



BENJAMINS MILL WIND PROJECT

Draft Environmental Management and Protection Plan

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1 Introduction

The Benjamins Mill Wind Project (the Project or the Undertaking) is being developed by Natural Forces Developments Limited Partnership (the Proponent or Natural Forces) on behalf of the Benjamins Mill Wind Limited Partnership, a partnership between the Proponent and Wskijnu’k Mtmo’taquow Agency Limited, a corporate body wholly owned by the 13 Mi’kmaw bands in Nova Scotia. The purpose of the proposed Undertaking is to construct up to 28 wind turbine generators (WTGs) with an installed capacity of up to 75 MW and their associated infrastructure in West Hants Regional Municipality.

This document details the draft Environmental Management and Protection Plan (EMPP) for the construction, operation, maintenance, and decommissioning of the Project. The Project is located in the West Hants Regional Municipality area of Hants County, approximately 13 km southwest of Windsor, Nova Scotia. The proposed WTG locations and associated infrastructure are situated on a mix of privately-owned and provincial Crown lands along Highway 14. The proposed development area has largely been used for forestry activities and therefore has a network of existing forestry roads.

This draft EMPP specifically includes management plans and mitigation measures for:

- i. Air quality;
- ii. Fire management;
- iii. Domestic waste management;
- iv. Hazardous waste management;
- v. Wetland protection;
- vi. Watercourse and water quality protection;
- vii. Erosion and sedimentation control;
- viii. Wildlife interactions;
- ix. Invasive Species Management
- x. Spill contingency;
- xi. Sound management;
- xii. Visual impacts; and,
- xiii. Emergency Response.

The draft EMPP is produced by the Proponent for the Project. Any amendments will be issued by the Proponent, which will be responsible for providing amendments to all relevant individuals.

1.1 Draft Environmental Management and Protection Plan Objective

This draft EMPP serves to guide all contractors during the construction phase of the Project to avoid and/or minimize potential environmental impacts associated with the proposed works. It is the contractors' responsibility to familiarize themselves with the document and ensure that all works are undertaken in an environmentally safe and responsible manner, in compliance with all relevant Provincial, Federal, and Municipal laws, bylaws and regulations. The draft EMPP also serves as a guide to avoid and/or minimize environmental impacts throughout the operation, maintenance, and decommissioning phases of the Project.

1.2 Project Description

The entirety of the Project being developed by the Proponent consists of:

- Up to 12 wind turbines capable of producing up to approximately 75 MW of renewable energy;
- Upgrades to existing access roads
- New access roads;
- An overhead electrical collection system;
- A substation; and,
- A short transmission line to the existing Nova Scotia Power grid.

1.3 Scope of Work

The scope of the draft EMPP includes the construction, operation, maintenance and decommissioning of the Project. The activities proposed for these four phases are further described in the sections below.

1.3.1 Construction work

The construction of the Project consists of the installation of up to 12 WTGs, WTG foundations, 34.5 kV overhead electrical system, access roads, equipment laydown areas, crane pads, and on-site substation, and a transmission line interconnection.

There will be five main work packages for the construction of this Project:

1. The tree clearing works will include the following:
 - a. Surveying and staking roads and areas for tree clearing;
 - b. Clearing all trees from desired roadways, crane pads, laydown areas, component assembly areas, crane assembly areas, substation footprint; and
 - c. Proper management of removed vegetation.
2. The civil works, will mainly consist of the following:
 - a. Construction of site roads, crane pads, and component assembly areas, which may require blasting;
 - b. Excavation, sand placement and backfilling of cable trenching, (in cooperation with the Electrical BOP Contractor); and
 - c. Reinstatement of all excavated areas using reserved topsoil, hay and hydroseed where necessary.
3. The wind turbine foundation works will include the following:
 - a. Design of wind turbine foundations (design and construction done by separate contractors);
 - b. Excavation works for turbine foundations;
 - c. Construction of turbine foundations, which may require a concrete batch plant on site; and
 - d. Backfilling post construction of reinforced concrete turbine foundations.
4. The WTG works will include the following:
 - a. Pre-assembly works;
 - b. Erection of WTG towers; and
 - c. Install and commission the wind turbines and SCADA system.
5. The electrical works will consist of the following:
 - a. Design of the electrical works;
 - b. Installation of site cabling including the underground and overhead 34.5kV collection system, WTG and trench grounding, and placing and terminating all the cables; and,

- c. Installation of site substation and interconnection to existing grid and commissioning the electrical works.

1.3.2 Operation & Maintenance work

Once the Project is commissioned, minimal vehicle activity will be required. The access road will be used for periodic maintenance and safety checks. A comprehensive SCADA system will be installed for remote monitoring and control of the WTGs, which will minimize the need for on-site personnel. The SCADA system ensures safe and efficient operation of the WTGs.

