Castle Rock Ridge Phase II
Development Permit Application

Submitted to the Municipal District of Pincher Creek No. 9

Revised June 8, 2018

Issued by:

Pincher Creek Limited Partnership
c/o ENEL Green Power North America Inc.
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Sign-off Sheet

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Table of Contents

1.0 INTRODUCTION 1.1

2.0 PROPONENT 2.3

3.0 PROJECT DESCRIPTION 3.4

4.0 PROJECT COMPONENTS 4.8
4.1 WIND TURBINE SPECIFICATION 4.10
4.2 ACCESS ROADS 4.10
4.3 COLLECTOR SYSTEM 4.11
4.4 SUBSTATION 4.11
4.5 TEMPORARY WORKSPACE 4.11

5.0 PROJECT SAFETY FEATURES 5.12
5.1 FOUNDATION AND STRUCTURAL DESIGN 5.12
5.2 ACCESS ROAD DESIGN 5.12
5.3 OVERSPEED PROTECTION 5.12
5.4 ARC DETECTION 5.13
5.5 FIRE PROTECTION/FIRST AID 5.13

6.0 ENVIRONMENTAL 6.13
6.1 VEGETATION AND WILDLIFE 6.13
6.2 HISTORICAL RESOURCES IMPACT ASSESSMENT 6.14

7.0 APPROVALS AND PERMITS 7.15

8.0 LAND USE & LAND DESIGNATION 8.16

9.0 NOISE IMPACT ASSESSMENT 9.16

10.0 SHADOW FLICKER IMPACT ASSESSMENT 10.17

11.0 VISUAL IMPACT ASSESSMENT 11.18

12.0 REPORT ON PUBLIC CONSULTATION AND COMMUNITY SUPPORT 12.21

13.0 IMPACT ON LOCAL ROAD SYSTEM 13.21

14.0 POST-CONSTRUCTION RECLAMATION PLAN 14.22

15.0 DECOMMISSION PLANS 15.22

LIST OF TABLES

Table 1 WECS Titled Parcels 1.1
Table 2 Listing of Setback Waiver Requests 1.1

Table 3 Listing of Sound Setback Waiver Requests 1.2
Table 4 Legal Land Description of Project Area 3.4
Table 5 Location of Project Wind Turbines 3.4
Table 6 Proposed Power Plant Development Schedule 3.7
Table 7 Wind Turbine Technical Specifications 4.10
Table 8 Approvals and Permits 7.15
Table 9 Viewpoint Locations 11.18

LIST OF FIGURES

Figure 1 Site Plan 3.5
Figure 2 Turbine Location Plan 3.6
Figure 3 Major Equipment 4.9
Figure 4 Viewpoint Location Map 11.20

LIST OF APPENDICES

APPENDIX A SITE PLANS A.1

APPENDIX B WAIVER PLOTS B.1

APPENDIX C TURBINE LISTING C.1

APPENDIX D AEP APPROVAL D.1

APPENDIX E HISTORICAL RESOURCES ACT CLEARANCE E.1

APPENDIX F ALBERTA ELECTRICAL SYSTEM OPERATOR F.1

APPENDIX G NAV CANADA G.1

APPENDIX H AERONAUTICAL OBSTRUCTION CLEARANCE H.1

APPENDIX I NOISE IMPACT ASSESSMENT I.1

APPENDIX J SHADOW FLICKER ASSESSMENT J.1

APPENDIX K VISUAL IMPACT ASSESSMENT K.1

APPENDIX L PUBLIC CONSULTATION L.1

APPENDIX M ENVIRONMENTAL PROTECTION PLAN – TRANSPORTATION PLAN FIGURES M.1

APPENDIX N VESTAS BROCHURE N.1

APPENDIX O STARS O.1

APPENDIX P DEPARTMENT OF NATIONAL DEFENSE P.1

APPENDIX Q ENVIRONMENT AND CLIMATE CHANGE CANADA.....Q.1

1.0 INTRODUCTION

Pincher Creek Limited Partnership (owner of the project), and Enel Alberta Wind Inc. (Enel), managing general partner, is developing Castle Rock Ridge Phase II (the Project) located approximately 4 kilometers north of the Town of Pincher Creek. The project area is in Sections 11, 14, 15, 21 and 22 of Range 30, Township 7 W4M. The project is the second phase of Castle Rock Ridge and will be composed of 7 Vestas V136 4.2MW wind turbine generators for a total generating capacity of 29.4 MW.

Pincher Creek Limited Partnership is submitting this Development Permit application as one package for each Wind Energy Conversion System (WECS) titled parcel. A listing of the WECS titled parcels and landowners is provided in Table 1. A site plan for each WECS application showing and labeling the exact location of each proposed wind turbine (tower and rotor arc), including setbacks, all associated substations, collection and transmission system on or abutting the subject lot or parcel, contours of the land, and access roads are provided in Appendix A.

A listing of requested setback waivers is provided in Table 2. A site plan for each waiver request is provided in Appendix B. A listing of requested sound setback waivers is provided in Table 3. A site plan for each waiver request is provided in Appendix B.

Table 1 WECS Titled Parcels

Land Description	Title Number	Landowner Name	Address
SE Sec-14 Twp-7 Rge-30 Mer-4	141295859	Stauffer Ranches Inc.	Box 2377 Pincher Creek, Alberta T0K 1W0
NW Sec-14 Twp-7 Rge-30 Mer-4	131096513	Stacey and Michel Stauffer	Box 2377 Pincher Creek, Alberta T0K 1W0
SE Sec-15 Twp-7 Rge-30 Mer-4	011155711	Stacey and Michel Stauffer	Box 2377 Pincher Creek, Alberta T0K 1W0
NE Sec-15 Twp-7 Rge-30 Mer-4	131096513	Stacey and Michel Stauffer	Box 2377 Pincher Creek, Alberta T0K 1W0

Table 2 Listing of Setback Waiver Requests

Land Description	Landowner Name	Turbine ID	Distance from Property Line (m)	Waiver Distance Requested (m)	Reason for Waiver Request
SE Sec-14 Twp-7 Rge-30 Mer-4	Stauffer Ranches Inc.	8	122.47 (N PL) 116.87 (W PL)	66.0 SW	Request Undeveloped Road Setback Waiver.
SE Sec-14 Twp-7 Rge-30 Mer-4	Stauffer Ranches Inc.	9	8.43	67.07	Request Undeveloped Road Setback Waiver. Constrained by Altalink 240 kV line setback.

