Environmental Impact Study

Half Moon Bay

July 22, 2021
Update: Dec. 20, 2025

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Dec. 20, 2025

Michael Kerford
712223 NB Ltd
49 Second Avenue
Uxbridge ON L9P 1J9

RE: Half Moon Bay updated Environmental Impact Study (EIS)

Dear Mr. Kerford,

Please see the following update to the July 22, 2021 EIS conducted for the Half Moon Bay development. The update has incorporated ecological changes to the site since that time, follow up field study efforts, changes to the Endangered Species Act, changes as a result of the Parson Inc. peer review and a Sept. 19, 2025 review from Development Services of Prince Edward County (PEC), and considerations stemming from the Nov. 19 public meeting at Shire Hall.

It is our opinion that the proposed Half Moon Bay development can occur without causing a negative impact to PEC natural heritage features if the recommended mitigation measures provided in this EIS are followed.

Respectfully submitted,

Rob Snetsinger
Ecological Services

Half Moon Bay EIS - Table of Contents

1. Overview

This Environmental Impact Study (EIS) was completed on behalf of 712223 NB Ltd. who are proposing to develop 16 lots on Flatt Point next to Half Moon Bay, Prince Edward County (Figure 1), and an additional 17th lot (Figure 2) at 3401 County Road 13. Please note that Figure 1 is being provided for context, and that a higher resolution concept plan will be made available by The Boulevard Group planners with the planning package.

The purpose of an EIS is to determine if significant natural heritage features are present, as defined by the Provincial Planning Statement (PPS), and the Prince Edward County Official Plan (OP), and if present, to determine if that they are at risk of a negative impact from the development. This effort is based on assessment requirements of the PPS and the OP.

The above stated intent of the EIS to focus on defined natural heritage features is noteworthy because all developments, no matter where they occur, will impact the environment. However, if any impact was the condition for development approval, then no development in the province could occur. This is well understood and why the term "negative impact" has been specifically adjoined to the significant natural heritage features that are defined within the PPS and the OP.

As noted, all sites have some ecological value and all developments, no matter where they are situated, will result in some ecological displacement. With this in mind, it is the intent of sustainable development in the province to achieve a balance between development and environmental protection. As such, the mechanisms of the EIS process are only intended to focus on the defined significant natural heritage features that are listed in the PPS and the Official Plan.

The significant natural heritage features typically listed include, species at risk (SAR), significant wetland, significant woodland, significant valleyland, ANSI's, significant wildlife habitat, and fish habitat. Guiding this EIS effort are survey/policy manuals provided by the Ministry of Natural Resources and Forestry (MNRF) and the Ministry of Environment Conservation and Parks (MECP). If significant natural heritage features are found, and it is determined that their features or functions are at risk of a negative impact, the eventual EIS process has two possible outcomes.

1. Determine that the negative impact to significant natural heritage features is too great and that it will not be possible for a development as presented in a concept plan to be consistent with the Official Plan. An example would be if a provincially significant ANSI could lose its provincially significant status because of the degree of impact.

2. Determine that the development can be consistent with the Official Plan with respect to negative impacts, which can also be achieved with mitigation or compensation measures.

Figure 1. Half Moon Bay development proposal provided to Ecological Services in 2025. The main area of development is to occur within Flatts Point and will include 16 lots. The 17th lot is an adjunct at 3401 County Road 13 and is provided in Figure 2.

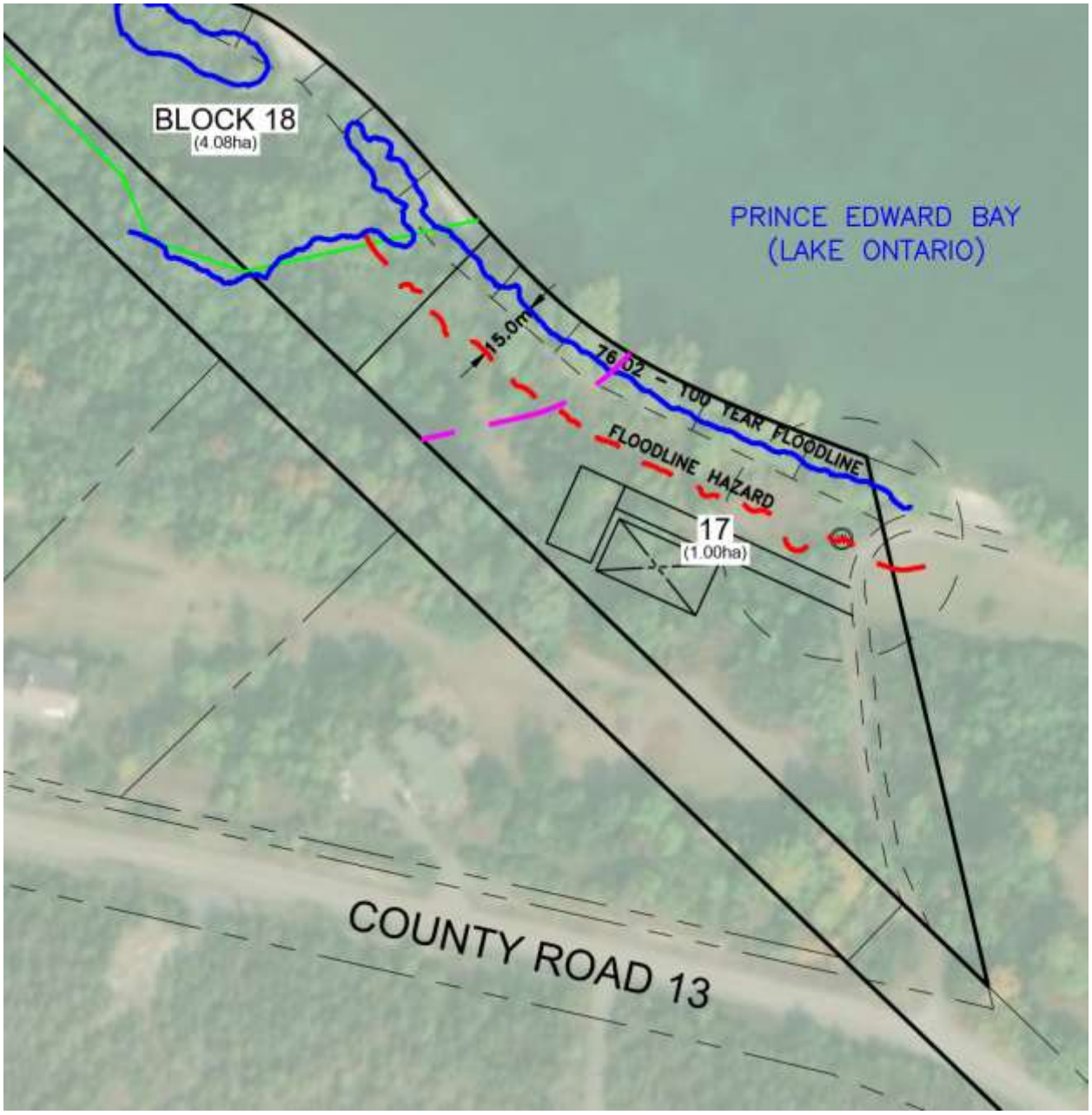


Figure 2. Lots 17 concept.

2 Summary and Recommendations

Summary Conclusion: It is our opinion that the proposed Half Moon Bay development can occur without causing a negative impact to natural heritage features if the following recommended mitigation measures are followed.

Species at Risk:

Eastern Meadowlark: It is recommended that the proposed road route be assessed for Meadowlark nesting in 2026 and if nesting is present, then the Information Gathering Process be initiated with MECP as a prelude to possible compensation efforts as outlined in Part IV, Ontario Regulation 830/21.

Blanding's Turtles: Nesting Blanding's Turtles could be attracted to newly exposed ground during construction as well as gravel or sand piles that might be used in construction in proximity to Lot 17. It is recommended that turtle exclusion fencing be maintained around the entire construction area during the construction phase of Lot 17.

SAR Bats:
1. If there is a need to remove non-red cedar trees greater than 25 cm DBH (measurement assigned by MECP 2022) within the nest/roost season of April 1 to Nov. 30, then the removal of the tree is only recommended if it can be shown that it is not an active roost tree as determined by an acoustic exit survey. Otherwise, there should be no tree clearing of non-red cedar trees greater than 25 cm DBH during the nest/roost season of April 1 to Nov.
30.

2. Unlike the rest of the lots where the first 50 m (in from the lake) of vegetation is recommended to be retained with at least 80% canopy cover, it is recommended that lots 1 and 2 retain the first 100 m. This is not intended to restrict the placement of a well head. If there is a proposal by a future landowner to develop within the 50 to 100 m woodland area of Lots 1 and 2, then it is recommended that development approvals be preceded by SAR bat surveys as per MECP (2022). This would also include bat acoustic monitoring. The results of these surveys would go into the Information Gathering Process form that would need to be initiated with the MECP. The results of that process would have potential impacts on how development would proceed in the 50 to 100 m woodland area.

Wetland

1. It is recommended that the lots next to wetland areas (Lots 10 to 15 and 17) have an adjacent 50 m no build buffer zone (i.e., residential dwelling, septic fields, sheds). Lot 16 is not next to wetland. It is understood that the well heads will need to be closer to the wetlands.

2. It is recommended that shrub and trees next to wetlands in the prescribed 50 m zone of Lots 10 to 15 and 17) next to wetland be maintained with at least 80% canopy cover to maintain buffer functionality. The removal of dead or dying trees (e.g., ash); non-native and invasive species (e.g., European buckthorn), or trees with a low Coefficient of Conservatism (e.g., Manitoba Maple and Crack Willow) is acceptable if the 80% canopy cover threshold is

maintained. If there is a desire to remove these low Coefficient of Conservatism species in the buffer zone below the 80% threshold, they should be replaced by native tree plantings.

Fish Habitat

1. It is recommended that the lake shoreline areas for lots 1 to 11 (lots 12 to 16 are not next to fish habitat) have a 50 m no build buffer zone (i.e., residential dwelling, septic fields, sheds). It is understood that the well heads will need to be closer to the lake. Due to space constraints within lot 17, a 50 m buffer zone to the lake is not feasible, and Regulation 41/24 of 30 m will likely be applied.

2. It is recommended that shrub and trees in the lake buffer zone of Lots 1 to 11 be maintained with at least 80% canopy cover to maintain buffer functionality. The removal of dead or dying trees (e.g., ash); non-native and invasive species (e.g., European buckthorn), or trees with a low Coefficient of Conservatism (e.g., Manitoba Maple and Crack Willow) is acceptable if the 80% canopy cover threshold is maintained. If there is a desire to remove these low Coefficient of Conservatism species in the buffer zone below the 80% threshold, they should be replaced primarily by native tree species. Except for a band of trees along the shoreline that are mostly Crack Willow, the potential build area of Lot 17 is not treed and therefore maintaining an 80% crown cover is not feasible.

Woodland

Proximity/Water Protection: 1. It is recommended that the shoreline/wetland/SWH areas for lots 1 to 15 have a 50 m no build buffer zone (i.e., residential dwelling, septic fields, sheds). It is understood that the well head will need to be closer to the lake. Lot 16 is not adjacent to lake or wetland. Lot 17 is adjacent to the lake, but the potential build area is not treed, although it is recommended that shoreline trees be maintained.

Proximity/Water Protection: 2. It is recommended that shrub and trees in the 50 m buffer zone be maintained with at least 80% canopy cover to maintain buffer functionality. The removal of dead or dying trees (e.g., ash); non-native and invasive species (e.g., European buckthorn), or trees with a low Coefficient of Conservatism (e.g., Manitoba Maple and Crack Willow) is acceptable if the 80% canopy cover threshold is maintained. If there is a desire to remove these low Coefficient of Conservatism species in the buffer zone below the 80% threshold, they should be replaced primarily by native tree species.

