Canadian Environmental Assessment Agency | Agence canadienne d'évaluation environnementale

Project 4 - All-season Road Connecting Berens River and Poplar River First Nation

Draft Environmental Assessment Report

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Canada

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Projet 4 – Route toutes saisons entre Berens River et la Première Nation de Poplar River - Rapport provisoire d'évaluation environnementale

Executive Summary

Manitoba Infrastructure, the provincial department responsible for the agency formerly known as the East Side Road Authority, (the proponent) proposes to construct and operate a 94.1 km all-season, two lane, gravel public highway between the Berens River First Nation Reserve # 13 and the Poplar River First Nation Reserve #16, on the east side of Lake Winnipeg in Manitoba. The Project is one component of Manitoba's East Side Large Area Transportation Network that will provide year-round transportation service for the remote and isolated communities on the east side of Lake Winnipeg. Project 4 – All-season Road Connecting Berens River and Poplar River First Nation (the Project) would extend all-season road access northward from the all-season road currently being constructed to Berens River from Provincial Public Highway 304.

The Project includes bridge crossings of the Berens, Etomami, North Etomami, and Leaf Rivers; numerous smaller crossings of wetlands and small streams; temporary camps, access roads, and quarries during construction; and permanent quarries and access roads for road maintenance during operation. Upon operation, the proposed road, right-of-way, bridges, culverts, and quarries would have a footprint of approximately 980 hectares and the Project would convey up to 300 vehicles per day (109 500 vehicles per year) over an expected indefinite lifespan (i.e. more than 50 years).

The Canadian Environmental Assessment Agency (the Agency) conducted an environmental assessment (EA) of the Project in accordance with the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). The Project is subject to CEAA 2012 because it is described in the *Regulations Designating Physical Activities* as follows:

- The construction, operation, decommissioning and abandonment of a new all-season public highway that requires a total of 50 km or more of new right-of-way.

The Project was also subject to an EA under Manitoba's *Environment Act*. The Agency and the Manitoba Sustainable Development Environmental Approvals Branch coordinated their respective activities, to the extent possible, to align Indigenous and public consultation and avoid duplication of effort.

This draft EA Report summarizes the EA conducted by the Agency, including the information and analysis on the potential environmental effects of the Project considered by the Agency and the Agency's conclusions on whether the Project is likely to cause significant adverse environmental effects, after taking into account the implementation of mitigation measures. The Agency prepared this draft EA Report in consultation with Fisheries and Oceans Canada, Environment and Climate Change Canada, Transport Canada, Health Canada, Natural Resources Canada, and Indigenous and Northern Affairs Canada, following a review of the proponent's Environmental Impact Statement (EIS) and associated documents by the Agency, federal departments, Indigenous groups, and the public.

The EA focused on the following environmental effects as described in subsection 5(1) of CEAA 2012:

- Fish and fish habitat
- Migratory birds
- Current use of lands and resources for traditional purposes by Aboriginal peoples
- Health and socio-economic conditions of Aboriginal peoples

- Physical and cultural heritage of Aboriginal peoples
- Any structure, site or thing that is of historical, archaeological, paleontological or architectural significance for Aboriginal peoples
- Changes to the environment that would occur on federal lands, in another province or outside Canada

The EA also considered the adverse effects of the Project on wildlife species listed in the *Species at Risk Act* and their critical habitat.

The Agency assessed the potential for the Project to cause significant adverse environmental effects based on information provided by the proponent, federal department expertise, and comments provided by Indigenous groups and the public.

For construction and operation, the Agency focused its analysis on the following adverse environmental effects:

- Effects on fish and fish habitat as a result of the direct loss or alteration of fish habitat from bridge and watercourse crossing construction and operation, road operation, and maintenance.
- Effects on Aboriginal peoples' health and socio-economic conditions as a result of changes to the environment caused by the Project that may reduce the quality of and access to traditional foods, increase noise, and reduce air quality.
- Effects on Aboriginal peoples' current use of lands and resources as a result of changes to the environment caused by the Project on harvested resources (fish and wildlife) and lands used for traditional purposes, including changes to activities of harvesting or access to resources, and on physical and cultural heritage as a result of physical and sensory disturbance during road construction and operation.
- Effects on species at risk, including boreal woodland caribou and mapleleaf mussel, as well as migratory birds, as a result of direct habitat loss or alteration from construction activities, sensory disturbance during construction and operation, and direct injury or mortality from vehicle collisions.
- Effects on the environment that would occur outside Canada as a result of direct greenhouse gas emissions from the Project.

The Agency has identified key mitigation measures and follow-up program requirements for consideration by the Minister of Environment and Climate Change in establishing conditions as part of a CEAA 2012 decision statement, in the event the Project is ultimately permitted to proceed.

The Agency concludes that, taking into account the implementation of these key mitigation measures, the Project is unlikely to cause significant adverse environmental effects as defined in CEAA 2012.

The Project's potential effects on potential or established Aboriginal or Treaty rights were also examined. Indigenous groups raised key concerns about the effects of the Project on fish and fish habitat, wildlife and wildlife habitat (specifically moose), cultural sites, and harvesting (hunting, trapping, gathering).

This draft EA Report is being released for public and Indigenous group review and comment. The Agency will take into account comments received when finalizing the EA Report and recommending mitigation and follow-up measures to the Minister of Environment and Climate Change as potential CEAA 2012 decision statement conditions. The final EA Report will be submitted to the Minister for consideration when making her CEAA 2012

decisions on whether the Project is likely to cause significant adverse environmental effects, taking into account the implementation of mitigation measures, and issuing a CEAA 2012 decision statement.

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List of Abbreviations and Acronyms

Abbreviation/Acronym	Definition
Agency	Canadian Environmental Assessment Agency
CEAA 2012	*Canadian Environmental Assessment Act, 2012*
COSEWIC	Committee on the Status of Endangered Wildlife In Canada
draft EA Report	draft Environmental Assessment Report
EA	Environmental Assessment
EIS	Environmental Impact Statement
MI	Manitoba Infrastructure (the proponent)
Project	Project 4 – All-season Road Connecting Berens River and Poplar River First Nation
SARA	*Species at Risk Act*
km	Kilometre
m	Metre
ha	Hectare

Glossary

Term	Definition
Deleterious substance	A substance is deleterious if it is harmful to fish, if it limits the use of fish by humans (for example contamination of fish by dioxins or shellfish by E. coli), or if by going through some process of degradation, it harms the water quality (for example, oxygen-depleting wastes). A substance is also deleterious if it exceeds a level prescribed by regulation.
Environmental sensitive sites	Represents one or more of the following: critical wintering habitat; critical breeding habitat; species fidelity to dens and nests; and/or may be culturally significant sites.
Habitation	A structure built in many different shapes and sizes of a number of different materials, including concrete, wood, brick, metal, and stone. Most types have a foundation, a roof, walls, doors and windows providing access to people and allowing light and air to enter.
Heritage resources	A land or resource (e.g., an artifact, object, or place) that is considered as heritage or any structure, site, or thing is distinguished from other lands and resource by the value placed on it.
Heritage sites	Sites with potential cultural or heritage value.
Sensitive sites	Sites that contain high quality habitat areas (i.e., known calving sites).
Total suspended solids	A quantitative water quality measurement of the suspended solids, or sediment, in the water column and is the direct measurement of the total solids present in a waterbody.
Turbidity	Measure of the lack of clarity or transparency of water caused by biotic and abiotic suspended or dissolved substances. The higher the concentration of these substances in water, the more turbid the water becomes.

1 Introduction

1.1 Purpose of the Draft Environmental Assessment Report

Manitoba Infrastructure, the provincial department responsible for the agency formerly known as the East Side Road Authority (the proponent), proposes to construct and operate a 94.1 km all-season, two-lane, gravel public highway between the Berens River First Nation Reserve #13 and the Poplar River First Nation Reserve #16, on the east side of Lake Winnipeg in Manitoba. The Project is one component of Manitoba's East Side Large Area Transportation Network that will provide year-round transportation service for the remote and isolated communities on the east side of Lake Winnipeg. Project 4 – All-season Road Connecting Berens River and Poplar River First Nation (the Project) would extend all-season road access northward from the all-season road currently being constructed to Berens River from Provincial Public Highway 304.

The Project includes bridge crossings of the Berens, Etomami, North Etomami, and Leaf Rivers; numerous smaller crossings of wetlands and small streams; temporary camps, access roads, and rock and aggregate quarries during construction; and permanent quarries and access roads for road maintenance during operation. Upon operation, the proposed road, right-of-way, bridges, culverts, and quarries would have a footprint of approximately 980 ha and the Project would convey up to 300 vehicles per day (109,500 vehicles per year) over an expected indefinite lifespan (i.e. more than 50 years).

This draft Environmental Assessment Report (draft EA Report), prepared by the Canadian Environmental Assessment Agency (the Agency), is being made available for review and comment. Its purpose is to summarize the environmental assessment (EA) conducted by the Agency in accordance with the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), including the information and analysis on the potential environmental effects of the Project considered by the Agency and the Agency's conclusions on whether the Project is likely to cause significant adverse environmental effects, after taking into account the implementation of mitigation measures.

Following the comment period on the draft EA Report, the Agency will finalize the Report and provide it to the Minister of Environment and Climate Change Canada who will consider the final Environmental Assessment Report when reaching her CEAA 2012 decision on the significance of any adverse environmental effects of the Project and issue an environmental assessment decision statement.

1.2 Scope of Environmental Assessment

1.2.1 *Environmental assessment requirements*

Requirements of the Canadian Environmental Assessment Act, 2012

The Project is subject to an EA under CEAA 2012 because it involves activities described in paragraph 25(c) of the Schedule to the *Regulations Designating Physical Activities*: the construction, operation, decommissioning and abandonment of a new all-season public highway that requires a total of 50 km or more of new right-of-way.

Based on the project description submitted by the proponent, the Agency initiated a screening of the designated project to determine if an EA was required under CEAA 2012. On December 8, 2014, the Agency invited the public and Indigenous groups to provide comments on the designated project and its potential environmental effects. The Agency determined that an EA was required and commenced the EA on January 22, 2015.

Cooperative environmental assessment requirements

The Project requires an environmental review and provincial licence as a Class 2 Development under Manitoba's *Environment Act*. The Agency and Manitoba coordinated their respective environmental assessment activities pursuant to the principles of the *Canada-Manitoba Agreement for Environmental Assessment Cooperation* (to avoid duplication of effort and align Indigenous and public consultation to the extent possible.

1.2.2 *Factors considered in the environmental assessment*

Pursuant to subsection 19(1) of CEAA 2012, the following factors were considered as part of the EA:

- the environmental effects of the Project, including the environmental effects of malfunctions or accidents that may occur in connection with the Project and any cumulative environmental effects that are likely to result from the Project in combination with other physical activities that have been or will be carried out;
- the significance of the effects referred above;
- comments from the public;
- mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project;
- the requirements of the follow-up program in respect of the Project;
- the purpose of the Project;
- alternative means of carrying out the Project that are technically and economically feasible and the environmental effects of any such alternative means;
- any change to the Project that may be caused by the environment; and
- species listed under the *Species at Risk Act* (SARA) that may be affected by the Project.

In undertaking the EA, in addition to considering public comments, the Agency considered comments from Indigenous groups, as well as Aboriginal traditional knowledge.

1.2.3 *Selection of valued components*

Valued components are environmental and socio-economic features that may be affected by a project and that have been identified to be of concern by the proponent, government agencies, Indigenous groups or the public. For the Project, the proponent's valued components selection process considered the temporal and spatial scope of the Project and its anticipated interactions with the environment.

In its analysis, the Agency considered valued components pertaining to the prediction of environmental effects as defined in subsection 5(1) of CEAA 2012 (Table 1). The federal EA also considered the adverse

effects of the Project on wildlife species listed in the SARA and their critical habitat, as well as effects on species designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

The following decisions, pursuant to other federal legislation, may be required before the Project can proceed:

- Authorization(s) under subsection 35(2) of the *Fisheries Act* to authorize a work, undertaking or activity that may result in serious harm to fish from the Project's watercourse crossings of the Berens, Leaf, Etomami, and North Etomami Rivers
- Permitting under the SARA to authorize activity that may affect a listed aquatic species at risk, i.e. mapleleaf mussel (listed as endangered);
- A license under paragraph 7(1)(a) of the *Explosives Act* for the storage of explosives; and
- Permitting under opt-in provisions of subsection 4(1) of the *Navigation Protection Act* for the Project's proposed bridges on the Berens, Leaf, Etomami, and North Etomami Rivers (proponent has indicated it will opt in).

In accordance with subsection 5(2) of CEAA 2012, the federal EA considered changes to the environment that could result from these decisions as well as any associated effects on health, socio-economic conditions, matters of historical, archaeological, paleontological or architectural interest, or on physical or cultural heritage.

Table 1 Valued components selected by the Agency

Valued Component	Rationale
Potential effects identified pursuant to subsection 5(1) of CEAA 2012	
Fish and fish habitat	Project-related activities may affect fish and fish habitat, including aquatic species at risk (such as mapleleaf mussel), due to direct mortality, habitat loss and changes in water quality.
Migratory birds	Project-related activities may affect migratory bird mortality and behavior due to sensory disturbances and habitat loss.
Federal lands	Project-related activities may affect Indian Reserves near each end of the Project.
Health and socio-economic conditions	Project-related changes to the environment may affect human health and socio-economic conditions due to changes in access to and quality of traditional foods, local air and water quality, increased noise, and disturbance of furbearers and areas used for commercial trapping.
Current use of lands and resources for traditional purposes	Project-related changes to the environment may affect hunting, fishing, trapping, gathering, and use of habitations, trails, and cultural and spiritual sites.
Physical and cultural heritage, and effects on historical, paleontological or architectural sites or structures	Project-related changes to the environment may directly disturb or prevent access to sites or structures of cultural importance to Aboriginal peoples.
Transboundary environmental	Project-related emissions of greenhouse gases may contribute to climate

Valued Component	Rationale
effects – Greenhouse gas emissions	change.
Effects identified pursuant to subsection 5(2) of the Act	
Public recreation and tourism	Project-related activities may affect the use of navigable waterways due to obstructions and flow reduction and subsequently tourism.
Effects identified pursuant to subsection 79(2) of the *Species at Risk Act*	
Species at risk	Potential disturbance of terrestrial habitat and wetlands could affect SARA-listed species (e.g. boreal woodland caribou, birds, bats).

1.2.4 *Spatial and temporal boundaries*

Spatial and temporal boundaries of an EA define the area and timeframe within which a project may interact with the environment and cause environmental effects. The spatial and temporal boundaries may vary among valued components depending on the nature of the potential project interaction with the environment.

The proponent defined spatial boundaries as the geographic range over which the Project's potential environmental effects may occur. The Project Footprint is the physical space within which the Project components or activities are located (i.e. the defined limit of the all-season road right-of-way, permanent and temporary facilities, access routes, and quarries).

Local Assessment Areas (i.e. 1 to 5 km in either direction of the road centerline) beyond the Project Footprint were used to measure baseline environmental conditions and to assess direct and indirect effects on each valued component. Regional Assessment Areas were used to measure baseline conditions at a larger scale to assess the maximum predicted geographic extent of potential indirect and cumulative effects on each valued component. The general spatial boundaries of the assessment areas selected by the proponent are described in Table 2 and illustrated in Figures 1 and 2.

Table 2 summarizes the Local Assessment Areas and the Regional Assessment Areas identified by the proponent for each Agency-assessed valued component.

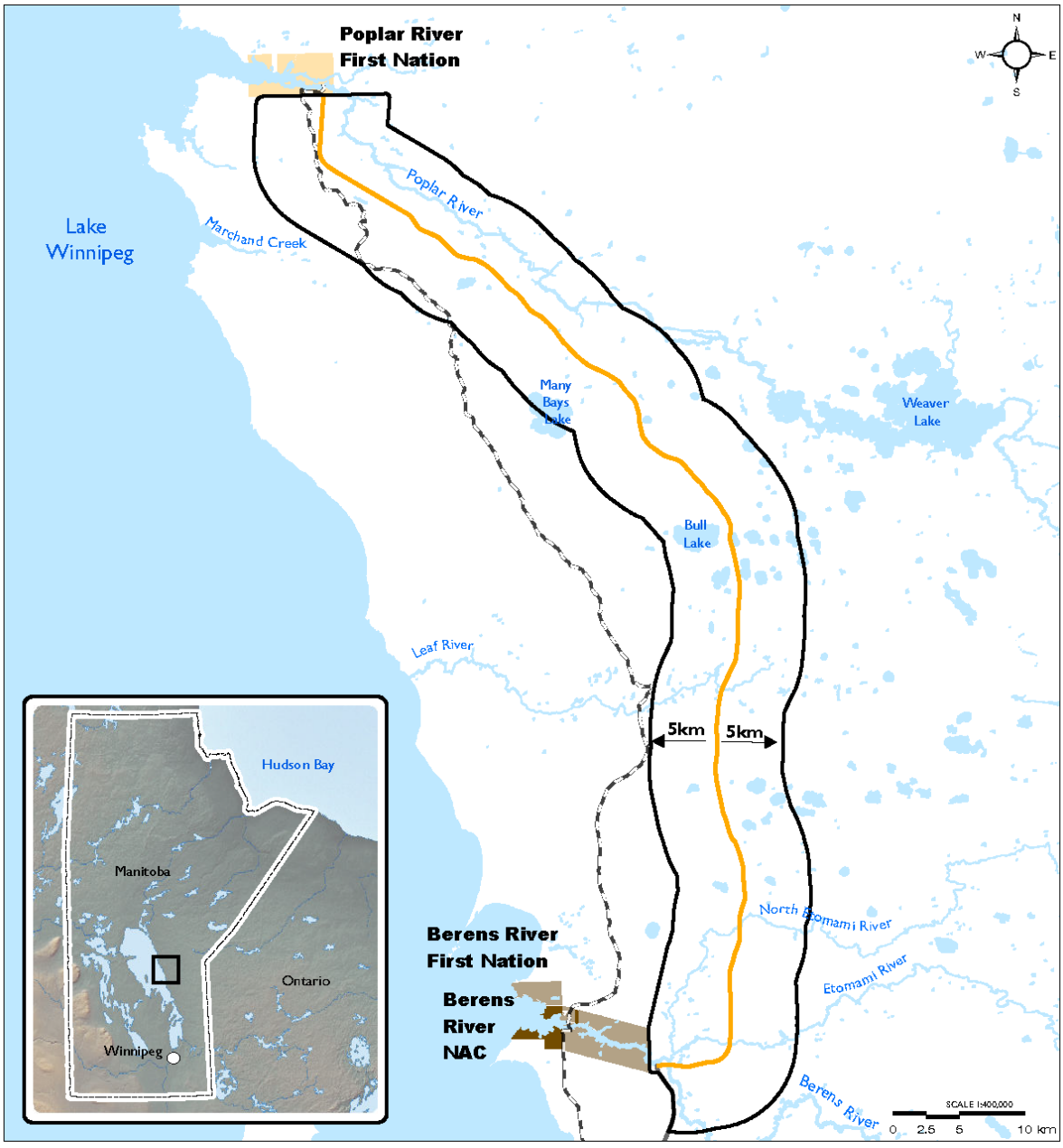
Table 2 Project Local and Regional Assessment Areas by Valued Component

Valued Component	Local Assessment Area	Regional Assessment Area
Fish and Fish Habitat and Aquatic Species at Risk	The Project Footprint and areas upstream or downstream of Project watercourse crossings, including the Berens, Etomami, North Etomami, Leaf and Poplar rivers; tributary streams, and wetlands.	This area is defined by the Poplar River watershed to the north and the Berens River watershed to the south and includes the Local Assessment Area. It includes headwater areas of rivers and creeks (i.e. Berens, Etomami, North Etomami, Leaf, and Poplar rivers and Poplar Point Creek) upstream of the Project to river confluences with Lake Winnipeg downstream of the Project.
Migratory birds and	The Project Footprint and a 5 km	This area includes the Local Assessment

Species at Risk	buffer from the road centerline and around the outer limits of the Project Footprint.	Area and regional wildlife habitat management units, extending from 5 km south of the community of Manigotagan, to 5 km north of Poplar River, east to the Manitoba/Ontario border and west to Lake Winnipeg.
Aboriginal peoples – Current use of lands and resources for traditional purposes; Health and socio-economic conditions; and Physical or cultural heritage, and effects on historical, paleontological or architectural sites or structures Public Recreation and Tourism	The Project Footprint and a 5 km buffer, which includes the predicted spatial extent of the direct and indirect effects of the Project.	This area includes the Local Assessment Area and is defined by the northern boundary of Asatiwisipi Aki to the north, the Ontario border in the east, Lake Winnipeg to the west, and Bloodvein First Nation Indian Reserve #12 to the south. It was selected based on wildlife habitat areas, wildlife movement corridors, and travel routes that overlap with the Project Footprint and the Local Assessment Area. It includes the communities of Poplar River First Nation, Berens River First Nation, and Berens River Northern Affairs Community.
Transboundary environmental effects – Greenhouse gas emissions	The area includes the southern portion of the planned East Side Large Area Transportation Network.	

The proponent defined temporal boundaries based on the timing and duration of Project activities that could cause environmental effects. In general, temporal boundaries for this assessment include Construction (8 years) and Operation (50 years). Project decommissioning was not included by the proponent as Manitoba Infrastructure expects the Project to be operated indefinitely.

Figure 1 Local Assessment Area



Project 4 - All-Season Road Connecting Berens River to Poplar River First Nation

Figure 4

Local Assessment Area

- P4 All-Season Road Alignment
- P1 All-Season Road (South of Berens to PTH 304) - Under Construction
- 2013/2014 Manitoba Winter Road
- Local Assessment Area
- Berens River First Nation Reserve
- Poplar River First Nation Reserve
- Berens River Northern Affairs Community

Map Drawing Information: ESRI Base Layers, Province of Manitoba, CanVec, GeoGratis, Dillon Consulting Limited

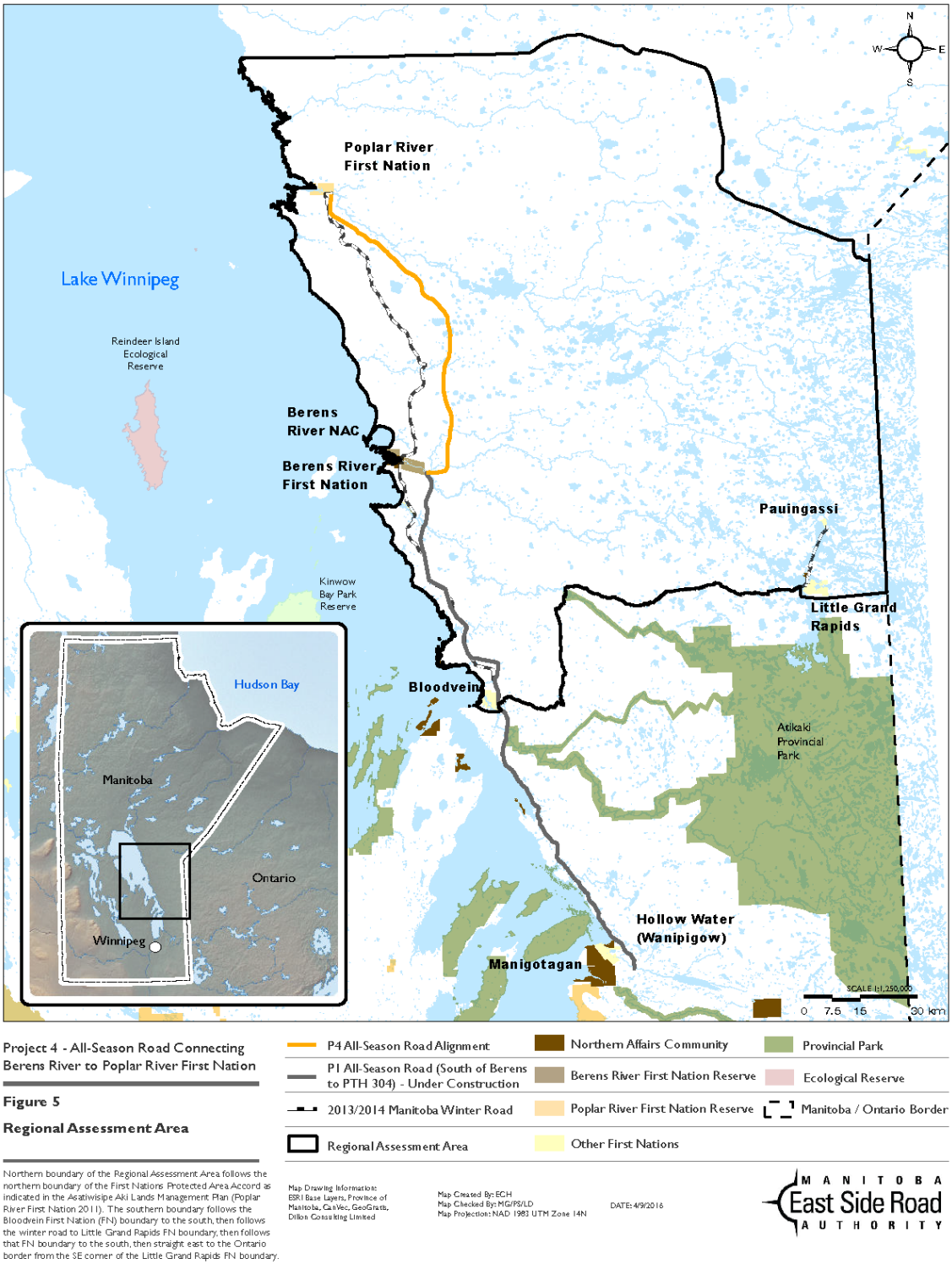
Map Created By: ECH
Map Checked By: MG/PS/LD
Map Projection: NAD 1983 UTM Zone 14N

DATE: 4/9/2016

MANITOBA East Side Road AUTHORITY

Source: Project 4 EIS, Manitoba Infrastructure (East Side Road Authority)

Figure 2 Regional Assessment Area



Project 4 - All-Season Road Connecting Berens River to Poplar River First Nation

Figure 5

Regional Assessment Area

Northern boundary of the Regional Assessment Area follows the northern boundary of the First Nations Protected Area Accord as indicated in the Asatiwisipe Aki Lands Management Plan (Poplar River First Nation 2011). The southern boundary follows the Bloodvein First Nation (FN) boundary to the south, then follows the winter road to Little Grand Rapids FN boundary, then follows that FN boundary to the south, then straight east to the Ontario border from the SE corner of the Little Grand Rapids FN boundary.

P4 All-Season Road Alignment
P1 All-Season Road (South of Berens to PTH 304) - Under Construction
2013/2014 Manitoba Winter Road
Regional Assessment Area
Northern Affairs Community
Berens River First Nation Reserve
Poplar River First Nation Reserve
Other First Nations
Provincial Park
Ecological Reserve
Manitoba / Ontario Border

Map Drawing Information: ESRI Base Layers, Province of Manitoba, CanVec, GeoGratis, Dillon Consulting Limited

Map Created By: ECH
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Map Projection: NAD 1983 UTM Zone 14N

DATE: 4/9/2016

MANITOBA East Side Road AUTHORITY

Source: Project 4 EIS, Manitoba Infrastructure (East Side Road Authority)

1.2.5 *Methods and approach*

In conducting its analysis the Agency reviewed the Environmental Impact Statement (EIS) submitted by the proponent, additional information submitted by the proponent at the Agency's request during the review of the EIS, comments received from Indigenous groups and the public, and the views of federal and other experts.

The Agency's conclusions on whether the Project is likely to cause significant adverse environmental effects are presented using the methodology prescribed in the Agency's *Operational Policy Statement on Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian Environmental Assessment Act, 2012*.

Potential pathways of effect between project activities and valued components were defined and ranked to focus the assessment on interactions that may result in an environmental effect of concern. The proponent's assessment considered the potential likelihood of an environmental effect and did not carry forward those effects it considered to be potential, but unlikely, including effects to species at risk and changes to the environment that could affect current use of lands and resources for traditional purposes.

The proponent's proposed mitigation measures were evaluated against the predicted environmental effects. The residual environmental effects (i.e. those environmental effects that remain after the planned mitigation measures have been applied) for each valued component were evaluated based on:

- magnitude (the scale or intensity of the effect relative to the baseline condition);
- geographic extent (the spatial area over which the effect would occur);
- duration (the period of time over which the effect would occur);
- frequency (how often the effect would occur within a given timeframe);
- reversibility (the degree to which a valued component would return to its original pre-project state over the life of the Project); and
- ecological, socio-economic or cultural context (the current sensitivity and resilience of the valued component to the change caused by the Project).

These criteria are further described in Appendix A.

The determination of significance of each residual adverse environmental effect was based on pre-defined significance rating criteria (e.g. standards or thresholds). Appendix B sets out these criteria and summarizes the residual effects assessment for all valued components in relation to anticipated activities throughout the life cycle of the Project.

The Agency considers effects to be "not significant" where the residual environmental effects after mitigation measures have been implemented are minor or moderate in magnitude; localized in geographic extent; short-term in duration; reversible; and have a low impact when considering the ecological, socio-economic or cultural context.

The Agency considers effects to be "significant" where the residual environmental effects after mitigation measures have been implemented would be major in magnitude; long-term; and would have either a medium or high impact when considering the ecological, socio-economic or cultural context.

The Agency's analysis and conclusions on the significance of environmental effects on valued components are presented in section 6. The analysis of the potential environmental effects of accidents and malfunctions is presented in section 7.2, and cumulative effects in section 7.3.

2 Project Overview

2.1 Project Location

The Project is proposed on the east side of Lake Winnipeg in Manitoba and would provide all-season road access for the community of Poplar River First Nation. The proposed all-season road alignment extends from the southern road terminus at English Rapids Road near Berens River First Nation Reserve #13 to the northern road terminus at Poplar River First Nation Reserve #16 (Figure 1). The Project would extend north from Project 1, the all-season road currently under construction from Provincial Road (PR) 304 near Hollow Water First Nation to the Berens River.

2.2 Project Components

Components of the Project include:

- 94.1 km of new two-lane gravel-surface all-season road, within a 100 m right-of-way;
- watercourse crossings, including:
    - Bridges over the Berens, Etomami, North Etomami, and Leaf Rivers;
    - Six culvert crossings of fish-bearing watercourses;
    - 23 culvert crossings of non-fish-bearing watercourses;
    - 284 equalization culvert crossings to facilitate drainage/prevent flooding;
- temporary construction access routes between the new road and staging areas, camps, quarries, and borrow areas (approximately 3.5 km in total);
- temporary construction staging areas (approximately 57 ha in total);
- four temporary construction camps (approximately 64 ha in total);
- 13 construction and 3 or 4 operation quarry sites and borrow areas (approximately 290 ha, including temporary access routes, in total); and
- facilities for the storage of explosives.

The Project will result in a total disturbance footprint of approximately 980 ha. Approximately 640 ha would be permanently disturbed by the proposed all-season road, bridges, culverts, and quarries and borrow areas required for on-going maintenance. The remaining 340 ha would be cleared of vegetation for temporary project components and activities including construction camps, equipment laydown/staging areas, borrow areas, and construction quarries.

2.3 Project Activities

Construction

The Project would be constructed in approximately 10 segments beginning from both Berens River First Nation and Poplar River First Nation.

Right-of-way clearing for each segment would be completed during winter months, where feasible, to facilitate machinery access and to minimize potential adverse environmental effects. Clearing would remove vegetation and organic materials from a 60 m wide portion of the 100 m road right-of-way. Soils would be stockpiled or bermed on road shoulders. Timber suitable for use would be salvaged while non-

salvageable material would be piled, burned or buried. Grading would occur to prepare temporary access routes and construction staging areas.

Rock quarries and borrow areas would be cleared of vegetation and prepared for use. Rock fill and granular materials would be excavated, crushed, sorted, and stockpiled, with blasting as required.

For each segment, a staging area would be created within the cleared right-of-way where feasible. The staging area would provide for material and equipment management, stockpiling materials, operating equipment, storing and dispensing fuels, and up to four temporary construction camps capable of housing 40-person crews.

Temporary crossing structures required during construction would be installed in cleared areas, requiring minor additional clearing, soil excavation, and contouring. Erosion control measures, including water flow diversion using coffer dams, would be employed at temporary crossings.

Construction of the permanent roadbed would include grading and filling to establish the road grade embankment, and traffic gravel would be applied to the finish grade surface. The permanent culverts and bridges (multi and clear span) would be installed as construction progresses along the alignment. Concrete batch plants would be used for cast-in-place abutments.

Culverts greater than 900 mm in diameter would be installed at 313 crossings (6 fish-bearing and 23 non fish-bearing watercourses, and 284 equalization culverts). Activities associated with culvert installation include excavating, filling, and contouring of soils and bank materials; installation and maintenance of construction erosion control measures; and restoration of vegetation.