Table 3 Listing of Sound Setback Waiver Requests

Land Description	Title Number	Landowner	Comment
SW Sec-13 Twp-7 Rge-30 Mer-4	141295861	Stauffer Ranches Inc.	Request for easement to be registered on the land title.
NW Sec-13 Twp-7 Rge-30 Mer-4	141295860	Stauffer Ranches Inc.	Request for easement to be registered on the land title.
NE Sec-13 Twp-7 Rge-30 Mer-4	141295859	Stauffer Ranches Inc.	Request for easement to be registered on the land title.
NE Sec-10 Twp-7 Rge-30 Mer-4	981076597	Michel and Stacey Stauffer	Request for easement to be registered on the land title.
SW Sec-15 Twp-7 Rge-30 Mer-4	011338570	923602 Alberta Ltd.	Request for easement to be registered on the land title.
NW Sec-15 Twp-7 Rge-30 Mer-4	011338570	923602 Alberta Ltd.	Request for easement to be registered on the land title.

2.0 PROPONENT

Pincher Creek Limited Partnership (owner of the project), and Enel Alberta Wind Inc. (Enel), managing general partner, is developing Castle Rock Ridge Phase II (the Project) located approximately 4 kilometers north of the Town of Pincher Creek..

Pincher Creek Limited Partnership and Enel is a leading operator of more than 100 renewable energy power plants across 23 U.S. states and 2 Canadian provinces. Enel operates an installed capacity of more than 2,600 MW across different renewable energy technologies, namely wind, solar, geothermal and hydropower.

Pincher Creek Limited Partnership, through the projects, aims to maximize the local socio-economic benefits of wind power through the creation of local employment, both direct and indirect during the construction and operation phases. Such projects also provide royalty income for landowners and contribute to the municipal tax base.

Pincher Creek Limited Partnership will be responsible for the design, construction and operation of the project, and will be considered the “proponent” throughout the project. The proponent’s offices and contact details are:

Contact information:

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Director, Business Development, Canada
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M 603-496-3251

3.0 PROJECT DESCRIPTION

Pincher Creek Limited Partnership (owner of the project), and Enel Alberta Wind Inc. (Enel), managing general partner, is developing Castle Rock Ridge Phase II (the Project) located approximately 4 kilometers north of the Town of Pincher Creek. The legal land description of the Project Area is provided in Table 4.

Table 4 Legal Land Description of Project Area

Township (TWP-RGE-W4M)	Sections	Quarters
07-30-W4M	11	NE
	14	NW, SW, SE
	15	NE, SE
	21	NE
	22	NW, SW, SE

The project is the second phase of Castle Rock Ridge and will be composed of 7 Vestas V136 4.2MW wind turbine generators for a total generating capacity of 29.4 MW. An electrical substation was constructed as part of Phase 1 of the Project. The ancillary developments (collector lines and access roads) are expected to have a 5 m to 20 m wide right-of-way. Figure 1 illustrates the Project site plan. A list of the coordinates for the center of each turbine structure are provided in Table 5 and shown in Figure 2. A detailed turbine listing is provided in Appendix C.

Table 5 Location of Project Wind Turbines

Turbine No.	UTM ZONE 12 NAD 83		NAD 83 DATUM						Decimal Degrees	
	EASTING	NORTHING	LATITUDE			LONGITUDE			LATITUDE	LONGITUDE
1	284193.000	5494590.000	49	33	55.38	-113	59	04.70	49.565383	-113.984638
2	284405.000	5494274.000	49	33	45.43	-113	58	53.54	49.562621	-113.981538
3	284290.000	5493865.000	49	33	32.06	-113	58	58.45	49.558906	-113.982902
4	284117.162	5493494.729	49	33	19.87	-113	59	06.31	49.555518	-113.985086
5	285398.000	5494219.000	49	33	44.93	-113	58	04.06	49.562479	-113.967795
8	286287.000	5493877.000	49	33	35.00	-113	57	19.20	49.559722	-113.955333
9	286321.000	5493499.000	49	33	22.82	-113	57	16.77	49.556338	-113.954658

Figure No.
1

Title
Site Plan - Castle Rock Ridge Phase II

Client/Project
Pincher Creek Limited Partnership
Castle Rock Ridge Phase II

Project Location
Municipal District of Pincher Creek
Alberta, Canada

118212100 REVA

0 330 660 metres
1:20,000 (At Original document size of 11x17)

Legend

- CRR2 Project Boundary
- Turbines - CRR Phase 2 - V136-4.2MW 82m HH
- Receptors
- Met
- Adjacent Property Setback - 7.5m
- Municipal Setback - 165m
- Transmission Line Setback
- Access Roads
- Collector
- Turbine Rotor
- Altalink OH Transmission Line

Facilities

Existing

- Castle Rock Substation
- Castle Rock Ridge Phase 1
- Contours 5m
- CRR1 Collector
- CRR1 Access Roads
- Railway
- Major Road
- Minor Road
- Township
- Section
- Qtr Section

Setbacks:

- Undeveloped or developed municipal roadway = 165m
- Adjacent properties (inside the wind farm boundary - 7.5m from outside of rotor arc) = 75.5m
- Adjacent properties (outside the wind farm boundary) = 165m

