

# Bipole III Transmission Project

## ROUTE ADJUSTMENT SUPPLEMENTAL REPORT

### **Executive Summary**

### **Chapter 1 – Introduction**

Appendix 1A - Correspondence

Appendix 1B – Presentation to CEC on Transmission Line Route Revisions

### **Chapter 2 – Proposed Route Adjustments**

### **Chapter 3 – Environmental Assessment Consultation Program**

Appendix 3A – Notification Letters

Appendix 3B – Notification Methods

Appendix 3C – Meeting Notes

Appendix 3D – MMF Correspondence

Appendix 3E – Feedback Log

Appendix 3F – Participant Mapping

### **Chapter 4 - Environmental Assessment and Mitigation**

Appendix 4A - Biophysical and Socio-economic VECs

Appendix 4B - Maps

### **Chapter 5 – Cumulative Effects Assessment**

Appendix 5A – Cumulative Effects Assessment

### **Chapter 6 – Environment Protection, Follow-up and Monitoring**

Appendix 6A – Table of Mitigation Measures by VEC

### **Glossary**

# EXECUTIVE SUMMARY

This Bipole III Route Adjustment Supplemental Report to the Environmental Impact Statement (EIS) for the Bipole III Transmission Line Project (the Project) is filed in response to requirements set out in the November 9, 2012 letter from Manitoba Conservation and Water Stewardship (MCWS). It assesses the extent to which the EIS is modified by the three route adjustments requested by MCWS to the Final Preferred Route (FPR) for the HVdc transmission line component of the Project. These route changes were presented to the Clean Environment Commission (CEC) hearing on October 29, 2012.

Environmental effects of the these route adjustments are outlined in sufficient detail for the identified effects to be considered by the CEC, as well as any affected parties and registered participants in the current CEC public review process for the Project. The Route Adjustment Supplemental Report relies throughout on the original EIS filed on December 2, 2011, and supplements the EIS as required to reflect the changes to potential environmental effects of the Project expected as a result of the three route changes.

## Proposed Route Adjustments

The proposed adjustments to the Final Preferred Route (the AFPR) in three areas of the FPR in response to direction from MCWS are as follows:

- **Wabowden Area AFPR:** This adjustment is 48 km in length and addresses concerns relating to the FPR intersecting core use areas for woodland caribou east of the junction of Provincial Truck Highway (PTH) 39 and 6 near Ponton. Boreal woodland caribou is a threatened species under the *Species at Risk Act* and the Manitoba *Endangered Species Act*. The AFPR shifts the route in this area to the west, reducing the overall line length by approximately 9 km and taking advantage of existing rail and transmission line corridors along PTH 6 and Provincial Road (PR) 373.
- **GHA 14 (Moose Meadows Area) AFPR:** This adjustment is 33 km in length and addresses concerns in Game Hunting Area (GHA) 14 relating to potential effects of fragmentation and access on moose populations where the FPR intersects a relatively undisturbed area of moose habitat east of PTH 10 in the Mafeking to Birch River area. The moose population in GHA 14 is reportedly in steep decline and is currently closed to all moose hunting. The AFPR shifts the route in this area to the west just south of PR 483, increasing the overall line length by 3 km and

largely avoiding the main area of concern as indicated by Manitoba Conservation and Water Stewardship - Wildlife Branch.

- **GHA 19A and 14A AFPR:** This adjustment is 57 km in length and addresses concerns in GHA 19A and 14A relating to potential effects of fragmentation and access on moose populations where the FPR intersects a relatively undisturbed area of moose habitat south of PTH 20 and west of Pine Creek and Camperville. The AFPR shifts the route to the east between Pulp River and an area north of Cowan and Briggs Spur, increasing the overall line length by 4 km.

### **Site Selection Environmental Assessment Routing Process**

The Site Selection Environmental Assessment (SSEA) routing process as set out in Chapter 7 of the December 2011 EIS was modified when dealing with the AFPR to accommodate requests from MCWS for specific site adjustments after the EIS had been submitted to the CEC for public review.

Except for the AFPR route change in the Wabowden area (which was developed by Manitoba Hydro after review of earlier routing alternatives considered in the original SSEA), the resulting AFPR route adjustments as filed with the CEC (and now assessed in this report) had not been subject to the same consultation or preliminary assessment process used to select the FPR. The assessment associated with the AFPR changes in GHA 14 (Moose Meadows) and GHA 19A and 14A therefore has a higher potential to find adverse residual effects that could have been avoided had the typical SSEA process been followed. The FPR continues to be available in each instance as a default final preferred route option that was selected and assessed in the EIS based on the unmodified SSEA process.

### **Consultation**

During November 2012 to January 2013, Manitoba Hydro undertook an additional Environmental Assessment Consultation Program (EACP) regarding the three AFPR route changes. A variety of notification methods and consultation activities were used to ensure local communities, interest groups, stakeholders, First Nations, landowners and the Manitoba Metis Federation (MMF) were informed of, and could participate in, these EACP activities. In total, 216 direct letters were mailed, 180 individuals signed into 11 venues where 27 comment sheets and eight Landowner Information Centre forms were submitted. Summary of feedback responses for each AFPR are as follows:

- **Wabowden Area AFPR:** The predominant concerns regarding this route adjustment relate to access, noise and trapping. All of the eight participants who submitted a comment sheet indicating a route preference noted that the AFPR is preferred to the FPR in this area because (as per comments on one or more sheets)

it follows existing linear infrastructure and minimizes new access into areas previously undisturbed. No suggestions were received to change the AFPR.

- **GHA 14 (Moose Meadows Area) AFPR:** The predominant concerns regarding this route adjustment relate to access, wildlife, vegetation management and treaty land entitlement. Seven of the ten participants who submitted a comment sheet indicating a route preference noted that the AFPR is preferred to the FPR in this area because (as per comments on one or more sheets) it limits new access, avoids moose habitat, minimizes impact on vegetation/wetlands/wildlife, and would provide Manitoba Hydro better access for operation and maintenance. Comment sheets from those who do not prefer the AFPR noted (as per one or more sheets) that the area in question is already frequently hunted, the new right-of-way would increase access, the original FPR would have affected less wildlife, agricultural concerns, potential increase in access to private lands, aesthetic concerns from this within close proximity, and potential for construction noise. Three route modifications were suggested: Protected Areas Initiative (PAI) suggested that the edge of right-of-way needs to be 100 metres from the boundary of the Bell-Steeprock Canyon Protected Area; two landowners north of Mafeking would prefer the line not to traverse their respective properties.
- **GHA 19A and 14A AFPR:** The predominant concerns regarding this route adjustment relate to access, wildlife, heritage, vegetation management and resource use concerns. Eight of the twelve participants who submitted a comment sheet indicating a route preference noted that the AFPR is preferred to the FPR in this area because (as per comments on one or more sheets) the line would be further away from existing homesteads and the route would provide better terrain for construction. Comment sheets from those who do not prefer the AFPR noted (as per one or more sheets) that it will not enhance natural habitat for moose recovery, it will increase access into Swan Pelican Forest reserve, and it is longer than the FPR. Conflicting information was received from a variety of participants on AFPR versus FPR effects on berry picking (which is noted to be very important in this area for many communities) and pressures on moose hunting. Two route modifications were suggested: one landowner in the Cowan area suggested that the FPR be adopted north of PTH 20 and then travel east along PTH 20 and connect to the AFPR located south of PTH 20 (to minimize access to Swan Pelican Reserve and limit moose habitat being opened to hunting pressure); members of the Pine Creek First Nation suggested that the AFPR be adopted north of PTH 20 and then travel east to an unused road allowance closer to the community of Camperville (to avoid crossing the bison ranch on Crown lease lands south of PTH 20).

## **Environmental Assessment and Mitigation**

In assessing the extent to which the three route adjustments modify the environmental assessment and mitigation in Chapter 8 and Chapter 9 of the original EIS, the Route Adjustment Supplemental Report focuses on where, as a result of the AFPR changes, there are changes in expected effects to Valued Environmental Components ("VECs") identified in the original EIS relating to the HVdc transmission line component of the Project. Unless otherwise noted, the analysis retains the assessment of effects of the Project on VECs as set out in the original EIS and subsequent filings reviewed to date in the CEC hearing process.

In summary, after mitigation as described in Chapter 6, the HVdc transmission line with the three AFPR route changes is not expected to change the assessment conclusions in the December 2011 EIS for any biophysical or socio-economic VECs, except as noted below:

- The AFPR changes in the Wabowden area reduce scientific uncertainty and concern regarding the potential residual effects of the Project on the Wabowden boreal woodland caribou evaluation range and increase the confidence in the prediction of residual effects and the overall assessment of significance for the boreal woodland caribou VEC; as regards mining industry concerns about potential effects of the Wabowden area AFPR change, Manitoba Hydro will discuss with the mining industry potential additional mitigation measures to address concerns about magnetic fields from operation of the Project HVdc transmission line interfering with the ability of mining companies to conduct geophysical mineral exploration in the Thompson Nickel Belt.
- The AFPR changes in the GHA 14 (Moose Meadows) area compared to the FPR contain considerably more high quality moose habitat within the 4.8 km<sup>2</sup> buffer area adjacent to the route, and intersect or come in proximity to additional areas of high moose density in proximity to existing access that will result in more challenging mitigation on the potential effects associated with access along the AFPR corridor as compared to the FPR corridor in this area.
- The AFPR changes in GHA 19A and 14A result in potentially significant adverse residual effects on the culture of Camperville, Pine Creek First Nation and Duck Bay. Aside from avoiding this area through routing the HVdc transmission line elsewhere (as was achieved with the FPR in the original EIS), Manitoba Hydro is not currently aware of mitigation measures likely to alleviate adequately these expected adverse residual effects on culture from the AFPR route change in the GHA 19A/14A area. Overall, the assessment concludes that the residual adverse effect on

culture is “not significant”; however, uncertainty is noted as to whether the ongoing adverse effect will remain moderate in magnitude and medium term in duration.

In summary, the assessment concludes that there are potentially significant adverse residual effects on culture with the AFPR route change in the GHA 14A and 19A area. Had route selection followed the SSEA process outlined in Chapter 7 of the December 2011 EIS, an alternative route such as the AFPR in GHA 14A and 19A would have undergone preliminary assessment indicating any areas where potentially significant adverse effects could occur. The alternative route then would *not* have been selected for further assessment and another segment would have been chosen. In this instance, the FPR continues to be available in the GHA 19A and 14A area as a default preferred route option that was selected and assessed in the December 2011 EIS based on the unmodified SSEA process.

## **ABBREVIATIONS, ACRONYMS AND UNITS**

# LIST OF ACRONYMS AND ABBREVIATIONS

<b>A</b>	See Ampere (amp)
<b>AAC</b>	Annual Allowable Cut
<b>AAAC</b>	All Aluminium Alloy Conductor
<b>ac</b>	See Alternating Current
<b>ACSR</b>	See Aluminium Conductor Steel Reinforced
<b>AOGCM</b>	See Atmosphere-Ocean Global Circulation Model
<b>AN</b>	See Audible Noise
<b>ASI</b>	Area of Special Interest
<b>ATK</b>	Aboriginal Traditional Knowledge
<b>BOD</b>	See Biological Oxygen Demand
<b>BNA</b>	See Burntwood Nelson Agreement
<b>CBA</b>	See Collective Bargaining Agreement
<b>CDC</b>	Conservation Data Centre
<b>CDI</b>	Community Development Initiative
<b>CEAA</b>	Canadian Environmental Assessment Act or Agency
<b>CEARC</b>	Canadian Environmental Assessment Research Council
<b>CFS</b>	Canadian Forestry Services
<b>CI</b>	See Confidence Interval
<b>cm</b>	See Centimetre
<b>CNP</b>	See Cree Nation Partners
<b>COSEWIC</b>	See Committee on the Status of Endangered Wildlife in Canada
<b>CSA</b>	See Canadian Standards Association
<b>dc</b>	See Direct Current
<b>DNC</b>	See Directly Negotiated Contract
<b>DUC</b>	Ducks Unlimited Canada
<b>E.P.M.</b>	East of the Prime Meridian
<b>EA</b>	See Environmental Assessment
<b>EACP</b>	Environmental Assessment Consultation Program
<b>EIS</b>	See Environmental Impact Statement
<b>EMF</b>	See Electric and Magnetic Field
<b>EMS</b>	See Environmental Management System
<b>EMT</b>	Environmental Management Team
<b>EnvPP</b>	See Environmental Protection Plan
<b>EPP</b>	See Environmental Protection Program

<b>ESS</b>	Environmentally Sensitive Sites
<b>FLCN</b>	Fox Lake Cree Nation
<b>FLI</b>	Forest Lands Inventory
<b>FMLA</b>	Forest Management Licence Area
<b>FMU</b>	Forest Management Unit
<b>FPR</b>	Final Preferred Route
<b>FRI</b>	Forest Resource Inventory
<b>FRIEB</b>	Forest Resource Inventory Enhanced for Bipole
<b>FS</b>	Forest Section
<b>ft.</b>	See Feet
<b>G</b>	See Gauss
<b>GCM</b>	Global Climate Models
<b>GDP</b>	See Gross Domestic Product
<b>GHA</b>	See Game Hunting Area.
<b>GHG</b>	See Greenhouse Gas
<b>GIS</b>	Geographical Information System
<b>GPS</b>	Global Positioning System
<b>GS</b>	See Generating Station
<b>ha</b>	See Hectare
<b>HB</b>	Hudson Bay
<b>HDPE</b>	High Density Polyethylene
<b>HVdc</b>	See High Voltage Direct Current
<b>HWM</b>	See High Water Mark
<b>IAIA</b>	International Association for Impact Assessments
<b>IEC</b>	See International Electrotechnical Commission
<b>in.</b>	See Inch
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>IRMT</b>	See Integrated Resource Management Team
<b>ITE</b>	Institute of Traffic Engineers
<b>km</b>	See Kilometre
<b>KPI</b>	Key Person Interview
<b>kV</b>	See Kilovolt
<b>kWh</b>	See Kilowatt Hour
<b>LCC</b>	Land Cover Classification for Canada
<b>LCCEB</b>	Land Cover Classification of Canada, Enhanced for Bipole
<b>LP</b>	Louisiana Pacific
<b>LPFN</b>	Long Plain First Nation
<b>m</b>	See metre
<b>MAFRI</b>	See Manitoba Agriculture, Food and Rural Initiatives
<b>MCDC</b>	Manitoba Conservation Data Centre
<b>MESA</b>	See The Manitoba Endangered Species Act

<b>MFA</b>	Manitoba Forestry Association
<b>MFL</b>	Master Feedback Log
<b>mG</b>	Milligauss
<b>MHHC</b>	Manitoba Habitat Heritage Corporation
<b>mi.</b>	See Mile
<b>mm</b>	See Millimetre
<b>MMF</b>	Manitoba Metis Federation
<b>MSL</b>	Master Stakeholder List
<b>MRO</b>	See Midwest Reliability Organization
<b>MISO</b>	Midwest Independent Transmission System Operator
<b>MVA</b>	See Megavolt-Ampere
<b>MW</b>	See Megawatt
<b>MWF</b>	Manitoba Wildlife Federation
<b>NCC</b>	Nature Conservancy of Canada
<b>NERC</b>	See North American Electric Reliability Corporation
<b>NFA</b>	See Northern Flood Agreement.
<b>NFPA</b>	National Fire Protection Association
<b>NLHS</b>	Northern Lights Heritage Foundation
<b>NTU</b>	See Nephelometric Turbidity Units
<b>NRA</b>	See Natural Resource Officer
<b>OCN</b>	Opaskwayak Cree Nation
<b>ODW</b>	Office of Drinking Water
<b>OPGW</b>	See Optical Protection Ground Wire
<b>PAI</b>	Protected Areas Initiative
<b>PC</b>	Personal Computer
<b>PFRA</b>	Prairie Farm Rehabilitation Administration
<b>PMA</b>	See Premature Mortality Rates.
<b>PPR</b>	Preliminary Preferred Route
<b>PR</b>	See Provincial Road
<b>PSA</b>	See Project Study Area
<b>PSP</b>	Permanent Sample Plots
<b>PTH</b>	See Provincial Trunk Highway
<b>PVC</b>	Polyvinylchloride
<b>QA</b>	Quality Assurance
<b>QC</b>	Quality Control
<b>QDA</b>	Quality Data Analysis
<b>RBD</b>	See Reliability Based Design
<b>RI</b>	See Radio Interference
<b>RM</b>	Rural Municipality
<b>RMA</b>	See Resource Management Area
<b>ROW</b>	See Right-of-Way

<b>RSA</b>	See Regional Study Area
<b>RSM</b>	Route Selection Matrix
<b>RTAC</b>	Road and Transportation Association of Canada
<b>RTL</b>	See Registered Trap Lines
<b>RTM</b>	Ready-To-Move
<b>SAAM</b>	Society for Applied Anthropology of Manitoba
<b>SARA</b>	See Species at Risk Act
<b>SBR</b>	See Sequencing Batch Reactor
<b>SD</b>	Secure Digital
<b>SD</b>	See Sustainable Development
<b>SLRMA</b>	See Split Lake Resource Management Area
<b>SRES</b>	Special Report on Emissions Scenarios, a publication of the IPCC
<b>SSEA</b>	Site Selection and Environmental Assessment
<b>SWS</b>	Sustainable Wood Supply
<b>TCN</b>	Tataskweyak Cree Nation
<b>TEK</b>	See Traditional Ecological Knowledge
<b>THM</b>	Trihalomethanes
<b>TK</b>	Traditional Knowledge
<b>TLE</b>	See Treaty Land Entitlement
<b>TSA</b>	Timber Sale Agreement
<b>UNESCO</b>	United Nations Environmental Science and Cultural Organization
<b>USDA</b>	United States Department of Agriculture
<b>UNEP</b>	United Nations Environment Program
<b>VEC</b>	See Valued Environmental Components
<b>WMA</b>	Wildlife Management Area
<b>WMO</b>	World Meteorological Organization
<b>WSA</b>	Wood Supply Analysis

# LIST OF UNITS

<b>Unit</b>	<b>Abbreviation</b>
Centimetre	cm
coliform forming units per millilitre	CFU/ml
cubic centimetre	cm <sup>3</sup>
cubic metre	m <sup>3</sup>
cubic metre per second	m <sup>3</sup> /s
day	D
days per week	d/wk
days per year	d/y
degrees Celsius	°C
fish per hour	fish/h
fish per metre per hour	fish/m/h
fish per second	fish/s
gram	g
grams per litre	g/l
grams per square metre	g/m <sup>2</sup>
greater than	>
greater than or equal to	≥
hectare (10,000 m <sup>2</sup> )	ha
hour	h (not hr)
hours per day	h/d
hours per week	h/wk
hours per year	h/y
inch	" symbol not "
individuals per cubic metre	individuals/m <sup>3</sup>
individuals per litre	individuals/L
individuals per square metre	individuals/m <sup>2</sup>
kilogram	kg
kilograms per cubic metre	kg/m <sup>3</sup>
kilograms per hour	kg/h
kilograms per square metre	kg/m <sup>2</sup>
kilometre	km
kilometres per hour	km/h
less than	< (use only in tables)
less than or equal to	≤

<b>Unit</b>	<b>Abbreviation</b>
litre	L
litres per minute	L/m
megawatt	MW
metre	m
metres above sea level	masl
metres per minute	m/min
metres per second	m/s
metric ton (tonne)	t
micrograms per gram	$\mu\text{g/g}$
micrograms per litre	$\mu\text{g/L}$
micrometre	$\mu\text{m}$
microSiemens per centimetre	$\mu\text{S/cm}$
milligram	mg
milligrams per cubic metre	mg/m <sup>3</sup>
milligrams per litre	mg/L
milligrams per litre	mg/L
millilitre	ml
millimetre	mm
million	M
month	mo
nanograms per litre	ng/L
oocyte per litre	oocyte/L
parts per billion	ppb
parts per million	ppm
Percent	%
plants per square metre	plants/m <sup>2</sup>
second (time)	s
square centimetre	cm <sup>2</sup>
square kilometre	km <sup>2</sup>
square metre	m <sup>2</sup>
Week	wk
Year	y

# TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>1-1</b>
<b>1.1</b>	<b>OVERVIEW .....</b>	<b>1-1</b>
<b>1.2</b>	<b>BACKGROUND.....</b>	<b>1-1</b>
<b>1.2.1</b>	<b>Background to Proposed Route Adjustments.....</b>	<b>1-1</b>
<b>1.2.2</b>	<b>Location of Proposed Route Adjustments .....</b>	<b>1-3</b>
<b>1.2.3</b>	<b>Overview of Project and EIS Elements Retained .....</b>	<b>1-5</b>
<b>1.3</b>	<b>OUTLINE OF SUPPLEMENTAL FILING .....</b>	<b>1-6</b>

# APPENDICES

APPENDIX 1A Correspondence

APPENDIX 1B Presentation to CEC on Transmission Line Route Revisions

# LIST OF FIGURES

	<b>Page</b>
Figure 1.2-2: Project Study Area and Route Adjustments .....	1-4

# **1.0 INTRODUCTION**

## **1.1 OVERVIEW**

The following report on route adjustments is supplemental to the Environmental Impact Statement (EIS) for the Bipole III Transmission Line Project (the Project) and assesses the extent to which the EIS is modified by potential environmental effects of three route adjustments to the high voltage direct current (HVdc) transmission line component of the Project. The route adjustments were requested by Manitoba Conservation and Water Stewardship (MCWS) in correspondence of August 29, 2012 to Manitoba Hydro (Appendix 1A). In response to the request, Manitoba Hydro developed route alternatives for consideration within the overall assessment of the Bipole III Project. After consulting with MCWS, Manitoba Hydro presented the proposed adjustments of the transmission line Final Preferred Route (FPR) to the Clean Environment Commission (the CEC) hearing on October 29, 2012 (Appendix 1B).

In response to requirements set out in the November 9, 2012 letter from MCWS (Appendix 1A) the environmental effects of these route changes are outlined in sufficient detail for the identified effects to be considered by the CEC, as well as any affected parties and registered participants in the current CEC public review process for the Project. The Route Adjustment Supplemental Report relies throughout on the original EIS, and supplements the EIS as required to reflect the changes to potential environmental effects of the Project expected as a result of the three route changes.

## **1.2 BACKGROUND**

### **1.2.1 Background to Proposed Route Adjustments**

On December 2, 2011 the EIS for the Project was filed as part of the process to secure an Environment Act License for the Project. On December 5, 2011 the Minister of Conservation requested that the CEC hold a public hearing on the Project and issued terms of reference for this review.

The Environmental Approvals Branch of MCWS requested additional information from Manitoba Hydro on May 17, 2012 – this included a request to develop and provide assessment of new routes in two areas: (1) the Mafeking and Birch River area (east of Provincial Trunk Highway (PTH) 10 and Swan Lake); and (2) between PTH 373 and

Highway 6 near Wabowden (Appendix 1A). Manitoba Hydro provided a response June 22, 2012, in which explanation for the original routing was provided and Manitoba Hydro requested clarification of the concerns.

MCWS, in a letter to Manitoba Hydro dated August 29, 2012 (Appendix 1A), requested that Manitoba Hydro, in consultation with Wildlife and Ecosystem Protection and Lands Branches, provide detailed options, including maps, and a recommendation for the most suitable option to relocate the proposed HVdc line route in four locations:

- Game Hunting Areas (GHA) 14 and 14A;
- GHA 19;
- Between PTH 373 and Highway 6 (Wabowden boreal caribou herd); and
- PR 10 between Red Deer River Provincial Park and Steeprock Wildlife Management Area.

In correspondence to MCWS dated September 20, 2012 (Appendix 1A), Manitoba Hydro indicated that it would work with provincial authorities to review routing in these areas.

Manitoba Hydro met with staff from the Manitoba Wildlife Branch to review potential relocation of the line in order to address moose related concerns in the areas of GHA 14 and GHA 14A and 19A, and subsequently Manitoba Hydro proposed adjustments to the HVdc transmission line route to MCWS (Appendix 1A). On November 2, 2012 MCWS provided written approval to allow the revisions to be included in the current environmental assessment review process before the CEC (Appendix 1A).

Manitoba Hydro made a presentation at the CEC hearing on October 29, 2012 outlining the proposed adjustments to the Final Preferred Route<sup>1</sup>. Appendix 1B provides the presentation provided by Manitoba Hydro, filed as Exhibit MH-55 during the proceeding. Participants in the CEC process raised concerns on November 6, 2012 regarding consultation on the proposed route adjustments, as well as submission of written material summarizing the assessment of the route revisions. In response, the CEC asked Manitoba Hydro to indicate a filing date for the assessment of the route adjustments and noted that it would comment on public consultation undertaken by Manitoba Hydro with respect to the route adjustments.

On November 9, 2012 MCWS clarified its letter of November 2, 2012 (Appendix 1A), and directed that Manitoba Hydro prepare a written supplemental report to its EIS in which it “outlines the environmental effects of the route changes in sufficient detail for

---

<sup>1</sup> See Bipole III Hearing Transcript Volume 12 (October 29, 2012), pages 2150 to 2164.

the identified effects to be considered by the CEC, as well as any affected parties and registered participants in the current CEC public review process for the Project”.

Manitoba Hydro subsequently, on November 13, 2012, requested a hearing adjournment from the CEC to allow sufficient time to address issues around the proposed line adjustments as requested by MCWS<sup>2</sup>. Manitoba Hydro committed to prepare a supplemental report to its EIS addressing the re-routing and submit this supplemental report to MCWS by January 28, 2013. The CEC granted an adjournment of the oral hearing to address the route adjustments only, and stated that the hearing will re-convene on March 4, 2013.

## **1.2.2 Location of Proposed Route Adjustments**

Proposed alterations to the FPR (referred to herein as AFPR), as discussed during the CEC hearing and described in Exhibit MH-55 (see Appendix 1B), are as follows:

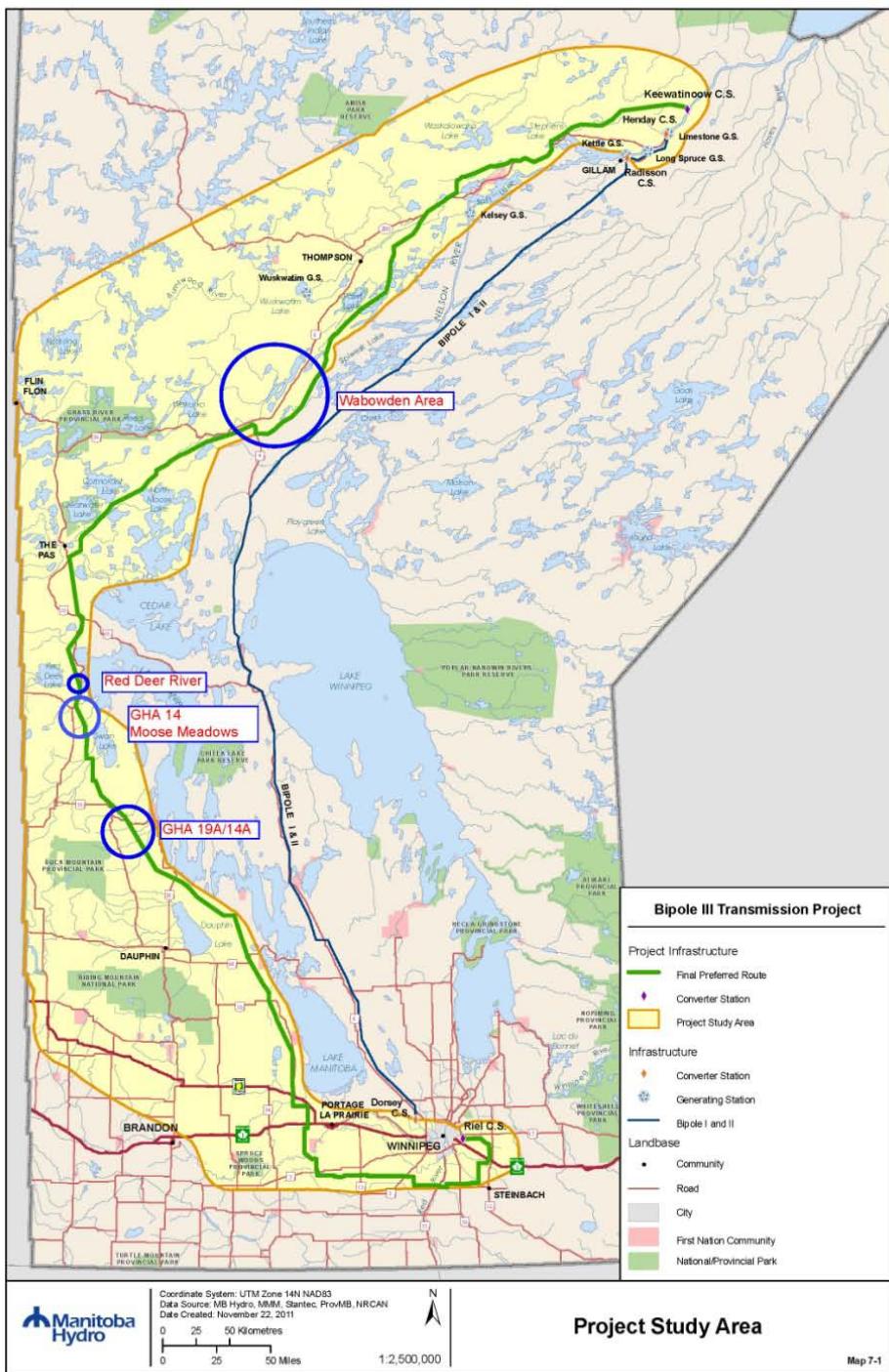
- The Wabowden Area (identified by MCWS as between PR 373 and Highway 6);
- The Moose Meadows Area (identified by MCWS as GHA 14); and
- GHA 19A and GHA 14A.

A route alteration in the Red Deer River area was also examined by Manitoba Hydro pursuant to request by MCWS. This requested route adjustment related to the presence of cottage/ residences near the FPR on the east side of PTH 10. Manitoba Conservation and Water Stewardship requested that the FPR be moved to the west side of PTH 10 – however, as reviewed in Appendix 1B, it was determined that this route adjustment would not be feasible due to the presence of a Treaty Land Entitlement (TLE) bordering the Red Deer River extending up to the west side of PTH 10.

Figure 1.2-1 illustrates the location of the route adjustments as requested by MCWS and as addressed in Exhibit MH-55.

---

<sup>2</sup> See Bipole III Hearing Transcript Volume 20 (November 13, 2012), pages 4283-4284.



**Figure 1.2-1: Project Study Area and Route Adjustments**

## **1.2.3 Overview of Project and EIS Elements Retained**

### **Project Description – 500 kV HVdc Transmission Line Component**

The description of the Project, its phases and how it will be carried out are set out in Chapter 3 of the EIS. The AFPR does not change the basic Project concept, or how the HVdc component right-of-way clearing and construction or transmission line operation, maintenance and decommissioning is proposed to be carried out.

The proposed route adjustments affect only the proposed location of the 500 kV HVdc Transmission Line component of the Project in three locations as set out in Figure 1.2-1. Other project components (i.e., Riel Converter Station and Ground Electrode and connections to southern receiver system, Keewatinooow Converter Station and Ground Electrode and connections to northern receiver system) will remain unchanged, and accordingly are not addressed in the Route Adjustment Supplemental Report.

### **EIS Site Selection & Environmental Assessment Process**

The Site Selection and Environmental Assessment (SSEA) process to determine the most appropriate sites for the Project's facilities and routes for its transmission lines is fully described in Chapter 4 of the EIS (Assessment Approach). The approach included definition of study areas, selection of valued environmental components (VECs), site selection, effects assessment, determination of significance, and monitoring and follow-up.

The SSEA process as set out in the EIS was modified when dealing with the AFPR route adjustments.

The EIS describes (Section 7.2) a comprehensive and iterative process that was followed for route selection, including extensive consultation activities, identification of options, and preliminary assessment of options in order to avoid and/or minimize adverse impacts. The EIS route selection processes used regional and site-specific biophysical, socio-economic and cultural features, and three rounds of consultation to identify and evaluate alternative routes and to select preferred routes for the HVdc transmission line component of the Project. The FPR was then assessed in the EIS (Chapters 8 and 9).

For the purposes of the AFPR, the SSEA route selection approach was modified to accommodate requests from MCWS for specific site adjustments after the EIS had been submitted to the CEC for public review. Siting for the route adjustments was done in conjunction with MCWS for the areas where MCWS were concerned about moose (GHAs 14, 14A, and 19A). For the Wabowden area the route adjustment was initially developed by Manitoba Hydro after review of earlier routing alternatives that had been considered in the original SSEA. The proposed adjustment in the Wabowden area was reviewed with the North-east region of MCWS before submission to the Environmental

Approvals Branch on October 23, 2012. Except for the AFPR route change in the Wabowden area, the resulting AFPR route adjustments as filed with the CEC (and now assessed in this report) had not been subject to the consultation or preliminary assessment process used to select the FPR. The assessment associated with the AFPR changes in GHA 14 (Moose Meadows) and GHA 19A/14A therefore has a higher potential to find adverse residual effects that could have been avoided had the normal SSEA process been followed. The FPR continues to be available in each instance as a default final preferred route option that was selected and assessed in the EIS based on the un-modified SSEA process.

The proposed route adjustments are in reasonable proximity to the FPR, and accordingly biophysical and socio-economic information already existed from the original assessment. Information was updated from available data sources and new habitat models were run for the AFPR area. Additional field work was also conducted for assessment of moose in the GHA 14 area. The Environmental Assessment Consultation Program for the route adjustments was focussed on the public stakeholders, First Nations, Northern Affairs Communities, the Manitoba Metis Federation and local landowners in the vicinity of the AFPR (see Chapter 3.0). Earlier Aboriginal traditional knowledge studies from the EIS were used in the assessment of the adjusted routes as a source of traditional land and resource use information in addition to input from Aboriginal community and leadership meetings.

To be consistent with the analysis provided in the December 2011 EIS, this supplemental assessment considers the assessment of effects of the Project on valued environmental components identified in the December 2011 EIS by Project component, focusing on changes to the EIS assessment arising from the three AFPR changes. Except as otherwise noted, the approach as set out in the EIS has been retained for the supplemental assessment regarding the AFPR route changes.

## 1.3 OUTLINE OF SUPPLEMENTAL FILING

The assessment of the AFPR is provided in six chapters outlined below. Where further detailed information is required, supporting appendices to each chapter are provided.

The following is an outline of the specific Chapters included in this supplemental filing:

- **Chapter 1: Introduction** – provides an introduction to the three route adjustment locations and an overview of the supplemental report.
- **Chapter 2: Proposed Route Adjustments** – provides detailed description of the three route changes that are assessed in the supplemental report.

- **Chapter 3: Environmental Assessment Consultation Program** – documents the Environmental Assessment Consultation Program conducted for the AFPRs and reviews the feedback obtained.
- **Chapter 4: Environmental Assessment and Mitigation** – provides assessment of the extent to which the three route adjustments modify the environmental assessment and mitigation in Chapter 8 of the original EIS, focusing on the valued environmental components identified in the original EIS. Includes review of residual effects and significance.
- **Chapter 5: Cumulative Effects Assessment** – provides an assessment of cumulative effects of the Project with the three AFPR changes, focusing on where there are changes in cumulative effects due to the route adjustments.
- **Chapter 6: Environmental Protection, Follow-up and Monitoring** – outlines any changes to mitigation, monitoring and other follow up related to the route adjustments.

# **APPENDIX 1A**

## **Correspondence**



**Conservation and Water Stewardship**

Climate Change and Environmental Protection Division  
Environmental Approvals Branch  
123 Main Street, Suite 160, Winnipeg, Manitoba R3C 1A5  
T 204 945-8321 F 204 945-5229  
[www.gov.mb.ca/conservation/eal](http://www.gov.mb.ca/conservation/eal)

**File: 5433.00**

May 17, 2012

Mr. Patrick T. McGarry, B.Sc. Hons., M.N.R.M.  
Senior Environmental Assessment Officer  
Licensing and Environmental Assessment  
Transmission and Distribution Division  
Manitoba Hydro  
820 Taylor Avenue  
Winnipeg, MB R3C 2P4

Dear Mr. McGarry:

**Re: Bipole III Transmission Project Environmental Impact Statement**

We have now completed our review of comments received from the public and the Technical Advisory Committee (TAC) with respect to the Environmental Impact Statement (EIS) for the Bipole III Transmission Project. Additional information is required to address the comments pertaining to the environmental assessment process under the Environment Act.

The following specific information is requested to provide clarification and address outstanding information requirements.

**Required Additional Information:**

1. Provide comments/information on the following, referring to the March 14, 2012 comments from the Wildlife and Ecosystem Protection Branch for context:
  - a. The preferred route between Mafeking and Birch River (east of PTH 10 and Swan Lake) bisects critical habitat for moose. The right-of-way should be relocated further west and run parallel to PTH 10 on the east side of the highway right-of-way. Provide an assessment of a new route through this area that does not cross critical moose habitat.
  - b. The proposed transmission line right-of-way through the known wintering area of the Wabowden boreal woodland caribou herd between PTH 373 and Highway 6 should be relocated. Provide an assessment for an alternate route north of the railway tracks at this location.

- c. The route should be relocated at least 800 meters from the boundaries of the Langruth and Whitemud watershed Wildlife Management Areas. Provide an assessment of the new location.
2. Provide comments/information on the following, referring to the March 19, 2012 comments from the Lands Branch for context:
- a. More information is required with respect to access detours that will be needed outside the 66 metre right-of-way at locations where terrain is not favourable to facilitate vehicular travel within the right-of-way.
  - b. Confirm that hunting by project staff will be prohibited.
  - c. On page, 8-108, the EIS states that clearing in wolverine range will occur during winter when dens are non-active. Female wolverine usually den up in February and have young during the month of March. Discuss potential impacts and mitigation measures in relation to clearing and wolverine denning during the winter months.
  - d. Page 8-93, the potential residual impacts of access with respect to caribou harvest may have been underestimated in relation to the Cape Churchill coastal herd. Clarification is required regarding what kind of use will be minimized and how use will be minimized.
  - e. P. 8-87 – Provide more information on Coastal Caribou species as compared to woodland caribou.
  - f. Page 8-101, Summary of Residual Effects on Boreal Woodland Caribou, paragraph 8 – is Manitoba Hydro planning to develop range management plans for the Wabowden, Bog, and/or Reed Lake ranges? Wildlife is regulated under authority of the Province and Manitoba Conservation and Water Stewardship is responsible for developing range management plans.
  - g. Page 6-146, Table 6.3-6, Partridge Crop Hill Area of Special Interest (ASI), south of Nelson House, is within the Project Study area and should be included in this table. Does the omission of this ASI change the assessment of the project's impacts on ASIs?
  - h. The EIS states that existing collars from the Cape Churchill and Pen Island ranges will be monitored during construction. Does this involve supporting the present Conservation and Water Stewardship/Resource Management Board project that is now in progress?
  - i. Page 8-111 of the EIS states that mapping of marten habitat in the Bipole III Mammals Technical Report indicates a small amount of marten habitat is anticipated to overlap existing site access roads set to be used for the Project. This is incorrect. There is a strong potential for marten along the entire corridor within the Boreal Forest Region. What are the implications to the EIS? How was habitat for Moose, Caribou, Marten, and Beaver determined?
  - j. Are the locations of culturally and environmentally sensitive sites identified in the aboriginal traditional knowledge workshops and reports available to the Province for review?
3. Provide comments/information on the following, referring to the March 19, 2012 comments from the Sustainable Resource and Policy Management Branch for context:

- a. The Protected Areas Initiative (PAI) prefers the transmission line not bisect the contiguous blocks of undisturbed Crown land parcels which provide connectivity between the Westlake Wildlife Management Area (WMA) and the Alonsa WMA, and along the west side of Lake Winnipegosis and Lake Manitoba. Discuss the options and provide an assessment of alternative routing in this area.
  - b. The PAI prefers that the final preferred route provide a buffer of 1 mile from community pasture boundaries. Discuss the possibility of providing a 1 mile buffer in these locations.
4. Provide comments/information on the following, referring to the March 16, 2012 comments from Manitoba Infrastructure and Transportation for context:
- a. What is the impact to the other utilities at highway crossings?
  - b. Is there room to span PTH 75 at the Red River? The river is very close to PTH 75 and the river bank is unstable.
  - c. A portion of PTH 10, close to the eroded banks of the Red Deer River just south of the Red Deer River Provincial Park, may have to be relocated in the future due to further river bank erosion. The location of the tower structure near this area may need to be set back to accommodate future highway right-of-way relocation to the west.
  - d. Quarry mineral withdrawal in Townships 22-11W, 30-17W, 22-12W, 30-18W, 23-12W, 31-19W, 25-13W, 32-20W, 26-13W, 33-21W, 30-18W, 33-25W, 32-20W, 44-25W, 49-25W, and 45-25W will be affected by the proposed Bipole III transmission line. The resources in these townships are required for future construction and maintenance projects and will be sterilized by the proposed Hydro lines, as mining is not permitted under the lines.
5. Provide comments/information on the following:
- a. Chapter 8 - page 362, indicates spills will be reported to the local Natural Resource Officer. Spills should be reported to the Environmental Emergency Response number (204) 944-4888 pursuant to federal and provincial spill reporting regulations.
  - b. Draft Environmental Protection Plan (EPP) - Table 37. Manitoba Conservation and Water Stewardship must approve all remedial action plans before remediation is started.
  - c. The remedial action plan submission guideline is missing from Appendix D of draft EPP.
  - d. The right-of-way should be located away from the Forestry Branch Permanent Sample Plots (PSP) by at least 200 metres. If this buffer cannot be achieved then Manitoba Hydro should re-establish two new PSPs for each PSP physically damaged or damaged by the right-of-way being closer than 200 meters.
  - e. Discuss the potential impacts to groundwater from the coke bedding material for the ground electrodes.

6. Provide comments/information on the concerns regarding reliance on desktop studies, problems with desktop data, the green house gas life cycle analysis, wetlands, standards and best practices, aboriginal cultural heritage, and woodland caribou in the March 16, 2012 comments from Gaile Whelan Enns.
7. Provide comments/information on the concerns regarding the impacts of electric and magnetic fields in the January 25, 2012 comments from John Roschuk.
8. Provide comments/information on the following concerns expressed in the comments from Pam Pugh.
  - a. Health impacts to farmers working beneath the transmission lines.
  - b. Where are Bipole 4, 5, 6, and 9 going? How much more prime agricultural land will be lost?
  - c. The field in which Bipole is to be placed has had two major cyclones go through it.
  - d. The weeds that grow under the towers will have a negative effect on their Pedigreed Business.
  - e. To manage weeds, Pedigreed Seed farmers have to get close to hydro towers with their equipment, running the risk of hitting a tower and increasing liability.
  - f. Construction and maintenance vehicles for Bipole III will drive through their field and introduce foreign seeds.
  - g. A wind storm may knock a tower down onto the railway tracks and cause an environmental disaster.
9. Provide comments/information on the comments regarding alternatives to northern generation in the March 21, 2012 comments from the Green Party.
10. Provide comments/information on the following with regard to the March 16, 2012 comments from the Swan Lake First Nation (SLFN):
  - a. Investigations conducted subsequent to the SLFN preliminary TK Report have suggested that the Round Plain and Indian Gardens sites are larger than originally determined. The exact extent of the sites is not known and additional research and archeological analysis need to be completed to confirm the site's boundaries. Additional disturbance of these sites in any way would not be supported by SLFN.
  - b. SLFN requests further detail on mitigation measures for potential impacts to plants, plant communities, terrain, and soils during construction, operation, and maintenance of the transmission line.
  - c. The EIS states that the groundwater assessment was conducted on a regional scale. SLFN is concerned about potential impacts of the project to local groundwater and aquifers in SLFN's area of interest.
11. Provide comments/information on the following with regard to the March 16, 2012 comments from the Manitoba Metis Federation (MMF):
  - a. Explain whether or not the effects assessment on moose populations and Aboriginal traditional use of moose, both related to increased harvester access in Game Hunting Areas (GHA) 6, 6A, 7, 8, 11, 12 and 19A was considered in light of the closure of many

other GHAs to moose hunting in the central western and central eastern portions of the Province. Please advise if the conclusion regarding residual effects and cumulative effects would change if these factors were fully considered.

- b. Provide comments on the concerns expressed regarding the Cumulative Effects Assessment.
- c. Metis won't gather in areas that have been sprayed with chemicals. Will Manitoba Hydro consider non-chemical vegetation management in important gathering areas along the right-of-way?

The environmental assessment review process under the Environment Act will continue upon receipt of your response to the above requested information.

Yours truly,

Elise Dagdick, B.Sc.  
Environment Officer  
Environmental Approvals Branch

- c. Public Registries, File: 5433.00  
Don Labossiere, Environmental Operations  
Peter Boothroyd, Canadian Environmental Assessment Agency



**Conservation and Water Stewardship**

Climate Change and Environmental Protection Division  
Environmental Approvals Branch  
123 Main Street, Suite 160, Winnipeg, Manitoba R3C 1A5  
T 204 945-8321 F 204 945-5229  
[www.gov.mb.ca/conservation/eal](http://www.gov.mb.ca/conservation/eal)

**File: 5433.00**

August 29, 2012

Mr. Patrick T. McGarry, B.Sc. Hons., M.N.R.M.  
Senior Environmental Assessment Officer  
Licensing and Environmental Assessment  
Transmission and Distribution Division  
Manitoba Hydro  
820 Taylor Avenue  
Winnipeg, MB R3C 2P4

Dear Mr. McGarry:

**Re: Bipole III Transmission Project Environmental Impact Statement**

Additional information is required based on our review of Manitoba Hydro's response to our May 17, 2012 information request regarding the Environmental Impact Statement (EIS) for the Bipole III Transmission Project.

The following additional information is required:

1. Provide detailed options, including maps, and a recommendation for the most suitable option for relocation of the proposed transmission line route in the following locations:
  - a. Game Hunting Areas (GHA) 14 and 14A,
  - b. GHA 19,
  - c. between PTH 373 and Hwy 6 (Wabowden boreal caribou herd), and
  - d. PR 10 between Red Deer River Provincial Park and Steeprock WMA.

The Wildlife and Ecosystem Protection and Lands Branches must be consulted regarding options for relocation of the line in these areas.

2. Provide a response to the attached August 17, 2012 letter from the Aboriginal Relations Branch.



If you have any questions, you may contact me at 204-619-0709 or at  
elise.dagdick@gov.mb.ca.

Yours truly,



Elise Dagdick, B.Sc.  
Environment Officer  
Environmental Approvals Branch

Att.

- c. Public Registries, File: 5433.00  
Don Labossiere, Environmental Compliance and Enforcement



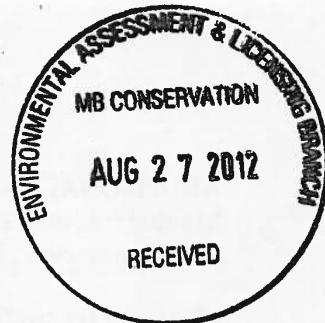
**Conservation and Water Stewardship**

Aboriginal Relations

Box 26, 200 Saulteaux Cres, Winnipeg, Manitoba, Canada R3J 3W3

T 204-945-2821 or 1-866-628-4862 F 204-948-2197

[www.manitoba.ca](http://www.manitoba.ca)



August 17, 2012

Ms. Elise Daggick  
Environment Officer  
Manitoba Conservation and Water Stewardship  
Land Use Approvals  
123 Main Street  
Winnipeg MB R3C 1A3

Dear Ms. Daggick:

Thank you for forwarding our information requests from the Aboriginal Relations Branch to Manitoba Hydro in the letter dated July 5, 2012; this letter is in follow up to that correspondence.

Our review of Manitoba Hydro's responses to the Public EIS Review and TAC comments has generated subsequent information requests, which are attached to this letter. The initial questions were based on socio-economic and Aboriginal resource information that Manitoba Hydro committed to collecting in their Bipole III Transmission Project *Environmental Assessment Scoping Document*.

This information and the attached follow-up requests will assist us in our EIS assessment to identify how Manitoba Hydro has fulfilled their commitment to incorporate Aboriginal Traditional Knowledge and local knowledge, to the extent possible, in their environmental assessment for the Bipole III Transmission Project.

Thank you for requesting this information on our behalf; we look forward to receiving the responses to both requests in order to complete our review.

Sincerely,

Ron Missyabit

Enclosure

/2

## **ADDITIONAL INFORMATION REQUESTS**

### **Manitoba Hydro's Bipole III Transmission Project – Response to Public EIS Review and TAC Comments**

#### **Manitoba Hydro Response 001a**

- Please identify what, if any information obtained from First Nations or Métis support the modelling conclusions reached for the intact forested peat lands complex in the Mafeking area is not high quality habitat for moose?
- Please clarify what, if any information obtained from First Nations or Métis assist in the description of moose habitat for the Mafeking area; specifically information collected via ATK Workshop questions Forestry, #51-66 or Mammals #120-142, Appendix #5, Traditional Knowledge Technical Report #1, or Independent ATK Studies?

#### **Manitoba Hydro Response 001b**

- Please identify what if any information obtained from First Nations or Métis support the balance reached for routing selection through the known wintering area of the Wabowden boreal woodland caribou herd?
- Did the land use conflicts cited in this Response include information received from First Nations or Métis about Aboriginal use of land for traditional purposes (i.e., domestic use of resources for subsistence purposes)?
- Please describe how any future consultations with First Nations or Métis would be executed by Manitoba Hydro in the event of a routing change?

#### **Manitoba Hydro Response 002a**

- Please identify how information from First Nations or Métis will inform the identification of environmentally sensitive sites in the field by Manitoba Hydro field personnel?
- Please clarify how that information will be obtained from First Nations and Métis, including specific timelines for its collection.

#### **Manitoba Hydro Response 002c**

- Please identify what if any information was collected from First Nations or Métis related to wolverine denning sites in the Bipole Study Area; specifically information collected via ATK Workshop questions Mammals, #120-142, Appendix #5, Traditional Knowledge Technical Report #1, or Independent ATK Studies?

#### **Manitoba Hydro Response 002d**

- Please identify, what if any information was obtained from First Nations or Métis regarding the Cape Churchill coastal herd populations; specifically, what information collected via ATK Workshop questions Mammals, #120-142, Appendix #5, Traditional Knowledge Technical Report #1, or Independent ATK Studies?

- Please identify, what if any quantitative information was obtained from First Nations or Métis regarding harvesting of caribou in this area to support conclusions reached?

**Manitoba Hydro Response 002e**

- Please identify, what if any information was collected directly from First Nation or Métis by Manitoba Hydro that support conclusions reached for Coastal Caribou? Specifically, is this information captured as “anecdotal information” cited in this response?
- Please identify if any quantitative information was captured from First Nation or Métis via ATK Workshop questions Mammals, #120-142, Appendix #5, Traditional Knowledge Technical Report #1 or Independent ATK Studies?

**Manitoba Hydro Response 002i**

- What if any information was collected directly from First Nations or Métis to support the conclusions reached by the modelling exercise conducted for the identification of marten, caribou, moose and beaver habitat? Specifically, was information collected via ATK Workshop questions Mammals, #120-142, Appendix #5, Traditional Knowledge Technical Report #1 used by wildlife disciplines (as described in methodology Section 3.2 Traditional Knowledge Technical Report #1)?

**Manitoba Hydro Response 002j**

- The consent form (Appendix 6, Traditional Knowledge Technical Report #1) used by Manitoba Hydro clearly states collected information would be used for the Environmental Assessment process. The consent form does not state that information (including spatial information) would not be available for review. Please provide evidence that interviewees (or their leadership) understood Manitoba Hydro would not share information collected, particularly when that information would be requested by the Crown for the purposes of the environmental assessment.
- If Hydro will not provide information to the Crown for review, please confirm that ATK information (including consent forms, transcripts and/or recordings, spatial data, including original mark up maps) will be provided to each First Nation and Métis group leadership in a timely fashion (as described in the methodology section 3.4 of this Report) for their review.
- Confirm which First Nations and Métis provided spatial data for use in constraints mapping used in the SSEA (Chapter 7, Appendix 7A); also, please confirm which First Nations or Métis prohibited Manitoba Hydro from using spatial data in constraints mapping.
- Please clarify further why obtaining consent would be difficult if Manitoba Hydro has access to the recording list of participants as described in the Consent Form, Appendix 6 Traditional Knowledge Technical Report #1?

#### **Manitoba Hydro Response 003a**

- It appears that none of the 28 criteria used by Manitoba Hydro in the SSEA process included any criteria for subsistence or domestic use of land and resources, or other Aboriginal interests. Please identify how input from First Nations and Métis influenced the selection of the 28 criteria for use in site selection process, as the use of this dataset was critical in the selection of the FPR.
- Please provide evidence from the consultation process undertaken by Manitoba Hydro with First Nations or Métis that no concerns (or preferably support) were identified for routing of FPR West Side of Lake Winnipegosis and Lake Manitoba by First Nations or Métis.

#### **Hydro Response 006a**

- As MH states, "Imperative to a successful SSEA process is the use of good data...Therefore, MH went to great lengths to acquire all available data relative to the Project study area," please identify how spatial information was or was not used from the Independent ATK Studies undertaken by individual First Nations and the MMF in the SSEA process.
- Please clarify if the Construction Phase Environmental Protection Plan has been developed as suggested in this response.

#### **Manitoba Hydro Response 006e**

- Please identify if Table 7, Table of Constraints (p.87), Section 5.4 of the Traditional Knowledge Report #1 is a comprehensive list of outstanding concerns of each First Nation and Métis community identified in the Table (specifically, Chemawawin, Dakota Plain, Dakota Tipi, Pine Creek, Waywayseecappo, Fox Lake First Nation, Long Plain First Nation, MMF, Opaskwayak Cree Nation, Swan Lake First Nation, Tataskweyak Creek Nation and Wuskwi Sipihk First Nation).
- Please identify what if any outstanding concerns remain for those First Nations or Métis communities consulted by Manitoba Hydro **not** identified in Table 7?
- Please clarify if items listed as "Concerns" in Table 7 are identified effects (using definitions outlined in Volume 1, Section 4.2.8 of the EIS)? If not, please clarify if Manitoba Hydro concurs with the identified concerns as described as requiring mitigation measures?
- Please clarify if items listed as "Requirement" were mitigation measures identified by the First Nation or Métis community identified in Table 7. Also, please identify if these requirements were satisfied by Manitoba Hydro or if there are outstanding implementation concerns.
- Please identify the nature of items identified as "Constraints" and if items listed as "Constraints" influenced the selection of the FPR? If no, please provide reasons why.
- Please provide clarification on how Table 7 "Concerns" and Appendix 12 "Environmental Effects" of the Traditional Knowledge Report #1 are related (specifically for Pine Creek, Dakota Plains, Dakota Tipi). Also please clarify if Appendix 12 is a fulsome listing of sensitive sites collected by Manitoba Hydro? Also, please clarify if mitigation measures will be developed for each Env Eff as identified in Appendix 12.
- Please identify if polygon locations identified in Appendix 12 can be reviewed can be reviewed by Pine Creek, Dakota Plains and Dakota Tipi for accuracy?

- Please identify how Self-Directed ATK Studies influenced Appendix 12 or constraints mapping outlined in Chapter 7, Appendix 7A?
- Please clarify the statement “remaining areas that are not accessible due to lack of permission to access will be monitored during construction”?

**Manitoba Hydro Response 008f**

- Please identify any plant communities of importance for gathering or plant communities of importance to support wildlife populations as identified by First Nations and Metis communities (as per questions #99 – 119, Appendix 5, Traditional Knowledge Report #1)
- Please explain how Manitoba Hydro plans to involve this information in its mitigation efforts to prevent the spread of invasive plant species and noxious weeds to these areas during construction activities.

**Manitoba Hydro Response 010a**

- Please identify a complete listing of outstanding concerns identified by SLFN.
- Please identify any issues and concerns SLFN has with the mitigation measures identified in the outlined draft Environmental Protection Measures
- Please identify the consultation process with SLFN that will be used to develop additional mitigation measures for consideration by Manitoba Hydro in the EPP.

**Manitoba Hydro Response 010b**

- Please identify how Environmentally Sensitive Sites were (or will be) identified with First Nations and Métis communities for use in the development of the final EEP or Construction Phase Environmental Protection Plans?

**Manitoba Hydro Response 011b**

- Please clarify if Response 011a, 011b and 011c is meant to address all comments identified in MMF submissions dated March 16, 2012?

**Manitoba Hydro Response 011c**

- Please describe the manner in which “clearly identified sensitive sites” will be inventoried by Manitoba Hydro for non-chemical vegetation management for First Nations and the MMF?



PO Box 7950 Stn Main • Winnipeg, Manitoba Canada • R3C 0J1  
Telephone / 204-360-3016 • Fax / 204-360-3734  
[pmcgarry@hydro.mb.ca](mailto:pmcgarry@hydro.mb.ca)

---

September 20, 2012

Ms. Elise Dagdick  
Environment Officer  
Environmental Approvals Branch  
Manitoba Conservation and Water Stewardship  
123 Main Street, Suite 160  
Winnipeg, MB. R3C 1A5

Dear Ms. Dagdick,

**Re: Bipole III Transmission Project Environmental Impact Statement**

Thank you for your letter of August 29, 2012, requesting additional information for the above project.

Regarding Item 1 requesting the relocation of the preferred route of the transmission line at various locations, we offer the following response. Manitoba Hydro has reviewed the items 1.a) and 1. b) (GHAs 14, 14A, and 19) with staff from Manitoba Wildlife Branch, and has agreed to conduct a review for potential relocation of the line to address the concerns for moose in these areas. We have also met with Conservation staff in North-east region to discuss item 1. c) regarding the Wabowden boreal caribou herd. For Item 1. d), PR 10 near Red Deer River and Steeprock WMA, we have requested clarification of the issue and have as yet not received a response to that request from your department.

Manitoba Hydro recognizes the issues in the GHAs and Wabowden caribou range (Items 1. a – 1. c) and is agreeable to working with provincial authorities on reviewing routing in these areas. In order to provide new alternatives we will need to conduct a comprehensive review of the areas and also conduct stakeholder consultation on a preferred alternative. This is a necessary and lengthy process. We will continue to meet with staff from Wildlife Branch as the work progresses. It is not expected that a new preferred alternative could be put forward until early 2013. We would expect that Manitoba Conservation could address routing in the specified areas as a licence condition, and not delay the current licensing process for the project as discussed with you on September 11, 2012. Manitoba Hydro believes that these routing changes can be managed through said licensing conditions while maintaining the integrity of the process.

Regarding Item 2, the August 17 letter from Aboriginal Relations, Manitoba Hydro continues to work on responding to the questions and will be arranging a meeting with that

E.Dagdick  
Manitoba Conservation and Water Stewardship  
September 20, 2012  
Page 2

department to review the issues and challenges in addressing all the questions.

Manitoba Hydro appreciates the opportunity to work with Manitoba Conservation and Water Stewardship on this project. If you require additional information or wish to discuss further, please contact me at 204 360-3016.

Yours truly,



P.McGarry  
Senior Environmental Assessment Officer  
Licensing & Environmental Assessment Dept.

PM/tk



PO Box 7950 Stn Main • Winnipeg, MB, Canada • R3C 0J1  
Telephone (204) 360-3016 • Fax (204) 360-3734  
pmgarry@hydro.mb.ca

2012 10 23

Ms. Elise Dagdick  
Environment Officer  
Manitoba Conservation and Water Stewardship  
Environmental Approvals  
123 Main Street, Suite 160  
Winnipeg, MB R3C 1A3

Re : Alterations to Bipole III Route

Dear Ms. Dagdick:

Further to our Environmental Impact Statement filed December 1, 2011 in support of our proposal for the Bipole III Project and in response to your letter of August 29, 2012, we propose alterations to the Final Preferred Route ("FPR") in the Wabowden, GHA 14/14A (Moose Meadows), and GHA 19A areas. A route revision in the Red Deer River area was examined and we believe is not required. The results are described below for each area.

#### GHA 14/14A - Moose Meadows

The principal concern for the FPR in this area is the intersection of the FPR with a relatively undisturbed area of moose habitat east of PTH 10 in the Mafeking area. Alternative routes were reviewed and a new alternative has been selected. The alternate route proposed herein diverges from the currently proposed FPR just south of PR 483, proceeds straight south, past Mafeking to Bellsite and then turns south-east to rejoin the proposed FPR (Map attached).

#### GHA 19

The main concern in this area was also the intersection of the currently proposed FPR with a relatively undisturbed area that includes habitat for moose. Alternatives were reviewed and a new route has been selected. The alternative proposed herein diverges from the currently proposed FPR northwest of Cowan, and heads southeast through the Swan-Pelican Provincial Forest towards Camperville. The route then turns south to join the currently proposed FPR east of Pulp River (Map attached).

#### Wabowden Area

The principal concern here was in relation to woodland caribou habitat intersected by the FPR east of the junction of PTHs 39 and 6 near Ponton. Manitoba Hydro is herein proposing a new alternative route for consideration. The new alternative takes advantage of existing corridors

along PTH 6 and PR 373 and reverts to a route close to the original preliminary preferred route for the area. Attached is a map showing the proposed alternative.

### Red Deer River Area

The FPR in the area of the Red River crossing was reviewed. There was a concern over the proximity of the FPR to existing cottage/residences east of PTH 10 at the Red Deer River. We considered a possible move to the west side of PTH 10 in this area to create more separation from the existing development. We have concluded that this is not a viable option due to the TLE land selection on the Red Deer River right up to the west side of PTH 10.

Manitoba Hydro proposes that the above described route alterations be included in the FPR for the Bipole III project in place of those segments of route for which they are alternatives. We believe that review of the three alterations can be accommodated by the ongoing assessment process. Manitoba Hydro will be notifying stakeholders and other parties with interests in the areas where we are proposing these route alterations once we have received your confirmation that these proposed alterations are satisfactory to you and address the concerns that led to your letter to us of August 29, 2012. Further, we will file a description of the alterations in the current hearing before the Clean Environment Commission after we have heard from you. We anticipate that we will make a presentation before the Commission regarding the changes in timely fashion so that Commissioners, Participants and interested parties will have an opportunity to ask questions regarding them and to comment upon them.

Sincerely,

*Original signed by P. McGarry*

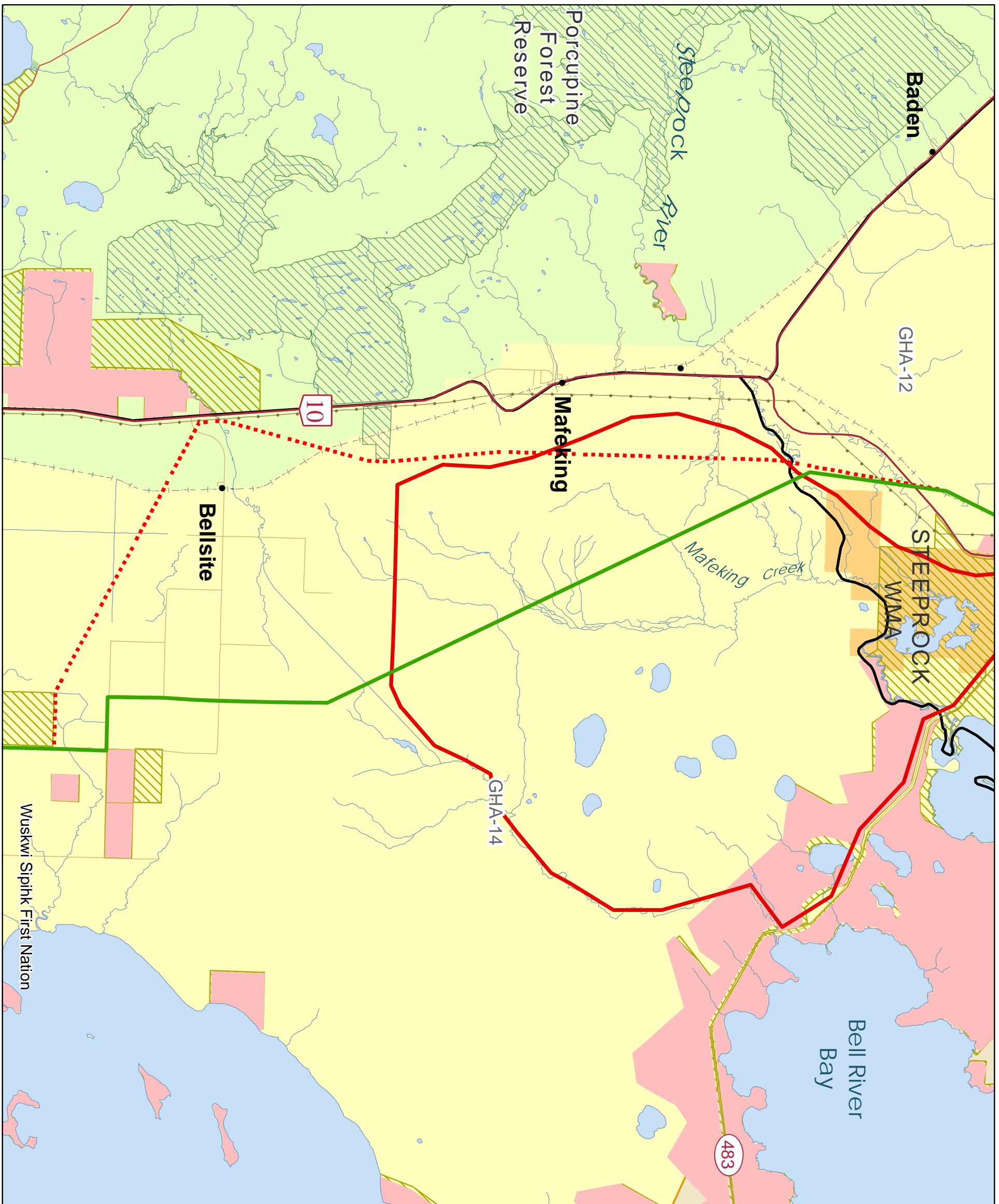
P. T. McGarry  
Senior Environmental Assessment Officer  
Licensing & Environmental Assessment Dept.  
Transmission Planning & Design Division

PM/tk

Attachments

# Manitoba Hydro

## Bipole III Transmission Project



### Project Infrastructure

- Final Preferred Route (Red line)
- Proposed Route Revision (Dashed red line)
- Project Study Area (Yellow box)

### Landbase

- Community (Black dot)
- Moose Meadows (Red box)
- Game Hunting Area (White box)
- Treaty Land Entitlement (Hatched box)
- Protected Areas (Green box)
- First Nation (Pink box)
- Provincial Forest (Light green box)
- Wildlife Management Area (Orange box)

### Infrastructure

- Transmission Line (Dotted line)
- Provincial Highway (Red line)
- Provincial Road (Solid grey line)
- Road (Other) (Dashed grey line)
- Abandoned (Dotted grey line)
- Active (Solid grey line)

Coordinate System: UTM Zone 14N NAD83  
Data Source: MBHydro, PROVMB, NRCAN  
Date Created: Oct 28, 2012

0 2.5 5 Kilometres  
0 1 2 Miles  
1:110,000



## Moose Meadows Area Proposed Route Revision



## Bipole III Transmission Project

### Project Infrastructure

- Final Preferred Route (Green solid line)
- Proposed Route Revision (Red dashed line)
- Project Study Area (Yellow box)

### Landbase

- Community (Black dot)
- Game Hunting Area (Yellow box)
- First Nation (Red box)
- Provincial Forest (Light green box)
- National/Provincial Park (Green box)
- Wildlife Management Area (Orange box)

### Infrastructure

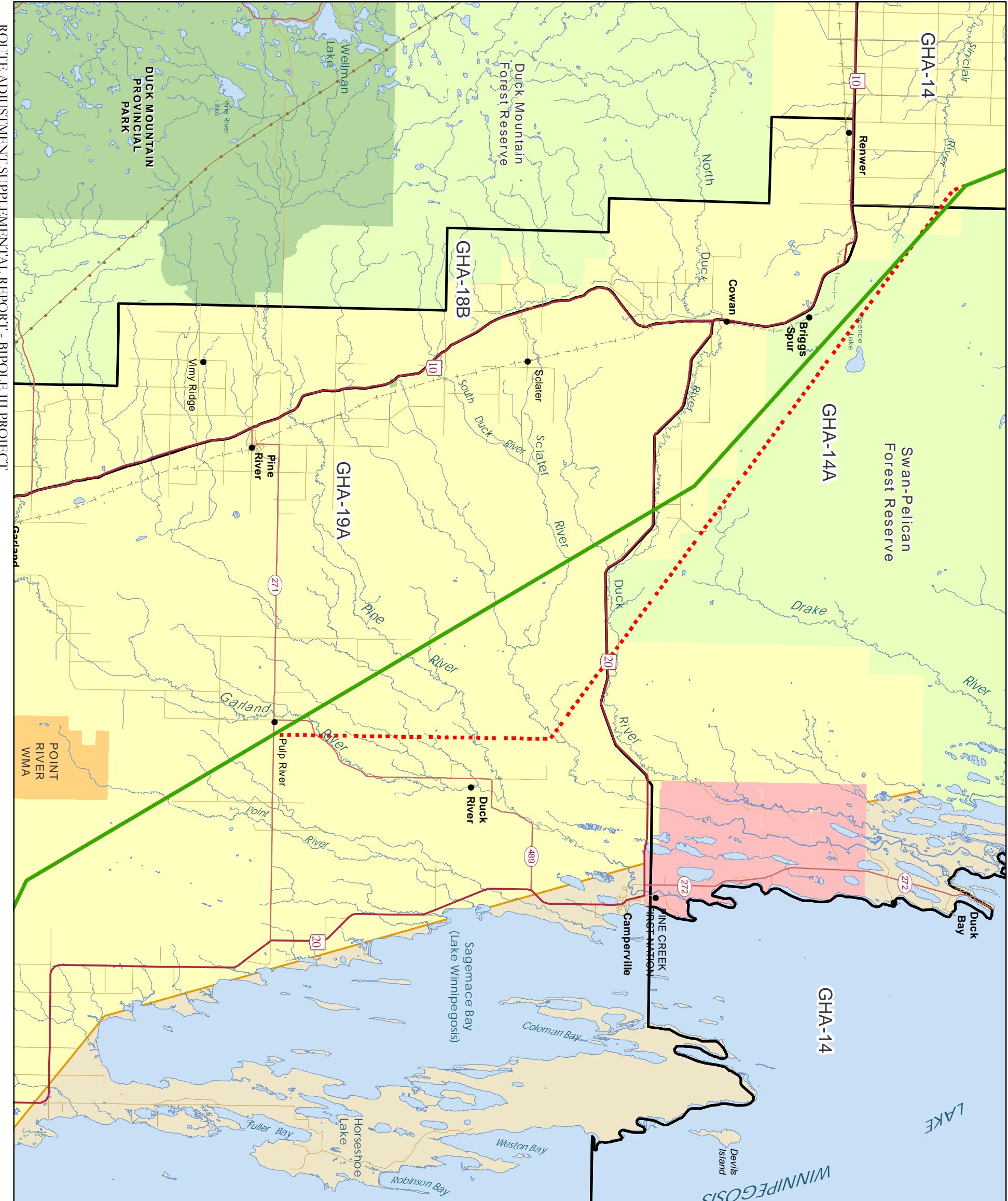
- Transmission Line (Dotted line)
- Abandoned (Dashed line)
- Active (Solid line)
- Provincial Highway (Red line)
- Provincial Road (Dashed line)
- Road (Other) (Orange line)

Coordinate System: UTM Zone 14N NAD83  
 Data Source: MBHydro, ProvMB  
 Date Created: Oct 28, 2012

0 5 10 Kilometres  
 0 3 6 Miles  
 1:220,000

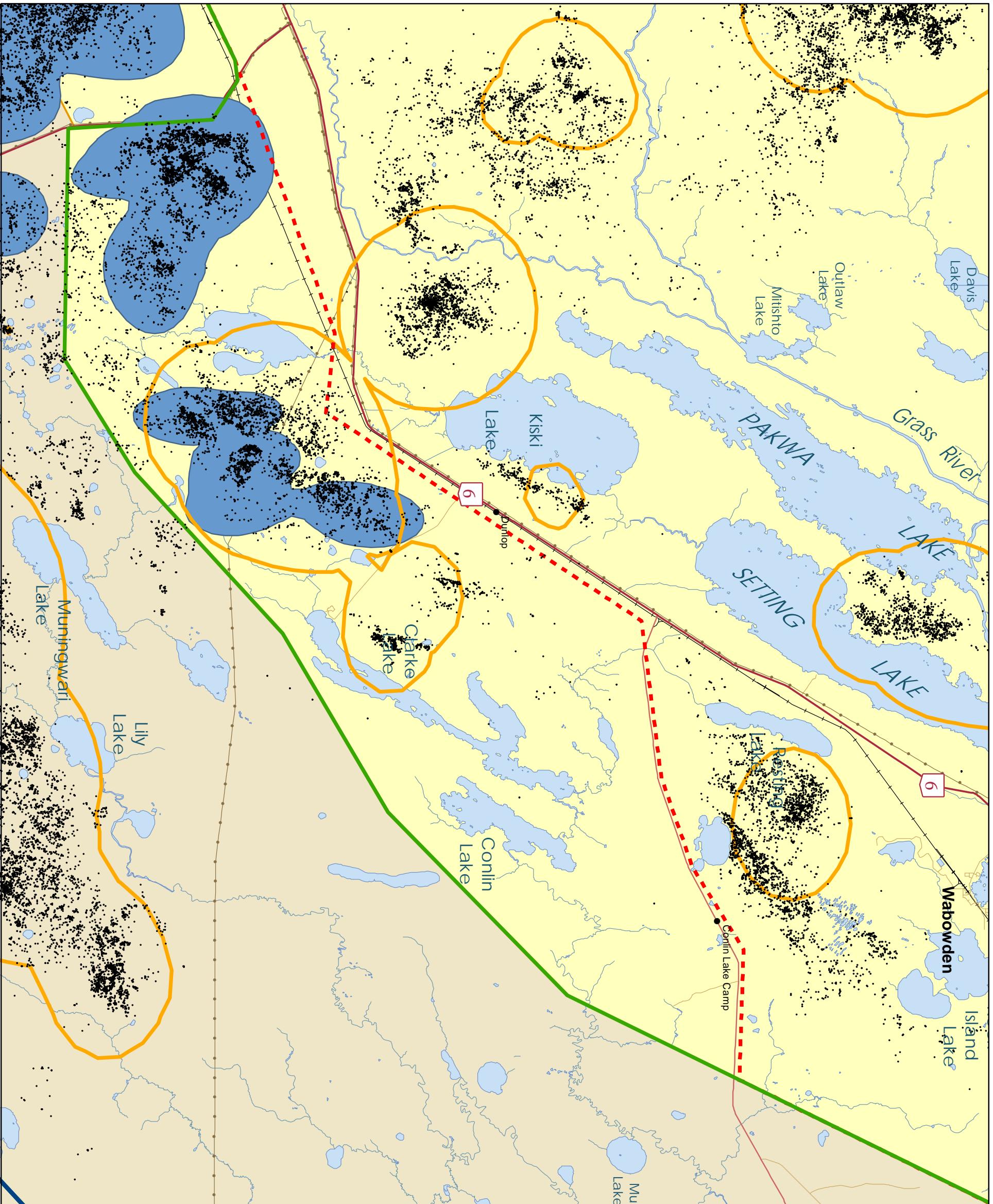


## GHA19A and GHA14A Proposed Route Revision





## Bipole III Transmission Project



Coordinate System: UTM Zone 14N NAD83  
Data Source: MBHydro, Joro, ProvMB  
Date Created: Oct 28, 2012

0 2.5 5 Kilometres  
0 1 2 Miles



N

1:145,000

## Wabowden Area Proposed Route Revision



**Conservation and Water Stewardship**

Climate Change and Environmental Protection Division  
Environmental Approvals Branch  
123 Main Street, Suite 160, Winnipeg, Manitoba R3C 1A5  
T 204 945-8321 F 204 945-5229  
[www.gov.mb.ca/conservation/eal](http://www.gov.mb.ca/conservation/eal)

**File: 5433.00**

November 2, 2012

Mr. Patrick T. McGarry, B.Sc. Hons., M.N.R.M.  
Senior Environmental Assessment Officer  
Licensing and Environmental Assessment  
Transmission and Distribution Division  
Manitoba Hydro  
820 Taylor Avenue  
Winnipeg, MB R3C 2P4

Dear Mr. McGarry:

**Re: Bipole III Transmission Project Environmental Impact Statement**

This is in response to your letter of October 23, 2012 concerning alterations in the Final Preferred Route of the above noted project. We have reviewed your proposed alteration and have solicited comments on the alteration from the Technical Advisory Committee (TAC). Comments from TAC members have been placed in the public registries and provided to the Clean Environment Commission.

As the potential environmental effects resulting from the alteration will be reviewed in more detail during the ongoing Clean Environment Commission hearing on the project, approval is hereby provided pursuant to Section 14(2) of The Environment Act to implement the alteration.

Yours truly,

Tracey Braun, M. Sc.  
Director  
Environmental Approvals Branch

- c. Public Registries, File: 5433.00  
Cathy Johnson, Clean Environment Commission  
Don Labossiere, Environmental Compliance and Enforcement





## Infrastructure and Transportation

Highway Planning and Design Branch  
Environmental Services Section  
1420 – 215 Garry St., Winnipeg, MB R3C 3P3  
**T** (204) 945-2369 **F** (204) 945-0593

November 9, 2012

Tracey Braun, M. Sc.  
Director, Environmental Approvals Branch  
Manitoba Conservation  
123 Main St., Suite 160, Winnipeg, MB R3C 1A5

**RE:** MB Hydro – Bipole III Transmission Project – Proposed Rerouting  
Client File No 5433.00

Dear Ms. Braun:

MIT has reviewed the supplemental information on the proposed rerouting of the Bipole III Transmission Project and would like to raise the following concerns:

**1. Red Deer River Area**

It appears that the crossing over PTH 10 at Red Deer River remains unchanged. The location of tower structure from the eroded banks of Red Deer River (just south of the Red Deer River Provincial Park) would impact future highway right of way relocation to the west when required.

Based from page 40 of MB Hydro's Response dated June 22, 2012, sufficient setback will be provided to accommodate future highway relocation. We would like to clarify if this is still the case given the proposed rerouting.

For questions/clarifications, please contact Ms. Forouzandeh Kasrai at (204) 622-2307 or at [Forouzandeh.Kasrai@gov.mb.ca](mailto:Forouzandeh.Kasrai@gov.mb.ca).

**2. Wabowden Area**

The revision seems to go through a commonly used aggregate pit which runs along PR 373. The pit is located north of PR 373 approximately 8 kilometres from PTH 6. The pit would be in Sections 13 and 14, TWP 67 Rge. 9 WPM. Please see attached. Also, located north of PR 373 is a contractor's Conlin camp site, approximately 12 kilometres from PTH 6.

For questions/clarifications, please contact Mr. David Midford at [David.Midford@gov.mb.ca](mailto:David.Midford@gov.mb.ca).



**Thank you very much for providing us the opportunity to provide further comments on Manitoba Hydro's proposed rerouting.**

Sincerely,



Ryan Coulter, M. Sc., P. Eng.  
Manager of Environmental Services



Aggregate pit along PR 373

# **APPENDIX 1B**

## **Presentation to CEC on Transmission Line Route Revisions**

# BIPOLE III TRANSMISSION PROJECT

## Transmission Line Route Revisions

Clean Environment Commission  
Public Hearings  
October 2012

Patrick McGarry and John Dyck



Clean Environment Commission – Fall 2012 – *Route/ Site Selection*

## Background

- TAC Request for Additional Information May 17, 2012
  - Wabowden Caribou Range
  - Mafeking to Birch River – "Moose Meadows"
- MH Response June 22, 2012
  - Requested additional clarification
  - Indicated intention to meet with MCWS to discuss
- August 29, 2012 Letter from MCWS
  - Moose Meadows and Caribou Range route revisions
  - First request for GHA 19 route revision and Red Deer River to Steeprock WMA



Clean Environment Commission – Fall 2012 – *Route Selection Process*

## Revision Process

- MH developed potential route revisions for 3 areas
- MH formalized revisions by Letter October 23 to MCWS
- MH to send out stakeholder notification after TAC review (Nov. 2)
- Stakeholders can respond through Hearing process as well as directly to MH



Clean Environment Commission – Fall 2012 – *Route Selection Process*

## Key Map for Route Review/Revisions



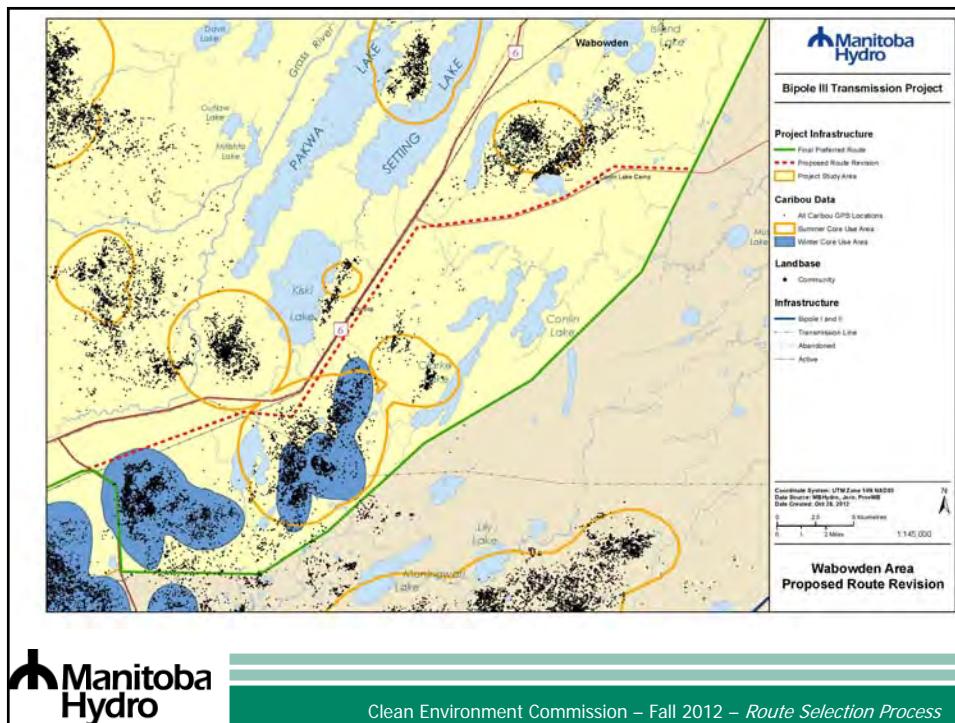
Clean Environment Commission – Fall 2012 – *Route Selection Process*

## Route Revision

- Wabowden Caribou Range
  - Boreal woodland caribou – threatened species (SARA, MESA)
  - Issue: FPR intersects some woodland caribou core use areas
  - Route revision:
    - Eliminates 49 km of new ROW by paralleling existing infrastructure
    - Reduces line length by 11 km
    - Eliminates potential effects on core habitats
    - Improves separation between BP1&2
    - Traverses portion of TNB similar to Preliminary Preferred Route



Clean Environment Commission – Fall 2012 – *Route Selection Process*



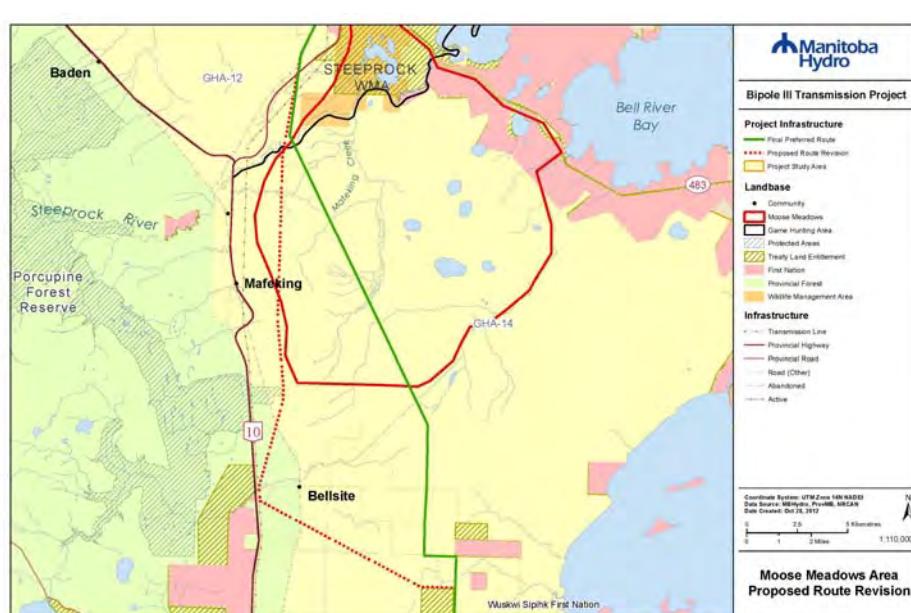
Clean Environment Commission – Fall 2012 – *Route Selection Process*

## GHA 14 Moose Meadows

- Issue: Concern over decline in moose populations
- Moose Meadows considered important for moose in area
- Potential fragmentation and access issue
- Number of potential routes reviewed
- Route moved west closer to PTH 10 and then south east, south of Bellsite to FPR



Clean Environment Commission – Fall 2012 – *Route Selection Process*



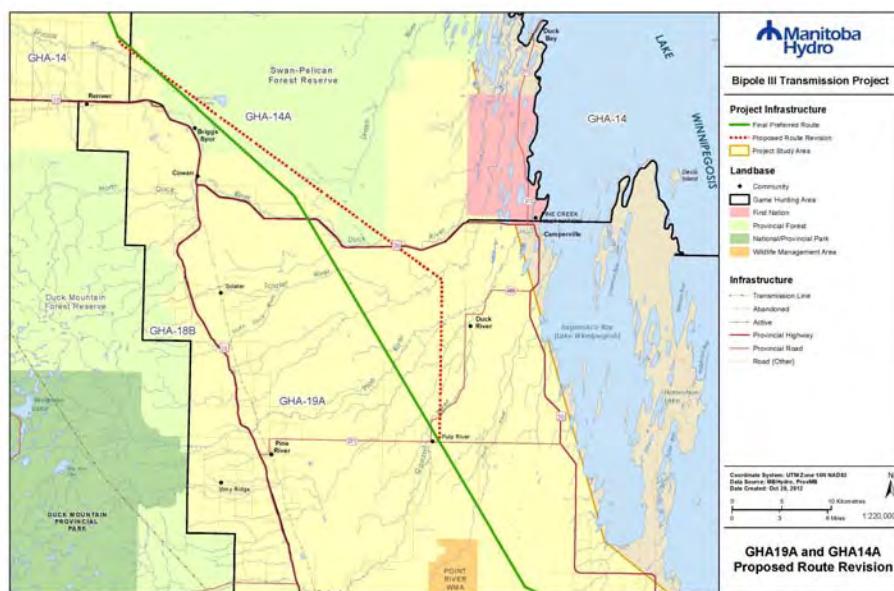
Clean Environment Commission – Fall 2012 – *Route Selection Process*

## GHAs 19A/14A

- Issue: moose habitat and use
- FPR traverses a small area of habitat south of PTH 20 west of Pine Creek and Camperville
- Potential fragmentation and access issue
- Route revised to align with existing disturbed areas further east
- Reduces potential for new access to area



Clean Environment Commission – Fall 2012 – *Route Selection Process*



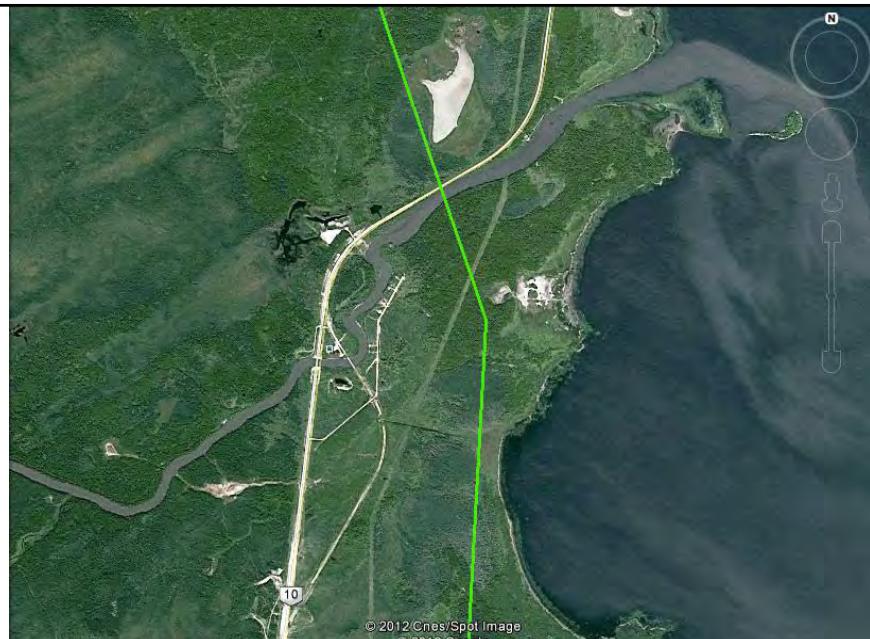
Clean Environment Commission – Fall 2012 – *Route Selection Process*

## Red Deer River to Steeprock WMA

- Issue: cottage/ residences near FPR on east side of PTH 10
- Request to move FPR to west side of PTH 10
- Reviewed but not feasible due to TLE bordering Red Deer River up to west side of PTH 10.



Clean Environment Commission – Fall 2012 – *Route Selection Process*



Clean Environment Commission – Fall 2012 – *Route Selection Process*

# TABLE OF CONTENTS

<b>2.0</b>	<b>PROPOSED ROUTE ADJUSTMENTS .....</b>	<b>2-1</b>
2.1	INTRODUCTION .....	2-1
2.2	WABOWDEN AREA AFPR .....	2-1
2.3	GHA 14 (MOOSE MEADOWS) AFPR.....	2-3
2.4	GHA 19A AND 14A AFPR.....	2-4

# LIST OF FIGURES

	<b>Page</b>
Figure 2.2-1: Wabowden Proposed Route Revision.....	2-2
Figure 2.3-1: GHA 14 (Moose Meadows) Proposed Route Revision.....	2-3
Figure 2.4-1: GHA 19A and 14A Proposed Route Revision .....	2-5

## **2.0 PROPOSED ROUTE ADJUSTMENTS**

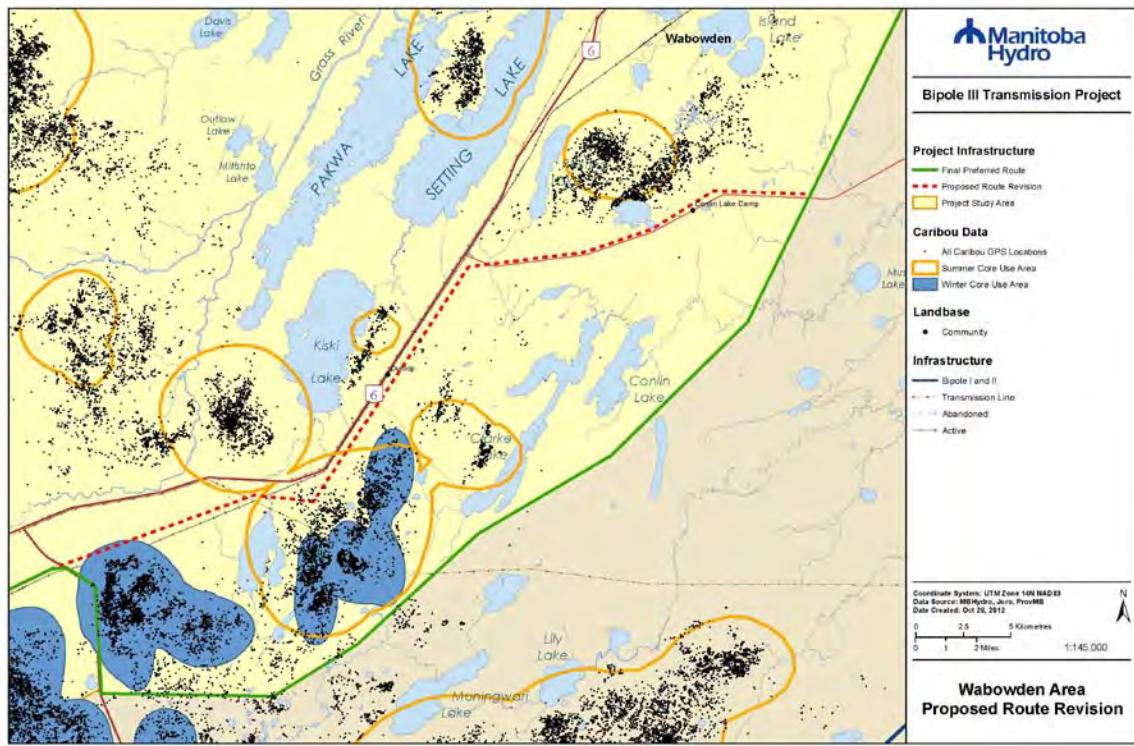
### **2.1 INTRODUCTION**

Route adjustments of the 500 kV HVdc Bipole III transmission line were made in three areas of the FPR in accordance with direction from Manitoba Conservation and Water Stewardship (MCWS) (Appendix 1A). The proposed adjustments are in the Wabowden Area, GHA 14 (Moose Meadows) area, and GHA 19A /14A area as submitted to the Environmental Approvals Branch of MCWS in a letter dated October 23, 2012 (Appendix 1A), and also presented to the CEC on October 29, 2012 (Appendix 1B).

An overview of the location of each of these three proposed route changes is provided in Chapter 1, Figure 1.1.

### **2.2 WABOWDEN AREA AFPR**

The principal routing concern in the Wabowden area relates to the FPR intersecting core use areas for boreal woodland caribou east of the junction of Provincial Trunk Highways (PTH) 39 and 6 near Ponton. As indicated in the EIS, boreal woodland caribou is a threatened species listed under the *Species at Risk Act* and the Manitoba *Endangered Species Act*. Figure 2.2-1 shows the FPR described in the December 2011 EIS and the proposed AFPR in the Wabowden Area.



**Figure 2.2-1: Wabowden Proposed Route Revision**

The FPR deviated from paralleling existing linear features along PTH 6 in order to accommodate competing resource interests in the Wabowden area related to the mining industry. The mining sector, through the Mining Association of Manitoba Inc, indicated that there could be a potential loss of future exploration capability and subsequent mine development in the Thompson Nickel Belt area as a result of electromagnetic shadow created by the HVdc line (EIS page 8-90). The FPR in the Wabowden area was not a preferred alternative from the caribou SSEA perspective as it bisected an unfragmented core winter use area and known calving areas for the Wabowden range (EIS p.8-97). This increased the uncertainty for specialists in predicting the effects on caribou and the degree to which the herd in question can sustain itself.

The Wabowden AFPR was selected based on review of previous assessment work of alternative routes in the area (Figure 2.2-1). Information on caribou and other valued environmental components was reviewed along with area constraints and opportunities. The AFPR was reviewed with MCWS North-east region prior to submission to the Environmental Approvals Branch of MCWS. The AFPR in the Wabowden area is similar to the Preliminary Preferred Route described in the EIS and still traverses a portion of the Thompson Nickel Belt.

The AFPR is 48 km in length and would replace the current 57 km FPR in the area. The AFPR reduces the overall line length by approximately 9 km. The AFPR takes advantage

of existing rail and transmission corridors along PTH 6 and Provincial Road (PR) 373 and reverts to a route close to the original preliminary preferred route for the area. Specifically, the AFPR in the Wabowden Area proceeds on a southwesterly alignment from a point on the final preferred route southeast of Wabowden where it parallels PR 373 on the west side to a point southwest of the junction between PR 373 and PTH 6. The proposed route adjustment continues southwesterly paralleling the east side of PTH 6 and the existing Hudson Bay Railway (HBR) line to a point northeast of Gormley Lake. The proposed adjustment then proceeds in a westerly direction, crossing the existing HBR line before turning to the southwest. The proposed adjusted final preferred route continues southwesterly on the north side of the existing rail line, crossing an existing transmission lines north of Gormley Lake and PTH 6 where it rejoins the final preferred route alignment south of Ponton.

## 2.3 GHA 14 (MOOSE MEADOWS) AFPR

The principal routing concern in the GHA 14 area is the potential effect of fragmentation and access on moose populations where the FPR intersects a relatively undisturbed area of moose habitat east of PTH 10 in the Mafeking to Birch River area (Figure 2.3-1). The moose population in GHA 14 is reportedly in steep decline and is currently closed to all moose hunting.