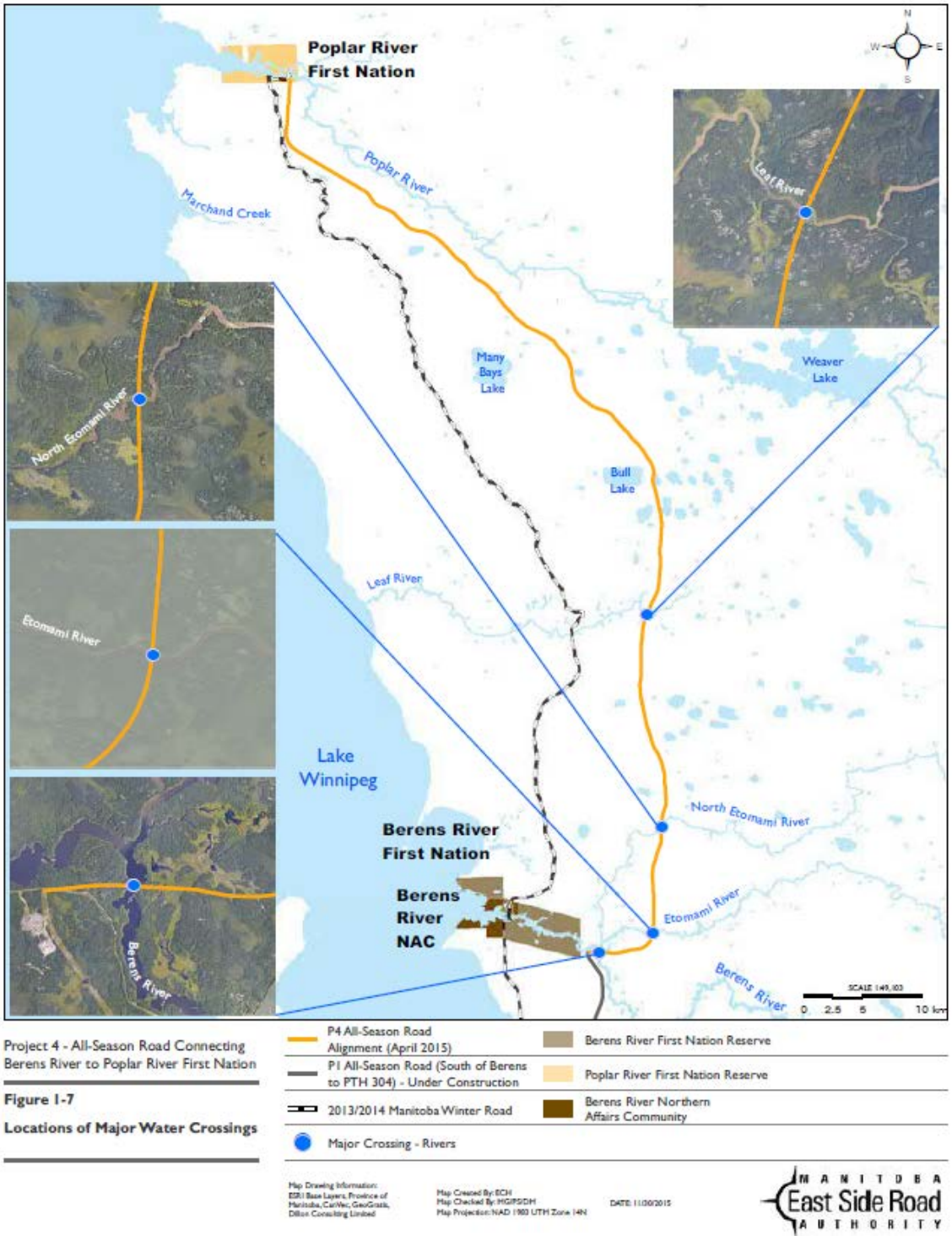
Construction would occur progressively as would closure and reclamation of temporary components, including revegetation and restoration of project-disturbed areas.

Operation/Maintenance

Operation of the proposed all-season road would include on-going and seasonal road maintenance activities, including culvert steaming and cleaning to maintain water passage. Temporary access routes, crossings over watercourses, construction staging areas and camps, quarries, and borrow areas would be inspected for reclamation and revegetation success.

Three or four quarries and several borrow areas would be operated beyond the construction phase to supply road materials for the on-going operation and maintenance of the Project.

Figure 3 Project Location – Watercourse Crossings



Source : Project 4 EIS, Manitoba Infrastructure (East Side Road Authority)

3 Purpose of Project and Alternative Means

3.1 Purpose of Project

Seasonal winter road and barge service, or higher cost air transportation, currently constrain the movement of goods, services, and people to and from Poplar River First Nation Reserve #16. The Project would provide Poplar River First Nation Reserve #16 with year-round vehicle access to Manitoba's southern road network, once Project 1 is completed.

3.2 Alternative Means of Carrying Out the Project

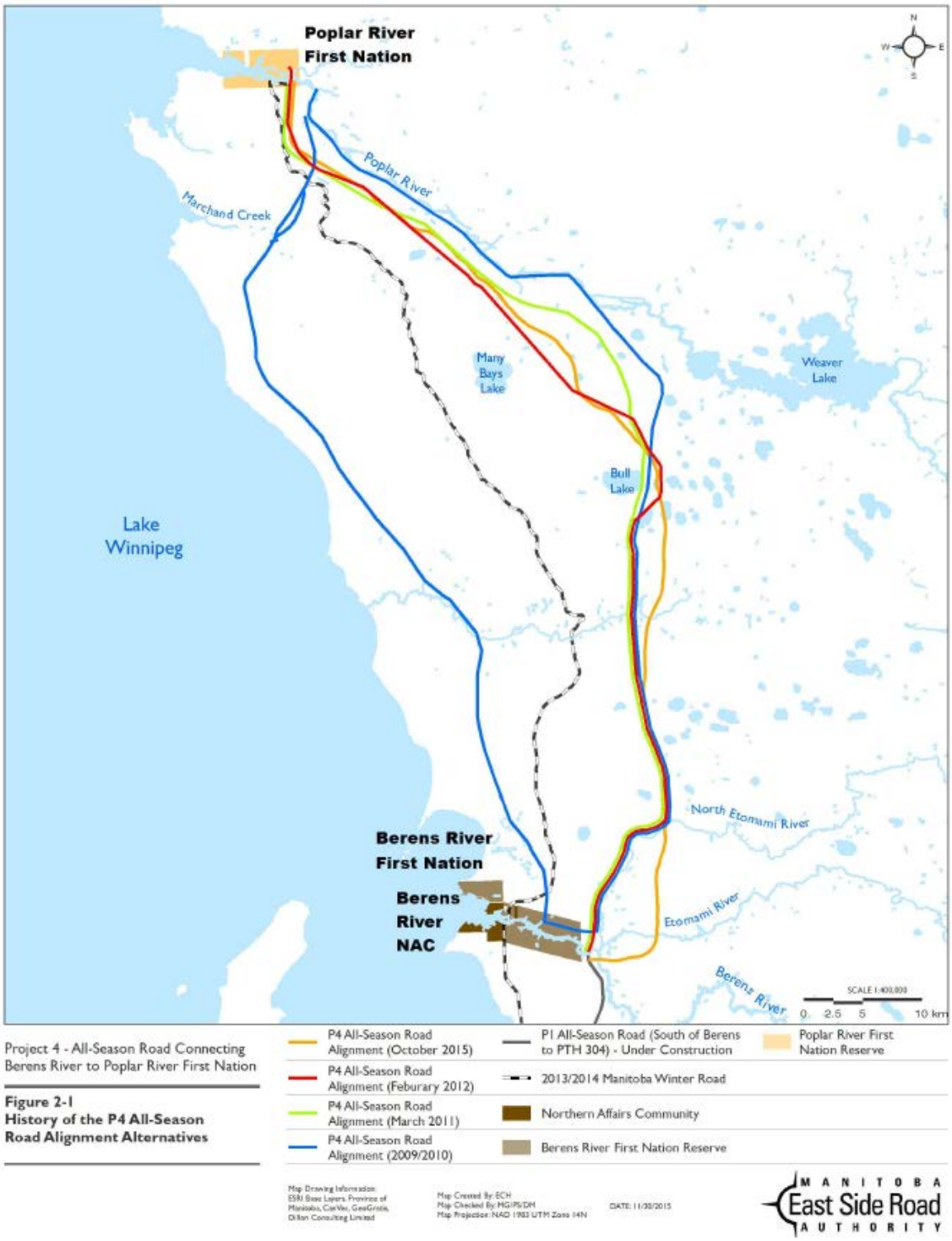
The proponent considered technically and economically feasible alternatives for transportation modes and routes. Transportation modes considered include railway, hovercraft, airships (dirigibles), ferries, improved winter roads, and the proposed all-season road. Although the railway was comparable from an economic perspective, lengthy connections to existing rail lines would be required, construction costs would be higher because of flatter gradient requirements and this option restricts user flexibility. Hovercrafts could create considerable environmental damage from multiple random routes being used. Airships or fixed wing aircraft are not large enough to economically ship large quantities of goods or fuel. Ferries provide an option for summer months, but would still require construction of an ice bridge for the winter months. Neither a ferry nor an ice bridge can be used during freeze up or break up which limits access for a few weeks in the fall and spring. Improved winter road access by shifting the route to more solid ground and constructing permanent bridges at future all-season road routes presented a viable option if funding could not be secured for the all-season road. However, because of climate change, winter road use seasons are expected to be shorter and less predictable, placing a greater reliance on costly air transportation resulting in increased greenhouse gas emissions, so the all-season road remains the preferred option.

The proponent also evaluated alternatives to key components including routes (Figure 4) and methods of constructing watercourse crossings.

The proponent's road route selection criteria included:

- technical considerations (travel distance; terrain conditions, borrow/road construction materials availability, and construction constraints/limitations);
- the natural environment (potential effects on species at risk, environmentally sensitive features, aquatic habitat, and habitat fragmentation);
- the social/cultural environment (potential effects (positive and negative) on traditional land use, culturally sensitive resources, community infrastructure benefits, community well-being, and community knowledge and interest); and
- capital and maintenance costs (estimated capital cost of bridges, culverts and road, and estimated annual maintenance costs).

Figure 4 Route Alignment Alternatives



Source: Project 4 EIS Manitoba Infrastructure (East Side Road Authority)

A preliminary alignment was prepared for the Province of Manitoba in 2009 based on aerial photo analysis, terrain conditions, water crossings, available wildlife information (including woodland caribou habitat information), Traditional Knowledge studies, community feedback, and designated land constraints (e.g., First Nation Reserves, protected areas). Revisions were made to the proposed alignment based on input received during community engagement and project design studies. Community engagement identified extensive areas of fens/bogs and flood-prone areas to the south and east of Poplar River First Nation Reserve #16. As a result, an inland route alignment option was selected because of more suitable ground conditions and location of rock materials for road construction, and minimization of disturbance to fen and bog areas. With further community input the route alignment was adjusted to protect traditional land use and heritage resource areas including culturally important aquatic features of Bull Lake and Poplar River. The proposed road crossing on the Berens River was also adjusted to avoid traditional hunting areas around Berens River First Nation Reserve #13.

The selection of watercourse crossing types was based on channel structure, hydraulics, maintaining navigability, and presence of fish and fish habitat. Bridge locations were selected based on factors including shore to shore distance, approach conditions, riparian characteristics, watercourse substrates, hydrology and channel hydraulics, footprint area, maintaining navigability, and bridge design standards and specifications.

As a result of these considerations, clear-span bridges (no in-water piers) were proposed for the Leaf and North Etomami rivers. A multi-span bridge with one pier was selected for the Berens River. A multi-span bridge with 2 in-water piers was selected for the Etomami River. A steel arch or reinforced concrete box culvert was selected for Okeyakkoteinewin Creek to address potential fisheries sensitivities identified by Poplar River First Nation and soil conditions. Multiple round or steel arch culverts or single or multiple round culverts would be used for fish bearing streams where navigation is not a concern. Drainage culverts would be used for non-fish-bearing watercourses within fen and bog wetland locations to facilitate drainage and prevent flooding.

The proponent would select 13 quarries from 35 potential quarry sites based on:

- avoidance of potential for metal leaching and acid generation from quarried rock;
- avoidance of known presence of cultural materials or features (e.g. archaeological sites, traditional use camp sites, cabins or traplines);
- proximity to the proposed road right-of-way and proposed road;
- availability and suitability of rock and aggregate materials;
- degree of road bed preparation required;
- proximity to the bridge and other construction sites; and
- travel distances for equipment and workers.

The proponent did not identify specific alternative sites for construction camps; however, factors to be considered by contractors in camp location selection include: proximity to the proposed road right-of-way, travel distances for equipment and workers, availability of suitable level sites, extent of site preparation work required, and proximity to the road and crossings construction sites. Heritage

Resources Impact Assessments would be completed for potential construction camp and staging locations.

Expert federal departments did not identify general concerns with the selected route or the preferred means on undertaking the construction and the operation of the Project.

Indigenous groups provided the proponent with additional advice on culvert design, the installation of ramps on the road to allow for ease of snow machine access, and a request to avoid quarry sites on the Poplar River side of the road alignment.

3.3 Agency analysis and conclusion

The proponent's alternatives assessment considered the technical considerations, natural environment, social/cultural environment, capital maintenance costs, and feedback from Indigenous groups on the selected alternative means of carrying out the Project. Based on its review of this analysis, the Agency is satisfied that the proponent has sufficiently assessed alternative means of carrying out the Project for the purposes of assessing the environmental effects of the Project under CEAA 2012.

4 Consultation Activities and Advice Received

4.1 Indigenous Consultation

4.1.1 *Indigenous consultation led by the Agency*

The federal government has a duty to consult Indigenous groups, and, where appropriate, accommodate when its proposed conduct might adversely affect potential or established Aboriginal or treaty rights. Indigenous consultation is also undertaken more broadly as an important part of good governance, sound policy development, and decision making. In addition to the federal government's broader obligations, CEAA 2012 requires the EA to consider the effects on Aboriginal peoples of any Project-related effects on health and socio-economic conditions, physical and cultural heritage, current use of lands and resources for traditional purposes, and changes to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance. In order to fulfill the Crown's consultation obligations, the Agency conducted Indigenous consultation in a manner that was integrated with steps in the EA process.

For the purposes of the EA, the Agency served as federal Crown Consultation Coordinator while Manitoba Sustainable Development was the lead for provincial Crown consultation activities. The Agency and Manitoba coordinated consultation activities to the extent possible including sharing correspondence, participating in regular monthly Project update calls, facilitating federal and provincial issues discussions with Indigenous groups, and participating in Provincial Project Steering Committee planning discussions for Crown consultation.

Indigenous groups that were invited to participate in consultations included those identified as having an interest in the Project by reason of proximity, traditional land use or potential or established Aboriginal rights or titles: Poplar River First Nation, Berens River First Nation, Manitoba Metis Federation, Hollow Water First Nation, Bloodvein First Nation, Little Grand Rapids First Nation, and Pauingassi First Nation.

The Agency supports Indigenous participation through its Participant Funding Program. Poplar River First Nation and the Manitoba Metis Federation applied for and received funding to reimburse eligible expenses associated with participation in the EA. In total, the Agency allocated $116 645 to support Indigenous participation in the EA.

The Agency consulted Indigenous groups through a variety of methods including phone calls, emails, letters, and in-person meetings. The Agency provided regular updates to keep them informed of key developments and to solicit feedback. The Agency requested written comments on the documents identified in Table 3.

Indigenous groups now have the opportunity to comment on this draft EA Report and potential EA conditions. After taking into consideration their comments , the Agency will finalize and submit the final Environmental Assessment Report to the Minister of the Environment and Climate Change for her EA decision.

Table 3 Indigenous comment opportunities during the EA process

Document	Dates
Summary of the Project Description	December 8 to December 29, 2014
Draft EIS Guidelines	January 22 to February 21, 2015
EIS and associated documents	May 2016 to November 2016
Draft EA Report and potential conditions	Current

During the public comment periods, the Agency received comments from Poplar River First Nation, Berens River First Nation, and Manitoba Metis Federation. The Agency held meetings during the review of the EIS with Poplar River First Nation and Manitoba Metis Federation to receive oral and written comments. These comments informed the Agency's review and resulted in information requests being issued to the proponent regarding: the Project's environmental effects and proposed mitigation measures for fishing, hunting, gathering, and culturally important landscapes; potential disturbance to cultural sites; and potential degradation of water quality in watercourses including the Poplar River which could affect fisheries.

Potential changes to the environment that may affect Indigenous peoples are discussed in sections 6.4 to 6.6 and impacts on potential or established Aboriginal rights or titles are discussed in section 8 of the draft EA Report. Appendix E contains a summary of concerns raised by Indigenous groups during the EA process to date and includes the responses of the proponent and the Agency.

4.1.2 *Indigenous consultation and engagement activities organized by the proponent*

The proponent's Aboriginal and Public Engagement Program focused on interaction with and feedback from interested and potentially affected communities and community members, as well as the general public on the East Side Large Area Transportation Network and proposed all-season roads. The proponent held six rounds of engagement through meetings, open houses, workshops, community radio interviews, and letter and e-mail correspondence with First Nation and Métis leaderships, community members, regulators, trappers, outfitters, and members of the general public between 2009 and 2015.

From 2009 – 2011 the proponent undertook the East Side Large Area Transportation Network Study which included an analysis of alternative corridors based on feedback received through engagement with Elders, elected officials, members of the local First Nations as well as other Indigenous communities and stakeholders and traditional knowledge surveys. The EIS indicates that the study resulted in modifications to the proposed road corridor and the avoidance of sensitive and culturally important areas.

The proponent funded community-specific traditional knowledge studies and Heritage Resource Impact Assessments for the preferred route alignment in the Local Assessment Area for the Poplar River and Berens River First Nations, the two groups identified as most impacted by the Project. The proponent

also funded community traditional knowledge interviews undertaken by the Manitoba Metis Federation to supplement the Manitoba Metis Federation traditional knowledge study completed in 2011.

In 2015, the proponent held leadership and community meetings with Poplar River First Nation, Berens River First Nation, and Berens River Northern Affairs Community.

The proponent established community benefits agreements with Poplar River First Nation and Berens River First Nation which outline how these communities may benefit by maximizing local procurement, employment, and training opportunities related to the proposed road. The Poplar River First Nation Community Benefit Agreement was signed in 2010 and the Berens River First Nation Community Benefit Agreement was signed in 2009 and updated in 2014.

The proponent also supported region-based traditional knowledge studies with Little Grand Rapids First Nation, Pauingassi First Nation, and Hollow Water First Nation, in conjunction with planning for the East Side Large Area Transportation Network which contributed to the initial selection of valued components and proposed mitigation measures which were presented at community meetings.

4.2 Public Participation

4.2.1 *Public participation led by the Agency*

The Agency provided opportunities for the public to comment on the summary of the Project Description, draft EIS Guidelines and summary of the proponent's EIS. The public is now invited to comment on this draft EA Report and potential conditions.

Notices of the opportunities to participate were posted on the Canadian Environmental Assessment Registry Internet Site and advertised through local media. Paper copies of the draft EIS Guidelines and EIS Summary were made available at public viewing centres in Winnipeg, Berens River First Nation Reserve #13, and Poplar River First Nation Reserve #16.

The Agency offered funding to support public participation in the EA through its Participant Funding Program. No public groups applied for funding.

Comments were provided by Manitoba Wildlife Federation during the EIS review. Concerns included impacts to wildlife populations from increased hunting pressure. A recommendation was made for a no hunting buffer.

The Agency now invites the public to provide comments on the content, conclusions, and recommendations set out in this draft EA Report and potential EA conditions. After taking into consideration the comments received from the public, the Agency will finalize and submit the report to the Minister of the Environment and Climate Change for her EA decision.

4.2.2 *Public participation activities organized by the proponent*

The proponent engaged local residents from the communities of Poplar River and Berens River, as well as the City of Winnipeg. The proponent included potentially affected or interested stakeholders including commercial and non-commercial land users, service providers, interest groups, and non-governmental organizations.

The proponent's public engagement activities included holding meetings, hosting open houses, conducting interviews, and developing and issuing plain language materials (e.g. website, newsletters) to share information and receive feedback about the proposed Project.

4.3 Participation of Federal and Other Experts

The following federal authorities provided specialist or expert information or knowledge and advice relevant to the Project through reviewing the draft EIS Guidelines, the EIS, information request responses, and providing input into the preparation of the draft EA Report and potential conditions:

- Fisheries and Oceans Canada provided advice and information related to fish and fish habitat, species at risk, commercial, recreational or Indigenous fishery, and mitigation measures including provisions related to fish passage, flow, and habitat offsetting.
- Transport Canada provided advice related to changes to the environment that may impede navigation and effects on Indigenous peoples.
- Environment and Climate Change Canada provided advice related to air quality and greenhouse gases, species at risk, migratory birds, water quality, wetlands, and accidents and malfunctions.
- Health Canada provided advice on potential effects on human health related to harvested foods, water quality, noise levels, and air quality.
- Indigenous and Northern Affairs Canada provided advice related to Federal Reserve lands and potential impacts on Indigenous socio-economic conditions.
- Natural Resources Canada provided advice on federal regulation of explosives under the *Explosives Act*.

The Agency and Manitoba Sustainable Development Environmental Approvals Branch coordinated the federal and provincial EA processes through information sharing during the technical review of the EIS. Provincial departments that provided expertise to the cooperative EA as part of the provincial Technical Advisory Committee included: Manitoba Sustainable Development Environmental Approvals Branch, Manitoba Sustainable Development Climate Change and Air Quality Branch, Manitoba Sustainable Development Wildlife and Fisheries Branch, Manitoba Sustainable Development Lands Branch, Manitoba Sustainable Development Eastern Region, Manitoba Sustainable Development Water Stewardship and Biodiversity Division, Manitoba Office of Drinking Water, and Manitoba Infrastructure. The expertise provided by provincial ministries was considered in the Agency's assessment of the Project's environmental effects and mitigation measures.

5 Geographical Setting

5.1 Biophysical Environment

The Project area is located in the Lac Seul Upland Ecoregion of the Boreal Shield Ecozone on the east side of Lake Winnipeg, within the Berens River and Poplar River watersheds. The landscape is generally characterized by level or gently undulating, low-lying, and poorly-drained peatlands (bogs and fens), occasionally interspersed rock outcrops and forest patches of black spruce and tamarack. Soils in the area are formed of thin silt and clay sediments and peat deposits. Igneous and metamorphic rock types (tonalitic gneiss, granodiorite, and granite) form underlying bedrock in the Local Assessment Area.

Naturally occurring concentrations of some metals including copper, lead, and iron, have been found to occasionally exceed *Manitoba Water Quality Standards, Objectives and Guidelines* in surface waters in the Project area.

The regional climate is characterized by a short spring, a wet warm summer with many hours of daylight and minimal night-time darkness, a short fall, and a long cold winter with few hours of daylight and long night-time darkness. Temperature means range from -18.9 ^{o}C in January to 17.7 ^{o}C in July. Mean annual rainfall is 30.1 mm, with most rain falling in August storms. Mean annual snowfall is 10.3 cm, with the greatest monthly snowfall recorded in November. Ambient air quality is described as excellent with occasional local or regional air quality reductions as a result of major fires.

Between 1920 and 1929 forest fires burned approximately three quarters of the Regional Assessment Area. However; for the past four decades, little to no fire activity has been documented over the Project and Local Assessment areas. Twenty percent of the area has had no fire activity from 1920 to the present.

The region provides habitat to a variety of wildlife species including ungulates (e.g. caribou and moose), furbearing mammals, bats, raptors, forest songbirds, waterbirds, amphibians, and reptiles. Nine bird species, three mammal species, and one reptile species listed under SARA have the potential to occur in the Project area, and three of these species, boreal woodland caribou, common nighthawk, and olive-sided flycatcher, were observed in the Project area during baseline wildlife surveys. The proponent also identified four bird species, bank swallow, barn swallow, horned grebe, and eastern wood-pewee, and one mammal species, Wolverine, that are designated as threatened or special concern by COSEWIC as being present or potentially occurring in the area of the Project.

The Project is located in the Atikaki-Berens Management Unit for boreal woodland caribou[1]. The Local Assessment Area (Figure 1) overlaps the range of the boreal woodland Atikaki-Berens herd including the

[1] Manitoba Boreal Woodland Caribou Management Committee. 2015. Conserving a Boreal Icon, Manitoba's Boreal Woodland Caribou Recovery Strategy. Manitoba Conservation and Water Stewardship. Winnipeg, Manitoba. 30pp. https://www.gov.mb.ca/conservation/wildlife/sar/pdf/caribou strategy_octfall2015.pdf

core winter and summer use areas. Boreal woodland caribou is listed as Threatened under SARA as well as under the Manitoba *Endangered Species and Ecosystems Act*.

Key aquatic features of the Project area are watercourses that convey surface waters to Lake Winnipeg, including the Berens, Poplar, Etomami, North Etomami, and Leaf rivers. Wetlands in the form of bogs and fens are a predominant land cover. Lakes and ponds, including Many Bays Lake, Pamatakakowin Lake, and Bull Lake, provide open water habitat within the Local Assessment Area. Streamflow may be absent from many smaller watercourses in winter due to freezing.

A total of 42 species of fish occur in the Local Assessment Area. One aquatic species listed under SARA, the mapleleaf mussel, and one aquatic fish species designated by COSEWIC, the lake sturgeon, potentially occur in the vicinity of Project watercourse crossings.

5.2 Human Environment

Indigenous people have engaged in traditional activities and have had a relationship with the land in the Project area for thousands of years. The area is largely undeveloped and infrastructure is centered within the small communities of Poplar River First Nation, Berens River First Nation, and Berens River Northern Affairs Community. The total population of these communities is estimated at approximately 3 500 people (Poplar River First Nation (1 216 residents), Berens River First Nation[2] (2 138 residents), and Berens River Northern Affairs Community (150 residents)).

Access to the area is by foot, boat, snow machine, or air outside of the three month season when the existing 92.7 km winter road operates to connect the communities with the provincial public highway network. South of Berens River, the Project 1 all-season road is currently under construction and would join the Project to Provincial Road (PR) 304 near Hollow Water First Nation 144 km to the south. The existing winter road alignment is located between 5 and 10 km to the west of the Project road corridor. The Manitoba Hydro electrical transmission line corridor supplying power to Poplar River First Nation is located to the west of the Project road corridor.

Land use planning for the Project area is partially regulated by the Asatiwisipe Aki Traditional Use Planning Area Regulation under Manitoba's *The East Side Traditional Lands Planning and Special Protected Areas Act*[3]. The Land Use Planning Area includes the northern half (i.e. 44 km) of the Project. A proposed all-season road corridor is included in the plan. No land use plan is currently in place for the southern portion of the Project.

[2] Berens River First Nation and Poplar River First Nation 2016 Census information provided by Indigenous and Northern Affairs Canada.

[3] The purpose of the *East Side Traditional Lands Planning and Special Protected Areas Act* is to enable First Nations and Indigenous communities to engage in land and resource planning in designated areas of Crown land that they have traditionally used. Under the *Act*, areas of provincial Crown land may be designated as a "planning area" or "special protected area". https://www.gov.mb.ca/conservation/lands_branch/east_side_act.html

Several First Nations, including Poplar River First Nation, have applied to have a large portion of boreal forest designated as a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site. Pimachiowin Aki, or “the land that gives life”, would include lands in Manitoba and Ontario and would include the northern 44 km section of the Project. The proposed UNESCO designation is consistent with current and planned land use in the region.

Existing and past commercial or industrial activities in the Regional Assessment Area include operation of commercial traplines and fishing stations, wild rice harvesting areas (the majority of which are currently inactive), and historic minor commercial timber harvesting northeast of Berens River First Nation.

The only current mineral exploration licenses or mining licenses near the Project footprint are those associated with quarrying for road construction materials. Poplar River First Nation is developing a quarry site south of the community to provide aggregate for on-reserve needs. Under the Asatiwisipe Aki Traditional Use Planning Area Regulation, the Asatiswisipe Aki Ma Ma Wichitowin Mutual Land Relationship Board has agreed that quarries may be established for the purpose of constructing and maintaining an all-season road within the zoned northern portion of the Project corridor, as identified in the Asatiwisipe Aki Traditional Use Planning Area Regulation. Berens River First Nation has two quarry leases, one of which is being used for the construction of the Project 1 all-season road.

Recreational tourism in the Local Assessment Area includes wilderness canoeing on the Berens and Poplar Rivers. Five fly-in lodges and outfitters registered with the Manitoba Lodges and Outfitters Association operate ecotourism and resource harvesting services within the Regional Assessment Area.

6 Predicted Effects on Valued Components

6.1 Fish and Fish Habitat

6.1.1 *Proponent's assessment of environmental effects*

Predicted Effects

Potential effects to fish and fish habitat from Construction and Operation include direct mortality and habitat loss (removal of riparian and instream habitat and restricted fish passage).

The Project has a total of 33 watercourse crossings of which 10 were identified as fish bearing. The proponent focused its analysis of effects to fish and fish habitat on the bridge crossings of the Berens, Leaf, North Etomami, and Etomami rivers and the culvert crossing of Okeyakkoteinewin Creek. Forty two fish species including northern pike, sucker species, lake whitefish, and walleye were identified as part of, or supporting, a Commercial, Recreational or Aboriginal fishery within these watercourses. In addition, lake sturgeon, which is both a harvested species in the region and an aquatic species at risk (recommended for listing as endangered under SARA by COSEWIC), and the channel catfish, a fish host for the temporary parasitic larval stage of mapleleaf mussel, an aquatic invertebrate species at risk (listed as threatened under SARA), are known to occur in the Berens River and possibly other watercourses along the route.

Direct Mortality

The proponent indicated that direct mortality may result from the accidental release of deleterious substances (e.g. sediment and fuel) during Construction and Operation, increased fishing pressure, and potential introduction of aquatic invasive species.

The potential effects of accidental release of deleterious substances into watercourses are addressed as part of the assessment of the potential environmental effects of accidents and malfunctions in section 7.1.

Construction could result in the release and/or transport of sediment to lakes, rivers and creeks. Construction of bridge abutments, footings and bridge decks may result in the release of concrete, concrete wash water and other lime containing materials resulting in increased turbidity and sedimentation of the stream and potential changes to pH levels. Ammonium nitrate, calcium nitrate and sodium nitrate used in blasting explosives may enter watercourses from accidental spills, leaching from wet blast holes, or in runoff from undetonated explosives in blast rock. Increased nitrate levels can have toxic effects on fish.

Improved access could result in increased fishing in waterbodies where fishing currently occurs (e.g., the Berens River) and in waterbodies not previously or conveniently accessible for fishing.

Invasive species can affect lake and stream vegetation, which in turn can deprive native fish of cover, spawning habitat, and food, resulting in fish mortality.

Habitat Loss/Alteration

The proponent identified that habitat loss or alteration would occur from the destruction of instream and riparian habitat on fish-bearing watercourses and restrictions to fish passage from bridges and culverts.

The proponent predicted that there would be a permanent destruction or loss of approximately 206.5 m^2 instream habitat and 180 m of riparian habitat as a result of the construction of the Berens and Etomami River bridges and Okeyakkoteinewin Creek culvert. The habitat affected by the Okeyakkoteinewin Creek culvert is spawning and rearing habitat for northern pike, an important species for Indigenous groups.

Permanent alteration of 484.5 m^2 of instream fish habitat and 336 m of riparian habitat would occur from bank armouring and initial right-of-way clearing (Table 4).

Table 4 Summary of net fish habitat change due to construction of the P4 All- Season Road

Site	Watercourse	Instream Destruction (m^2)	Instream Alteration (m^2)	Riparian Destruction (m)	Riparian Alteration (m)
P4-X01	Berens River	5.8	161.5	36.0	84.0
P4-X04	Etomami River	11.7	323.0	36.0	84.0
P4-X07	North Etomami River	0	0	36.0	84.0
P4-X22	Leaf River	0	0	36.0	84.0
P4-X30	Okeyakkoteinewin Creek	189.0	0	36.0	0
	Total	206.5 m^2	484.5 m^2	180.0 m	336.0 m

Source: EIS Appendix 8-1. Note: Values are predicted from conceptual design drawings and final values of destruction and alteration will be determined in the final design.

The proponent indicated that the amount of habitat that would be permanently altered/destroyed has been minimized to the extent possible through watercourse crossing designs and that these areas represented a very small fraction of the fish habitat available in each of the affected watercourses.

The proponent noted that in addition to habitat loss/alteration, fish habitat can be affected by the improper design and/or installation of bridge or culvert crossings, causing the alteration of natural flows and flow patterns affecting changes to fish movements and behaviour; preventing fish passage through culverts; and potentially resulting in some fish being unable to complete spawning and migration activities.

Aquatic Species at Risk

The proponent identified potential Project effects on two aquatic species at risk: mapleleaf mussel and lake sturgeon.

The proponent identified mapleleaf mussel in the Berens River, approximately 150 m downstream from the proposed Berens River bridge crossing location. The proponent did not predict direct project effects to mapleleaf mussel with the implementation of mitigation measures for watercourse crossings.

Lake sturgeon is known to inhabit the Berens River and two spawning locations that were identified by the proponent upstream of the proposed Berens River bridge. The proponent identified a loss of 5.6m^2 of marginal foraging habitat which may be currently used by juvenile lake sturgeon at the proposed bridge location. The proponent indicated that the area does not represent critical spawning or rearing habitat and that suitable habitat is also available in deeper waters outside of the footprint of the bridge pier.

Proposed Mitigation Measures, Monitoring and Follow-Up

Direct mortality would be mitigated by managing the potential release of deleterious substances and by controlling access and potential invasive species. Mitigation measures to control the accidental release of deleterious substances are presented in section 7.1.

Mitigation measures to address release of deleterious substances (e.g. sediment and fuel) during Construction and Operation include:

- Maintaining a minimum of a 100 m buffer from waterbodies except when crossing a watercourse;
- Where a 100 m buffer is not possible, maintaining a buffer of undisturbed vegetation equal to 10 m plus 1.5 times the slope gradient, or 30 m, whichever is greater;
- Implementing erosion and sediment control measures prior to the commencement of clearing and construction (e.g., silt fencing, silt curtains);
- Retaining vegetation as long as possible to minimize the exposure time of disturbed/bare soils to potential erosion;
- Constructing temporary ice or snow-fill bridges with clean snow;
- Removing temporary ice bridges prior to the spring freshet;
- Directing storm water and road runoff into vegetated areas;
- Isolating instream construction from flowing water with the use of cofferdams, channel diversions and silt curtains;
- Isolating uncured concrete;
- Not using ammonium nitrate-fuel oil mixtures in or near watercourses; and
- Not blasting in watercourses.