Notes
1. Coordinate System: NAD 1983 UTM Zone 12N

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Figure No.
2

Title
Location of WECS
Titled Parcels

Client/Project
Pincher Creek Limited Partnership
Castle Rock Ridge Phase II

Project Location
Municipal District of Pincher Creek
Alberta, Canada

118212101 REVA

0 420 840
metres
1:25,000 (At Original document size of 11x17)

Legend

- CRR2 Project Boundary
- Tiltles
- Turbines - CRR Phase 2 - V136-4.2MW 82m HH

Facilities

Existing

- Castle Rock Substation
- Castle Rock Ridge Phase 1 Turbines
- Receptors
- Wind Farm Industrial
- Railway
- Major Road
- Minor Road

Notes
1. Coordinate System: NAD 1983 UTM Zone 12N

Stantec

Figure 2.0

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Electricity generated by the turbines will be gathered by an underground collector system and routed to the existing Castle Rock Ridge Project-owned substation at SE 14-7-30 W4M. The Project will utilize the existing transmission line previously constructed to join AltaLink Castle Rock Ridge 250S Substation to the Goose Lake Substation. No new transmission line will be needed.

The Project will also require the construction of one permanent lattice meteorological towers installed at the wind turbine generator hub height of 82 metres (m). The tower will collect data during the operation of the Project.

The Project is currently scheduled to achieve commercial operation (COD) by December 1, 2019. The proposed construction schedule for the power plant is provided in Table 6.

Table 6 Proposed Power Plant Development Schedule

Activities	Period
AUC Approval	Expected September 2018
Access road construction	September 2018–June 2019
Collector system installation	May–September 2019
Substation updates	November 2018–August 2019
Turbine foundation construction	May–August 2019
Turbine installation	October – November 2019
In-service (Commercial Operation) date	December 1, 2019

4.0 PROJECT COMPONENTS

Castle Rock Ridge Phase II will consist of the following components:

- Wind turbine generators
- Access roads leading to turbines
- Underground electrical collector system, junction boxes and underground fiber optic system
- Upgrades to the existing Substation
- One permanent meteorological towers
- Temporary workspaces and crane paths

The Project components (i.e. major equipment) are shown in Figure 3.

Figure No.
3

Title
Major Equipment

Client/Project
Pincher Creek Limited Partnership
Castle Rock Ridge Phase II

Project Location
Municipal District of Pincher Creek
Alberta, Canada

118212101 REVA

0 420 840
metres
1:25,000 (At Original document size of 11x17)

Legend

- CRR2 Project Boundary
- Titlles
- Turbines - CRR Phase 2 - V136-4.2MW 82m HH

Facilities

Existing

- Castle Rock Substation
- Castle Rock Ridge Phase 1 Turbines
- Met Tower
- Receptors
- Altalink OH Transmission Line - Existing
- Access Road
- Collector
- Wind Farm Industrial
- Railway
- Major Road
- Minor Road

Notes
1. Coordinate System: NAD 1983 UTM Zone 12N

Stantec

Figure 3.0

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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4.1 WIND TURBINE SPECIFICATION

The Project will include the installation of 7 [7 wind turbine locations] Vestas V136 wind turbines with an individual capacity of 4.2 MW per wind turbine generator, for a total installed nominal nameplate capacity of approximately 29.4 MW. The turbine technology is full inverter type with a total Project capacity of 32.7MVA at a 0.9 power factor. The wind turbines have a three-bladed pitch regulated upwind rotor system with active yaw and a "flat-topped" nacelle, which houses the generator, gearbox and transformer. The nacelle is mounted on top of a monopole tower. The technical specifications of the Vestas V136–4.2 MW wind turbines are provided in Table 7. The Vestas V136-4.2MW brochure is provided in Appendix P.

Table 7 Wind Turbine Technical Specifications

Specification	Detail
Rated capacity	4.20 MW
Cut-in wind speed	3 m/s
Cut-out wind speed	25 m/s
Number of blades	3
Diameter	136 m
Swept area	14,527 m^2
Rotor speed (variable)	6 - 16 rpm
Tower (hub) height	82 m
Total Height	150 m
Gearbox	Two planetary stages and one helical stage
Generator	Asynchronous induction generator
Braking system	Air brake—full blade feathering with pitch cylinders
Yaw system	Electric gear motors mounted on the nacelle
Tower design	Five-section tubular steel tower

4.2 ACCESS ROADS

Permanent operational roads will be required to access and maintain the wind turbines during the operational life of the Project. The permanent operational roads will consist of all-weather graveled access roads. The Project will require the construction of approximately 4.3 km of permanent operational roads that are approximately 20 m wide during construction and approximately 6 m wide during operation. Where practical, routing of the permanent operational roads considered and minimized disturbance to landowners' agricultural practices and interfacing with existing roads, undeveloped municipal road allowances, and infrastructure in the area. Landowner input has been incorporated into the road design layout for the Project.

Temporary crane paths and construction roads may also be required during construction to move the assembled crane from turbine-to-turbine and to avoid additional crane breakdowns and travel on county roads. The major components of the wind turbines, including the blades and tower sections, are relatively long; thus, the construction roads tend to follow paths that minimize excessive slopes, grades, and turning radius. Where practical, the temporary crane paths and construction roads will share routing with the collector systems.

4.3 COLLECTOR SYSTEM

Each of the 7 wind turbines will have a transformer within its nacelle to increase the voltage generated by the wind turbine to 34.5 kV. The cables entering and exiting the wind turbines will be installed underground.

Power generated by the wind turbines will be conveyed to the substation through an underground collector system, which will consist of 34.5 kV circuits of underground power cables buried to a minimum depth of approximately minimum 1 m as per the Canadian Electrical Code.

