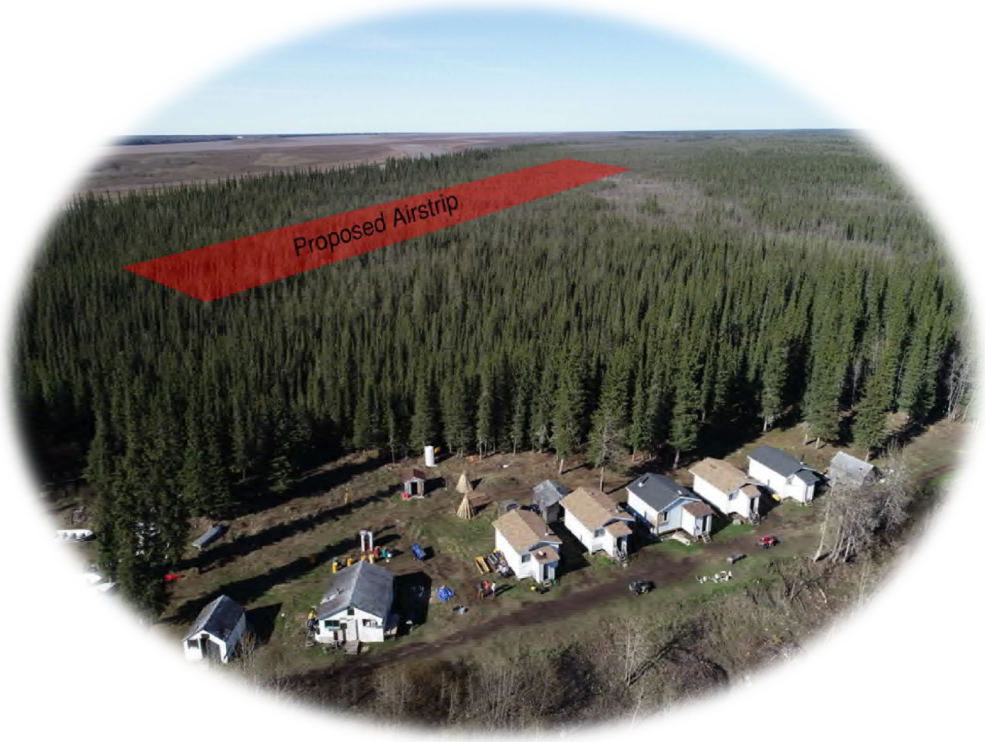
YORK FACTORY FIRST NATION TEN SHILLING AERODROME

Initial Project Description

Submitted to:

Impact Assessment Agency of Canada

April 2025



ERGENERGY SERVICES
#420 – 708, 11th Ave. SW
Calgary AB T2R 0E4

Date: April 25, 2025 **File: 25-A002**

York Factory First Nation Ten Shilling Aerodrome
Initial Project Description - near York Factory, Manitoba

Prepared by:

<original signed by>

Wendy Lafontaine
Environmental Advisor
ERG Energy Services Ltd.

Reviewed by:

<original signed by>

Stewart Nelson, P.Eng
Stenell Investments Ltd.

Distribution List

York Factory First Nation – 1 electronic copy
Impact Assessment Agency of Canada – 1 electronic copy
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X-Terra Environmental Services Ltd. – 1 electronic copy

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Abbreviations

AF	Activity Factor
AGN	Aircraft Group Number
CF	Conversion Factor
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CIA	Comprehensive Implementation Agreement
EAB	Manitoba Environmental Approvals Agency
EF	Emission Factor
EIA	Environmental Impact Assessment
ESCP	Erosion & Sediment Control Plan
ESEA	Provincial Endangered Species and Ecosystem Act
ERP	Emergency Response Plan
EPP	Environmental Protection Plan
GHG	Greenhouse Gas
GWP	Global Warming Potential
HRB	Historic Resource Branch
Ha	Hectare
IAAC	Impact Assessment Agency of Canada
IK	Indigenous Knowledge
IPCA	Indigenous Protected and Conserved Area
IPCC	Intergovernmental Panel on Climate Change
Kg	kilogram
Km	kilometer
LSA	Local Study Area
MBCDC	Manitoba Conservation Data Centre
MARRC	Manitoba Association for Resource Recovery Corporation
PM	Particulate Matter
RSA	Regional Study Area
RMA	Resource Management Area
SACC	Strategic Assessment of Climate Change
SARA	Federal Species at Risk Act
SOCC	Species of Conservation Concern
t	tonnes
TC	Transport Canada
TLU	Traditional Land Use Study
WHMIS	Workplace Hazardous Materials Information System
YFFN	York Factory First Nation

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1.0 INTRODUCTION

ERG Energy Services Ltd. (ERGES) is pleased to submit the Initial Project Description (IPD) on behalf of York Factory First Nation (YFFN) (the Proponent) for the York Factory First Nation Ten Shilling Aerodrome (the Project). This IPD has been prepared in accordance with regulations and guidance from the Impact Assessment Agency of Canada (IAAC) including:

- *Information and Management of Time Limits Regulations SOR/2019-283*
- *Guide to preparing and Initial Project Description*

This document is organized to align with the required information outlined in the Information and Management of Time Limits Regulations SOR/2019-283

2.0 GENERAL INFORMATION

The project's name, type or sector and proposed location

The Proponent is proposing to develop an aerodrome in northern Manitoba which will allow access to their traditional lands and ancestorial homeland as there is only seasonal access available. The Project will be located approximately 4.5 kms SE of the York Factory Historical Site along the Hayes River, approximately 122kms NW of Shamattawa, Manitoba and approx.160km NE of the town of Gillam, Manitoba. See **Table 1**

The proposed site will occupy approximately 37.86 acres/ 15.45 hectares(ha)

Table 1. General Project Information

Name of Project:	York Factory First Nation Ten Shilling Aerodrome
Type/Sector:	Aerodrome
Proposed Location of Aerodrome:	NAD83 15V 541,573.800E 6,313,749.436N Centroid GPS Coordinates of the full airstrip is: N 56° 57'55.66" W-92°18'58.53" Legal Land Description: P/O Sec 09-10-092-11-E2M Beginning and end points of the airstrip:

Desc	Lat	Long	Label Lat	Label Long	X	Y	Label X	Label Y
NW - Runway	56.969802	-92.306556	N 56° 58'11.28"	W 92° 18'23.60"	542158.9273	6314238.345	542,158.927	6,314,238.345
SW - Runway	56.961124	-92.325962	N 56° 57'40.04"	W 92° 19'33.46"	540988.6724	6313260.527	540,988.672	6,313,260.527

Proposed Project Location see: Figure 1- Project Location, Figure 2- Project Location Detail

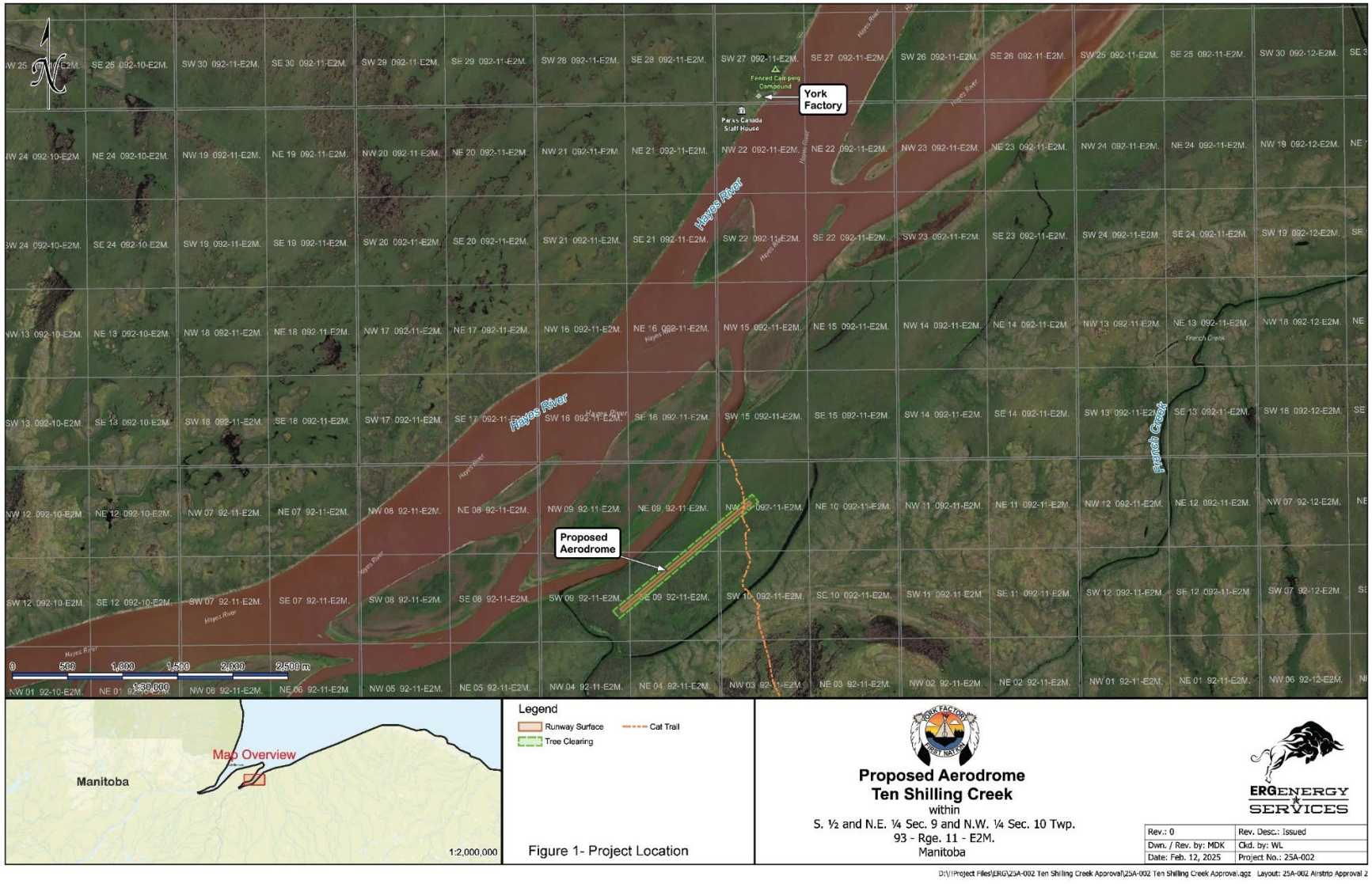

Figure 1- Project Location

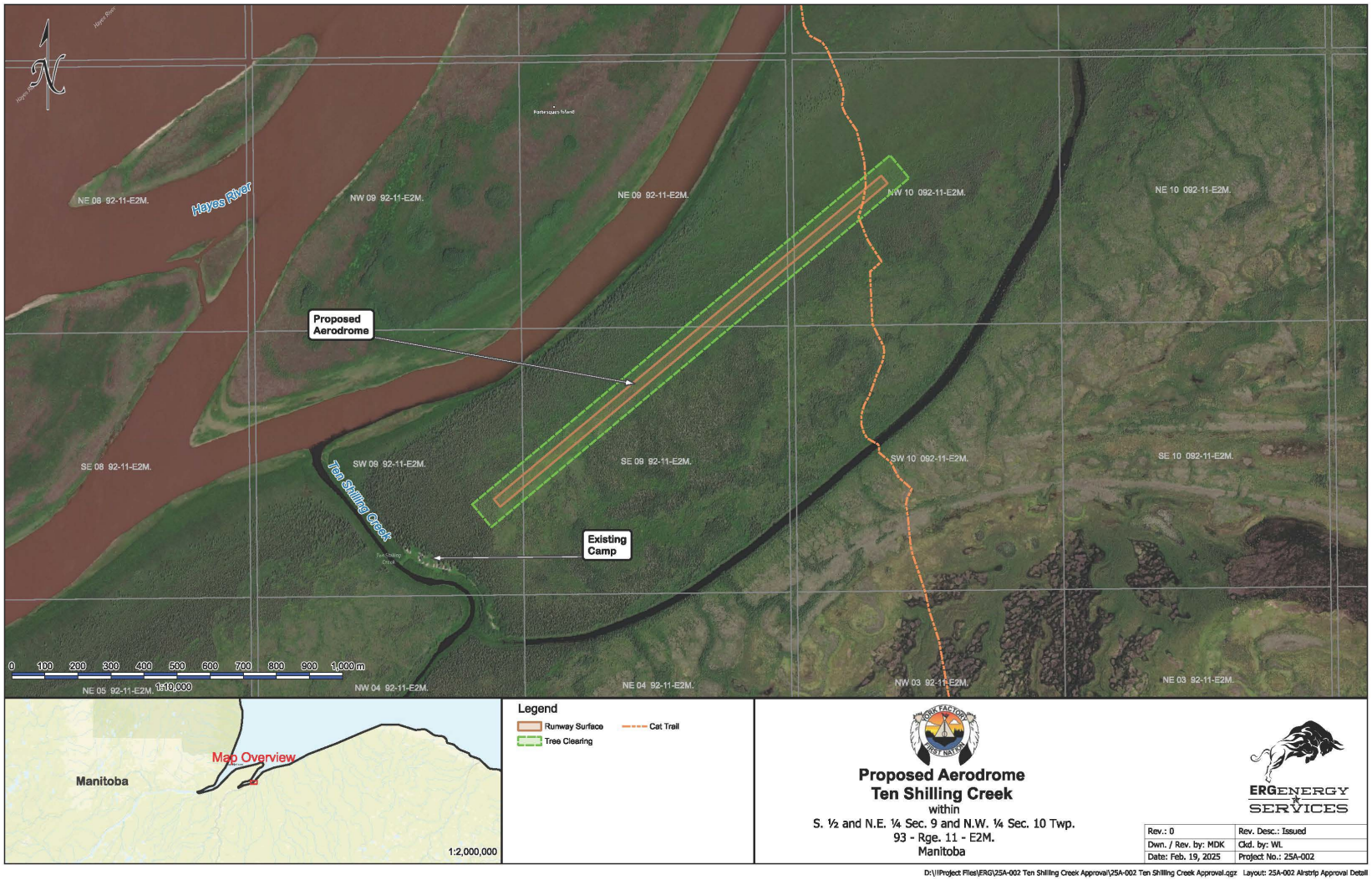

Figure 2- Project Location Detail

2.1 Proponent Name and Contact Information

The proponent's name and contact information and the name and contact information of the primary representative for the purpose of the project description

Table 2 - Proponent Name and Contact Information	
Name of Proponent	York Factory First Nation
Address of Proponent	Band Office Box 257, York Landing, MB R0B 2B0 Phone: (204) 341-2180 Website: http://www.yffn.ca/ Thompson Office 206-55 Selkirk Avenue, Thompson, MB R8N 0M5
Principal Contact Person:	Jim Beardy, CEO Kawechiwasik Development Corporation jmbeardy@gmail.com (204) 679-0140 302-83 Churchill Drive Thompson, MB R8N 0L6

2.2 Engagement with Jurisdictions or Agencies

A summary of any engagement undertaken with any jurisdiction or other party, including a summary of key issues raised and the results of engagement, along with a brief description of any plan for future engagement.

The following engagements have been undertaken to support the approval process for York Factory First Nations, Indigenous Services Canada, Impact Assessment Agency of Canada and Transport Canada. Table 3 below represents a summary of agencies or parties.

2.2.1 Federal Stakeholder Engagement

Impact Assessment Agency of Canada (IAAC)

IAAC was initially contacted in October 2024 to discuss the proposed project. Further discussions and meetings were held in November 2024 to discuss timing of the Initial Project Proposal, proposed date of submission, recommendations for the proposal and engagement with Indigenous groups. Engagement letters attached. Engagement with IAAC will be ongoing throughout the project review.

Transport Canada (TC)

Aviation and aerodromes are regulated by the Federal Government through Transport Canada's Canadian Aviation Regulations SOR96/433. Prior to construction, notification must be given to Transport Canada of the proposal to construct and operate an aerodrome. This notification must contain information such as company and contact information, location, size and orientation of the proposed aerodrome, and a list of the organizations, authorities, companies and landowners, stakeholders consulted or to be consulted, including any aerodromes within 30 nautical miles. A minimum of 45 days is to be allocated for comments or objections and the proposed mitigations of the concerns. At the end of the comment period for the proposal to Transport Canada, the proponent is required to prepare a summary report listing comments or concerns received from each organization, the proposed mitigations and identifying any objections not addressed with the rationale for not doing so. This report is provided to Transport Canada and other interested parties and is available for up to 5 years. Transport Canada has 30 days to assess the report. Barring any additional requirements from Transport Canada, construction of the aerodrome can start after the 30 days. Transport Canada will also notify Nav Canada Data Management of their acceptance of this report. Registration of the aerodrome can then proceed.

Nav Canada

Once the Project description is approved a copy of the proposal will be submitted 8-12 weeks prior to construction. Construction Notification Form of proposed construction commencement is to be submitted 10 days prior to construction to the Land Use Office landuse@navcanada.ca., Construction Completion Notification must also be submitted to the Land Use Office.

Parks Canada – York Factory Historical Site

York Factory Historical Site is located approximately 4.5kms NW of the proposed aerodrome. A Project notification call was made to Parks Canada on January 28th, 2025, and was advised by Parks Canada that in February 2024 Parks Canada met with York Factory First Nation to engage with them on another project they had underway. During that meeting, YFFN advised Parks Canada about their intent for this Proposed Project. A notification letter and Project Location map have been sent to Parks Canada advising that the project was being submitted to IAAC. Engagement will be ongoing as shown in Table 3

Table 3 - Federal Stakeholder Engagement	
IAAC	YFFN/ERG contacted IAAC in late 2024 to notify them of the proposed project. Recommendations for the project proposal as well as engagement guidelines. Engagement with IAAC will be ongoing.
Transport Canada **Nav Canada**	Submissions and engagement to be done prior to construction and reviews by IAAC.
Parks Canada **York Factory Historic Site**	YFFN initial discussion February 2024, Discussion again January 2025 – Initial Project notification sent, ongoing engagement continues

2.2.2 Provincial Stakeholders Engagement

Manitoba Environmental Approvals Branch (EAB)

EAB was contacted October,2024 to notify them of the Initial Project Description submission to IAAC and asked if the project needed to be submitted at the same time to them. The project does not fall within the Classes of Development, *The Environment Act (C.C.S.M.c.E125).* They advised it may be sent through IAAC but was not sure.

Manitoba Sport, Culture, Heritage & Tourism Branch

Initial call/email was made in January 2025, to advise of the Project and request any potential historical data for the Project location. A response was received advising that a Heritage Resource Impact Assessment (HRIA) will be required prior to construction.

2.2.3 Municipal Stakeholder Engagement

The Project is owned by YFFN and does not fall within a Municipality. No Municipal engagement has been done.

2.2.4 Landowner Engagement

The project is owned by YFFN. YFFN's members are all in support of the Project moving forward and are looking forward to better access to their traditional lands and the protection of it.

2.2.5 Resident(s) Stakeholder Engagement

There are no permanent resident stakeholders in or near the proposed Project. The closest permanent residents are located approximately 120kms south of the Project at Shamattawa. However, there are seasonal Parks staff with Parks Canada at the York Factory Historical Site between June to early September. The Nanuk Polar Bear Lodge which is approximately 43kms to the NE of the Project also has seasonal staff from July to November. Both locations have no permanent access.

2.2.6 Industry Stakeholder Engagement

No industry stakeholder engagement has been done. The closest industry projects found were to the south along the Nelson River at Bird (Manitoba Hydro Limestone Facility) which is fully operational.

Summary of Engagement with Provincial Stakeholders

Table 4- Provincial Stakeholder Engagement	
Manitoba Environmental Approvals Branch (EAB)	Contacted in October 2024 and again in January 2025 to confirm the project does not fall within the Classes of development with the Environment Act
Manitoba Sport, Culture, Heritage & Tourism Branch	Initial contact was made in January 2025 – An HRIA will be required prior to construction. Engagement will be ongoing
Resident(s)	No permanent residents in the area. Seasonal resident(s) (staff) at the York Factory Historical Site and Nanuk Polar Bear Lodge. Engagement will be ongoing.

2.3 Indigenous Engagement

A list of the Indigenous groups that may be affected by the project, a summary of any engagement undertaken with the Indigenous peoples of Canada, including a summary of key issues raised and the results of the engagement, and a brief description of any plan for future engagement.

The Proponent of this project is Indigenous, and the Project is located within their Traditional Territory. The following outlines the Proponent's engagement summary for the Project to date and commitments related to engagement with Indigenous groups. As part of our commitment to engaging and including Indigenous communities in the Project, the York Factory First Nation Ten Shilling Aerodrome Project has committed to the following principles:

1) Open and transparent engagement with Indigenous communities
2) The provision of factual and timely information to Indigenous communities

Following the Project announcement, members of the York Factory Ten Shilling Aerodrome Project team reached out to staff at IAAC to understand which Indigenous communities may have an interest in the Project. IAAC provided the following list of Indigenous communities to be scoped in for engagement:

- Fox Lake Cree Nation
- Shamattawa First Nation
- Tataskweyek Cree Nation
- War Lake First Nation
- Manitoba Metis Federation

With this information an engagement document was created for all to ensure that who ever may interest or have potential to be affected by the project, they will be able to share their comments and or support.

