

Manitoba-Minnesota Transmission Project

Post-Construction Environmental Monitoring

Report

Certificate EC-059

Prepared for:
Canadian Energy Regulator

Prepared by:
Manitoba Hydro

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ACRONYMS

AC	Alternating Current
CER	Canadian Energy Regulator
CHRPP	Cultural and Heritage Resources Protection Plan
EIS	Environmental Impact Statement
EMP	Environmental Monitoring Plan
EPIMS	Environmental Protection Information Management System
EPP	Environmental Protection Program
ESS	Environmentally Sensitive Site
FNMEP	First Nation and Metis Engagement Process
km	Kilometre
kV	Kilovolt
MBCA	Migratory Birds Convention Act
MBCDC	Manitoba Conservation Data Centre
MESEA	Manitoba Endangered Species and Ecosystems Act
MMF	Manitoba Metis Federation
MMTP	Manitoba-Minnesota Transmission Project
NEB	National Energy Board
PEP	Public Engagement Process
ROW	Right-of-way
SARA	Species at Risk Act

1.0 Introduction

This document is the fourth monitoring report of the Manitoba Minnesota Transmission Project (MMTP) Environmental Monitoring Plan (NEB Ex. [A6V3U2](#)).

1.1 Project Overview

Manitoba Hydro has constructed and is operating a 500 kilovolt (kV) alternating current (AC) international transmission line in southeastern Manitoba that includes additions and upgrades to three associated transmission stations at Dorsey, Riel and Glenboro South (Map 1-1). The project is called the Manitoba-Minnesota Transmission Project (MMTP or “the Project”) and consists of approximately 213 km of single circuit, 500 kV AC transmission line (D6041) that starts at the existing Dorsey Converter Station northwest of Winnipeg, in the RM of Rosser, and connects at the Manitoba-Minnesota border to a new transmission line operated by Minnesota Power, called the Great Northern Transmission Line. Map 1-1 shows the project components. Map 1-2 shows the Project’s environmental monitoring locations.

Construction of the Project began in September 2019 and was completed on April 15, 2020. The Project came into partial service on June 1, 2020, and full service on November 1, 2020. The Project is now in the operation phase.

1.1.1 Regulatory Requirement

The Project was reviewed by Manitoba Sustainable Development (SD) and received Environment Act Licence #3288. This report is submitted in fulfillment of Condition 56, which states;

The Licencee shall submit annual reports to the Director of the Environmental Approvals Branch, on the results of monitoring programs approved pursuant to Clause 53 of this Licence for the duration of the monitoring programs. The reports shall:

- a) report on the accuracy of predictions made in the EIS and supporting information,*
- b) report on the success of the mitigation measures employed during construction and operation,*
- c) provide a description of the adaptive management measures undertaken to address issues, and commitments for future mitigation;*
- d) identify any unexpected environmental effects of the Development;*
- e) identify additional mitigation measures to address unanticipated environmental effects, if required;*
- f) report on how input from the monitoring advisory group, formed pursuant to Clause 55 of this licence, was incorporated into the monitoring program; and*
- g) propose changes to the monitoring programs based on the results of the annual assessments.*

Authorization for the construction and operation of the transmission line was acquired under the *National Energy Board Act* under the Certificate of Public Convenience and Necessity EC-059. This report is being submitted in partial fulfillment of Condition 23, which states;

