ATL Pearl Harbour Stage 4 – Updated Environmental Impact Study

Final

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Abbreviations

ANSI	Area of Natural and Scientific Interest
ARU	autonomous recording unit
CA	Conservation Authorities
CAA	*Conservation Authorities Act*
CC	coefficient of conservatism
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
COSSARO	Committee on the Status of Species at Risk in Ontario
CRZ	critical root zone
DBH	diameter at breast height
DFO	Fisheries and Oceans Canada
EAB	Emerald Ash Borer
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
ESA	*Endangered Species Act*
ECCC	Environment and Climate Change Canada
FWCA	*Fish and Wildlife Conservation Act*
HADD	harmful alteration, disruption or destruction (of fish habitat)
LIO	Land Information Ontario
LRCA	Lakehead Regional Conservation Authority
MBA	Migratory Birds Regulation
MOS	Municipality of Shuniah
MBCA	*Migratory Birds Convention Act*
MBR	*Migratory Birds Regulations*
MCEA	Municipal Class Environmental Assessment

MECP	Ministry of Environment, Conservation and Parks
MMAH	Ministry of Municipal Affairs and Housing
MNR	Ministry of Natural Resources
NHFA	Natural Heritage Features and Areas
NHIC	Natural Heritage Information Centre
NHRM	Natural Heritage Reference Manual
OBBA	Ontario Breeding Bird Atlas
OWES	Ontario Wetland Evaluation System
PPS	Provincial Policy Statement
PSW	Provincially Significant Wetland(s)
SAR	species at risk
SCA	*Species Conservation Act*
SARA	*Species at Risk Act*
SARO	Species at Risk in Ontario
SOCC	species of conservation concern
SWHTG	Significant Wildlife Habitat Technical Guide
SWH	significant wildlife habitat
Stantec	Stantec Consulting Ltd.
WI	Wetland Index

Units of Measure

%	percent
cm	centimetre(s)
ha	hectare(s)
m	metre(s)

1 Introduction

Stantec Consulting Ltd. (Stantec) was retained by Ancliffe Timber Ltd. (the Proponent) to prepare an updated Environmental Impact Statement (EIS) for the development of a subdivision with shoreline lots, located in the Municipality of Shuniah (MOS), Ontario (Figure 1, Appendix A). This EIS is in support of the Proponent's application for a Plan of Subdivision from the MOS for their proposed subdivision development of shoreline lots along Lake Superior (the Project). The Project is subject to federal and provincial legislation.

This EIS documents the Natural Heritage Features and Areas (NHFA) that are present in the direct footprint and work areas of the proposed Project (hereafter the Project Footprint) and within 120 metres (m) of the Project Footprint boundaries (hereafter Adjacent Lands). The Study Area includes the Project Footprint and Adjacent Lands (Figure 1, Appendix A).

In 2024, Stantec prepared the *ATL Pearl Harbour Stage 4 Environmental Impact Study* (Stantec 2024) report for the Project which was submitted to the MOS for review. The 2024 EIS included background data collection, field investigations, and analysis of significance and sensitivity of species at risk (SAR), species of conservation concern (SOCC), and wildlife habitat.

To supplement the results of the 2024 EIS (Stantec 2024), the desktop review was updated, and additional targeted surveys were completed in summer 2025.

This EIS was scoped to satisfy the requirements of the MOS Official Plan (the Plan; MOS 2021) and Provincial Planning Statement (PPS; MMAH 2024), and to address comments received from the MOS regarding the 2024 EIS (Stantec 2024). Results of field surveys completed in 2023 and 2025 and the updated desktop review were used assesses impacts to NHFA and develop mitigation to address the potential impacts.

1.1 Location Description

1.1.1 Subject Property

The Subject Property is approximately 103 hectares (ha) and includes the proposed direct footprint and work areas of the proposed Project on lands extending from the wetted edge of Lake Superior to the north, south, and west boundaries of the Subject Property. The Subject Property is bound to the east by Lake Superior (Figure 1, Appendix A).

1.1.2 Adjacent Lands

Adjacent Lands are lands outside of the Subject Property but within 120 m of the Project Footprint (Figure 1, Appendix A). Adjacent Lands are approximately 71 ha and generally include Lake Superior and forests to the north, south, and west with some built areas (e.g., residential) in the northeast, northwest, and southeast corners of the Study Area.

1.1.3 Study Area

The Study Area is approximately 174 ha and consists of the Subject Property and Adjacent Lands. The Study Area is bound to the north by Grann Drive, to the south by Portage Drive, to the west by 5 Road South, and to the east by Lake Superior. The Study Area is surrounded by private, largely forested lands with shoreline lot development to the north and south and some older agricultural lands to the west. Potential direct and indirect impacts from the proposed Project will be evaluated within the Study Area (Figure 1, Appendix A).

2 Relevant Natural Heritage Legislation and Policy

This technical report was prepared in accordance with the policies of the Plan (MOS 2021) and the PPS (MMAH 2024). This report also addresses requirements under federal, provincial and municipal policies and legislation, as described in the following sections.

The policies and legislation summarized below provide the context within which the approval of the proposed land development operation will be considered from a natural environment perspective. The corresponding opportunities and constraints established by these policies and supporting guidelines should be recognized and addressed through the development design, location and supporting documentation, including the identification of appropriate mitigation, restoration, and enhancement measures to offset potential negative impacts. The intent of this EIS is to demonstrate how the proposed development complies with the applicable policies noted above.

2.1 Federal Context

2.1.1 Species at Risk Act

The *Species at Risk Act* (SARA) provides a framework across Canada to prevent the extinction of wildlife species and to support actions for their recovery. Federal departments are responsible for preventing the disappearance of endangered or threatened species on their properties and to implement management plans to comply with the Act.

General SARA prohibitions include Section 32(1), which states that "*no person shall kill, harm, harass, capture, or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species*", and Section 33, which states that "*no person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada*." In addition, critical habitat, defined as the habitat that is necessary for the survival or recovery of a listed wildlife species, may be defined and protected under Section 58. Only those species currently listed in Schedule 1 of SARA (i.e., those listed as extirpated, endangered, or threatened) are protected by the prohibitions of Sections 32 to 36 and 58 of SARA, and then only on federal lands, except for aquatic species and migratory birds which are protected throughout Canada by other acts and regulations.

Under SARA, a Recovery Strategy must be developed by Environment and Climate Change Canda (ECCC) for species listed as threatened or endangered under Schedule 1 and a Management Plan must be developed for species listed as special concern under Schedule 1. The Recovery Strategy should include the identification of critical habitat and list examples of activities that are likely to result in its destruction.

2.1.2 Migratory Birds Convention Act

The federal *Migratory Birds Convention Act, 1994* (MBCA) affords protection and conservation to migratory bird populations, individuals, and their nests within all of Canada for bird species listed under Article I of the Migratory Birds Convention. Most bird species in Canada are afforded protection, except for a few families (e.g., cormorants, pelicans, grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, kingfishers, and corvids). The MBCA is the enabling statute for the Migratory Birds Regulations, which were updated in May 2022 (*Migratory Birds Regulations*, 2022; MBR). S.5(1) of this regulation states that without the authorization of a permit, the disturbance, destruction, or taking of a nest, egg, nest shelter, eider duck shelter, or duck box of a migratory bird, or possession of a migratory bird, carcass, skin, nest, or egg of a migratory bird are prohibited with the exception of the following (S.5(2)):

(a) a nest shelter, eider duck shelter or duck box that does not contain a live bird or a viable egg;

(b) a nest that was built by a species that is not listed in a Table to Schedule 1 if that nest does not contain a live bird or a viable egg; and

(c) a nest that was built by a species that is listed in a Table to Schedule 1 if the following conditions are met:

(i) the person who damages, destroys, removes or disturbs that nest provided a written notice to the Minister a number of months beforehand that corresponds to the number of months set out in column 3 of the relevant Table to that Schedule for the species, and

(ii) the nest has not been used by migratory birds since the notice was received by the Minister.

Under the MBR, nests for 18 bird species receive year-round protection for a prescribed length of time ranging from 12-36 months (Schedule 1), and all other nests of migratory birds are protected when they contain a live bird or viable egg (S. 5(2)(b)). If a nest of a species identified on Schedule 1 of the MBR is identified, then the nest should be registered under ECCC's Abandoned Nest Registry and monitored to determine if it is empty of live birds or viable eggs, at which point the prescribed period of inactivity can begin to be counted.

2.1.3 Fisheries Act

The *Fisheries Act, 1985* protects fish and fish habitats (s34) within Canadian waters. Under the current fish and fish habitat protection provisions of the *Fisheries Act*, any works, undertaking or activity of a project must incorporate measures to avoid causing the death of fish and the harmful alteration, disruption, or destruction (HADD) of fish habitat. To assist proponents with determining if their project will comply with the fish and fish habitat provisions, Fisheries and Oceans Canada (DFO) has outlined measures to protect fish and fish habitat (DFO 2024a) as well as several standards and codes of practices (DFO 2024b). If a project cannot completely implement the measures to protect fish and fish habitat and if the standards and codes of practice are not applicable to the project, DFO recommends that the proponent request a review of the project by DFO.

If a project cannot avoid and/or mitigate impacts that will cause death of fish or the HADD of fish habitat, an Authorization under the *Fisheries Act* may be required (DFO 2024c).

2.2 Provincial Context

2.2.1 Protect Ontario by Unleashing our Economy Act, 2025 (Bill 5)

The *Protect Ontario by Unleashing our Economy Act, 2025* (Bill 5) received Royal Assent on June 5, 2025, and as a result, the ESA was amended and will be in effect until such time as the *Species Conservation Act* (SCA) is proclaimed. Recent amendments to the ESA include:

- Revised habitat definition replaced the previous definition in the ESA, focused on core elements of habitat such as breeding, rearing, staging, wintering, and hibernation areas.
- “Harass” was removed from the prohibitions.
- The government has discretion to add species to, or remove from, the SARO List.
- The Species at Risk Conservation Fund will no longer accept funds and there will no longer be an option to pay a charge in lieu of overall benefit.
- Registration for activities authorized under current conditional exemptions will continue using the current registry system.
- Permits, agreements and associated conditions, entered into before the legislation was amended, will continue to apply continuing to use the previous definition of “habitat”.
- Updated compliance and enforcement model to focus on collaborative resolution rather than legal action.

The SCA is anticipated to be enacting in the coming months and is proposed to use a “registration-first approach” with most activities covered by registration. Permits would still be required in some circumstances. Regulations under the SCA, which will provide details of the registration options, are currently under development.

2.2.2 Endangered Species Act

The Ontario *Endangered Species Act, 2007* (ESA) protects species designated as threatened, endangered, or extirpated on the Species at Risk in Ontario (SARO) list. The ESA prohibits the killing, harming, or possessing protected species, as well as prohibiting any damage or destruction to the habitat of the listed species. Listed species are referred to as SAR and are provided with habitat protection under the ESA. Some species are also protected by detailed habitat regulations that go beyond the general habitat protection to define the extent and character of protected habitats.

Activities that may impact a protected species or its habitat require the prior issuance of a permit or registration from the Ministry of the Environment, Conservation and Parks (MECP). Regulations allow for activities that would otherwise be prohibited under the species at risk legislation, but are subject to rigorous controls, including registration of the activity and preparation of a mitigation plan.

2.2.3 Fish and Wildlife Conservation Act

The *Fish and Wildlife Conservation Act, 1997* (FWCA) provides protection to many birds, mammals, reptiles, amphibians, fish, and invertebrates. FWCA legislation prohibits hunting (killing, capturing, injuring, and harassing) and trapping of 'specially protected wildlife' as defined in O. Reg. 699/98 of the Act. Birds that are not protected by the MBCA, SARA, or ESA (e.g., raptors including Peregrine Falcon) and bats (e.g., Big Brown Bat) that are not protected by SARA or ESA may be protected under the FWCA. The FWCA protects individuals and their habitat (e.g., nests, roosts).

For in-water work that involves isolation techniques that require the relocation of fish, mussels, turtles or other wildlife, a License to Collect Fish for Scientific Purposes and a Wildlife Scientific Collectors Authorization will be required from Ontario's Ministry of Natural Resources (MNR) under the FWCA.

For species protected under the FWCA and the MBCA (e.g., Osprey) or the ESA, the provision that provides the listed species with the most protection shall prevail.

2.2.4 Conservation Authorities Act

The *Conservation Authorities Act, 1990* (CAA) grants each of Ontario's 36 Conservation Authorities (CA) the authority to make regulations within the areas under their respective jurisdictions (S. 28). However, as a result of the implementation of the *More Homes Built Faster Act* (2022) and *Building Better Communities and Conserving Watersheds Act* (2017), several amendments to the CAA came into effect on April 1, 2024, including a revocation of CAA S.28 and implementation of the new regulation, *Prohibited Activities, Exemptions and Permits* (O. Reg. 41/24). Under the amended CAA, prohibited activities subject to a permit from a CA are now limited to:

1) *Activities to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse or to change or interfere in any way with a wetland.*

2) *Development activities in areas that are within the authority's area of jurisdiction and are,*

    i. *hazardous lands,*

    ii. *wetlands,*

    iii. *river or stream valleys the limits of which shall be determined in accordance with the regulations,*

iv. areas that are adjacent or close to the shoreline of the Great Lakes-St. Lawrence River System or to an inland lake and that may be affected by flooding, erosion or dynamic beach hazards, such areas to be further determined or specified in accordance with the regulations, or

v. *other areas in which development should be prohibited or regulated, as may be determined by the regulations.*

2.2.5 Planning Act

The *Ontario Planning Act* sets out the ground rules for land use planning in Ontario. It describes how land uses may be controlled, and who may control them. The purpose of the Act is to:

- *"provide for planning processes that are fair by making them open, accessible, timely and efficient*
- *promote sustainable economic development in a healthy natural environment within a provincial policy framework*
- *provide for a land use planning system led by provincial policy*
- *integrate matters of provincial interest into provincial and municipal planning decisions by requiring that all decisions be consistent with the Provincial Policy Statement and conform/not conflict with provincial plans*
- *encourage co-operation and coordination among various interests*
- *recognize the decision-making authority and accountability of municipal councils in planning."*

2.2.5.1 Provincial Planning Statement

The PPS (MMAH 2024) was issued under Section 3 of the *Planning Act, 1990* and came into effect in 1996, with the most recent revision in October 2024. The *Planning Act* requires that decisions made by planning authorities are consistent with the policy statements, such as the PPS, which includes policies on development and land use patterns, resources and public health and safety. Municipal official plans are the most important vehicle for implementation of the PPS (MMAH 2024). Section 4.1 of the PPS deals with natural heritage and requires that natural heritage systems be identified in certain ecoregions. This includes Ecoregion 3W, where the Subject Property is located.

