INITIAL PROJECT DESCRIPTION SUMMARY

For the
BLACK BEAR POWER PLANT

Project Location
19 km south of Swan Hills, Alberta
LSDs 1, 2, 6, 7, 8, Section 15,
Township 64, Range 11, W5M

Proponent
Kiwetinohk Energy Corp.

Submitted to
IMPACT ASSESSMENT AGENCY OF CANADA

DOCUMENT COMPLETED BY

McCallum Environmental Ltd.

July 2024

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF DEFINED TERMS

Project	Black Bear Combined Cycle Power Plant
Indigenous Communities	First Nations or Métis Settlements

LIST OF ACRONYMS

AAAQOs	Alberta Ambient Air Quality Objectives
ACIMS	Alberta Conservation Information Management System
ACMSW	Alberta Culture, Multiculturalism and Status of Women
ACO	Aboriginal Consultation Office
AEPA	Alberta Environment & Protected Areas (formerly AEP)
AER	Alberta Energy Regulator
AHS	Alberta Health Services
AUC	Alberta Utilities Commission
AQA	Air Quality Assessment
BBPP	Black Bear Combined Cycle Power Plant
BEAHR	Building Environmental Aboriginal Human Resources
BMA	Bear Management Area
BMP	Best Management Practice
BTES	Bear Tracks Environmental Services
CCS	Carbon Capture System
CEMS	Continuous Emission Monitoring System
CER	Clean Electricity Regulations
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CTG	Combustion Turbine Generator
DARS	Data Acquisition and Report generating system
DCC	Direct Contact Cooler
DFO	Department of Fisheries and Oceans
DML	Department Miscellaneous Lease
EO	Element Occurences
EPC	Engineering, Procurement, and Construction
EPEA	Environmental Protection and Enhancement Act

ESA	Environmentally Significant Area
FWIMT	Fish and Wildlife Internet Mapping Tool
FWMIS	Fisheries and Wildlife Management Information System
GBA+	Gender Based Analysis Plus
GBWU	Grizzly Bear Watershed Unit
GHG	Greenhouse Gas
HR	Historical Resources
HRIA	Historical Resources Impact Assessment
HRSG	Heat Recovery Steam Generator
HRV	Historical Resources Value
IAA	Impact Assessment Act
IAAC	Impact Assessment Agency of Canada
IBA	Important Bird Area
IC	Indigenous Communities
KEC	Kiwetinohk Energy Corp.
km	kilometres
kV	kiloVolt
LSD	Legal Subdivision
LV	Low voltage
m	metre
m^3	Cubic metre
MD	Municipal District
MEL	McCallum Environmental Ltd.
MGCL	Maximum Ground-Level Concentrations
MMV	Monitoring, Measurement, and Verification
MW	Megawatt
MV	Medium voltage
NIA	Noise Impact Assessment
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
O_2	Oxygen
PDC	Power Distribution Center
PIP	Participant Involvement Program
$PM_{2.5}$	Particulate Matter (less than 2.5 microns in diameter)
POD	Point of Diversion

ROC	Record of Consultation
SAR	Species at Risk
SARA	Species at Risk Act
SE	Southeast
SO_2	Sulphur Dioxide
STG/ST	Steam Turbine Generator
SW	Southwest
TBD	To Be Determined
TDL	Temporary Diversion License
TFA	Temporary Field Authorization
TL	Transmission Line
TSP	Total Suspended Particulate
UTM	Universal Transverse Mercator
VEC	Valued Ecosystem Components
W5M	West of the Fifth Meridian
WCAS	West Central Airshed Society

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PART A: GENERAL INFORMATION

This Initial Project Description Summary has been prepared in accordance with the Impact Assessment Agency of Canada (IAAC) *Guide to Preparing an Initial Project Description* (Section 25) under the *Impact Assessment Act, 2019.* The numbers and titles used as main headings in the document align with the guide for ease of reference. The content of this document meets the information requirements of the *Information and Management of Time Limit Regulations*, Schedule 1 (SOR/2019-283).

1 PROJECT INFORMATION

Kiwetinohk Energy Corp. ('KEC') is proposing to permit, construct and operate the 460-Megawatt ('MW') Black Bear Power Plant (herein referred to as 'BBPP', or the 'Project'). The Project is located on provincial Crown land approximately 19 km south of the Town of Swan Hills, Alberta.

The location for the Project was selected based on proximity to natural gas supply; demand for electricity and available export grid capacity; nearby CO_2 sequestration opportunities; established road network; adequate acreage; minimum number of neighbors to avoid noise inconvenience; access to site and road load capacity; and other environmental factors.

1.1 PROJECT LOCATION

The BBPP is located approximately 19 km south of Swan Hills and 45 km north of Whitecourt, Alberta, within Big Lakes County (See Figure 1. BBPP Location, Appendix A – Figures).

The site is approximately 9 km northwest of the Conifer Energy Inc. road turnoff (LOC 840703) from Alberta Highway 32.

The Project is located in Legal Subdivisions (LSDs) 1, 2, 6, 7, 8, SE and SW ¼ Section 15, Township 64, Range 11, West of the 5th Meridian (W5M).

The south end of Project area is located at:

- Latitude: 54.532535°
- Longitude: –115.573190°
- NAD 83 UTM Easting Zone 11U: 592395.76 m E
- NAD 83 UTM Northing Zone 11U: 6043997.35 m N

1.1.1 Ancillary Facilities

1.1.1.1 Natural Gas Pipeline

Natural gas for the Project will be supplied from a new dedicated pipeline tied to an existing natural gas pipeline located 3.8 km northeast of the plant site. The point of interconnection will be at LSD 3, Section 25, Township 64, West of the 5th Meridian.

The exact pipeline routing has not yet been surveyed. The route, once surveyed, will be assessed, and permitted as per Alberta Energy Regulator (AER) requirements. This will include an assessment of environmental site conditions. KEC intends to follow existing disturbances where practical. Please refer to Figure 2 in Appendix A.

1.1.1.2 Transmission Line

Electricity will be delivered to an existing 240kV HV Transmission Line ('TL') located approximately 600 m west of the BBPP. The point of interconnection is expected to be in LSD 3, Section 5, Township 64, West of the 5th Meridian. Three potential TL routes were selected by desktop analysis as potential route options, however only one route approved by the Alberta Utilities Commission (AUC) will be constructed. Please refer to Figure 3 in Appendix A.

1.1.2 Alternative Project Locations

Alternative locations for the Project site were identified from aerial photographs and site reconnaissance. Seven (7) alternate locations were reviewed prior to further assessment of the BBPP final proposed location. Both the surveyed location and these seven alternate locations were evaluated to determine which siting would have the least impacts on operational design, environmental features, and existing infrastructure and existing land use.

2 PROPONENT INFORMATION

Table 1. Proponent and Primary Representative Contact Information

Name of the Designated Project	Black Bear Power Plant
Name of the Proponent	KIWETINOHK ENERGY CORP.
Address of the Proponent	1700, 250 – 2 Street SW Calgary, AB T2P 0C1
President and CEO	Pat Carlson
Primary Representative	Dobromir Filip Green Energy Division, Director of Development and Engineering dfilip@kiwetinohk.com Office: +1 587 392 4414 Cell: +1 403 835 4881

3 ENGAGEMENT WITH THE PUBLIC, REGULATORY AGENCIES, AND OTHER PARTIES

KEC is confident that the Participant Involvement Program (PIP) has succeeded in ensuring that stakeholders:

- have been properly and adequately notified about the Project; and,
- have been given the opportunity to ask questions and raise issues and concerns about the Project and have had those questions, issues and concerns addressed.

3.1 List of Public, Regulatory Agencies, and Other Parties Consulted

The following lists federal agencies, provincial regulatory agencies, municipal agencies, stakeholders, or other industries consulted or requiring regulatory applications.

Federal

1. Impact Assessment Agency of Canada (IAAC)

Provincial

1. Alberta Energy Regulator
2. Alberta Environment and Protected Areas, Operations and Provincial Approvals
3. Alberta Environment and Protected Areas, Industrial Approvals
4. Alberta Environment and Protected Areas, Land Use Area, Lands Division
5. Alberta Culture, Multiculturalism and Status of Women
6. Alberta Utilities Commission
7. Alberta Jobs, Economy and Trade
8. Aboriginal Consultation Office

Municipal

1. Big Lakes County, AB

Public Consultation

Consultation occurred with all applicable landowners, occupants, residents, agencies, and industrial interest holders who may potentially be impacted by the proposed Project within a minimum of 2000 m from proposed facilities.

Industry Consultation

Industry Notifications were sent to the following:

1. NOVA Gas Transmission Ltd.
2. ATCO Electric Ltd.
3. Conifer Energy Inc.
4. Plains Midstream Canada ULC
5. Accel Energy Canada Limited
6. Trident Exploration (Alberta) Corp.
7. Shipwreck Oil & Gas Ltd.
8. Strathcona Resources Ltd.

3.2 Regulatory Requirements of Provincial and Municipal Jurisdictions

The following provides a summary of the provincial or municipal regulatory permitting requirements for the BBPP, listed by regulatory agency.

1. Alberta Environment and Protected Areas (AEPA), formerly Alberta Environment and Parks (AEP)

    a. On June 21st, 2023, AEPA indicated that the Project is not a mandatory activity for the purpose of environmental assessment and that further assessment of the activity is not required.

    b. Under the *Environmental Protection and Enhancement Act* Approval is required to construct, operate and reclaim the Project, and is to be issued by AEPA under the *Activities Designation Regulation* (276/2003) (2) (vv).

    c. Approval under the Water Act will be required for water withdrawal.

    d. AEPA Operations Division crown land approval for Miscellaneous Lease (DML), which authorizes a commercial use under a miscellaneous lease. The BBPP received a DML approval on October 5th, 2023.

2. Alberta Culture, Multiculturalism and Status of Women (ACMSW): The BBPP submitted a Historic Resources (HR) Application to the Historical Resources

Management Branch for review under the *Historical Resources Act*, to determine whether a Historical Resources Impact Assessment (HRIA) for archaeology or paleontology is required. The BBPP received a Historical Resource Act Clearance to proceed on February 16th, 2023 (HRA Number: 4940-23-0013-001).

3. Alberta Utilities Commission (AUC): Pursuant to Section 11 and 19 of the *Hydro and Electric Energy Act*, the BBPP is awaiting approval from the AUC at the time of submission of this document.

4. Municipal District (MD): The MD (Big Lakes County) requires a development permit. A development permit application for the BBPP has been underway since the DML was approved in October of 2023.

3.2.1 Provincial Environmental Assessment Requirements

The applications to AEPA and AUC follow a prescribed table of contents that require comprehensive environmental evaluations of the Project. The information required by AEPA in the environmental evaluation of the Project is listed in the *Environmental Protection and Enhancement Act: Guide to Content for Industrial Approval Applications*. It includes a prediction of the Project's effects on the environment and the measures to avoid or mitigate the Project's predicted adverse environmental effects and any monitoring proposed to evaluate the efficacy of those measures.

The information required in the environmental evaluation of the Project by AUC included a prediction of the Project's effects on the environment and the measures to avoid or mitigate the Project's predicted adverse environmental effects and any monitoring proposed to evaluate the efficacy of those measures. Specifically, AUC says the environmental evaluation included:

3.3 Overview of Key Comments and Concerns Expressed by Stakeholders

KEC has conducted stakeholder engagement and consultation. Other than the concerns of Indigenous Communities, which are addressed below in Section 4, there were no other questions or concerns raised.

3.4 Ongoing Engagement Activities and Future Engagement Plans

KEC is committed to ongoing consultation with landowners, municipalities, Indigenous Communities, and all affected stakeholders for the life of the Project. KEC's objective is to provide notification and engage in consultation with affected stakeholders regarding the progress of the Project during all stages of development.

KEC will continue to maintain the relationships it has built with its stakeholders as the Project moves forward, and should the BBPP be approved, will continue to engage with stakeholders through construction and operation of the Project, as they believe this will result in a better Project and long-term involvement in the region.

4 ENGAGEMENT WITH INDIGENOUS COMMUNITIES

4.1 PROVINCIAL CONSULTATION OFFICE REQUIREMENTS

KEC submitted a pre-consultation request to the Alberta Aboriginal Consultation Office (ACO) for a Departmental Miscellaneous Lease (DML) on Crown land for the BBPP, which authorizes a commercial use under a miscellaneous lease. It was determined that Level 2: Standard Consultation was required, which allows notified Indigenous Communities up to 20 Government of Alberta working days to respond to the project notification. If any Indigenous Communities respond to the notification, consultation should be complete within 20 working days of the notification response. If the 20-day notification period expires and the Indigenous Community did not respond to the project notification within that time, KEC, after providing Indigenous Communities with 5 working days to review the consultation record, may ask the ACO to review the consultation record for adequacy.

4.1.1 LIST OF POTENTIALLY AFFECTED AND INTERESTED INDIGENOUS COMMUNITIES

In accordance with Alberta's First Nations and Métis Settlements policies and guidelines, the ACO indicated that the BBPP is located within the traditional territories of the:

1. Driftpile Cree Nation
2. East Prairie Métis Settlement
3. Kapawe’no First Nation
4. Paul First Nation
5. Sawridge First Nation
6. Sturgeon Lake Cree Nation
7. Sucker Creek First Nation
8. Swan River First Nation

4.2 IMPACT ASSESSMENT AGENCY OF CANADA REQUIREMENTS

On February 1, 2023, the federal Impact Assessment Agency (IAA), identified fourteen (14) communities who may be impacted by the Project.

Out of the fourteen communities, eight of these communities had previously been consulted with under the provincial ACO process, as described in Section 4.1.1.

Treaty 8 First Nations

- Driftpile Cree Nation
- Horse Lake First Nation
- Kapawe'no First Nation
- Sawridge First Nation
- Sturgeon Lake Cree Nation
- Sucker Creek First Nation
- Swan River First Nation

Treaty 6 First Nations

- Paul First Nation
- Alexis Nakota Sioux Nation
- Alexander First Nation
- Enoch Cree Nation no. 440

Métis

- East Prairie Métis Settlement
- Otipemisiwak Métis Government, District 21 (formerly known as the Métis Nation of Alberta, Region 4)

Non-Treaty Indigenous Communities

- Foothills Ojibway First Nation

4.3 Overview of Engagement Activities Carried out to Date

KEC sent the initial Information Package (Package) to the 14 Indigenous Communities listed above, indicated by the ACO and IAA. The Package included a cover letter, survey plan which shows the location of the BBPP, and the Initial Project Description Summary document (less this section).

KEC submitted their records of consultation to the ACO and received an Adequacy Assessment deeming consultation complete on March 17, 2023.

Five site visits were conducted by the following First Nations:

- Driftpile Cree Nation
- Kapawe'no First Nation
- Sturgeon Lake Cree Nation
- Sucker Creek First Nation
- Swan River First Nation

Further consultation will be completed for both the natural gas pipeline and the transmission line following the same regulatory processes and requirements.

The following summarizes engagement actions and results to date for each specific Indigenous Community:

Table 2. Summary of Engagement of Indigenous Communities

Summary of Engagement Activities to Date					
Community	**ACO Info Package**	**ROC submitted for review****	**IAA Information Package & Newsletter**	**Site Visit(s)**	**Project Meeting(s)**
Alexis Nakota Sioux Nation	N/A	N/A	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	IAA: no site visit requested	IAA: no meeting requested
Alexander First Nation	N/A	N/A	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	IAA: no site visit requested	IAA: no meeting requested
Driftpile Cree Nation	09/07/2022 09/26/2022	02/16/2023	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	ACO: 09/26/2022 site visit requested IAA: 07/25/2023 no site visit requested	ACO: no meeting requested IAA: 07/25/2023 (virtual meeting)
East Prairie Métis Settlement	09/07/2022 09/26/2022	02/16/2023	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023 4/21/2023	ACO: no site visit IAA: no site visit	ACO: no meeting requested IAA: no meeting requested
Enoch Cree Nation No. 440	N/A	N/A	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	IAA: no site visit requested	IAA: no meeting requested

Summary of Engagement Activities to Date					
Foothills Ojibway First Nation	N/A	N/A	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	IAA: no site visit requested	IAA: 09/11/2023 (in-person meeting)
Horse Lake First Nation	N/A	N/A	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	IAA: no site visit requested	IAA: no meeting requested
Kapawe'no First Nation	09/07/2022 09/26/2022	03/16/2023	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	ACO: 10/24/2022 IAA: no site visit requested	ACO: 09/25/2022 (in-person meeting) IAA: no meeting requested
Otipemisiwak Métis Government, District 21	N/A	N/A	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	IAA: no site visit requested	IAA: no meeting requested
Paul First Nation	09/07/2022 09/26/2022	02/16/2023	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	ACO: 12/09/2023 IAA: no site visit requested	ACO: 09/28/2022 (virtual meeting) IAA: no meeting requested
Sawridge First Nation	09/07/2022 09/26/2022	02/16/2023	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	ACO: N/A IAA: site visit requested	ACO: no meeting requested IAA: no meeting requested
Sturgeon Lake Cree Nation	09/07/2022 09/26/2022	03/16/2023	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	ACO: 10/24/2022 IAA: no site visit requested.	ACO: 10/13/2022 (in-person meeting) IAA: 07/20/2023 (virtual meeting) 09/21/2023 (in-person meeting)
Sucker Cree First Nation	09/07/2022 09/26/2022	02/16/2023	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	ACO: 09/28/2022 IAA: no site visit requested	ACO: no meeting requested IAA: no meeting requested
Swan River First Nation	09/07/2022 09/26/2022	03/16/2023	Info Pckg: 04/21/2023 Follow up: 05/18/2023 Newsletter: 07/04/2023	ACO: 09/21/2022 IAA: no site visit requested	ACO: no meeting requested IAA: no meeting requested

*Rows highlighted in grey were only a part of the Federal IAA Indigenous consultation and engagement. Rows highlighted in white were a part of the Provincial and Federal IAA Indigenous consultation and engagement.

