

## Appendix I Barn Swallow Mitigation and Restoration Record

### I.1 Introduction

The Endangered Species Act (ESA) 2007 was created to protect Species at Risk (SAR) and their habitats in Ontario. Endangered, threatened and extirpated species listed on the Species at Risk in Ontario (SARO) list automatically receive legal protection from harm or harassment and general habitat protection under the ESA 2007.

Barn swallow was added to the SARO List as a Threatened species in May 2011. As such, it is afforded general habitat protection because a species-specific habitat regulation has not yet been developed. The Barn Swallow is an aerial insectivorous bird and, like many other aerial insectivores, has experienced very large population declines since the 1980s. Barn swallows typically nest on man-made structures (e.g., sheds, barns, bridges,) and forage over water and other open areas. A draft recovery strategy has been issued by the Ministry of Natural Resources and Forestry (MNRF) (Heagy, et al. 2014).

When the ESA came into effect in 2007, proponents were required to obtain a permit from the Minister of Natural Resources and Forestry for activities which would contravene the ESA. On July 1, 2013, Section 23.5 of Ontario Regulation 242/08 of the ESA came into force (hereafter referred to as the 'Regulation'). Provisions contained within the Regulation allow individuals and businesses to undertake eligible development activities within the habitat of barn swallow by registering with the MNRF and following the rules outlined within the Regulation.

Through field work, barn swallows were confirmed nesting in two buildings that require removal by GGM.

This activity (building removal) is eligible for the Regulation (as further described in Section I.1.1) and as a result the following Mitigation and Restoration Record (MRR) has been developed. This MRR has been prepared prior to commencing the activity; it was completed on January 29, 2019. As per the requirement of the Regulation, this MRR includes:

- The name and contact information of the person who is proposing to carry out the activity (Section I.2.1)
- A description of the activity including the proposed start and end dates (Section I.2.2)
- A description of the buildings/structures impacted by the project (Section I.2.3; Figure 2, Attachment I2)
- The number, location, and description of barn swallow nests located on the building or structure and the amount of area suitable for nesting that the building or structure provides (Section I.2.4)
- Steps to minimize adverse effects (Section I.3)

This MRR also includes:

- A description of the replacement habitat (Section I.4)
- Details on the monitoring and reporting requirements (Sections I.5 and I.6)

This MRR was developed for Greenstone Gold Mines GP Inc. (GGM) by qualified professionals following the requirements outlined in the Regulation and in accordance with best available scientific knowledge on Barn Swallow nest habitat requirements.

### *1.1.1 Eligibility for Regulation*

#### ***Eligible Activities***

Activities that are eligible for the barn swallow Regulation include the maintenance, repair, modification, replacement or demolition of a building or structure that provides barn swallow habitat.

GGM requires the removal of two buildings which provide barn swallow habitat.

#### ***Notice of Activity Form***

In addition to creating an MRR, proponents of eligible activities must submit a Notice of Activity Form to the MECP Registry prior to commencing the activity.

Prior to undertaking the activity (i.e., removing the buildings) a Notice of Activity Form will be submitted to the MECP Registry to enter into the Regulation for barn swallow.

#### ***Confirmation of Registration from MNRF***

Once received, confirmation of receipt of the Notice of Activity Form from the MECP will be included in Attachment I1.

## **I.2 Project Activity**

### *1.2.1 Person Conducting the Activity*

Primary Contact (i.e. accountable person for the company)

Name:	Steve Lines
Organization:	Greenstone Gold Mines GP Inc.
Mailing Address:	2381 Bristol Circle, Suite B203, Oakville, ON L6H 5S9
Telephone (work):	(514) 604-4459

On-site Contact/ Permitting Coordinator:

Name: Shane Hayes  
Organization: Greenstone Gold Mines GP Inc.  
Mailing Address: 135 Hardrock Road, Geraldton ON, P0T 1M0  
Telephone (work): (807) 228-0373

### *1.2.2 Description of Activity*

Greenstone Gold Mines GP Inc. (GGM) proposes to construct, operate, and ultimately decommission/close a new open pit gold mine, process plant, and ancillary facilities, collectively known as the Hardrock Project (the Project). As part of the development of the Project, GGM requires the removal of two buildings that provide Barn Swallow habitat (the Activity). Barn swallow nesting was confirmed within two buildings in the Ontario Ministry of Transportation (MTO) Patrol Yard: the dome and a garage.