Wildlife Habitat

Amphibian Breeding (wetland): 1. It is recommended that the combined SWT2 and “w” areas have a 50 m no build buffer zone. This is not intended to restrict the placement of the well head.

Amphibian Breeding (wetland): 2. It is recommended that shrub and trees in the 50 m buffer zone be maintained with at least 80% canopy cover to maintain buffer functionality. The removal

of dead or dying trees (e.g., ash); non-native and invasive species (e.g., European buckthorn), or trees with a low Coefficient of Conservatism (e.g., Manitoba Maple and Crack Willow) is acceptable if the 80% canopy cover threshold is maintained. If there is a desire to remove these low Coefficient of Conservatism species in the buffer zone below the 80% threshold, they should be replaced primarily by native tree species.

It is recommended that land clearing occur outside of the breeding bird season (April 1 to Aug. 30) to avoid a contravention of the Migratory Birds Convention Act, which includes the Wood Thrush.

3 Policy Framework

Provincial Planning Statement (PPS) 2024

Issued under the *Planning Act*, the 2024 version of the PPS requires that municipalities consider natural heritage features in assessing development proposals. Guidance on the extent of adjacent lands is provided in a Natural Heritage Reference Manual (MNR 2010). The adjacent land width for significant natural heritage features is 120 m. From the 2024 PPS:

4.1.4 Development and site alteration shall not be permitted in:
a) significant wetlands in Ecoregions 5E, 6E and 7E1; and
b) significant coastal wetlands

4.1.5 Development and site alteration shall not be permitted in:
b) significant woodlands in Ecoregions 6E;
c) significant valleylands in Ecoregions 6E;
d) significant wildlife habitat;
e) significant areas of natural and scientific interest;
f) coastal wetlands in Ecoregion 6E that are not subject to policy 4.1.4. b

… unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

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

4.1.7 Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

4.1.8 Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 5.1.4, 5.1.5, and 5.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

POLICY: Prince Edward County Official Plan (2021)

Note: It is our understanding that the 1998 OP is to be used for review basis on this development and not the new 2021 OP. The 2021 is referenced for guidance on EIS scope/terms of references as it was used for guidance in preparing the original EIS.

Impact assessments determine whether an activity is going to have a negative impact on a significant natural heritage feature. Field work for this project was completed under the guidance of the PPS and the Official Plan (OP) of Prince Edward County. For convenience, we are providing the wording of the 2021 OP below as a guiding document for this EIS. From the OP:

5.1.9 Environmental Impact Study (EIS)

1) An Environmental Impact Study (EIS) shall be required as part of an application for all development and site alteration applications within the identified Natural Heritage System, including all of its component natural heritage features and functions and/or on adjacent lands.

3) The EIS shall demonstrate that the proposed use will have no negative impact on significant natural heritage features and areas and their associated ecological functions (i.e. hydrological, hydrogeological, etc.).

4) Where an EIS indicates that development would have a negative impact on the Natural Heritage System and/or the natural heritage feature or area, function, attributes or linkages for which the lands were identified, the application shall not be supported or approved by the Municipality.

5) The EIS shall be prepared by a qualified professional(s) and shall be subject to the approval of the Municipality and Quinte Conservation, in consultation with any other authority having jurisdiction.

6) The Municipality may determine that a scoped EIS may be permitted for minor development proposals, and development proposals in areas that have been previously disturbed and/or where previous environmental studies have been undertaken. The extent of the scoping and identification of issues will be determined by the Municipality in collaboration with Quinte Conservation and any authority having jurisdiction, prior to undertaking the study.

Environmental Impact Study (EIS) Appendix B of the Adopted OP

Prince Edward County provides a guiding document for completing EIS's that is available on the County website. https://www.thecounty.ca/residents/services/planning/official-plan/

This is not an exhaustive field manual, but is intended to ensure that natural heritage features described in the PPS and the OP merit investigation for negative impacts.

Other Notable EIS related Legislation

- Fisheries Act (1985)
- Conservation Authorities Act (1990) and Ontario Regulation 41/24
- Migratory Birds Convention Act (1994)
- Endangered Species Act (2007)

4 Methods

Site screening was undertaken using the MNRF (2018) and MECP (2019) screening protocol.

Habitat communities are described following the methodology outlined in the Ecological Land Classification (ELC) manual for Southern Ontario (Lee *et al*., 1998). Plant species were used to characterize ELC community types.

The Natural Heritage Reference Manual (MNR 2010), Significant Wildlife Habitat Ecoregion Criteria Schedules (MNRF 2015) and Significant Wildlife Habitat Technical Guide (MNR 2000) were used to define significant natural features. Breeding bird surveys were based on the Ontario Breeding Bird Atlas Guide for Participants (Cadman and Kopysh, 2001) and the Canadian Wildlife Service Forest Bird Monitoring Program. The bat survey methodology was based on MNR (2011), MNRF (2014), and MNRF (2015), as well as through consultation with Michelle Karam (MECP bat specialist), bat expert Toby Thorne (Toronto Zoo), and Monique Charette (MECP biologist).Snake surveys were based on SAR snake protocols provided by MNRF (2016). The MNRF also provides protocols for targeted SAR surveys, which are applied where necessary, such as the MNR (2011) Bobolink Survey Methodology the MNR (2012) Whip-poor-will Survey Methodology, and the MNRF (2015) Blanding's Turtle Methodology.

Qualifications of the field work personnel is presented in Section 10 of this report. The timing and nature of the site visits is presented in Table 1.

Table 1: Site Visit Summary

Date of Survey	Arrival Time	Surveyors	Main Purpose of Visit
2020			
June 26	1300	Rob Snetsinger	Wetland and Vegetation assessment
July 29	1000	Rob Snetsinger	Wetland and Vegetation assessment
2021			
May 4	2000	Kurt Hennige	Marsh Monitoring
May 17	715	Kurt Hennige Kaitlyn Closs	Breeding Birds
May 19	2030	Kurt Hennige	Night Birds Marsh Monitoring
May 31	730	Kurt Hennige	Breeding Birds
June 9	2000	Kurt Hennige	Marsh Monitoring Night Birds
June 16	900	Rob Snetsinger Dale Kristensen	ELC, vegetation features, wetland assessment, road route assessment, breeding birds
June 18	230	Rob Snetsinger	All taxa
June 22	700	Kurt Hennige	Breeding Birds
June 23	1100	Rob Snetsinger	All taxa
June 28	2300	Rob Snetsinger	Night Birds
2023			
June 9	830	Rob Snetsinger	All taxa
2025			
Nov 14	1120	Rob Snetsinger	All taxa

5 Site History, Land Use, Topography, and Drainage

Site History: Like much of Prince Edward County, the development site has an agricultural history. The adjacent 1880 historical map shows the development property to have the name Flatts (or Flatt) Pt. and be part of a parcel owned by "Hicks". The relatively shallow soils present would have limited its potential for cash crops or orchards, and it was therefore likely used for cattle pasturing or hay production in support of the extensive dairy operations that once dominated agriculture in the County as Belden (1878) notes that the County once operated 26 cheese factories.

It is not known when farm operations on this land ceased, but agricultural activity was taking place in 1954, as shown in the adjacent image.

Expansion of trees into agricultural lands within Flatts Point has primarily been undertaken by red cedar, with lesser amounts of white and green ash. This red cedar expansion has continued into 2025 such that all field areas are now woodland.

The relative age of the red cedar trees suggests that agricultural abandonment has occurred at different times, with the first starting over 30 years ago. Consequently, these lands have not had a significant amount of time to develop a diverse or significant ecology.

Land Use: The subject property is within the Picton Ecodistrict 6E-15, with over half in some sort of agricultural use. About 1% is devoted to settlement and about 0.5% is devoted pits and quarries. The subject lands are bordered to north and east by Lake Ontario, and to the west

and south by active agricultural lands and abandoned agricultural fields that are regenerating into a thicket community.

Soils: According to the Prince Edward County Soil Survey Report No. 10, Flatts Point is underlain by two soil types. The bulk of the point is underlain by the Ameliasburg Series, a stony alkaline clay loam of varying depths up to 1 m. There is also a band of soil running across the point represented by the Elmbrook Series, a slightly acid to neutral clay soil that is stonefree.

Topography/Drainage: Flatts Point is mostly flat, gradually sloping with a gradual downward slope towards Lake Ontario from all points within the point.

Geology: Prince Edward County as a whole is underlain by the Gull River Formation of the Simcoe Group. It consists of limestones, dolomitic limestone, and dolostone, with upper layers consisting of shale, typically overlain by shallow soils.

6 Ecological Land Classification (ELC)

Ecological land classification mapping (see Figure 3) for Flatts Point where Lots 1 to 16 are proposed is based on Lee et al. (1998), where habitat fragments less than 0.5 ha. are normally lumped in with the larger overall ELC type. The ELC terms are described further down.

Figure 3. Half Moon Bay ELC boundaries for the area involving the 16 lots on Flatts Point are outlined in red and accompanied by boxed ELC terms. The outer land edge of the development property is shown in yellow.

ELC Sites (not from Lee et al. 1998)

Cu (Cultural): A cultural site is one that is influenced more by cultural activities than those that define the Lee et al. (1998) cultural eco-types (i.e., CUW, CUT, and CUM). Cu sites are recognized as having the lowest ecological value of all site types as they experience ongoing disturbances and are either lacking in vegetation or are dominated by non-native, and/or invasive species. The buildings and lawns of an adjacent lot within 120 m of the development area have been labeled as Cultural.

w (Wetland). There is a small patch of ash swamp at this location, which is smaller than what has been previously reported, and at approximately 0.1 ha it is too small to meet the minimum ELC patch size of 0.5 ha. It is separated by the nearby SWT2 wetland by an access road, and as such, for ELC mapping purposes it should be considered part of the surrounding FOD7-2 woodland for which it has similar features. There is an old drainage channel at this location that would keep water out of the FOD7-2 woodland.

Trail Features. There are four maintained trails present (see red in adjacent image) where observed walking, horse riding, and ATV use have occurred, with or without permission of the landowner. These trails could also be traversed with a high clearance vehicle, but we did not observe any vehicle use on the property. They are shown here to show that there is ongoing use on the property. There are lesser used trails that are not maintained and not shown in this image.

ELC Sites (based on Lee et al. 1998)

CUW1-1 (Red Cedar Cultural Woodland Type). Previously identified as a Cultural Meadow in 2021, this site has now attained enough red cedar coverage (i.e., > 35%) to now classify as a Cultural Woodland. This was anticipated in 2021 in the previously submitted EIS and if this succession process continues, it is anticipated that the CUW1-1 area will eventually become a FOC2-1 area once it surpasses 60% crown canopy coverage.

The site is approximately 1 ha. in size and was the last remaining portion of remnant farmland yet to succeed into woodland. Aside from red cedar, it contains typical forbs and meadow grasses found elsewhere in the County such as Kentucky blue grass, timothy grass, brome, oxeye daisy, and cinquefoils. As seen in the adjacent image taken in 2021 the aggressive non-native dog strangling vine is the main ground cover plant visible, and as of 2025 it is still an aggressive presence in this area.

The species list from CUW1-1 community is provided in Table 9. 44% of plants are non-native (i.e., SNA), which is above the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 1.9 on a scale of 0 to 10, indicating a site with low ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

CUT1 (Mineral Cultural Thicket). Located to the west of the development property, but projected to contain the access road. It was identified in 2021 as a CUM/CUT (Cultural Meadow/Cultural Thicket), but as of 2025 (adjacent image), the expansion of shrubs (primarily staghorn sumac) has far surpassed the 25% threshold to achieve dominance. A few small isolated pockets of meadow are still present, but all are well below the 0.5 ha. required for separate classification.

The site is approximately 8 hectares and based on historic satellite images, it started out as farmland, converted to meadow, and is now a thicket. Some tree growth expansion is occurring and in time, it is anticipated that it will become a Cultural Woodland as part of the next stage of ecological succession. Aside from the dominant staghorn sumac, and gray dogwood (to a lesser degree) the underlying plant community is comprised of typical meadow species found elsewhere in the County such as Kentucky blue grass, brome, oxeye daisy, bindweed, and *Fabaceae* sp. Other common plants observed include the shrubs Tartarian honeysuckle and *Rubus* sp., and some trees including red cedar, white elm, and white ash.

