

Ministry of Natural Resources and Forestry / Ministère des Natural Resources Richesses
naturelles et des Forêts

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August 27, 2019

Dear Mr. Hetherington:

The Ministry of Natural Resources and Forestry (MNRF) has now completed our review of the Nassau Wetland Complex Wetland Evaluation Report, dated April 2019 and prepared by DM Wills for the City of Peterborough (the "Evaluation Report"). The Evaluation Report results in the identification of a new Provincially Significant Wetland (PSW), the Nassau Wetland Complex, located within the City of Peterborough and the Township of Douro-Dummer. The evaluation was conducted according to the Ontario Wetland Evaluation System, which can be accessed at: <https://www.ontario.ca/page/wetlands-evaluation>.

MNRF is pleased to approve the Evaluation Report subject to the following minor modification:

- Clarifications to the wetland boundary in Lot 6, Con 10, Douro, and Lot 4, Con 11, Douro, which result in a slight change in the total wetland size from 76.25 ha to 81.37 ha.

MNRF has added the new PSW to the Provincial record and the wetland can now be downloaded from Land Information Ontario (LIO) and viewed in Natural Heritage Make a Map here: <https://www.ontario.ca/page/make-natural-heritage-area-map>. For more information on how to access LIO, please visit: <https://www.ontario.ca/page/land-information-ontario>. The Provincial record is considered the authoritative source for evaluated wetland data and MNRF will now maintain a wetland file for the Nassau Wetland Complex. MNRF recommends that the Nassau Wetland Complex mapping in LIO be referenced during the review of applications under the *Planning Act* and other applicable legislation. MNRF will be notifying other agencies and landowners of the new mapping shortly. MNRF requests that the City include this approval letter as a cover page to the Evaluation Report when making it available to the public.

MNRF thanks the City for their efforts in undertaking the evaluation. If you have any questions, feel free to contact me or Liz Spang, District Planner, at 705-755-3360.

Best regards,

A handwritten signature in black ink, appearing to read 'D. Cotter', with a long horizontal flourish extending to the right.

Deanna Cotter
Resources Management Supervisor
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Ministry of Natural Resources and Forestry
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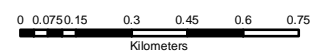


Legend

 Nassau Wetland Complex Boundary

Ontario Ministry of Natural Resources and Forestry - Peterborough District

Nassau Wetland Complex
Provincially Significant Wetland



August 27, 2019



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Map Projection: UTM Zone 17, NAD 83
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Wetland Evaluation Report

**Nassau Wetland Complex
City of Peterborough**

D.M. Wills Project Number 16-10739



D.M. Wills Associates Limited

Partners in Engineering
Peterborough

Technical Review:

BEACON ENVIRONMENTAL

April 2019

Prepared for:

City of Peterborough

Summary of Revisions

Revision No.	Revision Title	Date of Release	Summary of Revisions
1	First Submission	April 23, 2018	
2	Second Submission	August 31, 2018	
3	Report and Scoring	October 3, 2018	Changes to report and scoring based on comments from Brian Henshaw, Beacon Environmental
4	Report and Scoring	April 02, 2019	Changes to report and scoring based on comments from MNRF

This report/proposal has been formatted considering the requirements of the Accessibility for Ontarians with Disabilities Act.

Statement of Limitations

This Wetland Evaluation Report has been prepared by D.M. Wills Associates Limited with technical support from Beacon Environmental, on behalf of The City of Peterborough to address the requirements of the Otonabee Region Conservation Authority (ORCA) and the Ministry of Natural Resources and Forestry (MNRF).

The purpose of the Wetland Evaluation was to determine the significance of the Nassau Wetland Complex located at the north end of the City of Peterborough. The conclusions and recommendations in this Wetland Evaluation Report are based on available background documentation, discussions with applicable agencies and field investigations completed at the time of preparation.

Any use, which a third party makes of this Wetland Evaluation Report, other than for review by applicable agencies, is the responsibility of such third parties. D.M. Wills Associates Limited accepts no responsibility for damages, if any, suffered by a third party because of decisions made or action taken based on using this Wetland Evaluation Report.

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- Appendix D - Plant Species Inventory
- Appendix E - Fauna Inventory
- Appendix F - Avifauna Inventory
- Appendix G - Photographic Record

Executive Summary

On behalf of the City of Peterborough, this Wetland Evaluation Report has been prepared for the Nassau Wetland Complex (Wetland Complex) at the north end of the city. Initial field investigations were completed within the wetland catchment area in 2016 with subsequent field investigations conducted in 2017 and 2018, including breeding bird assessments, amphibian surveys and the wetland evaluation. Wetland Units were identified and assessed by inferring wetland boundaries through review of aerial photographs and satellite imagery and confirmed during field investigations. The determination of wetland boundaries was based on the presence of accepted wetland flora species representing a minimum of 50% of the cover in the area.

Six contiguous wetland areas comprised the Wetland Complex totaling approximately 76 ha in size. Within the wetland units, eighteen (18) communities with dominant vegetation forms were identified. The total wetland area is characterized with 82% swamp with 18% of the fractional area covered by marsh habitat. Soil composition was found to be 54% sand, 28% silt and 18% mesic. The wetland site type was determined to be Palustrine.

Provincially significant species known to occur within the Wetland Complex include Blandings Turtle (*Emydoidea blandingii*) and Eastern Wood-Pewee (*Contopus virens*).

Based on the results of the wetland evaluation, the Wetland Complex is classified as evaluated provincially significant on the basis that a total score of more than 600 points was achieved. Significance of the Wetland Complex was determined through all aspects of the wetland evaluation including species at risk and provincially significant species as well as the significance for recreational activities, ecosystem study, long-term research and educational purposes.

1.0 Introduction

The City of Peterborough (the City) retained D.M. Wills Associates Limited (Wills) to undertake a Wetland Evaluation of the Nassau Wetland Complex (Wetland Complex) at the north end of the City of Peterborough. The Wetland Evaluation was undertaken by certified wetland evaluators using the Ontario Wetland Evaluation System Southern Manual 3rd Edition, Version 3.3, 2014 (OWES). The purpose of the Wetland Evaluation was to determine the significance of the Wetland Complex.

Initial field investigations were completed within the Wetland Complex on June 3, July 5, July 7, September 1, and September 12, 2016. Subsequent field investigations were conducted on April 20, May 30, June 20, June 22, June 28, July 5, July 6, July 7, July 11, July 13 and October 5 of 2017 and April 24, May 9, May 15, and May 24 of 2018, including breeding bird assessments, amphibian surveys and Wetland Evaluation. Wetland Units were identified and assessed by inferring wetland boundaries through review of aerial photographs and satellite imagery and confirmed during field investigations. The determination of wetland boundaries was based on the presence of accepted wetland flora species representing a minimum of 50% of the cover in the area.

The following sections identify the Evaluation Criteria, Study Area and location, methodology, scoring record, and results of the evaluation, as well as species occurrence lists.

2.0 Evaluation Criteria

The determination of wetland significance is based on the scoring criteria by using the OWES that has been approved by the Ministry of Natural Resources and Forestry (MNRF). For the purposes of this Wetland Evaluation, the Southern Ontario manual includes direction for evaluation of four components of the wetland including biological, social, hydrological and special features. Each component is assigned a numerical score, which cannot exceed 250 points in any category. The overall wetland score is based on a maximum of 1,000 points.

A wetland is classified as provincially significant if it meets either of the following two (2) criteria:

1. The wetland achieves a total score of 600 or more points, or
2. The wetland achieves a score of 200 or more points in either the Biological component or the Special Features component.

3.0 Study Area and Location

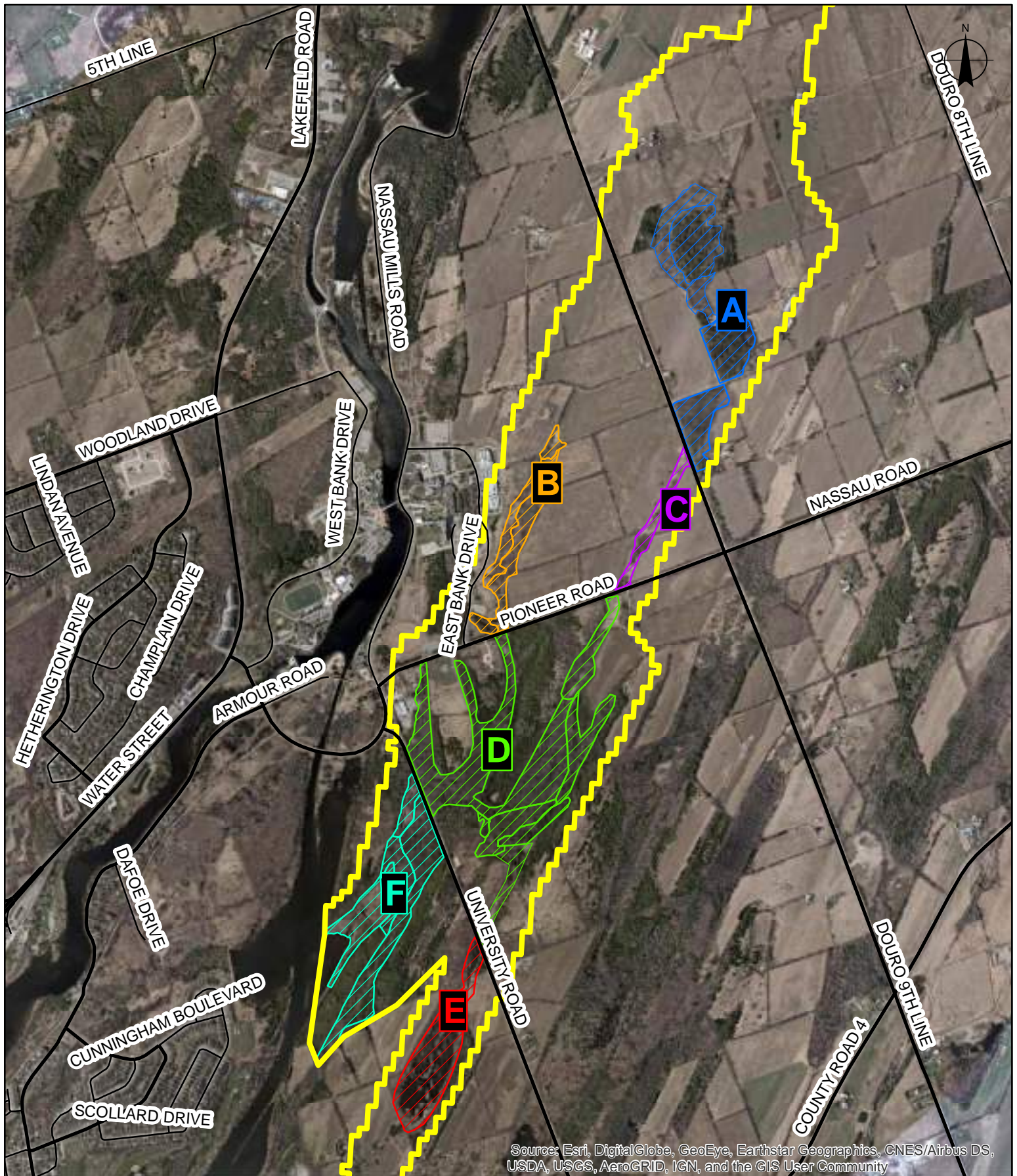
The Wetland Complex is entirely located within the jurisdiction of the Otonabee Region Conservation Authority (ORCA). The Wetland Complex is located within the City of Peterborough and Township of Douro, covering an area of approximately 76.25 ha. Zoning of the Wetland Complex lands is a mix of University / College District, Agricultural and Open Space. The location of the Wetland Complex in a regional context is included in **Figure 1 - Location Plan**.

The Wetland Complex lands are located within the following lots and concessions:

Lot 7 Concession 10 Douro, Lot 6 Concession 9, Lot 7 Concession 9, Lot 8 Concessions 10, Lot 5 Concession 10, Lot 5 Concession 9, Lot 5 Concession 11, Lot 4 Concession 11, Lot 3 Concession 11, and Lot 2 Concession 11.

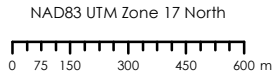
Aerial Photographs of the Wetland Complex lands are included in **Appendix A – Aerial Photographs**.

The Wetland Complex has been divided into six wetland units with multiple dominant forms as described in **Table 1 – Wetland Complex Areas and Dominant Vegetation Forms** and identified in **Appendix B - Wetland Data Summary Form**. Detailed wetland maps are provided in **Figures 2-7**.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Location Plan



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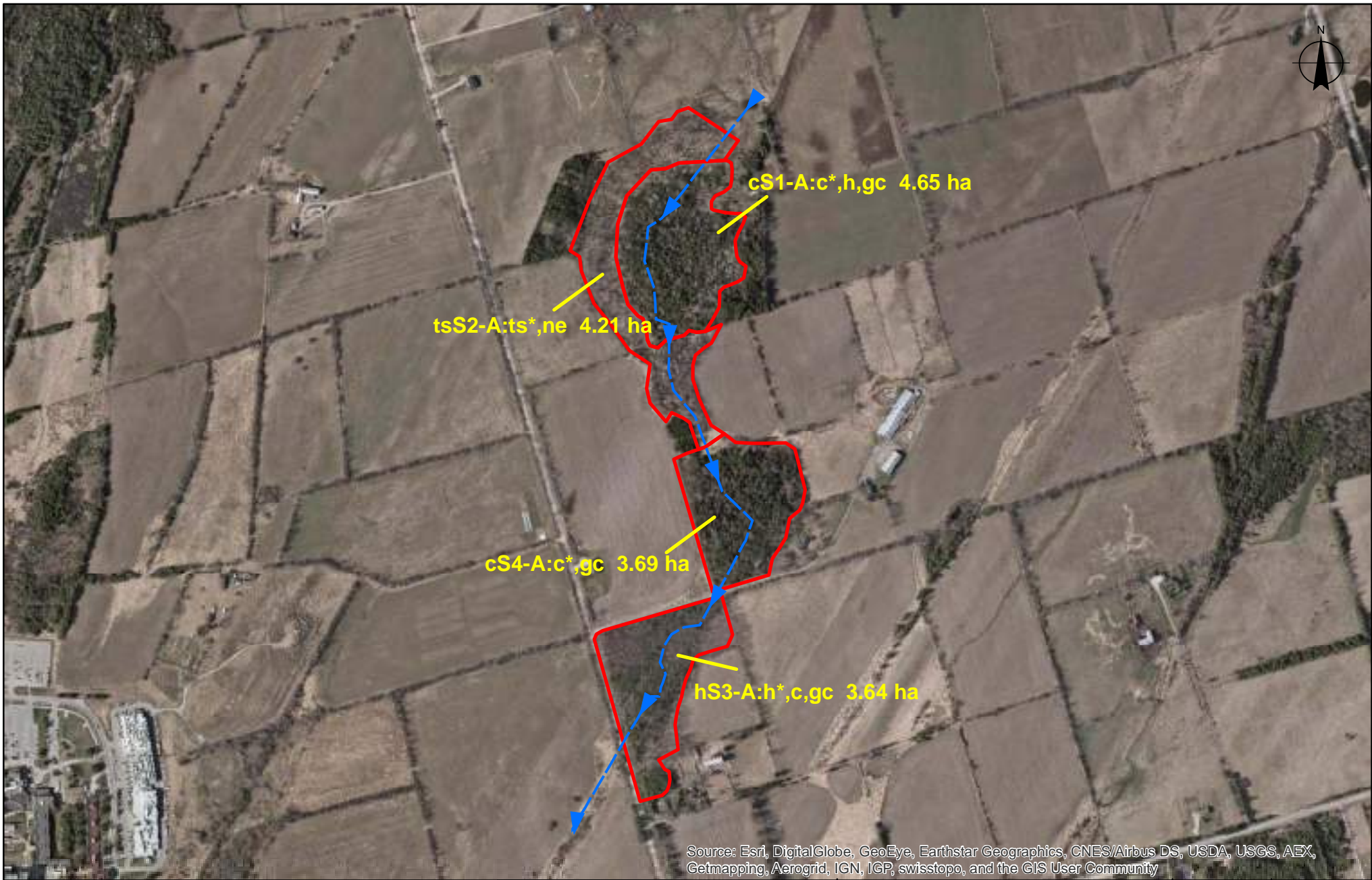
- Arterial
- Local
- Inferred Catchment Area
- Wetland Unit A
- Wetland Unit B
- Wetland Unit C
- Wetland Unit D
- Wetland Unit E
- Wetland Unit F

Drawn by:	K.P.	Scale (Horz.)	1:19,575
Checked by:	T.J.		
Manager:	M.L.	Map Date	Feb. 2018
Project No.	10739	Map File No.	Figure 1

Table 1 – Wetland Complex Areas and Dominant Vegetation Forms

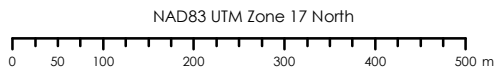
Map	Polygon Number	Area (ha)	Fractional Area	Soil Type	Wetland Type	Site Type	Vegetation Community	Dominant Form	Vegetation Forms	Number of forms	Polygon Label
A	1	4.65	0.06	Sand	Swamp	Palustrine	S1	c	c,h,gc	3	cS1-A:c*,h,gc
A	2	4.21	0.06	Sand	Swamp	Palustrine	S2	ts	ts,ne	2	tsS2-A:ts*,ne
A	3	3.64	0.05	Sand	Swamp	Palustrine	S3	h	h,c,gc	3	hS3-A:h*,c,gc
A	4	3.69	0.05	Sand	Swamp	Palustrine	S4	c	c,gc	2	cS4-A:c*,gc
B	5	0.37	0.00	Sand	Marsh	Palustrine	M1	gc	gc, ne	2	gcM1-B:gc*,ne
B	6	2.5	0.03	Sand	Swamp	Palustrine	S2	ts	ts,ne	2	tsS2-A:ts*,ne
B	7	3.31	0.04	Sand	Swamp	Palustrine	S5	ts	ts, gc, ne	3	tsS5-B:ts*,gc,ne
B	8	0.5	0.01	Sand	Swamp	Palustrine	S6	ts	ts,h,gc	3	tsS6-B:ts*,h,gc
C	9	2.3	0.03	Sand	Swamp	Palustrine	S7	ne	ne,h,ts,gc	4	neS7-C:ne*,h,ts,gc
D	10	2.51	0.03	Silt	Swamp	Palustrine	S4	c	c,gc	2	cS4-D:c*,gc
D	11	0.25	0.00	Sand	Swamp	Palustrine	S8	c	c	1	cS8-D:c*
D	12	1.39	0.02	Sand	Swamp	Palustrine	S9	c	c,h	2	cS9-D:c*,h

