

Project Description

Project 7A: All Season Road Connecting Pauingassi First Nation and Little Grand Rapids First Nation to the Little Grand Rapids Airport

Prepared for:

**Environmental Approvals Branch
Manitoba Conservation and Water Stewardship**

Prepared by:

Manitoba Floodway East Side Road Authority



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1.0 Introduction

In late 2008, the Government of Manitoba announced its intention to conduct a strategic initiative to provide improved, safer and more reliable transportation services to connect the remote communities on the east side of Lake Winnipeg with the rest of the province. The Manitoba Floodway East Side Road Authority (MFESRA) was established as a provincial Crown Agency to manage the East Side Transportation Initiative, with the intent of increasing transportation opportunities for communities on the east side of Lake Winnipeg (Figure 1). Currently, these communities rely primarily on winter and seasonal roads or air to transport people and goods. MFESRA's mandate includes planning, design and construction of all season roads to improve the connectivity of First Nations and other northern communities on the east side of Lake Winnipeg to the provincial highway system (Figure 2). In the interim, MFESRA continues to assess the feasibility of winter road enhancements to the network on the east side of Lake Winnipeg and remove major ice crossing components to increase safety factors and provide lengthened winter road service.

MFESRA is proposing to construct an all season road that will connect Little Grand Rapids First Nation and Pauingassi First Nation to the Little Grand Rapids Airport (Figure 3). The proposed alignment consists of approximately 29 km of road on provincial Crown land, which is the subject of this project description, and about 8 km of Community Access Roads on Pauingassi and Little Grand Rapids First Nation Reserve lands which is the responsibility of Aboriginal Affairs and Northern Development Canada. The intention of the All Season Road is to provide expedited year-round vehicular access, connecting Little Grand Rapids First Nation and Pauingassi First Nation to the Little Grand Rapids Airport.

This document provides a description of the proposed All Season Road connecting Pauingassi First Nation and Little Grand Rapids First Nation to the Little Grand Rapids Airport. The project description will be updated as new design information becomes available and further input is received from Manitoba Conservation and Water Stewardship and the ongoing Public and Aboriginal Engagement Program.

2.0 Project Proponent

The proponent of the All Season Road Project is the MFESRA. The contact information for MFESRA personnel are:

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3.0 Project Location

The proposed All Season Road Project will extend approximately 29 km from Pauingassi First Nation south to Little Grand Rapids First Nation, connecting both First Nations to the Little Grand Rapids Airport (Figure 4). Community Access Roads on First Nation Reserve lands will connect the All Season Road to the communities of Pauingassi and Little Grand Rapids. The Community Access Road on Pauingassi Reserve land will be 1.2 km and the Community Access Road on Little Grand Rapids Reserve land will be 6.5 km.

The total distance of new road is 36.7 km and travels along the east side of Family Lake and the west side of Fishing Lake. The proposed All Season Road will cross two major watercourses requiring bridges, one across an unnamed creek between Family and Fishing lakes and one across Root Creek on the east end of Family Lake, and approximately ten minor watercourses requiring culverts. The province of Ontario is located about 16 km to the east of Pauingassi First Nation and about 14 km east of Little Grand Rapids First Nation.

4.0 Land Ownership

The proposed All Season Road Project will be constructed on Provincial Crown land. The All Season Road will be owned by the Province of Manitoba and will be operated as part of the provincial all season road network. Community Access Roads will be located on Pauingassi First Nation and Little Grand Rapids First Nation Reserve lands. It is intended that these access roads will be owned by the respective Little Grand Rapids and Pauingassi First Nations.

5.0 Land Use

5.1 Project Lands

Land use in the area of the proposed All Season Road Project consists mainly of traditional activities by Little Grand Rapids and Pauingassi First Nations including hunting, trapping, fishing and berry picking. A winter road winds east from Bloodvein First Nation to the communities of Little Grand Rapids and Pauingassi and an all season road (Project 1), currently under construction will extend north from Provincial Road 304 to Berens River First Nation. The east-west winter road connects to the Project 1 all season road at Bloodvein First Nation. The proposed All Season Road will replace the existing winter road segment between the two communities (Figure 4). The province of Ontario is located about 16 km to the east of Pauingassi First Nation and about 14 km east of Little Grand Rapids First Nation.

5.2 Pauingassi First Nation

Pauingassi First Nation's land use plan for the Manitoba Planning Area was developed with the Government of Manitoba (Pauingassi First Nation and Manitoba 2012). The Pauingassi-Manitoba planning area is designated as three zones: 1) Enhanced Management Area; 2) Protected Area; and 3) Commercial Area (Figure 5).

5.2.1 Enhanced Management Area

The primary intent for the 25,845 ha Enhanced Management Area is careful management with an emphasis on ensuring continuation of traditional activities. Pauingassi First Nation intends to

practice and protect their traditional activities in this area. The maintenance and construction of community hunting and trapping cabins, continuation of trapping, collection of non-timber forest products, wild rice harvesting and recreational activities continue to be supported in this area. Special historical and cultural sites are identified and protected. Economic development is managed to reduce and mitigate damage to traplines, hunting areas, habitat, special sites, waterways, waterbodies and the environment. A development plan for resource-based tourism may be prepared in the future for this area with consideration for the management of endangered or threatened species and other wildlife and habitat, as well as for the protection of cultural values.

This area supports the continuation of the existing winter road and future all season road access. Pauingassi First Nation directs that all sites associated with the construction of the All Season Road be decommissioned and reclaimed once the road is built and operating. An exception would be quarry sites required for the maintenance of the All Season Road in the future. Activities associated with road construction, operation and maintenance and associated structures include: crossing structure installation, replacement and maintenance, road bed construction and maintenance, right-of-way clearing and grubbing, geotechnical exploration, quarry development (mining, extraction, production of aggregate, development of access roads), borrow areas, work camps/maintenance yards, laydown areas, snow clearing, and decommissioned winter road regeneration.

This area may include a proposed airport and/or an All Season Road between Pauingassi First Nation and Little Grand Rapids First Nation. Extra management precautions will be taken to protect habitat and waterways to reduce adverse effects. Commercial forestry, mineral exploration and mining, peat extraction, exploration or development of petroleum resources, and commercial hydroelectric generation would be prohibited in the Enhanced Management Area. All customary and traditional uses are respected and shall continue.

5.2.2 Protected Area

The intent for this 272,450 ha Protected Area is the careful management of traditional lands with an emphasis on ensuring continuation of traditional activities. The area is managed to maintain and enhance traditional uses and to protect natural and cultural values. Commercial forestry, mineral exploration or mining including aggregates, exploration or development of petroleum resources, hydroelectric transmission and generation, wind power installations, peat extraction, and other large-scale industrial and commercial developments are prohibited in this area. Wherever possible, roads will be restricted from the Protected Area. Community-based sustainable forestry and commercial forestry are permitted. The exception to this is the collection of trees for firewood that are standing dead or are fallen dead trees.

5.2.3 Commercial Area

Economic development in the 15,390 ha Commercial Area will be managed to reduce and mitigate damage to traplines, hunting areas, habitat, special sites, waterways, water bodies and the environment. Land, water and habitat protection objectives such as a 50 m buffer from the Ordinary High Water Mark around waterways in this land use area will be promoted. Extra management precautions will be taken to protect habitat and waterways to reduce adverse effects. The continuation of traditional uses and existing tourism within this area is supported. Mining and mineral exploration, including metal mining, would be allowed within this area.

5.3 Little Grand Rapids First Nation

Little Grand Rapids First Nation's lands management plan was developed with the Government of Manitoba (Little Grand Rapids First Nation and Manitoba 2012). The lands management plan identified that six protected areas: 1) Enhanced Management Area; 2) Commercial Area; 3) Protected Area; 4) Mishipawitigong Cultural Waterway Protected Area; 5) Pigeon River; and 6) Atikaki Provincial Park portion (Figure 6).

5.3.1 Enhanced Management Area

All traditional activities will continue within the Enhanced Management Area unless conservation measures are warranted and consultation has taken place with Little Grand Rapids First Nation. Mineral exploration and mining (including peat) is not permitted in this area. Any mining activity, such as aggregate extraction required for road maintenance or construction, will be managed to protect wildlife, habitats and cultural values. The existing transmission line and winter road corridor pass through the Enhanced Management Area and will be maintained over time.

Planning for an All Season Road is underway and the corridor is planned through the Enhanced Management Area. Aggregate extraction will be allowed for the purpose of all season road construction. Quarry sites that are needed for maintenance of the road will remain. If new or additional utility lines for telecommunications are needed they would be permitted preferably in the same corridor as the All Season Road. Large scale commercial forestry is prohibited; however, community-based sustainable forestry may be permitted in this area.

5.3.2 Commercial Area

All traditional activities will continue within the Commercial Area unless conservation measures are required and consultation has taken place with Little Grand Rapids First Nation. Mining exploration may be allowed within this area and any mining activity will be managed to protect natural and cultural values. The existing transmission line passes through this area and all required maintenance and upgrading activities will be permitted. Roads may be permitted in this area and existing corridor maintenance or new corridors will be planned to minimize the effects on natural and cultural values. Extra management precautions may be taken to protect habitat and waterways to reduce effects on all cultural values including traplines, hunting areas, cabins and special places, as well as natural values such as critical woodland caribou habitat and waterways protection.

5.3.3 Protected Area

The Protected Area is to be managed to allow and maintain traditional uses, protect cultural and natural lands and natural resources. The maintenance and construction of community hunting and trapping cabins, continuation of commercial trapping, collection of non-timber forest products, wild rice harvesting and recreational activities continue within this area. The area ensures that habitats, wildlife, waterways and cultural values are protected. Commercial forestry, mineral exploration and mining, aggregate and peat extraction, exploration or development of petroleum resources, hydroelectric generation and transmission activities would be prohibited in the area. Whenever possible, roads will also be prohibited in the Protected Area. Little Grand Rapids would like to provide direction to manage float-plane landing areas in the future within the Protected Area to protect natural and cultural values.

5.3.4 Mishipawitigong Cultural Waterway Protected Area

The Little Grand Rapids Mishipawitigong Cultural Waterway Protected Area was created to provide added protection to the Berens River where it traverses the Commercial Area. The Berens River is an important cultural waterway to the people of Little Grand Rapids First Nation. A 150 m buffer has been placed on each side of the waterway to protect the socio-economic, cultural, ecological and recreation values of this river. Road and utility corridor, and/or the development of other infrastructure will be permitted only as necessary to serve the needs of the community of Little Grand Rapids and/or adjacent land use developments.

5.3.5 Pigeon River Protected Area

The land use intent for this area is the same as for the Protected Area. All customary and traditional uses are respected and will be maintained or enhanced. Construction of the proposed All Season Road and the winter road may be permitted within the Pigeon River Protected Area. This includes activities required to develop and maintain the roads. Extra care will be taken to protect the surrounding areas during construction, maintenance and in marshalling and staging areas. Any proposed All Season Road crossing of the Pigeon River Protected Area will be carefully studied and reviewed with Little Grand Rapids First Nation and the Government of Manitoba before construction begins.

5.3.6 Little Grand Rapids Planning Area Portion of Atikaki Provincial Park

Atikaki Provincial Park is located directly south of the Little Grand Rapids First Nation. The community and Manitoba Conservation and Water Stewardship work together on management of the Park. The intent is that the Little Grand Rapids Protected Areas and Atikaki Provincial Park will provide complimentary direction for the protection and management of natural and cultural values.

6.0 Project Alternatives

6.1 Background

In 1999, Manitoba Transportation and Government Services (now Manitoba Infrastructure and Transportation – MIT) retained Dillon Consulting Limited to undertake a study to look at the feasibility of developing an all-weather road system to improve access to remote communities on the east side of Lake Winnipeg. The study was to be a preliminary, cost-benefit assessment to determine if more comprehensive considerations of an all-weather road development in the study area were justified.

In a report prepared by Dillon Consulting entitled *East Side of Lake Winnipeg All Weather Road Justification and Scoping Study* (2000), two all weather road route scenarios, with different points of origin, were evaluated. In one scenario, all east side communities would be connected from the south via Manigotagan. In the other, the northern communities would be connected from the west via Norway House/Cross Lake with a separate connection from Manigotagan serving only the southern communities. The report's general conclusion was that an all-weather road in the east side of Lake Winnipeg using either route scenario could be justified for many communities on the basis of long-term transportation cost savings alone.

In 2001, Dillon Consulting prepared a second report for Manitoba Transportation and Government Services entitled *Work Plan to Develop an All-Weather Road Network for the East Side of Lake Winnipeg – Final Report* (Dillon Consulting Limited and N.D. Lea, October, 2001). It presented a planning approach and overall work plan to design and service east side of Lake Winnipeg communities with an all weather road network.

“Promises to Keep...” Towards a Broad Area Plan for the East Side of Lake Winnipeg (East Side Planning Initiative 2004) reported on the development of a Broad Area Plan for the east side of Lake Winnipeg. The East Side Planning Initiative was born out of the Consultation on Sustainable Development Implementation (COSDI) that was undertaken between the fall of 1997 and the spring of 1999. The East Side Planning Initiative was the first large-area planning exercise since the adoption of the COSDI report. It is a complex area, requiring a complex process.

The report presented a number of transportation-related recommendations, including that Manitoba Transportation and Government Services conduct a thorough review of routes in collaboration with directly affected First Nation residents on the east side of Lake Winnipeg and the Métis. The report also advised that the final route selection should follow from results of an independent environmental assessment of alternatives, and Manitoba Transportation undertake an amended Regional Transportation Network Study to consider other means of access, such as rail, bridges, dirigibles, hovercraft and ferries, to communities on the east side of Lake Winnipeg in addition to an all-weather road option.

In 2008, SNC-Lavalin Inc. was commissioned by the East Side Road Authority to conduct a Large Area Transportation Network Study on the east side of Lake Winnipeg. This study combined the multi-disciplinary planning and engineering work required to identify the preferred All Season Transportation Network to connect the East Side communities to the rest of the All Season Road transportation network in Manitoba.

At the outset of the study, a number of alternative surface/air transportation modes, in addition to an All Season Road system, were considered to service the remote communities on the east side of Lake Winnipeg. Generally the alternative modes considered were not deemed appropriate as a permanent solution on the grounds of cost, unreliability, environmental damage, safety impairment, or lack of freedom to move. Table 1 summarizes the alternative modes considered, along with some of their key characteristics.

Mode	Characteristics
Railway	<ul style="list-style-type: none"> • Construction cost on a per km basis comparable to that of an all season road. • Lengthy connections needed to existing railhead/rail line at Pine Falls and Wabowden, respectively, duplicate existing provincial roads (70 km of PR 304 and 131 km of PR 373). • Much flatter gradients required for rail versus road increases cost; may also be more difficult to maintain rideable profile over muskeg and permafrost pockets. • During construction phase difficult to offload/reload goods and people at continually advancing rail/winter road interface. • Less freedom to move than with a road system.

