NOVA SCOTIA
Environment

Comment Index

Granite Village Quarry Expansion Project

Publication Date: May 11, 2023

Government

Number	Source	Date Received
1	NS Environment and Climate Change – Protected Areas	March 29, 2023
2	Impact Assessment Agency of Canada	April 3, 2023
3	Department of Fisheries and Oceans	April 3, 2023
4	NS Environment and Climate Change – ICE Inspector	April 12, 2023
5	NS Environment and Climate Change – ICE Manager	April 12, 2023
6	NS Environment and Climate Change – Climate Change Unit	April 14, 2023
7	NS Department of Fisheries and Aquaculture	April 18, 2023
8	NS Environment and Climate Change – Air Quality	April 18, 2023
9	NS Environment and Climate Change - Noise	April 18, 2023
10	NS Office of L'nu Affairs	April 20, 2023
11	NS Department of Public Works	April 20, 2023
12	NS Department of Natural Resources and Renewables	April 20, 2023
13	NS Environment and Climate Change- Environmental Health	April 20, 2023
14	NS Department of Municipal Affairs and Housing	April 20, 2023
15	NS Environment and Climate Change – Water Resource Management	April 20, 2023
16	NS Department of Agriculture	April 21, 2023
17	Environment and Climate Change Canada	April 24, 2023
18	NS Department of Communities, Culture, Tourism and Heritage	April 25, 2023

Nova Scotia Mi'kmaq

Number	Source	Date Received
1	Kwilmu'kw Maw-Klusuaqn Negotiation Office (KMKNO)	April 27, 2023

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: March 29, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Neil Morehouse, Manager, Protected Areas and Ecosystems

Subject: Granite Village Quarry Expansion Project

Scope of review:
This review focuses on the following mandate: Protected Areas

Technical Comments:

No protected areas In vicinity of Project

Summary of Recommendations: (provide in non-technical language)

We have no comments on this project

Impact Assessment Agency of Canada
Agence d'évaluation d'impact du Canada

Suite 200
1801 Hollis Street
Halifax NS B3J 3N4

Bureau 200
1801 rue Hollis
Halifax, NE B3J 3N4

Date: April 3, 2023

To: Jeremy Higgins, Environmental Assessment Officer, Nova Scotia Department of Environment and Climate Change

From: Karen Lalonde, A/Project Manager, Impact Assessment Agency of Canada

Subject: Granite Village Quarry Expansion Project

The federal environmental assessment process is set out in the *Impact Assessment Act* (IAA). The *Physical Activities Regulations* (the Regulations) under IAA set out a list of physical activities considered to be "designated projects." For designated projects listed in the Regulations, the proponent must provide the Agency with an Initial Description of a Designated Project that includes information prescribed by applicable regulations (*Information and Management of Time Limits Regulations*).

The relevant entry in the Regulations for this type of project is:
19(f). *The expansion of an existing stone quarry or sand or gravel pit if the expansion would result in an increase in the area of mining operations of 50% or more and the total production capacity would be 3 500 000 t/year or more after the expansion.*

Based on the information submitted to the Province of Nova Scotia on the proposed Granite Village Quarry Expansion Project, it does not appear to be described in the Regulations. Under such circumstances the proponent would not be required to submit an Initial Description of a Designated Project to the Agency. However, the proponent is advised to review the Regulations and contact the Agency if, in its view, the Regulations may apply to the proposed project.

The proponent is advised that under section 9(1) of the IAA, the Minister may, on request or on his or her own initiative, by order, designate a physical activity that is not prescribed by regulations made under paragraph 109(b) if, in his or her opinion, either the carrying out of that physical activity may cause adverse effects within federal jurisdiction or adverse direct or incidental effects, or public concerns related to those effects warrant the designation. Should the Agency receive a request for a project to be designated, the Agency would contact the proponent with further information.

The proposed project may be subject to sections 82-91 of IAA. Section 82 requires that, for any project occurring on federal lands, the federal authority responsible for administering those lands or for exercising any power to enable the project to proceed must make a determination regarding the significance of environmental effects of the project. The Agency is not involved in

this process; it is the responsibility of the federal authority to make and document this determination.

The proponent is encouraged to contact the Agency at (902) 426-0564 if it has additional information that may be relevant to the Agency or if it has any questions or concerns related to the above matters.

Thank you,

Karen Lalonde

A/Project Manager, Atlantic Regional Office
Impact Assessment Agency of Canada / Government of Canada
Karen.Lalonde@iaac-aeic.gc.ca / Tel: 902-399-8839

I/Gestionnaire de projets, Bureau régional de l'Atlantique
Agence d'évaluation d'impact du Canada / Gouvernement du Canada
Karen.Lalonde@iaac-aeic.gc.ca / Tél. : 902-399-8839

Fisheries and Oceans Canada | Pêches et Océans Canada

Bedford Institute of Oceanography
1 Challenger Drive
P.O. Box 1006, Station P510
Dartmouth, Nova Scotia, B2Y 4A2

Date: April 3, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Sarah MacLeod, Hydro and Flow Unit, Regulatory Review Biologist, Fish and Fish Habitat Protection Program

Subject: Granite Village Quarry Expansion EA Project

Dear Jeremy Higgins:

Fisheries and Oceans Canada (DFO), Fish and Fish Habitat Protection Program (FFHPP) received the Nova Scotia Environmental Assessment registration document submitted for the Granite Village Quarry Expansion Project in East Port L'Hebert, Queens County. The project is to expand on the existing quarry that is currently less than four hectares (ha) to a total 8 ha. Quarry operations are anticipated to remain the same, with seasonal operations within the months of April to December, coinciding with the road construction season. The quarry is anticipated to produce up to 50,000 tonnes of aggregate per year.

The study area does not contain any permanent or intermittent watercourses, and no fish habitat was identified within the quarry expansion project area. Intermittent watercourses were identified downstream of the project area; the water balance indicated changes to surface water and infiltration volumes fall within anticipated seasonal ranges and therefore the project would have a negligible impact on the watercourses.

DFO-FFHPP is responsible for administrating the fisheries protection provisions of the *Fisheries Act* (*FA*) and *Species at Risk Act* (*SARA*) for aquatic species at risk. The fisheries protection provisions of the *FA* includes section 34.4 which prohibits the death of fish by means other than fishing; section 35 which prohibits the harmful alterations, disruption, or destruction (HADD) of fish habitat; and section 36.3 which prohibits the deposition of deleterious substances into water frequented by fish or in any place where it may enter such water. *SARA* prohibits: the killing, harming, harassment, possession, capturing, or taking of a species listed as extirpated, endangered, or threatened; the damage or destruction of a residence; or the destruction of any part of the critical habitat of such a listed species, unless authorized by the minister.

Below you will find the comments from DFO-FFHPP regarding the above mentioned project:

- DFO has no concerns regarding the proposed project.

From: MacDonald, Mike G
To: Higgins, Jeremy W
Subject: Re: Reminder_RE: Granite Village Quarry Expansion Project - EA Registration
Date: April 12, 2023 10:24:35 AM
Attachments:

I have no comments Jeremy.

Mike M.

From: Clarke, David
To: Higgins, Jeremy W
Subject: RE: Reminder_RE: Granite Village Quarry Expansion Project - EA Registration
Date: April 12, 2023 12:01:22 PM
Attachments:

Hi,

I reviewed and have no comments to make.
Thanks

David

Guidance for Reviewers – Environmental Assessments

Environmental Assessment Branch, Environment and Climate Change

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: April 11, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Climate Change Division

Subject: **Granite Village Quarry Expansion Project, Queens County, Nova Scotia**

Scope of review:

This review focuses on the following mandate: Climate change mitigation and adaptation.

Technical Comments:

Climate Adaptation

Section 7 describes potential climate change impacts, such as extreme rainfall and major weather events and how they may impact quarry operations. However, the registration document does not reference or describe climate change data and future projections in its assessment of impacts, as recommended by the Guide to Considering Climate Change in Environmental Assessment (2011). There does not appear to be any consideration given to climate change trends, such as increasing risk of extreme heat to outdoor activities, and how it may impact the Project over its operating period.

To support assessment of climate change risks, it is valuable to consider historical and future climate data to determine whether the changing climate will have any effect on Project operations and inform risk mitigation efforts throughout the lifetime of the project.

The registration document does not include a specific assessment of the climate change risk category, as per the Guide to Considering Climate Change.

Mitigation

The proponent correctly assumes that greenhouse gas emissions from vehicles during construction phase to be negligible. They provide no number estimates.

The proponent has proposed sufficient mitigation measures for the expected greenhouse gas emissions.

Summary of Technical Considerations: (provide in non-technical language)

Climate Adaptation

Recommend reviewing localized climate data (minimum 30-year averages) for baseline or historical and future time periods relevant to the lifetime of the project available through Canada's climate data portal (ClimateData.ca) to determine potential impacts to quarry operations and support mitigation measures.

Encourage the proponent to complete an assessment of the climate change risk category according to the Guide to Considering Climate Change in Environmental Assessments in Nova Scotia (2011).

Mitigation

Given the expected greenhouse gas emissions are negligible for this project, there are no further recommendations.

PO Box 2223
Halifax, Nova Scotia
B3J 3C4

NOVA SCOTIA

Fisheries and Aquaculture

Date: April 21, 2023

To: Jeremy W. Higgins, Environmental Assessment Officer, Nova Scotia Environment and Climate Change

From: Lesley O'Brien-Latham, Executive Director, Policy and Corporate Services Nova Scotia Department of Fisheries and Aquaculture

Subject: Granite Village Quarry Expansion Project, Queens County, Nova Scotia – Environmental Assessment

Thank you for the opportunity to review the Granite Village Quarry Expansion Project documents.

Based on the information you provided, the Nova Scotia Department of Fisheries and Aquaculture ("Department") has the following comments:

- Adherence to established policies and guidelines should result in a little risk to marine activities and interests within the Department's mandate.

- The Nova Scotia Department of Fisheries and Aquaculture does not anticipate any negative impact on sportfishing.

- Within a 25km radius of this project, there are two issued rockweed leases and one issued marine finfish lease.

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: April 18, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Air Quality Unit

Subject: Granite Village Quarry Expansion Project

Scope of review:
This review focuses on the following mandate: Air Quality

Technical Comments:

Municipal Enterprises Limited of Bedford, Nova Scotia is proposing to expand the existing Granite Village aggregate quarry located between Port Mouton and Sable River on the south shore of Nova Scotia. The proposed undertaking involves the expansion of an existing approved quarry from a less than four-hectare quarry to an 8.0-hectare quarry. Since opening in 2003, approximately 25,000-50,000 tonnes of aggregate are extracted annually from the quarry during years the quarry is active. Other than the proposed increase in size, it is expected that continued use of the quarry will be identical, or very similar, to historic use of the site.

Impacts on air quality from this project are most likely to occur during blasting/drilling activities, stockpiling of aggregate, operation of heavy equipment (e.g. crushers, earthmovers), and onsite routine operations. These activities are most likely to contribute to increases in concentrations of total suspended particulate (TSP), while vehicle emissions are likely to contribute to increases in fine particulate (PM2.5) and nitrogen oxides.

To mitigate these impacts, the proponent proposes gravelling working areas, reducing vehicle speed, minimizing idling time and engine braking, and the use of water spray systems to reduce dust originating from crushing operations and vehicle movement. These are appropriate mitigation methods.

Overall, the impacts to air quality are expected to be similar to the existing operation – vehicles using the unpaved roads for access may contribute to small increases in airborne dust from time to time. Decommissioning of the site should be addressed at the appropriate time to minimize dust impacts from site operations.

Summary of Technical Considerations: (provide in non-technical language)

The registration document does not include an assessment of baseline air quality conditions; however, the location of the proposed expansion and associated activities suggests that pollutant concentrations would be low with no sensitive receptors nearby. The proponent should ensure that the generation of dust is kept to a minimum using the proposed mitigation methods and any other methods that are considered to be appropriate once construction starts. The dust mitigation methods should be outlined in a Dust Management Plan and finalized prior to the commencement of construction.

