Eastern Kings 30 MW Wind Project Phase II Environmental Management Plan

Eastern Kings, Prince Edward Island
Project #TE181036

Prepared for:

Prince Edward Island Energy Corporation
Charlottetown, PEI

3-May-21

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Revision Procedure

The document will be maintained by the Engineering Project Manager and the individual Plan Holders. Plan Holders and readers may initiate proposed revisions by forwarding recommended revisions to the Engineering Project Manager. Revision Request Initiation Forms are provided in Section 8.0.

List of EMP Revisions

Revision Date	Section Revised	Pages Replaced	Plan Holder's Signature

1.0 Introduction

1.1 Project Information

This Environmental Management Plan (EMP) has been developed to support the construction, operation and maintenance, and decommissioning of a 30 megawatt (MW) wind farm (the Project) to be implemented by the Prince Edward Island Energy Corporation (PEIEC) in Eastern Kings, Prince Edward Island (PEI). Construction will begin Fall 2020 to ready operations to begin in late Fall 2021. The wind farm will consist of seven (7) wind turbines, collector lines between the turbines and existing collector system at the neighbouring Phase 1 wind farm as well as access roads to each turbine. Key environmental features identified within the Study Area include watercourses, wetlands, avian fauna (birds) and bats as well as specific floral Species-at-Risk. It is expected to have a lifespan of twenty-five (25) years, at which time the assets will have to be replaced, decommissioned or re-energized.

This Phase 2 wind farm is located approximately 1 kilometre (km) south of the existing East Point Wind Farm, which currently operates ten (10) x 3 MW wind turbines in a similarly sized wind facility. The 10 turbine array was also developed by PEIEC and is currently operating under its own EMP that was developed to support operations and maintenance activities. Because the Phase 2 wind plant is in close proximity to the existing wind plant, no new transmisison lines will be required. Lower voltage (34.5 kV) lines will instead be used to connect the Phase 2 turbines to the substation in the original facility. These collector lines will not approach highways or residential properties. No part of the Project will cross any residential properties.

1.2 Development and Purpose of the Environmental Management Plan

This EMP has been developed to provide the required management measures for the activities associated with the construction, operation, and maintenance of the Project. This EMP forms an integral component of all activities completed in the Project footprint (the Site). The purpose of the EMP is to:

- ensure that PEIEC's commitments to minimize environmental effects in general, and specific regulatory requirements, will be met;
- provide concise and clear instructions regarding measures for protecting the environment and archaeological resources, and minimizing potential adverse environmental effects;
- document environmental concerns and describe appropriate protection measures associated with Project operations and maintenance;
- provide a reference document for planning and/or conducting specific activities that may have an effect on the environment;
- function as a training aid for environmental education and orientation; and
- communicate changes in the program through a revision process.

During the construction phase, a representative from Frontier Power Systems, acting as the Site Project Manager will be assigned responsibility for ensuring practices outlined herein are to be followed and in compliance. Upon project completion, PEIEC's Director, Energy Policy and Assets will assume responsibility for ensuring these same practices and compliance requirements are carried through into the operational and maintenance phases. Through field directives and advice offered by trained and experienced personnel, all users of the EMP will apply appropriate environmental protection practices. The EMP is a stand-alone document that provides guidance for the implementation of sound environmental protection practices.

2.0 Roles and Responsibilities

The document will be maintained by the Engineering Project Manager and individual Plan Holders. The responsibilities for implementation of the Plan and monitoring are outlined below and illustrated in Appendix A.

2.1 Engineering Project Manager

The Engineering Project Manager is a PEIEC employee who works closely with the Site Project Manager and is the primary person responsible for all aspects of Site activities, including environmental, health and safety performance. During the period of construction they may assign specific areas of responsibility to the Site Project Manager or senior members of the project and construction management team. Specific environmental responsibilities of the Engineering Project Manager are to:

- ensure adequate plans and resources are in place to achieve PEIEC's commitments to minimize environmental impacts;
- ensure compliance with relevant regulations, authorizations, permits and protocols;
- review incident reports as they are submitted and advise the proper course of action to be taken to deal with unexpected environmental conditions or events;
- ensure ongoing communication with appropriate regulatory agencies and other interested parties on behalf of PEIEC;
- facilitate EMP compliance;
- introduce and explain the EMP to new personnel arriving onsite;
- provide training for all current personnel and for future personnel arriving at Site, including subcontractors, tradespeople, and suppliers;
- review and approve EMP revision requests;
- conduct a review of the EMP on an as-needed basis and update as required;
- have regulatory authorities review changes of a substantive nature;
- ensure EMP document control;
- ensure issuance of revisions to EMP;
- provide the primary contact with regulatory authorities with regard to EMP implementation and compliance issues; and
- ensure that all subcontractors are aware of and comply with all the requirements of this document.

In the event that this Plan presents a conflict with a requirement, term, or condition of relevant regulatory acts, regulations, permits or control orders, those regulatory requirements will take precedence.

Operations Manager

This PEIEC employee will be the responsible party during the operational, maintenance and decommissioning phases of the project and will assume the oversight functions of the Engineering Project

Manager. With respect to complaints and operational impacts, all responsibilites of the Engineering Project Manager will revert to the Operations Manager.

2.2 Training Requirements

The Engineering Project Manager will advise all Site personnel (including subcontractors) of the appropriate measures outlined in the EMP and ensure that proper training or instruction of individuals is provided in the following areas:

- Correct and sanitary method of garbage disposal in designated disposal locations.
- Hazardous materials and petroleum, oils, and lubricants (POLs) - only by personnel who are trained and qualified in the handling of these materials, and only in accordance with manufacturer's instructions and government regulations. The Workplace Hazardous Materials Information System (WHMIS) program to be implemented and all employees involved with hazardous materials will be appropriately trained. WHMIS training is the responsibility of the Contractor.
- Environmental Orientation training.
- Use of onsite firefighting equipment (i.e., fire extinguishers) and locations of such equipment.

2.3 Enforcement and Compliance

The Engineering Project Manager will:

- be responsible for the day-to-day field monitoring;
- assist in ensuring that compliance with the EMP and other permits is achieved;
- have the authority to make recommendations to improve inadequate environmental measures; and
- make recommendations to management to have the work, or a portion of work, suspended.

In circumstances where insufficient environmental protection poses no immediate threat to the environment, the necessary remedies will be implemented within 48 hours from receipt of notification of the circumstances. Failure to meet this requirement can result in suspension of the work, or a portion of the work, through the issuance of an Environmental Suspension Order by the Engineering Project Manager. Once an Environmental Suspension Order has been issued, work may recommence after the measures are completed to correct the non-compliance.

Specific issues/requests raised by Provincial and Federal regulatory bodies will be discussed with the Engineering Project Manager for consideration of changes to the work, and the beneficial environmental effects resulting from the changes. Additionally, issues raised by other such bodies will be considered for future incorporation to the EMP.

3.0 Environmental Protection Measures

Environmental protection measures designed to reduce potential for environmental effects during construction, operations and maintenance are included within the following subsections. General environmental protection measures applicable to all activities are listed below.

- The Engineering and Operations will ensure that any required permits are acquired, and that work will comply with conditions outlined in the permits/approvals that may be required for the work.
- Clean equipment of soil residues before entering the Site and regularly inspect it for invasive weeds.
- Erodible soils will not remain exposed for longer than absolutely necessary. In areas susceptible to erosion (e.g., along steep slopes) or in environmentally sensitive areas (see Figure in Appendix B), an active revegetation program will be implemented as soon as possible following disturbance.
- Appropriate erosion control measures as outlined in Section 4.1 will be installed prior to activities. Work will be completed in a timely manner, and will be suspended during and immediately after intense rainstorms and during periods of high runoff.
- The area of disturbance will be limited to the space necessary to conduct the work, and sensitive features (such as wetland habitat) identified in the Environmental Impact Statement (EIS)[1] during construction and maintenance activities will be protected.

Activity-specific environmental protection measures are provided in the following subsections. Protection measures related to site management during all activities are presented in Section 4.0 and emergency measures in Section 5.0. All work activities conducted near Environmentally Sensitive Areas identified during the EIA process need to conform with measures outlined in Section 3.3.

Should contractors' standard protection measures and operating procedures not fully address requirements outlined within this document and the EIS, or if permit applications that require a Site-Specific Environmental Protection Plans (SSEPPs) are to be completed (e.g., for culvert installation / repair), then contractors / operators will be required to establish and implement any SSEPP.

3.1 Construction

3.1.1 Project Related Traffic and Equipment Operation

- Vehicle traffic, construction activities, and heavy equipment operation onsite will be limited to hours of 07h00 to 21h00, Monday to Saturday, except in extraordinary circumstances.
- To the extent practical, access to and from the Project should follow predefined travel routes.
- The routing of truck traffic through residential areas will be controlled during the maximum period of activity.
- Multi-passenger, fuel-efficient vehicles will be used to transport crews where practical and applicable.
- The Contractor will ensure idling of construction vehicles is limited.
- No construction will take place within 15 m of any watercourse or wetland unless absolutely necessary and a Buffer Zone Activity Permit will be acquired prior to construction.

1 Wood Environment & Infrastructure Solutions, a division of Wood Canada Limited (Wood). 2019. Environmental Impact Statement: 30 Megawatt Wind Project. Prepared for the Prince Edward Island Energy Corporation (PEIEC). Dated October 2019.

