NOVA SCOTIA
Environment and Climate Change

Comment Index

Lantz Quarry Expansion Project

Publication Date: December 22, 2022

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Number	Source	Date Received
1	Native Council of Nova Scotia	November 9, 2022
2	Kwilmu'kw Maw-Klusuaqn Negotiation Office (KMKNO)	December 1, 2022

Public

Number	Source	Date Received
1	Anonymous	November 2, 2022

Health Canada Santé Canada

Human Health Considerations in Environmental Assessment

Health Canada (HC) provides the following generic considerations for evaluating human health impacts in environmental/impact assessment (EA/IA). Please note that this is not an exhaustive list of human health concerns that may result from projects, and that issues will vary based on project specifics. Please also note that HC does not approve or issue licenses, permits, or authorizations in relation to the IA. HC's role in Impact Assessment is founded in statutory obligations under the Canadian Impact Assessment Act, and its knowledge and expertise can be called upon by reviewing bodies (e.g., Impact Assessment Agency of Canada, review panels, Indigenous groups and/or other jurisdictions). In the absence of such a request from one of the above noted groups, HC is unable to carry out a comprehensive review of the project. However, HC is able to accommodate specific requests for human health advice and guidance related to provincial environmental assessments within a reasonable timeframe.

HC currently possesses expertise in the following areas related to human health: air quality, recreational and drinking water quality, traditional foods (country foods), noise, and methodological expertise in conducting human health risk assessment. Based on Health Canada's "*Guidance for Evaluating Human Health Impacts in Environmental Assessment*", please consider the following information on these topics to assist in your review.

	Consideration	**Reference Document**
Receptor Location(s)		
Please ensure the registration document clearly identifies the locations of all receptors that may be impacted by the proposed project, including any receptors located along the transportation route, if applicable.	• It is important to clearly describe the location and distance from the proposed site(s) to all potential human receptors (permanent, seasonal or temporary), taking into consideration the different types of land uses (e.g. residential, recreational, industrial, etc.), and identifying all vulnerable populations (e.g. in schools, hospitals, retirement or assisted living communities). Note that the types of residents and visitors in a particular area will depend on land use, and may include members of the general public and/or members of specific population subgroups (Indigenous peoples, campers, hunters, etc.)	Section 7.1.3 of *Health Canada. 2019. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.* *https://publications.gc.ca/site/eng/9.870475/publication.html*

	• If there is the potential that project-related activities could affect human receptors, impacts to human health should be considered.	
Atmospheric Environment		
Project impacts to the atmospheric environment include changes to air quality and noise, and can occur in both the construction, operation and decommissioning phases of the project. Project impacts to air quality are commonly caused by emissions from equipment or vehicles as well as by dust. Noise impacts are commonly caused by equipment as well as by activities such as blasting.	• If there are receptors that could be affected by project-related activities, impacts to the atmospheric environment should be considered. Changes to the atmospheric environment that may impact human health include: o impacts to air quality (dust or fumes including $PM_{2.5}$, NO_x, SO_x, PAHs) o increased noise from construction or operations	*Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.* http://publications.gc.ca/pub?id=9.832514&sl=0 *Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.* http://publications.gc.ca/pub?id=9.802343&sl=0
	• If there are receptors who could be impacted by project-related noise, it may be necessary to inform receptors prior to loud activities, such as blasting.	
	• If there is the potential for impacts to human receptors from noise and/or air quality changes from the project, the proponent should consider establishing mitigation measures. If complaints are received additional mitigation measures may be required.	
Recreational and Drinking Water Quality		
The proponent should consider whether any nearby waterbodies are used for recreational (i.e. swimming, boating, or fishing) or drinking water purposes, as well as whether there are any drinking water wells in the area potentially impacted by the project. Nearby drinking and/or recreational water quality may be impacted by accidents or malfunctions, such as a fuel spill; by dust and	• If there is the potential for impacts to drinking and/or recreational water quality from the project site, the proponent should consider establishing mitigation measures. If complaints are received additional mitigation measures may be required.	*Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Water Quality. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.* http://publications.gc.ca/pub?id=9.832511&sl=0
	• The proponent should consider preparing a response plan in the event of an accident or malfunction with the potential to impact drinking and/or recreational water quality. Response plans should include a spill response kit, adequate spill response training, and a communication plan to notify all recreational and drinking water users in the impacted area as well as all relevant authorities.	

increased sediment runoff; and by other chemical discharges to the environment. Additionally, wells in the area potentially impacted by the project may be impacted by activities such as blasting.	• In some cases, for projects that are likely to have an impact on drinking and/or recreational water quality, the proponent should consider conducting water monitoring prior to the start of the project (to establish a baseline). Monitoring would continue throughout the construction, operation and decommissioning phases of the project (as applicable) to monitor for any changes in water quality or quantity.	
Country Foods		
If there are plants or animals present in the area potentially impacted by the project that are consumed by humans, there may be potential for impacts to country foods. The proponent should consider all country foods that are hunted, harvested or fished from the area potentially impacted by the project. Impacts to country foods may occur from the release of contaminants into soil or water (including from an accident or spill) or from deposition of air borne contaminants.	• If there is the potential for impacts to country foods from the proposed project, the proponent should consider establishing mitigation measures. If complaints are received additional mitigation measures may be required. • The proponent should consider preparing a response plan in the event of an accident or malfunction with the potential to impact country foods. Response plans should include a spill response kit, adequate spill response training, and a communication plan to notify all potential consumers of country foods in the impacted area as well as all relevant authorities.	*Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.* http://publications.gc.ca/pub?id=9.855584&sl=0

For more information on HC's guidelines for evaluating human health impacts in environmental assessments, please see:

Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. http://publications.gc.ca/pub?id=9.832514&sl=0

Appendix B of this guidance document provides a checklist that may be beneficial in verifying that the main components of a noise environmental assessment are completed.

Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. http://publications.gc.ca/pub?id=9.802343&sl=0

Appendix A of this guidance document provides a checklist that may be beneficial in verifying that the main components of an air quality environmental assessment are completed.

Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Water Quality. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. http://publications.gc.ca/pub?id=9.832511&sl=0

Appendix A of this guidance document provides a checklist that may be beneficial in verifying that the main components of a water quality environmental assessment are completed.

Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. http://publications.gc.ca/pub?id=9.855584&sl=0

Appendix A of this guidance document provides a checklist that may be beneficial in verifying that the main components of a country foods environmental assessment are completed.

Health Canada. 2019. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. https://publications.gc.ca/site/eng/9.870475/publication.html

Appendix B of this guidance document provides a checklist that may be beneficial in verifying that the main components of a human health risk assessment are completed.

NOVA SCOTIA
Environment and Climate Change

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

Date: November 10, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Neil Morehouse, Manager, Protected Areas and Ecosystems

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

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

Technical Comments:

This is the expansion of an existing Quarry closest protected areas is 14 KM away.

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

We have no comments on this project

NOVA SCOTIA
Environment and Climate Change

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

Date: November 17, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Rodney Lahey, Environmental Health Consultant EH&FS

Sign Off by Manager/Director: Colin Poirier

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

Scope of review:
This review focuses on the following mandate: Potential Health Impact

(Examples: hydrology and surface water quantity; surface water quality; air quality; species at risk recovery; wildlife species and habitat conservation; contaminated sites, etc.)

Technical Comments:

Potential Health effects highlighted by the EA documents relate specifically to noise and dust, as the project is anticipated to produce both. The potential impact of these items is already addressed through the requirement to obtain an Industrial Approval in accordance with the requirements of the ECC Pit and Quarry Guidelines. These Guidelines will require monitoring and controls for each of the identified items to limits specified by the Pit and Quarry Guidelines.

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

Based upon the identified potential health impacts and the mitigations that will be in place as a requirement of the operating approval issued in accordance with the Pit and Quarry Guidelines, there are no further comments or recommendations required from the EH&FS Division.

McInnis, Mark

From: McKenna, Chuck W
Sent: November 22, 2022 12:04 PM
To: McInnis, Mark
Subject: RE: Lantz Quarry Expansion Project - EA Registration

Mark,

The Resource Management Unit has no comments.

Chuck

McInnis, Mark

From: Drake, Carrie L
Sent: November 23, 2022 1:29 PM
To: McInnis, Mark
Cc: Pinks, Clinton W
Subject: RE: Lantz Quarry Expansion Project - EA Registration

Hi Mark,

I have no concerns from a Provincial Park or protected beaches perspective.

Thanks,
Carrie

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: November 23, 2022

To: Mark McInnis, Environmental Assessment Officer

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

Subject: Lantz Quarry Expansion EA Project

Dear Mark McInnis:

Fisheries and Oceans Canada (DFO), Fish and Fish Habitat Protection Program (FFHPP) received the Nova Scotia Environmental Assessment registration document submitted for the Lantz Quarry Expansion Project in Halifax County. The project is to expand on the existing quarry that is currently less than four hectares (ha) by an additional 8.7 ha.

The study area contains an ephemeral and intermittent tributary which connects to the perennial Keys Brook of the Shubenacadie River Watershed. The tributary may provide habitat for Brook Trout and American Eel, for both resident and migratory populations. Atlantic Salmon – Inner Bay of Fundy (iBoF) population – listed as Endangered under the *Species at Risk Act (SARA)*, has also been identified as potentially accessing the area; however, the tributary is not considered critical habitat.

The study area also contains wetlands which may provide both direct and indirect fish habitat. At the Northeast corner of the study area, wetlands 15 and 17 are adjacent to the ephemeral and intermittent tributary crossing the study area and provide moderate and high resident fish functions, respectively. Both wetlands 15 and 17 provide high invertebrate habitat and water cooling functions. Wetlands 3, 4, and 7 found along the Southeast corner of the study area all provide moderate water cooling and high water quality (sediment retention, phosphorus retention, and nitrate removal) functions.

The quarry expansion has included mitigation measures to reduce risks associated with the works. The ephemeral watercourse will not be directly impacted, and a 30 metre (m) buffer will be implemented to avoid impacts to the watercourse. A Surface Water Monitoring Program has been proposed to monitor water quantity and quality, to monitor any indirect impacts associated with the works.

DFO-FFHPP is responsible for administrating the fisheries protection provisions of the *Fisheries Act* (*FA*) and *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:

- The Quarry Expansion Water Balance has indicated a potential alteration in monthly and annual runoff, with an maximum monthly change of 49% in August. There is a potential for stranding of fishes and alteration of downstream habitat due to energy fluctuation in the system. Any impacts associated with the quarry expansion that may result in the harmful alteration, disruption, or destruction of fish habitat could result in the requirement for a *FA* authorization from DFO;
- The settling pond proposed for erosion and surface water management should be monitored to ensure that the pond is not breached in order to avoid fish stranding and/or release of deleterious substances into the downstream fish habitat;
- The expansion of the quarry may result in the loss of indirect fish habitat provided by wetlands within the study area. Any impacts associated with the quarry expansion that may result in the harmful alteration, disruption, or destruction of fish habitat could result in the requirement for a *FA* authorization from DFO; and,
- The works will require review by DFO to ensure there is no contravention of *SARA.* A *SARA* permit may be required due to the presence of Atlantic Salmon – iBoF population in the vicinity of the works.

Should the EA be granted conditional approval, DFO will be requesting additional information be provided through the Nova Scotia of Environment Wetland and/or Watercourse Alteration Approval processes to determine if the project will result in the HADD to fish and fish habitat and require an authorization under the *FA*, and/or require a *SARA* permit.

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: November 29, 2022

To: Mark McInnis, Environmental Assessment Officer, Nova Scotia Department of Environment and Climate Change

From: Karen Lalonde, Environmental Assessment Officer, Impact Assessment Agency of Canada

Subject: Lantz 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 Lantz 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

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

Agente d'évaluation environnementale, région de l'Atlantique
Agence d'évaluation d'impact du Canada / Gouvernement du Canada
Karen.Lalonde@iaac-aeic.gc.ca_/ Tél. : 902-399-8839

Barrington Place
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Halifax, Nova Scotia
Canada B3J 2P8

NOVA SCOTIA
Environment and Climate Change

Date: November 23, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Climate Services Specialist, Climate Change Division

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

Scope of review:
This review focuses on the following mandate: climate change mitigation and adaptation

Technical Comments:

Adaptation
Section 5.1.1: Weather and Climate provides a few statistics regarding historical weather, however, there does not appear to be any consideration given to climate change trends and whether conditions such as increased extreme heat, more intense precipitation, or stronger tropical storms may impact the Project in any way over its 40-year operating period. Would recommend reviewing localized climate data available through Canada's climate data portal (ClimateData.ca) to make this determination. The proponent may also wish to review the Guide to Considering Climate Change in Environmental Assessments in Nova Scotia (2011).

Mitigation
Although likely insignificant, contribution of the construction and operation over the period of project to Nova Scotia greenhouse gas emissions has not been estimated.

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

Adaptation

Review climate data for the project site and identify whether climate change trends may impact Project activities or mitigation measures.

Mitigation

Identify potential sources of greenhouse gas emissions such as usage of mobile and combustion equipment especially during construction, and provide an estimation of greenhouse gas emissions using published emission factors.

NOVA SCOTIA
Environment and Climate Change

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

Date: December 1st, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Wetland and Water Resources Specialist, Water Resources Management Unit

Reviewed by Elizabeth Kennedy, Director, Sustainability and Applied Science Division

Subject: **Lantz Quarry Expansion Project, Lantz, Nova Scotia**

Scope of review:

The following review of the Lantz Quarry Expansion Project, located in Lantz, Nova Scotia, is specific to the mandate of the NSECC Wetlands Program within the Sustainability and Applied Sciences (SAS) division. The scope of this review is to assess the potential environmental impacts to wetlands and assure appropriate mitigation measures are proposed. The recommendations provided below are meant to supplement the actions outlined in the EA submission documents.

Technical Comments:

The Study Area contains seventeen wetlands, consisting of twelve treed swamps and five bogs. Canada warbler (*Cardellina canadensis*, SARA: Threatened; NSESA: Endangered; AC CDC: S3B) was observed within Wetland 1 (WL1) and therefore is designated as a Wetland of Special Significance (WSS) as defined in the *Nova Scotia Wetland Conservation Policy.*

The Project over its lifetime is expected to directly impact seven wetlands resulting in a total direct wetland alteration area of 7,422 m^2. No direct impacts to the identified WSS (WL1) are anticipated to occur and is consistent with objectives outlined in the *Nova Scotia Wetland Conservation Policy.*

Surface Water Changes:

The Project will result in an enlarged catchment area (increased to up to 10.71%) from baseline conditions, resulting in increased surface water runoff to one throughflow swamp (WL15). Wetlands in the south are not anticipated to experience increase surface water flow from the Quarry Expansion Area (QEA). WSS WL1 was determined that no quarry impacts fall within its local catchment area and therefore, no indirect impacts via surface water changes to WL1 are expected.

Groundwater Changes and Interactions:

The Project has been identified to have potential to interact with groundwater and may result in changes in hydrology to the surrounding wetlands. However, it is unclear to what extent groundwater drawdown will occur, and which wetlands may be impacted by drawdown. The Proponent predicts that changes in hydrology to WL5, WL6, WL8, WL11, WL15, WL17 will occur. The Proponent states that wetlands in the northern portion of the Study Area will not be impacted because they are over 400 m and beyond of the influence of groundwater drawdown. However, there is nowhere in the EARD where it has been determined what the groundwater distance of influence of drawdown is and how it was calculated. Furthermore, the Proponent claims there will be no impacts to the WSS WL1 via groundwater drawdown, but no groundwater studies were completed to corroborate that claim.

General Comments:

It appears that several wetlands were misclassified as bogs instead of swamps. For example, WL4, WL6, WL7, WL9 and WL10 are adjacent to steep slopes (as identified in LiDAR Hillshade) which indicate that the wetland receives its water source (in part) from surface water runoff and is likely minerotrophic. Bogs are ombrotrophic systems which receive their water inputs exclusively from precipitation, snow melt or fog and are generally raised or at level with the surrounding terrain. WL4 was identified to have mineral soils (depleted matrix) which is not a soil type found in bogs. Furthermore, based on vegetation listed in the EARD and photos provided in Appendix H, these wetlands are more consistent with a swamp classification (e.g., WL4 appears to be a cinnamon fern dominant black spruce swamp, a vegetation type not usually found within bogs). The claims that WL4 and WL7 (which the Proponent incorrectly identified as bogs) are more resilient to hydrological changes from the QEA is incorrect in this case, as these wetlands have a dependency on receiving surface water from the adjacent upland and likely have groundwater influence.

Summary of Gaps/Risks			
Identify Gap/Risk	**Can it be addressed in another permit/approval or with a T&C?**	**Define/provide detail**	**Risk of gap and this approach?**
Inadequate analysis of the influence of groundwater drawdown on adjacent wetland hydrology and function.	Yes, T&C	Conduct baseline monitoring and monitoring of wetlands during operations to determine the effects of the Project to wetland function.	It is unclear to which wetlands may be indirectly impacted by the quarry as the influence of groundwater drawdown has not been quantitatively defined (e.g. what is the distance from the QEA that we should expect impacts to hydrology to wetlands?).

Summary of Recommendations:

Beyond the estimates of wetland area removal, there is insufficient information provided in the EA document to predict whether indirect adverse environmental effects on wetland function will occur to wetlands within the influence of groundwater drawdown. A series of recommendations are provided below:

Planning/Design Issues:

- It is unclear to what extent adjacent wetlands may be affected by drawdown from the QEA. However, it is recommended that all partially altered wetlands (WL5, WL6, WL8, WL11) will be monitored. Additionally, WL15, WL17 and the WSS WL1 should be monitored to determine indirect impacts to in hydrology via surface water and groundwater changes. Wetland monitoring will be progressive throughout the quarry expansion and reassessed as necessary during the expansion phases. Depending on observations from previous monitoring events, additional wetlands which may be anticipated to be indirectly impacted by the Project will be monitored. The monitoring plan should include a combination of vegetation plots, hydrological assessments and general observations of wetland condition and presence/absence of invasive plant species.
- If this project is approved, it is recommended that the proponent prepare and submit a Wetland Monitoring Plan for NSECC's review and acceptance and will be implemented prior to construction of the Project. The monitoring plan, at minimum, will include the key monitoring components listed above. This plan will be developed in consultation with the NSECC Wetland and Water Resources Specialist.

- The approval holder shall submit a detailed wetland management plan as part of the Wetland Alteration Approval Application document and be completed by a qualified wetland practitioner.

Operational Issues/Other Permitting Processes:

- Alteration/removal of all wetlands are subject to the NSE Wetland Alteration Approval Process.

NOVA SCOTIA
Public Works

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

Date: 1 December, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Environmental Services, Nova Scotia Public Works

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

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

Technical Comments:

The proponent is expanding an existing quarry in Lantz. The expansion of the quarry is to increase aggregate material available for local infrastructure needs. Site activities are not planned to increase in scope or frequency from past use. The current quarry entrance will not change. Existing infrastructure and haul routes for transportation also will not change because of this proposed expansion.

The proponent has provided projected volumes in Section 2.7.1 that are estimated to be 25,000 – 50,000 tonnes of aggregate each year, however; the actual truck volumes that this estimate correlates to are not provided. These truck volumes would be helpful to assess what the impact would be on the AADT traffic volumes for the roads that are provided in Section 5.6.4 on Highway 2, at Route 214 and 277. Although the relative impact is anticipated to be small, as the proponent has indicated, the calculation and providing of these truck volumes would confirm that.

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

Provide actual and projected truck volumes from the site, rather than estimated tonnage output.

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

NOVA SCOTIA
Environment and Climate Change

Date: December 1st, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Air Quality Protection Advisor, Air Quality Unit;

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

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

Technical Comments:

This project proposes an expansion of an existing quarry, that will extend the life of the site by 40 years. The operation of the proposed expansion will, according to the EARD, operate on the same basis, that is, operation responds to demand, and will generally occur during daylight hours and up to seven days per week. Hauling is not predicted to exceed current levels; blasting may occur once or twice per year; and crushing could occur up to 24 hours/seven days a week as required.

The proposed expansion of the Lantz Quarry will see the quarry boundary move in a south-easterly direction away from the current site and away existing residents in Dutch Settlement.

The proponent has provided a qualitative assessment of proposed impacts on noise levels in the vicinity of the proposed expansion. Potential sources of noise include blasting, excavation, crushing and hauling. The proposed mitigation includes Best Operating Practices (e.g., designing internal roads to avoid the need for vehicles to reverse – limited requirement for the use of safety reversing alarms), limits on hours of operation, and blasting only under specific meteorological conditions. As the proposed expansion proceeds, the distance from on-site operations to the residents will increase, therefore contributing to the mitigation of impacts.

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

The proponent should ensure that there is effective communication with residents regarding events such as blasting and should have a procedure in place for resolving complaints in a timely manner. This procedure should be submitted for review when applying for an Approval from the Department.

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

NOVA SCOTIA
Environment and Climate Change

Date: December 1st, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Air Quality Protection Advisor, Air Quality Unit;

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

Scope of review:
This review focuses on the following mandate: air quality

Technical Comments:

This project proposes an expansion of an existing quarry, that will extend the life of the site by 40 years. The operation of the proposed expansion will, according to the EARD, operate on the same basis, that is, operation responds to demand, and will generally occur during daylight hours and up to seven days per week. Hauling is not predicted to exceed current levels; blasting may occur once or twice per year; and crushing could occur up to 24 hours/seven days a week as required.

The proposed expansion of the Lantz Quarry will see the quarry boundary move in a south-easterly direction away from the current site and away existing residents in Dutch Settlement.

The proponent has provided a qualitative assessment of proposed impacts on the air quality in the vicinity of the proposed expansion, that has identified the potential source of air pollutants (notably particles from on-site activities and vehicles) and the proposed mitigation. As the proposed expansion proceeds, the distance from on-site operations to the residents will increase, therefore contributing to the mitigation of impacts. The proponent stated in the EARD that a portion of the haul road, closest to the village, has been paved to mitigate the transfer of material onto the public roads.

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

The proponent may use water or an approved dust suppressant to mitigate the impact of particles in the atmosphere. Details of this activity (e.g., trigger levels, responsible personnel) should be included in the Project Contingency Plan when applying for an Approval from the Department. Note that the use of a dust suppressant may require review for impacts on water courses.

NOVA SCOTIA
Department of Municipal Affairs and Housing

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

Date: November 30, 2022

To: NS Department of Environment and Climate Change

From: Department of Municipal Affairs and Housing

Subject: LANTZ QUARRY EXPANSION PROJECT

As requested, the Department of Municipal Affairs and Housing (DMAH) has reviewed the Registration Documents provided by Dexter Construction Company Limited for the environmental assessment of the Lantz Quarry Expansion Project. All components considered under DMAH's areas of mandate have been adequately addressed.

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

NOVA SCOTIA
Department of Municipal Affairs and Housing

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

Date: November 30, 2022

To: NS Department of Environment and Climate Change

From: Department of Municipal Affairs and Housing

Subject: **Municipality of the District of East Hants - Lantz Quarry Expansion Project**

Scope of Review:
This review focuses on the following mandate: the Statements of Provincial Interest and engagement with municipalities

Technical Comments:

(Is the proponent aware of any relevant municipal zoning? Has the proponent met with the Municipality to discuss the project? Describe any potential impact to the Statements of Provincial Interest.).

The current land use zoning in East Hants is appropriate to accommodate this development. The project is located on private land owned by Dexter, and the existing Lantz Quarry is present within this property.

MLA MacDonald and Councillor Mitchell had a tour of the quarry and monitoring sites. Both were aware of the quarry and did not have any immediate feedback from their constituents.

Statements of Provincial Interest:

- Drinking Water: No anticipated impact. Appropriate monitoring program and mitigation measures are in place. There are only two residential wells in 1km proximity to the site.
- Agricultural Land: No anticipated impact, as there is no agricultural land in the area.
- Flood Risk: No anticipated impact, as project is not in an identified flood risk area.
- Infrastructure: No anticipated impact. There is no proposed increase in truck traffic from the project compared to existing baseline conditions; therefore, no additional adverse effects on transportation are anticipated.
- Housing: No anticipated impact.

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

(Describe any outstanding information and/or conditions that may be considered/required for the project).

There is no outstanding information and/or conditions. All components considered under DMAH's areas of mandate have been adequately addressed.