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: April 18, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Air Quality Unit

Subject: Granite Village Quarry Expansion Project

Scope of review:
This review focuses on the following mandate: Noise

Technical Comments:

Municipal Enterprises Limited of Bedford, Nova Scotia is proposing to expand the existing Granite Village aggregate quarry located between Port Mouton and Sable River on the south shore of Nova Scotia. The proposed undertaking involves the expansion of an existing approved quarry from a less than four-hectare quarry to an 8.0-hectare quarry. Since opening in 2003, approximately 25,000-50,000 tonnes of aggregate are extracted annually from the quarry during years the quarry is active. Other than the proposed increase in size, it is expected that continued use of the quarry will be identical, or very similar, to historic use of the site.

The proponent has not undertaken any baseline monitoring at the site and states that noise from routine operations would not be heard in the nearby communities. The proponent states blasting will take place infrequently, 1-2 times per year when the site is active, and blast events will be monitored for concussion and ground vibration as required in the Approval. With no anticipated change in operation, noise levels from the quarry expansion are expected to be similar to those currently produced at the site.

The proponent states that the prevailing noise level guidelines, detailed in the Pit and Quarry Guidelines, will be adhered to. In addition, best management practices such as maintaining appropriate operational buffers, maintaining vehicles and heavy equipment in operational order, and giving attention to traffic patterns around the site to reduce the need for heavy equipment to use back-up signals will be used to limit noise impacts.

Overall, the impacts to noise are expected to be similar to the existing operation.

Summary of Technical Considerations: (provide in non-technical language)

The registration document does not include an assessment of baseline noise conditions; however, the location of the proposed expansion and associated activities suggests that noise would be similar to what is currently produced at the quarry with no sensitive receptors nearby.

Date: April 20, 2023

To: Jeremy W. Higgins, Environmental Assessment Officer

From: Nova Scotia Office of L'nu Affairs – Consultation Division; **Reviewed by Beata Dera, Director of Consultation**

Subject: Granite Village Quarry Expansion Project**, Queens County, Nova Scotia**

Scope of review:
The following review considers whether the information provided will assist the Province in assessing the potential of the proposed Project to adversely impact established and/or asserted Mi'kmaw Aboriginal and/or Treaty rights.

Technical Comments:

Section 4.1 Methods of Involvement

The Proponent should be advised that the Mi'kmaq of Nova Scotia are not considered "stakeholders" rather they are Rights holders. As such, engagement with the Mi'kmaq of Nova Scotia should not be categorized under the title of public consultation or stakeholder engagement and the Mi'kmaq of Nova Scotia should not be referenced as "stakeholders".

Summary of Technical Considerations: (provide in non-technical language)

Section 4.1 Methods of Involvement

Table 1 summarizes Mi'kmaq engagement efforts and includes communications with Acadia First Nation, Sipekne'katik First Nation, and the KMKNO. OLA recommends that the Proponent continue to engage with these groups and provide regular updates throughout the duration of the Project.

NOVA SCOTIA
Public Works

Johnston Building
1672 Granville Street
Halifax, Nova Scotia
Canada B3J 2N2

Date: 20 April, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Environmental Services, Nova Scotia Public Works

Subject: **Granite Village Quarry Expansion Project, Queens County, Nova Scotia**

Scope of review:
This review focuses on the following mandate: Traffic Engineering and Road Safety Impacts for the Granite Village Quarry Expansion Project

Technical Comments:

1. The proponent is proposing to expand an existing quarry at Granite Village. The volume of aggregate from the expansion is to replace existing production on a quarry that has been around for many years, and of which no incidents have been noted. It is anticipated that this will continue once the expansion proceeds.

2. There are no changes that are proposed to the existing access road to Highway 103, nor is this expected to have any significant impact on the truck volume in the area. The sightlines in each direction are also more than sufficient as well.

3. The only comment that is being made is with regards to Section 6.2.7 Transportation on Page 15 of the report. There is a suggested mitigation measure of erecting warning signs and speed limits ahead of the quarry in each direction for safety purposes. It does not appear from the wording that this has been required to this point, so it is assumed that this is being stated just in case it is required. It should be noted that if this is required, that this will need to be approved by the local Traffic Authority. This can be achieved by reaching out to the local Area Manager should this mitigation be required.

Summary of Recommendations: (provide in non-technical language)

1. Should mitigation measures of warning signage and speed limits be required, the proponent would need to reach out to the Local Area Manager, so that any signage can be approved by the Local Traffic Authority before these signs are erected.

NOVA SCOTIA
Natural Resources and Renewables

1701 Hollis St.
PO Box 698
Halifax, NS B3J 2T9

Date: April 21, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Department of Natural Resources and Renewables

Subject: Granite Village Quarry Expansion Project**, Queens County, Nova Scotia**

Scope of review:
This review focuses on the following mandate: Parks, biodiversity, species at risk status and recovery, wildlife species and habitat management and conservation, authorities and approvals required from the Land Services Branch, MRA and Regulations.

Technical Comments:

Parks Branch:

No provincial park or designated protected beaches program concerns.

Land Services Branch:

The Project Access Road is located on Crown lands currently identified as PID 70182373. Using the Crown lands road for access is currently authorized under a right of way recorded at Book 378, Page 135, shown on Plan Number 82211591, both registered in the Queens County Land Registration Office. The right of way is 9.144 metres wide. Should the proponent require expansion, upgrades/improvements, or modification of the existing Crown-owned Access Road, NRR approvals will be required.

Geoscience and Mines Branch:

The Department supports the development of the province's natural resources provided that such development is undertaken in both an environmentally and socially responsible manner.

Note that construction aggregates are not considered a mineral under the Mineral Resources Act, and therefore do not require the issuance of either a Mineral Lease or a Non-Mineral Registration.

Biodiversity Branch:

This Environmental Assessment Registration Document has been reviewed by Natural Resources and Renewables biologists. The review focused on the following mandates: biodiversity, species at risk status and recovery, wildlife species and habitat management and conservation.

Summary of Technical Considerations: (provide in non-technical language)

Land Services Branch:

No Comment.

Geoscience and Mines Branch:

No Comment.

Biodiversity Branch:

Based upon a review of the information in the addendum, the following recommendations for conditions of approval are provided.

It is the responsibility of the proponent to ensure compliance with federal and provincial legislation and regulations regarding resident, migratory and at-risk bird species and their habitats (e.g., *Species at Risk Act, Migratory Birds Convention Act, Fisheries Act, NS Endangered Species Act, NS Wildlife Act*, and their regulations). As such, the following is a list of recommendations:

- Obtain all necessary permits as required under legislation related to wildlife and species at risk to undertake the project.

- Provide digital way points and/or shapefiles for all Species at Risk and Species of Conservation Concern to NRR (those species listed and/or assessed as at risk under the *Species at Risk Act*, *Endangered Species Act*, COSEWIC, as well as all S1, S2 and S3 species). Data should adhere to the format prescribed in the NRR Template for Species Submissions for EAs and is to be provided within two (2) months of collection.

- Prior to the development of a Wildlife Management Plan (WMP), the following matters pertaining to field surveys should be addressed so as a full risk assessment to SAR and SOCC be completed. Where relevant, Special Management Practice methodology should be followed. These include:
    - Provide all field survey methodology, survey conditions and survey tracks to NRR (e.g., botanical surveys, lichen surveys – Blue Felt Lichen, Boreal Felt Lichen);

- Conduct Nightjar surveys due to potential risk to Common Nighthawk;
- Complete Bat roost surveys prior to disturbance of snags and/or wetlands;
- At-risk lichen surveys, as per the At-Risk Lichen – SMP should occur prior to any clearing, grubbing, brush removal, and/or ground disturbance.
- Surveys should be completed by an accepted lichen surveyor and transect shapefiles provided to NRR;
- Old growth forest presence/absence as defined in the Old Growth Forest Policy, including on private land.

- Develop a Wildlife Management Plan (WMP) in consultation with NRR and ECCC which should include:
  - Communication protocol with regulatory agencies.
  - General wildlife concerns (e.g., human-wildlife conflict avoidance).
  - Mitigation measures to promote safety and prevent spread of Avian Influenza.
  - Education sessions and materials for project personnel on Species at Risk, non-Species at Risk-wildlife, and other important biodiversity features they may encounter on-site and how to appropriately respond to those encounters.
  - Noise, dust, lighting, blasting, and herbicide use mitigations.
  - Emergency response plans for accidental spills, pollution, chemical exposure, and fire.
  - A blasting plan with a completed pre-blast survey, a blast monitoring plan, and a blast damage response.
  - Measures to protect and mitigate against adverse effects to migratory birds during construction and operation. This may include avoidance of certain activities (such as vegetation clearing) during the regional nesting period for most birds, buffer zones around discovered nests, limiting activities during the breeding season around active nests, and other best management practices.
  - Mitigation measures consistent with recovery documents (federal and/or provincial recovery and management plans, COSEWIC status reports) to avoid and/or protect Species at Risk/Species of Conservation Concern and associated habitats discovered through survey work or have the potential to be found on site.
  - Details on monitoring and inspections to assess compliance with the WMP.
  - Mitigation measures for bank swallows to ensure any stockpiles or banks have a slope of less than 70 degrees to deter bank swallow nesting in high disturbance areas.
  - It is recommended that the proponent ensures standard practices are established during development, construction, and operation of the site to prevent wildlife interactions that may result in entanglement, entrapment, or injury. As part of daily operations staff should be trained to survey the site, identify issues, and consult as appropriate for solutions when wildlife

is found to be utilizing artificial or existing habitat conditions during the operation of the site.

- Conduct surveys for Mainland Moose for a minimum of two (2) years during the operation phase of the project, in a buffered zone of influence extending up to two (2) kms from the project footprint, to assess potential effects of disturbance.

- Revegetate cleared areas using native vegetation or seed sources following consultation with NRR.

- Develop a plan to prevent the spread of invasive species both on and off site. The plan should include monitoring, reporting, and adaptive management components.

- Provide a decommissioning and site reclamation plan and reclaim site at the end of project.

- Describe the impacts of the project on landscape-level connectivity for wildlife and habitat (e.g., habitat fragmentation, loss of intact forested habitat, increased road density). An assessment of the cumulative effects of the project on landscape-level connectivity and habitat loss, and the measures proposed to mitigate those effects, should be provided.

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: April 18, 2023

To: Environmental Assessment Officer

From: Environmental Health Consultant, Sustainability and Applied science,

Subject: Granite Village Quarry Expansion Project, **Queens County, Nova Scotia**

Scope of review:

The focus of this Environmental Assessment Review is potential impacts on human health. In general, the scope of this review includes the assessment of the potential for the proposed undertaking/project to adversely affect human health in all phases of the project.

Comments:

Provided best management practices are adopted for this project, and adherence to NSECC Approval(s) are achieved, no adverse public health impacts are expected to occur as a result of the project**.**

NOVA SCOTIA
Municipal Affairs and Housing
Municipal Affairs

Floor 8 North, Maritime Centre
1505 Barrington Street
PO Box 216
Halifax, NS Canada B3J 2M4
novascotia.ca

DATE: April 20, 2023

TO: NS Department of Environment and Climate Change

FROM: Department of Municipal Affairs and Housing

SUBJECT: **GRANITE VILLAGE QUARRY**

As requested, the Department of Municipal Affairs and Housing (DMAH) has reviewed the Environmental Assessment Registration Documents for the proposed Granite Village Quarry. Although we have found nothing of concern respecting the Department's areas of mandate, we would like to remind the proponent to ensure that they have undertaken adequate consultation with the Municipality in order to confirm conditions for compliance with municipal planning policies and by-law provisions, as the property is zoned R5 Inland Rural in the Land Use by-law for the Region of Queens.

Thank you for the opportunity to review the Registration Documents for the above-noted project.