- Equipment and vehicles will only operate on cleared rights-of-way (RoWs) or areas designated for construction activities in the Plans/Drawings.
- If complaints arise due to truck traffic, acceptable alternate routing may be evaluated by the Contractor and PEIEC and implemented accordingly.
- A telephone contact number for the Engineering Project Manager will be provided to area residents for the purpose of reporting noise complaints. When a complaint is received, the Engineering Project Manager will make every reasonable attempt to address the complaint, including, but not limited to, potentially monitoring noise at the location of the complainant's home, etc. A record of all complaints and resolutions will be kept and reported to Regulatory Authorities on an annual basis.
- All heavy construction equipment will be maintained in accordance with the manufacturer's specifications and equipped with appropriate mufflers and other noise control equipment to minimize noise where appropriate. Appropriate equipment will also be implemented to reduce potential for air emissions.
- Routine maintenance of machinery will be performed off-site as much as possible. Some heavy equipment, such as the cranes, will be maintained onsite due to the challenges involved in moving the equipment.
- Imported equipment will be thoroughly cleaned before it arrives on PEI in order to prevent the introduction of exotic species.
- Mobile fuelling trucks will be used to minimize the requirements for onsite storage of petroleum, oils or lubricants (POLs). Use and storage of POLs will follow measures outlined in Section 4.3.
- A professional service provider will be used for snow and ice removal on roads. PEIEC will stipulate that the contractor follow the Best Management Practices as described in Environment and Climate Change Canada's "Best Management Practices for Salt Use on Private Roads, Parking Lots and Sidewalks".
- To reduce the effects of traffic on local air quality, water will be applied as a dust suppressant as needed to prevent fugitive emissions.
- Soil compaction will be avoided by limiting the traffic flow on access roads.
- Since soil admixing can also result from excessive rutting of access roads, travel on the access roads will be limited following periods of heavy rain.
- Construction practices will ensure all sediment from any run-off is locally contained.
- Water will be applied as a dust suppressant as needed to prevent fugitive emissions.
- The speed limit will be reduced on construction site pathways to minimize dust formation.
- Trucks will not be overloaded above freeboard and drop heights will be minimized when loading trucks.
- Slash will not be burned.
- The time between topsoil storage and reclamation will be minimized, thus reducing exposure of the topsoil to the wind.

3.1.2 Clearing, Grubbing and Excavation Methods

In addition to the measures outlined in Section 3.1.1 during construction, the following will apply during clearing, grubbing and excavation activities:

- Property boundaries will be identified, where possible, prior to commencing work activities. This may include staking out private property prior to work operations. The Engineering Project Manager will ensure all its activities are contained with the defined Project footprint.
- Activity will be limited to the minimum area required to construct, operate, and maintain the turbines. Areas outside the footprint of construction will not be disturbed.
- All Site activities will be performed in such a manner that noise is minimized.
- Land will be wetted prior to clearing to minimize dust.
- The potential for soil admixing to occur will be mitigated through the stripping of topsoil from any area which requires grading and the storage of the topsoil separately from the subsoil for reuse during rehabilitation of the site.
- Stripping of topsoil will consist of removing the top 10-15 cm of soil and placing it separately to minimize admixing.
- Stoniness will be avoided by removing any noticeable stone concentration to an approved location.
- During the excavation for the foundation, any shallow soft rock that may be encountered will not be mixed with the topsoil. Topsoil and excavated overburden and bedrock will be stored in separate stockpiles for later use during rehabilitation.
- Excavated materials will largely be used on original clearing sites, where appropriate.
- Infrequently used storage areas for stockpiled materials will be shielded from wind exposure by covering with mats, tarpaulins, re-vegetating or similar methods and/or devices.
- All sand, aggregate, soil, or other materials in place or in stockpiles must be contained to prevent materials from producing dusty conditions and from cross contamination, as determined necessary by the Site Project Manager.
- Sand and soil stockpiles will be bermed and sloped (and seeded with non-invasive, herbaceous, native species, if abandoned) to minimize runoff. If stockpiles are not needed immediately, temporary erosion and sediment control devices will be installed and regularly maintained. Additional measures specific to erosion control are outlined in Section 4.2.
- Only material approved by the Engineering Project Manager and the Site Project Manager will be disposed of or reused onsite (e.g., clean fill materials).
- Waste material will not be dumped onsite. In such case as waste materials are inadvertently dumped, the Site Project Manager (or designate) will immediately act to have the dumped material cleaned up and removed.
- An Indigenous monitor will be invited to visit site prior to construction to assist in identifying culturally significant species of flora.

3.1.3 Turbine Assembly

- Access roads will be used, where possible, for all equipment, including cable reels, line trucks, and tensioning equipment.
- Replanting of disturbed laydown areas will occur upon completion of assembly operations.
- Form oil (biodegradable) may be used sparingly to allow forms to separate from concrete following curing.
- Only the chutes of concrete trucks will require onsite cleaning of wet concrete to permit their storage for transport. The volume of water used, and extent of washing will be kept to a minimum.
- Washing of chutes onsite will occur at a designated location, outside any wetland, watercourse or buffer zone, that will permit containment of the wash water in a settling pond away from any subsurface drains, streams or storm drains. If such a system cannot be located onsite, then the wash area should permit containment of the wash water so that it can be disposed of off-site at the ready-mix plant.
- Washing of the drum at the end of a day's delivery will occur at the ready-mix concrete plant.
- No chemicals will be used in the washing of concrete trucks or forms onsite.
- Aggregate used in the production of concrete will not be stored onsite and concrete will not be produced onsite.
- In the event that water from the washwater containment area requires release to the environment, the effluent will be tested prior to release for parameters related to any concrete additives used in the production of the ready-mix concrete (e.g., total hydrocarbons, sodium hydroxide), pH, and TSS will meet the limits specified by the PEI Department of Environment, Water and Climate Change (PEIDEWCC). Suspended solids concentrations within effluent released will not exceed 25 mg/L (monthly average) or 50 mg/L (grab sample) above background.
- If concrete is mixed on site, drainage from the concrete production area and aggregate storage area, and washwater from the cleaning of batch plant mixers, mixer trucks, conveyors, and pipe delivery systems will be directed to a settling pond for control and treatment, as appropriate. Effluent will be treated as appropriate before release to receiving waters, or alternatively, effluent will be recycled for reuse after treatment. Solids which accumulate in a settling pond will be removed on a regular basis to ensure the settling pond remains effective.
- In areas where the ground is wet, but not wetland, transmission line poles will be dug using a 750 mm auger; while holding the pole in place, aggregate is poured around the pole and tamped, and the hole is filled with additional aggregate, or by other acceptable construction practices.
- Poles will be placed no closer than 15 m from any watercourse, and wetlands will be avoided. If a wetland cannot be spanned, untreated poles (wood, fibreglass or steel) will be used. For stream crossings, poles will be 30 metres from the stream.

3.2 Operations and Maintenance

3.2.1 Structure Maintenance and Cleaning

Repair and replacement of damaged or deteriorated superstructure and substructure components are undertaken as required to ensure their structural integrity. Cleaning is undertaken to prevent the accumulation of dirt and debris which may restrict normal movement on the structure and/or retain

moisture or chemicals, leading to structural component deterioration. Potential activities could include cleaning, lubrication, and painting.

There is concern for wetland habitat quality due to siltation and the release of materials such as abrasives and protective coatings into the aquatic environment. Lubrication materials may contain petroleum compounds, which are potentially toxic to aquatic species.

In addition to the general environmental protection measures described herein, the following protection measures will minimize the potential environmental effects of structure maintenance and cleaning:

- Sensitive features (i.e. wetlands) identified before and during construction will be avoided and protected during maintenance activities.
- Use native plants or no vegetation at all around turbines; avoid planting Mountain Ash trees whose berries can attract birds.
- Avoid mown lawn and avoid use of herbicides and pesticides.
- All waste generated in the removal of damaged and deteriorated components will be collected for proper disposal.
- All materials, where possible, will be reused. Non-salvageable materials will be disposed of at a Provincially-approved location.
- All necessary precautions will be taken to prevent discharge or loss of any harmful material or substance into a watercourse or wetland.
- All empty containers of paint, solvents, and cleaners will be disposed of in an appropriate manner (outlined in Section 5.1) at a Provincially-approved location.

3.2.2 Road Maintenance

Grading

Grading is used to reshape unpaved roads to maintain a proper crown and remove ruts, potholes and washboard conditions. Grading helps maintain proper drainage and keeps road surfaces stable.

The principal concern associated with grading is the potential for erosion due to exposed soil areas and the associated sediment-laden runoff effects on water quality, aquatic ecosystems and environmentally sensitive areas. Grading loosens the surface of the exposed road, increasing potential for erosion of material. If not conducted properly, grading can inhibit controlled drainage of runoff. Dust is also generated during grading processes.

In addition to the general environmental protection measures described herein, the following protection measures will minimize the potential environmental effects of infilling and grading:

- Should grassed areas be encountered during grading, every effort will be made to leave such grassed areas intact.
- Areas where little or no vegetation exists may be graded after a light rain when the surface is in an optimum state for compaction, but not after heavy rains which promote runoff conditions.
- Where possible, a berm (windrow) will not be left at the edge of the road. Grading unpaved roads often results in the creation of a windrow along the edge of the road by the grader blade. The windrow will be collected and reused in construction or properly disposed of offsite. In cases where this is not

possible, diversions will be installed within the windrow at locations beyond Buffer Zones or environmentally sensitive areas to allow surface water to drain into a ditch or vegetated area.

- The elevation of the infilled or graded area will be maintained at a height above the drainage ditch.

Ditch Maintenance and Shouldering

Ditches must be kept clear of excess debris and sediment to maintain drainage of the roadbed and to correct deficiencies such as erosion; nonconformity in grade, line, or cross section of ditch; water ponding on road; and restrictive vegetative growth that impedes drainage of the roadbed.

The principal concern associated with these activities is the potential for erosion due to exposed soil areas and the associated sediment-laden runoff effects on water quality, aquatic ecosystems and environmentally sensitive areas.

In addition to the general environmental protection measures described herein, the following protection measures will minimize the potential environmental effects of ditch maintenance and shouldering:

- A 15 m Buffer Zone will be maintained between the end of ditching and all wetlands / watercourses except in the case of East Lake Creek where a 60m setback will be in place.
- A check dam will be maintained at the end of the ditch (where the ditch meets the Buffer Zone). Additional erosion control structures (Section 4.1) will be installed further up the ditch as required.
- Natural drainage will be maintained whenever practical.
- Sediment deposited in the ditch will be removed when it reduces the capacity of the channel. Removed material and sediment will be disposed of at a location beyond the Buffer Zone of a wetland / watercourse or other environmentally sensitive areas such that it cannot wash into a wetland / watercourse.
- Suitable material will be used when needed to fill washouts, depressions, etc. on foreslopes or backslopes. To ensure stabilization, the ditch may be hay mulched, hand seeded, hydroseeded or lined with jute matting, depending on the erosion potential (refer to Section 4.1).
- Petroleum-contaminated material encountered in the ditch will be reported to the Engineering Project Manager and the PEIDEWCC. Outside PEIDEWCC hours, the Canadian Coast Guard will be contacted at 1-800-565-1633, who responds 24/7.
- Sensitive features (i.e. rare plants, watercourses, environmentally sensitive habitats) identified before and during construction will be protected during maintenance activities.

