

Appendix C2

Herpetile Report



HERPETILE REPORT

WOLFE ISLAND WIND PROJECT TECHNICAL APPENDIX C2

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Prepared for:

**Canadian Renewable Energy
Corporation**

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1.0 Introduction

1.1 THE PROJECT

Canadian Hydro Developers, Inc., through its wholly owned subsidiary Canadian Renewable Energy Corporation (“CREC”), is proposing to develop a 197.8 megawatt (“MW”) wind plant on Wolfe Island, Township of Frontenac Islands, Frontenac County, Province of Ontario (the “Project”). Eighty-six 2.3 MW wind turbine generators will be placed strategically over the western portion of Wolfe Island.

Electricity from the Project will be gathered via a 34.5 kilo volt (“kV”) collection system, converted to 230 kV at a transformer station on Wolfe Island, and then transmitted via a new electrical transmission line that will run underwater through a portion of the St. Lawrence River, known locally as the “Lower Gap”. Upon reaching the mainland, the transmission line will be underground, connecting with the provincial grid at Hydro One Network Inc.’s Gardiner Transformer Station in the City of Kingston. The Study Area for the Project is shown on **Figure 1.1 (Appendix A)**.

1.2 PURPOSE

As part of the Ontario Ministry of the Environment’s (“MOE”) Environmental Screening Process (“ESP”) for electricity projects (i.e., Ontario Regulation 116/01), Stantec Consulting Ltd. (“Stantec”) undertook a study to establish baseline conditions of herpetile species and habitat present within the Study Area. This report, in part, also presents information relevant to criterion 4.4 of the MOE’s environmental screening checklist, which states: *Will the project have negative effects on wildlife habitat, populations, corridors or movement?*

This report summarizes background herpetile information and details the results of three amphibian call count surveys performed within the Study Area. The purpose of these surveys was to determine the abundance and distribution of amphibians within the Study Area, as well as to identify what species were present. This information gives an indication of what wetland areas are being utilized for amphibian breeding and to what extent.

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2.0 Methods

2.1 LITERATURE REVIEW

The Ontario Herpetofaunal Summary Atlas ("OHSA") (Oldham and Weller, 2000) was accessed to identify species of herpetiles whose ranges are known to overlap the Study Area. The OHSA was the primary source of secondary data because it is the only comprehensive government database for all herpetile species ranges in the province.

Other sources of information (e.g., Kingston Field Naturalists, Natural Heritage Information Centre database, and NRVIS mapping obtained from the Ministry of Natural Resources ["MNR"]) were also reviewed to provide localized information. This report discusses anuran (i.e., calling amphibians) and non-anuran herpetiles separately, since field investigations focused solely on anuran species.

2.2 FIELD SURVEYS

Male frogs and toads use calling to attract mates as breeding partners. This vocal group of amphibians are also known as anurans. Stantec used standardized survey methods (discussed below) to record amphibian call activity, which were based on the accepted survey protocols of the Marsh Monitoring Program (Bird Studies Canada ["BSC"], 1994) and the Amphibian Road Call Counts program (Gartshore et.al, 1997).

A total of seventeen survey sites (**Figure 2.1, Appendix A**) were selected through review of background information on local wetland locations and a daytime windshield survey. Six stations were located on the Kingston mainland portion of the Study Area, with the remaining eleven stations located on Wolfe Island. Site selection considered whether or not a particular wetland area was within the turbine siting area or on the proposed transmission line corridor on the Kingston mainland. Survey stations were monitored from the roadside and visited in the same sequence during each field date. Further, incidental observations of herpetiles in the Study Area were recorded during field surveys completed for other baseline studies related to the Project.

Each survey was conducted within the recommended timing windows, between a half hour after sunset and midnight (BSC, 1994), and within the general ambient air temperature guidelines for each of the three survey windows. These survey windows are related to three general temperature thresholds at which certain species of amphibians begin calling (minimum 5°C, 10°C, and 17°C) as determined by BSC (1994).

The amphibian call count surveys were completed on April 22, May 10 and June 5, 2006 as the minimum temperature thresholds for the three survey windows had been reached by these dates.

Anuran call surveys involve the surveyor standing at each selected station and listening for a total of three minutes. Frogs and toads were recorded as being within the survey station if estimated to be within 100 m of the surveyor. Anurans outside the 100 m station radius were also noted.

Calling activity was ranked using one of the following three abundance code categories as outlined in the Marsh Monitoring Program protocols (BSC, 1994):

- Code 1: calls not simultaneous, number of individuals can be accurately counted.
- Code 2: some calls simultaneous, number of individuals can be reliably estimated.
- Code 3: full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated.