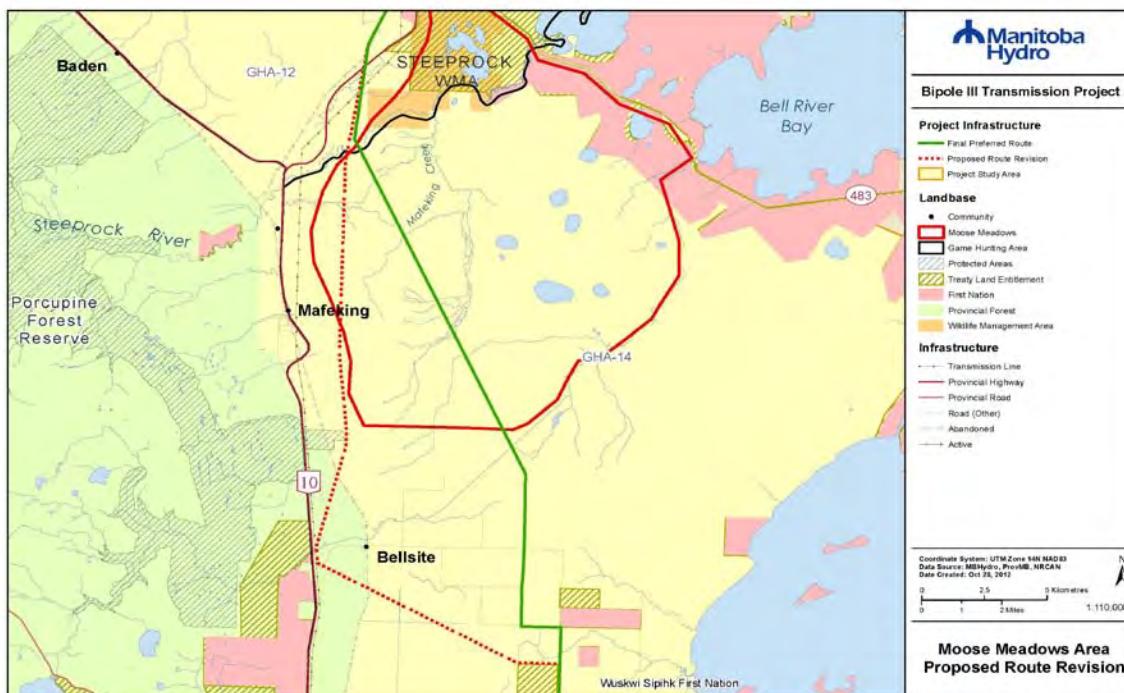


Figure 2.3-1: GHA 14 (Moose Meadows) Proposed Route Revision

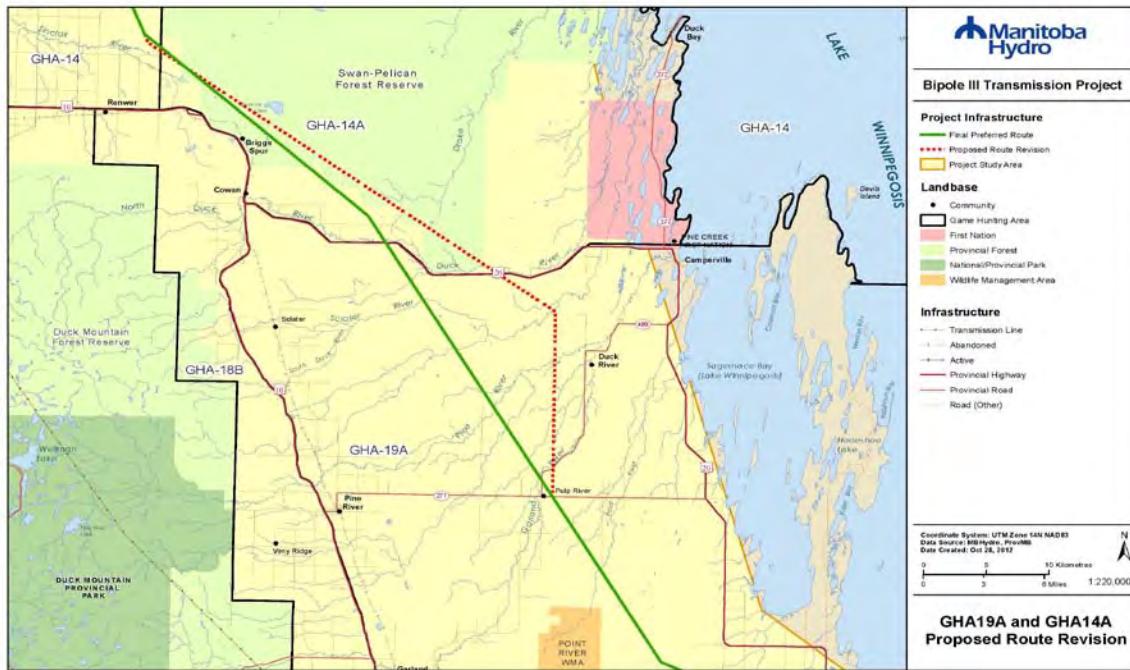
Manitoba Hydro met with wildlife officials of MCWS to review concerns and develop new routing in the area. The initial request from MCWS was to re-route Bipole III parallel to PTH 10 in the Birch River to Mafeking area. This was not considered a viable solution due to the curve-linear nature of the road and that such a route would pass through or adjacent to the community of Mafeking. Alternative routes were developed and reviewed by Wildlife Branch and Manitoba Hydro in October 2012, and an agreement was reached on the AFPR to be considered for assessment and submitted to the Environmental Approvals Branch of MCWS in the letter dated October 23, 2012 (Figure 2.2-1). The AFPR does not completely avoid the area designated as moose meadows, but largely avoids the main area of concern, as indicated by the Wildlife Branch.

The AFPR in the GHA 14 (Moose Meadows) area is approximately 33 km in length and diverges from the FPR (~30 km in length) just south of Provincial Road 483.

Specifically, the AFPR commences from a point along the final preferred route and proceeds in a southerly direction where it crosses the Steeprock River at a new point further to the west of the final preferred route. The new route continues straight southerly to a point east of Mafeking where it deflects further to the southeast on a diagonal alignment to avoid crossing the Bell and Steeprock Canyons Protected Area. East of this protected area, the new route proceeds straight south before making another minor deflection to the southwest where it proceeds to a point west of Bellsite paralleling an existing transmission line for a short distance. The AFPR crosses approximately 7 km of the Porcupine Forest Reserve in this area. From this point, the adjusted final preferred route turns southeasterly and proceeds on a diagonal alignment to a point where it then turns straight easterly routed along the north side of an existing road allowance where it then rejoins the final preferred route alignment.

## 2.4 GHA 19A AND 14A AFPR

The principal routing concern in the GHA 19A and 14A area is similar to GHA 14 and is focused on potential fragmentation and access issues on moose, due to the intersection of the proposed FPR with another relatively undisturbed area. The FPR crosses a small area of moose habitat south of PTH 20 and west of Pine Creek and Camperville (Figure 2.3-1). The first request for this route adjustment was received in a letter dated August 29, 2012 from MCWS (Appendix 1A).



**Figure 2.4-1: GHA 19A and 14A Proposed Route Revision**

The AFPR in this area is approximately 57 km in length and diverges from the 53 km FPR northwest of Cowan (Figure 2.3-1). The AFPR was located to align with existing agricultural land use south of PTH 20 which is intended to reduce potential for new access into the area of concern for moose. North of PTH 20 the AFPR was selected mainly to re-connect to the FPR to the north while avoiding local private land holdings. The AFPR traverses approximately 29 km of the Swan Pelican Provincial Forest Reserve on this alignment. The route was selected in consultation with wildlife officials from MCWS in October 2012 and submitted to the Environmental Approvals Branch of MCWS in the letter dated October 23, 2012.

Specifically, the adjusted route commences from the north at a point along the final preferred route in the Rural Municipality of Minitonas north of Renwer (Figure 2.3-1). From this point, the new route proceeds southeasterly on a diagonal alignment through the Swan Pelican Forest Reserve and the Rural Municipality of Mountain (South) deflecting to the northeast from the final preferred route to a point where it intersects with PTH 20 further to the east. From PTH 20, the new route continues on a diagonal alignment before it turns straight south and proceeds along the half-mile line to a point east of Pulp River where it rejoins the final preferred route alignment.

# TABLE OF CONTENTS

<b>3.0</b>	<b>ENVIRONMENTAL ASSESSMENT CONSULTATION PROGRAM.....</b>	<b>3-1</b>
<b>3.1</b>	<b>PURPOSE AND OBJECTIVES .....</b>	<b>3-2</b>
<b>3.2</b>	<b>NOTIFICATION METHODS.....</b>	<b>3-3</b>
<b>3.2.1</b>	<b>Direct Mailings.....</b>	<b>3-3</b>
<b>3.2.2</b>	<b>Newspaper.....</b>	<b>3-4</b>
<b>3.2.3</b>	<b>Radio .....</b>	<b>3-5</b>
<b>3.2.4</b>	<b>Posters .....</b>	<b>3-5</b>
<b>3.2.5</b>	<b>Postal Code Mailing .....</b>	<b>3-5</b>
<b>3.2.6</b>	<b>Project Website.....</b>	<b>3-6</b>
<b>3.2.7</b>	<b>Project Information Line and Project Email Address .....</b>	<b>3-6</b>
<b>3.3</b>	<b>CONSULTATION ACTIVITIES.....</b>	<b>3-6</b>
<b>3.3.1</b>	<b>Regional Public Open Houses and Landowner Information Centres.....</b>	<b>3-7</b>
<b>3.3.2</b>	<b>Regional Open Houses .....</b>	<b>3-7</b>
<b>3.3.3</b>	<b>Landowner Information Centres.....</b>	<b>3-7</b>
<b>3.3.4</b>	<b>Stakeholder Project Meetings .....</b>	<b>3-10</b>
<b>3.4</b>	<b>ABORIGINAL ENGAGEMENT .....</b>	<b>3-11</b>
<b>3.4.1</b>	<b>First Nation and Northern Affairs Communities Community Open Houses.....</b>	<b>3-11</b>
<b>3.4.2</b>	<b>First Nation and Northern Affairs Communities – Leadership Meetings.....</b>	<b>3-12</b>
<b>3.4.3</b>	<b>Manitoba Metis Federation.....</b>	<b>3-12</b>
<b>3.4.4</b>	<b>Ongoing and Outstanding Engagement .....</b>	<b>3-13</b>
<b>3.4.4.1</b>	<b>Sapotaweyak Cree Nation.....</b>	<b>3-14</b>
<b>3.4.4.2</b>	<b>Pine Creek First Nation.....</b>	<b>3-14</b>
<b>3.4.4.3</b>	<b>Ebb and Flow First Nation.....</b>	<b>3-14</b>
<b>3.4.4.4</b>	<b>O-Chi-Chak-Ko-Sipi First Nation .....</b>	<b>3-14</b>
<b>3.4.4.5</b>	<b>Pelican Rapids Community Council .....</b>	<b>3-15</b>
<b>3.4.4.6</b>	<b>Manitoba Metis Federation .....</b>	<b>3-15</b>
<b>3.4.4.7</b>	<b>Follow Up Phone Calls, Faxes and Emails .....</b>	<b>3-15</b>

3.4.5	Summary of In Vicinity Community Engagement .....	3-15
<b>3.5</b>	<b>ENGAGEMENT PROCESS FEEDBACK .....</b>	<b>3-22</b>
3.5.1	Overview .....	3-22
3.5.2	Attendance.....	3-22
3.5.3	Feedback and Responses .....	3-23
3.5.3.1	Wabowden.....	3-23
3.5.3.2	GHA 14 (Moose Meadows).....	3-24
3.5.3.3	EACP Participant Mapping – GHA 14 (Moose Meadows).....	3-26
	GHA 14 (Moose Meadows) Route Preference (Comment Sheet Responses) .....	3-26
3.5.3.4	GHA 19A and14A .....	3-27
	EACP Participant Mapping – GHA 19A/14A .....	3-29
	GHA 19A/14A Route Preference (Comment Sheet Responses) ....	3-30
3.5.4	General Project Concerns and Discussions .....	3-30
3.5.5	Route Modification Suggestions .....	3-33
3.5.6	Future Follow-Up Requirements .....	3-34
<b>3.6</b>	<b>SUMMARY .....</b>	<b>3-35</b>

# **APPENDICES**

- APPENDIX 3A Notification Letters
- APPENDIX 3B Notification Methods
- APPENDIX 3C Meeting Notes
- APPENDIX 3D MMF Correspondence
- APPENDIX 3E Feedback Log
- APPENDIX 3F Participant Mapping

## **LIST OF TABLES**

	<b>Page</b>
Table 3.2-1: Environmental Assessment Consultation Program Process.....	3-4
Table 3.3-1: Regional Open House (OH)/Landowner Information Centre (LIC) Locations and Attendance .....	3-9
Table 3.3-2: Project Meeting Locations and Dates.....	3-11
Table 3.4-1: Summary of In Vicinity Community Engagement Activities .....	3-17

## **LIST OF FIGURES**

	<b>Page</b>
Figure 3.1-1: Environmental Assessment Consultation Program Process.....	3-2
Figure 3.5-1: Attendance, by Location, at Landowner Information Centres, Regional and Community Open Houses .....	3-22

## **3.0 ENVIRONMENTAL ASSESSMENT CONSULTATION PROGRAM**

During November 2012 to January 2013, Manitoba Hydro undertook an additional Environmental Assessment Consultation Program (EACP) regarding the three route adjustments (as outlined in Section 1.2.2) for the Bipole III Transmission Project. The purpose of the EACP was to engage the public, stakeholders, First Nations, Northern Affairs communities, the Manitoba Metis Federation (MMF) and local landowners, to acquire feedback on the three adjustments to the Final Preferred Routes (AFPR). The EACP for the FPR is summarized in Chapter 5 of the EIS.

To provide ample opportunity for participation and to maintain consistency with past practices, Manitoba Hydro offered a variety of venues for stakeholders to share concerns and feedback. This included leadership/council meetings, stakeholder meetings, regional and community open houses and Landowner Information Centres (LIC). These activities were undertaken in close proximity to the proposed route adjustments.

To ensure the general public was aware of Manitoba Hydro's EACP activities, a variety of notification methods were used, including newspaper, direct mailings, radio, postcard and posted notification.

Feedback and concerns raised by EACP participants, as well as site specific information, was provided to discipline specialists in order to inform their independent assessment of the route adjustments.

This chapter is organized under the following headings:

- Section 1 provides a description of the EACP overall process and objectives;
- Section 2 outlines the notification methods used;
- Section 3 reviews EACP program activities, materials used and attendance at events;
- Section 4 reviews EACP Aboriginal engagement activities;
- Section 5 reviews the feedback and concerns received at the various EACP events, including overall feedback on the Project, and feedback related to the specific proposed route adjustments and summarizes specific alternatives to the route adjustments presented; and
- Section 6 outlines follow up activities Manitoba Hydro will undertake as the Project moves through and ultimately beyond the licensing process.

### **3.1 PURPOSE AND OBJECTIVES**

Manitoba Hydro sought municipal, landowner, First Nation, Northern Affairs Community, MMF, stakeholder and public feedback on the three route adjustments. Figure 3.1-1 outlines the EACP process undertaken from November 2012 to January 2013.



**Figure 3.1-1: Environmental Assessment Consultation Program Process**

Manitoba Hydro representatives sought to achieve the following goals throughout all EACP activities:

- Share project information as it becomes available;
- Obtain feedback into the assessment process;
- Understand local issues pertinent to the proposed adjustments;
- Integrate issues and concerns into the assessment process; and
- Discuss appropriate mitigation measures.

EACP participants were informed of these goals and were encouraged to participate in the process.

EACP participants engaged in the process by sharing their concerns and knowledge of local areas to assist in the environmental assessment being undertaken for the proposed route adjustments.

## **3.2 NOTIFICATION METHODS**

Manitoba Hydro notified as many individuals as possible with a potential interest in the three proposed route adjustments. A variety of notification methods were used to inform local communities, interest groups, stakeholders, First Nations, landowners, and the MMF of the activities being undertaken by Manitoba Hydro in relation to the Project. Notification methods utilized for the EACP are outlined in this section.

### **3.2.1 Direct Mailings**

Stakeholders, landowners, First Nations, Northern Affairs Community Councils, the MMF, municipal /town councils, lodge operators and outfitters were notified by direct letter sent between November 14 and 29, 2012. In total, 216 direct mailed packages were delivered by Canada Post.

The package provided in the direct mailing included relevant items from those listed below.

- A letter to the landowner, stakeholder, First Nation, etc.;
- An Adjusted Final Preferred Route Map;
- Three maps showing the location of the route adjustments;
- 1:50,000 scale map(s) in relation to specific landholdings;
- Bipole III website and project information line telephone number;
- A regional open house schedule;
- Landowner Information Centre schedule; and
- A website link to the Clean Environment Commission website.

The packages aimed to inform interested parties of the activities being undertaken, including information on the current status of the Bipole III Transmission Project. All letters offered an opportunity to meet with the Manitoba Hydro representatives to discuss the Project as well as options for community specific open houses. Contact information was provided and interested parties were contacted by phone to arrange a meeting time with community councils as well as community open houses.

First Nation and Northern Affairs communities deemed “in the vicinity”, as noted below, were based on previous interactions, geographic locations of the communities in relation to the three route adjustments, as well as Manitoba Hydro’s understanding of individuals’ use of the land. Manitoba Hydro informed these “in vicinity” communities and requested a leadership meeting. Manitoba Hydro also notified all other First Nation and Northern Affairs Communities in the entire Project Study Area of Manitoba Hydro’s activities and offered a meeting if there was community interest.

Table 3.2-1 provides the number of direct mailings distributed by recipient category. In total, 216 directly mailed packages were delivered by Canada Post.

In total, nine letters were created for various groups. A copy of each letter is provided as Appendix 3A.

**Table 3.2-1: Environmental Assessment Consultation Program Process**

EACP Recipient Category	Number of Directly Mailed Letters
First Nations (in vicinity of the adjustments)	5
First Nations (outside the vicinity of the adjustments)	14
Northern Affairs Community Council (in vicinity of the adjustments)	13
Northern Affairs Community Council (outside the vicinity of adjustments)	17
Rural Municipalities (traversed by the adjustments)	2
Towns (in vicinity of the adjustments)	1
Stakeholder Groups (may/may not have interest)	96
Lodge operators and outfitters	30
Manitoba Metis Federation	1
Landowners	37
<b>Total Number of Direct Mailings</b>	<b>216</b>

### **3.2.2 Newspaper**

Regional and Local newspaper advertising was used to inform the public of Project EACP activities. Advertisements ran two weeks prior to the event, up until the day of the event (first issue date - November 27, 2012). Local papers notified the public regarding open houses in their region. Other publications which reach a large percentage of Manitoba outlined all regional open house listings.

Notification of the Bipole III regional open house appeared in 12 publications. The complete listing is provided as Appendix 3B.

### **3.2.3 Radio**

Radio was also used to notify the general public of the Project EACP activities.

For the regional open houses, radio stations aired 30 second notifications three times a day between 6:00 a.m. and 8:00 p.m. In total, 216 radio spots were played prior to the regional open houses.

A complete listing of radio stations which played the notification are provided in Appendix 3B.

### **3.2.4 Posters**

Posters were placed in local communities at the venues listed in Table 3.3-1. These 11" x 17", color posters listed all venue locations, meeting dates and times. All posters had simplified mapping of the three route adjustments being proposed. The Regional Open House poster was posted in 23 locations on November 23, 2012.

During follow-up calls to communities to schedule community open houses, Manitoba Hydro requested guidance regarding the type of notification that would be preferred by the community. Many participants noted that word of mouth and posters would be adequate. Specific community posters were created and emailed to community representatives to post around the community prior to the event.

A complete listing of locations where the posters were placed is provided in Appendix 3B.

### **3.2.5 Postal Code Mailing**

Manitoba Hydro created a color, 10" x 6" mailer (consistent with the approach used in the original Bipole III EACP process), which mirrored the regional open house poster. These mailers were sent to 2,712 individual residences and businesses in the vicinity of the routing adjustments, and were deposited in mailboxes November 27, 2012 (two weeks prior to the event).

The community of Duck Bay requested a postal code drop. Manitoba Hydro created a postal code mailer, with the same format described above, incorporating community-specific information related to activities being undertaken in the community.

### **3.2.6 Project Website**

Following finalization of the regional open house venues, Manitoba Hydro incorporated a link from the main Bipole III Project page ([www.hydro.mb.ca/bipole3](http://www.hydro.mb.ca/bipole3)) to a page providing locations, times and dates of all regional open houses, as well as localized mapping of the three proposed adjustments.

### **3.2.7 Project Information Line and Project Email Address**

The Project information telephone line and email address have been active since July 2010, to address any Project-related questions from members of the public, stakeholders or affected landowners. The toll-free number was listed on the notification letter sent to all municipal governments, landowners, First Nations, Northern Affairs Communities, MMF, stakeholders and the general public.

Since the first notification letter dated November 14, 2012, 14 calls and 6 emails have been received. The calls and emails have addressed a variety of topics, including construction activities, line location and the public involvement process. Some landowners notified also utilized the information line to have their questions answered.

The Project information line and email address will remain operational throughout the environmental regulatory review process to respond to questions or concerns from the public.

## **3.3 CONSULTATION ACTIVITIES**

A variety of venues were available for interested parties to provide feedback on the route adjustments. Consistent with earlier Bipole III EACP practices, the following activities were undertaken for landowners, stakeholders and members of the general public:

- Regional open houses;
- Landowner Information Centres; and
- Stakeholder meetings.

Activities for the EACP to engage with First Nation communities and Northern Affairs Communities which were undertaken include:

- Community open houses; and
- Leadership meetings.

Landowners, Provincial government, stakeholders, First Nations, Northern Affairs Communities, the MMF and the general public were notified of the activities being undertaken. These venues provided opportunities for comment and information sharing between Manitoba Hydro and interested parties. These activities aimed to achieve the goals outlined in Section 3.1. Each activity is outlined in the following Section.

### **3.3.1 Regional Public Open Houses and Landowner Information Centres**

#### **3.3.2 Regional Open Houses**

Seven regional open houses were held in December 2012. The regional open houses provided individuals who were interested in the Project with an opportunity to speak with representatives of Manitoba Hydro and gather Project-related information.

A wide variety of information was provided at each regional open house, including 12 project display boards (depicting the rationale for the route adjustments, landowner compensation, tower design and process), Project newsletters /brochures (EMF, Round 4 newsletters, Trappers' Compensation Policy, etc.), a construction slideshow, localized mapping and comment sheets. All three route adjustments were presented at all open houses.

Manitoba Hydro provided 1:50,000 scale mapping of the route adjustments for participants to mark with localized concerns and submit with their comment sheets. These were presented in a workstation setting where all associated mapping was available, as well as a Project storyboard which outlined the rationale for the route adjustment.

Manitoba Hydro also used *Google Earth* to assist landowners in locating their property in relation to the route adjustments, as well as Project materials (tower models, conductor cable, etc.) to facilitate discussion.

Participants were encouraged to review all material and complete a comment sheet to ensure their concerns were documented.

#### **3.3.3 Landowner Information Centres**

Owners of land traversed by one of the proposed route adjustments (or the FPR) were informed of the route adjustment and invited to attend a Landowner Information Centre (LIC) to share their concerns and comments individually with a Manitoba Hydro

representative. In total, 37 landowners were notified and invited to participate in the route review process and concerns and comments were documented. Locations were determined based on the location in which the landowner lived once the property ownership information was reviewed.

Two landowner “stations” were set up at the LIC and open house locations to provide opportunities for individual discussion and LIC form completion.

The following materials were made available to landowners at each station:

- “11 x 17” topographic maps of the route adjustment (1:50,000 scale);
- Round 4 newsletters;
- Bipole III landowner compensation information brochures;
- Direct current electric and magnetic fields brochures;
- Alternating current electric and magnetic fields brochures;
- Direct current lines and electronic devices brochures; and
- FPR maps.

Each station was equipped with a landowner map book to assist with discussions on the route. Four wall maps were centrally located at the venue; one map showed the FPR in its entirety (with the route adjustments) and the others showed the individual route adjustments. Twelve open house story boards were also on display. These storyboards outlined the rationale for the route adjustments, the supplemental environmental assessment, the tower structures and landowner compensation.

The regional open houses and LICs were held in the same venue. LICs were only advertised to affected landowners, but landowners were provided with information about all the events in their notification packages. Landowners discussed individual land holdings and were also able to review and discuss other material provided to the general public at the regional open house.

Table 3.3-1 lists regional open houses and LICs held in December 2012, as well as attendance at each location. Appendix 3C consists of summary documents prepared following each regional open house.

**Table 3.3-1: Regional Open House (OH)/Landowner Information Centre (LIC) Locations and Attendance**

<b>Open House</b>	<b>Date and Time of Meeting</b>	<b>Location</b>	<b>Attendance</b>	<b>Appendix 3C – Page Number</b>
Birch River (OH)	December 10 <sup>th</sup> from 4:00 – 8:00 pm	Birch River Legion Hall		
Birch River (LIC)	December 10 <sup>th</sup> from 9:00 am – 8:00 pm	Birch River Legion Hall	12	3C-34
Birch River (LIC)	December 11 <sup>th</sup> from 9:00 am – 6:30 pm	Birch River Legion Hall		
The Pas (OH)	December 10 <sup>th</sup> from 4:00 – 8:00 pm	Kikiwak Hotel	3	3C-38
Thompson (OH)	December 11 <sup>th</sup> from 4:00 – 8:00 pm	Juniper Centre		
Thompson (LIC)	December 11 <sup>th</sup> from 9:00 am – 8:00 pm	Juniper Centre	15	3C-39
Swan River (OH)	December 12 <sup>th</sup> from 4:00 – 8:00 pm	War Veterans Hall	17	3C-42
Cowan (OH)	December 13 <sup>th</sup> from 4:00 – 8:00 pm	Cowan Community Centre		
Cowan (LIC)	December 13 <sup>th</sup> from 9:00 am – 8:00 pm	Cowan Community Centre	14	3C-36
Cowan (LIC)	December 14 <sup>th</sup> from 9:00 am – 6:00 pm	Cowan Community Centre		
Winnipeg (OH)	December 18 <sup>th</sup> from 4:00 – 8:00 pm	Holiday Inn South	46	3C-40

The general public and affected landowners provided feedback and commentary to Manitoba Hydro representatives at these venues. Feedback, questions and comments covered a wide range of topics and are documented in Section 3.5.3 of this report.

Manitoba Hydro notified landowners in November by direct mailing. Manitoba Hydro is currently in process of following up with the 37 landowners affected by either route. Manitoba Hydro will provide the email address and project information line phone number to allow landowners another opportunity to ask questions or provide land specific commentary to a Manitoba Hydro representative.

### **3.3.4 Stakeholder Project Meetings**

Project meetings were held with municipal leadership, Provincial government and stakeholders to communicate Project activities and receive feedback and discuss concerns.

Meetings began with a PowerPoint presentation (hard copy or on screen), which discussed the following topics:

- An overview of the rationale for the route adjustments;
- The environmental assessment process; and
- The EACP being undertaken.

All participants received the following materials: three large scale maps of the three areas being considered for adjustment; 1:50,000 or larger scale mapping of the three route adjustments and a printed version of the PowerPoint presentation.

In total, eight Project meetings were held with municipal councils and stakeholder groups. The following table lists the communities Manitoba Hydro met with from November 2012 to January 2013.

**Table 3.3-2: Project Meeting Locations and Dates**

<b>Stakeholder</b>	<b>Date of Meeting</b>	<b>Appendix 3C – Page Number</b>
Rural Municipality of Mountain (Birch River)	November 23 <sup>rd</sup> at 1:30 pm	3C-21
Moose Management Committee	November 23 <sup>rd</sup> at 7:00 pm	3C-14
Protected Areas Initiative	December 6 <sup>th</sup> at 1:00 pm	3C-19
Ducks Unlimited	December 10 <sup>th</sup> at 9:30 am	3C-13
Rural Municipality of Minitonas (Minitonas)	December 12 <sup>th</sup> at 6:00 pm	3C-23
Town of Minitonas (Minitonas)	December 10 <sup>th</sup> at 6:00 pm	3C-23
Northeast IRMT (Thompson)	December 12 <sup>th</sup> at 1:00 pm	3C-18
Western IRMT (Russel)	December 13 <sup>th</sup> at 1:00 pm	3C-25
Manitoba Lodge and Outfitters Association	December 17 <sup>th</sup> at 10:00 am	3C-44

Meeting minutes were recorded at each meeting and are attached as Appendix 3C.

## **3.4 ABORIGINAL ENGAGEMENT**

The following section outlines the activities undertaking with First Nations, Northern Affairs Communities and the MMF throughout the EACP. In addition, a table provided in this section with set out activities undertaken.

### **3.4.1 First Nation and Northern Affairs Communities Community Open Houses**

Manitoba Hydro sent letters to First Nation and Northern Affairs Communities requesting to meet and arrange a community open house in order to facilitate information sharing related to the route adjustments. The letters included Manitoba Hydro contact information and the Bipole III website. In total, 18 First Nation and Northern Affairs Communities in the vicinity of the route adjustments were notified and invited to participate. Community open houses provided community members with an opportunity to access information regarding the route adjustments and to provide feedback on the proposed route adjustments to Manitoba Hydro representatives. This method of communication provided an opportunity for direct discussions with community members.

A wide variety of information was provided at each community open house, including 12 Project display boards (depicting the rationale for the route adjustments, compensation, tower design and process), Project newsletters, a construction slideshow, localized mapping and comment sheets. All three route adjustments were presented at all open houses.

During initial contact with the community by phone, Manitoba Hydro asked the community representative for guidance on what notification methods should be used to inform the community. Guidance provided indicated that posters, word of mouth and postal code notifications would be best to notify the community of the open houses.

### **3.4.2 First Nation and Northern Affairs Communities – Leadership Meetings**

Leadership meetings were held with interested communities to communicate Project activities, receive feedback and discuss concerns.

Meetings began with a PowerPoint presentation (hard copy or on screen), which discussed the following topics:

- An overview of the rationale for the route adjustments;
- The environmental assessment process; and
- The EACP being undertaken.

All participants received the following materials: three large scale maps of the three areas being considered for adjustment and a printed version of the PowerPoint presentation.

In total, seven meetings were held with six communities in the vicinity of the route adjustments.

### **3.4.3 Manitoba Metis Federation**

Manitoba Hydro contacted the MMF by letter dated November 21, 2012 regarding the EACP process for the proposed route adjustments and included materials referenced in Section 3.0 – Direct Mailings. The letter requested a meeting to discuss these proposed route adjustments and indicated that Manitoba Hydro is willing to hold open houses in locations that are suitable and convenient to facilitate information sharing with the broader MMF membership.

Manitoba Hydro made several attempts to secure a meeting with the MMF to discuss the above referenced letter of November 21, 2012. Subsequently, a conference call took

place on December 13, 2012 where both parties discussed their desire for meetings involving Metis persons living in, or using, the areas of the route adjustments. Three possible locations for the meeting were discussed, as well as the MMF wish to have staff from its head office attend and its desire to have its expert conduct private interviews of Metis citizens attending the meetings. Subsequently, on December 18, 2012, the MMF provided Manitoba Hydro with a proposal to engage in activities the MMF believed necessary to complete their assessment of the route adjustments. This included organizing meetings with MMF membership and developing a report in conjunction with the environmental assessment being undertaken. Manitoba Hydro reviewed the proposal and responded to the MMF on December 28, 2012, indicating Manitoba Hydro's perspective on what could reasonably be undertaken based on available timelines, as well as how costs could be reduced through support and services that Manitoba Hydro could provide. This counter-proposal offered to cover the costs of meeting places, travel and ancillary expenses of MMF head office personnel and the cost of the MMF expert conducting private interviews of Metis persons. Manitoba Hydro sent a follow up email on January 11, 2013, outlining concerns regarding the ability to include feedback from the proposed community engagement plan into the environmental assessment. Manitoba Hydro advised it was still interested in engaging with the MMF to get feedback on the proposed route adjustments. In a letter dated January 11, 2013, the MMF counsel responded indicating his client, among other things, was not interested in pursuing engagement as outlined by Manitoba Hydro. Manitoba Hydro's legal counsel replied to that letter on January 18, 2013.

Manitoba Hydro will continue to endeavour to engage with the MMF to share information and address concerns related to these route adjustments. At the time of report completion, Manitoba Hydro has offered to assist and schedule open houses with MMF members, and will attempt to do so prior to the commencement of CEC hearings slated to recommence March 4, 2013.

Communication documents are attached as Appendix 3D.

### **3.4.4 Ongoing and Outstanding Engagement**

Manitoba Hydro made several attempts with communities to secure a community open house and leadership meeting. The following outlines communities in which we were unable to secure a leadership meeting and/or a community open house. Manitoba Hydro will continue to contact communities to receive feedback on the route adjustments.

#### **3.4.4.1 Sapotaweyak Cree Nation**

Following follow-up calls from the initial notification letter dated November 14, 2012, Chief Genaille responded to Manitoba Hydro by email. This email noted that there would be no discussions with the Bipole III Project team until Chief Genaille is able to speak with CEO Scott Thomson of Manitoba Hydro. A response to Chief Genaille's email was sent on January 23, 2013. While Manitoba Hydro [has](#) encouraged Chief Genaille to meet with project technical staff who are in the best position to address project specific concerns and related mitigation measures, Manitoba Hydro has also advised Chief Genaille that senior staff are available for further discussions with him.

#### **3.4.4.2 Pine Creek First Nation**

Manitoba Hydro has engaged in several discussions in regard to the AFPR with Pine Creek First Nation representatives but has not been able to schedule a community open house at this time. Pine Creek First Nation had a council election on January 4, 2013, and requested that scheduling a community open house should wait until after the election. Manitoba Hydro is working with the community to schedule a community open house to share Project information with members of Pine Creek Nation and anticipates that it will take place in the near future.

#### **3.4.4.3 Ebb and Flow First Nation**

Manitoba Hydro representatives met with Chief and council on January 16, 2013. Representatives outlined the current process and timelines for the Project to council members. Manitoba Hydro shared their desire to host a community open house to inform local community members of the Project and current activities.

Chief Houle indicated that the project should be dealt with through Treaty 2. Manitoba Hydro noted that they would like to work with these communities with regards to the Project and the Environmental Protection Plans by holding community sessions. Chief Houle indicated that he would present the information provided at the meeting to Treaty 2 representatives on January 24, 2013. Manitoba Hydro will follow up with Treaty 2 on how best to facilitate engagement with their members.

#### **3.4.4.4 O-Chi-Chak-Ko-Sipi First Nation**

Manitoba Hydro has attempted to schedule a leadership meeting with O-Chi-Chak-Ko-Sipi since November 20, 2012. After discussions with the Chief and a council member, it was suggested that a leadership meeting would be appropriate as the community hall

burned down and there is nowhere in the community to hold the open house. A council member requested the initial letter, which was sent to the community, and stated that they would look into the meeting dates proposed by Manitoba Hydro for a leadership meeting. At the time of report creation no meeting has been held. Manitoba Hydro will continue to contact the First Nation to schedule a meeting to discuss the route adjustments.

#### **3.4.4.5 Pelican Rapids Community Council**

Manitoba Hydro had scheduled a leadership meeting with Pelican Rapids Community Council for December 6, 2012. Due to the absence of the Mayor, the meeting was cancelled. Manitoba Hydro has been unable to reach council representatives to reschedule a meeting with Leadership. Manitoba Hydro will continue to contact the community to schedule a meeting to discuss the route adjustments.

#### **3.4.4.6 Manitoba Metis Federation**

Please refer to Section 3.4.3.

#### **3.4.4.7 Follow Up Phone Calls, Faxes and Emails**

In addition to the notification methods outlined in previous sections, Manitoba Hydro made efforts to contact First Nation and Northern Affairs Communities by phone, fax, and/or emails. In total, 53 phone calls, 4 faxes, and 9 emails were sent to 4 First Nations and 1 NAC where a leadership meeting and/or community open house (listed above) had not yet been scheduled (following initial contact after the November 14 notification letter).

### **3.4.5 Summary of In Vicinity Community Engagement**

The following table outlines the activities undertaken with communities who were notified as “in the vicinity” of the route adjustments.

First Nation and Northern Affairs Communities deemed in the vicinity were based on previous interactions, geographic locations of the communities in relation to the three route adjustments, as well as Manitoba Hydro’s understanding of individuals’ use of the land. Manitoba Hydro informed these “in vicinity” communities and requested a leadership meeting. Manitoba Hydro also notified all other First Nation and Northern Affairs Communities in the entire Project Study Area of Manitoba Hydro’s activities and offered a meeting if there was community interest.

Table 3.4-1 outlines the activities undertaken by in vicinity community, the event type, date of the event, attendance and a general summary of the topics of discussion.

Further detail of route specific feedback is provided in Section 3.5.3. All meeting notes and community open house summaries are provided in Appendix 3C.

**Table 3.4-1: Summary of In Vicinity Community Engagement Activities**

Community	Leadership Meetings	Leadership Meeting Date	Community Open House	Community Open House Date	Community Open House Attendance (if Applicable)	Topics Discussed (general summary)	Appendix 3C – Page Number
Baden Community Council*	No	Not requested by the community	Yes	December 6 <sup>th</sup> at 4:00 pm	13	- Trappers Compensation Policy - Employment Opportunities - Access	3C-27
Barrows Community Council*	No	Not requested by the community	Yes	December 6 <sup>th</sup> at 4:00 pm	13	- Trappers Compensation Policy - Employment Opportunities - Access	3C-27
Camperville Community Council	Yes	November 28 <sup>th</sup> at 10:00am	Yes	January 9 <sup>th</sup> at 3:00 pm	15	- Resource Use - Access - CDI - Wildlife - Construction	3C-1 3C-28
Crane River Community Council	Yes	January 10 <sup>th</sup> at 1:00pm	No		N/A	- East Side - Process - Employment Opportunities	3C-3

**Table 3.4-1: Summary of In Vicinity Community Engagement Activities (cont'd)**

Community	Leadership Meetings	Leadership Meeting Date	Community Open House	Community Open House Date	Community Open House Attendance (if Applicable)	Topics Discussed (general summary)	Appendix 3C – Page Number
Dawson Bay Community Council	No	Not requested by the community	Yes	December 5 <sup>th</sup> at 5:00 pm	16	- Vegetation Management - Resource Use - Construction - CDI	3C-29
Duck Bay Community Council	Yes	January 8 <sup>th</sup> , 2013 at 5:00pm	Yes	December 12 <sup>th</sup> at 3:00 pm	16	- Line Location - Resource Use - Wildlife - Process - Vegetation Management - CDI	3C-4 3C-30
Ebb and Flow First Nation	Yes	January 16 <sup>th</sup> , 2013 at 10:00am	No		N/A	Please see section 3.4.4.3	3C-5
Herb Lake Landing Community Council	No	Not requested by the community	Yes	December 3 <sup>rd</sup> at 10:00 am	6**	- CDI - Hunting	3C-32

**Table 3.4-1: Summary of In Vicinity Community Engagement Activities (cont'd)**

Community	Leadership Meetings	Leadership Meeting Date	Community Open House	Community Open House Date	Community Open House Attendance (if Applicable)	Topics Discussed (general summary)	Appendix 3C – Page Number
National Mills Community Council*	No	Not requested by the community	Yes	December 6 <sup>th</sup> at 4:00 pm	13	- Trappers Compensation Policy - Employment Opportunities - Access	3C-27
O-Chi-Chak-Ko-Sipi First Nation	No					Please see Section 3.4.4.4	
Pelican Rapids Community Council	No					Please see Section 3.4.4.5	
Pine Creek First Nation	Yes	December 5 <sup>th</sup> at 9:00am December 18 <sup>th</sup> at 2:45pm				Please see Section 3.4.4.2	

**Table 3.4-1: Summary of In Vicinity Community Engagement Activities (cont'd)**

Community	Leadership Meetings	Leadership Meeting Date	Community Open House	Community Open House Date	Community Open House Attendance (if Applicable)	Topics Discussed (general summary)	Appendix 3C – Page Number
Powell Community Council*	No	Not requested by the community	Yes	December 6 <sup>th</sup> at 4:00 pm	13	- Trappers Compensation Policy - Employment Opportunities - Access	3C-27
Red Deer Lake Community Council*	No	Not requested by the community	Yes	December 6 <sup>th</sup> at 4:00 pm	13	- Trappers Compensation Policy - Employment Opportunities - Access	3C-27
Sapotaweyak Cree Nation	No	No				Please see Section 3.4.4.1	
Wabowden Community Council	Yes	December 3 <sup>rd</sup> at 3:00 pm	Yes	December 3 <sup>rd</sup> at 6:00 pm	7	- Trappers Compensation Policy - Economic/Employment Opportunities - Process	3C-8 3C-33
Westgate Community Council*		Not requested by the community		December 6 <sup>th</sup> at 4:00 pm	13	- Trappers Compensation Policy - Employment Opportunities - Access	3C-24

**Table 3.4-1: Summary of In Vicinity Community Engagement Activities (cont'd)**

Community	Leadership Meetings	Leadership Meeting Date	Community Open House	Community Open House Date	Community Open House Attendance (if Applicable)	Topics Discussed (general summary)	Appendix 3C – Page Number
Wuskwi Sipihk First Nation		December 10 <sup>th</sup> at 11:00am		January 23 <sup>rd</sup> at 3:00pm	Pending***	<ul style="list-style-type: none"> <li>- Resource Use</li> <li>- Wildlife</li> <li>- Vegetation Management</li> <li>- Process</li> <li>- Employment Opportunities</li> </ul>	3C-10

\* Indicates community open house was held in conjunction with other communities. No leadership meeting requested by representatives – community open house only as primary venue of engagement.

\*\*Herb Lake Landing is a small community and it was noted by the community representative that the community open houses would be sufficient and that no leadership meeting would be needed.

\*\*\*At the time of report creation – Wuskwi Sipihk First Nation's community open house had been scheduled yet not yet undertaken.

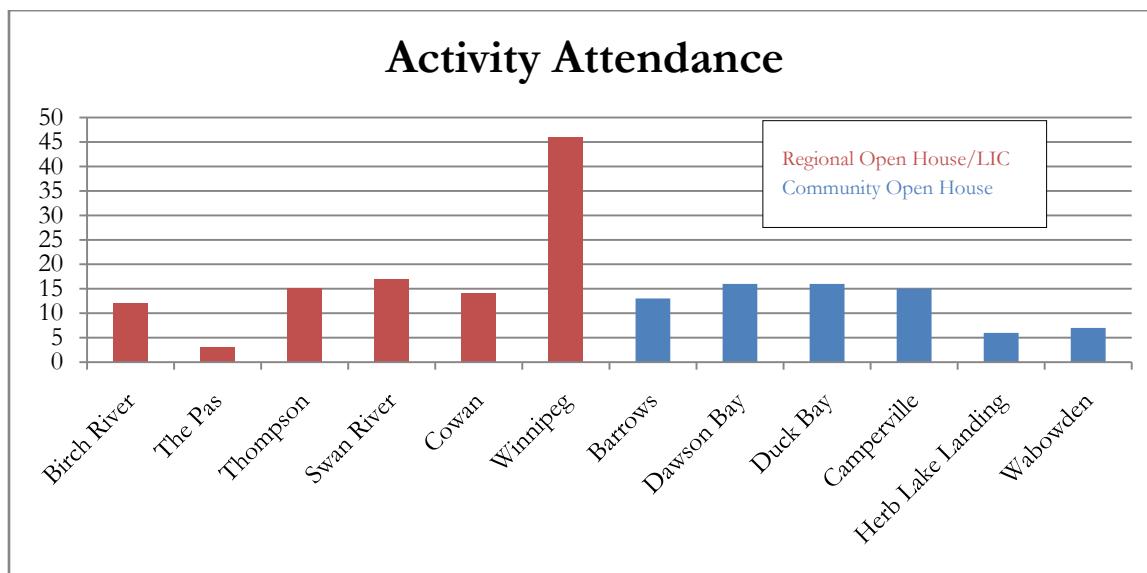
## 3.5 ENGAGEMENT PROCESS FEEDBACK

### 3.5.1 Overview

The following section outlines the common concerns and feedback provided by EACP participants. Topics are summarized, and specific local concerns are provided, for each route adjustment. Some commentary provided is applicable across all route adjustments and is discussed in Section 3.5.4. Collected data is provided as Appendix 3C (Meeting Notes) and Appendix 3E (Feedback Log).

### 3.5.2 Attendance

As outlined in Section 3.2, Manitoba Hydro used a variety of notification methods to inform landowners, stakeholders, First Nations, the MMF, NACs and the general public regarding Project activities. Figure 3.5-1 details the attendance, by location, at LICs , and regional and community open houses. In total, 180 individuals signed into 11 venues. Comment sheets were collected from EACP participants and concerns were documented. In total, 27 comment sheets and 8 LIC forms were received. Feedback received by comment sheets, LIC forms, discussions with attendees, and Project meetings are discussed in the following sections.



**Figure 3.5-1: Attendance, by Location, at Landowner Information Centres, Regional and Community Open Houses**

### **3.5.3 Feedback and Responses**

The following sections outline the topics which were discussed regarding each route adjustment. Certain topics /discussions are localized whereas others are reflective of the entire Bipole III Project. Concerns varied from location and are summarized based on the commentary provided. Some route adjustments received more feedback than others and participants provided more detail of their concerns in discussions as well as mapping. This is reflected in the feedback and responses found below. Topics which encompass concerns regarding the entire project are summarized in Section 3.5.4. Data collected is provided in Appendix 3C (Meeting Summaries) and Appendix 3E (Feedback Log).

Each of the three route adjustments will be reviewed using the following categories;

- General summary of concerns/comments raised (based on topics by area);
- Participant Mapping; and
- Route Preference (comment sheet responses).

#### **3.5.3.1 Wabowden**

##### **Concerns and Comments**

Based on comment sheets returned, and discussions between EACP participants and Manitoba Hydro representatives, the predominant concerns regarding the route adjustment in the Wabowden area relate to access, noise and trapping. All participants that submitted a comment sheet (a total of eight) noted that the route adjustment in the area was preferred over the FPR because it follows existing linear infrastructure and minimizes new access into areas previously undisturbed.

Concerns were raised regarding access by snowmobilers using existing rights-of-way in the area. A number of community members expressed concern that the Bipole III right-of-way would be used as a snowmobile route and increase snowmobile access into the area.

Many noted that having the AFPR following existing infrastructure would limit new access into undisturbed areas. It was also noted that the route adjustment was shorter and placed in a better location than the FPR.

There was a discussion at the Wabowden leadership meeting regarding the role the mining industry had played in routing decisions in the vicinity of their community.

A landowner at Ponton contacted the Project information line and noted that they would like to provide services such as lodging, a small storage/staging area, an area for

campers in the summer, and to provide gas for the project during construction. They noted they had a 50,000 litre gas/diesel tank (which could be moved) for use.

No opposition and little commentary was provided by EACP participants on the route adjustment in the Wabowden area.

### **EACP Participant Mapping - Wabowden**

No EACP participants provided mapping comments for this route adjustment.

### **Wabowden Route Preference (Comment Sheet Responses)**

EACP participants noted a preference for the AFPR in this area. Eight comment sheets, which indicated a route preference, noted a preference for the AFPR because the route follows existing infrastructure and limits access into previously undisturbed areas.

#### **3.5.3.2 GHA 14 (Moose Meadows)**

##### **Concerns and Comments**

Based on comment sheets returned, and discussions between participants and Manitoba Hydro representatives, the predominant concerns for this route adjustment are focused on access, wildlife, vegetation management and treaty land entitlement concerns. Seven of ten completed comment sheets for the area indicated a preference for the route adjustment. The concerns and feedback received regarding this adjustment are discussed below.

##### **Wildlife**

Commentary provided by EACP participants indicated that moose populations were not frequently observed in the area around the FPR. Although, one member of the Moose Committee noted there may be a calving area in the vicinity of the FPR.

A participant noted that moose migration in the area is dependent on the amount of snow in areas and may not have been properly understood by wildlife specialists. It was also noted that the variability of topography in the area may not be adequately represented in the moose habitat analysis undertaken for the Project.

Some participants noted they believed more moose were located along the route adjustment than in the vicinity of the FPR.

Some EACP participants noted a belief that in the Moose Meadows area, marten populations were high and moose populations were low.

## Access

Some EACP participants noted that the route in this area may have both potential positive and potential negative effects on access. A municipal council member noted that the route adjustment in this area would likely create additional access, and questioned the validity of the concern. Manitoba Hydro representatives noted that Manitoba Conservation and Water Stewardship had raised the concern regarding access and moose habitat and had directed Manitoba Hydro to assess an alternative option through the area.

Many attendees at the community open house in Barrows mentioned that the Bipole III Project would increase access into the area for hunting and snowmobiling. Some people saw this as a benefit and others were concerned regarding this potential increase in use.

Some EACP participants noted two access points into the GHA 14 (Moose Meadows) area. One is an old road to access Sapotaweyak Cree Nation, and the other access point is the abandoned winter road to the original German prisoner of war camp located east of the proposed route adjustment. It was suggested that these access points could be used during winter months but would be very difficult to use during non-frozen periods.

## Treaty Land Entitlement

The community of Wuskwi Sipihk First Nation noted in a leadership meeting that they felt that the Project would limit their ability to implement their Treaty Land Entitlement Agreement. Currently, Wuskwi Sipihk First Nation is reviewing the land Bipole III will traverse and how it may affect the community's TLE selection.

## Land Use

Some private land owners were concerned about the route adjustment. A landowner (north of Mafeking) did not want the route to traverse their property and remove trees as they use the site for hunting purposes. The landowner was also concerned with the potential for increased access due to the route adjustment. The landowner noted a preference for the adjusted route near Bellsite, but noted the adjusted route should be located a half mile east to avoid the property.

Another private landowner indicated a preference for the FPR as they did not like the placement of the adjusted route in relation to their landholding and the adjacent parcel. The landowner noted that if the adjusted route were to be accepted and pursued they would prefer the line to be located on the  $\frac{1}{2}$  mile line as opposed to offset east.

Protected Areas Initiative (PAI) noted a concern regarding the proximity of the right-of-way to the boundary of the Bell and Steeprock Canyons Protected Area located northwest of Bellsite. PAI requested that the current buffer of 20 metres (based on their

measurements) between the edge of the right-of-way and the edge of the Protected Area be extended to 100 metres. If the buffer of 100 metres is in place there is no concern from PAI regarding the adjustment.

### Vegetation Management

It was noted by some participants that there should be no use of herbicides along the right-of-way. Manitoba Hydro representatives noted to participants that environmentally sensitive sites such as community berry patches would be avoided. Herbicide use would be localized and all permits would be acquired from the Province to undertake these activities.

### Construction

A landowner in the Municipality of Mountain as well as the Rural Municipality of Mountain stated that they would be willing to provide staging areas during the construction phase in the Cowan and North Mountain area.

## **EACP Participant Mapping – GHA 14 (Moose Meadows)**

Participants at the Swan River and Birch River regional open houses provided input on the maps that were provided at the open house.

Mapping concerns noted in the area were related to routing and wildlife. A landowner would like to see the FPR pursued in this area as it would not traverse close to his landholding. This landowner noted that if the AFPR is to be deemed preferred they would like the line routed on the ½ mile line as opposed to offset east.

A participant noted an area along the AFPR north of Bellsite as a moose travel corridor.

Summary of the mapping and digitization of map commentary is provided as Appendix 3F and the associated mapping is provided in Appendix 3F.

## **GHA 14 (Moose Meadows) Route Preference (Comment Sheet Responses)**

A total of 27 comment sheets and 8 LIC forms were submitted throughout the EACP. Ten comment sheets indicated a route preference for the GHA 14 (Moose Meadows) area. Seven of the ten comment sheets that provided commentary believed that the route adjustment should be pursued whereas three indicated that the new route interferes with their private land holdings, and would prefer to see the original FPR be pursued. Reasons shared by some participants regarding the preference for the route adjustment were as follows:

- It would be positive for hunting and would limit new access to the area;

- The AFPR avoids moose habitat;
- It would minimize impact on vegetation, wetlands and wildlife; and
- It would provide Manitoba Hydro better access for operation and maintenance.

The reasons shared by participants as to why the route adjustment should *not* be pursued were:

- The area in question is already frequently hunted;
- The right-of-way would increase access to the area;
- It was noted by some participants that the original FPR would have affected less wildlife than the proposed adjustment;
- Agricultural concerns;
- Private land access and the increase in access potentially associated with clearing;
- Aesthetic concerns for those within close proximity to the right-of-way; and
- The potential for construction noise.

### **3.5.3.3 GHA 19A and14A**

#### **Comments and Concerns**

Based on comment sheets returned and discussions between participants and Manitoba Hydro representatives, the predominant concerns raised for this route adjustment were focused on access, wildlife, heritage, vegetation management and resource use concerns. Eight out of twelve completed comment sheets for the area indicated a preference for the route adjustment (AFPR). The concerns and feedback received regarding this adjustment are discussed below.

#### **Resource Use**

Berry gathering in the GHA19A/14A area was mentioned by numerous participants throughout the EACP. It was noted that this area is the “Berry Capital” and that many communities in the region use this area to generate income. It was noted that the berries contribute to many individuals’ livelihoods.

Conflicting information was received from a variety of participants – as it was noted that the adjusted route in the area may increase, or decrease, the effect on the berry picking area predominantly east of Briggs Spur. Kettle Hills was also noted by many as a berry picking location in the area.

Some individuals expressed concern that the route would increase hunting pressures on moose in the area as the clearing would provide easier access to hunting.

There was much discussion in relation to the FPR and AFPR regarding the bison ranch located south of PTH 20. Many believe this ranch has hindered their ability to trap and hunt in the area as the bison ranch has been fenced off.

### **Heritage**

EACP participants noted that the old beach ridges of Lake Agassiz are a location of high heritage value. An attendee noted that during a fire in 1961 many artifacts, such as arrowheads, were found along the beach ridges. Both routes in the GHA19 area will be in proximity to, and traverse, this area located east of Briggs Spur.

An attendee noted that there are likely numerous heritage sites around the community of Pine River located at the junction of the two routes presented.

### **Vegetation Management**

There was concern by communities and stakeholders in the area that herbicide use along the right-of-way would negatively impact berries in the area. Participants noted that they do not want any use of herbicides in this area. Manitoba Hydro noted to participants and leadership that the use of herbicide is localized and that application must be done through permitting undertaken with the Province.

Manitoba Hydro noted that in Environmentally Sensitive Site areas, where berries are of concern, vegetation management practices will be adjusted to limit any potential impact on the berries in the area.

Some EACP participants noted that many streams and rivers in the area are viewed as contaminated and that they did not want herbicides to enter waterways. One attendee noted that the Drake River is one of the few remaining pristine streams in the area and wanted Manitoba Hydro to be aware during construction and operation. This stream is located north of the proposed route adjustment and is not traversed by Bipole III on either of the routes presented.

Line of sight was discussed with regard to how high Manitoba Hydro can allow trees to grow underneath the transmission line. Many did not want the line of site to be too great as it would further increase hunting pressures in the area. It was noted that the number of stream crossings and related riparian buffer areas will reduce line of sight.

### **Access**

Some landowners noted that the access created north of PTH 20 on the adjusted route would be detrimental to moose populations as it would increase access by snowmobilers

and hunters. It was noted that the FPR is better situated on the private land holdings east of Cowan as there would be no direct access to the right-of-way off PTH 20.

### Wildlife

Many participants noted that there are very few, if any, moose in the vicinity of the FPR south of PTH 20. Many noted that the area was perfect for moose hunting 20 years ago but the population has been declining and hunting in the area has decreased. Some stated that the moose population in the area would not recover, and others suggested that the population of moose is cyclical and will one day return to the area.

Moose habitat was discussed and some participants noted that the AFPR is likely to cut through better moose habitat north of PTH 20. One individual stated that the adjusted route would not enhance moose recovery in the area. In relation to moose, many suggested the FPR would be preferred, north of PTH 20, as it only skirts the better moose habitat found in the area.

Individuals noted that current effects on moose are substantial and indicated a belief that logging in the area has played a role in the decrease of the moose populations.

### Construction

A landowner in the Municipality of Mountain, as well as the Rural Municipality of Mountain, stated that they would be willing to provide staging areas during the construction phase in the Cowan area.

## **EACP Participant Mapping – GHA 19A/14A**

Participants at the Cowan and Swan River regional open houses provided input on the maps provided at the open house.

The map commentary provided denotes two routing modifications which were provided by a First Nation and landowners. These suggestions utilize portions of the routes presented but have sections which are outside of the area being/have been assessed for the route adjustments in the area.

Moose habitat was marked on maps and noted that the section north of PTH 20 would be better situated on the FPR as there is less “good moose habitat” as compared to the AFPR.

Access was noted by participants through mapping as there was concern of the AFPR and the intersection at PTH 20. Participant noted that there would be increased access at the junction as well as a clear line of sight from the highway. The participant noted that the FPR traversing private landholdings would limit this perceived increase in traffic.

Another participant noted that the area south of PTH 20 along the FPR is accessible by car.

A participant noted areas where there was substantial berry picking, as well as the location of Bog Orchids and Showy Lady Slipper east of Briggs Spur.

A participant noted a likelihood of high heritage value in the area east of Briggs Spur and noted that numerous artifacts were found following a forest fire in 1961.

### **GHA 19A/14A Route Preference (Comment Sheet Responses)**

A total of 27 comment sheets and 8 LIC forms were submitted throughout the EACP. Twelve comment sheets indicated a route preference for the GHA 19A/ 14A area, and eight of the twelve comment sheets indicated a preference for the route adjustment. In this regard, the adjusted route was preferred for the following reasons:

- The line would be further away from existing homesteads; and
- The route would provide better terrain for construction.

For the four comment sheets which noted that the adjusted route should *not* be pursued the following reasons were provided:

- The route will not enhance natural habitat for moose recovery;
- The route will increase access into the Swan Pelican Forest Reserve (whereas little access existed off of PTH 20); and
- The route was longer than the FPR presented.

#### **3.5.4 General Project Concerns and Discussions**

There are topics which were raised in each route adjustment and EACP activity. The commentary below outlines topics which can be attributable to the entire Project area. The EACP provided participants with information on the entire Project, and discussions were not always focused on the three route adjustments being presented.

##### **Community Development Initiative (CDI)**

Many participants expressed an interest in the Community Development Initiative and what future benefits it may bring to their community.

## **East Side**

Location of Bipole III on the east side of Lake Winnipeg was raised by EACP participants. It was noted by Manitoba Hydro representatives that this was not part of the scope of these events, and that Manitoba Hydro is routing a transmission line along a western corridor, while minimizing impacts on people and their environment.

## **Landowner and Trapper Compensation**

Landowner and Trapper Compensation were discussed throughout the EACP undertaken for the route adjustments. Trapping concerns and policy information was a common theme amongst the EACP activities.

Many questioned the Trappers Notification/ Compensation policy and how it would apply in Community Registered Traplines (GHA 14 [Moose Meadows] and Open Trapping Zones (GHA19A/14A). It was noted by a number of participants that many individuals were getting trapper licences in hopes of receiving compensation with the policy being offered for Bipole III. Manitoba Hydro noted it would work with local fur councils in the areas where this occurs. There was interest in how the Trappers Compensation Policy would be provided in areas where the Project traverses Youth Registered Traplines. The Bipole III route traverses a trapping area which is used for educating youth in the Thicket Portage area which is outside of the route adjustments being considered. Manitoba Hydro will work with the Local Fur Councils in the Registered Trapline zones where this occurs.

Some landowners were interested in meeting with property agents to further discuss easement compensation. A landowner noted that he would not sign an easement until annual payments were being offered. This landowner was provided further information on the subject and referred to the transcripts from the Clean Environment Commission hearings.

## **Construction/Clearing**

Many participants were interested in the construction process for a transmission line of this magnitude. Foundations, erection and stringing were all discussed with participants and many found that the construction slideshow provided at open houses provided answers to their questions.

## **Economic, Training and Employment Opportunities**

Throughout all meetings and open houses there was interest by community leadership and members as to whether there would be economic benefits for the community. It was noted to participants that construction crews would be in areas for short periods of time but may see a short increase in use of services such as gas, lodging and food.

Concern was noted regarding direct negotiation of contracts with First Nations, and it was noted that some Northern Affairs Communities are not given the opportunity to provide services, camp facilities or labour. Many questioned the availability of training and capacity building for community members. Some communities requested additional information regarding the environment monitors and monitoring work that would be available through the construction and operation phases of the Project.

### **Electric and Magnetic Fields (EMF)**

Concern was raised regarding potential effects from electric and magnetic fields. Participants questioned proximity to homes, potential effects on cattle and horses, as well as any studies undertaken on effects on berries. Participants were provided with the EMF brochures developed for the Project and were informed that no scientific studies have shown negative effects on animal health or vegetation from direct current EMF.

### **Noise**

It was noted by some participants that the noise generated from construction and new access by snowmobilers may displace some of the wildlife in the vicinity of the Bipole III facilities, and subsequently hinder trapping success in the vicinity. It was noted that the Trappers Compensation Policy has taken into account past production and has allocated a disturbance allowance timeframe.

Some participants questioned aspects of noise generated by direct current transmission lines. It was noted that noise produced from direct current lines was documented in the EIS and studies were conducted by an external consulting firm.

### **Outfitting**

Manitoba Hydro notified outfitters by direct mailing as indicated in Section 3.0 – Direct Mailing. Two outfitters have been in contact with Manitoba Hydro representatives by phone, mail and email. Following discussions with the outfitters, Manitoba Hydro representatives met with the outfitters at the Winnipeg Open House. Discussions were predominantly focused on the clearing of the area, construction activities and increased access into areas (such as bait sites which have taken years to establish). Manitoba Hydro will continue to discuss these concerns with potentially affected outfitters, as well as mitigation measures to minimize any potential negative effects. It should be noted that the outfitters are not in the vicinity of any of the route adjustments (AFPRs), but are in the vicinity of the Bipole III facilities at other locations along the FPR.

### **3.5.5 Route Modification Suggestions**

As provided in the previous sections, five route modifications/ suggestions were provided throughout the EACP to minimize potential impacts. These modifications/ suggestions were provided to Manitoba Hydro through discussions and through mapping undertaken by participants. These were provided by members of the public, a government agency and a First Nation.

1. Protected Areas Initiative (PAI) requested an adjustment in the GHA 14 (Moose Meadows) area. PAI is concerned about the proximity of Bipole III to the Bell-Steeprock Canyon Protected Area northwest of Bellsite in the RM of Mountain. PAI noted that if the project were to proceed with the adjusted route that the edge of the right-of-way for Bipole III needs to be 100 metres from the boundary of the Bell-Steeprock Canyons Protected Area to create a buffer between the two. Currently, the adjustment is located 20 metres (based on their measurement) from the eastern boundary. If the buffer of 100 metres is in place there is no concern from PAI regarding the adjustment.
  - a. Manitoba Hydro is agreeable to having the 100m buffer in place if the AFPR is pursued.
2. A landowner north of Mafeking (GHA 14 [Moose Meadows]) noted that he would prefer the line not to traverse his privately owned property as he does not wish the treed area to be removed from the property and increase potential access onto the land. The landowner noted that he was supportive of the route in proximity of Bellsite, but would like to see the route moved a half mile east, north of Mafeking, to avoid his landholding.
  - a. Currently, Manitoba Hydro has noted this modification and will review pending the outcomes of the environmental assessment as well as the Clean Environment Commission Hearings.
3. A landowner north of Mafeking (GHA 14 [Moose Meadows]) noted that they would prefer to see the line follow the FPR as it avoided the landholding. The landowner noted that if the adjustment were to be pursued the line should be located directly on the half mile line and not offset east.
  - a. Currently, Manitoba Hydro has noted this modification and will review pending the outcomes of the environmental assessment as well as the Clean Environment Commission Hearings.
4. Landowners in the Cowan area (GHA 19A/14A) noted that the route should follow the FPR from the northwest until just south of PTH 20. At this point the landowners suggested the line travel east bound along PTH 20 and connect to the

adjusted route located south of the PTH 20 crossing. The landowners believed this would minimize access into the Swan Pelican Reserve, and would limit the amount of good moose habitat being opened to hunting pressures. These landowners noted that the FPR traversed habitat which was not conducive to enhancing moose recovery in the area.

- a. This adjustment falls outside of the area surrounding the route under review. Currently, Manitoba Hydro has noted this modification and will review pending the outcomes of the regulatory process.

5. Members of Pine Creek First Nation presented a route adjustment to Manitoba Hydro representatives at the Cowan regional open house, as well as a meeting held with Manitoba Hydro representatives. This adjustment would follow the adjusted route north of PTH 20, and then would travel east to an unused road allowance closer to the community of Camperville. This adjustment was suggested by the leadership to avoid Bipole III crossing the bison ranch which exists on Crown lease lands south of PTH 20.
  - a. This adjustment falls outside of the area surrounding the route under review. Currently, Manitoba Hydro has noted this modification and will review pending the outcomes of the regulatory process.

Route suggestions 3, 4 and 5 are documented in Table 3F1-1. and Table 3F1.1-1 and mapping is provided in Appendix 3F.

### **3.5.6 Future Follow-Up Requirements**

Manitoba Hydro will undertake the following activities as the regulatory review process continues (including the post-licensing period if a licence is granted for the Project).

1. Manitoba Hydro will continue to meet with communities who were unable to schedule community open houses or leadership meetings to ensure that Project information can still be shared with local community members. Feedback received will be incorporated into the Environmental Protection Plans being developed for the Project.
2. Manitoba Hydro will continue to engage with communities regarding the Environmental Protection Plans and incorporate their feedback into further mitigation measures.
3. Manitoba Hydro is in process of notifying landowners along the routing adjustments to thank them for their participation or to provide contact

information to answer questions if they were unable to attend any EACP activities undertaken.

4. Manitoba Transmission Line Construction will arrange a meeting with Wabowden Community Council to discuss possible economic and training opportunities which could be generated from the Project (meeting notes provided as Appendix 3C – Wabowden Leadership Meeting).
5. Manitoba Hydro will arrange a meeting with the Camperville Duck Fur Council to discuss compensation and trapping concerns in the vicinity of the Bipole III facilities (meeting notes provided as Appendix 3C – Camperville Community Open Houses summary).
6. Manitoba Hydro will notify landowners of the outcome of the regulatory review process, as well as route determination in the three areas where the adjustments have been presented.
7. Manitoba Hydro will continue to operate the Bipole III Project Information Line and the Project email address to respond to questions or concerns related to the Project.

## **3.6 SUMMARY**

The EACP utilized a variety of notification methods and had 180 individuals participate in EACP public activities and held a variety of meetings with community leadership, stakeholder groups and other interested parties in order to obtain feedback on the route adjustments.

Feedback and concerns raised by EACP participants, as well as site specific information, was provided to discipline specialists in order to inform their independent assessment of the route adjustments.

The EACP achieved the goals as outlined in Section 3.1 of the document. Manitoba Hydro provided Project information as it became available, obtained feedback, integrated concerns and issues into the assessment process and discussed appropriate mitigation measures with interested parties.

As outlined in the chapter, Manitoba Hydro will continue engaging with interested parties and keep them informed of Project related information as it becomes available.

## **APPENDIX 3A**

## **Notification Letters**



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1  
Telephone / N° de téléphone : (204) 360-3016 • Fax / N° de télécopieur : (204) 360-6176  
[pmcgarry@hydro.mb.ca](mailto:pmcgarry@hydro.mb.ca)

---

November 14<sup>th</sup>, 2012

[Title] [Name]  
[Organization]  
[Address 1]  
[Town], [Postal Code]

Dear [Title] [Name]:

**Re: Bipole III Transmission Project –Final Preferred Route Adjustments**

Manitoba Hydro would like to advise your community that sections of the Final Preferred Route for the Bipole III transmission line are being considered for adjustment in three areas. At the direction of Manitoba Conservation and Water Stewardship, specific route segments are being assessed to address issues related to moose and woodland caribou. Maps showing the location of the route adjustments are enclosed.

Manitoba Hydro would like to meet directly with your community to discuss these proposed route adjustments. A member of the Licensing and Environmental Assessment Department within Manitoba Hydro will be in contact by phone in the near future to arrange a meeting. Manitoba Hydro is interested in holding an open house within your community if this would be helpful to facilitate information sharing related to the route adjustments.

If you are interested and in addition to discussions with your community we are conducting Regional Open Houses for the general public which are listed on the attached sheet.

The Clean Environment Commission is currently conducting a public hearing on Manitoba Hydro's Bipole III Transmission Project Environmental Impact Statement as part of the review and licensing process under Manitoba's *Environment Act*. A licensing recommendation will not be made on the Project until the completion of the hearings. The Clean Environment Commission will provide recommendations to the Minister of Conservation and Water Stewardship regarding licensing of the Project.

Currently, the public hearings will adjourn November 22<sup>nd</sup>, 2012 to allow for a supplemental environmental assessment to be conducted on the three route adjustments. Following submission of the supplemental environmental assessment report on January 28<sup>th</sup>, 2013, the public hearings will resume in March 2013. Members of the public are encouraged to participate in the CEC review process through written submissions or presentations to the Commission. Further information on the CEC hearing process can be found at [www.cecmanitoba.ca](http://www.cecmanitoba.ca).

As per the above, a Manitoba Hydro representative will be contacting your community to make arrangements to meet. However, in the meantime, if you have any questions about this letter or the proposed route adjustments please contact Lindsay Thompson at (204) 360-4632.

Additionally, further project information can be found on our website at [www.hydro.mb.ca](http://www.hydro.mb.ca)

Sincerely,



Patrick McGarry  
Senior Environmental Assessment Officer  
Licensing & Environmental Assessment Department  
Transmission Planning & Design Division

Map(s) enclosed: Route Adjustment Maps (3)  
Adjusted Final Preferred Route Map



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1  
Telephone / N° de téléphone : (204) 360-3016 • Fax / N° de télécopieur : (204) 360-6176  
pmcgarry@hydro.mb.ca

---

November 14<sup>th</sup>, 2012

[Title] [Name]  
[Organization]  
[Address 1]  
[Town], [Postal Code]

Dear [Title] [Name]:

**Re: Bipole III Transmission Project –Final Preferred Route Adjustments**

Manitoba Hydro would like to advise you that sections of the Final Preferred Route for the Bipole III transmission line are being considered for adjustment in three areas. At the direction of Manitoba Conservation and Water Stewardship, specific route segment adjustments are being assessed to address issues related to moose and woodland caribou. Maps showing the location of the route adjustments are enclosed.

Manitoba Hydro is interested in any comments or concerns your community may have on the route adjustments. If you would like further information or would like to schedule a meeting with Manitoba Hydro to discuss these route adjustments please contact Lindsay Thompson at (204) 360-4632.

The Clean Environment Commission is currently conducting a public hearing on Manitoba Hydro's Bipole III Transmission Project Environmental Impact Statement as part of the review and licensing process under Manitoba's *Environment Act*. A licensing decision will not be made on the Project until the completion of the hearings. The Clean Environment Commission will provide recommendations to the Minister of Conservation and Water Stewardship regarding licensing of the Project.

The public hearing will adjourn November 22<sup>nd</sup>, 2012 to allow for a supplemental environmental assessment to be conducted on the route adjustments as indicated in the attached maps. Following submission of the supplemental environmental assessment report on January 28<sup>th</sup>, 2013, the public hearing will resume in March 2013. Members of the public are encouraged to participate in the CEC review process through written submissions or presentations to the Commission. Further information on the CEC hearing process can be found at [www.cecmanitoba.ca](http://www.cecmanitoba.ca).

For your information, we are also conducting Open Houses to discuss the route adjustments with the general public. Locations and dates are listed on the enclosed sheet.

Further project information can also be found on our website at [www.hydro.mb.ca](http://www.hydro.mb.ca)

Sincerely,



Patrick McGarry  
Senior Environmental Assessment Officer  
Licensing & Environmental Assessment Department  
Transmission Planning & Design Division

Map(s) enclosed: Route Adjustment Maps (3)  
Adjusted Final Preferred Route Map



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1  
Telephone / N° de téléphone : (204) 360-3016 • Fax / N° de télécopieur : (204) 360-6176  
[pmcgarry@hydro.mb.ca](mailto:pmcgarry@hydro.mb.ca)

---

November 14<sup>th</sup>, 2012

[Title] [Name]  
[Organization]  
[Address 1]  
[Town], [Postal Code]

Dear [Title] [Name]:

**Re: Bipole III Transmission Project –Final Preferred Route Adjustments**

Manitoba Hydro would like to advise you that sections of the Final Preferred Route for the Bipole III transmission line are being considered for adjustment in three areas. At the direction of Manitoba Conservation and Water Stewardship, specific route segment adjustments are being assessed to address issues related to moose and woodland caribou. Maps showing the location of the route adjustments are enclosed.

The Clean Environment Commission is currently conducting a public hearing on Manitoba Hydro's Bipole III Transmission Project Environmental Impact Statement as part of the review and licensing process under Manitoba's *Environment Act*. A licensing recommendation will not be made on the Project until the completion of the hearing. The Clean Environment Commission will provide recommendations to the Minister of Conservation and Water Stewardship regarding licensing of the Project.

The public hearing will adjourn November 22<sup>nd</sup>, 2012 to allow for a supplemental environmental assessment to be conducted on the route adjustments as indicated in the attached maps. Following submission of the supplemental environmental assessment report on January 28<sup>th</sup>, 2013, the public hearing will resume in March 2013. Members of the public are encouraged to participate in the CEC review process through written submissions or presentations to the Commission. Further information on the CEC hearing process can be found at [www.cecmanitoba.ca](http://www.cecmanitoba.ca).

For your information, we are also conducting Open Houses to discuss the route adjustments with the general public. Locations and dates are listed on the enclosed sheet.

If you require further information or would like to discuss these route adjustments please contact Lindsay Thompson at (204) 360-4632.

Further project information can also be found on our website at [www.hydro.mb.ca](http://www.hydro.mb.ca)

Sincerely,



Patrick McGarry  
Senior Environmental Assessment Officer  
Licensing & Environmental Assessment Department  
Transmission Planning & Design Division

Map(s) enclosed: Route Adjustment Maps (3)  
Adjusted Final Preferred Route Map



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1  
Telephone / N° de téléphone : 1-877-343-1631 • Fax / N° de télécopieur : (204) 360-6176  
[bipole3@hydro.mb.ca](mailto:bipole3@hydro.mb.ca)

---

November 14<sup>th</sup>, 2012

[Title] [Name]  
[Organization]  
[Address 1]  
[Town], [Postal Code]

Dear [Title] [Name]:

**Re: Bipole III Transmission Project –Final Preferred Route Adjustments**

Manitoba Hydro would like to advise you that sections of the Final Preferred Route for the Bipole III transmission line are being considered for adjustment in three areas. At the direction of Manitoba Conservation and Water Stewardship, specific route segment adjustments are being assessed to address issues related to moose and woodland caribou. Maps showing the location of the route adjustments are enclosed. We have determined that one of these route revisions will cross property you own or manage. Maps showing the location of the route changes are enclosed.

Manitoba Hydro invites you to attend a drop-in Landowner Information Centre or Regional Open House to discuss your affected landholdings one-on-one with a Manitoba Hydro representative. You are welcome to attend any location listed on the attached sheet.

The Clean Environment Commission is currently conducting a public hearing on Manitoba Hydro's Bipole III Transmission Project Environmental Impact Statement as part of the review and licensing process under Manitoba's *Environment Act*. A licensing decision will not be made on the Project until the completion of the hearing. The Clean Environment Commission will provide recommendations to the Minister of Conservation and Water Stewardship regarding licensing of the Project.

The public hearing will adjourn November 22<sup>nd</sup>, 2012 to allow for a supplemental environmental assessment to be conducted on the three route adjustments. Following submission of the supplemental environmental assessment report on January 28<sup>th</sup>, 2013, the public hearing will resume in March 2013. Members of the public are encouraged to participate in the CEC review process through written submissions or presentations to the Commission. Further information on the CEC hearing process can be found at [www.cecmanitoba.ca](http://www.cecmanitoba.ca).

If you are unable to attend a Landowner Information Centre or Regional open house, but wish to comment or discuss your concerns, please contact us toll free at 1-877-343-1631 or by email at [bipole3@hydro.mb.ca](mailto:bipole3@hydro.mb.ca).

I look forward to your comments and input into the assessment of these route adjustments.

Sincerely,



Patrick McGarry  
Senior Environmental Assessment Officer  
Licensing & Environmental Assessment Department  
Transmission Planning & Design Division

Map(s) enclosed: [Map Number]  
Final Preferred Route Map Index



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1  
Telephone / N° de téléphone : 1-877-343-1631 • Fax / N° de télécopieur : (204) 360-6176  
[bipole3@hydro.mb.ca](mailto:bipole3@hydro.mb.ca)

---

November 14<sup>th</sup>, 2012

[Title] [Name]  
[Organization]  
[Address 1]  
[Town], [Postal Code]

Dear [Title] [Name]:

**Re: Bipole III Transmission Project –Final Preferred Route Adjustments**

Manitoba Hydro would like to advise you that sections of the Final Preferred Route for the Bipole III transmission line are being considered for adjustment in three areas. At the direction of Manitoba Conservation and Water Stewardship, specific route segment adjustments are being assessed to address issues related to moose and woodland caribou. Maps showing the location of the route adjustments are enclosed. We have determined that one of these route revisions will no longer affect property you own or manage that you were previously notified about in November 2011. Maps showing the location of the route adjustments are enclosed.

Manitoba Hydro invites you to attend a drop-in Landowner Information Centre or Regional Open House to discuss your landholdings one-on-one with a Manitoba Hydro representative. You are welcome to attend any location listed on the attached sheet.

The Clean Environment Commission is currently conducting a public hearing on Manitoba Hydro's Bipole III Transmission Project Environmental Impact Statement as part of the review and licensing process under Manitoba's *Environment Act*. A licensing recommendation will not be made on the Project until the completion of the hearing. The Clean Environment Commission will provide recommendations to the Minister of Conservation and Water Stewardship regarding licensing of the Project.

The public hearing will adjourn November 22<sup>nd</sup>, 2012 to allow for a supplemental environmental assessment to be conducted on the route adjustments. Following submission of the supplemental environmental assessment report on January 28<sup>th</sup>, 2013, the public hearing will resume in March 2013. Members of the public are encouraged to participate in the CEC review process through written submissions or presentations to the Commission. Further information on the CEC hearing process can be found at [www.cecmanitoba.ca](http://www.cecmanitoba.ca).

If you are unable to attend a Landowner Information Centre or Regional open house, but wish to comment or discuss your concerns, please contact us toll free at 1-877-343-1631 or by email at [bipole3@hydro.mb.ca](mailto:bipole3@hydro.mb.ca).

I look forward to your comments and input into the assessment of these route changes.

Sincerely,



Patrick McGarry  
Senior Environmental Assessment Officer  
Licensing & Environmental Assessment Department  
Transmission Planning & Design Division

Map(s) enclosed: [Map Number]  
Final Preferred Route Map Index



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1  
Telephone / N° de téléphone : 1-877-343-1631 • Fax / N° de télécopieur : (204) 360-6176  
[bipole3@hydro.mb.ca](mailto:bipole3@hydro.mb.ca)

---

November 14<sup>th</sup>, 2012

[Title] [Name]  
[Organization]  
[Address 1]  
[Town], [Postal Code]

Dear [Title] [Name]:

**Re: Bipole III Transmission Project –Final Preferred Route Adjustments**

Manitoba Hydro would like to advise you that sections of the Final Preferred Route for the Bipole III transmission line are being considered for adjustment in three areas. At the direction of Manitoba Conservation and Water Stewardship, specific route adjustments are being assessed to address issues related to moose and woodland caribou. Maps showing the location of the route adjustments are enclosed.

The Clean Environment Commission is currently conducting a public hearing on Manitoba Hydro's Bipole III Transmission Project Environmental Impact Statement as part of the review and licensing process under Manitoba's *Environment Act*. A licensing recommendation will not be made on the Project until the completion of the hearing. The Clean Environment Commission will provide recommendations to the Minister of Conservation and Water Stewardship regarding licensing of the Project.

The public hearing will adjourn November 22<sup>nd</sup>, 2012 to allow for a supplemental environmental assessment to be conducted on the route adjustments as indicated in the attached maps. Following submission of the supplemental environmental assessment report on January 28<sup>th</sup>, 2013, the public hearing will resume in March 2013. Members of the public are encouraged to participate in the CEC review process through written submissions or presentations to the Commission. Further information on the CEC hearing process can be found at [www.cecmanitoba.ca](http://www.cecmanitoba.ca).

Manitoba Hydro would like to meet with you or your organization to discuss the route adjustments. A Manitoba Hydro representative will be in contact with you in the near future to arrange a meeting.

In addition, Regional Open Houses will be held at the locations listed on the attached sheet for interested public to provide comments and discuss their concerns on these route adjustments with Manitoba Hydro representatives.

Further project information can be found on our website at [www.hydro.mb.ca](http://www.hydro.mb.ca).

I look forward to your comments and input into the assessment of these route changes.

Sincerely,



Patrick McGarry  
Senior Environmental Assessment Officer  
Licensing & Environmental Assessment Department  
Transmission Planning & Design Division

Map(s) enclosed: Route Adjustment Maps (3)  
Adjusted Final Preferred Route Map



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1  
Telephone / N° de téléphone : 1-877-343-1631 • Fax / N° de télécopieur : (204) 360-6176  
[bipole3@hydro.mb.ca](mailto:bipole3@hydro.mb.ca)

---

November 14<sup>th</sup>, 2012

[Title] [Name]  
[Organization]  
[Address 1]  
[Town], [Postal Code]

Dear [Title] [Name]:

**Re: Bipole III Transmission Project – Final Preferred Route Adjustments**

Manitoba Hydro would like to advise you that sections of the Final Preferred Route for the Bipole III transmission line are being considered for adjustment in several areas. At the direction of Manitoba Conservation and Water Stewardship, specific route adjustments are being assessed to address issues related to moose and woodland caribou. Maps showing the location of the route adjustments are enclosed.

The Clean Environment Commission is currently conducting a public hearing on Manitoba Hydro's Bipole III Transmission Project Environmental Impact Statement as part of the Project review and licensing process under Manitoba's *Environment Act*. A licensing decision will not be made on the Project until the completion of the hearing. The Clean Environment Commission will provide recommendations to the Minister of Conservation and Water Stewardship regarding licensing of the Project.

The public hearing will adjourn November 22<sup>nd</sup>, 2012 to allow for a supplemental environmental assessment to be conducted on the route adjustments. Following submission of the supplemental environmental assessment report on January 28<sup>th</sup>, 2013, the public hearing will resume in March 2013. Members of the public are encouraged to participate in the CEC review process through written submissions or presentations to the Commission. Further information on the CEC hearing process can be found at [www.cecmanitoba.ca](http://www.cecmanitoba.ca).

Manitoba Hydro invites you to contact us with any comments or concerns on the proposed route adjustments prior to the end of the calendar year by using our toll free Project information line at 1-877-343-1631 or by email or mail using the contact information at the top of this letter. If you or your association would like to meet and

discuss these route adjustments, please contact us using the Project information line to arrange a meeting.

In addition, you can participate by attending a Regional Open House, which will be held at the locations listed on the attached sheet.

Further project information can be found on our website at [www.hydro.mb.ca](http://www.hydro.mb.ca).

I look forward to your comments and input into the assessment of these route changes.

Sincerely,



Patrick McGarry  
Senior Environmental Assessment Officer  
Licensing & Environmental Assessment Department  
Transmission Planning & Design Division

Map(s) enclosed: Route Adjustment Maps (3)  
Adjusted Final Preferred Route Map



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1  
Telephone / N° de téléphone : (204) 360-4394 • Fax / N° de télécopieur : (204) 360-6176  
[sjohnson@hydro.mb.ca](mailto:sjohnson@hydro.mb.ca)

---

November 19<sup>th</sup>, 2012

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

Dear President Chartrand:

**Re: Bipole III Transmission Project –Final Preferred Route Adjustments**

Manitoba Hydro would like to advise the Manitoba Metis Federation (MMF) that sections of the Final Preferred Route for the Bipole III transmission line are being considered for adjustment in three areas. At the direction of Manitoba Conservation and Water Stewardship, specific route segments are being assessed to address, in particular, issues related to moose and woodland caribou. Maps showing the location of the three route adjustments are enclosed.

Manitoba Hydro would like to meet with the MMF to discuss these proposed route adjustments. We would appreciate the opportunity to meet with regional offices and locals who have raised specific concerns through the Clean Environmental Commission process. Manitoba Hydro would also be willing to hold open houses in locations that are suitable and convenient to facilitate information sharing with the broader MMF membership. Manitoba Hydro would like to hear from the MMF if there are additional forums that would assist the MMF in providing feedback.

The Clean Environment Commission is currently conducting a public hearing on Manitoba Hydro's Bipole III Transmission Project Environmental Impact Statement as part of the review and licensing process under Manitoba's *Environment Act*. Recommendations will not be made on the Project until the completion of the hearings. The Clean Environment Commission will provide recommendations to the Minister of Conservation and Water Stewardship regarding the Project.

Currently, the public hearings will adjourn November 22<sup>nd</sup>, 2012 to allow for a supplemental environmental assessment to be conducted on the three route adjustments. Following submission of the supplemental environmental assessment report on January 28<sup>th</sup>, 2013, the public hearings will resume in March 2013. Members of the public are encouraged to participate in the CEC review process through written submissions or

presentations to the Commission. Further information on the CEC hearing process can be found at [www.cecmanitoba.ca](http://www.cecmanitoba.ca).

As per the above, a Manitoba Hydro representative will be contacting the MMF to make arrangements to meet. However, in the meantime, if you have any questions about this letter or the proposed route adjustments please contact Shannon Johnson at (204) 360-4394.

Additionally, further project information can be found on our website at [www.hydro.mb.ca](http://www.hydro.mb.ca)

Sincerely,

Shannon Johnson  
Manager  
Licensing & Environmental Assessment Department  
Transmission Planning & Design Division

Map(s) enclosed:  
Route Adjustment Maps (3)  
Adjusted Final Preferred Route Map

cc. Ms. Marci Riel



P.O. Box 7950 Stn Main, 820 Taylor Avenue • Winnipeg Manitoba Canada • R3C 0J1  
Telephone / N° de téléphone : 1-877-343-1631 • Fax / N° de télécopieur : (204) 360-6176  
[bipole3@hydro.mb.ca](mailto:bipole3@hydro.mb.ca)

---

November 29<sup>th</sup>, 2012

«Outfitter»  
«Address\_»  
«Town», «MB»  
«PC»

Dear «Outfitter»:

**Re: Bipole III Transmission Project –Final Preferred Route Adjustments**

Manitoba Hydro would like to advise you that sections of the Final Preferred Route for the Bipole III transmission line are being considered for adjustment in three areas. At the direction of Manitoba Conservation and Water Stewardship, specific route segment adjustments are being assessed to address issues related to moose and woodland caribou. Maps showing the location of the route adjustments are enclosed.

Manitoba Hydro invites you to participate in this review by attending a drop-in Regional Open House listed on the attached sheet. If you are unable to attend a Regional Open House but wish to comment or discuss your concerns, please contact us toll free at 1-877-343-1631 or by email at [bipole3@hydro.mb.ca](mailto:bipole3@hydro.mb.ca).

The Clean Environment Commission is currently conducting a public hearing on Manitoba Hydro's Bipole III Transmission Project Environmental Impact Statement as part of the review and licensing process under Manitoba's *Environment Act*. A licensing recommendation will not be made on the Project until the completion of the hearing. The Clean Environment Commission will provide recommendations to the Minister of Conservation and Water Stewardship regarding licensing of the Project.

The public hearing adjourned November 22<sup>nd</sup>, 2012 to allow for a supplemental environmental assessment to be conducted on the route adjustments. Following submission of the supplemental environmental assessment report on January 28<sup>th</sup>, 2013, the public hearing will resume in March 2013. Members of the public are encouraged to participate in the CEC review process through written submissions or presentations to the Commission. Further information on the CEC hearing process can be found at [www.cecmanitoba.ca](http://www.cecmanitoba.ca).

I look forward to your comments and input into the assessment of these route changes.

Sincerely,

A handwritten signature in black ink, appearing to read "Pat. McGarry".

Patrick McGarry  
Senior Environmental Assessment Officer  
Licensing & Environmental Assessment Department  
Transmission Planning & Design Division

Final Preferred Route Map Index  
Final Preferred Route Adjustment (3)

## **APPENDIX 3B**

### **Notification Methods**

## **3B1.0 NOTIFICATION METHODS**

### **3B1.1 NEWSPAPER ADVERTISEMENT**

Regional and local newspaper advertising was used to inform the public of Project EACP activities. Advertisements ran two weeks prior to the event, up until the day of the event (first issue date - November 27, 2012). Local papers notified the public regarding open houses in their region. Other publications which reach a large percentage of Manitoba outlined all open house listings.

- Winnipeg Free Press (all regional open house locations);
- Winnipeg Sun (all regional open house locations);
- Metro News (all regional open house locations);
- Canstar Weeklies (5 Papers) (all regional open house locations);
- Thompson Citizen (Thompson regional open house location);
- Thompson Nickel Belt News (Thompson regional open house location);
- Swan River Times & Star (Birch River, Swan River and Cowan regional open house locations); and
- The Opasquia Times (The Pas regional open house location).

### **3B1.2 RADIO ADVERTISEMENT**

Radio was also used to notify the general public of the Project EACP activities.

For the regional open houses the following radio stations aired 30 second notifications 3 times a day between 6:00 a.m. and 8:00 p.m. In total, 216 radio spots were played prior to the regional open houses.

- CJSB-AM (CJ104) - Swan River Area (30 occurrences);
- CJAR-AM (1240) - The Pas (21 occurrences);
- CHTM-AM (610) - Thompson (21 occurrences);
- NCI-FM (105.5) - All locations (48 occurrences);
- CJOB-AM (680) - All locations (48 occurrences); and

- CKXL-FM (91.1) All locations (48 occurrences) – French station.

### **3B1.3 POSTER PLACEMENT**

Posters were placed in local communities at the venues listed in Table 3B1.3-1. These 11" x 17", color posters listed all venue locations, meeting dates and times. All posters had simplified mapping of the three route adjustments being proposed. The regional open house poster was posted in 23 locations on November 23 2012.

**Table 3B1.3-1: Venue Locations and Meeting Dates**

<b>Date</b>	<b>Community</b>	<b>Location</b>
23-Nov-12	Mafeking	Mafeking Gas & Grocery
23-Nov-12	Birch River	Mary-Ann's Restaurant
23-Nov-12	Birch River	Grocery Store
23-Nov-12	Birch River	Post Office
23-Nov-12	Birch River	Council Office
23-Nov-12	Bowsman	Post Office
23-Nov-12	Bowsman	Village Office
23-Nov-12	Cowan	Kolisnyk's General Store
23-Nov-12	Cowan	Post Office
23-Nov-12	Mafeking	Gas Station
23-Nov-12	Minitonas	Nemetchek Enterprises
23-Nov-12	Minitonas	RM of Minitonas Office
23-Nov-12	Minitonas	Family Food
23-Nov-12	Pine River	Post Office
23-Nov-12	Renwer	Post Office
23-Nov-12	Swan River	Westwood Inn
23-Nov-12	Swan River	Co-op Gas Station
23-Nov-12	Swan River	Extra Foods
23-Nov-12	Swan River	Scales Drug Store
23-Nov-12	Swan River	Swan River Health Care
23-Nov-12	Swan River	Co-op Grocery Store
23-Nov-12	Swan River	Swan River Town Office
23-Nov-12	Swan River	RM of Swan River Office

### **3B1.4 COMMUNITY OPEN HOUSE POSTERS**

During follow up calls to communities to schedule Community Open Houses, Manitoba Hydro requested guidance regarding the type of notification that would be

preferred by the community. Many participants noted that word of mouth and posters would be adequate. Specific community posters were created and emailed to community representatives to post around the community prior to the event.

- Barrows, Baden, Powell, Red Deer Lake, Westgate, National Mills;
- Camperville;
- Dawson Bay;
- Duck Bay;
- Wuskwi Sipihk First Nation; and
- Wabowden.

## **APPENDIX 3C**

### **Meeting Notes**

## RECORD OF MEETING

Project:

Bipole III Transmission Project

Title:

Leadership Meeting with Camperville Community Council

Date of Meeting:

November 28, 2012

Time:

10:00 am

Location:

Camperville Community Council Office

In attendance:

Mayor Sophie Ledoux  
Loretta Welburn  
Sharon Beauchamp  
David Chartrand  
Gloria Chartrand  
Shirley Parenteau.

In attendance (Manitoba Hydro):

Pat McGarry  
Trevor Barker  
Lindsay Thompson

### Meeting Description

Pat McGarry provided an update on the Project including the route adjustments. A copy of the PowerPoint presentation, an overall routing adjustment map, the Moose Meadows, Wabowden and GMA 14A/19A area adjustment maps were provided to each attendee. There was general discussion on a number of items as follows:

### Description

There was a question regarding whether Manitoba Hydro had received a permit for the Project. Manitoba Hydro explained that they had not received a licence for the Project and the earliest a licence could be received is June 2013.

An attendee mentioned that there is a lot of hunting in the area.

There was a comment that they liked the route, as CDI would be greater for the community.

There is concern regarding the potential impact on the blueberry patch. The blueberries are their livelihoods. They do not want to see herbicides used on the stretch of the Bipole III line. Manitoba Hydro stated that they are not planning to use herbicides in that stretch.

There was discussion about moose. An attendee thought it was too late for the moose to recover; however, another attendee disagreed and mentioned that the moose will be back. The attendee mentioned that moose are in a seven-year cycle.

There was a question regarding the distance between the towers. Manitoba Hydro stated that there are 2 towers per kilometer. There was a question regarding the width of the towers. Manitoba Hydro explained that the towers would be around to 35 m<sup>2</sup>.

An attendee questioned whether concrete would be used for the foundations. Manitoba Hydro explained that it would depend on the terrain.

The community wanted to clarify that they are separate from Pine Creek First Nation and the Manitoba Metis Federation (MMF). The community does not feel that they are represented by the MMF and do not want their money given to the MMF. The community reiterated that they do not want to be treated as a group with Pine Creek First Nation or the MMF. There was a comment that the community would like the same amount of money provided to the MMF. They have found in the past when they are grouped together with another community, they do not get what they need. The community again clarified that they do not want to be represented by the MMF.

An attendee mentioned that at the end of the day this Project is about money and that they feel Manitoba Hydro is building on their land.

An attendee mentioned that they know the damage caused by Manitoba Hydro particularly the impacts caused by the Grand Rapids Generating Station and the Fairford Control Structure.

There was a question regarding whether Manitoba Hydro had an impact settlement agreement with Pine Creek First Nation. Manitoba Hydro indicated that they do not have an impact settlement agreement with Pine Creek First Nation for the Bipole III Transmission Project.

The community does not think that CDI should only last for 10 years. There was a question regarding whether CDI was separate from an adverse effects agreement. Manitoba Hydro explained that CDI is a Manitoba Hydro policy that was intended to provide support for development projects that benefit broad segments of the eligible communities and that it differs from an adverse effects agreement. The community requested to find out how much they would receive for CDI prior to the hearing in March.

There was discussion regarding having a meeting in the community to discuss the draft Environmental Protection Plan.

The community would like Manitoba Hydro to provide cell service to the community.

An attendee mentioned that they feel Manitoba Hydro is going to make money off the Bipole III Transmission Project.

An attendee asked Manitoba Hydro to mention to the Community Relations Department about a previous discussion they had. Manitoba Hydro followed-up with Blair Burdett in the Community Relations Department on December 6, 2012. Blair indicated that he would phone the community to discuss

Recorded By:

Lindsay Thompson

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Crane River Leadership Meeting

Date of Meeting: January 10, 2013

Time: 1:00-2:00pm

Location: Crane River - Administration Building

In attendance:  
Mayor Alfred Mourisseau  
Councillor Joseph Spence  
Councillor Bude Spence  
Councillor Delores Moor  
CAO Sheila McKay

In attendance (Manitoba Hydro):  
John Dyck  
Duane Hatley  
Trevor Barker

### Meeting Description

Community Leadership was presented with a presentation on the adjusted routes in each area. Mapping was provided to all attendees as well as a hard copy of the presentation. A question and answer period followed the presentation. A summary of discussion topics is provided.

### Description

Council noted that the changes in routing are of little significance to community.

Council expressed the view that logically the route should come down the east side.

Council appreciated being kept informed regarding the Project.

Community concerns relate to flooding in the community and surrounding lands – Fairford dam related.

Were interested in the project schedule for potential work opportunities.

