

## APPENDIX E

# **Preliminary Habitat Assessment of the Torbrook C&D Site for Avian and Mammalian Fauna**

April 18, 2012



*Prepared for:*

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## **Background**

East Coast Aquatics Inc. (ECA) was requested by John Mroz of 3033869 Nova Scotia Limited to undertake a preliminary habitat assessment for avian and mammalian fauna at the Torbrook C & D site, Torbrook, Annapolis County, Nova Scotia. The assessment was conducted to address concerns identified by Laura Bennett, Heritage Division, Nova Scotia Department of Communities, Culture and Heritage, in correspondence with the Environmental Assessment Division of Nova Scotia Environment (Appendix 1).

The objective of the preliminary habitat assessment, reported below, is to provide information on avian and mammalian fauna occurrences near the Torbrook C & D disposal site. ECA was provided a timeframe of mid March to the end of April 2012 to conduct field assessments and reporting. ECA has been advised that a botanical survey of the site is being conducted by Ruth Newell, E.C. Smith Herbarium, Acadia University, and will be reported separately.

## **Study Boundaries**

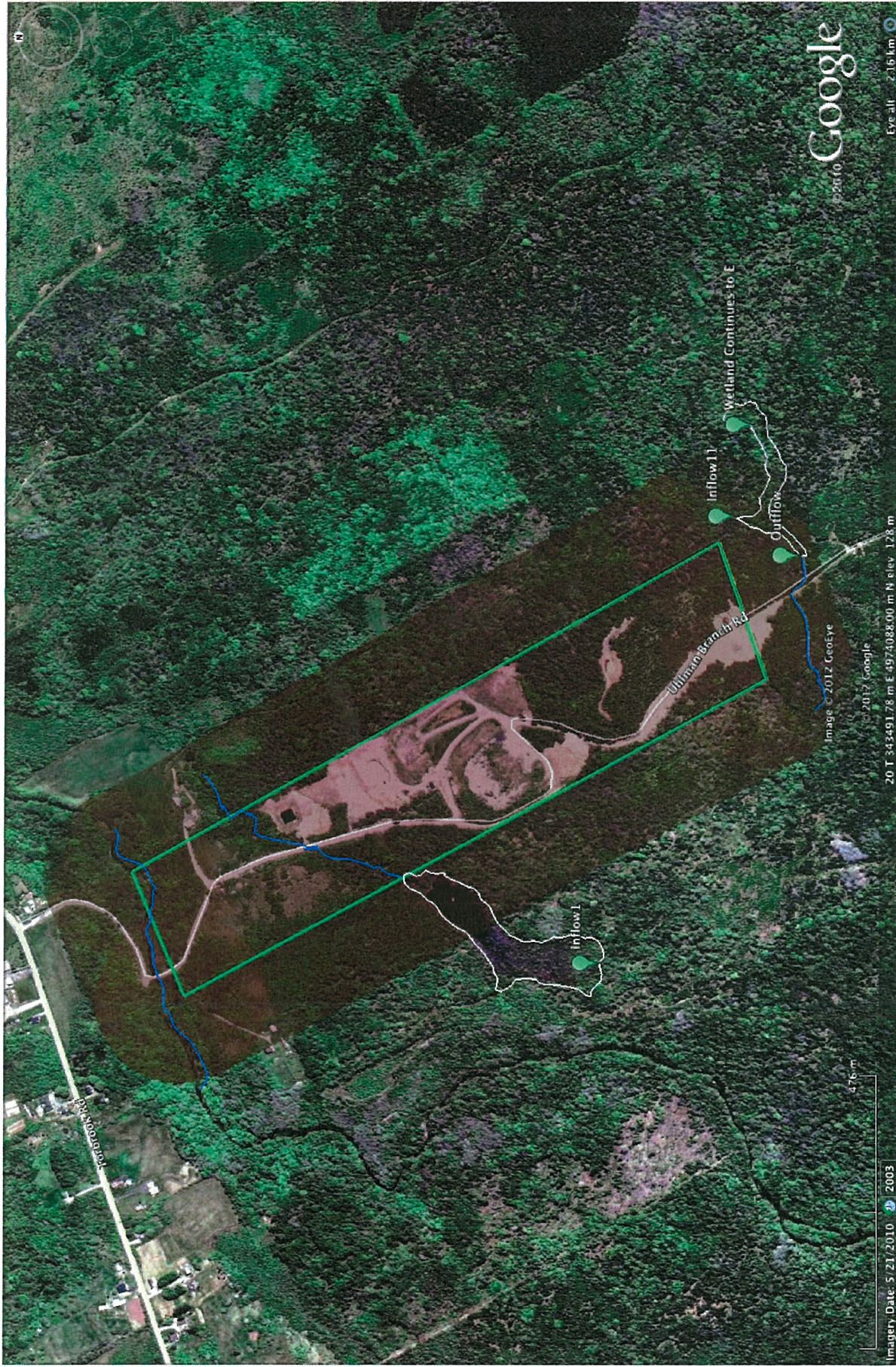
No explicit study boundaries were provided in the request for additional information, received from Laura Bennett, of Nova Scotia Communities, Culture and Heritage – Heritage Division (Appendix 1). The client, 3033869 Nova Scotia Limited, represented by John Mroz, indicated that principle area of interest was the working area of the disposal site, ranging from near the south bank of the Black River to the crest of South Mountain.

