



Jamie Baker, P. Eng  
EVB Engineering  
800 Second Street W  
Cornwall, Ontario  
K6J 1H6  
Jamie.Baker@evbengineering.com  
c: 613-363-7802

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**RE: NATURAL HERITAGE ASSESSMENT UPDATE – NAPANEE WPCP, NAPANEE, ON**  
CIMA+ File: T001699A

Mr. Baker,

As discussed, the original Environmental Impact Statement completed by Bowfin Environmental Consultant (Bowfin) in 2009 and updated in 2021 for the Town of Greater Napanee's proposed Water Pollution Control Plant (WPCP) needed to be updated again to reflect the change in footprint of the new design proposal and changes to legislations. Bowfin merged with CIMA+ in 2022 and as such CIMA+ has taken over this mandate which included completing a thorough background review and site investigation. The findings are summarized here followed by updated guidance on avoidance and mitigation measures. Guidance herein supersedes those of 2021. The analysis discussed in this letter has been completed with the assumption that construction will only impact (temporarily or permanently) the area situated within the "Site" as shown on Figure 1. It is also understood that some work may also occur within the existing facility's fenced area. While these will need to follow the mitigation measures listed herein, that habitat consists entirely of manicured lawn and is not accessible to most wildlife due to chain linked fence.

## **LOCATION**

The Site is adjacent to the Napanee River on Water Street West. It is located on parts of Lot 18 and 19, Concession 1, in the Geographic Township of Richmond, Ontario (Figure 1) (UTM 18T 427046 m E: 5022884 m N, and Latitude 45.3556743, Longitude -75.9313614).



Figure 1: New Site Plan Location with Updated Constraints



## METHODS

As noted in the introduction, the goal of this update was to update the background review, conduct additional field work, as appropriate, and update the guidance. The methods for the background review and field work completed by CIMA+ is outlined below. For work completed by Bowfin, the methods are discussed in those reports (Bowfin, 2009; Bowfin 2021).

## BACKGROUND REVIEW

The potential for natural features that need to be protected was reviewed using existing data. Where the Official Plan indicated that the features to be considered were those identified on their schedules, these took precedence along with consultation comments from reviewing agencies. Other information collected from external sources was used to help inform the functions of these features and to identify those not found on the schedules (i.e., endangered, and threatened species habitat). Information from government websites, other consultants' reports, and personal knowledge has also been included as appropriate. The desktop review included a larger area (~5 km), and the data was reviewed and analyzed for applicable site-specific information. Data sources included:

- + The Official Plan of the Town of Greater Napanee (2014)
- + Geographic information from Land Information Ontario (LIO, 2023)
- + The Ministry of Natural Resources and Forestry's (MNRF) Natural Heritage Information Center (NHIC) Make A Map
- + Ontario Breeding Bird Atlas squares (Atlas 2- 2001 – 2005, and Atlas 3 – 2021-2025)
- + Atlas of the Mammals of Ontario (Dobbyn, 1994)
- + Global Biodiversity Information Facility (GBIF)
- + eBird (2023)
- + iNaturalist (2023)
- + Quinte Conservation
- + Fisheries and Oceans (DFO) Aquatic Species at Risk Mapping (DFO, 2022)
- + Aerial/Satellite Imagery (ERIS, 2021)

Endangered and threatened species at risk (SAR) are protected under the provincial Endangered Species Act, 2007. The federal Species at Risk Act 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 to as SAR, herein. This Site is situated on private lands and as such, the evaluation of presence was completed 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. 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 project area. 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. Similarly, all SAR reptiles and/or SAR amphibians included in the Ontario Reptile and Amphibian Atlas (ORAA) within the vicinity of the Site was included in the assessment. Added to this list were species that often occur within the general area based on personal experience or observations.

## FIELD WORK

The goals of the visit investigations were to:

- + Confirm that the habitat remained the same/similar to that found in 2021;
- + Document the edge of the provincially significant wetland (PSW);
- + Delineated the edge of the high water mark for fish habitat;
- + Delineate edge of suitable Blanding's turtle habitat;
- + Confirm no changes in number of large (>50cm diameter) trees
- + Complete a new inventory for butternuts; and
- + Note any other potential for other species at risk (SAR).

### Vegetation Description Review, Delineation of PSW Edge and Turtle Habitat

Confirmation of the upland vegetation communities were verified during by CIMA+ during the field visit of 2023. Vegetation was characterized based on the appropriate methodologies: Ontario Wetland Evaluation System, Southern Manual (OWES) (MNR, 2022) for wetland habitats and the Ecological Land Classification for Southern Ontario (ELC) (Lee et al. 1998) for upland habitats.

The delineation of the edge of the wetland by CIMA+ (confirmation of Bowfin's edge and extension of this edge to cover the new area of potential impact) followed the OWES definition of wetland habitat:

*"Lands that are seasonally or permanently flooded by shallow water as well as lands where the water table is close to the surface; in either case the presence of abundant water has caused the formation of hydric soils and has favored the dominance of either hydrophytic or water tolerant plants". (MNR, 2022)*

Furthermore, OWES protocol notes that the presence of large numbers of obligate upland species requires an upland classification. As per OWES, the outer boundaries of the wetlands within the Site were delineated and mapped using the "50% wetland vegetation rule" which estimates the relative abundance of wetland and upland species in each layer. Our OWES qualified professional walked the outer limits of the wetland, using a hand-held GPS OR to create a boundary line during the green leaf period.

The edge of the Category 2 for Blanding's Turtle habitat was then created as per the provincial guidelines. That is, using the wetland edge plus a 30m buffer (Figure 2). Additionally, the work area was examined for signs of turtle nesting as a northern map turtle were observed nesting by Bowfin in 2021 (Bowfin, 2021).





## Chimney Swift Habitat

In 2023, the potential nesting trees for the threatened species at risk (SAR) chimney swift were documented. This included re-examination of the Bowfin 2021 data, and an inventory for any new trees, in the new Site. This site investigations documents the presence/absence of any large trees (>50cm dbh) on or around the site. Note that the Bowfin 2021 data included surveys during the breeding bird season for this species.

## Pileated Woodpecker Nests

In 2023, CIMA assessed the trees on site for use by pileated woodpeckers. Pileated Woodpecker nests are protected year-round for three years since the date of last occupancy (MBR, 2022). Surveys for pileated woodpecker nests were completed on December 12, 2023. The site was small and open enough that transects were not necessary. Trees larger than 25 cm dbh were scanned with binoculars for cavities. Nests are those which are dome shaped 10-13cm high and 7-10cm wide (ECCC, 2022). If more than one such hole present is present in a decaying tree it will be considered a roosting cavity. A photograph was taken along with notes on cavity size, tree species, and tree health.

## Butternut Inventory

The recently updated Butternut Assessment Guidelines were followed (MECP, 2021). This protocol indicates the following:

- + Surveys are to be completed by a Butternut Health Expert
- + Acceptable assessment period is during the leaf-on season, which is considered to be between May 15-August 31 as such, only an inventory was completed, or if a candidate Category 1 tree (i.e. unhealthy) it would be assessed. Note only Category 1 trees can be assessed outside of this period.
- + Each individual tree is to be assigned a number and identified (i.e., paint, preference for white) or flagged.
- + The classification of the health into Categories 1, 2 or 3 is to be completed as per the Butternut Data Collection Form.

For this survey, the inventory included the unpaved area on site and the 50 m surrounding area. Where the 50 m extended to neighbouring lands, inventory was assessed over the fence.

## RESULTS AND DISCUSSION

### BACKGROUND REVIEW

The background review confirmed that the known significant natural features remain the same: Napanee River (warm-water fish habitat) and Lower Napanee Provincially Significant Wetland (PSW). The list of potential fish species within the Napanee River did not change from 2021 report. That table was based on data from LIO and NHIC and identified 34 species, mostly, common warm to cool water fish species in Napanee River (appended to this letter). The only species of note from that list are American eel (provincially endangered species) and bridle shiner (provincially and



federally special concern species). The system also includes many sport and commercial fish such as: bullheads, channel catfish, smallmouth bass, largemouth bass, and yellow perch. Pan fish (i.e. rock bass, and pumpkinseed) are also present.

