			Х			fac															
3		ellingeria				5						fac						Hyc				getatio					
4	Ма	ianthemu	um ca	nader	se	5						fac	;									or Hyd			ta ion		
5									_									Х	Don	nina	nce	Test is	>50%	Ď			
																		\perp	Prev	valer	nce l	ndex is	<3.0 ¹				
						30		=	Tota	al Co	over								Mor	phol	ogic	al Ada	otation	ns¹(e	explain)		
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															Hydro	ophy	tic Ve	egeta	ation	Pre	sen	t?	Ye	es	х	No	

Primary H																- C	/10 1 0	int:	3	Pag
			cators:	(minir	num d															
_	e Water (Х	Water S			(B9)										
	Vater Table	e (A2)				\perp	Aquatic													
	ion (A3)						Marl De		. ,											
Water						_	Hydroge													
	ent Deposi		()							s on Living	Roots (C3)								
_	eposits (B						-			Iron (C4)										
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_	aion Visibl			_ ,			O her (E	Explain	in Rem	arks)										
	ely Vegeta																			
Secondary		_		of two	requi	ired)														
_	e Soil Cra									lants (D1)										
	ge Pattern						Geomor	•		D2)										
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	eason Wat		_ ` /				Microto													
	sh Burrows	. ,			(_	FAC-Ne	eutral Te	est (D5)		Α			ACW		_		-		
	ion Visible	e on A	erial Im	agery	(C9)						В	_		ACU	0	_		-		
Field Obse			\ .		-	-			\perp		A:	>B:=h	ıydri	С	_	_	\perp	-		
Surface W		ent?	Yes	_	x c	De		-										-		
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Watertable	Present?		Yes	No	x c	De	pth				H	ydrol	ogy	Prese	ent?	Y	'es	Х	No	
Profile Des	scription:	(Desci	ribe to	he dei	oth ne	ede	d to docu	ıment h	ne indic	ator or con	firm he	abse	nce	of inc	licato	ors)				
			ribe to	he de _l	oth ne	ede	d to docu			ator or conf	firm he	abse	nce	of inc	licato	ors)				
Depth(cm)	Matr	rix			oth ne			Red	ox Feat	ures			nce	of inc			re		Ren	nark
Depth(cm)	Matr	rix		he de _l	oth ne		d to docu	Red				abse	ence	of inc		ors) Fextur	re		Ren	nark
Depth(cm) 0 to 8	Matr Color(moorganic	rix oist)			oth ne			Red	ox Feat	ures			ence	of inc			re		Ren	nark
Depth(cm) 0 to 8 8 to 20	Color(morganic 7.5YR 4.	oist)			oth ne			Red	ox Feat	ures			ence	of inc			re		Ren	nark
Depth(cm) 0 to 8	Matr Color(moorganic	oist)			oth ne			Red	ox Feat	ures			ence	of inc			re		Ren	nark
Depth(cm) 0 to 8 8 to 20	Color(morganic 7.5YR 4.	oist)			oth ne			Red	ox Feat	ures			ence	of inc			re		Ren	nark
Depth(cm) 0 to 8 8 to 20 20	Matri Color(morganic 7.5YR 4.	rix oist) /2 /4		<u>%</u>		Col	lor(moist)	Red	ox Feat	ures	Lo	<u>oc²</u>				Гехtu		,M=N		
Depth(cm) 0 to 8 8 to 20 20 1Type:C=C	Color(morganic 7.5YR 4.7.5YR 4	oist) /2 /4 on,D=		<u>%</u>		Col	lor(moist)	Red	ox Feat	Type ¹	Lo	<u>oc²</u>				Гехtu		,M=M		
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric Soi	Matrice Matric	rix oist) /2 /4 on,D=		<u>%</u>		Col	lor(moist)	Red	ox Feat %	Type ¹	Lo	<u>oc²</u>				Гехtu		,M=N		
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric Soi Histic I	Matrice Matric	oist) /2 /4 on,D= rs: (A2)		<u>%</u>		Col	or(moist)	Rede	ox Feat % /ered or	Type ¹	Lo	ins.2l	_oca	ion:F	PL=P	rexture ore L	ining,	,M=M		
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric Soi Histic I Black I	Matr Color(m organic 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3)	rix oist) /2 /4 on,D= rs: (A2)		<u>%</u>		Col	d Matrix,C Stripped	Red CS=Cov	vered or	Type¹ Coated Sa	Lo	ins.2l	Loca	ion:F	PL=P	ore L	ining,			
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric Soi Histic I Black I Hydrog	Matr Color(m organic 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3) gen Sulfide	oist) //2 //4 on,D= rs: (A2)		<u>%</u>		Col	d Matrix,C Stripped Dark Su Polyvalu	Red CS=Cov d Matrix urfaces ue Belov	vered or (S6) (S7) w Surfa	Type¹ Coated Sa	Lo	ins.2l	Loca ast F	ion:F	Peat	ore L	Lining,	3)		
Depth(cm) 0 to 8 8 to 20 20 1 Type: C=C Hydric Soi Histic I Black I Hydrog Stratific	Matr Color(m organic 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3) gen Sulfide ed Layers	oist) //2 //4 on,D= rs: (A2) e (A4) (A5)	Deple id	% on,RM		Col	d Matrix,C Stripped Dark St Polyvalu	Red CS=Cov d Matrix urfaces ue Belov irk Surfa	vered or (S6) (S7) w Surfa	Type¹ Coated Sa ce (S8)	Lo	ins.2l	Loca	ion:F	Red Peat	ore L lox (A	ining,	3)		
Depth(cm) 0 to 8 8 to 20 20 1 Type: C=C Hydric Soi Histic I Black I Hydrog Stratific	Matr Color(m organic 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3) gen Sulfide	oist) //2 //4 on,D= rs: (A2) e (A4) (A5)	Deple id	% on,RM		Col	d Matrix,C Stripped Dark Su Polyvalu	Red CS=Cov d Matrix urfaces ue Belov irk Surfa	vered or (S6) (S7) w Surfa	Type¹ Coated Sa ce (S8)	Lo	ins.2l	Loca	ion:F	Red Peat	ore L lox (A	ining,	3)		
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric Soi Histic I Black I Hydrog Stratifi Deplete	Matr Color(m organic 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3) gen Sulfide ed Layers	rix oist) /2 /4 on,D= rs: (A2) e (A4) (A5) Dark S	Deple id	% on,RM		Col	d Matrix,C Stripped Dark St Polyvalu	Red CS=Cov d Matrix urfaces ue Belov ark Surfa Gleyed	vered or ((S6) (S7) w Surfa ace (SS	Type¹ Coated Sa ce (S8)	Lo	coc² Coc Scriptor Iror Pie	Local	ion:F	Red Peat of the second place of the second pla	ore L John Masse	ining, A16) eat (Sees (Froils	3)		
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric So Histic I Black I Hydrog Stratifi Deplete Thick I	Matr Color(m organic 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3) gen Sulfide ed Layers ed Below [rix oist) /2 /4 on,D= rs: (A2) e (A4) (A5) Oark Sace (A'	Deple id	% on,RM		Col	d Matrix,C Stripped Dark St Polyvalt Thin Da Loamy	Redd CS=Cov d Matrix urfaces ue Beloo urk Surf. Gleyed d Matrix	vered or (S6) (S7) w Surfa ace (S9 Matrix (x (F3)	Coated Sacce (S8)	Lo	cooc ² Cooc Free Reco	Loca ast F m Mu n-Ma	ion:F Prairie ucky F angan nt Flo	Peat of the state	ore L lox (A Masseain Se	ining, A16) eat (S. es (F ²)	3) 12) =19)	latrix	
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric So Histic I Black I Hydrog Stratifi Deplete Thick I Sandy	Matr Color(m organic 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3) gen Sulfide ed Layers ed Below I Dark Surfa	rix oist) /2 /4 on,D= (A2) e (A4) (A5) Oark Sace (A'neral (Deple id	% on,RM		Col	d Matrix,C Stripped Dark St. Polyvalt Thin Da Loamy	Redd CS=Cov d Matrix urfaces ue Beloo urk Surfa Gleyed d Matrix Dark Su	vered or (S6) (S7) w Surfa ace (S9 Matrix (x (F3)) urface (I	r Coated Sacce (S8)	Lo	coc² Coc 5cr Iror Pie Rec Ver	Loca Loca ast F m Mun-Ma ddmodd Pa	Prairie licky F angannt Flo	Red Peat (Peat (All the search of the sear	ore L lox (A Masseain Se	ining, A16) eat (S. es (F ²)	3) 12) =19)	latrix	
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric Soi Histic I Black I Hydroc Stratifi Deplete Thick I Sandy 5cm M	Matr Color(m organic 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3) gen Sulfide ed Layers ed Below I Dark Surfa Mucky Mi	rix	Deple id Surface 12) (S1) Pat (S3)	% on,RM		Col	Stripped Dark St. Polyvalt. Thin Da Loamy Deplete. Redox I	Redd CS=Cov d Matrix urfaces ue Belov urk Surf. Gleyed d Matrix Dark Su d Dark	vered or (S6) (S7) w Surfa ace (S8) Matrix (x (F3) Inface (I) Surface	Type1	Lo	coc² Coc 5cr Iror Pie Rec Ver	Loca Loca ast F m Mun-Ma ddmodd Pa	rairie Prairie locky F langanent Flo rent M	Red Peat (Peat (All the search of the sear	ore L lox (A Masseain Se	ining, A16) eat (S. es (F ²)	3) 12) =19)	latrix	
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric Soi Histic I Black I Hydroc Stratifi Deplete Thick I Sandy 5cm M	Matr Color(m organic 7.5YR 4 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3) gen Sulfide ed Layers ed Below I Dark Surfa Mucky Mi ducky Peat Gleyed M	vix visits visit	Deple id Surface 12) (S1) lat (S3) 54)	% on,RM		Col	or(moist) d Matrix,C Stripped Dark St. Polyvalt Thin Da Loamy Deplete Redox E Deplete	Redd CS=Cov d Matrix urfaces ue Belov urk Surf. Gleyed d Matrix Dark Su d Dark	vered or (S6) (S7) w Surfa ace (S8) Matrix (x (F3) Inface (I) Surface	Type1	Lc	Coo 5cr Iror Pie Rec Oth	Local ast Fm Mun-Madmod Parry Siner (rairie Prairie locky F langanent Flo rent M	Red Peat (Pesse Material)	ore L lox (A or Pe Masse sain Se ial (F	ining, A16) eat (S. es (F ²)	3) 12) =19)	latrix	
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric Soi Histic I Black I Hydrog Stratifi Deplete Thick I Sandy 5cm M Sandy Restrictive	Matr Color(m organic 7.5YR 4 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3) gen Sulfide ed Layers ed Below I Dark Surfa Mucky Mi flucky Peat Gleyed M Layer Typ	vix visits visit	Deple id Surface 12) (S1) lat (S3) 54)	% on,RM		Col	Stripped Dark St. Polyvalt. Thin Da Loamy Deplete. Redox I. Deplete. Redox I.	Redd CS=Cov d Matrix urfaces ue Belov urk Surf. Gleyed d Matrix Dark Su d Dark	vered or (S6) (S7) w Surfa ace (S8) Matrix (x (F3) Inface (I) Surface	Type1	Lc	Coo 5cr Iror Pie Rec Oth	Local ast Fm Mun-Madmod Parry Siner (rairie licky F angannt Flo rent M nallow	Red Peat (Pesse Material)	ore L lox (A or Pe Masse sain Se ial (F	ining, A16) eat (S es (F coils (F 21)	3) 12) =19) (F22)	atrix	
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric Soi Histic I Black I Hydrog Stratifi Deplete Thick I Sandy 5cm M Sandy	Matr Color(m organic 7.5YR 4 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3) gen Sulfide ed Layers ed Below I Dark Surfa Mucky Mi flucky Peat Gleyed M Layer Typ	vix visits visit	Deple id Surface 12) (S1) lat (S3) 54)	% on,RM		Col	Stripped Dark St. Polyvalt. Thin Da Loamy Deplete. Redox I. Deplete. Redox I.	Redd CS=Cov d Matrix urfaces ue Belov urk Surf. Gleyed d Matrix Dark Su d Dark	vered or (S6) (S7) w Surfa ace (S8) Matrix (x (F3) Inface (I) Surface	Type1	Lc	Coo 5cr Iror Pie Rec Oth	Local ast Fm Mun-Madmod Parry Siner (rairie licky F angannt Flo rent M nallow	Red Peat (Pesse Material)	ore L lox (A or Pe Masse sain Se ial (F	ining, A16) eat (S es (F coils (F 21)	3) 12) =19) (F22)	atrix	nark
Depth(cm) 0 to 8 8 to 20 20 Type:C=C Hydric Soi Histic I Black I Hydrog Stratifi Deplete Thick I Sandy 5cm M Sandy Restrictive	Matr Color(m organic 7.5YR 4 7.5YR 4 7.5YR 4 Concentrati il Indicato Epipedon (Histic (A3) gen Sulfide ed Layers ed Below I Dark Surfa Mucky Mi flucky Peat Gleyed M Layer Typ	vix visits visit	Deple id Surface 12) (S1) lat (S3) 54)	% on,RM		Col	Stripped Dark St. Polyvalt. Thin Da Loamy Deplete. Redox I. Deplete. Redox I.	Redd CS=Cov d Matrix urfaces ue Belov urk Surf. Gleyed d Matrix Dark Su d Dark	vered or (S6) (S7) w Surfa ace (S8) Matrix (x (F3) Inface (I) Surface	Type1	Lc	Coo 5cr Iror Pie Rec Oth	Local ast Fm Mun-Madmod Parry Siner (rairie licky F angannt Flo rent M nallow	Red Peat (Pesse Material)	ore L lox (A or Pe Masse sain Se ial (F	ining, A16) eat (S es (F coils (F 21)	3) 12) =19) (F22)	atrix	