Surfacing

For the purposes of this EMP, surfacing refers to the placement of aggregate on an unsealed road surface for stabilization, to restore grades or to shape shoulders.

When handling and placing aggregate, there is potential for sedimentation of the aquatic environment and for dust impacts on air quality.

In addition to the general environmental protection measures described herein, the following protection measures will minimize the potential environmental effects of surfacing:

- Any aggregate placement will be completed in such a manner to ensure road surface drainage flows from the centre of the surface to the drainage control structures (i.e., ditching), as appropriate.

- Any aggregate materials applied must be compacted to reduce moisture penetration.
- As required, water will be applied as a dust suppressant to prevent fugitive emissions.
- Sensitive features (i.e. environmentally sensitive habitats such as wetlands) identified before and during construction will be protected during operation and maintenance activities.

Snow Removal

Snow removal may be required during the winter months to maintain safe conditions for operations / maintenance activities. There will be no application of de-icing agents (i.e., salt) on the roads or Site surfaces. Where safety is a concern the application of sand may be required.

Snow removed from access roads and Site surfaces may impede surface flow in ditches and watercourses / wetlands if dumped improperly. Dirt and gravel from the road surface mixed with the snow may result in increased siltation of wetlands / watercourses, and may cause blockages in drainage structures.

In addition to the general environmental protection measures described herein, the following protection measures will minimize the potential environmental effects of snow removal.

- A contractor will be used for snow and ice removal on roads.
- Snow removed from access roads and Site surfaces will not be dumped within the Buffer Zone of a watercourse / wetland or other environmentally sensitive area. Snow removal equipment will utilise plow and blower attachments onsite, eliminating the need to dump loads of snow on the Site.

3.2.3 Ice Throw

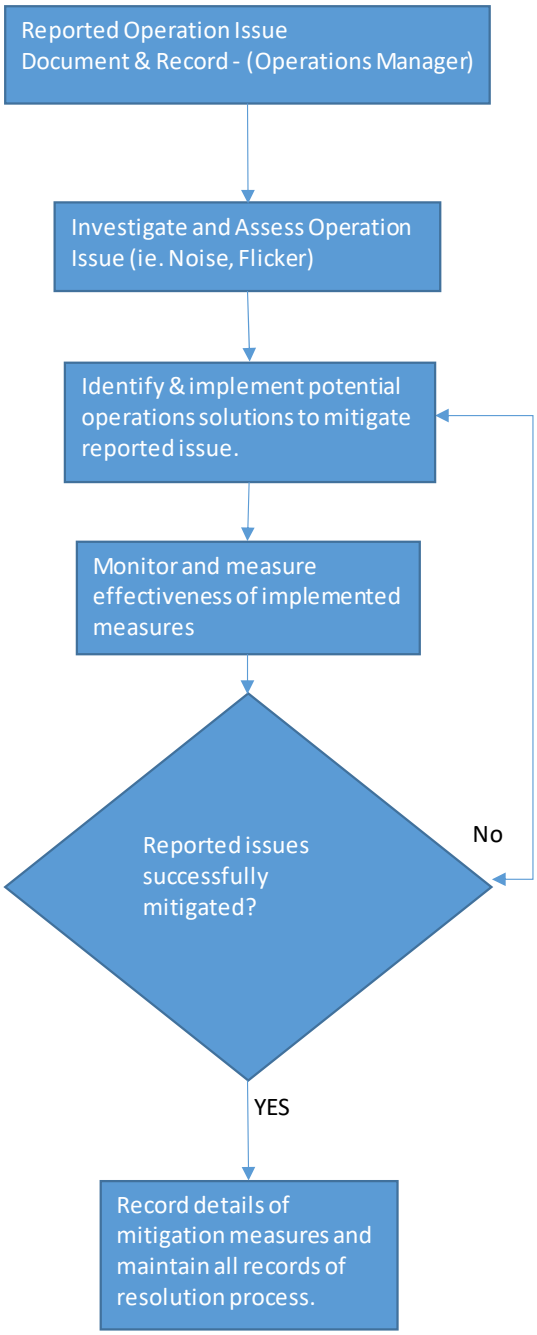
During winter months, there is potential for ice to accumulate on turbine blades, which can be thrown off during operation.

There is a risk of injury to persons or damage to structures from ice fragments thrown from the turbine. To prevent such injuries:

- Workers will be trained on the hazards of ice build-up on tall structures and will be prohibited from approaching an iced structure;
- Staff should wear protective equipment when on site;
- Warning signs should warn of potential ice issues. A safety set-back of at least 300 metres (m) will be indicated where possible;
- Access by visitors will be prohibited during potential icing events and
- Personnel will regularly ensure that warning signs are being heeded while onsite.

3.2.4 Conflict Resolution and Mitigation Protocol

Pursuant to Conditions in the EIA determination, particularly conditions #9 and #11 (see Appendix C), the following conflict resolution and mitigation protocol flow chart illustrates the mechanism that will be used in such situations should they arise.



In addition to this conflict resolution protocol, an Environmental Management Committee will be formed for the operational phase of the project which will offer an additional opportunity for project-related concerns to be brought forward to the proponent. An annual report will be submitted to the Environmental and Land Management Section of the Department of Environment, Water and Climate Change detailing all complaints received and their resolution.

3.3 Work Activities Near Environmentally Sensitive Areas

- Environmentally sensitive areas (i.e. wetlands and watercourses) will be staked out prior to work operations so that these areas are protected.

- A 15 m buffer zone will be maintained on each side of a wetland/watercourse except in the case of East Lake Creek where a 60 m setback will be flagged.
- The Site Manager will limit activity within watercourse and wetland buffer zones, as well as within areas where rare species are noted to occur.
- Work conducted in the vicinity of wetlands/watercourses will be conducted in a manner which ensures that erosion and sedimentation of wetlands/watercourses is minimized.
- Appropriate erosion control measures outlined in Section 4.2 will be installed prior to conducting the work. Work will be completed as soon as possible and will be suspended during and immediately after intense rainstorms and during periods of high runoff.
- Materials cleared from the sites (brush, logs, soil, etc.) should not be dumped into otherwise unaffected land and are not permitted within any watercourse/wetland buffer zone.
- Slash will be piled outside the buffer zone of a wetland or watercourse (i.e., greater than 15 m from a wetland or watercourse) for subsequent chipping and disposal in an approved facility.
- Construction equipment will not enter buffer zones of wetlands/watercourses or environmentally sensitive areas, except within the Project footprint and under direct supervision of the Site Supervisor.
- Removal of tall trees and snags will be limited to areas absolutely necessary for construction, including trees of 15 cm diameter or greater.
- The Construction Manager will limit activity within buffer areas and make minor adjustments (10 m or less) to protect floral SAR.
- Work conducted in the vicinity of floral SAR will be conducted in a manner which ensures that erosion and sedimentation of sensitive habitat is minimized using measures outlined in Section 4.2.

4.0 Decommissioning

Nearing the end of the 25-year operational life span of the turbines, decisions will be made with regard to continuing operations of the wind park with new or refurbished turbines and/or other equipment or dismantling the operation and returning the site to its original condition using modern technologies to accomplish this objective.

If the proposed wind farm has reached its useful life and is not being considered for repowering, decommissioning plans will be put in place and initiated one to two years prior to terminating operations. This is in part due to the specialized nature of the turbine equipment being decommissioned, as well as the timelines required to efficiently reclaim and restore the remaining access roads and sites back to their original state.

The turbine systems will be disassembled systematically starting with the nacelle, hub and blades with the tower structure to follow. A critical aspect of decommissioning activities will involve disposal or disposition of the turbine components and equipment. It is difficult to predict demand and future value for these components and raw materials in 20-25 years, however, PEIEC is fully responsible for ensuring safe removal and transport of any turbine components and materials from project sites. If decommissioning is chosen, it will be done while adhering to all requirements of the appropriate governing authorities and will be done in compliance with all applicable local, provincial and federal permits.

Table 1 illustrates the sequence of decommissioning events that must occur in order to restore the project sites and affected land back to its original state. Prior to tendering decommissioning contracts and activities, PEIEC will have been active in discussions with the Rural Municipality of Eastern Kings and participating landowners well in advance of making any final decisions. It should be noted that the tasks outlined in Table 1 are an estimate and can be affected by contractor availability and safe wind speed conditions.

Table 1 Decommissioning Activities

Task	Activity Description	Duration
1	Site preparation	1 Month
2	Removal of blades, nacelle and hub, tower sections	2-3 Months
3	Foundation removal - 1m below grade	1-2 Months
4	Removal of Collector system	1-2 Months
5	Removal of any substation components	2 Months
6	Operations building and access road rehabilitation	6 Months

Should the turbines be refurbished to increase the Project lifetime, heavy transport vehicles and a heavy lifting crane would be necessary to transport turbine parts as well as to deconstruct and reconstruct the turbines. All transformer and turbine liquids will be carefully collected, moved off-site and disposed at a licensed facility.

The Project Decommissioning Plan can be found in Appendix D.

5.0 Environmental Protection Measures for Site Management

5.1 Birds, Bats and Other Wildlife Encounters

Potential effects to birds include alteration/displacement of habitat, noise / disturbance, behavioural changes, and destruction of active nests during construction, operation and maintenance activities. Issues associated with birds relate to the disturbance and potential mortality of individual birds. Applicable Acts and Regulations include the *Migratory Birds Convention Act*, the *Canadian Species at Risk Act* (SARA) and the *PEI Wildlife Conservation Act* (PEIWCA). Noise or physical disturbance could encourage adult birds to avoid, or be displaced from, feeding, breeding, or nesting habitat. Similarly, once eggs have been laid, abandonment of nests could occur if adult birds are displaced from the nest. Nests may also be directly harmed if vegetation clearing takes place during the sensitive nesting period of April 8th to August 31st. It should be noted that adaptive management planning will be in place prior to operation as part of the Bird and Bat Mortality Monitoring Plan which will be submitted under separate cover. Pursuant to the EIA Conditions of Determination, specifically Condition #7, thresholds will be in place relative to bird and bat protection as detailed below.

