



# Welcome to the Riplinger Wind Power Project Stakeholder Open House

Please visit our displays which outline different aspects of the Project.

Our experienced wind staff are available to answer any of your questions or discuss your interests in the Project.

This engagement session is presented as part of our ongoing consultation and engagement. We welcome your feedback.

**Thank you for attending and for taking the time to learn more about the Riplinger Wind Power Project.**





# Who is TransAlta?

TransAlta is Canada's largest wind generator and growing

- TransAlta has over 112 years of generation experience
- Owner of Canada's first commercial wind farm located in Pincher Creek, also first to responsibly decommission a site at end of life
- TransAlta owns and operates a diverse generation fleet comprising natural gas, wind, hydro, solar and coal<sup>1</sup> facilities for a total gross capacity of over 6,500 MW across North America and Western Australia
- Owns and operates 27 wind facilities generating 1,762 MW of clean renewable power across Canada and the U.S.



<sup>1</sup>Note: TransAlta is currently transitioning out of coal with the only remaining facility, Centralia in the USA, which is expected to be decommissioned in 2025





# Project Overview

Riplinger Wind L.P. by its General Partner Riplinger Wind Inc., (the Proponent) proposes to construct and operate the Riplinger Wind Power Project (the Project) located in Cardston County approximately 30 km southeast of Pincher Creek on approximately 14,000 acres of privately-owned land. The Proponent is a wholly owned subsidiary of TransAlta Corporation (TransAlta).

- The Project will host up to 50<sup>1</sup> wind turbines for an expected nominal capacity of 304 MW
- Land lease agreements are in place for the Project
- The preferred turbine model and size is still being evaluated
- Wind data has been collected on site since 2008
- Two years of environmental survey data has been collected on site
- The construction of an approximately 45 km long Transmission Line will connect the Project to the Alberta Interconnected Electric System



<sup>1</sup> **Note:** This number differs from the number in the December 2022 newsletter. This number is dependent on which turbine model TransAlta selects for the Project, which is still being evaluated.





# Community Benefits

Wind power is a clean and renewable source of electricity that provides benefits for the communities where it's hosted, including:

**Community Impact Benefits** for residents and community members. TransAlta is open to suggestions from the community on ways we can positively impact the areas that we are integrating ourselves into the community

**Potential Operations and Maintenance Building:** TransAlta is in preliminary discussions with the Village of Hill Spring regarding locating the O&M building within the town footprint for direct benefit to the community. This includes generating an additional source of tax revenue for the hosting community

**Providing supplemental income** from annual lease payments to project landowners during the life of the wind project







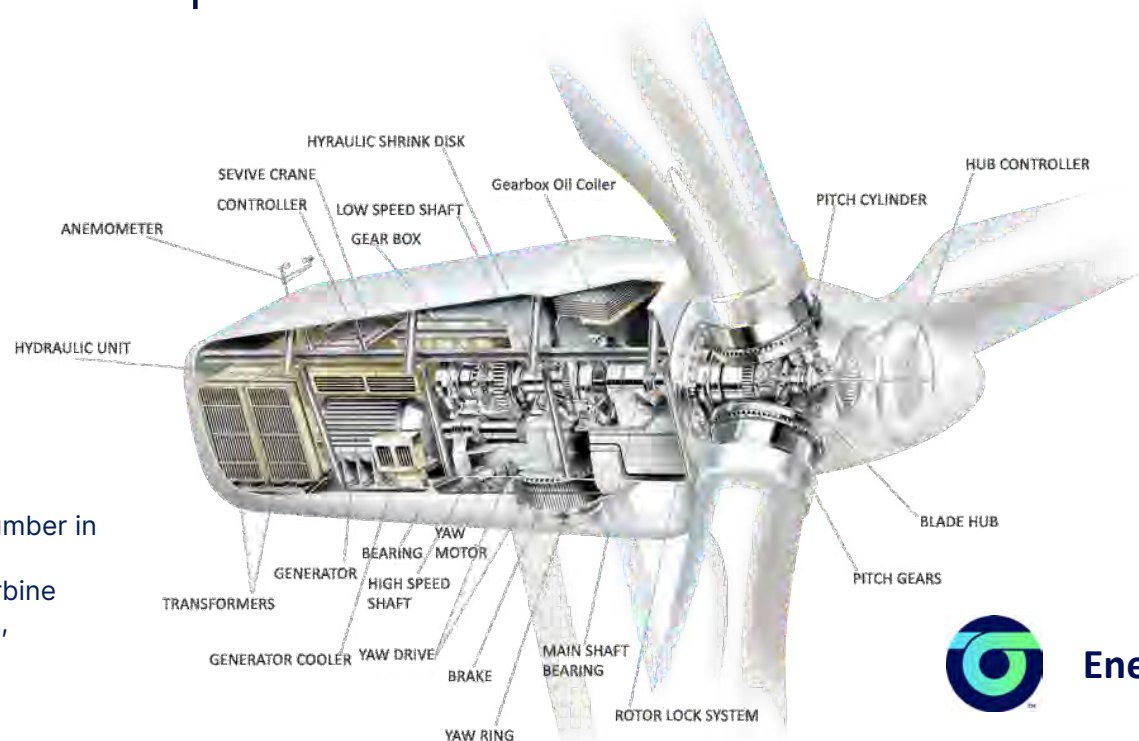
# Project Components

**Turbine Technology:** The Project will host up to 50<sup>2</sup> wind turbines with a nominal capacity of 304 MW. The tower, or hub height, will be 110 to 119 meters (m) tall and have a rotor diameter of 162 to 170m, making the overall turbine approximately 195 to 200 m at tip height.

**Underground Collector System and Substation:** Each turbine will connect through a buried underground 34.5 kV collector system, which will terminate at a new Project substation constructed near the center of the Project site. The power will be “stepped-up” to 240 kV and transported to the proposed Point of Interconnection (POI) near Pincher Creek via a proposed transmission line.

**Meteorological Tower:** TransAlta will install up to two permanent meteorological towers on-site used for the collection of weather data during operation of the wind facility.

**Roads and Access Points:** TransAlta will endeavor to use existing public roads and access points for accessing turbine locations during construction and operations of the Project. TransAlta will seek approval to use local County roads and may upgrade those under County standards to facilitate the delivery of turbine components to site.



<sup>2</sup> **Note:** This number differs from the number in the December 2022 newsletter. This number is dependent on which turbine model TransAlta selects for the Project, which is still being evaluated.







# Transmission

**Transmission Interconnection:** The construction of an approximately 45 km long transmission line will connect the Project to the Alberta Interconnected Electric System. The transmission line will enable power generated by the Project to reach Alberta's electricity grid.