YFFN asked to be the conduit for on inputs from other First Nations on the YFFN Ten Shilling Aerodrome project. On Wednesday the 22nd of January the YFFN produced a draft letter that was revised and signed by YFFN Chief Daryl Wastesicoot, dated, January 28th and presented by hand to the respective Chiefs of the Kitaskeenan Kaweekanawaynichikatek project, Fox Lake Cree Nation, Tataskweyak Cree Nation, War Lake First Nation, and Shamattawa First Nation, at the Assembly of Manitoba Chiefs Special Chiefs Assembly conference on the 29th of January 2025 in Winnipeg at the Canad Inn, Polo Park.

To date no in person or written responses have been received from the original engagement document dated January 28th, 2025. As part of the ongoing engagement all comments/requests will be addressed as well as updates will be provided at all milestone events unless required sooner.
Summary of Engagement with Provincial Stakeholders shown below

Table 5- Indigenous Community or Group	
Indigenous Community	**Engagement Summary**
Fox Lake Cree Nation	Engagement letter delivered Jan 29th, 2025
Shamattawa First Nation	Engagement letter delivered Jan 29th, 2025
Tataskweyek Cree Nation	Engagement letter delivered Jan 29th, 2025
War Lake First Nation	Engagement letter delivered Jan 29th, 2025
Manitoba Metis Federation	Engagement letter delivered April 2025

2.4 Studies and Plans

Any study or plan relevant to the project that is being done or has been conducted where the project is to be carried out, including Regional Assessments carried out under the Impact Assessment Act, or by any jurisdiction including by or on behalf of an Indigenous governing body, where the study or plan is available to the public.

A pre-feasibility study was completed in July 2024 to gather topographical and geotechnical information for the proposed aerodrome. The topographical data was collected through a LiDAR survey conducted using a drone, resulting in a topographical map used to determine grades and cut/fill calculations. This data helps optimize the Project location and orientation. Geotechnical information was obtained using a Shaw Coring machine and Dynamic Cone Penetration test, which provided soil samples and in-situ strength measurements to confirm the site's suitability. The results of the geotechnical survey identified that the soils onsite consist of approximately 0.15-0.20 m of organic over approximately 0.60 m of mainly fine-grained silty soil on top of bedrock (Hart Aviation Strategies, 2350062 Alberta Ltd.).

Originally four locations were reviewed based on satellite imagery. Then was reduced to this location based on topography, proximity to existing camp, elevation of the site above the Hayes River and geotechnical suitability.

Hayes River Management Plan (2005)

This plan and application of existing legislation, regulations and policies concerning natural and cultural resource management and environmental assessment, combined with a broad awareness and support for the heritage and recreational values of the river. Preparation of this plan involved the combined efforts of staff of Manitoba Conservation, staff and Councils of Norway House, Bunibonibee, Shamattawa and **York Factory First Nation**, and other Manitobans who participated in the consultation process. Their interest and participation are testimony, and commitment will ensure the Hayes is forever cared for in a way that benefits its designation as a Canadian Heritage River. The proposed aerodrome location follows

the guidelines set out in the Management Plan for activities near the Hayes River to conserve the river's heritage values.
https://gov.mb.ca/sd/pubs/parks-protected-spaces/management_plan/hayes_river_mgmt_plan.pdf

Manitoba Sport, Culture, Heritage & Tourism Branch

Historic Resource Branch (HRB) manages the preservation and study of historic resources in Manitoba including archaeological sites, paleontological sites, historic buildings, and Aboriginal traditional use sites. A Heritage Resource Impact Assessment (HRIA) will be completed prior to construction. Construction will not commence until clearance is obtained. Should any discoveries be made then protocols will be implemented into the Environmental Protection Plan (EPP) and shared with the other Indigenous groups as part of our continued engagement.

Agriculture and Agri-Food Canada

Biophysical Land Classification of the Hayes River (54C) Area Information Bulletin 2003-4 prepared for Manitoba Hydro May 2003

Introduces the newly digitized soil and terrain data bases and illustrates several typical derived and interpretive map products for land use planning and management applications. The overview provided in this bulletin is derived from available soil and terrain information published in the Bio-Physical Land Classification of selected areas in eastern and northern Manitoba and from soil data contained in the Manitoba Soil Data Base. The document contains information about the project area.

Within the document it describes York Factory near the mouth of the Hayes River of which is only accessible by boat/canoe or charter float plane due to the location. The only lodge at the time was operated by York Factory First Nation at Ten Shilling Creek near the junction of the Hayes River.

York Factory National Historic Site of Canada Management Plan (October 2007)

The development of this management plan involved the exchange of information and ideas among Parks Canada staff from several research and management functions, First Nations communities associated with York Factory, tour operators and outfitters, professional engineers and scientists outside of Parks Canada, and interested public. **York Factory First Nations** members were part of the discussion group for the Plan as well as the conservation for the area.

York Factory Resource Management Area (RMA)

In 1995, YFFN concluded the Comprehensive Implementation Agreement (CIA) with the Government of Canada, the Province of Manitoba, and Manitoba Hydro. The CIA formalized YFFN's Resource Management Area, however, the RMA only partially resembled YFFN's larger traditional territory and former York Registered Trapline (RTL). The CIA granted YFFN co-management rights to the RMA through participation on the Resource Management Board (RMB) which consists of representatives from both YFFN and Manitoba. The establishment of the YFFN RMA meant a new co-management relationship to the land and method for taking care of the land.

The 1995 states that the Board, made up of YFFN and Manitoba, may:

- Investigate resources, their use, and any influences on them
- Monitor activities within the Resource Management Area
- Propose subjects for research
- Prepare information and communication strategies
- Hold meetings or workshops or otherwise consult publicly or privately with any person
- Develop and recommend Resource Management Plans
- Develop and recommend Land Use Plans
- Carry out other duties jointly assigned to it by York Factory and Manitoba

Traditional Land Use Studies (TLU)

These studies seek to gauge the extent of past and present use of the land for traditional pursuits important to Indigenous communities.

YFFN has been involved in many Traditional Land Use Studies within the Project area – of which some have been listed below along with links to the documents. They have also been involved in TLU Studies to the south of the Project area with Manitoba Hydro projects approximately 180kms southwest. The full studies were not available for review by ERG; however, they are publicly available online.

- **Voices from Hudson Bay -** Cree Stories from York Factory - by (author) Flora Beardy & Robert Coutts (Flora Beardy Elder of York Factory First Nation is retired from Parks Canada and lives in York Landing, Manitoba. She continues to collect oral histories from today's elders and encourages youth to learn about their heritage). **Robert Coutts** worked as a historian with Parks Canada for over thirty years, researching historic sites throughout western and northern Canada. *https://www.google.ca/books/edition/Voices_from_Hudson_Bay/9axc1sVUBhqC?hl=en&gbpv=1&printsec=frontcover*

- **York Factory as a Native Community –** Robert Coutts *https://iportal.usask.ca/docs/Prairie%20Forum/York%20Factory%20(v17no2_1992_pg275-294).pdf*

- **2015 National Merit / Planning & Analysis** - York Factory First Nations won an award from the Canadian Society of Landscape Architects (CSLA/AAPC) for their Evaluation and Assessment of the Keeysak Generation Project which was submitted as part of the Keeysak Generation Project Environmental Impact Statement (EIS).

  KIPEKISKWAYWINAN Our Voices – was prepared by York Factory First Nation (their volume in the Keeyask Generation Project EIS a copy is available on their website *http://www.yffn.ca/*

2.5 Strategic Assessments

Any strategic assessment relevant to the project, that is being or has been carried out under Section 95 of the Act

The Strategic Assessment of Climate Change (SACC; ECCC 2020) is a strategic assessment under Section 95 of the Impact Assessment Act and is relevant to the Project. The quantification of greenhouse gas (GHG) emissions per the SACC guidelines are presented in 6.5 Greenhouse Gas Estimate.

3.0 PROJECT INFORMATION

3.1 Project Purpose and Need

A statement of purpose of and need for the project, including any potential benefits

The People of York Factory First Nation were forcefully removed from their traditional homelands on the west coast of Hudson Bay in and around the York Factory area. The forced dispersal and removal were fully completed by the summer of 1957. Government agents burned down their settlement houses in York Factory to prevent the People from trying to return to their homeland. There were several small settlements throughout the York Factory coastal area where the People lived. Ten Shilling Creek (aka Seepastik) was one of them. The People have never stopped, since relocation, trying to maintain regular and yearly contact with their traditional coastal homeland. Shortly after relocation, members went by boat down the Nelson River to access York Factory to continue to pursue their traditional livelihoods on their lands that they knew intimately. Then it was by skidoo, then by helicopter. A makeshift landing strip was cleared on Hay Island which is directly across from the York Factory historic site. It was used for several years but was continually damaged by spring ice every year because of its location. Rocks and boulders had to be cleared every year. There was no equipment to help with this task. Another site on Fortesque Island was started but was later abandoned for various reasons. Current access to the York Factory coast is by boat on the Nelson River and by helicopter. Both transportation methods are extremely expensive. Up to $17,000 by boat (10 - 12 passengers) return and up to $25,000 return by helicopter (3 - 5 passengers).

Not only will this Project address the financial cost of access, but it will also greatly improve the health and social well-being of the People of York Factory First Nation. It will help to address the harms that were inflicted on the York Factory People that resulted from the forced dispersal and relocation. It will lead to healing and reconciliation efforts.

The Project is to allow access to and from Ten Shilling by the members of YFFN who will be re-occupying their traditional lands and will assist the YFFN People in re-establishing a permanent presence in their traditional homelands. There is discussion by some that they would like to re-settle on a smaller scale at this former site where many still living members were born and raised.

Executing the build of this project will require series of logistics and staging of increasingly capable equipment in stages as the build progresses. The use of the existing CAT trial will allow for the first stage of equipment delivery and preparation of the surface. All the alternatives of barging, airlifting and river boats have been identified and summarily discounted due to the high cost and/or limited capability. The surface will take best advantage of the in-situ materials and apply the appropriate technologies to offer a suitable year-round landing surface.

3.2 Project Applicable Physical Activities Regulation

The provisions in the schedule to the Physical Activities Regulations describing the project, in whole or in part

The Project is subject to Section 46(a) of the Schedule of *Physical Activities Regulation* (GOC 2019c), as follows:

46 The construction, operation, decommissioning and abandonment of one of the following:

(a) a new aerodrome with a runway length of 1000m or more

The runway is proposed to be 1530m long. No other criteria presented in the Schedule to the *Physical Activities Regulation* are applicable to the proposed Project.

3.3 Project Activities, Infrastructure and Physical Works

3.3.1 Proposed New Infrastructure and Project Activities

The proposed aerodrome will be a single runway with a compacted gravel top approximately 5,000 feet (1,530 m) in length and up to 100 feet (30m) in width for the runway strip allowance. Other features will include a taxiway that will connect the runway to a parking apron. The parking apron will be designed to accommodate a variety of aircraft and will include tie-down areas for aircraft that are not in use. The property is entirely remote and has no electrical service, so generators will supply power for runway lighting and outbuildings where required. The proposed site layout and facility information is shown in Figure 3.

FILE: D:\JProject Files\ERG\25A-002 Ten Shilling Creek Approval\Accad\25A-002 Airstrip.dwg

Figure 3 - Aerodrome Preliminary Design Layout

The civil works included with the construction of the Project include:

- Mobilization equipment to the Project
- Construction surveying
- Tree clearing
- Stripping
- Earthworks – cut to fill with grading and compaction
- Install either soil cement or granular base
- Construct ancillary facilities
- Installation of airfield lighting and electrical works (**generator powered**)
- Runway inspection
- Runway operational

Operational activities will include site maintenance, impermeable storage for any hazardous materials including a small fuel cache (impermeable tanks), grading of the runway, and management and staffing of the aerodrome itself. While fuel will be available for an aircraft, most flights in the north leaving a large well-established base will carry enough fuel for a round trip and some extra. Locations of storage tanks and infrastructure have not yet been determined and will be completed at the design phase of the Project. All storage for hazardous materials will follow the Workplace Hazardous Materials Information System (WHMIS) Guidelines *www.whmis.gc.ca* . The property is entirely remote, care will be taken to position all infrastructure for the Project as far as possible from sensitive receptors (such as Hayes River and Ten Shilling Creek).

“The attached pdf is a MS Project summary page of specific build tasks. The dates are continuing to move but the accumulation of the work and time matches the initial project plan.”
As shown in Figure 4.

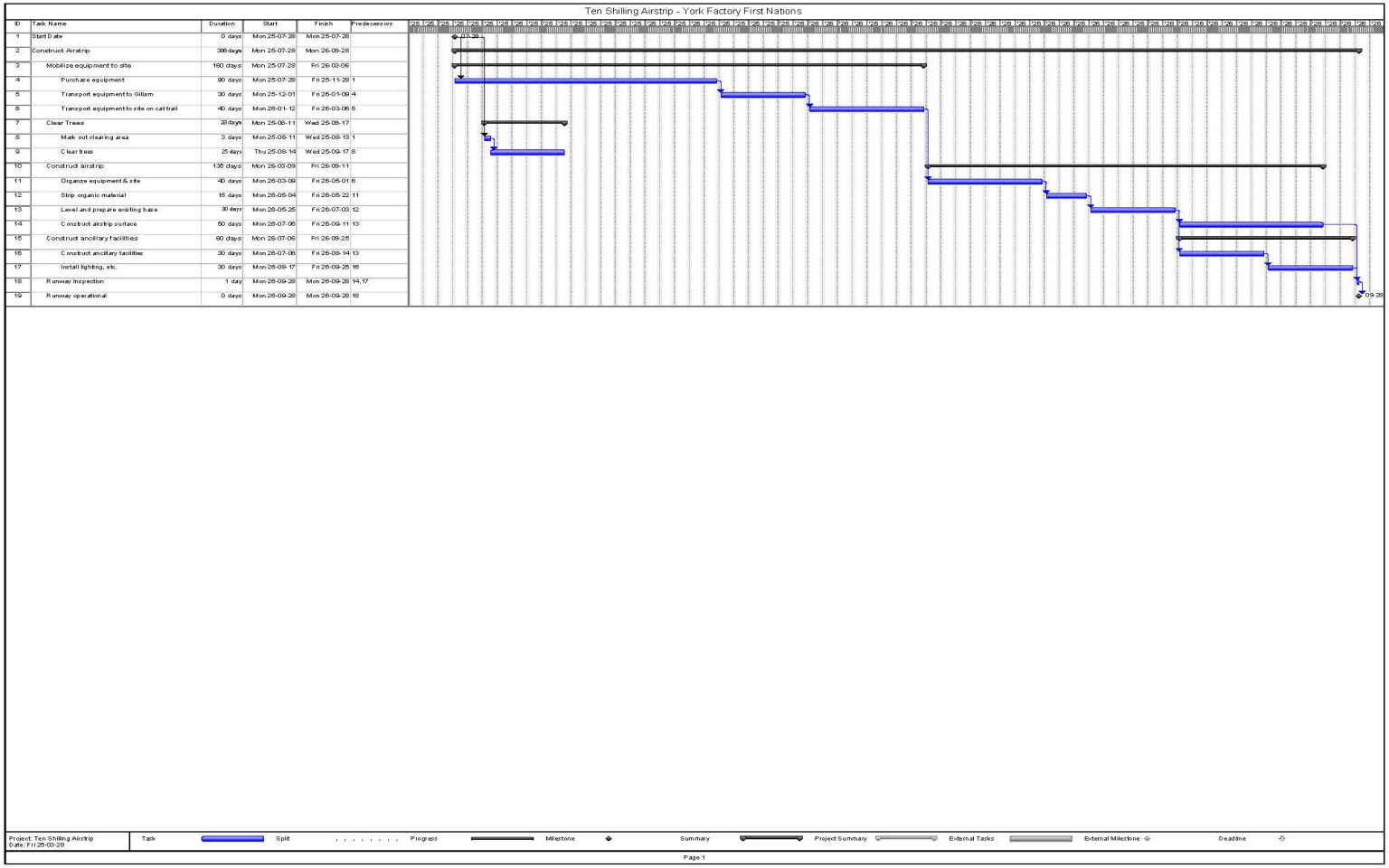

Figure 4-Project Summary Build Tasks

3.3.2 Existing Infrastructure

York Factory First Nation aerodrome will be located near their traditional camp located at Ten Shilling Creek which has been in operation since the 1970's. The camp consists of various buildings including four sleeping cabins, a kitchen cabin and miscellaneous outbuildings. This camp will be utilized to house workers for the construction and operations of the aerodrome.

The aerodrome will have a tree buffer to the existing cabins and regulated clearance requirements for the flight path.

3.4 Production Capacity

An estimate of maximum production capacity of the project and a description of the production processes to be used.

The final product for the Project will be an aerodrome with a single runway with a compacted gravel top approximately 5,000 feet (1,530m) in length and up to 100 feet (30 m) in width. The frequency of the flights currently is estimated to be 2 flights per week. The aerodrome will be a registered aerodrome and the aircraft(s) that will be utilized fall within the Aircraft Group Number (AGN) 111B (eg. Dash 8-300).

3.5 Anticipated Schedule

The anticipated schedule for the project's construction, operation, decommissioning, and abandonment, including any expansions of the project.

As shown below

Table 6 -Anticipated Schedule - If No Impact Assessment Required	
Task	**Schedule**
• Preparation regulatory submission	Q1 2025
• Design engineering	Q2 2025
• Clearing Trees	Q3 2025
• Acquire equipment.	Q4 2025
• Mobilize equipment to site.	Q1 2026
• Construction of airstrip	Q2 & Q3 2026
• Operation phase	Q4 2026 onward
Decommissioning	Not anticipated

Anticipated Schedule - Federal Impact Assessment Required	
Task	**Schedule**
• Preparation regulatory submission	Q2 2025
• Impact Assessment Process	2025- 2028
• Design engineering	2028-2029
• Acquire equipment, Mobilize equipment to site, construction	2029
• Operations	2030 forward
Decommissioning	Not anticipated

3.6 Potential Alternatives

The purpose of the project is to have the land accessible year-round to the YFFN members and their requirements, ranging from access to health care and necessities of life like other remote communities that require a serviceable airstrip.

The Project has been evaluated by consultants and engineers including performing engineering and geo-technical review, lidar survey and soil samples. The results having narrowed to the means of carrying out the Project contained in 2.4 Studies and Plans of the planning/location study of July 2024.

There are no other viable alternative means of serving the purpose of the proposal, or the means to carry out the project due to the following:

- Barge is unreliable due to tides, water depth, infrastructure and ice, and costly.
- River boat is seasonal, load restricted, and unreliable due to tide and water depth variance.
- Helicopter is costly and load limited

4.0 LOCATION INFORMATION AND CONTEXT

4.1 Geographic Coordinates

Proposed geographic coordinates, including, for linear development projects, the proposed locations of major ancillary facilities that are integral to the project and a description of the spatial boundaries of the proposed study corridor

The Project is in northern Manitoba approximately 4.5kms SE of York Factory Historical Site along the Hayes River, approximately 122kms NW of Shamattawa, Manitoba and approx.160km NE of the town of Gillam, Manitoba. The area is currently only accessible by boat, helicopter or skidoo in the winter as there is no existing roads.
The Universal Transverse Mercator (UTM) coordinates for the Project are NAD83 15V 541,573.800E 6,313,749.436N

Centroid GPS Coordinates of the full airstrip is N 56° 57'55.66" W 92° 18'58.53"

The land is within the York Factory First Nation Traditional Land Entitlement (TLE) Lands as shown in Figure 5 - YFFN TLE Lands

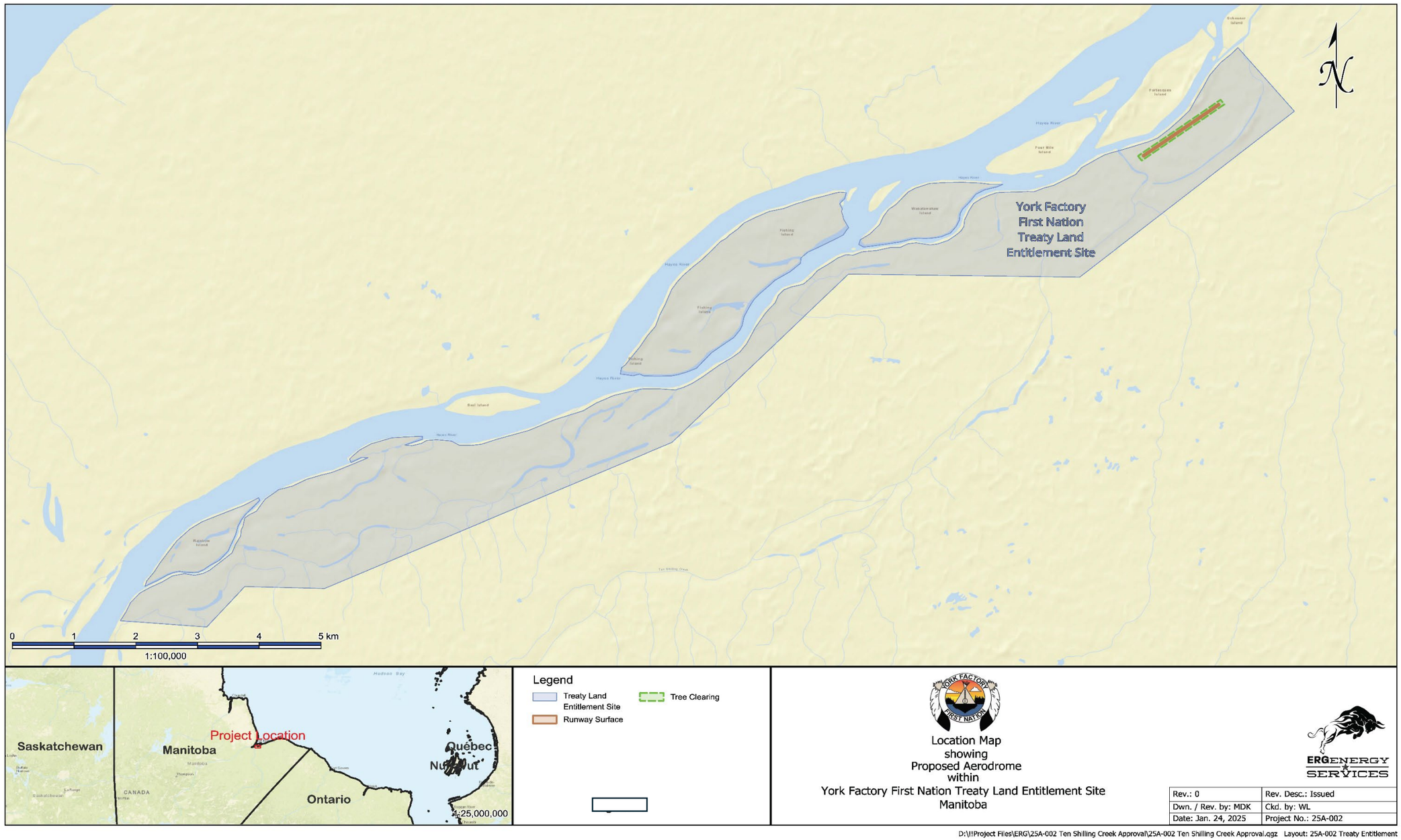

Figure 5 - YFFN TLE Lands

4.1.1 Site Maps

Site maps produced at an appropriate scale in order to determine the project's proposed general location and the spatial relationship of the project components.

