APPENDIX J

Natural Environment

East-West Road Corridor & Waterdown Road Corridor Municipal Road Class Environmental Assessments Natural Environment Report

August 2009

08-9020

Submitted by

Dillon Consulting Limited

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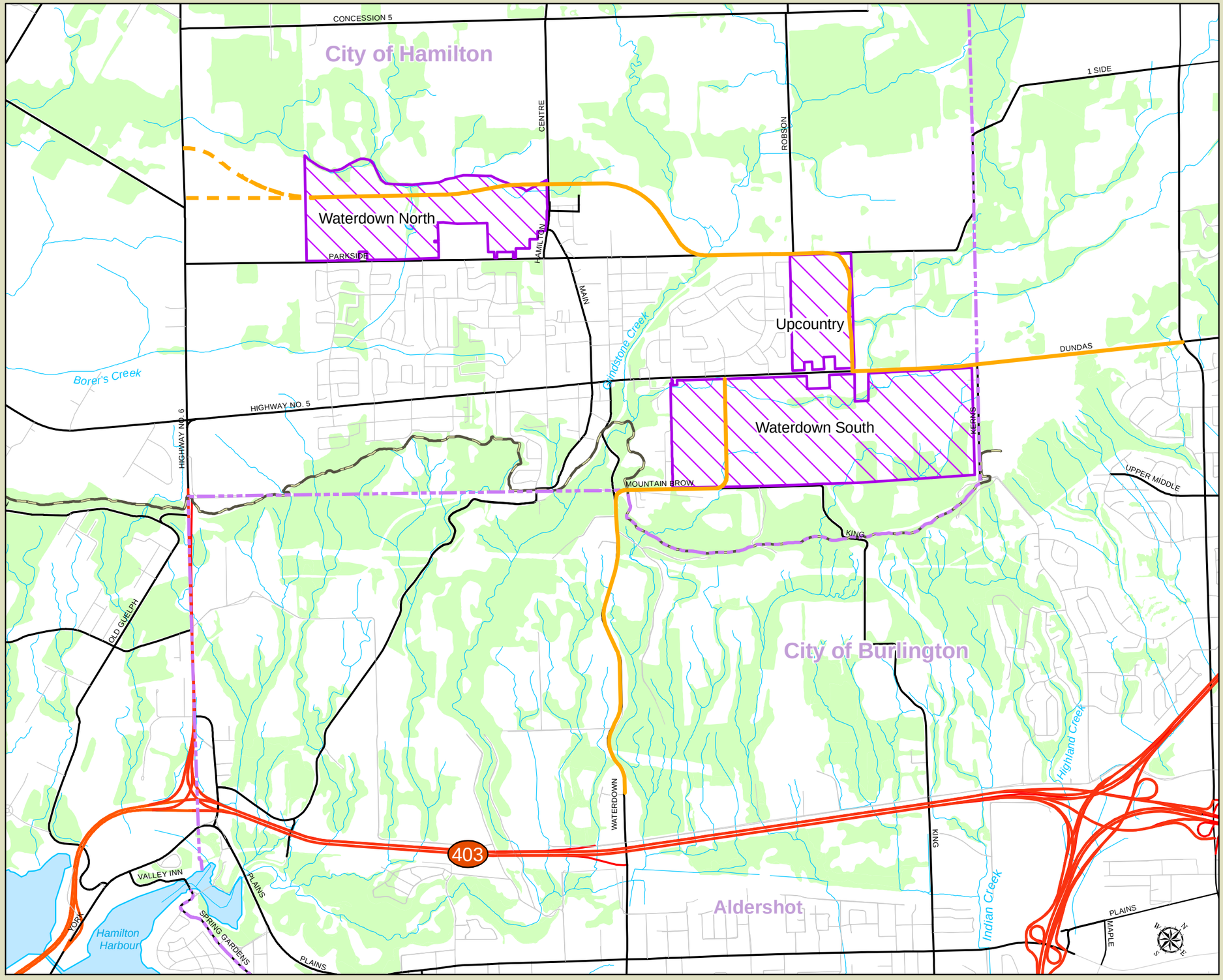
1.0 Introduction

The following detailed natural environmental study was conducted to provide additional information to the Phase 3/Phase 4 Municipal Engineers Association Class Environmental Assessments (Class EAs) studies for the North-South (Waterdown Road) corridor and the new East-West link north of Parkside Drive in Waterdown, Ontario. These Class EAs evolved from the Waterdown/Aldershot Transportation Master Plan (WATMP) Phase 1/Phase 2 studies. This natural environment study was completed in consultation with the Hamilton Conservation Authority (HCA) and Conservation Halton (CH).

The study area for the East-West Road Corridor Class EA lands consists of an area north of Parkside Drive and east of Highway 6, along Parkside Drive east of Centre Road to east of Robson Road, between Parkside Drive and Highway #5 (Dundas Street) west of Evans Road and along Dundas Street west of Evans Road to Brant Street. The Waterdown Road Corridor Class EA study area consists of the lands between Dundas Street and Mountain Brow Road, along Mountain Brow Road to Waterdown Road and Waterdown Road between Dundas Street and Highway 403. See ***Figure 1*** for a location map of the WATMP study area.

The purpose of this study was to inventory and evaluate the natural heritage features in the East-West Road Corridor and Waterdown Road Class EA study areas. Once the natural environment inventory was complete, the natural features that could be impacted by the preferred road routes proposed Class EAs were identified. Field data collection included a detailed vegetation survey, butternut tree surveys, ecological land classification, an aquatic assessment, breeding bird surveys and amphibian surveys. Field data was supplemented with information obtained from the Ontario Ministry of Natural Resources (OMNR) Natural Heritage Information Centre (NHIC) database, Halton Natural Areas Inventory (Conservation Halton) and natural heritage data managed by the Hamilton Conservation Authority.

The main natural environmental issues in the WATMP study area concern watercourse crossings, federal and/or provincial Species at Risk, Provincially Significant Wetlands (PSW's), Environmentally Sensitive Areas (ESA's) and Areas of Natural and Scientific Interest (ANSI's). See ***Figure 2*** for Significant Natural Area locations (i.e. ESAs, Candidate ESAs, PSWs, ANSIs). Other issues examined in this study concern regionally rare species and their habitat.



Waterdown Road Corridor and East - West Road Corridor Municipal Class EAs

Figure 1: Study Area and Preferred Route

Legend

- Municipal Boundary
- Preferred Alignments
- Route to be Determined
- Woodlot
- OPA No.28 Lands
- Niagara Escarpment

DRAFT

Scale

0 0.5 1 Kilometers

Map Notes

Map Created By: PJK/SFG
Map Checked By: DR
Date Created: April 5, 2006
Date Modified: April 2, 2009
File Path: I:\GIS\089020 - Waterdown\Natural Environment Figures April 2009\Mapping\Figure 1.mxd
Base mapping provided by the City of Hamilton, the City of Burlington and the Region of Halton. Additional mapping provided by Halton Region Conservation Authority and the Ministry of Natural Resources.

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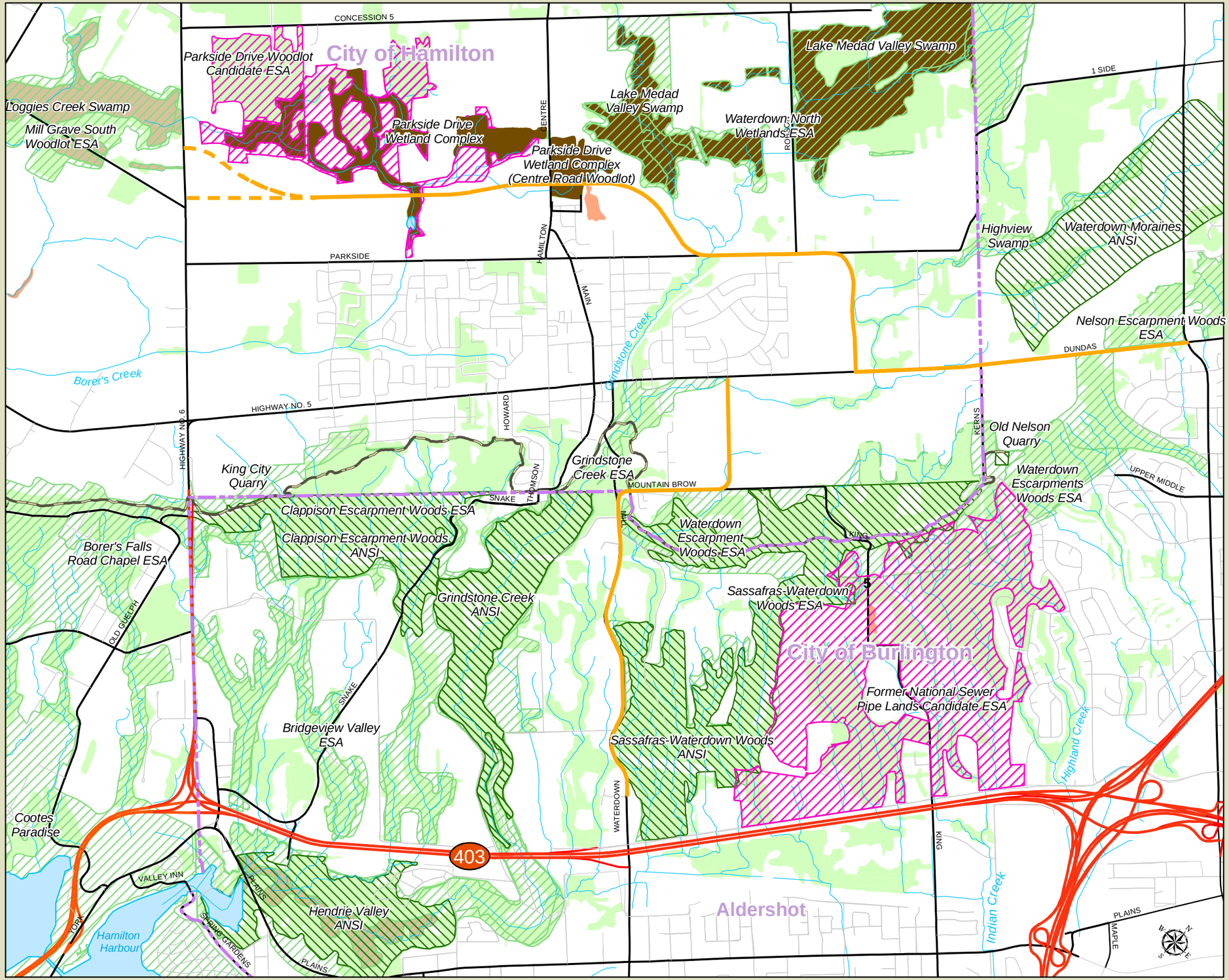
Waterdown Road Corridor and East - West Road Corridor Municipal Class EAs

Figure 2: Significant Natural Areas



Legend

- Municipal Boundary
- Preferred Alignment
- Route to be Determined
- Provincially Significant Wetland
- Area of Natural or Scientific Interest
- Environmentally Sensitive Area
- Candidate Environmentally Sensitive Area
- Local Wetland
- Woodlot
- Other Natural Habitat
- Niagara Escarpment

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Scale

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Map Notes

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Base mapping provided by the City of Hamilton, the City of Burlington and the Region of Halton. Additional mapping provided by Halton Region Conservation Authority and the Ministry of Natural Resources.

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2.0 Methods

2.1 Ecological Land Classification and Vegetation

Ecological communities are the product of both the vegetation and physical substrates that comprise them. Ecological Land Classification (ELC) uses both parameters to objectively classify ecological communities according to the soil conditions, dominant vegetation communities, levels of disturbance and the natural versus anthropogenic forces that are driving the sustainability of the community. ELC has become the standard method of classifying ecological communities in Ontario (Lee et al, 1998) and was conducted throughout the Waterdown Road Corridor and East-West Road Corridor Class EA study areas, generally within 50 m of the preferred road alignments. Vegetation communities were then mapped on aerial photography according to ELC nomenclature to graphically represent the specific spatial pattern in the vegetation cover according to species composition, physiognomy, and physical site characteristics.

In order to more fully understand the vegetation in the study area, to preclude activity in areas with provincially and/or federally listed Species at Risk and to mitigate activity in areas with regionally significant species, a full botanical inventory was completed for the Waterdown Road Corridor and East-West Road Corridor Class EA study areas, primarily within 50 m of the preferred road alignments. The vegetation study involved traversing these study areas on foot and recording all the vegetation observed during the late summer/fall in 2007 and early summer and fall 2008. Species nomenclature is based on the Ontario Plant List (Newmaster *et al.* 1998). The coefficient of conservatism and the coefficient of wetness for each plant was used to evaluate the quality and wetland potential of the habitat, respectively.

2.2 Butternut Survey and Health Assessment

An inventory and health assessment of butternut trees in the Centre Road Woodlot portion of the Logies Creek – Parkside Drive PSW Complex was conducted on September 22nd, 2008 with Terry Schwan, Guelph District Forester for the MNR. The purpose of this survey was to assess the general health of the butternut trees and the degree to which they were infected with butternut canker using the MNR's draft assessment protocol. The MNR assessment protocol is based on the document, Butternut – Strategies for Managing a Threatened Tree (Ostry *et al*, 1994). Using this protocol, the condition of each butternut specimen and extent of butternut canker disease was determined. Once the condition and disease state of assessed butternuts was determined, the 70-20-50 Rule was used to identify which tree should be retained. The 70-20-50 tree retention guideline recommends:

- *To retain all trees with more than 70 percent live crown and less than 20 percent of the combined circumference of the bole and root flares affected by the canker;*
- *To retain all trees with al least 50 percent live crown and no cankers in bole or root flare; and*
- *That dead butternut and butternut of poor vigour may be cut.*

Guidelines have also been implemented for selecting potentially resistant trees. Trees that are either disease-free or that have been able to inhibit canker expansion may have value in future tree improvement and should be retained in the stand. A major objective of these guidelines is to create conditions within a stand of butternuts that will result in natural regeneration. Listed are the requirements of candidate trees for retention as resistant stock (Ostry et al., 1994):

- *A healthy tree within 100 feet of a diseased tree in a stand with high incidence of the disease so as to have had a reasonable chance of exposure to the canker and develop resistance; and*
- *At least 10 inches DBH (diameter at breast height) and must be free of cankers.*

In addition to the inventory and health assessment of butternut trees in the Centre Road Woodlot PSW unit, the DNA of an individual butternut tree was tested for purity of its genetic make-up at the Ontario Forest Research Institute. Note: The Waterdown Road Corridor and East-West Road Corridor Class EA study areas were surveyed for butternut trees during the vegetation and ELC field inventories, especially in and directly adjacent to the preferred road alignment (i.e. within 50 m).

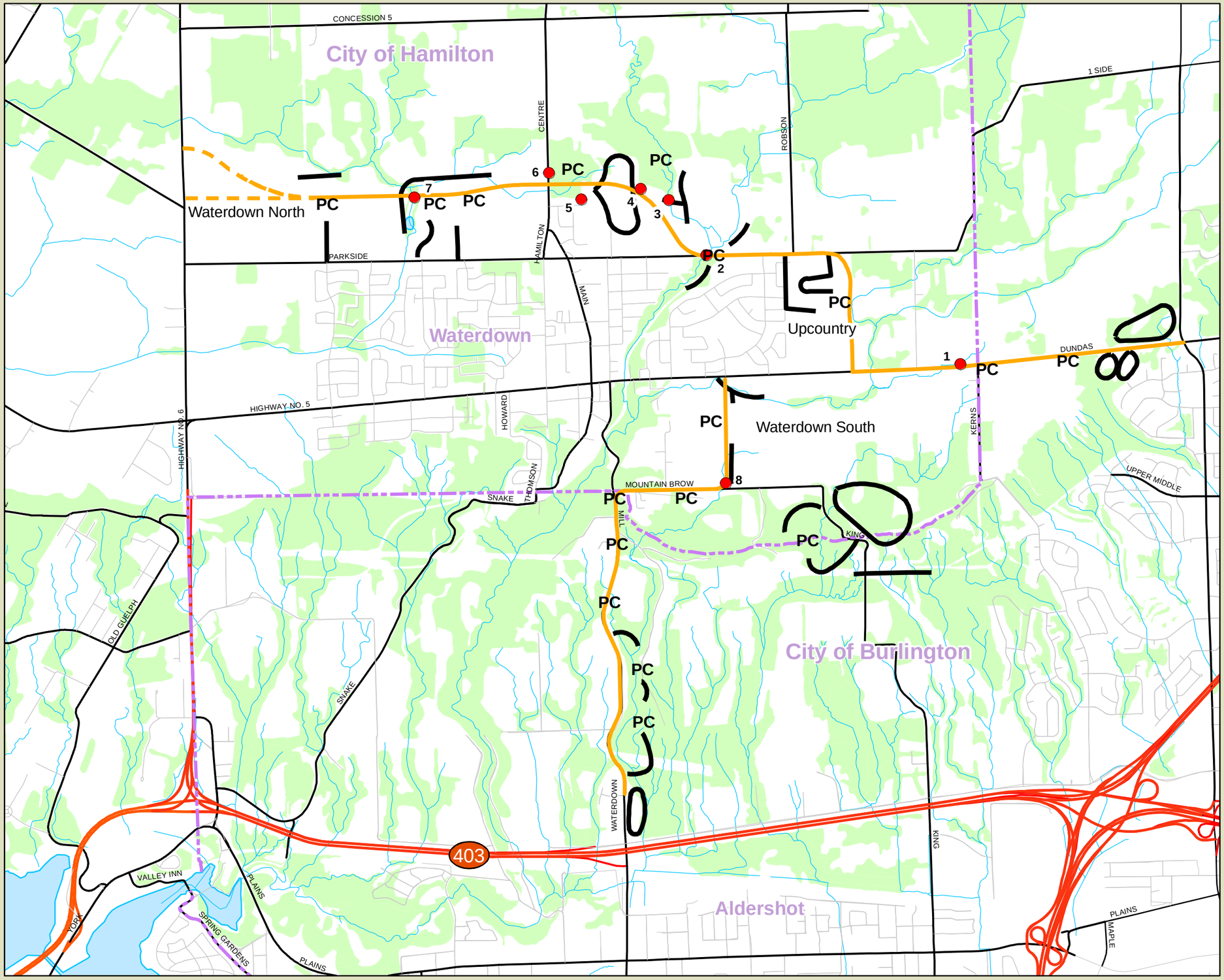
2.3 Breeding Bird Surveys

Breeding bird surveys were conducted in the Waterdown Road Corridor and East-West Road Corridor Class EA study areas between June and July, 2007. Specifically, surveys were conducted on June 19th, 20th, 22nd, 23rd, July 4th, 6th, 7th, 8th, and 14th between dawn and 10am. The objective of the surveys was to document the breeding bird species and identify habitat that is used by a breeding birds. The breeding bird surveys followed the Ontario Breeding Bird Atlas Guide for Participants (Environment Canada, 2001). The surveys utilized standard 10-minute point counts and area searches to determined species diversity, abundance and breeding evidence. Point counts and area searches were located in open country and forest communities within the proposed right of way lands and included agricultural, deciduous forest, shrubland, cultural field, riparian and residential habitat. Point count and area search locations are shown on ***Figure 3***.

Roadside point counts consisted of fifteen 10-minute, non-fixed radius point counts systematically spread out across the road network in the project area. Roadside point counts were spaced approximately 400m apart to avoid re-sampling individuals and in areas representing major habitat types. A total of nine interior forest point counts were conducted, along with 1 thicket point count using 10-minute non-fixed radius point counts, divided amongst five forested areas. Forest point count sites were chosen systematically, based on their size (i.e. tended to be the larger forests in the study area), their proximity to the proposed new road right of way and accessibility (i.e. location, landowner permission). Stations were spaced approximately 250m or more apart to avoid re-sampling individuals.

Waterdown Road Corridor and East - West Road Corridor Municipal Class EAs

Figure 3: Breeding Bird and Amphibian Point Count and Area Search Locations



1 Amphibian Point Count Location

PC Breeding Bird Point Count Location

Breeding Bird Area Search Route

Municipal Boundary

Preferred Alignments

Route to be Determined

Woodlot

DRAFT

Scale

0 0.5 1 Kilometers

Map Notes

Map Created By: PJK/SFG
Map Checked By: DR
Date Created: April 4, 2008
Date Modified: April 2, 2009
File Path: I:\GIS\089020 - Waterdown\Natural Environment Figures April 2009\Mapping\Figure 3 Point Count and Area Search Locations.mxd

Base mapping provided by the City of Hamilton, the City of Burlington and the Region of Halton. Additional mapping provided by Halton Region Conservation Authority and the Ministry of Natural Resources.

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Standardized area searches were used to sample forest and open country habitats throughout the study area. Area searches were used at sites too small for point counts and between point counts at larger sites. These searches were conducted from dawn to approximately 5 hours after sunrise. All of the main habitat types at a site were noted and searched on foot and all species and individual birds detected were noted and a breeding evidence code was used when appropriate.

The federal and provincial conservation status of each species located on breeding bird surveys was obtained through the OMNR's NHIC internet database. The North American Bird Conservation Initiative has divided the continent into bird conservation regions to facilitate regional bird conservation. The study area is located in Bird Conservation Region 13 (BCR-13), which encompasses the Lower Great Lakes and St. Lawrence Plain. The BCR-13 priority status for each species was obtained from the Ontario BCR-13 Landbird Conservation Plan (Ontario Partners in Flight, 2005).

The Halton and Hamilton-Wentworth regional conservation priority status for each species observed was obtained from the report "Conservation Priorities for the Birds of Southern Ontario" (Couturier, 1999). The Conservation Priority for Birds of Southern Ontario report (Couturier 1999) aims to help planning authorities set priorities for conservation efforts by targeting bird species (and their associated habitats) that are significant within their region. Specifically, this report advocates the use of prioritized lists of birds as tools that planning authorities might use when developing Official Plans (e.g., identifying significant wildlife habitat, Environmentally Sensitive Areas, etc.) and when evaluating development proposals.

2.4 Amphibian Surveys

An assessment of the Waterdown Road Corridor and East-West Road Corridor Class EA study areas was undertaken to determine the abundance and diversity of the amphibian community. Wetlands and vernal pools located in woodlots and adjacent to watercourses were surveyed for potential amphibian breeding habitat. The amphibian assessment consisted of conducting amphibian surveys at these potential habitats (see ***Figure 3***) during the spring of 2007 and 2008, as well as collecting secondary source information. Incidental herpetofaunal wildlife observations were also recorded. Secondary source herpetofaunal resources included the Ministry of Natural Resources' (MNR) Natural Heritage Information Centre (NHIC).and the MNR's Ontario Herpetofaunal Summary Atlas (Oldham *et al*., 2000).

The amphibian survey protocol used in this study was adapted from the document entitled The Marsh Monitoring Program Training Kit and Instructions for Surveying Marsh Birds, Amphibians, and Their Habitats, Revised 2003 (Bird Studies Canada *et al.*, 2003). Because the surveys began in May 2007, two amphibian survey events were conducted so that early and late breeders had an equal chance of detection by this protocol. In spring 2008, an additional amphibian survey was conducted in an expanded study area. The survey was conducted on April 8th in order to detect early amphibian breeding.

Surveys took place when evening temperatures exceeds 5ºC and an attempt will be made to distribute the surveys evenly between evenings that exceeded 5ºC (1-15th April), 10ºC (1-15th May) and 15ºC (1-15th June). Ideally, surveys were conducted at dusk and end before midnight.

Evenings with moderate to heavy precipitation were avoided. In general, surveys were conducted when wind strength was Code 0, 1, 2, or 3 on the Beaufort Wind Scale. Each station was surveyed for three minutes. Routes were be surveyed in their entirety, in the same sequence, starting at about the same time, on all visits. All amphibian species that are heard from each sample station are recorded, along with a Call Level Code of 1, 2, or 3 and an abundance of individuals calling, where possible.

Call Level Code:

1. **Individuals could be counted; calls were not simultaneous.** This number is assigned when individual males could be counted, and when the calls in individuals of the same species do not start **at the same time**. For the Abundance Count, the number of individual frogs of each species calling is recorded.
2. **Calls distinguishable; some simultaneous calling.** This code is assigned when there were a few males of the same species calling simultaneously; however, the individual males can be distinguished. In this case, an exact Abundance Count cannot be tallied, but a reliable estimate of the number of individuals present, based on their locations and/or by the differences in their voices can be determined.
3. **Full chorus; calls continuous and overlapping**. This value is assigned when a full chorus was encountered or when there are so many males of one species calling that all the calls sound like they are overlapping and continuous (like a blur of sound). There are too many overlapping calls to allow for any reasonable count or estimate, hence, there is no need to record an Abundance Count.

2.5 Aquatic Assessment

A background investigation and general reconnaissance of Borer's Creek, Grindstone Creek, and associated tributaries as they relate to the proposed East-West Road Corridor and the Waterdown Road Corridor was conducted on June 6th, 2007. This work was conducted at each of the anticipated watercourse crossings to provide the basis for input into the proposed road improvement works and make recommendations with respect to watercourse and fish habitat protection. Ultimately, information from this section is intended to be used in support of the fisheries approval process as the Detailed Design of the road improvement progresses.

Upon discussions with the Hamilton Conservation Authority (HCA), Conservation Halton (CH), and the Ontario Ministry of Natural Resources (OMNR) with respect to the volume and availability of fisheries information on file, it was decided that a new fish community survey was not needed in support of this MEA Class EA. Therefore, existing background information from the involved regulatory agencies formed the basis of the preliminary assessment. Fieldwork concentrated on assessment of potential watercourse crossings and confirmation of current conditions as they pertain to aquatic organisms and fish habitat.

The following documents were reviewed for this study, and in some cases, referenced within the text:

- The South Waterdown Subwatershed Study prepared by Ecoplans Limited and MRC in March 2006;
- The Grindstone Creek Watershed Study – Appendix 3: Aquatic Habitat Inventory and Assessment prepared by Conservation Halton in January of 1998;
- MC2 Lands, Waterdown – Environmental Impact Statement prepared by Stantec Consulting in September of 2005;
- Existing Conditions of the Borer's Creek Subwatershed, City of Hamilton – Final Report (revised 2005) prepared by Gartner Lee Limited;
- Upcountry Estates Environmental Implementation Report prepared by Paragon Engineering Limited in 1996;
- Fish and Fish Habitat Information from HRCA (Grindstone Creek System);
- Fish and Fish Habitat Information from HCA (Borer's Creek System);
- Species-At-Risk (SAR) Information from the OMNR; and
- Natural Heritage Information Centre website (NHIC) - http://nhic.mnr.gov.on.ca/nhic_.cfm.

At all watercourse crossings, aquatic habitat features were characterized, including general channel morphology, channel characteristics, key habitat features, and the presence/absence of fish habitat. Key representative photographs taken and included in the text where appropriate to further document the different habitat types observed.

3.0 Results

3.1 Ecological Land Classification and Vegetation

Ecological land classification (ELC) and vegetation surveys were conducted during the 2007 and 2008 growing seasons in the Waterdown Road Corridor and East-West Road Corridor Class EA study areas. See ***Appendix B*** for ELC field notes. Areas within 50 m of the preferred road alignments, and in some cases, alternative road alignments were assessed. Natural features were excluded from the field assessment if there was a 30m displacement or greater from the preferred road alignment with a cultural attribute (i.e. agricultural field, urban development, etc.) between the road alignment and the feature.

During field assessments, the location, abundance and condition of regional rare and/or species at risk flora was documented. Regionally rare and/or provincially vulnerable vegetation communities were also noted. A geographic query on the NHIC database was also undertaken to identify historic element occurrences for species at risk and provincially vulnerable vegetation communities in the study area (see ***Section 3.1.5***). In addition, detailed edge vegetation assessments were conducted along proposed road alignments in sensitive natural features such as Sassafras Woods and the Centre Road Woodlot PSW Unit (Logies Creek – Parkside Drive PSW Complex).

3.1.1 Ecological Land Classification

Twenty-two different ecological communities were identified through the ELC protocol including three cultural communities, nine different forest types, nine wetland types and one open water community (see ***Figures 4 & 5***). These communities are listed below and additional detail is provided for each in ***Appendix B – Table B1***. One community, FOD7-4: Fresh-Moist Black Walnut Lowland Deciduous Forest is listed as S2S3 or "*very rare*" to "*rare to uncommon*". This black walnut forest type was observed in three locations along the East-West Road Corridor (see ***Figure 4***).

Cultural Communities

- CUM1-1: Dry-Moist Old Field Meadow
- CUT1-7: Hawthorn – Buckthorn Cultural Thicket
- CUT1-4: Grey Dogwood Cultural Thicket

Forest Communities

- FOD4: Dry-Fresh Black Locust Deciduous Forest
- FOD4-2: Dry-Fresh White Ash Deciduous Forest
- FOD5-1: Dry-Fresh Sugar Maple (Hardwood) Deciduous Forest
- FOD5-3: Dry-Fresh Sugar Maple – Oak Deciduous Forest
- FOD7: Fresh-Moist Lowland Deciduous Forest

- FOD7-2: Fresh-Moist Ash Lowland Deciduous Forest
- FOD7-4: Fresh-Moist Black Walnut Lowland Deciduous Forest
- FOD8-1: Fresh-Moist Poplar Deciduous Forest
- FOD9-1: Fresh-Moist Oak – Sugar Maple Deciduous Forest

Wetland Communities

- MAM2-2: Reed Canary Grass Mineral Meadow Marsh
- MAM2-10: Forb Mineral Meadow Marsh
- MAS2-1: Cattail Mineral Shallow Marsh
- SWD2-1: Black Ash Mineral Deciduous Swamp
- SWD2-2: Red Ash Mineral Deciduous Swamp
- SWD4-3: White Birch Poplar Mineral Deciduous Swamp
- SWD3-2: Silver Maple Mineral Deciduous Swamp
- SWD7-2: Yellow Birch Organic Deciduous Swamp
- SWD5: Ash Organic Deciduous Swamp

Other

- OAO: Open Water

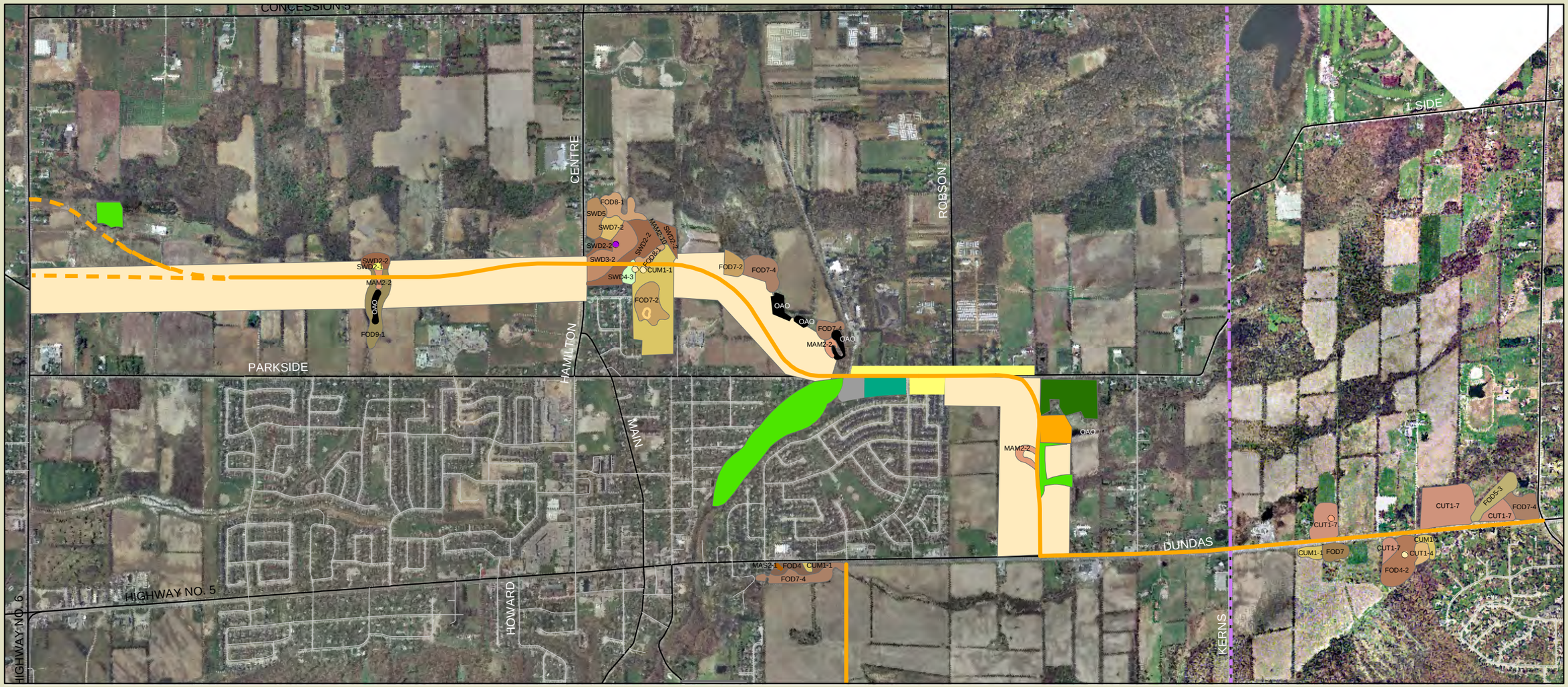
3.1.2 Vegetation

The results of the vegetation inventory are summarized below and a detailed vegetation list is provided in ***Appendix B - Table B2***. The study area is comprised of approximately 70% native species and 30% exotic species. Based on the near urban setting of the site, this level of native vegetation indicates that exotic invasion is moderate, as exotic species in disturbed sites can often approach 50% of the species composition or higher. Coefficient of conservatism and coefficient of wetness values for each flora species are also provide in ***Appendix B - Table B2***.

There was one federal/provincial species at risk identified during field surveys in the study area. Field reconnaissance of the Centre Road Woodlot PSW unit documented two butternut trees (*Juglans cinerea*) along the southeast edge of this feature (see ***Section 3.1.6***). Butternut is listed as *Endangered* under the provincial *Endangered Species Act* and federal *Species at Risk Act*.

The vast majority of the native species found within 50 m on either side of the WATMP preferred road alignment were classified as S5 (**Secure** - Common, widespread, and abundant in the nation or state/province) in Ontario. Four species (i.e. Smooth-sheathed sedge, black walnut, herbaceous carrion flower and bristly greenbrier) were identified as S4 (**Apparently Secure** - Uncommon but not rare; some cause for long-term concern due to declines or other factors). Impacts to provincially *Secure* and *Apparently Secure* species do not require mitigation or compensation.

One species, butternut (*Juglans cinera*) was identified as S3? in the NHIC database. This designation is given to species that are Vulnerable in the province due to a restricted range,



East - West Corridor Municipal Class EA

Figure 4: East - West Corridor Ecological Land Classification and Significant Plant Species

- CUM1-1: Dry-Moist Old Field Meadow
- CUT1-4: Grey Dogwood Cultural Thicket
- CUT1-7: Hawthorn - Buckthorn Cultural Thicket
- CUW: Cultural Woodland
- FOD4: Dry-Fresh Black Locust Deciduous Forest
- FOD4-2 : Dry-Fresh White Ash Deciduous Forest
- FOD5-3: Dry - Fresh Sugar Maple (Hardwood) Deciduous Forest
- FOD7: Fresh - Moist Lowland Deciduous Forest
- FOD7-2: Fresh - Moist Ash Lowland Deciduous Forest
- FOD7-4: Fresh - Moist Black Walnut Lowland Deciduous Forest
- FOD8-1: Fresh - Moist Poplar Deciduous Forest
- FOD9-1: Fresh - Moist Oak - Sugar Maple Deciduous Forest
- MAM2-2: Reed Canary Grass Mineral Meadow Marsh
- MAM2-10: Forb Mineral Meadow Marsh
- MAS2-1: Cattail Mineral Shallow Marsh
- OAO: Open Water
- SWD2-1: Black Ash Mineral Deciduous Swamp
- SWD2-2: Red Ash Mineral Deciduous Swamp
- SWD3-2: Silver Maple Mineral Deciduous Swamp
- SWD4-3: White Birch Poplar Mineral Deciduous Swamp
- SWD5: Ash Organic Deciduous Swamp
- SWD7-2: Yellow Birch Organic Deciduous Swamp
- Forest
- Cultrual Field or Thicket
- Agricultural
- Deciduous Riparian Woodland
- Stormwater Management

- Residential
- Preferred Route
- Route to be Determined
- Buildings

Species at Risk

- Butternut (Individual Tree)
- Butternut (Group of Trees)

Rare

- Smooth-Sheathed Sedge
- Cockspur Hawthorn

1:20,000

0 0.25 0.5 1 Kilometers

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Map Notes

Map Created By: PJK/SFG
Map Checked By: DR
Date Created: April 5, 2006
Date Modified: April 2, 2009
File Path: I:\GIS\089020 - Waterdown\Natural Environment Figures April 2009\Mapping\Figure 4 East West Corridor ELC.mxd
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Waterdown Road Corridor Municipal Class EA

Figure 5: Waterdown Road Corridor Ecological Land Classification and Significant Plant Species

- CUM1-1: Dry - Moist Old Field Meadow
- CUT1-4: Grey Dogwood Cultural Thicket
- CUT1-7: Hawthorn - Buckthron Cultural Thicket
- FOD5-1: Dry - Fresh Sugar Maple (Hardwood) Deciduous Forest
- FOD7-2: Fresh - Moist Ash Lowland Deciduous Forest
- FOD9-1: Fresh - Moist Oak - Sugar Maple Deciduous Forest
- Deciduous Forest
- Open Country
- Hay
- Agriculture
- Recreational Facility
- Buildings
- Preferred Route

Species at Risk

- Butternut (Individual Tree)

Rare

- Flat-Topped White Aster

Uncommon

- Early Goldenrod

DRAFT

0 0.2 0.4 Kilometers

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Map Notes

Map Created By: PJK/SFG
Map Checked By: DR
Date Created: April 7, 2006
Date Modified: August 5, 2009
File Path:I:\GIS\089020 - Waterdown\Natural Environment Figures April 2009\Mapping\Figure 5 Waterdown Corridor ELC.mxd
Base mapping provided by the City of Hamilton, the City of Burlington and the Region of Halton. Additional mapping provided by Halton Region Conservation Authority and the Ministry of Natural Resources.

relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation. Butternut are also listed as Endangered federally and are dealt with in detail in Section 3.1.6 of this report.

3.1.3 Sassafras Woods Edge Vegetation Survey

A detailed vegetation survey of a 600 m long vegetated slope along the western edge of Sassafras Woods was completed in order to estimate encroachment effects of the proposed widening of Waterdown Road. The area inventoried extended from approximately 200 m north of Flatt Road to 400 m south of Flatt Road on the west side of the woodland. A total of ten 360° tree tallies (i.e. every 60 m) were conducted with a 2X wedge prism within a 100 m of the western edge of this woodland. This survey was conducted in addition to the vegetation surveys and ecological land classification that was completed for the area. This work was the result of specific requests to quantify the potential for tree loss with the proposed road widening.

Overall abundance of all woody plants observed was estimated. The size and relative abundance of the trees and shrubs observed along the edge of Sassafras Woods is provided in ***Appendix B - Table B3***. There were no species at risk or regionally rare species documented in this area (i.e. butternut, flowering dogwood, etc.). The impact of the proposed encroachment into the western edge of Sassafras Woods and the water quality impacts to the watercourse at the valley bottom are discussed in ***Section 5.1.5***. John Pisapio, Biologist with the Guelph District OMNR, has indicated that all lands south of Mountain Brow Road are Jefferson salamander habitat and fall under the regulations of the new *Endangered Species Act.*

3.1.4 Centre Road Woodlot Provincially Significant Wetland Unit

The East-West Transportation Corridor intersects the Centre Road Woodlot north of Parkside Drive and east of Centre Road. The wetland community covers greater than 90% of the woodlot area. This Centre Road Woodlot wetland feature has been recently included into the Logies Creek - Parkside Drive Provincially Significant Wetland (PSW) Complex (Art Timmerman, OMNR, personal communication, September 2008) due to its demonstrated wetland function, proximity (within 750 metres) to existing PSW units and hydrologic connectivity to the PSW via a tributary of Borer's Creek. It is also a part of the Waterdown North Wetlands ESA.

The Centre Road wetland unit's hydrological function is to retain and convey flow from the catchment area east of Centre Road to a tributary of Borer's Creek. This wetland ESA also functions as wildlife habitat for birds, small mammals and as a small amphibian population. Further, this feature is used by wildlife as an east-west migratory corridor, connecting wildlife habitat to the northeast with habitat to the northwest.

The ELC communities documented in the wetland unit consist of:

- A core wetland area with mineral deciduous swamp vegetation communities;
- Two deciduous swamp vegetation communities with organic soils in the northwest section of the wetland unit; and
- Wet deciduous forest communities along the northern and eastern wetland unit edges.

In general, the vegetation communities in the northern section of the wetland unit demonstrated fewer signs of ecological disturbance as a result of a less pronounced edge effect and less human disturbance (i.e. trails, debris, etc.). Further, the northern vegetative communities have a slightly more abundant and diverse vegetative understory and herbaceous ground cover layer, which is in part due to the organic soil substrates and associated soil moisture content in this area.

Field reconnaissance of this wetland revealed the presence of two *endangered* butternut trees (*Juglans cinerea*) in the southeast portion of the woodlot (see ***Figure 4***). The result of the butternut health assessment is discussed in ***Section 3.1.6***. Further, the wetland contains smooth-sheathed sedge (*Carex laevivaginata*), which was observed in the north-central section of this feature and is a regionally rare plant in the Hamilton-Wentworth Region.

Three transect surveys were conducted in the Centre Road Woodlot. These transects coincide to the approximate location of proposed road alignments DE1, DE3 and DE4 (see ***Appendix C***). These alignments were walked on foot and the plant species observed within them were recorded (see ***Appendix B - Table B5***.

In general, the three alignments had similar flora diversity. Two endangered butternuts were documented on the eastern edge of the wetland unit along alignment DE1 (see ***Section 3.1.6*** and ***Appendix C***). The north alignment (DE4) had a slightly higher abundance and average plant coefficient of conservation than the two southern alignments (DE1 and DE3), which could mean that the vegetation communities in the northern section of the woodlot are marginally less disturbed. Using an average coefficient of wetness scale from -5 (wet) to 5 (dry), the alignment DE3 (0.2) had more plant species that prefer drier soils than DE1 (-0.5) and DE4 (-0.4). It should be noted that the average floral conservation and wetness coefficient values for each transect line are based on the average of the values assigned to each plant species observed in these inventory areas and do not take into account the relative abundance of the different plant species in these communities. As such, coefficient averages are only an approximation of the sensitivity and wetness tolerance of the plant community.

Fragmentation of the Centre Road Woodlot PSW unit/ESA was evaluated for the five proposed road alignment options (see ***Appendix C***). ***Table 1*** provides the fragmentation values for the various road alignments through the woodlot. The alignments that resulted in the least fragmentation were options DE1 and DE5; however, DE5 has greater impacts to the natural heritage system in terms of wildlife migration. The impact and mitigation analysis for the Centre Road Woodlot PSW unit is discussed in ***Section 5.1.2***.

Table 1 - Fragmentation Effects in the Centre Road Woodlot

Road Alignment	North Fragment (ha)	South Fragment (ha)	Comment
DE1	11.46	1.79	Small fragmentation effect; moderate wildlife corridor impacts
DE2	10.42	2.61	Small fragmentation effect; moderate wildlife corridor impacts
DE3	8.68	4.29	Large fragmentation effect; moderate wildlife corridor impacts
DE4	4.75	8.01	Large fragmentation effect; significant

			wildlife corridor impacts
DE5	2.34	10.90	Small fragmentation effect; significant wildlife corridor impacts

The Centre Road wetland portion of the Waterdown North Wetland ESA is a headwater area for a tributary of Borer's Creek. The ephemeral pools in this headwater area are associated with seasonal inundation and are ecologically sensitive as they provide aquatic habitat for breeding amphibians. The topography of this wetland unit has a downward slope from the northeast to the southwest. In the southwest corner of the wetland unit, within 30 m of Centre Road, this headwater area forms a defined tributary channel prior to entering into a culvert that crosses the road. This tributary flows seasonally, primarily coinciding with spring freshet, as well as during large precipitation events. West of Centre Road, this tributary eventually converges with Borer's Creek.

In general, the northern portion of the Centre Road wetland unit has greater ecological value. The northern section of the wetland unit is ecologically superior because it has better connectivity to extensive wildlife habitat in the northeast ESA lands, more sensitive wetland areas with organic soils and demonstrated fewer signs of anthropogenic (human) disturbance (i.e. edge impacts, invasive species, dumping, decrease biodiversity, etc.).

3.1.5 NHIC Flora Query

An NHIC geographic query of the East-West Road Corridor Class EA study area revealed an element occurrence for one plant species tracked by the OMNR. A geographic query of the Waterdown Road Class EA study area revealed element occurrences for eleven plant species tracked by the OMNR, including three provincial/federal species at risk. Historically, these eleven plant species and one significant vegetation community (Dry Oak – Hickory Deciduous Forest Type), have been observed in the Sassafras – Waterdown Woods ANSI and surrounding area. A complete list of the element occurrences for flora historically observed in the study area, along with their federal, provincial and regional status is provided in ***Table 2***. None of these flora species or the oak-hickory deciduous forest community were observed during field assessments of the surveyed areas along the Waterdown Road Corridor.

Table 2 – Flora NHIC Element Occurrences In and Adjacent to the WATMP Study Area

Scientific Name	Common Name	SRank[1]	ESA[2] and/or SARA[3]	Hamilton Region Rarity Status	Halton Region Rarity Status	Location of Element Occurrence[4]
Frasera caroliniensis	American columbo	S2	**Special Concern [2,3]**	Rare	Rare	WR
Morus rubra	Red mulberry	S2	**Endangered[2,3]**	Rare	Rare	WR
Oenothera pilosella	Evening primrose	S2	No	Rare	Rare	WR
Aureolaria virginica	Downy False-foxglove	S1	No	Rare	Rare	WR
Hybanthus concolor	Green violet	S2	No	Uncommon	Uncommon	WR
Uvularia perfoliata	Perfoliate bellwort	S1	No	Rare	Rare	WR
Panicum dichotomum	Cypress witchgrass	S2	No	Rare	Rare	WR
Sphenopholis nitida	Shiny wedge grass	S1	No	Rare	Rare	WR
Solidago arguta	Sharp-leaved goldenrod	S3	No	Rare	Rare	WR
Castanea dentata	American chestnut	S2	**Endangered[2,3]**	Uncommon	Uncommon	WR
Eurybia schreberi	Schreber's Wood Aster	S1	No	Unknown	Rare	WR
Euonymus atropurpurea	Burning bush	S3	No	Rare	Rare	WR, East-West

1. SRank: Provincial ranks used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. By comparing the provincial ranks, the status, rarity, and the urgency of conservation, needs can be ascertained. [S1 – Critically imperiled in Ontario; S2 – Imperiled in Ontario; S3 – Vulnerable in Ontario; S4 – Apparently secure in Ontario; S5 – Secure in Ontario; SE – Exotic]
2. ESA – Endangered Species Act (COSSARO)
3. SARA – Species at Risk Act (COSEWIC)
4. WR – Waterdown Road Corridor Area and East-West – East-West Road Corridor Area.

