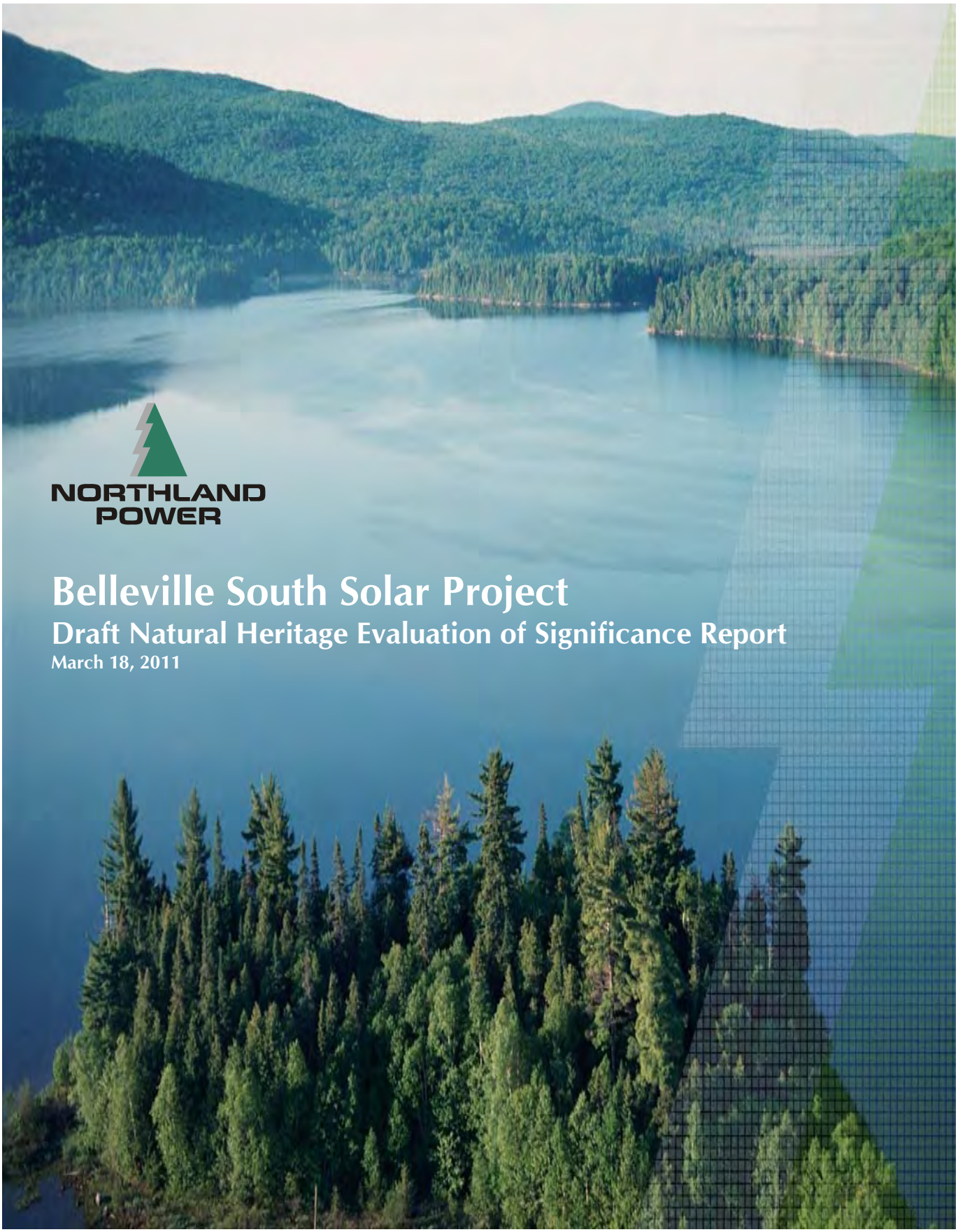

NORTHLAND POWER

Belleville South Solar Project

Draft Natural Heritage Evaluation of Significance Report

March 18, 2011

Northland Power Inc.
on behalf of
Northland Power Solar
Belleville South L.P.
Toronto, Ontario

DRAFT Natural Heritage Evaluation of Significance

Belleville South Solar Project

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Project Report

March 18, 2010

Northland Power Inc.
Belleville South Solar Project

DRAFT Natural Heritage Evaluation of Significance

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Wetland Evaluations**

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1. Introduction

1.1 Project Description

Northland Power Solar Belleville South L.P. (hereinafter referred to as "Northland") is proposing to develop a 10-megawatt (MW) solar photovoltaic (PV) Project titled Belleville South Solar Project (hereinafter referred to as the "Project"). The Project will be located on approximately 40 hectares (ha) of land, located in the single-tier municipality of the City of Prince Edward County.

1.2 Legislative Requirements

Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Under Part V.0.1 of the Act*, made under the *Environmental Protection Act* identifies the Renewable Energy Approval (REA) requirements for renewable energy projects in Ontario. Ground-mounted solar facilities with a name plate capacity greater than 10 kilowatts (kW) are classified as Class 3 solar facilities and require a REA in accordance with Section 4 of O. Reg. 359/09.

Section 24(1) of O. Reg. 359/09 requires proponents of Class 3 solar projects to undertake a natural heritage assessment consisting of a records review report, site investigation report and an evaluation of significance report for each natural feature identified during the records review and site investigation.

Natural Features are defined in Section 1(1) of O. Reg. 359/09 to be all or part of

a) an area of natural and scientific interest (ANSI) (earth science)

b) an ANSI (life science)

c) a coastal wetland

d) a northern wetland

e) a southern wetland

f) a valleyland

g) a wildlife habitat, or

h) a woodland.

1.2.1 Records Review Report

Section 25 of the REA Regulation requires proponents of Class 3 solar projects to undertake a natural heritage records review to identify "whether the project is

(a) in a natural feature

(b) within 50 m of an area of natural and scientific interest (earth science)

(c) within 120 m of a natural feature that is not an area of natural or scientific interest (earth science)." (O. Reg. 359/09, s. 25, Table).

Subsection 2 of Section 30 of the REA Regulation requires the proponent to prepare a report "setting out a summary of the records searched and the results of the analysis" (O. Reg. 359/09). The Natural Heritage Records Review Report (Hatch Ltd., 2010a) was prepared to meet these requirements.