Along with the above code categories, an estimate of the number of individuals calling was recorded. For example, if there were four individuals of a species calling, this was recorded as "1-4". Due to the difficulty of estimating the number of individuals in a full chorus, the general size of the chorus was described (e.g., "3-25" for a small chorus, "3-50" for a larger one, and "3-100+" for a very large chorus).

Incidental observations of herpetiles were recorded during other field surveys in the Study Area.

3.0 Results

3.1 ANURANS POTENTIALLY PRESENT IN THE STUDY AREA

Based upon information provided in the Ontario Herpetofaunal Summary Atlas, ten species of anuran were identified with ranges that overlap the Study Area, which include the American toad (*Bufo americanus*), spring peeper (*Psuedacris crucifer*), western chorus frog (*Psuedacris triseriata triseriata*), northern leopard frog (*Rana pipiens*), pickerel frog (*Rana palustris*), mink frog (*Rana septentrionalis*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*), grey tree frog (*Hyla versicolor*), and wood frog (*Rana sylvatica*) (Oldham and Weller, 2000). These were the species with potential for observation during the amphibian call count surveys.

Information from the Kingston Field Naturalists ("KFN") (KFN, 2004) indicates that the spring peeper, grey tree frog, green frog, and bullfrog have been recorded in the vicinity of the Study Area on the Kingston mainland.

None of the identified anuran species have been given a conservation status ranking (i.e., endangered, threatened, special concern, not at risk) by the Committee on the Status of Endangered Wildlife in Canada ("COSEWIC") or the Committee on the Status of Species at Risk in Ontario ("COSSARO"). The majority of the above noted species have a provincial rank (assigned by the Natural Heritage Information Centre) of S5, which denotes species that are Secure (i.e., common, widespread and abundant) in Ontario. The western chorus frog, pickerel frog, and bullfrog are ranked as S4 (i.e., Apparently Secure – uncommon but not rare; some cause for long-term concern due to declines or other factors).

All anuran species whose ranges overlap the Study Area utilize wetland habitats for breeding (i.e., marshes, thicket swamps, treed swamps, vernal pools, ditches, ponds, areas of pooling off streams, small streams, etc.) where shallow water is present long enough for offspring to develop and enter upland habitats. The American toad, and western chorus frog also utilize a wide range of upland habitats including woods, fields, and even urban areas, often great distances from water (Conant and Collins, 1998).

The spring peeper, grey tree frog, and wood frog are primarily woodland species, preferring moist woods and treed swamps (Conant and Collins, 1998). Bullfrogs, green frogs, and mink frogs are most often associated with permanent bodies of water, and upland habitats in close proximity (Conant and Collins, 1998). The northern leopard frog and pickerel frog are also associated with permanent bodies of water, but will travel greater distances from that body than bullfrogs, green frogs, and mink frogs (Conant and Collins, 1998).

Marshes, ditches, and streams are present in abundance both in the mainland and Wolfe Island portions of the Study Area. Many of the marshes include large areas of open water. These habitats represent breeding habitat for most of the anuran species that may be present in the Study Area, with the exception of the wood frog that prefers vernal pools. These habitats are

primarily surrounded by meadows (including fallow fields and pasture lands) that are ideal upland habitat for bullfrogs, green frogs, mink frogs, northern leopard frogs, and pickerel frogs. American toads and western chorus frogs will utilize these habitats as well. Woodland habitats are not abundant in the Study Area, so upland habitat for spring peepers, grey tree frogs, and wood frogs is limited.

3.2 ANURAN CALL COUNT SURVEYS

The initial spring amphibian call survey took place on April 22, 2006 under suitable conditions. Air temperature during the survey was 14°C with a wind speed of 1 (Beaufort scale), and light intermittent rain. The survey was conducted between 8:22 p.m. and 11:03 p.m. The second amphibian call survey took place on May 10, 2006 between 9:05 p.m. and 11:55 p.m. Weather during this survey was warm (16°C) with no wind or precipitation. The final amphibian call survey was performed on June 5, 2006, between 9:20 p.m. and 11:39 p.m. Temperature during the survey was 19°C with no wind or precipitation.

The detailed data collected during each survey period is presented in **Tables 3.1 through 3.6 (Appendix B)**. A summary of the field survey results is provided below.

