

APPENDIX TSD#1-D

Biology Component

February 2013

Biology Component
Appendix TSD#1-D

**COMPARATIVE EVALUATIONS OF
ALTERNATIVE SITES**



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ATTACHMENT D-3

Wildlife Observed on the NRR and BR Sites

ATTACHMENT D-4

Species at Risk Screening for the NRR and BR Sites

INTRODUCTION

Two properties that are owned or have been optioned by Taggart Miller have been identified for the proposed Capital Region Resource Recovery Centre (CRRRC) (the Alternative Sites). The Alternative Sites are described below:

- **North Russell Road Site (NRR Site)** – located in the northwest part of the Township of Russell about three kilometres east of the boundary with the City of Ottawa, and about five kilometres south of Provincial Highway 417 between the Boundary Road and Vars exits. The property consists of about 193 hectares (476 acres) of contiguous lands on Part of Lots 18 and 19, Concessions III and IV, Township of Russell.
- **Boundary Road Site (BR Site)** – located in the east part of the City of Ottawa, in the former Township of Cumberland and just southeast of the Highway 417/Boundary Road interchange. The property is on the east side of Boundary Road, east of an existing industrial park, north of Devine Road and west of Frontier Road. The property consists of about 175 hectares (430 acres) of land on Lots 23 to 25, Concession XI, Township of Cumberland.

The CRRRC is proposed to provide facilities and capacity for recovery of resources and diversion of material from disposal generated by the industrial, commercial and institutional (IC&I) and construction and demolition (C&D) sectors primarily in Ottawa and secondarily a portion of eastern Ontario, for management and utilization of surplus and contaminated soils, as well as landfill disposal capacity for material that is not diverted.

1.0 ASSESSMENT CRITERIA, INDICATORS AND DATA SOURCES

The biology component compared the Sites using the following criterion:

- Which Site is preferred for protection of terrestrial and aquatic biological systems?

The indicator is:

- Amount of, quality of and impact on biological systems on-Site, including protected biological systems:
 - Class 1 to 3 wetlands;
 - Life science ANSIs;
 - Wooded areas;
 - Species at risk and endangered species and associated habitat; and
 - Waterbodies and water courses.

The wetlands portion of the assessment was undertaken using the current classification of “provincially significant” versus “not provincially significant”, which replaced the Class 1 to 7 rankings.

The data sources used are Site reconnaissance and preliminary field surveys and published data sources including: Ontario Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC) database (NHIC 2013); MNR fisheries data; Conservation Authority information and mapping; past natural feature surveys and regulatory requirements; Atlas of the Breeding Birds of Ontario (Cadman et al. 2007); Atlas of the Mammals of Ontario (Dobbyn 1994); Ontario Herpetofaunal Summary Atlas (Oldham and Weller 2000); Ontario Odonata Atlas (NHIC 2005); Bird Studies Canada and other similar organizations; Royal Ontario Museum SAR mapping (2010); *Species at Risk Act* (SARA) (Canada 2002) and *Endangered Species Act* (ESA) (Ontario 2007); the Committee on the Status of Endangered Wildlife in Canada (COSEWIC); Municipal Official Plans; Ontario Base Maps; Natural Resource Values Information System mapping and Land Information System mapping and Land Information Ontario (MNR 2012); and aerial photography. A BioBlitz (Hanrahan et al. 2011), which is a 24-hour survey of the biological diversity of a selected area, was conducted in 2011 on parts of the NRR Site and the general area of the Site. As part of the desktop assessment, the BioBlitz report was used as background information (Hanrahan et al. 2011).

2.0 METHODS

2.1 Screening for Species at Risk (SAR)

Species at Risk (SAR) considered in this evaluation include those species listed under the ESA and SARA, as well as species ranked S1 to S3 (NHIC) and regionally rare species. An assessment was conducted to determine which Species at Risk (SAR) had potential habitat in the general area of the Site.

A screening of all SAR that have the potential to be found on the NRR Site and within the general area of the NRR Site and on the BR Site and within the general area of the BR Site was conducted first as a desktop exercise. Species with ranges overlapping the Sites, or recent occurrence records in the vicinity, were screened by comparing their habitat requirements to habitat conditions on the Sites. Following the field surveys, the screening was updated to reflect the assessment of habitats in the NRR Site and the general area of the Site and in the BR Site and the general area of the Site, and survey data collected in the field. Range mapping for species listed as threatened or endangered under the ESA (Ontario 2007) are available on-line through the Royal Ontario Museum (2010) and from the Species at Risk Public Registry (Canada 2012). These range maps were referenced to determine if the Sites coincide with the known ranges of endangered or threatened species listed under the ESA. Only habitat for species designated as endangered or threatened under the ESA is afforded direct protection under the Act.

The potential for a SAR to occur within the Alternative Site and the general area of the Site was determined through a probability of occurrence, where a low-high ranking is applied based on considerations of habitat suitability and availability. A ranking of low indicates no suitable habitat availability for that species on the Site and no specimens identified. Moderate probability indicates more potential for the species to occur, as suitable habitat appeared to be present on the Site, but no occurrence of the species observed. High potential indicates a known species record on the Site (including during field surveys or background data review) and good quality habitat is present.

2.2 Site Investigations

A number of field surveys were conducted as part of the baseline data collection for the Alternative Sites evaluation.

The following field surveys were conducted on the NRR Site:

- **May 29, 2008** Site reconnaissance, Ecological Land Classification (ELC), vegetation, amphibian surveys
- **June 18, 2008** Breeding birds and wildlife area searches
- **July 25, 2008** Aquatic habitat and fish community surveys
- **August 1, 2008** Aquatic habitat and fish community surveys
- **November 29, 2011** Aquatic habitat and fish community surveys
- **September 20, 2012** Aquatic habitat and fish community surveys
- **September 26, 2012** ELC, vegetation and wildlife area searches
- **October 2, 2012** ELC, vegetation and wildlife area searches

The following field surveys were conducted on the BR Site:

- **May 10, 2012** Site reconnaissance, incidental wildlife and vegetation surveys
- **September 20, 2012** ELC, vegetation, herpetiles and wildlife area search, incidental birds, aquatic habitat and fish community surveys
- **October 2, 2012** ELC, vegetation, wildlife area search, incidental birds, aquatic habitat and fish community surveys
- **October 11, 2012** Aquatic habitat and fish community surveys

2.2.1 Aquatic Surveys

Surface water features were mapped using Land Information Ontario (LIO) data. Prepared mapping was ground-truthed through field surveys. Aquatic habitat assessments were conducted on all surface water features at both Sites.

The existing flooded quarry at NRR Site was visually inspected for aquatic vegetation and two baited Gee Minnow traps were set for a fish presence/absence assessment. The assessment of the surface water features on the remainder of the NRR Site and the general area of the Site was limited to qualitative visual inspections and aquatic habitat assessments.

Electrofishing, using a Smith-Root LR 24 Backpack electroshocker, was conducted in the ditches and streams on the BR Site, where there was sufficient water for fish collection.

2.2.2 Vegetation Communities

ELC, following the methods and terminology developed by Lee et al. (1998) for naturally-occurring plant communities of southern Ontario, was completed on both Sites. Vegetation community polygons were first delineated at a desktop level using existing aerial imagery and then ground-truthed in the field. Data collected included information on plant community structure and composition. Although all plant species observed were recorded, a complete botanical inventory was not conducted.

At both Sites, the vegetation surveys were conducted in the spring and/or fall, and not during the core of the growing season (i.e., summer). Sufficient data was collected to complete a preliminary ELC map and plant species list, but because of the timing of the surveys, the plant lists are not complete. The vegetation data collected at the NRR Site in 2008 was only used as background information, and not relied upon for ELC.

2.2.3 Wildlife Surveys

Species-specific wildlife surveys were not conducted as part of this evaluation. Inventories of wildlife were based on direct observations, distinctive calls and signs (e.g., tracks, scat, hair, etc.) observed during field surveys. Suitable habitats for SAR with a moderate or high potential to be found on the NRR or BR Site were assessed, where possible (depending on the season of the field surveys) and sightings or signs of any individuals were recorded (e.g., snake surveys involved flipping logs and observing piles of rocks for snakes).

Incidental wildlife surveys provide information on species using the Sites at specific periods of time or specific features of the Site. Additional surveys will be carried out to consider seasonal variations and complete the inventory of species potentially using the preferred Site.

2.3 Evaluation of Sites

A qualitative assessment of existing natural features, based on the indicators listed in Section 1.0, was undertaken. As it is assumed that the disturbance and the footprint of the CRRRC will include the entire land holdings of the Sites, the magnitude and scale of the source of disturbance, and the persistence of the disturbance (i.e., permanent versus temporary) was not considered. Where possible, the potential for minimizing residual effects through mitigation or avoidance was considered. Information used was derived from formal designations (i.e. local, provincial or national significance), preliminary baseline data collection and professional opinion.

Municipal planning documents were referenced to determine if any woodlands occurring on the Sites or within the general area of the Sites held designated significance under the respective planning context. Woodlands without a formal designation were assessed against the criteria of a municipality (i.e., City of Ottawa), or the Natural Heritage Reference Manual (NHRM) (MNR 2010) was used to determine if they could be considered significant.

The Ontario ESA takes precedence over the Canada SARA on private lands. Subsequently, because both of the Sites are located on private lands, the Ontario ESA takes precedence over the Canada SARA, and species ranked as S1 to S3 provincially (imperiled or rare in the NHIC database). For this evaluation, species listed as 'threatened' or 'endangered' under the ESA were considered more of a constraint (or the CRRRC would have more of an impact on these species) than those listed as 'special concern', or those listed under SARA or as S1 to S3.

3.0 PRELIMINARY DESCRIPTION OF EXISTING ENVIRONMENT

3.1 North Russell Road Site

3.1.1 Surface Water Resources and Aquatic Habitat

Based on the desktop assessment and the reconnaissance, there are five seasonal surface water features on the NRR Site: South Morrow Municipal Drain near the northeast corner of the NRR Site; Fournier Municipal Drain, east of Eadie Road; and three unnamed features: SS1, SS2 and SS3 (Figure 3.1-1). It was determined through three separate Site visits that all features are ephemeral (have intermittent flow). During all visits, SS1 and SS3 were dry, with only wet sediment present. South Morrow Municipal Drain and SS2 held water with no visible flow and were thick with algae and emergent grasses and sedges during the summer months, but were dry in September.

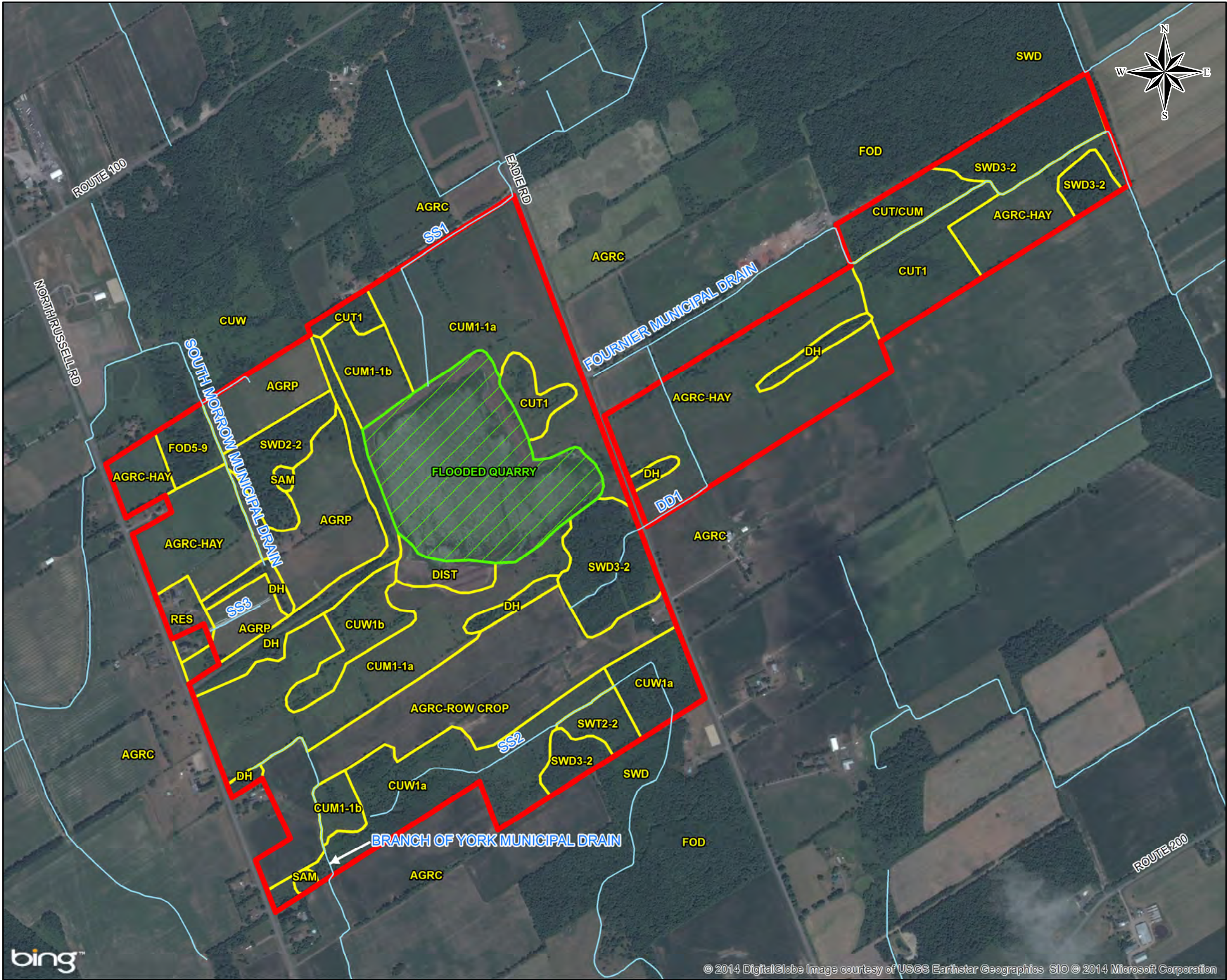
There are also two constructed drainage ditches within the general area of the Site: a drainage ditch located southeast of the property (DD1), along Eadie Road, and a branch of York Municipal Drain located in the southwest corner parallel to North Russell Road (Figure 3.1-1). During all surveys, there was minimal (0.5 metres) to no water in DD1, except when accumulated water in the quarry was pumped in 2008, suggesting that it likely acts only as a discharge conveyance for the quarry. Common cattail (*Typha latifolia*) and tall grasses and forbs were established along the channel edges and were bordered by riparian grasses. The branch of York Municipal Drain drains through a hedgerow separating agricultural fields.