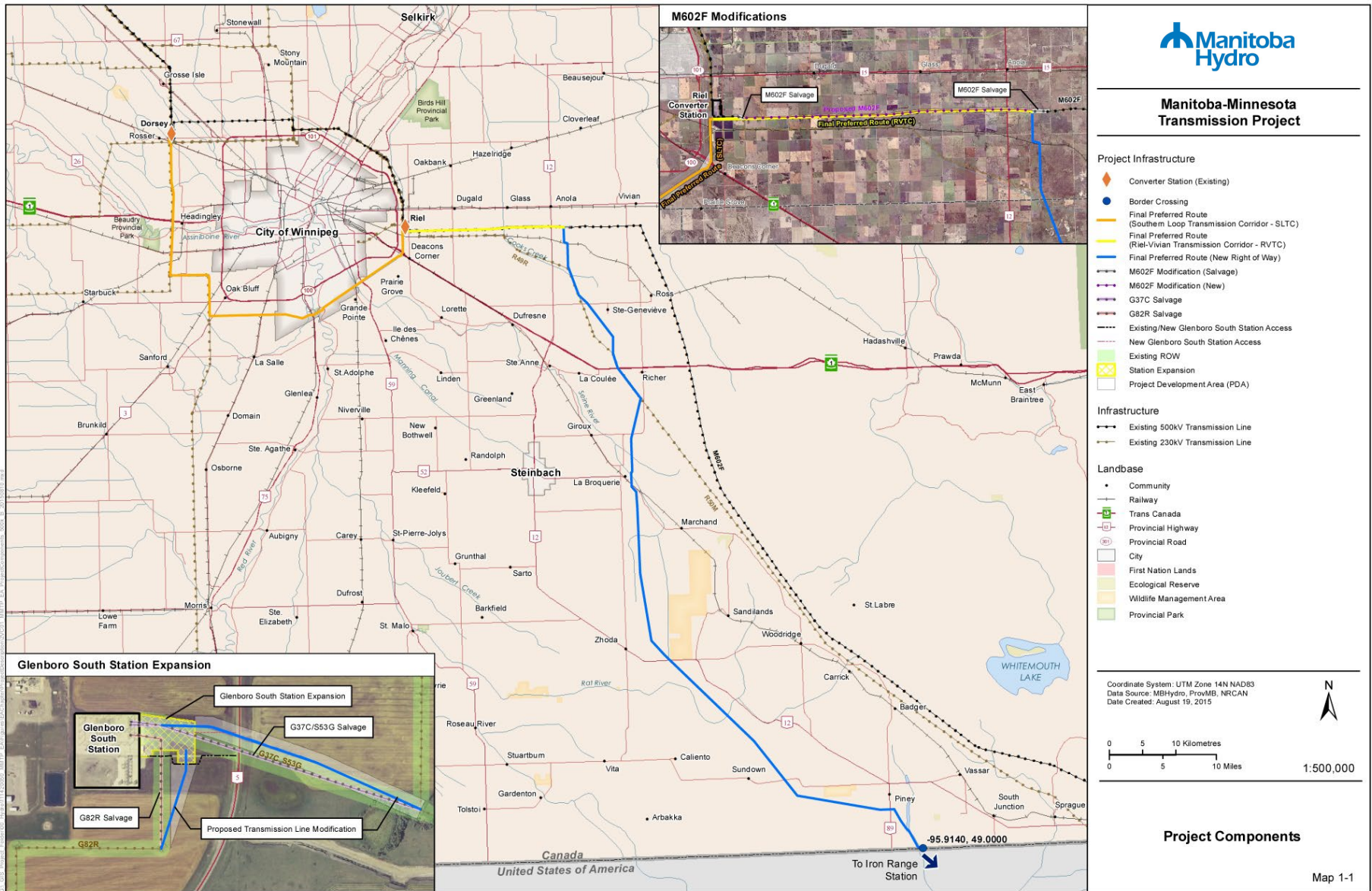
Manitoba Hydro must file with the Board, on or before 31 January following the first year of Project operations and for a period of at least ten (10) years after commencing operations, annual post-construction monitoring reports. These reports must include:

- a) a description of monitoring methods used;*
- b) identification, including on a map or diagram, of any reclamation or other environmental issues which arose during construction or in the course of the previous year;*
- c) a description of the valued components or issues that were assessed or monitored, as outlined in Manitoba Hydro's Environmental Monitoring Plan (see Condition 10);*
- d) the monitoring results, including a comparison to measurable goals;*
- e) an assessment of the effectiveness of the mitigation measures implemented and the accuracy of the environmental assessment predictions;*
- f) a description of any corrective actions taken, their observed success and current status; and,*
- g) a schedule outlining when further corrective actions will be implemented or monitoring conducted to address any unresolved issues.*

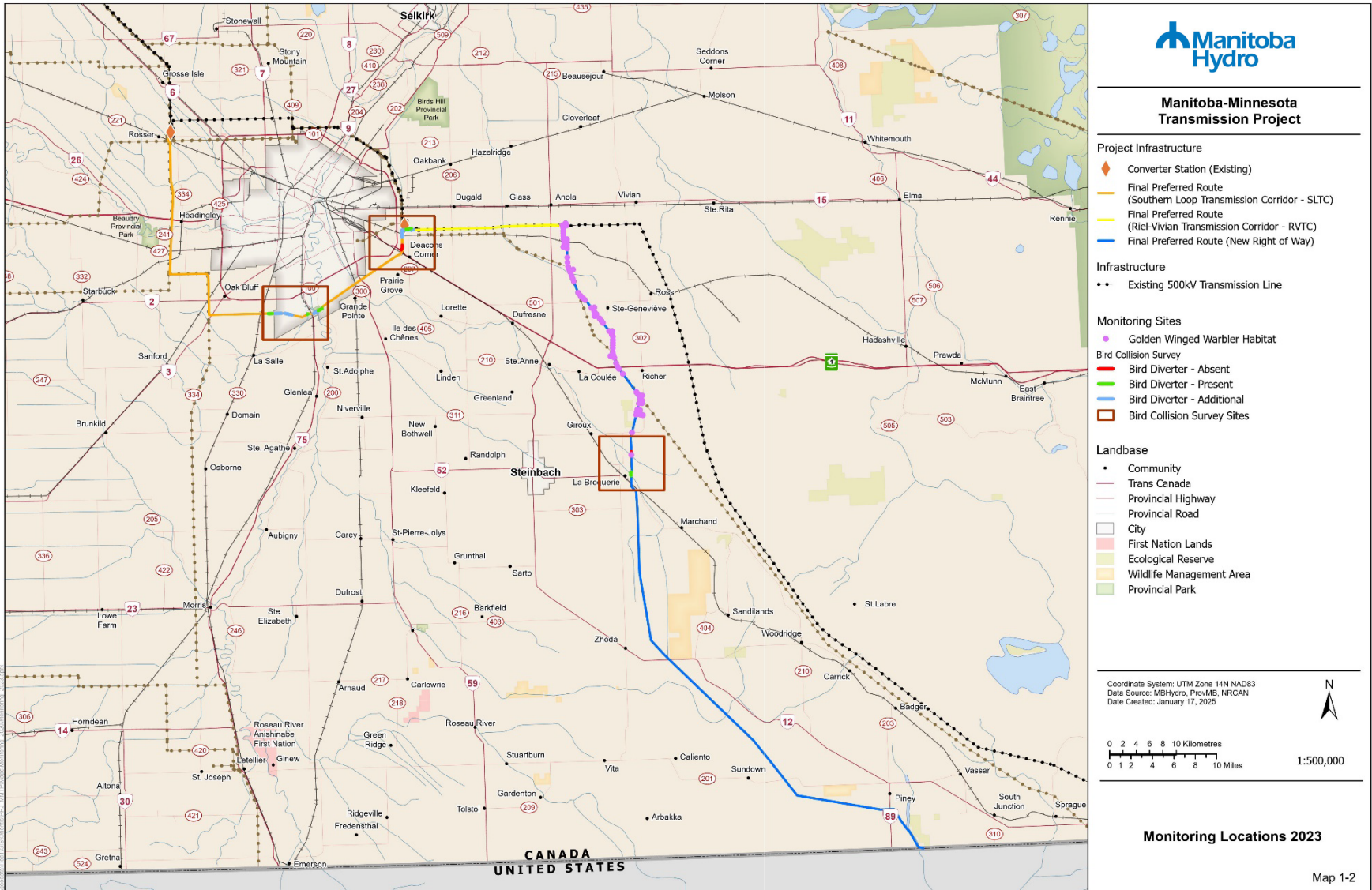
Notwithstanding the requirement for filing on or before 31 January above, if the Provincial Minister responsible for issuing a Provincial Licence to Manitoba Hydro does grant such a Licence, and such a Licence requires annual submission of post-construction monitoring reports, Manitoba Hydro may submit post-construction monitoring reports to the Board in accordance with any timing requirements set out in that Provincial Licence, provided that the submission of the reports to the Board commences within the first year of operations and occurs annually for ten (10) years.