Recorded By: John Dyck

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Duck Bay Leadership Meeting

Date of Meeting: January 8, 2013

Time: 5:00 to 7:00pm

Location: Duck Bay Council Office

In attendance: Mayor Elaine Ferland  
Deputy Mayor Julian Boucher  
Councillor Matthew Parenteau  
Councillor Chralene Chartrand  
Councillor Keith Sanderson  
Councillor John Parenteau

In attendance (Manitoba Hydro): Trevor Barker  
John Dyck  
Duane Hatley

### Meeting Description

Community Leadership was presented with a PowerPoint presentation on the adjusted routes in each area. Mapping was provided to all attendees as well as a hard copy of the presentation. A question and answer period followed the presentation. A summary of discussion topics is provided.

### Description

Council had concerns with the buffalo rancher fencing off access to their hunting area.

There were concerns from the council about the crossing at the Kettle Hills area in regards to blueberries

Council wants to send in a proposal to do their own monitoring studies during construction phase of Bipole 3

Council wanted to know why Hydro would move the Bipole 3 line closer to the community when there is no guarantee that there are no health hazards

There was lots of talk on how the Grand Rapids Dam (Cedar Lake) impacted the Duck Bay community, and how Hydro would be receiving a proposal from the council in the near future.

The community wants to know about jobs and training well before construction starts so the community members of Duck Bay will be ready.

Recorded By: John Dyck

## RECORD OF MEETING

Project:

Bipole III Transmission Project

Title:

Leadership Meeting with Ebb and Flow First Nation

Date of Meeting:

January 16, 2013

Time:

10:00-11:00 AM

Location:

Ebb and Flow First Nation

In attendance:

Chief Houle  
Councillor Desjarlais  
Councillor Beaulieu

In attendance (Manitoba Hydro):

Trevor Joyal  
Brett McGurk  
Karin Johansson

### Meeting Description

Trevor Joyal provided an update on the Project including the route adjustments. A copy of the PowerPoint presentation, an overall routing adjustment map, the Moose Meadows, Wabowden and GMA 14A/19A area adjustment maps were provided. There was general discussion on items as follows:

### Description

Ebb and Flow representatives indicated that they would like to see more benefit going to their community when Manitoba Hydro (and other corporations) undertake development in the Treaty 2 area.

Chief Houle indicated that Bipole III is an issue that would need to be discussed with all of Treaty 2 representatives. The Chief indicated that he would raise the topic of Bipole III at the Treaty 2 meeting scheduled for the following week.

There were concerns expressed about potential project impacts on traditional medicines. Ebb and Flow representatives indicated that there are medicines that grow in the Ebb and Flow area that are not found anywhere else. Manitoba Hydro indicated that they would like to meet with Ebb and Flow to discuss the Bipole III Environmental Protection Program. Manitoba Hydro is interested in learning about local sensitive sites as well as discussing site-specific mitigation measures.

There was a discussion regarding the purpose of and need for Bipole III.

Recorded By:

Karin Johansson

## RECORD OF MEETING

Project:

Bipole III Transmission Project

Title:

Pine Creek First Nation - Community Meeting

Date of Meeting:

December 5, 2012

Time:

Location:

Manitoba Hydro - 820 Taylor Avenue

In attendance:

Warren Mills

John Stockwell

In attendance (Manitoba Hydro):

Shannon Johnson

Glenn Penner

Deirdre Zebrowski

Theresa Danyluk

### Meeting Description

This was a meeting to discuss a list of Bipole III-related issues of concern from Pine Creek First Nation's perspective.

### Description

Mr. Mills and Mr. Stockwell read a list of items of concern to PCFN, and advised of the community's position with respect to each item. The list of items were as follows:

- (1) watershed,
- (2) herbicides,
- (3) traffic,
- (4) trappers,
- (5) Aboriginal Traditional Knowledge,
- (6) community health,
- (7) economic and employment opportunities,
- (8) Community Liaison, and (9) herbiciding.

Mr. Mills and Mr. Stockwell also advised of the January 4, 2013 Band election and what implications that may have in respect of Bipole III discussions.

Recorded By:

Theresa Danyluk

## RECORD OF MEETING

Project:

Bipole III Transmission Project

Title:

Pine Creek First Nation - Community Meeting

Date of Meeting:

December 18, 2012

Time:

2:45 - 3:45 pm

Location:

Manitoba Hydro - 820 Taylor Avenue

In attendance:

Marvin McKay

John Stockwell

Warren Mills

In attendance (Manitoba Hydro):

Shannon Johnson

Glenn Penner

Deirdre Zebrowski

Theresa Danyluk

### Meeting Description

Meeting aimed to discuss further concerns raised by Pine Creek First Nation (PCFN)

### Description

PCFN provided information regarding an alternative routing option - not through the bison farm per the route revision, but to an alternative route along the road allowance.

Shannon Johnson requested dates for a leadership meeting and/or Community Open House and JS advised that late January is probably best due to the Band elections on January 4, 2013.

WM requested information on Manitoba Hydro's Trappers Compensation Policy. DZ advised that Duane Hatley of Manitoba Hydro is working with the Pine Creek Fur Council which represents registered trappers.

Manitoba Hydro made several photocopies of a large map PCFN brought to the meeting, detailing the alternative routing option, and two copies were provided to PCFN.

Recorded By:

Theresa Danyluk

# RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Leadership Meeting with Wabowden Community Council

Date of Meeting: December 3, 2012

Time: 3:00-4:00pm

Location: Wabowden

In attendance: Mayor Reg Meade  
Councillor Walter Becker  
Councillor June Chu  
Larry McIvor (CAO)

In attendance (Manitoba Hydro): Lindsay Thompson,  
Karin Johansson, and  
John Dyck (Plus 4 Consulting)

## Meeting Description

Lindsay Thompson provided an update on the Project including the route adjustments. A copy of the PowerPoint presentation, an overall routing adjustment map, the Moose Meadows, Wabowden and GHA 14A/19A area adjustment maps were provided to each attendee. There was general discussion on a number of items as follows:

## Description

There was a discussion about how past routing decisions for the Bipole III FPR were made. Mayor Meade felt that the mining industry had played too large of a role in routing decisions. Manitoba Hydro explained that there was an interest in avoiding the Thompson Nickel Belt, as per the Mines and Minerals Act. However, due to concerns regarding woodland caribou, a route adjustment in this area is being considered. The Wabowden Community Council indicated a preference for the adjusted route.

The Council wanted to ensure that the Bipole III Transmission Project creates jobs and business opportunities for people in Wabowden indicating that they have contractors in the community with various capacities. There was a concern about Manitoba Hydro's approach regarding the sole sourcing of contracts. The Council wanted to identify what project opportunities would be available for Wabowden community members and businesses. Specifically, there was an interest in seeing Wabowden provide camp services as they are strategically located and can provide all the basic services. Manitoba Hydro indicated that there would be a hiring preference in place that prioritizes northern and aboriginal employees.

There was a discussion about construction schedules.

There was a discussion about the other two routing adjustments being considered.

Mayor Meade expressed concern about the effectiveness of Manitoba Hydro's northern hiring

preference. From his perspective, Wabowden members saw little benefit from the Wuskwatim Transmission Line project, which had a similar preference in place. Manitoba Hydro also explained that, in the past, contractors have worked with communities to identify the local capacity with regards to workforce, equipment, etc. A meeting between the Wabowden Community Council and Manitoba Hydro's Transmission and Civil Construction Department is being planned in the new year. Issues related to employment and business opportunities will be discussed in further detail at that time.

Recorded By:

Karin Johansson

# RECORD OF MEETING

Project:	<u>Bipole III Transmission Project</u>
Title:	Leadership Meeting with Wuskwi Sipiik First Nation
Date of Meeting:	December 10, 2012
Time:	11:00–12:30pm
Location:	Wuskwi Sipiik First Nation (WSFN)
In attendance:	Councillor Darren Audy Councillor Nathan Kemple Buddy Brass Craig Stevens (band employee) Dan Soprovich (Lands Manager)
In attendance (Manitoba Hydro):	Lindsay Thompson Pat McGarry Karin Johansson

## Meeting Description

Lindsay Thompson provided an update on the Project including the route adjustments. A copy of the PowerPoint presentation, an overall routing adjustment map, the Moose Meadows, Wabowden and GMA 14A/19A area adjustment maps were provided to each attendee. There was general discussion on a number of items as follows:

## Description

WSFN expressed interest in finding out who they could talk to at Hydro about trailers (bunk houses) that are no longer required. WSFN has an interest in acquiring these to use for some band corporations. Action: Manitoba Hydro said they would look into this and provide WSFN with a contact regarding this issue. January 8, 2013 - Lindsay Thompson followed-up with Craig Stevens regarding the trailers. Unfortunately there are no trailers available.

WSFN indicated that the community has been heavily involved in the moose closures in the area. He indicated that the moose meadows adjustment was a welcome change.

Regarding the GHA19 area, WSFN indicated that this area is used by the community for berry picking so moose is not the only relevant issue there.

WSFN expressed an interest in having Manitoba Hydro do an open house in WSFN in early January. Action: Manitoba Hydro to follow up with WSFN regarding potential dates for an open house. Open House to be undertaken January 23rd, 2013.

WSFN indicated that, from their perspective, the route adjustments are significant. The area where the route adjustments are being proposed is recognized as a unique area (parkland area) and within their area of use. In addition, WSFN indicated that the proposed route adjustment in the moose meadows area may go through a burial site area. WSFN did not want to share specific information regarding this issue at this time.

WSFN expressed concern about the use of herbicides. WSFN indicated that their members harvest plants in the vicinity of the Bipole III project. WSFN representatives also indicated rivers in the areas are already contaminated and members worry about eating beavers, muskrat, and fish.

There was a discussion about the types of studies that Manitoba Hydro is undertaking to complete the assessment on the proposed route adjustments and what type of information would be included in the final report.

WSFN representatives indicated that they were not prepared to provide feedback on the proposed route adjustment at this meeting. They would like time to assess the proposed changes and, after the community open house, schedule a second meeting to provide feedback to Manitoba Hydro. Manitoba Hydro indicated that they would appreciate feedback by the middle of January.

There was a discussion about the timeframes associated with the assessment of the route adjustments and the CEC hearings. WSFN expressed dissatisfaction with the short timeline to submit feedback on the proposed route adjustments and felt that Manitoba Hydro had been pushing this process to ensure an in-service-date of 2017. WSFN representatives indicated that the consultants who had worked with the community on the traditional knowledge study had said that that type of study normally takes 2 years however WSFN completed the study in 6 months. Manitoba Hydro explained the EACP process that was undertaken from 2008 to 2011 in advance of the Bipole III EIS as well as the pressures to complete the route adjustment environmental assessment. WSFN indicated that they would be drafting a letter that states that their community should be provided with more time to review the proposed route adjustments.

WSFN representatives explained that the traditional knowledge work that the community had completed to date was focused on the previous route. WSFN representatives wanted to know whether there was an option to apply for funding to complete a full assessment on the route adjustments. Manitoba Hydro indicated that providing funding to facilitate further community studies was not something that is currently being contemplated. However, Manitoba Hydro would like to continue to work with WSFN to obtain any feedback the community is willing to share regarding the proposed route adjustments. In addition, Manitoba Hydro would like to meet with WSFN at a later date to discuss the Bipole III Environmental Protection Program including site-specific mitigation measures.

WSFN representatives indicated that it was their job to ensure that their community was meaningfully consulted. The Nation's rights under their Treaty Land Entitlement (TLE) Agreement were also referenced. To date, WSFN has been asked for their feedback on the Bipole III project but has not yet been asked if the community approves of the project traversing their area of use. Manitoba Hydro said that although they work cooperatively with the Province of Manitoba on the Crown Consultation process and the TLE process, these are both the Province of Manitoba's process.

The community felt that the project would limit their ability to implement their Treaty Land Entitlement Agreement.

WSFN representatives indicated an interest in participating in monitoring activities. Manitoba Hydro explained the Environmental Inspector, Environmental Monitor, and Community Liaison positions.

WSFN indicated that they would require funds to complete a full review of the proposed adjustment. To complete this, WSFN proposed using the funds previously allocated but not yet reimbursed as a part of the WSFN Traditional Knowledge study. Manitoba Hydro indicated that they would have to consult with internal staff to determine what remains on that agreement. Action: Manitoba Hydro and WSFN to arrange a conference call to discuss the WSFN Traditional Knowledge study and the related Contribution Agreement.

WSFN expressed an interest in having a meeting with the Swampy Cree Tribal Council (SCTC) and Manitoba Hydro; they will be following up with SCTC and asking them to put together a proposal

regarding consultation as a Tribal Council.

Recorded By:

Karin Johansson

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Ducks Unlimited

Date of Meeting: December 10, 2012

Time:

Location: Ducks Unlimited Offices

In attendance:  
Chirs Smith  
Sean Greer

In attendance (Manitoba Hydro):  
Trevor Barker  
Fiona Scurrah

### Meeting Description

Hardcopies of the presentation as well as mapping for all the route adjustments were provided to those in attendance.

### Description

Chris Smith indicated a desire to receive the Shapefiles for the route adjustments.

No route adjustment concerns were noted by DU

DU commented on the adjustment at Red Deer River as this area is a staging/breeding area for birds and ducks.

Recorded By: Fiona Scurrah

# RECORD OF MEETING

Project:	<u>Bipole III Transmission Project</u>
Title:	Meeting with the Moose Management Committee
Date of Meeting:	November 27, 2012
Time:	7:00pm
Location:	Swan River, MB
In attendance:	Gerald Shelemy (Manitoba Conservation and Water Stewardship) Wade Cable (Louisiana Pacific) John Thorpe (Manitoba Conservation and Water Stewardship) Glen Roberts (Manitoba Trappers Association) Brent Fuchs (Manitoba Conservation and Water Stewardship) Rick Wowchuk (Moose for Tomorrow) Peter Fleming (MMF) Darrel Ferland (MMF)
In attendance (Manitoba Hydro):	Pat McGarry Trevor Barker Lindsay Thompson

## Meeting Description

Pat McGarry provided an update on the Project including the route adjustments. A copy of the PowerPoint presentation, an overall routing adjustment map, the Moose Meadows, Wabowden and GMA 14A/19A area adjustment maps and a listing of LICs and ROHs were provided to each attendee. There was general discussion on a number of items as follows:

## Description

There are typically 12 members who attend the meetings. The committee is meant to work cooperatively to find solutions regarding moose management. There are members from Manitoba Conservation and Water Stewardship (MCWS), Wuskwi Sipihk First Nation, Sapotaweyak Cree Nation, MMF, Louisiana Pacific, Manitoba Wildlife and Manitoba Trappers Association.

One of the members recommended that MCWS have a good look at GHA 12.

There was a question regarding why Manitoba Hydro waited so long to present to the Moose Management Committee. In response, Manitoba Hydro noted that the committee was not on Manitoba Hydro's radar initially. Manitoba Hydro did meet with the West Region IRMT. Manitoba Hydro is happy to have the invitation to talk to the committee.

There was a question regarding the source of data for wildlife located near Wabowden. Manitoba Hydro mentioned that there has been a caribou-collaring program with MCWS and that Manitoba Hydro works with the North East Region of MCWS. A committee member questioned whether the

same process for data collection of caribou would be used for Moose Meadows. Manitoba Hydro stated that the moose information is from over flights in 2010 and habitat data. The new adjustment pertains with issues concerning moose. Manitoba Hydro is planning to do another fly over in the next few weeks.

A committee member mentioned that he grew up in the Moose Meadows area and hunted and trapped there. The committee member would like to keep access out of the Moose Meadows area. They mentioned that there would always be moose there as there is little access. There used to be a trail there from Sapotaweyak Cree Nation.

There was a question whether Manitoba Hydro has seen the map that the MMF presented to the CEC and whether the moose densities are similar to that map. In response, Manitoba Hydro representatives indicated that the densities are not the same as the map and that is why they want to do another flyover.

A committee member mentioned that the amount of snow would depend on where the moose are located. They feel that the Moose Meadows adjustment is a better route.

There was a question regarding how much did the consultants take into account migration. There are times in the winter between Mafeking and Birch River where moose move from the higher to the lower grounds. Manitoba Hydro indicated that the consultants did a habitat analysis of the area near Moose Meadows. A committee member stated that there are a lot of modeling components that may have not been analyzed properly in a model. There are unique habitat types in the region. That is why it was disappointing that the CEC hearing was not held in Swan River. Until people have the opportunity to talk in person, they are not doing themselves justice. Manitoba Hydro mentioned that they have had open houses in Swan River and the survey was completed in 2011. By 2011, Manitoba Hydro had already completed their consultation program. It was the CEC's decision to not have a stop in Swan River. A committee member questioned whether it was the timeline that was the issue. Manitoba Hydro noted that they are conducting an environmental assessment, which is a not long-term study. Manitoba Hydro did three seasons of studies and four rounds of consultation for the Project. It was questioned how Manitoba Hydro can do a proper study on such a tight timeline between now and January. Manitoba Hydro indicated that they have information from the initial study and will supplement it with desktop studies and will fly over again. It was commented that we would not see the moose until mid-January. In addition, the data will vary based on the year and the amount of snow. There was a comment that they thought it was important to look at pre-existing surveys. The more data you can look at the better. Manitoba Hydro indicated that they would mention looking at pre-existing surveys to their consultants. The timeline was mentioned as one of the biggest concerns and there was concern that Manitoba Hydro would miss things while conducting the study.

There was a comment that migration from Mafeking to Birch River is not near as big as people think and that there is a calving area.

A committee member mentioned that the Moose Meadows area is one of the only high-density areas in the GHA.

There was a comment that to the east of Briggs Spur is the self-proclaimed berry capital of the area. If Manitoba Hydro sprays the line, it will impact the berries. Manitoba Hydro indicated that they are considering the identified berry area as an ESS and will modify their practices. It is not Manitoba Hydro's intention to spray the berries.

There was a question regarding how much distance the Moose Meadows adjustment would add to the Project. Manitoba Hydro indicated that they were not sure but that it would not add much distance to the line.

There was a question regarding the size of the initial study area. Manitoba Hydro indicated that the

initial study area was a 3-mile corridor and that they now have a 66 m ROW.

There was a comment that there is sensitive flora near the initial FPR. Manitoba Hydro mentioned that they would do pre-construction surveys prior to the construction. If Manitoba Hydro is granted a licence for the Project, they will walk through identified areas where there may be sensitive sites.

There was a comment that according to the EPP, all construction will be done in the winter based on James Matthewson's presentation to the CEC.

There was a question whether the GHA 14a/19a adjustment would go through the bison ranch. Manitoba Hydro indicated that the line would be adjacent to the Bison ranch and may go through a corner of the ranch. A committee member indicated that the fencing around the bison ranch is creating one of the biggest issues. Moose are being caught in the fence. Some of the trappers in the area are upset that the fence is impeding them

A committee member mentioned that it looks like the line was routed to avoid agricultural lands to save costs. Manitoba Hydro mentioned that based on the total price of the Project, the cost of traversing agricultural land is not much of a factor.

A committee member questioned who sent the routing adjustment request in August. Manitoba Hydro stated that the request was sent by Manitoba Conservation and Water Stewardship.

There was a question regarding whether the TLE near the rejected Red Deer Lake adjustment had gone through as the trappers have concerns regarding the selection. Manitoba Hydro and Manitoba Conservation and Water Stewardship indicated that they do not know the status of the TLE.

A committee member questioned which communities Manitoba Hydro would be meeting with. Manitoba Hydro verbally provided a list of communities that they were planning to meet with.

There was a comment that it was two weeks ago that Manitoba Hydro mentioned a moose-collaring program and that the MMF has not heard more information regarding the collaring program. This leaves a doubt that Manitoba Hydro will look at everything they committed to in the hearing and the EIS. Manitoba Hydro indicated that it is still relatively recent. There were questions regarding a conversation between the MMF's biologist and Manitoba Hydro's lawyer where they agreed that a moose-collaring program was a good idea therefore the MMF perceived that Manitoba Hydro committed to a collaring program. Manitoba Hydro indicated that they would have to look at the transcripts. There was a comment that a company has been brought in from the United States to monitor the moose.

There was discussion regarding the proposal for moose collaring in the Duck Bay area. Manitoba Hydro indicated that Dan Soprovich had approached them in the summer about the proposal. It was noted that the project for collaring is still in the partnership stage. There was a comment that the Moose Management Committee and Moose for Tomorrow are two different groups. A committee member mentioned that they probably lost the window for collaring moose for this year. They had initially wanted to look at 30 cows with self-releasing collars; however, the cost of collars is quite high. It was clarified that the project is not based in the Moose Meadows area. There was a comment that the data significance is in the Duck Bay so it would not be useful to the Bipole III Transmission Project.

A committee member questioned aside from the caribou was there a lot of attention paid to moose. Manitoba Hydro mentioned that as the Project moved forward, they learned more about how high a concern moose was to the communities; however, Manitoba Hydro had another 25 criteria to balance.

There was a question regarding when Manitoba Hydro's plans to start clearing. Manitoba Hydro stated that the earliest they could get a licence would be in June 2013.

A committee member questioned whether Manitoba Hydro would adjust herbicide usage based on

areas. Manitoba Hydro mentioned that they would adjust for sites identified as sensitive. There was a question regarding whether Manitoba Hydro would adjust herbicide use around rivers and lakes. Manitoba Hydro noted that the herbicide use is regulated and they need a permit to use herbicides. Manitoba Hydro plans to leave a vegetated buffer near waterways. There was a question regarding whether Manitoba Hydro would use machines in environmentally sensitive sites (ESS). Manitoba Hydro would use machines where it was needed. It was questioned why Manitoba Hydro did not hire someone to maintain the ROW instead of using herbicides. Manitoba Hydro stated that the cost is prohibitive and it would add to additional disturbance to the ROW. There was a question regarding whether the herbicides would blow into the other trees. Manitoba Hydro mentioned that herbicide use is localized.

There was a question regarding whether Manitoba Hydro could manage sensitive areas where the trees would be 8 – 10 years tall. There is concern that the moose may be killed if the line of sight is too great. Manitoba Hydro mentioned that leaving the trees taller to reduce line of sight has been brought up before. They have looked at reducing the line of sight. Due to the high number of streams, there will be a break in the line of sight. There are discussions with the construction department to see how high the trees can be. There is concern regarding snowmobile use and line of sight. Manitoba Hydro representatives noted that an Access Management Plan is being drafted for the project.

Trappers Compensation has been an issue raised near Barrows. The trappers met with Vince Kuzdak and Duane Hatley.

A committee member mentioned that these meetings are a good venue for discussing mitigation.

Manitoba Hydro asked whether the committee would like a representative from Manitoba Hydro. A committee member indicated that the members are appointed by the Minister but that they would check with others at Manitoba Conservation and Water Stewardship and provide a response.

Recorded By:

Lindsay Thompson

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Northeast IRMT - MCWS

Date of Meeting: December 12, 2012

Time: 10:00am

Location: MCWS Office

In attendance: Pierce Roberts  
David Hastman  
Daryll Hedman

In attendance (Manitoba Hydro): Fiona Scurrah  
Trevor Barker

### Meeting Description

Fiona Scurrah provided handouts on the route adjustments as well as route mapping to attendees.

### Description

MCWS indicates that the NE Region is satisfied with the routing adjustment - specifically within the Wabowden area

Indicated that exploration (mining) is undertaking drill program primarily north of Thompson this winter

Concern from MB Conservation with respect to MB Conservation having adequate resources to adequately deal with all hydro related issues/projects - suggestion that there be potentially 2 positions paid by MH within Conservation to deal with hydro related stuff - was done when Limestone was underway and could be done again

Concern with work permits being requested for preliminary work for Bipole (i.e. exploration) while review process underway - perception maybe that Manitoba Hydro is trying to "licence split"

Recorded By:

Fiona Scurrah

# RECORD OF MEETING

Project:	<u>Bipole III Transmission Project</u>
Title:	Meeting with Protected Areas Initiative
Date of Meeting:	December 6, 2012
Time:	1:00 pm
Location:	200 Saulteaux Crescent, Winnipeg
In attendance:	Yvonne Beaubien Elvira Roberge
In attendance (Manitoba Hydro):	Trevor Joyal Patrick McGarry

## Meeting Description

Meeting began with Pat McGarry providing PAI with an overview of why the route adjustments are being evaluated and outlined the process which we came from and where the assessment is going. Both participants received 3 large scale maps of the three areas being considered for adjustment as well as a printed version of the PowerPoint presentation.

## Description

Trevor Joyal outlined the consultation process which would be undertaken as part of the assessment with members of the public, local municipalities, government branches, NACs, MMF, First Nations communities and other interested stakeholders.

Ms. Beaubien outlined that with the three route adjustments, the concern rested with the adjustment in the Moose Meadows area. She noted that the other adjustments were not of a concern for her department. The concern with the Moose Meadows adjustment was that the proposed route would be very close proximity to the Steeprock Canyon area north of Bellsite.

Pat McGarry outlined the rational for the move and the desire of conservation and participants to have the route be adjacent to PTH 10 due to minimizing access into the Moose Meadows area due to the decline in Moose populations. It was noted that the line follows PTh 10 where possible and routes through more upland areas as opposed to wetland areas.

Ms. Beaubien noted that currently the route is 20m from the edge of Steeprock Canyon. From the perspective of PAI it was noted that they would like to create a buffer between the two and to have the line shifted 100m from the edge of the protected area to the edge of the ROW. A map was provided to Manitoba Hydro.

Discussions regarding the finality of the route was brought up by PAI. It was noted that through construction there may be small adjustments made and that the assessment area (planning corridor) was 3 miles wide to allow for any potential slight deviation. No other large scale adjustments are currently being pursued except for the three being presented at the request of Manitoba Conservation.

Pat McGarry explained that the assessment will be completed and a report provided to Manitoba Conservation. Pending TAC review and acceptance from Manitoba Conservation it would then go for review by the Clean Environment Commission. It was noted that Manitoba Hydro anticipates hearings

to resume on March 4th in Winnipeg for a period of two weeks.

Recorded By:

Trevor Joyal

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Meeting with the RM of Mountain

Date of Meeting: November 23, 2012

Time: 1:30 pm

Location: RM of Mountain Office – Birch River

In attendance:

Reeve Robert Hanson  
Robin Wiebe  
Nelson Rusk  
Bert Fedoriw  
Debbie Soloway  
Wayne Stockford  
Dane Guimond

In attendance (Manitoba Hydro):  
Trevor Joyal  
Lindsay Thompson

### Meeting Description

Trevor Joyal provided an update on the Project including the route adjustments. A copy of the PowerPoint presentation, an overall routing adjustment map, the Moose Meadows, Wabowden and GMA 14A and 19A area adjustment maps and a listing of LICs and ROHs were provided to each attendee. There was general discussion on a number of items as follows:

### Description

There was a question regarding where the Province heard concerns about access in the Moose Meadows area. Manitoba Hydro representatives explained that concerns regarding access were raised by Manitoba Conservation and Water Stewardship. An attendee mentioned concerns that the routing adjustment would create additional access from nearby communities. Manitoba Hydro representatives noted that an Access Management Plan is being drafted for the project.

There was a comment that the GHA 19A route would be longer; however they thought that the line would cost less as there will be less landowners and the terrain is better.

There was interest in the CDI. A revised total was requested. There was a question regarding whether CDI could be used for a new water plant. In response, it was indicated that the CDI was intended to provide support for development projects that benefit broad segments of the eligible communities. There was a question regarding when the community would receive their first payment. In response, Manitoba Hydro indicated that the first payment would be granted upon receipt of a licence for the Project. An attendee questioned how CDI would be dispersed to Mountain North and Mountain South. Manitoba Hydro explained that the funds would be provided to the RM of Mountain who would then determine how to use and/or distribute the funds. Manitoba Hydro sent a follow-up email to the RM of Mountain on December 5, 2012 indicating that Manitoba Hydro is unable to provide the RM with an estimate at this time as we have yet to finalize the routing in your municipality.

An attendee questioned why Manitoba Hydro was hesitant to provide annual payments to landowners as most landowners would choose an annual payment. In response, Manitoba Hydro explained that the annual payments would be quite small whereas the onetime payment could be invested or used however the landowner sees fit. The attendee mentioned that some people look at a hydro line as a potential liability and at least with an annual payment there would be a benefit to having the line on their land. Manitoba Hydro representatives indicated that they would follow-up with a link regarding the Property Department's presentation at the CEC Hearing. An attendee commented that some industries in Alberta provide annual payments. Manitoba Hydro sent a follow-up email to the RM of Mountain on December 5, 2012 that included a link to the presentation and cross examination of Manitoba Hydro's Property Department during the Clean Environment Commission Hearings.

There was a question regarding whether the line would be less noisy. Manitoba Hydro representatives indicated that there would be less audible noise from the conductors and discussed the difference between AC and DC lines. It was also noted that this was documented in the Bipole III EIS.

There were questions regarding when construction would occur. Manitoba Hydro representatives explained that construction would occur between licensing and 2017. When they would be undertaking construction in this municipality is currently unknown.

The RM mentioned that they are interested in hosting a staging area for the Project and will be able to accommodate.

There was discussion regarding the setback for the line. Manitoba Hydro representatives indicated that the setback is the edge of the ROW. There was a question regarding what is the closest permanent residence to the line. Manitoba Hydro explained that there is one home within 100m of the ROW.

An attendee questioned what area the Bipole III Transmission Project would service. The need for the Project including the Interlake corridor vulnerability was explained.

Recorded By:

Lindsay Thompson

## RECORD OF MEETING

Project:

Bipole III Transmission Project

Title:

Route Adjustment Meeting with RM of Minitonas  
and Town of Minitonas

Date of Meeting:

December 10, 2012

Time:

6:00pm

Location:

Minitonas Municipal Offices

In attendance:

Trevor Joyal, Manitoba Hydro

In attendance (Manitoba Hydro):

Carolyn Gordon  
RM Council;  
Michael McIntosh – Reeve  
Walter Pacamaniuk  
Clint Eisner  
Daniel Klekta

Town Council;  
Henry Barkowski – Mayor  
Bill Robb  
Derek Bartel  
John Caruk  
Steve Windsor

### Meeting Description

Meeting began with Trevor Joyal presenting both councils with an overview of why the route adjustments are being evaluated and outlined the process, which Manitoba Hydro has come from and where the assessment is going. All participants received 3 large scale maps of the three areas being considered for adjustment, a 50,000 scale map of the area, which is in the RM of Minitonas as well as a printed version of the PowerPoint presentation.

### Description

Trevor Joyal outlined the consultation process, which would be undertaken as part of the assessment with members of the public, local municipalities, government branches, NACs, MMF, First Nations communities and other interested stakeholders.

One councillor asked why Manitoba Hydro has yet to build Bipole III. Trevor Joyal outlined the process in which environmental approval was being sought – submission of EIS, MCWS review and CEC hearings.

Trevor Joyal outlined the CEC process and what had been undertaken and how the route adjustments came to be. T. Joyal noted that the three route revisions will be reviewed with the CEC in March and that members of the public could submit comments in writing to the CEC or request to give a 15 minute presentation to the Commission.

A council member noted that they did not have any previous concerns with the routing through the municipality and they did not have a concern with the new adjustment in their municipality. They noted that they would provide this in writing to Manitoba Hydro.

Discussion regarding CDI was brought up by the council members. It was noted that no estimates could be provided at this time, as the routes are not finalized in the area. It was noted that the CDI was being provided in response to feedback received through the consultation process, as there were few Project benefits. It was noted that the funds were to be used on projects, which would benefit a large portion of the population. It was noted that following receipt of an Environment Act licence payments would begin. It was also noted that this was not a form of compensation.

A council member asked what would happen to payments if there were to be an amalgamation of the town and RM. It was noted that currently it is anticipated that the payments would be reflective of amount of line traversing the RM and the population. If there were an amalgamation, there would be an increase in the RM population. Depending on how much of an increase it may affect CDI payments.

A council member asked what job opportunities or other benefits could be available for the municipality/town. It was noted that construction crews would not be in areas for lengthy periods of time. There would be an attempt to use local labour where possible. It was also noted that the communities with amenities such as restaurants, lodging and gas might see a brief increase in utilization as construction crews pass nearby.

A council member asked when construction crews would be in the area. It was noted that they would begin with northern areas first and then head south. No exact date was provided yet noted that the in-service date is anticipated for 2017 and that nothing would proceed until Manitoba Hydro received a licence to construct the Project.

A council member asked what work was being done with First Nation communities. It was noted that meetings with NACs and FNs was a part of the 4 rounds of public engagement for the Project. It was noted that ATK was gathered with participating communities and that there were 4 First Nations and the MMF who were participating in the CEC Hearings.

Recorded By:

Trevor Joyal

## RECORD OF MEETING

Project:

Bipole III Transmission Project

Title:

IRMT Meeting Western Region Meeting

Date of Meeting:

December 13, 2012

Time:

Location:

Russell Inn, Russell Manitoba

In attendance:

Cheryl Genik (Admin Officer)

Dwayne Strate

Darren Nicklin

John Thorpe (Regional Forester)

Ian Kitch (Fisheries Branch)

Gerald Shelemy

Shaun Lamb

Darlene Perrett

Perry Stonehouse (Director)

In attendance (Manitoba Hydro):

Pat McGarry

### Meeting Description

Pat McGarry provided an update on the Project including the route adjustments. A copy of the PowerPoint presentation, an overall routing adjustment map, the Moose Meadows, Wabowden and GMA 14A/19A area adjustment maps were provided to each attendee. There was general discussion on a number of items as follows:

### Description

Question about whether a burial site or cemetery had been located on the route adjustment near Bellsite in the Moose Meadows area. Pat McGarry explained that it was mentioned by Wuskwi Sipihi First Nation but had not been located by Manitoba Hydro. PM to check with John Dyck on if he located it during recent overflight. PM indicated that if located on the proposed route adjustment the route could likely be adjusted to avoid it as it would not likely involve a large shift.

Question about what criteria is used in routing. Pat McGarry explained that there were 23 criteria plus consultation input that goes into siting and assessment of routes.

Pat McGarry discussed the berry patch near Briggs Spur and vegetation management in that area. Pat McGarry indicated that Hydro would modify its vegetation management program in the berry patch area to avoid the use of herbicides. Pat McGarry also indicated that Manitoba Hydro intends to keep herbicide use in its arsenal for vegetation management.

Discussed potential routing along PTH 10 in Moose Meadows area. Pat McGarry explained why Manitoba Hydro would not consider following PTH 10 due to fact it is not straight and it would bring the transmission line into close proximity to the community of Mafeking.

Question about how many moose were counted in recent overflight of the area. Gerald Shellemy believed it was 25 in the Moose Meadows area. Pat McGarry indicated overall that day there were many more moose spotted. Pat McGarry also indicated the results of that survey will be incorporated into the assessment report for the route revisions.

Discussed attendance at recent open-houses in Swan River and Dauphin

Pat McGarry indicated that Hydro was already in receipt of TAC comments from mid-October on the route revisions. Additional commentary and concerns was requested of those in attendance. No further information was provided. Pat McGarry indicated that if Western Region had further comments that they would be required by January 9 if to be included in the assessment report. There would be opportunity for TAC comments on the route adjustment report through the regular TAC process once Manitoba Hydro files the report.

Recorded By:

Pat McGarry

## RECORD OF MEETING

Project:

Bipole III Transmission Project

Title:

Barrows Community Open House (Barrows, Baden, National Mills, Powell, Westgate and Red Deer Lake)

Date of Meeting:

December 6, 2012

Time:

4:00-7:00pm

Location:

Barrows

In attendance:

13 community members

In attendance (Manitoba Hydro):

Lindsay Thompson  
Karin Johansson  
John Dyck (Plus 4 Consulting)

### Meeting Description

The following issues were discussed with Open Houses attendees regarding the route adjustments:

#### Description

Many attendees indicated that they had no concerns with the proposed route adjustments.

There were questions about Manitoba Hydro's Trappers Compensation Policy and how compensation would be provided in areas where the project traverses an open trapping area. A couple of attendees indicated that a number of people had recently got a trapper's licence for the open area in the hopes of receiving compensation as a result of the Bipole III Project.

There was interest in employment opportunities related to the Bipole III project.

There was a discussion about the west vs east side route. One attendee expressed concern that his Hydro rates would increase as a result of the increased cost of the Bipole III project.

There were questions about the maps provided at the meetings related to the contour lines and certain locations shown. Meeting attendees had not heard of the area called Moose Meadows.

Many attendees mentioned that the Bipole III project would increase access in the area. Some people saw this as a benefit (for snowmobiling, etc). Others were concerned about opening up the area to more use.

There were comments about low moose populations in the area and one noted that marten populations are high this year.

Recorded By:

Karin Johansson

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Camperville Community Open House Summary

Date of Meeting: January 9, 2013

Time: 3:00 - 7:00pm

Location: Camperville Community Hall

In attendance: 12 attendees (signed in)

In attendance (Manitoba Hydro): John Dyck  
Trevor Barker  
Duane Hatley

### Meeting Description

The following summary outlines the discussions had with Manitoba Hydro representatives. Most discussions were focused on the GHA 19A/14A area.

### Description

The people in attendance agreed that the line change benefited the community, that it minimized access and caused less fragmentation to the land.

Attendees felt that the new route change minimized the affects to the Blueberry Patch area. Attendees were happy with this as Blueberry picking is income to the community.

There were multiple references and concerns over the bison ranch. Locals feel that it has taken away a significant portion of their trapping and hunting areas. They do not have access to the area.

Camper Duck fur council would like to see a upcoming meeting between Manitoba Hydro and the Trappers.

The Mayor asked if Hydro would look into contributing funds to help with cell service to their community.

Recorded By:

John Dyck

# RECORD OF MEETING

Project:	<u>Bipole III Transmission Project</u>
Title:	Dawson Bay Community Open House
Date of Meeting:	December 5, 2012
Time:	5:00–7:30pm
Location:	Dawson Bay
In attendance:	16 attendees
In attendance (Manitoba Hydro):	Lindsay Thompson Karin Johansson John Dyck (Plus 4 Consulting)

## Meeting Description

Lindsay Thompson provided an update on the Project including the route adjustments. A copy of the PowerPoint presentation, an overall routing adjustment map, the Moose Meadows, Wabowden and GMA 14A/19A area adjustment maps and a listing of LICs and ROHs were provided to each attendee. There was general discussion on a number of items as follows:

## Description

The Mayor said that there were no concerns with the route adjustment. Many of the meeting attendees did not indicate a preference regarding the FPR and the adjusted FPR.

One community member expressed concerns re: EMF. There was fear that resources (berries, etc.) would be contaminated and unsafe from the line.

There were concerns about herbicide use. Manitoba Hydro indicated that they would like to meet with the community to discuss the Environmental Protection Plan.

A number of community members talked about berry picking in the Kettle Hills area.

There was a discussion about the area known as Moose Meadows. Most community members indicated that they had not heard of that area being called Moose Meadows prior to the meeting. One community member indicated that he had heard of a Moose Meadows before however he was not familiar with the precise location of the site.

There was a discussion about construction schedules.

The Mayor expressed interest in the Community Development Initiative.

There was a request for a large scale map of the Moose Meadows area including topographical features. The map was sent to the community on January 5, 2013

Recorded By:

Karin Johansson

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Duck Bay Community Open House

Date of Meeting: December 12, 2012

Time: 3:00–7:00 pm

Location: Duck Bay School

In attendance: 16 attendees

In attendance (Manitoba Hydro):  
Pat McGarry  
Duane Hatley  
Lindsay Thompson  
Vince Kuzdak (Eagle Visions Resources)

### Meeting Description

The following issues were discussed with Open Houses attendees regarding the route adjustments:

### Description

There were concerns about crossing the Kettle Hills, as the area is sensitive to moose/berries.

There were multiple references and concerns over the bison ranch. Attendees mentioned that they feel that it has taken away a significant portion of their trapping and hunting areas and they do not have access to the area. They think that the area is flooded by beavers. Manitoba Hydro will verify the ranch boundaries.

The blueberry patch was again a major concern. More than one individual mentioned that they feed that the newly adjusted route in the area now impacts the patch more significantly. It was mentioned that blueberry picking is an economic opportunity and a staple to the locals and the transmission line would have negative consequences to sales.

Attendees indicated that they felt the new route would provide for more hunting pressure. Many preferred the original FPR. Attendees do not feel the area in question (GA 14/19) provides for quality moose habitat. They feel the newly adjusted route crosses better habitat.

Commercial logging in the region was recognized as having major negative impacts to wildlife and specifically moose.

It was mentioned that there was suspicion that the route was adjusted due to pressure by the bison rancher on the Province. Attendees mentioned an old coal mine/deposit along the original FPR.

There were strong recommendations that Manitoba Hydro and the Province of Manitoba conduct more consultations with local communities and local groups including MMF locals and community leaderships. An attendee repeatedly mentioned that MMF and/or Pine Creek First Nation do not represent Duck Bay and would like Manitoba Hydro to meet with Duck Bay as a separate community. Manitoba Hydro indicated that a leadership meeting in Duck Bay had been postponed and would be scheduled for early January, 2013.

Attendees mentioned concerned about fish spawning areas. The attendees would like to see more studies and funding for the fish spawning area and they would like to become involved with studies.

There were many concerns over the use of herbicides. Attendees do not like to see herbicides used and would like to control vegetation themselves as an employment opportunity. Manitoba Hydro representatives explained that they had committed to not using herbicides in clearly identified sensitive sites. They also explained that herbicide use is localized and having someone maintain the ROW would add additional disturbance.

Attendees wanted to know what type of benefits there are for communities. An attendee questioned how Manitoba Hydro was planning to negotiate with all the communities along the line. Manitoba Hydro representatives indicated that they were not planning on negotiating with all the communities along the line but would continue to share information, respond to questions and meet with communities as required or requested. Some attendees requested more information on CDI. Manitoba Hydro indicated that more information would be provided upon receipt of a licence. An attendee stated that Manitoba Hydro should provide information on CDI prior to the hearings in March.

Attendees mentioned that they believe that there was no moose or hunting in the original FPR area. The attendees indicated that they felt there was moose and better habitat to the south and east of Pulp River.

Attendees indicated that they felt that the adjusted route north of PTH 20 created more infringement on the blueberry and resource area that has been noted east of Cowan and Briggs Spur. They recommended the route stay where it is north of PTH 20 rather than go further into an important traditional area.

Recorded By:

Lindsay Thompson

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Community Meeting with Herb Lake Landing

Date of Meeting: December 3, 2012

Time: 10:00 - 11:00am

Location: Herb Lake Landing

In attendance: Hazel Corman  
Jim Corman  
Greg Carswell  
Candyce Carswell  
Brad Spencer  
Glenn Martel

In attendance (Manitoba Hydro): Lindsay Thompson,  
Karin Johansson  
John Dyck (Plus 4 Consulting)

### Meeting Description

Lindsay Thompson provided an update on the Project including the route adjustments. A copy of the PowerPoint presentation, an overall routing adjustment map, the Moose Meadows, Wabowden and GMA 14A/19A area adjustment maps were provided to each attendee. There was general discussion on a number of items as follows:

### Description

Herb Lake Landing attendees felt that the route adjustment would not have any effect on the community.

There was a discussion about the areas that community members use for bear hunting and trapping. These include the areas west of PTH 6 at Ponton and north of the Hudson Bay rail line. These areas are located west of the Wabowden route adjustment.

Community members talked about the benefit that the Wuskwatim Transmission Development Fund had provided to the community of Herb Lake Landing. Interest in the Community Development Initiative for this Project was expressed.

Recorded By: Karin Johansson

# RECORD OF MEETING

Project:	<u>Bipole III Transmission Project</u>
Title:	Wabowden Community Open House
Date of Meeting:	December 3, 2012
Time:	7:00-8:00pm
Location:	Wabowden
In attendance:	7 attendees
In attendance (Manitoba Hydro):	Lindsay Thompson Karin Johansson John Dyck (Plus 4 Consulting)

## Meeting Description

The following issues were discussed with Open Houses attendees regarding the route adjustments:

## Description

One community member expressed confusion about Manitoba Hydro's engagement process and the Province's Crown consultation process. There was frustration regarding the fact that the Province was meeting with First Nations located a ways away from the project but not with the community of Wabowden.

Concerns were raised about the Snowman group using existing rights-of-way that are already established in the area. A number of community members expressed concern that the Bipole III Right of Way would be used as a snowmobile route.

There were questions about Manitoba Hydro's Trappers Compensation Policy and how compensation would be provided in areas where the project traverses a Community trapping area (youth trapline).

There was interest in direct negotiated contracts and council was concerned that First Nation communities were receiving these opportunities while Wabowden might be overlooked. They were also interested in running a construction camp as they feel they are strategically located and can provide all of the basic services

One community member indicated that they felt the project would go through the area no matter what the community says so that they might as well get benefit from it.

One community member indicated that they felt that the project should run along the highway.

There was a comment that the new route would help access for trappers, which was seen as a benefit.

Recorded By:

Karin Johansson

# RECORD OF MEETING

Project:	<u>Bipole III Transmission Project</u>
Title:	Birch River Regional Open House Summary
Date of Meeting:	December 10, 2012
Time:	4:00 - 8:00pm
Location:	Birch River Legion Hall
In attendance:	12 Attendees (signed in)
In attendance (Manitoba Hydro):	Trevor Joyal Pat McGarry Lauris Kleven Karin Johansson Lindsay Thompson

## Meeting Description

The following summary outlines the discussions had with Manitoba Hydro representatives. Most discussions were focused on the Moose Meadows area.

## Description

Attendees expressed concern about Manitoba Hydro's assessment of land values.

Concern about line location of the proposed route adjustment (moose meadows). An attendee indicated that they would rather see the line located on the half mile

Questions about Manitoba Hydro's Trapper Notification/Compensation policy. Attendees indicated that a number of people had recently gotten a trappers' licence for the open area in hopes of getting compensation from Manitoba Hydro.

Question about tower design; where self-supporting towers vs. guyed wire towers will be used.

Comments about how deer seem to be attracted to ROWs.

Concern regarding EMFs. One attendee was concerned that his cattle would be deterred from crossing under the line.

Questions about the purpose of and need for the Bipole III project.

Questions about the Community Development Initiative.

Discussions regarding east vs. west route.

Discussions about moose. One attendee knew of moose meadows as a local name for the area. However, a number of attendees indicated that there was few moose in the area where the line was previously located. Attendees felt that there were more moose in the area of the proposed adjusted

route.

One attendee talked about an old ice road that goes through moose meadows and provides access to the area from Mafeking. However, he did not believe that many people used this old road which was built in the 1940s for a German prisoner of war camp.

Questions about Manitoba Hydro's Landowner Compensation policy.

Questions about Manitoba Hydro's botanical studies and how much additional information Manitoba Hydro would be collecting for proposed route adjustments.

Recorded By:

Karin Johansson

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Cowan Open House Summary

Date of Meeting: December 13, 2012

Time: 4:00-8:00pm

Location: Cowan Community Centre

In attendance: 14 Attendees

In attendance (Manitoba Hydro):  
Patrick McGarry  
Lauris Kleven  
Trevor Joyal

### Meeting Description

Manitoba Hydro staff was available to walk attendees through the route adjustments being proposed. Manitoba Hydro offered storyboards, mapping, tangibles and access to Google Earth to work through concerns with attendees. The following topics were discussed.

### Description

Discussions at the Regional Open House was predominantly focused on the construction timelines and processes for the Project. It was noted that the area following the route adjustment would be bog and that access would be difficult if not in the winter season.

Many questioned the process which will be undertaken following the Open Houses and when Manitoba Hydro could be expected to begin construction.

One individual noted that the Drake River east of Pine Creek First Nation is quite clear and has little to no agricultural run off. The individual noted that he had no concerns but wanted to ensure we were aware that we should maintain the purity of that river.

Two members from the Pine Creek First Nation were present and discussed alternative routing options in the area of GHA 19A. They noted an unused road ROW which parallels PTH 20. They provided TJ with mapping and email correspondence.

Discussions were also present regarding the types of towers which would be used, how the foundations would be placed in bog conditions and how they would be erected.

Two participants noted that they preferred the new route because the alternative route was a further distance from their homestead.

Discussions regarding EMF and the interference with GPS, radio and cell phones was discussed. All those with this concern were provided "DC Lines and Electronics" brochures.

Discussions regarding the entire route, exports and where this line would terminate was discussed.

One individual questions whether local employment opportunities would be available and what benefits would come to communities in the proximity of the route.

One individual noted that they do an annual horse drive every year to raise funds for the local hall. It was noted that the old route would have traversed their turnaround point and dining area. The individual noted that the new route would miss this location.

Clearing practices were questioned. Many felt that the construction slideshow answered all their questions regarding clearing and foundations.

One individual noted that at one time in the area there were plenty of moose. He noted that there have not been many in quite a few years. He also noted that quite a few years back he had seen a caribou in the Swan Pelican Forest Reserve.

Most of the participants were satisfied with the new routing option in the GHA 19A area.

Discussion regarding annual vs. one time payments were had with a landowner along both routes.

A previous Reeve of the RM of Mountain and a landowner (own land along the original FPR) noted that a combination of both routes presented would minimize access. These landowners provided mapping of their suggestion.

Recorded By:

Trevor Joyal

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: The Pas Regional Open House Summary

Date of Meeting: December 10, 2012

Time: 4:00 - 8:00pm

Location: Kikiwak Hotel

In attendance: 3 attendees (signed in)

In attendance (Manitoba Hydro): Fiona Scurrah  
Duane Hatley  
Vince Kuzdak  
Trevor Barker

### Meeting Description

The following summary outlines the discussions had with Manitoba Hydro representatives.

### Description

Attendees reviewed material and no route specific comments or questions were provided.

Recorded By:

Fiona Scurrah

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Thompson Regional Open Houses Summary

Date of Meeting: December 11, 2012

Time: 4:00 - 8:00pm

Location: Juniper Centre

In attendance: 15 attendees (signed in)

In attendance (Manitoba Hydro): Fiona Scurrah  
Trevor Barker  
Duane Hatley  
Vince Kuzdak

### Meeting Description

The following summary outlines the discussions had with Manitoba Hydro representatives predominantly focused on the Wabowden Route Adjustment.

### Description

Commentary provided by attendees was that the route adjustment is preferred as the route will aid in protecting caribou.

A trap line holder and their helper attended and wished to outline the following concerns

- Main issue is potentially increased access to the area for others
- Concern with the an outfitter and gaining additional access as well as their “permanent” structures within her RTL
- They trap primarily a mix of lynx, marten, and mink
- Pickerel spawn in the lake close to their cabin location
- Undertake a program with the local schools to show kids what trapping is about - in partnership with the school division

General project topics were discussed and material presented responded to questions from participants.

Recorded By:

Fiona Scurrah

# RECORD OF MEETING

Project:	<u>Bipole III Transmission Project</u>
Title:	Winnipeg Open House
Date of Meeting:	December 18, 2012
Time:	4:00-8:00pm
Location:	Holiday Inn South
In attendance:	46 Attendees (signed in)
In attendance (Manitoba Hydro):	Trevor Joyal Pat McGarry Maggie Tisdale Shannon Johnson Glenn Penner Shane Mailey Karin Johansson Fiona Scurrah Bill Henderson Duane Hatley Lauris Kleven Marc Wankling

## Meeting Description

Manitoba Hydro staff was available to walk attendees through the route adjustments being proposed. Manitoba Hydro offered storyboards, mapping, tangibles and access to Google Earth to work through concerns with attendees. The following topics were discussed.

<b>Description</b> East vs. west was discussed by many in attendance.
Discussions regarding new generation and future rate increase as well as the use of gas turbines.
Discussions regarding the need for the project and that climate change and drought may affect the power supply.
Gas is currently cheaper than Hydro was discussed and gas turbines close to Winnipeg should be used for reliability.
Discussions regarding the rationale of the routing adjustments.
Some discussion regarding the rerouting option and the affect on crown lease holders.
Economic and fiscal concerns regarding Hydro. Many raised concerns over increased rates, current financial situation and why the need for future projects when there is no one to sell to.
An individual expressed a desire for Manitoba Hydro to consider the electric train.

Discussion regarding under lake Winnipeg.
Annual payments vs. One Time payments was discussed.
One attendee discussed concern as a land surveyor regarding GPS and EMF.
Met with an outfitter who is located north of Wabowden. On going discussions will occur with the outfitter.
Some attendees were happy regarding the location of the route on the western side of the province.

Recorded By:

Trevor Joyal

## RECORD OF MEETING

Project: Bipole III Transmission Project

Title: Swan River Regional Open House  
Date of Meeting: December 12, 2012  
Time: 4:00-8:00pm  
Location: Swan River Veterans Hall  
In attendance: 17 attendees (signed in)  
In attendance (Manitoba Hydro): Trevor Joyal  
Lauris Kleven  
Karin Johansson

### Meeting Description

Manitoba Hydro staff was available to walk attendees through the route adjustments being proposed. Manitoba Hydro offered storyboards, mapping, tangibles and access to Google Earth to work through concerns with attendees. The following topics were discussed.

### Description

A number of attendees commented on the east vs. west routing issue. Concerns were expressed regarding the cost of the project.

There were questions about Manitoba Hydro's Landowner Compensation Policy and Trappers Compensation Policy.

Concerns were expressed regarding heritage, vegetation, and moose issues in the area west of Bellsite.

Concerns were expressed regarding heritage resources in the area east of Briggs Spur.

Concerns were expressed regarding heritage resource at the junction north of Pine River.

Questions regarding Bipole III construction design and timelines.

Questions regarding the CEC process and next steps. One attendee expressed disappointment regarding the lack of CEC hearings in Swan River.

Questions regarding the need for the project.

Concerns regarding potential project impacts on agriculture.

Questions regarding why the line was not put under Lake Winnipeg.

Questions regarding caribou collaring activities.

One attendee was very supportive of the proposed route adjustment in the moose meadows area.

No attendees expressed strong opposition to the proposed route adjustments as long as the proper assessments are undertaken.

Concerns regarding EMFs and how they could impact electronics, cattle, and horses

There was a question about the vegetation assessments that would be included in the overall assessment of the proposed route; how vegetations assessments could be completed during winter.

Concerns regarding potential project impacts on local heritage resources. Criticism was expressed about the methodology used in the archaeological assessment completed for the Bipole III EIS. There was also concern that the Province of Manitoba's Heritage Resources Act was not sufficient.

Concerns about increased access by snowmobilers.

Questions about the engagement process Manitoba Hydro is undertaken with regards to proposed route adjustments.

Recorded By:

Karin Johansson

## RECORD OF MEETING

Project:

Bipole III Transmission Project

Title:

Route Adjustment Meeting with MLOA

Date of Meeting:

December 17, 2012

Time:

10:00

Location:

Manitoba Hydro - 820 Taylor Avenue

In attendance:

Paul Turrenne, MLOA  
Cory Grant, Outfitter

In attendance (Manitoba Hydro):

Fiona Scurah  
Pat McGarry

### Meeting Description

A meeting was organized with Manitoba Lodges and Outfitters Association (MLOA). Large scale mapping was provided and the route adjustment areas discussed.

### Description

It was noted that there may be more access into previously non-frequently used areas. It was noted by MLOA that following existing linear features would alleviate additional pressures in areas where members operate lodges.

Manitoba Hydro representatives noted that they will work with any lodge/outfitter on a case by case basis.

MLOA representative noted that the GHA 19A/14A adjustment was generally acceptable.

Discussions with an outfitter noted concern with construction disturbance on his bear bait locations and generally in his hunting area. He noted that he would like a 500 yard separation between Bipole III and his lodge.

The Outfitter had a concern of access outside of the areas being reviewed for adjustment due to the intersection of an old logging road and the anticipated location of Bipole III RoW.

The Outfitter noted that his operations occur in the Partridge Crop Lake area and he would like to see Bipole III away from the shoreline.

MLOA noted that concerns have only been raised by two members of MLOA.

Recorded By:

Pat McGarry

## **APPENDIX 3D**

### **MMF Correspondence**

**From:** Marci Riel [<mailto:marci.riel@mmf.mb.ca>]  
**Sent:** Tuesday, December 18, 2012 1:13 PM  
**To:** Zebrowski, Deirdre; Johnson, Shannon  
**Cc:** George Desmarais; [jason@jtmlaw.ca](mailto:jason@jtmlaw.ca); Bedford, Doug  
**Subject:** Bipole III Route Revisions Budget

Good afternoon Deirdre and Shannon,

Further to the teleconference call on Thursday, December 13, 2012, please see the attached funding request for the Manitoba Metis Federation to work with Manitoba Hydro to ensure that the Metis people of Manitoba have the opportunity to provide input on the proposed route revisions for the Bipole III transmission line project and the impact the proposed route revisions will have on the way in which we use our traditional lands.

Regards,

Marci Riel



**Marci Riel**  
Hydro Liaison  
Rights and Resources Unit  
Manitoba Metis Federation  
3<sup>rd</sup> Floor - 150 Henry Avenue  
Winnipeg MB R3B 0J7

Call me at: 586-8474 ext. 303  
Email me at: [marci.riel@mmf.mb.ca](mailto:marci.riel@mmf.mb.ca)

<b>MMF/MBH Bipole III Route Revisions</b> <b>Consultation Budget:</b> <b>December 2012-January 2013</b>		
<b>ITEM</b>	<b>Description</b>	<b>DETAILED BREAKDOWN</b>
MMF Coordinator Costs (Salary and Benefits)	Coordinator in MMF Home office to coordinate and liaise with MBH.	<p>1 (One) MMF Central Consultation Coordinator from December 2012 to January 15 2013 at \$32.00 per hour to a maximum of 160 hours.</p> <p><b>Salary and Benefits: up to a maximum of \$8000.00</b>  <b>*would be waived if MBH funds the MHLO position</b></p>
Professional Fees	<p>Professional fees for MMF to retain required technical support to review route revisions, prepare technical issues memos and summarize MMF concerns, provide support and participate in MMF-MBH meetings and discussions on mitigation.</p> <p>Traditional Land Use and Knowledge Study Contractors</p>	<p>5 days @ \$1,000/day for expert advisors in Crown consultation process (Abbie Stewart, MSES Inc., Patt Larcombe, Symbion Consultants, Kisha Supernant, Tony Pearse, Petr Komers)  =\$5,000.00</p> <p>\$135 per hour for interviewer  \$135 per hour for GIS support  25 hours per community x 4 communities @ \$270 per hour = \$27,000.00</p> <p><b>Professional Fees: up to maximum of \$32,000.00</b></p>
Community Meetings	<p>1 meeting per community</p> <p>*Winnipeg  *Thompson  *Duck Bay or Camperville  *Swan River</p>	<p>\$10,000 per community for each meeting includes travel and accommodations as needed for Metis people to attend the meetings in each community, rental of meeting space, catering for meeting, honorariums for individuals attending the meetings, coordination of meetings by the appropriate Regional office.</p> <p><b>Community Meetings: up to a maximum of \$40,000.00</b></p>
Interview Costs	Honorariums for 5 interviews per location (5 x 4 = 20 interviews)	20 interviews at \$150 per interview = \$3000.00

	<p>Travel and accommodations for individuals providing interviews.</p> <p>Interview room rental at 3 days per location for 4 locations.</p> <p>Travel and accommodations for interview team (coordinator, interviewer and GIS support)</p>	<p>20 interviews at \$500 per interview (average) = \$10,000.00</p> <p>3 days at \$150 per day x 4 locations = \$1800.00</p> <p>Travel to Thompson, Swan River, Duck Bay/Camperville for 3 people = \$3000.00</p> <p>Accommodations for 4 nights @ \$150 per night for 3 people in 1 location = \$1800 and 3 nights @ \$150 per night for 3 people in 2 locations = \$2700.00</p> <p><b>Interview Costs: up to a maximum of \$25,000.00</b></p>
Legal Fees	<p>Legal advice and support in undertaking Tasks #1-3, including, review and drafting, participation in MMF-MCWS meetings, etc.</p>	<p>50 hours @ \$325/hour for Jason Madden, JTM LAW and Jean Teillet, Pape Salter Teillet</p> <p><b>Legal Fees: up to a maximum of \$16,250.00</b></p>
Travel	<p>Attendance at MMF-MBH meetings by MMF consultants and legal counsel.</p>	<p>3-4 meetings in Winnipeg, including, required consultants and legal counsel.</p> <p><b>Travel Costs: up to a maximum of \$10,000.00</b></p>
Printing and Communication	<p>Layout, printing and circulation of MMF Bipole III Route Revisions report and update of MMF website re: Bipole III</p>	<p>Production and printing of 200 Bipole III Update reports (200 x \$2.00/unit) and website update flat rate of \$400.00 by MEDO.</p> <p><b>Printing and Communications: up to a maximum of \$2,000.00</b></p>
Administration Costs	<p>15% administration cost for administrative and financial reporting</p>	<p>Office supplies, bookeeping, audit, financial reporting, etc.</p> <p><b>Administration Costs: up to a maximum of \$20,000.00</b></p>
<b>Total Budget</b>		<b>Up to a maximum of \$153,250.00</b>



PO Box 7950 Stn Main • Winnipeg, Manitoba Canada • R3C 0J1  
Telephone / (204) 360-4394 • Fax / (204) 360-6176  
sjohnson@hydro.mb.ca

2012 12 28

Marci Riel  
Hydro Liaison  
Rights and Resources Unit  
Manitoba Metis Federation  
3<sup>rd</sup> Floor - 150 Henry Avenue  
Winnipeg, MB R3B 0J7

Dear Marci,

Thank you for your proposal received on December 18<sup>th</sup>, 2012. Manitoba Hydro appreciates the opportunity to engage in discussions with the Manitoba Metis Federation (MMF) in regards to Manitoba Hydro's Bipole III route revisions. Over the last month Manitoba Hydro has been holding meetings to discuss the route revisions with a variety of participants and stakeholders. In accordance with our letter to the MMF on November 19th, 2012, and our conference call with you on December 13, we reaffirm that we would be pleased to hold similar meetings targeted specifically for your membership. We remain concerned that the time in which to conduct such meetings is very tight. We are committed to filing our assessment of the route revisions on January 28, 2013. Given that deadline, we must conclude our public engagement process on January 15, as was observed during the foregoing phone call, and then write our assessment, incorporating what we have heard in meetings.

Accordingly, we found your proposal too ambitious for the time frame and have made amendments to it that we think will facilitate meetings that can be achieved in the time available to us and still provide outcomes valuable to both Manitoba Hydro and the MMF. Keep in mind, as is noted in the attached amended budget, that we expect in the months ahead to provide funding to facilitate meetings with the MMF regarding the ENVPPs. Please provide us with your response to this letter by Friday, January 4, 2013 so that we can complete bookings for locations and assign staff to attend meetings.

Yours truly,

Shannon Johnson

Department Manager  
Licensing & Environmental Assessment Dept.  
Transmission Planning & Design Division

SJ/tk

**Manitoba Metis Federation/Manitoba Hydro Bipole III Proposed Route Revisions Community Meetings – Manitoba Hydro suggested amendments.**

As detailed below, Manitoba Hydro is willing to provide up to a maximum of \$10,000.00 to facilitate four community meetings in addition to the funding regarding the coordinator costs as described below and the costs of organizing and paying for meeting spaces and catering, also described below.

**Item 1: MMF coordinator Costs**

Manitoba Hydro anticipates this being funded through the MHLO agreement. Communication regarding the MHLO agreement will be sent separately to George Desmarais.

**Item 2: Professional Fees**

Your proposed budget suggests these costs are for the Crown Consultation process; Manitoba Hydro's understanding is that these costs are being funded by the Provincial Government.

**Item 3: Community Meetings**

- In order to assist with costs, Manitoba Hydro is willing to directly undertake organizing meeting spaces for the proposed 4 community meetings, as well as catering for the meetings. We can begin to make arrangements regarding the meetings in Winnipeg, Thompson, and Swan River immediately; arrangements for Duck Bay or Camperville can be made as soon as the MMF advises which of these locations is preferable. Manitoba Hydro is willing to arrange these community meetings on evenings or weekends if that would better accommodate people being able to attend.
- Manitoba Hydro is not able to pay for travel and accommodations for people to attend the community meetings. Holding meetings in 4 locations across the province and at times when most participants would not be working should reduce costs and travel required for people to attend these community meetings.
- Manitoba Hydro is not able to pay honoraria for people to attend community meetings except as outlined below under "interview costs".
- Manitoba Hydro would be willing to provide up to a maximum of \$1,000.00 in communication costs for the MMF to ensure its members are aware of the time, dates and locations for these MMF specific meetings. If it would assist in communicating with MMF members about the community meetings, Manitoba Hydro can also provide posters and other existing materials that were used to advertise and provide background information for other community open houses regarding the proposed route revisions.
- Manitoba Hydro would be willing to provide funding up to a maximum of \$4,000.00, for travel and accommodations for the MHLO and one other MMF Home office staff person to attend the community meetings.
- Given the short term nature of this work, and the difficulties that would be required to find an individual available for such short term work, Manitoba Hydro would be willing to pay up to \$32.00/hour (assuming 8 hour work day) for an existing MMF staff person to attend the community meetings in addition to the MHLO to undertake the MMF interviews and generally participate in the meetings. Assuming 5 days of work - funding up to a maximum of \$1,280.00 will be provided.

#### **Item 4: Interview Costs**

- Manitoba Hydro understands that some assistance may be required by regional office staff to assist the MMF Home Office in coordinating/setting up interviews. Manitoba Hydro would be willing to provide funding up to a maximum of \$320.00 for regional assistance with coordination (10 hours @ \$32.00/hour)
- Honoraria for 5 interviews per location @ \$150.00 per interview for a maximum amount of \$3,000.00 – this is acceptable to Manitoba Hydro, with the understanding that Manitoba Hydro staff and experts would have the opportunity to also discuss the route revisions with these individuals.

As per the conference call on Dec. 13<sup>th</sup>, Manitoba Hydro understands that the MMF would prefer that Manitoba Hydro representatives not sit in when the MMF conducts interviews with the specific individuals chosen to be interviewed. Therefore, we suggest that Manitoba Hydro staff could engage with these individuals before or after the interviews are done with MMF staff. Throughout the CEC hearings on Bipole III to date, Manitoba Hydro has heard consistent criticism from MMF regional representatives that Manitoba Hydro did not engage with them during previous community engagement on Bipole III. For this reason, it would be beneficial to your members and Manitoba Hydro that our staff/experts have the opportunity to discuss the route revisions with those individuals who are identified by the MMF as having knowledge about the areas related to the proposed route revisions. Manitoba Hydro would not object to MMF home office or regional representatives being present when Manitoba Hydro engages these individuals (in person or by phone) or any others who attend the community meetings. The privacy of all individuals would be respected; it would not be Manitoba Hydro's intention to reveal the names, or other identifying personal information, of any individuals who share their input or concerns regarding the proposed route revisions. We can limit information to a modest description of the circumstances of individuals so that those hearing about the meetings can have some confidence that the information shared came from persons knowledgeable about the subject matter of the discussions.

#### **Item #5: Legal Fees**

It is not clear what "Tasks #1-3" is referring to. The remainder of the description suggests that the legal fees included in the budget are related to Crown Consultation activities. As the Crown Consultation process is being led and undertaken by the Provincial Government, the MMF would need to discuss funding requirements for activities related to that process with the Provincial Government. It is not clear why having a lawyer in attendance would be required at these meetings; Manitoba Hydro will not provide funding for legal representatives to be at these meetings. .

#### **Item #6: Travel**

The description and detailed breakdown of this item does not appear to be related to the community meetings planned for early January. These costs appear to be related to the discussions between the

MMF and Manitoba Hydro on the Environmental Protection Program (EnvPP) and related mitigation measures.

Manitoba Hydro understood from our Dec. 13<sup>th</sup> conference call that funding related to the EnvPP process would be dealt with in a separate workplan/budget yet to be agreed to by Manitoba Hydro and the MMF. Manitoba Hydro further understood that it would follow-up on the initial workplan/budget provided by the MMF for the EnvPP process by providing a more detailed workplan/budget for further discussion with the MMF.

As such, these costs fall outside the meetings covered in this workplan and budget.

**Item #7: Printing and Communication**

Manitoba Hydro is not seeking reports from any participants or other parties interested in the route revisions. We do not believe time permits that exercise to be undertaken, given that we have made a firm commitment to file our assessment of the three route changes on January 28, 2013. Further, were we to accede to one participant's request that we fund and include a written report from it, all other participants interested in the route changes will demand equal treatment and the schedule cannot accommodate that. Accordingly, there is no need to incur the costs required to write and edit a report.

**Item #8: Administration Costs**

If there are anticipated specific costs associated with the required financial reporting to receive reimbursement for this work, or other specific administration costs please identify these and Manitoba Hydro would be willing to consider such costs and, if reasonable, reimburse them subject to invoices being provided.

**From:** Johnson, Shannon  
**Sent:** Friday, January 11, 2013 2:02 PM  
**To:** 'Marci Riel'  
**Cc:** 'George Desmarais'; 'jason@jtmlaw.ca'; Bedford, Doug; Zebrowski, Deirdre  
**Subject:** RE: Bipole III Route Revisions Budget

Hi Marci

Manitoba Hydro is currently in the process of completing all scheduled open houses with communities in the vicinity of the route adjustments. Given timelines – it is not possible at this point to hold open houses as identified in the file attached and include them in the environmental assessment. However, Manitoba Hydro is still interested in feedback from the MFF and would still be willing to organize open houses to discuss the proposed route adjustments.

Please let me know if you are interested in discussing this further.

Cheers - Shannon

**From:** Johnson, Shannon  
**Sent:** Friday, December 28, 2012 4:01 PM  
**To:** 'Marci Riel'  
**Cc:** George Desmarais; [jason@jtmlaw.ca](mailto:jason@jtmlaw.ca); Bedford, Doug; Zebrowski, Deirdre  
**Subject:** RE: Bipole III Route Revisions Budget

Hi Marci

Please see attached.

If you have any questions or concerns please let me know.

Cheers - Shannon

**From:** Marci Riel [<mailto:marci.riel@mmpf.mb.ca>]  
**Sent:** Tuesday, December 18, 2012 1:13 PM  
**To:** Zebrowski, Deirdre; Johnson, Shannon  
**Cc:** George Desmarais; [jason@jtmlaw.ca](mailto:jason@jtmlaw.ca); Bedford, Doug  
**Subject:** Bipole III Route Revisions Budget

Good afternoon Deirdre and Shannon,

Further to the teleconference call on Thursday, December 13, 2012, please see the attached funding request for the Manitoba Metis Federation to work with Manitoba Hydro to ensure that the Metis people of Manitoba have the opportunity to provide input on the proposed route revisions for the Bipole III transmission line project and the impact the proposed route revisions will have on the way in which we use our traditional lands.

Regards,

Marci Riel



**Marci Riel**  
Hydro Liaison  
Rights and Resources Unit  
Manitoba Metis Federation  
3<sup>rd</sup> Floor - 150 Henry Avenue  
Winnipeg MB R3B 0J7

Call me at: 586-8474 ext. 303  
Email me at: [marci.riel@mmf.mb.ca](mailto:marci.riel@mmf.mb.ca)

Richard B. Salter

January 11, 2013

Jean Teillet, IPC

Doug Bedford  
Law Division  
Manitoba Hydro  
360 Portage Avenue  
Winnipeg, MB, R3C 0J8

Colin Jesse Salter

Alex Monem

Jason T. Madden

Dear Mr. Bedford:

Nuri Frame

**RE: CONSULTATIONS ON BIPOLE III MODIFICATIONS**

Paul Bachand

We are counsel for the Manitoba Métis Federation (“MMF”) in relation to the Bipole III project. We are writing to you to once again express our client’s ever-increasing concerns with respect to the lack of meaningful engagement on the Bipole III project.

Honourary Counsel:

Arthur C. Pape  
(1942 – 2012)

Jennie Jack  
(Non-Practicing)

Despite commitments made in the Clean Environment Commission (“CEC”) regulatory hearing process, Manitoba Hydro did not have a call with the MMF with respect to the proposed Bipole III modifications until December 13, 2012. On that call, the MMF outlined what it believed was required for meaningful consultation on these proposed changes that will dramatically affect Métis rights and interests along the line. Based on that call, the MMF provided a budget and outline of the work it believed was necessary to address these changes.

Aligned with Manitoba Hydro’s ongoing “take-it-or-leave-it” approaches to engagement with the Manitoba Métis community, your client rejected the MMF’s proposal in a letter dated December 27, 2012. It described the MMF’s consultation approach as “ambitious” solely because the rushed circumstances Manitoba Hydro finds itself in with respect to filing an updated environmental assessment by the end of January 2013. Instead of allowing the MMF to engage its members and the Métis community in a meaningful way on the modification as well as try to address some of the significant and fatal gaps in the existing environmental assessment with respect to Métis engagement and project impacts, Manitoba Hydro dictated terms of the meaningless engagement it was willing to support. This is unacceptable to the MMF. My client will not be a part of an engagement process that is a sham.

Moreover, instead of actually listening to the concerns the MMF has been raising within the regulatory proceedings and attempting to meaningfully engage, Manitoba Hydro has chosen to continue to be indifferent to the concerns and potential impacts of this project on the Manitoba Métis community. For example,

- Manitoba Hydro's own expert has acknowledged that the losses to the Métis community in the Kettle Hills area that will be "irreplaceable". Instead of meaningfully engaging, your client simply disregards these impacts as collateral damage to the Métis people.
- Manitoba Hydro's experts with respect cumulative effects and impacts on ungulates in the west side corridor have presented questionable and significantly discredited work. Instead of attempting to correct these deficiencies, your client's response is that "we tried our best" and it glibly alludes that "maybe we will do better next time".
- Manitoba Hydro's experts have acknowledged that Bipole III's environmental assessment does not consider any socio-economic effects of the project on the Métis as a distinct group, in particular in and around Gillam. Instead of respectfully engaging Métis in the north, your client has chosen to ignore them and intimidate the Métis community in these areas.
- Manitoba Hydro's mitigation measures do not address any Métis specific concerns and the company continues to delay meaningful engagement with the Métis community on its proposed Environmental Protection Plan. Instead of providing necessary capacity to engage on these issues (which has been provided to other aboriginal communities), your client continues to delay and place obstacles in front of meaningful engagement.

Despite all of these failings, amongst others, Manitoba Hydro continues to attempt to cavalierly push this project, without any regard to the impact Métis community. Quite frankly, this arrogance will likely result in the project being further delayed in the future. This is not the 1950s where Manitoba Hydro can do as it pleases and have the Crown simply sanction its repugnant behavior and disregard for aboriginal peoples. Canada's constitutional and legal realities have changed. This is particularly so in relation to the rights and interests of the Manitoba Métis community. Manitoba Hydro (and the Manitoba Government) must come to grips with this new reality. Both the Crown and its agent are failing miserably.

We want to be clear that our client not willing to participate in an engagement process that is nothing more than "window dressing". The potential negative, inter-generational impacts of this project on the Manitoba Métis community are far too significant to participate in a series of rushed meetings that do not allow the Métis to meaningfully consider and provide input into these proposed modifications. Moreover, Manitoba Hydro's never-ending attempts to circumvent the rights-bearing Métis community by attempting to interview a few Métis individuals directly, rather than allowing the MMF, as a Métis government engage its own members and respond as a Métis collective, illustrates that Manitoba Hydro has not bothered to listen to what the MMF has been saying for the last several years or the unequivocal messages from the Manitoba Métis in the ongoing Clean Environment Commission hearings. This is unfortunate, but not unexpected.

While the MMF's response to Manitoba Hydro's "take-it-or-leave-it" offer is to "leave it" because what Manitoba Hydro is dictating will not allow the Métis community to be meaningfully engaged, the MMF also wants to raise that Manitoba Hydro continues to stall and delay in paying monies owing to the MMF for Bipole III work already completed. It is now two months without any written response to my client's previous letter on the monies owing to the MMF with respect to the Métis Traditional Land Use Study. This is unacceptable. The MMF cannot be left to cash flow work undertaken for Manitoba Hydro and then be forced to wait for over half a year to receive payments for reimbursement.

It is unfortunate that your client continues to take such an unsupportable and disrespectful approach with respect to engaging the MMF. Clearly, contrary to your statements before the Clean Environment Commission, your client has not been "listening" to the MMF concerns and the company continues to exhibit a complete disregard for the concerns and impacts from this project on the Manitoba Métis community.

Yours very truly,



Jason Madden

c.c. David Chartrand, MMF President



P.O. Box 815 Stn Main • Winnipeg Manitoba Canada • R3C 2P4  
Telephone / N° de téléphone : (204) 360-3414 • Fax / N° de télécopieur : (204) 360-6147  
[dbedford@hydro.mb.ca](mailto:dbedford@hydro.mb.ca)

---

January 18, 2013

Pape Salter Teillet  
Barristers and Solicitors  
546 Euclid Avenue  
Toronto, Ontario  
M6G 2T2

**Attention: Jason Madden**

Dear Sir:

**RE: BIPOLE III TRANSMISSION PROJECT**

I acknowledge receipt of your letter dated January 11, 2013.

In the days immediately following the adjournment on November 22, 2012 of the Clean Environment Commission hearing of the Bipole III Project, Manitoba Hydro staff communicated with the MMF with a view to setting up a meeting forthwith. A meeting date was set. Your client chose to cancel it. The fact that a meeting did not happen then until December 13, 2012 was solely due to your client advising that a meeting could not take place before that date.

I will grant you the benefit of the doubt and assume that you were not aware of the foregoing when you wrote to me on January 11, 2013: "Despite commitments made in the Clean Environment Commission ("CEC") process, Manitoba Hydro did not have a call with the MMF . . . until December 13, 2012."

Why do you send me letters without first informing yourself of the relevant facts? Why leave yourself exposed to easy and, to you, embarrassing correction?

On December 13, 2012, you proposed on behalf of your client two to three meetings of Manitoba Hydro staff, MMF staff and Metis persons in three communities within, or near, the area of the three route adjustments -- Swan River, Camperville, Duck Bay or Mafeking and Wabowden were suggested by you. These locations and the fact of meetings were readily endorsed by me and by my client. You suggested a cut-off date of January 15, 2013 for the completion of the meetings and any ancillary work. My client and I readily acknowledged that this was realistic, given the expectation that the information gathered at the meetings should be recited and incorporated in a document that would have to be written, then printed, then filed by January 28, 2013. My client also stated it was willing to consider paying the reasonable costs of renting meeting space, the costs of MMF persons to travel there and

necessary ancillary expenses. Your client was to follow up with a proposal. Nothing was said by you or your client on December 13 about wanting to revisit issues “in and around Gillam”. Had you raised these as matters to be addressed in work devoted to the three route revisions, we would have told you then that was not to be the subject of this work. We would have reminded you that the CEC Chair was clear in advising that the remaining time in the hearing was to be devoted to the route revisions.

On December 18, your client submitted a proposal for payment by Manitoba Hydro to the MMF for the foregoing meetings and ancillary work of \$153,000.00.

It is true that Manitoba Hydro found the proposal to pay \$153,000.00 to be unacceptable and we explained why. The proposal was far too ambitious for the time available. We responded with a counter proposal that we believed was reasonable. No one at Manitoba Hydro said to you or to your client, “take it or leave it”.

Why, if you think the counterproposal would result in “meaningless engagement” do you not explain why the meetings proposed would be “meaningless”? Why, if you think your client’s proposal was achievable and reasonably priced, do you not explain how it could have been effected in the time available and why the pricing was reasonable? Please address the issues and facts. Or, are you in fact of the opinion that your client’s proposal was unreasonable in the circumstances because, as you choose to acknowledge, the circumstances are “rushed”?

I am well familiar with the oft cited negotiating principle that “Effectiveness at the conference table depends upon overstating one’s demands.” My client is familiar with the principle as well. Given the “rushed circumstances”, it was ill-advised of your client to take this approach with respect to engagement on the route adjustments. But it chose to do so. I suggest that as one of the mandates of the CEC in the present hearing is to opine upon Manitoba Hydro’s engagement of the public that we put your client’s proposal, my client’s counter-proposal and the related correspondence, including your letter of January 11 and this letter, to the Commission. The Commissioners are independent. We would both benefit in the future from their review of what happened here and comment thereon.

You write: “Manitoba Hydro has chosen to continue to be indifferent to the concerns and potential impacts of this project on the Manitoba Metis community.” How can this be a true statement given your personal knowledge of a meeting, a request for a proposal, the submission of a counter-proposal and, in the absence of a response to the counter-proposal, a written suggestion (on January 11, 2013) that we try to have some engagement in February 2013 that could be reported to the CEC orally? If my client were “indifferent” to Metis issues, we would not bother with any meetings. We certainly would not offer to pay the MMF money to pay for your client’s staff to travel to the region of the route revisions. No other interested party was provided with such an offer. Really, if you wish to make headway in letters to me, make an effort to deal with the facts before you. Don’t pretend that they don’t exist. Don’t waste your client’s financial resources by sending me written statements that are so easily dismissed as false.

If, as you so obviously pretend, you would like to convince third parties that my client is adhering to policies or precedents current “in the 1950s” and as such it is behaving “repugnantly” and in “disregard for aboriginal peoples”, best not to cite in support of your positions the work of an independent expert retained by my client and called as a witness by my client at a public hearing. The fact that this was done demonstrates that my client knows, in accordance with current policies and precedents that issues of culture and heritage are very important in assessments of projects. Further, it shows that the evidence of experts was treated as independent and put forward whether or not it is entirely supportive of the route chosen for the Bipole III Transmission line. The fact that studies by a number of First Nations and by your client were funded by Manitoba Hydro shows not, “disrespect” for aboriginal peoples but “respect”. If we cared not for aboriginal peoples, we would not have welcomed and paid for that work. I think you have much more ability as a lawyer than what your letter of January 11 would lead a reader to conclude.

You state that Manitoba Hydro “has chosen to . . . intimidate the Metis community” in and around Gillam. If you sincerely believe this, you have an obligation as a lawyer and as a member of the Metis community to provide me with the particulars. In turn, I would be ethically bound to investigate the matter. You can provide me with the details in some confidence. If, again, you are sincere in making this accusation, it means you know some citizens of this province have been subjected to acts (threats? harassment?) which are unacceptable and they must be currently suffering. This, if true, is not acceptable. If you don’t believe I can assist or that my client would govern itself by my advice, go to the police, or to the relevant union, or to the Labour Board or the Human Rights Commission. You should do this forthwith.

On the other hand, if your statement is not sincere, or not based on particulars known to you, then the making of the statement was “repugnant” and a cheap effort at sensationalism unbecoming of any legal counsel.

Your description of the work done by Manitoba Hydro and its consultants regarding the “west side corridor” and ungulates is at best confusing because it ignores the further work being done on three critical portions of the “west side corridor” and, in particular, moose and caribou. I can accept that you are charged with advocating that the work done to date was “deficient”, has been “discredited”, and does not address Metis issues as the MMF would like to see them addressed, but to isolate for criticism the issues of corridor, ungulates and cumulative effects when those very matters are being studied further, to your knowledge, is silly. At least wait until the work is finished and distributed. Should you decide in due course to criticize that work, your criticisms are going to carry less weight by virtue of the fact that you dismissed the work before you saw it. Anyone listening to you in the future will ‘take with a grain of salt’ what you say because it will be understood to be coloured by your need to be consistent with criticisms that were launched prematurely by you.

My client is not “delaying” further discussions with the MMF on mitigation measures. The Manitoba Hydro staff who have the responsibility to do that are all working on the route adjustments. That work has to take priority over the need to move forward with meetings with

the MMF or any other party on mitigation measures. I am not aware that any “obstacle” has been placed by Manitoba Hydro with respect to such discussions. You seem to be aware that there are “obstacles”. Please tell me what they are.

You assert that “Manitoba Hydro continues to stall and delay in paying monies owing to the MMF for Bipole III work already completed.” You ignore that your client has now on two occasions (one in July 2012 and a second in November 2012) made submissions to my client for the purpose of establishing that it indeed spent and is entitled to reimbursement for the balance, about \$125,000.00, of the \$500,000.00 sum specified in the contract. You ignore entirely the issues on this accounting that divide our clients. Three examples will suffice.

Your client asserts that it paid honourariums to participants in interviews and seeks reimbursement for the total. However, it provides no receipts, invoices or supporting documents confirming such payment which is a requirement of the contract. There is nothing novel in the concept of providing receipts, or cancelled cheques or similar documentation to confirm entitlement to receipt of monies. Be forthright with me. If your client neglected to secure receipts, say so. If there are receipts, but your client wishes to keep confidential the names of the recipients of the honourariums, there are ways that the needs of both clients can be addressed. But the path to resolution does not lie through you asserting in a letter to me that my client is “stalling” and “delaying” payment.

Your client seeks reimbursement for part of the salary it paid one of its employees. The contract specifically prohibits claims being made for reimbursement of salaried employees unless the intent to do this is raised at the time the contract is negotiated and, presumably, a persuasive case is made for doing this. The same prohibition applies to all such contracts Manitoba Hydro signs. The cost of the employee’s salary was not incurred by your client as a consequence of it signing the foregoing contract with Manitoba Hydro for Bipole III studies. Your client was already committed to employing this person at the time. I understand he worked for a number of years at the MMF. The MMF meeting its annual payroll obligation to him as his employer can in no way be ‘cash flowing work undertaken for Manitoba Hydro.’

Your client seeks reimbursement for a significant sum on account of “administrative expenses” allegedly incurred in performing the Bipole III work. No receipts, invoices or the like have been provided in support of this particular sum. I am informed that where receipts have been provided for expenses that are administrative in nature, reimbursement has taken place, subject to the fact that the contract fixes a maximum limit for the proportion of costs that are recoverable as “administrative”. I am told that it appears your client is seeking to recover costs of overhead it would pay whether or not it ever obtained any contract from Manitoba Hydro. If that is the case, your client’s obligation to pay its operating expenses from year to year does not arise as a consequence of its signing the above-noted contract with Manitoba Hydro for Bipole III and can in no way be ‘cash flowing work undertaken for Manitoba Hydro.’

I suggest you obtain instructions from your client to engage in trying to resolve the outstanding issues arising out of this accounting and I will do the same. I can assure you that I

will have no difficulty communicating to you in a plain, forthright manner what the issues are and why my client believes it is not obligated to send more money pursuant to this contract to your client absent an accounting that is in accordance with the terms of the contract and with common sense. And, I would recommend you be constructive in discussing the subject with me. I can think of several useful and practical ideas to resolve this matter that would constitute a ‘win-win’ to both clients.

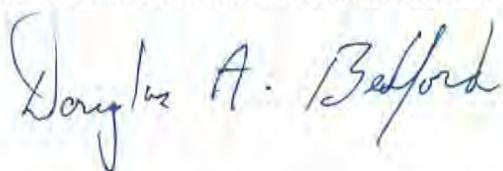
You imply that some action, or actions, of my client are “contrary” to statements I have made to the Clean Environment Commission. I do not know what statements you have in mind. You do not quote me nor provide a reference to the transcript of proceedings. I stand behind what I have said on the record of the hearings. If you believe sincerely that I said something on the record which has been contradicted by some action of Manitoba Hydro, be forthright and provide me with the citation. I am hardly above acknowledging, when it is properly and professionally drawn to my attention, that I can be wrong or that my client has not followed through on some matter.

To borrow your words, what I find “unacceptable”, “unsupportable” and “disrespectful” are sloppy letters that reveal a failure on the part of the author to inform himself of the facts, and address the real issues. I’ll assume you are extremely busy. I note you have just moved firms. That, generally, is a particularly hectic period in a lawyer’s life. That, perhaps, is the explanation for a letter obviously written with too much haste, too much emotion and too little thought. Why don’t you advise me, by Wednesday, January 23, 2013 that you would like to withdraw your letter and replace it with another? I can do the same then with this letter.

Yours truly,

**MANITOBA HYDRO LAW DEPARTMENT**

Per:



**DOUGLAS A. BEDFORD**

Barrister and Solicitor

DB/kp

## **APPENDIX 3E**

### **Feedback Log**

# Bipole III Transmission Project Final Preferred Route Adjustments

December 2012

## Comment Sheet

### How did you hear about this Open House?

Newspaper  Postcard  Letter  Poster  Word of Mouth  Website  Other \_\_\_\_\_

### What comments or concerns do you have regarding the Final Preferred Route adjustments in any of the following areas?

#### Wabowden

---

---

#### Moose Meadows

---

---

#### GHA14A/19

---

---

### What site specific concerns do you have along these adjustments? Please indicate the location of your concerns on the corresponding map.

---

---

### What can be done to limit any potential impact you believe may occur with any of these route adjustments?

---

---



# Bipole III Transmission Project

## Final Preferred Route Adjustments

December 2012

What are your concerns regarding the Final Preferred Route Adjustments (check all that apply)?

### Wabowden

Access	Employment	Vegetation	
Aesthetics/Visual	Health/Safety	Wetlands	
Agricultural	Location	Wildlife:	
Construction	Noise/Vibration	Other:	
Economic	Property	Other:	

**What do you see as potential benefits to the Wabowden proposed route adjustment?**

---

---

**Do you recommend Manitoba Hydro make this route adjustment? Yes  No**

### Moose Meadows

Access	Employment	Vegetation	
Aesthetics/Visual	Health/Safety	Wetlands	
Agricultural	Location	Wildlife:	
Construction	Noise/Vibration	Other:	
Economic	Property	Other:	

**What do you see as potential benefits to the Moose Meadows proposed route adjustment?**

---

---

**Do you recommend Manitoba Hydro make this route adjustment? Yes  No**

### GHA 14A/19

Access	Employment	Vegetation	
Aesthetics/Visual	Health/Safety	Wetlands	
Agricultural	Location	Wildlife:	
Construction	Noise/Vibration	Other:	
Economic	Property	Other:	

**What do you see as potential benefits to the GHA14A/19 proposed route adjustment?**

---

---

**Do you recommend Manitoba Hydro make this route adjustment? Yes  No**

Name	N	PC	L	P	WM	W	O	MM Comments	GHA Comments	Site Concerns	Limit Potential Impact	A	V	A	G	C	E	Em	HS	Lo	No	Pr	V	We	Wi	Benefit	Yes Wabowden	No Wabowden	A2	
CS1	T	F	F	F	F	F		Looks like hunters have shorter distance			F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	Wabowden	F	F		
Barrows 1	F	F	F	F	T	F		None		None	F	F	F	F	F	F	F	F	F	F	F	F	F	F	T	F	F	F		
Birch River 1	F	F	F	F	T	F					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
Birch River 2	T	T	F	F	F	F		Impact on flora and fauna is a significant concern			F	F	F	F	F	F	F	F	F	F	F	F	F	F	T	F	F			
Birch River 3	F	T	F	F	F	F		I own 6-43-25W. I don't want any access traffic on my land or on my grid road which ends in my yard. Move the line 1/2 mile or so further east and access it from somewhere else. The new location may be in a good spot further by Bellsite but by my yard move it further away so access is more limited.			F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	T				
Cowan 1	F	F	F	F	F	F					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
Cowan 2	F	F	F	F	F	F					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
Cowan 3	F	T	F	F	F	F					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
Dawson 1	F	F	F	T	F	F					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
Dawson 2	F	F	F	T	F	F					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
Swan River 1	T	F	F	F	F	F		Can't you go beside existing ROWs			F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
Swan River 2	T	F	F	F	F	F		Great that Moose Meadows avoided. Still a concern with running along a travel corridor during harsh winter conditions. Only way to avoid major impacts on moose population is to make the line a moose refuge. No discharging within 300m of the line.		An along #10 Hwy. Concern on heritage sites along the area east of Briggs Spur. Traditional land use. Bog orchids in Spence Lake area, etc.		No treatment (herbicide) and proper environmental assessment. This means non-winter.		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Swan River 3	F	F	F	F	F						F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	T	F	F		
Swan River 4	F	F	T	F	F	F		New route will not enhance natural habitat for recolonization			F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
Wabowden 1	F	F	F	F	F	F					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		

Name	N	PC	L	P	WM	W	O	MM Comments	GHA Comments	Site Concerns	Limit Potential Impact	A	V	A	Ag	C	Ec	Em	HS	Lo	No	Pr	V	We	Wi	Benefit	Yes Wabowden	No Wabowden	A2
	T	F	F	F	F	F					F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
Winnipeg 1																													
Winnipeg 10	T	F	F	F	F	F			The new route has benefits in that Hwy 10 gives better surveillance and maintenance access.		No real advantage except Rouge 489 proximity north of Pulp River. Possible topographical advantage?																		
Winnipeg 11	T	F	F	F	F	F					Go the common sense route down the original Bipole H2 proposed route of about 30 years ago	T	F	F	T	T	F	F	F	F	F	F	F	F	F	F	F	T	
Winnipeg 12	T	F	F	F	F	F						F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
Winnipeg 2	F	F	F	F	T	Radio						F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	

Name	N	P	C	I	P	W	M	W	O	MM Comments	GHA Comments	Site Concerns	Limit Potential Impact	A	V	A	G	C	E	Em	HS	Io	No	Pr	V	We	Wi	Benefit Wabowden	Yes Wabowden	No Wabowden	A2
Winnipeg 3	F	F	F	F	T	F								F	F	F	F	F	F	F	F	F	F	F	F	F	F	F			
Winnipeg 4	T	F	F	F	T	F								F	F	F	F	F	F	F	F	F	F	F	F	F	F				
Winnipeg 5	T	F	F	F	F	F	Eastern MB route - this not a problem		East MB - best route. Dec 4/2012 - CJOB Premier Selinger stated he does not interfere with Crown corporations. "so who made decision for west side Bipole 3.		The question - MB owned by people of Manitoba New transit system owned by the people. How come people have to buy right away from Hydro.		Cost 3.9% increase - 30 years 1.00 mon \$1200/year = 2012 2042= \$4007.00/year. Bev Zesnel - 204-837-7767		F	F	F	F	F	F	F	F	F	F	F	F	F	F			
Winnipeg 6	T	F	F	F	F	F								F	F	F	F	F	F	F	F	F	F	F	F	F	F				
Winnipeg 7	T	F	F	F	F	F								T	F	F	T	T	T	F	F	F	T	F	T	F	F				
Winnipeg 8	T	F	F	F	F	F								F	F	F	F	F	F	F	F	F	F	F	F	F	F				
Winnipeg 9	T	F	F	F	F		None							I am supportive of this plan.	F	F	F	F	F	F	F	F	F	F	T	F	F	F			

Name	VA2	Ag2	C2	Ec2	Em2	HS2	Lo2	NoI2	Pt2	V2	We2	Wi2	Benefit MM	Yes MM	No MM	Other MM/YN	A3	VA3	Ag3	C3	Ec3	Em3	HS3	L3	NoI3	Pt3	V3	We3	Wi3	WI32	WI03	Benefit GHA	Yes GHA	No GHA	Other
CS1	F	F	F	F	F	F	F	F	F	F	F	F	I am sure hunters will approve	F	F	Not sure!	F	F	F	F	F	F	F	F	T				F	F					
Barrows 1	F	F	F	F	F	F	F	F	F	F	F	F		T	F		F	F	F	F	F	F	F	F	F	F	F	F	F	F					
Birch River 1	F	T	T	F	F	F	F	T	F	T	F	F		F	T		F	F	F	F	F	F	F	F	F	F	F	F	F	F					
Birch River 2	F	F	F	F	F	F	F	F	T	T	F	F		T	F		F	F	F	F	F	F	F	F	F	T	T	F	F						
Birch River 3	T	F	F	F	F	T	T	F	F	F	F	F	The new location is probably in a good spot by Bellsite. But South East of Mafeking move it 1/2 mile or so further east.	T	T		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F			
Cowan 1	F	F	F	F	F	F	F	F	F	F	F	F		F	F		F	F	F	F	F	F	F	F	F	F	F	F	F						
Cowan 2	F	F	F	F	F	F	F	F	F	F	F	F		F	F		F	F	F	F	F	F	F	F	F	F	F	F	F						
Cowan 3	F	F	F	F	F	F	F	F	F	F	F	F		F	F		F	F	F	F	F	F	F	F	F	Away from home quarter	T	F							
Dawson 1	F	F	F	F	F	F	F	F	F	F	F	F		F	F		F	F	F	F	F	F	F	F	F	F	F	F	F						
Dawson 2	F	F	F	F	F	F	F	F	F	F	F	F		F	F		F	F	F	F	F	F	F	F	F	F	F	F	F						
Swan River 1	F	F	F	F	F	F	F	F	F	Moose	Keep out of moose habitat	T		F	F		F	F	F	F	F	F	F	F	T	This is a longer route	F	T							
Swan River 2	F	F	F	F	F	F	F	F	F	This line would have devastating effects on moose population in an already strained area.	limited access.	T		F	F		F	F	F	F	F	F	F	F	F	F	F	F	F	F					
Swan River 3	F	F	F	F	F	F	F	T	F	F	F	T	Limits access, limits potential fire threat	F	T		F	F	F	T	F	F	T	T	T	T	None - increasing access	F	T						
Swan River 4	F	F	F	F	F	F	F	F	T	F	F	T		F	F		F	F	F	F	F	F	F	F	F	F	F	F	F						
Wabowden 1	F	F	F	F	F	F	F	F	F	F	F	F		F	F		F	F	F	F	F	F	F	F	F	F	F	F	F						

Name	VA2	Ag2	C2	Ec2	Em2	HS2	Lo2	NoI2	Pt2	V2	We2	Wi2	Benefit MM	Yes MM	No MM	Other MM/YN	A3	VA3	Ag3	C3	Ec3	Em3	HS3	L3	NoI3	Pt3	V3	We3	Wi3	Wt32	Wt03	Benefit GHA	Yes GHA	No GHA	Other		
Winnipeg 1	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Winnipeg 10	F	F	T	T	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Winnipeg 11	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Winnipeg 12	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Winnipeg 2	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F

Name	VA2	Ag2	C2	Ec2	Em2	HS2	Lo2	NoI2	Pt2	V2	We2	Wi2	Benefit MM	Yes MM	No MM	Other MM/YN	A3	VA3	Ag3	C3	Ec3	Em3	HS3	L3	NoI3	Pt3	V3	We3	Wi3	WI32	WI03	Benefit GHA	Yes GHA	No GHA	Other
Winnipeg 3	F	F	F	F	F	F	F	F	F	F	F	F	I hope Manitoba Hydro put a presentation than	F	F		F	F	F	F	F	F	F	F	F	F	F	I hope Manitoba Hydro put a presentation than	F	F					
Winnipeg 4	F	F	F	F	F	F	F	F	F	F	F	F	meeting. It will be appreciated if there is a representative from the government. The Manitoba Hydro are just passing the information, they cannot directly answer the why?	F	F		F	F	F	F	F	F	F	F	F	F	F	meeting. It will be appreciated if there is a representative from the government. The Manitoba Hydro are just passing the information, they cannot directly answer the why?	F	F					
Winnipeg 5	F	F	F	F	F	F	F	F	F	F	F	F	Best route ok - Eastern MB - better	F	F		F	F	F	F	F	F	F	F	F	F	F	Best route ok - Eastern MB - better	F	F					
Winnipeg 6	F	F	F	F	F	F	F	F	F	F	F	F		F	F		F	F	F	F	F	F	F	F	F	F	F	F							
Winnipeg 7	F	F	T	T	T	F	T	T	F	F	F	T		T	F		F	T	T	T	F	F	F	F	F	F	F	F							
Winnipeg 8	F	F	F	F	F	F	F	F	F	F	F	F		F	F		F	F	F	F	F	F	F	F	F	F	F	F							
Winnipeg 9	F	F	F	F	F	F	F	F	F	F	F	F		T	F		F	F	F	F	F	F	F	F	F	F	F	F							

Column1	lessee	Agriculture	Commercial	Acreage	Pasture	Other	Crops	Yes 3	No 3	Yes 4	No 4	Text 5	Text 9	Text 12	Text 15	Sketch	Owner 1	Location
LICRRI	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	Text 16	Text 17	Text 18	Text 19	Text 20	Text 21
LICR2	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	Text 22	Text 23	Text 24	Text 25	Text 26	Text 27
LICR3	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	Text 28	Text 29	Text 30	Text 31	Text 32	Text 33
LICR4	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	Text 34	Text 35	Text 36	Text 37	Text 38	Text 39
LICR5	FALSE	TRUE	FALSE	FALSE	Wheat and Canola	TRUE	Very uncommon but used	Trees	Fibre optic in close proximity	TRUE	FALSE	TRUE	Text 40	Text 41	Text 42	Text 43	Text 44	Text 45
LICR6	TRUE	FALSE	TRUE	FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	Text 46	Text 47	Text 48	Text 49	Text 50	Text 51
LICR7	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	Text 52	Text 53	Text 54	Text 55	Text 56	Text 57	Text 58	Text 59	Text 60	Text 61	Text 62
LICR8	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	Text 63	Text 64	Text 65	Text 66	Text 67	Text 68	Text 69	Text 70	Text 71	Text 72	Text 73

## **APPENDIX 3F**

### **Participant Mapping**

## **3F1.0 GHA 14 (MOOSE MEADOWS) – PARTICIPANT MAPPING**

Participants at the Swan River and Birch River Regional Open Houses provided input on the maps that were provided at the open house. Table 3F1-1 outlines the mapping comments provided by participants regarding the adjustment in GHA 14 (Moose Meadows).