**ROC = Record of Consultation

4.4 Comments or Concerns of Indigenous Communities

The following is a list of comments or concerns that have been brought up by the Indigenous Communities, the table below indicates the responses KEC has provided to date. KEC remains committed to ongoing dialogue and engagement with Indigenous communities.

Table 3. Concerns Expressed by Indigenous Communities

Concern	Indigenous Communities	Responses
Located within Grizzly Bear Zone	Kapawe'no First Nation	KEC acknowledges that the Project is located within the Grizzly Bear Zone. One way of managing new associated human-caused grizzly bear mortality risk is by limiting the creation of new industrial roads and managing road densities. This proposed Project has been designed not to create new access roads. One of the several reasons why this site location was chosen was due to the established industrial roads in the area, resulting in a lack of new road infrastructure required.
Ecosystem and moose habitat/displacement of wildlife	Kapawe'no First Nation	The Project is not located in an area of prime moose habitat. It is reasonable to conclude that the Black Bear project area, extending to approximately 400 metres out is primarily coniferous forest, which does not represent prime or core habitat for Moose. Wildlife sensory disturbance may occur as a result of ongoing human activity as well as visual and auditory disturbance related to the operation of the proposed Project. Sensitivity of wildlife to disturbance will vary by species, life stage, and noise type.

Concern	Indigenous Communities	Responses
		These sensory disturbances may result in localized wildlife avoidance of the area surrounding the Project Area. Some species may avoid the area, while others may be attracted to the increased activity, including opportunistic species such as coyote, skunk, or black bear. The forested lands around the Project are expected to aid in muffling the noise being produced. Lighting at top of the project structures is regulated by Transport Canada, however during operations we can mitigate light sensory disturbance by installing motion-activated lighting on ground-based infrastructure.
Increased Wind and Erosion	Kapawe'no First Nation	The Project is located in an area where there is a lack of watercourses and significant slopes. Due to this location, it is anticipated that erosion potential for this Project will be limited to the footprint of the Project. Additionally, KEC intends to use dust suppression measures.
Loss of Vegetation	Kapawe'no First Nation	KEC acknowledges that there will be loss of vegetation within the Project footprint and that this impact cannot be avoided. However, reclamation will occur at the end of the Project to restore the lands back to the original state. KEC will provide the Community with the opportunity to be involved and provide input in the eventual restoration and rehabilitation of this land at the end of the Project.

Concern	Indigenous Communities	Responses
Streams and Waterbodies	Kapawe'no First Nation	One small seasonal marsh wetland was identified within the Project area (approximately 0.09 ha)*. No fish-bearing watercourses were identified during the survey. Accordingly, no effects on fish or fish habitat are anticipated from the Project.
Restoration of BBPP	Kapawe'no First Nation Foothills Ojibway First Nation Sturgeon Lake Cree Nation	KEC is committed to engaging with Indigenous Communities throughout the lifecycle of this Project and responding to issues or concerns raised. KEC will engage Kapawe'no First Nation, Foothills Ojibway First Nation, Sturgeon Lake Cree Nation, and other Indigenous Communities and request them to be involved and provide input into reclamation planning, including targeted end land use and achieving equivalent land capability at the Project location.
Preference of different location for BBPP	Kapawe'no First Nation	KEC understands that the Community would have preferred the plant to be within a different location. However, after examining Project infrastructure requirements such as pipelines and transmission lines, the alternative location would not fit the technical requirements for the BBPP. KEC modified the project footprint by removing some of the lands of concern which significantly reduced the loss of vegetation and wildlife habitat.

Concern	Indigenous Communities	Responses
Monitoring present during construction phase	Paul First Nation	KEC committed to having environmental monitors from Paul First Nation present during environmentally sensitive construction activities
Continuous engagement during life cycle of BBPP	Paul First Nation Sucker Creek First Nation Sturgeon Lake Cree Nation	KEC committed to continuous engagement throughout the lifecycle of the Project.

*The wetland was initially identified via desktop delineation as 0.2 hectares in size. Correspondence with Kapawe'no First Nation refers to this size, however, following field assessments the wetland size was reduced and confirmed to be 0.09 hectares.

Overall, Indigenous Communities have expressed some concern over the Project, mostly related to ground disturbance and construction of the BBPP.

4.5 Future Engagement Plan

KEC is committed to engaging with all potentially affected Indigenous Communities throughout the life of the Project. KEC will continue to work with Indigenous Communities identified by the ACO and the IAA. Proposed engagement and notification delivery methods may include:

- in-person or virtual meetings with First Nation's primary engagement contact
- in-person or virtual meetings with First Nation's Chief and Council
- in-person on virtual meetings with Métis Settlements
- in-person, virtual meetings, or phone conversations with First Nation trappers
- community meetings
- Project notifications and ongoing updates of Project information
- email and telephone communication
- participation in community events to promote informal dialogue regarding the Project
- continue to engage with the Indigenous Communities who have identified concerns or have requests to discuss concerns
- discuss opportunities with Indigenous Communities

Should Indigenous Communities not identified by the ACO or IAA express interest in the Project, KEC is committed to engaging with those interested communities. Proposed engagement and notification delivery methods would be like those listed above.

Further Indigenous consultation will be completed for the proposed provincially regulated natural gas pipeline, carbon capture system hub (CCS Hub), and the transmission line in relation to the BBPP and will follow the applicable regulatory processes and requirements.

Should the Project be approved, KEC will continue to engage through construction and operation of the Project, as KEC believes this will result in a better Project with long-term involvement in the region.

5 RELEVANT STUDIES OR REGIONAL ASSESSMENTS CONDUCTED

As of July 5th, 2023, the BBPP is not taking place in an area with a previously completed regional environmental assessment, according to the Canadian Impact Assessment Registry.

As of July 5th, 2023, the AEPA, Land-use Framework, Regional Plans website indicated that the Upper Athabasca Region Land Use Plan has not started the Land Use planning process. Therefore, there are no land use frameworks in place.

No known Traditional Land and Resource Use (TLRU) studies have been conducted in the Project area.

6 RELEVANT STRATEGIC ASSESSMENTS CONDUCTED

According to the Canadian Impact Assessment Registry, the Strategic Assessment of Climate Change, conducted under Section 95(2) of the IAA is applicable to the Project.

PART B: PROJECT INFORMATION

7 PURPOSE AND NEED FOR THE PROJECT

The purpose of the BBPP is to generate electricity from natural gas to provide a reliable source of electricity to meet the growing demand of the Alberta Electrical Grid and support both provincial and federal net zero climate targets.

The BBPP is needed to provide Alberta with a viable option to assist the transition from coal power generation and meet increasing demand. When compared to coal, combined cycle plants emit significantly fewer emissions of air pollutants. Emissions from natural gas power plants are approximately half that of coal fired plants.

Benefits of the BBPP will include:

- Significant employment during construction (over 700 employees during peak months) and approximately 30 long-term employees during operations and maintenance.
- An estimated $13,000,000 per year in property tax revenue for Big Lakes County, Alberta will provide a significant increase in revenue for the county and support various local services and infrastructure.
- Reduced emissions associated with electricity generation in Alberta
- Clean, reliable, cost-effective source of new electricity supply for the Alberta Electrical Grid

8 PHYSICAL ACTIVITY

The BBPP is a physical activity as defined in the *Physical Activities Regulations*: SOR/2019-285, Schedule 30, "The construction, operation, decommissioning and abandonment of a new fossil fuel-fired electrical generating facility with a production capacity of 200 MW or more."

As the Project is anticipated to have a maximum production capacity of 460 MW (460 MW net output is both nominal rating and maximum due to limiting constraints on the transmission line and at the downstream substation), the threshold defined in item 2(a) would be exceeded.

KEC notes that the Project will not take place on federal lands, will not require federal funding and not require any federal authorizations, licenses or permits.

The BBPP is a standalone project and is not a component of any larger project that is not listed in the *Physical Activities Regulations*, often referred to as the 'Project List'.

9 ACTIVITIES, COMPONENTS, AND INFRASTRUCTURE

As the purpose of the plant is to generate electricity as required to meet power grid demands, the major process of the plant is electrical power generation. Visual impacts will be minor in nature, given the remote location and the lack of residents along the resource roads to public Highway #32.

9.1 INFRASTRUCTURE AND COMPONENTS

9.1.1 SIZE OF THE DESIGNATED PROJECT FOOTPRINT

The Project area is located on 20.65 ha of provincial Crown land, with 18.54 ha surveyed. The Project will require construction of a pad, approximately 12 hectares in size.

9.1.2 NATURAL GAS SUPPLY

To fuel the BBPP, natural gas will be supplied from a new dedicated pipeline. The new pipeline will connect to an existing underground gas pipeline approximately 3.8 km northeast of the Project at LSD 3, Section 25, Township 64, Range 11, West of the 5th Meridian (03-25-064-11 W5M). The assessment and permitting for the route are not yet complete.

9.1.3 WATER SUPPLY

The BBPP facility will require an initial water volume of 4545 m^3. KEC is planning to supply the initial water volume from groundwater wells on the BBPP site. This would require a diversion as authorized by a *Water Act* Licence (Term Licence) to be procured at a later date. The proposed diversion will adhere to the requirements of the *Water Act,* the *Water (Ministerial) Regulations,* and *Alberta Environment Guide to Groundwater Authorization.*

If the groundwater yields are insufficient to meet the initial water volume required for the BBPP, KEC then plans to divert water from the Freeman River at the point of diversion (POD) at LSD 8, Section 2, Township 65, Range 11, West of the 5th Meridian (08-02-065-11 W5M).

To divert from the Freeman River, KEC will obtain a Temporary Diversion Licence (TDL) issued under the *Water Act* of the Province of Alberta. TDL application will be made to AEPA approximately 3 months in advance of the proposed diversion starting, with the application tentatively planned to be submitted in February of 2026 with diversion to commence in May of 2026 during the river's spring thaw.

For land access to the POD, KEC will obtain a Temporary Field Authorization (TFA) as issued by the AEPA. Land access will adhere to the requirements of the *Public Lands Act, Public Lands Administration Regulation (PLAR)*, and the *Master Schedule of Standards and Conditions (MSSC).*

9.1.4 Electrical Interconnection

An existing 240kV HV transmission line is located approximately 600 m west of the BBPP and the point of interconnection for the BBPP is expected to be in 05-15-064-11 W5M. The 240kV HV transmission interconnection will be overhead and assessment and permitting for the route is not yet complete. Please refer to Figure 3 and Section 1.1.1.2 above for more details on the possible transmission line routes.

9.1.5 Carbon Capture System Hub

KEC continues to evaluate the technical and economic feasibilities of CO_2 capture and sequestration. The timing of any CO_2 capture installation will be aligned with the BBPP timeline however, KEC's carbon hub (the "Hub") is not part of the BBPP project.

KEC is evaluating various carbon sequestration options, including developing the Hub near the BBPP project or utilizing other carbon hubs in the area. In the case of the Hub, KEC intends on maintaining control of the Hub while also providing access to third-party emitters. The injection wells will be situated approximately 20 to 35 kilometers away. The Alberta Energy Regulator (AER) will manage and oversee the regulatory requirements for the Hub. The Hub has a planned sequestration capacity of 1.5 million tons of CO_2 per year, with a lifespan of approximately 25 years. KEC aims to sequester ±1.2 million tons of CO_2 per year from the BBPP and offer sequestration services to other emitters in the area, comprising an additional ±0.2 million tons per year to be sequestered. If the planned potential KEC carbon hub is determined to not be viable, or does not proceed for any reason, KEC will consider other potential hubs to sequester the CO_2. At present, there are several other hubs under development within 100km of the project for consideration and KEC is actively evaluating these sequestration options.

Typical hub infrastructure includes compression and dehydration facilities, pipelines and injector wells. While the pipeline routing is in development, it is anticipated to parallel existing disturbances to the extent possible. A monitoring, measurement, and verification (MMV) plan will be implemented to address any adverse effects. KEC will consult with external experts to conduct a risk assessment, and subsequently develop mitigation strategies.

9.1.6 Buildings and Enclosures

The following lists the expected buildings or enclosures at the BBPP.

Table 4. Buildings and Enclosures

Name	Type
Administration/Warehouse/Control	Building
Generation Building	Building
Water Treatment	Building
Auxiliary Boiler	Building
Boiler Feedwater	Building
Utility Rack	Enclosure
Fuel Conditioning Skid	Building
Fuel Compressor	Building
ACC Electrical PDC	Building
LV and MV PDC	Building
Diesel Engine/Generator	Enclosure
CEMS	Building
HRSG Drum Penthouse	Building
Stormwater pump(s)	Building
Carbon Capture Building	Building
CCS Thermal Reclaimer Building	Building
CCS Electrical PDC	Building
CO_2 Compression	Building

9.1.7 Equipment

The table below shows the total quantity of major equipment installed at the BBPP based on the percent of total plant capacity for the specific service. In cases where one is operating and one in standby, equipment is identical.

Table 5. Major Equipment at the BBPP

Major Equipment	Installed
Air Cooled Condenser	1
Auxiliary Boiler	1
Boiler Feedwater Pumps	2

Major Equipment	Installed
Closed Cooling Water Heat Exchanger	1
Closed Cooling Water Pumps	2
Combustion Turbine Generator	1
Condensate Extraction Pumps	2
Condensate Collection Tank and Deaerator	1
Emergency Diesel Generator	1
Fuel Gas Filter/Separator	2
Fuel Gas Knockout Drum	1
Fuel Gas Performance Heater	1
Fuel Gas Compressor	1
Heat Recovery Steam Generator	1
HRSG Pumps, typically	2
HRSG Blowdown Tank	1
Service/Instrument Air Compressor	2
Steam Jet Air Ejector (Holding)	2
Steam Jet Air Ejector (Hogging)	1
Steam Turbine	1
CCS Reagent Storage	1
DCC (Direct Contact Cooler) and Absorber	1
CCS Process Pump	2
CO_2 Dehydration Package	2
CO_2 Suction Scrubber	12
CO_2 Cooler	12

9.1.8 Access

Road access to the plant is by Highway 32, 19 km south of Swan Hills, Alberta. Turn right onto Conifer Energy Inc's medium grade gravel road (LOC 840703). Continue west for 4.4 km, turn right at the intersection, and continue for 1.9 km. Make a slight left and continue travelling northwest for 2.8 km to southwest border of BBPP lands. No new access or access controls are required for the BBPP.

9.1.9 Existing Infrastructure

There is no existing infrastructure within BBPP lands. The only existing infrastructure that is present and adjacent to the Project lands includes:

- an existing all weather medium grade gravel road, approximately 7 metres in width that parallels the southwestern edge of the Project boundary.
- drilled oil well pads adjacent to the northwestern, northeastern, and southwestern Project boundaries

9.2 Physical Activities Incidental to the Project Within KEC's Control

Physical activities at the BBPP will include:

1. Site Preparation
2. Infrastructure Construction
3. Operations and Maintenance
4. Decommissioning and Reclamation

9.3 Physical Activities Incidental to the Project Outside KEC's Control

Activities that are incidental to the Project's construction and operation, and outside of BBPP's control include:

1. Maintenance and upgrading of the existing access road along the south boundary.
2. General telecommunications in the Project area.
3. Construction and operation of a 240kV HV transmission line that will provide electrical interconnection between the plant and the existing transmission line, located approximately 600 m west of the BBPP.
4. Construction and operation of a new dedicated pipeline routed underground to the northeast corner of the site that will provide natural gas from an existing underground gas pipeline approximately 3.8 km northeast of the BBPP at 03-25-064-11 W5M.

