

Comment Index

Melvin Lake Wind Project, Halifax and Hants Counties

Comment Period End Date: 7 January 2025

Government

Number	Source	Date Received
1	Health Canada	December 02, 2024
2	Transport Canada	December 03, 2024
3	Impact Assessment Agency of Canada	December 12, 2024
4	Nova Scotia Department of Agriculture	December 12, 2024
5	Nova Scotia Department of Environment and Climate Change - Sustainability and Applied Science Division (Environmental Health & Food Safety)	December 17, 2024
6	Nova Scotia Department of Environment and Climate Change - Sustainability and Applied Science Division, Water Branch (Surface Water, Groundwater and Wetlands)	December 17, 2024
7	Fisheries and Oceans Canada	December 18, 2024
8	Nova Scotia Department of Public Works	December 18, 2024
9	Nova Scotia Department of Environment and Climate Change – Climate Change Division	December 18, 2024
10	Nova Scotia Department of Communities, Culture, Tourism and Heritage	December 18, 2024
11	Environment and Climate Change Canada	December 19, 2024
12	Nova Scotia Department of Municipal Affairs and Housing	December 19, 2024
13	Nova Scotia Department of Fisheries & Aquaculture	December 19, 2024
14	Nova Scotia Department of Environment and Climate Change - Inspection, Compliance and Enforcement Division	December 19, 2024
15	Nova Scotia Department of Environment and Climate Change - Sustainability and Applied Science Division (Air Quality Unit)	December 19, 2024
16	Nova Scotia Department of Environment and Climate Change - Sustainability and Applied Science Division (Air Quality Unit - Noise)	December 19, 2024
17	Nova Scotia Department of Natural Resources and Renewables & Nova Scotia Department of Energy	December 27, 2024

Nova Scotia Mi'kmaq

Number	Source	Date Received
1	We'koqma'q First Nation	November 18, 2024
2	Kwilmu'kw Maw-Klusuaqn (KMK)	December 11, 2024

Public

Number	Source	Date Received
1	Anonymous	December 04, 2024
2	Anonymous	January 07, 2025
3	Anonymous	January 07, 2025
4	Anonymous	January 07, 2025
5	Maritime Aboriginal Peoples Council	January 07, 2025

Human Health Considerations when Assessing Noise Impacts Related to Wind Turbine Projects¹

Last updated: March 20, 2024

Health Canada (HC) provides the following general considerations for evaluating human health impacts of noise from wind turbine project-related activities. This is not an exhaustive list of human health concerns related to wind turbine projects, and issues will vary based on individual aspects of each project. Further HC guidance on other areas of expertise (i.e., air quality, recreational and drinking water quality, traditional/country foods, and methodological expertise in conducting human health risk assessment and health impact assessment) is available and referenced at the end of this document*.

Please note that HC does not approve or issue licenses, permits, or authorizations in relation to environmental/impact assessment (EA/IA). HC's role in EA/IA is founded in statutory obligations under the *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, whenever feasible, HC is able to accommodate requests for specific human health advice and guidance related to provincial EAs within a reasonable timeframe.

HC advises that an assessment of noise exposure for human receptors located near the project site consider the following:

	Consideration	Reference Document
Receptor Location		
It is important to identify and describe all existing and reasonably foreseeable human receptors (i.e., permanent, seasonal, or temporary) in the area that may be influenced by project-related noise—including a description of how the receptors were identified (e.g., recent land-use maps, verification in person).	<ul style="list-style-type: none"> • HC prefers that noise assessments identify and describe any particular receptors that may have a heightened sensitivity to noise exposure (e.g., locations where Indigenous peoples' cultural or religious ceremonies occur, schools, childcare centres, hospitals). 	<p>Appendix G of HC's noise guidance² provides a list of commonly encountered receptors and related characteristics.</p> <p>Section 6.1 of HC's noise guidance contains additional information regarding identification of human receptors in a project area.</p>
	<ul style="list-style-type: none"> • It may also be useful to include map(s) illustrating modelled noise levels from the project at receptor locations in the study area. 	

¹ This document includes general advice on wind turbine noise and health. It should not be interpreted as formal Department guidance.

² Health Canada. 2023. Guidance for Evaluating Human Health Impacts in Impact Assessment: Noise. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <https://publications.gc.ca/site/eng/9.930338/publication.html>

Last updated: March 20, 2024

Health Impacts Associated with Noise		
<p>In reviewing an EA/IA, HC focuses on noise exposure levels that have the potential for adverse human health effects. Wind turbine noise can be generated through modulation noise (caused by rotation), low frequency noise (rattle), or transformer noise. There may also be construction-related noise (e.g., heavy machinery). These noises may adversely impact human health predominately through sleep disturbance, decreased speech comprehension, and/or high levels of annoyance. Impacts may vary depending on the project phase (e.g.: impulsive noise events during the construction phase and continuous noise sources during the operational phase), sensitivity of nearby receptors, and duration and frequency of noise exposure.</p>	<ul style="list-style-type: none"> • Sleep disturbance encompasses the following: difficulty falling asleep; awakenings; curtailed sleep duration; alterations of sleep stages or depth; and increased body movements during sleep. The short-term effects of sleep disturbance have been shown to include, but are not limited to: increased fatigue; irritability; and decreased concentration and performance. The guidelines and recommendations of the World Health Organization (WHO)^{3,4} regarding sleep disturbance can be considered in the EA/IA. 	<p>For more information on noise-induced sleep disturbance, please see Section 5.2 of HC's noise guidance².</p>
	<ul style="list-style-type: none"> • The WHO's Guidelines for Community Noise (1999)³ report a threshold for sleep disturbance as being an indoor sound level of no more than 30 A-weighted decibels (dBA) equivalent continuous sound level (LAeq) for continuous noise, during the sleep period. <ul style="list-style-type: none"> ○ The WHO has published night-time noise guidelines that are intended to protect the public, including the most vulnerable groups, from adverse health effects associated with sleep disturbance due to night-time noise. The recommended annual average is 40 dBA night-time sound level (Ln) outdoors (WHO 2009)⁴. 	

³ World Health Organization (WHO). 1999. Guidelines for Community Noise. Berglund, B., Lindvall, T. and Schwela, D.H (Eds.). Available online at: www.who.int/docstore/peh/noise/guidelines2.html

⁴ World Health Organization (WHO). 2009. Night Noise Guidelines for Europe. Hurtley, C. (Ed). Available online at: www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2009/night-noise-guidelines-for-europe

	<ul style="list-style-type: none"> For individual noise events, the WHO³ has stated: <i>“For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dBA L_{Amax} (maximum A-weighted sound level) more than 10–15 times per night....”</i> <ul style="list-style-type: none"> As people may keep windows partially open at night, HC uses an outdoor-to-indoor transmission loss of 15 dBA for windows at least partially open. Fully closed windows are assumed to reduce outdoor sound levels by approximately 27 dBA. 	
	<ul style="list-style-type: none"> To sustain adequate speech comprehension, HC holds the view that background noise levels (i.e., noise due to project activities as measured indoors) be maintained below 40 dBA. <ul style="list-style-type: none"> When a school is identified as a potentially impacted receptor, the WHO recommends an ideal background noise level of 35 dBA in the classroom (WHO 1999)³. 	Please see Section 5.3 of HC’s noise guidance ² for more information on interference with speech comprehension.
	<ul style="list-style-type: none"> In quiet rural areas, HC suggests that during construction, the short-term average day-night sound level (L_{dn}) be below 47 adjusted dBA at residences, as this is expected to be the threshold for widespread complaints for construction noise, and mitigation measures be considered if predicted noise levels are above this threshold. 	Section 6.3.1 of HC’s noise guidance ² provides advice related to short-term construction noise (< 1 year).
	<ul style="list-style-type: none"> Community annoyance due to noise, measured as the Percent Highly Annoyed (%HA), can be thought of as an aggregate indicator of assorted noise effects that are creating a negative effect on the community. HC uses the change in %HA as an appropriate indicator of noise-induced human health effects from exposure to long-term construction noise and project operational noise. 	Sections 6.3.1 and 6.3.2 of HC’s noise guidance ² provides advice related to long-term construction noise (≥ 1 year)

	<ul style="list-style-type: none"> ○ To assess the impacts of noise from projects using this indicator, the project-related change in the sound environment and the related increase in %HA are evaluated. ○ Noise mitigation measures should be considered when a change in the calculated %HA at any given receptor location exceeds 6.5%. 	Appendix F in HC's noise guidance ² presents the %HA equations as well as the methodology for obtaining variables used in the equations.
Low Frequency Noise (LFN) and Infrasound		
Low frequency noise (LFN) (typically 20-100 Hertz (Hz); whereas infrasound is typically defined as being below 20 Hz) may result from wind turbines, particularly from larger turbines (>2.3 Megawatts (MW)(Moller, H and C.S. Pederson, 2010) ⁵). LFN is an important component of the total noise levels experienced by receptors near large wind turbines.	<ul style="list-style-type: none"> ● LFN is not generally well perceived by the human ear; however, it may induce vibrations in lightweight structures in residences or sleeping quarters that may be perceptible or cause a “rattle.” Research indicates that annoyance related to noise is greater when LFN is present (ISO 1996-1:2003)⁶ and one of the main reasons is the annoyance caused by rattles. <ul style="list-style-type: none"> ○ The indoor environment can also be evaluated in the assessment; however, this should be addressed on a case-by-case basis given the uncertainty associated with specific resonances indoors that may affect the audibility of tones indoors. Due to the potential for masking by certain octave bands indoors, it is possible that certain tones may be audible indoors but not outdoors and vice versa. 	Please see Appendix C.2 of HC ² for more information on LFN.

⁵ Moller, H. and C. S. Pederson. 2010. Low-frequency noise from large wind turbines. J. Acoust. Soc. Am. 129(6), June 2011. Available at : <https://pubs.aip.org/asa/jasa/article/139/3/1431/910721/Wind-turbine-sound-power-measurements>

⁶ International Organization for Standardization (ISO). 2003. ISO 1996-1:2003 Acoustics – Description, measurement and assessment of environmental noise – Part 1: Basic quantities and assessment procedures. www.iso.org/iso/catalogue_detail?csnumber=28633

Last updated: March 20, 2024

	<ul style="list-style-type: none"> • As sound environments are usually characterized using A-weighted decibel levels (dBA) that reflect the frequencies most audible to the human ear, the impacts of low-frequency noise may need to be assessed separately. <ul style="list-style-type: none"> ○ To prevent rattles from low-frequency noise and the associated annoyance from this effect, American National Standards Institute ANSI indicates that the (energy) sum of the sound levels in the 16-, 31.5- and 63-Hz octave bands be less than 70 Z-weighted decibels (dBZ). If this 70-dBZ “rattle criterion” is exceeded, HC suggests the implementation of feasible mitigation measures. ○ Additionally, ANSI 2005⁷ provides a more sophisticated mathematical procedure for assessing %HA when low-frequency noise is present. HC prefers using this procedure when the C-weighted Ldn exceeds the A-weighted Ldn by more than 10 dB. ○ Broner (2011)⁸ has provided simplified outdoor dBC LFN criteria based on the type of receptor (i.e., residential and commercial) and time of day. Based on these criteria, LFN does not generally require further consideration if outdoor Ld is \leq 60 dBC, and Ln \leq 55 dBC. At 10 Hz, 60 dBC is approximately 69 dBZ. 	<p>The ANSI standard on environmental sound regarding noise assessment and the related prediction of long-term community response (2005)⁷ provides guidance for low-frequency sound (or infrasound) in the 16-63 Hz octave bands.</p> <p>Appendix D of ANSI 2005⁷ further outlines the procedure for assessing %HA when low-frequency noise is present.</p>
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⁷ American National Standards Institute (ANSI). 2005. Quantities and Procedures for Description and Measurement of Environmental Sound Part 4: Noise Assessment and Prediction of Long-Term Community Response (ANSI S12.9-2005/Part 4). Standards Secretariat Acoustical Society of America.

⁸ Broner, N. 2011. A Simple Outdoor Criterion for Assessment of Low Frequency Noise Emission. Acoustics Australia: 39:1–7. Available at:

https://www.acoustics.asn.au/journal/2011/2011_39_1_Broner.pdf

Last updated: March 20, 2024

Noise Modelling, Mitigation and Monitoring		
Assessing potential impacts to human health from project-related noise, including calculating %HA, may require measuring baseline noise levels, modelling predicted project-related noise levels, and monitoring noise levels during project's construction and operational phases to verify model predictions.	<ul style="list-style-type: none"> When baseline measurement is conducted, HC prefers that the measurement be completed in accordance with the International Organization for Standardization (ISO) 1996-2:2007⁹ at each representative receptor (existing and reasonably foreseeable), and that the reports include the dates and hours used to characterize these measurements. <ul style="list-style-type: none"> HC recommends adjustments to baseline noise levels in certain settings, for example, baseline levels in quiet rural areas are adjusted by adding 10 decibels (dB). This 10 dB adjustment also applies to the predicted project noise levels in determining %HA, resulting in a greater change in %HA than would occur with unadjusted noise levels. In addition, HC recommends that non-anthropogenic sounds (e.g. ocean, wind, and animal noises) be removed from baseline measurements. Not removing them may result in an overestimation of baseline sound pressure levels and impact baseline and future changes in %HA calculations. HC recommends use of an appropriate windscreen must always be used and sound is not to be measured in the presence of precipitation or when wind speeds exceed 14 km/hr (3.9 m/s) unless these effects can be shown to be negligible (ISO 1996-2:2007)⁹. The specific windscreen required will be dependent on atmospheric conditions including wind speed and air turbulence (Van den Berg, 2006)¹⁰. For wind speeds below 14 km/hr, outdoor measurements always require a minimum 70 mm 	For more information on adjustments, please see Section 6.1 of HC's noise guidance ² .
		Please see Section 6.2.1 of HC's noise guidance ² for more information on removing non-anthropogenic sounds.

⁹ International Organization for Standardization (ISO). 2007. ISO 1996-2:2007 Acoustics – Description, measurement and assessment of environmental noise – Part 2: Determination of environmental noise levels. www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=41860

¹⁰ Van den Berg, G. P. 2006. Wind-induced noise in a screened microphone. J. Acoust. Soc. Am; 119:824-833. <https://doi.org/10.1121/1.2146085>

	diameter windscreen. For other conditions, including evaluating low frequency sounds (e.g., C-weighted decibels or dBC), larger windscreens may be required.	
	<ul style="list-style-type: none"> It is important that the predicted operational noise levels for both daytime (Ld) and night-time (Ln) at all representative receptor locations should be reported in the EA/IA. To permit a proper comparison of noise levels, the units, averaging times and other measurement parameters (including the uncertainty associated with any of the measurements) should be the same as those used in establishing the baseline. <ul style="list-style-type: none"> The assessment should clearly identify the model(s) used and justify their suitability. Specific models may be selected on a site-by-site basis and different modelling software may be appropriate depending on the size of the turbine(s). HC prefers that any assumptions used are conservative (i.e., reasonable worst-case scenarios, including for wind speed and ground attenuation) and be adequately described in the assessment. It is recommended that the EA/IA indicate whether or not there will be a transformer located adjacent to each wind turbine. If individual transformers are present, it is recommended that this additional noise source be included in any operational noise modeling. 	Please see Section 6.3.2 of HC's noise guidance ² for more information on modelling project operational noise.
	<ul style="list-style-type: none"> While modelling software can be useful in predicting wind turbine noise at nearby receptors, actual noise levels may differ from predicted levels due to uncertainties in model predictions. <ul style="list-style-type: none"> If there are uncertainties in the noise modelling, consider monitoring noise levels, particularly in the event of public complaints. 	Section 6.4 of HC's noise guidance ² provides additional information on noise management and noise monitoring plans.

	<ul style="list-style-type: none"> • If Ldn levels from table 6.2 in HC Noise guidance for short-term construction noise cannot be obtained or if 6.5 % of HA is attained for long-term construction and operational noise with the use of quieter technology during construction, HC suggests that community consultation be undertaken to determine work schedules and to inform the public of the times and duration of noisy activities (including blasting if applicable). In general, HC suggests that impulsive sources (e.g., hammering, pile driving) be avoided at night and in the early morning. • If noise levels are predicted or measured to exceed acceptable levels at the exterior of any nearby receptor location (during construction or operation), the implementation of additional mitigation should be considered. 	<p>Sections 6.4.1 and 6.4.2 of HC's noise guidance² provide advice on appropriate mitigation noise levels.</p> <p>Please see Appendix H of HC² for suggested construction noise mitigation measures.</p> <hr/> <p>Section 6.4 of HC's noise guidance² provides additional information about mitigation.</p>
<p>Developing a community consultation plan may be helpful for wind turbine projects. Community reaction to noise impacts following community consultation is more likely to be understanding and accepting of noise, and more likely to make appropriate adjustments to limit noise exposure.</p> <p>Meaningful community consultation and engagement throughout the lifespan of the project can be an effective way to identify and mitigate project-related noise concerns.</p>	<ul style="list-style-type: none"> • It is recommended that the EA/IA should specify whether community consultation with respect to noise has occurred, and whether any human health concerns have been expressed by potentially impacted receptors. • Consider implementing a formalized complaint-response protocol (i.e., a formalized means of receiving and responding to complaints in a timely fashion) with additional monitoring and mitigation measures defined, particularly in the event of public complaints. <ul style="list-style-type: none"> ○ Noise management and noise monitoring plans, including complaint resolution plans, are often incorporated as part of the EA/IA's Environmental Management Plan. 	<p>Section 6.4.1 of HC's noise guidance² provides additional information on community consultation as it relates to noise.</p>

For more information on HC's guidelines relating to project noise and the use of these guidelines, please see:

Health Canada. 2023. Guidance for Evaluating Human Health Effects in Impact Assessment: NOISE. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <https://publications.gc.ca/site/eng/9.930338/publication.html>

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

Please also refer to HC's other guidance documents for evaluating human health impacts in environmental/impact assessments:

Health Canada. 2023. Guidance for Evaluating Human Health Impacts in Impact Assessment: Air. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <https://publications.gc.ca/site/eng/9.902734/publication.html>

Health Canada. 2023. Guidance for Evaluating Human Health Impacts in Impact Assessment: Water Quality. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <https://publications.gc.ca/site/eng/9.902736/publication.html>

Health Canada. 2023. Guidance for Evaluating Human Health Impacts in Impact Assessment: Country Foods. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <https://publications.gc.ca/site/eng/9.930343/publication.html>

Health Canada. 2023. Guidance for Evaluating Human Health Impacts in Impact Assessment: Human Health Risk Assessment. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <https://publications.gc.ca/site/eng/9.930345/publication.html>

*For consideration of other human health impacts (i.e., other than noise; including atmospheric impacts during construction, run-off to recreational water, etc.) related to EA/IA, please find the attached document entitled *Human Health Considerations in IA*. Additionally, please contact HC if you are interested in the draft *Interim Guidance on Health Impact Assessment of Designated Projects Under the Impact Assessment Act*, which focuses on a determinants of health approach.



Date: November 27, 2024

To: Meghan Rafferty, Environmental Assessment Officer

From: J. Jason Flanagan, M.Sc.
Senior Environmental Advisor
Environmental Programs and Indigenous Relations
Transport Canada, Atlantic Region

Subject: **Melvin Lake Wind Project, Halifax and Hants Counties, Nova Scotia**

Scope of review:

This review focuses on the following mandate:

Transport Canada's mandate under the *Aeronautics Act* and *Canadian Navigable Waters Act* (CNWA).

List of Documents Reviewed:

Environmental Assessment (EA) Registration Document and associated appendices.

Details of Technical Review:

Civil Aviation:

The Proponent is aware of the requirements under the *Aeronautics Act* and *Civil Aviation Regulations* (CARs) and can confirm receipt of the Aeronautical Assessment Form submitted to Transport Canada, Civil Aviation on Friday, November 29, 2024 (TC #2024-171 (ATS-24-25-00038825)).