The proponent would monitor water and sediment quality including total suspended solids (TSS) and turbidity during in-water works and/or other construction activities for the introduction of sediment and other deleterious substances into watercourses. Data collected at downstream sites would be compared to upstream reference sites and baseline data, water and sediment quality guidelines, and TSS/turbidity action levels to determine if mitigation measures are successful.

Mitigation measures to address the potential effects of increased fishing pressure as a result of improved access include decommissioning of temporary access roads, incorporating physical access restrictions such as guardrails into the road design, and prohibiting fishing by contractors. The proponent also notes that Manitoba has responsibility for provincial fisheries management and has responsibility for establishing fishing periods, catch methods and limits, and conservation closures as required to ensure fisheries resources are protected.

All equipment would be kept clean to reduce the risk of the introduction of invasive species and contractors would be required to comply with the provisions of federal and provincial regulations pertaining to the spread of aquatic invasive species.

Mitigation measures for potential impacts to fish habitat include:

- Implementing an offsetting plan for direct instream and riparian habitat destruction;
- Avoiding fish spawning and incubation periods in spring (April 1-June 15), summer (May 1-June 30) and fall (September 15-April 30);
- Conducting fish salvage within the isolated work area of fish bearing watercourses prior to the commencement of instream work; and
- Maintaining water flow rates during construction.

In addition, temporary and permanent structures would avoid designated critical habitat under SARA. The proponent would conduct pre-construction surveys with salvage and relocation if required.

Mitigation measures for potential effects to fish mobility during Construction include:

- Designing bridge and culvert crossing structures to maintain existing flow regimes and allow for the passage of fish;
- Avoiding fish migration periods when placing and removing temporary crossing structures; and
- Notching ice bridges at the center to prevent the obstruction of fish movement and to prevent channel erosion and flooding during spring break-up.

During Operation, culverts would be inspected and maintained to remove debris or ice jams.

Predicted Residual Effects

After the implementation of mitigation measures, the proponent does not predict residual effects to fish from direct mortality. Predicted residual effects to habitat would be low in magnitude, local in extent, and permanent.

6.1.2 *Views expressed*

Federal Authorities

Fisheries and Oceans Canada indicated that the proponent would need to evaluate whether the temporary structures (i.e., instream cofferdams/working platforms, etc.) associated with Construction had the potential to cause permanent alteration of fish habitat which would require an authorization

under section 35(2)(b) of *Fisheries Act* as well as mandatory offsetting. The proponent responded that once the details of temporary Construction works are available, the contractor would develop and submit plans to Fisheries and Oceans Canada for in-water works that occur near waterbodies that support fish and that are part of or that support a Commercial, Recreational, or Aboriginal Fishery.

Fisheries and Oceans Canada requested the proponent provide an estimated footprint below the high water line for all culvert crossings on fish bearing watercourses in order to provide an accurate summary of temporary and permanent impacts to fish habitat in these watercourses. The proponent responded that the information can be provided once the final design phase of the project is complete.

Fisheries and Oceans Canada also requested that, given the uncertainty regarding the location of mapleleaf mussel, the proponent should describe how the presence or absence of mapleleaf mussel will be verified and what environmental protection procedures would be applied including mussel salvage, if mapleleaf mussel is found. The proponent indicated it would conduct pre-construction surveys for presence prior to instream work in the Etomami River, the only river crossing where an instream pier would be constructed, and employ salvage or relocation techniques under the guidance of Fisheries and Oceans Canada should mapleleaf mussel be encountered.

Environment and Climate Change Canada noted that additional baseline monitoring should be conducted for water and sediment quality to characterize the seasonal and interannual variation at the Project site and at appropriate upstream and downstream locations. Three years of data collection was recommended as a minimum baseline to support the detection of effects on the receiving environment. The proponent indicated it would conduct in-water works monitoring immediately prior to, during and immediately after to provide real time comparison of water quality parameters at and downstream from in-water construction activities.

Indigenous Groups

Poplar River First Nation

Poplar River First Nation provided comments on the lack of seasonal and multi-parameter water and sediment quality baseline information, and provided recommendations for improvements to the proponent's planned water quality monitoring. The proponent responded that construction monitoring would address effects to water quality resulting from Construction activities.

Poplar River First Nation asked for clarification on how the proposed culvert repair and debris jam removal activities would also comply with timing restrictions on instream works during spring periods of high flow. The proponent stated that maintenance activities would be conducted on an as required basis and would comply with regulatory requirements (i.e. timing windows for in-water works to protect fish and fish habitat).

Concern was expressed that geochemical testing of rock had not been completed at potential quarries. The proponent committed to complete this testing early in the detailed design phase of the Project to assess the potential for metal leaching and acid generation at proposed quarries before their development.

Poplar River First Nation noted that any quarry to be located within the Poplar River watershed should be on the west side of the proposed route alignment to provide sufficient buffer for potential effects to water quality, fish and fish habitat, and fishing on the Poplar River. The proponent indicated this would be considered in quarry selection.

Poplar River First Nation noted concerns regarding the disposal of wastes generated from structural repairs, bridge cleaning and vegetation management. The proponent responded that bridges and culverts would be inspected and maintained, with removal of debris where necessary, throughout the open water season, respecting critical spawning and migration periods for fish.

Poplar River First Nation recommended mitigation measures for water diversion pump use, concrete wash water management, and construction crew education regarding access restrictions for sensitive areas and watercourses. The proponent stated the Project operation would not release deleterious substances into watercourses and that mitigation measures such as temporary retention ponds would be used during construction to collect runoff water from construction sites. The proponent would prohibit contractor fishing and would provide training on identification and avoidance of sensitive sites.

Manitoba Metis Federation

Manitoba Metis Federation noted that the proponent's methodology for baseline aquatic environment sampling had limitations in the seasonality of field data collected, methods used, and types of waterbodies sampled creating uncertainty regarding determinations of fish presence/absence. Manitoba Metis Federation commented that additional residual effects should be considered by the proponent as a result of the project's permanent alteration of riparian habitat within the cleared right-of-way. The proponent updated the total riparian alteration from the four bridge crossings from 192 m to 336 m.

Public

No public comments were received regarding potential effects of the Project on fish and fish habitat.

6.1.3 *Agency analysis and conclusion*

Analysis of the Effects

The Agency is of the view that the residual effects from direct mortality and changes to water quality would be low in magnitude, local in extent and short term in duration after the implementation of mitigation measures proposed by the proponent.

The Agency notes that the proponent focused its analysis of effects to fish habitat loss on the four bridge crossings and one of the six culvert crossings. The Agency notes that the Project has an additional five watercourse crossings over fish bearing waters. The construction of these watercourse crossings (culverts) is expected to result in an additional permanent destruction of 1126 m^2 instream fish habitat and 6084 m^2 riparian habitat. The proposed offsetting plan may need to include the additional habitat loss from the construction of these watercourse crossings.

The Agency expects that with the implementation of mitigation measures including the offsetting plan, residual effects are expected to be low in magnitude, local in extent, and permanent. The Agency is satisfied that the proposed mitigation measures would avoid or prevent potential effects to mapleleaf mussel. The Agency agrees with the proponent that the effects to lake sturgeon would be limited to a small loss of instream habitat localized in the area of the Berens River bridge crossing; potential injury during flow isolation of the instream construction; and potential injury as a result of short-term water quality degradation while casting concrete in place during bridge pier and abutment construction.

Key Mitigation Measures to Avoid Significant Effects

The Agency has considered the mitigation measures proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the following key mitigation measures as necessary to ensure there are no significant adverse environmental effects on fish and fish habitat:

- Offsetting habitat for Project effects to fish and fish habitat, including direct instream and riparian habitat destruction;
- Designing bridge and culvert crossing structures to maintain existing flow regimes and allow for the passage of fish;
- Monitoring for species presence/absence and pre-construction salvage and relocation of mapleleaf mussel;
- Adhering to fisheries timing windows during work in fish-bearing watercourses;
- Maintaining a minimum of a 100 m buffer from waterbodies except when crossing a watercourse;
- Completing geochemical testing of potential quarries and only selecting those without the potential for acid rock drainage;
- Locating quarries within the Poplar River watershed on west side of the proposed route alignment;
- Implementing erosion and sedimentation control measures;
- Isolating in-stream works and maintaining water flows during construction; and
- Prohibiting use of ammonium nitrate-fuel oil mixtures in or near watercourses.

Need for and Requirements of Follow-up

The Agency has considered the follow-up and monitoring programs proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the following follow-up programs necessary to verify the predictions of effects to fish and fish habitat and the effectiveness of mitigation measures:

- Monitoring water quality and turbidity during in-water works and/or other construction activities for the introduction of sediment and other deleterious substances.

Conclusions

Taking into account the implementation of the mitigation measures described above, the Agency is of the view that the project would not result in significant adverse environmental effects on fish and fish habitat.

6.2 Migratory Birds

6.2.1 *Proponent's assessment*

Predicted Effects

The proponent predicted that migratory birds, including the SARA listed olive-sided flycatcher and common nighthawk, may experience adverse effects during Construction and Operation as a result of habitat loss, alteration, and fragmentation, direct mortality, and sensory disturbance. The potential effects to other birds listed under SARA are discussed in section 6.3

Habitat Loss, Alteration, Fragmentation

The proponent predicted the Project would result in a permanent habitat loss of wetlands (317 ha) and forest (615 ha) in the Project Footprint. Habitat loss was modelled for nine representative bird species (Table 5). For each of the nine species, the habitat loss after clearing for the Project was under 5% of available habitat within the Project Footprint.

Table 5 Summary of habitat loss or alteration for nine representative bird species due to clearing in the all-season road project footprint

Bird Species	Habitat Type	Habitat Loss or Alteration	
		Area (ha)	(%)
Canada warbler	Sloping terrain near lake in dense shrubbery in/near deciduous or mixed-wood forests	190	1.66
Common nighthawk	Forests with extensive rock outcrops, clearings or burns	60	4.83
Eastern whip-poor-will	Open upland deciduous and mixed-wood forest	37	4.82
Eastern wood-pewee	Deciduous woods, large aspen bluffs, beach ridges, riparian sites and open tall jack pine stands	217	1.23
Olive-sided flycatcher	Open coniferous forests near edge of bogs/wetlands	85	4.69
Trumpeter swan	Shallow wetlands with stable water levels	35	0.16
Least bittern	Marshes with emergent vegetation such as cattail, shrubby swamps, beaver floods	30	0.99
Yellow rail	Wetlands – shallow, grassy marsh or sedge fen	52	0.99
Short-eared owl	Extensive marshes and fens in boreal plains	52	1.60

The proponent anticipated that decommissioning and revegetation of the existing winter road would restore 31 ha of mixed habitat types within the Local Assessment Area and 112 ha of mixed habitat types within the Regional Assessment Area.

Accidental releases of fuels or other hazardous substances may also result in habitat alteration or impairment. This potential effect is discussed in section 7.1.

Sensory Disturbance

The proponent indicated that sensory disturbance to migratory birds can occur as a result of dust and continuous noise during Construction and Operation causing local displacement of birds and possible reduction in reproductive success.

Mortality

Bird mortality can occur through the destruction of bird nests and eggs during clearing of vegetation, direct contact with project equipment, falling debris or vehicles, increased hunting pressure from non-community member resource users or herbicide applications. The proponent noted that migratory bird eggs and nests are protected under the *Migratory Birds Convention Act* (1994).

Proposed Mitigation Measures, Monitoring and Follow-Up

The proponent avoided high quality habitats and sensitive areas for migratory birds species at risk as part of its route selection process. To minimize effects to habitat, mitigation measures include:

- Retaining a vegetated buffer between the all-season road and lakes or ponds;
- Reclaiming disturbed areas and encouraging natural regrowth; and
- Maintaining existing water flow levels within existing wetland hydrologic regimes.

To reduce sensory disturbance to migratory birds, Construction activities would be undertaken in the fall and winter where feasible and dust suppression techniques would be used.

To minimize the potential for mortality, the proponent would avoid vegetation clearing during the migratory bird breeding season (April 1 to September 1) where feasible. The proponent proposed that pre-clearing migratory bird nest surveys could be conducted for vegetation removal activities that cannot be scheduled outside of the breeding season. If found, nests would be marked and isolated as Environmentally Sensitive Sites and setbacks from Construction activities would be implemented to the greatest extent feasible.

The proponent indicated that waterfowl hunting opportunities are marginal, as the area is far removed from the major waterfowl staging areas associated with agricultural lands to the south and therefore does not expect increased mortality from increased hunting pressure. The proponent would implement measures to limit access for non-community members including installation of guardrails and not including roadside pull outs. Direct mortality from vehicle collisions and herbicide application would be addressed through speed restrictions and compliance with provincial regulations respectively.

Predicted Residual Effects

Given the small amount of habitat disturbance relative to the availability of suitable habitat adjacent to the Project Footprint, the proponent concluded that residual effects to migratory bird species from habitat loss to be low in magnitude, local in extent, and reversible in the long-term.

Residual effects from sensory disturbance are expected to be minor in magnitude, local in extent, and long term.

6.2.2 *Views expressed*

Federal Authorities

Environment and Climate Change Canada indicated that the proponent's proposal for pre-clearing surveys to locate nests during the breeding season is not recommended. The proponent should follow Environment and Climate Change Canada guidance for determining the presence of nests (http://ec.gc.ca/paom-itmb/default.asp?lang=En&n=8D910CAC-1#_03_1).

Environment and Climate Change Canada indicated that the assessment should evaluate bog-inhabiting species such as Lincoln sparrow and palm warbler. The proponent indicated that the proposed mitigation measures would also mitigate effects to Lincoln sparrow and palm warbler given the availability of bog habitat with the Local and Regional Assessment Areas and the limited habitat loss that would occur from the Project.

Indigenous Groups

Poplar River First Nation

Poplar River First Nation suggested that species abundance and diversity in the area of the Project, particularly for migratory bird species such as common nighthawk, Canada warbler, and eastern wood-pewee may have been underestimated given the timing of sampling. The proponent indicated that effects to potentially present species at risk were considered in the assessment through modelling of habitat losses.

Poplar River First Nation asked about potential sensory disturbance effects of night-time illumination. The proponent responded that the Project would require limited illumination during some aspects of Construction such as drilling but it would be temporary, short term, and the direction of the lights would minimize impacts to migratory birds.

Manitoba Metis Federation

Manitoba Metis Federation noted that follow-up and monitoring studies were not included for migratory birds and avian species of cultural importance (e.g., Bald Eagle) and that these should be required. The proponent responded that monitoring to evaluate the success of mitigation measures would be required of contractors undertaking clearing and grubbing during Construction.

Manitoba Metis Federation noted that the Project was likely to cause permanent changes to wetland habitats from the development of the road, quarries, and ancillary facilities such as camps and access roads. The proponent responded that existing wetland hydrologic regimes would be maintained throughout Construction and Operation and that sensitive areas including wetlands would be avoided and protected by setbacks from construction activities where possible.

Public

No comments were received from the public regarding potential effects of the Project on migratory birds.

6.2.3 *Agency analysis and conclusion*

Analysis of the Effects

The Agency is of the view that with the implementation of mitigation measures residual effects of loss, alteration, or fragmentation of habitat are likely to be minor in magnitude, local in extent, and permanent.

The Agency notes that the proponent proposes to clear vegetation during the breeding/nesting season, which is not recommended by Environment and Climate Change Canada because the risk of disturbing nests is high and there is a high probability of obtaining false negatives during nest surveys [4]. Surveys for nests should include surveys for bird behaviour indicative of nesting (i.e. carrying of food, nesting material, and fecal sacs and aggressive, territorial, defensive, or distractive displays).

The Agency notes that the proponent is expecting limited use of night time illumination. Artificial light can attract birds during nocturnal movements, resulting in disorientation and increased risk of direct mortality, although it is expected that this would be a minor effect. The Agency agrees that residual effects to migratory birds resulting from direct mortality and herbicides would negligible after the implementation of mitigation measures.

The Agency is of the view that residual effects to migratory birds from sensory disturbance would be minor in magnitude, local in extent, and permanent.

Key Mitigation Measures to Avoid Significant Effects

The Agency has considered the mitigation measures proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the following key mitigation measures as necessary to ensure there are no significant adverse effects to migratory birds:

- Avoid site disturbance, including clearing activities, during migratory bird breeding seasons;
- Carry out all phases of the Project in a manner that protects and avoids harming, killing or disturbing migratory birds or destroying or taking their nests or eggs, including adhering to restrictions on activities during the breeding period for songbirds and waterbirds;
- Maintain the hydrology of wetlands located within the Project Footprint;
- Control lighting required for Construction and Operation of the Project, including direction and timing to avoid effects on migratory birds, while meeting operational health and safety requirements;
- Implement buffer zones for nest and indicated nests; and
- Take into consideration Environment and Climate Change Canada's Avoidance Guidelines for Migratory Birds[1].

[4] Environment and Climate Change Canada. 2016. Technical Information, Avoidance Guidelines for the Avoidance of Detrimental Effects to Migratory Birds (Incidental Take).

Need for and Requirements of Follow-up

The Agency has considered the follow-up and monitoring programs proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the follow-up programs necessary to verify the predictions of effects to migratory birds and the effectiveness of mitigation measures:

- Monitoring of any interactions between Project activities and birds and nests including species of cultural importance and species at risk to determine the effectiveness of mitigation measures to avoid harm to migratory birds, their eggs and nests.

Conclusions

Taking into account the implementation of the mitigation measures described above, the Agency concludes that the Project would not result in significant adverse effects on migratory birds.

6.3 Effects of the Project on Species at Risk

The *Species at Risk Act* requires the Agency to identify any adverse effects of the Project on species listed in Schedule 1 of SARA, and the critical habitat for these species. The Agency is also required to ensure measures are taken to avoid or lessen adverse effects on species at risk and critical habitat, and that appropriate monitoring and follow-up programs are considered if a project is carried out. The measures must be consistent with applicable recovery strategies and action plans. The Agency also considers potential impacts on species designated by COSEWIC but not listed under SARA.

The Agency identified the following species at risk listed under Schedule 1 of SARA as potentially being affected by the Project: boreal woodland caribou, little brown myotis, northern myotis, common snapping turtle, flooded jellyskin lichen, mapleleaf mussel, common nighthawk, eastern whip-poor-will, olive-sided flycatcher, Canada warbler, chimney swift, peregrine falcon, rusty blackbird, short-eared owl, and yellow rail. COSEWIC assessed species potentially affected by the Project also include: lake sturgeon, bank swallow, barn swallow, eastern wood-pewee, horned grebe, and wolverine. The Project's effects on migratory bird species at risk are covered in section 6.2. The Project's effects on fish species (mapleleaf mussel and lake sturgeon) are covered in section 6.1.

6.3.1 *Proponent's assessment*

For terrestrial species at risk, the proponent described potential effects from direct habitat loss or alteration, sensory disturbance, and mortality. These effects could occur as a result of land clearing, increased hunting and wildlife predation, increased noise and light disturbance, and collisions with vehicles.

Boreal Woodland Caribou

The Project is located within the Atikaki-Berens Management Unit and overlaps with the Berens range for boreal woodland caribou (listed as Threatened under Schedule 1 of the *Species at Risk Act* and the Manitoba *Endangered Species and Ecosystems Act)*. The Atikaki-Berens Management Unit has experienced high levels of natural disturbance, moderate anthropogenic disturbance, and planned development levels.

Within the Atikaki-Berens Management Unit, the current total anthropogenic and natural (i.e. fire) habitat disturbance is 682 200 ha (34.23%). The federal *Recovery Strategy for Woodland Caribou, Boreal Population* (2012) requires 65% undisturbed habitat to provide a 60% chance of the population being self-sustaining. The proponent predicted the Project would affect an additional 8674 ha resulting in 34.66% habitat disturbance which places the undisturbed habitat very close to the 65% target. The proponent concluded that habitat disturbance associated with the Project would not affect the population.

The proponent noted that boreal woodland caribou generally move east to west between winter and summer core use areas traversing the existing winter road, transmission line, and future alignment of the proposed all-season road. The proponent indicated that neither the existing winter road nor

transmission line appears to be preventing access or movements, or separating individuals/populations. The proponent concluded that the proposed all-season road would not limit caribou migration.

Calving complexes are located in the vicinity of the Project with the majority of the high quality calving habitat located between the eastern shore of Lake Winnipeg and west of the western boundary of the Local Assessment Area. The proponent has selected a road alignment that avoids this high quality habitat.

Direct mortality of caribou may occur from vehicle collisions, predation, hunting or disease. The proponent stated that instances of vehicle collisions with caribou are rare in Manitoba. Road salt, a known attractant for ungulates, would not be used during Construction or Operation of the proposed all-season road. The proponent indicated that monitoring of operating sections of Project 1, the first segment of the all-season road network, has not identified an increase in vehicle collisions. The proponent indicated that it does not expect an increase in mortality from predators, based on the monitoring program for Project 1 which has not shown an increase in mortality from predators or identified significant use of roads or linear features by collared wolves.

Increased mortality from hunting is not expected as licenced hunting of boreal woodland caribou is not permitted in Manitoba[5].

Increased mortality due to introduction of disease/parasitism (i.e., brainworm/liver fluke from white-tailed deer) was considered by the proponent but was not anticipated given the distance of the Project from white-tailed deer populations that may be able to transmit the parasite.

Little Brown Myotis and Northern Myotis

Little brown myotis and northern myotis are bat species listed as Endangered under Schedule 1 of SARA. Although not within the critical habitat defined for Manitoba, in the species Recovery Strategy[6], the Project is located within the anticipated range for both species, and forested areas within the Local Assessment Area may be used by bats during the summer as maternal roosting sites. No bat hibernacula were found and no bat sightings were noted during the proponent's wildlife surveys within the Project Footprint or Local Assessment Area.

Direct bat mortality that could result from destruction of maternal roosting sites during Construction would be avoided with winter clearing of vegetation. Sensory disturbance from Construction activities may affect bat foraging. The proponent would have limited night-time illumination during Construction drilling. Construction noise effects from blasting are expected to be local in extent and short term.

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[5] Manitoba Conservation and Water Stewardship. 2016. Manitoba hunting guide. http://www.gov.mb.ca/sd/wildlife/hunting/index.html

[6] Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Canada [Proposed]. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa. ix + 110 pp.

The proponent assessed potential effects to little brown myotis and northern myotis as unlikely given the absence of hibernacula in the Local Assessment area and the implementation of mitigation measures for noise.

Common Snapping Turtle

The common snapping turtle is listed as a species of Special Concern under Schedule 1 of SARA. Traditional Knowledge identified common snapping turtles near the Poplar River. Potential effects on common snapping turtles include habitat loss and direct mortality from vehicle collisions. The proponent concluded there would be no effects of the Project to common snapping turtle habitat with the implementation of mitigation measures for the protection of aquatic habitats during Construction described in section 6.1.

Potential road mortality of common snapping turtle was predicted to increase with Construction and Operation. The proponent indicated that culverts would provide alternate routes for common snapping turtles, mitigating effects of road mortality. The proponent indicated that additional measures (i.e. signage and reduced speed zones) could be employed if turtle crossing areas were identified during Operation.

Birds

In addition to bird species at risk listed under the *Migratory Birds Convention Act* and addressed in section 6.2, the proponent indicated that the ranges of two species of Special Concern under Schedule 1 of SARA, the rusty blackbird and peregrine falcon, potentially occur in the Regional Assessment Area. The Project could result in loss and alteration of breeding habitat, sensory disturbance from noise and dust, and direct mortality during clearing activities. No individuals of either species were observed during wildlife surveys within the Project Footprint or Local Assessment Area, and the proponent anticipated that mitigation measures associated with birds listed under the *Migratory Birds Convention Act* (section 6.2) would be sufficient to address potential Project effects.

Flooded Jellyskin Lichen

COSEWIC recently reassessed the flooded jellyskin lichen, listed as Threatened under Schedule 1 of SARA, and recommended the species status be updated to Special Concern. While it is noted as potentially occurring in the Lac Seul Uplands Ecoregion (one specimen located near Flin Flon, Manitoba), the species was not observed during June 2015 rare vegetation surveys of the Project Footprint. The proponent anticipated that commitments to limit clearing to designated areas within the Project Footprint and to prohibit equipment and vehicle use outside of the designated cleared area would avoid effects to this species.

Wolverine

The Western population of wolverine is designated by COSEWIC as a species of Special Concern (COSEWIC 2014)[7]. Traditional knowledge and the proponent's baseline studies from 2011-2015 did not

[7] COSEWIC. 2014. COSEWIC assessment and status report on the Wolverine Gulo gulo in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 76 pp. (Species at Risk Public Registry website).

identify wolverine dens within the Local Assessment Area, but trapping reports and track observations indicated wolverine is present in the Regional Assessment Area. The proponent assessed potential effects to wolverine from habitat loss or alteration as unlikely given the availability of habitat outside of the Project Footprint and with the Regional Assessment Area. The proponent also indicated that if wolverine dens were found during Construction, they would be considered Environmentally Sensitive Sites, which would be protected with isolation buffers and/or staged activities.

Proposed Mitigation Measures, Monitoring and Follow-Up

The proponent's proposed measures to reduce the effects of the Project on species at risk include:

- Clearing will be scheduled during fall and winter (between September 1 and March 31) to avoid calving period for boreal woodland caribou, common snapping turtle breeding and hatchling emergence periods and movements, and bat summer roosting use of forested habitats;
- Quarry blasting and other construction activities will be suspended near sensitive sites during spring months (May 15 to July 1);
- Construction activities will be stopped and delayed in sensitive areas until caribou use of the area or the sensitive time period has passed;
- Inspectors and Contractor Administrators will receive training and handbooks to identify all potential species at risk that could be encountered and the Environmental Inspector will be advised in the case potential species at risk are observed within the Project Footprint and Local Assessment Area;
- Wolverine dens, bat hibernacula, and large stick nests found during Construction will be marked and isolated as Environmentally Sensitive Sites and setbacks from construction activities and/or staged construction activities will be implemented;
- Wildlife awareness will be provided for road construction workers to reduce vehicle speeds;
- Access to the all-season road corridor will be restricted to construction personnel;
- Winter roads and temporary access routes and trails no longer required as construction proceeds will be blocked;
- Disturbed areas will be reclaimed and natural re-vegetation encouraged or augmented by native plants and seeds if required;
- Possession of firearms by workers will be prohibited in camps and at work sites; and
- Wildlife warning signs will be installed in common snapping turtle high use areas and at known crossing locations.

The proponent committed to monitoring and documenting boreal woodland caribou, little brown myotis, northern myotis, wolverine, and common snapping turtle to aid in the protection of these species and their habitat as per SARA guidelines.

Predicted Residual Effects

The proponent did not predict residual effects to species at risk following the implementation of the proposed mitigation measures.

6.3.2 *Views expressed*

Federal Authorities

Environment and Climate Change Canada asked what mitigations measures were proposed to address potential barriers to caribou and wildlife movement caused by quarries. The proponent stated that the number of quarries had been minimized and that they are not anticipated to act as barriers to caribou or wildlife movement.

Environment and Climate Change Canada indicated the residual effects assessment should include caribou mortality from predicted increased in traffic volumes and predators. In addition, mitigation measures should include construction of structures to reduce sight-lines and reduce predator ease of movement and hunting. The proponent stated that instances of vehicle collisions with caribou are rare in Manitoba. Road salts, a known attractant for ungulates, would not be used. The proponent indicated that monitoring of Project 1 showed no increase in mortality from predators near roads and no significant use of roads or linear features from collared wolves.

Environment and Climate Change Canada requested information on how potential effects on caribou would affect current use (e.g. hunting), availability of country foods, and the potential impacts to rights. The proponent indicated that Poplar River First Nation and Berens River First Nation avoid hunting caribou except for two families from Poplar River First Nation and also referred to the Manitoba *Endangered Species and Ecosystems Act* which protects boreal woodland caribou and prohibits hunting.

Environment and Climate Change Canada noted that active restoration of the winter road should be done, including replanting of tree species, rather than relying only on natural revegetation by grasses/forbes to improve habitat and offset caribou habitat loss. A habitat restoration plan should be prepared by the proponent as a component of the Draft Wildlife Management Plan.

Indigenous Groups

Manitoba Metis Federation expressed concerns about the disturbed habitat of boreal woodland caribou nearing the 35% disturbed threshold and potential cumulative impact of future projects on the boreal woodland caribou population in the Atitkaki-Berens Management Unit. Manitoba Metis Federation recommended a long-term monitoring program to assess potential cumulative impacts on caribou.

Manitoba Metis Federation identified a concern about the potential impacts to flooded jellyskin lichen and lack of mitigations proposed. The proponent noted that provincial guidance on avoidance of sensitive habitat would apply to the Project.

Poplar River First Nation identified that a mitigation protocol should be developed if common snapping turtle is encountered. The proponent indicated that additional measures (i.e. signage and reduced speed zones) could be employed if turtle crossing areas were identified during Operation.

Public

The Manitoba Wildlife Federation recommended a 300m no hunting road refuge be established for all portions of the new East Side Road. The proponent responded that, while it did not have authority to

enact game hunting refuges on Crown lands, it has advised Manitoba Sustainable Development of the support of wildlife stakeholders for this measure.

6.3.3 *Agency analysis and conclusion*

Analysis of the Effects

The Agency notes that mitigation measures proposed are consistent with applicable recovery strategies and or action plans for federal species at risk[8] and has determined that the measures proposed by the proponent, and key mitigation measures described in sections 6.1 and 6.2 (fish and fish habitat and migratory birds) would reduce the effects on species at risk.

The Agency disagrees with the proponent's description of boreal woodland caribou habitat gain associated with closure of the winter road. To include the winter road and 500m buffer as undisturbed habitat immediately upon ceasing operation, the proponent would need to undertake active reclamation measures. The Agency is of the view that progressive reclamation of the winter road is necessary to replace caribou habitat within the Atikaki-Berens Management unit. Monitoring of caribou movement and habitat use within the Local Assessment Area is recommended to confirm predicted Project effects.

The Agency considers the proposed mitigation measures to avoid sensitive roosting habitat of bats, including establishing buffers around hibernacula and maternity roosts, and measures to minimize noise and light, appropriate to minimize the threats to bats.

The Agency agrees that the proposed mitigation measures are appropriate to minimise effects on little brown myotis and northern myotis, snapping turtle, flooded jellyskin lichen, and wolverine.

Conclusions

The Agency is of the view that, taking into account the proponent's mitigation measures, measures required by recovery strategies and action plans, and the key mitigation measures described in sections 6.1, and 6.2 that relate to aquatic species and migratory birds, the effects on species at risk or their habitat would be avoided or lessened.

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[8] Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Canada [Proposed]. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa. ix + 110 pp.

Environment and Climate Change Canada. 2016. Management Plan for the Snapping Turtle (Chelydra serpentina) in Canada [Proposed]. *Species at Risk Act* Management Plan Series. Environment and Climate Change Canada, Ottawa. iv + 39 p.

Environment Canada. 2015. Management Plan for the Peregrine Falcon *anatum/tundrius* (*Falco peregrinus anatum/tundrius*) in Canada [Proposed]. *Species at Risk Act* Management Plan Series. Environment Canada, Ottawa. iv + 27 pp.

COSEWIC. 2014. COSEWIC assessment and status report on the Wolverine Gulo gulo in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 76 pp. (Species at Risk Public Registry website).

6.4 Aboriginal Peoples – Current Use of Lands and Resources for Traditional Purposes

The Agency assessed the potential effects of changes to the environment on the current use of lands and resources for traditional purposes by Aboriginal peoples. The traditional activities considered were hunting, trapping, fishing, gathering, and the use of habitations, trails, and cultural and spiritual sites. Potential impacts on commercial trapping are discussed in section 6.5.

6.4.1 *Proponent's assessment*

Project-related changes to the environment identified by the proponent as having the potential to affect the current use of lands and resources for traditional purposes include changes to resource quality and quantity, changes to access, and sensory disturbance.

Predicted Effects

Hunting and Trapping

The proponent predicted that the Project would temporarily reduce hunting and trapping success as a result of wildlife displacement from loss, alteration or fragmentation of habitat; sensory disturbance; increased wildlife mortality from vehicle collisions, changes in local hunting pressures, predation, disease, and changes to access to traditional hunting or trapping areas.

The proponent indicated that terrestrial mammals and bird species hunted or trapped for food, income and cultural purposes include small furbearing mammals (e.g. beaver, fisher, marten, mink, muskrat, otter, rabbit, weasel, and wolverine), large mammals (e.g. moose, coyote, grey wolf, and lynx) and birds (e.g. Canada geese, ducks, and upland game birds). The proponent noted that Poplar River First Nation and Berens River First Nation avoid hunting boreal woodland caribou in support of species conservation, except for two families from Poplar River who continue to hunt caribou annually.

The proponent focused its assessment of effects on hunting and trapping due to Project related effects on moose, beavers and martens. The proponent indicated that waterfowl hunting opportunities are marginal, as the area is far removed from the major waterfowl staging areas associated with agricultural lands to the south. Potential effects to migratory birds that could affect the availability of the resource were considered in Section 6.2.

The proponent predicted that 216 ha (1.22%) of moose summer habitat and 557 ha (1.42%) of winter habitat would be lost within the Local Assessment Area. The proponent noted that during Operations, decommissioning and regeneration of temporary access routes and winter road re-vegetation would result in a habitat gain for moose. The proponent concluded that the amount of moose habitat lost as a result of the Project would be a small percentage of the overall moose habitat available.