The collector lines consist of five separate cables; three stranded metal conductor cables in a size range of 1/0 to 1250MCM American wire gauge, one 4/0 American wire gauge ground wire, and one 1-to-2 inch conduit housing a fibre optic communications wire. The three conductor wires are bundled together, while the ground wire and communications conduit are each laid beside the conductor bundle.

Approximately 4 km of cable for the entire collector line system will be installed by direct ploughing and/or trench excavation, using sand bedding for protection against mechanical damage. Trenching of collector lines is likely the preferred method due to better quality control during installation (i.e., proper depth placement and less stress on cable) to preserve long-term collector line integrity during Project operations. Plastic warning tape will be installed along with the power cables.

Junction boxes will be installed, where needed, to join the various segments of the collector line within each circuit. Junction boxes have been strategically located, where possible and/or practical, within the existing Project footprint (e.g. near turbine towers or at the edges of landowners' properties) to minimize impacts to the environment and landowners' use of their lands (e.g. farming operations with heavy equipment).

4.4 SUBSTATION

The Enel Castle Rock Ridge substation was constructing as part of Phase I of the Castle Rock Ridge Project.

4.5 TEMPORARY WORKSPACE

A temporary workspace, including crane pads, adjacent to each wind turbine location will be required during construction to temporarily store wind turbine components and equipment. The existing laydown area will also be utilized.

5.0 PROJECT SAFETY FEATURES

Vestas wind turbines are equipped with extensive equipment and accessories to provide for human and mechanical safety and ensure stable operation. The entire wind turbine is certified as per IEC 61400[1], International Electrotechnical Commission set of design requirements for wind turbines. The substation, collector system and wind turbine systems are designed to exceed all applicable codes and standards, will be capable of remote operation and will be monitored 24/7 by Pincher Creek Limited Partnership's Energy Management Operations Centre (EMOC) who can dispatch emergency personnel as required. Local operations personnel will be available "On Call" during off hours to address any emergencies.

Vestas wind turbines are equipped with an ergonomically designed and spacious nacelle that makes it easier for maintenance crews to gain access, so they can reduce the time spent on service while maximizing the uptime without compromising safety. All turbines are installed and maintained using standard installation and servicing tools and equipment.

5.1 FOUNDATION AND STRUCTURAL DESIGN

The foundations and wind turbine structures are designed to withstand extreme wind speeds for 1-in-50-year events, as per CAN/CSA standard C161400-1.

5.2 ACCESS ROAD DESIGN

Permanent site access roads are designed to be equal to MD of Pincher Creek roads in terms of accessibility and will allow for emergency vehicles to immediately approach adjacent to all wind turbine structures.

5.3 OVERSPEED PROTECTION

The generator rpm and the main shaft rpm are registered by inductive sensors and calculated by the wind turbine controller to protect against overspeed and rotating errors.

The safety-related partition of the VMP8000 control system monitors the rotor rpm. In case of an overspeed situation, the safety-related partition of the VMP8000 control system activates the emergency feathered position (full feathering) of the three blades independently of the non-safety related partition of VMP8000 control system.

Overspeed Protection	
Sensors Type	Inductive
Trip Level (variant dependent)	14.0-17.6 rpm/2000 (generator rpm)

[1] *IEC 61400.* https://en.wikipedia.org/wiki/IEC_61400.

5.4 ARC DETECTION

The turbine is equipped with an Arc Detection system including multiple optical arc detection sensors placed in the HV transformer compartment and the converter cabinet. The Arc Detection system is connected to the turbine safety system ensuring immediate opening of the HV switchgear if an arc is detected.

5.5 FIRE PROTECTION/FIRST AID

A handheld 5.6 kg CO_2 fire extinguisher, first aid kit and fire blanket are required in the nacelle during service and maintenance.

- A handheld 5.6 kg CO_2 fire extinguisher is required only during service and maintenance activities, unless a permanently mounted fire extinguisher located in the nacelle is mandatorily required by authorities.
- First aid kits are only required during service and maintenance activities.
- Fire blankets are only required during non-electrical hot work activities.

6.0 ENVIRONMENTAL

All relevant environmental surveys and studies have been conducted for the Project or were included in the CRR 1 AUC Approval. The baseline environmental studies performed include: wildlife, wetland, and rare plant surveys, and a historical resource review. Baseline wildlife surveys were conducted and project design layout setback considerations adhered to the requirements stipulated in the Wildlife Directive for Alberta Wind Energy Projects (GOA, 2017).

6.1 VEGETATION AND WILDLIFE

Rare plant and wetland surveys were conducted in 2017. No rare plants were observed during surveys or documented in a search of the Alberta Conservation Information Management (ACIMS) database (Integral Ecology Group 2018). All the proposed turbine locations and access routes are in cultivated areas rated low for rare plant potential. There are no turbines or associated access road intersects with native grassland, and there are no intersects with wetland areas. As such, a *Water Act* application is not required, and Code of Practice Notifications will be filed as appropriate.

Pre-construction wildlife surveys initially completed at the Castle Rock Ridge Wind Power Plant encompassed the entire project area, not just the Phase 1 installation area. After construction of the initial 33 turbines, the primary post-construction surveys for Phase 1 were completed in 2012 and 2013 again covering the entire pre-construction project area. Accordingly, these surveys from 2012 onwards are still considered pre-construction at proposed turbine locations yet to be constructed in Phase 2. As per the 2017 Wildlife Directive for Alberta Wind Energy Projects Standard 100.2.10, wildlife surveys must be repeated for projects which have not begun construction within five years of the previous surveys. Since Castle Rock Ridge Phase 2 was not immediately constructed, updated pre-construction wildlife surveys were completed in 2015, 2017 and 2018. In 2017, the AEP was consulted regarding a

change in turbine technology and turbine locations, and the decision was made to submit a Renewable Energy Referral Report in order to transition the project from the old (2011) Wildlife Guideline for Alberta Wind Energy Projects to new (2017) Wildlife Directives for Alberta Wind Energy Projects. In May 2018, A Renewable Energy Referral Report was submitted to the AEP. Enel worked with the AEP to further refine the project layout to decrease the overall risk of the project to wildlife and wildlife habitat. After review of the Renewable Referral Report, the AEP determined the project to be a moderate risk to wildlife and wildlife habitat. The sign-off from Alberta Environment and Parks (AEP) formerly knowns as Alberta Sustainable Resource Development (ASRD) is provided in Appendix D.