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: April 20th, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Water Resources Management Unit, Sign-off by Elizabeth Kennedy, Director Water Branch, Sustainability and Applied Science Division

Subject: Granite Village Quarry Expansion Project, East Port L'Hebert, Queens County, NS

Scope of review:

This review focuses on the following mandate:

- Surface water quantity and quality
- Groundwater quantity and quality
- Wetlands

Technical Comments:

Surface water quality and quantity

There are gaps in the information provided in the Environmental Assessment Registration Document (EARD) to assess potential impacts to surface water quantity and quality. In more detail,

- The information and assessment provided in the Water Balance Assessment (Appendix F, EARD) is not sufficiently justified.
    - The catchment delineation for the proposed quarry expansion included in the Water Balance Assessment states the area potentially affected by the proposed expansion involves a single watershed, where it is contradictory with information provided in the Biophysical Assessment (Appendix D, EARD) that states the proposed quarry expansion is located on the divide between the 1ED-SD16 and 1ED-SD18 secondary watersheds;
    - The assumptions made for input to water balance assessment were not adequately justified as limited information was provided to support the reasonableness of making these assumptions, nor was the water balance model validated before it was used to support water balance assessment.
- Water quality measurements conducted in low flow conditions in a single day cannot sufficiently represent the average water quality conditions in the sampled flowages/watercourses. As indicated in Table-1 of the Biophysical Assessment (Appendix D, EARD), water quality measurements were conducted within a same day (June 1st, 2022) with low flows as shown by a similar flow pattern of Mersey River (Figure 13, Appendix D) in vicinity of the site.
- There is limited information provided on whether the small flowages along the east margin of the expansion area and southeast corner of the property contribute to the small flowage near the east boundary of the study area (and potentially leads to the an unnamed stream to the east of the study area) and the flowage occurs south of the EA study area along the powerline utility corridor (and eventually entering an unnamed tributary of Granite Village Brook), respectively. If so, whether these flowages act as

headwaters, or may be considered as watercourses under the *Environment Act*. If considered as watercourses, alterations to these small flowages due to proposed quarry expansion may require watercourse alteration notifications to and/or approvals from NSECC.

- There is very limited information provided on surface water flow patterns and associated surface water management infrastructures/measures on the quarry site. Very limited information is provided on proposed surface water management, erosion and sediment control, and surface water quality monitoring for the proposed expansion, besides commitment and statements to include these plans in support of Industrials Application, if the EA is approved.

Groundwater quantity and quality

The EARD meets submission requirements for evaluating groundwater.

- The report states conditions for the existing quarry that indicate no significant concerns with groundwater. There are no groundwater uses identified (confirmed with mapping) within 4 km of the site, and these (residences with water well use) are not in the same sub-watershed. For these reasons a pre-development water well survey is not considered necessary.
- The report adequately evaluates potential for groundwater impacts due to the quarry expansion. The proponent states that current and future activity is likely to occur above the water table. Conditions do not warrant the need for groundwater modelling, or a detailed assessment. Basic groundwater monitoring is proposed, however, to evaluate possible longer-term effects and need for mitigation. Details of a groundwater monitoring plan should be provided as a condition for approval and in conjunction with an IA application.
- The report does not address specific concerns for dewatering of WL1 (a WSS), which is a potential should the quarry expansion result in any lowering of the water table. However, the proposed maintenance of a 30 m buffer zone from the wetlands (future work, not current boundaries which are stated as already encroaching in one area) may be adequate. Given what is currently known about the groundwater conditions at the site this is likely a reasonable protection measure. Monitoring of actual effects to groundwater of additional expansion will be necessary, however, and this was proposed.
- The proponent suggests a monitoring well network be installed (minimum of 3 wells) to evaluate groundwater conditions, prior to and during expansion operations. This is a necessary operational component and what is proposed in concept is a reasonable groundwater monitoring plan.

The main purpose of the groundwater monitoring well network will be to:

i. Determine groundwater table conditions (water levels and water quality)
ii. Assess over time the potential effects of quarrying on nearby wetlands and, if necessary, determine additional mitigation.
iii. Provide ongoing groundwater monitoring to address general environmental concerns.

Wetlands

The EARD did not meet all submission requirements for Wetlands.

The following information was not provided:

- WESP-AC Functional Assessment results were not included in the documents. WESP-AC functional assessments (WESP-AC WSS Interpretation Tool) should be completed

to determine if wetlands are classified as Wetlands of Special Significance (WSS) functionally.

- Maps clearly indicate the locations of the project in relation to the wetland and other natural features.
    - Other natural features (i.e., watercourses, fish habitat, SAR/SOCC) were not included in the wetland figures. The proponent did not mention anything about WSS within the assessment area, however, it appears that blue felt lichen was identified in Wetland 1.
- The proposed wetland alteration area for Wetlands 3 and 4 was not identified in the EARD. The EARD only states partial removal, but no approximate area was included.
- The EARD states, "The large wetland complex (WL-1) was identified to the northeast, upgradient of the existing quarry. The proposed quarry expansion area has been adjusted to account for this wetland and a 30-meter buffer will be maintained from the wetland. Where historic quarry operations have encroached within 30-meters of the wetland, no further advancement of the active area will occur. A plan to monitor this wetland to ensure no impacts or changes as a result of the proposed quarry expansion will be prepared as part of the subsequent IA Amendment Application". It is unclear if the proponent is or has excavated below the water table and altered the hydrology of wetland 1. The proponent should confirm that no alteration (direct or indirect) has occurred or will occur within wetland 1.

Summary of Technical Considerations:

A reliance on high-level assumption for surface water related assessment and lack of information on water quality monitoring and on planned mitigations and surface water management make it difficult to have a clear picture of the proposed plans for the quarry expansion, potential for adverse effects and the effectiveness of the proposed mitigations. The proponent should establish a surface water quantity monitoring plan to collect necessary data for the discharge (proposed quarry discharge, and/or discharge of the watershed where the proposed quarry expansion locates in), and/or any associated watercourses receive the discharge to validate predicted hydrological changes and associated impact assessment. The plan should consider collecting data in the first few years during the proposed expansion to validate watershed delineation and calibrate the water balance model to support more reasonable and accurate prediction and assessment of impacts, and thus to support planning and implementation of mitigation measures over the lifespan of the proposed expansion. It is recommended to factor climate change into the ongoing assessment. Water quality monitoring should also be included at appropriate locations and with sufficient frequencies to monitor impacts from different phases of the proposed expansion (including shutdown) to surrounding surface water resources.

Prior to any proposed expansion activity, the proponent should verify whether the small flowages along the east margin of the expansion area and southeast corner of the property, and any other similar flowages are within the proposed quarry expansion footprint and are watercourses under the definition of the *Environment Act*. If so, obtain necessary approvals from (or send notifications to) NSECC for any alteration to these flowages due to the proposed quarry expansion.

The *NS Wetland Conservation Policy* (2011) objective is to "manage human activity in or near wetlands, with the goal of no loss in Wetlands of Special Significance (WSS) and the goal of preventing net loss in area and function for other wetlands". The information provided in the EARD is insufficient in identifying the potential environmental impacts on wetlands. Pursuant to the NS *Wetland Conservation Policy,* WL1 is considered a Wetland of Special Significance

(WSS) due to the presence of Blue Felt Lichen, indirect project impacts that result in negative trends in wetland hydrology would not be permissible. It is unclear if the proponent is excavating below the water table, the proponent should confirm prior to the commencement of the project.

It is unclear if wetlands 2, 3 and 4 are considered WSS, WESP-AC functional assessments should be conducted to for all wetlands including wetland 1 to determine this. ECC will not support or approve alterations proposed for a WSS or any alterations that pose a substantial risk to a WSS except alterations that are required to maintain, restore, or enhance a WSS, or alterations deemed to provide necessary public function.

Information is lacking detail and does not correlate with other important features (i.e., project infrastructure, SAR/SOCC, watercourses, fish habitat). EARD submissions should clearly identify on maps and within tables these important features. Prior to commencement of the project the proponent should clearly demonstrate on maps and tables which wetlands are WSS and that there will be no impacts to them.

If the project is approved, NSECC should consider the following EA Terms and Conditions:

- As part of the application for an amendment to the Industrial Approval, the Approval Holder(s) shall submit a site surface water management plan to the Department for review and acceptance. This plan shall consider the potential impacts of climate change in design criteria (e.g., ponds, drainage ditches, etc.). The Approval Holder shall implement the approved surface water management plan once deemed acceptable by the Department and provide an evaluation of its effectiveness supported by site monitoring results as part of applications for renewal of the Industrial Approval.
    - Any sediment pond(s)/settling pond(s) shall be designed by a qualified professional engineer or geoscientist licensed to practice in Nova Scotia, with details submitted to the Department for review and acceptance. Where appropriate, the design should include considerations on monitoring compliance during different phases of the proposed expansion (including shutdown).
- A detailed erosion and sediment control plan for the activities proposed shall be developed by a qualified professional engineer licensed to practice in the Province of Nova Scotia and is required to be submitted to the Department for review and acceptance, and implemented prior to construction activities (including clearing, grubbing, and stripping) take place and throughout the life of the quarry expansion.
- Complete WESP-AC functional assessments for all wetlands within the EA study area and confirm which ones are considered WSS based on the NS *Wetland Conservation Policy WSS definition.* Prior to the commencement of the project, results should be submitted to NSECC for review. The proponent should confirm how WSS wetlands are being avoided from direct or indirect alteration.
- Submit a Wetland Alteration Approval Application for review and approval for any wetlands proposed to be directly or indirectly altered and complete any necessary compensation and monitoring. The proponent should utilize Nova Scotia's Wetland Alteration Application's Guided Template for the permit applications.
- Establish a minimum buffer distance of 30m from any surface watercourse or wetland for the following activities: fuel storage, refueling, and/or lubrication of equipment; washing of machinery or equipment; and storage of equipment, excavated/stockpiled materials, and potential contaminants.
- If blasting is required the proponent should submit a blasting plan, prior to blasting, for review and acceptance. The plan should include completed pre-blast surveys for structures within 800m of the point of blast, including water quality analysis for water

wells within the same area. A detailed blast monitoring plan and a blast damage response policy should also be provided.

- Provide details for a groundwater monitoring network (minimum 3 water table monitoring wells) for evaluating groundwater conditions (water levels and water quality) over time.

60 Research Drive
Suite A
Bible Hill, Nova Scotia
B6L 2R2

NOVA SCOTIA

Agriculture

Date: April 21, 2023

To: Jeremy Higgins, Environmental Assessment Officer

From: Heather Hughes, Executive Director, Policy and Corporate Services, Nova Scotia Department of Agriculture

Subject: Granite Village Quarry Expansion
East Port L'Hebert, Queens County, Nova Scotia

Thank you for the opportunity to review the documents for the above-noted project.

No agricultural impacts are anticipated given that:

- The Granite Village Quarry expansion is located on class 7 soil, Canada Land Inventory, which is unsuitable for agriculture.
- The closest active agricultural land is over 4 km from the expansion area.
- According to the Environmental Assessment Registration document, Municipal Enterprises Ltd. will be increasing their footprint but not increasing their site activities.

From:	Wade,Suzanne (ECCC)
To:	Higgins, Jeremy W
Cc:	Hingston,Michael (il, lui | he, him) (ECCC); Wade, Suzanne (EC); Keeping,Brent (ECCC); Gilroy,Christine (ECCC)
Subject:	FW: Granite Village Quarry Expansion Project, NS - EA Registration EAS# (23-NS-008)
Date:	April 24, 2023 9:52:00 AM
Attachments:	image001.png CanadianNightjarSurveySummaryProtocol_2022.pdf CanadianNightjarSurvey_Data-Sheets_2022.pdf CanadianNightjarSurveyProtocol_2022.pdf

Hi Jeremy,

Environment and Climate Change Canada (ECCC) has reviewed the environmental assessment registration and associated Biophysical Assessment (Appendix D) for the Granite Village Quarry Expansion Project in Nova Scotia and we offer the following comments:

Wildlife Comments

Breeding season surveys for migratory birds

ECCC - Canadian Wildlife Service (CWS) recommends that the Proponent clarify which bird groups it was targeting with surveys conducted on May 26, 2022. Breeding season surveys for landbirds are normally conducted in June to early July in the area. Also, the Proponent does not appear to have conducted any surveys for nightjars. Please see attachments for reference material:

- The Canadian Nightjar Survey Protocol (2022)
- The Canadian Nightjar Survey: Quick Reference Protocol Summary (2022)
- The Canadian Nightjar Survey Datasheets (2022)

ECCC-CWS recommends that the Proponent conduct additional breeding season surveys for landbirds, including surveys for nightjars, at the appropriate time of year and time of day. Surveys should capture not only the breeding period but also spring and fall migration periods. Given the isolated timing of the breeding bird survey (one survey occurring only during morning hours), ECCC recommends that the Proponent submit detailed landbird and nightjar survey methodologies, results of these surveys, as well as any additional mitigation measures resulting from these surveys for review. ECCC-CWS is available to provide input on proposed bird survey methods.