Although the PPS provides direction on land use planning and development projects, the policies provide a useful framework for identifying and evaluating the significance of natural heritage features on other projects including Municipal Class EAs. According to Section 4.1.4 and 4.15 of the PPS, development and site alteration are not permitted in the following features unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions:

Section 4.1.4

b) significant coastal wetlands

Section 4.1.5

a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E, and 7E
d) significant wildlife habitat (SWH)
e) significant areas of natural and scientific interest (ANSI)

Development and site alterations are not permitted in the following features, except in accordance with provincial and federal requirements:

1. Significant portions of the habitat of endangered or threatened species
2. Fish Habitat

Development and site alteration are not permitted on lands that are adjacent to the NHFA identified above 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.

2.3 Municipality of Shuniah

2.3.1 Official Plan

The Plan was adopted by MOS on October 13, 2020 and approved by the Province in March 2021. The Plan is in force as the new official plan for the MOS. Schedule B1 (Land Use Designations) designates the MOS's Protected Areas and Schedule B2 (Development Constraints) designates the MOS's NHFA.

Section 3.4 of the Plan states "*natural features and areas shall be protected for the long term. Diversity and connectivity of natural features and the long-term ecological function and biodiversity of natural heritage systems shall be maintained, restored, and where possible improved. Protection shall involve the use of the Protected Area land use designation and zoning; and consider the nearby natural heritage features and areas, including watershed features, parks, conservation reserves/areas, hazards lands and Municipal open space during the review process for any planning approval.*"

According to Section 3.4, NHFA are defined as the following:

- SWH
- habitat of threatened and endangered species
- significant wetlands and coastal wetlands
- fish habitat
- ANSI

In general, the Plan states that *development and site alteration shall not be permitted in or adjacent to NHFA unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.* Adjacent Lands with respect to NHFA are defined in the Plan as lands within 120 m from the boundary of the feature. Section 3.4.2 of the Plan states "*adjacent lands for threatened and endangered species are deemed to be 120 m unless there are other site-specific considerations such as species habits, type of development, and/or landscape characteristics may warrant extension or retracting of this distance*."

The Plan defines Significant Coastal Wetlands as "*wetlands that are located on Lake Superior or on a tributary to Lake Superior that lies either wholly in or in part, downstream of a line located 2 km upstream of the 1:100 year floodline (plus wave run-up) of the lake*."

Section 3.4.3 of the Plan indicates that no coastal wetlands in Shuniah or wetlands in within the Municipality have been evaluated using Ontario's Wetland Evaluation System (OWES; MNRF 2022). As such, where development is proposed within 120m of a wetland feature, a preliminary or full evaluation of the wetland may be required. A full evaluation is required for any development which has the potential to impact a coastal wetland. This section of the Plan also indicates that a 30 m setback from top of bank should be implemented through zoning for all wetlands containing fish habitat and all lakes.

Under Section 3.4.4 of the Plan, development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements. According to the Plan, all streams in Shuniah are assumed to be cold water streams by the MNRF; and as such are protected with a 30 m setback. Additionally, all naturally occurring watercourses and waterbodies are considered fish habitat unless it can be demonstrated in a report by a qualified professional that the feature does not contain fish habitat as defined by the *Fisheries Act*.

The Plan defines ANSI "*lands and/or water containing natural features which have been identified as having significant value related to the natural heritage protection, scientific study, or education.*" According to Section 3.4.5 of the Plan, two Earth Science ANSI located in Shuniah are features or areas that contain examples of rock, fossil, and/or landform features that are the result of geological processes and landscape evolution. ANSI are included in the Protected Areas designation shown on Schedule A and Schedule B of the Plan as a development constraint.

3 Methods

3.1 Background Desktop Review

The following documents and online databases were reviewed to identify physiographic setting, land cover, designated NHFA (Figure 2, Appendix A), and recent records (i.e., records from 2005 or later) of SAR/SOCC, and/or species within geographic ranges (for species that have few records such as bats) that overlap the Study Area to inform the 2025 field studies:

- Ontario's Natural Heritage Information Centre (NHIC) (MNR 2025a)
- SARO List (MECP 2025)
- Geospatial Ontario (MNR 2025b)
- Municipality of Shuniah Official Plan (MOS 2021)
- Forest Management Plan for the Lakehead Forest (MNRF 2020)
- Lakehead Region Conservation Authority Mapping Tool (LRCA 2025)
- Satellite Imagery (Google Earth 2025)
- Abandoned Mines information system (Ministry of Mines 2025)
- Checklist of the Vascular Plants of Thunder Bay District, Ontario (TBFN 2021)
- DFO Aquatic Species at Risk Map (DFO 2025a)
- ECCC Species at Risk Public Registry (ECCC 2025a)
- Migratory Bird Sanctuaries (ECCC 2025b)
- Ontario Breeding Bird Atlas (2021-2025): checklist data (Birds Canada 2025)
- Ontario Breeding Bird Atlas (Cadman et al. 2007)
- Ontario Butterfly Atlas (Macnaughton et al. 2024)
- Ontario Moth Atlas (Kaposi et al. 2025)
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2020)
- Atlas of the Mammals of Ontario (Dobbyn 1994)
- iNaturalist (iNaturalist 2025)
- eBird Canada (eBird 2025)

A list of SAR and SOCC with recent records within the Study Area was compiled based on the background desktop review. Some of the desktop sources provide data at a scale of 10 x 10 kilometer (km), and a recent species record is not confirmation that the species may be present within the Study Area as suitable habitat may not occur. Therefore, desktop results were screened to assess their relevance to the Study Area. Species were removed from consideration if there was no potential habitat observed within the Study Area (i.e., grassland species). SAR and SOCC that had the potential to occur within the Study Area (i.e., recent records and potential habitat) were carried forward to the SAR habitat assessment in Section 3.2.11.

Information regarding physiographic setting and land cover at the Subject Property was also collected during the background desktop review and summarized in Sections 4.1.1 and 4.1.2.

For this report, SAR include the following:

- Species designated under the SARO list of the provincial ESA as threatened, endangered or extirpated
- Aquatic (fish and mussels) and migratory bird species designated under Schedule 1 of the federal SARA as threatened, endangered or extirpated

Species listed as threatened, endangered and/or extirpated on the SARO list receive both individual and habitat protection under the ESA. Aquatic species listed as threatened, endangered and/or extirpated on Schedule 1 of the SARA receive both individual and habitat protection under the SARA. Non-aquatic species and non-migratory birds listed on Schedule 1 of the SARA are excluded because protection under the SARA is generally not provided outside of federal lands.

Provincial ranks (S-Ranks) are status rankings assigned for the province by the MNR and are available in the Natural Heritage Information Centre database (MNR 2025a). S-Ranks are used by the NHIC to set protection priorities for rare species and vegetation communities. They are based on the number of occurrences in Ontario and are not legal designations. Provincially rare species are species with S-Ranks of S1, S2, or S3 (MNR 2025a). S-Ranks are defined as follows (MNR 2025a):

- S1 – Critically Imperiled, very high risk of extinction or extirpation; usually fewer than 5 occurrences
- S2 – Imperiled, high risk of extinction or extirpation; usually fewer than 20 occurrences
- S3 – Vulnerable; usually fewer than 100 occurrences
- S4 – Apparently secure; uncommon but not rare, usually more than 100 occurrences
- S5 – Secure, common, widespread, and abundant
- S? – An S-Rank followed by a “?” indicates the rank is still uncertain
- SNA – Introduced

The Natural Heritage Reference Manual (NHRM) was developed to provide technical guidance for implementing the natural heritage policies of the PPS (MNR, 2010). SWH includes the habitat of SOCC.

For this report, SOCC includes the following:

- species designated under the SARO list as special concern
- species designated under Schedule 1 of the SARA as threatened, endangered or extirpated
- species assessed as SC by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) regardless of respective listings on Schedule 1 of SARA
- species with provincial ranks of S1 to S3

Although these SOCC do not receive legal protection under the ESA or SARA, their habitat is protected under the PPS (e.g., if it qualifies as SWH), and they may also be afforded protection under the MBCA or FWCA.

3.2 Field Investigations

Field investigations for the 2024 EIS included the following surveys which were completed on June 7 and 15, 2023:

- vegetation community surveys (using ecological land classification [ELC])
- single season botanical inventory
- amphibian acoustic survey using autonomous recording units (ARUs)
- breeding bird acoustic survey using ARUs
- nightjar acoustic survey using ARUs
- bat maternity roost survey
- wildlife habitat assessment
- incidental wildlife observations

Additional field investigations were conducted between June and July 2025 to confirm and supplement results of the 2025 background desktop review (Section 3.1) and 2023 field investigations within the Study Area. The 2025 field investigations included the following:

- vegetation community surveys using ELC
- Black Ash survey
- wetland delineation
- amphibian acoustic surveys using ARUs
- breeding bird point count surveys
- breeding bird acoustic surveys using ARUs
- nightjar acoustic surveys using ARUs
- Pileated Woodpecker nest cavity survey
- bat maternity roost tree survey
- bat acoustic surveys using ARUs
- NHFA assessment
- SAR habitat assessment
- SWH assessment

Incidental wildlife observations and evidence of wildlife (e.g., nests, dens, scat, tracks) were also recorded during all surveys. Field survey dates, times, and weather conditions for the 2023 and 2025 field investigations are summarized in **Table 3.1.** A photographic record of the Study Area is provided in Appendix B and surveyor qualifications are provided in Appendix C.

Table 3-1: Summary of Survey Dates, Times, and Weather Conditions

Type of Survey	Date	Start & End Time (24hrs)	Weather Conditions	Surveyors
• vegetation community surveys (ELC, single season botanical inventory) • SAR habitat assessment • ARU deployment for amphibian acoustic survey/ breeding bird acoustic surveys/ nightjar acoustic surveys/ bat acoustic surveys • bat maternity roost survey • SWH assessment • incidental wildlife observations	June 7, 2023	0930 – 1630	Temperature: 13.5 – 18.0ºC Wind: 15 – 13 km/h Precipitation: 0 mm Precipitation in last 24 hours: 4 mm	S. Hart K. Howe
• vegetation community surveys (ELC, single season botanical inventory) • SAR Habitat assessment • ARU retrieval • bat maternity roost survey • SWH assessment • incidental wildlife observations	June 15, 2023	0930 – 1630	Temperature: 14. – 21.0ºC Wind: 15 – 11 km/h Precipitation: 0 mm Precipitation in last 24 hours: 4 mm	S. Hart K. Howe
• vegetation community surveys (ELC) • • Black Ash survey • wetland delineation • breeding bird point count surveys • ARU deployment for breeding birds, nightjars and bats • Pileated Woodpecker nest cavity survey • bat maternity roost tree survey • wildlife habitat assessment	June 10, 2025	0800 – 1630	Temperature: 14.0 – 17.0ºC Wind: 13 – 17 km/h Precipitation: 0 mm Precipitation in last 24 hours: 0 mm	K. Howe V. Wilen

Type of Survey	Date	Start & End Time (24hrs)	Weather Conditions	Surveyors
• incidental wildlife observations • NHFA assessment • SAR habitat assessment • SWH assessment				
• vegetation community surveys (ELC) • Black Ash survey • wetland delineation • breeding bird point count surveys • Pileated Woodpecker nest cavity survey • bat maternity roost tree survey • wildlife habitat assessment • incidental wildlife observations • NHFA assessment • SAR habitat assessment • SWH assessment	June 11, 2025	0800 – 1630	Temperature: 14.0 – 22.5ºC Wind: 15 – 16 km/h Precipitation: 0 mm Precipitation in last 24 hours: 0 mm	K. Howe V. Wilen
• vegetation community surveys (ELC) • Black Ash survey • wetland delineation) • breeding bird point count surveys • Pileated Woodpecker nest cavity survey • bat maternity roost tree survey • wildlife habitat assessment • incidental wildlife observations • NHFA assessment • SAR assessment • SWH habitat assessment	June 12, 2025	0900 – 1400	Temperature: 10.0 – 14.6ºC Wind: 5 – 13 km/h Precipitation: 0 mm Precipitation in last 24 hours: 0 mm	K. Howe V. Wilen

Type of Survey	Date	Start & End Time (24hrs)	Weather Conditions	Surveyors
• vegetation community surveys (ELC) • Black Ash survey • wetland delineation) • bat maternity roost tree survey • wildlife habitat assessment • incidental wildlife observations • NHFA assessment • SAR habitat assessment • SWH assessment	June 19, 2025	0800 – 1630	Temperature: 15.0 – 17.0ºC Wind: 13 – 8 km/h Precipitation: 0 mm Precipitation in last 24 hours: 0 mm	K. Howe V. Wilen
• ARU retrieval for breeding bird acoustic surveys/ nightjar acoustic surveys/ bat acoustic surveys	July 10, 2025	0800 – 1630	Temperature: 12.5 – 22.0ºC Wind: 5 – 15 km/h Precipitation: 0 mm Precipitation in last 24 hours: 0 mm	K. Howe V. Wilen

3.2.1 Vegetation Survey

Vegetation surveys were completed on June 7 and June 15 2023 and supplemented on June 10, 11, 12, and 19, 2025 following methodology outlined in the draft Ontario Ecosite Manual (Banton et al. 2009). The purpose of these surveys was to document plant species in the Study Area and describe the vegetation communities present using ELC. Targeted searches were conducted for SAR, SOCC, and rare vegetation community types known to occur in the vicinity of the Study Area.

Vegetation communities were delineated on aerial imagery and then verified in the field. The Study Area was systematically covered on foot to ensure a comprehensive inventory of flora species potentially impacted by the proposed works.

The identification and provincial status of all plant species and flora nomenclature for scientific accepted species names is based on the vascular plant list available on the NHIC database (MNR 2025a) and VASCAN, the Database of Vascular Plants of Canada (Canadensys 2011), was used to verify synonyms of plant names where appropriate.

3.2.1.1 Black Ash Survey

Black Ash (*Fraxinus nigra*) are a member of the olive (Oleaceae) family and are native to Ontario's mixed hardwood forest. In Ontario the range of Black Ash extends farther north than any other ash species. Approximately 25% of the global range of Black Ash is in Ontario, and 51% of the species' global range is within Canada. Black Ash grows best in wetlands and is predominantly found in swamps, floodplains and fens. Populations of Black Ash are in decline because it is susceptible to Emerald Ash Borer (EAB; *Agrilus planipennis*). It is expected that EAB will cause declines in the total number of Black Ash trees by greater than 70% over the next two generations (100 years). EAB was introduced to the Detroit-Windsor area in the 1990s and has since become established in almost all counties in southern Ontario and southeastern Ontario (Catling et al. 2022, MECP 2022).