Navigation Protection Program:

It appears that the project involves the installation of up to 23 wind turbines along with associated infrastructure, including access roads, substation, and interconnection lines. Project elements, including access roads, watercourse crossings, and interconnection lines appear to implicate non-scheduled waterways under the *Canadian Navigable Waters Act* (CNWA) and the proponent will need to consider the following:

The proposed watercourse crossings (including bridges and culverts) may require a CNWA approval(s).

****Note, that access road bridges with piers placed below the high-water mark of a watercourse always require an approval as outlined in the Major Works Order (and an application for approval would be required).**

Major Works Order

<https://laws-lois.justice.gc.ca/eng/regulations/SOR-2019-320/index.html>

If a proposed bridge is not a Major Work, the proponent can assess the individual watercourse crossings against the criteria in the **Minor Works Order** (Section 34 – Watercourse Crossings):

Minor Works Order

<https://laws.justice.gc.ca/eng/regulations/SOR-2021-170/index.html>

IF a specific watercourse crossing meets ALL the criteria in that section, they are considered Minor Works and do not require a Canadian Navigable Waters Act approval and would only be required to follow the Deposit and Publication requirements in sections 3(2), 3(3) and 4 of the Minor Works Order.

IF a specific watercourse crossing does NOT meet ALL the criteria, the proponent may be required to submit an application for approval.

Under the *Canadian Navigable Waters Act* (CNWA), owners of works – other than a minor work or a major work – including culverts, bridges and watercourse crossings that are located on navigable waterways not listed in the schedule, have the option to:

1. either apply to the Minister of Transport for an approval; (approval review process and advertising and 30-day registry public review)
- or**
2. seek authorization through the public resolution process, and deposit specific information regarding their work on the new Common Project Search (online registry) inviting any interested party to comment (advertising and 30-day registry public review).

Both the application process and the public resolution process on the Registry can be accessed at the following link: [External Submission Site for the Navigation Protection Program](#) (create an account first if needed)

Additional guidance information and links for the NPP regulatory process can be found here:

Canadian Navigable Waters Act

<https://www.tc.gc.ca/eng/programs-632.html>

<https://www.tc.gc.ca/eng/canadian-navigable-waters-act.html>

Navigation Protection Program, Transport Canada

<http://www.tc.gc.ca/eng/programs-621.html>

NPP Contact coordinates:

Navigation Protection Program | Programme de protection de la navigation

Transport Canada - Atlantic Region / Heritage Court, 6th Floor, 95 Foundry Street, Moncton, N.B. E1C 5H7 |

Transports Canada - Région de l'Atlantique / Place Héritage, 6e étage - 95 rue Foundry, Moncton, N.-B. E1C 5H7

Tel / Tél. : 506-851-3113 / Fax | Téléc. : 506-851-7542

Email / Courriel : NPPATL-PPNATL@tc.gc.ca

Transport Canada has introduced new fees for services, under the Canadian Navigable Waters Act, as part of the Fee Modernization initiative. Find out more at: [Canada Gazette, Part 2, Volume 158, Number 14: Canadian Navigable Waters Act Fees Regulations](#)

Transports Canada introduit une nouvelle structure de redevances, en vertu de la Loi sur les eaux navigables canadiennes, dans le cadre de l'initiative de modernisation des frais. Plus d'informations ici: [La Gazette du Canada, Partie 2, volume 158, numéro 14 : Règlement sur les droits relatifs à la Loi sur les eaux navigables canadiennes](#)

Key Considerations: (provide in non-technical language)

Noted above.



Impact Assessment
Agency of Canada

Agence d'évaluation
d'impact du Canada

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December 12, 2024

Meghan Rafferty
Environmental Assessment Officer
Nova Scotia Environment and Climate Change
Meghan.rafferty@novascotia.ca

SUBJECT : Melvin Lake Wind Project

Dear Meghan Rafferty:

Thank you for the opportunity to review the registration document for the Melvin Lake Wind Project (the Project), received on November 22, 2024.

The federal environmental assessment process is set out in the [Impact Assessment Act](#) (IAA). The [Physical Activities Regulations](#) (the Regulations) set out a list of physical activities considered to be “designated projects” under the IAA.

While it is the responsibility of proponents to determine whether their proposed project includes physical activities described in the Regulations of the IAA, based on the information submitted to the Province of Nova Scotia on the proposed Project, the Impact Assessment Agency of Canada (IAAC) is of the opinion that, as proposed, the project does not appear to be described in the Regulations. As such, the proponent would not be expected to submit an Initial Project Description of a Designated Project. If the project changes from what has been described in its provincial registration, the proponent is advised to contact IAAC if, in their view, any proposed project activities may be described in the Regulations.

The proponent is advised that under section 9(1) of the IAA, the Minister may, on request or on the Minister's own initiative, by order, designate a physical activity that is not prescribed by regulations made under the Regulations if, in the Minister's opinion, the carrying out of that physical activity may cause adverse effects within federal jurisdiction or direct or incidental adverse effects. Should IAAC receive a request for a project to be designated, IAAC would contact the proponent with further information.

Please note that for physical activities not described in the Regulations, should the Project be carried out in whole or in part on federal lands, section 82 of the IAA would apply if any federal authority is required to exercise a power, duty or function under an Act other than IAA in order for the Project to proceed, or if a federal authority is providing financial assistance for the purpose of enabling the Project to be carried out. In that case, that federal authority must ensure that any Project assessment requirements under the applicable sections of the IAA are satisfied.

We also note that in proceeding with the Project, the proponent may still be required to obtain or seek amendment to other federal regulatory permits, authorizations and/or licences.

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

Diane Kettle
(she/her|elle)
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Agente d'évaluation environnementale
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diane.kettle@iaac-aeic.gc.ca



Agriculture

Date: December 11, 2024

To: Meghan Rafferty, Environmental Assessment Officer

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

Subject: Melvin Lake Wind Project
Hants County and Halifax County, Nova Scotia

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

No agricultural impacts are anticipated given that:

- The project is located on Class 7 land, defined as having “no capacity for arable culture or permanent pasture”.
- There is no agricultural land within a 2 km radius around the project site.
- The nearest registered farms are 9.3 km from the closest proposed wind turbines.

Date: December 5, 2024

To: Meghan Rafferty, Environmental Assessment Officer

From: Environmental Health Consultant, Environmental Health and Food Safety Unit,
Sustainability and Applied Science Division.

Subject: **Melvin Lake Wind Project, Halifax and Hants Counties, Nova Scotia**

Scope of review:

This review focuses on the following mandate: Environmental Health

List of Documents Reviewed:

- Part 1 – EARD to Appendix A
- Part 2 – Appendix A
- Part 3 – Appendix A(part2)
- Part 4 – Appendix B-G
- Part 5 – Appendix G-N

Details of Technical Review:

The project proposal, Melvin Lake Wind, proposes to construct and operate the Melvin Lake Wind Project, an up to 161 megawatt (MW) wind development located near the community of Pockwock, in Halifax Regional Municipality and East Hants, Nova Scotia. The Project will consist of up to 23 wind turbines along with associated infrastructure, including access roads, substation, and interconnection lines.

Based upon the review to the documents noted above, and in particular potential for health effects from shadow flicker, sound, and ice throw, there are no additional Environmental Health Concerns that lie outside of the current assessment of impact, mitigation measures, or existing legislative requirements.

Key Considerations: (provide in non-technical language)

Environmental Health Concerns are either addressed within the provided documents, assessed for and deemed no negative effect, or are already covered with existing legislative requirements. There are no additional un-addressed health related considerations based upon the information provided for this project.

Date: December 17th, 2024

To: Meghan Rafferty, Environmental Assessment Officer

From: Water Branch, Sustainability & Applied Science Division

Subject: **Melvin Lake Wind Project, HRM and East Hants, Nova Scotia**

Scope of review:

This review focuses on the following mandate surface water quality and quantity, groundwater quality and quantity, and wetlands.

List of Documents Reviewed:

Environmental Assessment Registration Document (EARD) Submission, including Appendices.

Details of Technical Review:**Surface Water**

The EARD stated that indirect impacts due to sedimentation and erosion would be mitigated with best management practices and committed to developing an Erosion and Sediment Control (ESC) plan. To further mitigate risks to water bodies and watercourses, the ESC plan should be tailored to site-specific conditions and should include measures to capture any material eroded from disturbed areas before it reaches watercourses in addition to targeting stream banks and minimizing exposed disturbed areas.

The EARD stated that impacts to water quantity or quality due to altered hydrology would be minimized by using ditches, vegetated swales, and properly sized culverts. Integrating these into a site surface water management plan would further mitigate these risks.

The EARD committed to maintaining 30 m buffers between project elements and waterbodies as there are several turbines near waterbodies on the site. Both spill response plans (for both construction and operation) and ESC plans should take the drainage patterns of these areas as well as their proximity to waterbodies into account to help avoid unintended impacts.

Groundwater

The proposed wind project development area is adjacent to the Pockwock Lake Protected Water Area. There were 240 residential wells identified in the EARD within 2 km of the project area, mostly to the south in residential areas of Upper Tantallon (south of Wright's Lake) and Upper Hammonds Plains (Little Pockwock Lake).

No residential wells were noted within 800 m of the project area. The EARD states that if blasting is needed for the construction of the Project, groundwater wells within 800 m will undergo

assessment which will involve individual consultation with well owners, a description of the condition of the structure and a thorough description of the water supply.

The EARD identified low potential impacts related to possible mobilization of geogenic Radon (in air), Arsenic and Uranium (both potentially occur in groundwater) - based on the Department of Natural Resources and Renewables' (DNRR) Risk Zone bedrock mapping shown for these three hazards as Medium risk, High risk and High risk respectively.

Regarding the potential for ARD (Acid Rock Drainage) materials that could potentially impact groundwater, if exposed, the report states "Based on provincial risk mapping, there are no sulfide-bearing slates or formations recorded within the Study Area (DNRR, 2002). The presence/absence of sulfide bearing minerals and further likelihood of ARD will be confirmed following the results of the geotechnical evaluation."

Overall, the EARD summarizes that the project activity, with the implementation of mitigation and monitoring measures, will not result in significant adverse residual effects.

Wetlands

The Proponent did a sufficient job at delineating and assessing wetlands within the Assessment Area. The EARD identified the potential for the alteration of 29 wetlands to facilitate Project developments with a total impact area of approximately 1.27 ha. The EARD identified four (WL 12, WL 51, WL60, WL78) Wetlands of Special Significance within the AA. WL 12 and WL 51 are proposed to be avoided while WL 60, and WL 78 have partial alteration proposed. Due to the project meeting the definition of necessary public function project, NSECC would allow alteration to WSS, but a higher ratio (4:1) of compensation would be required. Micro-siting during detailed design to avoid Species At Risk bird habitat and consultation with DNRR is suggested. The EARD provides a thorough and comprehensive overview of wetland mitigations that will be deployed during the construction and monitoring phases of the Project.

Key Considerations: (provide in non-technical language)

Surface Water

The commitments made in the EARD of developing erosion and sediment control, and spill response plans, as well as adhering to requirements for watercourse alterations, should be adequate to mitigate risks to surface water quality during construction and operation. As some project elements are near waterbodies and watercourses, site-specific considerations should be made during the development of these plans. Integrating the mitigations to altered hydrology that the EARD committed to into a surface water management plan would help ensure that there are no impacts to water quantity and would assist in incorporating site-specific considerations into the erosion and sediment control and spill management plans.

Groundwater

In general, the report does not indicate any areas where significant impacts to groundwater quality and quantity would occur, as long as necessary mitigations are carried out following identification of any hazards during field site geotechnical evaluations.

Should blasting occur, a pre-blast survey should be completed for all private water supply wells located within 800 meters of a blasting site. The location of private wells within an 800 m radius of all blasting sites should be verified by reassessment in the field.

Wetlands

Additional micro-siting should be completed to reduce and avoid additional wetland alteration, to the extent possible, during the detailed design phase. If the project is approved, the proponent should also submit a Wetland Alteration Approval Application for review and approval for any wetlands proposed to be directly or indirectly altered and complete any necessary compensation and monitoring. The proponent should utilize Nova Scotia's Wetland Alteration Application's Guided Template for the permit applications. Flagging of the wetland boundaries adjacent the construction areas should occur to prevent un-intended wetland alterations.



Date: December 18, 2024

To: Meghan Rafferty, Environmental Assessment Officer

From: Sarah Rombaut, Linear Development, A/Senior Regulatory Review Biologist, Fish and Fish Habitat Protection Program

Subject: Melvin Lake Wind Project, Halifax and Hants Counties, Nova Scotia

Scope of review:

Fisheries and Oceans Canada (DFO) is responsible for administering the fish and fish habitat protection provisions of the *Fisheries Act* (FA), the *Species at Risk Act* (SARA), and the *Aquatic Invasive Species Regulations*.

DFO's review focused on the impacts of the works outlined in the Melvin Lake Wind Project Environmental Assessment Registration Document to potentially result in:

- the death of fish by means other than fishing and the harmful alteration, disruption or destruction of fish habitat, which are prohibited under subsections 34.4(1) and 35(1) of the *Fisheries Act*;
- effects to listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act*; and
- The introduction of aquatic species into regions or bodies of water frequented by fish where they are not indigenous, which is prohibited under section 10 of the *Aquatic Invasive Species Regulations*.

Technical Comments:

Risk Assessment: Wetland Assessment	
Identify Gap/Risk	Direct and indirect impacts to fish and fish habitat from wetland alterations are not clearly described. For example, Table 7.33 of Section 7.3.3.6 in the Environmental Assessment Registration Document (EARD) indicates the delineated area of each wetland and area of impact, but does not differentiate between fish-bearing wetlands and those that provide indirect fish habitat. In addition, Section 7.3.2.6 lists seven of 14 wetlands which provide some form of fish habitat; however, the habitat functions are not characterized and potential impacts to fish and fish habitat are not clear.
Can it be addressed in another permit/approval or with a T&C?	The identified gap can be addressed during the NSECC watercourse and/or wetland alteration approval process(es) and DFO regulatory review process. WUAs associated with this project in or near water that may result in potential harmful impacts on fish or fish habitat will require DFO regulatory review to avoid, mitigate or offset those

	impacts.
Define/provide detail	For WUAs that may result in potential harmful impacts on fish or fish habitat, additional information will be required as part of the DFO regulatory review process, including detailed information on the proposed WUAs, a detailed description of the fish and fish habitat found at the location of the proposed WUAs, a detailed description on the likely effects of the proposed WUAs on fish and fish habitat, and a detailed description of the measures and standards that will be implemented to avoid and mitigate potential harmful impacts on fish and fish habitat.
Risk Assessment: Fish Habitat Assessment	
Identify Gap/Risk	<p>Fish habitat assessments reported in the EARD do not provide sufficient detail to determine potential impacts on fish and fish habitat and the conclusions drawn from the assessments do not align with DFO's regulatory approach.</p> <p>For example, in Section 7.3.2.4, barriers to fish passage were considered when assessing fish habitat; however, the presence of barriers was used to conclude fish habitat was not present upstream of the barrier and passage requirements were not required. DFO does not preclude the requirement for fish passage upstream of an anthropogenic barrier, as the downstream barrier could be restored to provide fish passage. Natural barriers do not necessarily prevent the passage of all fish species and can be species-dependent (i.e., act as a barrier to some fish species but not others). In Appendix F, it is unclear which (if any) watercourses were excluded in the fish habitat assessment due to downstream anthropogenic or natural barriers.</p> <p>In Section 7.3.2.6, the EARD focuses on priority fish species. The Department considers all fish species and their habitat that may be impacted by a WUA during regulatory review, and evaluates fish passage based on fish species that are likely to be migrating on a given river. Appendix F provides general information on fish habitat characteristics, but does not specify the species to which the characteristics apply to in order to assess potential impacts on fish and fish habitat. In addition, habitat assessments were conducted in the summer period when water levels are generally low and the assessments do not reflect potential habitat available during higher flow periods.</p>
Can it be addressed in another permit/approval	The identified gap can be addressed during the NSECC watercourse and/or wetland alteration approval process(es) and DFO regulatory review process. WUAs associated with this project in or near water that may result in potential harmful impacts on fish or fish habitat will require DFO regulatory review to avoid, mitigate or offset those

or with a T&C?	impacts.
Define/provide detail	For WUAs that may result in potential harmful impacts on fish or fish habitat, additional information will be required as part of the DFO regulatory review process, including detailed information on the proposed WUAs, a detailed description of the fish and fish habitat found at the location of the proposed WUAs, a detailed description on the likely effects of the proposed WUAs on fish and fish habitat, and a detailed description of the measures and standards that will be implemented to avoid and mitigate potential harmful impacts on fish and fish habitat.
Risk Assessment: Watercourse Crossing Designs	
Identify Gap/Risk	Specific information related to the proposed watercourse crossings is not provided. For example, Table 7.20 in Section 7.3.1.6 lists the various watercourses within the project area with forecasted alterations, but does not provide the expected crossing type or footprint in fish habitat associated with the alterations.
Can it be addressed in another permit/approval or with a T&C?	The identified gap can be addressed during the NSECC watercourse and/or wetland alteration approval process(es) and DFO regulatory review process. WUAs associated with this project in or near water that may result in potential harmful impacts on fish or fish habitat will require DFO regulatory review to avoid, mitigate or offset those impacts.
Define/provide detail	For WUAs that may result in potential harmful impacts on fish or fish habitat, additional information will be required as part of the DFO regulatory review process, including detailed information on the proposed WUAs, a detailed description of the fish and fish habitat found at the location of the proposed WUAs, a detailed description on the likely effects of the proposed WUAs on fish and fish habitat, and a detailed description of the measures and standards that will be implemented to avoid and mitigate potential harmful impacts on fish and fish habitat.

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

DFO recommends the proponent:

- Submit detailed information on the proposed watercourse crossing and wetland alteration designs, detailed descriptions of the fish and fish habitat found at the location of the proposed WUAs, detailed descriptions on the likely effects of the proposed WUAs on fish and fish habitat (including local and cumulative impacts, potential impacts on species at risk, and direct and indirect impacts on fish habitat), and detailed descriptions of the measures and standards that will be

implemented to avoid and mitigate potential harmful impacts on fish and fish habitat.

- Consider open bottom structures, such as clear span bridges and open bottom arch culverts for fish bearing watercourse crossings rather than closed bottom structures, where possible; and
- Refer to DFO's website, <https://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>, for further information on DFO's regulatory review process and for further measures to protect fish and fish habitat.

This information can be provided through the NSECC watercourse and/or wetland alteration approval process(es) and/or through submission of a DFO Request for Review application directly to DFO. DFO will then conduct a regulatory review of the proposed project under the *Fisheries Act*, *Species at Risk Act*, and Aquatic Invasive Species Regulations to determine if an authorization under the *Fisheries Act* and/or a *Species at Risk* permit is required.

Date: December 18, 2024

To: Meghan Rafferty, Environmental Assessment Officer

From: Climate Change Division – Lori Skaine, Executive Director

Subject: Melvin Lake Wind Project, Halifax Regional Municipality and East Hants

Scope of review:

This review focuses on the following mandate: Climate Change Adaptation and Mitigation

List of Documents Reviewed:

- *Melvin Lake Wind Project Environmental Assessment Registration Document*

Details of Technical Review:

Adaptation:

- In Section 12, “Effects of the Environment on the Undertaking,” the proponent considers climate projections and possible climate change impacts on the project. This section reflects best practices. For instance, they provide 30-year climate normals and use the latest data from ClimateData.ca to assess risk from higher temperatures and flooding. For the climate impacts that are deemed not to impact the project, such as sea level rise, solid rationale is provided. For the climate impacts that could potentially impact the project, the proponent provides mitigation measures to minimize risk.
- Though there is a section on wildfires, it does not mention the increased risk of wildfires due to climate change. The section could have benefitted from additional climate data, but the mitigation measures are sufficient.