#### ***Location of Activity***

Civic Address: #135 Hardrock Road, Geraldton, ON, P0T 1M0

MTO Building UTM Coordinates: NAD 83 Zone 16 U Easting 505501 Northing 5503808

Municipality of Greenstone, Ward of Geraldton

OMNRF District: Nipigon

Ecoregion: 3W

Map of Location of Activity: Figure 1 (Attachment I2)

#### ***Proposed Start and Completion Dates of the Activity***

The Activity is anticipated to be undertaken in Q1 (January to March) 2021. Removal of the MTO buildings is expected to be completed within XX days/weeks (Placeholder – to be verified during final compilation of Barn Swallow Mitigation and Restoration Record.)

### *1.2.3 Description of Structure to be Destroyed*

The nests were identified within two buildings in the MTO Patrol Yard: the dome and a garage. The dome is a traditional wooden dome structure, used for storage of sand. The structure contains an opening at the front and the roof is lined with wood beams.

The garage is a relatively small structure, with an opening at one end and wood crossbeams across the roof.

A photo log of the structures is provided in Attachment I3.

#### *1.2.4 Description of Barn Swallow Nests*

A field investigation was conducted in June 2016 during which a total of 15 active barn swallow nests were identified (two in the MTO garage and 13 in the MTO dome). A total of 14 individuals were observed flying in and out of the two buildings. The location of the nesting structures is shown in Figure 1, Attachment I2.

Given the time between the previous nesting survey (2016) and the proposed removal of the buildings (2021), a survey to document barn swallow nesting activity within the MTO buildings is recommended in 2019 and 2020. The results of these surveys will be used to adjust this MRR as required.

### **I.3 Steps to Minimize Adverse Effects**

The following subsections describe the steps that will be taken to minimize adverse effects of the activity on Barn Swallow nesting habitat.

#### *1.3.1 Mitigation Measures*

No part of any activity that is likely to damage or destroy the habitat of barn swallow or kill, harm, and harass barn swallow will occur between May 1 and August 31 of any year. This timing window corresponds with the breeding, nesting, and rearing period for barn swallow, so any potentially harmful activities must not take place while birds are on site.

The removal of the structures is currently anticipated to occur between January and March 2021, outside of the barn swallow breeding window.

#### *1.3.2 Habitat Compensation*

Habitat compensation will be provided by the construction and installation of new barn swallow nesting structure(s) with artificial nest cups.

The purpose of installing new barn swallow nesting structure(s) with artificial nest cups is to provide long-term replacement habitat to offset the proposed removal of the MTO buildings. The replacement habitat will be in place prior to May 2021 so that it will be available for the 2021 nesting period. The creation of barn swallow replacement habitat will be undertaken in compliance with the Regulation and based on best available information.

The Regulation requires each lost nest to be replaced with one artificial cup nest, in accordance with the details set out below for a minimum of three years.

At least 15 nest cups will be installed. The number of nest cups may be adjusted based on the results of the 2019 and 2020 monitoring.

### *1.3.3 Location of Replacement Habitat*

The replacement habitat will be located within the Municipality of Greenstone, Ward of Geraldton, Nipigon OMNRF District and EcoRegion 3W.

The Regulation requires that the replacement habitat be located within 1 km of the structure that will be removed and within 200 m of suitable barn swallow foraging habitat.

A 1 km radius from the MTO Patrol Yard buildings is indicated on Figure 1, Attachment I2. The location of the replacement habitat will be determined with consideration of this radius. Placement will also consider ease of access (for construction and monitoring purposes), foraging habitat proximity (Kenogamisis Lake is considered to provide foraging habitat) and maximizing distance from Project-related activities to the extent feasible.

This MRR will be updated with the location of the replacement habitat once it is finalized.