No fish were observed or captured in any of the seasonal surface water features or drainage ditches during the surveys.

Three additional surface water features were identified during field surveys. These included two constructed shallow farm ponds, near the northwest and the southwest corners of the NRR Site (labelled SAM on Figure 3.1-1), and the quarry that, during the 2012 surveys, was flooded. Although some aquatic and emergent vegetation was present in the southwest pond, water was shallow, stagnant, and there was evidence that it dries up during periods of low water. The northwestern pond is currently used by cattle and is heavily disturbed. No fish species were caught or observed in either of these ponds, or in the flooded quarry. There were algae on the surface and sediment, as well some aquatic vegetation just beginning to become established (e.g., water naiad; *Najas flexilis*) in the water contained within the quarry.

The surface water features on the NRR Site and in the general area of the Site are not coldwater, so likely not as sensitive as coldwater systems.

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LEGEND

- SURFACE WATER FEATURE
- ECOLOGICAL LAND CLASSIFICATION; RES; DIST
- FLOODED QUARRY
- PROPERTY BOUNDARY

ECOLOGICAL LAND CLASSIFICATION:

AGRC-AGRICULTURAL FIELDS
AGRC-ROW CROP : ROW CROP
AGRC-HAY : HAYFIELD
AGRP : HORSE PASTURE
CUM1-1A : MIXED MEADOW
CUM1-1B : FORB MEADOW
CUT1 : DECIDUOUS THICKET
CUT/CUM : DECIDUOUS THICKET/MIXED MEADOW COMPLEX
CUW1A : WHITE ELM DECIDUOUS OPEN WOODLAND
CUW1B : MANITOBA MAPLE DECIDUOUS OPEN WOODLAND
DH : DECIDUOUS HEDGEROW
DIST : DISTURBED
DD1-3 : DRAINAGE DITCHES
FOD-DECIDUOUS FOREST
FOD5-9 : MOIST RED MAPLE DECIDUOUS FOREST
RES : RESIDENTIAL
SAM : MIXED SHALLOW AQUATIC
SS1-4 : SEASONAL STREAMS
SWD2-2 : GREEN ASH-POPLAR MINERAL DECIDUOUS SWAMP
SWD3-2 : SILVER MAPLE MINERAL DECIDUOUS SWAMP
SWT2-2:WILLOW MINERAL THICKET SWAMP

200 100 0 200
SCALE 1:10,000 METRES

NOTE

THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING APPENDIX TSD1-D

REFERENCE

BACKGROUND IMAGERY - BING MAPS AERIAL (C) 2010 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS.
LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2012.
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18

PROJECT	ENVIRONMENTAL ASSESSMENT OF THE CAPITAL REGION RESOURCE RECOVERY CENTRE		
TITLE	NORTH RUSSELL ROAD SITE ECOLOGICAL LAND CLASSIFICATION		



PROJECT NO. 12-1125-0045	SCALE AS SHOWN	REV. 0
DESIGN FN DEC. 2012	FIGURE 3.1-1	
GIS BR JAN. 2013		
CHECK HM AUG. 2014		
REVIEW PLE AUG. 2014		

3.1.2 Vegetation Communities

Vegetation communities on the NRR Site include meadows, pasture and hayfields, forest, swamp and thicket areas. A total of 155 species of plants have been observed on the NRR Site during field surveys completed to date. In some parts of the NRR Site there is weathered shale at surface; elsewhere the soil on the NRR Site generally consists of glacial till consisting of sandy silt to silty sand with gravel. All vegetation communities observed on the NRR Site and in the general area of the Site are common and widespread in the region.

The vegetation communities on the NRR Site are delineated on Figure 3.1-1 and a brief description of the communities are included in Attachment D-1 (Table 1). A list of the plant species observed on the NRR Site is included in Attachment D-2 (Table 1).

3.1.3 Wildlife

Seven insect, four herpetile, 34 bird and 10 mammal species were observed during the field surveys conducted in 2012 (Table 1, Attachment D-3). All species observed on the NRR Site are common and widespread in the region.

Common species observed included black swallowtail (*Papilio polyxenes*), meadow vole (*Microtus pennsylvanicus*), grey tree frog (*Hyla versicolor*) and American robin (*Turdus migratorius*). Based on the data collected to date, the wildlife community on the NRR Site and in the general area of the Site appears to be typical of the region, and consistent with the observed habitats.

3.1.4 Species at Risk

No sensitive or significant aquatic species were identified through the desktop assessment as occurring or having potential to occur on the NRR Site based on the data referenced during the 2012 SAR screening (Table 1, Attachment D-4). Also, none were identified during field surveys to date.

One significant plant species, butternut (*Juglans cinera*), was assessed through the desktop screening and preliminary habitat assessment as having a moderate to high likelihood of occurrence on the NRR Site and within the general area of the Site. This species is present on adjacent lands, and although no species were observed on the NRR Site in 2012, there is a possibility that it could occur, as the conditions are suitable.

A number of wildlife SAR were assessed as having potential to occur on the Site or in the general area of the Site (Table 3.1-1).

Table 3.1-1: Species at Risk with Potential to Occur on the NRR Site or in the General Area of the Site

Species	Potential to be found on the NRR Site or in the General area of the Site	Endangered Species Act	Species at Risk Act	Provincial Rank (SRank)
Western chorus frog (<i>Pseudacris triseriata</i>)	Low – Moderate	Not Listed	Threatened	S3
Barn swallow (<i>Hirundo rustica</i>)	Low – Moderate	Threatened	Not Listed	S4B
Eastern meadowlark (<i>Sturnella magna</i>)	Low – Moderate	Threatened	Not Listed	S4B
Short-eared owl (<i>Asio flammeus</i>)	Low – Moderate	Special Concern	Not Listed	S2N, S4B
Monarch (<i>Danaus plexippus</i>)	Moderate	Special Concern	Special Concern	S2N, S4B
Milksnake (<i>Lampropeltis triangulum</i>)	Moderate	Special Concern	Special Concern	S3
Little brown myotis (<i>Myotis lucifugus</i>)	Moderate – High	Endangered	Not Listed	S4
Butternut (<i>Juglans cinerea</i>)	Moderate – High	Endangered	Endangered	S3?
Bobolink (<i>Dolichonyx orizivorus</i>)	High	Threatened	Not Listed	S4B

Notes:

S = Provincial; Ranks 1-3 are considered imperiled or rare; Ranks 4 and 5 are considered secure

N = Native

B = Breeding

S3? = Rank Uncertain

Although none of the species listed in Table 3.1-1 were observed on the NRR Site during field surveys in 2012, there are records from previous Golder surveys of bobolink, and butternut being present or observed on the Site or in the general area of the Site. Although the BioBlitz also recorded these two species, as well as barn swallow in their study area (Hanrahan et al. 2011), it is not known if any of the observations were actually on the NRR Site or were observed off-Site within the general area of the Site.

3.1.5 Indicator Natural Heritage System Components

The indicator natural features or natural heritage system components on the NRR Site and general area of the Site are discussed further in the following sections.

3.1.5.1 Significant Wetlands

Based on the desktop assessment, there are no PSWs on the NRR Site or within the general area of the Site.

3.1.5.2 Significant Habitat of Endangered or Threatened Species

Nine SAR (eight provincially listed SAR and one federally threatened species) were identified, through the desktop screening and preliminary habitat assessment, with some potential to occur on the NRR Site and/or in the general area of the Site (see Section 3.1.4 for more details on these species). Four of these species have a Low-Moderate potential to occur, two have Moderate potential to occur, two species have Moderate-High potential to occur and one species has High potential to occur on the NRR Site and/or in the general area of the Site.

3.1.5.3 Significant Areas of Natural and Scientific Interest (ANSI)

Based on the desktop assessment, there are no provincially significant ANSIs on, or overlapping with, the NRR Site or within the general area of the Site.

3.1.5.4 Woodlands

There is a woodlot at the eastern extent of the NRR Site, east of Eadie Road that is contiguous with a larger woodland off-Site. This woodlot is not designated significant in the Township of Russell Official Plan (OP 2010). Based on mapping delineation, the woodland is approximately 108 hectares (ha) in size. In the United Counties of Prescott Russell, 25.7% of the landscape is vegetated in woodlands (Riley and Mohr 1994). According to the NHRM (MNR 2010), if woodlands cover 15 to 30% of the landscape in a region, woodlands 20 ha in size or larger should be considered significant. The woodland that encroaches on this portion of the NRR Site meets the criteria for significance using provincial guidelines.

3.1.6 Summary

A summary of the existing natural features on the NRR Site, related to the indicators of the Alternative Site evaluation, is provided in Table 3.1-2.

Table 3.1-2: Summary of Site Considerations on the NRR Site

Component	Summary of Site Considerations
Biology	<p><u>Class 1-3 Wetlands</u></p> <ul style="list-style-type: none"> There are no Provincially Significant Wetlands (Class 1 to 3 Wetlands) on the NRR Site, or in the general area of the Site.
	<p><u>Life Science ANSIs</u></p> <ul style="list-style-type: none"> There are no Life Science ANSIs on the NRR Site, or in the general area of the Site.
	<p><u>Wooded Areas</u></p> <ul style="list-style-type: none"> Although not officially designated, there is a woodlot on the east corner of the NRR Site that meets the NHRM criteria for a significant woodland.
	<p><u>SAR and Associated Habitats</u></p> <ul style="list-style-type: none"> There are two species (barn swallow and eastern meadowlark), designated as threatened under the ESA which have a Low-Moderate potential to occur on the NRR Site and/or general area of the Site; There are two species (little brown myotis and butternut), designated endangered under the ESA which have a Moderate-High potential to occur on the NRR Site and/or in the general area of the Site ; There is one species (bobolink), designated as threatened under the ESA which has a High potential to occur on the NRR Site and/or in the general area of the Site; and, There are four species either designated special concern under the ESA (short-eared owl, monarch, milksnake), or threatened under SARA (western chorus frog) which have some potential to occur on the NRR Site and/or in the general area of the Site.
	<p><u>Watercourses and Waterbodies</u></p> <ul style="list-style-type: none"> There are five seasonal surface water features and two drainage ditches on the NRR Site and in the general area of the Site; There are two dug agricultural ponds and a flooded quarry on the NRR Site; and, The surface water features on the NRR Site are not coldwater, so likely not as sensitive as coldwater systems.

3.2 Boundary Road Site

3.2.1 Surface Water Resources and Aquatic Habitat

Three surface water features were identified on the BR Site: DD1 flows across several agricultural fields in the northern portion of the BR Site, Simpson Drain in the central portion of the BR Site, and DD2 which flows west to east in the southern portion of the BR Site (Figure 3.2-1).

DD1 was dry during the survey conducted in September 2012 with established growth of tall grasses and sparse cattail stands within the channel depression. It is likely that this feature only conveys flow during periods of high water (i.e., following storm events or spring freshet).

Simpson Drain is a shallow, narrow channel approximately 290 metres in length that flows easterly through a corrugated steel pipe culvert under Frontier Road. At the time of the survey (September 2012), water depth ranged from 0.02 to 0.08 metres and the wetted width was 0.73 to 0.78 metres. There is some contribution to the Simpson Drain from several small defined and undefined drainage areas from the north. A beaver dam (approximately 4 by 0.7 metres) at the upstream reach of Simpson Drain impounds water, resulting in a flooded area approximately 170 metres long with a generally uniform width (average wetted width of 5 metres) and depth (approximately 0.8 metres). Access could not be gained further upstream of Simpson Drain due to property ownership.

Ten fish representing four species (creek chub – *Semotilus atromaculatus*, brook stickleback – *Culaea inconstans*, central mudminnow – *Umbra limi* and pumpkinseed – *Lepomis gibbosus*) were captured in the Simpson Drain during the fish community survey (Attachment D-4, Table 2).

Fisheries and Oceans Canada (DFO) has classified municipal drains with regard to flow characteristics, which relates to the potential quality of fish habitat. Based on mapping that was updated in 2010, the Simpson Drain is classified as 'F', meaning it has intermittent flow and therefore likely to provide relatively low quality fish habitat.

Most of DD2 was dry during the fish community survey conducted in September 2012, with the exception of the central reach. The water in the central reach of DD2 (length of approximately 100 metres) was stagnant. The water depth in this reach ranged from approximately 0.15 to 0.3 m, and the wetted width ranged from 0.75 to 1.0 metres. No fish were captured in DD2 during the fish community survey.

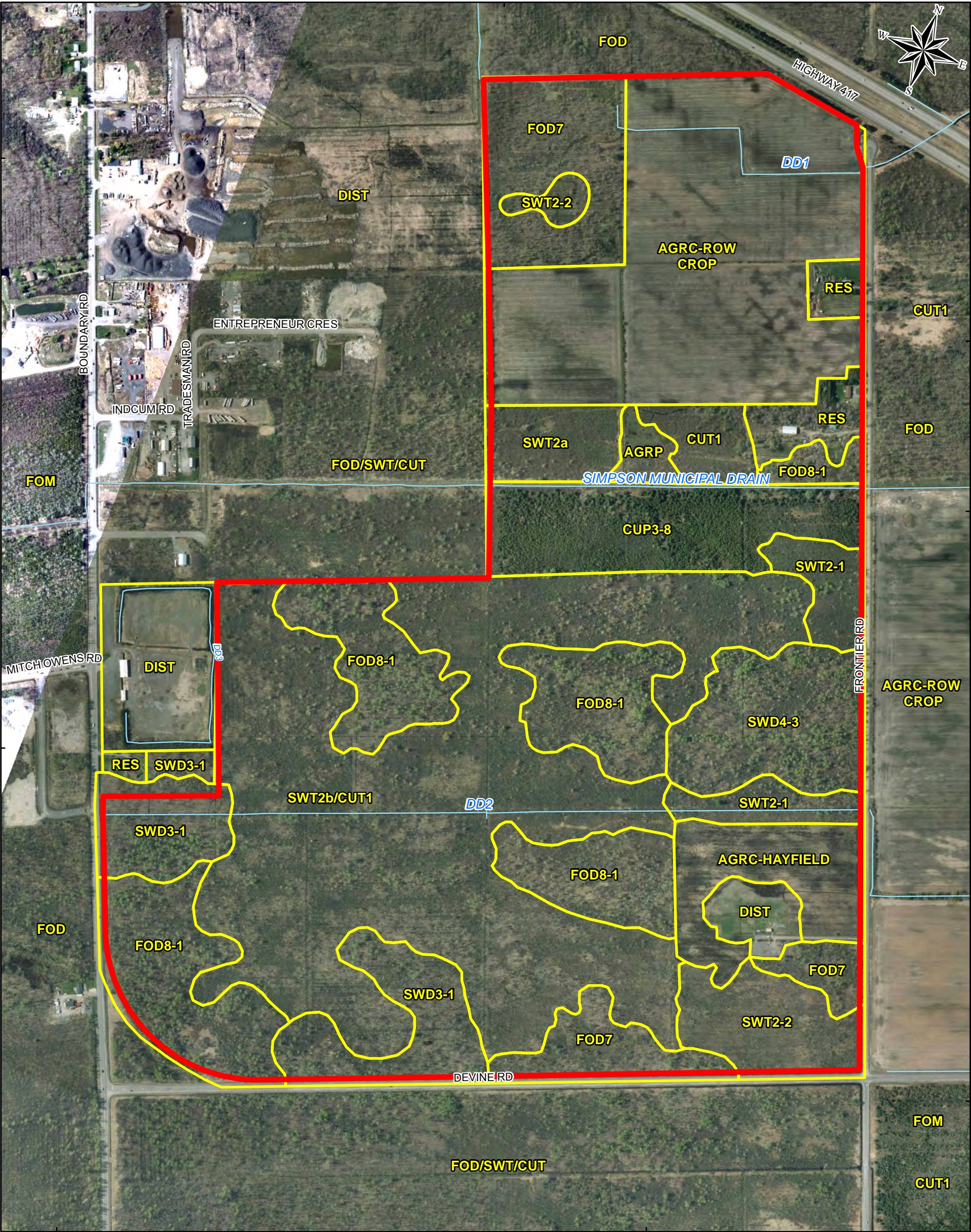
The surface water features on the BR Site are not coldwater, so likely not as sensitive as coldwater systems.