3.2.1 Wolfe Island

In April, activity at the identified stations on Wolfe Island can be described as moderate, with an average of eleven individuals calling/station. Stations 4, 5, and 13 were the most active, with roughly 29, 28, and 48 individuals of three species calling, respectively. Station 6 was silent (**Table 3.1, Appendix B**).

Overall amphibian activity at the stations decreased during the May survey in comparison to the April survey, which may be a result of the early breeding window coming to a close, and therefore early breeding species becoming silent. Very few later-breeding species (e.g., green frog, grey tree frog, etc.) were encountered during this survey, despite the cool conditions. On Wolfe Island, stations 4, 5, and 11 were most active, which is generally consistent with the results of the initial survey. Stations 12 and 13 were silent (**Table 3.2, Appendix B**).

Amphibian activity recorded during the June survey showed a continued decrease from the previous two surveys. This indicates that water levels in some areas were likely decreasing, reducing the viability of these areas for amphibian breeding. Traditional later-breeding species, including green frog and grey tree frog, were not noted during this survey window, despite ideal timing and conditions for their breeding.

Of the stations on Wolfe Island where amphibians were calling during the June survey, Station 11 was the only station that showed a slightly higher activity level. However, overall activity during this survey is described as low, with five of the stations being silent. During the June survey, bullfrogs were noted during daylight hours at Station 4 and in the vicinity of Station 7. Detailed information collected at the Wolfe Island stations in June is provided in **Table 3.3 (Appendix B)**.

3.2.2 Kingston Mainland

Due to access and security permission issues, stations located on the Correctional Service Canada ("CSC") Frontenac Institution lands on the Kingston mainland (i.e., Stations 15, 16, and 17) were not visited during the initial April survey. Activity at the other three mainland stations can be described as low, with only four individuals heard at Stations 1 and 3, and none at Station 2. Stations 1 and 2 on the Kingston mainland had considerable associated road traffic, making amphibian calls harder to discern. These stations were not relocated as roadside was the only access available. Complete survey results for the Kingston mainland stations during the April survey period are presented in **Table 3.4 (Appendix B)**.

During the May survey on the Kingston mainland, noise generated by road traffic also made calls difficult to discern at Stations 1 and 2. Activity on the mainland was low to moderate, as less than ten individuals were noted at most stations. Station 3 was not monitored due to time constraints. The three stations located on the CSC lands were monitored during this visit, and moderate activity was noted at Station 17 where approximately 17 calling amphibians of two species were noted. Data recorded during the May mainland survey are presented in **Table 3.5 (Appendix B)**.

No activity was recorded at Stations 1, 2 and 3 located on the Kingston mainland during the June visit. Access to the CSC lands at the time of this visit was again not granted due to communication issues between CSC staff, so Stations 15, 16 and 17 were not monitored. Road noise was again an issue at Stations 1 and 2. Results for the final survey of the Kingston mainland are presented in **Table 3.6 (Appendix B)**.

3.3 NON-ANURAN SPECIES POTENTIALLY PRESENT IN THE STUDY AREA

The OHSA indicates that, apart from the ten species of anuran potentially within the Study Area, there are also fifteen other species of non-anuran herpetile whose ranges overlap the Study Area (**Table 3.7, Appendix B**). It should be noted that the OHSA only indicates ranges of species, and so it is possible, and in some instances likely, that a species whose range overlaps the Study Area may not actually be present within the Study Area. Incidental non-anuran herpetile observations within the Study Area included two snapping turtles (*Chelydra serpentina*) in the Big Sandy Bay Wetland and a single midland painted turtle (*Chrysemys picta marginata*) in the Sandy Bay Wetland.

Of the fifteen additional herpetiles identified by the OHSA, six are considered species of conservation concern (i.e., provincial status S1, S2 or S3, or those species tracked by the MNR). All non-anuran herpetile species whose ranges overlap the Study Area, and their conservation status rankings, are presented in **Table 3.7 (Appendix B)**.

The common musk turtle (*Sternotherus odoratus*), Blanding's turtle (*Emydoidea blandingii*), and black rat snake (*Elaphe obsoleta*) are designated as threatened by both COSSARO and COSEWIC. The map turtle (*Graptemys geographica*), eastern milksnake (*Lampropeltis triangulum*), and northern ribbonsnake (*Thamnophis sauritus*) are designated as species of special concern by both COSSARO and COSEWIC. These six species also have a provincial S-Ranks of S3 (i.e., vulnerable in the province due to a restricted range, relatively few populations

[often 80 or fewer], recent and widespread declines, or other factors making it vulnerable to extirpation). There are no records of the common musk turtle and Blanding's turtle in the Study Area based on information provided by the MNR and the NHIC database, however, Stantec staff observed a live Blanding's turtle within the Big Sandy Bay Wetland on May 23, 2007. Additionally, a single road-killed black rat snake was observed by Stantec in the Study Area, on Highway 96 east of Concession 5, on September 18, 2007. A discussion of the habitat preferences of the six species of conservation concern is provided below.