1.1.2 Project Status

The Project, including transmission line and station upgrades, was fully in-service as of November 1, 2020, and continues to be in operation.



Map 1-1 Project Components Map



Map 1-2 Project Environmental Monitoring Site Locations Map

1.2 Environmental Protection Program

Part of Manitoba Hydro’s commitment to environmental protection includes the development of a comprehensive Environmental Protection Program (EPP), this is further described in chapter 22 of the Environmental Impact Statement (EIS), found here at National Energy Board (NEB) Ex. [A81182-38](#). The purpose of the EPP is to provide the framework for implementing, managing, monitoring and evaluating environmental protection measures that are consistent with regulatory requirements and environmental guidelines. This Environmental Monitoring Plan is a component of the EPP as illustrated in Figure 1.

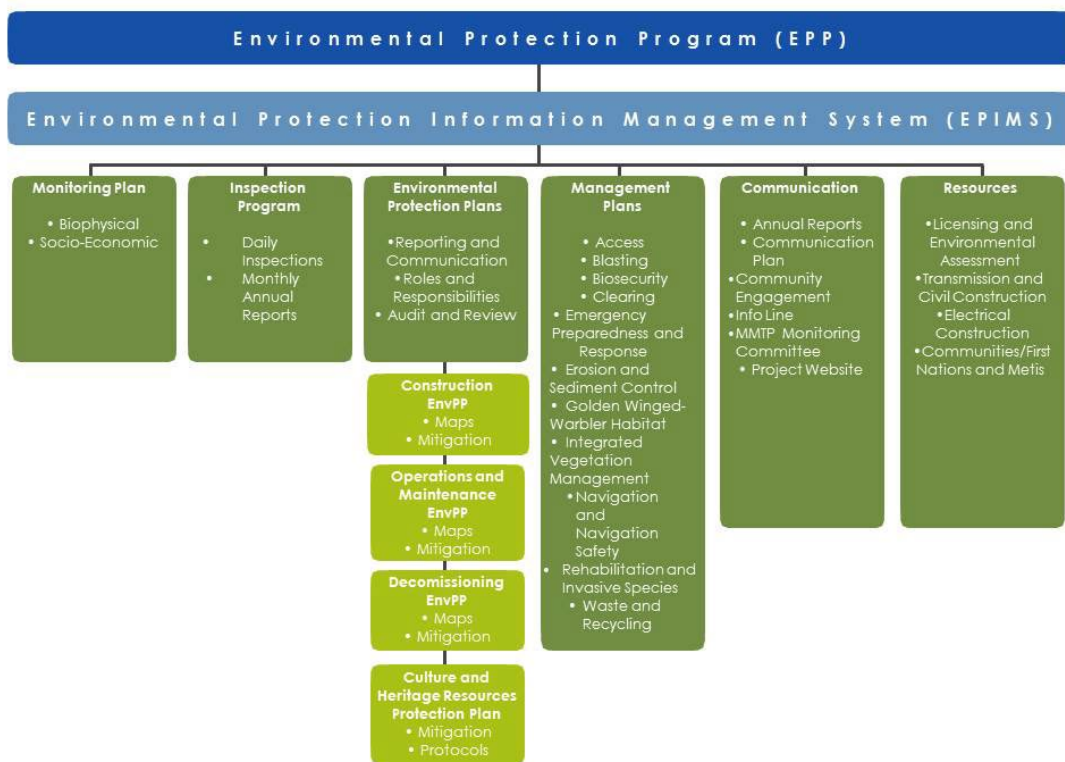


Figure 1: Environmental Protection Program Chart

2.0 Environmental Monitoring

This document reports on the outcomes of the MMTP Environmental Monitoring Plan (NEB Ex [A6V3U2](#)), which outlines the various monitoring activities that are occurring to address follow-up requirements identified for the valued components included in the environmental assessment. This is the Project's fourth annual monitoring report and describes monitoring results from March 2023 to March 2024. In addition, it also includes recent results from bird-wire collision monitoring and golden-winged warbler habitat conducted in summer 2024. Manitoba Hydro felt it appropriate to report these results here, rather than wait until the fifth (2024) annual monitoring report.