The Riplinger Transmission Line Project will be a separate and distinct regulatory, permitting and stakeholder engagement process commencing later this year. To assist with this, TransAlta has contracted a third-party consultant to support the work related to environmental evaluation, route selection, design, and public and Indigenous engagement.

Information packages about the Riplinger Transmission Line Project will be distributed separately and a stakeholder engagement session will be held regarding the Project transmission interconnection over the coming months.







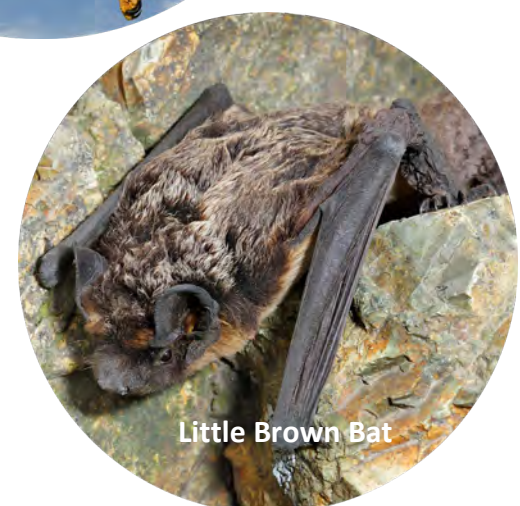
# Environmental Assessment

Any project has the potential to impact wildlife and wildlife habitat. Comprehensive baseline environmental surveys were conducted on-site by a third-party consultant in the Project area in 2021 and 2022. These surveys were conducted in accordance with the Wildlife Directive for Wind Energy Projects in Alberta (Wildlife Directive) released by Alberta Environment and Protected Areas (AEPA; formerly Alberta Environment and Parks (AEP)) in 2018 following the Sensitive Species Inventory Guidelines and other prescribed survey protocols (e.g., migratory bird surveys and Alberta Wetland Policy).

Surveys completed:

- Spring and Fall Bird Migration
- Spring and Fall Bat Acoustic Monitoring
- Breeding Birds
- Sharp-tailed Grouse
- Raptors
- Wetland Mapping and Classification
- Habitat Mapping

Field data collection and constraints mapping have assisted with avoidance of native pasture, wetlands, raptor nests, grouse leks, and other sensitive features, in accordance with provincial guidelines and recommendations, or best management practices.







## Environmental Assessment Cont.

Siting considerations:

- Turbines are sited on all cultivated lands (i.e., disturbed) and avoid native prairie
- Most of the Project infrastructure has been sited away from any recorded environmental features (e.g., sharp-tailed grouse leks or sensitive raptor nests)
- Most of the permanent project infrastructure (i.e., access roads and turbines) has been sited away from Class III and higher wetlands

Where there are impacts to wetlands or wildlife features, appropriate mitigation measures will be implemented or permits acquired through consultation with AEPA.

A summary of the wildlife data collected will be submitted to AEPA in February or early March 2022, and their feedback, in the form of a Renewable Energy Referral Report, will be incorporated into our Environmental Evaluation and Environmental Protection Plan accompanying our Alberta Utilities Commission (AUC) facility application submission. Specific metrics about Project impacts to wetlands and environmental features will be outlined in the report to AEPA and the Environmental Evaluation. This information will be publicly available once the facility application is submitted to the AUC.

Upon commercial operation, at least three years of post-construction monitoring will take place following the Post-construction Survey Protocols for Wind and Solar Energy Projects (AEP 2020). Additional post-construction surveys will be conducted as directed by AEPA. Post-construction data will be used in collaboration with AEPA to determine if operational mitigation measures are required if impacts to wildlife and wildlife habitat do not meet regulatory standards.



In addition, to comply with the Conservation and Reclamation Directive for Renewable Energy Projects (C&R Directive; AEP 2018) interim monitoring is conducted following construction when temporary or progressive reclamation activities occur. Interim monitoring includes a vegetation assessment and an associated management plan. A C&R plan will be developed for the Project and will be submitted as part of the AUC application.





# Sound Levels

Sound from all wind projects must meet stringent requirements regulated by the Alberta Utilities Commission (AUC). These sound requirements are outlined in AUC Rule 012: Noise Control, which states that sound levels from a wind project, measured cumulatively with noise from other facilities and sources must not exceed the permissible sound level of 40 decibels (dBA) at night outside residences.

TransAlta representatives have a figure available for discussion showing representative noise isoclines, which are a visual representation of how far out sound carries from the turbines.

Predicted noise levels are an important factor in finalizing the siting of wind turbines. We have designed the wind farm to meet the AUC regulatory requirements and there are no residences in the project footprint that will experience more than the permissible sound level of 40dBA.