The parcel of land on which the Torbrook C & D site is situated (PID 05114624) extends southeast from the Black River for a distance of approximately 2.1 km. A significant portion of this property lies well outside the zone of influence of disposal activities, being upslope, and was thus excluded from the current study. Occasional gravel extraction occurs from a small pit near the crest of the South Mountain, being used for road construction within the disposal site. This gravel pit was considered as the southeastern extent of disposal site related activities. The zone of influence of the disposal site was therefore considered to extend from property boundary at the Black River, to the gravel pit at the crest of the South Mountain. The study area for the following habitat assessment includes the zone of influence plus a 150 m buffer on all sides, so as to document fauna usage adjacent to the disposal site (Figure 1).

## **Approach**

East Coast Aquatics Inc. (ECA) utilized a two-part approach to address the stated objective. A desktop review of the project site was undertaken as the first part of the assessment, which made use of a variety of mapping, on-line and literature resources to better understand the likely conditions and habitats to be encountered at the site. The desktop review also included a search of the records of the Atlantic Canada Conservation Data Centre (ACCDC) for reports of species at risk and species of conservation concern in the vicinity of the project site. As the second part of the assessment, ECA undertook field surveys at the site over four days in March and April 2012, to identify avian, terrestrial and aquatic faunal species.





**Figure 1:** Torbrook C & D site study area and associated features C&D site Zone of Influence (green rectangle), Study area (150 m buffer) (red shading), Wetlands (white lines), Watercourses (blue lines).



## Part I: Background Geophysical and Biological Information

### Methodology

A desk-top ecological review of the study area was conducted, using a methodology typically employed for Environmental Assessment Registrations. This included a review of existing national and provincial mapping, air photography and on-line resources, including:

- ▲ National Forest Information System
- ▲ Nova Scotia Significant Habitats and Wetland database
- ▲ Nova Scotia Groundwater database
- ▲ Nova Scotia Ecological Land Classification system
- ▲ Nova Scotia Restricted and Limited Use Lands database
- ▲ Nova Scotia Mineral Resource Land-Use map
- ▲ Nova Scotia Atlantic Canada Conservation Data Centre

A search was conducted of National Forest Information System database to identify forest stand information in the vicinity of the project site (NFIS, 2012). The actual disposal site is classified as barren, with the surrounding forests classified as Mixedwood. Within the study boundary are also patches classified as Coniferous, Regenerating Deciduous, and Agriculture.

A search was conducted of the NSDNR (2012a) Significant Habitats and Wetland database. No significant wildlife habitats were reported within the study area. No wetlands were reported within the study area. One treed swamp, 2.114 ha in size, was recorded approximately 600 m to the south of the study area, occurring on the westward draining Meadow Brook, a tributary of the Black River.

A search was conducted of the NSDNR (2012b) Groundwater database. The project site is situated in the catchment of the Black River, which occurs within the Annapolis River watershed. The bedrock geology at the project site is comprised of Early Devonian Torbrook formation. Surficial geology consists of Quaternary glacial tills, ground moraines and streamlined drift of the Wisconsin stage. The material is described as silty, and compact, being derived from both local and distant sources, with thicknesses ranging from 3 to 30 m. The topography is reported as flat to rolling with few surface boulders and the till layer being thick enough to mask bedrock undulations.

The database indicated a number of abandoned mine shafts in the vicinity of the project area. The line of historic mine shafts are situated on a roughly northeast to southwest orientation. At least two shafts are thought to occur on the proponent's property, but outside the study boundaries (Table 1).

**Table 1.** Reported Historic Mine Shafts in the Vicinity of Study Area

Shaft Name	Mineral	Veinwork	UTM (Zone 20T, NAD83)
McConnell #1 Shaft	Iron	Messenger	4973255 343458
Baker #1 Shaft	Iron	Messenger	4973403 343635

The site is situated on the north facing slope of the North Mountain. Within the context of the provincial Ecological Land Classification system (NSDNR, 2012c), the site is situated in the Western Ecoregion, and the Valley Slope EcoDistrict. The site is comprised of four Ecosections: XXMA (pond near the entrance to the site), WCHO (lower slope of South Mountain), WFKK (steeper gradient slope



of South Mountain) and WFHO (lower gradient area near the top of South Mountain).