The mortality of an individual migratory bird species at risk, or 10 or more migratory birds in one 24 hour period, or three (3) or more bats in one night is considered a mortality event for which CWS must be contacted within 24 hours (Environmental Emergencies 1-800-565-1633). This notification will occur even after the formal post-construction bird/bat monitoring program has ended. Any reported event must be accompanied by specific details about the event such as name and location of the wind farm, number of mortalities, species, map showing turbines, associated infrastructure, and location of collisions, meteorological conditions during previous night(s), details of lighting at the site and any other factor that might have influenced the event. For complete details, please refer to the EIA Conditions of Determination attached in Appendix C.

Birds may attempt to nest on vehicles, equipment or infrastructure, as well as in overburden stockpiles or open field areas. During all onsite activities, the following measures should be taken to avoid wildlife encounters and minimize disturbance:

- Vehicles will yield the right-of-way to wildlife.
- Do not harass or disturb wildlife.
- Keep work area clean of food scraps and garbage and transport waste to an approved landfill on a regular basis.
- Report all wildlife sightings.
- Limit removal of tall trees and snags. The area cleared will not exceed the absolute minimum amount necessary.
- Aerate compacted soil to allow natural revegetation.
- When grassed areas are encountered during grading, every effort will be made to leave such grassed areas intact.
- Native plant regeneration will be promoted in any areas that are cleared but not built upon (i.e. roadside ditches, temporary laydown areas, etc.).
- Use native plants or no vegetation at all around turbines. Avoid Mountain Ash trees, which attract birds.
- Avoid mowed lawn.
- Minimize footprint of construction.

5.2 Erosion Control

During construction, operation and maintenance activities, use of heavy vehicles at the Site could result in ruts in roads and site surfaces or exposed solids susceptible to erosion. Control of erosion and potential sedimentation of receiving waterbodies is of utmost importance in preventing these impacts. The amount and duration of exposed soil will be kept to a minimum. Erosion control methods will be applied where there is the potential for erosion due to rain, flowing water, steep slopes, and highly erodible soils. Preventing erosion at the source reduces the amount of sediment that needs to be managed by downstream sediment control measures. It is also important that sediment controls are in place to prevent sediment from leaving the Site.

Precipitation, flowing water (e.g. snow melt), steep slopes, or highly erodible soils will increase the potential for erosion. The principal environmental concern is the associated sediment-laden runoff and the resulting effects on water quality, aquatic ecosystems and environmentally sensitive areas such as wetlands.

5.2.1 General

- Where a vegetation buffer between erodible slopes and waterbodies is less than 15 m, or where erosion-prone areas are immediately upgradient of adjacent properties, an engineered silt fence will be constructed to control silt runoff and placed along the downgradient perimeter of the work area.
- Sediment-laden water will be collected by erosion control measures in place onsite such as sediment control fences and check dams.
- No waste or debris will be permitted to enter any watercourse, wetland or buffer zone.
- Run-off from a disposal/storage area will not be allowed to enter a watercourse.

5.2.2 Structures/Products

- Where a vegetation buffer between erodible slopes and waterbodies is less than 15 m, or where construction areas are immediately upgradient of adjacent properties, an engineered silt fence will be constructed to control silt runoff and placed along the down gradient perimeter of the construction area.
- Erosion control structures or check dams will be constructed in accordance with PEI Department of Transportation, Infrastructure and Energy (PEIDTIE); installed as directed by the Engineering Project Manager Engineering and Operations.
- Silt or sediment control fences will consist of woven synthetic fibre fabric attached to wooden posts and buried on the upslope side.
- In extremely erodible areas, hay or straw mulch will be used as required for protection.
- Silt fences will not be used to control sedimentation within a ditch or watercourse. Where erosion control within a drainage ditch is required, geotextile wrapped straw bales will be installed to provide a check dam and prevent downstream sedimentation. Some rockfill or riprap may be installed on the downstream side of the check dam to secure the structure during heavy rainfall events.
- Erosion control measures will be monitored during construction activities within the RoW and any areas associated with Project construction activities. Where damage to these erosion control measures is observed, they will be promptly repaired to prevent siltation of wetlands/watercourses or other environmentally sensitive areas.

5.2.3 Sedimentation

- Sediment-laden water will be collected by erosion control measures in place onsite such as sediment control fences and check dams.
- If siltation of the nearby watercourses is observed, notify the Construction Manager and identify the source of the siltation. Siltation indicates preventative measures have been ineffective.
- Suspend any construction operations contributing to the problem until the situation is corrected.
- Isolate, contain, and control the source using measures such as straw bales or brush mats. Erosion control structures will be fixed immediately.
- If the release has affected, or has the potential to affect, a sensitive area (i.e., a wetland or watercourse), the Site Supervisor will contact and consult with the appropriate regulatory authorities (e.g., PEIDEWCC, DFO) as required for notification and planning.
- To ensure that erosion and sediment control measures are in effective working order, their condition will be monitored regularly and prior to, during, and following storm events.
- Accumulated sediment will be removed once it reaches a depth of one-half the effective height of the control measure or a depth of 300 mm immediately upstream of the control measure.
- For all erosion control measures, accumulated sediment will be removed as necessary to perform maintenance repairs.
- Accumulated sediment will be removed immediately prior to the removal of control measures.
- The sediment removed will be deposited in an area that is approved by the Construction Manager and will not result in erosion and runoff into a watercourse, wetland or buffer zone.

5.2.4 Maintenance

- The Contractor will maintain the erosion control structures in a functional condition for as long as necessary to contain sediment from run-off; from time of installation until a sufficient vegetative cover growth (>90% cover) has been established.
- All erosion control structures and sediment control fences will be inspected before, during and following each rainfall event and at least daily during periods of prolonged rainfall. Any damage arising from major storm events will be repaired as soon as possible to the satisfaction of the Engineering Project Manager Engineering and Operations.
- Retained sediment will be removed when it has accumulated to a level of half the height of the fence/barrier and disposed of at least 30 m away from any wetland or watercourse in a manner that prevents it from entering. In circumstances where landowners will not permit the use of alternate locations, the Buffer Zone will be reduced to a minimum of 15 m.
- Use native plants or no vegetation at all around turbines; avoid planting Mountain Ash trees, whose berries can attract birds.
- Avoid mown lawn.

5.3 Petroleum, Oils, Lubricants (POLs), and Other Hazardous Materials

A variety of potentially hazardous materials will be in use or storage during construction and maintenance activities for the wind farm. Potentially hazardous materials routinely used include: POLs, hydraulic fluids, acetylene, paints and solvents. The procedures and requirements of the WHMIS program will be in place to protect employees and are generally applicable to the protection of the environment. These WHMIS procedures and requirements reinforce the proper handling, storage, and control of hazardous or toxic materials, thereby reducing the potential for accidental release and consequent potential environmental effects.

The major concern regarding the use of these substances is their uncontrolled release to the environment through accidental spillage, as well as subsequent adverse effects on terrestrial and aquatic habitat and species. There are also risks to soil and groundwater quality, and human health and safety.

The following protection measures are intended to minimize the potential for any spills of POLs and other hazardous materials on soil, vegetation, surface water, and groundwater.

5.3.1 Storage of POLs

- The transport of fuel will be conducted in compliance with the Canadian *Transportation of Dangerous Goods Act*.
- The onsite POL storage container shall be located on level terrain, at least 100 m from any watercourse or wetland.
- No POL storage will occur in sensitive areas (e.g., near wetlands, watercourses or wells) or associated buffer zone.
- Fuelling must be done at least 30 m from a wetland or watercourse.
- Servicing of equipment will not be allowed within 100 m of a wetland, watercourse or drainage ditch.
- POLs used onsite will be stored in vented steel containers, equipped with drip trays for the collection of spilled substances, in the locked substation building.
- Onsite POLs will be available in limited quantities. Drums as required for one day's use will be onsite, and drums will be delivered on a daily basis as needed. Spill decks will be used for transferring products to smaller containers.
- Vehicle maintenance will be performed off-site, at a nearby commercial fuelling station.
- Fire extinguishers and spill kits will be located near POL storage areas.
- POL storage areas will be identified by signs, and "No Smoking" signs will be displayed at all POL storage sites and refuelling areas.
- Smoking will not be permitted within 50 m of any POL storage area. Onsite signage will indicate the location of smoking areas.

5.3.2 Equipment Fuelling

Only equipment that is not easily transported will be refuelled onsite. All other vehicles and equipment will be refuelled at a commercial fuelling station:

- When refueling equipment, operators will:
  - use designated fuelling locations;

  - use drip trays;
  - use leak free containers and reinforced rip and puncture proof hoses and nozzles;
  - be in attendance for the duration of the procedure; and
  - seal all storage container outlets except the outlet currently in use.
- Fuelling must be done at least 30 m from a wetland or watercourse.
- The Contractor will make daily inspections of hydraulic and fuel systems on machinery and leaks will be repaired immediately. All leaks will be reported by the Engineering Project Manager Engineering and Operations to the PEIDEWCC. Outside PEIDEWCC hours, the Canadian Coast Guard Emergencies line will be contacted at 1-800-565-1633.
- Servicing of equipment will not be allowed within 100 m of a wetland, watercourse or drainage ditch.
- Fuelling attendants will be trained in the requirements under the Fuel and Hazardous Material Spills Contingency Plan in Section 5.0 of this EMP.