Date: November 17, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Nova Scotia Office of L'nu Affairs – Consultation Division Beata Dera

Subject: **Lantz Quarry Expansion Project, Halifax 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 Treaty rights.

Technical Comments:

Section 4.3.9.1

Section 4.3.9.1 states "the DFO SAR interactive map identifies Atlantic Salmon (inner Bay of Fundy population), within Keys Brook, ~200 m east of the Study Area".

Section 7.2.6.1 Direct Impacts

Section 7.2.6.1 states that WC1, the sole watercourse identified within the Study Area, will be avoided by Project activities and a 30 m buffer will be maintained around this watercourse during quarry expansion. As such, no direct impacts to fish or fish habitat are expected to occur because of the Project.

7.2.6.2 Indirect Effects

The unnamed watercourse (WC1) flowing northeast under the project's existing access road and connecting to Keys Brook is known to support Atlantic salmon and brook trout. During fishing surveys, brook trout were captured downstream in the reaches of WC1. Page 5 of the EARD states no Atlantic Salmon were identified through fishing surveys in WC1. The watercourse may also provide habitat for American eel - this species was not confirmed through electrofishing surveys but may access the watercourse from Keys Brook. Section 7.2.6.2 states that indirect effects associated with quarry expansion (surface water quantity, surface water quality, and blasting effects) may have adverse impacts on fish and fish habitat. Indirect effects on fish and fish habitat from quarry expansion may include fish passage issues, changes to habitat structure, cover, and food supply.

Potential impacts to fish and fish habitat may potentially adversely impact Aboriginal and Treaty rights. As such, The Surface Water Monitoring Program should include parameters to evaluate potential changes to water quality and subsequent impacts to fish and fish habitat including Atlantic Salmon and American Eel which are species of interest to the Mi'kmaq of Nova Scotia.

Summary of Recommendations:

Section 6.2 Mi'kmaq Engagement

Section 6.2 provides a good summary of engagement efforts to date. The proponent should be advised that Membertou First Nation is no longer represented by the Assembly of Nova Scotia Mi'kmaw Chiefs/KMKNO.

Section 8 Effects of the Undertaking on the Mi'kmaq of Nova Scotia

On page 227, the proponent asserts that "no Project related adverse effects on the Mi'kmaq of Nova Scotia are anticipated" from the proposed Lantz Quarry expansion. The proponent is unable to state with certainty that there will be no project-related adverse effects on established and/or asserted Mi'kmaw Aboriginal and Treaty rights without hearing directly from the Mi'kmaq. At this time, it is unclear if project-related adverse effects on the Mi'kmaq of Nova Scotia are anticipated.

Page 227 further indicates that the proponent is open to partnering with Mi'kmaq communities or organizations to assist with long-term monitoring. The proponent is encouraged to indicate their willingness to partner with Mi'kmaq communities or organizations to assist with long-term monitoring via consultation.

NOVA SCOTIA
Environment and Climate Change

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

Date: December 1, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Groundwater Program Staff, Sustainability and Applied Science Division

Reviewed by Elizabeth Kennedy, Director, Sustainability and Applied Science Division

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

Scope of review:

Environmental Assessment (EA) reviews from the NSE Sustainability and Applied Science Division Groundwater Program staff focus primarily on groundwater resources. This includes the potential for the proposed undertaking/project to adversely affect groundwater resources, including general groundwater quality, quantity, municipal water supplies, local water supply wells and groundwater contributions to stream baseflow, groundwater recharge and wetlands. The review is conducted of materials provided by the proponent during the EA registration.

The Lantz Quarry Expansion Project Environmental Assessment Registration Document (EARD), Lantz, Nova Scotia was submitted by MacCallum Environmental Ltd. on behalf of Dexter Construction to Nova Scotia Environment and Climate Change on November 2, 2022.

Technical Comments:

The proposed project is to expand a under 4 ha quarry to 8.7 ha over the next 40 years. No other changes to operation are proposed regarding frequency of blasting or changes in quarry activity.

The proponent has identified 4 groundwater supply wells within a km of the site. One well is potentially located within the same metamorphic geology groundwater region. All water well locations would need to be field-truthed for accuracy. The proposed activity is not located within a Protected Water Area or a Municipal Source Water Protection Area.

The elevation within the existing quarry floor is 39 masl; the final proposed quarry floor elevation was not provided. With a topographical elevation in the expansion area of up to about 65 masl, the current quarry floor is below this by about 26 metres. The majority of groundwater subsurface flow from the study area is expected to be in the direction towards Keys Brook, eastward.

The report indicates that the expansion is not intended to operate below the water table. However, there are multiple references to shallow water table conditions in wetland areas in the expansion areas of the site and the potential for groundwater drawdown potentially to adversely affect these wetlands. With multiple wetlands located within the expansion area, this is an indication that the water table is relatively near the surface throughout the area and is a typical condition in many Nova Scotia locations.

Confirmation of the baseline water table elevation and groundwater quality is essential to determining potential groundwater impacts as a result of future quarrying activity. Therefore, a site groundwater assessment is recommended as a condition of Environmental Assessment Approval.

Summary of Gaps/Risks			
Identify Gap/Risk	**Can it be addressed in another permit/approval or with a T&C?**	**Define/provide detail**	**Risk of gap and this approach?**
Depth to water table was not provided	Yes	Groundwater monitoring program can be designed to include considerations for water level prior to and post blast activity.	If depth to water table is not known, quarry could begin operating below the water table without proper hydrogeological assessments and therefore potential risk of adverse effect to the environment.
No baseline groundwater quality	Yes	Baseline water quality was not assessed as a part of the EA process. Baseline should be established prior to expansion with a minimum of one groundwater monitoring well to serve as a background well.	Need baseline water quality to determine the current situation onsite for future reference.
Groundwater flow direction not determined	Yes	Groundwater flow direction was assumed based on topography, flow direction should be confirmed as a part of the groundwater monitoring program.	Unknown direction for which groundwater quality effects would be most likely. In order to ensure that any water quality impacts from the site are captured, some monitoring wells need to be placed downgradient from the site.
Final quarry floor elevation was not provided	Yes	Groundwater monitoring program would need to designed to ensure final elevation remains 1m above the seasonal high water table.	Need quarry proposed floor elevations to compare to water table elevations (to be measured). If lower than the water table could negatively impact groundwater and surrounding wetlands/surface water features by lowering groundwater tables and/or causing streamflow reductions.
Uncertainty around operation below the groundwater table	Yes	Report contains contradictions about operating below the water table (i.e. wetlands section refers to groundwater	Operating below the water table has risks related to dewatering effects on water wells, wetlands and watercourses. These potential risks

Summary of Gaps/Risks			
Identify Gap/Risk	**Can it be addressed in another permit/approval or with a T&C?**	**Define/provide detail**	**Risk of gap and this approach?**
		drawdown) Additional site groundwater assessments need to be completed to properly determine position of the water table prior to conducting expansion work, if approved. A water withdrawal approval maybe required if groundwater dewatering volumes exceed regulatory trigger volumes	need to be properly identified, assessed and potential mitigations developed to limit environmental effects. While risks of operating below the water table are not necessarily insurmountable for this activity, identification of proposed excavation activity below the water table and application of appropriate mitigations need to be conditions of approval.

Summary of Recommendations:

Planning/Design Issues of Significant Importance

No significant planning or design issues are raised in this review from the information provided.

Operational Issues/Other Permitting Processes

The groundwater issues noted in this review are primarily operational in nature, meaning for the purposes of this groundwater review that they can be managed within the context of an *Activities Designation Regulations,* Division V Approval. However, a groundwater assessment and monitoring plan is considered an essential part of this management and needs to be conducted prior to the proposed expansion and submitted as part of the application.

Comments in the EARD report indicate that groundwater drawdown may impact nearby wetlands. This and other site information submitted by the proponent provides an indication that quarrying activity likely will be operating within 1 m of, or below, the groundwater table.

At a minimum, a site groundwater assessment and plan should be completed as part of the application for the Division V Approval under the Environment Act subject to approval by the Department. This groundwater assessment must include:

- a site groundwater monitoring plan developed to initially identify baseline conditions and then monitor groundwater quality and quantity related to the proposed quarrying activity.

- the identification and assessment of planned quarry activity that may occur within 1 m of the maximum annual baseline water table level. This is in order for the proponent to adequately demonstrate that any environmental risks associated with quarrying below the water table will be addressed as needed. In particular, plans for wetland monitoring and protection to prevent or mitigate loss of wetlands must be provided in accordance with Departmental policy.

- hydraulic conductivity testing should be conducted in each monitoring well to determine site specific characteristics. Mapping and cross-sectional details for the proposed final quarry should be submitted in the groundwater assessment and include: current and proposed quarrying depths/elevations/width, current location of the water table, groundwater flow directions, wetland elevations, and monitoring well locations.

A Water Withdrawal Approval maybe required if quarrying below the water table occurs and dewatering is estimated, or measured, to occur at rates exceeding 23,000 litres/day. This can not be determined until a groundwater assessment has been completed and submitted.

NOVA SCOTIA
Environment and Climate Change

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

Date: December 2nd 2022

To: Mark McInnis, Environmental Assessment Officer

From: ICE staff; **Sign-off by Manager (Kevin Garroway)/Director (Jonathan MacDonald)**

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

Scope of review:
This review focuses on the following mandate: Inspection, Enforcement, and Compliance

Technical Comments:

- The financial security for the site will need to be updated to reflect the new areas to be disturbed on site prior to excavation/quarrying. The financial security must be based on a rehabilitation plan with a cost estimate to rehabilitate the site as completed by an unaffiliated third party (i.e. reflect the costs that the Department would incur if left to rehabilitate this site should it be abandoned), and include unit cost break down with current prices for materials, labour, machinery, and any work required. This update can be processed via the industrial approval.
- An amendment to the industrial approval will be required to reflect the expanded area authorized for quarrying.
- The laydown area would be considered as part of the quarry IA but would not need to meet 800m blasting setback distances to structures / wells if no blasting occurs there.
- No outstanding compliance issues or historical complaints were identified with respect to the existing quarry.
- There is a watercourse intersecting the northwest portion of the property (PID 00524298). A culvert is reportedly located within the watercourse. No watercourse alteration notification or application/approval could be found on file. If the property owner ever wished to repair or replace the culvert, or if it's found to be causing adverse effect, the work would have to be performed under Notification or Approval per the Activities Designation Regulations.

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

- Multiple items will require follow up for the IA as described in the technical comment section.

NOVA SCOTIA
Communities, Culture and Heritage
Culture and Heritage Development

1741 Brunswick Street, 3rd Floor
PO Box 456, STN Central
Halifax, NS B3J 2R5
902-424-8443

Date: December 2nd, 2022

To: Mark McInnis, Environmental Assessment Officer

From: John Cormier, Coordinator, Special Places, CCTH

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

Scope of review:

This review focuses on the following mandate: Archaeology

(Examples: hydrology and surface water quantity; surface water quality; air quality; species at risk recovery; wildlife species and habitat conservation; contaminated sites, etc.)

Technical Comments:

In 2020, under Heritage Research Permit A2020NS117 archaeologists from Cultural Resource Management Group Limited, conducted an archaeological resource impact assessment (ARIA) of the proposed development area for the Lantz Quarry Expansion project. The study area was ascribed low archaeological potential based on previous quarrying activities, sloping topography, an absence of available fresh water sources, and no evidence of occupation.

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

The report offered the following management recommendations for the study area:

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

2. Should the ground disturbance extend beyond the current proposed impact area further archaeological assessment must be conducted as the surrounding area retains archaeological potential.

3. In the unlikely event that archaeological deposits or human remains are encountered during activities associated with the development of the Lantz Quarry, all work in the associated area(s) should be halted and immediate contact made with Special Places (John Cormier: 902-424-6475).

Staff at CCTH has reviewed and accepted this report and support the recommendations made by CRM Group.

NOVA SCOTIA
Communities, Culture and Heritage
Culture and Heritage Development

1741 Brunswick Street, 3rd Floor
PO Box 456, STN Central
Halifax, NS B3J 2R5
902-424-8443

Date: December 2nd, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Dr. Tim Fedak, Senior Curator of Geology, NSM

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

Scope of review:

This review focuses on the following mandate: Geology

(Examples: hydrology and surface water quantity; surface water quality; air quality; species at risk recovery; wildlife species and habitat conservation; contaminated sites, etc.)

Technical Comments:

The document provides information that the bedrock geology is Goldenville Formation. This is confirmed through reference of the NS Geoscience Atlas for the PID number described in the proposal. The Goldenville Formation is not known to contain significant palaeontology resources (fossils or trace fossils) due to its age and depositional nature. Therefore, no significant palaeontology concerns are expected to occur with this proposal.

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

The bedrock geology of the area (Goldenville Formation) is not expected to contain any significant palaeontology resources. No concerns are noted in terms of palaeontology resources.

NOVA SCOTIA
Communities, Culture and Heritage
Culture and Heritage Development

1741 Brunswick Street, 3rd Floor
PO Box 456, STN Central
Halifax, NS B3J 2R5
902-424-8443

Date: December 2nd, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Dr. Brenna Frasier, Senior Curator of Zoology, NSM

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

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

(Examples: hydrology and surface water quantity; surface water quality; air quality; species at risk recovery; wildlife species and habitat conservation; contaminated sites, etc.)

Technical Comments:

Zoology

Staff have reviewed the Registration Document, and sections particular to zoology. It is, in general, a reasonable assessment of the zoological setting for the site and immediate-adjacent area. There are no additional zoological concerns at this point that fall outside of those currently highlighted in the assessment as they pertain to species at risk (SAR) and species of special concern under the Nova Scotia Endangered Species Act (NSESA), the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and the Species At Risk Act (SARA).

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

(When completing this section, please consider the Guiding Questions for Summary of Recommendation (attached), to inform your comments).

NOVA SCOTIA
Communities, Culture and Heritage
Culture and Heritage Development

1741 Brunswick Street, 3rd Floor
PO Box 456, STN Central
Halifax, NS B3J 2R5
902-424-8443

Date: November 29, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Sean R. Haughian, Curator of Botany

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

Scope of review:
This review focuses on the following mandate: *species at risk recovery; wildlife species and habitat conservation; vegetation; wetlands; climate change*

Technical Comments:

(When completing this section, please consider the Guiding Questions for Technical Comments (attached), to inform your comments).

- **Human-driven climate change**
  - The report contains no quantification of greenhouse gas emissions, no mention of mitigation measures, and virtually no recognition of carbon emissions even being a problem. Note that the NSECC's (2011) guide document states that *"In general, all projects should assess their carbon footprint; review possible options to reduce greenhouse gas emissions; and assess any impacts the project may have on carbon sinks. Similarly, all projects should identify whether or not there are potential hazards from climate change that could affect the project."*
- **SAR & Plants**
  - The report of the lichen *Pseudocyphellaria hawaiiensis* is likely in error, as this species is not present in Atlantic Canada. Note that in the ACCDC database, the species is listed as "SNA – false report / absent". The species observed in the field was likely *Pseudocyphellaria holarctica.*
  - The resumes of two consulting biologists (listed in Table 4-1) were not included in Appendix B (John Gallop, Chris Pepper).

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

(When completing this section, please consider the Guiding Questions for Summary of Recommendation (attached), to inform your comments).

- **Human-driven climate change**
  - The proponent or MEL report authors for air-quality and related VECs should review the NSE (2011) document "Guide to Considering Climate Change in Project Development in Nova Scotia" and incorporate suggested components on greenhouse gas emissions and mitigation.
- **SAR & Plants**
  - Project botanists should avoid using species names that have been classified by

the ACCDC as “SNA - FalseReport Absent”

- MEL should include the resumes of all project staff, including consultants and former employees, *or* submit specimens to a local herbarium to be maintained as a permanent record against which the identifications can be tested, in case the reputation of the survey biologists is not considered sufficient to have made the identifications.

NOVA SCOTIA
Environment and Climate Change

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

Date: December 2nd, 2022

To: Mark McInnis, Environmental Assessment Officer

From: Surface Water Staff, Water Resources Management Unit

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

Scope of review:

The scope of this review from the Water Resources Management Unit Surface Water staff with Nova Scotia Environment and Climate Change (NSECC), Sustainability and Applied Science Division focuses on the following subjects:

- Surface water quantity
- Surface water quality
- Potential adverse effects and proposed mitigations with respect to surface water quantity and quality.

While comments may also include considerations for impacts on groundwater, wetlands, and fish and fish habitat, appropriate technical review and comments in these areas should be consulted.

Documents reviewed:

The documents outlined below formed the basis for this EA review, and is referred to as the 'EARD' through the rest of this review:

- **Environmental Assessment Registration Document – Lantz Quarry Expansion Project, Lantz, Nova Scotia**. Prepared for Dexter Construction Company Ltd, 927 Rocky Lake Dr., Bedford, Nova Scotia, B4A 3Z2. And prepared by MaCallum Environmental Ltd., 2 Bluewater Road, Suite 115, Bedford, Nova Scotia, B4B 1G7. November 2, 2022.

Comments:

Hydrology & Surface Water Quantity

- Determination of the key parameters for the water balance model (WBM) in the Water Balance Assessment (Appendix E, EARD) is not sufficiently justified. In more detail,
  - A runoff coefficient of 0.4 was assumed for the quarry floor to account for the high levels of infiltration occurring in certain portions of the site while also considering the travel paths of the haul trucks and other equipment. No further information is provided to justify the assumption of this runoff coefficient. Sufficient justifications to the assumed infiltration factor are very important to appropriately estimate surface runoff, and subsequently to support any related assessment and surface water management infrastructure design.

- No information is provided on whether monthly and/or annual intervals in the WBM can appropriately represent the climate conditions in Nova Scotia. It is important to consider specific climate (milder winter and cooler summer, (ECCC&NS, 2005)), since it will significantly impact the accuracy of hydrological modeling, especially for appropriately modeling snow melt events and corresponding surface runoff during winter. No information is provided on whether climate change is considered in the WBM, given the proposed 40 year long Project lifespan.

- No information is provided on whether the WBM was calibrated to predict various hydrological scenarios for the proposed project. Since there were multiple assumptions made to key model parameters without sufficient justifications, calibrating the model is essential to support reasonable assessment of potential impacts.

- Mitigation measures were proposed to reduce predicted surface runoff increase in WC-1D watershed (where the quarry expansion is located) due to the proposed Project. Water Balance Assessment indicates WC-1D watershed will experience gradual increases of contributing drainage areas, which will be gradually diverted from the Keys Brook-US watershed (1759 ha). Key Brook-US watershed will experience a permanent reduction of drainage area to 1754 ha, and as a result permanent reductions in flows due to loss of contributing drainage area and the abovementioned mitigation measures to reduce runoff in WC-1D watershed. Although the reduction of flow may be small considering the drainage area of Keys Brook-US, potential impact due to this flow reduction was not assessed. Since Atlantic Salmon - inner Bay of Fundy population is identified at approximately 200 m east of the Study Area within Keys Brook, it is important to assess whether the permanent reduction of flows in Keys Brook will impact the identified fish and fish habitat.

- No assessment is provided on whether there is potential change of surface runoff from the proposed laydown area due to land use change. Subsequently, no assessment is provided on whether this potential change will impact flows in WC1. In addition, the EARD states perimeter ditching surrounding the laydown area will collect runoff and passively discharge it into a vegetated area at a topographical low point before draining into WC1. No settling pond is proposed to be associated with this discharge location. No assessment is provided on whether there is potential of sediment-laden runoff from the laydown area, and if so, whether the vegetated area at the topographical low point can provide sufficient settlement before the runoff enters WC1.

- The EARD states settled water will be released from the settling pond (Figure 3, Appendix A) via a culvert and water will be passively discharged to a vegetated settling area before draining towards WL15 and WC1. The EARD also states that the settling pond will be increased in size, as required, during quarry expansion to ensure downstream effects do not occur (e.g., scour, sedimentation, erosion). However, no further information is provided on how the settling pond will be updated to cope with proposed expansion. No information is provided on whether the vegetated settling areas receiving discharge from the settling pond can cope with increased surface runoff from the proposed expansion, or how will this vegetated area interact with the 30m buffer to WC1 and the proposed surface runoff mitigation measures to provide sufficient settling capacity to reduce increased surface runoff and prevent sediment releases into WL15 and WC1.

- The EARD states all surface water runoff and drainage occurring within the QEA will be directed (by gravity) via rocklined ditches, swales, or through the fractured quarry floor to existing settling pond, located in the northeastern extent of the existing quarry footprint (Figure 3, Appendix A). No further information is provided on the site drainage patterns as a result of these control measures, nor details provided for these measures, e.g., location, design criteria, considerations of updates with proposed expansion.

Surface Water Quality

- The EARD states water quality analysis was completed for general chemistry, metals laboratory analysis and total suspended solids (TSS). Water quality measurements were used to establish a baseline for future surface water quality comparison. These baseline conditions were also compared against the Canadian Council of Ministers of the Environment Guidelines for Protection of Aquatic Life (CCME FWAL guidelines) and NSECC Quality Standard (Tier 1 EQS). However, CCME FWAL guidelines should be used where possible since NSECC Tier 1 EQS is typically used for contaminated sites, unless the quarry site is designated as a contaminated site.

- Water quality measurements for dissolved oxygen (DO) in the EARD were presented as percentage concentration and were assessed as in the range to support a range of fish (Table 5-41), supported by the Dissolved Oxygen Factsheet (Environment and Natural Resources (ENR, 2014)). The EARD states this range of DO (80%-120%) includes brook trout (captured in WC1 in field fisheries surveys as mentioned in the EARD), which are considered sensitive in dissolved oxygen tolerance with sublethal negative effects observed below 6.8 mg/L for juvenile and adult life stages. However, no information is provided on the correlation between the percentage concentration DO and DO in the unit of mg/L, subsequently it is unknown whether DO in WC1 at the time of measurement is above 6.8 mg/L, or is within the acceptable range (in mg/L) included in CCME FWAL guidelines.

- Water quality measurement results for total suspended solids (TSS) were presented in the EARD (Table 5-37). Although the TSS measurement values were low (less than 12 mg/L, with most measurements below 1 mg/L), no further discussion was provided on appreciating these measurement results, and their connection to existing quarry activity (e.g., whether quarry is active during sampling periods). No information is provided on the approach to evaluate TSS results for the proposed quarry expansion. As an example, if CCME FWAL guidelines are used, TSS assessment should include comparison with background levels depending on the flow conditions (e.g., clear flow conditions, high flow conditions) as stated in CCME FWAL guidelines.

- In-situ turbidity measurements on April 12th, 2022 (Table 5-41, EARD) were provided for Reach 1, 2, 3 and 4A of WC1 (Figure 8, Appendix A), with the results of 35.1, 35.75, 35.1, and 83.2, respectively. No information is provided on the unit of turbidity presented in the table. In-situ turbidity measurement is typically conducted with handheld turbidity meters (or similar devices) with the unit of nephelometric turbidity units (NTUs). The EARD states turbidity levels measured are considered acceptable for aquatic life. However, no information is provided to support this assessment, i.e., comparison between the turbidity measurements and CCME FWAL guidelines. Assuming the units

of measured turbidity are NTUs, using the measured turbidity (35.1 NTUs) in Reach 1, which is upstream of existing quarry discharge point in WC1 (Figure 8) as background turbidity, and compare it with measured turbidity in Reach 4A in WC1 (downstream of existing quarry discharge point), the increase of turbidity (48.1 NTUs) is significantly higher than the maximum increases included in CCME FWAL guidelines in either flow conditions (for clear flow conditions, maximum turbidity increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period), and/or maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30-d period); or for high flow conditions or turbid waters, maximum turbidity increase of 8 NTUs from background levels at any one time when background levels are between 8 and 80 NTUs, or should not increase more than 10% of background levels when background is >80 NTUs). No information is provided to discuss this significantly elevated turbidity level in WC1 and whether it is connected to quarry activities.

- Water quality measurements for aluminum exceeded the CCME FWAL guidelines for all samples collected from SW-1 and SW-2 in WC1. However, limited information is provided to confirm whether these exceedances are due to naturally high aluminum levels in local water resources. In addition, the water quality measurement for total iron exceeded CCME FWAL guidelines at SW-2 (343 µg/L) during November 2021 sampling period, while all other measurements were within CCME FWAL guidelines. No further discussion is provided on the potential causes of this exceedance (e.g., natural variations, or whether the exceedance is connected to quarry activity). Sufficient understanding of natural water quality in surrounding water resources of the proposed Project is important to support establishment of baseline conditions.