Scheduled maintenance work will be carried out several times each year throughout the operational phase as well as routine site visits. Unscheduled maintenance is minimal as the SCADA system allows 24-hour monitoring of the Project by the manufacturer and the operations team at Natural Forces. Maintenance procedures may require use of small or large cranes for brief periods of time for replacement of blades or other turbine components.

1.3.3 Decommissioning work

The Project will be in operation for approximately 25 years. The lifetime is based on the duration of the Power Purchase Agreement (PPA) signed between Nova Scotia Power and the Proponent.

Decommissioning will commence within six to nine months after the PPA has been terminated unless otherwise decided by the Proponent. Should the operational phase of the Project extend past 25 years, applicable permits will be obtained at that time.

Similar traffic movements to those experienced during the delivery of the turbine components are anticipated during this phase; however, overall decommissioning will require considerably lower vehicle support than during the construction phase. The following four steps are anticipated:

1. The WTGs will be dismantled and removed from the site for scrap or resale. Based on landowner agreements, the foundation may be removed to below plough depth and/or covered over with overburden. The stockpiled topsoil will be releveled so that the land may be returned to its former use. The substation will be dismantled and removed from the site for scrap or resale.
2. The internal site roads and site entrance may be removed if required. After removal, the land will be returned to its former use.
3. The underground cables will be below plough depth and contain no harmful substances. They may be recovered if economically attractive or left in the ground. Terminal connections will be cut back below plough depth.
4. All other equipment, including overhead collector lines and the substation, will be dismantled and removed, and the land will be returned to its former use.

1.4 Project Timeline

The timeline for the construction of the Project is outlined in the table below. This schedule is subject to change as necessary to account for unforeseeable events, weather, and delays.

Phase	Activity Start Date
Planning, Site Preparation and Construction, Site Restoration <ul style="list-style-type: none"> - Clearing and Grubbing - Access Road and Laydown Area - Turbine Foundation - Electrical infrastructure - Crane Pad Construction - Turbine Installation - Commissioning - Removal of all temporary works and restoration of the site 	<ul style="list-style-type: none"> Q2 2023 Q4 2023 Q4 2023 Q4 2023 Q4 2023 Q4 2023 Q4 2024 Q4 2024 Q4 2024
Operation and Maintenance <ul style="list-style-type: none"> - Turbine Operation - Inspection and Maintenance 	Q4 2024 - Operations end (estimated 25+ years after commissioning)
Decommissioning, Infrastructure Removal and Site Reclamation	Estimated 25+ years after commissioning

2 Potential Environmental Impacts and Mitigation

In the following section, different valued environmental components relevant to the construction, operation, maintenance and decommissioning of the Project are analyzed to determine the potential impacts that may occur on site. From the list of potential impacts, mitigation measures were identified to avoid and/or minimize the impacts on the valued environmental components. All staff and contractors on site will be familiarized with the potential impacts and mitigation measures outlined in this document.

2.1 Air quality

2.1.1 Potential Impacts

Air quality can have a detrimental effect on the environment by posing the potential risk of creating difficult breathing conditions, coating the vegetation with dust and being ingested by wildlife.

2.1.2 Objective

The objective of this section of the draft EMPP is to reduce the amount of fugitive dust, primarily total suspended particles created during the construction, operation, maintenance and decommissioning of the Project.

2.1.3 Management and Mitigation Measures

The mitigation measures below will help address the potential risk of a decrease in air quality surrounding the site.

- Vehicles and equipment will be kept in good working order;
- All vehicles and machinery will comply with current emission standards and will be used efficiently, minimizing distances travelled when possible;
- Vehicle idling will be minimized where possible;
- A speed limit will be enforced to reduce unnecessary emissions and enhance safety;
- Contractor carpooling will be encouraged;
- Low sulphur fuel will be used in combustion engines, when possible; and,
- Fugitive dust during dry weather conditions will be controlled with the application of water or another environmentally benign dust suppressant.

2.2 Fire management

2.2.1 Potential Impacts

Fire hazards may occur on site and can have a detrimental effect on the vegetation and wildlife that surround the project site.

2.2.2 Objective

The objective of this section is to reduce the risk that fires (started on site by project activities) will propagate to the surrounding vegetation and environments during the construction, operation, maintenance and decommissioning of the Project.

2.2.3 Mitigation Measures

The mitigation measures below will help address the potential risk of fire propagation during the construction and decommissioning phases of the Project:

- Contractors and/or workers will not build or use campfires on site;
- Heavy equipment operators will be outfitted with fire suppressant equipment;
- Fire suppressant equipment will be located on site at all times during the construction phase of the project; and,

- The Proponent will circulate a Work Permit to all contractors which must be kept on-site, and all conditions will be adhered to.