The potential Endangered and Threatened species that receive protection for this Site either by the provincial *Endangered Species Act* (ESA) or the federal *Species at Risk Act* (SARA) was updated and is appended to this letter. The adjusted list includes 17 species of which 9 are the ones most likely occur in the area:

- + American Eel
- + Blanding's Turtle
- + Chimney Swift
- + Little Brown Myotis (bat)
- + Northern myotis (bat)
- + Eastern small-footed myotis (bat)
- + Tri-colored bat
- + Butternut
- + Black Ash

## **SITE INVESTIGATIONS**

A site visit was performed by Al Quinsey (BSc. Environmental Biology, certified Ontario Wetland Evaluation Systems Evaluator (OWES), and Butternut Health Expert with 3 years of experience) on September 28, 2023, from 0945-1030. Weather conditions were suitable (no rain, 10°C, wind: light breeze (2)).

### **Vegetation Communities**

The habitat communities described in 2009 matched that observed in 2021 and 2023 (the 2021 figure is appended). These were:

- + Deciduous windrows along the north side and east side consisting primarily of black walnut, Manitoba maple and Siberian elm.
- + Cultural Woodlands, two clumps one on the west and one on the east side. These were treed with the same species as noted above (Manitoba Maple, Black Walnut, Siberian Elm Along With Staghorn Sumac and Wild Red Raspberry).
- + Cultural Meadow throughout much of the area, portions of which are mowed.

The vegetation in the Provincially Significant Wetland (PSW) was the same as that seen in 2009 and its edge is delineated (Figure 1). This portion of the PSW was an emergent marsh with a tiny, tall shrub swamp (too small to need to be delineated) located on the south side of the east cultural woodland. The vegetated was bur-reed. The shrubs included Red Osier Dogwood, Wild Red Raspberry and Black Walnut (on the edge).



It is noted that there are two swales that while not fish habitat, could direct sediment laden water into the PSW during construction activities and as such, they have been noted on the Figure 1. A portion of the lawn adjacent to the road was used by a northern map turtle for nesting in 2021. This area is not considered significant wildlife habitat due to its proximity to a road and lack of sand/gravel substrate. Additionally, similar habitat further from the road is being protected by the 30m setback along the river.



**Photo 1: Mowed Field on Site (September 28, 2023)**



**Photo 2: Deciduous Windrow (September 28, 2023)**





**Photo 3: Cultural Woodland (June 2, 2021)**



**Photo 4: Wetland Sout of Site (September 28, 2023)**





## SPECIES AT RISK HABITAT

Following the update from the background review and the site investigations, the SAR or their habitats that were brought forward for discussion remains the same:

- + American Eel
- + Blanding's Turtle
- + Chimney Swift
- + Little Brown Myotis (bat)
- + Northern myotis (bat)
- + Eastern small-footed myotis (bat)
- + Tri-colored bat
- + Butternut
- + Black Ash

The applicable legislation for all of these species, for this project, is ESA. The following sections discuss the findings using both CIMA+ and Bowfin data and the current provincial guidelines.

### American Eel

The American eel is listed as provincially endangered, but the species is not listed federally. They breed in the Sargasso Sea and mature in freshwater rivers in North America, including the Napanee River (Becker, 1983; MacGregor et al., 2013; Scott and Crossman, 1998). The freshwater eel population within Ontario has been declining since the 1980s (MacGregor et al., 2013). The eels migrate to the rivers during the spring and then downstream during the fall, spending 5 to 20 years in freshwater (Becker, 1983; MacGregor et al., 2013; Scott and Crossman, 1998). Eels inhabiting the rivers are generalists requiring structure (i.e., rocks, logs, undercut banks, vegetation) for cover (COSEWIC, 2012). In the winter, they are known to hibernate in mud. During electrofishing surveys, Bowfin has observed eels along both rocky and areas with soft substrate during nighttime sampling. The aquatic habitat will be protected by the setback for turtles, but in rare cases American eels have been observed moving overland. For this project, with no in-water works, the avoidance and mitigation measures under SAR General heading are sufficient to prevent harm to these individuals.

### Blanding's Turtle Habitat

Blanding's turtle is associated with a variety of shallow slow aquatic habitats with submergent and emergent plants and soft substrate (COSEWIC, 2016). Their preferred aquatic habitat is less than <2 m deep (ECCA, 2018). To err on the side of caution, depths up to 4.5 m are considered habitat for this species (ECCA, 2018). These turtles require basking sites located near the water such as exposed rocks or partially submerged logs. The nesting sites are located within areas of loose substrates varying from sand to cobblestone and may occur along roadways as far as 400 m away. Marsh habitat is important for the juveniles for protection from predators. The species overwinters within permanent water bodies (COSEWIC, 2016). This species can migrate far distances of up to 6 km (OMNR, 2013b). Migration routes can include overland movement. However, some habitats such as: active agricultural croplands,



sand pits, large waterbodies, fast-flowing systems, and high use highways are not considered suitable habitat (ECCA, 2018). They also note that heavily developed urban areas without aquatic or wetland habitats are considered unsuitable (ECCA, 2018).

The habitat guidelines for Blanding's turtle provide protection to the areas surrounding a nest, or perceived nest area. The level of protection varies with the distance from the nest and has been categorized by MNRF into three categories. These, along with their protection level are:

- Category 1 Nest and the area within 30 m or Overwintering sites and the area within 30 m
- Category 2 The wetland complex (i.e., all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence, and the area within 30 m around those suitable wetlands or waterbodies
- Category 3 Area between 30 m and 250 m around suitable wetlands/waterbodies identified in Category 2, within 2 km of an occurrence.

The wetland edge was walked and found to be the same as in 2021, delineation in 2023 extended further to the west to assess the area impacted by the new site design. While the habitat did not meet the requirements for significant wildlife habitat turtle nesting, it also needs to be assessed for use by Blanding's turtles. Critical nesting habitat for Blanding's turtle is described as bare or sparsely vegetated ground, full or partial sunlight, with sand, gravel, rock or sandy loam substrate and well drained soils (ECCC 2016). The examples given for anthropomorphic habitat only include abandoned areas. As such, the manicured lawn is not a suitable habitat feature, as it is still in use by humans, and is near roadways (ECCC 2016). This species is assumed present and avoidance and mitigation measures are included. Further, MECP will need to be contacted.

## Chimney Swift

Large trees, 50 cm or larger were identified near the work area. These can provide habitat for Chimney Swift. This species can often be found in developed areas and prefers to utilize structures such as large (>50 cm diameter) trees or man-made structures such as chimneys for its nesting habitat (COSEWIC, 2007). The use of large trees is now considered a rare event. When it does occur, the documented occurrences have all be in trees that were <1 km from a waterbody (large enough to be shown on 1:50,000 topographical maps) (COSEWIC, 2007). Large trees were noted (summarized in Table 1 and locations are depicted on Figure 1). This site meets those criteria. The desktop review of iNaturalist and of the NHIC data (from Make-a-Map Natural Areas) did not identify Chimney Swifts in or near (within 2 km of the expansion area). This reduces the potential for the species to be present. As mentioned above, Bowfin completed two site visits in 2021. The first was in the afternoon of June 2, 2021, from 1500-1800 hours. That visit was completed by Michelle Lavictoire (B.Sc. Wildlife Resources and M.Sc. Natural Resources). The weather conditions were appropriate (low winds, no rain, the air temperature was 26°C). While, this was an afternoon visit, Chimney Swifts are a very active (aerial) species that can often be seen foraging at various times of the day (when present). None were observed but the presence of the larger trees prompted the second visit on June 21, 2021. That visit was completed by Al Quinsey (B. Sc. Environmental Biology) at 1000 hours. The weather conditions and time of day were appropriate for breeding bird survey (low wind, no rain, and the air temperature was 19°C). Again, no Chimney Swifts were observed (heard or seen).