1.2.2 Site Investigation Report

Section 26 of the REA Regulation requires proponents of Class 3 solar projects to undertake a natural heritage site investigation for the purpose of determining

- whether the results of the analysis summarized in the (natural heritage records review) report prepared under Subsection 25(3) are correct or require correction, and identifying any required corrections
- whether any additional natural features exist, other than those that were identified in the (natural heritage records review) report prepared under Subsection 30(2)
- the boundaries, located within 120 m of the Project location, of any natural feature that was identified in the records review or the site investigation
- the distance from the Project location to the boundaries determined under clause (c).

The Natural Heritage Site Investigation Report (Hatch Ltd., 2010b) was prepared to meet these requirements.

1.2.3 Evaluation of Significance Report

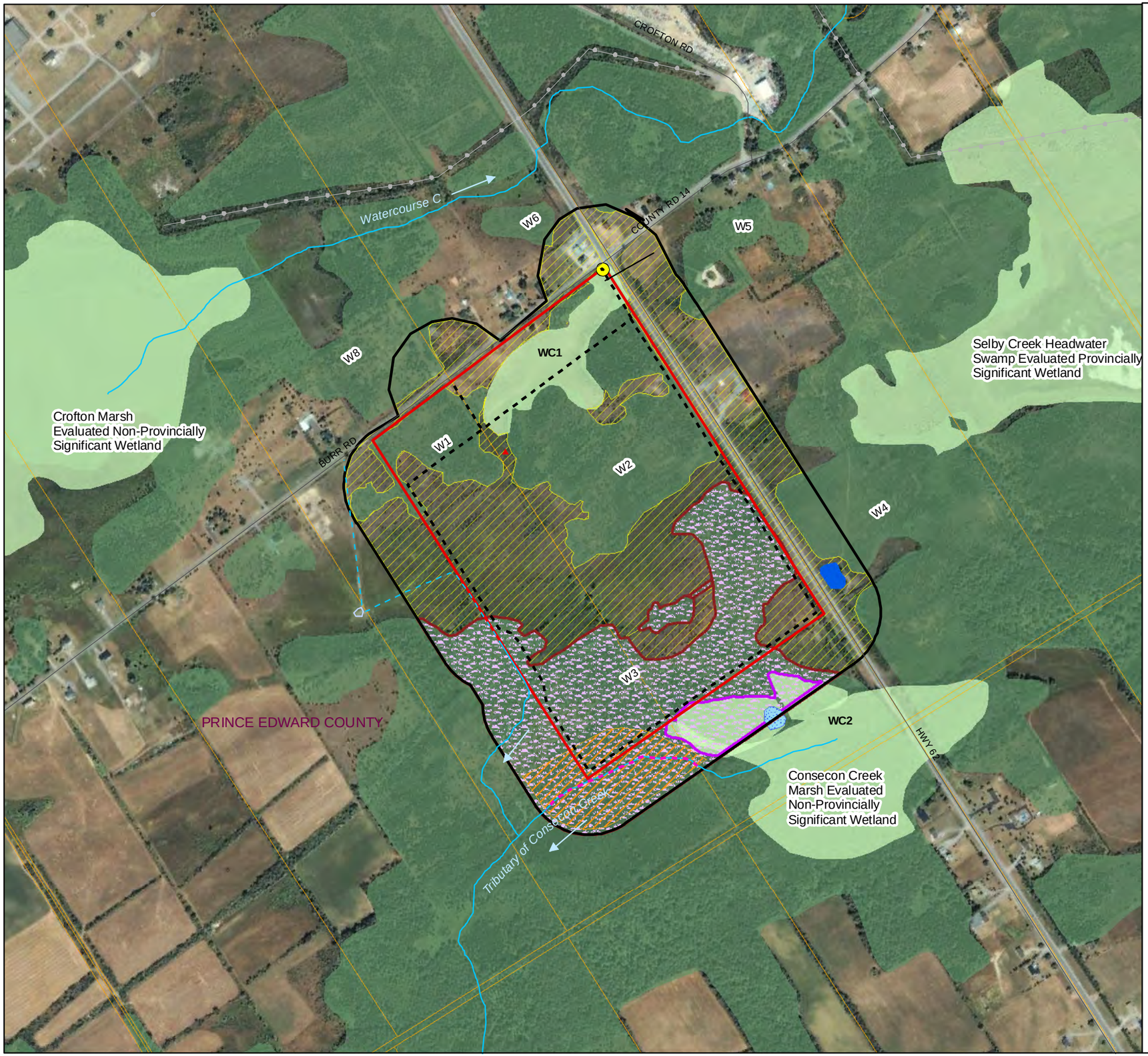
Section 27 of the REA Regulation requires proponents of Class 3 solar projects to undertake an evaluation of significance (EOS) for natural heritage features identified during the records review, site investigation, and public, aboriginal and municipal consultation activities within 120 m of the Project location (with the exception of ANSI, earth science which must be within 50 m of the Project location).

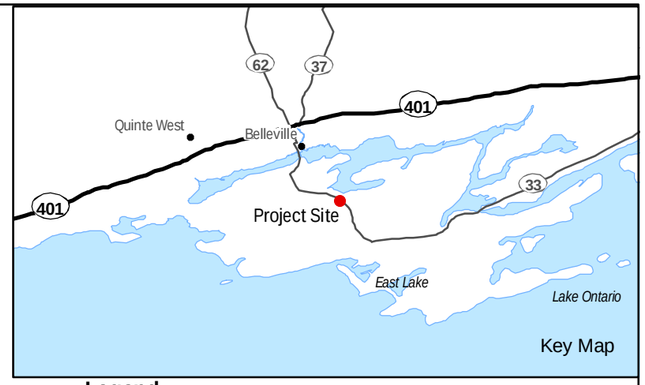
Natural features can be identified as significant or provincially significant as a result of previous identification by the Ministry of Natural Resources (MNR), or that is determined to be significant or provincially significant based on an evaluation completed according to evaluation criteria or procedures established or accepted by the MNR.

The Evaluation of Significance Report sets out

- a determination of whether the natural feature is
  - provincially significant/not provincially significant (in respect of wetlands and ANSIs)
  - significant/not significant (in respect of wildlife habitat, woodlands, and valleylands)
- a summary of the evaluation criteria or procedures used to make the determinations
- the name and qualifications of any person who applied to evaluation criteria or procedures
- the dates of the beginning and completion of the evaluation.

This EOS Report for the natural features identified within 120 m of the Project has been prepared to meet these requirements.