### *1.3.4 Description of Replacement habitat*

Barn swallow nests are predominantly located on artificial structures in rural areas. Suitable artificial structures include: open barns, garages, sheds, verandahs, bridges, road culverts, and houses. These structures provide important nest site characteristics including a horizontal surface (e.g., rafter, ledge) or a vertical face, sheltered by some type of overhang. Suitable nest sites include beams, posts, light fixtures, and ledges over windows and doors (COSEWIC 2011). Nesting structures are often located in proximity to open foraging habitat (e.g., hay and pasture farmland, meadows, wetlands, forest clearings, and parkland) and sites that provide mud for nest building (e.g., creeks, wetlands) (COSEWIC 2011). Recommendations for the replacement habitat were developed based on the Regulation, recovery planning documents, and current scientific literature.

### *1.3.5 Artificial Nest Structures*

Provisioning of the artificial nest structures will be made in accordance with the following parameters as outlined in the Regulation, with additional recommendations as per MNRF's Best Practices for Creating Nesting Habitat for Barn Swallows (MNRF 2014) and Bird Studies Canada's Artificial Nesting Structures guidelines (BSC 2013) included in brackets:

- Provide horizontal ledges or rough vertical surfaces with a sheltered overhang
- Provide surface areas suitable for nest attachment (rough wood is a preferred construction material (smoothly planed or painted wood, aluminum and plastic materials should be avoided as Barn Swallow nests do not usually adhere well to these materials [MNRF 2014]))

- Provide all nest attachment areas at a height that minimizes disturbance and predation to Barn Swallow nests (nest sites >8 ft above ground [BSC 2013], nest cups should be placed so that there is between 2.5 to 6 cm between the top of the nest and the ceiling [MNRF 2014])
- Provide all nest attachment areas in a way that minimizes predation (install baffles, shields or sheet metal cylinders on the poles of the structure [MNRF 2014])
- Allow barn swallows to freely enter and exit nests
- Provide suitable area to accommodate appropriate spacing between nests (see Section I.3.6)
- Be structurally sound, and capable of providing habitat on a long-term basis

### *1.3.6 Artificial Nest Cups*

In addition to providing a suitable nesting structure within the appropriate proximity to required habitat, the Regulation also requires the provisioning of artificial nest cups to substitute for removed nest(s) at a ratio of 1:1. Therefore, to compensate for the removal of 15 nests, at least 15 nest cups will be installed following the parameters detailed in the Regulation, that is:

- On horizontal ledges or rough vertical surfaces with a sheltered overhang
- On surface areas suitable for nest attachment at a height that minimizes disturbance and predation to the nests (see Section I.3.5)
- Installed with appropriate spacing between the nesting cups (2 to 4 m between nests, or can be as close as 60 cm if visual barriers that limit visibility of neighbouring nests are present [MNRF 2014])

### *1.3.7 Habitat Management*

As per the Regulation, the building or structure constructed or modified must be maintained for a period of three (3) years. Installment of the replacement habitat will occur prior to the 2021 nesting season for Barn Swallow as described in Section I.4.

The condition of the replacement habitat will be recorded during monitoring surveys (see Section I.5). Any repair or maintenance required will be reported to the Environmental Superintendent and will be addressed.

## I.4 Monitoring

### *I.4.1 Impact Monitoring*

Given the time between the previous nesting survey (2016) and the proposed removal of the buildings (2021), surveys to document Barn Swallow nesting activity associated with the MTO buildings is recommended in 2019 and 2020. The MTO buildings and other buildings suitable for Barn Swallow nesting that require removal for the Project should be monitored during the core breeding season (i.e., June) to document the number of active nests.

The results of these surveys will be used to adjust this MRR as required. Impact monitoring methods will be consistent with the methods described for replacement habitat monitoring in Section I.4.2.

### *I.4.2 Replacement Habitat Monitoring*

This section describes the monitoring that will be undertaken to assess the effectiveness of mitigation efforts and the beneficial actions.

The replacement habitat will be surveyed annually for three years to document nesting activity and structure use. Up to two surveys will be completed by a qualified ecologist, with the first visit occurring during the core breeding period for the species (i.e., June). Timing of the second visit will be decided based on nest status as determined during the first visit, ideally timed to return when young are present such that nest success may be determined (i.e., late June to mid July).

Weather conditions (i.e., precipitation and visibility) on each of the surveys will be within the parameters required by monitoring programs such as Environment and Climate Change Canada's (ECCC) Breeding Bird Survey, the Ontario Breeding Bird Atlas, and the Ontario Forest Bird Monitoring Program. Timing restrictions on surveys are not required as barn swallows are active throughout the day, particularly when adults require constant foraging trips to collect and retrieve food for nestlings.

