



MINTO COMMUNITIES INC.

Environmental Impact Statement and Tree Conservation Report

Avalon Isgar

Updated February 2018



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Executive Summary

Dillon Consulting Limited (Dillon) was retained by Minto Communities Inc. to prepare an Environmental Impact Statement (EIS) and Tree Conservation Report (TCR) for the proposed Avalon Isgar Development, located at 2605 Tenth Line Road in Orleans, Ottawa (the “Study Area”). The original EIS and TCR was completed in 2013 and updated in December 2014 as part of the first submission for Draft Plan Approval. As part of the second submission package, the City of Ottawa (the “City”) has requested an update to the 2014 EIS and TCR document. The primary objective of this EIS and TCR update is to confirm existing conditions within the Study Area and update and current relevant legislation (i.e., Species at Risk (SAR)) listed under the Ontario Endangered Species Act, 2007 (ESA)).

Fieldwork for the EIS and TCR was conducted between July 2013 and October 2014, with an additional confirmatory site visit in February 2018. Field surveys consisted of Ecological Land Classification, vegetation surveys, tree inventory, breeding bird surveys, and incidental wildlife and general wildlife habitat assessments. The following summarizes the findings to 2018:

- 1) No significant woodlands, significant wetlands, significant valleylands, areas of natural and scientific interest (ANSI), or other designated natural heritage system constraints are located within Study Area; however, woodlands/ wetlands to the south of the Study Area may be significant or contain significant wildlife habitat. Due to the disturbed nature of the site and recommended mitigation measures, impacts to adjacent natural features as a result of the proposed development are not anticipated.
- 2) The Study Area contains a number of ephemeral drainage ditches that contribute to the base flow of McKinnon’s Creek within the Bear Brook subwatershed of the South Nation River. As these features have been altered due to construction of the residential development to the north and large stormwater pond to the west (i.e., loss of upstream and downstream connections), impacts to fish habitat and other surface water functions as a result of the development are not anticipated.
- 3) A total of three natural vegetation communities were observed within the Study Area, most of which are highly disturbed and contain invasive species. Therefore, impacts as a result of vegetation removal are not anticipated.
- 4) Barn Swallows (*Hirundo rustica*) were observed foraging over the SWM pond adjacent to the Study Area, but no evidence of Barn Swallow nesting was observed within the Study Area. No other SAR or SAR habitat was identified within the Study Area. As a result, impacts to SAR or SAR habitat are not anticipated.

Due to the lack of natural vegetation communities and ongoing disturbances within the Study Area, potential impacts as a result of development activities are minimal. Furthermore, mitigation measures have been proposed to avoid negative impacts associated with the proposed development activities on the natural environment.

1.0

Introduction

Dillon Consulting Limited (Dillon) was retained by Minto Communities Inc. (Minto) to complete an Environmental Impact Statement (EIS) and Tree Conservation Report (TCR) for the proposed residential development, referred to as Avalon Isgar, located at 2605 Tenth Line Road in, in the City of Ottawa, Ontario (the “Study Area”; **Figure 1**).

The original EIS and TCR was completed in 2013 and updated in December 2014 as part of the first submission for Draft Plan Approval. As part of the second submission package, the City of Ottawa (the “City”) has requested an update to the 2014 EIS and TCR document. The primary objective of this EIS and TCR update is to confirm existing conditions within the Study Area and current relevant legislation (i.e., Species at Risk (SAR) listed under the Ontario Endangered Species Act, 2007 (ESA)). Furthermore, the EIS and TCR will determine the potential limits of development; evaluate the potential for environmental impacts associated with the proposed development; and recommend mitigation, restoration, and enhancement measures to preserve and/or restore natural features.









Minto Communities Inc.
Avalon Isgar Residential
Development

Figure 1:
 Project Location

FINAL



- | | |
|---|---|
|  Study Area |  Unevaluated Wetland |
|  Major Road |  MNRF Wooded Area |
|  Watercourse | |
|  Waterbody | |



MAP DRAWING INFORMATION:
 DATA PROVIDED BY DILLON, MNRF
 MAP CREATED BY: LK
 MAP CHECKED BY: WM
 MAP PROJECTION: NAD 1983 UTM Zone 18N



PROJECT: 13-8197 STATUS: FINAL DATE: 2018-02-22

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1.1

Property Information

Owner:	Minto Communities Inc.
Address:	2605 Tenth Line Road Orleans, Ottawa
Lot and concession:	Part Lot 4, Concession 10
Property Identification Number(s):	145630551 and 145630552
Zoning:	Agricultural Zone (AG3)
OP designation:	General Urban Area (<i>Expansion Area</i>)

Location

The Study Area is located in south Orleans, with frontage on Tenth Line and Portobello Boulevard. The Study Area is divided in two portions (East and West Portions as shown on **Figure 1**), separated by an existing Stormwater Management (SWM) pond constructed as part of a residential development to the north between 2011 and 2012.

Land Use and Zoning

While the Study Area is currently zoned as Agricultural (AG3), it falls within the General Urban Area designation and is specifically within a “Developing Community (Expansion Area)” according to Schedule B of the City of Ottawa Official Plan (2013).

2.0

Policy Framework

Various regulatory agencies and legislative authorities have established a number of governing policies relevant to the Ottawa area in an effort to protect ecological features and functions.

Table 1 lists the policies and legislation that apply to the protection of natural heritage features within the Ottawa area and supporting guidance documents and resources respective to each policy, that were reviewed as part of this EIS and TCR update.

TABLE 1: POLICIES, LEGISLATION AND BACKGROUND RESOURCES SEARCHED

Policy / Regulations	Guidelines and Supporting Documents
Federal Government	
Species at Risk Act (2002)	Federal Species at Risk Public Registry, accessed (accessed February 2018)
Fisheries Act (1985)	Fisheries and Oceans Canada (DFO) <ul style="list-style-type: none"> <i>Ottawa River Map 15 of 16</i> (Map produced July 2017, accessed online February 2018)
Province of Ontario	
Provincial Policy Statement (2014)	Ministry of Natural Resources and Forestry (MNRF) Kemptville District Main Contact: Aaron Foss, Fish and Wildlife Technical Specialist <ul style="list-style-type: none"> <i>Records requested on February 16, 2018 directly from MNRF Kemptville District relating to natural features and wildlife species</i> MNRF Natural Heritage Information Centre (NHIC) <ul style="list-style-type: none"> <i>Species of Conservation Concern</i> <i>Species at Risk</i> <i>Natural heritage features</i>
	Ecological Land Classification for Southern Ontario, First Approximation and its Application 2008
	Natural Heritage Reference Manual, Second Edition, March 2010
	MNRF Significant Wildlife Habitat Technical Guide (2000) <ul style="list-style-type: none"> <i>Significant Wildlife Habitat Eco-region 6E Criterion Schedules, 2015</i>
	Ontario Reptile and Amphibian Atlas- online data accessed (accessed online February 2018)
	Ontario Butterfly Atlas- online data accessed (accessed online February 2018)
Endangered Species Act (2007)	Atlas of the Mammals of Ontario, 1994
	MNRF Species at Risk in Ontario (SARO) List (O.Reg. 230/08), February, 2017
	MNRF Kemptville District <ul style="list-style-type: none"> <i>Species at Risk occurrence records requested on February 16, 2018</i>
	MNRF NHIC <ul style="list-style-type: none"> <i>Species at Risk occurrence records</i>
	Ontario Breeding Birds Atlas (OBBA)- (accessed online February 2018)
	Ontario Reptile and Amphibian Atlas- online data accessed (accessed online February 2018)