Project Sit	o Iric	htown								Date	. 90	nton	nhor	29 202	1	Sampl	ρ D	oint.	4	-	Page	1	۱۸/۵	PT#:	1419	
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2 00.02										20				lornar oc		.0 0,40		. 0.10		Τ.	. 00	~		. 10		
If no, expla	ain:	Norma	al, but v	vet com	pared	to la	st ye	ar, wh	ich w	as very	hot a	nd d	lry													
			ĺ										1													
Atypical S	Situatio	n?	Yes		No	х		Expla	in:																	
Is his a po	otentia	Proble	m Are	a?			Yes		No	Х	Ex	φlair	n:													
Wetland I	Detern	ninatio	n														+			+						
(Check Or	ne Only	For E	ach Cr	iteria)																						
T)																										
Dominant	Hydro	ohy ic ∖	/egetat	ion (50/	20 rul	e)				Yes	х	No)				V	Vetla	and I	Dete	ermina	ation				
We land F	lydrolo	gy								Yes		No) X													
Hydric So	ils									Yes	х	No					L		YES	S	х	N	10			
Wetland		N																								
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Vegetatio								_	omin																	
		n: (Plot				%Co	over		pecie	s			tor St	atus							Work	shee	t:			
1		ula alle	-			10			Х		fa										ecies					
2		ula pap		7		10			Х			си				th	at a	re C	BL,F	-AC	W,FA	<u>C:</u>		5		
3		es bals				10			Х		fa															
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5	Qu	ercus r	ubra			10			х		fa	си				<u>S</u>	pec	ies a	acros	s al	ll strata	<u>a:</u>		9		
6									\perp																	
																					ecies					
						50		= T	otal (Cover						th	at a	re C	BL,F	-AC	W,FA	<u>C:</u>		55.6		
Shrub		m: (Pla		5m2)																					
1		es bals				10			Х		fa					P	reva				x Wo		et:			
2		ula pap	•			10			Х			си								<u>%C</u>	over o	<u>f:</u>			<u>ly by:</u>	
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1									\perp																	
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Comn	nents																				unless					
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Drimerri	<i>i</i>														- 00		Point	t: 4	Pag
			cators:	(mi	<u>nimum</u>	of on				that apply)									
_	e Water (-		Leaves	(B9)									
High V	Vater Table	e (A2)					Aquatic	Fauna	a (B13)										
_	ion (A3)						Marl De		. ,										
Water	marks						Hydrog	en Sulf	ide Odo	r (C1)									
	ent Depos)							s on Living	Roots (C3)							
Drift D	eposits (B	3)					Presen	ce of F	Reduced	Iron (C4)									
	lat of Crus	/								in tilled Soi	ls (C6)								
Iron De	eposits (B	5)					Thin Mu	ıck Su	rface (C	7)									
Inunda	ion Visibl	e on A	erial Im	age	ry (B7))	O her (I	Explain	in Rem	arks)									
	ely Vegeta																		
Secondary	/ Indicato	rs:(mir	nimum (of tv	vo requ	ired)													
Surfac	e Soil Cra	cks (B	6)				Stunted	or Str	essed P	lants (D1)									
Draina	ge Patterr	s (B10	0)				Geomo	rphic F	osition ((D2)									
Moss	Trim Lines	(B16)					Shallow	/ Aquita	ard (D3)										
Dry-Se	eason Wa	ter Tab	le (C2)				Microto	pograp	hic Reli	ef (D4)									
Crayfis	sh Burrow	s (C8)					FAC-Ne	eutral T	est (D5)		Α	OBI	_, F/	ACW 0					
Satura	ion Visible	e on A	erial Im	age	ry (C9)						В	UPL	_, FA	CU 0					
Field Obse	rvations:										A:	B:=h	ydric	;					
Surface W	ater Prese	ent?	Yes		No x	De	pth												
Satura ion	Present?		Yes		No x	De	pth												
Watertable	Present?		Yes		No x	De	oth				H	/drolo	gy l	Preser	nt?	Yes	s	N	x
Soil Profile Profile Des		(Descr	ribe to	he c	depth n	eede	d to docu	ument	he indic	ator or conf	firm he	absei	nce	of indi	cator	s)			
		(Descr	ribe to	he c	depth n	eede	d to docu	ument	he indic	ator or conf	firm he	absei	nce	of indic	cator	s)			
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Profile Des	scription:	rix		he c	depth n		d to docu	Red				absei	nce	of indic		s) exture		Re	emark
Profile Des Depth(cm)	Scription: Mate Color(m organic	rix oist)			depth n			Red	dox Feat	ures			nce	of indic				Re	emark
Profile Des Depth(cm)	Scription: Mate	rix oist)			depth n			Red	dox Feat	ures			nce	of indic				Re	emark
Profile Des Depth(cm)	Scription: Mate Color(m organic	oist)			depth n			Red	dox Feat	ures			nce	of indic				Re	emark
Profile Des Depth(cm) 0 to 7 7 to 13	Mate Color(m organic 7.5YR 5	oist)			depth n			Red	dox Feat	ures			nce	of indid				Re	emark
Profile Des Depth(cm) 0 to 7 7 to 13 13	Mater Color(morganic 7.5YR 5	rix oist) /2		<u>%</u>		Col	lor(moist	Rec	dox Feat	ures Type ¹	Lo)C ²			Te	exture			
Profile Des Depth(cm) 0 to 7 7 to 13 13	Color(morganic 7.5YR 5	oist) /2 on,D=l		<u>%</u>		Col	lor(moist	Rec	dox Feat	ures	Lo)C ²			Te	exture			
Profile Det Depth(cm) 0 to 7 7 to 13 13	Scription: Matu Color(m organic 7.5YR 5 5YR 4/4 Concentrati	rix oist) //2 on,D=l		<u>%</u>		Col	lor(moist	Rec	dox Feat	ures Type ¹	Lo)C ²			Te	exture			
Profile Det Depth(cm) 0 to 7 7 to 13 13 1Type:C=C Hydric Soi	Scription: Mate Color(m organic 7.5YR 5 5YR 4/4 Concentrati	oist) //2 on,D= rs: (A2)		<u>%</u>		Col	or(moist	Rec	dox Feat %	ures Type ¹	Lo	ins.2L	.oca	ion:PL	=Poi	re Lin	ing,M		
Profile Dec Depth(cm) 0 to 7 7 to 13 13 1Type:C=C Hydric Soi Histic I Black I	scription: Mature Color(morganic 7.5YR 5 5YR 4/4 Soncentration il Indicato Epipedon Histic (A3)	oist) //2 on,D= rs: (A2)		<u>%</u>		Col	d Matrix,0 Stripped	Rec	wered on x (S6) is (S7)	Type1 Coated Sa	Lo	ins.2L	oca	ion:PL	=Por	re Lin	ning,M	=Matri	
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Primary H			cators	:(mi	nimun	_								_					
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	Vater Table	e (A2)					Aquatio												
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Water									ide Odd										
	ent Depos)							s on Living	Roots (C	(3)							
Drift D	eposits (B	3)					Presen	ce of R	educed	Iron (C4)									
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Inunda	aion Visibl	e on A	erial In	nage	ery (B	')	O her (Explain	in Rem	arks)									
	ely Vegeta																		
Secondary	y Indicato	rs:(mir	nimum	of t	wo req	uired)												
Surfac	e Soil Cra	cks (B	6)				Stunted	d or Stre	essed P	lants (D1)									
Draina	age Patterr	s (B10	0)				Geomo	rphic P	osition	(D2)									
Moss	Trim Lines	(B16)					Shallow	/ Aquita	rd (D3)										
Dry-Se	eason Wa	er Tab	le (C2))			Microto	pograp	hic Reli	ef (D4)									
Crayfis	sh Burrow	s (C8)					FAC-N	eutral T	est (D5		Α	OBL,	FACW)					
Satura	ion Visible	on A	erial In	nage	ry (C9)					В	UPL,	FACU)					
Field Obse	rvations:										A>	B:=hyd	ric						
Surface W		ent?	Yes		No x	De	epth												
Satura ion	Present?		Yes		No x	_	epth												
Watertable	Present?		Yes		No x	De	epth				Hv	drolog	v Prese	nt?	Yes		x I	No	
Soil Profile		(Descr	ribe to	he o	depth i	neede	ed to docu	ument h	he indic	ator or con	firm he	absenc	e of inc	icato	rs)				
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Profile Dec Depth(cm) 0 to 6 6 1Type:C=C Hydric So Histic I Black I	scription: Matu Color(m organic 7.5YR 3 Concentrati il Indicato Epipedon Histic (A3)	/3 //3 on,D= (A2)		<u>%</u>		Co	d Matrix,	Red CS=Condition d Matrix d Matrix	vered o	Type1 Coated Sa	Lor	ns.2Loo	ca ion:P	L=Po	ox (A16	ing,M	1=Mat		ark
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PID 931626													litions ex			?	Yes	Х		No		
If no, explain:	Normal,	but wet o	compare	ed to la	ast ye	ar, wh	ch wa	as very	hot an	d dr	ry											
Atypical Situation		Yes x	N	0		Expla		earing, s														
Is his a potential	Problem	Area?			Yes	Щ	No	X	Exp	olain:	:											
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(Check One Only	For Eac	ch Criteri	a)																			
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Dominant Hydrop	hy ic Ve	getation	(50/20	rule)				Yes	Х	No					Wetla	and De	etermin	ation				
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	Drift De	eposits (B	3)					Pres	enc	e of F	Reduce	d Iror	n (C4)											
	Algal M	at of Crus	st (B4)				Rec	ent I	ron re	educ ior	n in ti	lled Soils	s (C6)										
I	Iron De	posits (B	5)					Thin	Muc	ck Su	rface (0	C7)												
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x S	Sparsel	ly Vegeta	ted Co	oncave	Sur	face (B8	3)																	
Seco	ondary	Indicato	rs: (m	inimum	of t	wo requi	ired)																	
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	Drainag	ge Patterr	ns (B1	0)				Geo	morp	ohic F	osition	(D2)												
	Moss Ti	rim Lines	(B16))				Shal	low /	Aquita	ard (D3	5)												
	Dry-Se	ason Wa	ter Ta	ble (C2)			Micr	otop	ograp	hic Re	lief (E	04)											
(Crayfis	h Burrow	s (C8))				FAC	-Ne	utral T	est (D5	5)		Α	C	BL,	FA	CW 0						
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0 to		organic	oist)		<u>%</u>		Col	lor(mo	oist)		<u>%</u>		Type'	Lo	oc²				I	extur	<u>e</u>		Ren	nark
6 to		organic 7.5YR 3	oist) /2		<u>%</u>		Col	lor(mo	oist)		<u>%</u>		Type'	Lo	oc²				Ī	extur	<u>e</u>		Ren	nark
		organic	oist) /2		<u>%</u>		Col	lor(mo	oist)		<u>%</u>		Type'	Lo	DC ²				I	extur	<u>e</u>		Ren	nark
6 to		organic 7.5YR 3	oist) /2		<u>%</u>		Col	lor(mo	oist)		<u>%</u>		Type'	Lo	DC ²				<u>T</u>	extur	<u>e</u>		Ren	mark
6 to 19	19	organic 7.5YR 3	oist) //2 //2	-Deple		RM=Red				S=Co						2Loc	ca id	on:PL				,M=N		
6 to 19 ¹ Typ	19 e:C=Cc	organic 7.5YR 3 7.5YR 4	oist) //2 //2 on,D=	=Deple		RM=Red				S=Co						2Loc	ca id	on:PL				,M=N		
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6 to 19 ¹Type Hydi	e:C=Cc ric Soil Histic E Black H Hydrog	7.5YR 3 7.5YR 4 Discreption of the contract o	oist) //2 //2 on,D= //s: (A2)			RM=Red		Strip Dark	pped Survalue	Matri rfaces e Belo	x (S6) s (S7) ow Surf	or Co	ated Sai		ins.	cm N	Pra ⁄luc	airie ky Pe	=Po	ox (A	ning 16) at (S	3)		
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Vegetatio	n								Domi	inan	ıt																$\overline{}$
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2		xinus ar		ana		10			Х			fac									CW,FA	C:		9			
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4		ula alleg		nsis		10			Х			fac					Tota	al # o	f Do	min:	ant						
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Prin		ydrological Ind	cators	::(m	inimum	_	_							-	-	-				
	4	e Water (A1)				Х	_		Leaves	(B9)				-	-					
.,		/ater Table (A2))			_		c Fauna eposits												
Х	Watern	. ,	-						fide Odo	- (C1)										
_		ent Deposits (B	2)			-				s on Living I	Dooto ((20/		-	-	-				
_		eposits (B3)	2)			-				Iron (C4)	ROOIS (C	<i>,</i> 3)		-	-	-				
	-	lat of Crust (B4	`			_				in tilled Soil	o (C6)									
_		eposits (B5)	,			_	_		rface (C		S (C6)									
_		ion Visible on A	Aorial I	maa	oni (P7	. —			in Rema					-	-	-				
.,	4	ly Vegetated C			- ' '		Onei	(Explain	ı ın Kem	arks)				-	-	-				
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_		ge Patterns (B1				X			Position (-	-	-				
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_	4			1)		_	_		/	of (D4)				-	-	-				
_		eason Water Ta		.)		-			ohic Relig		Λ	OD	EAC	14/0	-	-				
_		sh Burrows (C8) ion Visible on A		naa	ory (CO		FAC-I	veutral I	Test (D5)		A B		., FAC ., FAC		-	-				
E:-I			Aeriai ii	nage	ery (C9)	-	-						0 0						
_		rvations: ater Present?	Yes		No. v	De	nth	-			A>	B:=hy	/dric	-						
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	l Profile		cribe to	he	depth n	eede	d to do	ument	he indic	ator or conf	irm he	abser	nce of	indica	ators	;)				
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Pro		scription:(Desc Matrix	cribe to		depth n			Red	dox Feat	ures	_		nce of	indica						
Pro Dep	ofile Des	Matrix Color(moist)	cribe to	he <u>%</u>	depth n		d to doo	Red			irm he		nce of	indica		s) xture			Ren	nark
Pro Dep	ofile Des	Matrix Color(moist) organic	cribe to	<u>%</u>	depth n			Red	dox Feat	ures	_		nce of	indica					Ren	nark
Pro Dep 0 to 3	ofile Des	Matrix Color(moist) organic 7.5YR 4/2	cribe to	<u>%</u>	depth n			Red	dox Feat	ures	_		nce of	indica					Ren	nark
Pro Dep	ofile Des	Matrix Color(moist) organic	cribe to	<u>%</u>	depth n			Red	dox Feat	ures	_		nce of	indica					Ren	nark
Pro Dep 0 to 3	ofile Des	Matrix Color(moist) organic 7.5YR 4/2	cribe to	<u>%</u>	depth n			Red	dox Feat	ures	_		nce of	indica					Ren	nark
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O to 3	ofile Des	Matrix Color(moist) organic 7.5YR 4/2		<u>%</u> 80 20		Co	lor(mois	Rec	dox Feat	Type ¹	Lo	c ²			Tex	xture	ng,N	Λ=Ma		nark
O to 3 3	pe:C=C	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 oncentration,D=		<u>%</u> 80 20		Co	lor(mois	Rec	dox Feat	Type ¹	Lo	c ²			Tex	xture	ng,N	Λ=Ma		nark
O to 3 3	ofile Desorth(cm)	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 oncentration,D=		<u>%</u> 80 20		Co	lor(mois	Rec	dox Feat	Type ¹	Lo	c ²			Tex	xture	ng,N	∕I=Ma		nark
O to 3 3	ofile Description	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 concentration,D=		<u>%</u> 80 20		Co	d Matrix	Rec	dox Feat % byered or x (S6)	Type ¹	Lo	ns.2L	oca io	n:PL=	Te:	e Lini		Λ=Ma		nark
O to 3 3	pe:C=Cc dric Soil Histic E Black H	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 concentration,D=	=Deple	<u>%</u> 80 20		Co	lor(mois	Record CS=Co	dox Feat % evered or x (S6) s (S7)	Type¹ Coated Sa	Lo	ns.2L	oca io	n:PL=	Por (e Lini	5)			nark
O to 3 3	pe:C=Cc dric Soil Histic E Black H	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 Indicators: Epipedon (A2) distic (A3) gen Sulfide (A4)	=Deple	<u>%</u> 80 20		Co	d Matrix Stripp Dark S Polyva	CS=Co	overed or x (S6) s (S7) over Surface S	Type¹ Coated Sa	Lo	ns.2L	oca io	n:PL=	Te:	e Lini	6) (S3))		nark
O to 3 3	pe:C=Codric Soil Histic E Black F Hydrog Stratifie	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 Indicators: Epipedon (A2) distic (A3) gen Sulfide (A4) ed Layers (A5)	=Deple	% 80 20	RM=Rea	Co	d Matrix Stripp Dark S Polyva Thin E	CS=Co control contr	overed or x (S6) s (S7) ow Surface (SS	Type¹ Coated Sa ce (S8)	Lo	ns.2L Coa 5cm Iron	oca io	n:PL= irie R y Pea	Tex Pore	e Lini (A16) Peat	(S3))		nark
Pro Der 0 to 3 3	pe:C=Cc dric Soil Histic E Black I Hydrog Stratific Deplete	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 concentration,D= Indicators: Epipedon (A2) Histic (A3) Jen Sulfide (A4) ed Layers (A5) ed Below Dark 5	=Deple	% 80 20	RM=Rea	Co	d Matrix Stripp Dark S Polyva Thin E Loamy	Record (CS=Co) ed Matri Surfaces llue Belciark Sur	overed or x (S6) s (S7) ow Surface (S8) d Matrix (Type¹ Coated Sa ce (S8)	Lo	c² ns.2L Coa 5cm Iron Piec	oca io	n:PL=	Te:	(A16) Peat ssses	6) (S3) (F12 5 (F1)		nark
O to 3 3	pe:C=Cc dric Soil Histic E Black H Hydrog Stratifie Deplete Thick E	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 concentration, D= I Indicators: Epipedon (A2) distic (A3) gen Sulfide (A4) ed Layers (A5) ed Below Dark Soark Surface (A	=Deple Surface (12)	% 80 20	RM=Rea	Co	d Matrix Stripp Dark S Polyva Thin D Loamy	CS=Co ed Matri Surfaces lue Belclark Sur Gleyec ed Matri	overed or x (S6) s (S7) ow Surface (S9 d Matrix (ix (F3)	r Coated Sa ce (S8)	Lo	Coa 5cm Iron Piec	oca io ast Pra n Muck -Mang dmont Parer	n:PL= irie R y Pea aness Flood nt Mat	Te:	e Lini e Lini Peat sses Soils (F21	6) (S3) (F12 s (F1) 2) 19)		nark
Pro Der 0 to 3 3	pe:C=Cc dric Soil Histic E Black H Hydrog Stratifie Deplete Thick E	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 concentration,D= Indicators: Epipedon (A2) Histic (A3) Jen Sulfide (A4) ed Layers (A5) ed Below Dark 5	=Deple Surface (12)	% 80 20	RM=Rea	Co	d Matrix Stripp Dark S Polyva Thin D Loamy	CS=Co ed Matri Surfaces lue Belclark Sur Gleyec ed Matri	overed or x (S6) s (S7) ow Surface (S8) d Matrix (r Coated Sa ce (S8)	Lo	Coa 5cm Iron Piec	oca io	n:PL= irie R y Pea aness Flood nt Mat	Te:	e Lini e Lini Peat sses Soils (F21	6) (S3) (F12 s (F1) 2) 19)		nark
O to 3 3	pe:C=Cc dric Soil Histic E Black H Hydrog Stratific Deplete Thick E Sandy 5cm Me	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 concentration, D= Indicators: Epipedon (A2) Histic (A3) Jen Sulfide (A4) ed Layers (A5) ed Below Dark Soark Surface (A Mucky Mineral ucky Peat or Pe	=Deple Surface 112) (S1) eat (S3)	% 80 20 ion,l	RM=Rea	Co	Stripp Dark S Polyva Thin D Loamy Deplet Redox Deplet	Record Natri CCS=Co ed Matri Surfaces llue Belcark Sur Gleyec ed Matri Dark Seed Dark	overed or x (S6) s (S7) ow Surface (S9 d Matrix (F3) uurface (I x Surface (Surface (Type1	Lo	coa Scm Iron Piec Red Ver	oca io ast Pra n Muck -Mang dmont Parer	n:PL= irie R anese Flood nt Mat	Te:	e Lini e Lini Peat sses Soils (F21	6) (S3) (F12 s (F1) 2) 19)		nark
O to 3 3	pe:C=Cc dric Soil Histic E Black H Hydrog Stratific Deplete Thick E Sandy 5cm Me	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 concentration, D= Indicators: Epipedon (A2) distic (A3) gen Sulfide (A4) ed Layers (A5) ed Below Dark S Dark Surface (A) Mucky Mineral	=Deple Surface 112) (S1) eat (S3)	% 80 20 ion,l	RM=Rea	Co	Stripp Dark S Polyva Thin D Loamy Deplet Redox Deplet	Record Natri CCS=Co ed Matri Surfaces llue Belcark Sur Gleyec ed Matri Dark Seed Dark	overed or x (S6) s (S7) ow Surface (S9 d Matrix (F3) urface (I	Type1	Lo	coa Scm Iron Piec Red Ver	oca io sst Pra Muck -Mang dmont Parer y Shall	n:PL= irie R anese Flood nt Mat	Te:	e Lini e Lini Peat sses Soils (F21	6) (S3) (F12 s (F1) 2) 19)		nark
Pro Dep 0 to 3 3	pe:C=Cc dric Soil Histic E Black H Hydrog Stratifie Deplete Thick E Sandy 5cm Me Sandy	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 concentration, D= Indicators: Epipedon (A2) Histic (A3) Jen Sulfide (A4) ed Layers (A5) ed Below Dark Soark Surface (A Mucky Mineral ucky Peat or Pe	=Deple Surface 12) (S1) eat (S3) S4)	% 80 20 ion,	RM=Rea	Co	Stripp Dark S Polyva Thin D Loamy Deplet Redox Deplet	CS=Co ed Matri Surfaces lue Belc eark Sur Gleyec ed Matri Dark Si ed Dark Depres	overed or x (S6) s (S7) ow Surface (S9 d Matrix (F3) uurface (I x Surface (Surface (Type1	nd Grai	Coa 5cm Iron Piece Red Very	oca io sst Pra Muck -Mang dmont Parer y Shall	n:PL= irie R y Pea anese Flood nt Mat low D lain)	Tex Ported Per Ma Polain Perial Perial	e Lini e Lini Peat sses Soils (F21	(S3) (F12) (F13) (F1)) 2) 19) =22)		nark
Pro Dep 0 to 3 3	pe:C=Cc dric Soil Histic E Black H Hydrog Stratifie Deplete Thick E Sandy 5cm Me Sandy	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 Oncentration, D= Indicators: Epipedon (A2) distic (A3) gen Sulfide (A4) ed Layers (A5) ed Below Dark Soark Surface (A Mucky Mineral ucky Peat or Po Gleyed Matrix (=Deple Surface 12) (S1) eat (S3) S4)	% 80 20 ion,	RM=Rea	Co	d Matrix Stripp Dark S Polyva Thin D Loamy Deplet Redox Deplet Redox	CS=Co ed Matri Surfaces lue Belc eark Sur Gleyec ed Matri Dark Si ed Dark Depres	overed or x (S6) s (S7) ow Surface (S9 d Matrix (F3) uurface (I x Surface (Surface (Type1	nd Grai	Coa 5cm Iron Piece Red Very	oca io oca io stst Pra Muck Mang dmont Parer y Shall	n:PL= irie R y Pea anese Flood nt Mat low D lain)	Tex Ported and the second seco	e Lini Peat sses Soils (F21	(S3) (F12) (F13) (F1)) 2) 19) =22)	atrix	nark
Pro Der 0 to 3 3 3	pe:C=Cc dric Soil Histic E Black H Hydrog Stratifie Deplete Thick E Sandy 5cm Me Sandy	Matrix Color(moist) organic 7.5YR 4/2 7.5YR 3/2 Indicators: Epipedon (A2) Histic (A3) Histic (A3) Histic (A4) Histic (A5) Histic (A5) Histic (A5) Histic (A6) Histic (A6) Histic (A6) Histic (A7) Histic (A8) Histic (A8) Histic (A9) His	=Deple Surface 12) (S1) eat (S3) S4)	% 80 20 ion,	RM=Rea	Co	d Matrix Stripp Dark S Polyva Thin D Loamy Deplet Redox Deplet Redox	CS=Co ed Matri Surfaces lue Belc eark Sur Gleyec ed Matri Dark Si ed Dark Depres	overed or x (S6) s (S7) ow Surface (S9 d Matrix (F3) uurface (I x Surface (Surface (Type1	nd Grai	Coa 5cm Iron Piece Red Very	oca io oca io stst Pra Muck Mang dmont Parer y Shall	n:PL= irie R y Pea anese Flood nt Mat low D lain)	Tex Ported and the second seco	e Lini Peat sses Soils (F21	(S3) (F12) (F13) (F1)) 2) 19) =22)	atrix	nark

Project Site: Irishtown			Date:	Ser	ntemb	her 20	2021	Sample	e Point:	8 1	Page	1 V	VPT#:	1457	
Client/owner Fisher							heo Pop		o i oiii.	U I	age	1 1	VI Ι π.	1701	
County: Westmorland			Coord					, 7470442.	770						
PID 931626								itions exist		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Yes .	х	No		
If no, explain: Normal, but wet com	pared to last year, w	vhich wa	s very h	hot an	d dry	У									
Atypical Situation? Yes x	No Exp	lain: Cle	aring, s	skids											
Is his a potential Problem Area?	Yes	No	х	Ехр	lain:										
Wetland Determination															
(Check One Only For Each Criteria)															
						Ш									
Dominant Hydrophy ic Vegetation (50	/20 rule)		Yes	х	No	Ш			Wetland	d Det	ermina	tion			
We land Hydrology			Yes	Х	No										
Hydric Soils			Yes		No	х			YI	ES	х	NO)		
Wetland Type: N/A															
Rational for Determination: U	pland characteris ics	3													
Variation		Desir									-	-	_		
Vegetation	0/0	Domina				0									
Tree Stratum: (Plot size: 9m2)	%Cover	Species	3			r Statu	us		ominance			sneet:			
1 Acer rubrum	10	X		fac					of Domina			_	0		
2 Picea mariana	10	Х		faci				tna	at are OBL	_,FAC	VV,FA	<u>C:</u>	8		
3 Betula papyrifera	10	X		faci				Т-	4-1 # -4 D-						
4 Abies balsamea 5	10	Х		fac					tal # of Do				10		
								2	pecies acro	oss a	II Strate	1.	10		
6								0/	- (D'	0					
	40 =	Tatal C							of Domina			C.	80		
	40 =	Total C	over					una	at are OBL	,FAC	VV,FA	<u>(:</u>	80		
Shrub Stratum: (Plot size: 5m2															
1 Acer rubrum	10	X		fac				Pr	evalence						
2 Picea rubens	10	X		fac				01			over o	<u>[:</u>		oly by:	
3 Betula papyrifera	10			faci					BL Species				x 1 =		0
4 Abies balsamea 5	10	Х		fac					ACW Spec				x 2 =		0
5									AC Species				x 3 =		-
	40 =	Total C	over						ACU Speci				x 4 =		0
Haula Christians (Dist Circ. 1. 2									P Species			+	x 5 =		0
Herb Stratum: (Plot Size: 1m2	<u>)</u> 5	х		for				Co	olumn Tota	us:	0				0
1 Dryopteris intermedia 2 Osmunda cinnamomea				fac								+			
	5	Х		fac				11.	rdrophy+!	o Van	ototi-	n India	otoro:		
3 4								Hy	rdrophytic Rapid Te						
5													y c ia 1011		
J								X							
									Prevaler				1.		
	10 =	Total C	over						Morphol						
									Problem	natic F	lydrop	hytic V	egetation	n ¹ (expla	ain)
								11	diootara	d book	rio'	l on d :	olon-l b	droles	
Comments									ndicators o ust be pres					urology	
CUITITIETIS						\vdash			oblematic	ociil,	ui iiess	นเอเนาน	eu UI		
								pi	ODICHIAUC						
						Н	lydroph	ytic Vege	tation Pre	sent	?	Yes	х	No	