Map	Polygon Number	Area (ha)	Fractional Area	Soil Type	Wetland Type	Site Type	Vegetation Community	Dominant Form	Vegetation Forms	Number of forms	Polygon Label
D	13	16.21	0.21	Silt	Swamp	Palustrine	S10	h	h,ne	2	hS10-D:h*,ne
D	14	2.97	0.04	Sand	Swamp	Palustrine	S11	h	h,c,ts,gc	4	hS11-D:h*,c,ts,gc
D	15	2.47	0.03	Silt	Swamp	Palustrine	S12	ts	ts,gc	2	tsS12-D:ts*,gc
D	16	1.27	0.02	Sand	Swamp	Palustrine	S4	c	c,gc	2	cS4-D:c*,gc
E	17	8.94	0.12	Mesic	Marsh	Palustrine	M2	re	re	1	reM2-E:re*
F	18	7.69	0.10	Sand	Swamp	Palustrine	S13	h	h,gc	2	hS13-F:h*,gc
F	19	1.07	0.01	Mesic	Swamp	Palustrine	S14	ne	ne,ts	2	neS14-F:ne*,ts
F	20	2.26	0.03	Sand	Swamp	Palustrine	S15	h	h,ts,gc	3	hS15-F:h*,ts,gc
F	21	4.05	0.05	Mesic	Marsh	Palustrine	M3	re	re,su	2	reM3-F:re*,su



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Wetland Unit A



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Legend

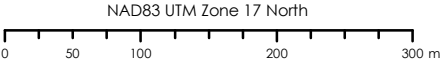
- - - Intermittent Water Flow Direction
- Wetland Community Boundary

Drawn by: K.P.	Scale (Horz.) 1:8,338
Checked by: T.J.	
Manager: M.L.	Map Date Sept. 2018
Project No. 10739	Map File No. Figure 2



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Wetland Unit B



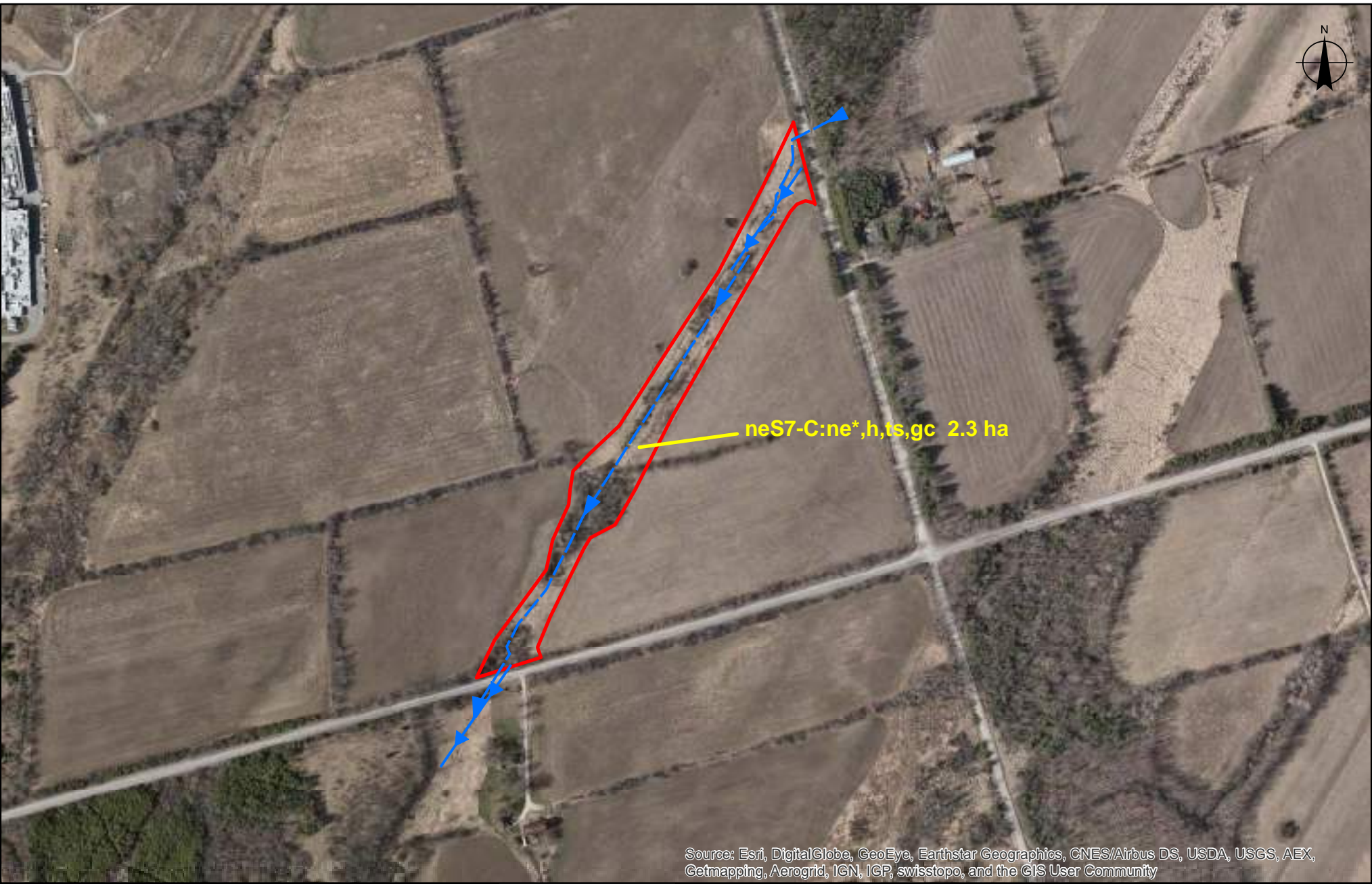
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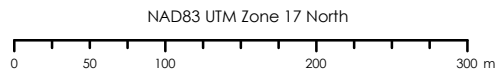
- - - Intermittent Water Flow Direction
- Wetland Community Boundary

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Manager: M.L.	Map Date Sept. 2018
Project No. 10739	Map File No. Figure 3



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Wetland Unit C



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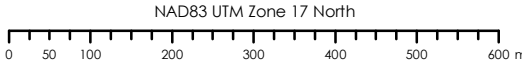
-  Intermittent Water Flow Direction
-  Wetland Boundary

Drawn by: K.P.	Scale (Horz.) 1:5,000
Checked by: T.J.	
Manager: M.L.	Map Date Sept. 2018
Project No. 10739	Map File No. Figure 4



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Wetland Unit D



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- ▭ Wetland Community Boundary
- - - Intermittent Water Flow Direction

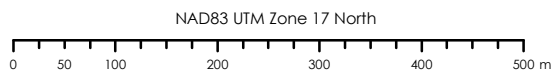
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Checked by: T.J.	
Manager: M.L.	Map Date Sept. 2018
Project No. 10739	Map File No. Figure 5



reM2-E:re*
8.94 ha

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Wetland Unit E



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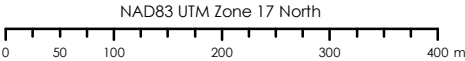
- Wetland Community Boundary
- - - Intermittent Water Flow Direction

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Checked by: T.J.	
Manager: M.L.	Map Date Sept. 2018
Project No. 10739	Map File No. Figure 6



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Wetland Unit F



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Legend

- Intermittent Water Flow Direction
- Wetland Community Boundary

Drawn by: K.P.	Scale (Horz.) 1:7,000
Checked by: T.J.	
Manager: M.L.	Map Date Sept. 2018
Project No. 10739	Map File No. Figure 7

4.0 Wetland Evaluation

The Wetland Evaluation was undertaken by certified wetland evaluators using the procedures identified in the OWES. Scoring for the Nassau Wetland Complex considers four main categories:

- Biological - The biological component summarizes ecological and biological values of the wetland.
- Social - The social component evaluates values of the wetland for recreational, economical and educational purposes.
- Hydrological - The hydrological component evaluates flood attenuation and benefits to local water quality.
- Special Features - The special features component includes scoring for significant wildlife, fish habitat, and rare species.
- Extra Information section allows the evaluator an opportunity for reporting additional information including invasive species or other notable species including Osprey (*Pandion haliaetus*).

It is important to note that a wetland evaluation is not a complete inventory of biological or physical features. Wetland community boundaries are based on inferred boundaries obtained through the evaluation of aerial imagery and biological lists. Sample areas within each wetland community are verified during field investigations. It is also possible for wetlands to change and mature over time resulting in either an increase or decrease to wetland size and functions, as well as a change in biological communities, wildlife populations and utilization of the wetland. For this reason, wetland evaluations are considered open files and subject to re-evaluation and score alteration over time.

4.1 Biological Component

The Wetland Complex contains two (2) distinct wetland types including swamp and marsh. Six (6) wetland units comprise the Wetland Complex totaling approximately 76 ha in size. Within the Six (6) wetland units, eighteen (18) communities with dominant vegetation forms were identified. The total Wetland Complex is dominated by 82% swamp with 18% of the fractional area covered by marsh. Soil composition was 54% sand, 28% silt, and 18% mesic. The wetland site type was entirely Palustrine at 100% of the fractional area.

The habitat surrounding the Wetland Complex is dominated by agricultural land and open space with buildings and parking structures located to the northeast.

See **Appendix C – Wetland Evaluation Data and Scoring Record** for scoring records and further information regarding the Biological Component.

4.2 Social Component

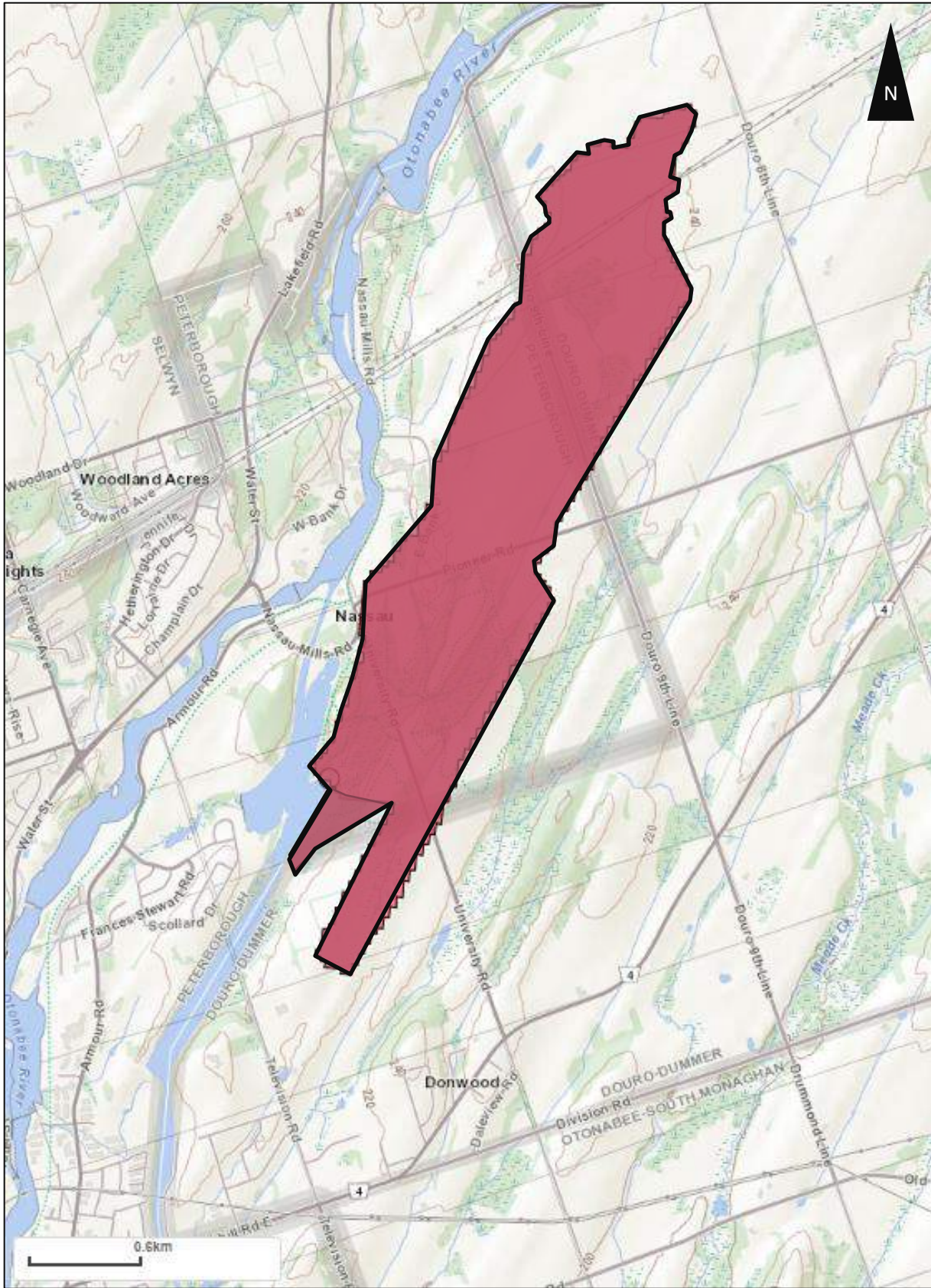
Field observations identified the presence of baitfish, and a number of fur bearing mammals observed through tracks and scat. The Wetland Complex also provides opportunities for nature enjoyment as well as ecosystem study for members of local communities, tourists, students and faculty at Trent University, as well as from the Camp Kawartha Outdoor Education Center. During the majority of the field investigations, the public was observed utilizing walking trails throughout the Wetland Complex and catchment area. A number of ongoing Trent University research projects were identified, including plant growth and forensic science studies.

The Wetland Complex is located within the City of Peterborough and close to nearby communities including Lakefield, with a major community road crossing through the Wetland Complex (Pioneer Road).

See **Appendix C - Wetland Evaluation Data and Scoring Record** for scoring records and further information regarding the Social Component.

4.3 Hydrological Component

The six (6) wetland units were identified through a Floodplain Impact Assessment for the surrounding lands (Regulatory Floodplain Impact Assessment Report, February 2018). The catchment area for local tributaries was delineated using ArcGIS 10.3.1 for desktop using the OBM stream network, City of Peterborough contours (0.5 m interval), OBM contours (5.0 m interval) and aerial photography. The catchment area is shown in **Figure 8**.



Wetland Catchment Area

An OWES evaluation for the Trent University Wetland Complex



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Drawn By	T.J.	Scale	See Scale Bar
Checked	S.F.	Date	Aug. 2018
Project No.	17-10739	Drawing File No.	Figure 8

Source: Image obtained from Google Earth. Image © 2016 Cnes/Spot Image.

The lands west of East Bank Drive and north of Pioneer Road did not contribute hydrologically to the Wetland Complex. Existing conditions pertaining to the reconstruction of Pioneer Road includes the removal of two (2) cross culverts (Reach 1, approximately 350 m east of Nassau Mills Road and Reach 2, approximately 200 m east of Nassau Mills Road). The cross culvert at the upstream end of Reach 2 has been removed. This culvert conveyed runoff from approximately 1.35 ha of land north of Pioneer Road to the Wetland Complex. The cross culvert at the upstream end of Reach 1 has also been removed. This culvert conveyed runoff from approximately 7.96 ha of land north of Pioneer Road to the tributary that flows south along the eastern edge of the Wetland Complex. These flows have been diverted west to the Otonabee River. The wetland units identified in **Figures 2-7** capture all wetland units within the Wetland Complex and the catchment area.

See **Appendix C - Wetland Evaluation Data and Scoring Record** for scoring records and further information regarding the Hydrological Component.

4.4 Special Features Component

Special features include rare species and important wildlife habitats. Over two (2) years of field investigations, and through review of reference material for the Wetland Complex and surrounding areas, 160 plant species (see **Appendix D – Plant Species Inventory**), 29 fauna species (see **Appendix E – Fauna Inventory**), and 96 avifauna species (see **Appendix F – Avifauna Inventory**) were recorded.

Provincially significant species known to occur within the Wetland Complex included Blandings Turtle (*Emydoidea blandingii*) Eastern Wood-Pewee (*Contopus virens*) and Wood Thrush (*Hylocichla mustelina*).

See **Appendix C - Wetland Evaluation Data and Scoring Record** for scoring records and further information regarding the Special Features Component.

4.5 Extra Information

Non-native invasive species observed within the Wetland Complex include Invasive Phragmites (*Phragmites australis*) and Common Buckthorn (*Rhamnus cathartica*).

The Wetland Complex has been heavily affected south of Pioneer Road on the west side of Wetland Unit D where a former building foundation, large amounts of garbage and debris, as well as fill including concrete, gravel, soil, and large boulders have impacted the wetland unit. Additional areas north of Pioneer Road and east of Trent University have been heavily affected by active agriculture efforts that are encroaching on the Wetland Unit C boundary.

5.0 Wetland Evaluation Score

The scoring of the Wetland Complex can be found below:

Biological Component:	111
Social Component:	183
Hydrological Component:	212
Special Features Component:	250
Total:	756

The data scoring record can be found in **Appendix C - Wetland Evaluation Data and Scoring Record**.

6.0 Conclusion

Based on the results of the wetland evaluation, the Wetland Complex is classified as evaluated provincially significant on the basis that a total score of more than 600 points was achieved and more than 200 points was achieved in the Special Features component. Significance of the Wetland Complex was determined through all aspects of the wetland evaluation including species at risk and provincially significant species as well as the significance for recreational activities, ecosystem study, long-term research and educational purposes.

Respectfully Submitted,

Report Author:



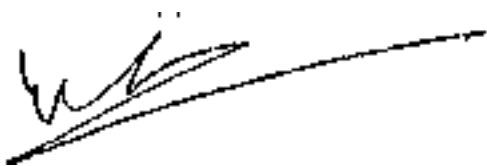
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<http://gisapplication.lrc.gov.on.ca/SourceWaterProtection/Index.html?viewer=sourceWaterProtection.SWPViewer&local=en-US>

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Appendix A

Aerial Photographs



Date of Aerial Photo:
5/10/1929

Source: Image obtained from National Air Photo Library. Imagery Dated 5/10/1929.