Policy / Regulations	Guidelines and Supporting Documents
City of Ottawa	
City of Ottawa Official Plan (2014)	Schedules B, K, and L1, consolidated to 2014
	City of Ottawa's "geoOttawa" online mapping service
	Environmental Impact Statement Guidelines, 2 nd Edition (2012)
Conservation Authority	Protocol for Wildlife Protection During Construction (2015)
<i>Conservation Authorities Act</i> , Ontario Regulation 174/06	• South Nation Conservation Authority (SNC) Floodplain mapping
	• Evaluation, Classification and Management of Headwater Drainage Features Guidelines (Toronto Region Conservation Authority (TRCA) & Credit Valley Conservation (CVC), 2014)

3.0

Natural Heritage Background Review

A desktop review of the Study Area indicates that the Study Area consists of agricultural land with areas of highly disturbed meadow and marsh habitat (**Figure 2**). A review of available historic aerial photos indicates that the area has been agricultural since at least 1976, but has experienced significant disturbances such as grading and clearing due to the construction of the SWM facility adjacent to the Study Area. The surrounding area is primarily agricultural with development to the north along Tenth Line Road and Portobello Boulevard.

FIGURE 2: LAND USE CHANGES OVER TIME



The following section provides a brief summary of the existing environmental conditions within the Study Area. This information provides the background information upon which the EIS and TCR is based.

3.1 Landforms, Soils and Geology

The Study Area is generally flat with a slight slope to the south east. The Study Area lies over both Upper Ordovician bedrock (within the western portion of the Study Area) and Middle Ordovician bedrock (within the eastern portion of the Study Area) consisting of shale, limestone, dolostone, siltstone, arkose and sandstone (Ministry of Northern Development and Mines 1991). The Study Area falls within the Physiographic region of the Ottawa Valley Clay Plains described by Chapman and Putnam as Champlain Sea deposits with deep-water facies containing blue-grey clay, silt and silty clay. The surficial geology of the area is dominated by fine-textured glaciomarine deposits containing massive to well laminated silt and clay with minor sand and gravel occurrences (Ministry of Northern Development and Mines 1991). These very fine deposits are of low permeability and can inhibit water infiltration, possibly supporting groundwater storage.

3.2 Aquatic Environment

The Study Area lies within the Bear Brook subwatershed, which flows south toward the South Nation River. Due to agricultural nature of the area and the recent residential developments to the north, many of the small watercourses and drains in the area have been highly altered (channelized) or removed.

Based on the presence of ephemeral features identified through background review, it is possible that the Study Area once provided fish habitat during peak flow periods; however due to the alteration of flow within the western portion of the Study Area (SWM pond and development to the north) which appears to have removed upstream connections fish habitat is no longer present (**Figure 1**).

3.3 Natural Heritage Features

A number of natural heritage features require consideration for protection under the Provincial Policy Statement (2014) administered by both the City of Ottawa and the Province of Ontario. These features include but are not limited to the following:

- Provincially Significant Wetlands (PSW);
- Significant woodlands;
- Significant valleylands;
- Areas of Natural and Scientific Interest (ANSI);
- Significant wildlife habitat;
- Species at Risk habitat; and,
- Fish habitat.

Each of the natural heritage features listed above is discussed in subsequent sections, with the exception of fish habitat which is discussed in **Section 3.2**, Aquatic Environment, above.

3.3.1 Provincially Significant Wetlands

No PSWs were identified within or adjacent to the Study Area; however one small patch of unevaluated wetland was identified in background mapping within the western portion of the Study Area (**Figure 1**).

3.3.2 Significant Woodlands

No significant woodlands were identified within or adjacent to the Study Area; however one patch of unevaluated woodland was identified in background mapping within the western portion of the Study Area, with additional woodlands to the south of the Study Area (**Figure 1**).

3.3.3 Significant Valleylands

No valleylands were identified within or adjacent to the Study Area.

3.3.4 Areas of Natural and Scientific Interest

No ANSIs were identified within or adjacent to the Study Area.

3.3.5 Significant Wildlife Habitat

The Significant Wildlife Habitat Technical Guide (MNRF, 2000) defines Species of Conservation Concern as globally, nationally, provincially, regionally, or locally rare (S-Rank of S2 or S3); as well as federally listed endangered and threatened species; but does not include SAR (listed as endangered or threatened under the ESA, 2007). In accordance with the Ecoregion 6E Criteria Schedules (MNRF 2015), a review of background data suggests the potential for significant wildlife habitat is limited due to the lack of natural vegetation communities (or lack of sufficient size) and existing disturbances; however, wetlands may provide habitat for breeding amphibians. Although woodlands within the Study Area are too small to provide habitat for area sensitive breeding birds, woodlands to the south may provide habitat for area sensitive species and other Special Concern or Rare Species. Several Species of Conservation Concern have been identified with the potential to occur based on occurrence records within or adjacent to the Study Area which would be considered under significant wildlife habitat for Species Concern and Rare Species (see species listed in **Table 2**).

TABLE 2: SPECIES OF CONSERVATION CONCERN IDENTIFIED WITHIN THE VICINITY OF THE STUDY AREA

SCIENTIFIC NAME	COMMON NAME	SARA ¹	ESA ²	S-RANK ³	INFO SOURCE ⁴
BIRDS					
<i>Chlidonias niger</i>	Black Tern	---	SC	S3B	MNRF, OBBA
<i>Cardellina canadensis</i>	Canada Warbler	THR	SC	S4B	OBBA

SCIENTIFIC NAME	COMMON NAME	SARA ¹	ESA ²	S-RANK ³	INFO SOURCE ⁴
<i>Contopus virens</i>	Eastern Wood-Pewee	---	SC	S4B	OBBA
<i>Falco peregrinus</i>	Peregrine Falcon	SC	SC	S3B	MNRF
<i>Asio flammeus</i>	Short-eared Owl	SC	SC	S2N, S4B	MNRF, OBBA
<i>Hylocichla mustelina</i>	Wood Thrush	---	SC	S4B	MNRF, OBBA
<i>Coturnicops noveboracensis</i>	Yellow Rail	SC	SC	S4B	MNRF
REPTILES					
<i>Sternotherus odoratus</i>	Eastern Musk Turtle	THR	SC	S3	MNRF, ON
<i>Graptemys geographica</i>	Northern Map Turtle	SC	SC	S3	MNRF, ON
<i>Chelydra serpentina</i>	Snapping Turtle	SC	SC	S3	MNRF, ON
<i>Thamnophis sauritus septentrionalis</i>	Eastern Ribbonsnake	SC	SC	S3	MNRF
FISH					
<i>Ichthyomyzon fossor</i>	Northern Brook Lamprey (Great Lakes Upper St. Lawrence populations)	SC	SC	S3	MNRF
<i>Moxostoma carinatum</i>	River Redhorse	SC	SC	S2	MNRF
ODONATA					
<i>Arigomphus cornutus</i>	Horned Clubtail	---	---	S3	NHIC
LEPIDOPTERA					
<i>Danaus plexippus</i>	Monarch	SC	SC	S2N, S4B	MNRF

¹Federal Species at Risk Act (THR= threatened; SC= Special Concern); ²Provincial Endangered Species Act (SC= Special Concern); ³S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common. ⁴Information sources include: MNRF = Ministry of Natural Resources and Forestry; OBBA = Ontario Breeding Bird Atlas; ON = Ontario Nature: Ontario Reptile and Amphibian Atlas; TEA = Toronto Entomologists' Association; --- denotes no information or not applicable.