Primary H	vdrologic	al Ind	licator	:-(m	inimum	of or	ne ie roge	uirod: ch	neck all	that annly					Sal	Tipic	Point	: 8	Pa
	e Water (licators	5:(111	Inimum	X	Water								-			-	
_	e vvaler (/ater Tabl		,			X	Aquatio			(69)					-			-	
	ion (A3)	e (AZ	,			_	Marl De												
Waterr						-	_		ide Odo	r (C1)					+			-	
_	ent Depos	ito (D	2)			_	_ ,			s on Living I	Pooto ((201							
	eposits (B	_ `	۷)			_				Iron (C4)	10015 (1	<i>J</i> 3)							
	fat of Crus)			-	_			in tilled Soil	s (C6)								
	eposits (B	_ `	,			_			face (C		3 (00)								
	ion Visibl	,	Δerial I	man	ory (R7	\ 	_		in Rem										
	ly Vegeta				, , ,		O Her (Схріант	III IXCIII	ai Koj									
Secondary																			
	e Soil Cra			1011	WO TEQU	iii cu,		or Stre	accad P	lants (D1)									
	ge Patterr					-			osition (
_	rim Lines	_ ,				-			ard (D3)	DZ)									
	eason Wa	,		2)		-	Microto		/	of (D4)									
	sh Burrow			-,		+			est (D5)		Α	ORI	F۸	CW 0	+			-	
	ion Visibl			mag	erv (C9)	\ 	I AC-IN	cullal I	est (DS)		В			CU 0					
Field Obse		0117	terrar ii	liage	Siy (00)	'						·B:=h							
Surface W		ent?	Yes	2	No x	De	pth				A-	اــان	yunc						
Satura ion		CITE:	Yes		No x		pth	1											
Watertable			Yes		No x		pth	+			ш	drolo	ouv E	resent	2	Yes	٠,	c N	_
Comments:					. 10 1		P				,		· 9) ·						_
Drofile Dec	arintian.	/Door	oribo to	bo	donth n	0000	d to doo	una ant I	ha india	otor or conf	irm ha	ahaas		f india	otoro	\			
		,	cribe to	he	depth n	eede	d to docu			ator or conf	irm he	abser	nce c	of indica	ators)			
Profile Des Depth(cm)	Mat	rix	cribe to		depth n			Rec	dox Feat	ures			nce c	of indica					
Depth(cm)	Mat Color(m	rix noist)	cribe to	he <u>%</u>	depth n		d to docu	Rec			irm he		nce c	of indica) dure		<u>R</u>	emark
Depth(cm) 0 to 6	Mat Color(m organic	rix noist)	cribe to		depth n			Rec	dox Feat	ures			nce c	of indica				<u>R</u>	emark
Depth(cm)	Mat Color(m	rix noist)	cribe to		depth n			Rec	dox Feat	ures			nce c	of indica				R	emarl
Depth(cm) 0 to 6	Mat Color(m organic	rix noist)	cribe to		depth n			Rec	dox Feat	ures			nce d	of indica				<u>R</u>	emark
Depth(cm) 0 to 6	Mat Color(m organic	rix noist)	cribe to		depth n			Rec	dox Feat	ures			nce d	of indica				R	emark
Depth(cm) 0 to 6 6	Mat Color(m organic 7.5YR 4	noist)		<u>%</u>		Co	lor(moist	Rec	dox Feat	Type ¹	Lo	c ²			Tex	dure	na M		
Depth(cm) 0 to 6 6	Mat Color(m organic 7.5YR 4	noist)		<u>%</u>		Co	lor(moist	Rec	dox Feat	ures	Lo	c ²			Tex	dure	ng,M:		
Depth(cm) 0 to 6 6	Mat Color(m organic 7.5YR 4	noist) 1/3 ion, D=		<u>%</u>		Co	lor(moist	Rec	dox Feat	Type ¹	Lo	c ²			Tex	dure	ng,M		
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Depth(cm) 0 to 6 6 Type:C=C Hydric Soi Histic I	Mat Color(m organic 7.5YR 4	ion, D= ors: (A2)		<u>%</u>		Co	d Matrix,0	Rec	vered or	Type ¹	Lo	c ²	ocai	on:PL=	Te)	dure Lini			
Depth(cm) 0 to 6 1Type:C=C Hydric Soi Histic E Black H	Mat Color(m organic 7.5YR 4 oncentrati I Indicato Epipedon Histic (A3)	ion, D=	=Deple	<u>%</u>		Co	d Matrix,	Rec	vered on x (S6) s (S7)	Type¹ Coated Sa	Lo	ns.2L	oca i	on:PL=	Tex Pore	ture Lini	5)		
Depth(cm) 0 to 6 6 1Type:C=C Hydric Soi Histic I Black I Hydrog	Mat Color(m organic 7.5YR 4 oncentrati I Indicato Epipedon Histic (A3) gen Sulfide	ion, D= ors: (A2) e (A4)	=Deple	<u>%</u>		Co	d Matrix,0 Strippe Dark S Polyval	Rec	vered or x (S6) s (S7) ow Surfa	Type¹ Coated Sa	Lo	ns.2L Coa 5cm	oca i	on:PL=	Tex Pore	ture Lini (A16	s) (S3)	=Matr	
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Project Site: Irishtown	 	Dat	e: Septmebe	er 29 2021	Sample Point: 9	Page 1	WPT#:	1475
Client/owner Fisher			d Investigator(s					
County: Westmorland				631819.628, 74				
PID 931626		Do	normal environ	mental conditio	ons exist on-site?	Yes x	No	
If no, explain: Normal, but wet comp	pared to last year, who	nich was ve	y hot and dry					
Atypical Situation? Yes x		ain: Clearing						
Is his a potential Problem Area?	Yes	No x	Explain:					
Wetland Determination								
(Check One Only For Each Criteria)								
Dominant Hydrophy ic Vegetation (50/2	20 rule)	Yes	x No		Wetland De	etermination		
We land Hydrology		Yes	x No					
Hydric Soils		Yes	No x		YES	x NO)	
Wetland Type:								
Rational for Determination:								
16 1 11								
Vegetation Chartesian Care		Dominant	la dia atau 6	Ctatus	Daminanaa Taa	-4 \M/ = #l-=l= = =4	_	
Tree Stratum: (Plot size: 9m2) 1 Populus tremuloides	%Cover	Species X	Indicator S	Status	# of Dominant S			
2 Betula papyrifera	10	X	facu		that are OBL,FA		7	
3 Acer saccharum	10	X	facu		triat are ODL, i A	CVV,I AC.	- '	
4	10	^	lacu		Total # of Domir	ant	-	
5					Species across		9	
6					<u> </u>	an ou cua.		
					% of Dominant	Species		
	35 =	Total Cove			that are OBL,FA		77.8	
Shrub Stratum: (Plot size: 5m2)							
1 Abies balsamea	10	Х	fac		Prevalence Inc	dex Workshee	et:	
2 Betula alleghaniensis	10	Х	fac		Total %	Cover of:	Multir	oly by:
3 Fraxinus americana	5		fac		OBL Species		x 1 =	0
4 Acer spicatum	5		fac		FACW Species		x 2 =	0
5					FAC Species		x 3 =	0
	30 =	Total Cove	.		FACU Species		x 4 =	0
					ULP Species		x 5 =	0
Herb Stratum: (Plot Size: 1m2)				Column Totals:	0		0
1 Aralia nudicaulis	5	Х	fac					
2 Toxicodendron rydbergii	5	Х	fac					
3 Cornus canadensis	5	Х	fac		Hydrophytic Ve			
4 Rubus pubescens	5	Х	fac			for Hydrolic Ve	egeta ion	
5						Test is >50%		
						Index is≤3.01		
	20 =	Total Cove	•		Morphologic	cal Adaptations	31(explain))
					Problematic	Hydrophytic \	√egetation	n ¹ (explain)
					¹ Indicators of hy			drology
Comments					must be present	, unless distur	ped or	
			_		problematic			
			_				_	
 				Hydrophyd	ic Vegetation Preser	nt? Yes	s x	No
				i iyui opiiyti	ic vegetation rieser	n: 10	3 X	140