**Table 1: Summary of Larger (>50 cm diameter) Trees**

Tree Identification Number	Common Name	DBH (cm)	Comments
2	Manitoba Maple	60	Healthy
4	Manitoba Maple	50	Healthy
5	Manitoba Maple	50	Healthy
6	Hybrid Crack Willow	60, 60, 60, 45, 45, 45, 40	Multi-Stemmed, Healthy
7	Manitoba Maple	60	Mostly Hollow/Cavities
8	Golden Weeping Willow	190	Healthy
9	Silver Maple	120	Healthy
10	Largetooth Aspen	55, 50, 60	Multi-Stemmed, Healthy
11	Largetooth Aspen	65	Healthy

### Bat Habitat

The potential SAR bats within the general area are: Little Brown Myotis, Northern Myotis, Eastern Small-Footed Myotis and Tri-Colored Bat. There are three types of habitats required by bats: hibernation, maternity sites and day-roost sites. The latter is not considered critical habitat. These four bat species prefer to hibernate in caves or mines. They can hibernate in buildings but that is rare for these species (COSEWIC, 2013a). No caves or mines were present and the buildings will not be impacted.

The Northern Myotis tends to prefer larger expanses of older forests (late successional or primary forests) and chose maternity sites in snags that are in the mid-stage of decay. They prefer habitat with intact interior habitat and is shown to be negatively correlated with edge habitat (Menzel et al., 2002; Broders et al., 2006; Yates et al., 2006; OMNRF, 2015). This habitat is absent.

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 rarely uses old buildings as roosting/maternity sites (Humphrey, 2017). There was no suitable rocky habitat present. Based on this information, this species' maternity sites are considered absent.

In Ontario, only maternity roosts in buildings have been documented for the tri-coloured bat. However outside of Ontario maternity roosts have been found amongst dead leaf clusters in the shape of an umbrella, grey squirrel dreys, dense clusters of live foliage, arboreal lichens, and buildings (Humphry 2019). Based on this information this species has potential to use the site as maternity habitat. MECP timing windows will prevent direct harm to this species.

The Little Brown Myotis is one of the few bat species that can use anthropogenic structures as maternity sites. Potential suitable structures can include buildings, bridges, barns, and bat boxes. The Little Brown Myotis can also use tall, large cavity trees that are in the early to mid-stages of decay as maternity roosts, as well as loose/raised tree bark, and/or crevices in cliffs (ECCC, 2018). This bat species occurs in higher





densities in mature deciduous and/or mixed forests due to increased opportunities for large snags. However, unlike the Northern Myotis, the Little Brown Myotis does not exclusively require mature forest stands to find appropriate maternity roosts (COSEWIC, 2013). This species maternity habitat may be present but MECP now has avoidance guidelines that can be applied to sites to prevent potential for contravening the Endangered Species Act for this species. This is listed further below and also applies to the potential for day-roosts.

## **Butternut Survey Results**

Butternut is listed as an endangered species federally signifying that it is at risk of becoming Extinct or Extirpated in Ontario and in Canada. Butternut is a shade intolerant species that is often found along edge habitats on rich, moist, well-drained loams or well-drained gravels (COESWIC, 2003). The butternut is threatened by a canker for which there is no known control (COESWIC, 2003). While there are a large number of butternuts in the area, only those that were on the site and north of Finney Creek were assessed. The remainder are shown on the figure as not classified as they will not be impacted by this development or are on the adjacent landowners' property (Figure 12).

Butternuts are assessed based on the amount of canker (the disease which is killing the species), their size and health, as per the MNRF BHA protocol. This method classes the individual trees as one of three categories:

- Category 1 are those that are heavily infected to the point that they are not expected to survive.
- Category 2 may have some canker but are still considered healthy.
- Category 3 are the same as Category 2, but these are larger individuals situated near heavily cankered trees and province believes that some may be showing immunity to the disease.

The site was surveyed and none were found, the survey is valid for 2 years (in this case until September 28, 2025).

## **Black Ash**

Black ash is listed as an endangered species provincially, it is not yet listed federally but is under consideration for listing as threatened. Black ash is a facultative wetland species found primarily in swamps, fens, floodplain forests, and shorelines, with occasional occurrences in upland habitat (Catling et al. 2022). Individuals within a defined geographic area which are both in good health and over 8 cm in diameter at breast height are to be protected along with the surrounding 30 m habitat. The site is primarily upland and the setback for Blanding's turtle will protect the wetland, none were observed during the vegetation surveys.

## **SITE INVESTIGATION CONCLUSION**

Based on the background review and the site investigations, it was concluded that there was potential for Blanding's turtle, chimney swift, and SAR bat maternity habitat near the work area. Least Bittern was considered unlikely to be present.



## AVOIDANCE AND MITIGATION MEASURES

### Summary of Proposed Activities

The development of avoidance and mitigation measures to protect the natural environment requires an understanding of the work activities anticipated with the construction and any changes to operations. This section uses a worst-case scenario, as such, provided that the level of impact does not exceed that discussed herein, then minor changes in the design do not, normally, require a review. The following activities are anticipated:

- + Clearing of vegetation
  - a. Limited to portions of the deciduous windrow, cultural woodland and cultural meadow situated within the proposed expansion area (Figure 2)
  - b. No changes to the existing outlet. No clearing of vegetation require on the shore, or in PSW.
  - c. Limited removal of 3-4 large trees (>50 cm diameter)
  
- + Excavation, grading, and backfilling
  - a. Limited to the area shown on Figure 2.
  - b. There will be no directional drilling.
  - c. There will be no blasting.
  - d. The outfall is buried.
  
- + Operation:
  - No change to the water quality discharging to the Napanee River.
  - Increase in the water quantity to the Napanee River.

The timing of construction is unknown but is anticipated to take 1 year.

All works will be over 15 m from the high-water mark . This protects both the fish habitat (no works below the high water mark of Napanee River) and the PSW. However does result in some infringements to setbacks:

- + The Natural Heritage Reference Manuel (OMNR, 2010) recommends a 30 m setback from:
  - Fish habitat (warm-water). The new site will encroach upon 164m<sup>2</sup> within the 30m setback.
  - Wetland edge: Category 2 Blanding's Turtle habitat and PSW setback. This assessment assumes that the encroachments will be limited to 0.22ha as shown on Figure 2.

The provincial guidelines for Blanding's Turtle habitat Category 2 habitat will be encroached upon and fenced off. While this will have the benefit of helping to minimize turtle access towards the road, it does represent a loss of habitat and needs to be reviewed by MECP.