3.3.6

Species at Risk

A desktop review of available information sources identified a number of SAR listed as endangered and threatened under the ESA, 2007 with potential to occur based on occurrence records within the vicinity of the Study Area (see **Table 3**).

TABLE 3: SPECIES AT RISK WITH POTENTIAL TO OCCUR WITHIN THE VICINITY OF THE STUDY AREA

SCIENTIFIC NAME	COMMON NAME	SARA ¹	ESA ²	S-RANK ³	INFO SOURCE ⁴
BIRDS					
<i>Riparia riparia</i>	Bank Swallow	---	THR	S4B	OBBA
<i>Hirundo rustica</i>	Barn Swallow	---	THR	S4B	MNRF, NHIC, OBBA
<i>Dolichonyx oryzivorus</i>	Bobolink	---	THR	S4B	MNRF, NHIC,

SCIENTIFIC NAME	COMMON NAME	SARA ¹	ESA ²	S-RANK ³	INFO SOURCE ⁴
					OBBA
<i>Chaetura pelagica</i>	Chimney Swift	THR	THR	S4B, S4N	MNRF, OBBA
<i>Ammodramus henslowii</i>	Henslow's Sparrow	END	END	SHB	MNRF, NHIC
<i>Sturnella magna</i>	Eastern Meadowlark	---	THR	S4B	MNRF, NHIC, OBBA
<i>Ixobrychus exilis</i>	Least Bittern	THR	THR	S4B	MNRF
<i>Lanius ludovicianus migrans</i>	Loggerhead Shrike	END	END	S2B	MNRF
<i>Caprimulgus vociferus</i>	Eastern Whip-poor-will	THR	THR	S4B	MNRF
REPTILES					
<i>Emydoidea blandingii</i>	Blanding's Turtle	THR	THR	S3	MNRF
MAMMALS					
<i>Myotis lucifugus</i>	Little Brown Myotis	END	END	S4	MWH
<i>Pipistrellus subflavus</i>	Tri-colored Bat	END	END	S3?	MWH
VASCULAR PLANTS					
<i>Juglans cinerea</i>	Butternut	END	END	S3?	NHIC, MNRF

¹Federal Species at Risk Act (END= Endangered, THR= threatened); ²Provincial Endangered Species Act (END= Endangered, THR= threatened); ³S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common. ⁴Information sources include: MNRF = Ministry of Natural Resources and Forestry; OBBA = Ontario Breeding Bird Atlas; MWH = Ontario Mammal Atlas; --- denotes no information or not applicable.

3.3.6.1

Species at Risk Habitat

A review of current and historic aerial photos of the Study Area was used to identify potential SAR habitat based on the habitat requirements defined by the MNRF. Based on a desktop review of the current available habitat within the Study Area, there is potential for Butternut, Barn Swallow, Bobolink and Eastern Meadowlark to occur.

In addition, an Information Request was submitted to the MNRF, Kemptville District on February 16, 2018. A response has not been received to date, however if any additional species are identified, they will be addressed through consultation with the MNRF.

3.4

Incidental Wildlife

A review of aerial photos and local knowledge suggests that there are several common wildlife species found within the general area with potential to occur in the Study Area.

4.0

Field Work Methodology

The results of the background review were used to assist in scoping the 2013 and 2014 field program. Fieldwork conducted for the EIS occurred when weather conditions and timing were deemed suitable based on the survey protocols being implemented (**Table 4**). Fieldwork consisted of Ecological Land Classification (ELC) of vegetation communities, breeding bird surveys, and SAR habitat assessments. Incidental wildlife observations made during the surveys were also documented. In addition, a site visit was conducted in February 2018 to confirm existing conditions within the Study Area to the extent possible due to seasonality. The following sub-sections outline the survey methodologies used in the EIS and TCR.

TABLE 4: DATES AND TIMES OF FIELD SURVEYS

Date	Time	Personnel	Weather Conditions	Air Temp (°C)	Purpose
July 18 th , 2013	6:35 am	M. Wolosinecky & A. Zeller	Clear, calm wind, no precipitation	22	Breeding Bird Survey, incidental wildlife observations.
July 25 th , 2013	7:31 am	M. Wolosinecky	Clear, calm wind, no precipitation	13	Breeding Bird Survey, ELC, incidental wildlife observations
October 14 th , 2014	5:45 pm	A. Zeller	Clear, calm.	13	Barn Swallow nest search, incidental wildlife observations
February 22 nd , 2018	12:00 pm	C. Edington	Overcast, cold.	-2	Confirmatory ELC visit

4.1

Ecological Land Classification

Vegetation was characterized using the ELC system for Southern Ontario (Lee et al., 1998) in 2013 in order to describe and map ecological communities to the vegetation level. The boundaries of vegetation communities were determined through the review of aerial photography and then further refined through on-site ELC surveys. In addition to the vegetation survey, a soil assessment was conducted using a hand auger to identify the soil moisture class within the ecosystem.

The ELC protocol recommends that a vegetation community be a minimum of 0.5 ha in size before it is defined. Patches of vegetation less than 0.5 ha or disturbed/planted vegetation were described to the community level as inclusions.

The ELC within the Study Area was confirmed to the extent possible during a site visit in February 2018. Based on the seasonality of the site visit, ELC was described to the community level only, where appropriate.

Results of the ELC surveys have been included in **Figure 3** and in **Section 5.2**.

4.2 Vegetation Survey

A single season vegetation survey was completed in tandem with the ELC survey in 2013. Surveys consisted of wandering transects and/or area searches to determine the presence, richness and abundance of floral species within the Study Area. Species nomenclature is based on the species lists for Ontario maintained by the NHIC which uses international standards for taxonomy and nomenclature.

Results of the botanical surveys are discussed in **Section 5.3**.

4.3 Natural Heritage Features

4.3.1 Wetlands

Wetlands within the Study Area are considered southern wetlands based on their location south of the northern limit of Ecoregions 5E, 6E, and 7E as shown on Figure 1 of the *Provincial Policy Statement*, 2014. Wetlands observed within the Study Area were delineated using the ELC system for Southern Ontario (Lee et al., 1998).

Results of field studies relating to wetlands are discussed in **Section 5.4.1**.

4.3.2 Woodlands

Woodlands within the Study Area were investigated as part of the ELC and vegetation inventory.

Results of field studies relating to woodlands are discussed in **Section 5.4.2**.

4.3.3 Significant Wildlife Habitat

As mentioned in **Section 3.3.5** the potential for breeding amphibian habitat was identified based on an area of unevaluated wetland identified in background mapping; however, preliminary site visits in 2013 noted that wetland communities within the Study Area were very sparse and did not meet the size criteria for significance (>0.5 ha) and therefore, amphibian breeding surveys were not conducted. Potential for habitat for Special Concern and Rare Species was investigated through breeding bird surveys and incidental wildlife observations..

Evidence of significant wildlife habitat and presence of Species of Conservation Concern was also considered during other field surveys through incidental observations.

4.3.3.1

Breeding Bird Surveys

Diurnal breeding bird surveys conducted within the Study Area followed the methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Cadman et al 2007), and were completed in late June and early July of 2013 (two surveys). Specifically, breeding bird surveys consisted of ten minute point counts that were used to establish quantitative estimates of bird abundance in habitat types within the Study Area. During the surveys evidence of breeding behaviour was recorded which generally includes, but is not limited to, males singing, nest building, egg incubation, territorial defense, carrying food, and feeding their young.

To supplement the surveys, area searches of the habitat were completed using binoculars to observe species presence and breeding activity. Area searches involved noting all individual bird species and their corresponding breeding evidence while traversing the habitat on foot.