To mitigate the risk of fire propagation during the operation and maintenance phases of the Project, fire suppressant will be located inside the WTGs at all times.

2.3 Domestic Waste Management

2.3.1 Potential Impacts

Domestic waste can have a detrimental effect on the environment by posing the potential risk of being ingested by wildlife, polluting watercourses and wetlands, and attracting wildlife to the site.

Domestic waste will be defined as waste generated during the construction, operation, maintenance and decommissioning of the Project and may include:

- Day-to-day waste (ex. paper, cardboard, plastics, food); and
- Construction activities waste (scrap steel, scrap cable, metals, wood debris, surplus concrete and excess soils from cleared areas).

2.3.2 Objective

The objective of this section of the draft EMPP is to reduce the amount of domestic waste found at the site during the construction, operation, maintenance and decommissioning of the Project and ensure it is properly disposed.

2.3.3 Management and Mitigation Measures

The mitigation measures below will help address the potential risk of domestic waste on site throughout all phases of the Project.

- Contractors will ensure that the Project area remains clear of waste, and that adequate waste and disposal facilities are provided. The collection and disposal of waste will be carried out routinely to keep pace with waste generation;
- All waste bins will be kept securely closed, so as to not attract rodents, bugs or other wildlife;
- Limbs and timber will be chipped and or crushed and disposed of at the site. Non-combustible material, such as overburden and rock, will be disposed of where their use as fill material is impractical; and,
- Waste disposal areas, in accordance with regulatory guidelines, will be located away from rivers, watercourses or wetlands.

2.4 Hazardous Material and Waste Management

2.4.1 Potential impacts

Exposure or accidental spillage of hazardous materials or wastes might affect employee health and safety, contaminate soils, surface and groundwater, and endanger vegetation and wildlife.

2.4.2 Objective

The objective is to avoid hazardous material disposal into the environment and manage their impact if they are released into the surrounding area. Possible hazardous materials present on site are:

- Fuel;
- Waste concrete;
- Lubricants and oils;
- Paints and solvents;
- Hydraulic fluids; and
- Sewage.

2.4.3 Mitigation Measures

The mitigation procedures below are modelled on the *Workplace Hazardous Materials Information System (WHMIS)* program, which outlines best management strategies in proper handling, storage, disposal and control of hazardous materials.

Hazardous materials (e.g., fuels, lubricants, hydraulic oil) and Hazardous wastes (e.g., sewage, waste oil) will be managed to minimize the risk of chronic and/or accidental releases. Hazardous petroleum wastes are classified as deleterious and their disposal into the environment and water is illegal. The contractors will ensure that the following efforts are taken to minimize and mitigate potential impacts from accidental waste spillage:

- Equipment will be kept in good working order and maintained so as to reduce risk of spills/leaks and to avoid water contamination;
- Spill response kits will be readily available for each piece of equipment, on site workers are required to be knowledgeable on emergency spill response protocols and initiate corrective measures immediately to minimize any impacts to the surrounding environment;

- If contaminated soil is encountered, it will be reported to NSECC and managed utilizing the Nova Scotia Contaminated Site Regulations.
- Refueling, oiling, and maintenance of equipment will be completed in specifically designated areas located at least 30 m away from any watercourse, wetland, or well to minimize potential effects that could arise in the event of a spill;
- Frequent inspection of equipment will minimize the likelihood of fluids leaking into wetlands;
- Chemicals and petroleum products will be managed in accordance to manufacturer specifications and stored more than 30 m from a watercourse or wetland;
- Where applicable, secondary containment and limited quantities of chemicals and fuels required to be stored on site will be in an area away from the surrounding terrestrial environment, or direct pathways (i.e., ditches) to the surrounding environment, all chemicals and fuels will be stored in appropriate containers designed for the reduction of potential spills or leaks;
- Oily rags will be stored in adequate receptacles and disposed of in adequate waste facilities;
- If fuel storage is required onsite, double walled fuel storage tanks will be required;
- Work entailing use of toxic or hazardous materials, chemicals, or otherwise creating hazard to life, safety of health, will be conducted in accordance with National Fire Code of Canada to minimize the potential for spills or fires;
- Portable toilets will be located at least 30m away from any watercourses, wetlands or environmentally sensitive areas, and the sewage will be disposed of at an approved facility;
- Waste and excess concrete will be disposed of as per environmentally accepted industry standards;
- Used oil filters, grease cartridge containers and other products associated with equipment maintenance will be collected and disposed of in accordance with regulatory guidelines;
- Fuel and hydraulic systems on all equipment will be inspected daily to ensure there are no leaks. All leaks discovered will be repaired as soon as practically possible;
- All potentially hazardous materials present on site will be handled, labeled, and stored responsibly to avoid any spillage or contamination; and,

- If a spill occurs, corrective measures will be implemented immediately and reported to the Nova Scotia Environment at 1-800-565-1633 or, if outside of business hours, to the Canadian Coast Guard's environmental emergencies reporting system at 1-800-565-1633.