Enel is currently working with the AEP to develop and possibly implement innovate ways to further reduce the risk of the project to wildlife through a smart curtailment system.

6.2 HISTORICAL RESOURCES IMPACT ASSESSMENT

A part of the process of obtaining Historical Resources Act Clearance, a Statement of Justification (SoJ) was prepared for the original Castle Rock Ridge Wind Power Project as the area was considered to contain lands with high potential for the recovery of historic resources. Based on several project design changes and given the inclusion of lands with previously noted Historic Resource Value (HRV) notations several HRIA were conducted for certain areas of the Project including:

- An HRIA for realignment of Turbine 37 and its access road under Permit 2008-164
- An HRIA for new locations for Turbines 18-22, 38, 46 and 47 under Permit 2010-044
- An HRIA for relocation of Turbine 38 under Permit 2010-044

No new historic resources sites were recorded during the various HRIAs and the proponent committed to fencing the one known archaeological site (DjPl-4). Near Turbine 38. On June 24, 2010, conditional Historical Resources clearance was granted for the entire Project with the commitment to a professional archaeologist monitor ground-breaking construction activities in the vicinity of certain towers. The Castle Rock Ridge Phase 2 project is located entirely within the original Castle Rock Ridge project lands. An updated HRA showing the final layout showing the proposed turbines, access road s and collector lines for Phase 2 of the Project will be submitted to Alberta Tourism and Culture.

The 2010 Historical Resources Act Clearance is provided in Appendix E.

7.0 APPROVALS AND PERMITS

A summary of required approvals and permits is presented in Table 8.

Table 8 Approvals and Permits

Permit/Approval	Regulatory Authority	Requirement	Status
Federal			
Aeronautical Obstruction Clearance (Refer to Appendix H)	Transport Canada	Height hazards/lighting requirements	The Transport Canada application has been submitted on May 30, 2018. Transport Canada has indicated that they will not review until within 90 days to construction.
Land-Use Clearance. (Refer to Appendix G)	NAV CANADA—ATC Radars	Aeronautical safety mapping and designations	The NAV CANADA application has been submitted on May 30, 2018
Department of National Defense—Air Defense, Navigational Aid and Major Military Installations (Refer to Appendix P)	Department of National Defense	Air Defense, Navigational Aid and Major Military Installations	The Proponent has submitted the DND application on May 25, 2018 and expects to receive a letter of non-objection for the Project.
Department of National Defense—Radiocommunication Systems (Refer to Appendix P)	Department of National Defense	Radiocommunication Systems	The Proponent has submitted the DND application on May 25, 2018 and expects to receive a letter of non-objection for the Project.
Environment and Climate Change Canada—Weather Radars (Refer to Appendix Q)	Environment and Climate Change Canada	Weather Radars	The Proponent has submitted to ECCC on May 25, 2018 and expects to receive a letter of non-objection for the Project.
Provincial			
Environmental Screening Process – Alberta (Refer to Appendix D)	Alberta Environment and Parks	Project approval	The Proponent has received a Referral Report from Alberta Environment and Parks May 10, 2018
Power Plant and Substation, and Interconnection Approvals, in accordance with AUC Rule 007	Alberta Utilities Commission	Primary approvals to construct and operate a Wind Power Project and associated Substation	The Proponent is currently undergoing the participant involvement program for the AUC application. This work is underway.

Permit/Approval	Regulatory Authority	Requirement	Status
Water Act Approvals and Notifications under Code of Practice	Alberta Environment and Parks	Permanent and temporary disturbance of wetlands	No Water Act Approvals Required. COP Notification if required during construction.
Archaeological Clearance – Alberta *Historical Resources Act* (Refer to Appendix E)	Alberta Culture and Tourism (Historical Resource Management)	Archaeological and historical resources survey – Act clearance	The Proponent has submitted an application to the Alberta Culture and Tourism and is pending a response.
Development Application	Alberta Transportation	Placement of an Electrical Facility and Roadside Development within 300 metres of a Numbered Highway	Not Required. Project not within 300 metres of a Numbered Highway
Proximity to Recreational Area	Alberta Tourism, Parks, and Recreation	Project located within any conservation areas or provincial recreation areas	Not Required. All project turbines are setback more than 250m from the Oldman Dam Provincial Recreation Area
Heavy/Oversize Load Transportation Permit	Alberta Transportation	Compliance with provincial highway traffic and road safety regulations	Not applicable Turbine Supplier to Obtain
Municipal			
Utility Permit	M.D. of Pincher Creek	Road Crossing permits	Underway
Interconnection proposal (refer to Appendix F for AESO Functional Specification)	AESO	Generation: an interconnection proposal from AESO	Obtained
STARS (Refer to Appendix O)	STARS	No conflict with approach into the Pincher Creek Hospital	The Proponent is currently in consultation with STARS

8.0 LAND USE & LAND DESIGNATION

The lands to be used for this project are mainly used for cropland and pasture. The project area consists of lands that were formerly designated Agriculture A. As required by the Land Use Bylaw of the Municipal District of Pincher Creek (MPC), the lands to be used for wind turbine implementation were re-designated as Wind Farm Industrial.