Conclusions & Recommendations:

There are gaps in the information provided in the EARD to assess potential impacts to surface water quantity and quality as identified in the table below. A reliance on high-level justifications makes it difficult to have a clear picture of the proposed plans for operations, potential for adverse effects and the effectiveness of the proposed mitigations.

Risk Assessment			
Identify Gap/Risk	Can it be addressed in another permit/approval or with a T&C?	Define/provide detail	Risk of this approach?
Insufficient surface water quality monitoring and associated assessment to support understanding of potential impacts to water quality in surface water resources (WC1 and WL15) that receives quarry discharge.	Potentially yes, through T&Cs.	Require a surface water monitoring program to support assessment of ongoing impacts to surface water quality in WC1 and WL15 from quarry expansion. The monitoring program should include considerations to collect information with appropriate monitoring timing window and frequencies to establish baseline conditions and support on-going evaluation of the mitigations in	Impacts of quarry expansion is not adequately mitigated due to lack of sufficient monitoring data at the first few years of the proposed Project.

		place for the proposed works from both water quantity and water quality perspectives and to validate conclusions provided in the EARD surrounding insignificant impacts to water quantity and quality in WC1 and WL15. This program should include the parameters that will be used to establish baseline conditions (e.g., RCAP-MS Total Metals, TSS, DO, conductivity, etc.), and the approaches to appreciate and assess monitoring results. This program should also include the approach to be used to assess TSS and associated impacts to WC1 and WL15. It is essential to continuously monitor and assess TSS with the quarry expansion, since the potential of erosion and subsequent sedimentation is usually high due to largely exposed areas on quarry site and the proposed quarry site will eventually drain into WC1 and WL15. Monitoring TSS also provide indicators to support assessment of whether mitigation measures in place is effective in preventing erosion and control sedimentation.	
Application of an uncalibrated water balance model to support prediction and assessment of potential hydrological impacts and associated decision making and planning for mitigations measures.	Potentially yes, through T&Cs.	Require a surface water quantity monitoring plan to collect necessary data in the first few years during the proposed Project to 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. This water quantity monitoring plan can be incorporated into the surface water monitoring program mentioned above.	Impacts to surface water quantity of quarry expansion is not adequately mitigated due to lack of sufficient monitoring data at the first few years of the proposed Project.

The following recommendations are presented for consideration in the development of conditions for any approvals that may follow the EA process, if the EA is successful.

- Provide more detailed information and/or specific assessment on the water quality measurement results of high aluminum levels in WC1, and/or conduct more thorough water quality monitoring and associated assessment for aluminum, to confirm whether aluminum levels are naturally high in WC1, and thus set baseline conditions for ongoing assessment of aluminum.

- Provide more detailed assessment and/or water quality monitoring to confirm whether the exceedance of total iron is connected to quarry activity. If so, provide necessary assessment and plan appropriate mitigation measures and monitoring to manage and monitor total iron for the proposed quarry activity.

- Require a site surface water management plan which is to be developed by a qualified professional engineer with the intent of minimizing impacts and alterations to nearby surface water resources (WC1 and WL15). This plan should at least include,
    - detailed design of the stated surface water runoff mitigation measures (e.g., infiltration trenches and soakways) to cope with increased surface water runoff and maintain the existing site drainage pattern;
    - approaches to maintain effectiveness of surface water runoff mitigation measures. It is recommended to consider climate change factors into the site surface water management;
    - considerations for surface water management on the proposed laydown area, if there are potential impacts assessed to WC1 from the laydown area;
    - considerations for surface water management during rain season, winter, extreme weather conditions and the times of quarry shutdown.

- Require an erosion and sediment control plan which is to be developed by a qualified professional engineer. The plan should be submitted as part of any industrial approval application for NSECC review and approval prior to construction and operation activities take place. The plan should at least include,
    - details on the application of appropriate erosion and sediment control measures, and the approaches to maintain effectiveness of these measures (including inspection and monitoring);

- Require the details of existing settling pond to be provided in support of any industrial approval application. Any updates/changes to the design of the settling pond must be completed by a qualified professional engineer and is required to be submitted for review and approval by the Department prior to any construction and operation activities take place. Information to be provided should at least include,
    - settling/treatment capacity;
    - how the settling ponds will be updated and enlarged to cope with increased surface runoff with quarry expansion, including design criteria and details;
    - approach to monitor settling pond performance/compliance during the different operational phases of the year, including times of quarry shutdown.
    - considerations for removal of TSS and minimizing impacts to surrounding water resources.

- Submit design details for blasting plans at the industrial approval stage, inclusive of reagent storage, handling, and spill prevention.

References:

Adapting to a Changing Climate in Nova Scotia: Vulnerability Assessment and Adaption Options – Final Report. Environment Canada and Climate Change & Government of Nova Scotia, September 2005.

Canadian Water Quality Guidelines for the Protection of Aquatic Life - TOTAL PARTICULATE MATTER. Canadian Council of Ministers of the Environment (CCME), 2002.

PO Box 2223
Halifax, Nova Scotia
B3J 3C4

NOVA SCOTIA

Fisheries and Aquaculture

Date: December 2, 2022

To: Mark McInnis, Nova Scotia Environment and Climate Change

From: Executive Director, Policy and Corporate Services
Nova Scotia Department of Fisheries and Aquaculture

Subject: Lantz Quarry Expansion Project– Environmental Assessment

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

The Department of Fisheries and Aquaculture has the following comments:

- The proposed project is not located near any known marine (saltwater) recreational and/or commercial harvesting activities, processing/buying facilities or activities, or marine plant harvesting operations.
- There are no recreational fishery concerns pertaining to this expansion.
- There is one experimental bottom culture shellfish lease and two rockweed leases within 25km of the proposed expansion site.

From:	Wade,Suzanne (ECCC)
To:	McInnis, Mark
Cc:	Wade,Suzanne (ECCC); Hingston,Michael (il, lui | he, him) (ECCC); Breau,Monique (elle, la | she, her) (ECCC); Drover,Brian (ECCC); Keeping,Brent (ECCC)
Subject:	FW: ECCC-CWS Comments RE: 2514869 Nova Scotia Limited (a Dexter affiliated company) - Lantz Quarry Expansion Project - EA Registration (EAS# 22-NS-020) Deadline Dec 2, 2022
Date:	December 5, 2022 11:43:36 AM
Attachments:	image003.png CanadianNightjarSurvey_Data-Sheets_2022.pdf CanadianNightjarSurveyProtocol_2022.pdf CanadianNightjarSurveySummaryProtocol_2022.pdf WildlifeResponsePlans_2021_ENG.pdf WildlifeResponsePlans_2021_Template_AppendixA_EN.docx

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Hello Mark,

As requested, Environment & Climate Change Canada (ECCC) has reviewed the proposed expansion of the Lantz Quarry, Nova Scotia. The project would involve vegetation clearing, drilling, blasting and crushing exposed bedrock, stockpiling, loading and transporting aggregate products. Blasting is anticipated to occur once or twice per year. Overburden material stockpiled, may be reused for berm construction for a settling pond. The following specific comments were provided by ECCC's Canadian Wildlife Service (CWS):

Wildlife Comments

Attachments:

- Environment and Climate Change Canada (2021). Guidelines for effective wildlife response plans.
- The Canadian Nightjar Survey Protocol (2022)
- The Canadian Nightjar Survey: Quick Reference Protocol Summary (2022)
- The Canadian Nightjar Survey Datasheets (2022)

Bird Species at Risk

ECCC-CWS notes that habitat available at wetland habitat (WL1) is identified suitable breeding habitat for Canada Warbler and this species was observed during breeding bird surveys. WL1 is being proposed for designation as a wetland of special significance (WSS) based on guidance from NSECC due to the presence of Canada Warbler and supporting habitat. A final determination is to be made by NSECC.

ECCC-CWS also notes that Common Nighthawk were recorded at several Point Count locations in habitats surrounding the study area and the existing quarry. Suitable nesting habitat for the common nighthawk scattered throughout the Study Area.

There are also anecdotal observations of Eastern Whip-poor-will (EWPW) on eBird in the study area.

This species may also establish nest sites in newly cleared habitats. While Common Nighthawk are crepuscular, EWPW are nocturnal. The dedicated Common Nighthawk surveys conducted in 2021 may have missed EWPW. If conducting nightjar surveys in the future, ECCC-CWS recommends:

- Timing surveys so they are completed to 1 hr before sunset to 2hrs after sunset;
- Schedule survey start date to June 10 (at the earliest) and complete surveys within 7 days on either side of a full moon;
- The Canadian Nightjar Survey Protocol (2022) can also be referenced in developing nightjar surveys (attached)

Other ground-nesting species of conservation interest such as Killdeer were observed during the 2021 spring migration survey at PC8 and may be using the project area for nesting. It should be noted that Killdeer are early breeders (March-July).

ECCC-CWS generally recommends buffers for landbird species at risk as follows during the breeding season:

- Low disturbance activities – 50 m
- Medium disturbance activities – 150 m
- High disturbance activities – 300 m

The proposed project-related activities are likely to fall into the medium to high disturbance categories. Therefore, ECCC-CWS recommends that project-related activities be scheduled outside the breeding season for landbird species at risk in areas where these recommended buffers can not be implemented.

Migratory Birds

The Migratory Birds Convention Act (MBCA) protects migratory birds, their eggs, nests, and young. Migratory birds protected by the MBCA generally include all seabirds (except cormorants and pelicans), all waterfowl, all shorebirds, and most landbirds (birds with principally terrestrial life cycles). The list of species protected by the MBCA is at https://www.canada.ca/en/environment-climate-change/services/migratory-birds-legal-protection/convention-act.html. Bird species not listed may be protected under other legislation.

Under Section 5.1 of the MBCA describes prohibitions related to depositing 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."

Under Section 5(1) of the Migratory Birds Regulations (MBRs), 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 MBRs, no permits can be issued for the harm of migratory birds caused by development projects or other economic activities.

It is the responsibility of the proponent to ensure that activities comply with the MBCA and associated regulations.

Note: As of July 30, 2022, the modernized Migratory Bird Regulations came into effect which outlines a list of species on Schedule 1 whose nests remain protected year-round, given their propensity to reuse nests. The Frequently Asked Questions: Migratory Birds Regulations, 2022 - Canada.ca and Fact sheet: Nest Protection under the Migratory Birds Regulations, 2022 - Canada.ca are available for further information.

Vegetation Clearing

Section 7.2.10.2 Mitigation (Pg. 221), Quote: "Avoid clearing during the breeding bird season (April 15 to August 30), where practicable. If avoidance is not possible, conduct nest sweeps prior to clearing".

Clearing vegetation may cause disturbance to migratory birds, and may inadvertently cause the destruction of their nests and eggs. Many species use trees, as well as brush, deadfalls and other low-lying vegetation for nesting, feeding, shelter and cover. This would apply to songbirds throughout the region, as well as waterfowl in wetland areas. Disturbance of this nature would be most critical during the breeding period. The breeding season for most birds within the project area occurs between April 15th and August 15th in this region, however some species protected under the MBCA nest outside of this time period. Please see "Nesting Periods" (Website: https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html) for more specific information concerning the breeding times of migratory birds.

Environment and Climate Change Canada provides the following recommendations:

1. The proponent avoid certain activities, such as clearing, during the regional nesting period for migratory birds.

2. Active nests can be discovered during project activities outside of the regional nesting period. To reduce the risk of impacting nests or birds caring for pre-fledged chicks at those times, ECCC-CWS recommends implementation of 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.

3. The proponent should be aware that while most migratory bird species construct nests in trees (sometimes in tree cavities) and shrubs, mitigations should be appropriate for migratory birds with different strategies. For example, 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 near 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.

4. The proponent should develop and implement a management plan that includes appropriate preventative measures to minimize the risk of impacts on migratory birds (Please see 'Avoiding harm to migratory birds: guidelines to reduce risk to migratory birds' at https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html). For beneficial management practices regarding how to avoid the incidental take of migratory birds nests and eggs, please refer to the Avoidance Guidelines (Website: https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/guidelines.html). The management plan should include processes to follow should an active nest be found at any time of the year.

Nest Searches

Section 7.2.10.2 Mitigation (P. 221), Quote: "Should site activities during active nesting periods be unavoidable, additional mitigative measures such as pre-disturbance nest searches and avoidance, and setbacks from active nests will be applied. These will be developed in consultation with Environment and Climate Change Canada (ECCC) and NSDNRR".

ECCC-CWS generally does not recommend nest searches or "sweeps", except when the nests searched are known to be easy to locate without disturbance (e.g. previously cleared area, simple habitats, low vegetation). Ground nesting migratory birds may also be attracted to the quarry or previously cleared areas during the breeding season.

Common nighthawk may choose to nest in open areas (e.g. gravel or sand) or cleared areas (e.g. forest harvest blocks, recent cleared land, and recent burns). This species is very cryptic in coloration and finding a bird on the nest or a nest site can be challenging. Using active nest searching techniques must be carefully evaluated because the risk of disturbing active nests is high.

Nest surveys may be carried out successfully by experienced observers using scientific methodology in the event that activities would take place in simple habitats (e.g. in human-made settings) with only a few likely nesting areas or a small community of migratory birds. Examples of simple habitats include:

- An urban park consisting mostly of lawns with a few isolated trees;
- A vacant lot with few possible nest sites;
- A previously cleared area where there is a lag between clearing and construction activities and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil; or,
- A structure such as a bridge, a beacon, a tower or a building (often chosen as a nesting spot by robins, swallows, phoebes, Common Nighthawk, gulls and others).

Nest searches can also be considered when looking for:

- Conspicuous nest structures (such as nests of Great Blue Herons, Bank Swallows, Chimney Swifts);
- Cavity nesters in snags (such as woodpeckers, goldeneyes, nuthatches); or,
- Colonial-breeding species that can be located from a distance (such as a colony of terns or gulls).

Should any nests or chicks be discovered, protection with an appropriate-sized buffer is expected. Note: Nests should not be marked using flagging tape or other similar material as this increases the risk of nest predation. ECCC-CWS can be contacted for further advice on bird monitoring and/or mitigation if a nest is found.

Noise Disturbance

Anthropogenic noise produced by construction and human activity can have multiple impacts on birds, including causing stress responses, avoidance of important habitats, changes in foraging behaviour and reproductive success, and interference with songs, calls, and communication. Activities that introduce loud or random noise into habitats with previously low levels of anthropogenic noise are particularly disruptive.

ECCC-CWS recommends the following best management practices:

- The proponent should develop mitigations for programs that introduce very loud and random noise disturbance (e.g. blasting programs) during the migratory bird breeding season for their region.

- The proponent should, where possible, prioritize construction works in areas away from natural vegetation while working during the migratory bird breeding season. Conducting loud high disturbance construction works adjacent to natural vegetation should completed outside the migratory bird breeding season.

- The proponent should keep all construction equipment and vehicles in good working order and loud machinery should be muffled if possible.

Banks and Stockpiles

Certain species of migratory birds (e.g. Bank Swallow) may nest in banks or large piles of soil left unattended/unvegetated during the breeding season. To discourage this, the proponent should consider measures to cover or to deter birds from these large piles of unattended soil during the breeding season. If migratory birds take up occupancy of these piles, any industrial activities (including hydroseeding) will cause disturbance to these migratory birds and inadvertently cause the destruction of nests and eggs. Alternate measures will then need to be taken to reduce potential erosion, and to ensure that nests are protected until chicks have fledged and left the area. For a species such as Bank Swallow, the period when the nests would be considered active would include

not only the time when birds are incubating eggs or taking care of flightless chicks, but also a period of time after chicks have learned to fly, because Bank Swallows return to their colony to roost. A Bank Swallow residence (i.e. burrow) is protected under the MBCA and SARA. A Bank Swallow Residence Description (GoC 2019) is available at: https://species-registry.canada.ca/index-en.html#/documents/3521.

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).

Avian Species at Risk

The following migratory bird species at risk (as listed on Schedule 1 of the SARA, and the NS Endangered Species Act (NSESA) may occur within the study area: Canada Warbler (SARA Threatened, NSESA Endangered), Common Nighthawk (SARA & NSESA Threatened), Bank Swallow (SARA Threatened, NSESA Endangered), Barn Swallow (SARA Threatened, NSESA Endangered), Rusty Blackbird (SARA Special Concern, NSESA Endangered), Eastern Wood-pewee (SARA Special Concern, NSESA Vulnerable), and Evening Grosbeak (SARA Special Concern, NSESA Vulnerable).

The Recovery Strategy for Canada Warbler (Cardellina canadensis) in Canada (2016) is available at: https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/rs_canada%20warbler_e_final.pdf

The Recovery Strategy for the Common Nighthawk (Chordeiles minor) in Canada (2016) is available at: https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/rs_common%20nighthawk_e_final.pdf

The Recovery Strategy for the Bank Swallow (Riparia riparia) in Canada (2022) is available at: https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/rs-HirondelleRivageBankSwallow-v00-2022Apr-eng.pdf

Non-Avian Species at Risk

The following non-avian species at risk (as listed on Schedule 1 of the Species at Risk Act) may occur within the study area: Little Brown Myotis (SARA & NSESA Endangered), Northern Myotis (SARA & NSESA Endangered), Tricolored bat (SARA & NSESA Endangered), Wood Turtle (SARA & NSESA Threatened), Snapping Turtle (SARA Special Concern, NSESA Vulnerable), Eastern Painted Turtle (SARA Special Concern) and Monarch (SARA Special Concern, NSESA Endangered).

Bats

The Recovery Strategy for the Little Brown Myotis (Myotis lucifugus), the Northern Myotis (Myotis septentrionalis), and the Tri-colored Bat (Perimyotis subflavus) in Canada (2018) is available at: https://species-registry.canada.ca/index-en.html#/consultations/2475. Table 8 of the Recovery Strategy provides examples of "Activities Likely to Result in the Destruction of Critical Habitat" which includes activities that cause excessive disturbance (e.g., light, noise, vibrations), such as quarrying, excavating, blasting and forest clearing activities during the overwintering period. Hibernating bats in Atlantic Canada typically enter hibernacula in the fall and remain until the following spring. Outside of the listed critical habitat (i.e. hibernacula), other habitat features such as bat maternity roosts are important to the maintenance and recovery of the species.

It is noted that NS Department of Natural Resources and Renewables (NSDNRR) has confirmed an

existing bat hibernaculum <4km northeast of the Study Area. Section 5.5.4 also indicates that there is potential maternity roosting habitat available in WL2, 3, 4, 6 and 10, in snags and in areas with intact stand of more mature trees (eastern and northern extent of the Study Area). ECCC-CWS recommends scheduling high disturbance activities (e.g. clearing and blasting) to avoid disturbance to bat maternity roosts and hibernating bats.

Provincial biologists at the NS Department of Natural Resources and Renewables should be consulted for technical expertise and avoidance windows (contact: Donna Hurlburt at Donna.Hurlburt@novascotia.ca).

Wood Turtle

Wood Turtle core habitat is found in close proximity of the and there is potential for individuals to be found on-site during project activities. Wood Turtles are active from April through October. They can also travel hundreds of meters from their rivers as they move from their overwintering habitats to their nesting and foraging/thermoregulation habitats. Quarries and gravel pits can attract female Wood Turtles as they search for suitable nesting areas (areas with sparse or no vegetation during incubation periods, full to partial sunlight, sandy or gravelly substrate).

The Recovery Strategy for Wood Turtle (Glyptemys insculpta) in Canada (2020) is available at: https://species-registry.canada.ca/index-en.html#/consultations/2864. The Recovery Strategy lists accidental mortality (roads, sand and gravel pits) as threats that could impact individual wood turtle, which are vulnerable given their slow travel speed and how far they range from aquatic habitats in summer.

ECCC-CWS recommends the Proponent identify mitigation measures to avoid impacts on individuals potentially found nesting in the project area and along roads, and/or travelling from overwintering areas to nesting habitat. For species-specific technical information, ECCC-CWS recommends consulting NSDNRR provincial species at risk biologist Sarah Spencer for technical expertise (Sarah.Spencer@novascotia.ca).

Monarch

ECCC-CWS recommends that the Proponent ensure that native species that are beneficial to Monarch are planted during revegetation/restoration efforts. The Proponent should consult the Pollinator Partnerships Canada planting guide for Nova Scotia for information on native species.

Wetlands

There are several wetlands identified in the study area that would be destroyed or disturbed by the proposed project. The summary of ACCDC Observation of priority species within 5 km of the Study Area (Table 5-43) and field surveys identified wetland-dependent species at risk such as the Canada Warbler and Common Nighthawk. There is also a possibility of other species of conservation interest to use wetlands for nesting, including bogs, such as Greater Yellowlegs, Spotted Sandpiper, and Wilson's Snipe (see https://www.mba-aom.ca/pdfs/atlas_en_210-239.pdf#page=5).

While the Federal Policy on Wetland Conservation does not apply to this project, ECCC advocates for

the conservation of wetlands in areas where wetland losses have already reached critical levels (e.g. NB, NS, PEI, southern Ontario, Prairies) and regionally important wetlands. ECCC-CWS recommends that project effects on wetlands be avoided, where they cannot be avoided they should be minimized, and mitigation identified for residual effects. As a mitigation measure to compensate for the lost habitat function for wetland associated landbird species at risk and species of conservation concern, in instances where such habitat cannot be avoided, ECCC-CWS recommends the use of conservation allowances as a third step in the mitigation hierarchy of avoidance, mitigation and compensation.

Invasive Species

A variety of species of plants native to the general project area should be used in revegetation efforts. Should seed mixes for herbaceous native species for the area not be available, it should be ensured that plants used in revegetation efforts are not known to be invasive.
Measures to diminish the risk of introducing invasive species should be developed and implemented during al project phases. These measures could include:

- Cleaning and inspecting construction equipment prior to transport from elsewhere to ensure that no vegetative matter is attached to the machinery (e.g., use of pressure water hose to clean vehicles prior to transport).
- Regularly inspecting equipment prior to, during, and immediately following construction in areas found to support Purple Loosestrife to ensure that vegetative matter is not transported from one construction area to another.

Wildlife Response

The Proponent should ensure that provisions 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.

ECCC-CWS "Guidelines for Effective Wildlife Response Plans" (ECCC, 2021) (attached) are recommended as a reference in the development of emergency prevention and response.

Other Comments

Species at risk observations should be submitted to the Atlantic Canada Conservation Data Centre. Directions on how to contribute data can be found at: http://accdc.com/en/contribute.html.

If you have any questions, please let me know.

Suzanne Wade

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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)

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).

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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:

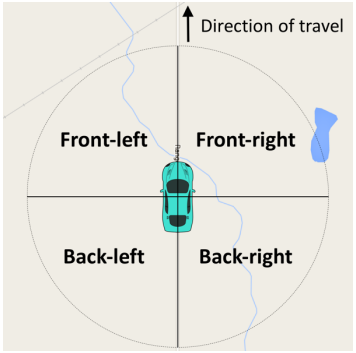
- Common Poorwills
- Eastern Whip-poor-wills
- Common Nighthawks performing repeated wing-booming in the same location (3 or more wing-booms).

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		
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								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			

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
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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)
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								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		
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Stop (1-12)	Species	Time Interval						Repeat bird (circle)	Distance (circle)	Direction	Comments
		1	2	3	4	5	6				
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								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			

Environment and Climate Change Canada
Environnement et Changement climatique Canada

2021

GUIDELINES FOR WILDLIFE RESPONSE PLANS

Canada

Cat. No.: xxx
ISBN: xxx

Environment and Climate Change Canada
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Aussi disponible en français

EXECUTIVE SUMMARY

Environment and Climate Change Canada's Canadian Wildlife Service (ECCC-CWS) is responsible for the management and conservation of Wildlife under its jurisdiction. The *Guidelines for Wildlife Response Plans* outline the rationale, objectives, and process for developing, implementing and evaluating the efficacy of Wildlife response planning for Pollution and Non-Pollution Incidents. This document supports the standardization of the planning process according to ECCC-CWS's recommendations. The purpose of this document is to guide governments, Indigenous organizations, industry, Response Organizations, and other stakeholders in developing Wildlife Response Plans that consider all aspects of planning throughout the full life cycle of an incident with regards to Wildlife specific to ECCC-CWS's mandate.