Mitigation:

- **Baseline Information:** The proponent quantifies the GHG baseline emissions for the “no-project” scenario and compares these to the emissions from the “project” scenario, illustrating the project’s impact on reducing GHG emissions.
- **Sources of greenhouse gas emissions (expressed in tonnes of CO₂e):** The proponent evaluated GHG emissions during two phases of the project: construction and operation. They claim that the GHG emissions from the removal of vegetation and overburden for the construction or upgrading of roads are temporary and short-term. These emissions represent only a small, incremental increase in comparison to the overall emissions of the project, and as such, they were not quantified.

- **Positive Impacts:** The proponent indicated the project reduces GHG emissions by replacing fossil fuel-based electricity, contributing to annual reductions quantified in tonnes of CO₂e (~ 223,751.85 tCO₂e per year).
- **Negative Impacts:** The proponent estimated temporary GHG emissions during construction phases due to fuel use and equipment operation (51,741.73 tCO₂e), with lower emissions during operations (1,039.11 tCO₂e).
- **Mitigation Measures:** The proponent's mitigation measures aim to reduce the project's GHG emissions through efficient construction practices, using locally sourced and recycled materials, and minimizing transport distances. They also include regular equipment maintenance to meet emissions standards, waste recycling to limit landfill methane, and incorporating energy-efficient infrastructure like solar panels. To further decrease emissions, the proponent suggests limiting deforestation and improving materials handling.

Key Considerations:

- No further comments. The proponent has provided climate data and used a risk management framework.

Date: December 18, 2024

To: Meghan Rafferty , Environmental Assessment Officer

From: Beth Lewis, Director of Special Places Protection

Subject: Melvin Lake Wind Project, Halifax and Hants Counties - Environmental Assessment
Registration

Scope of review:

This review focuses on the following mandate: ***Archaeology and Geology***

List of Documents Reviewed:

EA Document

Details of Technical Review (Archaeology):

The EA review could not be completed because the Archaeological Resource Impact Assessment (ARIA) has not yet been received.

Key Considerations: (provide in non-technical language):

Details of Technical Review (Geology):

The bedrock geology of the project area is correctly described in the proposal. Due to the granite bedrock geology there are no concerns of encountering any palaeontology resources in the project area.

Key Considerations:

From: [Wade, Suzanne \(ECCC\)](#)
To: [Rafferty, Meghan](#)
Cc: [Aikens, Marley \(elle | she, her\) \(ECCC\)](#); [Hingston, Michael \(il | he, him\) \(ECCC\)](#); [Wade, Suzanne \(EC\)](#); [Morais, Tania \(elle | she, her\) \(ECCC\)](#)
Subject: FW: EA Registration - Melvin Lake Wind Project - Melvin Lake Wind Inc. - comments due December 19, 2024 (24-NS-018)
Date: December 19, 2024 10:17:05 AM
Attachments: [Survey Protocol for SAR bats within Treed Habitats Ontario 2017 \(003\).pdf](#)

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Good morning Meghan,

Environment and Climate Change Canada's Canadian Wildlife Service (ECCC-CWS) has reviewed the EA Registration Document (EARD) for the Melvin Lake Wind Project located near Pockwock, NS, and we offer the following comments.

WILDLIFE COMMENTS

Attachments and References

- Ontario Ministry of Natural Resources and Forestry 2017. *Survey Protocol for Species at Risk Bats within Treed Habitats, Little Brown Myotis, Northern Myotis & Tri-Colored Bat* (attached). **Note:** there is a 2022 update, however ECCC's Canadian Wildlife Service (CWS) recommends the Phased approach described in the 2017 guidance.
- ECCC 2007. *Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds*. https://publications.gc.ca/collections/collection_2013/ec/CW66-364-2007-eng.pdf
- ECCC 2022. *Guidelines for Effective Wildlife Response Plans*. <https://www.canada.ca/en/services/environment/wildlife-plants-species/national-wildlife-emergency-framework.html>.
- Flanagan et al. 2013. *Survey methodology for the detection of Wood Turtles (Glyptemys insculpta)*. <https://www.canadianfieldnaturalist.ca/index.php/cfn/article/view/1486>

General Comments

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1. ECCC notes that our comments on the Proponent's *Scoping Baseline Monitoring Plans at Three Proposed Wind Energy Sites: Rhodena, Melvin Lake & Sandy Point, NS*

document (provided May 5, 2022) remain applicable to the Project.

2. Given that the project is registered under Nova Scotia's (NS) *Environmental Assessment Regulations*, it remains the discretion of the province whether sufficient information has been provided to assess the potential effects of the Project under their jurisdiction and responsibility. ECCC does not have any permits (or authorizations) or approvals in relation to the proposed project. Any advice provided by ECCC is intended to support Nova Scotia Environment and Climate Change (NS ECC) Environmental Assessment review process. The Proponent is responsible for identifying measures which ensure their compliance with the *Migratory Birds Convention Act* (MBCA) and the *Species at Risk Act* (SARA).
3. ECCC notes that the Province of NS's Department of Natural Resources and Renewables (NS DNRR) holds technical expertise, jurisdiction, and management authority for birds not protected by the MBCA (e.g., raptors) and terrestrial SAR including bats, reptiles, amphibians, land-mammals, insects, plants, and lichen. ECCC advice on these species is derived from federal recovery strategies focused on species recovery.
4. The Environmental Assessment Registration Document (EARD) includes hedging and ambiguous wording, such as, "*where possible*" and "*to the extent possible*" when describing mitigation measures.

ECCC recommends removing ambiguous wording from the EA and associated plans. The EA should clearly describe commitments to mitigation measures to avoid/minimize potential effects of the Project on migratory birds and species at risk (SAR), and where effects cannot be avoided/minimized, a proposed plan to mitigate residual impacts should be described (e.g., monitoring plan, scheduling, buffers, offsetting measures, etc.). Contingency plans identifying mitigation measures should be prepared to address all scenarios that may impact migratory birds and SAR during all of times of the year and all project phases.

5. The proponent should retain raw survey data (e.g., breeding bird surveys) until appropriate data standards have been developed. Proponents are encouraged to share and store data with:
 - The Atlantic Canada Conservation Data Center (SAR/SOCC observations; <http://accdc.com/en/contribute.html>)
 - NA Bat (acoustic bat data; <https://www.nabatmonitoring.org/upload-data>)
 - The Wind Energy Bird and Bat Monitoring Database (bird and bat data;

6. If considering wildlife protection, mitigation, monitoring and adaptive management plans as part of potential approval conditions related to avifauna and/or migratory bird SAR, ECCC recommends clarifying what elements are expected to be included, and that the consultation process is clear for all parties.

Specific Comments

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Lichen SAR

7. ECCC-CWS notes that the following lichen SAR were observed in the study area: Blue Felt Lichen (SARA-listed Special Concern, six occurrences), Frosted Glass-whiskers (SARA-listed Special Concern, four occurrences).

ECCC-CWS offers the following recommendations for avoiding/minimizing project impacts to Blue Felt Lichen and Frosted Glass-whiskers in Nova Scotia:

- Implement a minimum 100 m habitat management buffer zone for all individuals of Frosted Glass-whiskers observed in the Assessment Area. For any individuals where the buffer zone would not be implemented, the proponent should identify measures to avoid/minimize the effects. Management within this zone should follow the Nova Scotia SMP, including:
 - Prohibiting clearing, removal, or disturbance of trees, soil, or wetlands; and
 - Prohibiting new road or trail construction within the zone unless exceptional circumstances apply and are approved through the provincial variance process.
- Provide a lichen SAR monitoring program including all sites where lichen SAR have been detected in the Assessment Area, and proposed monitoring and adaptive management measures in the event that adverse effects to lichen SAR are detected.
- Consult recovery documents to inform development of mitigation strategies to avoid direct and indirect impacts:
 - The Management Plan for Blue Felt Lichen (*Degelia plumbea*) in Canada [Final] (2022): <https://species-registry.canada.ca/index-en.html#/consultations/3645>
 - The Management Plan for the Frosted Glass-whiskers (*Sclerophora peronella*), Nova Scotia Population, in Canada [Final] (2011): <https://species-registry.canada.ca/index-en.html#/species/739->

578#management plans

- Mitigation strategies and plans should be provided for review as part of the EA and support significance conclusions.

Herpetofauna SAR

-

8. Quote (pg.181): *“One herpetofauna SOCI species, Snapping turtle (Chelydra serpentina), was identified at two locations within and the Study Area, and one location within 500 m of the Study area during 2022-2024 field studies. [...] Although habitat for Wood turtles was noted during the desktop review, this habitat was searched during ideal conditions and no Wood turtles were observed during targeted surveys.”*

ECCC notes that visual encounter surveys for Wood Turtle tend to have a low detection rate, as Wood Turtles are known to hide in dense vegetation or enter waterbodies if they perceive an approaching threat (see Flanagan et al. 2013). Therefore, a lack of Wood Turtle detections during turtle surveys does not indicate an absence of Wood Turtles in the Regional Assessment Area, especially when suitable habitat is present.

Wood Turtle can travel hundreds of meters from rivers used for overwintering to their nesting and foraging/thermoregulation habitats. Quarries and gravel pits can attract female Wood Turtles as they search for suitable nesting areas, which include areas with sparse or no vegetation during incubation periods, full to partial sunlight, and sandy or gravelly substrate.

ECCC-CWS offers the following recommendations for avoiding/minimizing project impacts and supporting species recovery of SAR turtles:

- The proponent should identify mitigation measures to avoid impacts on Snapping Turtle and Wood Turtle individuals during sensitive periods, including measures for individuals travelling to nesting and overwintering habitats during construction activities (e.g., installation of turtle exclusion fencing with eco-passages, installation of signage alerting drivers to reduce speeds in locations where turtle SAR could occur) and measures to be taken by site personnel and contractors should turtles be found during project activities;
- September is the pre-overwintering period when Snapping Turtle and Wood Turtle are in the forest. Hatchlings can emerge from nests in early September to early October. Therefore, ECCC recommends that clearing occur no earlier than mid-October to avoid risk of destruction of individuals;

- Consult management and recovery documents to inform development of mitigation strategies to avoid direct and indirect impacts:
 - Management Plan for the Snapping Turtle (*Chelydra serpentina*) in Canada [Final] (2020), available at: https://species-registry.canada.ca/index-en.html#/species/1033-710#management_plans.
 - The Recovery Strategy for Wood Turtle (*Glyptemys insculpta*) in Canada [Final] (2020), available at: <https://species-registry.canada.ca/index-en.html#/consultations/2864>

Bat SAR

9. Quote (pg. 196, Section 7.4.4.6): “[...] bat activity is low within the Study Area compared to baseline data collected at the locations of other wind energy projects [...].”

ECCC notes that the following SAR/SOCC bat species/groups were detected during baseline monitoring: Myotis species (i.e., Little brown myotis and/or Northern myotis; SARA-listed Endangered), Tri-colored bat (SARA-listed Endangered), Hoary bat (COSEWIC-assessed Endangered), Silver-haired bat (COSEWIC-assessed Endangered), and Eastern red bat (COSEWIC-assessed Endangered).

ECCC notes that low bat activity pre-construction is insufficient to conclude that risks to SOCC/SAR bats are low. The populations of the three SARA-listed bat species (Little Brown Myotis, Northern Myotis, and Tri-colored Bat) are highly depressed in NS, primarily due to introduction of White-nosed Syndrome (WNS), and therefore few acoustic detections are expected. Additionally, the three “migratory” bats, which have been assessed by COSEWIC as Endangered, are highly vulnerable to mortality due to wind turbines. Any additional loss of SOCC/SAR bat individuals, maternity roosts, or and/or hibernacula remaining on the landscape can be biologically significant for these long-lived, k-selected species, and affect their recovery.

ECCC recommends that monitoring, mitigation measures, and adaptive management plans consider the COSEWIC-assessed migratory bat species as though they are SARA-listed SAR, in the event that they become listed during the lifetime of the Project.

Additionally, ECCC recommends including EIA commitments to mitigation measures

for minimizing potential impacts to SARA and COSEWIC-listed Endangered bat SAR during the project's operational phase *before* impacts occur, such as increasing cut-in speeds or altering the pitch/feathering the blades during high-risk collision periods (e.g., during migration or swarming or when wind velocity is low).

10. While ECCC-CWS acknowledges that there is currently no regulatory threshold available for “acceptable” levels of bat mortality at wind farm sites, the Proponent’s use of the Government of Alberta’s Bat Mitigation Framework for Wind Power Development (2013) to assess potential impacts to bats is inappropriate for this project.

The Government of Alberta (2013) thresholds are based on SAR bat populations in Alberta over ten years ago, and therefore likely do not reflect the current level of risk, particularly in Nova Scotia. Although some studies report fewer bat mortalities at wind energy sites in recent years, this likely reflects a decline in overall abundance of bats rather than avoidance of turbines (Davy et al. 2021).

Additionally, the bat passes per detector night metrics presented in the Government of Alberta (2013) guidance were developed as a benchmark for data collected during fall migration only. Therefore, the proponent’s metric should have been calculated for number of detector nights between August to early September, rather than the entire survey period.

11. Quote (Section 12.3.4.2, pg. 100): *“Potential roosting habitat was observed in select sites within the Study Area, mainly in wetlands containing large snags and mature hardwood forests. However, other significant habitat features, including caves, karst formation, and abandoned mines that could serve as hibernacula or overwintering sites, were not observed during field assessments and a desktop review found that there is no significant habitat for bats within the study area.”*

ECCC-CWS notes that it is unclear what methods the proponent used to identify potential roosting habitat and other SAR bat habitat features. Additionally, the proponent has not identified sufficient measures to avoid project-related impacts to potential roosting habitat at the site.

Site selection is the most important component of a successful mitigation strategy for wind power development, with turbines located as far away as possible from important bat habitat features (hibernacula, potential maternity roosts). ECCC-CWS recommends that the proponent identify and map areas with suitable maternity

roosting habitat (e.g., tolerant old hardwood) and avoid siting turbines and roads in these areas.

Acoustic surveys can be completed at potential maternity roost trees in areas to be cleared to confirm occupancy, noting that it can be challenging to confirm roosting for species that forage in high-clutter habitats (e.g., Northern Myotis). Moreover, due to roost switching within a season, a single emergence survey by a human observer is not sufficient to confirm roosting. Therefore, siting infrastructure away from suitable habitat should be the primary avoidance measure for SAR bats.

In areas to be cleared, ECCC-CWS recommends that the proponent complete targeted habitat surveys using the “*Survey Protocol for Species at Risk Bats within Treed Habitats, Little Brown Myotis, Northern Myotis & Tri-Colored Bat*” (OMNRF, 2017) (**attached**). An excerpt from the draft bat residence description for Little Brown Myotis and Northern Myotis is available for consideration in identifying bat maternity roosting habitat (Appendix 1 below).

ECCC-CWS recommends that the Proponent identify mitigation measures to protect bat residences as part of the EA, should they be suspected or confirmed during surveys.

Migratory Birds

12. Quote (Table 2.1, pg. 4): “*there is no expectation that a MBCA permit will be required.*”

Should the Project be approved, ECCC notes that post-construction monitoring for migratory birds would require a *Migratory Birds Regulations* (MBR 2022) permit. Under the MBR 2022, a scientific permit is required to possess and handle any dead migratory birds used for observer efficiency or scavenging trials (ECCC, s.10.4 2007) and is recommended for the collection of a migratory bird (dead or alive), feathers, or part of a migratory bird (as defined in the *Migratory Birds Convention Act* [MBCA]) found during post-construction monitoring activities (e.g., carcass searches). To apply for an MBR permit, proponents should contact the ECCC-CWS permitting office at: SCF-ATLPermis-CWS-ATLPermits@ec.gc.ca.

13. ECCC notes that the following avian SAR were observed during baseline surveys in the Project area:

- Barn Swallow (SARA-listed Threatened): Observed during breeding season

- Bobolink (SARA-listed Threatened): Observed during fall migration
- Canada Warbler (SARA-listed Threatened): Observed during breeding season and spring and fall migration
- Chimney Swift (SARA-listed Threatened): Observed during breeding season and spring migration
- Common Nighthawk (SARA-listed Special Concern): Observed during breeding season and spring and fall migration
- Eastern Wood-pewee (SARA-listed Special Concern): Observed during breeding season and spring migration
- Evening Grosbeak (SARA-listed Special Concern): Observed during spring migration
- Olive-sided Flycatcher (SARA-listed Special Concern): Observed during breeding season and spring migration
- Rusty Blackbird (SARA-listed Special Concern): Observed during fall migration

If the Project is approved, ECCC recommends that the proponent include targeted mitigation measures for these species, as well as other SOCC/SAR potentially occurring in the area (based on desktop review) in any Management Plans developed for the Project.

Additionally, ECCC requests that any species at risk sightings be reported to ECCC-CWS at scf-atldonneesei-cws-atliadata@ec.gc.ca. SAR observations should also 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>.

14. ECCC notes that the volume of targets recorded near and/or within the rotor sweep zone (43.5-206 m above ground level) during radar monitoring could warrant additional measures to mitigate potential impacts to birds and bats during spring and fall migration periods when the project is operational (see Target Density Tables 7.78, 7.79, 7.80, 7.81).

Based on the level of concern for the project (Category 4)(ECCC 2007), ECCC recommends that the proponent follow the precautionary principle and consider identifying these measures as part of the EA commitments which will avoid impacts on migratory birds and bats *before* they occur (e.g. blade feathering, increased cut-in speeds, remote temporary shut downs based on weather conditions, peak migration periods and times). Additionally, ECCC recommends that the proponent develop adaptive management plan(s) and undertake post-construction monitoring to monitor residual effects.

15. ECCC notes that the effects assessment presented in Section 7.4.5.17 does not discuss potential harm, injury, or mortality resulting from migratory birds colliding with and/or being electrocuted by transmission and collector lines (“power lines”). The effects of transmission/collector lines on migratory birds and mitigation measures to avoid/reduce these effects should be discussed in the EARD.

The proposed placement of above-ground power lines should consider areas used as flight paths by migratory birds during migration, near shorebird staging and foraging involving overland daily movements, or while travelling from nesting to foraging areas, and/or along streams used by waterfowl.

ECCC recommends the following general beneficial management practices to avoid potential harm to migratory birds associated with power lines:

- Avoid building transmission, collection, or distribution lines over, adjacent, or near areas where birds are known to congregate or move, including:
 - Important breeding, staging, moulting areas;
 - Breeding colonies; and
 - Between breeding and foraging areas.
- Consider installing underground power lines in high-risk areas for bird collisions.
- Design “avian-safe” configurations to reduce the risk of electrocutions, including:
 - Providing sufficient separation between energized phase conductors and between phases and grounded hardware;
 - Insulating exposed surfaces in high-risk areas;
 - Installing perch-management (e.g., perch guard) devices on poles; and
 - Removing or minimizing vegetation around poles and lines.
- Install measures on lines that reduce the risk of collisions:
 - Provide minimal vertical separation between lines;
 - Use self-supporting structures to reduce the number of guy wires; and
 - Use line-marking devices to increase the visibility of the lines.

ECCC-CWS recommends that the Proponent refer to Avian Power Line Interaction Committee (www.aplic.org) for an understanding of avian risks from powerlines and guidance. For information on avian deflector (“bird diverter”) use and optimal design, ECCC recommends referencing the following:

<https://www.sciencedaily.com/releases/2020/06/200624151533.htm>

16. The following mitigation measure regarding power lines is listed on page 294 (Section 7.4.5.17):

- *Install avian deflectors on powerlines, including any powerline spans, or areas of line identified as requiring mitigation based on monitoring results.*

While ECCC supports the installation of avian deflectors on power lines, it is unclear how the proponent intends to assess areas of line requiring mitigation, as they have not stated elsewhere that the scope of post-construction monitoring will include power lines. For instance, on page 294 of the EARD the proponent states that monitoring activities may include “*post-construction avian mortality monitoring to assess mortality levels caused by turbine operations*”, with no mention of mortality caused by transmission lines specifically.