3.2.2 Vegetation Communities

Vegetation communities on the BR Site (Figure 3.2-1) include immature deciduous forest and swamp, deciduous thickets and thicket swamp, plantation, agricultural fields and small residential properties. A total of 115 species of plants have been observed on the BR Site during field surveys to date. The soil underlying the BR Site consists of a silty sand layer over deep clays. Flooding occurs throughout the BR Site during periods of high water (i.e., storm events and spring freshet), and the soil remains saturated in several areas for much of the year. A large proportion of the BR Site consists of mineral thicket swamp.

A brief description of the plant communities on the BR Site is included on Figure 3.2-1 and in Attachment D-1 (Table 2). A list of the plant species observed on the BR Site is included in Attachment D-2 (Table 2).

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LEGEND

- SURFACE WATER FEATURE
- PROPERTY BOUNDARY
- ECOLOGICAL LAND CLASSIFICATION

ECOLOGICAL LAND CLASSIFICATION:

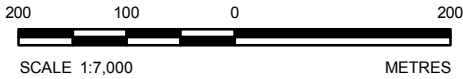
- AGRC : ROW CROP
- AGRC : HAYFIELD
- AGRP : HORSE PASTURE
- CUP3-8 : WHITE SPRUCE PLANTATION
- CUT1 : DECIDUOUS THICKET
- DD-1-2 : DRAINAGE DITCHES
- DIST : DISTURBED LANDS FOR VARIOUS USES
- FOD : DECIDUOUS FOREST
- FOD7 : MOIST EUROPEAN WHITE BIRCH - POPLAR DECIDUOUS FOREST
- FOD8-1 : FREST-MOIST POPLAR - RED MAPLE - EUROPEAN WHITE BIRCH DECIDUOUS FOREST
- FOM : MIXED FOREST
- RES : RESIDENTIAL
- SWD3-1 : RED MAPLE MINERAL DECIDUOUS SWAMP
- SWD4-3 : POPLAR-EUROPEAN WHITE BIRCH MINERAL DECIDUOUS SWAMP
- SWT2A : ALDER-WILLOW-GLOSSY BUCKTHORN MINERAL THICKET SWAMP
- SWT2B/CUT1 : GLOSSY BUCKTHORN MINERAL THICKET SWAMP/DECIDUOUS THICKET COMPLEX
- SWT2-1 : SPECKLED ALDER-GLOSSY BUCKTHORN MINERAL THICKET SWAMP
- SWT2-2 : WILLOW MINERAL THICKET SWAMP
- SWT - MINERAL THICKET SWAMP


NOTE

THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING APPENDIX TSD1-D

REFERENCE

BACKGROUND IMAGERY - BING MAPS AERIAL (C) 2010 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS.
AERIAL PHOTOGRAPHS PURCHASED FROM THE CITY OF OTTAWA.
LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2012.
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18



PROJECT		ENVIRONMENTAL ASSESSMENT OF THE CAPITAL REGION RESOURCE RECOVERY CENTRE			
TITLE		BOUNDARY ROAD SITE ECOLOGICAL LAND CLASSIFICATION			
 Golder Associates Ottawa, Ontario		PROJECT No. 12-1125-0045		SCALE AS SHOWN	REV. 0.0
		DESIGN	FN	DEC. 2012	FIGURE 3.2-1
		GIS	BR	JAN. 2013	
		CHECK	PLE	AUG. 2014	
		REVIEW	PAS	AUG. 2014	

3.2.3 Wildlife

Nine insect, two herpetile, 32 bird, and 10 mammal species have been observed during all field surveys to date (Table 2, Attachment D-3).

Common species observed included common whitetail (*Plathemis lydia*), grey tree frog (*Hyla versicolor*), white-tailed deer (*Odocoileus virginianus*) and rose-breasted grosbeak (*Pheucticus ludovicianus*). Based on the data collected to date, the wildlife community on the BR Site appears to be typical of the region, and consistent with the observed habitats.

3.2.4 Species at Risk

No sensitive or significant aquatic or plant species were identified through the desktop assessment to exist or have potential to exist on the BR Site at the time of the assessment (Table 2, Attachment D-4). Also, none were identified during field surveys to date.

A number of wildlife SAR were assessed as having potential to occur on the BR Site or in the general area of the Site (Table 3.2-1).

Table 3.2-1: Species at Risk with Potential to Occur on the BR Site or in the General Area of the Site

Species	Potential to be Found on the BR Site or in the General Area of the Site	Endangered Species Act	Species at Risk Act	Provincial Rank (SRank)
Monarch	Low – Moderate	Special Concern	Special Concern	S2N, S4B
Eastern meadowlark	Low – Moderate	Threatened	Not Listed	S4B
Western chorus frog	Moderate	Not Listed	Threatened	S3
Barn swallow	Moderate	Threatened	Not Listed	S4B
Little brown myotis	Moderate	Endangered	Not Listed	S4
Milksnake	Moderate	Special Concern	Special Concern	S3

Notes:

S = Provincial; Ranks 1-3 are considered imperiled or rare; Ranks 4 and 5 are considered secure.

N = Native

B = Breeding

3.2.5 Indicator Natural Heritage System Components

The indicator natural features or natural heritage system components on the BR Site and in the general area of the Site are discussed further in the following sections.

3.2.5.1 Significant Wetlands

Based on the desktop assessment, there are no PSWs on the BR Site, or in the general area of the Site.

3.2.5.2 Significant Habitat of Endangered or Threatened Species

Six SAR (five provincially listed SAR and one federally threatened species) were identified, through the desktop screening and preliminary habitat assessment, with some potential to occur on the BR Site and/or in the general area of the Site (see Section 3.2.4 for more details on these species). Two of these species have a Low-Moderate potential to occur on the BR Site and/or in the general area of the Site, and four have Moderate potential to occur on the BR Site and/or in the general area of the Site.

3.2.5.3 Significant Areas of Natural and Scientific Interest (ANSI)

Based on the desktop assessment, there are no provincially significant ANSIs on, or overlapping with, the BR Site.

3.2.5.4 Woodlands

A large proportion of the BR Site is deciduous and swamp forest. Annex 14 of the City of Ottawa's Official Plan Amendment (OPA) 76 shows areas of the BR Site as potentially significant woodlands. However an Ontario Municipal Board Decision from mid-2011 deleted Annex 14 from OPA 76. The City has advised that as a part of an initial re-assessment of the Forest Resource Inventory (FRI), the BR Site lands will not be included as significant woodland in the revised mapping.

Although there are no significant woodlands on the BR Site, the woodland to the south of Devine Road (within the general area of the Site) has been identified as potentially significant based on the criteria in the City of Ottawa Official Plan (OP) (2003). This woodland also meets the NHRM criteria of a significant woodland (MNR 2010). This woodland has been identified as a Life Science area by the MNR (NHIC 2013). A Life Science area has no protection, nor are there any development restrictions or setbacks associated with a Life Science area. The BR Site and the general area of the Site is designated a general rural area on Schedule A of the City of Ottawa OP, and the woodland to the south of the BR Site is also included in the natural heritage system feature overlay (Schedule L1) (Ottawa 2003).

3.2.6 Summary

A summary of the existing natural features on the BR Site is provided in Table 3.2-2.

Table 3.2-2: Summary of Site Considerations on the BR Site

Component	Summary of Site Considerations
Biology	<p><u>Class 1-3 Wetlands</u></p> <ul style="list-style-type: none"> There are no PSWs (Class 1 to 3 Wetlands) on the BR Site, or in the general area of the Site. <p><u>Life Science ANSIs</u></p> <ul style="list-style-type: none"> There are no Life Science ANSIs on the BR Site, or in the general area of the Site. <p><u>Wooded Areas</u></p> <ul style="list-style-type: none"> There is a potentially significant woodland off-Site, to the south of the BR Site, south of Devine Road; and, The BR Site contains deciduous and swamp wooded areas. <p><u>SAR and Associated Habitats</u></p> <ul style="list-style-type: none"> There is one species (eastern meadowlark) designated threatened under the ESA which has a Low-Moderate potential to occur on the BR Site and/or in the general area of the Site; There are two species (barn swallow – designated threatened under the ESA; and little brown myotis – designated endangered under the ESA) which have Moderate potential to occur on the BR Site and/or in the general area of the Site; There are three other species either designated special concern under the ESA and SARA (milksnake and monarch) or threatened under SARA (western chorus frog) with some potential to occur on the BR Site and/or in the general area of the Site; and, At the time of assessment, there were no SAR with a High potential to occur on the BR Site and/or in the general area of the Site. <p><u>Watercourses and Waterbodies</u></p> <ul style="list-style-type: none"> There are three surface features on the BR Site – a Municipal Drain and two drainage ditches; A large proportion of the BR Site is mineral thicket swamp; and, The surface water features on the BR Site are not coldwater, so likely not as sensitive as coldwater systems.

4.0 SITE COMPARISON – BIOLOGY

4.1 Comparison of Sites

As described in Section 2.3, a qualitative assessment of existing natural features, based on the indicators listed in Section 1.0, was undertaken.

Using the potential of impact of the CRRRC to the indicators, the two Sites were compared, with the rationale provided in Table 4.1-1.

Table 4.1-1: Comparison of Sites Based on Indicators

Indicator	Rationale	Rationale
PSWs (Class 1 to 3 Wetlands)	There are no PSWs on the NRR Site	There are no PSWs on the BR Site
Life Science ANSIs	There are no Life Science ANSIs on the NRR Site	There are no Life Science ANSIs on the BR Site
Wooded Areas (Significant Woodlands)	There is a woodlot on the east part of the NRR Site to the east of Eadie Road (SWD3-2 on Figure 3.1-1) that is contiguous with an off-Site woodland that meets NHRM criteria for significant woodlands. If required, Site planning would allow for the protection of this treed feature and the provision of a buffer.	The Site contains young deciduous and treed swamp components that are not significant. There is an off-Site woodlot to the south of the BR Site, across Devine Road (in the general area of the Site – FOD/SWT/CUT on Figure 3.2-1) which is shown as significant woodland in the City of Ottawa OP and is currently under review. It also meets the NHRM criteria for significant woodlands. The existing separation of Devine Road represents a physical separation between the BR Site and the woodlot that prevents on-Site activities from interfering with the woodlot and other off-Site vegetation.
SAR and Associated Habitat	There are two SAR species, designated threatened under the ESA which have a Low-Moderate potential to occur on the NRR Site and/or in the general area of the Site. There are three species, designated threatened or endangered under the ESA, which have a Moderate-High or a High potential to occur on the NRR Site and/or in the general area of the Site.	There are three SAR species, designated either threatened or endangered under the ESA, which have a Low-Moderate or a Moderate potential to occur on the BR Site and/or in the general area of the Site. There are no SAR species designated under the ESA or SARA which have a High potential to occur on the BR Site and/or in the general area of the Site.

Indicator	Rationale	Rationale
Waterbodies/ Watercourses	There are five seasonal surface water features and two constructed drainage features on the NRR Site which may provide some direct or indirect aquatic habitat. There is also a flooded quarry on the NRR Site. None of these surface water features are coldwater. It is possible that as part of the CRRRC, surface water features on the NRR will be removed, resulting in alteration of the surface water drainage patterns on the Site. The level of impact that the CRRRC will have on these systems depends on a number of factors, including how the features will be re-aligned. It is understood that the objective of stormwater management design is to maintain off-Site post-development flows similar to pre-development flows.	There are three drainage features which may provide some direct or indirect aquatic habitat on the BR Site. None of these surface water features are coldwater. In addition, a large proportion of the BR Site is mineral thicket swamp. It is possible that as part of the CRRRC, surface water features on the BR will be removed resulting in alteration of the surface water drainage patterns on the Site. The level of impact that the CRRRC will have on these systems depends on a number of factors including how the features will be re-aligned. It is understood that the objective of stormwater management design is to maintain off-Site post-development flows similar to pre-development flows.

As part of this evaluation, it was considered that the CRRRC would have more of an impact on the SAR on the Site than on wooded areas, particularly if the wooded areas were not designated as significant. In the assessment, the presence, or potential of occurrence of SAR on the Site was given a heavier weighting than wooded areas.

4.2 Results of Site Comparison

Based on biology data collected for the two Sites, the amount, quality and potential for impact with regard to PSWs, Life Science ANSIs, wooded areas and waterbodies was comparable for the two sites. There are more SAR and associated habitat at the NRR Site. Therefore, the BR Site is the preferred option for the proposed CRRRC.

More detailed field and background data will be collected for the Site that is chosen as preferred overall for the Environmental Assessment.