9.4 Project Expansion

The Project is a new facility and neither a component of, nor expansion of, another project.

10 MAXIMUM PRODUCTION CAPACITY

When fully operational, the Project will be capable of producing a maximum power output of 460 MW, which is above the threshold of 200 MW set out in the *Physical Activities Regulations*: SOR/2019-285, Schedule, 30.

The BBPP production process involves producing electricity via combined cycle power plant with carbon capture consisting of one natural gas fired combustion turbine, one steam turbine, one carbon capture system and CO_2 compression and dehydration package.

11 ANTICIPATED CONSTRUCTION, OPERATION, AND DECOMMISSIONING SCHEDULES

The following are the estimated Project timelines and major milestones. Decommissioning is estimated at a 30-year timeline.

If the IAAC deems an Impact Assessment is required, Project timelines are anticipated to extend approximately 3 - 5 years beyond the dates provided below.

Table 6. Project Timelines

TASK	DATE
Power Plant Construction	
Site Access for Construction Mobilization	Q2 2026
Initial Operation	Q4 2028
Decommissioning	2058 – 2059
Surface Reclamation	2060 – 2063

12 ALTERNATIVES TO THE PROJECT

The main alternatives to gas fired thermal power generation are coal, solar power, wind power, hydro, nuclear power, hydrogen fired power and biomass power.

Generation mix in Alberta is site specific and economics and market driven. Natural gas is the energy transition fuel that offers superior economics and dispatchable and reliable power at scale compared to other resources. The Project has the capability to achieve the highest energy efficiency and lowest carbon footprint among existing combined cycle and simple cycle power plants.

12.1 ALTERNATIVE LOCATIONS

Alternative locations for the BBPP, including options for the natural gas pipeline and transmission line, are discussed above in Section 1.1.1 (Ancillary Facilities) and 1.1.2 (Alternative Project Locations).

12.2 ALTERNATIVE MEANS FOR NATURAL GAS SUPPLY

No alternative fuel source was identified for the BBPP as natural gas is reliable, cost-effective, and with optionality to add carbon capture and storage in the future is in alignment with KEC's energy transition strategy of providing clean, reliable, dispatchable, and affordable energy to Albertan's.

12.3 A) PROJECT TECHNOLOGIES

Potential alternative means that the proponent is considering and that are technically and economically feasible, including through the use of best available technologies.

KEC undertook a high-level evaluation of several different technologies and processes that were initially considered feasible for Project execution. The study considered several different gas turbine generators and processes in order to maximize efficiency and reduce the waste of resources such as water.

This preliminary design study concluded that a 1x1x1 CTG/HRSG/STG (Combined Turbine Generator/Heat Recovery System Generator/Steam Generator) configuration, with an "HL-class" gas turbine, such as the Siemens SGT6-9000HL, would best meet the objectives

12.4 B) Technical Alternatives to the Project

Potential alternatives to the project that the proponent is considering and that are technically and economically feasible, and directly related to the project.

KEC has not identified any potential alternatives to the Project that are technically or economically feasible. The Project is a standalone project to provide electricity to the Alberta Electrical Grid. Capacity access at the electrical grid is the single largest limiting factor to the location and power output design of the Project. In addition, the Project requires both land access to the source gas, and an adequate supply of source gas, to provide energy inputs to the facility.

Therefore, through detailed engineering and financial feasibility analysis, it was determined the Project as proposed represents the best technologically, technically, and economically feasible option.

PART C: LOCATION INFORMATION AND CONTEXT

13 PROPOSED PROJECT LOCATION DESCRIPTION

The BBPP is located approximately 19 km south of Swan Hills, Alberta, within the Municipal District of Big Lakes County (Figure 1. BBPP Location, Appendix A). The site is 9 km northwest of the Conifer Energy Inc. (LOC 840703) turn off from Highway 32.

13.1 A) Geographic Coordinates and Description

The south end of the Project area is located at:

- Latitude: 54.532535°
- Longitude: –115.573190°
- NAD 83 UTM Easting Zone 11U: 592395.76 m E
- NAD 83 UTM Northing Zone 11U: 6043997.35 m N

13.2 B) Site Maps

Please refer to the following maps in Appendix A – Figures:

- **Figure 1.** BBPP Location
- **Figure 2.** Natural Gas Pipeline Options
- **Figure 3.** Transmission Line Options
- **Figure 4.** Grizzly Bear Management Zones
- **Figure 5.** Wetlands and Watercourses
- **Figure 6.** Parks and Protected Areas
- **Figure 7.** Indigenous Reserves and Métis Settlements

13.3 C) Legal Land Description

The BBPP is located on provincial crown land in Big Lakes County, Alberta. The Project is located in Legal Subdivisions (LSDs) 1, 2, 6, 7, and 8, within the following quarter sections:

- SW 15-064-11 W5M
- SE 15-064-11 W5M

13.4 D) Proximity to Residences

The BBPP is located in a rural area with the closest seasonal and/or permanent residence located approximately 22 km north of BBPP lands, on the outskirts of the Town of Swan Hills, Alberta.

13.5 E) Proximity to Indigenous Lands

13.5.1 Indigenous Communities' Traditional Territories

The BBPP is located within the traditional territories of the following Indigenous Communities:

1. Alexander First Nation
2. Alexis Nakota Sioux Nation
3. Driftpile Cree Nation
4. East Prairie Métis Settlement
5. Enoch Cree Nation no. 440
6. Foothills Ojibway First Nation
7. Horse Lake First Nation
8. Kapawe'no First Nation
9. Otipemisiwak Métis Government, District 21 (formerly known as the Métis Nation of Alberta, Region 4)
10. Paul First Nation
11. Sawridge First Nation
12. Sturgeon Lake Cree Nation
13. Sucker Creek First Nation
14. Swan River First Nation

13.5.2 Indigenous Reserves and Métis Settlements

Please refer to Figure 7 in Appendix A for a map of the First Nation Reserves and Métis Settlements in proximity to the BBPP. The following provides distances to the Reserves and Settlements:

- Alexis Whitecourt First Nation Reserve No. 232, located 35 km south-southwest
- Alexander First Nation Reserve No. 134B, located 53 km east-southeast
- Alexander First Nation Reserve No. 134A, located 60 km west-southwest
- East Prairie Métis Settlement, located 67 km north-northwest

- Swan River First Nation, located 88 km north
- Driftpile Cree Nation, located 90 km north
- Sawridge 150H First Nation, located 94 km north-northeast
- Sawridge 150G First Nation, located 99 km north-northeast
- Sucker Creek First Nation No. 150A, located 101 km north-northwest
- Kapawe'no First Nation No. 150c, located 123 km north-northwest
- Kapawe'no First Nation No. 150d, located 126 km north-northwest
- Paul First Nation, located 137 km south-southeast
- Sturgeon Lake Cree Nation, located 137 km west-northwest
- Peavine Métis Settlement, located 141 km north-northwest
- Gift Lake Métis Settlement, located 150 km north
- Enoch Cree Nation No. 440, located 162 km southeast
- Buffalo Lake Métis Settlement, located 201 km east
- Horse Lake First Nation, located 280 km west-northwest
- Otipemisiwak Métis Government, District 21 (BBPP located within District 21)

13.6 F) Proximity to Federal Lands

No federal protected areas are located adjacent to or within 10 km of the BBPP boundaries. Please refer to Figure 6 in Appendix A.

The closest federal wildlife area is the Meanook National Wildlife Area, located approximately 144 km east of the BBPP.

The closest national park is Elk Island National Park, located approximately 202 km southeast of the BBPP. The next closest national park is Jasper National Park, located approximately 210 km southwest of the Project lands.

14 PHYSICAL AND BIOLOGICAL ENVIRONMENT

A background information review was conducted to determine historic and potential wildlife species of concern occurrences in the BBPP area. An initial field assessment was conducted by qualified biologists from Bear Tracks Environmental Services (BTES) within and around the BBPP lands on September 8th, 2022. In 2023, BTES revisited the site to conduct sensitive raptor surveys in conjunction with two rounds of breeding bird surveys on June 16th and 28th.

14.1 DESKTOP REVIEW

A desktop review was conducted to determine historic and potential wildlife species of concern occurrences in the BBPP area.

14.1.1 ECOREGION

The BBPP is located in the Green Zone, within the Upper Foothills Natural Region. The BBPP is located within the defined Wildlife Management Unit ID 347: the Marsh Head Wildlife Management Unit. It is in the Eastern Slopes Land Use Zone.

The Lower Foothills Natural Subregion has the most diverse forests in Alberta in terms of forest The Project is located within the Upper Foothills Natural Subregion, on the edge of the Lower Foothills Natural Subregion, within the Foothills Natural Region of Alberta. The subregions are characterized by dense mixed wood stands of aspen, white spruce, black spruce, and pines with an understory of native forbs and peatmosses. The Upper Foothills Natural Subregion contains large areas of productive timber stands and extensive oil and gas development is prevalent throughout.

14.1.2 ALBERTA CONSERVATION INFORMATION MANAGEMENT SYSTEM (ACIMS) RESULTS

Alberta Conservation Information Management System (ACIMS) is a data centre that provides biodiversity information on Alberta's species, natural ecological communities, and sites.

The results of the ACIMS search of the BBPP area indicated:

1. No Non-sensitive Element Occurrences (‘EO’);
2. No sensitive EOs;
3. No Protected Areas found

4. No Crown Reservations/Notations found.

14.1.3 Fish and Wildlife Internet Mapping Tool (FWIMT) Search Results

The Alberta Fish and Wildlife Internet Mapping Tool (FWIMT) search identified three wildlife species of management concern have been documented within two kilometers of the Project development area. Of these, two are listed provincially as 'Sensitive' (Canada lynx [*Lynx canadensis*] and fisher [*Pekania pennanti*]) and one is listed provincially as 'At risk' (grizzly bear [*Ursus arctos ssp. horribilis*]).

14.1.4 Provincial Protected Areas

The closest Provincial Park is the Carson-Pegasus Provincial Park is located 23 km south of the BBPP (Figure 6 in Appendix A).

14.1.5 Provincial Recreational Areas

The closest Provincial Recreational Area is the Freeman River Provincial Recreational Area located approximately 12 km west-northwest of the BBPP.

14.1.6 Environmentally Significant Areas (ESA)

The Project lands have an ESA scoring value rating of 0.1215 (Scoring >0.189 equals Provincial ESA), which puts the Project lands in the third highest of the six ESA value rating categories. This implies a mid-level likelihood of:

- Areas that contain focal species, species groups, or their habitat
- Areas that contain rare, unique, or focal habitat
- Areas with ecological integrity
- Areas that contribute to water quality and quantity.

According to the *Environmentally Significant Areas of Alberta* map and the *Environmentally Significant Areas of Alberta*, there are no environmentally significant areas (ESA scores >0.189) within 5 km of the BBPP lands.

14.1.7 IMPORTANT BIRD AREA (IBA)

There are no IBAs near the Project. The closest IBA is the Lesser Slave Lake IBA located 86 km north of the Project.

14.1.8 SENSITIVE SPECIES WITH POTENTIAL TO OCCUR

The following is a list of federal and provincial sensitive species with the potential to occur around the general project footprint (Table 7 below). The determination of potential occurrence is based upon habitat preferences of the individual species compared to the habitat potential in and around the BBPP area.

Table 7. Potential Sensitive Species and Likelihood of Occurrence

Class	Scientific Name	Common Name	Alberta Status 2015	COSEWIC status	On Schedule 1 (Yes/No)?	SARA status	Comments	Likelihood of Occurrence in Project
Birds	Haliaeetus leucocephalus	Bald Eagle	Sensitive				A species once at risk throughout much of its North American range, but now recovering; low density in Alberta. Nests vulnerable to human disturbance, and as such, require protection.	Low. No nests found
Birds	Strix varia	Barred Owl	Sensitive				Likely fewer than 2000 breeding birds in the province. This interior forest species requires larger blocks of mature dense woodland. Forest fragmentation detrimental. Forest management plans need to ensure breeding habitat retained.	Low due to lack of habitat
Birds	Dendroica castanea	Bay-breasted Warbler	Sensitive				Dependent on old-growth forest. Forest management plans need to ensure retention of breeding habitat.	Low due to lack of habitat
Birds	Picoides arcticus	Black-backed Woodpecker	Sensitive				Maintenance of mature coniferous forests important. Standing dead trees (snags) required for nesting. Forestry and fire suppression practices may decrease the availability of these stand types.	Low due to lack of habitat
Birds	Dendroica virens	Black-throated Green Warbler	Sensitive				Over 10 000 individuals in the province. Designated a “Species of Special Concern” in Alberta. Habitat loss and fragmentation resulting from industrial development threaten this old-growth dependent species.	Low due to lack of habitat

Class	Scientific Name	Common Name	Alberta Status 2015	COSEWIC status	On Schedule 1 (Yes/No)?	SARA status	Comments	Likelihood of Occurrence in Project
Birds	Dendroica fusca	Blackburnian Warbler	Sensitive				Considered peripheral with a very restricted distribution in Alberta. Preference for mature mixedwood forests suggests it may be vulnerable to forestry operations.	Low due to lack of habitat
Birds	Spizella breweri	Brewer's Sparrow	Sensitive				Steep population decline in Alberta since 1994. Prairie population of the species relies on availability of natural sage brush. Thought to be declining because of its specific habitat requirements.	Low due to lack of habitat
Birds	Buteo platypterus	Broad-winged Hawk	Sensitive				May be experiencing major population declines as breeding habitat disappears. Requires large stands of mature to old-growth forest in the parkland and southern boreal forest. Careful woodlot management by essential to maintain breeding habitat.	Low due to lack of habitat
Birds	Certhia americana	Brown Creeper	Sensitive				A mature forest-dependent species that is vulnerable to forest fragmentation, and certain forest management practices.	Low due to lack of habitat
Birds	Chordeiles minor	Common Nighthawk		Special Concern	Yes	Threatened	Common Nighthawks nest in both rural and urban habitats including coastal sand dunes and beaches, logged forest, recently burned forest, woodland clearings, prairies, plains, sagebrush, grasslands, open forests, and rock outcrops.	Possible due to edge habitat

Class	Scientific Name	Common Name	Alberta Status 2015	COSEWIC status	On Schedule 1 (Yes/No)?	SARA status	Comments	Likelihood of Occurrence in Project
Birds	Coccothraustes vespertinus	Evening Grosbeak		Special Concern	Yes	Special Concern	Evening Grosbeaks breed in mature and second-growth coniferous forests of northern North America and the Rocky Mountains, including spruce-fir, pine-oak, pinyon-juniper, and aspen forests.	Low due to lack of habitat
Birds	Aquila chrysaetos	Golden Eagle	Sensitive				Most recent estimate suggests 100-250 breeding pairs in Alberta. Disturbance from human related activities is greatest threat. Because of its low population and dispersal over a large area, nest site inventory and protection are necessary.	Low due to lack of habitat and no nests found
Birds	Strix nebulosa	Great Gray Owl	Sensitive				A naturally scarce species, widely distributed in foothill and boreal habitats. Requires stands of mature forest for nesting, thus is vulnerable to clearing.	Low due to lack of habitat
Birds	Contopus cooperi	Olive-sided Flycatcher		Special Concern	Yes	Threatened	Olive-sided Flycatchers breed mostly in the boreal forest and in western coniferous forests.	Low due to lack of habitat

Class	Scientific Name	Common Name	Alberta Status 2015	COSEWIC status	On Schedule 1 (Yes/No)?	SARA status	Comments	Likelihood of Occurrence in Project
Birds	Pandion haliaetus	Osprey	Sensitive				This species is uncommon, but widespread, and faces limited threats to population and habitat, including threats to nesting sites. Continued monitoring and protection of specific nest sites desirable. In all nesting areas, they use openings or edges in the forest and are rarely found in deep, closed forest—look for them in meadows, rivers and streams, partially logged areas, recent burns, beaver ponds, bogs, and muskegs. These areas often have dead or dying trees, which provide exposed perches for singing, foraging, and watching for predators and rivals.	No nests found
Birds	Dryocopus pileatus	Pileated Woodpecker	Sensitive				Requires mature to old-growth trees for nesting. Essential to incorporate maintenance of breeding habitat into management plans on both public and private lands. Some threats to populations identified.	Low due to lack of habitat
Birds	Cygnus buccinator	Trumpeter Swan	Sensitive	Not at Risk	No		An estimated 166 breeding pairs occur in Alberta. Critical shortage of key winter habitat limits population growth. Breeding habitat relatively secure. Efforts underway to expand wintering areas. Designated as “Threatened” under the Wildlife Act.	Low due to lack of habitat. Identified habitat >6 km away.