A search was conducted of the Nova Scotia Restricted and Limited Use Lands database (NSDNR 2012d). The database indicates a variety of restricted and limited use lands in Nova Scotia, such as municipal water supply areas, parks, heritage sites and protected wildlife areas. No restricted or incompatible land uses were identified within the vicinity of the project site. The NSDNR (2012e) Mineral Resource Land-Use map indicated that the site occurs within the Torbrook Iron District.

### **Vertebrate Species at Risk and Species of Conservation Concern**

Within the context of this report, the term Species at Risk (SAR) is used to denote species that have received some level of formal protection, typically through the Federal Species at Risk Act (SARA) or the Nova Scotia Endangered Species Act (NSES). The term species of conservation concern is used to denote species that, while not having received formal legislative protection through SARA or the NSES, are recognized by government agencies or the scientific community as requiring close observation as they may become at risk. Species identified by the Committee on the Status of Wildlife in Canada (COSEWIC) and the Nova Scotia General Status as “Red” or “Yellow” are included in this definition.

The search of the Atlantic Canada Conservation Data Centre's (ACCDC) records was completed on March 16, 2012. Within the 100 km buffer around the study site, 4709 records of 132 vertebrate taxa were reported. The search of the ACCDC database targets less common species with either COSEWIC or Provincial listing, or with a provincial “S” rank of 3 or less. The search therefore does not include many of the more common vertebrate species that could be present in and around the study area. The 100 km search includes many natural landscapes very dissimilar to those found at the site, including marine and coastal habitats, the Upper Bay of Fundy and removal inland wilderness sites.

A summary list of vertebrate Species at Risk (SAR) and species of conservation concern that are reported to occur within 10 km the project area has been prepared (Appendix 2). This summary was based on provincial (NS Endangered Species Act and General Status Listings) and federal (Species at Risk Act and COSEWIC) rankings, together with the results of search of the Atlantic Conservation Data Centre records. The summary list reports a total of 52 vertebrate species (49 birds, 2 reptiles and 1 mammal). The summary list was used to guide biological field surveys undertaken in March and April 2012.

Flora species are reported under a separate cover.

## **Part II: Field Surveys**

### **Methodology**

Field surveys at the Torbrook Construction and Demolition Disposal Site and surrounding areas were conducted on March 29 and April 10, 13 and 14. The surveys were conducted by Andy Sharpe (mammals, wetlands, herptofauna) and Wayne Neily (avian fauna). The field surveys drew on the desk-top analysis, described above, so as to target species and habitats likely to occur within the study area. Field methodology consisted on foot surveys of the Torbrook C & D site, as well as the adjacent properties. Foot surveys were targeted were to areas of likely fauna occurrences, including watercourses, wetlands and mature forest stands. The alignment of the Black River, as it passes through the study area, as well as other watercourses were surveyed. Site photographs, recorded during the field surveys, are presented in Appendix 3.



## Limitations

In order to meet the reporting timelines of the client, field surveys were undertaken during late March early April 2012. The timing of the surveys was not ideal for the documentation of avifauna, as spring migrants would not typically be expected until mid-May. Because of the mobility and migratory nature of birds, at least one visit each season would be necessary to fully document the avifauna of any site. The brief visits conducted in March and early April have provided the opportunity to document the permanent residents (about 10% of Nova Scotia's regular bird species) and early migrants. This limitation was mitigated in part through the documentation of habitats available at the site through the surveys, providing an indication of species that should be present during other seasons and by consideration of Breeding Bird Atlas data for the area around the project site.

Similarly, even though an early spring occurred in 2012, temperatures were likely too cold at the time of the surveys to allow herptofauna to be observed. ECA has sought to address this in part through the incorporation of anecdotal information gained through discussions with site manager and local residents.

## Terrestrial & Aquatic Fauna

Incidental observations of mammalian species were documented during all field surveys in March and April 2012. No species-at-risk or species of conservation concern were noted during the field studies. Photographs showing habitats and site features encountered as presented in Appendix 3. Table 2 outlines those species that were confirmed within the study footprint.

**Table 2: Mammalian species confirmed within the Torbrook C & D Site Study Area**

Date Observed	Species	Common Name	ACCDC Provincial Ranking	NSDNR General Status	Notes
March 29, April 10, 2012	<i>Odocoileus virginianus</i>	White tailed deer	S5	Green	Tracks, scat
March 29, April 10, 2012	<i>Procyon lotor</i>	Raccoon	S5	Green	Tracks, scat
March 29, 2012	<i>Erithizon dorsatum</i>	American porcupine	S5	Green	Scat, den
March 29, April 10, 2012	<i>Castor canadensis</i>	North american beaver	N/A	Green	Lodge, dam, cuttings
March 29, 2012	<i>Lepus americanus</i>	Snowshoe hare	N/A	Green	Tracks
April 10, 2012	<i>Canis latrans</i>	Coyote	N/A	Green	Scat
April 10, 2012	<i>Ursus americanus</i>	American black bear	N/A	Green	Scat

Discussions with the site manager, Philip Richeleau, and an adjacent local resident (Richard Farley) indicated that additional terrestrial and aquatic species typically occur in the vicinity of the site. These additional species are reported in Table 3, although they could not be documented by physical evidence at the time of the field surveys.