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ATTACHMENT D-1

Ecological Land Classification

Table 1: Preliminary Ecological Land Classification on the North Russell Road Site

Vegetation Unit	Description
AGRC: Agricultural Fields	Agricultural Fields – Various uses
AGRC: Row Crop	Row crops (planted corn in 2012) near the southern edge of the NRR Site.
AGRC: Hayfield	Hayfields in the north western corner of the Site, and east across Eadie road. The hayfields appeared to be dominated by graminoid species such as Timothy (<i>Phleum pratense</i>) and smooth brome (<i>Bromus inermis</i>), but also included forbs such as white sweet clover (<i>Melilotus alba</i>).
AGRP: Pasture	This actively grazed cattle pasture was near the northwest corner of the NRR Site. Grazing appeared to be heavy, with vegetation cut low. Dominant plant species included grasses such as smooth brome, as well as various herbaceous plants including common dandelion (<i>Taraxacum officinale</i>).
CUM1-1A: Mixed Meadow	Old field habitat included large meadow areas throughout the NRR Site. Plant dominance varied between graminoids and forbs, with common plants such as Timothy, quack grass (<i>Elymus repens</i>) and wild carrot (<i>Daucus carota</i>).
CUM1-1B: Forb Meadow	Two small areas in the northern and southern portions of the NRR Site. The plant community was similar to that of the CUM1-1A, but with a higher proportion of forbs such as Canada goldenrod (<i>Solidago canadensis</i>) and New England Aster (<i>Symphyotrichum novae-angliae</i>).
CUT1: Deciduous Thicket	Three late successional field habitats near the north east corner and the east end of the NRR Site across Eadie Road. Common plants included immature trees such as trembling aspen, shrubs such as willows (<i>Salix</i> spp.) and red raspberry (<i>Rubus idaeus</i>), and groundcover such as parsnip (<i>Pastinaca sativa</i>) and Canada goldenrod.
CUT/CUM: Deciduous Thicket/Mixed Meadow Complex	Late successional field area near the eastern edge of the NRR Site, east of Eadie Road. A mosaic of mixed meadow, tall and short deciduous thickets and scattered larger trees. Plant species included trees and shrubs such as white elm (<i>Ulmus americana</i>), and glossy buckthorn (<i>Rhamnus frangula</i>), and red raspberry; as well as grasses and forbs such as reed canary grass (<i>Phalaris arundinacea</i>) and calico aster (<i>Symphyotrichum lateriflorum</i>).

Vegetation Unit	Description
CUW1A: White Elm Deciduous Open Woodland	Open woodland at the southern edge of the NRR Site. It appeared to be late successional fields that have a disturbance history that included grazing at some point. The canopy was open, with patches of trees interspersed with open areas and thickets. The plant community was fairly diverse and included trees and shrubs such as white elm, European white birch (<i>Betula papyrifera</i>), and Canada plum (<i>Prunus nigra</i>); as well as grasses and forbs such as Kentucky bluegrass (<i>Poa pratensis</i>) and common strawberry (<i>Fragaria virginiana</i>).
CUW1B: Manitoba Maple Deciduous Open Woodland	Open woodland in the middle of a meadow area south west of the flooded quarry. The canopy was open and dominated by Manitoba maple (<i>Acer negundo</i>). Other common plants included horseweed (<i>Conyza canadensis</i>), Canada thistle (<i>Cirsium arvense</i>) and smooth brome.
DH: Deciduous Hedgerows	Hedgerows throughout the NRR Site. Species dominance and plant structure varied, but common species included Manitoba maple, white ash (<i>Fraxinus americana</i>) and riverbank grape (<i>Vitis riparia</i>).
FOD5-9: Moist Red Maple Deciduous Forest	Small immature woodlot near the north east corner of the NRR Site. The soil appeared to be fairly moist, and may receive some flooding in early spring. Disturbance was moderate to heavy within this woodlot, due to current cattle activity and grazing. The canopy was partially open with a moderate understory and ground cover. Red maple (<i>Acer rubrum</i>) appeared dominant in the canopy with associates such as green ash (<i>Fraxinus pennsylvanica</i>). Understory and ground cover included species such as common buckthorn (<i>Rhamnus frangula</i>), white clover (<i>Trifolium repens</i>) and Canada mayflower (<i>Maianthemum canadense</i>).
SAM: Mixed Shallow Aquatic	Two small dug farm ponds, near the north west and south west corners of the site. Both appeared to have been used for livestock watering, and it was evident that the northern pond was used heavily by cattle at the time of the assessment. Water depth was primarily shallow (under 1 m), and likely dries up, at least in part, during some summers. Plant species include common cattail (<i>Typha latifolia</i>), duckweed (<i>Lemna minor</i>), and slender naiad (<i>Najas flexilis</i>). These ponds appeared fairly stagnant, and are not likely fish habitat.

Vegetation Unit	Description
SWD2-2: Green Ash - Poplar Mineral Deciduous Swamp	Two degraded forested swamps near the northeast corner and near the southeast corner of the NRR Site. These swamps had been heavily disturbed by cattle grazing and usage at the time of the assessment. The canopy ranged from closed to partially open, and the understory and ground cover was moderate to sparse. Tree species were variable, but green ash appeared dominant throughout, with balsam poplar and red maple as associates. Understory and ground cover included species such as dwarf raspberry (<i>Rubus pubescens</i>), northern water-horehound (<i>Lycopus uniflorus</i>) and sedges (<i>Carex</i> spp.)
SWD3-2: Silver Maple Mineral Deciduous Swamp	One woodlot near the southern edge and two near the eastern edge of the NRR Site, east across Eadie road. All three of these swamps appeared semi-mature, with the northeastern most being the most mature. No permanent open water was observed, however signs of flooding and vernal pools during high water were observed throughout. There was a small amount of disturbance in the form of past tree cutting, trail blazing and garbage dumping. The canopy ranged from closed to partially open, and the understory and ground cover was sparse overall. Silver maple was dominant in the canopy, with associates such as green ash and white elm. Understory and ground cover included species such as swamp red currant (<i>Ribes triste</i>), sensitive fern (<i>Onoclea sensibilis</i>), American water-horehound (<i>Lycopus americanus</i>) and bladder sedge (<i>Carex intumescens</i>).
SWT2-2: Willow Mineral Thicket Swamp	Thicket swamp adjacent to the silver maple swamp at the southern edge of the NRR Site, and is contiguous south of the NRR Site. Although no large areas of open water were observed, some small channels and areas of flooding appeared to occur. Willow species (e.g. Slender willow; <i>Salix petiolaris</i>) were dominant, with several other plant species such as glossy buckthorn, wool grass (<i>Scirpus cyperinus</i>) and water parsnip (<i>Sium suave</i>).

Table 2: Preliminary Ecological Land Classification on the Boundary Road Site

Vegetation Unit	Description
AGRC: Hayfields	A small hayfield adjacent to a model airplane club near the eastern boundary of the BR Site. Hay fields were dormant or already cut at the time of surveys, but included graminoid species such as Timothy (<i>Phleum pratense</i>) and smooth brome (<i>Bromus inermis</i>), as well as herbaceous species such as red clover (<i>Trifolium pratense</i>).
AGRC: Agricultural Row Crop	Row crops (planted soya in 2012) in the northern portion of the BR Site.
AGRP: Horse Pasture	Small moist meadow area currently used by a small herd of horses in the north central portion of the BR Site. Grazing appeared moderate to heavy and dominant plant species included grasses such as smooth brome, as well as sedges (<i>Carex</i> spp., <i>Scirpus</i> spp.) and rush (<i>Juncus</i> sp.).
CUP 3-8: White Spruce Plantation	A band of naturalized plantation that runs east-west through the north central portion of the BR Site. The canopy was partially opened, with a moderate to dense understory and ground cover. White spruce was dominant in the canopy, with the occasional other tree species such as trembling aspen (<i>Populus tremuloides</i>). The understory and ground cover was comprised of sapling trees, shrubs such as willows (<i>Salix</i> spp.), and forbs such as common strawberry (<i>Fragaria virginiana</i>). It appeared that some of this area experiences flooding during periods of high water (i.e., during storm events or spring freshet).
CUT1: Deciduous Thicket	Small thicket area between the horse pasture and residential areas. Moderately disturbed due to residential use, and included an open trail area. Common plants included immature trees such as trembling aspen and black walnut (<i>Juglans nigra</i>), shrubs such as willows and red raspberry (<i>Rubus idaeus</i>), and groundcover such as smooth brome and Canada goldenrod (<i>Solidago canadensis</i>).
FOD	Deciduous Forest

Vegetation Unit	Description
FOD 7: Moist European White Birch - Poplar Deciduous Forest	Two patches of immature lowland forest community: near the southeast corner, and a small woodlot at the northern edge of the BR Site. The canopy was partially open, with a moderate understory and ground cover. European white birch (<i>Betula pendula</i>), trembling aspen, and red maple (<i>Acer rubrum</i>) were common tree species, and varied in dominance throughout. Understory and ground cover vegetation included saplings and seedlings of the various tree species, as well as shrubs and forbs such as glossy buckthorn (<i>Rhamnus frangula</i>) and flat-topped aster (<i>Doellingeria umbellata</i>). Low lying wet spots included water tolerant vegetation such as red osier dogwood (<i>Cornus stolonifera</i>) and sedges (<i>Carex</i> and <i>Scirpus</i> spp).
FOD 8-1: Fresh-Moist Poplar - Red Maple - European White Birch Deciduous Forest	Two areas of immature moist forest community in the central portion, and in the southeast corner of the BR Site. It had a similar plant community and structure to that of FOD 7, except red maple and poplar species appeared more dominant in the canopy.
FOM	Mixed Forest
SWD 3-1: Red Maple Mineral Deciduous Swamp	Two areas of immature swamp community near the southwest corner of the BR Site. It had a similar plant community to FOD 7 and FOD 8-1, although it appeared to receive more flooding, had soil that is saturated longer, and a higher proportion of water tolerant plants. The canopy was partially closed to closed with a moderate understory and groundcover. Red maple was dominant in the canopy with associates such as balsam poplar (<i>Populus balsamifera</i>) and green ash (<i>Fraxinus pennsylvanica</i>). Understory and ground cover included species such as speckled alder (<i>Alnus incana</i>), royal fern (<i>Osmunda regalis</i>), Canada mayflower (<i>Maianthemum canadense</i>), and bladder sedge (<i>Carex intumescens</i>). No permanent areas of open water were observed in 2012; however there were old dry ditches with terrestrial vegetation and low pool areas throughout that appeared to hold water during periods of flooding.
SWD 4-3: Poplar - European White Birch Mineral Deciduous Swamp	Immature swamp community at the east-central edge of the BR Site. The canopy was partially open, with a moderate to dense understory and groundcover. Balsam poplar and European white birch appeared dominant in the canopy with associates such as red maple and trembling aspen. Understory and ground cover included species such as glossy buckthorn, shining willow (<i>Salix lucida</i>), northern water-horehound (<i>Lycopus uniflorus</i>), and woolgrass (<i>Scirpus cyperinus</i>).
SWT	Mineral Thicket Swamp

Vegetation Unit	Description
SWT2B/CUT1: Mineral Thicket Swamp/Deciduous Thicket Complex	<p>This large area is the core of the southern half of the BR Site. Due to the microtopography of this area, it was a mosaic of thicket swamp, and drier deciduous thicket areas. Within these areas were scattered trees, and small patches of marsh-like communities. Species dominance varied throughout, but overall it included patches of shrubs such as speckled alder, glossy buckthorn, common buckthorn (<i>Rhamnus cathartica</i>), slender willow (<i>Salix petiolaris</i>), and meadowsweet (<i>Spiraea alba</i>). Understory and ground cover as diverse, and included species such as sensitive fern (<i>Onoclea sensibilis</i>), spinulose wood fern (<i>Dryopteris carthusiana</i>), dwarf raspberry (<i>Rubus pubescens</i>), Canada goldenrod, Calico aster (<i>Symphotrichum lateriflorum</i>), reed canary grass (<i>Phalaris arundinacea</i>), soft-stemmed bulrush (<i>Schoenoplectus tabernaemontani</i>), and cyperus-like sedge (<i>Carex pseudocyperus</i>). No permanent areas of open water were observed in 2012; however there were old dry ditches with terrestrial vegetation and low pool areas throughout that appeared to hold water during periods of flooding, particularly in areas with beaver (<i>Castor canadensis</i>) activity.</p>
SWT2a: Glossy Buckthorn Mineral Thicket Swamp	<p>Small thicket swamp at the western edge of the north-central portion of the BR Site. It appeared to be dominated by glossy buckthorn and willows (<i>Salix</i> spp.). Ground cover included water tolerant species such as swamp dewberry (<i>Rubus hispidus</i>), soft-stemmed bulrush, and fringed sedge (<i>Carex crinita</i>).</p>
SWT 2-1: Speckled Alder-Glossy Buckthorn Mineral Thicket Swamp	<p>Thicket swamp at the eastern edge of the central portion of the BR Site. It appeared to be dominated by fairly mature speckled alder, with a dense understory of glossy buckthorn seedlings and saplings in many areas. Other common plants included American water-horehound (<i>Lycopus americanus</i>), blue flag (<i>Iris versicolor</i>), sensitive fern, and fowl bluegrass (<i>Poa palustris</i>).</p>
SWT 2-2: Willow Mineral Thicket Swamp	<p>Thicket swamp in the small woodlot at the far northern portion of the BR Site. It appeared to be dominated by willow species (<i>Salix</i> spp.), with other shrubs such as glossy buckthorn common. Ground cover included species such as northern water-horehound, black bulrush (<i>Scirpus atrovirens</i>), sedges (<i>Carex</i> spp.) and rush (<i>Juncus</i> sp.).</p>

ATTACHMENT D-2

Plants Observed on the NRR and BR Sites

Table 1: Plant Species Observed on the North Russell Road Site and in the Site-vicinity