All site maps are listed in the Table of Figures on Page 6

4.1.2 Legal Land Descriptions and Landowner Documents

The legal description of land to be used for the project, including, if the land has already been acquired, the title, deed or document and any authorization relating to a water lot.

The Project falls within legal land description – SW-SE 09, NE09, NW10 092-11-E2M as shown in the Figure 1- Project Location. The Project is located within York Factory First Nation Traditional Land (TLE) Entitlement lands. Figure 5 - YFFN TLE Lands The Ten Shilling Creek TLE lands are part of the overall traditional lands and territory of the YFFN people. The Ten Shilling Creek TLE selected lands have not yet been converted to reserve status as that is still in process with Manitoba and Canada.

4.1.3 Proximity to Residents and Communities

The project's proximity to any permanent, seasonal or temporary residences and to the nearest affected communities.

York Factory Historical Site, Gillam & Shamattawa, Manitoba

The closest seasonal residence(s) to the Project would be the York Factory Historical Site approximately 4.5kms NW of the proposed Project location. Facilities and services are limited and there is no electricity and no cell phone service. There is a fenced compound for camping and no accommodations or meals at the historical site for the public. Tours are available in in July & August depending on the weather and tide so could be very limited. The Park staff do have accommodations while on site from early July to September weather dependent. The Nanuk Polar Bear Lodge is approximately 43kms NE. This eco lodge is open for different adventures through October- November and approximately 10 days in March. All access to the lodge is by plane out of Churchill, Thompson or Winnipeg as there is no road access. Shamattawa is approximately 120kms SE and Gillam is approximately 160kms SW both of which have permanent residents.

4.1.4 Project Proximity to Traditional Indigenous Uses

The project's proximity to land used for traditional purposes by Indigenous peoples of Canada, land in a reserve as defined in Subsection 2(1) of the Indian Act, First Nation land as defined in Subsection 2(1) of the First Nations Land Management Act, land that is subject to a comprehensive land claim agreement or a self-government agreement and any other land set aside for the use and benefit of Indigenous peoples of Canada.

The Project is located on land within Figure 6.

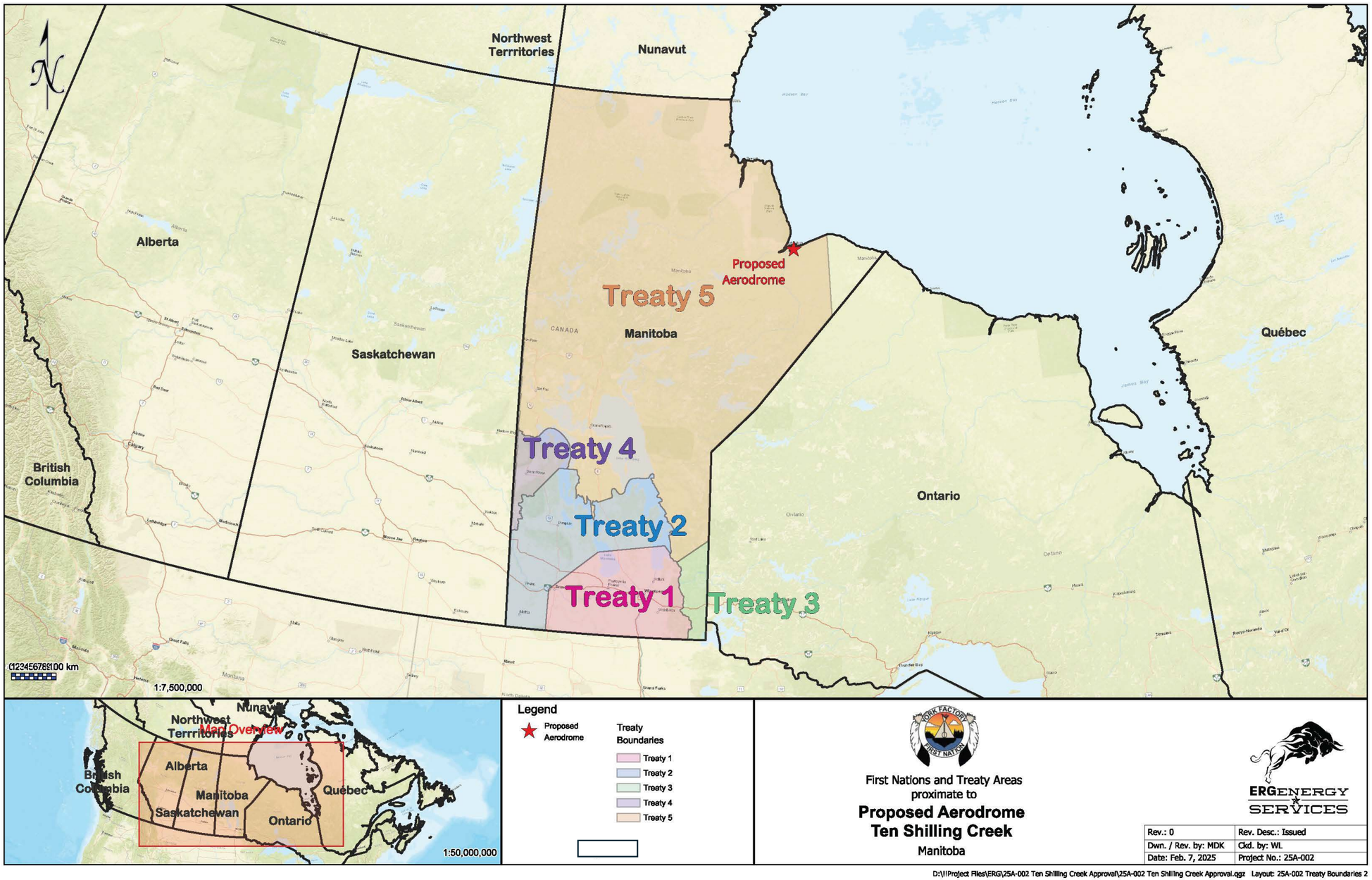

Figure 6 - Treaty 5 Territory Map

Traditional territories within the Treaty 5 Territory include Shamattawa First Nation, War Lake First Nation, Fox Lake Cree Nation and Tataskweyak Cree Nation. Table *7* provides information on the Nations surrounding the Project, and Table *8*. lists the communities and the distance from the Project and Canada Census population data.

Indigenous Knowledge (IK) in this area goes back thousands of years. The First Nations (Nayhenaway Ininewuk, are a Cree people) and were the original inhabitants. When the European explorers/traders arrived in the Hudson Bay area, the Hudson Bay Company (HBC) established the York Factory Depot at the mouth of the Hayes River. From which an economy was built utilizing the First Nations knowledge and skills. In 1957 York Factory First Nation was relocated to the shores of Split Lake and has since worked towards moving back to their homeland.
This coastal homeland is their ancestral home, and they remain deeply connected to their traditional territory. Every opportunity, they have, they return to the coast to celebrate their community, land, and culture. YFFN contributes considerable resources to bring community members that are resource users to their ancestral home to trap, hunt, and fish, maintaining a connection and knowledge of the land, waters, and wildlife at the coast every fall. Their traditional lodge sits amidst the foundations of their former homes in York Factory and the camp at Ten Shilling Creek looks over the same waters that their members have fished for the entirety of their oral history. The location of these traditional lands fall on both sides of the Hayes River as does the traditional land use as it has since the beginning. This area is a vital part of their indigenous culture and history.

York Factory First Nation, along with the other four Nations have been working together since 2020 on a proposal for an Indigenous Protected and Conserved Area (IPCA) called Kitaskeenan Kaweekanawaynichikatek (translation – "the land we want to protect") Their goal is to ensure the protection of the land, water, wildlife, fisheries and biodiversity for all as shown in Table 7

Table 7- Indigenous Nations surrounding the Project

Nation	Status	Government of Canada Registered Population (2016)	Distance from the Project Area (approximate kms)
Shamattawa First Nation	No 307	1020	120 kms
War Lake First Nation	No 323	110	235 kms
Fox Lake Cree Nation	No 305	155	125 kms
Tataskweyak Cree Nation	No 306 (Split Lake 171, 171A, 171B)	2040	252 kms

Distance from Project Area is shown as the approximate direct distance (kms)
Source: Government of Canada Crown-Indigenous Relations and Northern Affairs Canada (note this Census data is based on information posted within this site only)
https://fnp-ppn.aadnc-aandc.gc.ca/fnp/Main/Search/SearchFN.aspx?lang=eng

Table 8 lists the communities and the distance from the Project and Canada Census population data

Table 8 -Communities surrounding the Project			
Community Name	**Status**	**Population in 2021 Census**	**Distance from the Project (km)**
Gillam	Town	1007	160 kms
Iford	Settlement	62	225 kms
Shamattawa 1	Reserve No 307	1020	120kms
Thompson	City	13,035	365 kms

Stats Can Census Profile, 2021 Census of Population

4.1.5 Proximity to Federal Lands

Proposed project proximity to Federal lands would include Wapusk National Park (approx. 22kms NW), Shamattawa First Nation No 307 (approx. 120kms SE), Fox Lake Cree Nation No 305 (approx.125kms SW), War Lake First Nation No 323 (approx. 235kms SW) and Tataskweyak Cree Nation No 306 (Split Lake 171, 171A,171B) approx. 252kms SW) as shown in Figure 7 - Nearby Communities also shows Federal lands (Reserves)

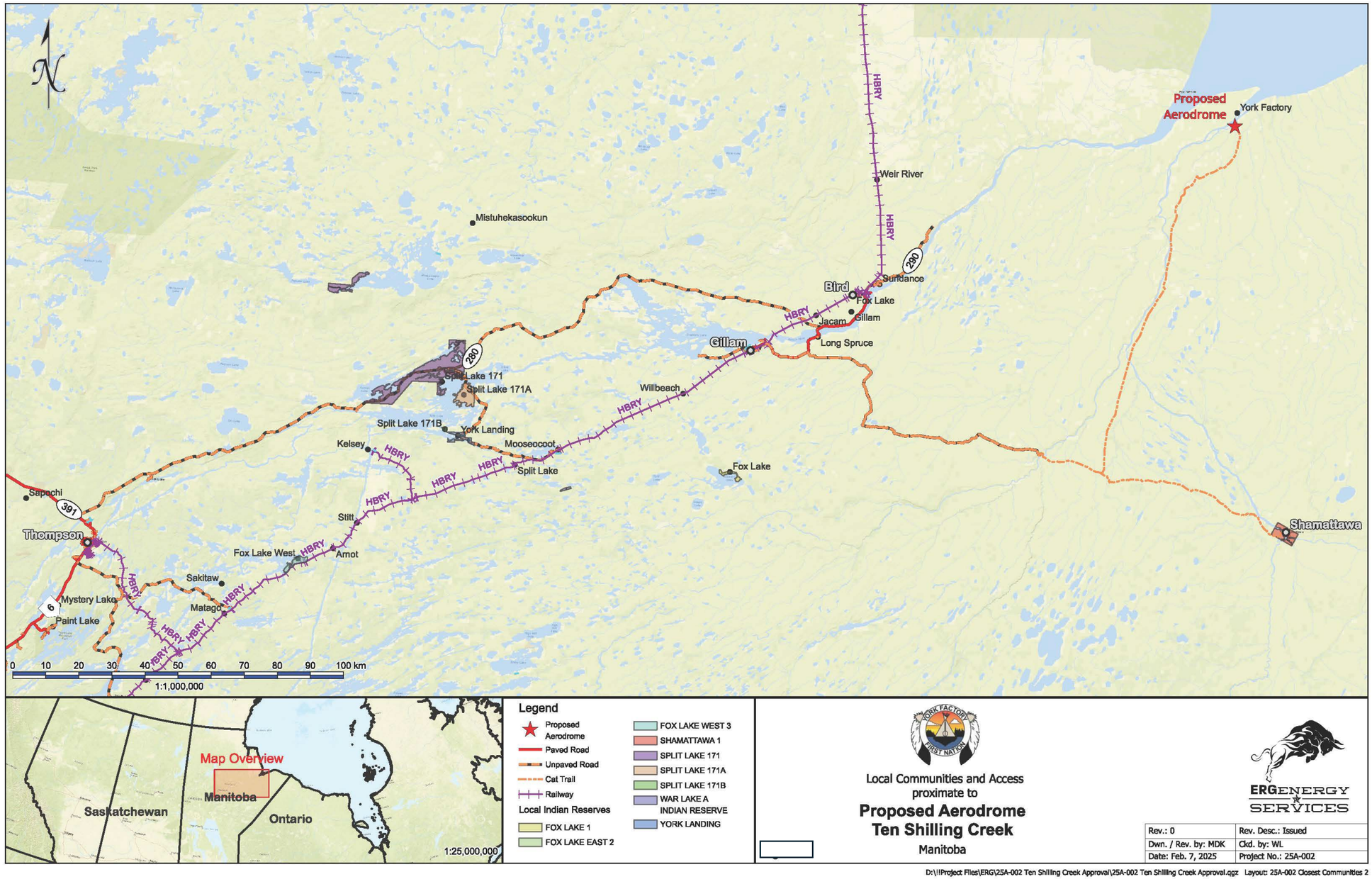

Figure 7 - Nearby Communities

4.2 Physical and Biological Environment

A brief description of the physical and biological environment of the project's location, based on information that is available to the public.

The following sections describe the overview of the existing environment for the local study area (LSA) and regional study area (RSA) for the Project. As field studies were not completed to assess the biophysical environment at the Project, all information provided in the following sections were sourced from online data sources and existing publicly available literature. Supplementary field surveys will be completed, as required, to support this submission by providing site specific data within the LSA that is not available following the desktop biophysical assessment.

The following sub-sections provide information on the terrestrial and aquatic environment of the LSA and RSA, including land cover, vegetation, wildlife and wildlife habitat, surface water, wetlands, ground water, fish, fish habitat and aquatic environment and species of conservation concern (SOCC).

4.2.1 Terrain and Soil Summary

The Hudson Plains Ecozone encompasses much of the region, including the Hudson Bay Lowland and a narrow coastal strip within the Coastal Hudson Bay Lowland. The terrain is mostly flat sedimentary bedrock, including limestone and dolostone with some granitic, volcanic, and metamorphic formations. Limestone bedrock is visible in deeply incised river valleys. The land surface gently slopes from elevations of 150 m above sea level (asl) in the southeast and 120 m asl in the southwest to sea level along the Hudson Bay coast (Land Resource Group – Manitoba 2003).
https://sis.agr.gc.ca/cansis/publications/surveys/mb/mb2003-4/mb2003-4_report.pdf

The Project is located within the York Factory ecodistrict, which is a level to gently sloping marine plain ranging in elevation from about 30 m asl along its southern margin to sea level to the north, decreasing at the rate of about 0.5 m/km. Beach ridges are scattered across the landscape, with shallow fens and marshes occupying the areas between them (Smith et al, 1998).
https://publications.gc.ca/collections/collection_2017/aac-aafc/A54-8-1998-9-eng.pdf

The soils of the York Factory ecodistrict vary based on proximity to the Hudson Bay coast. Coastal soils are predominantly poorly drained, while farther inland, peat accumulations become more substantial, increasing with distance from the shoreline. Inland areas are dominated by very poorly drained Terric (shallow) and Typic (deep) Mesisols, formed from sedges and brown mosses over calcareous, loamy to clayey marine sediments. Sandy, imperfectly to well drained Regosols are found on beach ridges and strandlines. Soils on local areas of till and glaciofluvial deposits and on older sandy beaches are dominantly well to imperfectly drained Eluviated Eutric Brunisols and Turbic Cryosols. Organic Cryosols, associated with permanently frozen peat plateaus and palsa bogs, are also present, developing on older peat deposits (Smith et al, 1998).

Organic soils cover over 87 percent of the Hayes River (54C) Map Area, while mineral soils are limited to 8 percent of the area. glacial activity and subsequent marine submergence shaped the surface materials with glacial till and marine sediments. The glacial till is mainly calcareous, stony, and varies in texture from loamy sand to clay loam (Land Resource Group - Manitoba, 2003).
https://sis.agr.gc.ca/cansis/publications/surveys/mb/mb2003-4/index.html

The severe climatic conditions prevent the use of the ecodistrict for forestry or agriculture. In addition, poor natural drainage and slow heat conductance properties limit the usefulness of organic soils. Limited water holding capacity, a low store of nutrients and salinity are additional severe constraints to the use of mineral soils (Smith et al, 1998).

Land Cover

The project is located within the Coastal Hudson Bay Lowland ecoregion, and specifically within the York Factory ecodistrict. The York Factory ecodistrict extends along the Hudson Bay coast from Churchill to the Nelson River and continues eastward to the Winisk River in northern Ontario. This ecodistrict consists predominantly of recently emerged land, a result of isostatic rebound (Smith et al, 1998). Organic Cryosols formed on sedge and fibrous sphagnum peat are dominant; Mesisols formed on moderately decomposed sedge and woody peat are significant; and saline Regosols and Gleysols occur on silty to clayey marine sediments along the coast of the bay. Permafrost with low to high ice content is widespread throughout the ecoregion (Smith et al,1998).
https://sis.agr.gc.ca/cansis/publications/ecostrat/provDescriptions/mbteee/mbteee_report.pdf

Situated within the High Subarctic Ecoclimatic Region, the York Factory ecodistrict experiences short, cool summers and long cold winters. The average annual temperature is approximately -4.9°C, and the average precipitation is around 510 mm, of which two-fifths is snow fall. The severe climate makes forestry and agriculture impractical in this ecodistrict. Poor natural drainage and the insulating properties of organic soils limit their usefulness. Mineral soils are further constrained by limited water-holding capacity, low nutrient stores, and salinity, posing additional challenges for land use. (Smith et al, 1998).

Northern Manitoba is located primarily within the Discontinuous Permafrost Zone, with frozen and unfrozen soil layers coexisting. Permafrost becomes more prevalent in the northern regions and near the Hudson Bay coast. Permafrost affects 35–85% of the landscape in peatlands, primarily within peat plateau bogs and northern ribbed fens. The active layer of annual thaw ranges from 40–60 cm in peat plateau bogs to 40 cm – 1 m in ribbed fens and poorly drained mineral soils. The highest ice content typically occurs at the organic-mineral contact in thin peat layers. Poorly drained silty soils under permafrost conditions exhibit thixotropy, where the soil liquefies and becomes unstable when physically disturbed. (Land Resource Group - Manitoba, 2003).
https://sis.agr.gc.ca/cansis/publications/surveys/mb/mb2003-4/index.html

A field visit was completed in July 2024 to gather topographical and geotechnical information for the proposed aerodrome. The topographical data was collected through a LiDAR survey conducted using a drone, resulting in a topographical map used to determine grades and cut/fill calculations. This data helps optimize the airstrip's location and orientation. see ***Figure 8 - Airstrip Elevation Contours***
Geotechnical information was obtained using a Shaw Coring machine and Dynamic Cone Penetration test, which provided soil samples and in-situ strength measurements to confirm the site's suitability. The results of the geotechnical survey identified that the soil onsite consists of approximately 0.15-0.20 m of organic over approximately 0.60 m of mainly fine-grained silty soil on top of bedrock (Hart Aviation Strategies, 2350062 Alberta Ltd.)