Monitoring activities were considered during all phases of Project development (i.e., pre-construction, construction, and post-construction). Follow-up requirements include actions implemented to assess the effectiveness of the environmental assessment and to confirm compliance with regulatory requirements.

The EMP is intended to describe how and provide assurance to regulators, the MMTP Monitoring Committee, First Nations, the Manitoba Métis Federation and Indigenous organizations, landowners, interested parties, environmental organizations, and the general public that potential environmental effects caused by the Project will be monitored, evaluated and reported in a responsible and accountable manner.

An internal Environmental Protection Information Management System (EPIMS) was developed that manages, stores and facilitates the transfer of EPP data and information amongst the Project team. EPIMS facilitated the transfer of knowledge and experiences encountered on a daily basis during construction activities from Environmental Inspectors to the Specialists that were responsible for monitoring project effects. EPIMS continues to be an essential tool that manages vast amounts of data and information generated through the implementation of the plan, which has allowed Manitoba Hydro to employ an adaptive management approach during this Project and apply that experience and knowledge to future developments.

2.1 Purpose

The purpose of the environmental monitoring report is to meet regulatory requirements and to outline results of the key activities that were conducted as part of the monitoring and follow-up component of the Project.

2.2 Objectives

The objectives of this report are to describe the monitoring methods used, the valued components, the monitoring results with measurable goals, the effectiveness of mitigation, and future actions and monitoring. Much of this information is detailed within the following subheadings in Section 3:

- Confirm the nature and magnitude of predicted environmental effects as stated in the EIS;
- Assess effectiveness of mitigation measures implemented;
- Identify unexpected environmental effects of the project, if they occur;
- Identify additional mitigation measures to address unanticipated environmental effects, if required;
- Confirm compliance with regulatory requirements including approval terms and conditions; and
- Provide additional baseline information to evaluate long-term changes or trends.

2.3 Scope of Work

The scope of this environmental monitoring report includes the biological and socio-economic components outlined in the environmental monitoring plan. A Cultural and Heritage Resources Protection Plan (CHRPP) was also developed that outlines Manitoba Hydro's commitment to safeguard cultural and heritage resources and provide information on how to appropriately handle human remains or cultural and heritage resources discovered or disturbed during construction of the Project.

2.4 Management and Coordination

As part of the EPP, Manitoba Hydro assembled an Environmental Protection Management Team, comprised of senior Manitoba Hydro management, as well as implementation teams committed to the implementation of the EMP for the Project. The Environmental Protection Management Team was responsible for the management of the environmental protection plans including compliance with regulatory and other requirements, as well as quality assurance and control. Manitoba Hydro coordinated discussions with regulators and integrated monitoring outcomes related to the MMTP Monitoring Committee, First Nation and Metis Engagement Process (FNMEP) and Public Engagement Process (PEP) into the EMP. The Environmental Protection and Implementation Team, which was comprised of Manitoba Hydro operational and office staff, was responsible for the day-to-day implementation of environmental protection plans developed for the project, which included monitoring, inspecting and reporting.

Manitoba Hydro ensured that resources were allocated to the environmental aspects of project planning, development, implementation and operation for the successful implementation of environmental protection measures and follow-up including monitoring. Manitoba Hydro committed resources early in the planning cycle to ensure effective environmental assessment, mitigation and monitoring.

2.5 Public Communications and Engagement

In addition to extensive public engagement efforts that occurred throughout the development of the Project, Manitoba Hydro continues to welcome all members of the public to contact the corporation with questions or comments throughout the environmental monitoring process. Manitoba Hydro's Manitoba-Minnesota Transmission Project website, www.hydro.mb.ca/mmtp, is maintained and updated regularly throughout the Project with the summary of results. As noted on the Project website, additional information is available to the public upon request via a toll-free phone number, dedicated project e-mail address or by mail.

Manitoba Hydro
Manitoba–Minnesota Transmission Project
C/O Transmission Distribution & Environment and Engagement
360 Portage Avenue (18)
Winnipeg MB, R3C 0G8
1-877-343-1631 or 204-360-7888
mmtp@hydro.mb.ca

Manitoba Hydro received one concern regarding the Project in 2023. A landowner near structure 243 reported evidence in the snow of a Manitoba Hydro contractor driving across an agricultural field to access the ROW during a foundation inspection, instead of along the field edge. Manitoba Hydro responded to the landowner, reminded the contractor of appropriate access protocols, and logged the information MMTP issue tracking log. No damage was incurred.

2.6 First Nation and Metis Engagement Process

Manitoba Hydro's approach to the ongoing First Nation and Metis Engagement Process (FNMEP) was the development of a MMTP Monitoring Committee. Information generated by this committee was used in an adaptive way to modify and improve the environmental monitoring plan, including adding surveys on traditional use plants.