Scientific Name	Common Name	Origin ^a	Global Rarity Status ^b	Ontario Rarity Status ^b	SARA ^c	ESA ^d	Locations ^e
<i>Acer negundo</i>	Manitoba maple	(N)	G5	S5	--	--	1,2,3
<i>Acer rubrum</i>	Red maple	N	G5	S5	--	--	2,3
<i>Acer saccharinum</i>	Silver maple	N	G5	S5	--	--	3
<i>Acer saccharum</i>	Sugar maple	N	G5	S5	--	--	1,2
<i>Achillea millefolium</i>	Common yarrow	I	G5T5?	SNA	--	--	1
<i>Agrimonia gryposepala</i>	Common agrimony	N	G5	S5	--	--	1,2
<i>Alisma triviale</i>	Small-flowered water plantain	N	G5	S5	--	--	3
<i>Amaranthus retroflexus</i>	Redroot pigweed	I	GNR	SNA	--	--	1
<i>Ambrosia artemisiifolia</i>	Ragweed	N	G5	S5	--	--	1,2
<i>Arctium minus</i>	Common burdock	I	GNR	SNA	--	--	1,3
<i>Asclepias incarnata</i>	Swamp milkweed	N	G5	S5	--	--	3
<i>Asclepias syriaca</i>	Common milkweed	N	G5	S5	--	--	1
<i>Athyrium filix-femina</i>	Lady fern	N	G5T5	S5	--	--	2,3
<i>Barbarea vulgaris</i>	Winter cress	I	GNR	SNA	--	--	1,3
<i>Betula papyrifera</i>	White birch	N	G5	S5	--	--	2
<i>Betula pendula</i>	European white birch	I	GNR	SNA	--	--	1,2
<i>Bidens cernua</i>	Beggar-ticks	N	G5	S5	--	--	1,3
<i>Bidens frondosa</i>	Beggar-ticks	N	G5	S5	--	--	3
<i>Brassica napus</i>	Turnip	I	GNR	SNA	--	--	1
<i>Bromus inermis</i>	Smooth brome	I	GNR	SNA	--	--	1,2
<i>Calamagrostis canadensis</i>	Canada blue-joint	N	G5	S5	--	--	3
<i>Carex arcata</i>	Compressed sedge	N	G5?	S5	--	--	2,3
<i>Carex communis</i>	Common sedge	N	G5	S5	--	--	2,3
<i>Carex crinita</i>	Fringed sedge	N	G5	S5	--	--	3
<i>Carex intumescens</i>	Bladder sedge	N	G5	S5	--	--	3
<i>Carex</i> spp.	Sedge species	N	?	?	--	--	2,3
<i>Carex vulpinoidea</i>	Fox sedge	N	G5	S5	--	--	1,3
<i>Cerastium fontanum</i>	Mouse-ear chickweed	I	GNR	SNA	--	--	1
<i>Chara</i> sp.	Stonewort	N	?	?	--	--	3
<i>Chelidonium majus</i>	Celandine	I	GNR	SNA	--	--	3
<i>Cichorium intybus</i>	Chicory	I	GNR	SNA	--	--	1
<i>Cicuta bulbifera</i>	Bulb-bearing water-hemlock	N	G5	S5	--	--	3
<i>Cirsium arvense</i>	Canada thistle	I	GNR	SNA	--	--	1,2
<i>Cirsium vulgare</i>	Bull thistle	I	GNR	SNA	--	--	1

Table 1: Plant Species Observed on the North Russell Road Site and in the Site-vicinity

Scientific Name	Common Name	Origin ^a	Global Rarity Status ^b	Ontario Rarity Status ^b	SARA ^c	ESA ^d	Locations ^e
<i>Conyza canadensis</i>	Horseweed	N	G5	S5	--	--	1
<i>Cornus rugosa</i>	Round-leaved dogwood	N	G5	S5	--	--	1,2
<i>Cornus stolonifera</i>	Red osier dogwood	N	G5	S5	--	--	1,3
<i>Dactylis glomerata</i>	Orchard grass	I	GNR	SNA	--	--	1,2
<i>Daucus carota</i>	Wild carrot	I	GNR	SNA	--	--	1
<i>Doellingeria umbellata</i>	Flat-topped aster	N	G5T5	S5	--	--	1,2,3
<i>Dryopteris carthusiana</i>	Spinulose woodfern	N	G5	S5	--	--	2,3
<i>Echinochloa crusgalli</i>	Barnyard grass	I	GNR	SNA	--	--	1,3
<i>Elodea canadensis</i>	Common waterweed	N	G5	S5	--	--	3
<i>Elymus repens</i>	Quack grass	I	GNR	SNA	--	--	1
<i>Epipactis helleborine</i>	Helleborine	I	GNR	SNA	--	--	2,3
<i>Erigeron philadelphicus</i>	Philadelphia fleabane	N	G5	S5	--	--	1
<i>Erysimum cheiranthoides</i>	Wormseed mustard	I	G5	SNA	--	--	1
<i>Euthamia graminifolia</i>	Grass-leaved goldenrod	N	G5	S5	--	--	1
<i>Fragaria virginiana</i>	Common strawberry	N	G5	S5	--	--	1,2,3
<i>Fraxinus americana</i>	White ash	N	G5	S5	--	--	1,2
<i>Fraxinus pennsylvanica</i>	Green ash	N	G5	S5	--	--	2,3
<i>Galium asprellum</i>	Rough bedstraw	N	G5	S5	--	--	2
<i>Galium mollugo</i>	White bedstraw	I	GNR	SNA	--	--	1,2
<i>Geum aleppicum</i>	Yellow avens	N	G5	S5	--	--	1,2,3
<i>Glyceria grandis</i>	Tall manna grass	N	G5	S4S5	--	--	1,3
<i>Hemerocallis fulva</i>	Orange daylily	I	GNA	SNA	--	--	1,3
<i>Hydrocharis morsus-ranae</i>	Frogbit	I	GNR	SNA	--	--	3
<i>Hypericum perforatum</i>	Common St. John's-wort	I	GNR	SNA	--	--	1
<i>Impatiens capensis</i>	Spotted jewelweed	N	G5	S5	--	--	3
<i>Juglans nigra</i>	Black walnut	(N)	G5	S4	--	--	2
<i>Juncus effusus</i>	Soft rush	N	G5	S5	--	--	1,3
<i>Juncus</i> sp.	Rush species	N	?	?	--	--	1,3
<i>Lactuca biennis</i>	Tall blue lettuce	N	G5	S5	--	--	1,2
<i>Leersia oryzoides</i>	Rice cut-grass	N	G5	S5	--	--	3
<i>Lemna minor</i>	Duckweed	N	G5	S5	--	--	3
<i>Leonurus cardiaca</i>	Common motherwort	I	GNR	SNA	--	--	1,2
<i>Leucanthemum vulgare</i>	Ox-eye daisy	I	GNR	SNA	--	--	1
<i>Linaria vulgaris</i>	Butter-and-eggs	I	GNR	SNA	--	--	1

Table 1: Plant Species Observed on the North Russell Road Site and in the Site-vicinity

Scientific Name	Common Name	Origin ^a	Global Rarity Status ^b	Ontario Rarity Status ^b	SARA ^c	ESA ^d	Locations ^e
<i>Lonicera tatarica</i>	Tartarian honeysuckle	I	GNR	SNA	--	--	1,2
<i>Lotus corniculatus</i>	Bird's-foot trefoil	I	GNR	SNA	--	--	1
<i>Lycopus americanus</i>	American water-horehound	N	G5	S5	--	--	3
<i>Lycopus uniflorus</i>	Northern water-horehound	N	G5	S5	--	--	1,3
<i>Lythrum salicaria</i>	Purple loosestrife	I	G5	SNA	--	--	1,3
<i>Maianthemum canadense</i>	Canada mayflower	N	G5	S5	--	--	2,3
<i>Maianthemum racemosum</i>	False Solomon's-seal	N	G5	S5	--	--	3
<i>Malus pumila</i>	Apple	I	G5	SNA	--	--	1,2
<i>Medicago lupulina</i>	Black medick	I	GNR	S5	--	--	1
<i>Medicago sativa</i>	Alfalfa	I	GNR	S5	--	--	1
<i>Melilotus alba</i>	White sweet clover	I	G5	SNA	--	--	1,2
<i>Melilotus officinalis</i>	Yellow sweet-clover	I	GNR	SNA	--	--	1
<i>Najas flexilis</i>	Slender naiad	N	G5	S5	--	--	3
<i>Nepeta cataria</i>	Catnip	I	GNR	SNA	--	--	1
<i>Onoclea sensibilis</i>	Sensitive fern	N	G5	S5	--	--	3
<i>Osmunda cinnamomea</i>	Cinnamon fern	N	G5	S5	--	--	3
<i>Oxalis stricta</i>	Yellow wood-sorrel	N	G5	S5	--	--	1,2
<i>Panicum capillare</i>	Witch grass	N	G5	S5	--	--	1
<i>Parthenocissus inserta</i>	Virginia creeper	N	G5	S5	--	--	1,2,3
<i>Pastinaca sativa</i>	Parsnip	I	GNR	SNA	--	--	1
<i>Phalaris arundinacea</i>	Reed canary grass	N	G5	S5	--	--	1,3
<i>Phleum pratense</i>	Timothy	I	GNR	SNA	--	--	1,2
<i>Picea glauca</i>	White spruce	N	G5	S5	--	--	2
<i>Pinus strobus</i>	White pine	N	G5	S5	--	--	2
<i>Pinus sylvestris</i>	Scots pine	I	GNR	SNA	--	--	1,2
<i>Plantago major</i>	Common plantain	I	G5	SNA	--	--	1,2
<i>Poa palustris</i>	Fowl bluegrass	N	G5	S5	--	--	1,3
<i>Poa pratensis</i>	Kentucky bluegrass	I	G5T5?	SNA	--	--	1,2
<i>Pontederia cordata</i>	Pickereelweed	N	G5	S5	--	--	3
<i>Populus balsamifera</i>	Balsam poplar	N	G5	S5	--	--	1,3
<i>Populus deltoides</i>	Eastern cottonwood	N	G5T5	S5	--	--	1,2
<i>Populus tremuloides</i>	Trembling aspen	N	G5	S5	--	--	1,2,3
<i>Potentilla argentea</i>	Silvery cinquefoil	I	GNR	SNA	--	--	1
<i>Potentilla norvegica</i>	Rough cinquefoil	I	G5	S5	--	--	1,2

Table 1: Plant Species Observed on the North Russell Road Site and in the Site-vicinity

Scientific Name	Common Name	Origin ^a	Global Rarity Status ^b	Ontario Rarity Status ^b	SARA ^c	ESA ^d	Locations ^e
<i>Prunus nigra</i>	Canada plum	N	G4G5	S4	--	--	1,2
<i>Prunus pensylvanica</i>	Pin cherry	N	G5	S5	--	--	1,2
<i>Prunus virginiana</i>	Choke cherry	N	G5	S5	--	--	1,3
<i>Quercus macrocarpa</i>	Bur oak	N	G5	S5	--	--	1,2
<i>Quercus rubra</i>	Red oak	N	G5	S5	--	--	2
<i>Ranunculus abortivus</i>	Kidney-leaf buttercup	N	G5	S5	--	--	3
<i>Ranunculus acris</i>	Common buttercup	I	G5	SNA	--	--	1,2
<i>Rhamnus cathartica</i>	Common buckthorn	I	GNR	SNA	--	--	1,2
<i>Rhamnus frangula</i>	Glossy buckthorn	I	GNR	SNA	--	--	1,2,3
<i>Rhus radicans</i>	Poison-ivy	N	G5T5	S5	--	--	1,2,3
<i>Rhus typhina</i>	Staghorn sumac	N	G5	S5	--	--	1
<i>Ribes cynosbati</i>	Prickly gooseberry	N	G5	S5	--	--	2,3
<i>Ribes triste</i>	Swamp red currant	N	G5	S5	--	--	3
<i>Rorippa palustris</i>	Marsh yellow-cress	N	G5T5	S5	--	--	1,3
<i>Rosa rubiginosa</i>	Sweetbriar	I	GNR	SNA	--	--	1
<i>Rubus allegheniensis</i>	Mountain blackberry	N	G5	S5	--	--	1
<i>Rubus idaeus</i>	Red raspberry	N	G5T5	S5	--	--	1,2,3
<i>Rubus odoratus</i>	Purple-flowering raspberry	N	G5	S5	--	--	1,2
<i>Rubus pubescens</i>	Dwarf raspberry	N	G5	S5	--	--	2,3
<i>Rudbeckia hirta</i>	Black-eyed susan	N	G5	S5	--	--	1
<i>Rumex crispus</i>	Curled dock	I	GNR	SNA	--	--	1
<i>Salix bebbiana</i>	Beaked willow	N	G5	S5	--	--	1,3
<i>Salix discolor</i>	Pussy willow	N	G5	S5	--	--	1
<i>Salix lucida</i>	Shining willow	N	G5	S5	--	--	1,3
<i>Salix petiolaris</i>	Slender willow	N	G5	S5	--	--	3
<i>Salix x fragilis</i>	Crack willow	I	GNR	SNA	--	--	1
<i>Scirpus cyperinus</i>	Wool-grass	N	G5	S5	--	--	3
<i>Scirpus hattorianus</i>	Mosquito bulrush	N	G5	S4	--	--	1,3
<i>Setaria pumila</i>	Yellow foxtail	I	GNR	SNA	--	--	1
<i>Silene vulgaris</i>	Bladder campion	I	GNR	SNA	--	--	1
<i>Sium suave</i>	Water parsnip	N	G5	S5	--	--	3
<i>Solanum dulcamara</i>	Climbing nightshade	I	GNR	SNA	--	--	1,2,3
<i>Solanum ptycanthum</i>	Eastern black nightshade	N	G5	S5	--	--	1
<i>Solidago canadensis</i>	Canada goldenrod	N	G5T5	S5	--	--	1,2

Table 1: Plant Species Observed on the North Russell Road Site and in the Site-vicinity

Scientific Name	Common Name	Origin ^a	Global Rarity Status ^b	Ontario Rarity Status ^b	SARA ^c	ESA ^d	Locations ^e
<i>Solidago rugosa</i>	Rough goldenrod	N	G5	S5	--	--	1,2,3
<i>Sonchus arvensis</i>	Common sow-thistle	I	GNR	SNA	--	--	1
<i>Spiraea alba</i>	Meadowsweet	N	G5	S5	--	--	1,3
<i>Spiraea tomentosa</i>	Hardhack	N	G5	S4S5	--	--	3
<i>Symphotrichum cordifolium</i>	Heart-leaved aster	N	G5	S5	--	--	1,2
<i>Symphotrichum lanceolatum</i>	Panicled aster	N	G5T5	S5	--	--	1,2
<i>Symphotrichum lateriflorum</i>	Calico aster	N	G5T?	S5	--	--	1,3
<i>Symphotrichum novae-angliae</i>	New England aster	N	G5	S5	--	--	1,2
<i>Symphotrichum puniceum</i>	Red-stemmed aster	N	G5	S5	--	--	3
<i>Syringa vulgaris</i>	Lilac	I	GNR	SNA	--	--	1,2
<i>Taraxacum officinale</i>	Common dandelion	I	G5	SNA	--	--	1,2
<i>Thuja occidentalis</i>	Eastern white cedar	N	G5	S5	--	--	1,3
<i>Tilia americana</i>	Basswood	N	G5	S5	--	--	1,2,3
<i>Trifolium pratense</i>	Red clover	I	GNR	SNA	--	--	1
<i>Trifolium repens</i>	White clover	I	GNR	SNA	--	--	1,2
<i>Typha latifolia</i>	Common cattail	N	G5	S5	--	--	1,3
<i>Ulmus americana</i>	White elm	N	G5?	S5	--	--	1,2,3
<i>Viburnum lentago</i>	Nannyberry	N	G5	S5	--	--	1,2
<i>Viburnum trilobum</i>	Highbush cranberry	N	G5T5	S5	--	--	1,3
<i>Vicia cracca</i>	Cow-vetch	I	GNR	SNA	--	--	1
<i>Vitis riparia</i>	Riverbank grape	N	G5	S5	--	--	1,2,3

^a Origin: N = Native; (N) = Native but not in study area region; I = Introduced.