**Table 3F1-1: Mapping Comments Provided at Open Houses for GHA 14 (Moose Meadows)**

Type of Concern	Map Title	Location*	Concern/Comment
Routing	Adjusted Final Preferred Route – Map 55	North of Mafeking	A landowner noted that the new adjustment would be better located directly on the half mile line to avoid clearing on the adjacent property (used for hunting) and there is an expectation that it may be purchased in the near future.
Wildlife	Adjusted Final Preferred Route – Map 56	North of Bellsite	Participant noted that this area is a moose travel corridor.

\*Note: Mapping has been digitized and may vary slightly from the mapping provided by participants.

### **3F1.1 GHA 19A/14A – Participant Mapping**

Participants at the Cowan and Swan River Regional Open Houses provided input on the maps which were provided at the Open House. Table 3F-2 outlines the mapping comments provided by participants regarding the adjustment in GHA 19A/14A.

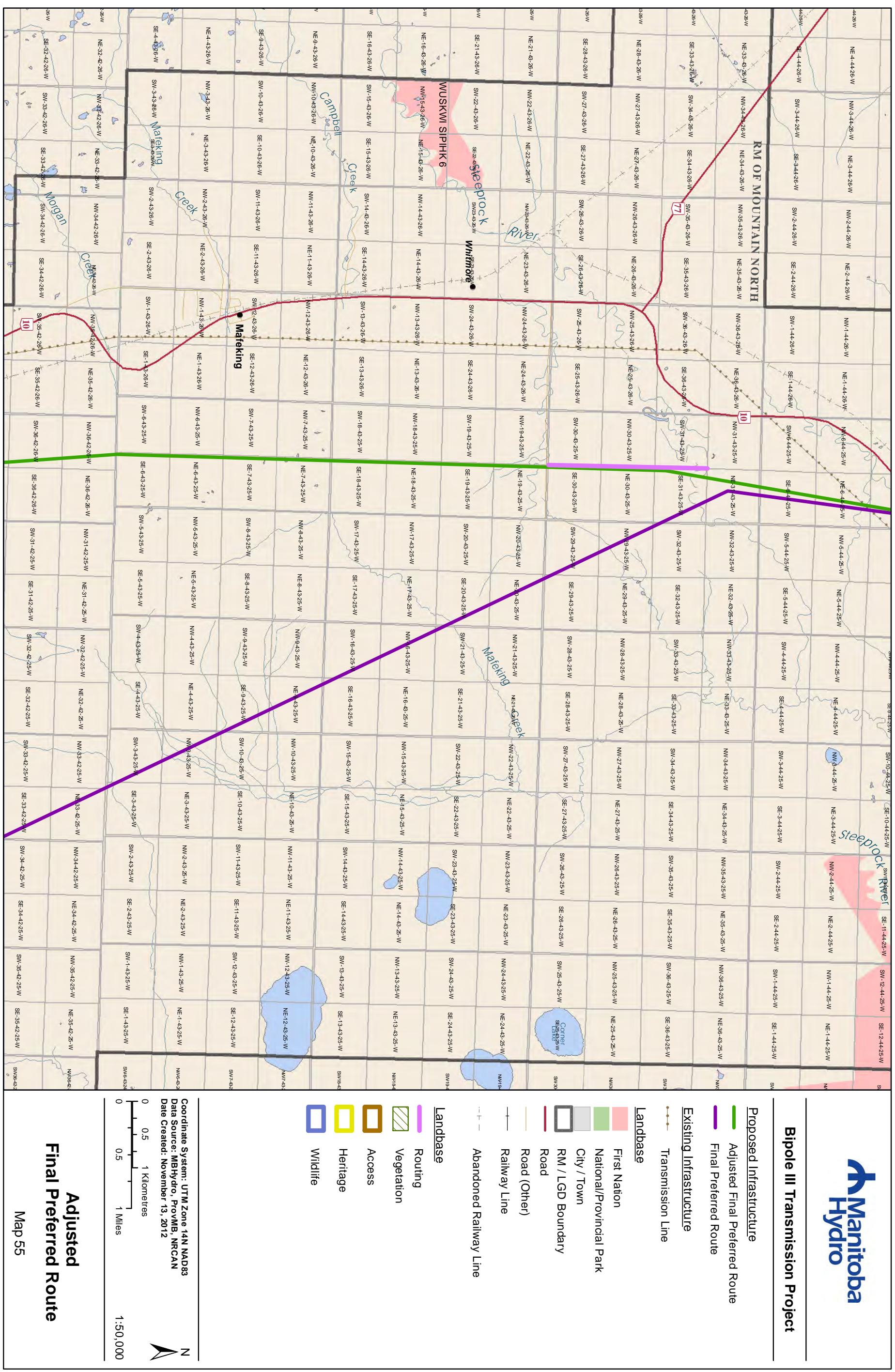
**Table 3F1.1-1: Mapping Comments Provided at Open Houses for GHA 19A/14A**

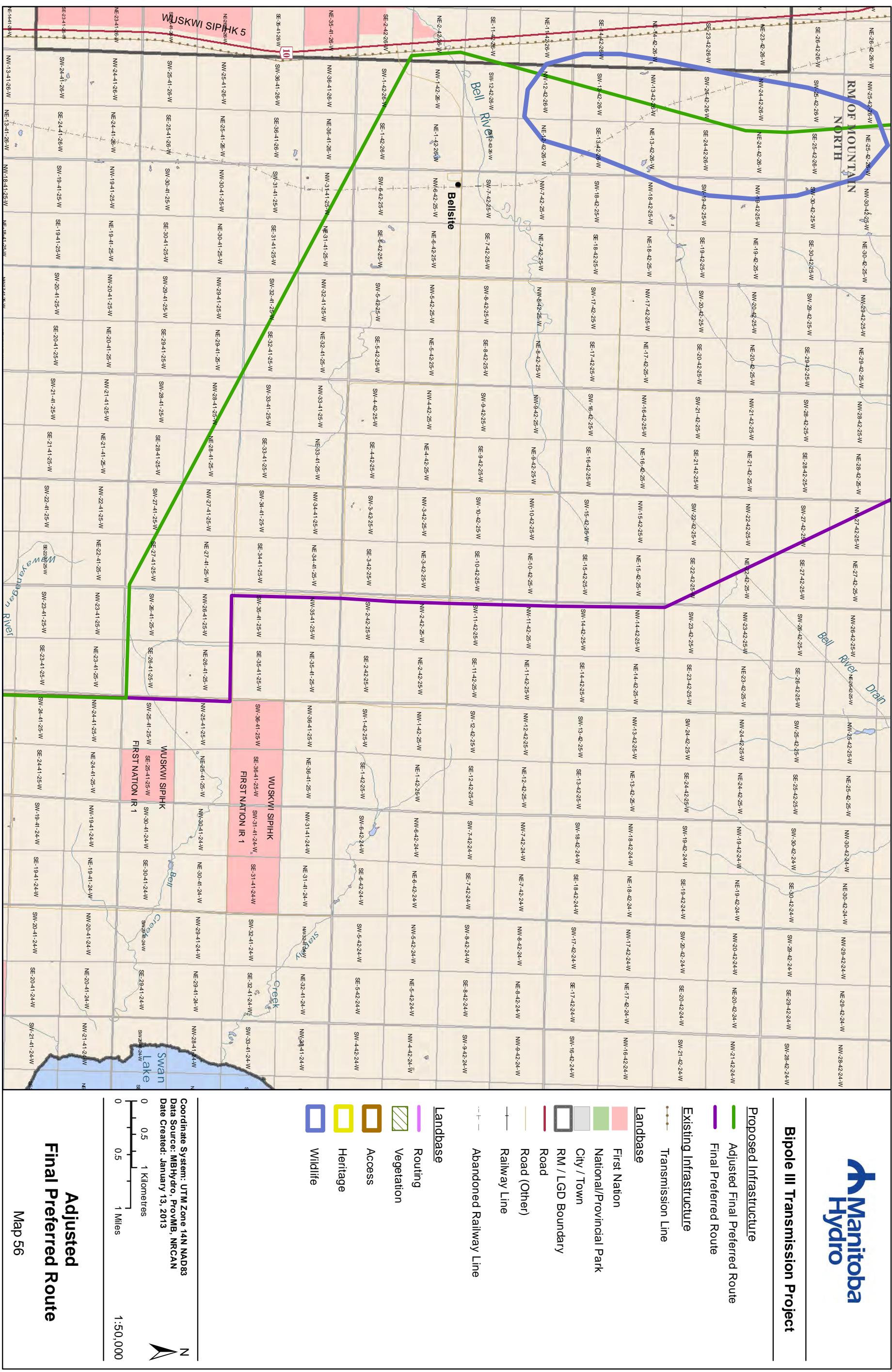
Type of Concern	Map Title	Location*	Concern/Comment
Wildlife	GHA19A and GHA14A Adjusted Final Preferred Route	East of Briggs Spur	The comment regarding this area indicates a preference for the FPR as the route skirts the better moose habitat as compared to the route adjustment further east.
Access	GHA19A and GHA14A Adjusted Final Preferred Route	Polygon located further west along PTH 20	It was noted by a participant that this route would be a better option to limit access into the Swan Pelican Forest Reserve. It was noted that this area is privately owned and that gaining access to the area would be more difficult.
Access	GHA19A and GHA14A Adjusted Final Preferred Route	Polygon located further east along PTH 20	It was noted by a participant that this area had limited access. It was noted that this adjustment would provide more access for hunting and would provide a clear line of sight from the highway.
Routing	GHA19A and GHA14A Adjusted Final Preferred Route	Located south of PTH 20	This routing option was presented by private landowners in the vicinity. It was noted that this adjustment would limit access into areas north and south of PTH 20. The landowners own land along the preferred route and not the adjustment and were accepting of the route on their property.
Routing	GHA19A and GHA14A Adjusted Final Preferred Route	Line originates from the route adjustment and travels easterly towards Pine Creek First Nation	A representative of the Pine Creek First Nation attended the Cowan Open House and presented a routing option for consideration to avoid the Bison ranch which is located south of PTH 20. No specific rationale was provided for avoidance of the bison ranch.
Heritage	Adjusted Final Preferred Route – Map 61	East of Briggs Spur	An attendee provided information regarding heritage concerns along the old beach ridges in the area east of Briggs Spur. The participant noted that there had been many artifacts discovered following fire in 1961.
Vegetation	Adjusted Final Preferred Route – Map 61	Green Hatching – smaller of the two polygons	Participant noted that there was abundance of Bog Orchids and Showy Lady Slipper in the area.

**Table 3F1.1-1: Mapping Comments Provided at Open Houses for GHA 19A/14A**

Type of Concern	Map Title	Location*	Concern/Comment
Vegetation	Adjusted Final Preferred Route – Map 61	Green Hatching – smaller of the two polygons	Participant noted that there was abundance of Bog Orchids and Showy Lady Slipper in the area.
Vegetation	Adjusted Final Preferred Route – Map 61	Green Hatching – larger of the two polygons	Participant noted fantastic blueberries on sand ridge east of Briggs Spur.
Access	Adjusted Final Preferred Route – Map 62	Polygon encompassing north and south of PTH 20	Participant noted that the area has plenty of access and can be accessed by car.

\*Note: Mapping has been digitized and may vary slightly from the mapping provided by participants.







## Bipole III Transmission Project

### Project Infrastructure

- Adjusted Final Preferred Route
- Final Preferred Route
- Project Study Area

### Landbase

- Community
- Game Hunting Area (GHA)
- First Nation
- National/Provincial Park
- Provincial Forest
- Wildlife Management Area

### Infrastructure

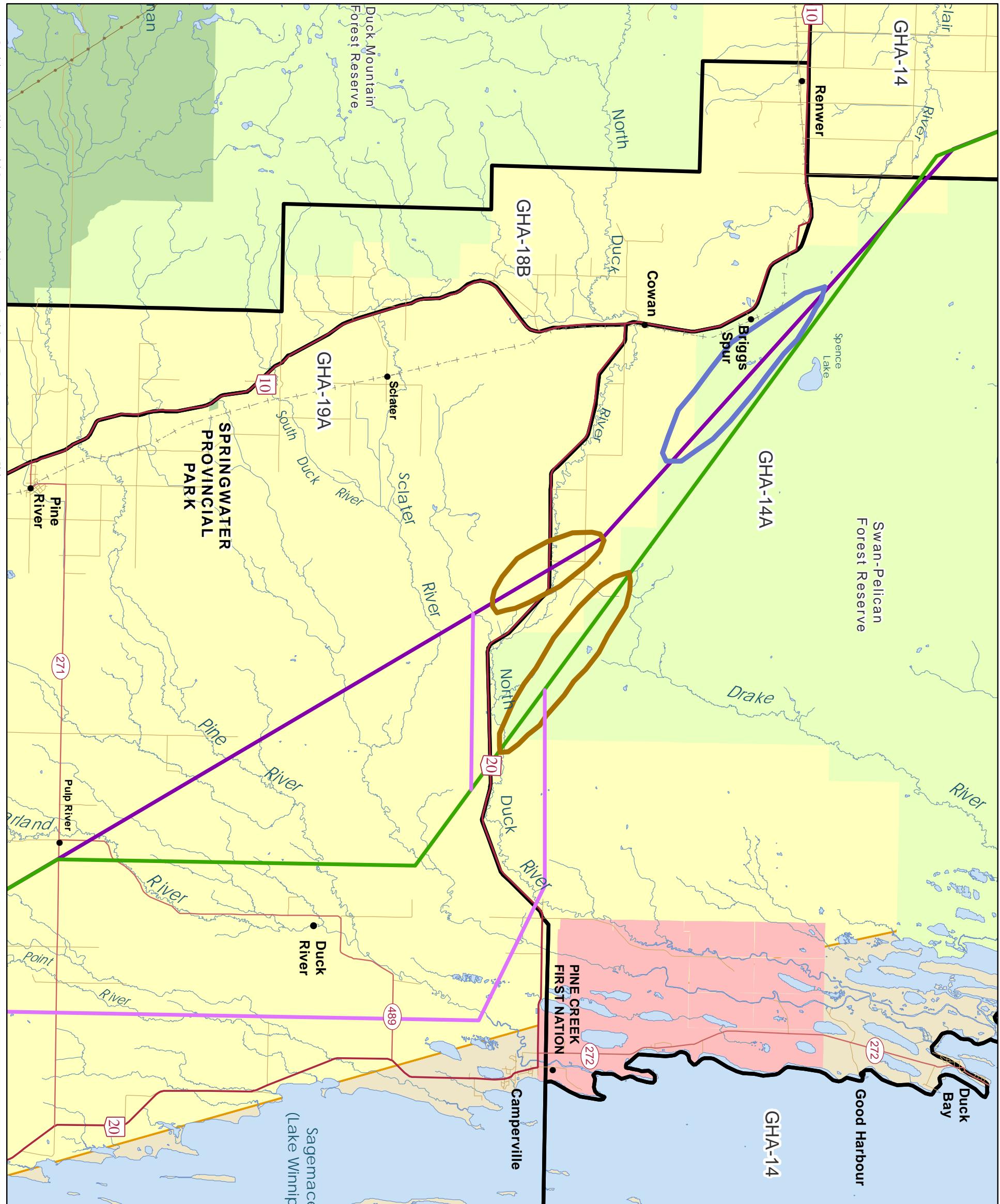
- Transmission Line
- Provincial Highway
- Provincial Road
- Road (Other)
- Abandoned Rail
- Active Rail

### Feedback

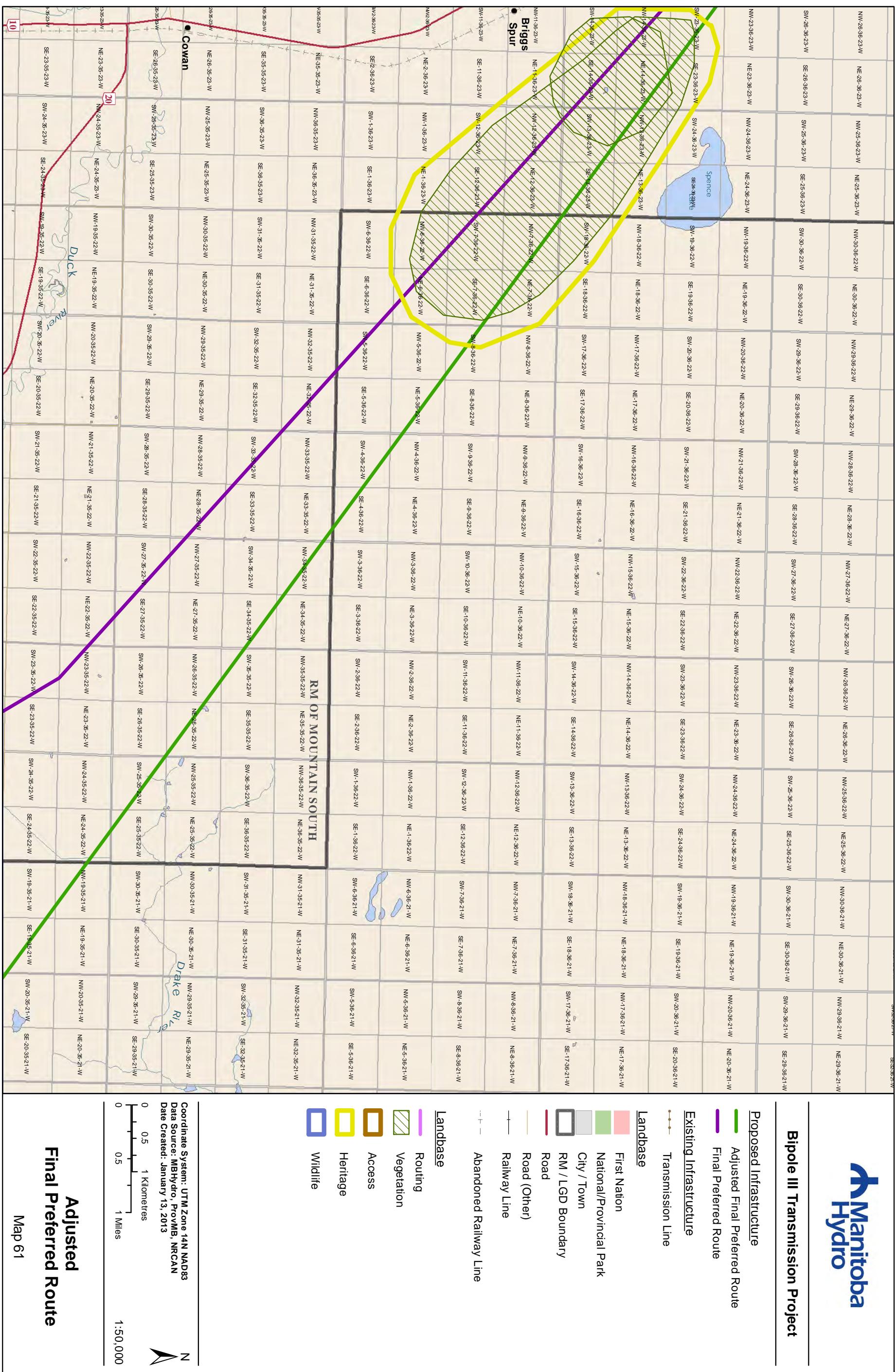
- Routing
- Vegetation
- Access
- Heritage
- Wildlife

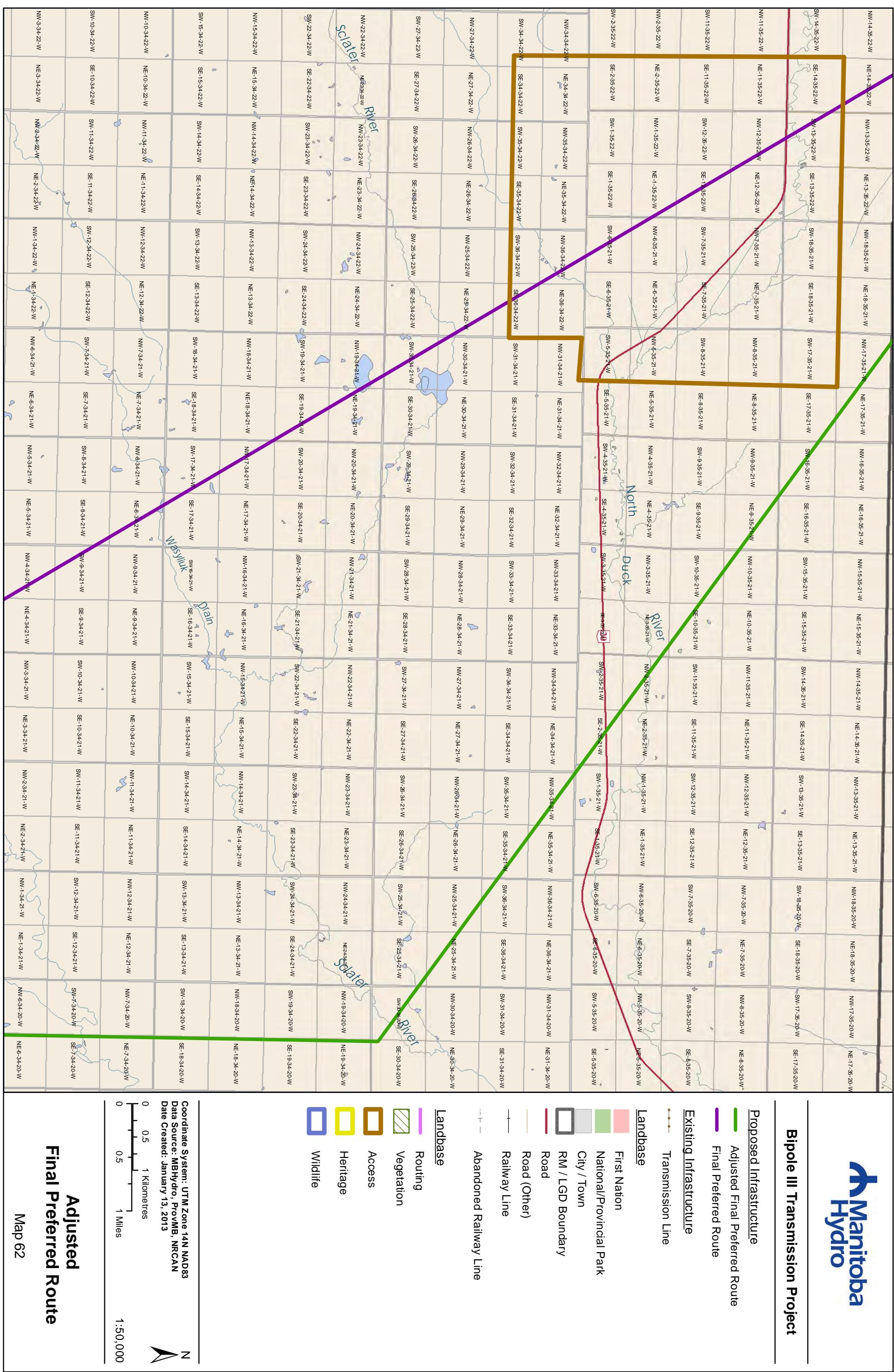
Coordinate System: UTM Zone 14N NAD83  
 Data Source: MBHydro, PROVMB, NRCan  
 Date Created: Jan 13, 2013

0 2.5 5 Kilometres  
 0 1.5 3 Miles  
 1:170,000



## GHA19A and GHA14A Adjusted Final Preferred Route





# TABLE OF CONTENTS

<b>4.0</b>	<b>ENVIRONMENTAL ASSESSMENT AND MITIGATION.....</b>	<b>4-1</b>
<b>4.1</b>	<b>INTRODUCTION.....</b>	<b>4-1</b>
<b>4.2</b>	<b>BIOPHYSICAL EFFECTS ASSESSMENT AND MITIGATION .....</b>	<b>4-1</b>
<b>4.2.1</b>	<b>Terrain and Soils .....</b>	<b>4-2</b>
<b>4.2.1.1</b>	<b>Overview .....</b>	<b>4-2</b>
<b>4.2.1.2</b>	<b>Soil Productivity .....</b>	<b>4-4</b>
<b>4.2.1.3</b>	<b>Terrain Stability .....</b>	<b>4-5</b>
<b>4.2.1.4</b>	<b>Summary of Residual Environmental Effects Significance .....</b>	<b>4-6</b>
<b>4.2.2</b>	<b>Groundwater.....</b>	<b>4-7</b>
<b>4.2.2.1</b>	<b>Overview .....</b>	<b>4-7</b>
<b>4.2.2.2</b>	<b>Aquifer Quality.....</b>	<b>4-8</b>
<b>4.2.2.3</b>	<b>Aquifer Productivity .....</b>	<b>4-9</b>
<b>4.2.2.4</b>	<b>Summary of Residual Environmental Effects Significance .....</b>	<b>4-9</b>
<b>4.2.3</b>	<b>Aquatic Environment .....</b>	<b>4-9</b>
<b>4.2.3.1</b>	<b>Overview .....</b>	<b>4-9</b>
<b>4.2.3.2</b>	<b>Fish Habitat and Water Quality .....</b>	<b>4-10</b>
<b>4.2.3.3</b>	<b>Summary of Residual Environmental Effects Significance .....</b>	<b>4-11</b>
<b>4.2.4</b>	<b>Terrestrial Ecosystems and Vegetation .....</b>	<b>4-13</b>
<b>4.2.4.1</b>	<b>Overview .....</b>	<b>4-13</b>
<b>4.2.4.2</b>	<b>Plant Species of Conservation Concern VEC .....</b>	<b>4-14</b>
<b>4.2.4.3</b>	<b>Native Grasslands/ Prairie Areas VEC .....</b>	<b>4-15</b>
<b>4.2.4.4</b>	<b>Summary of Residual Environmental Effects Significance .....</b>	<b>4-16</b>
<b>4.2.5</b>	<b>Mammals and Habitat .....</b>	<b>4-17</b>
<b>4.2.5.1</b>	<b>Overview .....</b>	<b>4-17</b>
<b>4.2.5.2</b>	<b>American Marten .....</b>	<b>4-19</b>
<b>4.2.5.3</b>	<b>Beaver.....</b>	<b>4-20</b>
<b>4.2.5.4</b>	<b>Wolverine .....</b>	<b>4-21</b>

4.2.5.5	Boreal Woodland Caribou.....	4-21
4.2.5.6	Moose.....	4-23
4.2.5.7	Elk.....	4-25
4.2.5.8	Summary of Residual Environmental Effects Significance.....	4-26
4.2.6	Birds and Habitat.....	4-28
4.2.6.1	Overview .....	4-28
4.2.6.2	Waterfowl and Waterbird VECs (Mallard, Sandhill Crane, Yellow Rail) .....	4-32
4.2.6.3	Colonial Waterbird VECs (Great Blue Heron, Least Bittern) .....	4-32
4.2.6.4	Birds of Prey VECs (Bald Eagle, Ferruginous Hawk, Burrowing Owl, Short-eared Owl) .....	4-33
4.2.6.5	Upland Game Birds VECs (Ruffed Grouse, Sharp-tailed Grouse).....	4-33
4.2.6.6	Woodpecker VECs (Pileated Woodpecker, Red-headed Woodpecker) .....	4-34
4.2.6.7	Songbirds and other Bird VECs (Common Nighthawk, Whip-poor-will, Olive-sided Flycatcher, Loggerhead Shrike, Sprague's Pipit, Golden-winged Warbler, Canada Warbler, Rusty Blackbird) .....	4-35
4.2.6.8	Summary of Residual Environmental Effects Significance.....	4-36
4.2.7	Amphibians and Reptiles .....	4-39
4.2.7.1	Overview .....	4-39
4.2.7.2	Wood Frog and Northern Leopard Frog Amphibian VECs .....	4-41
4.2.7.3	Summary of Residual Environmental Effects Significance.....	4-41
4.3	<b>SOCIO-ECONOMIC EFFECTS ASSESSMENT AND MITIGATION ...</b>	<b>4-43</b>
4.3.1	Introduction.....	4-43
4.3.2	Land Use .....	4-44
4.3.2.1	Overview .....	4-44
4.3.2.2	Private Forest Lands VEC (Shelterbelts, Managed Private woodlots) .....	4-44
4.3.2.3	Aboriginal Lands VEC (Reserve Lands and Treaty Land Entitlement Selections [TLE]).....	4-45

4.3.2.4	Designated Protected Areas and Protected Areas Initiative (Areas of Special Interest, Enduring Features) .....	4-45
4.3.2.5	Agricultural Land Use/Productivity.....	4-46
4.3.2.6	Summary of Residual Environmental Effects Significance .....	4-47
4.3.3	Resource Use .....	4-49
4.3.3.1	Commercial Forestry VEC.....	4-50
4.3.3.2	Mining/Aggregates VEC.....	4-51
4.3.3.3	Recreation and Tourism VEC .....	4-51
4.3.3.4	Domestic Resource Use VEC.....	4-52
4.3.3.5	Summary of Residual Environmental Effects Significance .....	4-54
4.3.4	Culture and Heritage Resources .....	4-56
4.3.3.6	Culture VEC.....	4-57
4.3.3.7	Heritage Resources VEC.....	4-58
4.3.3.8	Summary of Residual Environmental Effects Significance .....	4-59
4.4	REFERENCES .....	4-61

## APPENDICES

- APPENDIX 4A Biophysical and Socio-economic VECs  
 APPENDIX 4B Maps

# LIST OF TABLES

	<b>Page</b>
Table 4.2-1: Terrain and Soils VECs Affected by AFPR Changes .....	4-3
Table 4.2-2: Residual Environmental Effects Assessment Summary for Project HVdc Transmission Line Component with AFPR Changes - Terrain and Soils .....	4-7
Table 4.2-3: Groundwater VECs Affected by AFPR Changes .....	4-8
Table 4.2-4: Aquatic Environment VECs Affected by AFPR Changes.....	4-10
Table 4.2-5: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Aquatic Environment.....	4-12
Table 4.2-6: Terrestrial Vegetation VECs Affected by AFPR Changes.....	4-14
Table 4.2-7: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR – Terrestrial Ecosystems and Vegetation .....	4-16
Table 4.2-8: Mammals and Mammal Habitat VECs Affected by AFPR Changes .....	4-18
Table 4.2-9: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Mammals.....	4-27
Table 4.2-10: Birds and Bird Habitat VECs Affected by AFPR Changes .....	4-30
Table 4.2-11: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Birds.....	4-37
Table 4.2-12: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Amphibians and Reptiles.....	4-40
Table 4.2-13: Total Area of Wetland Habitat Classes within the AFPR Segments .....	4-41
Table 4.2-14: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Amphibians and Reptiles.....	4-42
Table 4.3-1: Socio-economic Sub-components Affected by AFPR Changes .....	4-43
Table 4.3-3: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes - Land Use .....	4-48
Table 4.3-4: Resource Use VECs Affected by AFPR Changes .....	4-50
Table 4.3-5: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes - Resource Use.....	4-55
Table 4.3-6: Culture and Heritage Resources VECs Affected by AFPR Changes Culture & Heritage Resources VECs .....	4-57
Table 4.3-7: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Culture and Heritage Resources .....	4-60

## **4.0 ENVIRONMENTAL ASSESSMENT AND MITIGATION**

### **4.1 INTRODUCTION**

This chapter provides supplemental assessment of the Project with the three AFPR route changes described in Chapter 2, focusing on each VEC where there are changes in effects of the HVdc transmission line component of the Project due to the AFPR changes. The chapter relies throughout on the assessment of effects of the Project on VECs as set out in Chapter 8 of the December 2011 EIS (Manitoba Hydro 2011), and retains (unless otherwise noted) the assessment as set out in the EIS and subsequent filings reviewed to date in the CEC hearing process.

This chapter includes the following sections;

- Biophysical effects of the Project; and
- Socio-economic effects of the Project.

With regard to effects of the Project from accidents and malfunctions or effects of the environment on the Project, no detectable changes with the AFPR route changes are expected relative to the assessment provided in the EIS.

### **4.2 BIOPHYSICAL EFFECTS ASSESSMENT AND MITIGATION**

Biophysical effects of the Project with the three AFPR route changes are outlined below for the following biophysical sub-components of the environment, focusing on each VEC where there are changes in effects of the HVdc transmission line component of the Project due to the AFPR changes:

- Terrain and Soils;
- Groundwater;
- Aquatic Environment;
- Terrestrial Ecosystems and Vegetation;
- Mammals and Habitat;

- Birds and Habitat; and
- Amphibians and Reptiles.

No changes are outlined to the EIS assessment for the following biophysical sub-components:

- Air Quality and Climate - the AFPR route changes do not result in any material change to the effects assessment provided in Section 8.2.2 of the EIS (i.e., minor changes related to the HVdc line length and/or specific terrain impacted due to the AFPR route changes will not result in any detectable change to the expected effects regarding VECs for this sub-component).
- Terrestrial Invertebrates - the AFPR route changes are not expected to result in any detectable change to the effects assessment provided in Section 8.2.9 of the EIS (i.e., none of these route changes result in effects that overlap with VECs for this sub-component).

## 4.2.1 Terrain and Soils

### 4.2.1.1 Overview

Assessment of the three AFPR route change effects on terrain and soils VECs was undertaken by consulting Manitoba Conservation's Protected Areas Initiative (PAI), the federal Department of Regional Economic Expansion's (1965) *Soil Capability Classification for Agriculture*, Agriculture and Agri-Food Canada, *Technical Manual for Manitoba RM Soils and Terrain Information Bulletins, Special Report 01-1* (Fraser, W.R., P. Cyr, R.G. Eilers and G.W. Lelyk, 2001) Agriculture Canada's *Map for Wind Erosion Risk Manitoba* and the *Map for Water Erosion Risk Manitoba* (Agriculture Canada 1987a, 1987b). Potential effects were originally identified with an environmental interaction matrix, feature mapping, and professional review and opinion. ATK gathered by Manitoba Hydro and associated consultants for the Bipole III process was also considered. This assessment is based on desktop information only, and does not include field data.

Two terrain and soils VECs were identified and assessed in the EIS: soil productivity<sup>1</sup> and terrain stability<sup>2</sup>. Based on information from Manitoba Conservation's PAI, no single or rare enduring features are found within the AFPR change areas, and no other

---

<sup>1</sup> AFPR Moose Meadows and AFPR GHA19A and 14A, are both located in agricultural Manitoba; consequently, the indicator of soil productivity is agricultural capability. AFPR Wabowden is in a non-agricultural area - topsoil quality is considered the indicator of soil productivity in this area.

<sup>2</sup> Terrain stability is a measure of how susceptible terrain is to movement due to man-made or project related processes. Terrain instability is more likely in areas where there is sloped terrain or permafrost.

unique soil/terrain features were noted during 3-D aerial photo evaluation. No unique soil/ terrain features were found in the original route segments of the FPR.

Table 4.2-1 below reviews the potential for AFPR route changes to affect terrain and soils VECs. This table indicates (“n/a”) for each VEC where there is no overlap with an AFPR Local Study Area or where there is no basis to expect that the AFPR changes will have any detectable effect on the VEC (these VEC’s are not considered further in the effects assessment). Specific AFPR locations with an “n/a” under a VEC do not have the requisite conditions (soil composition, slope, permafrost) for the VEC to be a concern at that site. VECs are assessed further where there are changes in soil composition, slope, and the presence or absence of permafrost compared to the FPR. VEC’s with an overlap with the APFR or a measureable effect of the Project in a AFPR Local Study Area are marked “X” in Table 4.2-1 and are considered in further detail in the effects assessment.

**Table 4.2-1: Terrain and Soils VECs Affected by AFPR Changes**

Terrain and Soils VECs	AFPR Wabowden	AFPR GHA 14 (Moose Meadows)	AFPR GHA19A and GHA14A
Soil Productivity	X <sup>1</sup>	X <sup>2</sup>	X <sup>2</sup>
Terrain Stability	X	n/a <sup>3</sup>	n/a <sup>3</sup>

Notes:

1. The Local Study Area in the Wabowden AFPR does not include land considered agriculturally productive; the soil productivity indicator in this area is topsoil quality.
2. The soil productivity indicator in this area is agricultural productivity; however, it is quite limited in the Local Study Area of these route adjustments.
3. There is no permafrost or slopes within the ROW at AFPR GHA 14 (Moose Meadows) which would potentially affect terrain stability within the ROW.

Changes in soil composition for the three AFPR route changes compared to the original FPR alignment are outlined below for each segment of the AFPR. Further detail is provided in Appendix 4A, Section 4A1 and in Appendix 4B, Maps 1-3.

- The Wabowden AFPR Local Study Area traverses soil types that are consistent with the FPR Local Study Area; however, the Wabowden AFPR traverses a higher proportion of Organics (with very poor drainage and characterized as mesic in nature) and a lower proportion of imperfectly drained and very fine textured Luvisols (in the north and south-east portions of the footprint) and contains Brunisols not found in the FPR. In addition, there is a small inclusion of acidic bedrock at Kiski Lake. Sporadic discontinuous permafrost is present in both the FPR ROW and the AFPR ROW; however, given the close association between Organics and permafrost distribution within the region, as the Wabowden AFPR traverses a greater proportion of Organics it may intercept more permafrost features than the FPR.

- The GHA 14 (Moose Meadows) AFPR ROW traverses soil types that are consistent with the FPR ROW in this area. However, the AFPR traverses a relatively lower proportion of Organics. The AFPR is not affected by permafrost in this area. Routing of the AFPR has avoided developed agricultural lands as well as an appreciable portion of organic soils traversed by the FPR. Soil types in the AFPR ROW have moderately severe to very severe limitations to annual cropping and in certain areas are capable only of producing perennial forage crops. The soils at AFPR GHA 14 (Moose Meadows) have a negligible risk of wind erosion and a low risk of water erosion, which is similar to the rating assigned to the original FPR routing. Organic soils at the site, however, have not been rated for wind and water erosion.
- The GHA 19A and 14A AFPR and FPR generally traverse similar soil types. However, the AFPR traverses a relatively higher proportion of Organics and lower proportion of Chernozemic soils than the FPR north of PTH 20. The AFPR is not affected by permafrost in this area. Similar to the AFPR in the GHA 14 (Moose Meadows) area, the AFPR in GHA 19A and 14A traverses areas not developed for agriculture and not considered suitable for this type of land use. A dominant portion of the AFPR consists of land with moderate to very severe limitations for annual cropping. Marginally productive lands and non-arable organic soils cover most of the remaining area in the APFR. The AFPR has effectively avoided developed agricultural lands in the area, but traverses a greater extent of organic soils not intercepted by the FPR. At GHA19A and 14A, the organic soils north of PTH 20 have not been rated for wind and water erosion, and the soils south of PTH 20 have a negligible risk of wind and water erosion. The ratings are similar to the ratings for the original FPR.

Ratings for compaction and rutting are high at all three AFPR route re-alignments. The rutting and compaction rating for the AFPR is similar to the FPR for all three segments of the AFPR.

#### **4.2.1.2 Soil Productivity**

Potential effects of the HVdc transmission component of the Project on soil productivity and applicable mitigation measures designed to reduce potential for reduction in agricultural capability of soils during construction or loss of soil structure from compaction and rutting of heavy equipment in Organic soil (and targeted to areas of higher risk and/or environmentally sensitive sites) were previously described in the EIS and in the Bipole III Technical Report on Terrain and Soils. Further, the Bipole III Environmental Protection Plan will be updated to ensure any concerns related to rutting

and compaction are addressed on a site-specific basis. Generally, the Project effects of the AFPR are similar to the FPR.

- The Wabowden area of the AFPR traverses a higher proportion of Brunisols compared to the FPR, and there may be increased risk of wind erosion during construction where these coarse textured soils occur; however, overall risk of water and wind erosion is low. Compaction and rutting ratings are similar to those provided for the FPR.
- The GHA 14 (Moose Meadows) area of the AFPR traverses soils that have negligible wind and water erosion risk (similar to the FPR). However, a significant portion of the AFPR in this area traverses organic soils. Compaction and rutting ratings within the Local Study Area and ROW are similar to the FPR in the area.
- The GHA 19A and 14A area of the AFPR traverses predominantly organic soils north of PTH 20. This area has erosion risk ratings similar to the corresponding portion of the FPR. Compaction and rutting ratings are similar in the Local Study Area and ROW of the AFPR and the FPR. Based on available ATK, the AFPR also traverses additional areas of cranberry harvest. [See Section 4.3.3.3 for further discussion regarding Domestic Resource Use].

In summary, the AFPR changes do not result in any change to potential effects, mitigation and residual effects relating to soil productivity as described in the Bipole III EIS due to the construction and operation of the HVdc transmission component of the Project. With mitigation as described in Chapter 6, residual adverse effects on soil productivity due to construction of the AFPR route segments of the HVdc component of the Project are expected to be not significant. With mitigation as described in Chapter 6, residual adverse effects on soil productivity are not anticipated during the operation of the AFPR route segments of the HVdc component of the Project.

#### **4.2.1.3 Terrain Stability**

Potential effects of the HVdc transmission component of the Project on terrain stability and mitigation measures were previously described in the EIS and in the Bipole III Technical Report on Terrain and Soils. Generally, the Project effects of the AFPR are similar to the FPR. Mitigation measures to prevent the destabilization of terrain during transmission construction are described in the EIS and in the Technical Report on Terrains and Soils. The EIS indicates terrain stability is not anticipated to be affected by the operation of the HVdc transmission line. The Environmental Protection Plan will be updated with information on the AFPR as required to ensure any concerns are addressed on a site specific basis.

Specific effects in each segment of the AFPR are as follows:

- In the Wabowden area of the AFPR, a higher proportion of Organics will be encountered compared to the FPR which could result in greater permafrost degradation than the FPR. Potential for moderate and strong slopes within the ROW will require implementation of mitigation to prevent water erosion as outlined in the EIS and Technical Report on Terrains and Soils.
- In the GHA 14 (Moose Meadows) area of the AFPR, there are no expected effects due to permafrost and low likelihood of steep and unstable slopes, consequently, effects to terrain stability due to terrain subsidence or a mass wasting event are not likely.
- In the GHA 19A and 14A area of the AFPR, effects on terrain stability due to subsidence are not anticipated. Moderate and strong slopes are found within the Local Study Area but do not occur within the AFPR ROW.

In summary, the AFPR changes do not result in any change in the nature of potential effects, mitigation or residual effects of the Project on terrain stability. With mitigation measures implemented as described in the Bipole III EIS and the Technical Report on Terrains and Soils, residual adverse effects on terrain stability due to the construction of the AFPR route segments of the HVdc component of the Project are expected to be not significant. With mitigation, residual adverse effects to terrain stability are not anticipated during the operation of the AFPR route segments of the HVdc component of the Project.

#### **4.2.1.4 Summary of Residual Environmental Effects Significance**

After mitigation as described in Chapter 6, the AFPR route changes are not expected to have significant residual adverse effects on soils and terrain VECs. Potential residual effects of the Project for each soils and terrain VEC remain as described and assessed in the December 2011 EIS.

Table 4.2-2 provides a summary for the soil and terrain environment VECs of the residual effects for the Project HVdc transmission line component with AFPR changes.

**Table 4.2-2: Residual Environmental Effects Assessment Summary for Project HVdc Transmission Line Component with AFPR Changes - Terrain and Soils**

VEC	Project Component	Phase	Residual Effects	Assessment <sup>1</sup>
Soil Productivity	HVdc Transmission and ac Collector Lines	Construction	Loss of soil structure from compaction and rutting of heavy equipment in Organic soil	Direction – Negative Magnitude – Moderate Geographic Extent– Project Site/Footprint Duration – Medium Overall – Not Significant
Terrain Stability	HVdc Transmission and ac Collector Lines	Construction	Potential for loss of terrain stability due to mass wasting and permafrost thaw following disturbance	Direction – Negative Magnitude – Moderate Geographic Extent– Project Site/Footprint Duration – Long-Term Overall – Not Significant

Note:

1. Expected residual effects (i.e., effects after mitigation) of the Project on each VEC are assessed using the regulatory significance evaluation approach and methods defined in Chapter 4, Section 4.2.10 of the December 2011 EIS. Where feasible, regulatory significance is assessed for each non-negligible expected residual effect based on its expected direction, magnitude, geographic extent and duration (as each term is defined in Section 4.2.10); if an adverse residual effect is evaluated to be potentially significant, other factors are also considered (frequency, reversibility, ecological importance and societal importance). Scientific uncertainty is noted where it may materially affect the assessment.

## 4.2.2 Groundwater

### 4.2.2.1 Overview

The assessment of the three AFPR route change effects on groundwater VECs was completed using desktop information. No new field data was collected. Potential effects were identified using an environmental interaction matrix, feature mapping, professional opinion and review of ATK.

VECs for groundwater are aquifer quality and aquifer productivity.

Table 4.2-3 below reviews the potential for AFPR route changes to affect groundwater VECs. Each of these VEC's is expected to overlap in range or with a measureable effect of the Project in a AFPR Local Study Area, and is marked "X" in Table 4.2-3. Accordingly, each VEC is considered in further detail in the effects assessment.

**Table 4.2-3: Groundwater VECs Affected by AFPR Changes**

Groundwater VECs	AFPR Wabowden	AFPR GHA 14 (Moose Meadows)	AFPR GHA19A and GHA14A
Aquifer quality	X	X	X
Aquifer productivity	X	X	X

The main potential issue with transmission line construction in regards to groundwater is related to drilling for tower foundations, especially in sensitive areas such as artesian areas. During operation, aquifer quality along the HVdc transmission lines could potentially be affected by an impairment of groundwater quality due to application of herbicides for vegetation management along rights-of-way.

A desktop assessment of groundwater along the three AFPR areas indicates that each segment is located in existing environments that are similar to the original FPR, and there are no known or newly identified environmentally sensitive sites (e.g., artesian areas) in the Wabowden segment, the GHA 14 (Moose Meadows) segment or the GHA 19A and 14A segment (see Appendix 4B, Map 4). In regards to herbicide use and potential for a spill, there is no difference in the potential for groundwater contamination along the route adjustment for the FPR and the AFPR. The groundwater sensitivity to contamination remains the same for all three areas as in the original EIS assessment ranging from low for Wabowden, to low-moderate for GHA 14 (Moose Meadows), and moderate for GHA 19A and 14A.

Accordingly, there is no change to the potential environmental effects, mitigation measures, residual effects or follow-up described in the EIS or in the Bipole III Technical Report on Groundwater.

#### 4.2.2.2 Aquifer Quality

The existing aquifer quality environments at AFPR Wabowden, AFPR GHA 14 (Moose Meadows) and AFPR GHA19A and GHA14A are the same as those of the original FPR, therefore the effects and suggested mitigation outlined in the December 2011 EIS for this VEC are the same.

The EIS describes mitigation measures to minimize effects that should preclude unintended groundwater discharge during drilling and foundation installation in areas of documented springs and artesian groundwater conditions. The EIS further describes measures to minimize or preclude further potential for impairment of groundwater quality along rights of way during operation. The EIS concludes that implementation of appropriate mitigation measures as described in the EIS (and summarized in Chapter 6),

will preclude any residual effects on groundwater quality due to construction and operation of the HVdc line.

#### **4.2.2.3 Aquifer Productivity**

The existing aquifer productivity environments at AFPR Wabowden, AFPR GHA 14 (Moose Meadows) and AFPR GHA19A and GHA14A are the same as those of the original FPR, therefore the effects and mitigations outlined in the December 2011 EIS for this VEC are the same.

The EIS did not identify any Project construction effects on aquifer productivity and specifically determined that aquifer productivity is not anticipated to be affected by normal operation of the HVdc transmission component due to the absence of effects pathways or interactions.

#### **4.2.2.4 Summary of Residual Environmental Effects Significance**

The EIS concluded that there were no residual adverse effects on aquifer quality or aquifer productivity in relation to the HVdc transmission line component of the Project<sup>3</sup>. After mitigation as described in Chapter 6, the AFPR route changes are also not expected to have any residual adverse effects on groundwater VECs.

### **4.2.3 Aquatic Environment**

#### **4.2.3.1 Overview**

Potential effects of the three AFPR route change effects on Aquatic VECs were identified by conducting an assessment of fish habitat along the modified 66m ROW at all the locations where the ROW crosses a watercourse, as well as sites requiring riparian buffers. Habitat quality and sensitivity to disturbance were examined in a desktop analysis using Digital Ortho Imagery, Bing or Google Maps, and incorporating results of field studies for the original FPR where appropriate. Riparian management areas requiring management under Manitoba Conservation and Water Stewardship's 2008 *Forest Management Guidelines for Riparian Management Areas* were also identified. In addition, ATK community workshops and studies were reviewed for information relevant to Aquatic VECs at the new re-routing locations and incorporated where appropriate.

---

<sup>3</sup> Per Table 8.2-4 at page 8-40 of the EIS, the only residual adverse effect of the Project on groundwater relates to aquifer productivity in relation to the Keewatinoo converter station.

The Aquatic Environment considers two primary VECs: fish habitat and surface water quality. As noted in Table 4.2-4. Each VEC is affected by AFPR change in each of the three areas. Due to the interrelation of these two VEC's they were addressed together in the EIS and are similarly discussed together in the assessment below.

**Table 4.2-4: Aquatic Environment VECs Affected by AFPR Changes**

Aquatic Environment VECs	AFPR Wabowden	AFPR GHA 14 (Moose Meadows)	AFPR GHA19A and GHA14A
Surface water quality	X	X	X
Fish habitat	X	X	X

Note:

1. The HVdc transmission line will cross watercourses in each section of the route revision.

#### 4.2.3.2 Fish Habitat and Water Quality

Potential effects to fish habitat and water quality caused by the construction and operation of overhead transmission lines and proposed mitigation measures are outlined in the December 2011 EIS and in the Bipole III Aquatic Environment Technical Report.

The ROW in the Wabowden area for the AFPR and for the FPR each cross four watercourses (see Appendix 4A, Table 4A2.1-1, and Appendix 4B, Map 5). The environmental sensitivity rating for all four of the FPR crossings is rated as moderate, while three of the AFPR crossings are moderate and one is low. The Wabowden APFR crosses one watercourse with important fish habitat (Kiski Creek), two waterbodies with marginal fish habitat, and one watercourse with no fish habitat. Two watercourses not intersected by the AFPR have riparian areas that fall within the ROW, requiring a riparian buffer. (Appendix 4A, Table 4A2.1-1 and Table 4A2.1-2).

The AFPR in the GHA 14 (Moose Meadows) area crosses fewer sites than the comparable FPR routing. The ROW for AFPR GHA 14 (Moose Meadows) crosses eight watercourses, half of which have fish habitat; two of those are rated as important (see Appendix 4A, Table 4A2.1-1 and Table 4A2.1-2, and Appendix 4B, Map 6). The environmental sensitivity rating for three of the AFPR crossings are moderate and five are low. The FPR ROW crosses 18 water bodies; however, the FPR traversed wetland areas where numerous side channels of small tributaries were intersected. The two routes cross four common watercourses including Bell and Steeprock rivers and two unnamed tributaries. Most sites provide similar habitat. One watercourse not intersected by the AFPR had riparian areas that fell within the ROW, requiring a riparian buffer.

The AFPR in the GHA19A and 14A area crosses fewer sites than the equivalent FPR routing. The ROW for AFPR GHA19A and 14A crosses 14 watercourses (see Appendix 4A, Table 4A2.1-1 and Table 4A2.1-2, and Appendix 4B, Map 7), six crossings are

classified as important fish habitat, including the North Duck River, Sclater River and Pine River, four as marginal fish habitat, while the remaining three crossings have no fish habitat. The environmental sensitivity rating for nine of the AFPR crossings is moderate and for five of the AFPR crossings is low. The original FPR routing crosses 17 watercourses. The AFPR and the FPR cross eight common watercourses. Fish habitat and sensitivity to disturbance were rated the same for sites located on the same watercourse. Two watercourses not intersected by the AFPR had riparian areas that fell within the ROW, requiring a riparian buffer.

Compared to the original FPR routing, the AFPR crosses fewer water bodies, however, potential effects at AFPR route re-alignment crossings and at the equivalent FPR routes are site specific. Effects at all locations can largely be mitigated. The AFPR ROW does not intersect with any critical fish habitat or sites classified as having a high environmental sensitivity rating.

The EIS indicates potential effects on water quality and fish habitat relate to disturbance of streambeds, banks or riparian zones and potential for increased erosion and sedimentation during construction and operation of the HVdc transmission line.

Based on the assessment in the EIS, mitigation measures are specified to minimize the potential effects of Project activity for stream crossings and riparian zones. As the nature of stream crossing work for overhead transmission lines can be accomplished with a low risk to fish habitat and minimal effect on the aquatic environment, Fisheries and Oceans Canada (DFO) has specified operational statements that if applicable and adhered to do not require further assessment or authorization under the federal *Fisheries Act* (a list is provided in Appendix 4A, Section 4A2.2). Manitoba Hydro intends to use the DFO operational statements for all aspects of potential effects on stream and riparian areas from the construction and maintenance of overhead lines for the Project.

#### **4.2.3.3 Summary of Residual Environmental Effects Significance**

The construction and operation of overhead transmission lines pose a low risk to surface water quality and fish habitat as indicated in DFO's operational statement for Overhead Line Construction (DFO 2007a). Two main potential effects from construction and operations of overhead transmission lines are loss of riparian habitat and in stream sedimentation. With appropriate mitigation measures implemented for construction and operation the effects are not significant. Construction access trails, required to access the HVdc transmission line right of way, will follow existing linear disturbed areas with adherence to DFO's operational statements for Temporary Stream Crossings (DFO 2007b) and Ice Bridges and Snow Fills (DFO 2007c), the residual effects from stream crossings on the construction access trails are considered not significant.

After mitigation as described in Chapter 6 (including compliance with DFO operational statements outlined in Appendix 4A, Section 4A2.2), the AFPR route changes are not expected to have significant residual adverse effects on aquatic environment VECs.

Potential residual effects of the Project for each aquatic environment VEC remain as described and assessed in the December 2011 EIS.

Residual environmental effects are discussed for surface water quality and fish habitat together as the two VECs are interconnected. Table 4.2-5 provides a summary for the aquatic environment VECs of the residual effects for the Project HVdc transmission line component with AFPR changes.

**Table 4.2-5: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Aquatic Environment**

VEC	Project Component	Phase	Residual Effect	Assessment <sup>1</sup>
Surface Water Quality and Fish Habitat	HVdc Transmission Line and ac Collector Lines (including construction access trails)	Construction	Loss of riparian vegetation, stream bank damage, increase in TSS	Direction – Negative Magnitude – Small Geographic Extent – Local Study Area Duration – Short-Term Overall – Not Significant
		Operation		Direction – Negative Magnitude – Small Geographic Extent – Local Study Area Duration – Medium-Term Overall – Not Significant

Note:

1. Expected residual effects (i.e., effects after mitigation) of the Project on each VEC are assessed using the regulatory significance evaluation approach and methods defined in Chapter 4, Section 4.2.10. Where feasible, regulatory significance is assessed for each non-negligible expected residual effect based on its expected direction, magnitude, geographic extent and duration (as each term is defined in Section 4.2.10); if an adverse residual effect is evaluated to be potentially significant, other factors are also considered (frequency, reversibility, ecological importance and societal importance). Scientific uncertainty is noted where it may materially affect the assessment.

## **4.2.4 Terrestrial Ecosystems and Vegetation**

### **4.2.4.1 Overview**

The evaluation of the AFPR route change effects on terrestrial ecosystems and vegetation was conducted based on the methodology used in the Bipole III Transmission Project Environmental Assessment Vegetation Technical Report.

The assessment relied primarily on Land Cover Classification Enhanced for Bipole (LCCEB). GIS Spatial queries were undertaken to identify vegetation types and determine ecologically important areas and locations for species of concern and to calculate vegetation cover types within the Local Study Area and 66 m transmission line ROW (see Appendix 4A, Section 4A3). ATK sites (i.e., points, lines and polygons) within the Local Study Area and 66 m ROW for the three route adjustments were also reviewed using digital maps and shape files. ATK locations, area calculations and botanical uses were determined for the sites along the route alterations.

Two terrestrial ecosystems and vegetation VECs were identified in the EIS: plant species and communities of conservation concern and native grasslands/ prairie areas. Plant species/ communities important to Aboriginal peoples were identified through an ATK process and are reviewed in the Resource Use section of the socio-economic section of this chapter (Section 4.3).

Table 4.2-6 below reviews the potential for AFPR route changes to affect terrestrial ecosystems and vegetation VECs. This table indicates (“n/a”) for each VEC where there is no overlap with an AFPR Local Study Area or where there is no basis to expect that the AFPR changes will have any detectable effect on the VEC (these VEC’s are not considered further in the effects assessment). These include the following:

- The plant species and communities of conservation concern VEC in the GHA 14 (Moose Meadows) AFPR area; and
- The grasslands/prairies areas VEC in the Wabowden AFPR area.

VEC’s with an overlap in range or with a measureable effect of the Project in a AFPR Local Study Area are marked “X” in Table 4.2-6 and are considered in further detail in the effects assessment.

**Table 4.2-6: Terrestrial Vegetation VECs Affected by AFPR Changes**

VEC	AFPR Wabowden	AFPR GHA 14 (Moose Meadows)	AFPR GHA 19A and GHA 14A
Plant species & communities of conservation concern <sup>1</sup>	X	n/a	X
Grasslands/ prairie areas	n/a	X	X
Note:			
1. No species listed by the MBESA or SARA are known to occur along the AFPR route alterations.			

The assessment of effects of the APFR on the two identified VECs noted in Table 4.2-6 are reviewed separately below.

#### 4.2.4.2 Plant Species of Conservation Concern VEC

The EIS recognized that where species of conservation concern occur along the ROW, or within the Local Study Area, there is potential for the loss of plants of conservation concern and the habitats these plants occupy due to construction, maintenance and site decommissioning activities along the ROW for the HVdc transmission line.

No species listed for protection by the Manitoba *Endangered Species Act* (MESA 1998) or the federal *Species at Risk Act* (SARA 2002) have been identified to occur along the AFPR alterations. However, non-listed species under federal and provincial legislation (plant species of conservation concern) have been specifically identified in the AFPR in the following areas:

1. **Wabowden AFPR** – One species of conservation concern was observed in this area of the FPR. Oblong-leaved sundew (*Drosera anglica*) is ranked uncommon (S3) by Manitoba Conservation Data Centre, and was observed during 2010 field studies.
2. **GHA 19A and GHA 14A AFPR** – Two species of conservation concern are known to occur in this area of the AFPR. Lyre-leaved rock cress (*Arabis lyra*) was identified from Manitoba Conservation Data Centre records (polygon record encompassing both ROW and Local Study Area). Timber oat grass (*Danthonia intermedia*) was observed in the Local Study Area during 2010 field studies completed for the Project. Both plants are ranked rare (S2) by the Manitoba Conservation Data Centre.

Habitats that are most likely to support species of conservation concern along the route alterations will need to be investigated prior to construction activities.

The EIS identifies mitigation measures expected to eliminate residual adverse effects due to construction and operation of the HVdc Transmission line. This includes undertaking

construction and maintenance activities during winter months to minimize effects on plant species. Disturbance will be minimized to shrub and herb layers where species of concern have been observed for activities that do not occur over winter months. Further mitigation includes flagging locations of species of conservation concern prior to commencing construction or maintenance activities, and use of existing roads and trails where possible. During operation, in areas where species of concern have been identified, a non-herbicide method will be used such as hand cutting mechanical cutting or winter shearing.

Based on the mitigation measures set out in the EIS and Chapter 6, there are no anticipated residual effects on plant communities of conservation concern due to construction or operation of the AFPR route segments of the HVdc component of the Project. Mitigation measures are reviewed in further detail in Chapter 6.

#### **4.2.4.3 Native Grasslands/ Prairie Areas VEC**

Approximately 2 ha of dry upland prairie (which are part of the native grasslands/ prairie areas VEC) are present in the Local Study Area along the GHA 14 (Moose Meadows) area of the AFPR, and approximately 18 ha of dry upland prairie are present in the Local Study Area along the GHA 19A and 14A area of the AFPR. However, no dry upland prairie areas have been identified along the ROW for the AFPR segments.

The native grasslands and prairie areas VEC has been identified in the Local Study Area for the GHA 14 (Moose Meadows) adjustment along the AFPR and the Local Study Area for GHA 19A and 14A adjustment along the AFPR. There is potential for federally and provincially protected species of concern to occur in native grasslands areas. Native grasslands are also considered important due to the decline in this ecosystem.

The EIS noted that there is potential for native grassland/ prairie areas located in the southern portion of the Project within the HVdc transmission line ROW to be disrupted during construction and decommissioning (i.e., heavy equipment use and grubbing activities), and during operation (i.e., potential use of heavy equipment if activities are undertaken outside of winter months and use of herbicides). The EIS and Chapter 6 summarize mitigation measures expected to reduce potential effects on grasslands and prairies areas, including undertaking construction and maintenance activities in winter months (or minimizing disturbance of soil and vegetation in dry upland prairie areas where such activities occur outside of winter months), re-establishing vegetation using appropriate native species in areas of disturbance, use of existing access roads and trails, marking species of concern and restricting use of herbicides in marked areas.

After mitigation, residual adverse effects on this VEC due to construction of the AFPR segments of the HVdc component of the Project are expected to be not significant.

Subsequent to mitigation, there are no anticipated residual effects on native grasslands/prairies areas due to operation of the AFPR route segments of the HVdc component of the Project.

#### **4.2.4.4 Summary of Residual Environmental Effects Significance**

After mitigation as described in Chapter 6, the AFPR route changes are not expected to have significant residual adverse effects on terrestrial ecosystem and vegetation VECs. Potential residual effects of the Project for each terrestrial ecosystem and vegetation VEC remain as described and assessed in the December 2011 EIS.

Table 4.2-7 provides a summary for the terrestrial ecosystems and vegetation VECs of the residual effects for the Project HVdc transmission line component with AFPR changes.

**Table 4.2-7: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR – Terrestrial Ecosystems and Vegetation**

<b>VEC</b>	<b>Project Component</b>	<b>Project Phase</b>	<b>Residual Effects</b>	<b>Assessment<sup>1</sup></b>
Native grasslands/prairie areas	HVdc Transmission	Construction	Removal of trees that may occur in dry upland prairie sites	Direction – Negative Magnitude – Small Geographic Extent – Project Site/Footprint Duration – Medium-Term Overall – Not Significant

Note:

1. Expected residual effects (i.e., effects after mitigation) of the Project on each VEC are assessed using the regulatory significance evaluation approach and methods defined in Chapter 4, Section 4.2.10 of the December 2011 EIS. Where feasible, regulatory significance is assessed for each non-negligible expected residual effect based on its expected direction, magnitude, geographic extent and duration (as each term is defined in Section 4.2.10); if an adverse residual effect is evaluated to be potentially significant, other factors are also considered (frequency, reversibility, ecological importance and societal importance). Scientific uncertainty is noted where it may materially affect the assessment.

## 4.2.5 Mammals and Habitat

### 4.2.5.1 Overview

The evaluation of the AFPR route change effects on mammals and mammal habitat VECs was conducted based on the methodologies reviewed in detail in the EIS and related Technical Reports<sup>4</sup>.

High quality habitat for mammal VEC species within the AFPR were characterized and assessed using habitat models developed for the Land Cover Classification Enhanced for Bipole III (LCCEB). Habitat cover type and area of high quality habitat were calculated for both the Local Study Area and the ROW of the new route segments. A full description of the modeling methodology is provided in Section 3.4 of the Bipole III Mammals Technical Report.

Specific effects on boreal woodland caribou were assessed using the following methods: range-wide calving habitat suitability assessment<sup>5</sup>, known calving locations and winter and summer core use area selection. These methods are all described in detail in the Bipole III Supplemental Caribou Technical Report.

Specific effects on moose and moose habitat in GHA 14 (Moose Meadows) AFPR areas were further assessed based on the results of a moose survey designed to provide base line distribution, abundance and demographic information in areas potentially affected by the AFPR. Survey data were compared to results of MCWS aerial survey conducted in 2011. A brief description of the survey and results is included in Appendix 4A, Section 4A4. Results of survey data were also utilized in assessing moose distribution relative to high quality modeled habitat and areas of disturbance.

Specific effects on moose and moose habitat in the GHA 19A and 14A AFPR were assessed based on modeled high quality habitat as described above for GHA 14 (Moose Meadows) AFPR.

Results of AFPR specific EACP and available ATK information were reviewed and used to inform the assessment of all mammal VECs.

Seven mammal VECs were identified and assessed in the EIS. Table 4.2-8 below reviews the potential for AFPR route changes to affect identified mammal VEC's. This table indicates ("n/a") for each VEC where there is no overlap with an AFPR Local Study

---

<sup>4</sup> Bipole III Mammals Technical Report (Joro and WRCS 2011) and the Bipole III Transmission Project-Caribou Technical Report (Joro 2011).

<sup>5</sup> The woodland caribou range in the Wabowden area was estimated at 5,589 km<sup>2</sup> (excludes water) with a herd population size of 200-225; current habitat disturbance with the FPR was estimated at 1,432 km<sup>2</sup> (26% of the evaluation range).

Area or where there is no basis to expect that the AFPR changes will have any detectable effect on the VECs (these VEC's are not considered further in the effects assessment).

Coastal and Barren Ground Caribou have range limitations that do not overlap with any of the three AFPR Local Study Areas. Modelled habitat for three other mammal VECs do not show any overlap with one or more of the AFPR Local Study Areas:

- There are no elk in the Wabowden AFPR area; and
- There are no boreal woodland caribou and wolverine in the GHA 14 (Moose Meadows) and GHA 19A and 14A AFPR areas.

VEC's with an overlap in range or with a measureable effect of the Project in an AFPR Local Study Area are marked "X" in Table 4.2-8 and are considered in further detail in the effects assessment.

**Table 4.2-8: Mammals and Mammal Habitat VECs Affected by AFPR Changes**

Mammal & Mammal Habitat VECs	AFPR Wabowden	AFPR GHA 14 (Moose Meadows)	AFPR GHA19A and GHA14A
Coastal and Barren Ground Caribou <sup>1</sup>	n/a	n/a	n/a
Boreal Woodland Caribou <sup>2</sup>	X	n/a	n/a
American Marten <sup>2, 3</sup>	X	X	X
Beaver <sup>4</sup>	X	X	X
Wolverine <sup>2, 5</sup>	X	n/a	n/a
Moose	X	X	X
Elk <sup>6</sup>	n/a	X	X

Notes:

1. VECs with range outside of the AFPR Local Study Areas.
2. VECs that do not show any reduction of modelled habitat over the AFPR in one or more of the AFPR Local Study Areas.
3. Effects on American Marten during construction, operations and decommissioning, as well as residual effects, can be found at pages 8-105 to 8-107 of the December 2011 EIS.
4. Effects on Beaver during construction, operations and decommissioning, as well as residual effects, can be found at pages 8-107 to 8-108 of the December 2011 EIS.
5. Effects on Wolverine during construction, operations and decommissioning, as well as residual effects, can be found at pages 8-108 to 8-109 of the December 2011 EIS.
6. Effects on Elk during construction, operations and decommissioning, as well as residual effects, can be found at pages 8-104 to 8-105 of the December 2011 EIS.

Section 8.2.6.4 of the December 2011 EIS provides a complete description of potential effects on mammals due to the Project, mitigation measures and the description of residual adverse effects.

Project effects on mammals and mammal habitat VECs described in the EIS and the Bipole III Mammals Technical Report relate to mortality factors (including increased

predation due to increased access along linear features), loss or alteration of habitat (including environmentally sensitive sites), habitat fragmentation (including reduction in connectivity in potentially high use habitat areas) and sensory disturbance (due to construction and ongoing maintenance activities over life of project). The potential effects and proposed mitigation are not materially affected by the AFPR route changes (see Appendix 4A, Section 4A4 for more detailed review of these factors).

The amount of altered habitat for each VEC is relatively minor compared to the habitat available in the Local Study Area for each segment of the AFPR. Further, it is noted that effects of the Project on mammal species should be considered in light of species resilience to the presence of additional large scale landscape features. As the Project will extend over a considerable geographic area, it is expected that many potential habitat types will be lost or altered. However, there is no indication that these habitat areas are rare or significant to the persistence of these VEC's. Overall, while mammal species will be affected by the Project, these effects are expected to be minimal in scope.

The six mammals VECs indicated in Table 4.2-8 to be potentially affected by AFPR changes are reviewed below with focus on changes in effect due to the AFPR route change in each of the three segments.

#### 4.2.5.2 American Marten

American marten habitat is affected in all three segments of the AFPR changes. Affected habitat within each section of the route adjustment is as follows<sup>6</sup>:

- The **Wabowden segment** of the AFPR has 45.7 km<sup>2</sup> of modelled high quality marten habitat within the Local Study Area; 0.56 km<sup>2</sup> (1.23%) of this habitat is within the 66 m ROW.
- The **GHA 14 (Moose Meadows)** segment of the AFPR has 19.49 km<sup>2</sup> of modelled high quality marten habitat within the Local Study Area; 0.48 km<sup>2</sup> (2.46%) of this habitat is within the 66 m ROW.
- The **GHA 19A and 14A** segment of the AFPR has 0.021 km<sup>2</sup> of modelled high quality marten habitat within the Local Study Area; 0.0 km<sup>2</sup> (0.0%) of this habitat is within the 66 m ROW.

A total 65.19 km<sup>2</sup> of high quality marten habitat is located within the Local Study Area for the three segments of the AFPR changes, with 1.04 km<sup>2</sup> of this habitat within the ROW. In all three segments, the amount of high quality habitat in the ROW for the AFPR is the same (GHA 19A/14A) or higher than for the FPR. See Appendix 4A4,

---

<sup>6</sup> See Appendix 4A, Section 4A4.2 and Tables 4A4.2-2 to 4A4.2-4.

Section 4A4.2 for a summary of habitat value comparisons for the AFPR and FPR for each segment.

Overall, the AFPR changes are not expected to alter the proposed mitigation or the determination of residual adverse effects of the Project on American marten populations as described in the EIS<sup>7</sup>. The AFPR intersects a small amount of available marten habitat in the Local Study Area and low level effects due to sensory disturbance are isolated to the construction phase of the Project. Consequently, residual adverse effects on American marten are expected to remain as described in the EIS.

#### 4.2.5.3 Beaver

Beaver habitat is affected in all three segments of the AFPR changes. Affected habitat within each section of the route adjustment is as follows<sup>8</sup>:

- The **Wabowden** segment of the AFPR has 1.69 km<sup>2</sup> of modelled high quality beaver habitat within the Local Study Area; 0.029 km<sup>2</sup> (1.71%) of this habitat is within the 66 m ROW.
- The **GHA 14 (Moose Meadows)** segment of the AFPR has 3.8 km<sup>2</sup> of high quality beaver habitat within the Local Study Area; 0.03 km<sup>2</sup> (0.87%) of this habitat is within the 66 m ROW.
- The **GHA 19A and 14A** segment of the AFPR has 7.57 km<sup>2</sup> of high quality beaver habitat within the Local Study Area; 0.12 km<sup>2</sup> (1.64%) of this habitat within the 66 m ROW.

A total 13.07 km<sup>2</sup> of high quality beaver habitat is located within the Local Study Area for the three segments of the AFPR changes, with 0.186 km<sup>2</sup> of this habitat within the ROW. In all three segments, the amount of high quality habitat in the ROW for the AFPR is higher than for the FPR. See Appendix 4A, Section 4A4.2 for a summary of habitat value comparisons for the AFPR and FPR for each segment.

In summary, the ROW is expected to intersect a relatively small amount of beaver habitat within the Local Study Area over the three AFPR changes. Minimal disturbance or removal of habitat due to the Project is expected at the population level. Impacts of the AFPR ROW on access or trapping are expected to be limited and localized in nature.

---

<sup>7</sup> With mitigation, the residual effect on American marten from Project construction and operation as described in the December 2011 EIS is mainly short term displacement during construction; functional habitat loss; fragmentation; sensory disturbance; and increased mortality due to trapping. Based on the results of the Transmission Lines and Traplines pilot project in combination with what is known in the literature, it is anticipated that there will be a short term avoidance during construction, with marten returning after construction.

<sup>8</sup> See Appendix 4A, Section 4A4.2 and Tables 4A4.2-2 to 4A4.2-4.

Overall, the AFPR changes are not expected to alter the proposed mitigation or the determination of residual adverse effects of the Project on beaver populations as described in the EIS. Consequently, residual adverse effects on beaver are expected to remain as described in the EIS.

#### **4.2.5.4 Wolverine**

Wolverine are a wide ranging species, occur at low densities and are habitat generalists, therefore habitat modeling was not undertaken. Wolverine are mainly associated with the Wabowden AFPR and uncommon in the other AFPR segments. The effects of the Project in the Wabowden AFPR on wolverine populations are expected to be minimal, with potential effects related to sensory disturbance (in particular wolverine denning sites, if found). Wolverine are expected to avoid disturbed areas during construction where populations exist/overlap with the Local Study Area and use other areas of their home ranges during the period of disturbance.

Wolverine dens are considered environmentally sensitive sites; however, much of the AFPR in the Wabowden area is near existing linear infrastructure and other disturbances; consequently, the likelihood of encountering natal and maternal dens is minimal due to the species' inherent avoidance of disturbed areas.

Overall, the AFPR changes are not expected to alter the proposed mitigation or the determination of residual adverse effects of the Project on wolverine populations as described in the EIS. Consequently, residual adverse effects on wolverine are expected to remain as described in the EIS.

#### **4.2.5.5 Boreal Woodland Caribou**

Boreal woodland caribou are affected by AFPR changes only in the Wabowden area.

Of the three boreal woodland caribou evaluation ranges intersected by the FPR (Bog, Reed Lake and Wabowden), the Wabowden range was indicated in the EIS to have the highest degree of existing fragmentation due to anthropogenic disturbance.

The total length of Wabowden caribou evaluation range intersected by the FPR is 94.16 km, and the total length of this evaluation range intersected by the AFPR is 85.30 km (i.e., slightly less). The major change with the AFPR is the length of Wabowden caribou evaluation range intersection that parallels existing linear features, i.e., 78.90 km for the AFPR (92.5%) as compared with only 39.2 km for the FPR (41.6%).

Effects on boreal woodland caribou due to the AFPR changes in the Wabowden area are summarized as follows<sup>9</sup>:

- The AFPR in the Wabowden area is shorter than the FPR and eliminates approximately 50 km of new ROW (compared to the FPR) through alignment with existing linear features. Overall, following existing ROW and disturbed areas within the evaluation range will result in no additional fragmentation or access in the area due to the Project.
- The AFPR intersects less high quality winter calving habitat than the FPR and does not bisect any core winter habitat. The FPR bisects, as opposed to intersects, core winter use area and known calving areas for the Wabowden range. As described in the EIS, bisecting a presently unfragmented core winter use area in the Wabowden range in an otherwise highly fragmented region increases the uncertainty for specialists in predicting the effects on caribou and the degree to which the herd in question can sustain itself. Specific results are as follows:
  - With the AFPR, 92 km<sup>2</sup> (3.03%) of high quality Wabowden range calving habitat (i.e., 3.036 km<sup>2</sup> area of calving hexes) is intersected compared to 104 km<sup>2</sup> of calving habitat being intersected with the FPR.
  - Of the total 1,518 calving hexes identified for the Wabowden range, 46 hexes are intersected by the AFPR in the Wabowden area, while 52 hexes are intersected by the FPR in the Wabowden area<sup>10</sup>.
  - The AFPR intersects less caribou winter core habitat in the Wabowden area; specifically, 0.15 km<sup>2</sup> (0.02%) of such habitat is intersected by the AFPR compared to 0.31 km<sup>2</sup> intersected by the FPR.
  - Overall the AFPR parallels 2.20 km of existing features along the caribou winter core habitat in the Wabowden area, compared to 4.66 km paralleled by the FPR, which will reduce potential habitat fragmentation effects due to the Project.
- There is a slight increase in the area of caribou summer core habitat overlapped by the AFPR compared to the FPR:
  - 0.86 km<sup>2</sup> (0.97%) of core summer habitat overlapped by the AFPR, compared to 0 km<sup>2</sup> of core summer habitat overlapped by the FPR.

Overall, the AFPR change in the Wabowden area has a positive impact on the boreal woodland caribou residual adverse effects assessment determinations provided in the December 2011 EIS, reflecting the reduced disturbance and reduced new fragmentation

---

<sup>9</sup> See Appendix 4A, Section 4A4.2 for tables on many of these factors.

<sup>10</sup> The results of collared female caribou GPS movements indicate that the AFPR has 1 calving site within 0-1 km, 1 centroid within 1-2 km and 2 centroids with 4-5 km distances of the AFPR.

in core winter habitat areas and potential calving areas with the AFPR as compared with the FPR. While a small amount of added core summer habitat will be intersected by the AFPR compared to the FPR, this habitat type is generally not considered to be a limiting factor for the Wabowden caribou range – consequently, the potential effect of this change with the AFPR as compared with the FPR is expected to be minimal.

The EIS indicates that, subject to the successful implementation of proposed mitigation measures, the residual adverse effect of the HVdc transmission line (FPR) on boreal woodland caribou in the Wabowden range (as well as other ranges) would not be significant. This assessment was subject to scientific uncertainty and concern, particularly with regard to boreal woodland caribou in the Wabowden range. The AFPR changes in this area materially reduce this uncertainty regarding the potential residual effects of the Project on the Wabowden boreal woodland caribou evaluation range and increase the confidence in the prediction of residual effects and the overall assessment of significance for this VEC.

#### **4.2.5.6 Moose**

Moose and moose habitat overlap with each of the three segments of the AFPR changes.

As the GHA 14 (Moose Meadows) and GHA 19A and 14A route revisions were recommended to address concerns related to moose populations, additional analysis was undertaken for this VEC to substantiate the modelling undertaken to support the EIS. An intensive aerial survey was completed within the GHA 14 (Moose Meadows) area and surrounding areas in GHA 13 between December 4 and December 6, 2012 to assess AFPR intersections with high density moose areas as well as to establish baseline data for future monitoring. Moose observed during this survey were found to be in closer proximity to the high quality moose habitat disturbed areas than other habitat types compared to a random disturbance of sample points. The results of this additional work support assumptions of the high quality moose habitat model used for this Project EIS. Further detail is provided in Appendix 4A, Section 4A4.4 and 4A4.5.

The results of EACP for the AFPR changes generally indicate a consensus that moose populations are low in the areas of the AFPR. In some communities, many of the attendees were not familiar with the term "Moose Meadows", and those who had heard of "Moose Meadows" were not familiar with the exact location. Members of the Western Region Moose Committee indicated that moose would not be seen until mid-January as moose are known to migrate from the Porcupine Mountain area as snow depths increase. Results of the Manitoba Hydro moose survey conducted in early December documented high density moose areas that were consistent with those identified by

MCWS during a 2011 GHA 14 moose survey conducted from January 11 through January 24, 2011. Other concerns expressed during the EACP for the AFPR suggested that the routing adjustment would create additional access from nearby communities, potentially impacting moose through increased hunting. Some indicated that the original FPR was a better option. In summary, there were a variety of views presented both positive and negative towards the adjusted routing process and location of the AFPR.

Moose habitat is affected in all three segments of the AFPR changes. Affected habitat within each section of the route adjustment is as follows<sup>11</sup>:

- The **Wabowden segment** of the AFPR has 10.8 km<sup>2</sup> (4.66% of Local Study Area) of high quality moose habitat within the Local Study Area; 0.184 km<sup>2</sup> (1.70%) of this moose habitat within the Local Study Area is within the 66 m ROW.
- The **GHA 14 (Moose Meadows) segment** of the AFPR has 35.0 km<sup>2</sup> (21.98% of Local Study Area) of high quality moose habitat within the Local Study Area; 0.389 km<sup>2</sup> (1.11%) of this moose habitat within the Local Study Area is within the 66 m ROW.
- The **GHA 19A and 14A segment** of the AFPR has 119.14 km<sup>2</sup> (31.16% of Local Study Area) of high quality moose habitat within the Local Study Area; 1.96 km<sup>2</sup> (1.65%) of this moose habitat within the Local Study Area is within the 66 m ROW.

A total 164.95 km<sup>2</sup> of high quality moose habitat is located within the Local Study Area for the three segments of the AFPR changes, with 2.53 km<sup>2</sup> of this habitat within the ROW. In the GHA 14 (Moose Meadows) and GHA 19A/14A segments, the amount of high quality moose habitat in the ROW for the AFPR is higher than for the FPR. See Appendix 4A, Section 4A4.2 for a summary of habitat value comparisons for the AFPR and FPR for each segment.

Potential effects on moose due to sensory disturbance, increased predation and hunting due to increased access are not expected to change to any detectable degree due to the AFPR.

The EIS notes the majority of potential negative effects of the Project on core moose habitat and populations in the Project Study Area were mitigated during the Project planning and routing process and with mitigation as described in the EIS, the residual effects on moose from Project construction and operation are not significant. Residual adverse effects include potential for: overharvest from increased access; sensory disturbance; some functional habitat loss; increased predation; and increased parasites and disease.

---

<sup>11</sup> See Appendix 4A, Section 4A4.2 and Tables 4A4.2-2 to 4A4.2-4.

The determination of significant adverse effects of the Project on moose populations as indicated in the December 2011 EIS remain consistent with the assessment assuming the AFPR changes. The residual adverse effects on moose from the HVdc transmission line component of the Project with the AFPR route changes due to sensory disturbance, loss of habitat due to construction of the Project and increased predation and hunting due to access are expected to remain as described in the EIS.

In the GHA 14 (Moose Meadows) segment, however, the Local Study Area for the AFPR compared to the FPR contains considerably more (i.e., over 28 km<sup>2</sup> more) high quality moose habitat. Based on the results of the aerial survey conducted between December 4 and 6, 2012, the AFPR compared to the FPR will intersect or come in proximity to additional areas of high moose density which are in proximity to existing access. This will result in more challenging mitigation on the potential effects associated with access along the AFPR corridor.

#### 4.2.5.7 Elk

Affected elk habitat within each section of the AFPR changes is as follows<sup>12</sup>:

- The **GHA 14 (Moose Meadows) segment** of the AFPR has 36.27 km<sup>2</sup> (22.77% of the Local Study Area) of modelled high quality elk habitat within the Local Study Area; 0.44 km<sup>2</sup> (1.22%) of this habitat within the Local Study area is within the 66 m ROW.
- The **GHA 19A and 14A segment** of the AFPR has 151.35 km<sup>2</sup> (42.12% of Local Study Area) of high quality elk habitat within the Local Study Area; 1.72 km<sup>2</sup> (1.14%) of this habitat within the Local Study Area is within the 66 m ROW.

A total 187.62 km<sup>2</sup> of high quality elk habitat is located within the Local Study Area for the three segments of the AFPR changes, with 2.16 km<sup>2</sup> of this habitat within the ROW. In both the Moose Meadows and GHA 19A-14A segments, the amount of high quality elk habitat in the ROW for the AFPR is higher than for the FPR. See Appendix 4A, Section 4A4.2 for a summary of habitat value comparisons for the AFPR and FPR for each segment.

There is a significant change in habitat effects when comparing the FPR to the AFPR; however, there is no change in effect on elk distribution and abundance related to the alteration of elk habitat due to construction of the Project in the AFPR areas.

The majority of negative effects on elk habitat and populations in the Project Study Area were mitigated during the planning and routing process by avoiding core ranges in the

---

<sup>12</sup> See Appendix 4A, Section 4A4.2 and Tables 4A4.2-2 to 4A4.2-4. There are no elk in the Wabowden area.

Riding Mountain, Duck Mountain and Spruce Woods regions of Manitoba. With mitigation measures proposed in the EIS, the residual adverse effects from Project construction and operation on elk are considered not significant and include potential for: overharvest from increased access; some functional habitat loss; fragmentation; sensory disturbance; increased transmission of disease and parasites; and increased predation.

The AFPR changes will have a negligible effect on the determination of significant adverse effects of the Project on elk populations as indicated in the December 2011 EIS. With mitigation measures as described in the EIS, residual adverse effects on elk due to the Project construction and operation are expected to remain as described in the EIS.

#### **4.2.5.8 Summary of Residual Environmental Effects Significance**

After mitigation as described in Chapter 6, the AFPR route changes are not expected to have significant residual adverse effects on mammals and mammal habitat VECs.

Potential residual effects of the Project for each mammal VEC remain as described and assessed in the December 2011 EIS, subject to the following:

- The AFPR changes in the Wabowden area materially reduce scientific uncertainty and concern regarding the potential residual effects of the Project on the Wabowden boreal woodland caribou evaluation range and increase the confidence in the prediction of residual effects and the overall assessment of significance for this VEC.

Table 4.2-9 provides a summary for the mammal VECs of the residual effects for the Project HVdc transmission line component with AFPR changes.

**Table 4.2-9: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Mammals**

VEC	Project Component	Phase	Residual Effects	Assessment <sup>1</sup>
Boreal Woodland Caribou (Wabowden, Reed Lake and Bog Ranges)	HVdc Transmission Line	Construction & Operation	Sensory disturbance, avoidance and displacement, hunting and poaching, predation	Direction – Negative Magnitude – Small Geographic Extent – Project Study Area Duration – Medium-Term (Op) <b>Overall – Not Significant</b> (Uncertainty Noted <sup>2</sup> ) - (Require Adaptive Management)
American Marten	HVdc Transmission Line and ac Collector Lines, Site Access Roads	Construction & Operation	Displacement, functional habitat loss, fragmentation, sensory disturb., trapping, overharvesting	Direction – Negative Magnitude – Moderate Geographic Extent – Local Study Area Duration – Medium-Term (Op) <b>Overall – Not Significant</b>
Beaver	HVdc Transmission Line and ac Collector Lines, Site Access Roads	Construction & Operation	Decreased population, sensory disturbance, overharvesting	Direction – Negative Magnitude – Small Geographic Extent - Project Site/Footprint Duration – Medium-Term (Op) <b>Overall – Not Significant</b>
Wolverine	HVdc Transmission Line and ac Collector Lines, Site Access Roads	Construction & Operation	Sensory disturbance	Direction – Negative Magnitude – Small Geographic Extent – Local Study Area Duration – Medium-Term (Op) <b>Overall – Not Significant</b>
Moose	HVdc Transmission Line and ac Collector Lines, Site Access Roads,	Construction & Operation	Overharvest, sensory disturb., functional habitat loss, predation, parasites and disease	Direction – Negative Magnitude – Small Geographic Extent – Local Study Area Duration – Medium-Term (Op) <b>Overall – Not Significant</b>
Elk	HVdc Transmission Line and ac	Construction & Operation	Overharvest, sensory disturb., functional habitat	Direction – Negative Magnitude – Small Geographic Extent – Local Study

**Table 4.2-9: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Mammals**

VEC	Project Component	Phase	Residual Effects	Assessment <sup>1</sup>
	Collector Lines		loss, predation, parasites/disease, fragmentation	Area Duration – Medium-Term (Op) <b>Overall – Not Significant</b>

Note:

1. Expected residual effects (i.e., effects after mitigation) of the Project on each VEC are assessed using the regulatory significance evaluation approach and methods defined in Chapter 4, Section 4.2.10 of the December 2011 EIS. Where feasible, regulatory significance is assessed for each non-negligible expected residual effect based on its expected direction, magnitude, geographic extent and duration (as each term is defined in Section 4.2.10); if an adverse residual effect is evaluated to be potentially significant, other factors are also considered (frequency, reversibility, ecological importance and societal importance). Scientific uncertainty is noted where it may materially affect the assessment.
2. Uncertainty noted for FPR (with requirement for monitoring and adaptive management) specifically regarding potential residual effects on caribou in the Wabowden range is materially reduced by Wabowden area AFPR changes; monitoring required in all three ranges with the potential for adaptive management if required.

## 4.2.6 Birds and Habitat

### 4.2.6.1 Overview

The evaluation of the AFPR route change effects on birds and bird habitat was conducted based on the methodology used in the Bipole III Transmission Project Environmental Assessment Bird Technical Report (Manitoba Hydro 2011). Comparison of the FPR and the Adjusted FPR routes included conservation areas analysis, core community analysis, bird diversity studies and habitat modelling (see Appendix 4A, Section 6). ATK, Local Knowledge and Traditional Land Use and Knowledge Study data were used to provide further context regarding the AFPR. Maps and interview survey data and self-directed studies were reviewed for species location information, species composition and important features pertaining to VECs and to other bird species. The locations of important sites such as hunting and gathering locations and bird habitats were also noted in relation to the AFPR. See Section 4.3 for further details regarding Domestic Resource Use.

Twenty-one bird VECs were identified in the EIS.

Table 4.2-10 below reviews the potential for AFPR route changes to affect bird VECs. This table indicates (“n/a”) for each VEC where there is no overlap with a AFPR Local Study Area or where there is no basis to expect that the AFPR changes will have any detectable effect on the VEC (these VEC’s are not considered further in the effects assessment):

- Three of the bird VECs have range limitations that do not overlap with any of the three AFPR Local Study Areas: least bittern, ferruginous hawk and burrowing owl VECs.

Several of the remaining bird VECs do not show any reduction of modelled habitat due to range restrictions in one or more of the AFPR Local Study Areas:

- Red-headed woodpecker, loggerhead shrike, Sprague's pipit, golden-winged warbler, Canada warbler and whip-poor-will in Wabowden AFPR area;
- Loggerhead shrike and Sprague's pipit in GHA 14 (Moose Meadows) AFPR area; and
- Bald eagle in GHA 14 (Moose Meadows) and GHA 19A and GHA 14A areas.

VEC's with an overlap in range or with a measureable effect of the Project in an AFPR Local Study Area are marked “X” in Table 4.2-10 and are considered in further detail in the effects assessment (this includes eighteen of the twenty-one bird VECs).

**Table 4.2-10: Birds and Bird Habitat VECs Affected by AFPR Changes**

VEC		AFPR Wabowden	AFPR GHA 14 (Moose Meadows)	AFPR GHA 19A and GHA 14A
Waterfowl & waterbirds	Mallard	X	X	X
	Sandhill crane	X	X	X
	Yellow rail	X	X	X
Colonial waterbirds	Great blue heron	X	X	X
	Least bittern <sup>1</sup>	n/a	n/a	n/a
Birds of Prey	Bald eagle	X	n/a	n/a
	Ferruginous hawk <sup>1</sup>	n/a	n/a	n/a
	Burrowing owl <sup>1</sup>	n/a	n/a	n/a
Upland Game Birds	Short-eared owl	X	X	X
	Sharp-tailed grouse	X	X	X
	Ruffed grouse	X	X	X
Woodpeckers	Pileated woodpecker	X	X	X
	Red-headed woodpecker <sup>2</sup>	n/a	X	X
Songbirds & other birds	Olive-sided flycatcher	X	X	X
	Loggerhead shrike <sup>2</sup>	n/a	n/a	X
	Sprague's pipit <sup>2</sup>	n/a	n/a	X
	Golden winged warbler <sup>2</sup>	n/a	X	X
	Canada warbler <sup>2</sup>	n/a	X	X
	Rusty blackbird	X	X	X
	Whip-poor-will <sup>2</sup>	n/a	X	X
	Common nighthawk	X	X	X

Notes:

1. VECs with range outside of the AFPR Local Study Areas.
2. Species that do not show any reduction of modelled habitat over the AFPR due to range restrictions in one or more of the AFPR Local Study Areas.

Assessment of Project effects on bird VECs identified in the EIS due to mortality factors, disruption of movements and environmentally sensitive sites is not materially affected by the AFPR route changes (see Appendix 4A, Section 4A.5 for more detailed review of these factors).

Bird diverters will be placed at 21 identified environmentally sensitive sites in addition to those identified in the Bipole III Birds Technical Report (Manitoba Hydro 2011). The placement of bird diverters along the migration corridor identified near Spence Lake (Duck Bay NTS ATK Map 63CO2) was considered; however, diverters were not recommended for the following reasons: (1) the transmission line is located

approximately one-kilometre from the lake and adjacent wetlands consequently any staging activities will be located over one kilometre from the transmission line; and (2) waterfowl will likely fly above the transmission line during migration.

Quantities of altered habitat based on proposed routing revisions were determined through use of habitat models also used to determine habitat quantities during the initial effects assessment of the Bipole III Transmission Line (Manitoba Hydro 2011).

The analysis of habitat in the ROW affected by the change in the AFPR (compared to the FPR) in Wabowden, GHA 14 (Moose Meadows) and GHA 19A/14A is summarized as follows (see Appendix 4A, Section 4A5.2 for summary tables):

- For the AFPR compared to the FPR in the Wabowden area, for 16 species there will either be no change or less habitat will be lost or altered due to the Project; for 5 species more habitat will be affected<sup>13</sup>.
- For the AFPR compared to the FPR in the GHA 14 (Moose Meadows) area, for 14 species there will either be no change or less habitat will be lost or altered due to the Project; and for 7 species more habitat will be affected<sup>14</sup>.
- For the AFPR compared to the FPR in the GHA 19A and 14A area for 9 species less habitat will be lost or altered or habitat is not expected to change due to the Project; and for 12 species more habitat will be affected<sup>15</sup>.