Stantec completed a dedicated search for Black Ash trees within the Study Area by meandering on foot through areas of potentially suitable habitat on June 10, 11, 12 and 19, 2025.

3.2.1.2 Wetland Delineation and Evaluation

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

Wetlands were identified during vegetation community surveys (ELC) on the Subject Property and were further evaluated using OWES, *Northern Manual, 4th Edition* (MNRF 2022). Wetland boundaries were identified based on ELC mapping and the "50% wetland vegetation" rule. The intent of this rule is to assess where relative plant cover consists mostly of wetland plants (i.e., >50%) and is used to locate a contour/boundary line, which indicates where the community naturally transitions from wetland to upland.

3.2.2 Amphibian Acoustic Survey

To increase the probability that individual amphibians (frogs and toads) that are calling infrequently are recorded, ARUs were deployed on June 6 to June 16, 2023, and on June 10 to July 10, 2025. Surveys were completed during the third timing window (between June 15 and June 30); however, evening air temperatures were more consistent with the second timing window (i.e., ≥ 10°C) outlined in the *Marsh Monitoring Program Participant's Handbook for Surveying Amphibians* (Bird Studies Canada 2009). Evening air temperatures remained below 17°C beyond July 2025.

Wildlife Acoustic's SM4BAT FS ARUs were deployed at 10 survey stations in 2023 (BBA01 – BBA10) and 7 survey stations in 2025 (BBA11, BBA13, BBA16, BBA18, BBA20, BBA21, BBA22; Figure 3, Appendix A; see photo 38, Appendix B), within suitable wetland and/or vernal pool habitat, for at least 3 good-weather days (i.e., air temperatures ≥ 10°C, wind ≤20 km/hr, no rain or light rain). ARUs were programmed to record starting on June 5 through July 15, 2023, 10 minutes every 30 minutes from 30 minutes before sunrise to 4 hours after sunrise. Additionally, 6 ARUs were programmed to record starting on June 10 through July 11, 2025, and 1 ARU (BBA20) on June 13 through July 13, 2025, 30 minutes before sunset, 3 minutes on, 12 minutes off, ending 1 hour and 15 minutes after sunset.

One (1) minute subsets at approximately 2200h, 2230h, and 2300h of recordings collected by the ARUs on 3 good weather days [June 9, 11, and 13, 2023 (BBA01 – BBA10); June 17, 18, and 19, 2025 (BBA 11, BBA13, BBA16, BBA18, BBA21, BBA22); June 19 to 21, 2025 (BBA20)] were analyzed by Stantec biologist, K. Howe using headphones, to assess for the presence of amphibian species (e.g., American Toad, Northern, Leopard Frog, Gray Treefrog, Green Frog, Bullfrog) within the Study Area. The following 3 call level codes were used to categorize the intensity of calling activity:

- Code 1 - Individuals can be counted; calls not simultaneous
- Code 2 - Calls distinguishable, some simultaneous calling
- Code 3 - Full chorus; calls continuous and overlapping

The results of the amphibian acoustic survey recordings are provided in Section 4.2.2. Table 3.2 summarizes the survey dates and weather conditions for the 3 good-weather days selected for analysis.

Table 3-2: Dates and Weather Conditions of Amphibian Acoustic Surveys

Date	Weather Conditions
June 9, 2023	Temperature: 15.0 – 16.0ºC Wind: 0 – 9 km/h Precipitation: 0 mm Precipitation in last 24 hours: 0.2 mm
June 11, 2023	Temperature: 10ºC Wind: 5 – 8 km/h Precipitation: 0 mm Precipitation in last 24 hours: 0 mm
June 13, 2023	Temperature: 13 – 160ºC Wind: 50 – 4 km/h Precipitation: 0 mm Precipitation in last 24 hours: 0 mm
June 15, 2025	Temperature: 11.0 – 13.0ºC Wind: 11 – 13 km/h Precipitation: 0 mm Precipitation in last 24 hours: 4 mm
June 17, 2025	Temperature: 20.5 – 16.0ºC Wind: 0 – 8 km/h Precipitation: 0 mm Precipitation in last 24 hours: 58 mm
June 18, 2025	Temperature: 13.0 – 15.0ºC Wind: 5 – 9 km/h Precipitation: 0 mm Precipitation in last 24 hours: 2 mm
June 19, 2025	Temperature: 12.0 – 17.0ºC Wind: 5 – 13 km/h Precipitation: 0 mm Precipitation in last 24 hours: 0 mm
June 20, 2025	Temperature: 13.0 – 18.0ºC Wind: 12 – 18 km/h Precipitation: 0 mm Precipitation in last 24 hours: 0 mm
June 21, 2025	Temperature: 13.0 – 16.0ºC Wind: 10 –14 km/h Precipitation: 0 mm Precipitation in last 24 hours: 0 mm

3.2.3 Breeding Bird Point Count Survey

One round of diurnal breeding bird surveys was completed over three days within the Study Area between June 10 and 12, 2025. Surveys used a standard 10-minute, point-count approach (see Table 3.2 for environmental conditions and Table 3.3 for survey dates and times).

Surveys generally followed a protocol based on guidance outlined in the *Instructions for Point Counts* (OBBA 2021a). Surveys were completed during peak breeding season; June 10 to 12, 2025 and under suitable environmental conditions (i.e., temperatures above 0°C, wind less than 20 km/h, little to no precipitation). Diurnal breeding bird surveys were completed within the first five hours after sunrise, during peak bird vocalizations and activity, to increase the likelihood of detecting bird species (OBBA 2021). All birds heard or seen, with the assistance of binoculars, during the point-count survey were recorded.

Ten (10) breeding bird survey stations were established (Figure 3, Appendix A) at locations around the Study Area to collect information on the bird species that are present within the Study Area.

Table 3-3: Breeding Bird Point Count Survey Dates and Times

Survey Station	Time (24hrs)	GPS Coordinates
June 10, 2025		
BPC01	0741 – 0751	48.6N, 88.6W
BPC02	0815 – 0825	48.6N, 88.6W
BPC03	0846 – 0856	48.6N, 88.6W
BPC04	0919 – 0929	48.6N, 88.6W
BPC05	0940 – 0950	48.6N, 88.6W
June 11, 2025		
BPC06	0925 – 0935	48.6N, 88.6W
BPC07	0943 – 0953	48.6N, 88.6W
June 12, 2025		
BPC08	0837 – 0847	48.6N, 88.6W
BPC09	0910 – 0920	48.6N, 88.6W
BPC10	0931 – 0941	48.6N, 88.6W

3.2.4 Breeding Bird Acoustic Surveys

To increase the probability detecting breeding birds that are calling infrequently, 10 ARUs (BBA01 – BBA10) were deployed in 2023, and 14 were deployed in 2025 (BBA11 – BBA24) see Figure 3, Appendix A; see photos 37 and 38, Appendix B). Wildlife Acoustic's SM4BAT FS and SM3BAT ARUs were deployed during peak breeding season between June 7 and June 15, 2023, between June 10 and July 10, 2025 (13 ARUs), and between June 13 and July 13, 2025 (BBA20), within representative habitat (Figure 3, Appendix A) for at least 5 good-weather days (i.e., air temperatures ≥ 10°C, wind ≤20 km/hr, no rain or light rain). ARUs were programmed to record daily for 10 minutes every thirty minutes from one half hour before sunrise to four hours after sunrise.

Three (3) minute subsets at approximately 0530h and 0630h and 2 minute subsets at approximately 0730h and 0830h of recordings collected by the ARUs on 3 good weather days [June 9, 11, and 13, 2023 (BBA01 – BBA24); June 13, 25, and July 7, 2025 (13 ARUs); June 24, 25, and July 7, 2025 (BBA20)] were analyzed by Stantec biologist, B. Obermayer using headphones, to assess for the presence of breeding bird species within the Study Area.

The results of the breeding bird acoustic survey recordings are provided in Section 4.2.4.

3.2.5 Nightjar Acoustic Surveys

Targeted surveys for crepuscular bird species [(Common Nighthawk (*Chordeiles minor*), Eastern Whip-Poor-Will (*Astromus vociferus*)] were conducted using ARUs following dates, timing and weather conditions recommended in the Ontario Nightjar Survey Protocol (OBBA 2021b). Ten (10) ARUs were deployed in 2023 (BBA01 – BBA10), and 14 were deployed in 2025 (BBA11 – BBA24; see Figure 3, Appendix A; see photos 37 and 38, Appendix B). Wildlife Acoustic's SM4BAT FS and SM3BAT ARUs were deployed during peak breeding season between June 7 and June 15, 2023, between June 10 and July 10, 2025 (13 ARUs), and between June 13 and July 13, 2025 (BBA20) within representative habitat (Figure 3, Appendix A) for at least 5 good-weather days (i.e., air temperatures ≥ 10°C, wind ≤20 km/hr, no rain or light rain). ARUs in 2025 were programmed to record within one week of the full moon during the breeding season for 10 minutes every half hour beginning 30 minutes before sunset to 90 minutes after sunset.

Two (2) minute subsets at approximately 2130h, 2145h, and 2200h of recordings collected by the ARUs on 2 good weather days [June 9 and 13, 2023 (BBA01 – BBA10); June 13 and 14, 2025 (13 ARUs); June 19 to 21, 2025 (BBA20)] within one week of the June 11, 2025 full moon, were analyzed by Stantec biologist, K. Howe using headphones, to assess for the presence of crepuscular bird species (Common Nighthawk, Eastern Whip-Poor-Will) within the Study Area.

The results of the nightjar acoustic survey recordings are provided in Section 4.2.5.

3.2.6 Pileated Woodpecker Nest Cavity Survey

Trees within the Study Area were surveyed on June 10, 11, and 12, 2025 for the presence of Pileated Woodpecker nest cavities. Pileated Woodpecker nest cavities are protected under the MBCA for 36 months after last confirmed active (i.e., a tree with Pileated Woodpecker nest cavities cannot be removed until it's inactive for 36 months). If suitable nest cavities were recorded, they were checked for activity during the breeding bird period to confirm if the nest was active.

The Pileated Woodpecker Cavity Identification Guide (ECCC 2023) was used to distinguish between nest, roost, and forage cavities. Pileated Woodpeckers construct three types of cavities: nest, roost, and forage. Only the nest cavity is protected and can be identified by the size and shape. In general, nest cavities are approximately 9 by 12 cm in size, round, or teardrop in shape, with a smooth edge, 0.75 m deep, in a tree with heart rot but with a solid exterior. Additionally, there is usually only one nesting cavity per tree (i.e., if multiple cavities are observed in a tree, they are likely roost or forage cavities) (ECCC 2023).

3.2.7 Bat Maternity Roost Survey

Bat maternity colony SWH criteria schedule for Ecoregion 3W identifies maternity colonies located in mature deciduous or mixed forests with dominant trees greater than 80 years old with more than 10 large diameter (> 25 cm diameter at breast height (DBH)) wildlife trees per hectare (MNRF 2017a). Wildlife trees are living or dead trees with cavities, loose bark, or cracks bark in decay stages 1 and 2, or less ideally decay classes 3 to 6. Increased survey effort was placed on areas with potential to support large wildlife trees such as mature forests and riparian areas.

Stantec completed a SAR bat maternity roost survey within the Subject Property generally following the guidance outlined in the MNRF's *Survey Protocol for Species at Risk Bats Within Treed Habitats* (2017a). Using result of ELC, the SAR Bat Maternity Roost Habitat Suitability Assessment focused on hedgerows, woodlands and forests, if present.

As outlined in the MNRF's 2017 survey protocol, any tree with a DBH of 10 cm or greater is considered to provide potential bat maternity roost habitat, however, trees with DBH of 25 cm or greater, and with a large amount of loose, peeling bark, cavities, or crevices at least 10 m high, and exhibiting the early stages of decay are considered to have higher suitability for maternal bat roosting. Surveys were not completed during leaf-off, as such, observations of cavities and crevices were limited.

Stantec traversed the Subject Property on June 7 and 15, 2023 and June 10, 11 ,12 and 19, 2025, to identify the best candidate roost trees, greater than or equal to 25 cm diameter at breast height (DBH), that meet the following criteria (MNRF 2017a):

- Tree is one of the tallest snag/cavity trees in the survey area.
- Tree exhibits cavities/crevices.
- Tree has the largest DBH.

- Tree is within the highest density of snags/cavity trees.
- Tree has a large amount of loose, peeling bark.
- The cavity/crevice is located high in the snag/tree.
  (i.e., greater than or equal to 10 m high on tree trunk)
- The tree canopy cover is relatively open.
- The tree exhibits early stages of decay (i.e., decay Class 1 to 3).

Candidate trees were identified and mapped within the Subject Property using a handheld GPS device and photographed.

3.2.8 Bat Acoustic Survey

The bat acoustic survey was completed from June 10 to July 8, 2025 to assess whether bat SAR were present within the Study Area using an ARU (Song Meter Mini Bat 2, Wildlife Acoustics). Using guidance from the MNRF (2017) *Survey Protocol for Species at Risk Bats within Treed Habitats*, Stantec biologists recorded high-frequency bat calls nearby potentially suitable bat maternity roosting trees (Figure 3, Appendix A) on the Subject Property. The ARU recorded from 30 minutes before sunset until 30 minutes after sunrise.

Individual bat call data collected with the Song Meter Mini Bat 2, were analyzed using Wildlife Acoustics' Kaleidoscope Pro Analysis Software. Data processing through the Kaleidoscope Pro involves running the software's automatic identification function, which screens out noise files and provides a suggested species for each bat call file (where possible).

All bat SAR calls were manually reviewed by a qualified Stantec biologist, J Randell, to confirm the identification by visually assessing the call file spectrographs to identify if the frequency range and shape are consistent with the species assigned by Kaleidoscope Pro. Where calls were not of sufficient quality to identify to species, they were classified as a high frequency unknown call (where the minimum frequency was 35 kHz or above) or low frequency unknown call (where minimum frequency is less than 35 kHz). Low frequency species include Big Brown, Silver-haired and Hoary Bats.

The Song Meter Mini Bat 2 cannot distinguish the number of bats flying within the Subject Property, as multiple calls often come from the same individual as they may pass over the acoustic bat detector multiple times. However, the total number of calls can be used as an index of general bat activity in an area.

3.2.9 Incidental Wildlife Observations

Observations of wildlife and signs of wildlife were recorded during field investigations, including species that were detected by sight and sound, dens, nests, burrows, browse, tracks, and scat. Surveyors searched areas where wildlife are likely to concentrate (e.g., in woodlands or thickets, and open foraging and basking habitat) to improve the likelihood of encountering wildlife and evidence of wildlife, and recorded species, their respective numbers/counts, and took notes on habitat and behavior.