Legend

- Roads
- Transmission Line
- Available Lands
- 120m from Project Location
- Parcels
- Dug-out Pond
- Wetland (WC1 Identifier)
- Woodland (W1 Identifier)

Significant Natural Heritage Features

- Significant Woodland
- Woodland Supporting Amphibian Breeding Habitat
- Amphibian Breeding Habitat (Wetland)
- Area-Sensitive Breeding Bird Habitat
- Milksnake Foraging Habitat
- Western Chorus Frog Habitat
- Amphibian Movement Corridor

Project Components

- Connection Point With Existing Distribution Line
- Project Location

Notes:
1. OBM and NRVIS data downloaded from LIO, with permission.
2. Spatial referencing UTM NAD 83.
3. Satellite imagery from Google Earth Pro.

NORTH

0 50 100 200 Metres

1:7,500

Figure 1.1
Northland Power Inc.
Belleville South Solar Project
Project Location and Significant Natural Heritage Features

HATCH

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1.3 Evaluation of Significance Report Format

Section 1 of this EOS has identified the legislative requirements for an EOS under the REA Regulation and identified the reasons why an EOS is required for the Project. Section 2 provides a summary of the results of the records review and site investigation. Section 3 provides the EOS for wildlife habitat, while Section 4 provides the EOS for the wetland, and Section 5 provides the EOS for the woodlands. Section 6 identifies the conclusions of the EOS, and the references are provided in Section 7.

2. Summary of Results of Records Review and Site Investigation

As stated above, natural features requiring an evaluation of significance are identified through the records review (Hatch Ltd., 2010a) and site investigation (Hatch Ltd., 2010b) required under Sections 25 and 26 of the REA Regulation, respectively. These studies have already been completed, and the results are summarized in Table 2.1. This Report provides the evaluations for the features identified in Table 2.1.

Table 2.1 Natural Features on and within 120 m of the Project Location

Natural Feature	Project Location	Adjacent Lands (within 120 m)
ANSI – Earth Science	No	No
ANSI – Life Science	No	No
Valleyland	No	No
Wetland	Yes	Yes
Woodland	Yes	Yes
Wildlife Habitat	Yes	Yes

3. Wildlife Habitat

3.1 Description of Natural Feature

Several wildlife habitats were identified during the site investigation that requires an evaluation of significance:

- amphibian breeding habitat (wetlands)
- amphibian movement corridor
- foraging habitat for Milksnake
- habitat for Western Chorus Frog
- area-sensitive bird breeding habitat.

3.2 Evaluation Criteria and Guidelines for Wildlife Habitat, and Determination of Significance

The criteria and processes outlined in the MNR Natural Heritage Reference Manual (NHRM) (MNR, 2010), Significant Wildlife Habitat Technical Guide (SWHTG) (MNR, 2000) and the Significant

Wildlife Habitat Ecoregion Criteria Schedules (SWHECS) (MNR, 2009) are used to evaluate the significance of wildlife habitat. The specific criteria used in the evaluation from these sources are discussed by habitat type below.

3.2.1 Seasonal Concentration Areas

Amphibian breeding habitats (wetland) were the seasonal concentration area identified within 120 m south of the Project location during the site investigation.

Criteria for Determining Significance

Ecoregion 6E Criteria for amphibian breeding habitat (wetland) are provided within Table 1.1 of the SWHECS:

- presence of breeding population of two or more of the [following] species with at least 20 breeding individuals (adults, juveniles, egg/larval masses):
  - Eastern Newt
  - Blue-spotted Salamander
  - Spotted Salamander
  - American Toad
  - Gray Treefrog
  - Spring Pepper
  - Chorus Frog
  - Northern Leopard Frog
  - Pickerel Frog
  - Green Frog
  - Mink Frog
  - American Bullfrog, or
- any wetland with confirmed breeding by American Bullfrog is to be considered significant.

Procedures for Determining Significance

Suitable wetland habitats were surveyed on June 14, 2010 by observers trained in the identification of amphibians by calls and sight.

An additional site investigation by observers trained in the identification of amphibians by calls and sight was also completed on August 10, 2010. Though this site investigation was completed outside of the time frame for conducting surveys, observations of amphibians are considered during this evaluation.

Determination of Significance

The only amphibians recorded within the breeding habitat were Green Frogs, where more than 10 were ob served during the August site investigation. Although only one species of frog was recorded from the habitat, as a single site visit was completed late in the breeding season, it is

determined that other species are likely present breeding within the habitat and, therefore, this habitat is determined to meet the criteria for significance.

3.2.2 Habitat for Species of Conservation Concern

Two types of habitat of species of conservation concern were identified during the site investigation:

- Areas Sensitive Bird Breeding Habitat
- Habitat for Special Concern and S1-S3 Species.

These habitat types are discussed separately below.

3.2.2.1 Area Sensitive Bird Breeding Habitat

Area Sensitive Bird Breeding Habitat was identified on and within 120 m of the Project location in association with portions of Woodland 3 in the southwestern corner.

Criteria for Determining Significance

Ecoregion 6E Criteria for area sensitive bird breeding habitat are provided within Table 1.3 of the SWHECS:

- All mature (>60 years old) natural forest (non-plantation) stands 30 ha or greater in size and with at least 10-ha interior habitat assuming 100-m buffer at edge of forest.
- Studies confirm
  - presence of nesting or breeding pairs of 3 or more of the listed wildlife species:
    - Yellow-bellied Sapsucker
    - Red-breasted Nuthatch
    - Veery
    - Blue-headed Vireo
    - Northern Parula
    - Black-throated Green Warbler
    - Blackburnian Warbler
    - Ovenbird
    - Scarlet Tanager
    - Winter Wren
    - Canada Warbler
    - Cerulean Warbler
  - any site with breeding Cerulean Warblers is to be considered significant wildlife habitat.

Procedures for Determining Significance

Area searches of woodland bird breeding habitat were conducted on June 14, 2010. Point count surveys were not employed within the woodland environment as the small size of the Project location and lands within 120 m would have enabled only two point counts to be conducted (as a result of minimum spacing requirements in woodland environments). Conducting two point count surveys within this habitat was determined to not provide meaningful information when compared to what could be obtained through area searches.

An additional site investigation was also completed on August 10, 2010. Though this site investigation was completed outside of the breeding bird time frame for conducting surveys, observations of birds are considered during this evaluation.

Determination of Significance

Though the woodland community meets the size requirement, portions within 120 m of the Project location do not meet the age class requirement (i.e., mature forest stands). However, given that the Project location is proposed within an Important Bird Area, although this area is recognized as such due to the presence of grassland and alvar bird habitats, this habitat is considered to be significant.