3.1.6 Butternut

Field reconnaissance of the Centre Road Woodlot PSW unit documented two butternut trees (*Juglans cinerea*) along the southeast edge of this feature (see ***Figure 4***). Butternut is listed as *Endangered* under the provincial *Endangered Species Act* and federal *Species at Risk Act*. The butternuts documented in the woodlot are located in the most southern road alignment option (DE1), which is south of the preferred alignment (DE2) (see ***Appendix C***).

A butternut health assessment protocol utilized by the Forest Gene Conservation Association (Boysen *pers. comm.* 2008) was applied to the two butternuts in the Centre Road PSW unit to determine the condition of these trees and to establish if they are retainable under the 70-50-20 Rule tree retention guidelines (Ostry *et al*, 1994). Terry Schwan, Guelph District Forester with the OMNR, examined the butternut trees with Dillon staff and applied the protocol. One tree (Tree ID #111) was estimated to be a non-retainable butternut in poor condition. The other tree (Tree ID #116) was a butternut in retainable or good condition. This retainable butternut tree was confirmed to be a pure butternut strain through DNA analysis conducted at the Ontario Forest Research Institute.

3.2 Breeding Bird Surveys

Breeding bird surveys were conducted in the Waterdown Road Corridor and East-West Road Corridor Class EA study areas over nine days between June and July, 2007. A total of 20.5 man-hours were spent surveying for breeding birds. Overall, 56 bird species were observed during the 2007 breeding season in these study areas (see ***Appendix A – Table A1***). In order to supplement the Dillon survey data, historic breeding bird data was obtained from the Ontario Breeding Bird Atlas (OBBA). Bird species that were observed in greater than 90% of survey squares in OBBA Region 15 during the second OBBA (2001-2005) and have breeding habitat in the study areas were also included in ***Appendix A – Table A1***. These OBBA species observations are included in the data summary due to reduce the probability that avian species were missed on Dillon field surveys. With this supplementary breeding bird information, the diversity of avian breeders in the WATMP study area is estimated to be 64 species.

The Bird Studies Canada published document entitled, "*Conservation Priorities for Birds of Southern Ontario*" can guide municipal planners to fulfill obligations under the Planning Act, and in doing so, conserve biological diversity in Ontario (Couturier, 1999). This document establishes a list of conservation priority bird species for each municipality in Ontario, including Halton Region and the Regional Municipality of Hamilton Wentworth. The objective of these regional priority lists is to identify significant avian habitat and set priorities for conservation efforts based on the significance of the species in their region (Couturier, 1999).

The following is a list of *regional conservation priority species* observed by Dillon during the 2007 breeding season. Also, listed in italics are birds observed in greater than 90% of survey squares in Region 15 during the second OBBA (2001-2005) and have potential breeding habitat in the study area. Hamilton and Halton regional rankings are given in parenthesis.

<u>Forest Birds</u>

- American woodcock
- Turkey vulture (uncommon Hamilton)
- Yellow-billed cuckoo (rare Halton & Hamilton)
- *Black-billed cuckoo* (uncommon Halton & Hamilton)
- *Red-bellied woodpecker* (uncommon Halton & Hamilton)
- Eastern towhee (uncommon Halton & Hamilton)
- Black-capped chickadee
- Chestnut-sided warbler (uncommon Halton & Hamilton)
- Mourning warbler (uncommon Halton & Hamilton)
- Blue-gray natcatcher (uncommon Halton & Hamilton)
- Wood thrush
- Eastern phoebe (uncommon Hamilton)

Open Country Birds

- Spotted sandpiper
- Horned lark (uncommon Hamilton)
- Savannah sparrow
- Vesper sparrow (uncommon Halton & Hamilton)
- Field sparrow
- American goldfinch
- Barn swallow
- Bank swallow (uncommon Hamilton)
- Northern rough-winged swallow (uncommon Halton)
- Bobolink
- Eastern meadowlark
- Brown thrasher (uncommon Hamilton)
- Eastern kingbird

Three additional species are not *regional conservation priority species* as defined by Couturier (1999), but are *uncommon* in Hamilton Region. They are great blue heron, eastern screech owl and hairy woodpecker.

The breeding bird results were summarized for Environmentally Significant/Sensitive Areas in order to identify the avian habitat in each (see ***Appendix A - Table A2***). The species richness and abundance totals for each area are provided. The summary table also identifies breeding birds that are regional *conservation priority species* (Couturier 1999). The summaries represent a combination of point count and wandering transect surveys in and immediately adjacent to these significant areas. These areas include:

- Parkside Drive Provincially Significant Wetland Complex;
- Centre Road Woodlot Provincially Significant Wetland Unit;
- Lake Medad Valley Swamp Provincially Significant Wetland;
- Sassafras Waterdown Woods Life Science Area of Natural and Scientific Interest; and
- Nelson Escarpment Woods Environmentally Significant Area.

3.3.1 Breeding Birds of the Parkside Drive Provincially Significant Wetland Complex

One point count and wandering transect surveys were conducted along the southern boundary of the Parkside Drive PSW Complex and Candidate ESA (see ***Figure 3***). Over two breeding bird surveys that amounted to 129 minutes of survey time, species richness was 33 species and the total breeding bird abundance was 163 individuals (see ***Appendix A - Table A2***). There were no provincial or federal *species at* risk observed. Three forest (black-capped chickadee, mourning warbler and eastern phoebe) and five open country (spotted sandpiper, savannah sparrow, vesper sparrow, American goldfinch and eastern kingbird) *conservation priority species* (Couturier 1999) were observed during surveys of these PSW lands and adjacent agricultural fields. The most abundant species was song sparrow, American goldfinch, Canada goose, red-winged blackbird, black-capped chickadee and house wren.

3.3.2 Breeding Birds of the Centre Road Woodlot Provincially Significant Wetland Unit

One point count and wandering transect surveys were conducted in and immediately adjacent to the Centre Road Woodlot, a wetland unit in the Logies Creek - Parkside Drive PSW Complex (see ***Figure 3***). Regionally, this woodlot is part of the Waterdown North Wetlands ESA. Over two breeding bird surveys that accounted for 119 minutes of survey time, species richness was 27 species and the total breeding bird abundance was 136 individuals (see ***Appendix A – Table A2***). The majority of the breeding birds documented in the woodlot are common forest edge species. There were no provincial or federal *species at* risk observed in or around the woodlot. Two open country *conservation priority species* (American goldfinch and field sparrow) were observed in the shrub thicket habitat adjacent to the woodlot (Couturier 1999).

3.3.3 Breeding Birds of the Lake Medad Valley Swamp Provincially Significant Wetland

One point count and wandering transect surveys were conducted in and along the southern boundary of the Lake Medad Valley Swamp PSW, northeast of the Centre Road Woodlot (see ***Figure 3***). Regionally, this swamp is part of the Waterdown North Wetlands ESA. Over two breeding bird surveys and a total of 110 minutes of survey time, species richness was 32 species and the total breeding bird abundance was 143 individuals (see ***Appendix A - Table A2***). The most abundant species were red-winged blackbird, mallard and song sparrow.

There were no provincial or federal *species at* risk observed in or around the southern portion of the swamp. Six forest (black-capped chickadee, mourning warbler, American woodcock, yellow-billed cuckoo, chestnut-sided warbler and blue-gray gnatcatcher) and four open country (spotted sandpiper, American goldfinch, barn swallow and northern rough-winged swallow) *conservation priority species* (Couturier 1999) were observed during surveys of these PSW lands and adjacent agricultural fields.

3.3.4 Breeding Birds of the Sassafras Waterdown Woods Life Science Area of Natural and Scientific Interest

Six point counts and additional wandering transect surveys were conducted in and along the northern and western limits of the Sassafras Waterdown Woods Provincial Life Science ANSI (see ***Figure 3***). This provincially significant feature combines two regional ANSI areas: Sassafras Woods and Waterdown Escarpment Woods. Three point counts were interior forest surveys located in Sassafras Woods and one was an interior forest survey located in Waterdown Escarpment Woods. The other two point counts were roadside surveys located at Dundas Street West (Hwy 5) and Mountain Brow Road along the northern boundary of the ANSI (Waterdown Escarpment Woods). Wandering transects were conducted in forest and forest edge habitat of this ANSI.

Over two breeding bird surveys and a total of 456 minutes (7.6 hours) of survey time, species richness was 38 species and the total breeding bird abundance was 425 individuals (see ***Appendix A - Table A2***). Abundant breeding species included rock pigeon, northern cardinal, song sparrow, American goldfinch, red-winged blackbird, black-capped chickadee, house sparrow, starling, house wren and American robin.

There were no provincial or federal *species at* risk observed in or adjacent to the ANSI. Six forest (black-capped chickadee, American woodcock, yellow-billed cuckoo, turkey vulture, wood thrush and eastern towhee) and four open country (American goldfinch, northern rough-winged swallow, savannah sparrow and eastern kingbird) *conservation priority species* (Couturier 1999) were observed during surveys of these ANSI lands and adjacent fields.

3.3.5 Breeding Birds of the Nelson Escarpment Woods Environmentally Significant Area

Wandering transect surveys were conducted in the southern portion of the Nelson Escarpment Woods ESA (see ***Figure 3***). This ESA is comprised of the Nelson Slope Forest Regional Life Science ANSI and the Waterdown Moraines Regional Earth Science ANSI. In the study area, this escarpment ESA is located north of Highway 5 and west of Cedar Springs Road. Over two breeding bird surveys and a total of 119 minutes of survey time, species richness was 17 species and the total breeding bird abundance was 47 individuals (see ***Appendix A - Table A2***). American goldfinch and black-capped chickadee were the only *conservation priority species* (Couturier 1999) that Dillon documented in this ESA. The Halton NAI surveys documented three *rare* species in Halton Region in the Nelson Escarpment Woods ESA lands that include the study area (i.e. black-throated blue warbler, magnolia warbler and Nashville warbler). These *rare* neotropical migrant species are area-sensitive forest birds that breed more commonly breed in woodlands north of Halton Region.

3.3.6 East-West Road Corridor Breeding Bird Summary

The following is a summary of the breeding birds documented in the East-West Road Corridor Class EA study area. The summaries are grouped into the various habitat types along the East-West Road Corridor. In the East-West Road Corridor, four interior forest point counts, nine tilled agricultural point counts and five roadside point counts were conducted. Area searches were also conducted in forest, tilled agricultural and edge/successional/open habitat areas. See ***Figure 3*** for the avian point count and area search locations.

Three man-hours were spent documenting breeding birds at two point counts locations and area search locations in forest environments for the East-West Road Corridor section of the study area. The overall species richness (diversity) in forest point counts and area searches was 29 species. Species abundance was 106 individual birds. Based on the results from 10-minute, 100 metre fixed-radius point counts (i.e. 3.14 ha area), the species diversity for forests was 2.5 species per hectare and species abundance was 3.3 individuals per hectare.

Five man-hours were spent documenting breeding birds at four point count locations and area searches in tilled agricultural environments for the East-West Road Corridor section of the study area. The overall species diversity in agricultural point counts and area searches was 43 species and species abundance was 667 individuals. Based on the results from 10-minute, 100 metre fixed-radius point counts, the species diversity for agricultural areas was 2.0 species per hectare and species abundance was 4.5 individuals per hectare.

One and a half man-hours were spent documenting breeding birds at three roadside point count locations in the East-West Road Corridor section of the study area. A total of 390 individual birds and 24 species were observed on these counts. Based on the results from 10-minute, 100 metre fixed-radius point count surveys, the species diversity for roadside point counts was 2.3 species per hectare and species abundance was 4.2 individuals per hectare.

Four man-hours were spent documenting breeding birds using area searches in old field successional habitats for the East-West Road Corridor section of the study area. The overall species diversity in early successional, open country habitat searches was 39 species. Species abundance in this habitat was 353 individuals.

3.3.7 Waterdown Road Breeding Bird Summary

The following is a summary of the breeding birds documented in the Waterdown Road Corridor Class EA study area. The summaries are grouped into the various habitat types along the Waterdown Road Corridor and are based on two forest point count locations in Sassafras Woods and four roadside point count locations along Mountain Brow and Waterdown Road. Five forest area searches, two tilled agricultural area searches and two edge/successional/open country habitat area searches were also conducted. See ***Figure 3*** for the point count and area search locations in the Waterdown Road Corridor.

Two man-hours were spent documenting breeding birds at two point count locations and area search locations in forest environments for the Waterdown Road Corridor. The overall avian diversity on forest point counts and area searches was 24 species. Species abundance was 71 individuals. Based on the results from 10-minute, 100 metre fixed-radius point counts (i.e. 3.14 ha area), the species diversity for forest habitats was 1.0 species per hectare and species abundance was 1.4 individuals per hectare.

In total, one man-hour was spent documenting breeding birds on area transect searches during two separate surveys of tilled agricultural habitat in the Waterdown Road Corridor. The overall avian diversity in this habitat was 21 species and avian abundance was 114 individuals. Approximately, 0.5 man-hours were spent documenting breeding birds on two separate area searches of old field/ successional habitat. In this old field habitat, 17 bird species and a total of 65 individual birds were observed.

A total of 1.5 man-hours were spent documenting breeding birds at four roadside point count locations in the Waterdown Road Corridor. A total of 294 individual birds and 25 species were observed on roadside point counts. Based on the results of 10-minute, 100 metre fixed-radius point counts, the avian diversity was 3.5 species per hectare and avian abundance was 10.3 individuals per hectare.

3.3 Amphibian Surveys

Spring amphibian surveys were conducted in the Waterdown Road Corridor and East-West Road Corridor Class EA study areas in 2007 and 2008. Mid-season and late season amphibian point count surveys were undertaken in 2007 and an early-season survey was conducted in 2008.

Surveys determined which potential habitat contained breeding amphibians and estimated the population size of the species that demonstrated breeding behaviour in these habitats. A summary of amphibians identified during the 2007 and 2008 surveys is given in ***Table 3***.

There were no federal or provincial species at risk observed during the amphibian surveys. The majority of the amphibians documented in the study area are ranked *Secure* (S5) in Ontario, signifying that they are common, widespread and abundant in Ontario. Further, two amphibians observed in the study area, western chorus frog (*Pseudacris triseriata*) and pickerel frog (*Rana palustris*), are ranked S4 or *Apparently Secure*; meaning they are uncommon, but not rare, and usually widespread in Ontario, with the possibility of a long-term conservation concern (Oldham *et al.*, 2000).

In addition, the Southwaterdown Subwatershed Study documented the presence of Jefferson salamanders south of Mountainbrow Road, east of King Road and documented salamander roadkill along King Road. John Pisapio, Biologist with the Guelph District OMNR, has indicated that all lands south of Mountain Brow Road are Jefferson salamander habitat and fall under the regulations of the new *Endangered Species Act.*

In addition to the calling surveys, the Hamilton Herptofauna Atlas was searched for species that have been identified in the study area. This list includes twenty species in total (11 amphibians and 9 reptiles). The results of this search are presented below in Table 3a.

Table 3 - Amphibian Species Observed in the WATMP Study Area

Common Name	Scientific Name	Point Count Observed[1]			Provincial/ Federal Status	Hamilton Region Rarity Status[2]	Halton Region Rarity Status
		May 16/07	June 7/07	April 8/08			
American Toad	*Bufo americanus*	4,5	-	-	NAR	**Unknown**	**Abundant**
Spring Peeper	*Pseudacris crucifer*	3,4,8	-	8	NAR	**Unknown**	**Abundant**
Gray Treefrog	*Hyla versicolor*	-	3,5	-	NAR	**Unknown**	**Abundant**
Pickerel Frog	*Rana palustris*	4	-	-	NAR	**Rare**	**Uncommon**
Green Frog	*Rana clamitans*	5	5	-	NAR	**Unknown**	**Abundant**
Wood Frog	*Rana sylvatica*	-	-	8	NAR	**Unknown**	**Common**
Western Chorus Frog	*Pseudacris triseriata*	-	-	2	**Threatened[3]**	**Unknown**	**Common?[4]**
Northern Leopard Frog	*Rana pipiens*	Observed incidentally in Lake Medad Valley Swamp PSW (Waterdown North Wetlands ESA)			**NAR**	**Unknown**	**Abundant**

Note: NAR – Not At Risk, SC – Special Concern, THR – Threatened, END – Endangered, EXP – Expatriated, EXT – Extinct. Numbers refer to the point count station where amphibians were recorded (see Figure 3).

1. Amphibian point count locations (see *Figure 3 – Breeding Bird and Amphibian Point Count and Area Search Locations*)

2. Species listed as Unknown are presumed common in the Regional Municipality of Hamilton Wentworth
3. Applies to the The Great Lakes / St. Lawrence – Canadian Shield Western Chorus Frog population (study area) that is listed as Threatened by the latest COSEWIC assessment in April 2008. The Carolinian population is not at risk.
4. The Western Chorus Frog is defined as common mainly based upon the Hamilton Herpetofaunal Atlas during which it was found in 52 2 km squares in Halton. Since 1992 it has only been recorded at approximately 20 stations. Chorus frogs tend to favour swales in open grassy areas. As this habitat is becoming, in general, limited and as in Halton it occurs mostly south of HWY 401, a systematic survey might reveal that the Western Chorus Frog is declining significantly in Halton (Source: 2006 Halton Natural Areas Inventory).

Table 3a: Reptile and Amphibians of the Hamilton Herptofauna Atlas found within WATMP Study Area

Common Name	Scientific Name	SRank	Provincial/ Federal Status
Redback Salamander	*Plethodon cinereus*	S5	NAR
Jefferson Salamander	*Ambystoma jeffersonianum*	S2	THR
Spotted Salamander	*Ambystoma maculatum*	S4	NAR
Red-spotted Newt	*Plethodon cinereus*	S5	NAR
Eastern American Toad	*Bufo americanus*	S5	NAR
Western Chorus Frog	*Pseudacris triseriata*	S4	THR
Gray Treefrog	*Hyla versicolor*	S5	NAR
Northern Spring Peeper	*Pseudacris crucifer*	S5	NAR
Wood Frog	*Rana sylvatica*	S5	NAR
Northern Leopard Frog	*Rana pipiens*	S5	NAR
Green Frog	*Rana Clamitans*	S5	NAR
Common Snapping Turtle	*Chelydra serpentina*	S3	SC
Midland Painted Turtle	*Chrysemys picta marginata*	S5	NAR
Eastern Garter Snake	*Thamnophis sirtalis*	S5	NAR
Northern Redbelly Snake	*Storeria occipitomaculata*	S5	NAR
Brown Snake	*Pseudonaja textilis*	S5	NAR
Eastern Milk Snake	*Lampropeltis triangulum*	S3	SC
Northern Ringneck Snake	*Diadophis punctatus*	S5	NAR
Smooth Green Snake	*Opheodrys vernalis*	S4	NAR

Note: NAR – Not At Risk, SC – Special Concern, THR – Threatened, END – Endangered, EXP – Expatriated, EXT – Extinct

3.4 Incidental Wildlife

Incidental wildlife observations were recorded during field studies of the Waterdown Road Corridor and East-West Road Corridor Class EA study areas. A summary of the incidental wildlife documented can be found in ***Appendix A, Table 3***.

The majority of the incidental wildlife species observed in the Waterdown Road Corridor and East-West Road Corridor Class EA study areas are common in Ontario as well as in Halton Region and the Regional Municipality of Hamilton Wentworth. There were no federal or provincial species at risk observed incidentally. A giant swallowtail was observed in the cultural meadow (CUM1-1) habitat adjacent to the Waterdown Escarpment Woods Extension lands, approximately 100 metres south of Highway 5. Giant swallowtail (*Papilio cresphontes*) is a provincially ranked S2 or *imperiled* lipidoptera (butterfly) species that may be at risk in Ontario according to the NHIC. The status of this species is *uncommon* in Hamilton-Wentworth Region and *rare immigrant* in Halton Region.

In a comparable natural environment study of the Parkside Drive PSW lands, bobcat (*Lynx rufus*) vocalizations were heard "*during both May and June amphibian monitoring north of* [Black's] *pond, in the meadow marsh and green ash swamp communities; in areas where there was a high degree of disturbance (dumping, extensive ATV use)"* (Savanta 2009). While vocalizations were used as an indicator of a mammalian species, no conclusive bobcat observations were documented during the Savanta or Dillon field surveys (i.e. visual observation, den, scat or tracks). Bobcat is the most wildly distributed native felid in North America and can occupy a variety of habitats, including forest/open country habitat in the rural-agricultural landscape matrix (Woolf and Hubert 1998). Bobcat is considered *Extirpated* from Halton Region (Halton NAI 2006) and *Rare-Possibly Extirpated* the Region of Hamilton-Wentworth (Vlasman 2005); however, range expansion into southern Ontario and other areas in the Great Lakes Region has been noted in human-disturbed areas (Patterson *et al.* 2003; Nowell and Jackson 1996; Rollings 1945). The cause of this range expansion is related to the increased availability of food resources for bobcat along the urban gradient as a result of higher concentrations of prey species in these areas.

The International Union for Conservation of Nature and Natural Resources (IUCN) ranks bobcat as *Least Concern* as this species does not meet the criteria for the IUCN Redlist (Kelly and Gonzalez, 2008). As a commodity fur bearer, bobcat has an Appendix II protection status under the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), signifying that it is a species that is not necessarily threatened with extinction, but may become so unless trade in specimens is subject to strict regulation in order to avoid utilization incompatible with their survival. The NatureServe Status for bobcat is G5 or globally *Secure* and S4 or subnationally *Apparently Secure* in Ontario (NatureServe 2009).

3.5 Aquatic Assessment

All watercourses that cross along the proposed routes in the Waterdown Road Corridor and East-West Road Corridor Class EA study areas generally drain in a southerly direction towards Hamilton Harbour of Lake Ontario. Grindstone Creek originates above the Niagara Escarpment in Flamborough, Ontario and drains an area of 90 square kilometres making it one of the main tributaries discharging into the northwest-end of Hamilton Harbour (RBG, 2007). A smaller watercourse, Borer's Creek (also originates above the Niagara Escarpment, just north of Waterdown, Ontario), passes southwesterly through mostly rural areas, close to the Dundas sanitary landfill site, before entering Cootes Paradise from north of the Willow Line below West Pond.

Please see ***Figure 6*** for orientation of watercourses within a regional context.

3.5.1 Historical Fish Species Information

A summary of historical fish community information for Grindstone Creek and Borer's Creek at key locations is provided in ***Table 4***. Only resident species upstream of the Niagara Escarpment have been included in this report as the escarpment itself permanently alters the fishery and its composition when compared to their downstream reaches (i.e., acts as a permanent in-stream barrier). Furthermore, all of the proposed construction works occur north of the Niagara Escarpment (i.e., no anticipated direct impacts to fish habitat south of the escarpment – Mount Brow Road area).

Just south of Dundas Street East (Highway 5), Grindstone Creek splits into two branches, which have been identified herein as the "Northwest Branch" and the "Northeast Branch", referring to their general geographical orientation on ***Figure 6***. A separate headwater reach of a Grindstone Creek tributary that crosses the Waterdown Road Corridor, which drains into the main channel just south of Highway 403, has been identified herein as the "Southern Branch".

Furthermore, existing Borer's Creek fishery information below pertains to the reaches upstream of Parkside Drive; specifically, a tributary that branches off to the northwest (known herein as the "Main Branch") and another tributary that branches off to the northeast (known herein as the "Eastern Tributary"), both of which converge just north of an online pond known as "Black's Pond" (see ***Figure 6***).

Two species of fish were identified as 'Uncommon' according to the Fish Checklist for Halton Region. Specifically, the species were central mudminnow and largemouth bass. Only the largemouth bass was listed as 'Uncommon to Rare' in the Hamilton-Wentworth Natural Areas Inventory. Both of these species were identified in Borer's Creek as it passes near Parkside Drive. The remaining species were listed as 'Common'. No other regionally rare fish species were noted.

Based on the species composition in ***Table 5***, the historical fish community in both watersheds (above the escarpment) is indicative of typical warmwater habitats, dominated by tolerant baitfish. Many reaches in both systems contained northern pike and largemouth bass, which are top predators in warmwater systems. Pumpkinseed and brook stickleback were found in nearly all aquatic survey locations in both creek systems, while central mudminnow, creek chub,

fathead minnow, and largemouth bass were also commonly observed in both watersheds. Central mudminnow prefers ponds or creek pools that are heavily vegetated with bottoms of organic material (Scott and Crossman, 1998). This observation might suggest that these systems transport and deposit significant amounts of detritus and sediment, combined with warm water and lower dissolved oxygen concentrations.

Within many reaches, a warm water fish community is present, as indicated by the presence of species such as largemouth bass, northern pike and brown bullhead in ***Table 5***. Largemouth bass and pumpkinseed typically inhabit shallow lakes and bays of larger lakes, and utilize submergent structure (i.e., logs, stumps) and both emergent and submergent vegetation as cover. They are nest-builders and are known to spawn in late spring to mid-summer (Scott and Crossman, 1998). Northern pike spawn on floodplains in the early spring, using emergent vegetation for attachment of their eggs (Scott and Crossman, 1998). Brown bullhead prefer shallow warm water habitat, and spawn over nests built in mud or aquatic vegetation.

The Southern Branch of Grindstone Creek, for which no fish data was found, is managed as a coldwater system due to its contributing factors to known coldwater fish habitat at its confluence, south of Highway 403.

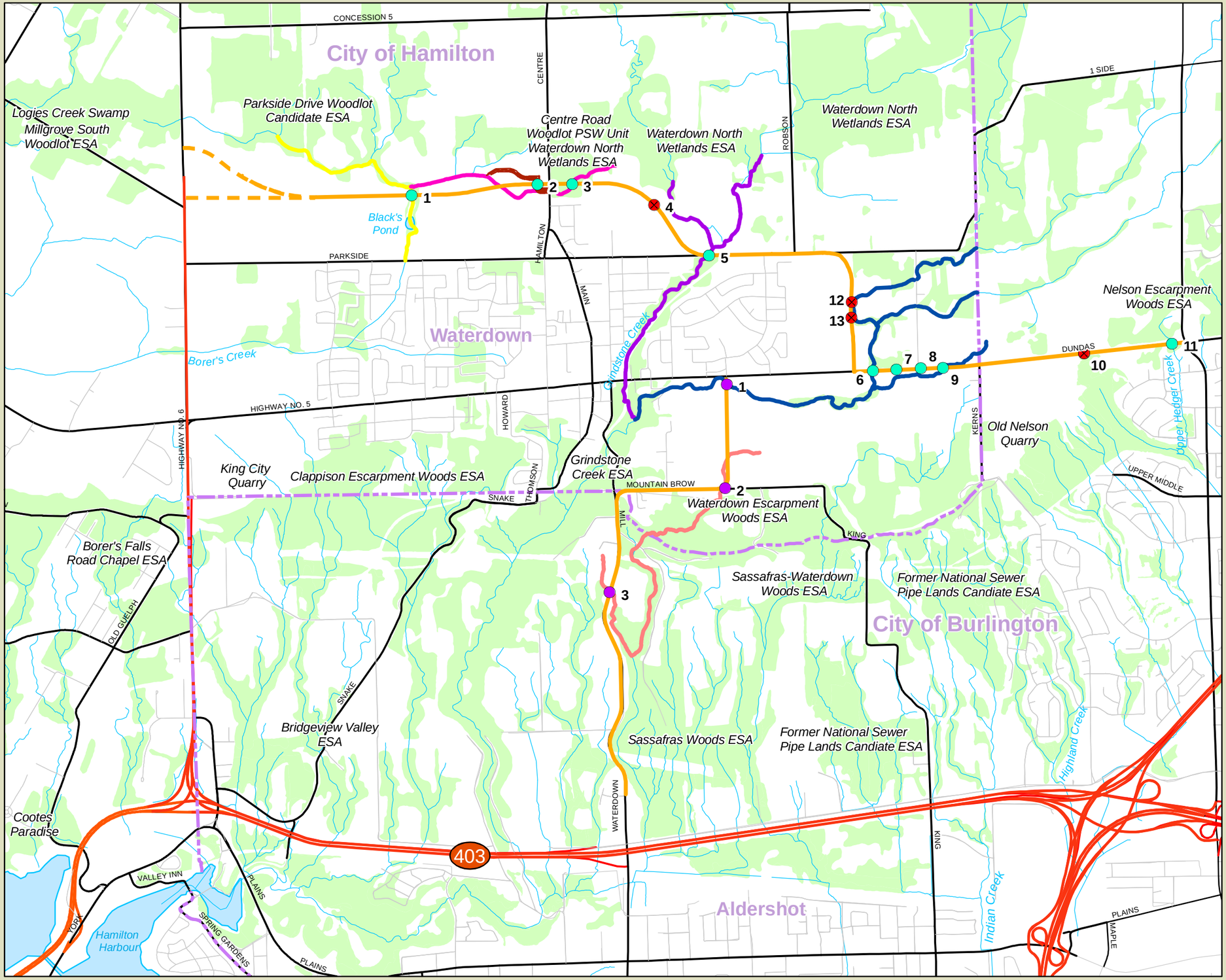
Brook stickleback are water column insectivores that prefer vegetated lake margins, ponds, and clear, still to flowing pools and backwaters of creeks and small rivers with water temperatures generally around 21.3°C (OFFLHD website, 2007). Furthermore, they are very tolerant of turbidity and low dissolved oxygen levels, which is partially why they are so common and widespread in Ontario.

According to Karine Beriault (Species at Risk Biologist with the OMNR) during personal correspondence on August 24th 2007, no fish or other aquatic SAR occur along either of the proposed alignments. Although considered coldwater, it should be noted that the Southern Branch of Grindstone Creek does not provide direct fish habitat, hence the absence of data in that respective column in ***Table 4***.

Table 4 - Historical Fish Sampling Results for Grindstone Creek and Borer's Creek

Fish Species		Aquatic Feature					
Common Name	**Scientific Name**	**Grindstone Creek**			**Borer's Creek**		
		Northwest Branch	**Northeast Branch**	**Southern Branch**	**Main Branch**	**Eastern Trib**	**Black's Pond**
Pumpkinseed	*Lepomis gibbosus*	✓	✓		✓	✓	✓
Bluegill	*Lepomis macrochirus*	✓	✓				
Green sunfish	*Lepomis cyanellus*	✓					
Brown bullhead	*Ameiurus nebulosus*	✓			✓		
Common carp	*Cyprinus carpio*	✓					
Northern pike	*Esox lucius*	✓			✓		
Largemouth bass	*Micropterus salmoides*	✓	✓		✓		
White sucker	*Catostomus commersoni*	✓					
Finescale dace	*Phoxinus neogaeus*	✓					
Pearl dace	*Margariscus margarita*	✓					
Blacknose dace	*Rhinichthys atratulus*	✓			✓		
Longnose dace	*Rhinichthys cataractae*	✓					
Northern redbelly dace	*Phoxinus eos*	✓					
Golden shiner	*Notemigonus crysoleucas*	✓					
Common shiner	*Luxilus cornutus*	✓					
Blackchin shiner	*Notropis heterodon*	✓					
Blacknose shiner	*Notropis heterolepis*	✓					
Brassy minnow	*Hybognathus hankinsoni*	✓					
Bluntnose minnow	*Pimephales notatus*	✓					
Fathead minnow	*Pimephales promelas*	✓	✓		✓		
Creek chub	*Semotilus atromaculatus*	✓	✓		✓		
Johnny darter	*Etheostoma nigrum*	✓					
Central mudminnow	*Umbra limi*	✓			✓	✓	
Brook stickleback	*Culaea inconstans*	✓	✓		✓	✓	✓
Unknown cyprinids YOY	*Cyprinidae spp.*	✓	✓				

Sources:
OMNR database (no information was obtained in time for submission)
Conservation Halton – Fisheries Database 2007
Hamilton Conservation Authority/Borer's Creek Watershed Report (Gartner Lee Limited)



Waterdown Road Corridor and East - West Road Corridor Municipal Class EAs

Figure 6: Aquatic Features

Legend

- 1 Waterdown Road Corridor Water Course Crossing
- 1 East - West Corridor Watercourse Crossing
- Drainage Conveyance
- Main Branch (Borer's Creek)
- Eastern Tributary (Borer's Creek)
- Northwest Branch (Grindstone Creek)
- Northeast Branch (Grindstone Creek)
- Southern Branch (Grindstone Creek)
- Preferred Alignment
- Route to be Determined
- Municipal Boundary
- Proposed Borer's Creek West Tributary Alignment
- Woodlot

DRAFT

Scale

0 0.5 1 Kilometers

Map Notes

Map Created By: PJK/SFG
Map Checked By: DR
Date Created: April 5, 2006
Date Modified: April 2, 2009
File Path: I:\GIS\089020 - Waterdown\Natural Environment Figures April 2009\Mapping\Figure 6 Aquatic Features.mxd

Base mapping provided by the City of Hamilton, the City of Burlington and the Region of Halton. Additional mapping provided by Halton Region Conservation Authority and the Ministry of Natural Resources.

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3.5.2 Historical Fish Habitat Information

With respect to existing background fish habitat information relevant to the WATMP, the following secondary resource documents were examined:

- Gartner-Lee Limited: "Existing Conditions of the Borer's Creek Sub-watershed: City of Hamilton – Final Report (revised 2005)";
- Stantec Consulting: "Environmental Impact Statement – MC2 Lands, Waterdown, Ontario (Sept 12th 2005)";
- Conservation Halton: "Grindstone Creek Watershed – Aquatic Habitat Inventory and Assessment (Appendix 3 – January 1998)"; and
- Ecoplans Limited: "South Waterdown Subwatershed Study – Stage 1 Report (final – March 2006)".

Key summary text was taken directly from these reports and provide in ***Appendix D – Background Fish Habitat Information*** to supplement Dillon's recent field investigations of anticipated road crossings. Dillon concurs with the findings of these background reports and reiterates aquatic enhancement recommendations with regard to road crossing impacts and mitigation strategies made in these documents in ***Section 4.2***.

3.5.3 Field Work Results

Table 5 summarizes fish and fish habitat conditions observed during Dillon's field investigations, including preliminary sensitivity rankings at each of the anticipated watercourse crossings based on both existing and recent field observations. All potential watercourse crossings along the proposed East-West Road Corridor and Waterdown Road Corridor options in relation to the aquatic features are shown on ***Figure 6***. As seen in ***Table 4*** and on ***Figure 6***, the proposed East-West Road Corridor has nine (9) watercourse crossings and two (2) drainage feature crossings. The Waterdown Road Corridor has three (3) watercourse crossings. The watercourses that are crossed by the road alignment have varying degrees of sensitivity and significance in terms of fish habitat. The Grindstone Creek crossing at Parkside Drive (Crossing # 5) and the new Borer's Creek crossing (Crossing # 1) along the East-West Road Corridor appear to be most sensitive to aquatic works (highlighted in ***Table 5***) due to their high sensitivity and fish habitat potential. The watercourse and drainage feature crossing locations are described in greater detail below.

Overall, recent fish habitat characterization in each watercourse at, or near to, all of the proposed crossings sites are generally consistent with the descriptions and observations contained within the above-referenced supplemental documents. The watercourses in the regional landscape matrix will provide the majority of the ecological linkage and wildlife corridor function as urbanization intensifies in these areas. On a site level, the road designs will include watercourse crossing methods that maintain flow conveyance and do not fragment aquatic habitat.

Table 5 - Summary Table of Existing Fish and Fish Habitat Conditions along the East-West and Waterdown Road Corridors

#	Crossing Location for Watercourses & Drainage Features	Flow	Substrate Type	Vegetation	Fish Observed (species)	Directly Supports a Fishery (Y/N)	Type of Fishery Supported	Sensitivity	Rationale for Sensitivity
East-West Road Corridor (From Highway 6 east to Cedar Springs Road)									
1	**Borer's Creek – Main Branch/Black's Pond**	Permanent	• Silt • Rock • Cobble • Clay base	• Trees, shrubs, and herbaceous vegetation lining both banks • Overhanging grasses	• Cyprinids Electrofishing not conducted due to wealth of existing fish data	Y	Warmwater baitfish/sportfish	High	• Permanent connectivity to main branch of Borer's Creek • Channel well-defined with ample in-stream cover available • 100% run habitat • Type 2 direct habitat • Online pond present • Contiguous with PSW complex • Maintenance of current form and function required • Diligent use of sediment and erosion controls required
2	**Borer's Creek – Eastern Tributary**	Intermittent	• silt • detritus • sand	• dense ditchline grasses and sporadic shrubs	None during field investigations	Y (possibly during active flow)	Warmwater baitfish only	Low	• Channelized drain • Seasonally dry • No confirmed fish presence • Choked channel with dense emergent vegetation • Possibly Type 3 direct habitat during active flow • Maintenance of current function required • Adherence to the warmwater fishery timing window required • **Channel realignment possibly required as watercourse briefly flows parallel to the proposed alignment**
3	**Borer's Creek – Eastern Tributary**	Intermittent	• Silt • Detritus • Sand	• dense ditchline grasses and sporadic shrubs and trees	None during field investigations	N	N/A	Low	• No confirmed fish presence or habitat issues • Crossing located within wetland • No defined channel observed east of Centre Road (wetland) • Likely indirect habitat contributions • Maintenance of current conveyance function required • **Equalization culverts to be installed in wetland area to maintain wetland hydrology**
4	**Drainage ditch connected to Grindstone Creek Northwest Branch**	Intermittent	• Grass • Detritus • Silt	• Emergent – grasses • Swale-like conditions • Hedgerow trees provide bank cover	• None possible	N	N/A	Low	• Primarily function is surface water conveyance • Surface water dependent • Maintenance of current function required
5	**Grindstone Creek – Northwest Branch**	Permanent	• Cobble • Gravel • Rock, • Clay • Silt	• Well vegetated banks with trees, shrubs, and herbaceous plants	None during field investigations	Y	Warmwater baitfish/sportfish	High	• Permanent flows • Largemouth bass and northern pike present • Significant riparian corridor with mature tree and shrub cover • Right below confluence with 2 major sub reaches • Type 2 direct habitat • Maintenance of current form and function required • Diligent use of sediment and erosion controls, work area isolation, constant flow required • No in-water work between March 1st ad June 20th of any year
6	**Grindstone Creek – Northeast Branch**	Intermittent	• Cobble • Rock • Boulder • Clay base	• Trees, shrubs, and herbaceous vegetation lining both banks • Overhanging	• Numerous cyprinids Electrofishing not conducted	Y	Warmwater baitfish/sportfish	Moderate	• Seasonal connectivity with Grindstone Creek • Channel well-defined with abundance in-stream and overhanging cover • 100% run habitat during high flows • Numerous fish seen in culvert and other refuge pools

#	Crossing Location for Watercourses & Drainage Features	Flow	Substrate Type	Vegetation	Fish Observed (species)	Directly Supports a Fishery (Y/N)	Type of Fishery Supported	Sensitivity	Rationale for Sensitivity
				grasses	due to wealth of existing fish data				• Type 2 direct habitat when flowing • Fish rely on refuge pools during intermittent periods • Maintenance of current form and function required • Adherence to the warmwater fishery timing window required • Diligent use of sediment and erosion controls, work area isolation, constant flow required
7	**Grindstone Creek – Northeast Branch**	Intermittent	• Grass • Detritus • Silt	• In-stream emergent – cattail, grasses • Swale-like conditions throughout	• None (not electrofished due to lack of water, dense emergent vegetation)	N (Limited upstream aquatic habitat)	N/A	Low	• Primarily function is surface water conveyance • Surface water dependent • Choked channel with emergents • Indirect habitat possible during active flow only • Maintenance of current function required • Adherence to the warmwater fishery timing window required • If appropriate, fish passage must be established or maintained
8	**Grindstone Creek – Northeast Branch**	Intermittent	• Grass • Detritus • Silt	• In-stream emergent – cattail, grasses • Swale-like conditions throughout	• None (not electrofished due to lack of water, dense emergent vegetation)	N (Limited upstream aquatic habitat)	N/A	Low	• Primarily function is surface water conveyance • Surface water dependent • Choked channel with emergents • Indirect habitat possible during active flow only • Maintenance of current function required
9	**Grindstone Creek – Northeast Branch**	Intermittent	• Grass • Detritus • Silt	• In-stream emergent – cattail, grasses • Swale-like conditions throughout	• None (not electrofished due to lack of water, dense emergent vegetation)	Y (possibly during active flow)	Warmwater baitfish	Low	• Primarily function is surface water conveyance • Surface water dependent • Choked channel with emergents • Type 3 direct habitat possible during active flow only • Maintenance of current function required
10	**Drainage ditch connected to Upper Hager Creek**	Intermittent	• Grass • Detritus • Silt	• Emergent – grasses • Swale-like conditions • Hedgerow trees provide bank cover	• None possible	N	N/A	Low	• Primarily function is surface water conveyance • Surface water dependent • Maintenance of current function required
11	**Upper Hager Creek (tributary)**	Intermittent	• Grass • Detritus • Silt	• Trees, shrubs, and herbaceous vegetation lining both banks • Overhanging grasses •	• None (not electrofished due to lack of water)	N (Downstream fish barriers limit fish habitat potential)	N/A	Low	• Primarily function is surface water conveyance • Surface water dependent • Open channel bottom downstream of culvert • Indirect habitat possible during active flow only • Maintenance of current function required • Thermal regime data is required to determine the appropriate timing window • Fish community composition survey is required
Waterdown Road Corridor (from Dundas Street south to Highway 403)									
1	**Grindstone Creek – Northeast Branch**	Intermittent	• Clay • Cobble • Boulder	• Emergent grass vegetation along margins with sporadic shrubs • Mature riparian trees exist along both banks; however, there is a large opening in the vicinity of the	• Cyprinids Electrofishing not conducted due to wealth of existing fish data	Y	Warmwater baitfish/sportfish	High	• Confirmed warmwater habitat due to fish community upstream at Dundas culvert; however coldwater species exist downstream of the proposed crossing • Well-defined channel with overhanging grasses, few trees and shrubs • Permanent hydraulic connection to Grindstone Creek just downstream of this location • Substrate indicative of high velocity run habitat • Type 2 direct habitat conditions during active flow • Maintenance of current form and function required • Adherence to the warmwater fishery timing window required at this time; although coldwater thermal regime, no fall spawning fish existing at this location.

#	Crossing Location for Watercourses & Drainage Features	Flow	Substrate Type	Vegetation	Fish Observed (species)	Directly Supports a Fishery (Y/N)	Type of Fishery Supported	Sensitivity	Rationale for Sensitivity
				proposed alignment that could be utilized to minimize clearing					
2	**Grindstone Creek – Southern Branch**	Intermittent	• Clay base • Silt	• Emergent vegetation throughout (grasses) • Swale-like conditions upstream of Mountain Brow Road	None (not electrofished due to lack of sufficient water)	N	N/A	Low	• Intermittent with no confirmed fish presence • Dense in-stream vegetation • No direct fish habitat issues • Maintenance of current function required • **No defined channel observed upstream of Mountain Brow Road (swale-like conditions); therefore, channel realignment is not necessary.**
3	**Grindstone Creek – Southern Branch**	Intermittent	• Clay base • Silt	• Emergent vegetation throughout (grasses)	None during field investigations	Y	Warmwater baitfish	Low	• Primarily function is surface water conveyance • Surface water dependent • Small channel through manicured landscape with grassy banks and channel bottom • Type 3 direct habitat during higher flow periods downstream of the culvert • Maintenance of current function required • Adherence to the warmwater fishery timing window required

Type 1: Critical Habitat – spawning areas for species with stringent requirements, highly productive feeding areas, Species-At-Risk habitat, Groundwater discharge/recharge area in coldwater streams
Type 2: General Habitat – Feeding areas for adult fish, areas of unspecialized spawning habitat, pool-riffle-run complexes that occur of much of the watercourse.
Type 3: Altered/Degraded Habitat – Artificial drainage swale, municipal drain, highly altered watercourse (e.g., piped, polluted, artificial substrates).
Source: Fish Habitat Protection Guidelines for Developing Areas (OMNR, 1994)

East-West Road Corridor

Borer's Creek – Main Branch/Black's Pond (Crossing # 1)

The proposed East-West Road Corridor alignment crosses the main branch just downstream of the confluence with the Eastern Tributary (see ***Figure 6***). Black's Pond is located right at the proposed crossing location. Although, the photograph below was take at Parkside Drive (downstream of the actual a crossing), it serves as relevant representative depiction of current fish habitat conditions in this part of the watershed.

As seen in photograph, this creek conveys permanent flows and contains a typical warmwater fishery (both bait and sport fish). Habitat is best classified as mostly run morphology with decent canopy and in-stream cover. Substrate was predominantly rock and cobble on top of a clay base and covered with silt deposits. Fish were observed during field investigations. These conditions continue upstream up to, and including, the proposed crossing location.

Borer's Creek – Eastern Tributary (Crossing # 2 and #3)

The proposed East-West Road Corridor alignment crosses the Eastern Tributary at two (2) locations as shown on ***Figure 6***. As seen in the adjacent photograph, this tributary has been mostly altered to accommodate surrounding land use. Limited habitat is contained within steep and deep channel banks with little overhead canopy cover. Flow is intermittent and likely slow due to the presence and abundance of emergent in-stream macrophytes. Due to connectivity to downstream reaches containing fish, there is a possibility that hardy fish species periodically reach the culvert. The stream section that contains Crossing #2 is proposed to be realigned to the north using a natural channel design.

There is no reasonable fish passage beyond the Centre Road culvert and into the wetland due to choked conditions, presence of riprap in the channel (barrier), and lack of a defined low-flow channel to convey sufficient depths to sustain fish. East of Centre Road there was a small defined channel as the gradient that dissipates into the woodlot headwater area of the PSW unit.

Drainage Conveyance (Crossing # 4)

The proposed East-West Road Corridor alignment crosses a drainage feature that drains a catchment area west of the Northwest Branch of Grindstone Creek (see ***Figure 6***). This drainage feature is not fish habitat as flows are never sufficient to allow upstream fish passage. This headwater area forms a small meadow marsh in the most upstream section. As it precedes east from the meadow marsh this drainage feature flows seasonally through a hedgerow, primarily subsurface.