**Table 3:** Additional terrestrial and aquatic species reported as occurring near the project site

Species	Common Name	ACCDC Provincial Ranking	NSDNR General Status	Notes
<i>Marmota monax</i>	Woodchuck	N/A	Green	Burrow reported along edge of disposal site
<i>Vulpes vulpes</i>	Red fox	N/A	Green	Den with kits reported to the west of the site
<i>Chelydra serpentina</i>	Common snapping turtle	N/A	Green	Nesting reported adjacent to access road
<i>Chrysemys picta</i>	Eastern painted turtle	N/A	Green	Reported in wetland to the west of site

### Wetlands

Examinations of air photos as part of the desk-top review indicated a possible wetland to the west of the Torbrook C&D site. Field surveys on March 29, 2012, confirmed the existence of a 2.6 ha wetland formed through a beaver impoundment of a small, unnamed tributary to the Black River. The boundaries of the wetland were delineated and marked with a handheld GPS (Figure 1). Two beaver lodges and active cuttings were observed within the wetland. Using the Canadian Wetland Classification System (Warner and Rubec, 1997), the wetland was classified as consisting of shallow water riparian stream and a riverine swamp wetland types.

A second wetland was identified on April 10, 2012, occurring near the southern extent of the study area and extending beyond the study area's eastern boundary. The boundaries of the portion of wetland occurring within the study area were marked with a handheld GPS (Figure 1), having an area of 0.76 ha. The wetland was classified as a riverine swamp (Warner and Rubec, 1997).

### Avian Fauna

Over the course of the surveys, relatively few birds were documented, as might be expected for this season in a small area without concentrated food sources. Seventeen species were observed, with one of the earliest migrants, American Robin, being commonest. Avian fauna sightings are documented in Table 4.

None of the avian species identified are classified as at risk, although the Killdeer (S3B) has declined sharply in recent years, and is one that may use the berms or completed cells of the active site for nesting. Raptors are always of special interest, and site manager Philippe Richelieu notes that the Red-tailed Hawks nest in woods just to the east of the site and are often seen. Bald eagles are also reported as being regularly seen at the site.

Most of the study area that is not being actively worked consists of upland mixed woods regenerated from logging approximately 20 to 40 years ago. Spruce (*Picea* spp.) and poplars (*Populus* spp.) appear to dominate, although there are also patches of white pine (*Pinus strobus*). Near the south end of the property is a small stream whose slopes support young hemlock (*Tsuga canadensis*) stands, adding some diversity. Along this stream, and more importantly, along the Black River, where it crosses the

property near the north side, is some riparian woodland, with ash (*Fraxinus* spp.) and red maple (*Acer rubrum*). A beaver pond along the west side is used by ducks, at least in migration, but seems to be mostly, if not entirely, outside the study area.

**Table 4:** Avian Fauna Documented at the Torbrook C & D site.

Species	Common Name	March 29	April 13	April 14
<i>Anas rubripes</i>	American Black Duck	2		
<i>Anas platyrhynchos</i>	Mallard	2		
<i>Bonasa umbellus</i>	Ruffed Grouse	1	1	
<i>Buteo jamaicensis</i>	Red-tailed Hawk	2		
<i>Charadrius vociferus</i>	Killdeer	2		
<i>Zenaida macroura</i>	Mourning Dove	2		1
<i>Picoides pubescens</i>	Downy Woodpecker	1		
<i>Sayornis phoebe</i>	Eastern Phoebe			1
<i>Cyanocitta cristata</i>	Blue Jay	10		1
<i>Corvus brachyrhynchos</i>	American Crow	1		
<i>Corvus corax</i>	Common Raven		1	
<i>Tachycineta bicolor</i>	Tree Swallow			2
<i>Poecile atricapillus</i>	Black-capped Chickadee	1	1	1
<i>Turdus migratorius</i>	American Robin	12	5	4
<i>Sturnus vulgaris</i>	European Starling	2		5
<i>Melospiza leodia</i>	Song Sparrow	1	1	2
<i>Junco hyemalis</i>	Dark-eyed Junco	1		
Totals		40 (14 species)	9 (5 species) (windy)	17 (8 species)

The habitats present within the study boundaries are diverse enough that, over time, almost any terrestrial bird species of Nova Scotia could occur here in migration. On the other hand, the area involved is small enough that non-polluting changes to it are unlikely to have any significant impact on migrating birds, except as part of regional cumulative habitat loss.