3.2.2.2 Habitat for Special Concern and S1-S3 Species

Criteria for Determining Significance

Criteria for evaluation habitat of conservation concern are identified within Table Q-3 of Appendix Q of the SWHTG. The criteria that were considered during this evaluation include

- degree of rarity of species found at site (i.e., habitat of rare species is significant)
- documented significant decline in a species and/or its critical habitat
- species whose range is solely or primarily found in Ontario
- condition of existing habitat at site (i.e., sites with minimal disturbance, non-invasive sp., etc)
- size of species population at site
- size and location of habitat
- potential for long-term protection of habitat
- evidence of use of the habitat.

Procedures for Determining Significance

Suitable habitat for these species was searched on June 14 and August 11, 2010 to search for these species and document their habitat.

Determination of Significance

The species of conservation concern with potential habitat on and/or within 120 m of the Project location are discussed further in relation to these criteria below:

- Western Chorus Frog – Potential habitat for Western Chorus Frog was identified within the wetland within 120 m south of the Project location, though not observed during baseline investigation. The habitat within 120 m of the Project location appears to be of suitable quality, though the size of the populations in the area is unknown. The habitat is located on private land, and therefore long-term protection cannot be assured. Significant declines have been

noted in Western Chorus Frog, given their designation of Threatened by COSEWIC. Western Chorus Frog occur beyond the provincial boundary. Given that Western Chorus Frog are listed on SARA, though use is unconfirmed, the wetland area will be treated as significant wildlife habitat and carried forward in the EIS.

- Milksnake – Milksnake foraging habitat was identified in association with the grassland areas on and within 120 m of the Project location. Use of the Project location was confirmed, though the size of the population is uncertain. The habitat is located on private land and therefore long-term protection cannot be assured. Milksnake populations are not solely or primarily found within the province of Ontario. Milksnake are identified as a species of Special Concern on the ESA, and therefore the area is treated as significant wildlife habitat and carried forward in the EIS.

3.2.3 Animal Movement Corridors

An amphibian movement corridor was identified during the site investigation associated with the waterbody within 120 m south of the Project location.

Criteria for Determining Significance

The criteria for significance of animal movement corridors are outlined in Table Q-4 of Appendix Q in the SWHTG, and include the following:

- Importance of areas to be linked by corridor – Areas linking critical habitats/significant areas.
- Importance of corridor to survival of target species – Corridors linking significant or critical habitat for a target species.
- Dimensions of corridor – Most significant corridors should be at least 200 m wide.
- Continuity of corridor – Corridor should be unbroken.
- Habitat and habitat structure of corridor – Corridor with several layers of vegetation and other structures, such as watercourses.
- Species found in corridor or presumed to be using corridor – Corridors with high species diversity are significant.
- Risk of mortality for species using corridor – Corridors with low risk of road kills or adjacent to residential areas.
- Opportunity for protection – Corridors within areas that may be protected, such as undeveloped shorelines or borders of conservation areas.
- Provision of other related values (such as erosion protection).

Procedures for Determining Significance

The characteristics of the proposed amphibian movement corridor were documented during site investigations on June 14 and August 10, 2010.

Determination of Significance

The corridor links breeding habitats with over-wintering habitats, critical habitat features for amphibian species and for their survival in the local area. Though the watercourse is intermittent and narrow, the corridor is located primarily within a larger woodland with overhanging vegetation.

The risk of mortality for species using the corridor is generally low given low density of residential development in the area and few road crossings. Opportunities for protection are high given that the corridor is associated with a watercourse.

As a result, several of the criteria are met and the amphibian movement corridor is considered to be a significant feature.

3.3 Date of Beginning and Completion of Evaluation

The evaluation of wildlife habitat commenced with records reviews in May 2010 and was finalized with the completion of this Report in November 2010. A site visit was completed in association with this evaluation on June 14, 2010.

3.4 Name and Qualifications of Evaluator

Evaluations of wildlife habitat were completed by Sean K. Male of Hatch.

Sean K. Male, M.Sc. is a Terrestrial Ecologist specializing in assessments of terrestrial habitat, flora and fauna. Sean received his Bachelors of Science (Honours) in Biology from Queen's University, where he completed his Honour's thesis under Dr. Raleigh J. Robertson, studying the impacts of nestbox density in Tree Swallows (*Tachycineta bicolor*) on nest-building behaviour. He then completed a Master's of Science degree in the Watershed Ecosystem Graduate Program at Trent University under Dr. Erica Nol. Sean's thesis focussed on examining the impacts of a Canadian diamond mine on a population of breeding passerines. For his thesis, Sean spent two summers in the Canadian arctic studying populations of Lapland Longspurs (*Calcarius lapponicus*) around the Ekati Diamond Mine, located 300 km northeast of Yellowknife. While at Trent, Sean participated in the Northern Saw-whet Owl (*Aegoius acadicus*) Migration Banding Project at the Oliver Centre. Following his time at Trent, Sean participated in the Landscape Monitoring Program, participating in a study of the impacts of woodlot size on breeding birds.

Sean joined Hatch as a Terrestrial Ecologist in 2006. Since joining Hatch, Sean has participated in several environmental assessments, REAs and other regulatory approvals for hydro, wind and solar power developments as the terrestrial biologist specializing in field investigations identifying flora and fauna species, including species of significance. He has developed and implemented baseline monitoring and impact assessment programs for both terrestrial wildlife and plant communities, including detailed bird and bat studies for several wind power developments, including the proposed 100-MW Coldwell Wind Power Development near Marathon, Ontario, a proposed 20-MW facility near Port Dover, ON, and a proposed 110-MW wind facility in southwestern Ontario. Sean has also conducted terrestrial and wetland vegetation surveys for several proposed hydropower projects totalling over 40 MW in southern and northern Ontario and has participated in fisheries surveys for several of these projects.

4. Woodlands

4.1 Description of Natural Feature

Section 1 of O. Reg. 359/09 defines "woodland" as land

(a) that is south and east of the Canadian Shield

(b) that has per hectare, at least

(i) 1000 trees of any size

(ii) 750 trees measuring over 5 cm in diameter

(iii) 500 trees measuring over 12 cm in diameter

(iv) 250 trees measuring over 20 cm in diameter

(c) that does not include a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees.

The site investigation determined that there are several woodlands on and within 120 m of the Project location (Figure 1.1).