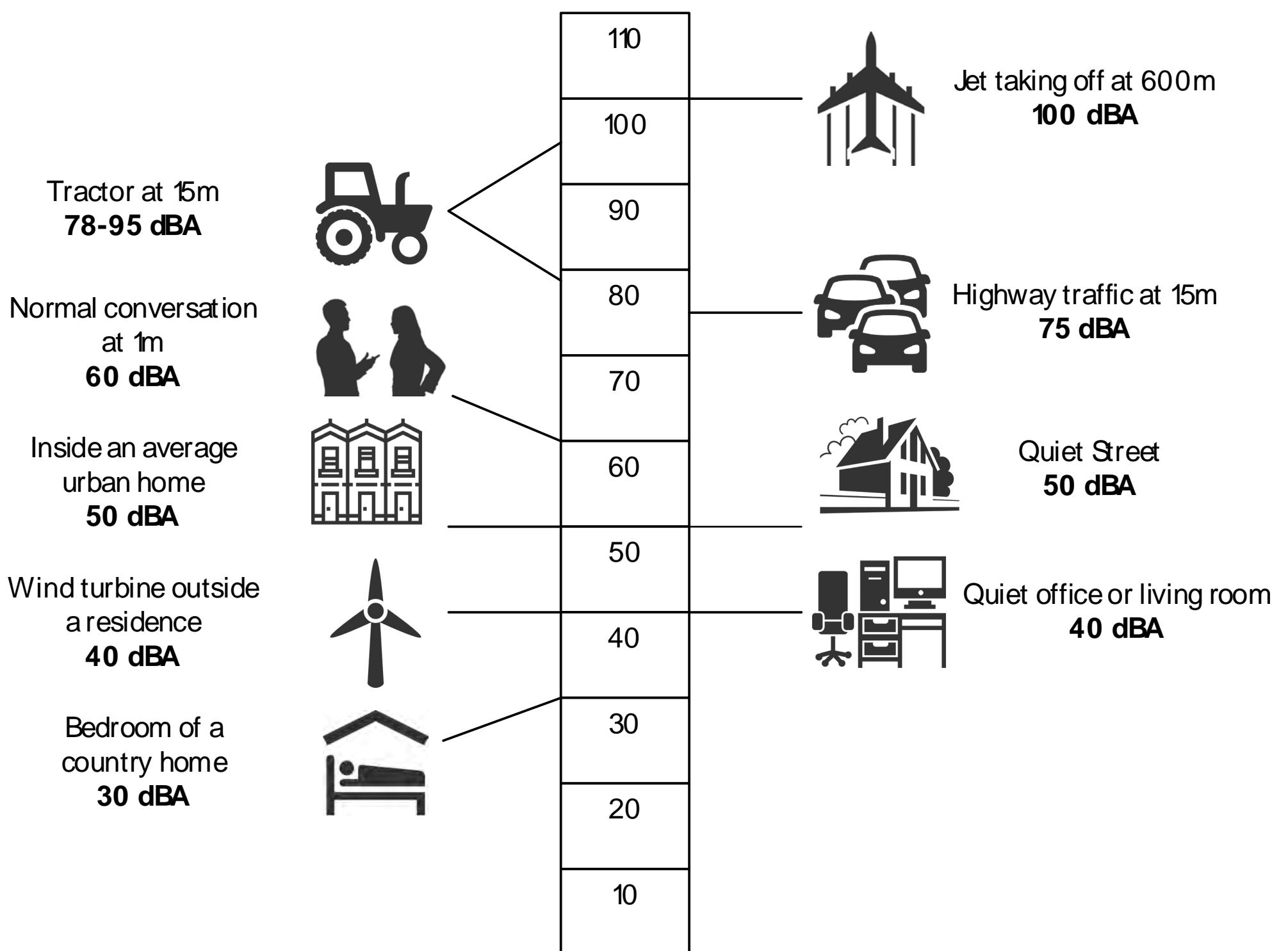




# Sound Levels Cont.

40 dBA is in the range of what one would expect to measure in a quiet office or living room. The image below shows sound levels from common sources for comparison to wind turbines.

Sound Levels from Common Sources (dBA)







# Visual Impacts

As part of project design, visual simulations using specialized software have been created at various “viewpoints” in and around the Project site. These simulations provide a representative depiction of the wind turbines on the landscape.

TransAlta representatives have examples of these simulations, made to represent viewpoints within the Project, available for discussion.

Turbines are painted an off-white color, which is found to be the least intrusive under the widest variety of light conditions. Transport Canada requires a subset of turbines to be lit for aircraft safety. A lighting plan, that considers the minimum impact from nighttime lighting by the Project will be vetted in consultation with Transport Canada prior to construction.





# Shadow Flicker

Shadow flicker is the effect of the sun shining through the blades of a wind turbine as they rotate, casting a moving shadow on the landscape. It is perceived as a “flicker” due to the rotating blades repeatedly casting a shadow during certain times of the day.

A shadow flicker study is a consideration for turbine types and locations and is underway and is conducted for the Project as part of the Alberta Utilities Commission application. The results of the study will be available to stakeholders and if applicable, and there is a map identifying residences and the expected duration of shadow flicker for each occupied residence available.

# Health

In 2012, Health Canada announced its intention to undertake a large study in collaboration with Statistics Canada to provide federal advice and in acknowledgement of the community health concerns expressed in relation to wind turbines. The results of the study were published in 2014. The study concluded that the scientific evidence available to date does not demonstrate a direct causal link between wind turbine noise and adverse health effects.

TransAlta can confirm in our 25-year history of wind farm operation in the province we have not dealt with any complaint of ill health effects associated to our operations.

If you would like more information about health effects and wind turbines or would like additional reference material on this subject, please contact us.





# Radiocommunications and Radar

Wind turbine generators, like other large structures, may have the potential to disrupt the transmission of electromagnetic signals with the potential to interfere with radiocommunication systems.

As part of project development, TransAlta will commission an inventory and preliminary impact assessment of radiocommunication, and radar systems present in the vicinity of the project area. This will be done in communication with affected stakeholders and in accordance with guidelines developed for industry by the Radio Advisory Board of Canada and the Canadian Broadcasting Corporation.

There are a multitude of variables to consider when assessing systems and impacts including land topography, turbine composition, turbine siting, source signal strength, equipment type, etc.

Companies and stakeholders identified as having facilities within the range of our potential project will be consulted as part of this impact assessment.







# Archaeological and Cultural Resources

Humans have inhabited this area for hundreds of years, and some reminders of the past survive as archaeological artifacts.

A Historical Resources Act Application for the complete Project area was submitted to Alberta Culture, in February 2022 to determine the existence of potential archaeological sites in the Project area. A Historical Resources Impact Assessment is required for some portions of the site will be conducted in Q2/Q3 2023 based on the Project layout. All sites that might be discovered will be avoided by turbines and associated infrastructure during construction activities and operations.

Protecting the integrity of these important resources remains a priority to TransAlta throughout the life of the project. For this reason, we do not disclose locations of any finds to ensure they are not sought by treasure hunters.

Additionally, we have included surrounding Indigenous communities in our project notification and welcome their feedback.







# Constraints and Siting Considerations

Siting a wind farm is dependent on multiple factors including the wind resource, interconnection availability, and regulatory requirements. A list of typical considerations is included below, and we would be happy to illustrate how this process works.

Constraint Type	Setback	Requirement
<b>Human</b>		
Dwellings	800m	<ul style="list-style-type: none"> <li>Based on AUC Rule 012 compliance and local county bylaws</li> </ul>
Highways/Roads	100 to 220m	<ul style="list-style-type: none"> <li>As per Alberta Transportation and municipal and bylaws</li> </ul>
Transmission/Distribution Lines	94 to 220m	<ul style="list-style-type: none"> <li>As per Best Industry Practices for safety distance</li> </ul>
Archeological Features	Avoidance	<ul style="list-style-type: none"> <li>As protection measure</li> </ul>
Sound	40 dBa	<ul style="list-style-type: none"> <li>As per AUC Rule 012</li> </ul>
Oil/Gas/Pipelines	40 to 100m	<ul style="list-style-type: none"> <li>In consultation with oil/gas companies</li> <li>As per Best Industry Practices for safety distance</li> </ul>
Property Lines	220m	<ul style="list-style-type: none"> <li>As per municipal bylaws for non-participating landowners</li> </ul>
<b>Environmental</b>		
Wetlands	100m from Class III and greater	<ul style="list-style-type: none"> <li>Per AEP Wildlife for Wind Energy Projects (2018)</li> </ul>
Valley Break	100m	
Named Lake	1000m	
Native Prairie	Avoidance	
Rare Plants	300m	
Bird Nests	100 to 1000m	
Amphibians and snakes	100 to 1000m	
<b>Technical</b>		
Turbine Separation	425m	<ul style="list-style-type: none"> <li>Target of 2.5 rotor diameters to ensure turbine suitability</li> </ul>
Collector Lines	Underground	<ul style="list-style-type: none"> <li>Per AEP Wildlife for Wind Energy Projects (2018)</li> </ul>