9.0 NOISE IMPACT ASSESSMENT

A Noise Impact Assessment (NIA) was conducted in accordance with the requirements in AUC Rule 012: Noise Control (AUC 2017b). The NIA predicts that Application Case cumulative noise levels (which include the AUC

prescribed ambient sound level, existing, proposed and approved industrial facilities, and the Project itself, will comply with the applicable AUC Rule 012 permissible daytime and the nighttime period permissible sound levels for all receptors. In addition, the NIA determined that low frequency noise effects are not expected at any receptors.

Based on an analysis of the noise emissions spectra for the Project wind turbine generators and that new generation wind turbines are designed to not have tonal components; the Project NIA also predicts that there will be no Project-related low frequency noise issues at any receptors. In other words, the Project NIA predicts daytime and nighttime compliance with the AUC Rule 012 permissible sound level and low frequency noise criteria for all receptors. The NIA report is provided in Appendix I.

10.0 SHADOW FLICKER IMPACT ASSESSMENT

A shadow flicker assessment study was prepared by Stantec Consulting Ltd. in May 2018. The Project shadow flicker assessment considered all habitable or occupied dwellings located within 2 km of any turbine. The shadow flicker assessment is provided in Appendix J.

Shadow flicker from the proposed Castle Rock Ridge Phase II project has been assessed using a shadow flicker model to determine the theoretical maximum of flicker that is possible at each receptor location. The modeling provided results which considered daylight hours to be constantly sunny with turbines constantly rotating and a position perpendicular to the sun. Additional analysis was completed to estimate realistic worst-case conditions by adjusting the number of hours of sunshine based on Environment Canada data.

Currently there are no provincial or federal regulations in Canada regarding shadow flicker. A commonly used assessment criterion or allowable limit for shadow flicker is 30 hours per year and 30 minutes per day for each turbine. The results indicate that no receptors are predicted to exceed the 30 hours per year shadow flicker criteria. One receptor is predicted to experience more than 30 minutes per day of shadow flicker at least once per year. These values are calculated assuming the worst-case scenario conditions which are that the sun is shining during all daylight hours, the turbine blades are always spinning, and the wind direction is aligned with the direction from the turbine to the receptor. In reality, shadow flicker is likely to go largely unnoticed as all the worst-case conditions must be adhered to simultaneously and windy conditions tend to occur more frequently in cloudy weather. The results of this assessment indicate that shadow flicker for the proposed Castle Rock Ridge Phase II project should not be a significant issue.

