



Bull Creek Wind Project

Environmental Protection Plan

DRAFT – IN CONSULTATION WITH ALBERTA ENVIRONMENT AND SUSTAINABLE RESOURCE DEVELOPMENT

April 2015

Prepared for:
1646658 Alberta Ltd.
(Subsidiary of BluEarth Renewables Inc.)
200,4723-1 Street SW
Calgary, Alberta T2G 4Y8

Prepared by:
Northern Resource Analysts Ltd.
2800, 715 5th Ave SW
Calgary, Alberta
T2P 2X6

Document Author:
Crystal Waters, B.Sc., P.Bio, R.P.Bio.

Reviewers:
Maureen Voszler, B.Sc., P.Ag.

Darcey Shyry, M.Sc., P.Bio.

Karen Lintner, Editor

Table of Contents

1.0 INTRODUCTION	1
1.1 Purpose of the Environmental Protection Plan	1
1.1.1 Guiding Documents.....	1
1.2 Project Description	2
1.2.1 Project Setting	3
1.2.2 Activities	4
2.0 RESPONSIBILITIES	4
2.1 BluEarth Responsibilities	5
2.2 Environmental Inspector	5
2.3 Construction Contractor	6
2.3.1 Construction Project Manager	6
2.3.2 Construction Manager	7
2.3.3 Construction/Craft Inspectors and Discipline Leads	7
2.4 Environmental Inspections and Investigations	8
2.5 Communication.....	8
2.5.1 General.....	8
2.5.2 Environmental Training and Orientation.....	9
2.5.3 Kick-off Meeting	10
2.5.4 On-site Incident Communications and Reporting	10
2.5.5 External Incident Communications and Reporting.....	11
2.5.6 Meetings and Reporting	11
2.5.7 Weekly Meetings and Reporting.....	12
3.0 PERMITS, AUTHORIZATIONS AND NOTIFICATIONS.....	13
4.0 PROJECT-SPECIFIC ENVIRONMENTAL COMMITMENTS.....	14
5.0 GENERAL ENVIRONMENTAL PROTECTION MEASURES	18
5.1 Project Area Preparation and General Protection Measures.....	18
5.2 Construction	21
5.3 Turbine Foundations and Erection	24
5.4 Rough Work-site Clean-up.....	26
6.0 RECLAMATION PLAN.....	27
6.1 Post-Construction	27

7.0 REFERENCES.....	29
8.0 PERSONAL COMMUNICATIONS.....	30

Tables

Table 1. Project Details.....	3
Table 2. Project Activities.....	4
Table 3. Permits, Authorizations and Notifications.....	13

Figures

Figure 1. General Organization Chart	9
--	---

Appendices

APPENDIX A. Site Maps and IFC Drawings
APPENDIX B. Orientation Presentation
APPENDIX C. Setback and Timing Restriction Table
APPENDIX D. Contingency Plans and Best Management Practices
APPENDIX E. Wildlife Information
APPENDIX F. Emergency Contacts

Acronyms and Abbreviations

Acronym	Definition
AB	Alberta
AESRD	Alberta Environment and Sustainable Resource Development
ASRD	Alberta Sustainable Resource Development
AUC	Alberta Utility Commission
BluEarth	BluEarth Renewables Inc.
DFO	Fisheries and Oceans Canada
e.g.	for example
EE	Environmental Evaluation
EPP	Environmental Protection Plan
ESRD-RM	Environment and Sustainable Resource Development – Resource Management
GE	General Electric
HSE	Health Safety and Environment
i.e.	that is
IFC	Issues for Construction
MSDS	Material Safety Data Sheets
NAD	North American Datum
Northern	Northern Resource Analysts
NRO	Noise Reduced Operation
NW	Northwest
ODS	Ozone Depleting Substances
PCB	Polychlorinated Biphenols
POD	Plan of the Day
PLS	Pure Live Seed
Project	Bull Creek Wind Project
SE	Southeast
TDG	Transportation of Dangerous Goods
UTM	Universal Transverse Mercator
W4M	West of the 4 th Meridian
WHMIS	Workplace Hazardous Materials Information System

Units of Measure

Unit	Definition
+/-	plus or minus
>	greater than
µS/cm	microSiemens per centimetre
cm	centimetre
ha	hectare
km	kilometre
kV	kilovolt
m	metre
m ²	square metre
m ³ /s	cubic metres per second
mm	millimetre
MW	Megawatts
NTU	Nephelometric Turbidity Units

1.0 INTRODUCTION

1.1 Purpose of the Environmental Protection Plan

Environmental protection planning is an important management tool for the construction and reclamation phases of the Bull Creek Wind Project (“the Project”). This Environmental Protection Plan (EPP) outlines actions for the surveillance, management, reporting and mitigation of environmental effects during construction. The commitments and conditions upon which this plan is based are outlined in Section 4, 5 and 6 and are hereafter referred to as the Environmental Commitments. These are a compilation of requirements from regulatory approvals (Alberta Utility Commission, Alberta Environment and Sustainable Resource Development), Project documents, and construction best practices.

The EPP is intended to provide direction to:

- Ensure construction and reclamation is carried out in accordance with regulations, guidelines, procedures, and conditions obtained for the Project and described in the Environmental Commitments.
- Complete construction of the Project in a manner that eliminates or minimizes the environmental effects resulting from the Project.
- Clearly outline specific environmental protection and reclamation measures that will be adhered to in order to protect the environment and to avoid and mitigate effects as a result of the Project.
- Document environmental concerns and appropriate mitigation measures.
- Measures to be addressed by the Owner, where applicable, and mitigative measures implemented by the Contractor.
- Define roles and responsibilities for environmental protection, reporting of issues and corrective actions.

Should unforeseen conditions arise during construction that may warrant a deviation from the Environmental Commitments, consultation with the relevant regulatory agency will take place. If direction or actions are found to be conflicting with any existing mitigation measures, an action plan will be completed by BluEarth, the Construction Manager and Environmental Inspector(s) and regulators, as applicable, to rectify the disagreement and outcomes will be revised in the EPP, as applicable.

1.1.1 Guiding Documents

This EPP was developed from the following guiding documents:

- Sign-off Letter to Tom Bird, BluEarth Renewables Inc. Wind Energy Referral Report – ESRD Resource Management. Bull Creek Wind Power Project. Alberta Environment and Sustainable Resource Development – Fish and Wildlife Division. Vermillion, AB. Dated November 17, 2014. (AESRD 2014)
- Alberta Utilities Commission, 2015. Power Plant Approval No. 3520-D02-2015, Appendix 1 to Decision 3520-D01-2015, 1646658 Alberta Ltd. 115–MW Wind Power Plant Application No. 161995, Proceeding ID No. 3520. Dated April 17, 2015. (AUC 2015)
- Environmental Evaluation Bull Creek Wind Project. Golder Associates Ltd (Golder). April 2012. (Golder 2012)

- Bull Creek Wind Power Project Fall 2014 Supplemental Pre-Construction Wetland Assessment. Project Number 123511363. Stantec Consulting Ltd. October 31, 2014. (Stantec 2014a)
- Environmental Evaluation Addendum – Bull Creek Wind Power Project. Stantec Consulting Ltd. October 30, 2014. (Stantec 2014b)
- Recommended Land Use Guidelines for Protection of Selected Wildlife Species and Habitat within Grassland and Parkland Natural Regions of Alberta. (AESRD 2011)
- Recommended Land Use Guidelines: Key Wildlife and Biodiversity Zones. Fish and Wildlife Division. (AESRD 2010)
- Wildlife Guidelines for Alberta Wind Energy Projects. (AESRD 2011)
- Petroleum Industry Activity Guidelines for Wildlife Species at Risk in the Prairie and Northern Region. Canadian Wildlife Service, Environment Canada, Prairie and Northern Region, Edmonton, AB (Environment Canada 2009)
- Alberta Government 2013. ESRD/Sensitive Species Inventory Guidelines. April 2013. Available online at <http://esrd.alberta.ca/fish-wildlife/wildlife-management/documents/SensitiveSpeciesInventoryGuidelines-Apr18-2013.pdf>
- Remediation Process Guide. (National Energy Board 2011)

1.2 Project Description

1646658 Alberta Ltd., a subsidiary of BluEarth Renewables Inc., (herein referred to as BluEarth) have received Alberta Utilities Commission (AUC) approval to construct the Bull Creek Wind Project. The Project is located approximately 20 km northeast of Provost, Alberta and approximately 60 km southeast of Wainwright, Alberta within Township 41, Ranges 1 and 2 W4M in the Municipal District of Provost.

On February 20, 2014, the AUC issued an approval for the Project to construct up to 46 wind turbine generators (turbine) and associated infrastructure. A Project amendment was subsequently filed and approved by the AUC on April 17, 2015. The amended Project consists of up to 17 General Electric (GE) 1.7-103 turbine, 34.5 kV underground cables, a fibre-optic communication line, construction and permanent access roads, temporary workspace and other ancillary infrastructure (Table 1). Alberta Environment and Sustainable Resource Development (AESRD) – Fish and Wildlife Division provided sign-off for the original Project design on June 20, 2012 and sign-off for the amended Project on November 17, 2014.

The conditions and mitigation measures identified in the AUC approval and the AESRD sign-off letter i.e., *Wind Energy Referred Report* (AESRD 2014) have been incorporated into this EPP. Development and finalization of this document is being completed with AESRD (as per Condition 13, AUC Approval No. 3520-D02-2015).

Project infrastructure Issued for Construction (IFC) drawings, turbine locations and additional mapping is included in Appendix A.

Table 1. Project Details

Project Details	Specification Notes
Turbine	17 G.E. 1.7-103
Generation Capacity	Up to 29 MW
Hub Height	80 m
Rotor Diameter	103 m
Length of Access Road	12.7 km
Length of Electrical Collector System	11.3 km
Underground Fibre-optic Cable	4.4 km
Temporary Laydown Yard	To be located on previously disturbed cultivated land
Batch Plant	To be located on previously disturbed cultivated land

1.2.1 Project Setting

The Project is located in the Parkland Natural Region and Central Parkland Subregion, in an intensively cultivated area (Golder 2012, Natural Regions Committee 2006). All but two (2) turbine were sited on cultivated lands. No numbered highways or railways existing in the Project area; however, the Project area supports extensive oil and gas activity including well sites, pipelines and access roads (Golder 2012).

The topography in the Project area primarily consists of very gentle (2-5%) to moderate (9-15%) slopes; however, the Project components have been sited on low-grade areas to minimize grade and fill areas (Golder 2012). No highly erodible, sodic or saline soils were identified in the Project area and all components are located on low compaction potential soils (Golder 2012).

Wildlife surveys are to be completed in 2015 (see Section 4.0) and wildlife habitat will be updated onto the IFC drawings as they are located. Weeds, listed plant communities and species and sensitive wildlife features were identified during previous surveys (Golder 2012, Stantec 2014a, Stantec 2014b) and are identified on the IFCs, as applicable (Appendix A). Twenty-six (26) wetlands occur within Project area assessment area (Stantec 2014a). Infrastructure has been sited to avoid wetlands to the extent practicable.

1.2.2 Activities

Construction of the Project consists of three general phases including pre-construction, construction, and post-construction activities. These activities are addressed throughout this document and are briefly outlined in Table 2.

Table 2. Project Activities

Phase	Activity
Pre-construction	Environmental Surveys
Pre-construction	Final Structure Determination, Temporary Workspace Delineation, etc.
Pre-construction	Notification of Affected Parties
Pre-construction	Equipment Cleaning Station Deployment
Pre-construction	Surveying and Staking
Construction	Clearing and Grubbing
Construction	Laydown Yard Construction
Construction	Public Highway Ingress / Egress Construction
Construction	Access Roads & Electric Collector System Installation
Construction	Turbine Site Preparation and Construction
Construction	Foundations & Electrical Installation
Construction	Crane Deployment
Construction	Turbine Delivery / Offload
Construction	Turbine Erection
Construction	Mechanical Completion of Turbine
Construction	Site Clean-up and First-Season Reclamation
Construction	Commissioning
Post-Construction	Final Reclamation
Post-Construction	Post-Construction Monitoring

2.0 RESPONSIBILITIES

This EPP delegates responsibility to either BluEarth or the Contractor; however, it is ultimately the responsibility of BluEarth that all mitigation measures are followed and respected. In addition to the below, the Contractor is responsible for defining and complying with environmental responsibilities as pertains to their job description.

General roles and responsibilities for environmental protection during construction for the following roles are outlined in the following sections:

- BluEarth
- Environmental Inspector
- Construction Contractor
 - Construction Project Manager
 - Construction Manager
 - Construction/Craft Inspectors and Discipline Leads

2.1 BluEarth Responsibilities

BluEarth is committed to protect the environment and to ensure this EPP is implemented. The BluEarth Project Regulatory Lead is responsible for the following:

- Obtain all environmental Permits for construction of the Project. Ensure copies of all permits, authorizations, approvals, certificates are provided to the Construction Manager, Environmental Inspectors, and applicable construction leads.
- Ensure the Project is managed in a manner consistent with BluEarth's policies and procedures and ensure the Project execution plan and the EPP has effectively incorporated environmental requirements from approvals, Permits, notifications, landowner requests, and all other additional environmental commitments and conditions.
- Ensure the Contractor is aware of need to provide sufficient resources required to complete construction safely, to support environmental compliance, and to communicate environmental compliance importance to all key team members.
- Manage the Environmental Inspectors, oversee communication between Contractors and Environmental Inspector(s), and monitor resources and communications systems which track and report environmental compliance.
- Ensure Project personnel aware of Environmental Commitments to proactively identify and resolve issues in the field, avoiding non-compliance.
- Ensure consistent interpretation and application of Environmental Commitments.
- Provide changes to the Project or the execution of the Project in a proactive and prompt manner.
- Serve as a point of contact for agency representatives or delegate key representatives as required.
- Lead Environmental Investigations into non-compliances, as required, and inspect the site at random intervals.

2.2 Environmental Inspector

Environmental Inspectors will be hired directly by BluEarth's and will work independently of the Contractor on the Project site. Environmental Inspectors will serve as BluEarth's field environmental representatives who will be in direct communications with the Contractor to ensure compliance with and the implementation of the EPP during all phases of construction. The Environmental Inspector(s) report directly to BluEarth. The Contractor may have an internal or contracted Environmental Inspector/Auditor; however, responsibilities for the Contractor's Environmental Inspector/Auditor are not defined in this EPP. Responsibilities for BluEarth's Environmental Inspector(s) include:

- Assign environmental discipline staff and Environmental Monitors, as required. An Environmental Monitor will provide monitoring for specific tasks such as Horizontal Directional Drilling, bird Monitoring, etc.
- Continually monitor, assess, inspect, investigate and verify compliance with Environmental Commitments and report non-compliance or risks of non-compliance with the commitments
- Implement and oversee reporting and communicating compliance activities to BluEarth and the Contractor in a consistent manner.
- Regularly visit construction activities to interact with the Contractor to assess environmental compliance as well as gauge the effectiveness of measures.

- Work with and advise the Contractor to ensure Environmental Commitments are understood and met.
- Regularly meet with the Construction Manager and address any compliance issues and proactively communicate and reinforce Environmental Commitments.
- Assist BluEarth in being a point of contact with regulatory bodies.
- Identify if permit and condition variances are required and determine site-specific setback and mitigation strategies with BluEarth and regulatory bodies, as delegated.
- Conduct wildlife salvage, as required.
- In collaboration with the Construction Manager and other site leads, recommend shut down areas of the Project or select activities, that if not corrected would result in a non-compliance.

2.3 Construction Contractor

Contractors who are hired to conduct works on behalf of BluEarth will ensure the environmental protection measures and procedures within this EPP are implemented. BluEarth will use Contractors experienced with environmental mitigations to coordinate and undertake the construction and reclamation activities.

2.3.1 Construction Project Manager

The Construction Project Manager (Project Manager) is responsible for coordinating various disciplines during construction, which therefore includes ensuring all discipline leads are conducting Project construction activities in compliance with Environmental Commitments. As such, the responsibilities include:

- Understand the Environmental Commitments and develop, oversee and implement Project execution plans in accordance with those requirements.
- Ensure mitigation measures are deployed and compliance issues are resolved as directed by BluEarth and the Environmental Inspector(s).
- Communicate Environmental Commitments to their management and crew leads.
- Proactively discuss environmental concerns, non-compliance activities, issues and requirements with the Construction Manager, Environmental Inspector(s) and BluEarth, as required.
- Provide final direction to the contractor on environmental activities, including the Contractor's internal Environmental Inspectors.
- Ensure resources are allocated to each discipline to address Environmental Commitments, including during upset or non-ideal construction conditions, and immediately take corrective and contingency actions related to environmental issues.
- Establish and oversees communication between disciplines to facilitate sharing of environmental information.
- Monitor and act on environmental compliance trends observed and documented in a prompt and effective manner.
- Ensure resources are in place to rectify internal or external environmental problem areas or non-compliances, and monitors to ensure corrective action(s) has been completed.
- Monitor communication between the Construction Manager and Environmental Inspector(s) and crews to ensure everyone is working in a collaborative and proactive way to resolve issues, avoiding non-compliances.

- Support communication with regulators regarding construction activities, tasks, specifications, etc., as required, or in conjunction with BluEarth and/or the Environmental Inspector(s) regarding environmental concerns.