2.5 Wetland Protection

2.5.1 Potential Impacts

Impact to wetlands would potentially occur during clearing, grubbing and excavation activities. Such activities might induce silt run-off, alter flow into the wetlands or see them become repositories of significantly increased water flow, nutrients, or sediments.

2.5.2 Objective

Wetlands have been mapped by a certified wetland specialist, and the Project has been carefully designed to minimize impact to the extent possible. The objective is to protect wetlands from potential impacts.

2.5.3 Mitigation Measures

Contractors must adhere to the conditions of any required watercourse and wetland alteration permit conditions.

- Through the site selection process, the Project footprint has been sited predominantly in areas previously disturbed via clear cutting through forestry activities, creating a highly fragmented habitat and the project footprint is limited, to the extent possible, in areas of undisturbed habitat;
- Field assessments have been completed to ensure unmapped wetlands are delineated;
- The Project footprint will be limited to that which is necessary to enable the Project to be carried out;
- A wetland alteration permit will be applied for and obtained for work in any wetland, noting that work within wetlands will be avoided or minimized to the extent possible during the Project design phase;
- Appropriate sediment erosion and run-off control measures (e.g. silt fencing, hay bales) will be implemented, following best management practices, to prevent sediment from leaving the site at all times;
- Natural regeneration of the site will be promoted to aid in storm water retention and reduce run-off;

- Equipment will be in good working order and maintained to reduce risk of spill/leaks and avoid water contamination;
- Spill response kits will be provided on site for each piece of equipment to ensure immediate response to a potential waste release and will be stocked with supplies to handle a spill scenario on ground or in surface and groundwater;
- If a spill occurs, corrective measures will be implemented immediately and reported to the Nova Scotia Environment at 1-800-565-1633 or, if outside of business hours, to the Canadian Coast Guard's environmental emergencies reporting system at 1-800-565-1633;
- Stockpiling of materials and routine maintenance, refuelling and inspection of machinery will be performed a minimum of 30m away from wetlands.

2.6 Watercourse and Water Quality Protection

2.6.1 Potential Impacts

Improper water crossings can result in permanent diversion restriction or blockage of natural drainage, or have the potential to impact surface water quality, quantities, or flow.

2.6.2 Watercourses

Watercourses have been delineated and assessment by a certified watercourse specialist, and the Project has been designed to minimize impact in these areas.

2.6.3 Mitigation Measures

Contractors will comply with the following best management practices on watercourse and water quality protection.

- Construction activities near watercourses will comply with the applicable regulations and guidelines such as the Fisheries Act and will be carried out strictly in accordance with NSECC and DFO Approvals, Terms and Conditions, and Letters of Advice;
- A setback distance of 30 m between the site works and wetlands or watercourses will be implemented where feasible;
- Efforts will be made to design the access road such that it does not interfere with a watercourse, water body or drainage channel;
- Work in streams and riparian areas will follow industry best practices, as well as follow any conditions established through wetland and watercourse permit approvals;

- Vehicle and equipment cleaning will occur away from any watercourse or wetland; and,
- Where water must be pumped out of excavation pits, it will not be discharged into a wetland, watercourse or defined channel. If pumped water contains total suspended solids the water will be pumped to vegetated land with gentle slope to allow sediment to filter, or the water will be filtered before release with a filter bag.

2.7 Erosion and Sediment Control

2.7.1 Potential Impacts

The mitigation measures below are to minimize the quantity and duration of exposed or transferred soil, as well as to mitigate potential impacts on nearby water quality.

2.7.2 Objective

The Proponent acknowledges that proper erosion and sedimentation control is necessary to maintain water quality and reduce environmental impact on the Project area. The mitigation measures will be implemented based on industry best practices. Measures are intended to minimize the impacts erosion and sedimentation have on the nearby watercourses, wetlands and on the species that live within them.

2.7.3 Mitigation Measures – Erosion Control

Contractors will comply with the following best management practices on erosion control.