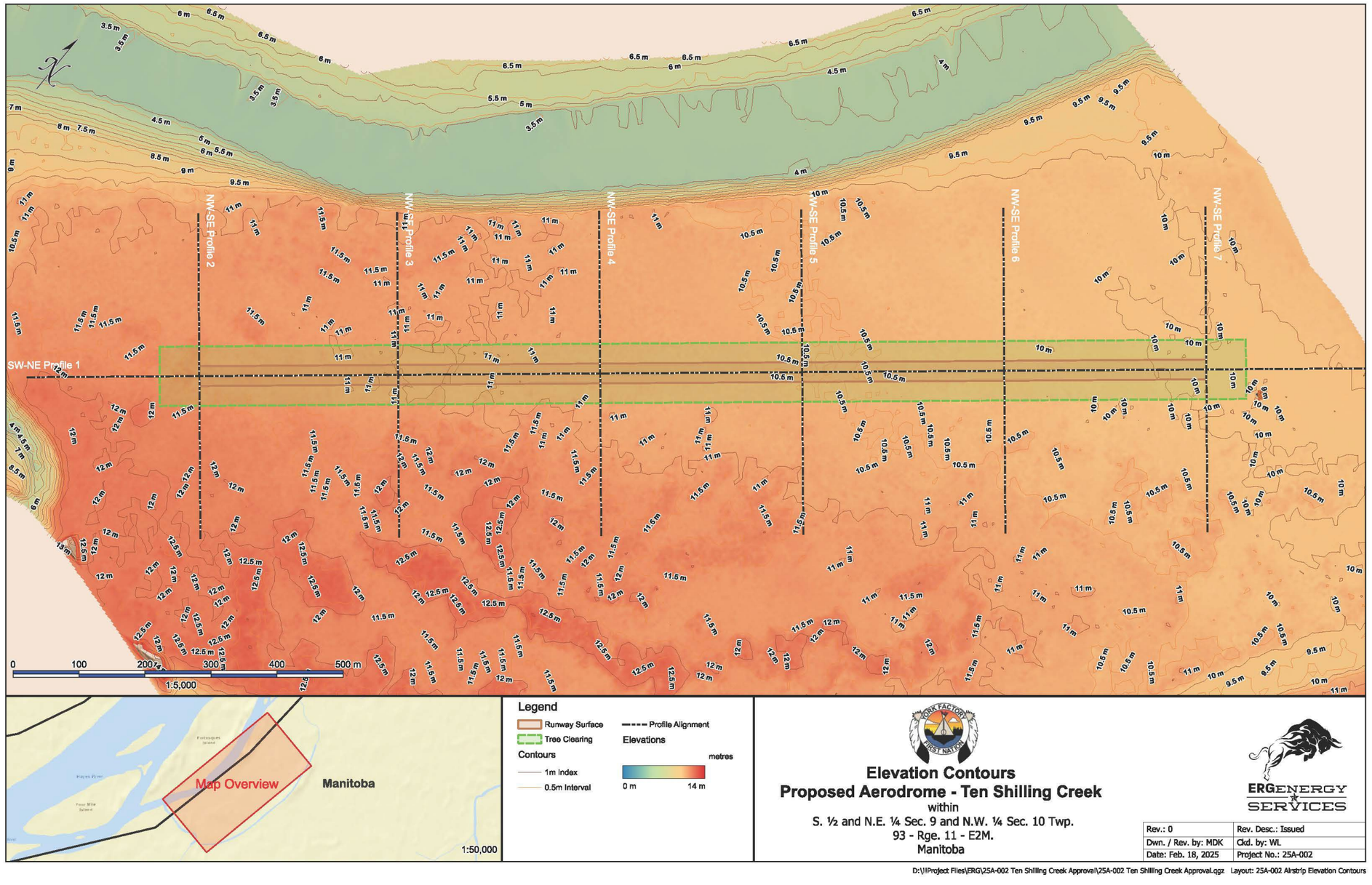

Figure 8 - Airstrip Elevation Contours

Potential Impacts and Mitigation

Outlined below are the potential impacts and mitigation measures for the terrain and soil during the construction of the project.

Table 9 - Terrain and Soil - Potential Impacts and Mitigation

Potential Impacts	Mitigation Measures
Direct loss of soil due to erosion.	• Erosion prevention and control measures will be implemented as required during construction and in highly erodible areas. • Disturbed portions of the footprint not incorporated in the operational airstrip or associated facilities boundaries will be reclaimed, revegetated and recontoured to maintain appropriate drainage patterns, reducing impacts over time. • An Erosion and Sediment Control Plan (ESCP) will be developed for the project.
Reduction in soil quality/productivity, changes to terrain stability and alteration of local slope profiles. Removal of soil and grading of terrain in the project footprint.	• Project footprint will be kept to the smallest extent feasible to complete work safely. • Surface disturbance within the Project footprint will be minimized to the extent feasible. • Work area boundaries will be maintained for the duration of construction. The boundaries will be surveyed and clearly marked to ensure construction remains within the proposed footprint.
Hazardous waste spills or leaks from equipment/ vehicles affecting soil and vegetation	• Emergency response plans (ERP) will be included in the Project Environmental Protection Plan (EPP) spill response requirements to provide quick detection, control, and management of any spill during construction/operation and to ensure proper disposal of hazardous waste. • Development and implementation of a Hazardous Materials Management Plan. • All waste and debris generated by the Project will be collected and disposed of in accordance with provincial requirements. • Properly designed facilities for the storage of hazardous materials and fuel will follow WHMIS Guidelines • Spill kits will be available at fuel storage areas and at all work areas during construction.

4.2.2 Vegetation

As mentioned in the previous sections the Project is located within the Hudson Plain ecozone, Coastal Hudson Bay Lowlands ecoregion and York Factory ecodistrict (Smith et al., 1998). Within the York Factory ecodistrict, tidal flats extending into Hudson Bay are largely without vegetation, though tidal marshes are present along the shoreline. Inland, beaches and strandlines are characterized by low shrubs and sedges. Further from the coast, peatlands dominate the landscape, supporting a mix of mosses, sedges, and low shrubs. Islands at the mouth of the Hayes River feature stands of black spruce (*Picea mariana*), white spruce (*Picea glauca*), and balsam poplar (*Populus balsamifera*) (Smith et al., 1998). *https://sis.agr.gc.ca/cansis/publications/ecostrat/provDescriptions/mbteee/mbteee_report.pdf*

The Hayes River (54C) Map Area is characterized by vegetation transitioning from dense boreal forest to open subarctic forest as conditions become colder and wetter. Black spruce dominates the landscape, forming stable forest stands alongside jack pine (*Pinus banksiana*) and paper birch (*Betula papyrifera*). Jack pine often appears in younger stands after wildfires or in pure stands, while trembling aspen with an alder understory becomes more common farther south. Species such as dwarf birch (*Betula glandulosa*), Labrador tea (*Rhododendron groenlandicum*), mosses, and lichens are typical in black spruce forests, while peatlands support diverse vegetation of fens, brown mosses, and stunted tamarack (*Larix laricina*). Sandy marine beaches host mixed stands of white and black spruce, low shrubs, and moss-lichen ground cover. Better-drained areas, such as river valleys, support robust stands of white spruce, balsam fir (*Abies balsamea*), and trembling aspen (*Populus tremuloides*), reflecting favorable soil and climate conditions (Land Resource Group - Manitoba, 2003).

Review of the Manitoba Conservation Data Centre (MBCDC) Biotics database (MBCDC, 2024) indicated that there are 146 provincially (ranked S1-S3) vegetative species documented within the Coastal Hudson Bay Lowland ecoregion including two Adder's-tongues, grape ferns and moonworts, one clubmoss, 79 dicots, 13 lichens, 50 monocots and one spike mosses and quillworts. No known observations of these species have been documented within the direct Project vicinity. *https://manitoba.ca/nrnd/fish-wildlife/cdc/index.html*

Drone imagery and videos and ground photographs were collected by (Hart Aviation Strategies, 2350062 Alberta Ltd.) during summer 2024. All images and videos were reviewed to determine the general dominant vegetative species cover within the direct vicinity of the proposed Project area. Based on the imagery, there appears to be two distinct ecosites present within the Project LSA due to differences in moisture:

- The first ecosite is classified as Terrestrial Thicket Swamp and is located along the flood plain/riparian zone to the Hayes River and Ten Shilling Creek. This ecosite is dominated by dwarf birch and willows (*Salix* spp.) with sporadic presence of balsam poplar. Graminoid species include sedges (*Carex spp*) and cottongrass (*Eriophorum spp*.).
- The second ecosite is the adjacent forest, which if truly upland would be a black spruce dominated conifer forest. If the area is a wetland, it would be a Conifer Swamp. The presence of upland or wetland area could not be differentiated from the image review. This ecosite has black spruce as the dominant tree species with tamarack and white spruce as components (5 to 14% basal area) and balsam poplar as present (<5% basal area). The understorey is dominated by feathermoss (*Pleurozium schreberi*) and labrador tea with presence of sphagnum moss (*Sphagnum spp*.), bearberry (*Arctostaphylos uva-ursi*),

fireweed (*Chamerion angustifolium*), speckled alder (*Alnus incana ssp. rugosa*), coltsfoot (*Petasites* spp.), violets (*Viola spp*.) and cloudberry (*Rubus chamaemorus*).

Potential Impacts and Mitigations

The potential impact the vegetation due to project related actives along with the mitigation measures are outlined below

Table 10 -Vegetation - Potential Impacts and Mitigation

Potential Impacts	Mitigation
Removal of vegetation	• The Project footprint will be kept to the smallest extent possible to do the work safely and work area boundaries will be maintained for the duration of construction. • Work area boundaries will be maintained for the duration of construction. The boundaries will be surveyed and clearly marked to ensure construction remains within the proposed footprint. • Disturbed portions of the footprint not incorporated in the operational airstrip or associated facilities boundaries will be reclaimed, revegetated and recontoured to maintain appropriate drainage patterns, reducing impacts over time. • Existing clearings and trails will be utilized to access the site during construction, wherever present or feasible, to minimize new disturbance to the vegetation community. • Development of an Environmental Protection Plan (EPP).
Establishment of noxious weeds and other introduced invasive plants	• Prevention of the introduction and spread of prohibited, noxious, nuisance, and invasive plants will be addressed in the environmental management plan. • Confirm all equipment arriving at the Project site will be clean and free of soil and vegetative debris to avoid the spread of weeds. • Monitor disturbed areas for weeds and implement corrective measures to avoid growth. • Control noxious weeds and species as identified in the *Manitoba Noxious Weeds Act.* • Disturbed areas will be re-seeded with native vegetation as soon as possible. • Reclaimed areas will be included in weed management efforts until these areas represent vegetation of the surrounding area. • If regulated weeds are found immediate measures will be taken to eradicate those species.

4.2.3 Wildlife and Wildlife Habitat

Wildlife species share common needs for survival, including access to adequate food, protective cover, and space for growth and reproduction. Landscapes with diverse topography, soil types, drainage patterns, and vegetation offer the highest habitat potential, particularly for ungulates. The ability of the land to support large ungulate populations is closely tied to vegetation recovery post fire. Wetlands like

fens provide less habitat diversity but are critical for specific species, such as moose, which rely on willows for forage. While bogs support fewer resident wildlife species, they serve as transitional habitats for animals seeking food and shelter. Bogs influenced by permafrost are vital for species like woodland caribou, which require extensive ranges, and barren-ground caribou, which migrate south in winter. Marshes and shallow water habitats form complex and productive ecosystems, offering diverse environments for waterfowl and fur-bearing species. These wetlands are key to the trapping industry, where registered traplines often encompass varied landscapes. Although water presence is essential for many mammals, the productivity of these habitats is largely driven by vegetation changes following wildfires (Land Resource Group - Manitoba, 2003).

The Project is situated within the Kaskatamagan Wildlife Management Area (WMA; Manitoba Government, 2024) and Marsh Point Area of Special Interest (ASI) #117 (PAI, 2009). *https://geoportal.gov.mb.ca/datasets/627c3b090b5b4314805ba2dcb5f46a86_0/explore?location=56.871536%2C-91.997781%2C9.86*

No wildlife surveys have been completed to-date. Mitigation measures will be developed and implemented during the Project development.

Mammals

The Subarctic portion of the Coastal Hudson Bay Lowland ecoregion within Manitoba, forms part of a zone of transition between the tundra region to the north and the boreal forest to the south (Smith et al, 1998). Characteristic mammals of this ecoregion include barren-ground caribou, polar bear, arctic fox, and brown lemming. (GoC, 2014). *http://www.ecozones.ca/english/region/215.html*

The Project is located within the denning area of the Western Hudson Bay polar bear subpopulation (Florko, et al., 2020). However, no known polar bear denning locations are located within the direct vicinity of the Project. *https://doi.org/10.1007/s00300-020-02657-8*

Review of the MBCDC Biotics database indicated that there are five sensitive (ranked S1-S3) mammal species documented within this ecoregion including beluga (*Delphinapterus leucas*), Richardson's collared lemming (*Dicrostonyx richardsoni*), wolverine (*Gulo gulo*), western Atlantic harbour seal (*Phoca vitulina concolor*), and polar bear (*Ursus maritimus*) (MBCDC, 2024). The Project is located within the southern range of the Cape Churchill and northern range of the Southern Hudson Bay subpopulations of the eastern migratory caribou (COSEWIC, 2017a).Table 11**.** summarizes the Federal and Provincial conservation status for each species.

Table 11 - Sensitive Mammal Species documented within the Coastal Hudson Bay Lowland Ecoregion								
Common Name	**Scientific Name**	**S_RANK[1]**	**N_RANK[2]**	**G_RANK[3]**	**ESEA[4]**	**SARA[4]**	**COSEWIC[4]**	**Tracked Status[5]**
Beluga	*Delphinapterus leucas*	S2	N5B, N5N, N5M	G5	NL	NL	NL	Y
Caribou (Eastern Migratory)	*Rangifer tarandus*	S4	N4N5	G5	NL	NL	E	N
Polar Bear	*Ursus maritimus*	S2	N3N4	G3	T	SC	SC	P
Richardson's Collared Lemming	*Dicrostonyx richardsoni*	S3	N5	G5	NL	NL	NL	Y
Western Atlantic Harbour Seal	*Phoca vitulina concolor*	S2 S3	NNR	G5 T4	NL	NL	NL	Y
Wolverine	*Gulo gulo*	S3 S4	N3	G4	NL	SC	SC	Y

Notes:
[1] S_Rank Subnational (provincial) conservation status ranks. Ranks the species' rarity on a scale of 1 (rare) to 5 (common)
[2] N_RANK National (federal) conservation status ranks. Ranks the species' rarity on a scale of 1 (rare) to 5 (common)
[3] Global conservation status ranks. Ranks the species' rarity on a scale of 1 (rare) to 5 (common)
[4] NL = Not Listed, SC = Special Concern, T = Threatened, E= Endangered, EX = Extirpated
[5] Y = Track all extant and selected historical occurrences, P = Partial Tracking, W = Watch List only, N = Do not Track
SARA = Federal Species at Risk Act
ESEA = Provincial Endangered Species and Ecosystem Act
COSEWIC = Committee on the Status of Endangered Wildlife in Canada

Birds

The Coastal Hudson Bay Lowland ecoregion within Manitoba, provides habitat for bird species such as osprey and waterfowl, such as snow geese and Canada geese, and shorebirds (Smith et al, 1998). Characteristic birds of this ecoregion include snow and Canada goose, swans, sea ducks, and shorebirds (GoC, 2014).

The Coastal Hudson Bay Lowland ecoregion is part of the Hudson Bay Lowlands ecozone (Smith et al, 1998). Wetlands, waterways, forests, and coastal tundra that make up Manitoba's Hudson Bay Lowlands provides essential habitat for as many as 250 bird species over the course of the year. And at least 131 of those species are known to breed in the region (CPAWS, 2023). Table 12 includes birds that are known to successfully breed within the Hudson Bay Lowlands ecozone.
https://cpawsmb.org/wp-content/uploads/2023/09/June-2023-Audubon-Society-Report-3.pdf
Table 12. Breeding Bird Species Documented within the Hudson Bay Lowland Ecozone (CPAWS, 2023)

Table 12 - Breeding Bird Species documented within the Hudson Bay Lowland Ecozone (CPAWS,2023)					
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**	**Common Name**	**Scientific Name**
Alder Flycatcher	*Empidonax alnorum*	**Canada Jay**	*Perisoreus canadensis*	**Green-winged Teal**	*Anas crecca*
American Bittern	*Botaurus lentiginosus*	**Cape May Warbler**	*Setophaga tigrina*	**Hairy Woodpecker**	*Picoides villosus*
American Black Duck	*Anas rubripes*	**Cedar Waxwing**	*Bombycilla cedrorum*	**Harris's Sparrow**	*Zonotrichia querula*
American Robin	*Turdus migratorius*	**Chipping Sparrow**	*Spizella passerina*	**Hermit Thrush**	*Catharus guttatus*
American Three-toed Woodpecker	*Picoides dorsalis*	**Cliff Swallow**	*Petrochelidon pyrrhonota*	**Herring Gull**	*Larus argentatus*
American Tree Sparrow	*Spizella arborea*	**Common Eider**	*Somateria mollissima*	**Hoary Redpoll**	*Acanthis hornemanni*
American Wigeon	*Anas americana*	**Common Goldeneye**	*Bucephala clangula*	**Hooded Merganser**	*Lophodytes cucullatus*
Arctic Tern	*Sterna paradisaea*	**Common Loon**	*Gavia immer*	**House Sparrow**	*Passer domesticus*
Bald Eagle	*Haliaeetus leucocephalus*	**Common Merganser**	*Mergus merganser*	**Horned Grebe**	*Podiceps auritus*
Bank Swallow	*Riparia riparia*	**Common Nighthawk**	*Chordeiles minor*	**Horned Lark**	*Eremophila alpestris*
Belted Kingfisher	*Megaceryle alcyon*	**Common Raven**	*Corvus corax*	**Hudsonian Godwit**	*Limosa haemastica*
Black-backed Woodpecker	*Picoides arcticus*	**Common Redpoll**	*Acanthis flammea*	**Killdeer**	*Charadrius vociferus*
Blackpoll Warbler	*Setophaga striata*	**Common Tern**	*Sterna Hirundo*	**Lapland Longspur**	*Calcarius lapponicus*
Black Scoter	*Melanitta americana*	**Common Yellowthroat**	*Geothlypis trichas*	**Le Conte's Sparrow**	*Ammodramus leconteii*
Blue-headed Vireo	*Vireo solitarius*	**Dark-eyed Junco**	*Junco hyemalis*	**Least Flycatcher**	*Empidonax minimus*
Blue-winged Teal	*Anas discors*	**Dunlin**	*Calidris alpina*	**Least Sandpiper**	*Calidris minutilla*
Bohemian Waxwing	*Bombycilla garrulus*	**European Starling**	*Sturnus vulgaris*	**Lesser Scaup**	*Aythya affinis*
Bonaparte's Gull	*Chroicocephalus philadelphia*	**Fox Sparrow**	*Passerella iliaca*	**Lesser Yellowlegs**	*Tringa flavipes*
Boreal Chickadee	*Poecile hudsonicus*	**Gadwall**	*Anas strepera*	**Lincoln's Sparrow**	*Melospiza lincolnii*
Boreal Owl	*Aegolius funereus*	**Gray-cheeked Thrush**	*Catharus minimus*	**Little Gull**	*Hydrocoloeus minutus*
Brown Creeper	*Certhia americana*	**Great Gray Owl**	*Strix nebulosa*	**Long-tailed Duck**	*Clangula hyemalis*
Bufflehead	*Bucephala albeola*	**Greater Scaup**	*Aythya marila*	**Magnolia Warbler**	*Setophaga magnolia*
Canada Goose	*Branta canadensis*	**Greater Yellowlegs**	*Tringa melanoleuca*	**Mallard**	*Anas platyrhynchos*
Merlin	*Falco columbarius*	**Red-throated Loon**	*Gavia stellata*	**Stilt Sandpiper**	*Calidris himantopus*

Common Name	Scientific Name	Common Name	Scientific Name	Common Name	Scientific Name
Nelson's Sparrow	*Ammodramus nelsoni*	**Ring-billed Gull**	*Larus delawarensis*	**Surf Scoter**	*Melanitta perspicillata*
Northern Flicker	*Colaptes auratus*	**Ring-necked Duck**	*Aythya collaris*	**Swainson's Thrush**	*Catharus ustulatus*
Northern Goshawk	*Accipiter gentilis*	**Ross's Goose**	*Chen rossii*	**Swamp Sparrow**	*Melospiza georgiana*
Northern Harrier	*Circus cyaneus*	**Rough-legged Hawk**	*Buteo lagopus*	**Tennessee Warbler**	*Oreothlypis peregrina*
Northern Pintail	*Anas acuta*	**Ruby-crowned Kinglet**	*Regulus calendula*	**Tree Swallow**	*Tachycineta bicolor*
Northern Shoveler	*Anas clypeata*	**Ruffed Grouse**	*Bonasa umbellus*	**Tundra Swan**	*Cygnus columbianus*
Northern Shrike	*Lanius excubitor*	**Rusty Blackbird**	*Euphagus carolinus*	**Whimbrel**	*Numenius phaeopus*
Northern Waterthrush	*Parkesia noveboracensis*	**Sandhill Crane**	*Grus canadensis*	**White-crowned Sparrow**	*Zonotrichia leucophrys*
Olive-sided Flycatcher	*Contopus cooperi*	**Savannah Sparrow**	*Passerculus sandwichensis*	**White-throated Sparrow**	*Zonotrichia albicollis*
Orange-crowned Warbler	*Oreothlypis celata*	**Semipalmated Plover**	*Charadrius semipalmatus*	**White-winged Crossbill**	*Loxia leucoptera*
Osprey	*Pandion haliaetus*	**Semipalmated Sandpiper**	*Calidris pusilla*	**White-winged Scoter**	*Melanitta fusca*
Pacific Loon	*Gavia pacifica*	**Sharp-tailed Grouse**	*Tympanuchus phasianellus*	**Willow Ptarmigan**	*Lagopus lagopus*
Palm Warbler	*Setophaga palmarum*	**Short-billed Dowitcher**	*Limnodromus griseus*	**Wilson's Snipe**	*Gallinago delicata*
Parasitic Jaeger	*Stercorarius parasiticus*	**Short-eared Owl**	*Asio flammeus*	**Wilson's Warbler**	*Cardellina pusilla*
Pine Grosbeak	*Pinicola enucleator*	**Smith's Longspur**	*Calcarius pictus*	**Winter Wren**	*Troglodytes hiemalis*
Red Crossbill	*Loxia curvirostra*	**Snow Goose**	*Chen caerulescens*	**Yellow Rail**	*Coturnicops noveboracensis*
Red-breasted Merganser	*Mergus serrator*	**Solitary Sandpiper**	*Tringa solitaria*	**Yellow Warbler**	*Setophaga petechia*
Red-eyed Vireo	*Vireo olivaceus*	**Sora**	*Porzana carolina*	**Yellow-bellied Flycatcher**	*Empidonax flaviventris*
Red-necked Phalarope	*Phalaropus lobatus*	**Spotted Sandpiper**	*Actitis macularius*	**Yellow-rumped Warbler**	*Setophaga coronata*
Red-tailed Hawk	*Buteo jamaicensis*	**Spruce Grouse**	*Falcipennis canadensis*		

The Project area is comprised of a combination of flood plain/riparian area of the adjacent Hayes River and Ten Shilling Creek and black spruce dominant conifer forest. The combination of different types of habitats within the project footprint and adjacent areas provide ideal habitat for multiple types of birds. The conifers provide habitat for species that prefer undisturbed forested habitat with a closed canopy. Most of the treed habitat is comprised of stunted spruce, however there are isolated pockets of larger growth spruce that may provide nesting habitat for larger raptor species within proximity to the Hayes River and Ten Shilling Creek, providing fish for a food source. Larger snags may provide foraging and nesting habitat for cavity nesting birds such as woodpeckers. The riparian tall shrubs provide cover and nesting habitat for small and medium sized songbirds. The grassed and gravelly substrate void of woody vegetation along the sough bank of the Hayes River may provide feeding, nesting and rearing habitat for shorebirds adjacent the project footprint.

