



FINAL

# Fish and Fish Habitat Study Plan

*May 2021*





# MARTEN FALLS FIRST NATION ALL SEASON COMMUNITY ACCESS ROAD

*Fish and Fish Habitat Study Plan*

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## Revision History

Rev #	Date	Revision Description
Draft	May 2020	Submitted Study Plan – Fish and Fish Habitat to the Agency.
Final	May 2021	Revised to address federal and provincial agency comments.



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*Fish and Fish Habitat Study Plan*

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- Appendix A. Preliminary List of Data Sources
- Appendix B. Agency Comments on the Draft Study Plan
- Appendix C. 2019, 2020 Field Assessment Site Location





## Acronyms

Agency, the ...	Impact Assessment Agency of Canada
CAR .....	Community Access Road
CEMP .....	Construction Environmental Management Plan
EA .....	Environmental Assessment
IA .....	Impact Assessment
IAA .....	<i>Impact Assessment Act</i>
IS .....	Impact Statement
km .....	kilometre
LiDAR.....	Light Detection and Ranging
LSA .....	Local Study Area
MECP .....	Ontario Ministry of the Environment, Conservation and Parks
MFFN.....	Marten Falls First Nation
MNRF .....	Ministry of Natural Resources and Forestry
PDA .....	Project Development Area
RSA .....	Regional Study Area
SAR .....	Species at Risk
TISG .....	Tailored Impact Statement Guidelines
ToR.....	Terms of Reference
VC.....	Valued Component





# 1. Introduction

The Proponent of the Community Access Road (CAR or the Project) is Marten Falls First Nation (MFFN), a remote First Nation community in northern Ontario located at the junction of the Albany and Ogoki rivers, approximately 430 kilometres (km) from Thunder Bay, Ontario. The MFFN community is proposing an all-season Community Access Road that will connect the MFFN community to the Ontario's provincial highway network (Highway 643) to the south via the existing Painter Lake Road. MFFN, as the Proponent of the Project, has formed a MFFN CAR Project Team that includes MFFN CAR Community Member Advisors and MFFN CAR Project Consultants who act with input, guidance and direction from the MFFN Chief and Council.

This document outlines the study plan for the Fish and Fish Habitat discipline to support a coordinated Impact Assessment (IA) required for Project review by the Impact Assessment Agency of Canada (the Agency) under the federal *Impact Assessment Act* (IAA) and Environmental Assessment (EA) required for Project review by the Ontario Ministry of the Environment, Conservation and Parks (MECP) under the Ontario *Environmental Assessment Act*.

## 1.1 Federal and Provincial Terminology

The study plans have been prepared using federal terminology, however, the respective provincial terminology has been provided in **Table 1-1** for reference. The terms can be used interchangeably.

**Table 1-1: Equivalent Federal and Provincial Terms**

Provincial Term	Federal Term
Criteria	Valued Component
Impact Management Measure	Mitigation Measure
Net Effects	Residual Effects
Record of Consultation	Record of Engagement





## 1.2 Project Study Plans

This Study Plan is one of a group of study plans created for the Project. **Table 1-2** includes the study plans for each environmental<sup>1</sup> discipline currently planned for the Project and the valued components (VCs) covered by the study plans where applicable.

**Table 1-2: Project Study Plans and Valued Components**

Environmental Discipline	Study Plan Name	Valued Component(s)
<b>Aboriginal and Treaty Rights and Interests</b>	<ul style="list-style-type: none"> <li>Aboriginal and Treaty Rights and Interests Study Plan</li> </ul>	<ul style="list-style-type: none"> <li>Indigenous Current Use of Lands and Resources for Traditional Purposes</li> <li>Cultural Continuity (ability to practice and transmit cultural traditions)</li> </ul>
<b>Atmospheric Environment</b>	<ul style="list-style-type: none"> <li>Atmospheric Environment and Greenhouse Gases Study Plan</li> </ul>	<ul style="list-style-type: none"> <li>Air Quality</li> <li>Greenhouse Gas Emissions</li> </ul>
<b>Climate Change</b>	<ul style="list-style-type: none"> <li>Climate Adaptation and Resiliency Study Plan</li> </ul>	<ul style="list-style-type: none"> <li>Climate Change</li> </ul>
<b>Acoustic and Vibration Environment</b>	<ul style="list-style-type: none"> <li>Acoustic and Vibration Environment Study Plan</li> </ul>	<ul style="list-style-type: none"> <li>Noise</li> <li>Vibration</li> </ul>
<b>Physiography, Geology, Terrain and Soils</b>	<ul style="list-style-type: none"> <li>Physiography, Terrain and Soils Study Plan</li> </ul>	<ul style="list-style-type: none"> <li>Physiography, Terrain and Soils</li> </ul>
<b>Surface Water</b>	<ul style="list-style-type: none"> <li>Surface Water Study Plan</li> </ul>	<ul style="list-style-type: none"> <li>Surface Water</li> </ul>
<b>Groundwater and Geochemistry</b>	<ul style="list-style-type: none"> <li>Groundwater and Geochemistry Study Plan</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater</li> </ul>
<b>Vegetation</b>	<ul style="list-style-type: none"> <li>Vegetation Study Plan</li> </ul>	<ul style="list-style-type: none"> <li>Wetland and Riparian Ecosystems</li> <li>Upland Ecosystems</li> <li>Designated Areas (Areas of Natural and Scientific Interest, Environmentally Significant Areas, Significant Woodlands, Critical Landform / Vegetation Associations)</li> <li>Traditional Use Plants and SAR Plant Populations (including species with special conservation status or rarity in the province)</li> </ul>
	<ul style="list-style-type: none"> <li>Peatlands Study Plan</li> </ul>	<ul style="list-style-type: none"> <li>Peatland Ecosystems (bogs and fens)</li> </ul>
<b>Wildlife</b>	<ul style="list-style-type: none"> <li>Wildlife Study Plan</li> </ul>	<ul style="list-style-type: none"> <li>Bats (including SAR-bats such as: Little Brown Myotis [<i>Myotis lucifugus</i>], Northern Myotis [<i>Myotis septentrionalis</i>] and Tricolored Bat [<i>Perimyotis subflavus</i>])</li> </ul>

1. The use of the term environment in this document is inclusive of the components of the environment that are included in the Ontario Environmental Assessment Act definition, which includes a general description of the social, cultural, built and natural environments.