^b Ranks based upon determinations made by the Ontario Natural Heritage Information Centre (2012).

^c Canada *Species at Risk Act* (Schedule 1; checked September 2012).

^d Ontario *Endangered Species Act* (O. Reg. 4/12 amending O.Reg.230/08; checked September 2012).

^e Locations: 1: Thickets, Meadows, Agricultural Fields, Roadside, and Habitat edges; 2: Upland Forests and Woodlands 3: Swamps and Ditches/Water features.

G = Global; S = Provincial; Ranks 1-3 are considered imperiled or rare; Ranks 4 and 5 are considered secure.

SNA = Not applicable for Ontario Ranking (e.g. Exotic species).

Table 2: Plant Species Observed on the Boundary Road Site and in the Site-vicinity

Scientific Name	Common Name	Origin ^a	Global Rarity Status ^b	Ontario Rarity Status ^b	SARA ^c	ESA ^d	Locations ^e
<i>Acer negundo</i>	Manitoba maple	(N)	G5	S5	--	--	1,2
<i>Acer rubrum</i>	Red maple	N	G5	S5	--	--	1,2,3
<i>Alnus incana</i>	Speckled alder	N	G5	S5	--	--	1,2,3
<i>Amaranthus retroflexus</i>	Redroot pigweed	I	GNR	SNA	--	--	1
<i>Ambrosia artemisiifolia</i>	Ragweed	N	G5	S5	--	--	1
<i>Aralia nudicaulis</i>	Wild sarsaparilla	N	G5	S5	--	--	2,3
<i>Asclepias syriaca</i>	Common milkweed	N	G5	S5	--	--	1
<i>Athyrium filix-femina</i>	Lady fern	N	G5T5	S5	--	--	2,3
<i>Betula pendula</i>	European white birch	I	GNR	SNA	--	--	1,2,3
<i>Bromus inermis</i>	Smooth brome	I	GNR	SNA	--	--	1
<i>Calamagrostis canadensis</i>	Canada blue-joint	N	G5	S5	--	--	3
<i>Carex crinita</i>	Fringed sedge	N	G5	S5	--	--	2,3
<i>Carex intumescens</i>	Bladder sedge	N	G5	S5	--	--	3
<i>Carex lacustris</i>	Lake sedge	N	G5	S5	--	--	3
<i>Carex pseudocyperus</i>	Cyperus-like sedge	N	G5	S5	--	--	3
<i>Carex</i> spp.	Sedges	N	?	?	--	--	1,2,3
<i>Carex vulpinoidea</i>	Fox sedge	N	G5	S5	--	--	1,3
<i>Circaea lutetiana</i>	Enchanter's nightshade	N	G5	S5	--	--	2,3
<i>Cicuta bulbifera</i>	Bulb-bearing water-hemlock	N	G5	S5	--	--	1,3
<i>Cirsium arvense</i>	Canada thistle	I	GNR	SNA	--	--	1
<i>Cirsium vulgare</i>	Bull thistle	I	GNR	SNA	--	--	1
<i>Clematis virginiana</i>	Virgin's-bower	N	G5	S5	--	--	1,2,3
<i>Conyza canadensis</i>	Horseweed	N	G5	S5	--	--	1
<i>Cornus stolonifera</i>	Red osier dogwood	N	G5	S5	--	--	1,3
<i>Dactylis glomerata</i>	Orchard grass	I	GNR	SNA	--	--	1
<i>Daucus carota</i>	Wild carrot	I	GNR	SNA	--	--	1
<i>Digitaria ischaemum</i>	Smooth crab-grass	I	GNR	SNA	--	--	1
<i>Doellingeria umbellata</i>	Flat-topped aster	N	G5T5	S5	--	--	1,3
<i>Dryopteris carthusiana</i>	Spinulose woodfern	N	G5	S5	--	--	2,3
<i>Echinochloa crusgalli</i>	Barneyard grass	I	GNR	SNA	--	--	1
<i>Elodea canadensis</i>	Common waterweed	N	G5	S5	--	--	3
<i>Equisetum arvense</i>	Field horsetail	N	G5	S5	--	--	1,2,3
<i>Erigeron philadelphicus</i>	Philadelphia fleabane	N	G5	S5	--	--	1
<i>Eupatorium perfoliatum</i>	Boneset	N	G5	S5	--	--	1,3
<i>Euthamia graminifolia</i>	Grass-leaved goldenrod	N	G5	S5	--	--	1

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Scientific Name	Common Name	Origin ^a	Global Rarity Status ^b	Ontario Rarity Status ^b	SARA ^c	ESA ^d	Locations ^e
<i>Eutrochium maculatum</i>	Joe-pye weed	N	G5TNR	S5	--	--	3
<i>Fragaria virginiana</i>	Common strawberry	N	G5	S5	--	--	1,2,3
<i>Fraxinus americana</i>	White ash	N	G5	S5	--	--	1,2
<i>Fraxinus nigra</i>	Black ash	N	G5	S5	--	--	3
<i>Fraxinus pennsylvanica</i>	Green ash	N	G5	S5	--	--	2,3
<i>Geum</i> sp.	Avens species	N	G5	?	--	--	2,3
<i>Glyceria grandis</i>	Tall manna grass	N	G5	S4S5	--	--	1,3
<i>Glyceria striata</i>	Fowl manna grass	N	G5T5	S4S5	--	--	3
<i>Impatiens capensis</i>	Spotted jewelweed	N	G5	S5	--	--	2,3
<i>Iris versicolor</i>	Blue-flag	N	G5	S5	--	--	3
<i>Juglans nigra</i>	Black walnut	(N)	G5	S4	--	--	1,2
<i>Juncus</i> spp.	Rushes	N	?	?	--	--	1,3
<i>Larix laricina</i>	Tamarack	N	G5	S5	--	--	2
<i>Lemna minor</i>	Duckweed	N	G5	S5	--	--	3
<i>Lonicera tatarica</i>	Tartarian honeysuckle	I	GNR	SNA	--	--	1
<i>Lycopus americanus</i>	American water-horehound	N	G5	S5	--	--	3
<i>Lycopus uniflorus</i>	Northern water-horehound	N	G5	S5	--	--	1,3
<i>Lythrum salicaria</i>	Purple loosestrife	I	G5	SNA	--	--	1,3
<i>Maianthemum canadense</i>	Canada mayflower	N	G5	S5	--	--	2,3
<i>Medicago sativa</i>	Alfalfa	I	GNR	S5	--	--	1
<i>Oenothera biennis</i>	Common evening-primrose	N	G5	S5	--	--	1
<i>Onoclea sensibilis</i>	Sensitive fern	N	G5	S5	--	--	2,3
<i>Osmunda claytoniana</i>	Interrupted fern	N	G5	S5	--	--	1,2,3
<i>Osmunda regalis</i>	Royal fern	N	G5	S5	--	--	3
<i>Panicum capillare</i>	Witch grass	N	G5	S5	--	--	1
<i>Parthenocissus inserta</i>	Virginia creeper	N	G5	S5	--	--	1,2,3
<i>Persicaria</i> sp.	Lady's thumb species	?	?	?	--	--	3
<i>Phalaris arundinacea</i>	Reed canary grass	N	G5	S5	--	--	1,3
<i>Phleum pratense</i>	Timothy	I	GNR	SNA	--	--	1
<i>Picea glauca</i>	White spruce	N	G5	S5	--	--	2
<i>Pinus sylvestris</i>	Scots pine	I	GNR	SNA	--	--	1
<i>Plantago major</i>	Common plantain	I	G5	SNA	--	--	1
<i>Poa palustris</i>	Fowl bluegrass	N	G5	S5	--	--	3
<i>Poa pratensis</i>	Kentucky bluegrass	I	G5T5?	SNA	--	--	1,2
<i>Populus balsamifera</i>	Balsam poplar	N	G5	S5	--	--	1,2,3

Table 2: Plant Species Observed on the Boundary Road Site and in the Site-vicinity

Scientific Name	Common Name	Origin ^a	Global Rarity Status ^b	Ontario Rarity Status ^b	SARA ^c	ESA ^d	Locations ^e
<i>Populus deltoides</i>	Eastern cottonwood	N	G5T5	S5	--	--	2
<i>Populus tremuloides</i>	Trembling aspen	N	G5	S5	--	--	1,2,3
<i>Potamogeton</i> sp.	Pondweed species	N	?	?	--	--	3
<i>Lactuca serriola</i>	Prickly lettuce	I	GNR	SNA	--	--	1
<i>Prunus virginiana</i>	Choke cherry	N	G5	S5	--	--	1
<i>Rhamnus cathartica</i>	Common buckthorn	I	GNR	SNA	--	--	1,2
<i>Rhamnus frangula</i>	Glossy buckthorn	I	GNR	SNA	--	--	1,2,3
<i>Rhododendron groenlandicum</i>	Labrador-tea	N	G5	S5	--	--	3
<i>Rhus radicans</i>	Poison-ivy	N	G5T5	S5	--	--	1,2,3
<i>Ribes cynosbati</i>	Prickly gooseberry	N	G5	S5	--	--	1,2,3
<i>Ribes triste</i>	Swamp red currant	N	G5	S5	--	--	3
<i>Rubus allegheniensis</i>	Mountain blackberry	N	G5	S5	--	--	1,2
<i>Rubus hispidus</i>	Swamp dewberry	N	G5	S4S5	--	--	3
<i>Rubus idaeus</i>	Red raspberry	N	G5T5	S5	--	--	1,2
<i>Rubus pubescens</i>	Dwarf raspberry	N	G5	S5	--	--	2,3
<i>Salix amygdaloides</i>	Peach-leaved willow	N	G5	S5	--	--	1,3
<i>Salix discolor</i>	Pussy willow	N	G5	S5	--	--	1,3
<i>Salix lucida</i>	Shining willow	N	G5	S5	--	--	3
<i>Salix petiolaris</i>	Slender willow	N	G5	S5	--	--	3
<i>Salix x fragilis</i>	Crack willow	I	GNR	SNA	--	--	1,2
<i>Sambucus canadensis</i>	Common elderberry	N	G5	S5	--	--	1,3
<i>Schoenoplectus tabernaemontani</i>	Softstem bulrush	N	G5	S5	--	--	3
<i>Scirpus atrovirens</i>	Black bulrush	N	G5?	S5	--	--	3
<i>Scirpus cyperinus</i>	Wool-grass	N	G5	S5	--	--	1,3
<i>Scirpus hattorianus</i>	Mosquito bulrush	N	G5	S4	--	--	1,3
<i>Setaria pumila</i>	Yellow foxtail	I	GNR	SNA	--	--	1
<i>Solanum dulcamara</i>	Climbing nightshade	I	GNR	SNA	--	--	1,2,3
<i>Solidago canadensis</i>	Canada goldenrod	N	G5T5	S5	--	--	1,2
<i>Solidago rugosa</i>	Rough goldenrod	N	G5	S5	--	--	2,3
<i>Spiraea alba</i>	Meadowsweet	N	G5	S5	--	--	3
<i>Symphotrichum lanceolatum</i>	Panicled aster	N	G5T5	S5	--	--	1,3
<i>Symphotrichum lateriflorum</i>	Calico aster	N	G5T?	S5	--	--	1,2
<i>Symphotrichum novae-angliae</i>	New England aster	N	G5	S5	--	--	1
<i>Syringa vulgaris</i>	Lilac	I	GNR	SNA	--	--	1
<i>Taraxacum officinale</i>	Common dandelion	I	G5	SNA	--	--	1

Table 2: Plant Species Observed on the Boundary Road Site and in the Site-vicinity

Scientific Name	Common Name	Origin ^a	Global Rarity Status ^b	Ontario Rarity Status ^b	SARA ^c	ESA ^d	Locations ^e
<i>Trifolium pratense</i>	Red clover	I	GNR	SNA			
<i>Typha latifolia</i>	Common cattail	N	G5	S5	--	--	1,3
<i>Ulmus americana</i>	White elm	N	G5?	S5	--	--	1,2,3
<i>Urtica dioica</i>	Stinging nettle	N	G5T?	S5	--	--	3
<i>Verbascum thapsus</i>	Common mullein	I	GNR	SNA	--	--	1
<i>Viburnum lentago</i>	Nannyberry	N	G5	S5	--	--	1,3
<i>Vicia cracca</i>	Cow-vetch	I	GNR	SNA	--	--	1
<i>Viola renifolia</i>	Kidney-leaved violet	N	G5	S5	--	--	3
<i>Vitis riparia</i>	Riverbank grape	N	G5	S5	--	--	1,2,3

^a Origin: N = Native; (N) = Native but not in study area region; I = Introduced.

^b Ranks based upon determinations made by the Ontario Natural Heritage Information Centre (2012).

^c Canada *Species at Risk Act* (Schedule 1; checked September 2012)

^d Ontario *Endangered Species Act* (O. Reg. 4/12 amending O.Reg.230/08; checked September 2012)

^e Locations: 1: Thickets, Agricultural Fields, Roadside, and Habitat edges; 2: Deciduous Forests, and Plantation 3: Swamps and Ditches/Water features

G = Global; S = Provincial; Ranks 1-3 are considered imperiled or rare; Ranks 4 and 5 are considered secure.