While ECCC supports including power lines in the scope of the avian post-construction monitoring plan, we recommend that the proponent install avian deflectors proactively in high-risk areas, rather than reactively based on monitoring results (i.e., *after* death or injury has occurred).

17. ECCC notes that Common Nighthawk (SARA-listed Special Concern) was observed during nocturnal owl and nightjar surveys, breeding bird surveys (probable breeding based on territorial behaviour), and spring and fall migration surveys, as well as during acoustic monitoring, where the species was detected in summer, spring and/or fall during both monitoring years (2022 and 2023). Additionally, Bank Swallow (SARA-listed Threatened) may occur in the Assessment Area based on desktop review. These species, as well as other ground or burrow-nesting migratory birds, may be attracted to stockpiles or exposed areas for nesting, particularly if there is a delay between clearing activities and subsequent construction activities.

In such instances, active nest surveys of the cleared areas may be carried out successfully by skilled and experienced observers using appropriate scientific methodology. Should any nests or unfledged chicks be discovered, protection by an appropriate-sized buffer is expected.

The following mitigation measure regarding ground and burrow-nesting birds is listed on page 294 (Section 7.4.5.17):

- *“Avoid disturbance of any ground- or burrow-nesting species should they initiate breeding activities within stockpiles or exposed areas during construction or operations, until chicks can fly, and the nesting areas are no longer being used.”*

In addition to the above, ECCC recommends that the proponent develop measures to deter birds from nesting in these areas, such as covering exposed areas or

stockpiles when not in use and minimizing the delay between clearing and subsequent construction activities.

ECCC also recommends that the proponent reference the following recovery documents to inform the development of mitigation measures for these species:

- Recovery Strategy for the Common Nighthawk (*Chordeiles minor*) in Canada [Final] (2016): https://species-registry.canada.ca/index-en.html#/species/986-668#recovery_strategies
- Recovery Strategy for the Bank Swallow (*Riparia riparia*) in Canada [Final] (2022): https://species-registry.canada.ca/index-en.html#/species/1233-894#recovery_strategies

18. Common Nighthawk (CONI) may have a higher collision risk with turbines/blades than other bird SAR recorded during the breeding period, as these species are aerial insectivores known to occupy open habitat areas in search of flying insects. They are crepuscular, and potentially nocturnal, flying at various heights in search of food. They also defend their territories by aerial displays (wing booms) that might make them more susceptible to collisions if they choose to nest close to turbines.

ECCC recommends that the Proponent clearly map the locations where CONI were detected in the Assessment Area in relation to proposed project infrastructure and the results of the proponent's suitable habitat mapping for CONI. Additionally, ECCC recommends that the proponent clarify whether areas with higher occurrence of CONI and/or modelled suitable breeding habitat will be avoided during micrositeing of turbines.

ECCC recommends that the proponent avoid/lessen impacts on CONI and their habitat, identify mitigation measures, and a monitoring plan, including post construction nightjar surveys (dusk and dawn) and mortality monitoring to monitor and prevent bird strikes during the breeding season, and adaptive management measures should effects be detected.

Nightjar surveys will help to determine if these species continue to breed in the area post-construction or if they are being displaced by the project, and mortality surveys will assist in determining whether these species are colliding with turbines/turbine blades or are able to avoid them while foraging at night.

ECCC recommends referencing the most recent version of the Canadian Nightjar Survey (CNS) Protocol when planning nightjar surveys. Note that because some

nightjar surveys are tied to the lunar cycle, the CNS protocol is updated annually to reflect optimal survey dates for a given year.

19. The following mitigation measures regarding lighting are listed on page 294 (Section 7.4.5.17):

- *Incorporate a lighting plan for construction-related activities into the Wildlife Management Plan.*
- *Minimize lighting, to the extent possible (e.g., downward facing lights and motion activated lighting).*

Additional information on lighting plans and lighting-related mitigations is required to adequately assess potential impacts of lighting and residual effects on migratory birds during all project phases. ECCC generally recommends including lighting plan(s) and detailed mitigations as part of the EA to support EA conclusions.

Attraction of migratory birds and SAR to light at night or in poor visibility conditions during the day may result in collision with lit structures, their support structures, or with other migratory birds. Disoriented migratory birds are prone to circling light sources and may deplete their energy reserves and either die of exhaustion or be forced to land where they are at risk of depredation.

To reduce the risk of disturbance to migratory birds related to human-induced light, ECCC-CWS recommends implementation of the following beneficial management practices:

- The fewest number of site-illuminating light possible should be used in the project area. Only strobe lights should be used at night, at the lowest intensity and smallest number of flashes per minute allowable by Transport Canada.
- Lighting for the safety of the employees should be shielded down and only to where it is needed.
- LED lights should be used instead of other types of light where possible. LED light fixtures are less prone to light trespass (i.e., are better at directing light where it needs to be, and do not bleed light into the surrounding area), and this property reduces the incidence of migratory bird attraction.

If the Project is approved, ECCC recommends including detailed lighting-related mitigations to avoid/reduce effects on migratory birds in the Project's Environmental Management Plan and/or Wildlife Management Plan, should the(se) plan(s) be required.

20. The following mitigation measure regarding revegetation is listed on page 294 (Section 7.4.5.17):

- *Revegetate disturbed areas, as appropriate.*

ECCC recommends using a variety of plant species native to the general project area 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. These measures should be detailed in the Project's Environmental Management Plan and/or Wildlife Management Plan, should the(se) plan(s) be required for the Project.

21. Quote (pg. 294): *"A site-specific post-construction Wildlife Management Plan, which will include an avian management plan, will be developed to inform monitoring activities that will take place to ensure continued protection of known SAR in the LAA and RAA."*

To avoid and minimize impacts to migratory birds and species at risk and their habitats, ECCC recommends that the scope of the WMP include all phases of the Project from construction to decommissioning/reclamation.

22. ECCC notes that there are spatial gaps in avian survey coverage within the Assessment Area, particularly in the southern portion near T12-T20 (see Drawing 7.29C). Additionally, it is unclear how point count stations were selected. ECCC generally recommends selecting point count locations randomly, but stratified by habitat type to ensure all available habitats used by migratory birds (including SAR/SOCC) are adequately sampled.

Based on the habitat types presented in Drawing 7.16, the turbine locations are sited predominantly in "Softwood" and "Mixedwood" forest. If the habitat types at the proposed turbine locations are distinct from other habitats in the study area for which there is adequate survey coverage, further avian surveys may be warranted.

23. ECCC notes that there are numerous lakes in the Regional Assessment Area, though most were excluded from the Study Area and do not appear to have been surveyed during 2022 or 2024 point count surveys (see Tables 44 and 45 in Appendix J). ECCC generally recommends surveying all available habitat types in the vicinity of proposed project infrastructure to best capture the diversity of migratory bird species that could be impacted by project activities.

Given the number of lakes near the Study Area, ECCC would expect a higher diversity of shorebirds, waterfowl, and other water birds to be present than were recorded during the avian surveys completed for the project. For instance, ECCC notes that a maximum of three waterfowl species known to breed in Nova Scotia were recorded during avian surveys, however it would be expected that 6-12 waterfowl species would be breeding in this area based on the habitat types available. Therefore, the survey results may not provide an accurate representation of the presence of these species in the Regional Assessment Area because the preferred habitats of water birds were not thoroughly surveyed.

Greater Yellowlegs, Solitary Sandpiper, Lesser Yellowlegs (COSEWIC-assessed Threatened) and Short-billed Dowitcher (COSEWIC-assessed Threatened) all use freshwater habitat to roost and forage during fall migration. These species, as well as other waterbirds using these habitats (e.g., breeding waterfowl), would pass through the Study Area while travelling from one waterbody to another, and therefore could collide with project infrastructure and/or experience sensory disturbance during transit, in addition to potential habitat-related effects (e.g., habitat loss and fragmentation). These effects should be discussed as part of the Effects Assessment in the EARD.

If the Project is approved, ECCC recommends that the proponent include targeted mitigation measures for these species, as well as other migratory bird SoCC potentially occurring in the area (based on desktop review) in any Management Plans developed for the Project.

24. ECCC notes that the proponent's description of functional bird groups in Section 7.4.5.9 includes species which would almost never be observed in Nova Scotia (e.g., flamingos) and describe waterfowl as "Ducks, geese, or other large aquatic birds, especially when regarded as game." Outside of Harlequin Ducks, all waterfowl in NS can be hunted and would be considered "gamebirds". There are no other large aquatic birds that would fit this description since it is not permitted to hunt herons, gulls, loons, etc.
25. ECCC notes that Motus Wildlife Tracking System data and Argos satellite tracking data indicate that there is a shorebird migration corridor over the Halifax area during fall migration. To gain a better understanding of shorebird movements through the area and inform development of mitigation measures, ECCC recommends that the proponent contact the Shorebird Conservation Collective to request a summary of shorebird tracks over the Regional Assessment Area (see:

<https://nationalzoo.si.edu/migratory-birds/shorebird-collective>).

Wetlands

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26. ECCC notes that the proponent estimates that about 1.27 ha of wetland has potential to be altered by the Project.

ECCC-CWS advocates for the conservation of wetlands, especially in areas where wetland losses have already reached critical levels (e.g., NB, NS, PEI, southern Ontario, Prairies), regionally important wetlands, and wetlands used by avian SAR and SOCC as part of their lifecycle (e.g., Canada Warbler, Chimney Swift, Olive-sided Flycatcher Common Nighthawk, Lesser Yellowlegs, Greater Yellowlegs, Spotted Sandpiper, Upland Sandpiper, etc.).

ECCC advocates for planning, siting and designing a project in a manner that considers wetland mitigation options in a hierarchical sequence – avoidance, minimization, and as a last resort, compensation.

In assessing potential for avoidance and minimization impacts to wetlands and avian SAR and SOCC that use wetlands, ECCC recommends that the proponent consider implementing a 30-m buffer around wetlands for all project infrastructure (e.g., turbine pads, access roads, transmission corridors, substation). Any vegetation clearing (even if temporary) should be considered an alteration requiring compensation or other measures to ensure wet soils and wetland functions are maintained for migratory birds and species at risk.

ECCC also recommends the following general measures:

- Developments on wetlands should be avoided;
- Hydrological function of the wetland should be maintained;
- Runoff from development should be directed away from wetlands;
- A 30-metre buffer from the high-water mark of any water body (1:100 Flood Zone) should be maintained in order to retain movement corridors for migratory birds.

Please see <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html> for further information concerning buffer zones.

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Applicable Legislation and Standard Advice

Migratory Birds Convention Act

The federal [Migratory Birds Convention Act](#) (MBCA) and its [regulations](#) protect migratory birds and their eggs and prohibit the disturbance, damage, destruction or removal of migratory bird nests that contain a live bird or a viable egg. Migratory birds are protected at all times; all migratory bird nests are protected when they contain a live bird or viable egg; and the nests of 18 species listed in [Schedule 1 of the MBR 2022](#) are protected year-round. These general prohibitions apply to all lands and waters in Canada, regardless of ownership. For more information, please visit: <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html>.

For migratory birds that are listed as Endangered, Threatened or Extirpated on Schedule 1 of the *Species at Risk Act* S.32 (protection of individuals) and S.33 (protection of residences) apply to all land tenure types in Canada. For some migratory bird species listed under the *Species at Risk Act* (SARA), the residence prohibition will protect nests that are not active but are re-used in subsequent years (please note that the residence of a migratory bird may not necessarily be limited to their nest).

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 to be deposited in any place if the substance, in combination with one or more substances, result 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.”

The proponent is responsible for ensuring that activities are managed to ensure compliance with the MBCA and associated regulations.

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 bird species at risk (SAR), this prohibition immediately applies on all lands or waters (federal, provincial, territorial and private) in which the species occurs.

For project assessments, SARA requires:

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.

ECCC notes that all comments it provides concerning species at risk that are not migratory birds derive from federal recovery/management plans as posted on the Species at Risk Registry (<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>), and thus comments may not be comprehensive to the body of knowledge for the species.

For species which 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 EA as though they were listed under SARA.

Fuel Leaks

The proponent must ensure that all precautions are taken by the contractors to prevent fuel leaks from equipment, and that a contingency plan in case of oil spills is prepared. Furthermore, the proponent should ensure that contractors are aware that under the MBCA, “*no person shall deposit or permit to be deposited oil, oil wastes or any substance harmful to migratory birds in any waters or any area frequented by migratory birds.*” Biodegradable alternatives to petroleum-based chainsaw bar oil and hydraulic for heavy machinery are commonly available from major manufacturers. Such biodegradable fluids should be considered for use in place of petroleum products whenever possible, as a standard for best practices. Fueling and servicing of equipment should not take place within 30 meters of environmentally sensitive areas, including shorelines and wetlands.

ECCC recommends incorporating a Wildlife Emergency Response Plan into emergency response contingency plans for scenarios that may impact avifauna directly (injury or mortality e.g. polluting incident) or indirectly (collisions causing mortality, stranding due to light attraction).

For consideration in emergency response and contingency planning related to accidents and malfunctions, ECCC has prepared *Guidelines for Effective Wildlife Response Plans* (ECCC 2022) available online at:

<https://www.canada.ca/en/services/environment/wildlife-plants-species/national-wildlife-emergency-framework.html>. Plans should include:

- Measures to deter migratory birds from coming into contact with the oil or polluting substance;
- Measures undertaken if individuals of migratory birds and/or sensitive habitat become contaminated; and,
- The type, extent of monitoring, and reporting in relation to various spill events.

The proponent is responsible for ensuring that all precautions are taken by the contractors to prevent fuel leaks from equipment, and that a contingency plan is prepared in the case of spills. Furthermore, the proponent should ensure that contractors are aware of s.5.1 MBCA prohibitions.

Events involving a polluting substance should be reported to the 24-hour environmental emergencies reporting system: **1-800-565-1633**.

Bird mortality incidents of 10 or more birds in a single event, or an individual species at risk, should be reported via ECCC-CWS Main Office **(506) 364-5044** or via email to SCFATLEvaluationImpact-CWSATLImpactAssessment@ec.gc.ca.

Stockpiles

Certain species of migratory birds (e.g., Bank Swallows) may nest in large piles of soil left unattended/ unvegetated during the most critical period of breeding season (mid-April through late August). 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.

For additional information on designing mitigation measures for Bank Swallow, refer to the following guidance: <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/related-information/bank-swallow-sandpits-quarries.html>.

Invasive Species

Measures to diminish the risk of introducing invasive species should be developed and implemented during all project phases. These measures could include:

- Cleaning and inspecting construction equipment before transport from elsewhere to ensure that no vegetative matter is attached to the machinery (e.g., use of pressure water hose to clean vehicles before 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.

Noise Disturbance

Anthropogenic noise produced by construction and human activity can have multiple impacts on birds, including causing stress responses, avoidance of certain important habitats, changes in foraging behavior and reproductive success, and interference with songs, calls, and communication. Activities that introduce loud and/or random noise into habitats with previously no to little levels of anthropogenic noise are particularly

disruptive.

ECCC 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 construction works adjacent to natural vegetation should be 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.

Appendix 1

Excerpt from the Draft ECCC-CWS Residence Description (January 2022)

Little Brown Myotis and Northern Myotis

Any place used as a maternity roost by Little Brown Myotis or Northern Myotis is considered a residence. A maternity roost site may be a natural site, such as a cavity in a tree, a rock crevice, a cave or the underside of loose bark. Little Brown Myotis also use anthropogenic sites such as the underside of bridges, attics in a building or other structures (Fenton and Barclay 1980; Coleman and Barclay 2011). Little Brown Myotis is one of the few bat species that uses buildings and other anthropogenic structures to roost. Females of both species are thought to select a quality maternity roost at the expense of travelling longer distances to forage possibly indicative of a limited number of suitable maternity roosting sites in foraging areas (Broders et al. 2006, Randall et al. 2014).

Maternity roosts in trees are often associated with natural holes, holes made by cavity excavators (e.g., woodpeckers) or holes resulting from broken limbs or under loose bark. Typically, maternity roost sites are located in tall, large-diameter trees (DBH >30 cm), within forests (Kalcounis-Ruepell et al. 2005; Olson 2011; Olson and Barclay 2013) and older forest stands are preferred over younger forest stands (Barclay and Brigham 1996; Crampton and Barclay 1996; Jung et al. 1999). A larger tree size will usually house a larger number of bats (Olson 2011). Broders and Forbes (2004) found a preference for deciduous trees (Sugar Maple, Yellow Birch, and American Beech) and attributed this preference to deciduous trees' susceptibility to limb breakage and decay (creating

available habitat for roosting), long-lived characteristics (permitting repeated use by bats), and their upland habitats with increased solar radiation (reducing energy costs to maintain the bat's body temperature).

Maternity roosts located in buildings tend to be located in warm but uninhabited areas of the building or in abandoned ones. Attics in older buildings are commonly used.

Tri-colored Bat

Little is known about maternity roosts of Tri-colored Bat. However, the species is known to roost in clumps of dead tree foliage and lichens and broken branches in coniferous and deciduous tree species (Veilleux et al. 2003, Perry and Thill 2007, Poissant et al. 2010). Tri-colored Bats also use barns and other anthropogenic structures for maternity roosts, and they may also use tree cavities, broken branches on trees, caves and rock crevices (Fujita and Kunz 1984). In Nova Scotia, a local population of Tri-colored Bat roosted solely in clumps of *Usnea* lichen and mostly within spruce trees (Poissant et al. 2010).

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WATER QUALITY

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

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

ACCIDENTS AND MALFUNCTIONS

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

The proponent is encouraged to prepare contingency plans that reflect a consideration

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

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

ECCC's preference is that any documents and requests for advice from the proponent be submitted and coordinated through NS ECC as part of their EA process via the ECCC-EA window (FCR_Tracker@ec.gc.ca).

If you have any questions, please let me know.

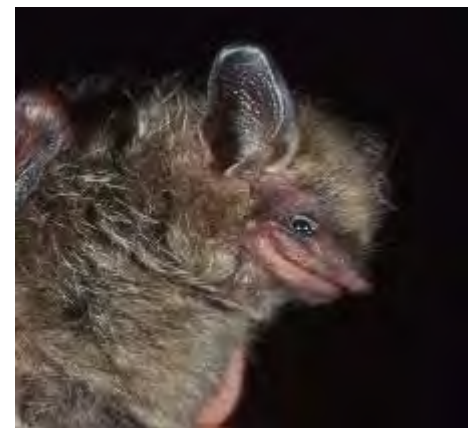
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Survey Protocol for Species at Risk Bats within Treed Habitats
Little Brown Myotis, Northern Myotis & Tri-Colored Bat
April 2017



Introduction

This document describes Guelph District's recommended protocol for confirming presence/absence of Little Brown Myotis, Northern Myotis and Tri-colored Bat, where it is determined that suitable habitat for the establishment of maternity roosts is present.

This document replaces any previous versions of the survey protocol, and may be updated periodically as new information becomes available.

Note that those undertaking projects that may impact anthropogenic structures and isolated trees considered suitable habitat for bats should refer to Guelph District's *Survey Methodology for the Use of Buildings and Isolated Trees by Species at Risk (SAR) Bats*.

Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) are listed as provincially endangered and receive species and general habitat protection under the *Endangered Species Act, 2007* (ESA).

Where the habitat of an endangered or threatened species is not prescribed by regulation, the ESA defines habitat as an area on which a species depends on, directly or indirectly, to carry out its life processes. Such processes include reproduction, rearing, hibernation, migration or feeding, as well as places being used by members of the species.

Throughout eastern North America, a disease known as white-nose syndrome (WNS), which is caused by the fungus *Pseudogymnoascus destructans*, is the primary cause of the decline of Little Brown Myotis, Northern Myotis and Tri-colored Bat populations. Where population numbers have significantly decreased due to WNS, the relative magnitude of other threats (e.g., habitat destruction) may increase. This is because the mortality or displacement of a small number of the remaining individuals can have a major impact on the survival of local populations and their recovery.