Secondary Indicators: (minimum of two required) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Microtopographic Relief (D4) Crayfish Burrows (C8) Satura ion Visible on Aerial Imagery (C9) FAC-Neutral Test (D5) A DBL, FACW 0 Satura ion Visible on Aerial Imagery (C9) Field Observations: Surface Water Present? Yes No Depth Satura ion Present? Yes No Depth Watertable P	Primary L	y									\perp			Sample	FOII	t:	9	Pag
Helph Water Table (A2) Satura ion (A3) Marl Deposits (B15) Watermarks Sediment Deposits (B2) Drift Deposits (B3) Presence of Reduced Iron (C4) Algal Mat of Crust (B4) Iron Deposits (B3) Presence of Reduced Iron (C4) Algal Mat of Crust (B4) Iron Deposits (B3) Iron Deposits (B3) Presence of Reduced Iron (C4) Algal Mat of Crust (B4) Iron Deposits (B3) Iron Deposits (B4) Iron	i i ii ii iai y F	lydrologic	al Indi	icators:	(minimum	of or	ne is requi	red;check al	I that apply)									
Satura ion (A3)	Surfac	ce Water (/	A1)			Х	Water St	tained Leave	s (B9)									
Watermarks Sediment Deposits (B2) Drift Deposits (B3) Algal Mart of Crust (B4) Iron Deposits (B5) Inunda ion Visible on Aerial Imagery (B7) Secondary Indicators: (Ininimum of two required) Secondary Indicators: (Inimum of two required)			e (A2)															
Sediment Deposits (B2) Drift Deposits (B3) Algal Mat of Crust (B4) Algal Mat of Crust (B4) Recent Iron reducion in illied Soils (C6) Iron Deposits (B5) Iron Visible on Aerial Imagery (B7) X Sparsely Vegetated Concave Surface (B8) Secondary Indicators: (Iron Iron Remarks) X Sparsely Vegetated Concave Surface (B8) Secondary Indicators: (Iron Iron Remarks) X Stunted or Stressed Plants (D1) Drainage Patterns (B10) Moss Tiron Iron (B16) Drainage Patterns (B10) Moss Tiron Iron (B16) Drainage Patterns (B10) Moss Tiron Iron (B16) Shallow Aquitard (D3) Dry-Season Water Table (C2) Crayfish Burrows (C8) Satura ion Visible on Aerial Imagery (C9) FAC-Neutral Test (D5) A Depth Corresponding to Present? Ves No Depth A-Bierhydric Satura ion Present? Ves No Depth B UPL, FACU 0 Fellet Observations: Surface Water Present? Yes No Depth B UPL, FACU 0 Fellet Observations: Surface Water Present? Yes No Depth B UPL, FACU 0 Fellet Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators) Watertable Present? Yes No Depth Brown (B16) Near Iron (_	` '						. ,										
Drift Deposits (B3) Presence of Reduced Iron (C4) Presence of Reduced Iron (C4) Profile Profile Deposits (B5) Profile Deposits (B5) Profile Deposits (B5) Profile Deposits (B6) Profile Deposi									. ,									
Algal Mat of Crust (E4)				2)						Roots (C3)							
Iron Deposits (B5)	_																	
Inunda ion Visible on Aerial Imagery (B7)										ils (C6)								
x Sparsely Vegetated Concave Surface (B8) Secondary Indicators: immimum of two required) Surface Soil Cracks (B6) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Satura ion Or Visible on Aerial Imagery (C9) Field Observations: Surface Water Present? Yes No Depth Watertable Present?			,				_		-									
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Dry-Season Water Table (C2)																		
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Field Observations: Surface Water Present? Yes No Depth Watertable Present? Yes X No Depth Watertable Present? Yes No Vancer (F2) No Depteted Below Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Present? Yes No X			. ,				FAC-Neu	utral Test (D5	5)								_	
Surfrace Water Present? Yes No Depth Satura ion Present? Yes No Depth Hydrology Present? Yes No Depth Hydrology Present? Yes X No Depth Hydrology Present? Yes No X No X No Depth Hydrology Present? Yes No X No X No Depth Hydrology Present? Yes No X No X No Depth Hydrology Present? Yes No X No X No Depth Hydrology Present? Yes No X No X No Depth Hydrology Pr			e on A	erial Im	agery (C9))							0					
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Watertable Present? Yes No Depth Hydrology Present? Yes x No Comments: Soil Profile			ent?		-								-			-		
Comments: Soil Profile						_												
Soil Profile Profile Description: (Describe to he depth needed to document he indicator or confirm he absence of indicators) Depth(cm)	Watertable	e Present?		Yes	No	De	pth			Hy	/drolog	y Pres	ent?	Yes	S	Х	No	
0 to 15 15 17.5YR 3/1 160 17.5YR 4/3 40 10 10 10 10 10 10 10 10 10	LIOUIG DE	escription:	(Desc	ribe to	he depth n	eede	d to docur	nent he indi-	cator or con	firm he	absend	ce of in	dicate	ors)				
0 to 15 organic 15 7.5YR 3/1 60 16 7.5YR 4/3 40 17 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) Stratified Layers (A5) Thin Dark Surface (S9) 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) Scm Mucky Peat or Peat (S3) Depleted Dark Surface (F7) Other (explain) Restrictive Layer Type (if observe Depth: Hydric Soil Present? Yes No x				ribe to	he depth n	eede	d to docur			firm he	absend	ce of in	dicato	ors)				
15 7.5YR 3/1 60 15 7.5YR 4/3 40 15 7.5YR 4/3 40 16 16 16 16 16 16 16 16 16 16 16 16 16		Matr	rix					Redox Fea	atures			ce of in					Pom	ork
15 7.5YR 4/3 40 40 40 40 40 40 40 40 40 40 40 40 40	Depth(cm)	Matr Color(m	rix					Redox Fea	atures			ce of in			1		Rem	ark
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) Black Histic (A3) Dark Surfaces (S7) Coast Prairie Redox (A16) Hydrogen Sulfide (A4) Polyvalue Below Surface (S8) 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) Sandy Gleyed Matrix (S4) Restrictive Layer Type (if observe) Depth: Hydric Soil Present? Yes No x	Depth(cm) 0 to 15	Matr Color(morganic	rix oist)		<u>~</u>			Redox Fea	atures			ce of in					Rem	nark
Hydric Soil Indicators: Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Polyvalue Below Surface (S8) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Peat or Peat (S3) Depleted Dark Surface (F6) Sandy Gleyed Matrix (S4) Restrictive Layer Type (if observe	Depth(cm) 0 to 15 15	Color(morganic 7.5YR 3	oist)		<u>%</u>			Redox Fea	atures			ce of in			!		Rem	nark
Hydric Soil Indicators: Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Polyvalue Below Surface (S8) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Peat or Peat (S3) Depleted Dark Surface (F6) Sandy Gleyed Matrix (S4) Restrictive Layer Type (if observe	Depth(cm) 0 to 15 15	Color(morganic 7.5YR 3	oist)		<u>%</u>			Redox Fea	atures			ce of in				I	Rem	nark
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5cm Mucky Peat or Peat (S3) Depleted Dark Surface (F7) Other (explain) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Depth: Hydric Soil Present? Yes No x	Depth(cm) 0 to 15 15 15 1Type:C=C Hydric So Histic Black Hydro Stratifi Deplet	Matr Color(m organic 7.5YR 3 7.5YR 4 Concentrati bil Indicato Epipedon (Histic (A3) gen Sulfide ied Layers ted Below [oist) //1 //3 on,D= //rs: (A2) e (A4) (A5) Dark S	Deple io	% 60 40 on,RM=Rec	Co	d Matrix,C: Stripped Dark Sui Polyvalue Thin Dar Loamy G	S=Covered of Matrix (S6) faces (S7) e Below Surface (Sieleyed Matrix (S6))	Type1 Type1 or Coated Sacret (S8) Face (S8)	Lo	ins.2Lo Coas 5cm Iron-l Piedr	ca ion:I	PL=PP Peat (esse I I	ore Lin lox (A1) or Peat Masses ain Soil	6) 6 (S3) 6 (F12	1=Ma		nark
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Mos	s Trin	n Lines	(B16)					Sh	allow	Aquit	ard (D3	3)												
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Profile Depth(c Depth(c) 0 to 30	ECond Soil Intosol (Ack Histogen	Matr Color(morganic centration centration andicator A1) tic (A3) a Sulfide Layers	on,D= rs: (A4) (A5)	Deple	% ion,l	RM=R	C	ced Ma	noist) htrix,C ipped rk Su lyvalu n Da	Re CS=Co d Matr urface le Bel rk Su	overed ix (S6) es (S7) ow Surrface (\$1	or Co	s Type ¹ pated Sar (S8)	Lc	coc²	poast Mon-M	a ion:F	PL=F	Text Pore dox or F Mas	Linirir (A16) (S3) (F12	l=Ma		nark
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Project Site: Westmorland Client/owner/Fisher County: Westmorland County: Westmorland County: Westmorland County: Westmorland PID 348537* If no, explain: Normal, but wet compared to last year, which was very hot and dry Atypical Situation? Yes No Explain: Clearing, roads Is his a potentialProblem Area? Wetland Determination (Check One Only For Each Criteria) Dominant Hydrophy ic Vegetation (50/20 rule) We land Hydrology Hydric Soils Wetland Type: NA Rational for Determination: Vegetation Tree Stratum: (Plot size: 9m2) 1 Species and services and serv	Project Site	· \// ۵	etmorlar	nd		_					П	ate:	Oc	tohe	r 2 2	0021		Sa	mnle	Poi	int [.]	11	Pac	70	1	\//F	PT #:	1534	
Courries: Westmorland PID 948547 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? Wetand Determination (Check One Only For Each Criteria) Dominant Hydrophy ic Vegetation (50/20 rule) We land Hydrobgy Hydric Soil Wetand Type: NA Rational for Determination: Upland characteris ics Vegetation Tree Stratum: (Plot size: 9m2) %Cover Species Indicator Status Dominance Test Worksheet: 1				IG													n Por		ппріс	1 01	1116.		ιαί	yc		**1	1 11.	1004	
PID 948547 Do normal environmental conditions exist on-site? Yes x No				nd															077 2	208									
If no, explain: Normal, but wet compared to last year, which was very hot and dry																		,			site?	T	Yes	3	х		No		
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Atypical Situation? Yes X No Explain: Clearing, roads Separation Yes No X Explain:	If no, explai	n:	Normal	, but v	vet com	pared	to la	st ye	ar, wh	ich w	vas v	very h	not an	nd dr	ry														
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Hydrology													_	_	_				oint:	11	_
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Soil Profile		(Desc	cribe to	he	depth ne	edec	I to docu	ument	he indi	cator	or conf	irm he	abse	nce	of ind	icate	ors)				
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Project Site: Irishtown	, , , , , , , , , , , , , , , , , , , 			Г	Date:	Oct	tohor	r 2 202	01	Sam	امام	Point	. 10	2 Page	e 1	۱۸/	PT #:	1545	
Client/owner Fisher									heo Pop		pic	OIII	. 12	ı ayı	C I	VV	1 17.	1343	
County: Westmorlan	d				Coordi					, 747112	1 59	93							
PID 948547	<u> </u>									itions exi			?	Yes	х		No		
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If no, explain: Normal,	but wet compa	red to last y	ear, whic	h was	very h	not an	d dry	ν											
Atypical Situation?	Yes x	No O	Explain	: Clear	ring, r	oads													
Is his a potentialProblem	Area?	Yes	; 🔲	No >	ĸ	Exp	olain:	:											
											_								
Wetland Determination	- h O-i' i' - \					-								-		-			
(Check One Only For Each	ch Criteria)																	1	
Dominant Hydrophy ic Ve	agetation (50/20	rulo)			Yes	х	No					Wat	and F	Determ	inatio	n			
We land Hydrology	getation (30/20	ruie)			Yes	x	No					VVCu	anu L	/ClCi iii	II Iauc	""			
Hydric Soils					Yes	X	No					х	YES	:		NO			
	ested wetland											^							
Rational for Determinat	ion: Tree	s dominant																	
Vegetation			Do	minan	t														
Tree Stratum: (Plot si	ze: 9m2)	%Cover	Spe	ecies		Ind	icato	or Statu	ıs		Don	ninar	ice Te	est Wo	rksh	eet:			
1 Fraxinus an		5				fac								Specie					
2 Betula popu		5				fac				<u>t</u>	that	are (DBL,F	ACW,I	FAC:		7		
3 Acer rubrun		10	Х			fac													
4 Abies balsa	mea	10	Х			fac							Dom						
5										5	<u>Spe</u>	cies	acros	s all str	ata:		7		
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Shrub Stratum: (Plot													Щ.				-		
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Herb Stratum: (Plot S	izo: 1m2 \					-						Spe	cies Totals:	-	0	-	x 5 =		0
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Duimous L	у														- 00	arripic i	Point:	12	Гац
	-lydrologic		icators	s:(m	inimun	of o													
_	ce Water (х	Water			(B9)									
High \	Water Table	e (A2))				Aquatic	Fauna	a (B13)										
Satura	a ion (A3)						Marl De	posits	(B15)										
Water	rmarks						Hydrog	en Sulf	ide Odo	r (C1)									
Sedin	nent Depos	its (B2	2)				Oxidize	d Rhizo	ospheres	on Living	Roots (C3)							
Drift D	Deposits (B	3)					Presen	ce of R	Reduced	Iron (C4)									
Algal	Mat of Crus	st (B4))				Recent	Iron re	duc ion	in tilled Soi	ls (C6)								
Iron D	Deposits (B	5)					Thin Mu	ıck Sur	face (C	7)									
Inund	a ion Visibl	e on A	Aerial Ir	mag	ery (B	7)	O her (I	Explain	in Rema	arks)									
x Spars	sely Vegeta	ted Co	oncave	Sur	face (E	38)													
Secondar	ry Indicato	rs:(mi	inimum	of t	wo req	uired)												
Surfa	ce Soil Cra	icks (E	B6)			Х	Stunted	or Stre	essed P	ants (D1)									
Draina	age Patterr	ns (B1	0)				Geomo	rphic P	osition (D2)									
Moss	Trim Lines	(B16))				Shallow	Aquita	ard (D3)										
Dry-S	Season Wa	ter Tal	ble (C2	2)			Microto	pograp	hic Reli	ef (D4)									
Crayf	ish Burrow	s (C8))				FAC-Ne	eutral T	est (D5)		А	OBL	., F/	ACW 0					
Satura	a ion Visible	e on A	Aerial Ir	nage	ery (C9	9)					В	UPL	., FA	CU 0					
Field Obse	ervations:			Ĺ							A:	B:=hy	/dric	;					
Surface V	Vater Prese	ent?	Yes	3	No x	De	epth												
Satura ion	Present?		Yes		No x	De	epth												
Watertable	e Present?		Yes		No x	De	epth				H	drolo	qy I	Preser	nt?	Yes	х	No	
Soil Profil Profile De		(Desc	ribe to	he	depth i	neede	ed to docu	ument I	he indic	ator or conf	firm he	abser	nce	of indi	cator	s)			
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Profile Depth(cm) 0 to 5 5 to 20 5 to 20 20 1 Type:C=C Histic Black	escription: Mati Color(m organic 10YR 5/ parent parent Concentrati bil Indicato Epipedon Histic (A3)	oist) 2 on,D= ors: (A2)	=Deple	% 70 30		Co	d Matrix,0	Rec	vered or x (S6)	Type¹ Coated Sa	Lo	ins.2L	oca st P	ion:PL	=Poi	re Linir	5)		
Profile De Depth(cm) 0 to 5 5 to 20 5 to 20 20 Hydric Sc Histic Black Hydro	escription: Mati Color(m organic 10YR 5/ parent parent Concentrati bil Indicato Epipedon Histic (A3) ogen Sulfide	oist) 2 on,D= (A2)	=Deple	% 70 30		Co	d Matrix,0 Strippe Dark Strippe Dark Strippe	Rec	vered or x (S6) s (S7) w Surfa	Type¹ Coated Sa ce (S8)	Lo	ins.2L Coa 5cm	oca est P	ion:PL rairie I	Te	re Linin x (A16	s) (S3)		
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2		balsa				15			Х			fac										Cove	er of:				ly by:	
3	Nemo	opanthi	us m	ucrona	tus	15			Х			fac							L Sp							x 1 =		0
4									_												cies					x 2 =		0
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																			Pro	ble	natio	: Hyd	lroph	ytic \	√eg	etation	1 (expla	ain)
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Commer	nts																							listur			- 37	
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Deline see 1													_	_	_			-	oint:	14	Pag
	-lydrologic		licators	s:(m	inimur		_	_	_												
	ce Water (Х	_			eaves	(B9)										
	Water Table	e (A2))						auna (I												
_	a ion (A3)								sits (B												
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	nent Depos		2)								on Living	Roots	(C3)								
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	a ion Visibl						O he	r (Exp	lain in	Rema	rks)										
	sely Vegeta												_								
	ry Indicato			of t	wo rec	uired															
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	age Patterr	•								ition (I	02)										
	Trim Lines	, ,					_		quitard				_		_						
	Season Wa			2)			_			Relie	t (D4)		_								
	ish Burrow	. ,	,				FAC	Neutr	al Tes	t (D5)		Α		DBL, I							
	a ion Visible	e on A	Aerial Ir	mage	ery (C	9)						В	_	JPL, F		U 0					
Field Obs							1.					Α	\>B :	=hydi	ic						
	Vater Prese	ent?	Yes		No x	_	epth						+	_	+				_		
	Present?		Yes		No	_		10													
Watertabl	e Present?		Yes	<u> </u>	No x	De	epth					F	lydr	ology	/ Pr	esent	?	Yes	Х	No	
Soil Profi		(Desc	rihe to	he	denth	neede	ed to do	ncume	ent he	indica	tor or con	firm h	e ah	sence	e of	indica	tors)			
Profile De	escription:		cribe to	he	depth	neede	ed to do					firm h	e ab	sence	e of	indica	itors)			
	escription:) Mat	rix	cribe to		depth _					(Featu	res			sence	e of	indica				D.	
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Profile Depth(cm	escription: Mate Color(m organic	rix oist)	cribe to		depth					(Featu	res			sence	e of	indica				Re	mark
Profile De Depth(cm 0 to 10 10 to 20	escription: Mate Color(m organic 7.5YR 4	rix oist) /1	cribe to	<u>%</u>	depth					(Featu	res			sence	e of	indica				Re	mark
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Depth(cm 0 to 10 10 to 20	escription: Mate Color(m organic 7.5YR 4	oist) /1 /1	cribe to	<u>%</u>	depth					(Featu	res			sence	e of	indica				Re	mark
Profile De Depth(cm 0 to 10 10 to 20 20 20	escription: Mate Color(m organic 7.5YR 4 7.5YR 4	/1 /1 /3		% 70 30		Co	plor(mo	ist)	Redox	K Featu <u>%</u>	Type ¹	<u>L</u>	.oc²				Tex	<u>dure</u>			
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Profile De Depth(cm 0 to 10 10 to 20 20 20 1 Type:C=0	escription: Mate Color(morganic 7.5YR 4 7.5YR 4 Concentration of the color of the	rix oist) /1 /1 /3 on,D=		% 70 30		Co	olor(mo	ist)	Redox	% red or	Type ¹	<u>L</u>	.oc²				Tex	<u>dure</u>	ng,M=		
Profile De Depth(cm 0 to 10 10 to 20 20 20 ¹Type:C=0 Histic	escription: Mate Color(morganic 7.5YR 4 7.5YR 4 Concentration of the Color of the	rix oist) /1 /1 /3 on,D= rs: (A2)		% 70 30		Co	olor(mo	ist)	=Cove	red or	Type ¹	<u>L</u>	oc²	.2Loc	a ioi	n:PL=	Tex Pore	<u>dure</u>			
Profile De Depth(cm 0 to 10 10 to 20 20 20 1 Type:C=0 Histic Black	escription: Mate Color(morganic 7.5YR 4 7.5YR 4 Concentration Epipedon Histic (A3)	/1 //1 //3 on,D= rs: (A2)	=Deple	% 70 30		Co	ed Matri Strip Dark	ist) (x,CS= ped M Surfa	=Cove	red or (S6)	Type¹ Coated Sa	<u>L</u>	ains	2Loc	a ioi	n:PL=	Pore	e Linir			
Profile De Depth(cm 0 to 10 10 to 20 20 20	escription: Mati Color(m organic 7.5YR 4 7.5YR 4 7.5YR 4 Concentrati bil Indicato Epipedon Histic (A3) ogen Sulfide	/1 /1 /3 on,D= rs: (A2)	=Deple	% 70 30		Co	ed Matri Strip Dark Polyv	ist) ix,CS= ped M Surfa	=Cove	red or S6) S7) Surface	Type¹ Coated Sa	<u>L</u>	oc ² ains	.2Loc	a ioi Prai	n:PL=	Pore edox	e Linir) (S3)		
Profile De Depth(cm 0 to 10 10 to 20 20 20 1 Type:C=0 Histic Black Hydro Stratii	escription: Mate Color(morganic 7.5YR 4 7.5YR 4 7.5YR 4 Concentration of the Color of the Concentration of the Color of t	/1 /1 /3 on,D= (A2) (A5)	=Deple	% 70 30 ion,I	RM=Re	Co	od Matri Strip Dark Poly	ist) ped M Surfa value	=Cove	red or S6) S7) Surface (S9)	Type¹ Coated Sa ee (S8)	<u>L</u>	ains	2Loc Coast fcm M	a ion Prai luck	n:PL=	Pore edox	e Linir (A16) Peat (sses ((S3) F12)	-Matrix	
Profile De Depth(cm 0 to 10 10 to 20 20 20 1Type:C= Histic Black Hydro Stratif Deple	escription: Mate Color(morganic 7.5YR 4 7.5YR	rix oist) /1 /3 on,D= rs: (A2) e (A4) (A5) Dark S	=Deple	% 70 30 ion,I	RM=Re	Co	Strip Dark Polyv Thin Loan	ped M Surfa value Dark	=Cove latrix (aces (3Below Surface)	red or S6) S7) Surface (S9) latrix (I	Type¹ Coated Sa ee (S8)	<u>L</u>	ains	2Loc Coast fcm M ron-M	a ioi Prai luck lang	n:PL= irie Re y Pea anese Flood	Pore edox	e Linir (A16) Peat (sses ((F19)	-Matrix	
Profile De Depth(cm 0 to 10 10 to 20 20 20 1Type:C=(Hydric Sc Histic Black Hydra Stratii Deple Thick	escription: Mate Color(morganic 7.5YR 4 7.5YR	rix rix rix rix rix rix rix rix rix rix	=Deple	% 70 30 ion,I	RM=Re	Co	Strip Dark Poly Thin Loan Depl	x,CS= ped M Surfa value Dark Dark Gleeted M	=Cove flatrix (faces (f	red or S6) S7) Surface (S9) latrix (I	Coated Sacret (S8)	<u>L</u>	ains	2Loc Coast ccm M ron-M Piedm	a ioi Prailuck lang ont	n:PL= y Pea	Pore Ma	dure (A16) Peat (sses (Soils) (F21)	(F19)	-Matrix	
Profile Depth(cm 0 to 10 10 to 20 20 20 1 Type:C=(Hydric Sc Histic Black Hydric Stratii Deple Thick Sand	escription: Mate Color(morganic 7.5YR 4 7.5YR	rix rix rix rix rix rix rix rix rix rix	=Deple Surface A12) (S1)	% 70 30 ion,l	RM=Re	Co	Strip Dark Poly Thin Loan Deple Redo	ped M Surfa value I Dark Operated M	Redox latrix (aces (Below Surface) Matrix (k Surf	red or S6) S7) Surface (S9) latrix (IF3) ace (F)	Coated Sacrete (S8)	<u>L</u>	ains (FF	2Loco	a ioi luck lang ont arer	n:PL= irie Rr y Pea anese anese Flood th Mate	Pore Ma	e Linir (A16) Peat (sses ((F19)	-Matrix	
Profile De Depth(cm 0 to 10 10 to 20 20 20 1Type:C=(Histic Black Hydro Stratit Deple Thick Sand 5cm I	escription: Mate Color(morganic 7.5YR 4 7.5YR	rix //1 //1 //3 oon,D= (A2) (A5) Oark Sace (A4) neral	=Deple Surface A12) (S1) eeat (S3	% 70 30 ion,l	RM=Re	Co	Strip Dark Poly Thin Loan Deple Redo	ped M Surfa Alue I Dark Gleeted M	Redox Alatrix (acces (Below Surface yed N Alatrix (k Surf	red or S6) Surface ce (S9) alatrix (IF3) ace (Furface)	Coated Sacret (S8)	<u>L</u>	ains (FF	2Loc Coast ccm M ron-M Piedm	a ioi luck lang ont arer	n:PL= irie Rr y Pea anese anese Flood th Mate	Pore Ma	dure (A16) Peat (sses (Soils) (F21)	(F19)	-Matrix	
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Profile De Depth(cm 0 to 10 10 to 20 20 20 Type:C= Hydric Sc Histic Black Hydric Stratii Deple Thick Sand 5cm I Sand Restrictive	escription: Matical Color(morganic 7.5YR 4 7.	rix //1 //1 //3 on,D= rs: (A2) (A5) Oark \$ 6 neral c or Peatrix (=Deple Surface A12) (S1) eat (S3 S4)	% 70 30 ion,I	RM=Re	Co	Strip Dark Polyvin Loan Depli Redco	xx,CS= ped M Surfa value Dark The period of the period o	Redox Alatrix (acces (Below Surface yed N Alatrix (k Surf	red or S6) Surface ce (S9) alatrix (IF3) ace (Furface)	Coated Sacret (S8)	L L	ains (Control of the control of the	2Loco Coast com M ron-M Piedm Red P /ery S	a ion Prailuck lang ont arer Shall	n:PL= y Peaanese anese Flood th Mate	Pore Main Main Mark S	e Linirr (A16) Peat (Soils (F21)	(F19) e (F2	Matrix	
Profile De Depth(cm 0 to 10 10 to 20 20 20 1Type:C=(Hydric Sc Histic Black Hydric Stratii Deple Thick Sand 5cm I Sand	escription: Matical Color(morganic 7.5YR 4 7.	rix //1 //1 //3 on,D= rs: (A2) (A5) Oark \$ 6 neral c or Peatrix (=Deple Surface A12) (S1) eat (S3 S4)	% 70 30 ion,I	RM=Re	Co	Strip Dark Polyvin Loan Depli Redco	xx,CS= ped M Surfa value Dark The period of the period o	Redox Alatrix (acces (Below Surface yed N Alatrix (k Surf	red or S6) Surface ce (S9) alatrix (IF3) ace (Furface)	Coated Sacret (S8)	L L	ains (Control of the control of the	2Loco Coast com M ron-M Piedm Red P /ery S	a ion Prailuck lang ont arer Shall	n:PL= y Peaanese anese Flood th Mate	Pore Main Main Mark S	e Linirr (A16) Peat (Soils (F21)	(F19) e (F2	Matrix	