The Project is located within the Nelson River Estuary & Marsh Point Important Bird Area (IBA; MB008; Bird Studies Canada, 2017). Bird species of conservation concern identified at this IBA included Hudsonian godwit (2013 & 2014), red knot (1974 & 2014) and rusty blackbird (2009 & 2013). Other shorebirds observed included black-bellied plover (*Pluvialis squatarola*), ruddy turnstone (*Arenaria interpres*), semipalmated sandpiper, dunlin and least sandpiper (*Calidris minutilla*) (Bird Studies Canada, 2017). Other waterbirds observed at the IBA included black scoter, white-winged scoter, surf scoter, sandhill crane, arctic tern and Bonaparte's gull (Bird Studies Canada, 2017). http://www.ibacanada.org

Review of the MBCDC Biotics database indicated that there are 31 sensitive (ranked S1-S3) bird species documented within this ecoregion. Table 13 summarizes the federal and provincial conservation status for each species. Specific bird species to avoid impact are found in Table 12.

The *Hayes River Ten-year Monitoring Report: 2006-2016* (Canadian Heritage River Systems, 2017) noted that seven federally listed bird species were identified within the Hayes River corridor since 2006 including Canada warbler (Threatened Species under SARA and COSEWIC), common nighthawk (*Chordeiles minor*; Threatened Species under SARA and COSEWIC), olive-sided flycatcher (*Contopus cooperi*; Threatened Species under SARA and COSEWIC), rusty blackbird (*Euphagus carolinus;* Species of Special Concern under SARA and COSEWIC), bank swallow (*Riparia riparia*; Threatened Species under COSEWIC), barn swallow (*Hirundo rustica*; Threatened Species under COSEWIC) and trumpeter swan (*Cygnus buccinator*; Endangered Species under The Endangered Species and Ecosystems Act of Manitoba)

Table 13 - Sensitive Bird Species documented within the Coastal Hudson Bay Lowland Ecoregion

Common Name	Scientific Name	S_RANK[1]	N_RANK[2]	G_RANK[3]	ESEA[4]	SARA[4]	COSEWIC[4]	Tracked Status[5]
American Black Duck	*Anas rubripes*	S2, S3B	N5B,N5N	G5	NL	NL	NL	Y
Bank Swallow	*Riparia riparia*	S4B	N4N5B, N5M	G5	NL	T	T	Y
Barn Swallow	*Hirundo rustica*	S4B	N4N5B	G5	NL	T	SC	Y
Barred Owl	*Strix varia*	S3, S4	N5	G5	NL	NL	NL	W
Black Scoter	*Melanitta americana*	S2, S3B , S4M	N5B, N4N5N	G5	NL	NL	NL	Y

Table 13 - Sensitive Bird Species documented within the Coastal Hudson Bay Lowland Ecoregion								
Common Name	**Scientific Name**	**S_RANK[1]**	**N_RANK[2]**	**G_RANK[3]**	**ESEA[4]**	**SARA[4]**	**COSEWIC[4]**	**Tracked Status[5]**
Common Eider	*Somateria mollissima*	S3, S4B	N4N5B, N5N,N5M	G5	NL	NL	NL	W
Common Nighthawk	*Chordeiles minor*	S2, S3B	N4N5B N5M	G5	T	SC	SC	Y
Dunlin	*Calidris alpina*	S3B	N4B,N4N, N5M	G5	NL	NL	NL	Y
Eskimo Curlew	*Numenius borealis*	SXM	NHB	GH	E	E	E	N
Golden Eagle	*Aquila chrysaetos*	S1B, S2N	N4N5B,N4 N5N	G5	NL	NL	NL	P
Harris's Sparrow	*Zonotrichia querula*	S3B	N4B,NUN, N5M	G5	NL	SC	SC	Y
Horned Grebe	*Podiceps auritus*	S3B	N5B,N4 N5N	G5	NL	SC	SC	Y
Horned Lark	*Eremophila alpestris*	S3B	N5B,N5N	G5	NL	NL	NL	Y
Hudsonian Godwit	*Limosa haemastica*	S2, S3B	N3B,N4M	G4	NL	NL	T	Y
King Eider	*Somateria spectabilis*	SNA	NUB,NUN, NUM	G5	NL	NL	NL	N
Lapland Longspur	*Calcarius lapponicus*	S3B, S4M	N5B,N5N	G5	NL	NL	NL	Y
Long-tailed Jaeger	*Stercorarius longicaudus*	S1B	N5B	G5	NL	NL	NL	P
Olive-sided Flycatcher	*Contopus cooperi*	S2, S3B	N4B	G4	T	T	SC	Y
Parasitic Jaeger	*Stercorarius parasiticus*	S3B	N5B,NUN	G5	NL	NL	NL	Y
Red Knot - rufa subspecies	*Calidris canutus rufa*	S1, S2M	N1B,N3N4 N,N3M	G4T2	E	T	E	N
Red-necked Phalarope	*Phalaropus lobatus*	S3, S4B	N4B,N3N4 N	G4G5	NL	SC	SC	Y
Red-throated Loon	*Gavia stellata*	S2, S3B	N4N5B, N5N	G5	NL	NL	NL	Y
Ross' Gull	*Rhodostethia rosea*	S1B	N1B	G4	E	T	E	Y
Rough-legged Hawk	*Buteo lagopus*	S2, S3B, S4M	N5B,N5N	G5	NL	NL	NL	Y
Rusty Blackbird	*Euphagus carolinus*	S3, S4B, S2N	N4B,NUN	G4	NL	SC	SC	P
Semipalmated Sandpiper	*Calidris pusilla*	S1, S2B, S4M	N3N5B,NU N,N4N5M	G5	NL	NL	NL	Y

Table 13 - Sensitive Bird Species documented within the Coastal Hudson Bay Lowland Ecoregion								
Common Name	**Scientific Name**	**S_RANK[1]**	**N_RANK[2]**	**G_RANK[3]**	**ESEA[4]**	**SARA[4]**	**COSEWIC[4]**	**Tracked Status[5]**
Short-eared Owl	*Asio flammeus*	S2, S3B	N4B,N3N, N4M	G5	T	SC	T	Y
Smith's Longspur	*Calcarius pictus*	S2, S3B	N4B	G4G5	NL	NL	NL	Y
Surf Scoter	*Melanitta perspicillata*	S3B, S4M	N5B,N5N	G5	NL	NL	NL	Y
White-winged Scoter	*Melanitta deglandi*	S3B, S4M	N5B,N5N	G5	NL	NL	NL	Y
Yellow Rail	*Coturnicops noveboracensis*	S3B	N3N4B,NUM	G4	NL	SC	SC	Y

Notes:
[1] S_Rank Subnational (provincial) conservation status ranks. Ranks the species' rarity on a scale of 1 (rare) to 5 (common)
[2] N_RANK National (federal) conservation status ranks. Ranks the species' rarity on a scale of 1 (rare) to 5 (common)
[3] Global conservation status ranks. Ranks the species' rarity on a scale of 1 (rare) to 5 (common)
[4] NL = Not Listed, SC = Special Concern, T = Threatened, E= Endangered, EX = Extirpated
[5] Y = Track all extant and selected historical occurrences, P = Partial Tracking, W = Watch List only, N = Do not Track
SARA = Federal Species at Risk Act
ESEA = Provincial Endangered Species and Ecosystem Act
COSEWIC = Committee on the Status of Endangered Wildlife in Canada

4.2.4 Water –Surface Water, Wetlands, and Groundwater

The primary sources of water within the York Factory ecodistrict are the very small, largely unconnected lakes and undrained ponds found throughout the area as well as the Knife, Churchill, Owl and numerous other rivers and creeks draining into Hudson Bay (Smith et al, 1998).

Surface Water Hydrology

The Churchill, Nelson and Hayes rivers are the largest rivers in Manitoba within the York Factory ecodistrict. Each river traverses the ecodistrict for a short distance before emptying into Hudson Bay. Most of the ecodistrict is drained by the many creeks flowing directly into Hudson Bay. Consequently, the ecodistrict is part of several watershed and drainage divisions. The northern sector lies in the Owl River division of the Owl River watershed. The northeastern sector is part of the Kaskattama River division of the Kaskattama-Kettle rivers watershed, and the central portion is part of the Hayes River lower division of the Hayes River watershed and the Nelson River lower drainage division of the Nelson River watershed (Smith et al, 1998).

The nearest water body to the Project is Ten Shilling Creek, which is approximately 205.83 m southwest of the airstrip boundary clearing. Ten Shilling Creek flows southwest to northeast parallel to Hayes River for approximately 54 km before finally flowing into the Hayes River west of the Project (GoC, 2021).

The Hayes River is the largest water body within the Project LSA the Project is approximately 200 m to northwest of the proposed airstrip boundary. The Hayes River watershed has an area of approximately 108,000 km^2 (Natural Resources Canada, 2010). The Hayes River originates from the north end of Lake Winnipeg near Norway House, MB and flows approximately 483 km northeast to the Hudson Bay

(Canadian Heritage Rivers System, 2017). *https://www.gov.mb.ca/sd/pubs/parks-protected-spaces/hayes_river_tenyear_report.pdf*

An unnamed water body is located approximately 600 m southeast of the proposed airstrip boundary. The water body appears to be an oxbow water body caused by the natural rerouting of Ten Shilling Creek. Publicly available imagery shows that the water body is disconnected from Ten Shilling Creek, however, may have seasonal connectivity during high water events such as spring freshet.

Water Quality

The Hayes River, one of Manitoba's most remote and scenic waterways, remains largely unaltered and reflects the natural state of its watershed, much as it has for millennia during First Nations occupancy. The river's waters exhibit minimal impact from development or activities that could impair water quality, a condition shared by the Echimamish River within the Nelson River watershed. While the Nelson River portion of the route, from Norway House to the mouth of the Echimamish, reflects the influence of Lake Winnipeg's relatively high sediment and nutrient loads, the Hayes and Echimamish Rivers are free from human-caused alterations, such as impoundments or diversions. Ongoing monitoring and management programs are in place to ensure water quality remains unchanged throughout the Hayes River corridor. (Parks and Natural Areas Branch Manitoba Conservation, 2005).

The Coordinated Aquatic Monitoring Program (CAMP) completed a twelve-year data report (2008-2019) for the Lower Nelson River Region (CAMP, 2024). Water quality sampling approximately 74 km upstream of the Project area was included in the monitoring report. *https://www.campmb.ca/camp-expansion-updates*
The water quality parameters assessed within the monitoring program included dissolved oxygen (DO), turbidity, total phosphorus (TP), total nitrogen (TN), and chlorophyll a. The following bullets summarize the findings for each parameter during the monitoring program (CAMP, 2024).

- Dissolved Oxygen: The Hayes River maintained sufficient oxygen levels throughout the year, with surface DO concentrations consistently meeting guidelines for cool- and cold-water aquatic life. During the open-water season, DO levels ranged from 8.59 to 12.38 mg/L, while in the ice-cover season, they were higher, ranging from 10.42 to 14.30 mg/L. Year-to-year fluctuations were minimal, with most values falling within expected ranges.
- Turbidity: Turbidity in the Hayes River varied between seasons, with higher levels during the open-water period (1.80 to 41.4 NTU) compared to winter (0.91 to 1.38 NTU). Over 12 years, the open-water season had a mean turbidity of 7.73 NTU, with annual means ranging from 4.17 to 18.6 NTU. In seven of those years, turbidity remained within the expected range (3.87 to 7.93 NTU), while it was higher in 2008, 2009, 2012, 2014, and 2015. During the ice-cover season, turbidity was consistently lower, with a mean of 1.13 NTU. No clear seasonal pattern was observed in the open-water period, though turbidity was lowest in summer (5.8 NTU) and highest in spring (10.6 NTU).
- Total Phosphorus: TP concentrations in the Hayes River varied seasonally, ranging from 0.009 to 0.044 mg/L during the open-water season and 0.006 to 0.015 mg/L in winter. The 12-year monitoring period showed a mean TP concentration of 0.018 mg/L in open water and 0.010 mg/L

during ice cover. TP levels were typically lower in winter, with no clear seasonal pattern in the open-water period, though the lowest mean occurred in fall (0.015 mg/L) and the highest in spring (0.022 mg/L). The river was classified as mesotrophic (0.010 to 0.020 mg/L) based on its mean open-water TP concentration, though in some years (2009, 2011, 2014, and 2015), levels reached the meso-eutrophic range (0.020 to 0.035 mg/L).

- Total Nitrogen: TN levels in the Hayes River varied between <0.20 and 0.79 mg/L during the open-water season, with a 12-year average of 0.42 mg/L. Most annual TN concentrations fell within 0.31 to 0.49 mg/L, except for 2008 (above) and 2013 (below). In the ice-cover season, TN ranged from 0.35 to 0.58 mg/L, averaging 0.44 mg/L over 10 years. No strong seasonal trends were noted, though TN was lowest in spring (0.39 mg/L) and highest in summer (0.46 mg/L). The river remained oligotrophic, with TN consistently below 0.7 mg/L from 2008 to 2019.
- Chlorophyll *a*: Chlorophyll a level in the Hayes River ranged from 0.76 to 4.58 µg/L during the open-water season, with a 12-year average of 2.66 µg/L. Most annual concentrations fell within 2.00 to 3.21 µg/L, except for lower levels in 2010 and 2017 and higher levels in 2011 and 2018. In the ice-cover season, concentrations were consistently below 0.60 µg/L over 10 years, often undetectable. No strong seasonal trends were observed, though levels were lowest in fall (2.40 µg/L) and highest in summer (3.03 µg/L). The river remained oligotrophic, with chlorophyll a consistently below 10 µg/L from 2008 to 2019.

Potential Impacts and Mitigations

Mitigation measures for potential impact on surface water and groundwater are below

Table 14 - Surface Water and Groundwater - Potential Impacts and Mitigations	
Potential Impacts	**Mitigations**
Hayes River & Ten Shilling Creek	• The project is not expected to directly impact the Hayes River, Ten Shilling Creek or any other waterbody. • The pre-construction topographical study (lidar imaging) was completed as part of the site design process and the Project will be designed to ensure all potential receptors and drainage requirements are considered. • An Erosion and Sediment Control Plan will be developed and implemented during construction phases of the Project. • A 200m vegetated buffer will be maintained between the proposed airstrip clearance area and Hayes River. • The Project footprint will be limited to the smallest extent possible; work area boundaries will be maintained for the duration of construction and the boundaries will be surveyed and clearly marked to ensure construction remains within the proposed footprint. • All cleaning, fueling, and servicing of equipment will be done in accordance with Project EPP and in an area where spill or wash

Table 14 - Surface Water and Groundwater - Potential Impacts and Mitigations	
Potential Impacts	**Mitigations**
	water will not enter any water bodies including Hayes River and Ten Shilling Creek. • Equipment operating near any water body will be properly maintained and in sound mechanical condition. • Drip trays and containment under mechanical equipment will be used when working near wetlands.
Sedimentation	• Reduce dust and airborne particles by watering the ground surface (or using other dust prevention amendments) during dry, windy conditions. • If possible, cover or vegetate areas with a high potential for erosion. • Reduce dust generation through speed limits. • Erosion and sediment control will be developed and implemented as needed by the Erosion and Sediment Control Plan.
Changes in Surface Drainage	• Natural drainage patterns will be maintained. • The Project area will be contoured to prevent surface ponding within the disturbance area.
Accidental Spills	• Emergency response plans will be included in the Project EPP spill response requirements to provide quick detection, control, and management of any spill during construction/operation and to ensure proper disposal of hazardous waste. • Development and implementation of a Hazardous Materials Management Plan. • All waste and debris generated by the Project will be collected and disposed of in accordance with provincial requirements. • Properly designed facilities for the storage of hazardous materials and fuel. • Spill kits will be available at fuel storage areas and at all work areas during construction.

4.2.5 Fish and Fish Habitat and Aquatic Environment

Baseline Aquatic Data

The Project is located within the Coastal Hudson Bay Lowland ecoregion within Manitoba (Smith et al, 1998).

The Hayes River and Ten Shillings Creek are the closest known fish-bearing water bodies within the Project LSA. Hayes River is 200 m at the nearest point, and Ten Shilling Creek is approximately 191 m southwest of the airstrip boundary. The larger Nelson River is located approximately 13.5 km northwest of the Project. Numerous smaller wetlands and drainages are located adjacent the Project area including Fountain Creek (8 km east), Pannebaker Creek (11.5 km east), Paskisikawe Creek (14.5 km east), Maskakowan Creek (18 km east), and Nonehkanakow Creek (22 km east).

As mentioned in the sections above, the CAMP completed a twelve-year data report (2008-2019) for the Lower Nelson River Region (CAMP, 2024). The following aquatic environment sections summarize the results of the monitoring. *https://www.campmb.ca/camp-expansion-updates*

Benthic Invertebrates

Benthic Invertebrate sampling locations were situated approximately 42 km upstream of the Project area and consisted of only nearshore habitats. Benthic invertebrate habitats in this region were characterized by substrate compositions ranging from loamy sand to sand to sandy loam, influencing community structure and species distribution. The benthic samples were measured on different metrics including community composition, richness and diversity. The following describes the results of each metric in more detail:

Community Composition:

Total Invertebrate Abundance: Benthic invertebrate monitoring in the nearshore habitat of the Hayes River over a decade revealed significant variations in abundance, diversity, and composition. Invertebrate abundance per sample fluctuated annually, with counts ranging from 295 in 2018 to 5,107 at the highest recorded level. The overall mean was 1,552, with a median of 1,169 and an interquartile range (IQR) of 599 to 1,862. Abundance was notably below the IQR in 2018 but exceeded it in 2019.

Relative Abundance: Community composition shifted across the years, with Corixidae (water boatmen) dominating in 2010 (95%), 2011 (59%), 2014 (54%), and 2015 (34%), while 2012 had a more balanced distribution among Sphaeriidae (fingernail clams; 26%), Chironomidae (non-biting midges; 22%), and Ephemeroptera (mayflies; 24%). Chironomidae were the most abundant in 2013 (66%), 2016 (24%), and 2018 (45%), whereas 2017 saw near-equal representation of Sphaeriidae (24% and Corixidae (25%). In 2019, Chironomidae and Corixidae were co-dominant, each accounting for 30% of the sample.