Class	Scientific Name	Common Name	Alberta Status 2015	COSEWIC status	On Schedule 1 (Yes/No)?	SARA status	Comments	Likelihood of Occurrence in Project
Birds	Piranga ludoviciana	Western Tanager	Sensitive				Prefers old coniferous and mixedwood forest; obligate neotropical migrant. Species may be vulnerable to habitat loss or deterioration by various forecast land uses.	Low due to lack of habitat
Mammals	Lynx rufus	Bobcat	Sensitive				Perhaps fewer than 1 000 individuals. Population of bobcats is very low, but population is presumed to be stable.	Low due to lack of habitat
Mammals	Lynx canadensis	Canada Lynx	Sensitive				Cyclic species. Estimated less than 8 000 individuals at the bottom of the cycle. Population has decreased in recent years, and some concern exists over habitat loss and fragmentation.	Possible. Proximity to existing industrial use in area may limit use.

Class	Scientific Name	Common Name	Alberta Status 2015	COSEWIC status	On Schedule 1 (Yes/No)?	SARA status	Comments	Likelihood of Occurrence in Project
Mammals	Martes pennanti	Fisher	Sensitive				Species considered uncommon to rare. Population status is unknown, and trends in population and distribution uncertain. Current forestry practices may reduce availability of preferred habitat. Fisher has declined since 1985.	Low due to lack of habitat, proximity to human populations, and existing industrial use in area.
Mammals	Ursus arctos	Grizzly Bear	Threatened	Special Concern	Yes	Special Concern	Population estimates are currently underway. Currently sustaining its population under a very restrictive sport hunting regime. Greatest threat is loss and degradation of wilderness habitats through resource extraction and recreational development.	Low due to lack of habitat, proximity to human populations, and existing industrial use in area.
Mammals	Myotis lucifugus	Little Brown Myotis	May Be at Risk	Endangered	Yes	Endangered		Low due to lack of habitat

Class	Scientific Name	Common Name	Alberta Status 2015	COSEWIC status	On Schedule 1 (Yes/No)?	SARA status	Comments	Likelihood of Occurrence in Project
Mammals	Myotis septentrionalis	Northern Long-eared Bat	May Be at Risk				Population size unknown, but uncommon over known range. Current forestry practices threaten habitat, as it relies on large, early decay trees for roosting. Need to incorporate habitat requirements into forest management.	Low due to lack of habitat within project footprint.
Mammals	Myotis septentrionalis	Northern Myotis		Endangered	Yes	Endangered		Low due to lack of habitat
Mammals	Rangifer tarandus caribou	Woodland Caribou	At Risk				Most populations declining, with some at immediate risk of extirpation. Primary threat is increased predation by wolves in response to human activity. Maintenance of old-growth forest habitat is critical. Designated as “Threatened” under the Wildlife Act.	Low due to lack of habitat

14.1.8.1 Grizzly Bears

The area of proposed development is located within the Alberta provincial Bear Management Area (BMA) 7, also known as the Swan Hills Population unit. This BMA is an eastern outlier of the Foothills Natural Region and is composed primarily of Lower Foothills and Central Mixed-wood natural subregions. A narrow habitat linkage connects this BMA to the subpopulation of grizzly bears in BMA 2 (Grande Cache population unit;). This Project area is within the S3 grizzly bear watershed unit (3GBWU), which is a secondary conservation zone (Figure 4 in Appendix A).

14.2 FIELD SURVEYS

A field reconnaissance survey for wildlife, associated wildlife features, rare plants, and other sensitive habitat features (e.g., wetlands) was conducted on foot by Bear Tracks Environmental Services (2015) Ltd. (BTES) biologists on September 8th, 2022, under suitable weather conditions. In 2023, qualified biologists from Bear Tracks Environmental Services (BTES) revisited the site to conduct sensitive raptor surveys in conjunction with two rounds of breeding bird surveys on June 16th and 28th. See Section 14.4.5.1.3 Birds for more information.

14.3 AERIAL PHOTOS OF THE BBPP

Photo 1. Seasonal Marsh Wetland on BBPP Lands

Photo 2. SW corner of the BBPP facing east.

Photo 3. SW corner of the BBPP facing north.

14.4 VALUED ECOSYSTEM COMPONENTS (VECS)

Each VEC, including the baseline environmental work that has been completed to evaluate each VEC, is described in the following sections.

Table 8. High Level Environmental Summary

Environmental Condition	Exists	If Yes, Explain
Historical Sites Identified	☐ Yes ☒ No	
Within Environmentally Significant Area	☐ Yes ☒ No	
Integrated Resource Plans in place	☐ Yes ☒ No	
Will the site be located on an alkaline flat or dry slough?	☐ Yes ☒ No	

Environmental Condition	Exists	If Yes, Explain
Historical Sites Identified	☐ Yes ☒ No	
Within Environmentally Significant Area	☐ Yes ☒ No	
Integrated Resource Plans in place	☐ Yes ☒ No	
Is the site in a flood-irrigated area?	☐ Yes ☒ No	
Is the site within a 1-in-100-year floodplain?	☐ Yes ☒ No	
Will the site be located within 30 m of a valley/coulee break?	☐ Yes ☒ No	
Is there intermittent drainage across the site?	☐ Yes ☒ No	
Does the site have a known spring?	☐ Yes ☒ No	
Are known rare plant species or plant communities on or near the site?	☐ Yes ☒ No	
Are there wildlife species at risk on the site?	☐ Yes ☒ No	
Within a Key/Critical Wildlife Zone?	☐ Yes ☒ No	
Within Caribou Protection Plan Area	☐ Yes ☒ No	
Any nests identified within 1000 metres?	☐ Yes ☒ No	
Any mineral licks identified within 1000 metres?	☐ Yes ☒ No	
Wetlands present on the project lands?	☒ Yes ☐ No	One seasonal marsh wetland, approximately 0.09 ha, will be lost to the BBPP
Watercourses present on the project lands?	☐ Yes ☒ No	
Do Timing Constraints apply? If "Yes," dates:	☐ Yes ☒ No	
Access Restrictions required?	☐ Yes ☒ No	

14.4.1 AIR QUALITY

The results of the Air Quality Assessment (AQA) determined Maximum Ground-Level Concentrations (MGLC) of CO, NO_2, and $PM_{2.5}$ resulting from the BBPP, including external industrial emission sources and ambient background, was predicted to be less than their corresponding *Alberta Ambient Air Quality Objectives* (AAAQOs) for all relevant averaging periods.

14.4.2 VEGETATION

The proposed BBPP site lies in a previously disturbed pine and mixed wood forest, intermixed with flowering plants. The BBPP is dominated by dense regenerating non-merchantable vegetation in a former cutblock, with approximately 2.48 hectares of salvageable timber (jack pine) on the southern boundary of the Project. No vascular or non-vascular plant species of management concern was identified at the time of the assessment.

14.4.2.1 Mitigation

KEC will re-seed all soil storage areas to limit the spread of weeds onto disturbed soils. KEC will conduct regular monitoring and management of weeds until it has demonstrated that noxious, prohibited, and invasive species on the Project's disturbance footprint have been removed, eradicated, or controlled.

14.4.3 SOILS[1]

In 2022, a geotechnical desktop study was completed for the proposed BBPP lands to provide baseline data to support engineering designs. The investigation revealed that the general soil profile at the BBPP consisted of, in descending order, clay and gravel, clay, till, sandy clay, sandstone and shale. Bedrock was not encountered within the depths drilled.

14.4.3.1 Mitigation

Soil stripping and leveling will be completed. A Construction and Reclamation Plan that provides information on soil handling has been completed to provide further mitigation and soil handling.

14.4.4 GROUNDWATER[1]

Wet conditions were observed at the surface at some locations during the site reconnaissance, suggesting a relatively shallow groundwater table. Groundwater elevations are expected to fluctuate on a seasonal basis and will be highest after periods of prolonged heavy precipitation

[1] All information taken directly from the report: Geotechnical Desktop Study, Maskwa [BBPP] Project, Southwest of Swan Hills, Alberta. November 4, 2022.

or snow melt. The perched groundwater will dissipate after wet periods as groundwater infiltrates down to the static groundwater table during drier periods.

14.4.4.1 Mitigation

KEC has developed an Environmental Protection Plan that will be used to guide construction, operations, and reclamation to further reduce BBPP effects on the environment.

If groundwater is encountered during construction, measures such as conventional pumping may be required and are expected to be effective.

During construction of the Project, there is potential for interactions with hydrogeology that can be mitigated through implementation of procedures and best management practices that minimize or eliminate disturbances to the local groundwater system. Standard and Best Management Practices (BMPs) mitigation measures for potential effects on hydrogeology during construction will be implemented. These may include waste management procedures, procedure to manage the risk of spills, reducing the amount of time that excavations remain open during construction to limit inputs of groundwater that require management, development and installation of a groundwater monitoring network if required by AEPA and a spill response plan.

14.4.5 WILDLIFE

Thirteen (13) wildlife species, including two mammal species, were observed during the initial field assessments in 2022. Of these, one species (sandhill crane [*Grus canadensis*]) is listed as ‘Sensitive’ in the province of Alberta. All other species observed have a 'Secure’ management status under federal and provincial legislation.

Twenty (21) avian species were recorded during bird breeding surveys (BBS) completed in 2023. All species that were observed are considered ‘Secure’ and are not provincially or federally listed as species of management concern.

Two raptor species, sharp-shinned hawk (*Accipiter striatus*) and a northern harrier (*Circus cyaneus*), was documented in the Project development area; however, no raptor nests were identified during the assessments. Therefore, no mitigation is currently required with respect to this species group. Suitable nesting locations (i.e., aspen trees, cavities) for raptors were observed within the Project development area; primarily associated with mature, mixed wood forest stands associated with the site.

14.4.5.1 Habitat

Observation of the vegetation, soils, and natural water bodies throughout within the BBPP lands indicates wildlife habitat of poor quality. Due to clear cutting in 2006, there is no longer adequate cover for thermal and security requirements, and adequate under-story vegetation and food availability for small and large ungulates are not present. In addition, the existence of the medium-grade road on the south/southwest boundary of the BBPP, and oil and gas infrastructure to the south resulted in fragmentation and wildlife corridor creation.

Impacts of the BBPP include a permanent displacement of wildlife species utilizing the area. Displacement of wildlife is expected during construction and operations. Complete loss of habitat within the BBPP will occur as the location will be fenced. However, the existence of cover to the north should be expected to meet basic habitat requirements for wildlife species. The presence of the BBPP will permanently displace wildlife. Given the amount of remaining available area surrounding the BBPP, there appears to be adequate habitat to continue to support wildlife in this area.

14.4.5.1.1 Ungulates

Ungulate species expected to inhabit the vicinity of the BBPP were established by examination of distribution maps and comparison of preferred habitat with that in the vicinity of the proposed location.

- Moose (*Alces alces*)
- Mule Deer (*Odocoileus hemionus*)
- White-tail Deer (*Odocoileus virginianus*)

14.4.5.1.2 Carnivores

Conclusions regarding carnivore species expected to inhabit the area resulted from examination of distribution maps and comparison of preferred habitat with those habitats encountered by the Project.

- American Marten (*Martes Americana*) – Habitat characteristics are not found on the BBPP lands and the high level of human activity in this area suggest a low likelihood of occurrence.

- Striped skunk (*Mephitis mephitis*) – found throughout the region and would be likely to occur on BBPP lands.
- Canada Lynx (*Lynx canadensis*) – Habitat characteristics are not found on the BBPP lands and the high level of human activity in this area suggest a low likelihood.
- Cougar (*Felis coloris*) – As the prey requirements for the cougar appear within region, cougar is expected within the region, but it is unlikely they will be found on the BBPP lands.
- Short-tailed Weasel (*Mustela erminea*) – most abundant in coniferous or mixed forests and streamside woodlands and is expected in the forest systems, but lack of cover suggests limited use on the BBPP lands.
- Black bear (*Ursus americanus*) – Based upon the vegetation characteristics in adjacent areas and the high potential for forage capabilities, in addition to prey species, black bears are expected within the area but unlikely on the BBPP lands.
- Coyote (*Canis latrans*) – very common in the study area and would be likely to occur.
- Wolf (*Canis lupus*) – mostly restricted to forest areas and likely occur within the region.
- Grizzly Bear (*Ursus arctos*): Habitat characteristics are not found on the BBPP lands and the high level of human activity in this area suggest a low likelihood of occurrence.

14.4.5.1.3 Birds

Nesting raptor and breeding bird surveys were completed on June 16th and June 28th, 2023. No observations of any raptor species were recorded during this survey; however, a northern harrier (*Circus cyaneus*) was recorded incidentally within 1000 m of the Project site during the June 16th survey. Another raptor species, sharp-shinned hawk (*Accipiter striatus*), was observed incidentally during the initial field visit on September 8th, 2022. No raptor nests were observed within 1000 m of the Project footprint.

Twenty-one (21) avian species were recorded during breeding bird surveys. All species that were observed are considered 'Secure' and are not provincially or federally listed as species of management concern. See Table 9 below for a list of incidental species and breeding bird survey observations.

Table 9. Avifauna Identified During Field Surveys

Scientific Name	Common Name	Ranking	Origin
Incidental Observations			
Regulus calendula	Ruby crowned kinglet	Secure	Native
Perisoreus canadensis	Canada jay	Secure	Native
Turdus migratorius	American robin	Secure	Native
Corvus corax	Common raven	Secure	Native
Loxia leucoptera	White-winged crossbill	Secure	Native
Antigone canadensis	Sandhill crane	Sensitive	Native
Sitta canadensis	Red-breasted nuthatch	Secure	Native
Poecile hudsonicus	Boreal chickadee	Secure	Native
Anser albifrons	Greater white-fronted goose	Secure	Native
Accipiter striatus	Sharp-shinned hawk	Secure	Native
Bonasa umbellus	Ruffed grouse	Secure	Native
Breeding Bird Survey Observations			
Empidonax alnoram	Alder flycatcher	Secure	Native
Turdus migratorius	American robin	Secure	Native
Poecile atricapillus	Black-capped chickadee	Secure	Native
Spizella passerina	Chipping sparrow	Secure	Native
Spizella pallida	Clay-coloured sparrow	Secure	Native
Junco hyemalis	Dark-eyed junco	Secure	Native
Perisoreus canadensis	Canada jay	Secure	Native
Empidonax minimus	Least flycatcher	Secure	Native
Melospiza lincolnii	Lincoln's sparrow	Secure	Native
Dendroica magnolia	Magnolia warbler	Secure	Native
Vermivora celata	Orange-crowned warbler	Secure	Native
Seiurus aurocapilla	Ovenbird	Secure	Native
Sitta canadensis	Red-breasted nuthatch	Secure	Native
Vireo olivaceus	Red-eyed vireo	Secure	Native

Scientific Name	Common Name	Ranking	Origin
Catharus ustulatus	Swainson's thrush	Secure	Native
Leiothlypis peregrina	Tennessee warbler	Secure	Native
Zonotrichia leucophrys	White-crowned sparrow	Secure	Native
Zonotrichia albicollis	White-throated sparrow	Secure	Native
Gallinago delicata	Wilson's snipe	Secure	Native
Dendroica petechia	Yellow warbler	Secure	Native
Dendroica coronate	Yellow-rumped warbler	Secure	Native

Raptor species expected to inhabit the vicinity of the BBPP lands were established by examination of distribution maps and comparison of preferred habitat encountered by the location.

- Osprey (*Pandion haliaetus*)
- Bald Eagle (*Haliaeetus leucocephalus*)
- Sharp-Shinned Hawk (*Accipiter striatus*)
- Red-Tailed Hawk (*Buteo jamaicensis*)
- Golden Eagle (*Aquila chrysaetos*)
- American Kestrel (*Falco sparverius*)
- Great-Horned Owl (*Bubo virginianus*)
- Barred Owl (*Strix varia*)
- Snowy Owl (*Nyctea scandiaca*)
- Great Gray Owl (*Strix nebulosa*)
- Spruce Grouse (*Falcipennis canadensis*)
- Common nighthawk (*Chordeiles minor*)

The majority of species mentioned above utilize edge habitats or open areas and are migratory. The expectation may be that the creation of new edge habitat may ultimately increase hunting capabilities of raptor species as prey is exposed.