2.3.2 Construction Manager

The Construction Manager is responsible for the construction of the Project in accordance with the Project execution plan, design drawings, construction codes, specifications, and all other construction related standards, and landowner and Environmental Commitments. Specific to environmental compliance, the following responsibilities of the Construction Manager include:

- Understand Environmental Commitments and develop, oversee and implement Project construction activities and plans in accordance with those requirements.
- Communicate Environmental Commitments to their construction crews.
- Proactively discuss environmental concerns, non-compliance activities, issues and requirements with the Project Manager, Environmental Inspector(s) and BluEarth, as required.
- Provide final direction to the crews on environmental management and mitigation activities, including internal Environmental Inspectors.
- Ensure that field crews have the resources they need to address Environmental Commitments, including during upset or non-ideal construction conditions, and take corrective and contingency actions related to environmental issues immediately.
- Provide construction expertise and advice to BluEarth and the Environmental Inspector(s) for the development of suitable environmental mitigation measures and strategies, suitable for site-specific conditions.
- Works directly with the Project Manager and the Environmental Inspector(s) to resolve challenging or disputed matters arising from the environmentally related field inspections/communications/measures.
- Implement all internal environmental policies, procedures, protection plans, standards, guidelines, and other environmental related documents.

2.3.3 Construction/Craft Inspectors and Discipline Leads

The Construction/Craft Inspector(s) and Discipline Leads (e.g., Foreman) is responsible for confirming the Project is being constructed in conformance with the Project execution plan, design drawings, construction codes, specifications, and all other construction related standards, and landowner and Environmental Commitments.

- Understands Environmental Commitments to ensure the Project is constructed in compliance.
- Proactively identifies and addresses environmental matters in the field with the Environmental Inspector and Construction Manager (or disciplines). When a dispute or uncertainty remains, elevate issues through the Contractor's organization chart.
- Reports environmental problems identified while completing construction activities or information discussed with the Environmental Inspector(s) to the Construction Manager.
- Understands specific environmental issues and Environmental Commitments related to their discipline or areas of expertise.

- Ensures their areas of technical responsibility are constructed in compliance with relevant Environmental Commitments.
- Proactively identify and take appropriate actions to address and resolve environmental problems for their specific discipline.
- Contacts the Environmental Inspector(s) to obtain guidance on environmental aspects of their work, and when necessary reports environmental problems and contractor non-compliance to the Construction Manager and Environmental Inspector.

2.4 Environmental Inspections and Investigations

Environmental inspectors will conduct routine inspections of the work site to ensure work is being conducted in compliance with this EPP and to document deficiencies, non-compliances and/or incidents. Inspections will include discussions with Contractors and observations of work conducted. Disturbance to construction will be minimized during inspections. If non-compliances are observed, the action will be discussed with the Contractors onsite to rectify the non-compliance, if possible, and work will be suspended, as required. If the non-compliance action is not rectified immediately, or as soon as practicable, an incident form will be completed and follow-up actions will be required within 48 hours of the incident. Incidents and non-compliance actions will be discussed during the following morning meeting. If an action has the potential to cause immediate harm to the environment, human health or property, a stop work request will be issued and the Environmental Inspector will immediately contact the Construction Manager or Construction Project Manager.

Incidents which have not been rectified in a timely manner or have the potential to cause significant harm to the environment, human health or property will be investigated. The Environmental Inspector will work with the Construction Manager, Construction Project Manager, and BluEarth to communicate deficiencies, identify root-causes and corrective actions to ensure the incident is not repeated.

2.5 Communication

2.5.1 General

Communication is fundamental in the success of construction in an environmentally sustainable manner. Communication shall exist freely in a top-down and bottom-up format. Figure 1 outlines the organization of key construction personnel onsite. All environmentally related issues or items will be communicated by anyone onsite to the Environmental Inspector, Construction Project Manager, and Construction Manager. The organization chart below denotes hierarchical authority for decision-making.

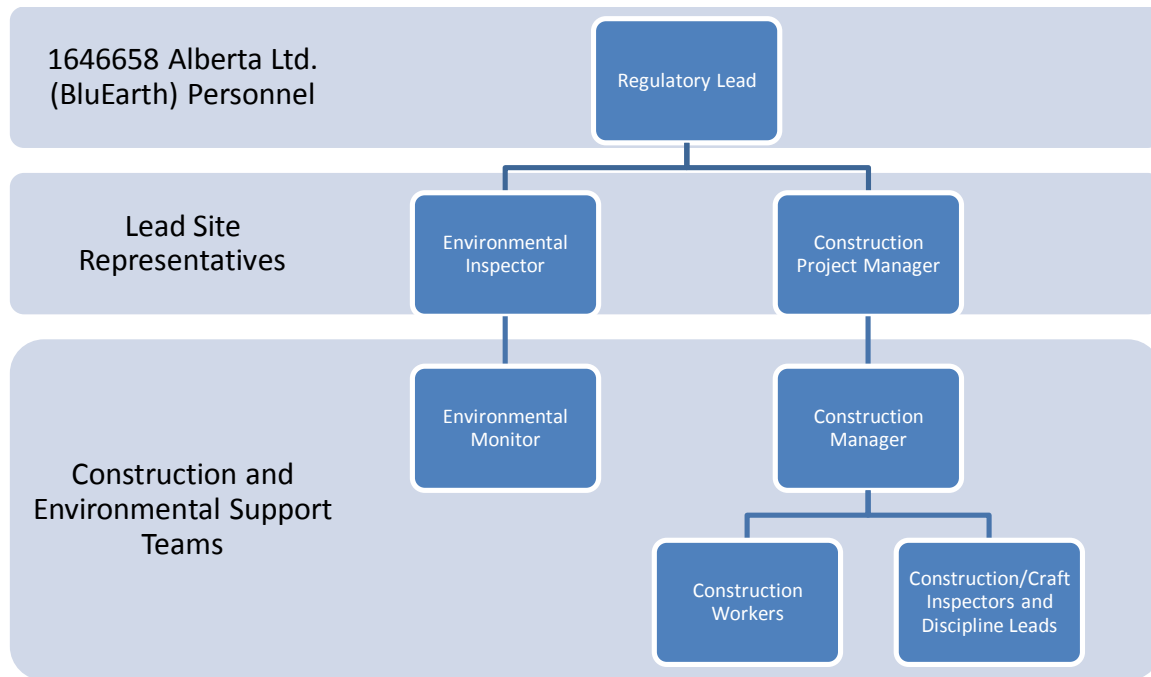


Figure 1. General Organization Chart

2.5.2 Environmental Training and Orientation

All Project personnel and visitors will receive the appropriate level of environmental training specific to their job responsibilities and access to environmentally sensitive areas. Orientation will be provided to every worker prior to initiating Project work or accessing the Project area. In addition, the Contractor is responsible to ensure all personnel have appropriate Health Safety and Environmental (HSE) training respective to their role (e.g., Transportation of Dangerous Goods [TDG] and Workplace Hazardous Materials Information System [WHMIS] Certifications). Additional training may be conducted if there is a change in work responsibility, incidents are reported, or any environmental requirements have been revised.

Training related to the obligations under this EPP will include the following:

- key responsibilities;
- communication structure;
- initial response process should a spill of any controlled substance occur;
- a brief description of the EPP and a copy locations;
- the process to follow should an environmental, historical, or archaeological feature be located and/or disturbed during construction;
- wildlife encounter protocol;
- the expectation that speed limits, signage, flagging and/or fences delineating the environmental features shall be respected at all times.

Multiple environmental training sessions may be required throughout the duration of the Project and will be conducted by the Environmental Inspector(s), Environmental Monitor(s), or BluEarth delegated personnel/Contractors. The presentation for orientation is included in Appendix B.

2.5.3 Kick-off Meeting

A Construction Kick-off Meeting shall be held prior to the substantial start of construction and will include the following Project leading personnel:

- BluEarth Regulatory Lead;
- Construction Project Manager;
- Construction Manager;
- Construction Lead(s); and
- Environmental Inspector(s).

This Meeting shall be designed so that all Project leaders are knowledgeable of the following:

- the role of the Environmental Inspector(s);
- communication and reporting procedures;
- identified environmental issues (e.g., wildlife, native grasslands, wetlands, noise, spills, weed transfer, etc.);
- environmental concerns and setbacks;
- familiarization of this EPP along with the associated plans and IFC drawings;
- locations of all permitting and approval documents as well as Project documents; and
- applicable regulatory authorities associated with the construction area, traffic corridors and associated construction and transportation activities.

2.5.4 On-site Incident Communications and Reporting

All personnel will report all environmental non-compliance risks and incidents to the Environmental Inspector or their immediate supervisor (who will then report to the Environmental Inspector). An environmental incident is a failure to meet a specific environmental requirement or a deficiency in characteristic, documentation, or procedure rendering the potential to negatively impact (outside of “normal” activities) wildlife, vegetation, soil, wetlands, air, human health and/or property. Environmental risks and non-compliance will be observed and reported by the individual conducting the activity, an individual who witnessed the activity, the supervisor of the activity, or the Environmental Inspector. The Environmental Inspector will conduct a follow-up assessment to determine the degree to which an environmental effect has occurred, based on the construction activity, mitigation completed and if residual effect has occurred (Table 18 in the Bull Creek Environmental Evaluation, Golder 2012). If an environmental incident occurs, the Contractor will not resume work until a mitigation plan has been developed through a joint discussion between the Construction Manager, the Environmental Inspector and/or BluEarth. The Contractor and the Environmental Inspector must complete an incident report within 48 hours of the incident and provide it to BluEarth. A written summary describing the incident, presenting details of the incident, cause, measures implemented, remediation, and actions taken as a preventative or control measure for further incidents. A log of all non-compliance events, incidents, investigations, and correctives actions will be maintained by the Environmental Inspector(s) and will be provided to BluEarth and the Construction Project Manager and/or the Construction Manager on an ongoing basis.

2.5.5 External Incident Communications and Reporting

The Environmental Inspector and BluEarth will report incidents to applicable regulatory bodies and will follow all applicable notifications, sampling and reporting requirements as outlined by provincial and/or federal approvals, regulations, and permits.

2.5.6 Meetings and Reporting

Meetings will take place at a set location and will include the following individuals:

- BluEarth Regulatory Lead (as required);
- Construction Project Manager;
- Construction Manager;
- Construction Lead(s); and
- Environmental Inspector(s).

Meetings will include discussions of:

- the Plan of the Day (POD);
- the previous day's progress;
- the following day's POD;
- review of IFCs related to current day and following day's work; and,
- any construction issues and comments.

Environmental compliance items to be discussed at the meetings will include, but are not limited to:

- non-compliance incidents;
- action/follow-up items;
- questions, comments, discussions on measures, Environmental Commitments and decision making criteria;
- resource planning;
- environmental maintenance items (e.g., environmental staking, silt fence installation locations/fixing, wildlife clearance survey locations prior to construction activities and status of 7-day window);
- status of each construction task (e.g., clearing, stripping);
- status of wetland crossings; and,
- general comments (e.g., regulatory, Landowners/Occupants).

The Contractor and Environmental Inspectors will consider the following criteria when making decisions on environmental protection measures, policies, procedures and plans to implement during construction of the Project:

- compliance with Environmental Commitments;
- Contractor experience with conducting specific tasks (e.g., hoe operations for sod salvage or working adjacent to wetlands);
- Environmental Inspection and Environmental Monitoring staff experience with implementing protection measures and/or procedures (e.g., spill and pollution prevention control);

- weather and ground conditions (e.g., dry, moist, non-frozen, frozen, windy);
- site conditions (slope grade and aspect, soil type and texture, soil conditions, wetland/crossing/upland, land use);
- Landowner's/Occupant's requests communicated by BluEarth;
- equipment and/or materials conditions and availability (ditcher or hand installation of silt fence,); and,
- every Contractor Manager, Construction Lead and Environmental Inspector will access the EPP while onsite.

Reporting for the Environmental Inspector will include the following information:

- key environmental concerns;
- inspection notes;
- non-compliance incidents and associated details;
- follow-up/action items;
- issues; and,
- miscellaneous (communications, site inspections from regulators, proposed measures revisions/additions or questions/comments, etc.).

Reporting by the Contractor will include environmental concerns and issues, non-compliances, comments, questions, and any other environmental items required to be documented or discussed during meetings.

2.5.7 Weekly Meetings and Reporting

Weekly meetings will be held with BluEarth, the Contractor and Environmental Inspector(s) to provide Progress Reports to BluEarth. This weekly meeting will discuss the non-compliance log, as applicable, lessons learned, and key follow-up/action items to be focused on during the next week. These meetings will include key Project personnel.

Weekly reporting will consist of a summary of key items outlined from the reporting and construction activities and the weekly meeting information, generally pertaining to construction progress.

3.0 PERMITS, AUTHORIZATIONS AND NOTIFICATIONS

The table below lists, but may not be limited to, Permits, approvals, clearances and notifications, which may be required for Project construction. BluEarth will be responsible for obtaining/competing all necessary permits, approvals, notifications and clearances required prior to construction.

Table 3. Permits, Authorizations and Notifications

Authority	Permits, Authorization or Notifications
Alberta Utilities Commission	Permit to Construction and Licence to Operate
Alberta Environment and Sustainable Resources Development	Sign-off for Construction; Wildlife Research Permit and Collection Licence Water Act Notification (required minimum 14 days prior to crossings)
Alberta Culture and Tourism	Historical Resources Clearance
Municipal District of Provost and Wainwright	Road Crossing Permits, Road Use Agreements, Road Approach Permits
Public Lands and Forest Division, Alberta Environment and Sustainable Resource Development	Burn Permit
Transport Canada	Aeronautical Obstruction Clearance
Landowners/Occupants	Notification

4.0 PROJECT-SPECIFIC ENVIRONMENTAL COMMITMENTS

This section outlines construction-related environmental conditions and commitments from AUC and AESRD approvals. A Project-specific setback and timing restriction summary table is included in Appendix C. This table may be subject to change based on consultation.

Disclaimer: This section shall remain in DRAFT and is subject to change based on regulatory consultation, permits, and notifications.

Activity	Environmental Measures
Environmental Protection Plan and Related Conditions (AUC 2015)	AUC Commitments
	4.0.1 The power plant shall be located within Township 41, Range 1, Sections 2, 4, 5, 9, 11 and 12, west of the Fourth Meridian (Approval No. 3520-D02-2015, Terms and Condition 1).
	4.0.2 The power plant shall consist of 17 General Electric model 1.7 – 103 Low Noise Trailing Edge, 1.7 – MW wind turbines with a total generating capacity of 29.2 MW (3520-D02-2015, Terms and Condition 2).
	4.0.3 The power plant shall consist of a 24.94-kilovolt collector system consisting primarily of underground power lines with some overhead sections as described, and at the locations indicated, in the application. The collector system is to be used solely for the collecting of electrical energy generated at each turbine and transmitting that energy to the distribution facility owner's distribution network. Bull Creek 280S substation is no longer required (3520-D02-2015, Terms and Condition 3).
	4.0.4 The applicant shall submit a progress report to the Commission in writing, once every three months, on construction progress pursuant to Section 3 of the <i>Hydro and Electric Energy Regulation</i> . The first progress report shall be filed with the Commission three months from the date of issuance of this approval (Approval No. 3520-D02-2015, Terms and Condition 4).
	4.0.5 Unless otherwise authorized by the Commission, construction of the power plant shall be completed by December 31, 2015. (Approval No. 3520-D02-2015, Terms and Condition 5)
	4.0.6 The applicant shall notify the Commission within 30 days of completing the power plant (Approval No. 3520-D02-2015, Terms and Condition 6).
	4.0.7 The applicant shall: <ul style="list-style-type: none"> a) Conduct baseline (pre-construction or post-construction with no turbines operating) and post-construction comprehensive noise studies, including an evaluation of low frequency noise, at receptors R063, R086, R141 and the receptor located in NW 31-40-1 W4M under representative conditions, in accordance with Rule 012: <i>Noise Control</i>. b) File all studies and reports relating to the preconstruction and post-construction noise surveys with the Commission within one year of connecting the power plant to the Alberta Interconnected Electric System. (Approval No. 3520-D02-2015, Terms and Condition 7)
	4.0.8 The applicant must perform a detailed electrical study and corrosion analysis and implement measures to prevent external pipeline corrosion prior to the project's completion. The applicant shall advise the Commission when this condition has been satisfied (Approval No. 3520-D02-2015, Terms and Condition 8).
	4.0.9 The applicant shall finalize its emergency preparedness and response plan and make copies available to members of the Killarney Lake Group prior to the project's operation. The applicant shall advise the Commission when this condition has been satisfied. (Approval No. 3520-D02-2015, Terms and Condition 9).
	4.0.10 If the project encroaches upon newly identified wetlands, the applicant must re-site the offending projects component(s) or receive Alberta Sustainable Resource Development's (ESRD) approval to site the project within the wetland setback (Approval No. 3520-D02-2015, Terms and Condition 10).
	4.0.11 The applicant shall continue with pre-construction bat monitoring; submit the results of its pre-construction bat monitoring data to ESRD prior to operation of the project; and comply with all directions received from ESRD, including any recommended or required mitigation measures to protect bats. The applicant shall advise the Commission when this condition has been satisfied (Approval No. 3520-D02-2015, Terms and Condition 11).
	4.0.12 The applicant shall conduct a post-construction monitoring program for birds and bats in consultation with AESRD. The applicant shall advise the Commission when this condition has been satisfied (Approval No. 3520-D02-2015, Terms and Condition 12).