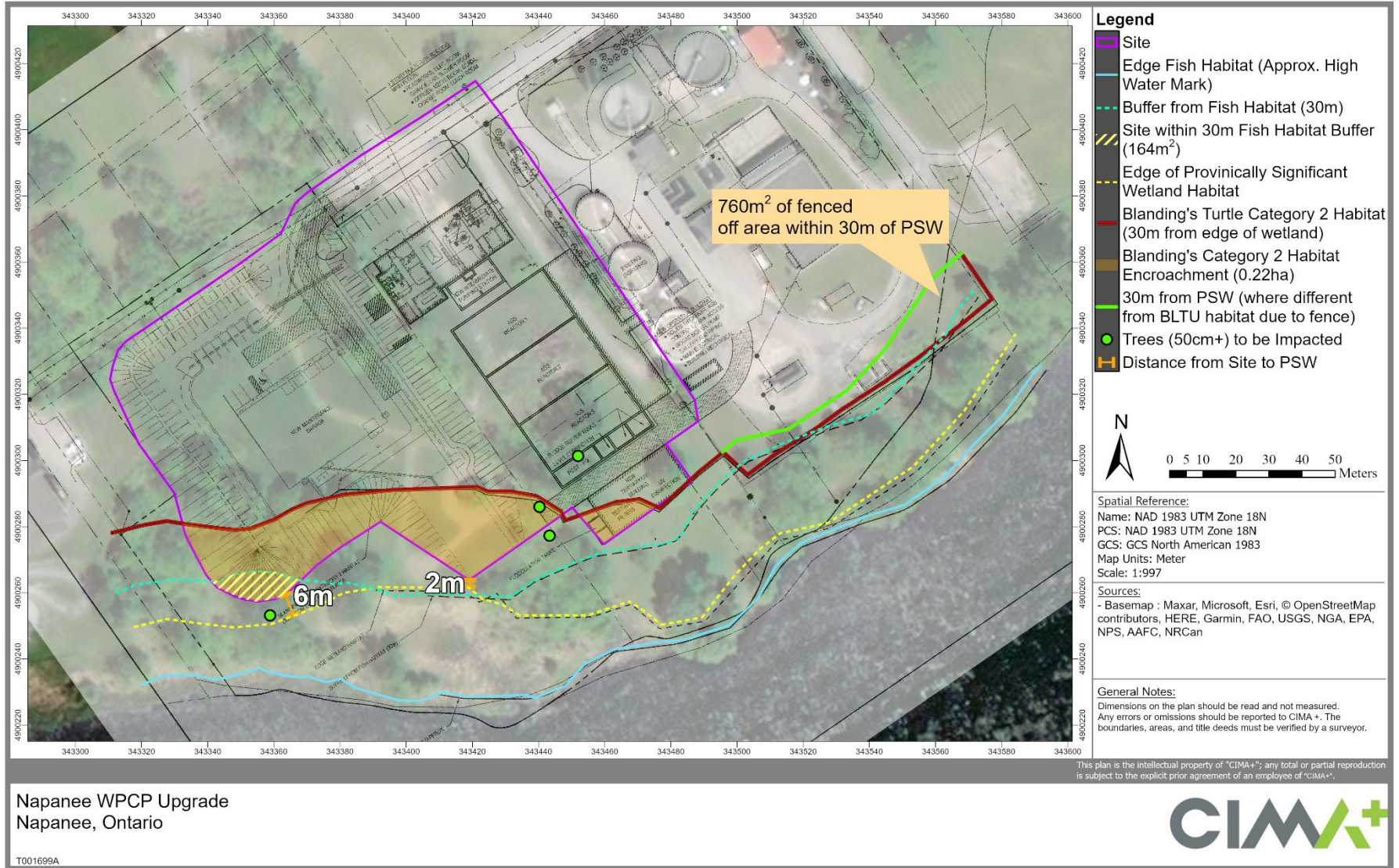


Figure 2: Location of Site in relation to Natural Features and their Setbacks





The significance of the potential impacts is measured using five different criteria:

1. Area affected may be:

- a. local in extent signifying that the impacts will be localized within the project area
- b. regional signifying that the impacts may extend beyond the immediate project area.

2. Nature of Impact:

- a. negative or positive
- b. direct or indirect

3. Duration of the impact may be rated as:

- a. short term (construction phase, 3 years)
- b. medium term (>3 to 6 years)
- c. long term (>6 years).
- d. permanent

4. Magnitude of the impact may be:

- a. negligible signifying that the impact is not noticeable
- b. minor signifying that the project's impacts are perceivable and require mitigation
- c. moderate signifying that the project's impacts are perceivable and require mitigation as well as monitoring and/or compensation
- d. major signifying that the project's impacts would destroy the environmental component within the project area.

5. Likelihood

- a. Whether an impact is likely to occur is described.

### **Provincially Significant Wetland**

The PSW is the Lower Napanee River Complex. The PSW underwent a desktop review in 2005 that found that there were no significant changes in the evaluation from 1993/2000. Their findings were:

- + The PSW is now considered to be entirely a lacustrine at river mouth.
- + Addition of the presence of Map Turtle as a provincially rare species. Note that this species is known to nest in the area.
- + Scoring added for coastal wetland function.
- + Removal of some regionally rare species from scoring (Double-crested Cormorant and Merlin).

Communications received from MNRF (email dated October 1, 2019) indicated that MNRF recommended that new footprints and disturbances avoid the PSW both directly and indirectly (i.e. of indirect impacts would be sedimentation, equipment spreading of invasive species).



### Avoidance and Mitigation Measures

Direct impacts to the PSW have been avoided as the proposed concept is situated completely outside of the PSW (delineated on-site in 2021 using OWES guidelines for outer boundary delineation by a certified OWES staff). Typically a 30 m buffer from the edge of PSW are recommended. This has not been met. The proposed expansion area runs along 250 m of the PSW and of this 50 m is 30 m or more from the wetland. This results in 0.22 ha of buffer affected however, it is noted that all but 215m<sup>2</sup> of the encroachment will consist of a berm. The portions of the buffer that will be part of the expansion are meadow and some of which is mowed. Based on the PSW boundary being narrow vegetation communities along the river, and as the existing characteristics of the buffer is mowed, it is anticipated that encroachment into the buffer will not have a negative effect on its form or function. This is provided that the measures listed below can be implemented.

#### Potential Impacts and Mitigation Measures for wetlands:

- + Minimize the expansion within the 30m buffer to the extent feasible.
- + Ensure that runoff from the expansion are controlled and does not result in erosion or sediment control issues.
- + Plant native herbaceous species, and where possible, native woody species in the remaining buffer.
- + Where feasible, plant native vegetation on the portion of the berm that is within the 30m buffer and minimize mowing.
- + Site instruction will be provided to contractor to highlight that there is a PSW on-site and that this is a sensitive feature that is not to be impacted.
- + No direct impacts to PSW are to occur.
- + The operation of the expanded WPCP will meet MECP's ECA requirements and all effluent receives full treatment (tertiary and UV disinfection) prior to release.
- + The effluent discharge is not to cause erosion.
- + During construction, an appropriate erosion and sediment control strategy will be developed, installed, monitored, and maintained. This will include, at a minimum, the installation of sediment fence (countersunk) along the edge of the limit of disturbance. Note that this fence may also need to serve as an exclusion fence for turtles (see next section). Also note that particular attention should be paid to ensure that the small perimeter swales on-site (run north to south shown on the figures included herein) do not create a route for the transportation of turbid water to the PSW.
- + Any stockpiles of soil or fill material would be stored in an area that will not allow turbid runoff to flow towards the PSW.
- + Additional materials (i.e. rip rap, filter cloth and silt fencing) should be readily available in case they are needed promptly for erosion and/or sediment control.
- + Erosion and sediment control measures need to be maintained and will require daily inspection to ensure that they are working as intended. Additional inspections will be required after rainfall or storm events.
- + The sediment fencing would not be removed until the site is stable. The land is considered stable when over 80% is revegetated or protected with long-term erosion control measures (i.e. blankets, rip rap).



- + No changes in light or noise impacts are anticipated.
- + No removal of vegetation in the wetland will occur. Removal of vegetation within 30m of the wetland will be minimized and work is to occur during normal daylight hours.
- + The disturbed areas that do not need to be maintained could be planted with native meadow species. Any areas where the planting of woody vegetation is permitted, it is to be planted with native trees and shrubs (i.e. red-osier dogwood, red maple).

Potential Impacts to PSW following Avoidance and Mitigation Measures				
Activity	Area	Nature	Duration	Magnitude
Construction of expansion within the 30m buffer to PSW	Local	Negative Indirect	Short term to permanent	Negligible to Minor

### Fish Habitat

The Napanee River is situated along the south side of the existing WPCP and the expansion area. This warm-water system is connected to Bay of Quinte, Lake Ontario. It provides fish habitat for a variety of fish species, mostly warm to cool water species. It also provides potential habitat for the endangered species American eel and special concern species bridle shiner.

### Potential Impacts to fish and fish habitat

The expansion area is over 15 m from any fish habitat and will not cause any direct impact to fish habitat during construction. Indirect impacts as a result of erosion and/or sedimentation can be mitigated through mitigation measures. Most activities are also 30 m from the edge of fish habitat (edge of the high water mark as delineated on site). The only activity within 30 m is a small portion of the berm (164m<sup>2</sup>). This small encroachments will not cause a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat or the death of fish. No review by DFO is required. Provincial policies are respected. Mitigation measures have been included to minimize impacts.

### Planning

- + Site instruction will be provided to contractor to highlight that the Napanee River is fish habitat and is not to be negatively impacted.
- + Clearly delineate the edge of the work area and ensure that no temporary or permanent activities encroach closer to the river. This can be accomplished with the sediment fence needed to protect the PSW/turtle exclusion fence.
- + Minimize clearing of vegetation within 30 m from the normal high-water mark.
- + Any rip rap placed within 30 m of the Napanee River will be clean and free of fines (fines meaning particles that could be washed into the river by rains or high water).
- + Postpone any works that are within 30 m of the Napanee River or wetland, that may disturb the soil or cause turbid runoff during rain events.
- + Erosion and sediment control measures will be installed prior to the clearing of vegetation within 30 m of a watercourse.
- + As per above, consider leaving portion of the berm vegetated with native species and not mowed.