Richness: Taxonomic richness ranged from 8 to 24 families per year, with an average and median of 17 families, while the IQR spanned from 13 to 23 families. The lowest richness was recorded in 2010, whereas 2017 exceeded the IQR. The richness of Ephemeroptera, Plecoptera, and Trichoptera (EPT taxa) followed a similar pattern, with annual values ranging from 4 to 12 families. The average and median were both 8 families, and the IQR ranged from 5 to 11 families. EPT richness was particularly low in 2010 but surpassed the IQR in 2012 and 2017.

Diversity: Benthic invertebrate diversity, measured using Hill's Effective Richness index, varied from a low of 2 in 2010 to a high of 8. The overall mean was 6, with a median of 5 and an IQR ranging from below 4 to above 7.

Fish Community, Spawning, Habitat and Fish Tissue Chemistry

Review of the MBCDC Biotics database indicated that only one sensitive (ranked S1-S3) fish species was documented within the Coastal Hudson Bay Lowland ecoregion including the threespine stickleback (*Gasterosteus aculeatus*) (MBCDC, 2024). Table 15 summarizes the federal and provincial conservation status for the documented species. The CAMP twelve-year data report (2008-2019) for the Lower Nelson River Region (CAMP, 2024) identified lake sturgeon (*Acipenser fulvescens*; Special Concern under SARA and Endangered under COSEWIC) within the Hayes River. Specific mitigation measures associated with fish and fish habitat are found below

Table 15 - Sensitive Fish Species documented in the Coastal Hudson Bay Lowland Ecoregion

Common Name	Scientific Name	S_RANK[1]	N_RANK[2]	G_RANK[3]	ESEA[4]	SARA[4]	COSEWIC[4]	Tracked Status[5]
Threespine Stickleback	*Gasterosteus aculeatus*	S2	N5B,N5N,N5M	G5	NL	NL	NL	Y

Notes:
[1] S_Rank Subnational (provincial) conservation status ranks. Ranks the species' rarity on a scale of 1 (rare) to 5 (common)
[2] N_RANK National (federal) conservation status ranks. Ranks the species' rarity on a scale of 1 (rare) to 5 (common)
[3] Global conservation status ranks. Ranks the species' rarity on a scale of 1 (rare) to 5 (common)
[4] NL = Not Listed, SC = Special Concern, T = Threatened, E= Endangered, EX = Extirpated
[5] Y = Track all extant and selected historical occurrences, P = Partial Tracking, W = Watch List only, N = Do not Track
SARA = Federal Species at Risk Act
ESEA = Provincial Endangered Species and Ecosystem Act
COSEWIC = Committee on the Status of Endangered Wildlife in Canada

No known fish spawning areas within the Hayes River or Ten Shilling Creek within the vicinity of the Project. Lake sturgeon typically spawns in fast-moving water found at the base of falls, rapids or dams (COSEWIC, 2017b). These features are observed in reaches along the Hayes River further upstream from the Project area, therefore it is anticipated that the potential for spawning lake sturgeon within the portion of the Hayes River adjacent the Project would be low.

No known fish-bearing wetlands are located within or proximity to the project footprint.

The CAMP annual monitoring fish sampling locations were situated approximately 42 km upstream of the Project area and consisted of only 29-40 km upstream of the Project. The sampling methods consisted of the deployment of small mesh gill nets and standard gang index gill nets.

During the 12 years of monitoring there were 19 fish species caught including the following: Silver Lamprey (*Ichthyomyzon unicuspis*), Lake Sturgeon (*Acipenser fulvescens*), Lake Chub (*Couesius plumbeus*), Emerald Shiner (*Notropis atherinoides*), Spottail Shiner (*Notropis hudsonius*), Longnose Dace (*Rhinichthys cataractae*), Longnose Sucker (*Catostomus catostomus*), White Sucker (*Catostomus commersonii*), Shorthead Redhorse (*Moxostoma macrolepidotum*), Northern Pike (*Esox lucius*), Cisco (*Coregonus artedi*), Lake Whitefish

(*Coregonus clupeaformis*), Brook Trout (*Salvelinus fontinalis*), Trout-perch (*Percopsis omiscomaycus*), Burbot (*Lota lota*), Slimy Sculpin (*Cottus cognatus*), Johnny Darter (*Etheostoma nigrum*), Logperch (*Percina caprodes*), and Walleye (*Sander vitreus*).

Although multiple fish species were caught during the monitoring, capture effort was only calculated for lake whitefish, northern pike, walleye, sauger and white sucker. Over the 12 years the Hayes River showed variations in catch rates among species. Lake whitefish catches were generally low, with an average catch-per-unit-effort (CPUE) of 1.7 fish/100 m/24 h, peaking at 4.7 in 2015. Catches were below the expected range in 2009 and 2013 but exceeded it in 2015, 2016, and 2018. Northern Pike were also caught in low numbers, with an average CPUE of 1.0 fish/100 m/24 h. The highest recorded value was 1.9 in 2015, while the lowest was 0.2 in 2009. Annual CPUE remained within or close to the expected range throughout the study. No Sauger was captured during the monitoring period. Walleye catches varied, with an average CPUE of 3.5 fish/100 m/24 h. The lowest value was 1.6 in 2009, and the highest was 4.4 in 2019. CPUE generally remained within the expected range, except for 2009 and 2011, when it was lower. White Sucker catches were relatively low, averaging 1.2 fish/100 m/24 h. The lowest CPUE was 0.4 in 2008, while the highest was 2.6 in 2013. Catches generally stayed within the expected range, except in 2013, when they were higher.

The following additional annual comparison was completed with the monitoring fish data including diversity, standard gang index gill nets capture, small mesh index gill nets capture and mercury in fish tissue analysis and are described in further detail below.

Diversity: Fish monitoring in the Hayes River over 12 years recorded 19 species, with 8 to 12 species observed annually. Sauger and Rainbow Smelt were not captured during the study.

Standard Gang Index Gill Nets Capture: Lake Sturgeon and Walleye were the most caught species in standard gill nets, each making up over 25% of the total catch. Lake Sturgeon abundance ranged from 15% in 2008 to 45% in 2014, while Walleye varied between 17% in 2014 and 44% in 2012.

Small Mesh Index Gill Nets Capture: In small mesh gill nets, Walleye was the most frequently caught species, with an annual abundance ranging from 0% in 2009 to 77% in 2016. Other species that exceeded 25% of the catch in certain years included Lake Sturgeon, Lake Chub, Longnose Dace, Longnose Sucker, and Troutperch.

Mercury In Fish Tissue Analysis: Mercury levels in fish from the Hayes River varied by species and size. In Lake Whitefish, average mercury concentrations ranged from 0.063 ppm in 2010 to 0.074 ppm in 2016, generally increasing with fork length but showing some variability among fish of the same size. Northern Pike had higher mercury levels, with concentrations ranging from 0.262 ppm in 2010 to 0.571 ppm in 2019, also tending to increase with fish length. Similarly, Walleye showed a range from 0.309 ppm in 2016 to 0.724 ppm in 2010, with mercury levels typically rising as fork length increased.

Potential Impacts and Mitigations

Mitigation measures for potential impact on fish and fish habitat are outlined in Table 18 , Table 19

within Section 6.1.1.

4.2.6 Air Quality and Noise

4.2.6.1 Noise

Noise sources in the area are minimal as there is no industrial activity, the only noise would be from boats in the summer months and the odd aircraft flying over. Once the project is operational there will be noise from an aircraft, but it will be for a short period of time when taxiing, taking off or landing. Other noise will be from a generator, snow removal equipment and potential other small equipment of which will all be for short periods.

4.2.6.2 Air Quality

The air quality effects from the Project construction and operations are expected to be low given that mitigation measures will be in place to limit emissions. Mitigation measures are listed within Table 16. Air Quality and Noise Potential Impacts and Mitigations

4.2.6.3 Potential Impacts and Mitigations

A summary of potential impacts and mitigations for air quality and noise during construction of the Project within table below

Table 16 -Air Quality and Noise - Potential Impacts and Mitigation

Potential Impact	Mitigation
Air Emissions	• Increased emissions will occur during construction for a limited time. These will be minimized by using well maintained equipment and limiting idling wherever possible. • Use of best available technology in design of the airstrip and supporting infrastructure to reduce emissions to air, where feasible.
Fugitive Dust	• Limit the area of disturbance as much as practical. • Implement speed control measures during construction.
Potential Disturbing Noise	• Select equipment that minimizes noise generation and conduct regular maintenance where possible.

4.3 Health, Social, and Economic Context

A brief description of the health, social and economic context in the region where the project is located, based on information that is available to the public or derived from any engagement undertaken

4.3.1 Health Context

Manitoba is divided into five Regional Health Authorities. The Project is located with the Northern Region which covers a vast area. The Northern Health Region Provincial population in June 2023 was 77,229 and the overall population of Manitoba at that time was 1,454,902.

The closest health centre is in Shamattawa approximately 120kms SE and Gillam has a health centre and hospital approximately 160kms south of the Project. The nearest ambulance and RCMP detachment and fire services to the Project are also located in Gillam.

4.3.2 Social Context

The Project is located within Treaty 5 Territory and the nearest town is Gillam which is approximately 160 kms south located on the Nelson River. It is situated between Thompson and Churchill on the Hudson Bay Railway Line. The area of Gillam is large due to the size of the Local Government District, but the population is relatively small. The town's amenities include Community Health Services, Hospital, local schools, public pool, gaming centre, golf court, restaurants, rail transportation, RCMP, and an airport.

The largest community closest to the Project is the City of Thompson, which is approximately 367 kms to the SW, with a population of approximately 13,025 as per the 2021 Census. Thompson was historically known as a mining town and now primarily serves as the Hub of the North providing goods and services to the surrounding communities (such as health care and the retail trade). Recreational activities such as the Thompson Regional Community Centre, walking/biking trails, Heritage North Museum, hockey/ice skating and aquatics center (City of Thompson directory).

4.3.3 Economic Context

The Project falls within the Churchill Economic Area but is closer to the Gillam Economic Area. Many of Gillam's residents are employed by Manitoba Hydro. The Gillam Local Government District was established in the 1960's by the Manitoba Government in the mid 60's to facilitate the development of hydroelectricity on the lower Nelson River. Some of the major employers in the Gillam and Thompson areas are Manitoba Hydro and Mining companies. This northern area has a strong tourism industry which attracts hunters and anglers to the area.

5.0 FEDERAL, PROVINCIAL, INDIGENOUS INVOLVEMENT AND EFFECTS

5.1 Federal Financial Support

A description of any financial support that federal authorities are, or maybe, providing to the project

Currently YFFN is the sole financer of the Project.

5.2 Federal Project Lands

A list of any federal lands that may be used for the purpose of carrying out the project

No federal lands will be used for the Project. The Project will not be carried out on federal land and is not a federal work undertaking, as defined in *subsection 3(1) of the Canadian Environmental Protection Act, 1999.*

5.3 Jurisdictions with Powers, Duties, or Functions

A list of any jurisdictions that have powers, duties, or functions in relation to an assessment of the project's environmental effects

The Federal and Provincial jurisdictions that have power, duties, or functions in relation to an assessment of the Projects environmental effects are listed below

Table 17 - Jurisdictions with Powers, Duties, or Functions

Agency and Legislation/Regulation/Policy	Resource Protected/Managed	Potential Powers/Duties/Functions
Federal		
Impact Assessment Agency of Canada *Impact Assessment Act* (IAA) *Strategic Assessment of Climate Change* (SACC) (ECCC 2020)	IAAC manages the process to collect the information needed to understand the potential effects of a proposed project and assesses the effects of designated projects in areas within federal jurisdiction" What is an impact assessment - Canada.ca	Decision Statement issued by Federal Minister of Environment and Climate Change or Cabinet or A decision that a federal impact assessment is not required
Environment and Climate Change Canada *Migratory Birds Convention Act* (MBCA)	The MBCA protects migratory birds, their nests, and eggs anywhere they are found in Canada	The MBCA restricts certain activities during nesting periods
Transport Canada *Canadian Aviation Regulations* (CARs)	The CARs are rules that govern civil aviation in Canada, including noise resulting from aircraft operation	All aircraft operators must comply with the noise operating restrictions and noise abatement procedures required by Transport Canada, which are published by NAV CANADA

Agency and Legislation/Regulation/Policy	Resource Protected/Managed	Potential Powers/Duties/Functions
Provincial		
Manitoba Environment and Protected Area Water Act	The *Water Act* supports and promotes the conservation and management of water in Manitoba, including wetlands	*Water Act* authorization required before Project construction to address potential effects to any wetlands
Manitoba Environment and Climate Change - Manitoba Environment Act	The Environment Act outlines the environmental assessment and licensing process for developments in Manitoba that may have potential for significant environmental and / or human health effects.	If a Project is deemed a development, then the Environmental Approvals Branch (EAB) will review and make a determination for Provincial approval.
Manitoba Environment and Climate Change - Water Rights Act and Regulation	The Manitoba Environment and Climate Change issue licenses for water use for municipal and industrial purposes or if the use exceeds more than 25,000 litres per day. License is required for the disturbance to Class 3, 4 or 5 wetlands.	A water use license must be obtained prior to diversion of water for use on the Project or disturbance to Class 3, 4 or 5 wetlands.
Manitoba Endangered Species and Ecosystem Act and Regulation	The Act and Regulation ensure the protection and to enhance the survival of endangered and threatened species and species of special concern in the province and to conserve and protect endangered and threatened ecosystems in the province and promote the recovery of those ecosystems.	Species that at endangered, threatened, extirpated or special concern or ecosystems that are endangered or threatened must not be harmed throughout the Project.
Manitoba Environment and Climate Change - Manitoba Water Protection Act - Aquatic Invasive Species Regulation - Water Quality Standards, Objectives and Guidelines Regulation	The Act provides protection and stewardship of Manitoba's water resources and aquatic ecosystems. The Act ensures sufficient supply of clean water, planning for watersheds, protection to high quality drinking water sources, addressing the threat of aquatic invasive species, and protection of riparian areas and wetlands.	Proponents must adhere to requirements for mitigating the spread of invasive aquatic species and ensuring water meets the provincial standard and objectives for drinking water.
Manitoba Noxious Weeds Act and Regulation	The Act and Regulation mandates the destruction and/or control of	The Act specifies what the owner needs to destroy and/or control

	Tier 1, 2 and 3 noxious weeds within Manitoba.	regarding Tier 1-3 noxious weeds. The regulation specifies what weed species are categorized under which Tier.
Manitoba The Heritage Resources Act (HRA)	The HRA manages the preservation and study of historic resources in Manitoba including archaeological sites, paleontological sites, historic buildings, and Aboriginal traditional use sites	HRA approval prior to Project construction

Other Federal and Provincial legislation were considered in relation to the Project's environmental effects, but the Project does not include features relevant to their mandates, as follows:

Federal *Species at Risk Act* (SARA)

The Project does not affect fish or fish habitat because it is not expected to release stormwater off-site to areas with fish habitat; therefore, there are no SARA requirements for aquatic species to be met (Section 4.2.5). As the environmental studies have not been completed, we have not identified any Species at Risk, there are no SARA requirements for vegetation or wildlife (Section 4.2.2 & 4.2.3).

Federal Fisheries Act

Since the Project does not affect fish or fish habitat and does not release stormwater off-site (except potentially through the ditches planned on each side of the runway), there are no *Fisheries Act* requirements to be met.

Federal Canadian Navigable Water Act

There are no waterways affected by the construction or operations of the Project.

Provincial Environmental Assessment

Manitoba Environmental Approvals Branch (EAB) advised that the Project does not fall within the Classes of Development (*The Environment Act (C.C.S.M.c.E125*) – January 30, 2025

6.0 POTENTIAL EFFECTS OF THE PROJECT

6.1 Relevant Environmental Legislation

A list of any changes that, as a result of the carrying out of the project, may be caused to the following components of the environment that are within the legislative authority of Parliament:

a. fish and fish habitat as defined in subsection 2(1) of the Fisheries Act.

b. aquatic species, as defined in subsection 2(1) of the Species at Risk Act (marine plants).

c. migratory birds, as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994.

Acts	Regulations
Provincial	
The Wildlife Act	Manitoba Environment and Protected Area Water Act
Manitoba Noxious Weeds Act	Manitoba Environment Act
Water Rights Act	Water Rights Regulation
Manitoba Endangered Species and Ecosystem Act	Manitoba Endangered Species and Ecosystem Regulation
Manitoba Water Protection Act	
Federal	
Migratory Bird Convention Act	Migratory Birds Regulation
Canadian Environmental Protection Act	
Species At Risk Act	
Fisheries Act	

6.1.1 Fish and Fish Habitat

Fish and Fish Habitat

It is crucial that due to the Project's proximity to the Hayes River and Ten Shilling Creek, the work area boundaries are well defined and clearly marked to ensure there are no impacts on the water bodies. No in-water work is anticipated for the Project. If any disturbance is proposed within the boundaries of any waterbodies, then all requirements stated in provincial and federal regulations will be adhered to and any applicable mitigation measures stated in the Project EPP. An Erosion and Sediment Control Plan will be developed for the Project and followed throughout the Project development. No refueling will occur within the vicinity of any water bodies and spill kits will be present and accessible at all refueling locations and fuel storage areas. All fuel storage areas will have adequate impermeable containment structures that will accommodate 110% of the fuel stored within.

The York Factory First Nation members and associated contracted support companies/staff will comply with the prohibitions in the Species at Risk Act and Fisheries Act throughout all stages of the project. Mitigation measures proposed for each stage of the project are provided in Table 18 *and* Table 19.

Table 18 - Fish and Fish Habitat - Potential Impacts and Mitigation - Construction Phase	
Potential Impacts	**Mitigations**
Hayes River & Ten Shilling Creek	• The project is not expected to directly impact the Hayes River, Ten Shilling Creek or any other waterbody. • An Erosion and Sediment Control Plan will be developed and implemented during construction phases of the Project. • A 200m vegetated buffer will be maintained between the proposed airstrip clearance area and Hayes River. • Construction activities near water will be avoided during sensitive fish timing for spring and summer spawning species (April 15 to July 15). • If work is to be completed within the sensitive fish timing, a qualified environmental specialist should be present to provide recommendations. • No in-water work will be completed as part of this Project phase. • Natural drainage patterns will be maintained, and surface water drainage will be managed properly. • All cleaning, fueling, and servicing of equipment will be done in accordance with Project EPP and in an area where spill or wash water will not enter any water bodies including Hayes River and Ten Shilling Creek. • Equipment operating near any water body will be properly maintained and in sound mechanical condition. • Drip trays and containment under mechanical equipment will be used when working near water bodies.
Sedimentation	• Reduce dust and airborne particles by watering the ground surface (or using other dust prevention amendments) during dry, windy conditions. • If possible, cover or vegetate areas with a high potential for erosion. • Reduce dust generation through speed limits. • Erosion and sediment control will be developed and implemented as needed by the Erosion and Sediment Control Plan.
Accidental Spills	• Emergency response plans will be included in the Project EPP spill response requirements to provide quick detection, control, and management of any spill during construction/operation and to ensure proper disposal of hazardous waste. • Development and implementation of a Hazardous Materials Management Plan. • All waste and debris generated by the Project will be collected and disposed of in accordance with provincial requirements. • Properly designed facilities for the storage of hazardous materials and fuel. • Spill kits will be available at fuel storage areas and at all work areas during construction.

Table 19 - Fish and Fish Habitat - Potential Impacts and Mitigation - Operation Phase	
Potential Impacts	**Mitigations**
Hayes River & Ten Shilling Creek	• The project is not expected to directly impact the Hayes River, Ten Shilling Creek or any other waterbody. • No in-water work will be completed as part of this Project phase. • Natural drainage patterns will be maintained, and surface water drainage will be managed properly. • All cleaning, fueling, and servicing of equipment will be done in accordance with Project EPP and in an area where spill or wash water will not enter any water bodies including Hayes River and Ten Shilling Creek. • Equipment operating near any water body will be properly maintained and in sound mechanical condition. • Drip trays and containment under mechanical equipment will be used when working near water bodies.
Sedimentation	• Reduce dust and airborne particles by watering the ground surface (or using other dust prevention amendments) during dry, windy conditions. • Reduce dust generation through speed limits. • Erosion and sediment control will be developed and implemented as needed by the Erosion and Sediment Control Plan.
Accidental Spills	• Emergency response plans will be included in the Project EPP spill response requirements to provide quick detection, control, and management of any spill during construction/operation and to ensure proper disposal of hazardous waste. • Development and implementation of a Hazardous Materials Management Plan. • All waste and debris generated by the Project will be collected and disposed of in accordance with provincial requirements. • Properly designed facilities for the storage of hazardous materials and fuel. • Spill kits will be available at fuel storage areas and at all work areas during construction.