TABLE OF CONTENTS

LIST OF ACRONYMS

CWA	*Canada Wildlife Act, 1985*
CWS	Canadian Wildlife Service
ECCC	Environment and Climate Change Canada
ECCC-CWS	Environment and Climate Change Canada's Canadian Wildlife Service
ICP	Incident Command Post
ICS	Incident Command System
IPIECA	International Petroleum Industry Environmental Conservation Association
MBCA	*Migratory Birds Convention Act, 1994*
MBR	*Migratory Birds Regulations*
MBSR	*Migratory Bird Sanctuary Regulations*
NWA	National Wildlife Area
RP	Responsible Party
SARA	*Species at Risk Act, 2002*
WRP	Wildlife Response Plan
WRO	Wildlife Response Organization

DEFINITIONS

Chain of Custody: A written record for a legal sample documenting the continuity by tracing the possession of the sample from the point of collection through introduction into evidence.

CWS Co-ordinator: A person who leads and implements regional Wildlife Emergency preparedness and response on behalf of ECCC-CWS and represents ECCC-CWS's policies and interests when liaising and integrating with other federal and provincial/territorial government departments, Indigenous governments and organizations, and stakeholders involved in the response during Wildlife Emergencies. CWS Co-ordinators may also fulfill some of the on-site roles of responder.

CWS Responder: Emergency response personnel that provide on-site support on behalf of ECCC-CWS, as directed by the CWS Co-ordinator, during Wildlife Emergencies.

Environmental Emergency: Any uncontrolled or unexpected incident involving the release (or the likelihood thereof) of a polluting substance into the environment that results or may result in an immediate or long-term harmful effect on the environment, or constitutes or may constitute a danger to human life or health. It may be caused by an industrial activity, natural emergency or by a wilful act.

Field Stabilization Site: Facility that provides initial triage, care and/or euthanasia as well as short-term holding (sometimes overnight) for Wildlife prior to transport to an Oiled Wildlife Rehabilitation Centre. It is not meant for washing oiled Wildlife and not designed for long-term care.

Incident Command: Responsible for overall management of the incident and consists of the Incident Commander, either single or unified command, and any assigned supporting staff.

Incident Commander: The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources. The Incident Commander has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.

Lead Agency: The governmental authority that regulates or has legislative authority over the responsible parties' response and is responsible for overseeing the appropriateness of the response.

Migratory Bird: As defined in the *Migratory Birds Convention Act, 1994*, a Migratory Bird referred to in the Convention, and includes the sperm, eggs, embryos, tissue cultures and parts of the bird of species listed under Article 1 of the Convention (Government of Canada 2017).

National Environmental Emergencies Centre (NEEC): Environment and Climate Change Canada's 24/7 focal point for pollution-related emergencies, providing technical/scientific advice, assistance and coordination to the Lead Agency, as well as management of an incident when required.

National Wildlife Area: A protected area created under the *Canada Wildlife Act* that contains nationally significant habitats for plants and animals and that is managed for the purposes of wildlife conservation, research and interpretation.

Non-Pollution Incident: An uncontrolled or unexpected Wildlife injury or mortality event other than a Pollution Incident.

Oiled Wildlife Rehabilitation Centre: Facility used for the triage, stabilization, cleaning, pre-release conditioning and/or euthanasia of oiled Wildlife. The centre may be a permanent purpose-built facility, an existing Wildlife rehabilitation centre, a mobile facility, or a temporary facility established during an incident.

Pollution Incident: The release or deposit of a substance that is harmful to Wildlife into an area or waters that are frequented by Wildlife or into a place from which the harmful substance may enter an area or waters frequented by Wildlife.

Resource Agency: Any department or agency, other than the Lead Agency, that has jurisdiction or interest in the response, which provides support to the Lead Agency.

Response Organization: Any qualified person or organization that has been certified and designated by the Minister of Transport to carry out emergency response activities (as per the revised *Canada Shipping Act* (2001)). In Canada, there are four Response Organizations as follows: Atlantic Emergency Response Team, Eastern Canada Response Corporation Ltd., Western Canada Marine Response Corporation, and Point Tupper Marine Services Ltd.

Responsible Party: Any person or organization who might be responsible for the source or cause of an environmental emergency and/or a Wildlife Emergency.

SARA-listed Species: A species listed on the List of Wildlife Species at Risk set out in Schedule 1 of the *Species at Risk Act* (SARA).

Species at Risk: As defined in the *Species at Risk Act* (S.C. 2002, c.29), means an Extirpated, Endangered or Threatened species, or a species of Special Concern.

Unified Command: An application of the Incident Command System, used when there is more than one agency with incident jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the Unified Command to establish a common set of objectives and strategies and a single Incident Action Plan.

Wildlife: In this document, "Wildlife" is used to refer to the terms Migratory Birds as defined under the *Migratory Birds Convention Act,* and listed Species at Risk as those terms are defined under the *Species at Risk Act* for species falling within the jurisdiction of the Minister of Environment and Climate Change (with the exception of individuals of SARA-listed Species that are located on lands administered by Parks Canada). This term also refers

to all wild species occurring in the National Wildlife Areas set out on Schedule I of the *Wildlife Area Regulations* (C.R.C., c. 1609).

Wildlife Emergency: A Pollution or Non-Pollution Incident that results or may result in an immediate and/or long-term harmful effect on the life or health of Wildlife and/or their habitat.

Wildlife Response Organization: Organizations that provide expertise, capabilities and trained personnel to undertake one or several aspects of response, including planning, implementation and reporting of activities related to Wildlife Emergencies. Wildlife Response Organizations (or representatives thereof) are authorized under applicable federal, provincial, and/or territorial legislation to capture, transport, clean, rehabilitate, euthanize, and release Wildlife.

Wildlife Response Plan: A document that outlines the initial and ongoing Wildlife-related strategies that are needed to support any Wildlife response objectives that may occur at the onset of a Pollution or Non-Pollution Incident.

1.0 INTRODUCTION

Environmental protection legislation in Canada at the federal, provincial or territorial level contains provisions to have approved contingency plans in the event of an environmental emergency for construction, operation or decommissioning activities that may impact the environment. Projects undergoing an environmental assessment may include additional conditions upon approval to develop and implement an environmental protection plan. All contingency plans/environmental protection plans for which a threat to Wildlife is identified may have specific sections dedicated to Wildlife response in order to be in compliance with applicable federal, provincial, or territorial legislation.

Environment and Climate Change Canada's Canadian Wildlife Service (ECCC-CWS) oversees and/or leads Wildlife Emergency response activities in association with Environment and Climate Change Canada (ECCC)'s responsibilities under the *Migratory Birds Convention Act, 1994* (MBCA) and its regulations (*Migratory Birds Regulations* (MBR) and *Migratory Bird Sanctuary Regulations* (MBSR)), the *Species at Risk Act, 2002* (SARA), the *Canada Wildlife Act, 1985* (CWA), and *Wildlife Area Regulations*. Through these pieces of legislation, ECCC-CWS is responsible for the management and conservation of all Migratory Birds and Species at Risk under its jurisdiction (hereafter "Wildlife") and how they are managed during a Pollution or Non-Pollution Incident. In the case of Migratory Birds, including SARA-listed Migratory Bird species, this document applies to wherever they are found in Canada. For other SARA-listed Species, this document applies to individuals that are located on federal lands in the provinces, on lands under the authority of the Minister of Environment and Climate Change in the territories, or in the exclusive economic zone or on the continental shelf of Canada (with the exception of individuals of SARA-listed Species under the jurisdiction of Parks Canada or Fisheries and Oceans Canada) (see also Section 2.2 for additional details). For greater clarity, this document does not apply to any wildlife species, including aquatic species (which include fish, marine mammals, marine turtles, and marine plants, as defined in Sections 2 and 47 of the *Fisheries Act*), located on any lands or in any waters administered by Parks Canada or under the jurisdiction of Fisheries and Oceans Canada. The CWA and *Wildlife Area Regulations* broaden the responsibility of ECCC-CWS to include habitats and all wild species within designated National Wildlife Areas (NWAs).

1.1. SCOPE

Wildlife Emergencies, in the context of this document, include Pollution or Non-Pollution Incidents that result or may result in an immediate and/or long-term harmful effect on the life or health of Wildlife and/or their habitat. Pollution Incidents with potential harm to Wildlife are prohibited under the MBCA and SARA. Non-Pollution Incidents are uncontrolled or unexpected Wildlife injury or mortality events other than a Pollution Incident, which may include things such as disease outbreaks, mass strandings, or other unexplained Wildlife deaths. The degree to which any Pollution or Non-Pollution Incident may be deemed a Wildlife Emergency is dependent on a number of factors such as the scope and severity of the incident (e.g. numbers of animals or area of habitat impacted), the likelihood of an incident expanding, potential for impacts to Species at Risk, and potential link

to human health, among other factors. The appropriate level of response expected to incidents should be reasonable and commensurate with the risks. ECCC-CWS is responsible for informing various aspects of response to Wildlife Emergencies, including the development and implementation of Wildlife response strategies and activities, as outlined in the *National Policy on Wildlife Emergency Response* (ECCC-CWS 2021).

During an incident, Responsible Parties (RPs) must demonstrate their ability to safely, efficiently, and effectively respond in a manner that incorporates measures designed to avoid or minimize harm to Wildlife, while managing the public's understanding of response decisions and activities. In the absence of an RP during an incident (e.g. mystery spill), or for planned operations with a potential to impact Wildlife (e.g., oil removal from wreckages), the Lead Agency is deemed responsible for implementing Wildlife response appropriate to that incident.

Wildlife Response Plans (WRPs) are documents that formalize the guidance and strategy for responding to incidents with potential to impact Wildlife. A WRP should include the following elements:

- The objectives of implementing a WRP with respect to managing or preventing harm to Wildlife and its habitat during a Pollution or Non-Pollution Incident
- A description of the incident management structure for Wildlife response and how it is integrated into an incident-specific response command system (e.g., an Incident Command Post (ICP))
- Background information on responsibilities of the RP as well as regulatory requirements, permits, and authorizations to engage in Wildlife response activities
- Information on Wildlife and its habitat known or potentially impacted by an incident
- A description of Wildlife response procedures to be implemented immediately following an incident (e.g., deterrence and dispersal, surveillance)
- A description of the operational structure and implementation of ongoing Wildlife response efforts throughout all phases of an incident
- Procedures for information management and communication, including to key stakeholders (e.g., local communities, hunters)
- Health and safety, security, and training requirements for personnel, equipment, and facilities required to support Wildlife response activities

The purpose of this document is to guide federal, provincial/territorial and Indigenous governments, Indigenous organizations, industry, Response Organizations, and other stakeholders in developing a WRP that considers all aspects of planning throughout the full lifecycle of an incident. This document outlines the attributes that are necessary for effective implementation of Wildlife Emergency response. Proponents should keep in mind that the guidance provided within this document is developed by ECCC-CWS for species' protection within their mandate. As such, proponents developing comprehensive WRPs should also consult with other federal and provincial/territorial agencies which are responsible for other wildlife (e.g., mammals, reptiles, amphibians, fish and some bird species not under the jurisdiction of the MBCA).

2.0 REGULATORY REQUIREMENTS

2.1 APPLICABLE LEGISLATION

ECCC-CWS is responsible for ensuring that all Wildlife response activities are coordinated, enacted, and carried out in compliance with applicable federal law. Federal legislation applicable to Wildlife response includes:

- ***Migratory Birds Convention Act* (MBCA):** Section 5 of the MBCA prohibits the deposit of harmful substances into waters or areas frequented by Migratory Birds, unless authorized under the *Canada Shipping Act, or* the substance is of a type and quantity, and the deposit is made under conditions, authorized under an Act of Parliament other than the *Canada Shipping Act, 2001* or authorized for scientific purposes by the Minister of Environment and Climate Change. Section 6 of the *Migratory Birds Regulations* (MBR) made under the MBCA prohibits the disturbance, destruction, taking of a nest, egg, nest shelter, eider duck shelter or duck box of a Migratory Bird, or anyone from having in his possession a live Migratory Bird, or a carcass, skin, nest or egg of a Migratory Bird. The MBR regulate the hunting of Migratory Birds and other circumstances under which the killing, capturing of and harming of Migratory Birds may be authorized. The *Migratory Bird Sanctuary Regulations* (MBSR) further regulate activities related to Migratory Birds and their habitats within designated Migratory Bird Sanctuaries. Permits may be issued to authorize the permit holder to undertake activities that are otherwise prohibited (Government of Canada 2017).

- ***Species at Risk Act* (SARA):** SARA permits are required for activities affecting a SARA-listed Species, any part of its critical habitat or the residences of its individuals. For the purpose of SARA, an "*activity affecting*" means any activity prohibited under the Act or its regulations. Section 73 of SARA authorizes the issuance of permits for activities affecting a SARA-listed Species, any part of its critical habitat or the residences of its individuals, and sets out conditions that must be met before a competent minister can issue a permit. SARA prohibitions apply to any species listed on Schedule 1 as Threatened, Endangered or Extirpated, but do not apply to species listed as Special Concern.

- ***Canada Wildlife Act* (CWA):** The CWA allows for the establishment of National Wildlife Areas (NWAs), which protect wildlife habitat in Canada. The *Wildlife Area Regulations* identify all NWAs and prohibit certain activities from occurring within NWAs, but Section 3.4 of the *Wildlife Area Regulations* provides exemptions for the prohibited activities within the NWAs in the event of an emergency response effort (e.g., ensuring public safety and national security). The Scott Islands marine NWA has its own regulations, *Scott Islands Protected Marine Area Regulations*, which also provide exemptions for the prohibited activities in the event of an emergency response effort.

Further to these Wildlife specific pieces of legislation, other environmental protection legislation in Canada at the federal, provincial or territorial level contain additional provisions which require approved contingency plans in the event of an environmental emergency for construction, operation or decommissioning activities that may impact the environment. Projects undergoing an environmental assessment may require the development and implementation of an environmental protection plan, conditional upon approval.

Where contingency plans/environmental protection plans identify a threat to Wildlife, ECCC-CWS considers a WRP to fulfill some of these requirements if contingency and emergency response planning efforts adequately address the identified Wildlife issues.

ECCC-CWS recommends that strategic WRPs be developed prior to incidents for activities or areas where the potential for, or associated risk of a Wildlife Emergency is high (see Section 3.2 for more details). These strategic plans may be standalone plans or components (or annex) to overarching response plans (e.g., operators'

facilities response plans). Incident-specific WRPs are routinely developed as part of the ICP to standardize and document Wildlife response activities during an incident (Section 3.2). Both approaches are in keeping with international standards for Wildlife response planning (International Petroleum Industry Environmental Conservation Association (IPIECA) 2014).

2.2 PERMITS AND AUTHORIZATIONS

As part of Wildlife Emergency response, Wildlife Response Organizations (WROs) are often responsible for undertaking response activities involving direct interaction with Wildlife including the capture, collection, transport, and care/rehabilitation, release, and/or euthanasia of impacted Wildlife. Some WROs operating in Canada may retain annual permits that allow certain levels of immediate response, assuming permits are renewed and standards are maintained. Qualifications of these organizations to perform certain activities are assessed during the permit application process. Otherwise, a WRO will work with ECCC-CWS to obtain incident-specific permits for aspects of Wildlife Emergency response requiring authorizations. Other qualified individuals, working for or contracted by WROs, Response Organizations, the RP, or government agencies, may also apply for permits, as required. Permit and authorization requirements are summarized in Table 1.

ECCC-CWS recognizes deterrence and dispersal as a beneficial practice during Wildlife Emergencies. If proponents plan to use deterrence and dispersal tactics during a Wildlife Emergency, this should be described in a WRP (Section 4.5.5), and ECCC-CWS should be consulted to provide guidance on effective tactics for species, seasons, and habitats.

For most of the activities listed in Table 1, activities affecting SARA-listed Migratory Birds may be permitted through the issuance of SARA compliant MBCA-permit (Scientific Permit or Banding Permit). It is important to note that a SARA permit cannot be issued for an activity that would have a prohibited effect on a listed Migratory Bird for which a permit is not available under the MBCA and its regulations. For activities affecting SARA-listed Species, other than a Migratory Bird, permits may be issued under Section 73 of SARA. Specifically, ECCC-CWS SARA permits are required for SARA-listed Species that, a) are located on federal lands in the provinces, b) are located on lands administered by the Minister of Environment and Climate Change in the territories; c) are located in the exclusive economic zone or on the continental shelf of Canada; or d) are the subject of an order of the Governor in Council under SARA, including an order pertaining to the species' critical habitat or habitat that is necessary for the survival or recovery of the species (except for species under the jurisdiction of Parks Canada or Fisheries and Oceans Canada). Table 1 outlines examples of activities that require permits for SARA-listed Species. For additional clarification on the permitting provisions and how to apply for a SARA permit, please consult the *Species at Risk Public Registry Policies and Guidelines* (Government of Canada 2020).

For emergency response activities occurring on Migratory Bird Sanctuaries, permits are required on a site-specific basis (Table 1). Some types of activities that require authorization on Migratory Bird Sanctuaries include carrying firearms and other weapons, and possession/handling of any animal, carcass, skin, nest, egg or part of

those things. These activities may be authorized by permits issued under the MBSR.

With respect to NWAs, a permit is not required to carry out emergency relief activities, as per Section 3.4 of the *Wildlife Area Regulations*. With respect to the Scott Islands marine NWA, a permit is not required to carry out emergency relief activities, as per Section 3 of the *Scott Islands Protected Marine Area Regulations*.

Table 1. Wildlife-related Permits and Authorization Requirements that may be issued by ECCC-CWS[1] during a Wildlife Emergency.

Wildlife	Permit Type	Examples of Activities that Require Permits or Authorization	Permit Holders
Migratory Birds (including SARA-listed Species)	Scientific (for collection)	• Possession • Transportation • Collection/capture • Treatment/rehabilitation/care • Euthanasia	Individuals of WROs are generally permitted for most activities. Subcontractors or independent contractors may be permitted for specific activities through one or several permits.
	Scientific (for capture and banding)	• Capturing • Banding • Using auxiliary markers (e.g., color bands and GPS transmitters) • Collection of biological samples	
	SARA Section 73/74 permit	• Destruction of protected critical habitat • Damage or destruction of any critical habitat that could result in harming individuals of a SARA-listed Migratory Bird • Damage or destruction of residences[2] of a SARA-listed Migratory Bird	SARA permits are issued on site and situation-specific basis and must be discussed early in response activities, as appropriate.
Any SARA-listed Species other than Migratory Birds (on any federal land including NWAs, and any land affected by an order or regulation made under SARA)	SARA Section 73 permit	• Collection, taking, possession • Transportation/relocation • capture/marking • Treatment/rehabilitation/care • Euthanasia • Harassing, including deterrence and dispersal • Exclusion barriers / trenches • Damage or destruction of critical habitat • Damage or destruction of residences[2] • Any activity specifically prohibited by a Section 80 emergency order, or by a regulation made under SARA	SARA permits are issued on a site and situation-specific basis and must be discussed early in response activities, as appropriate.
Migratory Bird Sanctuaries	Scientific (Collection)	• Operations occurring on Migratory Bird Sanctuaries[3]	Migratory Bird Sanctuary[3] permits are issued on a site-specific basis and will be developed early in response activities.

Note:

[1] The permitting process and the types of activities requiring permits is subject to change periodically as regulations are updated. Individuals/organizations should seek up to date advice on permitting from ECCC-CWS permit officers.

[2] For the purpose of SARA, "residence" means a dwelling-place, such as a den, nest or other similar area or place, that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding or hibernating.

[3] Permits issued under the MBSR.

3.0 ELEMENTS OF WILDLIFE RESPONSE PLANNING

3.1 WILDLIFE RESPONSE WITHIN THE INCIDENT COMMAND SYSTEM

Any activities with potential to result in a Wildlife Emergency may warrant immediate implementation of response actions. Guidance on Wildlife response concerns and actions may be provided through the Environmental Emergencies Science Table, which is chaired by ECCC's National Environmental Emergencies Centre (NEEC). Increasingly, within industries or the Government of Canada, emergency incidents are managed and structured using the Incident Command System (ICS) approach, including the establishment of an ICP for major incidents. It is therefore recommended to stakeholders to use ICS for emergency response. Wildlife experts, such as ECCC-CWS, may be situated in the Environmental Unit of the Planning Section within an ICP, a role which may be titled Wildlife Technical Specialist. The Environmental Unit would develop and refine response plans as well as incident-specific tactics. Depending on the scale of the incident and scope of potential or actual impacts to Wildlife, ECCC-CWS may assist in establishing a Wildlife Branch which is typically situated within the Operations Section of the ICP (IPIECA 2014; Figure 1). An Environmental Unit Liaison position may also be staffed in the Wildlife Branch (Figure 1) to facilitate the dissemination of planning and operational information between the Environmental Unit and the Wildlife Branch. WRPs may also be developed and used for Wildlife Emergencies that are not managed with an ICP or a Wildlife Branch.

The WRP should identify, schematically, the structure and function of the Wildlife Branch and its integration into the Operations Section of the ICP, as well as how it liaises with other ICP sections (e.g., Planning). The WRP should anticipate structuring and scaling the Wildlife Branch according to how the incident is expected to proceed.

It is essential to identify and implement Wildlife response activities within the first 24, 48, and 72 hours of an incident. These response activities are formalized within a WRP to structure and guide response activities. The RP is responsible for the development of WRPs, to address all of the procedures and strategies required to mount an effective Wildlife response. During an incident, ECCC-CWS will provide advice to support the Wildlife response consistent with the components outlined in Section 4. However, the RP typically leads the development of a WRP and may contract the WRO to develop it on their behalf to ensure the WRP is operationally feasible. While ECCC-CWS does not have the authority to assign, recognize, or approve specific WRPs, ECCC-CWS may provide advice to the Lead Agency, the RP, and WROs regarding the direction and content of a WRP, based on available science and expertise. A WRP does not necessarily equate with statutes and regulations; rather, developing a WRP identifies actions that support compliance with the MBCA, MBR, MBSR, SARA, and the CWA. A WRP receives formal approvals within an ICP through sign-off by the Incident Command and RP.

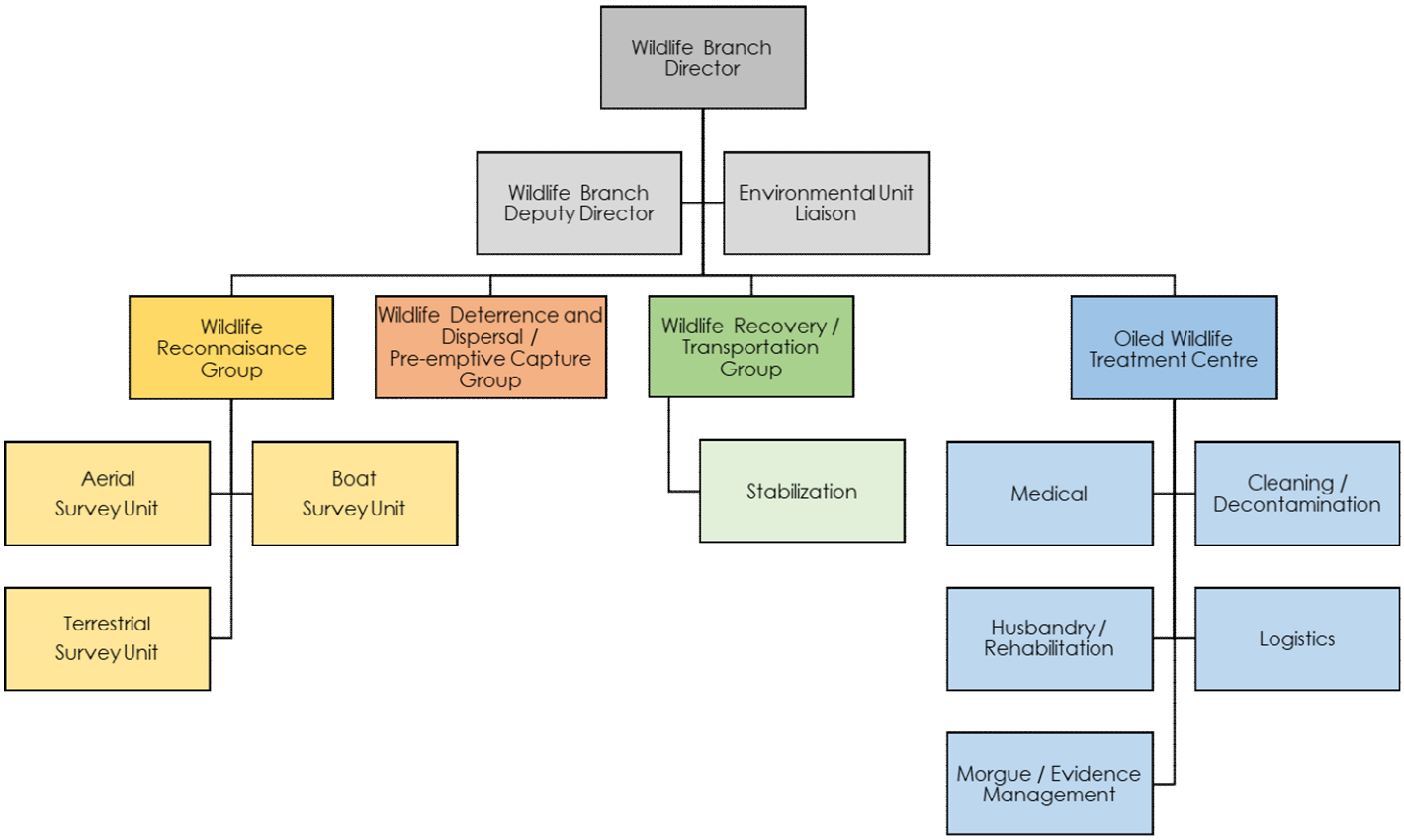

Figure 1. Example of a scalable Wildlife Branch within an ICS setting (adapted from IPIECA 2014).