The breeding bird point count locations are shown on **Figure 3**. Results of breeding bird surveys in 2013 have been included in **Section 5.4.3.1**.

4.3.4

Species at Risk

Surveys for Butternut were completed in conjunction with ELC and vegetation surveys within the Study Area. The desktop review indicated that there may be unevaluated woodlands within the western portion of the Study Area. As a result, a search for Butternut trees (or seedlings/saplings) was included in the vegetation surveys done during ELC.

Based on the potential for Bobolink, Eastern Meadowlark and Barn Swallow to occur, these species were assessed during the diurnal breeding bird surveys and general habitat assessments in 2013-2014.

Results of surveys related to SAR updated to 2018 have been included in **Section 5.4.4**.













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Figure 3:
Natural Heritage Features

FINAL



	Study Area		Breeding Bird Survey Point	Ecological Land Classification	
	Major Road		MASM1: Graminoid Mineral Shallow Marsh		TAGM5: Fencerow
	Ephemeral Watercourse		MEMM3: Dry - Fresh Mixed Meadow		CVC_2: Light Industry
	Municipal Drain		OAGM1: Annual Row Crop		



MAP DRAWING INFORMATION:
DATA PROVIDED BY DILLON

MAP CREATED BY: LK
MAP CHECKED BY: WM
MAP PROJECTION: NAD 1983 UTM Zone 18N



* Note: No trees larger than 10 cm were observed within the property.

\\dillon.ca\DILLON_DFS\Ottawa\Ottawa CAD\CAD\2013\138197\MXDslFig3_NatHeritage.mxd
PROJECT: 13-8197 STATUS: FINAL DATE: 2018-02-22

4.4

Tree Inventory

Within the Study Area trees greater than 10 cm diameter at breast height (DBH) were surveyed following the City of Ottawa's TCR guidelines. In accordance with the City's guidelines, large stands of trees are to be assessed as a whole based on species composition and basal area as per standard ELC protocol. In addition, trees 50 cm DBH or greater are to be surveyed by an approved professional as outlined in the City's guidelines. The survey for all trees ≥ 50 cm DBH includes the identification of species, DBH, condition, and location. Trees measuring less than 50 cm DBH are estimated based on their density, average size, and overall health.

Results have been included in **Section 5.5**.

4.5

Incidental Wildlife

A general wildlife assessment within the Study Area was completed through incidental observations while on site. Incidental observations of wildlife were noted, as well as other wildlife evidence such as dens, tracks, and scat. For each observation, notes, and when possible, photos were taken. These observations also helped to determine potential ecological functions, linkages, etc. within the Study Area.

Results related to incidental wildlife have been included in **Section 5.6**.

5.0

Biophysical Survey Results

The following sections outline the findings from the field surveys and characterize the existing conditions within the Study Area.

The results of the 2013-2014 field studies are reported in sections below. Results have been updated based on a desktop assessment and confirmatory site visit in February 2018.

5.1

Aquatic Environment

Surface water within the proposed development area is limited to a few channelized ephemeral watercourses (agricultural ditches) conveying flow during spring freshet and significant rain events, flowing south into the Lepage Charbonneau Municipal Drain, a tributary to McKinnon's Creek, located along the southern boundary of the Study Area (**Figure 3**). As a result of the residential development to the north and SWM facility bisecting the Study Area, these channels have lost connectivity upstream and do not likely provide direct fish habitat. However, impacts to fish in downstream reaches of the Lepage Charbonneau Municipal Drain are possible during construction activities, and are discussed further in **Section 7.1.1**.

5.2

Ecological Land Classification

Five ELC communities were observed within the Study Area, three of which are considered natural vegetation communities (meadow, marsh, and fencerow). Results from the 2013 ELC survey indicated that the Study Area was dominated by a single Dry - Fresh Mixed Meadow vegetation community in the eastern portion of the Study Area. This community was considered early successional and a product of regeneration of an agricultural field. In addition, a few small of mixed meadow marsh inclusions (< 0.5 ha) were observed within the mixed meadow community. Marsh inclusions were a result of slight depressions in the topography and poor drainage characteristics of the clay dominant soils within the Study Area. These inclusions did not have any surface water connections to the ditches or drains in the area.

A review of aerial imagery from 2014-2017 indicate that the land use within the eastern portion of the Study Area has been changed to annual row crop since the initial field work. A site visit was conducted in February 2018 to confirm presence of row crop within the majority of the eastern portion (**Figure 3**). The fields currently consist of soybean as evidenced in photos included in **Appendix A**. Areas previously noted as meadow marsh inclusions are present as wet depressions within the active agricultural fields containing sparse Common Reed (*Phragmites australis*). Refer to photos in **Appendix A**.

The western portion of the Study Area was found to be heavily impacted with several areas of cleared vegetation and large stockpiles of excavated materials in 2013 (**Appendix A**). In addition, there were also two buildings and several vehicles being stored on the within the Study Area. Vegetation consisted of a field dominated by weedy species with a similar species composition to the mixed meadow as covered above. Given the extent of the disturbance and patchiness of the vegetation communities ELC was not possible.

During the confirmatory site visit in 2018, several patches/inclusions of mixed meadow and shallow marsh were observed within the western portion of the Study Area, which had been identified as “Industry” in the 2013 ELC survey. In addition, a regenerating area of trees adjacent to the SWM facility was observed in 2018 that was not present in 2013 (**Figure 3**). These communities were disturbed with adjacent soil/rubble piles, and contained an abundance of invasive species (Common Reed). Due to the seasonality of the site visits, these areas were described to the community level only (see **Figure 3** and updated photos included in **Appendix A**).

5.3 Vegetation

A total of 38 plant species were documented in the Study Area during 2013 field studies. Of the 38 plants identified to species level, approximately 50% are listed as native species considered to be very common (S5) in the province of Ontario and 34% are listed as introduced or exotic species, therefore a status ranking is not applicable as the species is not a suitable target for conservation activities (SE or SNA rank).

The Co-efficient of Conservatism (CC) provides additional information on the nature of the vegetation communities within the Study Area. The CC values range from 0 to 10 and represent an estimated probability that a plant is likely to occur in a landscape that is relatively unaltered or is in a pre-settlement condition. For example, a CC of 0 is given to plants such as Manitoba Maple (*Acer negundo*) that demonstrate little fidelity to any remnant natural community, i.e. may be found almost anywhere. Similarly, a CC of 10 is applied to plants like Shrubby Cinquefoil (*Potentilla fruticosa*) that are almost always restricted to a pre-settlement remnant, i.e. a high quality natural area. Introduced plants were not part of the pre-settlement flora, so no CC values have been applied to these species.

Of the 38 species identified within the Study Area, one species has a CC value of 5 (the greatest CC value observed); Softstem Bulrush (*Schoenoplectus tabernaemontani*). The average for all plants listed with a CC value is 1.3, which is indicative of a highly altered landscape. A full list of the vegetation species observed within the Study Area has been included in **Appendix B**.

Potential impacts related to vegetation within the Study Area are included in **Section 7.2**.

