# Uniform Development

## Environmental Impact Statement Avoidance and Mitigation Measures Update

4386 Rideau Valley Drive

CIMA+ file number: A001244C
December 19, 2024 – Review 002

# Uniform Development

## Environmental Impact Statement Avoidance and Mitigation Measures Update

4386 Rideau Valley Drive

CIMA+ file number: A001244C

Al Quinsey, Biologist

Michelle Lavictoire, Senior Biologist

Suite 600, 1400 Blair Road Towers, Ottawa, ON
Canada K1J 9B8

December 19, 2024 – Review 002

## Confidentiality and ownership



## Table of involved resources

In addition to the signatories of this report, the following individuals have also been involved in the study and writing of the report as technical experts within the project team:

| Name | Discipline |
|---|---|
| Sophie Lafrance | Biologist (B. Sc., GDipER), Aquatic Component |
| Michelle Lavictoire | Senior Biologist (B.Sc., M.Sc.), Technical Input and Final Review |
| Casey Little | Biologist (GDipEM), Terrestrial Component & Reporting |
| Al Quinsey | Biologist (B.Sc.), Terrestrial Component |
| Amal Siddiqui | Biologist (B. Sc, M. Sc.), QA/QC, Amphibian Surveys and Reporting |
| Jake Zientek | Junior Technician (GDip, Fisheries and Wildlife Tech), Data Entry |
| | |
| | |
| | |

| Review and submission register | | | |
|---|---|---|---|
| Review No. | Reviewed by | Date | Description of the change or submission |
| 001 | ML, AQ | 2024/08/01 | Address City Comments |
| 002 | ML, AQ | 2024/12/19 | Address City Comments from 3rd Review |
| | | | |
| | | | |

# Table of Contents



# List of Tables

# List of Figures



# List of Appendices

# List of Acronyms

| | |
|---|---|
| ABBO | Atlas of Breeding Birds of Ontario |
| ANSI | Area of Natural and Scientific Interest |
| BHA | Butternut Health Assessment |
| BHE | Butternut Health Expert |
| COSEWIC | Committee on the Status of Endangered Wildlife in Canada |
| EIS | Environmental Impact Statement |
| DFO | Fisheries and Oceans Canada |
| ECCC | Environment and Climate Change Canada |
| ESA | *Endangered Species Act, 2007*(Provincial) |
| FWCA | *Fish and Wildlife Conservation Act, 1997* (Provincial) |
| NHIC | Natural Heritage Information Centre |
| MBCA | *Migratory Bird Convention Act, 1994* (Federal) |
| MBR | Migratory Bird Regulation (2022) (Federal) |
| MECP | Ministry of Environment, Conservation and Parks |
| MNRF | Ministry of Natural Resources and Forestry |
| OMNR/MNRF/MNDMNRF | Ontario Ministry of Natural Resources (old name)<br>Ministry of Natural Resources and Forestry (old name)<br>Ministry of Northern Development, Mines, Natural Resources and Forestry |
| OP | Official Plan |
| RVCA | Rideau Valley Conservation Authority |
| SAR | Species at Risk (in this report they refer to species that are provincially or federally listed as endangered or threatened and receive protection under ESA or SARA) |
| SARA | *Species at Risk Act* (Federal) |
| SARO | Species at Risk in Ontario |
| SWH | Significant Wildlife Habitat |
| TCR | Tree Conservation Report |

# Definitions

**SRANK Definitions**

S1 Critically Imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.

S2 Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

S3 Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 Apparently Secure; uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 Secure; Common, widespread, and abundant in the nation or state/province.
? Inexact Numeric Rank—Denotes inexact numeric rank
SNA Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#B Breeding
S#N Non-Breeding

**SARA Status Definitions**

END Endangered: a wildlife species facing imminent extirpation or extinction.
THR Threatened: a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC Special Concern: a wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

**SARO Status Definitions**

END Endangered: A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.
THR Threatened: A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
SC Special Concern: A species with characteristics that make it sensitive to human activities or natural events.

# 1. INTRODUCTION

Uniform Developments, the Client, is planning to begin construction on a residential development located at 4386 Rideau Valley Drive. CIMA+ prepared an Environmental Impact Statement and a Tree Conservation Report (TCR) (CIMA+, 2022). There have been changes to the stormwater management plan and open space/parkland since that report was completed. CIMA+ also completed amphibian surveys in the Oxbow in 2023.

## 1.1 Purpose

The purpose of this report is to document the new information collected in 2023, documents the new stormwater management plan, reviews the water budget analysis (Novatech, 2024), and updates the avoidance and mitigation measures to current guidelines. The report is divided into four parts, introduction (including review of changes), site investigations, a review of legislations, and updated avoidance and mitigation measures. A review and update to the potential endangered or threatened species and their habitats is found in Appendix A. The Tree Conservation Report will be updated at detailed design, however the mitigation measures from that report are included here and have been update as per comments received from the City's Forestry staff (letter dated November 2, 2023).

The proponent owns two parcels; 4386 Rideau Valley Drive on the west side, and another parcel on the east (along the Rideau River). The second parcel does not have a civic number. Both parcels are in part of Lot 1, Concession 1, of the Geographic Township of Nepean.

For the purposes of this report, the "Site" refers to the portion of the 4386 Rideau Valley Drive property that will be physically impacted by the creation of the subdivision as well as all impacts to the property on the other side of Rideau Valley Drive which is where the activities associated with the outlet will now take place. These two distinct areas are referred to as the "Subdivision Lands" and "Open Space Lands". The "Project" refers to all works proposed for the development of the subdivision (i.e., grading, lot creation, road creation, infrastructure), including the outlet. The potential to impact the natural heritage features in the Site or in the adjacent lands (i.e., 120 m for natural heritage features, or as appropriate based on provincial requirements for species at risk (SAR)) were evaluated in the original EIS and this report has noted any changes to that impact assessment.

## 1.2 Summary of Project Activities

As described in the EIS/TCR (CIMA+, 2022), the development of the residences will include the following activities:

- Clearing of terrestrial vegetation
- Excavation, grading, and backfilling
- Construction of residences and services (subdivision will be fully serviced)

Early on in the process, the Project was adjusted to minimize impacts to the natural heritage features:

- The buildings, parking and access road are not situated within any of the identified natural heritage features.
- Setbacks were established, based on the greatest of hazard or natural heritage features. All of the development limits (conservation authority's, geotechnical, top of bank and existing stable to of slope) are depicted on the Constraints Plan Figure 4, July 2024 (Novatech, 2024). For this project, the most restrictive limits are:
  - Mud Creek and its Oxbow 30m
  - Wilson Cowan Drain 15m.
- The grading plan remains the same as the previous submission.
- Only a small portion of the development is situated within the Category 2 habitat of Blanding's Turtle and this area is currently row cropped. This has not changed and was submitted to Ministry of Environment, Conservation, and Parks (MECP) for review. MECP will be contacted again, once detailed design phase begins.

The changes to the site plan with this application are:

- The parkland on the east side of Rideau River is now simply an Open Space and is referred to as the "Open Space Lands" herein.
- The stormwater outlet will now discharge towards Rideau River via a swale in the Open Space Lands. This results in changes to impacts during construction and operation which are described in the section below.

## 1.3 Changes to Analysis of Impacts

The description of the natural environment from the previous EIS (CIMA+, 2022) remains appropriate as that EIS assumed significance of significant wildlife habitat unless the appropriate surveys were carried out. It also included avoidance and mitigation measures based on those assumptions. However, the impact analysis of the Project on the lands within 30m of the Rideau River and the Oxbow has now changed. Again, it is noted that the EIS had reviewed the potential of all of the Project's activities to the natural features in and within the appropriate adjacent lands. The adjacent lands are typically 120 m for natural heritage features with the exception of endangered and threatened species, where the adjacent lands are those described by the province for that species.

The initial stormwater outlet plan discharged to the Oxbow. Based on the other infrastructure constraints and environmental constraints at the Oxbow, the location of the outlet was revised and is now discharging into the Rideau River. The changes to the proposed works near the Rideau River stem from the construction of an outlet, headwall and swale (with erosion protection) on the east side of Rideau Valley Drive. This infrastructure will be in the area that is within the flood plain and is currently mowed. The swale is on the top of the tablelands and outside of the area that was ponded/backwatered by the Rideau River during the early spring EIS investigations. The construction of this area has the potential to impact turtles and fish but can readily be mitigated

with well-understood measures such as exclusion fencing, timing windows, erosion and sediment control measures and monitoring. These impacts are similar to those anticipated for the previously proposed passive parkland. The parkland is no longer part of the Project, instead all of that area is now Open Space. As such, other than slight changes to the information that will be communicated to Fisheries and Oceans Canada (DFO) and MECP, and adjustments to wording to clarify that all impacts by all Project activities were assessed, the advice provided in the EIS does not differ. The appropriate changes have been made in the list of avoidance and mitigation measures herein.

The benefit of discharging to the Rideau River is that the previous proposal included a small amount of work below the high-water mark of the Oxbow for the construction of the headwater (there was no swale needed for that design). Similarly to that noted in the paragraph above, the impacts from the previous iteration of this Project could have affected turtles, and fish as well as assumed significant wildlife habitat (amphibians) but all impacts could be mitigated. Those impacts will no longer take place. As such, the construction impacts to the Oxbow have been eliminated. However, by changing where the stormwater is released, the pre-development and post-development overland flow contribution to the Oxbow is now altered. There is no change to the pre- and post-development contributions to Rideau River, Mud Creek or Wilson Cowan Drain.