1929 Aerial Photograph

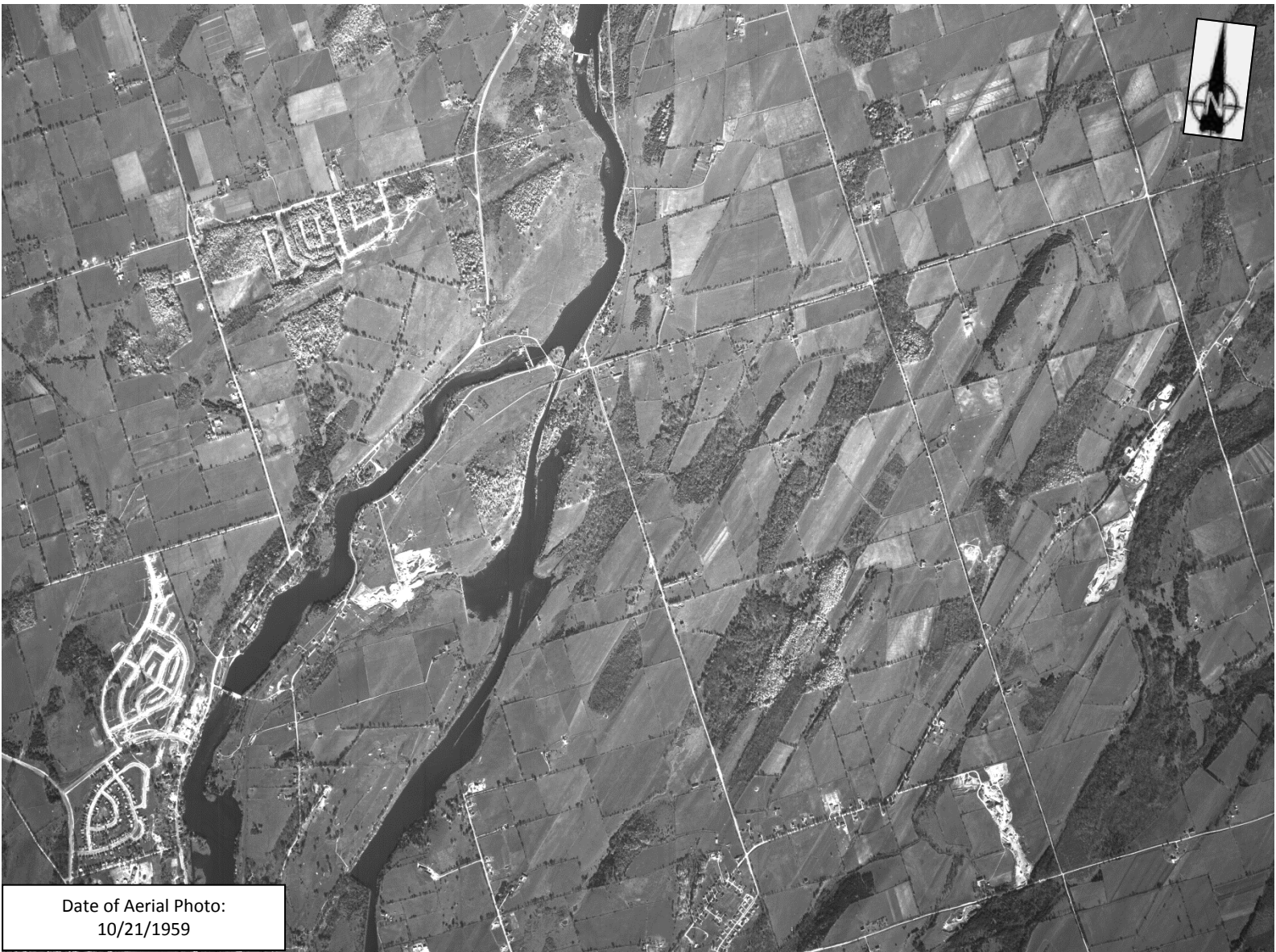
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E. wills@dmwills.com

Drawn By	KP	Scale	1-20 000
Checked	TJ	Date	Feb. 2018
Project No.	17-10739	Drawing File No.	



Date of Aerial Photo:
10/21/1959

Source: Image obtained from National Air Photo Library. Imagery Dated 10/21/1959.

1959 Aerial Photograph

Wetland Evaluation



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Drawn By	KP	Scale	1-30 000
Checked	TJ	Date	FEB. 2018
Project No.	10739	Drawing File No.	



Date of Aerial Photo:
4/29/1965

1965 Aerial Photograph

Wetland Complex



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Drawn By	KP	Scale	1-10 000
Checked	TJ	Date	FEB. 2018
Project No.	10739	Drawing File No.	

Source: Image obtained from National Air Photo Library. Imagery Dated 4/29/1965.



Date of Aerial Photo:
5/25/1978

Source: Image obtained from National Air Photo Library. Imagery Dated 5/25/1978.

1978 Aerial Photograph

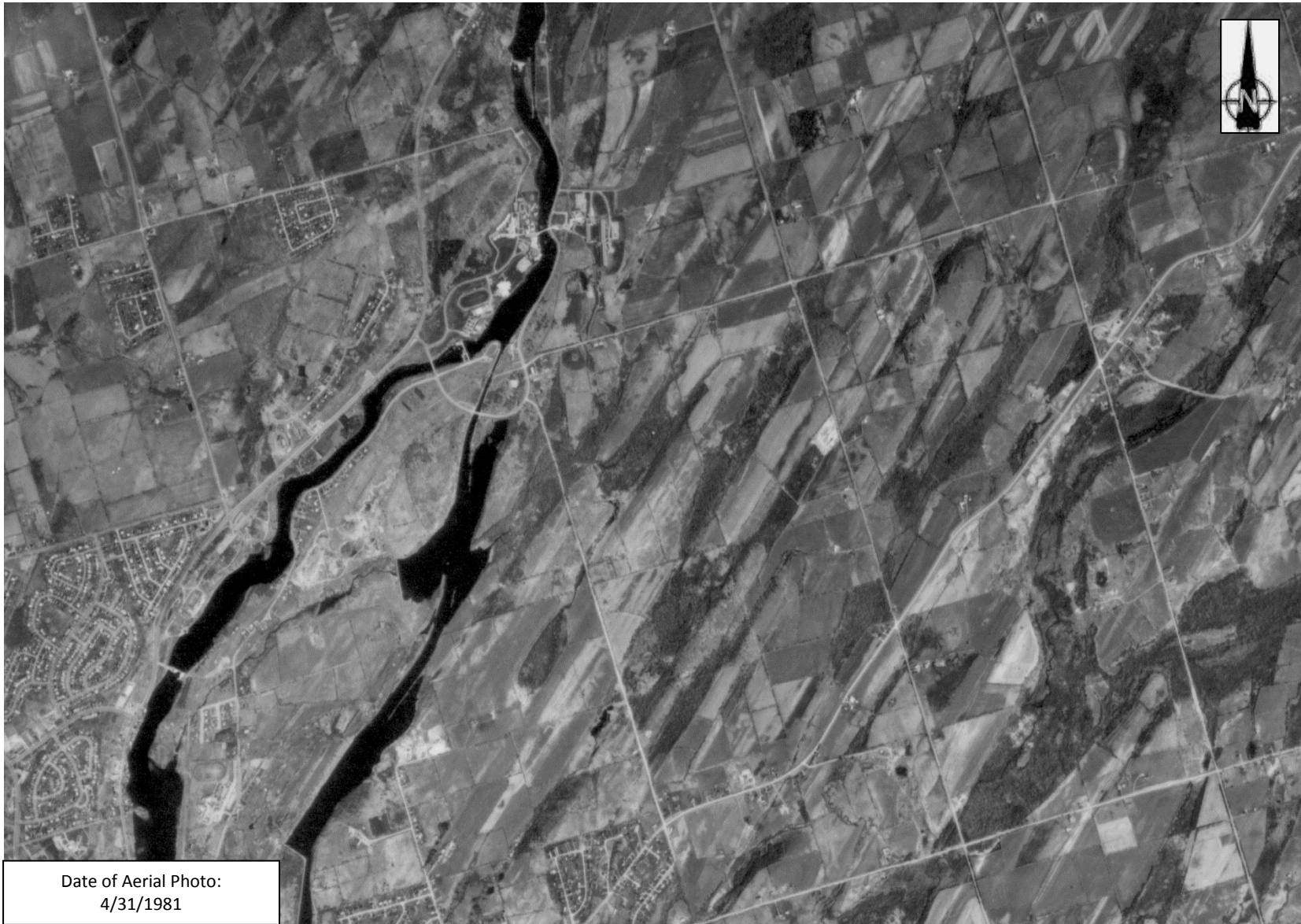
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Drawn By	KP	Scale	1-25 000
Checked	TJ	Date	FEB. 2018
Project No.	10739	Drawing File No.	



Date of Aerial Photo:
4/31/1981

Source: Image obtained from National Air Photo Library. Imagery Dated 4/31/1981.

<p>1981 Aerial Photograph</p> <p>Wetland Evaluation</p> 	<p>D.M. Wills Associates Limited 152 Jameson Drive Peterborough, Ontario Canada K9J 0B9</p>		<p>Drawn By KP</p>	<p>Scale 1-50 000</p>
	<p>P. 703.742.2297 F. 703.741.3540 E. wills@dmwills.com</p>		<p>Checked TJ</p>	<p>Date FEB. 2018</p>
			<p>Project No. 10739</p>	<p>Drawing File No.</p>

Date of Aerial Photo:
3/15/2006



2006 Aerial Photograph

Wetland Evaluation



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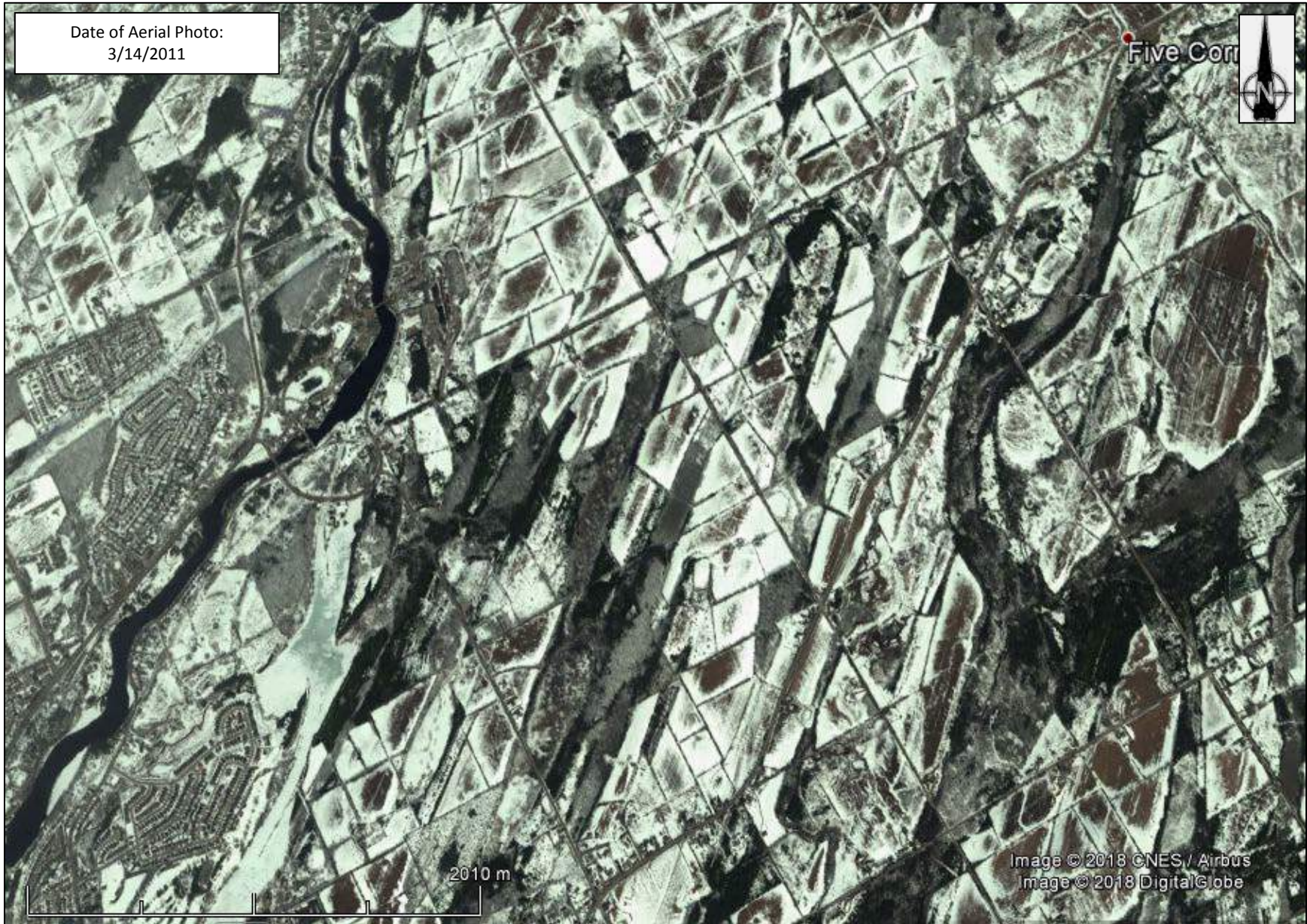
P: 703.742.2297
F: 703.741.3540
E: wills@dmwills.com

Drawn By	KP	Scale	See Scale Bar
Checked	TJ	Date	FEB. 2018
Project No.	17-10739	Drawing File No.	

Source: Image obtained from Google Earth.
Image © 2016 DigitalGlobe. Imagery Dated
3/15/2006.

Date of Aerial Photo:
3/14/2011

Five Corners



2011 Aerial Photograph

Wetland Evaluation



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Drawn By	KP	Scale	See Scale Bar
Checked	TJ	Date	FEB. 2018
Project No.	17-10739	Drawing File No.	

Source: Image obtained from Google Earth.
Image © 2016 DigitalGlobe. Imagery Dated
3/14/2011.

Date of Aerial Photo:
4/12/2012

Five Corner



2010 m

Image © 2018 CNES / Airbus
Image © 2018 DigitalGlobe

2012 Aerial Photograph

Wetland Evaluation



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Drawn By	KP	Scale	See Scale Bar
Checked	TJ	Date	FEB. 2018
Project No.	17-10739	Drawing File No.	

Source: Image obtained from Google Earth.
Image © 2016 DigitalGlobe. Imagery Dated
4/12/2012.

Date of Aerial Photo:
5/22/2015

Five Corners



2010 m

2015 Aerial Photograph

Wetland Evaluation



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Drawn By	TJ	Scale	See Scale Bar
Checked	BR	Date	FEB. 2018
Project No.	17-10739	Drawing File No.	

Source: Image obtained from Google Earth.
Image © 2016 DigitalGlobe. Imagery Dated
5/22/2015.

Date of Aerial Photo:
04/17/2017

Five Corners



2010 m

Oct. 2017 Aerial Photograph

Wetland Evaluation



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Drawn By	TJ	Scale	See Scale Bar
Checked	BR	Date	FEB. 2018
Project No.	17-10739	Drawing File No.	

Source: Image obtained from Google Earth.
ImageLandsat/ Copernicus. Imagery Dated
04/17/2017.

Date of Aerial Photo:
10/23/2014

Five Corners



Image © 2018 DigitalGlobe

2010 m

Oct. 2014 Aerial Photograph

Wetland Evaluation



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Drawn By	TJ	Scale	See Scale Bar
Checked	BR	Date	FEB. 2018
Project No.	17-10739	Drawing File No.	

Source: Image obtained from Google Earth.
Image © 2016 DigitalGlobe. Imagery Dated
10/23/2014.

Appendix B

Wetland Data Summary Form

Map Code	Field Code	GPS Coordinate	Dominant Form	Forms	# Forms	Dominant Species	Area	% Open Water			Open Water (ha)	Soil (ha)	Site Type	Fish Habitat			
								Low Est.	High Est.	Mean Est.				% Fish Habitat	Area (ha)	Habitat Type	Key Veg Group
cS1-A:c*,h,gc	1	17T 717157mE 4916213mN	c	c,h,gc	3	(Eastern White Cedar)	4.65	-	-	-	-	Sand	Swamp	-	-	-	-
tsS2-A:ts*,ne	2	17T 717150mE 4916441mN	ts	ts,ne	2	(Willow)	4.21	-	-	-	-	Sand	Swamp	-	-	-	-
hS3-A:h*,c,gc	3	17T 717166mE 4915597mN	h	h,c,gc	3	(poplar)	3.64	-	-	-	-	Sand	Swamp	-	-	-	-
cS4-A:c*,gc	4	17T 717296mE 4915847mN	c	c,gc	2	(Eastern White Cedar)	3.69	-	-	-	-	Sand	Swamp	-	-	-	-
gcM1-B:gc*,ne	5	17T 716591mE 4915441mN	gc	gc,ne	2	(hairy willow herb)	0.37	-	-	-	-	Sand	Marsh	-	-	-	-
tsS2-B:ts*,ne	6	17T 716572mE 4915361	ts	ts,ne	2	(buckthorn)	2.5	-	-	-	-	Sand	Swamp	-	-	-	-
tsS5-B:ts*,gc,ne	7	17T 716511mE 4915198mN	ts	ts,gc,ne	3	(dogwood)	3.31	-	-	-	-	Sand	Swamp	-	-	-	-
tsS6-B:ts*,h,gc	8	17T 716340mE 4914765mN	ts	ts,h,gc	3	(speckled alder)	0.5	10	10	10	.050	Sand	Swamp	10	.050	swamp	Reed Canary Grass
neS7-C:ne*,h,ts,gc	9	17T 717023mE 4915225mN	ne	ne,h,ts,gc	4	(Reed Canary Grass)	2.3	10	10	10	.222	Sand	Swamp	10	.222	swamp	Reed Canary Grass
cS4-D:c*,gc	10	17T 716312mE 4913860mN	c	c,gc	2	(white spruce)	2.51	-	-	-	-	Silt	Swamp	-	-	-	-

Map Code	Field Code	GPS Coordinate	Dominant Form	Forms	# Forms	Dominant Species	Area	% Open Water			Open Water (ha)	Soil (ha)	Site Type	Fish Habitat			
								Low Est.	High Est.	Mean Est.				% Fish Habitat	Area (ha)	Habitat Type	Key Veg Group
cS8-D:c*	11	17T 716238mE 4913942mN	c	c	1	(eastern white cedar)	0.25	-	-	-	-	Sand	Swamp	-	-	-	-
cS9-D:c*,h	12	17T 716476mE 4913908mN	c	c,h	2	(eastern white cedar)	1.39	-	-	-	-	Sand	Swamp	-	-	-	-
hS10-D:h*,ne	13	17T 716176mE 4914115mN	h	h,ne	2	(silver maple)	16.21	-	-	-	-	Silt	Swamp	-	-	-	-
hS11-D:h*,c,ts,gc	14	17T 716708mE 4914346mN	h	h,c,ts,gc	4	(Black Ash)	2.97	-	-	-	-	Sand	Swamp	-	-	-	-
tsS12-D:ts*,gc	15	17T 716769mE 4914661mN	ts	ts,gc	2	(grey dogwood)	2.47	-	-	-	-	Silt	Swamp	-	-	-	-
cS4-D:c*,gc	16		c	c,gc	2	(White Spruce)	1.27					Sand	Swamp				
reM2-E:re*	17	17T 716125mE 4912998mN	re	re	1	(cattails)	8.94	75	75	75	6.71	Mesic	Marsh	75	6.71	Low Marsh	Cattails
hS13-F:h*,gc	18		h	h,gc	2	Silver Maple	7.69					Sand	Swamp				
neS14-F:ne*,ts	19	17T 716025mE 4914055mN	ne	ne,ts	2	(reed canary grass)	1.07	10	10	10	.107	Mesic	Swamp	10	.11	swamp	Reed Canary Grass
hS15-F:h*,ts,gc	20	17T 716098mE 4913941mN	h	h,ts,gc	3	(Black Ash / Poplar)	2.26	-	-	-	-	Sand	Swamp	-	-	-	-
reM3-F:re*,su	21	17T 715868mE 4913649mN	re	re,su	2	(cattails)	4.05	20	20	20	.810	Mesic	Marsh	20	.810	Low Marsh	Cattails

Appendix C

Wetland Evaluation Data and Scoring Record

WETLAND EVALUATION DATA AND SCORING RECORD

- i) Wetland Name: _____
- ii) MNR Administrative Region: _____
MNR District: _____
MNR Area Office: _____
- iii) Conservation Authority Jurisdiction: _____
- iv) County of Regional Municipality: _____
- v) Township/Geographic Twp and/or Local Municipality: _____
- vi) Lots and Concessions: _____
- vii) Ecodistrict/Ecoregion: _____
- viii) Map and Air Photo References:
- a) Latitude: _____ Longitude: _____
- b) UTM grid reference:
Zone: _____ Block: _____ E: _____ N: _____
- c) National Topographic Series:
Map name(s): _____
Map number(s): _____
Edition: _____
Scale: _____
- d) Aerial photographs:
Date(s) photo taken: _____ Scale: _____
Flight & plate numbers: _____

- e) Ontario Base Map numbers & scale: _____

ix) Wetland Size
(circle appropriate category, a or b)

a) Single contiguous wetland area

Total wetland size = _____ hectares

b) Wetland complexed comprised of _____ individual wetlands:

Wetland Unit No. 1 = _____ hectares

Wetland Unit No. 2 = _____ hectares

Wetland Unit No. 3 = _____ hectares

Wetland Unit No. 4 = _____ hectares

Wetland Unit No. 5 = _____ hectares

Wetland Unit No. 6 = _____ hectares

Wetland Unit No. 7 = _____ hectares

Wetland Unit No. 8 = _____ hectares

Wetland Unit No. 9 = _____ hectares

Wetland Unit No.10 = _____ hectares

(Attach additional sheet if necessary)

Total wetland size = _____ hectares *(add together size of each unit)*

Documentation requirements for evaluated wetland complexes *(attach additional sheet if necessary):*

- a statement of rationale for identifying a wetland complex;
- a statement of rationale for identifying any wetland complex less than 2 ha in total size;
- a statement of rationale for any vegetation community less than 0.5 ha in size;
- adherence to the wetland complexing rules (750 m; “watershed rule”; lacustrine wetlands); and
- written documentation of the reasons for including wetland units smaller than 2 ha.