The species list for the CUT1 community is provided in Table 10. 46 % of plants are non-native (i.e., SNA), which is above the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 1.8 on a scale of 0 to 10, indicating a site with low ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

OAO (Open Aquatic): This refers to the adjacent lake. This ELC site type is applied to aquatic areas that do not contain aquatic vegetation.

The nearshore OAO is composed of limestone pieces over top limestone pavement. This unvegetated shallow zone extends about 6 m out into the lake before it reaches a water depth of about 1 m., and there is also no submergent vegetation observed beyond that point, although from aerial imagery the bare limestone pavement is seen to stretch as much as 60 m from shore.

BBS1-2 (Willow Gravel Shrub Beach Type). The shoreline beach area is too small to show in Figure 3 for mapping purposes as per Lee et al. (2018) but is presented here for clarity. Due to wave action, lake substrate limestone pieces are periodically washed up on shore, creating the pebble character of the beach. The width of the beach varies depending on Lake Ontario water levels and can range from as little as a few meters to about 8 m. The dominant plant vegetating the shoreline is crack willow.

FOC2-1 (Dry-Fresh Red Cedar Coniferous Forest Type). This approximately 4 ha site is dominated by growths of red cedar. In the more densely grown areas, the dense canopy cover limits understory growth to a few species such as barren strawberry and mosses.

In areas where there has been a more recent intrusion of red cedar into field habitat the understory still has a meadow presence of typical forbs and grasses. The non-native and invasive European buckthorn is common throughout and the non-native invasive dog strangling vine is becoming prevalent.

The species list from the FOC2-1 woodland is provided in Table 14. 52% of plants are non-native (i.e., SNA), which is well above the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 1.3 on a scale of 0 to 10, indicating a site with low ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

FOD5-5 (Dry-Fresh Sugar Maple – Hickory Deciduous Forest Type). This is the oldest and most diverse upland site type within the development property. Sugar maple and shagbark hickory are dominant trees in the overstory of this approximately 2.6 ha type. Other trees present include red oak, ash sp., basswood, bitternut hickory, black walnut, elm, and poplars. The trees of the sub-canopy layer reflect those of the top canopy, but with the inclusion of ironwood. The shrub layers are comprised of tree saplings and the invasive European buckthorn is a common shrub

present. The ground cover is dominated by the invasive non-native garlic mustard, but also includes typical forest floor forbs such as Virginia waterleaf, herb Robert, Pennsylvania sedge, and mayapple.

Many dead ash trees were observed and evidence of Emerald Ash Borer impacts were by the characteristic bore patterns left behind in the wood.

The species list from the FOD5-5 woodland is provided in Table 11. 12% of plants are non-native (i.e., SNA), which is below the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 3.1 on a scale of 0 to 10, indicating a site with low ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

FOD7-2 (Fresh Moist Ash Lowland Deciduous Forest Type). There are two FOD7-2 types that have recently (~ 20 to 30 years) taken over field habitat via forest succession. Other tree species observed included white elm, sugar maple, hickory, and red cedar. The shrub layer is heavily dominated by the non-native European buckthorn and prickly ash. The ground cover is dominated by representative tree seedlings, as well as prickly ash and buckthorn seedlings. Understory ground cover forbs are relatively sparse, with poison ivy often prevalent.

The species list from the FOD7-2 woodland is provided in Table 12. 22% of plants are non-native (i.e., SNA), which is within the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 2.6 on a scale of 0 to 10, indicating a site with low ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

FOMa (Mixed Forest). A mixed woodland must have at least 25% canopy cover each of both deciduous trees and coniferous trees. This one is approximately 4.3 ha. in size and the dominant deciduous tree cover is green ash and the dominant coniferous tree cover is red cedar. It represents a mix of species found in the three neighbouring ELC types (i.e., FOD7-2, FOC2-1, FOD5-5) with a greater representation along the borders. The shrub layer is relatively dense and is dominated by prickly ash and European buckthorn, indicating a more recent forest succession.

The species list from the FOMa woodland is provided in Table 13. 26% of plants are non-native (i.e., SNA), which is within the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 2.4 on a scale of 0 to 10, indicating a site with low ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

FOMb (Mixed Forest). As this site was on private property, our assessment is based on a roadside analysis. Similar to the FOMa, it appears to contain a similar mix of coniferous and deciduous species as the FOMa woodland.

FOD (Deciduous Woodland). Located on adjacent lands to the development along the edge of the access road on a high point of land overlooking the adjacent wetland. The top canopy is dominated by Manitoba maple and the understory is dominated by weedy non-native species. It contains many of the same species as the nearby FOD7-2 woodland.

SWT2 (Mineral Thicket Swamp Ecosite). A more detailed ecotype could not be provided due to plant variability. It is part of a diffuse thicket swamp that is largely defined by Lake Ontario water levels. It is dominated by shrubs, but also contains up to 25% tree cover, primarily composed of green ash, American elm, and willow.

From our edge analysis it appears to be primarily bordered by silky dogwood, but also contains other shrub species including slender willow, black alder, red-osier dogwood, nannyberry. Ground cover included various obligate and facultative wetland plants such as water willow, sensitive fern, touch me net, wetland sedge/grasses, and water parsnip.

Lot 17 ELC

The ELC types associated with Lot 17 are provided in Figure 4.

Figure 4. ELC associated with Lot 17. ELC boundaries are outlined in red, and Lot 17 is outlined in yellow.

Cultural: Includes developed areas. These are located south and east of Lot 17 and part of the eastern and southern ends of Lot 17, which includes the access road.

Cultural Thicket (CUT): As noted by Lee et al (1998), cultural sites are those that have resulted from, or are maintained by anthropogenic based disturbances. From historic aerial photography the site was used as an orchard at one time. It is not known when orchard activities ended, but the lack of remnant orchard trees today suggests they were removed, perhaps to make way to some other use. It normally takes less than 20 years for a fallow site to succeed from field to woodland (i.e., 60% crown cover), and so the continued presence of field and shrub species is informative of recent disturbances. Recent lawnmower sized pathways had been cut through this property.

Cultural sites, such as this one, are generally considered to have a relatively low ecological value as they often contain many non-native species. The dominant shrub cover is staghorn sumac, but other shrubs present include Virginia creeper, grape, red cedar, raspberry species, and European buckthorn. Tree species are beginning to invade this thicket community, including white and green ash, sugar maple, basswood, and black walnut. As with most undeveloped shorelines in Prince Edward County, the shoreline is dominated by a narrow band of crack willow as shown in the adjacent image.

Many of the ground cover forbs are non-native weedy species such as wild carrot, horseweed, daisy fleabane, vetch, and thistles.

Open Aquatic (OAO): This refers to the adjacent lake. This ELC site type is applied to aquatic areas that do not contain aquatic vegetation. The nearshore OAO is composed of limestone pieces over top limestone pavement. This unvegetated shallow zone extends about 6 m out into the lake before it reaches a water depth of about 1 m. There was no submergent vegetation observed beyond that point. Due to wave action, the underlying limestone pieces are periodically washed up on shore, creating the pebble character of the beach.

Dry-Fresh Sugar Maple – Ironwood Deciduous Forest Type (FOD5-4). A common deciduous forest type in the region. Sugar maple is the dominant tree in the overstory. Other trees present include ironwood, white ash, oaks, basswood, bitternut hickory, black walnut, and poplars. A shrub layer is mostly lacking, but the invasive European buckthorn is the most common shrub present. Evidence of the Emerald Ash Borer is present, and if similar trajectories of other sites are followed, most of the ash trees here will succumb to this invasive pest. There is limited sapling regeneration and shrub growth, which is typical for these woodlands at this stage of their development. Regeneration would further be inhibited by the allelopathic influence of the dense garlic mustard ground cover (see adjacent image). Other common ground cover species observed included showy tick trefoil, poison ivy, and mayapple.

Silky Dogwood Mineral Thicket Swamp Type (SWT2-8): This ELC type is located more than 120 m northwest of the proposed build area (see Figure 2). As the name implies it is dominated by silky dogwood, although there may be different dominant species.

Water levels have a seasonal character, as was evident when comparing levels on June 26, 2020 to those on July 29, 2020. The adjacent image of the SWT2-8 wetland was taken on the 29th where its dry condition is evident.

7 Assessment of Natural Features

7.0 Threatened or Endangered Species

The following Species at Risk (SAR) are discussed because of their potential to be on or within 10 km of the site. The listing below was based on the MNRF (2018) and MECP (2019) screening protocols, as well as past work we have done in the County. Species with only a historical presence (e.g., Henslow Sparrow) were not included.

Table 2. SAR under consideration for SNHA.

Species	ESA Status	Habitat	Habitat Present within Subject Lands	Known Sightings nearby including those more than 120 m or Observed by ES	Impact Concerns
Plants					
Butternut	Endangered	Woodland	Yes	None	None
Black Ash	Endangered	Wetland	Yes	None	None
Four Leaved Milkweed	Endangered	Dry woodland slopes	No	None, most PEC sightings are from east of Picton (McMahon Bluff/Maccauley Mountain)	None
Herps					
Blanding's Turtle	Threatened	Aquatic Habitat	No	Historical only	Minimal, See below
Birds					
Bobolink	Threatened	Hay fields, meadows	No, fields within 120 m too overgrown	Nearby fields associated with Smugglers Cover RV Park in 2023	Minimal, See below
Cerulean Warbler	Threatened	Mature Deciduous Woodland	No	Most records in PEC are either historical or are for migrants	None
Chimney Swift	Threatened	Urban areas with chimneys	No	None	None
Eastern Meadowlark	Threatened	Hay fields, meadows	Yes, adjacent fields	Observed in adjacent fields in 2021	Minimal, See below
Least Bittern	Threatened	Open Water Marsh	No	Reported in South Bay > 3 km away	None
Loggerhead Shrike	Endangered	Open Alvar	No	None … most records in PEC are for migrants	None
Red Headed Woodpecker	Threatened	Parkland	No	Smugglers Cove RV Park	None
Short Eared Owl	Threatened	Grasslands	SE adjacent fields	None	None
Mammals					
Eastern Small Footed Myotis	Endangered	Cliffs or habitat with similar composition	No	No	None
Little Brown Myotis	Endangered	Cosmopolitan	Yes	No	See Below
Northern Myotis	Endangered	Cosmopolitan	Yes	No	See Below
Tri-colored Bat	Endangered	Cosmopolitan	Yes	No	See Below
Eastern Red	Endangered	Cosmopolitan	Yes	No	See Below
Silver Haired	Endangered	Cosmopolitan	Yes	No	See Below
Hoary	Endangered	Cosmopolitan	Yes	No	See Below
Fish					
American Eel	Endangered	Lake with deeper water and soft substrates	No	No (offshore waters lack suitable burrowing and feeding habitat)	None

Bobolink (THR). There have been sightings over the last several years within 3 km of the development site, primarily from surveys along County Rd. 13, with the most recent being in 2023 in association with the fields at Smugglers Cover RV Park. Unlike Meadowlarks, Bobolink are less inclined to use marginal shrubby fields for nesting and the fields where the Meadowlarks were observed in 2021 (adjacent to the development property) did not have favorable Bobolink features. These fields were also on the small size as per guidelines established in MNRF (2019a) for Bobolink habitat and no Bobolinks have been observed here. With these fields continued succession to shrubs and trees in 2025, their potential use by Bobolinks continues to decline.

