WETLAND EVALUATION DATA

AND SCORING RECORD

Wetland Name: _South Bear Brook Wetland_

Geographic Location (municipality, lot/concession, etc):

City of Ottawa; Bounded by Farmer's Way (west), Highway 417 (north), Boundary Road (east), Mitch Owens Road (south)

Map / Photo Locational Reference (e.g., latitude/longitude, NTS map, UTM):

_45.36088, -75.48461_

Eco-District: _6E-12_

Wetland Size (hectares): _561.48_

Vegetation Form	FA
h	0.70
c	0.06
dh	-
dc	-
ts	0.15
ls	-
ds	-
gc	-
m	-
ne	0.05
be	-
re	0.03
ff	-
f	-
su	-
u	-

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

1.1.1 Growing Degree-Days/Soils *(max: 30 pts)*
Refer to page 36 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).

		Clay-Loam	Silt-Marl	Lime-stone	Sand	Humic-Mesic	Fibric	Granite
Growing Degree-Days	<2800	15	13	11	9	8	7	5
	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	1	X 22	= 22
Silt/Marl:	-	X	=
Limestone:	-	X	=
Sand:	-	X	=
Humic/Mesic:	-	X	=
Fibric:	-	X	=
Granite:	-	X	=
Total	1		

GDD/Soils Score *(maximum 30 points)* ____22____

1.1.2 Wetland Type

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

	Fractional Area			Score
Bog	-	x 3	=	
Fen	-	x 6	=	
Swamp	0.92	x 8	=	7.36
Marsh	0.07	x 15	=	1.05
Total	1.00		=	8.41

Wetland Type Score *(maximum 15 points)* 8.41_____

1.1.3 Site Type

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

	Fractional Area			Score
Isolated	0.00	x 1	=	0
Palustrine (permanent or intermittent flow)	0.91	x 2	=	1.82
Riverine	0.09	x 4	=	0.36
Riverine (at rivermouth)	-	x 5	=	-
Lacustrine (at rivermouth)	-	x 5	=	-
Lacustrine (with barrier beach)	-	x 3	=	-
Lacustrine (exposed to lake)	-	x 2	=	-
Total			=	2.18

Site Type Score *(maximum 5 points)* ___2.18____

1.2 BIODIVERSITY

1.2.1 Number of Wetland Types

(Check only one)

	One	=	9 points
X	Two	=	13
	Three	=	20
	Four	=	30

Number of Wetland Types Score
(maximum 30 points) ___13___

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*		
67	=	36	21	=	18	0	=	0

Vegetation Communities Score
(maximum 45 points) ___45___

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.

1	row crop
1	pasture
1	abandoned agricultural land
1	deciduous forest
1	coniferous forest
1	mixed forest*
1	abandoned pits and quarries
1	open lake or deep river
1	fence rows with deep cover, or shelterbelts
1	terrain appreciably undulating, hilly or with ravines
1	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) ___7___

1.2.4 Proximity to Other Wetlands

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

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

Name and distance (from wetland) of wetlands/waterbodies scored above:
  250 m from Swamp on NCC Property bordered by Hwy 417/Piperville Rd/Boundary Rd
  200 m from Swamp east of Anderson Links Golf Course, bordered by Farmers Way/Leitrim Rd/Hydro Corridor

Proximity to other Wetlands Score
(maximum 8 points) ___8___

1.2.5 Interspersion

Number of Intersections = ___234___

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

Interspersion Score *(maximum 30 points)* ___30___

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

Open Water Type Score *(maximum 30 points)* ___8___

1.3 SIZE (BIOLOGICAL COMPONENT)

Total Size of Wetland = 561.48 ha

Sum of scores from Biodiversity Subcomponent

	1.2.1	13
+	1.2.2	45
+	1.2.3	7
+	1.2.4	8
+	1.2.5	30
+	1.2.6	8

111

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
<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

Wetland size (ha) (vertical axis label)

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

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: __408.87 ha__

	< 5 ha	=	0 pts
	5 - 25 ha	=	3
	26 – 50 ha	=	6
	51 – 100 ha	=	9
	101 – 200 ha	=	12
X	> 200 ha	=	18

Source of information:
 Site Visit, City of Ottawa Ortho Imagery (2021)

Wood Products Score *(maximum 18 points)* __18__

2.1.2 Wild Rice

Check only one.