Effects of the Project on habitat with the three AFPR route changes as compared to the FPR are summarized below by bird groups for each VEC where there are changes in effects of the HVdc transmission line component of the Project due to the AFPR changes (see Appendix 4A, Section 6 for more detailed supporting analysis).

The presence of available habitat is considered a precursor to the presence of species within a studied area, but is not necessarily indicative of species being present as other environmental factors also play a role in species distribution. Other factors such as home-range size, site-specific habitat quality, and the presence of competing species may limit species distribution.

There is a potential for sensory disturbance due to potential Project-related effects during the clearing and construction phase of the Project. However, the extent to which

---

<sup>13</sup> See Table 4A5.2-1 in Appendix 4A which indicates more habitat will be affected for bald eagle; pileated woodpecker, yellow rail, short-eared owl, and common nighthawk.

<sup>14</sup> See Table 4A5.2-1 in Appendix 4A which indicates more habitat will be affected for great blue heron, ruffed grouse, pileated woodpecker, common nighthawk, whip-poor-will, olive-sided flycatcher, and Canada warbler.

<sup>15</sup> See Table 4A5.2-1 in Appendix 4A which indicates more habitat will be affected for mallard, sandhill crane, great blue heron, ruffed grouse, sharp-tailed grouse, pileated woodpecker, yellow rail, red headed woodpecker, common nighthawk, olive-sided flycatcher Canada warbler and rusty blackbird.

sensory disturbance will affect bird species is unchanged from those levels considered as part of the initial EIS birds effects assessment.

#### **4.2.6.2 Waterfowl and Waterbird VECs (Mallard, Sandhill Crane, Yellow Rail)**

The expected effects of the Project on waterfowl and waterbird VECs in the EIS with the FPR are not materially modified by the three AFPR route changes. Affected habitat within the overall HVdc Transmission Line Local Study Area is slightly reduced with the AFPR as compared with the FPR for each VEC (reductions are less than 2.0% for each VEC). Affected habitat within the 66 metre ROW is slightly reduced for sandhill crane and yellow rail (less than 4.5% reduction). Affected mallard habitat within the 66 metre ROW is slightly increased (1.03%). Within the three AFPR segments the following effects are noted with the AFPR compared with the FPR:

- **Wabowden segment:** affected Local Study Area habitat is reduced for all three species; affected ROW area habitat is reduced for mallard and sandhill crane, and increased for yellow rail ( $0.08 \text{ km}^2$ ).
- **GHA 14 (Moose Meadows) segment:** affected Local Study Area and ROW area habitat is reduced for all three species.
- **GHA 19A and 14A segment:** affected Local Study Area habitat is increased for all three species; affected ROW area habitat is increased for all three species (mallard  $0.9 \text{ km}^2$ ; sandhill crane  $0.33 \text{ km}^2$ ; yellow rail  $0.01 \text{ km}^2$ ).

#### **4.2.6.3 Colonial Waterbird VECs (Great Blue Heron, Least Bittern)**

The expected effects of the Project on colonial waterbird VECs in the EIS with the FPR are not materially modified by the three AFPR route changes. As noted earlier, no change will occur with least bittern (i.e., no overlap for this VEC with the AFPR route changes). Affected habitat within the overall HVdc Transmission Line Local Study Area and within the 66 metre ROW is slightly reduced with the AFPR as compared with the FPR for great blue heron (reduction of 0.09% in the Local Study Area, and 2.18% in the ROW). Within the three AFPR segments the following effects are noted for great blue heron with the AFPR compared with the FPR:

- **Wabowden segment:** Affected Local Study Area and ROW habitat are both reduced.
- **GHA 14 (Moose Meadows) segment:** Affected Local Study Area and ROW habitat are both increased (ROW increase  $0.43 \text{ km}^2$ ).

- **GHA 19A and 14A segment:** Affected Local Study Area habitat is decreased; affected ROW area habitat is increased ( $0.2 \text{ km}^2$ ).

#### **4.2.6.4 Birds of Prey VECs (Bald Eagle, Ferruginous Hawk, Burrowing Owl, Short-eared Owl)**

The expected effects of the Project on birds of prey VECs in the EIS with the FPR are not materially modified by the three AFPR route changes. As noted earlier, no change will occur with ferruginous hawk and burrowing owl VECs (i.e., no overlap for each of these VECs with the AFPR route changes).

Affected habitat for the short-eared owl VEC within the overall HVdc Transmission Line Local Study Area and the 66 metre ROW is slightly reduced with the AFPR as compared with the FPR (a 0.94% reduction in the Local Study Area and a 4.54% reduction in the ROW).

Affected habitat for the bald eagle VEC within the overall HVdc Transmission Line Local Study Area and the 66 metre ROW is increased with the AFPR as compared with the FPR (3.15% increase in Local Study Area affected habitat and 4.73% increase in ROW affected habitat). All of the affected bald eagle habitat is in the Wabowden AFPR segment.

- **Wabowden segment:** Affected Local Study Area is reduced for short-eared owl and affected ROW habitat is increased for short-eared owl ( $0.08 \text{ km}^2$ ); affected Local Study Area and ROW area habitat is increased for bald eagle (ROW increase  $0.06 \text{ km}^2$ ).
- **GHA 14 (Moose Meadows) segment:** Affected Local Study Area and ROW habitat is reduced for short-eared owl; no change for bald eagle.
- **GHA 19A and 14A segment:** Affected Local Study Area habitat is increased for short-eared owl and affected ROW habitat is reduced for short-eared owl; no change for bald eagle.

#### **4.2.6.5 Upland Game Birds VECs (Ruffed Grouse, Sharp-tailed Grouse)**

The expected effects of the Project on upland game birds VECs in the EIS with the FPR are not materially modified by the three AFPR route changes. Affected habitat within the overall HVdc Transmission Line Local Study Area (change less than 2% for each VEC) and the 66 metre ROW is slightly affected with the APFR as compared with the FPR for each VEC (increase of 8.49% for ruffed grouse and a reduction of 4.93% for sharp-tailed grouse).

Within the three AFPR segments the following effects are noted with the AFPR compared with the FPR:

- **Wabowden segment:** Affected Local Study Area and ROW habitat is reduced for both species.
- **GHA 14 (Moose Meadows) segment:** Affected Local Study Area and ROW habitat is reduced for sharp-tailed grouse; affected Local Study Area and ROW area habitat is increased for ruffed grouse (ROW increase 0.83 km<sup>2</sup>).
- **GHA 19A and 14A segment:** Affected Local Study Area habitat is increased for sharp-tailed grouse and reduced for ruffed grouse; affected ROW area habitat is increased for both species (ruffed grouse 0.37 km<sup>2</sup>; sharp-tailed grouse 0.64 km<sup>2</sup>).

Although the quality of ruffed grouse habitat may decrease with the loss of forest cover, ruffed grouse will utilize edge habitat near and on the ROW. The AFPR in GHA 14A will be located near a local resource use area which may result in increased domestic harvest; however, there should be no measurable change of effect on the population.

#### **4.2.6.6 Woodpecker VECs (Pileated Woodpecker, Red-headed Woodpecker)**

The expected effects of the Project on woodpecker VECs in the EIS with the FPR are not materially modified by the three AFPR route changes. Affected habitat within the overall HVdc Transmission Line Local Study Area and the 66 metre ROW is slightly affected with the AFPR as compared with the FPR for each VEC (increase of less than 8% for pileated woodpecker and a reduction of less than 1% for red-headed woodpecker). Within the three AFPR segments the following effects are noted with the AFPR compared with the FPR:

- **Wabowden segment:** Affected Local Study Area and ROW habitat is increased for pileated woodpecker (ROW increase 0.04 km<sup>2</sup>); no change for red-headed woodpecker.
- **GHA 14 (Moose Meadows) segment:** Affected Local Study Area habitat is increased for pileated woodpecker and reduced for red-headed woodpecker; affected ROW area habitat is reduced for red-headed woodpecker and increased for pileated woodpecker (increase 0.28 km<sup>2</sup>).
- **GHA 19A and 14A segment:** Affected Local Study Area habitat is increased for pileated woodpecker and reduced for red-headed woodpecker; affected ROW area habitat is increased for red-headed woodpecker (increase 0.05 km<sup>2</sup>) and pileated woodpecker (increase 0.22 km<sup>2</sup>).

A total of 2.56 km<sup>2</sup> of pileated woodpecker habitat will be affected on the 66 metre AFPR ROW (compared to 2.02 km<sup>2</sup> with the FPR). The amount of added habitat affected by the AFPR would only support a very small number of individual pileated woodpeckers.

In summary, no substantial change in overall Project habitat effects is predicted with the HVdc component for the pileated woodpecker VEC or other woodpecker VECs with the AFPR as compared with the FPR.

#### **4.2.6.7 Songbirds and other Bird VECs (Common Nighthawk, Whip-poor-will, Olive-sided Flycatcher, Loggerhead Shrike, Sprague's Pipit, Golden-winged Warbler, Canada Warbler, Rusty Blackbird)**

The expected effects of the Project on songbirds and other bird VECs in the EIS with the FPR are not materially modified by the three AFPR route changes.

Affected habitat within the overall HVdc Transmission Line Local Study Area is increased with the AFPR as compared with the FPR for only one of these VECs (Canada warbler affected habitat increased by 8.32%). Affected habitat in the Local Study Area is reduced for the seven remaining VECs (reductions in affected habitat range from approximately 4% for golden-winged warbler to 6% for rusty blackbird to less than 3% for the other five VECs).

Affected habitat within the overall HVdc Transmission Line 66 metre ROW is decreased with the AFPR as compared with the FPR for rusty blackbird (11.67% decrease), Sprague's pipit (5.96% decrease), olive-sided flycatcher (3.25% decrease), loggerhead shrike (1.31% decrease) and golden-winged warbler (0.76% decrease). Affected habitat within the overall HVdc Transmission Line 66 metre ROW is increased with the AFPR as compared with the FPR for Canada warbler (32.3% increase), whip-poor-will (4.03% increase) and common nighthawk (3.66% increase).

While the percent change for Canada warbler is large (32.3%), the overall effect for the ROW area (increase 1.20 km<sup>2</sup>) is small. The AFPR avoids one large patch of habitat in the Moose Meadows area as compared to the FPR; instead, habitat effects will be distributed across numerous smaller patches in the Moose Meadows Area and GHA 19A and GHA 14A. It is unlikely that the small habitat patches support more than a few individuals.

Within the three AFPR segments the following effects are noted with the AFPR compared with the FPR:

- **Wabowden segment:** affected Local Study Area habitat is decreased for common night hawk, olive-sided flycatcher, Canada warbler and rusty blackbird; there is no

effect on any of the other VECs with the FPR or AFPR. Affected ROW habitat is decreased for olive-sided flycatcher and rusty blackbird and increased for common nighthawk (increase 0.11 km<sup>2</sup>).

- **GHA 14 (Moose Meadows) segment:** affected Local Study Area habitat is increased for whip-poor-will, golden-winged warbler and Canada warbler, and reduced for common nighthawk, olive-sided flycatcher and rusty blackbird; affected ROW area habitat is reduced for golden-winged warbler and rusty blackbird, and increased for common nighthawk (increase 0.81 km<sup>2</sup>), whip-poor-will (increase 1.45 km<sup>2</sup>), olive-sided flycatcher (increase 0.21 km<sup>2</sup>), and Canada warbler (increase 0.83 km<sup>2</sup>).
- **GHA 19A and 14A segment:** affected Local Study Area habitat is increased for common nighthawk, whip-poor-will, olive-sided flycatcher and rusty blackbird, and reduced for loggerhead shrike, Sprague's pipit, golden-winged warbler, and Canada warbler; affected ROW area habitat is reduced for whip-poor-will, loggerhead shrike, Sprague's pipit, and golden-winged warbler, and increased for common nighthawk (increase 0.66 km<sup>2</sup>), olive-sided flycatcher (increase 0.32 km<sup>2</sup>), Canada warbler (increase 0.37 km<sup>2</sup>), and rusty blackbird (increase 0.52 km<sup>2</sup>).

#### 4.2.6.8 Summary of Residual Environmental Effects Significance

The EIS notes that effects of the Project on birds may include decreased productivity, habitat changes, sensory disturbances, and disruption of movements concurrent with breeding and nesting periods. For species at risk the loss of many individual birds could potentially have an irreversible effect on local populations during construction and operation; however, mortality of a few individuals as may be anticipated from the Project will result in negligible reduced local populations.

As indicated in the EIS, with implementation of federal recovery strategies potential mortality effects are considered reversible and will likely fall within the range of natural variability.

Following implementation of mitigation measures for birds (see Chapter 6), including the restriction of clearing, construction, operation and maintenance activities during nesting season (approximately April to the end of July), along the length of the Project route residual effects will be eliminated or only be of a small magnitude (Table 4.2-11).

After mitigation as described in Chapter 6, the AFPR route changes are not expected to have significant residual adverse effects on bird populations or their habitats. Potential residual effects of the Project for each bird VEC remain as described and assessed in the December 2011 EIS and as outlined in Table 4.2-11 below. Table 4.2-11 provides a

summary for the bird group VECs of the residual effects for the Project HVdc transmission line component with AFPR changes.

**Table 4.2-11: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Birds**

VEC	Project Component	Phase	Residual Effect	Assessment <sup>2</sup>
Waterfowl & Waterbirds (Mallard, Sandhill Crane & Yellow Rail)	HVdc Transmission Line and ac Collector Lines; Ground Electrodes and Lines in vicinity of HVdc line	Construction & Operation	Habitat loss primarily at tower footprints and habitat alteration in the ROWs; fragmentation effects in sensitive areas including habitat avoidance near the ROWs from sensory disturbances associated with human or mechanical activity; some potential mortalities from increased hunting, predation and/or bird-wire collisions.	Direction – Negative Magnitude – Small Geographic Extent – Local Study Area Duration – Medium-Term <b>Overall – Not Significant</b>
Colonial Waterbirds (Great Blue Heron & Least Bittern)	HVdc Transmission Line and ac Collector Lines; Ground Electrodes and Lines in vicinity of HVdc line	Construction & Operation	Habitat loss primarily at tower footprints and habitat alteration in the ROWs; fragmentation effects in sensitive areas including habitat avoidance near the ROWs from sensory disturbances associated with human or mechanical activity; some potential mortalities from increased predation or bird-wire collisions.	Direction – Negative Magnitude – Small Geographic Extent – Local Study Area Duration – Medium-Term <b>Overall – Not Significant</b>
Birds of Prey (Bald Eagle, Ferruginous Hawk, Burrowing Owl, Short-eared Owl)	HVdc Transmission Line and ac Collector Lines; Ground Electrodes	Construction & Operation	Habitat loss or alteration in the ROWs, including increased nesting habitat, perches and foraging opportunities; fragmentation effects in sensitive areas including	Direction – Negative Magnitude – Small Geographic Extent – Local Study Area Duration – Medium-Term <b>Overall – Not Significant</b>

**Table 4.2-11: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Birds**

VEC	Project Component	Phase	Residual Effect	Assessment <sup>2</sup>
	and Lines in vicinity of HVdc line		habitat avoidance near the ROWs from sensory disturbances associated with human or mechanical activity; some potential mortalities from vehicle collisions.	<b>Significant</b>
Upland Game Birds (Sharp-tailed Grouse & Ruffed Grouse)	HVdc Transmission Line and ac Collector Lines; Ground Electrodes and Lines in vicinity of HVdc line	Construction & Operation	Habitat loss primarily at tower footprints and habitat alteration in the ROWs; fragmentation effects in sensitive areas including habitat avoidance and disruption of daily movements near the ROWs from sensory disturbances associated with human or mechanical activity; some potential mortalities from increased hunting vehicle collisions and bird-wire collisions.	Direction – Negative Magnitude – Small Geographic Extent – Local Study Area Duration – Medium-Term <b>Overall – Not Significant</b>
Woodpeckers (Pileated Woodpecker & Red-Headed Woodpecker)	HVdc Transmission Line and ac Collector Lines; Ground Electrodes and Lines in vicinity of HVdc line	Construction & Operation	Habitat loss and habitat alteration in the ROWs; fragmentation effects in sensitive areas including habitat avoidance near the ROWs from sensory disturbances associated with human or mechanical activity; some potential mortalities from vehicle collisions.	Direction – Negative Magnitude – Small Geographic Extent – Local Study Area Duration – Medium-Term <b>Overall – Not Significant</b>
Songbirds (Common nighthawk, Whip-poor-	HVdc Transmission Line and ac Collector	Construction & Operation	Habitat loss primarily at tower footprints and habitat alteration in the ROWs; fragmentation	Direction – Negative Magnitude – Small Geographic Extent – Local Study Area

**Table 4.2-11: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Birds**

VEC	Project Component	Phase	Residual Effect	Assessment <sup>2</sup>
will, Olive Sided Flycatcher, Loggerhead Shrike, Sprague's Pipit, Golden-winged Warbler, Canada Warbler, Rusty Blackbird)	Line; Ground Electrodes and Lines in vicinity of HVdc line;		effects in sensitive areas including habitat avoidance near the ROWs from sensory disturbances associated with human or mechanical activity; some potential mortalities from vehicle collisions.	Duration – Medium-Term <b>Overall – Not Significant</b>

Notes:

1. Expected residual effects (i.e., effects after mitigation) of the Project on each VEC are assessed using the regulatory significance evaluation approach and methods defined in Chapter 4, Section 4.2.10 of the December 2011 EIS. Where feasible, regulatory significance is assessed for each non-negligible expected residual effect based on its expected direction, magnitude, geographic extent and duration (as each term is defined in Section 4.2.10); if an adverse residual effect is evaluated to be potentially significant, other factors are also considered (frequency, reversibility, ecological importance and societal importance). Scientific uncertainty is noted where it may materially affect the assessment.

## 4.2.7 Amphibians and Reptiles

### 4.2.7.1 Overview

The evaluation of the AFPR route change effects on amphibians and reptiles was conducted based on the methods described in the Terrestrial Invertebrates, Amphibians and Reptiles (TIAR) Bipole III Transmission Project Environmental Assessment Technical Report. Each adjustment was evaluated based on the presence of suitable habitat for amphibian and reptile VECs. Habitat was modeled using information on distribution ranges, as well as known habitat requirements for feeding reproduction and overwintering life stages, and total habitat area within the 3 mile corridor (or Local Study Area) and the 66 m ROW determined. Incidental observations provided for the Project were examined to see if any observations overlapped with the route adjustment areas. Available ATK information was also used to evaluate the route adjustments. A more detailed description of how ATK was incorporated into the assessment of reptiles and amphibians is provided in the TIAR Technical Report filed with the EIS.

Three amphibian VECs and two reptile VECs were identified in the EIS.

Table 4.2-12 below reviews the potential for AFPR route changes to affect amphibian and reptile VECs. This table indicates (“n/a”) for each VEC where there is no overlap with an AFPR Local Study Area or where there is no basis to expect that the AFPR changes will have any detectable effect on the VEC (these VEC’s are not considered further in the effects assessment):

- One of the amphibian VECs (plains spadefoot) and both of the reptile VECs (red-sided garter snake and northern prairie skink) have range limitations that do not overlap with any of the three the AFPR Local Study Areas.

VEC’s with an overlap in range or with a measureable effect of the Project in an AFPR Local Study Area are marked “X” in Table 4.2-12 and are considered in further detail in the effects assessment (this includes the wood frog and northern leopard frog amphibian VECs).

**Table 4.2-12: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Amphibians and Reptiles**

VEC	AFPR Wabowden <sup>1</sup>	AFPR GHA 14 (Moose Meadows) <sup>1</sup>	AFPR GHA 19A and GHA 14A <sup>2</sup>
Plains Spadefoot	n/a	n/a	n/a <sup>3</sup>
Wood frog	X	X	X
Northern leopard frog	X	X	X
Red-sided garter snake	n/a <sup>4</sup>	n/a	n/a <sup>5</sup>
Northern prairie skink	n/a	n/a	n/a

Notes:

1. An examination of incidental observations and ATK information indicates that no amphibian or reptile VEC’s overlap the Wabowden AFPR or the GHA 14 (Moose Meadows) AFPR.
2. Swampy marshy habitat which may be suitable anuran breeding habitat was identified during ATK Workshops approximately 2 km east of the GHA 19A and GHA 14 A rout adjustments (White Sand Lake, Camperville, ATK NTS Map 63C02, Bipole III Transmission Project). This polygon is within the Local Study Area, but outside the 66 metre ROW. Incidental observations and ATK indicate no overlaps of information for reptiles in GHA 19A and 14A AFPR.
3. GHA 19A and GHA 14A route adjustment areas are in close proximity to the northern edge of the Dauphin Lake distribution of the Plains spadefoot.
4. 0.37 km<sup>2</sup> of modelled garter snake habitat overlaps the Wabowden area AFPR 3 mile corridor; none of this habitat falls within the Wabowden Area AFPR ROW after the application of a 200 metre buffer as recommended by Manitoba Conservation. This habitat is also at the northern most limits of the distribution range for the red-sided garter snake, and unlikely to support a large population.
5. Suitable garter snake hibernacula habitat and one hibernacula observation are identified immediately south of the GHA 19A and GHA 14A adjusted FPR, parallel to the existing alignment, but outside of the 3 mile corridor.

#### **4.2.7.2 Wood Frog and Northern Leopard Frog Amphibian VECs**

The expected effects of the Project on wood frog and northern leopard frog amphibian VECs in the EIS with the FPR are not materially modified by the three AFPR route changes.

Wood frog and northern leopard frog habitat (i.e., wetlands) was identified within all three areas of the AFPR and is summarized in Table 4.2-13 below.

**Table 4.2-13: Total Area of Wetland Habitat Classes within the AFPR Segments**

<b>Section of Adjusted FPR</b>	<b>Habitat Area within 66 m ROW (km<sup>2</sup>)</b>	<b>Habitat Area within 3 mile buffer (km<sup>2</sup>)</b>	<b>Proportion of Habitat in ROW vs. 3 mile buffer</b>
Wabowen	1.55	109.31	1.42%
GHA 14 (Moose Meadows)	0.50	37.63	1.34%
GHA 19A & 14A	1.54	107.38	1.43%

In summary, in each AFPR area less than 1.5% of the wetland habitat in the Local Study Area is located within the 66 metre ROW. Consequently, the EIS assessment of Project effects on wood frog and northern leopard frog VECs (including assessment of mitigation measures and potential residual effects) continues to apply after the AFPR route changes (see Appendix 4A, Section 4A6 for a summary review).

#### **4.2.7.3 Summary of Residual Environmental Effects Significance**

Potential effects on wood frog and northern leopard frog due to Project construction and operation include habitat alteration, direct mortality and sensory disturbance. Mitigation measures outlined in the EIS and in Chapter 6 include strategic timing of construction and operation activities, and retention of microhabitat and stream and wetland buffers and are designed to minimize impacts on local anurans and are expected to assist in prevention or reversal of any habitat alteration effects that may occur during Project activities. After mitigation as described in Chapter 6, there is no detectable change in residual adverse effects for amphibian and reptile VEC's due to the AFPR route changes. Potential residual effects of the Project on each amphibian and reptile VEC remain as described and assessed in the December 2011 EIS.

Table 4.2-14 provides a summary for the amphibian and reptiles VECs of the residual effects for the Project HVdc transmission line component with AFPR changes.

**Table 4.2-14: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Amphibians and Reptiles**

VEC	Project Component	Phase	Residual Effect	Assessment <sup>1</sup>
Wood Frog	HVdc Transmission Line and ac Collector Lines	Construction & Operation	Fragmentation of sensitive area; habitat alteration/disturbance; mortality and vehicle-related effects associated with increased use of seasonal access trails and RoWs	Direction – Negative Magnitude – Small Geographic Extent - Project Site/Footprint Duration – Medium-Term (Op) <b>Overall – Not Significant</b>
Northern Leopard Frog	HVdc Transmission Line and ac Collector Lines	Construction & Operation	Fragmentation of sensitive area; habitat alteration/disturbance; mortality and vehicle-related effects associated with increased use of seasonal access trails and RoWs	Direction – Negative Magnitude – Moderate (Const) Small (Op) Geographic Extent – Local Study Area Duration – Medium-Term (Op) <b>Overall – Not Significant</b>

Notes:

1. Expected residual effects (i.e., effects after mitigation) of the Project on each VEC are assessed using the regulatory significance evaluation approach and methods defined in Chapter 4, Section 4.2.10 of the December 2011 EIS. Where feasible, regulatory significance is assessed for each non-negligible expected residual effect based on its expected direction, magnitude, geographic extent and duration (as each term is defined in Section 4.2.10); if an adverse residual effect is evaluated to be potentially significant, other factors are also considered (frequency, reversibility, ecological importance and societal importance). Scientific uncertainty is noted where it may materially affect the assessment.

## **4.3 SOCIO-ECONOMIC EFFECTS ASSESSMENT AND MITIGATION**

### **4.3.1 Introduction**

Table 4.3-1 reviews each of the broad socio-economic sub-components of the environment addressed in the December 2011 EIS. It identifies those sub-components (marked with "X") that are addressed in this Section 4.3, where there are potential changes in effects of the HVdc transmission line component of the Project due to the three AFPR changes. It also identifies those sub-components (marked with "n/a") where there is no basis for any change to the socio-economic effects assessment and mitigation measures identified in the December 2011 EIS (these sub-components are not addressed further in this Supplemental Report).

**Table 4.3-1: Socio-economic Sub-components Affected by AFPR Changes**

<b>Broad Environmental Sub-component</b>	<b>AFPR Wabowden</b>	<b>AFPR GHA 14 (Moose Meadows)</b>	<b>AFPR GHAs 19A and 14A</b>
Land Use <sup>1</sup>	X	X	X
Resource Use <sup>1</sup>	X	X	X
Economy <sup>2</sup>	n/a	n/a	n/a
Services <sup>2</sup>	n/a	n/a	n/a
Personal, Family and Community Life <sup>2</sup>	n/a	n/a	n/a
Culture and Heritage Resources <sup>1</sup>	X	X	X

Notes:

1. There are potential changes to the effects assessment from the December 2011 EIS for the AFPR changes in terms of some VECs for Land Use, Resource Use, and Culture and Heritage Resources. These are discussed in this Section 4.3.
2. The effects assessment from the December 2011 EIS for Economy, Services, and Personal, Family and Community Life is not modified by the AFPR changes. The effects assessment and mitigation for these VECs for the Bipole III HVdc Transmission Line are outlined in Section 8.3.3.3 (Economy), Section 8.3.4.3 (Services), and Section 8.3.5.3 (Personal, Family and Community Life) of the December 2011 EIS.

## 4.3.2 Land Use

### 4.3.2.1 Overview

The evaluation of the AFPR route changes on land use was conducted based on the methodology used in the December 2011 EIS. Table 4.3-2 lists the six land use VECs identified in the EIS and indicates, for each of the three AFPR changes, those VECs that will be considered further (marked "X") to assess the effects of AFPR changes, and those VECs (marked "n/a") that will not be considered further as there is no basis to expect that the AFPR changes will have any detectable effect on the VEC.

**Table 4.3-2: Land Use VECs Affected by AFPR Changes**

Land Use VECs	AFPR Wabowden	AFPR GHA 14 (Moose Meadows)	AFPR GHAs 19A and 14A
Land Tenure & Residential Development <sup>1</sup>	n/a	n/a	n/a
Private Forestlands	n/a <sup>2</sup>	X	n/a <sup>2</sup>
Aboriginal Lands (Reserve Lands & TLE)	n/a <sup>3</sup>	X	n/a <sup>3</sup>
Designated Protected Areas and PAI	n/a <sup>4</sup>	X	X
Infrastructure <sup>5</sup>	n/a	n/a	n/a
Agricultural Productivity	n/a <sup>6</sup>	X	X

Notes:

1. There are no residences in proximity to the adjusted preferred routes. The closest is located approximately 355 m from the GHA 14 (Moose Meadows) adjusted preferred route. No effects are anticipated.
2. No private forest lands are affected by the Wabowden area and GHA 19A and 14A area AFPR changes. No effects are anticipated.
3. The Wabowden and GHAs 19A and 14A area AFPR changes do not cross any Reserve Lands, Federal lands or Treaty Land Entitlement selections. No effects are anticipated.
4. The Wabowden area AFPR change does not cross nor is it in proximity to any lands designated or registered as a Protected Area. No effects are anticipated.
5. The AFPR changes cross or parallel infrastructure such as PTHs and PRs. However, there is no change in the effects assessment and mitigation measures identified in the December 2011 EIS. See Section 8.3.1.3 – Land Use (HVdc Transmission Line) of the December 2011 EIS for mitigation measures. The residual effects summary is found below in Table 4.3-3.
6. As no agricultural activities occur in the region where the Wabowden AFPR change is located, the route will not affect agricultural land use/productivity. No effects are anticipated.

### 4.3.2.2 Private Forest Lands VEC (Shelterbelts, Managed Private woodlots)

Approximately 1.5 km (9.9 ha) more private forest lands will be affected by the GHA 14 (Moose Meadows) AFPR route change. These private forest lands are not registered

woodlots. See Section 8.3.1.3 – Land Use (HVdc Transmission Line) of the December 2011 EIS for mitigation measures, which are not changed by the AFPR. The residual effects summary, which is also not changed by the AFPR, is outlined below in Table 4.3-3.

#### **4.3.2.3 Aboriginal Lands VEC (Reserve Lands and Treaty Land Entitlement Selections [TLE])**

With respect to the GHA 14 (Moose Meadows) AFPR, west of Bellsite, there are designated and registered First Nations lands and Treaty Land Entitlement (TLE) selections of Wuskwi Sipihk First Nation which are in proximity to the route (see Appendix 4B, Map 17). These lands are on the opposite side of PTH 10 and an existing Manitoba Hydro transmission line. In addition, in this area, the AFPR is located approximately 133 m from the northern edge of lands registered as TLE northwest of Indian Birch. The TLE designated and registered lands are as follows:

- Site No. 6-99 B2 (All 23-41-25 WPM);
- Site No. 6-99 B6 (NE 14-41-25 WPM); and
- Site No. 6-99 B9 (SE 14-41-25 WPM).

These registered sites were selected in 1999 and were reserved for further disposition at that time which continues to be valid. The site boundaries have been recently reviewed and confirmed for inclusion on a Regional Surveyor Map that will then move them into the survey stage in the process of transfer from the Crown.

See Section 8.3.1.3 – Land Use (HVdc Transmission Line) of the December 2011 EIS for mitigation measures, which are not changed by the AFPR changes. The residual effects summary, which is also not changed by the AFPR, is outlined below in Table 4.3-3.

Other Aboriginal interests are discussed further under Domestic Resource Use.

#### **4.3.2.4 Designated Protected Areas and Protected Areas Initiative (Areas of Special Interest, Enduring Features)**

South of Mafeking, the GHA 14 (Moose Meadows) AFPR crosses the Porcupine Forest Reserve for approximately 6 km. The Porcupine Forest Reserve contains both unprotected, and designated and registered protected areas. The GHA 14 (Moose Meadows) AFPR is located approximately 100 m to the eastern edge of one segment of the Bell & Steeprock Canyons Protected Area (see Appendix 4B, Map 18). The total buffer will be approximately 133 m, including 33 m of the right-of-way which should maintain the integrity of the protected area. In terms of unprotected areas, the Porcupine

Forest Reserve does have large size areas which provide for industrial development. The GHA 14 (Moose Meadows) AFPR crosses through an area in the Porcupine Forest Reserve which is unprotected and where there is existing linear infrastructure such as PTH 10. Manitoba Conservation and Water Stewardship PAI staff have reviewed the AFPR through the area and have not identified any concerns provided that there is a 100 metre buffer between the right-of-way and the boundary of the Bell-Steeprock Canyon Protected Area.

Although not formally protected, forest reserves are of interest to the Protected Areas Initiative. The GHA 19A and 14A AFPR crosses through the southwest corner of the Swan-Pelican Forest Reserve in two locations (see Appendix 4B, Map 19). The forest reserve provides for commercial and industrial activities such as forest harvesting and mining. The HVdc transmission line is not incompatible with uses in the forestry reserve.

See Section 8.3.1.3— Land Use (HVdc Transmission Line) of the December 2011 EIS for mitigation measures, which are not changed by the AFPR changes. The residual effects summary, which is also not changed by the AFPR, is outlined in Table 4.3-3.

#### **4.3.2.5 Agricultural Land Use/Productivity**

Although there is some agricultural use along the GHA 14 (Moose Meadows) area AFPR, it does avoid crossing through some of the agricultural lands crossed by the FPR, and hence has less direct effects on agriculture. Approximately 25% of the area along the AFPR in this area is used for crop and livestock production, and produces annual crops, tame and native hay, and pasture. Of this, approximately 13% produces tame hay or is cultivated crop land. This compares to approximately 40% of the area along the FPR that is used for crop and livestock production producing tame and native hay, pasture and some crops. The AFPR in the GHA 14 (Moose Meadows) will result in management unit severances for approximately 1.0 km in the area north of Mafeking, compared to the FPR where management units were split for approximately 16 km.

There is limited agricultural use along the GHA 19A and 14A AFPR except for a small amount of cultivated lands and pasture around Cowan and Pulp River. A small percentage of the AFPR (approximately 6%) crosses through lands that are used for livestock production, mainly producing tame and native hay, and pasture, with some crop land. The AFPR in the GHA 19A and 14A area will cause management unit severances for approximately 1.0 km, in the area northeast of Cowan. This is compared to approximately 9.0 km of management unit severances along the FPR in the Pulp River and Cowan areas.

There is a bison ranch operating to the north of Pulp River and PR 271 which has between approximately 2,500 to 2,700 animals. The AFPR crosses through the bison range for approximately 10 km in the area north of Pulp River. The FPR also crossed through the ranch for approximately the same distance. The ranch is located on a large number of lands which are either owned by the operators of the ranch or leased from the Crown. Manitoba Hydro will consult with the owners of bison ranch to minimize potential effects on the operations of the ranch.

See Section 8.3.1.3– Land Use (HVdc Transmission Line) of the December 2011 EIS for mitigation measures, which are not changed by the AFPR changes. The residual effects summary, which is also not changed by the AFPR, is outlined below in Table 4.3-3.

#### **4.3.2.6 Summary of Residual Environmental Effects Significance**

After mitigation as described in Section 8.3.1.3 of the EIS and further outlined in Chapter 6, the AFPR route changes are not expected to have significant residual adverse effects on land use VECs. Potential residual effects of the Project for each land use VEC remain as described and assessed in the December 2011 EIS (see Table 4.3-3).

Table 4.3-3 provides a summary for the land use VECs of the residual effects for the Project HVdc transmission line component with AFPR changes.

**Table 4.3-3: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes - Land Use**

VEC	Project Component	Phase	Residual Effects	Assessment <sup>1</sup>
Land Tenure & Residential Development	HVdc Transmission Line	Construction	Possible loss of one residence within 75 m of the ROW through purchase <sup>2</sup>	Direction – Negative Magnitude – Small Geographic Extent – Project Site/Footprint Duration – Short-term <b>Overall – Not Significant</b>
	HVdc Transmission Line	Operations	Physical presence of the line	Direction – Negative Magnitude – Small Geographic Extent – Local Study Area Duration – Medium-Term <b>Overall – Not Significant</b>
Private Forestlands	HVdc Transmission Line	Construction	Loss of private woodlots/shelter belts	Direction – Negative Magnitude – Moderate Geographic Extent – Project Site/Footprint Duration – Short to Medium-Term
		& Operations		
	HVdc Transmission Line	& Operations		<b>Overall – Not Significant</b>
Aboriginal Lands (Reserve Lands & TLE)	HVdc Transmission Line	Construction	Physical presence of facilities; Increased access	Direction – Negative Magnitude – Small Geographic Extent – Project Site/Footprint Duration – Short to Medium-Term
		& Operations		
	HVdc Transmission Line			<b>Overall – Not Significant</b>
Designated Protected Areas and PAI	HVdc Transmission Line	Construction	Impairment of unique terrain and soil features	Direction – Negative Magnitude – Moderate Geographic Extent – Local Study Area Duration – Short-Term
		& Operations		
	HVdc Transmission Line	Operations		<b>Overall – Not Significant</b>
	HVdc Transmission Line	Operations	Physical presence of line; increased access	Direction – Negative Magnitude – Small Geographic Extent – Local Study Area Duration – Medium-Term
	HVdc Transmission Line			<b>Overall – Not Significant</b>

**Table 4.3-3: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes - Land Use**

VEC	Project Component	Phase	Residual Effects	Assessment <sup>1</sup>
Infrastructure	HVdc Transmission Line	Construction & Operations	Physical presence of facilities	Direction – Negative Magnitude – Small Geographic Extent – Project Site/Footprint Duration – Short to Medium-Term <b>Overall – Not Significant</b>
Agricultural Productivity	HVdc Transmission Line	Construction & Operations	Loss of Agricultural productivity	Direction – Negative Magnitude – Small Geographic Extent – Project Site/Footprint Duration – Short to Medium-Term <b>Overall – Not Significant</b>

Note:

1. Expected residual effects (i.e., effects after mitigation) of the Project on each VEC are assessed using the regulatory significance evaluation approach and methods defined in Chapter 4, Section 4.2.10 of the December 2011 EIS. Where feasible, regulatory significance is assessed for each non-negligible expected residual effect based on its expected direction, magnitude, geographic extent and duration (as each term is defined in Section 4.2.10); if an adverse residual effect is evaluated to be potentially significant, other factors are also considered (frequency, reversibility, ecological importance and societal importance). Scientific uncertainty is noted where it may materially affect the assessment.
2. The residual environmental effects summary table is from the December 2011 EIS and describes residual adverse effects for the entire HVdc transmission project component. There are no residences in proximity to the three AFPR route changes. The closest is located approximately 355 m from the GHA 14 (Moose Meadows) AFPR. No effects are anticipated.

### 4.3.3 Resource Use

The evaluation of the AFPR route changes on resource use was conducted based on the methodology used in the December 2011 EIS. Table 4.3-4 lists the seven resource use VECs identified in the EIS and indicates, for each of the three AFPR changes, those VECs that will be considered further (marked "X") to assess the effects of AFPR changes, and those VECs (marked "n/a") that will not be considered further as there is no basis to expect that the AFPR changes will have any detectable effect on the VEC.

**Table 4.3-4: Resource Use VECs Affected by AFPR Changes**

<b>Resource Use VECs</b>	<b>AFPR Wabowden</b>	<b>AFPR GHA 14 (Moose Meadows)</b>	<b>AFPR GHAs 19A and 14A</b>
Commercial Forestry	X	X	X
Commercial Fishing <sup>1</sup>	n/a	n/a	n/a
Mining/Aggregates	x	n/a <sup>2</sup>	n/a <sup>2</sup>
Trapping <sup>3</sup>	n/a	n/a	n/a
Recreation & Tourism <sup>4</sup>	X	n/a	n/a
Wild Rice Harvesting <sup>5</sup>	n/a	n/a	n/a
Domestic Resource Use	X	X	X

Notes:

1. In terms of Commercial Fishing, there is no change in the environmental assessment outcome in the EIS due to the AFPR changes. See Section 8.3.2.3 and Table 8.3-5, Residual Environmental Effects Summary – Resource Use (HVdc Transmission Line) of the December 2011 EIS for mitigation measures and the residual effects summary.
2. In terms of Mining/Aggregates in the GHA 14 (Moose Meadows) and GHAs 19A and 14 A, there is no change in the environmental assessment in the EIS due to the AFPR changes. See Section 8.3.2.3– Resource Use (HVdc Transmission Line) of the December 2011 EIS for mitigation measures. The residual effects summary is found below in Table 4.3-5.
3. In terms of Trapping, there is no change in the environmental assessment in the EIS due to the AFPR changes. See Section 8.3.2.3– Resource Use (HVdc Transmission Line) of the December 2011 EIS for mitigation measures. The residual effects summary is found below in Table 4.3-5.
4. In terms of Recreation and Tourism, there is no change in the environmental assessment in the EIS due to the AFPR in GHA 14A (Moose Meadows) and GHAs 19A and 14A. See Section 8.3.2.3 – Resource Use (HVdc Transmission Line) of the December 2011 EIS for mitigation measures. The residual effects summary is found below in Table 4.3-5.
5. There are no wild rice harvesting areas in proximity to the AFPR changes. No effects are anticipated.

#### 4.3.3.1 Commercial Forestry VEC

There will be an increase in the amount of productive forestland that will be affected and therefore withdrawn from forest management along the three AFPRs. As a result, there may be an increase in the amount of standing timber affected by the AFPRs. With respect to the Wabowden AFPR, the amount of standing timber affected may not increase compared to the FPR because most of the productive forest lands in the area have already been harvested and are in the early stages of re-growth with limited timber volume. No forestry research and monitoring sites will be directly affected by the AFPR changes. However, the GHA 14 (Moose Meadows) AFPR may encroach on one Manitoba Conservation and Water Stewardship permanent sample plot west of Bellsite. Through this area Manitoba Hydro will minimize effects through tower placement.

Seven new high value forest sites adjacent to PR 373 (silviculture sites at various stages of re-growth) will be affected along the Wabowden AFPR. Along the GHA 19A and 14A AFPR, one high value forest site will be affected – an aspen harvest block that is in the early stages of re-growth.

See Section 8.3.2.3 – Resource Use (HVdc Transmission Line) of the December 2011 EIS for mitigation measures, which are not changed by the AFPR changes. The residual effects summary, which is also not changed by the AFPR, is outlined below in Table 4.3-5.

#### **4.3.3.2 Mining/Aggregates VEC**

The Wabowden AFPR crosses several commercial mining claims in the Thompson Nickel Belt. During the environmental assessment process, the Mining Association of Manitoba raised concerns as to whether the Project's HVdc transmission line, if located in the AFPR area, might interfere with the ability of mining companies to perform surveys for determination of locations of nickel ore in the Thompson Nickel Belt.

Magnetic fields from operation of the Project HVdc transmission line can interfere with geophysical survey methods (magnetometer, and EM surveys) used by the mining industry for mineral exploration. This effect can extend for 3 to 6 km on either side of the transmission line. The mining industry feels that this shadow effect of the Bipole III line will prevent modern mineral exploration in the area of the Thompson Nickel Belt that Bipole III traverses.

Manitoba Hydro is committed to working with the mining industry to ensure that the Bipole III line has minimal effect on future mineral exploration as a result of the operation of the Project in the Thompson Nickel Belt area. Potential mitigation measures that will be the subject of ongoing discussion with the mineral industry could include:

- Pre-construction geophysical surveys in the Thompson Nickel Belt in the Bipole III zone of effect. The surveys would provide a library of data in the area for use by the mining industry for any future exploration in the area.
- Post-survey data processing – the signal interference caused by the operation of the HVdc line on survey equipment could be filtered out using sophisticated data analysis. This may require some research and development study to fine-tune the technique.

#### **4.3.3.3 Recreation and Tourism VEC**

The Wabowden AFPR crosses through an area of Crown-encumbered land where a general permit is on record for a campground/trailer court, located east of Kiski Lake along PTH 6 and the existing HBR railway line in the vicinity of the Manibridge access road (i.e., part NE22, NW23 & part 23, and SW26-66-10W). The AFPR is approximately 367 m to the southeast of the existing rail line along PTH 6. Manitoba Hydro will

consult with the permit holder with respect to minimizing potential effects on the development. Mitigation may be possible through tower placement to minimize visual / aesthetic effects between the site and the proposed transmission line right-of-way.

#### **4.3.3.4 Domestic Resource Use VEC**

##### **Wabowden AFPR Area**

No ATK was gathered for the Wabowden AFPR as the community of Wabowden did not participate in the ATK workshop or self-directed studies. Based on MMF maps from their self-directed study, it would appear that areas for fishing and large animal harvesting overlap with the AFPR. Through this area, the AFPR follows existing linear features such as PTH6, the HBR railway line and PR 373, minimizing effects on domestic resource use.

##### **GHA 14 (Moose Meadows) AFPR Area**

Through the Wuskwi Sipiik First Nation self-directed study, the MMF self-directed study and ATK interviews conducted for the Bipole III Transmission Project, domestic resource use activity was identified in the general area crossed by the AFPR. This includes travel routes used by the Wuskwi Sipiik First Nation, and a berry picking and multiple use area. In addition, the MMF self-directed study indicated areas used for gathering various products including wood, and deer, moose and other large animal (bear) harvesting in the general area between Porcupine Mountain and Swan Lake. The MMF self-directed study also identified small areas for waterfowl and upland bird harvest in the AFPR area. The AFPR avoids numerous water body crossings limiting improved access to fishers who may compete for domestic fish resources.

Within the Local Study Area for the AFPR, botanical areas were identified through the ATK process and self-directed studies. These sites included areas that are currently being used for berry picking and plant gathering and harvesting of seneca root. No areas identified through the ATK process were found within the right-of-way for the AFPR, although the MMF self-directed study did identify an area of plant gathering in the AFPR Local Study Area and right-of-way.

##### **GHAs 19A and 14A AFPR Area**

Through the Wuskwi Sipiik First Nation self-directed study, the MMF self-directed study and ATK interviews conducted for the Bipole III Transmission Project, as well as the EACP for the AFPR, extensive domestic resource use activity was identified in the general area crossed by the AFPR. ATK information from Wuskwi Sipiik First Nation, Duck Bay, Camperville, Pine Creek First Nation and the MMF indicates that the AFPR

will cross numerous historic harvesting areas. The areas were often also identified for harvesting of non-timber forest products (e.g., foods, medicinal plants, craft materials).

Domestic resource use activity identified in the general area crossed by the AFPR includes the following:

- Blueberry collection and medicine collection areas, which are described further below, particularly in the Swan Pelican Provincial Forest (east of Briggs Spur);
- A spruce and diamond willow harvesting area south of PTH 20;
- An area used for deer and moose hunting, south of PTH 20 to Pulp River;
- A gathering area of Seneca root and cranberries between PTH 20 and Pulp River; and
- An area with farmers/gardens east of Pulp River.

In addition, the presence of a wagon road used to access harvest areas north and east of Pulp River was identified. The AFPR is also in the vicinity of a general store and site of an old mine, located north of Pulp River.

As noted above, within the Local Study Area for the AFPR, extensive areas are used for berry and medicinal plant collection. These include areas that are currently being used for blueberry and medicine harvest (5931 ha), blueberry patches (43 ha), blueberry harvesting (3,181 ha), plant harvest of Seneca root, blueberry, medicine, sweet grass, and ginger root (9,369 ha), berry picking – blueberries and pincherries (5,863 ha), berry harvesting (1,619 ha), blueberry picking (3,876 ha), cranberry picking (3,625 ha), and harvesting of spruce for rails and harvesting of diamond willow.

Along the AFPR right-of-way, areas identified include blueberry and medicine harvest (81 ha), berry harvesting (44 ha), plant harvest of Seneca root, blueberry, medicine, sweet grass, ginger root (137 ha), berry picking of blueberries and pincherries (84 ha), berry harvesting (28 ha), blueberry picking (57 ha), cranberry picking (53 ha), and harvesting of spruce for rails and harvesting of diamond willow.

In addition to the above, the MMF self-directed study indicated areas used for deer, moose and other large animal (bear) harvesting in the general area between the Swan Pelican Forest Reserve south to Pulp River. The AFPR does not appear to overlap with any intensive bird hunting areas. Duck and goose hunting areas identified occur primarily along the shores of Pelican Lake, Lake Winnipegosis and Swan Lake. In terms of domestic fishing the AFPR crossings are not expected to attract additive fishing pressure as all AFPR waterbodies are currently road accessible in other locations except for the Drake River which was not identified as a fishing location.

During the EACP for the AFPR, public open house attendees were concerned about the proximity of the AFPR to blueberry patches and resource use. Many participants felt that the AFPR would have a greater impact on blueberry patches and domestic resource use than the FPR.

#### **4.3.3.5 Summary of Residual Environmental Effects Significance**

After mitigation as described in Chapter 6, the AFPR route changes are not expected to have significant residual adverse effects on resource use VECs. Potential residual effects of the Project for each resource use VEC remain as described and assessed in the December 2011 EIS (See Table 4.3-5).

Table 4.3-5 provides a summary for the resource use VECs of the residual effects for the Project HVdc transmission line component with AFPR changes.

**Table 4.3-5: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes - Resource Use**

VEC	Project Component	Phase	Residual Effect	Assessment <sup>1</sup>
Commercial Forestry	HVdc Transmission Line	Construction & Operations	Loss of Productive Forestlands	Direction – Negative Magnitude – Small Geographic Extent – Footprint/Local Study Area Duration – Short to Medium-Term <b>Overall – Not Significant</b>
Commercial Fishing	HVdc Transmission Line	Construction & Operations	Habitat Degradation; Physical presence of the line; Increased access	Direction – Negative Magnitude – Small Geographic Extent – Footprint/Local Study Area Duration – Short to Medium-Term <b>Overall – Not Significant</b>
Mining /Aggregates	HVdc Transmission Line	Construction & Operations	Interference with exploration; Physical presence of the line	Direction – Negative Magnitude – Small Geographic Extent – Project Site/Footprint Duration – Short to Medium-Term <b>Overall – Not Significant</b>
Trapping	HVdc Transmission Line	Construction & Operations	Temporary displacement of wildlife; Increased access	Direction – Negative Magnitude – Small Geographic Extent – Footprint/Local Study Area Duration – Short to Medium-Term <b>Overall – Not Significant</b>
Recreation and Tourism	HVdc Transmission Line;	Construction & Operations	Habitat loss/degradation; Temporary displacement of wildlife; Physical Presence of the line; Increased Access	Direction – Negative Magnitude – Small Geographic Extent – Footprint/Local Study Area Duration – Short to Medium-Term <b>Overall – Not Significant</b>

**Table 4.3-5: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes - Resource Use**

VEC	Project Component	Phase	Residual Effect	Assessment <sup>1</sup>
Wild Rice Harvesting	HVdc Transmission Line	Construction & Operations	Physical presence of the Line; Increased Access	Direction – Negative Magnitude – Small Geographic Extent – Footprint/Local Study Area Duration – Short to Medium-Term <b>Overall – Not Significant</b>
Domestic Resource Use	HVdc Transmission Line	Construction & Operations	Loss of plants; temporary displacement of wildlife; Habitat loss/degradation; Physical presence of the Line; Increased Access	Direction – Negative Magnitude – Small/Moderate Geographic Extent – Footprint/Local Study Area Duration – Short to Medium-Term <b>Overall – Not Significant</b>

Note:

1. Expected residual effects (i.e., effects after mitigation) of the Project on each VEC are assessed using the regulatory significance evaluation approach and methods defined in Chapter 4, Section 4.2.10 of the December 2011 EIS. Where feasible, regulatory significance is assessed for each non-negligible expected residual effect based on its expected direction, magnitude, geographic extent and duration (as each term is defined in Section 4.2.10); if an adverse residual effect is evaluated to be potentially significant, other factors are also considered (frequency, reversibility, ecological importance and societal importance). Scientific uncertainty is noted where it may materially affect the assessment.

#### 4.3.4 Culture and Heritage Resources

The evaluation of the AFPR route changes on culture and heritage resources was conducted based on the methodology used in the December 2011 EIS. Table 4.3-6 lists the two culture and heritage resources VECs identified in the EIS and indicates, for each of the three AFPR changes, those VECs that will be considered further (marked "X") to assess the effects of AFPR changes, and those VECs (marked "n/a") that will not be considered further as there is no basis to expect that the AFPR changes will have any detectable effect on the VEC.

**Table 4.3-6: Culture and Heritage Resources VECs Affected by AFPR Changes Culture & Heritage Resources VECs**

	AFPR Wabowden	AFPR GHA 14 (Moose Meadows)	AFPR GHAs 19A and 14A
Culture <sup>1</sup>	n/a <sup>1</sup>	n/a <sup>1</sup>	X
Heritage Resources	X	X	X

Note:

- In terms of culture in the Wabowden and GHA 14 (Moose Meadows) areas, there is no change in the effects assessment of the December 2011 EIS due to the AFPR changes. See Section 8.3.6.3 (HVdc Transmission Line) – Culture and Heritage Resources of the December 2011 EIS for mitigation measures. See Table 4.3-7 for the residual effects summary.

#### 4.3.3.6 Culture VEC

There is no change in the effects assessment in the EIS for the culture VEC due to the AFPR changes in the Wabowden and GHA 14 (Moose Meadows) areas. The AFPR change in the GHAs 19A and 14A areas will move the HVdc line construction and ongoing operation into a culturally sensitive area that is avoided by the FPR.

The area north and south of PTH 20 adversely impacted by the GHA 19A and 14A area AFPR route change has been collectively and traditionally used for at least 100 years by three communities (Camperville, Pine Creek First Nation and Duck Bay) and Metis for intensive and extensive resource use, including berry and medicinal plant gathering activities that have been noted as contributing significantly to the practices, traditions, health and wellness of members of all the participating communities and to the transmission of knowledge and culture. A number of heritage resource sites are also located through the affected area (see Appendix 4A, Section 4A8 for additional details).

The GHA 19A and 14A area AFPR routing change will fragment this culturally sensitive area, resulting in expected adverse residual effects on the cultural integrity of the identified local communities due to the changed character of the fragmented area, the potential for increased access by others, and community member concerns about having a high voltage transmission line situated over these important traditional berry and medicinal plant gathering areas. Although parts of the affected AFPR area in GHA 19A and 14A have been subject to agricultural uses, road development and borrow operation, it is understood that medicinal plant gathering continues to use much of the affected area for gathering specific plants not disturbed to date by other projects and activities.

Aside from avoiding this culturally sensitive area through routing the HVdc transmission line elsewhere (as was achieved with the FPR in the December 2011 EIS), Manitoba Hydro is not aware of mitigation measures likely to alleviate adequately these expected

adverse residual effects on culture from the AFPR route change in the GHA 19A and 14A area. Manitoba Hydro will carry out the mitigation and EnvPPs as described in the EIS to minimize impacts on specific resources used by communities and cultural effects on the communities. Manitoba Hydro will also continue to liaise with Aboriginal and other communities in the GHA 19A and 14A area to review concerns that arise about the Project and opportunities for cultural preservation occasioned by the Project.

The EIS assessment of the Project's adverse residual effects on culture from the HVdc transmission line component during operation concluded that these effects are expected to extend beyond the Local Study Area and into the Project Study Region, be medium term in duration (i.e., last during the assumed operation period for the Project), and through avoidance of this culturally sensitive area, be small in magnitude. No "established threshold of acceptable change" was identified in the EIS with regard to this VEC.

The HVdc transmission line with the GHA 19A and 14A area AFPR route change is expected to have detectable adverse residual effects on culture, increasing the expected magnitude of the residual adverse effect on this VEC from "small" (as assessed with the FPR) to "moderate" and resulting in an assessment of a "potentially significant" adverse effect of the Project on culture based on criteria in Chapter 4 of the EIS. Consideration of other assessment criteria, as required in Chapter 4 of the EIS, confirms that the affected culture VEC in this instance is of moderate societal importance, with high frequency (i.e., occurring at regular intervals through the life of the Project) and potentially reversible only upon Project decommissioning. Overall, assuming mitigation as described in Chapter 6 and ongoing monitoring and adaptive management by Manitoba Hydro, the assessment concludes that the residual adverse effect is "not significant"; however, uncertainty is noted as to whether the ongoing adverse effects of the HVdc component of the Project on culture in the GHAs 19A and 14A area during operations with the AFPR will remain moderate in magnitude and medium term in duration.

#### **4.3.3.7 Heritage Resources VEC**

##### **Wabowden AFPR Area**

No heritage sites (Archaeological, Provincial, Municipal, Centennial Farm or Plaques) fall within the Local Study Area for the Wabowden AFPR. With respect to the route, an Environmentally Sensitive Site (ESS) will be identified in the construction and operations EnvPPs based on the new water crossing location at the Kiski Creek crossing. In addition, the Kiski Creek crossing will be monitored by the Environmental Officer during construction.

Appendix 4A, Table 4A8.3-1 lists the registered archaeological sites discussed below.

### **GHA 14 (Moose Meadows) AFPR Area**

Five registered archaeological sites are within the Local Study Area for the GHA 14 (Moose Meadows) AFPR at the Bell River southwest of Bellsite. The presence of the five sites in close proximity to each other indicates a high potential for further sites to be nearby (see Appendix 4B, Map 23).

### **GHAs 19A and 14A AFPR Area**

Twenty-five registered archaeological sites are within the Local Study Area of the GHA 19A and 14A AFPR. Most of the sites are closer to the AFPR than the FPR. None of the sites for either are within the right-of-way for the AFPR. The presence of the twenty-five sites in close proximity to each other indicates a high potential for further sites to be nearby.

See Section 8.3.6.3 (HVdc Transmission Line) – Culture and Heritage Resources of the December 2011 EIS for mitigation measures, which are not changed by the AFPR changes. The residual effects summary is outlined below in Table 4.3-7.

#### **4.3.3.8 Summary of Residual Environmental Effects Significance**

After mitigation as described in Chapter 6, the AFPR route changes are not expected to have significant residual adverse effects on culture and heritage resource VECs.

Table 4.3-7 provides a summary for these VECs of the residual effects for the Project HVdc transmission line component of the Project.

Except for the AFPR route change in GHA 19A and 14A, potential residual effects of the Project for each culture and heritage resource VEC remain as described and assessed in the December 2011 EIS.

The HVdc transmission line with the GHA 19A and 14A area AFPR route change is expected to have detectable adverse residual effects on culture, increasing the expected magnitude of the residual adverse effect on this VEC from “small” (as assessed with the FPR) to “moderate” and resulting in an assessment of a “potentially significant” adverse effect of the Project on culture based on criteria in Chapter 4 of the December 2011 EIS. Overall, assuming mitigation as described in Chapter 6 and ongoing monitoring and adaptive management by Manitoba Hydro, the assessment concludes that the residual adverse effect is “not significant”; however, uncertainty is noted as to whether the ongoing adverse effect of the HVdc component of the Project on culture in the GHAs 19A and 14A area during operation with the AFPR route change will remain moderate in magnitude and medium term in duration.

**Table 4.3-7: Residual Environmental Effects Summary for Project HVdc Transmission Line Component with AFPR Changes – Culture and Heritage Resources**

VEC	Project Component	Phase	Residual Effect	Assessment <sup>1</sup>
Heritage Resources	HVdc Transmission Line	Construction	Potential discovery of unknown heritage resources	Direction – Negative Magnitude – Small Geographic Extent – Project Site/Footprint Duration – Short-Term <b>Overall – Not Significant</b>
	HVdc Transmission Line	Operations	Potential discovery of unknown heritage resources	Direction – Negative Magnitude – Small Geographic Extent – Project Site/Footprint Duration – Medium-Term <b>Overall – Not Significant</b>
Culture	HVdc Transmission Line	Construction	Impairment of Aboriginal Culture	Direction – Negative Magnitude – Moderate <sup>2</sup> Geographic Extent – Project Study Area Duration – Short-Term <b>Overall – Potentially Significant</b> Societal Importance - Moderate Frequency – High Reversibility – Reversible <sup>3</sup>
				<b>Overall – Not Significant</b>
		Operations	Impairment of Aboriginal Culture	Direction – Negative Magnitude – Moderate <sup>2</sup> Geographic Extent – Project Study Area Duration – Medium-Term <b>Overall – Potentially Significant</b> Societal Importance - Moderate Frequency – High Reversibility – Reversible <sup>3</sup>
				<b>Overall – Not Significant</b> (Uncertainty Noted) <sup>4</sup>

Note:

1. Expected residual effects (i.e., effects after mitigation) of the Project on each VEC are assessed using the regulatory significance evaluation approach and methods defined in Chapter 4, Section 4.2.10 of the December 2011 EIS. Where feasible, regulatory significance is assessed for each non-negligible expected residual effect based on its expected direction, magnitude, geographic extent and duration (as each term is defined in Section 4.2.10); if an adverse residual effect is evaluated to be potentially significant, other factors are also considered (frequency, reversibility, ecological importance and societal importance). Scientific uncertainty is noted where it may materially affect the assessment.
2. "Moderate" results only from effects of the AFPR route change in GHA 19A and 14A; in all other areas, the effect is "small" in magnitude.
3. As defined in Chapter 4 of the December 2011 EIS, potentially reversible only upon Project decommissioning.
4. There is uncertainty that residual adverse effects of the AFPR route change on culture in GHA 19A and 14A during operation will remain moderate in magnitude (risk that the effects might become "large" in magnitude and not be reversible).

## **4.4 REFERENCES**

- Agriculture Canada. 1987a. Map for Wind Erosion Risk Manitoba. Publication 5257/B. Ottawa.
- Agriculture Canada. 1987b. Map for Water Erosion Risk Manitoba. Publication 5259/B. Ottawa.
- Department of Regional Economic Expansion 1965. Soil Capability Classification for Agriculture. Report No. 2. Canada Land Inventory. Canada, Ottawa.
- Fisheries and Oceans Canada (DFO). 2007a. Overhead Line Construction. Manitoba Operational Statement Version 3.0.
- Fisheries and Oceans Canada (DFO). 2007b. Temporary Stream Crossings. Manitoba Operational Statement Version 1.0.
- Fisheries and Oceans Canada (DFO). 2007c. Ice Bridges and Snow Fills. Manitoba Operational Statement Version 3.0.
- Fraser, W.R., P.Cyr, R.G. Eilers and G.W. Lelyk. 2001. Technical Manual for Manitoba RM Soils and Terrain Information Bulletins, Special Report 01-1.
- Manitoba Conservation and Manitoba Water Stewardship (MCWS). 2008. Forest management guidelines for riparian management areas. Manitoba Conservation Forest Practices Guidebook. Manitoba Conservation and Manitoba Water Stewardship. Winnipeg, Manitoba. 47 pp.
- MESA. 1998. Manitoba Endangered Species Act (C.C.S.M. C., e111). [Online]. Available from. <http://web2.gov.mb.ca/lawsregs/2006/124.pdf>. [Accessed March 23, 2010].
- SARA. 2002. Species at Risk Act (c. 29). [Online]. Available from: <http://laws.justice.gc.ca/en/S-15.3/index.html> [Accessed March 22, 2010].
- Ducks Unlimited Canada 2009. Shape file of salt marshes for the Red Deer Lake area.
- Fisheries and Oceans Canada (DFO). 2007a. Overhead Line Construction. Manitoba Operational Statement Version 3.0.
- Fisheries and Oceans Canada (DFO). 2007b. Temporary Stream Crossings. Manitoba Operational Statement Version 1.0.
- Fisheries and Oceans Canada (DFO) 2007c. Ice Bridges and Snow Fills. Manitoba Operational Statement Version 3.0.
- Fisheries and Oceans Canada (DFO). 2007d. Maintenance of Riparian Vegetation in Existing Rights-of-way. Manitoba Operational Statement Version 3.0.

- Halsey, L.A., D.H. Vitt and S.C. Zoltai. 1997. Climate and physiographic controls on wetland type and distribution in Manitoba, Canada. *Wetlands*, 17(2): 243-262.
- Manitoba Conservation and Manitoba Water Stewardship. 2008. Forest management guidelines for riparian management areas. *Manitoba Conservation Forest Practices Guidebook*. Manitoba Conservation and Manitoba Water Stewardship. Winnipeg, Manitoba. 47 pp.
- Manitoba Land Initiative and Manitoba Conservation. 2011. Geospatial data of Manitoba fires dated from 1928 to 2010.
- Smith, R.E., H. Veldhuis, G.F. Mills, R.G. Eilers, W.R. Fraser, and G.W. Lelyk. 1998. TerrestrialEcozones, Ecoregions and Ecodistricts of Manitoba. An Ecological Stratification of Manitoba's Landscapes. Land Resource Unit. Brandon Research Centre, Research Branch. Agriculture andAgri-Food Canada. Technical Bulletin 1998-9E.

## **APPENDIX 4A**

### **Biophysical and Socio-economic VECs**

# 4A1.0 TERRAIN AND SOILS

## 4A1.1 SOIL PROPERTIES

**Table 4A1.1-1: Soil Properties within AFPR Route Re-Alignment ROWs and 3 Mile Buffers**

Soil Property	AFPR Wabowden 3 mile buffer	AFPR Wabowden ROW	AFPR Moose Meadows 3 mile buffer	AFPR Moose Meadows ROW	AFPR GHA19 A and 14A 3 mile buffer	AFPR GHA19 A and 14A ROW
<b>Soil Order</b>						
Brunisolic	7.2%	17.8%	1.2%	1.8%	7.8%	7.8%
Chernozemic	n/a	n/a	1.1%	0.0%	32.9%	34.9%
Gleysolic	2.1%	1.7%	26.3%	33.1%	21.4%	14.9%
Luvisolic	17.6%	15.6%	11.9%	7.1%	5.5%	0.7%
Organic	59.6%	54.6%	29.2%	32.0%	28.4%	39.3%
Regiosolic	n/a	n/a	27.6%	25.9%	3.7%	2.6%
<b>Drainage</b>						
Rapid	n/a	n/a	2.0%	4.7%	1.7%	1.7%
Well	10.6%	20.9%	8.6%	1.7%	12.3%	14.2%
Imperfect	14.2%	12.4%	38.8%	31.0%	36.8%	29.9%
Poor	2.1%	1.7%	5.9%	9.2%	8.6%	9.4%
Very Poor	59.6%	54.6%	45.9%	53.5%	40.4%	44.7%
<b>Soil Texture</b>						
Very Coarse	2.6%	2.1%	n/a	n/a	n/a	n/a
Coarse Skeletal	n/a	n/a	2.2%	5.0%	4.7%	3.1%
Coarse	4.7%	15.7%	5.8%	3.7%	26.6%	18.6%
Moderately Coarse	0.1%	0.0%	7.9%	9.2%	2.9%	0.1%
Medium	n/a	n/a	31.1%	27.0%	35.8%	38.7%
Moderately Fine	n/a	n/a	17.7%	18.3%	1.2%	0.2%
Fine	0.1%	0.0%	3.7%	4.8%	n/a	n/a
Very Fine	19.6%	17.3%	n/a	n/a	n/a	n/a
Fibric	n/a	n/a	20.3%	22.7%	9.2%	10.4%
Mesic	59.6%	54.6%	8.6%	9.4%	19.2%	28.8%
Undifferentiated	n/a	n/a	n/a	n/a	0.1%	0.0%
Water	n/a	n/a	n/a	n/a	0.2%	0.0%
Bedrock/Surface Water	13.5%	10.4%	n/a	n/a	n/a	n/a
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

## 4A1.2 COMPACTION AND RUTTING RATINGS

Table 4A1.2-1: Compaction and Rutting Ratings within AFPR Route Re-Alignment ROWs and 3 Mile Buffers

AFPR	Low Compaction/ Rutting Rating	Medium Compaction/ Rutting Rating	High Compaction/ Rutting Rating	No Rating (Bedrock/ Water)
Wabowden 3 Mile Buffer	7.2%	3.5%	75.8%	13.5%
Wabowden ROW	17.8%	3.1%	68.7%	10.4%
Moose Meadows 3 Mile Buffer	16.5%	14.1%	66.7%	2.7%
Moose Meadows ROW	8.9%	16.0%	75.1%	0.0%
GHA19A and 14A 3 Mile Buffer	32.4%	23.1%	44.2%	0.2%
GHA19A and 14A ROW	27.9%	22.1%	50.0%	0.0%

## 4A1.3 AGRICULTURAL CAPABILITY

**Table 4A1.1-2: Summary of Agricultural Capacity in Wabowden AFPR, Moose Meadows AFPR and GHA 19A and 14A AFPR**

Soil property	AFPR Wabowden 3 mile buffer	AFPR Wabowden ROW	APFR Moose meadows 3 Mile buffer	AFPR Moose Meadows ROW	APFR GHA 19A and 14A ROW	AFPR GHA 19A and 14A ROW
Agricultural capability						
1			0.0	0.0	0.0	0.0
2			1.0	0.01	8.4	3.8
3			35.1	22.6	10.1	7.2
4			6.1	5.1	29.7	32.1
5	Not Rated		8.7	15.3	11.1	11.4
6			17.1	21.5	12.1	6.2
7			0.0	0.0	0.0	0.0
0			29.2	30.4	28.4	39.3
Non-Soil			2.7	5.2	0.2	0.0
Total			100.0	100.0	100.0	100.0

## 4A2.0 AQUATIC ENVIRONMENT

### 4A2.1 CLASSIFICATION OF WATER BODIES INTERSECTED BY AFPR ROUTES AND RIPARIAN BUFFERS

**Table 4A2.1-1: Watercourse Crossings and Classifications at AFPR Route Re-Alignment Locations**

AFPR Route	ID	Name	Receiving Waterbody	Fish Habitat Rating	Sensitivity
<b>Wabowden</b>	W-1	Unnamed Wetland	Unnamed Pond	No Fish Habitat	Low
	W-2	Unnamed Lake	None	Marginal	Moderate
	W-3	Resting Lake Outflow	Clarke Lake	Marginal	Moderate
<b>Moose Meadows</b>	W-4	Kiski Creek	Kiski Lake	Important	Moderate
	MM-1	Unnamed Tributary	Steeprock River	Marginal	Moderate
	MM-2	Unnamed Tributary	Steeprock River	Marginal	Low
<b>GHA19A and 14A</b>	MM-3	Steeprock River	Lake Winnipegosis	Important	Moderate
	MM-4	Bell River	Lake Winnipegosis	Important	Moderate
	MM-5	Unnamed Drain	Indian Birch River	No Fish Habitat	Low
<b>GHA19A and 14A</b>	MM-6	Unnamed Drain	Bell Creek	No Fish Habitat	Low
	MM-7	Unnamed Tributary	Bell Creek	No Fish Habitat	Low
	MM-8	Unnamed Tributary	Bell Creek	No Fish Habitat	Low
<b>GHA19A and 14A</b>	19A-2	Unnamed Tributary	Drake River	No Fish Habitat	Low
	19A-3	Unnamed Tributary	North Duck River	No Fish Habitat	Low
	19A-4	North Duck River	Lake Winnipegosis	Important	Moderate
<b>GHA19A and 14A</b>	19A-5	Unnamed Tributary	Sclater River	Important	Moderate
	19A-7	Sclater River	North Duck River	Important	Moderate

**Table 4A2.1-1: Watercourse Crossings and Classifications at AFPR Route Re-Alignment Locations (cont'd)**

AFPR Route	ID	Name	Receiving Waterbody	Fish Habitat Rating	Sensitivity
			Lake Winnipegosis		
19A-8	Pine River			Important	Moderate
	Unnamed			No Fish	
19A-9	Tributary		Garland River	Habitat	Low
19A-10	Unnamed			No Fish	
	Tributary		Garland River	Habitat	Low
19A-11	Unnamed				
	Tributary		Garland River	Marginal	Moderate
19A-12	Unnamed			Marginal	Moderate
19A-13	Garland River		Pine River	Important	Moderate
19A-14	Unnamed				
	Tributary		Welburns Creek	Marginal	Moderate
19A-15	Unnamed				
	Tributary		Welburns Creek	Marginal	Low
19A-16			Lake Winnipegosis	Important	Moderate

**Table 4A2.1-2 Watercourses within the Riparian Buffer of the AFPR Route Re-Alignment ROWs and Prescribed RMA Width**

Route Alteration	ID	Name	Fish Habitat Rating	RMA Width <sup>1</sup>
Wabowden	100	Unnamed wetland	Non Fish Habitat	7
Wabowden	101	Unnamed pond	Non Fish Habitat	7
Moose Meadows		Unnamed tributary of the Steeprock River	Marginal	30
19A	103	Unnamed pond	Non Fish Habitat	7
19A	104	Unnamed pond	Non Fish Habitat	7

<sup>1</sup> Riparian Management Area widths prescribed in the *Forest Management Guidelines for Riparian Areas* (Manitoba Conservation and Manitoba Water Stewardship 2008) specifies a Riparian Buffer (7, 15 m or 30 m) where ground disturbance will be minimized and all shrub and herbaceous vegetation will be retained and all trees that do not violate Manitoba Hydro vegetation clearance requirements will be retained.

## **4A2.2 DEPARTMENT OF FISHERIES AND OCEANS OPERATIONAL STATEMENTS**

Mitigation measures for HVdc Line construction and operations cited in Department of Fisheries and Oceans operational statements are summarized in the December 2011 EIS, pages 8-48 to 8-51, and listed in Table A6-1 Appendix 6A. DFO Operational Statements to be followed for the Project include the following:

- Overhead Line Construction (DFO 2007a);
- Temporary Stream Crossings (DFO 2007b);
- Ice Bridges and Snow Fills (DFO 2007c); and
- Maintenance of Riparian Vegetation in Existing Rights-of-way (DFO 2007d).

## 4A3.0 ECOSYSTEMS AND VEGETATION

The assessment relied primarily on Land Cover Classification Enhanced for Bipole (LCCEB). The following additional data sources were used to provide spatial and attribute information:

- Forest Resource Inventory (FRI) (Manitoba Conservation);
- Terrestrial Ecozones, Ecoregions and Ecodistricts of Manitoba (Smith et al. 1998);
- Wetlands of Manitoba (Halsey et al. 1997);
- Salt marshes for Red deer lake Area (Ducks Unlimited Canada 2009);
- Provincial fire data (Manitoba Land Initiative and Manitoba Conservation 2011); and
- Plant species of conservation concern previously identified in the Local Study Area were also reviewed (Manitoba Conservation 2009; see also, Terrestrial Ecosystems Technical Report).

Geographic Information System (GIS) spatial queries based on the above data sources were undertaken to identify vegetation types and determine ecologically important areas, determine locations for species of concern and to calculate vegetation cover types within the Local Study Area and 66 metre transmission line ROW<sup>1</sup>. Aboriginal Traditional Knowledge (ATK) sites (i.e., points, lines and polygons) within the LSA and 66 m ROW for the three route adjustments were reviewed using digital maps and shape files. ATK locations, area calculations and botanical uses were determined for the sites along the route alterations.

Potential effects and key topics relevant to terrestrial ecosystems and vegetation were reviewed in detail in Section 8.2.5.2 of the December 2011 EIS<sup>2</sup>. The discussion included a brief summary of each supporting topic as well as the effect, and general mitigation measures for the following key topics:

- Modification of vegetation adjacent to the disturbance zone;
- Fragmentation, vegetation diversity;
- Invasive and non-native plants;
- Access;
- Wildfire risks;

---

<sup>1</sup> A 100 m buffer was provided for riparian areas (50 m on either side of a water course crossing).

<sup>2</sup> Further detailed information on the existing environment and main effects can be found in Chapter 6, and the Bipole III Terrestrial Ecosystems and Vegetation Technical Report.

- Dust; and
- Herbicides and non -VEC plants and communities<sup>3</sup>.

The December 2011 EIS concluded that overall, with the mitigation measures detailed in the EIS adopted, no measureable residual effects are expected from the Project in most potential topic areas. As the description of key topics, mechanism of effects and general mitigation measures set out in Section 8.2.5.2 of the December 2011 EIS have not changed the assessment of effects and is similarly not expected to change.

There are 18 plant species of concern that occur within the Churchill River Upland Ecoregion; 14 plant species of concern that occur within the Hayes River Upland Ecoregion; one community of concern and 62 plant species of concern that occur in the Mid-Boreal Uplands Ecoregion; and six communities and 98 plant species of concern that occur in the Interlake Plain Ecoregion.

### **Environmentally Sensitive Sites**

In the Terrestrial Ecosystems and Vegetation Technical Report prepared for the FPR environmentally sensitive sites were identified as dry upland prairies, salt marshes/flats, patterned fen wetlands, areas that support species of conservation concern. For a discussion of plants and resource use see Section 3.2.4 of Terrestrial Ecosystems and Vegetation Technical Report.

These sites were identified as being environmentally sensitive as they have greater potential for occupying species of conservation concern, are important habitats, and potentially support plants of medicinal and cultural value.

Below, a summary is provided for sensitive sites along the route alterations for the Wabowden Area, GHA 14 (Moose Meadows) Area, and GHA 19A and GHA 14A (see Maps 1, 2 and 3 in Appendix 4B).

### **Wabowden Area**

- Patterned fen wetlands in LSA represent approximately 1606 hectares (ha) along the Churchill River Upland Ecoregion and approximately 2260 ha along the Hayes River Upland Ecoregion;
- Patterned fen wetlands in ROW represent approximately 33 ha along the Churchill River Upland Ecoregion and approximately 31 ha along the Hayes River Upland Ecoregion; and
- Species of conservation concern (oblong-leaved sundew) ranked uncommon by the Manitoba Conservation Data Centre in LSA.

---

<sup>3</sup> Non-VEC plants and communities include native forest vegetation, riparian areas and wetlands, and environmentally sensitive areas.

### **GHA 14 (Moose Meadows) Area**

- Dry upland prairies in LSA represent approximately 2 ha.
- Patterned fen wetlands in ROW represent approximately 59 ha along the Interlake Plain Ecoregion;
- Dry upland prairies in LSA represent approximately 18 ha along the Interlake Plain Ecoregion;
- Species of conservation concern (*lyre-leaved rock cress*) ranked rare by the Manitoba Conservation Data Centre in LSA and ROW; and
- Species of conservation concern (*timber oat grass*) ranked rare by the Manitoba Conservation Data Centre in LSA.

## 4A4.0 MAMMALS AND HABITAT

### 4A4.1 LAND COVER CLASSIFICATION

The primary database used for modeling mammal habitat is the Landcover Classification of Canada, Enhanced for Bipole III (LCCEB; discussed in greater detail in Section 3.2.1 of the Mammals Technical Report for the December 2011 EIS). The database was built off various federal datasets and inventories, and developed specifically for the project. Additional layers were built in, based on field studies.

Cover types at all three AFPR route re-alignments are identified in the LCCEB are shown in the tables below.

**Table 4A4.1-1: Summary of LCCEB Cover types located in the 3 Mile Buffer of the AFPR Route Adjustments**

Habitat Type	Wabowden Area (Km <sup>2</sup> )	Wabowden % of 3 mile buffer	GHA 14 (Moose Meadows) Area (Km <sup>2</sup> )	GHA 14 (Moose Meadows) % of 3 mile buffer	GHA19A and 14A Area (Km <sup>2</sup> )	GHA19A and 14A % of 3 mile buffer
Water	7.42	3.2	0.56	0.35	1.94	0.54
Exposed Land	12.92	5.58	4.23	2.66	0.79	0.22
Shrub Tall	9.74	4.2	1.83	1.15	0.01	0
Wetland Treed	49.12	21.2	11.49	7.22	0.3	0.08
Wetland Shrub	11.6	5.01	17.86	11.22	13.74	3.82
Wetland Herb	41.41	17.88	4.01	2.52	68.93	19.18
Herb	n/a	n/a	27.2	17.08	18.08	5.03
Grassland	n/a	n/a	n/a	n/a	26.86	7.47
Annual Cropland	n/a	n/a	n/a	n/a	22.85	6.36
Perennial Cropland and Pasture	n/a	n/a	n/a	n/a	4.01	1.11
Coniferous Dense	41.34	17.85	28.24	17.73	21.2	5.9
Coniferous Open	50.32	21.72	10.89	6.84	5.4	1.5
Coniferous Sparse	3.61	1.56	0.01	0.01	6.04	1.68
Broadleaf Dense	3.68	1.59	26.92	16.9	56.73	15.79
Broadleaf open	n/a	n/a	3.35	2.1	101.65	28.29
Mixedwood Dense	0.48	0.21	22.66	14.23	10.79	3
<b>Total</b>	<b>231.64</b>	<b>100</b>	<b>159.24</b>	<b>100</b>	<b>359.32</b>	<b>100</b>

**Table 4A4.1-2: Summary of LCCEB Covertypes Located in the 66 m ROW of the AFPR Route Adjustments**

Habitat Type	Wabowden Area (km <sup>2</sup> )	Wabowden % of ROW	GHA 14 (Moose Meadows) Area (km <sup>2</sup> )	GHA 14 (Moose Meadows) % of ROW	GHA19A and 14A Area (Km <sup>2</sup> )	GHA19A and 14A % of ROW
Water	0.015	0.457	0.005	0.213	0.031	0.627
Exposed Land	0.126	3.973	0.081	3.615	0.005	0.106
Shrub Tall	0.064	2.007	0.002	0.093	0.036	0.726
Wetland Treed	0.709	22.322	0.092	4.090	0.318	6.475
Wetland Shrub	0.189	5.942	0.399	17.709	0.909	18.491
Wetland Herb	0.653	20.586	0.018	0.777	0.312	6.338
Herb	0.000	0.000	0.172	7.615	0.228	4.642
Grassland	0.000	0.000	0.000	0.000	0.278	5.661
Annual Cropland	0.000	0.000	0.000	0.000	0.136	2.766
Perennial Cropland and Pasture	0.000	0.000	0.000	0.000	0.000	0.000
Coniferous Dense	0.569	17.927	0.473	20.990	0.010	0.210
Coniferous Open	0.701	22.098	0.187	8.313	0.051	1.029
Coniferous Sparse	0.023	0.712	0.000	0.000	0.000	0.000
Broadleaf Dense	0.126	3.970	0.343	15.235	0.961	19.555
Broadleaf open	0.000	0.000	0.013	0.577	1.532	31.159
Mixedwood Dense	0.001	0.019	0.469	20.804	0.109	2.215
<b>Total</b>	<b>3.174</b>	<b>100.000</b>	<b>2.252</b>	<b>100.000</b>	<b>4.916</b>	<b>100.000</b>

## 4A4.2 MAMMAL VEC HABITAT WITHIN AFPR ROUTE RE-ALIGNMENTS

The LCCEB was used to characterize mammal habitat. A summary of the high quality habitat modeled for each mammal VEC at each AFPR route re-alignment is provided in the table below.

**Table 4A4.2-1: Total Amount of Modeled Habitat per Species Calculated for the Entire FPR and the AFPR<sup>4</sup>**

FPR		AFPR		
Species	Modeled Habitat within 3 mile buffer (Km <sup>2</sup> )	Modeled Habitat within 66m ROW (Km <sup>2</sup> )	Modeled Habitat within 3 mile buffer (Km <sup>2</sup> )	Modeled Habitat within 66m ROW (Km <sup>2</sup> )
Beaver	79.8 (1.2%)	0.493 (0.5%)	134.56 (2.0%)	1.22 (1.3%)
Marten	460.9 (6.9%)	6.97 (7.6%)	492.35 (7.4%)	7.6 (8.3%)
Moose	1122.1 (16.8%)	16.8 (18.4%)	1141.62 (17.1%)	17.52 (19.2%)
Elk	371.1 (5.6%)	5.07 (5.6%)	429.95 (6.44%)	5.98 (6.5%)

**Table 4A4.2-2: Total Amount of Modeled Habitat per Species Calculated for the FPR and the AFPR for the Wabowden Area<sup>5</sup>**

Original FPR			Adjusted FPR		
Species	Area of Segment	Amount of Modeled Habitat within 3mile buffer (km <sup>2</sup> and %)	Amount of Modeled Habitat within 66m ROW (km <sup>2</sup> and %)	Area of Segment	Amount of Modeled Habitat within 3mile buffer (km <sup>2</sup> and %)
Beaver	272.149	3.9 (1.4%)	0.003 (0.08%)	231.641	1.695 (0.73%)
Marten	272.149	27.98 (10.28%)	0.281 (1.00 %)	231.641	45.678 (19.72%)
Moose	272.149	3.444 (1.27%)	1.927 (55.95%)	231.641	10.806 (4.66%)
Elk	272.149	0.000	0	231.641	0.000

<sup>4</sup> Percentages are percentage of entire route area for FPR or AFPR.<sup>5</sup> Percentages are percentage of total route area for the Wabowden segment of the AFPR.

**Table 4A4.2-3: Total Amount of Modeled Habitat per Species Calculated for the FPR and the AFPR for the GHA 14 (Moose Meadows) Area<sup>6</sup>**

Original FPR			Adjusted FPR			
Species	Area of Segment	Amount of Modeled Habitat within 3 mile buffer (km <sup>2</sup> and %)	Amount of Modeled Habitat within 66m ROW (km <sup>2</sup> and %)	Area of Segment	Amount of Modeled Habitat within 3 mile buffer (km <sup>2</sup> and %)	Amount of Modeled Habitat within 66m ROW (km <sup>2</sup> and %)
Beaver	138.834	0.411 (0.27%)	0.000	159.237	3.805 (2.39%)	0.033 (0.87%)
Marten	138.834	4.28 (3.082%)	0.123 (2.87%)	159.237	19.49 (12.24%)	0.48 (2.46%)
Moose	138.834	6.589 (4.74%)	0.055 (0.83%)	159.237	35.006 (21.98%)	0.389 (1.11%)
Elk	138.834	6.857 (4.94%)	0.055 (0.80%)	159.237	36.268 (22.77%)	0.441 (1.22%)

**Table 4A4.2-4: Total Amount of Modelled Habitat per Species Calculated for the FPR and the AFPR for the GHA 19A and 14A Area<sup>7</sup>**

Original FPR			Adjusted FPR		
Area of Segment	Amount of Modeled Habitat within 3mile buffer (km <sup>2</sup> and %)	Amount of Modeled Habitat within 66m ROW (km <sup>2</sup> and %)	Area of Segment	Amount of Modeled Habitat within 3mile buffer (km <sup>2</sup> and %)	Amount of Modeled Habitat within 66m ROW (km <sup>2</sup> and %)
337.218	0.896 (0.027%)	0.022 (2.4%)	359.317	7.574 (2.11%)	0.124 (1.64%)
337.218	0.239 (0.071%)	0.000	359.317	0.021 (0.013%)	0.000
337.218	121.941 (36.16%)	1.871 (1.53%)	359.317	119.141 (33.16%)	1.96 (1.65%)
337.218	83.307 (24.7%)	1.253 (1.50%)	359.317	151.353 (42.12%)	1.72 (1.13%)

<sup>6</sup> Percentages are percentage of total route area for the GHA 14 (Moose Meadows) segment of the AFPR.

<sup>7</sup> Percentages are percentage of total route area for the GHA 19A and 14A segment of the AFPR.

### **A44.3 CARIBOU CORE WINTER, SUMMER AND CALVING HABITAT AT WABOWDEN**

Methods employed by Joro Consultants are outlined in Chapter 3 of the November, 2011 *Bipole III Supplemental Caribou Technical Report*.

Data on caribou habitat use and movement was primarily collected using a satellite telemetry program which took place between 2007 and 2011. Caribou were collared with satellite collars and their position was triangulated every three hours. Locations were noted up to eight times per day, totalling a data set of up to 2880 data points per caribou per year. Data was processed and plotted in Arch Map 9.3. Historical telemetry data from the Naosap, Wabowden and Reed Lake ranges provided context to the current data.

Satellite telemetry data was used for tracking movement, distribution, calving and habitat modeling. Ranges were determined by merging the total annual seasonal movements for each collared animal in each range. Minimum Convex Polygons (MCPs) were calculated and used to modify existing caribou range delineations. The data was also used to calculate path trajectories and density kernels.

Identification and characterization of current calving habitat at Wabowden was accomplished by examining known calving locations. Vegetation and landscape metrics data from the LCCEB were also assessed relative to the telemetry data. Likely calving locations were deduced by comparing telemetry data to observed behaviours. An MCP was created to define the likely patch where calving occurred and the size of the patch. Mean patch sizes were estimated, based on a range between <0.1 ha to 200 ha, with 40 ha representing the average size of the largest proportion of calving locations. As 200 ha was the largest observed calving area, a 200 ha hexagon sampling grid was created using the Patch Analyst extension in ArcMap. Calving patch centroids from the characterization was plotted in the hexagon grid and assumed to represent calving patch habitat metrics. The distribution was tested against a random sample of non-calving hexagons. Methods and results of caribou satellite telemetry studies, core habitat and calving habitat analysis are described in the Bipole III Supplemental Caribou Report and are illustrated in the tables below.

In summary the data show that for the Wabowden caribou range the AFPR intersects less calving habitat than the FPR (92 vs 104 calving hexagons). In relation to summer habitat, 13.1 km of the AFPR crosses summer core use areas compared with 0.0 km of the FPR; however 84% of the intersection of the AFPR with summer core use areas is where it parallels existing linear features, leaving 2.1 km of new linear feature-summer

core area intersection. In relation to winter habitat, 2.2 km of the AFPR crosses winter core use areas compared with 4.7 km of the FPR. On both the AFPR and the FPR 100% of the intersection with winter core areas is where the routes parallel existing linear features.

**Table 4A4.3-1: Calving Areas of Wabowden Boreal Woodland Caribou Intersected by AFPR and FPR Routes**

Evaluation Range	Total Area (km <sup>2</sup> )	# Calving Hexes	Area of Calving Hexes (km <sup>2</sup> )	% of Evaluation range that is Calving Habitat	# Calving Hexes crossed by line	% Calving Hexes crossed by line	Area of Calving hexes crossed by line (km <sup>2</sup> )
<b>Wabowden FPR</b>	5598	1518	3036	54.23	52	3.43	104
<b>Wabowden AFPR</b>	5598	1518	3036	54.23	46	3.03	92

**Table 4A4.3-2: Boreal Woodland Caribou Core Habitat Areas Intersected by AFPR Wabowden and FPR**

Habitat	Total Core Area (km <sup>2</sup> )	Linear distance of line crossing Core Habitat (km)	Area of line crossing Core Habitat (km <sup>2</sup> )	% of Core Habitat area intersected by line	Line intersecting Core Habitat paralleling existing linear features (%)
<b>AFPR Wabowden</b>					
Summer Core Use Area	964.7	13.1	0.86	0.09	83.97
Winter Core Use Area	629.76	2.2	0.15	0.02	100
<b>Old FPR</b>					
Summer Core Use Area	964.7	0	0	0	n/a
Winter Core Use Area	629.76	4.66	0.31	0.05	100

**Table 4A4.3-3: Boreal Woodland Caribou Calving Centroids within 1 km of AFPR Wabowden (2009-2011)**

Calving Centroid Year	Distance from AFPR Wabowden					Total
	0-1 km	1-2 km	2-3 km	3-4 km	4-5 km	
2009						0
2010	1				1	2
2011		1			1	2
Total	1	1			2	4

## 4A4.4 AERIAL SURVEY AT AFPR MOOSE MEADOWS

As the GHA 14 (Moose Meadows) and GHA 19A and 14A route revisions were recommended to address concerns related to moose populations, additional studies and analysis were undertaken for this VEC to further support the conclusions of the EIS.

Joro Consultants completed an intensive aerial survey between December 4 and December 6, 2012 within the GHA 14 (Moose Meadows) area and adjacent high quality modeled moose habitat in GHA 13 Map 8 and 9). A Bell 407 helicopter was utilized to fly along aerial transects spaced 500 metres apart. Flight lines were oriented in a north-south direction. Field staff consisted of four people; three observers and one recorder. Altitude of the aircraft varied from 200 to 400 feet due to variation in cover type and light for wildlife viewing purposes, speed of the aircraft varied with canopy density and daylight. All moose, elk, deer and wolf observations were recorded and age/sex classifications were identified for all observed moose. Wolf tracks found during surveys were also recorded. Care was taken to ensure moose were not double counted by identifying moose locations on the GPS and group composition. GPS locations were recorded via handheld Garmin GPS units, tracks and waypoints were downloaded daily to ensure proper data composition.

Specific survey results include the following:

- A total of 52 elk and 207 moose were located within the entire aerial survey area both including the GHA 14 (Moose Meadows) Block and an adjacent survey block extending south into areas adjacent to the AFPR in GHA 13 (Table 4A4.4-2, Map 9 Appendix 4B).
- For the GHA 14 (Moose Meadows) survey block associated with the AFPR, a total of 115 moose were observed (35 bulls, 51 cows and 29 calves; Table 4A4.4-1; Map 8 in Appendix 4B); a total of 26 moose were observed within the actual GHA 14 (Moose Meadows) area (6 bulls, 12 cows and 8 calves; Table 4A4.4-3).

**Table 4A4.4-1: Total Number of Moose Observations within the Entire Survey Area**

<b>Area</b>	<b>Bulls</b>	<b>Cows</b>	<b>Calves</b>	<b>Total Moose</b>
Survey Area	35	51	29	115
Additional Area	29	44	19	92
Total	64	95	48	207

**Table 4A4.4-2: Total Number of Elk and Moose (by cohort) Observed within the Entire Survey Area**

<b>Area</b>	<b>Elk</b>	<b>M-Bulls</b>	<b>M-Cows</b>	<b>M-Calves</b>	<b>Total Moose</b>
GHA 13a	8	2	25	1	5
GHA 12	2	3	5	2	10
GHA 14	36	28	34	24	86
GHA 13	8	31	54	21	106
Total	52	64	95	48	207

**Table 4A4.4-3: Total Number of Moose Observed within the Actual “Moose Meadows” Area**

<b>Area</b>	<b>Bulls</b>	<b>Cows</b>	<b>Calves</b>	<b>Total Moose</b>
Moose Meadows	6	12	8	26

## A44.4-1 Distance to Feature Analysis

Moose location data were assessed to provide additional information regarding moose distribution and high quality habitat selection. Two statistical techniques were utilized to assess moose locations relative to various landscape features and habitat. Distance to Feature Analysis was undertaken to determine the distance of moose locations identified in the aerial survey of the Moose Meadows area to high quality moose habitat (as defined in the November 2011 EIS) and linear features within the aerial survey area. A statistical comparison to randomly generated points was undertaken. Qq-plots were used to test the normality of the data in comparison to non-normal data. Non-parametric Wilcoxon Rank Sum Tests were used to compare observed vs random moose points in relation to linear features and high quality habitat.

The Wilcoxon Rank Sum Test results are reported as median distance, and median distance and standard deviation of the observed and random point sets. Wilcoxon Rank Sum p-values were tested at 0.05 and are provided for each feature. The results compare the medians of the observed moose location with the random moose location. ‘Closer’ indicates that the observed moose location was smaller than the random expectation.

Moose observed during the 2012 Moose Meadow aerial survey were found to be statistically closer to high quality moose habitat and linear features than by random chance alone (Table 4 A4.4-4). Mean observed moose distance to high quality habitat (713.4 m) were almost 1000 m lower than the mean random distance to high quality habitat (1706.0 m). These results work to validate the high quality moose habitat model used for this Project.

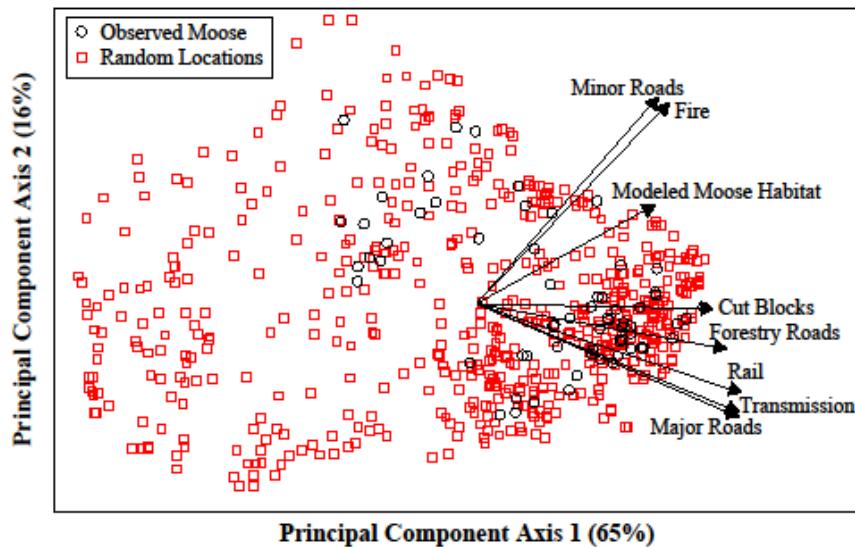
Mean observed distance to linear features within the Moose Meadows survey area, (including major and minor highways, transmission lines, cut blocks, forestry roads and disturbance via fire) were also found to be consistently lower than the mean random points distance to linear features (Table 4A4.4-4). These results are consistent to findings in academic literature regarding moose habitat selection and utilization.

**Table 4A4.4-4: Summary Statistics of the Wilcoxon Rank Sum Test for Comparing Observed Moose Locations with Random Locations Relative to High Quality Habitat and Linear Features**

Distance to Feature	Random Moose Distribution			Random Moose Distribution			Wilcoxon Test P-Value	Evaluation
	Mean	Median	S.D.	Mean	Median	S.D.		
Minor Roads	2710	2804	1096	3257	3084	2101	0.046	Closer
Forestry Roads	3783.68	2530	3257	4814	3764	3807	0.0057	Closer
Major Roads	4716	3245	3781	6656	5224	508	0.0004	Closer
Transmission Lines	5134	3793	3488	6920	5577	4968	0.0013	Closer
Rail Lines	4395	4141	2904	6604	5119	4966	0.0002	Closer
Cut Blocks	2866	2444	2096	3882	3203	2809	0.0012	Closer
Fire	1668	1627	1031	2377	1795	1949	0.0288	Closer
High Quality Habitat	713	373	826	1706	1454	1424	<0.0001	Closer

The second analysis involved a Principal Component Analysis on the shortest distances calculated between eight landscape features and the locations of moose observed. These data included the distances between these same features and a series of randomly generated points within the study region. Results of this analysis are presented in a biplot (Figure 4A4.4-1). The first and second axes account for 65% and 16% of the total variation respectively (cumulatively 81%) and both axes are highly significant. Proximity of landscape features (labelled arrows), as well as observed moose (black circles), and random points (red squares) are indicated on the biplot. The proximity between observed and random locations relative to landscape features were positively correlated across the entire dataset. This is likely the result of positive spatial autocorrelation amongst the features (e.g. disturbed areas are associated with roads and features tend to be co-located on the landscape) resulting in very similar distance relationships within the study area. The proximity of random points relative to the various features was the most variable, as would be expected, while moose observations tend to cluster in areas with consistent proximity-to-feature relationships. It was found that moose are more likely to be closer to all of the features analyzed than would be expected from random.