## Erosion and Sediment Control

- + Erosion and sediment control measures are to ensure that there is no sedimentation or transportation of fines through/into either the PSW vegetation or into Napanee River.
- + An erosion and sediment control plan will be developed by contractor and implemented prior to any work within 30 m of the watercourse.
  - o Note the two swales identified on Figure 1 could result in the transportation of turbid water from the construction site. Erosion and sediment control plan is to consider these two features, and any others that could facilitate the transportation of fines/turbid water offsite.
  - o 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 site 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.
  - o At a minimum, the erosion and sediment control plan will include the installation of sediment fencing along the top of banks where vegetation clearing and/or soil disturbance will occur within 30 m of any channel prior to the removal of vegetation. Note that this fence may also be used as the turtle exclusion fence (see other sections).
  - o 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.
- + Any stockpiles of soil or fill material will be stored as far as possible from the channel and protected by silt fencing (minimum 30 m).
- + The sediment fencing will not be removed until the bank is stabilized (i.e. >80% revegetated or covered with an erosion control blanket).
- + All equipment working within 30 m of the water will be well maintained, clean and free of leaks.
- + 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.
- + 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).
- + It is recommended that owner completes additional monitoring of the erosion and sediment control measures and of the water quality during any works in or within 30 m of Napanee River.

## Contaminant and Spill Management

- + • Machinery entering the work area should be free of mud to minimize the introduction of invasive plant species.
  - o Guidelines on stopping the spread of invasive species is available from Ontario Invasive Plants (Clean-Equipment-Protocol\_June2016\_D3\_WEB-1.pdf (ontarioinvasiveplants.ca)).
  - o The machinery should be inspected inside and out for soil and plant material that could be lodged or stuck to the surfaces (i.e. underside of vehicles, radiators, foot wells...).
- + All equipment working in or near the water should 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 30m from the shoreline in an area where



sediment erosion 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 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. Any spills would be immediately reported to the MECP Spills Action Centre (1 800 268-6060).
- + No construction debris will be allowed to enter the watercourse.
- + Following the completion of construction, all construction materials will be removed from site.

Potential Impacts to Fish and Fish Habitat following Avoidance and Mitigation Measures					
Activity	Area	Nature	Duration	Magnitude	Findings
Construction of expansion with small encroachment within buffer.	Local	Indirect	Temporary Permanent	Negligible	Unlikely to occur (would occur as a result of an accident or malfunction)
Operation of expansion					

### Endangered and Threatened Species

Terrestrial and wetland Endangered and Threatened Species at Risk, on provincial, municipal and private land, are protected under provincial Endangered Species Act. It is noted that bird species protected under the Species at Risk Act (SARA) are protected by the Migratory Bird Convention Act (MBCA) on all lands. Fish (as defined under the Fisheries Act, fish and mussels) are protected in all waters.

Within this report, the acronym SAR refers to only Endangered or Threatened species. Special Concern species do not receive protection from ESA or SARA. Measures for special concern species are included under “other” further below. A list of potential SAR was compiled using various sources. The NHIC database provides information available to the public on those SAR documented as occurring within the general area. It should be noted that not all information for all species is available to the public. Furthermore, the absence of a recording does not necessarily indicate that the species is absent from the area. The purpose of the NHIC database is to serve as a guide to help determine the potential species which may occur within the project area. The background review included looking at the list of birds observed as part of the Atlas of Breeding Birds of Ontario (ABBO) and any SAR species listed on these lists were considered as potentially occurring within the subject lands. Added to this list were species that based on personal experience, often occur within the general area.

The resulting list includes 17 SAR: 2 fish (Lake Sturgeon and American Eel), 1 reptile (Blanding’s Turtle), 7 birds (Least Bittern, Eastern Whip-Poor-Will, Chimney Swift, Loggerhead Shrike, Bank Swallow, Bobolink, and Eastern Meadowlark), 4 mammals (Little Brown Myotis, Northern Myotis, Eastern Small-Footed Myotis, and Tri-Colored Bat), and 3 plants (Butternut, Black Ash and Four-leaved Milkweed) (Table 2). Of these, most were determined not to be present or had no triggers for review based on guidance from the province. Table 2 (appended) notes the relevant MECP guidelines and triggers and indicates whether the species is brought forward for discussion. Only American Eel, Blanding’s turtle, Chimney Swifts, Bats, Butternuts, and Black Ash were brought forward.



## General Measures

- + 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. These sightings will be reported to MECP and NHIC.
- + Should an individual be harmed or killed then work will stop and MECP will be contacted immediately.
- + Vegetation removal will take place outside of the active season turtle, bird, and bat active seasons (Apr 1 to October 31) to avoid impacting active bird nests and SAR bats using trees as maternity habitat.
- + Educated contractors that species at risk are protected and the most likely species to be present in this area would be
  - o American Eel, Blanding's Turtle, Chimney Swifts, Bats, Butternuts or Black Ash.
  - o No Butternuts or Black Ash were found.
  - o American Eels can sometimes travel on land.

## Blanding's Turtle

The habitat guidelines for Blanding's turtle provide protection to the areas surrounding a nest, or perceived nest area as well as to overwintering areas. The level of protection varies with the distance from the nest/overwintering area and has been categorized by the provincial government into three categories. These along with their protection level are:

- Category 1 Nest and the area within 30 m or Overwintering sites and the area within 30 m
- Category 2 The wetland complex (i.e., all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence, and the area within 30 m around those suitable wetlands or waterbodies
- Category 3 Area between 30 m and 250 m around suitable wetlands/waterbodies identified in Category 2, within 2 km of an occurrence

A review of available information on make-a-map was made and the nearest Blanding's turtle occurrence on that database was from a location that was around 1.8km to the north and is connected by the Napanee River (Figure 2). The portion within 30m of wetland habitat (**0.22ha**) is considered **Category 2 Blanding's turtle habitat** (including mowed lawn). Potential impacts to this species can be minimized through the implementation of avoidance and mitigation measures.

## Turtles

- + Education of workers and operators that there is a potential for turtles, including SAR and that all turtles are protected in Ontario (*Endangered Species Act* and/or *Fish and Wildlife Conservation Act*). They will be informed on what to do if one is present.
- + Minimize the work activities.



- + Implement a strict speed limit of <15 km/h.
- + Contractor is to perform daily sweeps during the active season (approximately April 1 to October 31, subject to weather conditions). Not required if under freeze-up conditions.
- + Temporary exclusion fencing is required during the active season and is to be installed at the start of the contract. Sediment fencing can be used for temporary exclusion during construction. These will be properly countersunk and maintained to ensure that any turtles cannot get into the Site. Reptile and Amphibian Exclusion Fencing: Best Practices (OMNRF, 2013) should be followed for exclusion fence design and installation and will include the j-hook turn-arounds. Note that the province maintains information on exclusion fencing on-line at <https://www.ontario.ca/page/reptile-and-amphibian-exclusion-fencing#:~:text=Concrete%2C%20metal%20or%20vinyl%20exclusion,concrete%20wall%20for%20complete%20exclusion.>
- + If an individual is found:
  - o It is not to be harmed or harassed.
  - o Work that puts the individual in danger will cease (i.e., moving machinery), and the individual will be watched from far to document where and when it leaves the site for a minimum of 2 hours. If it does not leave, then it may need to be relocated. Contact a biologist experienced with this species to relocate the individual.
  - o Contractor is to perform daily sweeps during the active season (approximately April 1 to October 31, subject to weather conditions). Note required if under freeze-up conditions.
- + If a turtle nest is suspected, then flag a 10 m buffer to protect the nest. Contact project biologist for immediate assistance, and/or, MECP (for Endangered or Threatened species) and MNRF (all other species, including those listed as special concern).
- + Erosion and sediment control measures to be put in place to prevent impacts to water quality downstream of the work area.
- + Minimize sensory impacts to turtles by working during the day, and ensuring that equipment and vehicles have the appropriate mufflers and implement a no idling policy. If working at night ensure that only the lighting needed to perform the work safely is installed and this lighting is focused on the work area (minimize lighting of sky or of natural features).