Vegetation Form	FA
h	
c	
dh	
dc	
ts	
ls	
ds	
gc	
m	
ne	
be	
re	
ff	
f	
su	
u	

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

1.1.1 Growing Degree-Days/Soils (max: 30 pts) Refer to page 43 of manual for further explanation.

1. Determine the correct GDD value for your wetland (use Figure 5).
2. Circle the appropriate GDD value from the evaluation table below.
3. Determine the Fractional Area (FA) of the wetland for each soil type.
4. Multiply the fractional area of each soil type by the applicable score-factor in the evaluation table.
5. Sum the scores for each soil type to obtain the final score (maximum score is 30 points).

NOTE: *In wetland complexes the evaluator should aim at determining the fractional area occupied by the categories for the complex as a whole.*

Growing Degree-Days	Clay-Loam	Silt-Marl	Limestone	Sand	Humic-Mesic	Fibric	Granite
	<2800	15	13	11	9	8	7
2800-3200	18	15	13	11	9	8	7
3200-3600	22	18	15	13	11	9	7
3600-4000	26	21	18	15	13	10	8
>4000	30	25	20	18	15	12	8

Soil Type	FA of wetland in soil type	Enter appropriate score-factor from above table	
Clay/Loam		X	=
Silt/Marl:		X	=
Limestone:		X	=
Sand:		X	=
Humic/Mesic:		X	=
Fibric:		X	=
Granite:		X	=
Total			

GDD/Soils Score (maximum 30 points) _____

1.1.2 Wetland Type

(Fractional Area = area of wetland type/total wetland area)

	Fractional Area		Score
Bog		x 3 =	
Fen		x 6 =	
Swamp		x 8 =	
Marsh		x 15 =	
Total		=	

Wetland Type Score (maximum 15 points) _____

1.1.3 Site Type

(Fractional Area = area of site type/total wetland area)

	Fractional Area		Score
Isolated		x 1 =	
Palustrine (permanent or intermittent flow)		x 2 =	
Riverine		x 4 =	
Riverine (at rivermouth)		x 5 =	
Lacustrine (at rivermouth)		x 5 =	
Lacustrine (with barrier beach)		x 3 =	
Lacustrine (exposed to lake)		x 2 =	
Total		=	

Site Type Score (maximum 5 points) _____

1.2 BIODIVERSITY

1.2.1 Number of Wetland Types

(Check only one)

<input type="checkbox"/>	One	=	9 points
<input type="checkbox"/>	Two	=	13
<input type="checkbox"/>	Three	=	20
<input type="checkbox"/>	Four	=	30

Number of Wetland Types Score
(maximum 30 points) _____

1.2.2. Vegetation Communities

Use the data sheet provided in Appendix 4 to record and score vegetation communities (the completed form must be attached to this data record)

Scoring (circle only one option for each of the columns below):

Total # of communities with 1-3 forms	Total # of communities with 4-5 forms	Total # of communities with 6 or more forms
1 = 1.5 pts	1 = 2 pts	1 = 3 pts
2 = 2.5	2 = 3.5	2 = 5
3 = 3.5	3 = 5	3 = 7
4 = 4.5	4 = 6.5	4 = 9
5 = 5	5 = 7.5	5 = 10.5
6 = 5.5	6 = 8.5	6 = 12
7 = 6	7 = 9.5	7 = 13.5
8 = 6.5	8 = 10.5	8 = 15
9 = 7	9 = 11.5	9 = 16.5
10 = 7.5	10 = 12.5	10 = 18
11 = 8	11 = 13	11 = 19
+ 0.5 for each additional community	+ 0.5 for each additional community	+ 1.0 for each additional community
=	=	=

Vegetation Communities Score
(maximum 45 points) _____

1.2.3 Diversity of Surrounding Habitat

Check all appropriate items. Only habitat within 1.5 km of the wetland boundary and at least 0.5 ha in size are to be scored.

<input type="checkbox"/>	row crop
<input type="checkbox"/>	pasture
<input type="checkbox"/>	abandoned agricultural land
<input type="checkbox"/>	deciduous forest
<input type="checkbox"/>	coniferous forest
<input type="checkbox"/>	mixed forest*
<input type="checkbox"/>	abandoned pits and quarries
<input type="checkbox"/>	open lake or deep river
<input type="checkbox"/>	fence rows with deep cover, or shelterbelts
<input type="checkbox"/>	terrain appreciably undulating, hilly or with ravines
<input type="checkbox"/>	creek flood plain

* "Mixed forest" is defined as either 25% coniferous trees distributed singly or in clumps in deciduous forest, or 25% deciduous trees distributed singly or in clumps in coniferous forest. Note that Forest Resource Inventory (FRI) maps can be misleading since 25% conifer within a unit could be entirely concentrated around a lake.

Score 1 point for each feature checked, up to a maximum of 7 points.

Diversity of Surrounding Habitat Score
(maximum 7 points) _____

1.2.4 Proximity to Other Wetlands

Check highest appropriate category. (Note: if the wetland is lacustrine, score option #1 at 8 points).

✓	Points
<input type="checkbox"/>	Hydrologically connected by surface water to other wetlands (different dominant wetland type), or to open lake or deep river within 1.5 km 8
<input type="checkbox"/>	Hydrologically connected by surface water to other wetlands (same dominant wetland type) within 0.5 km 8
<input type="checkbox"/>	Hydrologically connected by surface water to other wetlands (different dominant wetland type), or to open lake or deep river from 1.5 to 4 km away 5
<input type="checkbox"/>	Hydrologically connected by surface water to other wetlands (same dominant wetland type) from 0.5 to 1.5 km away 5
<input type="checkbox"/>	Within 0.75 km of other wetlands (different dominant wetland type) or open water body, but not hydrologically connected by surface water 5
<input type="checkbox"/>	Within 1 km of other wetlands, but not hydrologically connected by surface water 2
<input type="checkbox"/>	No wetland within 1 km 0

Name and distance (from wetland) of wetlands/waterbodies scored above:

Proximity to other Wetlands Score
(maximum 8 points) _____

1.2.5 Interspersion

Number of Intersections = _____

✓	Number of Intersections (Check one only)	Points
<input type="checkbox"/>	26 or less	= 3
<input type="checkbox"/>	27 to 40	= 6
<input type="checkbox"/>	41 to 60	= 9
<input type="checkbox"/>	61 to 80	= 12
<input type="checkbox"/>	81 to 100	= 15
<input type="checkbox"/>	101 to 125	= 18
<input type="checkbox"/>	126 to 150	= 21
<input type="checkbox"/>	151 to 175	= 24
<input type="checkbox"/>	176 to 200	= 27
<input type="checkbox"/>	>200	= 30

Interspersion Score (maximum 30 points) _____

1.2.6 Open Water Types

NOTE: this attribute is only to be scored for permanently flooded open water within the wetland (adjacent lakes do not count). Check one option only.

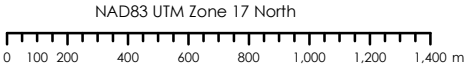
✓	Open Water Type	Characteristic	Points
<input type="checkbox"/>	Type 1	Open water occupies < 5 % of wetland area	= 8
<input type="checkbox"/>	Type 2	Open water occupies 5-25% of wetland (occurring in central area)	= 8
<input type="checkbox"/>	Type 3	Open water occupies 5-25% (occurring in various-sized ponds, dense patches of vegetation or vegetation in diffuse stands)	= 14
<input type="checkbox"/>	Type 4	Open water occupies 26-75% of wetland (occurring in a central area)	= 20
<input type="checkbox"/>	Type 5	Open water occupies 26-75% of wetlands (small ponds and embayments are common)	= 30
<input type="checkbox"/>	Type 6	Open water occupies 76%-95% of wetland (occurring in large central area; vegetation is peripheral)	= 8
<input type="checkbox"/>	Type 7	Open water occupies 76-95% of wetland (vegetation in patches or diffuse open stands)	= 14
<input type="checkbox"/>	Type 8	Open water occupies more than 95% of wetland area	= 3
<input type="checkbox"/>	No open water		= 0

Open Water Type Score (maximum 30 points) _____



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Wetland Interspersion Map



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Legend

- Interspersion
- Inferred Wetland Community Boundary

Drawn by: K.P.	Scale (Horz.) 1:25,000
Checked by: T.J.	
Manager: M.L.	Map Date Sept. 2018
Project No. 10739	Map File No.

1.3 SIZE (BIOLOGICAL COMPONENT)

Total Size of Wetland = _____ ha

Sum of scores from Biodiversity Subcomponent

1.2.1
 + 1.2.2
 + 1.2.3
 + 1.2.4
 + 1.2.5
 + 1.2.6

Circle the appropriate score from the table below.

		Total Score for Biodiversity Subcomponent									
		<37	37-47	48-60	61-72	73-84	85-96	97-108	109-120	121-132	>132
Wetland size (ha)	<20 ha	1	5	7	8	9	17	25	34	43	50
	20-40	5	7	8	9	10	19	28	37	46	50
	41-60	6	8	9	10	11	21	31	40	49	50
	61-80	7	9	10	11	13	23	34	43	50	50
	81-100	8	10	11	13	15	25	37	46	50	50
	101-120	9	11	13	15	18	28	40	49	50	50
	121-140	10	13	15	17	21	31	43	50	50	50
	141-160	11	15	17	19	23	34	46	50	50	50
	161-180	13	17	19	21	25	37	49	50	50	50
	181-200	15	19	21	23	28	40	50	50	50	50
	201-400	17	21	23	25	31	43	50	50	50	50
	401-600	19	23	25	28	34	46	50	50	50	50
	601-800	21	25	28	31	37	49	50	50	50	50
	801-1000	23	28	31	34	40	50	50	50	50	50
	1001-1200	25	31	34	37	43	50	50	50	50	50
	1201-1400	28	34	37	40	46	50	50	50	50	50
	1401-1600	31	37	40	43	49	50	50	50	50	50
	1601-1800	34	40	43	46	50	50	50	50	50	50
	1801-2000	37	43	47	49	50	50	50	50	50	50
>2000	40	46	50	50	50	50	50	50	50	50	

Size Score (Biological Component)
 (maximum 50 points) _____

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

2.1.1 Wood Products

Check the option that best reflects the total area (ha) of forested wetland (i.e., areas where the dominant vegetation form is h or c). Note that this is the area of all the forested vegetation communities, not total wetland size. Do not include areas where harvest is not permitted. Check only one option.

Area of wetland used for scoring 2.1.1: _____

<input type="checkbox"/>	< 5 ha	= 0 pts
<input type="checkbox"/>	5 - 25 ha	= 3
<input type="checkbox"/>	26 - 50 ha	= 6
<input type="checkbox"/>	51 - 100 ha	= 9
<input type="checkbox"/>	101 - 200 ha	= 12
<input type="checkbox"/>	> 200 ha	= 18

Source of information:

Wood Products Score (maximum 18 points) _____

2.1.2 Wild Rice

Check only one.

<input type="checkbox"/>	Present (min. size 0.5 ha)	= 6 pts
<input type="checkbox"/>	Absent	= 0
<input type="checkbox"/>	Harvest not permitted	= 0

Source of information:

Wild Rice Score (maximum 6 points) _____

2.1.3 Commercial Baitfish

Check only one.

<input type="checkbox"/>	Present	= 12 pts
<input type="checkbox"/>	Absent	= 0
<input type="checkbox"/>	Fishing not permitted	= 0

Source of information:

Commercial Fish Score (maximum 12 points) _____

2.1.4 Furbearers

Only species recognized as furbearers under the Fish & Wildlife Conservation Act may be scored here. Score 3 points for each furbearer species listed, up to a maximum of 12 points. Score 0 points if trapping is prohibited.

Name of furbearer	Source of information
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____

Furbearer Score (maximum 12 points) _____

2.2 RECREATIONAL ACTIVITIES

Sources of information and reasons for scoring a wetland under high or moderate use below, must be included below.

Circle one score for each of the activities listed. Score is cumulative – add score for hunting, nature enjoyment and fishing together for final score.

		Type of Wetland-Associated Use		
		Hunting	Nature Enjoyment/ Ecosystem Study	Fishing
Intensity of Use	High	40 points	40 points	40 points
	Moderate	20	20	20
	Low	8	8	8
	Not Possible/ No evidence	0	0	0

Sources of information (include evidence/criteria forming basis for score and any relevant reference used to obtain that information):

- e.g., Hunting scored at 20 points: 5 hunting blinds observed; hunters using area frequently monitored for compliance (source: D. Black, MNR Conservation Officer)

Hunting: _____

Nature: _____

Fishing: _____

Recreational Activities Score
(maximum 80 points) _____

2.3 LANDSCAPE AESTHETICS

2.3.1 Distinctness

Check only one.

<input type="checkbox"/>	Clearly Distinct	= 3 pts
<input type="checkbox"/>	Indistinct	= 0

Landscape Distinctness Score
(maximum 3 points) _____

2.3.2 Absence of Human Disturbance

Check only one.

<input type="checkbox"/>	Human disturbances absent or nearly so	= 7 pts
<input type="checkbox"/>	One or several localized disturbances	= 4
<input type="checkbox"/>	Moderate disturbance; localized water pollution	= 2
<input type="checkbox"/>	Wetland intact but impairment of ecosystem quality intense in some areas	= 1
<input type="checkbox"/>	Extreme ecological degradation, or water pollution severe and widespread	= 0

Details regarding type, extent and location of disturbance scored:

Source of information:

Absence of Human Disturbance Score
(maximum 7 points) _____

2.4 EDUCATION AND PUBLIC AWARENESS

2.4.1 Educational Uses

Check highest appropriate category.

<input type="checkbox"/>	Frequent	= 20 pts
<input type="checkbox"/>	Infrequent	= 12
<input type="checkbox"/>	No visits	= 0

Details regarding the type and frequency of education uses scored above:

Source of information:

Educational Uses Score (maximum 20 points) _____

2.4.2 Facilities and Programs

Check all appropriate options, score highest category checked.

<input type="checkbox"/>	Staffed interpretation centre	= 8 pts
<input type="checkbox"/>	No interpretation centre or staff, but a system of self-guiding trails or brochures available	= 4
<input type="checkbox"/>	Facilities such as maintained paths (e.g., woodchips), boardwalks, boat launches or observation towers, but no brochures or other interpretation	= 2
<input type="checkbox"/>	No facilities or programs	= 0

Additional Notes/Comments:

Source of information:

Facilities and Programs Score
(maximum 8 points) _____

2.4.3 Research and Studies

Check all that apply; score highest category checked.

<input type="checkbox"/>	Long term research has been done	= 12 pts
<input type="checkbox"/>	Research papers published in refereed scientific journal or as a thesis	= 10
<input type="checkbox"/>	One or more (non-research) reports have been written on some aspect of the wetland's flora, fauna, hydrology, etc.	= 5
<input type="checkbox"/>	No research or reports	= 0

List of reports, publications, research studies etc. scored above:

Research and Studies Score
(maximum 12 points) _____

2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT

Name of Settlement: _____

Distance of wetland from settlement: _____

Population of settlement: _____ (Source: _____)

Circle only the highest score applicable

	population >10,000	population 2,500-10,000	population <2,500 or cottage community
within or adjoining settlement	40 points	26 points	16 points
0.5 to 10 km from settlement	26	16	10
10 to 60 km from settlement	12	8	4
>60 km from nearest settlement	5	2	0

Proximity to Human Settlement Score
(maximum 40 points) _____

2.6 OWNERSHIP

FA of wetland held by or held under a legal contract by a conservation body (as defined by the <i>Conservation Land Act</i>) for wetland protection	_____ x 10 = _____
FA of wetland occurring in provincially or nationally protected areas (e.g., parks and conservation reserves)	_____ x 10 = _____
FA of wetland area in Crown/public ownership, not as above	_____ x 8 = _____
FA of wetland area in private ownership, not as above	_____ x 4 = _____

Source of information: _____

Ownership Score (maximum 10 points) _____

2.7 SIZE (SOCIAL COMPONENT)

Total Size of Wetland = _____ ha Sum of scores from Subcomponents 2.1, 2.2, and 2.5 = _____

Circle the appropriate score from the table below.