Grindstone Creek – Northwest Branch (Crossing # 5)

The proposed East-West Road Corridor alignment also crosses the Northwest Branch of Grindstone Creek at Parkside Drive (see ***Figure 6***). The photograph below was taken from Parkside Drive looking upstream where the proposed crossing is located. As seen in photograph, this creek conveys permanent flows and contains a typical warmwater fishery (both bait and sport fish). Habitat is best classified as mostly run morphology with decent canopy but limited in-stream cover. The substrate was predominantly a mix of rock, cobble, and gravel on top of a clay base and covered with silt deposits. Fish were not seen during field investigations; however, the community has been well documented in previous literature. *It should be noted that other road construction works were ongoing at the time of investigation and has already disturbed portions of the adjacent banks and riparian vegetation.*

Grindstone Creek – Northeast Branch (Crossing # 6)

The proposed East-West Road Corridor crosses the Northeast Branch of Grindstone Creek at several locations. The representative photograph included below was taken from Dundas Street (Highway 5) looking downstream at the anticipated Crossing #6. As seen in the photograph, this watercourse was flowing at the time of survey (100% run morphology) but does dry up during the summer months. During active flow, a warmwater fish community exists and likely over-summers within limited refuge pools, mostly confined to the road culverts themselves. There is moderate overhead cover and limited in-stream cover. The substrate was predominantly a mix of rock, cobble, and gravel on top of a clay base and covered with silt deposits at both locations. During field investigations, numerous fish were seen congregating in deep refuge pool within the culvert itself.

Grindstone Creek – Northeast Branch (Crossings #7 and #8)

Crossings #7 and #8 of the Northeast Branch of Grindstone Creek are similar in terms of the manicured landscape habitat type upstream of the culverts on the north side of Dundas Street (Highway 5). The representative photograph included below was taken from Hwy 5 looking downstream at Crossing #8 of the proposed East-West Road Corridor. This watercourse was dry and swale-like at the time of survey, but does flow intermittently during the spring months. Even during active flow, it not likely that fish migration is possible between downstream and upstream areas due to the fact that upstream of the culverts, aquatic habitat is limited to roadside ditches. There is low overhead cover and poor in-stream cover on either side of Hwy 5, as the swale runs through this manicured landscape. For a short distance downstream (south) of Hwy 5, there is no defined channel to convey low flows, as the flow meanders through swales and marsh areas.

Grindstone Creek – Northeast Branch (Crossing #9)

This crossing of the Northeast Branch of Grindstone Creek is significantly different from the previous one in terms of habitat type. The representative photograph included below was taken from Dundas Street (Highway 5) looking upstream at the proposed East-West Road Corridor crossing site. As seen in the photograph, this watercourse was dry at the time of survey (exhibiting predominately swale-like conditions) but does flow during the spring months. During active flow, it is possible that existing upstream and downstream ponds are connected allowing a warmwater baitfish community to travel between the two where they likely over-summer and over-winter. There is low overhead cover but decent in-stream cover during active flow due to the abundance of emergent macrophytes. The substrate was predominantly detritus and silt. For a short distance downstream of Dundas Street, there is no defined channel to convey low flows, which has resulted in wide swale-like section.

Drainage Conveyance (Crossing # 10)

The proposed East-West Road Corridor alignment crosses an existing drainage feature that drains a catchment area north of a Hwy 5 (Dundas Street) in Upper Hager Creek subwatershed (see ***Figure 6***). This drainage feature is not fish habitat as flows are never sufficient to allow upstream fish passage downstream of the culvert. This headwater area is conveyed along a roadside ditch upstream of the culvert. As it precedes south from the culvert this drainage feature flows seasonally through woodlands prior to forming an intermittent channel approximately 200 metres south of Hwy 5.

Upper Hager Creek – (Crossing #11)

Crossing #13 is a large culvert that crosses Dundas Street (Hwy 5). Northwest of Hwy 5 a wooded escarpment is the headwater area for this tributary. Surface water in this headwater area drains south to the culvert. South of Hwy 5 (see adjacent photo looking north), a defined channel with a silty-clay bottom is formed. The watercourse meanders south from the culvert through a manicured landscape with sparse to moderate vegetative cover on the banks and minimal in-stream emergent vegetation.

Waterdown Road Corridor

Grindstone Creek – Northeast Branch (Crossing # 1)

The proposed Waterdown Road Corridor alignment also crosses the Northeast Branch of Grindstone Creek in the south ditch line of Dundas Road (see ***Figure 6***). The adjacent photograph was taken from the Dundas Street ditch looking downstream to where the proposed crossing is located. Similar to Crossings # 6, this creek conveys intermittent flows during the summer months, but may contain a warmwater fishery (both bait and sport fish) during active spring flow periods (as seen in the photograph). Habitat is best classified as mostly run morphology (when flowing) with moderate canopy cover and limited in-stream cover. The substrate was predominantly a mix of rock and cobble on top of a clay base. Fish were not seen during field investigations; however, the community has been well documented in previous literature. It should be noted that a permanent groundwater discharge area occurs <50m downstream of this proposed culvert crossing site, which changes the stream classification to coldwater habitat south of the discharge point to the escarpment bluff.

Grindstone Creek – Southern Branch (Crossing # 2)

Currently, there are two culvert crossings, one main and one auxiliary crossing, along the Southern Branch of Grindstone Creek as it crosses Mountain Brow Road. The capacity of these culverts will be amalgamated into one culvert crossing at the current location of the main culvert.

The representative photograph below was taken from Mountain Brow Road looking upstream from the proposed crossing site. As seen in the photograph, this watercourse was essentially dry at the time of survey (exhibiting predominately swale conditions) but does convey overland flow during the spring months. This swale functions as drainage only and does not represent direct fish habitat. However, it is considered to potentially provide indirect fish habitat possibly contributing essential food items, nutrients, and organic matter to permanent fish habitat downstream in Grindstone Creek. The substrate was predominantly detritus and silt on a clay base. For a short distance downstream of Mountain Brow Road, the channel appears to branch out into a braided pattern, which conveys flows through the nearby Waterdown Escarpment Woods ESA to the edge of the escarpment bluff.

Grindstone Creek – Southern Branch (Crossing # 3)

There is a culvert crossing of the Southern Branch of Grindstone Creek at Waterdown Road. This is a headwater area for the Southern Branch, which has intermittent flow and dries out seasonally in the immediately downstream of the culvert. The adjacent photo shows the watercourse downstream (east) of the culvert as it passes through a manicured landscape with sparse vegetative cover along the banks and minimal bottom substrates in the channel. Further downstream the watercourse has more of a defined channel classified as Type 3 direct fish habitat during active flow periods;

although, barriers to fish migration (private driveway culverts) may prevent fish passage to these upstream reaches.

4.0 Significant Natural Areas

The Waterdown Road Corridor and East-West Road Corridor Class EA preferred routes have the potential to impact natural heritage features and/or natural areas in Halton Region and in the Region of Hamilton-Wentworth. The preferred routes may result in direct and indirect impacts to Provincially Significant Wetlands (PSWs), Environmentally Sensitive (Significant) Areas (ESAs) and Areas of Natural or Scientific Interest (ANSIs) (see ***Figure 2***). The significant natural areas potentially affected by the preferred route alignments include:

- Logies Creek - Parkside Drive PSW Complex;
- Lake Medad Valley Swamp PSW (Waterdown North Wetlands ESA);
- Provincial Life Science ANSI – Sassafras-Waterdown Woods (Sassafras Waterdown Woods ESA). In Halton Region identified as the Sassafras Woods ESA and the Waterdown Escarpment Woods and Extension ESA. In the Region of Hamilton-Wentworth identified as Waterdown Woods ESA. Sassafras Woods is also a Federal Carolinian Canada Site;
- Former National Sewer Pipe Lands Candidate ESA;
- Provincial Life/Earth Science ANSI - Grindstone (Creek) Valley ESA; and
- Nelson Escarpment Woods ESA.

4.1 Logies Creek - Parkside Drive Provincially Significant Wetland Complex

The East-West Road Corridor proposed in the WATMP intersects the southern portion of the Logies Creek - Parkside Drive PSW Complex west of Centre Road, as well as the Centre Road Woodlot PSW unit east of Centre Road (see ***Figure 2***). The section of the PSW complex north of Parkside Drive and west of Centre Road encompasses the main branch of Borer's Creek and Black's Pond. Black's Pond is an online pond in the Borer's Creek main watercourse. Borer's Creek has been identified as a sensitive aquatic feature with fisheries resources. This area is also part of the Parkside Drive Woodlot Candidate ESA in the City of Hamilton.

The Centre Road PSW unit was included into the Logies Creek - Parkside Drive PSW Complex in 2007 because of its wetland vegetation community, proximity (within 750 metres) to the existing PSW units in the complex and hydrologic connectivity to other the PSW units via a tributary of Borer's Creek. The Centre Road wetland area is also within the Waterdown North Wetlands ESA. Field reconnaissance of this Centre Road PSW revealed the presence of two *endangered* butternut trees (*Juglans cinerea*) south of the preferred East-West road alignment (see ***Figure 4***). A lone retainable butternut tree was confirmed to be a pure butternut species through DNA analysis conducted at the Ontario Forest Research Institute. The regionally rare smooth-sheathed sedge was also documented in the north-central portion of the PSW unit, north of the preferred route (see ***Figure 4***). Further, wildlife surveys undertaken by Dillon documented a small amphibian population consisting of three species (i.e. American toad, green frog and gray treefrog) primarily located in a small wooded area south of the Centre Road

woodlot, and to a lesser extent, in the southern section of the PSW unit. The breeding bird population within and immediately east of this PSW unit was typical of suburban forest edges in close proximity to open country habitat.

4.2 Lake Medad Valley Swamp Provincially Significant Wetland (Waterdown North Wetlands ESA)

The grading limit (disturbance zone) of the East-West Road Corridor alignment is proposed to be located approximately 90 m from the southern wetland boundary line of the Lake Medad Valley Swamp PSW and 38 m from the Waterdown North Wetlands ESA boundary (see ***Figure 2***). Wildlife surveys conducted in this PSW in 2007 observed area-sensitive, regional conservation priority birds (e.g. mourning warbler and chestnut-sided warbler) and amphibian species (e.g. pickerel frog and American toad). In addition, pickerel frogs are listed 'Rare' in the Hamilton-Wentworth Natural Areas Inventory. Dillon vegetation surveys in this PSW in 2007 were restricted to the south section; however, wetland vegetation communities are generally sensitive to ecological disturbance.

4.3 Provincial Life Science ANSI – Sassafras-Waterdown Woods (ESA & Carolinian Canada Site)

Part of the Niagara Escarpment Corridor, the Sassafras-Waterdown Woods ESA is a provincial Life Science Area of Natural and Scientific Interest (ANSI). It is comprised of two former regional ANSIs; the Sassafras Woods ANSI and the Waterdown Escarpment Woods ANSI (see ***Figure 2***). This ESA has distinctive escarpment plain and slope topographies and vegetation communities as well as a unique Carolinian upland forest community with many rare species (Eagles & Beechey, 1985). Due to these distinct natural heritage features, Sassafras Woods has been designated a federal Carolinian Canada Site.

The OMNR has identified Jefferson salamander habitat in the naturally vegetated lands including forests, field and meadow areas within Sassafras-Waterdown Woods ANSI/ESA boundaries. Jefferson salamander is listed as *threatened* and is regulated under the provincial *Endangered Species Act (2007).*

The Halton NAI site summary indicates that a total of 439 plant species have been recorded in Sassafras Woods. Of these, 349 (79%) are native species. One *endangered* federal and provincial *species at risk* (butternut) was located in Waterdown Escarpment Woods Extension 5A area over 100m south of Highway 5 (see ***Figure 4***). During vegetation surveys along the northern limits of the ANSI (south of Mountain Brow), Dillon observed flat-topped whit aster, a regionally rare plant (see ***Figure 5***). Two regionally uncommon plants were also documented (i.e. early goldenrod and rough woodland sunflower). These regionally rare and uncommon species will not be affected by the WATMP preferred road alignments. No federally, provincially or regionally significant species were documented along the western boundary of Sassafras Woods (Waterdown Road Corridor).

As discussed in ***Section 3.3.4***, no provincial or federal *species at* risk were observed in or adjacent to the ANSI. Six forest (black-capped chickadee, American woodcock, yellow-billed

cuckoo, turkey vulture, wood thrush and eastern towhee) and four open country (American goldfinch, northern rough-winged swallow, savannah sparrow and eastern kingbird) *conservation priority species* (Couturier 1999) were observed during surveys of these ANSI lands and adjacent fields.

4.4 Provincial Life/Earth Science ANSI - Grindstone (Creek) Valley ESA

The Grindstone Creek (Valley) ESA crosses the Halton Region and Hamilton-Wentworth Region municipal boundaries (see ***Figure 2***). The northern portion of the Grindstone Creek Valley is situated in a major escarpment re-entrant point to the valley. Grindstone Creek serves as a major groundwater discharge area that deeply dissects the escarpment, forming a narrow sheltered valley. It contains a high number of native plants, odonates, herpetofauna, and birds, including a number of nationally, provincially, and locally rare species. This valley also has significant bedrock formations. As such, the OMNR has designated this section as a Provincial Earth Science and Life Science ANSI.

A culvert crossing extension at one location in the main watercourse and additional culvert crossings in the headwater areas of the creek are expected to have minimal impacts on fish habitat and other natural heritage resources.

4.5 Nelson Escarpment Woods ESA

The southern portion of the Nelson Escarpment Woods ESA abuts the East-West Road Corridor (see ***Figure 2***). In the study area, this ESA includes a section of the Niagara Escarpment located north of Highway 5 (Dundas Street) and west of Cedar Springs Road. This ESA is comprised of the Nelson Slope Forest Regional Life Science ANSI and the Waterdown Moraines Regional Earth Science ANSI.

Halton Natural Areas Inventory documented a diversity of flora and fauna throughout this ESA. Field assessment of the section of this ESA that abuts the study area did not document any federal or provincial *species at risk* (i.e. butternut). Breeding bird activity documented by Dillon field biologists within 200 metres north of Highway 5 (Dundas Street) was limited to species that are common in the province of Ontario (see ***Appendix A - Table A2***). No regionally rare flora and fauna species were located in the ESA lands that will be disturbed by the proposed road widening.

5.0 Impacts and Mitigation

The East-West Road Corridor Class EA and Waterdown Road Corridor Class EA preferred routes have the potential to impact natural heritage features in Halton Region and in the Region of Hamilton-Wentworth. The preferred routes selected may result in direct and indirect impacts to Provincially Significant Wetlands (PSWs), Environmentally Sensitive (Significant) Areas (ESAs) and Areas of Natural or Scientific Interest (ANSIs). The natural heritage impacts of the East-West and Waterdown Road road corridors are discussed below. The preferred routes may

encroach into and/or be aligned in close proximity to the following significant natural areas (see ***Figure 2***):

East-West Road Corridor

- Logies Creek - Parkside Drive PSW Complex (includes Centre Road Woodlot PSW unit);
- Grindstone (Creek) Valley ESA;
- Lake Medad Valley Swamp PSW; and
- Nelson Escarpment Woods ESA.

Waterdown Road Corridor

- Grindstone (Creek) Valley ESA; and
- Provincial Life Science ANSI – Sassafras-Waterdown Woods (In Halton Region identified as the Sassafras Woods ESA (Federal Carolinian Canada Site – Sassafras Woods) and the Waterdown Escarpment Woods and Extension ESA; and in the Region of Hamilton-Wentworth identified as Waterdown Woods ESA.

The East-West Road Corridor route involves nine watercourse crossings and two drainage conveyance culvert crossings. The Waterdown Road Corridor route involves three watercourse crossings. The sensitivity of the aquatic habitat at crossing locations along both of these routes ranges from low to high. The impact to these natural heritage features necessitates mitigation measures that reduce or eliminate these impacts as directed by the following legislation and regulations: the Ontario EA Act, the federal Fisheries Act, the provincial Lakes and Rivers Improvement Act, Conservation Authorities Act, Migratory Bird Convention Act, Fish and Wildlife Conservation Act and as directed by the Province of Ontario under *Section 2.1 Natural Heritage* of the 2005 Provincial Policy Statement, which states,

> ***"2.1.1** Natural features and areas shall be protected for the long term.*
>
> ***2.1.2** The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.*
>
> ***2.1.3** Development and site alteration shall not be permitted in:*
> *a. significant habitat of endangered species and threatened species;*
> *b. significant wetlands in Ecoregions 5E, 6E and 7E; and*
>
> ***2.1.4** Development and site alteration shall not be permitted in:*
> *a. significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;*
> *b. significant woodlands south and east of the Canadian Shield ;*
> *c. significant valleylands south and east of the Canadian Shield;*
> *d. significant wildlife habitat; and*
> *e. significant areas of natural and scientific interest*
> *unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

***2.1.5** Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.*

***2.1.6** Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.3, 2.1.4 and 2.1.5 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions."*

5.1 Terrestrial Impacts and Mitigation

In this section the impacts and mitigation strategies for terrestrial natural heritage features are discussed. Please note: issues concerning hazard lands (i.e. escarpment and karst topography) will be addressed as part of the detailed design stage for these two road improvements projects.

5.1.1 Parkside Drive Provincially Significant Wetland (PSW) Complex (East-West Road Corridor)

The proposed East-West Road Corridor intersects the southern portion of the Parkside Drive PSW Complex and Candidate ESA (see ***Figure 2***). The crossing of the PSW Complex north of Parkside Drive/west of Centre Road is located at the main branch of Borer's Creek, just north of Black's Pond. Black's Pond is an online pond in Borer's Creek caused by a dam structure at the southern end of the pond. Borer's Creek has been identified as a sensitive aquatic feature with warmwater fisheries resources. The impacts to aquatic features are discussed in ***Section 5.2*** of this report.

The potential terrestrial impacts to the Parkside Drive PSW Complex include:

- Pond habitat fragmentation;
- Alteration to the hydrology of the PSW;
- Loss of vegetative cover in the road alignment;
- Introduction of invasive plant species in disturbed areas of the road right-of-way; and
- Road disturbance impacts.

<u>Pond Habitat Fragmentation</u>
The development of the road will fragment the upland forest habitat that surrounds Black's Pond (south of the road alignment) from the main wetland habitat of the Parkside Drive PSW Complex (north of the road alignment). Dillon noted one herpetofauna species (Midland painted turtle) in the pond, while previous studies have documented green frog (Savanta, 2009). Herpetofauna as well as small mammals and birds that inhabit the pond area are common in the region and are not area-sensitive. Habitat fragmentation could result in a barrier for terrestrial wildlife movement, isolating the pond area from the PSW lands to the north. This is considered to be a minor impact of the road development due to limited wildlife activity that was observed in and around Black's Pond. Mitigation of the habitat fragmentation impacts involved designing a culvert crossing that will allow fish and wildlife passage under the road alignment. The watercourse crossing

structure is a three-cell, box culvert with an open-bottom, low flow channel in the central cell. The large opening sizes of each cell (i.e. 6m x 3m and 6m x 2.5m) should enable wildlife passage. As such, no further mitigation measures are required to address the fragmentation of the pond habitat.

Alteration to the Hydrology of the PSW

Regarding hydrologic impacts to the PSW, it is noted that a large portion of the lands at the south of the PSW are proposed for development. Based on the large rural area of the Borer's Creek Watershed, the local impact of increasing the impervious surface along the East-West Road Corridor in between Highway 6 and Centre Road is not anticipated to affect the hydrology of the surrounding area including the Parkside Drive PSW Complex lands. Moreover, the 2007 Waterdown North Master Drainage Plan has been developed for post-development conditions for all of the subwatersheds of North Waterdown to protect water quality and quantity as well as minimize erosion and flooding. This Drainage Plan takes into consideration the proposed development of the lands south of the PSW and details mitigation strategies in order to maintain water resources (i.e. hydrology) in the watershed. In addition, the culvert crossing of Borer's Creek will be engineered to maintain flow conveyance between the upstream and downstream wetland areas as to not alter runoff in the PSW.

Loss of Vegetative Cover in the Road Alignment

The loss of 0.33 ha of vegetative cover in the riparian area of Borer's Creek, where the East-West Road Corridor crosses through the PSW, is a significant impact of the road development. Road development will result in the removal of trees and other vegetation associated with the Oak-Sugar Maple Deciduous Forest and Forb Mineral Meadow Marsh vegetation communities. Tree species in this disturbance area include red oak, red (green) ash, black cherry, trembling aspen and sugar maple. It is recommended that a minimum compensatory tree replacement plan based on the area of the natural community removed be implemented at a rate of 3:1.

Compensatory tree plantings should be detailed in a Restoration Plan for the floodplain of Borer's Creek, which in some locations, overlaps the 30m buffer to the PSW/Candidate ESA. The Restoration Plan for the Borer's Creek floodplain should be generated in consultation with the City of Hamilton and the HCA. Further, tree selection should be determined using the Conservation Halton's Landscape Planning Guidelines (CH, 2005) and be based on the type of habitat to that is being restored, the localized conditions (e.g. soil type, soil moisture regime, shade tolerance, etc.) and should complement the species documented in adjacent natural areas.

Introduction of Invasive Plant Species in Disturbed Areas of the Road Right-of-way

Disturbances related to road infrastructure development and succession of agricultural lands to a naturalized landscape could result in an increased susceptibility along the edges of the PSW to proliferation of invasive exotic plant species. It is recommended that a 30 m vegetative buffer be established along the southern dripline of the PSW/Candidate ESA (see ***Figure 7***). Establishing a vegetative buffer involves planting native species in and adjacent to newly or routinely disturbed areas. Planting the vegetative buffer would deter the introduction of non-native invasive flora species from colonizing disturbed areas after road construction is complete and agricultural activities cease.

Road Disturbance Impacts

Moderately sensitive wildlife habitat was documented in and along the southern edge of the PSW/Candidate ESA lands based on the abundance and diversity of wildlife species inventoried in this area and the sensitivity of wetland vegetation communities to ecological disturbance. Wildlife habitat degradation, especially in the riparian zone of Borer's Creek and Black's Pond as well as along the southern edge of the PSW/Candidate ESA, could result from increased disturbances associated with the road during the construction and operation stages of the East-West road development. Typical road disturbance impacts include traffic mortality, noise, light and general anthropogenic disturbances associated with urban development (i.e. human encroachment, dumping, domestic pets, etc.). Further, traffic mortality is known to have a significant negative effect on the local density of anurans (Fahrig *et al.*, 1995). Another study documented the terrestrial habitat for amphibians to range from 159 to 290 m and from 127 to 298 m for reptiles (Semlitsch and Bodie, 2003).

Similarly, the pollutants typically related to direct road runoff (i.e. hydrocarbons, salt, metals, etc.) could have a deleterious affect on the PSW's vegetation communities and surface water quality. Environmental impacts of road salts most frequently cited in the literature are damage to roadside vegetation, soil, and surface water (Transportation Research Board, 1991). Trees and other roadside vegetation, such as shrubs and grasses, can be harmed by salt or other chloride deicers through changes in soil chemistry as well as splash and spray on foliage and branches. The symptoms of salt damage in trees are similar to those of drought: inhibited growth, browning and falling needles and leaves, and sometimes dying limbs and premature plant death (Transportation Research Board, 1991).

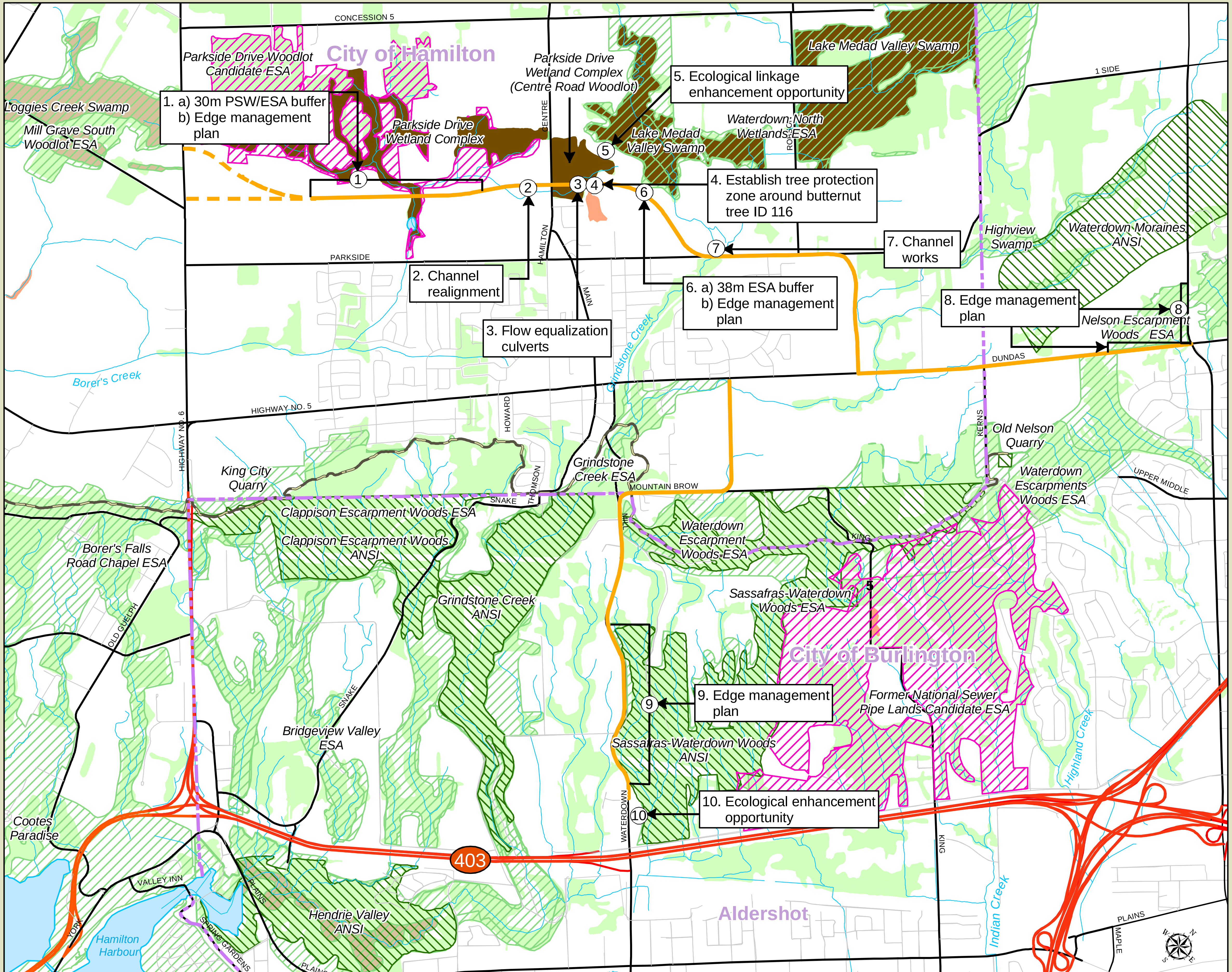
One comprehensive report that evaluated scientific literature, agency testimonials and a field study on wetland buffer use and effectiveness reported that:

- *Buffers of less than 15 m (50 feet) in width are generally ineffective in protecting wetlands;*
- *Buffer widths effective in preventing significant water quality impacts to wetlands are generally 30 m (100 feet) or greater;*
- *Buffers from 15 m (50 feet) to 45 m (150 feet) are necessary to protect a wetland from direct human disturbance in the form of encroachment (e.g. trampling, debris).*

Source: Wetland Buffers: Use and Effectiveness (Castelle et al. 1992).

Given that the East-West road corridor is proposed to be the northern extent of a residential subdivision, the human disturbances are expected to be higher than that of a road infrastructure development alone. In order to mitigate human disturbance on the PSW/Candidate ESA lands, an Edge Management Plan (EMP) should be developed that involves a 30 m vegetative buffer from southern dripline of this natural feature (see ***Figure 7***). The EMP should detail a planting plan with resilient native trees, shrubs and seed mixes appropriate for the buffer area at a density that would discourage the colonization and proliferation of invasive exotic plants and reduce noise impacts. Planting this buffer with a high density of hardy, thorny, fruit-bearing shrub species would deter human encroachment, protect the vegetation along the dripline from the common physical and chemical road impacts such as trampling, dumping, salt spray, etc. and

encourage wildlife utilization within the PSW/Candidate ESA lands. A 30 m vegetative setback from the natural feature would also provide a disturbance buffer for wildlife habitat north of the road alignment.



CONCESSION 5
City of Hamilton
Parkside Drive Woodlot
Candidate ESA
Loggies Creek Swamp
Mill Grave South
Woodlot ESA
1. a) 30m PSW/ESA buffer
b) Edge management
plan
Parkside Drive
Wetland Complex
(Centre Road Woodlot)
Parkside Drive
Wetland Complex
CENTRE
5. Ecological linkage
enhancement opportunity
Lake Medad Valley Swamp
1 SIDE
Waterdown North
Wetlands ESA
Lake Medad
Valley Swamp
4. Establish tree protection
zone around butternut
tree ID 116
7. Channel
works
Highview
Swamp
Waterdown Moraines
ANSI
PARKSIDE
HAMILTON
2. Channel
realignment
MAIN
3. Flow equalization
culverts
6. a) 38m ESA buffer
b) Edge management
plan
8. Edge management
plan
Nelson Escarpment
Woods ESA
DUNDAS
Grindstone Creek
Borer's Creek
HIGHWAY NO. 5
HOWARD
HIGHWAY NO. 6
KERNS
Old Nelson
Quarry
King City
Quarry
Grindstone
Creek ESA
THOMSON
MOUNTAIN BROW
Waterdown
Escarpment
Woods ESA
UPPER MIDDLE
SNAKE
Clappison Escarpment Woods ESA
Clappison Escarpment Woods
ANSI
Borer's Falls
Road Chapel ESA
Waterdown
Escarpment
Woods ESA
KING
Grindstone Creek
ANSI
Sassafras-Waterdown
Woods ESA
OLD GUELPH
City of Burlington
SNAKE
9. Edge management
plan
Former National Sewer
Pipe Lands Candidate ESA
Bridgeview Valley
ESA
Highland Creek
Sassafras-Waterdown Woods
ANSI
Cootes
Paradise
10. Ecological enhancement
opportunity
WATERDOWN
403
KING
VALLEY INN
PLAINS
Hendrie Valley
ANSI
Aldershot
Indian Creek
YORK
Hamilton
Harbour
SPRING GARDENS
PLAINS
PLAINS
MAPLE

Burlington Hamilton Halton Region

Waterdown Road Corridor and East - West Road Corridor Municipal Class EAs

Figure 7: Mitigation and Restoration Opportunities

Legend

- ① Mitigation
- Municipal Boundary
- Preferred Alignment
- Route to be Determined
- Provincially Significant Wetland
- Area of Natural or Scientific Interest
- Environmentally Sensitive Area
- Candidate Environmentally Sensitive Area
- Local Wetland
- Woodlot
- Other Natural Habitat
- Niagara Escarpment

DRAFT

Scale

0 0.5 1 Kilometers

Map Notes

Map Created By: PJK/SFG
Map Checked By: DR
Date Created: April 5, 2006
Date Modified: April 29, 2009
File Path: I:\GIS\089020 - Waterdown\Natural Environment Figures April 2009\Mapping\Figure 6 Mitigation and Restoration Opportunities.mxd
Base mapping provided by the City of Hamilton, the City of Burlington and the Region of Halton. Additional mapping provided by Halton Region Conservation Authority and the Ministry of Natural Resources.

DILLON CONSULTING

Designing a stormwater management (SWM) plan to contain and treat contaminants in the road runoff is also a recommended mitigation technique for water quality impacts. General mitigation criteria for the SWM plan are discussed in ***Section 5.2.2***.

As a protection measure for potential breeding birds or nests in or adjacent to the PSW/Candidate ESA, it is recommended that vegetation (i.e. trees, shrubs, etc.) removal or disturbance be done outside the primary breeding bird period (April 15th to August 15th). This measure will prevent the loss of incubating eggs or newly hatched young. Other general wildlife mitigation guidelines are described in ***Section 5.1.6***.

Please note that the OMNR has not provided clarification on the extent of bobcat habitat in the PSW/Candidate ESA nor have they commented on the measures that should be taken to mitigate development impacts on bobcat habitat.

5.*1.2* *Centre Street Woodlot Provincially Significant Wetland (PSW) Unit (East-West Road Corridor)*

The East-West Road Corridor intersects the Centre Street Woodlot PSW unit north of Parkside Drive and east of Centre Road. The new road, with a right-of-way width of 36 m, crosses the PSW unit about 92 m from its southern edge. This PSW unit is approximately 14.1 ha in size and is included in the Waterdown North Wetlands ESA. This wetland unit also met the criteria for inclusion into the Logies Creek Parkside Drive PSW Complex due to its demonstrated wetland function, proximity (within 750 metres) to the existing PSW and hydrologic connectivity to the PSW via a tributary of Borer's Creek.

The potential terrestrial impacts to the PSW unit include:

- Injury to an *Endangered* butternut tree;
- Vegetative cover in the road alignment to be cleared;
- Habitat fragmentation (amphibians/small mammal habitat);
- Breeding bird disturbance impacts;
- Introduction of invasive plant species in disturbed areas of the road right-of-way; and
- Alteration to the hydrology of the PSW.

These potential impacts are described below.

<u>Potential Injury to an *Endangered* Butternut Tree</u>
Field reconnaissance of this PSW unit revealed the presence of two butternut trees (*Juglans cinerea*) south of the preferred road alignment DE2 (see ***Figure 4***). The condition of two butternut trees was assessed by a Dillon Arborist and OMNR Guelph District Forester, Terry Schwan. It was determined that one butternut was retainable and the other non-retainable under the butternut health assessment protocol used by the Forest Gene Conservation Association (Boysen pers. comm. 2008 and Ostry *et* al. 1994) This lone retainable butternut tree was confirmed to be a pure butternut strain through DNA analysis conducted at the Ontario Forest Research Institute.

While the new East-West Road Corridor will avoid the healthy/retainable butternut tree, it is vulnerable to injury due to its proximity (i.e. 11 m) to the grading limit of the adjacent construction activity proposed in the road right-of-way. Butternuts are listed as *Endangered* and are protected under the provincial *Endangered Species Act*. The retainable butternut observed in this location had a 12cm dbh and demonstrated no obvious symptoms of butternut disease. In order to mitigate the injury to the lone retainable butternut tree, establishing a tree protection zone with a tree protection barrier (TPB) fence is recommended (see ***Figure 7***). The TPB should surround the tree at a distance of 5 m from the trunk.

It should also be noted that smooth-sheathed sedge (*Carex laevivaginata*), which is a regionally rare plant in Hamilton-Wentworth, was observed 87 m north of the grading limit of the preferred road alignment in the PSW unit and will be unaffected by the road development.

Vegetative Cover in the Road Alignment to be Cleared

An estimated 0.68 ha treed area in a 1.20 ha section of the road right-of-way located in the southern section of the Centre Road Woodlot PSW unit will be removed to accommodate the road. The area of vegetation removal corresponds to the 0.68 ha road grading limit disturbance area. The composition of the wet forest and swamp habitat in the grading limit disturbance area is predominantly red maple, silver maple, cottonwood, trembling aspen, red (green) ash, black ash and American elm trees.

Tree removal of this magnitude represents a significant direct impact of the project that can not be fully mitigated. In light of this, a restoration initiative is recommended to compensate for the loss of vegetation in the right-of-way. The objective of this compensatory tree planting plan should be to strengthen the ecological connectivity between the Centre Road Woodlot PSW unit and other areas within the natural heritage system located to the northeast (e.g. Lake Medad Valley Swamp/Waterdown North Wetlands) (see ***Figure 7***). . It is recommended that a minimum compensatory tree replacement plan based on the area of the natural community removed be implemented at a rate of 3:1. Tree selection should be determined using the Conservation Halton's Landscape Planning Guidelines (CH, 2005). Further, restoration plans should be generated in consultation with the OMNR and/or Conservation Halton.

Habitat Fragmentation (amphibians/small mammal habitat)

Fragmentation of amphibian and small mammal habitat in the PSW unit is another impact of the proposed East-West Road Corridor. Severing of woodlands can result in residual patch sizes that are too small to support sensitive species (Ontario Ministry of Transport 2006). In order to minimize the disturbance on the PSW unit, the road was aligned as far south as possible to reduce fragmentation and maintain connectivity between the ecologically sensitive, organic swamp communities in the northern section of the woodlot and the natural features to the northeast. The full rational for the routing of the road at this location is provided in the ESR. Even though the alignment does not encroach into organic swamp habitat, the removal of trees will fragment the woodlot into two sections. The larger northern fragment will be 10.42 ha and the smaller southern fragment is 2.61 ha. The road right-of-way will also fragment the northern section of the PSW unit from the small woodlot and open country area to the southeast of the PSW where amphibians and small mammals were observed (see ***Appendix C***).

Amphibians that are sensitive to ecological disturbance were documented in the PSW unit and in the vicinity of the smaller woodlot to the southeast (i.e. American toad, green frog, gray treefrog). The partial or complete displacement of these amphibian species from the southern portion of the PSW unit and the small woodlot is probable as a result of the increased disturbance and isolation of this southern habitat from natural areas to the northeast caused by the road corridor fragmentation. Mitigation options for wildlife impacts to the PSW unit are constrained by the proximity of this feature to an existing residential subdivision to the south. Road design options, such as steep road embankments or cement guard-rails elevated over the road profile, could be incorporated in order to minimize or prevent herpetofauna movement across the road surface. As discussed above, a restoration initiative is recommended to compensate for the habitat fragmentation due to the loss of vegetation in road right-of-way.

Breeding Bird Disturbance Impacts

The breeding habitat for birds could be affected by vegetation removal in the road right-of-way through the Centre Road PSW unit. The only area-sensitive avian species of conservation concern observed in this area were associated with open-country habitat adjacent to the woodlot. As such, the overall diversity of area-sensitive birds around the woodlot is not expected to be altered significantly by the new disturbance from the road; however, the federal Migratory Bird Convention Act (1994) and the provincial Fish and Wildlife Conservation Act (1997) prevents the destruction or disruption of nests, eggs or hatched young. As a protection measure for potential breeding birds or nests in the PSW unit, it is recommended that any tree removal be done outside the breeding bird period (April 15th to August 15th). This measure will prevent the loss of incubating eggs or newly hatched young. General breeding bird mitigation guidelines are described in ***Section 5.6.1***.

Introduction of Invasive Plant Species in Disturbed Areas of the Road Right-of-way

In addition to the direct impact of vegetation removal in the right-of-way disturbance zone, there is an indirect impact that could result in an increased susceptibility at the edges of the PSW unit to undesirable invasive and/or exotic plant proliferation. The creation of new woodlot edges along the road corridor will allow disturbances (i.e. exotic species, light, noise, debris, etc.) to penetrate deeper into the woodlot. Moreover, increased wind exposure could augment desiccation and tree blow-down along the new woodlot edges. In order to mitigate this indirect impact, an Edge Management Plan (EMP) should be developed for the north and south edges of the road right-of-way prior to commencement of vegetation removal and road construction (see ***Figure 7***). The objective of the EMP will be to deter non-native invasive flora species from colonizing natural and landscape areas post-construction. In order to achieve this, the EMP should specify the location and density of appropriate native plant species to be planted in the disturbed areas associated with the road right-of-way.

Alteration to the Hydrology of the PSW

In order to mitigate altering the hydrology of the wetland, which could lead to a change in the composition of the wetland vegetation, six flow equalization culverts will be installed along the road alignment (see ***Figure 7***). With a series flow equalization culverts at low elevations along the road alignment, the hydrologic balance will be maintained between existing and post-

construction conditions. In addition, culverts could also serve as an eco-passage during dry periods in the wetland, thus reducing animal mortality in the right-of-way.

5.1.3 Lake Medad Valley Swamp Provincially Significant Wetland (East-West Road Corridor)

The East-West Road Corridor grading limit is proposed to be located approximately 90 m from the southern wetland boundary of the Lake Medad Valley Swamp PSW, 38 m from the southern boundary of the Waterdown North Wetland ESA and approximately 15 m from the vegetative dripline of a fresh-moist ash deciduous forest to the north (see ***Figure 2***). Wildlife surveys conducted by Dillon in this PSW in 2007 observed area-sensitive, regional conservation priority birds (e.g. mourning warbler and chestnut-sided warbler) and sensitive amphibian species (e.g. pickerel frog and American toad). In addition, pickerel frogs are listed 'Rare' in the Hamilton-Wentworth Natural Areas Inventory database.

Dillon's ELC surveys along the southern edge of this PSW in 2007 documented a black walnut lowland deciduous forest over 100 m from the road corridor as well as an ash lowland deciduous forest community. Black walnut lowland deciduous forests are provincially rare. These lowland deciduous forest communities are situated along the southern edge of the PSW/ESA (see ***Figure 4***) and are functioning as a natural buffer to the PSW/ESA lands. The flora and fauna of wetlands and provincially rare vegetation communities are generally sensitive to ecological disturbance. Dillon recommends an Edge Management Plan be generated for the 15 m non-forested area between the southern dripline of the ash deciduous forest and the road corridor. Planting native vegetation in this 15 m area will enhance the 38 m natural buffer that extends from the ESA to the East-West road corridor (see ***Figure 7***). The EMP should be developed in consultation with the OMNR and/or HCA and implemented prior to commencement of vegetation removal and road construction.

5.1.4 Nelson Escarpment Woods Environmentally Sensitive Area (East-West Road Corridor)

The Nelson Escarpment Woods ESA located north of Highway 5/west of Cedar Springs Road includes a section of the Niagara Escarpment and is comprised of the Nelson Slope Forest Regional Life Science ANSI and the Waterdown Moraines Regional Earth Science ANSI. As a result of road widening along the north side of Highway 5 (Dundas Street) and west side of Cedar Springs Road, the following impacts could occur:

- Loss of edge vegetation in the Nelson Escarpment Woods ESA and in the provincially significant Black Walnut Lowland Deciduous Forest;
- Introduction of invasive plant species in disturbed areas of the road right-of-way; and
- Increased road disturbance impacts.

<u>Loss of edge vegetation in the Nelson Escarpment Woods ESA and the Black Walnut Forest</u>
Removal of approximately 0.35 ha of vegetation and disturbance along the edge of the ESA feature is an encroachment impact of the East-West Road Corridor road expansion. This is expected to have a minor impact a black walnut deciduous forest vegetation community with a *S2S3* SRank and considered provincially significant in Ontario. The area with the black walnut deciduous forest is an inclusion of the larger deciduous forest of the Nelson Escarpment Woods

ESA that was previously documented as cultural woodland by the Halton NAI (2006). Cultural vegetation communities are generally managed, not sustained naturally and typically less sensitive to disturbance.

Dillon recommends that mitigation consist of an Edge Management Plan (EMP) that details vegetation removal, control of invasive and exotic pioneer plant species and compensatory restoration for the southern and eastern edges of the ESA (see ***Figure 7***). Tree replacement is recommended in a location within the Nelson Escarpment Woods ESA. . It is recommended that a minimum compensatory tree replacement plan based on the area of the natural community removed be implemented at a rate of 3:1. Tree selection should be determined using the Conservation Halton's Landscape Planning Guidelines (CH, 2005).

Introduction of Invasive Plant Species in Disturbed Areas of the Road Right-of-way
Vegetation removal along the edge of the ESA will not impact provincial *species at risk* or regionally *rare* flora or fauna; however, it could leave the edge of this feature vulnerable to the colonization of invasive exotic flora. The EMP noted above should also detail the planting of native vegetation adjacent to the road right-of-way as mitigation to prevent the introduction and proliferation of invasive exotic species.

Increased Road Disturbance Impacts
Given the disturbance associated with high traffic volumes currently experienced along Highway 5 (Dundas Street), road widening is not expected to have a measurable negative affect on the wildlife habitat potential of the ESA in this area. For the most part, habitat generalist species were documented in this area, which is anticipated to be consistent with post-development conditions.

5.1.5 Sassafras-Waterdown Woods Area of Natural or Scientific Interest (Waterdown Road)

The Sassafras-Waterdown Woods ESA and provincial Life Science Area of Natural and Scientific Interest (ANSI) are located in the natural area south of Mountain Brow Road and east of Waterdown Road. The provincial ANSI is comprised of two former regional ANSIs; the Sassafras Woods ANSI and the Waterdown Escarpment Woods ANSI. This ESA has distinctive escarpment plain, slope topographies and vegetation communities as well as a unique Carolinian upland forest community with many rare species (Eagles & Beechey, 1985).

Road widening along the south side of Mountain Brow Road and the east side of Waterdown Road has the potential to impact the Sassafras-Waterdown Woods ANSI/ESA through:

- Edge disturbance (vegetation removal) and the introduction of invasive exotic plant species; and
- Potential impacts to Jefferson salamander (*Ambystoma jeffersonianum*) habitat.

Edge Disturbance (vegetation removal) and the Introduction of Invasive Exotic Plant Species
The direct impact of removing edge vegetation and disturbing habitat at the ANSI/ESA's edge was largely avoided through concentrating road widening on the west side of Waterdown Road and the north side of Mountain Brow Road. Due to social impacts (i.e. property expropriation)

and other constraints (i.e. hydro tower) on the west side of Waterdown Road, encroachment into a limited section of the western edge of the Sassafras-Waterdown Woods ANSI/ESA was unavoidable. Removal of 0.26 ha of vegetation and disturbance along the western edge of the ANSI/ESA feature is an encroachment impact of the Waterdown Road road widening. While this is not expected to impact provincially significant or regionally rare flora, it could increase the vulnerability of a portion of this feature to the colonization of invasive exotic flora.

It is recommended that the removal and replacement of edge vegetation be summarized in a detailed Edge Management Plan (EMP) (see ***Figure 7***). The EMP should detail the control of invasive and exotic pioneer plant species and the restoration along the western boundary of the ANSI/ESA lands south of the disturbance zone in a cultural meadow area (see ***Figure 5 & 7***). A 2:1 compensatory habitat area replacement target along the edge of the ANSI/ESA also is recommended to mitigate the encroachment impacts on this feature. The EMP should be generated in consultation with the OMNR and/or Conservation Halton.

Potential Impacts to Jefferson Salamander Habitat

The OMNR has identified Jefferson salamander habitat in the naturally vegetated lands including forests, field and meadow areas south of Mountainbrow Road. Much of this habitat is contained within Sassafras-Waterdown Woods ANSI/ESA boundaries and falls under the regulations of the *2007 Endangered Species Act.* This species requires intact deciduous forest with undisturbed forest floor and breeding ponds that are permanent and unpolluted (ROM 2008). The OMNR has not indicated the exact location of Jefferson salamander habitat in the Sassafras-Waterdown Woods ANSI/ESA to date.

The ANSI/ESA edge disturbance associated with road expansion along the Waterdown Road Corridor is not expected to have a deleterious effect on the core Jefferson salamander habitat. Potential impacts will be restricted to a 0.26 ha forest edge disturbance zone and will not impact core breeding and terrestrial habitat used by this amphibian species (i.e. breeding ponds, undisturbed interior woodland and meadows, etc.). As such, no specific mitigation is deemed necessary. To date, the OMNR has not confirmed if mitigation will be required for vegetation removal along the western edge of the Sassafras-Waterdown Woods ANSI/ESA

5.1.6 General Breeding Bird Mitigation Measures

As a protection measure for breeding birds, it is recommended that any tree and shrub removal be done outside the breeding bird window. The breeding bird season is from April 15th until August 15th for most passerines. This measure will prevent the loss of incubating eggs or newly hatched young. Some short-term disturbance to local wildlife will occur during the construction period due to the physical disruption of habitat associated with construction (i.e., vegetation clearing, equipment movement, earthworks, etc.). The Migratory Birds Regulation under Section 6 of the *Migratory Birds Convention Act* (MBCA) prohibits the disturbance, destruction or removal of a nest, egg or nest shelter of a migratory bird. The *Ontario Fish and Wildlife Conservation Act* (OFWCA) prohibits the destruction or taking of nests or eggs of wild birds, except for American crows, brown-headed cowbirds, common grackles, house sparrows, red-winged blackbirds or starlings. The Act also prohibits the capturing, killing or harassment of endangered species.