4.2 Evaluation Criteria and Guidelines for Woodlands

The EOS was completed in consideration of the Evaluation Approach outlined in Section 7 of the NHRM (MNR, 2010). The evaluation criteria recommended in the NHRM to assess significance of a woodland are as follows:

- Woodland Size – Woodlots greater than 20 ha in size are considered significant. This size recommendation is for this area where woodlots represent approximately 25% of the land cover based on the proportion of land cover represented by forests within 5 km of the Project location.
- Ecological Functions
  - Woodland Interior – Woodlands with 2 ha or more of interior habitat.
  - Proximity to Other Woodlands or Other Habitats – Woodlands within 30 m of a significant natural feature or fish habitat likely receiving ecological benefit from the woodland.
  - Linkages – Woodlands providing a connecting link between two other significant features within 120 m of the woodland.
  - Water Protection – Woodlands located within a sensitive or threatened watershed or within 50 m of various water features (such as watercourses or sensitive recharge areas).
  - Woodland Diversity – Woodlands with (i) a naturally occurring composition of forest species that have declined or (ii) with a high native diversity through a combination of composition and terrain.
- Uncommon Characteristics – Woodlands with (i) a unique species composition or site (ii) a vegetation community with a provincial ranking of S1, S2, or S3 (iii) important habitat or a rare, uncommon, or restricted woodland plant species or (iv) characteristics of older woodlands or woodlands with larger tree size structure in native species.
- Economic and Social Functional Values – Woodlands with (i) a high productivity in terms of economic value products together with continuous native natural attributes (ii) a high value in special services, such as air quality improvement or recreation at a sustainable level that is

compatible with long-term retention, or (iii) important identified appreciation, education, cultural or historical value.

Many of these criteria have a minimum area threshold attached, which for this area is determined to be 2 ha.

4.3 Date of Beginning and Completion of Evaluation

The evaluation of woodlands commenced with records reviews in May 2010 and is finalized with the completion of this report in November 2010. A site visit was completed in association with this evaluation on June 14, 2010.

4.4 Determination of Significance

There are several woodlands on and within 120 m of the Project location. These woodlands, shown in Figure 1.1, are evaluated individually below. Woodland sizes were calculated using the MNR Land Information Ontario wooded area layer, supplemented with boundaries confirmed during site investigations, in ArcMap 9.3.

4.4.1 Woodland 1

Woodland 1 is located in the northwestern portion of the Project location. Woodland size is estimated to be 4.3 ha, with no interior habitat.

The woodland is not within the required distances from water or significant natural features, and does not provide linkage habitat between two significant features. The woodland was not composed of species that have declined or with a high native diversity of composition and terrain. The vegetation community was not considered to be uncommon and is not known to contain economic or social functional values.

As a result, none of the criteria of significance are met and this woodlot is not considered significant.

4.4.2 Woodland 2

Woodland 2 is located in the northwestern portion of the Project location. Woodland size is estimated to be 10.5 ha, with no interior habitat.

The woodland is not within the required distances from water or significant natural features, and does not provide linkage habitat between two significant features. The woodland was not composed of species that have declined or with a high native diversity of composition and terrain. The vegetation community was not considered to be uncommon and is not known to contain economic or social functional values.

As a result, none of the criteria of significance are met and this woodlot is not considered significant.

4.4.3 Woodland 3

Woodland 3 is located in the southern portion of the Project location, and extends into lands south and west of the Project location. Woodland size is estimated to be 414.0 ha, with more than 2 ha of interior habitat. This woodland overlaps the Consecon Creek Swamp Locally Significant Wetland (see Section 5), and a tributary of Consecon Creek. Further, the core area of this woodland provides

linkage habitat between the locally significant wetland and other significant woodlands and wetlands in the area.

The woodland was not composed of species that have declined or with a high native diversity of composition and terrain. The vegetation community was not considered to be uncommon and is not known to contain economic or social functional values.

As a result, this woodlot is considered significant due to the many criteria that were met.

4.4.4 Woodland 4

Woodland 4 is located east of the Project location, and extends into lands farther east of the Project location. Woodland size is estimated to be 165.5 ha, with more than 2 ha of interior habitat. This woodland overlaps the Selby Creek Headwater Swamp Provincially Significant Wetland and small waterbodies. Further, the woodland provides linkage habitat between the provincially significant wetland and other significant woodlands and the Consecon Creek Swamp Locally Significant Wetland.

The woodland was not composed of species that have declined or with a high native diversity of composition and terrain. The vegetation community was not considered to be uncommon and is not known to contain economic or social functional values.

As a result, this woodlot is considered significant due to the many criteria that were met.

4.4.5 Woodland 5

Woodland 5 is located adjacent to the northeastern corner of the Project location. Woodland size is estimated to be 2.5 ha, with no interior habitat.

The woodland is not within the required distances from water or significant natural features, and does not provide linkage habitat between two significant features. The woodland was not composed of species that have declined or with a high native diversity of composition and terrain. The vegetation community was not considered to be uncommon and is not known to contain economic or social functional values.

As a result, this woodland is not considered significant.

4.4.6 Woodland 6

Woodland 6 is located in the northeastern portion of the Project location, and is 0.7 ha in size. As such, this woodland does not meet the minimum area threshold and is not considered significant.

4.4.7 Woodland 7

Woodland 7 is located northwest of the Project location, and extends into lands farther northwest of the Project location. Woodland size is estimated to be 47.5 ha, with more than 2 ha of interior habitat. This woodland overlaps the Crofton Marsh Locally Significant Wetland and a small watercourse. The woodland does not provide linkage habitat. The woodland was not composed of species that have declined or with a high native diversity of composition and terrain. The vegetation community was not considered to be uncommon and is not known to contain economic or social functional values.

As a result, this woodlot is considered significant due to the many criteria that were met.

5. Wetlands

5.1 Description of Natural Feature

Several wetland communities were identified on and within 120 m of the Project location.

Following the site investigation, two wetland communities on and within 120 m of the northern boundary of the Project location were complexed with the Crofton Marsh Evaluated Non-Provincially Significant Wetland, while three wetland communities within 120 m south of the Project location were complexed with the Consecon Creek Marsh Evaluated Non-Provincially Significant Wetland.

5.2 Wetland Evaluation

The dates, names and qualifications of the evaluators, methodology (including criteria and procedures), and results of the evaluation of wetland communities is provided within Appendix A of this report.

The results of the wetland evaluation determined that the small size of the evaluated wetlands (i.e., not larger than 2 ha) and absence of associated significant natural features or species, would not alter the Evaluated Non-Provincially Significant Wetland status of the wetlands they are being complexed to. As a result, the wetland communities on and within 120 m of the Project location are determined to not be provincially significant.

6. Conclusions

Results of the EOS are summarized in Table 6.1. Based on the EOS outlined above, there are significant woodlands and significant wildlife habitat present on and within 120 m of the Project location. The locations of these features are shown in Figure 1.1.

An environmental impact study conducted according to the requirements of Section 38(2) of O. Reg. 359/09 will be required in order to construct Project components within 120 m of these significant features.