Total for Size Dependent Social Features										
	<31	31-45	46-60	61-75	76-90	91-105	106-120	121-135	136-150	>150
<2 ha	1	2	4	8	10	12	14	14	14	15
2-4	1	2	4	8	12	13	14	14	15	16
5-8	2	2	5	9	13	14	15	15	16	16
9-12	3	3	6	10	14	15	15	16	17	17
13-17	3	4	7	10	14	15	16	16	17	17
18-28	4	5	8	11	15	16	16	17	17	18
29-37	5	7	10	13	16	17	18	18	19	19
38-49	5	7	10	13	16	17	18	18	19	20
50-62	5	8	11	14	17	17	18	19	20	20
63-81	5	8	11	15	17	18	19	20	20	20
82-105	6	9	11	15	18	18	19	20	20	20
106-137	6	9	12	16	18	19	20	20	20	20
138-178	6	9	13	16	18	19	20	20	20	20
179-233	6	9	13	16	18	20	20	20	20	20
234-302	7	9	13	16	18	20	20	20	20	20
303-393	7	9	14	17	18	20	20	20	20	20
394-511	7	10	14	17	18	20	20	20	20	20
512-665	7	10	14	17	18	20	20	20	20	20
666-863	7	10	14	17	19	20	20	20	20	20
864-1123	8	12	15	17	19	20	20	20	20	20
1124-1460	8	12	15	17	19	20	20	20	20	20
1461-1898	8	13	15	18	19	20	20	20	20	20
1899-2467	8	14	16	18	20	20	20	20	20	20
>2467	8	14	16	18	20	20	20	20	20	20

Total Size Score (Social Component) _____

2.8 ABORIGINAL VALUES AND CULTURAL HERITAGE

Either or both Aboriginal or Cultural Values may be scored. However, the maximum score permitted for 2.8 is 30 points.

Full documentation of sources must be attached to the data record.

2.8.1 Aboriginal Values

<input type="checkbox"/>	Significant	= 30 pts
<input type="checkbox"/>	Not Significant	= 0
<input type="checkbox"/>	Unknown	= 0

Additional Comments/Notes:

2.8.2 Cultural Heritage

<input type="checkbox"/>	Significant	= 30 pts
<input type="checkbox"/>	Not Significant	= 0
<input type="checkbox"/>	Unknown	= 0

Additional Comments/Notes:

Aboriginal Values/Cultural Heritage Score
(maximum 30 points) _____

3.0 HYDROLOGICAL COMPONENT

3.1 FLOOD ATTENUATION

Check one of the following four options.

- If wetland is a single contiguous coastal wetland, ⇒ score 0 points for this section.
- If all wetland units of a wetland complex are coastal wetland units, ⇒ score 0 points for this section.
- If wetland or wetland complex is entirely isolated in site type, ⇒ score 100 points automatically.
- Wetland not as above – proceed through 'steps' A through L below.

- (A) Total wetland area = _____ ha
- (B) Size of wetland's catchment = _____ ha
- (C) Size of other detention areas in catchment = _____ ha
- (D) Size of 'isolated' portions of wetland = _____ ha (FA = _____)
- (E) Size of coastal units of wetland complex = _____ ha (FA = _____)

Points for Isolated Portion of Wetland (if not applicable, enter '0'):

(F) (FA of D) x 100 pts = _____ pts

Points for Coastal Portion(s) of Wetland (if not applicable, enter '0'):

(G) (FA of E) x 100 pts = _____ pts

(H) Size of wetland minus the isolated and coastal portions = (A - D - E) = _____ ha

(I) Number of points available to score 'rest' of wetland = (100 - F - G) = _____ pts

(J) Total area of upstream detention areas = (A + C) = _____ ha

(K) Upstream Detention Factor = ((H/J) x 2) = _____ (maximum 1.0)

(L) Attenuation Factor = ((H/B) x 10) = _____ (maximum 1.0)

Flood Attenuation Final Score = (((K + L) / 2) x I) + F = _____

Flood Attenuation Score (maximum 100 points) _____

3.2 WATER QUALITY IMPROVEMENT

3.2.1 Short Term Water Quality Improvement

Step 1: Determination of maximum initial score

<input type="checkbox"/>	Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5A)
<input type="checkbox"/>	All other wetlands (Go through Steps 2, 3, 4, and 5B)

Step 2: Determination of Watershed Improvement Factor (WIF)

Calculation of WIF is based on the fractional area (FA) of each site type that makes up the total area of the wetland.

(FA = area of site type/total area of wetland)

FA of isolated wetland	=	x 0.5 =	
FA of riverine wetland	=	x 1.0 =	
FA of palustrine wetland with no inflow	=	.12 x 0.7 =	
FA of palustrine wetland with inflows	=	.88 x 1.0 =	
FA of lacustrine on lake shoreline	=	x 0.2 =	
FA of lacustrine at lake inflow or outflow	=	x 1.0 =	

Sum (WIF cannot exceed 1.0) _____

Step 3: Determination of Catchment Land Use Factor (LUF)

(Choose the first category that fits upstream land use in the catchment.)

<input type="checkbox"/>	Over 50% agricultural and/or urban	= 1.0
<input type="checkbox"/>	Between 30 and 50% agricultural and/or urban	= 0.8
<input type="checkbox"/>	Over 50% forested or other natural vegetation	= 0.6

LUF (maximum 1.0) _____

Step 4: Determination of Pollutant Uptake Factor (PUF)

Calculation of PUF is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community; except where dead trees or shrubs dominate. In that case base assessment on the dominant live vegetation type.

(FA = area of vegetation type/total area of wetland)

FA of wetland with live trees, shrubs, herbs or mosses (c, h, ts, ls, gc, m)	= 0.79 x	0.75 =	
FA of wetland with emergent, submergent or floating vegetation (re, be, ne, su, f, ff)	= 0.21 x	1.0 =	
FA of wetland with little or no vegetation (u)	= x	0.5 =	

Sum (PUF cannot exceed 1.0) _____

Step 5: Calculation of final score

<input type="checkbox"/>	Wetland on defined 5 major lakes or 5 major rivers	0
<input type="checkbox"/>	All other wetlands – calculate as follows	
	Initial score	60
	Watershed Improvement Factor (WIF)	_____
	Land Use Factor (LUF)	_____
	Pollutant Uptake Factor (PUF)	_____
	Final score: $60 \times \text{WIF} \times \text{LUF} \times \text{PUF} =$	_____

Short Term Water Quality Improvement Score
(maximum 60 points) _____

3.2.2 Long Term Nutrient Trap

Step 1:

<input type="checkbox"/>	Wetland on defined 5 major lakes or 5 major rivers = 0 points
<input type="checkbox"/>	All other wetlands (Proceed to Step 2)

Step 2: Choose only one of the following settings that best describes the wetland being evaluated

<input type="checkbox"/>	Wetland located in a river mouth	= 10 pts
<input type="checkbox"/>	Wetland is a bog, fen, or swamp with more than 50% of the wetland being covered with organic soil	= 10
<input type="checkbox"/>	Wetland is a bog, fen, or swamp with less than 50% of the wetland being covered with organic soil	= 3
<input type="checkbox"/>	Wetland is a marsh with more than 50% of the wetland covered with organic soil	= 3
<input type="checkbox"/>	None of the above	= 0

Long Term Nutrient Trap Score
(maximum 10 points) _____

3.2.3 Groundwater Discharge

Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points, assign the maximum score of 30). Note: for wetland type, wetland type scored does not have to be the dominant type in the wetland.

		Potential for Discharge		
		None to Little	Some	High
Wetland Characteristics	Wetland type	Bog = 0	Swamp/Marsh = 2	Fen = 5
	Topography	Flat/rolling = 0	Hilly = 2	Steep = 5
	Wetland area:	Large (>50%) = 0	Moderate (5-50%) = 2	Small (<5%) = 5
	Upslope catchment area			
	Lagg development	None found = 0	Minor = 2	Extensive = 5
	Seeps	None = 0	≤ 3 seeps = 2	> 3 seeps = 5
	Surface marl deposits	None = 0	≤ 3 sites = 2	> 3 sites = 5
	Iron precipitates	None = 0	≤ 3 sites = 2	> 3 sites = 5
	Located within 1 km of a major aquifer	N/A = 0	N/A = 0	Yes = 10 No = 0

Additional Comments/Notes:

Groundwater Discharge Score
(maximum 30 points) _____

3.3 CARBON SINK

Check only one of the following:

<input type="checkbox"/>	Bog, fen or swamp with more than 50% coverage by organic soil	= 5 pts
<input type="checkbox"/>	Bog, fen or swamp with between 10 to 50% coverage by organic soil	= 2
<input type="checkbox"/>	Marsh with more than 50% coverage by organic soil	= 3
<input type="checkbox"/>	Wetlands not in one of the above categories	= 0

Source of information:

Carbon Sink Score
(maximum 5 points) _____

3.4 SHORELINE EROSION CONTROL

From the wetland vegetation map determine the dominant vegetation type within the erosion zone for lacustrine and riverine site type areas only. Score according to the factors listed below.

Step 1:

<input type="checkbox"/>	Wetland entirely isolated or palustrine	= 0 pts
<input type="checkbox"/>	Any part of the wetland is riverine or lacustrine	= Go to step 2

Step 2: Choose the one characteristic that best describes the shoreline vegetation (see page 109 for description of "shoreline".)

<input type="checkbox"/>	Trees and shrubs	= 15 pts
<input type="checkbox"/>	Emergent vegetation	= 8
<input type="checkbox"/>	Submergent vegetation	= 6
<input type="checkbox"/>	Other shoreline vegetation	= 3
<input type="checkbox"/>	No vegetation	= 0

Shoreline Erosion Control Score
(maximum 15 points) _____

3.5 GROUNDWATER RECHARGE

3.5.1 Site Type

Wetland > 50% lacustrine (by area) or located on one of the five major rivers	=	0 pts
Wetland not as above. Calculate final score as follows:		
■ FA of isolated or palustrine wetland	=	x 50 =
■ FA of riverine wetland	=	x 20 =
■ FA of lacustrine wetland (not dominant site type)	=	x 0 =

Groundwater Recharge/Wetland Site Type Score
(maximum 50 points) _____

3.5.2 Soil Recharge Potential

Circle only one choice that best describes the soils in the area surrounding the wetland being evaluated (the soils within the wetland are not scored here).

Dominant Wetland Type	Group A, B, C (sands, gravels, loams)	Group D (clays, substrates in high water tables, shallow substrates over impervious materials such as bedrock)
	Lacustrine or major river	0
Isolated	10	5
Palustrine	7	4
Riverine (not on a major river)	5	2

Groundwater Recharge/Wetland Soil Recharge Potential Score (maximum 10 points) _____

4.0 SPECIAL FEATURES

COMPONENT

4.1 RARITY

4.1.1 Wetland Types

Ecodistrict	Rarity within the Landscape (4.1.1.1)	Rarity of Wetland Type (4.1.1.2)			
		Marsh	Swamp	Fen	Bog
6E-1	60	40	0	80	80
6E-2	60	40	0	80	80
6E-4	60	40	0	80	80
6E-5	20	40	0	80	80
6E-6	40	20	0	80	80
6E-7	60	10	0	80	80
6E-8	20	20	0	80	80
6E-9	0	20	0	80	80
6E-10	20	0	20	80	80
6E-11	0	30	0	80	80
6E-12	0	30	0	60	80
6E-13	60	10	0	80	80
6E-14	40	20	0	40	80
6E-15	40	0	0	80	80
6E-16	60	20	0	80	60
6E-17	40	10	0	30	80
7E-1	60	0	60	80	80
7E-2	60	0	0	80	80
7E-3	60	00	0	80	80
7E-4	80	0	0	80	80
7E-5	60	20	0	80	80
7E-6	80	30	0	80	80

4.1.1.1 Rarity within the Landscape

Choose appropriate score from 2nd column above.

Score (maximum 80 points) _____

4.1.1.2 Rarity of Wetland Type

Score is cumulative, based on presence/absence. Circle all appropriate scores from above table and sum.

Score (maximum 80 points) _____

4.1.2 Species

4.1.2.1 Reproductive Habitat for an Endangered or Threatened Species

Under the "Activity" column, when scoring animal species, record what the animal was doing when observed (e.g., nesting, courtship, singing, etc).

Common Name	Scientific Name	Activity	Date Observed	Info Source

For each species score 250 points. (Score is cumulative, no maximum score)

Additional Notes/Comments:

Reproductive Habitat for Endangered or Threatened Species (no maximum) _____

4.1.2.2 Traditional Migration or Feeding Habitat for an Endangered or Threatened Species

Under the "Activity" column, when scoring animal species, record what the animal was doing when observed (e.g., nesting, courtship, singing, feeding, resting etc). Dates that species has been recorded using the wetland must be included in the table below.

Common Name	Scientific Name	Activity	Dates Observed	Info Source

For one species score 150 points; for each additional species score 75 points. (Score is cumulative)

Additional Notes/Comments:

Traditional Habitat for Endangered or Threatened Species (no maximum) _____

4.1.2.3 Provincially Significant Animal Species

Common Name	Scientific Name	Activity	Dates Observed	Info Source

Additional Notes/Comments:

One species = 50 pts	9 species = 140 pts	17 species = 160 pts
2 species = 80	10 species = 143	18 species = 162
3 species = 95	11 species = 146	19 species = 164
4 species = 105	12 species = 149	20 species = 166
5 species = 115	13 species = 152	21 species = 168
6 species = 125	14 species = 154	22 species = 170
7 species = 130	15 species = 156	23 species = 172
8 species = 135	16 species = 158	24 species = 174
		25 species = 176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Animal Species
(no maximum) _____

4.1.2.4 Provincially Significant Plant Species

Common Name	Scientific Name	Activity	Dates Observed	Info Source

Additional Notes/Comments:

One species = 50 pts	9 species = 140 pts	17 species = 160 pts
2 species = 80	10 species = 143	18 species = 162
3 species = 95	11 species = 146	19 species = 164
4 species = 105	12 species = 149	20 species = 166
5 species = 115	13 species = 152	21 species = 168
6 species = 125	14 species = 154	22 species = 170
7 species = 130	15 species = 156	23 species = 172
8 species = 135	16 species = 158	24 species = 174
		25 species = 176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species
(no maximum) _____

4.1.2.5 Regionally Significant Species

Common Name	Scientific Name	Activity	Dates Observed	Info Source

One species = 20 pts	4 species = 45 pts	7 species = 58 pts
2 species = 30	5 species = 50	8 species = 61
3 species = 40	6 species = 55	9 species = 64
		10 species = 67

For each significant species over 10 in wetland, add 1 point.

Regionally Significant Species Score
(no maximum score) _____

4.1.2.6 Locally Significant Species

Common Name	Scientific Name	Activity	Dates Observed	Info Source

One species = 10 pts	4 species = 31 pts	7 species = 43 pts
2 species = 17	5 species = 38	8 species = 45
3 species = 24	6 species = 41	9 species = 47
		10 species = 49

For each significant species over 10 in wetland, add 1 point.

Locally Significant Species Score
(no maximum score) _____

4.2 SIGNIFICANT FEATURES AND HABITATS

4.2.1 Colonial Waterbirds

Record all available information. Score the highest applicable category. Include additional information as possible (e.g., nest locations, etc).

Activity	Species	Info Source	Points
Currently nesting			= 50
Known to have nested within the past 5 years			= 25
Active feeding area (great blue heron excluded)			= 15
None known			= 0

Additional Notes/Comments:

Colonial Waterbird Nesting Score
(maximum 50 points) _____

4.2.2 Winter Cover for Wildlife

Score highest appropriate category. Include rationale/sources of information.

<input type="checkbox"/>	Provincially significant	= 100 pts
<input type="checkbox"/>	Significant in Ecoregion	= 50
<input type="checkbox"/>	Significant in Ecodistrict	= 25
<input type="checkbox"/>	Locally significant	= 10
<input type="checkbox"/>	Little or poor winter cover	= 0

Species/habitat/vegetation community scored (e.g., winter deer cover in hemlock swamp, S3 and S4b):

Source of information:

Winter Cover for Wildlife Score
(maximum 100 points) _____

4.2.3 Waterfowl Staging and/or Moulting Areas

Check highest level of significance for both staging and moulting; add scores for staging and for moulting together for final score. However, maximum score for evaluation under this section is 150 points.

	Staging	Moulting
Nationally/internationally significant	<input type="checkbox"/> = 150 pts	<input type="checkbox"/> = 150 pts
Provincially significant	<input type="checkbox"/> = 100	<input type="checkbox"/> = 100
Significant in the Ecoregion	<input type="checkbox"/> = 50	<input type="checkbox"/> = 50
Significant in Ecodistrict	<input type="checkbox"/> = 25	<input type="checkbox"/> = 25
Known to occur	<input type="checkbox"/> = 10	<input type="checkbox"/> = 10
Not possible/Unknown	<input type="checkbox"/> = 0	<input type="checkbox"/> = 0

Species/habitat/vegetation community scored (e.g., approx 20 mallards in W3):

Source of information:

Waterfowl Staging/Moulting Score
(maximum 150 points) _____

4.2.4 Waterfowl Breeding

Check highest level of significance.

<input type="checkbox"/>	Nationally/internationally significant	= 150 pts
<input type="checkbox"/>	Provincially significant	= 100
<input type="checkbox"/>	Significant in the Ecoregion	= 50
<input type="checkbox"/>	Significant in Ecodistrict	= 25
<input type="checkbox"/>	Habitat Suitable	= 10
<input type="checkbox"/>	Habitat not suitable	= 0

Species/habitat/vegetation community scored (e.g., mallard in W3):

Source of information:

Waterfowl Breeding Score
(maximum 150 points) _____

4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area

Check highest level of significance.

<input type="checkbox"/>	Nationally / internationally significant	= 150 pts
<input type="checkbox"/>	Provincially significant	= 100
<input type="checkbox"/>	Significant in Ecoregion	= 50
<input type="checkbox"/>	Significant in Ecodistrict	= 25
<input type="checkbox"/>	Known to occur	= 10
<input type="checkbox"/>	Not possible / Unknown	= 0

Species/habitat/vegetation community scored:

Source of information:

Passerine, Shorebird or Raptor Stopover Score
(maximum 100 points) _____

4.2.6 Fish Habitat

4.2.6.1 Spawning and Nursery Habitat

Area Factors for Low Marsh, High Marsh and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5 – 4.9	0.2
5.0 – 9.9	0.4
10.0 – 14.9	0.6
15.0 – 19.9	0.8
20.0 +	1.0

Step 1:

Fish habitat is not present within the wetland

Go to Step 7, Score 0 points

Fish habitat is present within the wetland

Go to Step 2

Step 2: Choose only one option

Significance of the spawning and nursery habitat within the wetland is known

Go to Step 3

Significance of the spawning and nursery habitat within the wetland is not known

Go through Steps 4, 5 and 6

Step 3: Select the highest appropriate category below, attach documentation:

Significant in Ecoregion

Go to Step 7, Score 100 points

Significant in Ecodistrict

Go to Step 7, Score 50 points

Locally Significant Habitat (5.0+ ha)

Go to Step 7, Score 25 points

Locally Significant Habitat (<5.0 ha)

Go to Step 7, Score 15 points

Source of information:

Step 4: Low Marsh = the 'permanent' marsh area, from the existing water line out to the outer boundary of the wetland.