**Note:**

\* Often setbacks are a function of total turbine tip height

m – meters; dBa – decibels

AEP – Alberta Environment and Parks; AUC – Alberta Utilities Commission





# Permitting & Approval Requirements

Wind projects require multiple permits and approvals from all three levels of government, agencies, regulatory bodies, and other stakeholders, throughout the project lifecycle. Permitting a wind farm may take two or more years before construction can start. The permits and approvals required for the project typically include:

## **Federal**

- Transport Canada
  - Aeronautical Obstruction Clearance
- NavCanada
  - Land Use and Air Navigation Services Assessment

## **Provincial**

- Alberta Environment and Protected Area (formerly Alberta Environment and Parks)
  - Wildlife Referral Report
- Alberta Culture
  - Historical Resources Act Approval
- Alberta Utilities Commission
  - Permit and License to construct, own and operate the wind project and substation
  - Connection Order – to connect the facility collector system to the collector substation
- Alberta Transportation
  - Roadside Development Permit

## **Municipal**

- County or MD
  - Development Permit
  - Road Use Agreement
  - Utility Placement Permit
  - Right-of-Way Consent (if necessary)

## **Other**

- Utility Facility Owners
- Crossing Agreement or Right-of-Way Easements
- RCMP/TV/Satellite/ Telecommunications
- Radio comms / radar interference





# Wind Project Construction

**Manufacturing:** Wind turbine component parts are manufactured and pre-assembled at the factory, then shipped to the wind farm site where the final assembly takes place.

**Site Preparation and Construction:** Work crews prepare turbine sites by building access roads, preparing turbine foundations and reassembling turbine components. A crane is used to erect turbine towers and install the nacelles and rotors with their hubs and blades.

**Commissioning:** During the final construction phase, the electrical collection network is installed and connected to the grid through the substation. Final testing is completed before the wind farm becomes fully operational.

**Operation and Maintenance:** Activities that are performed on a regular basis throughout the project's life include monitoring and analyzing performance and performing preventive maintenance and repairs on the turbines and other components of the facility.





# Decommissioning & Reclamation

The useful life for current wind turbine technology is approximately 30 to 35 years. Once a facility has reached the end of its useful life, TransAlta will assess options to repower or decommission the Project.

For decommissioning, renewable energy projects are required to comply with the Conservation and Reclamation Directive for Renewable Energy Projects (C&R Directive). The intent is to return the land to equivalent land capability at the end of the project's life. A C&R plan will be developed for the Project and will be submitted as part of the Alberta Utilities Commission application.

The C&R Plan will address activities related to the restoration of any land impacted by the Project. TransAlta works closely with project host landowners to ensure decommissioning is carried out to the satisfaction of our host landowners and complies the C&R Directive.

TransAlta is the first company in Canada to have decommissioned a Wind Farm. Additional information can be found on the accompanying slide show to this

## Did You Know?

- Tower and nacelles have over 95% salvageable materials
- Predominant salvage values from a wind farm come from copper, aluminum, and steel (including the substation)
- There is reconditioning and reinstallation potential for some equipment
- Recent technological advances have been made on blade and fiberglass recycling:
  - GE is using crushed fiberglass blades as a concrete additive (90% of the blade is used)
  - Recycled fiberglass is being used to manufacture auto parts and sports gear





# Project Timeline





# Thank You

Thank you for your interest in the Riplinger Wind Power Project.

Comment/question sheets are available should you have additional information you would like to provide or questions you would like a TransAlta representative to follow up with.

TransAlta would like to know about local goods and services that may be sourced in the community once we are ready to construct. Please provide us with some background on your business – comment sheets are available – including:

- What is your business name?
- What kind of goods or services can you offer?
- How do we contact you?

We will retain this information and pass it along to our Supply Chain Management division and other major suppliers once the decision to proceed with the Project has been made and procurement contracts are awarded. Thank you for attending today.

We look forward to working with community members, stakeholders, and Indigenous communities as we continue to advance the Riplinger Wind Project.

Additional project details will be shared as the project advances.

For information about TransAlta and the Riplinger Wind Project, please visit:

[www.transalta.com](http://www.transalta.com)

Email: [Canadian\\_projects@transalta.com](mailto:Canadian_projects@transalta.com)

Tel: 1.877.547.3365 ext. 1







# Turbine Technology Evolution

Turbine technology has evolved rapidly over the years allowing project sites to produce the equivalent energy capacity with fewer turbines. Bigger blades and taller towers allow wind turbines to sweep more area, access faster wind speeds, capture more wind, and produce more electricity even in areas with relatively less wind.