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## Fish and Fish Habitat Study Plan

Environmental Discipline	Study Plan Name	Valued Component(s)
		<ul style="list-style-type: none"> <li>■ Fur Bearers (proxy VC<sup>2</sup> American Marten [<i>Martes americana</i>], Beaver [<i>Castor canadensis</i>] and Wolverine [<i>Gulo gulo</i>])</li> <li>■ Amphibians and Reptiles</li> <li>■ Pollinating Insects</li> </ul>
	■ Ungulates (Moose and Caribou) Study Plan	<ul style="list-style-type: none"> <li>■ Moose (<i>Alces alces</i>)</li> <li>■ Caribou, boreal population (<i>Rangifer tarandus</i>)</li> </ul>
	■ Bird Study Plan	<ul style="list-style-type: none"> <li>■ Forest Birds (proxy VC of Red-eyed Vireo [<i>Vireo olivaceus</i>] for deciduous forest, Ovenbird [<i>Seiurus aurocapilla</i>] for mixedwood forest, Dark-eyed Junco [<i>Junco hyemalis</i>] for coniferous forest and disturbed forest</li> <li>■ Raptors (proxy VC of Osprey [<i>Pandion haliaetus</i>] for diurnal raptors and Boreal Owl [<i>Aegolius funereus</i>] for nocturnal raptors</li> <li>■ Shorebirds (proxy VC of Wilson's Snipe [<i>Gallinago delicata</i>])</li> <li>■ Waterfowl (proxy VC of Mallard [<i>Anas platyrhynchos</i>])</li> <li>■ Bog / Fen Birds and Other Wetland Birds (proxy VC of Palm Warbler [<i>Setophaga palmarum</i>] for bogs, Common Yellowthroat [<i>Geothlypis trichas</i>] for fens; and Northern Waterthrush [<i>Parkesia noveboracensis</i>] for swamps .</li> <li>■ SAR birds: Canada Warbler (<i>Cardellina canadensis</i>), Chimney Swift (<i>Chaetura pelagica</i>), Common Nighthawk (<i>Chordeiles minor</i>), Eastern Whip-poor-will (<i>Antrostomus vociferous</i>), Eastern Wood-Pewee (<i>Contopus virens</i>), Evening Grosbeak (<i>Coccothraustes vespertinus</i>), Olive-sided Flycatcher (<i>Contopus cooperi</i>), Bald Eagle (<i>Haliaeetus leucocephalus</i>), Peregrine Falcon (<i>Falco peregrinus</i>), Short-eared Owl (<i>Asio flammeus</i>), Bank Swallow (<i>Riparia riparia</i>), Barn Swallow (<i>Hirundo rustica</i>), Black Tern (<i>Childonias niger</i>), Rusty Blackbird (<i>Euphagus carolinus</i>), Yellow Rail (<i>Coturnicops noveboracensis</i>)</li> </ul>
<b>Fish and Fish Habitat</b>	■ Fish and Fish Habitat Study Plan	<ul style="list-style-type: none"> <li>■ Lake Sturgeon (<i>Acipenser fulvescens</i>)</li> <li>■ Walleye (<i>Sander vitreus</i>)</li> <li>■ Brook Trout (<i>Salvelinus fontinalis</i>)</li> <li>■ Northern Pike (<i>Esox lucius</i>)</li> <li>■ Lake Whitefish (<i>Coregonus clupeaformis</i>)</li> </ul>

<sup>2</sup> A proxy VC is used when looking at the effects of one species that represents many others.





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## Fish and Fish Habitat Study Plan

Environmental Discipline	Study Plan Name	Valued Component(s)
		<ul style="list-style-type: none"> <li>■ Chain Pickerel (<i>Esox niger</i>)</li> <li>■ Yellow Perch (<i>Perca flavescens</i>)</li> <li>■ Cisco (<i>Coregonus artedii</i>)</li> <li>■ Burbot (<i>Lota lota</i>)</li> <li>■ Longnose Sucker (<i>Catostomus catostomus</i>)</li> <li>■ White Sucker (<i>Catostomus commersonii</i>)</li> <li>■ Forage / Prey Species (including species such as Lake Chub [<i>Couesius plumbeus</i>])</li> <li>■ Lower Trophic Organisms (e.g., benthic invertebrates)</li> </ul>
<b>Social</b>	■ Social Study Plan	<ul style="list-style-type: none"> <li>■ Housing and Accommodation</li> <li>■ Community Service and Infrastructure</li> <li>■ Transportation</li> <li>■ Community Well-being</li> <li>■ Populations and Demographics</li> </ul>
<b>Economy</b>	■ Economic Study Plan	<ul style="list-style-type: none"> <li>■ Regional Economy</li> <li>■ Labour Force and Employment</li> <li>■ Government Finances</li> </ul>
<b>Land and Resource Use</b>	■ Land and Resource Use Study Plan	<ul style="list-style-type: none"> <li>■ Land Use Compatibility</li> <li>■ Parks and Protected Areas</li> <li>■ Extractive Industry</li> <li>■ Forestry Industry</li> <li>■ Energy and Linear Infrastructure</li> <li>■ Recreation and Tourism</li> </ul>
<b>Human Health and Community Safety</b>	■ Human Health and Community Safety Study Plan	<ul style="list-style-type: none"> <li>■ Public Safety</li> <li>■ Public Health</li> <li>■ Diet</li> <li>■ Environmental Factors Influencing Health</li> </ul>
<b>Visual Aesthetics</b>	■ Visual Aesthetics Study Plan	<ul style="list-style-type: none"> <li>■ Visual Contrast / Character</li> <li>■ Visibility</li> <li>■ Visual Sensitivity</li> </ul>
<b>Archaeological and Cultural Heritage</b>	■ Cultural Heritage Study Plan	<ul style="list-style-type: none"> <li>■ Archaeological Sites and Resources</li> <li>■ Built Heritage Resources and Cultural Heritage Landscapes</li> </ul>

It should be noted that while there is not a consultation study plan, the Project has developed the *Consultation and Engagement Plan to Support the Environmental Assessment / Impact Statement* (AECOM 2020) (referred to as the Impact Statement [IS] / EA Consultation Plan).





## 2. Purpose and Objectives

The key objectives of conducting an IA / EA are to describe the existing environment, gather sufficient information to predict Project-related effects (positive and negative, direct and indirect) of the Project and alternatives on the environment, determine measures needed to avoid or minimize adverse Project effects, and enhance beneficial Project effects where feasible, and to undertake consultation and engagement throughout. The purpose of this Study Plan is to explain:

- A baseline<sup>3</sup> study methodology that will result in a comprehensive description of the existing environment potentially impacted by the Project;
- How efficient and transparent data management and analysis will be undertaken;
- Effects assessment scoping inputs specific to fish and fish habitat that will allow for potential effects of the Project on the existing environment to be appropriately assessed in the IS / EA Report; and
- How the study plan aligns with federal and provincial requirements and guidance, including the Agency's Tailored Impact Statement Guidelines (TISG), dated February 24, 2020 (the Agency 2020c), for this Project and applicable provincial agency comments on the Draft Terms of Reference (ToR)<sup>4</sup>.

As required by the IAA and referenced in TISG Section 7.3, work plans will also be developed for disciplines as required. It is anticipated the work plans will include further details on how to action the study plans; for example, they would contain information such as location of sampling sites, scheduling, and sequencing.

For the purposes of establishing appropriate context, the study plan begins with background and relevant information on:

- Study-plan related discussions with the Agency, MECP and applicable agencies to date (**Section 3**);
- The approach to Project consultation and engagement (**Section 4**);
- How Indigenous Knowledge will be collected and used in the IA / EA (**Section 5**); and
- The spatial and temporal boundaries that will be used for the IA / EA (**Section 6**).

3. *Baseline refers to the current conditions of the environment potentially impacted by the Project. Baseline conditions serve as a reference against which changes due the Project are measured.*

4. *If necessary, the Study Plan will be updated to reflect the approved ToR if approval is obtained.*





## 2.1 Approach to Handling Confidential Information

### 2.1.1 Indigenous Knowledge

Permission from the Indigenous community will be sought before including Indigenous Knowledge in the IS / EA Report, regardless of the source of the Indigenous Knowledge. Sensitive and / or confidential information will be specifically collected through the Indigenous Knowledge Program to inform the IS / EA Report, and its use and publication will be governed by Indigenous community-specific Indigenous Knowledge Sharing Agreements. Sensitive and / or confidential information collected through Indigenous Knowledge Sharing Agreements will be protected from public or third-party disclosure and will be established between the Proponent and Indigenous communities participating in the Indigenous Knowledge Program prior to the sharing and use of any sensitive information. Instances where Indigenous Knowledge sharing has taken place during consultation activities (e.g., meetings) will be recorded in the Record of Consultation Engagement, including where Indigenous Knowledge was incorporated into Project decisions and into the IS / EA Report (i.e., specifics will not be included in the Record of Consultation and Engagement given the potential sensitivity and / or confidentiality of the information shared).