Pileated Woodpecker

The Proponent observed one Pileated Woodpecker during the May 26, 2022 survey. However, it does not appear that any surveys were conducted for Pileated Woodpecker nesting cavities. The Migratory Birds Regulations (MBRs) were amended in July 2022 and include additional protection

measures for the abandoned nests of the Pileated Woodpecker. The Pileated Woodpecker is included on Schedule 1 of the amended MBRs and requires the notification of ECCC Minister, 36 months in advance, prior to destroying an abandoned nest.

Pileated Woodpeckers excavate nesting cavities in trees in proportion to the availability of suitable nest trees on the landscape. Factors that determine suitable nest trees include:

- Prevalence of tree diseases, insects, and physical conditions (rot, breaks, cracks) that can weaken trees and make them more suitable for cavity excavation;
- Tree size. Nesting cavities have been found in trees as small as 25 cm diameter at breast height (dbh), but are more often found in trees >40cm dbh;
- Nesting cavity entrance holes are about 10cm in diameter and found 8-15m above the ground;

More information on nest cavities can be found on ECCC's Pileated Woodpecker Cavity identification Guide.

For more information on the amended nest protections, frequently asked questions on how these protections apply to migratory birds, including Pileated Woodpecker, and your responsibilities for reporting abandoned nests, please visit Fact Sheet Nest Protection Under the Migratory Birds Regulations, 2022 and Frequently Asked Question, Migratory Birds Regulations, 2022.

ECCC recommends that the Proponent:

- Review and understand their responsibilities under the amended Migratory Bird Regulations;
- Conduct a survey to identify suitable nesting habitat within the area planned for vegetation clearing;
- Inspect identified suitable nesting trees for any Pileated Woodpecker cavities and determine occupancy;
- Notify the ECCC Minister through the Abandoned Nest Registry should any abandoned cavities be found on trees that require removal; and
- Monitor occupancy of cavity(ies) over the next 36 months prior to removal.

Information on permitting related to Pileated Woodpecker is available at:

- Damage or Danger Permits for Nest Destruction: Pileated Woodpecker nesting cavities - Canada.ca
- Damage to the Use of the Land: Pileated Woodpecker nesting cavities - Canada.ca

Further information on the Migratory Bird Regulations, 2022:

- Migratory Birds Regulations, 2022 (justice.gc.ca)
- New Migratory Birds Regulations, 2022 - Canada.ca
- Continued evolution of the Migratory Birds Regulations, 2022 - Canada.ca
- Notice: Abandoned Nest Registry - Canada.ca
- Fact sheet: Nest Protection under the Migratory Birds Regulations, 2022 - Canada.ca
- Frequently Asked Questions: Migratory Birds Regulations, 2022 - Canada.ca
- Service standards and performance: permits for Migratory Birds Regulations

Wildlife Response

ECCC-CWS recommends that the Proponent ensure that pprovisions for wildlife response are identified in emergency prevention & response plans. The following information should be included:

- Mitigation measures to deter migratory birds from coming into contact with polluting substance (e.g. oil);
- Mitigation measures to be undertaken if migratory birds and/or sensitive habitat becomes contaminated;
- The type and extent of monitoring that would be conducted in relation to various spill events.

Banks and Stockpiles

Migratory birds such as the Bank Swallow (listed as Threatened on Schedule 1 of SARA and Endangered under the NS *Endangered Species Act*) may nest in banks or large piles of excavated materials. The guidance document "Bank Swallow (*Riparia riparia*) in Sandspit and Quarries" (ECCC, 2020) offers advice in preparing mitigation measures in the management of stockpiles during construction activities: https://species-registry.canada.ca/index-en.html#/documents/1602.
The Bank Swallow Residence Description (GoC 2019) is available at: https://species-registry.canada.ca/index-en.html#/documents/3521
The Recovery Strategy for the Bank Swallow (*Riparia riparia*) in Canada (2022) is also available at: https://species-registry.canada.ca/index-en.html#/consultations/1586

Species at Risk Act

The *Species at Risk Act* (SARA) general prohibitions apply to this project. In applying the general prohibitions, the proponent, staff and contractors, should be aware that no person shall:

- kill, harm, harass, capture or take an individual;
- possess, collect, buy, sell or trade an individual, or any part or derivative;
- damage or destroy the *residence* of one or more individuals.

General prohibitions only apply automatically:

- on all federal lands in a province;
- to aquatic species anywhere they occur;
- to migratory birds protected under the *Migratory Birds Convention Act* (MBCA) 1994 anywhere they occur.

Section 33 of SARA prohibits damaging or destroying the residence of a listed threatened, endangered, or extirpated species. For migratory birds species at risk, this prohibition immediately applies on all lands or waters (federal, provincial, territorial and private) in which the species occurs.

For federal project assessments, SARA requires that:

- "79 (1) Every person who is required by or under an Act of Parliament to ensure that an

assessment of the environmental effects of a project is conducted, and every authority who makes a determination under paragraph 82(a) or (b) of the *Impact Assessment Act* in relation to a project, must, without delay, notify the competent minister or ministers in writing of the project if it is likely to affect a listed wildlife species or its critical habitat.

- (2) The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them. The measures must be taken in a way that is consistent with any applicable recovery strategy and action plans."

While there is no federal environmental assessment for this project, ECCC-CWS advocates a similar approach to provincial and territorial assessments related to the management and protection of species at risk.

For species that are not listed under SARA, but are listed under provincial legislation only or that have been assessed and designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), it is best practice to consider these species in an environmental assessment as though they were listed under SARA.

ECCC-CWS recommends that the NS Department of Natural Resources and Renewables (NSDNRR) be contacted for technical expertise on species at risk under their responsibility (e.g. bats, reptiles, amphibians, land-mammals, insects, plants, lichen, and birds not protected by the MBCA, such as raptors).

Blue Felt Lichen

Blue Felt Lichen (*Degelia plumbea*) is an epiphyte lichen SAR listed as Special Concern on Schedule 1 of SARA. This lichen occurs only in the Atlantic region in Canada, is considered very rare in New Brunswick, uncommon in Newfoundland, and found most frequently in Nova Scotia. This lichen requires hardwoods in woodlands. Changes to humidity regimes, air pollution, and acid rain can harm these populations. ECCC-CWS notes the commitment by the Proponent to avoid developing near the known location of Blue Felt Lichen within the study area.

Additional recommendations for Blue Felt Lichen include:

- The proponent should implement a 100 m habitat buffer for all individuals of Blue Felt Lichen that would not be directly affected by the project. For any individuals where a 100 m habitat buffer would not be implemented, ECCC requests the proponent identify measures to avoid/minimize the effects.
- Provide a lichen SAR monitoring program including all sites where lichen SAR have been detected in the study area, and proposed monitoring and adaptive management measures in the event that adverse effects to lichen SAR are detected.
- ECCC-CWS recommends that the Proposed Management Plan for Blue Felt Lichen be consulted in the development of mitigation strategies to avoid direct and indirect impacts: https://species-registry.canada.ca/index-en.html#/consultations/3645.
- Mitigation strategies and plans should be provided for review as part of the EA and support

significance conclusions.

Migratory Birds Convention Act

The *Migratory Birds Convention Act* (MBCA) protects most bird species in Canada however, some families of birds are excluded. A list of species under MBCA protection can be found at https://www.canada.ca/en/environment-climate-change/services/migratory-birds-legal-protection/list.html.

Under Section 5(1) of the *Migratory Birds Regulations* (MBR), it is forbidden to capture, kill, take, injure or harass a migratory bird; or damage, destroy or take a nest or egg of a migratory bird, excluding under the exceptions listed in 5(2) of the MBRs, or under the authority of a permit. It is important to note that under the current MBR, no permits can be issued for the harm of migratory birds caused by development projects or other economic activities.

Furthermore, Section 5.1 of the MBCA describes prohibitions related to deposit of substances harmful to migratory birds:

- "5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.
- (2) No person or vessel shall deposit a substance or permit a substance to be deposited in any place if the substance, in combination with one or more substances, results in a substance — in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area that is harmful to migratory birds."

It is the responsibility of the proponent to ensure that activities comply with the MBCA and regulations. In fulfilling its responsibility for MBCA compliance, the proponent should take the following points into consideration:

- Information regarding regional nesting periods can be found at https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods.html. Some species protected under the MBCA may nest outside these timeframes.
- Most migratory bird species construct nests in trees (sometimes in tree cavities) and shrubs, but several species nest at ground level (e.g., Common Nighthawk, Killdeer, sandpipers), in hay fields, pastures or in burrows. Some bird species may nest on cliffs or in stockpiles of overburden material from mines or the banks of quarries. Some migratory birds (including certain waterfowl species) may nest in head ponds created by beaver dams. Some migratory birds (e.g., Barn Swallow, Cliff Swallow, Eastern Phoebe) may build their nests on structures such as bridges, ledges or gutters.
- One method frequently used to minimize the risk of destroying bird nests consists of avoiding certain activities, such as clearing, during the regional nesting period for migratory birds.
- The risk of impacting active nests or birds caring for pre-fledged chicks, discovered during project activities outside the regional nesting period, can be minimized by measures such as the establishment of vegetated buffer zones around nests, and minimization of activities in the immediate area until nesting is complete and chicks have naturally migrated from the area. It is

incumbent on the proponent to identify the best approach, based on the circumstances, to complying with the MBCA.

Further information can be found at https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds.html.

We also note that the Proponent expects that a Wildlife Management Plan will be required as a condition of the EA. ECCC supports the requirement for development of a Wildlife Management Plan to better predict potential project effects on wildlife and their habitats. ECCC-CWS is available to review the Wildlife Management Plan developed for this project once available.

Water Quality

Pollution prevention and control provisions of the *Fisheries Act* are administered and enforced by ECCC. Subsection 36(3) of the *Fisheries Act* prohibits "anyone from depositing or permitting the deposit of a deleterious substance of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter such water".

It is the responsibility of the proponent to ensure that activities are managed so as to prevent the release of substances deleterious to fish. In general, compliance is determined at the last point of control of the substance before it enters waters frequented by fish, or, in any place under any conditions where a substance may enter such waters. Additional information on what constitutes a deposit under the *Fisheries Act* can be found here: https://www.canada.ca/en/environment-climate-change/services/managing-pollution/effluent-regulations-fisheries-act/frequently-asked-questions.html

Accidents and Malfunctions

Hazardous materials (e.g. fuels, lubricants, hydraulic oil) and wastes (e.g. waste oil) should be managed so as to minimize the risk of chronic and/or accidental releases. For example, the proponent should encourage contractors and staff to undertake refueling and maintenance activities on level terrain, at a suitable distance from environmentally sensitive areas including watercourses, and on a prepared impermeable surface with a collection system.

The proponent is encouraged to prepare contingency plans that reflect a consideration of potential accidents and malfunctions and that take into account site-specific conditions and sensitivities. The Canadian Standards Association publication, *Emergency Preparedness and Response,* CAN/CSA-Z731-03, reaffirmed 2014), is a useful reference.