The new plan results in a decrease by roughly 66% of the overland flow contributions to the Oxbow as compared to pre-development contributions. Novatech (2024) has analysed the potential affect this may have on the water levels in the Oxbow in their Water Budget memorandum dated April 16, 2024. They have determined that the existing footprint of the permanent water in the Oxbow is roughly 1000m$^3$ and it is controlled by the berm on the downstream end. This berm is regularly overtopped by Mud Creek (especially in the spring) as the 2-year water level of the creek is 82.22m about 0.9m higher than the top of the berm. While this provides an influx of water, that water quickly flows out as the water levels of Mud Creek drop. Under existing conditions, water levels in the Oxbow fluctuate in accordance with the water levels in Mud Creek and rain events. As noted above, there will now be 66% less overland flow to the Oxbow. However, Novatech determined that the amount of runoff from the Subdivision Lands both pre-development and post-development exceeds the capacity of the Oxbow. As such, while there is less overland flow, it is still sufficient to counter balance the rates of evaporation and infiltration and maintain similar conditions. Based on this, the ecological function of the Oxbow will remain the same.

## 1.4 Summary of Commitments

The following commitments have been made:

1. Ensure that an inventory and health assessment are completed for butternut and black ash roughly 1-year prior to clearing. Timing is to ensure that the surveys are completed during the appropriate timing window (currently combine timing approved by the province would be June 1-August 31) and to allow for sufficient time for any permitting (1+ years)

but to prevent the need to repeat the surveys due to their limited shelf-life (i.e., butternut inventories and assessments are valid for 2 years).

2. Submit the proposed works to DFO for their review for any activity that could affect below the high water mark or indirectly impact water levels.
3. Continue to the ongoing discussions with MECP for Blanding's Turtle. Currently anticipate only fencing requirements:
    a. Permanent fencing attached to the lower section of the chain link fence on the Subdivision Lands
    b. Temporary exclusion fencing during construction of the outlet and access road on the Open space Lands
4. Ensure that the revegetation of the buffers meets the intent of renaturalisation as per the outline in the Renaturalization Plan provided by Novatech.
5. Review of legislations, throughout the construction period, to ensure that avoidance and mitigation measures continue to be applicable (i.e., ensure that any new guidance on timing windows or newly listed species at risk are considered).

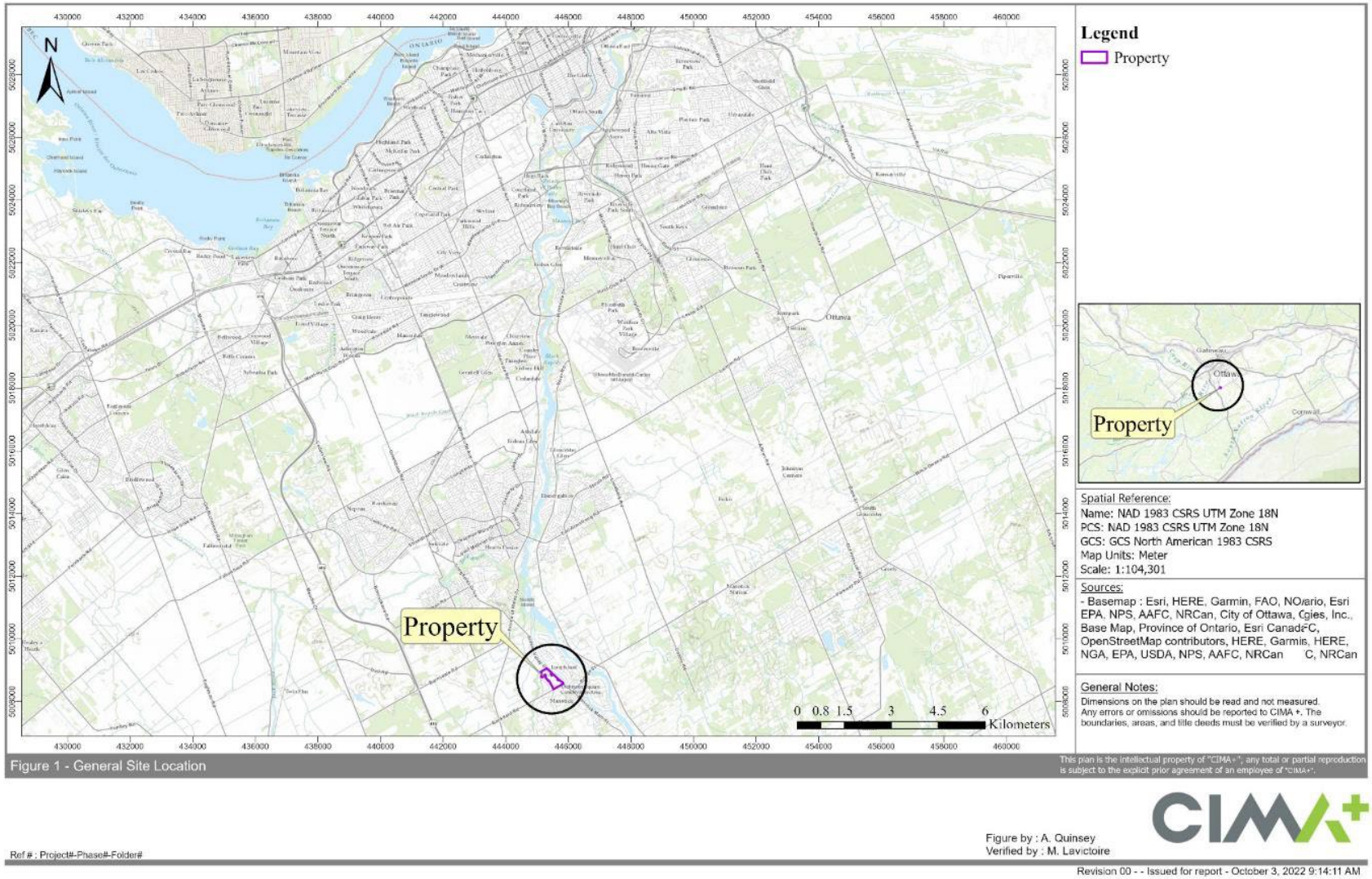


**Figure 1: General Location of Development**

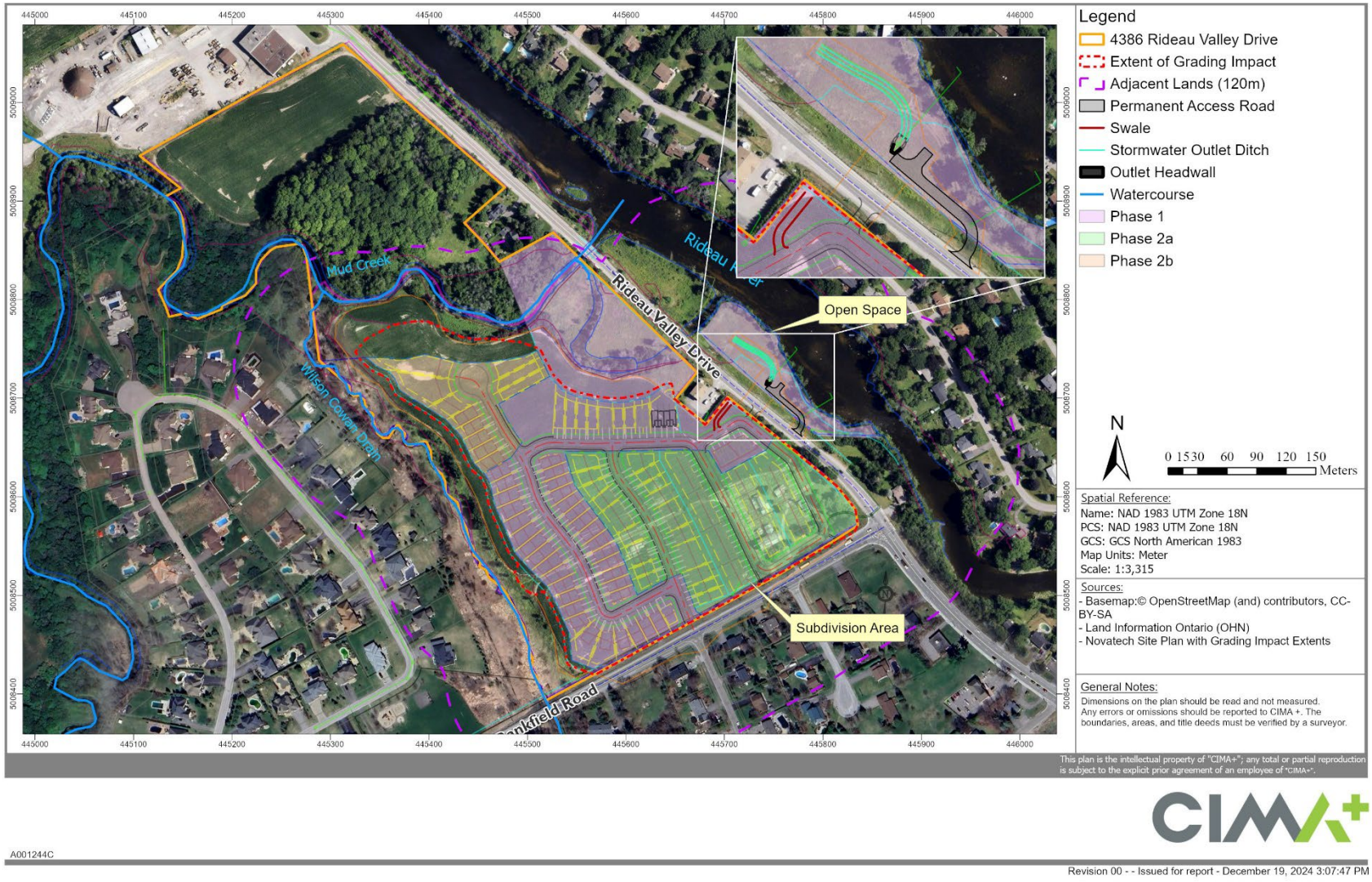


**Figure 2: Property, Subdivision Lands, Open Space Lands, and the Adjacent Lands**

# 2. ADDITIONAL SITE INVESTIGATIONS

The only additional data collected on Site since the EIS (CIMA+, 2022) was the completion of amphibian surveys to determine if the Oxbow should continue to be assumed to provide the ecological function of significant wildlife habitat for amphibians. Preliminary results from this work was provided to the City in a letter dated Augustu 18, 2023 (CIMA+, 2023).