Project S	ite: Irishtown			-			Date:	Oct	2 2	2021		Sar	mnle	Point	. 1	5 P	age	1	WP	Т #-	1572	
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Atuminal	Situation?	Yes x	No	_	Eveloir	C+	skids,	rood														
			INO	Yes	Explair	No.																
is nis a p	otential Problem	ı Area?		res		INO	Х	⊏xţ	olain:													
187 - (11	D-1							+														
	Determination			-				-							-	-						
(Check C	ne Only For Ead	on Criteria)	-				-					-									
Daminant	. I. b. rahu a mbrosti a . V a		70/20 == -1=1	-			V	-	No	-				14/-4	land	Data	rmina	41				
	Hydrophytic Ve	getation (5	50/20 rule)	-			Yes	Х		H				vveu	aria	Dete	rmma	uon				
	lydrology			-			Yes	Х	No	H					VE		_	NI.	_			
Hydric So		1- \\\/-11-					Yes	Х	No	ш				х	YE	5		N	U			
Wetland		este Wetla											\vdash			_		-				
Rational	for Determinati	ion:	Tree and S	saplings	s domin	ant										-						
				-	_																	
Vegetation						ominar							_									
	Stratum: (Plot si			Cover		ecies				r Stat	tus		_				Work	sheet	::			
1	Acer rubrun		10		Х			fac						Dom								
2	Betula popu		10		Х			fac					hat	are (OBL,I	-AC\	N,FA	<u>:</u>		12		
3	Populus trei	muloides	10)	Х			fac														
4													_	al # of			_					
5													Spe	cies	acros	ss all	strata	<u>:</u>		12		
6																						
													% o	f Dor	minar	nt Sp	ecies					
			30)	= To	otal Co	over						hat	are (OBL,I	FAC	N,FA	O:		100		
Shrul	Stratum: (Plot	size: 5m2)																			
1	Acer rubrun	n	5		X			fac					Pre	valer	nce I	nde	Wor	kshe	et:			
2	Betula popu	llifolia	5		Х			fac							Total	%Co	ver of	:		Multip	lv bv:	
3	Populus trei		5		Х			fac					OBL	Spe						x 1 =		0
4	Alnus incan		5		Х			fac					_	CW S		25				x 2 =		0
5	Spiraea alba		5		X			fac						Spe						x3=		0
	оричой чис	4	25			otal Co		740								_				x 4 =		0
)	= 10	mai Co	over	-						CU Sp		S	_					-
Horb	Stratum: (Plot S	ize: 1m2	\	-				-						Speumn T			0	+		x 5 =		0
nerb 1	Rubus idaei		10)	Х			fac					COIL	at till l	otais).	U					U
2			10		X			fac							-	-	_					
3	Rubus pube				X			fac					Ultra			\/	-4-41-	n les ell				
	Dryopteris i						_						пус		•		etatio					
4	Cornus can	aaensis	10	,	Х			fac					\vdash				Hydro			ation		
5													Х				est is >					
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			40)	= To	tal Co	over							Morp	pholo	gical	Adap	ta ion:	s ¹ (ex	φlain)		
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Hydrology																S	ampl	e Po	int:	15	Pag
Primary Hy			licators	s:(m	<u>inimum (</u>	_															
	e Water (Х			ed Leave	_ ` .	9)										
	ater Tabl	e (A2))						na (B13))											
_	ion (A3)							-	s (B15)												
Watern								•	ulfide Oc												
	ent Depos	_ `	2)								Living F	Roots (C	23)								
_	eposits (B								Reduce												
	at of Crus)								lled Soils	s (C6)									
	eposits (B	,							urface (
_	ion Visibl				, ,		O her	Explai	n in Rer	marks	5)										
	ly Vegeta					,															
Secondary				of t	wo requ	ired)															
	e Soil Cra								tressed		` '										
	ge Patterr							•	Position	/											
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	ason Wa			2)					aphic Re		04)										
	h Burrow	_ ' /	,				FAC-N	leutral	Test (D	5)		Α		,	CW 0						
_	ion Visibl	e on A	Aerial Ir	mage	ery (C9)							В			CU 0)					
Field Obser												A>	B:=hy	/dric	;						
Surface Wa		ent?	Yes		No x	De															
Satura ion I			Yes		No x	De	pth														
Watertable	Present?		Yes	5	No x	De	pth					Ну	drolo	gy F	Prese	nt?	Ye	es	Х	No	
Soil Profile Profile Des		(Desc	cribe to	he	depth ne	ede	d to doo	ument	he indi	icator	or confi	irm he	abser	nce (of indi	cator	s)				
Profile Des	cription:	,	cribe to	he	depth ne	ede	d to doc					rm he	abser	nce (of indi	cato	s)				
	cription: Mat	rix	cribe to		depth ne			Re	edox Fe	atures	3			nce (of indi						
Profile Des Depth(cm)	Color(m	rix noist)	cribe to	he	depth ne		d to doo	Re		atures		rm he		nce (of indi		s) extur	<u>e</u>		Ren	nark
Profile Des Depth(cm)	Color(m Organic	rix noist)	cribe to		depth ne			Re	edox Fe	atures	3			nce (of indi			<u>e</u>		Ren	nark
Profile Des Depth(cm)	Color(m Organic	rix noist)	cribe to		depth ne			Re	edox Fe	atures	3			nce	of indi			<u>e</u>		Ren	nark
Profile Des Depth(cm) 5cm	Color(m Organic	rix noist)	cribe to		depth ne			Re	edox Fe	atures	3			nce	of indi			<u>e</u>		Ren	nark
Profile Des Depth(cm) 5cm	Color(m Organic	rix noist)	cribe to		depth ne			Re	edox Fe	atures	3			nce	of indi			<u>e</u>		Ren	nark
Profile Des Depth(cm) 5cm 5cm - 10YF	Color(m Organic	rix noist)		<u>%</u>		Col	lor(mois	Re t)	edox Fea	atures	Type ¹	Lo	c ²			To	extur				
Profile Des Depth(cm) 5cm	Color(m Organic	rix noist)		<u>%</u>		Col	lor(mois	Re t)	edox Fea	atures	Type ¹	Lo	c ²			To	extur		,M=M		
Profile Des Depth(cm) 5cm 5cm - 10YF	Mat Color(m Organic R 4/1	irix noist) ;		<u>%</u>		Col	lor(mois	Re t)	edox Fea	atures	Type ¹	Lo	c ²			To	extur		,M=M		
Profile Des Depth(cm) 5cm 5cm - 10YF	Color(m Organic R 4/1	ion,D=		<u>%</u>		Col	lor(mois	Re t)	edox Fea	atures	Type ¹	Lo	c ²			To	extur		,M=M		
Profile Des Depth(cm) 5cm 5cm - 10YF	Mat Color(m Organic R 4/1 Indicate	ion, D=		<u>%</u>		Col	d Matrix,	Ret	edox Fea % Sovered rix (S6)	atures	Type ¹	Lo	ns.2Lu	oca	ion:Pl	_=Po	re Li	ning,	,M=N		
Profile Des Depth(cm) 5cm 5cm - 10YF 1Type:C=Cc Hydric Soil Histic E Black H	Mat Color(m Organica 4/1 Indicate Epipedon distic (A3)	ion,D=	=Deple	<u>%</u>		Col	d Matrix, Strippe Dark S	CS=C	edox Fea % Sovered rix (S6) es (S7)	or Co	S Type ¹ ated Sa	Lo	ns.2Lu	oca st P	ion:Pl	_=Po	re Li	ning,			
Profile Des Depth(cm) 5cm 5cm - 10YF 1Type:C=Cc Hydric Soil Histic E Black H Hydrog	Mat Color(m Organica 4/1 Discrete A 4/1 Indicate Epipedon distic (A3) en Sulfide	ion, D=	=Deple	<u>%</u>		Col	d Matrix, Strippe Dark S Polyva	CS=C ed Mate Surface	edox Fei	or Co	S Type ¹ ated Sa	Lo	ns.2Lo	oca st P	ion:Pl	_=Po	re Li	ning,	3)		
Profile Des Depth(cm) 5cm 5cm - 10YF 1Type:C=Cc Hydric Soil Histic E Black H Hydrog Stratific	Mat Color(m Organica 4/1 Indicate Epipedon distic (A3) en Sulfide de Layers	ion, D= ors: (A2) e (A4) c (A5)	=Deple	% ion,I	RM=Red	Col	d Matrix, Strippe Dark S Polyva Thin D	CS=C ed Mat Surface lue Be ark Su	covered rix (S6) es (S7) elow Suriface (S	or Co	Trype ¹ atted Sal	Lo	ns.2Lo Coa 5cm Iron	oca st P	ion:Pl	_=Po	re Li	ning, 16) at (S	3)		
Profile Des Depth(cm) 5cm 5cm - 10YF Type:C=Cc Hydric Soil Histic E Black H Hydrog Stratific Deplete	Color(m Organica A 4/1 Concentration Organica A 4/1 Concentration Concen	ion,D= ion,D= (A2) e (A4) s (A5) Dark (S	=Deple	% ion,I	RM=Red	Col	Matrix, Strippe Dark S Polyva Thin D Loamy	CS=C ed Mateuriace Surface lue Be ark Su Gleye	edox Fe: % Sovered rix (S6) es (S7) elow Suri	or Co	Trype ¹ atted Sal	Lo	c². ns.2Lo Coa 5cm Iron- Piec	oca st P Mu -Mai	ion:Pl rairie cky P ngane nt Floc	_=Po Reddeat o	re Lil	nning, 116) aat (S ss (F	3)		
Profile Des Depth(cm) 5cm 5cm - 10YF Type:C=Cc Hydric Soil Histic E Black H Hydrog Stratific Deplete	Mat Color(m Organica 4/1 Indicate Epipedon distic (A3) en Sulfide de Layers	ion,D= ion,D= (A2) e (A4) s (A5) Dark (S	=Deple	% ion,I	RM=Red	Col	Matrix, Strippe Dark S Polyva Thin D Loamy	CS=C ed Mateuriace Surface lue Be ark Su Gleye	covered rix (S6) es (S7) elow Suriface (S	or Co	Trype ¹ atted Sal	Lo	c². ns.2Lo Coa 5cm Iron- Piec	oca st P Mu -Mai	ion:Pl	_=Po Reddeat o	re Lil	nning, 116) aat (S ss (F	3)		
Profile Des Depth(cm) 5cm 5cm - 10YF 1Type:C=Cc Hydric Soil Histic E Black H Hydrog Stratific Deplete Thick E	Color(m Organica A 4/1 Concentration Organica A 4/1 Concentration Concen	ion,D= ors: (A2) be (A4) c (A5) Dark Sace (A	=Deple	% ion,I	RM=Red	Col	Matrix, Strippe Dark S Polyva Thin D Loamy Deplete	CS=C ed Mat Surface lue Be ark Su Gleye	edox Fe: % Sovered rix (S6) es (S7) elow Suri	or Co	Trype ¹ atted Sal	Lo	coa 5cm Iron- Piec Red	oca st P n Mu -Mai	ion:Pl rairie cky P ngane nt Floc	_=Po	re Li	ning, 116) at (S es (F'	3) 12) =19)	latrix	
Profile Des Depth(cm) 5cm 5cm - 10YF 1Type:C=Cc Hydric Soil Histic E Black H Hydrog Stratific Deplete Thick E Sandy	Mat Color(m Organic R 4/1 Organic R 4/1 Oncentration Indicator Epipedon distric (A3) en Suffided Layers and Below Dark Surfa	rix rix rix rix rix rix rix rix rix rix	=Deple Surface A12) (S1)	<u>%</u> ion, l io (A1	RM=Red	Col	or(mois d Matrix, Strippe Dark S Polyva Thin D Loamy Deplet Redox	Record Materials Record Materials Record Materials Record Materials Record Record Materials Record R	edox Fe: % Sovered of the source of the so	atures or Co or Co (F6)	Type ¹ ated Sa	Lo	Coa 5cm Iron- Piec Red Very	oca st P n Mu -Mai dmor Par	rairie cky P ngane th Floc	_=Po Redo eat o see M odplai atteria	re Li	ning, 116) at (S es (F'	3) 12) =19)	latrix	
Profile Des Depth(cm) 5cm 5cm - 10YF 1Type:C=Cc Hydric Soil Histic E Black H Hydrog Stratific Deplete Thick E Sandy 5cm Mi	Mat Color(m Organic A 4/1 Orga	rix rix rix rix rix rix rix rix rix rix	=Deple Surface A12) (S1) eeat (S3	<u>%</u> ion, l io (A1	RM=Red	Col	or(mois d Matrix, Strippe Dark S Polyva Thin D Loamy Deplete Redox Deplete	Red Red Matter State Sta	edox Fe: % Sovered of the source of the so	or Co fface (S9) (F6) (F6)	Type ¹ ated Sa	Lo	Coa 5cm Iron- Piec Red Very	oca st P n Mu -Mai dmor Par	ion:PI rairie cky P ngane nt Flocent M allow	_=Po Redo eat o see M odplai atteria	re Li	ning, 116) at (S es (F'	3) 12) =19)	latrix	
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1	Ace	er rubrui	m			5			Х			fa	С					# 0	f Do	mina	ant S	pecie	s					
2	Pop	oulus tre	emulo	ides		5			Х			fa	С					that	t are	OB	L,FA	CW,F	AC:		9)		
3																												
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1	Bet	ula pap	yrifera	а		10			Х			fa	си					Pre	vale	ence	Inc	lex W	ork	sheet	i:			
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Deline some LL											-	-						oint:	16	
			icators	:(mi	nimum	_				that apply)										
_	e Water (Х	Water 9			s (B9)										
	/ater Table	e (A2)					Aquatic													
_	ion (A3)						Marl De	•	. ,											
Waterr									fide Odd											
	ent Depos		2)							s on Living	Roots	(C3)							
Drift D	eposits (B	3)					Presen	ce of F	Reduced	Iron (C4)										
	lat of Crus)							in tilled So	oils (Ce	3)								
Iron De	eposits (B	5)					Thin Mu	uck Su	rface (C	27)										
Inunda	ion Visibl	e on A	Aerial In	nage	ery (B7	')	O her (I	Explain	in Rem	narks)										
	ely Vegeta																			
Secondary	/ Indicato	rs:(mi	inimum	of tv	wo req	uired	<u>)</u>													
Surfac	e Soil Cra	cks (E	36)				Stunted	or Str	essed F	Plants (D1)										
Draina	ge Patterr	ıs (B1	0)				Geomo	rphic F	Position	(D2)										
Moss T	rim Lines	(B16))				Shallow	/ Aquita	ard (D3)											
Dry-Se	eason Wa	ter Tal	ble (C2))			Microto	pograp	ohic Reli	ief (D4)										
	sh Burrow	. ,					FAC-Ne	eutral T	Test (D5)			OBL, I							
Satura	ion Visible	e on A	erial In	nage	ry (C9)						В	JPL, F	FACL	0					
Field Obser	rvations:											A>B	=hydi	ric						
Surface W	ater Prese	ent?	Yes		No x	De	pth													
Satura ion	Present?		Yes		No x	De	pth													
Watertable	Present?		Yes		No x	De	pth					Hyd	rology	/ Pre	sent	?	Yes	х	No	
Soil Profile Profile Des		(Desc	ribe to	he o	depth i	neede	ed to docu	ument	he indic	cator or cor	nfirm h	he al	sence	e of in	ndica	tors)			
Profile Des	scription:		ribe to	he o	depth i	neede	ed to docu				nfirm h	he al	sence	e of in	ndica	tors)			
	scription: Mat	rix			depth i			Red	dox Fea	tures				e of in	ndica				Por	nark
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Profile Des	Mate Color(m	rix oist)			depth i			Red	dox Fea	tures				e of in	ndica				Rer	nark
Profile Des Depth(cm)	Mate Color(man of deple	oist)		<u>%</u>		Co	olor(moist	Red	dox Fea	tures Type ¹		Loc ²				<u>Te</u>	<u>ture</u>			
Profile Des	Mate Color(man of deple	oist)		<u>%</u>		Co	olor(moist	Red	dox Fea	tures Type ¹		Loc ²				<u>Te</u>	<u>ture</u>	g,M=N		
Profile Des Depth(cm)	Mate Color(m no deple concentrati	oist) e ion on,D=		<u>%</u>		Co	olor(moist	Red	dox Fea	tures Type ¹		Loc ²				<u>Te</u>	<u>ture</u>	g,M=N		
Profile Des Depth(cm) Type:C=C Hydric Soi	no deple	oist) e ion on,D=		<u>%</u>		Co	d Matrix,0	Red	dox Fea %	tures Type ¹		Loc ²				<u>Te</u>	<u>ture</u>	g,M=N		
Profile Des Depth(cm) 1Type:C=C Hydric Soi	scription: Mat Color(m no deple oncentrati I Indicato	oist) on,D= rs: (A2)		<u>%</u>		Co	d Matrix,0	Red CS=Co	dox Fea % wered o	tures Type ¹		Loc ²	s.2Loc	a ion	PL=	<u>Tex</u>	dure Linin			
Profile Des Depth(cm) 1Type:C=C Hydric Soi Histic E Black H	scription: Mati Color(m no deple oncentrati I Indicato Epipedon Histic (A3)	oist) on,D= rs: (A2)	-Deple i	<u>%</u>		Co	d Matrix,0	Red CS=Co d Matri urfaces	overed o	Type¹		Loc²	s.2Loc	a ion	PL=	Pore	e Linin			
Profile Des Depth(cm) 1Type:C=C Hydric Soi Histic E Black H Hydrog	no deple oncentrati I Indicato Epipedon Histic (A3) gen Sulfido	oist) on,D= rs: (A2)	-Deple i	<u>%</u>		Co	d Matrix,0 Strippe Dark Strippe Dark Strippe	Reconstruction Recons	overed of the second se	Type¹ Type¹ or Coated S ace (S8)		Loc ²	S.2Loc Coast	a ion Prair lucky	PL=	Pore edox	ture Linin	S3)		
Profile Des Depth(cm) 1 Type:C=C Hydric Soi Histic E Black H Hydrog Stratific	no deple oncentrati I Indicato Epipedon Histic (A3) gen Sulfide ed Layers	oist) on,D= on,D= rs: (A2) (A5)	-Deple i	% on,F	RM=Re	Co	d Matrix,0 Strippe Dark So Polyvalo	Record Matri	overed o ix (S6) s (S7) overed (S7) overed (S7) overed (S7) overed (S7) overed (S7)	Type¹ Type¹ or Coated S ace (S8)		Loc ²	coast 5cm M	a ion Prair lucky	PL=	Pore edox	e Linin (A16) Peat (sses (S3) F12)		
Profile Des Depth(cm) 1Type:C=C Hydric Soi Histic E Black H Hydrog Stratific Deplete	no deple I Indicato Epipedon Histic (A3) Jen Sulfide de Layers ed Below I	oist) on,D= on,D= (A2) e (A4) (A5) Dark S	-Deple i	% on,F	RM=Re	Co	d Matrix,0 Strippe Dark St Polyvala Thin Da Loamy	Reconstruction (CS=Construction CS=Construction overed o x (S6) s (S7) ow Surface (Sd Matrix	Type¹ Type¹ or Coated S ace (S8)		Loc ²	Coast 5cm M	a ion Prair lucky langa	ie Re Pea	Pore edox t or Ma	e Linin (A16) Peat (sses (Soils	S3) F12)			
Profile Des Depth(cm) Type:C=C Hydric Soi Histic E Black H Hydrog Stratific Deplete Thick E	no deple oncentrati I Indicato Epipedon Histic (A3) gen Sulfide ed Layers ed Below I Dark Surfa	on,D= on,D= (A2) (A5) Cark Sace (A	EDeple i	% on,F	RM=Re	Co	d Matrix,0 Stripped Dark Strip	Reconstruction (CS=Construction CS=Construction overed of a series of the seri	tures Type¹ Trype¹ Trype¹ Trype¹ Trype¹ Trype¹ Trype¹ Trype¹ Trype¹ Trype¹		Loc ²	Coast 5cm Mron-Medium	a ion Prair lucky langa ont F	PL= Pea Pea Node	Poreedox t or Ma	(A16) Peat (Sses (Soils) (F21)	S3) F12) (F19)	//atrix		
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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

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5.1 Source Bibliography



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 le

IrishtownNB_7074ob xls Rare or legally-protected Flora and Fauna in your study area

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

Data Management, GIS

James Churchill, Data Manager

Tel: (902) 679-6146 james.churchill@accdc.ca

Plant Communities

Sarah Robinson, Community Ecologist

Tel: (506) 364-2664 sarah robinson@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

Eastern: Harrison Moore

(902) 497-4119

Western: Sarah Spencer (902) 541-0081

Sarah.Spencer@novascotia.ca

Eastern: Maureen Cameron-MacMillan

(902) 295-2554

Harrison.Moore@novascotia.ca Maureen.Cameron-MacMillan@novascotia.ca

Central: Shavonne Meyer

(902) 893-0816

Shavonne.Meyer@novascotia.ca Kimberly.George@novascotia.ca

Central: Kimberly George

(902) 890-1046

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 within 100s of meters
1.7 within 10s of meters

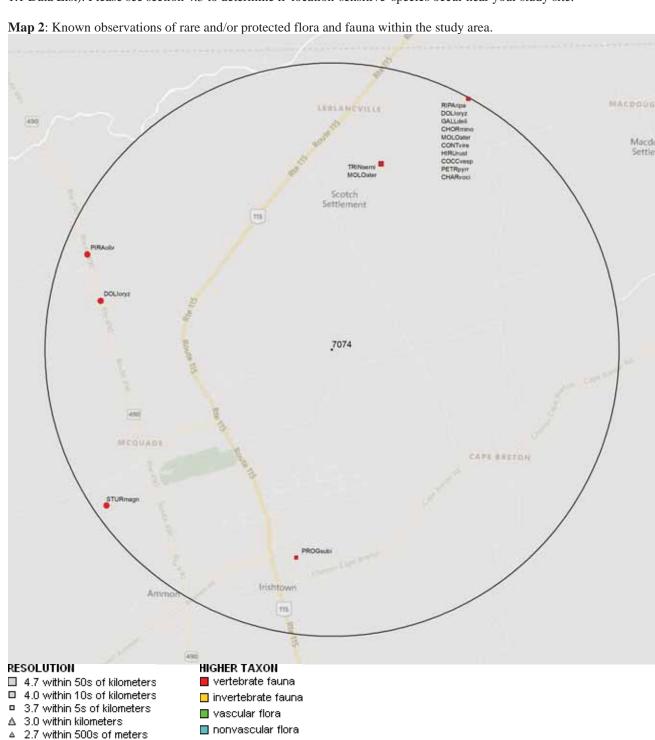
2.0 RARE AND ENDANGERED SPECIES

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.



3.0 SPECIAL AREAS

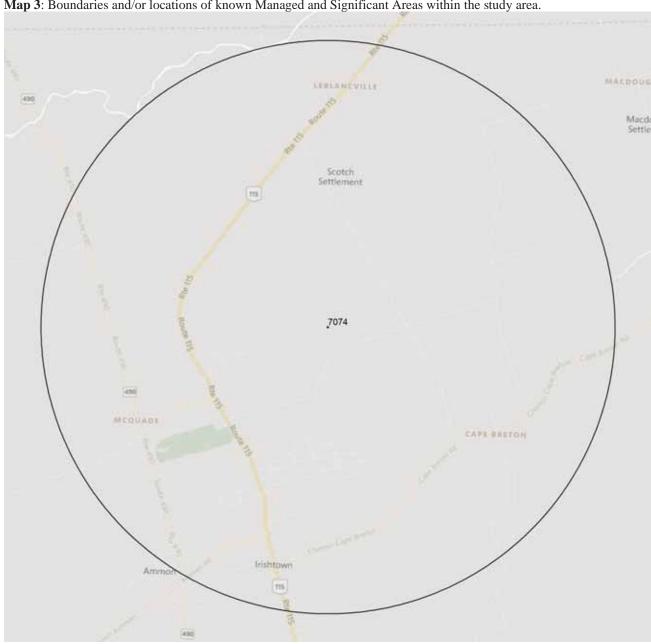
3.1 MANAGED AREAS

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.