SNA = Not applicable for Ontario Ranking (e.g. Exotic species)

ATTACHMENT D-3

Wildlife Observed on the NRR and BR Sites

Table 1: Wildlife Species Observed on the North Russell Road Site and in the Site-vicinity

Common Name	Scientific Name	Origin ^a	Global Rarity Status ^b	Ontario Rarity Status ^b	SARA ^c	ESA ^d	Remarks
Butterflies and Dragonflies							
Black swallowtail	<i>Papilio polyxenes</i>	N	G5	S5	--	--	Likely Resident
Cabbage white	<i>Pieris rapae</i>	I	G5	SNA	--	--	Likely Resident
Clouded sulphur	<i>Colias philodice</i>	N	G5	S5	--	--	Likely Resident
Eastern comma	<i>Polygonia comma</i>	N	G5	S5	--	--	Likely Resident
Marsh bluet	<i>Enallagma ebrium</i>	N	G5	S5	--	--	Likely Resident
Spreadwing species	<i>Lestes</i> sp.	N	?	?	--	--	Likely Resident
White-faced meadowhawk	<i>Sympetrum obtrusum</i>	N	S5	G5	--	--	Likely Resident
Herpetiles							
Eastern garter snake	<i>Thamnophis sirtalis</i>	N	S5	G5	--	--	Likely Resident
Green frog	<i>Rana clamitans</i>	N	S5	G5	--	--	Likely Resident
Grey tree frog	<i>Hyla versicolor</i>	N	S5	G5	--	--	Likely Resident
Spring peeper	<i>Pseudacris crucifer</i>	N	S5	G5	--	--	Likely Resident
Birds							
American black duck	<i>Anas rubripes</i>	N	G5	S5	--	--	Likely Migrant
American crow	<i>Corvus brachyrhynchos</i>	N	G5	S5	--	--	Possible Breeder
American goldfinch	<i>Carduelis tristis</i>	N	G5	S5B	--	--	Possible Breeder
American robin	<i>Turdus migratorius</i>	N	G5	S5	--	--	Possible Breeder
belted kingfisher	<i>Ceryle alcyon</i>	N	G5	S5	--	--	Possible Breeder
black-capped chickadee	<i>Poecile atricapillus</i>	N	G5	S5	--	--	Possible Breeder
blue jay	<i>Cyanocitta cristata</i>	N	G5	S5	--	--	Possible Breeder
brown-headed cowbird	<i>Molothrus ater</i>	N	G5	S4B	--	--	Possible Breeder
bufflehead	<i>Bucephala albeola</i>	N	G5	S4	--	--	Likely Migrant
Canada goose	<i>Branta canadensis</i>	N	G5	S5	--	--	Likely Migrant
dark-eyed junco	<i>Junco hyemalis</i>	N	G5	S5	--	--	Likely Migrant
golden-crowned kinglet	<i>Regulus satrapa</i>	N	G5	S5B	--	--	Likely Migrant
mallard	<i>Anas platyrhynchos</i>	N	G5	S5	--	--	Possible Breeder
northern harrier	<i>Circus cyaneus</i>	N	G5	S4B	--	--	Possible Breeder
white-throated sparrow	<i>Zonotrichia albicollis</i>	N	G5	S5B	--	--	Possible Breeder
brown thrasher	<i>Toxostoma rufum</i>	N	G5	S4B	--	--	Possible Breeder
chipping sparrow	<i>Spizella passerine</i>	N	G5	S5B	--	--	Possible Breeder
common grackle	<i>Quiscalus quiscula</i>	N	G5	S5B	--	--	Possible Breeder
downy woodpecker	<i>Picoides pubescens</i>	N	G5	S5	--	--	Possible Breeder
European starling	<i>Sturnus vulgaris</i>	I	G5	SNA	--	--	Possible Breeder
greater yellowlegs	<i>Tringa melanoleuca</i>	N	G5	S4B,S4N	--	--	Likely Migrant

Table 1: Wildlife Species Observed on the North Russell Road Site and in the Site-vicinity

Common Name	Scientific Name	Origin ^a	Global Rarity Status ^b	Ontario Rarity Status ^b	SARA ^c	ESA ^d	Remarks
hooded merganser	<i>Lophodytes cucullatus</i>	N	G5	S5B,S5N	--	--	Likely Migrant
house sparrow	<i>Passer domesticus</i>	I	G5	SNA	--	--	Possible Breeder
killdeer	<i>Charadrius vociferus</i>	N	G5	S5B, S5N	--	--	Possible Breeder
least sandpiper	<i>Calidris minutilla</i>	N	G5	S4B,S5N	--	--	Likely Migrant
magnolia warbler	<i>Dendroica magnolia</i>	N	G5	S5B	--	--	Likely Migrant
palm warbler	<i>Setophaga palmarum</i>	N	G5T5	S5B	--	--	Likely Migrant
red-winged blackbird	<i>Agelaius phoeniceus</i>	N	G5	S4	--	--	Possible Breeder
rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	N	G5	S4B	--	--	Possible Breeder
ruby-crowned kinglet	<i>Regulus calendula</i>	N	G5	S4B	--	--	Likely Migrant
savannah sparrow	<i>Passerculus sandwichensis</i>	N	G5	S4B	--	--	Possible Breeder
solitary sandpiper	<i>Tringa solitaria</i>	N	G5	S4B	--	--	Likely Migrant
song sparrow	<i>Melospiza melodia</i>	N	G5	S5B	--	--	Possible Breeder
spotted sandpiper	<i>Actitis macularius</i>	N	G5	S5	--	--	Possible Breeder
Mammals							
Beaver	<i>Castor canadensis</i>	N	G5	S5	--	--	Likely Resident
Deer mouse	<i>Peromyscus sp.</i>	N	G5	S5	--	--	Likely Resident
Eastern chipmunk	<i>Tamias striatus</i>	N	G5	S5	--	--	Likely Resident
Grey squirrel	<i>Sciurus carolinensis</i>	N	G5	S5	--	--	Likely Resident
Meadow vole	<i>Microtus pennsylvanicus</i>	N	G5	S5	--	--	Likely Resident
Raccoon	<i>Procyon lotor</i>	N	G5	S5	--	--	Likely Resident
Red fox	<i>Vulpes vulpes</i>	N	G5	S5	--	--	Likely Resident
Striped skunk	<i>Memphitis memphitis</i>	N	G5	S5	--	--	Likely Resident
White-tailed deer	<i>Odocoileus virginianus</i>	N	G5	S5	--	--	Likely Resident
Woodchuck	<i>Marmota monax</i>	N	G5	S5	--	--	Likely Resident

^a Origin: N = Native; (N) = Native but not in study area region; I = Introduced.

^b Ranks based upon determinations made by the Ontario Natural Heritage Information Centre (2012).

^c Canada *Species at Risk Act* (Schedule 1; checked September 2012)

^d Ontario *Endangered Species Act* (O. Reg. 4/12 amending O.Reg.230/08; checked September 2012)

G = Global; S = Provincial; Ranks 1-3 are considered imperiled or rare; Ranks 4 and 5 are considered secure.

SNA = Not applicable for Ontario Ranking (e.g. Exotic species)

Table 2: Wildlife Species Observed on the Boundary Road Site and in the Site-vicinity

Common Name	Scientific Name	Origin ^a	Global (GRank) ^b	Ontario (SRank) ^b	SARA ^c	ESA ^d	Comments
Butterflies and Dragonflies							
Black swallowtail	<i>Papilio polyxenes</i>	N	G5	S5	--	--	--
Cabbage white	<i>Pieris rapae</i>	I	G5	SNA	--	--	--
Clouded sulphur	<i>Colias philodice</i>	N	G5	S5	--	--	--
Common whitetail	<i>Plathemis lydia</i>	N	G5	S5	--	--	--
Marsh bluet	<i>Enallagma ebrium</i>	N	G5	S5	--	--	--
Red admiral	<i>Vanessa atalanta</i>	N	G5	S5	--	--	--
Spreadwing species	<i>Lestes</i> sp.	N	?	?	--	--	--
Viceroy	<i>Limenitis archippus</i>	N	S5	G5	--	--	--
White-faced meadowhawk	<i>Sympetrum obtrusum</i>	N	S5	G5	--	--	--
Herpetiles							
Grey tree frog	<i>Hyla versicolor</i>	N	S5	G5	--	--	--
Spring peeper	<i>Pseudacris crucifer</i>	N	S5	G5	--	--	--
Birds							
American crow	<i>Corvus brachyrhynchos</i>	N	G5	S5	--	--	Possible Breeder
American goldfinch	<i>Carduelis tristis</i>	N	G5	S5B	--	--	Possible Breeder
American robin	<i>Turdus migratorius</i>	N	G5	S5	--	--	Possible Breeder
black-capped chickadee	<i>Poecile atricapillus</i>	N	G5	S5	--	--	Possible Breeder
blue-headed vireo	<i>Vireo solitarius</i>	N	G5	S5B	--	--	Likely Migrant
blue jay	<i>Cyanocitta cristata</i>	N	G5	S5	--	--	Possible Breeder
dark-eyed junco	<i>Junco hyemalis</i>	N	G5	S5	--	--	Possible Breeder
golden-crowned kinglet	<i>Regulus satrapa</i>	N	G5	S5B	--	--	Likely Migrant
mallard	<i>Anas platyrhynchos</i>	N	G5	S5	--	--	Possible Breeder
northern harrier	<i>Circus cyaneus</i>	N	G5	S4B	--	--	Possible Breeder
white-throated sparrow	<i>Zonotrichia albicollis</i>	N	G5	S5B	--	--	Possible Breeder
brown thrasher	<i>Toxostoma rufum</i>	N	G5	S4B	--	--	Possible Breeder
chipping sparrow	<i>Spizella passerine</i>	N	G5	S5B	--	--	Possible Breeder
common grackle	<i>Quiscalus quiscula</i>	N	G5	S5B	--	--	Possible Breeder
downy woodpecker	<i>Picoides pubescens</i>	N	G5	S5	--	--	Possible Breeder
European starling	<i>Sturnus vulgaris</i>	I	G5	SNA	--	--	Possible Breeder
house sparrow	<i>Passer domesticus</i>	I	G5	SNA	--	--	Possible Breeder
killdeer	<i>Charadrius vociferus</i>	N	G5	S5B, S5N	--	--	Possible Breeder
magnolia warbler	<i>Setophaga magnolia</i>	N	G5	S5B	--	--	Likely Migrant
red-eyed vireo	<i>Vireo olivaceus</i>	N	G5	S5B	--	--	Possible Breeder
red-winged blackbird	<i>Agelaius phoeniceus</i>	N	G5	S4	--	--	Possible Breeder

Table 2: Wildlife Species Observed on the Boundary Road Site and in the Site-vicinity

Common Name	Scientific Name	Origin ^a	Global (GRank) ^b	Ontario (SRank) ^b	SARA ^c	ESA ^d	Comments
rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	N	G5	S4B	--	--	Possible Breeder
ruby-crowned kinglet	<i>Regulus calendula</i>	N	G5	S4B	--	--	Likely Migrant
ruffed grouse	<i>Bonasa umbellus</i>	N	G5	S4	--	--	Possible Breeder
savannah sparrow	<i>Passerculus sandwichensis</i>	N	G5	S4B	--	--	Possible Breeder
solitary sandpiper	<i>Tringa solitaria</i>	N	G5	S4B	--	--	Likely Migrant
song sparrow	<i>Melospiza melodia</i>	N	G5	S5B	--	--	Possible Breeder
sora	<i>Porzana Carolina</i>	N	G5	S4B	--	--	Possible Breeder
spotted sandpiper	<i>Actitis macularius</i>	N	G5	S5	--	--	Possible Breeder
swamp sparrow	<i>Melospiza Georgiana</i>	N	G5	S5B	--	--	Possible Breeder
Wilson's snipe	<i>Gallinago delicate</i>	N	G5	S5	--	--	Possible Breeder
yellow-rumped warbler	<i>Setophaga coronata</i>	N	G5	S5B	--	--	Likely Migrant
Mammals							
Beaver	<i>Castor canadensis</i>	N	G5	S5	--	--	--
Coyote	<i>Canis latrans</i>	N	G5	S5	--	--	--
Deer mouse	<i>Peromyscus sp.</i>	N	G5	S5	--	--	--
Eastern cottontail	<i>Sylvilagus floridanus</i>	N	G5	S5	--	--	--
Grey squirrel	<i>Sciurus carolinensis</i>	N	G5	S5	--	--	--
Meadow vole	<i>Microtus pennsylvanicus</i>	N	G5	S5	--	--	--
Raccoon	<i>Procyon lotor</i>	N	G5	S5	--	--	--
Striped skunk	<i>Memphitis memphitis</i>	N	G5	S5	--	--	--
Snowshoe hare	<i>Lepus americanus</i>	N	G5	S5	--	--	--
White-tailed deer	<i>Odocoileus virginianus</i>	N	G5	S5	--	--	--
Fish							
Creek chub	<i>Semotilus atromaculatus</i>		G5	S5	--	--	--
Brook stickleback	<i>Culaea inconstans</i>		G5	S5	--	--	--
Central mudminnow	<i>Umbra limi</i>		G5	S5	--	--	--
Pumpkinseed	<i>Lepomis gibbosus</i>		G5	S5	--	--	--

^a Origin: N = Native; (N) = Native but not in study area region; I = Introduced.

^b Ranks based upon determinations made by the Ontario Natural Heritage Information Centre (2012).

^c Canada *Species at Risk Act* (Schedule 1; checked September 2012)

^d Ontario *Endangered Species Act* (O. Reg. 4/12 amending O.Reg.230/08; checked September 2012)

G = Global; S = Provincial; Ranks 1-3 are considered imperiled or rare; Ranks 4 and 5 are considered secure.

SNA = Not applicable for Ontario Ranking (e.g. Exotic species)

ATTACHMENT D-4

Species at Risk Screening for the NRR and BR Sites

Table 1: Preliminary Species at Risk Screening for the North Russell Road Site and Within the General Area of the Site

Taxon	Common Name	Scientific Name	Global (GRank) ^a	Provincial (SRank) ^a	SARA ^b	ESA ^c	Potential to Occur on, or within 120 m of the Site
Amphibian	Western chorus frog - Great Lakes St. Lawrence/Canadian Shield Pop'n	<i>Pseudacris triseriata</i>	G5TNR	S3	Threatened		Low-Moderate Some suitable habitat for Western chorus frog available in onsite swamps. There are records in the area for this species in the Ontario Herpetofaunal Summary Atlas for area, but no observations onsite during past Golder amphibian surveys (2008).
Arthropod	West Virginia white	<i>Pieris virginiensis</i>	G3G4	S3	Not Listed	Special Concern	Low No food sources for West Virginia white were identified on the site, and there is no suitable habitat onsite.
Arthropod	Monarch	<i>Danaus plexippus</i>	G5	S2N, S4B	Special Concern	Special Concern	Moderate The open fields on the site provide suitable habitat for monarch, and there is a food source (<i>Asclepias</i> spp) on the site.
Bird	Eastern Whip-poor-will	<i>Caprimulgus vociferus</i>	G5	S4B	Threatened	Threatened	Low No habitat
Bird	Eastern Wood-Pewee	<i>Contopus virens</i>	G5	S4B	Not Listed	To be assessed in January 2013	High The Semi-mature forested swamps on the site provide suitable habitat for eastern wood-pewee. There are also records in the OBBA square including the site, and the species has been identified on the site during past Golder breeding bird surveys (2008).
Bird	Bank Swallow	<i>Riparia riparia</i>	G5	S4B	Not Listed	To be assessed in January 2013	Low There is no nesting habitat for bank swallow on, or within 120 m of, the site.
Bird	Barn swallow	<i>Hirundo rustica</i>	G5	S4B	Not Listed	Threatened	Low-Moderate Suitable nesting and foraging habitat for barn swallow is available on the site. Although there are records in the OBBA square including the site, this species has not been identified on the site during past Golder breeding bird surveys (2008).