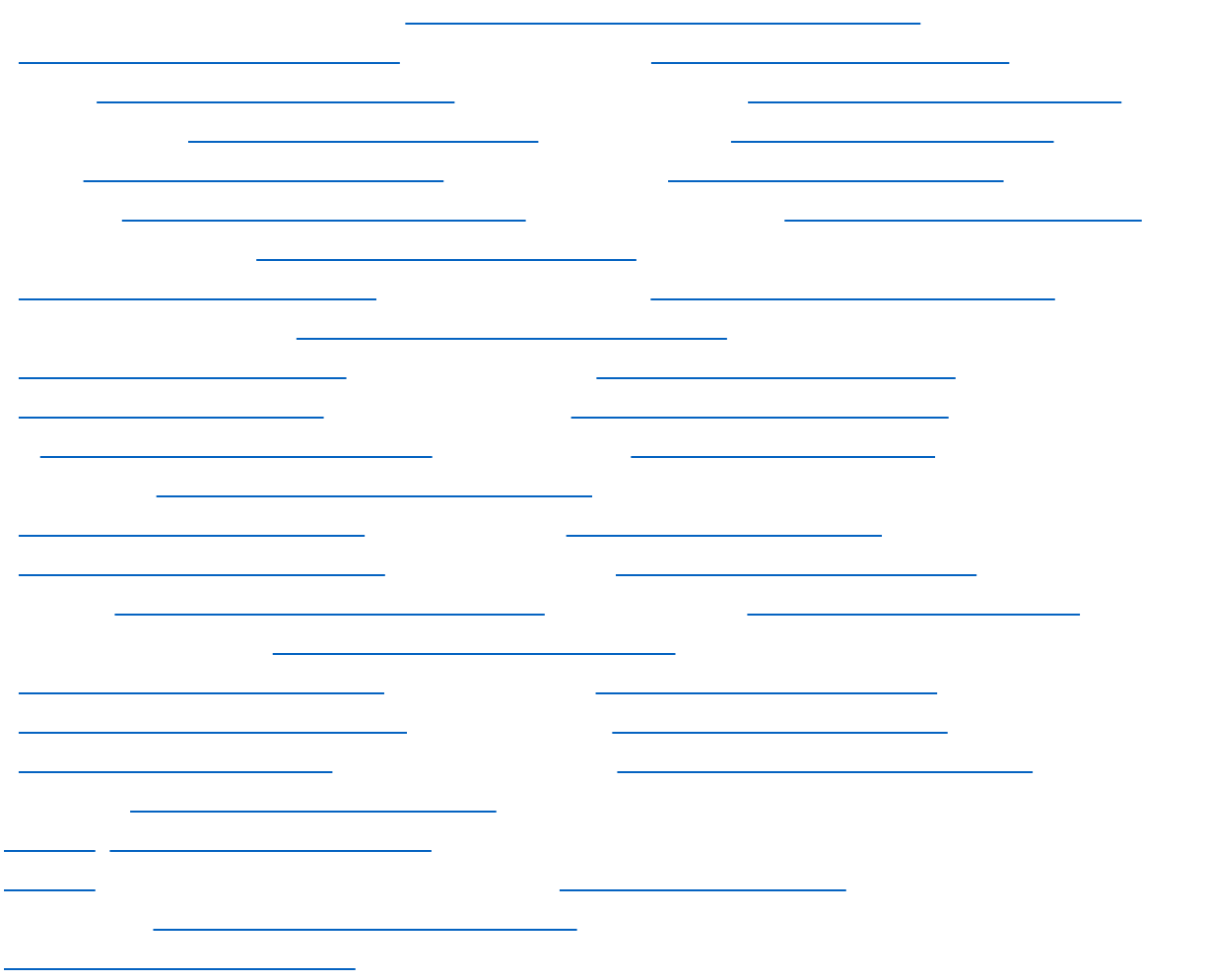
All spills or leaks, such as those from machinery or storage tanks, should be promptly contained and cleaned up (sorbents and booms should be available for quick containment and recovery), and reported to the 24-hour environmental emergencies reporting system (Maritime Provinces 1-800-565-1633)

If you have any questions, please direct any further correspondence to ECCC's environmental assessment window for coordination at: FCR_Tracker@ec.gc.ca.

Suzanne Wade

Environmental Assessment Analyst, Environmental Stewardship Branch
Environment and Climate Change Canada/Government of Canada
Suzanne.Wade@ec.gc.ca / Tel: 902 426-5035

Analyste d'évaluation environnementale, Direction générale de l'intendance Environnementale
Environnement et Changement climatique Canada / Gouvernement du Canada
Suzanne.Wade@ec.gc.ca / Tél: 902 426-5035



Canadian Nightjar Survey: Quick-Reference Protocol Summary 2022

The Protocol Summary is intended as a quick reference when you are in the field. Please use the summary once you have read and are familiar with the full survey protocol.

Survey: Listen quietly for a period of six minutes.

Route: Each route consists of 10 to 12 survey stops spaced at least 1.6 km apart and numbered consecutively.

Date: Survey once between June 15 and July 15. For 2022, survey between June 15 and 21 or July 6 and 15, if you may have Common Poorwills or Eastern Whip-poor-wills in your area. Do not survey when wind speed is greater than Beaufort Scale 3, or rain is stronger than a light drizzle.

Time: Begin at 30 minutes before sunset (civil twilight for your area). It will take about 10 mins to survey one stop and travel to the next, for a total survey time of 2 hours.

Data collection – Stop Conditions: At each survey, record the time your survey began, wind strength, cloud cover, whether the moon is visible, the level of background noise, and the number of cars that pass.

Data collection – Nightjar Detections: Each line on the data sheet represents an individual bird's detection history.

- If you did not detect nightjars at a given stop, you do not need to fill out a row for that stop.
- The survey period is broken into six one-minute intervals on the data sheet.
- For each bird detected in each one-minute interval, record the code for the highest ranked detection type you observed:
    1. W (wing-boom, Common Nighthawks only)
    2. C (call)
    3. V (visual)
    4. N (not detected)
- Use Repeat box to record whether you think you are reporting a bird recorded at a previous stop or not.
- Record the distance (< 100 m or > 100 m) and direction to your first detection of
    - Common Poorwills
    - Eastern Whip-poor-wills
    - Repeat wing-booms of Common Nighthawk(i.e., ≥ 3 wing-booms at the same location)

Data collection – Stop Locations: Record stop coordinates as latitude and longitude in decimal degrees if your route has no pre-established stop locations or if you wish to suggest an amendment to your route.

Essential Equipment Checklist:

- Data sheets
- Survey protocol
- Route map
- Flashlight
- Stopwatch/timer
- Pens/pencils
- GPS or map of route to mark new stops on (new routes only)
- Location of stops (previously surveyed routes only)

1. SURVEY INFO: Fill this out before you start. Don't forget to fill in "End Temperature" at the end of your survey!

Observer Name:	**Co-Observer Name:**	
Address:	**Email:**	**Phone:**
Route Name:	**Date:**	

Comments: _____

2. STOP CONDITIONS: Record the conditions at each survey stop.

Start Temperature: _____

Stop	Start Time (24 hr)	Wind (circle)	Wind direction	Cloud (10ths of sky covered)	Moon (circle)	Noise (circle)	# Cars	Comments
1		0 1 2 3			Y N	0 1 2 3		
2		0 1 2 3			Y N	0 1 2 3		
3		0 1 2 3			Y N	0 1 2 3		
4		0 1 2 3			Y N	0 1 2 3		
5		0 1 2 3			Y N	0 1 2 3		
6		0 1 2 3			Y N	0 1 2 3		
7		0 1 2 3			Y N	0 1 2 3		
8		0 1 2 3			Y N	0 1 2 3		
9		0 1 2 3			Y N	0 1 2 3		
10		0 1 2 3			Y N	0 1 2 3		
11		0 1 2 3			Y N	0 1 2 3		
12		0 1 2 3			Y N	0 1 2 3		

End Temperature: _____

Code	Wind Description	Cloud Description	Noise Description
0	Calm: smoke rises vertically	0=No clouds	None or slight (e.g., distant traffic)
1	Light air: smoke drifts, leaves and wind vanes are stopped	1=10% cover	Moderate (e.g., airplane, moderate traffic)
2	Light breeze: wind felt on exposed skin, leaves rustle, wind vanes begin to move	2=20% cover	High (e.g., fairly constant traffic)
3	Gentle breeze: leaves and small twigs constantly moving, light flags extended	3=30% cover	Excessive (e.g., construction, frog chorus)
4	Do not survey	4=40% cover, etc.	N/A

3. NIGHTJAR OBSERVATIONS: At each stop, listen for 6 minutes and fill out one line for each individual heard. Record the code for the highest ranked detection type you observed in each one-minute time interval: 1. W (wing-boom), 2. C (call), 3. V (visual), 4. N (not detected). Indicate whether you think it is a repeat bird recorded at another stop or not. Only record distance and direction for COPO, EWPW, and repeat wing-booming CONI.

Stop (1-12)	Species	Time Interval						Repeat bird (circle)	Distance (circle)	Direction	Comments
		1	2	3	4	5	6				
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		

3. NIGHTJAR OBSERVATIONS: At each stop, listen for 6 minutes and fill out one line for each individual heard. Record the code for the highest ranked detection type you observed in each one-minute time interval: 1. W (wing-boom), 2. C (call), 3. V (visual), 4. N (not detected). Indicate whether you think it is a repeat bird recorded at another stop or not. Only record distance and direction for COPO, EWPW, and repeat wing-booming CONI.

Stop (1-12)	Species	Time Interval						Repeat bird (circle)	Distance (circle)	Direction	Comments
		1	2	3	4	5	6				
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		

4. STOP LOCATIONS: This section of the datasheet should **only be filled out if your route has never been surveyed before or if you wish to recommend a stop location amendment.**

Stop	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Comments
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Canadian Nightjar Survey: Protocol 2022

This protocol is the product of a series of working group meetings held from November 2015 to April 2016, and is adapted from the *Nightjar Survey Network* protocol from the Center for Conservation Biology (USA).

Contributions were made by the following individuals: Allison Manthorne (Birds Canada), Andrea Sidler (University of Regina; WildResearch), Audrey Heagy (Birds Canada), Elly Knight (WildResearch; University of Alberta), Gabriel Foley (University of Regina; WildResearch), Gilles Falardeau (Canadian Wildlife Service), Jean-Sébastien Guénette (Regroupement QuébecOiseaux), Jon McCracken (Birds Canada), Julie McKnight (Canadian Wildlife Service), Kathy St. Laurent (Canadian Wildlife Service), Kevin Hannah (Canadian Wildlife Service), Marie-France Julien (Regroupement QuébecOiseaux), Mark Brigham (University of Regina), Pam Sinclair (Canadian Wildlife Service), and Rhiannon Pankratz (Canadian Wildlife Service; WildResearch).

This protocol was prepared by Elly Knight, and the French translation was produced by Kevin Quirion Poirier and Audrey Lauzon.

Photo credits: Anne C. Brigham (Common Nighthawk); Alan Burger (Common Poorwill); Nicholas Bertrand (Eastern Whip-poor-will).

For more information, please contact:

Andrew P. Coughlan: acoughlan@birdscanada.org

Suggested citation: Birds Canada. 2022. Canadian Nightjar Survey: Protocol 2022. Based on an original document written by Elly Knight. Published in collaboration with Environment and Climate Change Canada. 23 pages.

TABLE OF CONTENTS

1. INTRODUCTION

Thank you for contributing to nightjar monitoring in Canada! Prior to surveying, please read this protocol in its entirety and familiarize yourself with the identification of nightjar species that may be found in your area. A one-page summary of the protocol can be found in Appendix A and used as quick reference in the field.

Conducting a Nightjar Survey is easy – anyone with good hearing and a vehicle can participate!

- Each route is a series of 12 road-side stops
- Each route needs to be surveyed once per year between June 15 and July 15
- Each survey starts 30 minutes before sunset
- At each stop, you will listen quietly for nightjars for six minutes and record information about your survey

2. OBJECTIVES

The data you are helping to collect will be used to expand our understanding of Common Nighthawks, Common Poorwills, and Eastern Whip-poor-wills across the country. Due to their nocturnal habits, nightjars are understudied, but there is concern about their declining populations. Common Nighthawks and Eastern Whip-poor-wills are listed as Threatened under the federal *Species at Risk Act*. Common Poorwills were assessed as Data Deficient by the Committee on the Status of Endangered Species in Canada (COSEWIC) in 1993. Information on nightjar distribution, abundance, habitat associations, and population trends is critical for conservation and management efforts.

The Canadian Nightjar Survey has been designed with four objectives in mind, to increase our understanding of nightjar species:

1. **Habitat associations and critical habitat mapping**: roadside citizen science data will cover a large geographic expanse and can be integrated with more locally-collected, non-roadside data to characterize nightjar habitat.
2. **Long-term population monitoring:** data collected will be compared to Breeding Bird Survey data after several years of data collection to determine whether the protocol increases the precision of population trend estimates.
3. **Distribution and abundance mapping**: data collected will help refine our understanding of the distribution and abundance of nightjars across Canada.
4. **Environmental assessment**: survey data could be used to inform environmental assessments by providing a baseline against which we can evaluate the potential impacts of development to nightjar species and their habitat.

3. NIGHTJAR BIOLOGY & IDENTIFICATION

Nightjars are a family of cryptic birds that forage for flying insects at night. These beautiful birds have long, pointed wings and are well camouflaged against the leaves and branches they roost upon during the day. Many of these species are highly migratory, some spending their winters as far south as Argentina. During the summer, nightjars breed across Canada, generally laying two eggs directly on the ground with no nest.

Due to their nocturnal behaviour and cryptic appearance, nightjars are rarely seen, so it is most important to learn how to identify nightjars by ear!