- Erosion and sediment control measures will be installed and checked regularly during the construction phase and prior to, and after, storm events to confirm they are continuing to operate properly to minimize potential effects to adjacent habitat;
- A plan for handling fill and construction materials for the site will be communicated to contractors (i.e., if stockpiling is required, materials will be stored away from any watercourse) with an intent to minimize soil stockpiled;
- Exposed soils will be stabilized as soon as practical to minimize emissions of fine particulate matter and soil erosion;
- Fill and excavated materials will not be stockpiled for long periods of time to reduce the likelihood of sedimentation.
- Fill/excavation material piles will be at low angles, if left standing for long durations;
- Weather will be monitored and additional erosion control measures such as the installation of hay bales and check dams/silt fences will be employed, as appropriate, should stockpiled fill be present in unexpected heavy rain events;

- Work during storm events will be avoided if feasible;
- Where possible, clearing will take place in the winter months on frozen ground;
- Geotechnical studies will be carried out to assess the composition of the ground and bedrock;
- Steep slopes and erodible soils near watercourses or wet areas will be seeded and dry-mulched as soon as practically possible after excavation to reduce the velocity of surface runoff and increase stabilization. Native seed mixes will be used if possible. If not possible, it will be ensured that the seed mix does not contain invasive species;
- Areas susceptible to erosion will be stabilized and erosion will be minimized through the use of control measures (i.e., haybales, coco mats etc.);
- Excavation will be managed in sections or stages such that the time between disturbance of soil and seeding of finished slopes is minimized;
- Excavations will be timed with weather forecasts to minimize open excavations during wet periods to the extent possible, which minimizes the possibility of erosion and sedimentation;
- Topsoil stockpile locations will be prepared and used as early as possible;
- A speed limit on site access roads will be enforced to help reduce soil loss;
- Existing culvert passages will be maintained; and,
- Slope grades will be minimized during construction. Unprotected cut or fill slopes will be stabilized by gravel or geo-textile fabric if they are deemed likely to erode.

2.7.4 Mitigation Measures – Sediment Control

While Erosion control measures are inherent in the design of the works and will be employed in the construction as a priority, the sediment control measures outlined here will be employed at the Project site. Contractors will be responsible and ensure that these control measures are followed. These control measures include the following:

- Ditches will be designed to take off water at low velocities and redirect it to vegetated areas;
- Outflows from ditches will cross dispersion berms at ~1% grade to keep flow slow;
- Culverts and ditches will be aligned to follow existing natural drainage;

- Culvert outflows will feed into stone rip rap aprons at willow grades to minimize erosion;
- Silt fences will to be employed along edges of excavations in areas where onward drainage is possible;
- Damaged erosion and sediment control measures (ex. fallen fences) will be repaired immediately;
- Accumulated sediment will be cleaned out at regular intervals after heavy rain falls;
- Straw-bale barriers and silt curtains will be used in ditches where necessary to provide a barrier to silt movement;
- If it is deemed necessary to limit surface run-off during construction, sediment pools will be installed and maintained. Any water with large sediment concentrations will be directed to such basins and released when appropriate;
- Contractors will ensure that all erosion and sediment control measures are in place prior to site disturbance;
- The erosion and sediment control measures will be maintained during the construction phase of the Project; and
- The installation of any erosion protection materials is to be carried out by starting on the upstream side of a watercourse and progressing downstream, using clean, durable, non-ore bearing and non-toxic materials obtained from a non-watercourse source.

2.7.5 Monitoring Program

The Environmental Monitor will inspect all sediment control barriers each week and after heavy rain events to ensure they are working as intended and fix or modify any ineffective barriers as soon as practical. During rain events, contractors will monitor culvert outflow to ensure that the rainwater does not bring excess sediment and take corrective actions, as necessary.

2.8 Wildlife Interactions

2.8.1 Potential Impacts

Terrestrial wildlife may be disturbed throughout the construction phase, but it is likely the wildlife will return to the site during operation. The wind turbines may also present a hazard to avian and bat populations in the area through collision or barotrauma (for bats).

A post-construction monitoring plan will be developed and implemented by a third-party consultant in consultation with the Department of Environmental and Climate Change, Department of Lands and Forestry, Canadian Wildlife Services (CWS), and the Mi'kmaq in Nova Scotia and will follow the most current and relevant Post-Construction Bat and Bird Mortality Survey Guidelines available at the time of the studies.

2.8.2 Objective

The objective of the wildlife interaction plan is to reduce the unanticipated hazards to avian and bat species as well as terrestrial wildlife on site.

2.8.3 Mitigation Measures

During the construction phase, wildlife interactions will be mitigated by ensuring that food waste and other garbage is stored so that it is not accessible by wildlife. The garbage will also be disposed properly to avoid attracting wildlife to the site.

Post-construction monitoring will help identify the impact of the Project on birds and bats. Should significant mortality occur during operation, CWS and NSDNRR will be consulted to determine the best course of action.