Activity	Environmental Measures
	<p>4.0.13 The applicant shall develop and implement an environmental protection plan in consultation with AESRD. The applicant shall advise the Commission when this condition has been satisfied (Approval No. 3520-D02-2015, Terms and Condition 13).</p> <p>4.0.14 The applicant shall, at all times during the construction and operation of the project, maintain insurance coverage that is sufficient to protect again any reasonably foreseeable liabilities. The applicant shall advise the Commission when this condition has been satisfied (Approval No. 3520-D02-2015, Terms and Condition 14).</p> <p>4.0.15 The applicant shall obtain Commission approval prior to making any material changes to the power plant or substantially varying the design and/or specifications of the power plant from what was stated in the application or from what the Commission has approved (Approval No. 3520-D02-2015, Terms and Condition 16).</p>
AUC and AESRD Commitments	
Weeds	<p>4.0.16 Weeds will be controlled, as identified in the Alberta Weed Control Act (Government of Alberta 2011) and associated regulations (Stantec 2014a). See Appendix D for the Weeds Best Management Practices.</p> <p>4.0.17 All Herbicide applications will be applied by a "Certified Applicator" as defined by Alberta Regulation 43/1997 (Stantec 2014a).</p> <p>4.0.18 All equipment will be cleaned and decontaminated to prevent the spread of weeds and other invasive species to the Project area (AESRD 2014).</p>
Rare Plants and Rare Plant Communities	<p>4.0.19 Temporary fencing will be erected during construction to exclude activities from rare plants and rare plant communities (Stantec 2014a).</p>
Land Use	<p>4.0.20 Restrict disturbance and activity to designated workspace (Golder, 2012).</p> <p>4.0.21 Construction crews will yield to all existing land use (e.g., current land use expected to continue in a safe manner to construction through fencing, re-staking, as required) (Golder, 2012).</p>
Hydrology and Wetlands	<p>4.0.22 All equipment will be routed around wetlands (AESRD 2014).</p> <p>4.0.23 All project activities will follow BMP for sedimentation and spill prevention (AESRD 2014).</p> <p>4.0.24 Vehicles or equipment will not be washed/cleaned within 30 m of wetlands (Stantec, 2014a).</p> <p>4.0.25 Project fuel storage or hazardous material storage will be greater than 100 m from wetlands (Stantec 2014a).</p> <p>4.0.26 Vehicle and equipment refueling or other maintenance will not occur within 100 m of wetlands (Stantec 2014a).</p> <p>4.0.27 Water from any dewatering activities will be discharged in a manner that it will not directly enter wetlands (Stantec 2014a).</p> <p>4.0.28 Wetland effects from road construction, once final engineering is completed, will be reviewed with AESRD to identify regulatory requirements under the Water Act. (Stantec 2014a)</p> <p>4.0.29 Equipment will be routed around wetlands (Golder 2012).</p> <p>4.0.30 All Project activities will follow Best Management Practices for sedimentation and spill prevention (Golder 2012).</p> <p>4.0.31 All disturbed areas not used for subsequent operation will be reclaimed following construction to minimize erosion and siltation (Golder 2012).</p> <p>4.0.32 Wetland mitigations may consist of directional drilling (underground collectors, underground fiber-optic cable), construction during dry ground conditions, employment of rig matting, geotextiles, vegetated buffer zones, earthen berm and/or silt fencing as appropriate (Golder 2012).</p>
Wildlife	<p>4.0.33 Appropriate Federal or Provincial wildlife related permits/authorizations will be obtained before handling wildlife (dead or alive) or conducting wildlife surveys, following applicable protocols and conditions (Stantec 2014a).</p> <p>4.0.34 Existing roads and trails will be used to the extent practicable (Golder 2012).</p> <p>4.0.35 Vehicle speed will be restricted on the Project access (Golder 2012).</p> <p>4.0.36 Construction activity will be restricted to designated work areas (Golder 2012).</p> <p>4.0.37 Construction will occur as quickly as safety allows (Golder 2012).</p> <p>4.0.38 Proposed construction mitigations include silt-fencing for all wetlands within 100m of proposed infrastructure if amphibian surveys (3 visits) cannot be completed prior to construction. These areas will be identified and marked by an environmental monitor prior to the start of construction (Stantec 2014a).</p> <p>4.0.39 Active animal residences (e.g. house, nest or den) will not be disturbed. An active house/nest/den is one that is under construction, or actively in use (Stantec 2014a).</p>

Activity	Environmental Measures
	<p>4.0.40 The following surveys are to be completed prior to or in conjunction with Project construction activities (AESRD 2014 and Stantec 2014b):</p> <ul style="list-style-type: none"> Breeding Bird Survey (at turbines 27, 44, 47, 48 conducted in June 2015) (<i>Item 4. Wildlife Impacts</i>, pg. 7, AESRD, 2014) if construction begins after June 2015. Raptor Nest Surveys (to be conducted in May 2015) Sharp-tailed Grouse Lek Survey (to be conducted in April 2015) Spring Bird Movement Survey (4 visits to be conducted in April and May 2015) Amphibian Night Survey (infrastructure within 100 m of wetlands to be conducted in May 2015) Wildlife Clearance Survey (ongoing from April 1st – August 31st) <p>A report outlining the results of these surveys will be provided to AESRD by BluEarth within 2 years of Project construction (AESRD 2014).</p> <p>4.0.41 <i>Proximity to Wintering Range</i>: Construction is anticipated to occur between May 1st and December 31st, avoiding timing conditions (January 15th – April 30th) (AESRD 2014); however, vegetation clearing practices may commence during this Winter Range restricted activity period to reduce the potential for breeding birds to establish nests in vegetative areas.</p>
Wildlife Continued	<p>4.0.42 <i>Construction Timing and Breeding Birds</i>: The primary concern for grassland birds is related to construction during critical breeding, nesting and rearing stages, April 1st – July 15th. AESRD (ESRD-RM) recommends that all activities on native grasslands occur outside the critical breeding period (AESRD 2014).</p> <p><i>Cultivated Lands</i>: Construction will occur during breeding bird season in cultivated lands. A Qualified Biologist will conduct nest clearance survey prior to all surface disturbance from April 1st – July 15th (AESRD 2014). No follow-up survey is required once the area has been cleared and construction has commenced, unless requested by AESRD.</p> <p><i>Native Grasslands</i>: All turbines, road collection system and substation construction should occur outside the critical grassland bird breeding period (April 1st – July 15th) in areas of native grasslands. Construction should either be completed before April 1st or after July 15th of the construction year (AESRD 2014).</p> <p><i>Wetland Setbacks</i>: The Supplemental Pre-Construction Wetland Assessment identified a number of wetlands not identified in the initial Environmental Evaluation. BluEarth moved a number of turbines and other project infrastructure to avoid or minimize conflict with wetland setbacks, five turbines remain within 150 m of wetland(s) because of other restrictions to changing of turbine sighting. A number of these wetlands (BW010, BW011, BW001) have been significantly altered by agriculture and area unlikely to provide wildlife value. Pre-construction amphibian surveys will be conducted at all wetlands within 150 m of the Project infrastructure to help determine appropriate mitigations during construction. In addition, breeding bird surveys will be completed for the duration of the post-construction monitoring program for turbines 27, 44, 47, and 48 and will be completed pre-construction if clearing is to take place after the start of the nesting period. The collector line between turbines 44 and 46 runs between two wetlands. This line occurs on a high point of the land within 30 m of these wetlands. The landholder has developed this high point as an access road between their land holding and it is used regularly to transport farm equipment. This road was deemed by ESRD-RM to be an existing road and in efforts to limit infrastructure the current collector line layout was accepted by ESRD-RM with the following conditions.</p> <p>a. The collection line be installed outside the critical breeding period for breeding birds of April 1st – July 15th.</p> <p>4.0.43 <i>Raptor Nests</i>: All turbines, access roads, collector lines and work areas have been located over 180 m from any known raptor nest. All known nests sites will be monitored and complete raptor nest searches annually until the Project is constructed. If additional sites are found, consultation with AESRD will be conducted to determine appropriate mitigation for these sites (AESRD 2014).</p> <p>4.0.44 <i>Amphibians</i>: Additional mitigations specific to amphibians (e.g., drift fencing, timing of construction) may be identified if amphibian surveys indicate the presence of amphibians in wetlands within 150 m of planned Project infrastructure (AESRD 2014).</p>
Native Grasslands	<p>4.0.45 See the previous section for breeding bird timing restrictions in Native Grasslands</p> <p>4.0.46 Activities in native grasslands will be limited within the Project Footprint (turbine lease, interconnection right of way, construction and operation access routes, and workspace) (AESRD 2014).</p> <p>4.0.47 All equipment will be cleaned and decontaminated to prevent the spread of weeds and other invasive species to the Project area (AESRD 2014).</p> <p>4.0.48 Areas not containing permanent facilities or operational access roads will be reclaimed to an equivalent land use capability in accordance with regulatory requirements (AESRD 2014).</p>

Activity	Environmental Measures
	4.0.49 All activities on native grasslands should occur during dry or frozen conditions (AESRD 2014). 4.0.50 Roads, fencing and other infrastructure on native grasslands will be limited (AESRD 2014). 4.0.51 Topsoil will be stripped and salvaged for use during reclamation (AESRD 2014). 4.0.52 Minimal disturbance techniques (i.e., plough-in) will be used for underground collector and fibre-optic lines (AESRD 2014). 4.0.53 Sod salvage and replacement will be attempted in areas of short duration and small footprint size (AESRD 2014). 4.0.54 Reclamation on native grasslands will use certified inspected native seed mix (AESRD 2014). 4.0.55 All collection lines on native grasslands be placed underground. If aboveground lines are used in the Project, then post-construction wildlife surveys of the aboveground power lines should be completed (AESRD 2014).
Soils and Terrain	4.0.56 Surface and subsurface runoff controls (ditches and culverts) will be installed as appropriate (Golder, 2012). 4.0.57 Existing roads and trails will be used to the extent practicable (Golder, 2012). 4.0.58 Surveys will be conducted on light vehicles (quads, all-terrain vehicle (e.g., ATV), Argo) or on foot (Golder, 2012). 4.0.59 Topsoil will be stripped and stored for reclamation (Golder, 2012). 4.0.60 Soil stockpiles will be low profile and stabilized as necessary (Golder, 2012). 4.0.61 Heavy equipment and vehicle traffic will be restricted to workspace (Golder, 2012). 4.0.62 Spills will be addressed immediately (Golder, 2012). 4.0.63 Heavy equipment activity will be restricted if wet soil conditions occur (Golder, 2012).
Noise	4.0.64 Limit construction activities to daytime hours where practicable, particularly heavy equipment operation in proximity to a receptor and large numbers of Project vehicle traffic on public roads (Golder, 2012). 4.0.65 Locate constructions staging areas at least 750 m away from noise receptors, particularly dwellings, where practicable (Golder, 2012). 4.0.66 Limit vehicle speeds on Project access roads (Golder, 2012). 4.0.67 Use "drive-through" methods of moving equipment onsite to reduce the use of vehicle back-up alarms when feasible (Golder, 2012). 4.0.68 Fit diesel engines with a muffler or silencing system, and keep in good repair (Golder, 2012). 4.0.69 Establish a communication protocol to allow local residents to identify any noise concerns during Project construction activities (Golder, 2012). Advise residents of significant noise-causing activities and schedule these events to reduce disruption to them (Aercoustics 2014). 4.0.70 Conduct construction activity between the hours of 7 am and 10 pm to reduce duration impact from construction noise (Aercoustics 2014). 4.0.71 Ensure that all internal combustion engines are well maintained with muffler systems (Aercoustics 2014).
Development Permits	4.0.72 Apply for, receive and keep current any and all necessary permits (building, electrical, plumbing, sewer and gas), as required from an accredited agency under the Safety Codes Act as designated by the Municipal District of Provost (Municipal District of Provost No. 52 2014). 4.0.73 Minimum setbacks to be in accordance with the Municipal District of Provost Land Use Bylaw (Municipal District of Provost No. 52 2014).
Reclamation	4.0.74 Areas not containing permanent facilities or operational access roads will be reclaimed to an equivalent land use capability in accordance with regulatory requirements (AESRD 2014). 4.0.75 All disturbed areas not used for subsequent operation will be reclaimed following construction to minimize erosion and siltation (AESRD 2014).
AESRD Commitments – Consultation	
Weeds	4.0.76 A designated cleaning station will be erected onsite to limit the spread of weeds (D. Moore 2015, pers. comm., 19 Mar).
Reclamation	4.0.77 Seed mix will be determined in consultation with P. Porter as directed by AESRD (D. Moore 2015, pers. comm., 19 Mar).
Reporting	4.0.78 A monthly summary report will be provided to AESRD (E. Herdman 2015, pers. comm., 19 Mar).

5.0 GENERAL ENVIRONMENTAL PROTECTION MEASURES

5.1 Project Area Preparation and General Protection Measures

Project area preparation includes clearing the Project workspace and identifying the Project area, hazards, and environmental features by clearly staking and flagging. Temporary workspace will not be cleared of trees unless deemed necessary.

Preparation and construction of the laydown yard/Project control yard and the concrete batch plant facility. The construction management trailers, portable toilets and refuelling areas will be set up and electricity and communication systems will be installed. Setting up batch plant and other project control facilities as needed. Some soil handling will be required at this stage and is has been included the following sections for each construction activity.

Activity	Environmental Measures
Issued for Construction (IFC) Drawings	5.1.1 IFC Drawings incorporate environmental protections outlined in the EPP and will be provided to the Contractor and Environmental Inspectors. Environmental constraints will be identified on the IFC drawings. If additional environmental constraints are located during construction, updated IFC drawings will be provided to the contractor.
Communication, Emergency Contacts and Contingency Plans	5.1.2 All crews must have a means of communication, such as a radio or cell phone. 5.1.3 A list of emergency contacts are provided in Appendix F and must be on your person at all times. 5.1.4 All personnel will review all Contingency Plans included in Appendix D prior to going onsite.
Schedule	5.1.5 See Section 4.0 regarding wildlife timing restrictions and native grasslands timing restrictions. 5.1.6 Schedule construction activities to avoid spring break-up, where possible. 5.1.7 Abide by road bans as stipulated by applicable Provost and Wainwright Municipal District.
Staking and Flagging	5.1.8 Locate all buried infrastructure using Alberta One-Call system. 5.1.9 Identify all temporary workspaces prior to construction. 5.1.10 Flagging or staking access roads, interconnection lines, temporary workspace, and other project components at wetlands, buried facilities, highways and roads as per crossing agreements. 5.1.11 Ensure that all environmental features (wetlands, listed plants, wildlife habitat features, archaeological, paleontological and historic sites, or other environmental features identified during surveys) are clearly marked using PURPLE paint and flagging. Ensure there is appropriate mitigation in place (e.g., fenced, flagged and staked). 5.1.12 The Contractor will ensure the Project footprint has been clearly flagged or staked. 5.1.13 Do not allow disturbance, including traffic, outside of the staked boundaries unless approval has been obtained from BluEarth, regulators and/or landowners as applicable.
Buried Infrastructure	5.1.14 Obtain all necessary Crossing Agreements. 5.1.15 Follow all Crossing Agreement conditions when crossing buried infrastructure.
Hydrovac	5.1.16 Dispose of hydrovac fluid in an area as approved by the Environmental Inspector and Contractor. 5.1.17 Fence off hydrovac holes with snow fence.
Temporary Workspace and Project Area Footprint Workspace	5.1.18 Obtain approval from BluEarth, Landowners/Occupants, AESRD, prior to taking additional workspace.
Fencing	5.1.19 Do not place or remove existing fences in wetlands. If it is absolutely necessary for a fence to be installed or removed through a wetland, a qualified biologist must completed a Wildlife Clearance Survey prior to activity, and only foot traffic is permitted to install or remove a fence in wetlands. 5.1.20 Brace fences prior to cutting. 5.1.21 Install gates in fences crossed by Project workspace. 5.1.22 Close gates after use.
Approaches	5.1.23 Strip topsoil if subsoil is being used as approach material. 5.1.24 Construct approaches with subsoil, unless otherwise approved by AESRD or Municipal District representatives. 5.1.25 Install culverts in approaches to maintain drainage, as appropriate.