Potential Impacts to Blanding's Turtle following Avoidance and Mitigation Measures					
Activity	Area	Nature	Duration	Magnitude	Findings
Construction of expansion within Category 2 Habitat	Local	Negative Direct to Indirect	Permanent	Negligible to Minor	Effectively minimized MECP will be consulted

**Birds:**

The Chimney Swift can often be found in developed areas and prefers to utilize structures such as large (>50 cm diameter) trees or man-made structures such as chimneys for its nesting habitat (COSEWIC, 2007). The use of large trees is now considered a rare event and the documented occurrences have all been in trees that were <1 km from a waterbody (large enough to be shown on 1:50,000 topographical maps) (COSEWIC, 2007).





Category 1 Chimney Swift habitat is the nesting structure (tree or chimney) and 90m surrounding the structure (COSEWIC, 2007). This species is easily identified when present, it is very vocal and forages often. There were three trees (>50 cm in diameter) situated within the area to be impacted. As mentioned above, two visits (one in the afternoon and one in the morning) were completed in June 2021 (June 2nd and June 21st) and no Chimney Swifts were observed or heard. These visits along with the lack of documentation by citizen science databases and NHIC as well as the reduction of use of natural habitat by this species in general, suggest that there are no active Chimney Swifts nests at this location.

**Birds:**

- + Educate construction workers that SAR bird species (Chimney Swift) could be present and that these and their habitats are protected under the provincial Endangered Species Act and must be protected from harm, harassment and injury.
- + Prior to removal of large (>50cm in dbh) trees, confirm absence of Chimney Swift (must be completed in the nesting season late May until first week in July).
- + Clearing of vegetation is recommended to take place between September 1 and March 30 .
  - o If clearing takes place during the active season (March 31 to August 31, inclusive) then a nest clearance survey will be completed by a qualified biologist or technical with experience, no earlier than 2-days prior to the clearing. Note that the timing constraint for tree removal for other species is more restrictive (see under turtles and bats).
- + If a SAR bird is observed, then all work that may harm the individual must stop and the worker should notify their supervisor. Try to take a photograph or record the call, but do not chase the bird to do so. The supervisor is to inform the client who would then communicate with MECP.
- + If an individual has been harmed, the supervisor should contact MECP (and if applicable the project biologist) immediately.
- + Minimize sensory impacts to birds by working during the day, and ensuring that equipment and vehicles have the appropriate mufflers and implement a no idling policy. If working at night ensure that only the lighting needed to perform the work safely is installed and this lighting is focused on the work area (minimize lighting of sky or of natural features).

FOLLOWING to Avoidance and Mitigation Measures – SAR Birds					
Activity	Area	Nature	Duration	Magnitude	Findings
Construction of expansion (removal of fee trees and meadow/mowed meadow habitat	Local	Negative Direct to Indirect	Temporary to Permanent	Negligible	Effectively minimized through reduced area of impact and use of timing windows

**Bats**

Avoidance and Mitigation Measures:

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



- + Minimize sensory impacts to bats by ensuring that equipment and vehicles have the appropriate mufflers and implement a no idling policy. If working at night ensure that only the lighting needed to perform the work safely is installed and this lighting is focused on the work area (minimize lighting of sky or of natural features).

FOLLOWING to Avoidance and Mitigation Measures - Bats					
Activity	Area	Nature	Duration	Magnitude	Findings
Construction – removal of trees 10cm or larger in dbh	Local	Negative Direct	Permanent	Negligible	Effectively Minimized

## Plants

### Butternuts

A Butternut inventory was completed in 2009 and again in 2021 and 2023. While there is a large number of walnuts on-site, there were no confirmed identifications of Butternuts.

### Black Ash

No black ash were noted during the butternut surveys or 2021 vegetation work, but a targeted survey was not conducted. The development is not directly impacting the wetland, however some of it is within 30m (Figure 2)

Avoidance/Mitigation Measures for species at risk trees:

- Should Butternuts or Black Ash be identified or suspected, then these will need to be assessed and the appropriate actions taken.

## Other

The measures outlined above serve to protect the identified or potentially present natural features identified in the background review and/or site investigations. However, there are also some other items that should be mentioned.

1. Almost all birds in Ontario are protected by either MBCA or Fish and Wildlife Conservation Act (FWCA).
  2. Most reptiles are protected by the FWCA.
- + 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 current standard nesting period is between 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.



- These dates only serve as a guideline. Proponent is strongly encouraged to follow timing windows but also must follow the timing windows for the clearing of trees that might provide bat habitat.
- + During construction, there is a potential for suitable habitat for ground nesting birds (i.e. Killdeer) to be created. These include 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.
- + Disturbed area and gravel roads can be used by turtles for nesting. While areas with active vehicular use are usually not considered significant, should they nest, the nest and eggs are protected until the young hatch and leave the area (usually by end of September). The exclusion fence for Blanding's Turtle and other measures for that species will also prevent harm to other species of turtles. Northern Map Turtle is known to be present in the area.
- + Work during the daytime hours to prevent light disturbances to fauna.
- + Ensure that all equipment have the appropriate mufflers to reduce noise disturbances to fauna.
- + If a turtle nest is suspected, then flag a 10 m buffer to protect the nest. Contact MECP (for SAR) and MNRF (all other species), as applicable.
- + Machinery should be cleaned prior to arriving on-site to prevent the potential spread of invasive species (i.e. mud and vegetation matter from other sites should be removed from machinery). See measures listed above for the protection of the spread of invasive species from the PSW.

### **Cumulative Impacts**

The 2009 conclusions, remain applicable. The adjacent lands are developed, and the site was a former homestead. The main potential cumulate effect would be associated with impacts to water quality, loss of access to the river by the public and reduced aesthetic value for neighboring landowners. Provided that the new effluent discharge meets current regulations, then there would be no cumulative effect to the water quality. The development of a WPCP on these lands would result in fencing off of the site and would reduce public access to the river. If possible, a foot trail could be left to allow public access to the water front. The potential reduction in aesthetic value for neighboring landowners could be minimized by planting native trees and shrubs around the project area.

### **Conclusion**

The area remains much the same as that observed in 2009.

- + Direct impact to Fish Habitat and the PSW have been avoided.
- + Impacts during construction can be avoided through the use of appropriate and common best management practices identified herein.
- + Operational impacts from an increased amount of effluent can be avoided through compliance to MECP requirements.
- + All construction activities are outside of a 15m setback from fish habitat, and the only permanent footprint within 30m is the berm.



- + The majority of the 30m buffer from the wetland that will be impacted is a meadow (some of which is mowed) and the permanent changes is the berm. Look to opportunities to plant this section of the berm with native vegetation and, consider not mowing that area.
- + The proposed expansion will result in impacts to a small section (estimated at 0.22 ha) of assumed Category 2 Blanding's Turtle habitat (no occurrences are shown for the site or the 2 km adjacent lands).
- + Three and possibly a fourth, large (>50 cm in diameter) trees will be impacted. No Chimney Swifts were observed in 2021. It is again noted that they have rarely been observed, in recent times, using trees (selecting chimneys instead).
- + All trees between >10cm in diameter must be removed between October 1 and March 31, to avoid triggering additional review in terms of SAR bats.
- + MECP will need to be contacted with respect to Blanding's Turtles
- + Prior to, but within 1-2 years of construction:
  - o Repeat flora surveys to ensure no Butternut or Black Ash
  - o Confirm no use of larger trees by Chimney Swift
  - o Review SAR guidelines to ensure most up to date information is applied.

Apart from contacting MECP with respect to Blanding's Turtle and Chimney Swift, this project can move forward as planned.