3.1. Common Nighthawk (*Chordeiles minor*)

3.1.1. Biology

The Common Nighthawk is found almost everywhere in Canada, except Newfoundland and the far north. This species is one of the last migrants to arrive, showing up across the country in late May and early June. It is generally found in open habitat such as grasslands, clearcuts, sandy areas, peatlands, rocky bluffs, open forests, and even urban areas. The nighthawk uses large areas – males are thought to defend territories for mating and nesting, but forage and roost outside those territories, sometimes up to several kilometres away. The Common Nighthawk is listed as Threatened due to steep population declines based on existing Breeding Bird Survey data.

3.1.2. Identification

The Common Nighthawk is the nightjar the most likely to be seen during surveys because it is more crepuscular than the others, meaning that it is most active at dawn and dusk. This species becomes active approximately 30 minutes before sunset, and remain active until 60 or 90 minutes after sunset. Nighthawks forage for insect prey during sustained-flight, much like swallows and swifts. Their bright white wing bars are a tell-tale way to identify it in flight.

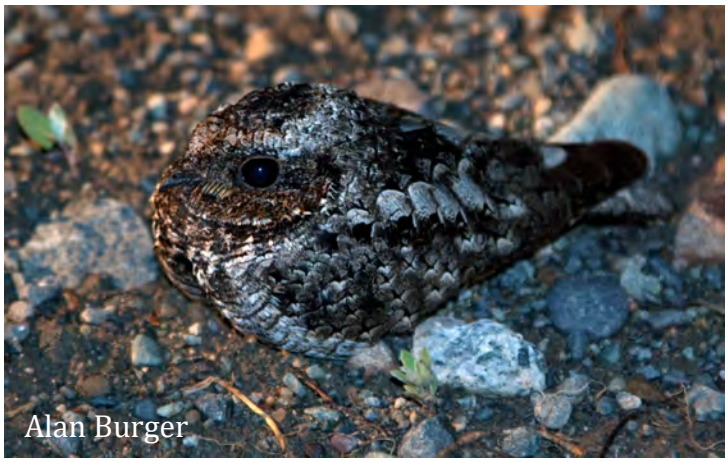
The Common Nighthawk can be identified by two different sounds. The first is a vocal "peent" or "beerb" call that is frequently made while in flight. The second is a mechanical wing-boom, made by air rushing through the down-curved wing tips of the male at the bottom of a steep vertical dive. Wing-booms are thought to be for territorial defense and mate attraction, much like the songs of male songbirds.

3.2. Common Poorwill (*Phalaenoptilus nuttallii*)

3.2.1. Biology

The Common Poorwill is found in the southern-most areas of central British Columbia, eastern Alberta, and western Saskatchewan. This species arrives in Canada in late April to early May to breed in semi-arid open habitats such as rocky bunchgrass hillsides and open forests. Common Poorwill population trends in Canada are unknown. The species was assessed as Data Deficient by the Committee on the Status of Endangered Species in Canada (COSEWIC) in 1993 due to insufficient information. The Common Poorwill is physiologically noteworthy in that it is one of the only bird species that can enter torpor (i.e., hibernation) for weeks at a time to conserve energy!

3.2.2. Identification

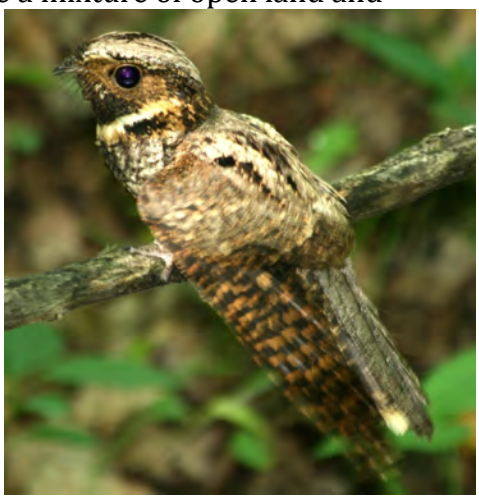

Alan Burger

The Common Poorwill is rarely seen because it is truly nocturnal and remain on the ground or perched, taking flight only to sally up and catch insects from the air. True to its name, the Common Poorwill is most readily detected by its "poor-will" call. This species begins calling about 30 minutes after sunset, and is most vocal during clear nights when the moon is at least half full.

3.3. Eastern Whip-poor-will (*Antrostomus vociferus*)

3.3.1. Biology

The Eastern Whip-poor-will is found from east-central Saskatchewan to Nova Scotia, with the majority of the population likely occurring in Ontario and Québec. This species arrives in Canada in early to mid-May, and occupies areas that are a mixture of open land and woods. It forages in open areas and uses wooded areas for perching and nesting. The Eastern Whip-poor-wills is listed as Threatened also due to steep population declines.



3.3.2. Identification

The Eastern Whip-poor-will is also rarely seen, but the species is distinguished by a white ring around the base of the neck and white spots on the outer tail feathers. It is most vocal during clear nights in June when the moon is at least half full, and it can repeat its characteristic

"whip-poor-will" call up to 100 times without stopping! It begins calling about 30 minutes after sunset, and calls for about 90 minutes each night.

3.4. Other Species of Interest

Other nocturnal and crepuscular species of conservation interest that it is useful to document, and that you might want to learn include:

- Owls
- Yellow Rail
- American Woodcock
- Chimney Swift

3.5. Identification Resources

To practice your nightjar and nocturnal bird species identification, we recommend the following resources:

3.5.1. Online – Before You Survey

- Dendroica: an interactive website designed to help learn bird identification. Listen to recordings and look at photos of potential species.
- Xeno-canto: an online database of recordings of birds from volunteers across the world.
    - Common Nighthawk (make sure to listen to some recordings with wing-booms)
    - Common Poorwill
    - Eastern Whip-poor-will
- The Cornell Lab of Ornithology's Macaulay Library is the world's largest collection of wildlife sounds and videos.

3.5.2. Apps – While You Survey

- iBird (nightjars are in the Pro, Canada, Ultimate, and Plus editions)
- Audubon Birds of North America (free)
- The Sibley eGuide to Birds

4. SURVEY OVERVIEW

4.1. Route

The Canadian Nightjar Survey uses unlimited radius point counts along permanent road-side survey routes so that survey data can be compared between years. The route framework is made up of permanent routes from:

- Breeding Bird Survey (every second stop of the first 23 stops)
- Routes in target habitat for Common Poorwills or Eastern Whip-poor-wills

Please contact your Regional Coordinator if there are no nightjar survey routes available near your area. It may be possible to establish a route designed to target a specific habitat, and in certain cases Breeding Bird Survey staff may consider establishing an additional route.

4.2. Stops

Each route consists of **12 survey stops each spaced 1.6 km apart** (straight line distance). Some routes may have 10 or 11 stops if there is not enough space for 12. The starting point of your route will be named Stop 1. Subsequent stops are sequentially numbered (i.e., 2, 3, 4, etc.). **It is critical that surveys be conducted at these same stops each year** so that data can be compared between years. To ensure the same stop locations are surveyed each year, volunteers will be able to access a route map and the coordinates of their survey stops via the NatureCounts sign-up and data entry portal or the coordinator.

4.2.1. New Routes

Some routes may never have been surveyed before, in which case the location of the stops will need to be determined by you and the coordinator, and will require extra time. You will be able to obtain a map of your route including satellite imagery, and **you will be required to collect information on stop location** (see Section 5.4). Stop locations are chosen with the following in mind:

- Stops should ideally be 1.6 km apart, and no less. Use your car odometer to measure the distance on straight roads.
- If your survey route road has curves, try to place stops at least 1.6 km apart (straight-line distance). Using a GPS will help determine the distance.
- Your safety is of first priority during nightjar surveys, so please ensure that your stops include a safe place to pull over and park.
- Avoid stop locations with excessive noise (e.g., near running water, barking dogs, etc.)
- It is better to add distance between stops rather than placing stops less than 1.6 km apart. This is to avoid counting the same birds twice.
- Not all of your stopping points need to be on the same road. Turning onto different roads may be necessary to find a safe place to park.
- We recommend scouting your route during daylight to become familiar with the stops.

4.3. Survey

At each survey stop, count all nightjars seen or heard for a period of **SIX minutes**. Counting birds and recording data should be done from a stationary position outside of your vehicle. To avoid data omission errors, record birds as you hear them, rather than waiting for the end of the six-minute period. Most importantly, be consistent. Use the same technique at each stop including how you focus your listening between nearby and distant birds. To ensure data are comparable between surveys by different volunteers, please:

- **DO NOT** use whistles, audio calls, or any method that coaxes birds to call or come closer
- **DO NOT** use a flashlight to search for reflections of bird eyes

See Section 5.3 for further details on how to record your nightjar observations.

4.4. Date

Surveys must be conducted between **June 15 and July 15**. **Each route needs to be surveyed once per year.**

If there is the potential for Common Poorwill or Eastern Whip-poor-will in your area, survey in the two-week period centered on the full moon (June 15 to 21 and July 6 to 15, 2022).

Excessive wind and rain will diminish the quality of surveys. **Do not complete surveys when wind speeds are Beaufort level 3 or greater, or if there is any precipitation.** If you begin a survey route and conditions deteriorate for more than 3 survey stops, we advise you to abort the survey and attempt it on another night with better conditions.

4.5. Time

Surveys **begin 30 minutes before sunset**, the time when nightjars are most active. Due to this timing requirement, only one route may be surveyed per night. Sunset is considered the beginning of official civil twilight for your survey route area and can be looked up online at:

http://www.nrc-cnrc.gc.ca/eng/services/sunrise/advanced.html.

To cover both the 6-minute nightjar survey and driving to your next survey stop, each stop will require about ten minutes to complete. The entire route will require a total time of approximately two hours.

5. DATA COLLECTION

A datasheet for data entry is available in Appendix B. Fill in each section of the datasheet according to the instructions in this section.

5.1. Survey Info

Fill in the route name, date, start time, and end time of the survey. Describe the general location and condition of the route including road condition and any safety concerns. Record the temperature at the beginning and end of your survey. Provide your name, mailing address, phone number, and email address for our records.

5.2. Stop Conditions

For each stop surveyed, **record the time the survey began**. We also ask that you record data on the conditions at each stop because factors such as wind and moon visibility can affect your chances of detecting a nightjar.

5.2.1. **Wind**

Record the wind speed using the Beaufort scale below. Do not conduct surveys if the wind force is greater than code 3.

Code	Wind Speed	Description
0	< 1 km/h	Calm: smoke rises vertically.
1	1-5 km/h	Light air: smoke drifts, leaves and wind vanes are stationary.
2	6-11 km/h	Light breeze: wind felt on exposed skin, leaves rustle, wind vanes begin to move.
3	12-19 km/h	Gentle breeze: leaves and small twigs constantly moving.

5.2.2. Cloud Cover

Rate the approximate amount of cloud cover at the time of your survey using tenths of sky covered. The codes are 0=clear; 1=10% cloud cover; 2=20% cloud cover; 3=30% cloud cover; 4=40% cloud cover, etc. up to 10=100% cloud cover or completely overcast. Code 11 can be used to indicate fog.

5.2.3. Moon

Enter yes or no to indicate if the moon can be seen while surveying. This is particularly important to record in deep valleys where the moon is often obstructed by the surrounding hills or mountain ridges.

5.2.4. Noise

Record the level of background noise at each stop using the following codes:

Code	Noise	Description
0	None or slight	Relatively quiet, little interference (e.g., distant traffic, dog barking).
1	Moderate	Some interference when listening for nightjars (e.g., airplane, moderate traffic)
2	High	Substantial interference when listening for nightjars (e.g., fairly constant flow of traffic)
3	Excessive	Extreme interference when listening for nightjars (e.g., continuous traffic passing, construction noise, loud frog chorus).

5.2.5. Cars

Count the number of cars that pass on the road during your survey.

5.3. Nightjar Detections

5.3.1. Nightjars

Each line on the data sheet represents an individual bird's detection history (see example on next page). Use a new line for each new bird detected at a stop. Do not record any detection data if no nightjars (or owls) were heard at a given stop. If you cannot accurately count the number of individuals by sight or by concurrent calls, make a note in the "comments" column of your data sheet. Use the following nightjar codes:

- CONI = Common Nighthawk
- COPO = Common Poorwill

- EWPW = Eastern Whip-poor-will

5.3.2. Detection Type

The survey period is broken into **6 one-minute intervals** on the data sheet. **For each bird heard or seen during each one-minute interval, indicate the highest ranked type.**

1. **Wing-boom (W):** If the bird performed a territorial wing-boom in that one-minute interval (Common Nighthawks only).
2. **Call (C):** If you heard the bird call during that one-minute interval.
3. **Visual (V):** If you saw the bird, but did not hear it during that one-minute interval.
4. **Not detected (N)**: If you did not detect the bird during a given one-minute interval.