Table 1: Alternative Surface and Air Transportation Modes	
Mode	Characteristics
Hovercraft	<ul style="list-style-type: none"> • Suitable over large bodies of open water. • Would likely suffer skirt degradation over muskeg and swamp. • Potential damage of fragile environment over potential multiple routes. • May damage ice surface during freeze up, potentially breaking ice and creating hazards for snowmobilers.
Airships/Dirigibles	<ul style="list-style-type: none"> • Would need to be very large to haul TAC maximum highway loadings (Boeing Sky Hook HLV maximum pay load 40 tons). • More sensitive than fixed wing aircraft to inclement weather, potentially a significant factor east of Lake Winnipeg (Boeing HLV can only operate in winds up to 25 knots).
Ferries	<ul style="list-style-type: none"> • May be appropriate for summer transportation across lakes or rivers as an interim lower cost link in an all season road system. • An ice bridge parallel to the ferry route could be used for winter transportation but has potential break through, with safety and environmental degradation risks. • Ferries may, where traffic volumes are relatively small and the cost of a bridge is high, be considered on a more permanent link.
Improved Winter Roads	<ul style="list-style-type: none"> • Shift existing winter road onto firmer ground along a future all season road route. • Provide permanent bridges at major water crossings along future all season road route. • Could be initial phases in development of an all season road route.

As a result of the above considerations it was concluded that the most worthwhile, reliable, safe and equitable improvement to the existing east side Lake Winnipeg transportation system would be the construction of an all season road system, supplemented during its development with, where appropriate, improved winter roads and permanent bridges. The rationale for this being, compared with either the existing system, or alternative modes such as rail, hovercraft or airships/dirigibles:

- Greater long term reliability for safely moving people and goods during all seasons and most weather conditions;
- Greater freedom to move for all east side communities, individuals and businesses; and
- More equitable system for travel and trade, on a par with existing all season road system serving most communities in province.

The East Side Large Area Transportation Network Study identified potential transportation infrastructure improvements that will provide year-round access to the communities on the east side of Lake Winnipeg. The Final Report of the Large Area Transportation Network Study was completed in 2010 and recommended an all season road network for the region that is estimated at approximately 1,028 km in length and would cost approximately \$3 billion (2011\$) (SNC Lavalin, J.D. Mollard, AECOM 2010).

The all season road network shown in Figure 2 consists of the following: 1) 156 km all season road from PR 304, near Hollow Water First Nation, to Berens River First Nation along with a 93 km extension to Poplar River First Nation; 2) 131 km all season road linking Little Grand Rapids and Pauingassi First Nations to a midway point along the all season road from PR 304 to Berens River; and 3) 648 km east-west route linking the Island Lake (Garden Hill, Red Sucker

Lake St. Theresa Point and Wasagamack First Nations) and Northern Cree (Bunibonibee and Manto Sipi Cree Nations and God's Lake First Nation) communities to PR 373.

6.2 Need

The only permanent road designed to Manitoba's Highway Standard on the east side of Lake Winnipeg north of PR 304 is a segment of road currently being constructed between PR 304 and to Berens River First Nation under Environment Act Licence 2929. No other such permanent roads exist on the east side of Lake Winnipeg. As a result, transportation within the region is severely limited with communities depending on air, water or winter road service. All of these forms of transportation tend to have higher operational costs or are severely limited by weather, thereby resulting in increased costs for goods and services. The most widespread form of transportation throughout the region is by air. Most communities have an airport or have access to an airport in a nearby community. In many cases, including Pauingassi and Little Grand Rapids, a body of water must be crossed to access the nearby airport. This means taking a boat ride in summer or travelling by ice road in winter to access the airport, which can be unsafe or unpredictable. In spring and fall, during ice breakup and freeze-up, these communities must rely on helicopter services to access the airport. For most local residents, air transportation is very costly and is often not an option, particularly for the elderly.

During summer months, some communities are also able to utilize marine transportation such as ferries and barges. During winter months, most communities are able to use winter roads to travel from one community to another or to travel to a larger centre such as Thompson or Winnipeg. It is during this time that many remote communities bring much of their supplies since road transportation is generally cheaper than air transportation. However, the period of time in which a winter road can be used varies and, with the challenges of climate change, this period is becoming shorter and shorter especially on the east side of Lake Winnipeg. Generally, the window of opportunity for using the winter road network is about eight weeks starting in late January and continuing into mid to late March. In recent years, the winter roads have begun to thaw earlier in the year, thereby reducing the already short window for safely using the winter road network.

6.3 Purpose

The purpose of the proposed All Season Road Project is to provide improved, safe and more reliable road transportation services between the First Nation communities of Pauingassi and Little Grand Rapids and contribute to the economic well-being of these communities.

6.4 Alternatives

6.4.1 All Season Road

MFESRA's steps to select, design and construct an all season road are illustrated in Figure 7. First, a Large Area Network Study identifies possible route corridors. Community input is obtained and a broad level engineering assessment is conducted. Next, possible road alignments within the route corridors are identified. Community input is obtained, the environmental assessment is started and a preliminary engineering analysis is conducted. The final road alignment is then selected, community input is obtained and the environmental assessment is discussed, and a functional engineering analysis is conducted. At the detailed

design stage community input is obtained, the environmental assessment is submitted for regulatory approval and the engineering analysis is finalized. Once the Environment Act licence is obtained, construction can then begin with implementation of mitigation measures, environmental monitoring and ongoing community input.

Alternate routes for the All Season Road between Pauingassi and Little Grand Rapids First Nation are illustrated in Figure 8 and are described in Table 2.

Year(colour)	Explanation
2009 (white)	The original alignment, shown in white, was based on terrain analysis of aerial photography by JD Mollard and Associates. An alternate version of this alignment is located beneath the red line east of Little Grand Rapids First Nation.
February 2011 (pink)	This alignment represents the shorter of the two alignments proposed by Mollard. It also crosses the channel between Family and Fishing lakes at a better location. The potential existed at this crossing site to “island hop” across the water.
March 2011 (red)	For the most part, this alignment followed the same route as one of the alignments proposed by Mollard in the initial assessment. It has moved the crossing of the channel between Family and Fishing away from the rapids due to engineering, fish habitat and Traditional Knowledge considerations.
November 2012 (yellow)	This alignment was the result of Pauingassi and Little Grand Rapids community input in early 2012 where it was decided to: <ul style="list-style-type: none"> • Move the crossing north of the rapids and away from the Airport runway to a relatively narrow distance • Shift the alignment inland between the community of Pauingassi and the large crossing: <ul style="list-style-type: none"> ○ This land along with the west shore of Fishing Lake, north of the channel crossing is important to both of the communities as hunting grounds ○ The same land is low in elevation and wet, thereby poorly suited to construction • Shift the alignment north of Little Grand Rapids to higher ground to serve as a superior base for road construction. • Remove the wide unnamed crossing located on Little Grand Rapids Reserve lands to the east to cross Root Creek on provincial Crown land. • Have the alignment extend from Pauingassi First Nation follow the Manitoba Hydro transmission line.
November 2013 (green)	The reasons for this move were to: <ul style="list-style-type: none"> • Change the Root Creek crossing location to avoid infilling spawning areas for northern pike • Avoid the “mining restricted” land parcel northeast of Little Grand Rapids First Nation while ensuring there was no encroachment on Reserve lands • Avoid a bog area west of the large crossing • Move the alignment extending out from Pauingassi First Nation just north of the transmission line rather than in the Manitoba Hydro right-of-way
December 2013 (blue)	This alignment represents a minor refinement of the November 2013 alignment and changes were almost entirely in the area immediately north of Little Grand Rapids. The reason for this refinement was engineering in nature.
January 2014 (black)	This alignment was limited to small shifts to address engineering factors such as curve values and cut and fill requirements.

6.4.2 Acrow Panel Bridge Locations

Acrow panel bridge locations were selected based upon a variety of factors including total distance of the route between Pauingassi and Little Grand Rapids First Nations, bridge design specifications, suitable crossing locations, shore to shore distance, approach conditions and riparian characteristics. Bridge crossing locations were also subject to review by aquatic biologists retained to conduct aquatic baseline studies and input from First Nations was obtained at design workshops and community meetings.

6.4.3 Culvert Stream Crossing Locations

Culvert stream crossing locations were identified based upon the proximity of the All Season Road alignment to the stream and characteristics of the particular stream and riparian conditions using guidance in the Manitoba stream crossing guidelines (Department of Fisheries and Oceans and Manitoba Natural Resources 1996) and applicable Department of Fisheries and Oceans fact sheets. Stream crossing locations were also subject to review by aquatic biologists retained to conduct aquatic baseline studies and input from First Nations was obtained at design workshops and community meetings.

6.4.4 Quarry and Borrow Locations

Quarry and borrow areas were identified based upon the availability of suitable rock and aggregate materials, degree of surface preparation, proximity to the road, bridge and other construction sites and travel distances for equipment and workers. Quarry and borrow areas will be located within the 100 m right-of-way to the extent possible and will be subject to provincial permitting requirements. Quarry and borrow locations were examined during the Heritage Resources Impact Assessment and input from First Nations was obtained at design workshops and community meetings. Existing quarry sites (e.g. Pauingassi First Nation) and borrow locations will be used when available and practical.

6.4.5 Temporary Construction Staging Locations

Construction staging areas are being selected for the construction of the All Season Road and the Acrow panel bridges based on consideration of factors including the availability of suitable level sites, degree of existing disturbance, extent of preparation work, proximity to the road and bridge construction sites, and travel distances for equipment and workers. Construction staging locations are also subject to Heritage Resources Impact Assessments and continued input from First Nations through design workshops and community meetings. Staging locations will be sited within the existing 100 m right-of-way to the extent possible.

6.4.6 Temporary Construction Camp Locations

Construction camp locations will be selected for construction of the All Season Road and the Acrow panel bridges based on consideration of a number of factors including the availability of suitable level sites, degree of existing disturbance, extent of preparation work, proximity to the road and bridge construction sites and travel distances for equipment and workers. Construction camp locations are also subject of a Heritage Resources Impact Assessment and input from First Nations was obtained at design workshops and community meetings. Camp locations will be sited within the existing 100 m right-of-way to the extent possible.

7.0 Project Stages

The proposed All Season Road Project will be carried out in four main stages as follows:

1. Planning and Design
2. Pre-construction
3. Construction
4. Operation and Maintenance

The alignment will be divided into segments to optimize construction scheduling and resource use. Segments will undergo pre-construction and construction stages sequentially such that completion of the construction phase at one segment will initiate the pre-construction of the adjacent segment.

7.1 Planning and Design

Planning and design for the proposed All Season Road Project involves identifying broad road corridors, possible road alignments within the corridors, selecting the final road alignment and preparing the detailed road design. This starts with a broad engineering assessment followed by community input to the preliminary and functional engineering analysis before the final engineering analysis and design. Baseline environmental studies, Aboriginal and public engagement and the environmental assessment are conducted during this stage.

7.2 Pre-Construction

During the pre-construction stage, equipment, machinery, vehicles, construction materials and supplies including fuel, generators, trailers and other provisions will be transported into the project location via the winter road from PR 304 and stockpiled at staging areas pending road construction. Centrelines of the proposed All Season Road will be cleared and the right-of-way will be surveyed and flagged. Bridge and stream crossing locations, quarry and borrow areas, temporary access roads, construction staging areas and construction camps will also be located, surveyed and flagged. Drilling and testing will be conducted along the All Season Road right-of-way, temporary access roads, quarry sites and borrow areas.

7.3 Construction

During the construction stage, equipment marshalling and lay down areas, and construction camps will be prepared, and rock quarries and borrow areas will be cleared and made ready. Granular materials will be excavated, crushed, sorted and stockpiled. Temporary access roads will be established to connect the various project components. The proposed All Season Road, Acrow panel bridge crossings and culvert crossings will then be constructed. Vegetation along the right-of-way will be cleared to a maximum of 60 m on tangents and potentially wider on the inside of curves for sight visibility where required. The road bed will be prepared to 18 m. Culvert stream crossings will be put in place as construction progresses along the alignment. Approaches for the Acrow panel bridges will be constructed in the dry using cofferdams as required. The Acrow panel bridge components will be hauled to the crossing locations on winter roads, assembled by construction crews and launched across the watercourses.

All facilities and work areas including quarry and borrow areas, access roads, staging areas and construction camps that will not be needed for future maintenance activities will be demobilized following construction. Gravel will be removed and used in quarry and borrow area rehabilitation. The borrow pit sites will be excavated as uniformly as possible to the depths and widths permitted. Side slopes will be maintained at a slope of 4:1 unless otherwise permitted. Borrow pits will be levelled and trimmed when the excavation is complete.

7.4 Operation and Maintenance

Maintenance activities for the All Season Road such as routine scheduled grading, topping the road with additional aggregate and management of vegetation and culvert cleanouts will occur over the life of the road. In the winter, snow clearing activities will use ploughs, graders, loaders and dump trucks. Road salt and other ice melting and dust suppression chemicals may be used to control dust and ice on the road surface once re-vegetation growth has been achieved. Only chemicals approved for use on similar roads in Canada will be used, the substance will be applied as specified by the manufacturer, and only if and where necessary and not beyond the road surface. Aggregate materials will be sourced from borrow areas located on provincial Crown land and will be deposited on the road surface using dump trucks, dozers and graders.

7.5 Decommissioning

There are no plans to decommission the proposed All Season Road as it will provide all season access from Pauingassi First Nation and Little Grand Rapids First Nation to the Little Grand Rapids Airport for the foreseeable future.

After approximately 25 years of operation the Acrow panel bridges will be re-evaluated and may be decommissioned and replaced with permanent bridge structures. Structural components of the bridge including decking and superstructure will be disassembled, inspected for defects and recycled for use in other road projects along the east side of Lake Winnipeg. Piers and abutments will be demolished to grade and any required contouring and re-vegetation will be carried out at that time.

8.0 Project Components and Activities

8.1 Project Components

The proposed All Season Road Project has nine main project components, including:

1. Twenty-nine (29) km All Season Road from Little Grand Rapids First Nation to Pauingassi First Nation including a 540 m spur to the Little Grand Rapids Airport;
2. Two Acrow panel one lane bridge structures for large watercourse crossings between Grand Rapids First Nation and Pauingassi First Nation;
3. Two lane steel girder bridges or similar structures to replace the Acrow panel bridges at some future date;
4. Thirteen (13) stream crossings using corrugated metal culverts and an number of flow equalization culverts;
5. Temporary construction bridges;
6. Temporary construction access roads including a 2 km access trail from the winter road on Fishing Lake to the All Season Road right-of-way;

7. Rock quarries and granular borrow areas;
8. Temporary construction staging areas; and
9. Temporary construction camp facilities.

8.1.1 All Season Road

The proposed alignment for the 29 km All Season Road between Pauingassi and Little Grand Rapids First Nations is shown in Figure 9. The alignment follows or parallels an existing Manitoba Hydro transmission line at kilometres 0 to 3 and kilometres 12 to 19 from Pauingassi First Nation. The road will be centered on a 100 m right-of-way with a typical clearing width of 60 m and additional clearing as required in horizontal curves to maintain sight distances. Approximately 174 ha will be cleared for the All Season Road on provincial Crown land. An additional 6 ha will be cleared on Pauingassi First Nation Reserve land and 42 ha will be cleared on Little Grand Rapids First Nation Reserve land for the construction of the Community Access Roads. The roadway will be constructed with a road top width of 8.4 m and a ditch width of 4 to 7m (depending on ground conditions). The road will be designed to a speed of 80 km/hr and 70 km/hr where natural landscape features inhibit the design standard. The posted speed limit will be 60 to 70 km/hr.