3.2 TYPES OF WILDLIFE RESPONSE PLANS

There are two main types of WRPs, strategic response plans and incident-specific response plans (described below). ECCC-CWS may support the development of various WRPs, including providing technical expertise, permit support, and incident-specific guidance. However, WRP approvals are the responsibility of the RP and the Incident Command (or Unified Command).

3.2.1 Strategic Response Plans

Strategic response plans are often created for specific activities, where there is a recognized risk of a Wildlife Emergency, or for designated areas or specific locations which may warrant special planning considerations (e.g. protected areas, geographic response areas). Strategic WRPs describe the likely activities to be enacted during a response, but may lack incident-specific actions or tactical plans which may only be developed once the parameters of the incident are known or tested. Thus strategic WRPs are refined and adapted throughout the incident based on incident-specific considerations (Hebert and Schlieps 2018).

Activity-specific Plans: Accidents or malfunctions that may occur at certain types of facilities or infrastructure (e.g., oil-handling facilities, offshore petroleum platforms, liquid natural gas marine terminals), projects (e.g., exploratory drilling), or routine activities (e.g., transport of oil by rail or vessel) have an associated increased risk

for Wildlife Emergencies. However, given the static nature of these sites, the characteristics of a Pollution or Non-Pollution Incident and the procedures for mounting a response can be anticipated to a certain degree. Industries or other stakeholders determine whether it is appropriate to develop strategic WRPs to structure a response that aligns with internal policies and procedures (e.g., industry best practices, contract with WROs), and incorporates site-specific considerations for implementing effective response actions (e.g., pre-determined Wildlife rehabilitation areas, standardized methods for Wildlife surveillance). As with other types of plans, activity-specific WRPs need to be adaptable and scalable, depending on the nature of the incident. Activity-specific WRPs should be reviewed and revised on a regular basis to accommodate changes to infrastructure, activities, and operational procedures, and to reflect current guidance on Wildlife response planning. In cases where activity-specific plans are identified for development, ECCC-CWS can review and provide recommendations on WRP components based on site-specific information.

An example of an activity-specific WRP is one that is developed as part of planned vessel salvage or oil recovery activities, where there is potential for impacts to Wildlife. In the case of a planned salvage, the initial draft of the WRP should be developed and approved in advance of initiating salvage activities. As with other incidents, the WRP will evolve over the course of the salvage to address specific response conditions.

Area-specific Plans: Wildlife Emergencies can also occur in land tenures or aquatic areas of significant biological importance, with specific management objectives, and/or where there is otherwise concerted interest in having a response plan in place (e.g., protected areas, geographic response areas). As with activity-specific plans, the procedures for mounting a response to a Pollution or Non-Pollution Incident may be anticipated and planned for to a certain degree. Managers of these areas may determine it is appropriate to develop strategic WRPs to structure a response that aligns with local or regional management objectives. Stakeholders' input that incorporates site-specific considerations for implementing effective response actions should be considered. Area-specific WRPs need to be adaptable and scalable, depending on the nature of the incident. Managers of these areas need to identify zones of higher sensitivity that are to be protected and those of lower sensitivity to allow an efficient response (access points for machinery, ICP, response personnel, etc.). WRPs should be reviewed and revised on a regular basis. In cases where area-specific plans are identified for development, ECCC-CWS can review and provide recommendations on WRP components based on site-specific information.

3.2.2 Incident-specific Response Plans

The most common type of WRP is typically one that is developed in the early phases of a Wildlife Emergency as part of the ICS and is specific to the incident (IPIECA 2014). Incident-specific WRP, sometimes referred to as Wildlife Management Plans, take into account the actual circumstances of a specific incident, particularly factors related to the scope of the incident (e.g., quantity, location and dispersion of pollution), environmental considerations (e.g., weather), and seasonal considerations (e.g., Wildlife abundance and distribution). A comprehensive strategic WRP may fulfil most of the information needs for an incident-specific plan, but might require further details on implementation given the available resources, weather, and time of year.

For incidents where an RP has been identified, the RP has the first responsibility for initiating effective countermeasures to a Wildlife Emergency and has financial responsibility for damage and cleanup costs incurred during an incident. Upon the establishment of an ICP, the RP and Incident Command will outline planned Wildlife response activities. ECCC-CWS will contribute to the development of an incident-specific WRP by participation in the Wildlife Branch (or Environmental Unit) of the ICP, or by reviewing plans and providing expert advice to individuals working within the ICP. Here, ECCC-CWS may provide guidance on the scope of a WRP and direct the RP, or its contracted response personnel, towards resources that support its development. In particular, ECCC-CWS will inform on any Wildlife response activities that require authorization (i.e., permits), or technical expertise. ECCC-CWS will review and make recommendations on a WRP and subsequent iterations, but the Incident Command ultimately approves the plan. For incidents where an RP has not been identified, ECCC-CWS may contribute to the development and implementation of a WRP.

3.2.3 Plan Development

It is important to recognize that Wildlife Emergency response and WRP development is an iterative process that will evolve as an incident unfolds. A WRP should be structured and implemented in a way that it is adaptable and scalable over the course of an incident, and may accommodate needs for post-incident monitoring.

The Wildlife Branch will determine the appropriate level of response based on specific needs of the incident. The need for greater or fewer resources, equipment, facilities, and response personnel will be based on incident-specific factors including:

- the present and future geographic extent of the incident
- the species, numbers of individuals, and types of habitats present in the geographic extent
- the known or potential risk for injury or mortality
- the timeframe for which incident response actions are implemented

Plans that are developed prior to an incident may also consider tiered response planning to appropriately manage various degrees or types of Wildlife Emergencies. *Wildlife Response Preparedness* (IPIECA 2014) describes tiered response planning in more detail.

3.3 HABITAT CONSIDERATIONS FOR RESPONSE PLANNING

The various habitats occupied by Wildlife require different considerations with regards to response planning. For emergency response involving pollutants such as oil, the key variable in a response plan is the presence of bodies of water that may act as a carrier for contaminants discharged into the environment, causing contaminants to spread over large areas where Wildlife may become affected. In Canada, habitats occupied by Wildlife requiring similar response approaches during an emergency response involving contaminants can be grouped into the following three main landscape categories: a) marine and open fresh water, b) aquatic, and c) terrestrial.

3.3.1 Marine and Open Fresh Water

Pollution Incidents that occur in the marine environment or large freshwater bodies of open water tend to affect Wildlife that spend a high proportion of their time on the water, such as alcids and waterfowl. The effect on Wildlife is influenced by the location of the incident, persistence and toxicity of the contaminants, and duration of the incident. In seasons and areas of high concentrations of vulnerable Wildlife, the number of impacted individuals may reach the thousands, even when a relatively low volume of contaminant is discharged. Affected Wildlife may eventually come ashore either alive or dead, requiring systematic search and collection effort on accessible shorelines. Contaminants discharged offshore may eventually travel inshore and reach the coastline, affecting other Wildlife communities associated with aquatic habitats (see Section 3.3.2). A Wildlife response in the marine and open fresh water landscape focuses on preventing Wildlife from utilizing the affected area, recovering affected individuals if they come to shore, and assessing the impact of the incident on Wildlife (Table 2).

3.3.2 Aquatic Habitats

For the purpose of this document, aquatic habitats consist of any land saturated with water long enough to take on the characteristic of an ecosystem and promote aquatic processes, such as salt marshes, wetlands, fens, lagoons, and bogs, but also include small ponds, creeks, rivers, tidal flats, marshes, and reed beds, or any combination of such categories. Unlike the other landscapes, aquatic habitats are vulnerable to activities that occur both on land and in the marine environment. During a response to a Pollution Incident, aquatic habitats are priority areas for protection as they can trap large quantities of contaminant, are difficult to clean, and can take years or decades to recover due to the retention of contaminants in these environments. Because of the large variety of aquatic habitats and biotypes that they accommodate, removing contaminants from the environment and operationalizing a Wildlife response may be complex. Rivers will carry and spread pollutants over potentially large distances, and shorelines may be inaccessible. Wildlife diversity may be high and include a mix of aquatic (waterfowl, shorebirds, inland waterbirds) and terrestrial (landbirds) Migratory Bird species and Species at Risk from a variety of groups, including mammals, birds, amphibians, reptiles, plants, and fish. Additional survey effort and resources may be required for reconnaissance and surveillance surveys as well as collecting affected individuals. Small lakes and ponds may be attractive for large concentrations of Migratory Birds during migration, molting, and staging periods and may require extended resources to exclude Wildlife from the area. In addition to deterrence activities, a Wildlife response in aquatic habitats may also focus on prioritizing protection and containment strategies to minimize the spread of contaminants to key habitats, denying Wildlife access to impacted habitats, pre-emptive capture to relocate unaffected individuals (e.g., Species at Risk), recovery of affected individuals, and assessing the effect of the incident on Wildlife (Table 2).

3.3.3 Terrestrial Habitats

Pollution discharged into a terrestrial landscape where a body of water is absent will be limited in spread and affect a small area in relation to the released volume. Pollution Incidents in a terrestrial landscape are usually limited to a point source (e.g., truck, rail, pipeline, oil storage facility), however, the species and types of incident interactions among terrestrial Wildlife may be diverse, as there is potential for impacts to birds,

mammals, reptiles, and amphibians. A Wildlife response strategy in a terrestrial landscape may focus on excluding Wildlife from the affected area, pre-emptive capture to relocate unaffected individuals (e.g., Species at Risk), recovering affected individuals, and assessing the impact of the incident on Wildlife.

Table 2. Key activities/strategies for Wildlife response based on major landscape types. This table is meant as a guide to highlight some potential key differences in approaches, but should not be considered as a checklist for all incidents. Refer to text for details.

Response Strategy/Activity	Landscape Categories		
	Marine/ Open fresh water	Aquatic	Terrestrial
Reconnaissance and surveillance surveys	X	X	X
Wildlife deterrence	X	X	X
Wildlife exclusion		X	X
Prioritize habitats for protection	X	X	X
Pre-emptive capture of Wildlife		X	X
Recovery of affected individuals	X	X	X
Assessing impacts to Wildlife	X	X	X

3.4 DETECTING SIGNS OF IMPACTED AVIAN SPECIES

In planning for Wildlife Emergency and preparation of a WRP, it can be important to consider target species and how detectable contaminated (or injured) Wildlife may be. The ability to detect contaminated Wildlife will help in planning several of the actions to be taken during a response, notably Initial Wildlife Impact Assessment (Section 4.5.2), reconnaissance and surveillance surveys (Sections 4.5.3 and 4.5.4), and Wildlife capture (Section 4.5.7). Detecting contaminated Wildlife is best done by experienced observers, such as WRO, but understanding of contaminated Wildlife detection can benefit all aspects of response planning and implementation. Here we provide guidance for detecting signs of oiling in avian species, though the principles outlined are generally applicable to birds affected by other contaminants.

Under normal conditions, typical bird behaviour will vary by the species, the habitats they occupy, as well as time of year and weather conditions. Generally, birds that spend a great deal of time on the surface of the water are typically seen resting on the water (e.g., loons, grebes, scoters, alcids, and cormorants). Piscivorous species (e.g., loons, grebes, alcids), will normally dive and surface repeatedly over time. Some species, like gulls, will move between resting on the water to being flight bound to using land to feed or rest. Species that are common in shore environments, like shorebirds, dabbling ducks, and cormorants are typically quite obvious on rocks or beaches, and would be expected to be quite mobile/active.

Birds that have come into contact with oil may have obvious oiling indications, including coating, discoloured feathers, or feathers having a wet or ragged appearance (i.e., disruption of feather structure). Heavily oiled birds or individuals oiled below the waterline may also appear as though they are sitting low on the water

(when compared with normal species posture), struggling to maintain buoyancy. Oiled birds have increased potential to lose buoyancy and thermoregulatory properties of their feathers. Accordingly, it is common to see oiled birds focused intently on preening themselves in order to maintain buoyancy and reduce heat loss; this may be most apparent while birds are on the water. Diving or dabbling species may appear to be foraging less than expected (although this should be assessed by experienced observers). Birds may also exhibit changes in flushing behaviour, being less inclined to fly when disturbed. Birds might also congregate near or on shore, or strand and rest on structures (e.g., vessels, buildings, platforms); this includes species that would not normally be expected to use these habitats or those that have contacted oil in the intertidal environment. In nearshore or shoreline environments, birds may also use shallow waters to reduce risk of drowning or take advantage of coastal vegetation to camouflage or reduce risk of predation while they try to preen or recover. Observations of behavioral changes in birds are sometimes the key indicators of oil impacts.

Detecting birds contaminated with oil is particularly difficult for aquatic birds with dark plumage that remain on the water and far from shore. Under these circumstances, it may be appropriate to determine a probable rate of contamination using appropriate indicator species. Ideally, indicator species are common throughout the incident area, share similar life history attributes, are sensitive to oiling, and signs of oiling are readily observable. The contamination percentage determined for indicator species only provides an estimation of the contamination percentage for the other species in the incident area. This type of assessment is likely to underestimate the actual contamination rate of the most vulnerable aquatic species, such as sea ducks and alcids, and overestimate the contamination of the more coastal species, such as geese and dabbling ducks (Lehoux and Bordage 1999). Additional details on how to assess rates of oiling for indicator species is provided in the *Guidance and Protocols for Wildlife Surveys for Emergency Response* (ECCC-CWS 2021a).

4.0 COMPONENTS OF A WILDLIFE RESPONSE PLAN

A WRP is a plan that describes the objectives and methods for undertaking Wildlife Emergency response, specific to an area and Pollution or Non-Pollution Incident(s). The aim of a WRP is to avoid or minimize injury or harm to Wildlife during Pollution and Non-Pollution Incidents.

The following section outlines attributes that should be considered within a WRP (IPIECA 2014; Hebert and Schlieps 2018). An annotated WRP template is provided as an example in Appendix A, to be adapted and scaled based on the nature of individual Wildlife Emergencies. A checklist of activities that should be completed within the first 24, 48, and 72 hours of an incident involving Wildlife is provided in Appendix B.

4.1 INTRODUCTION

The Introduction section of the WRP provides the basis and rationale for how a Wildlife response will be handled. The Introduction will provide a general description of the types of issues that will be addressed by the

WRP. Where appropriate, the Introduction will describe how this WRP interfaces with various aspects of an ICP, including other response plans that WRP activities may interact with.

4.2 NOTIFICATION PROCEDURES

The Notification Procedures section outlines the agencies, organizations, and other technical specialists that will be notified during incidents involving Wildlife response. Where appropriate, this section will describe how notifications operate within the incident-specific ICS structure, as well as any intra- and interdepartmental communication requirements.

4.3 REGULATORY REQUIREMENTS

The Regulatory Requirements section provides a brief description of the applicable Wildlife legislation, where it applies, and whether supporting permits or authorizations are required to support a Wildlife response. In most cases, incidents involving Wildlife will need to consider the MBCA, the SARA, and possibly the CWA (see Section 2), as well as other provincial or territorial legislation. Additional permits and authorizations may also be required outside the regulatory authority of ECCC-CWS.

4.3.1 Permits and Authorizations

For any Wildlife Emergency involving the development of a WRP, the plan will identify any WROs or contracted subject-matter experts that will be engaged to support Wildlife response activities. Authorized organizations or individuals must have the training and resources necessary to meet Wildlife response requirements. Where permits or authorizations are identified, this section will highlight:

a) what the authorization is for
b) the issuing agency
c) activities that are authorized
d) who holds authorization to conduct those activities
e) if a technical specialist or qualified professional is required to supervise or participate in the authorized activity (e.g., supervision or guidance of bird deterrence activities by ECCC-CWS or a WRO supervision of bird deterrence activities)
f) reporting requirements, if any, for these authorizations

With respect to strategic WRPs prepared in advance for specific activities or areas, this section will also identify permits which are already in place and relevant information on renewal and reporting cycles.

4.4 RESOURCES-AT-RISK

The WRP will outline potential Wildlife and habitat resources-at-risk from the incident's current and reasonably foreseeable impacts. The resources-at-risk section of the WRP will describe:

- the geographic extent for which resources are being identified

- Migratory Bird sensitivities
- Species at Risk sensitivities
- important habitats for consideration and protection:
    - critical habitat
    - protected areas
    - colonial nesting areas
    - general nesting areas
    - seasonal stopover, molting, or staging areas
    - key areas (e.g., Important Bird Areas, Ecologically and Biologically Significant Areas)
    - other important habitat features such as estuaries

In addition to these general factors, the characterization of resources-at-risk should consider area- and species-specific factors such as seasonal presence, abundance, life stage, and habitat associations. Where available, incident-specific observations should be referenced in the description of resources-at-risk to characterize current conditions. Resources-at-risk should also consider details on mitigations related to habitats including priority sites, protection measures, clean-up restrictions, and information relevant to Net Environmental Benefits Assessment (NEBA) or Spill Impact Mitigation Assessment (SIMA) (e.g., IPIECA 2016, 2018).

4.5 WILDLIFE MANAGEMENT AND RESPONSE

This section will describe the nature of Wildlife management and response activities that are, or will be undertaken as part of the incident. The nature and scale of a WRP will depend on the incident, and the known or potential impacts to Wildlife.

For the early phases of an incident, the WRP should include, at minimum, a description of the initial approaches for Wildlife impact assessment (e.g., reconnaissance and monitoring activities). This section of the WRP will be revised as an incident evolves. Where appropriate, aspects of Wildlife management and response may warrant standalone plans that could be appended, and referenced in this section (e.g., detailed plans for Wildlife rehabilitation).

4.5.1 Operational Objectives

This section briefly describes the primary objectives for the activities that will be implemented during the operational period(s) this plan is expected to apply to until its next iteration. Objectives will consider the ethical considerations in context with situational, technical, and financial feasibility of implementation (IPIECA 2014). Objectives will change based on Wildlife concerns as well as personnel and equipment resource availability. These objectives form the basis for the nature and scope of activities described in this section of the WRP.

4.5.2 Initial Wildlife Impact Assessment (0 to 24 Hours)

In order to effectively plan for and direct Wildlife response efforts, an Initial Wildlife Impact Assessment needs to be conducted as early in the incident response as possible, to determine:

- existing information on Wildlife and habitats
- current/initial estimates of Wildlife impacts
- projection of potential impacts to Wildlife
- initial Wildlife response recommendations
- initial habitat protection recommendations
- initial resource, personnel, equipment, and facility requirements

As with all phases of a response, the Initial Wildlife Impact Assessment must be completed in consideration of the health and safety of response personnel and adhere to all incident-specific health and safety requirements (see Section 4.7).

4.5.3 Reconnaissance Surveys (24 to 48 Hours)

Reconnaissance surveys should be conducted in a timely manner on a large geographic scale to assess the outer limits of the incident. These surveys serve to obtain current information on impacted habitats, areas of special concern (e.g., colonial nesting areas) and the abundance and distribution of Wildlife within the general area of the incident, recognizing that Wildlife movements may extend beyond the geographic limits of the incident area. Initial reconnaissance surveys should take place as early in the response as possible to determine current conditions and inform potential response priorities and strategies. In all cases, reconnaissance should extend, at minimum, to the expected geographic limits of the incident area, recognizing those boundaries may change as the incident progresses. Reconnaissance surveys may be conducted on a recurring basis to inform response activities (e.g., deterrence and dispersal, Wildlife capture), or if the situation of the incident changes (e.g., following a storm). Reconnaissance surveys help identify the most suitable approaches for the surveillance or monitoring phase of the response. Reconnaissance may occur from land, boat, or air. Reconnaissance surveys are not systematic and the goal is not to precisely assess Wildlife densities but rather to conduct informal surveys to rapidly assess the distribution of impacted, or potentially impacted, Wildlife and habitats for a prompt response.

Primary objectives of reconnaissance surveys are to:

- determine the geographic scale of the incident
- identify Wildlife and habitats that have already been impacted
- estimate relative abundance and distribution of Wildlife with potential to be impacted
- evaluate key habitats of importance to Wildlife with potential to be impacted
- inform development of appropriate response strategies
- inform mitigation activities to minimize further damage to Wildlife
- inform suitability of various survey methods (e.g., shore, boat, or aerial surveys) for subsequent surveillance or monitoring for the duration of the incident
- inform Incident Command on the status of known or potential impact on Wildlife

If impacts to Wildlife or their habitats are known or anticipated, an approach for systematically surveying and monitoring Wildlife should be developed and articulated in the WRP (see Section 4.5.4). Standardized protocols

have been developed for conducting systematic Migratory Bird surveys during an emergency response in Canada and are summarized in the *Guidance and Protocols for Wildlife Surveys for Emergency Response* (ECCC-CWS 2021a). The following stages of a Wildlife response (Sections 4.5.5 to 4.5.10) should be developed and implemented by trained and qualified personnel under the supervision of the Wildlife Branch Director in the Wildlife Branch and/or Wildlife Technical Specialist(s) in the Environmental Unit, depending on the structure of the response (see also Section 3.1).

4.5.4 Surveillance (Monitoring) Surveys (48 to 72 Hours and Onwards)

If impacts to Wildlife or their habitats are known or anticipated, Wildlife Branch will develop a systematic surveillance (monitoring) survey program with an appropriate temporal and geographic scope. If surveillance is required, the RP will secure qualified personnel to develop and execute the program and who will report to Wildlife Branch Director and/or Wildlife Technical Specialist(s). The methods and general approach(es) may be described in strategic WRPs and ECCC-CWS can advise on survey design and implementation for incident-specific WRPs, consistent with the *Guidance and Protocols for Wildlife Surveys for Emergency Response* (ECCC-CWS 2021a).

Primary objectives of surveillance surveys are to:

- monitor and refine the identification of Wildlife and habitats in the impacted area
- monitor and identify areas where Wildlife would be potentially at risk from further impacts
- monitor and refine estimates of abundance and distribution of Wildlife in the impacted area
- monitor and estimate Wildlife densities for damage assessment
- monitor and estimate number of dead and moribund Wildlife affected by incident
- identify areas where affected Wildlife can be collected
- inform other response activities such as habitat protection and Wildlife deterrence and dispersal
- inform Incident Command

Implemented throughout the response in accordance with the plan, data collected during surveillance provides critical response information and can also be used to document damage assessment following the incident.

4.5.5 Deterrence and Dispersal

For some incidents, deterrence and dispersal can be an effective early means to deter Wildlife from moving into or near the incident area and coming into contact with contaminants. Use of these techniques can also be helpful in excluding Wildlife from impacted areas throughout the response phase. Deterrent devices used to disperse Wildlife include both visual and auditory techniques and range in their effectiveness depending on the species, number of individuals, time of year, and habitat where the incident occurs.