5.3.3 POL Waste Disposal

- Waste POLs will be stored in a ventilated, lockable steel container. The container will be equipped with drip trays for the collection of spilled substances.
- Waste solvents and oils will be stored separately.
- All used oil and petroleum products will be removed from Site and disposed of in an acceptable manner in accordance with government regulations and requirements. Waste oil will be collected separately and offered for recycling or stored for collection by an appropriate special waste collection and disposal company.
- Greasy or oily rags or materials subject to spontaneous combustion will be deposited, and kept, in an appropriate receptacle. This material will be removed from the Site on a regular basis and will be disposed of in an approved existing waste disposal facility.
- POL waste disposal will be the responsibility of the Contractor.
- The Contractor will, with the prior approval of the Site Supervisor, designate and use areas for the transfer and limited temporary storage of hazardous materials and special wastes. These sites will be properly labeled and appropriately controlled and will be located a minimum of 30 m from a wetland or watercourse.
- Onsite temporary disposal areas for surplus material will be designated and will be located a minimum of 30 m from a wetland or watercourse.

5.3.4 Hazardous Materials

The Contractor will, with the prior approval of the Engineering Project Manager Engineering and Operations, designate and use areas for the transfer and limited temporary storage of hazardous materials and special wastes. These sites will be properly labelled and appropriately controlled, and will be located a minimum of 30 m from a wetland or watercourse.

5.4 Solid Waste Disposal

During all onsite activities, solid waste will be generated. Waste streams have been provisionally classified as domestic waste, paper, cardboard, and wood as well as scrap steel and metals. This section contains measures for waste minimisation, recycling and disposal.

Solid waste, if not properly controlled and disposed of, can be unsightly and cause human health and safety concerns as well as adverse effects on terrestrial and aquatic habitats and species.

The following protection measures will minimize the potential environmental effects of solid waste disposal:

- Waste produced during the Project operations and maintenance will be sorted as per the requirements of the PEI Waste Watch Program (Island Waste Management Corporation).
- Domestic waste will be gathered on a regular basis and stored in closed containers until recycled or disposed of as per the requirements of the PEI Waste Watch Program.
- Food waste will be stored in a manner that ensures wildlife will not be attracted, and will be removed from Site on a daily basis.
- All waste will be handled in accordance with relevant provincial and federal requirements.
- Onsite temporary disposal areas for surplus material will be designated at a minimum of 30 m from a wetland or watercourse.
- Waste material will not be dumped onsite.
- No waste or debris will be permitted to enter any watercourse or wetland.
- Only material approved by the Engineering Project Manager Engineering and Operations will be disposed of or reused onsite (e.g., clean fill materials).
- Run-off from a disposal / storage area will not be allowed to enter a watercourse or wetland.

5.5 Sewage Disposal

Overview

Portable and/or temporary toilets and washcars with holding tanks may be kept onsite during construction activities. The following protection measures will minimize the potential environmental effects of sewage disposal:

- Where sewage facilities are required, developments will proceed, in accordance with the PEI *Environmental Protection Act* for a temporary or permanent sewage collection and treatment system (if required).
- The holding tanks will be pumped and emptied as required and disposed of by the sanitation contractor at an approved facility.
- No facilities will be placed within 30 m of a watercourse or wetland.

6.0 Contingency Plans for Unplanned Events

6.1 Fuel and Hazardous Materials Spills

This Fuel and Hazardous Material Spills Contingency Plan presents a detailed response system to deal with accidents such as the release of POLs or other hazardous materials. The objectives of the Plan are to minimize the following:

- danger to wildlife and people;
- pollution of land and water;
- size of affected area; and
- degree of disturbance during clean-up.

The day-to-day operations of equipment, machinery and vehicles, as well as the transfer of fuel from storage containers to these, offer the potential for fuel spills. Other hazardous material products include hydraulic fluids, lubricating oil, solvents, anti-freeze, and paint. Fuels and other hazardous materials can be damaging to vegetation, soil, surface water, groundwater, human health, wildlife and aquatic organisms.

6.1.1 Personnel Training and Prevention

The following measures will be implemented to minimize the potential environmental effects in the event of a fuel or hazardous material spill:

- Hazardous materials will be handled only by personnel who are trained and qualified in the handling of these materials, and only in accordance with manufacturer's instructions and government regulations. The WHMIS program will be implemented in accordance with the PEI *Occupational Health and Safety Act* and Regulations. All employees involved with hazardous materials will be trained in the use of safety equipment, spill prevention equipment and emergency response procedures.
- Hazardous materials will be stored and handled in accordance with applicable Provincial and federal regulations, codes and guidelines.
- Storage of hazardous materials will not occur in environmentally sensitive areas, such as wetlands or watercourses (see Section 3.3).
- Hazardous material containers will be properly labeled in compliance with the requirements of WHMIS.
- Safety Data Sheets (SDS) will be available for all hazardous materials in use or stored onsite.
- A Fuel and Hazardous Material Spill Contingency Plan has been developed below. Designated personnel will be trained in the procedures and responsibilities outlined in the Contingency Plan.
- All hazardous materials will be removed and disposed of in an acceptable manner in accordance with government regulations and requirements. Hazardous materials may be removed from Site by an appropriate special waste collection and disposal company.
- Contaminated materials will be separated from noncontaminated materials and disposed of at approved waste disposal facilities.
- Hazardous substances will be substituted for less harmful ones whenever possible.
- Appropriate preventative response measures and practices will be followed.

- Environmental awareness training will be provided to Site contractors and personnel. Training will include the handling, clean-up, reporting and disposal of contaminated material.
- Appropriate spill response equipment will be available in a readily accessible location.
- All spills will be reported to applicable authorities (e.g., PEIDEWCC or the Coast Guard's 24-hour emergency reporting system 1-800-563-1633).
- Inspection of equipment (e.g., construction vehicles, exhaust systems) will be completed regularly by all Site personnel to ensure that vehicles with obvious fuel or oil leaks do not gain entrance.

Best management practices prescribe the presence of spill kits on location and on the vehicles. Spill management procedures as outlined in the Contingency Plan will be followed when a spill occurs. Spill kits are mandatory onsite. Any discharge will be cleaned immediately and authorities notified (e.g. PEIDEWCC, Fisheries and Oceans Canada (DFO), or the Coast Guard).

6.1.2 Contingency and Response Plan

If it is safe to do so, the individual who discovers the leak or spill will immediately attempt to stop and contain the leak or spill. Any spill or leak must be reported immediately to the Engineering Project Manager Engineering and Operations who will:

- immediately report the spill to the Canadian Coast Guard's Environmental Emergencies 24-hour Report Line will be called (see Section 6.0 for telephone numbers). A Spill Report Form (provided in Section 7.0) will be completed to include:
  - a description of the source, including the name of the owner or operator;
  - the nature, extent, duration and environmental impact of the release;
  - the cause or suspected cause of the release; and
  - any remedial action taken or to be taken to prevent a recurrence of the leak or spill.
- have the full authority to take appropriate action without unnecessary delay. The Spill Report Form in Section 7.0 will be completed by the Contractor immediately following the discovery of the spill or leak and forwarded to the Engineering Project Manager Engineering and Operations. Spill Reports will be made available to the PEIDEWCC upon request.
- assume the overall responsibility for coordinating the clean-up and maintaining this Contingency Plan current and up-to-date. The Contractor will, in consultation with the regulatory authorities (if warranted):
  - deploy Site personnel to contain the spilled material using a dyke, pit, or absorbent material;
  - assess Site conditions and environmental impact of various cleanup procedures;
  - choose and implement an appropriate cleanup procedure;
  - deploy Site personnel to mobilize pumps and empty drums (or other appropriate storage) to the spill site;
  - dispose of all contaminated debris, cleaning materials, and absorbents by placing in an approved disposal site; and
  - take all necessary precautions to ensure that the incident does not recur.

- send a completed Spill Report Form to PEIDEWCC, as soon as possible, and no later than 30 days after the spill.

Spill Cleanup Resource List

During construction, operation and maintenance the following resources will be available at an appropriate location in readiness to respond to accidental releases of fuels and/or hazardous materials:

- Absorbent materials (i.e., sorbent pads, Sorb-All, peat moss).
- Small equipment such as shovels, rakes, tool kit, sledgehammer, buckets, stakes, tarpaulins, one empty drum, and protective equipment.
- The Contact List provided in Section 6.0 of this EMP for spill response communications.

6.2 Wildlife Encounters

This program contains measures to minimise interactions with wildlife during Site activities.

Encounters with wildlife may result in distress for both the animal and the employee. It is anticipated that the risk to employees through encounters with wildlife at Site will be minimal, since large mammals such as bear and moose are not present on the Island. Serious injury, however, could result to Site personnel in some instances; for example, encounters with wildlife may include aggressive behaviour (e.g., adults defending their offspring) and potential for contact with animal-borne diseases such as rabies. While rabies is not present in terrestrial mammals on PEI, bats may be infected with the virus. Bites from any animal can be potentially dangerous.

Species of wildlife that are most likely to be encountered at Site include raccoons, foxes and crows; all of whom already occupy a disturbed landscape and are generally accustomed to being in proximity to people. Wildlife encounters do, however, have the potential to distress animals to the point of altering feeding and breeding behaviour primarily through habituation and reliance on food sources originating from humans. Physical injury or death to wildlife could also occur.

6.2.1 Personnel Training and Prevention

Personnel will be advised of the appropriate measures to use in the event of a wildlife encounter. They will also be instructed in the correct and sanitary method of garbage disposal in designated locations, which will minimize wildlife encounters.

The following waste disposal recommendations will minimize the attraction of wildlife:

- Keep work area clean of food scraps and garbage.
- Transport waste to an approved landfill on a regular basis.

6.2.2 Contingency and Response Plan

No formal notification is required when common wildlife species (e.g. foxes, crows) are observed at Site. All personnel will, however, report the presence of wildlife that have potential to result in negative interactions with Site personnel to the Engineering Project Manager. This includes observations of common species behaving in an unusual or aggressive manner, such as approaching Site personnel.

- When wildlife sightings are reported to the Engineering Project Manager and Operations, they will initiate a reasonable action to reduce the chance of disruption or injury. Should disruption or injury to the wildlife occur, the Engineering Project Manager will contact the Fish and Wildlife Division of

PEIDEWCC. Should aggressive animals or nuisance wildlife be encountered, a protocol will be developed in consultation with that Division to deal with these issues. In general, however, no attempt to harass wildlife will be made by any person at Site and equipment and vehicles will yield the right-of-way to wildlife.