The proponent evaluated effects of habitat fragmentation for moose based on a target threshold to limit linear disturbance to 0.4 km per square kilometer or less. The proponent indicated that the linear

density within the Local Assessment Area and the Regional Assessment Area would be 0.13 km per square kilometre and 0.15 km per square kilometre respectively, which is below the identified threshold.

The proponent predicted that 480 ha (2.30%) of beaver habitat in the Local Assessment Area would be lost or altered. After decommissioning and reclamation of temporary access routes, the proponent expects an increase of 310 ha (0.10%) in beaver habitat in the Local Assessment Area. The proponent predicted that 840 ha (1%) of marten habitat in Local Assessment Area would be lost or altered.

The proponent noted that sensory disturbance could result in moose, beaver and marten avoiding the Project during Construction, but that any such avoidance would be temporary and localized.

Moose mortality could increase due to increased traffic during Construction and Operation. Improved access for local communities and visitors may also result in moose avoiding heavily used areas and increased mortality as a result of increased hunting activities.

Linear corridors may result in increased moose mortality due to increased predation from wolves. The proponent indicated that monitoring activities for Project 1 show that wolves have been using natural linear features as travel corridors and wolf kill sites have not been correlated with anthropogenic linear features. There has been no significant change in wolf predation on moose as a result of Project 1.

The proponent indicated that white tailed deer, host of the brainworm/liver fluke, is not anticipated to persist at densities capable of transmitting this parasite to moose in the Project area therefore it concluded there would be no Project-induced effects on moose due to the introduction of disease/parasites.

Access to traditional hunting and trapping areas for local hunters and trappers would be reduced during Construction. The proponent indicated that access limitations would vary seasonally within the year, as Project Construction would be scheduled to avoid effects to wildlife. One trapline within Registered Trapline #12 would be bisected by the Project right-of-way. During Operation, it is expected that the proposed all-season road, would result in increased access to traditional harvesting areas for local communities.

Fishing

The proponent predicted that Project Construction and Operation could result in reduced access to traditional fishing locations, reduced traditional fish harvest success from impacts to fish and fish habitat and increased fishing pressure from non community members. Project effects on fish and fish habitat that may reduce harvesting success are described in Section 6.1.

The proponent indicated that fishing is an important year-round traditional activity for the members of Berens River First Nation, Poplar River First Nation, as well as Métis of the area and residents of the Berens River Northern Affairs Community. Fishing takes place on Lake Winnipeg as well as on the many rivers and lakes within the Regional Assessment Area. Species harvested include whitefish, suckers, walleye, goldeye, burbot, northern pike, sturgeon, perch, and sauger.

In the Local Assessment Area, reaches of the Berens, Etomami, and North Etomami Rivers serve as important year-round community fishing areas for Berens River First Nation. Important fishing areas for Poplar River First Nation include Lake Winnipeg, Big Black River (north of Poplar River First Nation), Weaver Lake (east of the proposed all-season road), and the Poplar River. Manitoba Metis Federation traditionally fish along the shoreline of Lake Winnipeg between Hollow Water First Nation and the Pigeon River. There were no preferred fishing areas identified in the Local Assessment Area for Manitoba Metis Federation.

The proponent indicated that access to some traditional fishing sites would be limited during Construction. The proponent also identified the potential for increased fishing pressure from increased access for non-community members.

Gathering

The proponent predicted the Project would affect gathering as a result of a loss or alteration of culturally important plant species, degradation in the quality of valued plants from dust deposition, accidental spills, introduction of invasive species, and use of herbicides.

The use of plants and other vegetation for food, medicine, and cultural purposes is a traditional subsistence activity for Indigenous peoples in the Local and Regional Assessment Areas, including Berens River First Nation, Poplar River First Nation, Manitoba Metis Federation, and residents of the Berens River Northern Affairs Community.

The proponent identified 36 plant species with edible, medical, or cultural value to local communities in the Local Assessment Area. Common food plants include blueberry, raspberry, cloudberry, strawberry, pin cherry, chokecherry, saskatoon berry, small cranberry, and water parsnip; and medicinal plants include dewberry, poplar, sweet flag (calamus), wild mint, and prickly and smooth rose. Poplar River First Nation, Berens River First Nation, and Manitoba Metis Federation also harvest wild rice. Species of cultural and medicinal value include balsam poplar, birch, black spruce, jack pine and white spruce trees, red-osier dogwood, Labrador tea, lichens, sphagnum mosses, and cinder conk fungus.

The proponent indicated that Kapawekapuk Creek and muskeg areas were important places for gathering medicinal plants and trees within the Local Assessment Area by the Poplar River First Nation Reserve #16. Wild rice is harvested along the Poplar River. The lands south and southeast of Poplar River First Nation Reserve #16 were identified as important berry harvesting areas within the Local Assessment Area.

Berens River First Nation harvests berries and plants along and adjacent to the Berens River and several of the other waterbodies adjacent to the proposed all-season road. Wild rice is harvested from an area along the Berens River. Medicinal plants are harvested from river banks and dry creek beds within both the Local and Regional Assessment Areas. Medicine Creek, a tributary to the North Etomami River, is an important area for harvesting medicinal plants in the Local Assessment Area.

The proponent indicated that Manitoba Metis Federation traditional areas for gathering are located along the Lake Winnipeg shoreline and adjacent to the Rice River Road in the Regional Assessment Area, south of Berens River First Nation Reserve #13.

The proponent noted that a total of 71 ha within the Project Footprint were identified as important for berry picking, but did not quantify the total loss of traditional plants from the Project. Alternatively, the proponent predicted that the Project would remove approximately 932 ha of vegetation, representing 5 % of the total vegetated land cover in the Local Assessment Area, of which a portion would be traditional plants. In addition to this loss, dust deposition or herbicide use during Construction and Operation could degrade the quality of traditional plants. Through community engagement, the proponent has selected a route alignment that avoids important gathering areas where possible.

Use of Habitations, Trails and Cultural and Spiritual Sites

The proponent anticipates that Project-related activities have the potential to affect use of habitations, trails, and cultural and spiritual sites as a result of changes to access and sensory disturbance. Travel routes within the Local and Regional Assessment Areas include walking, all-terrain vehicles, and snowmobile trails, as well as open-water and frozen waterways.

The proponent indicated that Berens River First Nation uses many rivers and creeks to access hunting and fishing areas and cabins on the North Etomami and Leaf Rivers. In winter, snowmobile trails are used extensively by community members. An important snowmobile route parallels the proposed all-season road alignment. Berens River First Nation indicated there are multiple cabins used for cultural purposes along the Leaf River between the winter road and Lake Winnipeg and confirmed that the route alignment does not conflict with access to these cabins. In addition Berens River First Nation has a historic and communal gathering area directly east of the reserve. A wilderness camp was identified adjacent to the Berens River, approximately 9 km southeast of Berens River First Nation. Several cabins and burial sites are scattered along the Berens River, but access is not affected by the route alignment.

Poplar River First Nation uses an established trail between their community and Many Bays Lakes to access hunting and trapping areas. The Poplar River also provides an important winter travel corridor for the community.

Poplar River First Nation identified cabins used by community members along the shoreline of Lake Winnipeg, west of the proposed all-season road. Areas in the vicinity of Weaver Lake are considered culturally sensitive due to their importance as gathering, healing, and ceremonial sites. Burial grounds were noted to be present along the shores of the Poplar River. Access to these sites is not expected to be affected by the route alignment.

As a result of taking into account information provided by Poplar River First Nation, Berens River First Nation, and Manitoba Metis Federation in determining the route alignment, the proponent does not expect that important cultural and spiritual resources would be impacted.

Proposed Mitigation Measures, Monitoring, and Follow-Up

The proponent minimized or avoided potential impacts on current use of lands and resources for traditional purposes through engagement of the local communities in the siting of the road alignment and road design. The proposed route avoids areas of high quality habitat for moose and other wildlife species, establishes setbacks for environmentally sensitive sites, and selects quarry, borrow, and temporary work/staging locations that avoid sensitive or important features such as sites with cultural, heritage or biophysical importance, and waterbodies.

The proponent noted that mitigation measures to address effects of the Project on the resources (i.e. fish, wildlife, migratory birds) supporting current uses (i.e. hunting, trapping, fishing, and gathering) would partly address effects of the Project on current uses. These mitigations are described in those sections of the draft EA report dealing with fish and fish habitat (section 6.1), migratory birds (section 6.2), species at risk (section 6.3), health and socioeconomics (section 6.5), and accidents and malfunctions (section 7.1).

The proponent proposed additional mitigation measures to address potential effects to the current use of lands and resources for traditional purposes:

- Providing access to trapping areas during Construction;
- Providing crossing ramps to allow for safe snowmobile crossing of road during Construction and Operation;
- Designing watercourse crossings to accommodate water travel and navigation during Construction and Operation;
- Reducing access points to traditional harvesting areas from the road right-of-way;
- Prohibiting contractor employees from hunting, trapping or fishing;
- Timing road clearing, to the extent feasible, to avoid calving times for moose;
- Staging construction activities in sensitive areas until animal use and/or sensitive time periods have passed;
- Installing wildlife crossing signage;
- Providing longer sight lines;
- Decommissioning winter roads, temporary access routes, and trails as soon as feasible, to allow the regeneration of vegetation;
- Applying dust suppression to reduce effects to roadside vegetation, including harvested plants; and
- Restricting the use of herbicides.

The proponent has committed to on-going dialogue with local community members regarding the monitoring of species important to traditional use, such as caribou, moose, and furbearers. Post-construction monitoring of moose may include: distribution, moose/caribou range overlap, and predation by wolves using aerial surveys, wolf collaring, and/or traditional knowledge acquired through Trapper Participation Programs. Post-construction monitoring of furbearers may include distribution and/or abundance using aerial surveys, camera studies, and Trapper Participation Programs.

Predicted Residual Effects

Taking into consideration the implementation of mitigation measures, the proponent concluded that potential adverse effects on current use of lands and resources for traditional purposes would be short-term in duration, low to moderate in magnitude, reversible, and not significant.

6.4.2 *Views expressed*

Federal Authorities

The Agency asked the proponent whether additional Project effects and associated mitigation would be required to address the results presented in the *Manitoba Métis Land Use and Occupancy Study (MLUOS) for the East Side Road Authority Project* (May 2016)[9] which identified additional resource users in the Regional Assessment Area. The proponent responded that the Manitoba Metis Federation land and resource use documented in the Manitoba Metis Federation's 2011 report[10] is consistent with the Local Assessment Area use information provided in the extended *Manitoba Métis Land Use and Occupancy Study (MLUOS) for the East Side Road Authority Project* (May 2016). In addition the proponent met with Manitoba Metis Federation to obtain its input on the environmental effects of the proposed Project.

The Agency asked the proponent to identify how it would engage Berens River First Nation to determine appropriate management of the potential effects to its traditional use sites and how these effects will be mitigated. The proponent responded that it had undertaken extensive engagement with Berens River First Nation which informed the final route design and proposed mitigation measures. The proponent indicated that resource users, including trappers, would be notified of pending work and would be included in the data collection and monitoring of wildlife and traditional use sites through the project's Trapper Participation Program.

Indigenous Groups

Poplar River First Nation

Poplar River First Nation expressed concern that hunting of moose could be impacted because of potential effects on moose behaviour and calving due to blasting; increased access to the area by non-community members; and noise disturbance. The need to protect bear dens and bird nests during construction was also noted. The proponent indicated that it would restrict blasting and construction activities during calving times and that nesting or den sites would have buffers established for protection. Access controls would be incorporated into the road design to limit hunting from non-community member resource users.

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[9] Shared Value Solutions. 2016. Manitoba Métis Land Use and Occupancy Study (MLUOS) for the East Side Road Authority Project (May 2016). Prepared for Manitoba Metis Federation. 75p.

[10] Manitoba Metis Federation (MMF). (2011). Manitoba Metis Traditional Use and Knowledge of the Berens River Road Project Area and Assessment of Impacts. Final report prepared for Manitoba Floodway and East Side Road Authority

The community also expressed concern about potential effects to fishing from unwanted access to the Poplar River; the potential for pollution from road runoff; and potential for fish passage obstructions with culverts. They noted the community had indicated to the proponent a preference for small bridges rather than small culverts on watercourse crossings within their traditional territory as it is believed that fish will not travel through culverts to spawn upstream. They also requested that ramps be placed at key intersections to allow snowmobiles to easily cross the road to access traplines. The proponent responded that mitigation measures have been developed for road runoff and the designed watercourse crossings would provide fish passage and incorporate snowmobile access points (section 6.1).

Poplar River First Nation recognized that while some existing areas for plant gathering would be would be lost as result of Project Construction, the development of the proposed all-season road would improve overall access for gathering plants. Poplar River First Nation also noted the importance of the proponent commitments to elders within the community that ceremonies would be enabled prior to disturbance and clearing of vegetation for Construction. The proponent has committed to enabling the conduct of ceremonies prior to construction and maintaining buffers around culturally important sites.

Berens River First Nation

Berens River First Nation raised concerns regarding increased access to previously inaccessible areas and natural resources (e.g., moose, fish, and mineral extraction) by "outsiders" affecting the community's livelihood. They expressed strong support for mitigation measures that address disturbance from Construction activities and increased public access. The community also expressed support for restricting hunting along the road and having Manitoba Sustainable Development extend the wildlife refuge along the road alignment.

Berens River First Nation noted that the area along the North Etomami River just north of the Berens River junction is a sensitive habitat area identified by the community, and that it was pleased that the road alignment has been moved away from this area based on community feedback.

Berens River First Nation noted the potential for increased access to harvest areas for plants, berries, and medicines which could be a benefit to the community. Revegetation along the alignment and borrow locations was identified as important to community members.

Manitoba Metis Federation

Manitoba Metis Federation noted potential impacts on Métis traditional use and values (hunting, fishing, and trapping) through increased access by non-community members. The proponent responded that it has proposed mitigation measures to control access. In addition the proponent noted that Manitoba Sustainable Development licences harvest of game birds, big game species and sets fishing quotas which apply to non-aboriginal harvesters.

Manitoba Metis Federation noted the potential for decline in harvest success, increase in time, effort, and costs due to increased harvest pressure, traffic-related animal mortality, habitat loss and/or alteration, and fragmentation. The proponent responded that with the implementation of mitigation

measures, the Project would not have residual adverse effects on traditional land use and committed to engage with the Manitoba Metis Federation during Project implementation if issues arise at that time, through the Project's Wildlife Management Plan.

Manitoba Metis Federation also noted that the Project would improve year round access for Metis harvesters and that the community has an interest in monitoring plans.

Public

Manitoba Wildlife Federation expressed concerns that the Project and all-season road network would provide unrestricted access to hunters, affecting the sustainability of moose and caribou populations. The Manitoba Wildlife Federation advocates a 300 m no hunting zone for all portions of the east side all season road network.

6.4.3 *Agency analysis and conclusion*

Analysis of the Effects

The Agency is of the view that through the proponent's engagement efforts with Indigenous groups and the subsequent use of the information gathered, the proposed road alignment would avoid valued lands and resources thereby minimizing potential adverse effects on current use of those lands and resources for traditional purposes.

Hunting and Trapping

The Agency agrees with the proponent that the potential adverse effects on hunting and trapping from construction would be local in extent, minor in magnitude, and reversible with the implementation of mitigation measures.

The Agency agrees with the proponent's assessment that given the availability of moose habitat in the local and regional assessment areas and the current moose population, the primary adverse effects from the Project would be from mortality from vehicle collisions and hunting. The proposed mitigation measures, which include restricting construction activities during critical breeding times, providing longer sight lines, restricting contractor hunting, controlling access, and decommissioning of temporary access routes, are appropriate.

The Agency notes that Berens River and Poplar River First Nations choose not to hunt caribou given its conservation status. If populations return to more stable levels, the Agency expects that communities would return to hunting caribou. The proponent has indicated that the Project would not result in disturbing caribou habitat beyond the 35% disturbed habitat limit established by federal *Recovery Strategy for Woodland Caribou, Boreal Population* (2012) which requires 65% undisturbed habitat to provide a 60% chance of the population being self-sustaining (Section 6.3). Given that the habitat disturbance is nearly at the threshold, the Agency agrees with the recommendations of Environment and Climate Change Canada regarding active reclamation of the decommissioned winter road, and the incorporation of design features to reduce sight lines for predators.

The Agency notes that although the increased access for Berens River First Nation, Poplar River First Nation, and Manitoba Metis Federation would be a benefit for local communities, these communities were primarily concerned about potential adverse effects arising from increased access from non-community member resource users which would be a permanent change. The Agency also notes that the Manitoba Wildlife Federation was also concerned about the potential pressures that would be placed on moose availability from increased access by non-community members.

The Agency is of the view that some uncertainty remains regarding the potential effects on current use of traditional resources from increased access for non-community member resource users. Proposed mitigation measures to limit access points to valued harvesting sites are appropriate, and that the Government of Manitoba, which has jurisdiction for managing resource use through the issuance of licenses based on available populations, has an important role to play in ensuring the sustainability of the resources. The Agency concludes that the residual adverse effects on hunting and trapping would be local in extent, minor in magnitude, and long term in duration.

Gathering

The all season road will result in a permanent loss of vegetation, including culturally important plants.

The Agency acknowledges Berens River First Nation has considered effects of the Project, including clearing of vegetation and indicated to the Agency through a Band Council Resolution it has no concern with the Project's potential effect to vegetation.

The Agency also notes that Poplar River First Nation has commented that although berries and medicinal plants may be temporarily disturbed during Construction, they would grow back. The community expressed concern about water flows in creeks and muskeg areas. However, the Agency considers the proposed mitigation measures to install equalization culverts, and where necessary large diameter culverts, appropriate to maintain these water flows. The Agency also acknowledges that Poplar River First Nation indicated that that the road would provide increased access to berry picking areas.

The Agency agrees that with the implementation of mitigation measures, the residual effects to gathering would be local in extent and low to moderate in magnitude.

Fishing

The Agency agrees with the proponent that, with the implementation of mitigation measures, potential adverse effects to fishing would be minor in magnitude, short term in duration, and local in extent.

Use of Habitations, Trails, and Cultural and Spiritual Sites

The Agency is satisfied that the proponent has designed the route alignment to avoid and minimize potential adverse effects to trails and cultural and spiritual sites. The proponent would provide snowmobile access points and design watercourse crossings to accommodate navigation. The Agency agrees that the residual effects on habitations, trails, and cultural and spiritual sites would be low in magnitude, local in extent, and short term in duration.

The Agency notes that the proposed mitigation measures for maintaining access and navigation would also address potential subsection 5(2) effects associated with the issuance of a permit under the *Navigation Protection Act* which includes socio-economic activities (e.g. public and commercial navigability of water bodies).

The Agency agrees with the proponent's conclusion that the potential adverse effects on the current use of lands and resources would be local in extent, low to moderate in magnitude, and permanent.

Key Mitigation Measures to Avoid Significant Effects

The Agency has considered the mitigation measures proposed by the proponent, expert advice from federal authorities, and comments from Indigenous groups and the public in identifying the following key mitigation measures as necessary to ensure no significant adverse environmental effects:

- Notify Indigenous groups of the timing, duration, and levels of noise generated by project activities in traditional use areas identified by Indigenous groups;
- Notify Indigenous groups 30 days in advance of initiating Construction;
- Limit construction activities and road clearing to avoid birthing times for moose;
- Provide crossing ramps to allow for safe snowmobile road crossing;
- Reduce access points to traditional harvesting areas from the road right-of-way;
- Design watercourse crossings along key waterways used for fishing and tourism-related activities for boat passage or include portages;
- Retain navigation access during Construction as per construction specifications and permits obtained from Transport Canada under the *Navigation Protection Act*;
- Notify local communities of Construction activities and navigation hazards;
- Provide local communities with regular Construction progress updates including information on how and when traditional travel routes will be potentially affected and temporary alternative routes;
- Implement dust suppression for all phases of the Project;
- Revegetate along alignment and borrow locations created during Construction;
- Undertake progressive reclamation of the winter road including active replanting of tree species; to replace caribou habitat within the Atikaki-Berens Management unit; and
- Include structures to reduce sight-lines and reduce predator ease of movement and hunting.

Need for and Requirements of Follow-up

The Agency has considered the follow-up and monitoring programs proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups and public, and has identified a follow-up program necessary to verify the predictions of the effects to current use of lands and resources for traditional purposes and the effectiveness of mitigation measure through monitoring of:

- navigability of watercourse crossings;
- moose mortality within the Local Assessment Area;
- furbearer movement, habitat use and harvest;
- caribou mortality, movement and habitat use within the Local Assessment Area; and
- revegetation success along the alignment, borrow pits and reclaimed winter road.

The follow-up program should be developed in consultation with Indigenous groups prior to Construction.

Conclusions

Taking into account the implementation of the mitigation measures described above, the Agency concludes that the Project would not result in significant adverse effects on the current uses of lands and resources for traditional purposes by aboriginal peoples.

6.5 Aboriginal Peoples – Health and Socio-Economic Conditions

The Agency identified the following changes to the environment that may be caused by the Project that could affect the health and socio-economic conditions of Aboriginal peoples:

- Disturbance of furbearers and areas used for trapping;
- Increased noise;
- Reduced air quality and surface water quality; and
- Reduced quality of traditional foods.

6.5.1 *Proponent's assessment*

Predicted Effects

The Project has the potential to cause changes to the environment that would affect the health and socio-economic conditions of Indigenous peoples during Construction and Operation.

Socio-economic conditions from reduced commercial trapping

The proponent identified potential effects to commercial trapping by Berens River First Nation and Poplar River First Nation, due to temporary disturbance to furbearers from Construction activities, potential for disturbance to traplines within the Project Footprint, and improved access to wilderness areas, leading to increased harvesting pressure from non-community members.

The proponent predicted that while disturbance during Construction may alter habitat use by furbearer species, once the disturbance has ceased, most species are expected to return to the area during Operation. Regional species distributions were not anticipated to change.

The proponent indicated there are 10 Registered Traplines within the Local Assessment Area. Both Berens River First Nation and Poplar River First Nation have Registered Trap Lines for both commercial trappers and personal use. The proposed all-season road runs through three active Poplar River First Nation Registered Traplines and bisects Registered Trap Line #12. Manitoba Metis Federation indicated that trapping activities have been or continue to be carried out on the east side of Lake Winnipeg within the Project 4 Local and Regional Assessment Areas.

The Project is expected to facilitate land access to traditional resource use areas associated with trapping for both locals and non-community members.

Health effects from increasing noise

The proponent noted that individuals living near the Project Footprint may potentially experience health effects from Project-generated noise. The proponent indicated that Construction would generate a range of noise and vibration in the Local Assessment Area, with rock blasting at quarry sites being the greatest source. The proponent predicted that on site noise levels from heavy equipment operation or blasting would range from 85 - 100 dBA.

The proponent expects that the quarries closest to communities would be 6.6 km and 2.3 km from residences on the Berens River and Poplar River First Nation Reserves, respectively. The minimum distance between the proposed road right-of-way and residences on the Berens River and Poplar River First Nation Reserves are 1.4 km and 0.530 km, respectively.

Based on the closest distance between residences and quarry sites and the road right-of-way, the proponent predicted that construction noise would be attenuated, with distance, terrain features, and forest cover fully dissipating Construction noise to the 45dB background noise levels measured at within the Project Footprint and Local Assessment Area. The proponent noted that during Operation, noise would be attributable to vehicle traffic and road maintenance and repair activities, and the anticipated levels would not likely cause health effects.

Health effects from reduced air quality and surface water quality

The proponent noted that Construction and Operation have the potential to reduce air quality through the generation of fugitive dust and other particulates from blasting, clearing, burning of woody debris, and equipment operation. The proponent expects temporary reductions in air quality in the Project Footprint and Local Assessment Area but that there would be no exceedances of the Manitoba Ambient Air Quality Criteria (Government of Manitoba 2005). The proponent concluded that these effects on air quality would not have residual adverse effects to human health due to their temporary and local nature and the distance of the Project Footprint from community residences.

The proponent indicated that surface water quality could be affected through minor increases in suspended sediment released during Construction and from the introduction of hazardous substances from equipment, vehicles or blasting activities during Construction or Operation.

The Berens River is the drinking water source for Berens River First Nation Reserve #13 and the Poplar River is the drinking water source for Poplar River First Nation Reserve #16. Both communities have centralized water treatment plants. With the implementation of mitigation measures to maintain surface water quality (section 6.1) and prevent accidents and malfunctions (section 7.1) the proponent concluded that the drinking water sources for Berens River and Poplar River First Nations would not be affected and therefore the Project would not propose a threat to human health from changes to water quality.

Health effects from reducing the quality of traditional foods

The proponent identified potential impacts to the quality of traditional foods resulting from the release of sediment in a fish-bearing watercourse affecting the quality of harvested fish; dust emissions affecting the quality of traditional plants; and sensory disturbance affecting the current distribution, and thus availability, or quality of plants and animals.

Proposed Mitigation Measures, Monitoring and Follow-Up

The mitigation measures proposed by the proponent for addressing Project effects to socio-economic conditions through changes to commercial trapping include:

- Ensuring the route alignment avoids areas of high quality habitat;
- Installing trapline signage;
- Ensuring trapper access to traplines during Construction;
- Designing the Project to prevent access to trapping areas from non-community members, and
- Prohibiting trapping by contractors, employees, and agents.

The proponent would work with local trappers on data gathering and monitoring during construction to enable adaptive management measures, if necessary. Mitigation measures aimed at addressing adverse effects to current use of lands and resources for traditional purposes are discussed in section 6.4.

Mitigation measures for health effects from noise include:

- Complying with provincial workplace safety and health regulations to reduce worker noise exposure;
- Selecting maintenance vehicles, machinery and equipment fitted with industry standard sound-reducing components (e.g., mufflers, acoustic linings, and shields);
- Retaining undisturbed forested buffers where possible around the perimeter of quarries;
- Avoiding blasting during high wind conditions; and
- Using best management practices (i.e., blasting plans, blasting mats, charging procedures, and blasting ratios) to reduce noise from quarry use.

To minimize disturbance effects of noise to people travelling within the Local Assessment Area for traditional purposes, the proponent would provide community updates regarding the location and timing of activities where noise exposure may be increased. Construction activities would also be scheduled to occur during daylight hours. Blasting activities would be restricted by provincial regulation (Manitoba *Quarry Minerals Regulation 1992* 44(1)) to business hours (9am to 4pm Monday through Friday) and blasting locations would be secured prior to blasting.

The proposed mitigation measures minimize potential effects to air quality and traditional foods from fugitive dust include:

- Implementing approved dust suppression measures (e.g., speed limits, watering, revegetation) on construction roads and areas of exposed soils;
- Retaining vegetation as long as possible to minimize exposure time of disturbed/bare soils to potential erosion; and
- Locating quarries and borrow pits as close as possible to the road alignment to limit construction vehicle traffic.

To minimize particulate matter from burning, the proponent would limit clearing to Project components, contact communities to determine their interest in timber salvage, limit burning to between November 16 and March 31, and avoid burning during high wind conditions.

Section 6.1 identifies the mitigation measures for fish and fish habitat including water quality. Proposed mitigation measures to prevent the release of hazardous substances are described in section 7.1, accidents and malfunctions.

In addition to the proposed mitigation measures for noise, air quality, and surface water quality, mitigation measures in Section 6.4 would be applied to minimize impacts to country foods.

Predicted Residual Effects

The proponent predicted the residual effects to the socio-economic conditions of Poplar River First Nation, Berens River First Nation, and Manitoba Metis Federation from reduced commercial trapping would not be significant with the implementation of mitigation measures.

The proponent predicted potential health effects from Construction noise would be low to moderate in magnitude, and local in extent. Potential health effects from Operation noise and vibration would be low in magnitude, local in extent, and continuous.

The proponent predicted the residual effects to the health of Aboriginal peoples from changes to air quality, drinking water quality, and country food quantity or quality would be minor and not significant, following the implementation of mitigation measures.

6.5.2 *Views expressed*

Federal Authorities

Health Canada noted that the proponent only provided a qualitative analysis of the potential health effects arising from changes to air quality, surface water quality, and the quality or availability of country foods. Health Canada identified that the proponent should minimize the generation of particulate matter, specifically PM 2.5, a carcinogen to humans, as there is no PM 2.5 threshold for adverse health effects. Best available technologies should be used and monitoring activities implemented to verify proponent predictions. If actual levels are above the predictions, additional abatement actions should be considered. Health Canada noted that the *Guidance Document on Continuous Improvement and Keeping Clean Areas Clean* (2007 Canadian Council of Ministers of the Environment) should be followed.

The proponent noted that, with the implementation of mitigation measures for dust suppression, the potential effects of airborne dust and emissions during construction would be localized within the Project Footprint and were not anticipated to reach the nearest residence located more than 500 m from the Project Footprint.

Indigenous Groups

Poplar River First Nation

Poplar River First Nation requested ramps be placed at key intersections to allow snowmobiles to easily cross the road to access trap lines. Community members noted that the road will provide increased access to trapping areas and that the Head trappers are not concerned about the road affecting their trapping. The proponent has included snowmobile access ramps in the road design.

Poplar River First Nation identified the potential for noise to affect hunting success which could affect their traditional diet. The proponent responded that they have included mitigation measures for noise. The proponent would also restrict seasonally disruptive maintenance activities adjacent to known sensitive sites.

Poplar River First Nation noted an interest in evaluating anticipated changes to community air quality from two locations where the Project comes close to the community. The proponent indicated that given the distance of the community residences on Poplar River First Nation Reserve #16 from the Project, periodic increases of fugitive dust and emissions in the Local Assessment Area were not anticipated to affect the community members.

Berens River First Nation

Berens River First Nation identified the potential for displacement of traditional trap lines of community members within the proposed all-season road alignment specifically during construction. The proponent adjusted the alignment to avoid displacement of trap lines and high quality habitat.

Berens River First Nation expressed concern about the potential effects of blasting chemicals on traditional foods. The proponent indicated they would properly manage all blasting chemicals according to their environmental protection plans and that ammonium-nitrate fuel mixtures would not be used near watercourses.

6.5.3 *Agency analysis and conclusion*

Analysis of the Effects

The Agency agrees with the proponent that residual effects to the socio-economic conditions of Indigenous peoples from reduced commercial trapping would not be significant with the implementation of mitigation measures. The proponent has worked with the Indigenous communities to ensure road alignment would have minimal impact on existing trap lines and would ensure access for trappers during construction. The proponent has committed to monitoring potential impacts and implementing adaptive management if required.

The Agency agrees with the proponent that with the implementation of mitigation measures residual effects to human health from noise and changes to air quality would be low in magnitude, local in extent, and temporary in duration. The Agency notes that noise from blasting will be short term and considerable distance from any residence. Due to the staged approach that would be used for Construction, noise disturbance will be temporary and short term in duration. Heavy equipment noise would be mitigated through the use of noise reducing components during Construction and Operation.

The Agency notes that air quality would be affected by vegetation burning during Construction and dust during Construction and Operation. The Agency agrees with the proponent that these effects to air quality would be short term and local in extent, and that residual health effects would be low in magnitude and short term in duration. The Agency considers the proposed mitigation measures to control dust and particulate matter appropriate in the circumstances.

The Agency agrees that there would be no residual health effects from changes to surface drinking water quality with the implementation of mitigation measures. In addition the Agency notes that both Berens River First Nation Reserve #13 and Poplar River First Nation Reserve #16 have centralized water treatment plants which maintain drinking water quality standards for the community.

The Agency agrees that with the implementation of mitigation measures described in Section 6.4, residual effects to country foods which could affect traditional diets would be low in magnitude and temporary in duration.

Key Mitigation Measures to Avoid Significant Effects

The Agency has considered the mitigation measures proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the following key mitigation measures as necessary to ensure no significant adverse environmental effects:

- Provide community updates regarding the location and timing of Construction noise activities;
- Ensure trapper access to trap lines during construction;
- Implement measures to mitigate effects from fugitive dust, including dust suppression activities;
- Establish speed limits and require project-related employees to abide by those limits on access roads associated with the Project;
- Maintain a 100 m buffer between construction activities and watercourses except at watercourse crossings; and
- Revegetate cleared areas with native vegetation or apply erosion control blankets.

Need for and Requirements of Follow-up

The Agency has considered the follow-up and monitoring programs proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the follow-up programs necessary to verify the predictions of effects to the health and socio-economic conditions of Aboriginal peoples and the effectiveness of mitigation measures:

- Monitoring project-related impacts on trap line activity to confirm the adequacy of proposed mitigation measures.

Conclusions

Taking into account the implementation of the mitigation measures described above, the Agency is of the view that the Project would not result in a change to the environment that is likely to cause significant adverse effects on the health and socio-economic conditions of Aboriginal peoples.

6.6 Aboriginal Peoples – Effects on Physical or Cultural Heritage and Historical, Archeological, Paleontological or Architectural Sites or Structures

The Agency assessed changes to the environment caused by the Project on physical and cultural heritage and historical, archeological, paleontological or architectural sites or structures.

6.6.1 *Proponent's assessment*

Predicted Effects

Construction could result in the loss or damage of cultural, heritage, and archaeological sites and objects in the Local Assessment Area. The proponent completed Heritage Resources Impact Assessments (HRIAs) and conducted traditional knowledge workshops to identify archaeological sites that could be potentially affected by the proposed road alignment. Key archaeological site types included petroforms (arrangements of rocks or boulders having symbolic and religious meaning or serving a functional purpose of trail marking); artifact scatters (formed tools or portions thereof); and isolated finds (single artifacts in an area, usually a single piece of chipped stone or a tool or tool fragment).