Eastern Meadowlark (THR). A family of Meadowlarks was observed in the meadow/thicket area, south of the development area, on the Half Moon Bay winery property during the 2021 birding visits (see Table X). All Meadowlark activity was confined to the southeast corner (see red oval in adjacent image) within a ~ 1 ha. area of scrubby field in 2021, surrounded by a larger thicket community. We surveyed for Eastern Meadowlark in this field during a 2023 site visit, and they were not present at that time, and thicket succession was ongoing in the field community. From the Nov. 2025 site visit, it was apparent that there was insufficient field (i.e., > 0.5 ha.) to classify the previous Meadowlark use area as Meadow, and this is reflected in the updated ELC mapping. In 2021 we classified it as a CUM/CUT (Cultural Meadow/Cultural Thicket) community, and in 2025 we have classified it as a a CUT1 (see Section 6 for details) community making it largely unsuitable for use by Meadowlarks with only a few small patches (~ 0.2 ha) of meadow available. Ideal habitat for this bird would be a 5 ha. field (MNRF 2019b), although we have observed them nesting in fields in the 1 ha. size range.

The General Habitat Description and Restrictions for Eastern Meadowlark (MNRF 2019b), provides impact assessment guidelines, including three habitat categorizations as follows:

Category 1 Habitat: The nest and the area within 10 m of the nest. Category 1 habitat is considered the most sensitive and has the lowest tolerance to alteration. The development area will not be within Category 1 Habitat, and we note that the amended 2025 Endangered Species Act only aims to protect Category 1 habitat. The proposed location of the access road would not be in conflict with past Category 1 here. Also, and as noted above, the habitat has changed enough since 2021 that it would be largely unsuitable for Meadowlarks. Nevertheless, due to the proximity of the proposed road near past Category 1 habitat, we recommend that Meadowlark surveys take place in June 2026 to insure there are no conflicts with the proposed access road. If active Meadowlark Category 1 is at risk from the access road, then it is recommended that

the Information Gathering Form process be undertaken with the MECP to determine next steps, such as described in Part IV, Ontario Regulation 830/21.

Category 2 Habitat: The area of suitable habitat between 10 m and 100 m of the nest or centre of approximated defended territory. This habitat is considered to have a moderate level of tolerance to alteration. The development area will not be within Category 2 Habitat. The access road would be within Category 2 habitat, as based on 2021 nesting observations. We have often observed Meadowlark nesting close to roads, showing that these birds are tolerant of the confined activity of cars on a road and we would have no concerns in this regard. We also note that the amended 2025 ESA only considers direct threats to Category 1 habitat, and not potential harassment as might occur with Category 2 habitat.

Category 3 Habitat: The area of continuous suitable habitat between 100 m and 300 m of the nest or approximated centre of defended territory. This habitat is considered to have a high level of tolerance to alteration. Since none of the development area contains suitable habitat, there would be no loss of Category 3 habitat from the development. We note that the amended 2025 ESA only considers direct threats to Category 1 habitat, and not harassment as might occur with Category 3 habitat.

Meadowlark Recommendations: Given the ecological successional changes of the field where the Meadowlark were observed in 2021, and the lack of suitable habitat within the development area, it is our opinion that potential risks to Eastern Meadowlark from the development are low. Nevertheless, from a precautionary perspective, it is recommended that the proposed road route be assessed for Meadowlark nesting in 2026 and if nesting is present, then the Information Gathering Process be initiated with MECP as a prelude to possible compensation efforts as outlined in Part IV, Ontario Regulation 830/21.

Blanding's Turtles (THR). The closest core habitat area for the Blanding's Turtle is within the wetland associated with the Little Bluffs Conservation Area about 1 km to the east of the development property, and Blanding's Turtles have been observed here. This wetland and the surrounding bluffs area is a core habitat area because it provides nesting, feeding, and overwintering opportunities. Similar core Blanding's Turtle areas where they have been observed would be the South Bay Marsh significant wetland about 3 km to the southwest, South Bay Coastal significant wetland starting about 2 km to the south, Ostrander Point significant wetland about 3 km southeast, and Big Sand Bay significant wetland about 6 km to the southeast.

Core habitat features are described as follows:

Overwintering: This occurs in water that is deep enough to prevent ice from freezing to the bottom. While Blanding's Turtles can rest on the bottom surface of a water body, they will occasionally burrow into the bottom sediments, or hide in muskrat houses, or hide under logs to prevent, among other things, predation by otters. The water depth in the swamp is determined by Lake Ontario water levels, via the permeable beach bar. During low water levels, including fall drawdown, the swamp dries up making it unsuitable for overwintering. It also has a mostly hardened substrate, so overwintering burrowing would be inhibited as well. The shallow depth of the non-vegetated limestone pavement that exists immediately offshore

is also unsuitable for overwintering and these areas would be also subject to harmful ice scouring.

Feeding: Habitat features, including feeding areas, are described by Hartwig and Kiviat (2007), Wieten et al. (2012) and Whitney et al. (2014). Ideal sites include sufficient open water to provide water cover, and emergent vegetation and diverse submergent vegetation that provides macro/micro invertebrate diversity. These features are present at the five previously listed core habitat areas. In contrast, the waters off-shore of the development area are barren, lacking both sediments that could provide invertebrate food items and vegetation. The swamp habitat next to the development also has limited feeding value, as it often lacks standing water, and the heavy shading and dense woody vegetation limits its value as a productive feeding area.

Nesting: Successful Blanding's Turtle egg laying sites require sun exposure (i.e., no overhanging vegetated shading), an appropriate substrate diggable substrate such as sand/gravel and a lack of nest predators (e.g., raccoons and skunks). It should also be in reasonable proximity to core overwintering and feeding areas. There are no appropriate nesting features within the 16 lots of the main development area. It is too heavily shaded or covered in dense ground vegetation for sun exposed nesting. The pebble beaches next to the development area are too narrow, too shaded, and too wet to provide turtle nesting and no depredated nests were observed here during the field work. The proposed adjunct Lot 17 also lacks suitable nesting features, but the adjacent lawn areas of existing residences to Lot 17 do provide suitable nesting features.

The bulk of a Blanding's Turtle population will spend most of their life in proximity to the core habitat area for feeding, nesting, and overwintering purposes. Some individuals will move further afield for nesting, but always within proximity to aquatic habitat during those movements. We note the Blanding's Turtle photographs provided to us that were taken near the residence of the Gadbois family residence on April 4, 2022 and June 24, 2025. This residence has frontage on County Road 13 and is located near the access road for Lot 17, the single adjunct lot east of the proposed area that is proposed to contain 16 lots. From the June photographs, and from a provided description of where the photo was taken, it would appear that the June turtle is in a suitable area for nesting purposes, and June is the nesting time. Given the propensity for nesting travel to occur within proximity to aquatic habitat (e.g., Lake Ontario in this instance), it is our opinion that potential nesting on the Gadbois family residence property would be from turtles traveling out from the Little Bluffs Conservation area.

Aside from nesting, some individuals from the core population will also range further afield to seek out new core habitats, akin to human colonial expansion. These efforts are not always successful, but if new core habitat is found, they do allow for territorial expansion. Given the unsuitability of the swamp wetland next to the development for overwintering, the April sightings on the Gadbois residence are likely turtles seeking new habitat opportunities from nearby core habitat areas, such as Little Bluffs. However, as previously discussed, the swamp habitat next to the development is unsuitable as core habitat and so core habitat expansion would not be successful.

The amended 2025 ESA only aims to protect the immediate area around key habitat features. This would include nesting areas, overwintering areas, and feeding areas. At certain times of the year, parts of the wetland associated with the development could provide some limited feeding opportunities, but lake water drawdown would prevent it from use for overwintering. As such, it would not be a core habitat area from which turtles would expand outwards for nesting. Nevertheless, there are no plans to develop within any aquatic or wetland habitat, and these habitats will also be protected with setbacks via Ontario Regulation 41/24 and recommended setbacks outlined in this EIS. In summary, there will be no loss of Blanding's Turtle nesting, overwintering, or feeding habitat from the proposed development and as such, no violation of the 2025 ESA.

Blanding's Turtle Recommendation: Nesting Blanding's Turtles could be attracted to newly exposed ground during construction as well as gravel or sand piles that might be used in construction in proximity to Lot 17. It is recommended that turtle exclusion fencing be maintained around the entire construction area during the construction phase of Lot 17.

Bat SAR (END): All bat species added to the Ontario Endangered Species Act was as a result of White Nose Syndrome and not from habitat loss. SAR bat species were not habitat limited prior to the fungus appearing in the province, and are definitely not habitat limited today. Within several years this fungus has been able to decimate population numbers because it attacks bats when they hibernate, and since the SAR Bats congregate in large numbers in a limited number of hibernation sites, the fungus has the potential to spread through these congregations and wipe out whole populations. There are no SAR bat hibernation sites on the property.

Parts of the development property is comprised of red cedar dominated woodlands and there is an extensive literature (Table 3) that has shown that red cedar woodlands (see FOC2-1 and FOMa, Figure 3) are not favored for bat use. It is intended that most of the tree clearing for development purposes will occur in the red cedar woodlands.

Table 3. A sampling of red cedar associated bat research, which includes research from nearby areas indicating that red cedar use is not favored by bats. Some of these research papers focus on specific tree species usage, and most focus on tree characteristics are of a type that red cedar does not attain (i.e, height, cavities, snags).

Jung, T., I. Thompson, and R. Titman. 2004. Roost site selection by forest-dwelling male Myotis in central Ontario, Canada. Forest Ecology and Management 202:325-335. Key point: Favorability of large old trees, a feature that red cedars do not attain.
Holt, R. 2022. Forest roost use by Little Brown Bats (Myotis lucifugus) in Ontario. M.Sc. Thesis. Trent University. Key point: Specific trees and tree characteristics discussed, exclusive of red cedar.
Gerson, H. 1984. Habitat management guidelines for bats of Ontario. Ontario Ministry of Natural Resources. Key point: Specific trees and tree characteristics discussed, exclusive of red cedar
Kalcounis-Ruppell, M., J. Psyllakis, and M. Brigham. 2005. Tree roost selection by bats: an empirical synthesis using meta-analysis. Wildlife Society Bulletin. 33:1123-1132. Key point: Preference for tall large diameter trees.
Garroway, C. J. and H. G. Broders. 2008. Day roost characteristics of northern long-eared bats (Myotis septentrionalis) in relation to female reproductive status. Ecoscience 15(1): 89-93. Key point: Preference for tall large diameter trees.

Olson, C. R. and R. M. Barclay. 2013. Concurrent changes in group size and roost use by reproductive female little brown bats (Myotis lucifugus). Canadian Journal of Zoology 91(3): 149-155.
Key point: Preference for tall large diameter trees.

Caceres, M. C. and R. M. Barclay. 2000. Myotis septentrionalis. Mammalian Species 634: 1-4.
Key point: Preference for tall large decaying trees.

Huynh, H. M. 2009. Another record of foliage roosting in the Little Brown Bat, Myotis lucifugus, in Canada. The Canadian Field-Naturalist 123(3): 265.
Key Point: Exclusive or red cedar.

Kurta, A. S. Murray, and D. Miller. 2002. Roost selection and movements across the summer landscape. Conference Paper on the Biology and Management of an Endangered Species.
Key Point: Exclusive or red cedar.

Lewis, M., G. Turner, M. Scafini, and J. Johnson. 2022. Seasonal roost selection and activity of a remnant population of northern myotis in Pennsylvania. PLoS ONE 17(7): e0270478.
Key Point: Exclusive or red cedar.

We have been conducting acoustic monitoring for the last seven years and have never found a site that did not have SAR bats. We note that acoustic monitoring picks up bats while in flight and therefore does not necessarily indicate roost use, and we note that the amended 2025 Endangered Species Act only focuses on roost sites.

The methodology used for roost considerations for this EIS is outlined in MNR (2011b) and it has since been reproduced by MECP (2022). Both methodologies set the threshold for significant snag numbers at 10/ha. If a site has this many snags, then it is considered a high value bat woodland that merits acoustic monitoring and possible further consideration. The number of snag plots required for the entire property is sixteen, but we did 20 plots, and based on MNR (2011b) plot modeling, the total snag count was 3/ha., which is well below 10/ha. Nevertheless, we do recognize the bat potential of the FOD5-5 woodland and placed bat monitors here in 2021.