The Little Grand Rapids portion of the All Season Road will be built to the standard of a Pioneer Road while the remaining portion will be built to the standard of an All Season Road. Over time, as traffic patterns increase, the road will be fully upgraded to Manitoba's All Season Road Highway Standards. Road construction activities will consist of clearing, grubbing, contouring and blasting of rock outcrops. Organic materials will be stripped, stockpiled and used along road shoulders. Vegetation will be cut by local clearing crews using tree fellers, brush cutters and hand tools, windrowed using dozers and burned. Materials including rock fill, aggregate and composite material will be loaded, hauled, dumped, spread, graded and compacted using various pieces of heavy equipment including loaders, dump trucks, spreaders, dozers, graders, and compactors. Other activities will include placement of geotextile fabric, riprap, roadway signs, erosion and sedimentation control and seeding of ditches during the construction and operation and maintenance stages. The contractor will also install roadside traffic control signs (speed limits, curves, etc.) in accordance with the Manitoba Infrastructure and Transportation manuals.

Road construction will require specialized crews (i.e., heavy equipment operators, safety and environment officers, supervisors) and general labourers. The number of workers will vary depending upon the tasks being undertaken. The number of workers on the construction site will vary depending on the project component and the tasks being undertaken, and will typically range between 10 and 35 workers.

Typical steps leading to construction of an all season road on the east side of Lake Winnipeg are summarized as follows:

1. Clearing a 60 m right-of-way.
2. Stripping overburden from 60 m right-of-way and stockpiling for used in shaping ditches.
3. Placing geotextile in wet areas to strengthen the integrity of the road.
4. Placing blast rock as the first layer and shaping to grade.
5. Placing lift of 15 cm material.
6. Grading 15 cm material to specification and packing in place.

7. Placing a lift of 10.2 inch material and shaping material to specifications.
8. Checking and re-checking elevations by professional surveyors.
9. Installing culverts to allow for surface water drainage.
10. Installing erosion protection at culvert locations.
11. Placing 5 cm material, shaping to grade, packing and compacting.
12. Placing final lift of traffic gravel, compacting and checking.
13. Final grading, packing and testing.
14. Shaping of ditches for safety and drainage.
15. Installing ditch checks around waterbodies to reduce flow and minimize erosion.
16. Installing straw, ditch checks, riprap, silt fences and silt curtains around bridge crossings.
17. Re-vegetating disturbed areas as required.
18. Final inspecting by multiple agencies and opened for public use.

8.1.2 Acrow Panel Bridges

Two large waterways located between the communities of Little Grand Rapids First Nation and Pauingassi First Nation will be spanned by Acrow panel bridges. The locations of the bridges between Douglas and Root lakes and between Family and Fishing lakes are shown in Figure 10 and crossing information is provided in Table 3.

The bridge crossing between Douglas and Root lakes (Root Creek), located east of the community of Little Grand Rapids, is 101 m wide and it will be crossed by a two span Acrow panel bridge (Figure 11). The crossing between Family and Fishing lakes, located north of Little Grand Rapids, is 20 m wide and it will be crossed by a single span Acrow panel bridge (Figure 12).

Crossing No.	Waterbody Name	Crossing Structure
1	Unnamed Family Lake Tributary	Culvert
2	Unnamed Family Lake Tributary	Culvert
3	Unnamed Family Lake Tributary	Culvert
4	Unnamed Root Lake Tributary	Culvert
5	Unnamed Root Lake Tributary	Culvert
6	Unnamed Root Lake Tributary	Culvert
7	Root Creek	Single Span Bridge
8	Unnamed Family Lake Tributary	Culvert
9	Unnamed Creek	Two Span Bridge
10	Unnamed Fishing Lake Tributary	Culvert
11	Unnamed Fishing Lake Tributary	Culvert
12	Unnamed Fishing Lake Tributary	Culvert
13	Unnamed Fishing Lake Tributary	Culvert
14	Unnamed Fishing Lake Tributary	Culvert
15	Unnamed Fishing Lake Tributary	Culvert

The 700XS Acrow panel bridges are prefabricated structures that can be shipped in sections along the winter road to remote locations where they are assembled and launched in place. The single span bridge will span the waterways such that no in-water work will be required. The two span bridge will require a pier in the waterway. The bridges will have steel side trusses and timber decking, and have been designed for loading as per the Canadian Highway Bridge

Design Code. A typical single span Acrow panel bridge that clears the waterway is shown in Figure 13. Concrete abutments will be constructed in place and anchored to bedrock. The approach ramps linking the bridge to the winter/seasonal road will be granular obtained from nearby sources.

Site preparation will include clearing vegetation, stripping soils, contouring. Bedrock will be drilled and blasted, where necessary, to reach design elevations required for the construction of the bridge abutments and piers. Bridge construction activities will consist of installing geotextile fabric, erosion protection and sediment control measures, placing, grading and compacting granular materials, erecting concrete forms, pouring concrete, assembling bridge components and launching, and installing timber decking and metal guardrails. A possible mobile concrete batch plant will be established in close proximity to each bridge crossing to produce concrete for the bridge abutments and piers. Heavy equipment required for the bridge construction activities will include various loaders, excavators, dump trucks, dozers, hoisting equipment, pump trucks, concrete trucks and compactors. Erosion protection and sediment control measures, including placement of riprap, will be provided around abutments and piers. Temporary erosion protection and sediment control measures including the installation and removal of cofferdams will be utilized and the bridge sites will be restored by encouraging natural re-vegetation and seeding and/or planting as required.

8.1.3 Steel Girder Bridges

After about 25 years, the Acrow panel bridges will be re-evaluated, and depending on traffic conditions, will either be refitted to extend their design life or replaced by steel girder bridges. The new steel girder bridges would be two-lane “steel girder” structures. The bridge crossing at Root Creek will be one span while the crossing between Family and Fishing lakes will be two spans. The steel girder bridges will be similar to the proposed Bradbury River Bridge for PR 304 (MFESRA 2010). A typical steel girder bridge is shown in Figure 14. The vertical alignment for the steel girder bridges would be horizontal with approach grades parallel to the road grade. Navigation requirements would be 3.05 m clearance from normal summer water levels. The overall width of the structures would be 10.8 m with 9.6 m of clear roadway. The two traffic lanes would be 3.7 m.

Structural materials will consist of concrete, reinforcing steel and concrete cover. Bridge abutments will be semi-integral reinforced concrete with wing walls perpendicular to the abutment. The footings and back wall will be cast-in-place concrete pile cap on steel H piles or PPC piles. Approach slabs will be .3 m thick and slope protection will be 0.5 m thick class 350 stone riprap. The abutment seat will be sloped to accommodate cross fall and bearing installations. Piers will be solid shaft with rock-socketed caissons. Steel girders will be welded flat, straight with nominal web depth of 1,600 mm. Nelson shear studs are to be provided for composite action with the concrete deck. The bridge deck will be cast-in-place concrete conventional reinforced concrete with fibres. The structural thickness of the bridge deck will be 0.225 m plus a 0.025 m wearing layer, wet cured and tined finish. Curbs on both sides will be 0.6 m wide and 0.34 m high concrete barrier with a top steel railing. No deck drains will be provided. Utilities/lighting will consist of 1-100 mm and 1-50 mm diameter PVC ducts complete with pull wires in each curb.

The new bridges may be located at the same location or immediately adjacent to the Acrow panel bridges. Site preparation will include clearing vegetation, stripping soils, contouring. Bedrock will be drilled and blasted, where necessary, to reach design elevations required for the

construction of the bridge abutments and piers. Bridge construction activities will consist of installing geotextile fabric, installing erosion protection and sediment control measures, placing, grading and compacting granular materials, erecting concrete forms, pouring concrete, assembling bridge components and hoisting them into place. A concrete batch plant will be established in close proximity to each bridge crossing to produce concrete for the bridge abutments and piers. Heavy equipment required for the bridge construction activities will include various loaders, excavators, dump trucks, dozers, hoisting equipment, pump trucks, concrete trucks and compactors. Erosion protection and sediment control measures, including placement of riprap, will be provided around abutments and piers. Temporary erosion protection and sediment control measures including the installation and removal of cofferdams will be utilized and the bridge sites will be restored by encouraging natural revegetation and seeding and/or planting as required.

8.1.4 Culvert Stream Crossings

The proposed All Season Road will include thirteen culvert crossings and a number of equalization culverts to preserve the natural landscape hydraulics. Locations of the culverts along the road alignment between Pauingassi and Little Grand Rapids are shown in Figure 10 and information on fish habitat is provided in Table 3. Culvert installation activities will include placing silt fencing and silt curtains, excavating the stream bottom, laying the geotextile material, installing the culvert, and placing and compacting granular fill and road topping. Riprap will be placed at the entrance and exit of the culverts, and the sites to control erosion. Temporary erosion protection and sediment control measures including the installation and removal of cofferdams during frost-free conditions will be utilized and the culvert sites will be restored by encouraging natural revegetation and seeding and/or planting as required.

8.1.5 Temporary Construction Bridges

Temporary construction bridges (i.e., snow fills, ice bridges or engineered structures) may be required to transport heavy equipment, materials and labour across waterways to facilitate bridge construction. These bridges may include temporary in water works such as piers and cribbing, and may not allow for navigation for the duration of pier installation. Site preparation may include clearing vegetation, stripping soils and contouring. Bridge construction activities may consist of flooding winter ice and packing clean snow to create an ice bridge or installing geotextile fabric, erosion protection and sediment control measures, placing, grading and compacting granular materials, assembling bridge components (if required), launching the bridge, and installing timber decking and metal guardrails. Heavy equipment required for the bridge construction activities may include various loaders, excavators, dump trucks, dozers, hoisting equipment, pump trucks, concrete trucks and compactors. Erosion protection and sediment control measures will be provided around abutments.

Temporary erosion protection and sediment control measures including the installation and removal of cofferdams will be utilized and the sites will be restored by encouraging natural revegetation and seeding and/or planting as required. The temporary construction bridges will be decommissioned when they are no longer needed. Aggregate will be salvaged and used in borrow area reclamation. Bridge parts will be recycled to other projects. Disturbed areas will be restored by spreading stockpiled topsoil and encouraging natural re-vegetation and seeding and/or planting as required.

8.1.6 Temporary Access Roads

Temporary roads will be required to access quarry and borrow areas, staging areas, construction camps and other areas required for road construction purposes. One of the temporary roads or trail is required to access the All Season Road right-of-way from the winter road on Fishing Lake. The access trail is 2.0 km long with 1.5 km on land and is located at km 9 from Paungassi First Nation. These access roads will be cleared, grubbed, gravelled, graded and compacted as required. Erosion protection and sediment control measures will be provided and drainage will be managed. Access roads will be required for the duration of the All Season Road Project and will be decommissioned when they are no longer needed. Aggregate material will be salvaged and used in borrow area reclamation. The access roads will be levelled and trimmed when they are no longer required.

8.1.7 Quarries and Borrow Areas

New rock quarries and borrow areas will be developed to provide crushed rock and granular materials for the proposed All Season Road Project. The road design will be based on cut and fill requirements to the extent possible, with addition fill to be provided from quarried sources. The quarry and borrow sites will be located on provincial Crown land within 500 m of the centerline for the All Season Road right-of-way (Figure 15). Crush rock and granular materials is required for construction of the All Season Road, Acrow panel bridge abutments, culvert stream crossings, temporary access roads, construction staging areas and construction camps. Riprap is also required for erosion control around bridge abutments and at stream crossings. Vegetation at quarry and borrow sites will be cleared, windrowed and burned. Any organic soils will be stripped and stockpiled for subsequent site reclamation. Rock from quarries will be drilled, blasted, excavated, crushed and stockpiled. Explosives and a blasting crew will be required at quarry sites. Granular materials from borrow areas will be excavated, separated and stockpiled. The work will require the use of drill rigs, excavators, rock crushers, sorters, loaders, dump trucks and a variety of construction equipment. Rock will also be sourced from an existing quarry located outside Paungassi First Nation for road construction near that community.

8.1.8 Temporary Construction Staging Areas

Temporary construction staging areas will be established by the road construction contractor at various locations along the proposed All Season Road right-of-way to store construction vehicles, equipment and machinery, construction materials and supplies, petroleum products, Portland cement, Acrow panel and temporary construction bridge components, geotextile rolls, culverts and other construction materials for the All Season Road and Acrow panel bridges. Vegetation will be cleared, windrowed and burned. Organic matter will be scraped from the surface and stockpiled for use on road shoulders. The area will be contoured and levelled using dozers and graders, and provided with drainage control and erosion protection. An aggregate base may be established depending on the time of year and ground conditions. Construction vehicles, equipment and machinery will include brush cutters, hand clearing tools, excavators, loaders, dump trucks, graders and dozers. Buildings and other structures used for equipment maintenance and materials storage will be skidded in or constructed on site. Staging areas may be fenced and site security may be provided where required. Sanitary, hazardous and solid waste storage will be provided at staging areas. Wastes will be collected and transported to licenced or approved waste storage, disposal and treatment facilities in the communities of

Pauingassi, Little Grand Rapids. Petroleum products (diesel fuel and gasoline) will be stored on provincial Crown land in double walled tanks in accordance with the National Fire Code of Canada and *The Dangerous Goods Handling and Transportation Act*, Storage and Handling of Petroleum Products and Allied Products Regulation.

8.1.9 Temporary Construction Camps

Temporary construction camp facilities will be established by the road construction contractor at various locations along the proposed All Season Road right-of-way to support crews constructing the All Season Road and Acrow panel bridges. Vegetation will be cleared, windrowed and burned. Organic matter will be scraped from the surface and stockpiled for use on road shoulders. The area will be contoured and levelled using dozers and graders, and provided with drainage control and erosion protection. An aggregate base may be established depending on the time of year and ground conditions. A non-permeable liner will be used at fuel tank sites and equipment maintenance areas. Construction vehicles and equipment will include brush cutters, hand clearing tools, excavators, loaders, dump trucks, graders and dozers. Sleeping, dining and office trailers will be brought on site and various storage buildings will be skidded in or constructed on site. Construction camps will be fenced and site security may be provided where required. Potable water, sanitary waste and solid waste storage will be provided. Sanitary and solid waste will be collected and transported to licenced or approved waste disposal and treatment facilities in the communities of Pauingassi, Little Grand Rapids or elsewhere.

8.2 Project Activities

8.2.1 Exploratory Clearing

Exploratory clearing will be conducted to assist road engineers and surveyors to access remote locations to evaluate the potential for locating the All Season Road in specific areas. Clearing a 10 m wide path with 10 by 20 m push-outs will allow specialized equipment space to test soil to see if it is suitable. This work will involve flagging trees or shrubs 5 m from each side of the centerline every 10 m. The clearing will be carried out by:

- Removing and disposing of all trees, shrubs and fallen timber;
- Establishing 10 by 20 m push-outs at 200 m intervals to allow geotechnical drill rigs to take soil samples;
- Stockpiling salvageable timber for community use; and
- Piling and burning or burying brush, tree limbs, fallen trees and damaged trees

Clearing will be carried out using a number of methods including:

- Hand clearing using chainsaws and hand tools;
- Bulldozers;
- Mulching with hydro-axes or other approved mechanical methods; and
- Combination of above methods.