### 2.1.2 Species at Risk

Sensitive information related to Species at Risk<sup>5</sup>, such as those provided by the Ontario Ministry of the Environment, Conservation and Parks or by the Ministry of Natural Resources and Forestry, will be presented in materials in accordance with the applicable Sensitive Data Licence Agreements applicable to the Project.

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5. *Species at Risk (SAR) include species listed as threatened, endangered or special concern under the Ontario (provincial) Endangered Species Act, 2007 or the Canadian (federal) Species at Risk Act, 2002.*







### 3. Study Plan Technical Discussions

To facilitate the development of satisfactory study plans and eventually a satisfactory IS / EA Report, MFFN previously submitted draft study plans in an effort to hold technical discussions with the Agency, the MECP and applicable agencies. A summary of technical discussions and correspondence held to date on this Study Plan has been provided below in **Table 3-1**.

**Table 3-1: Summary of Study Plan Technical Discussions**

Attendees/ Responsible Party	Correspondence, Date(s)	Discussion Point	Solution
<ul style="list-style-type: none"> <li>■ MECP</li> </ul>	<ul style="list-style-type: none"> <li>■ Comments received following MECP review of draft Study Plan, received 5-August-2020</li> </ul>	<ul style="list-style-type: none"> <li>■ Planning of proposed field studies should consider appropriate conditions, timing windows and technical procedures; specifically, appropriate water temperatures for benthic invertebrate collection.</li> </ul>	<ul style="list-style-type: none"> <li>■ Technical procedures and standard practices for carrying out the proposed studies will be considered for the planning stages that will be detailed in a work plan. Responses to these comments are in <b>Appendix B</b>.</li> </ul>
<ul style="list-style-type: none"> <li>■ The Agency</li> </ul>	<ul style="list-style-type: none"> <li>■ Comments received following submission and review of draft Study Plan, received 20-July-2020</li> </ul>	<ul style="list-style-type: none"> <li>■ Comments and clarification questions received, including editorial comments, additional information requirements regarding study plan, assessment and desktop analysis.</li> </ul>	<ul style="list-style-type: none"> <li>■ Additional details and clarification provided within this Study Plan, and responses to these comments are in <b>Appendix B</b>.</li> </ul>
<ul style="list-style-type: none"> <li>■ The Agency</li> <li>■ MNRF</li> <li>■ MENDM</li> <li>■ DFO</li> <li>■ MFFN CAR</li> <li>■ Project Team</li> </ul>	<ul style="list-style-type: none"> <li>■ Technical discussion of comments received following agency review of draft Study Plan, teleconference meeting on 1-October-2020.</li> </ul>	<ul style="list-style-type: none"> <li>■ Comment and technical discussion pertaining to the collection and use of existing data, previous studies and desktop analysis to inform baseline conditions and study plan.</li> </ul>	<ul style="list-style-type: none"> <li>■ More details of the previous studies and existing information that were used to steer and inform this Study Plan are included in this Study Plan.</li> </ul>
<ul style="list-style-type: none"> <li>■ The Agency</li> <li>■ MNRF</li> <li>■ MENDM</li> <li>■ DFO</li> <li>■ MFFN CAR</li> <li>■ Project Team</li> </ul>	<ul style="list-style-type: none"> <li>■ Technical discussion of comments received following agency review of draft Study Plan, teleconference meeting on 1-October-2020.</li> </ul>	<ul style="list-style-type: none"> <li>■ Comment and technical discussion pertaining to proposed deviations from the TISG requirements.</li> </ul>	<ul style="list-style-type: none"> <li>■ More details of the anticipated methods for effects assessment are included in this Study Plan. Formal request for amendment of the TISG for technical deviations from the TISG requirements will be submitted in a separate document but are highlighted in <b>Section 11, Table 11-3</b> of this Study Plan.</li> </ul>





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Attendees/ Responsible Party	Correspondence, Date(s)	Discussion Point	Solution
<ul style="list-style-type: none"> <li>■ DFO</li> <li>■ MFFN CAR Project Consultant</li> </ul>	<ul style="list-style-type: none"> <li>■ Follow-up technical discussion, emails exchanged between 2-October-2020 and 6-October-2020</li> </ul>	<ul style="list-style-type: none"> <li>■ Review of 2019 field studies, proposed 2020 studies and site selection, including additional details regarding site selection rationale (for both 2019 and 2020 studies).</li> </ul>	<ul style="list-style-type: none"> <li>■ DFO review of the additional details provided and acknowledgement of the information provided satisfying the request for additional information (Comment FH-01, <b>Appendix B</b>)</li> </ul>





## 4. IS / EA Report Consultation and Engagement Process

### 4.1 Interested Persons and Government Agencies

The Proponent will provide Project notices and advise of opportunities for consultation and engagement with interested persons<sup>6</sup> which includes, at a minimum, members of the public outlined in the *Public Participation Plan for the Marten Falls Community Access Road Project Impact Assessment* (The Agency 2020) (referred to as the Public Participation Plan). This will include the opportunity to provide input on the existing environment, VCs, effects assessment methods, effects assessment results, and mitigation and follow-up program measures as applicable. A variety of activities will be offered so that members of the public are informed of the IS / EA Report as it progresses and are aware of the opportunities and means to provide their input. The study plans have recognized public and agency input received on the Project to date. Government agencies and interested persons will have the opportunity to comment on components of the study plans throughout the IS / EA Report consultation and engagement process. The Project's approach to handling confidential and sensitive information is outlined in **Section 2.1**.

### 4.2 Indigenous Communities

The Proponent will provide Project notices and opportunities for consultation and engagement with Indigenous communities identified in **Table 4-1**, which is inclusive of all indigenous communities identified in the *Indigenous Partnership and Engagement Plan for the Marten Falls Community Access Road Project Impact Assessment* (The Agency 2020a) (referred to as the Indigenous Engagement and Partnership Plan).

Indigenous communities will be provided the opportunity to be involved at critical decision-making points throughout the IS / EA Report so that the Proponent can consider and incorporate, where appropriate Indigenous Knowledge and Indigenous land and resource use information into the Project as it pertains to the existing environment, VCs, effects assessment methods, effects assessment results, and mitigation and follow-up program measures. A variety of activities will be offered so that indigenous communities are informed of the IS / EA Report as it progresses and are aware of the opportunities, means and timelines to

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6. *Interested persons, as defined in the IS / EA Consultation Plan, are individuals and groups (e.g., associations, non-governmental organizations, industry and academia) who could have an interest in the Project, including but not limited to communities in the region, those with commercial interests (e.g., forestry, trappers, outfitters, other mineral tenure holders in the area) and recreational users or those with recreational interest (e.g., campers, hunters and environmental groups).*





provide their input. The study plans have recognized Indigenous community input received on the Project to date. Indigenous communities will have the opportunity to comment on components of the study plans throughout the IS / EA Report consultation and engagement process.