The common musk turtle is strongly aquatic, meaning that it very rarely utilizes upland areas. This species may use virtually any permanent, freshwater aquatic habitat (Conant and Collins, 1998) where there is little to no current and soft bottom substrates. The common musk turtle has been known to climb and bask on tree limbs above water, and have been recorded at heights greater than 2 m (Conant and Collins, 1998). They hibernate in bottom mud or debris, under rocks, or in holes in banks, and may congregate when hibernating. Eggs are laid up to about 50 m from water in soil, under logs, stumps, and vegetation debris, in walls of muskrat houses, and sometimes on open ground. Potential habitat within the Study Area for common musk turtles may be represented by the lower reaches of the Little Cataraqui River and the creeks and associated wetlands on Wolfe Island, including coastal marshes. No record of this species has been identified within the Study Area according to the Natural Heritage Information Centre (MNR, 2007).

Map turtles utilize a wide range of aquatic habitats, but prefer large bodies of water such as rivers or lakes (Conant and Collins, 1998). Hibernation occurs very late in the season, occasionally after ice has formed on the water surface. Within the Study Area the lower reaches of the larger watercourses associated with wetlands on Wolfe Island represent the best potential habitat for this species. The NHIC database does not have any records for this species in the Study Area.

The Blanding's turtle is aquatic, but often ventures onto land near marshes, bogs, lakes, and small streams to nest, bask, or travel to other bodies of water (Conant and Collins, 1998). The Blanding's turtle overwinters in underwater substrates and nests on land where sandy soils are present. This species will often utilize sites disturbed by human activity, such as agriculture, for nesting and have been known to occupy Great Lakes coastal wetlands. Most aquatic and wetland habitats within the Study Area could potentially support this species. The NHIC database does not have any records for this species in the Study Area, however as mentioned above, a live Blanding's turtle was observed in Big Sandy Bay Wetland on May 23, 2007.

The black rat snake and eastern milksnake both utilize a variety of habitats, including fields, woodlands, rocky hillsides, and valley bottoms (Conant and Collins, 1998). Both species are known to utilize human-made structures for hibernation and hiding. These species could be found in virtually any habitat within the Study Area. According to a study by Fitch (1963), black rat snakes were calculated to have home ranges between 9.3 and 11.7 hectares. Fitch and Fleet (1970; as referenced in Kjoss, 1995) indicates that eastern milksnakes may have a home range of approximately 10-20 hectares. The NHIC database does not have any records for

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these species in the Study Area. As previously mentioned, a single road-killed black rat snake was observed on Highway 96 east of Concession 5, on September 18, 2007.

The northern ribbonsnake is semi-aquatic and will utilize a variety of habitats, but rarely ventures far from streams, ponds, bogs, or swamps (Conant and Collins, 1998). Within the Study Area, a variety of potential habitats for this species are present including all bodies of water and wetlands. Home ranges of individuals of this species average 0.8 ha (DeGraff and Rudis, 1983). The NHIC database does not have any records for this species in the Study Area.

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4.0 Discussion

4.1 SUMMARY OF EXISTING CONDITIONS

Anuran breeding activity on the Wolfe Island and the Kingston mainland Study Areas can generally be described as low. Overall, the number of calling amphibians peaked in April with an average of eleven individuals/station. Activity decreased at the time of the May survey to an average of seven individuals/station, with a further decrease during the June survey to an average of only two individuals/station. This decline may be explained in part by decreasing water levels in wetlands as the seasons progress, decreasing the utility of these areas for anuran breeding, and the apparent absence of some later-breeding species. Species diversity was low with only five of the potential ten species being recorded in the Study Area. No rare species were observed during any of the anuran field investigations.

The apparent absence of many anuran species within the Study Area is somewhat surprising given that habitats appear suitable and are within the known ranges of these species. It is not expected that survey protocols, timing of visits, or environmental conditions during the surveys would account for the absence of these species. The intense agricultural history and current amount of land under agricultural production may be the leading contributing factor to the low diversity of amphibians present in the Study Area.