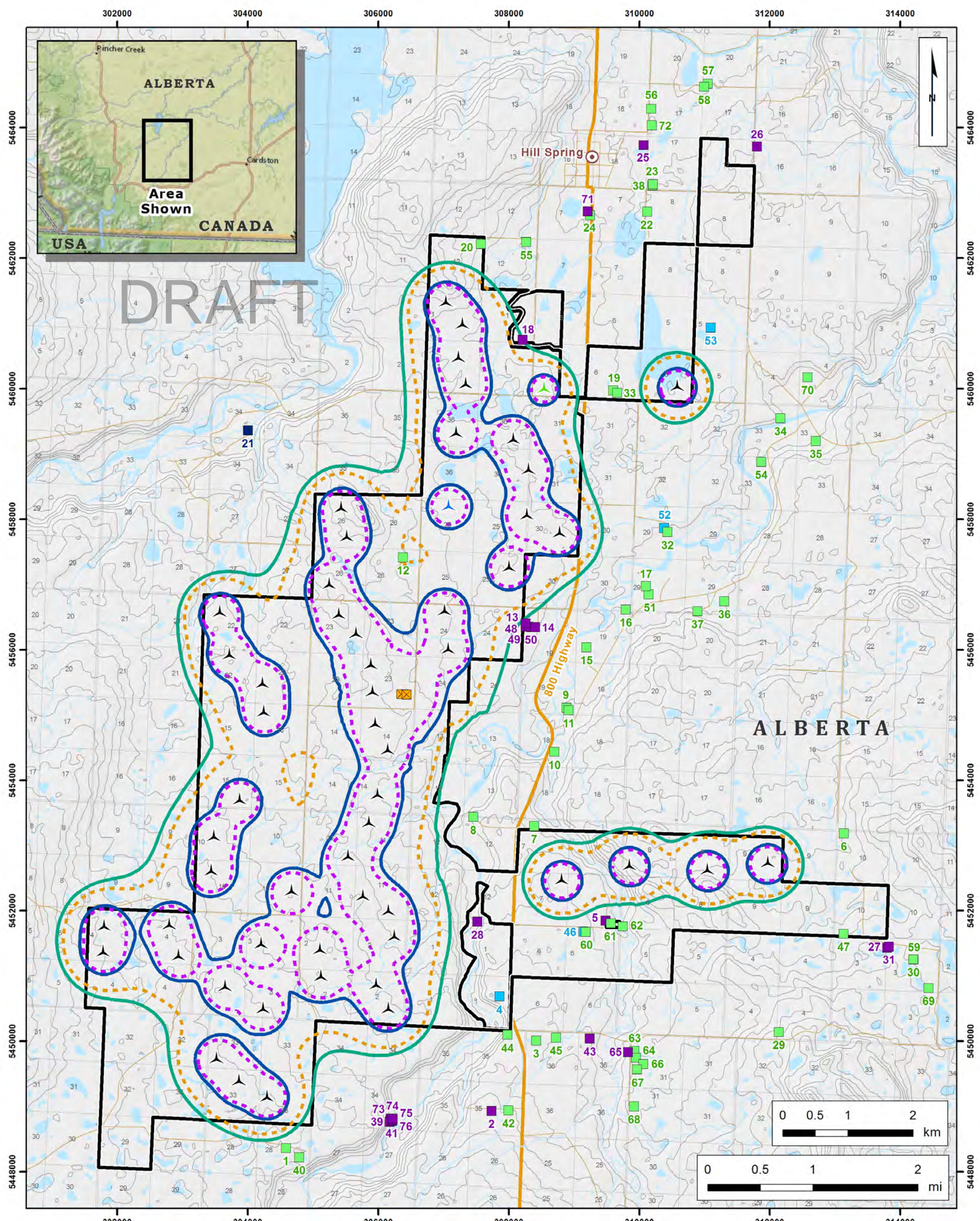
The use of larger more powerful turbines means fewer would be added to the landscape, reducing the visual component for wind farms.

A 304 MW wind farm like the proposed Riplinger Wind Power Project, using technology of the day would have had:

Year Built	Number of Turbines to Produce 304 MW	Turbine Size of the Day	Examples of TransAlta Facilities
1993	800 Turbines	.38 MW	Cowley Ridge
2002	460 Turbines	.66 MW	McBride Lake Wind Farm
2004	168 Turbines	1.8 MW	Summerview Phase 1
2009	101 Turbines	3.0 MW	Blue Trail, Ardenville
2021	63 Turbines	4.8 MW	Windrise Wind Farm
<b>2025</b>	<b>46 Turbines</b>	<b>6.6 MW</b>	<b>Riplinger Wind Farm</b>







**Legend**

<b>Project Components</b>	~ Contour (Interval: 10 m)	<i>Predicted Sound Level</i>
▲ Wind Turbine	~ Watercourse	--- 40 dBA at 1.5m agl*
▲ Derated Turbine N1	~ Waterbody	--- 45 dBA at 1.5m agl*
▲ Derated Turbine N3	□ Quarter Section	--- 40 dBA at 4.5m agl*
■ Transformer	<i>Occupied Residence</i>	--- 45 dBA at 4.5m agl*
□ Leased Boundary	■ 1.5 m (1-story)	*agl: Above Ground Level
<b>Other Components</b>	■ 3 m (2-story)	
~ Local Road	■ 4.5 m (3-story)	
~ Secondary Road	■ 7.5 m (4-story)	