In summary, moose observed in the survey were closer to disturbed areas including forest harvest areas, fringe agriculture areas, forestry roads, other linear features and modeled moose habitat (for the latter they were most often observed within the predicted habitat). This is expected given that the literature is consistent regarding moose habitat selection and preference for hardwood and mixed wood forests as well as disturbed areas where shrubs are plentiful.



**Figure 4A4.4-1: Principal Component Biplot of Observed Moose**

Figure 4A4.4-1, ‘Principal Component Biplot of Observed Moose’ shows (black circles) and random locations (red squares) relative to eight landscape features (arrows). The direction of the arrow indicates the proximity of those features (i.e. points located in the direction of an arrowhead are closer to those features).

## A45.0 BIRDS AND HABITAT

### A45.1 EXISTING ENVIRONMENT

#### Conservation Area Analysis

Both the FPR and the AFPR overlap with the same conservation areas with the exceptions noted below:

- The AFPR 3-mile buffer in the Wabowden area overlaps with a Ducks Unlimited Hotspot; however, the 66 metre ROW does not overlap with this conservation area.
- The AFPR 3-mile buffer in the Moose Meadows area overlaps with Porcupine Hills Provincial Forest; however, the 66 metre ROW does not overlap with this conservation area.
- The AFPR 3-mile buffer in the GHA 19A and GHA 14 area avoids a known bird colony that the FPR overlaps.

#### Core Communities Analysis

Core community analysis was undertaken to determine how the landscape could be altered along the high voltage direct current (HVdc) transmission line with the AFPR relative to each core community type (i.e., large vs. small patches, many vs. few patches) (see Table 4A5.1-1. Changes will be limited to areas adjacent to the transmission line towers on the ROW resulting in a 2% or less decrease in area for all core communities.

**Table 4A5.1-1: Core Community Results for the Adjusted FPR (km<sup>2</sup>) – Based on Total Landscape Area in AFPR Local Study Area of 6667.39km<sup>2</sup>**

	Core Community	# Patches	Patch Density	Mean Patch Size	Core Area
Existing Environment	Broadleaf	5851	0.88	0.45	714.13
	Coniferous	11,813	1.77	0.33	1,389.44
	Mixedwood	2,306	0.35	0.12	226.80
	Grassland	2,552	0.38	0.54	696.82
	Wetland	12,177	1.83	0.45	1,553.69
Post-Construction	Broadleaf	6,363	0.95	0.40	703.98
	Coniferous	12,917	1.94	0.30	1,368.18
	Mixedwood	2,511	0.38	0.11	223.80
	Grassland	2,921	0.44	0.47	686.67
	Wetland	13,204	1.98	0.41	1,533.35
% ←	Broadleaf	9%	8%	-11%	-1%
	Coniferous	9%	10%	-9%	-2%
	Mixedwood	9%	9%	-8%	-1%
	Grassland	14%	16%	-13%	-1%
	Wetland	8%	8%	-9%	-1%

### A45.1.1 Bird Diversity

Field studies undertaken in 2009 and 2010 were reviewed in order to determine the number of bird species observed along the FPR and near the AFPR in the Wabowden area, the GHA 14 (Moose Meadows) area and the GHA19A and GHA 14A area (Table 4A5.1-2).

**Table 4A5.1-2: Number Bird Species Observed during 2009 and 2010 Field Studies**

		Number of Species Observed		
		Study	FPR	Adjusted FPR
				Δ
Wabowden Area	2009 Breeding Bird Survey		0	0
	2010 Breeding Bird Survey		34	37
	2010 Breeding Bird Survey (handheld recorder)		33	36
	2010 Colonial Waterbird Survey		0	7
	2010 Nocturnal Owl Survey		3	3
	2009 Rare Bird Survey		na	na
	Total Species		52	55
Moose Meadows Area	2009 Breeding Bird Survey		42	48
	2010 Breeding Bird Survey		57	54
	2010 Breeding Bird Survey (handheld recorder)		30	25
	2010 Colonial Waterbird Survey		4	2
	2010 Nocturnal Owl Survey		0	1
	2009 Rare Bird Survey		1	1
	Total Species		73	77
GHA19A and GHA14A Area	2009 Breeding Bird Survey		32	27
	2010 Breeding Bird Survey		73	69
	2010 Breeding Bird Survey (handheld recorder)		62	56
	2010 Colonial Waterbird Survey		8	2
	2010 Nocturnal Owl Survey		3	1
	2009 Rare Bird Survey		0	1
	Total Species		93	90
Specific observations for each adjustment to the AFPR are as follows:				
<ul style="list-style-type: none"> <li>• In the Wabowden Area           <ul style="list-style-type: none"> <li>○ More bird species were found near the AFPR than in the FPR during breeding bird surveys conducted in 2010.</li> </ul> </li> <li>• In GHA 14 (Moose Meadows) Area           <ul style="list-style-type: none"> <li>○ In the 2009 breeding bird survey 6 more species were found along the AFPR than near the FPR.</li> <li>○ More species were found along the FPR during the 2010 breeding bird surveys and colonial waterbird survey compared to species near the AFPR. In the 2010 nocturnal owl survey a single owl species was observed along the GHA 14 (Moose Meadows) ARPR and no species were observed along the FPR.</li> </ul> </li> </ul>				

- In the GHA 19A and GHA 14A Area
  - More species were found along the FPR than near the AFPR during all field studies with the exception of the 2009 Rare Birds Survey.

Overall, the total species observed in each area is as follows during the 2009 and 2010 field studies (Manitoba Hydro 2011b).

**Table 4A5.1-3: Total Number of Bird Species Observed During 2009 & 2010 Field Studies**

Total Number of Species	Along FPR	Near AFPR
Wabowden Area	52	55
Moose Meadows Area	73	77
GHA 19A & 14 A Area	93	90

The small changes in species observed along sections of the FPR when compared to the AFPR indicated that there is only a small difference in bird species diversity along either route option. However, this interpretation should be treated with caution as the sample design was not balanced for the sample points used to calculate the difference between the FPR and AFPR. Because the AFPR and the FPR are in close geographic proximity, no substantial change in regional bird diversity would be expected.

### **VEC Habitat Modelling**

The route adjustments were evaluated based on the presence of suitable habitat for selected bird VECs. Land Cover Classification Enhanced for Bipole (LCCEB)-derived literature based and expert option models that identify the location of high quality habitat for each of the species is described in the Biopole III Transmission Project Environmental Assessment Bird Technical Report (Manitoba Hydro 2011).

The amount of habitat for each VEC was calculated for the 3-mile corridor and the 66 metre ROW for each section of the AFPR. These were compared to the corresponding segments of the FPR to determine if any differences occurred in the amount of habitat affected.

## **4A5.2 ENVIRONMENTAL EFFECTS ASSESSMENT AND MITIGATION**

### **Mortality**

Mortality factors and effects due the construction and operation phases of the Project on different VECs and bird species were considered in detail in the Bipole III Birds Technical Report. A full list of mitigation measures to reduce mortality-related effects proposed for the Bipole III Transmission Line is provided in the December 2011 EIS and the Bipole III Birds Technical Report.

Major waterfowl staging areas identified in the Alternative Route Selection process have not changed relative to the location of the AFPR; however, high quality wetland habitat types for waterfowl, waterbirds, and colonial waterbirds, and the number of riparian movement corridors has changed. Bird migration routes were also identified by Camperville near Whitesands Lake, Spence Lake and Lake Winnipegosis. As a result, there is 21 new sensitive sites, with a net increase of 13 sensitive sites which area associated with rivers, creeks and wetlands along the AFPR (See Environmentally Sensitive Sites). With proposed mitigation including the use of bird diverters, any additional bird mortality that may occur between the FPR and AFPR is negligible. The overall rates of bird-wire collisions are expected to remain negligible to small along the entire Bipole III transmission Line.

The introduction of a transmission line on the landscape could contribute to increased predation of some bird species. A variety of raptors have been known to use transmission towers and lines as artificial perching and roosting structures, particularly in areas where there are few natural perches. These perches provide an elevated viewpoint to aid in locating prey. In addition, bird species that utilize edge habitat along ROWs often show evidence of increased predation by small mammals which hunt along forest edges. This is particularly true in areas with sharply defined edges. As described in the December 2011 EIS, mitigation measures such as bird perch deterrents and vegetation management are expected to minimize the effects of predation on bird populations.

Clearing of the ROW may contribute to an increase in brood (nest) parasitism by brown-headed cowbird as edge habitat is created along the ROW which passes through previously interior forest. Brown-headed cowbirds require edge habitats with an abundance of host species for egg laying with feeding primarily take place in open pastures. The requirement for forest and open habitats effectively limits cowbird expansion into contiguous forests and landscapes. In habitats with a large degree of human disturbance further fragmentation resulted in little to no change in brood parasitism. The density of bird species is likely to change marginally between the FPR and AFPR based on differences in available habitat. As such, brown-headed cowbird parasitism of a few individuals could shift slightly and increase

among interior forest songbird species. Parasitism rates are not expected to change in the Wabowden due to range limitations of brown-headed cowbird.

### **Habitat Alteration and Sensory Disturbance**

While some habitat alteration and sensory disturbance is expected due to the construction and operation phases of the Project, mitigation of these effects through the alternate routing process was done to minimize fragmentation. Routes were recommended which avoided large core community patches and recommended areas with pre-existing disturbances to reduce fragmentation effects. It is expected that some habitat alteration will occur for bird species based on proposed route revisions. However, the assessment concludes that the AFPR will not result in increased habitat alteration or sensory disturbance similar to those reported in the Bipole III Birds Technical Report.

Quantities of altered habitat based on proposed routing revisions were determined through use of habitat models also used to determine habitat quantities during the initial effects assessment of the Bipole III Transmission Line.

The analysis of habitat in the ROW affected by the change in the Adjusted FPR in Wabowden, GHA 14 (Moose Meadows) and GHA 19A and 14A is summarized in Table 4A5.2-1 below.

The analysis of habitat in the Local Study Area affected by the change in the Adjusted FPR in Wabowden, Moose Meadows and GHA 19A and 14A is summarized in Table 4A5.2-2 below.

Table 4A52-3 summarizes total area and percentage of habitat affected based on the predictive model for the FPR and AFPR both within the 3-mile buffer (the Local Study Area) and the 66 m ROW.

The presence of available habitat is considered a precursor to the presence of species within a studied area, but is not necessarily indicative of species being present as other environmental factors also play a role in species distribution. Other factors such as home-range size, site-specific habitat quality, and the presence of competing species may limit species abundance and distribution.

There is a potential for sensory disturbance due to potential Project related effects during the clearing and construction phase of the Project. However, the extent to which sensory disturbance will affect bird species is unchanged from those levels considered as part of the initial EIS birds effects assessment. For more detailed information on Project-related effects refer to Section 5.1 of the Bipole III Birds Technical Report.

**Table 4A5.2-1: Habitat Modelling Results along ROW in Wabowden Area, Moose Meadows Area and GHA 19A and 14A Area**

ROW		Wabowden				Moose Meadows				GHA 19A & 14A				Total Change (Adjusted FPR compared to FPR)		
VEC		AFPR		AFPR		AFPR		AFPR		AFPR		AFPR		$\Delta$ (km <sup>2</sup> )	% $\Delta$	
		FPR (km <sup>2</sup> )	(km <sup>2</sup> )	FPR (km <sup>2</sup> )	(km <sup>2</sup> )	FPR (km <sup>2</sup> )	(km <sup>2</sup> )	FPR (km <sup>2</sup> )	(km <sup>2</sup> )	FPR (km <sup>2</sup> )	(km <sup>2</sup> )	FPR (km <sup>2</sup> )	(km <sup>2</sup> )			
<b>Waterfowl &amp; waterbirds</b>	Mallard	1.84	1.67	-0.17	1.57	1.01	-0.56	2.86	3.76	0.90	6.27	6.44	0.17	2.71%		
	Sandhill Crane	4.16	3.11	-1.05	1.22	0.99	-0.23	2.74	3.07	0.33	8.12	7.17	-0.95	-11.70%		
	Yellow Rail*	1.19	1.27	0.08	0.18	0.03	-0.15	0.62	0.63	0.01	1.99	1.93	-0.06	-3.02%		
<b>Colonial waterbirds</b>	Great Blue Heron	2.76	1.72	-1.04	1.39	1.82	0.43	5.63	5.83	0.20	9.78	9.37	-0.41	-4.19%		
	Least Bittern*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%		
<b>Birds of Prey</b>	Bald eagle	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	-		
	Ferruginous hawk*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%		
	Burrowing owl*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%		
<b>Upland gamebirds</b>	Ruffed Grouse	0.43	0.25	-0.18	0.80	1.63	0.83	4.83	5.20	0.37	6.06	7.08	1.02	16.83%		
	Sharp-tailed grouse	1.66	0.63	-1.03	1.50	0.69	-0.81	1.82	2.46	0.64	4.98	3.78	-1.20	-24.10%		
<b>Woodpeckers</b>	Pileated woodpecker	0.01	0.05	0.04	0.80	1.08	0.28	1.21	1.43	0.22	2.02	2.56	0.54	26.73%		
	Red-headed woodpecker*	0.00	0.00	0.00	0.04	0.03	-0.01	3.01	3.06	0.05	3.05	3.09	0.04	1.31%		
<b>Songbirds &amp; Other birds</b>	Common nighthawk*	3.97	4.08	0.11	1.29	2.10	0.81	5.64	6.30	0.66	10.90	12.48	1.58	14.50%		
	Whip-poor-will*	0.00	0.00	0.00	0.57	2.02	1.45	1.44	0.13	-1.31	2.01	2.15	0.14	6.97%		
	Olive-sided flycatcher*	6.67	4.90	-1.77	1.32	1.53	0.21	6.42	6.74	0.32	14.41	13.17	-1.24	-8.61%		
	Loggerhead shrike*	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.83	-0.11	0.94	0.83	-0.11	-11.70%		
	Sprague's pipit*	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.01	-0.43	0.44	0.01	-0.43	-97.73%		
	Golden-winged warbler*	0.00	0.00	0.00	1.34	1.30	-0.04	3.50	3.44	-0.06	4.84	4.74	-0.10	-2.07%		
	Canada warbler*	0.00	0.00	0.00	0.80	1.63	0.83	4.83	5.20	0.37	5.63	6.83	1.20	21.31%		
	Rusty blackbird*	6.44	3.16	-3.28	1.22	1.13	-0.09	3.32	3.84	0.52	10.98	8.13	-2.85	-25.96%		

\* Species at Risk

**Table 4A5.2-2: Habitat Modelling Results along Local Study Area in Wabowden Area, Moose Meadows Area and GHA 19A and 14A Area**

VEC	Wabowden			Moose Meadows			GHA 19A & 14A			Total Change (Adjusted FPR compared to FPR)				
	FPR (km <sup>2</sup> )	AFPR (km <sup>2</sup> )	Δ (km <sup>2</sup> )	FPR (km <sup>2</sup> )	AFPR (km <sup>2</sup> )	Δ (km <sup>2</sup> )	FPR (km <sup>2</sup> )	AFPR (km <sup>2</sup> )	Δ (km <sup>2</sup> )	FPR (km <sup>2</sup> )	AFPR (km <sup>2</sup> )	Δ (km <sup>2</sup> )	% Δ	
<b>Waterfowl &amp; waterbirds</b>	Mallard	85.83	61.61	-24.22	60.52	44.46	-16.06	118.86	144.27	25.41	265.21	250.34	-14.87	-5.61%
	Sandhill Crane	140.78	107.68	-33.10	62.81	38.14	-24.66	89.78	112.17	22.38	293.37	257.99	-35.38	-12.06%
	Yellow Rail*	51.18	42.50	-8.68	4.95	4.61	-0.34	18.52	19.29	0.77	74.65	66.40	-8.25	-11.06%
<b>Colonial waterbirds</b>	Great Blue Heron	81.26	57.75	-23.50	58.91	81.80	22.89	202.85	202.24	-0.60	343.02	341.80	-1.22	-0.35%
	Least Bittern*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
<b>Birds of Prey</b>	Bald eagle	0.00	3.84	3.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.84	3.84	-
	Ferruginous hawk*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
	Burrowing owl*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
	Short-eared owl*	51.18	42.50	-8.68	41.60	36.79	-4.81	91.74	92.67	0.93	184.52	171.96	-12.57	-6.81%
<b>Upland gamebirds</b>	Ruffed Grouse	14.14	4.32	-9.82	27.58	55.76	28.18	179.35	179.16	-0.20	221.08	239.24	18.17	8.22%
	Sharp-tailed grouse	57.79	33.38	-24.42	71.09	46.10	-24.99	77.94	124.70	46.76	206.82	204.18	-2.64	-1.28%
<b>Woodpeckers</b>	Pileated woodpecker	0.28	1.54	1.26	21.36	42.11	20.74	61.72	66.65	4.93	83.36	110.30	26.93	32.31%
	Red-headed woodpecker*	0.00	0.00	0.00	3.45	3.35	-0.10	111.27	107.85	-3.42	114.71	111.19	-3.52	-3.07%
<b>Songbirds &amp; Other birds</b>	Common nighthawk*	164.22	149.59	-14.64	53.37	0.15	-53.22	216.94	223.59	6.66	434.53	373.34	-61.20	-14.08%
	Whip-poor-will*	0.00	0.00	0.00	5.58	36.40	30.82	3.10	7.28	4.18	8.68	43.69	35.00	403.26%
	Olive-sided flycatcher*	243.30	168.49	-74.81	74.47	57.65	-16.81	219.58	244.92	25.34	537.35	471.06	-66.29	-12.34%
	Loggerhead shrike*	0.00	0.00	0.00	0.00	0.00	0.00	196.73	45.46	-151.27	196.73	45.46	-151.27	-76.89%
	Sprague's pipit*	0.00	0.00	0.00	0.00	0.00	0.00	16.24	12.65	-3.59	16.24	12.65	-3.59	-22.12%
	Golden-winged warbler*	0.00	0.00	0.00	11.17	68.96	57.79	250.04	143.71	-106.33	261.21	212.67	-48.54	-18.58%
	Canada warbler*	0.16	0.00	-0.16	27.58	55.76	28.18	179.35	179.16	-0.20	207.10	234.92	27.82	13.43%
	Rusty blackbird*	226.29	102.75	-123.54	65.75	42.46	-23.29	110.02	148.13	38.12	402.05	293.34	-108.71	-27.04%

\* Species at Risk

**Table 4A5.2-3: Total Area and Percentage of Habitat Affected Based on the Predictive Model for the Total Final Preferred Route (FRP) and the Total Adjusted Final Preferred Route**

		Habitat within 3 Mile Buffer			Habitat within 66 metre ROW		
		FPR	Adjusted FPR	% Change	FPR	Adjusted FPR	% Change
<b>VEC</b>							
<b>Waterfowl &amp; waterbirds</b>	Mallard	1657.09	1642.22	-0.90%	16.02	16.19	1.03%
	Sandhill Crane	1805.78	1770.40	-1.98%	23.11	22.16	-4.20%
	Yellow Rail*	495.36	487.11	-1.68%	6.35	6.28	-1.11%
<b>Colonial waterbirds</b>	Great Blue Heron	1359.59	1358.36	-0.09%	19.22	18.81	-2.18%
	Least Bittern*	139.25	139.25	0.00%	1.70	1.70	0.00%
<b>Birds of Prey</b>	Bald eagle	120.04	123.88	3.15%	1.26	1.32	4.73%
	Ferruginous hawk*	221.18	221.18	0.00%	3.05	3.05	0.00%
	Burrowing owl*	219.46	219.46	0.00%	3.05	3.05	0.00%
	Short-eared owl*	1342.13	1329.57	-0.94%	19.15	18.30	-4.54%
<b>Upland gamebirds</b>	Ruffed Grouse	911.92	930.09	1.97%	11.54	12.56	8.49%
	Sharp-tailed grouse	1714.55	1711.91	-0.15%	25.00	23.80	-4.93%
<b>Woodpeckers</b>	Pileated woodpecker	520.88	547.82	5.04%	6.68	7.22	7.74%
	Red-headed woodpecker*	460.43	456.91	-0.77%	6.57	6.61	0.61%
<b>Songbirds &amp; Other birds</b>	Common nighthawk*	3281.14	3219.94	-1.88%	42.27	43.85	3.66%
	Whip-poor-will*	303.41	296.03	-2.46%	3.51	3.65	4.03%
	Olive-sided flycatcher*	3016.42	2950.13	-2.22%	38.73	37.49	-3.25%
	Loggerhead shrike*	641.49	637.78	-0.58%	9.14	9.03	-1.31%
	Sprague's pipit*	490.32	486.73	-0.73%	7.43	7.00	-5.96%
	Golden-winged warbler*	1182.06	1133.52	-4.19%	13.26	13.16	-0.76%
	Canada warbler*	320.44	348.27	8.32%	3.11	4.31	32.30%
	Rusty blackbird*	1840.55	1731.83	-6.09%	25.83	22.98	-11.67%

## **Disruption of Movements**

Disruption of bird species' movements due to the construction and operation phases of the Project could have varying impacts based on the species considered.

Human presence and physical structures such as towers and machinery could affect seasonal and daily movements of some species or individuals as they alter their pathways to avoid disturbance<sup>8</sup>. Daily movements could potentially be altered on a local scale.

Habitat fragmentation due to the cleared ROW could alter local movements of some individuals, as some species (e.g., forest interior birds) are less likely to cross linear features. Such effects will be long-term, but where habitat on the ROW returns to shrubland, these effects will be minimized.

While seasonal movements such as migration could be affected by a transmission line, it is not likely to affect species in the Bipole III study area, which tend to migrate long distances and would be expected to encounter many natural and anthropogenic obstacles.

More detailed information on Project-related effects, including the disruption of bird species movement based on the construction phase of the Project is provided in Section 5.1 of the Bipole III Birds Technical Report.

With mitigation measures identified in the December 2011 EIS, disruption of movement for each bird VEC due to the Adjusted FPR is not expected.

## **Environmentally Sensitive Sites**

Sensitive sites for birds include areas where higher densities of birds, particularly waterfowl, colonial waterbirds, and migratory raptors, are expected, increasing the likelihood of birds potentially colliding with wires. Bird concentrations are expected to be higher near lakes and wetlands, and along rivers and creeks, which many birds use as movement corridors and for foraging. Raptors and waterfowl in particular use these features.

Large open wetlands were considered to have high densities of birds, as waterfowl fly along them and land in them to feed. If a colony was near the ROW, a sensitive site was identified where any expected increased waterfowl, other waterbirds and birds of prey could occur. Table 4A5.2-4 outlines the description of each sensitive site. Other sensitive sites including large stick nests and bird colonies have yet to be identified along the Adjusted FPR. Pre-construction surveys will be required.

---

<sup>8</sup> Limited movement can prevent individuals from accessing resources and can hamper their ability to avoid predators (AltaLink Management Ltd. 2006). For a general discussion on fragmentation effects as affecting wildlife species, refer to the Bipole III Fragmentation Technical Report.

Sharp-tailed grouse leks were also identified as sensitive sites. Specific locations for these sites have not been identified. These sites will require localized search efforts, which are recommended to be conducted during pre-Project construction surveys and incorporated into the Environmental Protection Plan.

Environmentally sensitive sites were identified in the Wabowden area Adjusted FPR, the GHA 14 (Moose Meadows) area Adjusted FPR and the GHA 19A and GHA 14A Adjusted FPR using the same methods identified in Section 5.6 of the Birds Technical Report (Manitoba Hydro 2011). There are a total of 147 environmentally sensitive sites identified for birds along the overall route including the route adjustments: The route adjustments identified 21 new ES sites for a net increase of 13 sites overall.

**Table 4A5.2-4: Environmentally Sensitive Sites for Birds**

Source Name	Environmentally Sensitive Site	Degree of Risk	Site Description	Location
Bird_288	Unnamed lake crossing	High	ROW crossing a lake likely used by waterfowl	Wabowden
Bird_289	Pond crossing	Moderate	ROW crossing a pond likely used by waterfowl	Wabowden
Bird_290	Kiski Creek Crossing	Moderate	ROW crossing a creek likely used by waterfowl, near DU hotspot	Wabowden
Bird_291	Waterfowl and yellow rail sensitivity area	Moderate	ROW crossing a wetland likely used by waterfowl and yellow rail	Wabowden
Bird_292	Steeprock River Crossing	Moderate	ROW crossing a river likely used by waterfowl	Moose Meadows
Bird_293	Bell River Crossing	Moderate	ROW crossing a river likely used by waterfowl	Moose Meadows
Bird_294	Pond crossing	Moderate	ROW crossing a pond likely used by waterfowl	GHA19A and GHA14A
Bird_295	Waterfowl and yellow rail sensitivity area	Moderate	ROW crossing a wetland likely used by waterfowl and yellow rail	GHA19A and GHA14A
Bird_296	North Duck River Crossing	Moderate	ROW crossing a river likely used by waterfowl	GHA19A and GHA14A
Bird_297	Unnamed Creek Crossing	Moderate	ROW crossing a creek likely used by waterfowl, near DU hotspot	GHA19A and GHA14A
Bird_298	Sclater River Crossing	Moderate	ROW crossing a river likely used by waterfowl	GHA19A and GHA14A
Bird_299	Pine River Crossing	Moderate	ROW crossing a river likely used by waterfowl	GHA19A and GHA14A
Bird_300	Waterfowl and yellow rail sensitivity area	High	ROW crossing a wetland likely used by waterfowl and yellow rail	GHA19A and GHA14A
Bird_301	Waterfowl sensitivity area	High	ROW crossing a wetland system likely used by waterfowl	GHA19A and GHA14A
Bird_302	Waterfowl sensitivity area	High	ROW crossing a wetland system likely used by waterfowl	GHA19A and GHA14A

<b>Source Name</b>	<b>Environmentally Sensitive Site</b>	<b>Degree of Risk</b>	<b>Site Description</b>	<b>Location</b>
Bird_303	Waterfowl sensitivity area	High	ROW crossing a wetland system likely used by waterfowl	GHA19A and GHA14A
Bird_304	Garland River Crossing	Moderate	ROW crossing a river likely used by waterfowl	GHA19A and GHA14A
Bird_305	Unnamed Creek Crossing	Moderate	ROW crossing a creek likely used by waterfowl, near DU hotspot	GHA19A and GHA14A
Bird_306	Waterfowl sensitivity area	High	ROW crossing a wetland system likely used by waterfowl	GHA19A and GHA14A
Bird_307	Waterfowl sensitivity area	High	ROW crossing a wetland system likely used by waterfowl	GHA19A and GHA14A
Bird_308	Waterfowl sensitivity area	High	ROW crossing a wetland system likely used by waterfowl	GHA19A and GHA14A

The proposed mitigation measures for the effects along the Adjusted FPR are the same as those recommended in Section 5.2 of the Bipole III Birds Technical Report, and in Chapter 11 Section 11.3 of the December 2011 EIS. No additional mitigation measures are recommended. A summary of the key mitigation measures include:

- Timing of clearing, construction and maintenance activities to avoid sensitive periods such as breeding and nesting;
- Installation of bird diverters on ground wires and guy wires near areas with frequent bird activity, such as in IBAs and environmentally sensitive sites;
- Avoidance or re-location of large stick nests; and
- Maintenance of natural buffers in sensitive areas such as wetlands.

Bird diverters will be placed at identified environmentally sensitive sites in addition to those identified in the Bipole III Birds Technical Report (Manitoba Hydro 2011). The placement of bird diverters along the migration corridor identified near Spence Lake (Duck Bay NTS ATK Map 63CO2) was considered; however, diverters were not recommended for the following reasons: (1) the transmission line is located approximately one-kilometre from the lake and adjacent wetlands; consequently any staging activities will be located over one kilometre from the transmission line; and (2) waterfowl will likely fly above the transmission line during migration.

## 4A6.0 AMPHIBIANS AND REPTILES

A detailed description of the existing environment of the overall Bipole III Project Study Area is provided in Chapter 6 of the December 2011 EIS and in Section 5.2 of the Bipole III Terrestrial Invertebrates, Amphibians and Reptiles Technical Report. A detailed description of environmental effects is provided in the December 2011 EIS (Section 8.2.8.4) and in Section 6.0 of the Bipole III Terrestrial Invertebrates, Amphibians and Reptiles Technical Report.

Wood frog and northern leopard frog habitat (i.e., wetlands) was identified within all three areas of the Adjusted FPR (Maps 14, 15 and 16 in Appendix 4B) and is summarized in Table 4A6.1-1 below.

**Table 4A6.1-1: Total Area of Wetland Habitat Classes Present within the Adjusted FPR Segments**

Section of Adjusted FPR	Habitat Area within 66 m ROW (km <sup>2</sup> )	Habitat Area within 3 mile buffer (km <sup>2</sup> )	Proportion of Habitat in ROW vs. 3 mile buffer
Wabowen	1.55	109.31	1.42%
Moose Meadows	0.50	37.63	1.34%
GHA 19A & 14A	1.54	107.38	1.43%

In summary, effects due to project-related activities can be divided into two broad categories:

- Alteration of habitat resulting from transmission line ROW clearing, and installation of permanent towers; and
- Effects of construction vehicles, increased use of seasonal access trails and transmission line ROW, and other traffic and machinery-related effects.

Potential effects on the wood frog and the boreal leopard frog due to the construction and operation phases of the Project include:

- Alteration or disturbance of suitable habitat within Project footprint, including overwintering, cover and breeding habitat;
- Fragmentation within home ranges (i.e., movement corridors between overwintering and summering and/or breeding habitats);

- Microhabitat alterations, including changes in air and soil temperature, relative humidity, light intensity, leaf litter, and coarse woody debris;
- Sensory disturbance effects; and
- Direct mortality from machinery-related activity, including traffic, in stream sediment, exhaust emissions, noise, dust, headlight illumination, spills, leaks.

Mitigation measures related to the construction and operation of the HVdc Transmission line are generally addressed in Section 8.2.8.4 of the December 2011 EIS, and include strategic timing of construction and maintenance activities to occur in fall/winter (outside of peak breeding periods), as well as retention of microhabitats and stream and wetland buffers. See also Appendix 6A, Table A6-1. This includes the following:

- Wherever possible, a vegetation buffer of 30 metres will be retained around any identified breeding and/or wetland areas that occur along the Project ROW, in which disturbance, vegetation removal and vehicular traffic is to be limited;
- Where overstory and/or tall growth vegetation (i.e., trees) need to be removed within buffers for transmission line clearance, removal methods that best minimize disturbance to soil and ground cover will be used;
- Where feasible, transmission ROW tower installation, in buffered suitable wetland habitat will be avoided; and
- Where avoidance of suitable habitat is not feasible during tower installation, construction activity methods that best minimize habitat disturbance are recommended.

## **4A7.0 LAND USE**

### **4A7.1 DESIGNATED PROTECTED AREAS AND PROTECTED AREAS INITIATIVE**

#### **Monitoring and Mitigation**

In the GHA 14A and 19A, monitoring and mitigation will be considered for the Swan-Pelican Forest Reserve and Moose Meadows for the Porcupine Forest Reserve during construction, operations and maintenance activities. Routine monitoring and mitigation as provided in Manitoba Hydro's Environmental Protection Plan is anticipated.

In general, for each of the three revision areas the effects of construction can be minimized through project scheduling and planning. Manitoba Hydro is committed to environmentally sound planning and initially has taken opportunity to maximize the portion of the Bipole III route that follows existing linear facilities such as roads, railways and transmission lines. In areas of interest to the Protected Areas Initiative (PAI), Manitoba Hydro will be taking mitigative measures which include the following:

- Ongoing discussions with Manitoba Conservation PAI representatives to provide Manitoba Hydro with the permanent right to access, use and maintain the right-of-way for the Bipole III line and to ensure current as well as new issues are addressed.
- Subject to detailed engineering analysis, tower location (tower “spotting”) has been identified as a potential measure to reduce adverse effects. Manitoba Conservation PAI representatives may identify preferred locations and based on detailed pre-construction evaluation of the ROW, subsequent engineering analysis will take place to evaluate the technical and economic feasibility of incorporating spotting into the structure placement decision.
- Construction in the vicinity of enduring features or ecologically sensitive sites will be conducted in the winter, under frozen ground conditions, to protect site-specific features, such as organic deposits;
- Where unique terrain or soil features are crossed, no off-right-of-way activities, including construction of access trails or establishment of new borrow sources will occur;
- Off-right-of-way activities, will maintain a 100 m buffer distance from unique terrain or soil features;
- Excavated soils will be stored at designated work spoil areas and will be fully replaced on the footprint of the excavation in the reverse order they were excavated;

- Movement of equipment within unique terrain and soil features will be minimized to ensure minimum disturbance; and
- Existing access routes should be utilized and machinery not operated outside of the project areas where unique terrain and soil features are located.

Designated protected areas and areas under consideration by the PAI will be identified in the construction Environmental Protection Plan. For details see the December 2011 EIS. During construction Environmental Protection Plana for the Project will be used to manage work in or in close proximity to protected areas and lands under consideration for PAI that have be identified or registered First Nation Reserves or TLE lands.

Mobile construction camps will be required during construction of the Bipole III line. These camps will not be located in any designated protected areas, areas under review or future consideration by the PAI, registered First Nation Reserves or TLE lands.

## **4A8.0 CULTURE AND HERITAGE RESOURCES**

### **4A8.1 DESCRIPTION OF THE EXISTING ENVIRONMENT**

The Project Study Area is a complex patchwork of human adaptation that has, over the past 9,000 years, served as a record of cultural land use and occupancy. Today, there are distinct Aboriginal groups, descendants of past inhabitants, who have settled within the Project Study Area — Cree, Ojibway, Dakota Sioux, and Metis. The early history and occupation of the Project Study Area was greatly influenced by climatic events such as the Pleistocene Ice Age and the subsequent Holocene, or warming period which continues to be experienced. Glacial melt ponding at the base of the receding glacial front also influenced the abilities of pre-European contact people to move across the landscape. Known as glacial Lake Agassiz the lake morphed in size and drainage as the effects of isostatic rebound continued until about 9,000 to 7,500 years ago. The lands, freed of ice and water were quickly populated by plants and animals; humans followed these resources into a new landscape and began to explore freely along the network of river systems that emerged<sup>9</sup>.

Throughout the ensuing years and somewhat dictated by short term climatic changes, the people continued to explore, move and return to certain areas, resulting in the formative development of seasonal resource-use rounds.

From this series of events, two important records of humankind emerge: archaeological and traditional knowledge. The former is a record of tangible evidence of past human occupations extending from the first encounters humans had with their physical environment; the latter is an oral record of the encounters with the physical environment, based on experience, observation, learning and re-affirmation. Traditional knowledge can be viewed as an umbrella under which many aspects of culture, including worldview, language, kinship, traditional knowledge, cultural practice, cultural products, leisure, law and order and health and wellness are managed.

---

<sup>9</sup> See, Aboriginal Traditional Knowledge Technical Report #1.

## **4A8.2 Wabowden Route Adjustment Area**

The Wabowden route adjustment occurs within the Boreal Shield Ecozone and the Churchill River Upland Ecoregion which is characterized by its patchy distribution of wetlands, uplands and myriad waterbodies<sup>10</sup>.

No heritage resources are currently registered with the Province of Manitoba Archaeological and Heritage Inventories and no sites occur within the three-mile buffer of the Wabowden Route Adjustment Area. This does not negate the fact that heritage resources could be present; it simply means that to date, none have been found.

No Aboriginal Traditional Knowledge (ATK) workshop was held at Wabowden, however, the Manitoba Metis Federation Self-Directed Study indicates areas of big game hunting east of the route adjustment area<sup>11</sup>.

## **4A8.3 Moose Meadows Route Adjustment Area**

The Moose Meadows route adjustment occurs within the Boreal Plains Ecozone and Interlake Plain Ecoregion. This area is characterized by low relief resting on Palaeozoic limestones. The Manitoba Escarpment, namely the Porcupine Mountain is located to the west. The archaeological and ATK records indicate that an important relationship existed between the plains and escarpment that continues to the present. This has been identified in the Barrows, Camperville, Pine Creek and Duck Bay ATK Workshops and Manitoba Metis Federation Self-directed Study as an area of high resource use.

Further, five registered archaeological sites are noted along the Bell River southwest of Bellsite and are in close proximity to the adjusted route. The sites and their properties as prepared by Manitoba Historic Resources Branch are listed in Table 4A8.3-1 below. Distance from the centre of the three-mile buffer is noted. While these sites are located within the three-mile buffer, none are within the 66 m ROW.

---

<sup>10</sup> Aboriginal Traditional Knowledge Technical Report #1

<sup>11</sup> Traditional Use, Values and Knowledge of the Bipole III Project Study Area. In Manitoba Hydro Bipole III Transmission Project Aboriginal Traditional Knowledge Technical Report #2.

**Table 4A8.3-1: Archaeological Sites within the GHA 14 (Moose Meadows) and GHA 14A and 19A Route Adjustment Areas - Three Mile Buffer**

Site Type	Cultural Affiliation	Artifact Recoveries	Site Status	Site Priority	Distance from Centre
<b>GHA 14 (Moose Meadows) AFPR 3 Mile Buffer</b>					
FdMg-1	Undetermined	Undetermined	Lithic tools & flakes	Disturbed by road construction	Low 315 m
FdMg-2	Undetermined	Undetermined	Lithic flakes	Disturbed by road construction	Low 218 m
FdMg-3	Precontact - undetermined	Undetermined	Lithic tools & flakes	Disturbed by road construction	Low 146 m
FdMg-4	Precontact - undermined	Undetermined	Lithic flakes & cores	Disturbed	Low 1.6 km
FdMg-5	Precontact-Woodland - campsite	Plains Ojibwa	Plains side-notched points. Blackduck ceramics	Disturbed by road construction	Low 241 m
FdMg-6	Undetermined	Undetermined	Not known	Disturbed by gravel removal	Identified as High but no reason given 168 m
<b>GHA 14A and GHA 19A AFPR 3 Mile Buffer</b>					
FaMe-5	Work station/kill site	PALEO, ARCHAIC, WOODLAND	AGATE BASIN, OXBOW, HANNA, BESANT, PELICAN LAKE, LEWIS POINTS	Disturbed by continuous cultivation	Low 1.1 km
FaMd-1	Work station/kill site	PRECONTACT- NOT IDENTIFIED	1 SCRAPER, FLAKES.	Disturbed by continuous cultivation	Low 1.1 km
FaMd-4	Work station/kill site	PRECONTACT- NOT IDENTIFIED	FLAKES AND A LEAF SHAPED BIFACE.	Disturbed by continuous cultivation	Low 1.1 km
FaMd-6	Work station/kill site	PALEO, ARCHAIC, WOODLAND	AGATE BASIN, McKEAN, OXBOW, PELICAN LAKE, AVONLEA, PRAIRIE POINTS	Disturbed by continuous cultivation	Low 1.1 km

	<b>Site Type</b>	<b>Cultural Affiliation</b>	<b>Artifact Recoveries</b>	<b>Site Status</b>	<b>Site Priority</b>	<b>Distance from Centre</b>
EIMc-2	Work station/kill site	ARCHAIC, WOODLAND	PELICAN LAKE, PRAIRIE POINTS	Disturbed by continuous cultivation	Low	1.1 km
EIMb-1	Work station/kill site	ARCHAIC, WOODLAND	BESANT, McKEAN POINTS, FLAKES, SCRAPERS, POLLEN SAMPLES, BONE FRAGMENTS.	Disturbed by continuous cultivation	Low	1.1 km
EIMb-2	Work station/kill site	ARCHAIC	FLAKES, SCRAPERS, McKEAN AND DUNCAN PROJECTILE POINTS.	Disturbed by continuous cultivation	Low	1.1 km
EIMb-3	Work station/kill site	ARCHAIC	WORKED FLAKES, AVONLEA, TRIANGULAR AND SIDE NOTCHED POINTS.	Disturbed by continuous cultivation	Low	1.1 km
EIMb-4	Work station/kill site	ARCHAIC	FLAKES, SCRAPERS, McKEAN AND DUNCAN PROJECTILE POINTS	Disturbed by continuous cultivation	Low	1.5 km
EIMb-5	Work station/kill site	PALAEO-INDIAN	SCRAPERS, CORES, BIFACES, FLAKES, HELLGAP, AGATE BASIN POINTS.	Disturbed by continuous cultivation	Low	1.8 km
EIMb-6	Undetermined	Undetermined	LITHICS.	Disturbed by continuous cultivation	Low	1.9 km
EIMb-7	Undetermined	Undetermined	LITHICS	Disturbed by continuous cultivation	Low	1.9 km
EIMb-8	Undetermined	Undetermined	LITHICS	Disturbed by continuous cultivation	Low	1.4 km
EIMb-9	Work station/kill site	PRECONTACT- NOT IDENTIFIED	LITHICS	Disturbed by continuous	Low	1.0 km

	<b>Site Type</b>	<b>Cultural Affiliation</b>	<b>Artifact Recoveries</b>	<b>Site Status</b>	<b>Site Priority</b>	<b>Distance from Centre</b>
EIMb-10	Work station/kill site	PALEO-INDIAN HELL GAP/AGATE BASIN	SCRAPERS, GRAVERS, BLADES, UTILIZED FLAKES, 4 AGATE BASIN/HELL GAP POINTS.	Disturbed by continuous cultivation	Low	1.3 km
EIMb-11	Work station/kill site	Undetermined	BISON BONES ONLY	Disturbed by continuous cultivation	Low	2.2 km
EIMb-12	Undetermined	Undetermined	FLAKES	Disturbed by continuous cultivation	Low	2.2 km
EIMb-13	Work station/kill site	Undetermined	BISON BONES ONLY.	Disturbed by continuous cultivation	Low	2.0 km
EIMb-15	Work station/kill site	Undetermined	SCRAPERS, BIFACES, FLAKES.	Disturbed by continuous cultivation	Low	1.7 km
EIMb-16	Work station/kill site	Undetermined	FLAKES, SCRAPERS, PROJECTILE POINTS, BISON BONES.	Disturbed by continuous cultivation	Low	2.3 km
EIMb-22	Work station/kill site	PALAEO-INDIAN, WOODLAND	PRAIRIE POINT; POSSIBLE AGATE BASIN POINT	Disturbed by continuous cultivation	Low	933 m
EIMb-23	Work station/kill site	WOODLAND (PELICAN LAKE)	PELICAN LAKE POINT	Disturbed by continuous cultivation	Low	1.9 km
EIMb-25	Work station/kill site	ARCHAIC; WOODLAND	OXBOW, PRAIRIE POINTS	Disturbed by continuous cultivation	Low	1.2 km
EkMb-3	Work station/kill site	ARCHAIC, WOODLAND	DUNCAN, HANNA, PRAIRIE	Disturbed by continuous	Low	

<b>Site Type</b>	<b>Cultural Affiliation</b>	<b>Artifact Recoveries</b>	<b>Site Status</b>	<b>Site Priority</b>	<b>Distance from Centre</b>
EIMc-2	Work station/kill site	WOODLAND (PELICAN LAKE)	PELICAN LAKE, PRAIRIE POINTS	Disturbed by continuous cultivation	Low 760 m

## **APPENDIX 4B**

### **Maps**

# LIST OF MAPS

	<b>Page</b>
Map 1: Soil Order - Wabowden Area Adjusted Final Preferred Route	4B-1
Map 2: Soil Order - GHA 14 (Moose Meadows Area) Adjusted Final Preferred Route	4B-2
Map 3: Soil Order - GHA 19A and GHA 14A Adjusted Final Preferred Route	4B-3
Map 4: Flowing Well Areas and Springs	4B-4
Map 5: Watercourse Crossing - Wabowden Area Adjusted Final Preferred Route	4B-5
Map 6: Watercourse Crossing - GHA 14 (Moose Meadows) Area Adjusted Final Preferred Route	4B-6
Map 7: Watercourse Crossing - GHA 19A and GHA 14A Adjusted Final Preferred Route	4B-7
Map 8: Moose Survey Blocks - GHA 14 (Moose Meadows Area) Adjusted Final Preferred Route	4B-8
Map 9: 70% Adaptive Kernel of Moose Observations Moose Survey Kernels - GHA 14 (Moose 4B Meadows Area) Adjusted Final Preferred Route	4B-9
Map 10: Elk Observations - GHA 14 (Moose Meadows Area) Adjusted Final Preferred Route	4B-10
Map 11: Terrestrial Ecosystems and Vegetation - Wabowden Area Adjusted Final Preferred Route	4B-11
Map 12: Terrestrial Ecosystems and Vegetation - GHA 14 (Moose Meadows Area) Adjusted Final Preferred Route	4B-12
Map 13: Terrestrial Ecosystems and Vegetation - GHA 19A and GHA 14A Adjusted Final Preferred Route	4B-13
Map 14: Wood and Northern Leopard Frog Modelled Habitat- Wabowden Area Adjusted Final Preferred Route	4B-14
Map 15: Wood and Northern Leopard Frog Modelled Habitat- GHA 14 (Moose Meadows Area) Adjusted Final Preferred Route	4B-15
Map 16: Wood and Northern Leopard Frog Modelled Habitat – GHA 19A and GHA 14A Adjusted Final Preferred Route	4B-16
Map 17: Aboriginal Lands and Designated Protected Areas/Protected Areas Initiative - GHA 14 (Moose Meadows Area) Adjusted Final Preferred Route	4B-17

Map 18:	Bell and Steeprock Canyons- GHA 14 (Moose Meadows) Adjusted Final Preferred Route	4B-18
Map 19:	GHA 19A and 14A Swan Pelican Forest Reserve- GHA 19A and GHA 14A Adjusted Final Preferred Route	4B-19
Map 20:	Culture (Southern portion) - GHA 19A and GHA 14A Adjusted Final Preferred Route	4B-20
Map 21:	Culture (Northern portion) - GHA 19A and GHA 14A Adjusted Final Preferred Route	4B-21
Map 22:	Heritage Sites - GHA 19A and GHA 14A Adjusted Final Preferred Route	4B-22
Map 23:	Heritage Sites - GHA 14 (Moose Meadows) Adjusted Final Preferred Route	4B-23





GHA-13A  
GHA-18A  
GHA-14

GHA-18A

GHA-14

Swan-Pelican  
Provincial Forest

GHA-14A

PINE CREEK  
FIRST NATION

GHA-14

Manitoba  
Hydro

### Bipole III Transmission Project

Project Infrastructure

Adjusted Final Preferred Route

Final Preferred Route

Infrastructure

Transmission Line

Soil Order

Brunisols

Chernozems

Cryosols

Gleysols

Luvic soils

Organics

Regosols

Vertisols

Non-Soil

Landbase

Community

Provincial Highway

Road (Provincial)

Road (Other)

Active Rail

Abandoned Rail

Game Hunting Area (GHA)

First Nation

National/Provincial Park

Provincial Forest

Local Study Area

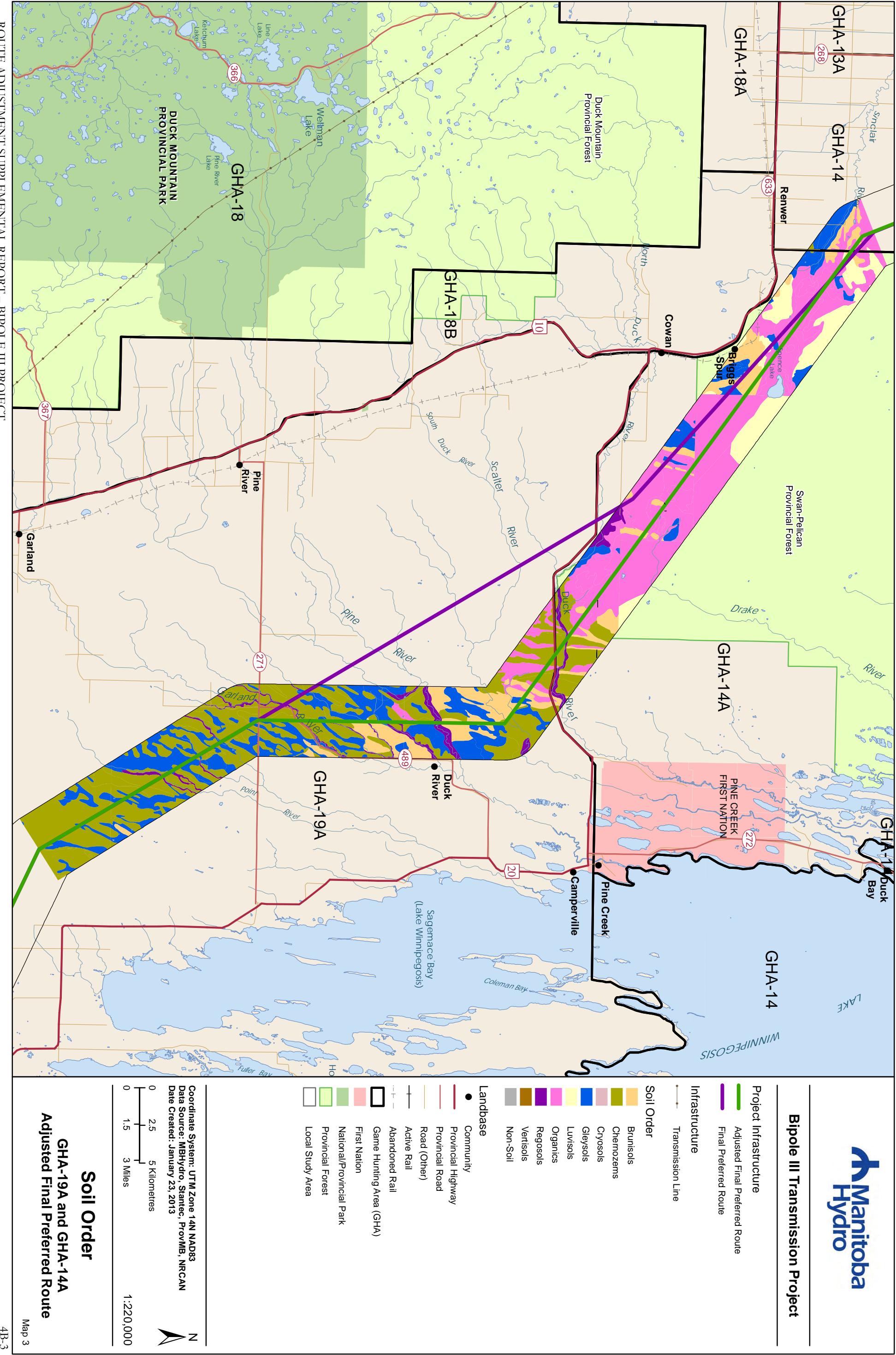
Coordinate System: UTM Zone 14N NAD83  
Data Source: MBHydro, Santeet, ProvMB, NRCAN  
Date Created: January 23, 2013

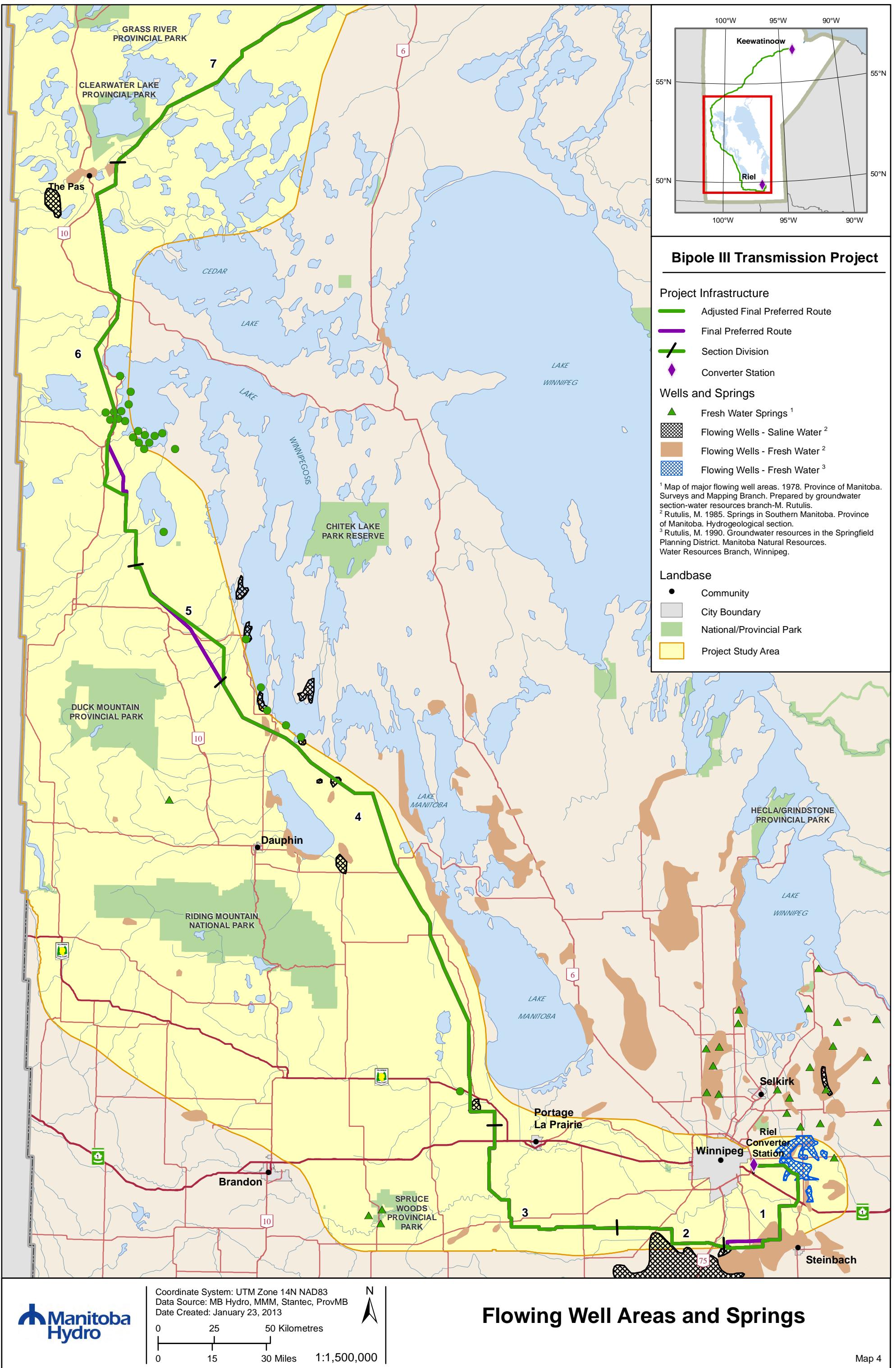


0  
2.5  
5 Kilometres  
0  
1.5  
3 Miles  
1:220,000

### Soil Order

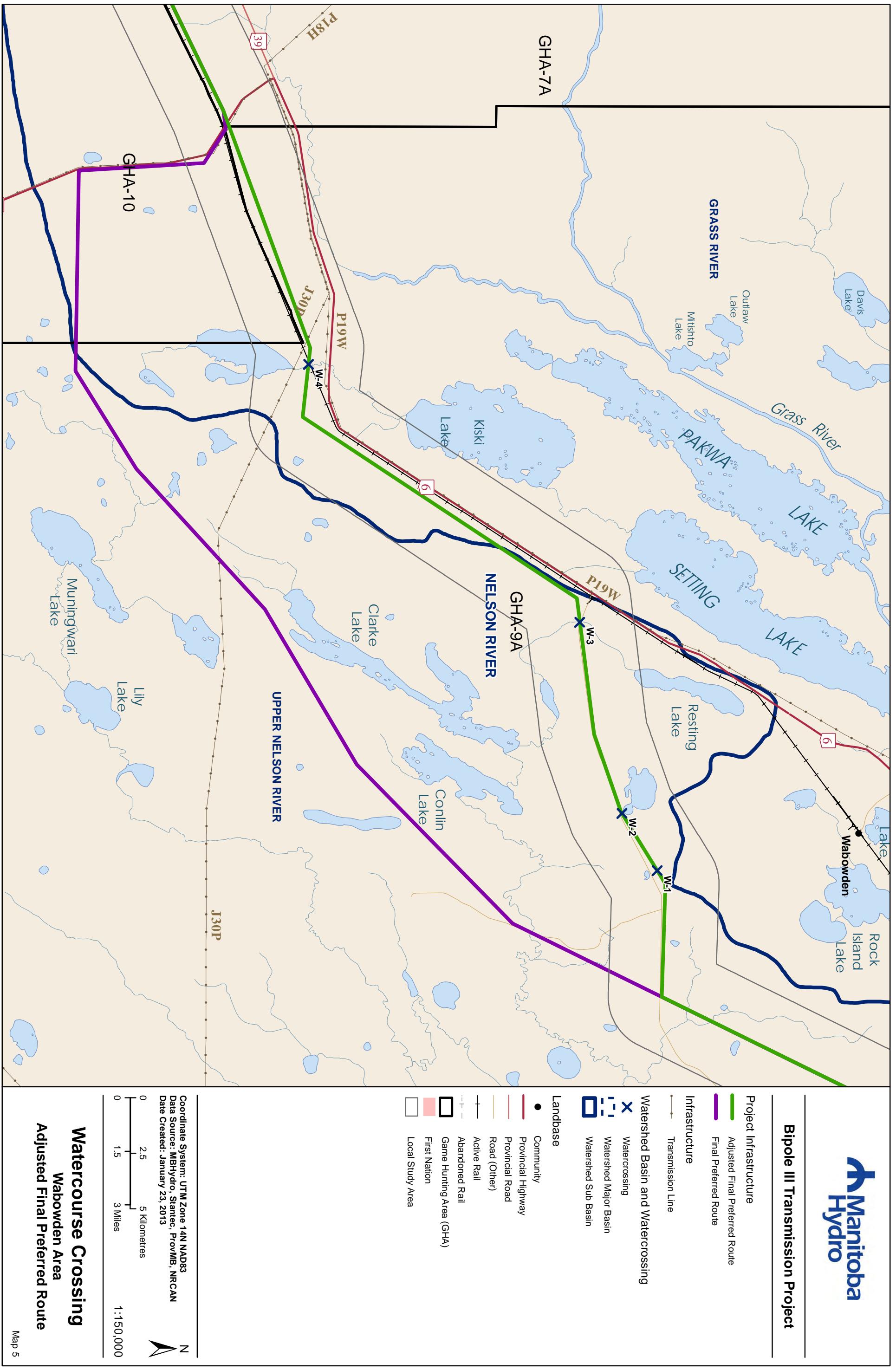
GHA-19A and GHA-14A  
Adjusted Final Preferred Route

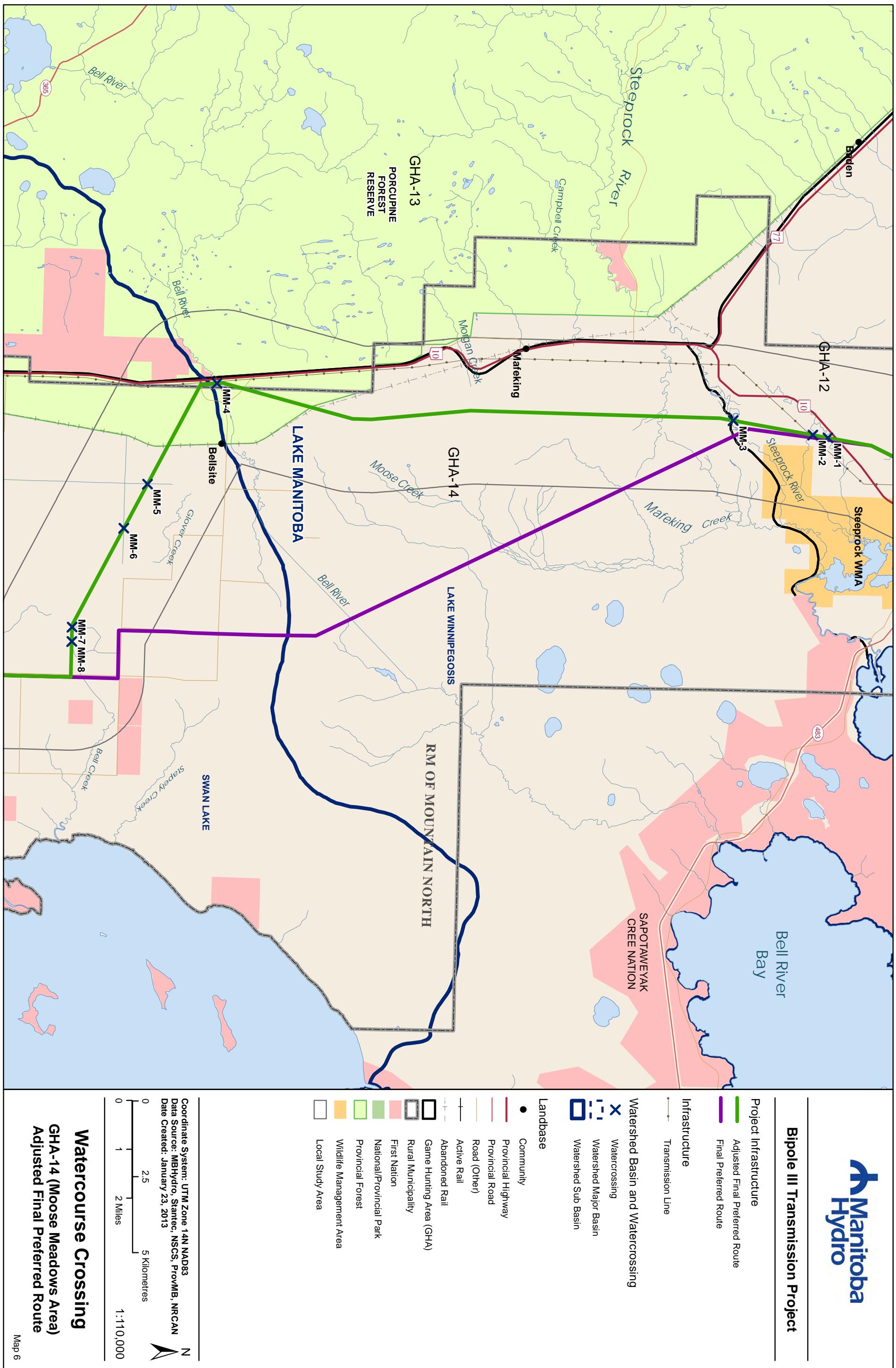




# Manitoba Hydro

## Bipole III Transmission Project





# Manitoba Hydro

## Bipole III Transmission Project

Project Infrastructure  
Adjusted Final Preferred Route

Infrastructure  
Transmission Line

Watershed Basin and Watercrossing  
Watercrossing

Watershed Sub Basin  
Watershed Sub Basin

Landbase  
Community

Provincial Highway  
Provincial Road

Active Rail  
Abandoned Rail

Game Hunting Area (GHA)  
Rural Municipality

First Nation  
National/Provincial Park

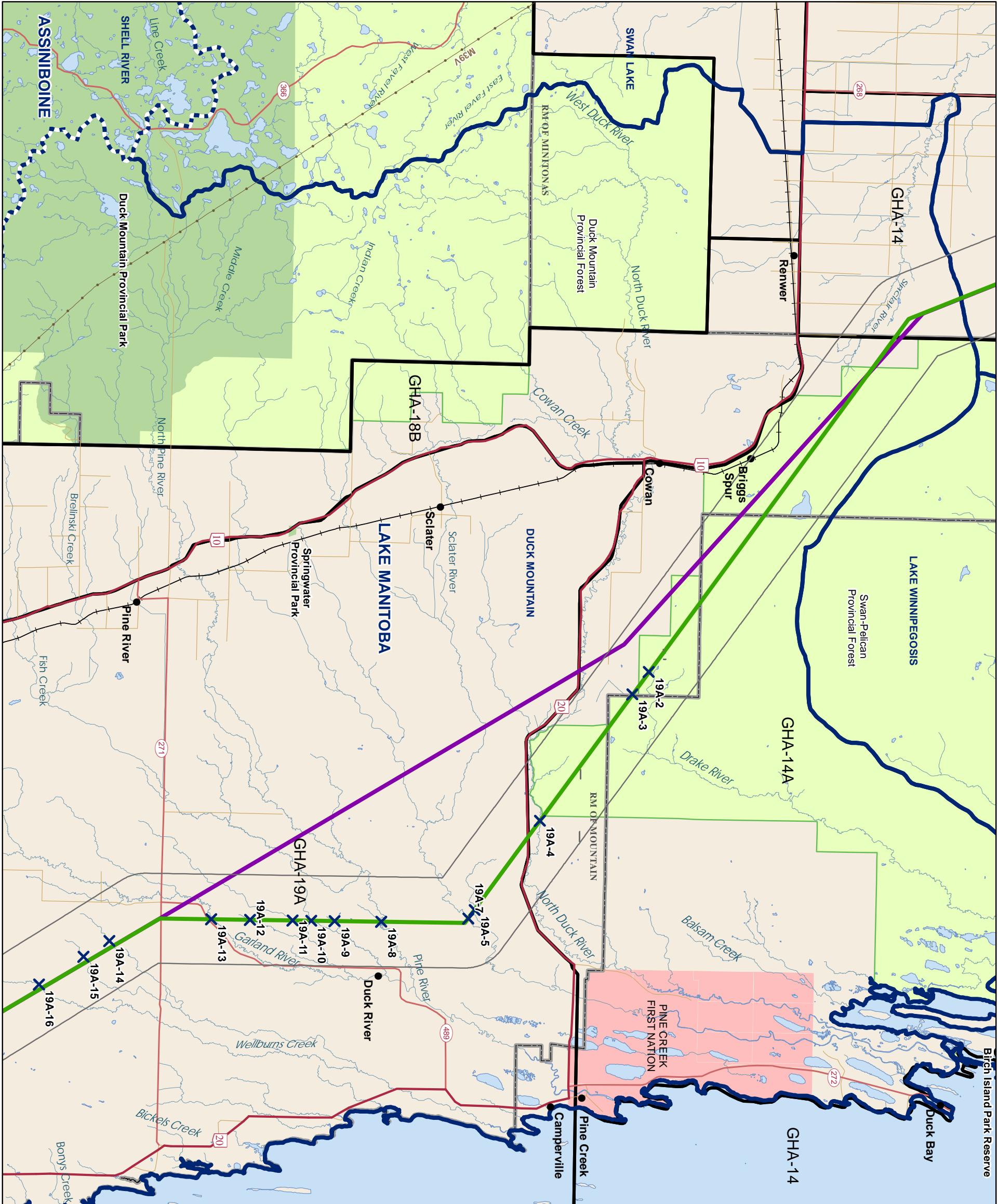
Provincial Forest  
Local Study Area

Coordinate System: UTM Zone 14N NAD83  
Data Source: MBHydro, Stantec, NSCS, ProvMB, NRCAN  
Date Created: January 23, 2013

0 4 8 Kilometres  
0 2 4 Miles

## Watercourse Crossing

GHA-19A and GHA-14A  
Adjusted Final Preferred Route





## Bipole III Transmission Project

### Project Infrastructure

- Adjusted Final Preferred Route
- Final Preferred Route

### Survey Area

- Transmission Line
- Moose Meadows Survey Block
- Moose Meadows

### Landbase

- Community
- Provincial Highway
- Provincial Road
- Road (Other)
- Active Rail
- Abandoned Rail
- Game Hunting Areas (GHA)
- Rural Municipality
- First Nation
- National/Provincial Park
- Provincial Forest
- Wildlife Management Area
- Project Study Area

Coordinate System: UTM Zone 14N NAD83  
Data Source: MBHydro, ProvMB, NRCan  
Date Created: Jan 23, 2013

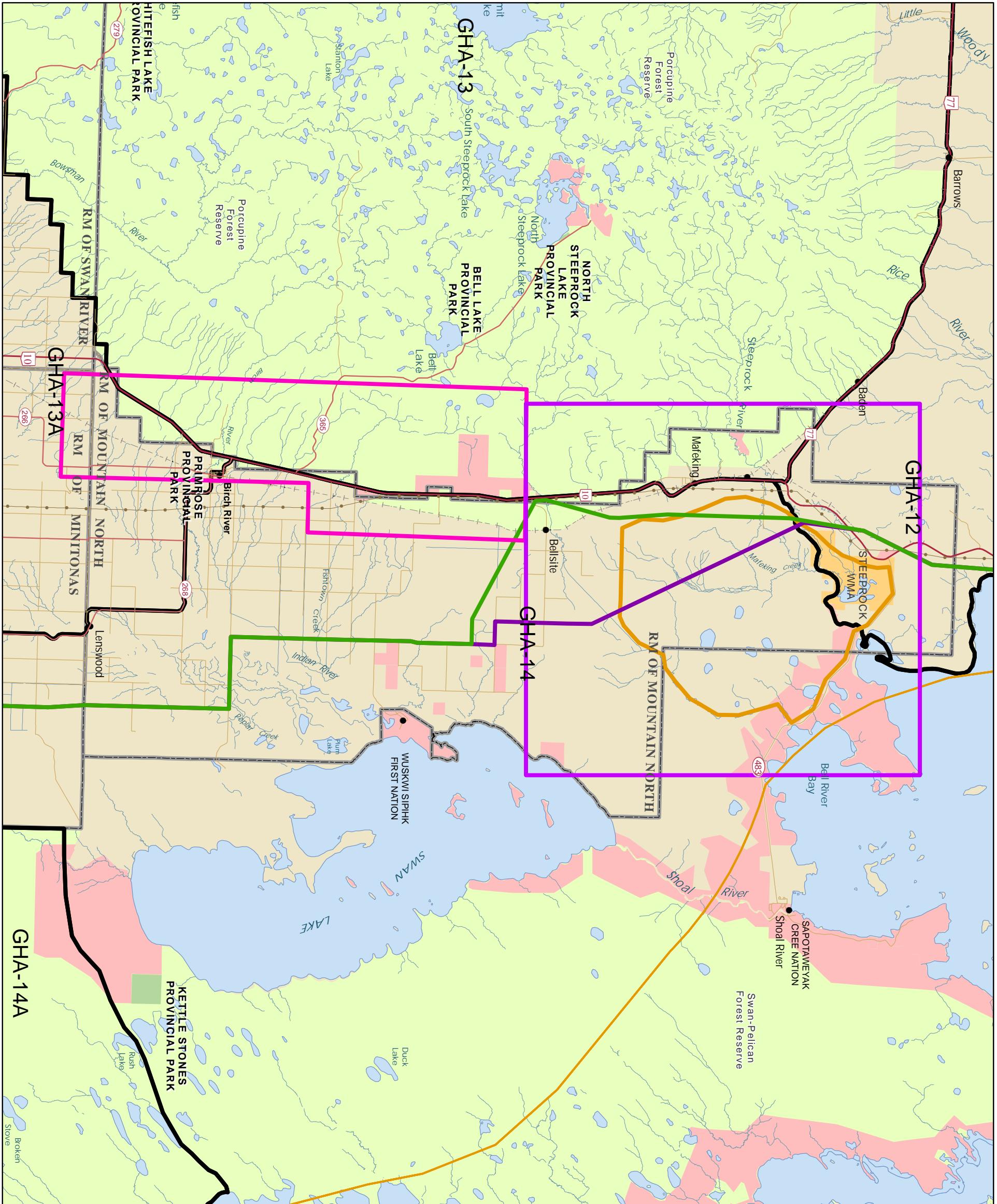
0  
2.5  
5 Kilometres

0  
1  
2 Miles

## Moose Survey Blocks

GHA 14 (Moose Meadows Area)  
Adjusted Final Preferred Route

Map 8





## Bipole III Transmission Project

### Project Infrastructure

- Adjusted Final Preferred Route (Green line)
- Final Preferred Route (Purple line)

### Infrastructure

- Transmission Line (Green line)
- 70% Kernel (Orange line)
- Moose Meadows (Purple line)

### Landbase

- Community (Black dot)
- Provincial Highway (Red line)
- Provincial Road (Red line)
- Road (Other) (Yellow line)
- Active Rail (Dashed black line)
- Abandoned Rail (Dashed black line)
- Game Hunting Areas (GHA) (Black outline)
- Rural Municipality (White outline)
- First Nation (Red shaded area)
- National/Provincial Park (Green shaded area)
- Provincial Forest (Light green shaded area)
- Wildlife Management Area (Orange shaded area)
- Project Study Area (Yellow outline)

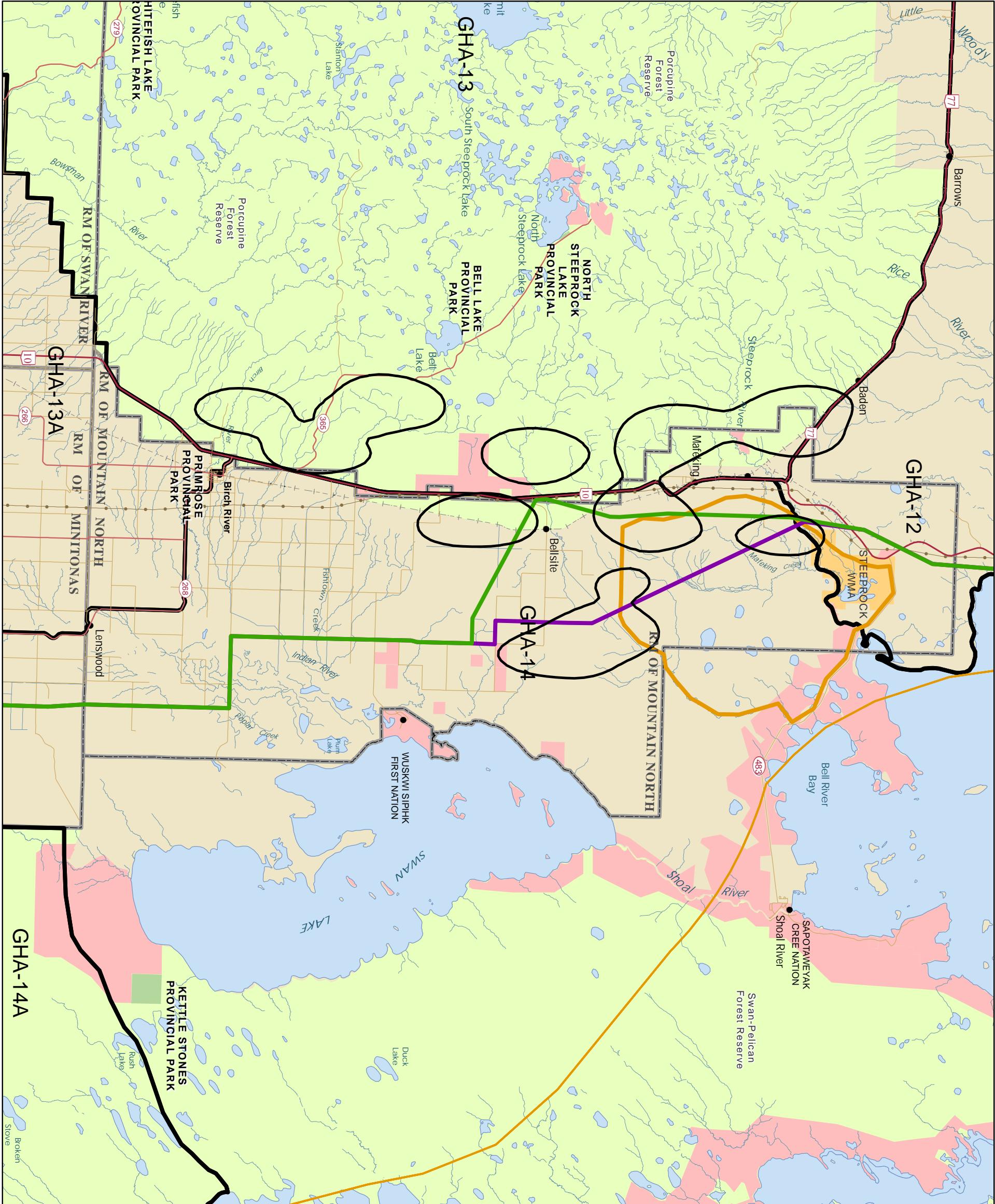
Coordinate System: UTM Zone 14N NAD83  
 Data Source: MBHydro, ProvMB, NRCan  
 Date Created: Jan 23, 2013

0 2.5 5 Kilometres  
 0 1 2 Miles

1:250,000

### 70% Adaptive Kernel of Moose Observations

GHA 14 (Moose Meadows Area)  
 Adjusted Final Preferred Route



**Manitoba  
Hydro**

## Bipole III Transmission Project

## Project Infrastructure

— Final Preferred Route

Infrastructure

- ## Survey Data Points

Landbase

- Community

— Provincial Road  
— Road (Other)

- ## — Active Rail

## Game Hunting Areas (GHA)

- First Nation

National/Provincial

- ## Wildlife Management Area Provincial Forest

卷之三

Coordinate System: UTM Zone 14N NAD83  
Data Source: MBHydro, ProvMB, NRCan

Date Created: Jan 23, 2013

0 2.5 Kilometres

0  
1  
2 Miles

0 1 2 Miles

Ell-Ghar

Elk Observations

GHA 14 (Moose)

GHA 14 (MOOSE)  
Adjusted Final P

Adjusted | 11

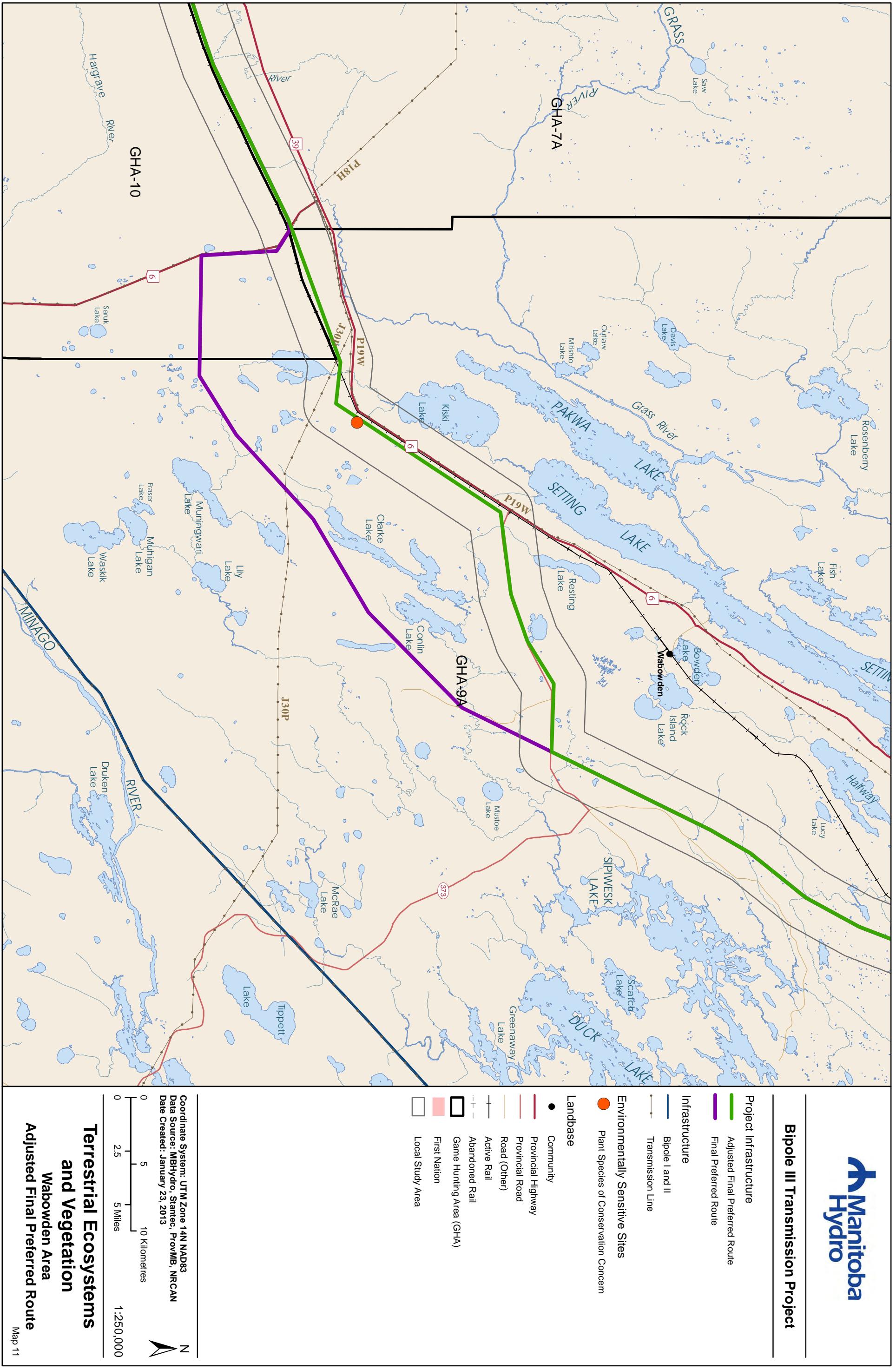
10 of 10

ROUTE ADJUSTMENT SUPPLEMENTAL REPORT - BIPOLE III P

CHAPTER 4: APPENDIX 4B – MAPS

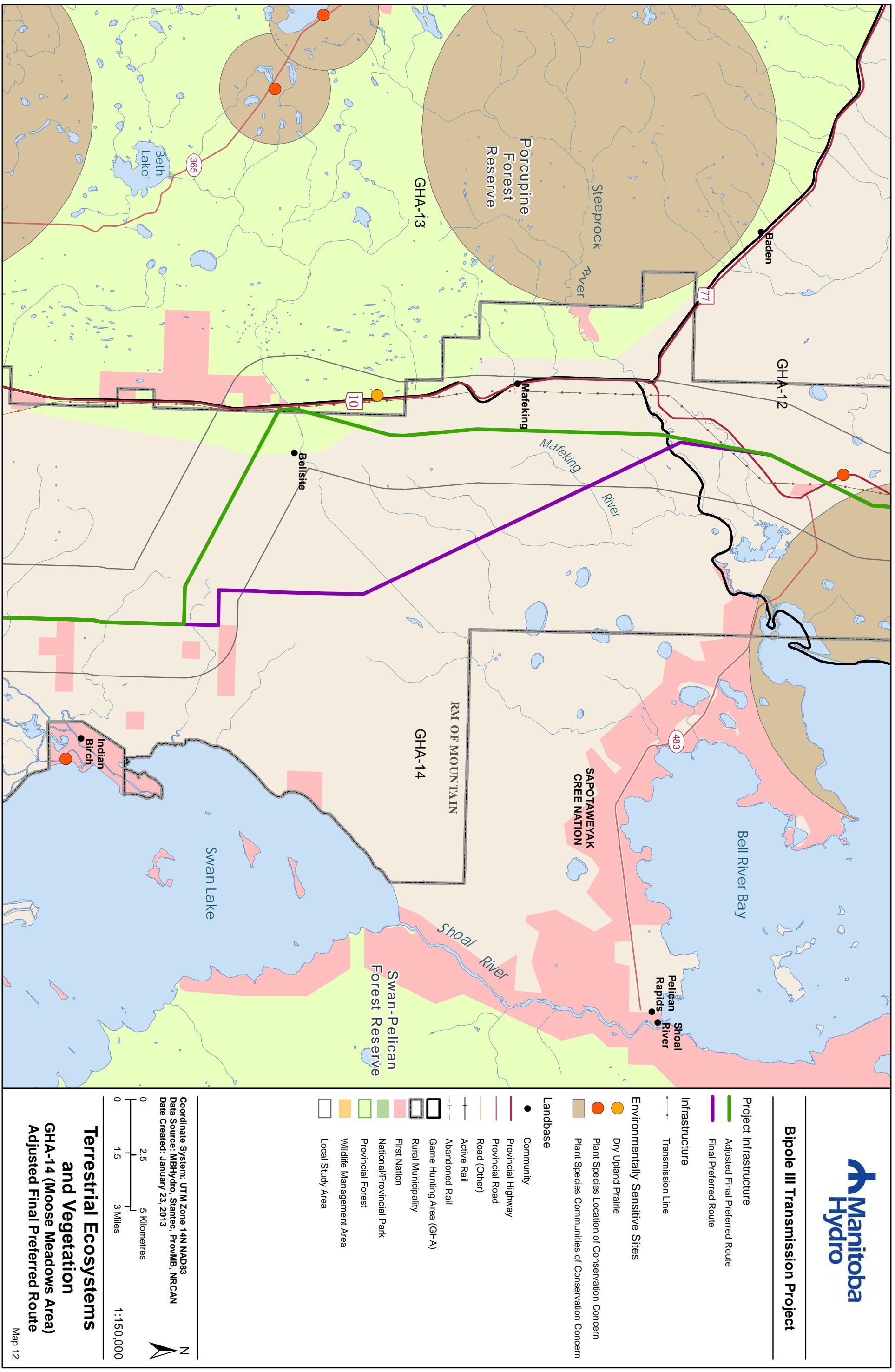
# Manitoba Hydro

## Bipole III Transmission Project



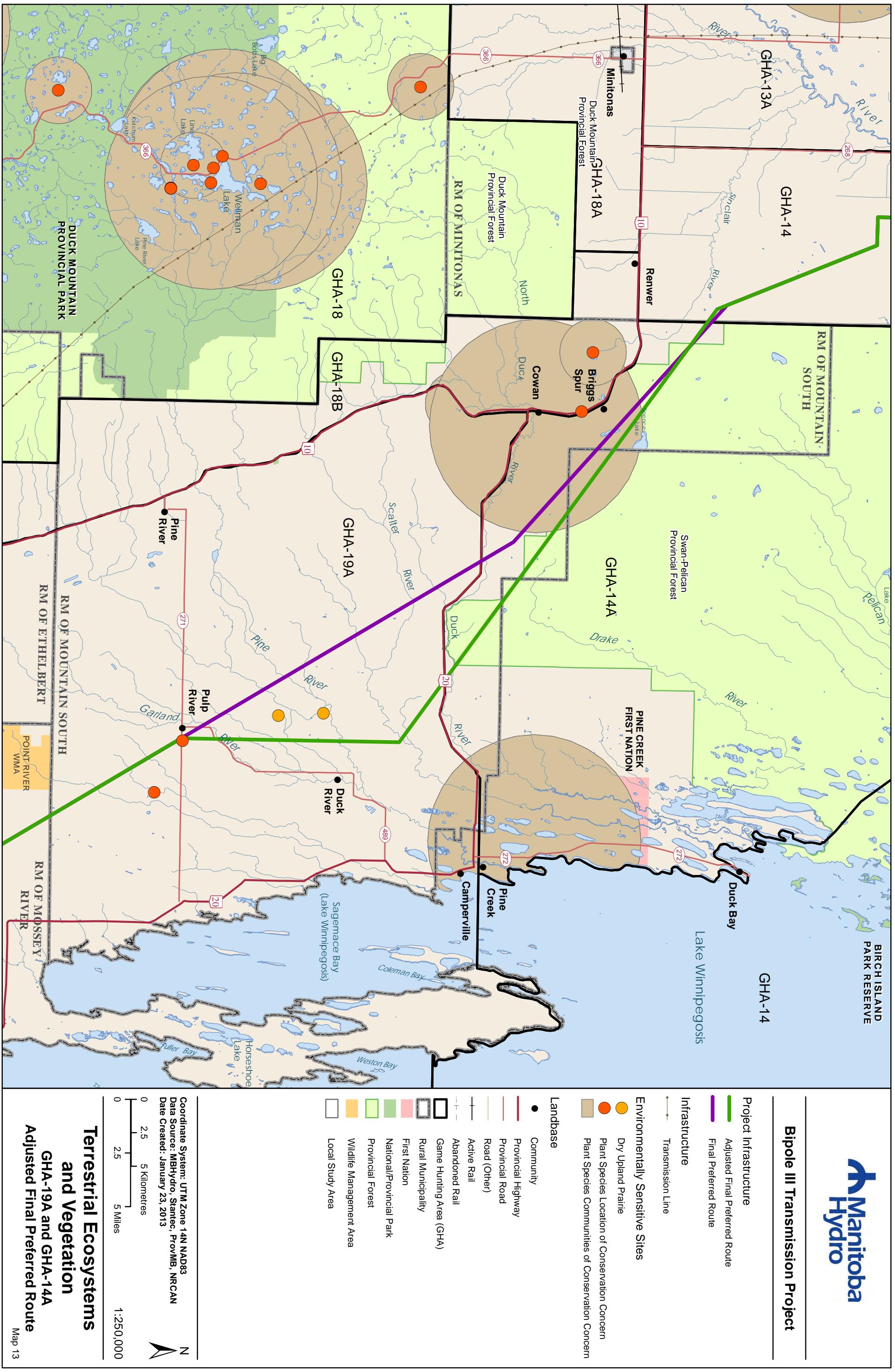
# Manitoba Hydro

## Bipole III Transmission Project



# Manitoba Hydro

## Bipole III Transmission Project





## Bipole III Transmission Project

### Project Infrastructure

- Final Preferred Route

### Infrastructure

- Bipole I and II
- Transmission Line

### Wetland Cover Class

- Wetland Tree
- Wetland Shrub
- Wetland Herb

### Landbase

- Provincial Highway
- Provincial Road
- Community

- Road (Other)

- Active Rail
- Abandoned Rail

- Game Hunting Areas (GHA)

- Rural Municipality

- First Nation

- National/Provincial Park

- Provincial Forest

- Wildlife Management Area

Coordinate System: UTM Zone 14N NAD83  
 Data Source: MSHydro, Provin. NRCAN  
 Date Created: Jan 23, 2013

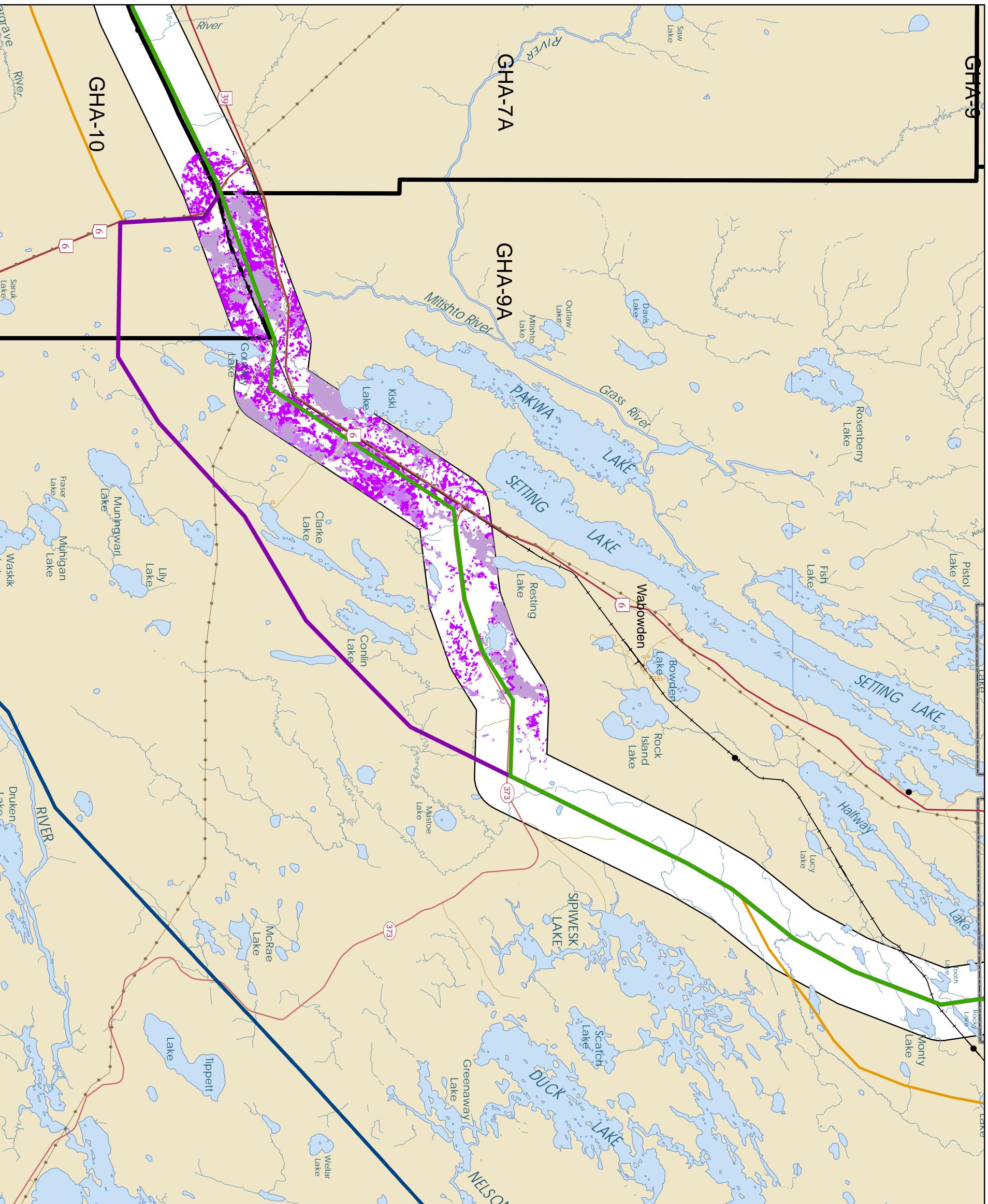
0 2.5 5 Kilometres

0 1 2 Miles

1:250,000

### Wood and Northern Leopard Frog Modelled Habitat

Wabowden Area  
 Adjusted Final Preferred Route





## Bipole III Transmission Project

**Project Infrastructure**

— Adjusted Final Preferred Route  
— Final Preferred Route

**Infrastructure**

— Transmission Line

### Wetland Cover Class

- Wetland Treed
- Wetland Shrub
- Wetland Herb

### Landbase

- Community
- Provincial Highway
- Provincial Road
- Road (Other)
- Active Rail
- Abandoned Rail

Rural Municipality

National/Provincial Park

Provincial Forest

Wildlife Management Area

- Game Hunting Areas (GHA)
- First Nation
- Provincial Park
- Wildlife Management Area
- Project Study Area

Coordinate System: UTM Zone 14N NAD83  
Data Source: MBHydro, ProvWMB, NRCan  
Date Created: Jan 23, 2013