6.1.2 Aquatic Species and Marine Plants

The Species at Risk Act prohibit the killing, harming, harassing, or capturing of species listed within the Act. The MBCDC Biotics database (MBCDC, 2024) identified threespine stickleback as the only provincially tracked fish species within the Coastal Hudson Bay Lowland Ecoregion and the CAMP monitoring program (CAMP, 2024) identified lake sturgeon as a federally listed fish species within the Hayes River.
It is crucial that due to the Project's proximity to the Hayes River and Ten Shilling Creek, the work area boundaries are well defined and clearly marked to ensure there are no impacts to the water bodies. No in-water work is anticipated for the Project. If any disturbance is proposed within the boundaries of any waterbodies, then all requirements stated in provincial and federal regulations will be adhered to and any applicable mitigation measures stated in the Project EPP. An Erosion and Sediment Control Plan will be developed for the Project and followed throughout the Project development. No refueling will occur within the vicinity of any water bodies and spill kits will be present and accessible at all refueling locations and

fuel storage areas. All fuel storage areas will have adequate impermeable containment structures that will accommodate 110% of the fuel stored within.
The York Factory First Nation members and associated contracted support companies/staff will comply with the prohibitions in the Species at Risk Act and Fisheries Act throughout all stages of the project. Mitigation measures proposed for the protection of species under the Species at Risk Act categorized by project phase are provided in Table 20 *and* Table 21.

Table 20 - Aquatic Species and Marine Plants under the Species at Risk Act – Potential Impacts and Mitigations – Construction Phase

Potential Impacts	Mitigations
Hayes River & Ten Shilling Creek	• The project is not expected to directly impact the Hayes River, Ten Shilling Creek or any other waterbody. • An Erosion and Sediment Control Plan will be developed and implemented during construction phases of the Project. • A 200m vegetated buffer will be maintained between the proposed airstrip clearance area and Hayes River. • Construction activities near water will be avoided during the lake sturgeon spawning period of (May 15 to July 15; DFO, 2013). • If work is to be completed within the sensitive fish timing, a qualified environmental specialist should be present to provide recommendations. • No in-water work will be completed as part of this Project phase. • Natural drainage patterns will be maintained, and surface water drainage will be managed properly. • All cleaning, fueling, and servicing of equipment will be done in accordance with Project EPP and in an area where spill or wash water will not enter any water bodies including Hayes River and Ten Shilling Creek. • Equipment operating near any water body will be properly maintained and in sound mechanical condition. • Drip trays and containment under mechanical equipment will be used when working near water bodies.
Sedimentation	• Reduce dust and airborne particles by watering the ground surface (or using other dust prevention amendments) during dry, windy conditions. • If possible, cover or vegetate areas with a high potential for erosion. • Reduce dust generation through speed limits. • Erosion and sediment control will be developed and implemented as needed by the Erosion and Sediment Control Plan.
Establishment of noxious weeds and other introduced invasive plants	• Prevention of the introduction and spread of prohibited, noxious, nuisance, and invasive plants will be addressed in the environmental management plan. • Confirm all equipment arriving at the Project site will be clean and free of soil and vegetative debris to avoid the spread of weeds. Monitor disturbed areas for weeds and implement corrective measures to avoid growth.

Table 20 - Aquatic Species and Marine Plants under the Species at Risk Act – Potential Impacts and Mitigations – Construction Phase	
Potential Impacts	**Mitigations**
	• Control noxious weeds and species as identified in the Manitoba Noxious Weeds Act. • Disturbed areas will be re-seeded with native vegetation as soon as possible. • Reclaimed areas will be included in weed management efforts until these areas represent vegetation of the surrounding area. • If regulated weeds are found immediate measures will be taken to eradicate those species.
Accidental Spills	• Emergency response plans will be included in the Project EPP spill response requirements to provide quick detection, control, and management of any spill during construction/operation and to ensure proper disposal of hazardous waste. • Development and implementation of a Hazardous Materials Management Plan. • All waste and debris generated by the Project will be collected and disposed of in accordance with provincial requirements. • Properly designed facilities for the storage of hazardous materials and fuel. • Spill kits will be available at fuel storage areas and at all work areas during construction.

Table 21 - Aquatic Species and Marine Plants under the Species at Risk Act – Potential Impacts and Mitigations – Operation Phase	
Potential Impacts	**Mitigations**
Hayes River & Ten Shilling Creek	• The project is not expected to directly impact the Hayes River, Ten Shilling Creek or any other waterbody. • No in-water work will be completed as part of this Project phase. • Natural drainage patterns will be maintained, and surface water drainage will be managed properly. • All cleaning, fueling, and servicing of equipment will be done in accordance with Project EPP and in an area where spill or wash water will not enter any water bodies including Hayes River and Ten Shilling Creek. • Equipment operating near any water body will be properly maintained and in sound mechanical condition. • Drip trays and containment under mechanical equipment will be used when working near water bodies.
Sedimentation	• Reduce dust and airborne particles by watering the ground surface (or using other dust prevention amendments) during dry, windy conditions. • Reduce dust generation through speed limits. • Erosion and sediment control will be developed and implemented as needed by the Erosion and Sediment Control Plan.
Establishment of noxious weeds and other introduced invasive plants	• Prevention of the introduction and spread of prohibited, noxious, nuisance, and invasive plants will be addressed in the environmental management plan. • Control noxious weeds and species as identified in the Manitoba Noxious Weeds Act. • If regulated weeds are found immediate measures will be taken to eradicate those species.
Accidental Spills	• Emergency response plans will be included in the Project EPP spill response requirements to provide quick detection, control, and management of any spill during construction/operation and to ensure proper disposal of hazardous waste. • Development and implementation of a Hazardous Materials Management Plan. • All waste and debris generated by the Project will be collected and disposed of in accordance with provincial requirements. • Properly designed facilities for the storage of hazardous materials and fuel. • Spill kits will be available at fuel storage areas and at all work areas during construction.

6.1.3 Migratory Birds

The Migratory Bird Convention Act protects migratory birds, their nests, and eggs anywhere they are found in Canada and prohibits the harming of migratory birds or the disturbance/destruction of their nests and eggs. The general breeding bird window is from the middle of April to end of August. There are treed areas and vegetated areas within the footprint of the project which could potentially be used as habitat for breeding birds.

Due to the potential for migratory birds to be present within the project footprint mitigation measures must be considered. Trees within the footprint of the project will be cleared outside of the breeding bird window and grass will be mowed to prevent ground nesting birds. Additional mitigation measures can be implemented if migratory birds are observed at the time of construction. These include adjusting the construction schedule by postponing activities near occupied nests, implementing a barrier between the occupied nest and the activity, moving equipment daily, relocating nests or wildlife, and/or monitoring the nest to determine if the inhabitant is showing signs of stress. With the primary mitigation measures in place, it is unlikely that an issue to migratory birds would occur during construction/operation. Mitigations measures for the potential impact of wildlife species and wildlife habitat are outlined in Table 22 .

Table 22 - Migratory Bird Species - Potential Impacts & Mitigation

Potential Impacts	Mitigations
Loss of Migratory Bird Habitat	• The Project footprint will be kept to the smallest extent possible to do the work safely and work area boundaries will be maintained for the duration of construction. • Work area boundaries will be maintained for the duration of construction. The boundaries will be surveyed and clearly marked to ensure construction remains within the proposed footprint. • Limit the removal of potential migratory bird nesting habitat to the areas necessary.
Disturbance of Migratory birds, nests and eggs during construction activities	• Potential impacts to the environment will be assessed in a screening assessment and pre-construction wildlife survey, and mitigation measures will be developed where necessary along with follow-up monitoring programs. • Complete clearing activities outside of the migratory bird nesting period (generally in middle of April to end of August). • In the event construction activities need to be completed within the migratory bird breeding window or the species-specific restricted timing a wildlife sweep will be completed a maximum of 7 days prior to construction. • If nests/dens are detected during the sweep, determine a species-specific temporary setback buffer, in consultation with a qualified person, and apply the setback to all construction activities until the nest has been deemed fledged or inactive by a qualified person.
Wildlife-vehicle interactions	• Include wildlife incidents, such as accidental vehicle collisions, in site-specific protocols as well as the steps to

Table 22 - Migratory Bird Species - Potential Impacts & Mitigation	
Potential Impacts	**Mitigations**
	report an incident and additional mitigation measures to implement to prevent the incident from re-occurring. • Avoid interactions with wildlife including hunting, chasing, or feeding. • Shut off vehicles and equipment when not in use to minimize disturbance to wildlife species. • Avoid unnecessary travel on and to and from the Project site to reduce the risk of wildlife-vehicle interactions. • Existing clearings and trails will be used where possible to access project components, reducing the potential impacts on wildlife, such as roads as barriers to movement or the creation of edge effects. • Follow posted speed limits to reduce risk of wildlife-vehicle interactions.
Establishment of weeds affecting potential habitat	• Prevention of the introduction and spread of prohibited, noxious, nuisance, and invasive plants will be addressed in the environmental management plan. • Confirm all equipment arriving at the Project site will be clean and free of soil and vegetative debris to avoid the spread of weeds. • Disturbed areas will be re-seeded with native vegetation as soon as possible. • Reclaimed areas will be included in weed management efforts until these areas represent vegetation of the surrounding area. • If regulated weeds are found immediate measures will be taken to eradicate those species.

6.2 Changes to Federal Lands

A list of any changes to the environment that, as a result of carrying out the project, may occur:

The Project does not fall within any Federal Lands.

6.2.1 Impact to the Marine Environment

A list of any non-negligible adverse changes to the marine environment — that are caused by pollution and that would occur outside Canada — that may be caused by the carrying out of the project

The Project is located entirely on terrestrial environment and no in-water work is proposed for this phase of the Project. The Project is approximately 14 km from Hudson Bay. As stated in Section 4.2.4, the measures to mitigate the potential for impacts to waters adjacent the Project and will be adhered to throughout the project duration. No impacts to marine environment are anticipated throughout the Project.

6.2.2 Impact to Interprovincial or International Waters

The Project is located entirely within the province of Manitoba and impacts to interprovincial or international waters are not anticipated. As stated in Section 4.2.4, the measures to mitigate the potential for impacts to provincial, interprovincial and international waters and will be adhered to throughout the Project duration.

6.3 Impact to Indigenous Peoples

With respect to the Indigenous peoples of Canada, a brief description of the impact — that, because of the carrying out of the project, may occur in Canada and result from any change to the environment — on:
• Physical and cultural heritage.
• The current use of lands and resources for traditional purposes.
• Any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, based on information that is available to the public or derived from any engagement undertaken with Indigenous peoples of Canada

The Ten Shilling Aerodrome is owned by YFFN who claim this area as their Traditional Territory. YFFN would be best positioned to assess potential cumulative impacts on their traditional territory as they have been protecting this area for many years. YFFN does not believe there will be any cumulative impacts they are unable to manage, however, if any of the other First Nations they have engaged with have concerns they will be sure to address them.
The lands within proximity to the Project are only utilized by YFFN and know of no other First Nation groups that utilize the Project area for traditional land uses. The Proposed Aerodrome is a very small area within their traditional territory, and it will not affect their ability to undertake their traditional activities, however it will be possible for future economic opportunities if so desired. The Project footprint will be cleared of trees and vegetation but will not affect any gathering, hunting or trapping.

Within Manitoba, any work, activity, development or project that alters or disturbs the surface of the land is subject to a review by Manitoba Culture, Heritage and Citizenship. The proposed projects are screened in terms of location, the types of landforms involved, the amount of disturbance, proximity to known heritage resources already examined and proximity to water *The Heritage Resources Act C.C.S.M.c.H39.1.*

6.4 Effect to the Health, Social or Economic Conditions of Indigenous Peoples

A brief description of any change that, as a result of the carrying out of the project, may occur in Canada to the health, social or economic conditions of Indigenous peoples of Canada, based on information that is available to the public or derived from any engagement undertaken with Indigenous peoples of Canada

YFFN believes that this project will have a very positive effect on the Indigenous people and surrounding communities. These communities (York Factory First Nation, Fox Lake Cree Nation, Tataskweyak Cree Nation, War Lake First Nation, and Shamattawa First Nation) have worked together for a very long time on protecting lands they are connected to. In doing so, they have created a document called “OUR VISION” which was supported by Environment and Climate Change Canada & Metcalf Foundation. Their vision is to protect the land, work together to do so, follow their guided beliefs, values and traditional laws, ensure that their youth has a future and to always protect their lands.

Economic benefits of the Project will be the creation of jobs during the construction and operation phase(s). Work will be subcontracted to companies and organizations within YFFN and outside of YFFN from other First Nations and groups. Once the Project is approved the subcontractor scoping/hiring process will commence. The Project will allow easier access for medical and emergency services that is greatly needed as well as provide safer and reliable transportation for all into the area (including their neighbors).

6.5 Greenhouse Gas Estimate

An estimate of any GHG emissions associated with the project. This should be calculated as the net GHG emissions associated with the project and estimated based on the information available to proponents at this stage

The following Greenhouse Gas (GHG) estimate for the Ten Shilling Airstrip has been developed for both the construction and operation phases. The emission and activity factors used for heavy equipment, vehicles, and land mass changes were derived using the GHG estimates from northern Canada Environmental Impact Assessments (EIA). This GHG assessment evaluates a future project without any available direct GHG emission data, and the GHG emissions quantification was restricted to the use of the appropriate emission factors (EF) and activity factors (AF) identified for similar projects.

The general GHG emissions quantification equation used in (Fission 2024) was:

CO_2e (tonnes/year) = AF * EF * GWP * CF

Where:

CO_2e (tonnes/year) – estimated GHG emissions expressed as CO_2e equivalent in metric tonnes (t) per year

CH_4 - Methane

N_2O – Nitrous Oxide

AF – Activity Factor

EF – Emission Factor

GWP – Global Warming Potential for an evaluated GHG gas

CF – Units Conversion Factor

Applied GWP conversion factors per the Intergovernmental Panel on Climate Change (IPCC) 5th Protocol are summarized in **Table 23**. - Applied GWP Conversion Factors *and* **Table 24**-Emission Calculation Factors Used

Table 23 – Applied GWP Conversion Factors			
GHG Gas	CO_2	CH_4	N_2O
GWP Factor	1	28	265

Table 24 – Emission Calculation Factors Used	
Source	**Factor Used**
Scope 1 – Direct Emissions	
Construction Equipment – Diesel-powered 5 pieces of heavy equipment	Heavy - 25 L/hr at 2.7 kg CO_2e /L
Operations Equipment – Diesel-powered 2 pieces of auxiliary equipment	Aux. - 15 L/hr at 2.7 kg CO_2e /L

Land Use Change – Biomass Oxidation	300 t CO_2e /ha
Scope 2 – Indirect Emission – Acquired Energy	Not applicable
Scope 3 – Indirect Emissions	
Haulage to Project – Diesel-powered	0.0011 t CO_2e /km
Project related air travel	676 t/y CO_2e all-in
Biogenic Emissions - Land Use Change – Loss of Carbon Sequestration	12.78 t CO_2e /ha

6.5.1 Mobile Combustion

Construction – The estimated equipment requirements for diesel-powered vehicles is five pieces of heavy equipment. Construction equipment could include haul trucks, excavators, compactors, graders and bulldozers, but only four would be operating at a given time on average.

Based on a search of operator's sites online and the Caterpillar Performance Handbook, Edition 46, the fuel consumption for the typical piece of heavy equipment that is likely to be used is 25 L/hr. It is estimated that the construction equipment will run an average of 12 hours per day for the six-month construction period. This results in a consumption of 300 L per day per piece of equipment. If diesel produces 2.7 kg CO_2e per litre (Government of Canada Auto$mart Guide), the total CO_2e produced per day is 3.24 t CO_2e /day for the construction equipment. These calculations would result in a total of 585 t CO_2e for the equipment constructing the airstrip during the construction phase.

Aerodrome operations – It is estimated that there will be two pieces of auxiliary equipment assigned to the airstrip. The auxiliary equipment would be a skid steer and a grader. It is estimated that they would not operate continually, only for maintenance and snow clearing. This would equate to approximately two hours per operational day (estimated 4 days/week) average usage estimate. The auxiliary equipment uses 15 L/hr of diesel, estimated 60 L/day for operations of diesel equipment. If diesel produces 2.7 kg CO_2e per L (Government of Canada Auto$mart Guide), the total CO_2e produced per day is 162 kg, for an annual total of 33.7 t CO_2e /year.
https://publications.gc.ca/site/eng/9.650581/publication.html

Scope 3 – Transportation
Equipment transported to site on the winter road and cat trail, approximately 250km (estimated eight (8) round trips), material transportation to site (estimated ten (10) round trips). The estimated emissions calculation is based upon completion of construction for removal, using a factor of 0.0011 t CO_2e /km results in 20.0 t CO_2e.

6.5.1.2 Industrial Process Inputs

There is not expected to be any need for explosives given the lack of bedrock and the sandy nature of the materials to be moved. Solid waste and wastewater are not included in the GHG calculation as they are part of the normal operation of the Ten Shilling Camp and the construction would not create any unusual loadings over and above the normal range from camp operations.

Potential solid waste generated by the Project are building materials, construction waste, and garbage/scrap materials. Materials will be sourced to minimize waste, and a waste management plan will be followed. Domestic waste and recyclables will be stored, recycled and hauled out at the end of construction to an approved refuse site.

6.5.1.3 Land Use Change – Biomass Oxidation

The runway is expected to cover an area of 30 m x 1,530 m, including the area around the runway and the apron that is to be cleared, the total area is 90 m x 1650 m + 6000 m^2 for an operational area of 154,500 m^2 or 15.45 ha. An emission factor of 300 t CO_2e /ha for sparse forest was applied. This analysis adopted the terminology and application of emissions factors outlined in the UNIPCC's Good Practice Guidance for Land Use and Land-use Change and Forestry (UNIPCC, 2003) into a modified methodology more typically applied when estimating GHG emissions for future land use change as described in Seabridge Gold Inc. and Rescan Environmental Services Ltd (2013). The proposed land use change related to the project would account for an estimated GHG emissions of 4,600 t CO_2e because of the biomass oxidation. This is a one-time charge to the project, and as such is added to the construction year. *https://www.ipcc.ch/site/assets/uploads/2018/03/GPG_LULUCF_FULLEN.pdf*

6.5.1.4 Indirect GHG Emissions (Formerly Scope 2 GHG Emissions)

Acquired Energy GHG Emissions (Not Applicable to the Project). The property is entirely remote and has no electrical service. All energy will be supplied by generator or other viable sources under continuous review for economic viability.

6.5.1.5 Indirect GHG Emissions (Formerly Scope 3 GHG Emissions)

The Project location is isolated with no access to the site except by aircraft or boat. While fuel will be available for aircraft(s), most flights in the north leaving a large well-established base will carry enough fuel for a round trip and some extra. Refueling at the Ten Shilling Airstrip will be minimal.

Air Transportation

Dash 8 (100 variant): (planned aircraft for the strip)
A De Havilland Dash 8-100 aircraft typically emits approximately 68 grams of CO_2 per available seat kilometer (ASK), producing around 600 kilograms of carbon dioxide per hour of flight depending on factors like passenger load, flight duration, and weather conditions; it is considered a relatively fuel-efficient regional airliner due to its turboprop engines, but still generates significant emissions compared to larger jet aircraft.
Key points about Dash 8-100 emissions:
Engine type: Twin turboprop engines, usually Pratt & Whitney Canada PW120 or PW121.
Fuel consumption: Approximately 600 liters per hour in average flight conditions.
Emission profile: Primarily carbon dioxide (CO_2), with smaller amounts of nitrogen oxides (NOx) and sulfur oxides (SOx).

Dash 8 (300 variant): (largest aircraft suited for the proposed strip)

A Dash 8-300 emits approximately 72.4 grams of CO_2 per available seat kilometer (ASK), which translates to around 0.26 pounds of CO_2 per available seat mile (ASM) or 900 kilograms per flight hour depending on factors like passenger load, flight duration, and weather conditions; it is considered a relatively fuel-efficient regional airliner due to its turboprop engines.

Key points about Dash 8 300 emissions:
The stated 72.4 g/ASK is considered the emission intensity, meaning the amount of CO_2 emitted per passenger seat flown a certain distance. The De Havilland Canada DHC-8 Dash 8-300 aircraft burns fuel at a rate of 0.0206–0.0208 US gallons per passenger-mile on the shortest routes. On the longest routes, it burns 0.0152 US gallons per passenger-mile on the outbound sector and the same amount on the return sector.

Engine type: Twin turboprop engines, usually Pratt & Whitney Canada PW120 or PW121.
Fuel consumption: Approximately 800 liters per hour in average flight conditions.
Emission profile: Primarily carbon dioxide (CO_2), with smaller amounts of nitrogen oxides (NOx) and sulfur oxides (SOx).

Beechcraft King Air: (or equivalent as a planned aircraft)
A King Air emits approximately 60 grams of CO_2 per available seat kilometer (ASK), which translates to around 0.21 pounds of CO_2 per available seat mile (ASM) or 400 kilograms per flight hour depending on factors like passenger load, flight duration, and weather conditions; it is considered a relatively fuel-efficient regional airliner due to its turboprop engines.
Key points about Beechcraft emissions:
The stated 60 g/ASK is considered the emission intensity, meaning the amount of CO_2 emitted per passenger seat flown a certain distance. The King Air burns fuel at a rate of 0.0130–0.0135 US gallons per passenger-mile on the shortest routes. On the longest routes, it burns 0.0099 US gallons per passenger-mile on the outbound sector and the same amount on the return sector.
Engine type: Twin turboprop engines, usually Pratt & Whitney Canada PW42. Fuel consumption: Approximately 300 liters per hour in average flight conditions. Emission profile: Primarily carbon dioxide (CO_2), with smaller amounts of nitrogen oxides (NOx) and sulfur oxides (SOx).