Low marsh not present

Go to Step 5

Low marsh present

Continue through Step 4, scoring as noted below

Scoring of Low Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each Low Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group**.
3. Use these areas to assign an **Area Factor** for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate **Score**.
5. Sum all numbers in Score column to get **Total Score for Low Marsh**.

Scoring for Presence of Key Vegetation Groups – Low Marsh

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table B)	Multiplication Factor	Score
1	Tallgrass	<input type="checkbox"/>			6	
2	Shortgrass-Sedge	<input type="checkbox"/>			11	
3	Cattail-Bulrush-Burreed	<input type="checkbox"/>			5	
4	Arrowhead-Pickerelweed	<input type="checkbox"/>			5	
5	Duckweed	<input type="checkbox"/>			2	
6	Smartweed-Waterwillow	<input type="checkbox"/>			6	
7	Waterlily-Lotus	<input type="checkbox"/>			11	
8	Waterweed-Watercress	<input type="checkbox"/>			9	
9	Ribongrass	<input type="checkbox"/>			10	
10	Coontail-Naiad-Watermilfoil	<input type="checkbox"/>			13	
11	Narrowleaf Pondweed	<input type="checkbox"/>			5	
12	Broadleaf Pondweed	<input type="checkbox"/>			8	
Total Score for Low Marsh (maximum 75 points)						

Continue to Step 5

Step 5: High Marsh = the 'seasonal' marsh area, from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.

High marsh not present

Go to Step 6

High marsh present

Continue through Step 5, scoring as noted below

Scoring of High Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each High Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each High Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group**.
3. Use these areas to assign an **Area Factor** (from Table 8) for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate **Score**.
5. Sum all numbers in Score column to get **Total Score for High Marsh**.

Scoring for Presence of Key Vegetation Groups – High Marsh						
Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
1	Tallgrass	<input type="checkbox"/>			6	
2	Shortgrass-Sedge	<input type="checkbox"/>			11	
3	Cattail-Bulrush-Burreed	<input type="checkbox"/>			5	
4	Arrowhead-Pickerelweed	<input type="checkbox"/>			5	
Total Score for High Marsh (maximum 25 points)						<input type="text"/>

Continue to Step 6.

Step 6:

<input type="checkbox"/>	Swamp containing fish habitat not present	Go to Step 7
<input type="checkbox"/>	Swamp containing fish habitat present	Continue through Step 6, scoring as follows

Scoring of Swamp:

1. Determine the total area (ha) of seasonally flooded swamp communities within the wetland containing fish habitat and record below.
2. Determine the total area (ha) of permanently flooded swamp communities within the wetland containing fish habitat and record below.
3. Use these areas to assign an **Area Factor** (from Table 8).
4. Multiply the Area Factor by the **Multiplication Factor** for each row to calculate **Score**.
5. Sum all numbers in Score column to get **Total Score for Swamp**.

Scoring Swamps for Fish Habitat (Seasonally flooded; Permanently flooded)					
Swamp Containing Fish Habitat	Present (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
Seasonally Flooded Swamp	<input type="checkbox"/>			10	
Permanently Flooded Swamp	<input type="checkbox"/>			10	
Total Score for Swamp (maximum 20 points)					<input type="text"/>

Continue to Step 7

Step 7: CALCULATION OF FINAL SCORE

NOTE: Scores for Steps 4, 5 and 6 are only recorded if Steps 1 and 3 have not been scored.

- A. Score from Step 1 (fish habitat not present) = _____
- B. Score from Step 3 (significance known) = _____
- C. Score from Step 4 (Low Marsh) = _____
- D. Score from Step 5 (High Marsh) = _____
- E. Score from Step 6 (Swamp) = _____

Calculation of Final Score for Spawning and Nursery Habitat = A or B or Sum of C, D, and E

Score for Spawning and Nursery Habitat (maximum 100 points) _____
--

4.2.6.2 Migration and Staging Habitat

Step 1:

<input type="checkbox"/>	Staging or Migration Habitat is not present in the wetland	Go to Step 4, Score 0 points
<input type="checkbox"/>	Staging or Migration Habitat is present in the wetland, significance of the habitat is known	Go to Step 2
<input type="checkbox"/>	Staging or Migration Habitat is present in the wetland, significance of the habitat is not known	Go to Step 3

Step 2: Select the highest appropriate category below. Ensure that documentation is attached to the data record.

<input type="checkbox"/>	Significant in Ecoregion	Score 25 points in Step 4
<input type="checkbox"/>	Significant in Ecodistrict	Score 15 points in Step 4
<input type="checkbox"/>	Locally Significant	Score 10 points in Step 4
<input type="checkbox"/>	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Source of information:

Step 3: Select the highest appropriate category below based on presence of the designated site type (i.e. does not have to be the dominant site type). Refer to Site Types recorded earlier (section 1.1.3). Attach documentation.

<input type="checkbox"/>	Wetland is riverine at rivermouth or lacustrine at rivermouth	Score 25 points in Step 4
<input type="checkbox"/>	Wetland is riverine, within 0.75 km of rivermouth	Score 15 points in Step 4
<input type="checkbox"/>	Wetland is lacustrine, within 0.75 km of rivermouth	Score 10 points in Step 4
<input type="checkbox"/>	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Step 4: Enter a score from only one of the three above Steps.

Score for Staging and Migration Habitat
(maximum 25 points) _____

4.3 ECOSYSTEM AGE

	Fractional Area		Score
Bog	=	x 25 =	
Fen, on deeper soils; floating mats or marl	=	x 20 =	
Fen, on limestone rock	=	x 5 =	
Swamp	=	x 3 =	
Marsh	=	x 0 =	
Total		=	

Ecosystem Age Score (maximum 25 points) _____

4.4 GREAT LAKES COASTAL WETLANDS

Choose one only. Only coastal wetland units may be scored.

<input type="checkbox"/>	Wetland < 10 ha	=	10 pts
<input type="checkbox"/>	Wetland 10-50 ha	=	25
<input type="checkbox"/>	Wetland 51-100 ha	=	50
<input type="checkbox"/>	Wetland > 100 ha	=	75

If the wetland is a complex, identify which wetlands units or wetland communities are being scored as coastal:

Great Lakes Coastal Wetland Score
(maximum 75 points) _____

5.0 DOCUMENTATION OF
WETLAND FEATURES NOT
INCLUDED IN THE EVALUATION

5.1 INVASIVE SPECIES

Attach documentation of invasive species found in wetland (include location information and a coarse estimate of abundance [F = few, C = fairly common, A = abundant]):

5.2 VERNAL POOLS

Documentation of information on vernal pools encountered during the wetland evaluation but not included as part of the evaluated wetland.

5.3 SPECIES OF SPECIAL INTEREST

5.3.1 Osprey

Check all that apply:

- Present and nesting
- Known to have nested in last 5 years
- Feeding area for Osprey
- Not as above

5.3.2 Common Loon

Check all that apply:

- Nesting in wetland
- Feeding at edge of wetland
- Observed or heard on lake or river adjoining the wetland
- Not as above

5.4 IMPORTANT DRINKING WATER AREA

Wetland located within:
(check all that apply)

- Wellhead Protection Area
- Intake Protection Zone
- Significant Recharge Area
- Vulnerable Aquifer Area

Source of information:

Additional Comments:

5.5 AREA OF WETLAND RESTORATION POTENTIAL

Check all that apply. Attach additional pages if necessary.

<input type="checkbox"/>	Area of wetland restoration potential adjacent to evaluated wetland unit(s)
<input type="checkbox"/>	Area of wetland restoration potential within 750m of evaluated wetland unit(s), but not adjacent
<input type="checkbox"/>	Area of wetland restoration potential encountered elsewhere
<input type="checkbox"/>	Area currently functioning as wetland (e.g., showing signs of degradation but still mapped as wetland).
<input type="checkbox"/>	Adjacent Wetland Unit (if applicable): _____
<input type="checkbox"/>	GPS Coordinates of Site: _____

Description of site (e.g., current land use, wetland characteristics of site, etc) and why it is identified as an area of restoration potential:

Additional Notes/Comments (e.g., adjacent lands, etc)

General Information

Wetland Evaluator(s)

Name: _____ Affiliation: _____

Name: _____ Affiliation: _____

Name: _____ Affiliation: _____

Name: _____ Affiliation: _____

Name: _____ Affiliation: _____

Date(s) wetland visited (in field): _____

Date evaluation completed: _____

Estimated time devoted to completing the field survey in person hours: _____

Weather Conditions

i) at time of field work: _____

ii) summer conditions in general: _____

WETLAND EVALUATION SCORING RECORD

WETLAND NAME: _____

1.0 BIOLOGICAL COMPONENT

- _____ 1.1 PRODUCTIVITY
 - _____ 1.1.1 Growing Degree-Days/Soils
 - _____ 1.1.2 Wetland Type
 - _____ 1.1.3 Site Type
 - _____

- _____ 1.2 BIODIVERSITY
 - _____ 1.2.1 Number of Wetland Types
 - _____ 1.2.2 Vegetation Communities
 - _____ 1.2.3 Diversity of Surrounding Habitat
 - _____ 1.2.4 Proximity to Other Wetlands
 - _____ 1.2.5 Interspersion
 - _____ 1.2.6 Open Water Type
 - _____

- _____ 1.3 SIZE (Biological Component)

- _____ TOTAL (Biological Component)

2.0 SOCIAL COMPONENT

_____	2.1	ECONOMICALLY VALUABLE PRODUCTS
_____	2.1.1	Wood Products
_____	2.1.2	Wild Rice
_____	2.1.3	Commerical Baltfish
_____	2.1.4	Furbearers
_____		Total for Economically Valuable Products
_____	2.2	RECREATIONAL ACTIVITIES
_____	2.3	LANDSCAPE AESTHETICS
_____	2.3.1	Distinctness
_____	2.3.2	Absence of Human Disturbance
_____		Total for Landscape Aesthetics
_____	2.4	EDUCATION AND PUBLIC AWARENESS
_____	2.4.1	Educational Uses
_____	2.4.2	Facilities and Programs
_____	2.4.3	Research and Studies
_____		Total for Education and Public Awareness
_____	2.5	PROXIMITY TO AREAS OF HUMAN SETTLEMENT
_____	2.6	OWNERSHIP
_____	2.7	SIZE (Social Component)
_____	2.8	ABORIGINAL VALUES AND CULTURAL HERITAGE
_____	2.8.1	Aboriginal Values
_____	2.8.2	Cultural Heritage
_____		TOTAL (Social Component)

3.0 HYDROLOGICAL COMPONENT

_____	3.1	FLOOD ATTENUATION
_____	3.2	WATER QUALITY IMPROVEMENT
_____	3.2.1	Short Term Water Quality Improvement
_____	3.2.2	Long Term Nutrient Trap
_____	3.2.3	Groundwater Discharge
_____		Total for Water Quality Improvement
_____	3.3	CARBON SINK
_____	3.4	SHORELINE EROSION CONTROL
_____	3.5	GROUNDWATER RECHARGE
_____	3.5.1	Site Type
_____	3.5.2	Soil Recharge Potential
_____		Total for Groundwater Recharge
_____		TOTAL (Hydrological Component)

4.0 SPECIAL FEATURES COMPONENT

4.1 RARITY

4.1.1 Wetlands

_____ 4.1.1.1 Rarity within the Landscape

_____ 4.1.1.2 Rarity of Wetland Type

_____ Total for Wetland Rarity

4.1.2 Species

_____ 4.1.2.1 Reproductive Habitat for an Endangered or Threatened Species

_____ 4.1.2.2 Traditional Migration or Feeding Habitat for an Endangered or Threatened Species

_____ 4.1.2.3 Provincially Significant Animal Species

_____ 4.1.2.4 Provincially Significant Plant Species

_____ 4.1.2.5 Regionally Significant Species

_____ 4.1.2.6 Locally Significant Species

_____ Total for Species Rarity

4.2 SIGNIFICANT FEATURES AND HABITATS

_____ 4.2.1 Colonial Waterbirds

_____ 4.2.2 Winter Cover for Wildlife

_____ 4.2.3 Waterfowl Staging and/or Moulting Areas

_____ 4.2.4 Waterfowl Breeding

_____ 4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area

_____ 4.2.6 Fish Habitat

_____ 4.2.6.1 Spawning and Nursery Habitat

_____ 4.2.6.2 Migration and Staging Habitat

_____ Total for Significant Features and Habitats

4.3 ECOSYSTEM AGE

4.4 GREAT LAKES COASTAL WETLANDS

_____ TOTAL FOR SPECIAL FEATURES COMPONENT *(not to exceed 250)*

SUMMARY OF EVALUATION RESULT

Wetland _____

_____ 1.0 TOTAL FOR BIOLOGICAL COMPONENT

_____ 2.0 TOTAL FOR SOCIAL COMPONENT

_____ 3.0 TOTAL FOR HYDROLOGICAL COMPONENT

_____ 4.0 TOTAL FOR SPECIAL FEATURES COMPONENT

_____ TOTAL WETLAND SCORE

FOR MNR USE ONLY	
MNR Reviewer (Name & Position)	_____
Reviewer Comments	_____

MNR Approver (Name & Position)	_____
Approval Date	_____

Appendix D

Plant Species Inventory

Common Name	Scientific Name	S Rank	G Rank	Polygon 1	Polygon 2	Polygon 3	Polygon 4	Polygon 5	Polygon 6	Polygon 7	Polygon 8	Polygon 9	Polygon 10	Polygon 11	Polygon 12	Wills' Observation
Interrupted Fern	<i>Osmunda claytoniana</i>	S5	G5	x	x	x	x		x	x			x		x	x
Alternate-leaved Dogwood	<i>Cornus alternifolia</i>	S5	G5										x		x	x
American Basswood	<i>Tilia americana</i>	S5	G5	x			x								x	x
American Elm	<i>Ulmus americana</i>	S5	G5					x	x	x		x	x		x	x
Ash sp.	<i>Fraxinus sp.</i>									x						x
Aslike Clover	<i>Trifolium hybridum</i>	SNA	GNR					x	x	x		x				x
Wheat Sedge	<i>Carex atherodes</i>	S4	G5					x	x			x	x			x
Balsam Poplar	<i>Populus balsamifera</i>	S5	G5	x	x	x	x	x	x	x	x	x	x		x	x
Bebb's Willow	<i>Salix bebbiana</i>	S5	G5										x			x
Bedstraw	<i>Galium aparine</i>	S5	G5					x	x	x	x	x	x		x	x
Bicknell's Geranium	<i>Geranium bicknellii</i>	S5	G5										x		x	x
Bindweed	<i>Convolvulus arvensis</i>	SNA	GNR					x	x			x				x
Birdsfoot Trefoil	<i>Lotus corniculatus</i>	SNA	GNR					x	x	x		x	x		x	x
Bitter Dock	<i>Rumex obtusifolius</i>	SNA	GNR										x		x	x
Bittersweet Nightshade	<i>Solanum dulcamara</i>	SNA	GNR			x		x	x	x	x	x			x	x
Black Ash	<i>Fraxinus nigra</i>	S4	G5	x	x	x	x	x	x	x		x	x		x	x
Black Medick	<i>Medicago lupulina</i>	SNA	GNR													x
Black Walnut	<i>Juglans nigra</i>	S4?	G5										x		x	x
Black Willow	<i>Salix nigra</i>	S4	G5										x		x	x
Bladder Campion	<i>Silene vulgaris</i>	SNA	GNR					x	x							x
Bladderwort	<i>Utricularia vulgaris</i>	S5	G5													x
Boneset	<i>Eupatorium perfoliatum</i>	S5	G5	x	x	x	x	x	x	x		x				x
Broadleaf Cattail	<i>Typha latifolia</i>	S5	G5		x			x	x	x	x	x	x		x	x
Broad-leaved Water Plantain	<i>Alisma triviale</i>	S5	G5								x					x
Bull Thistle	<i>Cirsium vulgare</i>	SNA	GNR					x	x	x		x	x		x	x
Calico Aster	<i>Symphotrichum lateriflorum</i>	S5	G5										x		x	x
Canada Anemone	<i>Anemone canadensis</i>	S5	G5					x	x	x	x	x	x		x	x
Canada Bluejoint	<i>Calamagrostis canadensis</i>	S5	G5									x	x		x	x
Canada Goldenrod	<i>Solidago canadensis</i>	S5	G5					x	x	x		x	x		x	x
Canada Thistle	<i>Cirsium arvense</i>	SNA	G5										x		x	x
Chickory	<i>Cichorium intybus</i>	SNA	GNR					x	x	x		x	x		x	x
Choke Cherry	<i>Prunus virginiana</i>	S5	G5										x		x	x
Coltsfoot	<i>Tussilago farfara</i>	SNA	GNR					x	x	x	x	x	x		x	x
Common Burdock	<i>Arctium sp.</i>	SNA	GNR	x		x	x						x		x	x
Common Fleabane	<i>Pulicaria dysenterica</i>							x	x	x		x				x
Common Milkweed	<i>Asclepias syriaca</i>	S5	G5					x	x	x	x	x			x	x
Common Mullein	<i>Verbascum thapsus</i>	SNA	GNR					x	x	x			x		x	x
Common Speedwell	<i>Veronica sp.</i>	SNA	G5										x		x	x
Common St. John's Wort	<i>Hypericum perforatum</i>	SNA	GNR					x	x		x		x		x	x
Common Strawberry	<i>Fragaria vesca</i>	S5	G5													x
Cow Vetch	<i>Vicia cracca</i>	SNA	GNR					x	x	x		x				x
Crack Willow	<i>Salix fragilis</i>	SNA	GNR										x		x	x
Creeping Buttercup	<i>Ranunculus repens</i>	SNA	GNR										x		x	x
Curly-leaf Dock	<i>Rumex crispus</i>	SNA	GNR										x		x	x
Currant sp.	<i>Ribes sp.</i>											x				x
Dandelion	<i>Taraxacum sp.</i>												x		x	x
Dark-green Rush	<i>Scirpus atrovirens</i>	S5	G5						x		x	x				x
Dog Strangling Vine	<i>Vincetoxicum rossicum</i>	SNA	GNR					x	x			x				x
Dogwood sp.	<i>Cornus sp.</i>				x	x		x	x	x	x	x				x
Eastern Hemlock	<i>Tsuga canadensis</i>	S5	G5													x
Eastern Red Cedar	<i>Juniperus virginiana</i>	S5	G5										x		x	x
Eastern White Cedar	<i>Thuja occidentalis</i>	S5	G5	x		x	x				x		x	x	x	x
European Buckthorn	<i>Rhamnus cathartica</i>	SNA	GNR	x	x	x	x	x	x	x		x	x	x	x	x
Field Horsetail	<i>Equisetum arvense</i>	S5	G5					x								x
Fox Grape	<i>Vitis labrusca</i>	S1	G5									x				x
Foxtail Grasses	<i>Alopecurus sp.</i>												x		x	x
Garlic Mustard	<i>Alliaria petiolata</i>	SNA	GNR	x	x	x	x						x		x	x
Giant Foxtail	<i>Setaria faberi</i>	SNA	GNR										x		x	x
Goat's Beard	<i>Aruncus dioicus</i>	SNA	G5					x	x	x		x	x		x	x
Goldenrod sp.	<i>Solidago sp.</i>			x	x	x	x	x	x	x	x	x	x		x	x
Gooseberry	<i>Ribes uva-crispa</i>	SNA	GNR	x	x	x	x	x	x	x		x				x