## 2.1 Amphibian Survey

### 2.1.1 Methods

Nighttime amphibian calling surveys were completed based on the *Environment Canada Marsh Monitoring Program* (MMP) guide (2008). The protocol is summarized below. Note that the timing of work was such that the first visit was missed, and instead a daytime search for amphibians and eggs was completed.

+ The evening surveys were completed twice once during the second and third survey periods of May 15-30 and June 15-30.
+ Observations began 30 minutes after sunset and ended before midnight;
+ Each station was surveyed for 3 minutes during which time the species, the calling code and the location of the heard calls were recorded. The calling codes were recorded as one of the following:
    - Code 1: Calls not simultaneous, number of individuals can be accurately counted
    - Code 2: Some calls simultaneous, number of individuals can be reliably estimated
    - Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated
+ Surveys were only conducted if the wind strength was Code 0, 1, 2 or 3 on the Beaufort Wind Scale.

The evaluation of significance for significant wildlife habitat was completed per the *Significant Wildlife Habitat Ecoregion Criteria Schedule 6E* (SWHESC) (OMNRF, 2015). The guideline provides advice on the minimum habitat requirements to be considered “candidate”, along with key indicators (in this case amphibian species), and the number and diversity required for the feature to be deemed significant.

### 2.1.2 Results

Three additional site visits were undertaken in 2023. The timing and environmental conditions during these visits is provided in the table below. The environmental conditions during the evening surveys met the requirements as per the protocol. As noted above, the end of April survey period was not possible and so the daytime May 10, 2023 visit was intended to provide additional

information from early breeders. Three amphibian species were documented: American Toad, Green Frog, and Bullfrogs. The sightings included one egg cluster (American Toad) and more than 15 Bullfrogs. In addition, three Green Frogs were observed (but these were not calling during the surveys).

**Table 1: Site Visit Table 2023**

| Date | Time (h) | Staff | Air Temperature (Min-Max) °C* | Cloud Cover (%)<br>Beaufort Wind Scale [Descriptor (scale)] | Total Rainfall (mm) 7 days prior to visit* | Water Level Conditions** |
|---|---|---|---|---|---|---|
| May 10, 2023 | 1530-1600 | A. Quinsey | 16<br>(3.1-22.8) | Hazy<br>Wind: Light Breeze (2) | 11.3 | Flood Watch |
| May 23, 2023 | 2100-2115<br>2205-2208 | A. Quinsey | 15<br>(2.6-23.6) | Mainly Clear (25)<br>Wind: Light Breeze (2) | 14.5 | Flood Watch |
| June 19, 2023 | 2100-2130 | A. Siddiqui<br>J. Zientek | 19<br>(12.7-22.9) | Clear (0)<br>Wind: Calm (0) | 14.5 (0.8 from day of) | Normal |

A. Quinsey – Al Quinsey - B.Sc. Environmental Biology
A. Siddiqui – Amal Siddiqui – B.Sc. Biology, Master of Forestry and Conservation (MFC)
J. Zientek – Jake Zientek – Graduate Diploma, Fisheries and Wildlife Technician

*Min-Max Temp Taken From: Environment Canada. National Climate Data and Information Archive. Ottawa International Airport. Available https://climate.weather.gc.ca/ [May 19, 2022].
**Water Level Conditions taken from Rideau Valley Conservation Authority (RVCA) https://www.rvca.ca/volunteer/city-stream-watch/tag/Flood%20Watch

**Water Level Definitions**
Flood Watch Flooding is possible in specific watercourses or municipalities. Municipalities, emergency services and individual landowners in flood-prone areas should prepare.

### 2.1.1 Discussion

In addition to the species observed in 2023, Northern Leopard Frogs were present in the Oxbow, but not calling in 2022. The 2022 EIS assumed significance of the Oxbow for amphibians. Based on the 2023, it is anticipated that it is significant. The survey data could be extrapolated to show that the minimum of 20 individuals belonging to at least two of the key indicator species were present during the appropriate time of year. Based on water level information in Novatech's Water Balance Memo (Novatech, 2024), the water depths in the Oxbow are 1 m which would provide the permanent habitat for needed for frog species that require 1+ year to transform from tadpoles to adults. It is recommended that the Oxbow continue to be assumed to be significant.

**Table 2: Summary of Amphibian Results from 2022 and 2023**

| Key Wildlife Species | Observations | Habitat Needs* |
|---|---|---|
| American Toad | One egg cluster; 3 adults | Leaves ponds around end of June |
| Green Frog | 3 adults (not calling) | Requires permanent water (1 year for tadpoles to transform) |
| Bullfrogs | >15 individuals | Requires permanent, deep water habitat (2-4 years to transform). |
| Northern Leopard Frog | Present (not calling; in 2022 only) | Leaves pond around late June to early July |
| **Defining Criteria** | **2 or more frog species meeting the minimum requirements of 20 individuals/egg clusters.** | |

* Habitat requirements from OMNRF, 2014

# 3. REGULATION REVIEW

The CIMA+ report was written in 2022 and there have been no changes to the City of Ottawa's Official Plan or guiding documents, *Fisheries Act, Endangered Species Act, Species at Risk Act,* or *Fish and Wildlife Conservation Act* since. Changes to species protected as SAR is documented in Appendix A. The *Migratory Bird Convention Act* also remains unchanged but the new *Migratory Bird Regulations* only came into effect on July 30, 2022; a summary of this change is provided in the paragraph below. In addition, the list of potential endangered and threatened species and information on their habitats has also changed; this data is summarized in Appendix A.

The *Migratory Birds Convention Act, 1994* (MBCA) regulates the protection and conservation of migratory birds as populations and individuals. It also offers protection for nests containing a live bird or viable eggs for most migratory bird species. Schedule 1 under the Migratory Bird Regulations (2022) lists 18 species that may reuse nests and whose nests are protected year-round regardless of occupation, unless the nest has been reported and deemed abandoned after a waiting period. Species listed under Schedule 1 that occur in Ontario include great egret, great blue heron, cattle egret, green heron, snowy egret, black-crowned night heron, and pileated woodpecker. The Migratory Bird Regulations (2022) prohibit the disturbance, damage, or destruction of migratory bird nests or eggs. These prohibitions and regulations apply to any areas where migratory birds and their nests are found in Canada.

# 4. AVOIDANCE AND MITIGATION MEASURES

The following list of avoidance and mitigation measures follows current best practices, and are based on the updated understanding of areas of impacts and construction methods outlined in Section 1.2.

## 4.1 Endangered and Threatened Species

There has been no significant change to the potential to impact protected endangered or threatened species as a result of the updated site plan. All impacts are during construction and still require similar avoidance and mitigation measures. Advice from MECP with respect to Blanding's Turtle needs to be updated based on the changes proposed, however their newer the timing windows have been included. The consultations will proceed once the stormwater plan is accepted. The pending protection of Black Ash had been noted and is now changed to endangered (previously had no status).

**General:**

- Endangered and Threatened species are protected and cannot be harmed, harassed, or killed and in some cases their habitats are also protected. These individuals will only be handled by qualified person and only if the individual is in imminent threat of harm. An authorization under the ESA 2007 would be required to handle individuals that are not in imminent threat of harm.
- If a SAR enters the work area during the construction period, any work that may harm the individual is to stop immediately and the supervisor will be contacted. No work will continue until the individual has left the area.
- Should an individual be harmed or killed then work will stop, and the Ministry of Environment, Conservation and Parks (MECP) will be contacted immediately.

- Educate staff and contractors on the potential for SAR to be in the area and their significance, with a particular emphasis on the SAR listed as potentially occurring on the Site or in adjacent lands (Appendix A)
- Mitigation measures listed elsewhere in this report may also be applicable to this section.
- If a SAR is encountered, this information will be provided to the Natural Heritage Information Centre (Report rare species (animals and plants) | Ontario.ca).
- No later than 1 year prior to construction, complete a review of this report to ensure that no new SAR or changes to legislation have occurred.

**SAR Turtles:** MECP has been contacted and discussions will resume once the stormwater management option has been accepted by the City. The timing windows have been updated.