8.2.2 Right-of-Way Clearing

Clearing rights-of-way consists of the removal and disposal of all trees, shrubs, fallen timber and surface litter from the right-of-way and other areas such as borrow pits, prior to grading. Organic materials stripped from the surface will be stockpiled for use on road shoulders. Materials such as logs or timber suitable for manufacturing forest products will be salvaged. Where required, stumps and roots will be grubbed out and separated from the soil. The non-salvageable material such as brush, roots and limbs will be piled and burned or buried.

8.2.3 Mechanical Brushing

Mechanical brushing is the removal of brush and small trees growing in the right-of-way. This is done to improve or reserve driver site distances. It also helps to ensure proper drainage and to reduce the cost of snow removal. The majority of mechanical brushing takes place in the heavily wooded areas or where conventional mowing equipment cannot access ditch slopes due to rock outcrops or wetland areas.

8.2.4 Establishment of Rock Quarries

Quarries will be established in the vicinity of the All Season Road alignment. They will provide the gravel and granular material required to construct the road and other project components. Blasting of rock and gravel crushing usually takes place in the quarries. Quarries are generally established close to the road alignment or project location to reduce transportation costs.

8.2.5 Establishment of Borrow Pits

Borrow pits or borrow areas are sites where the existing soil/earth has been tested and determined suitable for road embankment construction. These borrow pits or areas may be on site within the right-of-way or they may be off-site at locations chosen during the survey and design stage of the project. Borrow pits are often required when the existing soil/earth at the road construction site is unsuitable for road embankment construction or the design work has determined that there is insufficient quantity. Designed borrow pits are generally located close enough to the right-of-way so the earth can be hauled by heavy construction equipment such as motor scrapers.

8.2.6 Road Grading

Grading involves using earth on a construction site to prepare the roadbed of a roadway. It consists of four sub-activities: 1) stripping the top soil; 2) earth removal; 3) placement and compaction of rock; and 4) trimming and shaping.

8.2.7 Grade and Gravel

Grade and gravel consists of the construction of a road grade embankment plus the application of traffic gravel on the finish grade surface. Traffic gravel may be a permanent surface treatment or a temporary treatment until a different type of surface treatment is applied. Traffic gravel provides an all-weather traction surface for traffic and enables maintenance crews to maintain a smooth riding surface.

8.2.8 Culvert Installation

New culverts are installed along new road embankments wherever it is determined that spring melt or storm run-off needs to pass from one side of the road to the other to prevent flooding and erosion damage. Culverts are installed by excavating a trench to the required elevation through the road embankment. The trench is then backfilled and compacted to the culvert grade elevation with a granular bedding material. The new culvert may be pre-assembled and lowered into the trench or in the case of concrete pipe, be assembled by connecting short sections of the pipe in the trench. The pipe is backfilled with granular material to support the pipe adequately and reduce settlement in the road embankment. Equalization culverts will also be installed at a number of locations along the All Season Road as required.

8.2.9 Bridge Construction

Bridge construction is a major component of the proposed All Season Road Project. There are six basic activities associated with bridge construction:

1. Constructing footings, piers and abutments;
2. Inserting casing and pouring concrete in to the shafts which are the foundation for the columns that support the bridge;
3. Constructing the abutment wall;
4. Girder placement across the span of the bridge;
5. Bridge deck construction and re-bar installation; and
6. Providing a deck surface.

8.2.10 Acrow Panel Bridge Installation

Acrow panel bridges are being used at a number of locations for the All Season Road network on the east side of Lake Winnipeg. These bridges are prefabricated and shipped by truck in pieces for on-site installation. Shipping a bridge in pieces means that it can be transported to remote locations using existing winter roads and installed before the All Season Road links to the regional network. Acrow panel bridges can be taken apart and moved to a new site at a later date, if required.

8.2.11 Road Improvement

Mowing of vegetation on road sides is an annual activity that occurs during the summer months. It is done to improve visibility for driver safety and to limit attraction to wildlife and control noxious weeds. Generally, mowing is undertaken between 4.5 to 9 m in width. Various types of mowing equipment may be used including tractors, riding mowers and weed-eaters.

Washout repair is required when the road sub-grade, surface, shoulders and culverts are damaged by washouts. These repairs are undertaken as soon as possible and as soon as conditions permit. Traffic control devices may be used and if immediate repairs are not practical, traffic may be detoured or diverted in a manner that provides a safe alternative.

Drainage preservation is carried out to restore drainage to its original designs so as to prevent sub-grade saturation and erosion. It consists of excavating, filling, trimming and shaping to maintain required roadside ditch profiles. It also includes ditch slopes, off takes and riprap areas

as well as removal of sediment and debris from culverts. Plowing snow on roadways is done with motor graders, truck plows or rotary plows. Sanding, spreading ice control and dust control are undertaken to increase traction or, in the case of dust control, to minimize the amount of dust that is created while driving on a gravel road.

8.2.12 Project Activities Summary

Project activities that are expected to be carried out during the above-referenced project components for the pre-construction, construction, and operation and maintenance stages of the proposed All Season Road Project are provided in Table 4.

Table 4: Project Activities for Stages of the All Season Road Project by Project Component			
Project Component	Project Activities		
	Pre-Construction	Construction	Operation and Maintenance
All Season Road	<ul style="list-style-type: none"> • Accessing • Surveying • Flagging • Clearing centreline • Exploratory drilling • Testing soils • Operating ATVs • Operating snowmobiles • Operating boats 	<ul style="list-style-type: none"> • Clearing right-of-way • Grubbing • Salvaging • Grubbing • Windrowing • Burning • Drilling • Blasting • Excavating • Stockpiling • Grading • Contouring • Filling • Controlling erosion • Producing aggregate • Transporting equipment • Operating equipment • Operating machinery • Operating vehicles • Signing 	<ul style="list-style-type: none"> • Grading • Operating equipment • Operating vehicles • Maintaining • Producing aggregate • Stockpiling • Controlling vegetation • Controlling dust • Clearing snow • Inspecting
Acrow Panel Bridges	<ul style="list-style-type: none"> • Accessing • Surveying • Flagging • Minor clearing • Exploratory drilling • Testing bedrock 	<ul style="list-style-type: none"> • Minor clearing • Excavating • Filling • Drilling: testing • Blasting • Contouring • Cofferdamming • Controlling erosion • Operating equipment • Transp. bridge materials • Batching concrete • Pouring concrete • Acrow panel bridge decommissioning 	<ul style="list-style-type: none"> • Maintaining • Inspecting • Testing for contamination
Steel Girder Bridges	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Minor clearing 	<ul style="list-style-type: none"> • Maintaining

Table 4: Project Activities for Stages of the All Season Road Project by Project Component			
Project Component	Project Activities		
	Pre-Construction	Construction	Operation and Maintenance
		<ul style="list-style-type: none"> • Housing workers - camp • Staging equipment • Excavating • Filling • Drilling: testing • Blasting • Contouring • Cofferdamming • Controlling erosion • Operating equipment • Transp. bridge materials • Batching concrete • Pouring concrete 	<ul style="list-style-type: none"> • Inspecting
Culvert Stream Crossings	<ul style="list-style-type: none"> • Accessing • Surveying • Flagging 	<ul style="list-style-type: none"> • Excavating • Filling • Contouring • Controlling erosion • Restoring 	<ul style="list-style-type: none"> • Maintaining • Inspecting • Steaming • Cleaning
Temporary Construction Bridges	<ul style="list-style-type: none"> • Accessing • Surveying • Flagging • Minor clearing 	<ul style="list-style-type: none"> • Minor clearing • Excavating • Filling • Contouring • Cofferdamming • Controlling erosion • Crossing stream • Operating equipment • Transporting materials • Dismantling • Recycling materials • Removing abutments • Contouring • Controlling erosion • Restoring 	<ul style="list-style-type: none"> • Contamination testing • Inspecting
Temporary Access Roads	<ul style="list-style-type: none"> • Accessing • Surveying • Flagging • Minor clearing 	<ul style="list-style-type: none"> • Clearing • Grubbing • Grading • Gravelling • Closing • Restoring 	<ul style="list-style-type: none"> • Testing for contamination • Inspecting
Quarries and Borrow Areas	<ul style="list-style-type: none"> • Accessing • Surveying • Flagging • Minor clearing • Drilling: testing • Preparing sites 	<ul style="list-style-type: none"> • Clearing • Grubbing • Excavating • Stockpiling soils • Blasting • Crushing rock • Stockpiling 	<ul style="list-style-type: none"> • Testing for contamination • Inspecting

Table 4: Project Activities for Stages of the All Season Road Project by Project Component			
Project Component	Project Activities		
	Pre-Construction	Construction	Operation and Maintenance
		<ul style="list-style-type: none"> • Operating equipment • Transporting materials • Closing • Restoring 	
Temporary Staging Areas	<ul style="list-style-type: none"> • Accessing • Surveying • Flagging • Minor clearing • Disposing brush • Grubbing • Preparing sites 	<ul style="list-style-type: none"> • Clearing • Stockpiling materials • Operating equipment • Drilling: utility poles • Installing utility poles • Operating generator • Storing fuels • Dispensing fuels • Demobilizing • Restoring 	<ul style="list-style-type: none"> • Testing for contamination • Inspecting
Temporary Construction Camps	<ul style="list-style-type: none"> • Accessing • Surveying • Flagging • Minor clearing • Disposing brush • Grubbing • Preparing sites 	<ul style="list-style-type: none"> • Clearing • Operating equipment • Operating generator • Housing workers • Storing foods • Sourcing water • Disposing solid wastes • Disposing liquid wastes • Demobilizing • Drilling • Testing soil • Restoring 	<ul style="list-style-type: none"> • Testing for contamination • Inspecting

9.0 Geometric Design Criteria

Geometric design criteria for the proposed All Season Road Project are provided in Table 5. The criteria were derived from a variety of resources and practices in other jurisdictions. The All Season Road for will serve as two functions by becoming the initial link between the communities of Pauingassi and Little Grand Rapids and serving as the long-term All Season Road until future volumes merit an increase in road top and/or geometric alterations. The philosophy of the All Season Road is that topography will dictate the alignment and the design speed. Safety provisions are adapted to lower and potentially variable speed scenarios.

Table 5: Manitoba Infrastructure and Transportation Geometric Design Criteria		
Region: 1 Highway/Road: Island Lakes Network Limits: Pauingassi to Little Grand Rapids	Advanced Program: NA Km 0 to km 38	
Parameter	Present Conditions	Project Design Standards
Year	2013	2023
Average annual daily traffic	NA	<300

Table 5: Manitoba Infrastructure and Transportation Geometric Design Criteria		
Highway classification	NA	Secondary Arterial
Design speed	NA	80 km/h
Gradient – maximum percentage	NA	8%
Minimum stopping sight distance	NA	140 m
Minimum passing sight distance	NA	560 m
Minimum vertical curve “K” values	NA	Kc 35 Ks 35
Curvature – minimum radius	NA	230 m
Maximum super-elevation rate	NA	4%
Lane width and number	NA	2-4.2 m
Shoulder width – new construction or rehab	NA	NA
Shoulder edge treatment	NA	NA
Median width	NA	NA
Right-of-Way width	NA	100 m (60 m cleared)
Truck percentage	NA	~2%
Truck haul (identify type)	NA	Supplies, resource extraction
Roadbed width	NA	18 m
Clear roadway width on structure	NA	Short 9.6 m Long 9.6 m <60 m > or equal to 60m
Notes:		
<ol style="list-style-type: none"> 1. If project design standards differ from the approved basic design standards, the basic design standards should be entered in brackets to the right of the project design standards with an explanation on sheet 2 under remarks 2. Present AADT= MA (Year 2013) 3. Traffic volume growth rate = 2.3% 4. 10-year future traffic volume (add 25% if upgraded from a gravel top to a hard surface) = < 300 5. Terrain type (flat, rolling or rugged) = Rolling 6. Existing posed speed = NA km/h; Future posed speed = 70 km/h 7. Proposed loading class = B1; (Restricted or unrestricted = Unrestricted; (For details see sheet 2 remarks) 8. Structure design 350 mm (100 mm rock), 150 mm (50 mm rock); Design status pending; Date Nov 18, 2013 9. All intersections/access points to be studied to determine possible improvements/rationalization 10. This GDC is to be reviewed prior to construction if 5 years have elapsed since its approval to ensure its appropriateness 11. Any additional notes or comments should be on sheet 2 under remarks 12. Regionally approved GDCs to be forwarded to Highway Planning and Design for filing 		

10.0 Project Design Mitigation

The design of the proposed All Season Road Project will incorporate applicable environmental legislative requirements as well as the following environmental standards, codes, guidelines and best practices:

- MFESRA Best Management Practices (2010)
- MFESRA Environmental Protection Policy (2011)
- MFESRA Safety Policy (2013)
- MFESRA Community Environmental Assessment Considerations
- MFESRA Environmental Protection Specifications (2013)
- MFESRA All Season Road Construction Activities What Can You Expect? (2014)

- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (Department of Fisheries and Oceans and Manitoba Natural Resources 1996).
- Guidelines for the Use of Explosives In or Near Canadian Fresh Waters (Department of Fisheries and Oceans 1998)
- Standards and Best Practices for In-stream Works (Department of Fisheries and Oceans and British Columbia)
- Clear Span Bridges Operational Statement (Department of Fisheries and Oceans)
- Bridge Maintenance Operational Statement (Department of Fisheries and Oceans)
- Culvert Maintenance Operational Statement ((Department of Fisheries and Oceans)
- Timing Windows Operational Statement (Department of Fisheries and Oceans)
- Environmental Assessment Best Practice Guide for Wildlife at Risk In Canada (Canadian Wildlife Service 2004)
- Best Practices Manual for Small Drinking Water Systems (Manitoba Office of Drinking Water 2007)
- Forest Practices Guidebook: Forestry Road Management (Manitoba Conservation 2005)
- Forest Management Guidelines for Terrestrial Buffers (Manitoba Conservation 2010)
- Forest Management Guidelines for Riparian Management Areas (2010)

In addition, design mitigation identified in baseline study reports and during the preparation of the environmental assessment report will be incorporated into the final design of the Road Project to the extent possible.

11.0 Construction Vehicles and Equipment

Construction equipment and vehicles likely to be used during construction of the proposed All Season Road Project are listed in Table 6. A variety of rubber-tired and tracked equipment and vehicles will be used during construction of the All Season Road and other project components. The types and numbers of equipment and vehicles to be used during the construction of the proposed road Project have not been determined but are likely to include those listed.