To mitigate contravening the MBCA or the OFWCA, vegetation clearing should not occur between April 15th and August 15th to avoid disturbing breeding or nesting birds. Further, general construction activities should occur in ANSIs, ESAs, or PSWs during the breeding bird period. If vegetation clearing and/or general construction must occur during this time period, a qualified avian biologist should develop a nesting survey protocol for the disturbance areas. Under this protocol, areas should be every three days at minimum. If breeding bird activity is observed within the construction area, specific mitigation measures, such as prohibition of clearing and/or construction until after the nesting period or establishment of appropriate buffers around active nests, will be implemented to avoid direct impacts on breeding birds and/or their habitats.

5.2 Aquatic Impacts and Mitigation

The proposed construction of new road sections and widening of existing roads will require some localized encroachment. The majority of the crossings have undergone some level of disturbance in the past as a result of the surrounding land use and ongoing development. There is also potential for indirect impacts (e.g. disturbance during fish reproductive periods) on the natural environment, if appropriate mitigation measures are not implemented and maintained during construction.

5.2.1 Potential Disturbance to Fisheries and Aquatic Habitat

With respect to fish and fish habitat at the crossing locations along each of the proposed road projects routes, both new culvert installations and clear-span structures will be required to accommodate either a new road crossing or the widening of an existing road (e.g., Dundas Street). In addition, channel realignments may be required along the East-West Road Corridor and the Waterdown Road Corridor (See ***Figure 7***). The potential for realignment largely depends on the final details of the proposed crossings and their locations as they relate to the watercourses in question. All of these works have the potential to negatively affect fish and fish habitat. The proposed watercourse crossings (i.e., installations, possible realignments) are based

on the current East-West Road Corridor and Waterdown Road Corridor Preferred Road Improvements (see ***Figure 6***) and include:

- Borer's Creek;
- Drainage Ditch to Grindstone Creek;
- Grindstone Creek (Northeast and Southern Branches);
- Drainage Ditch to Upper Hager Creek; and
- Upper Hager Creek.

Bridge and culvert installations can negatively affect existing fish habitat by removing or temporarily disturbing habitat that exists under the physical footprint of the new structure (e.g., abutments, headwalls, culvert bottom). See ***Table 6*** for a description of the potential impacts by crossing. Improperly installed and lengthy culverts can restrict or prevent fish passage by causing flows that are too strong for fish to negotiate or creating a perched situation (when the outlet is "perched" above the normal water level). New culverts should be installed along a straight section of the channel and embedded sufficiently so that water can flow through the inlet and outlet naturally and allow fish to successfully negotiate the structure. If that is not possible, additional channel realignments or slight design modifications may be required to allow flows to convey through new structures gradually and smoothly.

Potential installations of culverts will also involve enclosing short additional reaches of the channel, which will result in some localized alteration of habitat conditions. The physical habitat where the anticipated works are proposed includes permanent and intermittent Type 2 habitat, ephemeral Type 3 habitat and overland drainage swales. Please refer to ***Table 4*** for more information pertaining to existing habitat conditions at each crossing.

With proper mitigation measures in place during and after construction, the proposed works will mitigate the indirect impacts of construction activities and sediment and erosion loading into the Grindstone and Borer's Creek systems. Culvert installation and channel works have the potential to degrade water quality, obstruct fish movement, and interfere with sensitive periods for fish. Further, removal of riparian vegetation has the potential to negatively affect fish populations downstream because of important nutrient and food contributions resulting from fallen leaves and woody debris.

Table 6 - Summary Table of Watercourse and Drainage Feature Crossings along the East-West Road and Waterdown Road Corridors

#	Crossing Location for Watercourses & Drainage Features (Sensitivity Rating)	Crossing Type	Flow (Directly Supports a Fishery)	Potential Impacts 1. loss of natural channel substrates in footprint 2. loss of bank vegetation 3. sedimentation and on-site erosion 4. disturbance to fish reproductive periods 5. exposure to petroleum products	Mitigation 1. stockpile and replace with existing (or better) 2. limit removal, re-vegetate exposed surfaces 3. implement sediment and erosion control plan 4. work during fishery timing window or dry periods 5. implement environmental management plan
East-West Road Corridor					
1	**Borer's Creek – Main Branch/Black's Pond (High)**	Three cell box culvert with low flow channel through the open bottom center cell. Opening sizes: 6m x 3m and 6m x 2.5m	Permanent (Yes)	1-5	1-5
2	**Borer's Creek – Eastern Tributary (Low)**	A concrete closed bottom box culvert with 0.5 m embedded. Dimension: 6m x 1.7m x 36m	Intermittent (Yes)	1-5	1-5, work during dry periods when necessary
3	**Borer's Creek – Eastern Tributary (Low)**	A series of 6 arch shaped open bottom CSP culverts. Opening: 1.2m x 1.0m	Intermittent (No)	2, 3, 5	2, 3, 5
4	**Drainage ditch connected to Grindstone Creek Northwest Branch (Low)**	CSP pipe culvert. Opening: 4.0 m x 1.5 m	Intermittent (No)	2, 3, 5	2, 3, 5
5	**Grindstone Creek – Northwest Branch (High)**	A 14 m span bridge	Permanent (Yes)	2, 3, 5 – no direct in-water work	2, 3, 5
6	**Grindstone Creek – Northeast Branch (Moderate)**	A concrete open bottom box culvert. Dimensions: 6m x 1.8m x 54m	Intermittent (Yes)	1-5	1-5, work during dry periods when necessary

#	Crossing Location for Watercourses & Drainage Features (Sensitivity Rating)	Crossing Type	Flow (Directly Supports a Fishery)	Potential Impacts 1. loss of natural channel substrates in footprint 2. loss of bank vegetation 3. sedimentation and on-site erosion 4. disturbance to fish reproductive periods 5. exposure to petroleum products	Mitigation 1. stockpile and replace with existing (or better) 2. limit removal, re-vegetate exposed surfaces 3. implement sediment and erosion control plan 4. work during fishery timing window or dry periods 5. implement environmental management plan
7	**Grindstone Creek – Northeast Branch (Low)**	750 mm CSP pipe	Intermittent (No)	3, 5	3, 5
8	**Grindstone Creek – Northeast Branch (Low)**	750 mm CSP pipe	Intermittent (No)	3, 5	3, 5
9	**Grindstone Creek – Northeast Branch (Low)**	750 mm CSP pipe	Intermittent (Yes)	3-5	3-5
10	**Drainage ditch connected to Upper Hager Creek (Low)**	Closed bottom box culvert 3.0m x 1.0m	Intermittent (No)	3, 5	3, 5
11	**Upper Hager Creek (tributary) (Low)**	1000 mm CSP pipe	Intermittent (No)	3, 5	3, 5
Waterdown Road Corridor					
1	**Grindstone Creek – Northeast Branch (High)**	Open footing culvert designed by South Waterdown development	Intermittent (Yes)	2-5	2-5
2	**Grindstone Creek – Southern Branch (Low)**	CSP pipe designed by South Waterdown development	Intermittent (No)	3, 5	3, 5
3	**Grindstone Creek – Southern Branch (Low)**	1490mm x 910mm arch open bottom culvert	Intermittent (Yes)	3-5	3-5

5.2.2 Stormwater Management

The effects of stormwater runoff can have a significant impact on the health of aquatic ecosystems, including fish and fish habitat. The main impacts of uncontrolled stormwater on a watercourse include the introduction of contaminants and impurities, nutrient loading, fluctuations in thermal regime, and the release of silt-laden water causing sedimentation of onsite and downstream habitats.

Stormwater management plans are typically finalized during detailed design stage. The Stormwater Management Plan for this project will consider an increased runoff potential along the road corridor due to an anticipated increase in the impermeable land surface area associated with road construction. Road construction projects typically involve an assortment of stormwater management ponds, sewer systems, and drainage ditches. Online ponds can cause an aquatic impact by increasing the water temperature in a watercourse; however, as long as the receiving watercourses are warmwater systems, the ponds are naturalized and the ponds are properly designed to facilitate fish movement to downstream reaches they can be an acceptable mitigation technique in stormwater management from a fisheries perspective.

To protect permanent sections of Borer's Creek and Grindstone Creek during and after construction, it is likely that a normal (Level 2) stormwater treatment level will be imposed. Level 2 requires that 70% of total suspended solids (TSS) must be filtered out prior to release into their respective systems. Generally, this level of treatment is sufficient for watercourses containing warmwater fish communities and habitat. As such, no significant effects would be expected with this level of protection being in place.

5.2.3 General Aquatic Design-Related Mitigation Measures

In order to protect aquatic habitat, any in-water work should be conducted within the appropriate fisheries window. Additionally, an approved sediment and erosion control program should be installed and monitored to ensure that watercourses are not degraded by construction activities.

During the detailed design and construction phase of the project, appropriate mitigation measures take into consideration the elimination or minimization of water quality impacts, erosion/sedimentation impacts to watercourses and fish habitat impacts. Strategies that involve retention of existing riparian and terrestrial vegetation are favoured. In addition to the standard environmental mitigation measures typically associated with road construction works (e.g., clean equipment, sediment and erosion controls, proper construction sighting and stabilization after construction, etc.), mitigation measures specific to this project may include, but are not limited to:

- Using non-intrusive structures such as clear span bridges or open-foot culverts (if necessary);
- Installing sufficiently embedded closed-bottom culverts;
- Minimizing the length of culverts installed ;
- Ensuring that culverts are properly installed so as to not obstruct fish movement (including seasonal movement) or cause wash-out (erosion). This may involve setting

the culvert bottom 10 – 20% of the diameter or height below the channel grade and placing suitable substrates inside;
- Minimizing the removal of existing vegetation (other than invasive emergents already growing in the channel) and existing habitat to the extent required for construction;
- Ensuring that new culverts and spans are installed in such a manner that they convey flows gradually and continuously so that a backwater effect or an in-stream barrier is not created;
- Ensuring the embankment fill materials do not, and will not, encroach on culvert inlets and outlets;
- Ensuring the culvert capacity is equivalent to, or exceeds, the hydraulic capacity of the creek or drain; and
- Treating stormwater runoff to a normal (formally Level 2) standard of TSS removal prior to discharge into the watercourse.

5.2.4 General Aquatic Construction-Related Mitigation Measures

In addition to the typical construction-related mitigation measures used to prevent negative impacts to aquatic and terrestrial features during and after construction (i.e., entry of deleterious substances, filtering dewatering effluent, coffer dam construction, etc.), measures that could be undertaken include, but are not limited to:

- Conducting all channel/ditch/culvert works in dry conditions by using cofferdams, temporary diversions, or taking advantage of dry conditions due to natural intermittent/ephemeral periods (i.e., late summer or fall);
- Ensuring that any isolated pools or temporary diversions are checked for fish and removed by a qualified aquatic biologist prior to dewatering activities;
- Relocating any stranded fish in culvert or construction zones using appropriate techniques to reaches downstream of the proposed works;
- Adhering to the appropriate MNR timing window for in-water works to protect warmwater fish during their sensitive spawning and nursery periods**;**
- Not working during or immediately after spring runoff or significant rainfall events;
- Ensuring the survival of any wildlife, including nesting birds, that may be encountered during construction;
- Retaining as much existing bank vegetation as possible to help ensure bank stability and erosion control;
- Installing protective fencing to delineate the edges of construction zones, protect bank vegetation, and existing aquatic habitat in the channel/ditch;
- Using sandbags, silt fencing, or straw bales to build an in-channel filter downstream of the in-water work zone to minimize the transport of sediments originating from the construction site(s); and,
- Re-vegetating all exposed areas as soon as possible after construction with native shrubs and ground cover (e.g., hydroseed, various mulches, or erosion control blankets) to expedite root-system development and growth to quickly stabilize exposed soils.

5.2.5 Future Aquatic Works Required

The following measures could be required in order to obtain regulatory permits and agency approvals and to ensure the protection of aquatic habitat and fisheries resources:

- Undertake additional site-specific aquatic surveys to update and confirm the existing conditions and refine mitigation as appropriate;
- Analyze technical feasibility of taking the Black's Pond section of Borer's Creek offline as compensation for the potential HADD caused by the E-W road alignment; particularly, the impact of the road crossing of Borer's Creek floodplain.
- Further analysis of the footprint of all culvert installations and extensions by a qualified hydrologist in order to ensure smooth transitions and flow patterns between inlet and/or outlet and the existing channel;
- Collect, analyse, and incorporate the detailed information from technical specialists (e.g. hydrologists, engineers, surveyors, fluvial geomorphologists, and fish habitat biologists, as required) for any proposed channel realignments;
- Consult Conservation Halton (CH), Hamilton Conservation Authority (HCA), and the MNR to confirm the list of permits and approvals required to undertake the proposed project, including potential responsibilities under the Fisheries Act, Navigable Water Protection Act, Public Lands Act, Lakes and Rivers Improvement Act, and the Conservation Authorities Act. Potential channel realignments and some of the culvert installations may result in a harmful alteration, disruption, or destruction of fish habitat (HADD) if impacts are not mitigated and may require prior authorization from Fisheries and Oceans Canada (DFO);
- If CH or HCA determines that a HADD will occur, they will forward the project onto DFO for their review. If necessary, a Fish Habitat Compensation Plan, including appropriate supporting documentation, photographs, and drawings may be required as a condition of DFO approval; and
- Consult with CH, HCA, and/or DFO to properly identify suitable and realistic habitat compensation/enhancement opportunities, if applicable.

As per CH and HCA's Level 2 agreement with DFO, the CA will identify if HADD(s) will occur as a result of the proposed work at each crossing. If the potential HADD cannot be fully mitigated, the file will be forwarded to DFO for review and decision. It is anticipated that HADDs can be avoided at these crossings provided the right combination of mitigation measures listed above are prescribed and maintained during construction. The need for the above measures would be determined through the detailed design process for both road projects.

6.0 Natural Environment Summary

The section summarizes the natural environmental impact/mitigation analysis of the East-West Road Corridor and Waterdown Road Corridor. Natural heritage information was gathered through review of secondary source background reports. Confirmation and evaluation of the sensitivity of terrestrial and aquatic natural features was achieved through field investigation over the 2007 and 2008 field seasons.

The natural features that could be impacted by the preferred road routes were identified. The primary natural environmental features in the study areas were determined to be watercourse crossings, federal and/or provincial Species at Risk, Provincially Significant Wetlands (PSW's), Environmentally Sensitive Areas (ESA's) and Areas of Natural and Scientific Interest (ANSI's).

In general, the mitigation strategies proposed in this report have involved avoiding or minimizing the impact on significant terrestrial features and aquatic resources through:

- Adjusting the location of road alignments;
- Using environmentally preferred detailed road design and watercourse crossing options;
- Providing buffers for key natural heritage features such as ESAs, PSWs and ANSIs that protect their ecological form and function;
- Recommending Edge Management Plans where encroachment into ESAs, PSWs, ANSIs, etc. was unavoidable;
- Conducting road works in and around wildlife habitat outside of windows critical to wildlife survival, i.e. vegetation removal outside of the breeding bird period;
- Recommending restoration and enhancement of key natural heritage features identified during this study through the use of natural channel design for watercourse realignments and through the planting of native vegetation in disturbed terrestrial habitat.

Through the implementation of the above mitigation measures, the impacts of the East-West Road Corridor and Waterdown Road Corridor can be minimized. The approval of specific mitigation techniques will be the under the jurisdictional responsibility of the Ministry of Natural Resources, Conservation Halton and/or the Hamilton Conservation Authority. The detailed mitigation plans, Edge Management Plans and restoration plans would be developed as part of the future road detailed design work.

7.0 References

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Appendix A
Breeding Bird Summary Table, Table of Breeding Birds Observed in ESAs & Incidental Wildlife Observation Table

Table A1: Breeding Birds and Conservation Priority Birds in the East-West Corridor and Waterdown Road Corridor Study Areas

Family	Scientific Name	Common Name	GRank[1]	SRank[2]	SARA[3] or ESA[4]	BCR 13 Priority Species[5]	Regional Conservation Priority Species in Halton[6] or Hamilton[7]	Observed by: Dillon[A] and/or OBBA (≥90%)[B]	Primary Breeding Habitat
ARDEIDAE	*Ardea herodias*	Great Blue Heron	G5	S5B, SZN	No	**Yes**	No	**A**	Treed shrubby swamp
ANATIDAE	*Anas platyrhynchos*	Mallard	G5	S5B, SZN	No	**Yes**	No	**A, B**	Marsh
	Branta canadensis	Canada Goose	G5	S5B, SZN	No	**Yes**	No	**A, B**	Variety of habitats near wetlands
CHARADRIIDAE	*Charadrius vociferus*	Killdeer	G5	S5B, SZN	No	No	No	**A, B**	Agricultural
LARIDAE	*Larus delawarensis*	Ring-billed Gull	G5	S5B, SZN	No	**Yes**	No	**A**	Islands
SCOLOPACIDAE	*Actitis macularia*	Spotted Sandpiper	G5	S5B, SZN	No	No	**Level 3 – Open Country[6, 7]**	**A, B**	Beaches
	Scolopax minor	American Woodcock	G5	S5B, SZN	No	**Yes**	**Level 4 - Forest[6, 7]**	**A**	Early successional
ACCIPITRIDAE	*Buteo jamaicensis*	Red-tailed Hawk	G5	S5B, SZN	No	No	No	**A, B**	Agricultural
CATHARTIDAE	*Cathartes aura*	Turkey Vulture	G5	S4B, SZN	No	No	**Level 3 - Forest[6, 7]**	**A**	Cliffs
COLUMBIDAE	*Columba livia*	Rock Pigeon	G5	SE	No	No	No	**A, B**	Urban
	Zenaida macroura	Mourning Dove	G5	S5B, SZN	No	No	No	**A, B**	Early successional
CUCULIDAE	*Coccyzus americanus*	Yellow-billed Cuckoo	G5	S4B, SZN	No	No	**Level 3 - Forest[6, 7]**	**A**	Early successional
	Coccyzus erythropthalmus	Black-billed Cuckoo	G5	S4B, SZN	No	No	**Level 2 - Forest[6, 7]**	**B**	Early successional
STRIGIDAE	*Otus asio*	Eastern Screech-owl	G5	S5		No	No	**B**	Woodlands
PICIDAE	*Colaptes auratus*	Northern Flicker	G5	S5B, SZN	No	**Yes**	No	**A, B**	Mixed woodlands
	Melanerpes carolinus	Red-bellied Woodpecker	G5	S4	No	No	**Level 3 – Forest[6], Level 1 – Forest[7]**	**B**	Deciduous Forest
	Picoides pubescens	Downy Woodpecker	G5	S5	No	No	No	**A, B**	Deciduous woodlands
	Picoides villosus	Hairy Woodpecker	G5	S5	No	No	No	**A, B**	Mixed woodlands

Family	Scientific Name	Common Name	GRank[1]	SRank[2]	SARA[3] or ESA[4]	BCR 13 Priority Species[5]	Regional Conservation Priority Species in Halton[6] or Hamilton[7]	Observed by: Dillon[A] and/or OBBA (≥90%)[B]	Primary Breeding Habitat
ALAUDINIDAE	*Eremophila alpestris*	Horned Lark	G5	S5B, SZN	No	No	**Level 3 – Open Country**[6, 7]	**A**	Agricultural
BOMBYCILLIDAE	*Bombycilla cedrorum*	Cedar Waxwing	G5	S5B, SZN	No	No	No	**A, B**	Open Woodlands
CARDINALIDAE	*Cardinalis cardinalis*	Northern Cardinal	G5	S5	No	No	No	**A, B**	Woodlands
	Passerina cyanea	Indigo Bunting	G5	S5B, SZN	No	No	No	**A, B**	Open Woodlands
	Pheucticus ludovicianus	Rose-breasted Grosbeak	G5	S5B, SZN	No	**Yes**	No	**A, B**	Deciduous woodlands
CORVIDAE	*Corvus brachyrhynchos*	American Crow	G5	S5B, SZN	No	No	No	**A, B**	Woodlands
	Cyanocitta cristata	Blue Jay	G5	S5	No	No	No	**A, B**	Woodlands
EMBERIZIDAE	*Melospiza melodia*	Song Sparrow	G5	S5B, SZN	No	No	No	**A, B**	Early successional
	Passerculus sandwichensis	Savannah Sparrow	G5	S5B, SZN	No	**Yes**	**Level 1 – Open Country**[6, 7]	**A, B**	Agricultural
	Pipilo erythrophthalmus	Eastern Towhee	G5	S4B, SZN	No	**Yes**	**Level 2 - Forest**[6, 7]	**A**	Open woodlands
	Pooecetes gramineus	Vesper Sparrow	G5	S4B, SZN	No	**Yes**	**Level 3 – Open Country**[6, 7]	**A, B**	Agricultural
	Spizella passerina	Chipping Sparrow	G5	S5B, SZN	No	No	No	**A, B**	Coniferous woodlands
	Spizella pusilla	Field Sparrow	G5	S5B, SZN	No	**Yes**	**Level 3 – Open Country**[6, 7]	**A, B**	Early successional
FRINGILLIDAE	*Carduelis tristis*	American Goldfinch	G5	S5B, SZN	No	No	**Level 3 – Open Country**[6, 7]	**A, B**	Early successional
	Carpodacus mexicanus	House Finch	G5	SE	No	No	No	**A, B**	Urban
HIRUNDINIDAE	*Hirundo rustica*	Barn Swallow	G5	S5B, SZN	No	No	**Level 4 – Open Country**[6, 7]	**A, B**	Agricultural
	Riparia riparia	Bank Swallow	G5	S5B, SZN	No	**Yes**	**Level 2 – Open Country**[6, 7]	**A**	River banks/Sandy cliffs
	Stelgidopteryx serripennis	Northern Rough-winged Swallow	G5	S5B, SZN	No	No	**Level 2 – Open Country**[6, 7]	**A, B**	Lakes/ponds/ rivers

Family	Scientific Name	Common Name	GRank[1]	SRank[2]	SARA[3] or ESA[4]	BCR 13 Priority Species[5]	Regional Conservation Priority Species in Halton[6] or Hamilton[7]	Observed by: Dillon[A] and/or OBBA (≥90%)[B]	Primary Breeding Habitat
	Tachycineta bicolor	Tree Swallow	G5	S5B, SZN	No	No	No	**A, B**	Treed/shrubby swamp
ICTERIDAE	*Agelaius phoeniceus*	Red-winged Blackbird	G5	S5B, SZN	No	No	No	**A, B**	Marsh
	Dolichonyx oryzivorus	Bobolink	G5	S4B, SZN	No	**Yes**	**Level 2 – Open Country**[6, 7]	**B**	Agricultural
	Icterus galbula	Baltimore Oriole	G5	S5B, SZN	No	No	No	**A, B**	Deciduous woodlands
	Molothrus ater	Brown-headed Cowbird	G5	S5B, SZN	No	No	No	**A, B**	Agricultural
	Sturnella magna	Eastern Meadowlark	G5	S5B, SZN	No	No	**Level 3 – Open Country**[6, 7]	**B**	Agricultural
	Quiscalus quiscula	Common Grackle	G5	S5B, SZN	No	No	No	**A, B**	Woodlands
MIMIDAE	*Dumetella carolinensis*	Gray Catbird	G5	S5B, SZN	No	No	No	**A, B**	Early successional
	Toxostoma rufum	Brown Thrasher	G5	S5B, SZN	No	**Yes**	**Level 1 – Open Country**[6, 7]	**B**	Early successional
PARIDAE	*Poecile atricapillus*	Black-capped Chickadee	G5	S5	No	No	**Level 4 - Forest**[6, 7]	**A, B**	Mixed woodlands
PARULIDAE	*Dendroica pensylvanica*	Chestnut-sided Warbler	G5	S5B, SZN	No	No	**Level 1 - Forest**[6, 7]	**A, B**	Early successional
	Dendroica petechia	Yellow Warbler	G5	S5B, SZN	No	No	No	**A, B**	Early successional
	Geothlypis trichas	Common Yellowthroat	G5	S5B, SZN	No	No	No	**A, B**	Marsh
	Oporornis philadelphia	Mourning Warbler	G5	S5B, SZN	No	No	**Level 2 - Forest**[6, 7]	**A**	Open woodlands
PASSERIDAE	*Passer domesticus*	House Sparrow	G5	SE	No	No	No	**A, B**	Urban
SITTIDAE	*Sitta carolinensis*	White-breasted Nuthatch	G5	S5	No	No	No	**A, B**	Deciduous woodlands
STURNIDAE	*Sturnus vulgaris*	European Starling	G5	SE	No	No	No	**A, B**	Urban
SYLVIIDAE	*Polioptila caerulea*	Blue-gray Gnatcatcher	G5	S4B, SZN	No	No	**Level 3 - Forest**[6, 7]	**A**	Deciduous woodlands

Family	Scientific Name	Common Name	GRank[1]	SRank[2]	SARA[3] or ESA[4]	BCR 13 Priority Species[5]	Regional Conservation Priority Species in Halton[6] or Hamilton[7]	Observed by: Dillon[A] and/or OBBA (≥90%)[B]	Primary Breeding Habitat
TROGLODYTIDAE	*Troglodytes aedon*	House Wren	G5	S5B, SZN	No	No	No	**A, B**	Early successional
TURDIDAE	*Hylocichla mustelina*	Wood Thrush	G5	S5B, SZN	No	**Yes**	**Level 4 - Forest**[6, 7]	**A, B**	Deciduous woodlands
	Turdus migratorius	American Robin	G5	S5B, SZN	No	No	No	**A, B**	Urban
TYRANNIDAE	*Contopus virens*	Eastern Wood-pewee	G5	S5B, SZN	No	**Yes**	No	**A, B**	Deciduous woodlands
	Empidonax traillii	Willow Flycatcher	G5	S5B, SZN	No	No	No	**B**	Shrubby swamp
	Myiarchus crinitus	Great Crested Flycatcher	G5	S5B, SZN	No	No	No	**A, B**	Deciduous woodlands
	Sayornis phoebe	Eastern Phoebe	G5	S5B, SZN	No	No	**Level 3 - Forest**[6, 7]	**A, B**	Woodlands
	Tyrannus tyrannus	Eastern Kingbird	G5	S5B, SZN	No	**Yes**	**Level 3 – Open Country**[6, 7]	**A, B**	Early successional
VIREONIDAE	*Vireo gilvus*	Warbling Vireo	G5	S5B, SZN	No	No	No	**A, B**	Open woodlands
	Vireo olivaceus	Red-eyed Vireo	G5	S5B, SZN	No	No	No	**A, B**	Deciduous woodlands

1. Global Rank (Source: OMNR National Heritage Information Centre website, 2007)
2. Subnational (Provincial) Rank (Source: OMNR National Heritage Information Centre website, 2007)
3. Federal Species at Risk Act (Source: SARA Public Registry, 2007)
4. Provincial Endangered Species Act (Source: OMNR website, 2007)
5. Bird Conservation Region 13 Priority Species (Source: Ontario Landbird Conservation Plan, 2005)
6. Halton Region Conservation Priority Species (Source: Conservation Priorities for the Birds of Southern Ontario, 1999)
7. Hamilton Region Conservation Priority Species (Source: Conservation Priorities for the Birds of Southern Ontario, 1999)

Note: ENG - Endangered
THR - Threatened
SC – Special Concern
UR – Under Review

A. Birds Observed during the Dillon Consulting Limited 2007 Breeding Bird Field Surveys
B. Birds Observed in ≥90% of Survey Squares in OBBA Region 15 (2nd OBBA) and have Breeding Habitat in the Study Area (Source: Ontario Breeding Bird Atlas website, 2007)

Table A2: Breeding Birds Observed in Environmentally Significant/Sensitive Areas in the East-West Road Corridor and Waterdown Road Corridor Study Areas

Scientific Name	Common Name*	SRank[1]	Regional Conservation Priority Species in Halton[2] or Hamilton[3]	Number of Individuals Observed during the 2007 Breeding Bird Surveys (2 visits, includes point counts and wandering transects)				
				Parkside Drive PSW Complex[4]	Centre Road Woodlot PSW Unit[5]	Lake Medad Valley Swamp[6]	Sassafras Waterdown Woods ANSI[7]	Nelson Escarpment Woods ESA[8]
Ardea herodias	Great Blue Heron*	S5B, SZN	No	1				
Anas platyrhynchos	Mallard	S5B, SZN	No	1		13		
Branta canadensis	Canada Goose	S5B, SZN	No	13				
Charadrius vociferus	Killdeer	S5B, SZN	No		1	4		
Larus delawarensis	Ring-billed Gull*	S5B, SZN	No	19	45		267	
Actitis macularia	Spotted Sandpiper	S5B, SZN	**Level 3 – Open Country[2, 3]**	1		1		
Scolopax minor	American Woodcock	S5B, SZN	**Level 4 - Forest[2, 3]**			3	1	
Buteo jamaicensis	Red-tailed Hawk	S5B, SZN	No		2	1	4	1
Cathartes aura	Turkey Vulture	S4B, SZN	**Level 3 - Forest[2, 3]**				3	
Columba livia	Rock Pigeon	SE	No				30	
Zenaida macroura	Mourning Dove	S5B, SZN	No	2	1		8	
Coccyzus americanus	Yellow-billed Cuckoo	S4B, SZN	**Level 3 - Forest[2, 3]**			2	1	
Colaptes auratus	Northern Flicker	S5B, SZN	No	1	3	3	3	2
Picoides pubescens	Downy Woodpecker	S5	No		1	2	8	1
Picoides villosus	Hairy Woodpecker	S5	No	1	1		5	
Bombycilla cedrorum	Cedar Waxwing	S5B, SZN	No	2	2			
Cardinalis cardinalis	Northern Cardinal	S5	No	8	4		22	4
Passerina cyanea	Indigo Bunting	S5B, SZN	No	8	1	1	7	2
Pheucticus ludovicianus	Rose-breasted Grosbeak	S5B, SZN	No	1		1		
Corvus brachyrhynchos	American Crow	S5B, SZN	No	3	2		11	1
Cyanocitta cristata	Blue Jay	S5	No	3	2	3	11	5
Melospiza melodia	Song Sparrow	S5B, SZN	No	26	10	13	30	5
Passerculus sandwichensis	Savannah Sparrow	S5B, SZN	**Level 1 – Open Country[2, 3]**	7			1	
Pipilo erythrophthalmus	Eastern Towhee	S4B, SZN	**Level 2 - Forest[2, 3]**				1	

Scientific Name	Common Name*	SRank[1]	Regional Conservation Priority Species in Halton[2] or Hamilton[3]	Number of Individuals Observed during the 2007 Breeding Bird Surveys (2 visits, includes point counts and wandering transects)				
				Parkside Drive PSW Complex[4]	Centre Road Woodlot PSW Unit[5]	Lake Medad Valley Swamp[6]	Sassafras Waterdown Woods ANSI[7]	Nelson Escarpment Woods ESA[8]
Pooecetes gramineus	Vesper Sparrow	S4B, SZN	**Level 3 – Open Country**[2, 3]	1				
Spizella passerina	Chipping Sparrow	S5B, SZN	No	3			4	
Spizella pusilla	Field Sparrow	S5B, SZN	**Level 3 – Open Country**[2, 3]		4			
Carduelis tristis	American Goldfinch	S5B, SZN	**Level 3 – Open Country**[2, 3]	13	14	8	56	4
Carpodacus mexicanus	House Finch	SE	No				1	
Hirundo rustica	Barn Swallow	S5B, SZN	**Level 4 – Open Country**[2, 3]			3		
Stelgidopteryx serripennis	Northern Rough-winged Swallow	S5B, SZN	**Level 2 – Open Country**[2, 3]			2	5	
Agelaius phoeniceus	Red-winged Blackbird	S5B, SZN	No	24	26	28	46	2
Icterus galbula	Baltimore Oriole	S5B, SZN	No		2			
Molothrus ater	Brown-headed Cowbird	S5B, SZN	No		3	2	4	
Quiscalus quiscula	Common Grackle	S5B, SZN	No	2	25	2	5	
Dumetella carolinensis	Gray Catbird	S5B, SZN	No	3	3	4	13	1
Poecile atricapillus	Black-capped Chickadee	S5	**Level 4 - Forest**[2, 3]	11		2	37	6
Dendroica pensylvanica	Chestnut-sided Warbler	S5B, SZN	**Level 1 - Forest**[2, 3]			1		
Dendroica petechia	Yellow Warbler	S5B, SZN	No	3	3	3	2	
Geothlypis trichas	Common Yellowthroat	S5B, SZN	No	2	2	4	1	
Oporornis philadelphia	Mourning Warbler	S5B, SZN	**Level 2 - Forest**[2, 3]	2		2		
Passer domesticus	House Sparrow	SE	No	7			18	
Sitta carolinensis	White-breasted Nuthatch	S5	No		1	2	4	1
Sturnus vulgaris	European Starling	SE	No	3	4		14	
Polioptila caerulea	Blue-gray Gnatcatcher	S4B, SZN	**Level 3 - Forest**[2,3]			2		

Scientific Name	Common Name*	SRank[1]	Regional Conservation Priority Species in Halton[2] or Hamilton[3]	Number of Individuals Observed during the 2007 Breeding Bird Surveys (2 visits, includes point counts and wandering transects)				
				Parkside Drive PSW Complex[4]	Centre Road Woodlot PSW Unit[5]	Lake Medad Valley Swamp[6]	Sassafras Waterdown Woods ANSI[7]	Nelson Escarpment Woods ESA[8]
Troglodytes aedon	House Wren	S5B, SZN	No	9	5	8	14	1
Hylocichla mustelina	Wood Thrush	S5B, SZN	**Level 4 - Forest**[2, 3]				4	
Turdus migratorius	American Robin	S5B, SZN	No	6	7	7	15	5
Contopus virens	Eastern Wood-pewee	S5B, SZN	No		2	1	3	1
Myiarchus crinitus	Great Crested Flycatcher	S5B, SZN	No	2		1	1	
Sayornis phoebe	Eastern Phoebe	S5B, SZN	**Level 3 - Forest**[2, 3]	2				
Tyrannus tyrannus	Eastern Kingbird	S5B, SZN	**Level 3 – Open Country**[2, 3]	3			7	
Vireo gilvus	Warbling Vireo	S5B, SZN	No	1		1	1	
Vireo olivaceus	Red-eyed Vireo	S5B, SZN	No	3	4	1	16	5
Total Abundance				**163**	**136**	**143**	**425**	**47**
Species Richness				**33**	**27**	**32**	**38**	**17**
Total Survey Time (minutes)				**129**	**119**	**110**	**456**	**119**

* - Signifies a species that was observed, but did not display breeding evidence. These species were not used in the abundance and richness totals.

1. Subnational (Provincial) Rank (Source: OMNR National Heritage Information Centre website, 2003).
2. Halton Region Conservation Priority Species (Source: Conservation Priorities for the Birds of Southern Ontario, 1999).
3. Hamilton Region Conservation Priority Species (Source: Conservation Priorities for the Birds of Southern Ontario, 1999).
4. Breeding birds observed during 1 point count and wandering transect surveys conducted in the southern portion of the Parkside Drive PSW Complex and immediately south of this feature.
5. Breeding birds observed during 1 point count and wandering transect surveys conducted in and immediately adjacent to the Centre Road PSW Unit.
6. Breeding birds observed during 1 point count and wandering transect surveys conducted in and immediately south of the Lake Medad Valley Swamp PSW.
7. Breeding birds observed during 6 point counts and wandering transect surveys conducted in the Sassafras Waterdown Woods Life Science ANSI and extensions.
8. Breeding birds observed during wandering transect surveys conducted in the Nelson Escarpment Wood ESA (north of Hwy 5 and west of Cedar Springs Rd.).

Table A3: Incidental Wildlife Observed in the East-West Corridor and Waterdown Road Corridor Study Areas

Type	Common Name	Scientific Name	SRank[1]	Halton Rank[2]	Hamilton Rank[3]	Date Observed
Bird	Ruby-throated hummingbird	*Archilochus colubris*	S5B	Common	Common	July 16, 2007
Bird	Belted kingfisher	*Ceryle alcyon*	S5B	Common	Common	July 18, 2007
Bird	Pileated woodpecker	*Dryocopus pileatus*	S4S5	Uncommon	Common	July 24, 2007
Bird	Eastern bluebird	*Sialia sialis*	S4S5B	Uncommon	Uncommon	February 3, 2009
Herpetofauna	Northern leopard frog	*Rana pipiens*	S5	Common	Common	July 18, 2007
Herpetofauna	Midland painted turtle	*Chrysemys picta marginata*	S5	Common	Common	July 16, 2007
Lipidoptera	Eastern Tiger swallowtail	*Papilio glaucus*	S4S5	Common	Common	July 16, 2007
Lipidoptera	White admiral	*Limenitis arthemis*	S5	Common	Common	July 16, 2007
Lipidoptera	Cabbage white	*Pieris rapae*	SNA	Common	Common	July 16/18, 2007
Lipidoptera	Monarch	*Danaus plexippus*	S4B,S2N	Common	Common	July 18, 2007
Lipidoptera	Giant swallowtail	*Papilio cresphontes*	**S2 (S4 proposed)**	**Rare**	Common	July 24, 2007
Lipidoptera	Silvery Blue	*Glaucopsyche lygdamus*	S5	Common	Common	August 1, 2007
Mammal	Eastern chipmunk	*Tamias striatus*	S5	Common	Common	July 16, 2007
Mammal	White-tailed deer	*Odocoileus virginianus*	S5	Common	Common	July 16, 2007
Mammal	Gray squirrel	*Sciurus carolinensis*	S5	Common	Common	July 16, 2007
Mammal	Red squirrel	*Tamiasciurus hudsonicus*	S5	Common	Common	June 20/22, 2007
Mammal	Raccoon	*Procyon lotor*	S5	Common	Common	July 16, 2007
Mammal	Virginia Opossum	*Didelphis virginiana*	S4	Common	Common	July 18, 2007
Mammal	Eastern cottontail	*Sylvilagus floridanus*	S5	Common	Common	July 18, 2007
Mammal	Long-tailed weasel	*Mustela frenata*	S4	Common	Common	July 6, 2007
Mammal	Star-nosed mole	*Condylura cristata*	S5	Common	Common	July 4, 2007
Mammal	Bobcat	*Lynx rufus*	S4	Extirpated	Extirpated	May/June 2008
Odonata	Ebony jewelwing	*Calopteryx maculata*	S5	Common	Common	July 16, 2007
Odonata	Common Green Darner	*Anax junius*	S5	Common	Common	July 18, 2007
Odonata	Eastern Forktail	*Ischnura verticalis*	S5	Common	Common	July 18, 2007
Odonata	Twelve-spotted Skimmer	*Libellula pulchella*	S5	Common	Common	July 18, 2007
Odonata	Widow Skimmer	*Libellula luctuosa*	S5	Common	Common	July 18, 2007
Odonata	Black Saddlebags	*Tramea lacerata*	S4	Common	Common	July 18, 2007

1. SRank – Subnational (provincial) rank derived by the OMNR's Natural Heritage Information Centre
2. Source: 2006 Halton Natural Areas Inventory – Volume 2 Species Checklist
3. Source: Hamilton Conservation Authority (2007). Note: *Common* species are assumed common in the Regional Municipality of Hamilton Wentworth.

Appendix B
Ecological Land Classification Community Table, Plant Species Lists, Relative Abundance of Woody Vegetation along Sassafras Woods, Centre Road PSW Road Alignments Plant List and ELC Field Notes

Table 1 – Description of ELC communities

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
FOD9-1	Fresh-Moist Oak – Sugar Maple Deciduous Forest	This site has a silty clay loam A and B horizon within the first 70 cm. Mottles were encountered at 68 cm below the surface. The soil moisture regime at this location is 3 (Very Fresh).	The canopy on this site is characterized by red oak (*Quercus rubra*) with red ash (*Fraxinus pennsylvanica*), black cherry (*Prunus serotina*) and sugar maple (*Acer saccharum spp. saccharum*). The sub-canopy contained an abundance of Manitoba maple (*Acer negundo*) while the understory is dominated by European buckthorn (*Rhamnus cathartica*) and staghorn sumac (*Rhus typhina*).	This site contains an abundance of non-native species, particularly in the ground layer where smooth brome (Bromus inermus) and garlic mustard (Alliaria petiolaris) are abundant. This site contains a number of snags and fallen logs that may provide habitat for a variety of wildlife.
MAM2-2 (SWD2-1)	Reed Canary Grass Mineral Meadow Marsh (Black Ash Mineral Deciduous Swamp inclusion)	This site has a silty clay loam A horizon that extends 55 cm below the surface, overtop of a layer of sandy clay loam. Mottles were encountered at 5 cm below the surface and the water table was found at 49 cm. The soil moisture regime at this location is 6 (Very Moist)	This site is dominated by reed canary grass (*Phalaris arundinacea*). Other notable plants include fringed sedge (*Carex crinita*), Joe-pye-weed (*Eupatorium maculatum*), and spotted touch-me-not (*Impatiens capensis*).	A small Black Ash Mineral Deciduous Swamp (SWD2-1) is located north of the marsh. This swamp represents the transition area between open community to treed community as well as wetland community to upland community.
FOD7-2	Fresh-Moist Ash Lowland Deciduous Forest	This site is characterized by very fine sandy clay loam with mottles encountered at 45 cm below the surface. The soil moisture regime for this site is 4 – 5 (Moderately Moist to Moist).	This site is characterized by a mix of red ash, trembling aspen (*Populus tremuloides*), eastern cottonwood (*Populus deltoides*), and white birch *(Betula papyrifera*). A number of butternut trees (*Juglans cinerea*) were located within this community.	This community contains a number of snags and fallen logs that may provide habitat for some wildlife species. Incidental wildlife sightings include field sparrow, common yellow throat, grey catbird, and

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
			The ground layer contains an abundance of smooth brome, tall goldenrod (*Solidago altissima*), and orchard grass *(Dactylis glomerata*).	song sparrow among others.
SWD4-3	White Birch – Poplar Mineral Deciduous Swamp	This site is characterized by silty very fine sand with mottles at 15 cm below the surface. Carbonates were encountered at 55 cm. The soil moisture regime for this site is 6 (Very Moist).	This swamp is dominated by eastern cottonwood and trembling aspen with black ash and red ash. The sub-canopy contains an abundance of white elm (*Ulmus americana*) whereas the ground layer is dominated by scouring rush, and sensitive fern (*Onoclea sensibilis*).	This community contains a number of snags, fallen logs, and vernal pools that may provide habitat for some wildlife species.
SWD3-2	Silver Maple Mineral Deciduous Swamp	This site has a silty clay loam A horizon that extends 19 cm below the surface, overtop of a layer of loamy sand. Mottles and carbonates were encountered at 19 cm as well, while the water table was located at 80 cm below the surface. The soil moisture regime for this site is 6 (Very Moist).	This community is dominated by silver maple (*Acer saccharinum*) with occurrences of black ash (*Fraxinus nigra*) and yellow birch (*Betula alleghaniensis*) among other less common tree species. The understory contains an abundance of spice bush (*Lindera bezoin*) and witchhazel (*Hamamelis virginiana*). The ground layer is dominated by spotted touch-me-not.	This community contains a number of snags, fallen logs, and vernal pools that may provide habitat for some wildlife species. Incidental wildlife sightings include white-tailed deer, wood pewee, and red-eyed vireo.
SWD7-2	Yellow Birch Organic Deciduous Swamp	This site has a humic organic layer that extends approximately 46 cm below the surface indicated wet organic soils. The organic layer is overtop of loamy fine sand where mottles are found at the interface of mineral and organic soils. The soil moisture regime for this site is 7	This site is characterized by a mix of tree species including yellow birch, black ash, white elm, trembling aspen, and red maple (*Acer rubrum*). The ground layer is dominated by skunk cabbage (*Symplocarpus foetidus*), sensitive fern, and spotted touch-me-not.	This site contains a good diversity of high valued native plants. Snags, fallen logs, and vernal pools are abundant here. American toad was observed within this community.

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
		(Moderately Wet).		
SWD2-2 (MAM2-10)	Red Ash Mineral Deciduous Swamp (Forb Mineral Meadow Marsh)	This community has a silty clay loam A horizon overtop of a loamy fine sand B horizon. Mottles were encountered at 36 cm below the surface. The soil moisture regime for this community is 5 (Moist).	This community contains 50% red ash with a mix of white elm, white pine, yellow birch, and trembling aspen. The understory is characterized by sensitive fern, dwarf raspberry (*Rubus pubens*), and poison ivy (*Rhus radicans*).	This community experiences moderate pools and puddling in the spring which may support breeding amphibians. A Forb Mineral Meadow Marsh inclusion is located in the hydro corridor clearing.
FOD8-1	Fresh-Moist Poplar Deciduous Forest	This upland community is characterized by loamy very fine sand. Mottles were encountered at 75 cm below the surface. The soil moisture regime for this site is 3 (Very Fresh).	This site is dominated by largetooth aspen (*Populus grandidentata*) with occurrences of black cherry, sugar maple, and basswood. The ground layer is characterized by Virginia creeper (*Parthenocissus inserta*), braken fern (*Pteridium aquilinum*), and lady fern (*Athyrium felix-femina*).	This community contains a number of snags, fallen logs, and vernal pools that may provide habitat for some wildlife species
SWD5	Ash Organic Deciduous Swamp	This site contains 42 cm of humic organic material overtop of a loamy fine sand. Mottles were found at 0 cm whereas gley was encountered at 5 cm. The soil moisture regime for this site is 7 (Moderately Wet).	This community is characterized by a mixture of red ash and black ash with occurrences of yellow birch, white elm and red maple. A number of eastern white cedar (*Thuja occidentalis*) seedling occur in the understory. The ground layer is dominated by spotted touch-me-not with skunk cabbage, and fowl mana-grass (*Glyceria striata*).	This community contains a number of snags, fallen logs, and vernal pools that may provide habitat for some wildlife species. Moderate pools and puddling in the spring may support breeding amphibians.
FOD7-4	Fresh-Moist Black Walnut Lowland Deciduous Forest	This community is characterized by loamy very fine sand. Mottles were encountered at 90 cm below	This site is heavily dominated by black walnut (*Juglans nigra*) with occurrences of red ash and	Black Walnut Lowland Deciduous Forest is listed as S2S3 or "very rare" to

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
		the surface. The soil moisture regime for this site is 3 (Very Fresh).	basswood. This site contains an abundance of riverbank grape (*Vitis riparia*), black raspberry (*Rubus occidentalis*), tall goldenrod, and Virginia creeper.	"rare to uncommon". This community contained a number of wildlife species. Incidental wildlife sightings include raccoon, yellow warbler, house wren, northern flicker, and black-capped chickadee among other species.
CUT1-7*	Hawthorn – Buckthorn Cultural Thicket	This site has 40 cm of silty clay loam A horizon, overtop of a silty clay B horizon. Mottles were encountered at 40 cm. The soil moisture regime for this site is 5 (Moist).	This community is dominated by various hawthorn species (*Crategus sp.*) with European buckthorn. Other abundant species include grey dogwood, riverbank grape, and Virginia creeper. The ground layer is sparse under the dense shade of the shrub layer and includes common speedwell (*Veronica officinale*), poison ivy, and herb Robert *(Geranium robertanium*).	This community is abundant with non-native species throughout. Incidental wildlife species in this community include Virginia opossum, eastern cottontail, indigo bunting, and northern cardinal among other wildlife species.
CUM1-1	Dry-Moist Old Field Meadow	This community occurs in a number of locations throughout the study area. Soils are generally comprised of silty clay loams, loamy sands, sandy clay loams, and silty clay. Soil moisture regime in variable and ranges from 3 (Very Fresh) to 6 (Very Moist).	The community is characterized by wild carrot (*Daucus carota*), tall goldenrod (*Solidago altissima*), curly dock (*Rumex crispus*), common milkweed (*Asclepias syriaca*), and Canada thistle (*Cirsium arvense*). Shrub cover is sparse and includes small European buckthorn and red-osier dogwood (*Cornus stolonifera*). This vegetation community is consistent	A number of bird species were observed within this open community including house sparrow, field sparrow, savannah sparrow, cedar waxwing, chipping sparrow, American goldfinch, and black-capped chickadee among others.