Sincerely,

Al Quinsey  
Biologist

Michelle Lavictoire  
Associate Partner/ Senior Biologist





## 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.

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Ontario Ministry of Natural Resources (2023) Ontario Geohub



Appendix A - Background Information

Summary of Potential Endangered and Threatened Species

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Guidelines/Triggers for Review	Brought Forward (Yes/No)
<b>FISH</b>							
Lake Sturgeon	<i>Acipenser fulvescens</i>		THR	No Status	Bottoms of lakes and large rivers. Adults are typically found in highly productive shoal areas of large rivers and large lakes. Preferred water temp. 15-17°C (COSEWIC, 2017).	Present within the Napanee River, project will not directly affect this species or its habitat.	No
American Eel	<i>Anguilla rostrata</i>	S1?	END	No Status	Near cover over muddy bottoms in lakes, ponds, rivers and creeks at depths <15 m; preferred water temperature range 16-19°C. (COSEWIC 2006)	Present within the Napanee River, project will not directly affect this species or its habitat.	No
<b>REPTILES</b>							
Blanding's Turtle	<i>Emydoidea blandingii</i>	SNR	THR	END	Shallow water, large marshes, shallow lakes or similar such water bodies. General habitat protection is provided for suitable habitat that is within 2 km of an occurrence when certain conditions are met (COSEWIC, 2016).	Present in the general area and the Napanee River is suitable habitat.	Yes
<b>BIRDS</b>							
Least Bittern	<i>Ixobrychus exilis</i>	S4B	THR	THR	Freshwater marshes 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. (COSEWIC 2009a).	Small riverine wetland along Napanee river has low potential to provide habitat for this species. The setback for turtle habitat will limit impacts to this habitat. Further, none were observed during 2021 bird surveys and the closest record is 4.5 km to the south.	No





Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Guidelines/Triggers for Review	Brought Forward (Yes/No)
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	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 5.2.2. Provincial guidelines provide general habitat protection to suitable habitat within 500 m of an occurrence when certain conditions are met (MECP 2019). The province adopted the federal recovery strategy (MECP, 2019). The federal recovery strategy identifies the habitat occupancy as a 10x10 km atlas squares with one confirmed breeding record, or two probable breeding records (ECCC, 2018). Possible breeding records only trigger federal review when there are at least two records from a single year and at least one from another year or five possible records from one or more years (ECCC, 2018). The federal recovery strategy provides details on habitat functions with nesting habitat necessitating dense forest AND sparse shrub/herbaceous ground cover AND well-drained soils (ECCC, 2018).	No woodland on or around site.	No
Loggerhead Shrike	<i>Lanius ludovicianus</i>	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 observations 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 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).	No thicket habitat on site.	No



Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Guidelines/Triggers for Review	Brought Forward (Yes/No)
Chimney Swift	<i>Chaetura pelagica</i>	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).	Potential to occur in surrounding structures and large trees on site.	Yes
Bank Swallow	<i>Riparia riparia</i>	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 colonies bank face and all suitable foraging habitat within 500 m (MECP 2015).	No suitable banks on or near site.	No
Bobolink	<i>Dolichonyx oryzivorus</i>	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 centimetres (COSEWIC, 2010). The federal recovery strategy defines critical habitat as predetermined 10x10 km squares containing habitat with suitable biophysical attributes (ECCC, 2022). 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).	No grasslands on or near site.	No
Eastern Meadowlark	<i>Sturnella magna</i>	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, 2014b). 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). The federal	No grasslands on or near site.	No



Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Guidelines/Triggers for Review	Brought Forward (Yes/No)
					recovery strategy requires habitat to fall within 10x10 km squares of occupancy to be considered for critical habitat. Provincially, this species protected habitat is the area extending 100 m from the nest as well as the 300 m of suitable habitat around the nest (MECP 2013).		
<b>MAMMALS</b>							
Little Brown Myotis	<i>Myotis lucifugus</i>	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).	No rocky habitat for hibernacula or eastern small footed myotis maternity habitat.	Yes
Northern Myotis	<i>Myotis septentrionalis</i>	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.	Maternity habitat for these species is not protected,	
Eastern Small-footed Myotis	<i>Myotis leibii</i>	S2S3	END	No Status	Roost in a variety of habitats, including in or under rocks, in rock outcrops, or in caves, mines, or hollow trees. Preferred maternity habitat of this species consists of open rock habitats, it rarely uses old buildings as roosting/maternity sites. 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.	No woodlands are present for the woodland breeders.  Potential use of individuals trees by Little Brown Myotis, (low potential by Tri-colored Bat) and/or as day roosting for any species.	
Tri-colored Bat	<i>Perimyotis subflavus</i>	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 in cold and humid hibernacula (caves/mines). (COSEWIC, 2013). Critical habitat has not yet been defined by the province.	Potential nearby use of buildings by Little Brown Myotis or Tri-colored Bay. Buildings will not be impacted.	
<b>VASCULAR PLANTS</b>							
Four-leaved Milkweed	<i>Asclepias quadrifolia</i>	S1	END	No Status	Dry to mesic deciduous forest. (COSEWIC 2010)	No suitable habitat on site and none observed on during plant surveys.	No



Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Guidelines/Triggers for Review	Brought Forward (Yes/No)
Butternut	<i>Juglans cinerea</i>	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 5.	None observed during butternut surveys. Surveys valid for 2 years.	No
Black Ash	<i>Fraxinus nigra</i>	S4	END	No Status	Swamps, bogs, and riparian areas, occasionally poorly drained upland areas (COSEWIC 2018).	None observed during vegetation surveys but possible within wetland	Yes

Table Updated: January 31, 2024

### **SRANK DEFINITIONS**

S1 Critically Imperiled, 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, 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.





## Background Fish Community Information - LIO

Common Name	Scientific Name	Trophic Class*	Thermal Regime	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Source
Bowfin	<i>Amia calva</i>	carnivore	warm	S4	No Status	No Status	LIO 2023
Alewife	<i>Alosa pseudoharengus</i>	planktivore	cold	SNA	No Status	No Status	LIO 2023
Gizzard Shad	<i>Dorosoma cepedianum</i>	herbivore	cool	S4	No Status	No Status	LIO 2023
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	invertivore/ carnivore	cold	SNA	No Status	No Status	LIO 2023
Northern Pike	<i>Esox lucius</i>	carnivore	cool	S5	No Status	No Status	LIO 2023
Central Mudminnow	<i>Umbra limi</i>	invertivore	cool	S5	No Status	No Status	LIO 2023
Common Shiner	<i>Luxilus cornutus</i>	invertivore	cool	S5	No Status	No Status	LIO 2023
Golden Shiner	<i>Notemigonus crysoleucas</i>	invertivore/herbivore	cool	S5	No Status	No Status	LIO 2023
Bridle Shiner	<i>Notropis bifrenatus</i>	planktivore	cool	S2	SC	SC	LIO 2023
Blackchin Shiner	<i>Notropis heterodon</i>	invertivore	cool	S4	No Status	No Status	LIO 2023
Blacknose Shiner	<i>Notropis heterolepis</i>	invertivore/ herbivore	cool	S5	No Status	No Status	LIO 2023
Spottail Shiner	<i>Notropis hudsonius</i>	invertivore/ planktivore	cool	S5	No Status	No Status	LIO 2023
Bluntnose Minnow	<i>Pimephales notatus</i>	detritivore	warm	S5	No Status	No Status	LIO 2023
Longnose Dace	<i>Rhinichthys cataractae</i>	invertivore	cool	S5	No Status	No Status	LIO 2023
Fallfish	<i>Semotilus corporalis</i>	invertivore/ carnivore	cool	S4	No Status	No Status	LIO 2023
White Sucker	<i>Catostomus commersonii</i>	invertivore/ detritivore	cool	S5	No Status	No Status	LIO 2023
Yellow Bullhead	<i>Ameiurus natalis</i>	invertivore/ carnivore	warm	S4	No Status	No Status	LIO 2023
Brown Bullhead	<i>Ameiurus nebulosus</i>	invertivore/ herbivore/ carnivore	warm	S5	No Status	No Status	LIO 2023
Channel Catfish	<i>Ictalurus punctatus</i>	invertivore/ carnivore	warm	S4	No Status	No Status	LIO 2023
Burbot	<i>Lota lota</i>	invertivore/ carnivore	cold	S5	No Status	No Status	LIO 2023