Many bat species are known to have high fidelity to their hibernacula and maternity roost sites. It is not uncommon for bats to return to the same roost tree or group of trees in successive years. Some bats switch roost trees periodically within the same treed area over the summer, likely to avoid predators or parasites or in search of a warmer or cooler roost.

Of the SAR bats species noted in this protocol, Little Brown Myotis is the most frequently encountered species in treed communities due to higher population numbers relative to other SAR bat species. Little Brown Myotis establishes maternity roosts within tree cavities and under loose or exfoliating bark, especially in wooded areas located near water. Foraging habitat includes over water and in open areas between water and forest. Favoured prey consists of aquatic insects (e.g., mayflies, midges, mosquitos and caddisflies). In agricultural environments, Little Brown Myotis tend to follow linear wooded features, such as hedgerows, for commuting and foraging.

Northern Myotis is less frequently encountered relative to Little Brown Myotis but selects similar maternity roost space. Northern Myotis roosts within tree crevices, hollows and under the bark of live and dead trees, particularly when trees are located within a forest gap. Northern Myotis switch roost trees more frequently compared to other SAR bat species (i.e., every 1-5 days) and are relatively

slow flyers. Northern Myotis is adapted to hunting in cluttered environments, such as within the forest along edges, where it gleans and hawks its prey (primarily moths).

Tri-coloured Bat establishes maternity roosts within live and dead foliage within or below the canopy. Oak is the preferred roost tree species, likely because oaks retain their leaves longer than other trees. Maples are also thought to be important for roosting, although maples are selected far less often compared to oaks. Some studies have shown that Tri-colored Bat prefers dead leaves over live leaves, especially if the dead leaves are situated on a live tree i.e., along a broken branch. Other documented roost sites include dogwood leaves, within accumulations of pine needles, in squirrel nests and in tree cavities. Within a forest, the location of maternity roost trees varies from dense woods to more open areas, although roosts are rarely found in deep woods. Although Tri-colored Bat switches roosts over the summer, this species has very high site fidelity to particular leaf clusters within a season. Foraging occurs along forested riparian corridors, over water (e.g., ponds and rivers) and within gaps in forest canopies. This species is an insect generalist, feeding on species such as leafhoppers, ground beetles, flies, moths and flying ants. The Tri-colored Bat is less frequently encountered compared to Little Brown Myotis and Northern Myotis. Unlike other SAR bats, Tri-colored Bat rarely roosts in buildings, and therefore relies heavily on treed areas for rearing its young.

Note: Confirmation of individual maternity roost trees is extremely challenging. Exit surveys are not always reliable, since SAR bats are known to periodically switch roost trees within a treed area over the summer. In addition, techniques used to confirm maternity roost trees, such as mist netting, are quite invasive and therefore not recommended.

The survey protocol that follows focuses on confirming presence/absence of Little Brown Myotis, Northern Myotis and Tri-colored Bat within treed habitats considered suitable for the establishment of maternity roosts, which is sufficient information to apply species and habitat protection under the ESA.

If an Ecological Land Classification (ELC) ecosite is determined to be suitable for the establishment of maternity roosts, trees with suitable attributes are present, and SAR bats are detected during the maternity roost season (June), it can be concluded with a high degree of certainty that the ELC ecosite represents the habitat most in use during the breeding season for roosting, feeding, rearing of young and resting.

Phase I: Bat Habitat Suitability Assessment

Little Brown Myotis, Northern Myotis and Tri-colored Bat establish maternity roosts in treed areas consisting of deciduous, coniferous or mixed tree species. For bats that roost under bark or within cracks, hollows or crevices, tree species is important only as it relates to its structural attributes. For example, trees that retain bark for longer periods or are more susceptible to fungal infections/attract cavity excavators are more likely to provide appropriate roosting space.

Following the completion of ELC mapping of a study area, any coniferous, deciduous or mixed wooded ecosite, including treed swamps, that includes trees at least 10cm diameter-at-breast height

(dbh) should be considered suitable maternity roost habitat. For cultural treed areas, such as plantations, consultation with the Ministry of Natural Resource and Forestry (MNRF) is recommended to determine if these habitats may be suitable for the species.

If suitable habitat is to be impacted by a proposed activity, project proponents should proceed to Phase II. It is recommended that the proponent contact the MNRF to discuss the need for additional work with respect to SAR bats.

Phase II: Identification of Suitable Maternity Roost Trees

As previously described, Tri-colored Bat primarily roosts in tree foliage (mainly oak), while Little Brown Myotis and Northern Myotis select loose bark, cracks and cavities. Because of these differences, two separate field data sheets should be completed by the proponent to identify and map suitable roost trees for Tri-colored Bat (Appendix A) and Little Brown Myotis/Northern Myotis (Appendix B). The data collected in Phase II will help inform the positioning of acoustic monitoring stations in Phase III.

The timing of field visits is important in order for an observer to be able to clearly identify tree attributes that are suitable for the establishment of maternity roosts:

- **Tri-colored Bat:** field visits should take place during the leaf-on season the same year that acoustic monitoring is to be conducted so that foliage characteristic (i.e., dead/dying leaves along a dead branch) can be observed.
- **Little Brown Myotis/Northern Myotis:** field visits should occur during the leaf-off period so that the view of tree attributes (hollows, cracks etc.) is not obscured by foliage.

Note that for large ecosites (e.g., >10 ha) where a thorough walk-through may not be possible or practical, the proponent should discuss the study design for Phase II with the MNRF prior to undertaking field work.

i) Tri-colored Bat

Leaf roosts are shaped like umbrellas with a “roof” and a hollow core where bats rest. Studies have shown that oak leaves are the preferred roost site. Maple leaves are also selected, although less commonly. It is thought that Tri-colored Bat may prefer roost trees in open woodlands, as opposed to deep woods.

Within each ecosite identified as suitable maternity roost habitat in Phase I, the following trees should be documented on the field data sheet (Appendix A)

- any oak tree $\geq 10\text{cm dbh}$
- any maple tree $\geq 10\text{cm dbh}$ IF the tree includes dead/dying leaf clusters
- any maple tree $\geq 25\text{cm dbh}$

ii) Little Brown Myotis and Northern Myotis

Within each ecosite identified as suitable maternity roost habitat in Phase I, all “snags” should be identified and relevant information recorded on the field data sheet provided in Appendix B.

For purposes of this exercise, a “snag” is any standing live or dead tree $\geq 10\text{cm}$ dbh with cracks, crevices, hollows, cavities, and/or loose or naturally exfoliating bark.

During the field visit, the Decay Class should be noted for each snag (see Figure 1). Snags in an early stage of decay (which also includes healthy, live trees) may be preferred by Little Brown Myotis and Northern Myotis if suitable attributes for roost space are present. However, since SAR bats will also roost in snags outside of Class 1-3, any snag $>10\text{cm}$ dbh with suitable roost features should be documented. For trees with cavities, the entrance can be high or low (“chimney-like”) on the tree.

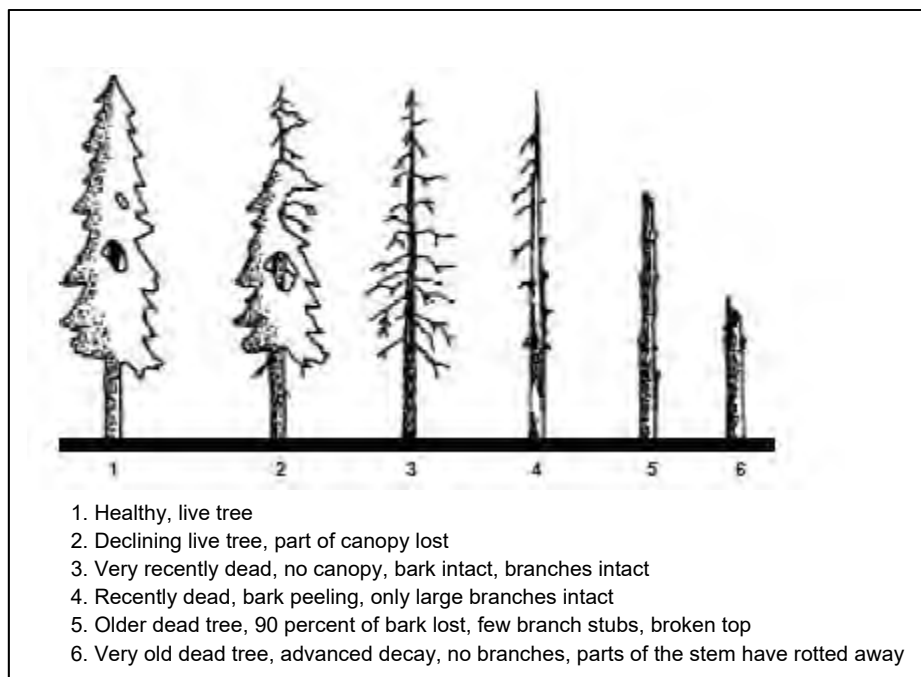


Figure 1: Snag classification (Decay Class 1-3 is considered an early decay stage)¹

In addition, proponents should be aware that some tree species, such as shagbark hickory, silver maple and yellow birch, have naturally exfoliating bark that may be suitable for establishing maternity roosts. Trees $\geq 10\text{cm}$ dbh exhibiting these characteristics should be considered “snags” as per the definition above and included on the field data sheet provided in Appendix B.

Note: For efficiency (especially for larger ecosites e.g., >10 ha), a proponent may choose to undertake snag density surveys while conducting the work required in Phase II. For a detailed methodology, refer to Phase IV of this protocol.

¹ Watt, Robert and Caceres, M. 1999. Managing snags in the Boreal Forests of Northeastern Ontario. OMNR, Northeast Science & Technology. TN-016. 20p.

Phase III: Acoustic Surveys

Within each ELC ecosite determined to be suitable maternity roost habitat in Phase I, acoustic surveys are recommended to confirm presence/absence of Little Brown Myotis, Northern Myotis and Tri-colored Bat. As described below, acoustic detectors should be placed in the best possible locations in order to maximize the probability of detecting all three SAR bats species. The data collected in Phase II should be used to select optimal locations for monitoring. The trees to be targeted for acoustic monitoring will typically be a subset of the trees documented in Phase II.

Density and Optimal Location of Acoustic Monitoring Stations:

Multiple stations may be required to cover an ecosite adequately (see example in Figure 2). Based on the microphone range of most broadband acoustic detectors (20-30m), **4 stations/hectare** is needed for full coverage of an ELC ecosite.

Strategic placement of acoustic detectors is critical for the successful isolation of high-quality bat calls. Recommended positioning is to locate acoustic detectors **within 10m of the best potential maternity roost trees**. To increase the probability of detecting all three SAR bat species, detectors should be divided proportionally to target suitable roost trees (if present) for Tri-colored Bat and Little Brown Myotis/Northern Myotis.

Prior to undertaking acoustic surveys, it is recommended that the proponent discuss the proposed location of acoustic monitoring stations with the MNRF.

(i) Tri-colored Bat

Although Tri-colored Bat will roost within both live and dead foliage, it appears that reproductive females may prefer clusters of dead leaves, especially if they are situated on a live tree. Using the information collected on the field data sheet (Appendix A), the best suitable maternity roost trees for Tri-colored Bat should be selected according to the following criteria (in order of importance):

If oaks are present:

- Live oak with dead/dying leaf clusters
- Dead oak with retained dead leaf clusters
- Live oak (no dead leaf clusters) with the largest dbh (>25cm)
- Oak within a forest gap

If oaks are absent:

- Live maple with dead/dying leaf clusters
- Dead maple with retained dead leaf clusters
- Live maple (no dead leaf clusters) with the largest dbh (>25cm)
- Maple within a forest gap

Note that if a cluster of tree species with attributes preferred by Tri-colored Bat is present, this may be a good area to target acoustic monitoring.

(ii) Little Brown Myotis and Northern Myotis

Bats that roost under tree bark or within crevices or cavities frequently select the tallest and largest diameter snags, which often extend above the forest canopy. This is because larger snags better retain solar heat, which benefits the pups. Tall trees within a forest gap or along an edge may also have a less obstructed flight approach for bats.

Using the information collected on the field data sheet completed in Phase II, the best suitable maternity roost trees for Little Brown Myotis/Northern Myotis should be selected using the following criteria (in order of importance):

- Tallest snag
- Snag exhibits cavities/crevices often originating as cracks, scars, knot holes or woodpecker cavities
- Snag has the largest dbh (>25 cm)
- Snag is within the highest density of snags (e.g., cluster of snags)
- Snag has a large amount of loose, peeling bark (naturally occurring or due to decay)
- Cavity or crevice is high on the tree (>10 m) or is “chimney like” with a low entrance
- Tree is a species known to be rot resistant (e.g., black cherry, black locust)
- Tree species provides good cavity habitat (e.g., white pine, maple, aspen, ash, oak)
- Snag is located within an area where the canopy is more open
- Snag exhibits early stages of decay (Decay Class 1-3)

Note: The sole purpose of the above-listed criteria is to determine the best placement of acoustic monitors in order to maximize the probability of detecting Little Brown Myotis and Northern Myotis. The listed criteria are NOT intended for any type of snag “ranking”. Snags that do not include any of the above characteristics may still be used as a maternity roost site. For example, the absence of snags >25 cm dbh by no means indicates that there is no potential maternity roost habitat present on a site.

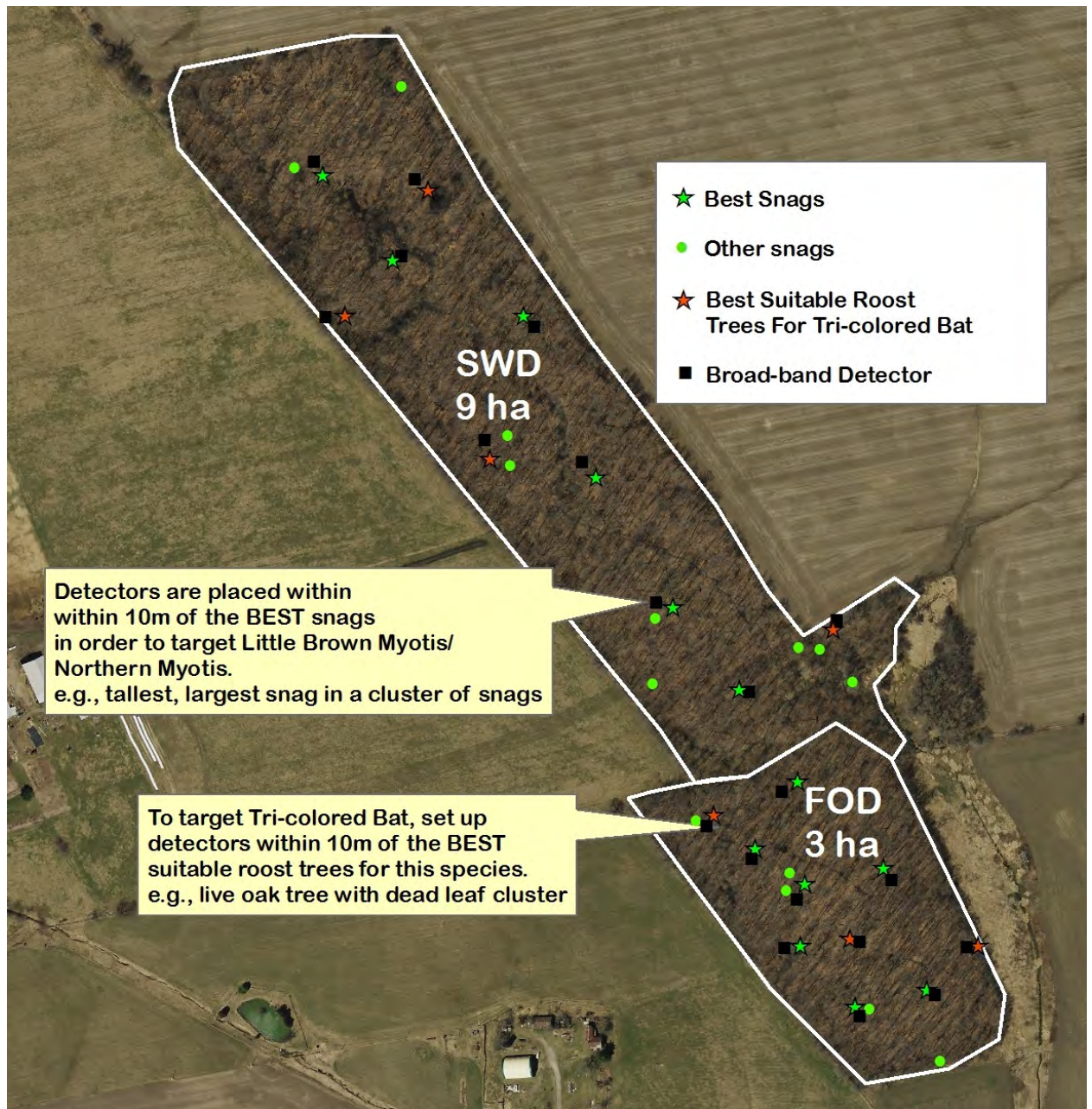


Figure 2: Hypothetical example illustrating the location and density of acoustic detectors i.e., 4/ha to a maximum of 10 per ELC ecosite.

Timing and Weather Conditions:

Acoustic surveys should take place on **evenings between June 1st and June 30th**, commencing **after dusk and continuing for 5 hours**.

Surveys should occur on warm/mild nights (i.e., ambient temperature >10°C) with low wind and no precipitation. At least 10 visits on nights that align with the above conditions where no SAR bat activity is detected are required to confirm absence.

Note that project proponents may cease survey work at any point once documentation of all three SAR bats species presence occurs.

Recommended Equipment Guidelines for Best Results:

- Broadband detectors (full spectrum) should be used. These may be automated systems in conjunction with computer software analysis packages or manual devices with condenser microphones.
- Acoustic monitoring systems should allow the observer to determine the signal to noise ratio of the recorded signal (e.g., from oscillograms or time-amplitude displays). These provide information about signal strength and increase quality and accuracy of the data being analysed.
- Microphones should be positioned to maximize bat detection i.e., situated away from nearby obstacles to allow for maximum range of detection and angled slightly away from prevailing wind to minimize wind noise.
- The same brand and/or model acoustic recording system should be used throughout the survey (if multiple devices are required), as the type of system may influence detection range/efficiency. If different systems are used, this variation should be quantified.
- Information on the equipment used should be recorded, including information on all adjustable settings (e.g., gain level), the position of the microphones, and dates and times for each station where recording was conducted.

Analysis:

Analytical software should be used to interpret bat calls and process results. Data should be analysed to the species level (as opposed to the genus level) in order to confirm presence/absence of SAR bats. Note that MNRF may request a copy of the raw acoustic data file when reviewing the results of the work completed in Phase III.

Additional Notes:

Project proponents should be aware that information about the number of bat passes detected in an area does not allow for an estimate of the number of bats present because there is not a 1:1 relationship between the number of passes and the number of bats responsible for those passes. It is not possible to distinguish between several bat passes made by a single bat flying repeatedly through the study area vs. several bats each making a single pass. Therefore, bat passes cannot provide a direct estimate of population densities.

Next Steps:

If Little Brown Myotis and/or Northern Myotis are detected, project proponents should proceed to Phase IV (Snag Density Survey). If only Tri-colored Bat is detected, snag density is not relevant and the proponent can proceed directly to Phase V (Complete an Information Gathering Form).

Phase IV: Snag Density Survey

Snag density information may be useful when the MNRF is considering the potential impact of a proposed activity on Little Brown Myotis and/or Northern Myotis. Snag density for each suitable ELC ecosite should be noted on the field data sheet provided in Appendix B. Surveys should take place during the leaf-off period so that the view of tree cavities, cracks and loose bark etc., is not obscured by foliage.

Snag density is a qualitative assessment of a treed ecosite, not a method of determining presence/absence of maternity roost habitat. There is no minimum threshold in terms of the number of snags/ha for an ELC ecosite to be considered suitable maternity roost habitat. However, an ELC with 10 or more snags/ha may be considered to be high quality potential maternity roost habitat. This information may be relevant when considering overall benefit in cases where a s.17(2)c permit under the ESA is required.