***Construction:***

- Implement a strict speed limit of 15 km/h for vehicles during construction or to access the stormwater management facility. The speed limit is to be posted.
- During construction, sediment fencing along the edge of the areas to be cleared can be used for temporary exclusion fencing during construction. These will be properly countersunk and maintained to ensure that any turtles cannot get into the active work area. This sediment fencing is, at a minimum, to include the three sides of the subdivision area closest to the watercourses (i.e., the north, east, west edges of the work area) as well as to encapsulate the work area for the construction of the stormwater outlet and swale. A turn-around will be built on each end. Any openings (i.e. for machinery access) should only be open when work is occurring and closed back up at night. The provinces guidelines for fencing will be followed (i.e., Reptile and Amphibian Exclusion Fencing: Best Practices (OMNR, 2013) and will include the j-hook turn-arounds. Note, that if there are open sides (not enclosed with temporary exclusion fencing), then there will be a higher risk of turtles entering the work area. In that instance, turtle sweeps will need to be exceedingly thorough and should be completed by a biologist or fish and wildlife technician. Finally note, that the province updates its guidelines from time to time and they are typically published online: https://www.ontario.ca/page/reptile-and-amphibian-exclusion-fencing.
- Clearing of vegetation is recommended to occur outside of the active season (typically April 1-October 31 in other words working between November 1 and March 31) (MECP, no date).
- Contractor to have daily sweeps for turtles during the active season (April 1-October 31).

- Educate construction workers of the potential for Blanding's Turtle to be present and that this is a protected species from harm and injury under the provincial Endangered Species Act. Ensure to inform workers that there is a high potential for the species to occur in this area.
- Educate workers, that Blanding's Turtle is known to travel far from aquatic habitats and as such, they are to perform a daily sweep of the work area when they first arrive on-site during the turtle active season (typically April 1-October 31 (MECP, no date); timing affected by weather conditions).
- Additional fencing is recommended around any stockpiles that might provide suitable nesting substrate (i.e. gravel, soil) to help prevent turtles from nesting in the work area. Note that should suspected Blanding's Turtle nesting occur, then stop all work and contact a biologist to follow appropriate procedures.
- During clearing of vegetation, contractors are to be informed that they should keep a look out for wildlife and if any are observed, they should be given the opportunity to leave the area. If a turtle is observed
    - All work that may harm the individual must stop and the worker should notify their supervisor.
    - Try to take a photograph but do not chase the turtle in order to do so.
    - Turtles encountered on-site cannot be harmed or harassed.
    - Turtles should be allowed to leave the area on their own.
    - It is also important that the individual be watched, from afar, to ensure that it does not enter an area where it may come to harm.
    - If an individual has been impacted, the supervisor should contact MECP (and if applicable the Project biologist) immediately.
- Recommend clearing from south to north direction to allow wildlife the opportunity to leave the Subdivision Lands into the natural areas that are to remain.
- The final design of the development will include a permanent barrier to turtle access to the subdivision. This will be submitted to MECP for comment.

**SAR Birds:** No SAR birds were found, but the potential for Eastern Whip-poor-will was identified in the adjacent lands. Project's grading area will impact row crops and a small amount of cultural meadow (±0.07ha). SAR bird breeding habitat will not be impacted. Further, this species may be downlisted and will no longer receive protection. As noted above, the SAR list will be updated closer to construction.

- No impacts to federal SAR bird nests, or their eggs is permitted under the federal *Species at Risk Act*. If a federally listed bird species at risk nest is encountered, then work must

stop until the young have fledged. If the nest/young have been harmed, then Environment Canada must be notified immediately for guidance.

- No impacts to provincial SAR bird nests or their eggs is permitted under the provincial *Endangered Species Act*. If a provincially listed bird species at risk is encountered, then work must stop and MECP contacted (sarontario@ontario.ca).
- Should a nest be discovered, stop all work that may disturb the birds (i.e. that cause the adults to fly off the nest) and contact a biologist or MECP or Environment Canada, as appropriate for the species.
- Provided that fields are under active agricultural uses, then there is no protected grassland breeding bird habitat (as per communications with MECP). If fields on Site become fallow (even for one year) during the breeding bird season, then additional monitoring and/or registration of habitat may be required.
- Note that timing windows for bird species provided by the province is now no clearing of vegetation in SAR habitat between April 1 and August 31. While no SAR habitat is present on Site, the Site is within 500m of potential Eastern Whip-poor-will habitat. The SAR bird timing guideline should be applied. See additional information under the significant wildlife habitat section further below.

**Bats:** Bat exit surveys on the buildings to be removed did not identify any bats. No SAR bat maternity sites were documented, and no suitable forest habitat was present. The potential to impact SAR bats would be restricted to day-roosts. Recent discussions with MECP on this species, and on the three anticipated to be upgraded in 2025, indicate that they do not need to be approached if the timing window below can be adhered to.

- Educate contractors by informing them that most bats in Ontario are protected.
- Remove trees (>10 cm in diameter) between October 1 and March 31 (Bat active season is currently assumed to be April 1 to September 30 for woodland species). If this is not possible, conduct exit survey prior to cutting them down. If the exit survey identifies bats, contact MECP or biologist for additional guidance.

**Plants:** Butternuts are present on this property. Black Ash were not listed at the time of surveys.

- Assessment of Black Ash will be undertaken prior to construction.
- A Butternut inventory and assessment must be completed prior to clearing any vegetation. Butternut inventories have a 2-year shelf-life and the timing of the inventory should reflect this period. Note that as guidelines can be updated from time to time, the most recent guidelines and Ontario Regulations should be followed (at the time of writing, the O. Reg for Butternuts is 830/21).

- Butternut inventories must be completed between May 15-August 31.
- Educate contractors by informing them that butternuts are protected.
- No permanent structures or infrastructure is to be within 25 m of a retained Butternut. Any Butternuts within 25 m of permanent structures will be considered harmed or killed, as appropriate.
- Any Butternut to be retained will have its root harm prevention zone protected by a sturdy fence (highly visible such as snow fencing) is to be erected along the edge of the appropriate buffer (5 m from the root harm protection zone). The buffer will be established following the Butternut Assessment. Within this area the following are prohibited:
  - Transport or operation of heavy equipment.
  - Placement of temporary facilities or temporary roads for the purpose of construction.
  - Excavation of soil or other substrates.
  - Storage of materials such as excavated soil, debris or construction materials.
  - Production of ruts or compacted soil.
  - Removal of vegetation in a manner that destabilizes soil.

## 4.2 Valleylands

No change from the EIS, impacts have been avoided through the established setbacks that will protect the slope stability, and ecological functions.

+ Educate contractors by informing them that the valleyland associated with Mud Creek, Wilson Cowan Drain and the Oxbow are assumed to be significant.

## 4.3 Significant Wildlife Habitat/Linkages

There is no change from the EIS with respect to SWH and linkages, all functions were assumed to be present unless confirmed to be absent using the appropriate protocols. Those protocols have not changed and the data from 2023 strengthens the potential for SWH amphibian habitat in the pond. The pre-development to post-development water quantities to each feature remain unchanged or, for the Oxbow, have been confirmed to be sufficient to match existing functions. The supporting information from Novatech on the Water Balance (Novatech, 2024) supports that the potential impacts remain limited to construction phase and the wording below has been updated to reflect the change in location.

- Respect the buffers established (Mud Creek and Oxbow – 30m and Wilson Cowan Drain 15m) as these intended to protect the significant wildlife habitat functions.
- Note that the measures listed under all of the other sections cover much of the impacts to SWH and must be reviewed.
- The SWM facility has been designed to enhanced water quality and erosion control measures have been included.
- No Pileated Woodpecker nesting cavities were identified. Should one be discovered, contact Environment Climate Change Canada prior to any impacts (even outside of the active season).
- No work is planned for below the high-water mark of Mud Creek, Oxbow or Wilson Cowan Drain.
- Minimize the area to be disturbed within 30m of the Rideau River for the construction of the stormwater outlet and swale.
- Ensure that appropriate wildlife exclusion fencing is installed. That described under the SAR turtle will be effective for SWH.
- If the construction activities on the east side of the Rideau Valley Drive take place during the active season for frogs, turtles, then ensure that a qualified biologist or wildlife technician completes a salvage for fauna after the exclusion fence is installed and prior to commencing work. This is not required during winter conditions.
- Almost all breeding birds are protected under the MBCA and/or FWCA. The only species not protected are: American crow, brown-headed cowbird, common grackle, house sparrow, red-winged blackbird, and starling. It is prohibited to destroy or disturb an active nest of other birds, or to take or handle nests, eggs, or nestlings. In this part of Ontario, the newer SAR timing window is **April 1 to August 31**. Outside of this timing window, it is considered unlikely that birds would be nesting. Note, there are some birds (birds of prey, herons etc.) that do begin nesting earlier in the year. It should also be noted, that if an active nest is present before or after the above dates that it is still protected.
- There is a high potential for ground nesting birds (i.e., killdeer) to be present during construction. These prefer to nest on bare soil or gravel areas. Perform regular walks of the cleared areas looking for ground nesters. If any are present, the contact a biologist for guidance.
- Work during the daytime hours to prevent light disturbances. If lighting is required, ensure that it is full-cut off and illuminates the work area (avoiding the natural features such as the watercourses) and minimizing illumination of the sky.
- Ensure that all equipment have the appropriate mufflers to reduce noise disturbances.