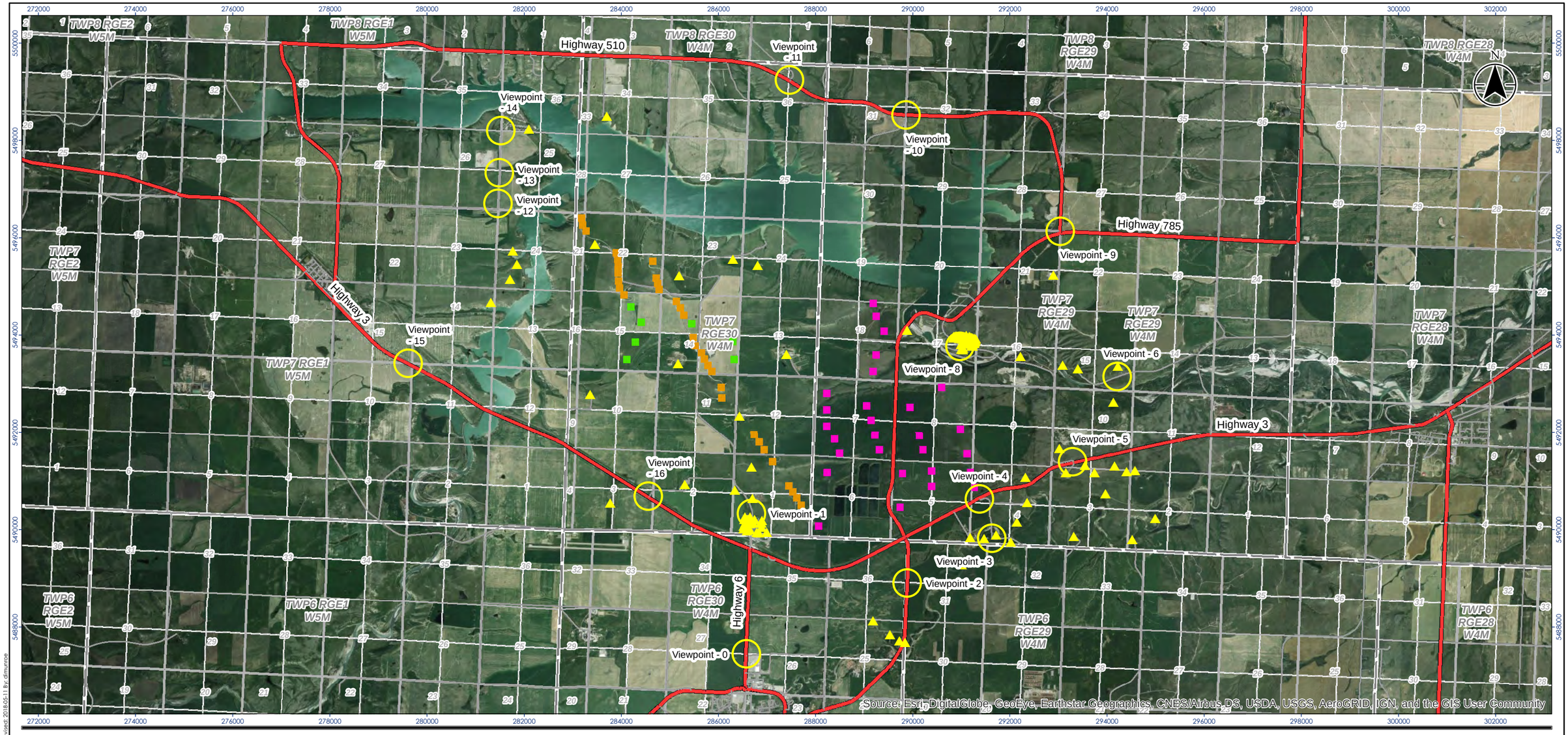
11.0 VISUAL IMPACT ASSESSMENT

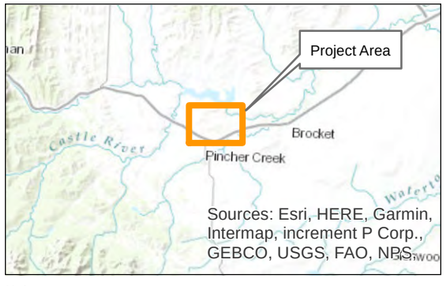
Visual representations (photomontages) were prepared as per the requirements listed in Section 53.21 (d) "Application Requirements for Category 3 WECS" of the Municipal District of Pincher Creek No, 9 Land Use Bylaw. A listing of the viewpoint locations is provided in Table 9 and the locations are shown in Figure 4. The photomontages are provided in Appendix K.

Table 9 Viewpoint Locations

Figure	Viewpoint Location
1	View from Viewpoint 0 – NE Sec 27 Twp 06 Rge 30 W4M – Looking Northwest
2	View from Viewpoint 0 – NE Sec 27 Twp 06 Rge 30 W4M – Looking Northeast
3	View from Viewpoint 1 – SW Sec 01 Twp 07 Rge 30 W4M – Looking Northwest
4	View from Viewpoint 1 – SW Sec 01 Twp 07 Rge 30 W4M – Looking Northeast
5	View from Viewpoint 1 – SW Sec 01 Twp 07 Rge 30 W4M – Looking East
6	View from Viewpoint 2 – NW Sec 31 Twp 06 Rge 29 W4M – Looking North
7	View from Viewpoint 3 – SW Sec 04 Twp 07 Rge 29 W4M – Looking North
8	View from Viewpoint 4 – NW Sec 04 Twp 07 Rge 29 W4M – Looking North
9	View from Viewpoint 5 – SW Sec 10 Twp 07 Rge 29 W4M – Looking West
10	View from Viewpoint 5 – SW Sec 10 Twp 07 Rge 29 W4M – Looking Northwest
11	View from Viewpoint 6 – SE Sec 15 Twp 07 Rge 29 W4M – Looking Southwest
12	View from Viewpoint 8 – NE Sec 17 Twp 07 Rge 29 W4M – Looking Northwest

Figure	Viewpoint Location
13	View from Viewpoint 8 – NE Sec 17 Twp 07 Rge 29 W4M – Looking Southwest
14	View from Viewpoint 8 – NE Sec 17 Twp 07 Rge 29 W4M – Looking Southwest
15	View from Viewpoint 8 – NE Sec 17 Twp 07 Rge 29 W4M – Looking South
16	View from Viewpoint 9 – SE Sec 28 Twp 07 Rge 29 W4M – Looking Southwest
17	View from Viewpoint 9 – SE Sec 28 Twp 07 Rge 29 W4M – Looking Southwest
18	View from Viewpoint 10 – SW Sec 32 Twp 07 Rge 29 W4M – Looking Southwest
19	View from Viewpoint 10 – SW Sec 32 Twp 07 Rge 29 W4M – Looking South
20	View from Viewpoint 11 – NE Sec 36 Twp 07 Rge 29 W4M – Looking Southwest
21	View from Viewpoint 12 – SE Sec 26 Twp 07 Rge 01 W5M – Looking Southeast
22	View from Viewpoint 13 – NE Sec 26 Twp 07 Rge 01 W5M – Looking Southeast
23	View from Viewpoint 14 – SE Sec 35 Twp 07 Rge 01 W5M – Looking Southeast
24	View from Viewpoint 15 – SE Sec 15 Twp 07 Rge 01 W5M – Looking Northeast
25	View from Viewpoint 15 – SE Sec 15 Twp 07 Rge 01 W5M – Looking East
26	View from Viewpoint 16 – NE Sec 03 Twp 07 Rge 30 W4M – Looking North
27	View from Viewpoint 16 – NE Sec 03 Twp 07 Rge 30 W4M – Looking Northeast





Legend

- Photo Location
- Receptors
- Turbines - Riverview
- Turbines - CRR Phase 2
- Turbines - CRR Phase 1

0 1,500 3,000 metres

1:80,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 12N

Stantec

Project Location
M.D. of Pincher Creek
Alberta Canada

118212101 REVA
Prepared by DM on 2018-05-03
Technical Review by SK on 2018-05-03
Independent Review by JD on 2018-05-03

Client/Project
ENEL Green Power
CRR2/Riverview Wind Farm

Figure No.
4

Title
Viewpoint Location Map

I:\118212101\9.0 Civil\GIS\map_mxd\Visualization\LocationOfViewpoints-Figure10.mxd Revised: 2018-05-11 By: dmunroe

12.0 REPORT ON PUBLIC CONSULTATION AND COMMUNITY SUPPORT

Consultation for the Project has occurred in a manner that meets the scope of the Participant Involvement Program (PIP) described in Appendix 1 of AUC Rule 007, including notification and personal consultation activities. The intent of the PIP is to ensure that those stakeholders who may be directly or adversely impacted by the Project:

- Gain a detailed understanding of the proposed Project;
- Have an opportunity to respond to Project information and provide comments; and
- Are aware of the channels available to provide additional input throughout the development process.

Pincher Creek Limited Partnership has, and continues to, provide opportunities for open dialogue with stakeholders to better understand issues and concerns, and implement suitable resolutions. The Project PIP includes:

- Direct, face-to-face consultation meetings;
- Phone conversations and email for questions and comments; and
- Project information mailings.