Further, on Wolfe Island, some species may have been locally extirpated due to intensive land-use, with no opportunities for re-colonization given the relative isolation of the island and limited representation of upland deciduous woodland habitat. Alternatively, it is conceivable that some species may never have been present on the island.

Two Threatened reptile species, Blanding's turtle and black rat snake, were encountered in the Study Area. Four other rare non-anuran herpetile species were identified as potentially occurring within the Study Area, including the common musk turtle, map turtle, eastern milksnake, and northern ribbonsnake. Potential habitat within the Study Area for the common musk turtle and map turtle is limited to the shoreline wetland areas around Wolfe Island, streams of reasonable quality, and possibly the lower reaches of Little Cataraqui Creek. Habitat may be suitable within the Study Area to support the eastern milksnake and the northern ribbon snake considering their broad habitat preferences. Neither of these species, however, have been recorded within the Study Area, based on information contained in the NHIC database or NRVIS mapping obtained from the MNR, nor observed during the field surveys.

4.2 POTENTIAL EFFECTS

Wetland and watercourse habitat suitable for most herpetile species has been avoided by siting turbines outside of these areas. No direct effects are anticipated for the frogs, toads, and turtles that inhabit these areas.

Some of the snake species, including black rat snake, eastern milksnake and northern ribbonsnake, may inhabit upland vegetation fragments or hedgerows, but very limited clearing relative to the total amount of this type of habitat is expected to have a negligible effect on snakes. The one record of black rat snake was more than 800 m from the nearest proposed turbine.

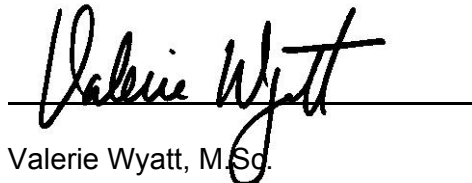
Individual reproductive success has been directly related to calling effort in frogs (Sun and Narins, 2004). Therefore, environmental noise emissions during operations could be a concern because it could interfere with calling rates, which could in turn impact fitness (Sun and Narins, 2004, Penna et al., 2005). As well, environmental noise may not allow breeding frogs to properly hear and move toward breeding aggregations (Maxell and Hokit, 1999). However, the siting of turbines at least 100 m from unevaluated and non-provincially significant wetlands and 120 m from provincially significant wetlands will result in the attenuation of sound to a level that is not expected to interfere with frog calls.

Based upon the literature review completed, coupled with the results of field surveys, the Project is not predicted to result in any significant negative effects on herpetile habitat, populations, corridors or movement.

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5.0 References

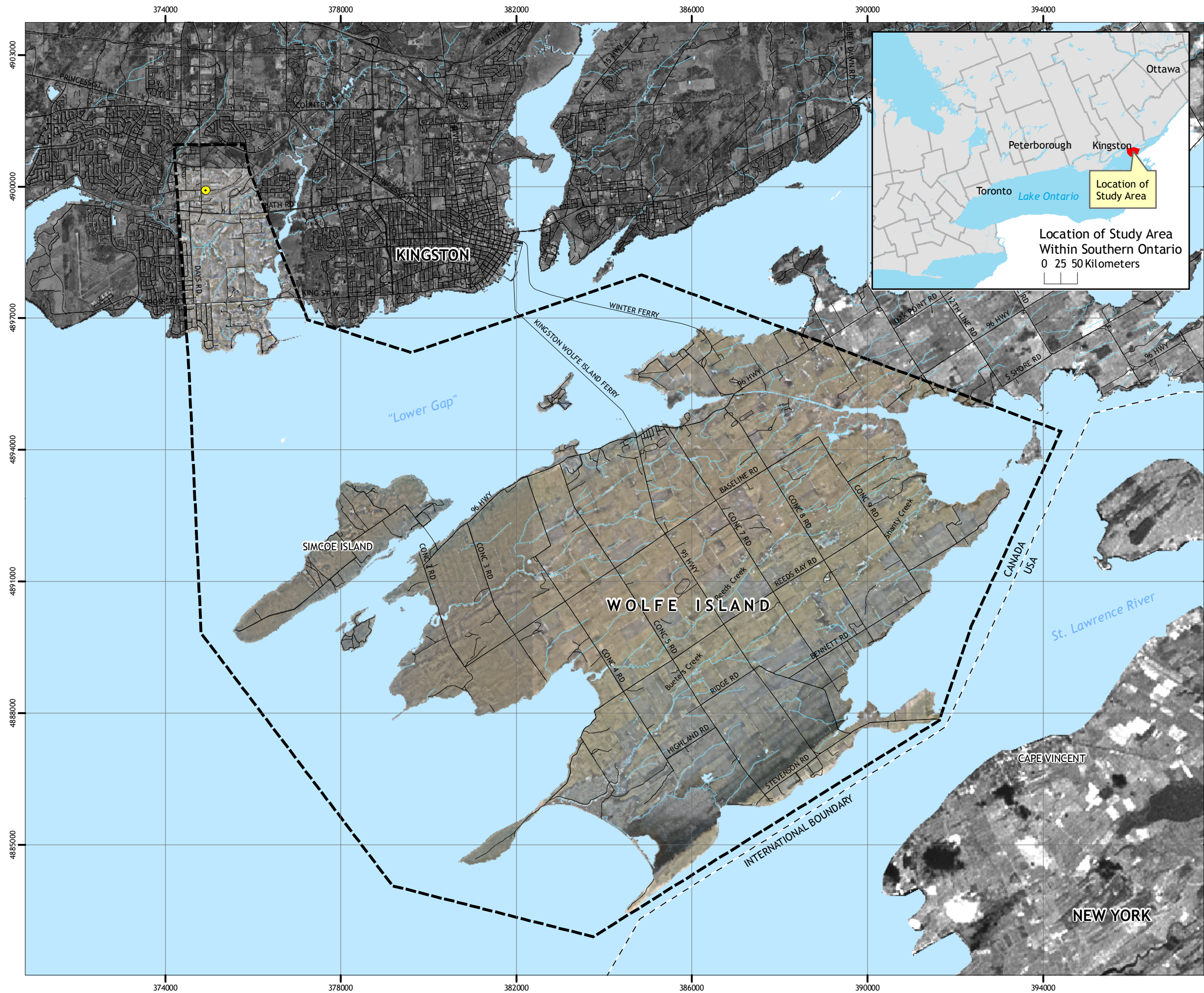
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Appendix A