	Present (min. size 0.5 ha)	=	6 pts
X	Absent	=	0
	Harvest not permitted	=	0

Source of information:
 Site Visit

Wild Rice Score *(maximum 6 points)* __0__

2.1.3 Commercial Baitfish

Check only one.

	Present	=	12 pts
X	Absent	=	0
	Fishing not permitted	=	0

Source of information:
Site Visit

Commercial Fish Score *(maximum 12 points)* __0_____

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.	Trapping prohibited	
2.		
3.		
4.		
5.		
6.		

Furbearer Score *(maximum 12 points)* ___0_____

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 X	20
	Low	8	8	8
	Not Possible/ No evidence	0 X	0	0 X

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

Hunting: ___Not Permitted - 0 points_____
_____
_____
_____

Nature: ___Observed use of ATV trails within the Study Area during site visits_____
___- 20 points_____
_____
_____

Fishing: ___No evidence from site visits._____
_____
_____
_____
_____

Recreational Activities Score
(maximum 80 points) __20_____

2.3 LANDSCAPE AESTHETICS

2.3.1 Distinctness

Check only one.

	Clearly Distinct	=	3 pts
X	Indistinct	=	0

Landscape Distinctness Score
(maximum 3 points) ____0____

2.3.2 Absence of Human Disturbance

Check only one.

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

Details regarding type, extent and location of disturbance scored:
Surrounding Area has been heavily farmed and includes local residential dwellings along the
roads. There is heavy use of ATV trails at multiple locations. Evidence of historic peat extraction is
extensive in tsS communities north of Piperville Road. Road run-off and agricultural drainage
ditches are prevalent.
Source of information:
Site Visits

Absence of Human Disturbance Score
(maximum 7 points) ____1____

2.4 EDUCATION AND PUBLIC AWARENESS

2.4.1 Educational Uses

Check highest appropriate category.

	Frequent	=	20 pts
	Infrequent	=	12
X	No visits	=	0

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

_____
_____
_____

Source of information:
No evidence of educational use through site visits or online searches. Limited property access limits
potential for educational use.

Educational Uses Score *(maximum 20 points)* ___0___

2.4.2 Facilities and Programs

Check all appropriate options, score highest category checked.

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

Additional Notes/Comments:
Maintained ATV trails and foot paths present

_____
_____

Source of information:
Site Visits

_____

Facilities and Programs Score
(maximum 8 points) ___2___

2.4.3 Research and Studies

Check all that apply; score highest category checked.

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

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

Yang, J., Townsend, R. D., Daneshfar, B. (2005) . A GIS-based .Approach to River

Network Floodplain Delineation. River Basin Management III Vol 83, page

517-524 ISSN 1743-3541

South Nation Conservation Authority (2016) Bear Brook Subwatershed Report

Card Retrieved from·

https·//www.nation.on.ca/sites/default/files/16-SNCA-0794-Bear_Brook_ Report-ENG-Proof-

r4.pdf

Research and Studies Score
(maximum 12 points) __5__

2.5 PROXIMITY TO AREAS

OF HUMAN SETTLEMENT

Name of Settlement:__Orleans__

Distance of wetland from settlement:__2.2 km__

Population of settlement:__125,040__   (Source:__City of Ottawa Demographic Statistics__)

Circle only the highest score applicable

		population >10,000	population 2,500-10,000	population <2,500 or cottage community
Distance of wetland to settlement	within or adjoining settlement	40 points	26 points	16 points
	0.5 to 10 km from settlement	26 X	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) __26__

2.6 OWNERSHIP

FA of wetland held by or held under a legal contract by a conservation body (as defined by the *Conservation Land Act*) 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	1 x 4 = 4	

Source of information:

_____

Ownership Score *(maximum 10 points)* ___4___

2.7 SIZE (SOCIAL COMPONENT)

Total Size of Wetland = 561.48 ha   Sum of scores from Subcomponents 2.1, 2.2, and 2.5 = 64

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

Southern OWES 4

Total Size Score (Social Component) ___17___

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

	Significant	=	30 pts
	Not Significant	=	0
X	Unknown	=	0

Additional Comments/Notes:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

2.8.2 Cultural Heritage

	Significant	=	30 pts
	Not Significant	=	0
X	Unknown	=	0

Additional Comments/Notes:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Aboriginal Values/Cultural Heritage Score *(maximum 30 points)* __0_____

3.0 HYDROLOGICAL COMPONENT

3.1 FLOOD ATTENUATION

Check one of the following options.