In the selection of the final proposed all-season road alignment, the proponent considered the traditional knowledge provided by Poplar River First Nation and Berens River First Nation to avoid heritage resources. The proponent has concluded that the final all-season road alignment would not disturb any known heritage resources so that any potential effects from Construction on cultural, heritage, and archaeological resources would be associated with unknown sites.

Operations are not anticipated to affect cultural, heritage, and archaeological resources in the Local Assessment Area considering vehicle use of the proposed all-season road and maintenance activities would be confined to areas affected by Construction.

Proposed Mitigation Measures, Monitoring and Follow-Up

The proponent proposed the following mitigation measures:

- Consulting with the local community and/or the Manitoba Metis Federation on culturally appropriate measures procedures to follow if cultural, heritage or archaeological sites or objects are exposed during Construction;
- Providing instructions to contractors on procedures to follow if archaeological sites or objects are exposed during Construction;
- Flagging construction exclusion areas around discovered/previously unknown cultural, heritage, and archaeological sites when encountered during Construction and identifying construction exclusion zones on right-of-way mapping for contract administrators; and
- Relocating cultural, heritage or archaeological resources that would be destroyed by Construction only with consent from Manitoba Heritage Resources Branch and input of the local community.

Predicted Residual Effects

The proponent predicted there would be no adverse residual effects to cultural, heritage, and archaeological resources following the application of mitigation measures.

6.6.2 *Views expressed*

Indigenous Groups

Berens River First Nation

Berens River First Nation identified sites of cultural importance and asked that they be avoided. The proponent indicated that it has avoided known archaeological sites in the final route alignment so that it would not be necessary to relocate any existing archaeological sites. The route alignment would be setback 30-50 m from known archaeological sites and could be increased to 75 - 100 m when requested by communities. If a heritage resource was found during construction, the proponent would seek permission from communities and the Government of Manitoba to relocate any heritage resources that could be affected.

Poplar River First Nation

Poplar River First Nation indicated while there is a potential for the road alignment to be too close to important sites, most of its members believe that the road alignment is far enough away from known sites. The community recommended that a blessing should take place before the start of the Construction season at important sites and that the proponent should provide transportation for elders to the sites for ceremonies. The proponent indicated that it has modified the route alignment to avoid known cultural, heritage, and archaeological sites and has committed to providing transportation for the Elders to conduct ceremonies prior to initiating Construction.

Manitoba Metis Federation

Manitoba Metis Federation identified the potential for post-contact heritage sites to be encountered during Construction. The proponent committed to contact Manitoba Metis Federation if any sites are found during Construction to determine how to proceed.

6.6.3 *Agency Analysis and Conclusion*

Analysis of the Effects

The Project has the potential to cause changes to the environment that would affect known and unknown archaeological and paleontological sites, as well as aspects of cultural heritage.

The Agency is of the view that the modified route alignment and proposed mitigation measures of construction exclusion zones, implementing procedures to address new archaeology finds and consulting with communities and the Government of Manitoba on any new archaeology finds, represent effective mitigation measures for known and discovered archaeological and paleontological sites. To ensure the construction exclusion zones are effective, the Agency is of the view they must be delineated on both construction maps and on the ground.

Although the proponent did not directly assess effects to architectural sites, based on information it provided about the Project and its location, the Agency is of the view that architectural sites are not likely to be present in the area of Project.

The Agency also considers the use of habitations, trails and cultural and spiritual sites, as assessed by the proponent under the current use of land and resources for traditional purposes section (section 6.4), to be part of physical and cultural heritage. The Agency's analysis and conclusions on the effects to habitations, trails and cultural and spiritual sites are presented in section 6.4.

Key Mitigation Measures to Avoid Significant Effects

The Agency considered the mitigation measures proposed by the proponent, and comments received from Indigenous groups in identifying the following key mitigation measures as necessary to ensure no significant adverse effects would occur:

- Notify communities in advance of the start of Construction to facilitate traditional ceremonies;
- Flag construction exclusion areas around discovered cultural, heritage, and archaeological sites when encountered during construction activities;
- Identify construction exclusion zones on right-of-way mapping for contract administrators;
- Identify and implement measures to mitigate any adverse project-related effects on physical and cultural heritage features, structures, sites or things found during construction following consultation with Indigenous groups; and
- Provide instructions to contractors on procedures to follow if archaeological sites or objects are exposed during construction.

Need for and Requirements of Follow-up

The Agency has considered the mitigation measures proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups and is satisfied that no follow-up program is necessary to verify the predictions of effects to the physical and cultural heritage and historical, archeological, paleontological or architectural sites or structures of Aboriginal peoples or the effectiveness of mitigation measures.

Conclusions

Taking into account the implementation of the mitigation measures described above, the Agency is of the view that the Project would not result in a change to the environment that is likely to cause significant adverse effects on the physical or cultural heritage of Aboriginal peoples, or on structures, sites or things of historical, archaeological, paleontological or architectural significance to Aboriginal peoples.

6.7 Transboundary Environmental Effects - Greenhouse Gas Emissions

Greenhouse gases are atmospheric gases that absorb and re-emit infrared radiation resulting in the warming of the lower levels of the atmosphere. These gases disperse at the global scale and are, for the purposes of CEAA 2012, considered transboundary environmental effects.

The main greenhouse gases are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), ozone (O_3), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). Greenhouse gas estimates are usually reported in units of tonnes of CO_2 equivalent[11] (CO_2e) per year.

6.7.1 *Proponent's assessment*

Predicted Effects

The proponent evaluated the anticipated greenhouse gas emissions during the Construction (7 years) and Operation (10 years) phases of the Project.

The proponent considered the change in greenhouse gases arising from the loss of carbon sequestration in forest cover and wetlands, reduced air travel to Poplar River, and construction, maintenance, and use of the existing winter road versus the proposed all-season road.

During Construction average annual emissions were estimated to be 7 962 tonnes of CO_2e. Once operational, the Project's annual greenhouse gas emissions are predicted to be 1626 tonnes of CO_2e. This would be an annual reduction of 2 824 tonnes of CO_2e when compared with annual emissions of 4450 tonnes of CO_2e per year from operation of the winter road. The reduction is mainly due to reduced air travel between Poplar River First Nation Reserve #16 and Winnipeg and reduced emissions of vehicles using the proposed all-season road (Table 6).

Annual Construction emissions represent approximately 0.037 percent and 0.001 percent of yearly greenhouse gas emissions in Manitoba and Canada, respectively. Annual emissions from Operation represent approximately 0.008 percent and 0.0002 percent of yearly greenhouse gas emissions in Manitoba and Canada respectively, based on Canada's 2014 greenhouse gas inventories submitted to the United Nations Framework Convention on Climate Change[12].

[11] Emissions of greenhouse gases are calculated by multiplying the emission rate of each substance by its global warming potential relative to CO_2e

[12] National Inventory Report 1990-2014: Greenhouse Gas Sources and Sinks in Canada - Executive Summary https://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=662F9C56-1

Table 6 Baseline and project scenario – annual greenhouse gas emissions

Activity	Baseline Scenario (tonne CO_2e)	Project Scenario (tonne CO_2e)	
		Construction	Operation
Ice and Winter Road Construction and Maintenance	153	0	NA
Vehicular use of Ice and Winter Road	806	0	NA
All-Season Road Construction	NA	4 028	0
Vehicular Use of All-Season Road	NA	0	714
Air Movement between Poplar River and Winnipeg	3 116	3 116	717
Land Clearing	0	469	0
Forest Biomass Decomposition	0	384*	0
Forest Carbon Sequestration	-27	0	-8
Wetland Methane Emission	403	294	294
Average Annual	**4 450**	**7 962***	**1 626**

*Construction emissions are estimated to be 8 291 tonnes CO_2e in Year 1 and 7907 tonnes CO_2e between Years 2 to 7 as Forest Biomass Decomposition GHG emissions for the Construction-phase are predicted only in Year 1 of Construction.

Proposed Mitigation Measures, Monitoring and Follow-Up

Construction Phase

The proponent's proposed mitigation measures include ensuring construction equipment meets fuel efficiency standards; undertaking regular vehicle maintenance; selecting properly sized equipment; using new equipment; training operators to ensure proper use of equipment under different operating conditions; implementing an anti-idling policy for all mobile equipment; busing construction crews to the construction site and the remote work camp accommodation; using dual fuel (natural gas/propane and diesel) generators; and minimizing construction transportation by locating construction materials close to active work sites.

Operation Phase

The proponent's proposed mitigation measures include on-going maintenance of the proposed all-season road to provide a smooth running surface; paving the proposed all-season road if threshold volumes are met and/or exceeded; carbon offsets through afforestation/reforestation; and maintaining wetlands within the right-of-way to maintain their carbon sequestration contribution.

Predicted Residual Effects

The proponent concluded the residual effects of greenhouse gas emissions to be low in magnitude and long term in duration. The proponent concluded that the residual adverse environmental effects from the greenhouse gas emissions would not be significant.

6.7.2 *Views expressed*

Federal Authorities

Environment and Climate Chance Canada indicated that there was a lack of detail, inconsistencies, and irregularities in the greenhouse gas emissions assessment estimates and questioned whether the proposed all-season road would result in a reduction in emissions once operational because of anticipated increases in year round vehicular use. The proponent indicated that the reduction in emissions was due to decreased travel times and increased vehicle efficiency as a result of road surface improvements compared to the winter road.

Indigenous Groups

No concerns were expressed by Indigenous groups regarding greenhouse gas emissions from the Project.

Public

No concerns were expressed by the public regarding greenhouse gas emissions from the Project.

6.7.3 *Agency analysis and conclusion*

Analysis of the Effects

The Agency agrees with the overall approach used by the proponent, however there is some uncertainty in the emissions predictions because of the number of assumptions that are made about vehicle use and performance for the winter road versus all season road, the carbon sequestration potential of the wetlands and reclaimed right-of-way, and use of the winter road during construction of the proposed all-season road. The Agency is unable to verify the greenhouse gas emissions estimated for air travel and vehicle travel.

However, given the small greenhouse gas contribution of the Project these uncertainties do not pose a substantial risk to the overall analysis and conclusion of the proponent. The Agency agrees that the greenhouse gas emissions from the all season road are low compared to provincial and national greenhouse gas emissions.

Conclusion

Taking into account the implementation of the above mitigation measures the Agency is of the view that the Project would not result in significant adverse environmental effects as a result of greenhouse gas emissions.

7 Other Effects Considered

7.1 Effects of Accidents and Malfunctions

Pursuant to subsection 19(1) of CEAA 2012, the proponent must take into account the environmental effects of accidents and malfunctions that may occur in connection with the Project Construction and Operation.

7.1.1 *Proponent Assessment*

Predicted Effects

The proponent evaluated the potential accidents and malfunctions with the greatest risk to the environment considering the potential environmental effects and probability of occurrence. The results of this analysis are summarized in Table 7.

Table 7 Proponent's risk summary of potential accidents and malfunctions during Construction and Operation

Potential Accident or Malfunction	Potential Environmental Effects	Preventative / Contingency Mitigation Measures	Probability of Significant Adverse Effects*
Accidental release of hazardous substances.	• Adverse effects on fish and fish habitat due to introduction of deleterious substances into waterbodies (e.g., leaked fuel and oil). • Adverse effects on wildlife (including migratory birds) and wildlife habitat due to introduction of deleterious substances into aquatic and terrestrial habitats (e.g., leaked fuel and oil).	• Adherence to provincial and federal regulations and guidelines regarding hazardous substance collection and storage, use and handling, and disposal and treatment, such as the provincial *Dangerous Goods Handling and Transportation Act* and *The Environment Act*; and the federal *Transportation of Dangerous Goods Act.* • Adherence to ESRA's Environmental Protection Specifications (GR130s). This includes a requirement for contractors to plan and implement an environmental protection plan prior to work and materials handling, storage, and disposal requirements such as ensuring spill containment and clean-up is readily available. • Adherence to ESRA's Workplace Safety and Health Specifications (GR140s), which includes training and safe work plan practices for all contractors.	• Low
Fire or explosion	• Potential mortality of wildlife and /or disturbance of wildlife (including migratory birds). • Destruction of wildlife habitat.	• Adherence to federal regulations for the storage of explosives. • Adherence to provincial Code of Practice and legislative regulations / requirements for the use of explosives.	• Low

		• Adherence to ESRA's Workplace Safety and Health Specifications (GR140s), which includes safe work practices; smoking prohibitions; loading and blasting requirements, such as ensuring contractors submit blast plans and notify NAV Canada and Manitoba Land Use; and explosives transportation requirements, such as any drivers carrying explosives are required to have a current Transportation of Dangerous Goods certificate. • Blasting contractor(s) will be certified. • Presence and maintenance of on-site fire suppression equipment.	
Accidental collisions	• Wildlife mortality due to collisions. • Adverse effects on fish and fish habitat due to introduction of deleterious substances into waterbodies (e.g. leaked fuel and oil). • Adverse effects on wildlife (including migratory birds) and wildlife habitat due to introduction of deleterious substances into aquatic and terrestrial habitats (e.g. leaked fuel and oil).	• Provide warning signage, speed control, and flag persons near work areas along all-season road, as required. • Control of dust and road ice, as required. • Adherence to provincial highway safety regulations and codes. • Adherence to ESRA's Workplace Safety and Health Specifications (GR140s). • Posting of appropriate speed limit, crossing and wildlife warning signage. • Restricting construction traffic to designated areas • Incorporation of standard safe road design configurations and construction methods in the detailed all-season road design.	• Low

*Note: Probability of accident or malfunction after application of preventative / contingency mitigation measures

Accidental Release of Hazardous Substances

The proponent indicated that hazardous substances used during Construction and Operation includes fuels (e.g., gasoline, diesel, and propane), lubricating oils and greases, and hydraulic fluids.

The proponent predicted that the accidental release of hazardous substances could occur from improper storage, mechanical failures, collisions or careless use. Depending on the nature, size, and location of the release, contamination of soils, surface water, and groundwater may occur and may potentially result in direct and indirect effects on vegetation, wildlife, aquatic habitats, and worker and public health and safety.

To minimize the potential release of and effects from hazardous substances, the proponent indicated that machinery cleaning, fueling, and maintenance, and the storage of hazardous substances would be conducted a minimum of 100 m from the high water mark of waterbodies in maintenance compounds located at laydown areas and in accordance with applicable provincial regulations. Quantities of hazardous substances would be limited to amounts required for efficient operation and maintenance of machinery during construction. Diesel and gasoline which represent the largest quantities would be stored in double-walled tanks in accordance with the National Fire Code of Canada 2010 and the *Storage and Handling of Petroleum Products and Allied Products Regulation* of The *Dangerous Goods Handling and Transportation Act* of Manitoba. Contractors would be trained in spill response and be provided with spill kits.

The proponent stated that impacted soil from hydrocarbon spills would be assessed and any soil determined to be contaminated would be managed and removed to an approved treatment site. Other hazardous solid wastes would be disposed of at designated and approved waste disposal grounds.

The proponent concluded that with the implementation of mitigation measures and emergency response plans, the potential for environmental risk from the accidental release of hazardous substances is low.

Fires and Explosions

There is a potential risk of fires and explosions from blasting explosives, welding, cutting of steel, burning brush, malfunction of equipment, machinery, and vehicles, and careless smoking or campfires. Fire can result in loss of habitat, wildlife disturbance or mortality and forest fires.

The proponent stated that to minimize the potential risk of fire or explosions, explosives would be stored, used, handled and transported according to federal and provincial legislation and only by trained, certified and licenced workers. In addition, contractors would be required to develop an Explosives and Blasting Management Plan that would describe compliance with applicable federal and provincial regulations regarding safe transportation, handling, storage, and use of explosives. Brush burning activities and smoking would be restricted depending on local weather conditions and the risk of forest fires. Fire prevention would be enforced through the application of appropriate fire codes during construction and maintenance activities.

The proponent concluded that the risk of fires resulting from Construction and Operations with the implementation of mitigation measures would be low.

Accidental Collisions

Accidents potentially causing serious injury and death to workers and wildlife mortality could occur from construction equipment and vehicle collisions, and collisions between construction equipment and vehicles, and wildlife. The proponent stated that contractors would be required to adhere to provincial highway safety regulations and codes, and the proponent's Workplace Safety and Health Specifications regarding traffic management on the Project site.

The proponent predicted that the potential for collisions would be minimized through safe road design and construction methods, posting of appropriate speed limits, snowmobile crossing and wildlife warning signage, control of dust and road ice as required, and restricting construction traffic to designated areas.

The proponent concluded that with the implementation of mitigation measures the risk of adverse environmental effects from accidents during Construction and Operation would be low.

Emergency Response Plans and Notification

The proponent indicated the following emergency response plans would be developed and submitted by the contractors for review and approval prior to initiating work on the Project:

- Environmental Emergency Plan for Spill Response and Remediation;
- Material Management Plan in the Event of an Unplanned Shutdown; and
- Evacuation and Emergency Preparedness Plan in the Event of a Wildfire.

Should an accident or malfunction occur, these plans require immediate notification and reporting to Manitoba Sustainable Development, and require measures to contact potential adversely affected stakeholders including local communities. The proponent noted that project contractors would be trained in operational and emergency response procedures to prevent and respond to accidents and malfunctions.

7.1.2 *Views expressed*

Federal Authorities

Environment and Climate Change Canada indicated that quantitative risk assessments and environmental sensitivity mapping for each accident and malfunction scenario would assist in emergency planning and the identification of potential areas for accident and malfunction scenarios. Environment and Climate Change Canada also noted that contingency and response plans need to be in place to ensure preparedness and effective response in the case of accidents and malfunctions.

Environment and Climate Change Canada and the Agency noted that the proponent did not take into account worst-case scenarios in the event of an accident or malfunction, such as a hydrocarbon release from the spill of a diesel or fuel truck into a fish-bearing watercourse, waters frequented by migratory birds or a waterbody supplying drinking water. The proponent indicated that the proposed mitigation measures and emergency response plans for the scenarios considered would be appropriate to prevent and manage any adverse environmental effects from accidents or malfunctions.

Indigenous groups

Poplar River First Nation

Poplar River First Nation expressed concern regarding vehicle collisions, including the disposal of wildlife involved in vehicle collisions and public road safety. Poplar River First Nation recommended that the

proponent should provide regular and adequate road inspection and maintenance as a way to minimize collision risk during the operation and maintenance of the road.

Manitoba Metis Federation

Manitoba Metis Federation expressed concerns regarding potential accidental releases of hazardous substances including herbicides and risk of explosions during the transportation of hazardous substances. Uncertainty was expressed regarding the effectiveness and feasibility of proposed setback distances of construction staging areas from watercourses/waterbodies, and traffic levels considered by the proponent in the risk assessment. Manitoba Metis Federation recommended the use of environmentally friendly, biodegradable hydraulic fluids in all contractors' construction equipment. The proponent responded that activities involving hazardous substances (e.g. fueling, storage, equipment cleaning) would avoid environmentally sensitive areas; and contractors would be subject to materials handling, storage and disposal requirements, including timely spill response and clean-up. Contractors would be required to use provincially regulated safe handling procedures to prevent uncontrolled releases of herbicides to the environment.

Public

The public did not provide comments related to potential effects from accidents and malfunctions.

7.1.3 *Agency analysis and conclusion*

The Agency notes that the proponent has undertaken a qualitative risk assessment of potential accident and malfunctions to develop its risk management approach which did not include an evaluation of a worst case scenario. The Agency agrees with the proponent that the greatest environmental risk would be from release of a hazardous substance. The Agency is satisfied with the proponent's approach to prevention and response given the limited quantities of hazardous substances that would be transported and stored for the Project and the requirements of the provincial *Storage and Handling of Petroleum Products and Allied Products Regulation* of *The Dangerous Goods Handling and Transportation Act* of Manitoba.

The Agency concludes that the Project is not likely to result in significant adverse environmental effects as a result of accidents and malfunctions taking into account the implementation of mitigation measures.

7.2 Effects of the Environment on the Project

Potential effects of the environment on the Project include extreme weather events, flooding, and forest fires.

7.2.1 *Proponent's assessment*

Extreme Weather and Flooding Events

The proponent indicated that the Project would be subject to occasional extreme weather events such as heavy snowfalls, blizzards, severe winds, intense rainstorms, and tornadoes as well as seasonal flooding from the rapid melting of high snow volumes or heavy rain. During Construction, severe weather events and flooding could cause erosion of the road bed and downstream sedimentation. During Operation, extreme weather events and flooding could force closure of the road, cause stream washouts and erosion of the road bed leading to downstream sedimentation affecting fish and fish habitat, or could lead to vehicle accidents which may result in hazardous substance releases and temporary road closures.

The proponent noted that the design of the Project includes standard measures to mitigate potential effects of extreme weather including using a 1:100 year flood event to design stream crossings, planning for a sufficient depth of rock base layer in the roadbed design, installing large-diameter stream crossing culverts, and installing equalization culverts in fen and bog complexes. Periodic inspection and maintenance would be conducted and repairs/maintenance completed on an as-needed basis to reduce the potential for impacts on the Project.

The proponent predicts that with the implementation of mitigation measures, the potential impacts of extreme weather events on the Project are expected to be limited in extent and short-term in duration.

Forest Fires

The Local Assessment Area has seen little to no fire activity since 1929 when three-quarters of the area was burned. Approximately 40% of the Project alignment occurs within low-lying fen and bog complexes or sparsely forested areas, which are less susceptible to forest fires, however the remaining sections are located in more densely forested areas and therefore more susceptible to forest fires.

The proponent indicated that in the event of a forest fire, it would coordinate with First Nations and Northern Affairs Communities and the Royal Canadian Mounted Police on the need for road closures to minimize the potential for vehicle collisions due to reduced visibility caused by smoke. In addition, Project components, such as bridges, culverts, and signage, would be inspected and repaired following a forest fire event.

The proponent concluded that forest fires are not expected to cause adverse environmental effects to the Project.

7.2.2 *Views expressed*

Federal Authorities

The Agency asked the proponent how changing weather patterns predicted to occur from climate change could affect specific Project components such as camps or quarries and adequacy of proposed mitigation measures.

The proponent indicated that climate change could result in:

- increases or decreases in annual precipitation rates and temperature levels;
- severe weather events forcing closure of the road for extended periods of time due to heavy snow accumulations during winter and stream washouts during spring and summer; and
- drought conditions increasing the potential for forest fires.

Indigenous Groups

Poplar River First Nation

Poplar River First Nation expressed concerns that the proponent underestimated the risk of extreme weather due to the influence of climate change. Poplar River First Nation indicated that changes to precipitation, snowfall, increases in the frequency and severity of extreme events, forest fires, straight-line wind events, and tornadoes, could lead to accidents, such as vehicle entering watercourses, which may result in fuel and other hazardous liquids contaminating the water, thereby affecting the potential habitat of species in the Project Footprint. The proponent responded that increased precipitation rates or magnitude of storm events has been addressed through the proposed road design and that the mitigation measures already proposed would account for the possible effects from climate change.

Manitoba Metis Federation

Manitoba Metis Federation raised concerns about the potential effects of floods or ice jams on road infrastructure, which may in turn lead to effects on water quality and aquatic resources, or may cause traffic accidents leading to spills. The proponent responded that Project components would be inspected and repaired as required after extreme weather events, flood events, or forest fire events. Road closures would be implemented in consultation with the RCMP if necessary to prevent vehicle accidents.

Public

The public did not provide comments related to the effects of the environment on the Project.

7.2.3 *Agency analysis and conclusion*

Taking into consideration the likelihood and risk of weather events and the implementation of mitigation measures, the Agency is of the view that the proponent has adequately designed the Project to account for natural hazards. Mitigation measures to reduce potential effects include:

- Designing Project components to withstand 1:100 year flood events;

- Suspending construction activities during extreme weather events, flood events, or forest fire events;
- Providing erosion protection and sediment control as required;
- Including responses to extreme weather events, flood events, or forest fire events in emergency response plans for road construction;
- Preparing an Emergency Response Plan for road operation that addresses flooding;
- Inspecting and repairing Project components as required after extreme weather events, flood events, or forest fire events; and
- Coordinating contingency procedures with First Nations and Northern Affairs Communities in communication with the Royal Canadian Mounted Police regarding decisions to close roads due to unsafe conditions.

The Agency is satisfied that the proponent has adequately considered the effects of the environment on the Project and that the proposed mitigation measures are appropriate to account for the potential effects of the environment on the Project.

7.3 Cumulative Environmental Effects

This section describes cumulative environmental effects that are likely to result from the Project in combination with the environmental effects of other physical activities that have been or would be carried out.

7.3.1 *Approach and scope*

The proponent selected valued components for the cumulative effects assessment based on the potential for residual environmental effects of the Project to interact temporally or spatially with the past, present, and reasonably foreseeable projects and activities shown in Table 8; comments received through its Aboriginal and Public Engagement Program; potential uncertainty in the prediction of cumulative effects. Based on this scoping exercise, the valued components evaluated by the proponent were greenhouse gas emissions, moose, and boreal woodland caribou.

The spatial boundaries for the cumulative environmental effects assessment were based on the southern portion of the planned East Side Large Area Transportation Network of all-season roads and the Manitoba's management unit for the Atikaki-Berens woodland caribou population. The temporal boundary for the cumulative effects assessment extends to 2037 which is 10 years beyond the completion of the last road project for the southern portion of the East Side Large Area Transportation Network.

Table 8 Physical activities included in the cumulative effects assessment

Category of Physical Activities	Specific Physical Activity
Past or Present Physical Activities that have been carried out	
Infrastructure development	ERSA's P1 all-season road project from PR 304 to Berens River communities currently under construction.
	Existing infrastructure within and immediately adjacent to First Nation communities within the cumulative effects spatial boundary.
	Existing winter road use and maintenance.
	Manitoba Hydro transmission lines.
	Abandoned forestry roads.
Mining and quarry activities	Mineral dispositions related to mining and quarry activities.
Hunting	Traditional/subsistence and licensed hunting activities.
Trapping	Licensed trapping of furbearing animals for commercial sale.
Fishing	Traditional/subsistence, sport, and commercial fishing.
Future Physical Activities that are certain and reasonably foreseeable	

Infrastructure development	Planned all-season roads east of Lake Winnipeg as part of the East Side Large Area Transportation Network initiative by ERSA.
	Relocation of Poplar River First Nation community access road (433 m) linking the proposed Project with the community.
Decommissioning of existing winter roads	Decommissioning and rehabilitation of existing winter roads as they are replaced by the planned all-season roads that are part of the East Side Large Area Transportation Network
Hunting	Traditional/subsistence and licensed hunting activities.
Trapping	Licensed trapping of furbearing animals for commercial sale.
Fishing	Traditional/subsistence, sport, and commercial fishing.

7.3.2 *Potential cumulative effects on current use of lands and resources by Indigenous peoples*

The proponent's evaluation of Project effects on current use of lands and resources by Indigenous peoples was based on the potential effects on fish, migratory birds, moose, caribou, furbearers, and traditional plants and how this may affect hunting, trapping, fishing, gathering, and traditional practices.

The proponent concluded that the potential residual effects of the Project on current use of lands and resources for traditional purposes would be short-term in duration, low to moderate in magnitude, reversible, and not significant. Following the scoping exercise for cumulative effects, the proponent only brought forward moose and caribou for the purposes of assessing cumulative effects on traditional land use.

Moose

The proponent evaluated the potential cumulative effects on moose from increased hunting pressure, habitat loss and fragmentation, and mortality from vehicle collisions.

The proponent expects that moose hunting may move closer to the future all-season roads and water crossings and away from waterways that are traditionally used to access moose hunting areas. Hunting data collected for the Project 1 all season road in 2009 (pre-construction), 2010, and 2012 (construction) indicated a slight increase in hunting in 2010 and 2012 compared to 2009. The proponent concluded that, based on results of Traditional Knowledge studies, monitoring data for operating segments of Project 1 and the remoteness of the cumulative effects assessment area, hunting is not expected to increase dramatically in the region as a result of increased access. The proponent noted Manitoba government conservation initiatives including the on-going monitoring and enforcement of hunting limits and possible designation of wildlife refuge areas under *The Wildlife Act* on either side of the proposed and under construction all-season roads on the east side of Lake Winnipeg would mitigate potential cumulative effects on increased hunting.

There are no other major developments such as forestry or mining operations planned in the cumulative effects assessment area, that would result in additional disturbance or change to moose habitat. The

proponent evaluated the linear disturbance density and moose density within the Regional Assessment Area from the winter and all season road footprint for the four Manitoba Game Hunting Areas within East Side Transportation Area Network. The linear density ranged from 0.05 km per square kilometre in the north to 0.26 km per square kilometre in the south, both of which are well below the identified target threshold for linear disturbance on a landscape scale at 0.4 km per square kilometre and 0.9 km per square kilometres respectively, as based on studies across Canada[13]. Moose density did not correlate to the linear disturbance ranging from 0.183 moose per square kilometre in the north to 0.2332 moose per square kilometre in the south. The proponent concluded that moose density was not necessarily linked to disturbance but more likely to habitat productivity and climate. The proponent concluded that the overall moose habitat loss and fragmentation would be negligible given the abundance of undisturbed moose habitat within the cumulative effects assessment area.

The proponent does not expect an increase in vehicle moose mortality based on monitoring of the Project 1 all season road from 2010 which has confirmed only one moose mortality. The proponent's mitigation measures described in Section 6.6 would be applied to all subsequent all-season roads.

The proponent concluded that the cumulative impact on moose would be of low magnitude, low extent, and not significant, and therefore there would not be an adverse cumulative impact on hunting of moose.

Boreal Woodland Caribou

The cumulative effects assessment for the boreal woodland caribou focused on determining total habitat disturbance within the management unit relative to the sustainable threshold of 65% undisturbed (35% disturbed) habitat identified by the federal *Recovery Strategy Woodland Caribou-Boreal Population* (2012). The proponent considered natural disturbance (primarily fire less than 40 years old) and anthropogenic disturbance including winter roads, transmission lines, forestry, and quarry development.

Table 9 provides the percentage of cumulative habitat disturbance for the Atikaki-Berens Management Unit in 1960, 1980, 2015, 2020, and 2025. The proponent noted that, except for 1960, the habitat disturbance was below the 35% disturbed habitat threshold and, in all cases, fire is the largest contributor of disturbance. The habitat disturbance for each time period reflects reclamation of decommissioned winter roads that are replaced by all-season roads.

[13] Salmo *et al.* (2004) – Salmo Consulting Inc., AXYS Environmental Consulting Ltd., Forem Technologies, and Wildlife &Company Ltd. 2004. *Deh Cho Cumulative Effects Study Phase 1: Management Indicators and Thresholds*. Calgary, AB. Prepared for Deh Cho Land Use Planning Committee. 172 pp.

Table 9 Total percentage of cumulative habitat disturbance over time for the Atikaki-Berens Management Unit

Year	Total Percentage of Habitat Disturbance	Above or Below the *Recovery Strategy* (2012) Caribou Habitat Disturbance Threshold of 35%	All-Season Roads Included in the Habitat Disturbance Calculation
1960	48.1%	Above	None (note that forest fire was a substantial influence on habitat disturbance).
1980	33.4%	Below	None.
2015	34.7%	Below	P1 and P4 all-season roads.
2020	34.3%	Below	P1, P4, and P7A all-season roads
2025	34.6%	Below	P1, P4, P7A, and P7 all-season roads.

The proponent concluded that the overall caribou habitat loss and fragmentation would remain below the 35% disturbed habitat threshold established for sustainability for woodland caribou and the cumulative effect on caribou habitat loss would not be significant. The proponent noted that with the application of government conservation initiatives and on-going monitoring and enforcement of species at risk protection by Manitoba Sustainable Development, significant decline in the caribou population within the cumulative effects assessment area, specifically the Atikaki-Berens caribou management unit, is not anticipated.

The proponent concluded there would be no significant cumulative impact on woodland caribou so that traditional hunting of caribou could potentially resume once populations are considered stable.

7.3.3 *Views Expressed*

Federal Authorities

The Agency requested information on how the potential creation of Pimachiowin Aki (proposed UNESCO World Heritage Site for land including traditional territory of Poplar River First Nation) would affect the cumulative effects assessment. The proponent indicated that the creation of Pimachiowin Aki reflects the existing traditional land use plans and that the UNSECO designation of the Pimachiowin Aki would be consistent with current and planned land use in the region.

Indigenous Groups

Berens River First Nation

Berens River First Nation expressed concerns about increased access to areas and natural resources by non-community members affecting the livelihood of its members. Berens River First Nation indicated that increased access would require increased enforcement as well as possible regulation changes in order to allow for the continued viability of the fisheries and livelihood of local residents. It recommended addressing access by not constructing boat launches, decommissioning temporary access

routes required for construction and maintaining travel routes. The proponent incorporated all of the project-specific recommendations into the design of the Project and for the other all season roads.

Manitoba Metis Federation

Manitoba Metis Federation expressed concerns about the potential cumulative effects of the road projects on Metis use and harvest about potential declines in harvesting success, increased time and effort, and costs due to increased harvest pressure, traffic-related animal mortality, habitat loss and/or alteration and fragmentation, including of wetlands. The proponent responded that specific measures to mitigate potential effects from increased access have been incorporated into the design and that it would engage with Manitoba Metis Federation if specific issues were identified during project execution.

Public Groups

Manitoba Wildlife Federation expressed concerns that the Project and all-season road network would provide unrestricted access to hunters affecting the sustainability of moose and caribou populations. The Manitoba Wildlife Federation advocates a 300 m no hunting zone for all portions of the east side all-season road network. The proponent noted Manitoba government conservation initiatives including the on-going monitoring and enforcement of hunting limits and possible designation of wildlife refuge areas under *The Wildlife Act* on either side of the proposed and currently under construction all season roads on the east of Lake Winnipeg would mitigate potential cumulative effects on increased hunting.