Figures

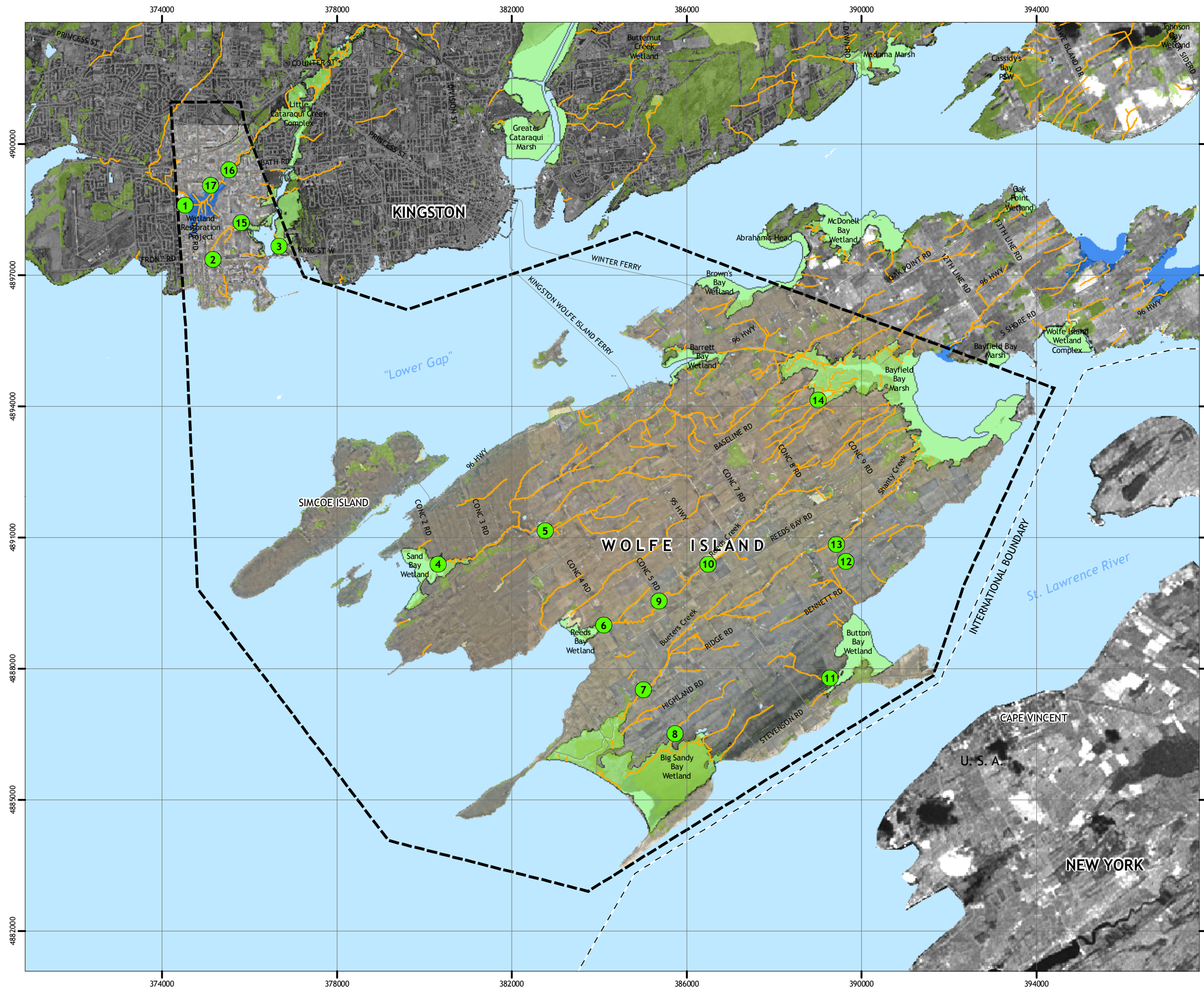


- Legend**
- Study Area
 - Gardiners Transformer Station

**WOLFE ISLAND WIND PROJECT
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FIGURE NO.
1.1

**Project Location
and Study Area**



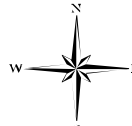


CANADIAN
HYDRO
DEVELOPERS, INC.
Through its wholly owned subsidiary
Canadian Renewable Energy Corporation



Stantec

0 1 2 Kilometers



Notes:
Base map layers: MNR Land Information Distribution Service (LIDS) and the Cataraqui Region Conservation Authority, 2006. Natural environmental features and hydrological data is from the Ministry of Natural Resources Peterborough District NRVIS 2006, and the Cataraqui Region Conservation Authority, 2006.

Legend

-  Study Area
-  Warm water streams
-  Woodlot
- Wetlands**
 -  Provincially significant wetland
 -  Non-provincially significant wetland
 -  Unevaluated wetland

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FIGURE NO.
2.1

Location of Amphibian Call Survey Station

FILE: 60960056_C2_02_call_stations.mxd			PROJECT NUMBER 60960056