☐ If wetland is a coastal wetland, ➡ score 0 points for this section.

☐ If wetland is entirely isolated in site type, ➡ score 100 points automatically.

☒ Wetland not as above – proceed through 'steps' A through F below.

(A) Total wetland area = $\underline{561.48}$ ha

(B) Size of wetland's catchment = $\underline{5216.85}$ ha

(C) Size of other detention areas in catchment = $\underline{733.39}$ ha

(D) Total area of upstream detention areas = {A + C } = $\underline{1294.87}$ ha

(E) Upstream Detention Factor = {(A/D) x 2} = $\underline{0.87}$ (maximum 1.0)

(F) Attenuation Factor = {(A/B) x 10} = $\underline{1}$ (maximum 1.0)

Flood Attenuation Final Score = {(E + F) /2) x 100 = $\underline{93.5}$

Flood Attenuation Score *(maximum 100 points)*	__94__

3.2 WATER QUALITY IMPROVEMENT

3.2.1 Short Term Water Quality Improvement

Step 1:   Determination of maximum initial score

	Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5A)
X	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	=	0	x 0.5 =	0
FA of riverine wetland	=	0.09	x 1.0 =	0.09
FA of palustrine wetland with no inflow	=	0.91	x 0.7 =	0.64
FA of palustrine wetland with inflows	=	0	x 1.0 =	0
FA of lacustrine on lake shoreline	=	0	x 0.2 =	0
FA of lacustrine at lake inflow or outflow	=	0	x 1.0 =	0

Sum (*WIF cannot exceed 1.0*) __0.73__

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

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

X	Over 50% agricultural and/or urban	=	1.0
	Between 30 and 50% agricultural and/or urban	=	0.8
	Over 50% forested or other natural vegetation	=	0.6

LUF *(maximum 1.0)* __1__

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)	0.92 = x	0.75 =	0.69
FA of wetland with emergent, submergent or floating vegetation (re, be, ne, su, f, ff)	0.08 = x	1.0 =	0.08
FA of wetland with little or no vegetation (u)	0 = x	0.5 =	0

Sum (*PUF cannot exceed 1.0*) __0.77__

Step 5: Calculation of final score

	Wetland on defined 5 major lakes or 5 major rivers	0
X	All other wetlands – calculate as follows	
	Initial score	60
	Watershed Improvement Factor (WIF)	0.73
	Land Use Factor (LUF)	1
	Pollutant Uptake Factor (PUF)	0.77
	Final score: 60 x WIF x LUF x PUF =	33.63

> **Short Term Water Quality Improvement Score**
> *(maximum 60 points)*   33.63

3.2.2 Long Term Nutrient Trap

Step 1:

	Wetland on defined 5 major lakes or 5 major rivers = 0 points
X	All other wetlands (Proceed to Step 2)

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

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

> **Long Term Nutrient Trap Score**
> *(maximum 10 points)*   3

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 the dominant type in the wetland.

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

Additional Comments/Notes:

_____

_____

_____

Groundwater Discharge Score
(maximum 30 points)   24

3.3 CARBON SINK

Check only one of the following:

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

Source of information:

   Site visit noted residual organic soils no greater than 20 cm deep.

Carbon Sink Score
(maximum 5 points) ___0___

3.4 SHORELINE EROSION CONTROL

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

Step 1:

	Wetland entirely isolated or palustrine	=	0 pts
X	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".)*

	Trees and shrubs	=	15 pts
X	Emergent vegetation	=	8
	Submergent vegetation	=	6
	Other shoreline vegetation	=	3
	No vegetation	=	0

Shoreline Erosion Control Score
(maximum 15 points) ___8___

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	=	0.91	x 50 =	45.59
■ FA of riverine wetland	=	0.09	x 20 =	1.75
■ FA of lacustrine wetland (not dominant site type)	=	0	x 0 =	0

Groundwater Recharge/Wetland Site Type Score
(maximum 50 points) __47.34__

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).*

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

Groundwater Recharge/Wetland Soil Recharge
Potential Score *(maximum 10 points)* ____7____

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	x 0	x 30	X 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)* __0___

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)* __30___

4.1.2 Species

4.1.2.1 Provincially Significant Animal Species

Common Name	Scientific Name	Activity	Dates Observed	Info Source
Snapping Turtle	*Chelydra serpentina*	Nest Evidence	July 2022	Site Visit
Monarch	*Danaus plexippus*	Adults foraging, caterpillar on milkweed	June - July 2022	Site Visit
Wood Thrush	*Hylocichla mustelina*	Singing, commonly observed in hS	June - July 2022	Site Visit
Eastern Wood Pewee	*Contopus virens*	Singing, commonly observed in hS	June - July 2022	Site Visit

Additional Notes/Comments:
See Appendix C for full list of background sources confirming multiple years of observation.