The acoustic monitor was set up along the ATV trail on a large shagbark hickory tree from June 18 to June 23. Over that time, a total of 647 bat passes were recorded, of which 6 were from the Little Brown Bat, 33 for the Hoary, 22 for the Eastern Red, and 114 for the Silver Haired. Based on our experience at other mature deciduous forest sites, these numbers are in the low to medium range. None of the SAR bat passes occurred near the dusk emergence period, suggesting that all were coming in from an adjacent area to forage and were not roosting on site.

In summary, we have few concerns for SAR bat impacts for the following reasons.

1. Much of Flatt Point has minimal bat habitat potential.
2. The central area of Flatts Point where development is proposed to be concentrated to occur has minimal bat habitat potential.
3. SAR bat species are not habitat limited.
4. SAR bats are flexible in roost use, changing roosting areas between seasons and within seasons.

5. All bat species are tolerant of nearby human activity, such as roosting in buildings, and consistently get high bat number recordings in urban areas.
6. Bats are only active at night, when most human activity has ended, and therefore the risks of negative bat/human interactions are low.

SAR Bat Recommendation:

1. If there is a need to remove non-red cedar trees greater than 25 cm DBH (measurement assigned by MECP 2022) within the nest/roost season of April 1 to Nov. 30, then the removal of the tree is only recommended if it can be shown that it is not an active roost tree as determined by an acoustic exit survey. Otherwise, there should be no tree clearing of non-red cedar trees greater than 25 cm DBH during the nest/roost season of April 1 to Nov. 30.

2. Unlike the rest of the lots where the first 50 m (in from the lake) of vegetation is recommended to be retained with at least 80% canopy cover, it is recommended that lots 1 and 2 retain the first 100 m. This is not intended to restrict the placement of a well head. If there is a proposal by a future landowner to develop within the 50 to 100 m woodland area of Lots 1 and 2, then it is recommended that development approvals be preceded by SAR bat surveys as per MECP (2022). This would also include bat acoustic monitoring. The results of these surveys would go into the Information Gathering Process form that would need to be initiated with the MECP. The results of that process would have potential impacts on how development would proceed in the 50 to 100 m woodland area.

7.1 Wetland/Coastal Wetland

There is no designated significant wetland within 120 m of the development property. In this regard, we refer to the following excerpt from Section 4.4 of the Natural Heritage Reference Manual.

> *The need to evaluate the ecological function of adjacent lands (i.e., undertake an EIS or equivalent study) would be removed if proponents choose to avoid having development and site alteration occur within the extent of adjacent lands.*

Accordingly, it is our opinion that no further analysis is warranted for impacts to significant coastal wetland.

There are four small unevaluated coastal wetland patches to the southeast of the development area on Flatts Point. Two are within 120 m, an approximate 1.5 ha. SWT2 patch, and an approximate 0.1 ha. “w” patch, both previously discussed in the ELC section of this report and shown in Figure 3. From Figure 4, a SWT2-8 patch (~ 0.6 ha) has been identified that will be more than 120 m from the proposed Lot 17 build location (see Figure 2) and more than 300 m from the eastern boundary of any of the 16 lots on Flatts Point. An intervening patch of MAS2-1 (~0.6 ha) is located between the SWT2-9 and SWT2 patches.

The total combined area of all wetland patches between Lot 17 and the main development is ~2.8 ha., which is slightly above the 2 ha. minimum wetland size that is needed to undertake an

evaluation using Ontario Wetland Evaluation System (MNRF 2022). In our opinion the combined patches are too small and lacking in special features to have any potential for provincial significance. We have been undertaking wetland evaluations in the province since 1984 and have completed over 100 full wetland evaluations and many hundreds of wetland assessments since that time and therefore can speak with some authority on this potential significance.

The MNRF (2022) evaluation process scores wetlands on the following four components:

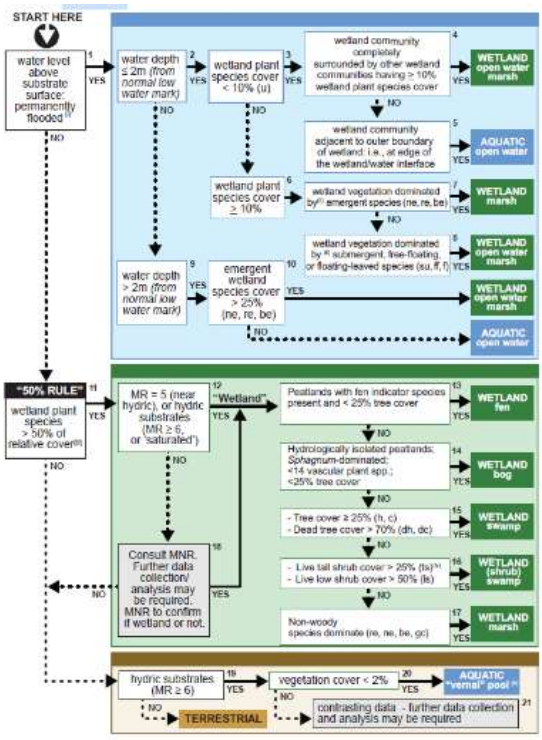
Biological: Primarily intended to score the biodiversity of the wetland. Larger wetlands can do well here as their breadth has a greater probability of having more features to score, and they also automatically receive more points based on size. This wetland would receive a low Biological Component score, primarily due to its small size.

Social: Scores wetlands for their potential social value, such as with recreational use. This wetland would get a very low Social Component score due to its small size and isolation on private property.

Hydrological: Scores wetlands primarily for their flood and pollution attenuation abilities. Wetlands on the Great Lakes such as this one do not get high Hydrological Component scores because the lake hydrology overrides the wetlands potential value in this regard.

Special Features: Scores wetlands primarily for rare species as well as for unusual biological features and fish habitat. This wetland does not contain fish habitat. A Blanding's Turtle was observed nearby in 2022 and 2025, suggesting a possible presence in the wetland, but as per MNRF (2022) and while threatened/endangered species score well, this one species would not be enough to attain significance for the wetland as a whole.

Wetland boundary mapping was based on MNRF (2014). The mapping process is best exemplified by the adjacent flow wetland boundary flow diagram from MNRF (2014). From this, there are three key features that need to be considered: seasonal or permanent water, hydric substrates and coverage by at least 50% wetland vegetation.



Wetland boundary mapping was primarily based on the 50% rule as the wetlands here do not have permanent water, and are primarily located on a firm non-hydric substrate. They are separated from Lake Ontario by a cobble/rock berm varying in height from 1 to 3 meters. Subsurface percolation through the berm from Lake Ontario determines the depth, breadth, and temporal water levels within the wetland as based Lake Ontario water levels. This argument is strengthened by the primarily firm substrates and relatively shallow soils observed in most of the wetland areas. Subsequently, when Lake Ontario goes through its annual seasonal lows (e.g., fall/early winter) there would be no standing water in the wetland. Lake Ontario water levels also have different highs from year to year, as was observed here in 2020 and 2021.

During low lake level periods, such as during the June 16, 2021 site visit, the wetland had no standing water (see adjacent image). As a result it would not be able to provide habitat for aquatic dependent species such as certain amphibians and reptiles and fish.

In contrast, there were some ephemeral pooling (~5 cm deep) present (see adjacent) during the June 26, 2020 site visit as the lake was visibly higher at that time. Due to local topography features, it is our opinion that catchment water flowing from the land side of the wetland does not provide a significant source of water for this wetland, and that it is the lake levels that define water levels in the wetland.

Of the sixteen proposed lots, lots 11 to 16 will be within 120 m of the SWT2 and “w” patch. Due to the depth of these lots it will be possible to push the houses back at least 120 m from the SWT2 and “2” patch, but from the perspective of ameliorating a negative impact to the wetland it is our opinion that a 50 m buffer is sufficient due to a lack of wetland significance and a lack of sensitive features and because SWT2 water levels are controlled by Lake Ontario. As such, the potential for a hydrological impact from the adjacent development is minimal.

Concerns about potential impacts from adjacent septic systems have been raised. Analysis of this type of impact is not the purview of an EIS, but instead will need to be assessed by qualified individuals to ensure compliance with appropriate regulations. We refer to the Hydrological Study (Malroz 2021) and the Terrain Analysis (Groundwork Engineering 2021) that assess the appropriateness of the septic systems and locations.

Aside from that, we do note that the recommended 50 m treed buffer is considered more than sufficient to protect adjacent natural heritage features from pesticides (see Vormeier et al. 2023) and from nutrient impacts (see Moghaddam 2021), with the understanding that 30 m is the standard in the province for such impact purposes, and because treed buffers are considered the most effective in comparison to shrubs and grass (Aguiar et al. 2015). In that respect, we do provide the following recommendations for the 50 m buffer.

1. It is recommended that the lots next to wetland areas (Lots 10 to 15 and 17) have an adjacent 50 m no build buffer zone (i.e., residential dwelling, septic fields, sheds). Lot 16 is not next to wetland. It is understood that the well heads will need to be closer to the wetlands.

2. It is recommended that shrub and trees next to wetlands in the prescribed 50 m zone of Lots 10 to 15 and 17) next to wetland be maintained with at least 80% canopy cover to maintain buffer functionality. The removal of dead or dying trees (e.g., ash); non-native and invasive species (e.g., European buckthorn), or trees with a low Coefficient of Conservatism (e.g., Manitoba Maple and Crack Willow) is acceptable if the 80% canopy cover threshold is maintained. If there is a desire to remove these low Coefficient of Conservatism species in the buffer zone below the 80% threshold, they should be replaced by native tree plantings.

7.2 Area of Natural and Scientific Interest (ANSI)

There are no ANSI’s within 120 m of the proposed development. In this regard, we refer to the following excerpt from Section 4.4 of the Natural Heritage Reference Manual.

> *The need to evaluate the ecological function of adjacent lands (i.e., undertake an EIS or equivalent study) would be removed if proponents choose to avoid having development and site alteration occur within the*
> *extent of adjacent lands.*

Accordingly, it is our opinion that no further analysis is warranted for ANSI’s.

7.3 Fish Habitat

Some of the lots will be within 120 m of fish habitat (i.e., Halfmoon Bay). Due to the shallow water, the lack of cover, the lack of aquatic vegetation, and notable wave impacts, we do not consider the offshore fish habitat as important. It is also does not contain important fish species as shown on the Department of Fisheries and Oceans Critical Habitat and Distribution Maps.

The nearshore area is comprised of shallow unvegetated flat rock rubble and limestone pavement.

From the Navionics app we see that shallow water (less than 2 m deep) extends about 150 m from shore. The lack of submergent vegetation in this area, which might otherwise support a diverse fish assemblage would be due to a combination of a lack of a rooting substrate, and wave and ice scouring.

The nearshore area is too shallow to provide nesting by non-minnow sized species. The lack of vegetation and wave action makes it unsuitable for most minnow species nesting except for a few possible lithophilic spawning species such as the longnose dace and darters, although from our experience in similar habitats in Prince Edward County, nearshore nesting would predominately be by the invasive round goby. We do not consider the 6 m zone and beyond as sensitive fish habitat and fish use would mostly be confined to movement and feeding for a low diversity and density of fish.

Salmonids will nest in this kind of substrate, but only if it is next to a deeper shelf, which in most locations is more than 120 m from shore.

For fish habitat we provide the following mitigation recommendations.

1. It is recommended that the lake shoreline areas for lots 1 to 11 (lots 12 to 16 are not next to fish habitat) have a 50 m no build buffer zone (i.e., residential dwelling, septic fields, sheds). It is understood that the well heads will need to be closer to the lake. Due to space constraints within lot 17, a 50 m buffer zone to the lake is not feasible, and Regulation 41/24 of 30 m will likely be applied.