Managed Area Significant Area

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

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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 spec	cies 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	ΓΑΤΙ	

- 4 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.
- 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
Α	Myotis septentrionalis	Northern Long-eared Myotis	Endangered	Endangered	Endangered	S1	12	34.0 ± 1.0	NB
Α	Perimyotis subflavus	Eastern Pipistrelle	Endangered	Endangered	Endangered	S1	17	29.8 ± 1.0	NB
Α	Charadrius melodus melodus	Piping Plover melodus ssp	Endangered	Endangered	Endangered	S1B,S1M	2058	17.9 ± 0.0	NB
Α	Dermochelys coriacea (Atlantic pop)	Leatherback Sea Turtle - Atlantic pop.	Endangered	Endangered	Endangered	S1S2N	5	47.4 ± 1.0	NB
Α	Salmo salar pop. 1	Atlantic Salmon - Inner Bay of Fundy pop.	Endangered	Endangered	Endangered	S2	641	11.9 ± 1.0	NB
Α	Salmo salar pop. 7	Atlantic Salmon - Outer Bay of Fundy pop.	Endangered		Endangered	SNR	400	27.5 ± 0.0	NB
Α	Rangifer tarandus pop. 2	Woodland Caribou (Atlan ic-	Endangered	Endangered	Extirpated	SX	2	22.2 ± 1.0	NB

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A A A	Lanius Iudovicianus Sturnella magna Ixobrychus exilis Hylocichla mustelina Asio flammeus Antrostomus vociferus	Gasp I-rsie pop.) Loggerhead Shrike Eastern Meadowlark Least Bittern Wood Thrush	Endangered Threatened Threatened	Endangered Threatened	Threatened	SXB,SXM	1	10.6 ± 0.0	NB
A A A	Sturnella magna Ixobrychus exilis Hylocichla mustelina Asio flammeus Antrostomus vociferus	Eastern Meadowlark Least Bittern Wood Thrush	Threatened		Throotonod			10.6 ± 0.0	NB
A A A	Ixobrychus exilis Hylocichla mustelina Asio flammeus Antrostomus vociferus	Least Bittern Wood Thrush		Threatened	Throotopod				
A A	Hylocichla mustelina Asio flammeus Antrostomus vociferus	Wood Thrush	Threatened			S1B,S1M	46	4.8 ± 0.0	NB
Α .	Asio flammeus Antrostomus vociferus			Threatened	Threatened	S1S2B,S1S2M	19	17.1 ± 0.0	NB
	Antrostomus vociferus		Threatened	Threatened	Threatened	S1S2B,S1S2M	83	8.9 ± 2.0	NB
		Short-eared Owl	Threatened	Special Concern	Special Concern	S2B,S2M	49	16.8 ± 64.0	NB
		Eastern Whip-Poor-Will	Threatened	Threatened	Threatened	S2B,S2M	28	13.8 ± 7.0	NB
	Catharus bicknelli	Bicknell's Thrush	Threatened	Threatened	Threatened	S2B,S2M	12	7.8 ± 2.0	NB
	Oceanodroma leucorhoa	Leach's Storm-Petrel	Threatened			S2B,SUM	1	30.8 ± 0.0	NB
	Glyptemys insculpta	Wood Turtle	Threatened	Threatened	Threatened	S2S3	714	8.2 ± 0.0	NB
	Chaetura pelagica	Chimney Swift	Threatened	Threatened	Threatened	S2S3B,S2M	202	15.0 ± 0.0	NB
	Riparia riparia	Bank Swallow	Threatened	Threatened		S2S3B,S2S3M	1716	5.0 ± 7.0	NB
	Acipenser oxyrinchus	Atlantic Sturgeon	Threatened		Threatened	S3	1	28.8 ± 1.0	NB
	Dolichonyx oryzivorus	Bobolink	Threatened	Threatened	Threatened	S3B,S3M	2129	4.1 ± 0.0	NB
	Limosa haemastica	Hudsonian Godwit	Threatened			S3S4M	438	22.9 ± 0.0	NB
	Anguilla rostrata	American Eel	Threatened		Threatened	S4	7009	11.9 ± 1.0	NB
Α	Tringa flavipes	Lesser Yellowlegs	Threatened			S4M	1720	16.2 ± 0.0	NB
	Coturnicops noveboracensis	Yellow Rail	Special Concern	Special Concern	Special Concern	S1?B,SUM	5	46.1 ± 0.0	NB
Α	Histrionicus histrionicus pop.	Harlequin Duck - Eastern	Special Concern	Special Concern	Endangered	S1B,S1S2N,S2M	5	27.0 ± 0.0	NB
	1	pop.	·	•	· ·	, ,			
	Hirundo rustica	Barn Swallow	Special Concern	Threatened	Threatened	S2B,S2M	1590	5.0 ± 7.0	NB
	Bucephala islandica	Barrow's Goldeneye -	Special Concern	Special Concern	Special Concern	S2M,S2N	112	13.7 ± 5.0	NB
	(Eastern pop)	Eastern pop.				,			
		Atlantic Salmon - Gaspe -	0			0000			NB
A	Salmo salar pop. 12	Southern Gulf of St	Special Concern		Special Concern	S2S3	13	17.5 ± 50.0	
	5.4	Lawrence pop.	0			0000			
	Balaenoptera physalus	Fin Whale	Special Concern	Special Concern		S2S3	1_	67.6 ± 1.0	NB
	Chelydra serpentina	Snapping Turtle	Special Concern	Special Concern	Special Concern	S3	7	22.6 ± 1.0	NB
	Euphagus carolinus	Rusty Blackbird	Special Concern	Special Concern	Special Concern	S3B,S3M	127	10.6 ± 0.0	NB
	Contopus cooperi	Olive-sided Flycatcher	Special Concern	Threatened	Threatened	S3B,S3M	565	6.1 ± 7.0	NB
	Cardellina canadensis	Canada Warbler	Special Concern	Threatened	Threatened	S3B,S3M	681	6.1 ± 7.0	NB
	Coccothraustes vespertinus	Evening Grosbeak	Special Concern	Special Concern		S3B,S3S4N,SUM	343	5.0 ± 7.0	NB
	Chordeiles minor	Common Nighthawk	Special Concern	Threatened	Threatened	S3B,S4M	245	5.0 ± 7.0	NB
	Phalaropus lobatus	Red-necked Phalarope	Special Concern	Special Concern		S3M	22	25.8 ± 0.0	NB
	Phocoena phocoena	Harbour Porpoise	Special Concern		Spec.Concern	S4	4	47.5 ± 0.0	NB
	Chrysemys picta picta	Eastern Painted Tur le	Special Concern			S4	25	16.5 ± 0.0	NB
	Contopus virens	Eastern Wood-Pewee	Special Concern	Special Concern	Special Concern	S4B,S4M	747	5.0 ± 7.0	NB
	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
Α	Falco peregrinus pop. 1	Peregrine Falcon - anatum/tundrius	Not At Risk	Special Concern	Endangered	S1B,S3M	257	13.9 ± 5.0	NB
Α	Bubo scandiacus	Snowy Owl	Not At Risk			S1N,S2S3M	51	10.8 ± 0.0	NB
	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
Α .	Aegolius funereus	Boreal Owl	Not At Risk			S1S2B,SUM	11	45.6 ± 0.0	NB
	Sorex dispar	Long-tailed Shrew	Not At Risk			S2	3	47.3 ± 1.0	NB
Α	Buteo lineatus	Red-shouldered Hawk	Not At Risk			S2B,S2M	24	10.6 ± 0.0	NB
Α	Chlidonias niger	Black Tern	Not At Risk			S2B,S2M	187	17.4 ± 7.0	NB
	Lynx canadensis	Canadian Lynx	Not At Risk		Endangered	S3	23	26.6 ± 10.0	NB
	Desmognathus fuscus -	Northern Dusky Salamander			-				NB
A	Quebec / New Brunswick population	- Quebec / New Brunswick population	Not At Risk			S3	1	72.9 ± 0.0	
	Sterna hirundo	Common Tern	Not At Risk			S3B.SUM	718	16.1 ± 1.0	NB
	Podiceps grisegena	Red-necked Grebe	Not At Risk			S3M.S2N	51	17.4 ± 3.0	NB
	Lagenorhynchus acutus	Atlantic White-sided Dolphin	Not At Risk			S3S4	2	45.4 ± 1.0	NB
	Haliaeetus leucocephalus	Bald Eagle	Not At Risk		Endangered	S4	1330	3 3 ± 10.0	NB
	Canis lupus	Gray Wolf	Not At Risk		Extirpated	SX	2	59.2 ± 100.0	NB
	Puma concolor pop. 1	Eastern Cougar	Data Deficient		Endangered	SNA	118	5.2 ± 1.0	NB
/ /	Tama concolor pop. 1	Lastern Cougar	שממ שבווטובוונ		Lindangered	ONA	110	U.Z I 1.U	יאט

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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	J .	· J	S3	8642	28.8 ± 0.0	NB
Α	Salmo salar	Atlantic Salmon	E,T,SC			S2S3	1	94.4 ± 0.0	NB
A	Thryothorus Iudovicianus	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
Α	Oxyura jamaicensis	Ruddy Duck				S1B,S2S3M	110	17.1 ± 0.0	NB
Α	Aythya affinis	Lesser Scaup				S1B,S4M	174	17.1 ± 30.0	NB
Α	Aythya marila	Greater Scaup				S1B,S4M,S2N	12	23.0 ± 1.0	NB
Α	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		Black-crowned Night-heron				S1S2B,S1S2M	5	17.4 ± 7.0 10.6 ± 0.0	NB
	Nycticorax nycticorax								
Α	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
Α	Troglodytes aedon	House Wren				S1S2B.S1S2M	12	13.1 ± 7.0	NB
Α	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
							122		NB
A	Pooecetes gramineus	Vesper Sparrow				S2B,S2M		6.1 ± 7.0	
A	Mareca strepera	Gadwall				S2B,S3M	381	13.9 ± 5.0	NB
Α	Pinicola enucleator	Pine Grosbeak				S2B,S4S5N,S4S5 M	35	13.1 ± 7.0	NB
Α	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
Λ	A310 01U3	American Three-toed				0200	29	13.4 ± 0.0	NB NB
Α	Picoides dorsalis					S2S3	16	31.7 ± 7.0	IND
		Woodpecker							ND
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 Iapponicus	Lapland Longspur				S2S3N,SUM	43	10.6 ± 0.0	NB
Α	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
						S3B,S3M			NB
A	Cathartes aura	Turkey Vulture					171	13.9 ± 0.0	
Α	Rallus limicola	Virginia Rail				S3B,S3M	341	15.8 ± 7.0	NB

Chranding scellarus Children	Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Cocycus anythracptalmus Slack-billed Cuckoo Slack-billed Slack-billed Cuckoo Slack-billed Cuckoo Slack-billed Slack-billed Cuckoo Slack-billed Slack-billed Cuckoo Slack-billed Slack-billed Cuckoo Slack-billed Sl	Α	Charadrius vociferus	Killdeer					1035	5.0 ± 7.0	NB
A Piranga oliveoea Scalet Tanager S.88,S3M 89 9.5 + 7.0 NB	Α	Tringa semipalmata	Willet				S3B,S3M	1128	3.3 ± 19.0	NB
A Pinnagin olivacee Scarlet Tanager SSB SSM 56 4.6 + 0.0 NB	Α	Coccyzus erythropthalmus	Black-billed Cuckoo				S3B,S3M	174	8.8 ± 7.0	NB
A	Α	Vireo gilvus	Warbling Vireo				S3B,S3M	89	9.5 ± 7.0	NB
A	Α	Piranga olivacea	Scarlet Tanager				S3B,S3M	56	4.6 ± 0.0	NB
Molothrus ailer Brown-headed Corwind Sign Sign 31 31 19.0 NB Returns galbula Ballimore Oriole Sign Sign 12.2 6.1 ± 7.0 NB Sometina molitosima Sign Sign Sign								58	9.5 ± 7.0	
Referres galbulle Sallimore Orfole Sall SAM 122 6.1±7.0 NB	Α							310	3.3 ± 19.0	NB
A Somaleria mollissima Common Eider \$38,54M,S3N 204 13.3 ± 0.0 NB A Setophaga Stigring Cope May Warbler \$38,54555 38 16.2 ± 0.0 NB A Anas scula Northern Pintal \$38,55M 167 10.6 ± 0.0 NB A Margus sarratura Red treasled Margus arratura Red treasled Margus sarratura Red Phalamps Red Phala								122	6.1 ± 7.0	
A										
A Mergus serrator Rethreasted Mergussers Reth										
A										
A Arenaria interprese Ruddy Turnstone A Phalaropus (Illicanius of Phalaropus (Illicanius A) Phal										
Phalaropus fulicarius										
Melantita americana										
A Busephala albeola Bufflehead A Caldris marima Purple Sandpiper SSM,SSN 102 20.8 ± 0.0 NB										
A Calidria marlima										
A Uria lorm/a Synaptomys cooper Southern Bog Lemning Synaptomys cooper Synap										
A Synaplomys cooper Southern Bog Lemming Synaphomys cooper Synamus yrannus annus yrannus Synamus yrannus yrannus yrannus yrannus yrannus yrannus Synamus yrannus										
A										
A detitis macularius Spotted Sandpiper S384B, S5M 982 6.1 ± 7.0 NB A Gallinago delicata Wilson's Sripe S384B, S5M 461 11.9 ± 0.0 NB A Setophaga striata Blackpell Warbler Blackpell Warbler S384B, S5M 461 11.9 ± 0.0 NB A Pluvialis squatarola Blackpell Warbler Sassab, S5M 466 12.1 ± 7.0 NB A Calidris melanotos Sandpiper Sassab, S5M 466 12.1 ± 7.0 NB A Calidris melanotos Sandpiper Sassab, S5M 466 12.1 ± 7.0 NB A Calidris melanotos Sandpiper Sassab, S5M 466 12.1 ± 7.0 NB A Calidris melanotos Sandpiper Sandpiper Sassab, S5M 474 15.0 ± 1.0 NB A Calidris melanotos Sandpiper Sandpiper Sassab, S5M 474 15.0 ± 1.0 NB A Morus bassanus Northern Gannet Sandpiper Sassab, S5M 474 15.0 ± 1.0 NB B Morbus (Psillyrus) Sombus (Psillyrus) Shelis (Clubtail Bombus (Psillyrus) Special Concern										
A Gallinago delicata Wilson's Snipe S334B,55M 1154 5.0±7.0 NB										
A										
A Selophaga striata										
A										
A Calidris pusilla Semipalmated Sandepiper Pectoral Sandep										
A Calidris melanotos Pectoral Sandpiper SasAM, Sanderling										
A Morus bassarius Northern Gannet Sanderling Northern Gannet Sanderling										
A										
Bombus (Psithyrus)										
Bohemicus	Α		Northern Gannet				SHB,S5M	198	19.5 ± 1.0	
Danáus plexippus	1		** *	Endangered	Endangered				18.0 ± 5.0	
Cicindela mariginipennis Cobblestone Tiger Beetle Special Concern Endangered Special Concern	I	Gomphus ventricosus	Skillet Clubtail	Endangered						
Ophiogomphus howei	1	Danaus plexippus	Monarch	Endangered	Special Concern	Special Concern	S3B,S3M	226	11.9 ± 0.0	NB
Alasmidonita varicosa Brook Floater Special Concern Specia	1	Cicindela marginipennis	Cobblestone Tiger Beetle	Special Concern	Endangered	Endangered	S1	65	96.2 ± 0.0	NB
Lampsilis cariosa Yellow Lampmussel Special Concern Specia	1	Ophiogomphus howei	Pygmy Snaketail	Special Concern	Special Concern	Special Concern		27	82.4 ± 0.0	NB
Bombus terricola Yellow-banded Bumblebee Special Concern S	1	Alasmidonta varicosa	Brook Floater	Special Concern	Special Concern	Special Concern	S2	34	13.6 ± 0.0	NB
Coccinella transversoguttata richardsoni	1	Lampsilis cariosa	Yellow Lampmussel	Special Concern	Special Concern	Special Concern	S2	23	72.6 ± 0.0	NB
Part	1	Bombus terricola	Yellow-banded Bumblebee	Special Concern	Special Concern	'	S3?	156	22.1 ± 0.0	NB
richardsoni		Coccinella transversoguttata					011			NB
Appalachina sayana	ı		Transverse Lady Beetle	Special Concern			SH	31	13.0 ± 0.0	
I Érora 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 1 98.1 ± 7.0 NB I Strymon melinus Grey Hairstreak S2 2 14.6 ± 2.0 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 brevicincta S2	1		Spike-lip Crater	Not At Risk			S3?	1	85.3 ± 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 1 98.1 ± 7.0 NB I Strymon melinus Grey Hairstreak S2 2 14.6 ± 2.0 NB I Strymon melinus Grey Hairstreak S2 2 14.6 ± 2.0 NB I Strymon melinus Grey Hairstreak S2 2 14.6 ± 2.0 NB I Strymon melinus Grey Hairstreak S2 2 14.0 ± 2.0 NB I Strymon melinus S2 8 </td <td>i</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	i									
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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									
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I <i>Elaphrus americanus</i> a Ground Beetle S3 1 57.8 ± 0.0 NB	1									
	1									
ı Agonum crenistriatum a Ground Beetle S3 1 13.8 ± 1.0 NB	I									
	1	Agonum crenistriatum	a Ground Beetle				53	1	13.8 ± 1.0	NR

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Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
T	Agonum consimile	a Ground Beetle				S3	1	13.8 ± 1.0	NB
1	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
1	Olisthopus parmatus	a Ground Beetle				S3	1	36.6 ± 0.0	NB
1	Amara pallipes	a Ground Beetle				S3	2	13.8 ± 1.0	NB
1	Carabus maeander	a Ground Beetle				S3	1	13.8 ± 1.0	NB
1	Carabus serratus	a Ground Beetle				S3	1	19.4 ± 1.0	NB
1	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
1	Naemia seriata	a Ladybird beetle				S3	9	48.0 ± 0.0	NB
1	Beckerus appressus	A Click Bee le				S3	1	70.7 ± 0.0	NB
1	Saperda lateralis	a Longhorned Beetle				S3	1	65.6 ± 0.0	NS
1	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
1	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
	Papilio brevicauda					00	40		NB
I	bretonensis	Short-tailed Swallowtail				S3	16	30.3 ± 0.0	
1	Lycaena hyllus	Bronze Copper				S3	162	8.4 ± 2.0	NB
1	Lycaena dospassosi	Salt Marsh Copper				S3	117	20.2 ± 0.0	NB
1	Satyrium acadica	Acadian Hairstreak				S3	15	12.3 ± 0.0	NB
1	Callophrys polios	Hoary Elfin				S3	14	11.3 ± 0.0	NB
1	Plebejus idas	Northern Blue				S3	10	84.1 ± 0.0	NS
1	Plebėjus idas empetri	Crowberry Blue				S3	29	50.8 ± 7.0	NB
1	Speyeria aphrodite	Aphrodite Fritillary				S3	17	8.2 ± 0.0	NB
1	Boloria bellona	Meadow Fritillary				S3	6	89.6 ± 1.0	NB
1	Boloria chariclea	Arctic Fritillary				S3	10	42.1 ± 7.0	NB
1	Polygonia satyrus	Satyr Comma				S3	5	48.6 ± 5.0	NB
1	Polygonia gracilis	Hoary Comma				S3	4	62.1 ± 15.0	NB
1	Nymphalis I-album	Compton Tortoiseshell				S3	10	12.3 ± 10.0	NB
1	Gomphus vastus	Cobra Clubtail				S3	3	98.8 ± 0.0	NB
I	Gomphus abbreviatus	Spine-crowned Clubtail				S3	10	74.0 ± 0.0	NB
1	Gomphaeschna furcillata	Harlequin Darner				S3	6	13.9 ± 0.0	NB
1	Dorocordulia lepida	Petite Emerald				S3	5	47.5 ± 1.0	NB
1	Somatochlora cingulata	Lake Emerald				S3	4	67.0 ± 1.0	NB
i	Somatochlora forcipata	Forcipate Emerald				S3	9	19.6 ± 0.0	NB
1	Williamsonia fletcheri	Ebony Boghaunter				S3	19	8.5 ± 2.0	NB
1	Lestes eurinus	Amber-Winged Spreadwing				S3	32	14.6 ± 1.0	NB
1	Enallagma geminatum	Skimming Bluet				S3	5	84.0 ± 0.0	NB
i	Enallagma signatum	Orange Bluet				S3	4	45.5 ± 0.0	NB
1	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
	•	Banded Soft-winged Flower				•			NB
I	Collops vittatus	Beetle				S3S4	1	12.2 ± 3.0	
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
1	Satyrium liparops	Striped Hairstreak				S3S4	34	8.4 ± 0.0	NB
1	Satyrium liparops strigosum	Striped Hairstreak				S3S4	4	8.4 ± 0.0	NB
1	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