Project Components	Equipment/Vehicle	
All Season Road	Tree feller	Pick-up trucks
	Logging truck	Fuel truck/trailer
	Dozers	Hand tools
	Dump trucks	Snow blower
	Excavators	Mower
	Graders	Sprayer
Acrow Panel Bridge	Flatbed trucks	Excavator
	Crane	Dozer
	Drill rig	Fuel truck/trailer
	Blast truck	Concrete batch plant
	Excavators	Concrete truck
	Dump trucks	Pick-up trucks
	Loader	Loader
Steel Girder Bridges	Grader	Hand tools
	Flatbed trucks	Back hoe
	Crane	Dump truck
	Drill rig	Fuel truck/trailer

Project Components	Equipment/Vehicle	
	Blast truck	Concrete batch plant
	Excavator	Concrete truck
	Loader	Pick-up trucks
	Grader	Hand tools
	Dozers	
Culvert Stream Crossings	Excavator	Dump truck
	Back hoe	Pick-up trucks
	Grader	
Temporary Construction Bridges	Flatbed truck	Backhoe
	Excavator	Dump truck
	Loader	Pick-up truck
	Grader	Hand tools
	Dozer	
Temporary Access Roads	Tree feller	Dump truck
	Hand tools	Grader
	Dozer	Pick-up trucks
Quarries and Borrow Areas	Drill rig	Loader
	Blast truck	Dump truck
	Rock crusher	Grader
	Excavator	Pick-up trucks
	Dozer	Generator
Temporary Construction Staging Areas	Semi-trailers	Dozer
	Excavator	Grader
	Dump truck	Pick-up trucks
	Fuel truck	Hand tools
	Back hoe	Generator
Temporary Construction Camps	Excavator	Grader
	Dump truck	Pick-up trucks
	Fuel truck	Hand tools
	Back hoe	Generator
	Dozer	All-terrain vehicles

12.0 Project Construction Materials

Construction of the proposed All Season Road Project will require various quantities of locally available raw materials available on provincial Crown land and Federal Reserve lands. Table 7 indicates the type of raw material and the estimated quantities required.

Raw Material Required	Estimated Quantity	Unit
Composite Excavation*	600,000	m ³
Solid Rock Excavation	120,000	m ³
TG Class D	60,000	m ³
Quarried Rock Base Course D	180,000	m ³
Stone Riprap Class 350	2,000	m ³
* Existing suitable composite material from areas above the road bed elevation, ditches and within the 100 m right-of-way will be used.		

Construction materials likely to be used for the proposed All Season Road Project by are listed in Table 8 by project component. The type and amount of construction materials have not been fully determined but are likely to include those listed.

Table 8: Construction Materials For the Proposed All Season Road Project		
Project Components	Construction Materials	Use
All Season Road	Crushed rock	Road bed
	Granular materials	Road bed
	Clay	Road bed
	Riprap	Erosion protection
	Geotextile	Liner
	Organic materials	Shoulder
Acrow Panel Bridges	Steel	Girders
	Concrete	Abutment's
	Pressure treated wood	Bridge bed
	Granular materials	Abutments
	Organic materials	Shoulder/reclamation
Steel Girder Bridges	Steel	Girders
	Concrete	Abutments/bridge bed
	Granular materials	Abutments
	Organic materials	Shoulder/reclamation
	Riprap	Erosion protection
Culvert Stream Crossings	Steel culverts	Water passage
	Riprap	Erosion protection
	Crushed rock	Road bed
	Granular materials	Embedding
	Organic materials	Reclamation
Temporary Construction Bridges	Steel	Girders
	Concrete	Abutment's
	Pressure treated wood	Bridge bed
	Granular materials	Abutments
	Organic materials	Shoulder/reclamation
Temporary Access Roads	Granular materials	Road bed
	Organic soil	Reclamation
Quarries and Borrow Areas	Crushed rock	Reclamation
	Granular materials	Reclamation
	Organic materials	Reclamation
Temporary Construction Staging Areas	Granular materials	Site pad
	Organic soil	Reclamation
Temporary Construction Camps	Granular materials	Site pad
	Wood	Construction
	Metal	Construction
	Organic materials	Reclamation

13.0 Fuels and Hazardous Materials

Expected fuels and hazardous materials for the proposed All Season Road Project is summarized in Table 9 by project component. Fuels and other hazardous materials will be transported, stored, dispensed and managed in accordance with the National Fire Code of Canada, *The Transportation of Dangerous Good Act* (Dangerous Goods Handling and

Transportation, Environmental Accident Reporting and Storage and Handling of Petroleum Products and Allied Products Regulations).

Table 9: Fuels and Hazardous Materials for the Proposed All Season Road Project		
Project Components	Fuel/Materials	Purpose
All Season Road	Diesel	Construction equipment/vehicle fuel
	Gasoline	Construction equipment/vehicle fuel
	Propane	Construction equipment/vehicle fuel Heating trailers/structures
	Oil	Construction equipment/vehicle motor lube
	Hydraulic fluid	Construction equipment
Acrow Panel Bridges	Diesel	Construction equipment/vehicle fuel
	Gasoline	Construction equipment/vehicle fuel
	Propane	Construction equipment/vehicle fuel Heating trailers/structures Heating under hoarding
	Acetylene	Cutting steel
Steel Girder Bridges	Diesel	Construction equipment/vehicle fuel
	Gasoline	Construction equipment/vehicle fuel
	Propane	Construction equipment/vehicle fuel Heating trailers/structures Heating under hoarding
	Oil	Construction equipment/vehicle motor lube
	Hydraulic fluid	Construction equipment
	Acetylene	Cutting steel
Culvert Stream Crossings	Diesel	Construction equipment/vehicle fuel
	Gasoline	Construction equipment/vehicle fuel
	Propane	Construction equipment/vehicle fuel
	Oil	Construction equipment/vehicle motor lube
	Hydraulic fluid	Construction equipment
	Oil	Construction equipment/vehicle motor lube
	Hydraulic fluid	Construction equipment
Temporary Construction Bridges	Diesel	Construction equipment/vehicle fuel
	Gasoline	Construction equipment/vehicle fuel
	Propane	Construction equipment/vehicle fuel
	Oil	Construction equipment/vehicle motor lube
	Hydraulic fluid	Construction equipment
	Oil	Construction equipment/vehicle motor lube
	Hydraulic fluid	Construction equipment
	Acetylene	Cutting steel
Temporary Access Roads	Diesel	Construction equipment/vehicle fuel
	Gasoline	Construction equipment/vehicle fuel
	Propane	Construction equipment/vehicle fuel
	Oil	Construction equipment/vehicle motor lube
	Hydraulic fluid	Construction equipment
Quarries and Borrow Areas	Diesel	Construction equipment/vehicle fuel
	Gasoline	Construction equipment/vehicle fuel
	Propane	Construction equipment/vehicle fuel
	Oil	Construction equipment/vehicle motor lube
	Hydraulic fluid	Construction equipment
Temporary Construction Staging Areas	Diesel	Construction equipment/vehicle fuel Electrical generator

Project Components	Fuel/Materials	Purpose
	Gasoline	Construction equipment/vehicle fuel
	Propane	Construction equipment/vehicle fuel Heating trailers/structures
	Oil	Construction equipment/vehicle motor lube
	Hydraulic fluid	Construction equipment
Temporary Construction Camps	Diesel	Electrical generator
	Gasoline	Vehicles/equipment
	Propane	Heating/cooking
	Oil	Construction equipment/vehicle motor lube
	Hydraulic fluid	Construction equipment

14.0 Potable Water Supply

Potable water for the proposed All Season Road Project will be trucked from existing sources including Pauingassi and Little Grand Rapids First Nations, as required, to the construction camps. Depending upon availability and with prior approval, groundwater may be obtained from wells drilled on site.

15.0 Waste Disposal and Treatment

Domestic solid waste will be collected and transported to the nearest community landfill in Pauingassi and Little Grand Rapids First Nations or Little Grand Rapids Northern Affairs Community. Recyclable materials will be segregated and stored in designated areas and containers for removal as conditions permit. Septage waste at construction camps or sites will be stored in approved containers and will be hauled for disposal and treatment at either the sewage treatment plant in Pauingassi First Nation or the aerated sewage lagoon at Little Grand Rapids First Nation. Hazardous materials used for the Project include fuel and lubricants used by the construction vehicles, equipment and machinery, stationary and portable generators, and other portable equipment (e.g., pumps, chain saws). Waste petroleum products (e.g., lubricants, oils, greases) derived from construction vehicles and equipment will be collected and stored in designated areas and containers until they can be removed from site for recycling or disposal through a licenced waste disposal/treatment company.

Waste disposal and treatment for the proposed All Season Road Project is summarized in Table 10. Solid, liquid and hazardous wastes from the road project will be collected, stored, transported, disposed of and/or treated in accordance with *The Environment Act* (Waste Disposal Regulation) and *The Transportation of Dangerous Goods Act* (Dangerous Goods Handling and Transportation, Environmental Accident Reporting, and Storage and Handling of Petroleum Products and Allied Products regulations). If contaminated soil is discovered during the life of the All Season Road and its components the affected site will be assessed and any soil determined to be contaminated will be managed on-site or removed to an approved treatment site.

Project Components	Solid Waste	Liquid Waste	Hazardous Waste
All Season Road	Trees windrowed and burned on-site	Porta-potties will be used for human wastes.	None expected

Project Components	Solid Waste	Liquid Waste	Hazardous Waste
Acrow Panel Bridges	Waste construction materials collected and removed from site to an approved facility.	Porta-potties will be used for human wastes.	Any hazardous wastes will be stored and transported to an approved facility.
Steel Girder Bridges	Waste construction materials collected and removed from site to an approved facility.	Porta-potties will be used for human wastes.	Any hazardous wastes will be stored and transported to an approved facility.
Culvert Stream Crossings	Waste construction materials collected and removed from site to an approved facility.	Porta-potties will be used for human wastes.	None expected.
Temporary Construction Bridges	Trees windrowed and burned on-site	Porta-potties will be used for human wastes.	Any hazardous wastes will be stored and transported to an approved facility.
Temporary Access Roads	Trees windrowed and burned on-site.	Porta-potties will be used for human wastes.	None expected.
Quarries and Borrow Areas	Trees windrowed and burned on-site	Porta-potties will be used for human wastes.	Some contamination possible.
Temporary Construction Staging Areas	Waste construction and other materials collected and removed from site to an approved facility.	Human wastes will be contained and taken to an approved treatment facility.	Any hazardous wastes will be stored and transported to an approved facility.
Temporary Construction Camps	Waste construction and other materials collected and removed from site to an approved facility.	Human wastes will be contained and taken to an approved treatment facility.	Any hazardous wastes will be stored and transported to an approved facility.

16.0 Project Workforce

The anticipated workforce for the proposed All Season Road Project is summarized in Table 11. Construction will be carried out under contracts tendered and managed by MFESRA. Presently, the number, scope and magnitude of the contracts are not fully known. MFESRA employees will be involved in the planning and design of the proposed Road Project, and will manage and/or supervise pre-construction, construction and operation and maintenance activities. Construction activities will be monitored by MFESRA inspectors and contractors if tendered. One MFESRA employee and one contract person will be required for operation and maintenance activities on a full-time basis after commissioning of the All Season Road.

Project Components	Pre-Construction		Construction		Operation and Maintenance	
	Contract	Staff	Contract	Staff	Contract	Staff
All Season Road	3	2	25	5	1	1(PT)
Acrow Panel Bridges	0	0	20	3	Incl. above	Incl. above

Project Components	Pre-Construction		Construction		Operation and Maintenance	
	Contract	Staff	Contract	Staff	Contract	Staff
Temporary Construction Camps	2	1	5	1	-	-

17.0 Project Schedule

The schedule to achieve an in-service date of 2019 for the proposed All Season Road Project is summarized in Table 12. Completion of the design phase by January 2015 is dependent upon receiving an Environment Act License for the All Season Road Project from Manitoba Conservation and Water Stewardship by September, 2014.

Project Components	Project Phase	Start Date	Completion Date
All Season Road	Planning/Design	April 2014	January 2015
	Construction	September 2014	2018
	Operation/Maintenance	2018	Ongoing
Acrow Panel Bridges	Planning/Design	April 2014	January 2015
	Construction	2017	2018
	Operation/Maintenance	2018	Ongoing
	Decommissioning	~2040	~2040
Steel Girder Bridges	Planning/Design	To be determined	To be determined
	Construction	To be determined	To be determined
	Operation/Maintenance	To be determined	To be determined
Culvert Stream Crossings	Planning/Design	April 2014	January 2015
	Construction	2015	2018
	Operation/Maintenance	2018	Ongoing
Temporary Access Bridge	Planning/Design	April 2014	January 2015
	Construction	2017	2018
	Operation/Maintenance	2017	2018
	Decommissioning	2018	2018
Temporary Access Roads	Planning/Design	April 2014	January 2015
	Construction	2015	2018
	Operation/Maintenance	2015	2018
	Decommissioning	2018	2918
Quarries and Borrow Areas	Planning/Design	April 2014	January 2015
	Construction	2015	2018
	Operation/Maintenance	2015	2018
	Decommissioning	2018	2018
Temporary Construction Staging Areas	Planning/Design	April 2014	January 2015
	Construction	2015	2018
	Operation/Maintenance	2015	2018
	Decommissioning	2018	2018
Temporary Construction Camps	Planning/Design	April 2014	January 2015
	Construction	2015	2018
	Operation/Maintenance	2015	2018
	Decommissioning	2018	2018

18.0 Project Funding

The total cost for construction of the proposed All Season Road Project from Pauingassi First Nation to Little Grand Rapids First Nation is estimated to be \$50 million with bridges. Initial operating costs for the proposed road project are estimated to be \$6 million /year and are subject to the cost of inflation over time. The source of funding for construction and operation of the All Season Road Project is the Manitoba Government. Funding for the Community Access Roads on First Nation Reserve land is being requested from Aboriginal Affairs and Northern Development Canada in support of Aboriginal economic development with Little Grand Rapids First Nation, Pauingassi First Nations and MFESRA as co-applicants.

19.0 Aboriginal and Public Engagement

19.1 Engagement Carried Out

The Public and Aboriginal Engagement Program for the proposed All Season Road Project began in 2009 and it is ongoing. The purpose of the Engagement Program is to provide meaningful opportunities for people to receive information about the proposed Road Project and to identify issues, concerns and opportunities about the proposed Project. The Engagement Program includes meetings with regulators, potentially affected and interested Aboriginal communities and leadership, general public, trappers, outfitters and other stakeholders.

Meetings to introduce the proposed All Season Road Project and present the East Side Area Transportation Initiative to Little Grand Rapids and Pauingassi First Nations began in May 2009. Meetings were held both in these communities as well as the City of Winnipeg, and involved community members, Elders and/or Chief and Council. The purpose of the meetings was to share the proposed Project with the communities and to gather information from the communities for use in the selection of the preferred road alignment and preparation of the environmental assessment. Three public open houses on the proposed Project have been or will be held in Winnipeg, Berens River, Point du Bois and/or Riverton. Community meetings, design workshops and open houses conducted and planned as part of the Engagement Program are summarized in Table 13.