TABLE 5: ECOLOGICAL LAND CLASSIFICATION

2018 ELC CODE	SOILS	TOTAL AREA (HA)	DESCRIPTION	COMMENTS	APPENDIX A, PHOTO #
MEMM3: Dry-Fresh Mixed Meadow	Clay	7.2	During the 2013 ELC survey, vegetation within this community was composed of several grass species, with a mix of asters, goldenrods and old field weed species, Wild Parsnip (<i>Pastinaca sativa</i>) and Wild Carrot (<i>Daucus carota</i>). In 2013 inclusions within the mixed meadow were noted, which contained a mixture of bulrush species and Common Reed that were co-dominated through the community. These areas are now part of the active agricultural field but are apparent as low-lying wet areas containing sparse Common Reed.		1, 2, 4, 8
OAGM1: Row Crop (Soybean)	Clay	13.7	A site visit on February 2018 confirmed that the majority of the western portion of the Study Area is currently being used for active agricultural (since approximately 2014) currently in soybean.	N/A	3, 5, 6
CVC-2: Light Industry	Clay	4.9	Little natural vegetation was identified within the eastern portion of the Study Area. The area was largely comprised of cleared land, access roads, and large piles of excavated material. Aerial imagery confirms the continuation of light industrial activity.	Little natural vegetation was identified within this portion of the Study Area. The area was largely comprised of cleared land, access roads, and large piles of excavated material.	7, 10, 11
MASM1: Graminoid Mineral Shallow Marsh	Clay	0.7	Presence of cattails and Common Reed.	Low lying area of Study Area	9
TAGM5: Deciduous Fencerow	Clay	0.2	Presence of successional trees (species not identified due to timing of site visit)	No trees >50 cm DBH	12

5.4 Natural Heritage Features

5.4.1 Wetlands

As mentioned above, three small (< 0.5 ha) Mixed Meadow Marsh inclusions were identified in the eastern portion of the Study Area within the Mixed Meadow in 2013 field surveys. These areas formed as a result of poorly drained clay soils within the Study Area and contained the invasive species Common Reed.

A review of aerial imagery suggested that the fields have been used for active agriculture since around 2014. A site visit in 2018 confirmed that the eastern portion is comprised of annual row crop (soybean) with a small remnant area of mixed meadow. Pockets of water (ice) within the field were observed that contained Common Reed however these areas are a part of the agricultural field and, therefore, no wetlands are present (refer to photos in **Appendix A**).

Within the western portion of the Study Area, areas of shallow marsh were observed during a site visit in 2018, that were not identified in 2013; which generally correspond to wetlands identified through background mapping. These wetland pockets have formed as a result of poor draining soils and sloping topography. The wetland pockets are of low value, as they are located directly adjacent to highly disturbed area (soil and rubble piling, and ongoing work within the industrial portion) and contain an abundance of invasive species (Common Reed).

Potential impacts to wetland communities are discussed in **Section 7.2**.

5.4.2 Woodlands

The Forestry Act, R.S.O. 1990, defines “woodlands” as the following:

- a) 1,000 trees, of any size, per hectare,
- b) 750 trees, measuring over five centimetres in diameter, per hectare,
- c) 500 trees, measuring over 12 centimetres in diameter, per hectare, or
- d) 250 trees, measuring over 20 centimetres in diameter, per hectare,

but does not include a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees.

A result of the ELC and vegetation surveys determined that no woodlands are present within the Study Area. Woodlands are present to the south of the Study Area; however these areas were not investigated as part of this EIS and TCR. Potential impacts to adjacent natural heritage features are discussed further in **Section 7.2.1**.

5.4.3 Significant Wildlife Habitat

The potential for significant wildlife habitat within and adjacent to the Study Area was investigated through field surveys and incidental observations in 2013. As mentioned, due to

the lack of natural vegetation communities of sufficient size there is limited potential for significant wildlife habitat. However, as mentioned in **Section 3.3.5**, the potential for habitat for Special Concern and Rare Species was investigated through breeding bird surveys and incidental wildlife observations.

The results of the field surveys as they apply to breeding birds are detailed below. The results of the incidental wildlife observations have been included in **Section 5.6**.

5.4.3.1

Breeding Bird Surveys

A total of 26 bird species were observed during breeding bird surveys in 2013 (**Table 6**). Of the 26 species observed, two are considered area sensitive, Veery (*Catharus fuscenscens*) and Savannah Sparrow (*Passerculus sandwichensis*) and all are considered common and secure (S4) to very common (S5) in the province of Ontario based on the provincial conservation rankings assigned by the NHIC. Of the 26 species, one is considered a SAR, Barn Swallow (*Hirundo rustica*), listed as threatened under the ESA. Barn Swallow are discussed further in **Section 5.4.4**.

Although two area sensitive species were observed, habitat within the Study Area, the vegetation communities present within the Study Area do not meet the size criteria for area-sensitive breeding birds, or open country breeding birds, therefore, significant wildlife habitat for birds is not present within the Study Area. Significant wildlife habitat for birds may, however be present within woodlands to the south of the Study Area, however these were not investigated as part of this EIS and TCR. It is anticipated that impacts to the adjacent woodland/ wetland area to the south would be negligible due to the ongoing disturbances within the Study Area. Furthermore, potential impacts to woodlands and potential significant wildlife habitat to the south should be avoided by implementation of mitigation measures as discussed in **Section 7.3.2**.

TABLE 6: BIRDS OBSERVED IN 2013

SCIENTIFIC NAME	COMMON NAME	BREEDING STATUS	ABUNDANCE WITHIN STUDY AREA	SARA ¹	ESA ²	S-RANK ³	OBSERVED/ HEARD	COMMENTS
<i>Corvus brachyrhynchos</i>	American Crow	Observed	Rare	---	---	S5B	Observed	
<i>Carduelis tristis</i>	American Goldfinch	Possible	Sparse	---	---	S5B	Observed	
<i>Turdus migratorius</i>	American Robin	Possible	Sparse	---	---	S5B	Heard	
<i>Hirundo rustica</i>	Barn Swallow	Observed	Sparse	---	THR	S4B	Observed	flying/feeding over SWM pond
<i>Poecile atricapillus</i>	Black-capped Chickadee	Possible	Spare	---	---	S5	Heard	
<i>Bombycilla cedrorum</i>	Cedar Waxwing	Possible	Rare	---	---	S5B	Heard	
<i>Geothlypis trichas</i>	Common Yellowthroat	Possible	Sparse	---	---	S5B	Heard	
<i>Charadrius vociferus</i>	Killdeer	Possible	Rare	---	---	S5B, S5N	Heard	
<i>Melospiza melodia</i>	Song Sparrow	Possible	Common	---	---	S5B	Observed	
<i>Sayornis phoebe</i>	Eastern Phoebe	Possible	Rare	---	---	S5B	Heard	
<i>Larus delawarensis</i>	Ring-billed Gull	Observed	Common	---	---	S5B, S4N	Observed	Flyovers
<i>Spizella passerina</i>	Chipping Sparrow	Possible	Common	---	---	S4B	Heard	
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	Possible	Common	---	---	S4	Observed	
<i>Picoides pubescens</i>	Downy Woodpecker	Observed	Rare	---	---	S5	Heard	
<i>Catharus fuscenscens</i>	Veery	Observed	Rare	---	---	S4B	Heard	Likely calling from forest to the south
<i>Branta canadensis</i>	Canada Goose	Possible	Common	---	---	S5	Observed	Observed on stormwater management pond or as fly overs
<i>Anas platyrhynchos</i>	Mallard	Confirmed	Common	---	---	S5	Observed	Observed on stormwater management pond with ducklings
<i>Scolopacidae sp.</i>	Sandpiper Species	Observed	Rare	---	---	--	Observed	Observed on stormwater management pond edge

SCIENTIFIC NAME	COMMON NAME	BREEDING STATUS	ABUNDANCE WITHIN STUDY AREA	SARA ¹	ESA ²	S-RANK ³	OBSERVED/ HEARD	COMMENTS
<i>Icterus galbula</i>	Baltimore Oriole	Observed	Rare	---	---	S4B	Heard	
<i>Tyrannus tyrannus</i>	Eastern Kingbird	Possible	Rare	---	---	S4B	Heard	
<i>Spizella pallida</i>	Clay-coloured Sparrow	Possible	Sparse	---	---	S4B	Heard	
<i>Ardea herodias</i>	Great Blue Heron	Possible	Sparse	---	---	S4	Observed	Observed on stormwater management pond edge
<i>Troglodytes aedon</i>	House Wren	Observed	Rare	---	---	S5B	Heard	
<i>Zonotrichia albicollis</i>	White-throated Sparrow	Observed	Rare	---	---	S5B	Heard	Heard from adjacent woodlot edge
<i>Passerculus sandwichensis</i>	Savannah Sparrow	Possible	Sparse	---	---	S4B	Heard	
<i>Quiscalus quiscula</i>	Common Grackle	Observed	Sparse	---	---	S5B	Observed	

¹Federal Species at Risk Act; ²Provincial Endangered Species Act (THR= threatened); ³S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common. --- denotes no information or not applicable.