7.3.4 Agency Analyses and Conclusions

The Agency has considered the potential effects of the Project in combination with projects and activities that have been or will be carried out, and is of the opinion there are overlapping areas of environmental effects with the existing infrastructure and proposed all season road network. The Agency is of the view that in combination, the Project and these activities are likely to cause changes to the terrestrial environment that are likely to affect current use of lands and resources for traditional activities.

The Agency notes that the proponent only evaluated two valued resources for Indigenous groups as it did not conclude that other aspects of current use of lands and resources for traditional purposes would experience residual effects.

The Agency agrees with the proponent's conclusion that cumulative effects on current use of moose and caribou would not likely be significant. However there remains some uncertainty regarding the cumulative effects on these activities from increased access created by the planned East Side Area Transportation Network. Monitoring and follow-up described in section 6.6 should be incorporated into all phases of the all-season network to ensure mitigation measures are effective and to identify and implement adaptive management measures when appropriate.

The Agency is of the view that the Project would not likely cause significant adverse cumulative effects on current use of lands and resources for traditional purposes.

8 Impacts on Potential or Established Aboriginal or Treaty Rights

8.1 Potential or Established Aboriginal or Treaty Rights in the Project Area

The Project is located within Treaty 5 territory and within the Manitoba Metis Federation's Southeast Region. The Agency identified the following groups for consultation based on the location of the Project and the extent of its potential to cause adverse impacts on potential or established Aboriginal or treaty rights:

- Berens River First Nation (Treaty 5)
- Poplar River First Nation (Treaty 5)
- Manitoba Metis Federation
- Bloodvein First Nation (Treaty 5)
- Hollow Water First Nation (Treaty 5)
- Little Grand Rapids First Nation (Treaty 5)
- Pauingassi First Nation (Treaty 5)

8.1.1 *Treaty 5 First Nations*

Treaty 5 First Nations have the right to hunt, trap, and fish for food throughout the year on all unoccupied Crown lands and on any other lands to which they may have a right of access within Manitoba (and within their Treaty area in Saskatchewan) as set out in the Manitoba *Natural Resources Transfer Act*.

The proposed road alignment and all Project components are located within the Asatawasipi Aki Land Use Planning Area and Berens River Trapping District, two provincially created land use planning units that are understood to represent the traditional territories of Poplar River First Nation and Berens River First Nation, respectively. Traditional territories and Reserve lands of Bloodvein First Nation and Hollow Water First Nation are located to the south of the Project. Traditional territories and Reserve lands of Little Grand Rapids First Nation and Pauingassi First Nation are southeast of the Project area.

8.1.2 *Métis People*

The Manitoba Metis Federation asserts harvesting rights throughout Manitoba. Métis citizens exercise Aboriginal rights in the Regional Assessment Area for the Project.

Berens River First Nation Reserve #13 is situated at the south end of the proposed road in the Northern Affairs Community of Berens River. The *Manitoba Metis Land Use and Occupancy Study for the East Side Road Authority Project (May 2016)* showed limited use of the Local Assessment Area by Métis; however during a June 2016 community meeting, Métis citizens identified a variety of land uses including hunting, fishing, gathering, trapping, travelling, staying on land and gaining/sharing knowledge around

the Berens and Poplar Rivers. This land use by Métis overlaps with the Local Assessment Area around the Berens and Poplar Rivers. The Manitoba Metis Federation stated it is possible there is greater use of the Project area by Métis as the land use and occupancy study conclusions were limited due to budget and sample size of interviews.

8.2 Potential Adverse Impacts of the Project on Potential or Established Aboriginal or Treaty Rights

This section summarizes how the Project may impact potential or established Aboriginal or treaty rights. Appendix E sets out all issues of concern identified by Indigenous groups.

8.2.1 *Proponent's assessment*

The proponent determined the Project would have no significant adverse effects on current use of lands and resources for traditional purposes (sections 6.4 – 6.6 of this draft EA Report). The valued components used to assess effects on current use included: hunting, trapping, fishing, and gathering; travel routes; cultural heritage and archaeological resources; tourism; and human health and safety. Since there is overlap between the analysis of effects on current use and impacts to potential or established Aboriginal or treaty rights, the proponent concluded the Project would also have no significant adverse impacts on Aboriginal or treaty rights. The proponent focused its EIS and assessment on impacts to rights on those communities having the greatest potential to be affected by the Project, Poplar River First Nation and Berens River First Nation.

The proponent anticipated that construction and operation of the proposed all-season road between Berens River and Poplar River First Nation would generate beneficial economic effects including employment and contract opportunities for residents and reductions in the cost of goods and services. Support for the proposed Project by both Poplar River First Nation and Berens River First Nation has been demonstrated in forms of agreement with the proponent including Memoranda of Understanding and Community Benefit Agreements.

Indigenous Groups' Views

Berens River First Nation passed a Band Council Resolution on November 9, 2016 stating it had identified no significant adverse effects on the exercise of treaty or Aboriginal rights by members of Berens River First Nation in relation to the Project and does not require any additional consultation regarding government decisions on the Project.

Poplar River First Nation indicated verbally on November 7, 2016 that it is mostly satisfied with the proposed road alignment and design but had outstanding concerns focused on ensuring watercourse crossing designs maintain navigation and fish passage; quarry development does not occur on the Poplar River side of the proposed road alignment and the need to have Manitoba Infrastructure confirm their commitment to support a ceremony led by elders at two particular sites before land clearing activities begin. The Agency has not received comments regarding impacts to potential or established Aboriginal or treaty rights from the other Treaty 5 First Nations identified as potentially affected by the Project

(Bloodvein First Nation, Hollow Water First Nation, Little Grand Rapids First Nation, and Pauingassi First Nation).

The Manitoba Metis Federation submitted comments to the Agency on June 2, 2016 noting the Project had potential impacts to Métis rights and land use by Métis citizens through potential changes to the physical environment as well as changes to resource access. At a community meeting in June 2016, Métis participants expressed concerns about the environmental effects of the Project on wildlife, and effects on hunting.

On November 1, 2016, Manitoba Metis Federation submitted comments to the Agency indicating that the proponent had not provided sufficient responses to questions regarding Manitoba Metis Federation's assertion of potential adverse impacts to Metis (Aboriginal) rights. The Manitoba Metis Federation has indicated that the limited funding provided by the Proponent was not sufficient to identify potential sites of cultural significance and that the Proponent has not fully considered its land use and occupancy information. The Manitoba Metis Federation indicated there is a need to further identify culturally significant sites in the Project area. The Manitoba Metis Federation also indicated that it should be included in all proponent communication plans regarding access restrictions to fishing and hunting areas during construction.

8.2.2 *Agency's Views*

In conducting its assessment of impacts to potential or established Aboriginal or treaty rights, the Agency relied on information in the proponent's EIS and associated documents and information provided by Indigenous groups, including the Manitoba Metis Land Use and Occupancy Study for the East Side Road Authority (SVS 2016), Poplar River First Nation's Asatawisipi Aki Management Plan, and comments provided by Berens River First Nation and Poplar River First Nation. Bloodvein First Nation contacted the Agency during the public comment period on the draft EIS Guidelines to explain the boundaries of their traditional territory. They did not participate further in the review. The Agency did not receive any information from Hollow Water First Nation, Little Grand Rapids First Nation, and Pauingassi First Nation regarding potential environmental effects or impacts to rights.

The Agency recognizes that the Project will have many beneficial impacts for the social and economic conditions and rights of the Berens River First Nation and Poplar River First Nation by providing year-round vehicle access to Manitoba's southern road network. The Agency is of the view the Project would also cause low impacts to treaty or Aboriginal rights of the Berens River First Nation, Poplar River First Nation, and Manitoba Metis Federation due to effects on resources, temporary disruption to and competition for resources, and cultural or spiritual changes to the experiences of resource users.

Some loss, alteration or fragmentation of bird and wildlife habitat is expected and there may be some loss of berry picking and plant gathering areas. The road would increase access to traditional resources for traditional users but may also increase competition for resource use by non-community members.

During Construction, there may be reduced hunting and trapping success due to temporary disturbance to wildlife and reduced access to hunting and trapping areas. Fishing success may be reduced due to impeded access. Construction noise and activity may disturb resource users in adjacent areas.

During Operation, it is expected there will be increased access to traditional hunting areas by non-community members causing hunting success to be reduced due to increased non-community member hunting pressures. Access to traplines is also expected to increase for trappers, but there is a potential for disturbance to some existing traplines. Access to fishing opportunities should continue through watercourse crossings designed for boat passage or portages. Access to berry-picking areas may improve due to the road.

The proponent has committed to incorporating Poplar River First Nation's concerns regarding the use of bridges and quarry locations into the final design and would provide elders with the opportunity to hold pre-construction ceremonies.

The Agency is of the view that the proponent's efforts to minimize impacts through road alignment and proposed mitigation measures would avoid any serious impacts to rights. The Agency acknowledges some remaining concerns of Indigenous groups and recommends further measures suggested by Poplar River First Nation and Manitoba Metis Federation to accommodate potential impacts to rights (section 8.3).

Bloodvein First Nation, Hollow Water First Nation, Little Grand Rapids First Nation, and Pauingassi First Nation have not identified Project-related impacts in the Project area which could affect their rights.

8.3 Proposed Mitigation and Accommodation Measures

The proponent has described mitigation measures to prevent and minimize adverse environmental effects of the Project. A complete list of mitigation measures committed to by the proponent is provided in Appendix D.

In addition to the implementation of the mitigation measures identified by the Agency elsewhere in this draft EA Report, the Agency recommends the following measures be implemented by the proponent to accommodate potential impacts of the Project on asserted or established Aboriginal or treaty rights:

- Engage with Indigenous groups regarding watercourse crossing designs to facilitate navigation and fish passage;
- Do not establish quarries on the Poplar River side of the proposed road alignment;
- Notify Indigenous groups of construction start dates and arrange for pre-construction ceremony by elders at sites identified by Indigenous groups before land clearing activities begin; and
- Engage with Manitoba Metis Federation and its members to identify cultural sites of importance and notification procedures regarding access restrictions.

8.4 Agency conclusions regarding impacts to potential or established Aboriginal or Treaty rights

The Agency is of the view that project-related activities are expected to have a low impact on the Treaty 5 rights of Poplar River First Nation and Berens River First Nation, as well as the Aboriginal rights of Manitoba Metis Federation members and a negligible impact on Bloodvein First Nation, Hollow Water First Nation, Little Grand Rapids First Nation, and Pauingassi First Nation, after taking into consideration the mitigation and accommodation measures. Given the work that the proponent has done with Indigenous groups in the design of road alignment, these impacts are likely to be minor in scale, mostly short-term, with some permanent loss of harvesting areas. Mitigation and accommodation measures should allow the practice of rights in the same or similar manner as before the Project.

The Agency recognizes that consultation is ongoing and further information regarding potential residual impacts may still be forthcoming. Input from Indigenous groups on the draft EA Report will be considered and will assist the Agency in finalizing its conclusions regarding potential impacts from the Project on potential or established Aboriginal or treaty rights and interests.

9 Conclusions and Recommendations of the Agency

In preparing this draft EA Report, the Agency took into account the proponent's EIS, its responses to information requests, and the views of the public, government agencies, and Indigenous groups.

The environmental effects of the Project and their significance have been determined using assessment methods and analytical tools that reflect current accepted practices of environmental and socio-economic assessment practitioners, including consideration of potential accidents and malfunctions.

The Agency concludes that, taking into account the implementation of mitigation measures, the Project 4 – All-season Road Connecting Berens River and Poplar River First Nation Project is not likely to cause significant adverse environmental effects as defined in CEAA 2012.

The Agency has identified key mitigation measures and follow-up program requirements for consideration by the Minister of Environment and Climate Change in establishing conditions as part of her decision statement. Following the comment period on this draft EA Report, the Agency will submit the final EA report to inform the Minister's decision whether the Project is likely to cause significant adverse environmental effects, taking into account the implementation of mitigation measures. The Agency will also recommend that the Minister establish through her decision statement conditions that the proponent must meet with respect to mitigation and follow-up program requirements in the event that the Project is permitted to proceed.

Appendices

Appendix A Environmental Effects Rating Criteria

Valued Component	Magnitude	Geographic Extent[14]	Duration	Frequency	Reversibility
Fish and Fish Habitat	**Negligible:** No detectable change from baseline conditions. **Low, Minor:** The residual effect differs from the average value for baseline conditions, but is within the range of natural variation and well below a guideline or threshold value. **Moderate:** The residual effect differs from the average value for baseline conditions and approaches the limits of natural variation, but below or equal to a guideline or threshold value. **High:** The residual effect differs from the average value for baseline conditions and is a detectable change beyond the range of natural variation (i.e. change of state from baseline conditions) and exceeds a guideline or threshold value.	**Local:** The residual effect is limited to the Project Footprint. **Local Assessment Area:** The residual effect extends beyond the Project Footprint but not beyond the Local Assessment Area. **Regional Assessment Area:** The residual effect extends beyond the Local Assessment Area across the Regional Assessment Area.	**Short-term/ Temporary:** The residual effect lasts during a discrete construction activity or is limited to a season. **Medium-term:** The residual effect lasts for the duration of the Construction phase until Operation (8 to 10 years). **Long-term:** The residual effect lasts longer than the Construction phase (more than 10 years).	**Once:** The residual effect occurs once during any phase of the Project. **Intermittent:** The residual effect occurs at intermittent intervals during the Project. **Continuous:** The residual effect occurs continuously during any phase of the Project.	**Reversible:** The residual effect is reversible within the temporal boundary of the assessment . **Irreversible:** The residual effect is not reversible within the temporal boundary of the assessment or the duration of the residual effects is undefined or permanent.

[14] The Project Footprint, Local Assessment Area, and Regional Assessment Area considered in the assessment of an effect's geographic extent are described in Table 1, section 1.2.3.

Valued Component	Magnitude	Geographic Extent[14]	Duration	Frequency	Reversibility
Migratory Birds	**Negligible:** No detectable change from baseline. **Low, Minor:** The residual effect differs from the average value for baseline conditions, but is within the range of natural variation and well below a guideline or threshold value. **Moderate:** The residual effect differs from the average value for baseline conditions and approaches the limits of natural variation, but below or equal to a guideline or threshold value. **High:** The residual effect differs from the average value for baseline conditions and is a detectable change beyond the range of natural variation (i.e. change of state from baseline conditions) and exceeds a guideline or threshold value.	**Local:** The residual effect is limited to the Project Footprint. **Local Assessment Area:** The residual effect extends beyond the Project Footprint but not beyond, the Local Assessment Area. **Regional Assessment Area:** The residual effect extends across the Regional Study Area and/or the population of a species.	**Short-term/ Temporary:** The residual effect lasts during a discrete construction activity or is limited to a season. **Medium-term:** The residual effect lasts for the duration of the Construction phase until Operation (8 to 10 years). **Long-term:** The residual effect lasts longer than the Construction phase (more than 10 years).	**Once:** The residual effect occurs once during any phase of the Project. **Intermittent:** The residual effect occurs at intermittent intervals during the Project. **Continuous:** The residual effect occurs continuously during any phase of the Project.	**Reversible:** The residual effect is reversible within the temporal boundary of the assessment. **Irreversible:** The residual effect is not reversible within the temporal boundary of the assessment or the duration of the residual effects is undefined or permanent.
Aboriginal Peoples: Effects on Current Use of Lands and Resources for Traditional Purposes; Health and Socioeconomic Conditions; Physical or Cultural Heritage and Historical, Archeological, Paleontological or Architectural Sites or Structures	**Negligible:** There is no detectable change from baseline use conditions. **Low:** The magnitude of the effect differs from baseline use conditions, but the activity could be practiced in the same or similar manner as before. **Medium:** The magnitude of the effect differs from the baseline use conditions and preferred locations and means for practicing the activity may be lost or modified. **High:** The magnitude of the effect differs from baseline use conditions and the activity can no longer be carried out in the preferred manner and locations.	**Local:** The residual effect is limited to the Project Footprint. **Local Assessment Area:** The residual effect extends beyond the Project Footprint to the Local Assessment Area. **Regional:** The residual effect extends across the Regional Assessment Area.	**Short-term/Temporary:** The residual effect lasts during a discrete construction activity or is limited to a season. **Medium-term:** The residual effect lasts for the duration of the Construction phase until Operation (8 to 10 years). **Long-term:** The residual effect lasts longer than the Construction phase (more than 10 years).	**Once:** The residual effect occurs once during any phase of the Project. **Intermittent:** The residual effect occurs at intermittent intervals during the Project. **Continuous:** The residual effect occurs continuously during any phase of the Project.	**Reversible:** The residual effect is reversible within the temporal boundary of the assessment. **Irreversible:** The residual effect is not reversible within the temporal boundary of the assessment or the duration of the residual effects is undefined or permanent.

Valued Component	Magnitude	Geographic Extent[14]	Duration	Frequency	Reversibility
Transboundary atmosphere (greenhouse gas emissions)	**Negligible:** There is no detectable change from baseline use conditions. **Low:** The emissions differ from baseline and contribute a small amount to Provincial or National Emissions. **Medium:** The emissions differ from baseline and contribute a small amount to Provincial or National Emissions. **High:** The emissions are considered large when compared with Provincial and National Emissions.	**Regional:** The residual effect extends across the Regional Assessment Area. **Beyond Regional:** The residual effect extends beyond the Regional Assessment Area.	**Short-term/ Temporary:** The residual effect lasts during a discrete construction activity or is limited to a season. **Medium-term:** The residual effect lasts for the duration of the Construction phase until Operation (8 to 10 years). **Long-term:** The residual effect lasts longer than the Construction phase (more than 10 years).	**Once:** The residual effect occurs once during any phase of the Project. **Intermittent:** The residual effect occurs at intermittent intervals during the Project. **Continuous:** The residual effect occurs continuously during any phase of the Project	**Reversible:** The residual effect is reversible within the temporal boundary of the assessment. **Irreversible:** The residual effect is not reversible within the temporal boundary of the assessment or the duration of the residual effects is undefined or permanent.

Source: ESRA, Project 4 EIS

Appendix B Summary of Environmental Effects Assessment

Residual effect	Predicted degree of effect after mitigation					Significance of residual adverse environmental effects
	Magnitude	Extent	Duration	Frequency	Reversibility	
Fish and Fish Habitat						
Residual effects to fish habitat from loss of instream and riparian habitat.	Low	Local	Long-term	Once	Irreversible	Not significant
Residual effects to fish from changes in water quality and increased fishing pressure from non-community member resource users.	Low	Local	Short-term	Intermittent	Reversible	Not significant
Migratory Birds						
Residual effect to migratory birds and nests through habitat loss/alteration/fragmentation.	Low	Local	Long-term	Once	Irreversible	Not significant
Residual effect to migratory birds from sensory disturbance.	Low	Local	Long-term	Continuous	Irreversible	Not significant
Aboriginal people – Current use of lands and resources						
Residual effect due to changes in success of gathering practices.	Low - Moderate	Local	Short-term	Once	Irreversible	Not significant
Residual effect due to changes in success of hunting/trapping efforts.	Low	Local	Long-term	Intermittent	Reversible	Not significant
Residual effects to changes in success of fishing.	Low	Local	Short-term	Intermittent	Reversible	Not significant
Residual effect to changes in access to habitations, gathering and cultural or spiritual sites.	Low	Local	Short-term	Intermittent	Reversible	Not Significant
Aboriginal people – Health and socio-economic conditions						
Residual effect due to commercial trapping.	Low - Moderate	Local	Long-term	Intermittent	Reversible	Not significant
Residual effect to health from noise.	Low	Local	Short-term	Intermittent	Reversible	Not significant
Residual effects to health from reduced air quality.	Low	Local Assessment Area	Short-term	Intermittent	Reversible	Not significant
Residual effects to health from reduced quality of traditional foods.	Low	Local Assessment Area	Short-term	Intermittent	Reversible	Not significant
Aboriginal people – Physical and cultural heritage						
Residual effects to cultural heritage, archaeological and paleontological sites.	Low	Local	Short-term	Intermittent	Irreversible	Not significant
Transboundary effects – Greenhouse Gas Emissions						
The Project would result in emissions of greenhouse gases.	Low	Regional	Long-term	Continuous	Irreversible	Not significant

Appendix C Key Mitigation Measures, Monitoring, and Follow-Up Requirements Considered by the Agency

Valued Component	Mitigation Measures	Monitoring and Follow-Up
Effects identified under subsection 5(1) of the Act		
Fish and fish habitat including aquatic species at risk	• Offsetting habitat for Project effects to fish and fish habitat, including direct instream and riparian habitat destruction; • Design bridge and culvert crossing structures to maintain existing flow regimes and allow for the passage of fish; • Monitoring species presence/absence and pre-construction salvage of mapleleaf mussel; • Adherence to fisheries timing windows during work in fish-bearing watercourses; • Maintain a minimum of a 100 m buffer from waterbodies except when crossing a watercourse; • Complete geochemical testing of potential quarries and only select those without the potential for acid rock drainage; • Locate quarries within the Poplar River watershed on the west side of the proposed route alignment; • Implement erosion and sedimentation control measures; • Isolate in-stream works and maintain water flows during construction; and • Use of ammonium nitrate-fuel oil mixtures will not occur in or near watercourses.	• Monitoring water quality turbidity during in-water works and/or other construction activities for the introduction of sediment and other deleterious substances.
Migratory birds including those listed as federal species at risk	• Avoid site disturbance, including clearing activities, during migratory bird breeding seasons; • Carry out all phases of the Project in a manner that protects and avoids harming, killing or disturbing migratory birds or destroying or taking their nests or eggs, including adhering to the breeding period for songbirds and waterbirds; • Maintain the hydrology of wetlands located within the Project Footprint; • Control lighting required for Construction and Operation of the Project, including direction and timing to avoid effects on	• Monitoring of any interactions between Project activities and birds and nests including species of cultural importance and species at risk to determine the effectiveness of mitigation measures to avoid harm to migratory birds, their eggs and nests.

Valued Component	Mitigation Measures	Monitoring and Follow-Up
	migratory birds, while meeting operational health and safety requirements; • Implement buffer zones for nests and indicated nests; and • Take into consideration Environment and Climate Change Canada's Avoidance Guidelines for Migratory Birds.	

Current use of lands and resources for traditional purposes by Aboriginal groups	• Notify Indigenous groups of the timing, duration, and levels of noise generated by project activities in traditional use areas identified by Indigenous groups;
	• Notify Indigenous groups 30 days in advance of initiating construction;
	• Limit construction activities and road clearing to avoid birthing times for moose;
	• Provide crossing ramps to allow for safe snowmobile road crossing;
	• Reduce access points to traditional harvesting areas from the road right-of-way;
	• Design watercourse crossings along key waterways used for fishing and tourism-related activities for boat passage or include portages;
	• Retain navigation access during construction as per construction specifications and permits obtained from Transport Canada under the *Navigation Protection Act*;
	• Provide local communities with notification of Construction activities and navigation hazards;
	• Provide local communities with regular Project construction progress updates including information on how and when traditional travel routes will be potentially affected and temporary alternative routes;
	• Implement dust suppression for all phases of the Project;
	• Revegetate along alignment and borrow locations created during construction;
	• Undertake progressive reclamation of the winter road including active replanting of tree species to replace caribou habitat within the Atikaki-Berens Management unit; and
		• Monitoring of:
		  • navigability of watercourse crossings;
		  • moose mortality within the Local Assessment Area;
		  • furbearer movement, habitat use and harvest;
		  • caribou mortality, movement and habitat use within the Local Assessment Area; and
		  • revegetation success along the alignment, borrow pits and reclaimed winter road.

Valued Component	Mitigation Measures	Monitoring and Follow-Up
	• Include structures to reduce sight-lines and reduce predator ease of movement and hunting.	
Health and socio-economic conditions of Aboriginal groups	• Provide community updates regarding the location and timing of Construction noise activities; • Ensure trapper access to trap lines during construction; • Implement measures to mitigate effects from fugitive dust, including dust suppression activities; • Establish speed limits and require project-related employees to abide by those limits on access roads associated with the Project; • Use noise dampening technologies on vehicles and equipment; • Maintain a 100 m buffer between construction activities and watercourses except at watercourse crossings; and • Revegetate cleared areas with native vegetation or apply erosion control blankets.	• Monitoring project-related impacts on trap line activity to confirm the adequacy of proposed mitigation measures.
Physical or cultural heritage and effects on historical, archaeological, paleontological or architectural sites or structures of Aboriginal groups	• Notify communities in advance of starting Construction to facilitate traditional ceremonies; • Flag construction exclusion areas around discovered cultural, heritage, and archaeological sites when encountered during construction activities; • Identify construction exclusion zones on right-of-way mapping for contract administrators; • identify and implement measures to mitigate any adverse project-related effects on physical and cultural heritage features, structures, sites or things found during construction following consultation with Indigenous groups; and • Provide instructions to contractors on procedures to follow if archaeological sites or objects are exposed during construction.	• No follow-up activities were identified in relation to physical or cultural heritage and effects on historical, archaeological, paleontological or architectural sites or structures.
Other measures		

Valued Component	Mitigation Measures	Monitoring and Follow-Up
Species at risk	• Clearing will be scheduled during fall and winter (between September 1 and March 31) to avoid calving period for boreal woodland caribou, common snapping turtle breeding and hatchling emergence periods and movements, and bat summer roosting use of forested habitats; • Quarry blasting and other construction activities will be suspended near sensitive sites during spring months (May 15 to July 1); • Construction activities will be stopped and delayed in sensitive areas until caribou use of the area or sensitive time period has passed; • Inspectors and Contractor Administrators will receive training and handbooks to identify all potential species at risk that could be encountered and the Environmental Inspector will be advised in the case potential species at risk are observed within the Project Footprint and Local Assessment Area; • Wolverine dens, bat hibernacula, and large stick nests found during Construction will be marked and isolated as Environmentally Sensitive Sites and setbacks from construction activities and/or staged construction activities will be implemented; • Wildlife awareness training will be provided for road construction workers to reduce vehicle speeds; • Access to the all-season road corridor will be restricted to construction personnel; • Winter roads and temporary access routes and trails no longer required as construction proceeds will be blocked; • Disturbed areas will be reclaimed and natural re-vegetation encouraged or augmented by native plants and seeds if required; • Possession of firearms by workers will be prohibited in camps and at work sites; and • Wildlife warning signs will be installed in common snapping turtle high use areas and at known crossing locations; and • Monitoring of presence and absence of species at risk (boreal	• Monitoring and follow-up activities related to species at risk are described above under Migratory Birds, and Fish and Fish Habitat.

Valued Component	Mitigation Measures	Monitoring and Follow-Up
	woodland caribou, little brown myotis, northern myotis, wolverine, and common snapping turtle) during construction.	
Accidents and Malfunctions	• Conduct machinery cleaning, fueling and maintenance and store hazardous substances a minimum of 100 m from the high water mark in maintenance compounds; • Store diesel and gasoline in accordance with the National Fire Code of Canada 2010 and the *Storage and Handling of Petroleum Products and Allied Products Regulation* of *The Dangerous Goods Handling and Transportation Act of Manitoba*; and • Store, use and handle explosives according to federal and provincial legislation.	• No monitoring or follow-up activities were identified in relation to accidents and malfunctions.
Effects of the environment on the Project	• Designing Project components to withstand 1:100 year flood events; • Suspending construction activities during extreme weather events, flood events, or forest fire events; • Providing erosion protection and sediment control as required; • Including responses to extreme weather events, flood events, or forest fire events in emergency response plans for road construction; • Preparing Emergency Response Plan for road operation that includes flooding; • Inspecting and repairing Project components as required after extreme weather events, flood events, or forest fire events; and • Coordinating contingency procedures with First Nations and Northern Affairs Communities in communication with the Royal Canadian Mounted Police (RCMP) regarding RCMP's decisions to close roads due to unsafe conditions.	• No monitoring or follow-up activities were identified in relation to the effects of the environment on the Project.
Cumulative environmental	• The Agency considers the mitigation measures identified in sections 6.1 (fish and fish habitat), 6.2 (migratory birds), and	• The Agency considers the follow-up and monitoring programs identified in sections 6.1 (fish and fish habitat),

Valued Component	Mitigation Measures	Monitoring and Follow-Up
effects	6.4 (current use of lands and resources for traditional purposes) of this draft EA Report appropriate.	6.2 (migratory birds), and 6.4 (current use of lands and resources for traditional purposes) of this draft EA Report appropriate to verify the predictions of cumulative environmental effects to current use, and the effectiveness of mitigation measures.
Impacts on Potential or Established Aboriginal or Treaty Rights	• Engage with Indigenous groups regarding watercourse crossing designs to facilitate navigation and fish passage; • Do not establish quarries on the Poplar River side of the proposed road alignment; • Notify Indigenous groups of construction start dates and arrange for pre-construction ceremony by elders at sites identified by Indigenous groups before land clearing activities begin; and • Engage with Manitoba Metis Federation and its members to identify cultural sites of importance and notification procedures regarding access restrictions.	• The Agency considers the monitoring and follow-up measures related to fish and fish habitat and current use of lands and resources for traditional purposes appropriate in addressing the impacts to Aboriginal or Treaty Rights.

Appendix D Mitigation Measures, Monitoring, and Follow-Up Proposed by the Proponent

The proponent committed to implementing mitigation measures, monitoring, and follow-up activities to reduce adverse effects from the Project. The following table presents the mitigation measures, monitoring, and follow-up activities that are relevant to CEAA 2012. Appendix C lists those mitigation measures and follow-up program requirements to be recommended by the Agency to the Minister of Environment and Climate Change for potential inclusion in a CEAA 2012 decision statement.