7. References

Hatch. 2010a. Belleville South Solar Project – Natural Heritage Records Review. Prepared for Northland Power Inc. on behalf of Northland Power Solar Belleville South L.P. November 2010.

Hatch. 2010b. Belleville South Solar Project – Natural Heritage Site Investigation. Prepared for Northland Power Inc. on behalf of Northland Power Solar Belleville South L.P. November 2010.

Ministry of Natural Resources (MNR). 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp.

Ministry of Natural Resources. 2009. Significant Wildlife Habitat Ecoregion Criteria Schedules – Addendum to Significant Wildlife Habitat Technical Guide. Working Draft – January 2009.

MNR. 2000. Significant Wildlife Habitat Technical Guide. 151 p.

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Table 7.1 Significant Natural Features on and within 120 m of the Project Location

Feature	Attributes/Composition	Function	Significant
Wetlands			
Wetland Complex 1	reM4 [ELC: Bulrush Graminoid Mineral Meadow Marsh Type (MAMM1-15)]. reM5 [ELC: Cattail Graminoid Mineral Meadow Marsh Type (MAMM1-2)]	- Primary production - Watershed protection - Preservation of biodiversity - Support of natural cycles	Non-provincially significant
Wetland Complex 2	reM1 [ELC: Bulrush Graminoid Mineral Meadow Marsh Type (MAMM1-15)] neM3 [ELC: Mixed Graminoid Mineral Meadow Marsh Type (MAMM1-16)] neM2 [ELC: Forb Mineral Shallow Marsh Ecosite (MASM2)].	- Wildlife habitat - Primary production - Watershed protection - Preservation of biodiversity - Fish habitat - Support of natural cycles	Non-provincially significant
Wildlife Habitat			
Amphibian breeding habitat and amphibian movement corridor	Located within the wetland community and tributary of Consecon Creek within 120 m of the Project location	Provision of breeding habitat for amphibian communities, as well as a movement corridor for amphibian from breeding areas to over-wintering sites	Significant
Area sensitive breeding bird habitat	Located within Woodland 3 off the Project location, though portions of the woodland on the Project location support this function through provision of edge habitat	Area sensitive bird breeding habitat consists of interior forest habitat for species of birds requiring such habitat for successful breeding.	Significant
Western Chorus Frog Habitat	Located within the wetland community within 120 m south of the Project location	Provision of Western Chorus Frog breeding habitat	Significant
Milksnake Habitat	Agricultural fields on and within 120 m of the Project location	Provision of foraging habitat (agricultural fields) for Milksnake	Significant

Woodlands			
Woodland 1	Dry-Fresh Red Cedar Coniferous Forest Type (FOC2-1)	Contribution to local and regional water quantity and quality	Non-significant
Woodland 2	Dry-Fresh Red Cedar Coniferous Forest Type (FOC2-1)	Contribution to local and regional water quantity and quality	Non-significant
Woodland 3	Dry-Fresh Red Cedar Coniferous Forest Type (FOC2-1) Fresh-Moist Ash Lowland Deciduous Forest Type (FOD7-2)	- Contribution to local and regional water quantity and quality - Landscape cover - Interior forest habitat - Wildlife habitat - Riparian cover	Significant
Woodland 4	Dry-Fresh Red Cedar Coniferous Forest Type (FOC2-1)	- Contribution to local and regional water quantity and quality - Landscape cover - Interior forest habitat	Significant
Woodland 5	Dry-Fresh Red Cedar Coniferous Forest Type (FOC2-1)	Contribution to local and regional water quantity and quality	Non-significant
Woodland 6	Dry-Fresh Red Cedar Coniferous Forest Type (FOC2-1)	Contribution to local and regional water quantity and quality	Non-significant
Woodland 7	Dry-Fresh Red Cedar Coniferous Forest Type (FOC2-1)	- Contribution to local and regional water quantity and quality - Interior forest habitat	Significant

Appendix A

Natural Resource Solutions Inc.
Wetland Evaluations

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

1140

September 13, 2010

Mr. Sean Male
Hatch Energy
4342 Queen Street, Suite 500,
Niagara Falls, ON L2E 7J7

Dear Mr. Male:

Re: Northland Power Belleville South Solar Project Wetland Evaluations

On behalf of Natural Resource Solutions Inc., I am pleased to provide the following which documents the work completed relative to wetland evaluation at the above noted solar project being proposed by Northland Power.

The objectives of this assignment were to provide project-specific assessments and possibly evaluations of wetlands found on or within 120m of proposed project components as per Renewable Energy Approval Regulation 359/09. Review of Land Information Ontario (LIO) and aerial photography indicated that potential unevaluated wetlands are on the subject property as well as neighbouring lands within 120m. Portions of the Consecon Creek Marsh and Crofton Marsh wetlands are located to the east and northwest of the project area, respectively.

Study Approach
This work included the following:

- Collection and review of background information on wetland-related natural features in the vicinity of the project site.

- Identification of all wetlands, evaluated and non-evaluated, within approximately 750m of the subject wetlands to assess the extent of wetland mapping that would be required to address whether wetlands in the vicinity of the project site would be complexed with other wetlands (i.e. to identify whether a 'string' of unevaluated wetlands occur between the subject wetlands and the nearest evaluated wetland)

- Conduct field surveys of subject wetlands on the project site as well as on neighbouring lands. This included mapping of wetland vegetation communities based on Ontario Wetland Evaluation System (OWES), as well as Ecological Land Classification (ELC), and recording all species of flora and fauna within the wetlands.

The above tasks feed into a determination of whether the wetlands on or within 120m of the project site are a portion of the existing Provincially Significant Wetland (PSW), are

of insufficient size or ecological/hydrologic character to be considered stand alone wetlands under OWES, and/or are not part of the wetland complex when reviewed under the OWES complexing criteria. If wetlands were considered to not be part of the existing evaluated wetland, the assessment considered whether the wetlands would be part of 'new' wetland complex.

This letter report documents the analysis of the above.

Summary

A number of wetland communities overlap with the project site and/or are within 120m. The wetlands were described under the OWES as well as using ELC based on field surveys completed on August 10, 2010. Copies of field data forms are also appended that summarize field information including weather and time of field surveys. No significant species of flora or fauna were observed during the field survey. A map of the project site with wetlands in the area is appended to this letter.