2. It is recommended that shrub and trees in the lake buffer zone of Lots 1 to 11 be maintained with at least 80% canopy cover to maintain buffer functionality. The removal of dead or dying trees (e.g., ash); non-native and invasive species (e.g., European buckthorn), or trees with a low Coefficient of Conservatism (e.g., Manitoba Maple and Crack Willow) is acceptable if the 80% canopy cover threshold is maintained. If there is a desire to remove these low Coefficient of Conservatism species in the buffer zone below the 80% threshold, they should be replaced primarily by native tree species. Except for a band of trees along the shoreline that are mostly

Crack Willow, the potential build area of Lot 17 is not treed and therefore maintaining an 80% crown cover is not feasible.

7.4 Valleylands

There are no valleylands within 120 m of the proposed development. In this regard, we refer to the following excerpt from Section 4.4 of the Natural Heritage Reference Manual.

> *The need to evaluate the ecological function of adjacent lands (i.e., undertake an EIS or equivalent study) would be removed if proponents choose to avoid having development and site alteration occur within the extent of adjacent lands.*

Accordingly, it is our opinion that no further analysis is warranted for valleyland.

7.5 Woodlands

Woodland significance is based on criteria outlined in the Natural Heritage Reference Manual and outlined in Table X:

Table 4: Candidate Significant Woodland Threshold Features based on criteria from the 2010 Natural Heritage Reference Manual.

Significance Category	**Significance Threshold**	**Candidate Habitat Criteria Analysis**	**Is Threshold Met**
Size	County: between 15 and 30% woodland coverage; > 20 **ha** is significant	Total area including off property woodlands is ~17 ha.	No
Interior Habitat	**> 2 ha** of interior habitat is significant	Red cedar woodlands do not factor in the calculations (see below), and true core interior habitat is mostly lacking.	No
Proximity (10 ha area threshold)	If woodland is within 30 m of a significant natural heritage features or fish habitat, and the woodland provides some ecological benefit to that adjacent feature	We consider all woodland areas within 30 m of the lake or adjacent wetlands to perform a significant proximity function regardless of size thresholds.	Yes (see below)
Linkages (10 ha area threshold)	If woodland is located between two other significant features	Not located between two significant features	No
Water Protection (5 ha area threshold)	If woodland is located within a sensitive or threatened watershed or a specified distance of a sensitive groundwater discharge area, sensitive	We consider all woodland areas within 30 m of the lake or adjacent wetlands to perform a significant proximity function regardless of size thresholds.	Yes (see below)

	headwater area, watercourse, or fish habitat.		
Woodland Diversity (10 ha area threshold)	High biodiversity or a declining forest type	Common species found throughout the region.	No
Uncommon Characteristics (5 ha. area threshold)	S1, S2, S3 vegetation community; 8,9,10 coefficient of conservatism (CC); > 10 trees more than 100 years old/ha or > 10 trees > 50 cm DBH or having a basal area of 8m^2 for trees greater than 40 cm DBH	No S1,S2,S3 communities and all woodlands have relatively low CC values. The woodland areas where housing/septics are proposed are mostly dominated by red cedar. Historical air imagery indicates that only the FO5-5 woodland has the potential for larger trees and greater age. The FOD5-5 woodland was not assessed for age, DBH, or B.A. characteristics, but since it is below the 5 ha. area sub-threshold, then significance can not be attained.	No

Conclusion and Recommendations:

We do not consider the FOC2-1 eastern red cedar woodland an ecological woodland for the sake of woodland core significance ranking because eastern red cedar is considered an invasive in many jurisdictions (Meneguzzo and Liknes (2015) due to its ability to rapidly expand into new areas and suppress the establishment of other habitat types such as deciduous woodlands. It has been our observation through 40 years of surveying these stands in Eastern Ontario and Prince Edward County that they have a low biodiversity and this is also borne out in the literature (e.g., Horncastle et al. (2005), Norris et al. (2001), Briggs et al., (2002), Heinen and O'Connell (2009), Steinaur (2023), and Schnelle (2023)). Their growth pattern is more shrub like, and the concept of core habitat for wildlife purposes would not apply to this forest type due to their structural characteristics.

Proximity/Water Protection: Proximity/Water Protection: 1. It is recommended that the shoreline/wetland/SWH areas for lots 1 to 15 have a 50 m no build buffer zone (i.e., residential dwelling, septic fields, sheds). It is understood that the well head will need to be closer to the lake. Lot 16 is not adjacent to lake or wetland. Lot 17 is adjacent to the lake, but the potential build area is not treed, although it is recommended that shoreline trees be maintained.

Proximity/Water Protection: 2. It is recommended that shrub and trees in the 50 m buffer zone be maintained with at least 80% canopy cover to maintain buffer functionality. The removal of dead or dying trees (e.g., ash); non-native and invasive species (e.g., European buckthorn), or trees with a low Coefficient of Conservatism (e.g., Manitoba Maple and Crack Willow) is acceptable if the 80% canopy cover threshold is maintained. If there is a desire to remove these low Coefficient of Conservatism species in the buffer zone below the 80% threshold, they should be replaced primarily by native tree species.

7.6 Wildlife Habitat

The Significant Wildlife Habitat Criteria for Ecodistrict 6E (MNRF 2015b) in Table 4 describes habitat and wildlife requirements and habitat thresholds needed to reach significance.

Table 5: Candidate SWH analysis.

SWH Type	Candidate Habitat < 120 m	Criteria analysis	Species Thresholds Met
Waterfowl Stopover and Staging Area (Terrestrial)	No	No sheet water fields	No
Waterfowl Stopover and Staging Area (Aquatic)	No	No appropriate open water wetland types within 120 m	No
Shorebird Migratory Stopover Area	Yes	BBS1-2 (Willow Gravel Shrub Beach Type)	No
Raptor Wintering Area	No	No rodent productive fields	No
Bat Hibernacula	No	No caves	No
Bat Maternity Colonies	No	Mature deciduous stands with > 10ha of 25 cm DBH trees not present	No
Turtle Wintering Areas	No	Waters off shore provide poor turtle wintering potential as does the adjacent wetland areas	No
Reptile Hibernacula	No	Lacks physical features that would support overwintering	No
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)	No	No exposed banks or cliffs	No
Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs)	No	SWD habitat not present	No
Colonially-Nesting Bird Breeding Habitat (Ground)	Yes	Rocky peninsula	No nests observed and NE rock shoal underwater at certain times of the year
Migratory Butterfly Stopover Area	No	Mostly lacking in fields	No
Landbird Migratory Stopover Area	Yes	FOD woodland near Lake Ontario	No
Deer Yarding Area	No	Known SWH yarding is many km. to the north of Hwy. 401	No
Deer Winter Congregation Area	No	Requires 100 ha. woodlots	No
Rare Vegetation Communities (Alvar, Cliff, Sand Barren, Old Growth Forest, Savannah, Tallgrass Prairie)	No	Site and adjacent natural areas are common habitat types in the region	No
Waterfowl Nesting	Yes	Adjacent SWT type	No
Bald Eagle/Osprey Nesting, Foraging, and Perching	Yes	All woodlands next to lake	No (see Table 8)
Woodland Raptor Nesting	No	No 10 ha of interior woodland habitat < 120 m (also, red cedar woodlands not suitable for nesting)	No
Turtle Nesting	No	No adjacent appropriate ELC types	No
Seeps and Springs	No	Not a headwater area	No
Amphibian Breeding Habitat (Woodland)	No	No ephemeral woodland pools > 500 m^2	No
Amphibian Breeding Habitat (Wetlands)	Yes	Wetlands < 500 m^2	Yes, see Table 6

Woodland Area-Sensitive Bird Breeding Habitat	No	No woodlot > 30 ha. within 120m. Red cedar woodlands of site do not provide habitat for listed species	No
Marsh Bird Breeding Habitat	No	No marsh habitat	No
Open Country Bird Breeding Habitat	No	30 ha. grassland not within 120m	No
Shrub/Early Successional Bird Breeding Habitat	No	10 ha. thickets not within 120m	No
Terrestrial Crayfish	No	N/A to Eastern Ontario	No
Special Concern and Rare Wildlife Species	Yes	S1, S2, S3, and Special Concern Species	Yes, see Table 7
Amphibian Movement Corridors	No	Requires significant breeding habitat, and this is not present	No
Deer Movement Corridors	No	No SWH deer wintering	No

Table 6. Marsh Monitoring Protocol results of three site visits (2021).

Site Visit 2021	Beaufort Scale	Background Noise Code	Combined Call Codes for both sites
May 4 (8 C)	0	0	Chorus Frog (3) Leopard Frog (1)
May 19 (21 C)	0	1	Grey Tree Frog (3)
June 9 (28 C)	0	0	Grey Tree Frog (3)

Two wetland sites were surveyed for amphibian calling. Site 1 (see w in Figure 3) and Site 2 (see SWT2 in Figure 3).

Two species with CC of 3 were recorded and therefore the test for SWH is met.

Recommendations:
1. It is recommended that the combined SWT2 and "w" areas have a 50 m no build buffer zone. This is not intended to restrict the placement of the well head. basis.

2. It is recommended that shrub and trees in the 50 m buffer zone be maintained with at least 80% canopy cover to maintain buffer functionality. The removal of dead or dying trees (e.g., ash); non-native and invasive species (e.g., European buckthorn), or trees with a low Coefficient of Conservatism (e.g., Manitoba Maple and Crack Willow) is acceptable if the 80% canopy cover threshold is maintained. If there is a desire to remove these low Coefficient of Conservatism species in the buffer zone below the 80% threshold, they should be replaced primarily by native tree species.

Note: In Ontario, Chorus Frogs are classified as Not at Risk. The Western Chorus Frog is listed as Threatened at the federal level, but this designation only applies to federal property. We also note some interesting and recent research by Chen (2025) that has shown genomic symmetry and evolutionary hybridization between the Boreal and Western Chorus Frogs, that may raise questions about identifying these as two separate species.

Rare Species*:* Refers to provincially rare (S1 to S3 and SC) species provided by the following information sources and outlined Table 5.

1. NHIC grid 18UP3867, 3866, 3966, 3766
2. Picton Ecodistrict 6E-15, Henson and Brodribb (2005)
3. Ecological Services field work.
4. Other sources (e.g., anecdotal reports, eBirds, etc.).

Table 7. List of potential rare species that are not endangered or threatened. Species observed are discussed after the table.

Species	Preferred Habitat	Habitat Present within 120 m	Source	Observed on site
Reptiles				
Snapping Turtle (SC)	Open water wetlands with lily pads.	No	4	No
Milk Snake (SC)	Cosmopolitan with some field preferences	Yes	4	No
Map Turtle (SC)	Riverine/sheltered lake edge	No	4	No
Birds				
Barn Swallow (SC)	Barns	Yes	2,4	No
Black Tern (SC)	Colonies in shallow marshes, especially in cattails.	No	2	No
Bald Eagle (SC)	Nest in large trees along lakes and large rivers.	Yes	4	No
Eastern Wood Pewee (SC)	Deciduous woodland.	Yes	1,4	No
Grasshopper Sparrow (SC)	Short grass fields	No	2,4	No
Upland Sandpiper S2	Fields	Yes	2,4	No
Wood Thrush (SC)	Deciduous woodland.	Yes	1, 3	Yes, see below
Whip-poor-will (SC)	Scrub habitat	Yes	2,4	No. Three evening surveys conducted
Plants				
American Beachgrass S3	Sand dunes.	No	2	No
Sand Reed Grass S3	Sand dunes.	No	2	No
Rose Swamp Mallow S3 SC	Shoreline marshes.	No	2	No
Bushy Cinquefoil S3	Dune and cobble beach shorelines.	No	2	No

Wood Thrush: In 2021, three to four (i.e., one could be a repeat) Wood Thrush were heard calling in the FOD5-5 and FOMa woodlands on May 17, and one was heard calling in the FOD7-2 woodland on May 31 (see Table 8). None were heard here during the June and July site visits of 2020, nor during any of the other visits in 2021 and 2023. This is a vocal bird that is readily heard throughout the day and that none were heard calling at other times suggests the birds heard calling in 2021 were either migrants passing through, or were transient males trying to attract a female without success. Whether or not breeding was successful, the habitat at the call locations is suitable for breeding as is the FOD5-5 woodland.