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**Riplinger Wind Farm**

**SOUND CONTOURS**

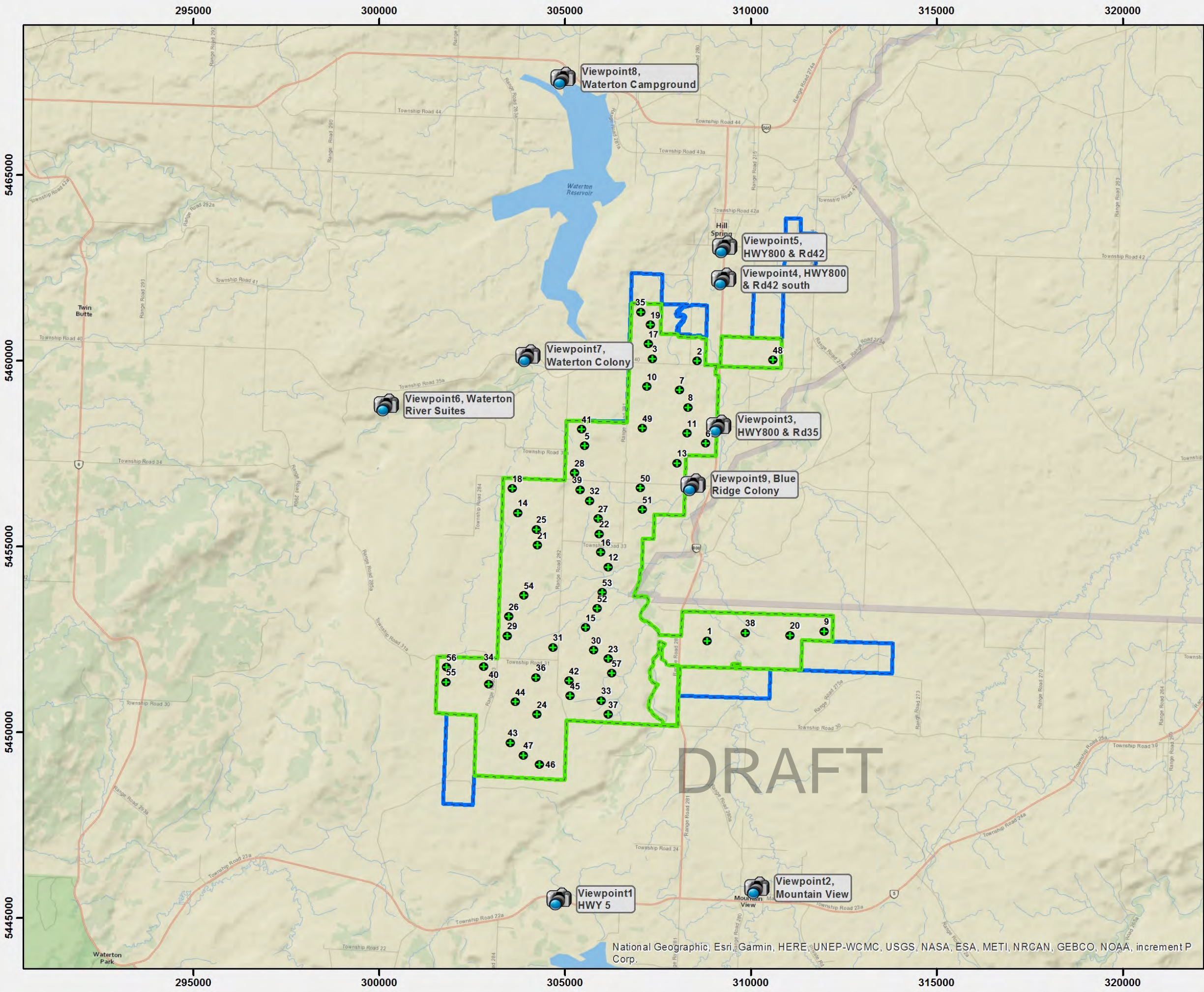
10421060-230207-CD  
February 7, 2023

**DNV**

Projection: UTM Zone 12, NAD83  
Sources: CanVec, SRTM

\*Predicted sound levels include ambient sound of 35 dBA.







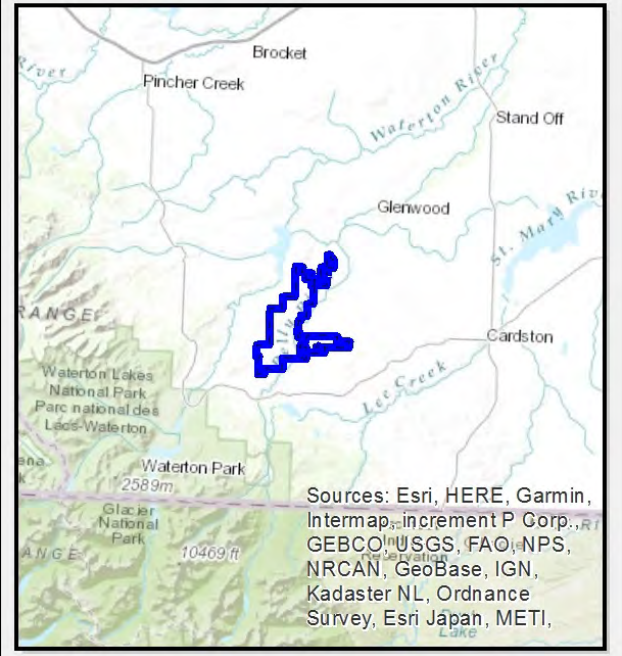


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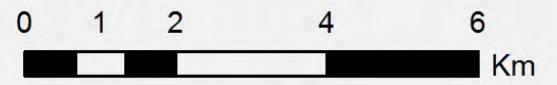
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

# Legend

-  Viewpoints Photomontage
-  Project Boundary
-  Lease Boundary
-  Turbine Layout



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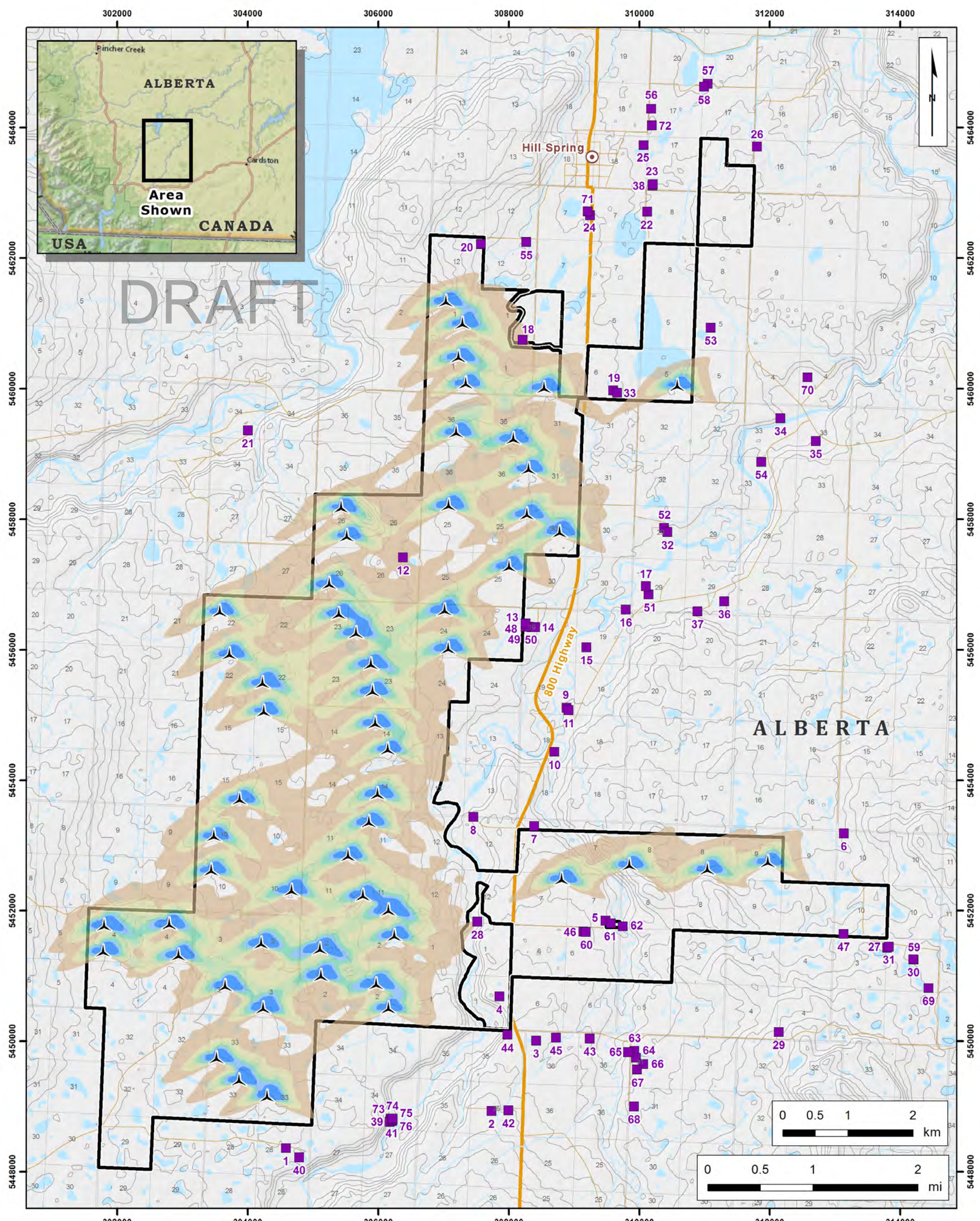