The MMTP Monitoring Committee is made up of participants from Indigenous communities and groups across southern Manitoba and Ontario, Manitoba Hydro and Manitoba Environment

and Climate. Their comprehensive website can be found at:

<https://www.mmtppmonitoring.com/>

The purpose of the MMTP Monitoring Committee is to:

- support Indigenous participants' effective and meaningful participation in the monitoring of the project,
- create a platform for understanding issues of concern to Indigenous participants and Manitoba Hydro in order to collaboratively provide informed advice on how to address issues of concern, and
- share information in a cooperative and transparent manner relating to the environmental issues of the Project.

The goals of the MMTP Monitoring Committee are to monitor that:

- Manitoba Hydro does what they say they would do and is compliant with licence and certificate conditions,
- The land and water is respected as we use our knowledge to monitor its health,
- Leadership, members and staff from communities and organizations feel informed about the status of MMTP and information is accessible to those who just want to check in if interested, and
- There is a place to discuss topics of interest to us that are beyond MMTP.

Invited Members include:

Animakee Wa Zhing #37
Anishnaabeg of Naongashiing
Birdtail Sioux First Nation
Black River First Nation
Brokenhead Ojibway Nation
Buffalo Point First Nation
Canupawakpa Dakota Nation
Dakota Plains Wahpeton First Nation
Dakota Tipi First Nation
Iskatewizaagegan #39 Independent FN
Long Plain First Nation
Northwest Angle #33 First Nation
Peguis First Nation
Roseau River Anishinabe First Nation

Sagkeeng First Nation
Sandy Bay Ojibway First Nation
Swan Lake First Nation
Shoal Lake 40 First Nation
Sioux Valley Dakota Nation
Waywayseecappo First Nation
Manitoba Metis Federation
Aboriginal Chamber of Commerce
Assembly of Manitoba Chiefs
Dakota Ojibway Tribal Council
Southern Chiefs Organization
Manitoba Hydro
Manitoba Environment & Climate

In August 2019, the Monitoring Committee hired four Indigenous monitors responsible for monitoring the construction of MMTP and supporting the Committee in achieving their goals.

Travis Bird, Swan Lake First Nation	Compliance and Environment Monitor
Keith Kowall, Manitoba Metis Federation	Compliance and Environment Monitor
Darryl Taylor, Dakota Tipi First Nation	Communications Monitor
Floyd Flett, Peguis First Nation	Traditional Knowledge Monitor

The monitors visited project construction sites four days per week and reported on their daily observations of construction activities, raising matters of environmental concern and non-compliance to Manitoba Hydro. Examples of issues observed included spills, substandard machinery, and ground disturbance beyond prescribed areas.

Other responsibilities fulfilled by the monitors included providing presentations to interested communities and organizing traditional ceremonies and tobacco offerings. Firewood and cedar harvested from the project ROW were also bundled by the monitors and delivered to interested communities.

In 2020, the MMTP Indigenous monitors published a report on the observations, challenges, and recommendations developed through their experience monitoring construction of the project. Recommendations included, but were not limited to:

- A process for inspecting machinery to clear it for use on the ROW;
- Increased diligence in contractor hiring to ensure contractors understand the importance of environmental protection; and
- Indigenous involvement in early project activities such as geotechnical drilling and heritage work.

The monitors reported that Manitoba Hydro was timely in responding to concerns they identified. This was accomplished through biweekly meetings with construction managers. The opportunity to perform traditional ceremonies and make offerings of tobacco and prayers to show respect for the people, environment, and spirits affected by the project was very important to the monitors and recommended as an essential component on future projects.

Following completion of the construction phase, the monitors have continued to perform seasonal post-construction monitoring. In 2023, post-construction monitoring tours took place at four times of the year (spring, summer, fall, and winter). Manitoba Hydro representatives attended these tours and assisted in data collection and recording.

During each monitoring tour, a report was produced summarizing observations related to wildlife, traditional plant species, invasive plants, water levels, site accessibility, and level of visual disturbance. Monitoring focused on sites near MMTP towers 124, 405, 406, and 441. Multi-year vegetation monitoring quadrants at towers 405 and 406 have allowed monitors to observe changes in traditional plant species over time. Post-construction

monitoring reports and photos are published following each tour on the <https://www.mmtppmonitoring.com/> webpage.

The MMTP Indigenous monitors have shared with Manitoba Hydro that their experience monitoring MMTP has been positive and that they believe it is essential for Indigenous monitors to be present on all Manitoba Hydro projects that affect the land and water.

2.7 Environmental Issues that arose during Construction or in the Previous Year

Throughout the Project construction phase, routine environmental mitigation measures were applied as per the environmental protection plan. In year 4 (2023), no environmental issues arose. Table 2-1 outlines the status of environmental issues that arose during construction or in the previous years.