Please also note whether or not you think the individual is a repeat bird, that is, one that you already reported at the previous stop.

Sample data entry: The observer detected one Common Nighthawk calling during the first 3 minutes of the survey at Stop 1, and performing wing-booms in minute 3. The observer then detected a second Common Nighthawk calling at Stop 1 during the 3rd and 4th minute of the survey, so began a new row on the data sheet for this bird. Using best judgment, the observer decided these were two individual Common Nighthawks, and not the same bird that moved after initial detection. At Stop 2, the observer did not detect any birds during the survey period, so did not record anything on the data sheet. At Stop 3, the observer detected one Common Nighthawk several hundred metres to the northeast, calling and performing several wing-booms per minute for the entire 6 minutes. A Common Poorwill was also heard calling in minutes 2 to 5 less than 100 metres to the south. At Stop 4, the observer saw two Common Nighthawks fly over in minute 2, one of which made a "peent". None of the birds were thought to be individuals recorded at a previous stop.

Stop (1-12)	Species	Time Interval						Repeat bird (circle)	Distance (circle)	Direction
		1	2	3	4	5	6			
1	CONI	C	C	W	N	N	N	Y (N)	< 100 m > 100 m	
1	CONI	N	N	C	C	N	N	Y (N)	< 100 m > 100 m	
3	CONI	W	W	W	W	W	W	Y (N)	< 100 m (> 100 m)	NE
3	COPO	N	C	C	C	C	N	Y (N)	(< 100 m) > 100 m	S
4	CONI	N	C	N	N	N	N	Y (N)	< 100 m > 100 m	
4	CONI	N	V	N	N	N	N	Y (N)	< 100 m > 100 m	

5.3.3. Distance and Direction

Recording the location of particular observations may help us learn more about the specifics of nightjar habitat requirements. Please estimate the distance and direction to your first detection of:

- Common Poorwills
- Eastern Whip-poor-wills
- Common Nighthawks performing repeated wing-booming in the same location (3 or more wing-booms).

You do not need to estimate distance and direction for Common Nighthawks that are not performing repeated wing-booming.

Estimate distance as one of the following:

- near (< 100 m)
- far (> 100 m)

Estimate direction using cardinal or intercardinal directions (e.g., north, east, south, west, northeast, north-northeast, etc.). If you are unsure of the direction, you may describe the direction relative to your vehicle and the road:

5.4. Stop Locations

This section of the datasheet should **only be filled out if your route has never been surveyed before or if you wish to recommend a stop location amendment.**

Stop coordinates must be recorded and submitted so that surveys can be conducted at the same stops in subsequent years. Ideally, location coordinates should be submitted as latitude and longitude in **decimal degrees** to six digits (e.g., 49.884128 N, 119.496301 W). There are several ways to obtain the coordinates for your new stop locations:

1. Use a handheld GPS and take waypoints at each of your stops.
2. There are many excellent GPS apps available for smartphones. If you have an iPhone, Android, or BlackBerry, you can turn it into a handheld GPS. Here are a few app options:
   - MotionX-GPS for iPhone
   - Free GPS for iPhone (Free)
   - GPS Test for Android (Free)
   - GPS Maps Location Finder for BlackBerry (Free)

3. Locate coordinates after survey completion in Google Earth. If you choose this option, we recommend marking stops on a printed map as you survey and using your car's odometer to keep track of how far apart your stops are.

6. EQUIPMENT

6.1. Essential

- Vehicle
- Protocol
- Datasheets (blank)
- Flashlight (ideally headlamp type)
- Watch or other device with a timer (e.g., phone)
- Several pencils/pens

6.2. Recommended

- An assistant/driver
- Map of route and stops
- GPS and/or phone with GPS app
- Thermometer for recording temperature at the beginning and end of your survey
- Road map for getting to your route
- Compass (for determining cardinal or intercardinal direction to birds)
- Clipboard
- Spare batteries (for flashlight or GPS)
- Insect repellent and/or mosquito-repellent clothing
- Safety vest or other reflective clothing.

7. SAFETY

Your safety is most important, so please ensure that you are conscious of your safety when conducting a survey. Please take the follow points into consideration:

- Consider conducting surveys in a team of two.
- If surveying alone, make sure someone knows where your survey route is and what time you will return. Please make sure that you contact this person when you get back.
- Park your vehicle well off the road during survey stops.
- Stand off the road surface when conducting surveys.
- Leave parking lights on throughout the duration of a count.
- Wear a reflective vest or use a headlamp so that other drivers are aware of your presence.
- Conduct the survey near the road to avoid trespassing on private property.
- Check your clothing and skin for ticks when you get home to prevent the transmission of Lyme disease and other tick-borne illnesses.

8. DATA SUBMISSION

8.1. Data Entry via NatureCounts

If possible, please set aside sufficient time (20 minutes or so, depending on whether you are adding comments or not) to enter all your data for a given survey in one sitting. If you are unable to do this, you can save an incomplete form and come back to it later (see below for details), but you will need to complete the page that you are working on, as saving an incomplete page is not allowed.

Step 1: Log on

Log on to the survey's NatureCounts portal:.
https://www.birdscanada.org/naturecounts/nightjars/main.jsp.

Click on "Sign in" in the main menu, enter your Login name and Password, and click on the blue "Sign in" button at the bottom of the page.

Step 2: Check that your stations are in the database

This step is facultative if you know that your stations are set up correctly.

Once you are signed in, place you cursor over the "Explore" tab and open the "Available Routes" map. Click on the blue marker for your route and select "adoption preferences" to see your route. Make sure that all the stations you wish to enter data for are showing and in the correct place. If your stops are not correctly displayed, please contact your coordinator so that the full route can be set up in the system.

Step 3: Submit data

Once you have checked that your stations are all showing, place you cursor over the "Submit" tab in the main menu bar at the top of the page and then click on "Submit Data".

This will open a new window and you can select your survey site from the drop down list. Routes are listed alphabetically by name. Be careful that you select your route and not an adjacent one in the list. You can also select your route by using the map and zooming into your area and clicking on the route button. Once your route is selected, click the blue "Continue" button

A data entry form will open. The first page is the Form Header. Enter the survey date and the name of any assistants. You can add names to the list by clicking on "Add observers". Save any changes to this list and click on the "Return to data form" button. You can then tick the appropriate box or boxes to add any assistants to the data form. You do not need to include your name as you are associated with the form as the primary observer.

Then enter the start and end temperatures that you recorded during the survey. Please just enter numbers here and not text.

You can add any relevant general survey or route comments to the "Comments" box. There are additional comments boxes for each station.

Once the Form Header page is completed, click on the "Next Page" button at the top or bottom of the sheet. This will save the sheet you have just completed and open the sheet for your first survey stop (called station on these forms).

You will see that "Station 1" is indicated in the "Jump To" box at the top of the page. Next, you will need to select the number of the stop that you surveyed first for the "Station" box. The drop down or scroll through list associated with this box lists all the stops for the route. For the first station, you will normally select "Stop 1", but if you did your route in reverse order, it will be "Stop 12" (for standard routes).

In the "Time and Effort" box, enter the time that you started surveying the stop. Do this using the 24 hour clock (i.e., 8:30 p.m. should be entered as 20 in the hour box and 30 in the minute box). Please note that for subsequent stops, if you accidently enter a time that is earlier than the previous station, this will generate an error message. You can put a later time on the page that you are working on, then save it and go back to the previous station and correct the time. Once this is done, you can return to the page you were working on and indicate the appropriate time.

Under "Weather and Survey Conditions" enter the wind speed and its direction (if noted), and the cloud cover (this is in tenths of sky covered, so 1 is equal to 10% covered, etc.)

Under "Other Variables", enter whether the moon was visible or not, the number of vehicles that passed as you were surveying (enter 0 if no vehicles passed by), and the noise level you recorded.

Then go to the "List of Species" box. If you did not hear or see nightjars at the stop, tick the box that indicates that you completed the survey for the stop but no nightjars were present.

If you did record night jars, use one row in the box per individual. Enter the name of the species in the first box. Let's say it was a Common Nighthawk. Then for each of the one minute time periods, note for that individual what you recorded. You might start with "N-Not detected" for the first two minutes, then perhaps "W-Wing boom" in the third minute and then a "C-Call" in the fifth minute and "W-Wing boom" during minute 6. If there were more than three wing booms given in total, note the distance to the individual (i.e., less than or greater than 100 m) and the direction it was in.

If, at a given stop, you think that you are hearing a bird from a previous stop, please indicate this by ticking the "repeat bird" box. But please don't use this box to indicate that a bird called multiple times at the stop that you are entering data for. *If this option is not in place yet, please add this information to the comments box for the stop.*

You can note other species that you may have recorded (e.g., owls) in the comments box for the stop and you can also note stop-specific comments. Then click on "Next Page", this will save your data and open the data form for the second stop you surveyed. Please only click on "Next Page" (or "Previous Page") after completing a page.

Complete this process for the number stops that you surveyed. If for whatever reason you were unable to collect data from one of your stops, simply take this into account in your choice of stop number. For example, if you were unable to survey stop 4, but were able to survey stop five, on the Station 4 page you would select Stop 5 and continue on from there.

If you have a problem you can delete the sheet for a given stop and start again from the last completed stop. Once you have entered all the data for all the stops you visited, click on "Finish Form" at the bottom of the page. Your form will then be submitted. This opens a summary of the data you have entered. Please read through this to make sure there are no errors. If everything is correct, you can simply log out. If you do need to make a correction, click on "Modify" and then go to the page you want to correct using the "Jump To" box at the top of the page. Then make the correction and click on "Finish Form" again.

If you need to take a break during the data entry process, complete the page of the form you are working on and click on "Save" and log out. When you are ready to complete the form, log in again and instead of going to "Submit data", select "Explore" and "View data forms". Then click on the "Edit" button associated with the form you wish to complete and simply continue from where you left off. Occasionally, if you return quickly to a form, it may generate an access error message. If this is the case, wait a while, preferably overnight and try again.

Your form is available for you to modify until it has been validated by the coordinator and finalized. Up until that point, you can make further modifications. Once the form has been finalized, you will still be able to consult it, but you won't be able to modify it. If you notice a mistake in a finalized form, you will need to contact your coordinator and request a correction.

If you have any persistent problems during data entry, simply contact your coordinator.

8.2. Other Options for Data Submission

If you are unable to enter your data online, you can also submit your data using one of the following options:

- Scan/photograph your data sheets and email them to acoughlan@birdscanada.org
- Mail your data sheets to:

  Andrew P. Coughlan
  Director, Québec Region
  Birds Canada
  346, rue Fraser
  Québec (Québec) G1S 1R1

APPENDIX A: QUICK-REFERENCE PROTOCOL SUMMARY

Quick-Reference Protocol Summary

The Protocol Summary is intended as a quick reference when you are in the field. Please use the summary once you have read and are familiar with the full survey protocol.

Survey: Listen quietly for a period of six minutes.

Route: Each route consists of 10 to 12 survey stops spaced at least 1.6 km apart and numbered consecutively.

Date: Survey once between June 15 and July 15. For 2022, survey between June 15 and 21 or July 6 and 15, if you may have Common Poorwills or Eastern Whip-poor-wills in your area. Do not survey when wind speed is greater than Beaufort Scale 3, or rain is stronger than a light drizzle.

Time: Begin at 30 minutes before sunset (civil twilight for your area). It will take about 10 mins to survey one stop and travel to the next, for a total survey time of 2 hours.

Data collection – Stop Conditions: At each survey, record the time your survey began, wind strength, cloud cover, whether the moon is visible, the level of background noise, and the number of cars that pass.

Data collection – Nightjar Detections: Each line on the data sheet represents an individual bird's detection history.