## Riplinger Photomontage Viewpoints

Date:	February 07, 2023
Projection:	UTM Zone 12, NAD83
Source:	NTDB 1:50,000, Altalis ATS data and TransAlta
Created By:	TransAlta Corporation
Scale:	1:100,000



**Confidential and Subject to Change**








**Legend**

**Project Components**







-  Wind Turbine
-  Leased Boundary

**Other Components**

-  Occupied Residence
-  Local Road
-  Secondary Road
-  Contour (Interval: 10 m)

-  Watercourse
-  Waterbody
-  Quarter Section

**Shadow Flicker (hours/year)\***

-  30 - 59
-  60 - 89
-  90 - 119
-  120 - 149
-  150 - 179
-  180 and over

\*This map presents the shadow flicker calculation taking into account monthly cloud cover and annual wind direction distribution.

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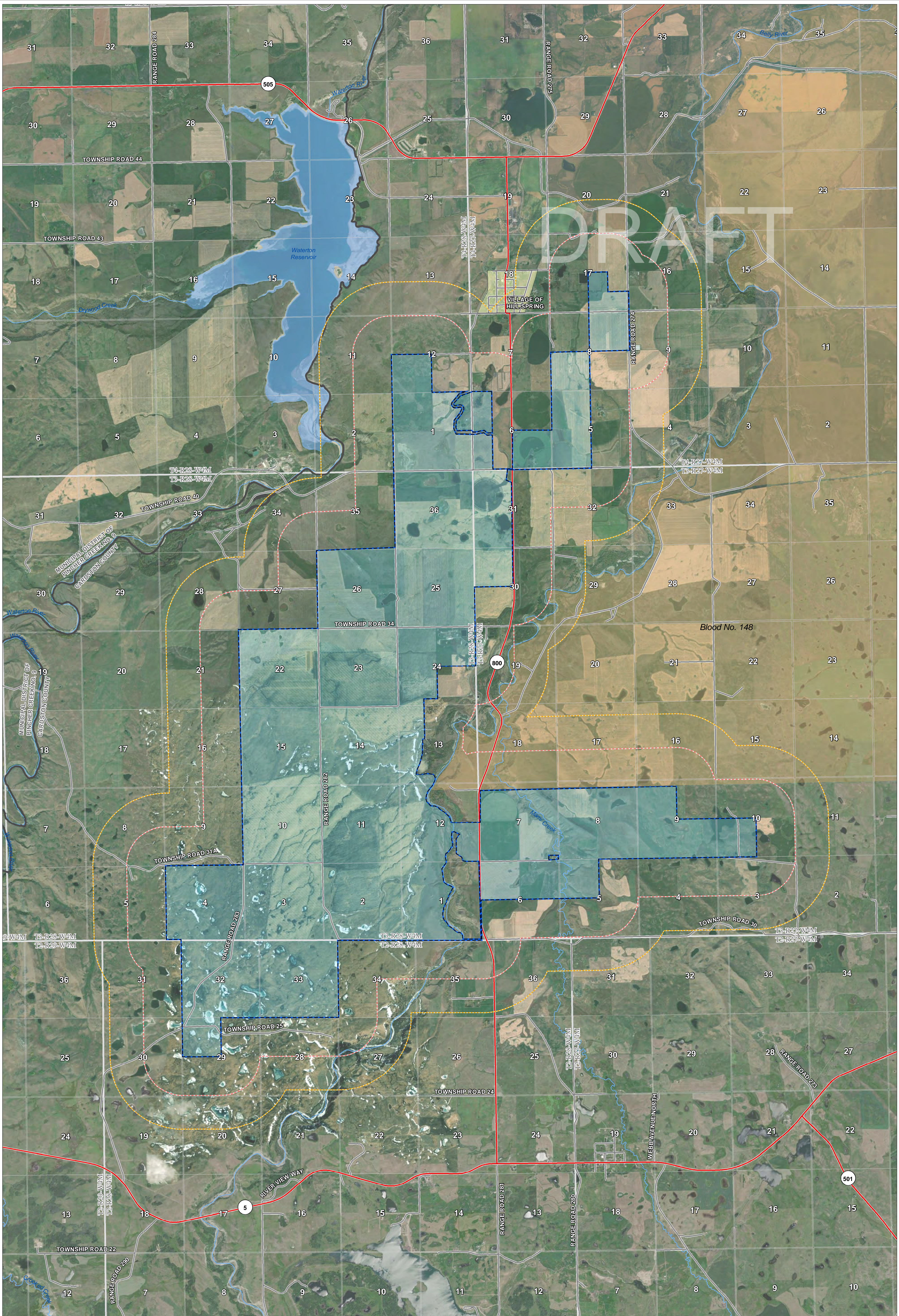
**SHADOW FLICKER**



10421060-230207-CD  
February 7, 2023

Projection: UTM Zone 12, NAD83  
Sources: CanVec, SRTM





**Legend**

- Lease Area
- 1500 m Notification Radius
- 800 m Notification Radius
- Highway
- Road
- Blood No. 148 Reserve Lands
- Municipal Boundary
- Urban Area

N

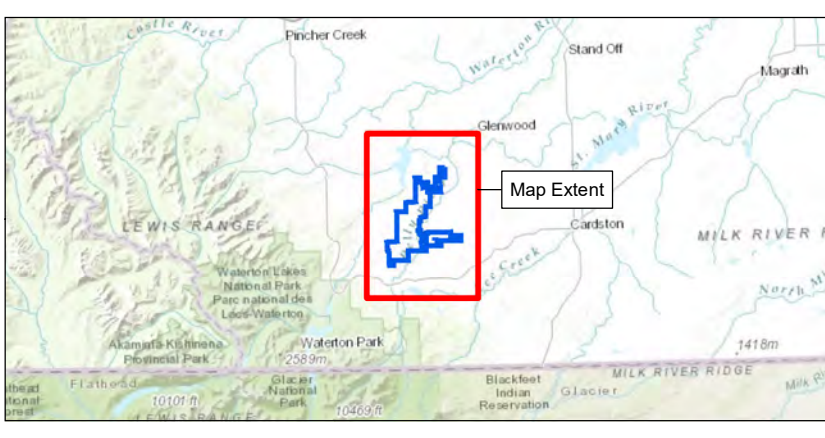
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Metres