The presence of similar habitat, nesting characteristics, and snags and deadfall concentrations remaining following construction are expected to provide the necessary forage, security, and nesting requirements for returning bird species. Therefore, the proposed development is not expected to significantly impact habitat requirements of bird species within the area.

14.4.5.1.4 Small Mammals

Small mammals expected to inhabit the vicinity of the BBPP were established by examination of distribution maps and comparison of preferred habitat with that in the vicinity of the proposed location.

No evidence of burrows was found during the assessment. The below species may be expected in the area in unknown abundance.

- Deer mouse (*Peromyscus maniculatus*)
- Southern red-backed vole (*Clethrionomys gapperi*)
- Meadow vole (*Microtis pennsylvanicus*)
- Least chipmunk (*Tamia minimus*)
- Red squirrel (*Tamiasciurus hudsonicus*)
- Northern flying squirrel (*Glaucomys sabrinus*)
- Snowshoe hare (*Lepus americanus*)

14.4.6 MITIGATION

The timing and methods of construction and reclamation could be adjusted as needed to meet impact mitigation requirements specified by timing requirements for species in the vicinity. In summary, the following mitigation was developed in order to reduce potential disturbance to wildlife and vegetation:

- Vegetation clearing works associated with construction should be completed between September 1st and April 14th (outside of breeding bird season) to accommodate sensitive periods and mitigate potential impacts to the majority of species of management concern known or presumed to be in the area.

- Should work be required outside of the period listed above, confirmatory wildlife sweeps should be conducted to avoid the disturbance or destruction of migratory bird nests that may be present during the breeding season.

The BBPP will be fenced prior to operations. This is expected to prevent wildlife intrusion into the BBPP area. The BBPP will follow the approval conditions provided issued by AEPA.

14.4.7 LAND USE

The BBPP area is on crown land, and historic aerial imagery reveals some of the land use in the region over time. Cut lines for oil and gas can be seen in historical imagery. Current land use at the BBPP area is forestry harvesting. The BBPP appeared to have been logged in 2006 and is in a stage of re-growth.

Surrounding land use consists of forestry, trapping, and upstream oil and gas development.

14.4.8 TOPOGRAPHY[2]

The topography of the area is classified as rolling to flat terrain which is confirmed by the findings of the site reconnaissance. There is a high point in the southeast quadrant and low point in the northwest quadrant.

14.4.9 SURFACE HYDROLOGY

14.4.9.1 Precipitation and Surface Runoff

No wastewater, sludge, or surface runoff will be released into watercourses as a result of operations.

14.4.9.2 Watercourses

No provincially mapped watercourses are present within or adjacent to the BBPP. Historical review of aerial photos between 2006 and 2017 did not reveal the presence of watercourses across the BBPP project lands.

[2] All information taken directly from the report: Geotechnical Desktop Study, Maskwa [BBPP] Project, Southwest of Swan Hills, Alberta. November 4, 2022.

Field assessment confirmed there are no watercourses within or adjacent to the BBPP lands.

14.4.9.3 Wetlands

No provincially mapped wetlands are present within the BBPP. Historical review of aerial photos between 2006 and 2017 did not reveal the presence of wetlands within the BBPP lands.

Field assessment confirmed there is one seasonal wetland (approximately 0.09 ha) within the BBPP lands that will be lost as a result of the BBPP. Disturbance of wetland areas is regulated by the Alberta Energy Regulator (AER) and Alberta Environment and Protected Areas (AEPA) and generally requires approval in accordance with the Alberta *Water Act*. Please refer to Figure 5 in Appendix A.

15 HEALTH, SOCIAL, AND ECONOMIC CONTEXT

Big Lakes County, previously known as the Municipal District of Big Lakes, covers about 14,000 km^2 and includes the Project as well as the towns of Swan Hills and High Prairie. Swan Hills, with a 2021 population of 1,201, saw a 7.7% decrease from 2016 to 2021, with 220 identifying as Indigenous. Whitecourt, with a 2021 population of 9,927, experienced a 2.8% decrease from 2016 to 2021, with 1,260 identifying as Indigenous. In Alberta, Indigenous people make up 6.5% of the population, less than the proportions in Swan Hills and Whitecourt. As of 2022, Big Lakes County had a population of 5,471.

Alberta Health Services (AHS) manages healthcare in the province, operating Swan Hills Healthcare Centre and Whitecourt Healthcare Centre, providing various services including emergency care and mental health support. Life expectancy in Swan Hills was approximately 77.7 years, slightly below Alberta's 81.7 years, while Whitecourt's was 79.7 years, also slightly below Alberta's 81.2 years. Swan Hills had a rate of 7.5 people with three or more chronic diseases per 100 population, compared to 5.0 in Whitecourt and 4.2 provincially.

Swan Hills had a higher mortality rate (per 100,000 population) than the province (1169.0 vs. 700.3), primarily due to circulatory diseases, while Whitecourt's mortality rate was similar to the province's. Big Lakes County saw a population decline of 4.7% from 2018 to 2022, with a median age of 45.6 years and a median individual income of $36,800 in 2021.

Specific health data on Indigenous populations in Swan Hills and Whitecourt is lacking, but resources like AHS' Indigenous Wellness Core aim to provide culturally appropriate healthcare. Health Canada's report on Indigenous health in Alberta, titled '*Health Determinants for First Nations in Alberta, 2016*' (ISBN: 978-0-660-06374-4), outlines disparities in education, income, and housing. It is the hope of Health Canada that the report will contribute to the discussion and awareness of differences in Indigenous health outcomes and determinants in Alberta and lead to actions to decrease the differences. A brief summary of the report is included below:

> The First Nations population in Alberta, though younger than the Canadian average, faces disparities in education, income, employment, housing, and health, despite improvements in high school completion rates, dropout rates, and income, challenges persist, including lower participation and employment rates, higher unemployment, and inadequate housing conditions. The Community Well-Being Index shows an improvement trend but still highlights disparities. Health indicators reveal lower life expectancy, increasing preterm births with maternal age, rising diabetes prevalence, and infant mortality. While some

progress is evident, ongoing efforts are needed to address these complex socio-economic and health challenges experienced by Alberta's Indigenous Communities.

The Project is expected to have minimal impact on population growth and healthcare services, with only a 0.5% net increase in the regional population and a staff of around 30. However, variables like recruitment of additional healthcare professionals and the location of Project-associated workers could affect healthcare infrastructure. Despite potential vulnerabilities, the Project's impact on healthcare services for surrounding communities, including Indigenous peoples, Indigenous youth, women, and LGBTQIA2S+ individuals, is anticipated to be minimal.

15.1 Gender Based Analysis Plus

Gender Based Analysis Plus (GBA+) is an analytical tool used to evaluate how a project may impact diverse or potentially vulnerable population groups, such as members of the members of the LGBTQIA2S+ community. GBA+ used as a process for understanding who is impacted by the issue being addressed and how, and the steps to reduce those impacts.

The LGBTQIA2S+ community is comprised of people who identify as lesbian, gay, bisexual, transgender and/or gender expansive, queer and/or questioning, intersex, asexual, and two-spirit. It is important to note that members of the LGBTQIA2S+ community are members of every community.

The BBPP is situated outside recognized pride network regions, with the nearest one, The Pride Centre of Edmonton, approximately 160 km southeast of Whitecourt. The Centre offers a range of services catering to diverse sexual orientations, gender identities, and expressions, including resources, counselling, and programs aimed at enhancing the social, mental, and physical well-being of the LGBTQIA2S+ community.

However, AHS offers resources like the SOGIE Safer Places Toolkit to healthcare teams, aiming to raise awareness and provide practical tools for creating inclusive care environments for LGBTQ2S+ individuals and their families. Trans, non-binary, and gender-diverse individuals often struggle to find knowledgeable and welcoming healthcare providers, presenting a significant challenge. AHS endeavors to address this gap by providing accessible services tailored to the needs of the LGBTQIA2S+ community at all stages of their healthcare journey.

GBA+ aims to consider various identity factors beyond sex and gender, including age, disability, race, ethnicity, economic status, education, religion, and mental and physical disabilities. In Swan Hills and Whitecourt, the proportions of individuals identifying as men+ and women+ are similar, with slight deviations from the provincial average and slight variations across different age brackets. "Men+" includes men (and/or boys) and some non-binary individuals, while "women+" includes women (and/or girls) and some non-binary individuals.

Indigenous Communities and the public did not identify any gender gap issues or other disparities during the consultation and engagement process. Indigenous and public engagement was open to all stakeholders, including individuals, Indigenous Communities, women+, unemployed, low income, seniors, disabled, and other marginalized groups.

KEC is committed to creating an environment that fosters diversity and inclusion and has several policies in place to achieve this goal. Policies include:

- Workplace Violence and Harassment Policy
- Health, Safety, and Environment Policy
- Diversity Policy

15.2 Project Activities and Socio-Economic Conditions Interactions and Effects

The Project has three distinct phases with specific project activities.

Table 10. Potential Interactions with Project Activities and Socio-economic Conditions

Project Phase	Duration	Relevant Project Activity
Site Preparation and Construction Phase	1 Year	• Clearing, grubbing, and grading • Drilling for foundations • Soils management • Surface infrastructure installation and construction, including lighting • General waste management
Operations Phase	30 years	• Operations at the facility

Project Phase	Duration	Relevant Project Activity
Closure Phase: Reclamation Stage	2-3 years	• Infrastructure demolition • Site reclamation • Environmental monitoring • General waste management

The BBPP will have positive impacts on the local and regional employment market. In 2021, Statistics Canada stated the economic region which houses nearby communities of Swan Hills and Whitecourt had a 10.4 percent unemployment rate. The Project could increase participation in the labour force and provide opportunities for in-migration and population growth of Swan Hills and Whitecourt, but it may be that existing persons would more likely benefit from the Project.

The economic output of the Project is as follows:

- Between 2021-2022, approximately $1.5 million was spent on project design.
- The construction phase will generate $400 million in value added for the local economy, supporting on average 350 jobs during the 30-month construction phase (over 700 employees during peak months).
- Operating activities would generate $30 million in value added annually, supporting approximately 30 jobs (actual numbers TBD) annually and provide provincial and municipal government revenues. The expected taxation has not yet been determined.
- BBPP is an equal opportunity employer, and it is expected that employment will be of a fixed term nature and upon closing of the Project, the jobs will cease. However, as technical expertise is increased, there will be opportunity to use skilled employees to other similar Projects, developed by other proponents.

With local employment opportunities, there may be increases in population, creating pressure on local housing markets, both ownership and rental, to accommodate new workers or immigration to the area. Given the lack of a rental market, this provides opportunity for local builders and developers to meet a market need.

The Proponent may establish an office in Swan Hills to provide a place for the public to ask questions and provide a point of contact for community members. In this location, the public will

be able to submit resumes, ask questions about the Project, integrate into the local business community, and create connections with the local community.

PART D: FEDERAL, PROVINCIAL, TERRITORIAL, INDIGENOUS AND MUNICIPAL INVOLVEMENT

16 FEDERAL FINANCIAL SUPPORT

The BBPP does not include any proposed or anticipated federal financial support.

17 FEDERAL LANDS USED FOR THE PROJECT

No federal lands will be used for the BBPP or associated activities for the purposes of carrying out the Project, nor will there be any granting of interest in federal land required.

18 FEDERAL, PROVINCIAL, LEGISLATIVE OR OTHER REGULATORY REQUIREMENTS

The BBPP is captured in the *Physical Activities Regulations*: SOR/2019-285, Schedule 30, and the operation of the BBPP will also be regulated under the *Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity* (SOR/2018-261).

Additional federal legislation that may apply to the Project include the *Fisheries Act*, the *Species At Risk Act*, and the *Migratory Birds Convention Act, 1994*. The Project will not require any authorizations under the *Fisheries Act* as the BBPP will not result in harmful impacts to fish or fish habitat. There will be no potential effects to marine environments or aquatic species, as defined in the *Species At Risk Act*, as the Project is located over 1000 km from any marine environment. There is potential to affect migratory birds, as defined in the *Migratory Birds Convention Act, 1994*, as a result of habitat disturbance and species displacement during construction and operation of the proposed Project.

There are no other confirmed federal legislative or regulatory requirements (including any federal permits, licences, or other authorizations) applicable to the Project at this time.

Provincial and municipal legislative or regulatory requirements can be reviewed above in Section 3.2 (Regulatory Requirements of Provincial and Municipal Jurisdictions).

PART E: POTENTIAL EFFECTS OF THE PROJECT

19 IMPACTS TO ENVIRONMENTAL COMPONENTS

19.1 A) Fish and Fish Habitat

The BBPP facility will require an initial water volume of 4545 m^3. KEC is planning to supply the initial water volume from groundwater wells on the BBPP site. This would require a diversion as authorized by a *Water Act* Licence (Term Licence) to be procured at a later date. The proposed diversion will adhere to the requirements of the *Water Act,* the *Water (Ministerial) Regulations,* and *Alberta Environment Guide to Groundwater Authorization.*

If the groundwater yields are insufficient to meet the initial water volume required for the BBPP, KEC then plans to divert water from the Freeman River at the point of diversion (POD) at LSD 8, Section 2, Township 65, Range 11, 08-02-065-11 W5M.

Clear Environmental Solutions identified Freeman River from POD at the surface land location of 08-02-065-11 W5M as a potential surface waterbody source.

To divert from the Freeman River, KEC will obtain a Temporary Diversion Licence (TDL) issued under the *Water Act* of the Province of Alberta. TDL application will be made to Alberta Environment and Protected Areas (AEPA) approximately 3 months in advance of the proposed diversion starting, with the application tentatively planned to be submitted in February of 2026 with diversion to commence in May of 2026 during the river's spring freshet.

The Freeman River was considered suitable for the following reasons:

- Freeman River at POD: 08-02-065-11 W5M is a Strahler Stream Order 5 watercourse
- Current allocations represent 2.85% of the mean annual flow; below the recommended, sustainable threshold of ≤12%.
- The proposed diversion rate required tentatively will be 0.02 m^3/s to 0.15 m^3/s. Mean flows of the Freeman River from mid-April through mid-August range from 3 m^3/s to 14 m^3/s. Considering limiting the diversion rate to 10% of the watercourse's flow to avoid impacting the water body and fish habitat, the river is capable of supporting the proposed diversion rates
- There is existing access to the river at the proposed POD and no new disturbance to riparian vegetation or soils will occur

- An appropriately sized, DFO-compliant, pump-intake fish screen will be utilized as per the *Interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater* to maximize the protection of fish
- *Measures to protect fish and fish habitat* will able to be adhered to, which will prevent fish death and avoid alteration or disruption of fish habitat
- AEPA will issue the approval with restrictive conditions to ensure diversion is only authorized when the watercourse has sufficient flow to support the proposed diversion rates, as well as minimize impacts to the watercourse and fish habitat

Therefore, given the flow volumes recorded, the existing access at the POD, and the use of a DFO-compliant pump-intake fish screen, the effects of water withdrawal from the Freeman River would be insignificant and would result in no measurable effect on fish or fish habitat as a result of the BBPP.

The Project will not have other indirect interactions with fish or fish habitat.

19.2 B) Aquatic Species

The BBPP is over 1000 km from any marine environment and no potential effects to marine environments or aquatic species will occur as a result of the BBPP.

19.3 C) Migratory Birds

The BBPP lands have limited potential to support tree nesting migratory birds as the majority of the Project lands were clearcut in 2005, leaving young softwood trees with only the southern border of the Project area with merchantable timber. However, there is potential to affect migratory birds including species at risk during construction and operation of the proposed Project.

Specifically, removal of vegetation from the Project footprint (20.65 ha) and ground disturbance have potential to result in the direct loss of migratory bird habitat as well as result in indirect habitat loss associated with sensory disturbance from operations. Potential sensory disturbance (e.g., noise, light) has the potential to continue during operations; however, mortality risk associated with potential equipment collisions during construction and operations is unlikely given displacement due to noise and loss of habitat within the constructed and operational areas.

Potential changes to the atmospheric environment associated with fugitive dust as well as vehicle and equipment emissions may temporarily reduce habitat availability (e.g., food resources, nesting sites) for migratory birds during construction; however, these effects could be potentially confounded with indirect effects associated with sensory disturbance (i.e., overlap with avoidance).

The Project footprint will include a stormwater pond to hold any surface run-off prior to release. This area may be used by migratory birds in a similar fashion to use of wetlands in the region but would be considered unlikely given the proximity to operational equipment. Potential indirect interaction may occur through runoff from the site and spills which might affect the quality of the stormwater pond. However, KEC has a spill response plan in place which will limit, if not wholly eliminate, the potential for contaminants into the pond.