Activity/Date	Description
Public Open Houses	City of Winnipeg, Berens River, Pointe du Bois and/or Riverton between MFESRA and the general public.
Leadership Meetings	City of Winnipeg with MFESRA and Little Grand Rapids and Pauingassi First Nation Leadership.
Round One Community Meetings: May and December 2009	Meetings with Little Grand Rapids and Pauingassi First Nations to inform local community members and receive input about the East Side Large Area Transportation Network Study, including the proposed All Season Road Project.
Round Two Community Meetings: Spring 2010	Second round of community meetings to present findings of the preferred road alignments based on technical evaluation and to receive input from the first round of meetings and the traditional knowledge studies.
Round Three Community Meetings: Spring 2014	Presentation of the environmental assessment requirements and identification of valued environmental components to community members to obtain feedback on the environmental assessment and valued environmental component selection. Watercourse crossing structures

Table 13: Summary of MFESRA Engagement Program Activities	
Activity/Date	Description
	(bridge or culvert) were also presented to community members to obtain their input.
Round Four Community Meetings: Spring 2014	Included the presentation of potential environmental effects and recommended mitigation to community members.
Round Five Community Meetings: Early Summer 2014.	Presentation of the results of the environmental assessment report prepared for the proposed All Season Road to community members.
Traditional Ecological Knowledge Studies Spring/Summer 2009-10 and Fall and Winter 2013.	Studies were undertaken to gather input from local residents on the environmental, social-economic and cultural implications of the proposed All Season Road. Traditional knowledge exercises were conducted with Elders to obtain important areas relative to the location of the proposed road alignment.
Integrated Resources and Environmental Management Team meetings. 10.02.12, 21.01.13 and 03.02.14	Community engagement, All Season Road route and environmental assessment process discussed with Manitoba Conservation and Water Stewardship, Eastern Region in Lac du Bonnet. All season road route between Pauingassi and Little Grand Rapids First Nations presented and discussed.
Environmental Assessment and Licensing Branch, MB Conservation and Water Stewardship 01.03.13	All Season Road route between Pauingassi and Little Grand Rapids First Nations presented and discussed.
Meeting with Manitoba Lodges and Outfitters Assoc. 10.5.13	Discussed projects including All Season Road between Pauingassi and Little Grand Rapids First Nations with Association's representative.
Presentation to Wildlife Branch, MB Conservation and Water Stewardship	Wildlife baseline data collection and analysis for All Season Road route between Pauingassi and Little Grand Rapids discussed and road route presented.
Southeast Resource Development Council. Meeting of representatives of South East Tribal Council	Presentation at the LEAF Workshop. Aboriginal Affairs and Northern Development Canada sponsored. Discussion provided an overview of the proposed All Season Road project between Pauingassi and Little Grand Rapids First Nations, the environmental assessment process and mitigation measures.

The topics discussed at the meetings, workshops and open houses included:

- Introduction to the proposed All Season Road Project
- Presentation and discussion of road alignment options
- Presentation of project activities such as right-of-way clearing and exploratory clearing
- Training opportunities for community members
- Confirmation of route alignment
- Identification of community concerns
- Traditional knowledge design workshops to obtain traditional knowledge information for the proposed All Season Road
- Introduction of baseline studies being conducted for the proposed All Season Road
- Collection of site-specific constraints from community members
- Discussion of potential effects of the project and mitigation measures
- Discuss the finding of the environmental assessment

Concerns and issues identified by community members and the public throughout the Aboriginal and Public Engagement Program are being documented and will be described and analyzed in the environmental assessment report.

19.2 Engagement to be Carried Out

The Engagement Program for the proposed All Season Road Project is ongoing and will continue through the project's construction and operation and maintenance phases. MFESRA's website outlines its commitment to the involvement of local residents, community leaders and non-governmental organizations in projects. The website provides project updates, news releases and information about the proposed Road Project, and has a calendar of events for upcoming community meetings. MFESRA produces a newsletter that is also available on their website. The newsletter provides information about road construction projects, status of projects under constructions, employment opportunities and general interest articles about the east side of Lake Winnipeg. The website also provides opportunities for interested and affected parties to provide input to projects on the east side of Lake Winnipeg.

20.0 Other Approvals and Status

20.1 Canadian Environmental Assessment Act, 2012

Under *S.67 of the Canadian Environmental Assessment Act, 2012*, Aboriginal Affairs and Northern Development Canada is required to ensure that projects on reserve lands and/or funded by this department do not have adverse environmental impacts. Environmental assessment reports will be prepared for the Community Access Roads on Pauingassi and Little Grand Rapids Reserve land.

20.2 Navigation Protection Act

On April 1, 2014 the *Navigable Waters Protection Act* was replaced by the *Navigation Protection Act*. MFESRA will apply for the assessment and potential approval of proposed works on non-scheduled watercourses including an unnamed creek between Family and Fishing lakes and Root Creek between Root Lake and Douglas Lake under the 'opt-in' provision of the new Act.

20.3 Migratory Birds Convention Act, 2004

MFESRA will ensure that provisions of the *Migratory Birds Convention Act, 2014* are adhered to as part of the environmental assessment carried out on the proposed All Season Road Project. Any measures required to mitigate the effects of the proposed project on migratory birds will be implemented as part of MFESRA environmental protection measures.

20.4 Indian Act

The proposed Project includes Community Access Roads that are located on reserve lands in Pauingassi First Nation and Little Grand Rapids First Nation. The proposed Project will require Construction Permits under Section 28(2) of the *Indian Act* for the two Community Access Roads.

20.5 Fisheries Act

Authorizations under the *Fisheries Act* may be sought for the two major waterways containing indicator species: the channel between Family and Fishing Lakes and Root Creek, a tributary located east of Root Lake. These two waterway contain indicator species, however, under recent changes to the Fisheries Act, works at these two major waterways t are not expected to cause serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery. MFESRA will provide the Department of Fisheries and Oceans with project information for their review and decision to require Authorization

20.6 Other Approvals and Permits

Provincial work permits required under *The Crown Lands Act* for road construction, quarry development and camp development on provincial Crown lands will be sought prior to construction of the proposed All Season Road. Casual quarry permits required under Subsection 133(1) of *The Mines and Minerals Act* will be sought prior to any quarry development. Burning Permits required under Section 19(1) of *The Wildfires Act* will be sought as needed. Permits for petroleum storage tanks over 5,000 L on Crown land are required under *The Dangerous Goods Handling and Transportation Act* (Storage and Handling of Petroleum Products and Allied Products Regulation).

20.7 Canada/Manitoba Agreement on Environmental Assessment Cooperation

The proposed All Season Road Project will be reviewed under the provisions of the Canada/Manitoba Agreement on Environmental Assessment Cooperation (2007). A provincial environmental assessment for the proposed All Season Road Project is required under *The Environment Act* (Manitoba) and federal environmental assessments are required for the Community Access Roads under the *Canadian Environmental Assessment Act, 2012*.

21.0 References

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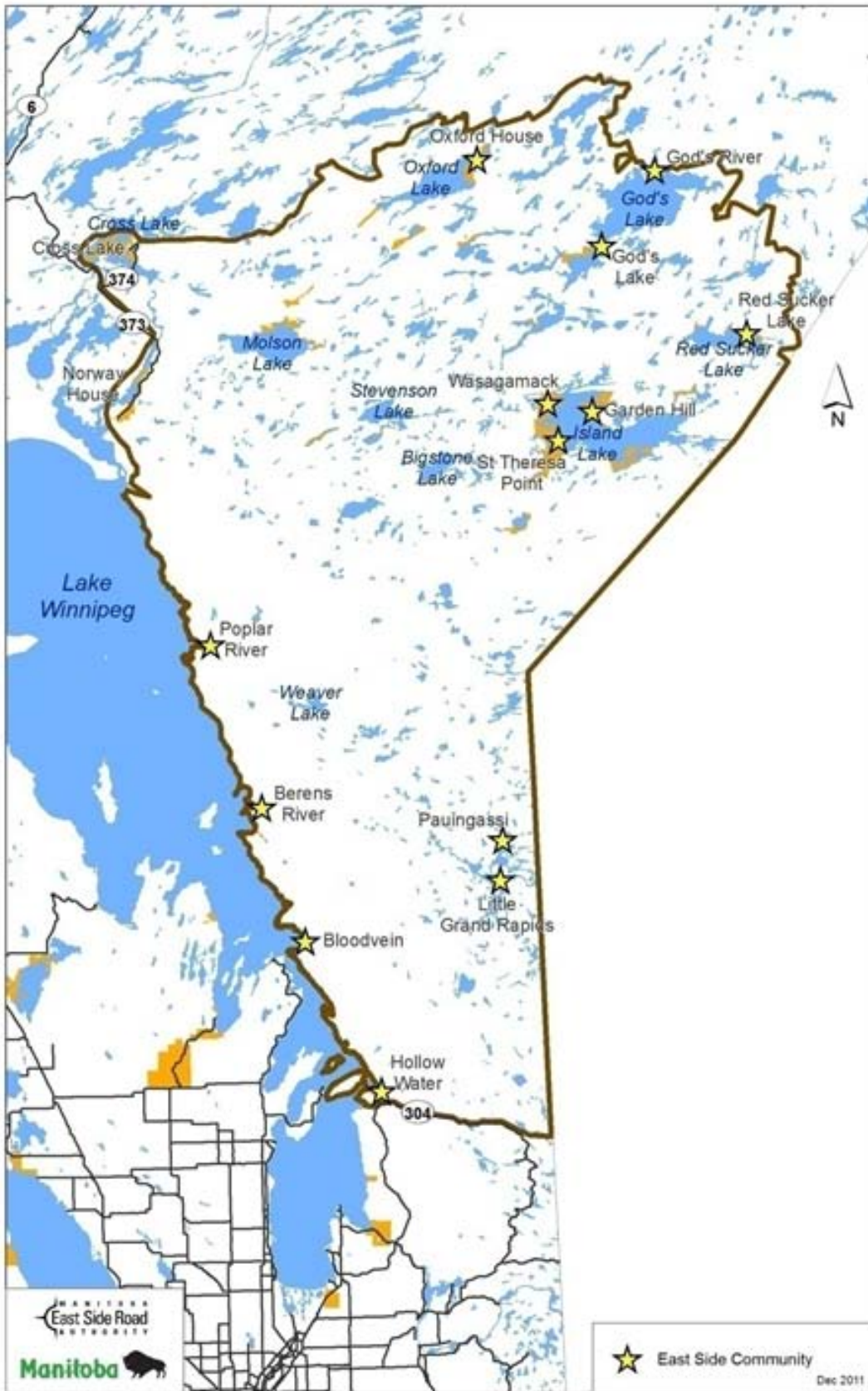


Figure1. East Side of Lake Winnipeg Showing the Locations of Paungassi and Little Grand Rapids First Nations

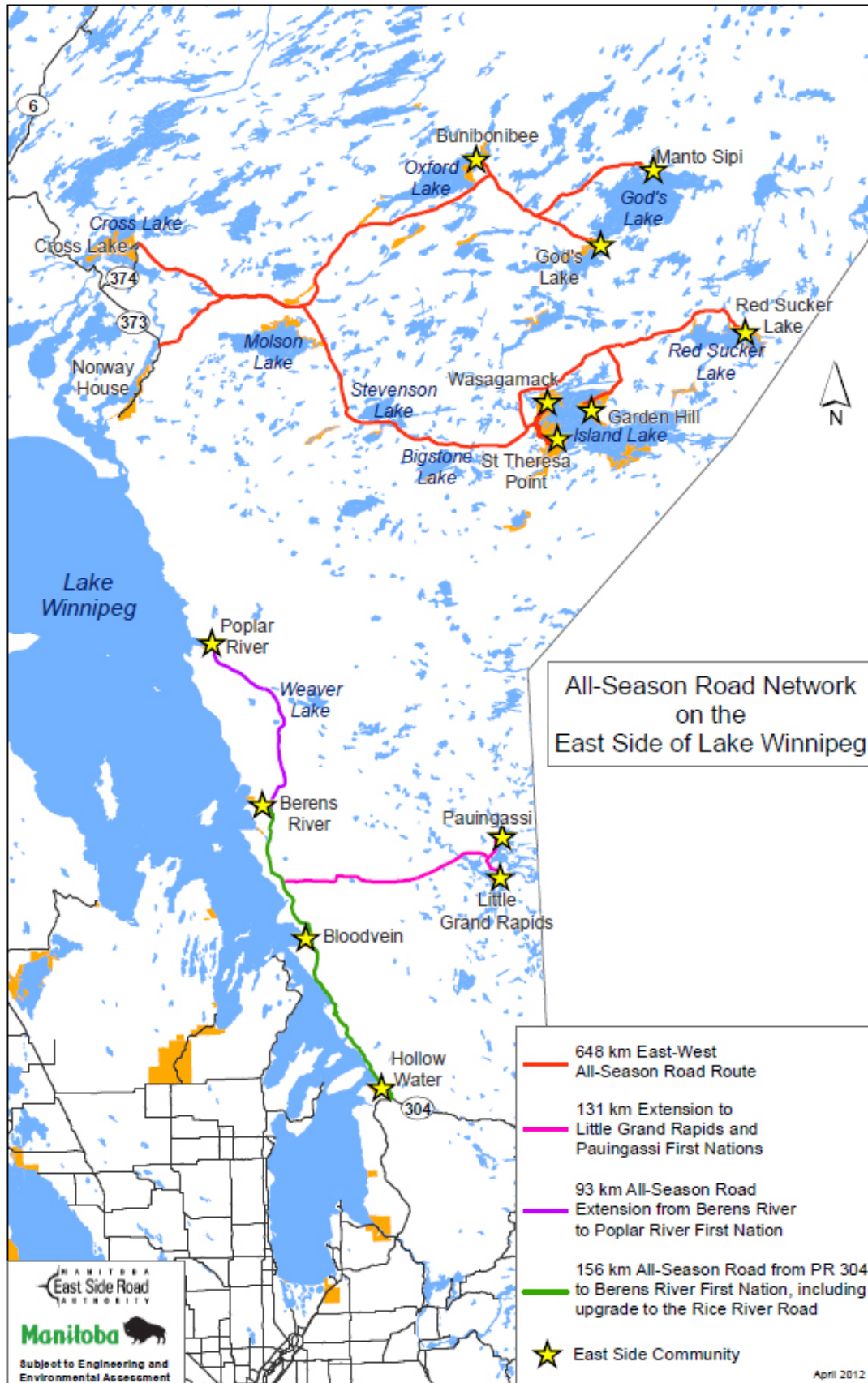


Figure 2. East Side of Lake Winnipeg Showing the Proposed All Season Road Network