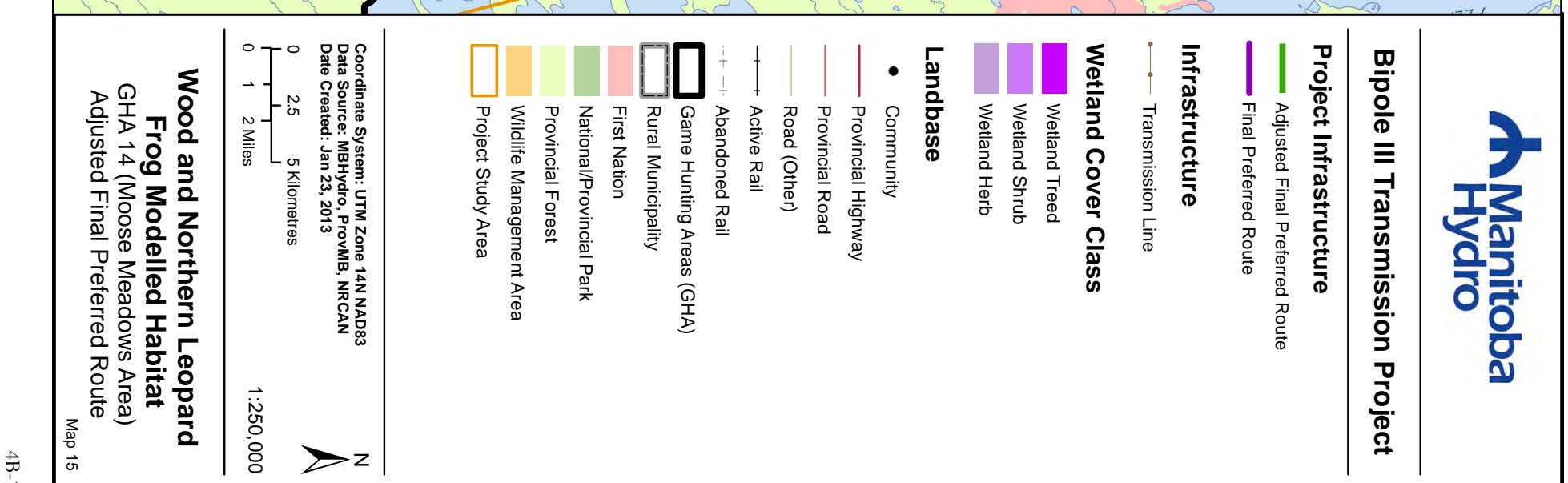
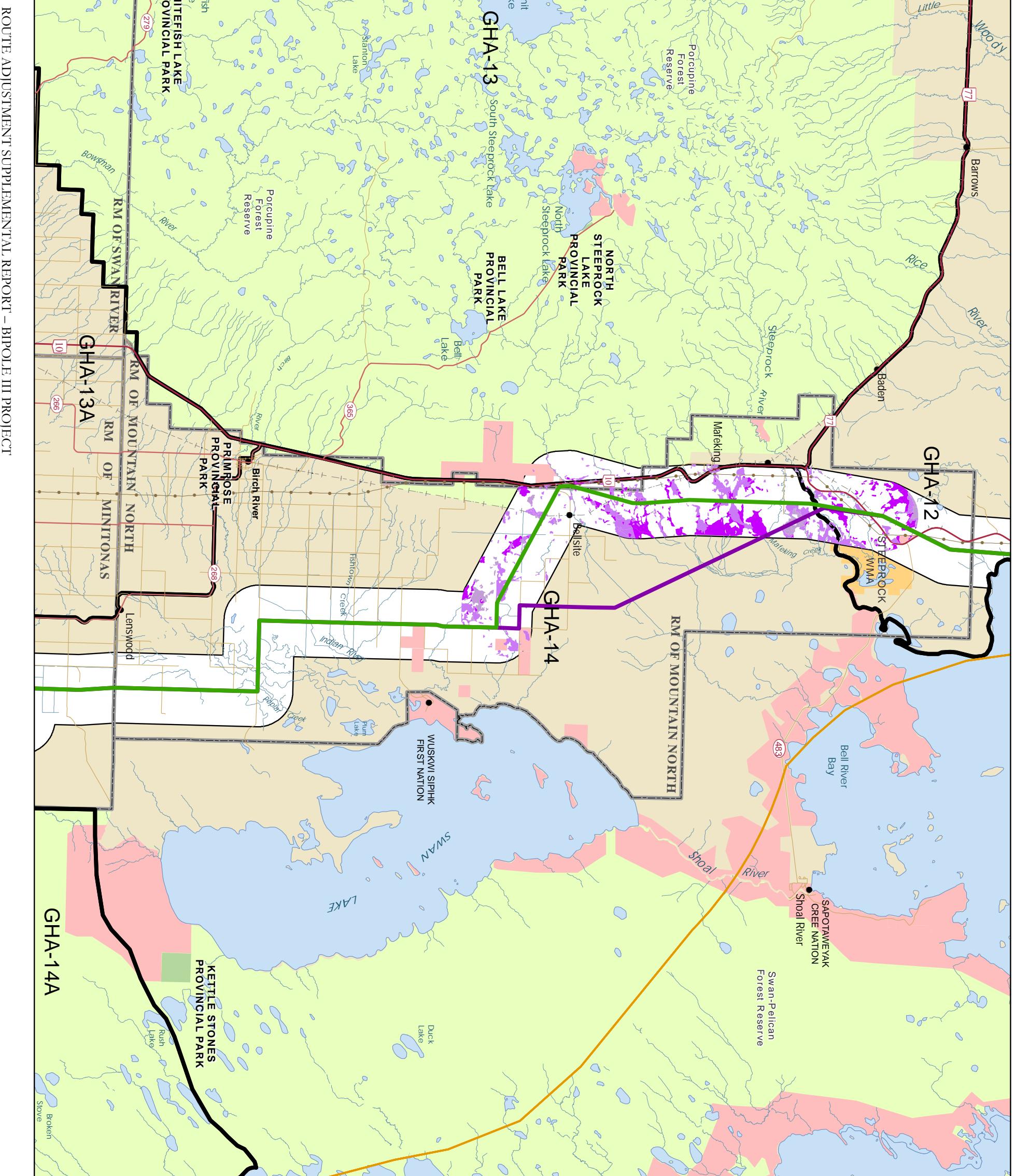
0 2.5 5 Kilometres

0 1 2 Miles

### Wood and Northern Leopard Frog Modelled Habitat

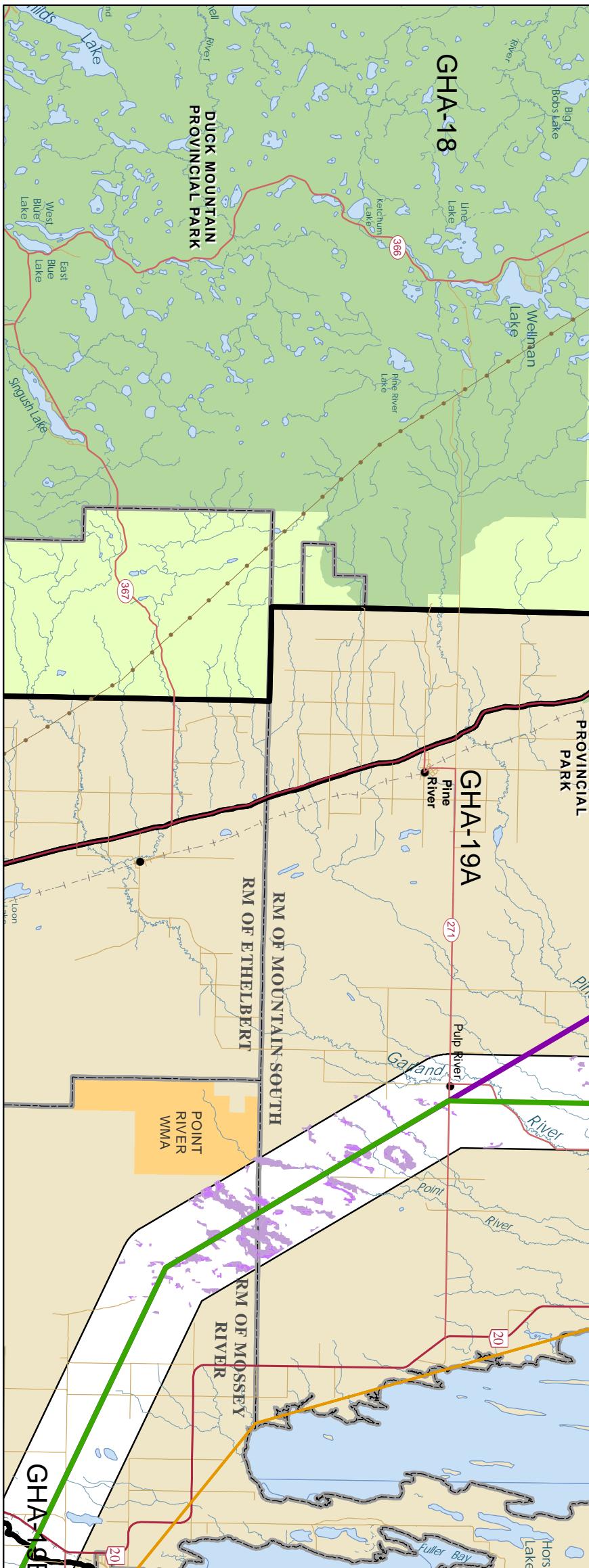
GHA 14 (Moose Meadows Area)  
Adjusted Final Preferred Route

Map 15





## Bipole III Transmission Project



Coordinate System: UTM Zone 14N NAD83	
Data Source: MBHydro, PROVMB, NRCAN	
Date Created: Jan 23 2013	
0	2 Miles
0	2 Kilometres
1	
2	
1:250,000	

### Wood and Northern Leopard Frog Modelled Habitat

GHA 19A and GHA 14A

Adjusted Final Preferred Route



## Bipole III Transmission Project

### Project Infrastructure

- Adjusted Final Preferred Route
- Final Preferred Route

### Infrastructure

- Transmission Line

### Landbase

- Community
- Provincial Highway
- Provincial Road
- Road (Other)
- Active Rail
- Abandoned Rail
- Game Hunting Areas (GHA)
- Protected Areas
- Treaty Land Entitlement
- First Nation
- National/Provincial Park
- Provincial Forest
- Wildlife Management Area
- Project Study Area

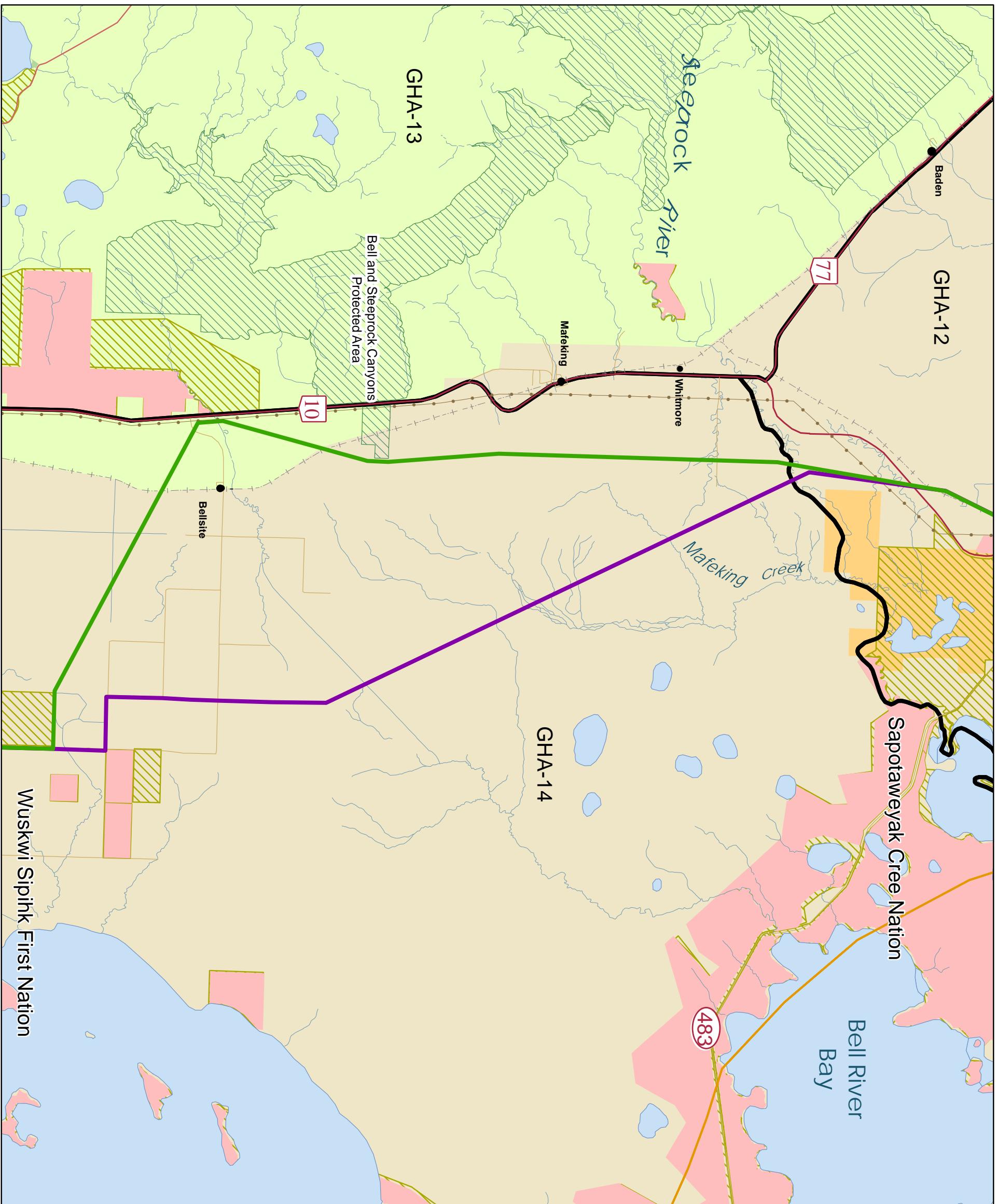
Coordinate System: UTM Zone 14N NAD83  
Data Source: MBHydro, ProvMB, NRCAN  
Date Created: Jan 23, 2013



0 2.5 5 Kilometres  
0 1 2 Miles  
1:110,000

### Aboriginal Lands and Designated Protected Areas Initiative

GHA 14 (Moose Meadows)  
Adjusted Final Preferred Route





## Bipole III Transmission Project

Porcupine  
Forest Reserve

Mafeking

Campbell

Bell and  
Steeprock Canyons  
Protected Area

10

GHA-14

### Landbase

- Community

Provincial Highway

Provincial Road

Road (Other)

Active Rail

Abandoned Rail

Game Hunting Area (GHA)

Treaty Land Entitlement

First Nation

Provincial Forest

Wildlife Management Area

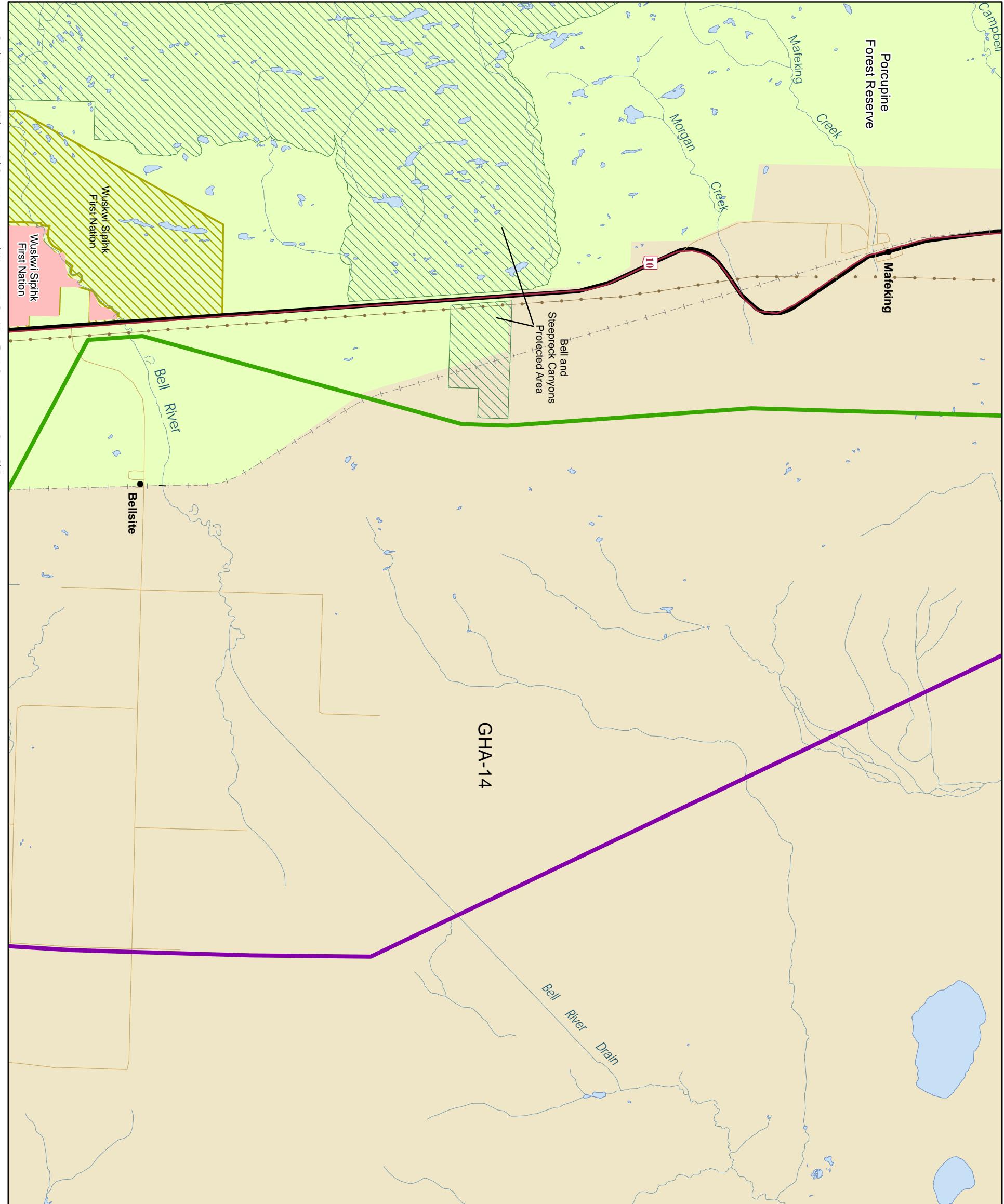
- Project Infrastructure**
- Adjusted Final Preferred Route
  - Final Preferred Route

### Infrastructure

- Transmission Line

### Protected Area

- Bell and Steeprock Canyons



Coordinate System: UTM Zone 14N NAD83  
Data Source: MBHydro, ProvMB, NRCAN  
Date Created: December 10, 2012



N

0 1 2 Kilometres

0 0.5 1 Miles

1:50,000

## Bell and Steeprock Canyons

GHA 14 (Moose Meadows)  
Adjusted Final Preferred Route

Map 18



## Bipole III Transmission Project

### Project Infrastructure

- Adjusted Final Preferred Route (Green line)
- Final Preferred Route (Purple line)

### Infrastructure

- Transmission Line (Dashed line)

### Landbase

- Community
- Provincial Highway
- Road (Other)
- Active Rail
- Abandoned Rail

- Game Hunting Area (GHA)

- Rural Municipality

- National/Provincial Park

- First Nation

- Provincial Forest

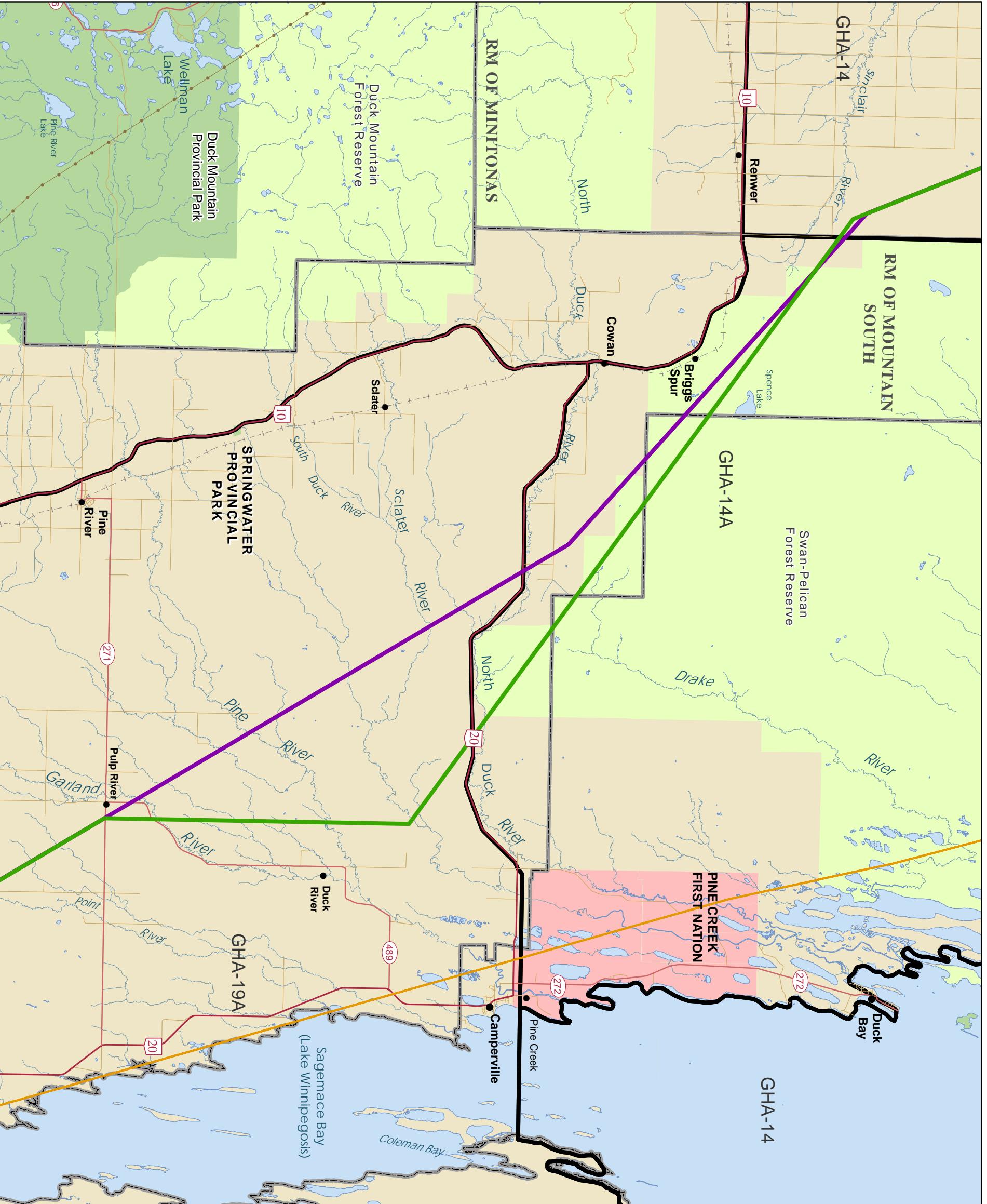
Coordinate System: UTM Zone 14N NAD83  
 Data Source: MBHydro, ProvMB, NRCAN  
 Date Created: Jan 23, 2013

0 2.5 5 Kilometres

1:200,000

## GHA 19A and GHA 14A Swan Pelican Forest Reserve

GHA 19A and GHA 14A  
Adjusted Final Preferred Route







## Bipole III Transmission Project

### Project Infrastructure

- Adjusted Final Preferred Route (Green line)
- Final Preferred Route (Purple line)

### Infrastructure

- Transmission Line (Dashed line)

### Culture

- ATK Camperville (Blue box)
- ATK Duck Bay (Yellow box)
- ATK Pine Creek (Purple box)

### Landbase

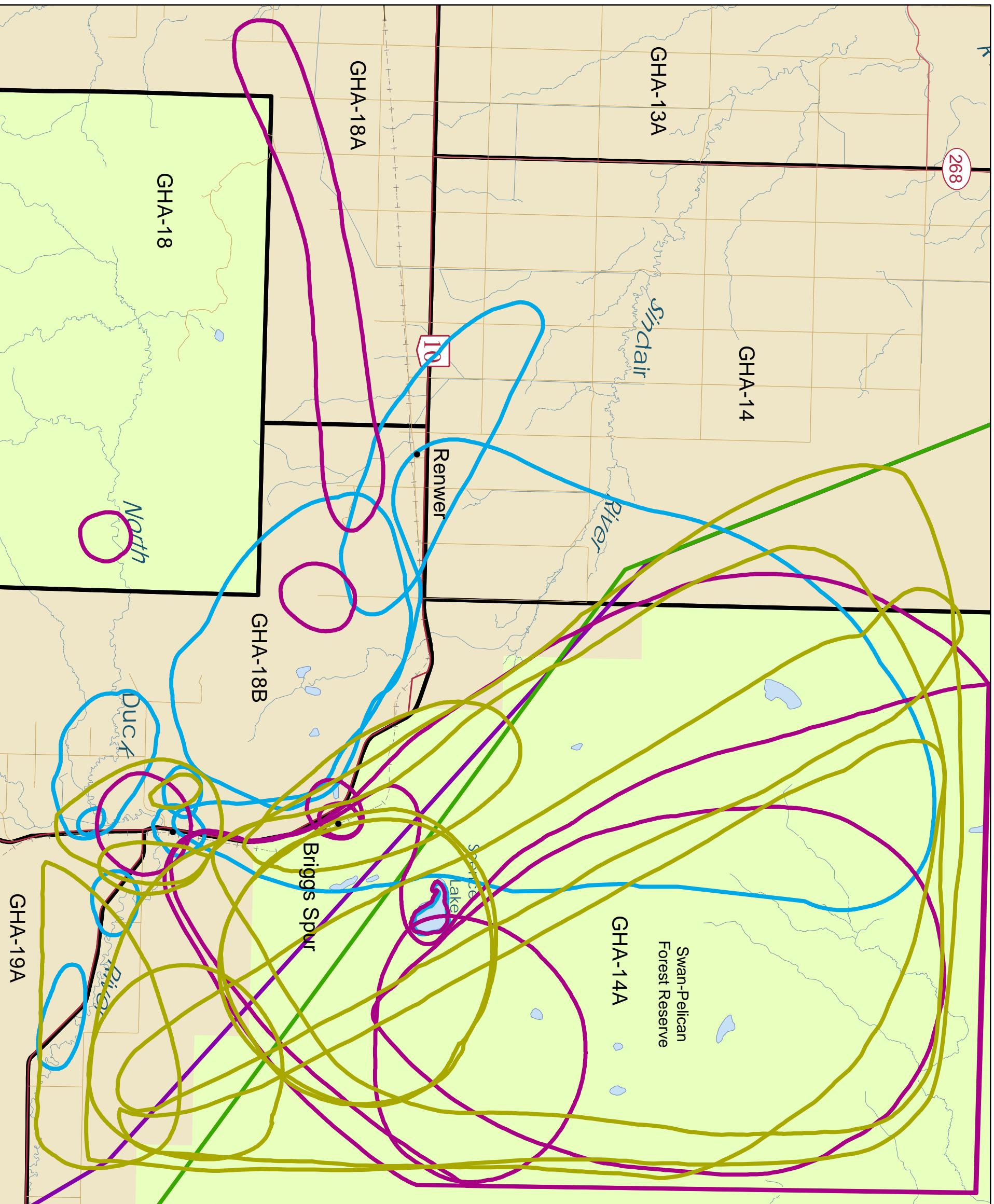
- Community (Black dot)
- Provincial Highway (Red line)
- Road (Other) (Orange line)
- Active Rail (Black dashed line)
- Abandoned Rail (Black dash-dot line)
- Game Hunting Areas (GHA) (Blue outline)
- First Nation (Green area)
- National/Provincial Park (Pink area)
- Provincial Forest (Light Green area)
- Wildlife Management Area (Yellow area)
- Project Study Area (White outline)

Coordinate System: UTM Zone 14N NAD83  
Data Source: MBHydro, ProvMB, NRCAN  
Date Created: Jan 23, 2013

0 2.5 5 Kilometres  
0 1 2 Miles  
1:110,000

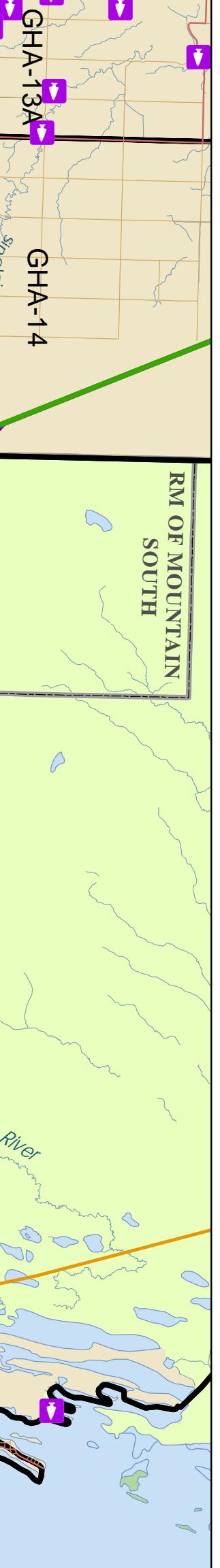
## Culture (Northern Portion)

GHA 19A and GHA 14A  
Adjusted Final Preferred Route





## Bipole III Transmission Project



**Project Infrastructure**

- Adjusted Final Preferred Route
- Final Preferred Route

### Infrastructure

- Bipole I and II
- Transmission Line

### Heritage

- Registered Archaeological Site

### Landbase

- Community
- Provincial Highway
- Provincial Road
- Road (Other)
- Active Rail
- +--- Abandoned Rail

### Game Hunting Areas (GHA)

- National/Provincial Park
- Provincial Forest
- Wildlife Management Area

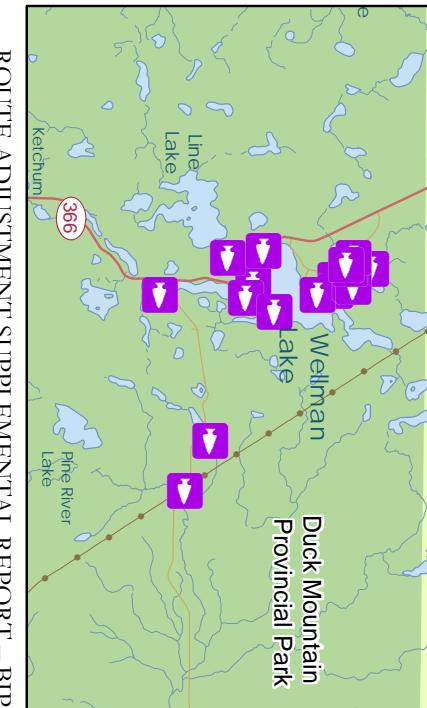
### Project Study Area

Coordinate System: UTM Zone 14N NAD83  
Data Source: MSHydro, PROVMB, NRCCAN  
Date Created: Jan 23, 2013

0 2.5 5 Kilometres  
0 1 2 Miles  
1:200,000

### Heritage Sites

GHA 14A and GHA 19A  
Adjusted Final Preferred Route



GHA-18

RM OF MINITONAS

MINITONAS  
GHA-18A

GHA-13A  
GHA-14

RM OF MOUNTAIN  
SOUTH

GHA-19A

GHA-18B

GHA-14A

GHA-14

Swan-Pelican  
Forest Reserve



North

Cowan

Duck River

Briggs Spur

Spence Lake

North

Duck River

Briggs Spur

North

Duck River

Briggs Spur

North

Cowan

Duck River

Briggs Spur

Spence Lake

North

Duck River

Briggs Spur

North

Duck River

Briggs Spur

North

Duck River

Briggs Spur

North

Cowan

Duck River

Briggs Spur

Spence Lake

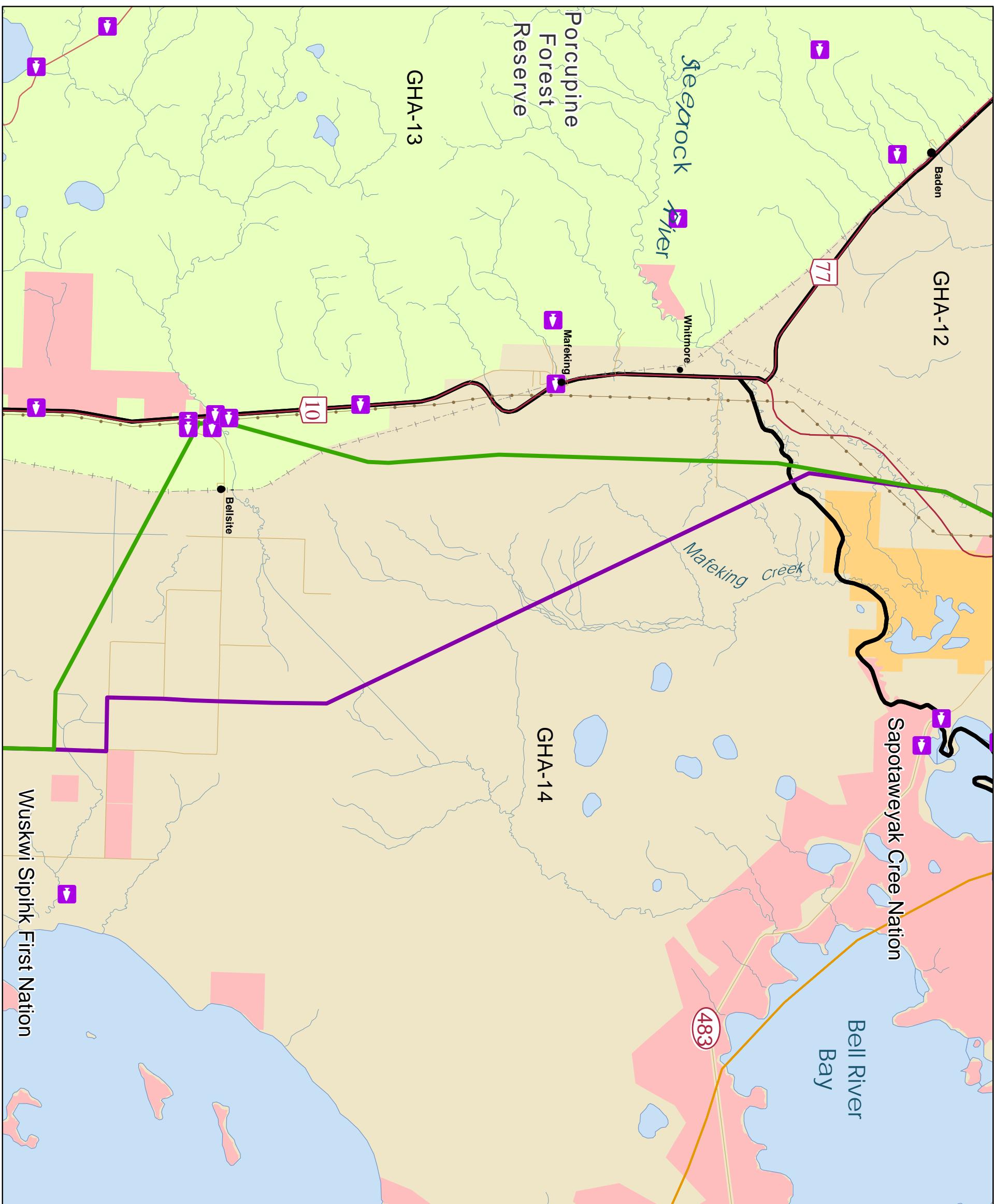
North

Duck River

Briggs Spur



## Bipole III Transmission Project



Coordinate System: UTM Zone 14N NAD83  
Data Source: MBHydro, ProvMB, NRCAN  
Date Created: Jan 23, 2013



0 2.5 5 Kilometres  
0 1 2 Miles  
1:110,000

## Heritage Sites

GHA 14 (Moose Meadows)  
Adjusted Final Preferred Route

# TABLE OF CONTENTS

<b>5.0</b>	<b>CUMULATIVE EFFECTS ASSESSMENT.....</b>	<b>5-1</b>
<b>5.1</b>	<b>INTRODUCTION .....</b>	<b>5-1</b>
<b>5.2</b>	<b>BIOPHYSICAL CUMULATIVE EFFECTS.....</b>	<b>5-2</b>
<b>5.2.1</b>	<b>VECs Requiring Further Assessment .....</b>	<b>5-2</b>
<b>5.2.2</b>	<b>Boreal Woodland Caribou VEC .....</b>	<b>5-3</b>
<b>5.2.3</b>	<b>Moose VEC .....</b>	<b>5-4</b>
<b>5.3</b>	<b>SOCIO-ECONOMIC CUMULATIVE EFFECTS .....</b>	<b>5-6</b>
<b>5.3.1</b>	<b>VECs Requiring Further Assessment .....</b>	<b>5-6</b>
<b>5.3.2</b>	<b>Culture VEC .....</b>	<b>5-7</b>
<b>5.4</b>	<b>REFERENCES .....</b>	<b>5-10</b>

# APPENDICES

APPENDIX 5A Cumulative Effects Assessment

# **5.0 CUMULATIVE EFFECTS ASSESSMENT**

## **5.1 INTRODUCTION**

This chapter provides supplemental cumulative effects assessment of the Project with the three AFPR route changes described in Chapter 2. It relies on the supplemental environmental assessment of effects on each VEC as set out in Chapter 4 of this Route Adjustment Supplemental Report where there are changes in effects of the HVdc transmission line component of the Project due to the AFPR changes. It also relies on assessment of cumulative effects of the Project on VECs as set out in Chapter 9 of the December 2011 EIS, and retains unless otherwise noted the assessment set out in the EIS and subsequent filings reviewed to date in the CEC hearing process<sup>1</sup>.

The Chapter 4 supplemental assessment considered cumulative effects of the Project, with the AFPR route changes, in combination with other past and current projects. The current chapter's cumulative effects assessment includes the effects of other future projects<sup>2</sup>, focusing on VECs where adding the effects of other future projects (in combination with the effects of past and current projects) results in potentially non-negligible (i.e., detectable) adverse residual cumulative effects of the Project beyond those already assessed in Chapter 4.

The original EIS concluded in Chapter 9 that residual adverse effects of the Project which extend only to the Project Site/Footprint and Local Study Area are not expected, after considering potential for overlap with the effects of other future projects, to result in potentially detectable adverse residual cumulative effects of the Project beyond those already assessed in Chapter 8. This conclusion reflected the areas expected to be impacted by the other future projects considered in the EIS.

Consistent with the original EIS, this chapter brings forward for further review those VECs already identified in Chapter 4 as having adverse residual effects from the Project

---

<sup>1</sup> Relevant supplemental filings reviewed to date in the CEC hearing process include: response to CEC/MH-VI-226 (revisions to tables 9.3-1 and 9.3-2) and CEC/MH-VI-347a (review of high level screening provided in Chapter 9 to identify any VECs having potentially non-negligible cumulative effects beyond those already assessed in Chapter 8); the Bipole III Supplemental Caribou Technical Report (Joro 2012); and Exhibit MH-59 (Presentation to CEC by Cam Osler re: Assessment Approach for the Project).

<sup>2</sup> Other future projects are identified in Tables 9.2-2 and 9.2-3 in the original EIS; for boreal woodland caribou, these also include additional future projects considered in the Bipole III Supplemental Caribou Technical Report (Joro 2012).

that extend beyond the Local Study Area, i.e., adverse residual effects that extend into the Project Study Area, and that can therefore potentially overlap with the effects of other future projects in combination with the effects of past and current projects already considered in Chapter 4.

This chapter includes the following sections:

- Biophysical Cumulative Effects; and
- Socio-economic Cumulative Effects.

## 5.2 BIOPHYSICAL CUMULATIVE EFFECTS

### 5.2.1 VECs Requiring Further Assessment

Except for boreal woodland caribou (where the Wabowden area AFPR change reduces scientific uncertainty and concern regarding potential residual adverse effects of the Project on this VEC), Chapter 4 concludes that the HVdc transmission line with the three AFPR route changes is not expected to change the assessment conclusions in the original EIS (Chapter 8) for any of the biophysical VECs.

The original EIS concluded (Chapters 8 and 9) that only one biophysical VEC (boreal woodland caribou) is expected to have residual adverse effects from the HVdc transmission line component of the Project that extend beyond the Local Study Area and require further assessment to consider the effects of other future projects<sup>3</sup>.

Accordingly, further cumulative effects analysis is provided below for this VEC. Due to the specific concerns raised by MCWS regarding moose in two of the AFPR areas, more detailed cumulative effects assessment is also provided below for moose. Given the results of the Chapter 4 assessment (which did not change the assessment conclusions for any other biophysical VEC), there is no basis to consider further any of the other biophysical VECs in this supplemental cumulative effects assessment<sup>4</sup>.

---

<sup>3</sup> The climate VEC also has effects of the Project beyond the Local Study Area, but no detectable adverse residual cumulative effects are expected for climate beyond those examined in Chapter 8 of the original EIS.

<sup>4</sup> For the remaining biophysical VECs affected by the HVdc component of the Project, five have detectable residual adverse effects within only the Project Site/Footprint, and 35 have detectable residual adverse effects that extend from Project Site/Footprint to Local Study Area but not beyond the Local Study Area. See response to CEC/MH-VI-347a (review of screening provided in Chapter 9 to identify any VECs having potentially non-negligible cumulative effects beyond those already

## 5.2.2 Boreal Woodland Caribou VEC

Boreal woodland caribou, which are listed as threatened under both the provincial *Endangered Species Act* and the federal *Species at Risk Act*, is affected by AFPR route changes only in the Wabowden caribou evaluation range area.

Overall, as reviewed in Chapter 4, the AFPR change in the Wabowden area has a reduced impact for boreal woodland caribou, reflecting the reduced disturbance and reduced new fragmentation in core winter habitat areas and potential calving areas with the AFPR as compared with the FPR. While a small amount of core summer habitat will now be intersected by the AFPR (none was intersected by the FPR), this habitat type is generally not considered to be a limiting factor for the Wabowden caribou range – consequently, the potential effect of this change with the AFPR as compared with the FPR is expected to be minimal.

The original EIS indicates that, subject to the successful implementation of proposed mitigation measures, the residual adverse effect of the HVdc transmission line (FPR) on boreal woodland caribou would not be significant. This assessment was subject to scientific uncertainty and concern, particularly with regard to boreal woodland caribou in the Wabowden range. The AFPR change in this area materially reduces this uncertainty regarding the potential residual adverse effects of the Project on the Wabowden boreal woodland caribou evaluation range and increase the confidence in the prediction of residual effects and the overall assessment of significance for this VEC.

The Bipole III Supplemental Caribou Technical Report estimated the woodland caribou range in the Wabowden area at 5,589 km<sup>2</sup> (excludes water) with a herd population size of 200-225 and current natural and anthropogenic habitat disturbance with the FPR and water and overlap removed at 1,431.57 km<sup>2</sup> (25.61%). Taking into account other future disturbance over the period to 2016 within this evaluation range, the level of disturbance with the FPR was predicted to increase to 1,475.16 km<sup>2</sup> (26.39%). Cumulative effects on caribou habitat within the Wabowden evaluation range with the AFPR is as follows (Appendix 5A, Section 5A1):

- Cumulative analysis with the AFPR as compared with the FPR reduces the net area disturbed by the HVdc line (from 61.23 km<sup>2</sup> or 1.1% of the total range, to 26.65 km<sup>2</sup> or 0.5% of the total range).

---

assessed in Chapter 8), and Exhibit MH-56 (Presentation to CEC by Cam Osler re: Assessment Approach for the Project).

- Current total disturbance (natural and anthropogenic) in this range with the AFPR is estimated at 1396.99 km<sup>2</sup> (24.99% of total range), which is a reduction from current total disturbance with the FPR (estimated at 1,431.57 km<sup>2</sup> or 25.61% of total range).
- Taking into account other future disturbance over the period to 2016 within this evaluation range, the level of disturbance with the AFPR is predicted at 1,441.28 km<sup>2</sup> (25.79%), which is lower than predicted earlier with the FPR (1,475.16 km<sup>2</sup> or 26.39% of total range).

In summary, with the AFPR as well as the FPR, both the current and future disturbance values in the Wabowden woodland caribou evaluation range remain within the 35% threshold as described in the Bipole III Supplemental Caribou Technical Report (Joro 2012).<sup>5</sup> This species remains threatened. Although uncertainty is materially reduced by the AFPR change as compared with the FPR in the Wabowden area, monitoring will continue with the potential for adaptive management if required.

### **5.2.3 Moose VEC**

The GHA 14 (Moose Meadows) and GHA 19A and 14A route revisions were recommended to address concerns related to moose decline in these areas. As reviewed in Chapter 4, a total 164.95 km<sup>2</sup> of high quality moose habitat is located within the Local Study Area for the three segments of the AFPR changes, with 2.53 km<sup>2</sup> of this habitat within the ROW. In the GHA (Moose Meadows) and GHA 19A and 14A segments, the amount of high quality moose habitat in the ROW for the AFPR is higher than for the FPR (in the Wabowden segment, the amount of high quality moose habitat in the ROW for the AFPR is lower than for the FPR).

There are a number of other projects that could contribute to potential cumulative effects on moose in the Project Study Area. Within the AFPR sections where moose are a concern, Louisiana-Pacific (LP) conducts operations in the Forest Management Licence (FML) # 3. Based on a review of LP future forest harvest areas up to 2022, there are several small harvest areas identified in GHA 14 on the east side of Swan Lake, all of which are well outside the "Moose Meadows" defined area. Within GHA 19A there is very limited forestry activity planned and it is contained in the southern portions of this GHA. More substantive forest harvest is planned along the eastern edge of GHA 13 near existing forest operating areas. Forestry activity in those areas could result in

---

<sup>5</sup> The 35% threshold is described as self sustaining by the *Natural Recovery Strategy for Woodland Caribou (Rangifer tarandus caribou) Boreal Population* (Environment Canada, 2012).

increased public access, sensory disturbance and possible increased harvest of moose if hunting closures are relaxed and managed hunting is not implemented.

Mining activities are limited in the area. A review of exploration and drilling information suggests that disturbance as a result of this activity is limited throughout the GHA's in proximity to the AFPR in the GHA 14 (Moose Meadows) and GHA 14A and 19A. Potential impacts of the mining activities within the area could include clearing/disturbance of forested areas, noise disturbance (ventilation fans, generators and human activity), surface vibrations/noise related to underground blasting, waste disposal, and increased public access to previously remote areas.

Chapter 4 concludes that the determination of no significant residual adverse effects of the Project on moose populations as indicated in the December 2011 EIS remains consistent with the assessment assuming the AFPR changes. Assuming the mitigation measures described in Chapter 6 and based on the limited extent of new access created relative to access already available in these areas, effects on moose due to sensory disturbance, loss of habitat due to construction of the Project and increased predation and hunting due to increased access are not expected to change to any measureable degree due to the AFPR or the FPR. As such, the predicted effects on moose are expected to remain the same as described in the EIS.

Chapter 4 notes, however, that in the GHA 14 (Moose Meadows) segment the Local Study Area for the AFPR compared to the FPR contains considerably more (i.e., over 28 km<sup>2</sup> more) high quality moose habitat. Based on the results of the aerial survey conducted between December 4 and 6, 2012, the AFPR compared to the FPR in this area will intersect or come in proximity to additional areas of high moose density which are in proximity to existing access (see Appendix 4B, Map 9). This will result in more challenging mitigation on the potential effects associated with access along the AFPR corridor as compared to the FPR corridor in this area.

The Chapter 4 analysis supplements information presented to date at the CEC hearing on moose in the areas affected by the AFPR route changes<sup>6</sup> which outlined the broader factors affecting moose populations in the area and an initial review of the AFPR route change effects in the context of these broader considerations. In the context of the overall range and factors affecting these moose populations, the earlier evidence highlighted the ability of moose populations (relative to woodland caribou populations) to recover from population decline with successful hunting management.

---

<sup>6</sup> See Manitoba Hydro presentations to CEC by D. Schindler and J. Rettie on "Moose" (Exhibit MH-074) and "Moose and Caribou - A comparison" (Exhibit MH-072).

In order to provide more background information on the overall moose populations in the southwestern Manitoba region affected by the AFPR changes, supplemental information on moose populations associated with the broader area of concern in this region, including GHA 12, 14, 14A, 18, 18A, 18B, 18C, 19, 19A, 23 and 23A as well baseline moose population information from Riding Mountain National Park (RMNP) located between GHAs 23 and 23A and southern Saskatchewan. As reviewed in Appendix 5A, Section 5A2, moose populations in this area of Manitoba outside of RMNP have fluctuated considerably over time and space due to a variety of factors, with a trend to declining populations in recent years. In contrast, moose populations in RMNP have been relatively stable between 1976 and 2010 and moose populations in southern Saskatchewan have experienced growth in the period from 1982 to 2010.

Overall, the additional background information in Appendix 5A further supports earlier evidence highlighting the extent to which moose populations fluctuate, and the ability of moose populations to recover from population decline with successful hunting management. Moose populations are managed at the GHA level in Manitoba. The ROW area of the HVdc component represents a small portion of the overall GHA's being traversed. Effects of increased hunting along the new ROW as a result of the Project are not expected to contribute to overall GHA moose population declines as a result of hunting or increased predation associated with ROW access. Results of hunting closures and ongoing cooperative management between hunters and government will be critical in the conservation of sustainable moose populations in the region.

In summary, with either the AFPR or the FPR for the HVdc transmission line component of the Project and mitigation as described in Chapter 6, the cumulative effects of the Project in combination with other past, current and future projects are not expected to result in any significant residual adverse effects on moose.

## **5.3 SOCIO-ECONOMIC CUMULATIVE EFFECTS**

### **5.3.1 VECs Requiring Further Assessment**

Except for culture (where the GHA 19A and 14A area AFPR change increases the assessed magnitude and concerns regarding the residual adverse effects of the Project on this VEC) and mining/aggregates (where Manitoba Hydro will discuss potential additional mitigation measures with the mining industry to address concerns about

potential effects of the Wabowden area AFPR change<sup>7</sup>), Chapter 4 concludes that the HVdc transmission line with the three AFPR route changes is not expected to change the assessment conclusions in the original EIS (Chapter 8) for any of the socio-economic VECs.

The original EIS concluded (Chapters 8 and 9)<sup>8</sup> that no further cumulative effects assessment was required beyond the assessment in Chapter 8 for any socio-economic VECs to consider the effects of other future projects in combination with the effects of the HVdc transmission component<sup>9</sup>.

Based on the Chapter 4 conclusion that the GHA 19A and 14A area AFPR change increases the assessed magnitude and concerns regarding the residual adverse effects of the Project on culture, further cumulative effects analysis is provided below for this VEC. Given the results of the Chapter 4 assessment (which did not change the assessment conclusions after mitigation for any other socio-economic VEC), there is no basis to consider further any of the other socio-economic VECs in this supplemental cumulative effects assessment<sup>10</sup>.

### 5.3.2 Culture VEC

The AFPR change in the GHAs 19A and 14A areas will move the HVdc line construction and ongoing operation into a culturally sensitive area that is avoided by the

---

<sup>7</sup> As noted in Chapter 4, Section 4.3.3.2, Manitoba Hydro is committed to working with the mining industry to ensure that the Bipole III line has minimal effect on future mineral exploration as a result of the operation of the Project in the Thompson Nickel Belt area.

<sup>8</sup> See also response to CEC/MH-VI-347a (review of screening provided in Chapter 9 to identify any VECs having potentially non-negligible cumulative effects beyond those already assessed in Chapter 8), and Exhibit MH-56 (Presentation to CEC by Cam Osler re: Assessment Approach for the Project).

<sup>9</sup> Only three socio-economic VECs (community services, travel and transportation, and culture) are expected to have residual adverse effects from the HVdc transmission line component of the Project that extend beyond the Local Study Area (the climate VEC also has effects of the Project beyond the Local Study Area, but no detectable adverse residual cumulative effects are expected for climate beyond those examined in Chapter 8 of the original EIS). However, Chapter 9 of the original EIS concluded for each of these three VECs that no non-negligible (i.e., detectable) adverse residual cumulative effects of the HVdc component are expected beyond those examined in Chapter 8 of the original EIS.

<sup>10</sup> For the remaining socio-economic VECs affected by the HVdc component of the Project, five have detectable residual adverse effects within only the Project Site/Footprint, and 11 have detectable residual adverse effects that extend from Project Site/Footprint to Local Study Area but not beyond the Local Study Area. See response to CEC/MH-VI-347a (review of screening provided in Chapter 9 to identify any VECs having potentially non-negligible cumulative effects beyond those already assessed in Chapter 8), and Exhibit MH-56 (Presentation to CEC by Cam Osler re: Assessment Approach for the Project).

FPR. Analysis provided in Chapter 4 is reviewed below regarding the effects on culture from this route change.

The area north and south of PTH 20 adversely impacted by this AFPR route change has been collectively and traditionally used for at least 100 years by three communities (Camperville, Pine Creek First Nation and Duck Bay) and Metis for intensive and extensive resource use, including berry and medicinal plant gathering activities that have been noted as contributing significantly to the practices, traditions, health and wellness of members of all the participating communities and to the transmission of knowledge and culture. Twenty-five provincially registered heritage resource sites are also located through the affected area.

This AFPR routing change will fragment this culturally sensitive area, resulting in expected adverse residual effects on the cultural integrity of the identified local communities due to the changed character of the fragmented area, the potential for increased access by others, and community member concerns about having a high voltage transmission line situated over these important traditional berry and medicinal plant gathering areas. Although parts of the affected AFPR area in GHA 19A and 14A have been subject to agricultural uses, road development and borrow operation, it is understood that medicinal plant gathering continues to use much of the affected area for gathering specific plants not disturbed to date by other projects and activities.

Aside from avoiding this culturally sensitive area through routing the HVdc transmission line elsewhere (as was achieved with the FPR in the original EIS), Manitoba Hydro is not currently aware of mitigation measures likely to alleviate adequately these expected adverse residual effects on culture from the AFPR route change in the GHA 19A and 14A area. Manitoba Hydro will carry out the mitigation and EnvPPs as described in the EIS to minimize impacts on specific resources used by communities and cultural effects on the communities. Manitoba Hydro will also continue to liaise with Aboriginal and other communities in the GHA 19A and 14A area to review concerns that arise about the Project and opportunities for cultural preservation occasioned by the Project.

The original EIS assessment of the Project's adverse residual effects on culture from the HVdc transmission line component during operation concluded that these effects are expected to extend beyond the Local Study Area and into the Project Study Region, be medium term in duration (i.e., last during the assumed operation period for the Project) and, through avoidance of this culturally sensitive area, be small in magnitude. No

“established threshold of acceptable change” was identified in the EIS with regard to cumulative effects on this VEC<sup>11</sup>.

Chapter 4 concludes that the HVdc transmission line with the GHA 19A and 14A area AFPR route change is expected to have detectable adverse residual effects on culture, increasing the expected magnitude of the residual adverse effect on this VEC from “small” (as assessed with the FPR) to “moderate” and resulting in an assessment of a “potentially significant” adverse effect of the Project on culture based on criteria in Chapter 4 of the EIS. Consideration of other assessment criteria, as required in Chapter 4 of the EIS, confirms that the affected culture VEC in this instance is of moderate societal importance, with high frequency (i.e., occurring at regular intervals through the life of the Project) and potentially reversible only upon Project decommissioning. Overall, assuming mitigation as described in Chapter 6 and ongoing monitoring and adaptive management by Manitoba Hydro, the assessment concludes that the residual adverse effect is “not significant”; however, uncertainty is noted as to whether the ongoing adverse effect will remain moderate in magnitude and medium term in duration.

The Chapter 4 assessment of effects on culture due to AFPR changes in the GHA 19A and 14A area took into consideration the cumulative effects of the Project in combination with the effects of other past and current projects in this area. Manitoba Hydro is not aware of any other future projects that would modify the cumulative effects assessment as provided in Chapter 4.

---

<sup>11</sup> Chapter 4 of the EIS, Section 4.2.10 (Residual Effects Significance Evaluation) includes reference “established thresholds of acceptable change” in the criteria for “Magnitude”, i.e., “large” magnitude effects include effects that exceed established thresholds of acceptable change. The concept of a “threshold” is of material importance when evaluating the significance of cumulative effects of a project.

## **5.4 REFERENCES**

- Environment Canada. 2012. Recovery Strategy for the Woodland Caribou (*Rangifer tarandus caribou*), Boreal population, in Canada. *Species at Risk Act Recovery Strategy Series*. Environment Canada, Ottawa. 138pp.
- MESA. 1998. Manitoba Endangered Species Act (C.C.S.M. C., e111). [Online]. Available from. <http://web2.gov.mb.ca/laws/regs/2006/124.pdf>. [Accessed March 23, 2010].
- SARA. 2002. Species at Risk Act (c. 29). [Online]. Available from: <http://laws.justice.gc.ca/en/S-15.3/index.html> [Accessed March 22, 2010].
- Personal Communication, Y. Hwang, 2012.

## **APPENDIX 5A**

### **Cumulative Effects Assessment**

## 5A1.0 CARIBOU

**Table 5A1-1: Shows the Current Amount of Natural and Anthropogenic Disturbance within the Wabowden Boreal Woodland Caribou Evaluation Range**

	Area km <sup>2</sup>	% of Range
Total Range Area	5589.23	100.00%
Total Linear Features Buffer - no overlap	388.69	6.95%
Harvested Forest <40 yrs	85.92	1.54%
AFPR Gross Area in Range	85.48	1.53%
AFPR Net Area (all other buffer overlap removed)	26.65	0.48%
Natural Disturbance - Fire<40yrs Gross	947.73	16.96%
Natural Disturbance - Fire<40yrs Net (all other buffer overlap removed)	888.66	15.90%
Drill Holes - 250m buffer, not in Disturbance	7.07	0.13%
Total Disturbance - (water and overlap removed)	1396.99	24.99%

**Table 5A1-2: Shows the Future Amount of Cumulative Natural and Anthropogenic Disturbance within the Wabowden Boreal Woodland Caribou Evaluation Range**

	Area km <sup>2</sup>	% of Range
Total Range Area (km2)	5589.23	100.00%
Total Current Disturbance	1396.99	24.99%
Tolko Planned Harvest 2012	11.28	0.20%
Tolko Planned Harvest 2013	1.78	0.03%
Tolko Planned Harvest 2014	13.11	0.23%
Tolko Planned Harvest 2015-2016	19.29	0.35%
Tolko Hog Fuel - Fire Salvage 2012	0	0.00%
Tolko Hog Fuel - Hardwood 2012	0.32	0.01%
Drill Holes - Based on Avg # holes/year for 5 years, buffered 250m	3.93	0.07%
AFPR - gross area *	85.48	1.53%
AFPR - net area *	26.65	0.48%
Total Future Disturbance	49.71	0.89%
Total Cumulative Disturbance	1446.7	25.88%
Land Coming Online in 5 yrs 2017 (LCCEB LandAge 35-40)	5.42	0.10%
Total Future Disturbance	1441.28	25.79%

\* Included as current disturbance

## **5A2.0 MOOSE**

### **5A2.1 HISTORICAL MOOSE HARVEST**

A summary of the historical licensed harvest data in south western GHA of Manitoba compiled from available data collected through hunting check stations, license sales, jaw submissions, regional reports and estimations, and hunter questionnaires is provided in Table 5A2.1-1 (*Data source:* MCWS). Due to the nature of this data, harvest numbers by decade cannot be compared directly but instead offer a broad generalization of the licensed harvest numbers. The data also does not provide a record of the number of moose harvested through rights-base subsistence hunting.

**Table 5A2.1-1: Summary of Licensed Moose Harvest Data in South Western Manitoba from 1967 - 2011\***

GHA	Decade	Total Harvest
12	1960-1969	67
	1970-1979	100
	1980-1989	187
	1990-1999	375
	2000-2009	240
	2010-2011	22
13/13a	1960-1969	93
	1970-1979	121
	1980-1989	261
	1990-1999	406
	2000-2009	475
	2010-2011	51
14/14a	1960-1969	68
	1970-1979	548
	1980-1989	308
	1990-1999	631
	2000-2009	260
	2010-2011	3
18/18a	1960-1969	37
	1970-1979	545
	1980-1989	713
	1990-1999	1415
	2000-2009	1483
	2010-2011	118
19/19a	1960-1969	-
	1970-1979	-
	1980-1989	97
	1990-1999	109
	2000-2009	107
	2010-2011	3
23/23a	1960-1969	-
	1970-1979	44
	1980-1989	331
	1990-1999	1030
	2000-2009	1149
	2010-2011	0

\*Moose harvest data was summarized from data collected from GHA check stations, licensed hunter jaw submissions, Manitoba western region reports, and hunter questionnaires and should be regarded as an estimate only.

## **5A2.2 BASELINE POPULATION DATA WESTERN MANITOBA AND SASKATCHEWAN**

Riding Mountain National Park, differentiated by minor anthropogenic disturbance, provides valuable baseline fluctuations of moose population in the absence of hunter harvest.

Table 5A2.2-1 provides moose population data from systematic annual aerial surveys conducted within the park and shows moose populations have been relatively stable between 1976 and 2010 (*Data source:* Parks Canada, RMNP).

**Table 5A2.2-1: Aerial Moose Survey Summaries from Riding Mountain National Park**

<b>Year</b>	<b>Population Estimate</b>	<b>Density (km<sup>2</sup>)</b>
1976	2252	0.78
1977	2344	0.82
1978	3744	1.3
1979	3760	1.31
1980	3884	1.35
1981	3804	1.33
1982	3140	1.09
1983	3292	1.15
1984	2764	0.96
1985	1904	0.66
1986	2344	0.82
1987	1616	0.56
1988	2452	0.85
1989	1751	0.61
1990	2243	0.78
1991	3441	1.2
1992	3066	1.07
1993		0
1994	3689	1.29
1995	5641	1.97
1996	4400	1.53
1997	3805	1.33
1998		0
1999	4803	1.67
2000	4682	1.63
2001	3763	1.31
2002	4030	1.4
2003	2572	0.9
2004	2332	0.81
2005	2678	0.93
2006	2506	0.87
2007	2473	0.86
2008	2804	0.98
2009	2781	0.97
2010	3003	1.05
2011	2535	0.88
2012	2949	1.03

In contrast to southwestern Manitoba moose populations, Saskatchewan is experiencing significant growth in moose populations in the southern portion of the province. Data collected during aerial surveys spanning from 1982 - 2010 across portions of southern Saskatchewan indicate that in Wildlife Management Zones (WMZ) near the Manitoba border, moose densities are generally high (pers. comm Y. Hwang, 2012). In WMZ 37 (Duck Mountain Provincial Park), a 1997/98 survey indicated a density of 0.45 moose/km<sup>2</sup> (pers. comm Y. Hwang, 2012) (Table 5A2.2-2). In other WMZs near the border, moose estimates have varied between 600 to 3400 moose with densities ranging from 0.21 to 1.09 moose/km<sup>2</sup> (pers. comm Y. Hwang, 2012) (Table 5A2.2-2). Herd structure is also healthy with 28 to 54 calves per 100 cows (pers. comm Y. Hwang, 2012) (Table 5A2.2-2).

**Table 5A2.2-2: Aerial Moose Survey Summaries from Wildlife Management Zones Near the Saskatchewan/Manitoba Border (pers. comm Y. Hwang, 2012)**

Study Area (WMZ)	Year	Population Estimate +/- Confidence Limits	Density (km <sup>2</sup> )	Herd Structure (Bull:Cow:Calf)
WMZ 37 Duck Mountain Provincial Park	1997/98	306 ± 8	0.45	43:100:30
WMZ 56	1997/98	2013 ± 18.4	0.65	0.945046296
	1999/00	2696 ± 17.1	0.87	31:100:53
	2002/03	2420 ± 19.9	0.78	25:100:54
	2006/07	3380 ± 19.8	1.09	52:100:51
	2009/10	2490 ± 18.6	0.82	0.94505787
WMZ 57	1999/00	2218 ± 19.1	0.88	37:100:44
	2002/03	1853 ± 21.6	0.74	30:100:37
	2006/07	1898 ± 19.7	0.76	34:100:43
	2009/10	1529 ± 15.7	0.56	37:100:42
WMZ 59	1992/93	N/A	0.7	N/A
	1999/00	2915 ± 19.9	0.6	38:100:39
	2006/07	2181 ± 18.8	0.45	41:100:28
	2009/10	1985 ± 20.9	0.42	42:100:35
WMZ 60,61,62	1997/98	600 ± 20	0.26	40:100:34
	2000/01	2057 ± 21.3	0.21	48:100:39
WMZ 67	1997/98	1482 ± 20	0.4	35:100:34
	2003/04	3099 ± 25.1	0.5	46:100:43
	2006/07	2021 ± 18.9	0.32	42:100:55
	2009/10	1860 ± 18.4	0.31	43:100:36

# **TABLE OF CONTENTS**

<b>6.0</b>	<b>ENVIRONMENTAL PROTECTION, FOLLOW-UP AND MONITORING.....</b>	<b>6-1</b>
6.1	INTRODUCTION .....	6-1
6.2	ENVIRONMENTALLY SENSITIVE SITES .....	6-1
6.3	FOLLOW UP ACTIVITIES .....	6-2

# **APPENDICES**

APPENDIX 6A    Table of Mitigation Measures by VEC

# **6.0 ENVIRONMENTAL PROTECTION, FOLLOW-UP AND MONITORING**

## **6.1 INTRODUCTION**

Mitigation measures, monitoring and other follow-up actions identified in this supplemental report and in Chapter 8 of the 2011 EIS for the Project will be implemented through an Environmental Protection Program (EPP). The EPP is outlined in Chapter 11 of the EIS, and clarification of the structure, content and planned functioning of the EPP has been further discussed through the information request process prior to and during the Clean Environment Commission Hearings that took place in October and November of 2012.

The route adjustments discussed in the preceding chapters have been assessed and no mitigation measures that are new over and above those previously communicated have been identified, and the Environmental Protection Program and its components remain as described in the EIS.

Table A6-1 of Appendix 6A lists in detail the mitigation measures that will be implemented using the EPP. This is a re-organized version of MH Exhibit 063 (Bipole III Transmission Project – Mitigation Commitment Table), which was originally submitted by Manitoba Hydro to the CEC on October 29, 2012. Mitigation measures are listed for each VEC discussed in this supplemental report. The table has been shortened to only include mitigation for VECs assessed in this supplemental report, and includes no mitigation measures that are new or in addition to those that appeared in the original 2011 EIS.

## **6.2 ENVIRONMENTALLY SENSITIVE SITES**

Additional environmentally sensitive sites (ESS), specific to the adjusted route areas, will be added to the respective Environmental Protection Plans and the related environmental protection measures (as described in Attachment 11-1 Draft Environmental Protection Plan – December 2011 EIS) will be applied as appropriate.

## **6.3 FOLLOW UP ACTIVITIES**

Follow up activities including inspection, monitoring management and auditing actions remain as described in Chapter 11 of the December 2011 EIS.

Biophysical and socio-economic effects identified for the route adjustment areas will be incorporated into the respective monitoring plans.

The environmental monitoring plans for the Project (listed below) will be updated with information specific to the adjusted route areas (ESSs).

- Biophysical environmental effects monitoring plan;
- Socio-economic monitoring plan; and
- Heritage resources monitoring plan.

Manitoba Hydro will continue to engage with communities regarding the Environmental Protection Plans and incorporate their feedback into further mitigation measures.

As noted in Chapter 3 of this supplemental report, Manitoba Hydro will continue to meet with communities who were unable to schedule community open houses or leadership meetings to ensure that Project information can still be shared with local community members. Feedback received will be incorporated into the Environmental Protection Plans being developed for the Project.

## **APPENDIX 6A**

### **Table of Mitigation Measures by VEC**

**Table A6-1: Table of Mitigation for VECs that have Potential Effects Noted in the APPR Regions for the HVdc Transmission Line**

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
Biophysical			
Amphibians and Reptiles	Wood Frog and Northern Leopard Frog	Construction	<p>Where overstory/tall-growth vegetation (i.e. trees) needs to be removed within buffers for transmission line clearance, removal methods that best minimize disturbance to soil and ground cover will be used.</p> <p>Construction at wetland habitats will occur in fall or winter, outside of peak wood frog breeding periods, i.e. not between April 1 and May 31.</p> <p>Construction at wetland habitats will occur in fall or winter, outside of peak anuran breeding periods, occurring April 1 through the end of May, for the wood frog.</p> <p>Where possible, a buffer of 30 m will be retained around any identified breeding/wetland areas that occur along the Project right-of-way, in which disturbance, vegetation removal, and vehicular traffic is limited.</p>
Operation			
			<p>Where overstory/tall-growth vegetation (i.e. trees) needs to be removed within buffers for transmission line clearance, removal methods that best minimize disturbance to soil and ground cover will be used.</p> <p>Where possible, a vegetation buffer of 30 m will be retained around any identified breeding/wetland areas that occur along the Project right-of-way, in which disturbance, vegetation removal, and vehicular traffic is to be limited.</p> <p>Right-of-way maintenance at wetland habitats will occur in fall or winter, outside of peak wood frog breeding periods, occurring April 1 through the end of May.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
Biophysical			<p>Operation</p> <p>All waste materials (slash) will be stabilized well above the HWM to mitigate entry into the watercourse.</p> <p>Application of herbicides will adhere to appropriate best management practices and all chemical applications will be conducted by a certified applicator.</p> <p>In riparian areas, vegetation will be maintained in a way that leaves root systems intact.</p> <p>Riparian vegetation maintenance within 30 m of the HWM will affect a maximum of 1/3 of woody vegetation (e.g., trees and shrubs) within the right-of-way.</p> <p>Riparian vegetation maintenance will be conducted by the method that minimizes stream bank disturbance and if rutting or erosion is likely, appropriate bank protection measures will be implemented prior to machinery use.</p>
	All		<p>Where possible, installation of lines over water courses and poorly drained habitats such as bogs and fens will be conducted under frozen conditions or aerially.</p> <p>Where possible, transmission line approaches and crossings will be perpendicular to the watercourse and will avoid unstable features such as meander bends, braided streams and active floodplains.</p> <p>All structures (temporary and permanent), will be placed above the ordinary high water mark (HWM).</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
Aquatic Environment	Surface Water Quality and Fish Habitat	Construction	<p>Appropriate erosion and sediment control measures will be implemented to mitigate sediment introduction into watercourses. In addition, for the sites identified as sensitive to disturbance, sites-specific sediment and erosion control plans will be developed.</p> <p>Erosion and sedimentation control measures will be routinely inspected to ensure effectiveness.</p> <p>Removal of riparian vegetation will be limited to select plants within the right-of-way required to accommodate overhead lines, and uprooting of plants will be minimized; Disturbed riparian areas will be re-vegetated following completion of works.</p> <p>Clearing limits and sensitive areas will be clearly marked prior to vegetation removal.</p> <p>Clearing will be conducted under favorable weather conditions. Construction activities will be postponed under adverse weather (i.e., storm events) to minimize potential sediment introduction into the aquatic environment.</p> <p>Slash/debris piles will be adequately stabilized and stored well above the (HWM).</p> <p>Any uncured or partly cured concrete will be kept isolated from water courses; Concrete wash water or water that has contacted uncured or partly cured concrete will be isolated from watercourses until it has reached a neutral pH.</p> <p>Where necessary, measures to protect the streambed and banks will be in place prior to fording (e.g., pads, swamp mats). Protection measures will not impede fish passage, or constrict flows; If fording will likely result in erosion and degradation of the streambed and banks, a temporary bridge will be constructed.</p> <p>Temporary stream crossings (i.e. bridges, dry streambed fords or a one-time ford in flowing waters) will be constructed only where existing crossings do not exist or are not practical for use.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
Aquatic Environment	Surface Water Quality and Fish Habitat		<p>Whenever possible, existing trails, roads and cut lines will be used as access routes.</p> <p>Crossings will be constructed on a straight section of the watercourse, perpendicular to the channel.</p> <p>Clean materials will be used in the construction of temporary crossings and all materials will be removed upon project completion or prior to freshet whichever occurs first.</p> <p>One-time fording of flowing streams and temporary bridge construction will only occur where the channel width is less than five m (from HWM to HWM); Fording in flowing waters will occur within appropriate fisheries timing windows, as outlined in DFO's Manitoba In-water Construction Timing Windows for the Protection of Fish and Fish Habitat (DFO 2007d); Fording will occur under low flow and favorable weather conditions and will avoid known fish spawning areas:</p> <p><i>Riparian Buffers:</i></p> <p>Perennial water bodies – 30 m Riparian Buffer</p> <p>Ephemeral/intermittent water bodies – 7 m Machine Free Zone</p> <p><i>Fish habitat:</i></p> <p>Important fish habitat – 30 m Riparian Buffer</p> <p>Marginal fish habitat – 15 m Riparian Buffer</p> <p>No fish habitat – 7 m Machine Free Zone.</p>
	Operation		<p>All waste materials (slash) will be stabilized well above the HWM to mitigate entry into the watercourse.</p> <p>Application of herbicides will adhere to appropriate best management practices and all chemical applications will be conducted by a certified applicator.</p> <p>In riparian areas, vegetation will be maintained in a way that leaves root systems intact. Riparian vegetation maintenance within 30 m of the HWM will affect a maximum of 1/3</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			of woody vegetation (e.g., trees and shrubs) within the right-of-way.
			Riparian vegetation maintenance will be conducted by the method that minimizes stream bank disturbance and if rutting or erosion is likely, appropriate bank protection measures will be implemented prior to machinery use.
	All		Where possible, installation of lines over water courses and poorly drained habitats such as bogs and fens will be conducted under frozen conditions or aerially.
			Where possible, transmission line approaches and crossings will be perpendicular to the watercourse and will avoid unstable features such as meander bends, braided streams and active floodplains.
			All structures (temporary and permanent), will be placed above the ordinary high water mark (HWM).
Birds and Habitat	Birds of Prey	Construction	<p>Buffers will be maintained within a 200 m radius of active large stick nests from April 1, to July 31 to protect nest trees and maintain the integrity of nesting sites.</p> <p>Trees containing large stick nests will be left undisturbed until unoccupied to minimize mortality due to nest destruction during the nesting season.</p> <p>Artificial structures will be provided for nesting if unoccupied nests must be removed to reduce the loss of nesting habitat (i.e., but only if the raptor nest is not located adjacent to a sensitive site e.g., sharp-tailed grouse lek or species at risk habitat).</p> <p>Buffers within a 200 m radius of nests of eagles, ospreys and Heron Rookeries will be maintained from April 1 to July 31 to protect from sensory disturbance during the breeding season.</p> <p>Project activities during bird breeding and brood rearing will be restricted from April 1 to July 31 to reduce the risk of nest destruction and sensory disturbance.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			<p>Bird diverters will be placed at ESSs to reduce the potential for collisions with wires.</p> <p>Searches for <b>short-eared owl</b> nests will be undertaken prior to spring or summer construction if the timing of construction activity overlaps with sensitive time periods.</p> <p>Setback distances for species at risk will be applied if the timing of construction activity overlaps with sensitive time periods (the recommended setback distance for short-eared owl is to be applied to construction zones if they intersect with species at risk habitats and active breeding areas).</p>
	Operation		<p>Setback distances for short-eared owl (see Construction section) will be applied if the timing of vegetation management overlaps with sensitive time periods.</p> <p>Vegetation management activities will be avoided near large stick nests from April 1 to July 31 to prevent nest disturbance or abandonment during the nesting season.</p> <p>Buffers will be maintained within a 200 m radius of active large stick nests when discovered.</p> <p>Artificial nest structures will be installed in adjacent habitats where nests on transmission towers are removed, to reduce loss of nesting habitat (i.e., but only if the raptor nest is not located adjacent to a sensitive site e.g., sharp-tailed grouse lek or species at risk habitat).</p> <p>Shrubby vegetation will be maintained on the rights-of-way where possible to impede transportation via snowmobile and ATV and some foot traffic to reduce sensory disturbances arising from recreational use.</p> <p>Searches for short-eared owl nests will be undertaken prior to spring or summer vegetation management if the timing of maintenance activity overlaps with sensitive time periods and locations.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
Birds and Habitat	Colonial Waterbirds	Construction	<p>Project activities will be restricted during bird breeding and brood rearing months from April 1 to July 31 to reduce the risk of nest destruction and sensory disturbance.</p> <p>Vegetated buffers will be maintained in riparian areas to minimize the effect of habitat alteration on colonial waterbirds.</p> <p>Buffers within a 200 m radius of heron colonies will be maintained from April 1 to July 31 to protect from sensory disturbance during the breeding season.</p>
		Operation	<p>Colonies or other groups of birds will be avoided during helicopter use for line maintenance.</p> <p>Shrubby vegetation will be maintained on the rights-of-way where possible to impede transportation via snowmobiles, ATV and some foot traffic, to reduce access to the area and reduce sensory disturbances arising from recreational use.</p>
		Operation	<p>Night-time maintenance activities will be avoided in species at risk habitats during the nesting season to minimize disturbance to common nighthawk.</p> <p>Shrubby vegetation will be maintained on the rights-of-way where possible to impede transportation via ATV and some foot traffic, to minimize access to the area and to reduce sensory disturbances arising from recreational use.</p>
Birds and Habitat	Songbirds and Other Birds	Construction	<p>Setback distances will be applied if the timing of construction activity overlaps with sensitive time periods (the recommended setback distance is 200 m for common nighthawk and whip-poor-will, 300 m for olive-sided flycatcher and Canada warbler, 400 m for loggerhead shrike, 250 m Sprague's pipit, 300m for golden winged warbler, and 100 m for rusty blackbirds), and is to be applied to construction zones in southern Manitoba if they intersect with species at risk habitats and active breeding areas.</p> <p>Night-time activities will be avoided during the nesting season to minimize disturbance to common nighthawk and whip-poor-will.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
Birds and Habitat	Upland Game Birds	Construction	<p>Project activities during bird breeding and brood rearing months will be restricted from April 1 to July 31, to reduce the risk of nest destruction and sensory disturbance.</p> <p>Searches for nests will be undertaken prior to spring or summer construction if the timing of construction activity overlaps with sensitive time periods.</p>
		Operation	<p>Night-time maintenance activities will be avoided in species at risk habitats during the nesting season to minimize disturbance to common nighthawk.</p> <p>Shrubby vegetation will be maintained on the rights-of-way where possible to impede transportation via ATV and some foot traffic, to minimize access to the area and to reduce sensory disturbance (see Bipole III Birds Technical Report for potential habitat and locations).</p> <p>Shrubby vegetation will be maintained on the right-of-way where possible as potential olive-sided flycatcher and Canada warbler habitat.</p> <p>Vegetation management will be limited in areas where common nighthawk, whip-poor-will could occur from April 1 to July 31 to minimize the risk of nest destruction and sensory disturbance during the nesting season (see Bipole III Birds Technical Report for potential habitat and locations).</p> <p>Searches for nests will be undertaken prior to spring or summer vegetation management if the timing of maintenance activity overlaps with sensitive time periods and locations.</p> <p>Setback distances will be applied if the timing of vegetation management overlaps with sensitive time periods.</p>
			Hunting and harvesting of wildlife by Project staff will be prohibited within the active construction area and restricted firearms at work camps, minimizing the potential effect of harvesting on upland game bird mortality.

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			<p>Setback distances will be applied around sharp-tailed grouse leks if discovered and if the timing of construction activity overlaps with sensitive time periods.</p> <p>Project activities during bird breeding and brood rearing months will be restricted from April 1 to July 31 to reduce the risk of nest destruction and sensory disturbance.</p> <p>Bird diverters will be placed at environmental sensitive sites such as sharp-tailed grouse leks to reduce the potential for collisions with wires.</p> <p>Any new access trails created during construction and not required for line maintenance associated with the rights-of-way will be decommissioned to reduce access to the area by hunters and to decrease the local harvest of upland game birds.</p>
		Operation	<p>Perch deterrents such as porcupine wire or triangles on transmission towers will be installed near sharp-tailed grouse leks to reduce predation on sharp-tailed grouse by raptors.</p> <p>Shrubby vegetation on the rights-of-way will be maintained where possible to impede transportation via snowmobile, ATV and some foot traffic to reduce access to the area by hunters and decrease the local harvest of and sensory disturbance to sharp-tailed and ruffed grouse.</p>
Birds and Habitat	Waterfowl and Waterbirds	Construction	<p>Vegetated buffers will be maintained in riparian areas to minimize the effect of habitat alteration on waterfowl and waterbirds.</p> <p>Project activities during bird breeding and brood rearing months will be restricted from April 1 to July 31, to reduce the risk of nest destruction and sensory disturbance.</p> <p>Hunting and harvesting of wildlife by Project staff will be prohibited within the active construction area and restrict firearms at work camps, minimizing the potential effect of harvesting on mallard mortality.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			<p>Searches for yellow rail nests will be undertaken prior to spring or summer construction if the timing of construction activity overlaps with sensitive time periods.</p> <p>Setback distances will be applied for yellow rail nesting if the timing of construction activity overlaps with sensitive time periods (the recommended setback distance for yellow rail is 350 m and is to be applied to construction zones in southern Manitoba if they intersect with species at risk habitats and active breeding areas).</p> <p>Bird diverters will be placed at environmental sensitive sites such as wetlands to reduce the potential for collisions with wires.</p>
		Operation	<p>Searches for yellow rail nests will be undertaken prior to spring or summer vegetation management if the timing of maintenance activity overlaps with sensitive time periods and locations.</p> <p>Setback distances will be applied if the timing of vegetation management overlaps with sensitive time periods.</p> <p>Shrubby vegetation will be maintained on the rights-of-way where possible to impede transportation via ATV and some foot traffic, to reduce access to the area and to reduce sensory disturbances arising from recreational use.</p>
Red –headed Woodpecker		Construction	<p>Vegetation management activities will be avoided near wetlands from May 15 to July 31 to prevent nest disturbance or abandonment.</p> <p>Dead standing trees will be retained where possible to reduce the loss of red-headed woodpecker nesting habitat.</p> <p>Searches for red-headed woodpecker nests will be undertaken prior to spring or summer construction if the timing of construction activity overlaps with sensitive time periods.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			<p>Setback distances will be applied if the timing of construction activity overlaps with sensitive time periods (the recommended setback distance for red-headed woodpecker is 200 m and is to be applied to construction zones in southern Manitoba if they intersect with species at risk habitats and active breeding areas).</p> <p>Danger trees near the rights-of-way will be topped, rather than removed, to reduce the loss of adjacent red-headed woodpecker nesting habitat.</p> <p>Clearing of trees with roost cavities will be limited to daylight hours, and preferably in fall, to minimize disruption of resident woodpeckers and retain shelter and nesting sites.</p>
	Operations		<p>Vegetation management will be limited in areas where red-headed woodpecker could occur from May 15 to July 31 to minimize the risk of nest destruction and sensory disturbance during the nesting season; Setback distances for red-headed woodpeckers will be applied if the timing of vegetation management overlaps with sensitive time periods.</p> <p>Where feasible, danger trees near the rights-of-way topped, rather than removed, to reduce the potential loss of adjacent red-headed woodpecker nesting habitat.</p> <p>Removal of danger trees with roost cavities will be limited to daylight hours, to minimize disruption of resident woodpeckers and retain shelter and nesting sites; Removal of danger trees near the right-of-way will be prohibited during the spring nesting period to minimize nest destruction and sensory disturbance during the nesting season.</p> <p>Shrubby vegetation will be maintained on the rights-of-way where possible to impede transportation via snowmobile and ATV, and some foot traffic, to reduce sensory disturbances arising from recreational use.</p> <p>Searches for red-headed woodpecker nests will be undertaken prior to spring or summer vegetation management if the timing of maintenance activity overlaps with sensitive time periods and locations.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
Groundwater	Aquifer Quality and Productivity	Construction	<p>A qualified driller with appropriate experience will always be used for work in areas underlain by artesian aquifers.</p> <p>Water levels will be monitored during drilling and foundation installation.</p> <p>Emergency response plans will be in place for sealing/grouting and pumping in artesian areas.</p> <p>Follow up inspections of installed foundations will be undertaken to monitor for excess moisture.</p> <p>No herbicides are used in clearing new rights-of-way.</p>
		Operation	<p>If herbicides are required to control vegetation growth, all applicable permits and provincial regulations will be followed.</p> <p>On private lands, prior to any vegetation management work, landowners or appropriate authorities will be contacted to obtain the necessary permission.</p>
Mammals and Habitat	American Marten	Construction	<p>Clearing of the right-of-way during winter months to lessen disturbance of female marten and their young.</p> <p>Long-term storage of cleared vegetation that may impede marten movement and increase the risk of forest fires will be avoided</p>
		Operation	<p>Recreational, public and vehicle access will be discouraged along the ROW through vegetation management practices to reduce sensory disturbances and minimize functional habitat loss.</p>
Beaver		Operation	<p>Access management and provincial harvest management strategies that regulate trapping activities will continue to play an important role in maintaining beaver populations in the Local Study Area.</p> <p>Mitigation measures developed for the protection and management for riparian and</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			aquatic habitats, specifically use of buffers, will aid in the protection of beaver habitat.
Boreal Woodland Caribou		Construction and Operation	Timing of construction (winter) will mitigate sensory disturbance on females during calving and calf rearing in calving areas.
			Natural low tree cover in the Wabowden and Bog ranges will be maintained in core winter use areas and known and potential calving areas to maintain natural functional structure to encourage ongoing use by boreal woodland caribou. Boreal woodland caribou in the Wabowden area have demonstrated movement north and south of the proposed ROW. Natural vegetation corridors for wildlife will be developed on the ROW in strategic locations through the maintenance of naturally low vegetations such as black spruce and tamarack. Strategic locations will be determined through the analysis of current telemetric data and in consultation with Manitoba Conservation and Water Stewardship.
			Future maintenance along the right-of-way during operations will involve helicopter access and minimize snow packing in the Wabowden Range. In other areas development of Manitoba Hydro created snowpack trails will be limited in core winter areas to minimize potential predator effects into core areas and potential illegal hunting activities.
			Limiting recreational use and travel by ATVs and snowmobiles along the right-of-way in the core winter use areas and known potential calving areas will be encouraged to reduce sensory disturbances and minimize functional habitat loss.
			Ancillary access and other project footprints (staging areas) will be located to avoid core use areas and reduce potential disturbance, functional habitat loss, and temporary range fragmentation.
			Hunting by Project personnel will be prohibited within the active construction area and firearms use restricted in work camps and areas which will minimize mortality.

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			Monitoring of the boreal caribou ranges intersected by the Project during the construction period will continue and include population monitoring, and assessment of recruitment and mortality. Data will be gathered through satellite collaring and assessments will be conducted on sensory disturbance and avoidance of the right-of-way and overall range fragmentation.
Moose	Construction and Operation		<p>Manitoba Hydro will work cooperatively with Manitoba Conservation and Water Stewardship to improve access control through joint access management planning, hunting closures (Health Safety and Workplace Act) and hunter education or information initiatives to reduce the effects of overharvest and wastage.</p> <p>Manitoba Hydro will maintain access control onto the Project site and cooperate with Manitoba Conservation and Water Stewardship in measures that will protect against excessive harvest in the area including signage and no hunting areas during construction to protect both workers and moose.</p> <p>In the northern areas disturbances from construction activities will occur during winter which will avoid the sensitive parturition period near potential moose calving sites such as bogs and wetlands.</p> <p>Hunting by Project personnel will be prohibited within the active construction area and firearms restricted in work camps to minimize moose mortality.</p> <p>Pre-construction surveys will be conducted to identify and locate mineral licks, and specific protection prescriptions developed based on site and environmental conditions.</p>
Wolverine	All		All occupied wolverine dens will have a 50m setback applied.
Elk	Construction		Manitoba Hydro will maintain access control onto the Project site and cooperate with Manitoba Conservation in measures that will protect against excessive harvest in the area including signage and no hunting areas during construction to protect both workers

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			and elk.
			Hunting by Project personnel will be prohibited within the active construction area and firearms restricted in work camps to minimize elk mortality.
			Pre-construction surveys will be conducted to identify and locate mineral licks, and specific protection prescriptions developed based on site and environmental conditions.
Terrain and Soils	Soil Productivity	Construction	<p>Vegetation establishment in areas not identified as requiring special treatment will occur naturally or through annual cropping.</p> <p>Where required, the right-of-way should be graded, disced or deep-ploughed to alleviate compaction and remove ruts caused by rubber-tired and tracked vehicles after construction to restore soil productivity.</p> <p>Construction activities in southern Manitoba will be undertaken , where possible, under dry conditions in high compaction risk areas (Bipole III Terrain and Soils Technical Report) and moist conditions in high to severe wind erosion risk areas, where possible.</p> <p>Snow will be ploughed or compacted to facilitate deeper frost penetration.</p> <p>Access routes will be located along existing traffic routes where possible and will be determined in advance. Vehicles should be restricted to those routes.</p> <p>Low ground-pressure vehicles (i.e., wide tracked machinery) will be used, particularly in areas of high compaction risk, where possible.</p> <p>Topsoil will be stripped and stockpiled separately from subsoil, based on visual assessment of colour change, prior to excavation or establishment of temporary workspaces.</p> <p>In areas of known salinity, excavated soils will be stored on liners or at designated</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			work/spoil areas, where possible.
			Runoff will be directed away from disturbed areas to prevent further site degradation where necessary.
			In agricultural land, at least 300 mm of topsoil will be spread on any excavation site.
	Operation		Herbicides will be applied according to standard Manitoba Hydro practices.
			Inspection and maintenance activities will be conducted during frozen and dry ground conditions, where feasible.
Terrain Stability	Construction		<p>The removal of natural vegetation on sloped terrain, particularly adjacent to waterways, will be avoided.</p> <p>Where vegetation is removed from sloped terrain, the area will be replanted with deep-rooted shrubs, such as willow, where feasible to prevent slope degradation.</p> <p>Stripping through organic vegetative layers will be avoided to the extent possible on permafrost-affected soils. The top layer of organic soil and ground vegetation will be retained to prevent or minimize disturbance, where practical and feasible.</p> <p>Snow will be graded and compacted in right-of-way work areas and along access routes, where possible or required for safety, to prevent thaw and increase frost penetration.</p> <p>Drainage will not be altered to concentrate flows, especially in sloped terrain.</p>
			Slope undercutting and slope modification at angles greater than 30° will be avoided, to prevent sliding or slumping and any slopes over-steepened beyond 30° will be graded to reduce the slope.

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			<p>Diversion berms of compacted native soils or logs will be used on moderate and steep slopes (i.e., greater than 15-20%) to divert water away from the slope after construction. Berms will be spaced 45 m or less apart and skewed with a downstream gradient of 5-10% and end in natural vegetation.</p> <p>Borrow pits will not be located within 100 m of identified steep slopes and/or unstable slopes, to prevent initiation or acceleration of instability due to blasting. Constructing during dry or frozen ground conditions.</p> <p>Topsoil and subsoil will be stripped and stockpiled separately for use in site rehabilitation.</p>
		Operation	<p>The removal of natural vegetation on sloped terrain, particularly adjacent to waterways, will be avoided.</p> <p>Where vegetation is removed from sloped terrain, the area will be replanted with deep-rooted shrubs, such as willow, where feasible to prevent slope degradation.</p>
Terrestrial Ecosystems and Vegetation	Grasslands / Prairie Areas	Construction	<p>Existing access roads and trails will be used to the extent possible.</p> <p>Construction and site decommissioning activities will be carried out during the winter months to minimize surface damage, rutting and erosion. Where activities do not occur during winter months, soil and vegetation disturbance will be minimized in the dry upland prairie areas.</p> <p>Where disturbance has occurred in areas prone to increased erosion, vegetation will be re-established using native species appropriate for the site.</p> <p>Trees will be removed by low ground disturbance methods.</p> <p>Where trees do not pose a threat to the operations of the transmission line, clearing will be reduced in these areas.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
		Operation	<p>Existing access roads and trails will be used to the extent possible.</p> <p>Species of concern will be identified/marked and monitored, and the use of herbicides will be restricted in these areas.</p> <p>Routine maintenance activities will be carried out during the winter months to minimize surface damage, rutting and erosion.</p> <p>Where maintenance activities do not occur during winter months, soil and vegetation disturbance will be minimized in the dry upland prairie areas.</p> <p>Where disturbance has occurred, vegetation will be re-established using native species appropriate for the site.</p>
Plant Species and Communities of Conservation Concern		Construction	<p>Existing access roads and trails will be used to the extent possible.</p> <p>Locations of species of conservation concern will be clearly marked with flagging tape prior to construction and site decommissioning activities.</p> <p>Construction and site decommissioning activities will be carried out during the winter months when effects to plant species are minimized.</p> <p>Where activities do not occur over winter months, disturbance to the shrub and herb layers will be minimized where species of conservation concern have been observed.</p>
		Operation	<p>Existing access roads and trails will be used to the extent possible.</p> <p>Locations of species of conservation concern will be clearly marked with flagging tape prior to maintenance activities.</p> <p>In areas where species of conservation concern have been identified, a non-herbicide method will be used, such as hand cutting, mechanical cutting or winter shearing.</p> <p>Routine maintenance activities will be carried out during the winter months when effects</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			to plant species are minimized.
<b>Socio-Economic</b>			
Cultural and Heritage Resources	Culture	All	<p>Where maintenance activities do not occur over winter months, disturbances to the shrub and herb layers will be minimized where species of conservation concern have been observed.</p> <p>Further liaison with communities that have identified cultural concerns will occur to assist in identifying additional mitigation measures to be included in the EnvPPs. In addition, Manitoba Hydro anticipates opportunities for employing local people to assist in monitoring Project construction.</p> <p>The EnvPPs will contain heritage protection measures which will be developed in collaboration with First Nations, Metis and local interested parties for Project components that will ensure protection of Aboriginal and non-Aboriginal cultural interests.</p> <p>The Bipole III ATK process brought to light the valuable knowledge that exists within First Nation, Metis and other communities. In addition, through this process, as well as the Key Person Interviews and EACP, communities identified concerns and issues important to them regarding the Project. Apart from the other mitigation measures outlined in this section, Manitoba Hydro will continue to liaise with First Nations, the MMF and other communities to review concerns that arise about the Project and opportunities for cultural preservation occasioned by the Project.</p> <p>Manitoba Hydro anticipates that in the case of some First Nations and the MMF, the ongoing liaison and communications will occur through existing forums and protocols. Concerns regarding the effect of EMF on the natural environment and on humans were expressed through the Bipole III ATK process and the EACP. Manitoba Hydro is exploring ways to share information about EMF in a meaningful way with Aboriginal people.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			<p>The loss of the ability to conduct traditional activities such as trapping, hunting and fishing was noted in the ATK workshops and self-directed studies as potentially impacting culture. It must be understood however, that culture goes beyond these subsistence activities. As far as is practicable and in accordance with established laws and regulations overseen by Manitoba Conservation, Manitoba Hydro will respect and abide by local hunting protocols and cultural practices during construction and operation of the Project.</p> <p>EnvPPs for the construction and operations of the Project will include mitigation measures to minimize potential cultural effects.</p>
Heritage Resources	Construction and Operation		<p>During construction, the Project Archaeologist will work with the Construction Supervisor and Site Manager to ensure that all in-field staff and workers are informed of and understand the process of implementing heritage protection measures and The Heritage Resources Act.</p> <p>EnvPPs for the construction and operation of the Project will include mitigation measures to minimize potential effects on known and unknown heritage resources. Manitoba Hydro anticipates employing local people to assist in monitoring Project construction. The heritage protection measures, which will be part of the EnvPPs, will be developed in collaboration with First Nations, Metis and local interested parties for Project components. They will ensure the protection of known and undiscovered heritage resource sites.</p>
Land Use	Agricultural Land Use / Productivity	Construction	<p>In terms of potential induction because of the line paralleling metal fences, issues will be identified during the property acquisition phase and will be mitigated through proper grounding.</p> <p>Mitigation of potential effects such as security of fencing for livestock during construction will be assured by adherence to the construction EnvPP and by compliance with all relevant government legislation and regulations.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			<p>Final decisions respecting the location of the transmission line towers and determination of compensation for the impact of the towers on agricultural operations are normally made during the course of property acquisition. This facilitates post-licensing completion of field surveys and detailed design activity necessary to confirm physical and technical considerations which may affect structure placement and design. This also enables Manitoba Hydro Property Department staff to discuss site-specific circumstances and related compensation or tower placement preferences with landowners. As noted above, wherever feasible, tower placement will be selected to minimize impacts on agricultural operations and productivity.</p> <p>If construction activities result in physical damage (i.e., crop loss, ruts, etc.), Manitoba Hydro will pay compensation to the affected landowners or have physical damages restored.</p> <p>Manitoba Hydro compensates for impacts to agriculture through its Property Compensation program. Compensation for establishing easements across private property recognizes that residual impacts on agricultural practices will remain after mitigation measures have been applied.</p>
		Operation	<p>In terms of operations, Manitoba Hydro recognizes that some landowners and farm operators may continue to have concerns with the effects of the line on agricultural productivity. Any concerns will be responded to through regional and local customer service offices. Similarly, compensation will be paid for any physical damages that may occur during operations and maintenance of the line although these activities are generally scheduled to occur when crops are off the fields. Compensation would also be paid for any physical damages if Manitoba Hydro requires emergency access to the transmission line.</p>
Private Forest Lands		Construction	<p>Meetings will occur with each individual owner to discuss and negotiate mitigation measures (i.e., replanting shelterbelt) that are reflective of management objectives and investments during the easement negotiation phase. Locations will be identified in the construction EnvPP for the line to avoid additional damage (e.g., errant construction</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			equipment).
Resource Use	Commercial Forestry		<p>All high value forest sites within 500 m of the Project Site/Footprint will be considered ESSs and included in the construction, operations and maintenance, and decommissioning EnvPPs.</p> <p>Where possible and practical, clearing and construction activities will be limited to frozen ground conditions.</p> <p>The removal of stumps will be limited where possible.</p> <p>As much as possible, Project-related activities will be limited to the Project Site/Footprint.</p> <p>Where practical, all merchantable timber will be salvaged.</p> <p>Where demand exists, an opportunity for local salvage of fuelwood will be provided to local communities.</p> <p>Debris from clearing will not be pushed into standing timber.</p> <p>Debris piles will be placed on mineral soil where possible and well removed from the right-of-way edge to avoid scorching adjacent vegetation.</p> <p>Burn piles will be monitored to ensure all fires are extinguished prior to spring breakup.</p> <p>Cleared woody debris will be disposed of to prevent infestations of sawyer beetles.</p> <p>All elm wood will be immediately burnt, chipped or disposed of at designated disposal sites to prevent the spread of DED.</p> <p>All equipment will be thoroughly washed before being transported to the</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			<p>clearing/construction site to minimize the spread of non-native plant species.</p> <p>All hazard trees (on and off right-of-way) will be removed at the time of clearing and construction.</p> <p>All disturbed sites that are not required for the operations and maintenance phase of the Project (e.g. borrow pits, access trails, marshalling yards) will be rehabilitated.</p> <p>On-site supervision of all activities will be provided during construction.</p> <p>As soon as is practical, all forest lands used temporarily (e.g. borrow pits, marshalling yards, access routes, etc.) during the construction phase of the Project will be rehabilitated and return them to the productive forest base.</p> <p>Manitoba Hydro compensate Manitoba Conservation for the effects on productive forestlands as specified in the FDA&amp; V Policy (Manitoba Conservation 2002).</p>
	Operation		<p>All equipment will be washed before being transported to the Project site to minimize the spread of non-native plant species.</p> <p>Conduct regular patrols to identify and remove hazard trees to minimize the risk of forest fires.</p> <p>Where possible, operations activities will be conducted during frozen ground conditions</p> <p>Project related activities will be limited as much as possible to the Project Site/Footprint, including designated access routes.</p> <p>Where the land withdrawal limit is exceeded, Manitoba must provide alternative sources of equal quality/cost resources and/or compensate the company for the withdrawals and any investments the company may have upon those lands.</p>
Mining/Aggregates	Construction		In instances where a potential adverse effect exists with quarry or aggregate

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			<p>operations, additional possible mitigation measures will include placement of towers to lessen/avoid interference with operations (i.e., quarries, pits) at those locations.</p> <p>Manitoba Hydro will consult with the affected stakeholders (operators) as part of the easement negotiation phase of the Project to avoid adverse interference from the transmission line with any future plans.</p> <p>Mineral claim and licence holders crossed by the final preferred route will be provided with information regarding clearing and construction schedules to minimize potential interference with exploration activities and Manitoba Hydro will work with mining interests and holders to address any outstanding issues.</p>
		Operation	<p>Holders of mineral claims and licences crossed by the line will be provided with information regarding operations and maintenance schedules to minimize potential interference with exploration activities.</p> <p>Quarry operators in proximity to the line will be provided information regarding operations and maintenance schedules to minimize potential interference with operations.</p>
Domestic Resource Use		Construction	<p>Where demand exists, cleared timber that is not otherwise practically salvageable, will be made available to communities for fuelwood. Manitoba Conservation is responsible for timber allocation on Crown lands. Within those areas under FMLs the Licensee has the first right to all merchantable timber under license. Manitoba Hydro will endeavour to salvage merchantable where practical to do so.</p> <p>Where the issue of increased access is important to a community (i.e., effect of increased access to areas deemed important for domestic resource use), Manitoba Hydro will work with directly affected communities to prepare Access Management Plans prior to construction of the line.</p> <p>Whenever possible, existing trails, roads and cut lines will be used as access routes.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			<p>Construction and site decommissioning activities in northern Manitoba will be carried out during the winter months.</p> <p>Where construction and site decommissioning activities do not occur during winter months, disturbances will be minimized in areas of plants used by Aboriginal people as identified through the ATK process.</p> <p>Access controls adjacent to PTH 6 and other access points from main roads will be applied, including ditching and access road retirement.</p> <p>Hunting and fishing by Project personnel will be prohibited, and firearms restricted in work camps.</p> <p>Understory strata will be maintained during construction and site decommissioning activities.</p>
Operation			<p>Manitoba Hydro will work with individual communities that have identified important resource use sites that are in close proximity to the Project Site/Footprint to minimize potential effects.</p> <p>Manitoba Hydro will work with individual communities and resource users who have identified important sites that are in close proximity to the line regarding ways to reduce pressure on the resource base caused by operations.</p> <p>Where the issue of increased access is important to a community (i.e., effect of increased access to areas deemed important for domestic resource use), Manitoba Hydro will work with directly affected communities to prepare Access Management Plans prior to operation of the line.</p> <p>Existing access roads and trails will be used to the extent possible.</p> <p>Maintenance activities will be carried out during the winter months to minimize surface damage, rutting and erosion.</p>

<b>Category</b>	<b>VEC</b>	<b>Project Phase</b>	<b>Mitigation</b>
			Where maintenance activities do not occur during winter months, soil and vegetation disturbance will be minimized in areas of plants used by Aboriginal people as identified through the ATK process.
Designated Protected Areas			Understory stratum will be maintained during maintenance activities. Maintain a 100m setback from the Bell and Steep Rock Canyon Protected area for all project activities.