Mitigation measures that will be implemented include the following:

- Vegetation will be retained where possible to maintain wildlife habitat;
- The Project footprint will be limited to that which is necessary to enable the Project to be carried out;
- Existing roads and trails will be utilized to limit disturbance outside the Project footprint and minimize the interactions with wildlife and wildlife habitat;
- A speed limit for vehicles within the PDA will be enforced when feasible to minimize disturbance to wildlife;
- Water or another environmentally benign dust suppressant will be used to prevent fugitive dust;
- Lighting restrictions (further described below in specific measures for birds and bird habitat) will be implemented to reduce effects on wildlife within the PDA;
- To minimize wildlife encounters, the site and working areas will be kept clean of food scraps, garbage will be removed from the site routinely and traffic will be limited to roadways;
- In the case of wildlife encounters, the following will be implemented: (1) no attempt will be made by any worker at the Project site to chase, catch, divert, follow or

otherwise harass wildlife by vehicle or on foot; (2) equipment and vehicles will yield the right-of-way to wildlife; and (3) if a species at risk (SAR) or a nest of any bird is encountered during activities, work around the SAR or nest will cease until a biologist is dispatched to assess the situation and appropriate mitigation is applied;

- To minimize disruptions with wildlife activity at night, the Project construction activities will be limited to daylight hours when possible;
- Annual reports to regulators will be submitted and, if required, any necessary mitigation action (e.g., increasing cut-in speed, and other operational adjustments) will be determined through consultation;
- The Proponent will develop an Adaptive Management Plan in consultation with NSDNRR and CWS for bird and bat mortality, including a follow up bat mortality survey to be conducted after the Project commissioning, and appropriate actions to be taken should there be a significant negative impact to bats.
- In addition to these mitigation measures, the Proponent will also submit post-construction data to the Wind Energy Bird and Bat Monitoring Database to support national efforts to better understand wind turbine effects on birds and bats;
- Any possible or confirmed nesting of turtles in the PDA should be immediately reported to NSDNRR; and
- Workers will be familiarized with the SAR/species of conservation concern (SoCC) that were identified as having the potential to occur on site through both field and desktop analysis prior to work commencing. Observed SAR will be reported to NSDNRR;
- All workers will be familiarized and will adhere to the provincial Nova Scotia Endangered Species Act and federal SAR Acts.

Should a mortality of an individual migratory bird SAR, or 10 or more migratory birds in one night, CWS will be contacted within 24 hours (Environmental Emergencies 1-800-565-1633).

2.8.3.1 Birds/Bat and Bird/Bat Habitat

The following mitigations will be employed focused for birds and bird habitat:

- Existing roads and trails will be utilized to limit disturbance outside the Project footprint and minimize the interactions with birds and bird habitat;
- The Proponent will endeavor to conduct construction activities such as clearing and grubbing during a time period that does not coincide with the time period in which migratory and breeding birds would be in the area as much as feasible;

- Tree and vegetation clearing will not be undertaken during the breeding bird season (Early April to Late August) to the extent possible. Should clearing be required during the breeding bird season the proponent will consult with CWS for appropriate mitigation measures;
- Should a nesting migratory bird be identified within the work area, CWS and NSDNRR will be notified and an appropriate no-work buffer zone (in consultation with CWS and NSDNRR) will be applied around the nest until the nest has been fledged. No flagging of the nest will occur to minimize chances of predation;
- Stockpiling of fill and excavated materials will be minimized to deter the potential for nesting by bank swallows or other ground nesting species (e.g., common nighthawk);
- All workers will adhere to the Migratory Birds Convention Act, 1994 and the Migratory Birds Regulations;
- All workers will adhere to the provincial Nova Scotia Endangered Species Act and federal SAR Acts;
- To minimize disruptions with wildlife activity at night, the Project construction activities will be limited to daylight hours when feasible;
- Instruction will be given to maintenance staff to ensure all work lights are turned off upon leaving the site particularly during foul weather events;
- A follow up avian mortality survey will be conducted after the Project commissioning and appropriate actions will be taken in consultation with CWS and NSDNRR should there be a significant negative impact to migration flyways;
- A comprehensive Adaptive Management Plan will be developed and implemented in consultation with CWS and NSDNRR. This includes the development of a follow-up bird and bat mortality survey that will be conducted after the Project commissioning;
- Lighting requirements will meet, but not exceed, Transport Canada standards to minimize the potential impacts to migratory birds;
- Only the minimum amount of pilot warning and obstruction avoidance lighting will be used;
- Only lights with short flash durations and the ability to emit no light during the 'off phase' of the flash (i.e., as allowed by strobes and modern LED lights) will be installed on tall structures;

- Lights will operate at the minimum intensity and minimum number of flashes per minute (longest duration between flashes) allowable by Transport Canada;
- Environment and Climate Change Canada climate database will be consulted to predict the rate of fog occurrence; and,
- The Project has been designed to minimize the amount of land cleared. This reduces the ecological impact of the Project footprint and minimizes the potential impact to bird and bat habitat.