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) __105__

4.1.2.2 Provincially Significant Plant Species

Common Name	Scientific Name	Activity	Dates Observed	Info Source
Red Spruce	Picea rubens	n/a	July 2022, 2019	Site Visit, NHIC, iNaturalist
Black Ash	Fraxinus nigra	n/a	July 2022, 2020	Site Visit, NHIC, iNaturalist

Additional Notes/Comments:
Note that Polygala sanguinea has been identified within the hydro corridor immediately outside of the wetland. Multiple years observations are lacking, but this species is likely to be present in a greater geographic area than observed in. See Appendix C for additional details and source records.

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) __80__

4.1.2.3 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) __0_____

4.1.2.4 Locally Significant Species

Common Name	Scientific Name	Activity	Dates Observed	Info Source
Interupted Fern	Osmunda claytoniana	n/a	June 2022, June 2021	Site Visit, iNaturalist
Round-leaved Sundew	Drosera rotundifolia	n/a	July 2022, June 2019	Site Visit, iNaturalist

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) __17_____

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	Great Blue Heron	Site Visit	= 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:

Heronry with 3 active nests and 9 juvenile birds in nests during fieldwork in June - July 2022. Birds were observed throughout the duration of site visits and were also seen after fledging.

Colonial Waterbird Nesting Score
(maximum 50 points) __50__

4.2.2   Winter Cover for Wildlife

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

	Provincially significant	=	100 pts
	Significant in Ecoregion	=	50
	Significant in Ecodistrict	=	25
	Locally significant	=	10
X	Little or poor winter cover	=	0

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

Limited areas of coniferous dominant communities. Little winter cover available.

Source of information:

Winter Cover for Wildlife Score
(maximum 100 points) __0__

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		= 150 pts		= 150 pts
Provincially significant		= 100		= 100
Significant in the Ecoregion		= 50		= 50
Significant in Ecodistrict		= 25		= 25
Known to occur		= 10	X	= 10
Not possible/Unknown	X	= 0		= 0

Species/habitat/vegetation community scored (e.g., approx 20 mallards in W3):
Moulting signs observed in W communities north of Mitch Owens Road.

Source of information:
Site visits

Waterfowl Staging/Moulting Score
(maximum 150 points) 10

4.2.4 Waterfowl Breeding

Check highest level of significance.

	Nationally/internationally significant	= 150 pts
	Provincially significant	= 100
	Significant in the Ecoregion	= 50
	Significant in Ecodistrict	= 25
X	Habitat Suitable	= 10
	Habitat not suitable	= 0

Species/habitat/vegetation community scored (e.g., mallard in W3):
Wood Duck and ducklings observed in reM7-A2 (north of Mitch Owens). Habitat suitable in other reM and W communities throughout.

Source of information:
Site Visit

Waterfowl Breeding Score
(maximum 150 points) 10

4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area

Check highest level of significance.

	Nationally / internationally significant	= 150 pts
	Provincially significant	= 100
	Significant in Ecoregion	= 50
	Significant in Ecodistrict	= 25
	Known to occur	= 10
X	Not possible / Unknown	= 0

Species/habitat/vegetation community scored:

Source of information:

Passerine, Shorebird or Raptor Stopover Score
(maximum 100 points) 0

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
X	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
X	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
X	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** (from Table 7) 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 7)	Multiplication Factor	Score
1	Tallgrass	X	23.73	1	6	6
2	Shortgrass-Sedge				11	
3	Cattail-Bulrush-Burreed	X	12.63	0.6	5	3
4	Arrowhead-Pickerelweed				5	
5	Duckweed				2	
6	Smartweed-Waterwillow				6	
7	Waterlily-Lotus	X	2.48	0.2	11	2.2
8	Waterweed-Watercress				9	
9	Ribbongrass				10	
10	Coontail-Naiad-Watermilfoil				13	
11	Narrowleaf Pondweed				5	
12	Broadleaf Pondweed				8	
	Total Score for Low Marsh (*maximum 75 points*)					11.2