**Table 4-1: Identified Neighbouring Indigenous Communities, including their Provincial Territorial Organizations and / or Tribal Council Affiliations**

Tribal Council Affiliation	Indigenous Community or Organization
<b>Matawa First Nations Management</b> <i>(Nishnawbe Aski Nation)</i>	<ul style="list-style-type: none"> <li>■ <b>Marten Falls First Nation</b> (Proponent and potentially affected Indigenous community)</li> <li>■ Aroland First Nation</li> <li>■ Constance Lake First Nation</li> <li>■ Eabametoong First Nation</li> <li>■ Ginoogaming First Nation</li> <li>■ Neskantaga First Nation</li> <li>■ Nibinamik First Nation</li> <li>■ Webequie First Nation</li> </ul>
<b>Matawa First Nations Management and the Union of Ontario Indians / Nishnawbe Aski Nation</b>	<ul style="list-style-type: none"> <li>■ Long Lake #58 First Nation**</li> </ul>
<b>Mushkegowuk Council</b> <i>(Nishnawbe Aski Nation)</i>	<ul style="list-style-type: none"> <li>■ Attawapiskat First Nation</li> <li>■ Fort Albany First Nation</li> <li>■ Kashechewan First Nation</li> </ul>
<b>Shibogama First Nations Council</b> <i>(Nishnawbe Aski Nation)</i>	<ul style="list-style-type: none"> <li>■ Kasabonika Lake First Nation</li> <li>■ Kingfisher Lake First Nation</li> <li>■ Wapekeka First Nation</li> <li>■ Wawakapewin First Nation</li> <li>■ Wunnumin Lake First Nation</li> </ul>
<b>Independent First Nations Alliance</b> <i>(Nishnawbe Aski Nation)</i>	<ul style="list-style-type: none"> <li>■ Kitchenuhmaykoosib Inninuwug First Nation</li> </ul>
<b>Independent First Nations</b> <i>(Nishnawbe Aski Nation)</i>	<ul style="list-style-type: none"> <li>■ Mishkeegogamang First Nation</li> <li>■ Weenusk First Nation</li> </ul>
<b>Nokiiwin Tribal Council</b>	<ul style="list-style-type: none"> <li>■ Animiigoo Zaagi'igan Anishinaabek First Nation (AZA)*</li> </ul>
<b>Métis Nation of Ontario</b>	<ul style="list-style-type: none"> <li>■ Métis Nation of Ontario; Region 2*</li> </ul>
<b>Independent Métis Nation</b>	<ul style="list-style-type: none"> <li>■ Red Sky Independent Métis Nation*</li> </ul>

Notes: \* Indigenous communities or organizations identified by MECP who should be consulted on the basis that they may be interested in the Community Access Road.

\*\* MECP indicated in a letter to MFFN that Long Lake #58 First Nation was moved from interest-based to rights-based.





## 4.3 Consideration of Identity and Gender-Based Analysis Plus in Engagement

To fulfill requirements of the IAA, the Consultation and Engagement Program will consider a diverse range of perspectives from interested persons and interested Indigenous communities and their members identified in the Agency's Indigenous Engagement and Partnership Plan and the Public Participation Plan. This will include at a minimum providing ongoing opportunities for engagement to:

- **Neighbouring Indigenous communities, including relevant subpopulations:**
  - Women;
  - Youth; and
  - Elders.
- **Non-Indigenous communities including:**
  - Women;
  - Youth; and
  - Activity-based subgroups (e.g., recreationalists, snowmobilers, tourism establishment operators).

The Proponent will also consult and engage with other subpopulations identified by communities during consultation and engagement. The information from these activities and any additional identity groups identified by communities through consultation and engagement will be considered by applicable environmental disciplines for the purposes of data collection and considering disproportionate effects.

During consultation and engagement, these aforementioned groups will be consulted and engaged with on targeted input. Specialized knowledge will be gathered through other disciplines such as Social, Economic, Land and Resource Use and Aboriginal and Treaty Rights and Interests. The Socio-economic Data Collection Program is expected to include targeted interviews, focus groups, questionnaires and other niche tools to gather information from diverse populations to resolve gaps in socio-economic secondary data. These diverse populations include the aforementioned identity groups, which are also referenced in the IS / EA Consultation Plan, and those identified by communities during consultation and engagement. The importance of soliciting inputs and perspectives from diverse subgroups has also been factored into the Indigenous Knowledge Program and associated materials (see **Section 5**).

When feedback is received from interested persons and Indigenous communities, issues, comments and questions will be tracked, which is consistent with the process described in the IS / EA Consultation Plan. Specific to Gender-Based Analysis Plus objectives, this will include efforts to engage with diverse populations. It is expected this will include activities specific to subgroups and tabulation of consultation and engagement participation with respect to identity factors. This will provide summary statistics to demonstrate the diversity achieved in consultation and engagement.





## 5. Consideration of Indigenous Knowledge in the IS / EA Report

The following provides a general description of how Indigenous Knowledge will be considered in the IA / EA process. The extent to which Indigenous Knowledge is considered by each specific VC will vary depending on the nature of the VC, the potential for Project effects on the VC and whether Indigenous knowledge that relates to a VC is provided / obtained. As such, not all aspects of the general approach described below may apply to all VCs / study plans.

There are two concurrent and complementary avenues for Indigenous communities and groups to be engaged with and provide input on the Project: the Indigenous Knowledge Program and the Consultation and Engagement Program. Both programs serve to support the collection of Indigenous perspectives, values, and input on the Project, including Aboriginal and Treaty Rights and how they may be impacted by the Project, to be integrated throughout the IA / EA process. However, the Indigenous Knowledge Program specifically aims to solicit and incorporate information that is considered sensitive and may have confidentiality requirements, including Indigenous Knowledge and information on Indigenous land and resource use. Indigenous Knowledge Sharing Agreements will be established between the Proponent and Indigenous communities participating in the Indigenous Knowledge Program prior to the sharing and use of any sensitive information.

All Indigenous communities and groups identified by the MECP and the Agency through the Indigenous Engagement and Partnership Plan have the opportunity to participate in the Indigenous Knowledge Program. The Indigenous Knowledge Program provides interested Indigenous communities an opportunity to: share existing Indigenous Knowledge and information on Indigenous land and resource use and cultural values that may be relevant to the Project, and / or complete Project-specific studies to collect and share Indigenous Knowledge and information on Indigenous land and resource use and cultural values. The Indigenous Knowledge Program includes opportunities for Indigenous communities and groups to meet with the Proponent to discuss the program, ask questions, and share concerns and interests. In support of this, the Proponent has created an Indigenous Knowledge Program Guidance Document (the Guidance Document) that provides:

- An overview of the Indigenous Knowledge Program and information on how Indigenous Knowledge, Indigenous land and resource use and cultural values and practices can be collected and / or shared;





- Information on how Indigenous Knowledge and information on Indigenous land and resource use and cultural values and practices may be used in the planning and design processes; and
- A suite of guidance materials that were developed based on the information requirements of both the federal and provincial assessment processes, including question guides to support the collection of information on historical and current community context, Indigenous Knowledge that may be relevant to the various technical disciplines, information on Indigenous land and resource use, cultural values and practices and associated spatial data, and perspective on potential Project-related effects and associated mitigation and / or enhancement measures.

The Guidance Document will also support participating Indigenous communities in providing Project-specific information in a manner that facilitates meaningful incorporation into the IS / EA Report.