Therefore, surface runoff collected in the stormwater pond is not expected to contain measurable volumes of hydrocarbons (i.e. from spills from equipment) nor will it contain any hazardous waste, which will be collected and disposed of at licensed facilities. As such, the stormwater pond is not expected to adversely affect migratory birds.

Mitigation

To mitigate the potential impacts of habitat disturbance and removal, vegetation clearing works associated with construction should be completed between September 1st and April 14th to accommodate sensitive periods and reduce the potential for impacting nesting avifauna.

Should construction occur during the breeding season (April 15th to Aug 31st), a pre-disturbance wildlife survey and nest sweep will be included as part of an alternative mitigation strategy to address potential Project related effects to these species groups by identifying sensitive wildlife features and by avoiding the disturbance or destruction of migratory bird nests that may be present during the breeding season.

Should incidental monitoring during operations identify significant sensory disturbance or mortality events to a particular species of bird, at a particular time of the year, or during specific weather conditions, the Proponent will implement an adaptive management protocol to monitor and mitigate future effects to the greatest extent possible.

20 POTENTIAL ENVIRONMENTAL IMPACTS ON FEDERAL LANDS, IN OTHER PROVINCES, OR OUTSIDE OF CANADA

20.1 FEDERAL LANDS

No federal lands will be used for the BBPP or associated activities for the purposes of carrying out the Project, nor will there be any granting of interest in federal land required.

No federal lands or protected areas are located adjacent to or within 10 km of the BBPP boundaries. Therefore, due to the distance from the Project, no direct changes to the environment will occur on federal lands as a result of the BBPP.

20.2 OTHER CANADIAN PROVINCES

The BBPP would not have any impacts to the environment to any other Canadian provinces as the Project area is approximately 260 km northeast of the Alberta – British Columbia border and 358 km west of the Saskatchewan border.

Given the size of the Project and the localization of effects environmental components, and the expected lack of effects on aquatic resources, the Project is not anticipated to have any adverse environmental effects outside of Alberta.

20.3 OUTSIDE OF CANADA

The BBPP will not have significant impacts to the environment anywhere outside of Canada as the Project area is located approximately 625 km north of the Canada (Alberta) – United States (Montana) border.

Given the size of the Project and the localization of effects environmental components, and the expected lack of effects on aquatic resources, the Project is not anticipated to have any adverse environmental effects outside of Canada.

21 POTENTIAL ENVIRONMENTAL IMPACTS ON INDIGENOUS PEOPLES

The BBPP is located within Treaty 8 and the territory of the Otipemisiwak Métis Government, District 21 (formerly known as the Métis Nation of Alberta, Region 4) (Refer to Figure 7 in Appendix A). Potential environmental impacts of the Project are not expected to result in any significant impacts to Indigenous peoples, including the infringement of Aboriginal and Treaty Rights, impacts to physical and cultural heritage, impacts to the current use of lands and resources used for traditional purpose, and impacts to any site or structure of historical, archaeological, palaeontological, or architectural significance. Potential impacts and associated mitigation measures are discussed below.

21.1 PHYSICAL AND CULTURAL HERITAGE

The environmental impact of the BBPP's construction and operation is anticipated to be minimal and localized. Changes in air quality, noise levels, soil, vegetation, wildlife, and heritage resources are expected to be confined to or near the project site, therefore potential impacts to Indigenous peoples will likely be localized to the Project area. During the engagement process, five Indigenous Communities, including Driftpile Cree Nation, Kapawe'no First Nation, Paul First Nation, Sturgeon Lake Cree Nation, and Sucker Creek First Nation, visited the site to assess potential concerns, which are outlined in Section 4.4.

Given that the BBPP is situated on Crown Land, there are no restrictions on accessing adjacent Crown Land due to the project. Access to the project site will be through the Conifer Energy Inc. Road from Highway 32, with all incidental activities using existing access points. However, access to the Project lands will be controlled by BBPP, ensuring that traditional use areas requiring access restrictions remain unaffected.

Despite the minimal environmental impact, ongoing engagement will address potential mitigations for land use and traditional resource purposes throughout the project's lifecycle, including licensing and permitting for the pipeline and transmission line. If consultations reveal concerns regarding traditional use or Indigenous rights, KEC commits to continued engagement with Indigenous Communities to incorporate traditional knowledge for mitigation or habitat compensation measures as necessary.

21.2 Lands and Resources used for Traditional Purposes

21.2.1 Hunting

The BBPP is surrounded by heavy industrial land use, possibly limiting its impact on Indigenous land use. However, it falls within a hunting zone, suggesting potential Indigenous hunting activities in the broader area. Construction may disrupt wildlife due to heavy traffic and noise, managed with dust control measures and vegetation replacement. Following construction, vehicle traffic will be minimal, with the site fenced for security.

Noise may continue to displace wildlife during operations, though the extent is uncertain. Existing roads and trails may maintain hunting access, though a buffer zone is imposed by hunting regulations. Habitat loss from clearing is minor due to prior clearcutting. Sensory disturbance may affect wildlife behavior, but impacts on populations are deemed unlikely. Overall, the risk to wildlife within the BBPP area is very high, primarily due to habitat loss and sensory disturbance, but medium overall and isolated to the project area. Mitigation measures are proposed to address potential impacts on wildlife in Section 14.4.6 (Mitigation).

21.2.2 Plant Gathering

The collection of traditional use plants is likely limited due to the existing heavy industrial land-use surrounding the BBPP, the lack of wetlands or watercourses within or adjacent to the BBPP boundaries, and the recent clearcut of the BBPP lands. The vegetation assessments at the BBPP did not identify any uncommon or species at risk, suggesting that the species identified at the BBPP are common to the area. However, Indigenous Communities have requested advance notice to harvest traditional plants, if present, before BBPP construction begins.

Despite required vegetation removal, impacts within the site are major but insignificant overall due to surrounding vegetation and reclamation efforts. Adjacent lands may receive stormwater discharge, but impact on vegetation is expected to be minimal due to controlled discharge and monitoring. This discharge is not anticipated to hinder Indigenous harvesting practices. Further details on vegetation assessments can be found in Section 14.4.2 (Vegetation).

The gas pipeline and electrical transmission line may encounter traditional use areas associated with traditional gathering of plants, however during construction only the overstory vegetation is removed and work in and around watercourses and wetlands will be conducted to minimize environmental impacts using detailed mitigation strategies and BMPs. Following construction of

the gas and transmission lines, operational activities are minimal, thus there would be limited effects to use at that time. The presence of the existing linear features (roads, seismic lines, etc.) adjacent to the proposed transmission line routes may have already impacted use, and further development would not be expected to necessarily affect these areas further. Finally, during permitting of the gas pipeline and transmission line, further consultation with Indigenous Communities will occur and areas of traditional use would hopefully be identified at that time, if they exist.

21.2.3 FISHING

There are no watercourses within the Project area, the BBPP and associated infrastructure will not have any effect on fish or fish habitat. Therefore, continued use of fisheries resources by Indigenous Communities would not be affected.

21.2.4 TRAPPING

During consultation associated with the BBPP, registered trappers were notified. No concerns from active registered trappers have been raised. No active traplines were present during the site assessment of the BBPP. During permitting for the transmission line and gas pipeline, further consultation with trapper(s) will occur. Any concerns will be discussed with affected person(s) and mitigation employed following consultation.

21.2.5 USE OF NAVIGABLE WATERS

The BBPP and associated infrastructure will not have any effect on navigable waters. Therefore, the magnitude of impact on navigable waters as a result of the BBPP is insignificant and continued use of navigable waters by Indigenous Communities would not be affected.

21.2.6 RECREATIONAL USE

Except for the direct and adjacent footprint of the BBPP and associated infrastructure, the BBPP is not anticipated to have any effect on recreational use of the lands. This is further limited due to the proximity of existing oil and gas infrastructure, which surrounds the BBPP. Therefore, recreational use by Indigenous Communities should not be significantly affected.

21.2.7 Commercial Use of the Lands by Indigenous Communities

There is no known commercial use of the BBPP lands by Indigenous Communities. Commercial forestry has previously harvested commercial timber from the lands. No commercial outfitting is known to occur on the lands. Therefore, commercial use by Indigenous Communities should not be significantly affected.

21.3 Sites and Structures of Historical, Archaeological, Paleontological or Architectural Significance

Currently, there are no identified sites or structures of historical, archaeological, paleontological, or architectural significance in the BBPP area. However, one site located approximately 700 m northeast of the Project boundary was identified as having a Historic Resource Value (HRV) of 5a (a = archaeological), meaning it has a "high potential to contain a historic resource'. Another site with an HRV value of 4a was identified approximately 1100 m northeast of the Project boundary and has been proven to "contain a historic resource that may require avoidance or assessment". The identification of sites and potential risk to historical resources is first searched through the Alberta Listing of Historic Resources interactive map.

If undocumented historical resources are discovered during construction, salvage operations will be completed according to regulatory guidelines, which include the *Historical Resources Act*, the *Guidelines for Archaeological Permit Holders in Alberta* and the *Archaeological and Palaeontological Research Permit Regulation* (Alberta Regulation 254/2002). On February 16th, 2023, the BBPP received a Historical Resource Act Clearance to proceed (HRA Number: 4940-23-0013-001).

The minimal effects on the environment are expected to have negligible effects on Indigenous peoples, including effects to health and socio-economic conditions, physical and cultural heritage, any structure, site or thing that is of historical, archaeological, paleontological, or architectural significance, and the current use of the land and resources for traditional purposes.

Furthermore, the BBPP initiated consultation as required under Alberta regulatory guidance and no concerns were expressed by any of the first nations or Métis. Further consultation will continue during licencing and permitting of the transmission line and the pipeline. If further or potential effects are identified, or the first nations or Métis require or request further consultation and/or engagement, KEC will continue the consultation and/or engagement processes.

22 POTENTIAL HEALTH, SOCIAL, OR ECONOMIC IMPACTS ON INDIGENOUS PEOPLES

22.1 HEALTH AND SOCIAL IMPACTS ON INDIGENOUS PEOPLES

The proposed BBPP is not anticipated to have adverse effects on the health, social conditions, or overall well-being of Indigenous Communities and peoples in Canada, including women+, Indigenous youth, and marginalized groups. Consultations revealed no gender gap issues or disparities, and engagement was open to various stakeholders, including individuals from marginalized backgrounds.

An Air Quality Assessment determined that the project would operate within provincial and federal air quality regulations. Similarly, a Noise Impact Assessment ensured compliance with permissible sound levels, with no dwellings within 1.5 km of the Project site. The assessment considered potential noise complaints and concluded that the Project's remote location and existing infrastructure mitigate such concerns.

Concerning human health risks, no significant ingestion or inhalation pathways were identified, and emissions during operations will comply with regulatory requirements, decreasing with distance from the Project. The Project's location, previous clear-cutting, and lack of evidence of plant gathering suggest limited impact on food supply resources traditionally used by Indigenous Communities.

Potential impacts on wildlife, including those hunted for country foods, are deemed insignificant due to the Project's small footprint. Additionally, the Project's location on Crown Land is not expected to restrict access to adjacent traditional land use areas.

Regarding social and medical services, limited population growth and activity associated with the Project is anticipated, with non-local workers likely accommodated in existing towns (Swan Hills and Whitecourt) with established infrastructure. Traditional land use, heritage, and resource considerations are expected to be minimally affected.

Decommissioning, reclamation, and abandonment of the Project will have a similar, insignificant effect on the health, social, and economic conditions of Indigenous peoples, including Indigenous youth and women+, as the construction and operation phases of the Project. BBPP will create a detailed Construction and Reclamation Plan to guide pre-construction and post-construction reclamation at the BBPP. The intent of the interim reclamation is to support vegetation growth

and soil stabilization in and around the BBPP once construction is completed for stabilization during operations.

Decommission and reclamation plans will include stakeholder input, particularly from Indigenous Communities, to ensure restoration aligns with traditional or future land use. Continued engagement with Indigenous Communities will provide updates and opportunities for mitigation if negative impacts arise, with a commitment to inclusivity for all stakeholders, including individuals, Indigenous Communities, women+, unemployed, low income, seniors, disabled, and other marginalized groups.

22.2 Economic Impacts on Indigenous Peoples

As stated in Section 15.2, the BBPP will have positive impacts on the local and regional employment market. In 2021, Statistics Canada stated the economic region which houses nearby communities of Swan Hills and Whitecourt had a 10.9 % unemployment rate, which is significantly higher than the provincial average of 5.7%. The Project could increase participation in the labour force among Indigenous people and women+ or provide opportunities for in-migration and population growth of Swan Hills and Whitecourt.

The potential economic benefits of the Project may include:

- $400 million in value added for the local economy during the construction phase, supporting on average 350 jobs during the 30-month construction phase (over 700 employees during peak months).
- Access to KEC's prequalification tool for interested service providers to register for contracting opportunities with the EPC contractor selected for the project.
- Access to KEC's internal, community-based contractor list sorted by service, which helps ensure local service providers are identified and included in the bid process.
- $30 million in estimated operations and maintenance spending annually, supporting approximately 30 well-paid jobs secure over the life of the Project.
- Access to KEC's Indigenous micro-loan program for Indigenous entrepreneurs building businesses in the areas where KEC operates.

The Project is not anticipated to have any negative economic impacts on Indigenous Communities and peoples, including Indigenous youth and women+, during the Project planning, permitting, construction, operation, or decommissioning, reclamation, and abandonment of the BBPP.

Across the Project lifecycle, KEC will engage with Indigenous Communities to discuss workforce needs, and where feasible, identify opportunities to develop local skills through training, contracting and workplace programs. KEC may utilize existing training institutions, and service providers, as well as mentorship opportunities by KEC staff to support trainee's skill development. For example, environmental monitor training may include access to EcoCanada's BEAHR (Building Environmental Aboriginal Human Resources) program and / or based on the learnings from the *Alberta Government Environmental Monitoring Technician Training for First Nations and Métis Communities in Oil Sands Regions, Alberta* (July 2017). Mandatory safety training will be provided for all work site personnel.

23 GREENHOUSE GAS EMISSIONS ESTIMATE

The BBPP is a combined cycle power plant incorporating carbon capture and storage (CCS) technology. Emissions sources at the BBPP include one natural gas fired combustion turbine generator which vents to the heat recovery steam generator, one auxiliary boiler stack, one CCS absorber stack, and two triethylene glycol heaters. It is possible that the CCS hub, or other party's hubs, may not be operational when the BBPP is commissioned. As such, the BBPP may operate without CCS temporarily or during maintenance.

Dispersion modelling of the BBPP was conducted under continuous operations, with and without CCS, to ensure that all MGLC of ambient air quality are compliant regardless of the operational configuration. Current greenhouse gas (GHG) regulations require calculating carbon intensity based on gross electricity produced and CO_2 emissions. Calculations integrated conservative values, where maximum power generation (100% load) is assumed to occur continuously over the course of a year. The BBPP meets federal intensity limits without CCS, emitting 420 tCO2/GWh, and reduces intensity to 19 tCO2/GWh with CCS.

Table 11. Carbon Intensity Results

Limits	Project without CCS	Project with CCS
FEDERAL CO_2 Emission Intensity Limit (tCO_2/GWh)	420	
BBPP CO_2 Emission Intensity (tCO_2/GWh)	383	19

In Alberta, the BBPP's allowable CO_2e emissions for the facility are 972,360 tonnes per year, although predicted emissions may exceed actual due to conservative operation estimates. The BBPP's GHG emissions would increase Alberta's total by 1.1 megatonnes annually, constituting 0.42% of the province's 2016 total.

Although the Clean Electricity Regulations (CER) are pending, KEC is designing the BBPP to be "CCS-ready" by 2035, seven years ahead of the deadline. This proactive approach aligns with KEC's commitment to comply with future regulations and pursue technological advancements toward achieving net-zero emissions by 2050.

24 EMISSIONS, DISCHARGE AND WASTE

The BBPP construction and operations will result in air emissions (during construction; controlled operations and reclamation); noise emissions; surface runoff discharges, industrial wastewater disposal, and general operational waste generation.

24.1 AIR

24.1.1 CONSTRUCTION AND RECLAMATION

Construction and reclamation operations activities can affect air quality by producing dust and fugitive emissions (i.e., tailpipe exhaust emitting CO_2 and nitrous and sulphur oxides) mainly due to heavy machinery use and transportation. Fugitive emissions will be limited to tailpipe emissions from vehicle use during construction and operations, and dust associated with construction and operational equipment.