Activity	Environmental Measures
Brushing and Clearing	<p>5.1.26 Use clearing equipment that limits surface disturbance, soil compaction and topsoil loss (e.g., low pressure tracks/tires, blade shoes and brush attachments).</p> <p>5.1.27 Use brushcutters, brushhogs or other equipment (e.g., rotary mowers) which should result in minimal soil disturbance when brushing non-salvageable timber in areas where grading is not warranted</p> <p>5.1.28 Do not skid or drag trees across wetlands.</p> <p>5.1.29 Complete brushing or clearing activities in a manner that prevents siltation into wetlands.</p> <p>5.1.30 Maintain vegetative mat within riparian zones of wetlands to the extent practical by storing material.</p> <p>5.1.31 Minimize clearing within areas of steep slopes and soils with risk of erosion, to the extent practicable.</p> <p>5.1.32 Consider clearing vegetation manually in areas of steep slopes and soils with risk of erosion.</p> <p>5.1.33 Consider leaving stumps in situ, to extent practicable, and restrict stumping near wetlands.</p> <p>5.1.34 Clear brush or trees as per instructions BluEarth has received from the Landowners/Occupants.</p>
Brush Disposal	<p>5.1.35 BluEarth will consult with AESRD and/or applicable Municipal District representatives and/or Landowners/Occupants to determine preferred brush disposal method.</p> <p>5.1.36 If burning is conducted, brush piles to be burnt shall be placed on exposed subsoil or as per the Burn Permit.</p> <p>5.1.37 At no time shall a fire be left unattended. Only brush shall be burned.</p>
Native Grasslands	<p>5.1.38 Activities on Native Grasslands will not occur from April 1st – July 15th (AESRD 2014).</p>
Wetlands	<p>5.1.39 Silt fence and/or other erosion and sediment control measures must be installed prior to construction. Maintenance of silt fences must be complete as soon as possible.</p> <p>5.1.40 Preconstruction amphibian surveys will indicate what wetlands are inhabited by amphibians. As directed by the Environmental Inspector, silt fencing may be installed to prevent migration of amphibians onto workspace.</p> <p>5.1.41 Construction disturbance area shall have a setback of a minimum of 5 m, or to the extent practicable, from the wetland vegetation boundary.</p>
Wildlife Habitat	<p>5.1.42 Do not damage, clear or approach vegetation with clearing equipment marked with PURPLE flagging or stakes as it may contain nests or wildlife habitat. AESRD will be contacted to determine appropriate mitigation for listed species.</p> <p>5.1.43 No person shall deposit or permit to be deposited oil, oil wastes or any other substances harmful to migratory birds.</p> <p>5.1.44 Refer to Appendix E for further information.</p>
Wildlife Encounter	<p>5.1.45 No nest shall be disturbed, and no person shall destroy or take a nest or egg.</p> <p>5.1.1 Avoid disturbances to all wildlife and waterfowl in or near the Project area.</p> <p>5.1.46 Wildlife shall not be approached. In the event of wildlife being encountered during construction that was not staked or flagged:</p> <ul style="list-style-type: none"> Stop work in the immediate area and contact the Environmental Inspector. Report any aggressive, nuisance, trapped, injured or dead wildlife to the Environmental Inspector and, as required, the Environmental Inspector will notify AESRD and BluEarth. <p>In the event of wildlife being encountered off site:</p> <p>5.1.2 Report the location of collisions with wildlife while traveling to and from site to the Environmental Inspector and if warranted the Environmental Inspector will notify AESRD and BluEarth.</p> <p>5.1.3 Refer to Appendix E for further information.</p>
General Wildlife	<p>5.1.4 Do not feed wildlife, including local domestic and farm animals, rodents, coyotes, etc.</p> <p>5.1.5 Pets are not allowed onsite.</p>
Dust Control	<p>5.1.6 Implement dust control measures (e.g., applying water to roads and trails) in the event that nuisance dust results from construction activities.</p>
Archaeological, Paleontological, and Historical and Cultural Resources	<p>5.1.7 Any Archaeological, Paleontological, and Historical and Cultural Resources encountered during construction shall not be disturbed. Work will immediately stop in the area of discovery and the Environmental Inspector will be contacted.</p> <p>5.1.8 Any discovered sites will be reported to Alberta Culture and Tourism and the Land Owner/Occupant. See Appendix D for Archaeological, Paleontological, and Historical and Cultural Resources Discovery Contingency Plan.</p>

Activity	Environmental Measures
Material Transportation	5.1.9 Confine materials hauling vehicles to existing access roads and designated workspace prepared for transportation equipment. 5.1.10 If travel lanes and workspace have not been stripped, the Environmental Inspector will monitor the condition of the sod and soil condition, and assess if soil capability is being jeopardized and if further mitigation is required, such as topsoil stripping, gravel, matting and/or geotextiles. 5.1.11 Repair all roads damaged by materials hauling equipment. 5.1.12 Follow all traffic safety regulations and road bans 5.1.13 Drivers transporting and handling fuels or other hazardous materials will possess valid TDG certification. 5.1.14 The Contractor will provide BluEarth with a list of potential wastes (hazardous and non-hazardous) that may result from construction activities, and the proposed approved waste disposal facility (or facilities) for each identified waste.
Equipment Refueling and Servicing	5.1.15 Utilize an impervious barrier underneath equipment and vehicles when servicing and refueling. 5.1.16 Ensure that bulk fuel, servicing vehicles, vehicles with box-mounted fuel tanks carry spill prevention, containment and spill cleanup materials appropriate to clean-up a spill to the volume of fuels or hazardous materials they contain. 5.1.17 All fuel shall be stored and secured in approved tanks, and labeled according to WHMIS and TDG regulations and Material Safety Data Sheets (MSDS) will be available for each product stored onsite. Personnel handling fuels will have at minimum TDG and any others appropriate level of HSE training for their role handling or storing fuels. 5.1.18 Ensure heavy equipment and light vehicles have access to spill cleanup materials. 5.1.19 Ensure all fuel tanks comply with environmental standards. 5.1.20 Do not refuel or perform maintenance on equipment within 100 m of a wetland, to the extent practicable. 5.1.21 Fuel tanks will be installed, maintained in an approved manner under appropriate regulation with all necessary containment, drip collection, nozzle requirements and spill kits. 5.1.22 Fuel storage areas and non-portable transfer fuel lines will be clearly marked and barricaded to ensure they are not damaged by moving vehicles. 5.1.23 All fuel transfer vehicles will be equipped with spill kits and additional spill kits will be located at designated centralized areas. 5.1.24 Appropriate firefighting equipment will be available near any flammable storage sites. 5.1.25 Smoking shall not be permitted within 10 m of a fuel storage area. 5.1.26 All personnel shall be made aware of proper disposal methods for cigarette butts and other hot or burning material.
Waste Management and Spill Prevention	5.1.27 Comply with all Federal, Provincial, and Municipal regulations and industry standards regarding waste management. 5.1.28 Store all hazardous waste and waste materials in a secure designated area (laydown yard), away from environmentally sensitive features. 5.1.29 All hazardous materials shall be stored and secured in approved containers, and labeled according to WHMIS and TDG regulations and MSDS will be available for each product stored onsite. Personnel will have appropriate level of HSE training for their role if handling or storing these materials. 5.1.30 Dispose all hazardous and waste materials regularly, in approved containers or waste facility. This may include: regional landfills, recycling centres, construction/demolition disposal or recovery sites, product suppliers, and/or hazardous waste management facilities. 5.1.31 Collect all garbage and dispose of it in an appropriate manner. Waste reciprocals will be provided. 5.1.32 Contain, cleanup, remediate, dispose and report all spills of waste/hazardous waste materials as promptly as possible. In the event of an accidental spill, implement the Spill Contingency Plan (Appendix D) 5.1.33 During construction no fuel, lubricating fluids, hydraulic fluids, antifreeze, herbicides, biocides or other chemicals are released on the ground or into any wetland. 5.1.34 Portable toilets shall be placed temporarily on site during the Project construction. The disposal of sewage shall comply with applicable regulations and disposed of in an approved manner. 5.1.35 All vehicles and heavy equipment shall contain smoke butt disposal to ensure smoke butts are not discarded on the ground. 5.1.36 All personnel shall be made aware of proper disposal methods for welding rods, cigarette butts and other hot or burning material. 5.1.37 All oils, grease, gasoline, diesel, and other hazardous materials shall be stored at least 100 m away from any wetland, drainage, or other waterbody.

Activity	Environmental Measures
Air, Noise and Light	5.1.1 Close containers containing hazardous materials, ensuring to minimize VOC emissions. 5.1.2 Shut down engines and generators or other combustible engines or motors when not in use to reduce emissions. Use well-maintained equipment to reduce air and noise pollution. 5.1.3 Use multi-passenger crew vehicles, when possible. 5.1.4 All vehicles and generators shall have exhaust systems regularly inspected and mufflers shall be operating properly. 5.1.5 All vehicles shall follow a designated Project route and shall be properly maintained to minimize noise. 5.1.6 The erecting equipment shall be illuminated as per regulations. 5.1.7 Implement dust and debris control as required. Only use fresh water for water control and ensure runoff does not occur into adjacent waterbodies. 5.1.8 Ensure all loads are secured and covered, as required, to eliminate debris scatter.
Batch Plant	5.1.9 Mixing cement must be completed at least 100 m from wetlands. 5.1.10 The batch plant will be operated in accordance with all regulations.
Equipment	5.1.11 Ensure all equipment is clean, free of soil, organics and chemicals prior to bringing material to site. 5.1.12 If transporting materials from one location to another, ensure soil and organics are not distributed, to reduce the transportation of weeds seeds. 5.1.13 If using materials in and around wetlands, ensure the materials are clean and free of soil, organics and chemicals. 5.1.14 Equipment shall be parked in identified staging areas when not in use. 5.1.15 Traffic must obey all speed limits and traffic rules outlined for the construction site. 5.1.16 Equipment shall not be left parked within 30 m of wetlands.

5.2 Construction

Within the construction disturbance area, activities may include topsoil-stripping, soil salvaging, grading, and installation of surface water management (i.e., culverts, ditches, silt fences, etc.). Temporary access (approximately 12 m) and permanent access (approximately 5 m) roads follow paths that minimize slope and gradient and share paths with the electrical collector system and fibre-optic cable. Underground electrical collection system (11.3 km of 34.5 kV line) and fibre-optic cable (4.4 km) buried 1 m deep will be installed by direct plough-in and/or trenching excavation using sand bedding for protection against mechanical damage (Golder 2012). The process of plough-in includes the splitting of earth using a single tooth. Alternative means includes a wheel-ditcher/Ditch Witch (0.15 m wide trench) or a track hoe (0.75 m wide trench) and if utilized, topsoil will be removed prior (Golder 2012). Temporary workspace, consisting of crane pads for each turbine (1.0 ha) and a temporary laydown yard (0.5 ha) will be required for storage of construction materials, tools, equipment, a temporary construction office (Golder 2012) and erecting a temporary batch plant. At this point in construction, dust control and road compaction efforts may be required.

Activity	Environmental Measures
Decision Criteria	5.2.1 Prior to construction activities, The Contractor and Environmental Inspector(s) will discuss the workspace, the activities proposed for the day, and the criteria outlined in Section 2.1.3.
Native Grasslands	5.2.2 Activities on Native Grasslands will not occur from April 1 st – July 15 th (AESRD 2014).

Activity	Environmental Measures
Sediment and Erosion Control Measures	<p>5.2.3 Install temporary berms on approach slopes to wetlands. Install silt fences and other sediment erosion control structures near the base of approach slopes to wetlands. Inspect sediment erosion control structures on a regular basis and repair, if warranted, as soon as practicable after damage.</p> <p>5.2.4 Sediment and erosion control measures, such as sediment traps shall be installed where appropriate. Soils which accumulate against silt fences or in sediment traps shall be removed on a regular basis to ensure effectiveness.</p> <p>5.2.5 Install sediment and erosion control measures in areas of exposed soils to prevent erosion which may include: earth berms, silt fencing, diversion trenching, matting, geotextiles, tackifiers, weed-free bales, and any other approved (by the Environmental Inspector) control measures.</p> <p>5.2.6 Work shall not be completed on erodible soils, during or following rainfall events.</p> <p>5.2.7 Erosion blankets designed for high flows shall be used to line bottom of ditches which have steep gradients or high flows, as required.</p> <p>5.2.8 Areas where little or no vegetation exist may be graded after a light rain when the surface is in an optimal state, but not after heavy rains which promotes runoff, erosion and compaction issues.</p> <p>5.2.9 Filtration or other suitable measures, such as settling ponds, silt fences, silt socks, shall be used to remove silt and reduce turbidity of water pumped from work areas. See Appendix D for Erosion Contingency Plan.</p>
Topsoil Handling Contingency Measures	<p>5.2.10 Implement Topsoil Handling Contingency Plan (Appendix D) during topsoil stripping if any of the following are encountered:</p> <ul style="list-style-type: none"> • minimal to no topsoil; • poor colour separation; • uneven boundary between topsoil and subsoil; • uneven surface on native grasslands or pasture; • wetlands; • windy conditions; or, • requests for alternative topsoil handling methods from AESRD or Landowners/Occupants.
Topsoil Handling – No Stripping	<p>5.2.11 The Environmental Inspector will monitor conditions of the electrical collector system and fibre-optic cable installation where no stripping is proposed. If topsoil is being subject to degradation, consider topsoil stripping from the workspace or install matting.</p>
Topsoil Handling – Stripping	<p>5.2.12 Only strip the area required for safe travel and if using a wheel ditcher or hoe, strip one blade width for electronic collection system and fibre-optic cable.</p> <p>5.2.13 Stockpile topsoil in a windrow adjacent to the travel lane for the access road construction; stockpile topsoil and salvaged sod on native grassland adjacent to electric collector system and fibre-optic cable.</p> <p>5.2.14 Avoid over stripping.</p>
Topsoil Handling – Access and Heavy Use Areas	<p>5.2.15 Strip topsoil from access and heavy use areas (e.g., crane pads, foundation pads, etc.), as required. Store stripped topsoil on other topsoil or on geotextiles.</p> <p>5.2.16 Avoid over stripping.</p>
Subsoil Handling	<p>5.2.17 Store subsoil on previously stripped areas or geotextile material. Ensure sufficient space (minimum of 1 m) is left between the edge of the topsoil storage pile, the subsoil storage pile, and excavation areas, to ensure the materials do not slough into each other or back into the excavation.</p>
Three-Lift Soils Handling	<p>5.2.18 Conduct three-lift soils handling during dry conditions, if required, in areas of poor quality lower subsoil that upper subsoil are encountered. Ensure topsoil and better quality upper subsoil are stored in a manner that will not result in admixing with poor-quality subsoil.</p>
Stripping Depth	<p>5.2.19 Strip all topsoil when stripping is required. Where colour change is not distinguishable, the Environmental Inspector will provide direction based on an evaluation of soil texture and structure.</p> <p>5.2.20 Avoid over stripping.</p>
Soil Storage	<p>5.2.21 Topsoil will be stored in windrows on topsoil a minimum of 2 m from embankments, slumps, cuts, wetlands, and 1 m from excavation areas.</p> <p>5.2.22 Subsoil will be stored in previously stripped locations.</p> <p>5.2.23 Avoid admixing.</p>
Soil Erosion - Wind	<p>5.2.24 Cover, seed, apply water and/or pack topsoil stockpiles and windrows with approved equipment and/or seed mix, if the Environmental Inspector has assessed and indicated the soil is prone to wind erosion.</p> <p>5.2.25 Soil handling activities may be postponed if winds are too high; the Environmental Inspector and Construction Manager will assess conditions and postpones and resume activities accordingly.</p>

Activity	Environmental Measures
Soil Windrow Gaps	5.2.26 If warranted, leave windrow gaps at trails, access roads, wildlife trails, as per Landowner's/Occupant's and/or AESRD's requests to allow for equipment or livestock/wildlife to cross workspaces.
Grading	5.2.27 First, strip topsoil from areas to be graded and store in areas as per soil storage recommendations. 5.2.28 The area stripped corresponds to the area to be graded. 5.2.29 Avoid over stripping. 5.2.30 Do not grade topsoil, organics (sod, stumps and brush), or subsoil piles into on another. 5.2.31 Reduce grading where possible, especially near wetlands, natural drainages, native grasslands, pasture, hay land and modified pasture with a complete sod layer to reduce erosion into the area. 5.2.32 Avoid blocking drainages and install culverts as required. 5.2.33 Do not grade materials into wetlands. 5.2.34 Limit the width and duration of grading to the extent required to reduce the potential for erosion and subsoil compaction. 5.2.35 Limit grading on erosion prone slopes. 5.2.36 Do not store graded materials in low-lying areas.
Spoil Handling and Management of Excavation Areas	5.2.37 If excavated spoil material is not to be used in backfill locations, the spoil materials will be hauled to an approved disposal facility or stored as per Landowner/Occupant agreements. 5.2.38 Store excavated spoil a minimum of 2 m from embankments, slumps, cuts, wetlands, and 1 m from excavation areas. 5.2.39 Store excavated spoil on previously stripped areas adjacent to excavation areas. Ensure sufficient space (minimum of 1 m) is left between the edge of the topsoil storage pile, the spoil storage pile and excavation, to ensure the materials do not slough into each other or back into the excavation. 5.2.40 In areas not previously stripped, place spoil on geotextile material at minimum of 1 m from excavation. 5.2.41 Fence off and sign all excavation areas to ensure wildlife, personnel and equipment cannot fall into excavation. Excavation areas will be monitored for wildlife. 5.2.42 If required, dewater excavation prior to foundation work; dewater with sediment removal system as required, and pump water onto stable, vegetated areas, tarpaulins or sheeting in a manner which does not cause erosion or siltation into wetlands; dewatering must be approved by the Environmental Inspector and must be greater than 50 m from wetlands. 5.2.43 Excavated waste material shall not be disposed of in an environmentally sensitive area or near a wetland.
Drainage	5.2.44 Access roads shall be adequately ditched where necessary to allow for drainage and ditches shall discharge into adjacent ditches or well vegetated areas. 5.2.45 No ditch or drainage swale shall drain into a wetland. 5.2.46 Ditches shall be kept at the same gradient as the road, to the extent practicable. 5.2.47 Natural drainage shall be maintained whenever possible. 5.2.48 Should any water/drainage related non-compliance arise, the Environmental Inspector, Construction Manager, BluEarth and Alberta Energy Regulator shall be contacted (Emergency Hotline 1-800-222-6514).
Working near Wetlands	5.2.49 A Qualified Biologist will complete a wildlife clearance survey prior to completing activities near wetlands (Refer to Appendix E for further information). 5.2.50 Do not grade or strip in wetlands unless approved to do so. If approval has been provided, all conditions must be followed within approval. See Appendix D for further information. 5.2.51 Use low ground pressure equipment and/or install rig matting, geotextiles or construct a subsoil ramp to limit damage to the wetland vegetation buffer, if required. 5.2.52 Temporary workspace around wetlands will be acquired for equipment transportation, as required.