Continue to 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
X	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 7) 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 7)	Multiplication Factor	Score
1	Tallgrass	X	4.86	0.2	6	1.2
2	Shortgrass-Sedge				11	
3	Cattail-Bulrush-Burreed				5	
4	Arrowhead-Pickerelweed				5	
	Total Score for High Marsh (*maximum 25 points*)					1.2

Continue to Step 6

Step 6:

☐	Swamp containing fish habitat not present	Go to Step 7
X	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 7).
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 7)**	**Multiplication Factor**	**Score**
Seasonally Flooded Swamp	X	31.93	1	10	10
Permanently Flooded Swamp				10	
		Total Score for Swamp (*maximum 20 points*)			10

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)   = _11.2_
D. Score from Step 5 (High Marsh)   = _1.2_
E. Score from Step 6 (Swamp)   = _10_

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) __22.4__

4.2.6.2 Migration and Staging Habitat

Step 1:

X	Staging or Migration Habitat is not present in the wetland	Go to Step 4, Score 0 points
	Staging or Migration Habitat is present in the wetland, significance of the habitat is known	Go to Step 2
	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.

	Significant in Ecoregion	Score 25 points in Step 4
	Significant in Ecodistrict	Score 15 points in Step 4
	Locally Significant	Score 10 points in Step 4
	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.

	Wetland is riverine at rivermouth or lacustrine at rivermouth	Score 25 points in Step 4
	Wetland is riverine, within 0.75 km of rivermouth	Score 15 points in Step 4
	Wetland is lacustrine, within 0.75 km of rivermouth	Score 10 points in Step 4
	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)* _____0_____

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	=	0.92	x 3 =	2.76
Marsh	=	0.08	x 0 =	0
	Total		=	

Ecosystem Age Score *(maximum 25 points)* __2.76__

4.4 GREAT LAKES COASTAL

WETLANDS

Choose one only.

	Wetland < 10 ha	=	10 pts
	Wetland 10-50 ha	=	25
	Wetland 51-100 ha	=	50
	Wetland > 100 ha	=	75

_____n/a_____

_____

_____

_____

_____

_____

Great Lakes Coastal Wetland Score
(maximum 75 points) _____0_____

Wetland Evaluator(s)

Name: _Nicole Nolan (Certified OWES Evaluator)_   Affiliation: _Parsons Corporation, Ottawa_

Signature: _Nicole Nolan_

(by signing, I confirm that this evaluation has been undertaken and completed in accordance with the Ontario Wetland Evaluation System Southern Manual 4th Edition / Northern Manual 2nd Edition)

Name: _Maria Ning (Terrestrial Ecologist)_   Affiliation: _Parsons Corporation, Ottawa_

Signature: _____

(by signing, I confirm that this evaluation has been undertaken and completed in accordance with the Ontario Wetland Evaluation System Southern Manual 4th Edition / Northern Manual 2nd Edition)

Name: _____   Affiliation: _____

Signature: _____

(by signing, I confirm that this evaluation has been undertaken and completed in accordance with the Ontario Wetland Evaluation System Southern Manual 4th Edition / Northern Manual 2nd Edition)

Name: _____   Affiliation: _____

Signature: _____

(by signing, I confirm that this evaluation has been undertaken and completed in accordance with the Ontario Wetland Evaluation System Southern Manual 4th Edition / Northern Manual 2nd Edition)

Name: _____   Affiliation: _____

Signature: _____

(by signing, I confirm that this evaluation has been undertaken and completed in accordance with the Ontario Wetland Evaluation System Southern Manual 4th Edition / Northern Manual 2nd Edition)

Date(s) wetland visited (in field): _June 2022: 7-10, 14-18, 25; July 2022: 8, 13, 22, 26, 27_

Date evaluation completed: _October 15, 2022; Re-evaluation in accordance with 4th Edition Manual Completed July 12, 2023_

Estimated time devoted to completing the field survey in person hours: _300 hours_

Weather Conditions

i) at time of field work: Ranged from clear and sunny to overcast and rain, 15-30 degrees Celsius, typically 22-28 degrees.

ii) summer conditions in general: Sunny and clear with extended periods without rain. Occasional, severe thunderstorms with stronger winds than typical year. Extensive spring storm damage within Study Area due to May 2022 derecho.