24.1.2 OPERATIONS

KEC has completed an Air Quality Assessment (AQA) for the BBPP. The contaminants of concern from the emission source are NO_x, composed of nitric oxide (NO) and nitrogen dioxide (NO_2), carbon monoxide (CO) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). Air quality modelling has been completed to assess how the BBPP affects the surrounding environment.

The purpose of the air quality modelling was to evaluate the Project in terms of its compliance with the *Alberta Ambient Air Quality Objectives* (AAAQO). Project emission sources of CO, NO_2, $PM_{2.5}$, and TSP (Total Suspended Particulate) were identified and characterized. The Project includes one combustion turbine generator with a net power output of 460 MW and a 11.7 MW auxiliary boiler. The results of the Air Quality Assessment (AQA) modeling predict that cumulative maximum CO, NO_2, and $PM_{2.5}$ concentrations resulting from the addition of the BBPP to existing external industrial emission sources and ambient background, were less than their corresponding AAAQOs for all relevant averaging periods.

The plant will be equipped with a continuous emission monitoring system (CEMS) capable of monitoring carbon monoxide (CO), oxides of nitrogen (NO_x), oxygen (O_2), and opacity. Additional parameters may need to be monitored based on the BBPP approval conditions. A Data Acquisition and Report Generating System (DARS) will also be provided.

KEC will become a contributing member to the West Central Airshed Society (WCAS). WCAS is a non-profit organization that operates a network of twelve (12) continuous monitoring stations and thirteen (13) micro sensors that collectively monitor air quality across the West Central region to provide scientifically credible air quality data on a regional scale.

Refer to Section 14.4.1 (Air Quality) or Section 23 (GHG Emissions Estimate) for more information on air quality and emissions at the BBPP.

24.1.3 Operational Fugitive Emissions

The key elements for effective long-term control of fugitive emissions are the application of best available technology and standards, implementation of management systems, and corporate commitment[3]. The application of control technologies and design standards, alone, do not preclude the potential for fugitive emissions. Reliable fugitive emissions control requires the development of monitoring programs, operating procedures, and performance objectives for controlling fugitive emissions, and management's commitment to the implementation and maintenance of an Inspection and Maintenance program.

As a component of successful and profitable operation of the BBPP, necessary components are subjected to regular screening for leaks as part of regular and scheduled maintenance. The objective is to minimize the potential for leaks in the most practicable manner possible. This is done by focusing efforts on the types of components and service applications and maintenance requirements most likely to offer significant cost-effective control opportunities.

Once a leak is detected and is determined to need fixing, this will be done within a reasonable period of time or at the next facility turnaround if a major shutdown is required.

24.1.4 Dust

BBPP will implement appropriate dust suppression measures on roads, work areas, or transportation and loading routes as necessary. The decision to control dust will be made at the field level and will depend upon site conditions, level of activity, and worker health and safety.

[3] Canadian Association of Petroleum Producers. 2007. Best Management Practice. Management of Fugitive Emissions at Upstream Oil and Gas Facilities.

24.1.5 ODOR

In the event that an adverse odor event occurs on site that has potential to impact surrounding areas the following steps will be undertaken to address the situation:

- The source of the odor will be investigated and identified.
- The contributing process/substance will be terminated, relocated, removed, or otherwise managed as deemed necessary.
- If the odor in indicative of a potentially hazardous event, the appropriate regulatory agency will be contacted immediately for assistance. Such assistance may include guidance on notification to nearby residents, business, or other land users.
- If the odor event is deemed to be unhazardous but substantially offensive and objectionable, nearby public will be contacted and provided with information regarding the odor.

24.1.6 NOISE

KEC has completed a Noise Impact Assessment ("NIA") for the BBPP. The NIA has been prepared to support BBPP's Industrial Approval Application and meets the requirements of the Alberta Utilities Commission (AUC) established in Rule 012 – Noise Control.

24.2 SURFACE RUNOFF

All surface water runoff is being managed as a function of the BBPP. The collection of surface runoff from the BBPP is done for the purposes of keeping the operational area as dry as possible.

Site drainage, soil erosion and sediment control will be reviewed and implemented during construction and included into the final grading, drainage and landscape design. Water should not be allowed to pond adjacent to buildings, equipment, foundations, and roadways both during and after construction.

24.2.1 STORMWATER MANAGEMENT

Surface runoff from the operational area will be collected by ditches, swales and grading directed to a stormwater pond located at the northwest corner of the operational area. Dikes and berms will be installed along the plant perimeter as required to keep runoff within the operational area.

The purpose of the stormwater pond is to hold runoff from major events and allow any solids to settle before being released. The BBPP is not allowed to use water collected in the storm water ponds for operation purposes. Once water is in the pond, the water will be tested to meet AEP discharge criteria prior to being discharged back to the surrounding environment. Any water that is not suitable for release will trucked out to a 3rd party certified wastewater disposal/treatment facility.

As the pond will only capture surface runoff, no hazardous materials will affect the quality of the water. KEC has a spill response plan, and any spills or leaks will be immediately handled to ensure no effects to surface water or runoff.

Any pump off water from the pond will likely be directed towards the north side of the BBPP into surrounding natural vegetation and will drain north through natural topography. All water will be discharged without causing erosion (erosion controls will be provided at the discharge point). The water will be discharged to a well vegetated area where the discharge will be distributed over the natural ground and will meet provincial discharge criteria prior to release. Discharge events will be monitored to ensure equipment remains operational and erosion and sediment controls remain effective, and to terminate equipment if necessary.

At this time, the pond design characteristics, including liner types, leak detection, or other requirements, have not been finalized but will be during final plant design once an EPC contractor has been determined.

24.3 Industrial Wastewater Disposal

Industrial wastewater will not be released to the environment. All industrial wastewater and process liquids will be collected, stored and monitored in above ground tanks and wastewater will be trucked offsite to an approved wastewater collection facility.

All tanks used for storage of industrial/process wastewater will meet requirements for design characteristics. Industrial wastewater disposal details will be recorded.

24.4 Domestic Sewage and Wastewater

Sewage generated during construction, operations, and reclamation of the Project. Construction and reclamation sewage will be managed in portable toilets. Sewage generated during operations will be contained within an onsite septic system including water and solids flowing to an

underground tank within the boundaries of the BBPP. As required, domestic bio-solids will be vacuumed from the septic tanks and hauled to the nearest sewage treatment facility for disposal.

24.5 Domestic Waste

All domestic and industrial garbage will be disposed using approved refuse containers for hauling and disposal at an approved landfill. Bear proof containers will be used on location for holding of domestic and industrial garbage.

24.6 Operational Waste

Operational wastes from the BBPP may include:

- Used oil / grease
- Process wastewater
- Oily wastewater
- Relief valve discharges
- Domestic grey water, black water
- Solid wastes
- Exhausted Resin from Condensate Polisher

No third-party wastes will be accepted at the BBPP.

PART F: SUMMARY

25 INITIAL PROJECT DESCRIPTION SUMMARY

This Initial Project Description Summary, in both English and French, has been submitted along with the Initial Project Description.

26 CERTIFICATION

The undersigned has considered relevant factors and influences pertinent within the scope of the assessment. The undersigned has no past, present, or contemplated interest in the assessed underlying property or investments in the proponent. I have reviewed the information as submitted and completed this report in conformity with the Code of Ethics and the Duties of Professional Biologists.

Respectfully Submitted,

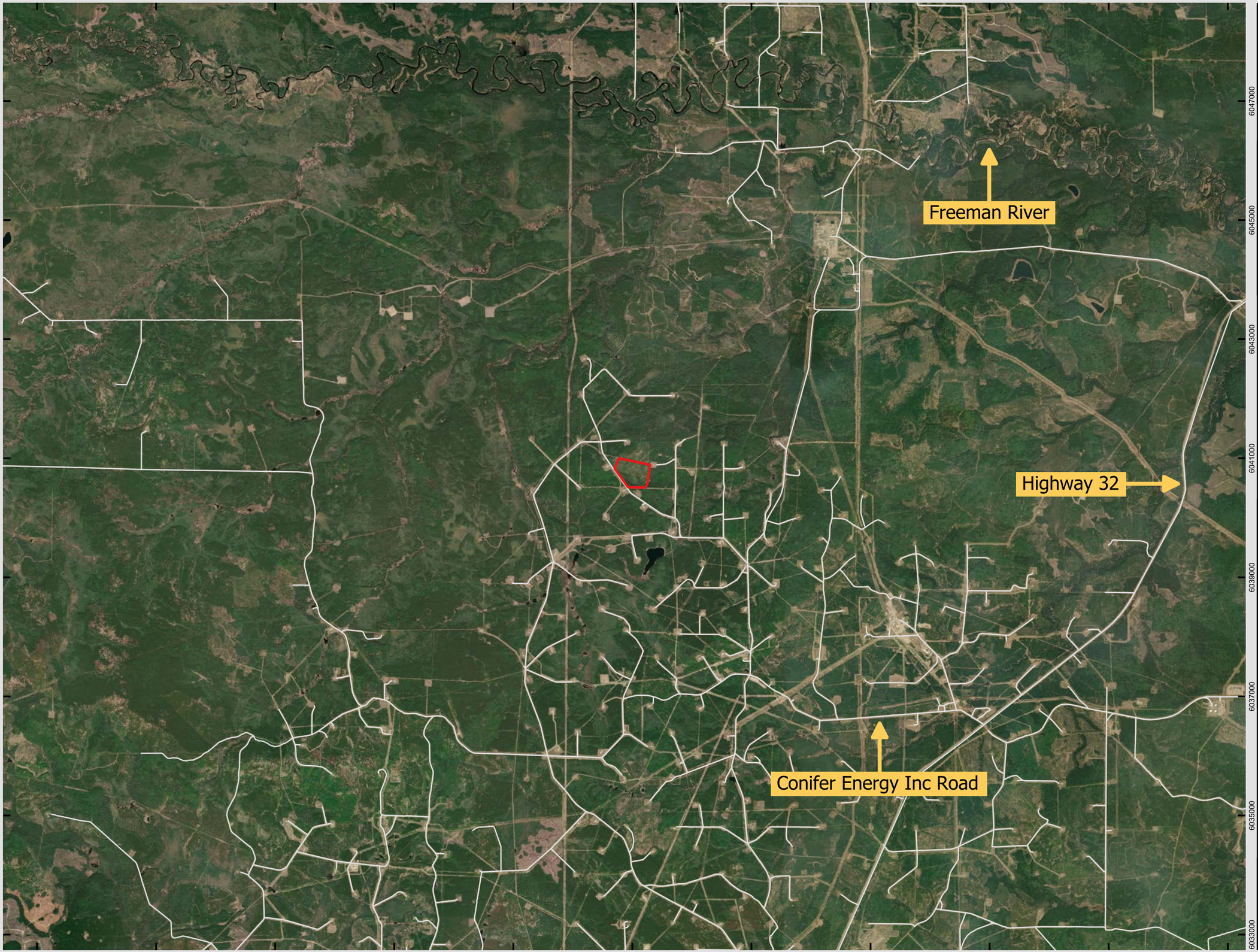
<Signature removed>

<Signature removed>

Robert McCallum, P.Biol
President
McCallum Environmental Ltd.

Destin Gardner, BSc., MREM
Environmental Scientist
McCallum Environmental Ltd

Appendix A – Figures



Prepared for:

kiwetinohk energy

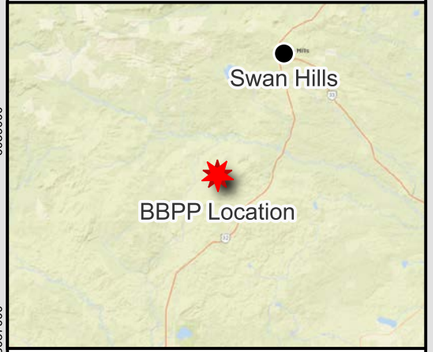
FIGURE 1

Black Bear Power Plant (BBPP)

LSDs 1, 2, 6, 7, 8, SE ¼ SEC. 15, TWP. 64, RGE. 11, W5M

Legend

- Alberta Roads
- Project Area



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Reviewed By: RM

2024-05-05

McCallum Environmental Ltd.

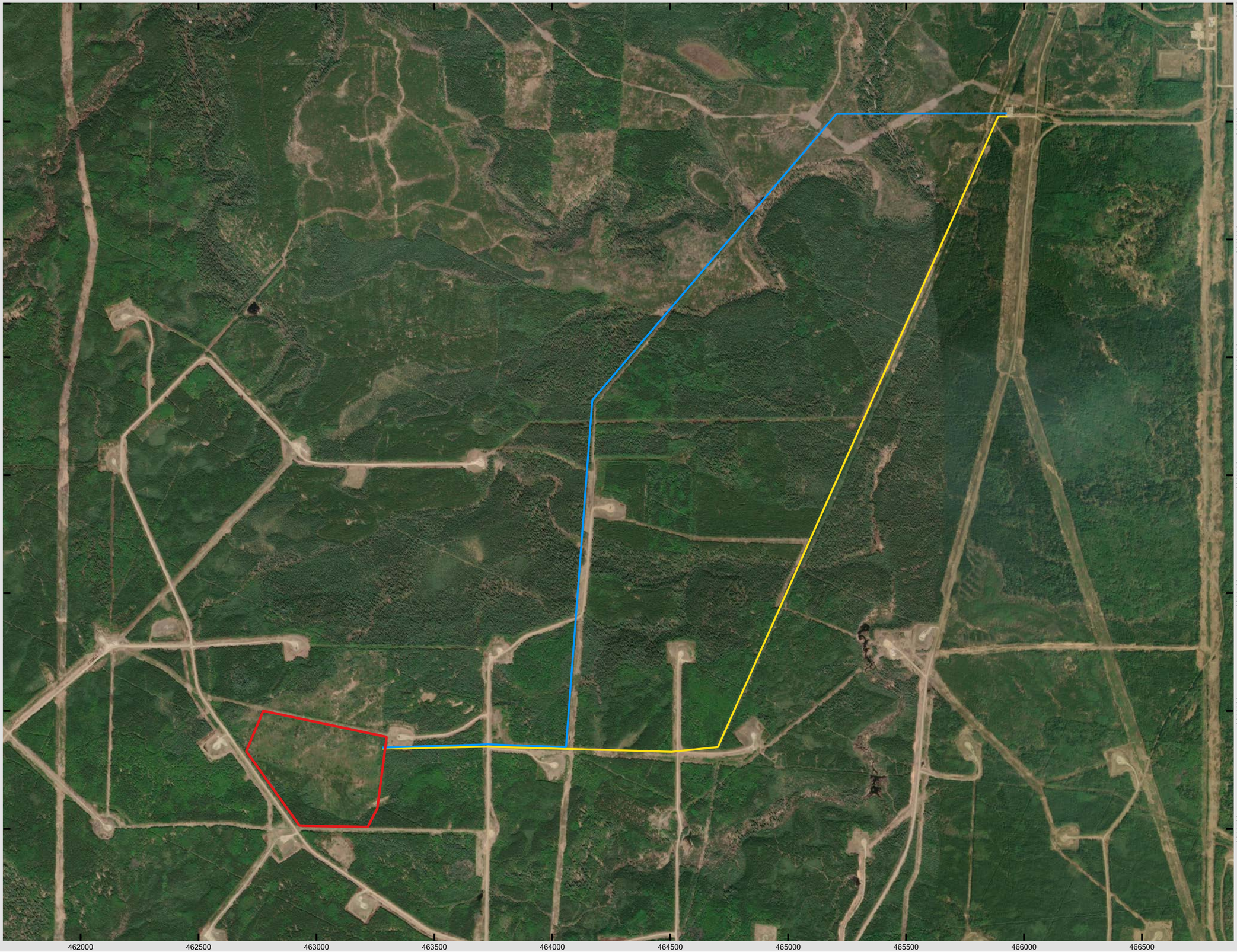

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FIGURE 2

Black Bear Power Plant (BBPP)

Natural Gas Pipeline Options

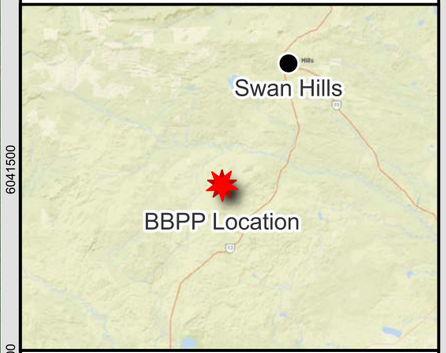
Point of Interconnection at LSD 3, SW ¼ SEC. 25, TWP. 64, RGE. 11, W5M