Common Name	Scientific Name	S Rank	G Rank	Polygon 1	Polygon 2	Polygon 3	Polygon 4	Polygon 5	Polygon 6	Polygon 7	Polygon 8	Polygon 9	Polygon 10	Polygon 11	Polygon 12	Wills' Observation
Grass sp.	Poaceae sp.							x	x	x	x	x	x		x	x
Gray Dogwood	Cornus racemosa	S5	G5	x		x	x	x	x	x		x	x		x	x
Green Ash	Fraxinus pennsylvanica	S4	G5					x	x	x		x	x		x	x
Ground Knotweed	Fallopia japonica							x	x	x		x				x
Hairy Willow Herb	Epilobium hirsutum	SNA	GNR					x								x
Heal-All	Prunella vulgaris	S5	G5					x	x	x		x	x		x	x
Heath Aster	Symphotrichum ericoides	S5	G5			x	x						x		x	x
Highbush Cranberry	Viburnum trilobum	S5	G5T5										x		x	x
Hop Sedge	Carex lupullina	S5	G5					x	x	x	x	x				x
Horsetail sp.	Equisetum sp.			x	x	x	x	x	x	x	x	x	x		x	x
Juniper	Juniperus sp.								x	x						x
Knapweed	Centaurea sp.								x	x		x				x
Lady Fern	Athyrium filix-femina	S5	G5	x		x	x									x
Large-tooth Aspen	Populus grandidentata	S5	G5										x		x	x
Manitoba Maple	Acer negundo	S5	G5					x	x	x		x	x		x	x
Marsh Cinquefoil	Comarum palustre	S5	G5								x					x
Marsh Marigold	Caltha palustris	S5	G5					x	x	x		x	x			x
Morrow's Honeysuckle	Lonicera morrowii	SNA	GNR										x		x	x
Moss sp.	Bryophyta							x	x	x	x	x				x
Narrowleaf Cattail	Typha angustifolia	SNA	GR										x		x	x
New England Aster	Symphotrichum novae-angliae	S5	G5										x		x	x
Orchard Grass	Dactylis glomerata	SNA	GNR										x		x	x
Ostrich Fern	Matteuccia struthiopteris	S5	G5	x	x	x	x									x
Oxeye Daisy	Leucanthemum vulgare	SNA	GNR					x	x	x		x	x		x	x
Poison Ivy	Toxicodendron radicans	S5	G5	x	x	x	x	x	x	x	x	x	x		x	x
Poplar sp.	Populus sp.							x	x	x		x				x
Purple-stemmed Aster	Symphotrichum puniceum	S5	G5										x		x	x
Queen Anne's Lace	Daucus carota	SNA	GNR					x	x	x		x	x		x	x
Red Clover	Trifolium pratense	SNA	GNR					x	x	x		x	x		x	x
Red Maple	Acer rubrum	S5	G5										x		x	x
Red Osier Dogwood	Cornus sericea	S5	G5		x	x	x	x	x	x		x	x		x	x
Red Raspberry	Rubus idaeus	S5	G5										x		x	x
Reed Canary Grass	Phalaris arundinacea	S5	G5	x	x	x	x	x	x	x	x	x	x		x	x
Riverbank Grape	Vitis riparia	S5	G5	x	x	x	x	x	x	x	x	x	x	x	x	x
Rough-fruited Cinquefoil	Potentilla recta	SNA	GNR					x	x	x		x	x		x	x
Sandbar Willow	Salix interior	S5	GNR										x		x	x
Sedge sp.	Carex sp.					x		x	x	x	x	x	x		x	x
Sensitive Fern	Onoclea sensibilis	S5	G5	x	x	x	x						x		x	x
Sheep's Sorrel	Rumex acetosella	SNA	GNR										x		x	x
Silky Dogwood	Cornus amomum												x		x	x
Silver Maple	Acer saccharinum	S5	G5	x	x	x	x	x	x	x		x	x		x	x
Skunk Cabbage	Symplocarpus foetidus	S5	G5	x	x	x	x									x
Slender Willow	Salix petiolaris	S5	G5	x	x	x	x	x	x	x		x	x		x	x
Smooth Brome	Bromus inermis	SNA	G5										x		x	x
Solomon Seal	Polygonatum sp.			x	x	x	x									x
Sow Thistle	Sonchus sp.							x	x	x		x				x
Speckled Alder	Alnus incana	S5	G5					x	x	x	x	x				x
Spiny-leaved Sow Thistle	Sonchus asper	SNA	GNR										x		x	x
Spotted Jewelweed	Impatiens capensis	S5	G5	x	x	x	x	x	x	x		x	x		x	x
Spotted Joe-pye Weed	Eutrochium maculatum	S5	G5					x	x	x		x	x		x	x
Staghorn Sumac	Rhus typhina	S5	G5										x		x	x
Stinging Nettle	Urtica dioica	S5	G5			x										x
Sugar Maple	Acer saccharum	S5	G5			x		x	x	x			x		x	x
Swamp Milkweed	Asclepias incarnata	S5	G5					x	x	x	x	x				x
Swamp Red Currant	Ribes triste	S5	G5			x										x
Swamp White Oak	Quercus bicolor	S4	G5										x		x	x
Sweet Gale	Myrica gale	S5	G5					x	x	x		x	x		x	x
Tall Buttercup	Ranunculus acris	SNA	G5					x				x	x		x	x
Tall White Aster	Doellingeria umbellata	S5	G5										x		x	x
Tamarack	Larix laricina	S5	G5													x
Tansy	Tanacetum vulgare	SNA	GNR					x	x	x	x	x				x
Tartarian Honeysuckle	Lonicera tatarica	SNA	GNR										x		x	x

Common Name	Scientific Name	S Rank	G Rank	Polygon 1	Polygon 2	Polygon 3	Polygon 4	Polygon 5	Polygon 6	Polygon 7	Polygon 8	Polygon 9	Polygon 10	Polygon 11	Polygon 12	Wills' Observation
Thistle sp.	<i>Cirsium sp.</i>							x								x
Timothy Grass	<i>Phleum pratense</i>	SNA	GNR									x				x
Trembling Aspen	<i>Populus tremuloides</i>	S5	G5					x	x	x		x	x		x	x
Trillium sp.	<i>Trillium sp.</i>			x		x	x									x
Twigrush	<i>Machaerina rubiginosa</i>												x		x	x
Viper's Bugloss	<i>Echium vulgare</i>	SNA	GNR					x	x	x	x	x	x		x	x
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	S4?	G5	x	x	x	x	x	x	x	x	x	x		x	x
Water Horsetail	<i>Equisetum fluviatile</i>	S5	G5													x
Watershield	<i>Brasenia schreberi</i>	S5	G5													x
White Ash	<i>Fraxinus americana</i>	S4	G5			x							x		x	x
White Birch	<i>Betula papyrifera</i>	S5	G5										x		x	x
White Oak	<i>Quercus alba</i>	S5	G5			x										x
White Poplar	<i>Populus alba</i>	SNA	G5										x		x	x
White Spruce	<i>Picea glauca</i>	S5	G5			x							x		x	x
White Sweet Clover	<i>Melilotus albus</i>	SNA	G5										x		x	x
White Willow	<i>Salix alba</i>	SNA	G5										x		x	x
Wild Cucumber	<i>Cucumis anguria</i>			x	x	x	x									x
Spearmint	<i>Mentha spicata</i>	SNA	GNR					x	x	x	x	x				x
Wild Strawberry	<i>Fragaria vesca</i>	S5	G5					x	x	x						x
Willow sp.	<i>Salix sp.</i>				x			x	x	x	x	x	x		x	x
Wood Lilly	<i>Lilium philadelphicum</i>	S5	G5					x	x	x		x				x
Woodland Strawberry	<i>Fragaria vesca</i>	S5	G5					x	x	x		x	x		x	x
Wormseed Mustard	<i>Erysimum cheiranthoides</i>	S5	G5										x		x	x
Yarrow	<i>Achillea millefolium</i>	SNA	G5					x	x	x	x	x				x
Yellow Birch	<i>Betula alleghaniensis</i>	S5	G5	x		x	x									x
Yellow Dock	<i>Rumex crispus</i>	SNA	GNR					x	x	x		x				x
Yellow Hawkweed	<i>Hieracium caespitosum</i>												x		x	x
Yellow Hop Clover	<i>Trifolium aureum</i>	SNA	GNR					x	x			x				x
Yellow Rocket	<i>Barbarea vulgaris</i>	SNA	GNR					x	x	x		x	x		x	x

Common Name	Scientific Name	S Rank	G Rank	Polygon 13	Polygon 14	Polygon 15	Polygon 16	Polygon 17	Polygon 18	Polygon 19	Polygon 20	Polygon 21	Wills' Observation
Interrupted Fern	<i>Osmunda claytoniana</i>	S5	G5	x	x	x	x		x		x		x
Alternate-leaved Dogwood	<i>Cornus alternifolia</i>	S5	G5	x	x	x			x		x		x
American Basswood	<i>Tilia americana</i>	S5	G5	x	x	x	x		x		x		x
American Elm	<i>Ulmus americana</i>	S5	G5	x	x	x				x			x
Ash sp.	<i>Fraxinus sp.</i>												x
Aslike Clover	<i>Trifolium hybridum</i>	SNA	GNR										x
Wheat Sedge	<i>Carex atherodes</i>	S4	G5	x	x	x		x		x		x	x
Balsam Poplar	<i>Populus balsamifera</i>	S5	G5	x	x	x	x		x		x		x
Bebb's Willow	<i>Salix bebbiana</i>	S5	G5	x	x	x							x
Bedstraw	<i>Galium aparine</i>	S5	G5	x	x	x		x	x	x	x	x	x
Bicknell's Geranium	<i>Geranium bicknellii</i>	S5	G5	x	x	x							x
Bindweed	<i>Convolvulus arvensis</i>	SNA	GNR										x
Birdsfoot Trefoil	<i>Lotus corniculatus</i>	SNA	GNR	x	x	x							x
Bitter Dock	<i>Rumex obtusifolius</i>	SNA	GNR	x	x	x							x
Bittersweet Nightshade	<i>Solanum dulcamara</i>	SNA	GNR	x	x	x		x	x	x	x	x	x
Black Ash	<i>Fraxinus nigra</i>	S4	G5	x	x	x	x	x	x	x	x	x	x
Black Medick	<i>Medicago lupulina</i>	SNA	GNR										x
Black Walnut	<i>Juglans nigra</i>	S4?	G5	x	x	x							x
Black Willow	<i>Salix nigra</i>	S4	G5	x	x	x							x
Bladder Campion	<i>Silene vulgaris</i>	SNA	GNR										x
Bladderwort	<i>Utricularia vulgaris</i>	S5	G5					x					x
Boneset	<i>Eupatorium perfoliatum</i>	S5	G5				x	x	x	x	x	x	x
Broadleaf Cattail	<i>Typha latifolia</i>	S5	G5	x	x	x		x	x	x	x	x	x
Broad-leaved Water Plantain	<i>Alisma triviale</i>	S5	G5										x
Bull Thistle	<i>Cirsium vulgare</i>	SNA	GNR	x	x	x							x
Calico Aster	<i>Symphotrichum lateriflorum</i>	S5	G5	x	x	x							x
Canada Anemone	<i>Anemone canadensis</i>	S5	G5	x	x	x			x				x
Canada Bluejoint	<i>Calamagrostis canadensis</i>	S5	G5	x	x	x							x
Canada Goldenrod	<i>Solidago canadensis</i>	S5	G5	x	x	x							x
Canada Thistle	<i>Cirsium arvense</i>	SNA	G5	x	x	x							x
Chickory	<i>Cichorium intybus</i>	SNA	GNR	x	x	x							x
Choke Cherry	<i>Prunus virginiana</i>	S5	G5	x	x	x							x
Coltsfoot	<i>Tussilago farfara</i>	SNA	GNR	x	x	x						x	x
Common Burdock	<i>Arctium sp.</i>	SNA	GNR	x	x	x	x						x
Common Fleabane	<i>Pulicaria dysenterica</i>												x
Common Milkweed	<i>Asclepias syriaca</i>	S5	G5	x	x	x							x
Common Mullein	<i>Verbascum thapsus</i>	SNA	GNR	x	x	x						x	x
Common Speedwell	<i>Veronica sp.</i>	SNA	G5	x	x	x							x
Common St. John's Wort	<i>Hypericum perforatum</i>	SNA	GNR	x	x	x							x
Common Strawberry	<i>Fragaria vesca</i>	S5	G5		x	x							x
Cow Vetch	<i>Vicia cracca</i>	SNA	GNR										x
Crack Willow	<i>Salix fragilis</i>	SNA	GNR	x	x	x							x
Creeping Buttercup	<i>Ranunculus repens</i>	SNA	GNR	x	x	x							x
Curly-leaf Dock	<i>Rumex crispus</i>	SNA	GNR	x	x	x							x
Currant sp.	<i>Ribes sp.</i>				x	x			x		x		x
Dandelion	<i>Taraxacum sp.</i>			x	x	x							x
Dark-green Rush	<i>Scirpus atrovirens</i>	S5	G5					x		x	x	x	x
Dog Strangling Vine	<i>Vincetoxicum rossicum</i>	SNA	GNR										x
Dogwood sp.	<i>Cornus sp.</i>								x	x			x
Eastern Hemlock	<i>Tsuga canadensis</i>	S5	G5		x								x
Eastern Red Cedar	<i>Juniperus virginiana</i>	S5	G5	x	x	x							x
Eastern White Cedar	<i>Thuja occidentalis</i>	S5	G5		x	x	x	x	x	x	x	x	x
European Buckthorn	<i>Rhamnus cathartica</i>	SNA	GNR	x	x	x	x	x	x	x	x	x	x
Field Horsetail	<i>Equisetum arvense</i>	S5	G5	x	x								x
Fox Grape	<i>Vitis labrusca</i>	S1	G5										x
Foxtail Grasses	<i>Alopecurus sp.</i>			x	x	x							x
Garlic Mustard	<i>Alliaria petiolata</i>	SNA	GNR	x	x	x	x						x
Giant Foxtail	<i>Setaria faberi</i>	SNA	GNR	x	x	x							x
Goat's Beard	<i>Aruncus dioicus</i>	SNA	G5	x	x	x							x
Goldenrod sp.	<i>Solidago sp.</i>			x	x	x	x	x	x	x	x	x	x
Gooseberry	<i>Ribes uva-crispa</i>	SNA	GNR				x						x

Common Name	Scientific Name	S Rank	G Rank	Polygon 13	Polygon 14	Polygon 15	Polygon 16	Polygon 17	Polygon 18	Polygon 19	Polygon 20	Polygon 21	Wills' Observation
Grass sp.	Poaceae sp.			x	x	x							x
Gray Dogwood	Cornus racemosa	S5	G5	x	x	x	x		x	x	x		x
Green Ash	Fraxinus pennsylvanica	S4	G5	x	x	x							x
Ground Knotweed	Fallopia japonica												x
Hairy Willow Herb	Epilobium hirsutum	SNA	GNR	x						x			x
Heal-All	Prunella vulgaris	S5	G5	x	x	x							x
Heath Aster	Symphotrichum ericoides	S5	G5	x	x	x	x		x		x		x
Highbush Cranberry	Viburnum trilobum	S5	G5T5	x	x	x							x
Hop Sedge	Carex lupulina	S5	G5					x	x	x	x	x	x
Horsetail sp.	Equisetum sp.			x	x	x	x	x	x	x	x	x	x
Juniper	Juniperus sp.												x
Knapweed	Centaurea sp.												x
Lady Fern	Athyrium filix-femina	S5	G5		x		x						x
Large-toothed Aspen	Populus grandidentata	S5	G5	x	x	x							x
Manitoba Maple	Acer negundo	S5	G5	x	x	x			x		x		x
Marsh Cinquefoil	Comarum palustre	S5	G5										x
Marsh Marigold	Caltha palustris	S5	G5						x				x
Morrow's Honeysuckle	Lonicera morrowii	SNA	GNR	x	x	x							x
Moss sp.	Bryophyta												x
Narrowleaf Cattail	Typha angustifolia	SNA	GR	x	x	x							x
New England Aster	Symphotrichum novae-angliae	S5	G5	x	x	x			x		x		x
Orchard Grass	Dactylis glomerata	SNA	GNR	x	x	x							x
Ostrich Fern	Matteuccia struthiopteris	S5	G5				x						x
Oxeye Daisy	Leucanthemum vulgare	SNA	GNR	x	x	x							x
Poison Ivy	Toxicodendron radicans	S5	G5	x	x	x	x		x		x		x
Poplar sp.	Populus sp.												x
Purple-stemmed Aster	Symphotrichum puniceum	S5	G5	x	x	x							x
Queen Anne's Lace	Daucus carota	SNA	GNR	x	x	x							x
Red Clover	Trifolium pratense	SNA	GNR	x	x	x							x
Red Maple	Acer rubrum	S5	G5	x	x	x							x
Red Osier Dogwood	Cornus sericea	S5	G5	x	x	x	x				x		x
Red Raspberry	Rubus idaeus	S5	G5	x	x	x							x
Reed Canary Grass	Phalaris arundinacea	S5	G5	x	x	x	x	x	x	x	x	x	x
Riverbank Grape	Vitis riparia	S5	G5	x	x	x	x						x
Rough-fruited Cinquefoil	Potentilla recta	SNA	GNR	x	x	x							x
Sandbar Willow	Salix interior	S5	GNR	x	x	x							x
Sedge sp.	Carex sp.			x	x	x				x	x		x
Sensitive Fern	Onoclea sensibilis	S5	G5	x	x	x	x	x	x	x	x	x	x
Sheep's Sorrel	Rumex acetosella	SNA	GNR	x	x	x							x
Silky Dogwood	Cornus amomum			x	x	x							x
Silver Maple	Acer saccharinum	S5	G5	x	x	x	x	x	x	x	x	x	x
Skunk Cabbage	Symplocarpus foetidus	S5	G5				x						x
Slender Willow	Salix petiolaris	S5	G5	x	x	x	x						x
Smooth Brome	Bromus inermis	SNA	G5	x	x	x							x
Solomon Seal	Polygonatum sp.						x						x
Sow Thistle	Sonchus sp.												x
Speckled Alder	Alnus incana	S5	G5			x							x
Spiny-leaved Sow Thistle	Sonchus asper	SNA	GNR	x	x	x							x
Spotted Jewelweed	Impatiens capensis	S5	G5	x	x	x	x	x	x	x	x	x	x
Spotted Joe-pye Weed	Eutrochium maculatum	S5	G5	x	x	x					x		x
Staghorn Sumac	Rhus typhina	S5	G5	x	x	x							x
Stinging Nettle	Urtica dioica	S5	G5						x		x		x
Sugar Maple	Acer saccharum	S5	G5	x	x	x							x
Swamp Milkweed	Asclepias incarnata	S5	G5										x
Swamp Red Currant	Ribes triste	S5	G5	x									x
Swamp White Oak	Quercus bicolor	S4	G5	x	x	x							x
Sweet Gale	Myrica gale	S5	G5	x	x	x		x		x		x	x
Tall Buttercup	Ranunculus acris	SNA	G5	x	x	x							x
Tall White Aster	Doellingeria umbellata	S5	G5	x	x	x							x
Tamarack	Larix laricina	S5	G5									x	x
Tansy	Tanacetum vulgare	SNA	GNR										x
Tartarian Honeysuckle	Lonicera tatarica	SNA	GNR	x	x	x							x