3.2.10 Natural Heritage Features and Areas Assessment

Natural heritage feature and areas (NHFA), if present, were identified during the desktop review within the Study Area and characterized during the ELC surveys if within the Study Area. Natural heritage features include ANSIs, Provincially Significant Wetlands (PSWs), unevaluated wetlands, municipal drains, ditches, creeks, fish nurseries, linkages and wildlife corridors, significant woodlands, and significant valleylands.

3.2.11 Species at Risk Habitat Assessment

As described in Section 3.1, a list of SAR with potential to occur within the Study Area was developed using results of the background desktop review. Habitat assessments were completed during the ELC surveys in the field to determine the habitat potential for SAR in the Study Area.

Based on Stantec's desktop review and field studies, a list of SAR and SOCC with the potential to occur within the Study Area was developed, along with the likelihood of occurrence and federal and provincial status for each species. The likelihood of occurrence of each species was ranked as nil, low, medium, high, or confirmed, based on field survey observations and presence of suitable habitat within the Study Area and were defined as follows:

- **Nil**: species with no suitable habitat observed in the Study Area.
- **Low**: species with no recent records within the Study Area and/or no to very limited suitable habitat in the Study Area were ranked as 'low likelihood of occurrence'.
- **Medium**: species with a recent record within the Study Area and suitable breeding/roosting habitat in the Study Area were ranked as 'medium likelihood of occurrence'.
- **High**: species with multiple recent records within the Study Area and/or an abundance of suitable habitat in the Study Area were ranked as 'high likelihood of occurrence'.
- **Confirmed**: species were observed in the Study Area during field surveys.

Species with a nil or low probability to occur in the Study Area were not carried forward for further assessment in the study. Mitigation measures and potential permitting requirements are discussed in Section 7 and Section 8 for species with a medium or high probability to occur and species that were confirmed (i.e., observed during field studies).

3.2.12 Significant Wildlife Habitat Assessment

The *Significant Wildlife Habitat Technical Guide* (SWHTG) (MNR 2000) and *Ecoregion Criteria Schedule for 3W* (MNRF 2017b) provide standard provincial guidance and were used to identify SWH and assess their significance and sensitivity.

Habitats within the Study Area were assessed during the ELC surveys for candidate SWH using the Ecoregion Criterion Schedule for 3W (MNRF 2017b). The presence of SWH was determined through desktop review (NHIC database) and, if present in the Subject Property, were characterized during field surveys.

Multi-year targeted species-use surveys are generally required to determine if candidate features qualify as confirmed SWH. Because multi-year targeted species-use surveys have not been conducted, SWH features identified during field investigations are considered candidate, unless they were confirmed through direct observations or background review.

The SWHTG defines four categories of SWH:

- Habitats of Seasonal Concentrations of Animals
- Rare Vegetation Communities or Specialized Habitats for Wildlife
- Habitats of Species of Conservation Concern
- Animal Movement Corridors

A SWH assessment was conducted within the Study Area on June 10, 11 and 12, 2025 following the SWHTG (MNR 2000) and *Ecoregion Criteria Schedule for 3W* (MNRF 2017b). Features such as candidate snake hibernacula, vernal pools, seeps and springs, candidate turtle overwintering and nesting habitat, raptor nests, and terrestrial crayfish chimneys were recoded if encountered, and a description of the attributes and location of each feature identified was recorded. To enhance the understanding of wildlife presence and activity within the Study Area during the 2025 field season; four motion-activated wildlife cameras (WC01 to WC04) were installed at key locations from June 15 to July 19, 2025 (see Figure 3. Appendix A; see photo 39, Appendix B).

The visual imagery collected by the wildlife cameras were analyzed by Stantec biologists to assess for the presence of wildlife activity, specifically mammal SAR (i.e., Gray Fox), within the Study Area. Results of the wildlife habitat assessment are provided below in Section 4.2.10.

3.3 Evaluation of Significance

The potential significance of NHFA and associated ecological functions was evaluated in accordance with the *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement* (MNR 2010) and the Plan (MOS 2021) to determine Provincially Significant natural heritage features and associated ecological functions within the Study Area.

4 Results

The results of the background review and 2023 and 2025 field investigations, as described in Section 3 are outlined below. The species described in-text herein use provincial common names (MNR 2025a). All common names and associated scientific names and species status are detailed in Appendix D through Appendix F.

4.1 Background Desktop Review

4.1.1 Physiographic Setting

The Study Area is within the Black Sturgeon ecodistrict (3W-3) within the Lake Nipigon ecoregion (3W) (Crins et al. 2009; Wester et al. 2018). The ecoregion has a cool, relatively dry climate and is part of the moist low boreal ecoclimatic region. The ecodistrict is underlain by Precambrian slates often covered with diabase sills in the north around Lake Nipigon. Bedrock covers over half (52%) of the ecodistrict; humo-ferric podzols are the most common soil type (28%) with gray luvisols more common in the Black Bay area (8%). The ecodistrict is relatively well drained with organic soils cover less than 3%.

Upland areas are dominated by coniferous forests of Jack Pine and Black Spruce with fire cycles ranging from 70 to 210 years (Crins et al. 2009). Trembling Aspen often forms uniform stands on deep, fine-textured upland soils while White Spruce, Balsam Fir, and Paper Birch (*Betula papyrifera*) are minor components of upland forests and conifer swamps. Heart-leaved Birch replaces Paper Birch along the Lake Superior shoreline. Small amounts of Great-Lake-Saint-Lawrence Forest species such as White Pine (*Pinus strobus*) and Red Pine (*Pinus resinosa*) occur throughout the ecodistrict.

Land cover within the Black Sturgeon ecodistrict has been altered from a long history of land clearing from agriculture in the south, and forestry. Mixed forests are the dominant land cover class (41%) followed by sparse forest (20%), coniferous forest (17%), and deciduous forest (16%).

Forest fires are infrequent near Lake Superior and are generally small. Wetlands experience very few fires; however, large stand replacing fires occasionally occur (Van Sleeuwen 2006).

4.1.2 Land Cover

Most of the Subject Property and Study Area are zoned Shoreline Residential – Black Bay (66.8% and 43.4%, respectively), areas zoned for Aggregate Extraction cover 4.4% of the Property and 6.8% of the Study Area in the northwest, while the back lots are zoned Rural (see **Table 4.1**).

Table 4-1 Land Cover in the Study Area

Land Zoning	Property		Study Area	
	Area (ha)	Area (%)	Area (ha)	Area (%)
Shoreline Residential - Black Bay	68.9	66.8	75.3	43.3
Aggregate Extraction	4.5	4.4	11.9	6.8
Rural - Back Lots	29.8	28.9	86.9	49.9
Total	**103.2**	**100.0**	**174.1**	**100.0**

4.1.3 Designated Natural Heritage Features and Areas

Based on the results of the background review, the following designated NHFA have been previously identified within the Study Area:

- Schedule A2 (Land Use Designations) of the Plan (MOS 2021) indicates the Subject Property and Adjacent Lands occur on lands designated as Protected Areas.
- Schedule B2 (Development Constraints) of the Plan (MOS 2021) indicates the Subject Property and Adjacent Lands occur on lands designated as Lake Superior Regulated Area.
- The NHIC database (MNR 2025) indicates woodlands are located on the Subject Property and Adjacent Lands (Figure 2, Appendix A).
- According the LRCA mapping tool (LRCA 2025), the Subject Property and Study Area occur within LRCA's Regulated Area (O. Reg. 41/24).

There are no mapped wetlands, ANSI, or SWH within the Study Area. Aquatic features are discussed further in Section 4.1.5 below.

4.1.4 Species at Risk and Species of Conservation Concern

A total of 17 SAR and 12 SOCC were identified during the background review with the potential to occur within the Study Area. These species were carried forward to the field assessment. The final assessment of potential SAR and SOCC for the Study Area following field investigations is presented in Section 4.3 and Appendix D.

4.1.5 Aquatic Habitat

No mapped watercourses or waterbodies occur within the Subject Property. One waterbody (Lake Superior) occurs within the Study Area along the east boundary of the Subject Property (Figure 2, Appendix A).

Lake Superior is a permanent waterbody with a cold-water thermal regime (MNR 2025) that drains into Lake Huron via St. Marys River, then through the lower Great Lakes to the St. Lawrence River and ultimately the Atlantic. Based on results of the background review, Lake Superior is mapped as DFO SAR distribution habitat for Shortnose Cisco (DFO 2025a). No additional designated aquatic features have been previously identified within the Study Area.

Fish community data for Lake Superior near the Study Area includes 61 species (see Appendix E), including 3 SAR [(Lake Sturgeon (Great Lakes - Upper St. Lawrence River population), Shortnose Cisco, Shortjaw Cisco] and 4 SOCC [Northern Brook Lamprey, Silver Lamprey (Great Lakes - Upper St. Lawrence populations), American Brook Lamprey, Pygmy Whitefish (Great Lakes - Upper St. Lawrence populations)]. The remaining 54 fish species with records in Lake Superior near the Study Area have S-Ranks of S4 or S5 and are common and widespread in Ontario.

4.2 Field Investigations

4.2.1 Vegetation Community Assessment

The vegetation community assessment was completed in June 2023 and verified in June 2025 within the Study Area. The vegetation assessment followed the draft Ontario Ecosite Manual (Banton et al. 2009). Upland areas dominate the Property and Study Area, covering approximately 99% (102.94 ha) and 82% (141.83 ha), respectively.

Natural upland areas are entirely forested and are typical of the Lake Superior shoreline and are predominately mixedwood stands of Balsam Fir and Mountain Paper Birch with a smaller component of White Spruce (B108; see photos 3, 6, 7, 22, 23, and 27, Appendix B), and hardwood stands of Trembling Aspen and Mountain Paper Birch. Fresh, Silty to Fine Loamy Mixedwood (B104; see photos 4, 5, 24, 25, and 26, Appendix B) is the most common upland forest type occupying 96.7% (93.7 ha) of the Subject Property and 70.8% (123.3 ha) of the Study Area.

Forests in the east of the Study Area are very mature with numerous canopy gaps while younger stands are present in the northwest where logging has occurred more recently. Forests run to the Lake Superior shoreline with very little open shoreline between the lake and the upland forests (see photos 8 to 12, 17, 18, Appendix B).

One groundwater upwelling in the form of a spring, was observed within the B108 community in the northeast portion of the Study Area (see photo 30, Appendix B).

Wetlands are uncommon in the Study Area and occur as small areas predominantly near Lake Superior coastline (Figure 3, Appendix A). Wetlands, which are discussed below in Section 4.2.1.3, occupy 0.25% (0.26 ha) of the Subject Property and 0.47% (0.82 ha) of the Study Area and include:

- Intolerant Hardwood Swamp - B130: 0.10% (0.10 ha; see photo 12, Appendix B)
- Organic Meadow Marshes - B144: 0.04% (0.04 ha; see photos 1, 2, 13 and 14, Appendix B)
- Mineral Thicket Swamp - B134: 0.05% (0.05 ha; see photos 19, 20 and 21, Appendix B)
- Organic Thicket Swamp - B135 0.07% (0.07 ha; see photos 15, 16, 19, 20, and 21, Appendix B)

Non-vegetated areas occur as water and roads. There are no areas of open water on the Property, but Lake Superior occupies 17.8% (31.0 ha) of the Study Area. Gravel roads occupy 0.26% (0.45 ha) of the Study Area. Vegetation communities in the Study Area are described in Table 4.2 below.

Table 4-2: Vegetation Community Descriptions

Land Cover Type	Ecosite Name	Ecosite	Subject Property		Study Area	
			Area (ha)	Area (%)	Area (ha)	Area (%)
Upland	Fresh, Silty to Fine Loamy: Aspen - Birch Hardwood	B104	6.25	6.06	18.50	10.63
	Fresh, Silty to Fine Loamy: Mixedwood	B108	96.69	93.69	123.33	70.84
Subtotal Upland			*102.94*	*99.75*	*141.83*	*81.46*
Wetland	Intolerant Hardwood Swamp	B130	0.10	0.10	0.10	0.06
	Mineral Thicket Swamp	B134	0.05	0.05	0.05	0.03
	Organic Thicket Swamp	B135	0.07	0.07	0.07	0.04
	Organic Meadow Marsh	B144	0.04	0.04	0.60	0.34
Subtotal Wetlands			*0.26*	*0.25*	*0.82*	*0.47*
Non-vegetated	Water	-	-	-	31.00	17.81
	Road	-	-	-	0.45	0.26
Subtotal Non-Vegetated					*31.45*	*18.06*
Total			**103.20**	**100.00**	**174.10**	**100.00**

4.2.1.1 Vascular Plant Species

A single-season floristic survey was completed concurrently with the vegetation community survey in June 2023 and supplemented with observations from summer 2025. The nomenclature of plant species was based on those published by the NHIC (MNR 2025a). A detailed list with all scientific plant names and species statuses is provided in Appendix F.1. A summary of the floristic survey results is presented below:

- Thirty-seven (37) plant families were observed within the Study Area. Rosaceae (Rose) was the most abundant family (12 species) within the Study Area, followed by Asteraceae (Aster/ Daisy/Composite/Sunflower) (8 species).
- A total of 87 species of vascular plants were recorded. This total includes taxa identified to species, subspecies (ssp.) and variation (var.) level.
- Eighty-two (82) of the recorded species are native to Ontario (94%), and 5 are exotic species not native to Ontario (6%).
- Seventy-seven (77) native species have a provincial rank of S5, indicating they are common with a secure population in Ontario.

- Three (3) native species have a provincial rank of S4, indicating they are uncommon, but not rare in the province and populations are apparently secure.
- In addition to S-ranks, Ontario identifies potentially sensitive native plant species based on their coefficient of conservatism (CC) value (Oldham and Sutherland 1995). This CC value, ranging from 0 (low) to 10 (high), is based on a species' tolerance of disturbance and fidelity, or ability to thrive in a specific natural habitat. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters. One species (Erect-fruit Wintercress) with a CC of 9 was observed in the Study Area. No species with a CC of 10 were observed.
- No rare plant species in Ontario (S1, S2, S3) or plant SAR were observed within the Study Area.

4.2.1.2 Black Ash Survey

No Black Ash were observed within the Study Area during 2023 or 2025 field investigations.

4.2.1.3 Wetland Delineation and Evaluation

Species identified during the botanical inventory were cross-referenced with a Wetland Index (WI); a numerical value assigned to plant species based on the tendency of that species to occur in wetland habitats (Oldham et al. 1995). Any plant that is ranked with -2 to -5 WI indicates Facultative Wetland (i.e., usually occurs in wetlands, but occasionally found in non-wetlands) to Obligate Wetland (i.e., occurs almost always in wetlands under natural conditions). Seven (7) wetlands were delineated within the Study Area (Figure 3, Appendix A). Five (5) of the 7 wetlands observed within the Study Area are located on the shoreline of Lake Superior, thus qualifying as municipal significant coastal wetlands, according to the Plan (MOS 2021), including:

- Two (2) intolerant hardwood swamp (B130)
- One (1) mineral thicket swamp (B134/135)
- One (1) organic thicket swamp (B135)
- One (1) organic meadow marsh (B144)

No targeted fish community sampling surveys were completed as part of the field program; however, it is assumed the coastal wetlands provide habitat for fish.