The IS / EA Consultation Plan outlines the process for obtaining information and feedback about the Project from Indigenous communities (i.e., the Consultation and Engagement Program). All Indigenous communities identified by the MECP and the Agency have the opportunity to participate in the Consultation and Engagement Program through community-specific meetings, Public Information Centres, web conferences, and other formats. All Indigenous communities identified by the MECP and the Agency will be provided information related to the Project and invited to participate at various points throughout the IA / EA process.

There are also opportunities for technical teams to engage with Indigenous communities to solicit perspectives and information relevant to the Project, including information related to collection of existing information and the development of the IS / EA Report. The Proponent also invites feedback and inputs throughout the Project via the Project website and ongoing communications with the Proponent.

The Indigenous Knowledge and Consultation and Engagement programs are designed to be complementary and provide multiple opportunities for communities to offer feedback and information, including perspectives on Aboriginal and Treaty Rights and interests and how these may be impacted by the proposed Project. Relevant information collected through both the Indigenous Knowledge and Consultation and Engagement programs, including potential effect pathways on Aboriginal and Treaty Rights and interests, will be shared with each of the relevant disciplines throughout the IA / EA to: guide and inform VCs; support characterization of the existing environment; identify the potential effects of the Project on VCs; help identify mitigation measures and potential monitoring programs; and ultimately guide Project planning. The nature of how the Indigenous Knowledge becomes integrated into the IS / EA Report will be dictated by the specific information provided by each Indigenous community and the parameters set out in





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the Indigenous Knowledge Sharing Agreements. A description of how Indigenous Knowledge was considered in the IA / EA and in each of the technical discipline areas will be included in the IS / EA Report.

It is also important to note that information collected through the various activities (e.g., field studies and programs, effects assessments) of each discipline area (e.g., wildlife, vegetation, cultural heritage) will be shared with the Indigenous Knowledge Program leads. This will support the establishment of the existing environment and the effects assessment for the Aboriginal and Treaty Rights and Interests environmental discipline, as well as the identification of potential mitigation measures and monitoring programs, given the interrelated nature of Indigenous peoples and other environmental disciplines.

The Proponent will strive to respectfully collaborate with Indigenous communities on how Indigenous Knowledge and information on Indigenous land and resource use and cultural values will become part of the IS / EA Report, and how potential effects to Aboriginal and Treaty Rights and interests will be assessed. It is expected that measures to support this may include but are not limited to: engaging Indigenous communities to solicit information on Indigenous Knowledge and Indigenous land and resource use and cultural values to inform baseline conditions, providing Indigenous communities with draft sections of the IS / EA Report to illustrate how Indigenous Knowledge and information on Indigenous land and resource use and cultural values has been integrated and to confirm it has been presented appropriately, and completing collaborative working sessions with Indigenous communities for the effects assessment on Aboriginal and Treaty Rights and Interests. Further information on how potential effects on Indigenous rights will be assessed is provided in the Aboriginal and Treaty Rights and Interests Study Plan.







## 6. Assessment Boundaries

### 6.1 Temporal Boundaries: Project Phases

Project phases, which are temporal boundaries, are developed to establish the timeframes within which potential effects of the Project will be considered in the IS / EA Report. The Project is planned to occur in two phases, which are briefly described below and shown in **Figure 6-1**.

- **Construction Phase:**

The time from start of construction, including site preparation activities, to the start of operations and maintenance of the CAR. Decommissioning of construction works is included in the construction phase. The construction phase is anticipated to take approximately 3 to 10 years to complete.

- **Operations and Maintenance Phase:**

The operations and maintenance phase starts once construction activities are complete and lasts for the life of the Project. The operations and maintenance phase of the Project is considered to be 75 years based on the expected timeline for when major refurbishment of road components (e.g., bridges), is anticipated.

There are currently no plans to decommission the CAR as there is no expected / known end date for its need. Therefore, future suspension, decommissioning and eventual abandonment of the CAR will not be considered in the IS / EA Report. It will be considered if and when a decommissioning or abandonment application is made for the road.

In determining the temporal boundaries, in particular the long operations and maintenance phase, consideration was given to the long-term effects on the well-being of present and future generations (Sustainability Principle #2<sup>7</sup>). The final temporal boundaries to be used in the IS / EA Report will be based on regulatory agency guidance, professional judgement and input received through the Project consultation process.

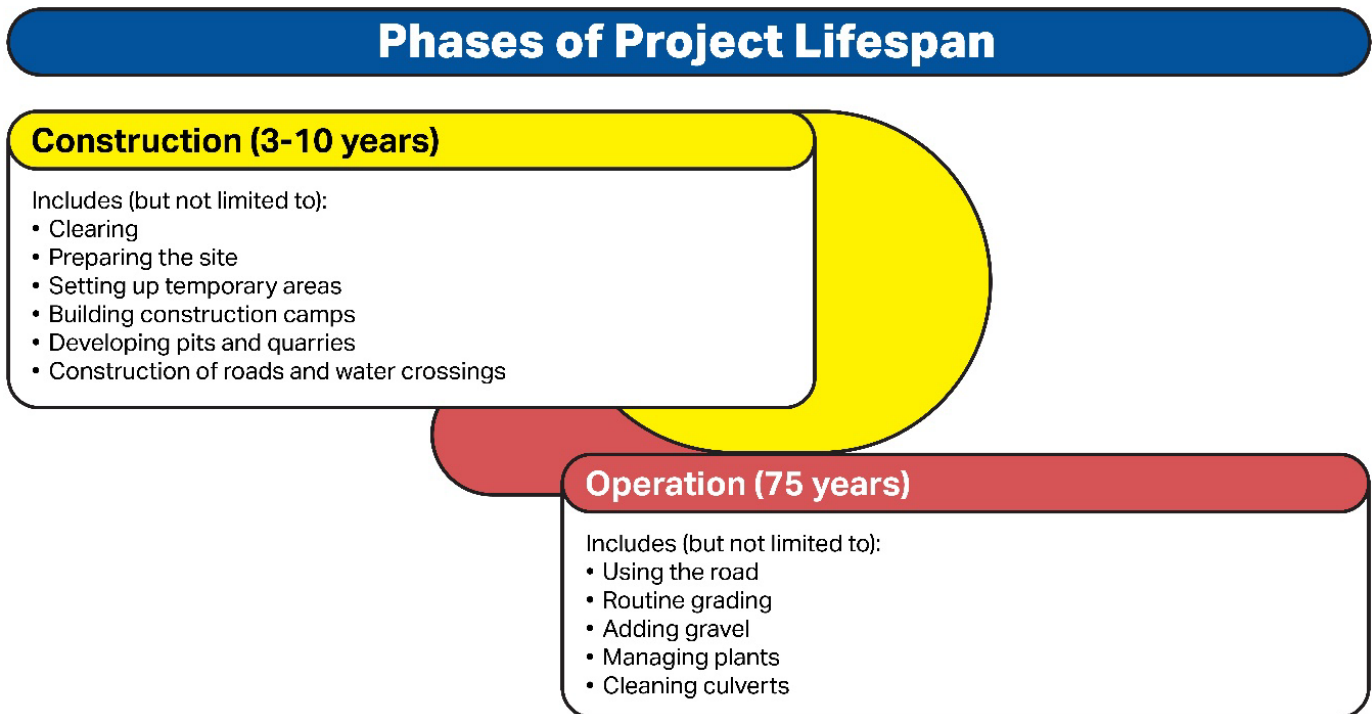
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7. Sustainability Principles #2 is one of four sustainability principles included in Section 25 of the Project's TISG as further elaborated on Section 9.7.