If deterrence or dispersal is required or recommended, the RP will retain a qualified and, if applicable, authorized WRO to develop and execute a Wildlife deterrence and dispersal program. In the absence of an RP, the Lead Agency may develop and execute a Wildlife deterrence and dispersal program. Guidance to

conduct activities related to deterrence and dispersal are outlined in Lehoux and Bordage (2000), with revisions and updates in development by ECCC-CWS. Other guidance to consider in the development of deterrence and dispersal tactics for WRP include Gorenzel and Salmon (2008) and IPIECA (2017). Deterrence will be conducted only by appropriately trained personnel, and under direct guidance and supervision (as required) from the Wildlife Branch Director and/or Wildlife Technical Specialist(s). A WRP may also outline protocols for Wildlife Technical Specialists in the field to monitor and document the use and effectiveness of deterrence and dispersal techniques so that updates may be made to subsequent WRPs. ECCC-CWS may provide guidance on deterrence and dispersal strategies and may also supervise deterrence and dispersal techniques for habitats or species that are particularly sensitive to these types of response measures (e.g., in proximity to breeding colonies). Strategic WRPs may outline a set of applicable techniques for a particular industry or facility, whereas an incident-specific WRP may then specify actions to be put in place given the species observed and environmental conditions at the time (e.g., weather).

Deterrence activities should be determined on a species-specific and location-specific basis that considers the following factors:

- What is the location and/or the extent of the spill
- Where are alternative species-appropriate habitats that birds can be dispersed to
- What species are present or likely to be at risk
- What is the life history status of the birds present (e.g., roosting, staging, breeding)
- What qualified personnel and equipment is available with experience and knowledge for deterrent use and Wildlife dispersal
- What are the environmental conditions
- Can the deterrence and dispersal plan be enacted in a safe manner for response personnel and Wildlife

4.5.6 Exclusion, Pre-emptive Capture, and Relocation

WRPs often implement measures designed to pre-emptively limit the potential for Wildlife to become impacted during Pollution Incidents. Often, marine, aquatic and terrestrial Wildlife can be excluded from areas that are known or have potential to become impacted through a combination of mechanical and physical techniques designed to dissuade habitat use (e.g., visual or acoustical deterrents, fence or net installation, physical habitat modification). Pre-emptive Wildlife capture and relocation similarly seeks to collect Wildlife before they are impacted during a Wildlife Emergency. Planning for Wildlife collection requires considerations for capture, transport, holding, and release strategies. If pre-emptively captured Wildlife need to be contained for a period of time, a WRO authorized to carry out these activities must be identified to provide appropriate species-specific housing, nutritional support, and medical care (if necessary) for a potentially extended period. Guidance and protocols on pre-emptive capture and care for Wildlife during a Pollution Incident are described in the *Guidelines for the Capture, Transport, Cleaning, and Rehabilitation of Oiled Wildlife* (ECCC-CWS 2021b). Where appropriate, the WRP should describe plans for Wildlife collection and relocation activities.

4.5.7 Wildlife Capture, Transport, Rehabilitation, Release, and/or Euthanasia

This section of the WRP will be broken down into detailed phases, each of which are described briefly in Table 3. Planning for these activities may evolve over the course of the incident to include details on the number of monitoring and field staging facilities, capture procedures, rehabilitation facilities, as well as coordination of rehabilitation personnel.

The RP should retain a qualified and authorized WRO to develop and implement these phases of Wildlife response. These programs will adhere to the *Guidelines for the Capture, Transport, Cleaning, and Rehabilitation of Oiled Wildlife* (ECCC-CWS 2021b), *Guidelines for Establishing and Operating Treatment Facilities for Oiled Wildlife* (ECCC-CWS 2021c), as well as an area-specific or incident-specific Health and Safety Plan. Not all phases will be applicable or readily implemented during a response, but all may be considered as options when developing a strategic WRP, and later refined in an incident-specific WRP.

Table 3. Phases of Wildlife Capture, Transport, Rehabilitation, Release, and/or Euthanasia

Phase	Objectives
Pre-emptive Capture	• The capture of Wildlife that is at risk of being impacted • Transport of Wildlife to a holding facility
Capture	• The capture of impacted Wildlife • Transport of Wildlife to Field Stabilization Site or Oiled Wildlife Rehabilitation Centre
Field Stabilization	• Physical evaluation • Removal of gross contaminants • Thermoregulatory support • Fluid therapy and nutritional support • Address life threatening conditions • Euthanasia evaluations based on established criteria and best practices
Transportation	• Transport of contaminated animals from field or Field Stabilization Site to an Oiled Wildlife Rehabilitation Centre
Processing	• Evidence collection • Birds given individual, temporary band • Feather/fur sample • Photograph • Individual medical record
Intake	• Medical examination, triage, and treatment plan development • Critical care concerns addressed • Euthanasia evaluations based on established criteria and best practices
Triage	• Ongoing euthanasia and treatment plan evaluation based on medical health status
Euthanasia	• Euthanize Wildlife that are assessed by the WRO as not being good candidates for rehabilitation or survival
Stabilization	• Fluid, nutritional and medical stabilization of impacted animals • 48–72 hours period • Prepare animals for cleaning process
Cleaning	• Removal of all contaminants from an impacted animal by washing • Removal of the cleaning agent by rinsing • Drying cleaned and rinsed animal
Conditioning	• Restoring waterproofing and physical condition
Release	• Federal banding of individual animals • Consider additional tracking devices on some birds to monitor post-release • Release of cleaned, waterproof animals into a clean environment
Post-release	• Determining the effectiveness of rehabilitation of Wildlife impacted during a

Phase	Objectives
Monitoring	Pollution Incident • Monitoring the clean Wildlife's condition and activities • Following short-term and long-term survival and breeding status following rehabilitation

4.5.8 Wildlife Carcass Collection Procedures

Dead Wildlife should be removed from the environment to avoid attracting scavengers to the site and secondary contamination of Wildlife. The responsibility for the collection and documentation of dead Wildlife is primarily the responsibility of the Wildlife Branch and is completed under the supervision of authorized organizations (e.g., Wildlife Enforcement Directorate) and personnel with appropriate permits. Protocols for Wildlife collection, storage and documentation will be developed. Wildlife recovery personnel will retrieve dead Wildlife as part of daily activities. Dead Wildlife observed by the public can be reported to a 24-hour hotline (see Section 4.6.1). Members of the public must not pick up dead Wildlife but rather report them to the hotline. The Wildlife Branch will work with the Information Officer to develop appropriate messaging.

Carcass collection information will be used to:

- refine the geographic scale of the incident
- determine the cause of death if the source is unknown
- minimize damage and exposure to unaffected Wildlife by removing affected Wildlife from the environment
- minimize potential for harm or exposure by the public who participate in hunting activities or are supporting aspects of the response
- support appropriate response strategies for the treatment of affected Wildlife
- obtain a minimum number of casualties for damage assessment purposes
- obtain specimens/samples for legal enforcement activities or reporting requirements
- inform Incident Command

These procedures will also outline requirements necessary for proper chain of custody and storage of specimens. Chain of custody, and other record-keeping forms, will be attached as appendices to the WRP.

For additional guidance on collecting dead Wildlife during incidents, see the *Guidance and Protocols for Wildlife Surveys for Emergency Response* (ECCC-CWS 2021a).

4.5.9 Waste Management

Plans for decontamination and disposal of waste materials will be developed. Waste and secondary pollution should be minimized at each step of the Wildlife response. During the various phases of Wildlife cleaning (holding pen, carcass wrapping), waste will be created. Washing Wildlife will cause waste water (e.g., oil with detergent), which will need to be managed (through existing Waste Management Plans or by establishing additional plans as needed). Medical waste (e.g., syringes and gloves) should be considered. The response

plan will identify the legislation and the authorities responsible for waste management.

4.5.10 Demobilization

Regardless of the scale of a Wildlife Emergency, the WRP will describe any processes or considerations for demobilizing Wildlife response activities. As appropriate, demobilization will be scaled in accordance with the size of Wildlife response (e.g., decreased intake of contaminated Wildlife) and must be approved by the Incident Command.

This section of the plan will discuss, as applicable:

- processes for demobilizing equipment, facilities, and personnel
- processes for ongoing involvement in the ICP or post-response impact assessment and monitoring
- processes for chain of custody of data to support enforcement decisions
- processes by which the RP can continue to receive advice and support from ECCC-CWS

4.6 INFORMATION MANAGEMENT AND REPORTING

This section of a WRP should describe how information collected throughout the operational periods of the WRP would be managed, organized, vetted, and reported on. It should include:

- the type of data being collected (e.g., inventory, photos, videos, GIS)
- the personnel that will collect, organize, and vet the data
- the process for maintaining data records during and after the incident
- the process for integrating Wildlife data and activities into an incident information system (often referred to as the Common Operating Picture) within an ICP
- who data will be reported to, including the type and frequency of reports (e.g., daily email tabular summaries to the Environmental Unit Leader)
- how information is disseminated to agencies responsible for overseeing response

4.6.1 Wildlife Reporting From the Public (Wildlife Hotline)

Within the initial phases of an ICP being established where there are potential impacts to Wildlife, ECCC-CWS should ensure that reports of impacted Wildlife are directed to the Environmental Unit by way of a 24-hour hotline (or other reporting mechanism created for an incident). The contact information and instructions to the public for the 24-hour hotline should be outlined in the WRP. This may include the use of already existing environmental emergencies reporting systems, or the development of new hotlines as required for the scale of the incident. The Wildlife hotline may also serve as a platform to relay incident-specific safety information to the public (e.g., avoiding direct contact with contaminated Wildlife).

4.6.2 Media Relations

Media statements help to inform the public and raise awareness regarding Wildlife concerns and treatment, as well as public safety. The WRP should identify how Wildlife response activities will be reported to the public

through media statements, and who within the Environmental Unit or Wildlife Branch are responsible for informing them. Generally, Wildlife Branch Response Director and the incident's Information Officer will jointly develop these statements, with relevant input from Wildlife Technical Specialist(s) and/or Environmental Unit Lead. Where appropriate, public statements involving Wildlife will also be vetted and approved by the ECCC-CWS technical specialists, Media Relations, and the Regional Director.

4.6.3 Permits Reporting

Certain permits which may be issued prior to or during an incident may also have reporting requirements. Most ECCC-CWS issued permits require reporting of activities within 30 days of the permit expiry.

4.7 HEALTH AND SAFETY

Responder safety is of paramount importance when initiating Wildlife response activities. Activities recommended and implemented as part of a WRP will adhere to the incident-specific health and safety plan and be identified in consultation with the Incident Safety Officer. A brief overview of health and safety considerations and requirements will be described in the WRP, with specific mention of Wildlife responder personal protective equipment, zoonoses, and site safety and security (including areas off limits to Wildlife responders). This section will evolve over the course of the incident.

4.7.1 Personal Protective Equipment

For Wildlife management and response activities proposed in a WRP, responders will have appropriate training and equipment for safely operating in shoreline, marine, or aerial environments (depending on incident location and response activities) and for contaminated Wildlife handling within a rehabilitation setting. Responders will have appropriate equipment and clothing to operate for extended periods and that protect against environmental exposure or incident-specific conditions. Basic personal protective equipment recommended for Wildlife management and monitoring activities includes:

- eye protection (e.g., sunglasses, goggles, safety glasses, or face shield)
- oil-resistant rain gear or oil protective clothing (e.g., coated Tyvek, Saranex, etc.)
- water and oil resistant hand protection (e.g., neoprene or nitrile rubber)
- waterproof and oil resistant non-skid boots; steel-toes may be required under the incident-specific health and safety plan
- hearing protection (muff or ear plug type)
- personal flotation device when working on, near, or over water
- air monitoring device when appropriate
- specific gear appropriate for work where personnel are or may be submersed in water (wet suits, dry suits, survival gear)
- species-specific capture and protective gear (welding gloves, steel toed boots etc.)

The above list should not be considered comprehensive or applicable to all incidents. Additional incident-

specific and specialized equipment may be required for other aspects of Wildlife response and will be developed in consultation with WROs and the Safety Officer.

4.7.2 Zoonoses

Zoonoses are infectious diseases that may be transmitted between animals and humans under natural conditions. Personnel handling or coming into contact with Wildlife are at risk of zoonotic disease exposure. Veterinarians, technicians, response personnel, Wildlife handlers, and other animal care personnel who come into direct or indirect contact with Wildlife or any body fluids are at risk of contact with disease agents that may have zoonotic potential. Organisms that may cause or transmit zoonotic diseases include many classifications from viruses, fungi, and bacteria to internal and external parasites. The WRP will describe biosecurity practices that will be employed in all aspects of Wildlife response to reduce risk of disease transmission.

4.7.3 Biosecurity

Biosecurity is a set of preventative measures that reduce the risk of transmission of infectious diseases, pests, and invasive species. Where there is potential for response measures (both overall incident response and Wildlife-specific response) to contribute to issues involving biosecurity, the WRP will outline a suite of measures to control for these risks.

4.8 PERSONNEL REQUIREMENTS

There are many personnel that could be involved in various aspects of WRP implementation. Certain roles, responsibilities, or authorized activities require various types of training or technical expertise.

Where applicable, the WRP will specify which activities individuals with specific training or expertise can complete. This may include outlining training standards and/or experience that may be required for specific industries, areas, or facilities. Industries and Response Organizations should consult with regional ECCC-CWS staff for guidance on relevant standards.

4.9 FACILITY AND EQUIPMENT REQUIREMENTS

As part of planning and implementing Wildlife response measures outlined in a WRP, specific equipment and facility requirements may need to be developed. The level of detail of these requirements will vary by the scale of the incident and may be more appropriately described in documents appended to the WRP. Components of equipment and facility considerations may include:

- the type and amount of equipment required
- means of transportation to support Wildlife response elements
- requirements for utilities, waste management, and security
- the nature of equipment or facility requirements (e.g., temporary, mobile, permanent)
- sources of supplies if known

Additional information to support equipment and facility planning is outlined in the *Guidelines for Establishing*

and Operating Treatment Facilities for Oiled Wildlife (ECCC-CWS 2021c).

5 EVALUATING WILDLIFE RESPONSE

5.1 EVALUATION AND REVIEW

WRPs should be implemented and evaluated for their effectiveness within a context of adaptive management, where the results are used to refine future iterations (IPIECA 2014, Hebert and Schlieps 2018). Following a Wildlife Emergency, WRP developers and implementers should debrief on strengths and weaknesses of the plan, lessons learned, and gaps or areas for improvement (particularly for strategically developed activity- or area-based WRPs). Evaluation of the WRP should consider a) ease of implementation, b) efficiency of implementation, c) areas of practice that were or were not included, and d) whether the WRP supported the desired response outcome(s), business and legal requirements. ECCC-CWS may be consulted in this review and assist with recommendations for refinement.

5.2 EMERGENCY EXERCISES

Emergency exercises are important for testing the effectiveness of WRPs, identifying potential gaps, and ensuring activity-, area- or incident-specific considerations are planned for in advance of an actual incident occurring (IPIECA 2014). Exercises also allow for government and industry partners to work together and familiarize themselves with the personnel and resources available to support Wildlife response activities. Exercises can also be an excellent means to provide training, or to test certain response strategies in a controlled setting.

Emergency exercises can take place in several formats: notifications, tabletop, field drills, and participation in the Environmental Unit or Wildlife Branch of an ICP. Each exercise will be planned with specific Wildlife response focused objectives in mind, and may center on testing particular aspects of the WRP. WRPs should be updated and revised to incorporate identified gaps and lessons learned into the plans.

6 CUSTODIAN

The custodian for the *Guidelines for Wildlife Response Plans* and any amendments thereto is the:
Director General, Regional Operations Directorate
ECCC-CWS
ECCC

The approval of future updates is vested to the Director General, Regional Operations Directorate, ECCC-CWS.

7 ACKNOWLEDGEMENTS

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APPENDIX A: EXAMPLE TEMPLATE OF A WILDLIFE RESPONSE PLAN

APPENDIX B: EXAMPLE CHECKLIST OF WILDLIFE EMERGENCY ACTIVITIES

Table B.1. Example Checklist of Activities to Undertake within the initial 24, 48, and 72 hours of a Wildlife Emergency (adapted from Hebert and Schlieps 2018)

Timeline	Responsibility	Action
0-24 Hours	Incident Command/ Unified Command	• Ensure appropriate notifications to relevant government departments and branches • Activate an authorized WRO
	Environmental Unit	• Compile existing information on Wildlife • Complete a Resources-at-risk form (i.e., ICS 232) • Initiate Initial Wildlife Impact Assessment • Initiate deterrence and dispersal strategy
24-48 Hours	Incident Command/ Unified Command	• Establish a Wildlife Branch under the Operations Section of the ICP • Designate a Wildlife Branch Director
	Environmental Unit and/or Wildlife Branch	• Mobilize the WRO • Continue Initial Wildlife Impact Assessment • Conduct Reconnaissance Survey • Refine deterrence and dispersal strategy • Develop Wildlife Branch organization chart • Establish a Wildlife hotline • Initiate incident-specific WRP • Initiate requests for resources (personnel, supplies, facilities, equipment) • Identify Wildlife response health and safety requirements • Ensure ongoing notifications and updates to relevant government department contacts • Identify subject matter experts that might support the ICP
48-72 Hours	Wildlife Branch and/or WRO	• Coordinate with the WRO to develop or modify an existing WRP, and a process for WRP implementation • Develop plan for ongoing monitoring • Conduct surveillance and monitoring surveys • Determine locations for field stabilization • Establish field staging areas • Refine incident-specific WRP • Develop internal and external communications with the Information Officer and departmental communications personnel • Ensure ongoing notifications and updates to departmental contacts

[TITLE OF INCIDENT – LOCATION]

WILDLIFE RESPONSE PLAN

DATE

VERSION XX | DATE

Environment and Climate Change Canada
Environnement et Changement climatique Canada

Canada

Cat. No.: xxx
ISBN: xxx

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Aussi disponible en français

Instructions

Delete this page in the final report.

This document is formatted as a template for developing an incident-specific Wildlife Response Plan (WRP). The format of this document is intended to cover the primary essential considerations for the development and refinement of a plan throughout the course of mounting a response. This WRP planning template is limited to information necessary to meet Environment and Climate Change Canada's Canadian Wildlife Service (ECCC-CWS)'s planning requirements. Additional sections and information are required to address federal, provincial, territorial, municipal, or Indigenous requirements beyond the authority of ECCC-CWS. This WRP can be tailored to be specific to individual federal or provincial/territorial government jurisdiction or can be combined into a consolidated Wildlife plan depending on the needs of the incident.

Throughout this template, please note the following:

1. Regular text is 'boiler plate' language that can be retained for all Plans, no changes required
2. Text in grey highlighting provides some annotation for sections of text that should be added but need to be modified with details specific to the incident and scope of work
3. Red text must be replaced with incident-specific details embedded in a sentence
4. Blue text is a placeholder provided as an example and must be replaced based on the incident

Abstract

Abstract

Table of Contents

Version History

The version history of this document is as follows:

Version	Approval Date	Authorized Sign-Off

Authorship

This Wildlife Response Plan was developed collaboratively by the following:

Name	Agency / Organization	Contact

List of Acronyms

Acronym	Actual Name
Acronym	Actual Name
Acronym	Actual Name

Definitions

Chain of Custody: A written record for a legal sample documenting the continuity by tracing the possession of the sample from the point of collection through introduction into evidence.

Environmental Emergency: Any uncontrolled or unexpected incident involving the release (or the likelihood thereof) of a polluting substance into the environment that results or may result in an immediate or long-term harmful effect on the environment, or constitutes or may constitute a danger to human life or health. It may be caused by an industrial activity, natural emergency or by a wilful act.

Field Stabilization Site: Facility that provides initial triage, care and/or euthanasia as well as short-term holding (sometimes overnight) for Wildlife prior to transport to an Oiled Wildlife Rehabilitation Centre. It is not meant for washing oiled Wildlife and not designed for long-term care.

Incident Command: Responsible for overall management of the incident and consists of the Incident Commander, either single or unified command, and any assigned supporting staff.

Incident Commander: The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources. The Incident Commander has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.

Lead Agency: The governmental authority that regulates or has legislative authority over the responsible parties' response and is responsible for overseeing the appropriateness of the response.

Migratory Bird: As defined in the *Migratory Birds Convention Act, 1994*, a Migratory Bird referred to in the Convention, and includes the sperm, eggs, embryos, tissue cultures and parts of the bird of species listed under Article 1 of the Convention (Government of Canada 2017).

National Wildlife Area: A protected area created under the *Canada Wildlife Act* that contains nationally significant habitats for plants and animals and that is managed for the purposes of wildlife conservation, research and interpretation.

Non-Pollution Incident: An uncontrolled or unexpected Wildlife injury or mortality event other than a Pollution Incident.

Pollution Incident: The release or deposit of a substance that is harmful to Wildlife into an area or waters that are frequented by Wildlife or into a place from which the harmful substance may enter an area or waters frequented by Wildlife.

Response Organization: Any qualified person or organization that has been certified and designated by the Minister of Transport to carry out emergency response activities (as per the revised *Canada Shipping Act* (2001)). In Canada, there are four Response Organizations as follows: Atlantic Emergency Response Team, Eastern Canada Response Corporation Ltd., Western Canada Marine Response Corporation, and Point Tupper Marine Services Ltd.

Responsible Party: Any person or organization who might be responsible for the source or cause of an environmental emergency and/or a Wildlife Emergency.

SARA-listed Species: *A* wildlife species listed on the List of Wildlife Species at Risk set out in Schedule 1 of the *Species at Risk Act* (SARA).

Species at Risk: As defined in the *Species at Risk Act* (S.C. 2002, c.29), means an Extirpated, Endangered or Threatened species, or a species of Special Concern.

Unified Command: An application of the Incident Command System, used when there is more than one agency with incident jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the Unified Command to establish a common set of objectives and strategies and a single Incident Action Plan.

Wildlife: In this document, "Wildlife" is used to refer to the terms Migratory Birds as defined under the *Migratory Birds Convention Act,* and listed Species at Risk as those terms are defined under the *Species at Risk Act* for species falling within the jurisdiction of the Minister of Environment and Climate Change (with the exception of individuals of SARA-listed Species that are located on lands administered by Parks Canada). This term also refers to all wild species occurring in the National Wildlife Areas set out on Schedule I of the *Wildlife Area Regulations* (C.R.C., c. 1609).

Wildlife Emergency: A Pollution or Non-Pollution Incident that results or may result in an immediate and/or long-term harmful effect on the life or health of Wildlife and/or their habitat.

Wildlife Response Plan: A document that outlines the initial and ongoing Wildlife-related strategies that are needed to support any Wildlife response objectives that may occur at the onset of a Pollution or Non-Pollution Incident.

Wildlife Response Organization: Organizations that provide expertise, capabilities and trained personnel to undertake one or several aspects of response, including planning, implementation and reporting of activities related to Wildlife Emergencies. Wildlife Response Organizations (or representatives thereof) are authorized under applicable federal, provincial, and/or territorial legislation to capture, transport, clean, rehabilitate, euthanize, and release Wildlife.

[Insert/remove definitions as needed]

1.0 Introduction

Paragraph 1: *Provide a brief, 1-paragraph description of the incident, including the type of vehicle/vessel involved, type of release (product(s), estimated volume(s), general location and time of year of incident, general habitat characteristics.*

Example:

On November 6, 2018, the Athena Contain Ship rain aground on Arachne Reef, south of Moresby Island. The grounding resulted in a puncture to the starboard side fuel tank, resulting in a release of approximately 300 tonnes of heavy fuel oil (HFO) per hour. As of the initiation of the Incident Command Post at 0730 h on November 7, 2020, 5,000 tonnes of HFO had been reportedly released.

Paragraph 2: *Describe the potential impacts, potentially affected species and corresponding federal or provincial legislation and departmental authorities based on the nature of the incident. This could include Migratory Birds (e.g., Migratory Birds Convention Act), Species at Risk (e.g., SARA), Canada Wildlife Act (CWA), provincial species. Consider if separate definitions for Wildlife and habitat need to be provided based on anticipated impacts to marine, aquatic, or terrestrial plants, etc.*

Example:

Potential impacts to Migratory Birds and species designated on Schedule 1 under the Species at Risk Act (SARA) under Environment and Climate Change Canada (ECCC)'s jurisdiction (hereto collectively referred to as Wildlife), and their habitats, have been identified as a potential concern.