2.8.3.2 Watercourses and fish habitat

Mitigations specifically for watercourses and fish habitat are detailed below:

- Construction activities near watercourses will comply with the applicable regulations and guidelines such as the Fisheries Act and will be carried out strictly in accordance with NSECC and DFO Approvals, Terms and Conditions, and Letters of Advice;
- Where possible, watercourse crossings will be located in areas that exhibit a stable soil type where grades approaching the crossings will not be too steep and will span the watercourse;
- In-stream work will be timed to occur in the dry season and not during significant rainfall. Culverts will be designed and installed to prevent the creation of barriers to fish movement and maintain bankfull channel functions and habitat functions to the extent possible; and,
- Any fish isolated in the work area will be transferred (using appropriate capture, handling and release techniques to prevent harm and minimize stress) downstream or away from the construction area prior to the commencement of work. Intakes of pumps and hoses for de-watering of in-water work areas (if required) will be screened to avoid impingement and/or entrainment of fish.

2.9 Vegetation Management

2.9.1 Objective

The objective of the vegetation management plan is to protect, reintroduce, and manage the vegetation on site.

2.9.2 Mitigation Measures

Contractors will comply with the following best management practices for vegetation management.

- Through the site selection process, the Project footprint has been sited predominantly in areas previously disturbed via clear cutting through forestry activities, creating a highly fragmented habitat and the project footprint is limited, to the extent possible, in areas of undisturbed habitat;
- The Project footprint will be limited to that which is necessary to enable the Project to be carried out;
- Following the construction and decommissioning phases of the Project, revegetation with native species will be promoted in consultation with the landowner;
- Existing roads and trails will be utilized to limit disturbance outside the Project footprint and minimize the amount of flora to be cleared;
- Heavy equipment will be properly cleaned and visually inspected prior to mobilizing to site to avoid potential introduction of exotic and invasive species;
- Vegetation control measures during the operational phase will be minimized to the extent possible;
- During Project activities, should a SAR/SoCC be identified, a buffer will be maintained, and additional mitigation will be developed in consultation with NSDNRR;
- The locations of SAR plants will be avoided by adjusting utility pole alignment to buffer these species;
- Where feasible, the locations of SoCC plants will be avoided by adjusting utility pole alignment or spanning their locations by utility poles and refraining from clearing vegetation in their vicinity; and
- All workers will be familiarized and will adhere to the Nova Scotia Endangered Species Act and the federal Species at Risk Act.

2.10 Invasive Species Management

2.10.1 Objective

The objective of the invasive species management plan is to reduce the risk of introducing invasive species on site.

2.10.2 Mitigation Measures

Contractors will comply with the following best management practices on invasive species.

During the construction phase, invasive species importation will be mitigated by ensuring that vehicles and construction equipment are cleaned prior to transportation and use. Vehicle cleaning will occur prior to arriving or leaving the site to ensure invasive species are not potentially spread to other areas. All cleaning activities will occur away from any watercourse or wetland.

2.11 Spill Contingency Planning

2.11.1 Potential Impacts

The potential impacts to soil, surface water and ground water could occur during the construction, operation, maintenance and decommissioning of the Project due to spills.

2.11.2 Objective

This contingency plan reflects on potential accidents and malfunctions during project work. The Canadian Standards Association publication, *Emergency Preparedness and Response*, was used in developing this plan that will aim to contain spills should they occur despite using the approaches discussed in this draft EMPP.

2.11.3 Spill Response Procedures

Contractors will prepare contingency responses and have associated equipment available on site. They will ensure spill kits accompany each piece of heavy equipment / machinery and that there are adequate supplies in each kit to address the worst-case scenario in which a spill could occur on the ground, in surface water or in groundwater. All spills or leaks such as those from machinery or storage tanks must be promptly contained, cleaned up and reported. Within a week of the accidental spill or leakage, a report will be submitted to Nova Scotia Environment by the Proponent. As demonstrated in the spill response report form included as **Appendix A**, the report will outline:

- The cause of the release;
- Adequacy of the response to the release by the persons responsible;
- Plans to remediate land that was directly impacted;
- Manners of collection and dispose of the contaminant; and;
- Plans to prevent a reoccurrence of the unauthorized release.

2.11.4 Emergency contacts

Spills will be cleaned up accordingly and will be reported in accordance with Environmental Emergency Regulations. All accidental spills and leaks will be reported to Nova Scotia Environment at 902-424-7773 during business hours and the Canadian Coast Guard at 1-800-565-1633 at any time.

2.12 Sound Level Management

During the construction, maintenance, and decommissioning phases of the Project the ambient sound level will be elevated as a result of the use of equipment and machinery such as excavators, dump trucks and bulldozers. Elevated sound levels can disturb fauna and local residents.