- If dead animals are encountered anywhere on Site (including birds or bats), they will be removed and disposed of, as soon as possible, in consultation with the local Provincial Wildlife Officer (or, in the case of a pet, the PEI Humane Society). The following information will be recorded: date and time it was found, injury sustained (if identifiable), cause of injury (if known), and species. This information will be kept on file. All handling of bird carcasses will be in accordance with the *Migratory Birds Convention Act* (MBCA) salvage permit. If a Species at Risk Act (SARA)-listed species carcass is found, the Fish and Wildlife Division of PEIDEWCC will be consulted and the carcass will be sent to the Canadian Wildlife Health Cooperative Atlantic for necropsy.
- In the case of encounters with injured or diseased wildlife at Site (including birds or bats), the Engineering Project Manager Engineering and Operations will contact the Fish and Wildlife Division of PEIDEWCC. No attempt will be made to harass the animal, and no person at Site will come into direct contact with the animal.
- In the case of encounters with injured or diseased wildlife at the work site (including birds or bats), the Construction Manager will contact the on-call Conservation Officer. No attempt will be made to harass the animal, and no person at the work site will come into direct contact with the animal.
- If an injured or dead bird or bat is encountered, the following information will be recorded: date and time it was found, injury sustained (if identifiable), cause of injury (if known), and species. This information will be kept on file for incorporation into the post-construction bird and bat monitoring program.
- If a nest or chick of a migratory bird is detected during construction, its presence will be reported to the Engineering Project Manager and the area will be buffered by 20 m until chicks have fledged.

6.3 Fires

There is potential for a fire to start on Site, or for a fire started off-site to spread into the Project area. This Contingency Plan contains measures for fire prevention as well as response action plans.

Fires could result in terrestrial habitat alteration, and direct mortality of wildlife. Firefighting chemicals and spilled materials could enter aquatic habitat and adversely affect biota and habitat. Fires also have the potential to adversely affect air quality and could pose risks to human health and safety.

The following measures will be implemented to minimize the potential for causing a fire and control potential environmental effects in the event of a fire.

6.3.1 Personnel Training and Prevention

All persons working at Site will be trained in the use of onsite firefighting equipment, fire prevention and response. Preventative measures to be observed include that:

- all flammable waste will be disposed of on a regular basis.
- there will be no smoking within 50 m of flammable product storage or usage. Areas for disposal of smoking material will be clearly posted.
- Firefighting equipment, sufficient to suit onsite fire hazards, will be maintained in proper condition and to the manufacturer's standards.

6.3.2 Contingency and Response Plan

- Notify nearby personnel.
- Onsite personnel will take immediate steps to extinguish the fire using appropriate equipment.
- Notify the Engineering Project Manager Engineering and Operations.
- If the fire cannot be contained, contact the Fire Department at 911.
- In case of related medical emergencies, emergency medical assistance will also be requested from 911.

6.4 Discovery of Unusual Features

This contingency plan outlines steps to be taken upon the discovery of any unusual features at the site (including illegal activity, suspected human remains, etc.).

- All personnel are responsible for reporting any unusual materials discovered or unearthed during site activities to the Engineering Project Manager.
- If the discovered unusual materials appear to be related to illegal activity or physical human remains, stop work, halt all activities in the vicinity of the find at once (minimum 10 x 10 m area), and secure the area.
- The Engineering Project Manager will immediately contact PEIEC Management of the discovery.
- Until determined otherwise, the items should be treated as evidence in a criminal investigation. If the items are found in the bucket of heavy equipment, the bucket should not be emptied as physical evidence may be destroyed.
- The area should immediately be designated as "Out of Bounds" to all personnel and the public.
- Depending on the weather and other conditions, provide non-intrusive protection, such as covering the find with a cloth or canvas tarp (non-plastic preferred).
- All personnel and traffic should exit the site by one common non-intrusive path. Curiosity seekers should be kept off the site.
- Should the discovery appear to be related to illegal activity, PEIEC Management will contact the local or lead police agency (911).
- Should the discovery potentially be human remains, the Engineering Project Manager will visually examine the find, take photographs (if possible), and record the following information:
  - A description of the possible archaeological resource;
  - The location of the activity and construction activity being conducted;
  - If possible, the approximate depth at which the materials were identified;
- Engineering Project Manager shall contact the Project Archaeologist Darcy Dignam (506-471-6284 / darcy.dignam@woodplc.com), and provide the information. If possible, email the photographs of the object(s) and the location where it was uncovered;
- The Project Archaeologist (Darcy Dignam 506-471-6284; darcy.dignam@woodplc.com), will assess the discovery to confirm whether it is human skeletal material. This might be accomplished via the telephone and email but may require a site visit.
- If the discovery is determined to be human remains, PEIEC Management will contact the local or lead police agency (911), while the Project Archaeologist will contact the Provincial Archaeology Regulator (Erin Mundy; Staff Archaeologist, Indigenous Relations Secretariat (PEIIRS). The lead police agency will determine if the situation is associated with a crime or an archaeological feature.
- Work can only restart in the vicinity of the discovery once clearance has been received from the authorities and agencies concerned.

7.0 Key Personnel Contact List

The following section lists key organizations and/or individuals that may be contacted during emergencies and / or regarding regulatory issues, as well as key Project Contacts. This list will be posted at the base of each turbine, and it will be carried by all Site personnel during any activity.

Agency	Area	Phone Number
Emergency Contacts		
Ambulance/Police/Fire/Rescue		911
Local Hospitals with Emergency Services		
Kings County Memorial Hospital (8am – 8pm)	409 MacIntyre Avenue, Montague	(902) 838-0736
Queen Elizabeth Hospital (24 hrs)	60 Riverside Drive, Charlottetown	(902) 894 2111
Environmental Emergencies and Spills		
Canadian Coast Guard	Maritimes	1-800-565-1633
Regulatory and Municipal Contacts		
PEI Department of Environment, Water and Climate Change (PEIDEWCC)	Charlottetown – Dale Thompson Environmental Assessment Officer	(902) 368-5049
PEI Indigenous Relations Secretariat (PEIIRS)	Charlottetown – Erin Mundy Staff Archaeologist	(902) 368-5259
PEI Forests, Fish and Wildlife	Charlottetown – Garry Gregory	(902) 569-7595
PEI Department of Transportation, Infrastructure and Energy (PEIDTIE)	Charlottetown – Brian Thompson Director	(902) 368 - 5185
Fisheries and Oceans Canada (DFO)	Charlottetown – Fisheries Protection Program	(506) 851- 2824
	Marine pollution incident spill response (24 hour)	1-800-565-1633
Workers Compensation Board	Charlottetown	(902) 368-5680
	Toll Free	1-800-237-5049
	Customer Liaison Officer	1-866-460-3074
Project Contacts		
Prince Edward Island Energy Corporation (PEIEC)	Heather MacLeod – Director of Energy Policy and Assets	(902) 368-5011 (902) 314-1746
	Spencer Long – Engineering Project Manager	(902) 218-9453 (mobile)
Frontier Power Systems	Carl Brothers – Site Manager	(902) 853-6800

8.0 Forms

The following forms are provided:

- EMP Revision Request Initiation Form;
- Environmental Inspection Report Form; and
- Spill Report Form.

Prince Edward Island Energy Corporation **Charlottetown, PEI**	**EMP Revision Request** **Initiation Form**
Section to be Revised:	
Nature of Revision:	
Rationale for Revision (i.e., environment/worker safety, etc.):	
Submission:	
Date Submitted:	
Signature:	

Prince Edward Island Energy Corporation, Charlottetown, PEI	**Environmental Inspection Report Form**
Date:	
Weather:	
Construction Activities:	
Sediment and Erosion Control Structures	☐ Adequate ☐ Inadequate ☐ Not Required
Issues:	
Resolutions:	
Comments:	

TSS Sampling (if required)

Location	**Sample ID**	**TSS Measurement (mg/L)**

Site Manager:	
(Please Print)	Signature

Submit this completed form to the Engineering Project Manager

Engineering Project Manager

	Prince Edward Island Energy Corporation Charlottetown, PEI	**Spill Report Form**
1	Name: (of person reporting the spill)	Phone No.:
2	Name: (of owner of spilled product)	Phone No.:
3	Date:	
4	Time of Spill or Leak:	
5	Time of Detection:	
6	Type of product (spilled or leaked):	
7	Amount of product (spilled or leaked):	
8	Location (of spill or leak):	
9	Source (of spill or leak):	
10	Type of accident – (check correct response) ☐ collison ☐ rupture ☐ overflow other	
11	Is the spill or leak still occurring? ☐ Yes ☐ No	
12	Is the spill or leaked product contained? ☐ Yes ☐ No	
13	Are clean-up efforts already underway? ☐ Yes ☐ No	
14	Wind velocity and direction:	
15	Temperature:	
16	Proximity to watercourses, sewers, and buildings/facilities:	
17	Terrain:	
	Soil Conditions:	
18	Name of person spill was reported to:	