5.4.4

Species at Risk

No Butternut trees were observed within the Study Area during ELC surveys.

Barn Swallow was observed over the SWM pond adjacent to the Study Area in 2013. Based on the presence of structures (buildings, etc.) in the Study Area, a nest search was completed in 2014, during which no suitable nesting structures or nests were observed. Currently the buildings within the Study Area are new build (site trailers) in addition to old shipping containers being stored. Due to the agricultural nature of the lands to the south it is possible Barn Swallows are nesting in agricultural barns or outbuildings outside of the Study Area.

Bobolink and Eastern Meadowlark were considered during breeding bird surveys in 2013, during which no Bobolink or Eastern Meadowlark were observed. Furthermore, as the majority of the Study Area is active row crop agriculture, there is limited potential for habitat for these species. The areas of mixed meadow existing within the Study Area are disturbed by adjacent land uses, contain an abundance of weeds and invasive species (Common Reed) and are not large enough to provide habitat for these species. Therefore, impacts to these species are not anticipated as a result of the proposed development.

5.5

Tree Inventory

The results of site visits in 2013 determined that no woodlands are present nor does the Study Area contain mature trees meeting the 50 cm DBH or greater threshold defined in the City of Ottawa Tree Protection Guidelines. The confirmatory site visit in 2018 documented an area of trees along the eastern boundary of the western portion of the Study Area. None of these trees measured over 50 cm DBH. See photos included in **Appendix A**.

All trees identified are considered common to the Ottawa area and none were considered at risk. **Table 9** below outlines the tree species with DBH >10 cm that were identified within the Study Area in 2013.

TABLE 7: TREE SPECIES WITHIN THE STUDY AREA

SCIENTIFIC NAME	COMMON NAME	SARA ¹	ESA ²	S-RANK ³	NOTES
<i>Populus tremuloides</i>	Trembling Aspen	---	---	S5	Species occurred sporadically throughout the meadow communities. All less than 10 cm.
<i>Salix eriocephala</i>	Heart-leaved Willow	---	---	S5	Species was mainly confined to the areas surrounding the mixed meadow marsh. All less than 10 cm.
<i>Salix alba</i>	White Willow	---	---	SNA	Species occurred mainly around mixed meadow

SCIENTIFIC NAME	COMMON NAME	SARA ¹	ESA ²	S-RANK ³	NOTES
					marsh and in depressions. All less than 10 cm.

¹Federal Species at Risk Act; ²Provincial Endangered Species Act; ³S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common.

As no trees were observed >50 cm DBH, potential impacts to trees have been included under impacts to vegetation in **Section 7.2**.

5.6

Incidental Wildlife

Incidental wildlife species observed in the Study Area are listed in **Table 8** below. With the exception of Monarch which has an S-rank of S2 / SN4, all species observed are common in the Ottawa area and have an S-Rank of S4 or S5.

TABLE 8: INCIDENTAL WILDLIFE SPECIES OBSERVED WITHIN THE STUDY AREA

Scientific Name	Common Name	ESA	SARA	S-Rank	Resident/Visitor
<i>Actitis macularius</i>	Spotted Sandpiper	---	---	S5	Adjacent to SWM pond.
<i>Rana pipiens</i> Northern	Northern Leopard Frog	---	---	S5	Observed adjacent to SWM pond.
<i>Danaus plexippus</i>	Monarch	SC	SC	S2N,S4B	Observed flying over mixed meadow.
<i>Papilio polyxenes</i>	Black Swallowtail	---	---	S5	Observed flying over mixed meadow.

Since the Study Area does not meet the criteria for migratory butterfly stopover areas (must be within 5 km of Lake Ontario), no significant wildlife habitat was noted. Potential impacts to general wildlife have been included in **Section 7.3**.