The 2 remaining evaluated wetlands included a mineral thicket swamp (B134/135) located approximately 50 m west of Lake Superior in the northeast portion of the Subject Property; and an organic meadow marsh (B144) located in the northwest portion of the Study Area (Figure 3, Appendix A).

According to OWES guidelines (MNRF 2022), wetlands smaller than 2 ha are not evaluated, as they are not expected to score as significant. A rationale is required for evaluating any wetland between 0.5 ha and less than 2 ha. Furthermore, under the OWES guidelines (MNRF 2022), complexing is no longer supported. As a result, each non-contiguous wetland must be evaluated individually, provided it meets the minimum size threshold (generally 2 ha) and the necessary rationales are provided (0.5 ha to < 2ha). Wetlands within the Study Area were less than 2 ha. Wetland evaluations were not required under OWES

guidelines (MNRF 2022) and were not completed within the Study Area. Regardless, the wetland pockets in the Study Area would not be expected to score as significant, given their small size and lower diversity.

4.2.2 Amphibian Acoustic Survey

Five (5) amphibian species were recorded on ARUs during the 2023 and 2025 amphibian acoustic surveys, American Toad, Gray Treefrog, Spring Peeper, Boreal Chorus Frog, and Wood Frog (see Appendix F.2). Calling codes from the 2025 surveys for Spring Peeper ranged from 2 to 3 at survey locations BBA11 and BBA20; for Boreal Chorus Frog calls ranged from 1 to 2 BBA11; and for Grey Tree Frog calls were code 1 at BBA11.

All recorded amphibian species in the Study Area have S-Ranks of S4 or S5 and are common and widespread in Ontario (see Appendix F.2).

A summary of amphibian species recorded within the Study Area during 2025 is presented in Table 4.3 below (see Figure 3, Attachment A).

Table 4-3 Summary of Amphibian Species Recorded in the Study Area

ARU Location	Amphibian Species		
	Boreal Chorus Frog	Spring Peeper	Grey Tree Frog
June 17, 2025			
BBA11	1	3	None
BBA13	None	None	None
BBA16	None	None	None
BBA18	None	None	None
BBA22	None	None	None
June 18, 2025			
BBA11	2	3	1
BBA13	None	None	None
BBA16	None	None	None
BBA18	None	None	None
BBA22	None	None	None
June 19, 2025			
BBA20	None	2	None
June 20, 2025			
BBA20	None	2	None
June 21, 2025			
BBA20	None	3	None

4.2.3 Breeding Bird Point Count Survey

There were 31 bird species recorded within the Study Area during the 2025 breeding bird point count surveys including one SAR, Canada Warbler (listed as and threatened under SARA), which was recorded at 1 point count station (BBC08) in the B108 community within the Subject Property (Figure 4, Appendix A).

All other native bird species observed in the Study Area have S-Ranks of S4 or S5 and are common and widespread in Ontario. A summary of birds recorded during the 2025 breeding bird point count surveys is provided in Appendix F.2.

4.2.4 Breeding Bird Acoustic Survey

In total, there were 64 bird species recorded within the Study Area during the 2023 and 2025 breeding bird acoustic surveys including, Canada Warbler (listed as special concern under ESA and threatened under SARA). All other native bird species observed in the Study Area have S-Ranks of S4 or S5 and are common and widespread in Ontario (see Appendix F.2).

Canada Warbler was recorded at 7 ARU locations in 2023 (BBA01, BBA02, BBA04 through BBA08) and 7 ARU locations in 2025 (BBA15 through BBA20, BBA23) (Figure 4, Appendix A). A summary of birds recorded during the 2023 and 2025 breeding bird acoustic surveys is provided in Appendix F.2.

4.2.5 Nightjar Acoustic Survey

Nightjar acoustic surveys were completed generally following methodology outlined in the *Ontario Nightjar Survey Protocol* (OBBA 2021b). Common Nighthawk (listed as special concern under ESA and SARA) was recorded at 1 ARU location (BBA10) in 2023 but not in 2025 (Figure 4, Appendix A).

No vocalizations or auditory detections of Eastern Whip-poor-will were identified within the Study Area in 2023 or 2025. Results of the nightjar acoustic survey suggest an absence of Eastern Whip-poor-will or extremely low presence of Eastern Whip-poor-will and Common Nighthawk within the Study Area.

4.2.6 Pileated Woodpecker Nest Cavity Survey

A Pileated Woodpecker nest cavity survey was completed on June 10, 11 and 12, 2025 to identify trees with nesting cavities as described in Section 3.2.6. No Pileated Woodpecker nest cavities were observed within the Study Area; however, several foraging cavities were observed throughout the Study Area (see photos 28, 31, and 36, Appendix B).

4.2.7 Bat Maternity Roost Survey

Twenty (20) candidate bat roost trees were observed within the Study Area during the bat maternity roost survey (see Figure 3, Appendix A; see photos 29 and 31, Appendix B). Majority of these trees are large decadent Balsam Poplar with diameters greater than 25 cm and numerous cavities and loose bark. No areas with a density greater than 10 trees/ha were identified in the field studies. Additional smaller Eastern White Cedar trees with diameters less than 25 cm with cavities also occur sporadically in the east of the Study Area.

4.2.8 Bat Acoustic Survey

A total of 562 bat calls were identified within the Study Area during the acoustic bat survey. Of the 562 bat calls recorded, the following 375 calls of species and/or groups of species were captured:

- 9 Big Brown Bat or Silver-haired Bat calls
- 32 Big Brown Bat, Hoary Bat, or Silver-haired Bat calls
- 7 Big Brown Bat calls
- 18 Eastern Red Bat calls
- 27 Hoary Bat calls
- 53 Silver-haired Bat calls
- 222 Little Brown Myotis calls
- 42 *Myotis sp*., Tri-colored Bat, or Eastern Red Bat calls
- 39 *Myotis sp*.

Little Brown Myotis (303 potential calls) was the most abundant species documented; followed by Silver-haired Bat (94 potential calls), Eastern Red Bat (60 potential calls), Hoary Bat (59 potential calls), Big Brown Bat (48 potential calls), and Tri-colored Bat (42 potential calls). Bats were recorded at 1 ARUlocation. Only 1 Aru was deployed.

Eighty-one (81) calls were not long enough to determine species names; these calls could only be detected at the genus level (i.e., *Myotis sp*.), therefore, Eastern Small-footed Myotis and Northern Myotis have been identified as potential species present in the Study Area.

The number of bat calls does not represent the number of individuals present, because a single bat can result in multiple recorded calls by making several passes over a detector. However, the number of calls can generally be used as an index of bat activity.

4.2.9 Incidental Wildlife Observations

Twenty-three (23) incidental wildlife observations (wildlife not observed during targeted surveys) were recorded within the Study Area, including:

- One (1) insect (Tricoloured Bumble Bee; see photo 33, Appendix B)
- Three (3) amphibians (Green Frog, Spring Peeper)
- More than 100 tadpoles in B144 in the northwest corner of the Study Area
- Fifteen (15) birds (American Redstart, Black-and-white Warbler, Black-capped Chickadee, Canada Goose, Common Loon, Ruffed Grouse, Nashville Warbler, Northern Flicker, Northern Parula, Ovenbird, Red-eyed Vireo, Red-tailed Hawk, Ruby-throated Hummingbird, Song Sparrow, Yellow-bellied Sapsucker)
- Five (5) mammals [American Black Bear (print only; see photo 34, Appendix B), Beaver, Coyote (scat only; see photo 35, Appendix B), Red Squirrel (recorded on ARUs), White-tailed Deer)]

All native incidental observations have S-Ranks of S4 or S5 and are common and widespread in Ontario (see Appendix F.2).

4.2.10 Wildlife Habitat Assessment

In June and July 2025, four wildlife cameras (WC01 through WC04) were strategically placed across the site to monitor and assess wildlife activity (Figure 3, Appendix A), specifically mammal SAR (i.e., Gray Fox). WC01 detected noticeable motion on June 26, 2025, at approximately 2000hrs; however, no visible wildlife species were captured on the footage. WC02 recorded multiple sightings of a young White-tailed Deer, suggesting consistent use of the area. The White-tailed Deer was observed June 18, 2025 between 1200 and 1300 hrs, on June 22, 2025 at 1925 hrs, and reappeared on July 1, July 3, and July 6, 2025 (see photos 40 and 41, Appendix B). No wildlife activity was recorded on WC03 or WC04 during the monitoring period. No mammal SAR (i.e., Gray Fox) were recorded.

4.2.11 Species at Risk and Species of Conservation Concern

Based on the desktop review and preliminary habitat assessment within the Study Area using satellite imagery, a total of 17 SAR and 12 SOCC were carried forward to the SAR and SOCC habitat assessment (Appendix D). The SAR and SOCC habitat assessment used field survey results from vegetation community surveys and field surveys to assess the likelihood of occurrence for a SAR or SOCC that had the potential to occur. A brief description of the habitat requirements, suitable habitat observed within the Study Area, and the likelihood of occurrence are presented in Appendix D.

The 17 SAR included 1 plant, 3 fish, 4 bird, and 9 mammal species (Appendix D.1). The following SAR were assessed as having a medium or high likelihood of occurrence, or were confirmed within the Study Area during the field investigations:

- Fish SAR: Lake Sturgeon (high)
- Bird SAR: Canada Warbler (confirmed)
- Mammal SAR: Silver-haired Bat (confirmed), Eastern Red Bat (confirmed), Hoary Bat (confirmed), Eastern Small-footed Myotis (high), Little Brown Myotis (confirmed), Northern Myotis (high), Tri-colored Bat (high)

The 12 SOCC included 1 plant, 1 insect, 4 fish, 1 reptile, and 5 bird species (Appendix D.2). The following SOCC were assessed as having a medium or high likelihood of occurrence, or were confirmed within the Study Area during the field investigations:

- Plant SOCC: Yellow Specklebelly Lichen (medium)
- Insect SOCC: Monarch (medium)
- Fish SOCC: American Brook Lamprey (medium), Pygmy Whitefish (medium)
- Herptile SOCC: Snapping Turtle (high)
- Bird SOCC: Common Nighthawk (confirmed)

Potential Project impacts, recommended mitigation measures, and potential permitting requirements are discussed in Section 7 and Section 8 for species with a medium or high likelihood to occur and species that were confirmed (i.e., observed during field studies) with Study Area.

4.3 Significant Wildlife Habitat

The presence of the four categories of SWH described in Section 3.2.12 was assessed for the Study Area. A full SWH assessment is provided in Appendix G.

4.3.1 Habitats of Seasonal Concentrations of Animals

Habitats of seasonal concentrations of animals are those sites where large numbers of a species gather together at one time of the year, or where several species congregate. These areas include deer yards, turtle overwintering areas, snake and bat hibernacula, bat maternity colonies, waterfowl staging areas, raptor roosts, bird nesting colonies, shorebird staging areas, and passerine migration concentrations. Only the best examples of these concentration areas are usually designated as SWH.

Bat maternity colonies: large trees with cavities occur sporadically throughout the Study Area and 94 potential Silver-haired Bat calls were recorded within the Subject Property during the maternity roosting season within the Study Area during the 2025 targeted survey. For this reason, the Study Area provides habitat for candidate bat maternity colonies (Figure 5, Appendix A).

Amphibian breeding habitat: the organic meadow marsh (B144) located in the northwest corner of the Study Area and the wetland cluster which includes the hardwood swamp (B130), organic thicket swamp (B135) and the organic meadow marsh (B144) are greater than 500m^2. Although amphibian acoustic survey results indicated relatively low breeding frog populations, more than 100 tadpoles were observed within the Study Area and targeted salamander surveys were not completed (Figure 5, Appendix A).

Turtle wintering areas: Lake Superior within the Study Area may provide candidate turtle wintering areas (Figure 5, Appendix A).

4.3.2 Rare Vegetation Communities or Specialized Habitats for Wildlife

Rare vegetation communities and specialized habitats for wildlife are two separate components. Rare vegetation communities are those with vegetation communities that are considered rare in the province (e.g., S1-S3). The SWHTG (MNR 2000) identifies many habitats that could be considered specialized habitats, such as habitat for area-sensitive species, forests providing a high diversity of habitats, amphibian woodland breeding ponds, turtle nesting habitat, highly diverse sites, as well as seeps and springs. High quality habitat features generally occur within interior landscapes where habitat is not influenced by edge effects and wildlife mortality that are associated with major roadways.

Waterfowl nesting area: swamp (B130, B134/B135) and marsh (B144) communities within the Study Area may provide habitat for candidate waterfowl nesting areas (Figure 5, Appendix A).

Bald Eagle and Osprey nesting, foraging, and perching habitat Bald Eagle was recorded within the Study Area at ARU location BBA14 (Figure 3, Appendix A). This species might be using the Study Area for nesting, foraging, and/or perching.

Woodland raptor nesting habitat: forested communities (B104, B108) within the Study Area may qualify as candidate woodland raptor nesting habitat (Figure 5, Appendix A).

4.3.3 Habitat for Species of Conservation Concern

Habitat for SOCC includes four types of species: (a) those that are rare, (b) those whose populations are significantly declining, (c) those that have been identified as being at risk to certain common activities, and (d) those with relatively large populations in Ontario compared to the remainder of the globe. This category also includes nesting habitats for marsh, open country, shrub/early successional birds as well as terrestrial crayfish.

Marsh bird breeding habitat: two breeding marsh bird species (Common Loon, Sandhill Crane) were recorded using ARUs and swamp (B134/135) and marsh (B144) wetlands within the Study Area may provide habitat for candidate marsh bird breeding (Figure 5, Appendix A). Targeted marsh breeding bird surveys were not completed as part of the field program.

Habitat for other species of conservation concern: One SOCC (Common Nighthawk) was recorded within the Study Area during the 2023 field investigations in the mixed wood (B108) community. Candidate habitat for Yellow Specklebelly Lichen and Monarch may occur throughout all vegetated areas within the Study Area.

Candidate habitat for fish SOCC (American Brook Lamprey, Pygmy Whitefish) may occur in Lake Superior within the Study Area (Figure 5, Appendix A).

Candidate SWH for turtle SOCC (Snapping Turtle) is considered through Turtle Wintering Area and Turtle Nesting Areas.