Legend

- Project Area

Gas Pipeline Options

- East Route
- West Route



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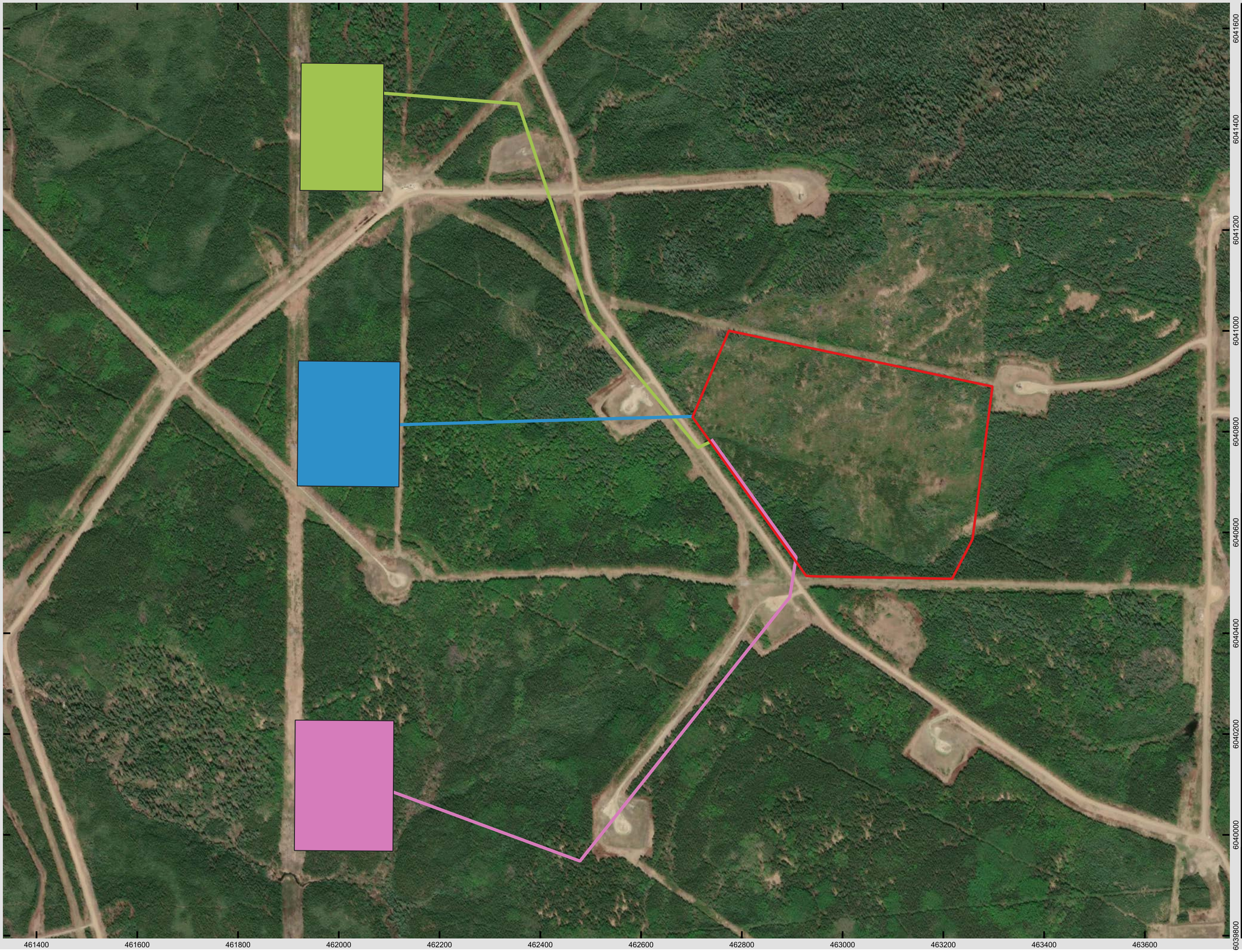

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FIGURE 3

Black Bear Power Plant (BBPP)

Transmission Line and Switching Station Options

Legend

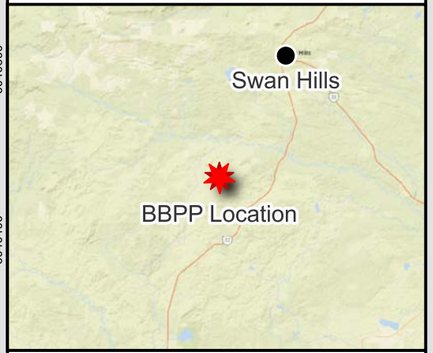
- Project Area

Transmission Line Route Options

- Option 1
- Option 2
- Option 3

Switching Station Options

- Option 1
- Option 2
- Option 3



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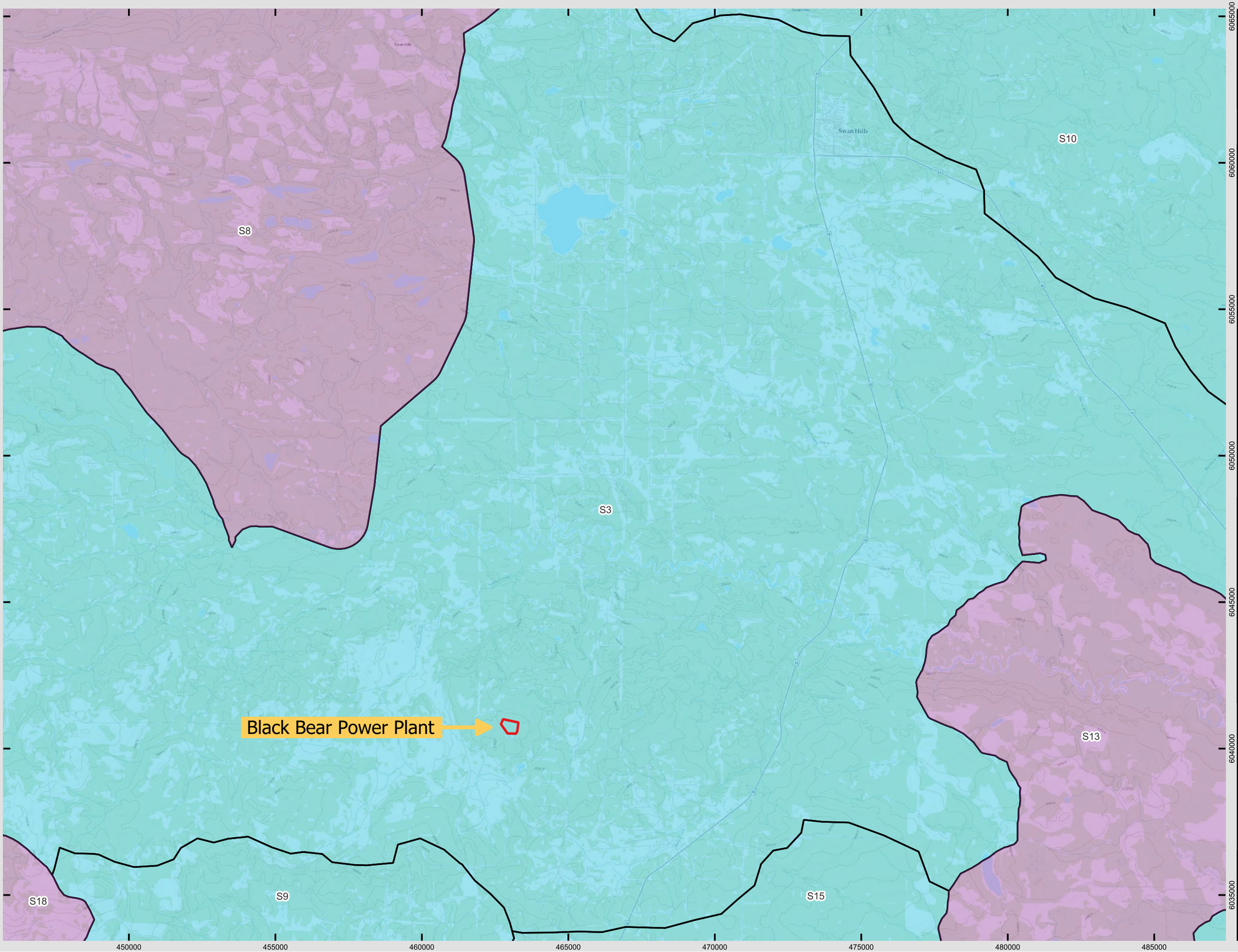

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FIGURE 4

Black Bear Power Plant (BBPP)

Grizzly Bear Management Zones

Legend

- Grizzly Bear Watershed Units
- Grizzly Bear Secondary Habitat
- Grizzly Bear Core Habitat
- Project Area

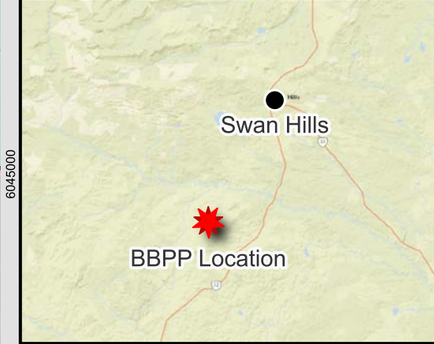

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FIGURE 5

Black Bear Power Plant (BBPP)

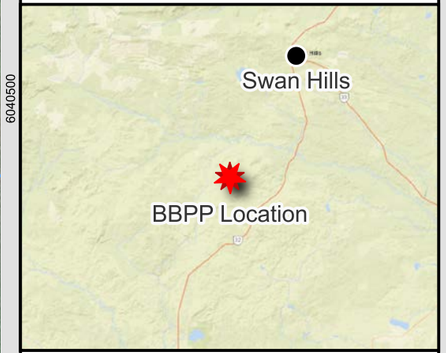
Wetlands and Watercourses

Legend

- Alberta Mapped Watercourses
- Field Delineated Wetland
- Project Area

Alberta Merged Wetland Inventory

- Bog
- Fen
- Marsh
- Open Water
- Swamp



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Reviewed By: RM 2024-05-05

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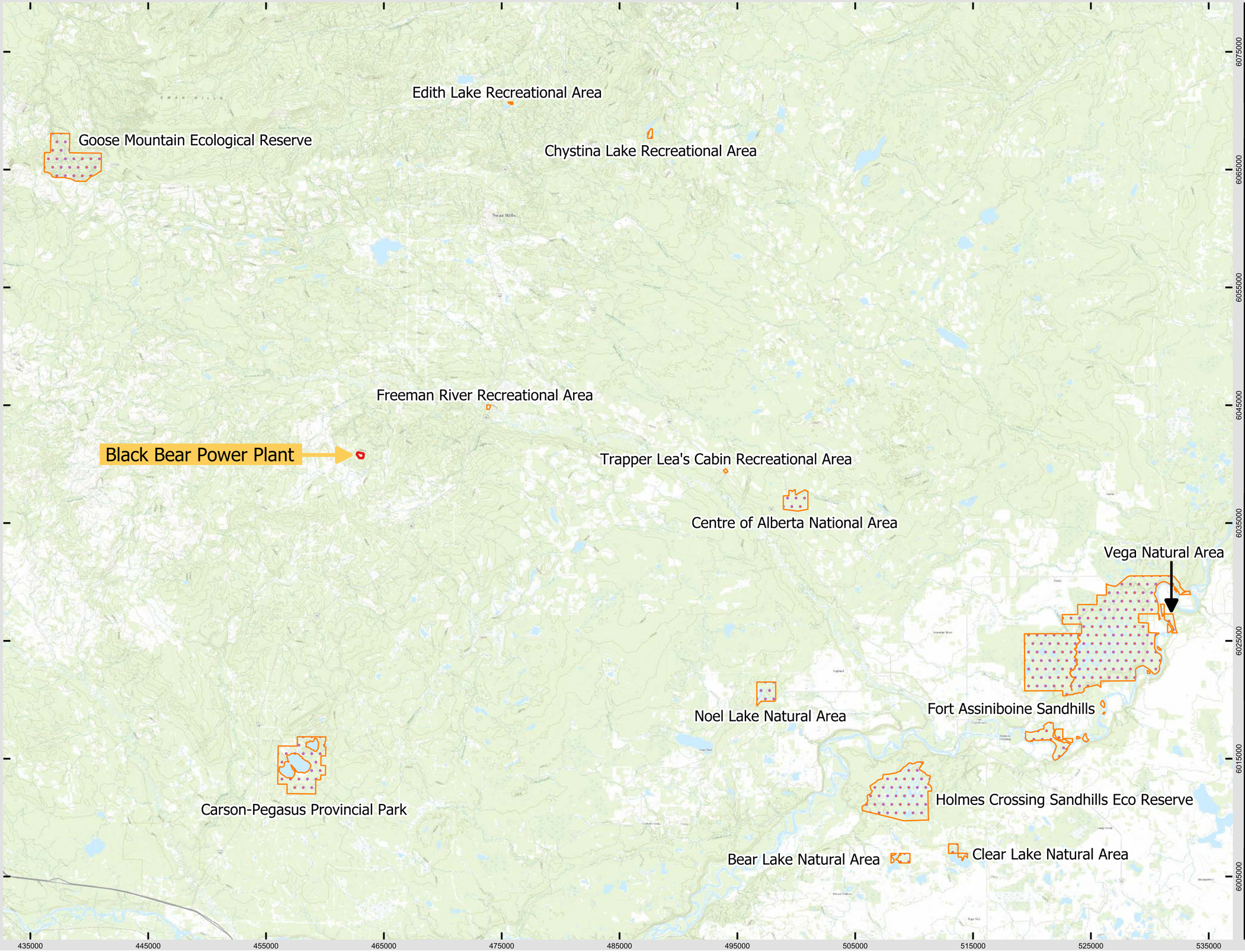

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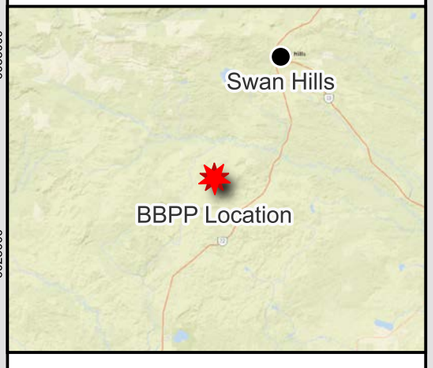
FIGURE 6

Black Bear Power Plant (BBPP)

Parks and Protected Areas

Legend

- Parks and Protected Areas
- Project Area



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Drawn By: DG
Reviewed By: RM

2024-05-05

McCallum Environmental Ltd.

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Kapawe'no First Nation No. 150C (Halco 150C)
Kapawe'no First Nation No. 229 (Grouard 229)
Kapawe'no First Nation No. 150B (Freeman 150B)
Kapawe'no First Nation No. 230 (Grouard 230)
Kapawe'no First Nation No. 231 (Grouard 231)
Sucker Creek No. 150A (Sucker Creek First Nation)
Horse Lakes No. 152 B (Horse Lake First Nation)
Drift Pile River No. 150 (Driftpile Cree Nation)
Assineau River No. 150F (Swan River First Nation)
Swan River No. 150E (Swan River First Nation)
Sawridge No. 150G (Sawridge First Nation)
East Priarie Métis Settlement
Sawridge No. 150H (Sawridge First Nation)
Sturgeon Lake No. 154A (Sturgeon Lake Cree Nation)
Sturgeon Lake No. 154 (Sturgeon Lake Cree Nation)
Sturgeon Lake No. 154B (Sturgeon Lake Cree Nation)
Alexander No. 134B (Alexander First Nation)
Alexander No. 134A (Alexander First Nation)
Alexis Whitecourt No. 232 (Alexis Nakota Sioux Nation)
Alexander No. 134 (Alexander First Nation)
Alexis No. 133 (Alexis Nakota Sioux Nation)
Stony Plain 135A (Enoch Cree Nation No. 440)
Wabamun No. 133B (Paul First Nation)
Wabamun No. 133A (Paul First Nation)
Stony Plain 135 (Enoch Cree Nation No. 440)
Alexis Elk River No. 233 (Alexis Nakota Sioux Nation)
Alexis Cardinal No. 234 (Alexis Nakota Sioux Nation)
Buck Lake No. 133C (Paul First Nation)

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5905000
5855000

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FIGURE 7

Black Bear Power Plant (BBPP)

Indigenous Reserves and Métis Settlements

Legend

- Black Bear Power Plant
- First Nation Reserve
- Métis Settlement

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Projection: Transverse Mercator
Datum: North American 1983
Units: Meter

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2024-05-05

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