Common Name	Scientific Name	Trophic Class*	Thermal Regime	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Source
Brook Silverside	<i>Labidesthes sicculus</i>	planktivore/ invertivore	warm	S4	No Status	No Status	LIO 2023
White Perch	<i>Morone americana</i>	invertivore/ carnivore	warm	SNA	No Status	No Status	LIO 2023
Rock Bass	<i>Ambloplites rupestris</i>	invertivore/carnivore	cool	S5	No Status	No Status	LIO 2023
Pumpkinseed	<i>Lepomis gibbosus</i>	invertivore/carnivore	warm	S5	No Status	No Status	LIO 2023
Bluegill	<i>Lepomis macrochirus</i>	invertivore	warm	S5	No Status	No Status	LIO 2023
Smallmouth Bass	<i>Micropterus dolomieu</i>	invertivore/ carnivore	cool	S5	No Status	No Status	LIO 2023
Largemouth Bass	<i>Micropterus salmoides</i>	invertivore/ carnivore	warm	S5	No Status	No Status	LIO 2023
Black Crappie	<i>Pomoxis nigromaculatus</i>	invertivore/ carnivore	cool	S4	No Status	No Status	LIO 2023
Iowa Darter	<i>Etheostoma exile</i>	invertivore	cool	S5	No Status	No Status	LIO 2023
Yellow Perch	<i>Perca flavescens</i>	invertivore/ carnivore	cool	S5	No Status	No Status	LIO 2023
Logperch	<i>Percina caprodes</i>	invertivore	warm	S5	No Status	No Status	LIO 2023
Cods					No Status	No Status	LIO 2023

Table Updated: March 25, 2021

#### **SRANK DEFINITIONS**

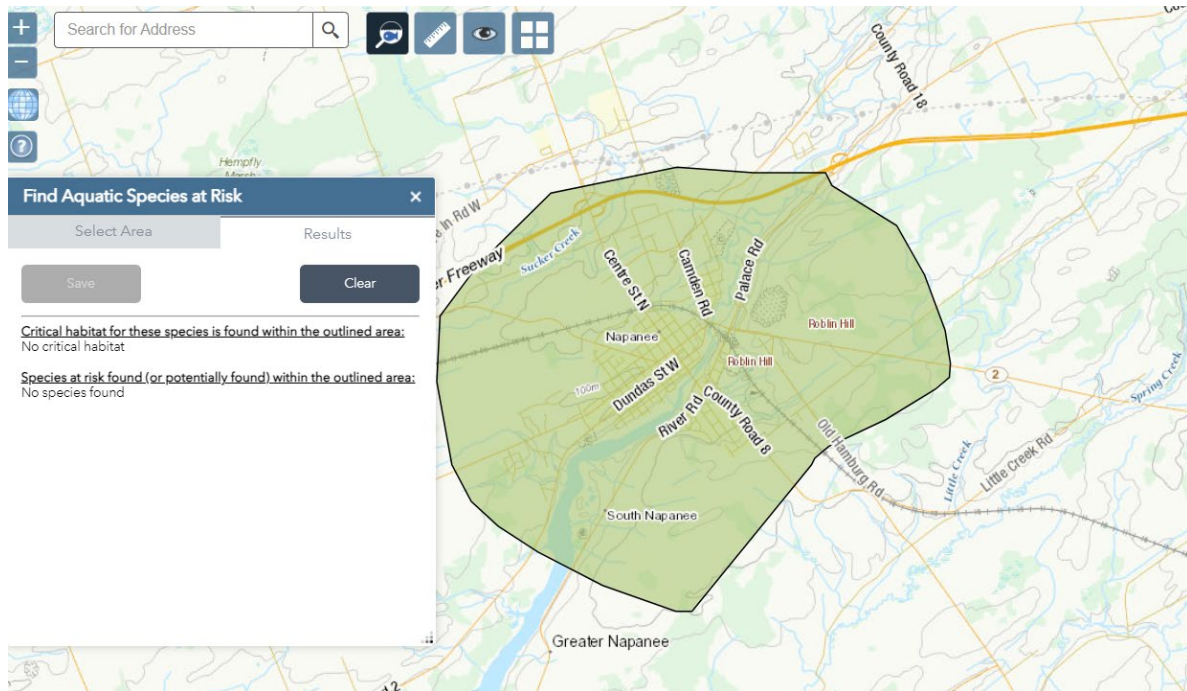
- S2 Imperiled, Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
- S4 Apparently Secure, Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5 Secure, Common, widespread, and abundant in the nation or state/province.
- SNA Not Applicable, A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

#### **SARO STATUS DEFINITIONS**

- SC Special Concern: A species with characteristics that make it sensitive to human activities or natural events.

#### **SARA STATUS DEFINITIONS**

- SC Special Concern, a wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.



DFO Aquatic Species at Risk Mapping (Accessed November 2023)

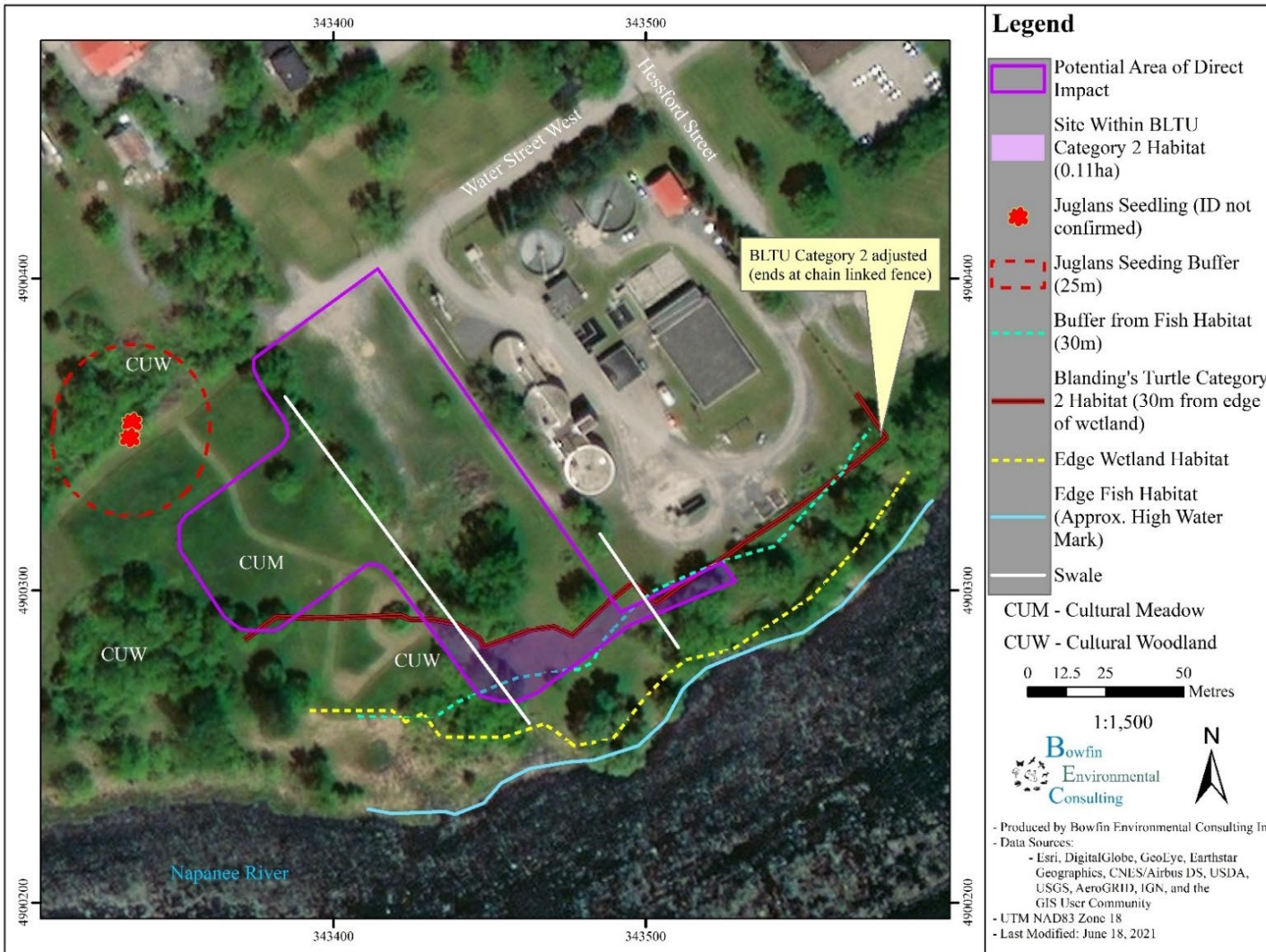


Figure 3: 2021 ELC communities (Bowfin 2021)