4.3.4 Animal Movement Corridors

Migration corridors are areas that are traditionally used by wildlife to move from one habitat to another, typically to access different seasonal habitat requirements. Corridors requiring consideration in Ecoregion 3W include Amphibian and Deer Movement Corridors and are identified once significant amphibian breeding or deer winter features are confirmed. Results of field assessments for SWH are summarized in Appendix G.

Amphibian movement corridor: candidate amphibian breeding habitat is present within the Study Area and so amphibian movement corridors may also be present.

5 Natural Feature and Areas Summary

A summary of NHFA identified during the background review that were confirmed or have the potential to be present within the Study Area is provided in Table 5.1.

Table 5-1 Summary of Natural Heritage Features and Areas Within the Study Area

Type	Species/Feature	Description
Designated Natural Features and Areas	Protected Areas	The Subject Property and Adjacent Lands occur on lands designated as Protected Areas (Section 4.1.3).
	Lake Superior Regulated Area	The Subject Property and Adjacent Lands occur within the Lake Superior Regulated Area (see Section 4.1.3).
	LRCA Regulated Areas	The Subject Property and Adjacent Lands occur within LRCA regulation limits (see Section 4.1.3).
Waterbody	Lake Superior	One waterbody (Lake Superior) occurs within the Study Area. Lake Superior has a coldwater thermal regime (see Section 4.1.5).
Wetlands	Evaluated wetlands and significant coastal wetlands	Seven (7) evaluated wetlands, including 5 significant coastal wetlands were delineated within the Study Area (see Section 4.2.1.3; Figure 3, Appendix A). • Two (2) intolerant hardwood swamp (B130) • One (1) mineral thicket swamp (B134/135) • One (1) organic thicket swamp (B135) • One (1) organic meadow marsh (B144)
Fish Habitat	• Coldwater habitat • DFO Aquatic SAR Distribution	Lake Superior and coastal wetlands provide coldwater habitat for fish. Additionally, Lake Supeerior provides habitat for aquatic SAR (Lake Sturgeon, Shortjaw Cisco) (see Sections 4.1.5, 4.2.11 and Appendix D.1 and E).
Breeding and Migratory Birds	Migratory birds and their nests	Migratory birds and their nests are present within the Study Area (see Sections 4.2.3 and 4.2.4, and Appendix F.2).
Species at Risk	• Canada Warbler • Silver-haired Bat • Eastern Red Bat • Hoary Bat • Little Brown Myotis	Canada Warbler was recorded in the mixed wood (B108) community within the Subject Property (see Sections 4.2.3, 4.2.4, 4.2.11; and Appendix D.1). Silver-haired Bat, Eastern Red Bat, Hoary Bat, and Little Brown Myotis were recorded within the Subject Property (see Section 4.2.8, 4.2.11, and Appendix D.1).
Suitable habitat for Species at Risk	• Lake Sturgeon (Great Lakes - Upper St. Lawrence River population) • Shortjaw Cisco • Eastern Small-footed Myotis • Northern Myotis • Tri-colored Bat	The open water (OA) community associated with Lake Superior may provide suitable habitat for Lake Sturgeon (Great Lakes - Upper St. Lawrence River population), and Shortjaw Cisco within the Study Area. Bat SAR may use candidate roost trees or cavities and rock crevices/cracks (Eastern Small-footed Myotis only) for maternity/ summer roosting and open habitat for foraging (see Section 4.2.7, 4.2.8, 4.2.11 and Appendix D1).

Type	Species/Feature	Description
Candidate Significant Wildlife Habitat	Turtle wintering area	The open water (OA) community associated with Lake Superior may provide candidate turtle wintering areas within the Study Area (see Section 4.3.2 and Appendix G).
	Bat maternity colonies	The mixed wood (B108) community provides candidate habitat for bat maternity colonies within the Subject Property (see Section 4.3.1 and Appendix G).
	Amphibian breeding habitat	The organic meadow marsh (B144) located in the northwest corner of the Study Area and the wetland cluster which includes the hardwood swamp (B130), organic thicket swamp (B135) and the organic meadow marsh (B144) may provide candidate amphibian breeding habitat (see Section 4.3.1 and Appendix G).
	Waterfowl nesting area	Swamp (B130, B134/B135) and marsh (B144) communities within the Study Area may provide habitat for candidate waterfowl nesting areas (see Section 4.3.2 and Appendix G).
	Woodland raptor nesting habitat	Forested communities (B104, B108) within the Study Area may qualify as candidate woodland raptor nesting habitat (see Section 4.3.2 and Appendix G).
	Bald Eagle and Osprey nesting, foraging, and perching habitat	Bald Eagle was recorded within the Study Area at ARU location BBA14 (Figure 3, Appendix A). This species might be using the Study Area for nesting, foraging, and/or perching. (see Section 4.3.2 and Appendix G).
	Marsh bird breeding habitat	Two (2) breeding marsh bird species were recorded using ARUs and swamp (B134/135) and marsh (B144) wetlands within the Study Area may provide habitat for candidate marsh bird breeding (see Section 4.3.3 and Appendix G).
	Special Concern and Rare Wildlife Species (SOCC)	Rocks and trees within the Study Area provide candidate habitat for Yellow Specklebelly Lichen. Wildflowers throughout the Study Area may provide candidate nectaring for Monarch. The open water (OA) community associated with Lake Superior may provide candidate habitat for American Brook Lamprey and Pygmy Whitefish (Great Lakes - Upper St. Lawrence populations). Candidate SWH for turtle SOCC (Snapping Turtle) is considered through Turtle Wintering Area and Turtle Nesting Areas. Confirmed SWH for Common Nighthawk is present in the B108 community within the Subject Property. (see Section 4.3.3 and Appendix G).
	Amphibian movement corridor	Candidate amphibian breeding habitat is present within the Study Area and so amphibian movement corridors may also be present (see Section 4.3.4 and Appendix G).

6 Project Description

The proposed plan of subdivision for the Subject Property is provided in Appendix H and is shown in Figure 6, Appendix A. The plan comprises of 43 shoreline residential lots (Lots 1 through 43), 9 rural residential lots (Lots 44 through 52), 4 parkland blocks (Block 53 through 57) and 1 reserve block (Block 58). The existing Grann Drive will be extended to the southern boundary of the Subject Property, and one street will be developed through approximately the middle of the Subject Property to connect the extended Grann Drive to existing Road Number 5 South.

No in-water work or temporary vehicle crossings are required for the proposed subdivision development.

Site clearing and development of residential buildings and structures will not be completed by the Proponent. The Proponent is responsible for the development of driveways approximately 10 m long from Grann Drive to each of the residential lots.

7 Impact Assessment

The impact assessment assesses potential impacts that may reasonably result from Project activities and the subdivision development.

The assessment is divided into potential direct, indirect, and long-term impacts. Direct impacts are those that are anticipated to happen within a short duration (i.e., during or directly following site preparation or construction) and distance from Project activities (i.e., within the Project Footprint) and the subdivision development. Indirect impacts may be harder to define and detect but are anticipated to occur outside of the Project Footprint (i.e., in Adjacent Lands) and/or to have a delayed onset after the catalyzing factor is introduced.

Site-specific and standard recommendations are identified to mitigate potential impacts to natural features and enhance the natural heritage system where appropriate. Site-specific measures are recommended to address the specific natural heritage features and functions identified for the Subject Property and Adjacent Lands, while standard measures address strategies that are typically required for construction such as erosion and sediment control.

7.1 Direct Impacts

The extent of site clearing and development on each individual lot is unknown at the time of this report. This assessment is based on the conservative assumption that individual lot owners could clear their entire lot(s) for development except within 30m of wetlands and Lake Superior. As such, the proposed development could result in a total permanent direct loss of approximately 92 ha of natural vegetation for roads, shoreline residential lots, and rural residential lots (see Figure 3 and Figure 6, Appendix A for details), including:

- 3 ha of hardwood forest (B104)
- 89 ha of mixedwood forest (B108)

The results of the field surveys (Section 4.2) have determined that these features provide habitat for wildlife including, migratory birds, bird SAR (Canada Warbler), bat SAR, bird SOCC (Common Nighthawk), and SWH.

Direct impacts are anticipated in the direct footprint of the proposed subdivision development, and in temporary construction and access locations (i.e., the Project Footprint). Impacts are anticipated to result from the following activities: vegetation removal, excavation, vehicle operation and maintenance, vegetation planting following completion of construction, and permanent constructed footprint including buildings, roads, lanes, and pathways.

Potential adverse impacts that will be addressed through mitigation or avoidance include soil contamination; loss of evaluated wetlands, trees and vegetation; introduction of invasive species; and disturbance and loss of SWH, and wildlife and their habitat, including, migratory birds and SAR.

Lake Superior within the Study Area provides coldwater habitat for fish and aquatic SAR (Lake Sturgeon, Shortjaw Cisco). Lake Superior may provide candidate turtle overwintering areas and candidate SWH for fish SOCC (American Brook Lamprey, Pygmy Whitefish). Additionally, shorelines associated with Lake Superior occur within designated Protected Areas and the Lake Superior Regulated Area. No development is proposed within 30 m of Lake Superior; therefore, no Project-related direct impacts to these species, their habitat, or significant coastal wetlands are anticipated due to the proposed subdivision development.

A summary of potential direct impacts due to the proposed subdivision development is provided in Table 7.1.

Table 7.1 Summary of Direct Impact Assessment

Natural Feature	Potential Impact	Mitigation, Avoidance, or Enhancement
Wetlands and waterbody (Lake Superior)	No direct impacts to wetlands and/or waterbodies are anticipated. Potential degraded water quality through soil erosion and sedimentation as a result of clearing and grubbing, excavations, vegetation removals; vehicle and equipment leaks and refueling.	Installation of soil and erosion control measures such as sandbags, silt fencing, erosion mats, rip-rap, and mud mats; refueling and maintenance to be done on impermeable surfaces and at least 30 m from wetlands and Lake Superior; regular maintenance and inspection of vehicles; stockpile and backfill management (see Sections 7.4.1 and 7.4.2). Follow best management practices as outlined in the Plan (MOS 2021; see Section 7.4.3).
Fish and fish habitat (includes fish SAR/SOCC)	No direct impacts to fish and fish habitat are anticipated. Potential indirect impacts include degraded water quality through soil erosion and sedimentation as a result of clearing and grubbing, excavations, vegetation removals; vehicle and equipment leaks and refueling.	Implementation of DFOs *Measures to Protect Fish and Fish Habitat* (DFO 2024a) if construction activities are to occur within 30 m of fish habitat (see Section 7.4.4).
Trees and vegetation (includes plant SOCC)	Loss of trees and vegetation through clearing and grubbing for construction and development footprint. Potential invasive species introduction from all construction activities, carried in on equipment, vehicles, and workers. Change to flora diversity from vegetation removal and planting plan, post-construction vegetation monitoring.	Implementation of vegetation removal best practices and construction boundary fencing; revegetation in temporary work areas (see Section 7.4.5, 7.4.6). Implementation of strict invasive species management plan including proper cleaning and sanitizing of equipment entering or leaving the construction area (see Section 7.4.7).

Natural Feature	Potential Impact	Mitigation, Avoidance, or Enhancement
		Revegetation plans will include only native species and implementation of post-construction planting success thresholds will ensure invasive species are managed in planted areas (see Section 7.4.8.).
Turtle SOCC	Potential disturbance to turtle SOCC (Snapping Turtle) through clearing and grubbing for construction and development.	Exclusion fence should be installed around the proposed work area to prevent turtles from entering the work area (see Section 7.4.9.1).
Breeding and migratory birds and bird SAR/SOCC	Habitat loss and disturbance to migratory bird nests, bird SAR (Canada Warbler), and bird SOCC (Common Nighthawk) through vegetation clearing and during construction activities and development.	Conduct vegetation clearing activities outside of the primary nesting period for migratory birds where possible or conduct nest sweeps prior to vegetation removal; apply appropriate buffers to active bird nests (see Section 7.4.9.2).
Bat SAR and high-quality candidate roost trees	Habitat loss and disturbance to high quality bat roost trees and bat SAR through vegetation clearing and during construction activities and development.	Tree clearing should be restricted to timing windows for bats; suitable maternity roost tree removal should be avoided where possible (see Section 7.4.9.3).
Insect SOCC	Disturbance and loss of candidate SWH for insect SOCC (Monarch) through vegetation clearing and development.	When possible, limit vegetation clearing, especially in areas with flowering plants, to outside the active growing season (i.e., schedule clearing between October 1 and March 30), to maintain insect foraging and refuge habitat (see Section 7.4.9.4). Implement mitigation measures provided in Section 7.4.5, 7.4.7, and 7.4.8.
SWH: Candidate bat maternity colonies	Disturbance and loss of candidate habitat for bat maternity colonies through tree removal and vegetation clearing and development in the mixedwood community (B108).	Implementation of mitigation measures for bats as provided in Section 7.4.9.3.
SWH: Candidate amphibian breeding habitat	No direct impacts to candidate amphibian breeding habitat are anticipated. Potential indirect impacts include degraded water quality through soil erosion and sedimentation as a result of clearing and grubbing, excavations, vegetation removals; vehicle and equipment leaks and refueling.	Installation of soil and erosion control measures such as sandbags, silt fencing, erosion mats, rip-rap, and mud mats; refueling and maintenance to be done on impermeable surfaces and at least 30 m from wetlands and Lake Superior; regular maintenance and inspection of vehicles; stockpile and backfill management (see Sections 7.4.1 and 7.4.2). Follow best management practices as outlined in the Plan (MOS 2021; see Section 7.4.3).