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
			with that found on recently disturbed upland sites.	
FOD7	Fresh-Moist Lowland Deciduous Forest	This site has 27 cm of silty clay loam overtop of silty clay. Mottles were encountered at the interface of the A and B horizon and 27 cm. This site has a soil moisture regime of 5-6 (Moist to Very Moist).	This community contains different pockets of tree species. To the west red ash is dominant, in the center black locust is dominant and to the east sugar maple is dominate. The understory and ground layer is similar throughout and includes riverbank grape, dotted hawthorn, garlic mustard, and tall goldenrod.	This community is abundant with non-native species throughout. It appears that a number of trees here are planted. Natural regeneration is occurring making this site a pioneer community.
FOD4-2	Dry-Fresh White Ash Deciduous Forest	This site is characterized by 10 cm of silty clay loam overtop of bedrock. The soil moisture regime at this site is 0 (Dry).	This community contains a diversity of mature canopy trees including sugar maple, red ash, basswood, white ash, ironwood (*Ostrya virginiana*), red oak (*Quercus rubra*) and black cherry. The understory contains witchhazel, choke cherry (*Prunus virginiana*), and alternate-leaved dogwood (*Cornus alternafolia*). The ground layer include garlic mustard, Canada mayflower (*Maianthemum candensis*), and zig-zag goldenrod (*Solidago flexicaulis*).	This mature community is on the Niagara Escarpment. The Bruce Trail runs through the center of this site. A number of snags and fallen logs within this community may provide habitat for various wildlife species. Incidental wildlife sightings include eastern chipmunk, American goldfinch, and American crow.
CUT1-4	Grey Dogwood Cultural Thicket	This community occurs in a number of locations throughout the study area. Soils are generally comprised of silty clay loams, loamy sands, sandy clay loams, and silty clay. Soil moisture	This site is heavily dominated by grey dogwood in both the canopy and understory. Tall trees such as basswood and black cherry are rare. As a result of the dense shade provided by the grey dogwood the	A number of bird species were observed within this thicket community including grey catbird, song sparrow, American goldfinch, brown-headed

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
		regime in variable and ranges from 3 (Very Fresh) to 6 (Very Moist).	ground layer is extremely sparse. Open area contain species such as tall goldenrod, smooth brome, and poison ivy.	cowbird, and eastern kingbird.
FOD5-3	Dry-Fresh Sugar Maple – Oak Deciduous Forest	This site is characterized by 85 cm of clay loam over bedrock. Mottles were encountered at 80 cm below the surface. The soil moisture regime for this site is 3 (Very Fresh).	This community is dominated by sugar maple and red oak with occurrences of red ash, black cherry, and ironwood. The understory is abundant with choke cherry whereas the ground layer is comprised of garlic mustard, Canada bluegrass (*Poa compressa*), and poison ivy.	This site contains a number of snags and fallen logs that may provide wildlife habitat for various wildlife species. Incidental wildlife sighting included grey squirrel, pileated woodpecker, black-capped chickadee, and northern flicker.
FOD5-1	Dry-Fresh Sugar Maple (Hardwood) Deciduous Forest	This site is characterized by 30 cm of silty clay over bedrock. The soil moisture regime for this site is 0 (Dry).	This site contains a good diversity of tree species including 50% sugar maple with red oak, basswood, white pine, ironwood, white ash, white birch, eastern hemlock (*Tsuga canadensis*), American beech (*Fagus grandifolia*), red maple, and shagbark hickory (*Carya ovata*). The understory contains choke cherry and witchhazel while the ground layer is characterized by Canada bluegrass, garlic mustard, and false solomon's seal (*Maianthemum racemosa*).	This site contains a number of snags and fallen logs that may provide wildlife habitat for various wildlife species. Incidental wildlife sighting include American goldfinch, red-tailed hawk, blue jay, and grey catbird. This site contains a number of snags and fallen logs that may provide wildlife habitat for various wildlife species. Incidental wildlife sighting included
FOD4	Dry-Fresh Black Locust Deciduous Forest	This site is a pioneer community with silty clay loam soils that have a high amount of aggregate	The canopy is abundant in black locust and abundant in sugar maple. The sub-canopy has black locust,	The site has a heavy cultural influence due to its proximity to Hwy 5.

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
		materials.	American elm and non-native trees.	
MAS2-1	Cattail Mineral Shallow Marsh	Mineral soils in this community are seasonally inundated. The water table is above or at the mineral substrate surface seasonally.	This small community is almost completely dominated by cattail plants.	This site is an inclusion in a depression in the black locust deciduous forest south of Hwy 5.
OAO	Open Water	n/a	n/a	Open water areas (i.e. ponds)

* Denotes ELC community that is not classified in the Ecological Land Classification System for South Ontario (Lee *et al*., 1998).

Table 2 – WATMP Plant List

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	East-West Corridor (Hamilton)	Waterdown Road Corridor (Halton)	Rarity Status
Acer negundo	Manitoba Maple	0	-2	S5	X	X	
Acer platanoides	Norway Maple	0	5	SE5		X	
Acer rubrum	Red Maple	4	0	S5	X	X	
Acer saccharinum	Silver Maple	5	-3	S5	X		
Acer saccharum ssp. Saccharum	Sugar Maple	4	3	S5	X	X	
Acer spicatum	Mountain Maple	6	3	S5	X		
Achillea millefolium ssp. Millefolium	Common Yarrow	0	3	SE		X	
Actaea pachypoda	White Baneberry	6	5	S5	X		
Actaea rubra	Red Baneberry	5	5	S5	X		
Agrimonia gryposepala	Tall Agrimony	2	2	S5	X	X	
Agrostis gigantea	Redtop Grass	0	0	SE5	X	X	
Alliaria petiolata	Garlic Mustard	0	0	SE5	X	X	
Alnus glutinosa	Black Alder	0	-2	SE4	X		
Alnus incana ssp. rugosa	Speckled Alder	6	-5	S5	X		Uncommon - Halton
Ambrosia artemisiifolia	Common Ragweed	0	3	S5	X	X	
Amphicarpaea bracteata	Hog Peanut	4	0	S5	X		
Apocynum androsaemifolium ssp. androsaemifolium	Spreading Dogbane	3	5	S5	X	X	
Aralia nudicaulis	Wild Sarsaparilla	4	3	S5	X		
Arctium minus ssp. minus	Common Burdock	0	5	SE5	X	X	
Arisaema triphyllum ssp. triphyllum	Jack-in-the-pulpit	5	-2	S5	X		
Asarum canadense	Wild Ginger	6	5	S5	X		
Asclepias incarnata ssp. incarnata	Swamp Milkweed	6	-5	S5	X		
Asclepias syriaca	Common Milkweed	0	5	S5	X	X	

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	East-West Corridor (Hamilton)	Waterdown Road Corridor (Halton)	Rarity Status
Asparagus officinalis	Asparagus	0	3	SE5	X		
Aster ericoides var. ericoides	Heath Aster	4	4	S5		X	
Aster lanceolatus ssp. lanceolatus	Panicled Aster	3	-3	S5		X	
Aster macrophyllus	Large-leaved Aster	5	5	S5	X		
Aster novae-angliae	New England Aster	2	-3	S5		X	
Athyrium filix-femina var. angustum	Northern Lady Fern	4	0	S5	X		
Berberis vulgaris	Common Barberry	0	3	SE5		X	
Betula alleghaniensis	Yellow Birch	6	0	S5	X		
Betula papyrifera	White Birch	2	2	S5	X	X	
Bidens frondosa	Devil's Beggar-ticks	3	-3	S5	X		
Boehmeria cylindrica	False Nettle	4	-5	S5	X		
Bromus inermis ssp. inermis	Smooth Brome	0	5	SE5	X	X	
Bromus japonicus	Japanese Chess	0	3	SE4		X	
Caltha palustris	Marsh Marigold	5	-5	S5	X		
Carex bebbii	Bebb's Sedge	3	-5	S5	X		
Carex crinita	Fringed Sedge	6	-4	S5	X		Uncommon - Halton
Carex cristatella	Crested Sedge	3	-4	S5	X		
Carex deweyana	Dewey's Sedge	6	4	S5	X		
Carex gracillima	Graceful Sedge	4	3	S5	X	X	
Carex laevivaginata	Smooth-sheathed Sedge	8	-5	S4	X		Rare -Hamilton Uncommon - Halton
Carex lupulina	Common Hop Sedge	6	-5	S5	X		
Carex radiata	Radiate Sedge	4	5	S5	X		
Carex retrorsa	Retrorse Sedge	5	-5	S5	X		
Carex rosea	Stellate Sedge	5	5	S5	X		
Carex spicata	Spiked Sedge	0	5	SE5		X	

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	East-West Corridor (Hamilton)	Waterdown Road Corridor (Halton)	Rarity Status
Carex stipata	Awl-fruited Sedge	3	-5	S5	X		
Carex vulpinoidea	Fox Sedge	3	-5	S5	X	X	
Carpinus caroliniana	Blue Beech	6	0	S5	X	X	
Carya cordiformis	Bitternut Hickory	6	0	S5	X	X	
Carya ovata	Shagbark Hickory	6	3	S5	X	X	
Chelidonium majus	Celandine	0	5	SE5	X		
Chrysanthemum leucanthemum	Ox-eye Daisy	0	5	SE5	X		
Cichorium intybus	Chicory	0	5	SE5	X	X	
Cicuta maculata	Spotted Water-hemlock	6	-5	S5	X		
Circaea lutetiana ssp. canadensis	Canada Enchanter's Nightshade	3	3	S5	X	X	
Cirsium arvense	Canada Thistle	0	3	SE5	X	X	
Cirsium vulgare	Bull Thistle	0	4	SE5	X	X	
Clematis virginiana	Virgin's Bower	3	0	S5	X		
Convallaria majalis	Lily-of-the-valley	0	5	SE5	X		
Cornus alternifolia	Alternate-leaved Dogwood	6	5	S5	X		
Cornus foemina ssp. racemosa	Grey Dogwood	2	-2	S5	X	X	
Cornus stolonifera	Red-osier Dogwood	2	-3	S5	X		
Coronilla varia	Trailing Crown-vetch	0	5	SE5		X	
Crataegus crus-galli	Cockspur Hawthorn	4	0	S5	X		Rare -Hamilton
Crataegus mollis	Downy Hawthorn	4	-2	S5	X	X	Rare -Hamilton
Crataegus monogyna	One-seeded Hawthorn	0	5	SE5	X		
Crataegus punctata	Dotted Hawthorn	4	5	S5	X	X	
Cynanchum rossicum	White Swallow-wort	0	5	SE5		X	

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	East-West Corridor (Hamilton)	Waterdown Road Corridor (Halton)	Rarity Status
Dactylis glomerata	Orchard Grass	0	3	SE5	X	X	
Daucus carota	Wild Carrot	0	5	SE5	X	X	
Dianthus armeria	Deptford Pink	0	5	SE5	X	X	
Dipsacus fullonum ssp. sylvestris	Common Teasel	0	5	SE5	X	X	
Dryopteris carthusiana	Spinulose Wood Fern	5	-2	S5	X		
Dryopteris intermedia	Evergreen Wood Fern	5	0	S5	X		
Echium vulgare	Viper's Bugloss	0	5	SE5	X	X	
Echinocystis lobata	Wild Cucumber	3	-2	S5	X		
Elymus repens	Quack Grass	0	3	SE5	X		
Epilobium ciliatum ssp. ciliatum	American Willow-herb	3	3	S5		X	
Epilobium parviflorum	Small-flowered Willow-herb	0	3	SE4	X	X	
Epipactis helleborine	Helleborine	0	5	SE5	X		
Equisetum arvense	Field Horsetail	0	0	S5	X		
Equisetum hyemale ssp. affine	Scouring Rush	2	-2	S5	X		
Erigeron annuus	Daisy Fleabane	0	1	S5	X	X	
Erigeron philadelphicus ssp. philadelphicus	Philadelphia Fleabane	1	-3	S5	X	X	
Euonymus obovata	Running Strawberry-bush	6	5	S5	X	X	
Eupatorium maculatum ssp. maculatum	Spotted Joe-pye-weed	3	-5	S5	X		
Eupatorium perfoliatum	Common Boneset	2	-4	S5	X		
Euthamia graminifolia	Grass-leaved Goldenrod	2	-2	S5		X	
Fagus grandifolia	American Beech	6	3	S5		X	

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	East-West Corridor (Hamilton)	Waterdown Road Corridor (Halton)	Rarity Status
Fragaria virginiana ssp. virginiana	Common Strawberry	2	1	S5	X		
Fraxinus americana	White Ash	4	3	S5	X	X	
Fraxinus nigra	Black Ash	7	-4	S5	X		
Fraxinus pennsylvanica	Red Ash	3	-3	S5	X	X	
Galium palustre	Marsh Bedstraw	5	-5	S5	X		
Galium triflorum	Fragrant Bedstraw	4	2	S5	X		
Geranium maculatum	Spotted Crane's-bill	6	3	S5	X		
Geranium robertianum	Herb Robert	0	5	SE5	X		
Geum aleppicum	Yellow Avens	2	-1	S5	X	X	
Geum canadense	White Avens	3	0	S5	X		
Geum urbanum	Wood Avens	0	5	SE2	X		
Glyceria striata	Fowl Manna Grass	3	-5	S5	X		
Hamamelis virginiana	Witch-hazel	6	3	S5	X	X	
Hemerocallis fulva	Tawny Day-lily	0	5	SE5	X		
Hieracium sp	Hawkweed Species				X	X	
Hypericum perforatum	Common St. John's-wort	0	5	SE5	X	X	
Impatiens capensis	Spotted Touch-me-not	4	-3	S5	X		
Juglans cinerea	Butternut	6	2	S3?	X		Endangered - COSEWIC, COSSARO
Juglans nigra	Black Walnut	5	3	S4	X		
Juncus dudleyi	Dudley's Rush	1	0	S5	X	X	
Juncus tenuis	Path Rush	0	0	S5	X	X	
Lapsana communis	Nipplewort	0	5	SE5			
Lemna minor	Lesser Duckweed	2	-5	S5	X		
Ligustrum vulgare	Common Privet	0	1	SE5		X	
Linaria vulgaris	Butter-and-eggs	0	5	SE5		X	
Lindera benzoin	Spicebush	6	-2	S5	X		

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	East-West Corridor (Hamilton)	Waterdown Road Corridor (Halton)	Rarity Status
Lonicera tatarica	Tartarian Honeysuckle	0	3	SE5	X	X	
Lotus corniculatus	Birdsfoot Trefoil	0		SE5	X		
Lycopus uniflorus	Northern Water-horehound	5	-5	S5	X		
Lysimachia ciliata	Fringed Loosestrife	4	-3	S5	X		
Lythrum salicaria	Purple Loosestrife	0	-5	SE5	X		
Maianthemum canadense	Canada Mayflower	5	0	S5	X		
Maianthemum racemosum ssp. racemosum	False Solomon's Seal	4	3	S5	X	X	
Malus pumila	Common Apple	0	5	SE5	X		
Matteuccia struthiopteris var. pensylvanica	Ostrich Fern	5	-3	S5	X		
Medicago lupulina	Black Medick	0	1	SE5		X	
Melilotus alba	White Sweet-clover	0	3	SE5	X		
Monarda fistulosa	Wild Bergamot	6	3	S5	X		
Myosotis scorpioides	Common Forget-me-not	0	-5	SE5	X		
Nepeta cataria	Catnip	0	1	SE5	X		
Onoclea sensibilis	Sensitive Fern	4	-3	S5	X		
Osmunda cinnamomea	Cinnamon Fern	7	-3	S5	X		
Ostrya virginiana	Hop Hornbeam	4	4	S5	X	X	
Oxalis stricta	Upright Yellow Wood-sorrel	0	3	S5	X		
Parthenocissus inserta	Thicket Creeper	3	3	S5	X	X	
Phalaris arundinacea	Reed Canary Grass	0	-4	S5	X	X	
Phleum pratense	Timothy	0	3	SE5	X	X	
Phragmites australis	Common Reed	0	-4	S5	X		
Pilea pumila	Common Clearweed	5	-3	S5	X		

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	East-West Corridor (Hamilton)	Waterdown Road Corridor (Halton)	Rarity Status
Pinus strobus	Eastern White Pine	4	3	S5	X	X	
Plantago lanceolata	Ribgrass	0	0	SE5		X	
Poa compressa	Canada Blue Grass	0	2	S5	X	X	
Poa pratensis ssp. pratensis	Kentucky Blue Grass	0	1	S5	X	X	
Podophyllum peltatum	Mayapple	5	3	S5	X		
Polygonum persicaria	Lady's Thumb	0	-3	SE5	X	X	
Populus balsamifera ssp. balsamifera	Balsam Poplar	4	-3	S5	X		
Populus deltoides ssp. deltoides	Eastern Cottonwood	4	-1	S5	X		
Populus grandidentata	Largetooth Aspen	5	3	S5	X		
Populus tremuloides	Trembling Aspen	2	0	S5	X		
Potamogeton crispus	Curly Pondweed	0	-5	SE5	X		
Potentilla norvegica ssp. monspeliensis	Rough Cinquefoil	0	0	S5			
Potentilla recta	Rough-fruited Cinquefoil	0	5	SE5	X	X	
Prunella vulgaris ssp. lanceolata	Heal-all	5	5	S5	X	X	
Prunus serotina	Black Cherry	3	3	S5	X	X	
Prunus virginiana ssp. virginiana	Choke Cherry	2	1	S5	X	X	
Pteridium aquilinum var. latiusculum	Eastern Bracken Fern	2	3	S5	X		
Quercus macrocarpa	Bur Oak	5	1	S5	X	X	
Quercus rubra	Red Oak	6	3	S5	X	X	
Ranunculus acris	Tall Buttercup	0	-2	SE5	X	X	
Rhamnus cathartica	Common Buckthorn	0	3	SE5	X	X	

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	East-West Corridor (Hamilton)	Waterdown Road Corridor (Halton)	Rarity Status
Rhamnus frangula	Glossy Buckthorn	0	-1	SE5	X		
Rhus radicans ssp. negundo	Climbing Poison-ivy	5	-1	S5	X		
Rhus radicans ssp. rydbergii	Western Poison-ivy	0	0	S5	X	X	
Rhus typhina	Staghorn Sumac	1	5	S5	X	X	
Ribes americanum	Wild Black Currant	4	-3	S5	X		
Ribes cynosbati	Prickly Gooseberry	4	5	S5	X		
Ribes rubrum	Garden Red Currant	0	5	SE5	X		
Ribes triste	Swamp Red Currant	6	-5	S5	X		
Robinia pseudo-acacia	Black Locust	0	4	SE5	X	X	
Rosa rubiginosa	Eglantine	0	5	SE4		X	
Rubus allegheniensis	Common Blackberry	2	2	S5	X		
Rubus idaeus ssp. melanolasius	Wild Red Raspberry	0	-2	S5	X	X	
Rubus occidentalis	Black Raspberry	2	5	S5	X		
Rubus odoratus	Purple Flowering Raspberry	3	5	S5	X		
Rubus pubescens	Dwarf Raspberry	4	-4	S5	X		
Rumex crispus	Curly Dock	0	-1	SE5	X	X	
Sagittaria latifolia	Common Arrowhead	4	-5	S5	X		
Salix alba	White Willow	0	-3	SE4	X		
Salix eriocephala	Woolly-headed Willow	4	-3	S5	X		
Salix fragilis	Crack Willow	0	-1	SE5	X		
Sambucus canadensis	Common Elderberry	5	-2	S5	X		

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	East-West Corridor (Hamilton)	Waterdown Road Corridor (Halton)	Rarity Status
Sambucus racemosa ssp. pubens	Red-berried Elderberry	5	2	S5	X		
Saponaria officinalis	Bouncing Bet	0	3	SE5	X		
Scirpus atrovirens	Black Bulrush	3	-5	S5	X		Rare - Hamilton
Scirpus validus	Softstem Bulrush	5	-5	S5	X		
Smilax herbacea	Herbaceous Carrion Flower	5	0	S4	X		
Smilax hispida	Bristly Greenbrier	6	0	S4			
Solanum dulcamara	Bittersweet Nightshade	0	0	SE5	X	X	
Solidago altissima var. altissima	Tall Goldenrod	1	3	S5	X	X	
Solidago caesia	Blue-stem Goldenrod	5	3	S5	X	X	
Solidago canadensis var. canadensis	Canada Goldenrod	1	3	S5	X		
Solidago flexicaulis	Zig-zag Goldenrod	6	3	S5	X	X	
Solidago nemoralis ssp. nemoralis	Gray Goldenrod	2	5	S5		X	
Solidago patula	Rough-leaved Goldenrod	8	-5	S5	X		Uncommon - Halton
Sonchus arvensis ssp. arvensis	Field Sow-thistle	0	1	SE5	X	X	
Symplocarpus foetidus	Skunk Cabbage	7	-5	S5	X		Uncommon - Halton
Syringa vulgaris	Common Lilac	0	5	SE5		X	
Tanacetum vulgare	Tansy	0	5	SE5	X		
Taraxacum officinale	Common Dandelion	0	3	SE5	X	X	
Thalictrum dioicum	Early Meadow-rue	5	2	S5	X	X	
Thalictrum pubescens	Tall Meadow-rue	5	-2	S5	X		
Thuja occidentalis	Eastern White Cedar	4	-3	S5	X		

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	East-West Corridor (Hamilton)	Waterdown Road Corridor (Halton)	Rarity Status
Tilia americana	Basswood	4	3	S5	X	X	
Tragopogon pratensis ssp. pratensis	Meadow Goat's-beard	0	5	SE5	X		
Trifolium pratense	Red Clover	0	2	SE5		X	
Trillium grandiflorum	White Trillium	5	5	S5	X		
Triosteum aurantiacum	Wild Coffee	7	5	S5			
Tsuga canadensis	Eastern Hemlock	7	3	S5	X	X	
Typha angustifolia	Narrow-leaved Cattail	3	-5	S5	X		
Typha latifolia	Broad-leaved Cattail	3	-5	S5	X		
Ulmus americana	White Elm	3	-2	S5	X	X	
Ulmus pumila	Siberian Elm	0	5	SE3		X	
Urtica dioica ssp. gracilis	Slender Stinging Nettle	2	-1	S5	X		
Verbascum thapsus	Common Mullein	0	5	SE5		X	
Verbena hastata	Blue Vervain	4	-4	S5	X		
Veronica officinalis	Common Speedwell	0	5	SE5	X		
Viburnum acerifolium	Maple-leaved Viburnum	6	5	S5			
Viburnum opulus	European Highbush Cranberry	0	0	SE4	X	X	
Vicia cracca	Cow Vetch	0	5	SE5		X	
Viola sp	Violet Species				X		
Vitis riparia	Riverbank Grape	0	-2	S5	X	X	
Vinca minor	Periwinkle	0	5	SE5			

Coefficient of Conservatism: Numeric value between 0 and 10 which indicates the degree of faithfulness a plant displays to a specific habitat or set of environmental conditions. Conservative plant species, such as those which are only found in relatively pristine natural habitats such as bogs or prairies, are

assigned a high coefficient of conservatism; other plant species which grow in a wide variety of habitats and can tolerate high levels of cultural disturbance are assigned low values.

Coefficient Wetness: Lower negative numbers imply greater correlation with wetland conditions whereas higher positive numbers imply greater correlation with upland conditions.

SRank: Provincial ranks used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. By comparing the provincial ranks, the status, rarity, and the urgency of conservation, needs can be ascertained. [S1 – Critically imperiled in Ontario; S2 – Imperiled in Ontario; S3 – Vulnerable in Ontario; S4 – Apparently secure in Ontario; S5 – Secure in Ontario; SE – Exotic]

Table B3 – Relative Abundance of Woody Plants Observed Along the Western Edge of Sassafras Woods

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	Relative Abundance*					
					Edge Distance 0-10 m	DBH Range (cm)	Edge Distance 10-20 m	DBH Range (cm)	Edge Distance 0-100 m	DBH Range (cm)
Acer negundo	Manitoba Maple	0	-2	S5	n/a	n/a	n/a	n/a	**R**	7
Acer saccharum ssp. saccharum	Sugar Maple	4	3	S5	**A**	5-15	**D**	1-35	**D**	1-55
Alnus glutinosa	Black Alder	0	-2	SE4	n/a	n/a	n/a	n/a	**R**	1-15
Betula papyrifera	White Birch	2	2	S5	n/a	n/a	n/a	n/a	**R**	15-25
Carpinus caroliniana	Blue Beech	6	0	S5	n/a	n/a	n/a	n/a	**R**	2
Carya cordiformis	Bitternut Hickory	6	0	S5	n/a	n/a	n/a	n/a	**R**	Unknown
Carya ovata	Shagbark Hickory	6	3	S5	**O**	5-20	**A**	10-20	**R**	20-35
Fagus grandifolia	American Beech	6	3	S5	n/a	n/a	n/a	n/a	**O**	15-25
Fraxinus americana	White Ash	4	3	S5	n/a	n/a	n/a	n/a	**A**	3-45
Fraxinus pennsylvanica	Red Ash	3	-3	S5	**A**	5-15	**A**	1-20	**O**	1-35
Hamamelis virginiana	Witch-hazel	6	3	S5	n/a	n/a	n/a	n/a	**O**	Unknown
Juglans nigra	Black Walnut	5	3	S4	**O**	5-15	**O**	1-30	**R**	5-30
Morus alba	White mulberry	n/a	0	SNA	**R**	5-10	n/a	n/a	**R**	5-10
Ostrya virginiana	Hop Hornbeam	4	4	S5	**R**	20	n/a	n/a	**A**	5-20
Pinus strobus	Eastern White Pine	4	3	S5	n/a	n/a	**R**	35	**O**	35-40
Prunus avium	Mazzard Cherry	0	5	SE4	n/a	n/a	n/a	n/a	**R**	25-30
Prunus serotina	Black Cherry	3	3	S5	**R**	15	n/a	n/a	**O**	10-20
Quercus alba	White Oak	6	3	S5	n/a	n/a	n/a	n/a	**R**	90
Quercus rubra	Red Oak	6	3	S5	**A**	1-15	**A**	1-30	**A/D**	1-50
Rhamnus cathartica	Common Buckthorn	0	3	SE5	**O**	1-15	**R**	1-15	**O**	1-15
Rhus typhina	Staghorn Sumac	1	5	S5	**O**	1-15	**R**	1-15	**O**	1-15
Robinia pseudo-acacia	Black Locust	0	4	SE5	**R**	10-20	n/a	n/a	**O/A**	10-20
Salix alba	White Willow	0	-3	SE4	n/a	n/a	n/a	n/a	**R**	Unknown
Tilia americana	Basswood	4	3	S5	**A**	5-15	**A**	1-35	**A**	1-45
Tsuga canadensis	Eastern Hemlock	7	3	S5	n/a	n/a	n/a	n/a	**O**	30-50

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	Relative Abundance*					
					Edge Distance 0-10 m	DBH Range (cm)	Edge Distance 10-20 m	DBH Range (cm)	Edge Distance 0-100 m	DBH Range (cm)
Ulmus americana	White Elm	3	-2	S5	n/a	n/a	**R**	8	**R**	8
Ulmus pumila	Siberian Elm	0	5	SE3	**R**	10	n/a	n/a	**R**	10

* Relative Abundance: D-Dominant; A-Abundant; O-Occasional; and R-Rare.

Coefficient of Conservatism: Numeric value between 0 and 10 which indicates the degree of faithfulness a plant displays to a specific habitat or set of environmental conditions. Conservative plant species, such as those which are only found in relatively pristine natural habitats such as bogs or prairies, are assigned a high coefficient of conservatism; other plant species which grow in a wide variety of habitats and can tolerate high levels of cultural disturbance are assigned low values.

Coefficient Wetness: Lower negative numbers imply greater correlation with wetland conditions whereas higher positive numbers imply greater correlation with upland conditions.

SRank: Provincial ranks used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. By comparing the provincial ranks, the status, rarity, and the urgency of conservation, needs can be ascertained. [S1 – Critically imperiled in Ontario; S2 – Imperiled in Ontario; S3 – Vulnerable in Ontario; S4 – Apparently secure in Ontario; S5 – Secure in Ontario; SE – Exotic]

Appendix B-Table 4 (revised): Vegetation Inventories along the Five Proposed Road Alignment Options through the Centre Road Woodlot - PSW unit

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	Introduced	Alignment 1 (DE1)	Alignment 2 (DE3)	Alignment 3 (DE4)	Alignment 4 (DE2)*	Alignment 5 (DE5)*
Acer rubrum	Red Maple	4	0	S5		X	X	X	X	
Acer saccharinum	Silver Maple	5	-3	S5			X		X	
Acer saccharum ssp. saccharum	Sugar Maple	4	3	S5		X	X			X
Acer spicatum	Mountain Maple	6	3	S5				X		X
Acer X freemanii	Freeman's Maple			S5		X	X			
Actaea rubra	Red Baneberry	5	5	S5						X
Agrimonia gryposepala	Tall Agrimony	2	2	S5				X		X
Aralia nudicaulis	Wild Sarsaparilla	4	3	S5				X	X	
Arisaema triphyllum ssp. triphyllum	Jack-in-the-pulpit	5	-2	S5		X	X	X	X	X
Asarum canadense	Wild Ginger	6	5	S5						X
Aster puniceus var. puniceus	Purple-stem Aster	6	-5	S5				X		
Athyrium filix-femina var. angustum	Northern Lady Fern	4	0	S5			X	X		X
Betula alleghaniensis	Yellow Birch	6	0	S5		X	X	X	X	X
Betula papyrifera	White Birch	2	2	S5		X	X	X	X	X
Bidens frondosa	Devil's Beggar-ticks	3	-3	S5						X
Boehmeria cylindrica	False Nettle	4	-5	S5		X	X	X		X
Caltha palustris	Marsh Marigold	5	-5	S5				X		
Carex bebbii	Bebb's Sedge	3	-5	S5					X	
Carex intumescens	Bladder Sedge	6	-4	S5				X		
Carex lacustris	Lakebank Sedge	5	-5	S5						X
Carex laevivaginata	Smooth-sheathed Sedge	8	-5	S4				X		

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	Introduced	Alignment 1 (DE1)	Alignment 2 (DE3)	Alignment 3 (DE4)	Alignment 4 (DE2)*	Alignment 5 (DE5)*
Carex lupulina	Common Hop Sedge	6	-5	S5		X	X	X	X	X
Carex radiata	Radiate Sedge	4	5	S5					X	
Carex rosea	Stellate Sedge	5	5	S5						X
Carex stipata	Awl-fruited Sedge	3	-5	S5						X
Carex tenera	Slender Straw Sedge	4	-1	S5			X			
Carpinus caroliniana	Blue Beech	6	0	S5		X	X	X	X	X
Cicuta maculata	Spotted Water-hemlock	6	-5	S5			X	X	X	
Circaea lutetiana ssp. canadensis	Canada Enchanter's Nightshade	3	3	S5		X	X	X	X	X
Clematis virginiana	Virgin's Bower	3	0	S5				X		
Convallaria majalis	Lily-of-the-valley	0	5	SE5	I			X		
Cornus alternifolia	Alternate-leaved Dogwood	6	5	S5		X	X			X
Crataegus monogyna	One-seeded Hawthorn	0	5	SE5	I				X	
Crataegus punctata	Dotted Hawthorn	4	5	S5					X	
Dryopteris carthusiana	Spinulose Wood Fern	5	-2	S5		X	X	X	X	X
Dryopteris marginalis	Marginal Wood Fern	5	3	S5				X		
Epipactis helleborine	Helleborine	0	5	SE5	I		X			
Equisetum arvense	Field Horsetail	0	0	S5		X	X	X		X
Equisetum hyemale ssp. affine	Scouring Rush	2	-2	S5		X			X	
Equisetum sylvaticum	Woodland Horsetail	7	-3	S5				X		

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	Introduced	Alignment 1 (DE1)	Alignment 2 (DE3)	Alignment 3 (DE4)	Alignment 4 (DE2)*	Alignment 5 (DE5)*
Eupatorium maculatum ssp. maculatum	Spotted Joe-pye-weed	3	-5	S5				X		X
Fragaria virginiana ssp. virginiana	Common Strawberry	2	1	S5		X	X	X	X	
Fraxinus nigra	Black Ash	7	-4	S5					X	
Fraxinus pennsylvanica	Red Ash	3	-3	S5		X	X	X	X	X
Galium palustre	Marsh Bedstraw	5	-5	S5		X				
Galium triflorum	Fragrant Bedstraw	4	2	S5						X
Geum canadense	White Avens	3	0	S5		X	X	X	X	
Geum sp.									X	
Glyceria striata	Fowl Manna Grass	3	-5	S5		X		X	X	X
Hamamelis virginiana	Witch-hazel	6	3	S5		X	X	X	X	
Impatiens capensis	Spotted Touch-me-not	4	-3	S5		X	X	X	X	X
Juglans cinerea	Butternut	6	2	S4		X			X	
Juglans nigra	Black Walnut	5	3	S4						X
Lactuca biennis	Tall Blue Lettuce	6	0	S5		X				
Lindera benzoin	Spicebush	6	-2	S5		X	X	X	X	
Lonicera tatarica	Tartarian Honeysuckle	0	3	SE5	I		X			X
Lycopus americanus	Cut-leaved Water-horehound	4	-5	S5		X		X		
Lycopus uniflorus	Northern Water-horehound	5	-5	S5					X	X
Lysimachia ciliata	Fringed Loosestrife	4	-3	S5						X

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	Introduced	Alignment 1 (DE1)	Alignment 2 (DE3)	Alignment 3 (DE4)	Alignment 4 (DE2)*	Alignment 5 (DE5)*
Maianthemum canadense	Canada Mayflower	5	0	S5				X	X	
Maianthemum stellatum	Starry False Solomon's Seal	6	1	S5				X		
Matteuccia struthiopteris var. pensylvanica	Ostrich Fern	5	-3	S5						X
Medeola virginiana	Indian Cucumber-root	7	5	S5				X		
Mitchella repens	Partridge Berry	6	2	S5				X		
Oenothera biennis	Common Evening-primrose	0	3	S5		X				
Onoclea sensibilis	Sensitive Fern	4	-3	S5		X	X	X	X	X
Osmunda cinnamomea	Cinnamon Fern	7	-3	S5		X	X		X	
Parthenocissus inserta	Thicket Creeper	3	3	S5		X	X	X	X	X
Phalaris arundinacea	Reed Canary Grass	0	-4	S5		X	X	X		X
Phragmites australis	Common Reed	0	-4	S5		X				
Pilea pumila	Common Clearweed	5	-3	S5					X	
Pinus strobus	Eastern White Pine	4	3	S5				X	X	
Podophyllum peltatum	Mayapple	5	3	S5		X			X	X
Polystichum acrostichoides	Christmas Fern	5	5	S5			X			
Populus deltoides ssp. deltoides	Eastern Cottonwood	4	-1	S5		X	X		X	
Populus grandidentata	Largetooth Aspen	5	3	S5		X	X			X

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	Introduced	Alignment 1 (DE1)	Alignment 2 (DE3)	Alignment 3 (DE4)	Alignment 4 (DE2)*	Alignment 5 (DE5)*
Populus tremuloides	Trembling Aspen	2	0	S5		X	X		X	
Prunus serotina	Black Cherry	3	3	S5		X	X		X	X
Prunus virginiana ssp. virginiana	Choke Cherry	2	1	S5						X
Pteridium aquilinum var. latiusculum	Eastern Bracken Fern	2	3	S5		X				X
Quercus macrocarpa	Bur Oak	5	1	S5			X		X	X
Quercus rubra	Red Oak	6	3	S5				X		
Ranunculus acris	Tall Buttercup	0	-2	SE5	I	X				
Rhamnus cathartica	Common Buckthorn	0	3	SE5	I		X	X	X	X
Rhus radicans ssp. rydbergii	Western Poison-ivy	0	0	S5		X	X	X	X	
Rhus typhina	Staghorn Sumac	1	5	S5		X	X			
Ribes americanum	Wild Black Currant	4	-3	S5					X	X
Ribes cynosbati	Prickly Gooseberry	4	5	S5		X	X	X		
Ribes triste	Swamp Red Currant	6	-5	S5					X	X
Rubus allegheniensis	Common Blackberry	2	2	S5			X			X
Rubus idaeus ssp. melanolasius	Wild Red Raspberry	0	-2	S5			X	X		X
Rubus occidentalis	Black Raspberry	2	5	S5					X	
Rubus odoratus	Purple Flowering Raspberry	3	5	S5				X	X	
Rubus pubescens	Dwarf Raspberry	4	-4	S5		X	X	X	X	X
Salix alba	White Willow	0	-3	SE4	I	X			X	
Sambucus canadensis	Common Elderberry	5	-2	S5		X			X	

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	Introduced	Alignment 1 (DE1)	Alignment 2 (DE3)	Alignment 3 (DE4)	Alignment 4 (DE2)*	Alignment 5 (DE5)*
Sambucus canadensis	Common Elderberry	5	-2	S5				X		
Sambucus racemosa ssp. pubens	Red-berried Elderberry	5	2	S5						X
Scirpus atrovirens	Black Bulrush	3	-5	S5					X	
Smilax herbacea	Herbaceous Carrion Flower	5	0	S4					X	
Smilax hispida	Bristly Greenbrier	6	0	S4				X		
Solanum dulcamara	Bittersweet Nightshade	0	0	SE5	I	X	X	X	X	X
Solidago canadensis var. canadensis	Canada Goldenrod	1	3	S5						X
Solidago flexicaulis	Zig-zag Goldenrod	6	3	S5					X	
Solidago sp.	Goldenrod species									
Symplocarpus foetidus	Skunk Cabbage	7	-5	S5		X	X	X	X	X
Thuja occidentalis	Eastern White Cedar	4	-3	S5				X	X	X
Tilia americana	Basswood	4	3	S5			X	X		
Trillium grandiflorum	White Trillium	5	5	S5					X	
Tsuga canadensis	Eastern Hemlock	7	3	S5		X	X	X	X	X
Typha angustifolia	Narrow-leaved Cattail	3	-5	S5		X				
Ulmus americana	White Elm	3	-2	S5			X	X	X	X
Urtica dioica ssp. gracilis	Slender Stinging Nettle	2	-1	S5					X	
Viburnum acerifolium	Maple-leaved Viburnum	6	5	S5			X	X		
Viola sp.	Violet species								X	

Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	SRank	Introduced	Alignment 1 (DE1)	Alignment 2 (DE3)	Alignment 3 (DE4)	Alignment 4 (DE2)*	Alignment 5 (DE5)*
Vitis riparia	Riverbank Grape	0	-2	S5			X		X	
					Total number of species	**48**	**50**	**56**	**59**	**52**
					Average CC	**3.8**	**3.9**	**4.4**	**3.8**	**3.8**
					# of introduced species	**3**	**4**	**3**	**4**	**3**
					Average Wetness Coefficient	**-0.5**	**0.2**	**-0.4**	**-0.3**	**-0.4**

* Note: For Alignments 4 (DE2) and 5 (DE5) vegetation inventories were derived from ELC community flora inventories and represent an approximation of the species located in that proposed road ROW.

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Waterdown 1			POLYGON: 001
SURVEYOR(S): JLS DMR	DATE: July 16/07	TIME: start / finish	
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☒ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
SITE	☐ BASIC BEDRK.	☒ VALLEY SLOPE	COVER	☐ FORB	☐ MARSH
☐ OPEN WATER	☐ CARB. BEDRK.	☐ TABLELAND	☐ OPEN	☐ LICHEN	☐ SWAMP
☐ SHALLOW WATER		☐ ROLL. UPLAND	☐ SHRUB	☐ BRYOPHYTE	☐ FEN
☒ SURFICIAL DEP.		☐ CLIFF	☒ TREED	☒ DECIDUOUS	☐ BOG
☐ BEDROCK		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☒ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	QUERUBR. > FRAPENS. > PRUSERO 10
2	SUB-CANOPY	3	3	ACENEGU > TILAMER = ULMAMER
3	UNDERSTOREY	4	2	RHACATH > CORSTOL = RHUTYPH
4	GRD. LAYER	6	4	BROINER = ALLPETI = CIRLUTE

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION: QUERUBR52 FRAPENS24 PRUSERO10 ACESACC5 POPTREM5 BA: 21

SIZE CLASS ANALYSIS:	A	< 10	A	10 - 24	O	25 - 50	R	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	R	25 - 50	N	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	R	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SiCL	DEPTH TO MOTTLES / GLEY	g = 68	G= /	
MOISTURE: 3	DEPTH OF ORGANICS: 2			(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: /			(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Fresh-Moist Oak - Sugar Maple Deciduous Forest	FOD9-1
INCLUSION		
COMPLEX		

Notes:

Project No.	06 6184
Project Name	Waterdown Rd EA
File Identifier	Field Notes
Signature	

*Managed in Toronto.

ELC STAND CHARACTERISTICS	SITE: Waterdown
	POLYGON: 001
	DATE: July 16/07
	SURVEYOR(S): JLS DMR

TREE TALLY BY SPECIES:

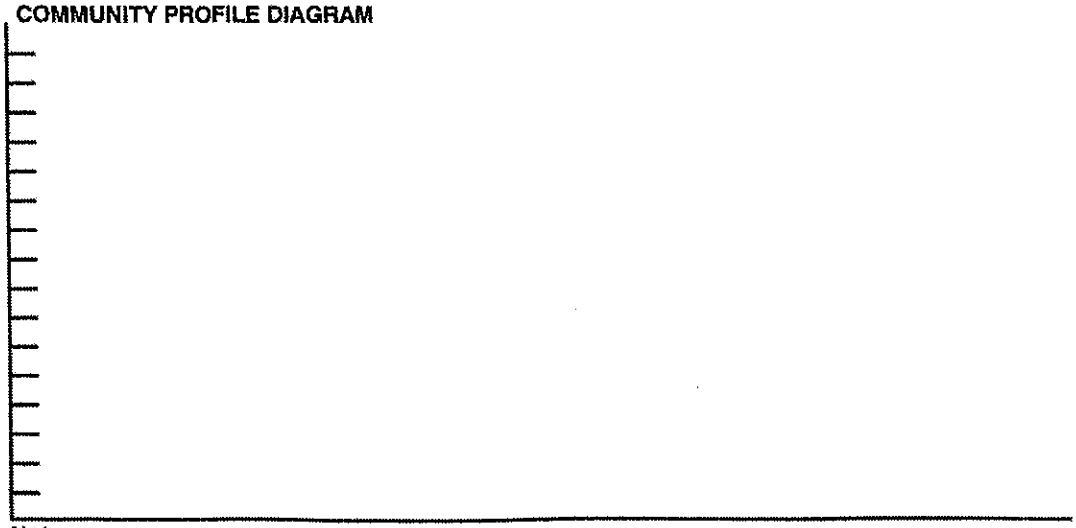
PRISM FACTOR: 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
PRUSERO	2					2	10
FRAPENS	5					5	24
QUERUBR	11					11	52
POPTREM	1					1	5
ACERACC	1					1	5
BETPAPY	1					1	5
TOTAL	21					21	100
BASAL AREA (BA)	42						
DEAD							

STAND COMPOSITION:

QUERUBR$_{52}$ FRAPENS$_{24}$ PRUSERO$_{10}$ POPTREM$_{5}$ ACERACC$_{5}$ BETPAPY$_{5}$

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

MANAGEMENT / DISTURBANCE

SITE: Natureon

POLYGON: 001

DATE: July 16/07

SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	ATV Trails
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Waterdown 1			POLYGON: 001
SURVEYOR(S): JLS DMR	DATE: July 16/07	TIME: start	
		finish	
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☒ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
SITE	☐ BASIC BEDRK.	☒ VALLEY SLOPE		☐ FORB	☐ MARSH
☐ OPEN WATER	☐ CARB. BEDRK.	☐ TABLELAND		☐ LICHEN	☐ SWAMP
☐ SHALLOW WATER		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
☒ SURFICIAL DEP.		☐ CLIFF	COVER	☒ DECIDUOUS	☐ BOG
☐ BEDROCK		☐ TALUS	☐ OPEN	☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE	☐ SHRUB	☐ MIXED	☐ MEADOW
		☐ ALVAR	☒ TREED		☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☒ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	QUERUBR > FRAPENS > PRUSERT 10
2	SUB-CANOPY	3	3	ACENEGU > TILAMER = ULMAMER
3	UNDERSTOREY	4	2	RHACATH > CORSTOL = RHUTYPH
4	GRD. LAYER	6	4	BROINER = ALLPETI = CIRLUTE

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION: QUERUBR52 FRAPENS24 PRUSERO10 ACESACCS POPTREM5 — BA: 21

SIZE CLASS ANALYSIS:	A	< 10	A	10 - 24	O	25 - 50	R	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	R	25 - 50	N	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	R	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SiCL		DEPTH TO MOTTLES / GLEY	g = 68	G= /	
MOISTURE: 3		DEPTH OF ORGANICS: 2			(cm)
HOMOGENEOUS / VARIABLE		DEPTH TO BEDROCK: /			(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Fresh-Moist Oak - Sugar Maple Deciduous Forest	FOD9-1
INCLUSION		
COMPLEX		

Notes:

Project No.	06 6184
Project Name	Waterdown Rd EA
File Identifier	Field Notes
Signature	JLS

*Managed in Toronto.