- Almost all reptiles are protected by the FWCA. If a turtle nest is suspected, then flag a 10 m buffer to protect the nest. Contact MECP (for Endangered or Threatened species) and MNRF (all other species, including those listed as special concern).
- Do not flag bird nests as it attracts predators.

## 4.4 Fish and Fish Habitat

Under the *Fisheries Act*, works below the high-water mark requires DFO's review unless they are listed as a Standard Code of Practice (CoP) and no SAR are present. In this case, there are no SAR present. While there is no longer any proposed works below the high-water mark of the Oxbow. There could be minor work below the high-water mark of the Rideau River (in the mowed lawn) but based on the drawings provided, it appears that the swale will end on the bank just above the area that is ephemerally wet. This and the Water Balance memo for the Oxbow will be submitted to DFO for review once the stormwater plan is accepted.

**Planning**

- No work is to take place below the high-water mark of Mud Creek, Oxbow or the Wilson Cowan Drain.
- The only work that could be below the high-water mark of the Rideau River is the swale, and this area is mowed and typically dry. This will be submitted to DFO for review.
- SWM is connected by a swale that will ensure that the outlet structure itself is inaccessible to fish, the SWM management strategy is an offline system.
- The SWM swale is to be designed to prevent erosion and sediment control issues of the floodplain and of the banks of the Rideau River. The measures will also be designed to prevent fish strandings.
- SWM strategy has been designed to ensure that the contribution of water quality meets MECP's standards. And there is no change to quantity in Mud Creek, Wilson Cowen Drain or Rideau River.
- The change in quantity pre- and post-construction for the Oxbow are not anticipated to affect the function of the Oxbow as fish habitat. This will be submitted to DFO for review.
- Site instruction will be provided to contractor to highlight that Mud Creek, Oxbow, Wilson Cowan Drain and the Rideau River provide permanent fish habitat and that portions of the floodplain of the Rideau River could also have fish. These areas must not be inadvertently impacted by the Project and will be clearly demarcated on construction drawings.
- The edge of the approved work area (Novatech, 2024) within the riparian habitat will be clearly demarcated in the field.

**Erosion and Sediment Control**

+ An erosion and sediment control plan will be developed by contractor and implemented prior to any work within 30 m of the watercourses or the Oxbow.
    - Provide regular maintenance to the erosion and sediment control measures during construction. Contractor shall be responsible for ensuring that the erosion and sediment control measures are maintained and will monitor the water clarity downstream of the work area throughout the day and during rain events. Water quality is to meet the *Canadian Water Quality Guidelines for the Protection of Aquatic Life*. Monitoring for visible plumes outside of the work area is to be undertaken.
    - At a minimum, the erosion and sediment control plan will include the installation of sediment fencing along the top of the valley, and along the edge of the high water mark.
    - Additional materials (*i.e.* rip rap, filter cloth and silt fencing) will be readily available in case they are needed promptly for erosion and/or sediment control.
+ Suspend activities that cause muddy environments during periods of heavy rains.
+ Any stockpiles of soil or fill material will be stored as far as possible from the road ditches, river and tributary and protected by sediment fencing (minimum 30 m).
+ The erosion control measures will not be removed until the banks are stabilized (i.e., <20% exposed soil).
+ Where banks/riparian area (area within 30 m of channel) have been stabilized by seeding and/or planting, monitor the revegetation to ensure that the vegetation becomes fully established (at least 80% cover required).
+ Where possible, limit clearing of vegetation to trimming and leave the stump and lower 60 cm of the tree trunk in place (for shoreline stabilization).
+ Once work completed, stabilize using native vegetation. Where possible, this should include native trees and shrubs as per the landscaping plan (to be developed at detailed design).

**Fish and Fish Habitat Protection/Fish Passage**

+ Plan for the swale and outlet work to occur during the winter (when it is anticipated to be frozen) or during periods of lower flow (i.e., summer).
+ All material introduced for the temporary measures will be fully removed from the water at the completion of the work.
+ Isolate the work area from the Rideau River or flooded habitats.

- It is anticipated that this work will not occur in direct fish habitat (stops near top of bank) and only next to the area that is ephemeral.
- If the area is wet, fish (and other aquatic fauna) will be salvaged from the isolated channel by a qualified biologist/technologist. The salvage will need to be repeated if the work area becomes flooded.
- Minimize the size of temporary in-water work areas.
- The outlet channel is not accessible to fish due to gradient.
- Any disturbed bank will be returned to pre-construction conditions, including revegetation, as necessary, with native vegetation appropriate for site conditions.

**Contaminant and Spill Management**

- Machinery working near or in-water should have vegetable based hydraulic fluids.
- All equipment working in or near the water must be well maintained, clean and free of leaks. Maintenance on construction equipment such as refueling, oil changes or lubrication would only be permitted in designated area located at a minimum of 30 m from the shoreline in an area where erosion and sediment control measures and all precautions have been made to prevent oil, grease, antifreeze or other materials from inadvertently entering the ground or the surface water flow.
- Emergency spill kits will be located on the construction site. The crew will be fully trained on the use of clean-up materials to minimize impacts of any accidental spills. The area would be monitored for leakage and in the unlikely event of a minor spillage the project manager would halt the activity and corrective measures would be implemented.
- If a spill occurs:
    - Stop all work
    - Spills are to be immediately reported to the MECP Spills Action Centre (1800 268-6060). Note that under the *Fisheries Act* deleterious substance includes sediments.
    - Clean-up measures are to be appropriate and are not to result in further harm to fish/fish habitat.
    - Sediment-laden water will be removed and disposed of appropriately.
- No construction debris will be allowed to enter the watercourse.
- Following the completion of construction, all construction materials will be removed from the construction site.

## 4.5 Rural Natural Feature/Natural Heritage System

No change to the potential to impact the Rural Natural Feature or the Natural Heritage Feature. There are no direct impacts to these. Early in the design, the location of the development footprint was adjusted to minimize impacts to the natural heritage features. Indirect impacts have been

avoided through the measures outlined above for SAR, SWH and fish habitat. The only additional measures are those proposed in the Tree Conservation Report (see section 4.7).

## 4.6 Other

- Machinery should be cleaned prior to arriving onto the construction site to prevent the potential spread of invasive species. Invasive species (i.e., Common Reed, buckthorn, honeysuckle) should be removed as appropriate for the species. See Ontario Invasive Plants Website for guidance https://www.ontarioinvasiveplants.ca.
- Dust suppression should consist of water.

## 4.7 Tree Conservation Report

**Mitigation Measures for Trees to be Retained**

- A permit for the removal of trees that are 10 cm or larger in diameter is required from the City of Ottawa.
- The edge of the property should be clearly delineated on the site plans and in the field;
- Note that 4.5m is the minimum setback from tree and foundation as per City's comments on soil sensitivity.
- Install Tree Protection Fencing prior to commencement of construction activities, and retain fencing until construction activities have been completed, as per City of Ottawa's Tree Protection (By-law No. 2020-340), Part VI.
- Tree protection fencing shall be at least 1.2 metres in height and installed in such a way that the fence cannot be altered.
- Do not place any material or equipment within the critical root zone (10X the diameter-at-breast-height) (CRZ) of a tree.
- Do not raise or lower the existing grade within the CRZ of a tree.
- Do not extend any hard surface or significantly change landscaping.
- If the construction will have to encroach into a tree's minimum CRZ, installing a temporary layer of 150 mm deep partially composed wood chips mulch over the root zone can help to protect roots from compaction damage, and conserve soil moisture levels.
- Equipment and materials should not be stored near trees
- Ensure that exhaust fumes from all equipment are not directed towards any tree's canopy.
- Do not attach any signs, notices, or posters to trees.
- Ensure that clearing is carried out only in areas where it is specifically required, and that the areas to be cleared are carefully and clearly delineated.
- Do not damage the root system, trunk, or branches of any tree; if any roots are encountered during excavation while working outside the CRZ, they should be cut off cleanly with sharp pruning tools rather than allow them to be torn by large equipment; clean cuts will help to minimize decay and entry points for disease.

- All exposed roots of trees to be retained should be covered in a minimum of 5 cm of firm soil within 24 hours of exposure.
- If root pruning is implemented, the crown of the tree should be reduced proportionately under the direction of a Certified Arborist or Registered Forester, to decrease wind sail. Pruning should be kept to thinning cuts (no major limb removal), and crowns should be monitored, and maintenance carried out for two (2) years after root pruning to remove any dieback under the direction of a Certified Arborist or Registered Forester.
- If branches are likely to hang in the way of passing equipment, the branches should be pruned by a Certified Arborist or Registered Forester to avoid tearing and undue injury to the tree.
- All pruning work must be performed under the supervision and guidance of a qualified tree professional in accordance with the latest ANSI A300 Pruning Standards and best management practices identified by the International Society of Arboriculture.
- Any landscape plans will include native species as much as possible. Exceptions would only be made based on the advice of landscape consultant. It is our understanding that the plantings of native trees and shrubs is typically not an issue, but that herbaceous vegetation can often not withstand the pressures from road maintenance etc.