For smaller ecosites (e.g., <10 ha), snag density (# of snags/ha) can be calculated by dividing the number of snags mapped in Phase II by the total area of the ecosite.

Example:

ELC ecosite	Size (ha)	# of snags	Snag Density
WOD-M4	3.1	14	4.5 snags/ha
FOD-M2	0.8	9	11.25 snags/ha

For larger ecosites (e.g., >10 ha), sample plots can be used to estimate snag density within the suitable ELC ecosite, as follows:

- Select random plots across the represented ELC ecosite
- Survey fixed area 12.6m radius plots (equates to 0.05 ha)
- Survey a minimum of 10 plots for sites up to 10 ha, and add another plot for each additional ha up to a maximum of 35 plots
- Measure the number of suitable snags in each plot
- Use the formula πr^2 to calculate the number of snags/ha (where $r=12.6m$)
- Map the location of each snag density plot and record the UTM location using a GPS
- Calculate snag density for the ELC ecosite (snags/ha)

Example: **ELC Ecosite FOD-M2 (12 ha)**

# of sample plots	Total # of snags in sample plots	# of sample plots x r	Area of plots (πr^2)	Snag Density
12	48	12 x 12.6m = 151.2m	$3.14(151.2m)^2 = 71784.9m^2 = 7.18 \text{ ha}$	48 snags in 7.18 ha = 6.7 snags/ha

Phase V: Complete an Information Gathering Form

If SAR bats are detected during Phase III, the proponent should complete an Information Gathering Form (IGF) and submit it to the MNRF, Guelph District Office (esa.guelph@ontario.ca) for review.

The IGF is available by searching the form repository on the government of Ontario website:

<http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf>.

The MNRF will determine whether an activity is likely to kill, harm or harass a listed species and/or damage or destroy its habitat. The MNRF requires all of the necessary details and results from this survey protocol to be included on the IGF in order to make this determination.

For more information on overall benefit permits, including submission guidelines, process and timelines, please visit: <https://www.ontario.ca/page/species-risk-overall-benefit-permits>.

Appendix A – Suitable Maternity Roost Trees for Tri-colored Bat

Include all oak trees $\geq 10\text{cm}$ dbh (if present). If oaks are absent, include maples $\geq 10\text{cm}$ dbh IF dead/dying leaf clusters are present; and maples $>25\text{cm}$ dbh if no dead/dying leaf clusters are present.

Project Name:

Survey Date(s):

Site Name:

Observer(s):

ELC Ecosite:

Tree#	Tree Species ID	Tree Status (live/dead)	Dbh (cm)	Tree Structural & Locational Attributes (check all that apply)	Easting	Northing	Notes
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			

Appendix B – Suitable Maternity Roost Trees for Little Brown Myotis/Northern Myotis

Include all live and dead standing trees $\geq 10\text{cm}$ dbh with loose or naturally exfoliating bark, cavities, hollows or cracks.

Project Name:

Survey Date(s):

Site Name:

Observers(s):

ELC Ecosite:

Snag Density (snags/ha):

Tree #	Tree Species ID	dbh (cm)	Height Class ²	Snag attributes (check all that apply)	Easting	Northing	Notes
				<input type="checkbox"/> cavity ³ <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3? ⁴			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			

² **Height Class:** 1 = Dominant (above canopy); 2 = Co-dominant (canopy height); 3 = Intermediate (just below canopy); 4 = suppressed (well below canopy)

³ The approx. height of the cavity should be noted. Note that cavities with an entrance near the ground may also be used by bats if they are "chimney-like".

⁴ **Decay Class:** 1 = Healthy, live tree; 2 = Declining live tree, part of canopy lost; 3 = Very recently dead, bark intact, branches intact



Department of Municipal Affairs

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

DATE: December 19, 2024

To: Meghan Rafferty, Environmental Assessment Officer

FROM: Christina Lovitt, Provincial Director of Planning

SUBJECT: MELVIN LAKE WIND PROJECT, HALIFAX REGIONAL AND EAST HANTS MUNICIPALITIES

Scope of Review:

This review focuses on the following mandates: Statements of Provincial Interest and engagement with municipalities.

Document Reviewed:

Registration Document

Details of Technical Review:

- The Project area located in East Hants is Rural Zone (RU), and wind turbines are permitted subject to site plan approval. The Project area located in the Halifax Regional Municipality (HRM) is Rural Wind Zone (RW-2).
- In Part 6 of the Submission Document, the proponent indicates that they have directly engaged members of the public, municipal leadership and staff, and relevant provincial and federal departments through in-person meetings, letters, e-mails, telephone conversations, open houses and the formation of a Community Liaison Committee.

Statements of Provincial Interest:

- **Drinking Water:** No anticipated impact. The Pockwock Designated Water Supply Area is located to the east of the Study Area, overlaps the Study Area in the northeast, and overlaps the Assessment Area on a portion of Pipeline Road. The proponent describes the mitigative actions to maintain water quality, including during the construction phase.
- **Agricultural Land:** No anticipated impact. There are no high value agricultural soils located in the Project area.
- **Flood Risk:** No anticipated impact. There are no areas of development that are known to be at risk from flooding.
- **Infrastructure:** No anticipated impact. The Project area is unserved.
- **Housing:** No anticipated impact. There will be a 1000m buffer between the proposed turbines and residential development.

Key Considerations:

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

Date: December 19, 2024

To: Meghan Rafferty, Environmental Assessment Officer, Environment and Climate Change

From: Simone Le Gendre, Director, Strategic Initiatives, A/ for Lesley O'Brien-Latham, Executive Director, Policy and Strategic Advisory Services.

Subject: Melvin Lake Wind Project - Melvin Lake Wind Inc.

Scope of review:

The scope of this review follows the Department of Fisheries and Aquaculture's legislated mandate to develop, promote and support fishing, aquaculture, seafood processing and sportfishing in Nova Scotia.

List of Documents Reviewed:

- EA Registration Document (EARD)
- Melvin Lake Wind Project EA document

Details of Technical Review:Marine Fisheries:

There are two (2) licensed NS marine commercial fisheries buyers/processors located within Hants County, where the proposed wind energy project is to be located: Hnatiuk Hunting and Fishing Ltd. is located 70km Northeast and Canesp Global Distribution S.L. Inc. is located 42km Southeast of the proposed site, respectively. Since the project is land-based with no proposed marine activities, it poses negligible impacts to commercial marine fisheries adjacent to the project area.

Inland Fisheries:

A total of 32 watercourses were assessed within the study area. The proposed development includes upgrades or construction of crossings on 17 of these watercourses. The majority were classified as small, intermittent, or ephemeral in nature. Electrofishing was performed on four (4) of the larger streams, yielding captures of brook trout, white sucker, stickleback, lake chub, and yellow perch. This electrofishing method involved a single sweep without barrier nets and was conducted qualitatively.

For future studies, it is recommended that electrofishing duration be recorded to calculate the number of species captured per second. This will provide a more accurate index of species abundance that could be used in future comparisons.

Aquaculture:

There are a total of two (2) rockweed leases and one (1) aquaculture site within 25km of the proposed project. Of these, one (1) is a marine shellfish sites, none are marine finfish sites or land-based aquaculture facilities.

Sediment is likely to be generated during the road construction and site preparation phases. There could also be minor sediment dispersal during the site's operation. Sediment can cause turbidity in the water column, which prevents marine plants from being able to obtain sunlight for growth and

can reduce oxygen levels for both fin and shellfish. The EARD states that a mitigation plan has not yet been developed, and therefore the Aquaculture Division was not able to evaluate it for effectiveness. However, the general mitigation measures in the EARD for sediment should help ensure a low risk to aquaculture sites, if applied appropriately.

There is no mention of power supply disruption in the EARD. If a power disruption is required during this project, outages should be planned whenever possible and adequate notice should be given to aquaculture operators in the area who would be impacted by the outage.

There are no plans for water withdrawal or discharge. However, changes in water quality or quantity due to sedimentation, vegetation removal, and water redirection could result from activities during road construction. The proposed mitigations should result in little risk to aquaculture sites from these activities, if properly implemented. If plans change, and water withdrawal or discharge become necessary, the applicant needs to update their plan and provide appropriate mitigations for review.

Key Considerations: (provide in non-technical language)

Marine and Inland

- The proposed project appears to pose negligible impacts to NSDFA's marine and inland fishery interests.

Aquaculture

- Risks to aquaculture sites from sediments need to be monitored and mitigated appropriately.
- If power disruptions, water withdrawal, or water discharge are going to occur, the applicant needs to update their plan and provide appropriate mitigations for review.

Project proponent should also be made aware of

- [Fisheries and Coastal Resources Act](#),
- Provincial [Aquaculture License and Lease Regulations](#),
- Provincial [Aquaculture Management Regulations](#), and the
- [Nova Scotia Rock Weed Harvesting Regulations](#).
- They should also be directed to the Department's [Site Mapping Tool](#) for more information on the location of aquaculture sites and leases in the area of their proposed project.

Date: December 19, 2024

To: Meghan Rafferty, Environmental Assessment Officer

From: NSECC ICE Review

Subject: **Melvin Lake Wind Project, Halifax and Hants Counties, Nova Scotia**

Scope of review:

This review focuses on the following mandate: Engineering and Regulatory Compliance

List of Documents Reviewed:

Melvin Lake Wind Project Environmental Assessment Registration Document and associated appendices, prepared by Strum Consulting for Melvin Lake Wind Inc., and dated 21 November 2024.

Details of Technical Review:

It should be noted that watercourse approvals or notifications and wetland approvals will be required for each wetland/watercourse alteration as per the *Activities Designation Regulations* made under Section 66 of the *Environment Act*. Once an Approval or Notification has been granted for each alteration, the terms of that approval/notification must be followed.

It is recommended that a contingency plan be provided to ECC by the proponent that would address release of substance due to loss of transformer oil, metal debris littering as well as security of the site due to proximity to protected area.

Key Considerations: (provide in non-technical language)

Depending on the activity, each watercourse/wetland alteration will require either an Approval or Notification separate from the EA.

Date: December 19, 2024

To: Meghan Rafferty, Environmental Assessment Officer

From: Air Quality Unit

Subject: **Melvin Lake Wind Project, Halifax and Hants Counties, Nova Scotia**

Scope of review:

This review focuses on the following mandate: Air Quality

List of Documents Reviewed:

- *EARD to Appendix A (part a)*
- *Drawing 2.3F – 7.6*

Details of Technical Review:

Melvin Lake Wind Inc. proposes to construct and operate the Melvin Lake Wind Project, an up to 161 megawatt (MW) wind development located near the community of Pockwock, in Halifax Regional Municipality and East Hants, Nova Scotia. The Project will consist of up to 23 wind turbines along with associated infrastructure, including access roads, substation, and interconnection lines. The development of this Project will support Nova Scotia in its target of producing 80% renewable energy by 2030, reducing the provinces dependency on coal generated electricity.

No baseline monitoring was undertaken, instead the baseline review relied on data from the National Air Pollution Surveillance (NAPS) monitoring station in Halifax, approximately 26 km southeast of the Project. Pollutant concentration data (1-hr, 24-hr, and annual averages) for the Halifax station from 2019-2023 were presented in the EARD, and there were no exceedances of the Nova Scotia Ambient Air Quality Standards.

Project activities will primarily interact with the atmospheric environment through fugitive dust and exhaust emissions (construction phase only). The fugitive dust and exhaust emissions are considered intermittent and short-term. Since the nearest receptor is 1.5 km from the Project and the Project area is forested, it is anticipated that fugitive dust or exhaust emissions will be highly localized and will not impact receptors.

The EARD provides a list of proposed mitigations that could be used on-site. These mitigations are appropriate and would reduce impacts if they are employed.

Key Considerations: (provide in non-technical language)

- It is unclear how effective dust management will be in the absence of a dust management plan with a clear chain of responsibility for actions, including timely complaint resolution.

Date: December 19, 2024

To: Meghan Rafferty, Environmental Assessment Officer

From: Air Quality Unit

Subject: **Melvin Lake Wind Project, Halifax and Hants Counties, Nova Scotia**

Scope of review:

This review focuses on the following mandate: Noise

List of Documents Reviewed:

- *EARD to Appendix A (part a)*
- *Appendix G (part b) to Appendix N*
- *Drawing 10.2C – 10.3*

Details of Technical Review:

Melvin Lake Wind Inc. proposes to construct and operate the Melvin Lake Wind Project, an up to 161 megawatt (MW) wind development located near the community of Pockwock, in Halifax Regional Municipality and East Hants, Nova Scotia. The Project will consist of up to 23 wind turbines along with associated infrastructure, including access roads, substation, and interconnection lines. The development of this Project will support Nova Scotia in its target of producing 80% renewable energy by 2030, reducing the provinces dependency on coal generated electricity.

Noise impacts were assessed by Strum Consulting. Receptors included all structures identified in GIS data from the Nova Scotia Geomatics Centre, as well as any additional identifiable structures based on aerial imagery. Twenty-seven receptors were identified within 2 km of the Project area, and the nearest non-participating receptor is located approximately 1.7 km from a proposed turbine. It is unclear if the receptors identified are fully reflective of current conditions.

Construction noise was identified as having a potential impact on nearby receptors. Table 10.9 in the EARD shows potential sound levels produced by equipment during the construction phase and the attenuated noise at increasing distances from the source. The median noise presented in Table 10.9 exceeds the 53 dBA daytime permissible sound level (PSL) for a rural environment set out in the Department's *Guideline for Environmental Noise Measurement and Assessment* (GENMA). Although Table 10.9 is a worst-case scenario, the noise levels presented are for single pieces of equipment only, simultaneous use of multiple pieces of equipment was not included.

The applicant suggested mitigations to minimise these effects, including limiting vehicle idling and limiting construction activities to between 7am to 10pm. If construction were to continue beyond 7pm, the proponent would be expected to meet the 48 dBA evening PSL for a rural environment set out in GENMA.

Operational noise levels were assessed using a suitable noise model. The assessment included a baseline noise level of 35 dBA and a ground attenuation factor of 0.7. These are reasonable inputs. The modelled results show a predicted noise impact of 38.3 dBA at several receptors, just below the 40 dBA provincial noise limit for wind projects. Predicted impacts at the receptor could exceed 40 dBA if the baseline noise level is higher than 35 dBA.

Key Considerations: (provide in non-technical language)

- If approved, the project has the potential to impact receptors during the construction phase and the operation phase.
- If the baseline noise level exceeds 35 dBA, it is possible noise levels could exceed the 40 dBA noise limit at receptor locations once the windfarm is operational.
- As the project is located close to a developing urban area, it is important that the proponent confirm the location of receptors at the time of registration



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

Date: December 27, 2024
To: Meghan Rafferty, Environmental Assessment Officer
From: Department of Natural Resources
Department of Energy
Subject: **Melvin Lake Wind Project, Halifax and Hants Counties, Nova Scotia**

Scope of review:

This review focuses on the following mandate: Authorities and approvals required from the Land Services Branch, geoscience health and safety, mineral exploration, mineral development, abandoned mines openings, clean energy, biodiversity, species at risk status and recovery, wildlife species and habitat management and conservation, including Old Growth Forest.

List of Documents Reviewed:

Land Services Branch:

- Environmental Assessment Registration Document
- Drawing 2.3
- GIS Shapefiles

Geoscience and Mines Branch:

- Melvin Lake Wind Project Environmental Assessment
- Appendices A-E
- Mineral Occurrence Database (Kehoe Hill Uranium Prospect D13-026)
- Open File Map ME 2009-3

Forestry and Wildlife Branch:

- EARD, Appendices and Drawings

Details of Technical Review:

Clean Electricity Branch:

The proposed project was awarded through the Green Choice Program Request for Proposals.

Wind energy projects such as Melvin Lake Wind help Nova Scotia transition its electricity system from the use of coal-fired generation that has direct negative environmental impacts, including air pollution and greenhouse gas emissions.

The transition of our electricity system to renewable energy is part of the province's plans and commitments to climate change mitigation.

Wind energy is one of the lowest costs of energy world-wide and local deployment of wind energy is anticipated to save rate payers of Nova Scotia millions of dollars over the lifetime of their operation while also reducing the emissions and pollution intensity of the electricity system.

Wind energy will help the electricity system avoid output-based price compliance for greenhouse gas emissions in Nova Scotia resulting in less upward pressure on rate payers through fuel.

Transitioning the electricity system to renewable energy is the most cost effective and significant action the province can undertake to reduce its greenhouse gas emissions in the near term.

Land Services Branch:

The Proponent will require authorizations (such as a lease, licence, letter of authority, or easement) from Natural Resources for any activity on Crown lands including:

- erecting, operating, maintaining, and decommissioning wind turbines and related infrastructure;
- temporary use and access of the land, such as requests to temporarily use existing Crown owned roads, install meteorological (MET) towers, or to conduct geotechnical investigations;
- installing and maintaining overhead/underground transmission wires and collector lines, including for submerged Crown lands;
- requests to construct and use new access roads, or to widen or otherwise modify existing Crown roads;

Note: requests to use existing NSPI or Bell owned infrastructure located on Crown lands must be directed to the owner of the utility infrastructure.

Geoscience and Mines Branch:

It is noted that the geological characterization of the proposed site identifies and proposes mitigation measures should geohazards (ARD, arsenic/uranium bearing bedrock) be encountered. Geological maps included in application displaying relative location to planned project footprint.

Of note, the Kehoe Hill Uranium prospect lies approximately 2 km west of the study area and there exists potential for additional uranium bearing occurrences in the project area.

It is noted that while there are no wells within 800 m of the project area, two turbine sites (T9 and T11) are within 800 of the Pockwock Water supply surface water supply area. Consideration may be given to deploying monitoring wells between these pads and the supply area to monitor changes in quality as a result of blasting/grubbing.

The EA application noted that the Proponent will consult with NSECC regarding acid generating potential and monitor ongoing activities should sulphide bearing material be observed.

Mineral Occurrences

The Sandy Brook Au occurrence is located within the project area however, this was a single occurrence of gold bearing float and no further work has been completed on the occurrence. As mentioned above, the Kehoe Hill Uranium prospect is located approximately 2 km west of the project area. In addition, the Christie Lake W-Cu-Mo-Zn occurrences are located within 2 km to the west of the project. Two active mineral exploration licences are located within 2 km south of the project area and are associated with the Pockwock Au Prospect. It is not anticipated that the proposed project will result in any negative impacts to the nearby mineral exploration licences.

The proposed project area is considered to be a medium to high level for mineral potential, specifically with orogenic Au type mineralization as well as potential for base metal vein-hosted mineralization such as the Christie Lake W-Cu-Mo-Zn occurrences.

Forestry and Wildlife Branch: **Biodiversity**

The general considerations in the section below are intended to capture the overall review, however, notes on a couple specific considerations are provided here.

- **Locations of Surveys**
 - The baseline conditions for the proposed undertaking cannot be adequately assessed because the spatial coverage of many biodiversity surveys (e.g. Mainland moose pellet group inventories and winter tracks, most avifauna surveys, acoustic monitoring for birds & bats, herpetofauna presence) reflects previous iterations of project placement and not current project placement.
- **Terrestrial Flora**
 - The impact of road upgrades on terrestrial flora could not be fully assessed because all project areas where road upgrades are planned were not surveyed.
- **Herpetofauna**
 - Records for Eastern Ribbonsnake shown on Drawing 7.24 are outside the known distribution for this species in Nova Scotia. The observations are also not mentioned in the body of the EARD. If these observations are an error, this should be confirmed with Natural Resources and a correction made for the record. If these observations are correct, Eastern Ribbonsnake surveys should be conducted and management included in a Wildlife Management Plan.