Activity	Environmental Measures
Wetland Crossings	5.2.53 A Qualified Biologist will complete a wildlife clearance survey prior to crossing activities (Refer to Appendix E for further information). 5.2.54 All wetland crossings will be conducted using Horizontal Directional Drilling; however, if another crossing method is required approval will be obtained prior to crossing and all conditions, plans, and/or procedures provided in approvals when completing a crossing will be followed. 5.2.55 Wetland crossings will be performed in a manner which ensure no deleterious substances including, but not limited to, sediment, fuel, oil, lubricants, garbage and drilling fluid or mud, enter the wetland. 5.2.56 Sediment erosion control measures (i.e., silt fences) will be installed as per the Environmental Inspector's direction prior to crossing activities. 5.2.57 Use designated vehicle crossings around wetlands. 5.2.58 Ensure all necessary equipment and materials are in place prior to completing a crossing and that they are free of leaks of oil, fuel, gasoline, hydraulic fluids and other deleterious or hazardous material (See Appendix D for Drilling Mud Release Contingency Plan). 5.2.59 Complete crossing work as quickly as possible. 5.2.60 Inspect all sediment erosion control measures on a regular basis and repair as soon as practicable in damaged. 5.2.61 Postpone crossing activities if weather conditions are unfavourable (i.e., high water levels, rain, snow, etc.). Resume activities when water levels and weather conditions permit.
Equipment Hauling	5.2.62 Confine equipment hauling to safe access, allotted workspace and temporary workspace. 5.2.63 Repair all roads if damaged by equipment hauling. 5.2.64 Follow all traffic laws and road bans. 5.2.65 If the travel area has not been stripped, the Environmental Inspector and construction personnel will monitor the soil to ensure rutting, compaction, degradation does not occur and the Environmental Inspector will implement mitigation as required, such as stripping, geotextile, rig matting and gravel.

5.3 Turbine Foundations and Erection

When the turbine site area for the first turbine has been stripped and excavated, and road construction is far enough ahead and there are not going to be any significant conflicts with road usage. Once the subsoil of each excavated turbine site has been compacted and tested the foundation construction will commence. Foundations will be of the P&H or 'rock and pile anchor' design which consists of a 4 to 5 m diameter annual pier typically installed to a depth of approximately 10 m.

The turbines are delivered directly to each foundation, unloaded and staged within reach of the main erection crane. In general terms, all turbine components are delivered to each foundation sequentially, then unloading cranes and lifting fixtures are moved to the next foundation. Following unloading, a mid size crane follows to set controllers on the foundation, the tower base section is set over the controllers, and the tower mid-section is set on top of the base section. Then the three (3) blades are installed on the blade hub, to complete the rotor for installation. Lastly the main erection crane comes in to lift the tower top section, nacelle and rotor into place.

Activity	Environmental Measures
Noise	5.3.1 Follow the requirements of AUC Rule 12 Noise Control: <ul style="list-style-type: none"> Conduct construction activities from 7 am to 10 pm. Ensure notifications to Landowners/Occupants regarding significant noise activities (e.g., pile driving) and schedule have been completed, as required.
Spoil Storage and/or Disposal – Drilled or Augered Holes	5.3.2 Spoil created as a result of augering or drilling will be used for backfilling or disposed of at an approved facility or disposed or stored as per Landowner/Occupant agreements. 5.3.3 Temporary storage of spoil, remove any unused spoil as soon as practicable and store spoil a minimum of 2 m from embankments, slumps, cuts, wetlands, and 1 m from excavation areas and topsoil windrows.

Activity	Environmental Measures
Concrete Management	<p>5.3.4 Isolate workspace from adjacent wetlands to ensure contamination does not occur and ensure water which comes in contact with un-cured or partly cured concrete does not flow into wetlands.</p> <p>5.3.5 Isolate and hold any water which contacts uncured or partly cured concrete until the pH is between 6.5 and 8.0 and turbidity is less than 25 NTU (+/- 2 accuracy).</p> <p>5.3.6 Do not dispose of any concrete near any wetland.</p> <p>5.3.7 All foundations will be inspected by qualified personnel.</p> <p>5.3.8 Excess concrete will be disposed of at an approved facility.</p> <p>5.3.9 Report spills, wash water or turbidity (including concrete fines) as required. See Appendix D for the Spill Contingency Plan.</p>
Welding and Grinding	<p>5.3.10 Implement the Fire Contingency Plan when required (Appendix D).</p> <p>5.3.11 If winds are high, and fire hazard exists, implement protection measures or restrict work as required. Use mitigation such as wetting surrounding areas, having water trucks on standby and use fire resistant mats.</p> <p>5.3.12 Ensure all vehicles carry fire-fighting equipment required by the Forest and Prairie Protection Act and Regulations, including the minimum fire extinguisher.</p> <p>5.3.13 All personnel shall be made aware of proper disposal methods for welding rods, cigarette butts and other hot or burning material.</p>
Backfilling	<p>5.3.14 Use excavation material to the extent practicable.</p> <p>5.3.15 Use suitable equipment for backfilling.</p> <p>5.3.16 If using outside sources of backfill, ensure it is approved backfill and is not contaminated.</p> <p>5.3.17 Backfill each lift in the correct sequence, including where three lift soils handling was implemented.</p> <p>5.3.18 Backfill to surface and mound no greater than 30 cm to allow for settling and drainage.</p> <p>5.3.19 Do not use topsoil or organics for backfilling.</p> <p>5.3.20 Do not backfill clods. Break up clods with appropriate equipment.</p> <p>5.3.21 Dispose of excess spoil material at approved facilities or as approved in consultation with applicable authorities, the Landowners/Occupants and BluEarth.</p>
Access and Crane Workspace	<p>5.3.22 Ensure ground surface is dry to ensure crane and erecting equipment does not rut, compact, pulverize soil and/or cause damage to soil or vegetation.</p> <p>5.3.23 Confine structure assembly, erection and setting work to the designated workspace.</p> <p>5.3.24 The use of cranes or booms will be restricted to workspace, which has been prepared and is safe for the loads.</p> <p>5.3.25 If the workspace where structures are being assembled and/or the crane footprint has not been stripped, the Environment Inspector will monitor the condition of the areas during assembly and erection and to ensure there is no damage to soil. Use rig mats, geotextiles, or other similar materials, as required, under crane stabilizers if topsoil has not been stripped.</p>

5.4 Rough Work-site Clean-up

Following turbine installation and access road construction, crews start clean up where construction began. Temporary fences are removed and permanent fences and access gates are re-installed.

All temporary structures are dismantled and removed and construction materials are removed from the Project area.

Activity	Environmental Measures
Scheduling	5.4.1. Clean-up will be completed immediately after construction has completed. 5.4.2. Postpone work on excessively wet soils and wait until soils are dry. 5.4.3. Time seeding and/or revegetation to take advantage of soil conditions and temperature.
Temporary Infrastructure	5.4.4. Dismantle and remove construction materials and temporary buildings, storage sites, equipment, etc. not required during reclamation. 5.4.5. Remove temporary sediment and erosion control measures not required for reclamation. 5.4.6. Remove geotextiles, rig mats and other matting. 5.4.7. Remove temporary fencing if not required for reclamation and ensure permanent fencing has been reinstalled as per Landowner/Occupant requirements/agreements. 5.4.8. Remove temporary culverts and other temporary drainage infrastructure.
Topsoil Windrows	5.4.9. Consider tackifying, seeding and watering down the topsoil windrow, as required.

6.0 RECLAMATION PLAN

Reclamation includes tiling and ripping compacted soil, recontouring areas where necessary and restore drainage patterns, applying and monitoring erosion and sediment control measures, revegetating/ reseeding and fertilizing and weed control, as required.

The second year reclamation includes revegetating/reseeding and fertilizing, as required, weed control, as well as repairing and removing sediment and erosion control measures.

Activity	Environmental Measures
Reclamation Surveys	6.0.1 Surveys to be conducted during reclamation: <ul style="list-style-type: none"> Wildlife Clearance Surveys will be completed if reclamation is completed during Breeding Bird Season. Refer to Appendix E for further information.
Equipment	6.0.2 Ensure all equipment is clean prior to bringing it to site.
Grading, Recontouring and Subsoil Preparation	6.0.3 Regrade areas where required to eliminate signs of surface erosion (e.g., rutting, rilling and gullies.). 6.0.4 Recontour landscape to original topography and drainage slopes, ensuring no drainages are blocked. 6.0.5 Disc or plow (chisel plow) and harrow subsoils to smooth the surface prior to topsoil replacement. 6.0.6 Remove all temporary approaches and seed and fertilize ditches.
Compaction	6.0.7 Test areas that are suspected to be compacted. If compacted, rip soils with a ripper or disc to the depth of approximately 30 cm or to the depth of compaction, whichever is deeper and postpone if soils are moist.
Topsoil and Sod Replacement	6.0.8 Replace topsoil evenly over stripped areas. Postpone topsoil replacement if soils are wet or winds are high to prevent damage and wind erosion. 6.0.9 Dispose of excess rock displaced from excavations. 6.0.10 Avoid scalping of the sod layer during topsoil replacement on pasture. Use equipment which will reduce scalping during the final topsoil replacement pass. 6.0.11 The Environmental Inspector will review the topsoil placement and instruct any further soil handling.
Seeding and Fertilizing	6.0.12 Present Certificates of Analysis for seed mixes to the AESRD, Municipal District representative and/or Landowner/Occupant, as required. 6.0.13 Fertilize lands as per Landowner/Occupant requests and as needed in poor growth areas 6.0.14 Seed disturbed soils in ditches using a suitable seed mix as recommended by the Municipal District. 6.0.15 Seed steep slopes with suitable seed mix determined by Landowners/Occupants on cultivated lands.
Sediment and Erosion Control	6.0.16 Apply tackifier or straw crimping on problematic soil erosion areas. Ensure straw is procured from a certified weed-free vendor. 6.0.17 Install silt fences in areas which is anticipated to experience water flow (e.g., steep slopes and ditches.) if straw crimping or tackifier is deemed ineffective due to flow.
Fencing	6.0.18 Repair all fences and replace all gates with permanent fences of equal or better quality than original, unless otherwise advised by Landowner/Occupant. 6.0.19 Install temporary fences, if required, to restrict grazing cattle from newly seeded areas until vegetation has become established.
Wildlife Habitat	6.0.20 Plant low growing native shrubs or trees in riparian areas, or as otherwise advised by the Landowner/Occupant.

6.1 Post-Construction

The inspection of construction activities and follow up monitoring will be required. BluEarth will develop a Post-Construction Monitoring Plan, in consultation with AESRD. BluEarth will include all other associated environmental measures to be implemented during Project operations in their Operation's Plan.

Activity	Environmental Measures
Post-Construction Surveys and Monitoring Plans	<p>6.1.1 Post-construction surveys and plans will include the following (to be determined in consultation with AESRD):</p> <ul style="list-style-type: none"> • Post-Construction Monitoring Plan will be developed in consultation with AESRD (AESRD 2014); a detailed report of post-construction monitoring will be provided to AESRD annually. • Bird and Bat Post-Construction Surveys to be completed for a minimum of 2 years after construction to determine changes to bird and bat use of the areas associated with turbines and related infrastructure – specific monitoring will occur during bird and bat migration periods (March 1st – October 31st) (AESRD 2014) • Carcass Surveys (AESRD 2014) • Reclamation Assessment • Operations Plan including Environmental Protection
Research and Collection Licences (AESRD 2014)	6.1.2 BluEarth will obtain necessary research and collection licences, as required.
Vegetation Management and Establishment	<p>6.1.3 Vegetation management will be completed (mowing, trimming, and herbicide application) where warranted to maintain safe and efficient operation.</p> <p>6.1.4 Vegetation management will be conducted as required in accordance with applicable laws, regulations, policies and best management practices.</p> <p>6.1.5 Operators will monitor areas subject to seeding/revegetation techniques and will remediate as required.</p>
Sediment and Erosion Control	6.1.6 Operators will monitor effectiveness of sediment and erosion control measures and make all necessary repairs as required.

7.0 REFERENCES

- Aercooustics Engineering Ltd. (Aercooustics). 2014. Environmental Noise Impact Assessment – Amendment #1. Project Number: 12369.05. Bull Creek Wind Project, Provost, Alberta. October 22, 2014.
- Alberta Environment and Sustainable Resource Development (AESRD), 2014. Sign-off Letter to Tom Bird, BluEarth Renewables Inc. Wind Energy Referral Report – ESRD Resource Management. Bull Creek Wind Power Project. Alberta Environment and Sustainable Resource Development – Fish and Wildlife Division. Vermillion, AB. Dated November 17, 2014.
- AESRD 2011a. Wildlife Guidelines for Alberta Wind Energy Projects. (URL: <http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeGuidelines-AlbertaWindEnergyProjects-Sep19-2011.pdf>)
- AESRD 2011b. Recommended Land Use Guidelines for Protection of Selected Wildlife Species and Habitat within Grasslands and Parkland Natural Regions of Alberta. Government of Alberta. April 28, 2011. Website: <http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeLandUse-SpeciesHabitatGrasslandParkland-Apr28-2011.pdf>
- AESRD 2010. Recommended Land Use Guidelines: Key Wildlife and Biodiversity Zones. Fish and Wildlife Division. December 3, 2010. Website: <http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeLandUse-KeyWildlifeBiodiversityZones-Dec03-2010.pdf>
- Alberta Utilities Commission, 2015. Power Plant Approval No. 3520-D02-2015, Appendix 1 to Decision 3520-D01-2015, 1646658 Alberta Ltd. 115–MW Wind Power Plant Application No. 161995, Proceeding ID No. 3520. Dated April 17, 2015. (AUC 2015)
- Department of Fisheries and Oceans Canada (DFO). 1995. Freshwater Intake End-of-Pipe Fish Screen Guideline. Published by: Communications directorate Department of Fisheries and Oceans Ottawa, Ontario. March 1995. Available online at: http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB0QFjAA&url=http%3A%2F%2Fwww.dfo-mpo.gc.ca%2FLibrary%2F223669.pdf&ei=kbbwVKyNNM6rogSYiYDgBQ&usg=AFQjCNERFVYeALU8b3b0SkSNmXMRdl_3Rg
- Golder Associates Ltd (Golder), 2012 Environmental Evaluation Bull Creek Wind Project. April 2012.
- Municipal District of Provost No. 52. Development Permit. Issued June 2014.
- National Energy Board. 2011. Remediation Process Guide. Available at: <http://www.NEB-one.gc.ca/clf-nsi/rsftyndthnvrnmnt/rmdtnprcssgd/rmdtnprcssgd-eng.html> Accessed February 2015
- Stantec Consulting Ltd. (Stantec), 2014a Bull Creek Wind Power Project Fall 2014. Supplemental Preconstruction Wetland Assessment. Project Number 123511363. October 31, 2014
- Stantec. 2014b, Environmental Evaluation Addendum – Bull Creek Wind Power Project. Stantec Consulting Ltd. on behalf of BluEarth Renewables Inc. Received by AESRD-RM October 30, 2014.

8.0 PERSONAL COMMUNICATIONS

Herdman E. 2015. Meeting on Bull Creek Wind Project Environmental Protection plan with Alberta Environment and Sustainable Resource Development (AESRD), Resource Management Division. Vermilion, Alberta. March 19, 2015.

Moore D. 2015. Meeting with AESRD, Resource Management Division. Vermilion, Alberta. March 19, 2015.

Porter P. 2015. Telephone call regarding seed mix recommendation with AESRD, Public Lands Division. Wainwright, Alberta. March 19, 2015.

Appendix A:

Site Drawings and Infrastructure Information

Note: IFC drawings will be included at a later date.

Turbine Locations		
Turbine Number	UTM Easting (Zone 12, NAD 83)	UTM Northing (Zone 12, NAD 83)
17	560456.6	5817584
18	561219.8	5817162
19	561391	5818323
20	561588	5817388
21	562232.9	5818034
22	562018.4	5817595
23	562005.5	5819144
24	562163.6	5818369
27	562206.3	5818785
43	565341.8	5816843
44	565457.6	5818096
45	565581	5818420
46	565731.8	5817223
47	566478.2	5818066
48	566317.3	5818488
51	566936.3	5818497
52	567347.6	5818065

Appendix B:

Orientation Presentation

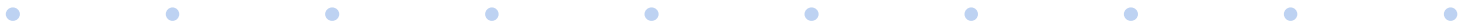
Appendix C:

Setback and Timing Restrictions Table

Bull Creek Wind Project

Environmental Orientation

BluEarth Renewables Inc. &
Northern Resource Analysts Ltd.