Based on field observations and review of topographic maps, the northern portion of the project area drains northward, while the southern portion drains to the south. Within the northern section of the project area there is a small marsh that is approximately 500m east of, and is also hydrologically connected to, the Crofton Marsh, a non-provincially significant wetland. As such, these wetlands would likely be complexed. The on-site wetland consists of two communities described as:

reM_5 [ELC: Cattail Graminoid Mineral Meadow Marsh Type (MAMM1-2)]
reM_4 [ELC: Bulrush Graminoid Mineral Meadow Marsh Type (MAMM1-15)]

South and off-site of the project area, two small wetlands were identified, and due to their proximity to the Consecon Creek Swamp, would be complexed with this existing non-provincially significant wetland. The communities are described as:

reM_1 [ELC: Bulrush Graminoid Mineral Meadow Marsh Type (MAMM1-15)]
neM_3 [ELC: Mixed Graminoid Graminoid Mineral Meadow Marsh Type (MAMM1-16)]
neM_2 [ELC: Forb Mineral Shallow Marsh Ecosite (MASM2)]

As the evaluated wetlands are small in size (not larger than 2ha) with no significant natural features or species, it is not anticipated that complexing them with the neighbouring non-provincially significant wetlands would change the status of these wetlands.

I trust that this information is adequate. Please contact me if you have any questions.

Yours sincerely,
Natural Resource Solutions Inc.

David Stephenson, M.Sc.,
Senior Biologist

Wetland Vegetation Communities:

Wetland 1:

reM$_4$ [ELC: Bulrush Graminoid Mineral Meadow Marsh Type (MAMM1-15)]
gc: *Lythrum salicaria, Soldiago sp., Eupatorium perfoliatum*
ne: *Carex vulpinoidea, Carex lupulina, Inula helenium*
re*: *Scirpus atrovirens, Schoenoplectus acutus*

reM$_5$ [ELC: Cattail Graminoid Mineral Meadow Marsh Type (MAMM1-2)]
re*: *Typha latifolia*

Wetland 2:

reM$_1$ [ELC: Bulrush Graminoid Mineral Meadow Marsh Type (MAMM1-15)]
ne: *Carex vulpinoidea, Carex lupulina*
re*: *Schoenoplectus acutus, Scirpus atrovirens, Typha latifolia*

neM$_2$ [ELC: Forb Mineral Shallow Marsh Ecosite (MASM2)]
ne*: *Cicuta virosa, Lycopus americanus, Equisetum arvense*
be: *Alisma plantago-aquatica*
re: *Typha latifolia*

neM$_3$ [ELC: Mixed Graminoid Graminoid Mineral Meadow Marsh Type (MAMM1-16)]
h: *Fraxinus pennsylvanica, Ulmus sp*.
ne*: *Carex sp., Lycopus americanus, Cicuta virosa*

* dominant form

Project Team:

Member	Qualifications	Role
David Stephenson, MSc	Certified Wetland Evaluator Certified ELC Certified Arborist	Project Management Field Survey Data Analysis, Evaluation, Reporting
Kevin Dance, M.Sc.	Certified ELC	Field Survey Data Analysis, Evaluation
Matt Ross, B.Sc., FWT	Field Biologist	Field Survey Data Analysis, Evaluation
Shawn MacDonald, B.A.	GIS Mapping	Mapping
Gerry Schaus, B.A.	GIS Mapping	Mapping

NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: Belleville South **Project #:** 1140

Observer(s): KSD, MR

Date: Aug 10/10 **Time (24h):** 8:48

Field #: 1 **Weather:** Precipitation: 0 Temp (°C): 24+

Map Code: Wind Speed & Direction: 1 Cloud %: 100

Wetland Type: not wetland **Site Type:** L **Dominant Form:** gc

% Open Water: None **ELC Code:**

Photos:

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	
c	red cedar
dc,dh,ds	red cedar
ts	
ls	common juniper, narrowleaved meadowsweet, red-osier dogwood
gc	, Queen Annes lace, early goldenrod
ne	sedge sp grass sp
be	
re	hard stemmed bulrush
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial):

AMCR
FISP
BCCH
AMGO
E. towhee

Wildlife Notes:

Monarch
Summer Azure
E. skipper
Clouded sulphur
white-faced meadowhawk
cherry-faced meadowhawk
Halloween pennant

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

Wetland Type: **S**=swamp; **M**=marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: Belleville South **Project #:** 1140

Observer(s): KSD, MR

Date: Aug. 10/10 **Time (24h):** 848

Field #: 2 **Weather:** Precipitation: 0 Temp (°C): 24+

Map Code: Wind Speed & Direction: 1 Cloud %: 100

Wetland Type: not wetland **Site Type:** L **Dominant Form:** C

% Open Water: None **ELC Code:**

Photos:

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	
c	red cedar
dc,dh,ds	red cedar
ts	
ls	Prickley Ash > Common juniper > buckthorn
gc	, Asters, red flower, daisy fleabane
ne	fox sedge, grass sp.
be	
re	hard stemmed bulrush
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial):

MODO
AMCR
SOSP
AMGO
NOFL

Wildlife Notes:

Summer Azure
Cabbage white
red squirrel
cherry faced meadowhawk
white-faced Meadowhawk

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

Wetland Type: **S**=swamp; **M**=marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

Natural Resource Solutions Inc.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: Belleville South **Project #:** 1140

Observer(s): KSD, MR

Date: Aug. 10/10 **Time (24h):** 848

Field #: 3 **Weather:** Precipitation: O Temp (°C): 24+

Map Code: 3 (reM) Wind Speed & Direction: 1 Cloud %: 100

Wetland Type: M **Site Type:** P **Dominant Form:** re

% Open Water: None **ELC Code:** MAMM1-15

Photos:

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	green Ash
c	red cedar
dc,dh,ds	
ts	
ls	red osier dogwood
gc	purple loosestrife, swamp milkweed
(ne)	Sedge sp (tox sedge, hop sedge), grass sp.
be	
(re)	hard stemmed bulrush, black bulrush, broad leaved cattail
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: h=deciduous trees; c=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

Wetland Type: S=swamp; M=marsh; B=bog; F=fen

Site Type: L=lacustrine; P=palustrine; R=riverine; IS=isolated

Natural Resource Solutions Inc.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: Belleville South **Project #:** 1140

Observer(s): KSD, MR

Date: Aug. 10/10 **Time (24h):** 848

Field #: 4 **Weather:** Precipitation: O Temp (°C): 24+

Map Code: 4 **Wetland Type:** M (reM2) Wind Speed & Direction: 1 Cloud %: 100

Site Type: P **Dominant Form:** ne

% Open Water: 100 **ELC Code:** MASM-2

Photos:

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	green Ash
c	red cedar
dc,dh,ds	
ts	
ls	European buckthorn
gc	goldenrod sp.
(ne)	Water hemlock, water horehound, field horsetail
(be)	water plantain, broad-leaved arrowhead
(re)	broad-leaved cattail
ff	
f	Yellow pond lily
su	
m	

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
	PUMA Fragile forktail Eastern forktail green frogs - 10+

SAR observations must also include a specific UTM location.