Figure 6-1: Project Schedule



## 6.2 Spatial Boundaries: Study Areas

### 6.2.1 General Information

Study areas identify the geographic extents within which potential effects of the Project are likely to occur and will be considered in the IS / EA Report. The existing conditions and potential effects are documented for three study areas selected for the Project:

- **Project Development Area (PDA):** area of direct disturbance:
- **Local Study Area (LSA):** the area where most of the direct effects of the Project are likely to occur; and
- **Regional Study Area (RSA):** the area where indirect effects of the Project are likely to occur.

The PDA encompasses the 100 metre-wide CAR right-of-way (ROW), temporary construction access roads, work areas, worker camps, and pits, quarries and associated access roads. The preliminary LSA





currently being considered within the scope of the ongoing provincial regulatory review process generally includes the area within 2.5 km of the centreline of Alternative 1 and Alternative 4. The preliminary study area generally allows for the documentation of existing conditions and prediction of potential environmental effects for the Project. A 5 km wide study area also allows for route refinements during development of Project design (e.g., adjustment of the alignment to avoid sensitive features).

The specific location of Project components, including the roadway, quarries, pits and temporary infrastructure, are not yet known and will be included in the IS / EA Report. While most of the Project components are expected to be located within the preliminary 5 km wide study area, benefits (e.g., reduced environmental disturbance, avoidance of sensitive features, technical considerations, concerns received through consultation) for locating Project components on lands outside of the 5 km wide study area may become known during the IA / EA process. If the need to locate Project components outside the 5 km wide study area is determined to be required or of benefit to the Project, the study area would be adjusted.

The study area for each environmental discipline may vary from the above-described general study area based on the potential for the Project to directly or indirectly affect each environmental discipline; therefore, discipline-specific LSAs and RSAs have been defined for the Project. In defining the final LSAs and RSAs, each environmental discipline will consider:

- Location and other characteristics of the environmental discipline relative to the Project;
- The anticipated extent of the potential Project effects;
- Federal, provincial, regional, and local government administrative boundaries;
- Indigenous groups listed in **Table 4-1**;
- Community knowledge and Indigenous Knowledge;
- Current or traditional land and resource use by Indigenous communities;
- Exercise of Aboriginal and Treaty Rights of Indigenous peoples, including cultural and spiritual practices; and
- Physical, ecological, technical, social, health, economic and cultural considerations.

The study areas included in this document are preliminary, covering the extent to which readily available information suggests the Project may have noticeable effects on the environment. The size, nature and location of past, present and reasonably foreseeable projects will be taken into consideration in the development of the cumulative effects assessment study area(s). The appropriate study area(s) to assess





cumulative effects are dependent on the VCs predicted to have direct residual adverse effects as a result of the Project, and therefore cannot be defined until the IS / EA Report has sufficiently advanced.

As further detailed in **Section 4**, the Proponent will continue to provide opportunities for neighbouring Indigenous communities and interested persons to provide input and inform the effects assessment, including the LSAs and RSAs.

## 6.2.2 Fish and Fish Habitat Study Areas

The LSA and RSA boundaries for Fish and Fish Habitat are detailed in **Table 6-1** and shown on **Figure 6-2**.

**Table 6-1: Fish and Fish Habitat Study Areas**

Study Area	Geographic Extent	Rationale
<b>Local Study Area</b>	<ul style="list-style-type: none"> <li>2.5 km buffer on both sides of the centreline of Alternative 1 and Alternative 4</li> </ul>	<ul style="list-style-type: none"> <li>Will describe the baseline conditions of the aquatic environment outside of the PDA with no direct interaction with Project infrastructure, but that has the potential to be subjected to direct or indirect effects (e.g., sedimentation, spills)</li> </ul>
<b>Regional Study Area</b>	<ul style="list-style-type: none"> <li>Tertiary sub-watersheds traversed by Project components of Alternative 1 and Alternative 4</li> </ul>	<ul style="list-style-type: none"> <li>Baseline characterization of fish and fish habitat where direct effects outside of the PDA and LSA are not likely, however the potential for broad, indirect effects persist</li> </ul>

The **LSA** for the Fish and Fish Habitat discipline is proposed to include the area included within a 2.5 km buffer around the centreline of Alternative 1 and Alternative 4. The waterbodies within the 2.5 km buffer will therefore account for waterbodies where direct interaction with Project components are not proposed, but where there lies the potential for off-site direct or indirect effects.

The **RSA** for the Fish and Fish Habitat discipline of the Project will encompass the waterbodies of the sub-watersheds through which the route alternatives travel. A characterization of the sub-watersheds will provide a broad description of the baseline conditions which have the potential to be affected by indirect effects of the Project.







## 7. Baseline Study Design

### 7.1 Desktop Assessment

A desktop review of existing information sources and previous studies will be completed to supplement the field investigations for characterizing the aquatic environment. The desktop review will consist of the development of a waterbody crossing list and a review of historical information, including aerial imagery. Fish and fish habitat baseline conditions will be compiled at the local scale for each waterbody potentially affected by the Project (i.e., within the Project Development Area). A list of relevant information sources found to date has been included in **Appendix A** and reflects federal and provincial guidance received to date. This Study Plan focuses on the additional studies required to gather information beyond what is currently available through existing information sources and previous field studies, including those as described in **Appendix A** and those conducted for this Project.

Available existing information will be reviewed to characterize the context of the fish and fish habitat and characterize the baseline aquatic environment within the study areas of the Project as defined in **Section 6**. Some of the information may include (but is not limited to) waterbodies, thermal regimes, fish species, significant fish habitat features (e.g., spawning habitat, nursery habitat, migration barriers), aquatic Species at Risk (SAR), Species of Conservation Concern<sup>8</sup>, and SAR habitat. In addition to the desktop assessment, information gathering will also rely on public consultation and Indigenous Knowledge. Community and Indigenous Knowledge will be collected through the Indigenous Knowledge Program as described in **Section 5**. Through consultation with the public and Indigenous community members, the MFFN CAR Project Team intends to collect specific fishery information and traditional uses of waterbodies in the study areas, such as traditional and current fishing grounds, spawning habitat and migration corridors.

A waterbody crossing list will be developed for the PDA (**Section 6**) by using GIS to overlay the Project footprint with the Ontario Hydro Network (MNR 2011) data layer to identify potential hydrology features crossed by the Project. Additional potential waterbodies not mapped in the Ontario Hydro Network will be identified through manual review of the routes overlaid on aerial imagery. These “unmapped”, potential waterbody crossings will then be added to the waterbody crossing list. Waterbody crossings will then be assigned a unique site identification.

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8. *Species of Conservation Concern includes Species with Provincial (Ontario) S-rank assigned by NHIC as S1 (critically imperiled), S2 (imperiled) or S3 (vulnerable); Species listed as Special Concern under the ESA; and Species identified as nationally Endangered or Threatened by the COSEWIC, which are not protected under the ESA.*





Light Detection and Ranging (LiDAR) will be used to re-examine the unmapped crossings to determine if the digital elevation model (DEM) from LiDAR shows evidence of a defined channel. Water features without defined bed or banks (a criterion for the definition of a waterbody in Ontario [*Conservation Authorities Act*; Government of Ontario 2003; Stanfield 2017; Government of Ontario 1990]) will not be considered waterbodies, and thus not included in the crossing list.