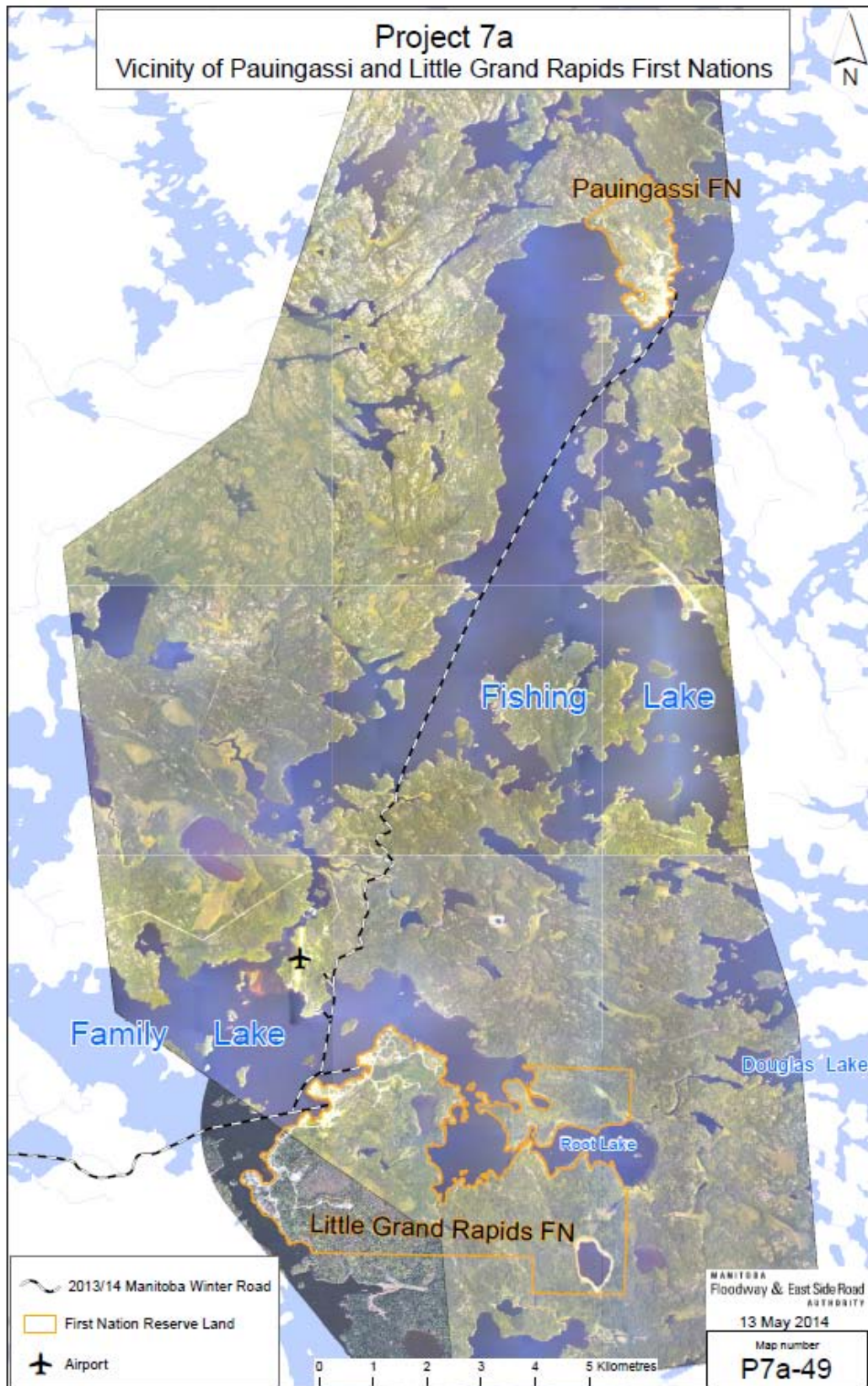


Figure 3. Pauingassi and Little Grand Rapids First Nations Showing Existing Winter Roads



Figure 4. Proposed Route for the All Season Road Between Pauingassi and Little Grand Rapids First Nations