REV. NO. 0	SHEET NO. 1 OF 1	SCALE: 1:85,000	DRAWN BY: JLW
October, 2007			

Appendix B

Tables

Table 3.1 April 22, 2006 – Wolfe Island

Station	Species, Call Code and Estimated Numbers				
	American Toad	Western Chorus Frog	Green Frog	Northern Leopard Frog	Bullfrog
4	2-15*	2-10	-	1-4	-
5	1-2	2-15	-	1-10*	-
6	-	-	-	-	-
7	-	-	-	1-8	-
8	-	1-2	-	1-3	-
9	-	-	-	1-3	-
10	-	1-2	-	2-5	-
11	-	-	-	2-17	-
12	2-12	-	-	2-5	-
13	1-3	3-30*	-	2-15	-
14	1-1	-	-	2-10	-

* 2-15 represents a call code of 2, with an estimated 15 individuals. 1-10 indicates a call code of 1, where several small distinct groups (individuals easily counted), or individuals calling at this station, totalling 10 individuals. 3-30 indicates a call code 3, with an estimated 30 individuals (small chorus).

Table 3.2 May 10, 2006 – Wolfe Island

Station	Species, Call Code and Estimated Numbers				
	American Toad	Western Chorus Frog	Green Frog	Northern Leopard Frog	Bullfrog
4	1-2	2-10	-	1-2	-
5	2-6	2-11	-	1-3	-
6	1-1	-	-	1-1	-
7	1-2	1-5	-	1-1	-
8	1-1	-	-	1-1	-
9	1-5	-	-	1-4	-
10	1-5	1-9	-	1-5	-
11	2-11	-	-	2-9	-
12	-	-	-	-	-
13	-	-	-	-	-
14	1-3	-	-	1-5	-