# 5. Update to Environment Impact Statement 2022 Conclusions

The proponent would like to develop a portion of their property at 4386 Rideau Valley Drain. The portion that would be developed (the Subdivision Lands) is approximately 9.3 hectares and its existing land uses are a single lot residential development and cropland. The remaining portion of 4386 Rideau Valley Drive, north of Mud creek, would be left untouched. The proposed subdivision will consist of a combination of single, semi and town units and it will be fully serviced. The Open Space Lands (shown as Blocks 83 and 84) is immediately opposite of 4386 Rideau Valley Drive and is a small parcel (0.89 hectares) that abuts the Rideau River. What appears to be the old connection between Rideau River and the oxbow represents the northern extent of this parcel. There is no hydrological connection at this location anymore. This area is currently mowed meadow with a narrow deciduous tree corridor. Both Blocks 83 and 84 will now be designated as Open Space Lands (previously Block 83 was to be parkland, this is now to be designated as open space).

The proposed works includes the removal of vegetation, grading, and excavation for the installation of new sewer and water mains, roads, and houses. Setbacks have been established from both Mud Creek and Oxbow (30m) and Wilson Cowan Drain (15m) and are discussed herein. Some trees may also be selectively cleared in the Open Space at the intersection of Rideau Valley Drive and Bankfield Road. The stormwater outlet and swale are the only works being proposed on the east side of Rideau valley Road.

The background review and field investigations found:

- Potential for Blanding's Turtle
- Presence of Butternuts
- Potential for Black Ash
- Potential (low) for Eastern Whip-poor-will in adjacent forests
- Fish habitat
- Northern Map Turtle (Mud Creek and Rideau River)

Prior to clearing of vegetation or removal of buildings the following would be required:

- Communications with MECP with respect to Blanding's Turtle confirming the acceptance of the analysis and the proposed avoidance and mitigation measures.
    - Anticipated that there will be a need for the following fencing:
        - Permanent turtle exclusion fencing on the Subdivision Lands as outlined on the appended natural constraints mapping. This fence would consist of mesh that is ¼" or smaller, offset and tied onto the 6' change linked fence. The turtle fencing will be buried XX cm below surface and extend at least 60 cm above.
        - Temporary fencing during the construction period for the outlet in the Open Space Block
- Butternut inventory and assessment during appropriate time of year (currently between May 15-August 31).
- Black Ash inventory and assessment during the appropriate time of year (currently June to September).
- Review of applicable legislations to ensure that any changes in these are addressed.

Project will include the positive impacts of:

- Establishing 15-30m vegetated (native species, mix herbaceous and woody) corridor along Mud Creek and Wilson Cowan Drain. The intent is that these areas will be naturalised. See the Renaturalization Plan by Novatech included with this submission.
- Opportunities for enhancement of habitat in the open space area abutting the north side of the open space along the Rideau River (near the swale for the stormwater outlet) with native herbaceous vegetation.
- Protection of migrating turtles through turtle barriers designed to keep them away from vehicles (Subdivision Lands).

The City's pre-consultation notes identified the area as potentially a Rural Natural Heritage System (NHS). Following the site investigations, it is proposed that the following be considered as a Rural Natural Heritage System (NHS) as it would offer the option for restore the riparian habitat as identified as a goal in the MCSS:

- Mud Creek and its Oxbow
- Wilson Cowan Drain
- Rideau River

This proposed Rural NHS would protect:

- Fish habitat (Mud Creek, oxbow, Wilson Cowan Drain, Rideau River)
- Assumed Turtle Overwintering Habitat (Mud Creek, Rideau River)
- Linkages (including for turtles) (Mud Creek, oxbow, Wilson Cowan Drain, Rideau River)
- Amphibian Breeding Habitat (oxbow)
- Some of the Butternuts identified
- Meander belts and slope of Mud Creek and Wilson Cowan Drain

Provided that the avoidance and mitigation measures identified herein are followed and that further communications with MECP and DFO confirm these findings, then this proposed development can be accepted as planned. I trust that this report will meet your requirements. Should you have any questions or comments, please contact Michelle Lavictoire at Michelle.Lavictoire@cima.ca.

# 6. STUDY LIMITATIONS AND CONSTRAINTS

**CIMA+** completed diligent and reasonable research in the conduct of this evaluation, with respect to the recognized laws and standards of practice.

The facts presented in this report are strictly limited to the period of investigation. The conclusions presented in this report are based on the available information and documents, the observations made during the site visit and the information obtained from communications with various contacts. The interpretation presented in this report is limited to this data.

**CIMA+** is not responsible for erroneous conclusions due to voluntary abstention or the non-availability of pertinent information. Any opinion expressed in relation to legal or regulatory conformity is technical and should not be, in any case, considered as legal advice.

# 7. REFERENCES

Becker, G.C. (1983). Fishes of Wisconsin. The University of Wisconsin Press. Madison, Wisconsin.

Bird Studies Canada. (2009). Chimney Swift (Chaetura pelagica) Monitoring Protocol. 23 pp.

Bradley, David J. (2009). Southern Ontario Vascular Plant Species List, Revised Edition. South Science and Information Section Ontario Ministry of Natural Resources. Peterborough, Ontario. 77pp.

Broders, H., Forbes, G., Woodley, S. & Thompson, I. (2006). Range extent and stand selection for roosting and foraging in forest-dwelling northern long eared bats and little brown myotis in the greater Fundy ecosystem, New Brunswick. Journal of Wildlife Management 70: 5.

CIMA+ (2022). 4386 Rideau Valley Drive Environmental Impact Statement. Prepared for Uniform Urban developments Ltd. 134pp.

City of Ottawa. (2008). City of Ottawa Official Plan Consolidation. Publication 1-32, May 2008.

City of Ottawa. (2012). Environmental Impact Statement Guidelines, Second Edition. v + 88 pp.

City of Ottawa. (2015), Mud Creek Subwatershed Study. Completed in cooperation with the Rideau Valley Conservation Authority. Ottawa. 55pp.

City of Ottawa. (2019). Tree Conservation report Guidelines. Accessed Online January 23, 2019, from: https://ottawa.ca/en/residents/water-and-environment/trees-and-community-forests/protection#tree-conservation-report-guidelines.

City of Ottawa. (2023). Species at Risk in Ottawa – as of June 19, 2023. 19 pp.

City of Ottawa (2023) Memo Subject 4386 Rideau Valley Drive – 1st Review Forestry. Dated November 2, 2023. 2pp.

COSEWIC. (2003). COSEWIC assessment and status report on the Butternut Juglans cinerea in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp.

COSEWIC. (2016). COSEWIC assessment and status report on the Blanding's Turtle Emydoidea blandingii, Nova Scotia population and Great Lakes/St. Lawrence population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xix + 110 pp."

COSEWIC. (2007). COSEWIC assessment and update status report on the Chimney Swift Chaetura pelagica in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 49 pp.

COSEWIC. (2009). COSEWIC assessment and update status report on the Least Bittern Ixobrychus exilis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 36 pp.

COSEWIC. (2009). COSEWIC assessment and status report on the Whip-poor-will Caprimulgus vociferus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp.

COSEWIC. (2010). COSEWIC assessment and status report on the Bobolink Dolichonyx oryzivorus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 42 pp.

COSEWIC. (2011). COSEWIC assessment and status report on the Eastern Meadowlark Sturnella magna on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp.

COSEWIC. (2013). COSEWIC assessment and status report on the Little Brown Myotis lucifugus, Northern Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp

COSEWIC. (2013). COSEWIC assessment and status report on the Bank Swallow Riparia in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.

COSSARO. (2015). Ontario Species at Risk Evaluation Report for Tri-colored Bat Perimyotis subflavus. Committee on the Status of Species at Risk in Ontario COSSARO. 21pp.

Dobbyn, J. (1994). Atlas of the mammals of Ontario. Federation of Ontario Naturalists, Don Mills, ON.

Eder, T. (2002). Mammals of Ontario. Lone Pine. Alberta, Canada.

Environment and Climate Change Canada. (2018). Recovery Strategy for the Blanding's Turtle (Emydoidea blandingii), Great Lakes/St. Lawrence population, in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. viii + 59 pp

Environment Canada. (2021). National Climate Data and Information Archive – OTTAWA INTL A. Accessed Online November 1, 2021. from: http://climate.weatheroffice.gc.ca.

Humphrey, C. (2017). Recovery Strategy for the Eastern Small-footed Myotis Myotis leibii in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp.

Lee, H.T., Bakowsky, W.D., Riley, J., Bowles, J., Puddister, M., Uhlig, P., and McMurray, S. (1998). Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources, Southcentral Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

McCracken, J.D., R.A. Reid, R.B. Renfrew, B. Frei, J.V. Jalava, A. Cowie, & A.R. Couturier. (2013). Recovery Strategy for the Bobolink (Dolichonyx oryzivorus) Fourth Biennial Conference on the Conservation of America's Grasslands: Conference Proceedings and Eastern Meadowlark (Sturnella magna) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. viii + 88 pp.

MECP. (No Date). Best Practice Technical Note – Knowledge of Active Seasons for Species at Risk in Ontario.

MECP. (2023). Protecting Black Ash and its habitat under the Endangered Species Act, 2007. Environmental Registry of Ontario.

Menzel. M, S. Owen, W. Edwards, P. Wood, B. Chapman & Miller, K. (2002). Roost tree selection by northern long-eared bat Myotis septentrionalis maternity colonies in an industrial forest of the central Appalachian Mountains. Forest Ecology and Management 155:107-114.

Mississippi Valley Conservation Authority (2016) Kizell Drain Summary Report. Prepared by MVCA. 14pp.

MMAH. (2014) Ontario Provincial Policy Statement. Ministry of Municipal Affairs and Housing.