Table 1: Preliminary Species at Risk Screening for the North Russell Road Site and Within the General Area of the Site

Taxon	Common Name	Scientific Name	Global (GRank) ^a	Provincial (SRank) ^a	SARA ^b	ESA ^c	Potential to Occur on, or within 120 m of the Site
Bird	Wood Thrush	<i>Hylocichla mustelina</i>	G5	S4B	Not Listed	To be assessed in January 2013	Low-Moderate The onsite forested swamps provide suitable habitat. Although there are records in the OBBA square including the site, this species has not been identified on the site during past Golder breeding bird surveys (2008).
Bird	Bobolink	<i>Dolichonyx orizivorus</i>	G5	S4B	Not Listed	Threatened	High The onsite meadows and hayfields provide suitable habitat for bobolink. In addition, there are records in the OBBA square including the site, and has been identified within 120 m of the site during past Golder breeding bird surveys (2008).
Bird	Eastern meadowlark	<i>Sturnella magna</i>	G5	S4B	Not Listed	Threatened	Low-Moderate The onsite meadows and hayfields provide suitable habitat for eastern meadowlark. Although there are records in the OBBA square including the site, this species has not been identified on the site during past Golder breeding bird surveys (2008).
Bird	Henslow's sparrow	<i>Ammodramus henslowii</i>	G4	SHB	Endangered	Endangered	Low There is some suitable habitat for Henslow's sparrow available on the site, and there are some old OBBA records for this species in the area. This species is now very rare in Ontario, and there are no recent records for the region or the area of the site (OBBA).
Bird	Peregrine falcon (anatum subspecies)	<i>Falco peregrinus anatum</i>	G4	S3B	Threatened	Special Concern (status in effect Jan 24/2013)	Low There is no nesting habitat for peregrine on, or within 120 m of, the site.
Bird	Black tern	<i>Chlidonias niger</i>	G4	S3B	Not Listed	Special Concern	Low There is no nesting habitat for black tern on, or within 120 m of, the site.
Bird	Short-eared owl	<i>Asio flammeus</i>	G5	S2N,S4B	Special Concern	Special Concern	Low-Moderate There is some suitable habitat for short-eared owl on the site, but there are no records for this species in the area (OBBA).

Design by: FN December 2012

Checked by: HM

Page 2 of 4

Table 1: Preliminary Species at Risk Screening for the North Russell Road Site and Within the General Area of the Site

Taxon	Common Name	Scientific Name	Global (GRank) ^a	Provincial (SRank) ^a	SARA ^b	ESA ^c	Potential to Occur on, or within 120 m of the Site
Bird	Cerulean warbler	<i>Setophaga cerulea</i>	G4	S3B	Special Concern	Threatened	Low No habitat
Bird	Common nighthawk	<i>Chordeiles minor</i>	G5	S4B	Threatened	Special Concern	Low No habitat
Bird	Chimney swift	<i>Chaetura pelagica</i>	G5	S4B, S4N	Threatened	Threatened	Low No nesting habitat.
Bird	Least bittern	<i>Ixobrychus exilis</i>	G5	S4B	Threatened	Threatened	Low No habitat
Bird	Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	G5	S4B	Threatened	Special Concern	Low There is some suitable habitat on the site, but no records in area in the OBBA, and this species was not identified on the site during past Golder breeding bird surveys (2008)
Fish	American eel	<i>Anguilla rostrata</i>	G4	S1?	Not Listed	Endangered	Low No habitat
Fish	Lake sturgeon - Great Lakes / upper St. Lawrence Pop'n	<i>Acipenser fulvescens</i>	G3G4TNR	S2	Not Listed	Threatened	Low No habitat
Mammal	Grey fox	<i>Urocyon cinereoargenteus</i>	G5	S1	Threatened	Threatened	Low There is suitable habitat for grey fox on, and within 120 m of, the site, but current records in Ontario for this species are only known in extreme southwestern Ontario. The possibility for this species to be found near the site is unlikely.
Mammal	Eastern cougar	<i>Puma concolor cougar</i>	G5	SU	Not Listed	Endangered	Low There is suitable habitat for eastern cougar on, and within 120 m of, the site. Occurrence of this species in Ontario is unknown, but there are very few recent confirmed records, and none for the area of the site.
Mammal	Little Brown Myotis	<i>Myotis lucifugus</i>	G5	S4	Not Listed	Endangered (status in effect Jan 24/2013)	Moderate-High The combination of forests and swamps, farm buildings, fields, and water in the flooded quarry on the site provides suitable habitat for little brown myotis. In addition, there are records in the area in the Ontario Mammal Atlas.

Table 1: Preliminary Species at Risk Screening for the North Russell Road Site and Within the General Area of the Site

Taxon	Common Name	Scientific Name	Global (GRank) ^a	Provincial (SRank) ^a	SARA ^b	ESA ^c	Potential to Occur on, or within 120 m of the Site
Mammal	Northern Myotis	<i>Myotis septentrionalis</i>	G4	S3	Not Listed	Endangered (status in effect Jan 24/2013)	Low No habitat
Reptile	Blanding's turtle - Great Lakes/ St. Lawrence population	<i>Emydoidea blandingii</i>	G4	S3	Threatened	Threatened	Low No habitat
Reptile	Eastern ribbonsnake - Great Lakes population	<i>Thamnophis sauritus</i>	G5	S3	Special Concern	Special Concern	Low No habitat
Reptile	Snapping turtle	<i>Chelydra serpentina</i>	G5	S3	Special Concern	Special Concern	Low There is likely no habitat for snapping turtle on the site, as the number and size of fish in the flooded quarry would be limiting as a food source.
Reptile	Milksnake	<i>Lampropeltis triangulum</i>	G5	S3	Special Concern	Special Concern	Moderate Although there is suitable habitat for milksnake on the site, there are no records for this species in the area in the Ontario Herpetofaunal Summary Atlas.
Vascular plant	American ginseng	<i>Panax quinquefolius</i>	G3G4	S2	Endangered	Endangered	Low
Vascular plant	Butternut	<i>Juglans cinerea</i>	G4	S3?	Endangered	Endangered	Moderate-High Butternut has been identified within 120 m of the site. Although it was not identified on the site in 2012, additional surveys are required to confirm presence or absence.
Vascular plant	Eastern prairie fringed-orchid	<i>Platanthera leucophaea</i>	G2G3	S2	Endangered	Endangered	Low No habitat

^a Ranks based upon determinations made by the Ontario Natural Heritage Information Centre (2012)

^b *Species at Risk Act* (Schedule 1; checked September 2012)

^c Ontario *Endangered Species Act* (O. Reg. 4/12 amending O.Reg.230/08; checked September 2012)

S1 – Critically imperiled in Ontario

S2 – Imperiled in Ontario

S3 – Vulnerable in Ontario

S4 – Apparently secure in Ontario

S5 – Secure in Ontario

SU – Species unrankable

G = Global; S = Provincial; Ranks 1-3 are considered imperiled or rare; Ranks 4 and 5 are considered secure.

SNA = Not applicable for Ontario Ranking (e.g. Exotic species)

Table 2: Preliminary Species at Risk Screening for the Boundary Road Site and Within the General Area of the Site

Taxon	Common Name	Scientific Name	Global (GRank) ^a	Provincial (SRank) ^a	SARA ^b	ESA ^c	Potential to Occur on, or within 120 m of the Site
Amphibian	Western chorus frog - Great Lakes St. Lawrence/Canadian Shield Pop'n	<i>Pseudacris triseriata</i>	G5TNR	S3	Threatened	Not Listed	Moderate Thicket swamps on the site provide potential suitable habitat. There are records for Western chorus frog in this area in the Ontario Herpetofaunal Atlas.
Arthropod	Monarch	<i>Danaus plexippus</i>	G5	S2N, S4B	Special Concern	Special Concern	Low-Moderate the field edges on the site provide some suitable habitat.
Arthropod	West Virginia white	<i>Pieris virginiensis</i>	G3G4	S3	Not Listed	Special Concern	Low No habitat
Bird	Henslow's sparrow	<i>Ammodramus henslowii</i>	G4	SHB	Endangered	Endangered	Low No habitat
Bird	Chimney swift	<i>Chaetura pelagica</i>	G5	S4B, S4N	Threatened	Threatened	Low No habitat
Bird	Eastern Wood-Pewee	<i>Contopus virens</i>	G5	S4B	Not Listed	<i>To be assessed in January 2013</i>	Low No habitat
Bird	Bank Swallow	<i>Riparia riparia</i>	G5	S4B	Not Listed	<i>To be assessed in January 2013</i>	Low No habitat
Bird	Barn swallow	<i>Hirundo rustica</i>	G5	S4B	Not Listed	Threatened	Moderate Barns and buildings on the site may provide suitable nesting sites. There are records of barn swallow in the OBBA square which includes the site.
Bird	Wood Thrush	<i>Hylocichla mustelina</i>	G5	S4B	Not Listed	<i>To be assessed in January 2013</i>	Low-Moderate The forests and thicket swamps on the site may provide limited suitable nesting habitat. There are records of wood thrush in the OBBA square which includes the site.
Bird	Bobolink	<i>Dolichonyx orizivorus</i>	G5	S4B	Not Listed	Threatened	Low The hayfield on the site is likely too small and there is too much forest edge on the site to provide suitable habitat for bobolink.

Table 2: Preliminary Species at Risk Screening for the Boundary Road Site and Within the General Area of the Site

Taxon	Common Name	Scientific Name	Global (GRank) ^a	Provincial (SRank) ^a	SARA ^b	ESA ^c	Potential to Occur on, or within 120 m of the Site
Bird	Eastern meadowlark	<i>Sturnella magna</i>	G5	S4B	Not Listed	Threatened	Low-Moderate The onsite hayfield is likely too small to provide ideal habitat for eastern meadowlark, but there is a possibility that it could provide enough suitable habitat for 1 or 2 pairs. There are also records of eastern meadowlark in the OBBA square which includes the site.
Bird	Short-eared owl	<i>Asio flammeus</i>	G5	S2N,S4B	Special concern	Special Concern	Low No habitat
Bird	Common nighthawk	<i>Chordeiles minor</i>	G5	S4B	Threatened	Special Concern	Low No habitat
Bird	Black tern	<i>Chlidonias niger</i>	G4	S3B	Not Listed	Special Concern	Low No habitat
Bird	Peregrine falcon (anatum subspecies)	<i>Falco peregrinus anatum</i>	G4	S3B	Threatened	<i>Special Concern (status in effect Jan 24/2013)</i>	Low No habitat
Bird	Cerulean warbler	<i>Setophaga cerulea</i>	G4	S3B	Special Concern	Threatened	Low No habitat
Bird	Red knot - rufa subspecies	<i>Calidris canutus rufa</i>	G4T2	S1N	Not Listed	Endangered	Low No habitat
Bird	Eastern Whip-poor-will	<i>Caprimulgus vociferus</i>	G5	S4B	Threatened	Threatened	Low No habitat
Bird	Least bittern	<i>Ixobrychus exilis</i>	G5	S4B	Threatened	Threatened	Low No habitat
Bird	Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	G5	S4B	Threatened	Special Concern	Low No habitat
Fish	Lake sturgeon - Great Lakes / upper St. Lawrence Pop'n	<i>Acipenser fulvescens</i>	G3G4TNR	S2	Not Listed	Threatened	Low No habitat
Fish	American eel	<i>Anguilla rostrata</i>	G4	S1?	Not Listed	Endangered	Low No habitat

Table 2: Preliminary Species at Risk Screening for the Boundary Road Site and Within the General Area of the Site

Taxon	Common Name	Scientific Name	Global (GRank) ^a	Provincial (SRank) ^a	SARA ^b	ESA ^c	Potential to Occur on, or within 120 m of the Site
Mammal	Eastern cougar	<i>Puma concolor couguar</i>	G5	SU	Not Listed	Endangered	Low There is suitable habitat for eastern cougar on, and within 120 m of, the site. Occurrence of this species in Ontario is unknown, but there are very few recent confirmed records, and none for the area of the site.
Mammal	Grey fox	<i>Urocyon cinereoargenteus</i>	G5	S1	Threatened	Threatened	Low There is suitable habitat for grey fox on, and within 120 m of, the site, but current records in Ontario for this species are only known in extreme southwestern Ontario. The possibility for this species to be found near the site is unlikely.
Mammal	Little Brown Myotis	<i>Myotis lucifugus</i>	G5	S4	Not Listed	Endangered (status in effect Jan 24/2013)	Moderate The barns, and other old buildings adjacent to agricultural fields may provide suitable maternity roosting habitat for little brown myotis. There are records for this species in the area of the site in the Ontario Mammal Atlas.
Mammal	Northern Myotis	<i>Myotis septentrionalis</i>	G4	S3	Not Listed	Endangered (status in effect Jan 24/2013)	Low Habitat unlikely
Reptile	Blanding's turtle - Great Lakes/ St. Lawrence population	<i>Emydoidea blandingii</i>	G4	S3	Threatened	Threatened	Low No habitat
Reptile	Snapping turtle	<i>Chelydra serpentina</i>	G5	S3	Special Concern	Special Concern	Low No habitat
Reptile	Spotted turtle	<i>Clemmys guttata</i>	G5	S3	Endangered	Endangered	Low No habitat
Reptile	Eastern ribbonsnake - Great Lakes population	<i>Thamnophis sauritus</i>	G5	S3	Special Concern	Special Concern	Low Habitat is limited, and no occurrence records in the area.

Table 2: Preliminary Species at Risk Screening for the Boundary Road Site and Within the General Area of the Site

Taxon	Common Name	Scientific Name	Global (GRank) ^a	Provincial (SRank) ^a	SARA ^b	ESA ^c	Potential to Occur on, or within 120 m of the Site
Reptile	Milksnake	<i>Lampropeltis triangulum</i>	G5	S3	Special Concern	Special Concern	Moderate Mosaic of farm fields, thickets, swamps and forests provides habitat for this species, and there are records in the area for the Ontario Herp Atlas.
Vascular plant	American ginseng	<i>Panax quinquefolius</i>	G3G4	S2	Endangered	Endangered	Low No habitat
Vascular plant	Butternut	<i>Juglans cinerea</i>	G4	S3?	Endangered	Endangered	Low Suitable habitat for butternut on the site is restricted to edges of farm fields. The site has been thoroughly searched for butternut, and none were found.
Vascular plant	Eastern prairie fringed-orchid	<i>Platanthera leucophaea</i>	G2G3	S2	Endangered	Endangered	Low No habitat

^a Ranks based upon determinations made by the Ontario Natural Heritage Information Centre (2012)

^b *Species at Risk Act* (Schedule 1; checked September 2012)

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