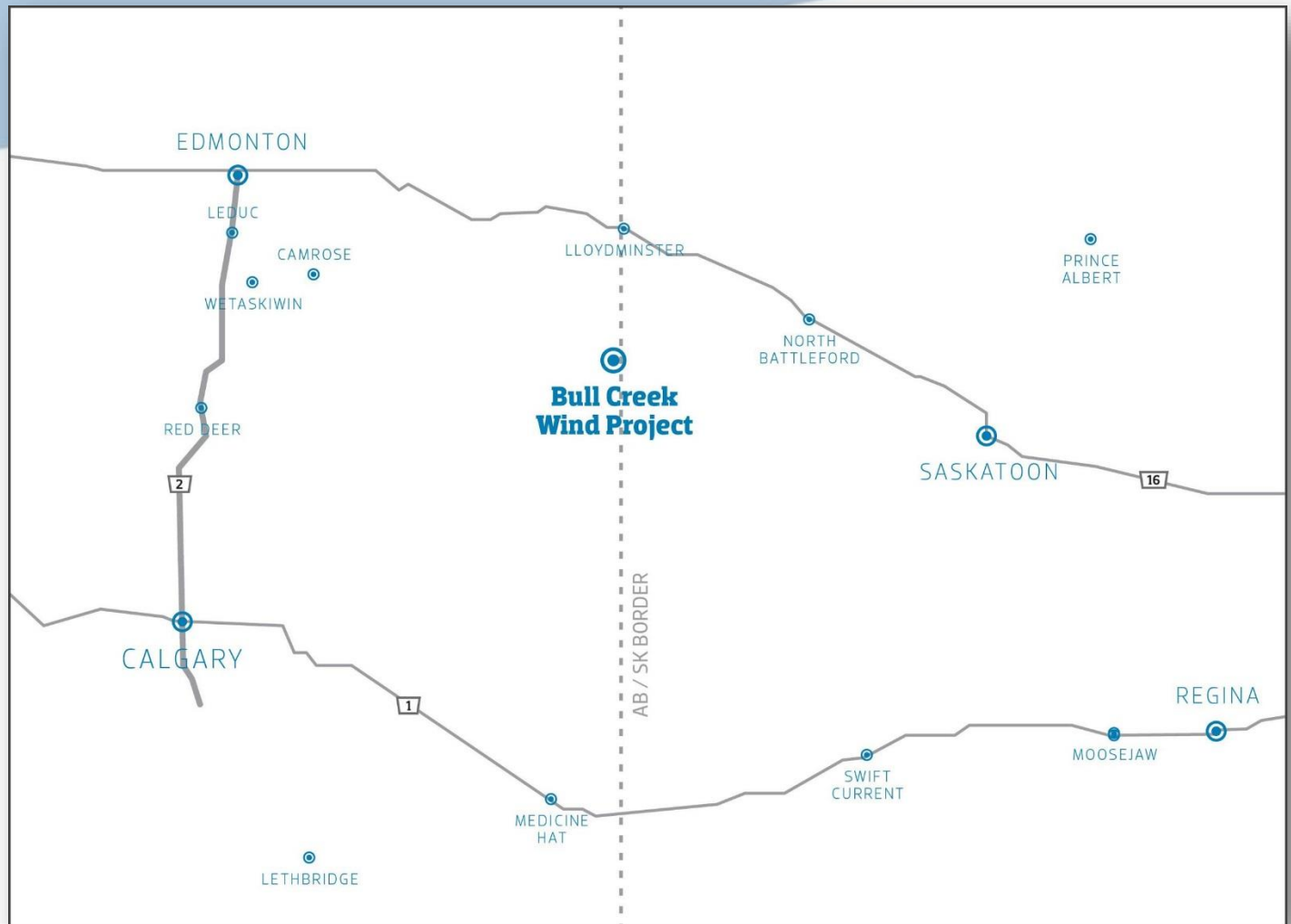


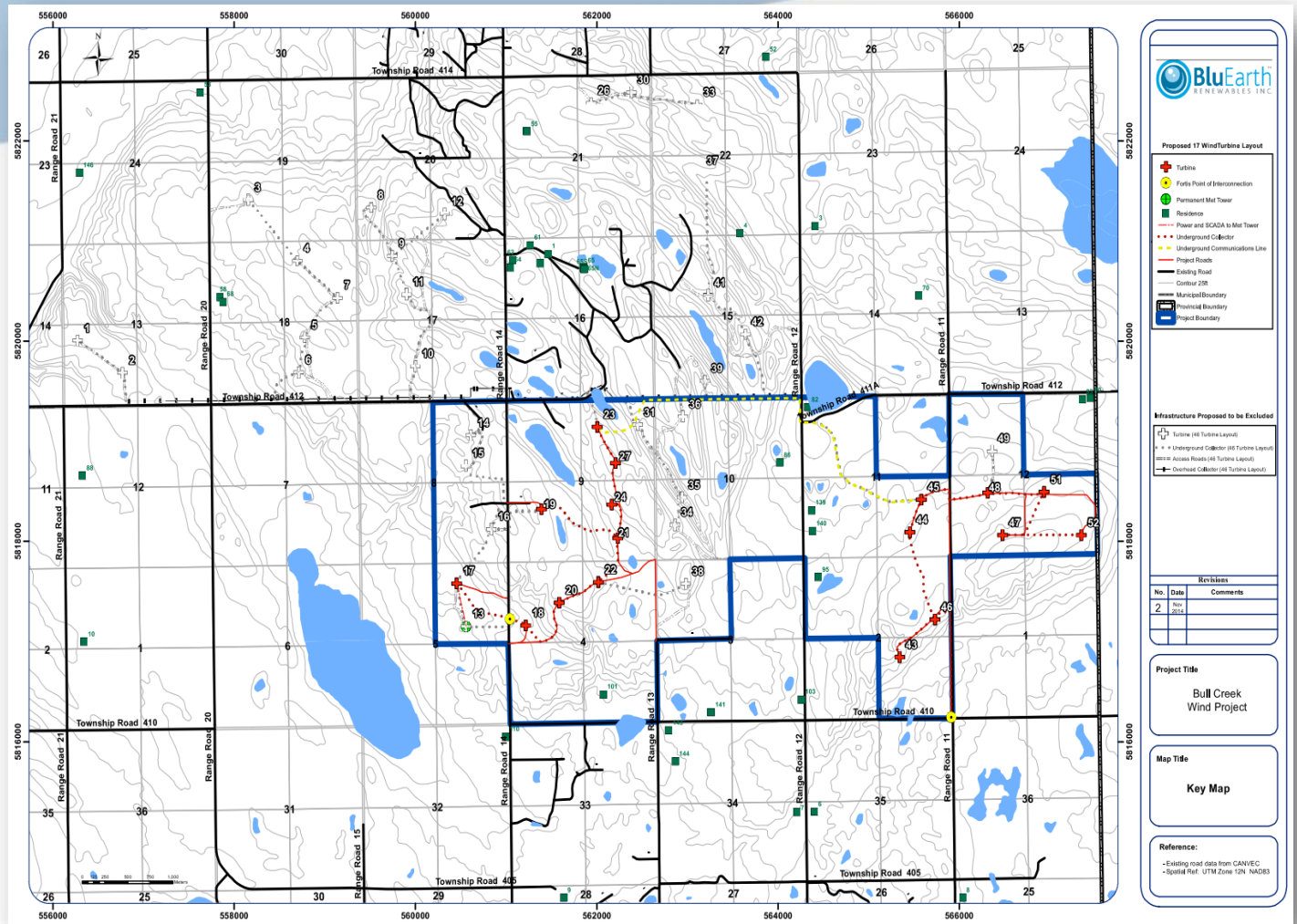
Project Description



The Bull Creek Wind Project is comprised of 17 General Electric 1.7 MW turbines, 34.5 kV underground electrical collector cable, fibre-optic communication line, construction and temporary access roads, temporary workspace and other ancillary infrastructure.







Sequence of Construction Activities

- **Pre-construction Surveys and Final Site Design**
- **Surveying, Staking, Flagging and Line Locate**
- **Clearing and Grubbing**
- **Laydown Yard Construction**
- **Access Road Construction**
- **Turbine Site Preparation**
- **Foundations**
- **Turbine Erection**
- **Electrical Collector System and Fibre-Optic Line Installation**
- **Commissioning**
- **Clean-up and Reclamation**



Environmental Protection Plan

- The Bull Creek Wind Project Environmental Protection Plan (EPP) will serve as a guidance document outlining surveillance, management, reporting and mitigation of environmental effects during the construction and reclamation phases.
 - ▶ Everyone is **responsible**
 - ▶ **Report** all non-compliances
 - ▶ Know your responsibilities regarding Environmental Protection and Mitigation



Environmental Orientation & Training

– Goals

- ▶ Environmental Awareness
- ▶ Understanding Environmental Sensitives

– Objectives

- ▶ Environmental Compliance
- ▶ Environmental Stewardship
- ▶ Adherence to:
 - Environmental Protection Plan
 - Regulatory Requirements
 - Mitigative Measures and Best Management Practices



Environmental Protection Plan

- **Key Compliance Document**
 - ▶ Guides all environmental aspects of construction and reclamation
 - ▶ Contractual obligation
- **Non-Compliance to EPP**
 - ▶ Report immediately to Environmental Inspector
 - ▶ Environmental Inspector and Construction Manager to determine immediate response
 - ▶ Environmental Inspector to document and report

COMPLIANCE IS ESSENTIAL



Environmental Sensitivities

- **Native Grasslands**
- **Wildlife**
- **Wetlands**
- **Weed Management and Crop Protection**
- **Air and Noise Pollution**
- **Waste Management**
- **Erosion and Sedimentation**
- **Reclamation**
- **Contingency Planning: Fire, Spills, Erosion, Heritage Resources, Soils, Wildlife Encounter, etc.**



Native Grasslands

- **Restricted Activity Period:**
April 1st – July 15th
- **Goal**
 - ▶ Achieve equivalent land capability on Native Grasslands while ensuring the safety of workers and equipment, the public and the environment.
- **Objectives**
 - ▶ Compliance with EPP
 - ▶ Minimize impacts of traffic and construction



Native Grasslands Mitigation

- **Some Mitigation Measures may include:**
 - ▶ Minimize traffic;
 - ▶ Minimize stripping;
 - ▶ Minimize construction disturbance area;
 - ▶ Avoid unnecessary turning of tracked equipment;
 - ▶ Avoid sod pulverization; and,
 - ▶ Wet weather shut-down.



Wildlife

- **Restricted Activity Period:**
April 1st – July 15th
- **Bird Breeding Season:** construction being conducted during nesting
- **General Mitigation:**
 - ▶ Wildlife Clearance Surveys required from **April 1st – August 31st**
 - ▶ Silt/drift fence installation required adjacent wetlands inhabiting frogs
 - ▶ Minimize workspace near wetlands
 - ▶ Setback distances from nests



Wildlife

– Key Wildlife Species, Groups and Habitat:

- ▶ Migratory Birds
- ▶ Raptors/Birds of Prey
- ▶ Amphibians
- ▶ Snakes
- ▶ Small Mammals
- ▶ Dens
- ▶ Nests
- ▶ Hibernacula
- ▶ Roosts



Wildlife

– Amphibians:

- ▶ Reconfirm species presence and distance to occupied wetlands
- ▶ Relocation to suitable habitat
- ▶ Silt fencing
- ▶ Access and Traffic Management



Wetlands

– Key EPP Requirements

- ▶ Approvals/Notifications
- ▶ On-Site Supervision by Environmental Inspector
- ▶ Staking and Signage – Upstream and Downstream
- ▶ Setback Distances – Topsoil and Subsoil Storage, Vegetation Buffers, Silt Fencing
- ▶ Mitigative Measures
- ▶ Amphibian Salvage and Relocation
- ▶ Erosion Control Measures
- ▶ Crossings – Trenchless

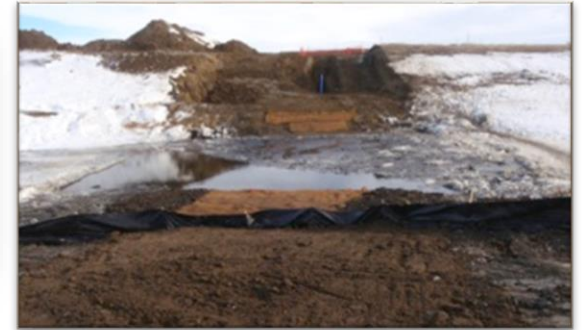


Wetlands

- Riparian Vegetation = *Unique*
- Goal
 - ▶ No impact to wetlands; all wetlands crossed using trenchless methods
- Objectives
 - ▶ Compliance with EPP
 - ▶ Avoidance
 - ▶ Monitoring of HDD
 - ▶ Amphibian and Wildlife protection

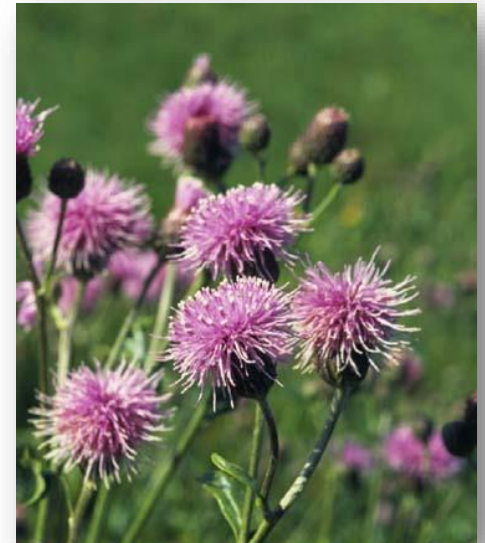


Wetland Crossing - Trenchless



Weeds and Crops

- **Weed Management is required for Native Prairie and for Crop Protection**
 - ▶ Difficult to eradicate weeds once established
- **Objective**
 - ▶ Implement mitigation measures to prevent establishment of weed populations.
- **Mitigation**
 - ▶ 1 cleaning station
 - ▶ Clean equipment arrival onsite
 - ▶ Spraying and mowing as required



Air and Noise

- **Work Period:**

7:00 am – 10:00 pm

- ▶ Reduce duration of noise pollution where possible

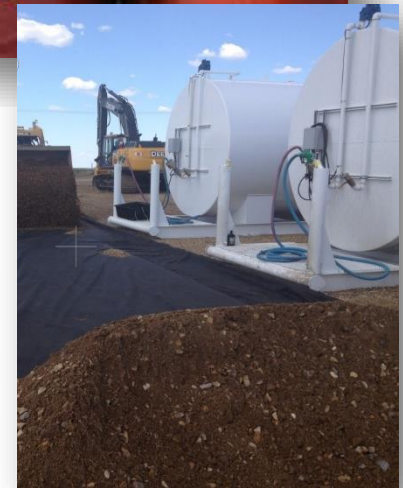
- **Mitigation Measures**

- ▶ Use well maintained equipment
- ▶ Mufflers shall be operating correctly
- ▶ Crew vehicles used, when practicable
- ▶ Implementation of dust control as needed



Waste Management

- **Key Items of Waste Management**
 - ▶ Mitigation and Contingency Planning
 - ▶ Fueling onsite
 - ▶ Handling, Storing, Disposing and Transporting
 - ▶ Proper **TRAINING** and **SIGNAGE** – TDG, WHMIS, MSDS
 - ▶ Follow all regulations, standards, guidelines and the EPP



Erosion and Sedimentation Control

– Mitigation Measures

- ▶ Minimize exposed soils
- ▶ Install temporary ESC early
- ▶ Avoid wet weather periods
- ▶ Soil stockpile control
- ▶ Seed as early as possible
- ▶ Plan drainage correctly and control runoff
- ▶ Install BMPs (silt fencing, slope texturing, hydro-seeding, mulching, etc.)