Valued Component	Mitigation Measures	Monitoring and follow-up activities
Effects identified under subsection 5(1) of CEAA 2012		

All valued components		• Proponent will engage in-house environmental staff and specialized environmental consultants to conduct monitoring of specific components of the environment.
		• Results from the monitoring and follow-up programs will be provided as appropriate to the advisory committees, stakeholders, Aboriginal communities, and federal and provincial authorities.
		• Additional monitoring or adjustments to the monitoring programs will be made in consideration of the responses from the advisory committees, stakeholders, Aboriginal communities, and federal and provincial authorities.
		• The proponent with its consultants will consider the results from the monitoring and follow-up programs to review the status of the environmental protection activities on an on-going basis. If the monitoring programs identify any unforeseen environmental effects or the environmental protection measures are not performing as intended, the Manager of Environmental Services will bring such occurrences to the attention of the ESRA Executive Management and recommend amendments.
		• Monitoring and follow-up will be included in:
		  ◦ Environmental Management Procedures,
		  ◦ Wildlife Monitoring Plan,
		  ◦ Aquatic Environment Monitoring Plan,
		  ◦ Decommissioning Plan related to the closure of reclamation of temporary construction facilities and borrow pits,

Valued Component	Mitigation Measures	Monitoring and follow-up activities
		• Winter Road Closure and Reclamation Plan, and • Emergency Response Plan for environmental accidents and spills.
Fish and fish habitat including aquatic species at risk	*For fish mortality* • Offsetting habitat for Project effects to fish and fish habitat, including direct instream and riparian habitat destruction. • Pre-construction salvage of mapleleaf mussel. • Instream construction activities conducted in fish bearing watercourses will be timed to avoid fish spawning and incubation periods in spring (April1-June 15), summer (May 1-June 30) and fall (September 15-April 30). • Fish salvage will be conducted within the isolated work area of fish-bearing watercourses prior to the commencement of instream work. • Temporary and permanent structures will avoid critical species at risk habitat, where possible and species surveys with relocation will be conducted if required. • Riparian vegetation clearing within the right-of-way will be limited to the removal of trees and tall shrubs (to maintain line of sight safety requirements) with no removal of low growing vegetation beyond the road surface and shoulder. *For surface water quality* • Locate quarries within the Poplar River watershed on the west side of the proposed route alignment. • Clearing limits will be clearly marked prior to riparian vegetation removal to avoid unnecessary damage to or removal of vegetation. • Appropriately designed watercourse crossing structures and equalization culverts will be installed to preserve existing surface water drainage patterns to the extent feasible. • Where possible, roads and construction activities will be a minimum of 100 m from waterbodies except when crossing a	*For fish mortality* • Monitoring of TSS/turbidity levels during construction activities (including cofferdam and silt curtain removals) on fish-bearing watercourses. • Regular site inspections to confirm that appropriate construction best management practices and mitigation measures are implemented, adequately maintained and effective. • If mapleleaf mussel relocation is required during construction of the P4 Project, the relocated mussels will be monitored for growth and survival or as stipulated in the SARA Permit. Monitoring may include sampling one year following relocation, at water temperature greater than 16 C where a subset of marked mussels will be sampled for survival, growth, and movement. Migration will be monitored as the number of marked relocated mussels observed outside of the assigned relocation cell or entire grid. • Post-construction monitoring may be performed at fish bearing crossing sites and off-setting sites where necessary. Parameters may include fish passage, sediment, and erosion control and/or off-setting projects. Methods may include conducting inspections, collecting photographic records, biological sampling, and physical measurements. Frequency and duration of monitoring will be determined in discussion with the Department of Fisheries and Oceans Canada, and Manitoba Conservation and Water Stewardship, and will be designed specifically to each site. *For surface water quality* • Water quality will be monitored for potential adverse effects

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	watercourse. • Where a 100 m distance is not possible, a buffer zone of undisturbed vegetation between the construction activities and the watercourse will be established. The buffer zone width will be established according to the following formula: Width = 10 m + (1.5 X slope gradient) or 30 m whichever is greater. • Clearing within 30 m of a watercourse will be completed by hand. • Clearing near watercourses will be temporarily suspended during very wet or muddy conditions. • Vegetation will be retained as long as possible to minimize the exposure time of disturbed/bare soils to potential erosion. • Slash or debris piles will be stabilized and stored above the high water mark until disposal. • Overburden will be adequately stabilized and stored above the high water mark. • In-stream work will be conducted during winter months or low flow conditions, and in isolation of flowing water (e.g., with the use of cofferdams, channel diversions, silt curtains) to mitigate downstream sediment transfer. • Silt curtains will be installed downstream of in-water work, if appropriate. • Appropriate erosion and sediment control (ESC) measures will be in place prior to the commencement of clearing and construction. • ESC measures will be regularly inspected and maintained to confirm effectiveness throughout construction. • Disturbed areas will be stabilized through revegetation with native plant species or other appropriate means (e.g., erosion control blankets) following completion of the works. • ESC measures will remain in place until disturbed areas are stabilized and revegetated. • Surface water drainage will be directed along the road or around cleared areas and away from watercourses. • Vegetation clearing will be limited to the extent feasible to minimize the potential for soil erosion; within the right-of-way,	of construction on fish, fish habitat, and aquatic resources related to the introduction of sediment and other deleterious substances into watercourses, as well as adverse changes to drinking water quality potentially affecting human health. Water quality will be monitored during in-water works and/or other construction activities conducted near water, as appropriate. • Other sampling may occur to monitor for other water quality properties, as appropriate. • Data collected at downstream sites will be compared to upstream reference sites to monitor the effects of construction in relation to Manitoba Water Quality Standards, Objectives, and Guidelines for Aquatic Life (MWQSOGs) for the protection of aquatic life. • TSS and turbidity sampling will be conducted prior to construction to establish a TSS/turbidity relationship for the project area. This relationship will facilitate use of turbidity as a proxy for TSS allowing for rapid on-site assessment of potential water quality impacts during the construction phase of the Project. • A turbidity monitoring program will be conducted during instream construction activities to document the spatial extent and magnitude of impacts to TSS/turbidity levels. Turbidity monitoring will use an upstream-downstream approach. Data collected at downstream sites will be compared to upstream reference sites (i.e., the background conditions) to quantify the effects of construction on TSS/turbidity and facilitate comparison of increases to Manitoba Water Quality Standards, Objectives, and Guidelines for Aquatic Life (MWQSOGs) for the protection of aquatic life. • Monitoring will consist of regular in situ turbidity measurements at transects and periodic measurements in the plume. • Turbidity loggers may be deployed in the streams during

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	vegetation clearing will be limited to the removal of trees and tall shrubs (to maintain line of sight safety requirements) with no removal of low growing vegetation. • Instream work will be conducted during winter months or low flow conditions, and in insolation of flowing water. • The existing alignment and gradient of the watercourse will be maintained. • Culverts/crossings will be designed to accommodate 1:100 year flows. • All quarry sites and rock materials used for construction will be inspected for the presence of pyrite/sulphite/iron precipitates; pH and sulphur analyses will be completed when necessary; rock with ARD potential to affect surface water quality will not be used. • Dust suppressants will not be applied to the road within 50 m of any watercourse. • Areas for cleaning of equipment used in concrete work will be a minimum 100 m from a watercourse or other sensitive feature and will not drain to any watercourse. • Uncured or partly cured concrete will be kept in isolation from watercourses. • Water that has contacted uncured concrete will be isolated from watercourses until it has reached a neutral pH. • Equipment used in concrete work will be cleaned away from watercourses to prevent wash water from entering waterways. • On-going maintenance and management of road surface and drainage infrastructure to minimize potential sediment releases to watercourses.	construction to assist in data collection. • Frequency of transect monitoring will be adapted to reflect the duration and nature of instream activities, and will target collection of data during both periods of peak TSS levels as well as more typical conditions. • Plume monitoring will be conducted to estimate the downstream extent and magnitude of any sediment plume. Three or less transects will be established within the mixing zone and TSS and turbidity measurements will be collected across each transect. • All water pumped from coffer dams will be monitored to determine if it meets Manitoba Water Quality Standards, Objectives, and Guidelines for Aquatic Life (MWQSOGs). If guidelines are exceeded, appropriate mitigation measures will be implemented to treat the water before it re-enters the watercourse.
Migratory birds including those listed as federal species at risk	• Control lighting required for Construction and Operation of the Project, including direction and timing to avoid effects on migratory birds, while meeting operational health and safety requirements. • Take into consideration Environment and Climate Change Canada's Avoidance Guidelines for Migratory Birds.	• No migratory birds and bird species at risk monitoring or follow-up activities were included by the proponent in their proposed monitoring and follow-up programs.

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	• Project routing and siting to avoid sensitive areas and high quality habitats to the greatest extent feasible. • Activities timed to occur during fall and winter where feasible to avoid nesting periods. • Activities limited to work areas within the Project Footprint. • Applying dust suppression techniques as per ESRA's GR130s and Environmental Protection Procedures. • Rehabilitation of trails and winter roads to offset habitat loss. • Conduct pre-clearing migratory bird nest surveys during the nesting season. If found, they will be marked and isolated as Environmentally Sensitive Sites and setbacks from construction activities will be implemented to the greatest extent feasible. • Reclaim disturbed areas and encourage natural regrowth, e.g., temporary access routes, winter roads and trails will be decommissioned as soon as feasible to allow the regeneration of vegetation. • A vegetated buffer zone will be retained between the all-season road and lakes or ponds along the right-of-way, e.g., Bull Lake and Pamatakakowin Lake. • Existing water flow patterns, water levels and wetland hydrologic regimes will be maintained. *For species at risk* • Pre-construction survey to identify and avoid stick nests and nesting colonies during construction of temporary construction sites (e.g., camps and laydown areas, temporary works, access roads). • Right-of-way selected to avoid sensitive sites such as raptor nests, multi-generational stick nests, and nesting colonies. • Clearing activities will occur between September 1 and March 31 (outside breeding season); if any clearing is required during the breeding bird season, pre-clearing nest surveys will occur within 7 days of the clearing; buffers will be established around each nest, clearing activities restricted near active bird nests or nest cavities.	

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	• Reclaim disturbed areas or encourage natural re-vegetation augmented by native plants and seeds if required; block abandoned access roads and encourage natural re-vegetation; rehabilitation of trails and winter roads to offset habitat loss. • Use existing disturbed or cleared areas for road right-of-way where practical. • Leave vegetated buffers between road and disturbed areas such as quarries and borrow pits. • Inspectors and Contract Administrators will receive training and handbooks to identify all potential species at risk that could be encountered - the Environmental Inspector will be advised when encounters occur and management strategies applied if required.	
Current use of lands and resources for traditional purposes by Aboriginal groups	• Notify Indigenous groups of the timing, duration, and levels of noise generated by project activities in traditional use areas identified by Indigenous groups. • Notify Indigenous groups 30 days in advance of initiating Construction. • Navigation access will be retained during construction as per construction specifications and permits obtained from Transport Canada under the Navigation Protection Act. • Implement dust suppression for all phases of the Project. • Engage communities in the planning and design of the all-season road and incorporate feedback. • Communicate information on planned and active construction activities to facilitate local planning of harvesting activities and provide opportunities for ongoing input into the project. • Routing all-season road to avoid areas of high quality habitat where feasible. • Measures to protect wildlife and associated habitat will support hunting success rates. • Dens found during pre-construction surveys will be marked and isolated as Environmentally Sensitive Sites. • Limiting construction to work areas within the Project Footprint	• Post-construction monitoring may be performed as necessary on caribou and moose. Parameters may include distribution/abundance; moose/caribou range overlap, calving, habitat, range fragmentation, and/or predation by wolves or other animals and/or pregnancy analysis. Methods may include conducting aerial surveys, wolf collaring, caribou collaring, obtaining GPS tracking data, trail camera studies, point density analysis, blood, fecal analysis and/or traditional knowledge acquired through Trapper Participation Programs. Frequency and duration of monitoring efforts will be determined in discussion with Manitoba Conservation and Water Stewardship. Construction monitoring results may indicate that no follow-up monitoring is required. • The post-construction monitoring studies summarized above will be implemented where and when necessary and reviewed with regulatory authorities and finalized prior to the initiation of the proposed post-construction monitoring program. In the event that unexpected adverse effects to a VC(s) are observed during post-construction monitoring studies, adaptive management strategies to mitigate adverse effects will be determined in discussion with regulatory

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	and Local Assessment Area (quarries). • Staging construction, i.e., stop and delay construction activities in sensitive areas until animal use of the area and/or sensitive time period has passed. • Using existing access routes, trails, or cut lines to the extent feasible and access routes and trails will be kept as short and narrow as feasible. • Temporary construction-related access roads will be blocked after construction; natural revegetation will be encouraged and augmented by native plants and seeds. • Discuss with Chief and Council installation of trapline signage. • Conducting clearing and construction activities during winter months to the extent feasible. • Further assessing the two Arethusas (S2) specimens found within the Project Footprint and making efforts to protect them based on site-specific conditions. • Identifying mineral licks and including them in Environmental Protection Plans as Environmentally Sensitive Sites. • Suspending quarry blasting and other construction activities during spring months near known calving areas. • Trapper access to be accommodated in construction areas. • Hunting, trapping or harassment of wildlife by contractors, employees and agents will be prohibited. • Protection of wildlife and habitat to protect trapping success. • Road clearing activities will occur during daytime hours when marten (an important furbearing species) are less active. • Create temporary detours for snowmobiles and ATVs during construction. • Grubbing to not block access to the existing trails, trap lines, portages and other travel corridors. • ESRA's Special Provision 18 Trapline Access in construction contracts requires that access to key travel routes be maintained during construction.	authorities, and appropriate mitigation will be implemented as required.

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	For travel routes • Design watercourse crossings at major rivers to accommodate navigability for canoes and motorboats as required. • Provide community updates regarding location and timing of construction activities that could result in limited access so that alternative routes can be planned. • Identify and sign detour routes and portages. • Pause work for access during key times at key locations. • Create temporary detours for snowmobiles and ATVs during construction. • Provide access ramps to traditional travel routes bisected by the all-season road.	
Health and socio-economic conditions of Aboriginal groups	• Selecting a road alignment in close proximity to required building materials (rock, clay) to minimize the disturbance footprint. • Working directly with the local communities (Berens River First Nation/NAC, Poplar River First Nation, and the Manitoba Metis Federation) on the review of the various options and refinement of the alignments through leadership and elder meetings, community meetings and traditional knowledge studies. • Selecting a road alignment that provides appropriate setbacks from important physical features such as sensitive cultural, heritage and biophysical sites, and waterbodies, where possible. • Designing Culvert to preserve existing surface and shallow subsurface flow patterns; e.g.) Designs of watercourse crossing structures (i.e., bridges, culverts) that span the wetted perimeter, where possible, and meet 1:100 year flood design standards (i.e., Q1% flood/flow). • Selecting quarry, borrow, and temporary work/staging locations that avoid sensitive or important features associated with traditional activities and treaty and Aboriginal rights (i.e. trapper cabins, gathering areas). • Committing to construction activities and practices (e.g., erosion and sediment control, schedule, blasting, equipment idling), including health and safety, in construction contract documents	• No monitoring or follow-up activities were identified in relation to health and socio-economic conditions of Aboriginal groups.

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	that avoid or minimize potential environmental effects on the socio-economic and cultural environment. • Limiting construction to work areas within the Project Footprint and Local Assessment Area (quarries). No quarry development between the proposed road and Poplar River. • Measures to protect wildlife will minimize adverse effects to hunting success and therefore related tourism activities will not be adversely influenced. • Measures to protect fish and fish habitat will minimize adverse effects to recreational fishing success and therefore related tourism activities will not be adversely influenced. • Watercourse crossings along key waterways used for tourism-related activities to be designed for boat passage or to include portages. • Post "no entry", warning signs/lights and barricades (e.g., gates, fences), where necessary, around active construction/maintenance sites and crossing locations. • Monitor and enforce restricted access conditions. • Ramps for snowmobiles/ATVs to be placed at road/trail crossing intersections. • Management of right-of-way vegetation to maintain driver sightlines and safety clearance. • Approved dust suppressants (e.g., water) to be used as necessary. • As required, flag persons will direct traffic around maintenance activities. • Community updates to be provided regarding the locations of scheduled maintenance activities. • Idling of equipment and vehicles will be restricted to minimize emissions. • Work having the potential to create dust or smoke (e.g., blasting, debris burning) will not take place during high wind conditions. • Disturbed areas will be revegetated with native plant species following completion of the works. • Explosives will be detonated at sufficient setback distances to	

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	control for dust/debris expulsion. • Explosives will be detonated at sufficient distances from communities (i.e., First Nation reserves) to minimize noise/vibration effects. • Explosive materials will be stored, handled and used according to applicable regulations and guidelines. • Industry best practices (e.g., blasting plans, blasting mats, appropriate charging procedures) will be used for blasting activities. • Blasting will not occur during high wind conditions. Vehicles, machinery and equipment will be fitted with factory-installed noise-reducing components (e.g., mufflers, acoustic linings, shields), where possible and will be maintained to minimize excessive noise. • Industry best practices (e.g., blasting plans, blasting mats, appropriate charging procedures) will be used when near sensitive receptors (e.g., powerlines, waterways, heritage resources) for blasting activities. • Application of ESRA GR130s, Environmental Protection Procedures and mitigation measures identified above to minimize changes to water quality, air quality and noise levels that may temporarily alter the distribution of plants and animals serving as country foods. • Schedule road, bridge and culvert maintenance activities during fall and winter to the extent feasible to avoid sensitive lifecycle periods for animals serving as country food. • Road designed with no pull-outs or parking areas. • Burning will normally occur between November 16 and March 31 in accordance with permit requirements. • See also mitigations identified under “For travel routes” and “For surface water quality”.	
Physical or cultural heritage	• Engage communities in the planning and design of the all-season road and incorporate feedback.	• No monitoring or follow-up activities were identified in relation to physical or cultural heritage, and effects on

Valued Component	Mitigation Measures	Monitoring and follow-up activities
and effects on historical, archaeological, paleontological or architectural sites or structures of Aboriginal groups	• Communicate information on planned and active construction activities to facilitate traditional ceremonies in advance of construction. • HRIAs have been conducted and all known priority/significant sites have been avoided through route modifications. • Flag construction exclusion areas around discovered/previously unknown cultural, heritage and archaeological sites when encountered during construction and operations and maintenance activities and identify construction exclusion zones on right-of-way mapping for contract administrators. • Relocate heritage resources that would be destroyed by construction/maintenance activities only with consent from Manitoba Heritage Resources Branch and the local community. • Consult with the local community and/or the Métis on culturally appropriate measures and procedures to follow if archaeological sites or objects are exposed during construction. • Provide instructions to contractors on procedures to follow if archaeological sites or objects are exposed during construction. • Block and re-vegetate temporary access routes and other disturbed areas immediately after construction.	historical, archaeological, paleontological or architectural sites or structures of Aboriginal groups.
Greenhouse gas emissions	• Maintenance and upkeep of construction equipment. • Properly sized equipment. • Replacing or rebuilding older equipment with more fuel efficient new equipment. • Training for operators to ensure proper use of equipment under difference operating conditions. • Anti-idling policy. • Busing construction crews. • Providing remote work camp accommodations. • Using dual fuel generators. • Optimizing material selection, procurement, and shipping. • Paving the all-season road if threshold volumes are met and/or exceeded. • Providing inter-community transit services.	• Monitoring greenhouse gas inventory calculations and verification. • Collecting relevant data throughout Project duration to allow for possible recalculation of greenhouse gas inventory.

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	• Carbon offsets through afforestation/reforestation. • Protecting and preserving wetland systems within the ROW. • Proper storage and handling of fuels and other VOC-generating construction supplies.	
Other Measures		
Species at risk	• Limit clearing to designated areas within the right-of-way and other areas. • Traditional knowledge, including specific consideration of species at risk, was utilized as part of route selection. • Disturbance minimization, e.g., equipment to remain on right-of-way or within marshalling areas. • Identify areas of non-disturbance around high quality habitat. • Inspectors and Contract Administrators will receive training and handbooks to identify all potential species at risk that could be encountered – the Environmental Inspector will be advised when encounters occur and management strategies applied if required. • Habitat identification and protection – avoid/minimize effects on high quality habitat.	• Post-construction monitoring studies may be carried out on the following VCs: fish habitat, mapleleaf mussel, caribou, moose, and furbearers.
Accidents and malfunctions	• Adherence to provincial regulations and guidelines regarding hazardous substance storage, use and handling. • Adherence to ESRA's Environmental Protection Specifications (GR130s). • Adherence to ESRA's Workplace Safety and Health Specifications (GR140s). • Adherence to federal regulations for the storage of explosives. • Adherence to provincial Code of Practice and legislative regulations / requirements for the use of explosives. • Develop and implement Site Health and Safety Plans prior to construction. • Conduct regular construction site safety meetings. • Conduct regular safety inspections of construction sites. • Workers to be educated regarding safe construction practices including use of Personal Protective Equipment.	• Follow-up actions will include inspections of hazardous substance storage and dispensing facilities and hazardous waste storage locations, review of incident and inventory reports and records, periodic testing and evaluation of emergency response procedures, and conducting environmental site assessments as part of decommissioning temporary construction facilities such as fuel storage locations and construction sites. • Follow-up actions will include inspections of construction/maintenance sites and work locations, review of incident and inventory reports and records, and periodic testing and evaluation of emergency response procedures.

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	• Warning signs and reduced speed limits to be established at known wildlife crossing locations. • Warning signs and lights to be displayed for road maintenance equipment. • Blasting contractor(s) will be certified. • Presence and maintenance of on-site fire suppression equipment. • Provide warning signage, speed control, flag persons near work areas along the all-season road, as required. • Adherence to provincial highway safety regulations and codes. • Posting of appropriate speed limit, crossing and wildlife warning signage. • Blasting locations and timing to be provided to communities and construction workers. • Equip and maintain construction equipment, machinery and vehicles with appropriate safety features (e.g., back-up warning devices). • Speed limits on road to be established based on road design. • Incorporation of standard safe road design configurations and construction methods in the detailed all-season road design. • Fuels and other hazardous substances will be stored and dispensed at least 100 m from the high water mark of waterbodies and watercourses. • Fuel will be stored in approved containers with secondary containment for potential leaks/spills. • Drip-trays, blankets or pads will be used when transferring fuel at construction sites. • Equipment, machinery and vehicles will be checked for cleanliness and leaks upon arrival to site and checked and maintained daily thereafter. • Construction crews will be adequately trained on the handling, storage, and disposal of hazardous substances. • Spill clean-up kits will be available on site at all times. • Spills will be contained, treated and disposed of and reported in accordance with applicable provincial regulations and ESRA	

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	protocol. • Paints, solvents and other deleterious substances will be stored and mixed on land (i.e., not on bridge decks) to prevent accidental releases into watercourses. • Culvert and bridge crossings will be designed to direct storm water and road runoff into vegetated areas or armoured approaches to decrease the velocity and volume of runoff and encourage the settling of sediments and prevent the transport of deleterious substances. • Application of protective coatings will be conducted in a way that prevents deleterious substances (e.g., paint, paint flakes, blasting abrasives, solvents, etc.) from entering the watercourse (e.g. use of barges or shrouding). • Ammonium nitrate-fuel oil mixtures will not be used in or near watercourses. • Blasting will not occur on shorelines of watercourses. • Herbicides will be applied in accordance with manufacturers' guidelines and not within 30 m of any watercourse/waterbody.	

Appendix E Aboriginal Consultation Summary

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
Overarching Concerns			
Poplar River First Nation, Manitoba Metis Federation	Concerns regarding baseline information to support the proponent's assessment of effects including: • inaccuracies in wildlife reporting from flawed survey designs; • sampling of vegetation was conducted over too short a period and did not provide a comprehensive assessment of the potential impacts to native vegetative species; and • seasonal and multi-parameter water and sediment quality baseline information was not collected. Provided recommendations for improvements to the proponent's planned water quality monitoring such as the inclusion of an analysis of metals, polycyclic aromatic hydrocarbons (PAHs), nitrates, ammonia, nutrients, road salts, naturally occurring contaminants, and sediment quality for key sites likely to receive road effluents and watercourse crossings. Specific programs and parameters that will be monitored should be indicated with	The proponent noted that it would be applying mitigation measures proven to be successful on other similar projects including PR304 to Berens River All-Season Road, and consistent with those recommended by Environment Canada. The proponent responded that gaps in the wildlife baseline would be filled through the data collection and monitoring of wildlife and traditional use sites through the Project's Trapper Participation Program. The proponent's Wildlife Monitoring Plan will focus on key wildlife species, monitor for the detection of potential adverse effects; and assess the effectiveness of proposed mitigation. The proponent would monitor water quality during in-water works and/or other construction activities conducted near water, as appropriate. Monitoring would include: • Total Suspended Solids (TSS) and turbidity sampling prior to construction to establish a TSS-turbidity relationship for the Project to provide rapid on-site assessment of potential water quality during Construction. • Monitoring turbidity during instream construction activities to document the spatial extent and magnitude of impacts to turbidity/TSS levels. Turbidity data would be collected at downstream sites and compared to upstream reference sites (i.e.,	The Agency considered the baseline monitoring sufficient to understand potential Project effects and evaluate proposed mitigation measures. The Agency proposes potential conditions that would require the proponent to develop follow-up programs in consultation with Indigenous groups and relevant federal and provincial authorities that would require the proponent to monitor water quality turbidity during in-water works and/or other construction activities for the introduction of sediment and other deleterious substances; monitor any interactions between Project activities and birds and nests including species of cultural importance and species at risk to determine the effectiveness of mitigation measures to avoid harm to migratory birds, their eggs, and nests; and monitor revegetation success along the alignment, borrow pits, and reclaimed winter road. The Agency proposes a potential condition requiring the proponent to consult with Indigenous groups regarding their participation in the implementation of each follow-up requirement.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
	thresholds at which additional mitigation or adaptive management will be triggered.	the background conditions) to quantify the effects of constructions on TSS/turbidity and facilitate comparison of increases to Manitoba Water Quality Standards, Objectives, and Guidelines for Aquatic Life (MWQSOGs) for the protection of aquatic life. • Regular in situ turbidity measurements would be conducted at transects and periodic measurements in the plume. • Targeting periods of peak TSS levels as well as more typical conditions. In addition, all water pumped from coffer dams will be monitored to determine if it meets MWQSOGs. If guidelines are exceeded, appropriate mitigation measures will be implemented to treat the water before it re-enters the watercourse.	
Fish and Fish Habitat			
Poplar River First Nation, Berens River First Nation, Manitoba Metis Federation	Concerns about effects of the Project fish and fish habitat, including water quality, from sedimentation, and accidental spills. Recommended mitigation measures for water diversion pump use, concrete wash water management, construction crew education regarding access restrictions for sensitive areas and watercourses, and prohibition of herbicides near watercourses. All groups noted concerns regarding uncertain frequency of turbidity/TSS monitoring during instream works	The proponent responded that a number of mitigation measures are proposed for erosion control including: suspending clearing near watercourses during very wet or muddy conditions; retaining vegetation as long as possible to minimize the exposure time of disturbed/bare soils to potential erosion; stabilizing and storing slash or debris piles above the high water mark until disposal; utilizing silt curtains to prevent downstream sediment transfer; and stabilizing disturbed areas through revegetation with native plant species or other appropriate means (e.g., erosion control blankets) following completion of the works. The proponent indicated that surface water drainage would be directed along the road or around cleared areas and away from watercourses.	The Agency assessed the potential changes in fish and fish habitat including water quality and concluded that following the implementation of mitigation measures, the residual environmental effects to fish and fish habitat, and the current use of lands and resources for traditional purposes (fishing) are not expected to be significant. The Agency is proposing potential conditions that would require the proponent to maintain a minimum of a 100 m buffer from waterbodies except when crossing a watercourse; complete geochemical testing of potential quarries and only select those without the

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
	during Construction.	The proponent responded that construction crews would be adequately trained on the handling, storage, and disposal of hazardous substances; spill clean-up kits would be available on site at all times; spills would be contained, treated and disposed of and reported in accordance with applicable provincial regulations; paints, solvents and other deleterious substances would be stored and mixed on land (i.e., not on bridge decks) to prevent accidental releases into watercourses and herbicides would be applied in accordance with manufacturers' guidelines and not within 30 m of any watercourse/waterbody. The proponent indicated that water quality would be monitored during in-water works and/or other construction activities conducted near water, as appropriate for potential adverse effects of construction on fish, fish habitat, and aquatic resources related to the introduction of sediment and other deleterious substances into watercourses.	potential for acid rock drainage; implement erosion and sedimentation control measures; and Isolate in-stream works and maintain water flows during construction. The Agency is proposing potential conditions that would require the proponent to conduct machinery cleaning, fueling and maintenance and store hazardous substances a minimum of 100 m from the high water mark in maintenance compounds; store diesel and gasoline in accordance with the National Fire Code of Canada 2010 and the *Storage and Handling of Petroleum Products and Allied Products Regulation* of *The Dangerous Goods Handling and Transportation Act of Manitoba* and store, use and handle explosives according to federal and provincial legislation. The Agency is proposing a potential condition for follow-up to monitor water quality turbidity during in-water works and/or other construction activities for the introduction of sediment and other deleterious substances.
Poplar River First Nation	Concern that geochemical testing of rock had not been completed at potential quarries. Recommended that any quarry within the Poplar River watershed be located	The proponent responded that testing for potential acid rock drainage/metal-leaching would be completed early in the detailed design phase of the Project at proposed quarries before their development. This would be considered and avoided in quarry selection. •	The Agency is proposing potential conditions that would require the proponent to complete geochemical testing of potential quarries and only select those without the potential for acid rock drainage and locate any quarries

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
	on the west side of the proposed route alignment to provide sufficient buffer for potential effects to water quality, fish and fish habitat, and fishing on Poplar River.		within the Poplar River watershed on the west side of the proposed route alignment.
Manitoba Metis Federation	Concern that baseline monitoring of fish was insufficient and the absence of monitoring for benthic invertebrates or fish use of area lakes. Residual effects from the Project's permanent alteration of riparian habitat within the cleared right-of-way should be considered.	The proponent responded that if fish are found to be present in water bodies previously classified as non-fish bearing, protections for fish bearing watercourses would be implemented. The proponent responded that the Project is being designed to minimize effects to fish and fish habitat including loss of riparian habitat. Riparian habitat lost or disturbed would be considered as part of the fish offsetting plan required by Fisheries and Oceans Canada. The total riparian alteration anticipated from the four bridge crossings was updated from 192 m to 336 m.	The Agency is proposing potential conditions that would require the proponent to offset Project effects to fish and fish habitat, including direct instream and riparian habitat destruction, and maintain a minimum of a 100 m buffer from waterbodies except when crossing a watercourse.
Poplar River First Nation	Concern regarding culvert repair and debris jam removal activities during open water season and how this might impact fish and fish habitat. Concern regarding wastes generated during Operations from activities such as structural repairs, bridge cleaning and vegetation management including planned location for waste disposal.	The proponent responded that bridges and culverts would be inspected and maintained (removal of debris where necessary) throughout the open water season, respecting critical spawning and migration periods for fish (i.e. timing windows for in-water works to protect the fish and fish habitat).	The Agency is proposing potential conditions that would require the proponent to adhere to fisheries timing windows during work in fish-bearing watercourses and implement erosion and sedimentation control measures during Construction and Operation.
Poplar River First Nation, Manitoba Metis Federation	Concern with potential effects to mapleleaf mussel from the settling of heavy metal and/or other contaminants released from runoff. There was also concern that the single	The proponent responded that run off would not contain heavy metals. Mitigation measures to control sedimentation include: directing run off along the road or around cleared areas and away from watercourses; limiting vegetation clearing and revegetating with native plants as soon as possible.	The Agency is proposing potential conditions requiring pre-construction surveys and if necessary salvage of mapleleaf mussel.

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	season baseline field assessment may not have identified mapleleaf mussel present in other watercourses in the Project's Local Assessment Area.	The proponent responded that where in-water work is required in suitable mapleleaf mussel habitat (i.e. medium to large rivers) and presence of mapleleaf mussels has not been identified, a pre-construction survey would be conducted to verify species presence/absence. If mapleleaf mussel was found, pre-construction salvage would be undertaken.	
Berens River First Nation, Manitoba Metis Federation	Berens River raised concerns regarding the protection of fish passage to spawning areas, including spawning areas for sucker fish species in the proponent's ultimate detailed design for watercourse crossings. Manitoba Metis Federation requested additional details regarding the location and design of bridge abutments because of potential effects on fish passage.	The proponent responded that the final bridge designs (clear span, two-span, and three-span), as well as culvert sizes and depths or need for multiple culverts would not be finalized until the detailed design phase. Culvert size and installation depths would meet Fisheries Act requirements providing for fish passage to spawning areas.	The Agency is proposing potential conditions that would require the proponent to maintain water flows during construction to mitigate potential effects to fish passage and design bridge and culvert crossing structures to maintain existing flow regimes and allow for the passage of fish. During the regulatory phase, Fisheries and Oceans Canada would review final designs for watercourse crossings and other in water works to ensure that serious harm to fish is avoided unless authorized by Fisheries and Oceans Canada.
Manitoba Metis Federation	Concerns with proposed timing of instream activities that could affect periods of the year when fish are spawning or when sensitive life stages are present. Interest in consultation on the development of offsetting plans to address Project effects to fish and fish habitat.	The proponent responded that in stream water works would avoid fish spawning and incubation periods in spring (April 1-June 15), summer (May 1-June 30) and fall (September 15-April 30); fish salvage would be conducted within the isolated work area of fish bearing watercourses prior to the commencement of instream work; and water flow rates would be maintained during construction. The proponent would also implement an offsetting plan approved by Fisheries and Oceans Canada for	The Agency is proposing potential conditions that would require the proponent to develop an offsetting habitat plan for effects to fish and fish habitat, including direct instream and riparian habitat destruction; adherence to fisheries timing windows to mitigate potential effects to fish passage and implement follow-up monitoring of water quality and turbidity during in-water works and/or other construction activities

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		permanently or altered fish habitat.	for the introduction of sediment and other deleterious substances. The Agency is proposing a potential condition requiring the proponent to consult with Indigenous groups regarding participation of Indigenous groups in the implementation of the follow-up program.
Migratory Birds			
Poplar River First Nation	Poplar River First Nation suggested that species abundance and diversity in the area of the Project, particularly for migratory bird species such as common nighthawk, Canada warbler, and eastern wood-pewee may have been underestimated given the timing of sampling.	The proponent noted that effects to migratory birds were considered in the assessment through modelling of habitat losses and that mitigation measures to prevent Project effects on migratory birds would also apply to common nighthawk, Canada warbler and eastern wood-pewee.	The Agency is proposing potential conditions that would require the proponent to take into consideration Environment and Climate Change Canada's Avoidance Guidelines for Migratory Birds and that all phases of the Project be conducted in a manner that protects and avoids harming, killing or disturbing migratory birds or destroying or taking their nests or eggs, including adhering to the breeding period for songbirds and waterbirds.
Poplar River First Nation	Poplar River First Nation raised concerns about potential sensory disturbance effects of night-time illumination.	The proponent responded that the Project would require limited illumination during some aspects of Construction such as drilling but it would be temporary, short term, and the direction would minimize impacts to migratory birds.	The Agency is proposing potential conditions that would require the proponent to control lighting during Construction and Operation of the Project, considering direction and timing to avoid effects on migratory birds, while meeting operational health and safety requirements.
Manitoba Metis Federation	Concern that proposed 100m buffers on environmentally sensitive areas (e.g. heron rookeries) may not be sufficiently protective and that there is no description of how the proponent	The proponent responded that monitoring would be conducted to evaluate the success of mitigation measures including the establishment of buffers around environmentally sensitive areas.	The Agency is proposing potential conditions that would require the proponent to avoid site disturbance, including clearing activities, during migratory bird breeding seasons; carry out

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
	may approve activity resumption within the 100m set-back distances. Noted that follow-up and monitoring studies were not included for migratory birds and avian species of cultural importance (e.g., Bald Eagle) and that these should be required.		all phases of the Project in a manner that protects and avoids harming, killing, or disturbing migratory birds or destroying or taking their nests or eggs, including adhering to the breeding period for songbirds and waterbirds; taking into consideration Environment and Climate Change Canada's Avoidance Guidelines for Migratory Birds; and monitoring of any interactions between Project activities and birds and nests including species of cultural importance and species at risk to determine the effectiveness of mitigation measures to avoid harm to migratory birds, their eggs and nests.
Current Use of Lands and Resources for Traditional Purposes			
Poplar River First Nation, Berens River First Nation, Manitoba Metis Federation	Concerns that the use of culverts would affect community travel routes along watercourses. Noted a potential for altered hydrology as a result of Project development and water crossings (e.g. perched culverts, improperly sized culverts, channel constriction) and identified potential effects to fish and fish habitat, fishing, and travel, if hydrology is not maintained by proper construction, or through regular inspection of culverts and watercourse crossings.	The proponent responded that access to important sites including preserving navigation routes and trails would be maintained through proposed road design. Proposed crossings would maintain fish passage and existing flow regimes. Maintenance activities would be conducted on an as required basis and would comply with regulatory requirements (i.e. timing windows for in-water works to protect fish and fish habitat).	The Agency is proposing potential conditions that would require the proponent to design watercourse crossings to accommodate water travel and navigation and maintain existing flow regimes and allow for the passage of fish during Construction and Operation.
Poplar River First	Concern that quantitative baseline information on noise and detailed	The proponent evaluated the potential environmental effects of the Project on moose from habitat loss and	The Agency is proposing potential conditions that would require the