Each waterbody crossing location will be classified into general waterbody type (**Table 7-1**) and will be further characterized using available desktop data. This categorization will serve to inform habitat suitability for VCs as well as facilitate field sampling and assessment planning, given assessment and sampling methods will vary depending on site conditions.

**Table 7-1: Desktop Habitat Classification**

Habitat Classification	Definition	Common Examples of Habitat
<b>Lentic (lake / pond)</b>	<ul style="list-style-type: none"> <li>■ Aquatic ecosystems characterized by little to no flow through the system.</li> </ul>	<ul style="list-style-type: none"> <li>■ Beaver impoundments, lakes, ponds.</li> </ul>
<b>Lotic (watercourses)</b>	<ul style="list-style-type: none"> <li>■ Aquatic ecosystems characterized by unidirectional flow through the system.</li> </ul>	<ul style="list-style-type: none"> <li>■ Brooks, creeks, ditches, rivers, streams.</li> </ul>

A preliminary review of background information was conducted to inform this Study Plan and selection of VCs of the Fish and Fish Habitat discipline. A list of background information sources retrieved to-date is provided in **Appendix A**. This does not include Indigenous information obtained through Indigenous Knowledge and Consultation and engagement programs as this process is still underway.

## 7.2 Field Investigations

In addition to the collection and review of existing information relevant to the Project, field studies are being conducted to substantiate existing data and previous assessments related to the Project to adequately characterize the baseline conditions of the VC and assess the potential effects. The field investigations will collect more detailed information and fill gaps in the desktop assessment.

### 7.2.1 Methodology

#### 7.2.1.1 Site Selection

Desktop analysis and aerial reconnaissance was conducted in fall of 2019 to identify the potential waterbodies crossed by both Alternative 1 and Alternative 4. The initial desktop exercise identified 164





crossings considered potential waterbodies, 70 of which were determined to have no defined bed or banks (based on the review of the LiDAR and the aerial reconnaissance). Those undefined drainages were generally swales overgrown with terrestrial vegetation or areas with unconnected ponded water in low-lying areas. As such, these drainages were considered to have no fish habitat and were not considered further in the baseline characterization of fish and fish habitat.

The site selection process for the subset of waterbody crossing locations for detailed assessment was based on several factors, including: representative sites per tertiary watershed, logistics, health and safety, cultural importance (which, to date has been provided by only MFFN), available background information and previous studies (e.g., waterbody crossing locations surveyed previously in support of the Cliffs Chromite Project Environmental Assessment [Golder 2013] where sections of the preferred route alternatives overlap with the alignment of the Cliffs route), waterbody type and abundance within the tertiary watershed. The selected waterbody crossing locations were evenly distributed along the length of Alternative 1 and Alternative 4 and among the relevant tertiary watersheds to the extent feasible.

The distribution of subset sites:

- A habitat assessment at a 50% subset of locations where the PDA intersects with waterbodies with potential fish habitat.
- Fish community sampling at a 50% subset of locations where the PDA intersects with waterbodies with potential fish habitat (typically where habitat assessment has been completed).
- Benthic invertebrate sampling at a 25% subset of sites selected for habitat assessment.

Site selection was described in further detail in **Section 7.1**.

It is understood that, for permitting purposes, site-specific ground-based surveys will be required at all waterbody crossings where work is anticipated to occur below the highwater mark during construction. Ultimately, the approach to the field data collection program for fish and fish habitat has been tailored to the objectives of each stage of the Project. Ground-based field information will be initially obtained at a subset of waterbody crossings to advance the alternatives assessment and the EA, recognizing that data obtained from this subset of crossing locations over multiple seasons and years is expected to be more than sufficient to characterize baseline conditions and complete the effects assessment. Upon selection of a preferred alternative, supplemental surveys will be conducted at waterbody crossing locations that were not surveyed as part of the EA to support the preparation and submission of permit applications, where required. To this end, every waterbody crossing location where work is to occur below the highwater mark, will have site-specific ground-based surveys completed, either as part of initial investigations in support of the EA or during the supplemental surveys.







### 7.2.1.2 Aerial Reconnaissance

Aerial reconnaissance was completed along the full extent of Alternative 1 and Alternative 4 in fall 2019 to verify the location of mapped and unmapped waterbody crossings, as well as to further augment the baseline characterization results from the desktop review. One or two georeferenced photographs were taken from the air at each waterbody crossing and habitat variables will be documented where possible at each of the identified waterbody crossing locations, including: waterbody type (e.g., watercourse, lake / pond, bog or fen terrain, drainage feature); habitat and bed substrate types; presence of fish passage barrier and type (if applicable); and fish habitat potential (i.e., potential for the waterbody to support fish).

### 7.2.1.3 Fish Habitat Assessment

Fish habitat was assessed at each field assessment site selected (50% subset). The data collected for assessment sites have the potential to vary across waterbody types; the methods for each of these are described below.

#### 7.2.1.3.1 Lentic Habitat (lakes, ponds)

Detailed habitat assessments will be completed at each assessment site where lake / pond habitat is encountered or there is other evidence to suggest that the location may have some fish habitat potential in a lentic capacity. These waterbodies and riparian areas will be assessed throughout their extent within the PDA by positioning assessment transects at the centreline of the route alignment and at regular intervals on either side of the centreline, where the following data will be collected:

- Location of transect
- Physical dimensions (width, depth)
- Substrate composition
- Dominant and subdominant riparian vegetation and aquatic macrophytes
- Composition and percent coverage of dominant and subdominant cover types

Where Project components other than the road alignment are proposed in close proximity to a waterbody (if any), the footprint of the proposed component plus a 100 m buffer (within the waterbody) will be assessed in the same manner.

In addition to collection of the data noted above per transect, *in situ* water parameter data and observations will be collected, including temperature, pH, dissolved oxygen concentration, and conductivity. Site photographs, location of field assessment site boundaries (coordinates) and location of suitable (i.e.,





appropriate conditions for a species to carry out that life function) sensitive habitat features will be collected. Suitable sensitive habitat features and / or potential to support important habitat function such as spawning, migration, overwintering, nursery, productive feeding areas and fish passage barriers will be delineated or mapped, photographed and described. Data collected as part of the Fish and Fish Habitat Discipline will be supplemented with water quality and hydrological data collected as part of the surface water program where applicable (refer to the Surface Water Study Plan).

### 7.2.1.3.2 Lotic Habitat (streams, rivers)

Lotic habitat assessments will be conducted where there is evidence of unidirectional flow at the time of assessment with the potential to support fish. Habitat assessments will involve the establishment of a transect at the centreline of the proposed route alignment, and at regular intervals up to 120 m upstream and 120 m downstream of the route alignment. This distance helps ensure that the entire width of the 100 m wide CAR ROW is included in assessment.

The following data will be collected at each transect:

- Photographs upstream, downstream, of the left downstream bank, of the right downstream bank, and of the substrate;
- Location of transect;
- Geomorphic measurements (wetted width, wetted depth, bankfull depth, bankfull width);
- Depth in thalweg<sup>9</sup> and / or mean pool depth;
- Substrate composition;
- Dominant and subdominant bank materials;
- Dominant and subdominant riparian vegetation and aquatic macrophytes;
- Bank stability; and,
- Dominant and subdominant cover types.