NAD 1983 CSRS 10TM AEP Forest

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**Sources**

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- Aerial Image: ESRI World Imagery
- Inset Map: ESRI World Topographic Map

**Notes**

1. All mapped features are approximate and should be used for discussion purposes only.
2. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

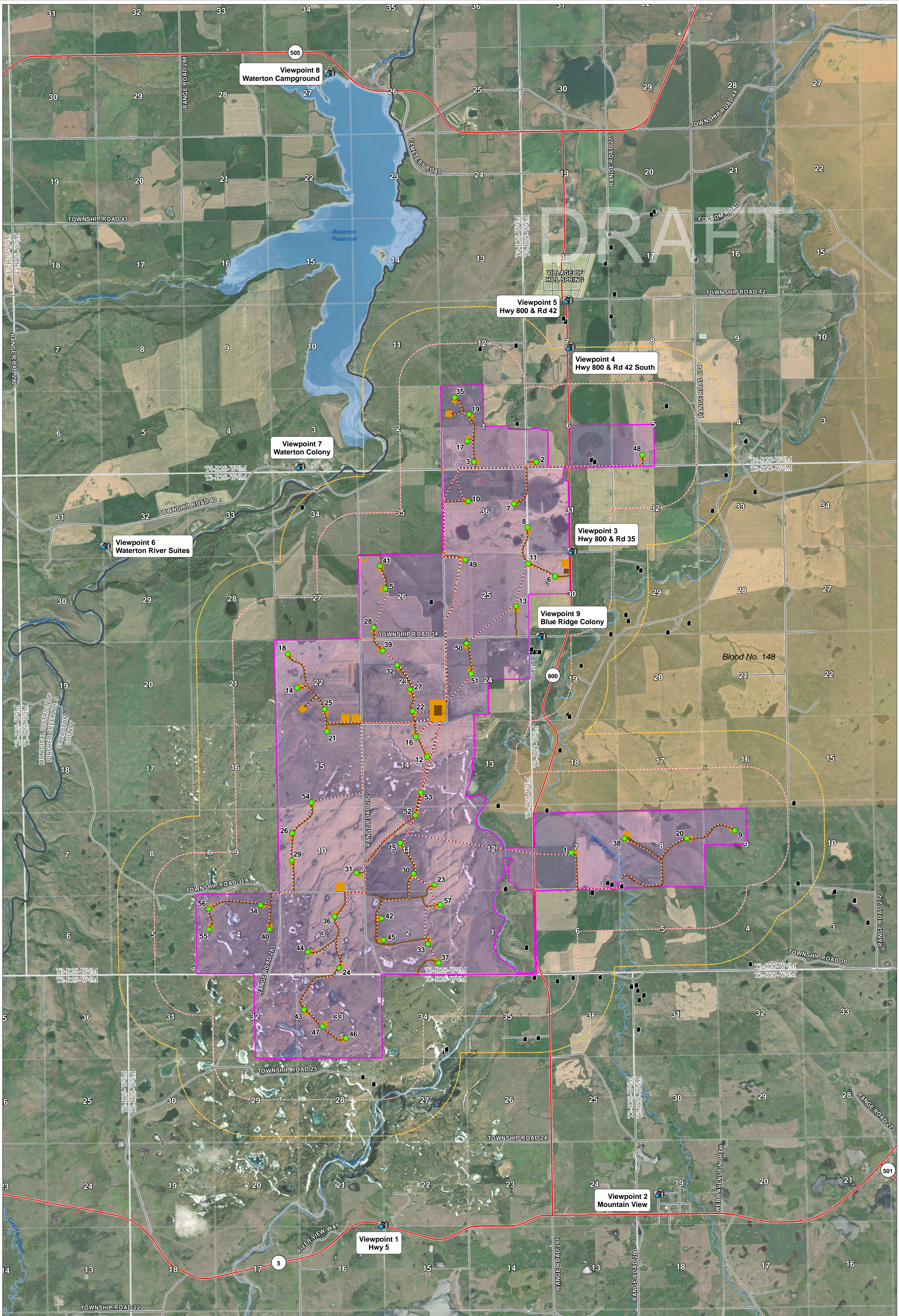


**Riplinger Wind Power Project**

**Draft Overview Map**

105863-01    Production Date: Feb 14, 2023    Figure 1

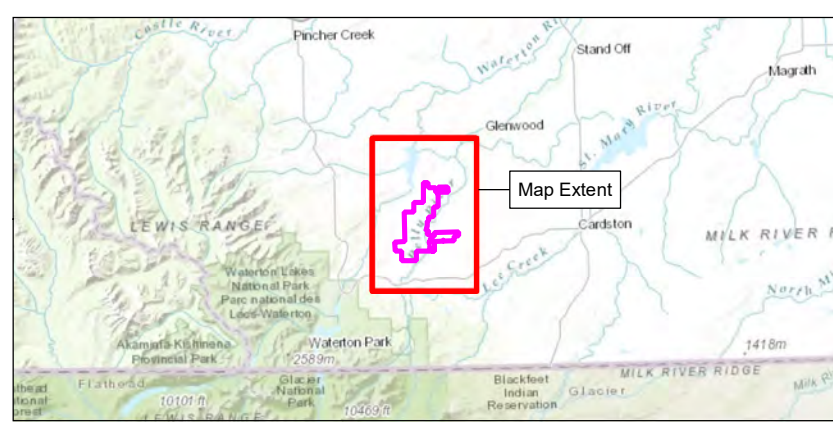




**Legend**

- Proposed Turbine Location
- Undergrnd Collector Line
- Permanent Disturbance Footprint
- Temporary Disturbance Footprint
- Project Area
- 1500 m Notification Radius
- 800 m Notification Radius
- Visual Location
- Residence
- Highway
- Road
- Municipal Boundary
- Urban Area
- Blood No. 148 Reserve Land

Scale: 1:32,500  
 0 500 1,000 1,500 2,000 Metres  
 NAD 1983 CSRS 10TM/AEP Forest  
 Page Size: 11" x 22"



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**Riplinger Wind Power Project**

Draft Overview Map

105863-01    Production Date: Feb 13, 2023    Figure 2