Muncaster Environmental Planning. (2021), Preliminary Natural Environment Summary for 4386 Rideau Valley Drive, Manotick. 7pp.

Newmaster, S.G., A. Lehela, P.W.C Uhlig, S. McMurray and M.J. Oldham. (1998). Ontario plant list. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, ON, Forest Research Information Paper No. 123. 550 pp. + appendices.

Novatech (2024). Memorandum Re 4386 Rideau Valley Drive – Stinson Lands Oxbow Water Balance 121153. Dated April 16, 2024. 31pp.

Novatech (2024). Constraints Plan Figure 4 dated July 2024.

Novatech (2024). City Of Ottawa Stinson Lands 4386 Rideau Valley Drive Site Plan With Grading Impact Extents. Figure 1.3. Dated July, 2024.

OMNR (2000). Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch Wildlife Section. Science Development and Transfer Branch. Southcentral Sciences Section. viii + 384 pp.

OMNR. (2010). Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Ontario Ministry of Natural Resources. Second Edition: xi + 233 pp

OMNR. (2011). Bats and Bat Habitat: Guidelines for Wind Power Projects. Second Edition. 24 pp

OMNR. (2013). Occurrence Survey Protocol for Blanding's Turtle (Emydoidea blandingii) in Ontario. Ontario Ministry of Natural Resources, Species at Risk Branch. Peterborough, Ontario. vi + 17 pp.

OMNR. (2013). General Habitat Description for the Blanding's Turtle (Emydoidea blandingii). Ontario Ministry of Natural Resources, Species at Risk Branch. Peterborough, Ontario. 7 pp.

OMNR. (2013). Reptile and Amphibian Exclusion Fencing: Best Practices, Version 1.0. Species at Risk Branch Technical Note. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. 11 pp.

OMNR. (2022). Ontario Wetland Evaluation System 4th. Edition Version

OMNRF. (2014). Land Information Ontario.

OMNRF. (2015). Significant Wildlife Habitat Criteria Schedules for Ecoregions 6E. Ontario Ministry of Natural Resources and Forestry, Regional Operations Division, Peterborough. i + 38 pp.

OMNRF. (2018). Bobolink General Habitat Description. Accessed Online January 23, 2019, from: https://www.ontario.ca/page/bobolink-general-habitat-description

OMNRF. (2018). General Habitat Description for the Eastern Meadowlark (Sturnella magna). Accessed Online January 23, 2019, from: http://files.ontario.ca/environment-and-energy/species-at-risk/mnr_sar_ghd_est_mdwlrk_en.pdf

Woodliffe, A. (2007). Least Bittern pp. 156-157 in Cadman et al. 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of natural Resources, and Ontario Nature, Toronto, xxii + 706pp.

Yates, M.D. & Muzika, R.M. (2006). Effect of forest structure and fragmentation on site occupancy of bat species in Missouri Ozark Forests. Journal of Wildlife Management 70: 1238-1248.

# A

# Appendix A: Potential Endangered or Threatened Species

**Endangered and Threatened Species and their Habitat**

Endangered and threatened Species at Risk (SAR) are protected under the provincial *Endangered Species Act, 2007*. The federal *Species at Risk Act* (SARA) applies only to fish species on private land. Most birds, including SAR, also receive protection from *Migratory Bird Convention Act, 1994,* and/or *Fish and Wildlife Conservation Act, 1997*. Together, provincially, and federally protected species are referred, herein, as SAR. The lands within the study area include provincial and private lands and as such, the evaluation of presence was complete following the province's guidelines.

A list of potential endangered and threatened species was compiled using various sources. The NHIC database provides information available to the public on those SAR documented as occurring within the general area (i.e., ±5 km), including the Site. It should be noted that not all information for all species is available to the public. Furthermore, the absence of a record does not necessarily indicate that the species is absent from the area. The purpose of the NHIC database is to help determine what species may occur within the Site. The background review included looking at the list of birds observed as part of the Ontario Breeding Bird Atlas (OBBA) and any SAR species listed on these lists were considered as potentially occurring within the subject lands. Added to this list were species that often occur within the general area based on personal experience or observations. The resulting list includes 12 SAR: 1 reptile (Blanding's turtle), 5 birds (eastern whip-poor-will, bank swallow, chimney swift, bobolink, and eastern meadowlark), 4 mammals (little brown myotis, northern myotis, eastern small-footed myotis, and the tri-colored bat), and 2 plants (butternut and black ash) (Table 3). Note that following site investigations, this list of species and potential occurrence of them or their habitat was reviewed and adjusted.

For some species, the federal and/or provincial governments provide guidelines on what habitats should receive automatic protection. This is usually based on distances from known sightings or suitable habitat. Federally, the habitat is typically classed based on function and provincially it is either regulated or general habitat. Regulated habitat has detailed description and is prescribed in an Ontario Regulation. General habitat often splits the habitat needs into up to three categories, listed as Categories 1-3 with 1 being the most sensitive to disturbances. Note the exception with Butternuts where Category 1 individuals are least sensitive. In the table below, the candidate SAR for the Site are listed along with their habitat needs. Where guidance is provided by the government, this is used, to evaluate whether to bring the species forward to assessment. When there is no guidance available, the available literature is used to evaluate the suitability of the habitat on-site for that species.

**Table 3: List of Potential Endangered or Threatened Species and Identification of those Brought Forward**

| Common Name | Scientific Name | SRank | ESA Reg. 230/08 SARO List Status | SARA Schedule 1 List of Wildlife SAR Status | Preferred Habitat Guidelines | Evaluation | Brought Forward (Yes/No) |
|---|---|---|---|---|---|---|---|
| **REPTILES** | | | | | | | |
| Blanding's Turtle | *Emydoidea blandingii* | S3 | THR | END | Shallow water, large marshes, shallow lakes, or similar water bodies (COSEWIC, 2016). Federal guidelines use a 2 km distance and bases the automatic protection on the occupancy and suitability of the habitat for nesting, overwintering and functional habitat (ECCC, 2018). Provincial guidelines provide general habitat protection to suitable habitat within 2 km of an occurrence when certain conditions are met (MECP, 2019). | Record of one individual within 2 km collected roughly 10 years ago (NHIC). Surveys in 2022 did not find any Blanding's Turtles within the Oxbow. Species is anticipated to be present in general area and is within 2 km as such, this species is brought forward. | Yes |
| **BIRDS** | | | | | | | |
| Least Bittern | *Ixobrychus exilis* | S4B | THR | THR | Freshwater marsh habitat with dense vegetation (Sandilands, 2005; COSEWIC, 2009a). Nests are typically in cattail marshes, near edge or openings but they have been found in other emergents and occasionally in willow (Woodcliff, 2007). Recovery strategy states that the species must have permanent marsh/shrub swamps and a mosaic of tall and robust herbaceous or woody vegetated with open water areas and natural regime water levels (ECCC, 2014). The open water areas can be shallow (10-50cm) (OMNRF, 2016). Movements within this suitable habitat can extend within a 500m radius of the nest (ECCC, 2014). and are usually found in those that are larger than 5 ha (COSEWIC 2009; OMNRF, 2014). The province does not currently have any guidance on the general habitat requirements of this species. | No suitable marsh habitat is present on the Site or nearby. This species is not brought forward for this Project. | No |

| Common Name | Scientific Name | SRank | ESA Reg. 230/08 SARO List Status | SARA Schedule 1 List of Wildlife SAR Status | Preferred Habitat Guidelines | Evaluation | Brought Forward (Yes/No) |
|---|---|---|---|---|---|---|---|
| Eastern Whip-poor-will | *Antrostomus vociferus* | S4B | THR | THR | Rock or sand barrens with scattered trees, savannahs, old burns, or other disturbed sites in a state of early to mid-forest succession, or open conifer plantations (COSEWIC, 2009). The province's General Habitat Description outlines Category 1-3 requirements, which are described in Section 6. Provincial guidelines provide general habitat protection to suitable habitat within 500 m of an occurrence when certain conditions are met (MECP 2019). | There are forested areas within 500m of the Site. This species is considered potentially occurring. | Yes |
| Chimney Swift | *Chaetura pelagica* | S4B, S4N | THR | THR | Cities, towns, villages, rural, and wooded areas. This species rarely utilizes trees; they prefer trees greater than 50 cm in diameter and that are within 1 km of waterbodies (COSEWIC 2007). Provincially, this species' protected habitat consists of Category 1 habitat, which is a human-made nesting/roosting feature or natural nesting/roosting tree cavity, as well as the area within 90 m of the **natural** tree cavity (MECP, 2017). No Category 2 or 3 habitats are outlined for this species (MECP, 2017). | This species has been recorded in the ABBO squares of the general area (breeding evidence: possible). Potentially could use structures on site. Two breeding bird surveys were conducted as well as a bat/chimney swift exit survey by the barns. None were observed, This species is considered absent. | No |
| Loggerhead Shrike | *Lanius ludovicianus* | S2B | END | END | Breeding habitat is characterized by open areas such as pastures, prairie grasslands, and agricultural fields. Nesting sites are small shrubs and trees, usually those with thorns or dense interiors (COSEWIC, 2014). The federal recovery strategy states that the species critical habitat is all suitable habitat patches in which confirmed or probable breeding evidence was observed between 2004-2008 (ECCC, 2010) OR two such observation were made in differing years between 1999-2003 as well as suitable habitat patches of which >50% fall within a 400 m radius of the observation/s. Provincially, | The Subdivision Lands consisted primarily of active agricultural (row crops) and the Open Space Lands are mostly mowed. No suitable habitat on Site. Additionally, two breeding bird surveys were conducted, and species was not observed. It is considered absent. | No |