Each survey will consist of an inspection of the interior of the replacement habitat, recording the following details, as prescribed by the Regulation:

- The number, description and location of new nests created by barn swallows; and
- An estimate of the number of barn swallows using the structure.

Artificial nest cups will be visually inspected (from the ground and/or using a mirror on a pole if required) and all species observed, in addition to barn swallow, will be recorded. Emphasis will be placed on nesting House Sparrow observations, as this species is known to usurp and directly compete with barn swallows for nesting sites, particularly those nesting near barn entrances (COSEWIC, 2011).

The barn swallow nest monitoring is required for three years by the Regulation.

If no nesting is recorded, best available science will be reviewed to determine whether there are any additional actions that could feasibly be implemented to promote nesting (e.g., broadcasting calls).

## 1.5 Reporting

In accordance with paragraph 23.5 (4) of the Regulation, a Monitoring Record and a report to the Natural Heritage Information Centre (NHIC) must be completed annually for each of the three years of habitat management and monitoring. In addition, in accordance with paragraph 23.5 (11) of the Regulation, the Barn Swallow Mitigation and Restoration Record should be updated “from time to time” (O. Reg. 23(5)(11)).

The reports required in relation to this Activity are described below. These reports will be completed annually for each of the three years of habitat management and monitoring.

1. NHIC Report - A report to the NHIC will be made by completing the Ontario Species at Risk Observation Reporting Form. The report will include the species, number of individuals, date and location of the observations, and all other information requested on the form. The reporting form will be submitted within 3 months of the completion of each year of annual monitoring.
2. Monitoring Record - A record will be kept of the annual monitoring including the number, description and location of new nests created by barn swallow, and an estimate of the number of barn swallow using the structure.
3. MRR Update - This MRR will be updated with:
  - Documentation of all steps taken to minimize adverse effects;
  - Details on artificial nesting structure installation;
  - Details on nest cup installation;
  - Data and information collected during the monitoring program (i.e., the Monitoring Record); and
  - Any changes required to the original MRR.

## 1.6 Closure

It is the responsibility of Greenstone Gold Mines GP Inc. to follow the Rules in the Regulation contained within Section 23.5 of the Regulation including undertaking the Activity in accordance with this MRR. Further, the following action items will be completed to maintain compliance with the Regulation and under the ESA:

- A copy of this MRR will be retained until at least two years after monitoring is complete.
- A copy of this MRR will be provided to the MECP within 14 days of receiving a request for it.



This MRR was prepared by Stantec Consulting Ltd. on behalf of Greenstone Gold Mines GP Inc.

***Person Responsible for Creation of this MRR:***

Name: Melissa Cameron

Organization: Stantec Consulting Ltd.

Mailing Address: 600-171 Queens Avenue, London ON N6A 5J7

Telephone (work): (519) 645-2007

Email: melissa.cameron@stantec.com

Qualifications of the person who prepared this MRR are provided in Attachment I4.