Reclamation

- **Goal**

- ▶ Reconverting disturbed land to its former or other productive uses of similar or better land capability

- **Objectives**

- ▶ Minimize disturbance
- ▶ Sediment and Erosion control practices to meet a soil loss target that 4 tonnes/ha (equal to the rate of soil formation)
- ▶ Revegetate with approved seed mix
- ▶ Weed Management practices
- ▶ Surface and subsurface hydrology restoration
- ▶ Recontour and blend into adjacent landscapes



Contingency Plans

– What to do for:

- ▶ Spills
- ▶ Wildlife Encounters
- ▶ Wet Soils / Rain
- ▶ Erosion
- ▶ Sod Pulverization
- ▶ Drilling Mud Release
- ▶ Historical Resources Discovery
- ▶ Wild Fire

1. SUSPEND WORK

2. Contact your supervisor or the environmental inspector immediately

3. Revert to Appendix D of the EPP



Project-specific Setbacks and Timing Restrictions		
Activity	Setback and/or Timing Restrictions Comment	Source
Construction – Breeding Birds	Construction Timing and Breeding Birds: The primary concern for grassland birds is related to construction during critical breeding, nesting and rearing stages, April 1 st – July 15 th . ESRD-RM (AESRD) recommends that all activities on native grassland occur outside the critical breeding period. This will ensure that grassland bird nests, including species at risk, are not destroyed or damaged as per the Alberta <i>Wildlife Act</i> and the <i>Migratory Bird Conventions Act</i> .	AUC and/or AESRD Conditions
Vehicle Cleaning	Vehicles or equipment will only be cleaned in the designated cleaning station.	AUC and/or AESRD Conditions
Fuel Storage	Project fuel storage or hazardous material storage will be greater than 100 m from wetlands	AUC and/or AESRD Conditions
Refuelling	Vehicle and equipment refueling or other maintenance will not occur within 100 m of wetlands	AUC and/or AESRD Conditions
Noise	Locate constructions staging areas at least 750 m away from noise receptors, particularly dwellings, where practicable	AUC and/or AESRD Conditions
Noise	Construction will occur from 7 am – 10 pm.	Aeroustics 2014
Construction – Native Grasslands	1. Activities on native grasslands will be limited within the Project footprint (turbine lease, interconnection right of way, construction and operations access routes and workspaces.) 2. That all turbines, road, and collection system construction should occur outside the critical grassland breeding bird period (April 1 st – July 15 th) in areas of native grasslands. Construction should either be completed before April 1 st or after July 15 th of the construction year.	AUC and/or AESRD Conditions
Turbines 44 and 46 – Electrical Collection System	Install electrical collector line on the high point between wetlands BW004 and BW005. The collection line be installed outside the critical breeding period for breeding birds of April 1 st – July 15 th .	AUC and/or AESRD Conditions
Equipment Refueling and Servicing	Do not refuel, perform maintenance on equipment or store fuel or other hazardous material within 100 m of a wetland, to the extent practicable.	Best Management Practice
Equipment Refueling and Servicing	Smoking shall not be permitted within 10 m of a fuel storage area.	Best Management Practice
Waste Management and Spill Prevention	All oils, grease, gasoline, diesel, and other hazardous materials shall be stored at least 100 m away from any wetland, drainage, or other waterbody.	Best Management Practice
Batch Plant	Mixing cement must be completed at least 100 m from wetlands.	Best Management Practice
Equipment	Equipment shall not be left parked within 30 m of wetlands.	Best Management Practice
Spoil Handling and Management of Excavation Areas	If required, dewater excavation prior to foundation work; dewater with sediment removal system as required, and pump water onto stable, vegetated areas, tarpaulins or sheeting in a manner which does not cause erosion or siltation into wetlands; dewatering must be approved by the Environmental Inspector and must be greater than 50 m from wetlands.	Best Management Practice

Project-specific Setbacks and Timing Restrictions		
Activity	Setback and/or Timing Restrictions Comment	Source
Soil Storage	Topsoil will be stored in windrows on topsoil a minimum of 2 m from embankments, slumps, cuts, wetlands, and 1 m from excavation areas	Best Management Practice
Spoil Handling and Management of Excavation Areas	Store excavated spoil a minimum of 2 m from embankments, slumps, cuts, wetlands, and 1 m from excavation areas.	Best Management Practice
Spoil Handling and Management of Excavation Areas	Store excavated spoil on previously stripped areas adjacent to excavation areas. Ensure sufficient space (minimum of 1 m) is left between the edge of the topsoil storage pile, the spoil storage pile and excavation, to ensure the materials do not slough into each other or back into the excavation.	Best Management Practice
Spoil Handling and Management of Excavation Areas	In areas not previously stripped, place spoil on geotextile material at minimum of 1 m from excavation.	Best Management Practice
Spoil Storage and/or Disposal – Drilled or Augered Holes	Temporary storage of spoil, remove any unused spoil as soon as practicable and store spoil a minimum of 2 m from embankments, slumps, cuts, wetlands, and 1 m from excavation areas and topsoil windrows.	Best Management Practice
Sharp-tailed Grouse (Leks)	March 15 th – June 15 th : 500 m June 16 th – March 14 th : 100 m	http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeLandUse-SpeciesHabitatGrasslandParkland-Apr28-2011.pdf
Peregrine Falcon, Bald Eagle, Golden Eagle, Prairie Falcon, Ferruginous Hawk (Nesting Sites)	March 15 th – July 15 th : 1000 m July 16 th – March 14 th : 50 m (low*), 100 m (moderate*), 1000 m (high*)	http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeLandUse-SpeciesHabitatGrasslandParkland-Apr28-2011.pdf
Colonial Nesting Birds: American White Pelican, Great Blue Heron (Nesting Sites)	April 1 st – August 31 st : 1000 m September 1 st – March 31 st : 100 (low* and moderate*), 1000 m (high*)	http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeLandUse-SpeciesHabitatGrasslandParkland-Apr28-2011.pdf
Piping Plover waterbodies (Nesting Sites) (known mapped sites are not located in the Project area)	April 15 th – July 31 st : 100 m (low), 200 (moderate* and high*) August 1 st – April 14 th : 100 m (low* and moderate*), 200 m (high*)	http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeLandUse-SpeciesHabitatGrasslandParkland-Apr28-2011.pdf
Threatened and Endangered Plants	Year Round: 30 m (low* and moderate*), 300 m (high*)	http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeLandUse-SpeciesHabitatGrasslandParkland-Apr28-2011.pdf
Long-billed Curlew Upland Sandpiper Mountain Plover Short-eared Owl Sprague's Pipit (Active Nest and Surrounding Habitat)	April 1 st – July 15 th : 100 m (low*, moderate* and high*)	http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeLandUse-SpeciesHabitatGrasslandParkland-Apr28-2011.pdf
Migratory Birds (excluding above listed species)	The onsite Qualified Biologist will determine setbacks on a case-by-case basis for the remainder of the species encountered. <ul style="list-style-type: none"> • 10-50 m or more for most nests of songbirds and other small birds; • 30-100 m or more for most nests of waterfowl; and, • 10-50 m or more for swallow colonies (See Appendix E for further information)	(Modified from Environment Canada 2014)

*See the below table for definitions, taken from (AESRD 2011) <http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeLandUse-SpeciesHabitatGrasslandParkland-Apr28-2011.pdf>.

Activities and Associated Level of Disturbance	
Level	Activity
Low	Are often infrequent, low-impact (e.g., land surveying), habitat is not being modified by the activities, and the duration of the activity is relatively short (i.e., hours).
Medium	Are usually high in frequency, may use vehicles and other equipment, and may involve small habitat modifications (e.g., seismic drilling) and the duration is relatively long (i.e., days).
High	Generally involve disturbances that are high in frequency, involve vehicles and machinery, permanently modify the habitat by altering vegetation, soils and perhaps hydrology (e.g., buildings, roads) and the impact is long term (i.e., more than 10 years).

Appendix D: Contingency Plans and Best Management Practices

Activity	Environmental Measures
Wet/Thawed Soil Contingency Plan	
Wet/Thawed Soil Conditions	<p>1.1.1. BluEarth will assign Environmental Inspector(s) with sufficient knowledge of soils to be able to identify soils which are too wet for a particular activity. Sols are considered wet when the planned activity has the potential to cause adverse effects or damage to the soils, such as:</p> <ul style="list-style-type: none"> rutting; excessive wheel spinning; excessive buildup of mud on tires and cleats; formation of puddles; and/or tracking mud throughout the work area or onto public roads. <p>The above has the potential to cause admixing, damage to soil structure, compaction, pulverization, damage to Project or public access jeopardizing the environment and the safety of personnel and/or the public.</p> <p>1.1.2. The decision to suspend work will be conducted through a discussion with Contractor and Environmental Inspector(s).</p> <p>1.1.3. The Environmental Inspector will record the location, timing and reason for implementation of this Contingency Plan.</p> <p>1.1.4. Employ the below progressively or individually:</p> <ul style="list-style-type: none"> Restrict or prevent rubber tired construction traffic, where feasible, utilize to low-ground pressure tires or wide pad tracks. Work only in areas with no wet soils or well-drained soils. Install geotextiles, rig matting, wood matting, in problem areas. Consider salvaging an additional width of topsoil in wet areas. Suspend construction until soils dry.
Soil Erosion Contingency Plan	
Water Erosion: Cultivated/Hay Land	<p>1.1.5. Install temporary erosion berms of sandbags, subsoil or weed free bales.</p> <p>1.1.6. Strip remaining topsoil and store away from area to be regarded.</p> <p>1.1.7. Install temporary cross ditches as per BluEarth's instructions from Landowners/Occupants.</p> <p>1.1.8. Install temporary berms of sandbags, logs, or weed free bales.</p> <p>1.1.9. Suspend construction until the risk of erosion has been reduced or the conditions improve.</p>
Water Erosion: Native Grasslands, Pasture	<p>1.1.10. Install temporary berms of sandbags, logs or weed free bales.</p> <p>1.1.11. Install silt fences near the base of slopes and at intervals of a longer slope.</p> <p>1.1.12. Strip remaining topsoil and store away from area to be regarded.</p> <p>1.1.13. Regrade rills and gullies only if they have formed on subsoil material and stripped topsoil has not been replaced.</p>
Soil/Sod Pulverization Contingency Plan	
Notification	1.1.14. AESRD will be notified if this Contingency Plan has been implemented.
Criteria for Implementation	<p>1.1.15. Pulverization may occur on unstripped lands. Generally, sensitive sandy, silty, or fine soils are most susceptible to pulverization and generally occurs during dry conditions.</p> <p>1.1.16. Implement this plan if soil structure has been jeopardized as identified by the Environmental Inspector.</p> <ul style="list-style-type: none"> Stop or limit activity in the area and use equipment with wide pad tracks if required in area. Provide alternative access to avoid the area. Salvage a wider area of topsoil in the problem area.
Reclamation of Pulverized Soils	<p>1.1.17. Lightly cultivate the affected areas in multiple directions with a spike cultivator or scarifier.</p> <p>1.1.18. Harrow the area.</p> <p>1.1.19. Drill or broadcast seed, if required harrow the area again, and then compact the seed bed.</p> <p>1.1.20. Add straw crimp, if warranted, on erosion prone soils and as approved by Landowners/Occupants.</p>

Activity	Environmental Measures
Weed Best Management Practices	
Noxious or Nuisance Weeds	<p>1.1.1. A designated vehicle and equipment cleaning station will be erected for the Project area to limit the spread of weeds.</p> <p>1.1.2. During an emergency event (i.e., events of environmental or human risk) equipment must be mobilized quickly. If an emergency has happened, it is of highest priority and it is recognized that the following items may not be completed during an emergency event.</p> <p>1.1.3. Mechanically clean all equipment prior construction activities and prior to arrival onsite.</p> <p>1.1.4. Clean equipment involved in topsoil handling at weed sites prior to leaving the location.</p> <p>1.1.5. Monitor weed infested sites and topsoil piles during the course of construction and conduct mitigation (i.e., approved herbicide application), if warranted.</p> <p>1.1.6. The Environmental Inspector will keep a log of weed-infected areas.</p> <p>1.1.7. The Contractor will keep a log of vehicles cleaned entering into Native Grasslands.</p>
Spill Contingency Plan	
General Spills	<p>1.1.1. Report the spill to the Environmental Inspector immediately, and the Environmental Inspector will report to the Alberta Environmental Hotline 1-800-222-6514 (24 hour emergency/complaint line), or 780-422-4505 to self report a spill, release, or environmental emergency, and AESRD (780-853-8137)</p> <p>1.1.2. Containment of a spill on land or water depends on the following including: soil permeability, ground cover, topography, hydrogeology, solubility of the material, viscosity of the liquid and climatic conditions. In the event of a spill, the first person on the scene or the person who committed the spill must complete the below:</p> <ul style="list-style-type: none"> a) Access for safety, control danger to human life (including sources of ignition) and identify the composition of the spilled material. Restrict traffic in the area. b) Immediately contact the Construction Manager and an Environmental Inspector. c) Control – stop any sources of the spill. Avoid any use of water, fire extinguishing chemicals on nonpetroleum spills unless it is necessary to control a fire or prevent an explosion, given the spill may chemically react with fire extinguishing material emitting toxic fumes or become soluble and disperse into surrounding soils or waterbodies. Contain – identify the material and then utilize the best measure to contain – spill pads, excavation berms, booms, etc. / Cleanup – employ appropriate cleanup practices, remediate the area, as required, and dispose of spill material in an approved manner. Soil sampling may be required. d) If any tasks above are beyond the capabilities at hand, do not hesitate to contact additional support. <p>1.1.3. The Construction Manager(s) and Lead Environmental Inspector are provided with all information in the Spill Form.</p> <p>1.1.4. The Construction Manager may implement the Project's Emergency Response Plan.</p> <p>1.1.5. Post-construction monitoring may be required.</p>
Fuel Truck Spills	<p>1.1.6. Report the spill to the Environmental Inspector immediately, and the Environmental Inspector will report to the Alberta Environmental Hotline 1-800-222-6514 (24 hour emergency/complaint line), or 780-422-4505 to self report a spill, release, or environmental emergency, and AESRD (780-853-8137)</p> <p>1.1.7. Suspend activity immediately in the vicinity of the spill.</p> <p>1.1.8. Contain spilled petroleum product.</p> <p>1.1.9. Pump materials out of tanker if the tank is compromised.</p> <p>1.1.10. Remove truck from site.</p> <p>1.1.11. Recover spilled product.</p> <p>1.1.12. Clean-up contaminated site.</p> <p>1.1.13. Dispose of spill pads, heavily contaminated soil and vegetation in an approved manner. Soil sampling may be required.</p> <p>1.1.14. Remediate and flag the area, as required.</p> <p>1.1.15. Post-construction monitoring may be required.</p>

Activity	Environmental Measures
Spills Adjacent or Into a Wetland	<p>1.1.16. Report the spill to the Environmental Inspector immediately, and the Environmental Inspector will report to the Alberta Environmental Hotline 1-800-222-6514 (24 hour emergency/complaint line), or 780-422-4505 to self report a spill, release, or environmental emergency, and AESRD (780-853-8137) Suspend activity immediately in the vicinity of the spill.</p> <p>1.1.17. Construct a berm and/or trenches to contain spilled product prior to entry into the wetland.</p> <p>1.1.18. Deploy booms, skimmers, sorbents, if possible.</p> <p>1.1.19. Recover spilled product.</p> <p>1.1.20. Clean up contaminated area including downstream, as applicable.</p> <p>1.1.21. Dispose of material in an approved manner. Water and soil sampling may be required.</p> <p>1.1.22. Remediate and flag the area, as required.</p> <p>1.1.23. Post-construction monitoring may be required</p>
Sampling and Analysis	<p>1.1.24. Soil and water sampling will be completed on a case-by-case basis considering the following:</p> <ul style="list-style-type: none"> • Quantity of material released. • Type of material released. • Level of difficulty controlling the release and the material. • Level of difficulty recovering the contaminated soil, vegetation, water. • Site-specific conditions. <p>1.1.25. Sampling will be determined by the Environmental Inspector and potentially by regulators (AESRD).</p> <p>1.1.26. Sampling will confirm if the remediation has been effective.</p> <p>1.1.27. Sampling analysis will be based on the spilled material and site specific conditions and will follow the <i>Alberta Tier 1 Soil and Groundwater Remediation Guidelines</i> or the <i>Alberta Tier 2 Soil and Groundwater Remediation Guidelines</i>.</p>
Regulatory Reporting	<p>1.1.28. Immediate verbal reporting to the Alberta Environmental Hotline 1-800-222-6514 (24 hour emergency/complaint line), or 780-422-4505 to self report a spill, release, or environmental emergency, and AESRD (780-853-8137) must be completed at the first available opportunity for any reportable spill or release that may cause, is causing, or has caused an adverse effect on the environment, human health or property.</p> <p>1.1.29. AESRD will be notified of all spills if there is a potential for impact on wildlife or wildlife habitat.</p> <p>1.1.30. The Environmental Inspector will contact the appropriate regulatory agency to report spills as listed below.</p> <p>1.1.31. The amount exceeds the quantities or emission levels set out for the substances (see MSDS sheet).</p> <p>1.1.32. A substance was released into a watercourse, wetland or into the ground water or surface water in any quantity.</p> <p>1.1.33. The release is 200 L or more (Transportation of Dangerous Goods Act, 1992).</p> <p>1.1.34. PBC oils – Any amount where the concentration is >50 ppm or if, in a raw case, the oil is suspected to contain PCB but the concentration is unknown.</p> <p>1.1.35. Oils (hydraulic, used, transformer, etc.) - >5 litres</p> <p>1.1.36. Gasoline, diesel, glycols - >50 litres</p> <p>1.1.37. Ozone depleting substances (ODS such as CF4 and refrigerants) and SF6 - >10 kg or any quantity that could pose a danger to public safety.</p> <p>1.1.38. A written report of the spill is required to AESRD within 7 days from the day of the release, unless it was waived by AESRD during the report.</p>
Internal Reporting	<p>1.1.39. Every spill must be reported to the Environmental Inspector and an immediate supervisor (i.e., Foreman) or the Construction Manager. A written report will be completed by the Contractor responsible for the spill and will provide details of the incident investigation.</p>
Plant Species of Concern Contingency Plan	