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 001
DATE: July 16/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
TILAMER		O			
QUERUBR	A				
ULMAMER		O			
FRAPENS	A				
ACESACC	O				
POPGRAN		O			
ACENEGN	O	A			
PRUSERO	O				
POPTREM	O				
RHUTYPH			O		
LONTART			O		
RHACATH			O-A		
RUBIDAE			A		
CORSTOL			O		
RHURADI			O		
VITRIPA			O		

SPECIES CODE	LAYER 1	2	3	4	COL.
Chicory				O	
goats beard				O	
BROINER				O	
DACGLOM				O	
HYPPERF				O	
ARTEMIVU				O	
ASCSYRI				O	
LEMMINO				R	
APOANDR				O	
ASPOFFI				R	
RUMCRIS				O	
ERIANNU				O-A	
DACCARO				O	
PHAARUN				O	
ALLPETI				O-A	
PARINSE				O	
SOLDULC				R	
White Avens				O	
RIBTRIS			O		
CIRARVTE				O-A	
EPIHELL				R-O	

ELC STAND CHARACTERISTICS	SITE: Waterdown
	POLYGON: 001
	DATE: July 16/07
	SURVEYOR(S): JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
PRUSERO	2					2	10
FRAPENS	5					5	24
QUERUBR	11					11	52
POPTREM	1					1	5
ACERACC	1					1	5
BETPAPY	1					1	5
TOTAL	21					21	100
BASAL AREA (BA)	42						
DEAD							

STAND COMPOSITION:

QUERUBR$_{52}$ FRAPENS$_{24}$ PRUSERO$_{10}$ POPTREM$_{5}$ ACERACC$_{5}$ BETPAPY$_{5}$

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 001
DATE: July 16/07
SURVEYOR(S): JLS DMR

	Slope								UTM	
	P/A	PP	Dr	Position	Aspect	%	Type	Class	Z	EASTING	NORTHING
1	A	5	5	2	320	5	5	C			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL 35 / SiCL 70				
A TEXTURE	SiCL				
COURSE FRAGMENTS					
B TEXTURE	SiCL				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	SiCL				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	68				
GLEY	> 70				
BEDROCK	> 70				
WATER TABLE	> 70				
CARBONATES	> 70				
DEPTH OF ORGANICS	2 (L)				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	3				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Natadeon
POLYGON: 001
DATE: July 16/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	ATV Trails
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: @ Waterdown
	POLYGON: 001
	DATE: July 16/07
	SURVEYOR(S): JLS DMR
	START TIME: END TIME:

TEMP (°C): 19	CLOUD (10th): 8	WIND: 1	PRECIPITATION: none
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	CHSP	VO							
B	INBU	VO							
B	NOCA	VO							
M	EACH	OB							
B	HOWR	VO							
B	BASW	OB							
O	Ebony Jewelwing	OB							
B	SPSA	OB							
L	Tiger Swallowtail	OB							
L	White Admiral	OB							

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: D02
	SURVEYOR(S): JLS DMB	DATE: July 16/07	TIME: start / finish
	UTMZ:	UTMZ:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL ☒ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☒ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☒ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☐ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☒ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION

SITE

☐ OPEN WATER
☐ SHALLOW WATER
☒ SURFICIAL DEP.
☐ BEDROCK

COVER

☒ OPEN
☐ SHRUB
☐ TREED

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	1	FRAPENS=ULMAMER
2	SUB-CANOPY	4	1	SAMCANA = SALERI
3	UNDERSTOREY	7	1	VITRIPA > PRUVIRG
4	GRD. LAYER	5	4	PHAARUN

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 80%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:		< 10		10 - 24		25 - 50		> 50
DEADFALL / LOGS:		< 10		10 - 24		25 - 50		> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	SiCL	DEPTH TO MOTTLES / GLEY	g = 5	G=	
MOISTURE:	6	DEPTH OF ORGANICS:	2		(cm)
HOMOGENEOUS / VARIABLE		DEPTH TO BEDROCK:			(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Reed Canary Grass Mineral Meadow Marsh	MAMM2-2
INCLUSION 003	Black Ash Mineral Deciduous Swamp	SWD2-1
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown Rd.
POLYGON: 002
DATE: July 16/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAPENS	R				
ULMAMER	R				
VITRIPA				O	
GALERIO			O		
PARINSE				O	
SAMCANA			O		
PRUVIRG			R		

SPECIES CODE	LAYER 1	2	3	4	COL.
PHARARUN				D	
EUPMACU				O	
false nettle				O	
RIBAMER				O	
IMPCAPE				O	
CARCRIN				O	
GALPALU				O	
wild cucumber				O	
EUPPERF				O	
SCIATRO				O	
THADIOE				O	
CARBEBB				O	
hog peanut				O	
EQUARVE				O	
LYSCILI				O	
UTRDIOE				O	
CALPALU				O	

ELC STAND CHARACTERISTICS	SITE:
	POLYGON:
	DATE:
	SURVEYOR(S):

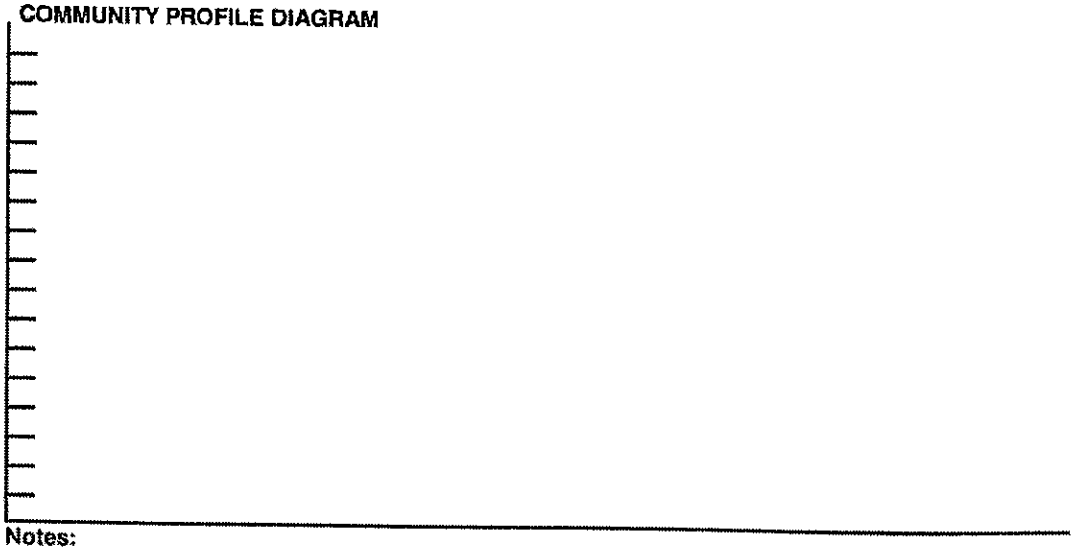
TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE: Waterdown Rd.

POLYGON: 002

DATE: July 16/07

SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Position	Aspect	Slope %	Type	Class	Z	UTM EASTING	UTM NORTHING
1	A	5	5	5		0	S	A			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL 33 / SCL 55 / SCL 100				

Can't auger further

	1	2	3	4	5
A TEXTURE	SiCL				
COURSE FRAGMENTS	—				
B TEXTURE	SiCL				
COURSE FRAGMENTS	—				
C TEXTURE	SCL				
COURSE FRAGMENTS	—				
EFFECTIVE TEXTURE	SiCL				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				

DEPTH TO / OF					
MOTTLES	5				
GLEY	>100				
BEDROCK	>100				
WATER TABLE	49				
CARBONATES	55				
DEPTH OF ORGANICS	2				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	6				

SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd.
POLYGON: 002
DATE: July 16/07
SURVEYOR(S): JLS BMK

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE: Waterdown Rd.
POLYGON: 002
DATE: July 16/07
SURVEYOR(S): JLS BMR
START TIME: END TIME:

TEMP (°C): 19 CLOUD (10th): 8 WIND: PRECIPITATION: none

CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#
O	EBJE	OB		
B	WOPE	VO		
B	WBNU	VO		
L	Cabbage White	OB		
B	BCCH	S		
B	INBU	S		
B	HAWR	S		
B	DOWO	X		
B	SOSP	X		
H	GRFR			

TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT
SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY
A = ANXIETY BEHAVIOUR
D = DISPLAY
N = NEST BUILDING
P = PAIR
V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION
NE = EGGS
AE = NEST ENTRY
NU = USED NEST
NY = YOUNG
FY = FLEDGED YOUNG
FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED
DP = DISTINCTIVE PARTS
TK = TRACKS
SI = OTHER SIGNS (specify)
VO = VOCALIZATION
HO = HOUSE/DEN
FE = FEEDING EVIDENCE
CA = CARCASS
FY = EGGS OR YOUNG
SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 004	
	SURVEYOR(S): JLS DMR	DATE: July 16/07	TIME: start	
			finish	
	UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☒ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
SITE	☐ BASIC BEDRK.	☐ VALLEY SLOPE	COVER	☐ FORB	☐ MARSH
☐ OPEN WATER	☐ CARB. BEDRK.	☒ TABLELAND	☐ OPEN	☐ LICHEN	☐ SWAMP
☐ SHALLOW WATER		☐ ROLL. UPLAND	☐ SHRUB	☐ BRYOPHYTE	☐ FEN
☒ SURFICIAL DEP.		☐ CLIFF	☒ TREED	☒ DECIDUOUS	☐ BOG
☐ BEDROCK		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☒ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	R	4	FRAPENS > POPTREM > BETPAPY
2	SUB-CANOPY	2	3	ACENEGU = ULMAMER = QUEMACR
3	UNDERSTOREY	4	3	LONTATA = VITRIPA = CORSTOL
4	GRD. LAYER	5	4	BROINER DACGLOM SOLALTI

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:
FRAPENS 32 POPTREM 13 POPDELT 13 BETPAPY 12 JUGCINE 10	20

SIZE CLASS ANALYSIS:	A	< 10	A	10 - 24	A	25 - 50	O	> 50
STANDING SNAGS:	N	< 10	O	10 - 24	O	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	O	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: vfSCL	DEPTH TO MOTTLES / GLEY	g = 45	G=	
MOISTURE: 4-5	DEPTH OF ORGANICS:	2		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:	/		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Fresh-Moist Ash Lowland Deciduous Forest.	FOD7-2
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE:	Waterdown
POLYGON:	004
DATE:	July 16/07
SURVEYOR(S):	JCS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
BETPAPY	A				
ACENEGU		O			
FRAPENS	A				
POPTREM	A				
ULMAMER	O	O			
QUEMACR	O	O			
SALFRAG	R				
POPDELT	R				
JUGPINC					
PRUSERO					
CORSTOL			O		
VITRIPA			O-A		
RUBIDAE			O		
LONTATA			O-A		
RIBRUBR			O		
CRAPUNC			R		
CORRACE			R		
CORALTE			R		
RHUTYPH		R			

SPECIES CODE	LAYER 1	2	3	4	COL.
PROINER				A	
ARCGLOM				A	
ALLPET				O	
Daylily				R	
EQUARVE				O	
ASCSYRI				R	
CIRARVE				R	
ERIANNU				O	
SOLMIM				A	
ONOSENS				A	
FRAVIRG				O	
PARINS				A	
JUNTENU				R	
PARRECT				R	
CIRCUTE				O-A	
CAPBURS				O	
RHURADI				A	O
TRIPRAT				R	
Grass sp				O	
EPIHIRS				R	
RUBPUBE				R	
Viola sp				O	
Deptford pink					

ELC STAND CHARACTERISTICS	SITE: Waterdown
	POLYGON: 004
	DATE: July 16/07
	SURVEYOR(S): JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
POPTREM	:: 2	:: 2				4	13
FRAPENS	6	|	:: 4			11	37
QUEMAC	|					1	3
FRANIGR	|					1	3
SMFRAG	|	|				2	7
JUNCINE		:: 2	|			3	10
POPDELT		|	:: 3			4	13
BETPAPY		|	:: 3			4	13
TOTAL	11	8	11			30	100
BASAL AREA (BA)	22	16	22			20	
DEAD	|	|	:: 2				

STAND COMPOSITION:

FRAPENS$_{37}$ POPTREM$_{13}$ POPDELT$_{13}$ BETPAPY$_{13}$ JUNCINE$_{10}$

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown

POLYGON: 004

DATE: July 16/07

SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Position	Aspect	Slope %	Type	Class	Z	UTM EASTING	UTM NORTHING
1	A	4	5	6	/	0	S	A			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON					
Colour Change →	HSCL 10				
	HSCL 60				
A TEXTURE	SCL				
COURSE FRAGMENTS					
B TEXTURE	SCL				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	HSCL				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				

DEPTH TO / OF

MOTTLES	45				
GLEY	>60				
BEDROCK	>60				
WATER TABLE	>60				
CARBONATES	>60				
DEPTH OF ORGANICS	2 (L)				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	4-5				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

WILDLIFE

SITE:	Waterdown
POLYGON:	204
DATE:	July 16/07
SURVEYOR(S):	JLS DMR
START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
22	9	1	none

CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#
B	FISP	VO		
B	GRCA	VO		
B	AMRO	VO		
B	MODO	VO		
B	AMCR	VO		
B	BCJA	VO		
B	DOSP	VO		
B	COYE	VO		

TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:

SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:

T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:

DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:

OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC

MANAGEMENT / DISTURBANCE

SITE: Wakedown

POLYGON: 004

DATE: July 16/07

SURVEYOR(S): JLS KMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC COMMUNITY DESCRIPTION & CLASSIFICATION			
SITE: Waterdown		POLYGON: 005	
SURVEYOR(S): JLS DMR	DATE: July16/07	TIME: start	finish
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL ☒ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☒ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☒ FOREST ☐ PLANTATION
SITE			**COVER**		
☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			☐ OPEN ☐ SHRUB ☒ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	POPDELT > POPTREM > FRAPENS
2	SUB-CANOPY	2	3	ULMAMER = POPTREM
3	UNDERSTOREY	4	3	CRAPUNC = RUBOCCI ....
4	GRD. LAYER	6	4	EQUHEMA >> DRYCART > CIRLUTE

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:
POPDELT8 FRAPENS5 FRANIGR5 POPTREM2	20

SIZE CLASS ANALYSIS:	O	< 10	A	10 - 24	A	25 - 50	R	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	O	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	R	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER	X	YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SiVfS	DEPTH TO MOTTLES / GLEY	g = 15	G= /	
MOISTURE: 6	DEPTH OF ORGANICS:	3		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:	/		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	White Birch - Poplar Mineral * Deciduous Swamp	SWD4-3
INCLUSION		
COMPLEX		

Notes:

* Dominated by Cottonwood & Trembling Aspen

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 006
DATE: July 16/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
JUGCINE	O				
POPTREM	A	O			
POPDELT	A				
SALIALBA	O				
ULMAMER	O	A			
CRAMONO			R		
CRAPUNC			O		
VITRIPA			O		
RUBOCCI			O		

SPECIES CODE	LAYER 1	2	3	4	COL.
EQUHYM				A	
DRYCARI				O	
CIRLUTE				O	
PARINSE				O	
Bryum sp.				O	
PODPELT				O	
ONOSENS				O-A	
RHURAD				O	

ELC

STAND CHARACTERISTICS

SITE:	Waterdown Rd
POLYGON:	005
DATE:	July 16/07
SURVEYOR(S):	JLS DMP

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
POPDELT	7					7	18
ULMAMER	1					1	2
FRAPEN'S	6					6	15
BETALL	1					1	2
JUGCINE	1					1	2
POPTREM	1					1	2
FRANIGR	3					3	8
TOTAL	20						100
BASAL AREA (BA)	40					40	
DEAD	0						

STAND COMPOSITION:

POPDELT$_{18}$ FRAPEN$_{15}$ FRANIGR$_8$ POPTREM$_2$ JUGCINE$_2$

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown Rd
POLYGON: 005
DATE: July 16/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Position	Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1	A	3	5	5		0	5	A			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiVFS				
A TEXTURE	SiVFS				
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	SiVFS				
SURFACE STONINESS					
SURFACE ROCKINESS					
DEPTH TO / OF					
MOTTLES	15				
GLEY	/				
BEDROCK	/				
WATER TABLE	/				
CARBONATES	55				
DEPTH OF ORGANICS	3 (L)				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	6				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd.

POLYGON: 005

DATE: July 16/07

SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown Rd
POLYGON:	005
DATE:	July 16/07
SURVEYOR(S):	JLS DMR
START TIME:	END TIME:

TEMP (°C): 21	CLOUD (10th): 8	WIND: 1	PRECIPITATION: none
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	✓	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

RTHU (OB) ↑ outside of polygon

BCCH
SOSP
COGR
EUST
HOSP

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 006	
	SURVEYOR(S): JS DMR	DATE: July 16/07	TIME: start	
			finish	
	UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL ☒ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☒ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☒ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☐ SHRUB ☒ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			ACESACC >> FRANIGR = TRAPENS
2	SUB-CANOPY			ACESACC > FRANIGR = TRAPENS
3	UNDERSTOREY			LINBENZ > HAMVIR, > SAMCANA
4	GRD. LAYER			IMPCAP > CIRLUTE = GLYSTR

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION: ACESACC 93 FRANIGR 7	BA: 12

SIZE CLASS ANALYSIS:	O	< 10	A	10 - 24	A	25 - 50	R	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	O	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	O	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE	X	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: FLS	DEPTH TO MOTTLES / GLEY	g = 19	G= /
MOISTURE: 6	DEPTH OF ORGANICS: /		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: /		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Silver Maple Mineral Deciduous Swamp	SWD3-2
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: 006
POLYGON: Waterdown
DATE: July 16/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
JUGCINE	O	O			
ACERUBR	O	O			
FRAPENS	O	O			
BETALLE	O-A	O-A			
FRANIGR	A	A			
ACESPC (Silver)	A-	A	O		
TSUCANA					
THUOCCI					
QUEMACRO					
HAMVIRG			O-A		
LEPBENZ			A		
SAMCANA			O		

SPECIES CODE	LAYER 1	2	3	4	COL.
IMPCAPE				D	
CIRLUTE				A	
FRAVIRG				O	
ARITRIF				O	
TRIGRAN				R	
SKUNK Cabbage				R	
OSMCINN				R	
GLYSTRI				A	
RUBODOR				O	
White Avens				O	
CARRIG				R	
RIBAMER				O	
CARLURU				M	
CICMACU				O	
Cleavers sp				O	
CARBEBB				O	
LYCUNIF				O	
SOLDULC				O	
RUBPUBE				O	
UTRDIOE				O	
MALCANA				O	
ARANUDI				O	
SOLFLEX				O	
SCIATRO				O	
SMITERE				O	

ELC

STAND CHARACTERISTICS

SITE: Waterdowne
POLYGON: 006
DATE: July 16/07
SURVEYOR(S): LS DMR

TREE TALLY BY SPECIES:

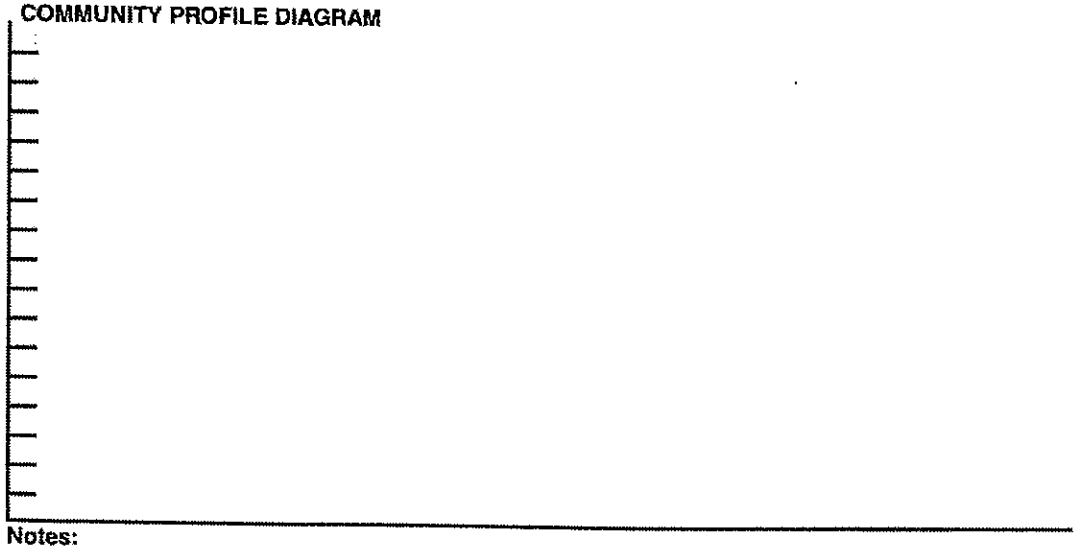
PRISM FACTOR: 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
FRAPENS	3						
FRAINIGR	5	2				2	17
BETALLE	4						
ACESACCSAC		10				10	83
TOTAL	12	12				12	100
BASAL AREA (BA)	24	24					
DEAD							

STAND COMPOSITION:

ACESACC 83 FRAINIGR 17

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 006
DATE: July 16/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Position	Aspect	Slope %	Type	Class	Z	UTM EASTING	UTM NORTHING
1	A	2	5	5	/	0	S	A			
2											
3											
4											
5											

SOIL TEXTURE x HORIZON	1	2	3	4	5
	SiCl 19 / fLS 120				
A TEXTURE	SiCL				
COURSE FRAGMENTS					
B TEXTURE	fLS				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	fLS				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				

DEPTH TO / OF					
MOTTLES	19				
GLEY	>120				
BEDROCK	>120				
WATER TABLE	80				
CARBONATES	19				
DEPTH OF ORGANICS	none				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	6				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Watendown Rd.

POLYGON: 006

DATE: July 16/07

SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Watadown Rd.
POLYGON:	006
DATE:	July 16/07
SURVEYOR(S):	LS DMR
START TIME:	END TIME:

TEMP (°C): 20	CLOUD (10th): 10	WIND: 2	PRECIPITATION: none

CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#
B	WIPE	JO		
B	RCVE	JD		
M	RNT DE	TK		

TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- D = DISPLAY
- P = PAIR
- A = ANXIETY BEHAVIOUR
- N = NEST BUILDING
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- OD = DISTRACTION
- NU = USED NEST
- FY = FLEDGED YOUNG
- NE = EGGS
- NY = YOUNG
- FS = FOOD/FAECAL SACK
- AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- VO = VOCALIZATION
- CA = CARCASS
- DP = DISTINCTIVE PARTS
- HO = HOUSE/DEN
- FY = EGGS OR YOUNG
- TK = TRACKS
- FE = FEEDING EVIDENCE
- SC = SCAT
- SI = OTHER SIGNS (specify)

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 007
	SURVEYOR(S): CLS DMR	DATE: July 16/07	TIME: start / finish
	UTMZ:	UTMZ:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL ☒ WETLAND ☐ AQUATIC	☒ ORGANIC ☐ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☒ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☒ FOREST ☐ PLANTATION

SITE	COVER
☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK	☐ OPEN ☐ SHRUB ☒ TREED

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	BETALLE > FRANIGR = ULMAMER
2	SUB-CANOPY	2	3	ULMAMER = THUOCCI = ACERUBR
3	UNDERSTOREY	4	3	SAMCANA = LINBENZ > ACESPIC
4	GRD. LAYER	6	4	SYMEQET > IMPCAPE = ONOSENS

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:
BETALLE29 FRANIGR13 ULMAMER13 POPTREM13 ACERUBR12	24

SIZE CLASS ANALYSIS:	O	< 10	A	10 - 24	A	25 - 50	R	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	O	25 - 50	A	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	O	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE	X	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: fLS	DEPTH TO MOTTLES / GLEY	g = 0	G= /
MOISTURE: 7	DEPTH OF ORGANICS:	46	(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:	/	(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Yellow Birch Organic Deciduous Swamp	SWD7-2
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 007
DATE: July 16/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
TSUCANA					
THUOCC					
BETALL					
ACEMAC					
QUEMAC					
CARCOR					
FRAPEN					
BETALL					
LERBEN					
Mountain Maple					
SAMPUB					

SPECIES CODE	LAYER 1	2	3	4	COL.
Skunk Cabbage				D	A
RIBAMC					
ONOSEN					
EQUARV					
DRYCAR					
RUBPUBC					
Fragrant Bedstraw					
PARINS					
LYCUNI					
SOLCAN					
EUPMAC					
CIRLAC					
AGRGRA					
LYSCIL					
CIRLUT					
False nettle					
Solidago Sp.					
wild ginger					
IMPCAPE					
EUPMAC					

... Rough stem?

ELC

STAND CHARACTERISTICS

SITE:	Waterdown
POLYGON:	007
DATE:	July 7/07
SURVEYOR(S):	JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
FRANIGR	2		1			3	13
BETALLE	3	2	4			7	29
RHACATH	1					1	4
ULMAMER	2		1			3	13
ACERUBR	1		1			2	10
FRANIGR		16					
POPTREM			3			3	13
TILAMER			1			1	4
JUGCINE			1			1	4
ACESACC			1			1	4
SALIX			2			2	10
TOTAL	9		15			24	100
BASAL AREA (BA)	18		30			24	
DEAD			2				

STAND COMPOSITION: *note from 4th Community

BETALLE$_{29}$ FRANIGR$_{13}$ ULMAMER$_{13}$ POPTREM$_{13}$ ACERUBR$_{10}$

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 007
DATE: July 16/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Position	Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1	A	2	7	5	/	2	S	A			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	Oh 46 / fLS 90				
A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE	LS				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	LS				
SURFACE STONINESS					
SURFACE ROCKINESS					
DEPTH TO / OF					
MOTTLES	0				
GLEY	>90				
BEDROCK	>90				
WATER TABLE	59 from surface				
CARBONATES	0				
DEPTH OF ORGANICS	46				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	7				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd.
POLYGON: 007
DATE: July 16/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown Rd
POLYGON:	007
DATE:	July 16/07
SURVEYOR(S):	JLS PMR
START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
21	8	1	none

CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
H	AMTO	OB		1					

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:

SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:

T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:

OD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:

OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 007 b
	SURVEYOR(S): JLS DMR	DATE: Aug 2/07	TIME: start / finish
	UTMZ:	UTMZ:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL ☒ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☒ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☒ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☐ SHRUB ☒ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	FRAPENS > FRANIGR > ULMAMER
2	SUB-CANOPY	2	3	FRAPENS > FRANIGR > ULMAMER
3	UNDERSTOREY	4	2	RHACATH = FRAPENS
4	GRD. LAYER	6	3	ONOSENS = RHURADI = RUBPUBE

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES: 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION:	BA:
FRAPENS$_{50}$ ULMAMER$_{11}$ PINSTRO$_{11}$ BETPAPY$_8$ POPTREM$_8$	26

SIZE CLASS ANALYSIS:	0	< 10	A	10 - 24	A	25 - 50	R	> 50

STANDING SNAGS:	0	< 10	0	10 - 24	0	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	0	10 - 24	0	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: fLS	DEPTH TO MOTTLES / GLEY	g = 32	G= /
MOISTURE: 5	DEPTH OF ORGANICS:	2	(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: /		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Red Ash Mineral Deciduous Swamp	SWD2-2
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 007b
DATE: Aug 2/07
SURVEYOR(S): JCS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
JUGCINE					
PINSTRO					
ULMAMER					
POPTREM					
FRAPENS					
PRUSERO					
BETPAPY					
CARCARP					
RHACATH					
VITRIPA					

SPECIES CODE	LAYER 1	2	3	4	COL.
ONOSENS					
RHURADI					
PARINSE					
RIBTRIS					
ARITRIP					
Viola sp.					
GLYSTRI					
CAREARI					
LYCUNIF					
RUBPUBE					
CIRVUL					

ELC

STAND CHARACTERISTICS

SITE:	Waterdown
POLYGON:	007b
DATE:	Aug 2/07
SURVEYOR(S):	JLS

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
FRAPENS	7	6				13	50
RHACATH	2					2	8
ULMAMER	3					3	11
PINSTRO	1	2				3	11
JUGNIGR		1				1	4
BETPAPY		2				2	8
POPTREM		2				2	8
TOTAL	13	13				26	100
BASAL AREA (BA)	26	26				26	
DEAD	1						

STAND COMPOSITION:

FRAPENS$_{50}$ ULMAMER$_{11}$ PINSTRO$_{11}$ BETPAPY$_8$ POPTREM$_8$

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown

POLYGON: 5078

DATE: Aug 2/07

SURVEYOR(S): JVS DMB

				Slope						UTM	
	P/A	PP	Dr	Position	Aspect	%	Type	Class	Z	EASTING	NORTHING
1	A	35	5	5	?	05	S	A			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL 36 / fLS 95				
A TEXTURE	CL				
COURSE FRAGMENTS					
B TEXTURE	fLS				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	fLS				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	36				
GLEY	/				
BEDROCK	/				
WATER TABLE	/				
CARBONATES	36				
DEPTH OF ORGANICS	2 cm (L)				
PORE SIZE DISC #1	—				
PORE SIZE DISC #2	—				
MOISTURE REGIME	5				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd

POLYGON: 007 b

DATE: Aug 2/07

SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	>30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd	
	POLYGON: 207b	
	DATE: Aug 2/07	
	SURVEYOR(S): JLS DMR	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:

SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:

T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:

DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:

OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 007C
	SURVEYOR(S): JLS MML	DATE: Aug 2/07	TIME: start / finish
	UTMZ:	UTMZ:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☒ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☒ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☐ SHRUB ☒ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	POPGRAN >> PRUSERO > ACESACC
2	SUB-CANOPY	2	2	PRUSERO > ACESACC
3	UNDERSTOREY	4	2	RHACATH = PRUVIRG > CORALT
4	GRD. LAYER	6	4	PARINSE > Broken fern > Lady fern

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES: 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION: POPGRAN 79 PRUSERO 10 ACESACC 9 TILAMER 3	BA: 39

SIZE CLASS ANALYSIS:	O	< 10	A	10 - 24	A	25 - 50	R-U	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	O	25 - 50	R-U	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	O	25 - 50	R-U	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: L vf S	DEPTH TO MOTTLES / GLEY	g = 95	G= /
MOISTURE: 3	DEPTH OF ORGANICS:	1	(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:	/	(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Fresh - Moist Poplar Deciduous Forest	FOD8-1
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown Rd
POLYGON: 007 C
DATE: Aug 21/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	LAYER 2	LAYER 3	LAYER 4	COL.
POPGRAN	D				
ACESACC	R	R	O		
PRUSERO	R	O			
FRAPENN	O		A		
BETPAPY	R				
alt-leaved dogwood			O		
buckthorn			O		
choke cherry			O		
mountain maple			R		
RUBIDAE					
RUBALLE					

SPECIES CODE	LAYER 1	LAYER 2	LAYER 3	LAYER 4	COL.
Lady fern				O	
bracken fern				O	
vir. creeper				O-A	
jack 'n' pulpit				O	
ACTRUBR				O	
EQUARVE				O	
PODPELT				O	
Ostrich fern				O-R	

Page .... of ....

ELC

STAND CHARACTERISTICS

SITE:	Waterdown Rd.
POLYGON:	007c
DATE:	Aug 21/07
SURVEYOR(S):	JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
POPGRAN	𝍸 𝍸 𝍸					31	79
PRUSERO	𝍸					4	10
ACESACC	𝍸					3	9
TILAMER						1	3
TOTAL	39					39	100
BASAL AREA (BA)	78					39	
DEAD							

STAND COMPOSITION:

POPGRAN 79 PRUSERO 10 ACESACC 9 TILAMER 3

COMMUNITY PROFILE DIAGRAM

Notes:

ELC SOILS ONTARIO	
	SITE: Waterdown
	POLYGON: 007C
	DATE: Aug 21/07
	SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Slope Position	Aspect	%	Type	Class	Z	UTM EASTING	UTM NORTHING
1	A	3	4	1	N	10	S				
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	A 17 B1 100 B2 Cold 80 [illegible] 100 [illegible]				
A TEXTURE	LvfS				
COURSE FRAGMENTS					
B TEXTURE	LvfS				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	LvfS				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				

DEPTH TO / OF

	1	2	3	4	5
MOTTLES	75cm				
GLEY	/				
BEDROCK	/				
WATER TABLE	/				
CARBONATES	/				
DEPTH OF ORGANICS	1cm				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	3				

SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd

POLYGON: 007c

DATE: Aug 21/07

SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd	
	POLYGON: 007 C	
	DATE: Aug 21/07	
	SURVEYOR(S): JLS DHR	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:

SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:

T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:

OD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:

OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Waterdam			POLYGON: 007 D
SURVEYOR(S): DMR / JLS	DATE: Aug 26 07	TIME: start	
		finish	
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL ☒ WETLAND ☐ AQUATIC	☒ ORGANIC ☐ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☒ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☒ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☐ SHRUB ☒ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	FRAXINUS >> BETULE
2	SUB-CANOPY	2	2	ULMAMER = ACERUBR
3	UNDERSTOREY	4	2	THUOCCI
4	GRD. LAYER	6	3	IMPCAPC > SYMLAEST > CLYSTRI

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:
FRAXINUS 86 BETULE 14	14

SIZE CLASS ANALYSIS:	O	< 10	A	10 - 24	A	25 - 50	R	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	O	25 - 50	R	> 50
DEADFALL / LOGS:	R	< 10	O	10 - 24	O	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	V	MID-AGE	X	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: LFS	DEPTH TO MOTTLES / GLEY	g = 0	G= 5	
MOISTURE: 7	DEPTH OF ORGANICS: 40			(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: /			(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:	Ash Organic Deciduous Swamp	SWD5
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

Ash organic Swamp

ELC
PLANT SPECIES LIST

SITE: Watedown Rd
POLYGON: 007 c
DATE: Aug 21/07
SURVEYOR(S): DMR JLS

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
BETALLE	O				
FRAMER	D				
ULMAMER		O	C		
ACERUBR		O			
THUOCC			A		
JUGNIGR		O			

SPECIES CODE	LAYER 1	2	3	4	COL.
skunk cabbage			A		
RIBSTRIS			O		
jewelweed			D		
GLYSTRI				R	
CARROS				O	
Vir. creeper				O	
PYRCARIS				O	
false nettle				O	
spin wood fern				O	
sensitive fern				O	
CARSTI				O	
BIDFRON				O	
SOLDULC				O	
CARLUPO				O	

ELC

STAND CHARACTERISTICS

SITE:	Waterdown Rd
POLYGON:	007 D
DATE:	Aug 21/07
SURVEYOR(S):	JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
BETALLE	2					2	14
FRAPENN	12					12	86
TOTAL	14					14	100
BASAL AREA (BA)	28					14	
DEAD							

STAND COMPOSITION:

FRAXINUS 86 BETALLE 14

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown

POLYGON: 007 D

DATE: Aug 2/07

SURVEYOR(S):

	P/A	PP	Dr	Position	Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1	A		7	5	W	2	S	6			
2	A		7								
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	Oh / A / fLS / 120	SiCL / 15 / fLS			
A TEXTURE	C	SiCL			
COURSE FRAGMENTS					
B TEXTURE	fLS	fLS			
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	Oh	fLS			
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	0 cm	15			
GLEY	5 cm	22			
BEDROCK	-	-			
WATER TABLE	54 cm	?			
CARBONATES	0	15			
DEPTH OF ORGANICS	42				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	7	6			
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd
POLYGON: 007 D
DATE: Aug 21/07
SURVEYOR(S): JLS DM R

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 008	
	SURVEYOR(S): JLS DMR	DATE: July 18/07	TIME: start	08:45
			finish	09:45
	UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☒ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK.	☐ VALLEY SLOPE		☐ FORB	☐ MARSH
	☐ CARB. BEDRK.	☒ TABLELAND		☐ LICHEN	☐ SWAMP
SITE		☐ ROLL. UPLAND	COVER	☐ BRYOPHYTE	☐ FEN
☐ OPEN WATER		☐ CLIFF	☐ OPEN	☒ DECIDUOUS	☐ BOG
☐ SHALLOW WATER		☐ TALUS	☐ SHRUB	☐ CONIFEROUS	☐ BARREN
☒ SURFICIAL DEP.		☐ CREVICE / CAVE	☒ TREED	☐ MIXED	☐ MEADOW
☐ BEDROCK		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☒ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	JUGNIGR >> PRAPENS >> TILAMER
2	SUB-CANOPY	3	2	JUGNIGR > PRAPENS
3	UNDERSTOREY	5	3	VITRIPA = RUBOCC
4	GRD. LAYER	6	4	SOLCAN > SIRLUT > PARINS

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:
JUGNIGR	22

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
	O		A		A		R	

STANDING SNAGS:	O	< 10	O	10 - 24	O	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	O	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	LvfS	DEPTH TO MOTTLES / GLEY	g =	90	G= /
MOISTURE:	3	DEPTH OF ORGANICS:			(cm)
HOMOGENEOUS / VARIABLE		DEPTH TO BEDROCK:			(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Fresh Moist Black Walnut Lowland Dec. forest	FOD 7-4
INCLUSION	Reed Canary Grass Mineral	MAM 2-2
COMPLEX	Meadow Marsh	

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 008
DATE: July 18/07
SURVEYOR(S): JLS DMA

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
TILAMGR	R				
FRAPENS	O	O			
JUGNIGR	D	A			
VITRIPA			A		
RUBOCCI			A		
CRAPUNC			A		
LONTATA					

SPECIES CODE	LAYER 1	2	3	4	COL.
SOLCACIA				O	
SOLCANA				A	
CIRLUTE				A	
PARINSE				A	
Lily of the Valley				O-A	
RIBRUBR				O	
DACGLOM				O	
DRYCART				R	
OXYSTRI				O	
CRIMINU				O-A	
Grass sp.				O	
RHACYNO				R	
ARITRIF				O	
CLEVIRG				O	
FRAVIRG				O	
ACERUB				R	
CARDENV				R	

ELC STAND CHARACTERISTICS	SITE: Watedown Rd
	POLYGON: 008
	DATE: July 18/07
	SURVEYOR(S): JLS DMR

TREE TALLY BY SPECIES:

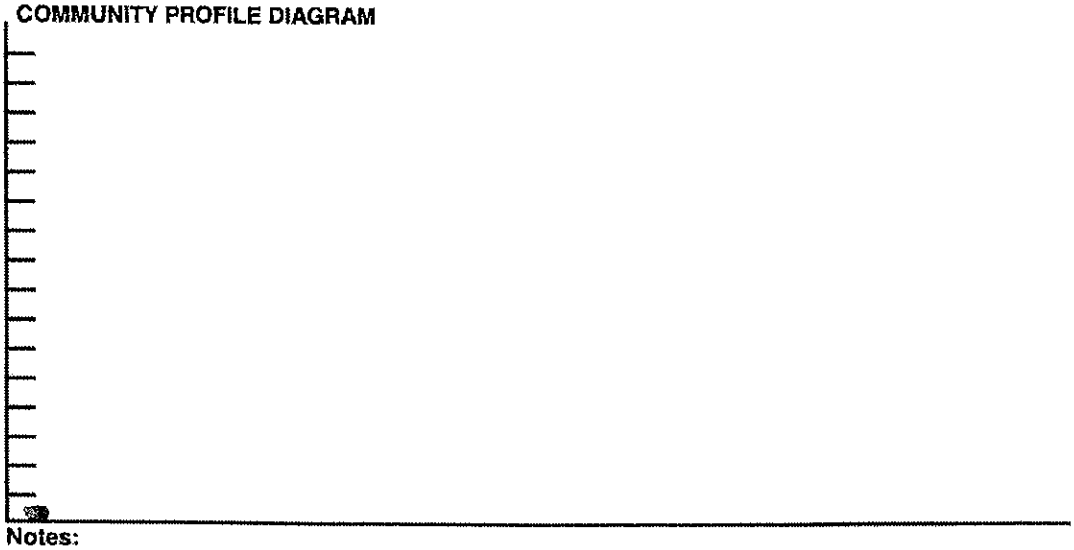
PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
JUGNIGR	⊠					11	100
TOTAL	11					11	100
BASAL AREA (BA)	22					22	
DEAD							

STAND COMPOSITION:

JUGNIGR 100

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE: Watersdown Rd
POLYGON: 08
DATE: July 19/07
SURVEYOR(S): JLS DMR

	Slope								UTM	
	P/A	PP	Dr	Position	Aspect	%	Type	Class	Z	EASTING	NORTHING
1	A	3	5	4	5	5	5	B			
2											
3											
4											
5											

SOIL TEXTURE x HORIZON	1	2	3	4	5
	A 20 B 120				
A TEXTURE	LvfS				
COURSE FRAGMENTS					
B TEXTURE	LvfS				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	LvfS.				
SURFACE STONINESS	0				
SURFACE ROCKINESS	1				
DEPTH TO / OF					
MOTTLES	90cm				
GLEY	none				
BEDROCK	none				
WATER TABLE	none				
CARBONATES	none				
DEPTH OF ORGANICS	none				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	3				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown RD

POLYGON: 028

DATE: JUN 18/08

SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd	
	POLYGON: 008	
	DATE: July 18/07	
	SURVEYOR(S): JLS DMR	
	START TIME: 08:45	END TIME: 09:45

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	Yes - moderate		SNAGS	Yes - minor
	HIBERNACULA	Yes - minor		FALLEN LOGS	Yes - minor.

SPECIES LIST: Black Walnut Forest / Riparian.

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	GRCA	VO			B	AMWO	OB		
B	EWPE	VO			H	AMTO	OB		
B	NOFL	VO			O	COWH	OB		
B	SOSP	VO			B	COYE	VO		
B	COYE	VO			H	GRER	VO		
B	BECH	VO			H	CLER	OB		
B	HOWR	VO			O	EBJE			
B	AMRO	VO							
B	YENA	VO							
M	RACC	TK							

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:

SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:

T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:

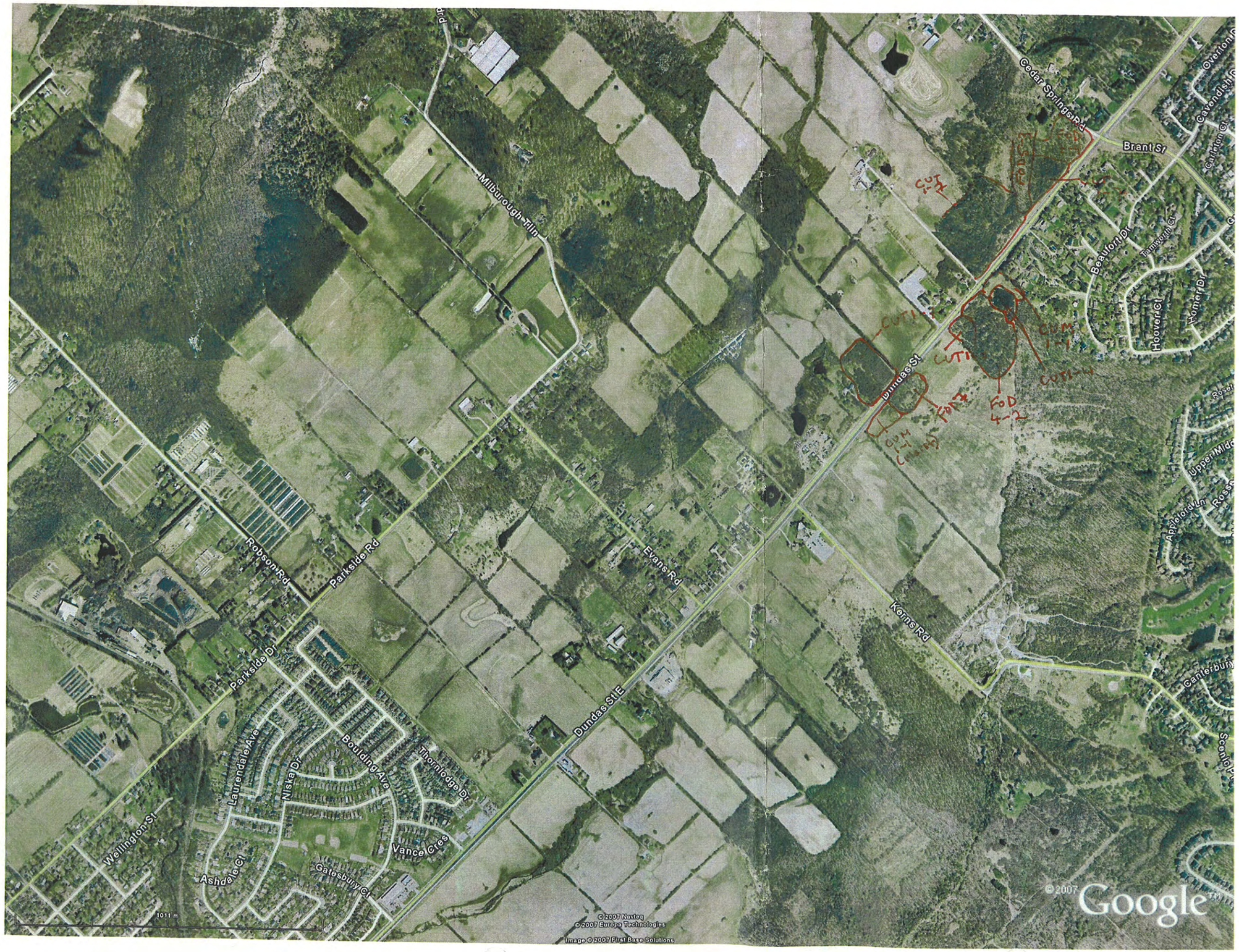
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:

OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

Maple
Silver Swamp
Black Ash Swamp
Poplar Swamp
Poplar Upland
Sugar Maple Hemlock Upland
Cultural Meadow

Hedgerow
JUGNICA
FRAXINUS
Silver Maple


Millborough Rlln
Cedar Springs Rd
Brant St
Beaufort Dr
Tamworth Cr
Hoover Ct
Homer Dr
Dundas St
Dundas St E
Robson Rd
Parkside Rd
Parkside Dr
Evans Rd
Kerns Rd
Laurendale Ave
Niska Dr
Boulding Ave
Thornlodge Dr
Wellington St
Ashdale Ct
Gatesbury Ct
Vance Cres
Canterbury
1011 m
© 2007 Navteq
© 2007 Europa Technologies
Image © 2007 First Base Solutions
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Hedgerow (King Rd.)