The North American decline in Wood Thrush numbers is being experienced by many aerial insectivores (Spiller and Dettmers 2019). Suggested reasons for declines have included a deterioration in insect prey caused by pesticides, global climate changes, increased nest predation, nest parasitism, declines in stopover-habitat quality, and especially by changes in

habitat quality in their Central America winter range (Taylor (2019), and Taylor and Stutchbury (2016)). The proposed development has no direct association with any of these.

Bird Life International puts the current North American population of Wood Thrush at about 12 million and this bird is well represented in eBird for PEC, and we commonly observe it during our field work throughout Eastern Ontario. The status of this species is being assessed in the latest round of the Ontario Bird Breeding Atlas as it continues to do well in the eastern part of the province (see Torrenta et al. (2022), which is also readily evident in eBird. Although it is sometimes considered a woodland species of larger woodlands, we have observed it in a broad range of habitats including fencerows, small woodland patches, fragmented woodlands, and urban woodlands, and this has also been documented for Eastern Ontario by Torrenta et al. (2022). The use of urban woodlands by Wood Thrush in Eastern North America is well known, which suggests a tolerance to development, and this was opined by Jirinec (2015) who noted that housing developments are not necessarily detrimental to this species.

There is no lack of habitat in the County and the loss of some woodland at this site would not constitute a negative impact to County Wood Thrush populations, especially as the recommended 50 m wooded buffer along the lake edge, and 100 m buffer for lots 1 and 2 will provide sufficient nesting habitat for these birds. Finally, Wood Thrush do not favor red cedar woodlands, which are more prevalent in the interior of Flatt's Point where most development will occur.

It is recommended that land clearing occur outside of the breeding bird season (April 1 to Aug. 30) to avoid a contravention of the Migratory Birds Convention Act, which includes the Wood Thrush.

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9. Species Lists

Table 8. Bird species observed during visits and location relative to ELC descriptors from Section 6 of this report. Please note that the June 9 2023 visit was intended to focus on only Special Concern or ESA species, and any other bird observed was put down as an incidental observation.

Species	4/5/21	17/5/21	31/5/21	19/6/21	22/6/21	9/6/23	Area
American Crow			3	2	1	x	FO-
American Goldfinch		5	3	1	4	x	Throughout
American Redstart			2	1	1		FOD, FOMa, FOD5-5
American Robin	1	3	6	1	2	x	Throughout
Baltimore Oriole		3	9	2	1	x	Throughout
Belted Kingfisher			1	1	3	x	BBS1-2
Black-billed Cuckoo			1				Adjacent farmland to SW
Black-and-white Warbler			1	1			FOD7-2, FOD5-5
Black-backed Gull (Greater)				5			NE rock shoal into OAO
Black-backed Gull (Lesser)					1		NE rock shoal into OAO
Black-capped Chickadee		2	2	5	2	x	Throughout
Black-throated Green Warbler			1				FOD7-2
Bonaparte's Gull				14	1		NE rock shoal into OAO
Brown-headed Cowbird			1			x	CUM/CUT
Blue Jay	2		4	2	2	x	Throughout
Brown Thrasher			1			x	FOD7-2
Bufflehead	3						OAO
Canada Goose	2						OAO
Caspian Tern	10						NE rock shoal into OAO
Cedar Waxwing			2				FOD7-2
Chestnut Sided Warbler			1		1		FOD7-2, FOD

Chipping Sparrow			1		1		FOD7-2, FOD
Common Grackle			9	2	7	x	Throughout
Common Merganser			1				OAO
Common Yellowthroat		1	5	2	2	x	Throughout
Common Raven			1				Flyby
Downy Woodpecker		1	1				FOC2-1, FOD7-2
Double-crested Cormorant	1			1	1		OAO, Flyby
Eastern Meadowlark			2		3		CUM/CUT
Eastern Towhee	1	1	1	1	2	x	CUM/CUT, FOMa
European Starling		2					FOD7-2
Field Sparrow		1	1				FOC2-1
Gray Catbird			8	2	1	x	Throughout
Green Heron			3				SWT2, Flyby
Great Crested Flycatcher		1	3	1	2	x	FO-
Greater Yellowlegs	2						BBS1-2
Herring Gull	6			5	21		NE rock shoal into OAO
Killdeer		2			4	x	Road, BBS1-2
Least Flycatcher			2				FOD7-2, FOD
Long-tailed Duck	10						OAO
Mallard	2				25		OAO
Mourning Dove		1	3	2	4	x	CUM/CUT, SWT2
Nashville Warbler			1				Migrant
Northern Cardinal	1		2	1	1	x	Throughout
Northern Flicker		1	4				FOD, FOD7-2
Northern House Wren		1	1				FOD7-2
Red-bellied Woodpecker		1	1				FOD, FOD7-2
Red-eyed Vireo			5	4	2	x	FO-
Red-winged Blackbird			12	24	27		Throughout
Ring-billed Gull	2			50+	7		NE rock shoal into OAO
Rose-breasted Grosbeak		3	1	1			FOD5-5, FOD7-2
Ruffed Grouse			1				FOC2-1
Scarlet Tanager		1		1			FOMa, FOD5-5
Song Sparrow	1	1	5	4	4	x	Throughout
Swamp Sparrow			5	1	1		SWT2
Tennessee Warbler		1					Migrant
Veery			1				FOD
Warbling Vireo		2	3	2	2		SWT2, FOD, FOMa
White-breasted Nuthatch		2		1			FOD5-5, FOD7-2

White-throated Sparrow			1				FOD7-2
Wild Turkey	1						FOC2-1
Wood Thrush		3	1			1	FOMa, FOD5-5, FOD7-2
Yellow Warbler		2	6	5	8		Throughout

Table 9. Species list from CUW1-1 community. 44% of plants are non-native (i.e., SNA), which is well above the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 1.9 on a scale of 0 to 10, indicating a site with low ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

Species	Common Name	S-Rank	CC
Acer platanoides	Norway Maple	SNA	0
Apocynum androsaemifolium	Spreading Dogbane	S5	3
Arctium minus	Common Burdock	SNA	0
Calystegia sepium	Hedge False Bindweed	S5	2
Carex pensylvanica	Pennsylvania Sedge	S5	5
Carya ovata	Shagbark Hickory	S5	6
Dactylis glomerata	Orchard Grass	SNA	0
Daucus carota	Wild Carrot	SNA	0
Desmodium canadense	Canada Tick-trefoil	S4	5
Eleocharis acicularis	Needle Spikerush	S5	5
Galium palustre	Common Marsh Bedstraw	SNA	0
Geum fragarioides	Barren Strawberry	S5	5
Hydrophyllum virginianum	Virginia Waterleaf	S5	6
Ilex verticillata	Common Winterberry	S5	5
Iris versicolor	Harlequin Blue Flag	S5	5
Juniperus virginiana	Eastern Red Cedar	S5	4
Leucanthemum vulgare	Oxeye Daisy	SNA	0
Lotus corniculatus	Garden Bird's-foot Trefoil	SNA	0
Medicago lupulina	Black Medick	SNA	0
Melilotus albus	White Sweet-clover	SNA	0
Phalaris arundinacea	Reed Canarygrass	S5	0
Phleum pratense	Common Timothy	SNA	0
Pilosella piloselloides ssp. praealta	King Devil Hawkweed	SNA	0
Poa pratensis	Kentucky blue grass	SNA	0
Potentilla norvegica	Rough Cinquefoil	S5	0
Ranunculus abortivus	Kidney-leaved Buttercup	S5	2
Rhus aromatica	Fragrant Sumac	S4	8
Rhamnus cathartica	European Buckthorn	SNA	0
Rhus typhina	Staghorn Sumac	S5	1
Rosa blanda	Smooth Rose	S5	3
Solidago canadensis	Canada Goldenrod	S5	1

Solidago juncea	Early Goldenrod	S5	3
Sonchus arvensis	Field Sow-thistle	SNA	0
Stellaria longifolia	Long-leaved Starwort	S5	2
Symphyotrichum novae-angliae	New England Aster	S5	2
Taraxacum officinale	Common Dandelion	SNA	0
Tilia americana	Basswood	S5	4
Tragopogon dubius	Yellow Goatsbeard	SNA	0
Trifolium hybridum	Alsike Clover	SNA	0
Ulmus americana	White Elm	S5	3
Urtica dioica ssp. dioica	European Stinging Nettle	SNA	0
Vincetoxicum rossicum	Dog Strangling Vine	SNA	0
Xanthium strumarium	Rough Cockleburr	S5	2

Table 10. Species list from CUT1 community. 46 % of plants are non-native (i.e., SNA), which is above the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 1.8 on a scale of 0 to 10, indicating a site with low ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

Species	Common Name	S-Rank	CC
Acer platanoides	Norway Maple	SNA	0
Apocynum androsaemifolium	Spreading Dogbane	S5	3
Arctium minus	Common Burdock	SNA	0
Bromus inermis	Smooth Brome	SNA	0
Calystegia sepium	Hedge False Bindweed	S5	2
Carex pensylvanica	Pennsylvania Sedge	S5	5
Dipsacus fullonum	Teasel	SNA	0
Leonurus cardiaca	Motherwort	SNA	0
Conyza canadensis	Horseweed	SNA	0
Carya ovata	Shagbark Hickory	S5	6
Cornus racemosa	Gray dogwood	S5	2
Dactylis glomerata	Orchard Grass	SNA	0
Daucus carota	Wild Carrot	SNA	0
Desmodium canadense	Canada Tick-trefoil	S4	5
Eleocharis acicularis	Needle Spikerush	S5	5
Galium palustre	Common Marsh Bedstraw	S5	5
Geum fragarioides	Barren Strawberry	S5	5
Hydrophyllum virginianum	Virginia Waterleaf	S5	6
Ilex verticillata	Common Winterberry	S5	5
Iris versicolor	Harlequin Blue Flag	S5	5
Juniperus virginiana	Eastern Red Cedar	S5	4
Leucanthemum vulgare	Oxeye Daisy	SNA	0
Lotus corniculatus	Garden Bird's-foot Trefoil	SNA	0
Medicago lupulina	Black Medick	SNA	0
Melilotus albus	White Sweet-clover	SNA	0
Phalaris arundiacea	Canary reed grass	SNA	0
Phleum pratense	Common Timothy	SNA	0
Pilosella piloselloides ssp. praealta	King Devil Hawkweed	SNA	0
Potentilla anserina	Silverweed	S5	5
Potentilla norvegica	Rough Cinquefoil	S5	0
Ranunculus abortivus	Kidney-leaved Buttercup	S5	2

Rhamnus cathartica	European Buckthorn	SNA	0
Rhus typhina	Staghorn Sumac	S5	1
Rosa blanda	Smooth Rose	S5	3
Rubus idaeus	Wild red raspberry	SNA	0
Rubus occidentalis	Black raspberry	S5	2
Solidago canadensis	Canada Goldenrod	S5	1
Solidago juncea	Early Goldenrod	S5	3
Sonchus arvensis	Field Sow-thistle	SNA	0
Stellaria longifolia	Long-leaved Starwort	S5	2
Symphyotrichum novae-angliae	New England Aster	S5	2
Taraxacum officinale	Common Dandelion	SNA	0
Tilia americana	Basswood	S5	4
Tragopogon dubius	Yellow Goatsbeard	SNA	0
Trifolium hybridum	Alsike Clover	SNA	0
Ulmus americana	White Elm	S5	3
Urtica dioica ssp. dioica	European Stinging Nettle	SNA	0
Xanthium strumarium	Rough Cockleburr	S5	2