Forms: h=deciduous trees; c=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

Wetland Type: S=swamp; M=marsh; B=bog; F=fen

Site Type: L=lacustrine; P=palustrine; R=riverine; IS=isolated

Pond

NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: Belleville South **Project #:** 1140

Observer(s): KSD, MR

Date: Aug. 10/10 **Time (24h):** 848

Field #: 5 **Weather:** Precipitation: 0 Temp (°C): 24+

Map Code: 5 (neM3) Wind Speed & Direction: 1 Cloud %: 100

Wetland Type: M **Site Type:** R **Dominant Form:** ne

% Open Water: No water **ELC Code:** MAMM1-16

Photos:

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
(h)	Green Ash, elm sp
c	
dc,dh,ds	
ts	
ls	red osier dogwood, narrow leaved meadowsweet
gc	, spotted jewelweed, elecampane, hairy willowherb
(ne)	sedge sp., water horehound, water hemlock, grass sp.
be	
re	black bulrush
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial):

Creek was dry, no surface water present

Wildlife Notes:

Summer Azure WBNU
Monarch
Cabbage white
Clouded Sulphur
Cinnamon Nymph

SAR observations must also include a specific UTM location.

Forms: h=deciduous trees; c=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

Wetland Type: S=swamp; M=marsh; B=bog; F=fen

Site Type: L=lacustrine; P=palustrine; R=riverine; IS=isolated

green ash early regen

NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: Belleville South **Project #:** 1140

Observer(s): KSD, MR

Date: Aug. 10/10 **Time (24h):** 848

Field #: 6a **Weather:** Precipitation: 0 Temp (°C): 24+

Map Code: 6a (MAM4) Wind Speed & Direction: 1 Cloud %: 100

Wetland Type: M **Site Type:** P **Dominant Form:** ne

% Open Water: no water **ELC Code:** MAMM1-15

Photos:

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	
c	red cedar
dc,dh,ds	
ts	
ls	prickly Ash
gc	purple loosestrife, goldenrod, boneset
(ne)	sedges (fox sedge, hopsedge), grass sp., elecampane
be	
(re)	black bulrush, hard stemmed bulrush
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial):

CEDW
THOC
BARS
EAKI
AMCR
SOSP

Wildlife Notes:

BCCH
SSHA - pair
Summer Azure
clouded sulphur
Monarch

SAR observations must also include a specific UTM location.

Forms: h=deciduous trees; c=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

Wetland Type: S=swamp; M=marsh; B=bog; F=fen

Site Type: L=lacustrine; P=palustrine; R=riverine; IS=isolated

NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: Belleville South **Project #:** 1140

Observer(s): KSD, MR

Date: Aug. 10/10 **Time (24h):** 848

Field #: 66 **Weather:** Precipitation: O Temp (°C): 24+

Map Code: 6b (reMa) Wind Speed & Direction: 1 Cloud %: 100

Wetland Type: M **Site Type:** ~~R~~ P **Dominant Form:** re

% Open Water: no surface water **ELC Code:** NAMM1-2

Photos:

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	
c	
dc,dh,ds	
ts	
ls	
gc	
ne	
be	
re	broad leaved cattail
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

Wetland Type: **S**=swamp; **M**=marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: **Project #:**

Observer(s):

Date: **Time (24h):**

Field #: **Weather:** Precipitation: Temp (°C):

Map Code: Wind Speed & Direction: Cloud %:

Wetland Type: **Site Type:** **Dominant Form:**

% Open Water: **ELC Code:**

Photos:

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	
c	
dc,dh,ds	
ts	
ls	
gc	
ne	
be	
re	
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial):	Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

Wetland Type: **S**=swamp; **M**=marsh; **B**=bog; **F**=fen

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

Belleville South

Catchment Area

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

September 10, 2010
Project No: NRSI-1140
UTM Zone 18, NAD 83
Scale: 1:15,000 (at 11x17")

311500 312000 312500 313000 313500 314000 314500 315000 315500 316000 316500 317000 317500

4883500 4883000 4882500 4882000 4881500 4881000 4880500 4880000

Big Island Marsh
Sawguin Creek Marsh
Selby Creek Headwater Swamp
Crofton Marsh
Consecon Creek Swamp

PUMPHOUSE LANE
BISHOP LANE
COUNTY RD 14
CROFTON RD
BURR RD
JERICHO RD
HWY 62
CHRISTIAN RD

N

Legend

- Project Site
- Catchment Boundary
- Highway
- Primary Road
- Secondary Road
- Watercourse Permanent
- Watercourse Intermittent
- Provincially Significant Wetland
- Other
- ANSI, Life Science
- Waterbody
- Wetland
- Wooded Area

0 250 500 750 Meters

NRSI_1140_CatchmentArea_15K_2010_09_10_GCS

Belleville South Solar Project

Wetland Vegetation

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

September 16, 2010
Project No: NRSI-1140
UTM Zone 18, NAD 83
Scale: 1:10,000 (at 11x17")

313000 313500 314000 314500 315000 315500 316000 316500

4882500 4882000 4881500 4881000 4880500

N

Sawguin Creek Marsh
CROFTON RD
COUNTY RD 14
reM$_5$ MAMM1-2
WETLAND #1
Selby Creek Headwater Swamp
reM$_4$ MAMM1-15
Crofton Marsh
BURR RD
reM$_1$ MAMM1-15
WETLAND #2
WETLAND #3
neM$_3$ MAMM1-16
neM$_2$ MASM2
Consecon Creek Swamp
HWY 62
JERICHO RD

Legend

- Project Site
- Ecological Land Classification
- (MAMM1-15) Bulrush Graminoid Mineral Meadow Marsh Type
- (MAMM1-16) Mixed Graminoid Graminoid Mineral Meadow Marsh Type
- (MAMM1-2) Cattail Graminoid Mineral Meadow Marsh Type
- (MASM2) Forb Mineral Shallow Marsh Ecosite
- Highway
- Primary Road
- Secondary Road
- Watercourse Permanent
- Watercourse Intermittent
- Waterbody
- Wetland
- Provincially Significant Wetland
- Other
- Wooded Area

0 250 500 750 Meters

NRSI_1140_ELC_10K_2010_09_16_SWM