- Areas within the project footprint that are vulnerable to turtle nesting (i.e. gravel areas near water crossings, near/alongside lakes, ponds, watercourses or open wetlands) should be located, monitored, and managed to reduce impacts to nesting adults, nests, and hatchlings.
- **Mainland Moose**
 - The project footprint contains Mainland moose core habitat, and the project activities are among those identified in the recovery plan as having a high likelihood of destroying or degrading moose core habitat so it no longer supports moose recovery. Mitigations in the Wildlife Management Plan should account for the sensitivity of moose to disturbance and the impact this has on the extent of moose habitat impacted by the undertaking on a broader spatial scale than the undertaking itself (landscape-level impacts).
 - Because most road access will occur on Crown land, the Natural Resources Special Management Practice for mainland moose should be implemented. Mitigations include minimizing road development and upgrades, decommissioning roads post-construction where possible, and moderating access to roads during operations.
 - Moose surveys should be conducted during the construction and operation phases to inform mitigation.
- **Lichens**
 - Mitigation and avoidance distances for rare and at-risk lichens should be consistent with the Natural Resources At-risk Lichens Special Management Practice [SMP_BFL_At-Risk-Lichens.pdf](#), regardless of land ownership, to demonstrate due diligence in avoiding prohibited impacts and working toward recovery objectives.
- **Bats**
 - Impact to bats could not be assessed because abandoned mine openings with potential to provide wintering habitat for hibernating bats were not assessed to determine baseline activity. These abandoned openings are within ecologically relevant distances of the proposed project. Resident bats were also observed to use the study area during the active period. As such, potential impacts of the proposed activities on bats requires further evaluation to determine appropriate mitigations.
 - Summer roost sites should also be evaluated prior to construction and/or maintenance to promote compliance with SAR legislation and commitments.
- **Finalization of Project Footprint**
 - Data presented suggest there are opportunities to minimize total length of road upgrades and new construction, and to avoid sensitive features in the placement of roads and turbine pads (e.g., wetlands of special significance, lichens, SOCI habitat), and minimize or optimize (the approaches of roads to) water crossings.
 - Detailed planning for the final project footprint should consider these values and additional baseline information collected as required. This should take place in consultation with NSECC, Natural Resources, and ECCC-CWS.

Forestry:

In reviewing results in section 7.4.1.4 Field Assessment Methodology and Table 7.36: Old-Growth Scoring Results, one forest stand (F093- 04802) appears to be 121.6 years old (or 122 yrs old). This is just 3yrs short of the threshold for old-growth under the old-growth policy. Given variability in estimating the age of a forest stand, and site clearing is scheduled to occur in 1-2 years, the proponent should review the raw cores with the Old Growth Forest (OGF) Coordinator and/or to visit the site with the OGF Coordinator for this stand (F093- 04802).

Regarding the provincial silviculture research program, we have four research trials that are within the study area but do not appear to be in direct conflict with planned roads and turbine sites. However, it is important that these trials are not disturbed during development as they are decades old. In particular, the Big Indian Lake selection trial contains 64 plots and over 20 years of research on ecological forestry. A shapefile of the research trials and plot locations is attached. Please contact James Steenberg if/when approval is given and operational planning begins as the spatial accuracy of the plot data is variable.

Key Considerations: (provide in non-technical language)**Clean Electricity Branch:**

Renewable energy projects such as wind projects will assist the province in achieving its goals in the Electricity Act, the Clean Power Plan, the department's mandate letter. It will also support Environment and Climate Change's Environmental Goals and Climate Change Reduction Act (EGCCRA), and the Climate Change Plan for Clean Growth (CCPCG):

Electricity Act:

- 80% Renewable Electricity Standard by 2030;

NRR Mandate letter:

- Commit to 80% of Nova Scotia's electricity needs being supplied by renewable energy by 2030;

EGCCRA: 80% of electricity in the Province supplied by renewable energy by 2030;

- 53% emissions reduction targets from 2005 levels by 2030;
- Phase out of coal-fired electricity generation by 2030;
- Net-zero emissions by 2050;

CCPCG:

- 90% emissions reductions from the electricity sector by 2035;
- Green Choice Program be launched in 2025.
- 500 MW of new local renewable energy by 2026.

Clean Power Plan:

- 1000 MW of new onshore wind energy by 2030.

Replacing coal-fired electricity generators with renewable energy such as onshore wind is the most cost-effective method and reduces the most greenhouse gases in Nova Scotia.

The Green Choice Program procurement is anticipated to reduce greenhouse gases by up to 2 million tonnes by 2028 or 8.6% total reductions as progress towards the 53% reduction by 2030.

Land Services Branch:

No further comments.

Geoscience and Mines Branch:

1. As the prospectivity is noted to be medium-high for the area, should mineral exploration be proposed for this site to explore the area for economic mineralization of critical minerals, allow for periodic controlled access to any mineral right holders that may continue to explore the area for economic mineralization of critical minerals. We look to encourage dialogue among potential parties to ensure access for mineral exploration activities in the province.
2. Monitoring of turbine pad conditions for both acid generating rock potential (ARD) and potential uranium occurrences as development progresses should be undertaken and measures in place as part of the Proponent's Environmental Protection Plan (EPP).

Forestry and Wildlife Branch:

- Obtain all permits necessary to undertake the project as required under legislation related to wildlife, species at risk, watercourses and wildlife habitat alterations.
- Provide digital way points and/or shapefiles for all flora and fauna surveys and incidental observations, including for Species at Risk and Species of Conservation Concern (those species listed and/or assessed as at risk under the *Species at Risk Act*, *Endangered Species Act*, COSEWIC, as well as all S1, S2 and S3 species). Data should adhere to the format prescribed in the DNR Template for Species Submissions for EAs and is to be provided within two months of collection.
- Habitat suitability modeling for all species should be provided to Natural Resources at biodiversity@novascotia.ca.
- Prior to the development of a Wildlife Management Plan (WMP), complete baseline surveys to address information gaps that prevent a full risk assessment to SAR or SOCC. Methodology and timing must follow standard science-based protocols and must be of sufficient scale and detail to inform the development of mitigation measures. This includes surveys for mainland moose, wood turtle, wetland surveys for SAR (particularly migratory birds and turtles), aquatic SAR molluscs, breeding birds, migrating birds, overwintering birds, nocturnal owls, bats, and for terrestrial flora (along planned road upgrades).
- Develop a Wildlife Management Plan (WMP) in consultation with Natural Resources and ECCC which includes at minimum:
 - Communication protocols with regulatory agencies.
 - Noise, dust, lighting, blasting, and herbicide use mitigations.

- General wildlife concerns (e.g., human-wildlife conflict avoidance).
 - Education sessions and materials for project personnel on important biodiversity features they may encounter on-site (including Species at Risk, non-Species at Risk wildlife) and how to appropriately respond to those encounters.
 - Mitigation measures consistent with recovery documents (federal and/or provincial recovery and management plans, COSEWIC status reports) and provincial Special Management Practices for Crown land to avoid and/or protect Species at Risk/Species of Conservation Concern. This includes mainland moose, wood turtles, and bats.
 - Measures to protect and mitigate against adverse effects to migratory birds during construction and operation. The incidental take of breeding birds, as well as their nests and/or eggs, is not permitted under the *Migratory Birds Convention Act* and the *NS Wildlife Act*. This may include avoidance of certain activities (such as vegetation clearing) during the regional nesting period for most birds, buffer zones around discovered nests, limiting activities during the breeding season around active nests, and other best management practices.
 - Mitigations to proactively protect bats and avifauna against mortality from turbine strikes and barotrauma. This may include implementing turbine deterrents, seasonal or detection-based shutdown systems for turbines, increased cut-in speeds, prevention of turbine blade feathering, prevention of raptor nesting on nearby power poles through design measures.
 - Seasonal adjustments to mitigation must be provided in the WMP to address variation in target densities for the spring migration period relative to the fall migration period to reduce/prevent mortality events. This may include monitoring to inform seasonal adjustments to mitigation.
 - Mitigation measures to minimize impacts to turtles, including management of areas within the project footprint that are vulnerable to turtle nesting.
 - Details on monitoring and inspections to assess compliance with, and effectiveness of, the WMP.
-
- Revegetate cleared areas using native vegetation or seed sources following consultation with Natural Resources.
 - Develop a plan to prevent the spread of invasive species both on and off site in consultation with Natural Resources. The plan should include monitoring, reporting, and adaptive management components.
 - Develop a monitoring program to assess mortality for birds and bats in consultation with Natural Resources and ECCC, implemented for a minimum of two years post-construction during the operation stage of the project. Guidance on monitoring requirements will be provided by Natural Resources. Reporting of the results of the monitoring program shall be on an annual basis to the appropriate regulatory agencies. Pending review of results of the monitoring program, additional monitoring or mitigation measures may be required.
 - Engage with Natural Resources and ECCC to develop an adaptive management plan to inform decision-making related to adverse effects of the project on migratory bird and bat species. Additional surveys or mitigations may be required following a review of the effectiveness of the plan.

- Develop a post-construction long-term moose monitoring program in consultation with Natural Resources.
- Update cumulative effects assessment and assessment of impacts of the project on landscape-level connectivity for wildlife and habitat, including mainland moose (e.g., habitat fragmentation, loss of intact forested habitat, increased road density). Measures proposed to mitigate those effects must be provided.
- Consult with Natural Resources on finalization of project design, to minimize total length of road upgrades and new construction, and to ensure sensitive features are avoided and water crossings are minimized.

Forestry:

The proponent should review the raw cores with the Old Growth Forest (OGF) Coordinator and/or to visit the site with the OGF Coordinator for this stand (F093- 04802) prior to commencement of clearing.

Wind project development needs to avoid Natural Resource's silviculture research trials within the study area. Please coordinate with James Steenberg at the Forestry Division during planning and development.



November 18, 2024

Environmental Assessment Branch, Nova Scotia Environment & Climate Change
P.O. Box 442
Halifax, Nova Scotia B3J 2P8

EA Feedback for Rhodena Wind and Melvin Lake Wind Project – ABO Energy Canada Ltd.

Dear Minister of Environment and Climate Change, Government of Nova Scotia

On behalf of We'koqma'q First Nation, I wish to express support as part of the public comment period for the following Environmental Assessment Registrations that have been submitted to the Department of Environment and Climate Change:

- **Rhodena Wind** – EA Registration November 6, 2024
- **Melvin Lake Wind** – EA Registration November 28, 2024

We'koqma'q First Nation is one of four Mi'kmaq First Nations partners on both wind projects, together with Eskasoni First Nation, Potlotek First Nation, and Wagmatcook First Nation ("the Communities"). Together with ABO Energy, the Communities were a part of the Green Choice Program submission for both projects as the majority equity shareholder. As partners, all four First Nations have previously expressed support for both projects in writing, including as part of the Green Choice Program submission.

The Communities are strong supporters of renewable energy in the province of Nova Scotia. We support the development, construction, and operation of the two projects. These projects represent valuable economic opportunities for the Communities to participate in the renewable energy industry and support Nova Scotia's transition to a clean and cost-effective electricity system.

ABO Energy has worked with a third-party consultant to complete environmental studies and commenced MEKS studies for both projects. The company has been transparent in assuring benefit to Indigenous communities such as We'koqma'q First Nation and has conducted thorough engagement for both projects. ABO Energy has an Indigenous Inclusion Policy and a Local Economic Development Policy that focuses on maximizing benefits to Indigenous and non-Indigenous peoples in Nova Scotia. These projects will contribute significantly to the local area and provide benefit to Nova Scotia Mi'kmaq.

For these reasons, We'koqma'q First Nation supports the approval of the Environmental Assessment Registration for the Rhodena Wind and Melvin Lake Wind projects. I acknowledge and agree that this letter may be submitted to applicable government authorities to support the advancement of ABO Energy's Melvin Lake and Rhodena Wind Projects.

Sincerely,

CEO, We'koqma'q First Nation

902-756-2337 | wekoqmaqproud.com

150 Reservation Road, P.O. Box 149, Whycocomagh, N.S. B0E 3M0



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@mikmaqrighs.com

www.mikmaqrighs.com

December 11, 2024

Meghan Rafferty
Environmental Assessment Officer
Environmental Assessment Branch
Nova Scotia Environment and Climate Change
meghan.rafferty@noavscotia.ca

Ms. Rafferty,

Re: Consultation with the Mi'kmaq of Nova Scotia on Melvin Lake Wind Project, Halifax and Hants Counties

I write in response to your letter dated November 26, 2024 requesting consultation under the *Terms of Reference for a Mi'kmaq-Nova Scotia-Canada Consultation Process (ToR)* as ratified on August 31, 2010, on the above noted project. We wish to proceed with Consultation.

Kwilmu'kw Maw-klusuaqn (KMK) would like to acknowledge ABO Energy Canada Ltd. and their commitment to partner with Mi'kmaw Communities to develop, construct, own and operate this proposed project. It is encouraging to see the Mi'kmaq at the forefront of various renewable energy developments happening in Mi'kmaki. (Unceded Land of The Mi'kmaq). These relationships are encouraged as we transition Nova Scotia away from fossil fuels and work towards NetZero. Our office would be pleased to assist in connecting the proponent with local Mi'kmaw Communities to support the building of potential economic partnerships.

Many energy-related projects as of late triggered for Consultation through NS-ECC have not had Archaeological Resources Impact Assessments (ARIA) or Mi'kmaq Ecological Knowledge Studies (MEKS) attached for review. These documents are noticeably provided after the Minister of Environment and Climate Change have approved the project with terms and conditions. It is difficult to access how these projects will impact the Mi'kmaq's Section 35 Rights when all documents are not received when Consultation is triggered.

When in moose habitat, industry activities should be carefully accessed and mitigated. Continued industry development may result in long-term or permanent impacts including but not limited to water degradation and the immediate and future loss of secure habitat and safe food sources. It has been implied that moose will alter movement due to the sensory disturbance. With wind projects, the biodiversity in the immediate surrounding within a >200 – meter buffer is significantly decreased creating “ghost forests”. These activities combined force moose into tight corridors whereby they are becoming vulnerable to disease and fatality as other animals that inhabit these corridors outgrow their carrying capacity.

While all species should be allowed to live in harmony the invasive nature of humans through forest degrading activities including wind energy projects, forestry, mining, agricultural practices, road building, and climate change have made harmony within our forests ever difficult. As our demands on these forests grow, as does the stress on our animals and our environment. More consideration is needed for the forest inhabitants.

Mainland Moose are currently dwindling in an alarming rate with The Mi'kmaq and Natural Resources and Renewables announcing there will be no harvesting for this coming season in the Cape Breton Highlands, greater efforts are needed to preserve the population in Mainland Nova Scotia for the next seven generations of harvesters.

The KMK Archaeological and Research Department (ARD) has reviewed the Melvin Lake Wind Project Environmental Assessment (EA) Registration documents, particularly Section 9 (Pages 315-319). No ARIA was included for review as it has yet to be submitted. It was noted in the EARD that an ARIA is being conducted, due to changes in the Project layout, and a copy of the ARIA will be provided to KMK when approval has been granted. We look forward to reviewing the ARIA that has yet to be approved once it has been received by our office.

The ARIA was conducted by Boreas Heritage Consulting Inc. and included background research and field reconnaissance that resulted in the identification of twelve areas considered to exhibit high potential for encountering archaeological resources (HPAs). Ten (10) high potential areas for encountering archaeological resources were associated with watercourse features or wetland. The remaining two are located along a collector line route and new access road. Avoidance has been recommended. It has been recommended if HPAs cannot be avoided that a program of shovel testing be conducted in advance of ground disturbance to further assess cultural heritage resource potential. 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 by heavy equipment.

The remainder of the proposed Project, except for the 12 HPAs identified, has been ascribed low potential for encountering archaeological resources. It has been recommended that these areas be cleared for any further requirement for future archaeological assessment (Strum, November 21, 2024: 317). We do not support clearances without subsurface testing. 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. Any impact to Mi'kmaw archaeological heritage, including lack of detection, loss, or disturbance, has the potential to negatively impact Mi'kmaw Rights and Title.

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. We wish to clarify that negative tests and negative evidence of presence (evidence of absence) are considered relevant and important data.

KMK does not represent the communities of Membertou, Millbrook or Sipekne'katik First Nations. We do encourage Consultation with these communities as they may have an interest in this proposed project. In particular, Millbrook and Sipekne'katik First Nations are the nearest Mi'kmaw Communities to this project and any rights-based discussions should take place with their respective Consultation Departments.

Please contact _____, Senior Energy & Mines Advisor, at KMK with any questions.

Yours in Recognition of Mi'kmaw Rights and Title,

Director of Consultation
Kwilmu'kw Maw-Klusuaqn

C C :

Kwilmu'kw Maw-klusuaqn
Kwilmu'kw Maw'klusuaqn
Candace Quinn, Nova Scotia Office of L'nu Affairs
Jeffrey Dodd, NSECC ICE Division
Anthony Heggelin, NSECC ICE Division
Cynthia Steele, Nova Scotia Department of Natural Resources and Renewables
Beth Lewis, Communities Culture, Tourism and Heritage

From:
To: [Environment Assessment Web Account](#)
Subject: Pockwock wind turbine- Melvin lake wind project
Date: December 4, 2024 11:26:18 AM

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Good Morning,

This came to my attention this morning and I have a few questions. Pockwock is a historical Black community. Has there been community consultations about this project, specially located in the Black community? I could not find anything to indicate that consults were organized in the Black community. The turbines would be visible for anyone living along the Pockwock road, esp visible to those who are living in the Black community of upper Hammond's plains and pockwock, yet none of the pictures attached in the appendices show how the views would be affected by those living in the Black community, but it does show how the views will affect those in the Oceanstone/Falcourt and surrounding areas. I'm concerned that there may be some oversight to the impact on our historical black communities. Had there been any consideration given to the impact in the Black community?

Look forward to hearing back.

Sent from my iPhone

From:
To: [Environment Assessment Web Account](#)
Subject: Comments on the Melvin Lake Wind Project ***PLEASE IGNORE MY LAST EMAIL***
Date: January 7, 2025 1:35:53 AM

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Sorry, please ignore my last email, as I had forgotten to add everything that I had intended.

Hi,

I am a resident of the Upper Hammonds Plains and we live up near the Pockwock Watershed, at Little Pockwock Lake.

At present we have 5 wind turbines directly behind us. The closest being just 1km away. We can hear them sometimes during the day and night (even at times with no wind). Sometimes it is the whooshing of the blades, and sometimes there is a constant noise like a jumbo jet is circling overhead (I am uncertain what makes this noise). Sometimes both can be heard at the same time. So, with 5 turbines already 'in our backyard' then the reductive term 'NIMBY' cannot be used here. It should be noted the noise levels at present are acceptable and do not affect quality of life.

I have 2 objections to the **Melvin Lake Wind Project** placing 9 more turbines directly in front of us. Firstly, that it might increase the noise level on top of what we already hear from the 5 turbines behind us, exacerbating the level beyond acceptable. This could potentially double or nearly triple the present noise level, as we would have 14 turbines around us, compared to the 5 turbines we have at the minute. It also might be like getting the noise in stereo (i.e. coming from the front of us and also coming from behind us). Secondly, there has been no research shown on the effects of residents living in the middle of 2 sets of wind turbines (i.e. the 5 turbines already behind us being one set and the potential 9 turbines that will be in front of us being the second set). We do not know how this will affect the long-term health of adults, children, pets and wildlife. It is a bit late further down the line if the 9 turbines are placed there and some of us start to get sick. I'm not against renewable energy- I would just prefer the 9 turbines to be relocated, maybe closer along the 101 highway if possible (wouldn't they be easier to access and service if nearer the 101 highway?).

I will add that I have been in contact with ABO Energy over a long period and they have been great with their communication. They have also been very helpful with listening and explanations that they have given. But they know mine, and others, preference to relocate the 9 turbines (out of their proposed 20 turbines) from being placed in front of us.

Thanks for reading.

If further identification is needed for authenticity of where I live, then please reach out to me. Thanks.