Submit this completed form to the Engineering Project Manager

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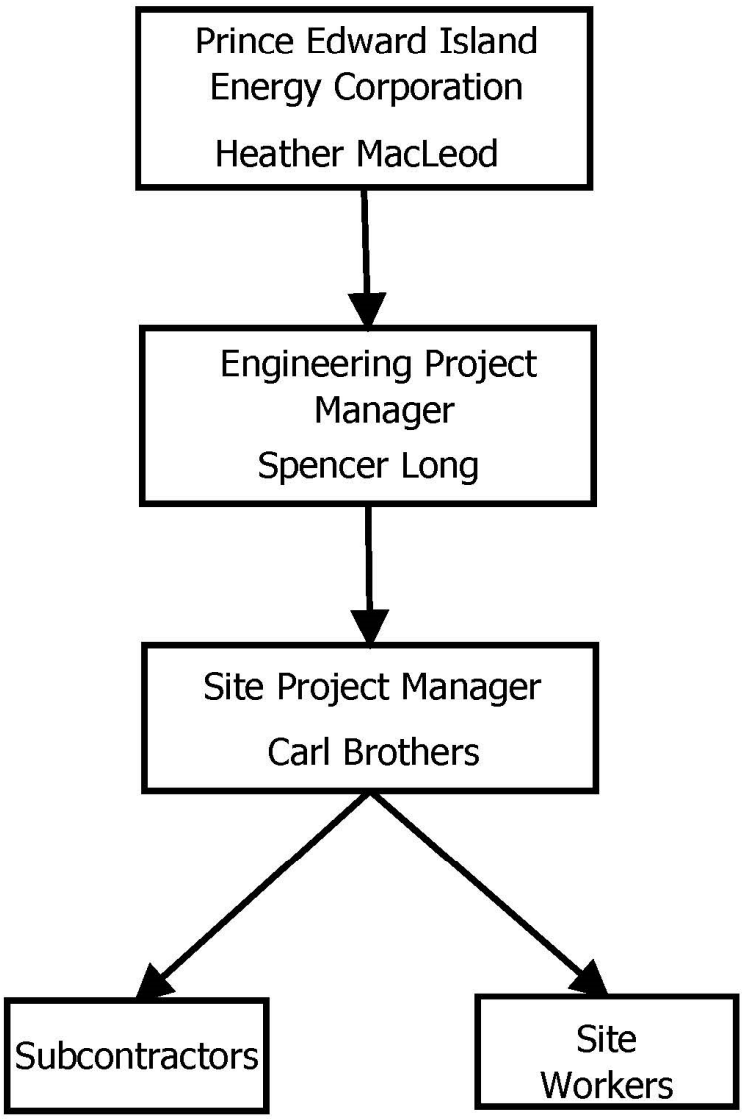
Engineering Project Manager

Appendix A

Project Organization Chart

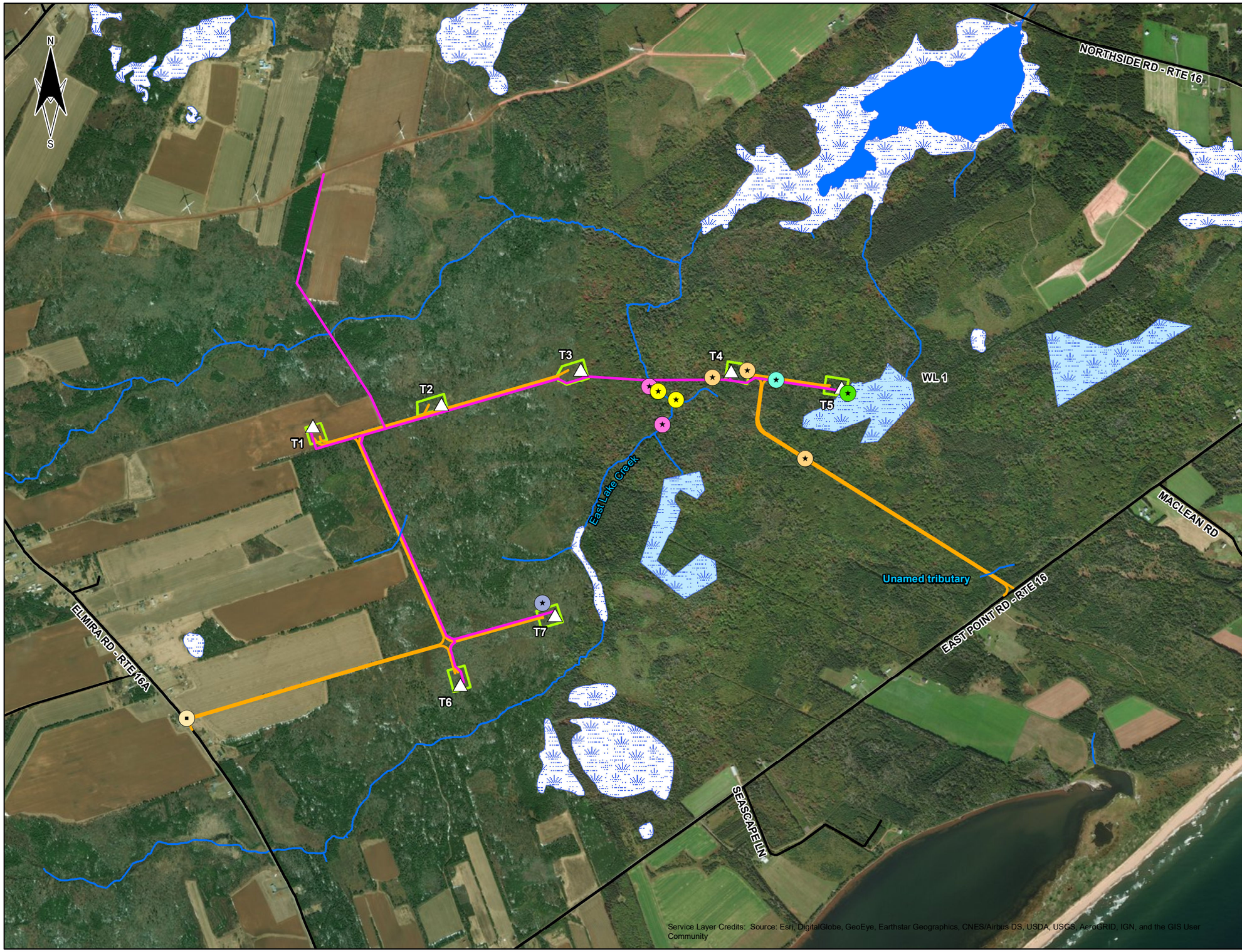
Eastern Kings Wind Farm
EMP Organizational Chart

Construction Phase



Appendix B

Sensitive Areas Figure



Legend

- Proposed Turbine Locations
- Proposed Collector Lines
- Proposed Access Roads
- Roads
- East Lake
- Provincial Wetlands
- Observed Wetlands
- Site Outline
- Watercourse
- Japanese Knotweed (Invasive)

Field Observed Rare Flora

- Showy Lady Slipper
- Black Ash
- Herb Robert
- Checkered Rattlesnake Plantain
- Maryland Sanicle
- Zigzag Goldenrod

0 100 200 400 600 Metres

wood.

CLIENT:

PEI ENERGY CORPORATION

PROJECT:

EASTERN KINGS 30 MW WIND FARM

TITLE:

VEGETATION / WETLAND / WATERCOURSE FIELD OBSERVATIONS

DATUM:	DWN BY:	DATE:
NAD 83 CSRS	LV	Oct 2019
PROJECTION:	CHK'D BY:	SCALE:
PEI Stereographic	CD	1:15,000
PROJECT NO:	REV NO:	FIGURE NO:
TE181036	1	4.2

Path: H:\PROJECTS\TE181036_PEIEC_WindProject\MXD\20191010_TE181036_Fig_4_2_Vegwat.mxd User: lyle.vicaire Date: 10/10/2019

Legend

- Proposed Turbine Locations
- Historic Sites
- Registered Archaeological Sites
- Elevated Potential Areas
- Proposed Collector Lines
- Proposed Access Roads
- Wetlands
- Watercourse

N

S

0 250 500 1,000 1,500

Metres

wood.

CLIENT:

PEI Energy Corporation

PROJECT:

EASTERN KINGS 30MW WIND FARM

TITLE:

HERITAGE AND ARCHAEOLOGICAL RESOURCES

DATUM:	DWN BY:	DATE:
NAD 83 CSRS	LV	Oct 2019
PROJECTION:	CHK'D BY:	SCALE:
PEI Stereographic	WW	1:35,000
PROJECT NO:	REV NO:	FIGURE NO:
TE181036	1	4.5

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Appendix C

EIA Determination Conditions of Approval

Prince Edward Island CANADA

Environment, Water and Climate Change

Environnement, Eau et Changement climatique

Île-du-Prince-Édouard CANADA

Office of the Minister
PO Box 2000, Charlottetown
Prince Edward Island
Canada C1A 7N8

Bureau du ministre
C.P. 2000, Charlottetown
Île-du-Prince-Édouard
Canada C1A 7N8

September 2, 2020

Ms. Heather MacLeod
Director of Energy Policy and Assets
Prince Edward Island Energy Corporation
PO Box 2000, Charlottetown PE
C1A 7N8

Dear Ms. MacLeod:

Pursuant to subsection 9(1) of the *Environmental Protection Act* R.S.P.E.I. 1988, Cap. E-9, I hereby grant approval to the Prince Edward Island Energy Corporation (herein "the proponent") to proceed with the proposed undertaking, specifically the construction and operation of a 30 megawatt wind farm located between Elmira and East Point, Kings County, PEI.

Pursuant to clause 28(d) of the *Environmental Protection Act*, I consider it necessary in the public interest to impose terms and conditions to this approval. I therefore order that your approval is subject to the following terms and conditions:

CONDITION #1: (Compliance with EIS)

The proponent shall ensure that this undertaking is to be constructed in accordance with information provided in their Environmental Impact Statement (EIS) dated October 23, 2019, along with any subsequent revisions and addendums to the foregoing document, as well as all those identified in subsequent correspondence during the Environmental Impact Assessment (EIA) review. Additionally, on a monthly basis, the proponent shall submit a summary table detailing the status of each condition listed in this approval to the Environmental Land Management (ELM) Section of the Department of Environment, Water and Climate Change (EWCC). The submission of the table shall start 30 days following from the issuance of this approval, and continue until such time that all the conditions have been met.

CONDITION #2: (Environmental Management Plan)

The proponent shall prepare and submit for approval an Environmental Management Plan (EMP) to address possible environmental issues pertaining to each phase of the EKWF's facility development including the construction, operation, and decommissioning phases. As part of this EMP, specific commitments to mitigation must be made based on site-specific environmental constraints. The EMP must be approved by the ELM Section of EWCC prior to the commencement of the construction phase of the project.