Table 2-1 List of Environmental Deficiencies

Sites	Date	Item Description	Project Area/Timeframe	Corrective Action and schedule for unresolved issues	Current Status			
					Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)
Low volume release sites (197) identified at various locations along ROW.	June 17, 2021	Release site identified, contaminated material removed, and soil tested, as required. Includes NEB Inspection Report# CV1920-477 NNC#1 – Visual sign of hydrocarbon release	MMTP - S1 and S2/ identified during construction phase	All release sites cleaned up and remediated prior to November 1, 2020. No further action. Includes response to NNC#1 submitted on March 3, 2020.	Resolved and reported in 2020.	N/A	N/A	N/A
Inadequate temporary access. The eastern arm of Pine Creek. SW-4-1-12-E.	October 23, 2019	NEB Inspection Report# CV1920-108 NNC#1 – Inadequate temporary access	MMTP – S2 identified during construction	New temporary bridge installed as outlined in response to NNC #1 on November 4 th , 2019.	Resolved and reported in 2020.	N/A	N/A	N/A
Major petroleum hydrocarbon release near tower 265. NE-2-9-7-E in the Rural Municipality of Tach.	January 30, 2020	~200L diesel fuel release, remove contaminated material, test samples, rehabilitate.	MMTP - S2/ identified during construction phase, completed post construction phase	Release site cleaned up, remediated. Clean up work completed by February 18, 2020. Monitoring conducted until November 2020. No further action.	Resolved and reported in 2020.	N/A	N/A	N/A
Major petroleum hydrocarbon release at MMTP laydown yard. NE-9-4-8-E in the Rural Municipality of La Broquerie.	March 21, 2020	60L hydraulic oil release, remove contaminated material, test samples, rehabilitate.	MMTP - S2/ identified during construction phase, completed post construction phase	Release site cleaned up, remediated. Clean up work completed by July 6, 2020. No further action.	Resolved and reported in 2020.	N/A	N/A	N/A
Six noxious weed sites identified at various locations along the ROW in Rural Municipality of Piney and Stuartburn.	July 24, 2020	Tier 1 and 2 weed species sites	MMTP - S2/ identified post construction phase	Contract licensed herbicide applicator treated weed sites. Treatment conducted on September 23, 2020. Regional weed inspector satisfied. Follow-up conducted in Year 2 and 3 to monitor abundance and distribution of noxious weeds.	Resolved and reported in 2020.	Follow-up conducted. Confirmed reduction of invasive weeds.	Follow-up conducted. Confirmed reduction of invasive weeds.	Follow-up conducted. Confirmed reduction of invasive weeds.
Woody debris in watercourse near tower 493. SW-4-1-12-E, Rural Municipality of Piney, ESS Aqua 130.	June 29, 2020	Woody debris in watercourse. A small number of woody branches and stumps.	MMTP - S2/ identified during post construction phase	Debris removed from watercourse on August 5 th , 2020. No further action.	Resolved and reported in 2020.	N/A	N/A	N/A
Ground disturbance along ROW at tower 303. NW-20-7-8E, RM of Ste. Anne.	September 9, 2020	Ground disturbance	MMTP - S2/ identified during construction	Back blade and level ground on November 3, 2020, and June 21, 2021. No further action.	Resolved and reported in 2020.	N/A	N/A	N/A
Ground disturbance along ROW at towers 119A, 119B at RL-73-NO, City of Winnipeg.	Spring 2020	Ground disturbance	MMTP - S1/ identified during construction	Tilled and leveled ground and repaired access between June 4-15, 2020. No further action.	Resolved and reported in 2020.	N/A	N/A	N/A

3.0 Monitoring Program Methods and Results

Table 3-1 below provides the list of valued components and their environmental indicators that were outlined in the environmental monitoring plan. It also describes the parameters measured, rationale for their selection, and status in this report. Outcomes from 2022 field studies are included in this report. Map 1-2 shows an overview of monitoring site locations.

Valued Component	Environmental Indicator	Parameter	Rationale ¹	Reporting Status
Fish and Fish Habitat	Stream Crossings	Riparian buffers, ground cover, erosion;	Environmental importance; protection of aquatic life; Regulatory importance	Complete. Reported in 2020.
Vegetation and Wetlands	Wetlands	Vegetation cover and area of wetland affected by the project	Environmental importance; protection of aquatic life, no net loss	Complete. Reported in 2021.
	Plant Species of Conservation Concern	Species occurrence	Regulatory importance – MESEA and SARA	Complete. Reported in 2020.
	Invasive Plant Species	Species occurrence	Environmental importance	Complete. Reported in 2020. Follow-up info provided.
	Traditional Use Plant Species	Species occurrence	Cultural and environmental importance	Complete. Reported in 2021.
Wildlife and Wildlife Habitat	Amphibians	Presence of northern leopard frogs, eastern tiger salamanders and habitat	Regulatory importance – SARA <i>The Wildlife Act</i>	Complete. Reported in 2021.
	Common Garter Snakes	Presence of garter snake hibernacula	Regulatory importance – <i>The Wildlife Act</i>	None identified.
	Bird-Wire Collision	Abundance and mortality	Environmental and cultural importance; Regulatory importance	Complete. 2024 results presented.
	Sharp-tailed Grouse Lekking Sites	Lek abundance, number of males, mortality changes	Vulnerable and sensitive to change; Regulatory importance	Complete. Reported in 2021.