6.0

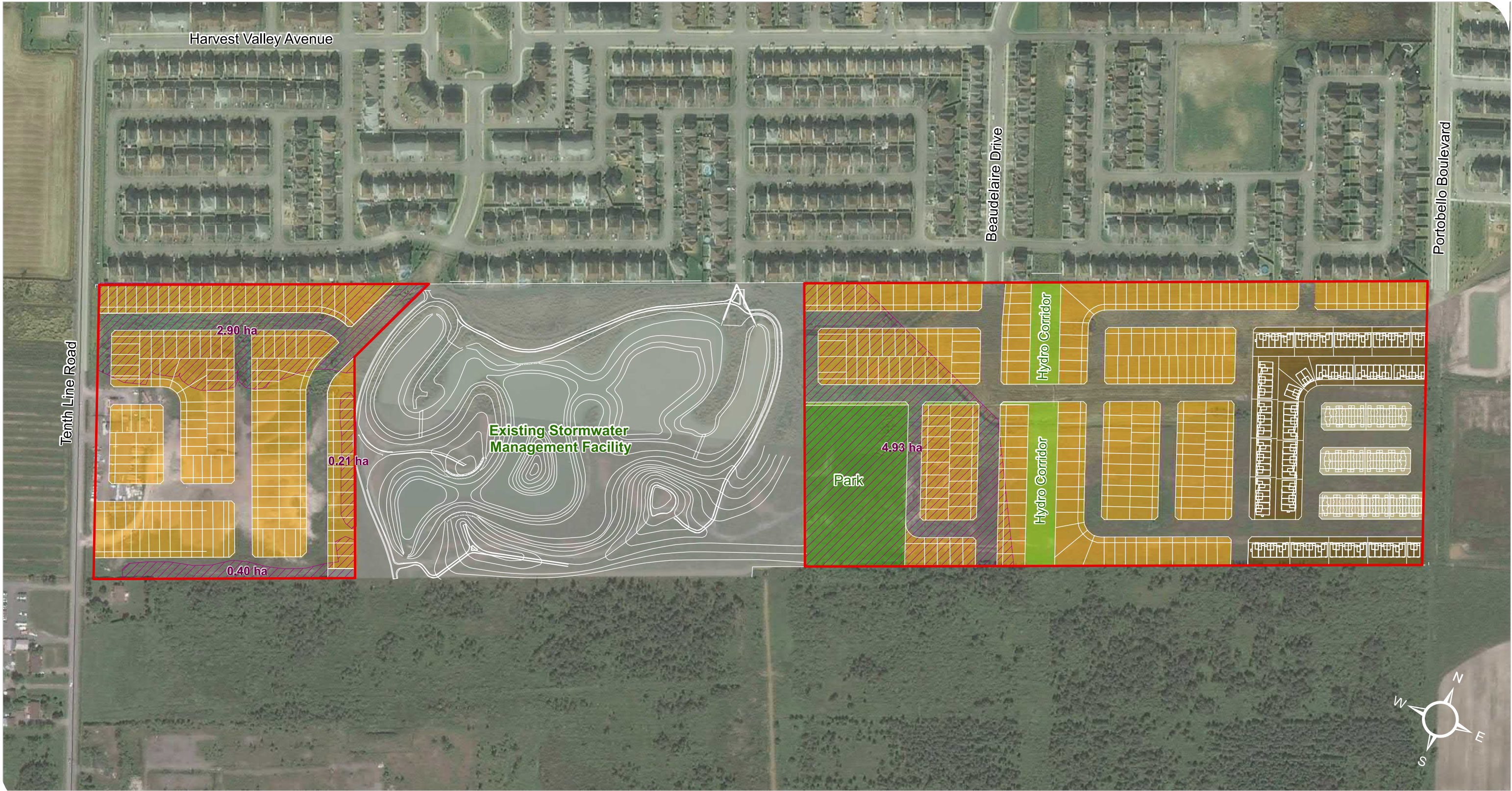
Description of the Proposed Project

The proposed residential development presented in **Figure 4** consists of a mix of single family units, townhomes, multiple family units as well as an area of parkland.

Construction of the proposed development may include, but is not limited to, the following:.

- Surveying and staking out the development;
- Clearing and grading property to accommodate construction;
- Installation of stormwater drainage network and related infrastructure;
- Excavation to accommodate underground utilities including water, sewer, gas, and hydro;
- Paving roadways;
- Excavation and construction of houses;
- Landscaping and fencing; and,
- On-going usage and maintenance.

The potential impacts of the development and the recommended mitigation measures will be discussed in **Section 7.0**.













**Minto Communities Inc.
Avalon Isgar Residential
Development**

Figure 4:
Proposed Development
and Potential Impacts

FINAL

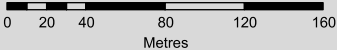


	Study Area		Avenue Townhomes		Park
	Major Road		Executive Townhomes		Existing Stormwater Management
	Proposed Site Plan		Single Family Homes		
	Vegetation Removal		Open Space / Pathways		



MAP DRAWING INFORMATION:
DATA PROVIDED BY DILLON

MAP CREATED BY: LK
MAP CHECKED BY: WM
MAP PROJECTION: NAD 1983 UTM Zone 18N



7.0

Impact Assessment and Mitigation

The following sections outline general measures that should be considered to mitigate the impacts associated with the proposed development (**Figure 4**). This includes both construction related mitigation measures and mitigation measures to address impacts related to impacts associated with the occupation of the development.

7.1

Aquatic Environment

Field surveys in 2013 determined that drainage within the Study Area has been altered by the construction of the SWM facility adjacent to the Study Area.

7.1.1

Impacts

As a result, negative impacts to surface water or fish habitat within the Study Area are not anticipated; however negative impacts on water quality within downstream reaches outside of the Study Area may be possible during construction activities. This is generally caused by an increase in soil erosion during rain events which, when combined with the increased amount of exposed soil inherent in an active construction site, can cause increased sedimentation of watercourses. In addition, heavy construction equipment being operated on wet soils can also cause an increase in soil erosion. If unmitigated, this increased sediment load can be transported downstream and harm aquatic habitats. Given this Study Area is entirely covered by heavy clay soils with a very low rate of infiltration, the area is especially sensitive to overland flows during heavy rain events.

The potential impacts to surface water and fish habitat are:

- Loss of contributing fish habitat (flow);
- Reduction in seasonal water flow into the Bear Brook subwatershed and water storage potential within the Study Area; and,
- Reduction in water quality downstream of the Study Area.

7.1.2

Mitigation

As there are previous and ongoing disturbances within the Study Area, mitigation for the removal of surface water features should be achievable through SWM design for the development. The SWM plan should replicate conveyance and habitat functions of removed surface water features. In addition, the following mitigation measures should be followed to prevent impacts to surface water and fish habitat:

- Heavy duty silt fencing (OPSD 219.130) and/ or other equivalent erosion and sediment control measures should be installed around the perimeter of the work area to clearly demarcate the development area and prevent erosion and sedimentation into adjacent habitats. Erosion and sediment control measures should be monitored regularly to ensure they are functioning properly and if issues are identified should be dealt with promptly;
- Stockpiling of excavated material should not occur outside the delineated work area. If stockpiling is to occur outside of this area, silt fencing should be used to contain any spoil piles to prevent sedimentation into adjacent areas;
- A spill response plan should be developed and implemented as required;
- It is recommended that dewatering ponds (OPSD219.240) or similar standards should be implemented to avoid sedimentation and erosion in adjacent areas. If dewatering requires more than 50,000 L of water to be pumped per day, appropriate permits must be obtained from the Ministry of Environment and Climate Change prior to the dewatering; and,
- A stormwater management plan should be developed and implemented which maintains pre-development surface water flows to adjacent lands (quantity, quality, infiltrations, conveyance patterns, and seasonality of water flow).

7.2

Vegetation Communities

7.2.1

Impacts

Based on the disturbances within the Study Area and presence of invasive species, negative impacts of vegetation removal are not anticipated. Furthermore, removal of invasive species would benefit the area, removing seed banks and replacing them with native trees and shrubs. The proposed development requires removal of the following vegetation communities:

- Mixed Meadow: 7.2 ha
- Shallow Marsh: 0.7 ha
- Deciduous Fencerow (trees): 0.2 ha

Despite the removal of invasive species, the following, are potential impacts that may occur as a result of vegetation removal:

- The permanent loss of general habitat for wildlife; and,

- Erosion and sedimentation into adjacent vegetation communities, including large woodland/ wetland area to the south of the Study Area.

7.2.2

Mitigation

The installation and maintenance of standard erosion and sediment control measures should be implemented to protect the terrestrial environment outside of the development area, including the following:

- Heavy duty silt fencing (OPSD 219.130) should be installed around the perimeter of the work area to clearly delineate the development from the adjacent habitat. This will prevent encroachment into natural features and minimize the likelihood of animals entering the construction area. Erosion and sediment control measures should be monitored regularly to ensure they are functioning properly and if issues are identified should be dealt with promptly;
- Stockpiling of excavated material should not occur outside the delineated work area. If stockpiling is to occur outside of this area, silt fencing should be used to contain any spoil piles to prevent sedimentation into adjacent areas;
- If dewatering is required it is recommended that dewatering ponds (OPSD219.240) or similar standards should be implemented to avoid sedimentation and erosion in adjacent areas. If dewatering requires more than 50,000 L of water to be pumped per day, appropriate permits must be obtained from the Ministry of Environment and Climate Change prior to the dewatering; and,
- All construction equipment should enter the site clean and free of debris, and should be visually inspected upon entry for evidence of plant material to prevent the spread of invasive species to the site.

In addition, mitigation post-construction would be recommended, which may include, but is not limited to:

- Provide new homeowners with lists of locally appropriate native species for use in landscaping, along with information on the negative impacts of non-native species.
- Installation of garbage bins in public spaces (i.e., park); and,
- The addition of signage intended to discourage littering.

7.3

General Wildlife Habitat

7.3.1

Impacts

The anticipated vegetation removal, construction activities, and the future land use associated with the proposed development have the potential to cause negative impacts to general wildlife which may include the following:

- Loss of foraging habitat and possible nesting and denning habitat;
- Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities;
- Disturbance to wildlife as a result of noise associated with construction activities, particularly during breeding periods; and,
- Conflict between wildlife and humans or domestic pets following development, including predation, mortality from vehicles, and poisoning.