Breeding birds are, however, of greatest concern. In the absence of field surveys during June and July, the Maritime Breeding Bird Atlas was consulted for historic avian fauna breeding activity in the vicinity of the site (Maritime Breeding Bird Atlas, 2012). The 10 km x 10 km square, covering the study area, shows 87 species with evidence of breeding, most of which could nest on the property. These species were documented during both the first atlas (1986-1990) and the second atlas (2006-2010). These findings are presented in Appendix 4.

The riparian zone of the Black River valley is both the richest and the scarcest habitat in the region. Common Nighthawk, Olive-sided Flycatcher, and Canada Warbler are the only threatened species that might nest in the area, and the habitat here is unlikely to be significant to any of these.



## References

Maritimes Breeding Bird Atlas, 2012.

<http://www.mba-aom.ca/jsp/summaryform.jsp?squareID=20LQ47&lang=en> Site accessed April 17, 2012.

NSDNR, 2012a. Significant Habitats of Nova Scotia database, Updated May 3, 2011.

<http://gis4.natr.gov.ns.ca/website/nssighabnew/viewer.htm> Site accessed March 22, 2012.

NSDNR, 2012b. Groundwater Maps and databases, Updated August 11, 2011.

<http://gis4.natr.gov.ns.ca/website/nsgroundwater/viewer.htm> Site accessed March 22, 2012.

NSDNR, 2012c. Ecological Land Classification Map of Nova Scotia, Version 2, Updated March 22, 2006. <http://gis4.natr.gov.ns.ca/website/nselcmap/viewer.htm> Site accessed March 22, 2012.

NSDNR, 2012d. Restricted & Limited Use Lands,

<http://gis4.natr.gov.ns.ca/website/nsgroundwater/viewer.htm> Site accessed March 30, 2012.

NSDNR, 2012e. Mineral Resources Land-Use Map, Updated February 27, 2006.

<http://gis4.natr.gov.ns.ca/website/nsgroundwater/viewer.htm> Site accessed March 30, 2012.

NFIS, 2012. Nova Scotia Map Data, [https://ca.nfis.org/provinces/ns/index\\_eng.html](https://ca.nfis.org/provinces/ns/index_eng.html)

Site accessed March 30, 2012.

Warner, B.G. And C.D.A. Rubec (editors). 1997. *The Canadian Wetland Classification System*. 2<sup>nd</sup> Edition  
Wetlands Research Centre, University of Waterloo.



Appendix 1 – Correspondence from Laura Bennett, NS Communities, Culture and Heritage



Communities, Culture  
& Heritage  
Heritage Division

1747 Summer Street  
Halifax, Nova Scotia  
B3H 3A6

Tel: (902) 424-6475  
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TO: Steve Sandford  
FROM: Laura Bennett  
RE: Environmental Registration  
DRAFT EA 11-06-03 Torbrook C&D Disposal and Recovery Site  
Environmental Assessment Branch

Staff of the Heritage Division have reviewed the registration document for the Torbrook C&D Disposal and Recovery Site and have provided the following comments:

*Natural Heritage - Botany*

Staff have reviewed the draft document submitted under the EA Review process and note that there is a deficiency in documenting the biophysical environment. Staff would like to suggest that the proponents be required to submit a description other than "basically woodland", as follows: show the results from onsite surveys by qualified individuals in identifying plants, birds, mammals; show results of predictive modeling of potential species-at-risk; show list of potentially present species-at-risk and their presence/absence on site; and include some site photos of current operations and sites to be developed.

*Natural Heritage - Paleontology*

Staff note that this construction will disturb the Torbrook Formation, which contains rare fossils of trilobites, shelly fauna, and plants. The trilobites are particularly rare and significant. Staff would like to suggest to include an up-to-date geological map with next documents.

If you have any questions, please contact me at 424-6475.

A handwritten signature in black ink, appearing to read "L. Bennett".

Laura Bennett  
Coordinator, Special Places



**Appendix 2:** Vertebrate Species at Risk and Species of Conservation Concern Reported Within 10 km of the Project Site by the Atlantic Canada Conservation Data Center.