Natural Feature	Potential Impact	Mitigation, Avoidance, or Enhancement
SWH: Candidate turtle wintering area	No direct impacts to candidate turtle wintering areas are anticipated. Potential indirect impacts include degraded water quality through soil erosion and sedimentation as a result of clearing and grubbing, excavations, vegetation removals; vehicle and equipment leaks and refueling.	Installation of soil and erosion control measures such as sandbags, silt fencing, erosion mats, rip-rap, and mud mats; refueling and maintenance to be done on impermeable surfaces and at least 30 m from wetlands and Lake Superior; regular maintenance and inspection of vehicles; stockpile and backfill management (see Sections 7.4.1, 7.4.2, 7.4.3, and 7.4.9.1).
SWH: Candidate waterfowl nesting area	No direct impacts to candidate waterfowl nesting area are anticipated. Potential indirect impacts include degraded water quality through soil erosion and sedimentation as a result of clearing and grubbing, excavations, vegetation removals; vehicle and equipment leaks and refueling. clearing and grubbing for construction and development adjacent to swamp (B130, B134/B135) and marsh (B144) communities.	Installation of soil and erosion control measures such as sandbags, silt fencing, erosion mats, rip-rap, and mud mats; refueling and maintenance to be done on impermeable surfaces and at least 30 m from wetlands and Lake Superior; regular maintenance and inspection of vehicles; stockpile and backfill management (see Sections 7.4.1 and 7.4.2). Follow best management practices as outlined in the Plan (MOS 2021; see Section 7.4.3). Implementation of mitigation measures for birds as provided in Section 7.4.9.2.
SWH: Candidate Bald Eagle and Osprey nesting, foraging, and perching habitat	Disturbance and loss of candidate Bald Eagle and Osprey nesting, foraging, and perching habitat through tree removal and vegetation clearing and development in the in mixedwood community (B108).	Implementation of vegetation removal best practices and construction boundary fencing; revegetation in temporary work areas (see Section 7.4.5, 7.4.6). Implementation of mitigation measures for birds as provided in Section 7.4.9.2.
SWH: Candidate woodland raptor nesting habitat	Disturbance and loss of candidate woodland raptor nesting habitat through tree removal and vegetation clearing and development in the in forested communities (B104, B108).	Implementation of vegetation removal best practices and construction boundary fencing; revegetation in temporary work areas (see Section 7.4.5, 7.4.6). Implementation of mitigation measures for birds as provided in Section 7.4.9.2.
SWH: Candidate marsh bird breeding habitat	No direct impacts to candidate marsh bird breeding habitat are anticipated. Potential indirect impacts include degraded water quality through soil erosion and sedimentation as a result of clearing and grubbing, excavations, vegetation removals; vehicle and equipment leaks and refueling. clearing and grubbing for construction and development adjacent to swamp (B134/135) and marsh (B144) wetlands.	Installation of soil and erosion control measures such as sandbags, silt fencing, erosion mats, rip-rap, and mud mats; refueling and maintenance to be done on impermeable surfaces and at least 30 m from wetlands and Lake Superior; regular maintenance and inspection of vehicles; stockpile and backfill management (see Sections 7.4.1 and 7.4.2). Follow best management practices as outlined in the Plan (MOS 2021; see Section 7.4.3). Implementation of mitigation measures for birds as provided in Section 7.4.9.2.

Natural Feature	Potential Impact	Mitigation, Avoidance, or Enhancement
SWH: Candidate amphibian movement corridor	No direct impacts to candidate amphibian movement corridors are anticipated. Potential indirect impacts include degraded water quality through soil erosion and sedimentation as a result of clearing and grubbing, excavations, vegetation removals; vehicle and equipment leaks and refueling.	Installation of soil and erosion control measures such as sandbags, silt fencing, erosion mats, rip-rap, and mud mats; refueling and maintenance to be done on impermeable surfaces and at least 30 m from wetlands and Lake Superior; regular maintenance and inspection of vehicles; stockpile and backfill management (see Sections 7.4.1 and 7.4.2). Follow best management practices as outlined in the Plan (MOS 2021; see Section 7.4.3).

7.2 Indirect Impacts

Inadvertent encroachment of heavy equipment, siltation and/or spills of deleterious substances, noise, and dust migration into natural features were identified as potential indirect impacts on wildlife and wildlife habitat from construction. These impacts may alter species composition by compacting and smothering vegetation and introducing substances that could be harmful to vegetation and wildlife, such as fuel used by construction vehicles and introducing new invasive species. Additional disturbance may be required to facilitate spill clean-up activities. Where they occur, these impacts are expected to be localized to the construction area and adjacent areas.

Indirect impacts on fish and fish habitat may result from the potential for sediment transport from exposed soil surfaces, potential entry of construction debris (e.g., concrete slurry, dust, etc.) into the water and spills associated with refueling of equipment. Suspended sediments increase turbidity of the water column, which can impair vision and subsequent feeding by fish that are sight-hunters. Suspended sediments can also abrade gill membranes leading to physical stress, and change prey organisms' behaviour (i.e., avoidance, etc.). Heavier sediments can deposit on coarser substrates that may be used for spawning, incubation of juvenile fish, or food production, thereby impacting those habitat functions.

The potential indirect impacts anticipated for the Project are common to various types of construction and can be controlled using standard mitigation measures for wetlands and waterbodies, fish and fish habitat, erosion and sediment control (ESC), control of deleterious substances, and during- and post-construction monitoring for vegetation establishment and soil containment (see Sections 7.4.1 to 7.4.8).

Indirect habitat loss is primarily associated with sensory disturbance. Sensory disturbance associated with construction and maintenance activities (e.g., noise from heavy equipment, lights) and operation (e.g., increased noise and vibrations due to increased vehicle traffic) has the potential to reduce habitat effectiveness and suitability. Wildlife species that reside near the Project may be deterred from using nearby habitat and result in wildlife displacement due to noise, vibrations, and increased human activity. Responses will vary by species and individuals and may affect breeding and rearing success for some wildlife species (Francis and Barber 2013, Singh et al. 2023). Potentially affected species may return after a period of acclimatization. SAR and wildlife near the Project are currently exposed to elevated levels of habitat degradation and anthropogenic disturbance (e.g., built residential areas in the northeast) and expected to be acclimatized to high levels of disturbance in the area.

Project-related indirect impacts to SAR and wildlife species are expected to be relatively localized and temporary in nature and are considered low in magnitude.

7.3 Post-development Impacts

Post-development impacts to features associated with residential development and increased human activity include:

- Light trespass into natural areas and associated disturbance to wildlife
- Increased presence of urban predators of breeding birds and other small wildlife species such as domestic cats, Blue Jay, American Crow, Common Grackle, Striped Skunk, and Raccoon
- Introduction of non-native invasive plant species
- Dumping garbage, garden waste, trampling of ground cover, and damage to trees

While buffers can assist in the mitigation of some of these effects, additional protection can be provided by restricting access to natural features to pathways and/or boardwalks and educating landowners on good stewardship practices (see Section 7.4.10).

7.4 Mitigation and Avoidance

7.4.1 Erosion and Sediment Control

The primary principles associated with sedimentation and erosion protection measures are to:

- Reduce the duration of soil exposure
- Retain existing vegetation, where feasible
- Encourage re-vegetation
- Divert runoff away from exposed soils
- Keep runoff velocities low
- Trap sediment as close to the source as possible

To address these principles, mitigation measures recommended for implementation during construction are described below.

- Reduce disturbance of ground vegetation outside to the extent possible to limit destabilization of soils near the work area.
- Use silt fencing and/or barriers such as sediment logs along all work zones where there is potential for sedimentation of wetlands, or inadvertent encroachment of construction vehicles into trees or natural areas.
- Do not permit equipment to enter natural areas beyond the barrier fencing.

- Avoid unnecessarily compacting soil by using soils or similar to distribute the weight of heavy equipment.
- Stockpiled materials will be isolated using silt fencing to contain the material and prevent it from entering natural areas.
- Stabilize all exposed soil areas (native seed mixes; sourced locally if possible) and revegetate through the placement of seed and mulching or seed and an erosion control blanket, promptly upon completion of construction activities.
- In addition to any specified requirements, extra silt fence and/or silt logs will be available on site, prior to grading operations, to provide a contingency supply in the event of an emergency.
- Monitor sediment and erosion controls regularly and properly maintain them as required. Controls are to be removed only after the soils of the construction area have been stabilized and adequately protected or until cover is re-established.
- Fence the limits of construction adjacent to natural features to be retained prior to construction and monitor during operations (along with sediment and erosion control measures) to maintain limits with respect to vehicular traffic and soil or equipment stockpiling.

7.4.2 Control of Deleterious Substances

The potential contamination impacts associated with the Project are in part from deleterious substances associated with vehicle leaks and refueling leading to soil contamination and degraded water quality. These impacts can be mitigated with regular vehicle maintenance and refueling management, including:

- Activities associated with vehicles, including maintenance procedures, will be controlled to prevent the entry of Petroleum products, debris, rubble, concrete, or other deleterious substances into the water.
- Vehicular refueling and maintenance will be conducted a minimum of 30 m from any aquatic resources to avoid potential impacts in the even that an accidental spill occurs.
- Fuel spill equipment will be available to manage emergency spill of deleterious substances.

7.4.3 Wetlands and Waterbodies

To reduce the likelihood of indirect impacts to wetlands and waterbodies (Lake Superior), the Proponent and future landowners should follow best management practices as outlined in the Plan (MOS 2021). Key mitigation measures to reduce potential impacts to shorelines from development are listed below:

- Limiting or prohibiting development on or upstream from lakes that are at capacity.
- Locating structures and on-site sewage systems where native soils are deepest and at the furthest distance possible from the shoreline. A minimum setback of 30 metres for all structures and sewage systems will be implemented through zoning.
- Providing a natural vegetated buffer of at least 30 metres from the normal high-water mark and minimizing the clearing of natural vegetation elsewhere on the site.

- Reducing lot grading and hard surfaces.
- Using grassed swales and/or vegetated filter strips on lots that require ditching to control runoff.
- Directing roof leaders to rear yard ponding areas, soak- away pits or to cisterns or rain barrels.
- Sump pumping foundation drains to rear yard ponding areas and infiltration trenches.

The Project should avoid construction activities within 30 m of wetlands and waterbodies, where possible. If construction activities including vegetation clearing and ground disturbance are required within 30 m of a wetland or waterbody, a permit from LRCA under Ontario Regulation 41/24 if required. Additionally, construction activities within wetland 30 m of wetlands, if permitted, should be restricted to outside the breeding season for amphibians (August 1 – March 30).

In addition, mitigation measures for sedimentation, erosion, and dust control should be implemented to prevent sediment and dust from entering wetlands and waterbodies (see Sections 7.4.1 and 7.4.2).

7.4.4 Fish and Fish Habitat

No in-water works are proposed for the Project and no direct Project-related impacts to fish species or their habitat are anticipated. If construction activities are to occur within 30 m of fish habitat, DFOs *Measures to Protect Fish and Fish Habitat* (DFO 2024a) should be implemented to avoid risks to fish and fish habitat including but not limited to:

- Maintain riparian vegetation
  - Maintain an undisturbed vegetated buffer zone between areas of on-land activity and the high water mark of any water body
  - use existing trails, roads or cut lines wherever possible
  - avoid tree removal
  - use methods to prevent soil compaction, such as swamp mats or pads
- Avoid-in-water work
- Install proper sediment and erosion control (see Section 7.4.1)
- Prevent entry of deleterious substances in water (see Section 7.4.2)

Future landowners should be advised to follow DFO's *Interim code of practice: repair, maintenance and construction of docks, moorings and boathouses* (DFO 2025b) which provides DFOs national best practices for the repair, maintenance and construction of residential docks, moorings and boathouses that are not intended for commercial and public use. This code of practice applies to the repair, maintenance and construction of docks, moorings and boathouses that are either floating or supported by pipes, piles, poles, anchors, concrete blocks or cantilever arms.

7.4.5 Vegetation

Mitigation measures for vegetation communities within the Study Area include the following:

- Clearly mark the limits of vegetation removal to reduce the likelihood of disturbance beyond the proposed construction limits.
- Limit tree, shrub, and meadow vegetation clearing to the extent possible. Revegetate with native species as soon as possible upon completion of construction activities.
- Inspect vehicles and heavy equipment to check they are clean and free of weeds before entering and leaving the Study Area. Follow the Clean Equipment Protocol for Industry (Halloran et al. 2013) to prevent the spread of invasive species into the Study Area.
- Develop a project-specific invasive plant management plan once the Project design is complete and the limits of disturbance are known. Invasive species may require additional management measures to prevent their spread into newly disturbed areas following construction. The Ontario Invasive Plant Council provides best management practices including mechanical and chemical control options for several of the weeds observed (https://www.ontarioinvasiveplants.ca/resources/best-management-practices/).
- Develop a project-specific tree protection plan, general tree protection measures are provided in Section 7.4.6
- Follow wildlife protection measures regarding vegetation clearing, including seasonal timing windows for vegetation removal, as outlined in Section 7.4.9

7.4.6 Trees

The Subject Property consists almost entirely of treed habitat (B104, B108) occupying approximately 99% of the Subject Property and 82% of the Study Area.

The Project will cause direct impacts to trees through removal and ground disturbance (e.g., topsoil stripping, grading, excavation) activities. Additional impacts to trees that are retained but are adjacent to construction include damage to the tree (e.g., damage to the trunk, crown) and roots (e.g., soil compaction, excavation within the critical root zone [CRZ]).

Development of a project-specific tree protection plan for the Project is recommended once the design is final. General tree protection and compensation measures are recommended below; final compensation requirements will be determined by the MOS:

- Where possible retain trees, especially healthy trees, through adjustments to the project footprint during detailed site design.
- Establish a buffer (i.e., 1.2 m high fencing) around the CRZ of trees to be retained that are adjacent to the construction area. The fence should be installed around the outer edge of the CRZ and remain in place until work is completed. The CRZ is defined as the area of land within a radius of 10 cm from the trunk of a tree for every 1 cm of trunk diameter. For trees with a DBH <10 cm, the CRZ is established as 1.5 m from the trunk (Appendix H).

- Monitor the health of trees adjacent to the construction area both during and after construction. Take photographs of the trees to be retained adjacent to the construction area, when the trees are in full leaf, if possible, to record their condition. If tree health declines, take immediate action and contact a Certified Arborist to provide recommendations for care of the damaged trees. Damage to trees may include but is not limited to physical damage on tree bark, broken branches, compaction of the root systems due to equipment and materials, cutting of the roots, and root exposure.
- Do not attach signs, notices, or posters to any tree.
- Do not damage the root system, trunk, or branches of any tree.
- Do not place any material or equipment within the CRZ of the tree.
- Do not raise or lower the existing grade within the CRZ. If re-grading is required within the CRZ, it should be performed by hand under the supervision of a Certified Arborist.
- Do not direct exhaust fumes from equipment towards any tree's canopy.
- Tunnel or bore when digging within the CRZ of any tree. All excavation within the CRZ should be by hand or hydro excavation. Roots that are exposed by construction activities should be covered with native topsoil immediately to lessen the likelihood of roots drying out or being further damaged.
- If necessary, prune limbs that overhang into the construction area on trees to be retained in a manner that lessens physical damage and promotes quick wound closure and regeneration. No more than one-third of the total branches should be removed during a single operation. The services of a Certified Arborist should be retained for this work.
- If root pruning is required, the services of a Certified Arborist or a Qualified Tree Worker under the supervision of a Certified Arborist should be retained.
- Once construction is completed, Stantec suggests the Proponent and future landowners assess the trees that were close to the construction for damage. If damage is found contact a Certified Arborist to review the trees and identify next steps.