Activity	Environmental Measures
Rare Plants or Rare Plant Communities	1.1.40. In the event that rare plants or rare plant communities are found during onsite assessments during construction, the following mitigation measures may be implemented: <ul style="list-style-type: none"> • avoid the plant or plant community and flag or fence off with silt or snow fence; and/or • temporary cover the plant or plant community with geotextile matting, flex net or rig mats; and/or • realign access areas; and/or • develop and implement a traffic management plan and inform personnel of the restrictions, as required.
Archaeological, Paleontological, and Historical and Cultural Resources Contingency Plan	
Archaeological, Paleontological, and Historical and Cultural Resources	1.1.41. Archaeological, Paleontological, and Historical and Cultural Resources will be flagged and surrounded with fencing if found in the workspace. The area will be avoided by workers. 1.1.42. If an artifact is found, BluEarth will be contacted to hire an archaeologist to assess the site and the archaeologist will consult with BluEarth and Alberta Culture and Tourism to determine what appropriate mitigations to be implemented.
Drilling Mud Release Contingency Plan	
Mitigation	1.1.43. Install surface casing at the entry point to a depth that extends beyond the coarsest material, as required. 1.1.44. Ensure drilling mud composition is limited to bentonite, fresh water, and, if required, other inert additives. 1.1.45. Construct a downslope berm from the entry and exit point, as topography enables, to capture anticipate volumes of mud. 1.1.46. Prior to drilling, a cleanup plan will be developed.
Equipment	1.1.47. The contractor must have the following onsite prior to completing a crossing: <ul style="list-style-type: none"> • Sandbags • Silt fence • T-bar posts • Post pounders • Shovels • Trash pumps (must be equipped with a mesh screen with pore space of 2.54 mm with an opening of 2.5 m² per 0.1 m³/s (<i>Freshwater Intake Endo-of-Pipe Fish Screen Guidelines</i> [DFO 1995] for potential amphibians) • Corrugated culvert • Sheet metal
Emergency Response	1.1.48. Suspend drilling operations if drilling mud is observed along the drilling path or if driller reports losses. 1.1.49. Immediately notify the Construction Manager and the Environmental Inspector. 1.1.50. If the amount of drilling mud release is not great enough to allow for practical collection, the mud will be allowed to dry and dissipate naturally. 1.1.51. If the drilling mud is released into a wetland: <ul style="list-style-type: none"> • Stop drilling immediately. • Contact the Environmental Inspector and Construction Manager and the Environmental Inspector will immediately notify AESRD, as required. • Salvage amphibians and contain the release site with corrugated culvert, silt fence, sheet metal, and/or sandbags. • Remove the mud by pumping, shovelling or with a hoe. • If continual drilling is permitted, operate in a means to eliminate mud release, such as, reducing pressure, plug fissures with inert plugging agents and/or re-drill 1.1.52. If amphibians are observed, contact the Environmental Inspector immediately. All amphibians must be rescued from all isolated work sites prior to or during work. A record of all amphibians salvaged, method of rescue, and any other conditions outlined in the AESRD permit must be completed (See Appendix E for further Amphibian information).
Wild Fire Contingency Plan	

Activity	Environmental Measures
Wild Fire Contingency Plan	<p>1.1.53. All vehicles and equipment shall have a smoke butt disposal method to ensure smoke butts are not thrown out of the vehicle or equipment.</p> <p>1.1.54. All equipment shall contain Fire Extinguishers and will be maintained as per manufactures specifications.</p> <p>1.1.55. A Fire Marshal shall be designated.</p> <p>1.1.56. Commence fire suppressant measures immediately upon detection of fire.</p> <p>1.1.57. Report location of fire as well as size of fire and wind direction to the Fire Marshal.</p> <p>1.1.58. The Fire Marshal shall report all fires to the Construction Manager, the Environmental Inspector and BluEarth.</p> <p>1.1.59. The Fire Marshal shall deploy fire-fighting equipment, as required, including heavy equipment.</p> <p>1.1.60. All personnel and equipment shall be made available for fighting fires.</p> <p>1.1.61. The Fire Marshal shall deploy crew and equipment to support local fire departments if contractor suppressants are not adequate.</p>
Fire Emergency Contact List	<p>Provost and Wainwright Fire Response – 911</p> <p>Alberta Fire Watch – 310-FIRE (3473)</p>

Appendix E: Wildlife

Activity	Environmental Measures
Wildlife Surveys	
Pre-Construction Wildlife Surveys	<p>The following surveys will be completed prior to or in conjunction with Project construction activities (AESRD 2014 and Stantec 2014):</p> <ul style="list-style-type: none"> • Breeding Bird Survey (at turbines 27, 44, 47, 48 conducted in June 2015) (<i>Item 4. Wildlife Impacts</i>, pg. 7, AESRD, 2014). • Raptor Nest Surveys (conducted in May 2015) • Sharp-tailed Grouse Lek Survey (conducted in April 2015) • Spring Bird Movement Survey (4 visits conducted in April and May 2015) • Amphibian Night Survey (within 100 m of wetlands conducted in May 2015) • Wildlife Clearance Surveys (April 1st to August 31st) <p>Reports for the above surveys will be provided to AESRD by BluEarth and Stantec and/or Northern Resource Analysts Ltd.</p>
Wildlife Clearance Surveys	
Survey Scheduling and Timing Restrictions	<p>Breeding Bird Construction Timing Restrictions – April 1st to July 15th</p> <ul style="list-style-type: none"> • Nesting duration is variable and species, habitat and weather conditions play a role in the duration of nesting. AESRD will be consulted in late June/early July to discuss if construction may proceed prior to July 15th should wildlife clearance surveys identify no nesting birds (D Moore and E Herdman 2015 pers. comm., 19 Mar). <p>Ungulate Wintering Range – Native Grasslands: January 15th – April 30th (however, clearing may commence during this time to reduce the potential for migratory bird nesting)</p> <p>Wildlife Clearance Survey Period: April 1st to August 31st</p> <p>Timing: half hour before sunrise to 11 am surveys may be extended to later in the day if weather conditions permit. Surveys will not be conducted in anything over very light rain, dense fog, strong winds (Beaufort of 3 or less), extreme heat or cold (less than 0 degrees C) or during snow cover (AESRD 2013).</p>
Survey Validity	<p>Surveys are only valid for a limited time. Clearing and construction should commence immediately after the survey has been conducted if the area is clear. Given wildlife may move into the area if clearing or construction has not commenced, a re-survey of the area will be conducted again 7 days from the previous survey.</p>
Survey Methodology	<p>The methodology for pre-construction wildlife clearance surveys have been modified from the Sensitive Species Inventory Guidelines (Alberta Government 2013), Ground-Based Wildlife Surveys: Alberta Wildlife Animal Care Committee Class Protocol #011 (Alberta Government 2012) and previous wildlife clearance surveys. The survey will include ground surveys, visual scans and auditory survey. A Qualified Biologist will traverse the Project footprint and adjacent to the Project footprint up to 100 m using an informal non-intrusive meandering technique (meanders spaced approximately 50 m apart), searching the ground, shrubs and trees for wildlife, wildlife sign and habitat. Construction will commence once the Qualified Biologist and Contractor have implemented/installed appropriate mitigation.</p>
Survey Methodology: Wetlands	<p>Margins of wetlands within 100 m of the Project footprint will be surveyed for nests and amphibians. The Wildlife Clearance Survey will include ground surveys, visual scans and auditory surveys. A Qualified Biologist will traverse the Project footprint and adjacent to the Project footprint up to 100 m within the wetland buffers using an informal non-intrusive meandering technique (meanders spaced approximately 10-15 m apart depending on density of vegetation within the wetland buffer), searching the ground and vegetation, for wildlife, wildlife sign and habitat. Glassing the waterbody and boundaries will be completed to identify if platform floating or mounded nests. Construction will commence once the Qualified Biologist and Contractor have implemented/installed appropriate mitigation.</p> <p>Wildlife Clearance Auditory Surveys will be conducted for each species during applicable calling periods, as follows:</p> <ul style="list-style-type: none"> - Boreal Chorus: April 15 – May 25 - Wood Frog: April 15 – May 25 - Canadian Toad: May 15 – June 14 - Plain's Spadefoot: April 30 – June 30 <p>(Alberta Government 2013)</p>

Activity	Environmental Measures
Survey Methodology: Shelterbelts and Wooded Areas	Wooded and shrub land, including shelterbelts will be surveyed for nests within 100 m of the Project footprint. Glassing will be completed up to 1000 m from the Project footprint for stick nests during non-green periods of the scheduled survey period. A Qualified Biologist will traverse the Project footprint and adjacent to the Project footprint up to 100 m within the wooded areas using an informal non-intrusive meandering technique (meanders spaced approximately 10-15 m apart depending on density of vegetation within the wooded area), searching the ground, for wildlife, wildlife sign and habitat. Construction will commence once the Qualified Biologist and Contractor have implemented/installed appropriate mitigation.
Reporting	<p>The Qualified Biologist will report the following:</p> <ol style="list-style-type: none"> 1. The nest will be photographed and georeferenced (UTM, NAD 83). 2. Weather, date, time of day and land use. 3. Notes will be taken to identify the species, status of the wildlife habitat (nest, den, etc.), number of eggs or number of nestlings which will help determine when the nest will be vacated. Details of the location of the wildlife habitat such as topographical features and vegetative features will be documented to help locate the feature for monitoring. An estimated date of fledging or den vacation will be anticipated based on knowledge of the species. 4. Notes will be taken on the wildlife behaviour, such as flushing immediately within Xm, aggression, etc. 5. Suggested mitigation measures to be implemented. <p>Note: Only pertinent site information (photography, GPS coordinate and egg count) will be collected at nest and then biologist will exit the area to allow for minimal disturbance.</p>
Mitigation	
Migratory Birds	<p>If an active nest is located during the Pre-Construction Wildlife Clearance Surveys the following steps will be taken:</p> <ol style="list-style-type: none"> 1. Stop work in the area and contact the Environmental Inspector immediately. 2. The nest will be staked with PURPLE stakes at the appropriate setback distances, and flagged as determined by the Qualified Biologist. Flagging may attract predators and the Qualified Biologist will determine flagging on a case-by-case basis as required (based on species, exposure to predators, ground or tree nesting, monitoring, etc.) 3. Time spent at the nest will be kept to a minimum to reduce the stress to adults and/or to reduce creating exposure to the eggs. A follow up check will be required to confirm fledging at the estimated time determined. <p>Mitigation options for construction near a migratory bird nest includes the following:</p> <ul style="list-style-type: none"> • Observe the setback identified below. • Narrow the workspace to the setback distance below. • Discuss mitigation options with AESRD, based on site-specific conditions and bird response factors. Some species are more tolerant to construction than others are. The following may be considered: <ul style="list-style-type: none"> ○ species biology and sensitivity to disturbance; ○ existing disturbance and land use in the vicinity of the nest, as some nesters prefer disturbance to avoid predators, proximity to feed (exposed soils), etc. ○ topography and other visual screens, as some nests may be "shielded" by hills, vegetation, infrastructure, etc.; and, ○ the use of a wildlife monitor during construction to observe the nesting birds behaviour, indicating stress caused by disturbances, etc.; and, ○ the type of construction activity being conducted in the area.
Raptor Nests	All known raptor nests will be monitored throughout construction. An annual raptor nest search will be completed until construction has been completed (AESRD 2014). If new nests are located, AESRD will be consulted to determine appropriate mitigation.

Activity	Environmental Measures
Amphibians	<p>Amphibian breeding wetlands will be identified in May. Mitigation will be determined on a site-by-site basis by a Qualified Biologist.</p> <p>If amphibians are encountered during work activities the following must be completed:</p> <ul style="list-style-type: none"> • stop work in the area and contact the Environmental Inspector immediately. <p>Mitigation options may include:</p> <ul style="list-style-type: none"> • installing silt fence to help exclude amphibians from the work areas; • removing amphibians from the workspace and relocated to adjacent wetlands (as per Class Protocol # 003 Capture, Handling of Amphibians) (Alberta Government 2005); • Horizontal Directional Drilling under a wetland; • avoiding the wetland; and/or, • implement a traffic management plan limiting traffic adjacent to occupied wetlands to essential traffic only. <p>A Qualified Biologist will implement mitigation onsite as required and will discuss mitigation options with AESRD, based on site-specific conditions.</p>
Reptiles	<p>Garter Snakes have the potential to occur in the Project area.</p> <p>If snakes are encountered during work activities the following must be completed:</p> <ul style="list-style-type: none"> • stop work in the area and contact the Environmental Inspector immediately. <p>Mitigation options may include:</p> <ul style="list-style-type: none"> • installing silt fences to exclude snakes from the Project work areas; and/or • removing snakes from the Project workspace and relocating to adjacent areas. <p>A Qualified Biologist will implement mitigation onsite as required and will discuss mitigation options with AESRD, based on site-specific conditions.</p>
Dens	<p>Dens, from wildlife such as coyotes, badgers, etc. have the potential to occur in the Project area.</p> <p>If a den is encountered during work activities the following must be completed:</p> <ul style="list-style-type: none"> • stop work in the area and contact the Environmental Inspector immediately. <p>Mitigation options may include:</p> <ul style="list-style-type: none"> • providing a setback until the den has been vacated; and/or • monitor the den to identify if setbacks are required. <p>A Qualified Biologist will implement mitigation onsite as required and will discuss mitigation options with AESRD, based on site-specific conditions.</p>
Bat Roosts	<p>Bats have the potential to occur in the Project area. If a roost is found during the Pre-Construction Wildlife Clearance Surveys, AESRD will be contacted to discuss appropriate mitigation.</p>
Wildlife Handling	<p>If handling is required, a Qualified Biologist will conduct handling as per issued Research Permit and Collection Licence and applicable Protocols.</p>

Activity	Environmental Measures
Setbacks	<p>Recommended setback are provided in the following table for select species as per: http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeLandUse-SpeciesHabitatGrasslandParkland-Apr28-2011.pdf</p> <p>The onsite Qualified Biologist will determine setbacks on a case-by-case basis for the remainder of the species encountered (modified from Environment Canada 2014).</p> <ul style="list-style-type: none"> • 10-50m or more* for most nest of songbirds and other small birds; • 30-100m or more* for most nest of waterfowl; and, • 10-50m or more* for swallow colonies. <p>*These general setbacks serve as an initial base. A larger buffer may be required to minimize the risk of disturbance caused by construction activities.</p> <p>The onsite Qualified Biologist will determine and may modify setbacks based on the following:</p> <ul style="list-style-type: none"> • species biology and sensitivity to disturbance; • existing disturbance and land use in the vicinity of the nest, as some nesters prefer disturbance to avoid predators, proximity to feed (exposed soils), etc. • topography and other visual screens, as some nests may be "shielded" by hills, vegetation, infrastructure, etc.; • the use of a wildlife monitor during construction to observe the nesting birds behaviour, indicating stress caused by disturbances, etc.; and, • the type of construction activity being conducted in the area.
Monitoring	Monitoring nests and den sites may be required throughout the duration of construction. A Qualified Biologist will consult with AESRD on the duration and the frequency of monitoring a on a case-by-case basis.
Reporting to AESRD	A report outlining the results of surveys and proposed mitigation will be provided to AESRD.
References	<p>Alberta Environment and Sustainable Resource Development (AESRD). 2011. Recommended Land Use Guidelines for Protection of Select Wildlife Species and Habitat within Grasslands and Parkland Natural Regions of Alberta. April 28, 2011. Alberta Sustainable Resource Development – Fish and Wildlife Division. Edmonton, AB. Available on-line: http://esrd.alberta.ca/fish-wildlife/wildlife-land-use-guidelines/documents/WildlifeLandUse-SpeciesHabitatGrasslandParkland-Apr28-2011.pdf</p> <p>AESRD. 2012. Ground-Based Wildlife Surveys: Alberta Wildlife Animal Care Committee Class Protocol #011. Research Licences and Permits. Adopted 21 March 2012. Fish and Wildlife Policy Branch Environment and Sustainable Resource Development. Available online at: http://esrd.alberta.ca/fish-wildlife/wildlife-research-collection/documents/WRCClassProtocol011-Ground-basedWildlifeSurveys-Oct2012.pdf</p> <p>AESRD 2014. Sign-off Letter to Tom Bird, BluEarth Renewables Inc. Wind Energy Referral Report – ESRD Resource Management. Bull Creek Wind Power Project. Alberta Environment and Sustainable Resource Development – Fish and Wildlife Division. Vermillion, AB. Dated November 17, 2014.</p> <p>Alberta Government. 2005. Alberta Wildlife Animal Care Committee Class Protocol #003. Wildlife Research Permits and Collection Licences. Wildlife Management Branch Environment and Sustainable Resource Development. Available online at: http://esrd.alberta.ca/fish-wildlife/wildlife-research-collection/documents/WRCClassProtocol003-CaptureHandlingAmphibians.pdf</p> <p>Alberta Government. 2011. Alberta Wildlife Animal Care Committee Class Protocol #003. Wildlife Research Permits and Collection Licences. Wildlife Management Branch Environment and Sustainable Resource Development. Available online at: http://esrd.alberta.ca/fish-wildlife/wildlife-research-collection/documents/WRCClassProtocol003-CaptureHandlingAmphibians.pdf</p> <p>Alberta Government 2013. ESRD/Sensitive Species Inventory Guidelines. April 2013. Available online at http://esrd.alberta.ca/fish-wildlife/wildlife-management/documents/SensitiveSpeciesInventoryGuidelines-Apr18-2013.pdf</p> <p>Environment Canada 2014. Technical Information on Avoidance Guidelines. Internet Site. Accessed February 19, 2015 .Available on-line. https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=8D910CAC-1#_01</p> <p>Stantec Consulting Ltd. (Stantec) 2014. Environmental Evaluation Addendum – Bull Creek Wind Power Project. Stantec Consulting Ltd. on behalf of BluEarth Renewables Inc. Received by AESRD-RM October 30, 2014.</p>

Appendix F: Contact List

Note: Contact list to be added at a later date.