Table 3-1 Monitoring Activities by Environmental Component

Valued Component	Environmental Indicator	Parameter	Rationale ¹	Reporting Status
	Bird Species of Conservation Concern	Presence/Absence habitat suitability	Regulatory importance - MESEA; SARA; MBCA; MB CDC, designated Golden-winged Warbler critical habitat	Complete. Reported in 2021.
	Golden-winged Warbler Habitat	Vegetation cover	Regulatory importance – MESEA and SARA	2023 results reported. Next survey in 2025 report.
	Birds of Prey	Nest site locations	Environmental and cultural importance; Regulatory importance	Complete. Reported in 2020.
	Ungulates and Predators	Occurrence and/or seasonal distribution, vehicle collision related mortality	Environmental and cultural importance; Regulatory importance	Complete. Reported in 2022.
	Black Bear	Occurrence, annual prevalence	Environmental and cultural importance; Regulatory importance	Complete. Reported in 2022.
Employment and Economy	Project Employment	Total person years of employment, total number of hires, total number of employees. Type (job classifications) of work available.	Socio-economic and cultural importance	Complete. Reported in 2021.
	Direct/Indirect Business Effects	Direct project expenditures Indirect business opportunities	Socio-economic and cultural importance	Complete. Reported in 2021.
	Direct Labour Income and Taxes	Direct labour income. Project taxes generated (non-labour).	Socio-economic and cultural importance	Complete. Reported in 2021.
Infrastructure and Services	Transportation	Traffic volumes and accidents on key roadways.	Socio-economic and cultural importance	Complete. Reported in 2021.

Table 3-1 Monitoring Activities by Environmental Component

Valued Component	Environmental Indicator	Parameter	Rationale ¹	Reporting Status
Outfitters and Falconry	Outfitter Resource Use	Change in occurrence of black bears frequenting bear bait sites	Socio-economic importance	Complete. Reported in 2021.
	Peregrine Falcon Conservation Centre	Location of peregrine perch sites, distance moved and mortality	Socio-economic and environmental importance	Complete. Reported in 2021.
Agricultural Land	Soil Productivity	Crop performance	Socio-economic and environmental importance	Complete. Reported in 2021.
	Rutting and Compaction	Return to pre-construction condition	Socio-economic and environmental importance	Complete. Reported in 2021.
	Tile Drainage Reclamation	Tile drain performance	Socio-economic and environmental importance	Not required.
Access	Access Controls	Effectiveness of access controls	Socio-economic and environmental importance	Complete. Reported in 2021.

¹ Manitoba Endangered Species and Ecosystems Act (MESEA); Species at Risk Act (SARA); Manitoba Conservation Data Centre (MB CDC); Migratory Bird Convention Act (MBCA)

3.1 Vegetation

Vegetative change can be an important indicator of environmental effects of the Project. A vegetation technical report with a more detailed description of methods, maps, and results is included in Appendix A of this report.

3.1.1 Non-native and Invasive Species Plant Survey

Non-native and invasive species plant surveys were completed in July 2020 and reported in the first annual report. However, observations of non-native and invasive plant species were recorded while surveying at previously rehabilitated sites and during golden-winged warbler (*Vermivora chrysoptera*) habitat surveys in 2024.

Surveys identified that further rehabilitation efforts and invasive plant removals were not required at sites previously monitored and re-seeded in 2021 and 2022. At these sites, areas of soil disturbance observed along the ROW had been broadcast seeded with a prescribed native seed mix to prevent colonization of exposed soil by non-native, invasive or noxious weeds. Bare

ground from prior construction activities was not apparent at these sites in 2024. Further details can be found in the technical report included in Appendix A.

3.2 Wildlife and Wildlife Habitat

Changes to wildlife and wildlife habitat can be an important indicator of environmental effects of a Project. Manitoba Hydro reviewed the results of the 2021 and 2022 MMTP bird-wire collision monitoring reports, which showed several sites exhibited higher than expected levels of bird-wire collision. In response to these findings Manitoba Hydro committed to implementing additional mitigation measures, as outlined in the information request response NEB Ex. [A8SOX5](#). In October 2023, over 3,000 new bird diverters were installed on MMTP - D604I and adjacent transmission lines to further mitigate bird collision risk. The bird diverter installation work was conducted by highly trained Manitoba Hydro crews using a specialized contracted helicopter. To evaluate the effectiveness of the added mitigation, additional bird wire collision monitoring occurred in spring 2024. The bird collision monitoring methods replicated what had been conducted in previous monitoring years and is presented here.

3.2.1 Bird-Wire Collision Survey

Bird-wire collision surveys using standardized methods were conducted by qualified contractors at thirteen pre-selected sites from May 14-23rd, 2024 (Photo 1). A summary of the results can be found below. Detailed information on methods, maps, and discussion found in the technical report included in Appendix B.

Confirm the nature and magnitude of predicted environmental effects as stated in the EIS:

As predicted in the EIS, bird collisions were observed in post-construction phase of the Project. Estimated collision mortality rates were calculated based on number of collisions detected on surveyed transects, while accounting for site specific variables. In 2024, the estimated collision mortality rates were observed to decline and were comparable to those observed at other transmission lines in the Manitoba. Although annual variability in bird migration may have covariable, evidence suggests the installation of additional bird diverters contributed to this observed decline. No mortalities of species of conservation concern were identified in 2024.

Assess the effectiveness of mitigation measures implemented:

The additional bird-wire diverters installed along MMTP appear to be effective at reducing the number of bird-wire collision mortalities. This survey found anecdotal evidence to suggest that increasing the density of bird diverters from one diverter per 5 m to one diverter per 2.5 m

reduced bird mortality in spring. The three sites that had more diverters added to existing diverters had lower bird mortalities compared to previous survey years, even when considering rate of bird passage over the project. One monitored site that had diverters added to it, and one site where diverter density increased, had collision mortality reduced to zero.