## **GLOSSARY**

**Abundance:** This term expresses the number of individuals of a plant species and their coverage in a phytosociological survey; it is based on the coverage of individuals for classes with a coverage higher than 5% and on the abundance for classes with a lower percentage.

**Aboriginal Community:** A community where most of the residents are Aboriginal (i.e., Indian, Métis or Inuit) and that has a separate form of government, provides some level of service to its residents, and has clear community boundaries.

**Aboriginal Peoples:** Individuals who are Aboriginal (i.e., Indian, Inuit or Métis)

**Aboriginal Traditional Knowledge (ATK):** Knowledge that is held by and unique to Aboriginal peoples. It is a living body of knowledge that is cumulative and dynamic and adapted over time to reflect changes in the social, economic, environmental, spiritual and political spheres of the Aboriginal knowledge holders. It often includes knowledge about the land and its resources, spiritual beliefs, language, mythology, culture, laws, customs and medicines. The term Traditional Ecological Knowledge (TEK) is often used interchangeably with the term ATK. However, TEK is generally considered to be a subset of ATK that is primarily concerned with knowledge about the environment (Also see TEK).

**Access Road:** A road that affords access into and out of a “construction” area.

**Access Trail:** A trail that affords access into and out of a “construction” area.

**Access:** The ability to enter an area or reach a particular location.

**Active Layer:** The top layer of soil in a permafrost zone, subjected to seasonal freezing and thawing which during the melt season becomes very mobile.

**Activity:** Activity in relation to a project means actions carried out for construction, operation and eventual decommissioning; and in relation to human presence, actions carried out for domestic and commercial purposes including hunting, fishing, trapping, forestry, mining etc.

**Adaptation:** refers to any activity that reduces the negative impacts of climate change and/or positions us to take advantage of new opportunities that may be presented. Adaptation is needed to address the challenges of climate change, and represents a necessary complement to mitigation. Adaptation strives to alleviate current climate change impacts, reduce sensitivity and exposure to climate-related hazards, and increase resilience to climatic and non-climatic stressors (i.e. an increase in adaptive capacity) (Natural Resources Canada, 2007).

**Adaptive Capacity:** The potential, capability or ability of a system to adapt to climate change stimuli or their effects or impacts. “System” is a broad term and could refer to a region, community, economic sector, institution, and/or private business. Therefore, adaptive capacity is difficult to measure, and while adaptive capacity is most meaningful as a local characteristic, data availability frequently means that it can only be assessed at the national or regional level (Natural Resources Canada, 2007).

**Adaptive Management:** The implementation of new or modified mitigation measures over the construction and operation phases of a project to address unanticipated environmental effects. The need for the implementation of adaptive management measures may be determined through an effective follow-up program.

**Adverse Effects:** Negative effects on the environment and people that may result from a proposed project.

**Aerial Spray Applicator:** Is an agricultural aircraft used for the purpose of spraying pesticides and fertilizers on crops from the air. Often called ‘crop dusting’.

**Aesthetics:** Characteristics relating to the appearance or attractiveness of something.

**Afforestation –** The establishment of a forest or stand of trees by sowing, planting or natural regeneration on an area not previously forested, or in areas where forests were cleared long ago and other land-use patterns have dominated the landscape for many generations (Dunster et al, 1996).

**Aggregate:** Soil aggregate consisting of two or more soil particles bound together by various forces.

**Agromyzids:** Flies from the family Agromyzidae, also referred to as the leaf miner flies. Small to very small flies, usually blackish or yellowish. Leaf miner flies are common insects usually occurring on vegetation. Larvae are mostly leaf miners and generally make a narrow winding mine; some feed in stems and seeds (Borror and White, 1970).

**Air Ions:** An ion comprised of molecules or molecular clusters bound together by charge. Mobilities are in the range of  $10^{-5}\text{m}^2/\text{Vs}$  to  $2 \times 10^{-4}\text{m}^2/\text{Vs}$ . Typical radius is less than  $1 \times 10^{-9}\text{m}$  (IEEE Std. 1227, 1990).

**Alignment:** The vertical and/or horizontal route or direction of a linear physical feature.

**Alluvial:** Pertaining to materials (e.g., clay, silt, sand, and gravel) deposited by running water, including the sediments laid down in riverbeds, floodplains, lakes and estuaries.

**Alluvium:** A general term for clay, silt, sand, gravel, or similar unconsolidated detrital material, deposited during comparatively recent geologic time by a stream or other body of running water, as a sorted or semi sorted sediment in the bed of the stream or on its floodplain or delta, as a cone or fan at the base of a mountain slope. Sediment deposited by flowing water, as in a riverbed, flood plain or delta.

**Alternating Current (ac):** Is the oscillating (back and forth) flow of electrical current, whereas dc (direct current) is the unidirectional continuous flow of electrical current. AC is the common household electrical current and is used in transmission lines; DC is the form of current produced by battery (e.g., in a flashlight). High Voltage DC (HVdc) transmission is used in Manitoba for some transmission facilities (e.g., between Limestone Generating Station and Winnipeg).

**Alternative means of carrying out a project:** The various technically and economically feasible ways, other than the proposed way, for a project to be implemented or carried out. Examples include other project locations, different routes and methods of development, and alternative methods of project implementation or mitigation.

**Alternative Routes:** Options for routing transmission lines which are identified as part of the Site Selection and Environmental Assessment process.

**Alternatives to a project:** The functionally different ways, other than a proposed project, to meet the project need and achieve the intended purpose. For example, if a need for greater power generation has been identified, a proposed project might be to build a new power generation facility. An alternative to that project might be to increase the generation capacity of an existing facility.

**Aluminum Conductor Steel Reinforced (ASCR):** A type of phase conductor used in a three phase ac circuit.

**Aluminium Conductor Steel Reinforced (ACSR):** A type of transmission cable or conductor.

**Ampere (A or amp):** The unit of measurement of electric current.

**Amphibian:** Cold-blooded animal of the Class Amphibia that typically lives on land but breeds in water (e.g., frogs, toads, salamanders).

**Anchor:** A foundation arrangement used to secure the guy wires supporting a transmission tower to the ground.

**Angiosperm:** A seed borne in a vessel (carpel); thus one of a group of plants whose seeds are borne with a mature ovary or fruit.

**Angle Tower:** A specifically designed structure needed whenever a transmission line changes direction.

**Annual Herb:** An herb that lives and grows in a single season.

**Anode Grade Coke Bed:** A relatively pure carbon bed used for electrode assembly and installation.

**Anothomyiids:** Flies from the family Anthomyiidae. This is a large group that includes many common flies. Most are similar to a House Fly in general appearance and vary from being smaller to larger than a House Fly. Larval habits vary: many are plant feeders, and some of these are serious pests of cultivated plants; many are scavengers, living in excrement or decaying materials; some are aquatic (Borror and White, 1970).

**Anoxic:** Deficient in oxygen.

**Anthropogenic:** A descriptive term used to identify different aspects of nature that have been influenced by human activity or activities (Wildlife Resources Consulting Services, 2011).

**Anuran species:** Any of several tailless frogs and toads, of the order Anura, with long hind legs.

**Aquatic peatland:** A peatland adjacent to a water body or waterway. The peat adjacent to the water's edge is usually floating.

**Aquifer:** A body of rock or sediment that is sufficiently porous and permeable to store, transmit, and yield significant or economic quantities of groundwater to wells and springs.

**Aquitard:** A confining bed and/or formation composed of rock or sediment that retards but does not prevent the flow of water to or from an adjacent aquifer. It does not readily yield water to wells or springs, but stores ground water.

**Archean (Archaic):** A term used in Manitoba archaeology which refers to a specific cultural period (ca. 7000 B.P.). A geologic eon (time unit) before the Paleoproterozoic Era of the Proterozoic Eon, before 2.5 Ga (billion years, or 2,500 Ma) ago. The main technological marker that is left in the archaeological record is the atlatl, or spear-thrower.

**Arden Ridge:** A long narrow elevated ridge with steep slopes and a more or less continuous crest; located near the community of Arden, Manitoba.

**Artesian Aquifer:** A body of rock or sediment containing groundwater that is under greater than hydrostatic pressure: that is, a confined aquifer. When an artesian aquifer is penetrated by a well, the water level will rise above the top of the aquifer.

**Atmosphere-Ocean Global Circulation Model (AOGCM):** A form of Global Climate Models (GCM) that can be coupled with land-focused GCM's to provide a greater variety of options in predicting change.

**Audible Noise (AN):** The measure of noise emanating from a source in an audible frequency. Usually measured in dBA.

**Azonal:** Soil without distinct genetic horizons.

**Basal Treatment:** Refers to the application of herbicide to the lower portion of individual woody plants or stems.

**Baseline environment:** A description of the environmental conditions at and surrounding a proposed action.

**Bedrock:** The solid rock that lies beneath the soil and other loose material on the Earth's surface.

**Benthic Invertebrates:** Small animals (without backbones) that live on or in the bottom of waterbodies (e.g., insect larvae, clams).

**Berm:** An artificial ridge or embankment used to stop vehicle traffic or to block line of sight.

**Biological Control:** Limiting the growth or numbers of pests such as insects and weeds using natural means or chemicals.

**Biological diversity (Canada):** Means the variability among living organisms from all sources, including, without limiting the generality of the foregoing, terrestrial and marine and other aquatic ecosystems and the ecological complexes of which they form a part and includes the diversity within and between species and of ecosystems (Department of Justice, 2011b).

**Biological diversity (Manitoba):** Means the variability among all living organisms and the ecological complexes of which they are part, including diversity within and among species and among ecosystems.

**Biological Oxygen Demand (BOD):** The uptake rate of dissolved oxygen by the biological organisms in a body of water (Wikipedia, 2011b)

**Biome:** A large natural area characterized by its dominant forms of vegetation, physical geography and their associated animal life forms. This is largely a reflection of the dominant climate and soils of the region (Wildlife Resources Consulting Services, 2011).

**Bipole:** In the HVdc transmission context, a transmission system consisting of a transmission line and converter facilities, and comprising both a positively and a negatively energized pole.

**Blanket bog:** A peatland with an organic layer that is between one and two metres thick.

**Blasting:** The act of causing an explosion, consisting of a wave of increased atmospheric pressure followed immediately by a wave of decreased pressure

**Bog:** A wetland ecosystem made up of in-situ accumulations of peat, either moderately or slightly decomposed, derived primarily from sphagnum moss. Bog water is acidic, usually at or very near the surface and unaffected by the nutrient-rich groundwater found in the adjacent mineral soil. (Dunster et al, 1996).

**Bog Basins:** A peatland where vegetation receives nutrient inputs from precipitation only. Peat mosses (Sphagnum species) are the dominant peat forming vegetation in bogs.

**Boreal:** Pertaining to the north; a climate and ecological zone that occurs south of the subarctic, but north of the temperate hardwood forests of eastern North America, the parkland of the Great Plains region, and the montane forests of the Canadian cordillera.

**Boreal Shield Ecozone:** As classified by Environment Canada; an ecological land classification consisting predominantly of boreal forest on soils overlying Precambrian shield rock. It extends as a wide band from the Peace River area of British Columbia in the northwest to the southeast corner of Manitoba.

**Borrow Area Zone:** An area representing the originally anticipated extent of potential borrow area use at the time the quantitative habitat effects assessment was completed.

**Borrow pits:** The hole left by the removal of material (usually sand or gravel) for construction purposes.

**Boulder lag:** An accumulation of boulders remaining on a surface after finer materials and smaller rocks have been removed by wind or water.

**Broadleaf:** Refers to perennial plants from which the leaves abscise and fall off at the end of the growing season.

**Brunisolic:** An order of soils in which the horizons are developed sufficiently to exclude them from the Regosolic order but lack the degrees or kinds of horizon

development specified for soils of the other orders. These soils which occur under a wide variety of climatic and vegetative conditions all have Bm or Btj horizons.

**Brunisols:** Soils of the Brunisolic order have sufficient development to exclude the soils from the Regosolic order, but lack the degrees or kinds of horizon development specified for soils of the other orders. The central concept of the order is that of soils formed under forest and having brownish coloured Bm horizons and/or various colours with both Ae horizons and B horizons having slight accumulations of either clay, or amorphous aluminum and iron compounds, or both.

**Buffer Zone:** 1) An area that protects or reduces impacts to a natural resource from human activity; 2) A strip of land along roads, trails or waterways that is generally maintained to enhance aesthetic values or ecosystem integrity.

**Buffer:** An area of land separating two distinct land uses that acts to soften or mitigate the effects of one land use on the other.

**Built-up Area:** An area characterized by residential, commercial and/or industrial development including roads, infrastructure, services, etc.

**Burning:** The act of setting something on fire.

**Burntwood Nelson Agreement (BNA):** Sets out hiring preferences for the Wuskwatin Generating Project. It includes priority for northern Aboriginal residents, as well as procedures for adjusting wages and certain benefits during the life of the agreement. The agreement also contains provisions relating to the recruitment, referral, placement, training and retention of northern Aboriginal people and facilitates the hiring of northern Aboriginal people by northern Aboriginal businesses.

**Calcareous:** Composed of, containing or resembling calcium carbonate, calcite or chalk. Calcareous soils containing sufficient calcium carbonate, often with magnesium carbonate, to effervesce visibly when treated with cold 0.1 N hydrochloric acid.

**Campbell Beach Ridge:** An extensive sand and gravel ridge, most evident in southwestern Manitoba that was once the eastern and western shores of Lake Agassiz (ca.11, 100-10,900) (Northern Lights Heritage Services, 2011).

**Canadian Shield:** The wide area of Precambrian bedrock extending over most of central and eastern Canada.

**Canadian Standards Association (CSA):** Organization that sets standards and criteria for operation of the project.

**Canopy:** The more or less continuous cover of branches and foliage formed by the crowns of trees.

**Canopy Closure:** The degree of canopy cover relative to openings.

**Carbonate:** A rock made up primarily of carbonate minerals (minerals containing the CO<sub>3</sub> anionic structure).

**Carbonate-evaporite:** A sedimentary rock that consists of carbonate minerals formed as precipitates from the evaporation of a saline solution, such as saltwater.

**Cataclastic:** The structure produced in a rock by the actions of severe mechanical stresses that occur during metamorphic rock formation.

**Centimeter (cm):** A unit of length; 1 cm = 0.01 metre.

**Certified Forest Area:** Forested areas that are managed in a sustainable fashion based on responsible forest practices and standards.

**CF Method:** Change Factor method is a simple algorithm that allows for the downscaling of GCM's to a regional level. They should be used for broad-brush, high-level assessment and identification of vulnerable regions.

**Charged Aerosols:** A gaseous suspension of fine solid or liquid particles with a positive or negative electric charge.

**Chernozemic:** An order of soils that have developed under xerophytic or mesophytic grasses and forbs or under grassland-forest transition vegetation in cool to cold subarid to subhumid climates. The soils have a dark-colored surface (Ah or Ahe or Ap) horizon and a B or C horizon, or both, of high base saturation. The order consists of Brown, Dark Brown, Black, and Dark Grey great groups

**Chernozems:** Is a soil common to grassland ecosystems. This soil is dark in color (brown to black) and has an A horizon that is rich in organic matter. Chernozems are common in the Canadian prairies.

**Circuit (Electric):** The complete path of an electric current or a distinct segment of it (Dictionary.com, 2011b). In the transmission context, circuit refers to the three conductors that transmit the electricity between station terminals. Transmission lines and structures may carry one or more circuits.

**Circuit Breaker:** Mechanical switching device capable of making, carrying, and breaking currents under normal circuit conditions and also making, carrying for a specified time, and breaking currents under specified abnormal conditions such as those of a short circuit.

**Cladina:** A type of ground lichen commonly known as a reindeer lichen within the Family Cladoniaceae that is found in the Boreal Forest of Canada.

**Classification:** The systematic grouping and organization of objects, usually in a hierarchical manner.

**Cleaning Up:** The act of collecting and removing equipment, materials, wastes, etc from a “construction” area.

**Clearing:** The act of cutting and removing trees from a “construction” area. Trees may be cut by machine or hand methods.

**Clear-Span Bridge:** Small-scale bridge structure that completely spans a watercourse without altering the stream bed or bank, and that are a maximum of two lanes wide. The bridge structure (including bridge approaches, abutments, footings, and armouring) is built entirely above the high water mark.

**Climate Change:** Is a long-term change in the statistical distribution of weather patterns over periods of time that range from decades to centuries. It includes changes in the average weather conditions or a change in the distribution of weather events with respect to an average, such as the amount and frequency of extreme weather events. Climate change is arguably due to both natural causes (i.e. natural processes of the climate system) as well as human-based environmental impacts (ex. increase in concentrations of greenhouse gases) (Natural Resources Canada, 2007).

**Climate Variability:** A deviation of the usual (such as the single occurrence of an extreme weather event over a given period of time). Climate variability can be thought of as a short term weather fluctuation superimposed on top of the long term climate change or trend. Cycles of extreme weather events (drought, floods) are not climate change unless prolonged over many decades. Climate variability can vary from relatively rare climate events, to frequent climate events. Low frequency variability refers to phenomena such as El Niño which occur every ten years or longer. High frequency variability refers to meteorological events and their distribution (for example, frequency, duration and intensity) at yearly, seasonal or monthly timescales.

**Climax species:** Tree species that are present in a forest reaching maturity (in the final stage of succession). These trees come in after the pioneer species and shade out the earlier species.

**Closed Stands:** See definition for closed and stands.

**Closed:** Refers to canopy closure. The closure of canopy cover relative to openings.

**Cluster Analysis:** A multidimensional statistical technique used to group samples according to their degree of similarity.

**Coleoptera:** An order of insects that comprises the beetles (including weevils), forming the largest order of animals on the earth. The Coleoptera includes many commonly encountered insects such as ladybird beetles (family Coccinellidae), click beetles (Elateridae), scarabs (Scarabaeidae), and fireflies (Lampyridae).

**Collective Bargaining Agreement (CBA):** Work at the Keewatinooow site will be covered by a collective bargaining agreement (CBA), which is intended to ensure labour stability (i.e. no strikes or lock-outs during construction) and provide cost-competitive wages and benefits. All jobs filled through the job order process will be covered by this agreement which, among other things, sets out wages, employee benefits, work hours, overtime pay and specifies the job referral process, hiring preferences, trainee/apprenticeship ratios, the lay-off process and the grievance process. The CBA is negotiated by the Hydro Project Management Association, which represents Manitoba Hydro and contractors, and the Allied Hydro Council, which represents the construction unions. Parties to the negotiation process have to agree on and approve the conditions of employment (e.g., the hiring preference, referral and hiring system, and on-the-job training provisions) for the project. All contractor employees covered under the CBA will be required to become a union member once they are hired to work on the Project, if they are not already union members.

**Collector System:** In the Bipole III context, refers to the collection of ac transmission lines used to transmit energy from northern generating stations to the HVdc transmission system.

**Collembola:** Minute wingless arthropods: springtails.

**Commercial Forest Zone:** The geographic area, defined by Manitoba Conservation, Forestry Branch, that is capable of producing trees large enough for commercial harvesting. The Commercial Forest Zone includes most of the Prairie, Boreal Plains and Boreal Shield ecozones. It is also referred to as the Productive Forest Zone (Plus4 Consulting et al. 2011).

**Committee on the Status of Endangered Wildlife in Canada (COSEWIC):** Committee established by the *Species at Risk Act* as the authority for assessing the conservation status of species that may be at risk of extinction in Canada.

**Community Knowledge:** Information held by community members, such as farmers, hunters, fishers and naturalists, who are familiar with the environment in a specific geographic area. Community knowledge may be used in the environmental assessment

of a proposed project. For example, fishermen in a specific area may know where the best "fishing spots" are, and therefore may contribute to identifying potential fish habitat.

**Community-Type:** A group of vegetation stands that share common characteristics, an abstract plant community.

**Complexed:** Pertaining to two or more defined soil units that are so intimately intermixed geographically that it is impractical because of the scale used to separate them.

**Compliance Monitoring:** A broad term for a type of monitoring conducted to verify whether a practice or procedure meets the applicable requirements prescribed by legislation, internal policies, accepted industry standards or specific terms and conditions (e.g., in an agreement, lease, permit, license or authorization).

**Compound leaf:** A type of leaf with a fragmented blade, with divisions reaching the mid-rib (Botanical Online SL, 2011).

**Conductor Stringing:** The process of suspending the conductor from insulators attached to the transmission line towers or structures.

**Conductor:** Any material that will readily carry a flow of electricity. In the context of transmission lines, each of the two conductors or conductor bundles comprising a dc circuit, or the three comprising an ac circuit, is referred to as a conductor.

**Confidence Interval (CI):** An estimate using a range of values (an interval) to predict the expected value of an unknown parameter, accompanied by a specific level of confidence, or probability, that the estimate will be correct (i.e. that the interval will in fact contain the true value of the parameter) (Statistics Canada, 2009).

**Confined Aquifer:** An aquifer that is bounded above and below by formations of distinctly lower permeability than that of the aquifer itself. An aquifer containing confined ground water. See artesian aquifer.

**Coniferous:** A cone-bearing plant belonging to the taxonomic group Gymnospermae.

**Conservation Data Centre (CDC) Ranking:** A Manitoba Conservation status rank assigned to a species by the Conservation Data Centre on the basis of the species' province-wide status. Species are assigned a numeric rank ranging from 1 (very rare) to 5 (demonstrably secure).

**Conservation:** Any of various efforts to preserve or restore the earth's natural resources, including such measures as: the protection of wildlife, the maintenance of

forest or wilderness areas, the control of air and water pollution and the prudent use of farmland, mineral deposits, and energy supplies.

**Construction Camp:** The temporary housing and support of workers for the purpose of constructing.

**Construction:** Includes activities anticipated to occur during Project development.

**Contaminant:** As defined by *The Manitoba Dangerous Goods Handling and Transportation Act*, “any solid, liquid, gas, waste, radiation or any combination thereof that is foreign to or in excess of the natural constituents of the environment and that effects the natural, physical, chemical or biological quality of the environment; or that is or is likely to be harmful or damaging to the health or safety of a person.”

**Contamination:** The act or process of contaminating or changing the level of a contaminant in the natural environment.

**Converter Station:** The terminal equipment for a high voltage direct current transmission line, in which alternating current is converted to direct current or direct current is converted to alternating current.

**Corona Discharge:** An electrical discharge around a conductor that can electrically charge air molecules to become air ions.

**Corridor:** A band of land within which one or more alternative routes can be identified.

**Country foods:** Traditional foods from the land, such as wild animals, birds, fish, plants and berries.

**Cover:** Vegetation such as trees or undergrowth that provides shelter for wildlife. Also, the surface area of a stratum of vegetation as based on the vertical projection on the ground of all above-ground parts of the plant. Also, the material in or over-hanging the wetland area of a lake or stream providing fish with protection from predators or adverse flow conditions, e.g., boulders, deep pools, logs, vegetation.

**Cover type:** Four broad cover types are recognized – Softwood ‘S’, Softwood-Hardwood ‘M’, Hardwood-Softwood ‘N’, Hardwood ‘H’. The first number of the sup-type code indicates the type aggregate (0 to 3 - Softwood; 4 to 7 – Softwood/Hardwood Mixed ; 8 – Hardwood/Softwood Mixed; 9 – Hardwood) (Plus4 Consulting et al., 2011).

**Cree Nation Partners (CNP):** A partnership formed in 2001 amongst Tataskewayk Cree Nation and War Lake First Nation.

**Cretaceous** - The final period of the Mesozoic era, spanning the time between 145 and 65 million years ago.

**Critical habitat:** An area of habitat or the place in which an organism lives that is essential in providing the requirements needed for a specific species to live.

**Cryoboreal:** Refers to species characteristic of the colder parts of the Boreal Zone.

**Cryosolic:** An order of soils proposed for adoption in the Canadian taxonomic system. Cryosolic soils are mineral or organic soils that have perennially frozen material within 1 m (3 ft) of the surface in some part of the soil body, or pedon. The mean annual soil temperature is less than 0°C (32°F). They are the dominant soils of the zone of continuous permafrost and become less widespread to the south in the zone of discontinuous permafrost; their maximum development occurs in organic and poorly drained, fine textured materials.

**Cryosols:** Soils of the Cryosolic order are formed in either mineral or organic materials that have permafrost either within one metre of the surface or within two metres if the pedon has been strongly crysturbated (churning of the ground surface by frost action) laterally within the active layer, as indicated by disrupted, mixed or broken horizons. Cryosols have a mean annual temperature of less than or equal to 0 degrees Celsius.

**Cultural Ecology:** The study of human interaction with ecosystems to determine how nature influences and is influenced by human social organization and culture.

**Cumulative effects assessment:** An assessment of the incremental effects of an action on the environment when the environmental effects are combined with those effects from other past, present and future actions.

**Cumulative Environmental Effects:** The environmental effects that are likely to result from a project in combination with the environmental effects of other past, existing and reasonably foreseeable future projects or activities. For example, one might consider the effects of siltation on fish and fish habitat during construction in combination with the effects of local agriculture and fishing activities.

**Current:** The rate of motion of electrical charge through a conductor.

**Cycle:** In the context of ac electricity, cycle is used in reference to the repeating event of reversal of current flow; the number of such reversals per unit of time is the frequency.

**Danger Trees:** Danger trees are trees located outside a cleared transmission line right-of-way but which may pose a risk of contact or short circuit with the line or structures.

**Dangerous Goods:** Any product, substance or organism that, by its nature, is able or likely to cause injury, or that is included in any of the classes listed in the Dangerous

Goods Handling and Transportation Regulation 55/2003 and Classification Criteria for Products, Substances and Organisms Regulation 282/87.

**Dark Geese:** Includes Canada, White-fronted, Brant and Cackling geese (subspecies of Canada goose).

**Deciduous:** Refers to perennial plants from which the leaves abscise and fall off at the end of the growing season (Couboue et al. 1996).

**Decommissioning:** Planned shut-down, dismantling and removal of a building, equipment, plant and/or other facilities from operation or usage and may include site clean-up and restoration.

**Degradation:** The diminution of biological productivity or diversity.

**Deleterious Substances:** Any substance that, if added to any water, would degrade or alter the quality of that water so that it becomes toxic or harmful to aquatic organisms and habitat.

**Demobilizing:** The removal of personnel, machinery and materials and other support infrastructure and services from a site after construction is complete.

**Detritus:** Parts of dead organisms and cast-off fragments and wastes of living organisms.

**Development:** as defined under *The Environment Act* – Any project, industry, operation or activity, or any alteration or expansion of any project, industry, operation or activity which causes or is likely to cause: a) the emission or discharge of any pollutant to the environment, or b) an effect on any unique, rare or endangered feature of the environment, or c) the creation of by-products, residual or waste products not regulated by *The Dangerous Goods Handling and Transportation Act*, or d) A substantial utilization or alteration of any natural resource in such a way as to pre-empt or interfere with the use or potential use of that resource for any other purpose, or e) A substantial utilization or alteration of any natural resource in such a way as to have an adverse effect on another resource, or f) The utilization of a technology that is concerned with resource utilization and that may induce environmental damage, or g) A significant effect on the environment or will likely lead to a further development which is likely to have a significant effect on the environment, or h) A significant effect on the social, economic, environmental health and cultural conditions that influence the lives of people or a community insofar as they are caused by environmental effects (Manitoba Laws, 2011).

**Dicotyledon:** One of the two divisions of the Angiosperms; the embryo has two cotyledons, the leaves are usually net-veined, the stems have open bundles, and the flower parts are usually in fours or fives.

**Diptera:** A large order of insects having a single pair of wings and sucking or piercing mouths; includes true flies and mosquitoes.

**Direct Current (dc):** Electrical current that flows in one direction only.

**Direct effect:** An environmental effect that is a change that a project may cause in the environment; or change that the environment may cause to a project. A direct effect is a consequence of a cause-effect relationship between a project and a specific environmental component.

**Directly Negotiated Contract (DNC):** A type of contract that is non-tendered and directly negotiated between parties of interest.

**Disjunct:** Marked by separation of or from usually contiguous parts or individuals.

**Distribution System:** The poles, conductors, and transformers that deliver electricity to customers. The distribution system transforms high voltages to lower, more usable levels. Electricity is distributed at 120/240 volts (V) for most residential customers and 120 to 600 V for the majority of commercial customers.

**Disturbance:** A disruption in the normal functioning of an organism or system.

**Diurnal:** A species whose most active period takes place between sunset and sunrise. *See also* crepuscular (Wildlife Resources Consulting Services, 2011).

**Dolostones:** A carbonate sedimentary rock that is crystalline in form and generally light colored. Dolostone is often found in montane areas or alluvial plains.

**Domestic Well:** A water well used to supply water for the domestic needs of an individual residence or systems of four or fewer service connections.

**Downscaling:** Derivation of scenario data with more appropriate (i.e. smaller) scales. It takes raw data outputs from GCM simulations and uses algorithms to sophisticated statistical downscaling to derive results usable at smaller scales.

**Draining:** The act of making land drier by providing channels for water to flow away.

**Drilling:** The act of boring a hole in something (ground or bedrock) with a device such as a drill.

**Drumlin:** A smooth hill formed by deposits of glacial till; the long axis parallels the direction of former glacial flow.

**Drumlinoid:** Refers to the family of streamlined landforms characteristic of large areas of beds of former glaciers and ice sheets.

**Dystric Brunisol:** Acid Brunisols (see definition for Brunisol above) that lack a well-developed mineral organic surface horizon; Dystric Brunisols occur widely, usually on parent materials of low base status and typically under forest vegetation.

**Earnings:** Refers to total income received by persons 15 years and over during calendar year 2005 as wages and salaries, net income from a non-farm unincorporated business and/or professional practice, and/or net farm self-employment income (MMM Group Ltd. 2011)

**Easement:** The permission or right to use a defined area of land for a specific purpose such as transmission line rights-of-way. Transmission line easements give Manitoba Hydro the right of access to the right-of-way to construct, operate and maintain the transmission line.

**Ecodistrict:** A subdivision of an ecoregion and cartographical delineation of distinct ecological areas, identified by their geology, topography, soils, vegetation, climate conditions, living species, and water resources.

**Ecological Land Classification:** The Canadian classification of lands from an ecological perspective, an approach that attempts to identify ecologically similar areas.

**Ecoregion:** A geographical area characterized by a distinctive regional climate as expressed by vegetation (Cauboue et al. 1996).

**Ecosystem:** A functional unit including the living and the non-living things in an area, as well as the relationships between those living and non-living things. For example, a decaying log comprises the ecosystem for a microbe because the log provides everything that the microbe needs to survive and reproduce.

**Ecozones:** An area of the earth's surface representing large and very generalized ecological units characterized by interacting abiotic and biotic factors; the most general level of the Canadian ecological land classification (Cauboue et al. 1996).

**Ectoparasites:** A parasite that affects the external surfaces (including external surfaces of the gills) of an organism.

**Electric and Magnetic Field (EMF):** EMFs are invisible lines of force surrounding any wire carrying electricity, and are produced by all electric tools and appliances, household wiring and power lines. The strengths of EMFs depend on the voltage level and the amount of current flow. Fields fall off sharply with increasing distance from a

transmission line; electric fields are easily blocked by vegetation, buildings or other obstacles, while magnetic fields are unaffected by such objects. Electric fields are measured in volts per metre. Magnetic fields are measured in milliGauss.

**Electric Current:** See Current.

**Endangered:** A species facing imminent extirpation or extinction (COSEWIC, 2010).

**Engineering Procurement and Construction (EPC):** A contract outlining the construction activity.

**Enhance:** To improve by increasing in number or quality.

**Environment (Canada):** The components of the Earth and includes: a) Land, water and air, including all layers of the atmosphere, b) All organic and inorganic matter and living organisms, and c) the interacting natural systems that include components referred to in paragraphs a) and b) (Department of Justice 2011a).

**Environment (Manitoba):** Means a) air, land, and water, or b) plant and animal life, including humans.

**Environmental Assessment (EA):** Process for identifying project and environment interactions, predicting environmental effects, identifying mitigation measures, evaluating significance, reporting and following-up to verify accuracy and effectiveness leading to the production of an Environmental Assessment report. EA is used as a planning tool to help guide decision making, as well as project design and implementation.

**Environmental Component:** Fundamental element of the physical, biological or socio-economic environment, including the air, water, soil, terrain, vegetation, wildlife, fish, birds and land use that may be affected by a proposed project, and may be individually assessed in the environmental assessment.

**Environmental Effect:** In respect of a project, a) any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act*, b) any effect of any change referred to in paragraph a) on i) health and socio-economic conditions, ii) physical and cultural heritage, iii) the current use of lands and resources for traditional purposes by aboriginal persons, or iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or any change to the project that may be caused by the environment; whether any such change or effect occurs within or outside Canada (Department of Justice, 2011a).

**Environmental Impact Statement (EIS):** A document that presents the findings of an environmental assessment in response to specific guidelines or terms of reference. The term EIS is often used in the context of an assessment by a review panel and in the environmental assessment regimes of other jurisdictions.

**Environmental Management System (EMS):** Part of an organization's overall management practices related to environmental affairs. It includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining an environmental policy. This approach is often formally carried out to meet the requirements of the International Organization for Standardization (ISO) 14000 series.

**Environmental Monitoring:** Periodic or continuous surveillance or testing, according to a pre-determined schedule, of one or more environmental components. Monitoring is usually conducted to determine the level of compliance with stated requirements, or to observe the status and trends of a particular environmental component over time.

**Environmental Protection Plan (EnvPP):** Within the framework of an Environmental Protection Program, an Environmental Protection Plan prescribes measures and practices to avoid and minimize potential environmental effects of a proposed project. A “user-friendly” guide for the contractor and Manitoba Hydro that includes: information such as a brief project description; updated construction schedule; summary identifying environmental sensitivities and mitigation actions; listing of all federal, provincial or municipal approvals, licenses, or permits that are required for the project; a description of general corporate practices and specific mitigating actions for the various construction and maintenance activities; emergency response plans, training and information; and environmental/engineering monitoring plans and reporting protocols.

**Environmental Protection Program (EPP):** Provides a framework for delivery, management and monitoring of environmental protection activities in keeping with issues identified in the environmental assessment, regulatory requirements and public expectation.

**Environmentally Sensitive Site (ESS):** Locations, features, areas, activities or facilities that were identified in the Bipole III Transmission Project EIS to be ecologically, socially, economically or culturally important or sensitive to disturbance and require protection during construction and operation of the project.

**Eolian Dunes:** dunes created from the deposit of highly wind erodible soils

**Epiphyte:** A plant growing on another plant structure for physical support.

**Epiphytic Algae:** Algae that grows on another, using it as a physical support but not obtaining nutrients from it.

**Ericaceous:** Belonging or relating to the heath family, a group of evergreen shrubs and small trees that includes the heath, heather, blueberry, rhododendron, azalea and arbutus.

**Erosion:** Natural process by which the Earth's surface is worn away by the actions of water and wind.

**Esker:** A long winding ridge of stratified sand and gravel that is formed from drift deposited in tunnels running through a glacier.

**Eutric:** A great group of soils in the Brunisolic order. The soils may have mull Ah horizons less than 5 cm (2 inches) thick, and they have Bm horizons in which the base saturation (NaCl) is 100%.

**Evaluation:** The determination of the significance of effects. This involves making judgements as to the value of what is being affected and the risk that the effect will occur and be unacceptable.

**Evaporite:** A chemical sediment or sedimentary rock that has formed by precipitation from evaporating waters.

**Extensive discontinuous permafrost:** Where permafrost covers 50 to 90% of the landscape and is usually found in areas with mean annual temperatures between -2 and -4 °C.

**Extirpated:** The extinction of a species within a given area, with the species still occurring within the remainder of their range (Wildlife Resources Consulting Services, 2011).

**Fee Simple Lands:** Is the absolute title of a land. The land is free of any claims against it (Farflex, 2011)

**Feet (ft.):** Plural for foot. A foot is a linear unit of length equal to 12 inches. One foot equals 0.3 metres.

**Feller Bunchers:** A type of harvester used in logging. A motorized vehicle with an attachment that can rapidly cut and gather several trees before felling them.

**Fen:** A type of wetland fed by surface and/or groundwater; water chemistry is neutral to alkaline and sedges are the dominant vegetation.

**Fibric:** Descriptive of organic soil material containing large amounts of weakly decomposed fiber whose botanical origin is readily identifiable.

**Fbrisols:** Organic soils consisting predominantly of relatively undecomposed plant material, such as Sphagnum mosses, with clearly visible plant fragments.

**Filamentous algae:** Algae that form filaments or mats attached to sediment, weeds, piers, etc.

**Fill:** Natural soils that are manually or mechanically placed; soil or loose rock used to raise a grade.

**Fish Habitat:** Spawning, nursery, rearing, food supply and migration areas upon which fish depend (*Fisheries Act*).

**Fish Habitat:** Spawning, nursery, rearing, food supply and migration areas upon which fish depend (*Fisheries Act*).

**Flat Bog:** Flat bogs are not confined by a discrete basin and, therefore, occur in broad, poorly defined lowland areas. These bogs are not found on sloping terrain. The surface is more or less uniform and featureless and the depth of the peat is generally uniform across the entire peatland. (The Canadian Wetland Classification System, 1997).

**Flora:** A list of the plant species present in an area.

**Follow-up Program:** A program for: a) verifying the accuracy of the environmental assessment of a project, and b) determining the effectiveness of any measures taken to mitigate the adverse environmental effects of the project (Department of Justice, 2011a).

**Footprint:** The surface area occupied by a structure or activity.

**Forb:** A broad-leaved, non-woody plant that dies back to the ground after each growing season.

**Forest:** A relatively large assemblage of tree-dominated stands.

**Fossorial Species:** Is one that is adapted to digging and life underground.

**Foundation:** The surface or subsurface base that is in direct contact with the ground and supports a structure.

**Fragmentation:** The breaking up of contiguous blocks of habitat into increasingly smaller blocks as a result of direct loss and/or sensory disturbance. Eventually, remaining blocks may be too small to provide usable or effective habitat for a species.

**Freshet:** the occurrence of water flow from a sudden rain fall or snow melt

**Furbearer:** Referring to those mammal species that are trapped (e.g., marten, fox, etc.) for the useful or economic value of their fur.

**Game Hunting Area (GHA):** Designated areas in Manitoba in which game hunting is regulated by species, quota, means, etc.

**Gap Dynamics:** The formation and replacement of patches or gaps in a landscape, as in the fall of trees and growth of new trees in that opening

**Gas Insulated Switch (GIS):** Electrical switchgear that uses gas (typically SF<sub>6</sub>) as the insulating medium (as opposed to air or oil); refer also to stations designed to use GIS equipment.

**Gauss (G):** A common unit of measure for magnetic fields. There are 10,000 Gauss in one Tesla.

**Generating Station (GS):** A structure that produces electricity. Its motive force can be provided in a variety of ways, including burning of coal or natural gas, or by using water (hydro) power. Hydroelectric generating stations normally include a complex of powerhouse, spillway, dam(s) and transition structures; electrical energy is generated by using the flow of water to drive turbines.

**Generator:** A machine that converts physical energy, such as the flow of water over a dam, into electrical energy.

**Geographic Information System (GIS):** A computerized information system which uses geo-referenced spatial and tabular databases to capture, store, update, manipulate, analyze and display information.

**Geological overburden:** Material overlying a useful mineral deposit or desired bedrock anchor.

**Glaciofluvial:** Descriptive of material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and may occur in the form of outwash plains, deltas, kames eskers, and kame terraces.

**Glaciolacustrine:** Pertaining to, derived from, or deposited in glacial lakes; especially said of the deposits and landforms composed of suspended material brought by meltwater streams flowing into lakes bordering the glacier, such as deltas, kame deltas, and varved sediments.

**Glaciomarine:** Pertaining to materials that are deposited on the sea floor by glacial meltwater, by debris flows from the surface of a glacier or by melting icebergs.

**Gleysolic:** An order of soils developed under wet conditions and permanent or periodic reduction. These soils have low chromas, or prominent mottling, or both, in some horizons.

**Gleysols:** An order of soils developed under wet conditions and permanent or periodic reduction. They occur under a wide range of climatic conditions; Gleysolic soils may or may not have a thin Ah horizon over mottled gray or brownish gleyed material. They may have up to 40 cm of mixed peat or 60 cm of fibric moss peat on the surface.

**Grading:** The act of levelling or sloping the ground evenly by mechanical means (i.e., grader).

**Graminoid:** A plant that is grass-like; the term refers to grasses and plant that look like grasses, i.e., only narrow-leaved herbs; in the strictest sense, it includes plants belonging only to the family Graminaceae.

**Granite Gneisses:** Gneiss composed of a high degree of granite.

**Granite Outcrops:** exposed granite rocks that weather in a characteristic pattern and provide a unique habitat.

**Granite:** A common, coarse-grained, light-coloured, hard igneous rock consisting chiefly of quartz, orthoclase or microcline and mica.

**Granular:** In the context of construction materials, refers to materials composed of granules or grains of sand or gravel.

**Grassland:** Vegetation consisting primarily of grass species occurring on sites that are arid or at least well drained.

**Greenhouse Gases (GHGs):** Gases e.g., methane, carbon dioxide, chlorofluorocarbons emitted from a variety of sources and processes that contribute to global warming by trapping heat between the Earth and the upper atmosphere.

**Greenstone Belt Formation:** Elongated areas of metamorphosed volcanic and sedimentary rock lying within broad areas of granite and gneiss in the Precambrian Shield.

**Greywacke Gneisses:** Gneiss consisting of any of various dark gray sandstones that contain shale.

**Gross Domestic Product (GDP):** The total monetary value of all goods and services produced domestically by a country

**Ground Electrode:** In the context of HVdc bipoles, the ground electrodes provide a ground or earth return system both for minor imbalances of current between the positive and negative poles during normal operation and, in the event of a pole outage, for current from the operating pole (i.e., monopolar operation). Shallow ring electrodes are anticipated to be used for Bipole III. These typically are a large metal ring about 300-800 metres in diameter buried approximately three metres in the ground and surrounded by a highly conductive bed of coke.

**Groundwater:** Water that occurs beneath the land surface and fills the pore spaces of soil or rock below saturated zone.

**Groundwater Recharge:** The natural or intentional infiltration of surface water into the zone of saturation.

**Groundwater Table:** The upper surface of the zone of saturation in an unconfined aquifer.

**Grouted Anchors:** Generally consist of steel elements (bars or strands) grouted with a mixture of water, cement and sand, in a drilled hole. Guys with grouted anchors provide resistance to movement of a structure.

**Grubbing:** The act of removing roots from soil using a root rake, harrow or similar device.

**Guideline:** Non-mandatory, supplemental information about acceptable methods, procedures and standards for implementation of requirements found in legislation, policies and directives.

**Guyed Suspension Steel Lattice:** A steel structure that is based on a single foundation at the centre point of its base and stabilized typically by four guywires.

**Guyes or Guy Wires:** Supporting wires that are used to stabilize some transmission line structures.

**Gymnosperm:** A seed plant with seeds not enclosed in the ovary, the conifers are the most familiar group.

**Habitat Local Study Area (LSA):** The Habitat LSA is smaller in scale to the Landscape and Regional Study Areas and focuses on the physical and environmental features that constitute a species' habitat.

**Habitat:** The place in which an animal or plant lives; the sum of environmental circumstances in the place inhabited by an organism, population or community. Habitat

for a particular species is identified with a species prefix (e.g., fish habitat, jack pine habitat, moose habitat).

**Hazardous Substance:** Any substance which, by reason of being explosive, flammable, poisonous, corrosive, oxidizing or otherwise harmful, is likely to cause death or injury

**Hazardous Waste:** As defined by Manitoba Regulation 175/87: a product, substance or organism that is a source of danger and that meets the criteria set out in the Classification Criteria products, Substances and Organism Regulation, Manitoba Regulation 282/87, and that is intended for treatment or disposal, including recyclable material.

**Hectares (ha):** A metric unit of square measure equal to 10,000 square metres or 2.471 acres.

**Herb (Herbaceous):** A plant without woody above-ground parts, the stems dying back to the ground each year.

**Herbaceous plants:** A non-woody vascular plant.

**Herbicide:** A product used to destroy or inhibit plant growth.

**Heritage Resource:** A heritage site, heritage object and any work or assembly of works of nature or of human endeavour that is of value for its archaeological, palaeontological, pre-historic, historic, cultural, natural, scientific or aesthetic features, and may be in the form of sites or objects or a combination thereof (*The Heritage Resources Act*).

**High Voltage Direct Current (HVdc) Transmission System:** A high voltage electric power transmission system that uses direct current for the bulk transmission of electrical power. Direct Current flows constantly in only one direction (frequency of change or oscillation is 0 Hertz [Hz]).

**High Water Mark (Ordinary) (HWM):** The visible high water mark of any lake, stream, or other body of water where the presence and action of the water are so common and usual and so long continued in all ordinary years as to mark upon the soil of the bed of the lake, river stream, or other body of water a character distinct from that of the banks, both in vegetation and in the nature of the soil itself. Typical features may include, a natural line or "mark" impressed on the bank or shore, indicated by erosion, shelving, changes in soil characteristics, destruction of terrestrial vegetation, or other distinctive physical characteristics.

**Holometabolous Taxa:** Belonging to the insect subclass Holometabola; composed of all insects that undergo a complete metamorphosis; a larval a pupal stage occurs between the embryo and adult stages.

**Horizons:** A specific layer in the soil which parallels the land surface and possesses physical or chemical characteristics which differ from the layers above and beneath.

**Horizontal fen:** Horizontal fens occupy broad, ill-defined depressions. They occur on gentle slopes and are characterized by featureless surfaces. They are usually uniformly vegetated by graminoid, shrub or tree species. Some patterns, such as water tracks or somewhat drier treed “islands” may be present. Peat thickness varies from 2 to 3 m, depending on the topography of the underlying mineral substrate. Fibric peat is commonly found over mesic peat (The Canadian Wetland Classification System, 1997).

**Horizontal peatland:** A flat, featureless peatland where the water table is close to the surface.

**Humic:** A great group of soils in the Gleysolic order. A dark-colored A (Ah or Ap) horizon more than 8 cm (3 inches) thick is underlain by mottled gray or brownish gleyed mineral material. It may have up to 40 cm (16 inches) of mixed peat (bulk density 0.1 or more) or up to 60 cm (24 inches) of fibric moss peat (bulk density less than 0.1) on the surface. This group includes soils formerly classified as Dark Gray Gleysolic and Meadow.

**Hummocky:** A very complex sequence of slopes extending from somewhat rounded depressions or kettles of various sizes to irregular to conical knolls or knobs (CSSC, 1998).

**Hydraulic Conductivity:** A measure of the capacity for a rock or soil to transmit water; generally has the units of feet/day or cm/sec.

**Hydrocarbon:** An organic compound that contains only carbon and hydrogen; derived mostly from crude petroleum and also from coal tar and plant sources (diesel fuel, fuel oil, gasoline and lubricating oils are complex mixtures of hydrocarbons); excessive levels may be toxic.

**Hydrology:** The science dealing with the properties, distribution and circulation of water.

**Hydrophilic:** Water loving; the property of a substance that is polar and is soluble in water.

**Hydrostratigraphic:** Refers to the layers of aquifers and water-bearing deposits occurring within a given area. The hydrostratigraphy can be mapped and is predictable based on ground-water models.

**Hymenoptera:** One of the largest orders of insects, comprising the sawflies, wasps, bees, and ants. The name refers to the heavy wings of the insects, and is derived from the Ancient Greek (humen).

**Ice Bridge:** A temporary crossing of a winter road over a lake or river crossing.

**Igneous:** A rock formed by the crystallization of magma or lava.

**Igneous intrusive:** An injection into pre-existing rocks of new rocks or minerals formed by the cooling and hardening of magma or molten lava. Basalt and granite are examples of igneous rocks which may intrude into older existing rock formations.

**Impact:** General term referring to the overall effect of a project including. Accepted use includes Environmental Impact Statement, Economic Impact and Cumulative Impact.

**Impermeable:** Relating to a material through which substances, such as liquids or gases, cannot pass.

**Inch (in.):** A unit of length equal to one twelfth of a foot. One inch equals 2.54 cm.

**Incorporated Communities:** Communities that form part of a municipality, city, town or village with its own government (Wikipedia, 2011).

**Indicator Species:** species, groups of species or species habitat elements that focus management attention on resource production, population recovery, population viability or ecosystem diversity; these species often have narrower habitat requirements that can be used to indicate the relative suitability of habitat for other species that share a similar preference e.g., marten is primarily a denizen of mature or overmature forest dominated by spruce (Wildlife Resources Consulting Services, 2011).

**Indicators:** Anything that is used to measure the condition of something of interest. Indicators are often used as variables in the modeling of changes in complex environmental systems. In an environmental assessment, indicators are used to predict changes in the environment and to evaluate their significance.

**Indirect Effect:** A secondary environmental effect that occurs as a result of a change that a project may cause in the environment. An indirect effect is at least one step removed from a project activity in terms of cause-effect linkages. For instance, a river diversion for the construction of a hydro power plant could directly result in the destruction of fish habitat causing a decline in fish population. A decline in fish

population could result in closure of an outfitting operation causing loss of jobs. Thus, the river diversion could indirectly cause the loss of jobs.

**Induction Effect:** In a molecule, a shift of electron density due to the polarization of a bond by a nearby electronegative or electropositive atom.

**Infiltration:** The flow of water downward from the land surface into and through the upper soil layers.

**Infrastructure:** The basic features needed for the operation or construction of a system (e.g. access road, construction camp, construction power, batch plant, etc).

**Ingress:** In the forestry context, refers to the establishment of natural regeneration in an opening (Plus4 Consulting et al., 2011).

**Integrated Resource Management Team (IRMT):** A regional management team organized to review natural resource issues. The IRMT is made up of members of Manitoba Conservation – director, assistant director, chief natural resource officer and resource managers representing forestry, wildlife, parks and lands' interests – and Manitoba Water Stewardship's fisheries manager.

**International Electrotechnical Commission (IEC):** An organization that sets and publishes standards.

**Intertill:** Layers of soil or granular deposits which lay between layers of till (c.v.).

**Invertebrates:** Animals without a spinal column.

**Invasive:** Invasive species are plants that are growing outside of their country or region of origin and are out-competing or even replacing native plants.

**Isostatic Rebound:** The rise of land masses that were depressed by the huge weight of ice sheets during the last glacial period, through a process known as isostasy.

**Isothermal:** A process or change taking place at a constant temperature.

**Kame Moraine:** A short ridge, hill, or mound of stratified drift deposited by glacial meltwater.

**Kettle:** A small depression usually found on the outwash plain of a glacial area and sometimes containing a small lake. As glaciers retreat, large blocks of ice detach and fall to the ground, embedding themselves to a certain degree

**Keystone (Management) Species:** species that have an effect on many other species in an ecosystem disproportionate to their abundance or biomass - can be predators, prey,

plants, mutualists and habitat modifiers (e.g., beaver, pileated woodpecker) (Wildlife Resources Consulting Services, 2011).

**Kilometre (km):** The unit measure of length equivalent to 1000 metres; one kilometre = 0.62 miles.

**Kilovolt (kV):** The unit of electromotive force or electrical pressure equivalent to 1,000 volts (V).

**Kilowatt Hour (kWh):** The unit of measure of electrical energy equivalent to the use of 1,000 watts for a period of one hour (e.g., ten 100-watt light bulbs switched on for one hour would use one kWh [or 1,000 watts for one hour]).

**Lacustrine:** Referring to freshwater lakes; sediments generally consisting of stratified fine sand, silt, and clay deposits on a lake bed.

**Landscape Local Study Area (LSA):** Landscape LSA is a study area at the landscape level within and immediately surrounding the project site. Landscape pertains to the visible features of an area of land. It is a larger-scale area than the Habitat LSA.

**Lay-down Area:** An area that has been cleared for the temporary storage of equipment and supplies. Lay-down areas are usually covered with rock and/or gravel to ensure accessibility and safe manoeuvrability for movement and off-loading of vehicles

**Leaflets:** Each one of the fragments, similar to a leaf, making up a compound leaf (Botanical Online SL, 2011).

**Lepidoptera:** An order of insects, of which the wings are four in number, covered by minute imbricated (overlapping) scales; as butterflies and moths.

**Lichen:** Is a complex group of plants depending on a close association (symbiotic relationship) between a fungus and algae.

**Likely Occurring:** In terms of species assessments, the concept of likely occurring relates to the probability of a species being found within a given area based on certain qualities or characteristics (i.e., general species distribution information, the types of habitat they are known to occupy).

**Line Conductors:** Conductors or conductor bundles suspended from transmission line structures.

**Linear feature:** A geographic feature, such as a trail or road, which can be represented by a line.

**Littoral Zone:** Zone between the high and low tide marks.

**Load:** The power requirement (usually measured in kilowatts) of an electrical system or piece of electrical equipment at a given instant.

**Loamy:** Loam soil is rich, friable (crumbly) soil with nearly equal parts of sand and silt, and somewhat less clay. The term is sometimes used imprecisely to mean earth or soil in general. Loam in subsoil receives varied minerals and amounts of clay by leaching (percolation) from the topsoil above.

**Long-Term Effect:** Effect which persists long after restoration or mitigation activities have been carried out.

**Luvisolic:** An order of soils that have eluvial (Ae) horizons, and illuvial (Bt) horizons in which silicate clay is the main accumulation product. The soils developed under forest or forest-grassland transition in a moderate to cool climate. **Luvisols:** Soils of the Luvisolic order generally have light-coloured, eluvial horizons and have illuvial B horizons in which silicate clay has been accumulated. These soils develop characteristically in well to imperfectly drained sites, in sandy loam to clay base saturated parent material under forest vegetation in subhumid to humid, mild to very cold climates. Mineral soils where clay particles from the upper layer have been transported to the layer below to the extent that a Bt horizon has developed.

**Macroinvertebrates:** A small animal generally visible to the unaided eye, usually larger than 0.5 mm. These animals do not have a backbone.

**Magneto-telluric Testing:** A form of onsite engineering field investigation.

**Manitoba Agriculture, Food and Rural Initiatives (MAFRI):** Manitoba provincial department focussing on agriculture activities

**Marsh:** Tract of low wetland, often treeless and periodically inundated, generally characterized by a growth of grasses, sedges, cattails and rushes.

**Marshalling Yard:** An open area used to stock-pile, store and assemble construction materials.

**Mega Volt Amperes (MVA):** Volt-ampere is the unit of apparent power in an ac circuit, and is equal to the real power (in watts) in a dc circuit. A Mega Volt-Ampere (or MVA) is one million volt-amperes.

**Megawatt (MW):** The unit of electrical power equivalent to 1,000,000 watts.

**Mesic:** Descriptive of soil organic material at a stage of decomposition intermediate that of fibric and humic materials.

**Mesisols:** Soils of this great group are at a stage of decomposition intermediate between Fibrisols and Humisols. Mesisols have a dominantly mesic middle tier or middle and surface tiers if a terric, lithic, or hydric contact occurs in the middle tier. A mesic layer is an organic layer that fails to meet the requirements of either a fabric or a humic layer (Agriculture and Agri-Food Canada, 2010).

**Metallic Return:** A conductor used for carrying return current between converters at opposite ends of the system. To enable partial operation in the event of certain types of outage in a bipole, the system may be designed to allow the current in the operating pole to be returned via the second pole conductor.

**Metamorphic:** Rocks that have been transformed by extreme heat and pressure.

**Metasedimentary:** Sedimentary rocks which have been deposited, and then undergone subsequent metamorphosis, and thus can be classified as neither fully sedimentary nor metamorphic.

**Metre (m):** A unit measure of length; one metre = 3.28 ft.

**Microinvertebrates:** Organisms that are less than 1 mm (0.04 inches) long and are best viewed through a microscope.

**Midwest Reliability Organization (MSO):** A non-profit organization dedicated to ensuring the reliability and security of the bulk power system in the north central region of North America, including parts of both the United States and Canada (Midwest Reliability Organization, 2007).

**Mile (mi.):** A unit of length equal to 5,289 feet. 1 mile equals 1.6 Kilometres.

**Millimetre (mm):** A metric unit of length equal to one thousandth of a metre.

**Mitigation monitoring:** A type of monitoring program that may be used to verify that mitigation measures were properly implemented and that such measures effectively mitigate the predicted adverse environmental effects.

**Mitigation:** In respect of a project, the elimination, reduction or control of the adverse environmental effects of the project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means (Department of Justice, 2011a).

**Mixedwood:** Forest stands composed of conifers and angiosperms each representing between 25 and 75% of the cover.

**Monitoring:** Continuing assessment of conditions at and surrounding an activity. This determines if effects occur as predicted or if operations remain within acceptable limits and if mitigation measures are as effective as predicted.

**Monocotyledon:** A class of the Angiosperms; the seeds have a single cotyledon, the floral parts are in three or multiples of three, the leaves have parallel veins, and the vascular bundles of the stem are scattered and closed.

**Monopolar:** In the event of an outage of one pole in a bipole transmission system, partial operation may be maintained by using the ground electrodes for earth or ground return to maintain current flow in the energized pole.

**Moraine:** An accumulation of heterogeneous rubbly material, including angular blocks of rock, boulders, pebbles, and clay that has been transported and deposited by a glacier or ice-sheet.

**Mycetophilids:** (plural form of mycetophillidae) Are Fungus Gnats. They have simple antennae and a humped thorax. The larvae feed on decaying vegetation and fungus (The Canadian Biodiversity Website, 2011).

**Natural Resource Officer (NRO):** Officers under the provincial government authority that uphold the Provincial Parks Regulations.

**Neotropical Migrant:** A bird species that breeds in North America during the spring and early summer and migrates south to Mexico, the Caribbean and Central and South America for the winter.

**Nephelometric Turbidity Units (NTU):** A unit of measurement to determine turbidity, as total suspended solids.

**Net merchantable:** The commercially useable volume of wood fibre within an area. It includes all trees with a diameter at breast height of 9.1 cm and greater and includes the application of the regions specific cull factors as determined by Manitoba Conservation.

**Non-Commercial Forest Zone:** The geographic area, defined by Manitoba Conservation, Forestry Branch, that is predominately not capable of producing trees large enough for commercial harvesting. The Non-Commercial Forest Zone lies north of the Provincially designated by forest management administrative boundary areas (Forest Sections and Forest Management Units) (Plus4 Consulting et al. 2011).

**Non-Soil:** The collection of soil material or soil-like material that does not meet the definition of soil. It includes soil displaced by unnatural processes and unconsolidated material unaffected by soil-forming processes, except for the material that occurs within

15 cm (6 inches) below soil as defined. Non-soil also includes unconsolidated mineral or organic material thinner than 10cm (4 inches) overlying bedrock; organic material thinner than 40 cm (16 inches) overlying a hydric layer; and soil covered by more than 60 cm (24 inches) of water in the driest part of the year.

**Non-vascular Plant:** A plant without a vascular system (eg. Mosses and lichens).

**North American Reliability Electric Corporation (NERC):** Develops and enforces reliability standards; assesses adequacy annually via a 10-year forecast, and summer and winter forecasts; monitors the bulk power system; and educates, trains and certifies industry personnel (NERC, 2011).

**Northern Affairs Community:** An Aboriginal or northern community served by the Manitoba department of Aboriginal and Northern Affairs (Manitoba Aboriginal and Northern Affairs, n.d.)

**Northern Flood Agreement (NFA):** A land compensation agreement between the Government of Canada, Manitoba Hydro Electric Board (presently Manitoba Hydro), the Northern Flood Committee and the Government of Canada as a result of the impacts to First Nations' land caused by the Churchill River Diversion Project. The Northern Flood Committee is a corporation acting with the financial support of Canada that was incorporated by the Indian Bands of Nelson House, Norway House, Cross Lake, Split Lake and York Factory (Manitoba Hydro, 1977).

**Optical Protection Ground Wire (OPGW):** Provides both lightning protection for a transmission line and communications for line control and protection.

**Ordovician:** A geological period 510 to 439 million years ago that saw the origin of land plants from their aquatic algae ancestors.

**Organic:** Of, relating to, or derived from living matter. Also refers to an order of soils that have developed dominantly from organic deposits.

**Oribatid:** Any of a superfamily (Oribatoidea) of small oval eyeless nonparasitic mites having a heavily sclerotized integument with a leathery appearance.

**Oribatid mites:** Are one of the orders of "true mites" (Acariformes), known as "chewing mites. Oribatida are one of the most numerically dominant arthropod groups in the organic horizons of most soils, where their densities can reach several hundred thousand individuals per square meter.

**Overburden:** The soil (including organic material) or loose material that overlies bedrock.

**Paleozoic:** A geologic era that is marked by the culmination of all classes of invertebrates except insects and the appearance of seed-bearing plants, amphibians and reptiles.

**Parameters:** Any set of physical, chemical or biological properties, the values of which determine the characteristics or behaviour of a system.

**Passerine:** Birds from the order Passeriformes; generally songbirds and perching birds. For the purposes of assessment, passerines are birds that do not belong to the other VEC groups outlined (Wildlife Resources Consulting Services, 2011).

**Pathogenic:** Able to cause disease.

**Peat Plateau Bog:** Composed of perennially frozen peat and sharply defined; the surface sits about one metre higher than unfrozen fen that surrounds it. The surface is relatively flat, even and covers large areas. Peat plateau bogs appear to have developed under non-permafrost conditions and which subsequently became elevated and permanently frozen. Collapse scars are commonly found with peat plateau bogs. These bogs are common in areas of discontinuous permafrost.

**Peat Plateau:** A generally flat-topped peatland, elevated above the surrounding area by ground ice that may or may not extend downward into the underlying mineral soil.

**Peatland Disintegration:** Net reduction in peatland area and/or volume. Peatland disintegration can result from a variety of influences such as climate warming, fires or flooding.

**Perched Groundwater:** Groundwater supported by a zone of material of low permeability located above an underlying main body of groundwater.

**Perennial:** Plants that have a lifecycle of 3 or more years.

**Permafrost:** A condition where soil temperature remains below 0°C for at least two consecutive years. Perennially frozen material underlying the solum, or a perennially frozen soil horizon. Permafrost is subdivided into continuous and discontinuous permafrost, while sporadic permafrost is confined to alpine environments.

**Permeability:** The degree to which fluids or gases can pass through a barrier or material such as soil. The capability of soil or other geologic formations to transmit water. See hydraulic conductivity.

**Photosynthesis:** The conversion of light energy to chemical energy; the production of carbohydrates from carbon dioxide and water in the presence of chlorophyll by using light energy.

**Physical Activity:** Any proposed activity not relating to a physical work. Such an activity is identified as a project for the purposes of the Act if it is explicitly listed in the Inclusion List Regulations.

**Physical Work:** Anything that has been or will be constructed (human-made) and has a fixed location. Examples include a bridge, building or pipeline. Natural water bodies, airplanes and ships at sea are not physical works.

**Physiography:** Physical geography, i.e. the study of physical features of the surface of the Earth.

**Phytophagous:** Feeding on plants, especially referring to insects or other invertebrates.

**Podzol:** Is a soil commonly found under coniferous forests. Its main identifying traits are a poorly decomposed organic layer, an eluviated A horizon, and a B horizon with illuviated organic matter, aluminum and iron.

**Policy:** Basic principles and corresponding procedures and standards by which an organization is guided.

**Plot:** A vegetation sampling unit used to delineate a fixed amount of area for the purpose of estimating plant cover, biomass, or density.

**Population Indicator:** Species that reflect the dynamics or presence/absence of other species e.g., species x is always associated with species y and z and population dynamics of species x is the same as in y and z (Wildlife Resources Consulting Services, 2011).

**Porosity:** The ratio of the voids or open spaces in soil and rocks to the total volume of the soil or rock mass.

**Potable Water:** Water suitable for human and animal consumption.

**Potentially salvageable timber:** Timber that is of sufficient size (stem diameter and length) to be useable for commercial or non-commercial purposes, exclusive of economic and logistical considerations.

**Precambrian bedrock:** Extremely stable bedrock composed of ancient crystalline rocks whose complex structure attests to a long history of uplift and depression, mountain building and erosion. This bedrock was formed in the Precambrian era, which began with the consolidation of the earth's crust and ended approximately 4 billion years ago.

**Pre-construction:** Includes all project activities (surveying, staking, mapping) that lead up to but do not include project construction, including all field studies (aquatic, plant, wildlife) and related public liaison activities.

**Preferred Route:** The best balanced choice of route based on public input, biophysical, socio-economic, and cost and technical considerations. Preferred routes are generally identified during a Site Selection and Environmental Assessment process.

**Premature Mortality Rates (PMR):** PMR is an indicator of the rate of early death (i.e., death before average life expectancy) in a population and is highly associated with morbidity and self-rated health, as well as with socio-economic risk factors for poor health. In Manitoba, premature mortality rates are calculated as the number of deaths that occur before age 75 per 1,000 residents.

**Proglacial:** Immediately in front of, or just beyond the outer edge of, a glacier; proglacial refers to lakes, streams, deposits, and other features produced by or derived from glacial ice.

**Project (Canada):** Means: a) In relation to a physical work, any proposed construction, operation, modification, decommissioning, abandonment or other undertaking in relation to that physical work, or b) Any proposed physical activity not relating to a physical work that is prescribed or is within a class of physical activities that is prescribed pursuant to regulations made under paragraph 59(b) (Department of Justice, 2011a).

**Project Activity:** Elements of a project component that may result in environmental effects or changes. Example project activities include clearing, grubbing, excavating, stockpiling, reclaiming, etc.

**Project Component:** A component of the project that may have an effect on the environment. Example project components include access road, construction camp, wastewater treatment facility, etc.

**Project Description:** Any information in relation to a project that includes, at least: (a) a summary description of the project; (b) information indicating the location of the project and the areas potentially affected by the project; (c) to the extent possible, a summary description of the physical and biological environments within the areas potentially affected by the project; and (d) the mailing address, e-mail address and phone number of a contact person who can provide additional information about the project (*Canadian Environmental Assessment Act, Federal Coordination Regulations*).

**Project Footprint:** The land and/or water surface area affected by a project. This includes direct physical coverage and direct effects. Consequently, an project footprint may be larger than its physical dimensions if off-site activities are involved.

**Proponent:** A person who is undertaking, or proposes to undertake a development or who has been designated by a person or group of persons to undertake a development in Manitoba on behalf of that person or group of persons (Manitoba Laws, 2011).

**Prostigmatid:** A suborder of mites belonging to the Trombidiformes, which contain the “sucking” members of the “true mites” (Acariformes).

**Prostigmata Mites:** A suborder of mites belonging to the Trombidiformes, which contain the "sucking" members of the "true mites" (Acariformes). Many species are notorious pests on plants. Well-known examples of prostigmatan plant parasites are species of the gall mites and the spider mites.

**Protected Area:** As defined by the World Conservation Union, a protected area is: an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

**Protected Species:** Plant and animal species protected under the *Species at Risk Act* (Federal) or *The Endangered Species Act* (Manitoba).

**Provincial Road (PR):** Secondary route of travel in Manitoba. PRs are numbered from 200-632. It is not uncommon for these routes to be gravel (Wikipedia, 2010).

**Provincial Trunk Highway (PTH):** Primary route of travel in Manitoba. PTHs are numbered from 1-200 (Wikipedia, 2010).

**Pteridophyte:** A division of the plant kingdom; the sporophyte is vascular and independent of the gametophyte at maturity; generally they have stems, leaves and roots.

**Quadruped:** An animal having four feet, as most mammals and reptiles; often restricted to the mammals (Joro Consultants Inc. and Wildlife Resources Consulting Services, 2011).

**Qualitative Analysis:** Analysis that is subjective.

**Quantitative Analysis:** Analysis that uses environmental variables represented by numbers or ranges and is often accompanied by numerical modeling or statistical analysis.

**Quarry:** An open excavation or pit from which stone, gravel or sand is obtained by digging, cutting or blasting.

**Quaternary:** Noting or pertaining to the present period of earth history, forming the latter part of the Cenozoic Era, originating about 2 million years ago and including the Recent and Pleistocene Epochs (Dictionary.com, 2011a)

**Radio Interference (RI):** Any modification to the reception of sound or picture signals that makes them unacceptable.

**Raptor:** A predatory bird species with the physical traits adapted for grasping prey, sharp talons, and tearing flesh, hooked beak. The group of birds termed raptors includes the owls, falcons, eagles and hawks (Wildlife Resources Consulting Services, 2011).

**Rare Species:** Any indigenous species of flora that, because of its biological characteristics, or because it occurs at the fringe of its range, or for some other reasons, exists in low numbers or in very restricted areas of Canada but is not a threatened species (Cauboue et al. 1996).

**Rareness:** Noun of rare, refers to scarcity, see also rare species.

**Recharge:** Water added to an aquifer or the process of adding water to an aquifer. Ground water recharge occurs either naturally as the net gain from precipitation, or artificially as the result of human influence. See artificial recharge.

**Recycling:** Diversion of materials from the waste stream for reprocessing into new products (e.g., newspapers).

**Redox:** A reversible chemical reaction in which one reaction is an oxidation and the reverse is a reduction.

**Reduction:** Decrease in waste produced at its source in order to minimize the amount required for off-site treatment or disposal.

**Reference Periods:** are typically three decades in length. The reference periods of 1961-1990 and 1971-2000 are often used in impacts and adaptation assessments, and to quantify anomalies in the future. These reference periods are of sufficient length to adequately represent the climate of the period, and are used to compare fluctuations of climate between one period and another.

**Reforestation:** The natural or artificial restocking of a previously forested site with forest trees.

**Regeneration:** The renewal of a forest crop by natural or artificial means.

**Region:** Any area in which it is suspected or known that effects due to the action under review may interact with effects from other actions. This area typically extends beyond the local study area.

**Regional Study Area (RSA):** Largest study area on the basis of fire history, waterbody and small-scale surface materials mapping, and the extrapolation of available detailed habitat mapping.

**Registered Trap Lines (RTL):** Is a system imposed for the management of commercial harvesting of furbearers. A person (line holder) is granted the exclusive right to harvest furbearers in a certain area, along a registered trapline (Manitoba Conservation, n.d.).

**Regosols:** Regosolic soils do not have an Ah or dark-colored Ap horizon at least 10 cm thick at the mineral soil surface. They may have buried mineral-organic layers and organic surface horizons, but no B horizon at least 5 cm thick.

**Regosolic:** An order of soils having no horizon development or development of the A and B horizons insufficient to meet the requirements of the other orders.

**Regulatory:** Pertaining to legislated requirements (i.e., statutes, laws, regulations).

**Rehabilitation:** To restore a disturbed structure, site or land area to good condition, useful operation or productive capacity.

**Reliability Based Design (RBD):** Any design methodology that incorporates the principles of reliability analysis (the consistent evaluation of design risk using probability theory) either explicitly or otherwise.

**Remediate:** To return to the state prior to alteration; to remedy.

**Repeater Stations:** A station containing one or more repeaters (communications). Also known as relay station.

**Reptiles:** Cold-blooded animals of the Class Reptilia that includes tortoises, turtles, snakes, lizards, alligators and crocodiles.

**Residual Environmental Effect:** An environmental effect that remains, or is predicted to remain, even after mitigation measures have been applied.

**Resilience:** Is defined as the amount of change a system can undergo without changing state. The concept of resilience introduces two related concepts that are important for adaptation: *coping ranges*, and *thresholds*. ‘Coping range’ refers to the variation in climate that a system can absorb without incurring significant impacts. Adaptation actions will adjust the coping range, and similarly affect resilience. A ‘threshold’ is the point at which significant impacts are incurred (i.e. the coping range is exceeded) or the system undergoes a change of state (i.e. resilience is overwhelmed). Defining thresholds within natural systems is a key objective of many climate change impact studies, while understanding thresholds in human systems can be key to guiding adaptation decisions (Natural Resources Canada, 2007).

**Resource Management Area (RMA):** An area to be jointly managed by a Resource Management Board established by agreement between Manitoba and a First Nation or a local Aboriginal community.

**Restoration:** The return of an ecosystem or habitat to its original community structure, natural complement of species and natural function.

**Reuse:** Subsequent use without significant treatment of a material remaining after being used in a previous process.

**Re-vegetating:** Adding vegetative cover by planting, seeding or other means on a disturbed site.

**Right-of-Way (ROW):** Area of strip of land controlled and maintained for the development of a road, or transmission [or distribution] line (including construction, operation, and maintenance of the facility).

**Riparian Ecosystem:** The ecosystem located between aquatic and terrestrial environments identified by soil characteristics or distinctive vegetation communities that require free or unbound water.

**Riparian:** Refers to terrain, vegetation or simply a position adjacent to or associated with a stream, flood plain, or standing body of water.

**Risk:** A state of uncertainty where some of the possibilities involve a loss, catastrophe or other undesirable outcome. Quantitatively, risk is proportional to both the expected losses which may be caused by an event and to the probability of this event. The greater loss and greater event likelihood result in a greater overall risk.

**Root Collar:** Position on a plant where there is a junction with where the roots begin to grow and the stem begins.

**Round Weight:** The weight of a whole fish before processing or removing any part.

**Salinity:** Generally, the concentration of mineral salts dissolved in water. When describing salinity influenced by seawater, salinity often refers to the concentration of chlorides in the water. See also total dissolved solids.

**Salt flat:** The dried-up bed of a former salt lake, sometimes called a salt prairie.

**Salt Marsh:** A marsh that is affected by the daily or seasonal influences of brackish to saline water.

**Saturated Zone:** The zone in which all interconnected openings are filled with water, usually underlying the unsaturated zone.

**Scenario:** “A coherent, internally consistent and plausible description of a possible future state of the world” (Parry and Carter, 1998). A scenario is not a prediction but rather, a representation of one of any number of possible futures. Scenarios define a range of possible futures that facilitate consideration of the uncertainty relating to different development pathways, with implications for future climate, social, economic and environmental change (Natural Resources Canada, 2007).

**Sciarids:** Flies from the family Sciaridae, also referred to as dark-winged fungus gnats. Sciarids are common insects usually found in moist shady places. Most species are 5 mm. or less, and dark-colored. Larvae feed in fungi, decaying vegetation, or on plant roots; a few species are pests in mushroom cellars (Borror and White, 1970).

**Scoping:** An activity that focuses the environmental assessment of a proposal on relevant issues and concerns, types of effects, alternatives for consideration, timeframe, methodology, and establishes the boundaries of the assessment.

**SD Technique:** Statistical Downscaling techniques such as linear regression works in conjunction with the CF method to generate outputs that can be used at a regional to local level. For example, to study low flows in the River Thames at Kingston in the UK using baseline (1961 – 1990) and climate change conditions (projects to 2020’s, 2050’s and 2080’s). Using this method, results were consistent with observed trends. They should be used for exploring detailed impacts arising from subtle changes in the temporary sequencing and persistence of daily events.

**Secchi Disc:** Is a circular disk used to measure water transparency in oceans and lakes.

**Sectionalization (Sectionalizing):** Cutting and reconnecting (or reterminating) a transmission circuit at a station.

**Sediment:** Material, including soil and organic material that is deposited on the bottom of a waterbody.

**Selective Clearing:** Removal of specific or selected trees and vegetation, rather than all vegetation (e.g., at sensitive sites).

**Self-Supporting Suspension Lattice:** A steel structure supported on four separately founded legs.

**Sepals:** is part of a flower on a plant. It is a green leaf-like piece of the calyx (Botanical Online SL, 2011).

**Septage:** Partially treated waste stored in a septic tank.

**Serotinous:** A pinecone or other seed case that requires heat from a fire to melt their resins open and release the seed (Plants of the Western Boreal Forest and Aspen Parkland, 1995)

**Setback:** Prescribed distance between a pollution sources or disturbance and a resource or ecosystem that needs protection.

**Sequencing Batch Reactor:** An industrial processing tank used for the treatment of wastewater. It works by bubbling oxygen through the wastewater, reducing the Biological Oxygen Demand and Chemical Oxygen Demand (Wikipedia, 2010b).

**Shore:** The narrow strip of land in immediate contact with the sea, lake or river.

**Shorebird:** Any bird that frequents the shoreline between the ocean or large lakes and the land, particularly a bird of the suborder Charadrii, such as sandpipers, plovers or snipe.

**Short-Term Effect:** When the recovery of the affected population and area is expected to occur within one generation.

**Shrub:** A perennial plant usually with a woody stem, shorter than a tree, often with a multi-stemmed base.

**Significance:** A conclusion about whether adverse environmental effects are likely to be significant, taking into account the implementation of appropriate mitigation measures. Significance is determined by a combination of scientific data, regulated thresholds, standards, social values and professional judgment.

**Silvicultural:** The branch of forestry dealing with the development and care of forests.

**Site:** The place or category of places, considered from an environmental perspective, that determines the type and quality of plants that can grow there.

**Site Selection and Environmental Assessment (SSEA):** Site Selection and Environmental Assessment process used to select a site or route for a transmission facility (i.e, a station or a transmission line) and assess any potential environmental impacts of that facility on the biophysical environment and socio-economic conditions.

**Snag:** A standing tree which is three metres or greater in height and either partially dead, dead, or dying. This is further classified into hard snags and soft snags. A hard snag is a tree in which the wood is predominantly sound (possibly merchantable), covered in bark, and retaining its branches. A soft snag is a tree in which the wood is largely decayed, containing little to no merchantable timber. These trees are of particular importance to a

variety of wildlife species, particularly cavity nesters (Wildlife Resources Consulting Services, 2011).

**Snipe:** A long-billed brownish shore bird with striped back that inhabits marshes and ponds.

**Sodicity:** The level of exchangeable sodium and its influence on soil.

**Solution Features:** Solution features are common phenomena within Chalk areas. Classical theory states that solution features are formed entirely by dissolution of the Chalk as a result of chemical weathering, probably during the Quaternary period.

**Spatial Boundary:** The area examined in the assessment (i.e., the study area).

**Spawning Habitat:** Areas suitable for the deposition of eggs and the incubation of the eggs.

**Special Concern:** A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events (COSEWIC, 2010).

**Specific Yield:** The ration of the volume of water a rock or soil will yield by gravity drainage to the total volume of the rock or soil.

**Species:** A group of organisms having a common ancestry that are able to reproduce only among themselves; a general definition that does not account for hybridization.

**Species at Risk Act (SARA):** The federal Act which provides for the legal protection for wildlife species listed under 'Schedule 1' of that Act.

**Species at Risk:** Means an extirpated, endangered or threatened species or a species of special concern (Department of Justice, 2011c).

**Species of Conservation Concern:** Includes species that are rare, disjunct, or at risk throughout their range or in Manitoba and in need of further research. The term also encompasses species that are listed under the Manitoba Endangered Species Act (MBESA), or that have a special designation by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (Manitoba Conservation, 2011).

**Species:** A group of organisms that can interbreed to produce fertile offspring.

**Splicing:** Connecting two or pieces of linear material, like cable, together.

**Split Lake Resource Management Area (SLRMA):** Formed by a Comprehensive Implementation Agreement between Tataskweyak Cree Nation and Manitoba in 1992 the area covers about 4,150 ha in northern Manitoba.

**Sporadic Discontinuous Permafrost:** Where permafrost cover is less than 50 percent of the landscape and typically occurs at mean annual temperatures between 0 and -2 °C.

**Staging (area):** An area where birds congregate to rest and occasionally feed, generally during spring and fall migration (Wildlife Resources Consulting Services, 2011).

**Stand:** A collection of plants having a relatively uniform composition and structure, and age in the case of forests (Cauboue et al. 1996).

**Standards:** Descriptions of targets or goals used to measure the success of procedures. They may be general or specific.

**Start-up Camp:** The initial housing and support of workers prior to development of a main construction camp.

**Static Cryosols:** Occur on well to moderately well drained sand and gravel deposits. They are termed Static because there is little cryoturbation (churning of the ground surface by frost action). They occur on uplands such as plateaus or summits (usually as angular blocks with no small sizes in the upper part), where they would likely be classified as Regosolic Static Cryosols, because they lack a B horizon.

**Static:** Showing little, if any, change.

**Step Down Distributor Supply Centre (DSC):** A sub-station design, generally consisting of three-phase transformers and associated distribution equipment, used to step down (transform) electrical current at input power sources which allows voltage to be compatible with equipment.

**Stewardship:** Refers to general environmental care and protection.

**Stratigraphy:** The science of rocks: It is concerned with the original succession and age relations of rock strata and their form, distribution, lithologic composition, fossil content, geophysical and geochemical properties-all characters and attributes of rocks as strata-and their interpretation in terms of environment and mode of origin and geologic history.

**Stratum:** A distinct layer within a plant community, a component of structure.

**Stripping:** The act of removing the natural soil and organic covering from an area by mechanical means.

**Study Area:** The geographic limits within which environmental effects are assessed.

**Sub-Conductor:** Any one individual conductor within a conductor bundle.

**Subsidence:** The gradual settling of the ground when permafrost thaws and the soil previously held up by the ice collapses.

**Substation:** An assemblage of equipment for switching and/or transforming or regulating the voltage of electricity.

**Substrate:** The medium on which plants grow.

**Suckering:** The growth of a plant that produces new shoots at the base or below ground traveling out from the plant base

**Sullage:** Waste from household sinks, showers and baths.

**Surface permafrost:** Permafrost that occurs within the top 2 m of the surface materials.

**Surveying:** The measurement of dimensional relationships, as of horizontal distances, elevations, directions, and angles, on the earth's surface especially for use in locating property boundaries, construction layout and mapmaking.

**Sustainability:** Capacity of a thing, action, activity or process to be maintained indefinitely in a manner consistent with the spirit of Manitoba's Principles and Guidelines of Sustainable Development.

**Sustainable Development (SD) (Canada):** Development that meets the needs of the present, without compromising the ability of future generations to meet their own needs (Department of Justice, 2011a).

**Sustainable Development (SD) (Manitoba):** Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

**Swing Out:** Movement of a transmission line conductor caused by wind.

**Switchgear:** Refers to the combination of electrical disconnects, fuses and/or circuit breakers used to isolate electrical equipment.

**Switching Facilities:** A substation used to terminate transmission lines operating at the same voltage, and enable individual lines to be taken out of service or connected to other lines to redirect or control the flow of power.

**Switchyard:** An area within a substation used for switching (see Switching Station).

**Synchronous Compensators:** Allows for strengthening of the system, supporting the Bipole III converters, voltage control, and adding system inertia for stability.

**Tangent:** Straight sections of structure type.

**Taxon (Taxa):** Any unit used in the science of biological classification, or taxonomy.

**Tectonic:** Pertaining to the structure or movement of the earth's crust.

**Temporal:** Pertaining to time.

**Tenthredinid:** Flies from the family Tenthredinidae, also referred to as common sawflies. This is the largest family of sawflies, with about 800 N. American species; it contains most of the species the general collector will encounter. The sawflies are 5-20 mm; some are black, some brownish, and some are brightly patterned. They are usually found on flowers or vegetation. Larvae of most species are external feeders on foliage; a few are leaf miners and a few are gall makers. Some members of this group cause considerable damage to cultivated plants and forest trees (Borror and White, 1970).

**Termination:** End point. The time when something ends or is completed.

**Terrestrial:** Pertaining to land as opposed to water (Cauboue et al. 1996).

**Terrestrial Communities:** Living on or in the ground, or related to the ground.

**Terric:** Unconsolidated mineral substratum underlying organic soil material; prefix in the soil classification; denotes a condition where a mineral contact occurs within the control section of organic soils or organic cryosols - thus is only used with organic soils at the subgroup level of the soil classification.

**Terric Organic:** Descriptive of an unconsolidated mineral substratum underlying organic soil material.

**The Manitoba Endangered Species Act (MESA):** Enacted: 1) to ensure the protection and survival of endangered and threatened species in the province; 2) to enable the reintroduction of extirpated species into the province; and 3) to designate species as endangered, threatened, extinct or extirpated. Additions or deletions to list of species under each designation are recommended by the Endangered Species Advisory Committee.

**Thermokarst:** The landscape which results from permafrost-thaw induced subsidence and is characterized by irregular surfaces of marshy hollows and small hummocks.

**Threatened:** A species likely to become endangered if limiting factors are not reversed (COSEWIC, 2010).

**Three Phase Circuit:** An electrical circuit comprising three conductor wires suspended by insulators from the overhead crossarms of transmission structures.

**Threshold:** A limit or level which if exceeded likely results in a noticeable, detectable or measurable change or environmental effect that may be significant. Example thresholds

include water-quality guidelines, acute toxicity levels, critical population levels and wilderness criteria.

**Thyristor Valve:** A high voltage thyristor valve is a solid-state semiconductor device that is the basic component of a high voltage direct current transmission system.

**Till:** An unstratified, unconsolidated mass of boulders, pebbles, sand and mud deposited by the movement or melting of a glacier.

**Timber:** The wood of growing trees suitable for structural uses; the body, stem or trunk of a tree.

**Tipulids:** Flies from the family Tipulidae, also referred to as crane flies. Tipulids are mosquito-like, with very long legs. This is a large group, with nearly 1500 North American species. Many of its members are very common flies. Most species are 10-25 mm. and brownish or gray; a few have dark markings on the wings. Larvae live in water or in moist soil, and generally feed on decaying plant material. Adults are most common near water or where there is abundant vegetation. Crane flies do not bite (Borror and White, 1970).

**Topography:** The surface features of a region, such as its hills, valleys or rivers.

**Towers:** The transmission line structures which provide support for the conductors to ensure clearance from the ground. Towers are may be either free standing or guyed and are typically a steel lattice design.

**Traditional Activities:** Hunting, trapping, fishing and food gathering by Aboriginal peoples whether for subsistence purposes or not.

**Traditional Ecological Knowledge (TEK):** A body of knowledge built up by a group of people through generations of living in close contact with nature. Also see aboriginal traditional knowledge.

**Traditional Use Areas:** The use of a geographical area by indigenous peoples throughout the span of their existence.

**Transformer Station:** A transmission station which includes power transformer, to convert power to the appropriate voltage for delivery to regional subtransmission or distribution facilities, or to the higher voltage required for economical and efficient transmission over longer distances to a load centre

**Transformer:** An electrical device, commonly located in substations, used to transform (convert) power from one voltage level to another.

**Transmission Line:** A linear arrangement of towers and conductors which carries electricity from generating stations and transmission stations to load centres like communities and industries to meet electrical needs.

**Transmission System:** The towers, conductors, substations, and related equipment involved with transporting electricity from generation source to areas for distribution—or to the power systems of out-of-province electrical utilities.

**Transmission:** A process of transporting electric energy in bulk from a source of supply to other parts of the electrical system (e.g., load centres like large communities of major industrial customers).

**Transmissivity:** The product of hydraulic conductivity and aquifer thickness, a measure of a volume of water to move through an aquifer. Transmissivity generally has the units of ft<sup>2</sup>/day or gallons per day/foot. Transmissivity is a measure of the subsurface's ability to transmit groundwater horizontally through its entire saturated thickness.

**Treaty Land Entitlement (TLE):** Refers to land owed to certain First Nations under the terms of the Treaties signed by the First Nations and Canada between 1871 and 1910. Each Treaty provided that Canada would provide reserve land to First Nations based on population size; however, not all First Nations received their full allocation of land. In 1997, the Manitoba Treaty Land Entitlement Agreement was signed by the TLE Committee of Manitoba Inc. (representing 20 First Nations), Canada and Manitoba.

**Tributary:** Any secondary stream or river that flows into a larger waterbody.

**Trophic:** (trophic level): A functional classification of species that is based on feeding relationships (e.g. generally aquatic and terrestrial green plants comprise the first trophic level, and herbivores comprise the second.).

**True bugs:** Insects in the order Hemiptera. They are usually characterized by a scutellum, a triangular-shaped section on the back.

**True Colour Units (TCU):** A unit for measuring colour.

**Trihalomethanes (THM):** Is a chemical compound often found used as solvents or refrigerants in industrial applications. THM's are also environmental pollutants and are carcinogenic (Wikipedia, 2011c).

**Turbic:** Having cryoturbative features (mixed soil material, disrupted soil horizons, involutions (swirl-like patterns in soil horizons), organic intrusions, frost heave, separation of coarse from fine soil materials, cracks, patterned surface features such as

earth hummocks, frost mounds, stone circles, nets and polygons), either at the surface or within 100 cm from the soil surface (*in Cryosols only*).

**Turbic Cryosols:** Are mineral soils that have permafrost within 2 m of the surface and show marked evidence of cryoturbation (churning of the ground surface by frost action) laterally within the active layer, as indicated by disrupted or mixed or broken horizons, or displaced material or a combination of both.

**Umbrella Species:** Species with large area requirements. Conservation of these species should automatically conserve a host of other species e.g., grizzly bear (Wildlife Resources Consulting Services, 2011).

**Uncertainty:** The lack of certainty or a state of having limited knowledge where it is impossible to exactly describe existing state or future outcome, more than one possible outcome. In environmental assessment not knowing the nature and magnitude of environmental effects or the degree to which mitigation measures would prevent or reduce adverse effects.

**Unconfined Aquifer:** An aquifer which is not bounded on top by an aquitard. The upper surface of an unconfined aquifer is the water table.

**Unconsolidated:** Not compact or dense in structure or arrangement; i.e., "loose gravel."

**Understory:** That portion of the trees or other vegetation in a forest stand that is below the main canopy level.

**Understory:** Vegetation growing beneath taller plants such as trees or tall shrubs.

**Ungulates:** Any of a number of mammals with hooves that are superficially similar but not necessarily closely related taxonomically.

**Unincorporated Communities:** A region or area of land that is not part of any municipality (Wikipedia, 2011a).

**Unsaturated Zone:** The zone below the land surface in which pore space contains both water and air.

**V and KG blades:** Blades on tracked dozers used for conventional clearing of the right-of-way.

**Valued Environmental Component (VEC):** Any part of the environment that is considered important by the proponent, public, scientists, and government involved in the assessment process; importance may be determined on the basis of societal or cultural values, or scientific interest or concern (Manitoba Hydro 2011b).

**Varved:** A layer or series of layers of sediment deposited in a body of still water in one year. Varves are typically associated with glacial lake deposits and consist of two layers: a lower, light-coloured layer that consists primarily of sand and silt, and a darker upper layer that consists primarily of clay and organic matter.

**Vascular Plant:** A plant having a specialized system of channels for carrying fluids (water and dissolved materials).

**Vascular Plant:** A plant having a vascular system.

**Vegetation:** The general cover of plants growing on a landscape.

**Vegetation Type:** In phytosociology, the lowest possible level to be described.

**Velocity:** A measurement of the speed of flow.

**Veneer bogs:** A thin type of bog occurring on gently sloping terrain underlain by generally discontinuous permafrost.

**Veneer:** A mantle of unconsolidated materials too thin to mask the minor irregularities of the underlying unit surface. A veneer is generally less than 1 m in thickness.

**Vernal:** Appearing or occurring in the spring.

**Vertisolic:** An order of soils that occur in heavy-textured materials (>60% clay, of which at least half is smectite) and have a shrink-swell character. They lack the degree of horizon development diagnostic of soils of the other soil orders, and the surface (Ah) horizon, when dry, has a massive structure and is hard. It consists of the Vertisol and Humic Vertisol great groups.

**Volt:** The unit of measurement of electric pressure which causes current to flow.

**Vulnerability:** Refers to the degree to which a system is susceptible to, and unable to cope with, the adverse effects of climate change. The IPCC further defines vulnerability as a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity (Natural Resources Canada, 2007).

**Warm Blooded Invertebrate:** An animal lacking a backbone that internally regulates their own body temperature. Body temperature is kept at a relatively constant level, regardless of ambient temperatures.

**Waterbird:** A bird commonly associated with water, e.g., waterfowl, terns and gulls.

**Waterbody:** Any location where water flows or is present, whether or not the flow or the presence of water is continuous, intermittent, or occurs only during a flood. This includes, but is not limited to, wetlands and aquifers.

**Waterfowl:** Ducks and geese (game birds that frequent water).

**Watershed:** The region draining into a river, river system or other body of water.

**Water Quality:** Description of the chemical, physical, and biological characteristics of water, usually in regard to its suitability for a particular purpose or use.

**Water Table:** See groundwater table.

**Watt:** The unit of measurement of electrical power. (See kilowatt and kilowatt-hour)

**Wetland:** Land that is saturated with water long enough to promote hydric soils or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation, and various kinds of biological activity that are adapted to wet environments.

**White Geese:** Includes Snow, Blue and Ross geese species.

**Whorls:** A group of three or more leaves arising from one point (Wildflowers Across the Prairies, 1984).

**Wildlife:** Free-ranging animals which live in the wild, natural or undomesticated state.

**Work Camp:** A temporary place to house workers when a construction site is far from their place of residence.

**ya:** Abbreviation for 'years ago'.

**Xerophyte:** Plants that grow on dry sites.