Common Name	Scientific Name	S Rank	G Rank	Polygon 13	Polygon 14	Polygon 15	Polygon 16	Polygon 17	Polygon 18	Polygon 19	Polygon 20	Polygon 21	Wills' Observation
Thistle sp.	<i>Cirsium sp.</i>									x			x
Timothy Grass	<i>Phleum pratense</i>	SNA	GNR										x
Trembling Aspen	<i>Populus tremuloides</i>	S5	G5	x	x	x		x	x	x	x	x	x
Trillium sp.	<i>Trillium sp.</i>						x						x
Twigrush	<i>Machaerina rubiginosa</i>			x	x	x							x
Viper's Bugloss	<i>Echium vulgare</i>	SNA	GNR	x	x	x							x
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	S4?	G5	x	x	x	x		x				x
Water Horsetail	<i>Equisetum fluviatile</i>	S5	G5						x		x		x
Watershield	<i>Brasenia schreberi</i>	S5	G5					x					x
White Ash	<i>Fraxinus americana</i>	S4	G5	x	x	x							x
White Birch	<i>Betula papyrifera</i>	S5	G5	x	x	x			x		x		x
White Oak	<i>Quercus alba</i>	S5	G5						x		x		x
White Poplar	<i>Populus alba</i>	SNA	G5	x	x	x							x
White Spruce	<i>Picea glauca</i>	S5	G5	x	x	x			x		x		x
White Sweet Clover	<i>Melilotus albus</i>	SNA	G5	x	x	x							x
White Willow	<i>Salix alba</i>	SNA	G5	x	x	x							x
Wild Cucumber	<i>Cucumis anguria</i>						x		x		x		x
Spearmint	<i>Mentha spicata</i>	SNA	GNR	x		x							x
Wild Strawberry	<i>Fragaria vesca</i>	S5	G5										x
Willow sp.	<i>Salix sp.</i>			x	x	x					x	x	x
Wood Lilly	<i>Lilium philadelphicum</i>	S5	G5										x
Woodland Strawberry	<i>Fragaria vesca</i>	S5	G5	x	x	x			x		x		x
Wormseed Mustard	<i>Erysimum cheiranthoides</i>	S5	G5	x	x	x							x
Yarrow	<i>Achillea millefolium</i>	SNA	G5										x
Yellow Birch	<i>Betula alleghaniensis</i>	S5	G5				x						x
Yellow Dock	<i>Rumex crispus</i>	SNA	GNR										x
Yellow Hawkweed	<i>Hieracium caespitosum</i>			x	x	x							x
Yellow Hop Clover	<i>Trifolium aureum</i>	SNA	GNR										x
Yellow Rocket	<i>Barbarea vulgaris</i>	SNA	GNR	x	x	x							x

Appendix E

Fauna Inventory

Species	Scientific Name	Wills	NHIC	Trent University Nature Area ¹
White Tailed Deer	<i>Odocoileus virginianus</i>			X
Red Fox	<i>Vulpes vulpes</i>			X
Coyote	<i>Canis latrans</i>			X
Little Brown Bat	<i>Myotis lucifugus</i>			X
Eastern Cottontail	<i>Sylvilagus floridanus</i>			X
Groundhog	<i>Marmota monax</i>			X
Eastern Chipmunk	<i>Tamias striatus</i>			X
Gray Squirrel	<i>Sciurus carolinensis</i>			X
Red Squirrel	<i>Sciurus vulgaris</i>			X
Deer Mouse	<i>Peromyscus maniculatus</i>			X
Muskrat	<i>Ondatra zibethicus</i>			X
American Beaver	<i>Castor canadensis</i>			X
Meadow Vole	<i>Microtus pennsylvanicus</i>			X
Meadow Jumping Mouse	<i>Zapus hudsonius</i>			X
American Porcupine	<i>Erethizon dorsatum</i>			X
Raccoon	<i>Procyon lotor</i>			X
American Mink	<i>Neovison vison</i>			X
Lilypad Clubtail	<i>Arigomphus furcifer</i>		X	
Northern Leopard Frog	<i>Lithobates pipiens</i>	X		X
American Toad	<i>Anaxyrus americanus</i>	X		X
Chorus Frog	<i>Pseudacris triseriata</i>	X		X
Gray Treefrog	<i>Hyla versicolor</i>	X		X
Blue Spotted salamander	<i>Ambystoma laterale</i>			X
Green Frog	<i>Rana clamitans</i>			X
Spring Peeper	<i>Pseudacris crucifer</i>			X
Striped Chorus Frog	<i>Pseudacris triseriata</i>			X
Wood Frog	<i>Lithobates sylvaticus</i>			X
American Bullfrog	<i>Lithobates catesbeianus</i>	X		
Eastern Milksnake	<i>Lampropeltis triangulum</i>		X	

⁴Trent University Nature Area data includes species observations from upland areas and cannot be used when scoring under the Ontario Wetland Evaluation System (OWES). Only species that can be confirmed within the wetland boundary are permissible in the OWES and must meet specific criteria such as full references for reports; full references for non-report information (e.g. Rare Breeding Bird Program), including source name, position, date and record; Photographs that accurately show identifying features of the rare species; the scientific names of species scored in the following sections, especially with regards to plant or invertebrate species, must be recorded in the data record. Names should follow NHIC nomenclature; full reference for any verified Element Occurrence (or any species) in the NHIC's EO database; and numerous other established criterion.

Appendix F

Avifauna Inventory

Common Name	Scientific Name	SARO ¹ Status	COSEWIC ² Status	OBBA ³ Public Data Records	Ebirds Data Record	Wills Observation Records	Trent University Nature Area ⁴	NHIC
American Crow	<i>Corvus brachyrhynchos</i>			Co	X	X	X	
American Goldfinch	<i>Spinus tristis</i>			Pr	X	X	X	
American Redstart	<i>Setophaga ruticilla</i>			Co	X	X	X	
American Robin	<i>Turdus migratorius</i>			Co	X	X	X	
American Woodcock	<i>Scolopax minor</i>			Po	X	X	X	
Baltimore Oriole	<i>Icterus galbula</i>			Pr	X		X	
Bank Swallow	<i>Riparia riparia</i>	THR	THR	Po	X			
Barn Swallow	<i>Hirundo rustica</i>	THR	THR	Co	X		X	
Barred Owl	<i>Strix varia</i>						X	
Belted Kingfisher	<i>Megaceryle alcyon</i>						X	
Black-and-white Warbler	<i>Mniotilta varia</i>			Co	X		X	
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>			Po	X		X	
Black-capped Chickadee	<i>Poecile atricapillus</i>			Co	X	X	X	
Black-throated Blue Warbler	<i>Setophaga caerulescens</i>			Pr	X			
Blue Jay	<i>Cyanocitta cristata</i>			Co	X	X	X	
Blue-winged Warbler	<i>Vermivora cyanoptera</i>			Po	X			
Brown Creeper	<i>Certhia americana</i>			Co	X		X	
Brown Thrasher	<i>Toxostoma rufum</i>			Co	X		X	
Brown-headed Cowbird	<i>Molothrus ater</i>			Co	X	X	X	
Canada Goose	<i>Branta canadensis</i>			Co	X	X		
Cedar Waxwing	<i>Bombycilla cedrorum</i>			Pr	X	X	X	
Chimney Swift	<i>Chaetura pelagica</i>	THR	THR	Pr	X			
Chipping Sparrow	<i>Spizella passerina</i>			Co	X	X	X	

Common Name	Scientific Name	SARO ¹ Status	COSEWIC ² Status	OBBA ³ Public Data Records	Ebirds Data Record	Wills Observation Records	Trent University Nature Area ⁴	NHIC
Common Grackle	<i>Quiscalus quiscula</i>			Co	X	X	X	
Common Raven	<i>Corvus corax</i>			Co	X			
Common Snipe	<i>Gallinago gallinago</i>					X	X	
Common Yellowthroat	<i>Geothlypis trichas</i>			Co	X	X	X	
Cooper's Hawk	<i>Accipiter cooperii</i>			Pr	X		X	
Dark-eyed Junco	<i>Junco hyemalis</i>				X			
Downy Woodpecker	<i>Picoides pubescens</i>			Pr	X	X	X	
Eastern Bluebird	<i>Sialia sialis</i>			Co	X			
Eastern Kingbird	<i>Tyrannus tyrannus</i>			Co	X	X	X	
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR				X	X
Eastern Phoebe	<i>Sayornis phoebe</i>			Co	X	X	X	
Eastern Wood-pewee	<i>Contopus virens</i>	SC	SC	Pr	X	X	X	X
European Starling	<i>Sturnus vulgaris</i>			Co	X	X	X	
Field Sparrow	<i>Spizella pusilla</i>			Pr	X	X	X	
Golden-crowned Kinglet	<i>Regulus satrapa</i>				X			
Gray Catbird	<i>Dumetella carolinensis</i>			Co	X	X	X	
Great Blue Heron	<i>Ardea herodias</i>			Po	X	X	X	
Great Crested Flycatcher	<i>Myiarchus crinitus</i>			Pr	X	X		
Great Horned Owl	<i>Bubo virginianus</i>			Pr	X		X	
Green-Backed Heron	<i>Butorides virescens</i>						X	
Hairy Woodpecker	<i>Picoides villosus</i>			Co	x	X	X	
Hermit Thrush	<i>Catharus guttatus</i>			Pr	x		X	
Hooded Merganser	<i>Lophodytes cucullatus</i>				x			
House Finch	<i>Haemorhous mexicanus</i>			Po		x		
House Sparrow	<i>Passer domesticus</i>			Co	x			

Common Name	Scientific Name	SARO ¹ Status	COSEWIC ² Status	OBBA ³ Public Data Records	Ebirds Data Record	Wills Observation Records	Trent University Nature Area ⁴	NHIC
House Wren	<i>Troglodytes aedon</i>			Co	x	X	X	
Killdeer	<i>Charadrius vociferus</i>			Co	x		X	
Least Flycatcher	<i>Empidonax minimus</i>			Pr	x		X	
Magnolia Warbler	<i>Setophaga magnolia</i>			Pr	x			
Mallard	<i>Anas platyrhynchos</i>			Co	x		X	
Merlin	<i>Falco columbarius</i>				x			
Mourning Dove	<i>Zenaida macroura</i>			Co	x	X	X	
Nashville Warbler	<i>Oreothlypis ruficapilla</i>			Pr	x			
Northern Cardinal	<i>Cardinalis cardinalis</i>			Po	x	X	X	
Northern Flicker	<i>Colaptes auratus</i>			Co	x	x	X	
Northern Harrier	<i>Circus cyaneus</i>			Co	x		X	
Northern Parula	<i>Setophaga americana</i>				x			
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>			Co	x			
Northern Waterthrush	<i>Parkesia noveboracensis</i>			Co	x			
Osprey	<i>Pandion haliaetus</i>			Co	x			
Ovenbird	<i>Seiurus aurocapilla</i>			Pr	x	x	X	
Pileated Woodpecker	<i>Dryocopus pileatus</i>			Co	x	x	X	
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>				x			
Red-eyed Vireo	<i>Vireo olivaceus</i>			Co	x	x	X	
Red-tailed Hawk	<i>Buteo jamaicensis</i>			Pr	x		X	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>			Co	x	x	X	
Ring-billed Gull	<i>Larus delawarensis</i>				x			
Rock Pigeon	<i>Columba livia</i>			Pr	x	X		
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>			Pr	x	x	X	

Common Name	Scientific Name	SARO ¹ Status	COSEWIC ² Status	OBBA ³ Public Data Records	Ebirds Data Record	Wills Observation Records	Trent University Nature Area ⁴	NHIC
Ruby-crowned Kinglet	<i>Regulus calendula</i>				x			
Ruffed Grouse	<i>Bonasa umbellus</i>			Co	x	X	X	
Savannah Sparrow	<i>Passerculus sandwichensis</i>			Pr	x		X	
Scarlet Tanager	<i>Piranga olivacea</i>						X	
Sharp-shinned Hawk	<i>Accipiter striatus</i>			Po	x			
Song Sparrow	<i>Melospiza melodia</i>			Co	x	x	X	
Spotted Sandpiper	<i>Arctitis macularis</i>						X	
Swamp Sparrow	<i>Melospiza georgiana</i>			Co	x	x	X	
Tree Swallow	<i>Tachycineta bicolor</i>			Co	x	x	X	
Turkey Vulture	<i>Cathartes aura</i>			Pr	x			
Upland Sandpiper	<i>Bartramia longicauda</i>						X	
Veery	<i>Catharus fuscescens</i>			Pr	x		X	
Vesper Sparrow	<i>Pooecetes gramineus</i>			Pr	x		X	
Warbling Vireo	<i>Vireo gilvus</i>			Pr	x	x	X	
White-breasted Nuthatch	<i>Sitta carolinensis</i>			Co	x		X	
White-throated Sparrow	<i>Zonotrichia albicollis</i>			Pr	X	X	X	
Wild Turkey	<i>Meleagris gallopavo</i>			Co	x			
Winter Wren	<i>Troglodytes hiemalis</i>			Pr	x			
Wood Duck	<i>Aix sponsa</i>			Co	x			
Wood Thrush	<i>Hylocichla mustelina</i>	SC	THR	Pr	x	X		X
Yellow Warbler	<i>Setophaga petechia</i>			Co	x	x	X	
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>			Co	x	x	X	
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>						X	
Yellow-rumped Warbler	<i>Setophaga coronata</i>			Pr	x			

¹SARO – Species at Risk Ontario ²COSEWIC – Committee on the Status of Endangered Wildlife in Canada ³OBBA – Ontario Breeding Bird Atlas

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Appendix G

Photographic Record

Client Name: City of Peterborough	Site Location: Wetland Complex
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- Photos from Polygon 1 and 2 not obtained due to lack of property owner permission to access site.

Photo Number: 1
Date: July 06, 2018
Direction Photo Taken: North
Description: Polygon 3



Photo Number: 2
Date: July 06, 2018
Direction Photo Taken: West
Description: Polygon 3





Photo Number: 3
Date: July 07, 2017
Direction Photo Taken: West
Description: Polygon 4



Photo Number: 4
Date: July 07, 2017
Direction Photo Taken: North
Description: Polygon 4





Photo Number: 5
Date: July 11, 2018
Direction Photo Taken: West
Description: Polygon 5



Photo Number: 6
Date: July 11, 2018
Direction Photo Taken: North
Description: Polygon 5



Photo Number: 7
Date: July 11, 2017
Direction Photo Taken: North
Description: Polygon 6



Photo Number: 8
Date: July 11, 2017
Direction Photo Taken: South
Description: Polygon 6





Photo Number: 9
Date: July 11, 2017
Direction Photo Taken: West
Description: Polygon 7



Photo Number: 10
Date: July 11, 2017
Direction Photo Taken: West
Description: Polygon 7





Photo Number: 11
Date: July 11, 2017
Direction Photo Taken: West
Description: Polygon 8



Photo Number: 12
Date: July 11, 2017
Direction Photo Taken: East
Description: Polygon 8



Photo Number: 13
Date: July 11, 2018
Direction Photo Taken: Southwest
Description: Polygon 9



Photo Number: 14
Date: July 11, 2018
Direction Photo Taken: Northeast
Description: Polygon 9





Photo Number: 15
Date: July 13, 2017
Direction Photo Taken: Northeast
Description: Polygon 10



Photo Number: 16
Date: July 13, 2017
Direction Photo Taken: Southwest
Description: Polygon 10





Photo Number: 17
Date: July 11, 2018
Direction Photo Taken: East
Description: Polygon 11



Photo Number: 18
Date: July 11, 2018
Direction Photo Taken: West
Description: Polygon 11





Photo Number: 19
Date: July 13, 2017
Direction Photo Taken: Southeast
Description: Polygon 12



Photo Number: 20
Date: July 13, 2017
Direction Photo Taken: North
Description: Polygon 12





Photo Number: 21
Date: July 13, 2018
Direction Photo Taken: Northwest
Description: Polygon 13



Photo Number: 22
Date: July 13, 2018
Direction Photo Taken: North
Description: Polygon 13





Photo Number: 23
Date: July 11, 2018
Direction Photo Taken: Northeast
Description: Polygon 14



Photo Number: 24
Date: July 11, 2018
Direction Photo Taken: Northeast
Description: Polygon 14





Photo Number: 25
Date: July 11, 2018
Direction Photo Taken: West
Description: Polygon 15



Photo Number: 26
Date: July 11, 2018
Direction Photo Taken: Southwest
Description: Polygon 15





Photo Number: 27
Date: July 06, 2018
Direction Photo Taken: Southwest
Description: Polygon 17



Photo Number: 28
Date: July 06, 2018
Direction Photo Taken: Southwest
Description: Polygon 17





WILLS

Photo Number: 29

Date:
July 13, 2018

Direction Photo Taken:
Southwest

Description:

Polygon 19



Photo Number: 30

Date:
[Click here for date](#)

Direction Photo Taken:

Description:

Polygon 19





Photo Number: 31
Date: October 05, 2017
Direction Photo Taken: North
Description: Polygon 20



Photo Number: 32
Date: October 05, 2017
Direction Photo Taken: East
Description: Polygon 20



Photo Number: 33
Date: June 28, 2017
Direction Photo Taken: South
Description: Polygon 21



Photo Number: 34
Date: June 28, 2017
Direction Photo Taken: West
Description: Polygon 21