Identify mitigation measures to address unanticipated environmental effects, if required:

With the successful implementation of additional mitigation measures in 2023, no additional measures are planned.

Confirm compliance with regulatory requirements including approval terms and conditions:

All information collected indicates compliance with regulatory requirements has been met.

Provide baseline information to evaluate long-term changes or trends:

This additional information has improved understanding of the prevalence and rates of bird-wire collisions in Manitoba and promoted the use of new innovative methods and products to reduce the risk.

3.2.2 Golden-winged Warbler Habitat Survey

Golden-winged warbler habitat surveys were conducted by qualified contractors using standardized vegetation surveys at thirteen pre-selected sites from August 6-11th, 2024 (Photo 2 and 3). A summary of the results can be found below. Detailed description of methods, maps, and results of the golden-winged warbler habitat survey can be found in the technical report included in Appendix A.

Confirm the nature and magnitude of predicted environmental effects as stated in the EIS:

As predicted in the EIS, vegetation was selectively cleared as outlined in the habitat management plan to enhance suitability for golden-winged warblers. Overall, there was a continued general increase in vegetation cover and species richness in the lower vegetation canopies between 2021 and 2024. Average percent cover in the tall shrub layer doubled from the from 2022, and species richness is up slightly from the last monitoring year (2022). As predicted, post-construction monitoring showed mean species richness and cover have been consistent or slightly higher at monitored sites as a result of vegetation species regeneration and changing structure.

Assess the effectiveness of mitigation measures implemented:

Mitigation was effective at meeting the objectives of the golden-winged warbler habitat management plan.

Identify mitigation measures to address unanticipated environmental effects, if required:

No further mitigation is required.

Confirm compliance with regulatory requirements including approval terms and conditions:

All information collected to this point indicates compliance with regulatory requirements has been met.

Provide baseline information to evaluate long-term changes or trends:

Information on vegetation recovery and use by golden winged warblers will enhance knowledge and management.

4.0 Future Monitoring

Future monitoring activities will be carried out as per Table 4-1 and as outlined in the MMTP Environmental Monitoring Plan (NEB Ex. [A6V3U2](#)). Apart from golden-winged warbler habitat survey reporting, which will continue biennially until 2030, all other scheduled environmental monitoring activity reporting is complete and reported. As per condition 28 of NEB Certificate EC-059, annual environmental monitoring reports will continue to be filed to describe any environmental issues and corrective actions which arose in the previous year.

Table 4-1 Monitoring Activities Schedule						
Valued Component	Key Monitoring Activity	Post Construction				
		Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)
Fish and Fish Habitat	Stream Crossing Assessment	Dark shading				
Vegetation and Wetlands	Wetland Surveys	Dark shading	Dark shading			
	Rare Plant Surveys	Dark shading				
	Invasive Species Survey	Dark shading				
	Traditional Use Plant Species Survey	Dark shading	Dark shading			
Wildlife and Wildlife Habitat	Wetland Amphibian Survey	Dark shading	Dark shading			
	Snake Hibernacula Survey					
	Bird-Wire Collision Survey	Dark shading	Dark shading	Dark shading		Dark shading
	Sharp-tailed Grouse Lek Survey	Dark shading	Dark shading			
	Bird Species of Conservation Concern Survey	Dark shading	Dark shading			
	Golden-winged Warbler Habitat Survey	Dark shading	Dark shading	Dark shading		*
	Raptor Nest Survey					
	Distribution / Occurrence Mapping Survey	Dark shading	Dark shading	Dark shading		
	Camera Trap Survey	Dark shading	Dark shading	Dark shading		
	Vehicle Collision Statistic Gathering	Dark shading				
	Mineral Lick Survey					
Employment and Economy	Project Employment Reporting	Dark shading				
	Direct/Indirect Business Opportunities Reporting	Dark shading				
	Direct Labor Income and Taxes Reporting	Dark shading				
Infrastructure and Services	Traffic Monitoring Survey	Dark shading				
Outfitting and Falconry	Black Bear Bait Site Camera Trap Survey	Dark shading	Dark shading			
	Peregrine Falcon Conservation Centre Survey	Dark shading				
Agriculture	Soil Productivity	Dark shading	Dark shading			
	Rutting and Compaction	Dark shading				
	Tile Drainage Reclamation	Dark shading				
Access	Access Controls	Dark shading	Dark shading			

Dark shading denotes when final monitoring activity reporting has been met.

**As per the MMTP Environmental Monitoring Plan, golden-winged warbler habitat monitoring will shift to biennial intervals until 2030 (i.e., surveys conducted in 2024, 2026, 2028 and 2030)*



Photo 1 Bird-wire collision surveys were conducted along MMTP.



Photo 2 A golden-winged warbler (*Vermivora chrysoptera*) monitoring site with dense aspen regeneration in 2024.



Photo 3 Dense deciduous regeneration extending into tree stratum in the MMTP right of way.

APPENDICIES

Appendix A: MANITOBA-MINNESOTA TRANSMISSION PROJECT GOLDEN-WINGED WARBLER
HABITAT MONITORING REPORT - 2024

Appendix B: MANITOBA-MINNESOTA TRANSMISSION PROJECT BIRD-WIRE COLLISION
MONITORING REPORT- 2024