To mitigate the risk of annoyance due to the elevated construction and equipment sound, the following mitigative measures will be applied, a:

- A sound level impact assessment has been conducted showing that sound levels anticipated at nearby dwellings are below provincial guidelines of 40 dB(A).
- Events with particularly high sound levels, such as blasting, will be communicated to local residents adequately and with ample time;
- A complaint resolution plan has been developed to address sound level concerns;
- Per industry standards, turbines have been sited minimum 1 km away from residences;
- The wind turbine model selected for the Project will incorporate sound reduction technologies to mitigate sound levels generated by the moving blades, if feasible;
- Clearing of flora on the Project site will be minimized to aid in attenuation of sound levels;
- Site preparation, construction, and decommissioning activities will be limited to daytime hours, when feasible;
- Infrasound from wind turbines is not anticipated to be a concern based on the project modeling and given the distance the wind turbines are located relative to dwellings;
- Blasting will be conducted by a certified contractor and will be limited to that which is necessary to enable the Project to be carried out; and,

- Equipment, vehicle and haul trucks will be maintained in good working order and equipped with appropriate mufflers to reduce noise.

To address elevated sound level impacts during the operational phase, the turbines have been sited to minimize the impact the heightened sound levels will have on residences and local businesses surrounding the project. Should a community member have any concerns regarding the sound level emissions from the turbines during the operation of the Project, their complaint will be addressed following the Complaint Resolution Plan.

2.13 Visual Impacts

A Visual Impact Assessment has been completed to help understand the impacts on the community members and existing landscape. In addition to this assessment, the following mitigations will be implemented to reduce the visual impacts of the Project:

- LED lighting will be used to minimize light throw;
- Only the minimum amount of pilot warning and obstruction avoidance lighting will be used;
- Only lights with short flash durations and the ability to emit no light during the 'off phase' of the flash (i.e. as allowed by strobes and modern LED lights) will be installed on turbine structures;
- Lights will operate at the minimum intensity and minimum number of flashes per minute (longest duration between flashes) allowable by Transport Canada;
- Exterior turbine maintenance lights will be turned off prior to maintenance staff leaving the site;
- The potential negative effect of shadow flicker has been mitigated at the design stage through responsible turbine siting;
- A shadow flicker assessment has been completed for dwellings and public areas within 2 km of the proposed turbines;
- Compliance with industry standard guidelines on shadow flicker has been achieved. All dwellings will experience less than 30 hours of shadow flicker per year and 30 minutes of shadow flicker on the worst day;
- If shadow flicker occurrences during operation are found to be exceeding guidelines and annoying to surrounding houses and buildings, screening receptors may be considered;

- A Compliant Resolution Plan (**Appendix B**) has been developed for residents to refer to if they have concerns about any shadow flicker observed during operation;
- Construction activities will be limited to the daytime when possible. It is noted that the turbines may be erected during the evening as the activity must be completed when the wind is less than 4 m/s as a safety measure. These conditions are commonly seen in the early evening;
- Foundation concrete pours will begin early in the morning to ensure they do not carry too long into the night, as they can take upwards of 15 hours;
- The paint on the turbines will be selected such that it does not contrast sharply with the environment and minimizes blade glint; and,
- Policies regarding responsible siting of wind turbines were followed to minimize the potential impact on the landscape aesthetics during siting.

3 Emergency Response

The following provides contact numbers in the case of emergencies involving worker safety, public safety and environmental emergencies.

3.1.1 Emergency Contact List

Organization	Contact Name	Contact Number
Fire Department	-	911
Ambulance	-	911
RCMP Police	-	911
Windsor RCMP	-	902.798.2207
Natural Forces Project Manager	Andrea Bradshaw	902.422.9663
Windsor Medical Centre	-	902.798.2207
Nova Scotia Environment	Kentville Office	902-679-6186
Canadian Coastguard	Environmental Emergencies	1.800.565.1633
Canadian Wildlife Services	-	1.800.668.6767
Archaeology Services Branch	-	506.453.2738

Appendix A: Spill Response Report Form

Spill Response Reporting Form

General information	
Date (dd/mm/yyyy)	
Contact person	
Consultant or Contractor	
Address	
City	
Postal Code	
Tel	
Email	
Details of incident	
Date of spill (dd/mm/yyyy)	
Time of spill (hh:mm)	
Weather conditions at the time of the spill	
Name of person who reported the spill	
Name of person who responded to the spill	
Type of contaminant spilled	
Description of spill (size, location, environment, source of spill, extent of contamination, etc.)	
Cause of spill	
Response to the spill (in detail)	

Names of organization, departments or local authority contacted	
Adequacy of the response (by person responsible)	
Are further steps required to remediate the land (y/n)	
If yes, describe the future plans to remediate the land that was impacted	
How was the containment collected and disposed	
Describe the steps or approach that will be implemented to prevent a reoccurrence of this incident	
Additional detail	