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Attention: Mr. Garry Perfect
BluEarth Renewables Inc.
34 Harvard Road
Guelph, ON N1G 4V8

Dear Garry,

Reference: Bow Lake Wind Farm – Natural Areas Management Strategy

1. BACKGROUND

The Bow Lake Wind Farm Natural Heritage Assessment and Environmental Impact Study (NHA/EIS) was submitted to the Ministry of Natural Resources (MNR) on January 24, 2013, and received a letter of confirmation on January 25, 2013. As part of the commitments outlined in the NHA/EIS, the Proponent has retained Stantec Consulting Ltd. to complete a Natural Areas Management Strategy (NAMS).

2. NATURAL AREAS MANAGEMENT STRATEGY - OVERVIEW

This NAMS has been developed to mitigate for temporary and long-term habitat loss resulting from construction activity, and installation of long-term infrastructure. The NAMS has been designed to preserve, restore, and enhance the natural heritage functions of the habitats currently found within the Project Location and Zone of Investigation (ZOI) as defined in the NHA/EIS.

Within the Project Location a “constructible area” has been defined that includes the Project components as well as additional land around the Project components that allows for movement and workspace for construction purposes. Project components will consist of 36 wind turbines, below- and above-ground electrical collector and communications lines, pad-mounted transformers, crane pads, two permanent meteorological towers, access roads, an operation and maintenance building, welfare buildings, a transformer station, construction compounds and laydown yards, and other ancillary facilities. The Project will connect to the provincial power grid via existing 115kV transmission lines located adjacent to the Project’s transformer station.

The 120 m ZOI was applied to the entire Project Location including all the constructible areas, and the assessment of potential effects included the constructible area as part of the Project Location. All construction activities including construction of temporary components will occur within the constructible area but the entire constructible area may not be used at any specific construction

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site. As part of the best management approach, the constructible areas will be reduced in size as much as possible in areas where natural features, which are not deemed significant, occur, and site disturbance will be limited to the minimum area required to accommodate construction activities and temporary storage of Project components.

Small portions of the Project Location are sited in Significant Wildlife Habitat (SWH) for plant species of conservation concern, including oval-leaved bilberry, boreal bedstraw and Braun's holly-fern. Habitats supporting these plants are also within 120 m of new access roads, access road upgrades and the collector line corridors.

The main mitigation proposed for SWH for plant species of conservation concern is avoidance of the majority of the known attributes that support the SWH designation. This avoidance will be based on the known occurrences of the plants and micro-habitat delineations provided in the NHA/EIS. Direct impacts on the habitat for species of conservation concern are small relative to the total habitat in the Project Area and will be minimized by careful siting of roads and collector lines inside the planned corridors.

While the primary mitigation method employed will be avoidance of significant natural features, it is estimated that a maximum of 232 ha of natural vegetation will be removed for construction of the Project. It is very unlikely that the entire 232 ha will be required to accommodate wind farm construction. For example, it is currently anticipated that only a small proportion (e.g., 15-25%) of the Construction Compound and Welfare Building area off of Mile 67 Road will be disturbed during Project construction. Of the 232 ha, approximately 38.8 ha will be removed for the life of the Project (i.e., access roads, wind turbines bases, step-up transformers, crane pads, transformer station).

The intent of the NAMS is to address the disturbance that is associated with construction of the Bow Lake Wind Farm and provide appropriate mitigation with measureable steps. All decommissioning works and activities associated with site restoration as part of wind farm decommissioning will be performed according to the requirements of relevant government agencies, and will be in accordance with all relevant statutes in place at the time of decommissioning. The Decommissioning Plan Report will be reviewed by MNR at least six months prior to commencement of decommissioning activities and specific site restoration and re-vegetation requirements will be determined at that time (i.e., once a determination of which access roads will be reclaimed). It is anticipated that re-vegetation of areas disturbed through decommissioning works will be completed with native species as soon as practical following the works within the disturbed area, and within the same growing season. The restoration and monitoring requirements related to decommissioning activities, as provided in the Decommissioning Plan Report, will be reassessed in consultation with MNR when specific requirements are better

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understood (i.e., extent of road reclamation, extent of road de-compaction, top soil availability/requirements).

The NAMS consists of two Plans: the Replanting and Restoration Plan; and, the Vegetation Monitoring Plan. These Plans are described in the following sections.

2.1. REPLANTING AND RESTORATION PLAN

The intent of the Replanting and Restoration Plan is to acknowledge the previously existing vegetation community and promote successional development into a similar community type. Through this restoration of vegetation communities, habitat for local wildlife will develop and naturally evolve through the successional stages. The proposed approach should be applied to all constructible areas requiring restoration.

Disturbed areas will be re-vegetated with fast-growing native species as soon as practical after construction activity within the disturbed area is complete, and within the same growing season.