Taxa Group	Scientific Name	Common Name	COSEWIC Status	SARA Status	NSESA Status	NS General Status	Prov. Rarity	Dist. (km)	Confirmed During Field Surveys
Bird	<i>Chaetura pelagica</i>	Chimney Swift	Threatened	Threatened	Endangered	Yellow	S2S3B	9+/-5	No
Reptile	<i>Glyptemys insculpta</i>	Wood Turtle	Threatened	Threatened	Vulnerable	Yellow	S3	9+/-10	No
Bird	<i>Hirundo rustica</i>	Barn Swallow	Threatened	N/A	N/A	N/A	S3B	2+/-5	No
Bird	<i>Chordeiles minor</i>	Common Nighthawk	Threatened	Threatened	Threatened	Yellow	S3B	2+/-5	No
Bird	<i>Dolichonyx oryzivorus</i>	Bobolink	Threatened	N/A	N/A	Yellow	S3S4B	2+/-0.5	No
Bird	<i>Wilsonia canadensis</i>	Canada Warbler	Threatened	Threatened	N/A	Yellow	S3S4B	5+/-0.5	No
Bird	<i>Contopus cooperi</i>	Olive-sided Flycatcher	Threatened	Threatened	N/A	Yellow	S3S4B	5+/-0.5	No
Bird	<i>Euphagus carolinus</i>	Rusty Blackbird	Special Concern	Special Concern	N/A	Yellow	S2S3B	9+/-5	No
Reptile	<i>Chelydra serpentina</i>	Snapping Turtle	Special Concern	N/A	N/A	Green	S5	4+/-1	No
Bird	<i>Melanerpes erythrocephalus</i>	Red-Headed Woodpecker	Special Concern	N/A	N/A	Accidental	SNA	7+/-0.1	No
Bird	<i>Sialia sialis</i>	Eastern Bluebird	NAR	N/A	N/A	Yellow	S3B	11+/-5	No
Bird	<i>Gavia immer</i>	Common Loon	NAR	N/A	N/A	Yellow	S3B, S4N	9+/-10	No
Bird	<i>Accipiter gentilis</i>	Northern Goshawk	NAR	N/A	N/A	Yellow	S3S4	11+/-5	No
Bird	<i>Hylocichla mustelina</i>	Wood Thrush	N/A	N/A	N/A	Green	S1S2B	12+/-5	No
Mammal	<i>Martes pennanti</i>	Fisher	N/A	N/A	N/A	Yellow	S2	9+/-10	No
Bird	<i>Poocetes gramineus</i>	Vesper Sparrow	N/A	N/A	N/A	Yellow	S2B	11+/-5	No
Bird	<i>Piranga olivacea</i>	Scarlet Tanager	N/A	N/A	N/A	Green	S2B	6+/-0.5	No
Bird	<i>Eremophila alpestris</i>	Horned Lark	N/A	N/A	N/A	Green	S2B	11+/-5	No
Bird	<i>Icterus galbula</i>	Baltimore Oriole	N/A	N/A	N/A	Green	S2S3B	2+/-5	No
Bird	<i>Pinicola enucleator</i>	Pine Grosbeak	N/A	N/A	N/A	Green	S2S3B, S4S5N	9+/-5	No
Bird	<i>Poecile hudsonica</i>	Boreal Chickadee	N/A	N/A	N/A	Yellow	S3	11+/-5	No

Bird	<i>Dendroica tigrina</i>	Cape May Warbler	N/A	N/A	N/A	Green	S3?B	14+/-5	No
Bird	<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	N/A	N/A	N/A	Green	S3?B	2+/-5	No
Bird	<i>Molothrus ater</i>	Brown-headed Cowbird	N/A	N/A	N/A	Green	S3B	11+/-5	No
Bird	<i>Mimus polyglottos</i>	Northern Mockingbird	N/A	N/A	N/A	Green	S3B	11+/-5	No
Bird	<i>Dumetella carolinensis</i>	Gray Catbird	N/A	N/A	N/A	Green	S3B	2+/-5	No
Bird	<i>Riparia riparia</i>	Bank Swallow	N/A	N/A	N/A	Green	S3B	2+/-5	No
Bird	<i>Myiarchus crinitus</i>	Great Crested Flycatcher	N/A	N/A	N/A	Green	S3B	11+/-5	No
Bird	<i>Charadrius vociferus</i>	Killdeer	N/A	N/A	N/A	Green	S3B	2+/-5	Yes
Bird	<i>Rallus limicola</i>	Virginia Rail	N/A	N/A	N/A	Green	S3B	11+/-5	No
Bird	<i>Cathartes aura</i>	Turkey Vulture	N/A	N/A	N/A	Accidental	S3B	14+/-5	No
Bird	<i>Anas discors</i>	Blue-winged Teal	N/A	N/A	N/A	Green	S3B	11+/-5	No
Bird	<i>Podilymbus podiceps</i>	Pied-billed Grebe	N/A	N/A	N/A	Green	S3B	11+/-5	No
Bird	<i>Mergus serrator</i>	Red-breasted Merganser	N/A	N/A	N/A	Green	S3B, S4S5N	11+/-5	No
Bird	<i>Calidris maritima</i>	Purple Sandpiper	N/A	N/A	N/A	Yellow	S3N	9+/-10	No
Bird	<i>Cardinalis cardinalis</i>	Northern Cardinal	N/A	N/A	N/A	Green	S3S4	2+/-5	No
Bird	<i>Perisoreus canadensis</i>	Gray Jay	N/A	N/A	N/A	Yellow	S3S4	11+/-5	No
Bird	<i>Picoides arcticus</i>	Black-backed Woodpecker	N/A	N/A	N/A	Green	S3S4	12+/-5	No
Bird	<i>Cephus gryllie</i>	Black Guillemot	N/A	N/A	N/A	Green	S3S4	11+/-5	No
Bird	<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	N/A	N/A	N/A	Green	S3S4B	2+/-5	No
Bird	<i>Wilsonia pusilla</i>	Wilson's Warbler	N/A	N/A	N/A	Green	S3S4B	2+/-5	No
Bird	<i>Dendroica castanea</i>	Bay-breasted Warbler	N/A	N/A	N/A	Green	S3S4B	11+/-5	No
Bird	<i>Vermivora peregrina</i>	Tennessee Warbler	N/A	N/A	N/A	Green	S3S4B	9+/-5	No
Bird	<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	N/A	N/A	N/A	Green	S3S4B	2+/-5	No
Bird	<i>Tyrannus tyrannus</i>	Eastern Kingbird	N/A	N/A	N/A	Green	S3S4B	2+/-5	No
Bird	<i>Sayornis phoebe</i>	Eastern Phoebe	N/A	N/A	N/A	Green	S3S4B	2+/-0.5	Yes
Bird	<i>Empidonax flaviventris</i>	Yellow-bellied	N/A	N/A	N/A	Green	S3S4B	5+/-0.5	No