SALALBA
POPTREM
VITRIPA
RHUTYPH
POPDELT
Russ. olive
QUERUBR
PARINSE
Black locust
Ohio buckeye
PRUSERO
FRAAMER
ULMAMER
TILAMER

* Rough-leaved Goldenrod

Woodland Sun flower
White Vervain

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Waterdown			POLYGON: 009
SURVEYOR(S): JLS DMR	DATE: July 18/07	TIME: start	
		finish	
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☒ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☒ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK.	☐ VALLEY SLOPE		☐ FORB	☐ MARSH
	☐ CARB. BEDRK.	☐ TABLELAND		☐ LICHEN	☐ SWAMP
SITE		☐ ROLL. UPLAND	**COVER**	☐ BRYOPHYTE	☐ FEN
☐ OPEN WATER		☐ CLIFF	☐ OPEN	☒ DECIDUOUS	☐ BOG
☐ SHALLOW WATER		☐ TALUS	☐ SHRUB	☐ CONIFEROUS	☐ BARREN
☒ SURFICIAL DEP.		☐ CREVICE / CAVE	☒ TREED	☐ MIXED	☐ MEADOW
☐ BEDROCK		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☒ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	FRAPENS > JUGNIG > POPDELT
2	SUB-CANOPY	2	2	FRAPENS ?? ACENEGU
3	UNDERSTOREY	5	3	RUBOCCI > LONTATA = VITRIPA
4	GRD. LAYER	0	4	PARINSE > GEUM > FRAVIR

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION: FRAPENS50 JUGNIG25 POPDELT12 **BA:** 24

SIZE CLASS ANALYSIS:	A	< 10	A	10 - 24	A	25 - 50	R	> 50
STANDING SNAGS:	R	< 10	O	10 - 24	O	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	R	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: LVFS		DEPTH TO MOTTLES / GLEY	g = 43	G=	/
MOISTURE: 4		DEPTH OF ORGANICS:	1		(cm)
HOMOGENEOUS / VARIABLE		DEPTH TO BEDROCK:	/		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Fresh-Moist Ash Lowland Deciduous Forest	FOD7-2
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 009
DATE: July 18/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAPENS	A	A			
PRUSERO	O				
POPTREM	O				
JUGNIGR	O				
ACENEGU		R			
[illegible]					
RUBOCCI			A		
VITRIPA			A		
LONTART			A		

SPECIES CODE	LAYER 1	2	3	4	COL.
Wildcucumber				O	
Celandine				O	
DRYCARI				R	
PARINSE				A	
Geum sp				A	
ONOSENS				O	
ARITRIF				O	
TAXOFFI				R	
RHUHADI				O	
ALLPETI				O	
CIRLUTE				O-A	
FRA VIRG				O-A	
White Aster				A	
BROINER				O	

ELC STAND CHARACTERISTICS	SITE: Waterdown
	POLYGON: 009
	DATE: July 18/07
	SURVEYOR(S): JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
JUGNIGR	3					3	25
FRAPENS	7					7	58
POPDELT	2					2	17
TOTAL	12					12	100
BASAL AREA (BA)	24					24	
DEAD	3						

STAND COMPOSITION:

FRAPENS$_{58}$ JUGNIGR$_{25}$ POPDELT$_{17}$

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 009
DATE: JUL 18/07
SURVEYOR(S): JS DMR

	P/A	PP	Dr	Slope Position	Slope Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1	A	3	5	4	5	2	S	B			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	LvfS 24 / LvfS 76 / vfSC 90				
A TEXTURE	LvfS				
COURSE FRAGMENTS					
B TEXTURE	LvfS				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	LvfS				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	43				
GLEY	>90				
BEDROCK	>90				
WATER TABLE	>90				
CARBONATES	>90				
DEPTH OF ORGANICS	1 cm				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	4				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd

POLYGON: 009

DATE: July 18/02

SURVEYOR(S): JES DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE: Waterdown
POLYGON: 009
DATE: July 18/07
SURVEYOR(S):
START TIME: 09:45 END TIME: 10:20

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS none	X	SNAGS
	HIBERNACULA none		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	HOWR	VO							
B	DOWO	VO							
B	RBGH	VO							
B	MOWR	VO							
B	NOFL	VO							
B	BLJA	VO							
B	EWPE	VO							
B	AMGO	OB							

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 10
	SURVEYOR(S): JLS DMR	DATE: July 17	TIME: start / finish
	UTMZ:	UTMZ:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☒ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☒ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☐ SHRUB ☒ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	2	FRAGRAN > JUGNIGR > ULMAMER
2	SUB-CANOPY	3	4	CRAPUNC > RHACATH > CRACREU
3	UNDERSTOREY	5	4	CORRACE >> VITRIPA
4	GRD. LAYER	6	4	VAROFFI > RHURADI > CLRLUTE

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION:	BA:
CRAPUNC 17 JUGNIGR 33	12

SIZE CLASS ANALYSIS:	A	< 10	O	10 - 24	R	25 - 50	N	> 50
STANDING SNAGS:	A	< 10	R	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	A	< 10	R	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH
	√									

SOIL ANALYSIS:

TEXTURE:	SiC	DEPTH TO MOTTLES / GLEY	g =	40	G= /
MOISTURE:	5	DEPTH OF ORGANICS:	/		(cm)
HOMOGENEOUS / VARIABLE		DEPTH TO BEDROCK:	/		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Hawthorn Buckthorn / cultural Thicket	CUT 1-7 *
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 6b
DATE: July 18/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAAMER	O				
PRUSERO		R			
ULMAMER	O				
MALPUMI	O				
JUGNIGR	O				
VITRIPA			A		
PARINSE			A		
RHACATH		A-I			
CRAPUNC		A-I			
VIBOPUL		O			
CRACREN		A			
CORRACE			A		

SPECIES CODE	LAYER 1	2	3	4	COL.
VEROFFI				A	
RHURADI				A	
PRUVULG				O	
PODPELT				O	
RANACRI				O	
CIRLUTE				A	
OXASTRI				O	
CERROBE	A			A	
FRAVIRG				O	
CARROSE				R	
GEUURBA				O	
ALLPETI				D	
ERIANNU				O	
JUNTENU				O	
HYPPERF				O	
APSYLV				O	
ARITRI				O	
SOLCANA				O	
PHLPRAT				O	
White avens				O	

ELC STAND CHARACTERISTICS	SITE: Waterdown
	POLYGON: 010
	DATE: July 18/07
	SURVEYOR(S): JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
JUGNIGR	2					2	33
CRAPUNC	4					4	67
TOTAL	6					6	100
BASAL AREA (BA)	12					12	
DEAD	-						

STAND COMPOSITION:

CRAPUNC 67 JUGNIGR 33

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 040
DATE: July 19/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Position	Aspect	Slope %	Type	Class	Z	UTM EASTING	UTM NORTHING
1	A	6	5	6	N	5	5	F3			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL 40 SiC 50 could not auger further (rock)				
A TEXTURE	SiCL				
COURSE FRAGMENTS					
B TEXTURE	SiC				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	SiC				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	40cm				
GLEY	none				
BEDROCK	50 cm?				
WATER TABLE	none				
CARBONATES	none.				
DEPTH OF ORGANICS	none.				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	5				
SOIL SURVEY MAP					
LEGEND CLASS					

" structureless

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown

POLYGON: 10

DATE: July 18/07

SURVEYOR(S): JLS DMK

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	6
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	1
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	1
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	1
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	4
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	1
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd	
	POLYGON: 210	
	DATE: JULY 18/07	
	SURVEYOR(S): JLS DMR	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	NOCA	VO							
B	GCFL	VO							
B	HOWR	VO							
B	INBU	VO							
B	SOSP	VO							
M	FACO	OS							
M	OPPO	DP							

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Waterdown		POLYGON: 011	
SURVEYOR(S): JCS DMR	DATE: July 18/07	TIME: start	finish
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☒ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☐ NATURAL ☒ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☒ FORB ☐ LICHEN ☐ BRYOPHYTE ☐ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☒ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION

SITE	COVER
☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK	☒ OPEN ☐ SHRUB ☐ TREED

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	1	FRAXPEN
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER	5	4	PHAARUN > LYTSALX > RHARUST

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:		< 10		10 - 24		25 - 50		> 50
DEADFALL / LOGS:		< 10		10 - 24		25 - 50		> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SC	DEPTH TO MOTTLES / GLEY	g = 28	G= 48
MOISTURE: M	DEPTH OF ORGANICS: 2		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: /		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Cultural old-field meadow	CUM1-1
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: D11
DATE: July 18/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAPENS	R				
PHRAUST				A	
PHAARUN				A	
IMPANGU				O	
ELYREPE				O	
RUMCRIS				O	
LYSSALI				A-D	
AMBARTI				O	
DIACARO				O	
AGRGIGA				O	
CARVULP				O	
VITRIPA				O	
CIRLCUC				O	
JUNDUDE				O	
dogfood pink				O	
PHLPRAT				O	

ELC

STAND CHARACTERISTICS

SITE:

POLYGON:

DATE:

SURVEYOR(S):

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 011
DATE: July 19/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Position	Aspect	Slope %	Type	Class	Z	UTM EASTING	UTM NORTHING
1	A	L	D	5	S	4	S	B			
2											
3											
4											
5											

SOIL TEXTURE x HORIZON	1	2	3	4	5
	SiCL 0-8 SiC 8+				
A TEXTURE	SiCL				
COURSE FRAGMENTS					
B TEXTURE	SiC				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	SiC				
SURFACE STONINESS					
SURFACE ROCKINESS					
DEPTH TO / OF MOTTLES	28				
GLEY	48				
BEDROCK	>80				
WATER TABLE	>80				
CARBONATES	>80				
DEPTH OF ORGANICS	2 (L)				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	6				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown
POLYGON: 011
DATE: July 18/07
SURVEYOR(S): JLS / DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown Rd.
POLYGON:	011
DATE:	July 18/07
SURVEYOR(S):	JLS / DMR
START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#
O	BK SK	OB		1
L	CA WH	DP		1
L	MONA	OB		1
B	AMGO	OB		1
B	SOSP	VO		

TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown			POLYGON: 012	
	SURVEYOR(S): JLS DMR	DATE: July 18/07		TIME: start / finish	
	UTMZ:	UTMZ:		UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☒ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☒ FOREST ☐ PLANTATION
SITE			**COVER**		
☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			☐ OPEN ☐ SHRUB ☒ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2-1	4	FRAPENS > Black locust > ACESACC
2	SUB-CANOPY	2-3	3	FRAPENS > Black locust
3	UNDERSTOREY	5-4	2	VITRIPA > CRAPUNC
4	GRD. LAYER	6	4	ALLPETI > SOLALTI > POACOMP

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:
FRAPENS40 CRAPUNC30 JUGNIGR	22

SIZE CLASS ANALYSIS:	O	< 10	A	10 - 24	A	25 - 50	R	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	R	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	R	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SC	DEPTH TO MOTTLES / GLEY	g = 27	G= /
MOISTURE: 5-6	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: —		(cm)

COMMUNITY CLASSIFICATION: ELC CODE

COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Fresh-Moist Ash Lowland Deciduous Forest	FOD 7-~~2~~
INCLUSION		
COMPLEX		

Notes:

w/ Sugar Maple at East End

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 012
DATE: July 18/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAPUBR	D	D			
Black locust	O	O			
ACEISACC					
JUGNIGR					
VITRIPA			A		
CRAPUNC			A	O	

SPECIES CODE	LAYER 1	2	3	4	COL.
CHRLEUC				O	
SOLALI				O	
TAROFF				O	
POACOMP				O	
PARINSE				O	
ALLPET1				D	
ASTMACR				O	
CIRLUTE				O	
ERIANNU				O	
DACGLOM				O	
RUBOCC1			O		

ELC STAND CHARACTERISTICS	SITE: Waterdown
	POLYGON: 012
	DATE: July 18/05
	SURVEYOR(S): BME JLS

TREE TALLY BY SPECIES:

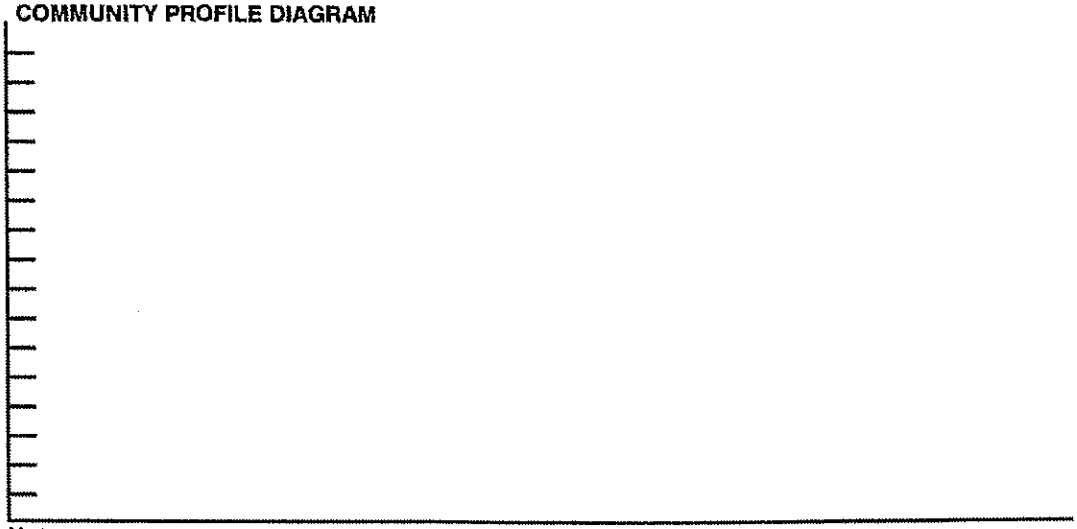
PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
FRAPENN	5					5	45
CRAPUNC	4					4	36
JUGNIGR	2					2	18
TOTAL	11					11	100
BASAL AREA (BA)	22					22	
DEAD							

STAND COMPOSITION:

FRAPENS 45 CRAPUNC 36 JUGNIGR 18

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE: Waterdown

POLYGON: 12

DATE: July 18/07

SURVEYOR(S): JLS TMB

Slope **UTM**

	P/A	PP	Dr	Position	Aspect	%	Type	Class	Z	EASTING	NORTHING
1	A	6	5	H	E	3	S	B			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL 27 SiC 28				
A TEXTURE	SiCL				
COURSE FRAGMENTS					
B TEXTURE	SiC				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	SiC				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	27				
GLEY	>28				
BEDROCK	>28				
WATER TABLE	>28				
CARBONATES	>28				
DEPTH OF ORGANICS	1 (L)				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	6 (5)				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd
POLYGON: 012
DATE: July 18/07
SURVEYOR(S): JCS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd
	POLYGON: 012
	DATE: July 18 / 07
	SURVEYOR(S): JLS DMR
	START TIME: END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:

SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:

T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:

DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:

OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 013
	SURVEYOR(S): JLS DMR	DATE: July 18/07	TIME: start / finish
	UTMZ:	UTMZ:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☒ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☒ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☐ SHRUB ☒ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	FRAAMER > TILAMER > ACCSACC
2	SUB-CANOPY	2	3	FRAAMER > TILAMER > ACCSACC
3	UNDERSTOREY	4	3	CORALTE = HAMVIRG = RHACATH
4	GRD. LAYER	6	4	ALLPET = GERROBE = CIRLUTE

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:
FRAAMER28 TILAMER25 ACCSACC18 OSTVIRG14 QUERUBR11	28

SIZE CLASS ANALYSIS:	O	< 10	A	10 - 24	A	25 - 50	O	> 50
STANDING SNAGS:	O	< 10	A	10 - 24	A	25 - 50	O	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	O	25 - 50	O	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE	X	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SiCL	DEPTH TO MOTTLES / GLEY	g = /	G= /
MOISTURE: 0	DEPTH OF ORGANICS: /		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: /		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Dry - Fresh White Ash Deciduous Forest	FOD4-2
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown Rd
POLYGON: 013
DATE: July 18/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
CARO VAT	O	O			
QUE RUBR	O				
OST VIRG		O			
FRA PENS	O	O	O		
TILA MER	O				
JUGLANS R	O				
ACE SACC	O	O	O		
CAR CORD	O				
PRUS SER	O				
JUG CINE	O				
CRA PUNC					
RHUS TYPH					
LONI TATA					
RHA CATH					
HAM VIRG					
COR RACE					
RUBI DAE					
PRU VIRG					
CORALTE					
RUBO CCI					

SPECIES CODE	LAYER 1	2	3	4	COL.
ALLPETI					
GERROBE					
CIRLUTE					
MYA CANA					
EUO ARBO					
ARI TRIF					
SOL FLEX					
POD PELT					
EPI HELL					
ACT RUBR					
ACT PACK					
MAI RAC E					
THA DIOI					
GER MACU					
Yellow Aven s					
RAN RHOI					
AGRE EXT					
white aven s					
PRU VULG					

ELC STAND CHARACTERISTICS	SITE: Waterdown Rd
	POLYGON: 13
	DATE: July 18/07
	SURVEYOR(S): Mark JLS

TREE TALLY BY SPECIES:

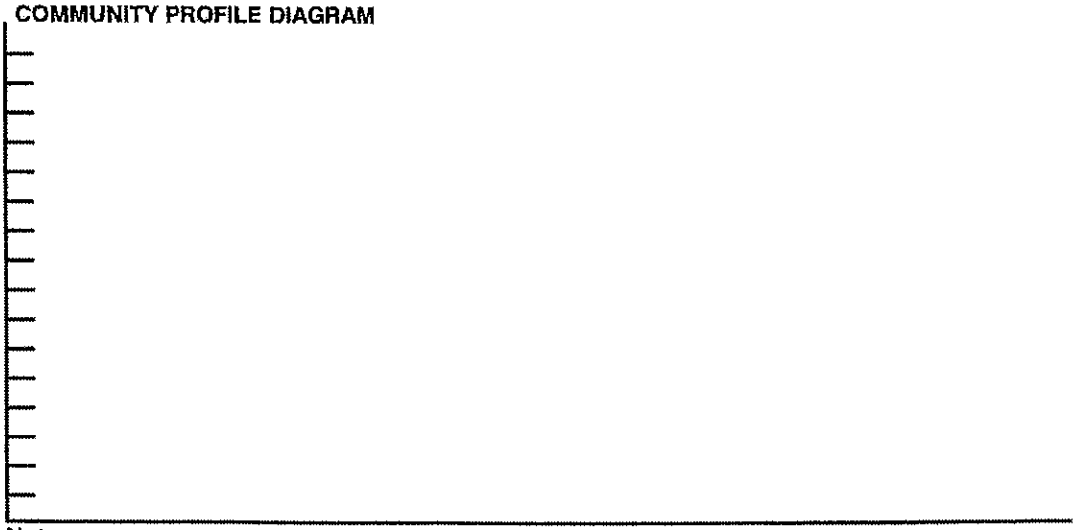
PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
ACESACC (Sugar)	3	2				5	18
OSTVIRG	1	3				4	14
TILAMER	4	3				7	25
FRAMER	2	6				8	28
QUERUBR	1	2				3	11
PRUSER	1					1	4
TOTAL	12	16				28	100
BASAL AREA (BA)	24	32				28	
DEAD		2					

STAND COMPOSITION:

FRAMER 28 TILAMER 25 ACESACC 18 OSTVIRG 14 QUERUBR 11 PRUSER 04

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE: Waterdown Rd.
POLYGON: D13
DATE: July 18/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Slope Position	Slope Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1	A	5	2	1	—	0	5	6			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL 10				
A TEXTURE	SiCL				
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	SiCL				
SURFACE STONINESS					
SURFACE ROCKINESS					
DEPTH TO / OF					
MOTTLES	—				
GLEY	—				
BEDROCK	10				
WATER TABLE	—				
CARBONATES	—				
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	0				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd.
POLYGON: 013
DATE: July 18/07
SURVEYOR(S): JLS DMB

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown Rd
POLYGON:	013
DATE:	July 18/07
SURVEYOR(S):	JLS DMR
START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#
B	REVI	VO		2
B	AMCR	VO		1
B	AMRO	VO		
B	BCH	DF		
B	GRCA	VO		

TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:

SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:

T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:

DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:

OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 914
	SURVEYOR(S): JLS DMR	DATE: July 18/07	TIME: start / finish
	UTMZ:	UTMZ:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☒ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☐ NATURAL ☒ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☒ GRAMINOID ☒ FORB ☐ LICHEN ☐ BRYOPHYTE ☐ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☒ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☒ OPEN ☐ SHRUB ☐ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	1	FRAPENS
2	SUB-CANOPY	/	0	
3	UNDERSTOREY	5	2	CORRACE
4	GRD. LAYER	6	4	BROINER DAUCARO CIRVUL

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:		< 10		10 - 24		25 - 50		> 50
DEADFALL / LOGS:		< 10		10 - 24		25 - 50		> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G =
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Dry-Moist Cultural Old Field Meadow	CUM 1-1
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 014
DATE: July 18/07
SURVEYOR(S): JIS DNR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAPENS	R				
CORRAC			O		

SPECIES CODE	LAYER 1	2	3	4	COL.
MACGLOM				O	
BROINER				A	
MONFIST				O	
ASCSYR				O	
DRYCARO				A	
LOTCORN				O	
RUMCRIS				O	
C. RARVE				A	
ALLPET				O	
HYPPERF				O	
POTRECT				O	
PHLEPRAT				O	
bouncingbet				O	
ACEPSTA				R	
DIPSYLV				O	

ELC

STAND CHARACTERISTICS

SITE:

POLYGON:

DATE:

SURVEYOR(S):

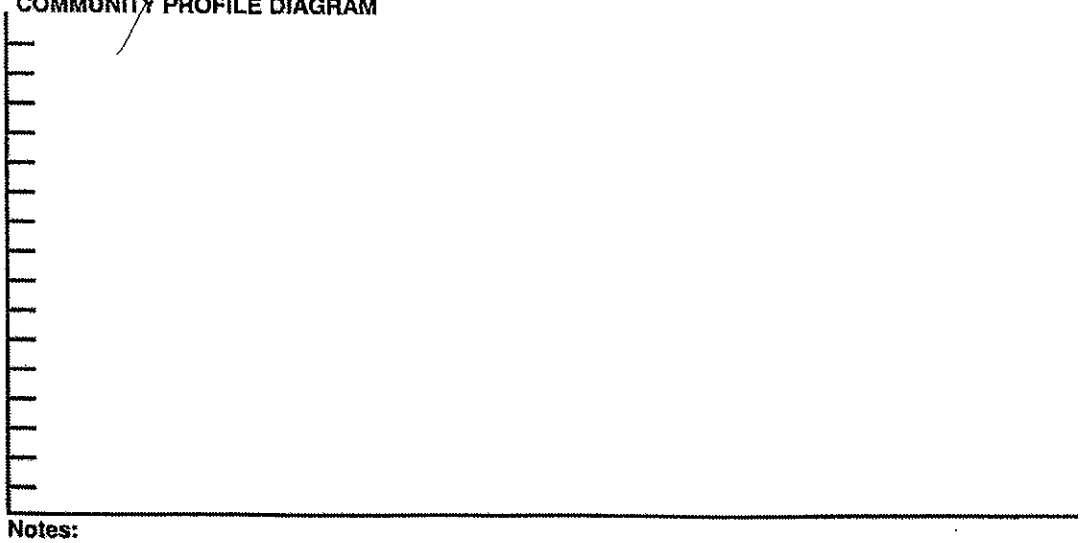
TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE:

POLYGON:

DATE:

SURVEYOR(S):

	P/A	PP	Dr	Slope Position	Aspect	%	Type	Class	Z	UTM EASTING	UTM NORTHING
1											
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON					
A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					
DEPTH TO / OF					
MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd

POLYGON: 214

DATE: July 18/09

SURVEYOR(S): ILS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	>30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown Rd
POLYGON:	214
DATE:	July 18/07
SURVEYOR(S):	JLS DMR
START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Watadown		POLYGON: 215
	SURVEYOR(S): JLS DMR	DATE: July 18/07	TIME: start / finish
	UTMZ:	UTMZ:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☒ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☒ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☒ SHRUB ☐ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	1	PLANTED ? PRUSERO
2	SUB-CANOPY	4	2	CORRACE
3	UNDERSTOREY	4	4	CORRACE >> CAMPUNC > LONTATA
4	GRD. LAYER	6	2	SOLCANA ? BROINER > CIRVULG

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:		< 10		10 - 24		25 - 50		> 50
DEADFALL / LOGS:		< 10		10 - 24		25 - 50		> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Gray Dogwood Cultural Thicket	CUT1-4
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE:	Waterdown Rd.
POLYGON:	D15
DATE:	July 18/07
SURVEYOR(S):	JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	LAYER 2	LAYER 3	LAYER 4	COL.
TILAMER	R				
PRUSERO	R				
CORRACE		D	D		
VITRIPA			O		
CRAPUNC			O		
LONTATA			O		

SPECIES CODE	LAYER 1	LAYER 2	LAYER 3	LAYER 4	COL.
SOLCANA				D	
FRAVIRG				O	
BROINER				O	
CIRVULG				O	
RHURADI				O	
ERIANN				O	
PHAARUN				O	

ELC

STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

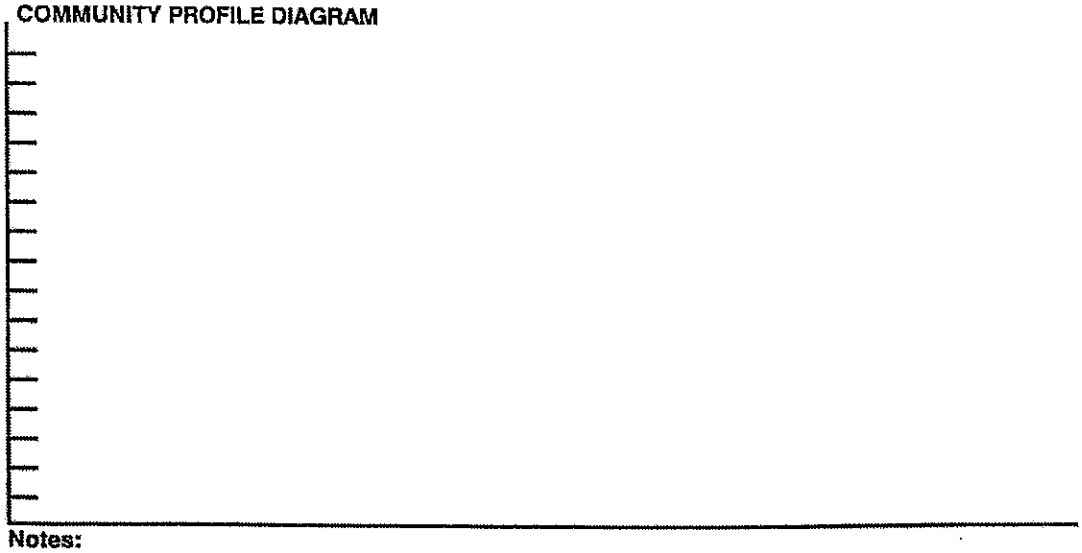
TREE TALLY BY SPECIES:

PRISM FACTOR ____

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE:

POLYGON:

DATE:

SURVEYOR(S):

	P/A	PP	Dr	Position	Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1											
2											
3											
4											
5											

SOIL TEXTURE x HORIZON	1	2	3	4	5

	1	2	3	4	5
A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					

DEPTH TO / OF	1	2	3	4	5
MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					

SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd
POLYGON: 015
DATE: July 18/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	>30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd.	
	POLYGON: 015	
	DATE: July 18/07	
	SURVEYOR(S): JLS DMR	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS
X	Thicket		

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	GRCA	VO		5					
B	SOSP	VO		1					

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- D = DISPLAY
- P = PAIR
- A = ANXIETY BEHAVIOUR
- N = NEST BUILDING
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NU = USED NEST
- FY = FLEDGED YOUNG
- NE = EGGS
- NY = YOUNG
- FS = FOOD/FAECAL SACK
- AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- VO = VOCALIZATION
- CA = CARCASS
- DP = DISTINCTIVE PARTS
- HO = HOUSE/DEN
- FY = EGGS OR YOUNG
- TK = TRACKS
- FE = FEEDING EVIDENCE
- SC = SCAT
- SI = OTHER SIGNS (specify)

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Watadown		POLYGON: 016	
	SURVEYOR(S): JLS DMR	DATE: July 24/07	TIME: start	finish
	UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☒ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☐ NATURAL ☒ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☒ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☒ SHRUB ☐ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	1	FRAPEN >> JUGNIG > TILAME
2	SUB-CANOPY	3	4	RHACATH > RHUTYPH = PRAPUN
3	UNDERSTOREY	4	4	CORRACE
4	GRD. LAYER	6	3	ALLPET = SOLRUT1 = DACGLOM

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	A	< 10	O	10 - 24	R	25 - 50	N	> 50
STANDING SNAGS:	O	< 10	R	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	O	< 10	R	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Hawthorn / Buckthorn Cultural Thicket	CUT1-7 *
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 016
DATE: July 24/07
SURVEYOR(S): JLS · DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
CARLOVAT					
PRUSERO					
ACESACC					
QUEMACR					
JUGNIGR					
FRAPENS					
TILAMER					
RHACATH					
RHUTYPH					
VITRIPA					
PRUVIRG					
PARINSE					
LONTART					
CRAPUNC					
CORRACE					

SPECIES CODE	LAYER 1	2	3	4	COL.
RHURADI					
ALLPETI					
AIBRUBR					
DACGLOM					
SOLALTI					
MONFIST					
HYPPERF					
GRIANUU					
PRUVULG					
RANACRI					
Tansy					
AGRGRYS					
MELALBA					
AMBARTE					
BROINER					
LOTCORN					
Chicory					
FRAVIRG					
Dame sp.					
JUNTENU					
GERMACU					

ELC STAND CHARACTERISTICS	SITE: Waterdown Rd
	POLYGON: 016
	DATE: July 24/07
	SURVEYOR(S): JLS DMR

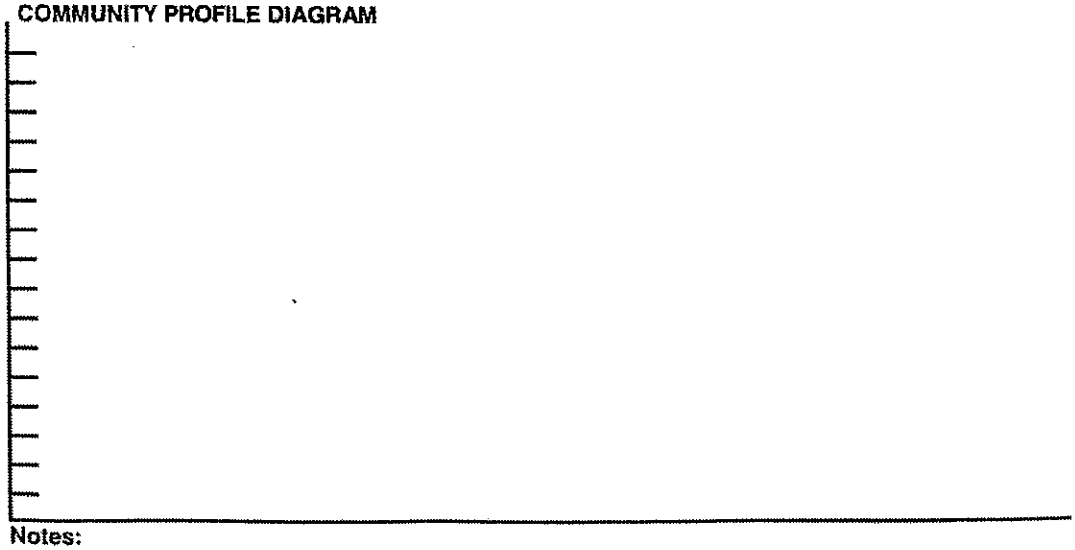
TREE TALLY BY SPECIES:

PRISM FACTOR [ ] Refer to Polygon 2010

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE: Waterdown Rd.
POLYGON: 016
DATE: July 24/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Position	Aspect	Slope %	Slope Type	Slope Class	UTM Z	UTM EASTING	UTM NORTHING
1											
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	Refer to		Polygon	010	
A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					
DEPTH TO / OF					
MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd
POLYGON: 016
DATE: July 24/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	4
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	2
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	1
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	4
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	9
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	1
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd	
	POLYGON: 016	
	DATE: July 24/07	
	SURVEYOR(S): JLS DMR	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	BRCR	OB							

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Waterdown			POLYGON: 017
SURVEYOR(S): JLS DMR	DATE: July 24/07	TIME: start	
		finish	
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☒ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☑ MINERAL SOIL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
SITE	☐ BASIC BEDRK.	☒ VALLEY SLOPE	COVER	☐ FORB	☐ MARSH
☐ OPEN WATER	☐ CARB. BEDRK.	☐ TABLELAND	☐ OPEN	☐ LICHEN	☐ SWAMP
☐ SHALLOW WATER		☐ ROLL. UPLAND	☐ SHRUB	☐ BRYOPHYTE	☐ FEN
☒ SURFICIAL DEP.		☐ CLIFF	☑ TREED	☒ DECIDUOUS	☐ BOG
☐ BEDROCK		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☒ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1-2	4	ACESACC > QUERUBR >> FRAPENS
2	SUB-CANOPY	2	3	ACESACC > FRAPENS = PRUSERO
3	UNDERSTOREY	4	2	PRU VIRG > RHA CATH > LON TART
4	GRD. LAYER	6	3-2	ALLPET = CIRLUTE = MAIRACE

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:
ACESACC$_{54}$ QUERUBR$_{43}$ FRAPENS$_3$	39

SIZE CLASS ANALYSIS:	A	< 10	A	10 - 24	A	25 - 50	O	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	O	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	O	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE	X	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: CL	DEPTH TO MOTTLES / GLEY	g = 80	G= ✓	
MOISTURE: 3	DEPTH OF ORGANICS: 2			(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: 85?			(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Dry-Fresh Sugar Maple Oak Deciduous Forest	FOD5-3
INCLUSION		
COMPLEX		

Notes:

in Valley

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 013
DATE: July 24/07
SURVEYOR(S): JLG, DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
QUEMACR	O				
ACESACC	A-D	A			
PRUSERO	O	O			
D. ARQUAT	O	O			
OSTVIRG	O	O			
FRAPENS	O	A			
FRAAMOR	O				
ACEPLAT	R				
QUERUBR	A				
RHACATH			O		
PRUVIRG			A		
LONTATA			O		

SPECIES CODE	LAYER 1	2	3	4	COL.
ALLIPET				O	
POACOMP				O	
RHURADI				O	
EUOARBO				O	
CIRLUT				O	
THADIO				O	
MIRACU				O	
Yellow Avens				O	

ELC STAND CHARACTERISTICS	SITE: Waterdown
	POLYGON: 017
	DATE: July 24 /07
	SURVEYOR(S): JLS DMR

TREE TALLY BY SPECIES:

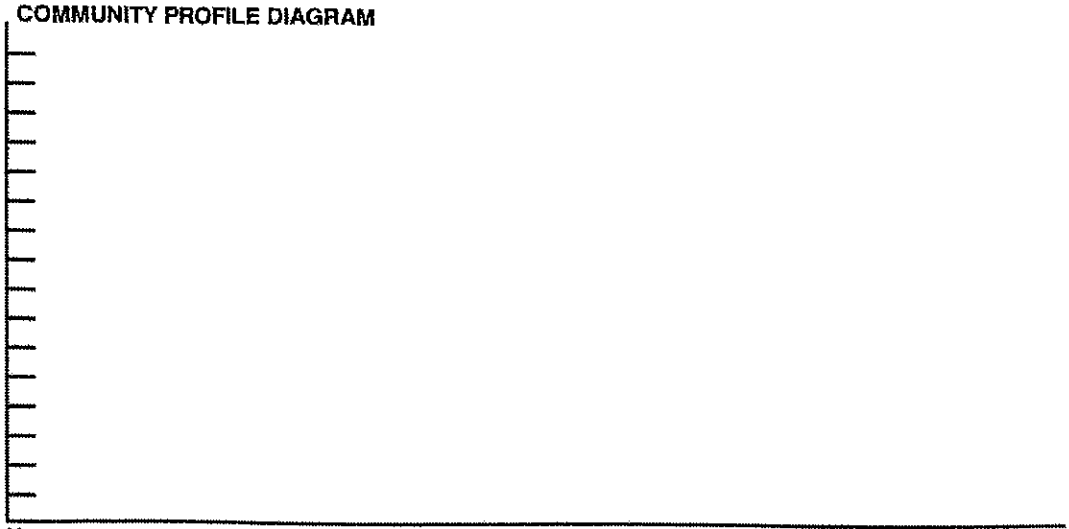
PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
QUERUBR	9	8				17	43
ACESACC	12	9				21	54
FRAPENS		1				1	3
TOTAL	21	18				39	100
BASAL AREA (BA)	42	36				39	
DEAD		2					

STAND COMPOSITION:

ACESACC 54 QUCRUBR 43 FRAPENS 3

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 017
DATE: July 24/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Position	Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1	A	5	4	2	SW	22	S	F			
2											
3											
4											
5											

SOIL TEXTURE x HORIZON	1	2	3	4	5
	CL				
A TEXTURE	CL				
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	CL				
SURFACE STONINESS	0				
SURFACE ROCKINESS	1				
DEPTH TO / OF					
MOTTLES	80				
GLEY	none				
BEDROCK	85				
WATER TABLE	none				
CARBONATES	none				
DEPTH OF ORGANICS	2 (L)				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	3				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown
POLYGON: 017
DATE: July 24/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	Bruce Trail
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown
POLYGON:	017
DATE:	July 24/07
SURVEYOR(S):	JLS DMR
START TIME:	END TIME:

TEMP (°C): 21	CLOUD (10th): 7	WIND: 2	PRECIPITATION: none
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS
		X	

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
M	GRCQ	VO		1					
B	DEJU	SM							

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Waterdown			POLYGON: 018
SURVEYOR(S): JLS DMR	DATE: July 24/09	TIME: start	
		finish	
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☒ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK.	☒ VALLEY SLOPE		☐ FORB	☐ MARSH
	☐ CARB. BEDRK.	☐ TABLELAND		☐ LICHEN	☐ SWAMP
SITE		☐ ROLL. UPLAND	COVER	☐ BRYOPHYTE	☐ FEN
☐ OPEN WATER		☐ CLIFF		☒ DECIDUOUS	☐ BOG
☐ SHALLOW WATER		☐ TALUS	☐ OPEN	☐ CONIFEROUS	☐ BARREN
☒ SURFICIAL DEP.		☐ CREVICE / CAVE	☐ SHRUB	☐ MIXED	☐ MEADOW
☐ BEDROCK		☐ ALVAR	☒ TREED		☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☒ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	3	JUGNIGR7 FRAPENS > PRUSERO
2	SUB-CANOPY	3	3	FRAPENS > RHACATH
3	UNDERSTOREY	3	3-4	RHACATH > CORRACE > LONTAT
4	GRD. LAYER	6	4	YellowAvens > TRAVIR > ALLPET

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:
JUGNIGR57 FRAPENS29 PRUSERO14	14

SIZE CLASS ANALYSIS:	A	< 10	O	10 - 24	R	25 - 50	N	> 50
STANDING SNAGS:	A	< 10	O	10 - 24	R	25 - 50	N	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	R	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: CL		DEPTH TO MOTTLES / GLEY		g = 44	G= /
MOISTURE: 4		DEPTH OF ORGANICS:			(cm)
HOMOGENEOUS / VARIABLE		DEPTH TO BEDROCK:	/		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Fresh - Moist Black Walnut Lowland Dec. Forest	FOD7-4
INCLUSION	A	
COMPLEX		

Notes:

Cultural?

ELC PLANT SPECIES LIST

SITE:	Waterdown
POLYGON:	018
DATE:	July 24/07
SURVEYOR(S):	JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	LAYER 2	LAYER 3	LAYER 4	COL.
JUGNIGR	A				
FRAPENS	O-A	A	A		
PRUSERO	R				
RHACATH			AS		
VITRIPA			A		
PARINSG			A	A	
LONTATA			O		
CORRACE			O-A		

SPECIES CODE	LAYER 1	LAYER 2	LAYER 3	LAYER 4	COL.
Geum sp. yellow				A	
PRUVULG				O-	A
AGRGRYS				O-	
FRAVIRG				O-	A
ALLPETI				O-	A
CIRARVE				O	
SMICANA				r	
APIRIF				R	
SOLALTI				O-	A
MONFIST				O	
CRINNU				O	
URICAPT				R	
SOLDVLC					
IMPCAPE					

ELC STAND CHARACTERISTICS	SITE: Waterdown
	POLYGON: 012
	DATE: July 24/07
	SURVEYOR(S): JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
FRAPENS	2					2	29
JUGNIGR	4					4	57
PRUSERO	1					1	14
TOTAL	7					7	100
BASAL AREA (BA)	14					14	
DEAD							

STAND COMPOSITION:

JUGNIGR 57 FRAPENS 29 PRUSERO 14

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown

POLYGON: 018

DATE: July 24/02

SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Slope Position	Slope Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1	P	5	4	3	W	17	S	F			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	CL				
A TEXTURE	CL				
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	CL				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	44cm				
GLEY	none				
BEDROCK	none				
WATER TABLE	none				
CARBONATES	none				
DEPTH OF ORGANICS	1cm				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	4				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown
POLYGON: 019
DATE: July 24/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown
POLYGON:	018
DATE:	July 24/07
SURVEYOR(S):	JLS DMR
START TIME:	END TIME:

TEMP (°C): 21	CLOUD (10th): 7	WIND: 2	PRECIPITATION: none
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#
M	WTDC	TK		
H	CPIC	OB		1
B	INBU	VO		1
B	AMRO	OB		1
B	HAWO	OB		1

TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 019
	SURVEYOR(S): JLS DMR	DATE: Jul 24/07	TIME: start / finish
	UTMZ:	UTMZ:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☒ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☐ NATURAL ☒ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☒ GRAMINOID ☒ FORB ☐ LICHEN ☐ BRYOPHYTE ☐ DECIDUOUS ☐ CONIFEROUS ☒ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☒ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☒ OPEN ☐ SHRUB ☐ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	1	ACENEG = ACERUB = FRAPENS
2	SUB-CANOPY	4	1	RHUTYPH
3	UNDERSTOREY			
4	GRD. LAYER	5-6	4	DIPSYLV = PHLPRR = VICCRAC = Crown Vetch

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION:								BA:
SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:		< 10		10 - 24		25 - 50		> 50
DEADFALL / LOGS:		< 10		10 - 24		25 - 50		> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: vfSCL	DEPTH TO MOTTLES / GLEY	g = 10	G= 60
MOISTURE: b	DEPTH OF ORGANICS:	1	(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:	>80	(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Dry-Moist Old Field Meadow	CUM1-1
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 019
DATE: JLS DMR
SURVEYOR(S): July 24/07

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

Road side

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAPENS	R				
ACENEG	R				
ACEPLAT	R				
S. berberis alm	R				
VITRIPA			O		
RHUTYPH		R			

SPECIES CODE	LAYER 1	2	3	4	COL.
HYPPERF				O	
Crown vetch				A	
DIPSYLV				A	
ASCSYRI				O	
ALLPETI				O	
CIRARVE				A	
AGRGIGA				O	
CARVULP				O	
BROINER				O	
AMBARTI				O	
ERIANNU				O	
MEDLUPU				O	
PRUVULG				O	
PDACOMP				O	
PHLPRAT				A	
POTRECT				O	
BROJAPO				O	
Deptford Pink				O	
VUCDUDL				O-A	
flat-top goldenrod				O	
CIRVULG				O	
VICCRAC				A	
purple wilowherb				R	
DAUCARO				O	
chicory				O	
RHURAD				O	

ELC STAND CHARACTERISTICS	SITE:
	POLYGON:
	DATE:
	SURVEYOR(S):

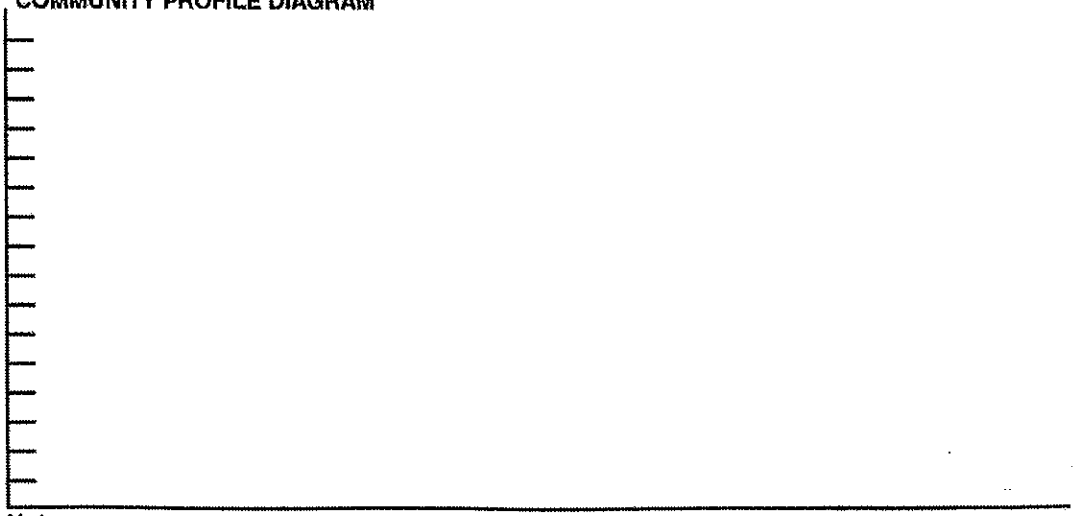
TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 019
DATE: July 24/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Slope Position	Slope Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1	A	5	5	2	N	7	S	B			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	vfSCL 32 vfSCL 40 vfSCL 48 SiC 80				
A TEXTURE	vfSCL				
COURSE FRAGMENTS					
B TEXTURE	vfSCL				
COURSE FRAGMENTS					
C TEXTURE	vfSCL/SiC				
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	vfSCL				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	10				
GLEY	60				
BEDROCK	>80				
WATER TABLE	760				
CARBONATES	60				
DEPTH OF ORGANICS	1cm				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	6				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown
POLYGON: OP1
DATE: July 24/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown
POLYGON:	019
DATE:	July 24/07
SURVEYOR(S):	JLS DMR
START TIME:	END TIME:

TEMP (°C): 21	CLOUD (10th): 7	WIND: 2	PRECIPITATION: none

CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
L	GI SW	OB		1					

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Waterdown		POLYGON: 021	
SURVEYOR(S): JLS DMR	DATE: July 26/07	TIME: start	
		finish	
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☒ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT M&N.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☒ GRAMINOID	☐ STREAM
SITE	☐ BASIC BEDRK.	☐ VALLEY SLOPE	**COVER**	☒ FORB	☐ MARSH
☐ OPEN WATER	☐ CARB. BEDRK.	☒ TABLELAND	☒ OPEN	☐ LICHEN	☐ SWAMP
☐ SHALLOW WATER		☐ ROLL UPLAND	☐ SHRUB	☐ BRYOPHYTE	☐ FEN
☒ SURFICIAL DEP.		☐ CLIFF	☐ TREED	☐ DECIDUOUS	☐ BOG
☐ BEDROCK		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☒ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	1	FRAPEN
2	SUB-CANOPY	4	1	VIBOPU = LONTATA = CRAPONE
3	UNDERSTOREY	4	1	CORRACE FRAPEN
4	GRD. LAYER	6	4	CIRARV = DAUCARO = DACGLOM

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:		< 10		10 - 24		25 - 50		> 50
DEADFALL / LOGS:		< 10		10 - 24		25 - 50		> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Dry-Mest Old Field Cultural Meadow	CUM1-1
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE:	Waterdown
POLYGON:	021
DATE:	July 26/07
SURVEYOR(S):	JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAPENS	R		O	O	
VIBOPUL		R			
VITRIPA			O		
PARINSE			O		
TORENCE			R		
LONTART		R			
CRAPUNC		R			

SPECIES CODE	LAYER 1	2	3	4	COL.
CIRARVE				A	
DAUCARO				A	
DACGLOM				A	
BROINER				A	
CIRVULG				O	
RUMCRIS				O	
Solidago sp.				O	
Chicory				O	
butter & eggs				O	
AMPART				O	
Potentilla sp.				O	
PRUNARV				O	
PLALANC				O	
CARSPIC				O-A	
HYPPERF				O	
AGRGIGA				A	
ASCSYR				O	
CARVULP				O	
JUGCINU				O	
TAROFF				O	
POTRECT				O	
ACHMILL				O	
TRIPRAT				R	
VICCRAC				O	