7.4.7 Invasive Species Management

Potential impacts associated with the Project include invasive species introduction and spread by construction activities through transfer by equipment and/or workers. To prevent the introductions and spread of invasive species to new areas, the following measures will be implemented:

- Standard construction phase mitigation measures for ESC (Section 7.4.1) will reduce substrate disturbance to the extent possible and revegetate disturbed areas with desirable species as soon as possible following disturbance.
- Equipment, vehicles, and clothing (e.g., boots) coming on site will be inspected inside and out prior to entering the site for debris such as mud or accumulation of dirt, plant material or snow/ice. Vehicles will be inspected as close to the site entrance as possible.

- Equipment, vehicles clothing and boots with debris noted above will be cleaned in an area where risk of contamination is low, ideally on a mud free hard surface, at least 30 m away from Lake Superior or other drainage features, wetlands, or other natural areas. Where risk of runoff is high, cleaning stations should be contained by sediment fence as per standard erosion and sediment control specifications.
- Large, accumulated debris may be removed using a compressed air device, high pressure hose or other device as necessary. Clean the top of equipment and vehicles first and work down, with particular attention to the undersides, wheels, wheel arches, guards, chassis, engine bays, grills, and other attachments. Clean inside vehicles by sweeping, vacuuming, or using a compressed air device, including the floor, foot wells, pedals, seats and under the seats.
- Cleaning is complete when no accumulations of dirt or snow/ice are visible on the vehicle exterior, radiators, and grills, and the vehicle interior is free of dirt, plant material and snow/ice.
- Avoid driving or walking through any wastewater when exiting the cleaning site.
- Implement post-restoration monitoring to track vegetation establishment and implement actions to remove new invasive species if present.

7.4.8 Revegetation and Monitoring

Disturbed areas will be restored as soon as possible following constructions using native species that are suited to the site conditions, where possible. Naturalization in the park blocks and adjacent to existing natural features where possible is recommended. Plantings will incorporate a variety of native herbaceous and woody plants, including seed mixes and rooted material where appropriate. Plant material will be sourced locally if possible. Vegetation inspection will be completed during construction to document compliance with the planting plans (e.g., correct species and quantities were planted), and three-years of post-construction monitoring will occur to track vegetation establishment, including cover and species composition, and to recommend remedial actions. Remedial actions may be triggered by poor survival of planted material, insufficient vegetation cover, and presence of invasive species in planted areas. Actions may include supplemental plantings and/or control of unacceptable species.

7.4.9 Species at Risk and Wildlife

7.4.9.1 Turtles

The mitigation measures outlined below will reduce the likelihood of direct or indirect impacts to turtle SOCC (Snapping Turtle) and other turtles that may pass through the Study Area. Recommended mitigation measures for reptiles include the following:

- The active season for turtles occurs from March 15 and October 31. Turtles may pass through the Subject Property during the active season, especially in the spring or fall as turtles move from overwintering habitat to summer habitat. No pre-construction surveys are required; but if a turtle is observed at the Subject Project, it should be allowed to leave the area without being harassed.

- Reptiles are vulnerable in upland habitat (i.e., slow moving) and may be killed if struck by a vehicle or heavy equipment. Contractors should be aware of the potential for reptiles within the Study Area and be prepared to stop. Allow the reptile to leave the area on its own accord.
- Vehicle and equipment drivers should be alert for reptiles on the road and be prepared to stop. A speed limit of 30 km/h hour is recommended to reduce the likelihood of a reptile being struck while crossing, basking, and/or nesting on the roads within the Study Area.
- If a reptile is encountered on the road, the vehicle should stop and allow the reptile to cross and/or leave the road.
- If a turtle is struck and/or an injured turtle is found, the Ontario Turtle Conservation Centre (OTCC) (contact number 705-741-5000) should be contacted. The injured turtle should be placed in a well-ventilated container with a secure lid and no water. The OTCC will coordinate a Turtle First Response Centre to provide assistance. Even if the turtle is dead, the OTCC should be contacted because eggs can be harvested from recently deceased female turtles.
- If a reptile enters the construction work area, suspend all work within 30 m and allow the turtle to leave the area without being harassed.
- Install ESC as outlined in Section 7.4.1 when working near watercourse habitat.

7.4.9.2 Birds

The General Nesting Period (i.e., breeding season) for migratory birds in the Study Area (zone C5) is between late April 20 and late August 31 (ECCC 2025); however, Red Crossbill, a migratory bird protected under the MBCA recorded within the Study Area, has a breeding season in Ontario as early as January. The following mitigation measures are recommended to reduce the likelihood of harm to bird SAR (Canada Warbler), and nesting birds, including Red Crossbill:

- Schedule vegetation removal and construction activities to occur outside the migratory bird and Red Crossbill breeding season (i.e., schedule vegetation clearing and construction activities between September 1 and December 31 (ECCC 2025) when possible.
- Bird nest sweeps are not considered adequate mitigation in large and/or complex environments such as this Study Area. Therefore, nest sweeps conducted by a qualified biologist can only be used in cases of limited clearing (i.e., small area, small number of trees); otherwise clearing must be done outside of the breeding bird and Red Crossbill season.
  - A qualified biologist is a person with demonstrated experience in bird ecology and is skilled at visual and auditory identification of birds and at recognizing behavioral cues that indicate the presence of a nest.

- If a nest is located, a designated buffer will be delineated within which no vegetation clearing or construction activities will be allowed while the nest is active. The radius of the buffer will be determined by a qualified biologist and is established on a case-by-case basis. The qualified biologist will consider the species (e.g., sensitive, or rare), alert and flush distance (e.g., the distance at which the bird alerts to human presence and the distance at which the bird flushes from the nest), and the proposed activities (e.g., intensity, noise, duration) (ECCC 2025) when establishing the buffer.
- Once the nest is found to be inactive (e.g., the young have fledged the nest), clearing and other activities in the area may proceed.
- The nest search should be completed within 48 hours of the start of the planned activities due to the potential for birds to quickly establish nests (i.e., a bird may establish a nest after the survey is completed if the survey occurs more than 48 hours prior to planned activities).

Although, no Pileated Woodpecker nesting cavities were observed within the Study Area; evidence of foraging Pileated Woodpeckers was recorded. There is potential for Pileated Woodpecker to nest within the Study Area in the future. If a tree with a Pileated Woodpecker nesting cavity (or suspected) is scheduled for removal a qualified biologist should confirm if the nesting cavity is active.

- If a nest cavity is observed within the Subject Property and is inactive, the nest should be registered on the Registry for Abandoned Nests (https://www.permis-permits.ec.gc.ca/en/AbandonedNests).
- The nest must be abandoned (i.e., no Pileated Woodpecker or other species of nest) for 36 months before the tree can be removed.
- A qualified biologist should survey the nest cavity at least twice per breeding season during the 36-month period to confirm that it is inactive.

7.4.9.3 Bats

Project-related direct impacts to bats may include loss of summer and maternity roosting habitat through vegetation clearing. Indirect impacts may be associated with increased lighting and disturbance in the Project Footprint. Bats are vulnerable to disturbance during the summer roosting (April 1 through October 15) and maternity season (June 1 through July 31). The following mitigation measures are recommended to reduce the likelihood of harm to roosting bats during construction:

- Schedule tree removal/trimming and construction activities within or adjacent to potential roosting habitat may destroy or disturb summer/maternity roosting habitat (i.e., trees ≥10 cm DBH, buildings) outside of the summer/maternity roosting season (i.e., scheduled between October 16 and March 31).
- If limited tree clearing (individual trees) is needed during the summer/maternity roosting season, a search for active roosts is recommended following the methods outlined in the *Survey Protocol for Species at Risk Bats within Treed Habitats* (MNRF 2017a).

- The surveys should be completed immediately prior to planned activities as bats frequently change roosting locations. Bats are especially vulnerable between June 1 and July 31 when females have young and are lactating. Pups are immobile and are cared for in maternity roosts. Females may move their young to a different maternity roosting location every few days (MNRF 2015b).
- If a bat is observed to be using a tree or building as summer/maternity roosting habitat, tree removal should not be scheduled between April 1 through October 15 (summer/maternity roost season).
- The Proponent and future landowners should consult with MECP to determine if a permit or registration is required under species at risk legislation for bat SAR.

Bat SAR were recorded within the Subject Property and roosting and foraging habitat for bat species is present within the Subject Property. If bat SAR are confirmed to be using a tree planned for removal as summer/maternity roosting, registration under ESA may be required.

7.4.9.4 Monarch

Monarch is vulnerable to direct disturbance during the active season (spring, summer, and fall) season. Project-related activities during the active season could result in direct mortality through the destruction of foraging habitat. Monarch are habitat generalists associated with open habitats such as meadows, fallow fields, roadside ditches, and wetlands where they forage on flowering plants (i.e., nectaring habitat). The Study Area contains abundant suitable foraging habitat for Monarch.

The following recommendations are provided for Monarch:

- Include nectar producing plants in restoration seed mix(es) to provide habitat for Monarch.
- Avoid pesticide use in the Study Area and limit application as much as possible.
- Monarchs are migratory and do not overwintering in the Study Area; therefore, no winter mitigation measures are required.
- Limit vegetation clearing, especially in areas with flowering plants that Monarch may forage on, to outside the active plant growing season when Monarch may be present (i.e., clear outside of April 1 to September 30), to maintain insect foraging and refuge habitat.

7.4.10 Stewardship

Landowners should be provided educational material outlining the NHFA in their neighborhood and good stewardship practices to promote long-term protection of the features. Materials may include brochures that are distributed to new landowners, and/or signs installed at visible locations at the edge of features.

8 Authorization Requirements

8.1 Federal

Project-related activities will have direct and indirect impacts to federal SAR and/or their habitat as discussed in Section 7. Authorization under the SARA may be required for fish and migratory bird species designated under Schedule 1 of the federal SARA as threatened or endangered, and/or their habitat. It is recommended the Proponent and future landowners consult with ECCC and DFO to determine mitigation and permitting requirements under SARA for Shortjaw Cisco (threatened under Schedule 1) and Canada Warbler (threatened under Schedule 1).

Additionally, Pygmy Whitefish (Great Lakes - Upper St. Lawrence populations) is under consideration to be added to Schedule 1 and may be listed as threatened or endangered under Schedule 1 by the time the Project is scheduled to begin.

Mitigation measures for SAR are presented in Section 7.

Per the MBCA, the damage, destruction, removal, or disturbance of migratory bird nests is prohibited along with the killing or capturing of migratory birds. Permitting is generally not available under the MBCA. As such, compliance with the MBCA is achieved through avoidance of impacts. Mitigation measures for potential impacts to migratory birds are provided in Section 7.4.9.2.

8.2 Provincial

Project-related activities will have direct and indirect impacts to provincial SAR and SAR habitat as discussed in Section 7. Authorization and/or registration under the ESA may be required for work that could affect the habitat of a threatened or endangered wildlife species as listed on the SARO list. It is recommended the Proponent and future landowners consult with MECP to determine mitigation and permitting requirements under the ESA for the following SAR that are known to occur or have the potential to occur within the Study Area:

- Eastern Red Bat (listed as endangered under SARO)
- Eastern Small-footed Myotis (listed as endangered under SARO)
- Hoary Bat (listed as endangered under SARO)
- Little Brown Myotis (listed as endangered under SARO)
- Northern Myotis (listed as endangered under SARO)
- Silver-haired Bat (listed as endangered under SARO)
- Tri-colored Bat (listed as endangered under SARO)

It is expected the *Species Conservation Act* will be enacted in the coming months. Consultation with MECP is recommended to determine current requirements under the applicable species at risk legislation. Mitigation measures for SAR are presented in Section 7.

8.3 Conservation Authorities Act

The Study Area is located within the LRCA Regulated Area (O.Reg. 41/24). Prior to any new development or site alteration, including the placement or removal of fill material, grading activities, and the erection of any buildings or structures within the regulated area, and/or the alteration of regulated features, the Proponent and future landowners will require written approval (i.e., a Permit or a Letter of Permission) from the LRCA.

9 Summary and Conclusion

This report was prepared to document natural features that require consideration through the development application process and may pose constraints to development, including features that are protected by the Plan (MOS 2021) and other relevant legislation and policy.

The results of the background review and field investigations documented the following NHFA within the Study Area:

- Protected Areas
- Lake Superior Regulated Area
- LRCA Regulated Areas
- Waterbody (Lake Superior; Figure 2, Appendix A))
- Evaluated wetlands and significant coastal wetlands (Figure 3, Appendix A)
- Fish and fish habitat (Lake Superior and coastal wetlands; Figure 2, Appendix A)
- Bird SAR (Canada Warbler; Figure 4, Appendix A)
- Bat SAR (Silver-haired Bat, Eastern Red Bat, Hoary Bat, Little Brown Myotis)
- Suitable habitat for fish SAR [Lake Sturgeon (Great Lakes - Upper St. Lawrence River population), Shortjaw Cisco]
- Suitable habitat for bat SAR (Eastern Small-footed Myotis, Northern Myotis, Tri-colored Bat; (Figure 3, Appendix A)
- SWH – candidate bat maternity colonies (Figure 5, Appendix A)
- SWH – candidate amphibian breeding habitat (Figure 5, Appendix A)
- SWH – candidate turtle wintering area (Figure 5, Appendix A)
- SWH – candidate waterfowl nesting area (Figure 5, Appendix A)
- SWH – candidate Bald Eagle and Osprey nesting, foraging, and perching habitat
- SWH – candidate woodland raptor nesting habitat (Figure 5, Appendix A)
- SWH – candidate marsh bird breeding habitat (Figure 5, Appendix A)
- SWH – confirmed SOCC (Common Nighthawk; Figure 4, Appendix A)
- SWH – candidate SOCC (Yellow Specklebelly Lichen, Monarch)
- SWH – candidate amphibian movement corridor

Recommendations were provided to protect the NHFA including measures to mitigate and avoid potential impacts to NHFA where appropriate, detailed in Section 7. These measures include:

- Standard measures for construction, including environmental monitoring
- Thirty (30) m buffers from wetlands and waterbodies
- Implementation of DFOs *Measures to Protect Fish and Fish Habitat* (DFO 2024a) if construction activities are to occur within 30 m of fish habitat
- Advising future landowners to follow DFO's *Interim code of practice: repair, maintenance and construction of docks, moorings and boathouses* (DFO 2025b) for repair, maintenance and construction of docks, moorings and boathouses
- Enhancement plantings and revegetation, where possible
- Timing restrictions to avoid wildlife during sensitive periods, such as bird/bat SAR, breeding birds and maternity roosting bats
- Restricting access to natural features to single pathways and/or boardwalks
- Educating landowners about NHFA in their neighborhood and instilling good stewardship practices by distributing brochures to new landowners and/or installing signs at visible locations at the edge of features

Consultation with the MECP, DFO and ECCC is recommended to determine mitigation and authorization requirements for SAR.

Consultation with LRCA is recommended prior to any new development or site alteration within the LRCA regulated area, and/or the alteration of regulated features to determine authorization requirements.

10 References

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