Table X. Species list from the FOD5-5 woodland. 12% of plants are non-native (i.e., SNA), which is below the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 3.1 on a scale of 0 to 10, indicating a site with low ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

Species	Common Name	S-Rank	CC
Acer negundo	Manitoba Maple	S5	0
Acer platanoides	Norway Maple	SNA	0
Acer rubrum	Red Maple	S5	4
Acer saccharum	Sugar Maple	S5	4
Achillea millefolium	Common Yarrow	SNA	0
Alliaria petiolata	Garlic Mustard	SNA	0
Anemonastrum canadense	Canada Anemone	S5	3
Carex pensylvanica	Pennsylvania Sedge	S5	5
Carex rosea	Rosy Sedge	S5	2
Carya cordiformis	Bitternut Hickory	S5	6
Carya ovata	Shagbark Hickory	S5	6
Desmodium canadense	Canada Tick-trefoil	S5	5
Fragaria virginiana	Wild Strawberry	S5	2
Fraxinus americana	White Ash	S4	4
Fraxinus pennsylvanica	Green Ash	S4	3
Geranium robertianum	Herb-Robert	S5	2
Geum fragarioides	Barren Strawberry	S5	5
Geum laciniatum	Rough Avens	S4	4
Hydrophyllum virginianum	Virginia Waterleaf	S5	6
Juglans nigra	Black Walnut	S5	5
Ostrya virginiana	Eastern Hop-hornbeam	S5	4
Parthenocissus vitacea	Thicket Creeper	S5	4
Podophyllum peltatum	May-apple	S5	5
Populus tremuloides	Trembling aspen	S5	2
Popululs balsamifera	Balsam poplar	S5	4

Populus deltoides	Eastern Cottonwood	S5	4
Prunella vulgaris	Common Self-heal	S5	0
Prunus serotina	Black Cherry	S5	3
Prunus virginiana	Chokecherry	S5	2
Quercus rubra	Northern Red Oak	S5	6
Ranunculus abortivus	Kidney-leaved Buttercup	S5	2
Rhamnus cathartica	European Buckthorn	SNA	0
Ribes cynosbati	Eastern Prickly Gooseberry	S5	4
Solidago flexicaulis	Zigzag Goldenrod	S5	6
Symphyotrichum cordifolium	Heart-leaved Aster	S5	5
Thuja occidentalis	Eastern White Cedar	S5	4
Tilia americana	Basswood	S5	4
Toxicodendron radicans	Poison Ivy	S5	2
Ulmus americana	White Elm	S5	3
Vincetoxicum rossicum	Dog Strangling Vine	SNA	0
Vitis riparia	Riverbank Grape	S5	0

Table 12. Species list from the FOD7-2 woodland. 22% of plants are non-native (i.e., SNA), which is within the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 2.6 on a scale of 0 to 10, indicating a site with low ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

Species	Common Name	S-Rank	CC
Acer negundo	Manitoba Maple	S5	0
Acer rubrum	Red Maple	S5	4
Acer saccharum	Sugar Maple	S5	4
Achillea millefolium	Common Yarrow	SNA	0
Alliaria petiolata	Garlic Mustard	SNA	0
Anemonastrum canadense	Canada Anemone	S5	3
Carex pensylvanica	Pennsylvania Sedge	S5	5
Carex rosea	Rosy Sedge	S5	2
Carya cordiformis	Bitternut Hickory	S5	6
Fragaria virginiana	Wild Strawberry	S5	2
Fraxinus pennsylvanica	Green Ash	S4	3
Parthenocissus vitacea	Thicket Creeper	S5	4
Prunus virginiana	Chokecherry	S5	2
Ranunculus abortivus	Kidney-leaved Buttercup	S5	2
Rhamnus cathartica	European Buckthorn	SNA	0
Symphyotrichum cordifolium	Heart-leaved Aster	S5	5
Toxicodendron radicans	Poison Ivy	S5	2
Ulmus americana	White Elm	S5	3
Acer saccharinum	Silver Maple	S5	5
Ambrosia artemisiifolia	Common Ragweed	S5	0
Carex lupulina	Hop Sedge	S5	6
Carex stipata	Awl-fruited Sedge	S5	3
Circaea alpina	Small Enchanter's Nightshade	S5	6
Glyceria striata	Fowl Mannagrass	S5	3
Hesperis matronalis	Dame's Rocket	SNA	0
Onoclea sensibilis	Sensitive Fern	S5	4
Persicaria maculosa	Spotted Lady's-thumb	SNA	0

Rhamnus cathartica	European Buckthorn	SNA	0
Sambucus canadensis	Common Elderberry	S5	5
Urtica dioica ssp. dioica	European Stinging Nettle	SNA	0
Zanthoxylum americanum	Prickly ash	S5	3

Table 13. Species list from the FOMa woodland. 26% of plants are non-native (i.e., SNA), which is within the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 2.4 on a scale of 0 to 10, indicating a site with low ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

Species	Common Name	S-Rank	CC
Acer negundo	Manitoba Maple	S5	0
Acer saccharum	Sugar Maple	S5	4
Alliaria petiolata	Garlic Mustard	SNA	0
Carex pensylvanica	Pennsylvania Sedge	S5	5
Carex rosea	Rosy Sedge	S5	2
Carya cordiformis	Bitternut Hickory	S5	6
Fraxinus pennsylvanica	Green Ash	S4	3
Rhamnus cathartica	European Buckthorn	SNA	0
Symphyotrichum cordifolium	Heart-leaved Aster	S5	5
Ulmus americana	White Elm	S5	3
Glyceria striata	Fowl Mannagrass	S5	3
Hesperis matronalis	Dame's Rocket	SNA	0
Sambucus canadensis	Common Elderberry	S5	5
Fraxinus americana	White Ash	S4	4
Geranium robertianum	Herb-Robert	S5	2
Ostrya virginiana	Eastern Hop-hornbeam	S5	4
Ribes cynosbati	Eastern Prickly Gooseberry	S5	4
Solidago flexicaulis	Zigzag Goldenrod	S5	6
Thuja occidentalis	Eastern White Cedar	S5	4
Tilia americana	Basswood	S5	4
Vincetoxicum rossicum	European Swallowwort	SNA	0
Vitis riparia	Riverbank Grape	S5	0
Juniperus communis	Common Juniper	S5	4
Juniperus virginiana	Eastern Red Cedar	S5	4
Lonicera tatarica	Tatarian Honeysuckle	SNA	0
Malus pumila	Common Apple	SNA	0
Medicago lupulina	Black Medick	SNA	0
Poa pratensis	Kentucky Bluegrass	S5	0
Populus deltoides	Eastern Cottonwood	S5	4
Populus tremuloides	Trembling Aspen	S5	2
Ranunculus acris	Common Buttercup	SNA	0
Rubus idaeus	Red Raspberry	S5	2
Rubus occidentalis	Black Raspberry	S5	2
Vincetoxicum rossicum	Dog Strangling Vine	SNA	0
Zanthoxylum americanum	Common Prickly-ash	S5	3

Table 14. Species list from the FOC2-1 woodland. 52% of plants are non-native (i.e., SNA), which is well above the 20-30% average for natural areas in Ontario (Oldham et al. 1995). The average Coefficient of Conservatism (CC) value is 1.3 on a scale of 0 to 10, indicating a site with low

ecological sensitivity. All but one of the native plants have a provincial rank of S5 (very common). The one exception is an S4 (common).

Species	Common Name	S-Rank	CC
Achillea millefolium	Common Yarrow	SNA	0
Ambrosia artemisiifolia	Common Ragweed	S5	0
Arctium minus	Common Burdock	SNA	0
Bromus inermis	Smooth Brome	SNA	0
Carex rosea	Rosy Sedge	S5	2
Dactylis glomerata	Orchard Grass	SNA	0
Daucus carota	Wild Carrot	SNA	0
Fraxinus pennsylvanica	Green Ash	S4	3
Geum fragarioides	Barren Strawberry	S5	5
Juniperus virginiana	Eastern Red Cedar	S5	4
Leucanthemum vulgare	Oxeye Daisy	SNA	0
Parthenocissus vitacea	Thicket Creeper	S5	4
Persicaria maculosa	Spotted Lady's-thumb	SNA	0
Potentilla argentea	Silvery Cinquefoil	SNA	0
Ranunculus acris	Common Buttercup	SNA	0
Rhus typhina	Staghorn Sumac	S5	1
Rhamnus cathartica	European Buckthorn	SNA	0
Ribes cynosbati	Eastern Prickly Gooseberry	S5	4
Thuja occidentalis	Eastern White Cedar	S5	4
Tilia americana	Basswood	S5	4
Urtica dioica ssp. dioica	European Stinging Nettle	SNA	0
Vincetoxicum rossicum	Dog Strangling Vine	SNA	0
Xanthium strumarium	Rough Cocklebur	S5	2
Zanthoxylum americanum	Common Prickly-ash	S5	3

10. Qualifications

Dale Kristensen (botany)

Education
- Masters of Science: Biology Queen's University, Kingston, Ontario, 1996.
- Bachelor of Science: Biology University of Guelph, Guelph Ontario. 1981.

Affiliations and Certifications
- Ecological Restoration Society
- North American Wildflower Society
- Land Conservancy for Kingston, Frontenac, Lennox & Addington
- Kingston Field Naturalists
- COSEWIC Species Recovery Team – Deerberry and Cerulean Warbler habitat modelling.

Positions
1988 – present: Environmental Consultant and co-founder of Ecological Services, Elginburg, Ontario.
1985-2019 Program Associate, Phytotron Manager, and Curator of the Fowler Herbarium. Department of Biology at Queen's University, Kingston, Ontario.

Rob Snetsinger (all taxa)

Education
- Masters of Science (1993): Biology Queen's University, Kingston, Ontario.
- Bachelor of Science (1985): Biology Queen's University, Kingston, Ontario.
- Diploma (1978): Forestry Lakehead University, Thunder Bay, Ontario.

Certifications
- Ontario Wetland Evaluation Assessor
- Ecological Land Classification
- Butternut Health Assessor: Ontario (#123)
- NHIC Data Sensitivity Training

Positions
1984 – present: Environmental Consultant. Co-founder of Ecological Services, Elginburg, Ontario.
1985-2018 Program Associate. Department of Biology at Queen's University, Kingston, Ontario.

Kurt Hennige (breeding bird surveys)

Education
Mechanical Engineering Technician Degree, Polytechnical Institute, Würtzburg, Germany

Affiliations
- Lennox & Addington Stewardship Council, Past-Chair 2011- 2018
- Kingston Field Naturalists, President 2014 - 2016
- Birding organizer with Kingston Field Naturalists, Lennox and Addington Stewardship Council, Migration Research Foundation, MNR and Bird Studies Canada
- Breeding Bird Surveys (for Canadian Wildlife Service) 1991- 2025
- E-Bird reviewer for Lennox and Addington, Frontenac, and Leeds and Grenville counties.

Positions
- Avifauna Surveyor, Ecological Services
- Nature Conservancy Canada, Whip-poor-will and Loggerhead Shrike outreach
- Shrike Biologist and Stewardship Habitat Coordinator, Ontario Ministry of Natural Resources and Wildlife Preservation Canada
- Marsh Monitoring, Quinte Conservation
- Bobolink and Eastern Meadowlark Project Lead, Lennox and Addington Stewardship Council
- Species at Risk Surveyor, Nature Conservancy of Canada
- Species at Risk Surveyor, Blue Earth Renewables
- Birding Tour Guide, guiding multiple birding trips around the world and in Canada

Kaitlyn Closs (amphibian survey)

Education

Diploma (2023). Conservation Biology. Flemings College School of Environmental and Natural Resource Sciences.

Training
Trained by Ecological Services in 2022 to undertake snake, turtle, and amphibian surveys.

Positions
2022 – 2025: Ecological surveys for Ecological Services, Elginburg, Ontario.
2022 – 2025: White Lake Provincial Park. A variety of roles since 2022, and is currently the supervisor of outdoor operations.