The purpose of this Wildlife Response Plan (the WRP) is to summarize primary resources at risk and strategies to assess, monitor, control, and recover Wildlife that are known, or have potential to be impacted by a Pollution of a Non-Pollution Incident. The Plan is also intended to prevent unaffected Wildlife from coming into contact with impacted habitats or individuals. Guidance provided within is consistent with the *National Policy on Wildlife Emergency Response* (ECCC-CWS 2021) and supporting guidance documents.

This Plan reflects current knowledge of environmental and incident conditions. The Plan will be amended, as necessary, to reflect changing conditions and input from applicable agencies, stakeholders, and the [insert name of the Responsible Party (RP)]. As part of the Incident Command System (ICS), activities within this Plan should be implemented under direction of the Wildlife Branch Director and/or appropriate Wildlife technical specialist(s) of The Environmental Unit, and be undertaken or supervised by qualified personnel, as indicated herein.

2.0 Agency Notification Procedures

This section describes the government agencies, organizations and/or individuals that should be contacted during incidents involving Wildlife, and the level of potential risk that warrants immediate concerns and notification requirements to each.

Wildlife concerns will be communicated to the Environmental Unit Lead(s) and directed to the appropriate technical specialist(s) (Table 1).

Table 1. Wildlife Agency Contacts

Role	Agency	Contact(s)	Phone	Email
Environmental Unit Lead				
Wildlife Branch Director				
Migratory Bird and Species at Risk Technical Specialist				
Wildlife Response Organization*				

* Should be contacted at the recommendation of the Incident Command, Environmental Unit and request of the RP

The Lead Agency and/or Environmental Unit Lead should ensure ECCC-CWS is alerted as early as feasible in an incident, if certain criteria are met. Examples of these include:

- If large groups (100+ individuals) of dead birds on shore or on the water are observed
- If there is any sign of Migratory Birds demonstrating signs of oiling
- If there is any sign of species at risk located on any federal land demonstrating signs of oiling
- If any sign of oil reaching a National Wildlife Area (NWA)

3.0 Regulatory Requirements

This section provides a brief description of the applicable Wildlife legislation, where it applies, and whether supporting authorizations are required to support a response. Where authorizations are identified, the table in this section will highlight a) what it is for, b) the issuing agency, c) activities that are authorized, d) who holds authorization to conduct those activities, e) if a technical specialist or qualified professional is required to supervise or participate in the authorized activity (e.g., ECCC-CWS or a Wildlife Response Organization (WRO) will supervise Migratory Bird deterrent and dispersal activities), and f) reporting requirements, if any, for these authorizations.

Federal regulations applicable to the incident are:

- ***Migratory Birds Convention Act* (MBCA) and the *Migratory Birds Regulations* (MBR):** Section 5 of the MBCA prohibits the deposit of harmful substances into waters or areas frequented by Migratory Birds, unless authorized under the *Canada Shipping Act*, or the substance is of a type and quantity, and the deposit is made under conditions, authorized under an Act of Parliament other than the *Canada Shipping Act*, 2001 or authorized for scientific purposes by the Minister of Environment and Climate Change. Section 6 of the MBR made under the MBCA prohibits the disturbance, destruction, taking of a nest, egg, nest shelter, Eider Duck shelter or duck box of a Migratory Bird, or anyone from having in his possession a live Migratory Bird, or a carcass, skin, nest or egg of a Migratory Bird. The MBR regulate the hunting of Migratory Birds and other circumstances under which the killing, capturing of and harming of

Migratory Birds may be authorized. The *Migratory Bird Sanctuary Regulations* (MBSR) further regulate activities related to Migratory Birds and their habitats within designated Migratory Bird Sanctuaries. Permits may be issued to authorize the permit holder to undertake activities that are otherwise prohibited (Government of Canada 2017).

- ***Species at Risk Act* (SARA):** SARA permits are required for activities affecting a SARA-listed Species, any part of its critical habitat or the residences of its individuals. For the purpose of SARA, an "activity affecting" means any activity prohibited under the Act or its regulations. Section 73 of SARA authorizes the issuance of permits for activities affecting a SARA-listed Species, any part of its critical habitat or the residences of its individuals, and sets out conditions that must be met before a competent minister can issue a permit. SARA prohibitions apply to any species listed on Schedule 1 as Threatened, Endangered or Extirpated, but do not apply to species listed as Special Concern.
- ***Canada Wildlife Act* (CWA):** The CWA allows for the establishment of National Wildlife Areas (NWAs), which protect wildlife habitat in Canada. The *Wildlife Area Regulations* identify all NWAs and prohibit certain activities from occurring within NWAs, but Section 3.4 of the *Wildlife Area Regulations* provides exemptions for the prohibited activities within the NWAs in the event of an emergency response effort (e.g., ensuring public safety and national security). The Scott Islands marine NWA has its own regulations, *Scott Islands Protected Marine Area Regulations*, which also provide exemptions for the prohibited activities in the event of an emergency response effort.

3.1 Permits and Authorizations

The use of deterrence for dispersal, capture, collection, and treatment of impacted Wildlife will require permits and/or authorizations from the agencies responsible for Wildlife. These permits and/or authorizations are summarized in Table 2; copies of issued permits are provided in Appendix A.

Table 2. Wildlife Permit and Authorization Requirements

Wildlife	Permit Type	Activities that Require Permits or Authorization	Permit Holders
Migratory Birds (including SARA-listed Species)	Scientific (for collection)	• possession • transportation • collection/capture • treatment/rehabilitation/care • euthanasia	Individuals of WROs are generally permitted for most activities. Subcontractors or independent contractors may be permitted for specific activities through one or several permits.
	Scientific (for capture and banding)	• capturing • banding • using auxiliary markers (e.g., color bands and GPS transmitters) • collection of biological samples	
	SARA Section 73/74 permit	• destruction of protected critical habitat	SARA permits are issued on site and situation-specific basis and must be discussed

Wildlife	Permit Type	Activities that Require Permits or Authorization	Permit Holders
		• damage or destruction of any critical habitat that could result in harming individuals of a SARA-listed Migratory Bird • damage or destruction of residences of a SARA-listed Migratory Bird	early in response activities, as appropriate.
Any SARA-listed Species other than Migratory Birds (on any federal land including NWAs, and any land affected by an order or regulation made under SARA)	SARA Section 73 permit	• collection, taking, possession • transportation/relocation • capture/marking • treatment/rehabilitation/care • euthanasia • harassing, including deterrence and dispersal • exclusion barriers / trenches • damage or destruction of critical habitat • damage or destruction of residences • Any activity specifically prohibited by a Section 80 emergency order, or by a regulation made under SARA	SARA permits are issued on site- and situation-specific basis and must be discussed early in response activities, as appropriate.
Migratory Bird Sanctuaries	Scientific (Collection)	• operations occurring on Migratory Bird Sanctuaries	Migratory Bird Sanctuary permits are issued on a site-specific basis and will be developed early in response activities.
Raptors and non-Migratory Birds (bald eagles, cormorants, ravens, crows etc.), terrestrial Wildlife	Provincial or territorial authority	• collection • transportation • holding • treating • deterrence and dispersal	Contact provincial or territorial authority representative through the Environmental Unit for authorization or permit.

Note: The permitting process and the types of activities requiring permits is subject to change periodically as regulations are updated. Individuals/organizations should seek up to date advice on permitting from ECCC-CWS permit officers.

4.0 Resources at Risk

This section will be a brief, high-level summary of the key species and species groups, habitats, and supporting on-site evidence of Wildlife resources at risk. It may draw from information gathered in development of an ICS 232 form.

The identification of resources at risk is an ongoing priority of the Environmental Unit. Wildlife have differing likelihoods of being affected based on patterns in habitat use, seasonal occurrence, and behaviours relative to the area of release.

4.1 Geographic Extent

The current scope of review of resources at risk focuses on the incident area [insert a description of the incident area] (see Figure X).

4.2 Migratory Bird Sensitivities

Table 3 provides a list of the species that potentially occur in the incident area during the time of the incident. Images of common species are provided in Appendix B.

Table 3. Migratory Bird Species Expected to be Present in [insert incident location] in [insert season]

Bird Guild	Species
Pelagic Seabirds	• Common Murre and Rhinoceros Auklet common in nearshore areas
Gulls, Terns, Allies	• Glaucous-winged Gull and Mew Gull may be widespread throughout this area (hundreds of individuals) • Increasing numbers of other species, including California Gulls are observed in the fall • Total gull numbers fluctuate but may exceed several thousands
Loons, Grebes, Cormorants, Pelicans	• Pelagic Cormorant and Pacific Loon occur in low numbers in fall • Red-necked Grebe occurs in the low hundreds (~350 birds) • Western Grebe (SARA Special Concern) can occur in the hundreds to thousands (≤1,500 birds) in the fall • Collectively, numbers of Red-necked, Western, and Horned Grebes may exceed 5,000 birds in the fall, particularly in Bearskin Bay
Geese, Swans, Dabbling Ducks	• Brant, Canada Goose, and Greater White-fronted Goose may occur in large aggregations during migratory movements. Upwards of several hundred geese may occur at one time • Habitats near Lina and Robertson Island may be staging areas for geese
Herons, Cranes, Allies	• Herons occur at low densities in the fall
Shorebirds	• Large numbers of Black Turnstone (~230 birds) and Black Oystercatcher (~200 birds) may occur in the fall; areas towards

Bird Guild	Species
	Skidegate Landing, Transit Island, Lina Island, Charlotte Island, and islets in Bearskin Bay support fall aggregations of Black Oystercatcher and Black Turnstone • Additional species include Spotted Sandpiper, Wandering Tattler, and phalarope species
Sea Ducks and Diving Ducks	• May occur in low numbers in early fall, increasing as birds return from breeding grounds; upwards of 5,000 White-winged Scoter, Surf Scoter, Harlequin Duck, and Bufflehead may occur • The area between Lina Island and Robertson Island, including the immediate area in the vicinity of the incident is recognized as a molting location for several thousand scoters between August and September

4.3 Species at Risk Sensitivities

4.3.1 Avian Species at Risk

[Insert number of species] SARA-listed Species have potential to occur in this region:

- Great Blue Heron, fannini subspecies, year-round (SARA Special Concern, Schedule 1)
- Marbled Murrelet, year-round (SARA Threatened, Schedule 1)

4.3.2 Other Species at Risk

[Insert number of species] SARA-listed Species have potential to occur in this region:

- Western Toad, year-round (SARA Special Concern, Schedule 1)

4.4 Habitat Sensitivities

All Wildlife habitats have ecological values for Wildlife whether actively occupied or not. *Provide a description of where Wildlife are expected to be present based on time of year (e.g., in fall, colonial seabirds will have dispersed from breeding colonies). Also consider details on mitigations related to habitats including priority sites, protection measures, clean-up restrictions, and information relevant to Net Environmental Benefits Assessment (NEBA) or Spill Impact Mitigation Assessment (SIMA).*

Primary habitats of importance in the area are summarized in Table 4.

Table 4. Wildlife Habitats in the [insert area of the incident]

Habitat Type	Location	Description
Important Bird Area		
Seabird Colony		
Critical Habitat		
Estuary		

Habitat Type	Location	Description
Other important areas (e.g., nesting areas, seasonal stopover, molting, or staging areas, Ecologically and Biologically Significant Areas, Ramsar Sites, Western Hemisphere Shorebird Reserve Network, Sea Duck Key Habitat Sites Atlas, etc.)		

4.5 Wildlife Observations

Onsite personnel have indicated the following Wildlife were observed within the area of the incident during the Initial Wildlife Impact Assessment (see Table 5).

Table 5. Wildlife Observed on [insert date] in [insert description of area]

Record of Wildlife Observations													
Zone	**Habitat**	**Time**	**Species**	**Total #**	**Contaminated Birds**								**Deterrence Possible?**
					Degree of Contamination							**Notes**	
					0	**1**	**2**	**3**	**4**	**?**	**Diff**		
A	Marsh	12:00	Common Loon	2		2						Adults. Preening excessively	Y
B	Shore	12:05	Common Murre	3	3							at Lighthouse beach	Y

[insert figure of resource sensitivities]

Figure X. Migratory Bird, Species at Risk, and Habitat Sensitivities in the [insert name of incident area]

5.0 Wildlife Management and Response

This section will describe the nature of Wildlife management and response activities that are or will be undertaken as part of the incident. This section will be revised as an incident evolves. Where appropriate, aspects of Wildlife management and response may warrant standalone plans that could be appended and referenced in this section. At minimum, it will describe initial approaches for Wildlife impact assessment (e.g., reconnaissance and monitoring activities), but potentially include:

- *Operational objectives*
- *Initial Wildlife Impact Assessment (0 to 24 hours)*
- *Reconnaissance surveys (aerial, vessel, shore) (0 to 48 hours)*
- *Surveillance and monitoring surveys (aerial, vessel, shore) (48 hours onwards)*
- *Deterrence and dispersal*
- *Wildlife capture, transport, rehabilitation, release, and/or euthanasia*
- *Wildlife exclusion, pre-emptive capture and relocation*
- *Wildlife carcass collection*
- *Demobilization*

5.1 Operational Objectives

This section will briefly describe the primary objectives for the activities that will be implemented during the operational period(s) this plan is expected to apply to until its next revision. Objectives will change based on Wildlife concerns as well as personnel and equipment resource availability. These objectives form the basis for subsequent activities described in this section.

This version of the WRP is intended to support the following operational objectives. A revised WRP will be developed as changes to the operational objectives are identified and need to be addressed in this plan.

- Remove dead, oiled Wildlife from the environment to reduce interaction and contamination of non-polluted Wildlife and habitats
- Identify the numbers and species present in areas at risk of contamination during the next three operational periods
- Identify area- or species-based strategies to limit interaction between live, uncontaminated Wildlife and potential contaminants
- Capture and stabilize up to 10 individual impacted Migratory Birds while rehabilitation facilities are established
- Track reports of oiled and distressed Wildlife as reported through the Wildlife hotline

These operational objectives will be implemented as specified below, according to the structure and function of the Wildlife Branch for this operation period (see Appendix C).

5.2 Initial Wildlife Impact Assessment (0 to 24 hours)

In order to effectively direct Wildlife response efforts, an Initial Wildlife Impact Assessment needs to be conducted to determine:

- *Existing information on Wildlife, including initial site observations from response partners*
- *Current/initial estimates of Wildlife impacts*
- *Projection of potential impacts to Wildlife*
- *Initial Wildlife response recommendations*
- *Initial habitat protection recommendations*
- *Initial resource, personnel, equipment, and facility requirements*

5.3 Reconnaissance Surveys (24 to 48 hours)

Reconnaissance surveys will be conducted in a timely manner on a large geographic scale to assess the outer limits of the incident. Reconnaissance surveys serve to obtain current information on impacted habitats, areas of special concern (e.g. colonial nesting areas) and the abundance and distribution of Wildlife within the general area to obtain an accurate account of Wildlife in the area of the incident. Standardized protocols have been developed for conducting Migratory Bird surveys during an emergency response in Canada. The following direction is summarized from the Guidance and Protocols for Wildlife Surveys for Emergency Response (ECCC-CWS 2022a). Please refer to the report for full details.

5.3.1 Objectives

Initial reconnaissance surveys will take place as early in the response as possible to determine current conditions and inform potential response priorities and strategies. Reconnaissance may occur from land, boat, or air. In all cases, reconnaissance will extend, at minimum, to the expected geographic limits of the incident area, recognizing those boundaries may change as the incident progresses. These reconnaissance surveys help identify the most suitable approaches for the surveillance or monitoring phase of the response.

Primary objectives of reconnaissance surveys are to:

- *Determine the geographic scale of the incident*
- *Identify Wildlife and habitats that have already been impacted*
- *Estimate relative abundance and distribution of Wildlife with potential to be impacted*
- *Evaluate key habitats of importance to Wildlife with potential to be impacted*
- *Inform development of appropriate response strategies*
- *Inform mitigation activities to minimize further damage to Wildlife*
- *Inform suitability of various survey methods (i.e., shore, boat, or aerial surveys) for subsequent surveillance or monitoring for the duration of the incident*
- *Inform Incident Command on the status of known or potential impact on Wildlife*

5.3.2 Survey Methods

Table 6 provides detailed information to record for reconnaissance surveys. An example datasheet is provided in Appendix D.

Table 6. Recording Survey and Wildlife Information for Reconnaissance Surveys

Organization	Record the company, agency, or organization that requested the surveys.
Platform name and type	Record the name and type of platform used to complete the survey (i.e., shore, boat and boat type, plane, helicopter).
Observer(s)	Indicate the first and last name of the primary observer.
Observer(s)' affiliation	Indicate the affiliation of the primary observer.
Date	Date that the observation period occurred. Use format DD-MMM-YYYY (e.g., 12-Apr-2021) to avoid ambiguity.
Start and End Time	Record the time (using 24-hour notation) at the start and end of the observation period. Stationary surveys are considered an instantaneous scan of the area and therefore only the start time is required.
Location(s)	Indicate position of platform in either decimal degrees (e.g., 47.5185) or degree decimal minutes (e.g., 47˚ 31.11') depending on which format is available to you. Record observation location continuously if completing a moving survey.
Scan	Indicate scan type and direction, speed (if moving platform) and altitude (if aerial survey).
Weather Conditions	Record the general weather conditions at the time of the survey. Include notes on visibility (km), weather condition code, glare, sea state, wave height, true wind speed and direction, ice type and concentration code, precipitation.
Species	Where possible, record the exact species using photos if necessary to provide for reference later. If species is unknown, try to narrow down the species group as much as possible (e.g., gull, loon, shorebird). For mixed flocks, try to separate out species or groups as possible. Record the size, colouring, and behaviour to assist with post-survey species identification.
Number of Individuals	Record the number of individuals to the greatest level of accuracy possible.
Distance	Record the distance of the individual or groups from the observer.
Behaviour	At minimum, record whether individuals are in the air, on the water, or on the shore. If possible, record if individuals are resting or feeding. For birds, record fly direction.
Age	Where possible, record age of individual (juvenile, immature, or adult).
Plumage (for birds)	Where possible, record plumage (breeding, non-breeding, or moult).
Sex	Where possible, record sex of individual.
Degree of contamination	Where possible, record the degree of contamination and the number of individuals for each category.
Comments	Provide other relevant comments that would be useful to report back to the Wildlife Branch Director or Technical Specialist(s). For example, associations with incident site or response activities.

5.3.3 Survey Results

Include a summary of the highlights of reconnaissance survey results.

5.4 Surveillance (Monitoring) Surveys (48 to 72 hours and onwards)

If impacts to Wildlife or their habitats are known or anticipated, Wildlife Branch will develop a systematic surveillance (monitoring) survey program with an appropriate temporal and geographic scope. If surveillance is required, the RP will secure qualified personnel to develop and execute the program and who will report to Wildlife Branch Director and/or Wildlife Technical Specialist(s). The methods and general approach(es) may be described in strategic WRPs and ECCC-CWS can advise on survey design and implementation for incident-specific WRPs, consistent with the Guidance and Protocols for Wildlife Surveys for Emergency Response (ECCC-CWS 2022a).

Primary objectives of surveillance surveys are to:

- *Monitor and refine the identification of Wildlife and habitats in the impacted area*
- *Monitor and identify areas where Wildlife would be potentially at risk from further impacts*
- *Monitor and refine estimates of abundance and distribution of Wildlife in the impacted area*
- *Monitor and estimate Wildlife densities for damage assessment*
- *Monitor and estimate number of dead and moribund Wildlife affected by incident*
- *Identify areas where affected Wildlife can be collected*
- *Inform other response activities such as habitat protection and Wildlife deterrence and dispersal*
- *Inform Incident Command*

5.5 Deterrence and Dispersal

The Wildlife Branch will continually assess options for moving Wildlife beyond the area of impact. If avian deterrence or dispersal is determined to be appropriate, the RP will retain a qualified and authorized WRO to develop and execute an avian deterrence and dispersal program and plan. In the absence of an RP, the Lead Agency may develop and execute a Wildlife deterrence and dispersal program. The program will follow available guidance and consult with ECCC-CWS.

If Migratory Birds are observed or are likely to be near an incident, the Wildlife Branch Director will consult with the Wildlife Technical Specialist(s) whether to develop a deterrence and dispersal plan for those species. Deterrence activities will be determined on a species-specific and location-specific basis that considers the following factors:

- *What is the location and/or the extent of the spill*
- *Where are alternative species-appropriate habitats that birds can be dispersed to*
- *What species are present or likely to be at risk*
- *What is the life history status of the birds present (e.g., roosting, staging, breeding)*
- *What qualified personnel and equipment is available with experience and knowledge for deterrent use and Wildlife dispersal*
- *What are the environmental conditions*

- *Can the deterrence and dispersal plan be enacted in a safe manner for response personnel and Wildlife*

When appropriate, deterrence and dispersal of Wildlife can be an effective means to deter Wildlife from moving into or near the incident area and coming into contact with contaminants. Deterrence and dispersal will be conducted only by appropriately trained personnel with applicable authorizations, and under direct guidance and supervision (as required) from the Wildlife Branch Director and/or Wildlife Technical Specialist(s).

5.6 Exclusion, Pre-emptive Capture, and Relocation

Exclusion, pre-emptive Wildlife capture, and relocation seeks to dissuade Wildlife from impacted areas before they are affected during a Wildlife Emergency. Planning for Wildlife exclusion or capture requires considerations for equipment, personnel as well as capture, transport, holding, and release strategies. If pre-emptively captured Wildlife need to be contained for a period of time, a WRO authorized to carry out these activities must be identified to provide appropriate species-specific housing, nutritional support, and medical care (if necessary) for a potentially extended period. Guidance and protocols on pre-emptive capture and care for Wildlife during a Pollution Incident are described in the Guidelines for the Capture, Transport, Cleaning, and Rehabilitation of Oiled Wildlife (ECCC-CWS 2022b). Where appropriate, the WRP will describe plans for Wildlife capture and relocation activities.

5.7 Wildlife Capture, Transport, Rehabilitation, Release, and/or Euthanasia

This section will describe, as applicable, tactical plans associated with all phases of Wildlife treatment from capture through to release or euthanasia. This section may evolve over the course of the incident to include details on the number of monitoring and field staging facilities, capture procedures, rehabilitation facilities, as well as coordination of rehabilitation personnel. Table 7 provides an overview of relevant phases, which will be expanded upon in a full WRP as those activities are required.

Where Wildlife capture, transport, rehabilitation, release, and/or euthanasia are considered appropriate, the [insert name of the RP] will retain a qualified and authorized WRO to develop and execute these phases of response. These programs must adhere to the Guidelines for the Capture, Transport, Cleaning, and Rehabilitation of Oiled Wildlife (ECCC-CWS 2022b), and Guidelines for Establishing and Operating Treatment Facilities for Oiled Wildlife (ECCC-CWS 2022c).

Table 7 summarizes the phases of Wildlife capture, containment, and response.

Table 7. Phases of Wildlife Capture, Transport, Rehabilitation, Release, and/or Euthanasia

Phase	Objectives
Pre-emptive Capture	• The capture of Wildlife that is at risk of being impacted • Transport of Wildlife to a holding facility
Capture	• The capture of impacted Wildlife • Transport of Wildlife to Field Stabilization Site or Oiled Wildlife Rehabilitation Centre

Phase	Objectives
Field Stabilization	• Physical evaluation • Removal of gross contaminants • Thermoregulatory support • Fluid therapy and nutritional support • Address life threatening conditions • Euthanasia evaluations based on established criteria and best practices
Transportation	• Transport of contaminated animals from field or Field Stabilization Site to an Oiled Wildlife Rehabilitation Centre
Processing	• Evidence collection • Birds given individual, temporary band • Feather/fur sample • Photograph • Individual medical record
Intake	• Medical examination, triage, and treatment plan development • Critical care concerns addressed • Euthanasia evaluations based on established criteria and best practices
Triage	• Ongoing euthanasia and treatment plan evaluation based on medical health status
Euthanasia	• Euthanize Wildlife that are assessed by the WRO as not being good candidates for rehabilitation or survival
Stabilization	• Fluid, nutritional and medical stabilization of impacted animals • 48–72 hours period • Prepare animals for cleaning process
Cleaning	• Removal of all contaminants from an impacted animal by washing • Removal of the cleaning agent by rinsing • Drying cleaned and rinsed animal
Conditioning	• Restoring waterproofing and physical condition
Release	• Federal banding of individual animals • Consider additional tracking devices on some birds to track post-release • Release of cleaned, waterproof animals into a clean environment
Post-release Monitoring	• Determining the effectiveness of rehabilitation of Wildlife impacted during a Pollution Incident • Monitoring the clean Wildlife's condition and activities • Following short-term and long-term survival and breeding status following rehabilitation

5.8 Wildlife Carcass Collection Procedures

Dead Wildlife will be removed from the environment to avoid attracting scavengers to the site and secondary contamination of Wildlife. The responsibility for the collection and documentation of dead

Wildlife is primarily the responsibility of the Wildlife Branch and is completed under the supervision of authorized organizations and personnel. Wildlife recovery personnel will retrieve dead Wildlife as part of daily activities. Dead Wildlife observed by other response personnel will be reported to the Wildlife hotline. Members of the public must not pick up dead Wildlife but rather report dead Wildlife to the Hotline. The Wildlife Branch will work with the Information Officer to develop appropriate messaging. For guidance on collecting dead Wildlife during incidents, see the *Guidance and Protocols for Wildlife Surveys for Emergency Response (*ECCC-CWS 2022a*)*.