7.3.2

Mitigation

The best practices outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa, 2015) should be followed during all construction activities associated with the development. The following measures are consistent with the City protocol:

- Minimize impacts to breeding birds by clearing naturalized vegetation outside of the breeding bird season (April 1 – August 31). Should any clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours prior to clearing activities. If nests are found, work within 10 m of the nest should cease until the nest has fledged. If no nests are present, clearing may occur. This is in accordance with the federal *Migratory Birds Convention Act*;
- Pre-stress the area on a regular basis leading up to construction to encourage wildlife to leave the area before construction starts. Other recommendations for pre-stressing are outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa 2015);
- Orange snow fencing should be installed around the perimeter of the work area to clearly demarcate the development area and prevent wildlife from entering the construction zone. Fencing should be monitored regularly to ensure they are functioning properly and if issues are identified should be dealt with promptly;
- Ensure perimeter fencing does not prevent wildlife from leaving the site during clearing activities by clearing the area prior to installing the fence;
- Wildlife located within the construction area will be re-located to an area outside of the development into an area of appropriate habitat, as necessary;
- Construction crews working on site should be educated on local wildlife and take appropriate measures for avoiding wildlife; and,
- Should an animal be injured or found injured during construction they should be transported to an appropriate wildlife rehabilitation center for care with a small donation of money to help pay for the care (a local facility is the Rideau Valley Wildlife Sanctuary).

In addition, the following measures are recommended to avoid negative impacts to wildlife post-construction:

- Provide Owner Awareness Package to all new residents. This information could include;
 - Impacts of cat predation on bird populations and the importance of keeping household cats indoors;
 - Legal restrictions of uncontrolled pets;
 - The risks of feeding wildlife; and
 - Mitigation options for reducing the potential bird strikes with windows (i.e., falcon silhouette stickers for windows).

8.0

Summary and Conclusions

This report outlines the environmental impacts associated with the construction and long-term occupation of the Avalon Isgar residential development, located at 2605 Tenth Line Road.

Impacts associated with this proposed development include the removal of 7.2 ha of meadow habitat, 0.7 of shallow marsh habitat, and 0.2 ha of treed area; as well as removal of ephemeral surface water features, and general habitat for birds and other native wildlife.

The mitigation and compensation measures proposed in this report have been developed to avoid negative impacts associated with development on the natural environment. Overall, minimal residual impacts are anticipated as a result of this development provided the mitigation described in this report is applied.

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Appendix A

Site Photos

**Photo 1 – Eastern
Portion of Study
Area**

July 2013

MEMM3 – Mixed
Meadow
Directly adjacent to
east side of
stormwater
management pond



**Photo 2 – Eastern
Portion of Study
Area**

July 2013

MEMM3 – Mixed
Meadow



**Photo 3 – Eastern
Portion of Study
Area**

February 2018

OAGM2 – Annual
Row Crop
(Soybean)



**Photo 4 – Eastern
Portion of Study
Area**

July 2013

MAMM1

Graminoid Mineral
Meadow Marsh
inclusion in the
larger MEMM
community



**Photo 5 – Eastern
Portion of Study
Area**

February 2018

OAGM2 – Annual
Row Crop
(Soybean)

Low-lying area
previously
identified as
meadow marsh



**Photo 6 – Eastern
Portion of Study
Area**

February 2018

OAGM2 – Annual
Row Crop
(Soybean)

Low-lying area
previously
identified as
meadow marsh



**Photo 7 – Western
Portion of Study
Area**

July 2013

CVC_2 – Light
Industry



**Photo 8 – Western
Portion of Study
Area**

February 2018

MEMM3 – Mixed
Meadow

Cleared ground
from Photo 6 is in
preliminary stages
of naturalization.



**Photo 9 – Western
Portion of Study
Area**

February 2018

MASM1 –
Graminoid Mineral
Shallow Marsh

Marsh experiences
high disturbance
from active soil
stock piling.



**Photo 10 –
Western Portion of
Study Area**

July 2013

CVC_2 – Light
Industry

Active stock piling.



**Photo 11 –
Western Portion of
Study Area**

February 2018

CVC_2 – Light
Industry

Active stock piling
remains.



**Photo 12 –
Western Portion of
Study Area**

February 2018

TAGM5 – Fencerow



Appendix B

Vegetation List

Scientific Name	Common Name	S-RANK	Coefficient Conservation	Coefficient Wetness
<i>Asclepias syriaca</i>	Common Milkweed	S5	0	5
<i>Daucus carota</i>	Wild Carrot	SNA	0	5
<i>Echium vulgare</i>	Viper's Bugloss	SNA	0	5
<i>Linaria vulgaris</i>	Butter-and-eggs	SNA	0	5
<i>Medicago lupulina</i>	Black Medic	SNA	0	1
<i>Vicia cracca</i>	Cow Vetch	S5	0	5
<i>Achillea millefolium ssp. millefolium</i>	Common Yarrow	SNA	0	3
<i>Alisma plantago-aquatica</i>	Common Water-plantain	S5	3	-5
<i>Asclepias incarnata</i>	Swamp Milkweed	S5	6	-5
<i>Aster sp</i>	Aster Species	---	---	---
<i>Bidens sp</i>	Beggar-ticks Species	---	---	---
<i>Carex sp</i>	Sedge Species	---	---	---
<i>Carex stipata</i>	Awl-fruited Sedge	S5	3	-5
<i>Carex vulpinoidea</i>	Fox Sedge	S5	3	-5
<i>Chrysanthemum leucanthemum</i>	Ox-eye Daisy	SNA	0	5
<i>Cirsium arvense</i>	Canada Thistle	SNA	0	3
<i>Eleocharis sp</i>	Spike-rush Species	---	---	---
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	S5	1	-3
<i>Eupatorium maculatum</i>	Spotted Joe-pye-weed	S5	3	-5
<i>Eupatorium perfoliatum</i>	Common Boneset	S5	2	-4
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	S5	2	-2
<i>Grass sp</i>	Grass Species	---	---	---
<i>Juncus sp</i>	Rush Species	---	---	---
<i>Lythrum salicaria</i>	Purple Loosestrife	SNA	0	-5
<i>Mentha arvensis</i>	Wild Mint	S5	3	-3
<i>Pastinaca sativa</i>	Wild Parsnip	SNA	0	5
<i>Phalaris arundinacea</i>	Reed Canary Grass	S5	0	-4
<i>Phragmites australis</i>	Common Reed	S5	0	-4
<i>Populus tremuloides</i>	Trembling Aspen	S5	2	0
<i>Rhus typhina</i>	Staghorn Sumac	S5	1	5
<i>Rubus idaeus ssp. melanolasius</i>	Wild Red Raspberry	S5	0	-2
<i>Salix alba</i>	White Willow	SNA	0	-3
<i>Salix eriocephala</i>	Woolly-headed Willow	S5	4	-3

Scientific Name	Common Name	S-RANK	Coefficient Conservation	Coefficient Wetness
<i>Schoenoplectus tabernaemontani</i>	Softstem Bulrush	S5	5	-5
<i>Sium suave</i>	Water-parsnip	S5	4	-5
<i>Solanum dulcamara</i>	Bittersweet Nightshade	SNA	0	0
<i>Solidago altissima</i> var. <i>altissima</i>	Tall Goldenrod	S5	1	3
<i>Urtica dioica</i> ssp. <i>dioica</i>	European Stinging Nettle	SNA	0	-1