CONDITION #3: (Bird Nest Protection)

The proponent must ensure that if a nest or chick of a migratory bird is detected during project construction, work in the area shall be halted and Forest Fish and Wildlife (FFW) Division of EWCC or the Canadian Wildlife Service (CWS) shall be consulted for advice at 1-800-565-1633. The proponent must ensure that all project-related activities comply with the *Migratory Birds Convention Act*, 1994 (S.C. 1994, c. 22)

CONDITION #4: (Indigenous Monitor)

The proponent shall invite L'nuey to supply an environmental monitor for the construction phase of the project. The proponent shall invite L'nuey's monitor to visit the site prior to the construction phase of the project to assist in identifying any culturally significant species of flora, including black ash, within the easement controlled by the proponent.

CONDITION #5: (Environmental Management Committee)

The proponent shall organize, develop any pertinent documents, and fund an Environmental Management Committee for the project. The purpose of the committee is to offer identified stakeholders a mechanism to bring forward significant environmental concerns associated with the operational phase of the wind farm. The committee must be in place prior to commissioning, have an identified Terms of Reference to operate by, will be chaired by EWCC, and should have representation as follows:

- EWCC (1)
- PEI Energy Corporation (2)
- Local community residents (4)
- Souris and Area Wildlife Branch (1)
- L'nuey (1)
- Rural Municipality of Eastern Kings (1)

The committee will meet 4 times per year and exist for a minimum of 2 years after the project is commissioned at which time EWCC will decide if its existence is warranted into the future.

CONDITION #6: (Bird and Bat Monitoring)

The proponent, in order to ensure the protection of avifauna and bats, shall carry out a two-year, post-construction monitoring study in the project area. This monitoring program must be developed and approved in consultation with CWS and the FFW Division of EWCC. The monitoring program should be prepared in accordance with the April 2007 Environment Canada document, *Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds.* The monitoring program must also reflect the most current guidance on post-construction monitoring at wind farms, and "Best Management Practices", as determined by the two above noted parties, and include provisions for the mitigation of any unanticipated environmental effects revealed through the follow-up monitoring. A specific part of the two-year study must include a post-construction follow-up bird and bat usage and mortality monitoring. The proposed monitoring protocols shall be submitted for review and receive approval from CWS and FFW and be submitted to ELM before any surveys take place and before the start of the operational phase of the project. The proponent shall be responsible for implementing any EWCC recommendations after the Departmental review of the study is complete. A copy of all accumulated operational bird and bat usage and mortality monitoring study data must be provided to L'nuey once completed.

CONDITION #7: (Bird and Bat Protection)

The mortality of an individual migratory bird species at risk, or 10 or more migratory birds in one 24 hour period, or 3 or more bats in one night is considered a mortality event for which CWS must be contacted within 24 hours (Environmental Emergencies 1-800-565-1633). Such notification is expected to occur even after the formal post-construction bird/bat monitoring program has ended, and must include specific details about the event (e.g. name and location of the wind farm, number of mortalities, species, map showing turbines, associated infrastructure, and location of collisions, meteorological conditions during previous night(s), details of lighting at the site and any other factor that might have influenced the event). Staff and contractors must be instructed that if a mortality event as described above occurs, the area around each wind turbine must be carefully checked to better evaluate the extent of the event, even if this is not described in the regular post-construction bird/bat monitoring protocol, or if the formal post-construction bird/bat monitoring program has ended. Any bird or bat carcasses recovered from mortality monitoring should be examined by staff from the Atlantic Veterinary College (AVC) in Charlottetown, with special emphasis on Barotrauma as a cause of death.

CONDITION #8: (Adaptive Management Plan)

An adaptive management plan outlining mitigation measures (including turbine pausing) that will be implemented should the project be shown to have a significant impact on birds or bats shall also be submitted by the proponent for review and must receive approval from CWS, and the FFW and ELM Section of EWCC prior to the start of the operational phase of the project.

CONDITION #9: (Noise Monitoring)

The proponent shall develop a minimum two-year post operation noise monitoring program which must be reviewed and approved by the ELM Section of EWCC. The noise monitoring program must be approved and in place prior to the commissioning of the wind farm.

CONDITION #10: (Archeological Detection and Notice)

The proponent, if it is suspected that remains of archaeological significance are discovered during construction, operation, or maintenance of the proposed development, shall stop all work and immediately notify the office of the Director of Indigenous Relations Secretariat (by calling 902-368-5378) for further direction. In addition, the proponent shall provide prompt notice to L'nuey to advise them of the discovery. If any further archeology field surveys are required, L'nuey shall be contacted and invited to participate. L'nuey must also be provided with the survey data once completed.

CONDITION #11: (Conflict Resolution/Mitigation Protocol)

The proponent, as a specific part of the EMP, shall develop a Conflict Resolution/Mitigation Protocol to address potential issues such as noise, shadow flicker, etc. This protocol must be reviewed and approved by EWCC prior to the commissioning of the wind farm. As part of the protocol, the proponent must provide an annual written report to the ELM Section of EWCC regarding any complaints received during the year and how they were addressed. In the event that noise or shadow flicker becomes problematic for any receptors, the proponent must consult with affected residents to discuss the potential impacts and develop a receptor specific mitigation plan for them. EWCC will determine if it believes the issue was properly and adequately addressed.

CONDITION #12: (Land Protection)

As compensation for the 14 hectares of forested land lost to the actual construction footprint of the project, the proponent shall purchase a property (minimum size 42 hectares) within Kings County PEI, and have the property protected from development under the *Natural Areas Protection Act* legislation by December 31, 2023.

CONDITION #13: (Permission of Property Owners)

The proponent shall obtain the written permission of property owners to utilize any land for the intended purpose of the project where project activities will occur on land not owned by the Province.

CONDITION #14: (Disposal of Slash and Woody Material)

The proponent shall not be permitted to burn any slash and woody material generated from tree cutting and clearing operations, nor can such material be stored adjacent to individual work sites (access roads, turbine footprints). The proponent must find an alternate means of disposing of the cut material such as chipping and spreading.

CONDITION #15: (Decommissioning)

The decommissioning of the wind turbine site by the proponent shall be undertaken within one year of the cessation of operations. A decommissioning plan, including site reclamation, shall be developed in consultation with EWCC and its Forests, Fish and Wildlife Division. Any decommissioning plan which involves privately owned land should be developed in consultation with the current landowner.

CONDITION #16: (Subcontractors and Agents)

The proponent shall be responsible to ensure that any subcontractors, agents and assigns are aware of and comply with the terms and conditions of this approval.

CONDITION #17: (Sale of Project)

In the event of the sale, lease, or any other conveyance or change of control of the Project, or any portion thereof:

a) The proponent shall provide written notice of this EIA approval and conditions to the lessee, controller, or purchaser, and said lessee, controller or purchaser shall be subject to and must comply with the EIA approval and conditions.

b) The proponent shall provide written notice of such lease, change of control, or conveyance to the Minister.

Please be advised that this approval addresses requirements pursuant to the Department of Environment, Water and Climate Change's environmental assessment process. The proponent shall obtain all other necessary permits, licenses and/or approvals required by any other municipal, provincial and/or federal regulatory agencies to commence this project.

Sincerely,

Natalie Jameson
Minister

Appendix D

Decommissioning Plan

Decommissioning (Task 1) – Site Preparation

Over the duration of the windfarm's operation, road and turbine pad site conditions may have deteriorated and will need to be addressed prior to mobilizing heavy lift crane equipment. Additional road building material and gravel may be required in order to upgrade portions of the road and turbine pad sites. Weather and seasonal conditions may also play a factor in the timing of this work.

Decommissioning (Task 2) – Removal of Turbine

First, each turbine being prepared for disassembly will be safely disconnected and isolated from the electrical collector system. Removal of the turbine components will involve similar heavy lift crane equipment to what was used during installation. The blades, hub and nacelle will then be removed from the tower section. It should be noted that the turbine model being considered for the Eastern Kings, Phase II expansion utilizes a gearless drive and electric pitch motors which will significantly reduce the need for hydraulic fluid handling and disposal. In general, any lubricants or fluids used in operation will be safely handled according to specific MSDS procedures and will be recycled or disposed of in accordance with regulations outlined in the Environmental Protection Act. Heavy trucking equipment will then be required to remove all turbine components and will be taken to a pre-determined storage site for further disassembling and disposal/disposition.

Decommissioning (Task 3) – Foundation removal

With tower sections removed, foundation pedestals will be removed to bring the upper section of the foundation a safe distance below ground level to allow original land function to be resumed. New topsoil will be delivered and the site re-contoured to original grade to allow original land use activities to be resumed. Any contaminated soils or debris from the foundation demolition will also require removal and appropriately licensed disposal. This will allow for safe restoration of the foundation footprint such that it does not impede any agricultural, or public activity. With landowner approval, any ground contouring will ensure proper drainage, with the disturbed areas to be re-vegetated using native seeds and plants.

Decommissioning (Task 4) – Collector system removal

In the case of Eastern Kings, Phase II, all above ground collector lines that connect each turbine to the substation and power transformer will be removed. Valuable conductor material may be recycled or re-used and will be trucked offsite with any other collector components (switches, insulators etc.). The supporting collector line poles will be removed, with holes to be filled in with soil. In areas where removal of poles would cause environmental concern, poles may be cut just below grade and filled in with soil. Any salvageable material from the collector line poles will be reused or recycled. Decommissioning (Task 5) – Substation component removal

Eastern Kings wind farm, Phase I and II, will both utilize the existing substation installed off Elmira Road. Assuming both farms are to be de-commissioned together, the substation will first be electrically isolated and disconnected from the collector system and Maritime Electric's grid. Electrical components, steel support structures and batteries will be removed from the site and recycled if they cannot be reused. As noted with the turbine foundation, new topsoil will be delivered and the site re-contoured to original grade to allow original land use activities to be resumed. Any buried electrical lines will be removed and backfilled, with the overall footprint of the substation to be re-contoured with topsoil to re-introduce vegetation.

Decommissioning (Task 6) –Operations buildings & Access roads

The final stage of decommissioning will involve removal of the access roads and operations buildings. Access roads will be returned to the original soil conditions as was present prior to construction. Any

operational buildings or associated infrastructure at this stage in the decommissioning phase will be removed and returned to site conditions prior to development of the proposed wind farm.