| Common Name | Scientific Name | SRank | ESA Reg. 230/08 SARO List Status | SARA Schedule 1 List of Wildlife SAR Status | Preferred Habitat Guidelines | Evaluation | Brought Forward (Yes/No) |
|---|---|---|---|---|---|---|---|
| | | | | | the species' critical habitat is the 200 m surrounding a nesting site (Category 1) and 200 m surrounding the Category 1 habitat (Category 2) (MECP, 2017). | | |
| Bank Swallow | *Riparia riparia* | S4B | THR | THR | This species nests within vertical banks, with a preference for sand-silt substrate. Nesting sites more likely near open upland habitats. (COSEWIC, 2013). Provincially, the species protected habitat is the 50 m in front of a breeding colony's bank face and all suitable foraging habitat within 500 m (MECP, 2015). | Vertical banks present along Mud Creek, some of which had exposed soil. Two breeding bird visits and several other visits were undertaken. This species was not observed, and no nests were observed in the banks, it is considered absent. | No |
| Bobolink | *Dolichonyx oryzivorus* | S4B | THR | THR | Primarily in forage crops, and grassland habitat. It is sensitive to edge effects, size of habitat and areas with dense shrub vegetation or a litter layer deeper than a few centimeters (COSEWIC, 2010). Provincially, this species' protected habitat is the area extending 60 m from the nest as well as the 300 m of suitable habitat around the nest (MECP, 2013). | The lands were planted in corn, which is not used by this species. Additionally, active agricultural fields are not protected under the ESA. That said this species was not observed throughout the many visits to the Site and is considered absent. | No |
| Eastern Meadowlark | *Sturnella magna* | S4B | THR | THR | Typically require larger grasslands but have been known to breed in habitats that were 1 ha in the United States. Usually, this species' defended territories consist of 2.8-3.2 ha of uncut meadow or field (OMNR, 2014). Personal observations of successful nesting habitat for this species in Eastern Ontario have not found any successful nesting pairs in habitats that were less than 5 ha, which is estimated to be this species' approximate area requirement (COSEWIC, 2011). Provincially, this species protected habitat is the area | The Subdivision Lands were planted in corn, which is not used by this species. Additionally, active agricultural fields are not protected under the ESA. That said this species was not observed throughout the many visits to the Site and is considered absent. | No |

| Common Name | Scientific Name | SRank | ESA Reg. 230/08 SARO List Status | SARA Schedule 1 List of Wildlife SAR Status | Preferred Habitat Guidelines | Evaluation | Brought Forward (Yes/No) |
|---|---|---|---|---|---|---|---|
| | | | | | extending 100 m from the nest as well as the 300 m of suitable habitat around the nest (MECP, 2013). | | |
| **MAMMALS** | | | | | | | |
| Little Brown Myotis | *Myotis lucifugus* | S4 | END | END | Females establish summer maternity colonies, often in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Overwinter in cold and humid hibernacula (caves/mines) (COSEWIC, 2013). Critical habitat has not yet been defined by the province. | No suitable hibernacula present in the area (no crevices or entrances to bedrock).<br><br>No suitable maternity roost habitat is present within or adjacent to the Site for Eastern Small-footed Myotis or Northern myotis. There is a potential for Little Brown Myotis maternity habitat. There remains the potential for any bat species to utilize individual trees on-site as day-roosts or the buildings. A bat exit survey was completed for the buildings, and none were observed. As such, the four bat species are brought forward for day-roosts, and Little Brown Myotis for potential maternity habitat. | Yes |
| Northern Myotis | *Myotis septentrionalis* | S3 | END | END | Older (late successional or primary forests) with large interior habitat and snags that are in the mid-stage of decay. They prefer intact interior habitat and are sensitive to edge habitats (Menzel et al. 2002, Broders et al. 2006, SWH 6E Ecoregion Criterion Schedule). Critical habitat has not yet been defined by the province. | | |
| Eastern Small-footed Myotis | *Myotis leibii* | S2S3 | END | No Status | Roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. The recovery strategy for the eastern small-footed myotis indicates that the preferred maternity habitat of this species consists of open rock habitats and that it doesn't use old buildings. In the winter, these bats hibernate, most often in caves and abandoned mines (Humphrey, 2017). Critical habitat has not yet been defined by the province. | | |
| Tri-colored Bat | *Perimyotis subflavus* | S3? | END | END | Females establish summer maternity colonies, often in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Overwinter | | |

| Common Name | Scientific Name | SRank | ESA Reg. 230/08 SARO List Status | SARA Schedule 1 List of Wildlife SAR Status | Preferred Habitat Guidelines | Evaluation | Brought Forward (Yes/No) |
|---|---|---|---|---|---|---|---|
| | | | | | in cold and humid hibernacula (caves/mines). (COSEWIC, 2013). Critical habitat has not yet been defined by the province. | | |
| Silver-haired Bat | *Lasionycteris noctivagans* | S4 | END (as of 2025) | No Status | Females establish summer maternity colonies in large diameter trees (COSEWIC 2023). They also use buildings as roosting sites. Critical habitat has not yet been defined. Provincially, hibernacula have a buffer of 200m. Buffers for maternity sites have not been established. | Discussions with MECP have indicated that the timing windows for woodland bats (as documented above) are anticipated to be sufficient avoidance measures for these three species as well. Therefore the use of avoidance timing windows for the clearing of trees (>10 cm in diameter) will prevent impacts to individuals. General mitigation measures are brought forward for these species. | |
| Eastern Red Bat | *Lasiurus borealis* | S4 | END (as of 2025) | No Status | Day roosts can be in a variety of deciduous and coniferous forest types, usually in trees but occasionally shrubs. Trees used as maternity roosts by both species tend to be large diameter and tall (COSEWIC 2023). Both migrate south to hibernate in the southern United States (COSEWIC 2023). | | |
| Hoary Bat | *Lasiurus cinereus* | S4 | END (as of 2025) | No Status | | | |
| **VASCULAR PLANTS** | | | | | | | |
| Butternut | *Juglans cinerea* | S2? | END | END | Found in a variety of habitat types but grows best on well-drained fertile soils in shallow valleys and on gradual slopes (COSEWIC, 2017). The federal recovery strategy does not outline critical habitat for this species. Provincially, butternuts are assessed and categorized based on the amount of canker. These categories are outlined in Section 6. | Suitable habitat and the Site are well within the range for this species. Inventories valid for 2-years. Inventory completed in 2021 by others on the 4386 Rideau Valley Drive property identified six individuals. Additional Butternuts were identified by CIMA+ during other visits (as incidentals). Species was brought forward. | Yes |
| Black Ash | *Fraxinus nigra* | S4 | END | No Status | Swamps, bogs, and riparian areas, occasionally poorly drained upland areas (COSEWIC 2018). | Species was not noted during surveys but was not protected at time of field investigations. The province is currently | Yes |

| Common Name | Scientific Name | SRank | ESA Reg. 230/08 SARO List Status | SARA Schedule 1 List of Wildlife SAR Status | Preferred Habitat Guidelines | Evaluation | Brought Forward (Yes/No) |
|---|---|---|---|---|---|---|---|
| | | | | | | proposing to only protect Black Ash in areas that have experienced significant emerald ash borer caused mortality (MECP, 2023). The Site is within this area. Species is brought forward | |

Table Updated: December 2023

**SRANK Definitions**

S2 Imperiled, imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
S3 Vulnerable, Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 Apparently Secure, Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S#S# Range Rank, A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
? Inexact Numeric Rank—Denotes inexact numeric rank
S#B Breeding

**SARO Status Definitions**

END Endangered: A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.
THR Threatened: A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.

**SARA Status Definitions**

END Endangered, a wildlife species facing imminent extirpation or extinction.
THR Threatened, a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

# B

# Appendix B: Constraints Mapping


## Legend

- 4386 Rideau Valley Drive
- Extent of Grading Impact
- Adjacent Lands (120m)
- Permanent Access Road
- Swale
- Stormwater Outlet Ditch
- Outlet Headwall
- Rural Natural Feature and Blanding's Turtle Category 2 Habitat
- High Watermark Setback (15-30m)
- Butternuts 2021 (by others)
- Butternut 2022 (CIMA+ incidentals, not assessed)
- Future Butternut Inventory/Assessment Area (prior to development)
- Fish Habitat
- Oxbow (Significant Wildlife Habitat)
- Permanent Turtle Exclusion Fence
- Temporary Turtle Exclusion Fence
- Valleyland Edge (Top of Slope)
- Phase 1
- Phase 2a
- Phase 2b

N

0 15 30 60 90 120 150 Meters

Spatial Reference:

Name: NAD 1983 UTM Zone 18N
PCS: NAD 1983 UTM Zone 18N
GCS: GCS North American 1983
Map Units: Meter
Scale: 1:3,315

Sources:

- Basemap:© OpenStreetMap (and) contributors, CC-BY-SA
- Land Information Ontario (OHN)
- Novatech Site Plan with Grading Impact Extents

General Notes:

Dimensions on the plan should be read and not measured.
Any errors or omissions should be reported to CIMA +. The boundaries, areas, and title deeds must be verified by a surveyor.