Table 3.3 June 5, 2006 – Wolfe Island

Station	Species, Call Code and Estimated Numbers				
	American Toad	Western Chorus Frog	Green Frog	Northern Leopard Frog	Bullfrog
4	-	-	-	1-3	Code 1*
5	1-4	-	-	-	-
6	-	-	-	1-4	-
7	-	-	-	-	Code 1*
8	-	-	-	-	-
9	-	-	-	1-2	-
10	-	-	-	-	-
11	-	-	-	2-10	-
12	-	-	-	-	-
13	-	-	-	-	-
14	-	-	-	1-7	-

*Heard during daylight hours

Table 3.4 April 22, 2006 – Kingston Mainland

Station	Species, Call Code and Estimated Numbers				
	American Toad	Western Chorus Frog	Green Frog	Northern Leopard Frog	Bullfrog
1	-	1-4	-	-	-
2	-	-	-	-	-
3	-	1-4	-	-	-
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A

Table 3.5 May 10, 2006 – Kingston Mainland

Station	Species, Call Code and Estimated Numbers				
	American Toad	Western Chorus Frog	Green Frog	Northern Leopard Frog	Bullfrog
1	-	2-7	-	-	-
2	-	1-2	-	-	-
3	N/A	N/A	N/A	N/A	N/A
15	-	1-3	-	-	-
16	-	2-6	1-3	-	-
17	1-2	2-15	-	-	-

Table 3.6 June 5, 2006 – Kingston Mainland

Station	Species, Call Code and Estimated Numbers				
	American Toad	Western Chorus Frog	Green Frog	Northern Leopard Frog	Bullfrog
1	-	-	-	-	-
2	-	-	-	-	-
3	-	-	-	-	-
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A

Table 3.7 Non-Anuran Herpetile Species Whose Ranges Overlap the Study Area

Common Name	Scientific Name	S-Rank	COSSARO	COSEWIC	Source of Record
Mudpuppy	<i>Necturus maculosus</i>	S4	NAR	NAR	OHSA
Red Spotted Newt	<i>Notophthalmus viridescens viridescens</i>	S5	-	-	OHSA
Jefferson – Blue Spotted Salamander Complex	<i>Ambystoma jeffersonianum-laterale</i> "complex"	-	-	-	OHSA
Spotted Salamander	<i>Ambystoma maculatum</i>	S4	-	-	OHSA
Red-backed Salamander	<i>Plethodon cinereus</i>	S5	-	-	OHSA
Snapping Turtle	<i>Chelydra serpentina</i>	S5	-	-	OHSA/Stantec field observation
Common Musk Turtle	<i>Sternotherus odoratus</i>	S3	THR	THR	OHSA
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	S5	-	-	OHSA/Stantec field observation
Blanding's Turtle	<i>Emydoidae blandingi</i>	S3	THR	THR	OHSA/Stantec field observation
Map Turtle	<i>Graptemys geographica</i>	S3	SC	SC	OHSA
Eastern Milksnake	<i>Lampropeltis triangulum</i>	S3	SC	SC	OHSA
Black Rat Snake	<i>Elaphe obsoleta obsoleta</i>	S3	THR	THR	OHSA/Stantec field observation
Northern Ribbonsnake	<i>Thamnophis sauritus</i>	S3	SC	SC	OHSA
Eastern Garter Snake	<i>Thamnophis sirtalis sirtalis</i>	S5	-	-	OHSA/Stantec field observation
Northern Watersnake	<i>Nerodia sipedon sipedon</i>	S5	NAR	NAR	OHSA
Brown Snake	<i>Storeria dekayi</i>	S5	-	-	OHSA
Northern Ringneck Snake	<i>Diadophis punctatus edwardsi</i>	S4	-	-	OHSA
Northern Red-bellied Snake	<i>Storeria occipitomaculata occipitomaculata</i>	S5	-	-	OHSA

S-Rank – Provincial rankings used by NHIC to set protection priorities for rare species. These ranks are not legal designations

COSSARO – The Committee on the Status of Species-at-Risk in Ontario. COSSARO is the MNR committee that evaluates the conservation status of species occurring in Ontario.

COSEWIC – The Committee on the Status of Endangered Wildlife in Canada. COSEWIC is the federal committee that evaluates the national status of species suspected to be at risk of extinction or extirpation.

SU – Unrankable

S5 – Secure

S4 – Apparently Secure

S3 – Vulnerable

THR – Threatened – A species likely to become endangered if limiting factors are not reversed.

COSSARO SC –Special concern - (formerly Vulnerable) A species with characteristics that make it sensitive to human activities or natural events.

COSEWIC SC – Special concern – A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

NAR – Not At Risk

OHSA – Ontario Herpetofaunal Summary Atlas (Oldham and Weller, 2000)