5.9 Waste Management

Plans for decontamination and disposal of waste materials will be developed. Waste and secondary pollution should be minimized at each step of the Wildlife response. During the various phases of Wildlife cleaning (holding pen, carcass wrapping), waste will be created. Washing Wildlife will cause waste water (e.g., oil with detergent), which will need to be managed. Medical waste (e.g., syringes and gloves) should be considered.

Include reference(s) to relevant waste management plan(s). These plans should identify the legislation and the authorities responsible for waste management.

5.10 Demobilization

This section of the WRP will discuss, as applicable:

- *processes for demobilizing equipment, facilities, and personnel*
- *processes for ongoing involvement in the Incident Command Post or post-response impact assessment and monitoring*
- *processes for chain of custody of data to support enforcement decisions*
- *processes by which the RP can continue to receive advice and support from ECCC-CWS*

6.0 Information Management and Reporting

This section will describe how information will be managed, organized, vetted, and reported on. It will include for each Wildlife group, a) the type of data being collected (e.g., inventory, photos, GIS), b) the personnel that will collect, organize, and vet the data for each agency, c) the process for maintaining data records during and after the incident, d) the process for integrating Wildlife data and activities into an incident information system (often referred to as the Common Operating Picture) within an Incident Command Post, e) who data is reported to, including the type and frequency of reports (e.g., daily email tabular summaries to the Environmental Unit Lead), and f) how information is disseminated to agencies responsible for overseeing response.

All Wildlife information and observations will be reported to the Wildlife Branch Director and/or Wildlife Technical Specialist(s) and include the following:

- Daily record of all Wildlife observations, including habitats of potential importance or use by Wildlife

- Submission of written notes, completed data sheets, photographs, maps, and/or GPS location information
- Oiled bird sightings, including locations and maps for all reports of oiled birds
- Field Retrieval Report, including records for all birds collected from the field
- Live Bird Intake / Admissions Log
- Dead Bird Intake / Admissions Log
- Oiled Bird Examination Report, including an individual record summary of retrieval, medical exam, diagnostic results, samples collected (chemical, blood, and tissue), cleaning, treatment, evaluation, chain-of-custody, federal bird bands, and final disposition
- Report of anticipated management and response activities for the following operational period
- Daily Summary of Actions: This report is produced daily and provides an overall status of live and dead Wildlife admissions, euthanasia, releases, and treatment status of live Wildlife patients.

Additional information will need to be reported if there is any deterrence and dispersal, collection, and rehabilitation anticipated. All Wildlife information and data will be retained by the Wildlife Branch and transferred to appropriate regulatory agencies at end of incident.

6.1 Wildlife Reporting from the Public (Wildlife Hotline)

All concerns regarding impacted Wildlife will be routed through the Environmental Unit. Observations of impacted Wildlife will be directed to the Environmental Unit through a 24-hour hotline [insert hotline number here]. The public and Wildlife responders are requested to stay away from impacted Wildlife to minimize stress to impacted animals. Under no circumstances will the public or Wildlife responders attempt to capture any impacted Wildlife, as such efforts must only be conducted by permitted and trained personnel. Unauthorized capture could endanger the safety of both individuals and the animals.

6.2 Media Relations

When the Wildlife Branch is activated, media statements regarding ongoing Wildlife response activities will be provided in order to inform the public and raise awareness regarding Wildlife concerns and treatment as well as public safety. The Wildlife Branch Director and the incident's Information Officer will jointly develop these statements, with relevant input from Wildlife Technical Specialist(s) and/or Environmental Unit Lead. Every effort must be made to assure that information release by the Information Officer and the Wildlife Branch is fully coordinated to provide a consistent message on Wildlife response efforts and Wildlife impacts. Where appropriate, public statements involving Migratory Birds must be vetted and approved by the ECCC-CWS technical specialists, Media Relations and the Regional Director.

6.3 Permits Reporting

Certain permits which may be issued prior to or during an incident may also have reporting requirements.

The WRP should specify those reporting requirements and timelines, if known at the time of plan creation.

7.0 Health and Safety

This section will provide a brief overview of safety considerations and requirements, with specific mention of personal protective equipment relevant to current activities that Wildlife responders are expected to be engaged in. This section will evolve over the course of the incident.

Responder safety is of paramount importance when initiating Wildlife response activities. Activities recommended and implemented as part of this WRP will adhere to the incident-specific site safety plan [insert reference here] and be identified in consultation with the Incident Safety Officer. Responders will have appropriate training for response activities and will wear personal protective equipment that meets minimum requirements for personal safety and contaminant or disease transmission, based on the activities they are engaged in. Detailed safety training and equipment considerations will be required if incident activities include Wildlife deterrence and dispersal, handling, collection, rehabilitation, and/or disposal.

7.1 Personal Protective Equipment

For Wildlife management and response activities proposed in this WRP, responders will have appropriate training and equipment for operating in shoreline, marine, or aerial environments (depending on incident location and response activities) and for contaminated Wildlife handling within a rehabilitation setting. Responders will have appropriate equipment and clothing to operate for extended periods and that protect against environmental exposure or incident-specific conditions. Basic personal protective equipment recommended for Wildlife management and monitoring activities include the following:

- Eye protection (e.g., sunglasses, goggles, safety glasses, or face shield)
- Oil resistant rain gear or oil protective clothing (e.g., coated Tyvek, Saranex, etc.)
- Water and oil resistant hand protection (e.g., neoprene or nitrile rubber)
- Waterproof and oil resistant non-skid boots; steel-toes may be required under the incident-specific safety plan
- Hearing protection (muff or ear plug type)
- Personal flotation device when working on, near, or over water
- Air monitoring device when appropriate
- Specific gear appropriate for work where personnel are submersed in water (wet suits, dry suits, survival gear)
- Species-specific capture and protective gear (welding gloves, steel toed boots etc.)
- [Update this list of personal protective equipment requirements according to planned response activities]

7.2 Zoonoses

Zoonoses are infectious diseases that may be transmitted between animals and humans under natural conditions. Personnel handling or coming into contact with Wildlife are at risk of zoonotic disease exposure. Veterinarians, technicians, response personnel, Wildlife handlers, and other animal care personnel who come into direct or indirect contact with Wildlife and any body fluids are at risk of contact with disease agents that may have zoonotic potential. Organisms that may cause or transmit zoonotic

diseases include many classifications from viruses, fungi, and bacteria to internal and external parasites.

Anyone whose immune system is compromised is highly susceptible to opportunistic and secondary infections with zoonotic disease agents and should not be on site of an incident. Standard biosecurity practices will be employed in all aspects of Wildlife operations to reduce risk of disease exposure.

The WRP will describe biosecurity practices that will be employed.

7.3 Biosecurity

Biosecurity is a set of preventative measures that reduce the risk of transmission of infectious diseases, pests, and invasive species.

Where there is potential for response measures (both overall incident response and Wildlife-specific response) to contribute to issues involving biosecurity, the WRP will outline a suite of measures to control for these risks.

8.0 Personnel Requirements

There are many personnel that could be involved in various aspects of WRP implementation. Certain roles, responsibilities, or authorized activities require various types of training or technical expertise.

Where applicable, the WRP will specify which activities individuals with specific training or expertise can complete.

9.0 Facility and Equipment Requirements

As part of planning and implementing Wildlife response measures outlined in a WRP, specific equipment and facility requirements may need to be developed. The level of detail of these requirements will vary by the scale of the incident and may be more appropriately described in documents appended to the WRP. Components of equipment and facility considerations may include the following:

- *The type and amount of equipment required*
- *Means of transportation to support Wildlife response elements*
- *Requirements for utilities, waste management, and security*
- *The nature of equipment or facility requirements (e.g., temporary, mobile, permanent)*
- *Sources of supplies, if known*

Additional information to support equipment and facility planning is outlined in the Guidelines for Establishing and Operating Treatment Facilities for Oiled Wildlife (ECCC-CWS 2022c).

10.0 Additional Information

11.0 Literature Cited

ECCC-CWS. 2021. National Policy on Wildlife Emergency Response. Canada. vii + 9 pages.

ECCC-CWS. 2022a. Guidance and Protocols for Wildlife Surveys for Emergency Response. Canada. x + 97 pages.

ECCC-CWS. 2022b. Guidelines for the Capture, Transport, Cleaning, and Rehabilitation of Oiled Wildlife. Canada. ix + 45 pages.

ECCC-CWS. 2022c. Guidelines for Establishing and Operating Treatment Facilities for Oiled Wildlife. Canada. viii + 32 pages.

Appendix A: Wildlife Permits

Appendix B: Images of Common Species

Appendix C: Structure, Roles, and Responsibilities of the Wildlife Branch

Appendix D: Example Datasheet of Wildlife Sightings

Example Record Sheet for Aerial Surveys			
Company/agency		Visibility (km)	
Aircraft type		Weather conditions code	
Observer(s)		Glare conditions code	
Observer(s) name(s)		Sea state code (m)	
Date (dd/mm/yyyy)		Cloud cover (%)	
Time (UTC)		Precipitation	
Latitude		Wave height (m)	
Longitude		True wind speed (knots) **OR** Beaufort code	
Altitude		True wind direction	
Speed		Ice type code	
Recorder type		Ice concentration code	
Scan type			
Scan direction			
Camera model			
Notes:			

Record of Observed Wildlife													
Zone	Habitat	Time	Species	Total #	Contaminated Birds								Deterrence Possible?
					Degree of Contamination							Notes	
					0	1	2	3	4	?	Diff		

Degree of contamination covering: 0 = no spots visible on the body, 1 = <10% of the body, 2 = 10-33% of the body, 3 = 33-66% of the body, 4 = >66% of the body. Diff = birds unable to fly, having considerable difficulty swimming, or constantly preening. Indicate the location of birds in difficulty as precisely as possible (preferably on a map)

NOVA SCOTIA
Natural Resources and Renewables

Date: December 2, 2022

To: Mark McInnis, Environmental Assessment Officer

From: NS Department of Natural Resources and Renewables

Subject: **Lantz Quarry Expansion Project, Halifax County, Nova Scotia**

Scope of review:
This review focuses on the following mandate: *Crown Lands Act*, *Mineral Resources Act* and Regulations, Environmental Geology and Hydrogeology, *Species at Risk Act*, *Migratory Bird Conventions Act*, *Endangered Species Act*, *Wildlife Act* and their regulations

Technical Comments:

Mineral Management Division:

Sean d'Apollonia, Mine Engineer, Mineral Management Division
Approved: George MacPherson, Director, Mineral Management Division

The Department of Natural Resources and Renewables, Geoscience and Mines Branch, Mineral Management Division have reviewed selected sections of the Lantz Quarry Expansion Project submitted by 2514869 Nova Scotia Limited, an affiliated company of Dexter Construction Company Limited, dated November 2, 2022.

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.

Geological Survey Division:

Jeffrey Burke, Manager Project Operations; Geological Survey Division (GSD)
Approved: Diane Webber, Director, Geological Survey Division (GSD)

The Geoscience Survey Division (GSD) under the Geoscience and Mines Branch (Nova Scotia Department of Natural Resources and Renewables) have conducted a preliminary review of the Lantz Quarry Expansion Project Environmental Assessment Registration Document (EARD). **Additional information under Geophysical Environment section 5.2.3.1, Acid Rock Drainage (ARD) is required.**

One sample was collected and analyzed for ARD. The Sulphide Bearing Material Disposal Regulations (Province of Nova Scotia, 2017) under Section 7 (1) (b), indicates a frequency of two samples representative of the lands to be developed for each hectare or part thereof to be developed.

Regional Services Division:

Kim George, Jolene Laverty, Shavonne Meyer (Regional Services)
Approved: Shannon White, Regional Resource Manager, Central Region

It is the responsibility of the proponent to ensure compliance with federal and provincial legislation and regulations around resident, migratory, and at-risk bird species and their habitats; including but not limited to *Species at Risk Act, Migratory Bird Conventions Act, Endangered Species Act, Wildlife Act* and their regulations.

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

No recommendations from Mineral Resources, Parks, Land Administration.

Geological Survey Division:

Provide additional samples to satisfy the Sulphide Bearing Material Disposal Regulations (Province of Nova Scotia, 2017) at a minimum frequency of at least two samples per hectare and in compliance with procedures set within. Access directly to bedrock may require stripping to complete.

Sample selection and frequency should account for changing geological conditions (i.e., changing rock units, increased sulphide content); if groundwater conditions or water balance changes; and as part of the ongoing surface and groundwater monitoring programs.

Regional Services Division:

The cutting, grubbing, and clearing of vegetation shall occur outside of the breeding season for most bird species (April 15 to August 15) unless written approval is granted from NSECC.

Mitigation measures designed for wetland alterations should be site-specific depending on wetland characteristics and the species they support. Those wetlands with the potential to support overwintering, breeding, or developing herptiles should employ timing windows for work that avoid sensitive periods.

Potential bat roosting habitat has been identified in several wetlands that are planned for disturbance or removal. The area has not been identified as Critical/Core habitat and bats were not observed. Prior to disturbance of wetlands and snags, mitigation measures should be in place to ensure that roosting individuals (if present) are not disturbed (e.g. timing of disturbance).

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.

Establish a plan to revegetate areas that are no longer operational with native plant species to aid in the control of invasive species that may be in the process of becoming established.

The reference link for Wood Turtle Survey Protocol cited is not the same document that is referenced. **Provide an updated link or document to NSDNRR.**

GIS data is provided for survey points, but survey tracks data was not provided. **Provide GIS data related to survey tracks to NSDNRR.**

Native Council of Nova Scotia

The Self-Governing Authority for Mi'kmaq/Aboriginal Peoples Residing Off-Reserve in Nova Scotia throughout traditional Mi'kmaq Territory

"Going Forward to a Better Future"

P.O. Box 1320
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Aboriginal/Treaty Rights Negotiations Facilitating Directorate

NCNS Citizenship Information Office

Education & Student Services

Rural & Native Housing Group

Aboriginal Peoples Training & Employment Commission (APTEC)

Netukulimkewe'l Commission

Wejikwom Housing Commission

Social Assistance Recipient Support for Employment & Training (SARSET)

Micmac Language Program

Native Social Counselling Agency

Child Help Initiative Program (CHIP)

E'pit Nuji Ilmuet Program (Prenatal)

Reaching Home Indigenous Program

Parenting Journey Program

Youth Outreach Program

Mi'Kma'ki Environments Resource Developments Secretariat (MERDS)

Aboriginal Connections in Trades & Apprenticeship (ACITA)

November 9, 2022

Environmental Assessment Branch
P.O. Box 442
Halifax, Nova Scotia
B3J 2P8

RE: Lantz Quarry Expansion Project

To Whom It May Concern,

The Native Council of Nova Scotia was organized in 1974 and represents the interests, needs, and Rights of Off-Reserve Status and Non-Status Section 91(24) Indians/Mi'kmaq/Aboriginal Peoples continuing on our Traditional Ancestral Homelands throughout Nova Scotia as Heirs to Treaty Rights, Beneficiaries of Aboriginal Rights, with Interests to Other Rights, including Land Claim Rights.

The Native Council of Nova Scotia (NCNS) Community of Off-Reserve Status and Non-Status Indians/Mi'kmaq/Aboriginal Peoples supports projects, works, activities and undertakings which do not significantly alter, destroy, or impact the sustainable natural life ecosystems or natural eco-scapes.

Our NCNS Community has continued to access and use natural life within those ecosystems and eco-scapes. The equitable sharing of benefits arising from projects and undertakings serve a beneficial purpose towards progress in general and demonstrate the sustainable use of the natural wealth of Mother Earth. These projects are accomplished with respect for the Constitutional Treaty Rights, Aboriginal Rights, and Other Rights of the Native Council of Nova Scotia Community continuing throughout our Traditional Ancestral Homeland in the part of the Mi'kma'ki now known as Nova Scotia.

Consultation with the Mi'kmaq of Nova Scotia

We would like to take this opportunity to reiterate that it is important for all proponents of projects to understand that the Off-Reserve Aboriginal Community represented by the NCNS is included within the definition of the word "Indian" of Section 91(24) of the *Constitution Act*, 1982. The Supreme Court of Canada in a landmark decision in *Daniels v. Canada (Indian Affairs and Northern Development)*, 2016 SCC 12. declared that "the exclusive Legislative Authority of the Parliament of Canada extends to all Indians, and Lands reserved for the Indians", and that the "word 'Indians' in s. 91(24) includes the Métis and non-Status Indians".[1] Since 2004, in multiple decisions passed

[1] Daniels v. Canada (Indian Affairs and Northern Development), 2016 SCC 12, [2016] 1 S.C.R. 99

by the Supreme Court of Canada: *Haida Nation*[2]*, Taku River Tlingit First Nation*[3]*, and Mikisew Cree First Nation*[4], has established that,

> Where accommodation is required in making decisions that may adversely affect as yet unproven Aboriginal Rights and title claims, the Crown must balance Aboriginal concerns reasonably with the potential impact of the decision on the asserted right or title and with other societal interests.

Further, both the Government of Nova Scotia and the Government of Canada are aware that the "Made in Nova Scotia Process", and the *Mi'kmaq-Nova Scotia-Canada Consultation Terms of Reference* does not circumvent the Provincial Government's responsibility to hold consultations with other organizations in Nova Scotia that represent Indigenous Peoples of Nova Scotia. While the proponent may have to engage with the thirteen Mi'kmaq First Nations through the Assembly of Nova Scotia Mi'kmaq Chiefs, represented by the Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO), the KMKNO does not represent the Off-Reserve Aboriginal Community who has elected to be represented by the NCNS, since 1974.

We assert the Off-Reserve Aboriginal Communities, as 91(24) Indians, are undeniably heirs to Treaty Rights and beneficiaries of Aboriginal Rights as substantiated by Canada's own Supreme Court jurisprudence. As such, there is absolutely an obligation to consult with the Off-Reserve community through their elected representative body of the NCNS. The Crown's duty to consult with all Indians extends beyond that only with Indian Act Bands, or as through the truncated Terms of Reference for a Mi'kmaq Nova Scotia Canada Consultation Process.

Going Forward To
A Better Future

Habitat and Impact Assessment Manager
Maritime Aboriginal Aquatic Resources Secretariate

Cc: Chief and President, NCNS
Commissioner, Netukulimkewe'l Commission
Executive Director, MAARS & MAPC Projects
Director of Intergovernmental Affairs, MAPC

[2] Haida Nation v. British Columbia (Minister of Forests), (2004), 3 S.C.R. 511.
[3] Taku River Tlingit First Nation v. British Columbia (Project Assessment Director), (2004), 3 S.C.R. 550.
[4] Mikisew Cree First Nations v. Canada (Minister of Canadian Heritage), (2005), 3 S.C.R. 388.

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

December 1st, 2022

Mark McInnis
Environmental Assessment Officer
Environmental Assessment Branch
Nova Scotia Environment and Climate Change
Via Email: mark.mcinnis@novascotia.ca

Re: Offer to Consult on the Lantz Quarry Expansion Project – 2514869 Nova Scotia Limited, an affiliated company of Dexter Construction Company Limited

Mr. McInnis,

I write to acknowledge receipt of your letter dated November 2, 2022, initiating 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.

EA Registration Document

2.7.9 Noise Management
Have there been studies conducted to assess how noise will affect local wildlife? If so, please provide for our review.

2.7.9 Noise
Will additional noise monitoring locations be established with the expansion? If so, where are the proposed locations? It is recommended that noise monitoring be conducted near the bat hibernaculum.

2.7.10 Dust Control
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? There is special concern of particulate entering the nearby Keys Brook (approx. 200m from project area), where inner Bay of Fundy (iBOF) Salmon has been identified.

2.8 Decommissioning and Reclamation
Has the proponent considered Traditional Indigenous Knowledge when developing the Reclamation Plan? Has a Reclamation Plan been developed? Please provide for our review and comment.

3.2.1 Development of a Priority Species List
It would be expected that the Mi'kmaq of Nova Scotia be consulted when determining a priority species list. Did the proponent or their contractor collaborate with the Mi'kmaq of Nova Scotia in the development of this list?

5.6.1 Mi'kmaq of Nova Scotia
It is stated that "No Mi'kmaq Ecological Knowledge study was completed for the Project". Without a comprehensive vegetative inventory, we are unable to determine the full impacts to Mi'kmaw ecological uses. A Mi'kmaq Ecological Knowledge Study (MEKS) was not undertaken, and traditional use species were therefore not identified. We are asking that an MEKS is completed.

7.27 Wetlands
Please provide the wetland monitoring plan and proposed offsetting plan for the destruction of wetlands for our review and comment.

Please provide the following documents for our review:

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

Archaeology
The KMK Archaeological Research Department (ARD) has reviewed the documentation pertaining to an expansion project of Lantz Quarry by an additional 8.7 ha over the next 40 years. Site activities include clearing of vegetation and overburden; drilling, blasting and crushing exposed bedrock; and, stockpiling, loading and transporting finished aggregate products.

The study undertaken for the 2020 ARIA (screening and reconnaissance) of the Lantz Quarry Expansion study area included a background study and field reconnaissance comprised of a visual inspection of the study area to identify, document, and delineate areas of archaeological potential. To date there has been no subsurface testing. We consider any project that may exist within proximity to a water course, whether historic or contemporary and stagnant or moving, to have elevated potential for encountering Mi'kmaw belongings.

The Assembly of Nova Scotia Mi'kmaw Chiefs expects a high level of archaeological diligence with evidence-based decisions grounded in an understanding of the subsurface environmental data. The Maw-lukutijik Saqmaq (Assembly of Nova Scotia Mi'kmaw Chiefs) expects subsurface data, adequate to eliminate concern for presence, protection, and management of Mi'kmaw archaeological and cultural heritage as part of assessment of potential in advance of any development. Without subsurface testing, the evidence of a lack of concern in impact areas does not exist.

We recommend that all areas impacted be subjected to shovel testing prior to any development to eliminate concern for presence, protection, and management of Mi'kmaw archaeological and cultural heritage as part of assessment.

Disturbance is defined, for archaeological purposes, as the dislocation of soils and/or sediments, such as that by heavily treaded or tracked vehicles, as well as purposeful excavation (including grubbing) by heavy equipment. Mi'kmaw archaeological sites have developed since time immemorial and may not be identified from the surface character of the current landscape, one cannot conclusively eliminate potential for Mi'kmaw archaeological heritage, without subsurface testing, regardless of current landscape conditions.

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,

Director of Consultation
Kwilmu'kw Maw-Klusuaqn

c.c.:

Consultation Advisor, Office of L'nu Affairs

From: Jesse Hulsman
To: Environment Assessment Web Account
Subject: Lantz Quarry Expansion Project - Environmental Assessment Registration
Date: November 2, 2022 11:21:18 AM
Attachments: image001.png

Hi,

Is there requirements for the Quarry to measure and monitor the changes of groundwater leaving the site and entering into the Shubenacadie River catchment? Is there a phosphorus limit requirement to be hit as part of the land use transformation? A receiving water study requirement?

Jesse Hulsman, Director of Infrastructure & Operations
Municipality of East Hants
(902) 883-6100
www.easthants.ca