- If you did not detect nightjars at a given stop, you do not need to fill out a row for that stop.
- The survey period is broken into six one-minute intervals on the data sheet.
- For each bird detected in each one-minute interval, record the code for the highest ranked detection type you observed:
    1. W (wing-boom, Common Nighthawks only)
    2. C (call)
    3. V (visual)
    4. N (not detected)
- Use Repeat box to record whether you think you are reporting a bird recorded at a previous stop or not.
- Record the distance (< 100 m or > 100 m) and direction to your first detection of
    - Common Poorwills
    - Eastern Whip-poor-wills
    - Repeat wing-booms of Common Nighthawk(i.e., ≥ 3 wing-booms at the same location)

Data collection – Stop Locations: Record stop coordinates as latitude and longitude in decimal degrees if your route has no pre-established stop locations or if you wish to suggest an amendment to your route.

Essential Equipment Checklist:

- Data sheets
- Survey protocol
- Route map
- Flashlight
- Stopwatch/timer
- Pens/pencils
- GPS or map of route to mark new stops on (new routes only)
- Location of stops (previously surveyed routes only)

APPENDIX B: CANADIAN NIGHTJAR SURVEY DATASHEET

1. SURVEY INFO: Fill this out before you start. Don't forget to fill in "End Temperature" at the end of your survey!

Observer Name:	**Co-Observer Name:**	
Address:	**Email:**	**Phone:**
Route Name:	**Date:**	

Comments: _____

2. STOP CONDITIONS: Record the conditions at each survey stop.

Start Temperature: _____

Stop	Start Time (24 hr)	Wind (circle)	Wind direction	Cloud (10ths of sky covered)	Moon (circle)	Noise (circle)	# Cars	Comments
1		0 1 2 3			Y N	0 1 2 3		
2		0 1 2 3			Y N	0 1 2 3		
3		0 1 2 3			Y N	0 1 2 3		
4		0 1 2 3			Y N	0 1 2 3		
5		0 1 2 3			Y N	0 1 2 3		
6		0 1 2 3			Y N	0 1 2 3		
7		0 1 2 3			Y N	0 1 2 3		
8		0 1 2 3			Y N	0 1 2 3		
9		0 1 2 3			Y N	0 1 2 3		
10		0 1 2 3			Y N	0 1 2 3		
11		0 1 2 3			Y N	0 1 2 3		
12		0 1 2 3			Y N	0 1 2 3		

End Temperature: _____

Code	Wind Description	Cloud Description	Noise Description
0	Calm: smoke rises vertically	0=No clouds	None or slight (e.g., distant traffic)
1	Light air: smoke drifts, leaves and wind vanes are stopped	1=10% cover	Moderate (e.g., airplane, moderate traffic)
2	Light breeze: wind felt on exposed skin, leaves rustle, wind vanes begin to move	2=20% cover	High (e.g., fairly constant traffic)
3	Gentle breeze: leaves and small twigs constantly moving, light flags extended	3=30% cover	Excessive (e.g., construction, frog chorus)
4	Do not survey	4=40% cover, etc.	N/A

3. NIGHTJAR OBSERVATIONS: At each stop, listen for 6 minutes and fill out one line for each individual heard. Record the code for the highest ranked detection type you observed in each one-minute time interval: 1. W (wing-boom), 2. C (call), 3. V (visual), 4. N (not detected). Indicate whether you think it is a repeat bird recorded at another stop or not. Only record distance and direction for COPO, EWPW, and repeat wing-booming CONI.

Stop (1-12)	Species	Time Interval						Repeat bird (circle)	Distance (circle)	Direction	Comments
		1	2	3	4	5	6				
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		

3. NIGHTJAR OBSERVATIONS: At each stop, listen for 6 minutes and fill out one line for each individual heard. Record the code for the highest ranked detection type you observed in each one-minute time interval: 1. W (wing-boom), 2. C (call), 3. V (visual), 4. N (not detected). Indicate whether you think it is a repeat bird recorded at another stop or not. Only record distance and direction for COPO, EWPW, and repeat wing-booming CONI.

Stop (1-12)	Species	Time Interval						Repeat bird (circle)	Distance (circle)	Direction	Comments
		1	2	3	4	5	6				
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		

4. STOP LOCATIONS: This section of the datasheet should **only be filled out if your route has never been surveyed before or if you wish to recommend a stop location amendment.**

Stop	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Comments
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

NOVA SCOTIA

Communities, Culture, Tourism and Heritage

1741 Brunswick Street
3rd Floor
P.O. Box 456
Halifax, NS
B3J 2R5

Date: April 20, 2023

To: Jeremy Higgins, Nova Scotia Environment & Climate Change

From: Coordinator Special Places, Culture and Heritage Development

Subject: Granite Village Quarry Expansion Project - EA Registration

Staff of the Department of Communities, Culture, Tourism, and Heritage has reviewed the Granite Village Quarry Expansion Project - EA Registration documents and have provided the following comments:

Archaeology

Staff reviewed the sections of the EA document pertaining to archaeology. The EA briefly describes the archaeology assessment undertaken for the project area and includes what will occur if an artifact or feature is encountered. The report review letter by the Special Places Program at CCTH is in the Appendix and provides sufficient detail regarding the archaeological investigation and results.

Field reconnaissance showed the proposed development area to be disturbed, sloping, predominantly forested terrain. Moderately sloping terrain with shallow soils and numerous large erratics predominates the study area and it is relatively distant from significant sources of water and historic roadways, nor does it contain evidence of occupation. Additionally, a significant portion of the study area consists of an existing quarry, as well as wetland. Based on these observations, the study area was ascribed low potential for encountering Pre-contact or historic Mi'kmaw and/or Euro-Canadian or African-Nova Scotian archaeological resources. Based on the above, CRM Group offered the following recommendations:

1. It is recommended that the study area, as defined and depicted in this report (Figures 2 & 3), be cleared of any requirement for future archaeological investigation.

2. If any further changes are made to the layout of the study area beyond the area assessed in this report, it is recommended that those proposed areas be subjected to an Archaeological Resource Impact Assessment.

3. If archaeological deposits or human remains are encountered during construction activities

associated with the Granite Village Quarry, all work in the associated area(s) should be halted and immediate contact made with the Special Places Program (John Cormier: 902-424-4542).

Botany

Staff have reviewed the sections of the EA document pertaining to botany. There was no mention of Wetland 1 being a Wetland of Special Significance. Given that it hosts a Species at Risk (Blue Felt Lichen), Wetland 1 should be classified as a Wetland of Special Significance, and protected as such. The suggested buffer of 30 m for Wetland 1 may not be sufficient to also achieve the recommended buffer of 100 m for Blue Felt Lichen occurrences under the provincial Special Management Practice for At Risk Lichens, and therefore may also be insufficient for protecting the function of wetland 1.

There is no information provided on managing greenhouse gas emissions or mitigating and adapting to climate change, as is recommended by Nova Scotia Environment's Guide to Considering Climate Change in Environmental Assessments in Nova Scotia. Consequently this aspect of the project cannot be assessed.

Palaeontology

Staff have reviewed the sections of the EA document pertaining to palaeontology. Considering palaeontology resources, the bedrock geology in this area is the Late Devonian monzogranite so no fossil resources are expected in this area.

Zoology

Staff have reviewed the sections of the EA document pertaining to palaeontology to zoology. The document highlights a several cases where there are SOCI/SAR species that have been identified immediately outside the study area and in the vicinity of the project. It appears to be a reasonable assessment of the zoological setting for the site and immediate-adjacent area.

While no avian species of conservation concern were found in either owl or breeding bird surveys (both of which occurred in May), it is possible that these survey dates were not adequate to capture the existing site use diversity. These dates may still be somewhat early in the migratory season and the 2022 season was cited as being particularly cold.

For future documentation, it is recommended that the taxonomic names of animals be included throughout the Envirosphere documentation provided for evaluation. These are provided for all plants, but not animals.

Kwilmu'kw Maw-klusuaqn Negotiation Office
Mi'kmaq Rights Initiative
Our Rights. Our Future.

75 Treaty Trail
Truro, NS B6L 1W3

Tel (902) 843 3880 **Fax** (902) 843 3882
Toll Free 1 888 803 3880
Email info@mikmaqrights.com
www.mikmaqrights.com

April 27th, 2023

Jeremy Higgins
Environmental Assessment Officer
Environmental Assessment Branch
Nova Scotia Environment and Climate Change
Email: Jeremy.higgins@novascotia.ca

RE: Consultation on the Granite Village Quarry Expansion Project, Queens County, NS – Municipal Enterprises Limited (MEL)

Mr. Higgins,

I write in response to your letter dated March 15, 2022, requesting consultation under the *Terms of Reference for a Mi'kmaq-Nova Scotia-Canada Consultation Process* (ToR) as ratified on August 31, 2010, on the above noted project. We wish to proceed with consultation.

The Proponent has Mi'kmaq listed under Table 1. Granite Village Quarry Environmental Assessment – Stakeholder Engagement Summary. We would like to remind the Proponent that the Mi'kmaq are Rights Holders not Stakeholders and should be referred to as such.

EA Registration Document

6.2.1 Mi'kmaq First Nation

It is recommended that the proponent conduct a Mi'kmaq Ecological Knowledge Study (MEKS) for the area. Further comments will be provided on the ARIA upon the completion of review by KMKNO's Archaeology and Research Division.

6.2.4 Recreational, Commercial and Mi'kmaq Fishing

This section states that, 'surface waters at the site have high quality, including low turbidity and neutral pH, which would lead to good water quality downstream for fish' Please provide water quality sampling results with any exceedances highlighted from the currently approved Industrial Approval and Surface Water Quality Guidelines. Additionally, please provide a geo referenced map with current and proposed sampling locations.

6.2.12 Resource Use – Forestry, Hunting and Trapping

This area has potential to be utilized by the Mi'kmaq. It is recommended that the proponent conduct a Mi'kmaq Ecological Knowledge Study (MEKS) for the area.

6.3.1 Air Quality, Noise and Light

Air Quality

Please provide thresholds at which water application will be used to reduce dust. What monitoring is planned for dust particulate? What are the proposed monitoring locations off site? Where are the current monitoring locations located? Have there been any exceedances of Air Quality from limits as outlined in the current Industrial Approval?

Noise

Have there been studies conducted to assess how noise will affect local wildlife?

Will additional noise monitoring locations be established with the expansion? If so, where are the proposed locations? Where are the current monitoring locations located? Have there been any exceedances of Noise (concussion, ground vibration, etc.) from limits outlined in the current Industrial Approval?

6.3.3 Hydrology/Water Quality

In Envirosphere's Biophysical Assessment, the bedrock geology which underlies the quarry mentions several granitic rocks including pegmatite, which does have the potential to bear sulphides. Only one sample was submitted in January for acid producing potential. It is recommended that all lithologies be sampled for PAG rock and that more than one sample be submitted for analysis.

6.3.4 Freshwater Aquatic Environments and Wetlands

Is there currently a Wetland Monitoring Plan for the site? If so, please provide for our review. The Mi'kmaq expect to be consulted on the Wetland Offsetting and Monitoring Plan prior to its implementation.

6.3.6 Coastal Environments

With the quarry's location on the margin of the management zone it is recommended that this area be included in monitoring plans to ensure no harm comes to the wildlife and habitat.

6.3.7 Fish and Fish Habitat

Please refer to above on section 6.2.4 regarding surface water sampling.

6.3.8 Flora and Fauna Habitat

Please provide the Wildlife and Vegetation Monitoring Plan for our review and comment prior to its implementation and submission to the Province. As stated above, we recommend a MEKS be conducted.

Please provide the following documents for our review upon their completion:

- Surface Water Monitoring Plan
- Groundwater Monitoring Plan
- Wetland Compensation and Monitoring Plan
- Blast Monitoring Plan
- Wildlife and Vegetation Monitoring Plan
- Site Development Plan
- Contingency Plan

- Site Reclamation Plan

The Mi'kmaw Nation in Nova Scotia has a general interest in all lands and resources in Nova Scotia as the Mi'kmaq have never surrendered, ceded, or sold the Aboriginal Title to any of its lands in Nova Scotia. The Mi'kmaq have a Title claim to all of Nova Scotia and as co-owners of the land and its resources it is expected that any potential impacts to Rights and Title shall be addressed.

Yours in Recognition of Mi'kmaw Rights and Title,

[redacted]

Director of Consultation
Kwilmu'kw Maw-Klusuaqn Negotiation Office

c.c.:
Melissa Slauenwhite, Nova Scotia Office of L'nu Affairs
Gill Fielding, Nova Scotia Office of L'nu Affairs
David Clarke, Nova Scotia Environment and Climate Change