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
Nation	description of noise effects of the Project construction (e.g. blasting) and operation is lacking. Concerns with the potential for noise as a sensory disturbance to wildlife, causing wildlife, including hunted and trapped species, to move from current habitats to more distant areas away from Project construction activities. Specific concern that the hunting of moose could be impacted because of potential effects on moose behaviour and calving from blasting and other noise and increased access to the area by non-community members. Recommended avoidance of quarry blasting between August to November to prevent disturbance during rutting season and the community moose hunt in the fall. The need to protect bear dens and bird nests during construction was also noted.	alteration, sensory disturbance, disruption of movement and direct mortality (vehicle-moose collisions). Mitigation measures to avoid and minimize noise effects of the Project, include: not conducting blasting during high wind conditions and avoiding sensitive periods including moose calving periods; using noise-reducing components (e.g., mufflers, acoustic linings, shields) on vehicles, machinery and equipment; and applying industry best practices (e.g., blasting plans, blasting mats, appropriate charging procedures) for blasting activities. The proponent committed to informing Indigenous groups about Project activities so that harvesters can adjust harvesting plans and methods to ensure overall harvesting success. The proponent also committed to establishing protective buffers around bird nesting and wildlife den sites.	proponent to notify Indigenous groups of the timing, duration, and levels of noise generated by Project activities in traditional use areas identified by Indigenous groups; notify Indigenous groups 30 days in advance of initiating Construction; and limit construction activities and road clearing to avoid birthing times for moose. The Agency is recommending a follow-up condition for the proponent to monitor moose mortality within the Local Assessment Area.
Poplar River First Nation, Berens River First Nation	Concern with trapline access during construction and operation. Requested that ramps be placed at key intersections to allow snowmobiles to easily cross the road to access traplines and that trappers be notified when and where construction will occur so that traps in the area can be relocated.	The proponent responded that contractors would be required to provide access to key travel routes during construction. The proponent indicated that the road design incorporate access points and safe crossing points for snow mobiles and ATVs to maintain trapline access. The proponent committed to notifying Indigenous	The Agency is proposing potential conditions that would require the proponent to provide local communities with notification of Construction activities and navigation hazards; regular Project construction progress updates including information on how and when traditional travel routes will be potentially affected; temporary alternative routes and crossing

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		groups of the timing, duration, and levels of Project activities in traditional use areas identified by Indigenous groups.	ramps to allow for safe snowmobile road crossing.
Poplar River First Nation	Raised concerns about potential effects to fishing from unwanted access to Poplar River; the potential for pollution from road runoff; and potential for fish passage obstructions with culverts. Noted that the community had indicated to the proponent a preference for small bridges rather than small culverts on watercourse crossings within their traditional territory as it is believed that fish will not travel through culverts to spawn upstream.	Mitigation measures have been developed for road runoff, and watercourse crossings (including culverts) would be designed to maintain fish passage. Mitigations for the protection of fish and fish habitat resources and for the protection of access to fishing areas would avoid impacts to fishing. Access would be limited by not including pull-outs or parking areas in the road design.	The Agency concluded that with the implementation of mitigation measures, potential adverse effects on fish and fish habitat would not be significant. The Agency is proposing potential conditions that would require the proponent to implement erosion and sedimentation control measures; design bridge and culvert crossing structures to maintain existing flow regimes and allow for the passage of fish. The Agency is proposing potential conditions that require the proponent to reduce access points to traditional harvesting areas from the road right-of-way; and prohibit contractor employees from hunting, trapping or fishing.
Poplar River First Nation, Berens River First Nation	Concern about potential loss of some plant gathering areas from Construction, although the development of the proposed all-season road would improve overall access for gathering plants. Abandoned access roads should be blocked and construction-disturbed areas (e.g. borrow areas, access roads no longer in use) revegetated.	The proponent indicated that, based on traditional knowledge studies provided by Poplar River First Nation and Berens River First Nation, identified plant gathering areas were avoided with road alignment selection. Abandoned access roads would be blocked and natural revegetation would be encouraged and augmented by native plants and seeds.	The Agency is proposing potential conditions that would require the proponent revegetate along alignment and borrow locations; and undertake progressive reclamation of the winter road including active replanting of tree species to replace caribou habitat within the Atikaki-Berens Management unit. A follow-up condition is also proposed for the monitoring of revegetation success along the alignment, borrow pits, and the

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
			reclaimed winter road.
Berens River First Nation, Poplar River First Nation, Manitoba Metis Federation	Raised concerns regarding increased access to previously inaccessible areas and natural resources (e.g., moose, fish, mineral extraction) by "outsiders" affecting the community's livelihood. Expressed strong support for mitigation measures that address disturbance from Construction activities and increased public access, including restricting hunting along the road and having Manitoba Sustainable Development extend the wildlife refuge along the road alignment. Suggested mitigation measures to avoid the construction of boat launches and decommissioning temporary access routes required for construction.	The proponent responded that mitigation measures to control access include: include avoiding the construction of boat launch sites; restriction of access to construction areas; blocking and re-vegetating temporary access roads immediately after construction; using existing access routes, trails, or cut lines to the extent feasible; keeping access routes and trails as short and narrow as feasible; imposing a strict no hunting, trapping, or harassing wildlife policy for contractors, employees and agents; and blocking abandoned access roads and encouraging natural revegetation segmented by native plants and seeds. The proponent noted that Manitoba Sustainable Development licences harvest of game birds and big game species, and sets fishing quotas which apply to non-aboriginal harvesters. Trapping in Manitoba is based on a registered trap-line system in which only line holder and designated helpers are permitted to trap. The proponent indicated that the concept of a wildlife refuge on either side of the road has been discussed with First Nations and Manitoba Conservation and Water Stewardship (MCWS). Further engagement with the communities about these potential mitigation measures would occur as the Project progresses.	The Agency is proposing potential conditions that require the proponent to reduce access points to traditional harvesting areas from the road right-of-way; and prohibit contractor employees from hunting, trapping or fishing.
Berens River First Nation	Concern about Project proximity to a sensitive habitat along the North Etomami River just north of the Berens River junction. Noted that the proponent had proposed a revised road alignment that moved the road away from this area based on	The proponent indicated that, based on traditional knowledge studies provided by Berens River First Nation, identified sensitive habitat areas were avoided with road alignment selection.	The Agency notes that through the proponent's engagement efforts with Indigenous groups and the subsequent use of the information gathered, the proposed road alignment would avoid valued lands and resources thereby minimizing potential adverse effects on

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
	community feedback.		current use of those lands and resources for traditional purposes.
Manitoba Metis Federation	Concerned with potential decline in harvest success from an increase in time, effort, and costs due to increased harvest pressure, increased traffic-related animal mortality, and increase in habitat loss and/or alteration and fragmentation. Commented that the Project would improve year round access for Métis harvesters and that the community has an interest in monitoring plans. Outstanding issues pertaining to how Manitoba Metis Federation would be included as a potentially affected community in Project Construction communication plans and announcements of changes to lands and resource access during Construction.	The proponent has committed to avoid or minimize effects to wildlife habitat, and fish and fish habitat, by limiting the Project Footprint, selecting the road alignment to avoid important harvest areas and sensitive wildlife habitat, designing road geometry to provide clear lines of sight to prevent traffic related mortalities, timing Construction to avoid sensitive life stages, implementing erosion control procedures and stream and river crossings structures provide for fish passage. The proponent responded that with the implementation of mitigation measures, the Project would not have residual adverse effects on traditional land use and committed to engage with the Manitoba Metis Federation during Project implementation if issues arise at that time, through the Project's Wildlife Management Plan.	The Agency considered advice from Indigenous groups and expert federal authorities in assessing the potential environmental effects of the Project on fish and fish habitat, migratory birds, and current use of lands and resources for traditional purposes, and incorporated traditional knowledge in its analysis of potential impacts to fishing, hunting and trapping, vegetation collection, use of habitations, trails and cultural and spiritual sites and impacts to rights. The Agency concluded that with the implementation of mitigation measures, potential effects on hunting would not be significant. The Agency is proposing potential conditions that require the proponent to reduce access points to traditional harvesting areas from the road right-of-way; and prohibit contractor employees from hunting, trapping or fishing. The Agency is proposing a potential condition to monitor moose mortality within the Local Assessment Area. The Agency is proposing potential conditions related to communication and information sharing, and consultation,

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
			with Indigenous groups, including Manitoba Metis Federation.
Manitoba Metis Federation	Concern that the EIS was prepared without Métis traditional land use information. An updated description and analysis of how the Project would affect traditional land use for Métis peoples, including impacts on hunting, trapping and gathering activities, should be provided by the proponent.	The proponent responded that the Manitoba Metis Federation land and resource use documented in the Manitoba Metis Federation's 2011 report was reflected in the EIS and is consistent with the Local Assessment Area use information provided in the extended Manitoba Metis Federation Manitoba Métis Land Use and Occupancy Study (MLUOS) for the East Side Road Authority Project (May 2016).	The Agency considered the results presented in the *Manitoba Métis Land Use and Occupancy Study* (*MLUOS) for the East Side Road Authority Project (May 2016)* which identified additional resource users in the Regional Study Area and concluded that with the implementation of mitigation measures potential effects on Métis hunting, trapping and gathering would not be significant. The Agency is proposing potential conditions related to communication and information sharing, and consultation, with Indigenous groups, including Manitoba Metis Federation.
Berens River First Nation, Manitoba Metis Federation, Poplar River First Nation	Concern regarding potential harvesting of caribou during Operation. Caribou calving occurs on the west side of the alignment and they migrate to areas east of the alignment and caribou run north and south far to the east of the road alignment after freeze up in the fall and spring. Poplar River requests that proponent and or/Manitoba Conservation and Water Stewardship/ or Sustainable Development work with the community to monitor caribou and moose and their kills. Poplar River also	The proponent responded that the route alignment would not affect caribou migration patterns or important calving areas. Increased mortality from hunting is not expected as licenced hunting of boreal woodland caribou is not permitted in Manitoba. The proponent indicated that post-construction monitoring may be performed as necessary on caribou and moose. Parameters may include distribution/abundance, moose/caribou range overlap, calving habitat, range fragmentation, and/or predation by wolves or other animals and/or pregnancy analysis. Methods may include conducting aerial surveys, wolf collaring, caribou collaring, obtaining GPS tracking data, trail camera studies, point density analysis, blood, fecal analysis and/or traditional knowledge acquired through	The Agency is proposing potential conditions that would require the proponent to undertake progressive reclamation of the winter road including active replanting of tree species to replace caribou habitat within the Atikaki-Berens Management unit; and include structures to reduce sight-lines and reduce predator ease of movement and hunting. A follow-up program is also being proposed to verify the predictions of effects to caribou and the effectiveness of mitigation measures to avoid effects to caribou habitat including monitoring of caribou mortality, movement and habitat

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
	requests that any and all data related to caribou and moose come to them as well as MCWS/SD and that they determine the frequency and duration of monitoring efforts. Traditional land users have commented that the presence of the winter road affects the caribou and that an all season road will affect them too.	Trapper Participation Programs. Frequency and duration of monitoring efforts will be determined in discussion with Manitoba Conservation and Water Stewardship. Construction monitoring results may indicate that no follow-up monitoring is required. The post-construction monitoring studies would be implemented where and when necessary and reviewed with regulatory authorities and finalized prior to the initiation of the proposed post-construction monitoring program. In the event that unexpected adverse effects to a VC(s) are observed during post-construction monitoring studies, adaptive management strategies to mitigate adverse effects would be determined in discussion with regulatory authorities, and appropriate mitigation would be implemented as required	use within the Local Assessment Area; and monitoring of revegetation success along the alignment, borrow pits and reclaimed winter road.
Health and Socio-Economic Conditions of Aboriginal Peoples			
Manitoba Metis Federation, Poplar River First Nation	Concern that the EIS does not fully reflect Manitoba Metis Federation or Manitoba Métis communities' socio-economic existing baseline conditions and potential direct and indirect Project effects to Métis people whose economic dependencies are tied to traditional land and resource use within the Local and Regional Assessment Areas. Socio-economic baseline information for Métis should be updated. Valued components and indicators to be used in the assessment of effects should capture broader values of economic resilience and community	The proponent responded that the Manitoba Metis Federation land and resource use documented in the Manitoba Metis Federation's 2011 report was used to evaluate potential socio-economic effects, and that this report is consistent with the Local Assessment Area use information provided in the extended *Manitoba Métis Land Use and Occupancy Study (MLUOS) for the East Side Road Authority Project (May 2016).* • The proponent responded that with the implementation of mitigation measures, the Project would not affect commercial trapping by Indigenous groups. The proponent responded that potential health effects from noise and reduced air quality would be mitigated through detonating explosives at sufficient distances	The Agency concluded that with the implementation of mitigation measures, the environmental effects of the Project on socio-economic conditions of Indigenous peoples would not be significant. The Agency is proposing potential conditions related to communication and information sharing, and consultation, with Indigenous groups, including Manitoba Metis Federation. The Agency requested additional information from the proponent on the inclusion of Manitoba Metis Federation and Métis people in proposed engagement and notification activities for the Project.

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	health and wellbeing related to cultural sustainability.	from communities (i.e., First Nation reserves) to minimize noise/vibration effects; avoiding blasting during high wind conditions; using noise reducing components (e.g., mufflers, acoustic linings, shields) in vehicles, machinery and equipment; applying dust suppressants, revegetating cleared areas and limiting debris burning.	
Berens River First Nation, Poplar River First Nation	Concerned about the potential socio-economic impacts from the addition of a road. Communities noted concerns regarding an anticipated increase in gang related influences (drugs and alcohol), and an increase in suicides related to drugs and alcohol. Concerned about the potential loss of youth due to ease of coming and going. Project 1 caused many socio-economic issues in Bloodvein First Nation that other groups are aware of including increases in drugs and gang violence. Increased access will require increased enforcement as well as possible regulation changes.	The proponent responded that they would work with the community to widen the road closer to Poplar River First Nation to enable the community's addition of a check point. Poplar River First Nation will monitor the drug/alcohol intake by using this checkpoint when entering the community.	The Agency has provided this comment to Manitoba who has responsibility for the implementation of community social programs for drug prevention and related enforcement activities.
Poplar River First Nation	Concerned about public road safety during Project construction and operation, noting that gravel roads can be very dangerous and new risks would be introduced to community members unfamiliar with driving on gravel at speeds greater than 60 km/hr. Driver education was identified as vital to minimize risks of death and injuries	The proponent responded that mitigation measures including signage, speed control, dust and road ice control, snow clearing, and adherence to provincial highway safety regulations and codes would minimize collisions during operation and maintenance of the road.	The Agency has provided this comment to Manitoba who has responsibility for provincial traffic legislation and public driver education programs of Manitoba Pubic Insurance.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
	from vehicle collisions and concern was expressed regarding access to Manitoba Public Insurance educational programs available for drivers and youth. Poplar River First Nation recommended that the proponent should provide regular and adequate road inspection and maintenance as a way to minimize collision risk during the operation and maintenance of the road. Disposal of wildlife involved in vehicle collisions was also noted as a concern. Poplar River First Nation also noted concerns about the uncertainty surrounding the use of winter traction materials.		
Poplar River First Nation	Concerns regarding noise and what noise from Project activities like blasting would be noticeable as a disturbance to people from the community of Poplar River First Nation.	The proponent provided additional information regarding the proximity of nearest potential quarry sites to Poplar River First Nation residences and characterized the loudness, timing and frequency anticipated for construction activities such as equipment operation, blasting, and traffic. To minimize disturbance effects of noise to people travelling within the Local Assessment Area for traditional purposes, the proponent would provide community updates regarding the location and timing of activities where noise exposure may be increased. Construction activities would also be scheduled to occur during daylight hours. The proponent would avoid blasting during high wind conditions and use best management practices (i.e., blasting plans, blasting mats, charging procedures and	The Agency concluded that with the implementation of mitigation measures, the environmental effects of the Project on socio-economic conditions of Indigenous peoples would not be significant. The Agency is proposing a potential condition that would require the proponent to notify Indigenous groups of the timing, duration, and levels of noise generated by Project activities in traditional use areas identified by Indigenous groups.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		blasting ratios) to reduce noise from quarry use.	
Berens River First Nation, Manitoba Metis Federation	Berens River First Nation raised concerns about the equal distribution of potential employment opportunities among communities and the effects of machinery clearing bush. They recommended that there should be more people brush clearing and burning instead of machines working. Manitoba Metis Federation indicated that they were concerned that potential benefits from increased tourism will stream to outsiders rather than the community and indicated interest in future developments and associated monitoring plans.	The proponent described that a key focus of the regional transportation network and this Project is to provide opportunities for east side residents to participate in, and benefit from, the construction of the all-season road network through jobs, training and economic development opportunities. The EIS notes that construction of the proposed all-season road between Berens River First Nation and Poplar River First Nation is expected to generate beneficial economic effects including employment and contract opportunities for east side residents. Both First Nation communities have expressed their support for the proposed Project through Community Benefits Agreements with the proponent (as the former East Side Road Authority). The proponent committed to clearing vegetation within 30 m of a watercourse by hand and to utilizing hand clearing within 30 meters of a water way instead of mechanical clearing where possible to prevent disturbance of the organic soil layer. The proponent noted potential for increased tourism in the Local Assessment Area due to road access and indicated that specific developments or approvals for tourism based businesses or land uses would require provincial approvals and licencing separate from the environmental assessment review of the Project.	The Agency has provided this comment to the proponent to consider in the Community Benefits Agreements and Project implementation plans.
Manitoba Metis Federation, Poplar River First Nation,	Poplar River First Nation noted concerns about potential effects to drinking water quality and air quality levels as a result of construction related activities and ecological interactions.	The proponent responded that mitigation measures to protect water quality and therefore drinking water quality include: storing fuels and other hazardous substances at least 100 m from the high water mark of waterbodies and watercourses; storing fuels in approved containers with secondary containment for potential	The Agency concluded that with the implementation of mitigation measures, the environmental effects of the Project on socio-economic conditions of Indigenous peoples would not be significant.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
Berens River First Nation	Manitoba Metis Federation indicated that changes in the quality of wild foods consumed by harvesters and community members may also be experienced as a result of Project construction and operations and maintenance activities. Berens River noted concerns about the potential effects of blasting residue on the food chain including water and meat of mammals that are regularly consumed by community members.	leaks/spills; using drip-trays, blankets or pads when transferring fuel at construction sites; training construction crews on the handling, storage, and disposal of hazardous substances; having spill clean-up kits and storing and mixing paints, solvents and other deleterious substances on land (i.e., not on bridge decks). Mitigation measures to protect air quality include applying dust suppressants, limiting burning, and avoiding work with the potential to create dust or smoke (e.g., blasting, debris burning) during high wind conditions. The proponent concluded that potential effects to traditional foods are not expected and therefore effects to health from traditional resources consumed by harvesters and communities are not expected. Explosives would be detonated at sufficient setback distances to control for dust/debris expulsion; ammonium nitrate-fuel oil mixtures would not be used in or near watercourses; and blasting would not occur on shorelines of watercourses.	The Agency is proposing potential conditions that would require the proponent to implement measures to mitigate effects from fugitive dust, including dust suppression activities; maintain a 100 m buffer between construction activities; conduct machinery cleaning, fueling and maintenance and store hazardous substances a minimum of 100 m from the high water mark in maintenance compounds; store diesel and gasoline in accordance with the National Fire Code of Canada 2010 and the *Storage and Handling of Petroleum Products and Allied Products Regulation* of *The Dangerous Goods Handling and Transportation Act of Manitoba* and store, use and handle explosives according to federal and provincial legislation. The Agency is proposing a potential condition that would require the proponent to not use of ammonium nitrate-fuel oil mixtures in or near watercourses.
Physical and Cultural Heritage of Aboriginal Peoples			
Poplar River First Nation	Poplar River First Nation indicated that while a Heritage Resource Impact Assessment was completed and major routing of the alignment had avoided known archaeological sites and sites of cultural importance, concern remained with the potential for some	The proponent responded that a number of road alignment adjustments were made to accommodate Poplar River First Nation's requests. Community input and setbacks from sensitive features were considered with engineering factors and environmental requirements. The proponent indicated	The Agency concluded that taking into account the implementation of the mitigation measures the Project would not result in a change to the environment that is likely to cause significant adverse effects on the physical or cultural heritage of Aboriginal peoples, or on structures,

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
	access roads and quarries to be located too close to important sites, including the Poplar River itself. They are concerned about the protection of the cultural and spiritual value of the river, and areas used for fishing, hunting, trapping, gathering along the river from the development of quarries. A recommended setback of 3km from Poplar River was suggested to the proponent to protect cultural use sites associated with fisheries, riparian hunting areas, and other sensitive cultural sites. Poplar River First Nation noted the importance of the proponent commitments to elders within the community that ceremonies would be enabled prior to disturbance and clearing of vegetation for Construction because of the cultural value of the landscape. A blessing should take place before the start of the construction season.	that a Heritage Resources Study was conducted to facilitate route verification and confirm heritage resources would not be disturbed by the Project. In addition right-of-way was selected to minimize the need to extend beyond the Project footprint and the alignment is designed to avoid known cultural, heritage, and archaeological sites. Most of the Project is over 3 km from the Poplar River and the setback from the Poplar River was maximized; however, a section of the road between Many Bays Lake and Poplar River near kilometer 84 is located between the two waterbodies and approximately 1.6 km from Poplar River. The remainder of the road is over 3km from the river. The proponent committed to provide drawings to contractors that would identify areas of non-disturbance, with 30-50 metre buffers required for known archaeological sites along road right-of-way. Contract specifications would provide instructions to contractors on procedures to follow if archaeological sites or objects are exposed during construction. Exclusion zones would be increased to 75-100 metres where appropriate or requested by communities. The proponent responded that they would communicate information on planned and active construction activities to facilitate traditional ceremonies in advance of construction. The proponent has committed to enabling the conduct of ceremonies prior to construction and maintaining buffers around culturally important sites. The proponent	sites or things of historical, archaeological, paleontological or architectural significance to Aboriginal peoples. The Agency is proposing potential conditions that would require the proponent to notify communities in advance of Construction starting to facilitate traditional ceremonies in advance of construction; flag construction exclusion areas around discovered cultural, heritage and archaeological sites when encountered during construction activities; identify construction exclusion zones on right-of-way mapping for contract administrators and provide instructions to contractors on procedures to follow if archaeological sites or objects are exposed during construction.

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		indicated that the elders will also be able to review the proposed road alignment ahead of construction activities as part of the proponent commitments to share project updates and information with communities.	
Manitoba Metis Federation, Berens River First Nation	Concern about the potential for post-contact heritage sites to be encountered during the pre-construction and construction phases of the road. Potential loss and damage of known and unknown cultural, heritage and archaeological sites and objects.	The proponent responded that it has undertaken extensive archeological studies supported by traditional knowledge information of the Project area. No post-contact sites were identified. The proponent would advise Manitoba Metis Federation of any post-contact heritage sites found, prior to any decisions on how to address such resources. The proponent committed to engage with the Manitoba Metis Federation in the future if items are identified during Project execution.	The Agency is proposing potential conditions that would require the proponent to flag construction exclusion areas around discovered cultural, heritage and archaeological sites when encountered during construction activities; identify construction exclusion zones on right-of-way mapping for contract administrators; identify and implement measures to mitigate and monitor any adverse project-related effects on physical and cultural heritage features, structures, sites or things found during construction following consultation with Indigenous groups; and provide instructions to contractors on procedures to follow if archaeological sites or objects are exposed during construction.
Poplar River First Nation, Manitoba Metis Federation	Concern that the proponent has not included provisions for the monitoring of cultural resources and did not identify the measures that will be used to verify the predictions of effects and to evaluate the effectiveness of the proposed mitigation measures. Concerned that solid commitments for mitigation are not made.	The proponent proposed mitigation measures for potential effects to unknown cultural resources, including: consulting with the local community and/or the Manitoba Metis Federation on culturally appropriate measures procedures to follow if cultural, heritage or archaeological sites or objects are exposed during Construction; and providing instructions to contractors on procedures to follow if archaeological sites or objects are exposed during construction.	The Agency is proposing potential conditions that would require the proponent to: notify communities in advance of Construction starting to facilitate traditional ceremonies in advance of construction; flag construction exclusion areas around discovered cultural, heritage and archaeological sites when encountered during construction

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			activities; identify construction exclusion zones on right-of-way mapping for contract administrators and if physical and cultural heritage features or structures, sites or things of historical, archaeological, paleontological, or architectural significance are found during construction, the proponent must identify and implement, following consultation with Indigenous groups, measures to mitigate and monitor the adverse Project-related effects on these sites or things.
Cumulative Effects			
Manitoba Metis Federation, Poplar River First Nation	Concern that the proponent has not sufficiently considered cumulative effects of water levels associated with hydro-electricity, linear developments such as hydroelectric lines and pipelines, forestry, and future induced developments such as forestry and mining. Planned sustainable development and/or ecotourism activities noted in First Nations Land Use Plans (Poplar River, Little Grand, Pauingassi and Bloodvein) were not included in the cumulative effects assessment.	The proponent responded that existing and proposed linear developments were included the cumulative effects analysis and Lake Winnipeg water levels within the regional study area are not impacted by the Project. Linear features and clearings associated with historical forestry development were also included in the cumulative effects analysis, but there are no projects which are reasonably foreseeable for forestry or mining within the regional assessment area. The proponent committed to engage with the Indigenous groups in the future if items identified during Project execution arise.	The Agency considers the mitigation measures, follow-up and monitoring programs identified in sections 6.1 (fish and fish habitat), 6.2 (migratory birds), and 6.4 (current use of lands and resources for traditional purposes) of this draft Report appropriate to verify the predictions of cumulative environmental effects to current use, and the effectiveness of mitigation measures. The Agency is proposing that monitoring and follow-up described in section 6.4 should be incorporated into all phases of the all season network to ensure mitigation measures are effective or adaptive management measures identified and implemented.
Manitoba Metis	Concerned that the current assessment does not consider the	The proponent responded that the loss of wetlands represents less than 4% of the total wetland land cover	The Agency is proposing a potential condition that requires the proponent to

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Federation	residual effects associated with permanent wetland removal from road construction, potential quarries, and other associated infrastructure.	class found in the Local Assessment Area and less than 1% of the total wetland land cover class available in the Regional Assessment Area.	maintain the hydrology of wetlands in the Project Footprint.
Manitoba Metis Federation, Poplar River First Nation	Manitoba Metis Federation raised concerns about the limitations on the degree of anthropogenic disturbance allotted within the Atikaki-Berens Management Unit. They noted the potential for future cumulative effects on caribou and moose. Manitoba Metis Federation requests the proponent take a cautionary approach to long-term monitoring and potential cumulative impacts of future projects on the Boreal Woodland Caribou population. Poplar River First Nation noted that two families within their traditional territory continue to harvest woodland caribou annually and there may be others hunt caribou if circumstances allow an opportunity to do so. Traditional hunting of caribou and potential cumulative effects should be assessed.	The proponent responded that specific measures to mitigate potential effects from increased access have been incorporated into the design and that it would engage with Manitoba Metis Federation if specific issues were identified during Project execution. The proponent responded that caribou habitat loss and fragmentation would remain below the 35% disturbed habitat threshold established for sustainability for woodland caribou. The proponent noted that with the application of government conservation initiatives and on-going monitoring and enforcement of species at risk protection by Manitoba Sustainable Development, significant decline in the caribou population within the cumulative effects assessment area, specifically the Atikaki-Berens caribou management unit, is not anticipated. The proponent concluded there would be no significant cumulative impact on woodland caribou so that traditional hunting of caribou could potentially resume once populations are considered stable.	The Agency is proposing potential conditions that require the proponent to schedule clearing during fall and winter (between September 1 and March 31) to avoid calving period for boreal woodland caribou; stop or delay Construction in sensitive areas until caribou use of the area and/or sensitive time period has passed; undertake progressive reclamation of the winter road including active replanting of tree species to replace caribou habitat within the Atikaki-Berens Management unit and include structures to reduce sight-lines and reduce predator ease of movement and hunting The Agency is proposing follow-up conditions including the monitoring of caribou mortality, movement and habitat use within the Local Assessment Area and monitoring of revegetation success along the alignment, borrow pits and reclaimed winter road.
Other Effects			
Manitoba Metis Federation	Concerned about the potential impacts to flooded jellyskin lichen and lack of mitigations proposed. The identification of critical habitat for	The proponent noted flooded jellyskin lichen as potentially occurring in the Lac Seul Uplands Ecoregion (one specimen located near Flin Flon, Manitoba); however, the species was not observed during the June	The Agency concluded that the proposed preconstruction survey and mitigation measures proposed by the proponent would address potential environmental

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	flooded jellyskin lichen is important to assess the potential impacts of Project related effects on species occurrences and the extant population.	2015 rare vegetation surveys of the Project Footprint.	effects to flooded jellyskin lichen.
Poplar River First Nation	Proponent should develop a mitigation protocol if a snapping turtle is encountered within the Project right of way by the Project workers/contractors during construction, operations or maintenance. Traditional Knowledge identified snapping turtles near Poplar River.	The proponent responded that hydraulic culverts would provide alternate routes for snapping turtles mitigating effects of road mortality. The proponent indicated that additional measures (i.e. signage and reduced speed zones) could be employed if turtle crossing areas were identified during Operation. Clearing will be scheduled during fall and winter (between September 1 and March 31) to avoid snapping turtle breeding and hatchling emergence periods and movements. Wildlife warning signs will be installed in snapping turtle high use areas and at known crossing locations.	The Agency concluded that the following mitigation measures and monitoring would address potential environmental effects to the snapping turtle: scheduling clearing during fall and winter (between September 1 and March 31) to avoid snapping turtle breeding and hatchling emergence periods and movements; installing wildlife warning signs in snapping turtle high use areas and at known crossing locations; and conducting follow-up monitoring of snapping turtle.
Poplar River First Nation	Concerned about accidents and the safety of construction workers during hunting season.	The proponent indicated that they developed a communication program which advertises the location of construction activities in the community. ESRA's Environmental Protection Procedures for designated areas and access include restrictions for contractors, such as prohibited areas and hunting restrictions.	The Agency notes that the proponent has proposed mitigation measures to minimize effects on the safety of construction workers and would notify local communities of Construction activities and regular Project construction progress updates.
Manitoba Metis Federation	Manitoba Metis Federation expressed concerns regarding potential accidental releases of hazardous substances (spills) and risk of explosions during the transportation of hazardous goods and the potential for hazardous materials release with herbicide use. Uncertainty was expressed regarding the effectiveness	The proponent committed to conducting machinery cleaning, fueling and maintenance and the storage of hazardous substances a minimum of 100 metres from the high water mark in maintenance compounds located at laydown areas and in accordance with applicable provincial regulations. Quantities of hazardous substances would be limited to amounts required for efficient operation and maintenance of machinery during construction. Diesel and gasoline would be stored	The Agency is proposing potential conditions that would require the proponent not to undertake any activities involving deleterious substances within 100 metres of the high water mark of all waterbodies; store diesel and gasoline in accordance with the National Fire Code of Canada 2010 and the *Storage and Handling of Petroleum Products and Allied*

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	and feasibility of proposed setbacks distances of construction standing areas from watercourses/waterbodies, and potential risks of works at temporary staging areas. A recommendation was made for the use of environmentally friendly, biodegradable hydraulic fluids in all contractors' construction equipment. Manitoba Metis Federation also noted concerns related to uncertainties in traffic levels in the proponent's risk assessment of accidents and malfunctions.	in double-walled tanks in accordance with applicable provincial and federal legislation. The proponent stated that impacted soil from hydrocarbon spills would be assessed and any soil determined to be contaminated would be managed and removed to an approved treatment site. Other hazardous solid wastes would be disposed of at designated and approved waste disposal grounds. The proponent noted that activities involving the use of potentially hazardous compounds and materials (e.g. fueling, storage, equipment cleaning) would avoid environmentally sensitive areas, including temporary works, and that contractors will be required to implement environmental protection plans prior to work and will be subject to materials handling, storage and disposal requirements which include provisions to ensure timely spill response and clean-up. Herbicide use is regulated provincially and contractors would be required to use safe handling procedures required to prevent releases to the environment.	*Products Regulation* of *The Dangerous Goods Handling and Transportation Act of Manitoba*; and store, use and handle explosives according to federal and provincial legislation.
Poplar River First Nation, Manitoba Metis Federation	Poplar River First Nation expressed concerns that the proponent underestimated the risk of extreme weather due to the influence of climate change. Poplar River First Nation indicated that changes to precipitation, snowfall, increases in the frequency and severity of extreme events, forest fires, straight-line wind events, and tornadoes, could lead to accidents, such as vehicle entering watercourses, which may result in fuel	The proponent has committed to inspecting and repairing Project components as required after extreme weather events, flood events, or forest fire events, and preparing emergency response plans for road operation that include the potential effects of weather events on the Project. The proponent indicated that increased precipitation rates or magnitude of storm events has been addressed through the proposed design and snow clearing practices and that potential drought conditions which may increase forest fires would not affect the integrity of Project components. The proponent concluded that the mitigation measures already	The Agency concluded that the proponent has adequately considered the effects of the environment on the Project and that the proposed mitigation measures are appropriate to account for the potential effects of the environment on the Project.

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	and other hazardous liquids contaminating the water thereby affecting the potential habitat of species in the Project Footprint. Manitoba Metis Federation raised concerns about the potential effects of floods or ice jams on road infrastructure, which may in turn lead to effects on water quality and aquatic resources, or may cause traffic accidents leading to spills.	proposed would account for the possible effects from climate change.	