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	One-sided Groove Moss				S1	1	69.2 ± 0.0	NB
	heterostichum								
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 N		Veinless Pelt Lichen				S1	2	75.1 ± 1.0	NB
	Peltigera malacea								
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
NI	Rhizomnium	Foltad Loofy Moos				S1?	1	67.4 ± 0.0	NB
N	pseudopunctatum	Felted Leafy Moss							
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	Distriction metalinatum Ditrichum pallidum	Pale Cow-hair Moss				S1S2 S1S2	1	65.0 ± 1.0	NB
N	Drummondia prorepens	a Moss				S1S2 S1S2	1	71.7 ± 0.0	NB
N N						\$1\$2 \$1\$2			NB
	Hygrohypnum bestii	Best's Brook Moss					5	65.7 ± 0.0	
N	Seligeria brevifolia	a Moss				S1S2	4	70.0 ± 0.0	NB
N	Timmia norvegica Timmia norvegica var.	a moss				S1S2	3	77.9 ± 0.0	NB NB
N	excurrens	a moss				S1S2	1	77.9 ± 0.0	
	Tortella humilis	Small Crisp Moss				S1S2	7	69.0 ± 1.0	NB
N	Pseudotaxiphyllum	Official Offisp Moss				0102		00.0 ± 1.0	NB

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Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
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	•	Greater Toad Pelt Lichen				S1S2	4	62.0 ± 1.0	NB
	Peltigera scabrosa								
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
IN		Ollowy Blistie Woss				OZ.	U	40.5 ± 4.0	NB
N	Platydictya	False Willow Moss				S2	4	33.1 ± 15.0	IND
	jungermannioides								
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 N						S2 S2	3		NB
	Anomobryum julaceum	Slender Silver Moss						77.7 ± 1.0	
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				S2?	1	47.4 ± 1.0	NB
IN	Anomodon minor	Moss						47.4 1.0	
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					S2?	1	73.1 ± 0.0 74.8 ± 1.0	NB
N N		Chalky Ramalina Lichen				S2? S2?	11		NB NB
	Collema leptaleum	Crumpled Bat's Wing Lichen						69.2 ± 0.0	
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				S2S3	2	48.5 ± 5.0	NB
	Gaillei gui lella cuspidala	Moss						+0.0 ± 0.0	
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 N		Cottony Nodding Moss				S2S3	∠ 13	49.5 ± 0.0 33.1 ± 15.0	NB NB
	Pohlia proligera								
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
••	cocadiaiii agaooizii	2 2.30111 MOOO				2230	J	J 1.0	. 10

Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
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						S3	16	76.8 ± 0.0	NB
	Hypotrachyna catawbiensis	Powder-tipped Antler Lichen							NB NB
N	Scytinium lichenoides	Tattered Jellyskin Lichen				S3	6	77.2 ± 1.0	
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 Short-bearded Jellyskin				S3	8	56.8 ± 0.0	NB PE
N	Leptogium laceroides	Lichen				S3	14	64.3 ± 0.0	
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 S3S4	2	64.4 ± 0.0	PE
N	Dicraniella varia Dicranum majus	Greater Broom Moss				S3S4 S3S4	22	63.7 ± 0.0	NB
N	Dicranum leioneuron	a Dicranum Moss				S3S4	3	25.4 ± 0.0	NB
						S3S4 S3S4			NB
N	Encalypta ciliata	Fringed Extinguisher Moss					1	77.4 ± 0.0	
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

Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
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
IN	Stereocaulori pascriale	Mealy-rimmed Shingle							NB
N	Pannaria conoplea	Lichen				S3S4	39	40.6 ± 0.0	
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
Р	Juglans cinerea	Butternut	Endangered	Endangered	Endangered	S1	59	46.8 ± 1.0	NB
Р	Symphyotrichum	Gulf of St Lawrence Aster	Threatened	Threatened	Endangered	S1	44	61.1 ± 0.0	NB
-	laurentianum	Guil of St Lawrence Aster	Tilleaterieu	Tilleaterieu	Endangered	31	44	01.1 ± 0.0	
Р	Fraxinus nigra	Black Ash	Threatened			S4S5	342	6.2 ± 0.0	NB
Р	Lechea maritima var. subcylindrica	Beach Pinweed	Special Concern	Special Concern	Special Concern	S2	952	29.4 ± 0.0	NB
Р	Symphyotrichum subulatum (Bathurst pop)	Bathurst Aster - Bathurst pop.	Not At Risk		Endangered	S2	79	45.3 ± 0.0	NB
Р	Eriocaulon parkeri	Parker's Pipewort	Not At Risk		Endangered	S2	83	98.2 ± 0.0	NB
Р	Cryptotaenia canadensis	Canada Honewort			· ·	S1	2	79.3 ± 1.0	NB
Р	Antennaria howellii ssp. petaloidea	Pussy-Toes				S1	2	85.5 ± 5.0	PE
Р	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
Р	Hieracium robinsonii	Robinson's Hawkweed				S1	12	64.4 ± 0.0	NB
P	Solidago multiradiata	Mul i-rayed Goldenrod				S1 S1	19	40.7 ± 0.0	NB
	Symphyotrichum subulatum	•							NB
Р	(non-Bathurst pop)	Annual Saltmarsh Aster				S1	12	73.8 ± 0.0	יאט
Р	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
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Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Р	Draba arabisans	Rock Whitlow-Grass				S1	18	69.6 ± 0.0	NB
Р	Draba glabella	Rock Whitlow-Grass				S1	3	77.6 ± 0.0	NB
Р	Stellaria crassifolia	Fleshy S itchwort				S1	4	19.4 ± 5.0	NB
Р	Chenopodiastrum simplex	Maple-leaved Goosefoot				S1	6	44.8 ± 5.0	NB
Р	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
	• .	Entire-leaved Mountain							NB
Р	Dryas integrifolia	Avens				S1	15	40.1 ± 3.0	
Р	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
Р	Saxifraga paniculata ssp. laestadii	Laestadius' Saxifrage				S1	31	75.2 ± 0.0	NB
Р	Agalinis purpurea var. parviflora	Small-flowered Purple False Foxglove				S1	59	23.9 ± 0.0	NB
Р	Carex annectens	Yellow-Fruited Sedge				S1	3	28.5 ± 0.0	NB
Р	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
Р	Carex scirpoidea	Scirpuslike Sedge				S1	6	81.8 ± 0.0	NB
Р	Carex sterilis	Sterile Sedge				S1	1	46.5 ± 2.0	NB
Р	Carex grisea	Inflated Narrow-leaved Sedge				S1	1	80.3 ± 5.0	NB
Р	Cyperus diandrus	Low Flatsedge				S1	4	98.9 ± 0.0	NB
Р	Cyperus bipartitus	Shining Flatsedge				S1	9	98.4 ± 0.0	NB
Р	Eleocharis flavescens var.	Bright-green Spikerush				S1	8	98.9 ± 0.0	NB
Р	olivacea								ND
•	Scirpus pendulus Schoenoplectiella smithii var.	Hanging Bulrush				S1	9	48.2 ± 0.0	NB NB
Р	leviseta	Smi h's Bulrush				S1	17	98.9 ± 0.0	
Р	Schoenoplectiella smithii var. leviseta	Smi h's Bulrush				S1	28	98.2 ± 0.0	NB
Р	Sisyrinchium angustifolium	Narrow-leaved Blue-eyed- grass				S1	3	51.4 ± 0.0	NB
Р	Juncus greenei	Greene's Rush				S1	10	43.9 ± 10.0	NB
Р	Juncus stygius ssp. americanus	Moor Rush				S1	17	43.9 ± 10.0	NB
Р	Goodyera pubescens	Downy Rattlesnake-Plantain				S1	12	44.0 ± 5.0	NB
Р	Malaxis monophyllos var.	North American White				S1	1	72.9 ± 0.0	PE
Р	brachypoda Malaxis monophyllos	Adder's-mouth White Adder's-mouth				S1	1	37.7 ± 0.0	NB
P P						S1 S1			NB NB
P P	Platanthera flava	Southern Rein-Orchid				S1 S1	1 12	37.7 ± 0.0 37.4 ± 0.0	NB
P P	Platanthera macrophylla	Large Round-Leaved Orchid							
P	Bromus pubescens	Hairy Wood Brome Grass				S1	2	65.2 ± 0.0	NB

Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
•	Calamagrostis stricta ssp. inexpansa	Slim-stemmed Reed Grass				S1	3	50.5 ± 1.0	NB
)	Catabrosa aquatica	Water Whorl Grass				S1	2	91.7 ± 5.0	PE
•	Danthonia compressa	Flattened Oat Grass				S1	15	40.8 ± 0.0	NB
•	Festuca subverticillata	Nodding Fescue				S1	6	96.6 ± 0.0	NS
•	Zizania aquatica var. brevis	St. Lawrence Wild Rice				S1	10	98.9 ± 0.0	NB
D	Potamogeton friesii	Fries' Pondweed				S1	9	47.8 ± 0.0	NB
D	Potamogeton nodosus	Long-leaved Pondweed				S1	4	94.8 ± 0.0	NB
•	Cystopteris laurentiana	Laurentian Bladder Fern				S1	1	80.6 ± 1.0	NB
•	Dryopteris filix-mas ssp. brittonii	Britton's Male Fern				S1	2	41.2 ± 1.0	NB
)	Schizaea pusilla	Little Curlygrass Fern				S1	9	70.8 ± 0.0	NB
•	Bidens heterodoxa	Connecticut Beggar-Ticks				S1?	8	74.4 ± 0.0	NB
	Polygonum aviculare ssp. neglectum	Narrow-leaved Knotweed				S1?	4	23.7 ± 0.0	NB
)	Selaginella rupestris	Rock Spikemoss				S1S2	9	74.4 ± 1.0	NB
o	Coryphopteris simulata	Bog Fern				S1S2	12	42.5 ± 0.0	NB
o	Cuscuta cephalanthi	Buttonbush Dodder				S1S3	16	18.7 ± 0.0	NB
	Eriophorum russeolum ssp.	Smooth-fruited Russet							NB
•	albidum	Cottongrass				S1S3	13	19.4 ± 0.0	
o	Spiranthes arcisepala	Appalachian Ladies'-tresses				S1S3	7	46.7 ± 0.0	NB
o	Spiranthes incurva	Sphinx Ladies'-tresses				S1S3	1	21.0 ± 0.0	NB
o	Neottia bifolia	Southern Twayblade			Endangered	S2	50	19.3 ± 0.0	NB
o	Osmorhiza longistylis	Smooth Sweet Cicely				S2	5	82.4 ± 1.0	NS
o	Ionactis linariifolia	Flax-leaved Aster				S2	28	59.6 ± 5.0	NB
o	Symphyotrichum racemosum	Small White Aster				S2	2	87.9 ± 0.0	NB
)	Symphyotrichum subulatum	Annual Saltmarsh Aster				S2	76	90.1 ± 0.0	NB
0	Pseudognaphalium macounii	Macoun's Cudweed				S2	44	44.0 ± 5.0	NB
0	Impatiens pallida	Pale Jewelweed				S2	4	81.5 ± 0.0	NB
0	Boechera stricta	Drummond's Rockcress				S2	12	48.9 ± 0.0	NB
0	Sagina nodosa	Knotted Pearlwort				S2	2	83.2 ± 0.0	PE
0	Sagina nodosa ssp. borealis	Knotted Pearlwort				S2	2	83.2 ± 0.0	PE
•	Stellaria longifolia	Long-leaved Starwort				S2	10	22.8 ± 2.0	NB
-	Atriplex glabriuscula var. franktonii	Frankton's Saltbush				S2	5	23.4 ± 0.0	NB
-	Oxybasis rubra	Red Goosefoot				S2	12	21.6 ± 0.0	NB
D	Hypericum x dissimulatum	Disguised St. John's-wort				S2	3	65.6 ± 1.0	NB
0	Triosteum aurantiacum	Orange-fruited Tinker's				S2	7	36.1 ± 0.0	NB
		Weed							
-	Viburnum lentago	Nannyberry				S2	1	70.0 ± 0.0	NB
-	Viburnum recognitum	Northern Arrow-Wood				S2	1	39.7 ± 0.0	NB
•	Shepherdia canadensis	Soapberry				S2	42	36.2 ± 0.0	NB
•	Oxytropis campestris var. johannensis	Field Locoweed				S2	1	96.6 ± 0.0	NB
0	Quercus macrocarpa	Bur Oak				S2	3	78.0 ± 0.0	NB
o	Gentiana linearis	Narrow-Leaved Gentian				S2	1	41.5 ± 50.0	NB
o	Myriophyllum humile	Low Water Milfoil				S2	1	67.7 ± 1.0	NB
-	Proserpinaca palustris	Marsh Mermaidweed				S2 S2	1	90.1 ± 0.0	NB
0	Hedeoma pulegioides	American False Pennyroyal				S2	2	77.8 ± 0.0	NB
-	Nuphar x rubrodisca	Red-disk Yellow Pond-lily				S2 S2	16	9.1 ± 0.0	NB
5	Aphyllon uniflorum	One-flowered Broomrape				S2 S2	1	9.1 ± 0.0 97.6 ± 1.0	NB
5	Polygaloides paucifolia	Fringed Milkwort				S2 S2	8	97.6 ± 1.0 69.6 ± 1.0	NB NB
	Persicaria amphibia var.	i inigea iviiikwort							
)	reisicaria amphibia var.					S2	2	87.5 ± 0.0	NB
	emersa	Long-root Smartweed				32	2	01.3 ± 0.0	
>		Carey's Smartweed				S2	8	67.3 ± 0.0 22.8 ± 2.0	NB
	emersa .	=							NB NB

Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Р	Ranunculus flabellaris	Yellow Water Buttercup				S2	1	32.0 ± 0.0	NB
Р	Crataegus scabrida	Rough Hawthorn				S2	6	42.5 ± 1.0	NB
Р	Crataegus succulenta	Fleshy Hawthorn				S2	2	66.5 ± 0.0	PE
P	Salix candida	Sage Willow				S2	1	97.9 ± 0.0	PE
Р	Agalinis neoscotica	Nova Scotia Agalinis				S2	1	57.8 ± 0.0	NS
Р	Euphrasia randii	Rand's Eyebright				S2	6	70.0 ± 0.0	PE
P	Scrophularia lanceolata	Lance-leaved Figwort				S2	2	70.0 ± 0.0 77.6 ± 1.0	NB
Р	Dirca palustris	Eastern Leatherwood				S2	1	30.7 ± 1.0	NB
Р	Sagittaria montevidensis	Spongy Arrowhead				S2	111	36.0 ± 0.0	NB
_	ssp. spongiosa	,							
Р	Symplocarpus foetidus	Eastern Skunk Cabbage				S2	128	49.1 ± 18.0	NB
Р	Carex comosa	Bearded Sedge				S2	7	50.1 ± 0.0	NB
Р	Carex granularis	Limestone Meadow Sedge				S2	11	28.5 ± 0.0	NB
Р	Carex gynocrates	Northern Bog Sedge				S2	1	77.6 ± 1.0	NB
Р	Carex hirtifolia	Pubescent Sedge				S2	6	36.2 ± 0.0	NB
Р	Carex livida	Livid Sedge				S2	9	55.9 ± 0.0	NS
Р	Carex plantaginea	Plantain-Leaved Sedge				S2	3	78.7 ± 0.0	NB
	, ,	Narrow-leaved Beaked							NB
Р	Carex rostrata	Sedge				S2	2	50.1 ± 5.0	
Р	Carex sprengelii	Longbeak Sedge				S2	2	83.7 ± 0.0	NB
P	Carex tenuiflora	Sparse-Flowered Sedge				S2	10	47.2 ± 10.0	NB
	Carex albicans var.								NB
Р		White-tinged Sedge				S2	10	14.9 ± 0.0	IND
Б	emmonsii	A				00	4	00.0 . 0.0	ND
Р	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
Р	Juncus vaseyi	Vasey Rush				S2	14	13.6 ± 0.0	NB
Р	Allium tricoccum	Wild Leek				S2	17	39.7 ± 0.0	NB
Р	Galearis rotundifolia	Small Round-leaved Orchid				S2	3	56.5 ± 0.0	NB
Р	Calypso bulbosa var.	Calypso				S2	3	43.0 ± 5.0	NB
•	americana	**							
Р	Coeloglossum viride	Long-bracted Frog Orchid				S2	5	38.2 ± 10.0	NB
Р	Cypripedium parviflorum var.	Small Yellow Lady's-Slipper				S2	2	27.4 ± 0.0	NB
·	makasin					02	_	220.0	
Р	Goodyera oblongifolia	Menzies' Rattlesnake-				S2	2	71.8 ± 0.0	PE
	Goody era obiorigiiolia	plantain							
Р	Spiranthes lucida	Shining Ladies'-Tresses				S2	3	44.7 ± 1.0	NB
Р	Spiranthes ochroleuca	Yellow Ladies'-tresses				S2	16	15.4 ± 0.0	NB
Р	Dichanthelium linearifolium	Narrow-leaved Panic Grass				S2	1	89.0 ± 0.0	NB
Р	Elymus canadensis	Canada Wild Rye				S2	1	17.1 ± 1.0	NB
Р	Piptatheropsis canadensis	Canada Ricegrass				S2	4	17.0 ± 10.0	NB
	Puccinellia phryganodes	· ·							NB
Р	ssp. neoarctica	Creeping Alkali Grass				S2	2	37.4 ± 1.0	
Р	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 S2	27	88.6 ± 0.0	NB
Г		Little Bluestern				32	21	00.0 ± 0.0	NB
Р	Zizania aquatica var.	Eastern Wild Rice				S2	5	41.7 ± 0.0	IND
	aquatica	01 1 5:				00	-	10.0	ND
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
Р	Asplenium trichomanes	Maidenhair Spleenwort				S2	12	49.4 ± 1.0	NB
Р	Anchistea virginica	Virginia chain fern				S2	30	51.4 ± 0.0	NB
Р	Woodsia alpina	Alpine Cliff Fern				S2	5	64.5 ± 0.0	NB
Р	Diphasiastrum sitchense	Sitka Ground-cedar				S2	4	40.0 ± 0.0	NB
Р	Selaginella selaginoides	Low Spikemoss				S2	8	73.4 ± 0.0	NB
Р	Toxicodendron radicans var.	•							NB
۲	radicans	Eastern Poison Ivy				S2?	10	29.9 ± 0.0	
Р	Symphyotrichum novi-belgii	New York Aster				S2?	5	58.2 ± 0.0	NB
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Taxonomic

Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
	var. crenifolium								
Р	Humulus lupulus var. Iupuloides	Common Hop				S2?	2	43.9 ± 5.0	NB
)	Crataegus macrosperma	Big-Fruit Hawthorn				S2?	2	18.5 ± 0.0	NB
	Rubus x recurvicaulis	arching dewberry				S2?	4	16.9 ± 0.0	NB
•	Galium obtusum	Blunt-leaved Bedstraw				S2?	9	17.7 ± 10.0	NB
•	Salix myricoides	Bayberry Willow				S2?	2	40.8 ± 1.0	NB
•	Carex vacillans	Estuarine Sedge				S2?	4	40.8 ± 1.0 47.2 ± 0.0	NB
)						S2?	4		NB
	Platanthera huronensis	Fragrant Green Orchid						71.5 ± 0.0	
) 	Solidago altissima	Tall Goldenrod				S2S3	3	49.0 ± 0.0	NB
	Callitriche hermaphroditica	Northern Water-starwort				S2S3	8	51.1 ± 0.0	NB
	Elatine americana	American Waterwort				S2S3	18	40.6 ± 2.0	NB
	Bartonia paniculata	Branched Bartonia				S2S3	2	70.7 ± 0.0	NS
	Bartonia paniculata ssp. iodandra	Branched Bartonia				S2S3	24	67.1 ± 0.0	NB
	Geranium robertianum	Herb Robert				S2S3	74	56.4 ± 0.0	PE
	Epilobium coloratum	Purple-veined Willowherb				S2S3	27	43.2 ± 1.0	NB
	Rumex persicarioides	Peach-leaved Dock				S2S3	28	18.0 ± 1.0	NB
	Rumex pallidus	Seabeach Dock				S2S3	7	39.6 ± 0.0	NB
	Rubus pensilvanicus	Pennsylvania Blackberry				S2S3	35	34.2 ± 0.0	NB
	Galium labradoricum	Labrador Bedstraw				S2S3	14	34.2 ± 0.0 35.2 ± 0.0	NB
	Carex adusta	Lesser Brown Sedge				S2S3	12	9.9 ± 0.0	NB
	Scirpus atrovirens	Dark-green Bulrush				S2S3	2	60.9 ± 0.0	PE
	Corallorhiza maculata var. occidentalis	Spotted Coralroot				S2S3	14	6 2 ± 10.0	NB
	Corallorhiza maculata var. maculata	Spotted Coralroot				S2S3	3	69.6 ± 0.0	NB
	Neottia auriculata	Auricled Twayblade				S2S3	8	75.1 ± 0.0	NB
	Spiranthes cernua	Nodding Ladies'-Tresses				S2S3	19	37.5 ± 0.0	NB
	Eragrostis pectinacea	Tufted Love Grass				S2S3	5	12.6 ± 0.0	NB
	Stuckenia filiformis	Thread-leaved Pondweed				S2S3	2	22.3 ± 1.0	NB
	Potamogeton praelongus	White-stemmed Pondweed				S2S3	12	56.5 ± 0.0	NS
						S2S3	5	62.5 ± 50.0	NS
	Ophioglossum pusillum	Northern Adder's-tongue				S2SS S3	36		NB
	Panax trifolius	Dwarf Ginseng				53	36	8.8 ± 0.0	
	Artemisia campestris ssp. caudata	Tall Wormwood				S3	43	65.3 ± 0.0	NB
	Artemisia campestris	Field Wormwood				S3	6	79.2 ± 0.0	NB
	Bidens hyperborea	Estuary Beggar icks				S3	131	17.7 ± 1.0	NB
	Erigeron hyssopifolius	Hyssop-leaved Fleabane				S3	98	37.3 ± 1.0	NB
	Nabalus racemosus	Glaucous Rattlesnakeroot				S3	8	88.2 ± 0.0	NB
	Symphyotrichum boreale	Boreal Aster				S3	12	35.0 ± 0.0	NB
	Betula pumila	Bog Birch				S3	174	19.3 ± 0.0	NB
)	Turritis glabra	Tower Mustard				S3	1	87.7 ± 0.0	NB
•	Arabis pycnocarpa	Cream-flowered Rockcress				S3	17	18.2 ± 0.0	NB
	Cardamine maxima	Large Toothwort				S3	8	83.1 ± 0.0	NB
	Subularia aquatica ssp.	American Water Awlwort				S3	2	68.5 ± 0.0	NB
	americana								
	Stellaria humifusa	Saltmarsh Starwort				S3	15	19.5 ± 5.0	NB
•	Ceratophyllum echinatum	Prickly Hornwort				S3	33	7.8 ± 0.0	NB
	Hudsonia tomentosa	Woolly Beach-heath				S3	412	23.6 ± 0.0	NB
	Cornus obliqua	Silky Dogwood				S3	55	70.4 ± 0.0	NB
	Crassula aquatica	Water Pygmyweed				S3	43	40.9 ± 0.0	NB
	Rhodiola rosea	Roseroot				S3	73	69.0 ± 0.0	NB
	Penthorum sedoides	Ditch Stonecrop				S3	27	33.2 ± 0.0	NB
	Elatine minima	Small Waterwort				S3	3	69.1 ± 0.0	NB
	Geranium bicknellii	Bicknell's Crane's-bill				S3	26	9.9 ± 0.0	NB
)	Myriophyllum farwellii	Farwell's Water Milfoil				S3	12	41.1 ± 0.0	NB
-	Myriophyllum heterophyllum	Variable-leaved Water Milfoil				S3	11	88.2 ± 0.0	NB
	wynophyliain neterophyliain	variable-leaved vvalet MillOll				00	1.1	00.2 ± 0.0	IND

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Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Р	Myriophyllum verticillatum	Whorled Water Milfoil				S3	14	52.0 ± 1.0	NB
Р	Teucrium canadense	Canada Germander				S3	129	14.1 ± 0.0	NB
Р	Nuphar microphylla	Small Yellow Pond-lily				S3	8	50.3 ± 5.0	NB
Р	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
Р	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 amona 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		Seaside Brookweed				S3	185	11.0 ± 0.0	NB
P	Samolus parviflorus					S3	5	59.3 ± 0.0	NS
	Pyrola minor	Lesser Pyrola				S3			
P	Clematis occidentalis	Purple Clematis					16	48.5 ± 0.0	NB
Р	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
Р	Galium boreale	Northern Bedstraw				S3	5	68.4 ± 5.0	NS
Р	Salix nigra	Black Willow				S3	32	78.3 ± 0.0	NB
Р	Salix pedicellaris	Bog Willow				S3	71	20.2 ± 0.0	NB
Р	Salix interior	Sandbar Willow				S3	2	36.8 ± 1.0	NB
Р	Comandra umbellata	Bastard's Toadflax				S3	57	19.1 ± 0.0	NB
Р	Limosella australis	Southern Mudwort				S3	156	11.3 ± 0.0	NB
Р	Pilea pumila	Dwarf Clearweed				S3	77	33.5 ± 0.0	NB
Р	Viola adunca	Hooked Violet				S3	5	49.6 ± 0.0	NB
Р	Viola nephrophylla	Northern Bog Violet				S3	14	64.7 ± 0.0	PE
Р	Carex arcta	Northern Clustered Sedge				S3	10	44.6 ± 5.0	NB
Р	Carex capillaris	Hairlike Sedge				S3	13	69.9 ± 0.0	NS
Р	Carex chordorrhiza	Creeping Sedge				S3	74	48.1 ± 0.0	NB
Р	Carex conoidea	Field Sedge				S3	9	28.5 ± 0.0	NB
Р	Carex eburnea	Bristle-leaved Sedge				S3	18	47.1 ± 100.0	NB
Р	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
Р	Carex Iupulina	Hop Sedge				S3	21	33.2 ± 0.0	NB
P	Carex michauxiana	Michaux's Sedge				S3	18	51.1 ± 1.0	NB
Р	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 wiegaridii Carex recta	Estuary Sedge				S3	18	14.7 ± 0.0 11.3 ± 0.0	NB
P	Carex recta Carex atratiformis	Scabrous Black Sedge				S3	3	96.9 ± 0.0	NS
P		Toothed Flatsedge				S3	99	41.6 ± 1.0	NB
P	Cyperus dentatus Cyperus esculentus var.	Perennial Yellow Nutsedge				S3	7	53.6 ± 0.0	NB
	leptostachyus	refermal reliow Nutseage						33.0 ± 0.0	
Р	Eleocharis intermedia	Matted Spikerush				S3	1	65.5 ± 0.0	NB
Р	Rhynchospora capitellata	Small-headed Beakrush				S3	7	77.3 ± 1.0	NB
Р	Rhynchospora fusca	Brown Beakrush				S3	10	56.1 ± 0.0	NS
Р	Trichophorum clintonii	Clinton's Clubrush				S3	25	74.6 ± 0.0	NB
Р	Bolboschoenus fluviatilis	River Bulrush				S3	4	32.2 ± 1.0	NB
Р	Schoenoplectus torreyi	Torrey's Bulrush				S3	5	8.6 ± 0.0	NB
Р	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
	P					-			

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Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Р	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
Р	Bromus latiglumis	Broad-Glumed Brome				S3	29	30.6 ± 0.0	NB
Р	Calamagrostis pickeringii	Pickering's Reed Grass				S3	32	20.1 ± 0.0	NB
Р	Dichanthelium depauperatum	Starved Panic Grass				S3	19	32.1 ± 0.0	NB
Р	Potamogeton obtusifolius	Blunt-leaved Pondweed				S3	37	33.6 ± 0.0	NB
Р	Potamogeton richardsonii	Richardson's Pondweed				S3	2	95.3 ± 0.0	NB
Р	Xyris montana	Northern Yellow-Eyed-Grass				S3	253	13.7 ± 0.0	NB
Р	Zannichellia palustris	Horned Pondweed				S3	71	11.2 ± 0.0	NB
Р	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
Р	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
Р	Huperzia appressa	Mountain Firmoss				S3	37	75.0 ± 0.0	NB
Р	Sceptridium dissectum	Dissected Moonwort				S3	6	22.7 ± 2.0	NB
Р	Botrychium lanceolatum ssp. angustisegmentum	Narrow Triangle Moonwort				S 3	15	39.2 ± 0.0	NB
Р	Botrychium simplex	Least Moonwort				S3	6	46.9 ± 0.0	NB
P	Polypodium appalachianum	Appalachian Polypody				S3	27	42.5 ± 1.0	NB
Р	Mertensia maritima	Sea Lungwort				S3S4	7	56.7 ± 0.0	NB
P	Lobelia kalmii	Brook Lobelia				S3S4	1	100.0 ± 10.0	NB
Р	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 S3S4	350	42.7 ± 1.0 15.6 ± 0.0	NB
P	Eriophorum russeolum ssp.	Russet Cottongrass Russet Cottongrass				S3S4 S3S4	53	33.0 ± 0.0	NB
•	russeolum	Ŭ							
Р	Triglochin gaspensis	Gasp ├− Arrowgrass				S3S4	78	29.2 ± 0.0	NB
P	Spirodela polyrhiza	Great Duckweed				S3S4	15	48.9 ± 0.0	NB
Р	Corallorhiza maculata	Spotted Coralroot				S3S4	23	40.9 ± 10.0	NB
Р	Calamagrostis stricta	Slim-stemmed Reed Grass				S3S4	32	19.2 ± 2.0	NB
Р	Calamagrostis stricta ssp. stricta	Slim-stemmed Reed Grass				S3S4	17	51.2 ± 0.0	NB
Р	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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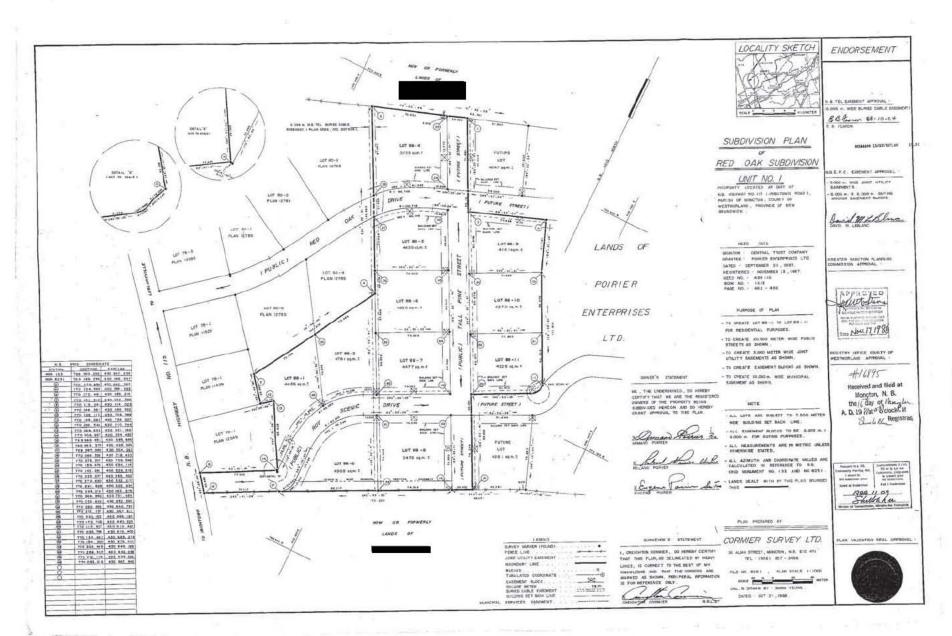
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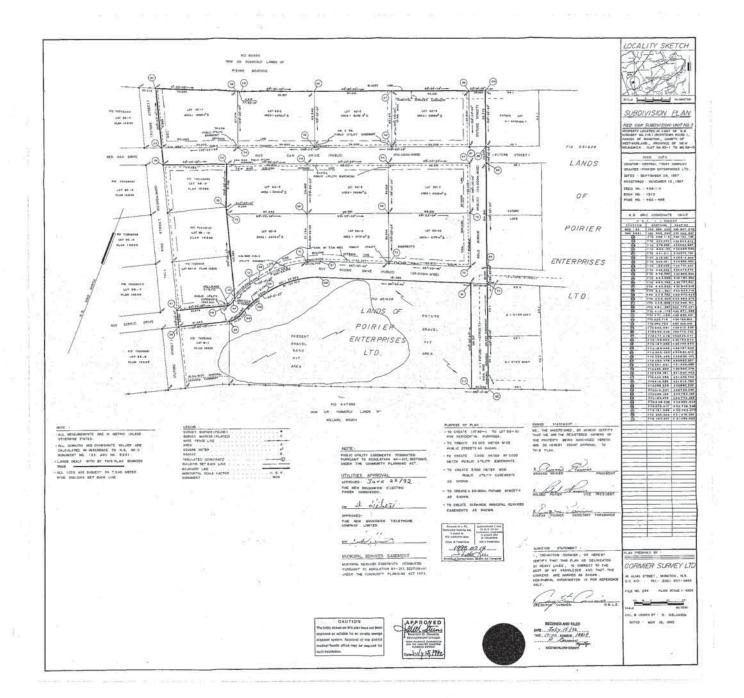
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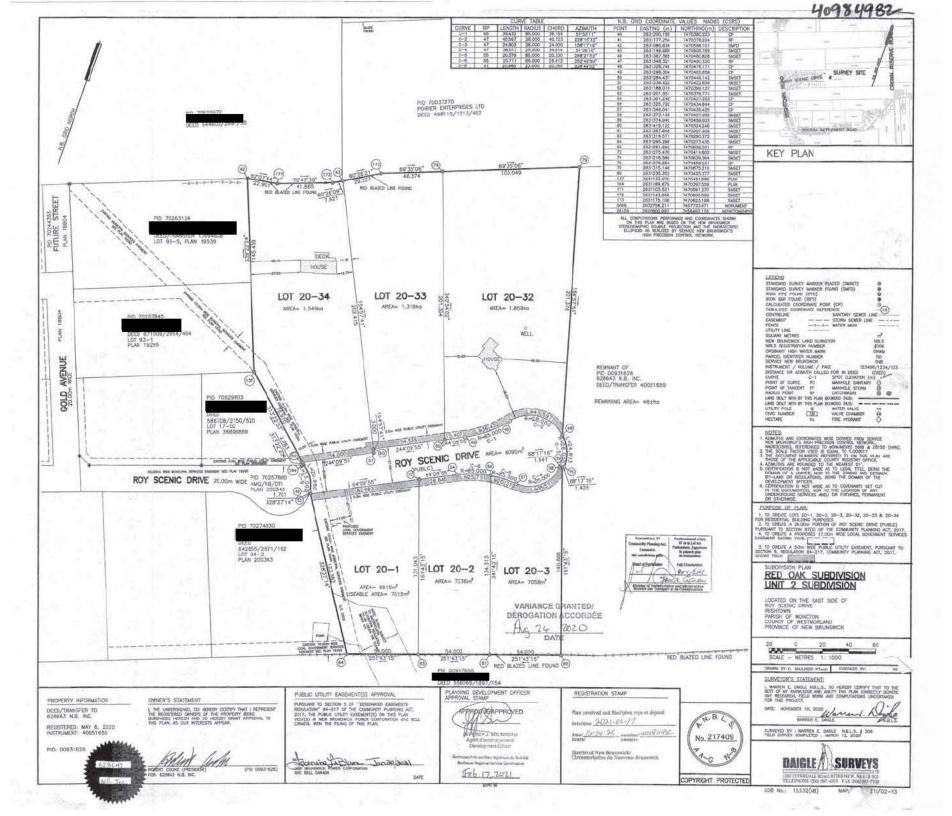
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APPENDIX C

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 m³/day):

The estimated water requirement for the proposed 83.7 m³/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 m³/day with a median yield of 33 m³/day (5.0 igpm). Well depths range from 25.0 to 112.8 m.

Each individual household / lot would require 1.35 m³/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

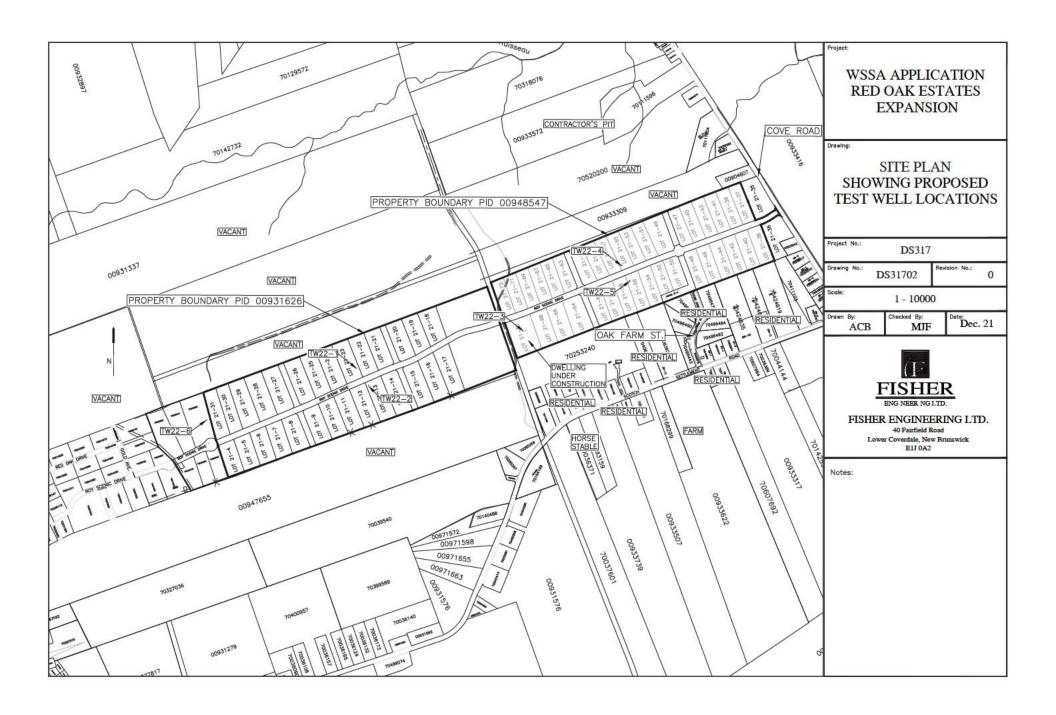
Refer to the attached Figure.

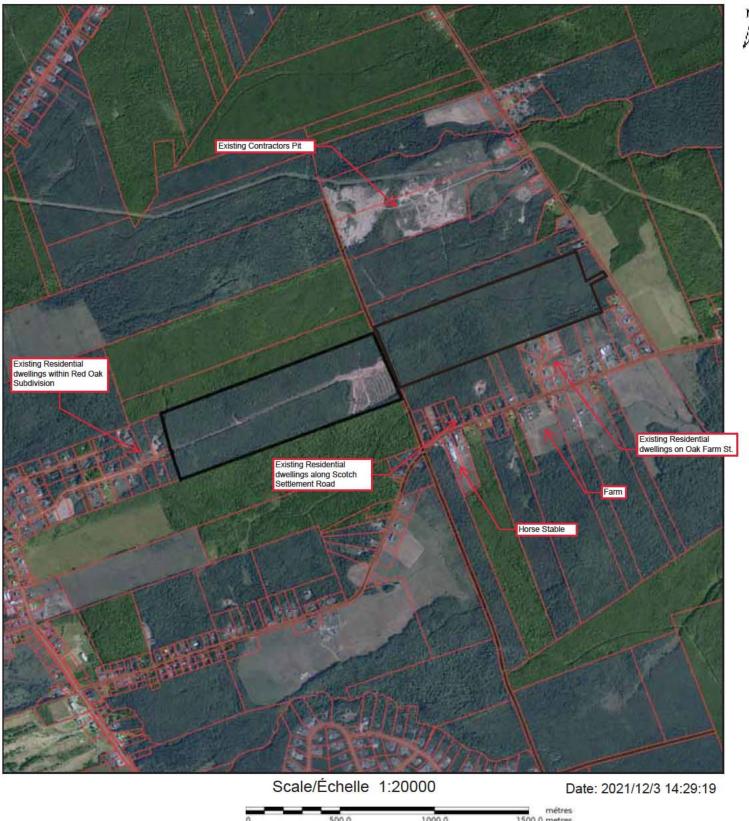
11) Attach a land use / zoning map of the area (if any). Superimpose drill targets on this map.

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





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 (n	า)	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
рН	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



Province of New Brunswick, Province of Nova Scotia, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, NRCan, Parks Canada