From: _____
To: [Environment Assessment Web Account](#)
Cc: John.Young@halifax.ca; Nancy.Hartling@halifax.ca
Subject: Pockwock Wind Turbines
Date: January 7, 2025 1:03:39 PM
Attachments: [Pockwock Wind Turbines.pdf](#)

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

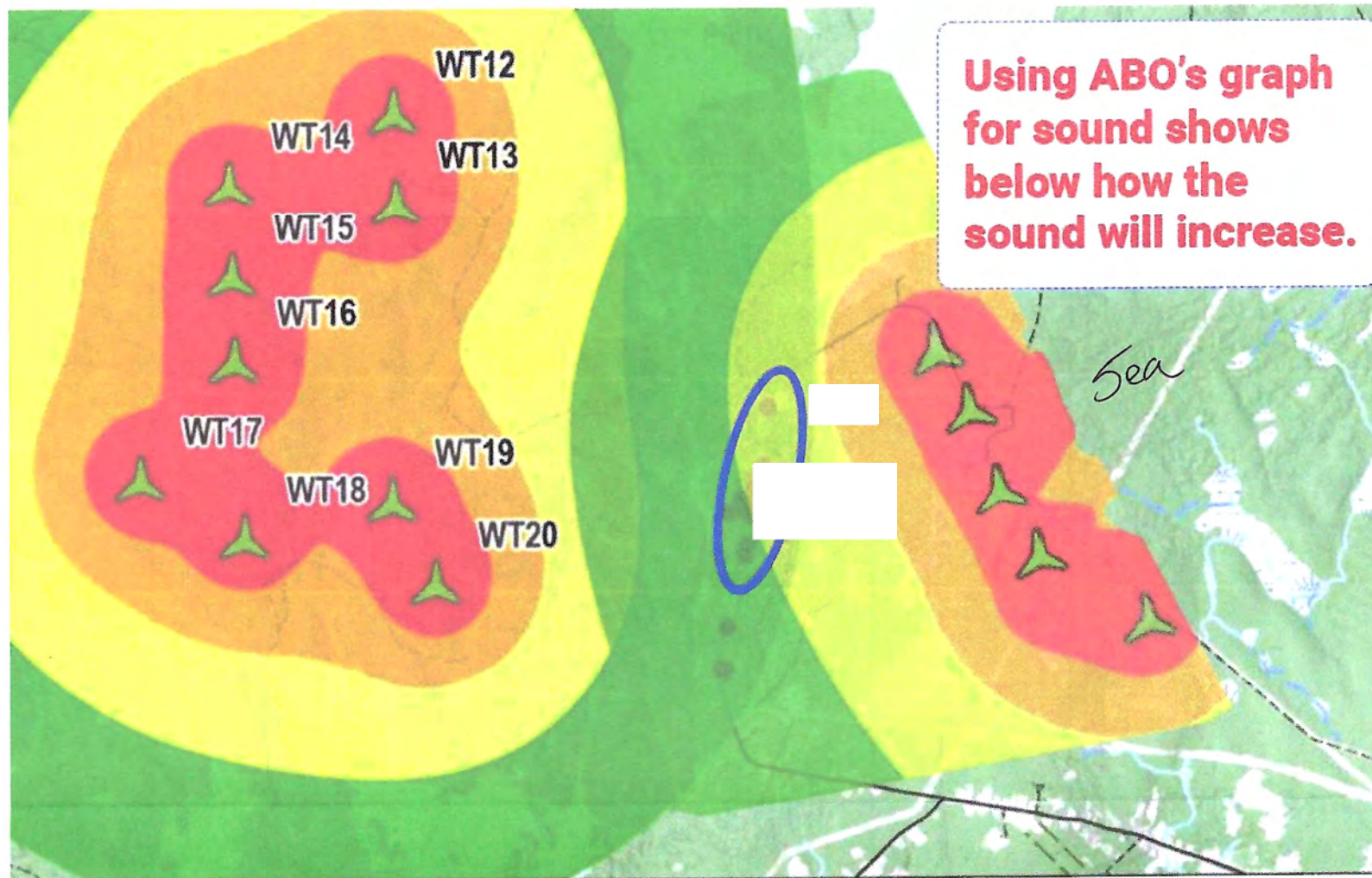
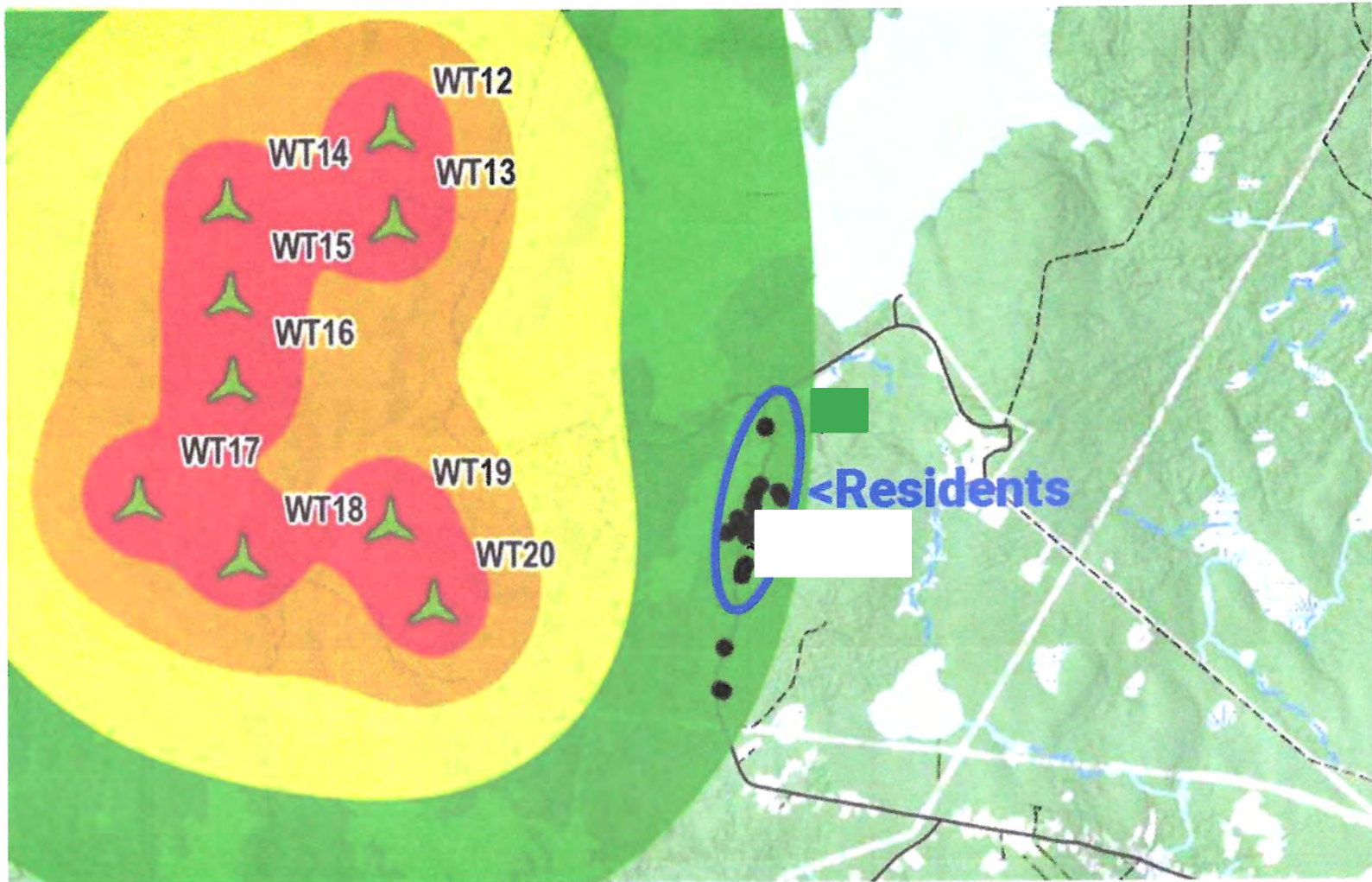
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Good afternoon

We are very concerned and disappointed in this proposed wind farm development. We already have 5 ea. wind turbines directly in our backyard and with this new development we will have an additional 9 ea. wind turbines directly in our front yards. The closest turbine in our backyard is just over one kilometer from our home. With this new development we will then have additional turbines just over one kilometer in our front yard. We find this completely unfair and unreasonable. With all the land available in Nova Scotia it would not be hard to find alternate locations for these 9 ea. wind turbines. Allowing wind turbines in our backyard and front yard is ridiculous. Please see attached drawing showing the existing five turbines behind our home as well as the proposed nine turbines in our front yard.

Eagle Beach Contractors Limited

2033 Hammonds Plains Road,
Hammonds Plains, Nova Scotia
B4B 1P3 / www.eaglebeach.ca
Office: 902-835-7664 / Fax: 902-835-5403



From:
To: [Environment Assessment Web Account](#)
Subject: Melvin Wind project - questions to add to the feedback consideration thank you
Date: January 7, 2025 5:24:46 PM

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Hi There

I have been here for 10 years and have amicably been living with the current turbines for the other project (I forget the name) but is behind our house through the woods.

At this time I dont believe their are any negative health repercussions for our family.

THE ADDITION of the NEW one is a bit concerning --

I would feel much better about the much larger farm going up and functioning across the lake from us if there were answers to some of the concerns I have and I believe are voiced concerns of other residents. The major one is if it is SAFE, for animals and humans etc

I only just received the full document to run through but will highlight the biggest concerns leaving the largest one for last.

I belie renewable energy is the way of the future I also know that due diligence is needed in making sure the health and well being of all who co exist here are doing so in a positive way.

These are the immediate questions that arise when I run through the document.

these are my questions:

1- why does it look like there are some of the turbine sites that look to be directly in the common nighthawk habitat - and Bats - how do you know for certain this wont affect them negatively? does this mean that these turbines might not actually go there and can be moved slightly if that's the case or go with a smaller amount of turbines?

2- curious to know if there is there a simulation photo from the opposite side of the lake - looks like the ones you have are from the Westwood hill s(wrights lake) side- what about from the Pockwock closer to Anderson Road and Pockwock close to the Water shed side ?

3 -The species at risk drawing page 5 of the 7.7-7.13 drawing- why are they all water related species and what risk do they have and why does it seem that it is mostly water related?

4- where does it say where and how these turbines are going to be transported, constructed and maintained? haven't seen that info but I might have missed it
- concern would be that there are a huge amount of dump trucks continuously driving in safe and parking unsafe on the road here due to other developments,

and

finally the biggest one is regarding the cluster of homes that are seemingly in the "middle" of the existing turbine farm and the proposed one.

I screen shot and circle the homes I mean as this is where I live and have attached a that pic in this

correspondence .

so my question is this, keep in mind I don't know the lingo or frequency and energy and all that BUT I will try to explain and ask my questions as clearly as I can.

So humans are energy and vibration, and then you have energy and vibration coming from the right side (see pic of the existing farm) and there is energy now proposed to come from the left (the Melvin project projected farm)

my concern is what kind of energy - vibration- frequency etc is "pooled" in the center of the frequency coming from the left and the right and then have an "overlap" of where the fields end with their frequency but there are houses right in that bubble..?

what frequency is there and has there been studies that show the interference on

1-human health with sound and electromagnetic field

2 -wifi

3-cellular

4-tv

etc

because we already have really bad wifi , cellular and tv

I'm most concerned and curious as to what potential illness and or negative impacts we as that little bubble of houses could experience and would really appreciate and understanding what would/could or wont occur.

Attached is the screen shot I drew on - referencing Drawing 10.2c010.3 last page 5

thank you so much for your time and dedication in getting answers to the people that have to live in close proximity to this project and are concerned about health considerations.

How will we know when and where to find the answers to our concerns and who do we check in with





Forums

- ☐ Leaders Congress
- ☐ MAPC Commissions/Projects
- ☐ MAARS Secretariate
- ☐ IKANAWTIKET SARA
- ☐ MAPC Administration

MAPC Regional
Administrative Office
172 Truro Heights Road
Truro Heights, Nova Scotia
B6L 1X1

Tel: 902-895-2982
Fax: 902-895-3844
Toll Free: 1-855-858-7240
Email: frontdesk@mapcorg.ca

Governmental APRO Councils

Native Council of
Nova Scotia
P.O. Box 1320
Truro, Nova Scotia
B2N 5N2

Tel: 902-895-1523
Fax: 902-895-0024
Email: chiefaugustine@ncns.ca

New Brunswick Aboriginal
Peoples Council
320 St. Mary's Street
Fredericton, New Brunswick
E3A 2S4

Tel: 506-458-8422
Fax: 506-451-6130
Email: chief@nbapc.org

Native Council of
Prince Edward Island
6 F.J. McAuley Court
Charlottetown
Prince Edward Island
C1A 9M7

Tel: 902-892-5314
Fax: 902-368-7464
Email: chief@ncpei.com

January 7th, 2025

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

RE: Melvin Lake Wind Project

To Whom It May Concern,

On behalf of the Native Council of Nova Scotia (NCNS), the Maritime Aboriginal Aquatic Resources Secretariate (MAARS) is providing comments to the Environmental Assessment Branch of the Nova Scotia Department of Environment and Climate Change regarding the Environmental Assessment Registration Document (EARD) for the Melvin Lake Wind Project being undertaken by ABO Energy Canada Ltd.

The Mainland Moose Recovery Plan indicates that Core Habitat overlaps with the Study Area for this project. Given the potential for Mainland Moose to use this area, MAARS has significant concerns over the continued development across Mainland Moose core habitat. Despite no evidence of Mainland Moose during the 2022-2024 surveys, around 80% of the habitat in the Assessment Area is classified as 'fair', 'better', or 'best' for Mainland Moose. Development across Mainland Moose core habitat continues to shrink the area acceptable to an already at-risk species that is also culturally significant to the Mi'kmaq people. It is not acceptable to continually decimate or fragment the habitat available to Mainland Moose.

Wetland habitats are known provide important ecosystem functions, as well as habitat for numerous aquatic, terrestrial, and plant species. As such, any impacts to the functions of these habitats can have significant effects on the ecosystem. With the importance of these habitats and given the stated potential impacts on Wetlands of Special Significance (WSS), MAARS requests to review any wetland compensation plans when they are available.

As well, we request to review the finalized layout when this is available for review.

Wood Turtles are an important species of concern, and while the field assessment methods and results are discussed in the EARD, it is unclear when and how these surveys took place. MAARS requests further details regarding the survey methods, locations, and timing, given that these can all play an important role in the success of these surveys.

As part of Section 7.4.2, the field assessment results indicate the presence of two priority species, blue felt lichen and frosted glass-whiskers. The EARD also discusses the potential for construction to impede upon the 100-metre buffer for this at-risk lichen. While this is expected to be avoided during the design and construction phase, MAARS has concerns given the highly sensitive nature of this species. According to both Environment and Climate Change Canada (ECCC)'s Management Plan for the Blue Felt Lichen (*Degelia plumbea*) in Canada (2022) and the Committee on the Status for Endangered Wildlife in Canada (COSEWIC)'s Assessment and Status Report on the Blue Felt Lichen (*Degelia plumbea*) in Canada (2010), blue felt lichen is highly sensitive to changes in habitat, more specifically the reduction in humidity due to deforestation and edge effects. In ECCC's 2022 report, they identified renewable energy, more specifically wind farms, as having the potential to cause extreme effects through the impacts of deforestation and biomass harvesting. ECCC also identified that logging, even within a few hundred metres of this lichen, can significantly enhance drying effects to which this lichen is particularly susceptible. Given the highly sensitive nature of this species, MAARS has concerns over the potential for this development to impede upon the recommended buffer zone which could have the potential to cause significant harm to an at-risk species. MAARS requests that every effort be made to avoid impacts to the 100-metre buffer for blue felt lichen.

Section 7.4.4.3 of the EARD mentions the presence of bat hibernacula at Frenchman's Cave I and II, approximately 13 kilometres from the study area. The use of this hibernacula relates to data collected in 2007, which has the potential to change significantly up to the current year (2025). MAARS requests further information on whether any updated studies were completed to ensure the accuracy of the 2007 study, and whether this site may be used by species other than those recorded in 2007.

In Section 7.4.4.6 Effects Assessment, when discussing the mitigation measures to reduce effects on bats, it is unclear whether the proponent has incorporated mitigation measures during the post-construction/operational phase of this project. These mitigation measures can be critical to ensuring the safety of birds and bats, and particularly those species which are migratory. One of the species highlighted in the EARD was the Hoary Bat, which has recently been assessed by COSEWIC as endangered. One of the key threats identified in COSEWIC's assessment report was wind energy development, classifying wind energy as having a high to very high impact on this species and other migratory bat species, even acknowledging that the current projections of fatality rates by wind farms are likely gross underestimates. COSEWIC identifies turbine curtailment during key periods as an important mitigation measure, with the potential to reduce fatalities by up to 50%. MAARS recommends that the proponent, in collaboration with ECCC's Canadian Wildlife Service, develop mitigation measures and curtailment protocols for migratory bats to ensure the protection of these at-risk species.

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 Indians¹. Since 2004, in multiple decisions passed 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 decision making 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 have elected to be represented by the NCNS since 1974.

We assert that 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 is to consult with all Indians, not only the Indian Act Bands.

For contextual purposes, for over forty years, the three Native Council partners of the Maritime Aboriginal People’s Council (MAPC) have continued to be the Aboriginal Peoples Representative Organizations representing and advocating for the Rights and issues of the Mi’kmaq/Wolastoqiyik/Peskotomuhkati/Section 91 (24) Indians, both Status and non-Status, continuing to reside on their unceded Traditional Ancestral Homelands. In the early 1970s, the communities recognized the need for representation and advocacy for the Rights and Interests of the off-Reserve community of Aboriginal Peoples, “the forgotten Indian”. Women and men self-organized themselves to be the “voice to the councils of government” for tens of thousands of community members left unrepresented by Indian Act-created Band Councils and Chiefs. Based on the Aboriginal Identity question, Statistics Canada (2021 Census - 25% sample) enumerate 25,415 off-Reserve Aboriginal Persons in New Brunswick, 42,580 in Nova Scotia, and 2,865 in Prince Edward Island.

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

² *Haida Nation v. British Columbia (Minister of Forests)*, (2004), 2 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

Each Native Council in their respective province asserts Treaty Rights, Aboriginal Rights, with Interest in Other Rights confirmed in court decisions, recognized as existing Aboriginal and Treaty Rights of the Aboriginal Peoples of Canada in Part II of the Constitution Act of Canada, 1982. Each Native Council has established and maintains Natural Harvesting Regimes, and each have a co-management arrangement with DFO for Food, Social, and Ceremonial use of aquatic species, through the: Najiwsgetaq Nomehs (NBAPC), the Netukulimkewe'l Commission (NCNS), and the Kelewatl Commission (NCPEI).

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, impact, or affect the sustainable natural life ecosystems or natural eco-scapes formed as hills, mountains, wetlands, meadows, woodlands, shores, beaches, coasts, brooks, streams, rivers, lakes, bays, inland waters, and the near-shore, mid-shore and off-shore waters, to list a few, with their multitude of in-situ biodiversity. Our NCNS Community has continued to access and use the natural life within those ecosystems and eco-scapes where 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, 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 Mi'kma'ki now known as Nova Scotia.

We would appreciate an opportunity to engage on the Melvin Lake Wind Project undertaking directly with the proponent, ABO. We look forward to further dialogue as we continue to advocate for the rights of Off-Reserve Status and Section 91(24) Indians/Mi'kmaq/Aboriginal Peoples of Nova Scotia. To continue to represent the interests and needs of the off-Reserve Aboriginal Community in Nova Scotia, we would like to request the opportunity to participate in early engagement in future Environmental Assessment Reviews.

Advancing Aboriginal Fisheries and Oceans Entities
Best Practices, Management, and Decision-making

Habitat Impact Advisor, MAARS

Executive Director, MAARS & MAPC Projects

CC: , Chief & President, NCNS
Netukulimkewe'l Commission, NCNS