WETLAND EVALUATION SCORING RECORD

WETLAND NAME: <u>South Bear Brook Wetland</u>

1.0 BIOLOGICAL COMPONENT

32.74	1.1 PRODUCTIVITY
22	1.1.1 Growing Degree-Days/Soils
9	1.1.2 Wetland Type
2	1.1.3 Site Type

111	1.2 BIODIVERSITY
13	1.2.1 Number of Wetland Types
45	1.2.2 Vegetation Communities
7	1.2.3 Diversity of Surrounding Habitat
8	1.2.4 Proximity to Other Wetlands
30	1.2.5 Interspersion
8	1.2.6 Open Water Type

50	1.3 SIZE (Biological Component)

194	TOTAL (Biological Component)

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

18	2.1.1 Wood Products
0	2.1.2 Wild Rice
0	2.1.3 Commerical Baitfish
0	2.1.4 Furbearers

18   Total for Economically Valuable Products

20   2.2 RECREATIONAL ACTIVITIES

2.3 LANDSCAPE AESTHETICS

0	2.3.1 Distinctness
1	2.3.2 Absence of Human Disturbance

1   Total for Landscape Aesthetics

2.4 EDUCATION AND PUBLIC AWARENESS

0	2.4.1 Educational Uses
2	2.4.2 Facilities and Programs
5	2.4.3 Research and Studies

7   Total for Education and Public Awareness

26   2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT

4   2.6 OWNERSHIP

17   2.7 SIZE (Social Component)

2.8 ABORIGINAL VALUES AND CULTURAL HERITAGE

0	
0	2.8.1 Aboriginal Values
0	2.8.2 Cultural Heritage

93   TOTAL (Social Component)

3.0 HYDROLOGICAL COMPONENT

_94_ 3.1 FLOOD ATTENUATION

3.2 WATER QUALITY IMPROVEMENT

_33.63_ 3.2.1 Short Term Water Quality Improvement

_3_ 3.2.2 Long Term Nutrient Trap

_24_ 3.2.3 Groundwater Discharge

_61_ Total for Water Quality Improvement

_0_ 3.3 CARBON SINK

_8_ 3.4 SHORELINE EROSION CONTROL

3.5 GROUNDWATER RECHARGE

_47.34_ 3.5.1 Site Type

_7_ 3.5.2 Soil Recharge Potential

_54_ Total for Groundwater Recharge

_217_ TOTAL (Hydrological Component)

4.0 SPECIAL FEATURES COMPONENT

4.1 RARITY

4.1.1 Wetlands

0	4.1.1.1 Rarity within the Landscape
30	4.1.1.2 Rarity of Wetland Type

__30__ Total for Wetland Rarity

4.1.2 Species

105	4.1.2.1 Provincially Significant Animals
80	4.1.2.2 Provincially Significant Plants
0	4.1.2.3 Regionally Significant Species
17	4.1.2.4 Locally Significant Species

__202__ Total for Species Rarity

4.2 SIGNIFICANT FEATURES AND HABITATS

50	4.2.1 Colonial Waterbirds
0	4.2.2 Winter Cover for Wildlife
10	4.2.3 Waterfowl Staging and/or Moulting Areas
10	4.2.4 Waterfowl Breeding
0	4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area
	4.2.6 Fish Habitat
22.4	4.2.6.1 Spawning and Nursery Habitat
0	4.2.6.2 Migration and Staging Habitat

__92.4__ Total for Significant Features and Habitats

__2.76__ 4.3 ECOSYSTEM AGE

__0__ 4.4 GREAT LAKES COASTAL WETLANDS

__250 (327)__ TOTAL FOR SPECIAL FEATURES COMPONENT (*not to exceed 250*)

SUMMARY OF EVALUATION RESULT

Wetland _____

194
_____ 1.0 TOTAL FOR BIOLOGICAL COMPONENT

93
_____ 2.0 TOTAL FOR SOCIAL COMPONENT

217
_____ 3.0 TOTAL FOR HYDROLOGICAL COMPONENT

250
_____ 4.0 TOTAL FOR SPECIAL FEATURES COMPONENT

754
_____   TOTAL WETLAND SCORE

APPENDICES