ELC

STAND CHARACTERISTICS

SITE:

POLYGON:

DATE:

SURVEYOR(S):

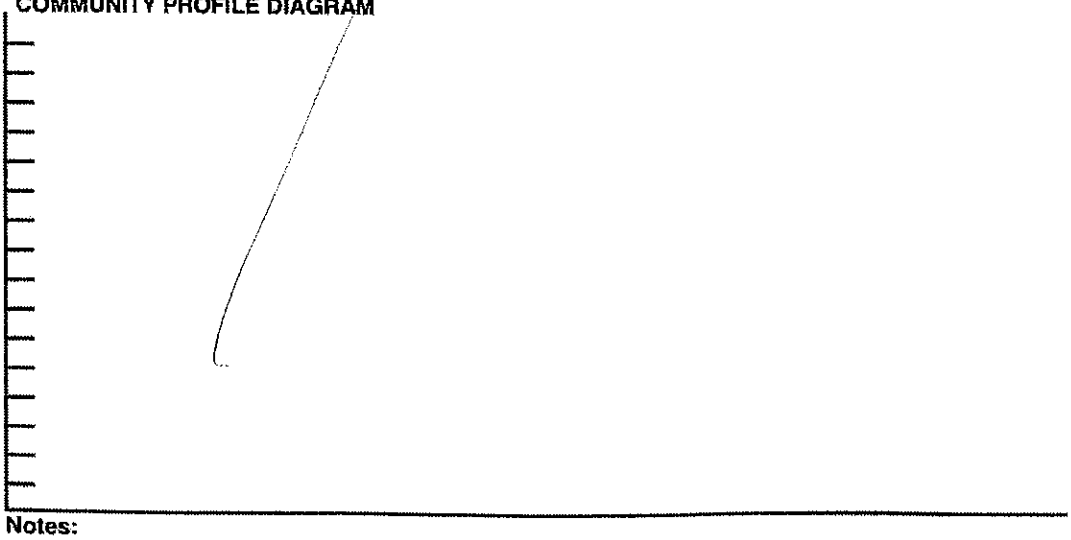
TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE:

POLYGON:

DATE:

SURVEYOR(S):

	P/A	PP	Dr	Position	Aspect	Slope %	Type	Class	Z	UTM EASTING	UTM NORTHING
1											
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON					
A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					
DEPTH TO / OF					
MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd.
POLYGON: 021
DATE: July 26/07
SURVEYOR(S): LS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd	
	POLYGON: 021	
	DATE: July 26/07	
	SURVEYOR(S): JLS DMR	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	AMGO	DD/VO		6					
B	HOSP	VO		2					
B	BCCH	VO		2					
B	FISP	VO		1					
B	SASP	VO		1					
L	Monarch	OB		1					
B	SSP	VO		1					
B	CEWA	VO		2					
B	CHSP	VO		1					
B	AMRO	OB		3					

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Waterdown		POLYGON: 021	
SURVEYOR(S): JLS DMR	DATE: July 26/07	TIME: start	
		finish	
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☒ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT M&N.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☒ GRAMINOID	☐ STREAM
SITE	☐ BASIC BEDRK.	☐ VALLEY SLOPE	**COVER**	☒ FORB	☐ MARSH
☐ OPEN WATER	☐ CARB. BEDRK.	☒ TABLELAND	☒ OPEN	☐ LICHEN	☐ SWAMP
☐ SHALLOW WATER		☐ ROLL UPLAND	☐ SHRUB	☐ BRYOPHYTE	☐ FEN
☒ SURFICIAL DEP.		☐ CLIFF	☐ TREED	☐ DECIDUOUS	☐ BOG
☐ BEDROCK		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☒ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	1	FRAPEN
2	SUB-CANOPY	4	1	VIBOPU = LONTATA = CRAPONE
3	UNDERSTOREY	4	1	CORRACE FRAPEN
4	GRD. LAYER	6	4	CIRARV = DAUCARO = DACGLOM

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:		< 10		10 - 24		25 - 50		> 50
DEADFALL / LOGS:		< 10		10 - 24		25 - 50		> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Dry-Mest Old Field Cultural Meadow	CUM1-1
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE:	Waterdown
POLYGON:	021
DATE:	July 26/07
SURVEYOR(S):	JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAPENS	R		O	O	
VIBOPUL		R			
VITRIPA			O		
PARINSE			O		
TORENCE			R		
LONTART		R			
CRAPUNC		R			

SPECIES CODE	LAYER 1	2	3	4	COL.
CIRARVE				A	
DAUCARO				A	
DACGLOM				A	
BROINER				A	
CIRVULG				O	
RUMCRIS				O	
Solidago sp.				O	
Chicory				O	
butter & eggs				O	
AMPART				O	
Potentilla sp.				O	
PRUNARV				O	
PLALANC				O	
CARSPIC				O-A	
HYPPERF				O	
AGRGIGA				A	
ASCSYR				O	
CARVULP				O	
JUGCINU				O	
TAROFF				O	
POTRECT				O	
ACHMILL				O	
TRIPRAT				R	
VICCRAC				O	

ELC

STAND CHARACTERISTICS

SITE:

POLYGON:

DATE:

SURVEYOR(S):

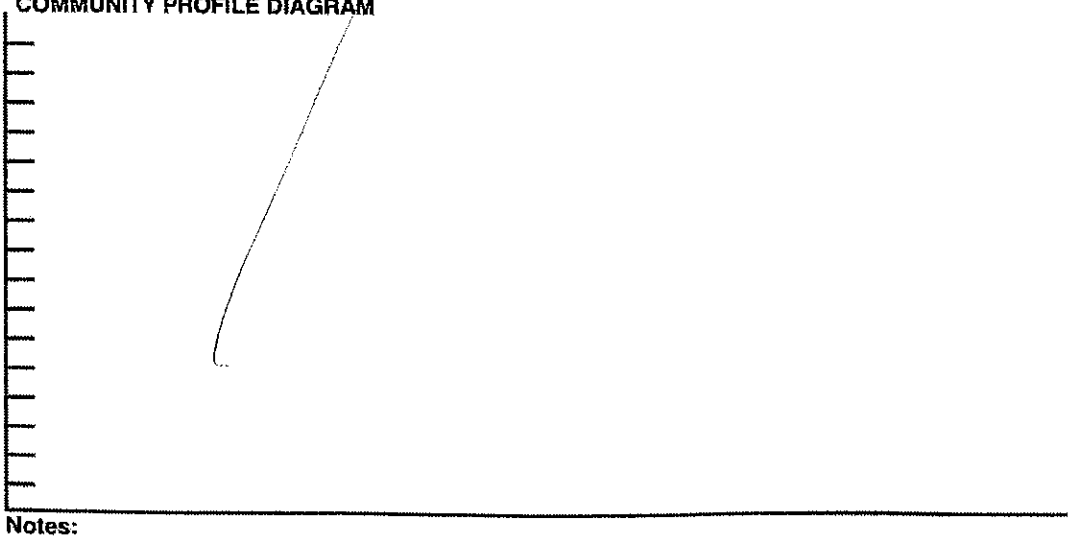
TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE:

POLYGON:

DATE:

SURVEYOR(S):

	P/A	PP	Dr	Position	Aspect	Slope %	Type	Class	Z	UTM EASTING	UTM NORTHING
1											
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON					
A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					
DEPTH TO / OF					
MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd.
POLYGON: 021
DATE: July 26/07
SURVEYOR(S): LS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd	
	POLYGON: 021	
	DATE: July 26/07	
	SURVEYOR(S): JLS DMR	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	AMGO	DD/VO		6					
B	HOSP	VO		2					
B	BCCH	VO		2					
B	FISP	VO		1					
B	SASP	VO		1					
L	Monarch	OB		1					
B	SSP	VO		1					
B	CEWA	VO		2					
B	CHSP	VO		1					
B	AMRO	OB		3					

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 022	
	SURVEYOR(S): JLS DMR	DATE: July 26/07	TIME: start	
			finish	
	UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☒ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK.	☐ VALLEY SLOPE		☐ FORB	☐ MARSH
	☐ CARB. BEDRK.	☒ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☒ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☒ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☒ SHRUB
☒ SURFICIAL DEP.	☐ TREED
☐ BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	1	FRAPENS
2	SUB-CANOPY	4	1	FRAPENS CRAPUNC RHECATH
3	UNDERSTOREY	5	4	CORRACE
4	GRD. LAYER	6	3	DACGLOM = CARSPIC = SOLMLTJ

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

		< 10		10 - 24		25 - 50		> 50
SIZE CLASS ANALYSIS:								
STANDING SNAGS:		< 10		10 - 24		25 - 50		> 50
DEADFALL / LOGS:		< 10		10 - 24		25 - 50		> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Grey dogwood Cultural – Thicket	CUT 1-4
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 022
DATE: July 26/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAPENS	O	O			
CORRACE			D		
PARVINSE			O		
VITRIPA			O		
CRAPUN		O			
RHACATH		O			

SPECIES CODE	LAYER 1	2	3	4	COL.
DAC GLOM				O	
PRUVULG				O	
POTREC				O	
JUCTENU				O	
RANACR				O	
CARSPIC				O	
AGRGIGA				O	
PHL PRAT				O	
SOLALTI				O	
PLAMAJO				O	
SCIATRO				R	
HYPPERF				O	
CRIANN				O	
RHORADI				>A	
CHRLEUC				O	
SOLSUNC				O	
ASCSYRI				O	
CIRVULG				R	
horsegarlic				R	

ELC STAND CHARACTERISTICS	SITE: Waterdown
	POLYGON: D22
	DATE: July 26/07
	SURVEYOR(S): JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown

POLYGON: D21

DATE: July 26/07

SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Slope Position	Slope Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1											
2											
3											
4											
5											

SOIL TEXTURE x HORIZON	1	2	3	4	5

	1	2	3	4	5
A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					

DEPTH TO / OF	1	2	3	4	5
MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					

SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd.
POLYGON: 022
DATE: July 26/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	Road
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd.	
	POLYGON: 022	
	DATE: July 26/07	
	SURVEYOR(S): JLS DMR	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	HOWE	VO							
B	NOCA	VO							
B	BCCH	VO							
B	SOSP	VO							
B	ORCR	VO							
B	BADR	OB							

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- OD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 023	
	SURVEYOR(S): JLS DMR	DATE: July 26/07	TIME: start	
			finish	
	UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☒ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
SITE	☐ BASIC BEDRK.	☐ VALLEY SLOPE		☐ FORB	☐ MARSH
☐ OPEN WATER	☐ CARB. BEDRK.	☒ TABLELAND	**COVER**	☐ LICHEN	☐ SWAMP
☐ SHALLOW WATER		☐ ROLL. UPLAND	☐ OPEN	☐ BRYOPHYTE	☐ FEN
☒ SURFICIAL DEP.		☐ CLIFF	☐ SHRUB	☒ DECIDUOUS	☐ BOG
☐ BEDROCK		☐ TALUS	☒ TREED	☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☒ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	FRAPENS >> QUEMACR
2	SUB-CANOPY	2	3	FRAPENS >> QUEMACR
3	UNDERSTOREY	4	2	RUBOCCI > PARINSE >> ROSRUL?
4	GRD. LAYER	6	4	DACGLOM = RANACRE = CARCRIS

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION: FRAPENS$_{83}$ ACESACC$_{17}$	BA:

SIZE CLASS ANALYSIS:	O	< 10	A	10 - 24	O	25 - 50	N	> 50
STANDING SNAGS:	R	< 10	R	10 - 24	R	25 - 50	N	> 50
DEADFALL / LOGS:	A	< 10	R	10 - 24	R	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SiCL	DEPTH TO MOTTLES / GLEY	g = 39	G= /
MOISTURE: 5	DEPTH OF ORGANICS: 2		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: /		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Fresh-Moist Ash Lowland Deciduous Forest	FOD7-2
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 023
DATE: July 26/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
QUEMACR	O	O			
ACERPENS	A	A			
CAROVAT				R	
ULMAMER		R			
RUBACCI			O		
PARINSE			O		
RHACATH		O			
ROSWOLF			R		

SPECIES CODE	LAYER 1	2	3	4	COL.
CIRVULG				O	
Ovales Sedge				A	
SOLALTP				O	
Flat-topped Aster				O	
CARVULP				O	
DACGLOM				A	
RANACRI				A	
OXASTRI				O	
JUNBUFL				O	
HESMATR				O	
Nipplewort				O-A	
CIRLUTE				O	
SOLDULC				R	
ARITRIF				R	
HYPPERF				O	
DAUCARO				O	
ALLPETI				O	
Grass sp				O	
PHAARUN				O	
CYNROSS				R-O	
PRUVULG				O	
GERROBE				O	
POTNORV				R	
Celandine				O	
GLYSTRI				R	
BIDFRO				R	
CARINTU				R	
motherwort				O	

ELC

STAND CHARACTERISTICS

SITE:	Waterdown
POLYGON:	023
DATE:	July 26/07
SURVEYOR(S):	JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
FRAPENS	⊠ 10					10	83
ACESACC	" 2					2	17
TOTAL	12					12	100
BASAL AREA (BA)	24					24	
DEAD							

STAND COMPOSITION:

FRAPENS 83 ACESACC 17

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 023
DATE: July 26/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Position	Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1	A	5	5	6	N/E	0.5	5	A			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL				
Colour change →	37				
	SiCL				
Lattice →	55				
A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE	SiCL (vf)				
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	SiCL				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	39				
GLEY	none				
BEDROCK	none				
WATER TABLE	none				
CARBONATES	none				
DEPTH OF ORGANICS	2				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	5				
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown

POLYGON: U 7-2

DATE: July 26 /07

SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown Rd
POLYGON:	023
DATE:	July 26/07
SURVEYOR(S):	JLS DMR
START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#
B	DOWO	VO		
H	SPPE	OB		
B	NOFL	VO		

TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:

SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:

T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:

DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:

OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Waterdown		POLYGON: 024	
SURVEYOR(S): JLS DMR	DATE: July 26/07	TIME: start	
		finish	
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☒ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☑ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☒ GRAMINOID	☐ STREAM
SITE	☐ BASIC BEDRK.	☐ VALLEY SLOPE		☐ FORB	☐ MARSH
☐ OPEN WATER	☐ CARB. BEDRK.	☒ TABLELAND	**COVER**	☐ LICHEN	☐ SWAMP
☐ SHALLOW WATER		☐ ROLL. UPLAND	☑ OPEN	☐ BRYOPHYTE	☐ FEN
☑ SURFICIAL DEP.		☐ CLIFF	☐ SHRUB	☐ DECIDUOUS	☐ BOG
☐ BEDROCK		☐ TALUS	☐ TREED	☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☒ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER	5	4	PHAARUN

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:		< 10		10 - 24		25 - 50		> 50
DEADFALL / LOGS:		< 10		10 - 24		25 - 50		> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Moist Cultural Old Field Meadow	COM1-1
INCLUSION		
COMPLEX		

Notes:

W 2 large patches dominated by reed canary grass

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 024
DATE: July 26/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
PHAARUN				D	
AGROGIG*				O	
CARVULP				O	
Ovales sedge				O	

See 021 for additional Species in the old field portion that is less wet.

ELC STAND CHARACTERISTICS	SITE:
	POLYGON:
	DATE:
	SURVEYOR(S):

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 024
DATE: July 26/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Position (Slope)	Aspect (Slope)	% (Slope)	Type (Slope)	Class (Slope)	Z (UTM)	EASTING (UTM)	NORTHING (UTM)
1	A	5	5	6	NE	05	S	A			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL 5a				
A TEXTURE	SiCL				
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	SiCL				
SURFACE STONINESS	0				
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	38				
GLEY	/				
BEDROCK	82?				
WATER TABLE	/				
CARBONATES	none				
DEPTH OF ORGANICS	2				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	4 to 5				
SOIL SURVEY MAP					
LEGEND CLASS					

Layer of Peat or Gravel

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd
POLYGON: 224
DATE: July 26/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd	
	POLYGON: 024	
	DATE: July 26/07	
	SURVEYOR(S): JCS DMR	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 025	
	SURVEYOR(S): JLS DMR	DATE: July 26/09	TIME: start	
			finish	
	UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☒ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☒ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☐ SHRUB ☒ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	ACESACC > CAROVAT > QUEMACR
2	SUB-CANOPY	2	3	FRAPENS > ACESACC = CARCVAT
3	UNDERSTOREY	4	2	RHACATH > PRUVIRG > HAMVIRG
4	GRD. LAYER	6	4	CIRLYTE = CAREROSE = ALLPETI

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION:	BA:
ACESACC43 QUEMACR26 CARCVAT21 QUERUBR4	31

SIZE CLASS ANALYSIS:	6	< 10	A	10 - 24	A	25 - 50	O	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	O	25 - 50	O	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	O	25 - 50	O	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE	X	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	SiCL	DEPTH TO MOTTLES / GLEY	g = /	G= /
MOISTURE:	4-5	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE		DEPTH TO BEDROCK:	/	(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Fresh - Moist - Oak-Sugar Maple Deciduous Forest.	FOD9-1
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 025
DATE: July 2k/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
ACESACC	A	O			
CARCVAT	A	O			
QUEMACR	O				
FRAPENS	O	A	A		
QUERUBR	O				
OSTVIRG					
TILAMER					
PINSTRO					
PRESERO					
BGPAPY					
FUGCINE					
RHACATH		A	A		
VIBRIPA			O		
PRUVIRG			O		
CORALTE			O		
HAMVIRG			O	O	
RUBODOR				O	
ACTRUBR				O	
PRENLB				O	
SOLRACI				O	
ASTMACR				O	
SOLFLEX				O	
PODPEDT				O	

SPECIES CODE	LAYER 1	2	3	4	COL.
URLUTE				A	
GERROBE				A	
ALLPETI				A	
Nipplewort				A	
Carex cf. woodii				O	
POTSIMP				O	
Geum sp.				O	
CYNROSSI				O	
SANCANA				O	
MAIRACE				O	
TRIGRAN				O	
THADIOE				O	
ELYHIST				O	
GERMACU				O	
EUDORBO				O	
VEROFFI				O	
APITRIF				O	
RHURADI				O	
TRAVIRG				O	
CARSPIC				O	
ARCMINI				O	
Lady's Thumb				O	
SPICHERB				O	
CIRARVI				O	
JUNTENU				O	
RIBCYNO				O	
MAISTEL				O	
RANABOR				O	
Solomon's Seal				O	
EUPRUGO				O	
HYPVIRG				O	

ELC

STAND CHARACTERISTICS

SITE:	Waterdown
POLYGON:	025
DATE:	July 26/07
SURVEYOR(S):	JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
CARORAT	6	2	2			10	21
ACESACC	4	3	13			20	43
RHACATH	2					2	4
QUERUBR	1		1			2	4
QUEMACR	2	5	5			12	26
OSTVIRG		1				1	2
FRAPENS		1				1	2
TOTAL	15	11	21			47	100
BASAL AREA (BA)	30	22	42			31	
DEAD	2	2					

STAND COMPOSITION:

ACESACC$_{43}$ QUEMACR$_{26}$ CARORAT$_{21}$ QUERUBR$_4$ RHACATH$_4$

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 10.25
DATE: July 26/07
SURVEYOR(S): JLS BMR

	P/A	PP	Dr	Slope Position	Slope Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1	A	5		6	NE	0.5	S	A			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL 56				
A TEXTURE	SiCL				
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	SiCL				
SURFACE STONINESS	1				
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	?				
GLEY	?				
BEDROCK	? /				
WATER TABLE	/				
CARBONATES					
DEPTH OF ORGANICS	1 cm				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	4-5 ?				
SOIL SURVEY MAP					
LEGEND CLASS					

Could auger further

Suspect rocky substrate or compacted soils

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd
POLYGON: 025
DATE: July 26/07
SURVEYOR(S): JCS DMP

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown
POLYGON:	025
DATE:	July 26/07
SURVEYOR(S):	JLS DMR
START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	INBU	VO		1					
B	AMGO	VO		1					

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- OD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 026	
	SURVEYOR(S): JL-S DMR	DATE: Aug 1/07	TIME: start	finish
	UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☒ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☒ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☒ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☐ SHRUB ☒ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	8	4	QUEALB > QUERUBR = CAROVAT
2	SUB-CANOPY	8	3	CAROVAT > FRAPENS > JUGNIGR
3	UNDERSTOREY	4	3-2	CRAPUNC > RHACATH > CORRACE
4	GRD. LAYER	0.6	4	PARINSE SOLCANA = ALLPET

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES: 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION:	BA:
QUEALB$_{48}$ QUERUBR$_{21}$ CAROVAT$_{21}$ FRAPENS$_{7}$	29

SIZE CLASS ANALYSIS:	0	< 10	A	10 - 24	A	25 - 50	R	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	O	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	O	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SiCL	DEPTH TO MOTTLES / GLEY	g = /	G = /
MOISTURE: 2	DEPTH OF ORGANICS: 2		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: /		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Dry-Fresh Oak-Hickory Deciduous Forest	FOD2-2
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE:	Watercourse
POLYGON:	026
DATE:	Aug 1/07
SURVEYOR(S):	JLS

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
JUGNIGR					
CARCVAT					
FRAAMER					
QUEALBA					
QUERUBR					
FRAPENS					
JUGCINE					
PRUSERO					
CRAPUNC					
RUBOCCI					
RHACATH					
VITRIPA					
CORRACE					
VIBOPUL					

SPECIES CODE	LAYER 1	2	3	4	COL.
PARINSE					
SOLCANA					
CRIANNU					
AGRGIGA					
ALLPETI					
CAR o.f. WOOD					
PRUVULG					
VEROFFI					
GERMACU					
HYPPERF					
DACGLOM					
PODPELT					
RIB CYNO					
nipple wort					
ERAVIRG					
CIRLUTE					
TAROFFI					
DUN TENU					
RHURADI					
DAUCARO					
ARCMINU					
ARITRIP					

ELC

STAND CHARACTERISTICS

SITE:	Waterdown
POLYGON:	026
DATE:	Aug 1/09
SURVEYOR(S):	JLS DMR

TREE TALLY BY SPECIES:

PRISM FACTOR 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
FRAPENS	1	1				2	7
CAROVAT	3	3				6	21
QUERUBR	4	2				6	21
QUEALBA	5	9				14	48
CRAPUNC		1				1	3
TOTAL	13	16				29	100
BASAL AREA (BA)	26	30				29	
DEAD	3	3					

STAND COMPOSITION:

QUEALBA$_{48}$ QUERUBR$_{21}$ CAROVAT$_{21}$ FRAPENS$_{7}$ CRAPUNC$_{3}$

COMMUNITY PROFILE DIAGRAM

Notes:

ELC

SOILS ONTARIO

SITE: Waterdown
POLYGON: 026
DATE: Aug 1/07
SURVEYOR(S): JLS DMR

	P/A	PP	Dr	Slope Position	Slope Aspect	Slope %	Slope Type	Slope Class	Z	UTM EASTING	UTM NORTHING
1	A	5	3	6	N	5	S	B			
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL 55				
A TEXTURE	SiCL				
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE	Si CL				
SURFACE STONINESS					
SURFACE ROCKINESS	0				
DEPTH TO / OF					
MOTTLES	/				
GLEY	/				
BEDROCK	/				
WATER TABLE	/				
CARBONATES	/				
DEPTH OF ORGANICS	2 (L)				
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME	2				
SOIL SURVEY MAP					
LEGEND CLASS					

Could not auger any further

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd
POLYGON: 026
DATE: Aug 1/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	Road
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE: Waterdown Rd	
	POLYGON: 026	
	DATE: Aug 1/07	
	SURVEYOR(S): JLS DMR	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#
B	GCFL	VO		1
B	AMGO	VO		1
B	NOCA	VO		1

TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:

SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:

T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:

DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:

OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Watercourse		POLYGON: 027	
SURVEYOR(S): JLS DMR	DATE: 027	TIME: start	
		finish	
UTMZ:	UTMZ:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☒ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☒ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☒ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK.	☒ VALLEY SLOPE		☐ FORB	☐ MARSH
	☐ CARB. BEDRK.	☐ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☒ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☒ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
☒ SURFICIAL DEP.	☒ TREED
☐ BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	ACESACC > QUEALBA > QUE RUBR
2	SUB-CANOPY	3	3	ACESACC > CARCVAT > OSTVIRG
3	UNDERSTOREY	4	2-3	HAMVIRG > CORALTN > LONTATA
4	GRD. LAYER	6	4	FRAVIRG = ALLPEN = DACGLOM

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:
ACESACC 47 QUEALBA 23 QUERUBR 21 CARCVAT 9	34

SIZE CLASS ANALYSIS:	O	< 10	A	10 - 24	A	25 - 50	O	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	O	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	O	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Dry-Fresh Sugar Maple - Oak Deciduous Forest	FOD5-3
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Watercourse
POLYGON: 027
DATE: JLS DMR
SURVEYOR(S): Aug 1/06

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.	SPECIES CODE	LAYER 1	2	3	4	COL.
ACESACC						Nipplewort					
OSTVIRG						DACGLOM					
CAROVAT						THADIOE					
QUERUBR						FRAVIRG					
FRAPENS						SOLCASI					
PINSTRO						MAISTEL					
						ASTMACR					
						ALLPETI					
						POACOMP					
						ELYREPE					
						EUOORBO					
						Thistleweed					
						POTSIMP					
						GERMACU					
CORRACE						PODPLIT					
HAMVIRG						Rep Grd Pink					
CORALTE						PRCALBA					
VIBACER						SOLFLEX					
LONTART						VITRIPA					
						Round-leaved Hepatica					
						ABROFFI					
						HELDIVA					

4cm [illegible]
Acm [illegible]
60cm/[illegible]

ELC

STAND CHARACTERISTICS

SITE:	Waterdown
POLYGON:	027
DATE:	Aug 1/07
SURVEYOR(S):	JLS DMR

TREE TALLY BY SPECIES:

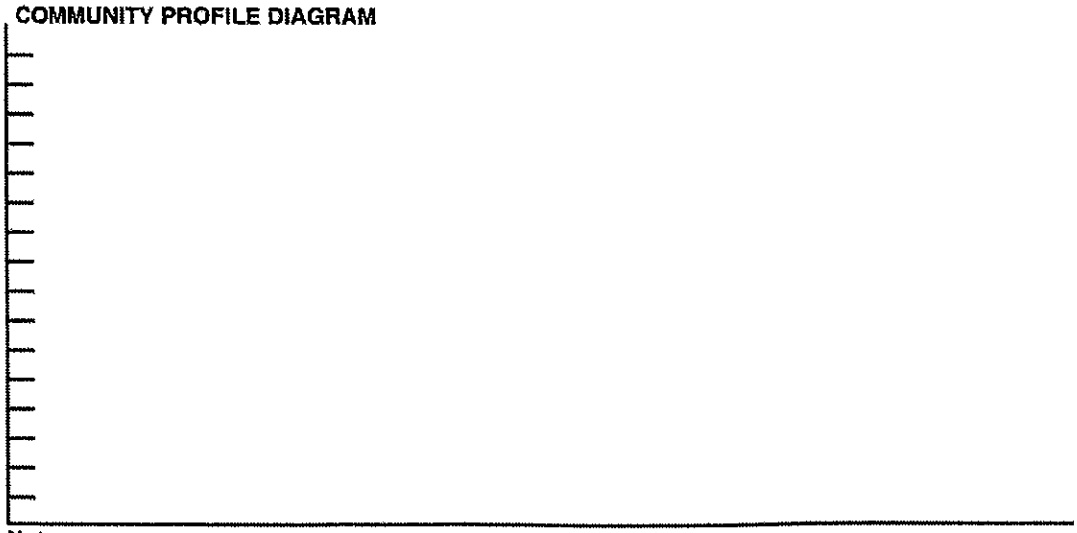
PRISM FACTOR: 2

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
QUERUB	4	3				7	21
CAROVAT	2	1				3	9
ACESACC	9	7				16	47
QUEALBA	2	6				8	23
TOTAL	17	17				34	100
BASAL AREA (BA)	34	34				34	
DEAD							

STAND COMPOSITION:

ACESACC$_{47}$ QUEALBA$_{23}$ QUERUBR$_{21}$ CAROVAT$_{9}$

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

SOILS ONTARIO

SITE: Waterdown Rd

POLYGON: 027

DATE: Aug 1/07

SURVEYOR(S): JCS DMR

Slope | UTM

	P/A	PP	Dr	Position	Aspect	%	Type	Class	Z	EASTING	NORTHING
1											
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON					
A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					
DEPTH TO / OF					
MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd.
POLYGON: 027
DATE: Aug 1/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	>30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	Road
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown Rd.
POLYGON:	027
DATE:	Aug 1/07
SURVEYOR(S):	JLS DMR
START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS	X	SNAGS
	HIBERNACULA	X	FALLEN LOGS

SPECIES LIST:

Kee Yee

TY	SP. CODE	EV	NOTES	#
~~B~~	~~RSHA~~	VO/~~SM~~		1
B	BCCH	VO		3
B	NOFL	VO		1

TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
- SH = SUITABLE HABITAT
- SM = SINGING MALE

BREEDING BIRD - PROBABLE:
- T = TERRITORY
- A = ANXIETY BEHAVIOUR
- D = DISPLAY
- N = NEST BUILDING
- P = PAIR
- V = VISITING NEST

BREEDING BIRD - CONFIRMED:
- DD = DISTRACTION
- NE = EGGS
- AE = NEST ENTRY
- NU = USED NEST
- NY = YOUNG
- FY = FLEDGED YOUNG
- FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
- OB = OBSERVED
- DP = DISTINCTIVE PARTS
- TK = TRACKS
- SI = OTHER SIGNS (specify)
- VO = VOCALIZATION
- HO = HOUSE/DEN
- FE = FEEDING EVIDENCE
- CA = CARCASS
- FY = EGGS OR YOUNG
- SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: Waterdown		POLYGON: 023
	SURVEYOR(S): JLS DMR	DATE: Aug 1/07	TIME: start / finish
	UTMZ:	UTMZ:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☒ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☒ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☐ NATURAL ☒ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☒ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☒ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☒ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☒ SHRUB ☐ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	1	FRAPENS
2	SUB-CANOPY	4	1-2	RHUTYPH
3	UNDERSTOREY	4	4	CORRACE
4	GRD. LAYER	6	3	DAUCARO = PHLPRAT = DIPSYLV

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	A	< 10	O	10 - 24	R	25 - 50	N	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	R	25 - 50	N	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	R	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH
	X									

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Grey Dogwood Cultural Thicket	CUT 1-4
INCLUSION		
COMPLEX		

Notes:

ELC
PLANT SPECIES LIST

SITE: Waterdown
POLYGON: 228
DATE: Aug. 1/07
SURVEYOR(S): JLS DMR

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAPENS					
CORRACE					
VITRIPA					
RHUTYPH					
RUBIDAE					

SPECIES CODE	LAYER 1	2	3	4	COL.
LYTSALI					
Spotted Knapweed					
DAUCARO					
Chicory					
PHLPRAT					
ERIANNU					
DIPSYLV					
HYPPERF					
DAUCARO					
Grass-leaved goldenrod					
RHURADI					
AGRGIGA					
CIRVULG					
AMBARTI					
PRUVULG					
CARVULP					
VICCRAC					
PARINSE					
MEDLUPU					
VERHAST					

ELC

STAND CHARACTERISTICS

SITE:	Waterdown Rd
POLYGON:	028
DATE:	Aug 1 07
SURVEYOR(S):	JLS DMR

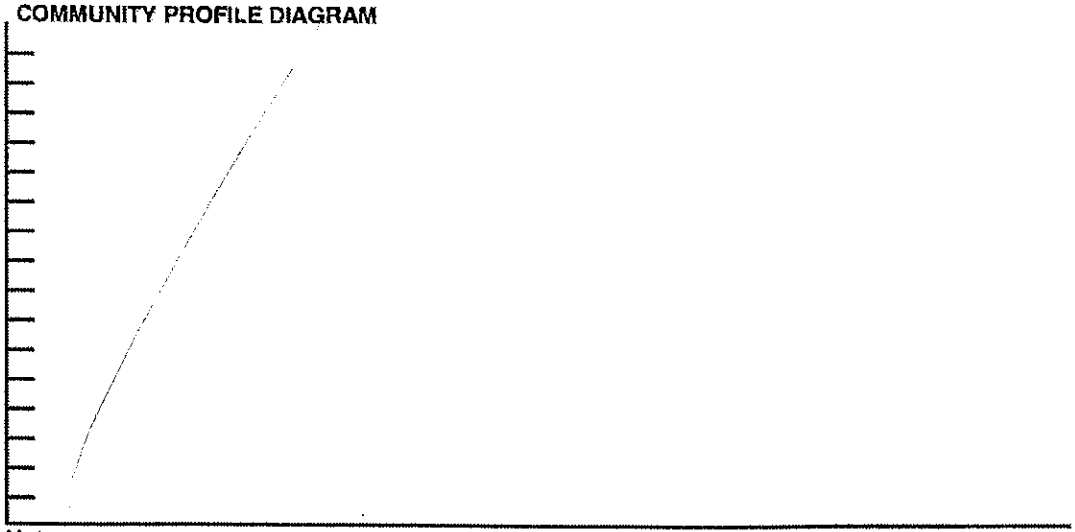
TREE TALLY BY SPECIES:

PRISM FACTOR [ ]

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM



Notes:

ELC

MANAGEMENT / DISTURBANCE

SITE: Waterdown Rd.
POLYGON: 038
DATE: Aug 8/07
SURVEYOR(S): JLS DMR

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	Road
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:	Waterdown Rd
POLYGON:	028
DATE:	Aug 1/07
SURVEYOR(S):	JLS DMR
START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	AMGO	VO		3					
B	~~ARCR~~	VO		1					
L	CAWH	OB		1					
L	SIBL	DP		1					
B	TUVU	OB		1					
B	EUST	OB		1					
B	EAKI	VO		1					
B	RTHA	OB/VO		2					
~~B~~	~~BSHA~~	~~OB~~ VO		2					
B	AMRO	OB							
~~B~~	~~EUST~~	~~OB~~							
B	BHCO	OB							

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:

SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:

T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

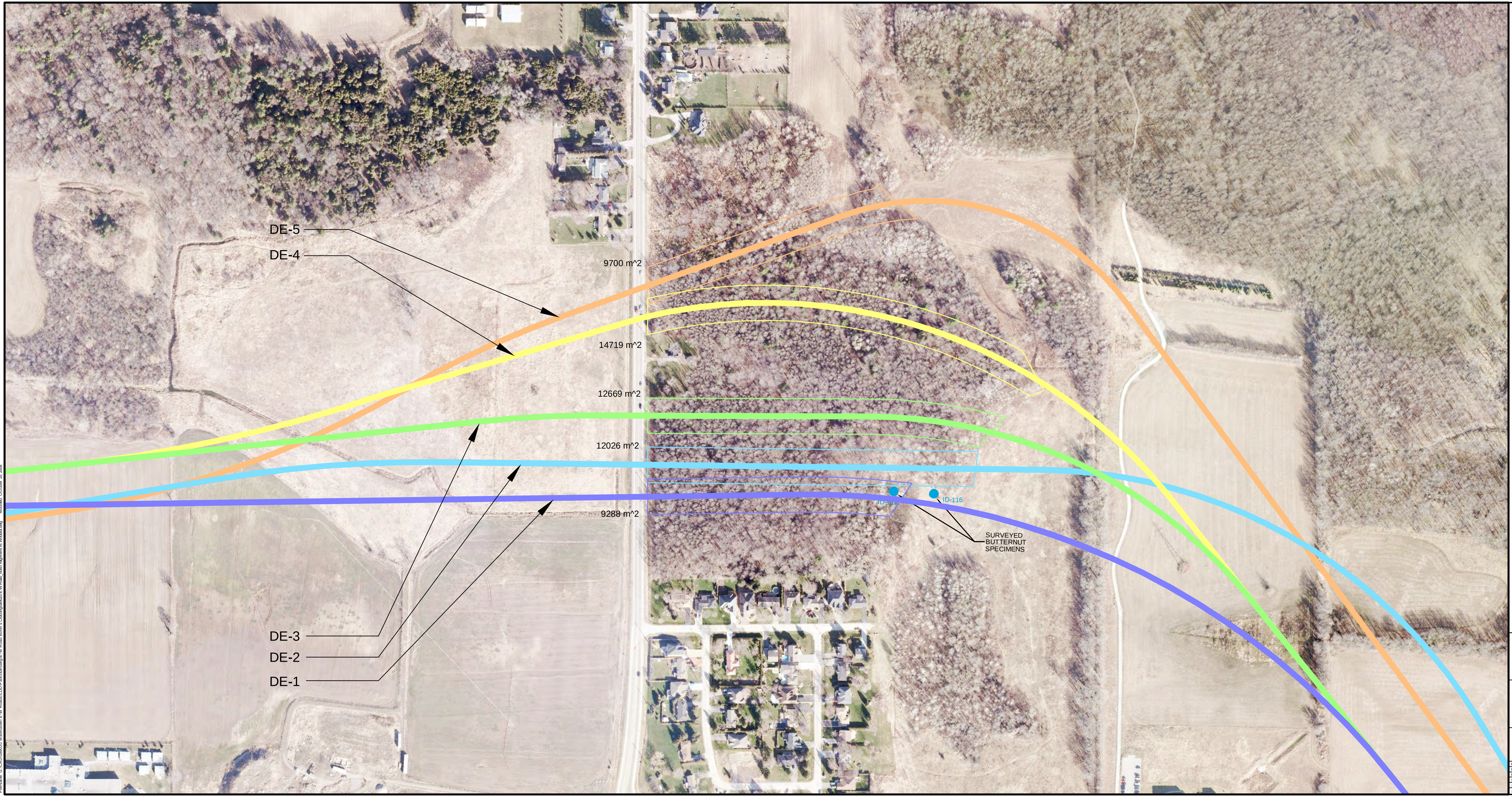
BREEDING BIRD - CONFIRMED:

DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:

OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

Appendix C
Road Alignment Options through the Centre Road Woodlot



PRELIMINARY

Data Sources

Data provided by the Regional Municipality of Halton - Planning and Transportation Services

0 75 150m

ALIGNMENT OPTIONS
THROUGH CENTRE WOODLOT

DILLON CONSULTING

NEW E-W ROAD
CLASS ENVIRONMENTAL ASSESSMENT
HWY 6 TO BRANT STREET

CHECKED BY: ---
DESIGN BY: ---
DRAWN BY: ---
SCALE: ---
DATE: October, 2008
PROJECT No. 08-9020

APPENDIX C

Appendix D
Secondary Source Background Fish Habitat Information

Gartner-Lee Limited: "Existing Conditions of the Borer's Creek Sub-watershed: City of Hamilton – Final Report (revised 2005)".

- *"Fish habitat within the headwater reaches of Borer's Creek was considered to be of poor to moderate quality, due to past farming practices, where most of the channel has been realigned and/or altered in some manner. The result is poor substrate, lack of canopy and habitat complexity. For approximately 277m upstream of Parkside Drive, habitat conditions are considered poor. There was a lack of habitat complexity, which consisted of mostly riffles and runs. The banks were slightly undercut with overhanging vegetation, the sediments were poor and there was very little canopy cover. There is a dam at the upper end of this reach, which is in place to maintain water levels in an online pond. This outlet dam in the pond is a barrier to fish passage;*

- *The online pond (Black's Pond) itself has an approximate surface area of 6,680 m^2 and the volume of the pond was approximately 5,266 m^2. The habitat conditions within the pond were found to be poor, with high turbidity and a lack of aquatic vegetation or canopy cover contributing to warm water conditions in the pond. There was sufficient depth within the pond (2.0m in some areas) for fish to overwinter, but oxygen levels near the bottom were too low for fish to survive;*

- *A short reach, immediately upstream of Black's Pond, connects the inlet of the pond and the Eastern Tributary, approximately 56m upstream. The site had moderate canopy cover with a substrate consisting of silt and sand, but was found to be poor fish habitat due to the absence of substrate diversity and stream complexity; and*

- *This Eastern Tributary of Borer's Creek begins approximately 56m upstream of the online pond. The habitat was assessed for 610m and ended at a deep channel (>1m deep) in the middle of a farm field, just west of Centre Road. The fish habitat was considered poor quality. There was some small and large woody debris, resulting in limited habitat complexity. The morphology consisted mainly of runs and riffles with a silt and sand substrate. Several smaller tributaries, draining farm fields from the north flow into this reach.*

Stantec Consulting: "Environmental Impact Statement – MC2 Lands, Waterdown, Ontario (Sept 12th 2005)".

- *The section just south of Black's Pond is entrenched in a small valley (~200m wide), with very steep banks. The watercourse was clogged with woody debris and duckweed. Numerous fish were observed, as well as green frogs;*

- *Between Black's Pond and Parkside Road, Borer's Creek was 1.5 – 2.0m wide, and 10 – 15cm deep. The watercourse was choked with duckweed, and algae covered the cobbles along its edges. Velocity was slow, although undercut banks on the east indicate that the flows are strong during spring runoff. The banks were stable on the west side and the substrate was composed of sand and detritus. The riparian area*

was well developed with shrubs and reed canary grass providing excellent cover. Although no fish were observed, it is assumed that this portion of the creek provides fish habitat;

- *The Borer's Creek headwaters, which include tributaries north of Parkside Drive, have mostly vegetated streambanks; they drain an area above the main urban development of Waterdown; and*

- *Based on the habitat surveys and the available background information, Borer's Creek provides poor to moderate quality fish habitat. Habitat diversity is low, with a silty-sand bottom and few in-stream features to attract and hold fish. This is largely attributed to past farming practices and alterations to the channel.*

Conservation Halton: "Grindstone Creek Watershed – Aquatic Habitat Inventory and Assessment (Appendix 3 – January 1998)".

- *This Northwest Branch of Grindstone Creek is a highly altered section of the main channel located just upstream of Parkside Drive. This channel has been channelized, impounded, covered and diverted and is very open and exposed with sparse tree cover. A side channel leads off of the main channel and widens into a large "L" shaped pond. Downstream of this side channel, the main branch flows along a "L" shaped channel that is separated from the pond by an earth berm;*

- *A series of drop structures and a sluice gate at the pond outlet exists and influences flows within this reach (upstream of Parkside Road). Flows are also conveyed over a 4m stepped-bedrock waterfall and a steep 15m concrete lined, V-shaped spillway. The Northwest Branch downstream to Parkside Drive is fast flowing, rocky, and moderately vegetated;*

- *This same reach is surrounded by abandoned agricultural land and a thin to moderate width shrubby/herbaceous buffer leaving the features relatively exposed to the sun, which also warms the water temperature throughout. The pond water is often turbid with regulated water levels. Some recreational use occurs here (e.g., swimming etc);*

- *Water quality is indicative of untreated stormwater runoff and organic pollution. Numerous cyprinids were observed despite the presence of numerous barriers to fish passage and could benefit greatly from stream rehabilitation activities such as retrofitting the online ponds, barrier removal, natural channel design, and riparian plantings;*

- *The headwater reaches of the Northeast Branch are poorly defined but join together to form a well-defined valley feature north of Highway 5. The reaches downstream of Cedar Springs Road flow through agricultural and rural residential land with limited forest and scrubland cover. Downstream of Evans Side Road to First Street, riparian*

cover is patchy but beyond this point, it is well established down to the confluence with the Northwest Branch of Grindstone Creek;

- *The gradient of these headwater reaches are generally low to moderate and highly susceptible to uncontrolled overland flow contributions due to the surrounding landscape;*

- *The dominant substrate in this watercourse ranges from silt, clay, and detritus in the upper reaches to cobble, gravel, and sand in the lower reach;*

- *Water quality is considered to be moderate, largely due to road runoff from Highway 5. Flows are limited during the summer months with some sections becoming intermittent, which is limiting its habitat potential;*

- *There are a number of online ponds located on these headwater reaches, some of which represent barriers to fish passage and all of which contributing significantly to thermal warming of the watercourse;*

- *Reaches along the Northeast Branch that have good to excellent cover and substrate for fish include the section below George Street falls and the sections between Highway 5 and Cedar Springs Road;*

- *This branch provides warmwater habitat with poor to moderate thermal stability and could significantly benefit from reduced water takings (golf course), removal of online ponds, bank stabilization, and stormwater runoff;*

- *Upstream of Cedar Springs Road, these headwater reaches are poorly vegetated and flow through agricultural and residential lands and a gold course; and*

- *Portions of the headwater reaches upstream of Cedar Springs Road appear to be nursery areas for YOY baitfish during the spring and early summer. These sections flow through an area that was once an agricultural field but which has since been abandoned and allowed to naturalize with cattail, reed canary grass, purple loosestrife and other tall emergents. Flows are less defined and slower moving in places, resulting in calm water nursery area with abundant overhead and in-stream cover.*

Ecoplans Limited: "South Waterdown Subwatershed Study – Stage 1 Report (final – March 2006)".

- *Many sections of the headwater reaches of the Northeast Branch are highly altered and ditched channels that appear to be ephemeral, conveying overland surface water flows during spring melt or storm events. The channels can vary from 0.5m wide further downstream near Highway 5 to approximately 8m wide swales upstream near the top. These channels contain many stagnant pools containing mostly silt/muck substrates with pockets of sand and gravel;*

- *These headwater reaches are generally exposed with a low gradient and abundant woody debris, garbage, and dense invasive vegetation (i.e., choked with emergents) throughout inhibiting its use by fish from downstream reaches;*

- *The channel of the Northeast Branch is bedrock-lined with dry clay banks during the summer months and ditched along Highway 5 for a short distance. When flowing the morphology consists of riffles, flats, and pools with a substrate consisting of cobble, gravel, boulders, sand and silt. The exposed channel at Highway 5 is low gradient with a bankfull width of approximately 5m;*

- *Overall, the Northeast Branch has good in-stream cover with abundant woody debris and boulders but a few overflow sinkpoints (Karst) fragment the stream towards the lower reaches prior to draining into the Northwest Branch of Grindstone Creek;*

- *The Northeast Branch flows through both meadow and forest/swamp habitats with a channel width of 4 – 5 m (bankfull) and a substrate consisting of sand and gravel in riffles and silt in the flats. Riffles/flats/pools were noted in May and only flats and pools by August; and*

- *Moderately good in-stream cover exists downstream (near Highway 5) consisting mostly of woody debris, boulders, emergent vegetation, and filamentous algae;*

- *The Southern Branch of Grindstone Creek north of Mountain Brow Road arises as an ill-defined ditched swale within an agricultural/cultural meadow with minimal riparian cover and heavily disturbed by agricultural activity (ploughed through in some areas). The swale becomes discontinuous south of Mountain Brow Road as it flows in a braided pattern through the Waterdown Escarpment Woods ESA; and*

- *The Southern Branch, which has been altered in the past, supports intermittent, seasonal flows, with the main flows in the spring and following storm events. Further downstream, flow disappears into limestone factures causing fragmented conditions.*