Pincher Creek Limited Partnership is in the process of receiving comments, questions and concerns about the proposed Project and will incorporate this feedback through the adaptation or modification to Project design, movement of wind turbines or associated Project infrastructure, and other considerations / actions undertaken on behalf of Pincher Creek Limited Partnership, where appropriate. Where a concern or request could not be accommodated, an explanatory response has been provided.

As a result of the change in turbine type, and Project layout, the AUC application is being amended. Consultation activities are occurring, and a PIP report will be provided to the MD of Pincher Creek upon completion of the PIP activities. Participant Involvement Program information is provided in Appendix L.

13.0 IMPACT ON LOCAL ROAD SYSTEM

Land use in the area surrounding the Project includes agricultural activities including crop production and grazing on tame pasture and native prairie, rural residential use, roads, gravel extraction, transmission and wind energy developments. With the development of the Project, only a small portion of the land will be developed to support the wind turbines and ancillary features. Each turbine will require a foundation that will require excavation in an area of approximately 30 m x 30 m where the concrete foundation will be built, a pad to support the crane required to assemble the wind turbine, an underground collector system and an access road. Where possible, the collector line will run parallel to the access roads and will be fully reclaimed to support the existing vegetation. Roads will initially be developed to a width of approximately 6 m during the construction phase to accommodate transport trucks. No new access roads will be located on native grassland.

Access roads composed of select fill material shall be constructed and will lead to each of the wind turbine generator foundations. Turnoffs to existing access roads from Highway 3 and Range Road 302 will be used and reinforced to accommodate the cranes and construction equipment. The access road will be designed to support the weight loads and dimensions of the Project construction equipment, most importantly the erection cranes. The access roads will be located on private property. The Environmental Protection Plan and Transportation plan figures is provided in Appendix M.

14.0 POST-CONSTRUCTION RECLAMATION PLAN

Refer to the Environmental Protection Plan (Appendix P) that describes the project-specific measures to be implemented during development of Castle Rock Ridge Phase II. These consist of a series of 'general' protection measures that apply to **all** development activities, as well as a series of 'specific' protection measures that apply to the various stages of construction and reclamation.

15.0 DECOMMISSION PLANS

The expected life of the turbines is approximately 30 years. Near the end of the Project's life, Enel will evaluate whether the Project should be decommissioned or repowered. Repowering is an alternative to decommissioning that allows wind farm owners to extend the project's life. It involves replacing project components and, often, leveraging project infrastructure. Repowering is often an attractive alternative to decommissioning a wind power project with a proven wind resource. At the end of facility operations, if the project is not retrofitted with newer components, the following infrastructure will be removed, and the site will be graded (dependent upon new proposed use):

- Wind turbine generators
- Underground collector lines
- Access roads
- Substation
- Permanent meteorological towers
- Wind turbine foundation (leveled at 1 meter below surface)

At the end of facility operations, decommissioning activities would be implemented. The decommissioning and restoration process includes the removal of above-ground structures, removal of belowground structures to a depth of approximately 1 m below surface, replacement of topsoil and subsoil, and re-vegetation and seeding. Aboveground structures include the wind turbines (blades, nacelles, and towers), crane pads, substation, and access gates. Below ground structures include wind turbine pedestals and foundations, substation foundation, underground collector lines, and drainage structures.

The process of removing structures involves evaluating and categorizing all components and materials into categories of recycled or disposed at a certified landfill. For increased efficiency and minimal transportation effects, components and material may be stored on-site in a pre-approved location until the bulk of similar components or materials are ready for transport. The components and material will be transported to the appropriate facilities for reconditioning, salvage, recycling, and/or disposal.

When decommissioning occurs, reclamation standards at the time of decommissioning will be followed. Soil management will be incorporated into this process to facilitate site reclamation.

The wind turbines will be disassembled and removed from the site. The equipment, parts, and other materials removed during the decommissioning process will be recycled (i.e., salvaged and reconditioned) and/or disposed of as appropriate. Gravel, where used, will be removed from the sites.

Underground cables will be terminated and capped at connection points (from a practical perspective) in perpetuity. As they are to be buried to a depth of at least 1 m, unless future farming practices use ploughing techniques of greater than 1 m, limited adverse effects to land-use would be anticipated. At the end of facility operations, Pincher Creek Limited Partnership will apply to the AUC to decommission the Project, as applicable, according to the regulations in force and standards at that time of decommissioning. Additionally, landowners will be consulted post-decommissioning regarding any concerns that may arise. The wind turbine's concrete pedestal will be removed to a depth of 1 m below surface, and the excavation backfilled with subsoil to match the natural grade. Removal of below-ground structures to a depth of approximately 1 m is expected to provide a sufficient soil profile to allow successful revegetation and typical land-use practices (i.e., ploughing, seeding, harvesting, grazing croplands and/or pasture), despite the underlying remnant concrete foundation. Buried concrete is commonly associated with decommissioned industrial facilities (i.e., oil/gas wells) that have been successfully reclaimed in the past. Additional mitigation measures at turbine foundation locations include the removal of surface gravels and soil decompaction.

After the infrastructure is removed, the wind turbine sites, and access/cabling routes may be ploughed as appropriate to alleviate soil compaction and graded to restore terrain profiles. Topsoil will be replaced and prepared for seeding on cultivated areas. All waste material and equipment will be removed from the facility site.

If a wind turbine discontinues producing power for two years, the (Wind Energy Conversion System) WECS operator will provide a status report to the Development Authority. A review of the status report may result in a request for the WECS to be decommissioned. Pincher Creek Limited Partnership acknowledges that failure to comply with a decommissioning request may result in the issuance of a stop order by the designated officer in accordance with the provisions of the Municipal Government Act.

Pincher Creek Limited Partnership will comply with all provincial regulations at the time of decommissioning. Furthermore, Pincher Creek Limited Partnership will work with each respective landowner(s) to ensure that land is restored to an equivalent land capability.