Restoration of topographic features should reflect pre-construction conditions, which can be observed in habitat adjacent to the restoration (provided it is a similar community type to that which was removed). Where grading has occurred over large contiguous areas, pit and mound topography should be restored to mimic naturally hummocky micro-topography. All excavated topsoil/seedbank (where present) will be stockpiled and re-used on-site. Due to the location of the Project Area, topsoil is anticipated to be sparse in most areas – generally no greater than 5 cm. Stockpiled material will consist of this topsoil intermixed with the surface leaf litter. This material should be returned to its approximate location of removal, with depths depending on available material.

When available, remnant natural elements should be returned to the restored area in a manner that mimics naturally occurring communities (i.e., random placement). Cull logs, tree limbs, remnant brush, or boulders/rocks are examples of elements that could provide habitat for wildlife. Any natural elements used should be obtained from the local constructible areas and should not be obtained from undisturbed vegetation communities.

An herbaceous seed mix will be applied to the newly prepared area. This mix should constitute a variety of species with varying sunlight requirements. This will ensure the establishment of species in both open sunlit areas, as well as perimeter areas that may be shaded throughout much of the day. Species selected should also reflect the moisture regime of the community (i.e., moist areas should include a mix of species that prefer moist soil conditions).

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The species selected for the seed mix should consist of native Ontario species that have previously been identified in the Bow Lake Project Area. A total of 272 species was documented in Appendix C of the NHA/EIS, where 92% of these species are native to Ontario. The composition should be a mix of forb and graminoid species drawn from the list of species recorded in the NHA/EIS. Seeds should be obtained from a local supplier and should be derived from Seed Zone 23. Clergue Forest Management Inc. has developed a restorative seed mix in collaboration with MNR. Consideration to using this seed mix will be given provided it is commercially available and competitively priced.

Selected herbaceous species from adjacent communities (e.g., wild sarsaparilla, bracken fern) will also be sparingly transplanted into the restoration areas provided:

- The species is native and naturally abundant in the area;
- The species is not known to be sensitive to transplantation;
- The CC value of the species is not higher than 5; and,
- The species is transplanted into suitable conditions (i.e., soil moisture and sun exposure are appropriate).

Depending on weather at the time of the planting, the newly seeded area may need an initial application of water if conditions are dry. If required, and as determined by a qualified professional, a cover crop will be applied to prevent the establishment of undesirable non-native species while the seedbank germinates.

Depending on the soil moisture of the restoration area, shrub cuttings can be an effective way to re-establish woody cover and provide shade. Where soil is deemed to have adequate moisture, cuttings from local shrubs will be planted in suitable areas. Species such as red-osier dogwood, speckled alder, and elderberry are among local species known to regenerate from cuttings if they are planted in moist soil. Due to the vast forest cover throughout the Project Area, it is anticipated that natural tree regeneration will occur within a reasonable period. Based on this, no native tree plantings are recommended during the restoration, however where practicable, efforts will be made to supplement the re-establishment of tree species by scattering tree seeds and cones in suitable areas when a source of such seed is abundant and accessible in forested areas adjacent to restoration areas.

In all cases, the species and seed mixtures selected for use in the Replanting and Restoration Plan will be determined in consultation with MNR. Additionally, the opportunity to coordinate management efforts with other interest groups who may be interested and willing to partner will be provided.

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2.2. VEGETATION MONITORING PLAN

The purpose of the Vegetation Monitoring Plan is to assess the effectiveness of the Replanting and Restoration Plan and to identify a response and contingency measures to be implemented if objectives are not being met.

Monitoring is an important component of the overall restoration and will be undertaken for a period of two years (i.e., first and second growing seasons after seeding/re-planting has occurred). Data collected in restoration areas will be used to determine germination and transplanting success rates, and will provide information on the potential establishment of exotic and/or invasive species.

Data collection will be conducted by field personnel skilled in plant identification. Data will be collected through the establishment of semi-permanent plots located randomly throughout the restoration areas. Plot dimensions will be determined based on the area of the restoration site, ranging in size from 1x1 m to 5x5 m. Monitoring will occur once per year during mid-growing season. All species observed within the plot will be recorded, along with their estimated abundance. Species composition will be compared to the previous years' data to identify shifts in dominance, germination and development success of manually seeded species, mortality observations, presence of exotic species, presence and health of shrub species, and documentation of tree species establishment.

If development of invasive species is observed to exceed 30% cover of the plot (i.e., absolute cover, as opposed to relative cover), reactive measures will be implemented to reduce or eliminate the species from the restoration area. Control measures will be developed in consultation with MNR, and further monitoring may be required (also determined through consultation with MNR).

Implementation of the Replanting and Restoration Plan will provide effective stabilization to areas with exposed soils within a short period following construction. Use of fast growing native species will result in re-vegetation of these areas, and promote natural succession to forested conditions over the longer term. Provided the plots are composed of native species known to occur locally, and the abovementioned threshold of invasive cover is not exceeded at the end of the two-year monitoring period, the requirements of the restoration will have been achieved and no further monitoring will be required.

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Annual monitoring reports will analyze and summarize the results of the Vegetation Monitoring Plan. These reports, including mapping and photographs will be submitted to the MNR no later than 4 months following the date of the monitoring survey.

Regards,

STANTEC CONSULTING LTD.



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