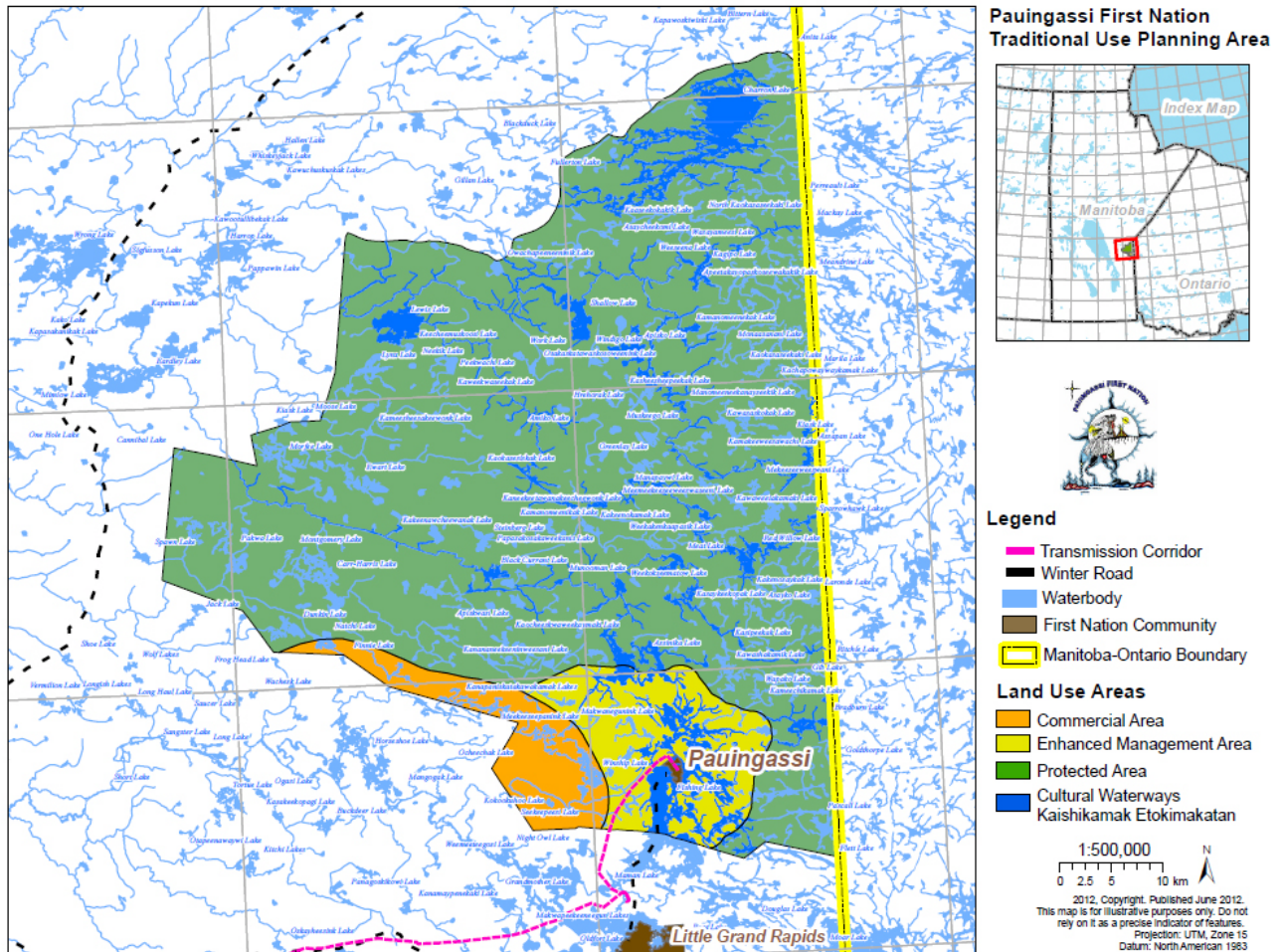


Figure 5. Pauingassi First Nation Traditional Use Planning Area

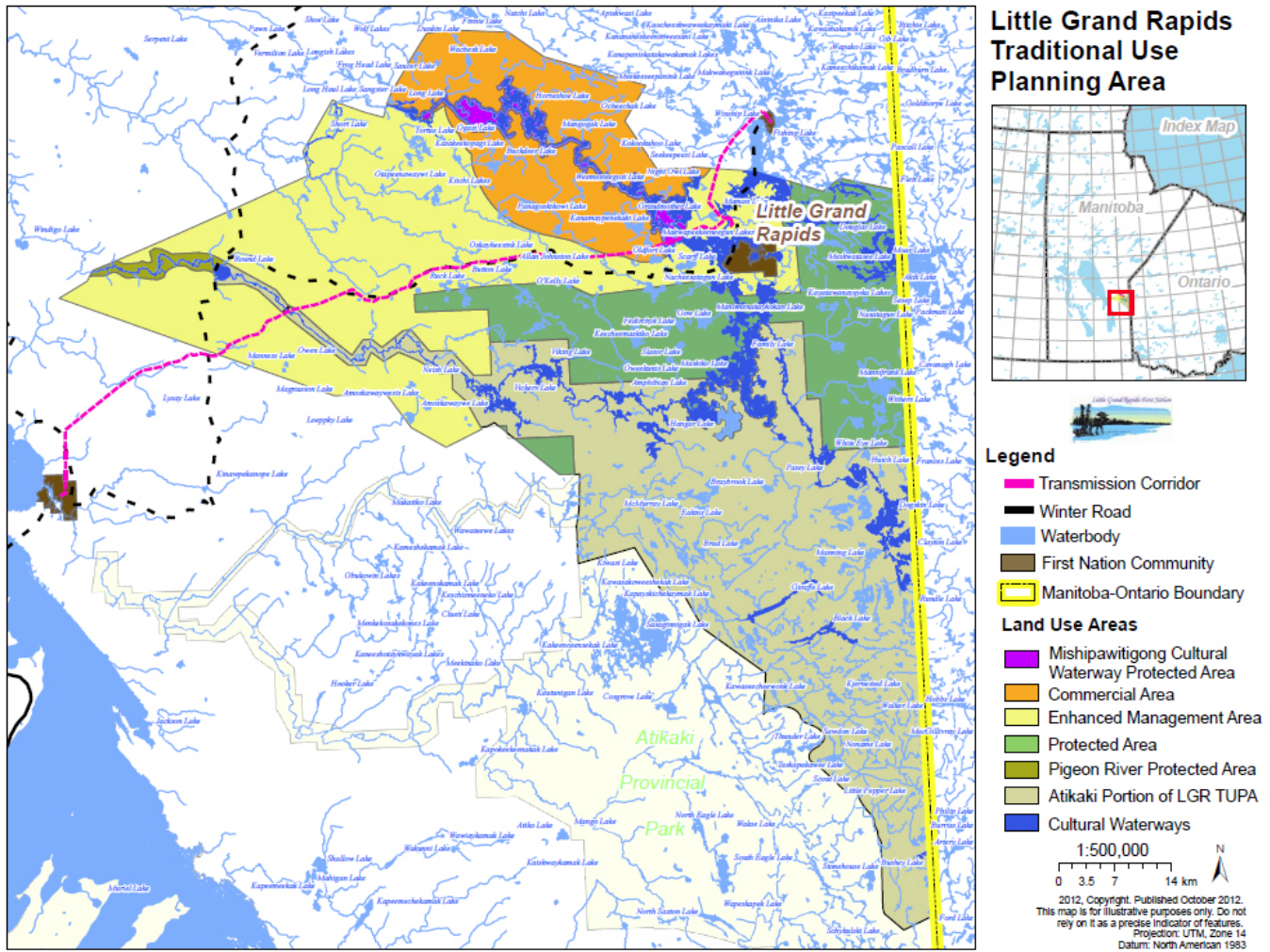


Figure 6. Little Grand Rapids First Nation Traditional Use Planning Area

P7A – All Season Road Project Description

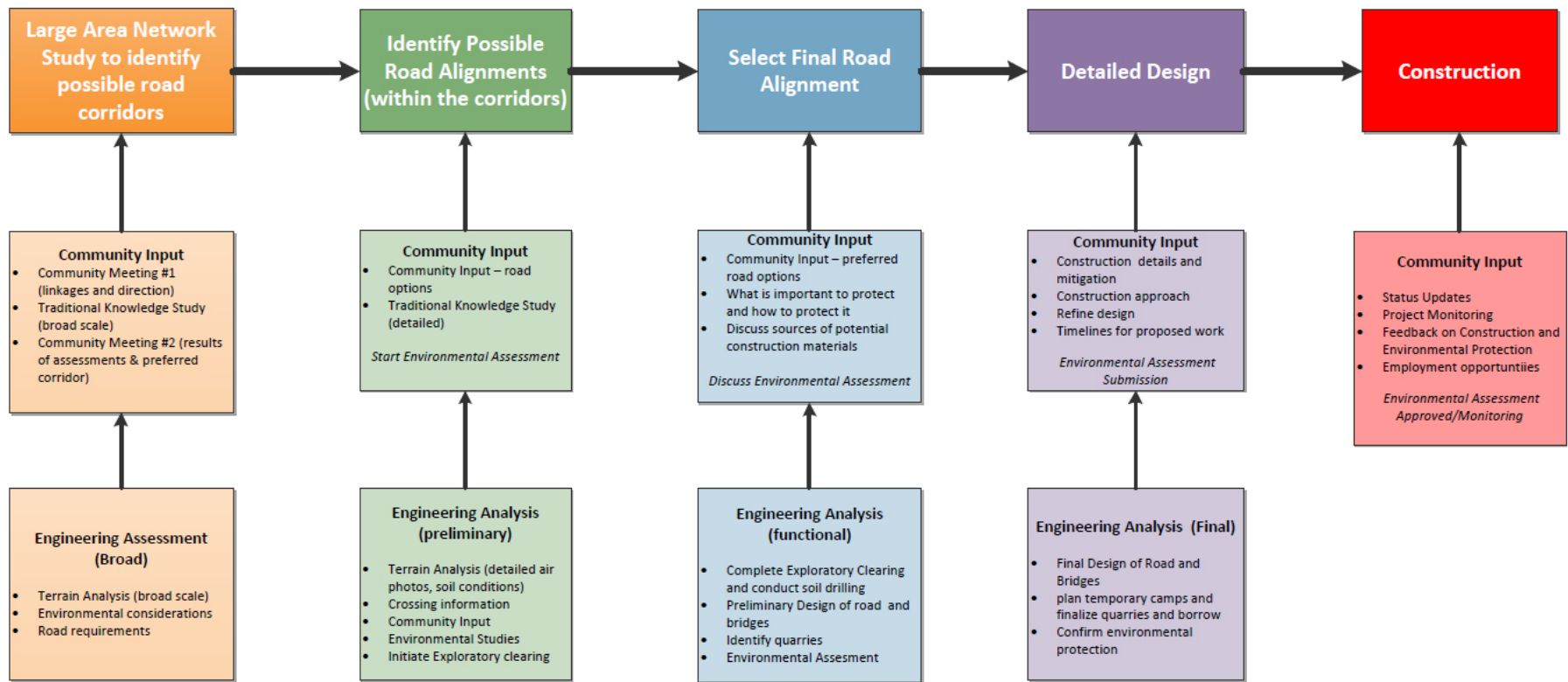


Figure 7. Steps to Select, Design and Construct an All Season Road

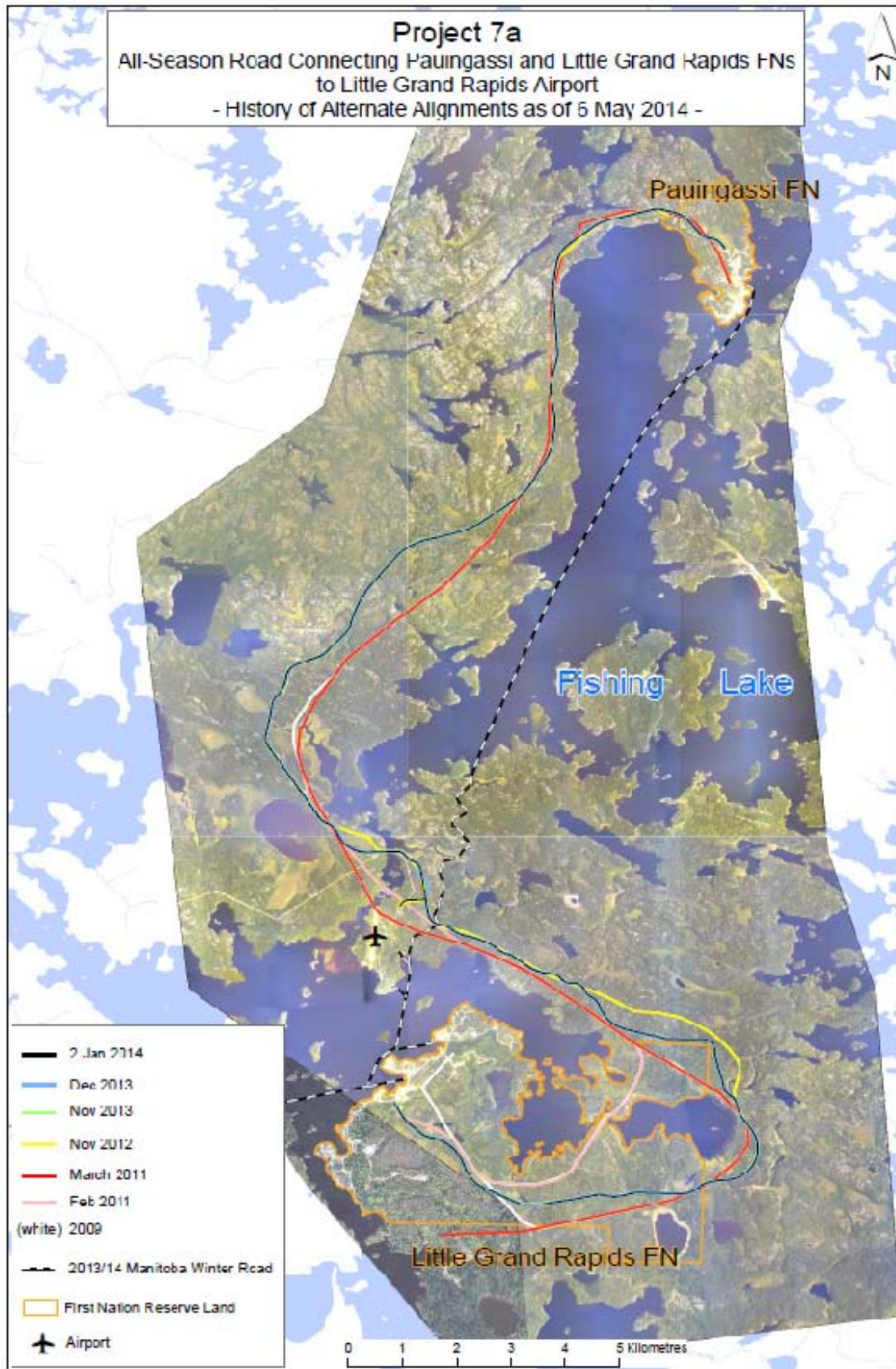


Figure 8. Alternate Routes for the Proposed All Season Road Between Pauingassi and Little Grand Rapids First Nations

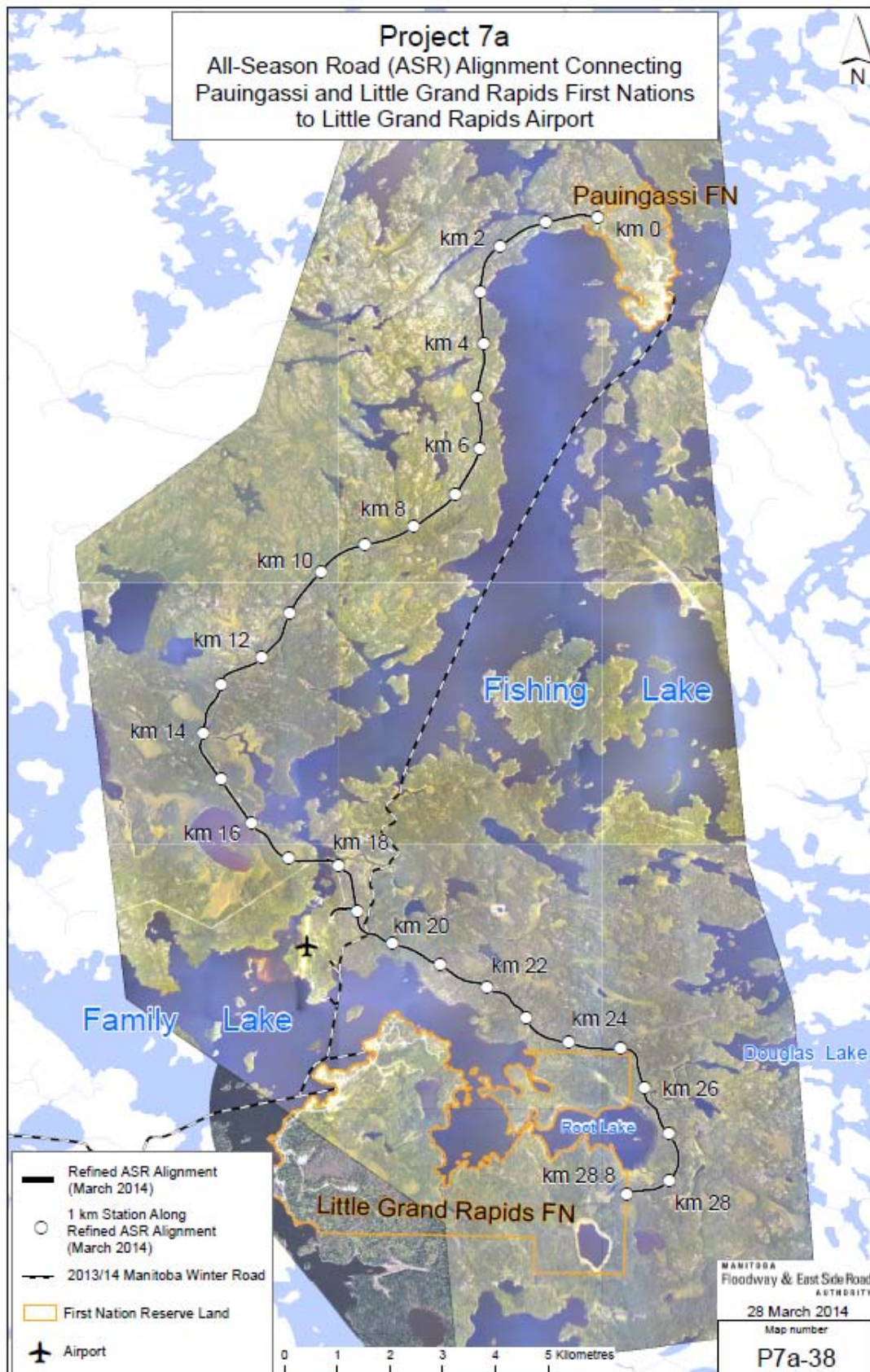


Figure 9. Proposed Route for the All Season Road Between Pauingassi and Little Grand Rapids First Nations Showing Kilometre Stations



Figure 10. Locations of Bridge and Culvert Crossings Along Proposed All Season Road Between Pauingassi and Little Grand Rapids First Nations

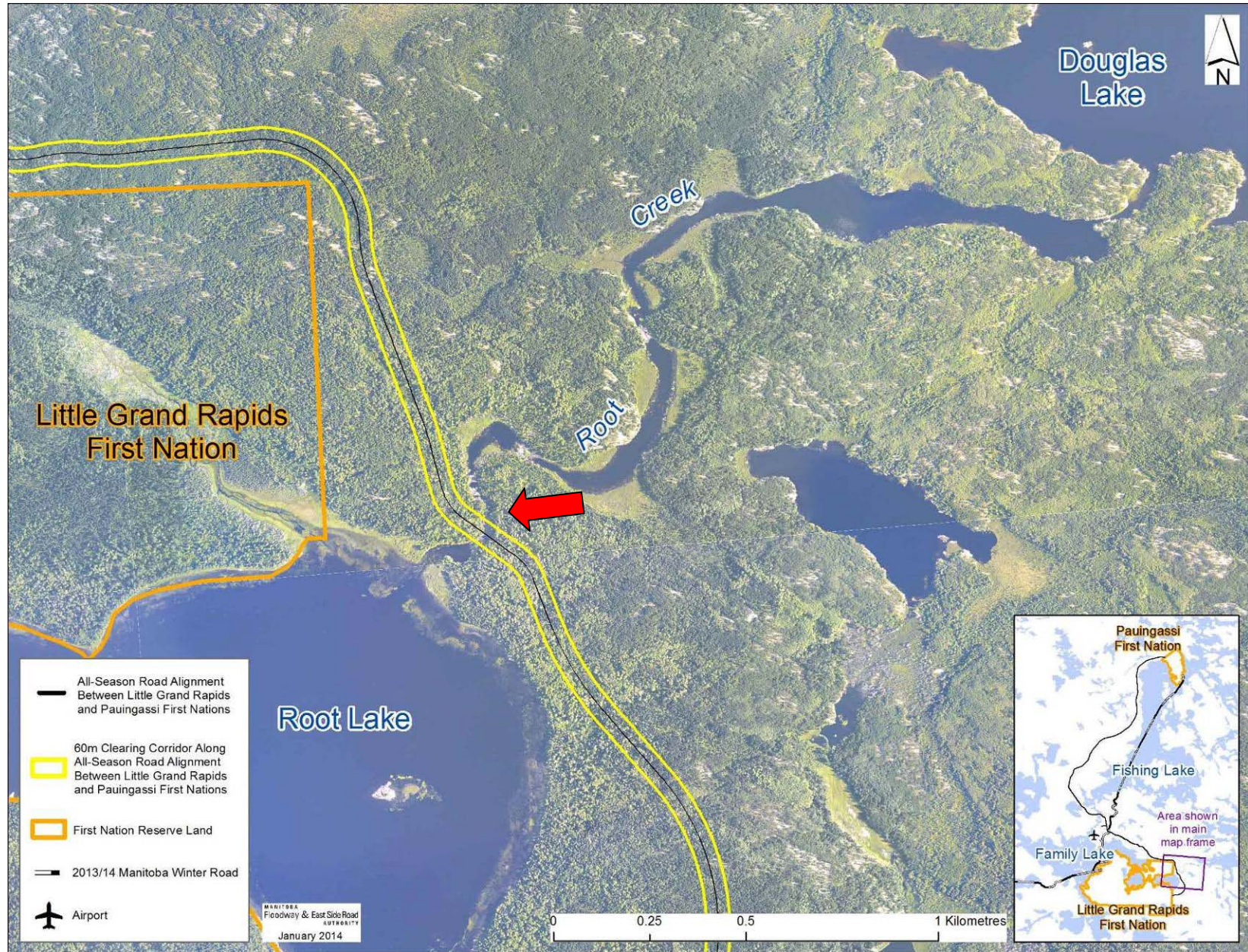


Figure 11. Proposed Bridge Location Between Douglas and Root Lakes (Root Creek)

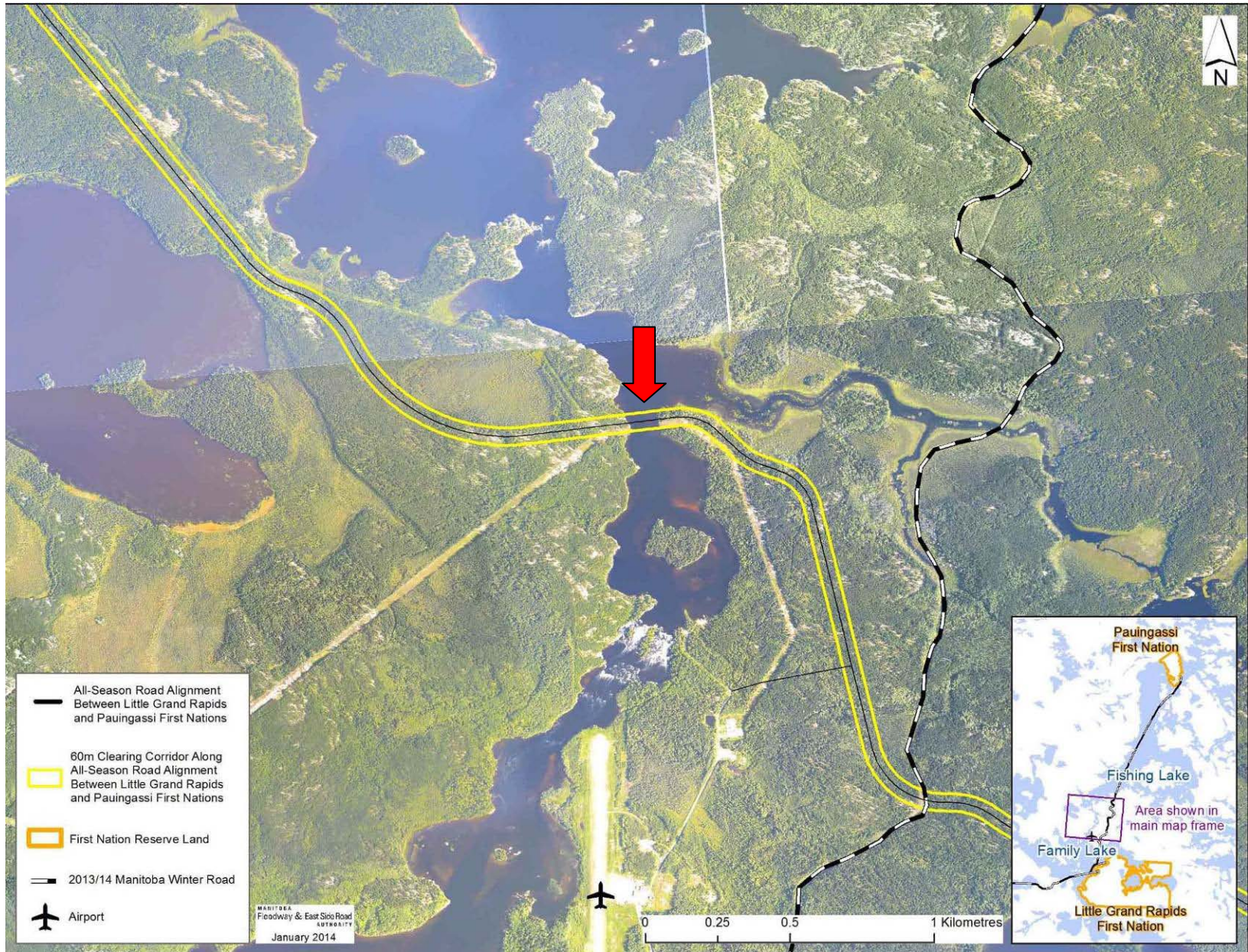


Figure 12. Proposed Bridge Location Between Family and Fishing Lakes (Unnamed Creek)



Figure 13. Photograph of a Typical Acrow Panel Bridge



Figure 14. Photograph of a Typical Steel Girder Bridge



Figure 15. Locations of Rock Quarries and Borrow Areas Along the Road Right-of-Way Between Pauingassi and Little Grand Rapids First Nations