Notes:

1. The Fuel burn carbon emissions calculator https://www.carbonkit.net/categories/Specific_turboprop_aircraft
2. Foundation document *http://www.eea.europa.eu/publications/EMEPCORINAIR5/page017.html*

Summary:
The planned schedule of 2 flights per week, with an average emission of 650 per hour (KA and Dash 8-100) translates to annual operations emissions of 676 tonnes per year.

6.5.1.6 Biogenic GHG Emissions – Carbon Sequestration Loss

The runway and apron are expected to cleared area of approximately 5.2 ha. With a factor of 12.78 t CO_2e/ha/year the proposed land use change related to the project would account for a loss of 66.46 t CO_2e sequestration/year.

6.5.1.7 Total GHG Calculation for the Project

Table 25 summarizes the estimated Project emissions and provides a per year total for the one year of construction and per year of operations. With construction taking about one year or less, it is estimated that the total construction emissions will be approximately 5,205 t CO_2e /year. For operations, the estimated tons of GHGs per year will be 776.16 CO_2e/year. These levels of emissions are below any emissions reporting criteria either federally or provincially. The Project GHG emissions are also not likely to affect Canada's ability to reach the national emission reduction targets or Canada's alignment to transition to a low carbon economy and the net-zero targets.

Table 25- Tonnes CO2e/year for Construction and Operations	
Source	**GHG Total/Year**
Scope 1 – Direct Emissions	
1) Construction Equipment – Diesel 5 pieces of heavy equipment	**585 t CO_2e**
2) Operations Equipment – 2 pieces of auxiliary equipment	**33.7 t CO_2e /year**
3) Transport of equipment to & from site	**20.0 t CO_2e**
4) Land Use Change – Biomass Oxidation (one time charge to project (UNIPCC 2003)	**4600 t/ CO_2e**
Scope 2 – Indirect Emission – Acquired Energy	**Not applicable**
Scope 3 – Indirect Emissions	
5) Project related air travel	**676 t CO_2e /year**
Land Use Change – Biogenic Emissions	
6) Land Use Change-Carbon Sequestration Loss	**66.46 t CO_2e /year**
TOTAL – Construction (includes 1, 3 and 4)	**5,205.0 t CO_2e**
TOTAL – Operations (includes 2, 5 and 6)	**776.16 t CO_2e /year**

6.6 Types of Waste and Emissions

A list of the types of waste and emissions that are likely to be generated — in the air, in or on water and in or on land — during any phase of the project

6.6.1 Air

Project construction and operation activities will result in air emissions through mobile equipment emissions (land-based vehicles), space heating emissions, aircraft operations emissions, and fugitive dust generation.

- Mobile equipment emissions include emissions from haul trucks, dozers, excavators, employee vehicle traffic.
- The key emissions from mobile equipment exhaust, and aircraft operations are fossil-fuel combustion emissions including oxides of nitrogen (NOx), carbon monoxide (CO), and greenhouse gases (GHGs).

- Fugitive dust will primarily be generated during the construction phase by on-site vehicles, including earth moving equipment. Fugitive dust can also be generated by windblown dust on non-vegetated surfaces.

The following mitigation measures will be implemented during construction and operations to limit adverse effects to air quality:

- Stationary and mobile equipment will adhere to applicable federal emission standards, where applicable, and will be regularly maintained.
- Dust suppressant or water will be applied to construction areas and roads as necessary to mitigate dust.
- Project traffic will adhere to reduced speed limits will be implemented within the Project
- Air operations will adhere to the Canadian Aviation Regulations.

The predicted residual effects on air quality from Project construction and operations are expected to be low given that mitigation measures will be in place to limit emissions. The effects are not expected to extend beyond the Project study area and the duration of effects is short-term and infrequent, as they will occur only during construction and during intermittent flight operations

6.6.2 Water

If water is required for dust control etc., a water license will be obtained for water use for the aerodrome. The approaches for managing wastewater and stormwater are still being considered but multiple options are available and being considered.

6.6.3 Land

Hazardous materials will be handled and stored in compliance with the Hazardous Substances and Waste Dangerous Goods Regulations. All chemicals and hazardous substances will be stored and handled according to Transportation of Dangerous Goods Regulations (TDG) and Workplace Hazardous Material Information System (WHMIS) requirements. All hazardous substance(s) will be setback from waterbodies. Appropriate procedures for spill response will be outlined and readily available.
Aviation fuel(s), diesel and gasoline will be stored in approved impermeable storage tanks equipped with secondary containment in accordance with provincial regulations and standards.
Oils, greases and/or coolant for equipment maintenance will be stored in the equipment shop in appropriate containers. Material recycling such as used oil, oil filters, etc. will be conducted according to the Manitoba Association for Resource Recovery Corporation (MARRC) program.

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Initial Engagement Letters

YORK FACTORY FIRST NATION
York Landing, Manitoba, R0B 2B0
Ph: (204) 341-2180
Fx: (204) 341-2322

January 28, 2025

Chief Morris Beardy
Fox Lake Cree Nation
Box 369
Gillam, Manitoba
R0B 0L0

Re: TEN SHILLING AERODROME PROJECT

York Factory First Nation (YFFN) is developing an owned and operated aerodrome (airstrip) in northern Manitoba. It will be located entirely on YFFN's Treaty Land Entitlement selection lands which will eventually be converted to reserve status in the near future. The airstrip is within our traditional territory at Ten Shilling Creek just north of our existing community cultural and hunting camp. This will allow us to continue to facilitate the protection of traditional lands as we endeavour to re-establish our return to our origin and serve as portal to monitor access.

This site has been chosen for cementing the cultural and historical significance for the benefit of our people, and allow more protection for the land and wildlife. Current seasonal impacts render the area inaccessible for much of the year and reliable year-round access is required.

The project is in the design phase with feasibility completed in July 2024. The next stage is the regulatory process for the Project, which is submitting an Initial Project Description Proposal to Impact Assessment Agency of Canada (IAAC, Canada Impact Assessment,2019, *Physical Activities Regulations 2019*) for their review. This will cover potential impacts and mitigations, monitoring plans, stakeholder engagement and decommissioning when required. YFFN is committed to completing the federal and provincial assessments process.

The proposed aerodrome (airstrip) will be located just north of Ten Shilling Creek approximately – 4.5kms SE of York Factory National Historical Site location, approx. 122kms NW of Shamattawa, MB and approx. 160km NE of Gillam, MB. The airstrip is currently being proposed as a non-certified airstrip with a graded, compacted gravel top that will be approx. 5000 ft long and 100 ft wide.

There was an unserviced landing strip located on Hay Island across from the National Historic Site. It was used for many years but because of its location it was impacted by seasonal ice every spring. And as a result has been abandoned.

We need to identify potential rights holders who may have an interest in the project area or have potential to be affected by the Project. In this spirit we invite you to share your comments and/or or letters of support for the Project. Comments received will be summarized in our regulatory submissions, so that the regulatory agencies are aware of YFFN plans for future engagement as the project progresses.

While we believe the project will have great benefits for our people, YFFN acknowledges your comments and will consider any input that you may have.

Please send any comments to Chief & Council at the address above.

Thank you,

<original signed by>

Chief Darryl Wastesicoot

York Factory First Nation

YORK FACTORY FIRST NATION
York Landing, Manitoba, R0B 2B0
Ph: (204) 341-2180
Fx: (204) 341-2322

January 28, 2025

President David Chartrand
Manitoba Metis Federation
300 – 150 Henry Avenue
Winnipeg, Manitoba
R3B 0J7

Re: TEN SHILLING AERODROME PROJECT

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York Factory First Nation

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York Landing, Manitoba, R0B 2B0
Ph: (204) 341-2180
Fx: (204) 341-2322

January 28, 2025

Chief Jordna Hill
Shamattawa First Nation
P.O. Box 210
Shamattawa, Manitoba
R0B 1K0

Re: TEN SHILLING AERODROME PROJECT

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Chief Darryl Wastesicoot

York Factory First Nation

YORK FACTORY FIRST NATION
York Landing, Manitoba, R0B 2B0
Ph: (204) 341-2180
Fx: (204) 341-2322

January 28, 2025

Chief Doreen Spence
Tataskweyak Cree Nation
P.O. Box 250
Split Lake, Manitoba
R0B 1P0

Re: TEN SHILLING AERODROME PROJECT

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Thank you,

<original signed by>

Chief Darryl Wastesicoot

York Factory First Nation

YORK FACTORY FIRST NATION
York Landing, Manitoba, R0B 2B0
Ph: (204) 341-2180
Fx: (204) 341-2322

January 28, 2025

Chief Betsy Kennedy
War Lake First Nation
General Delivery
Ilford, Manitoba
R0B 0S0

Re: TEN SHILLING AERODROME PROJECT

York Factory First Nation (YFFN) is developing an owned and operated aerodrome (airstrip) in northern Manitoba. It will be located entirely on YFFN's Treaty Land Entitlement selection lands which will eventually be converted to reserve status in the near future. The airstrip is within our traditional territory at Ten Shilling Creek just north of our existing community cultural and hunting camp. This will allow us to continue to facilitate the protection of traditional lands as we endeavour to re-establish our return to our origin and serve as portal to monitor access.

This site has been chosen for cementing the cultural and historical significance for the benefit of our people, and allow more protection for the land and wildlife. Current seasonal impacts render the area inaccessible for much of the year and reliable year-round access is required.

The project is in the design phase with feasibility completed in July 2024. The next stage is the regulatory process for the Project, which is submitting an Initial Project Description Proposal to Impact Assessment Agency of Canada (IAAC, Canada Impact Assessment,2019, *Physical Activities Regulations 2019*) for their review. This will cover potential impacts and mitigations, monitoring plans, stakeholder engagement and decommissioning when required. YFFN is committed to completing the federal and provincial assessments process.

The proposed aerodrome (airstrip) will be located just north of Ten Shilling Creek approximately – 4.5kms SE of York Factory National Historical Site location, approx. 122kms NW of Shamattawa, MB and approx. 160km NE of Gillam, MB. The airstrip is currently being proposed as a non-certified airstrip with a graded, compacted gravel top that will be approx. 5000 ft long and 100 ft wide.

There was an unserviced landing strip located on Hay Island across from the National Historic Site. It was used for many years but because of its location it was impacted by seasonal ice every spring. And as a result has been abandoned.

We need to identify potential rights holders who may have an interest in the project area or have potential to be affected by the Project. In this spirit we invite you to share your comments and/or or letters of support for the Project. Comments received will be summarized in our regulatory submissions, so that the regulatory agencies are aware of YFFN plans for future engagement as the project progresses.

While we believe the project will have great benefits for our people, YFFN acknowledges your comments and will consider any input that you may have.

Please send any comments to Chief & Council at the address above.

Thank you,

<original signed by>

Chief Darryl Wastesicoot

York Factory First Nation

Geo Technical Report

ENGLOBE

July 19, 2024

23500062 Alberta Ltd.
364 Berkshire Place NW
Calgary, Alberta, T3K 1Z9
Attention: Stewart Nelson, P.Eng.

Subject: **Preliminary Flexible Granular Runway Structures**
Client reference: Ten Shilling Creek Phase 1
Englobe reference: 02407094.000

1 Introduction

At the request of Stuart Nelson, P.Eng. of 23500062 Alberta Ltd., preliminary flexible granular runway structures have been provided for the Ten Shilling Creek Phase 1 development. The following sections provide the design structures, design parameters and construction guidelines.

2 Recommended Flexible Granular Runway Structures

As provided by 23500062 Alberta Ltd., the preliminary structures within this development are classified as gravel runways for light aircraft. The recommended preliminary flexible granular runway structures are presented below.

Additional granular runway structure options will be provided in the future, after more field investigation and lab testing data becomes available, including but not limited to, geoweb products, and cement stabilization options.

Option 1: Gravel Runway with Woven Geotextile

Material	Design Pavement Structure (mm)
Subgrade Reinforcement	Woven Geotextile Fabric*
25mm Crushed Gravel	400

*The woven geotextile fabric is intended to act as a soil separator between the subgrade and granular layers.

Option 2: Gravel Runway with Combigrid 40-40

Material	Design Pavement Structure (mm)
Subgrade Reinforcement	Combigrid 40-40**
25mm Crushed Gravel Base	300

**The combigrid 40-40 product is intended to act as a soil separator between the subgrade and granular layers, as well as stabilizing the gravel runway structure.

2.1 Subgrade Support

A soaked CBR value of 3.0 was assumed for preliminary design purposes to calculate the subgrade modulus. Field sampling and lab testing should be completed prior to construction to determine the actual subgrade modulus. Updated recommendations will provided after completion of CBR testing in the lab.

2.2 Traffic

Preliminary structural design requirements for the Ten Shilling Creek Phase 1 runway were determined using the airplane types and maximum loading information provided by Stuart Nelson of 23500062 Alberta Ltd.

The expected plane types for the runway are the Beechcraft King Air 200 with a maximum weight of 12,500 lb, the DeHavilland Twin Otter DHC-6 with a maximum weight of 12,500 lb. If additional airplane types are expected, or the expected traffic volumes become known at a later date, Englobe should be notified to review and updated our recommendations accordingly.

Regular maintenance will be required to provide an adequate landing and take off surface for the runway. Positive drainage away from the runway structures is required to reduce potential rutting and increase the service life between maintenance intervals.

3 Materials

The material supplied and placed in base and pavement construction must comply with the minimum requirements identified in this report and in the City of Calgary specifications.

3.1 Subgrade

The subgrade should be compacted to a minimum 98 percent Standard Proctor Density. Prior to placement of the granular materials, the subgrade should be proof-rolled to detect soft areas. Subgrade areas which may be determined to be structurally deficient through proof-rolling should be strengthened by procedures to be evolved in the field.

3.2 Granular Base

The granular base materials used in roadway construction should satisfy the current City of Calgary Specifications for gradation and quality.

4 Drainage

The following recommendations are provided to prevent water from accessing the granular base materials and inducing settlements.

- Site grading should provide positive drainage away from all flexible granular runway structures.

5 Limitations

The subgrade soils on this project possess a frost heave potential and potential for settlement when exposed to water. The implementation of the drainage recommendations can greatly reduce the potential for distress in the flexible granular runway sections.

6 Closure

We trust the information presented meets with your present requirements. Should you have questions please contact our office.

Respectfully submitted,

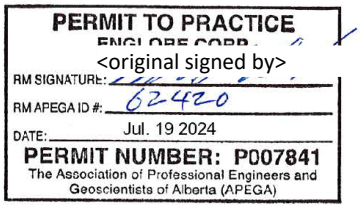
Englobe Corp

<original signed by>

Jul. 19 2024

Ian Spindler, P.Eng.
Senior Materials Engineer

Marty Ward, P.Eng.
Director of Engineering



Revisions and publications log

REVISION No.	DATE	DESCRIPTION
00	July 19, 2024	Final version. Signed and authenticated.

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If tests have been carried out, the results of these tests are valid only for the sample described in this report.

Englobe Corp.'s subcontractors who have carried out on-site or laboratory work are duly assessed according to the purchase procedure of our quality system. For further information, please contact your project manager.

eNGLOBe

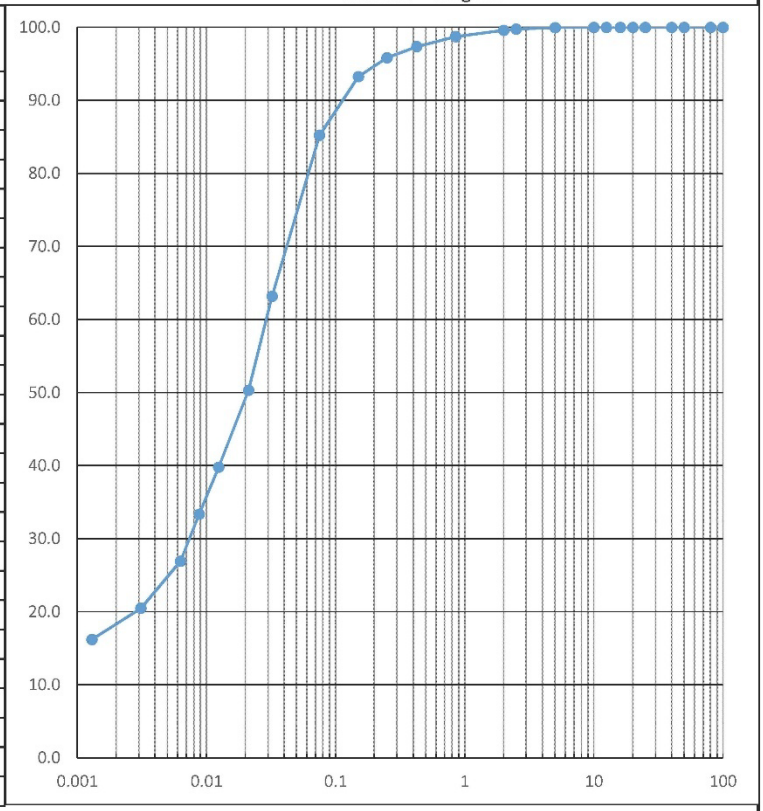
STANDARD TEST METHOD FOR PARTICLE SIZE (ASTM D7928-17)

PROJECT: Ten Shilling Creek - Geotechnical
CLIENT: Stewart Nelson
PROJECT NO: 02407094.000
LOCATION: Grab Sample
SAMPLE NO: 36729 A
DEPTH: -
DESCRIPTION: Silt some Sand some Clay
DATE TESTED: July 8,2024

MATERIAL PORTION (%)	
CLAY	18
SILT	67
SAND	14
GRAVEL	0
COBBLES	0

DISPERSION PERIOD: 18.00
HARDNESS: Hard & Durable
SHAPE: Angular

Particle Size (mm)	Percent Passing
150	100.0
100	100.0
80	100.0
50	100.0
40	100.0
25	100.0
20	100.0
16	100.0
12.5	100.0
10	100.0
5	100.0
2.5	99.8
2	99.6
0.85	98.7
0.425	97.4
0.25	95.8
0.15	93.3
0.075	85.2
0.0323	63.2
0.0212	50.3
0.0124	39.8
0.0088	33.4
0.0063	26.9
0.0031	20.5
0.0013	16.2



Reviewed by: _____

englobe

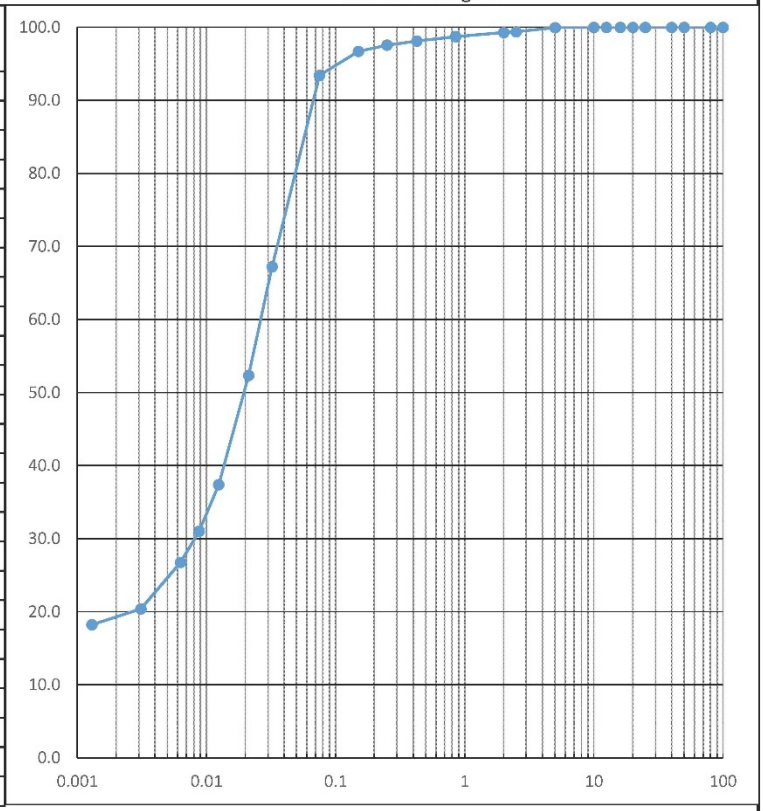
STANDARD TEST METHOD FOR PARTICLE SIZE (ASTM D7928-17)

PROJECT: Ten Shilling Creek - Geotechnical
CLIENT: Stewart Nelson
PROJECT NO: 02407094.000
LOCATION: Grab Sample
SAMPLE NO: 36729 B
DEPTH: -
DESCRIPTION: Silt some Clay trace Sand
DATE TESTED: July 8,2024

MATERIAL PORTION (%)	
CLAY	19
SILT	74
SAND	6
GRAVEL	1
COBBLES	0

DISPERSION PERIOD: 18.00
HARDNESS: Hard & Durable
SHAPE: Angular

Particle Size (mm)	Percent Passing
150	100.0
100	100.0
80	100.0
50	100.0
40	100.0
25	100.0
20	100.0
16	100.0
12.5	100.0
10	100.0
5	100.0
2.5	99.4
2	99.3
0.85	98.7
0.425	98.1
0.25	97.6
0.15	96.7
0.075	93.4
0.0323	67.3
0.0212	52.3
0.0124	37.4
0.0088	31.0
0.0063	26.8
0.0031	20.4
0.0013	18.3



Reviewed by: _____