Bird	<i>Contopus virens</i>	Flycatcher	N/A	N/A	N/A	Green	S3S4B	5+/-0.5	No
Bird	<i>Gallinago delicata</i>	Eastern Wood-Pewee	N/A	N/A	N/A	Green	S3S4B	11+/-5	No
Bird	<i>Actitis macularius</i>	Wilson's Snipe	N/A	N/A	N/A	Green	S3S4B	2+/-5	No
Bird	<i>Botaurus lentiginosus</i>	Spotted Sandpiper	N/A	N/A	N/A	Green	S3S4B	11+/-5	No
Bird	<i>Carduelis pinus</i>	American Bittern	N/A	N/A	N/A	Green	S3S4B, S5N	2+/-5	No
		Pine Siskin	N/A	N/A	N/A	Green			

### Appendix 3: Site Photographs



Photo 1: Shallow water riparian stream wetland, created through beaver impoundment



Photo 2: Riverine swamp, located in upper portion of beaver impoundment





Photo 3: Gravel pit located near the southern extent of the study area



Photo 4: Black River, located near northern extent of study area





Photo 5: Wetland located near the southern extent of study area



Photo 6: Unnamed watercourse passing through study area





Photo 7: Wildlife tree, with oval holes suggestive of Pileated woodpecker (*Dryocopus pileatus*)



Photo 8: Forest regrowth near the crest of the North Mountain, south of disposal site



ATLAS DES  
OISEAUX NICHEURS DES  
**MARITIMES**  
BREEDING BIRD ATLAS

#species (1st atlas)	#species (2nd atlas)	#hours	#pc done
0	0	1st 2nd	road offrd
0	0	32 32	40 58.3
0	0	21 28	15 3
0	0	87 87	15 3

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
70	69	75	154	175	888	292

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%			
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd		
Canada Goose	FY	2	48		Northern Harrier			49	44	Barred Owl			NY	40	64	
Wood Duck		18	34		Sharp-shinned Hawk			31	25	Long-eared Owl †				1	1	
American Wigeon		5	9		Northern Goshawk			23	24	Short-eared Owl †				2	0	
American Black Duck	FY	59	72		Red-should Hawk †			0	0	North Saw-whet Owl				7	26	
Mallard	NE P	18	50		Broad-winged Hawk					Common Nighthawk †			T	43	42	
Blue-winged Teal		14	13		Red-tailed Hawk			FL D	57	84	Whip-poor-will †				1	1
Northern Shoveler ‡		1	2		American Kestrel			H	49	37	Chimney Swift †			H	39	32
Northern Pintail		4	2		Merlin					Ruby-thr Hummingbird			ON FY	62	89	
Green-winged Teal		21	20		Virginia Rail †					Belted Kingfisher			H	55	60	
Ring-necked Duck		24	30		Sora			S	17	25	Yellow-bellied Sapsucker			ON AE	65	85
Common Eider §		4	18		Common Moorhen †				1	2	Downy Woodpecker			NY D	63	78
Hooded Merganser		7	25		American Coot †				1	1	Hairy Woodpecker				4	12
Common Merganser		21	20		Killdeer			FL FY	88	45	Black-back Woodpecker			FY	78	94
Red-breast Merganser		2	6		Spotted Sandpiper			A	57	45	Northern Flicker			H	44	73
Gray Partridge		14	0		Willet				17	18	Pileated Woodpecker			S	37	41
Ring-necked Pheasant	NE S	59	70		Upland Sandpiper †				1	0	Olive-sided Flycatcher †			S	62	68
Ruffed Grouse	S	82	78		Wilson's Snipe			D	49	45	Eastern Wood-Pewee			S	24	44
Spruce Grouse		28	13		American Woodcock			D	49	49	Yellow-bellied Flycatcher			S	57	94
Wild Turkey †		0	1		Herring Gull §				14	28	Alder Flycatcher			S	57	84
Common Loon		33	53		Great Black-backed Gull §				23	32	Least Flycatcher			S	57	84
Pied-billed Grebe ‡		2	10		Roseate Tern ‡§				1	0	Eastern Phoebe			CF	17	45
Double-crest Cormorant §		11	24		Common Tern ‡§				1	1	Gr Crested Flycatcher				10	9
Great Cormorant ‡§		1	1		Arctic Tern ‡§				1	1	Eastern Kingbird			NE S	52	41
American Bittern		24	17		Black Gullinot ‡§				5	10	Blue-headed Vireo			S	56	90
Great Blue Heron §		26	26		Rock Pigeon			H	46	58	Warbling Vireo †				1	6
Cattle Egret ‡		0	0		Mourning Dove			ON T	55	94	Red-eyed Vireo			S	71	92
Turkey Vulture ‡§		1	18		Black-billed Cuckoo			S	5	16	Gray Jay				42	34
Osprey	H	24	32		Eastern Screech-Owl †				0	1	Blue Jay			FL FY	75	96
Bald Eagle ¶	H	21	50		Great Horned Owl			FL T	40	32	American Crow			NY FY	81	96