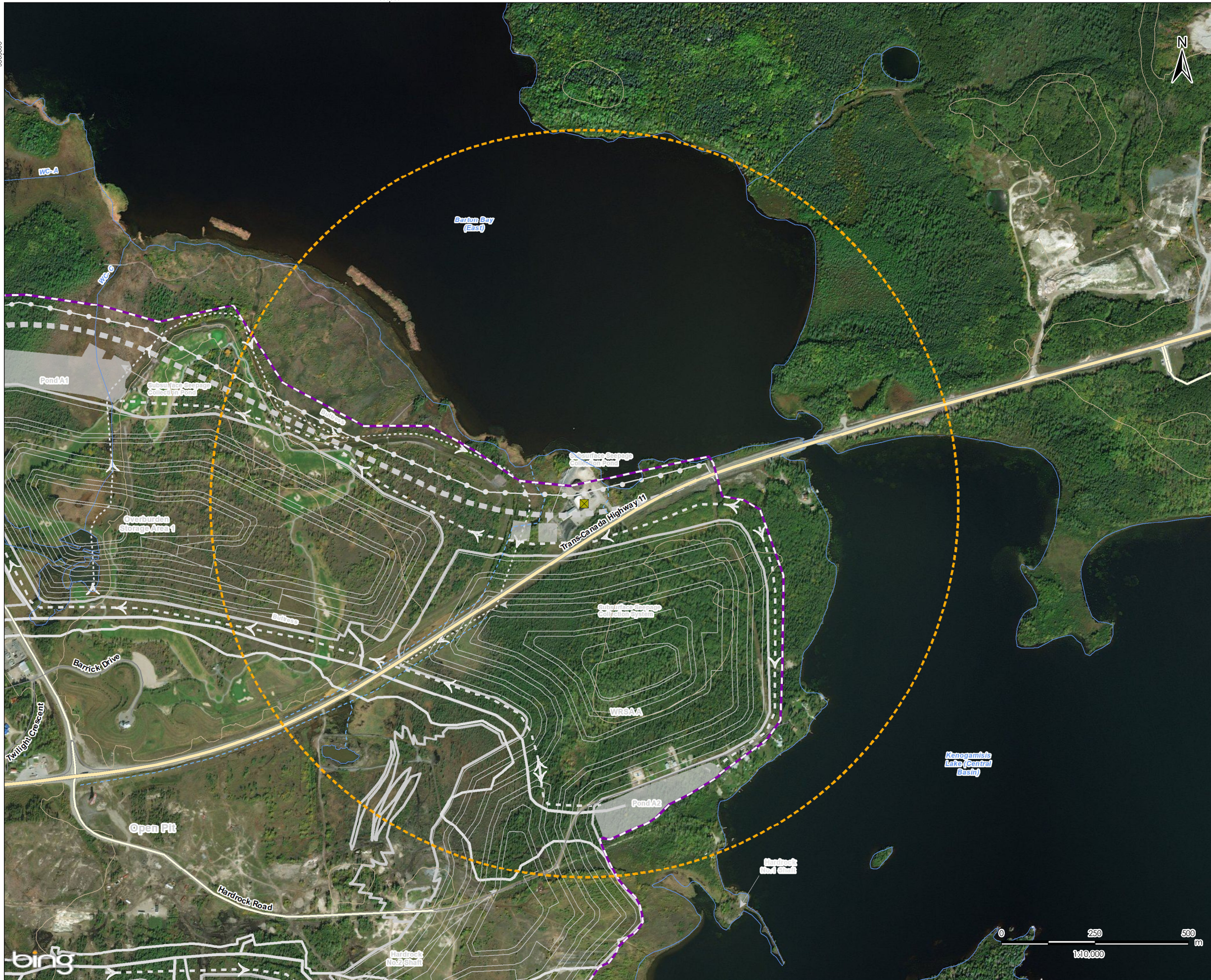
# ATTACHMENT I1 MNRF CONFIRMATION OF REGISTRATION

*(will be included in final submission)*

ATTACHMENT I2  
FIGURE 1: BARN SWALLOW MITIGATION

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**Legend**

- Project Development Area
- MTO Patrol Yard (Barn Swallow Habitat)
- MTO Patrol Yard 1 km Buffer
- Contour Line (10 m intervals)
- Highway
- Major Road
- Local Road
- Watercourse- Permanent
- Watercourse- Intermittent
- Waterbody

**Notes**

1. Coordinate System: NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2015.
3. Imagery Source: © 2018 Microsoft Corporation © 2018 DigitalGlobe © CNES (2018) Distribution Airbus DS  
Imagery Date: Unknown

September 2018  
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Client/Project  
Greenstone Gold Mines GP Inc. (GGM)  
Hardrock Project  
Information Gather Form Figures

Figure No.  
**1**

Title  
**Barn Swallow Mitigation**

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Revised: 2018-09-18 By: dharvey



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**ATTACHMENT I3**  
**PHOTOLOG OF THE STRUCTURES TO BE REMOVED**



Photo 1: MTO Patrol Yard



Photo 2: Sand Dome exterior



Photo 3: Sand Dome interior



Photo 4: Sand Dome interior. Barn Swallow Nests Visible.



Photo 5: Garage exterior



Photo 6: Garage interior



Photo 7: Garage Interior. Barn Swallow Nest Visible.

# ATTACHMENT I4 QUALIFICATIONS

*(will be included in final submission)*