East Coast Aquatics Inc.



# Maritimes Breeding Bird Atlas - Summary Sheet for Square 20LQ47 (page 2 of 2)

SPECIES	Code		SPECIES	Code		SPECIES	Code	
	1st	2nd		1st	2nd		1st	2nd
Common Raven	D	73	Nashville Warbler	S	31	White-throat Sparrow	A	75
Horned Lark †		2	Northern Parula	A	66	White-crown Sparrow †		0
Tree Swallow	NY	AE	Yellow Warbler	NE	NE	Dark-eyed Junco	A	78
Bank Swallow §	ON	H	Chestn-sided Warbler	CF	66	Scarlet Tanager †		15
Cliff Swallow §	H	36	Magnolia Warbler	S	66	Northern Cardinal	S	8
Barn Swallow	NY	NE	Cape May Warbler		14	Rose-breast Grosbeak	FL	56
Black-capp Chickadee	AY	AE	Black-thr Blue Warbler		33	Indigo Bunting		7
Boreal Chickadee		43	Yellow-rumped Warbler	CF	78	Bobolink	ON	63
Red-breast Nuthatch	S	66	Black-thr Green Warbler	A	71	Red-wing Blackbird	NE	68
White-breast Nuthatch	ON	S	Blackburnian Warbler	S	49	Eastern Meadowlark †		5
Brown Creeper		30	Palm Warbler	S	30	Rusty Blackbird †		33
House Wren †		1	Bay-breasted Warbler		23	Common Grackle	NE	76
Winter Wren	S	40	Blackpoll Warbler		2	Brown-head Cowbird		60
Golden-crown Kinglet		62	Black-white Warbler	FL	CF	Baltimore Oriole	NY	31
Ruby-crown Kinglet		66	American Redstart	ON	A	Pine Grosbeak		15
Eastern Bluebird †		10	Ovenbird	A	71	Purple Finch	FY	72
Veery	A	68	North Waterthrush	S	34	House Finch †		14
Bicknell's Thrush †		0	Mourning Warbler		17	Red Crossbill †		20
Swainson's Thrush	S	49	Common Yellowthroat	A	78	White-winged Crossbill		34
Hermit Thrush	S	65	Wilson's Warbler	FL	10	Pine Siskin	H	55
Wood Thrush †		13	Canada Warbler †	S	44	American Goldfinch	FY	76
American Robin	NE	CF	Chipping Sparrow	NE	FY	Evening Grosbeak	T	53
Gray Catbird	ON	A	Vesper Sparrow †		5	House Sparrow	ON	73
Northern Mockingbird †		17	Savannah Sparrow	S	53			32
Brown Thrasher †		1	Nelson's Sh.-tail Sparrow		14			
European Starling	ON	AE	Fox Sparrow		0			
Bohemian Waxwing †		1	Song Sparrow	NE	FY			
Cedar Waxwing	S	69	Lincoln's Sparrow		7			
Tennessee Warbler		49	Swamp Sparrow	S	43			

This list includes all species found during the Maritimes Breeding Bird Atlas (1st atlas: 1986-1990, 2nd atlas: 2006-2010) in the region #16 (Annapolis Valley - Digby Neck). Underlined species are those that you should try to add to this square (20LQ47). They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. "Code" is the code for the highest breeding evidence for that species in square 20LQ47 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #16). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), † (regionally rare), ‡ (rare in the Maritimes) or = (rare in the Maritimes; documentation only required for confirmed records). Current as of 17/04/2012. An up-to-date version of this sheet is available from <http://www.mba-acm.ca/summaryform.asp?squareID=20LQ47&lang=en>

[<< previous page](#)