In addition to collection of these data, *in situ* water parameter data will be collected from the watercourse at centreline, including temperature, pH, dissolved oxygen, conductivity and velocity. Site photographs, location of assessment site boundaries and location of suitable sensitive habitat features will be collected. Suitable sensitive habitat features or potential important habitat function such as spawning, migration, overwintering, nursery, productive feeding areas and fish passage barriers. will be delineated or mapped, photographed and described. This supplemental information is consistent with that which will be collected

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9. Thalweg is the line of lowest elevation within a watercourse





for lentic habitat. Water and sediment sampling and analysis to describe baseline conditions as they pertain to water quality, hydrology and contaminants are included in the surface water program (see **Section 7.2.1.3 and 7.2.2 of the Surface Water Study Plan**).

## 7.2.1.4 Biological Sampling

### 7.2.1.4.1 Fish Communities

Fish communities will be characterized by exerting fishing effort where conditions are suitable to support fish and are logistically and safely feasible to execute. Fish sampling will be completed in compliance with applicable License to Collect Fish for Scientific Purposes issued by the MNRF for the Project. The methods employed at each assessment site will be site-specific and dictated by site conditions and waterbody category identified in the desktop assessment. Characteristics such as geomorphic conditions, season / temperature, access and safety considerations, existing fish community, VCs and trophic levels, and water depth will be taken into consideration when determining appropriate sampling techniques to employ to avoid or minimize species capture biases. Where necessary to minimize species collection biases and to target varying trophic levels (where the potential for such variety is present), a combination of fish collection methods may be used. **Table 7-2** provides an overview of typical fish sampling methods which will be performed, where appropriate per assessment site in the PDA. Wherever possible, backpack electrofishing will be the preferred method of collection.

**Table 7-2: Proposed Fish Community Sampling Methods**

Method	Targeted Species	Suitable Habitats	Description
<b>Angling</b>	Sport Species	<ul style="list-style-type: none"> <li>Water deeper than 1 m, minimal obstructions. Lakes, ponds, rivers.</li> </ul>	<ul style="list-style-type: none"> <li>Rod and reel used to drag artificial lures through water to elicit a strike from predatory fish.</li> </ul>
<b>Backpack Electrofishing</b>	All	<ul style="list-style-type: none"> <li>Wadable with water depths typically no greater than 70 cm, effectiveness is subject to various water quality parameters. Streams and small rivers, shorelines of lentic waterbodies.</li> </ul>	<ul style="list-style-type: none"> <li>The application of an electrical current to water that results in an uncontrolled muscular convulsion in fish that causes them to swim toward the anode of an electrofishing unit mounted on the back of a crew member.</li> </ul>
<b>Boat Electrofishing</b>	All	<ul style="list-style-type: none"> <li>Water deeper than 1 m and less than approximately 3 m depending on water conditions (e.g. water clarity). Boat access to water required or air transport of more portable units (e.g., inflatable boat). Effectiveness is subject to various water quality parameters. Rivers, lakes, ponds.</li> </ul>	<ul style="list-style-type: none"> <li>The application of an electrical current to water that results in an uncontrolled muscular convulsion in fish that causes them to swim toward the anode of an electrofishing unit mounted on a boat.</li> </ul>





Method	Targeted Species	Suitable Habitats	Description
<b>Hoop Netting</b>	All	<ul style="list-style-type: none"> <li>Wadable with water deeper than 50 cm, or unwadeable with boat access. Streams, rivers, lakes, ponds.</li> </ul>	<ul style="list-style-type: none"> <li>A collection of nets that guide passing fish into a holding area.</li> </ul>
<b>Trap Netting</b>	All	<ul style="list-style-type: none"> <li>Water deeper than 1 m, boat access to water required. Rivers, lakes, ponds.</li> </ul>	<ul style="list-style-type: none"> <li>A collection of nets that guide passing fish into a holding area.</li> </ul>
<b>Minnow Trapping</b>	Small-bodied fishes	<ul style="list-style-type: none"> <li>Water deeper than 30 cm. Streams, rivers, lakes, ponds.</li> </ul>	<ul style="list-style-type: none"> <li>A baited, wire mesh trap that passively captures small bodied fish.</li> </ul>
<b>Seine Netting</b>	Small-bodied fishes	<ul style="list-style-type: none"> <li>Wadable with water deeper than 50 cm. River, lake and pond shorelines with minimal obstruction.</li> </ul>	<ul style="list-style-type: none"> <li>A mesh net with a weighted bottom that is dragged through shallow water.</li> </ul>

In addition to general survey data (i.e., date and time, weather, specific transect boundaries and / or trap location) sampling effort will be documented to determine the Catch per Unit Effort (CPUE). Each individual fish will be identified in the field and enumerated, age class (e.g., young-of-year, juvenile, adult) and observations of evident disease (e.g., tumors, lesions, parasitic) will be noted. The length and weight of VCs will be documented. Lethal sampling is not intended for this Study Plan and every attempt will be made to release fish alive.

#### 7.2.1.4.2 Benthic Invertebrates

Benthic invertebrates are a food source for many fish species and therefore support fish communities. The benthic invertebrate community will be sampled at a subset of 25% the total number of assessment sites. All benthic invertebrate assessments will be completed in accordance with Ontario Benthic Biomonitoring Network (OBBN) guidelines.

Sampling sites will be selected to target representative waterbody types and habitat to provide a baseline of diversity and abundance. Site selection will consider factors such as flow and thermal regime, watershed representation and waterbody type, health and safety and logistical constraints. Benthic invertebrate samples will be collected from within the Fish and Fish Habitat study area, ideally, within 10 m of the centreline.

Benthic invertebrate community samples will be collected using one of two pieces of equipment:

- In lotic / erosional environments (i.e., watercourses with predominantly coarse substrates) will be collected using a Surber sampler (i.e., sample area = 0.093 m<sup>2</sup>) where there were suitable coarse substrates (i.e., cobble / boulder).
- In lentic / depositional environments (i.e., waterbodies with sediments that are predominantly silt / sand), samples were collected using a grab sampler (0.0232 m<sup>2</sup>) (i.e., Ekman or petite Ponar).





Three replicate samples will be collected at each location and combined to prepare one composite sample. Replicate sampling locations will be selected according to the presence of similar aquatic habitat (i.e., flowing water, similar substrate, water depth, presence of aquatic vegetation) in the lentic or lotic environment within each waterbody. The selection of similar habitat will be maintained to the extent possible between sub-sampling locations at each site, to reduce habitat-related variability in the benthic invertebrate community data.

Composite samples will be sieved through a 500 µm mesh Nitex screen. Material retained in the mesh will be placed in a 1-litre (L) plastic bottle and preserved in 10% buffered formalin. Samples will be couriered to a qualified taxonomist for taxonomic identification and enumeration at the end of the program. The resulting sample will be set in preservative for identification and enumeration per assessment site through laboratory analysis.

## 7.2.2 Previous Field Investigations

Existing information was reviewed (**Section 7.1**) and recent field studies were carried out (preceding this Study Plan) as described in **Section 7.2.1**. Although the field studies carried out in 2019 and 2020 were conducted in advance of finalization of this Study Plan, data collected through these surveys remain relevant and are considered to be studies completed under this Study Plan.

### 7.2.2.1 Historic Field Studies Undertaken (2011 / 2012)

Fish sampling and habitat assessment was carried out at 19 watercourse crossings in 2011 / 2012 by Golder in support of the Cliffs Chromite Project (Project EA since terminated) and results are available that are pertinent for this Project because the study areas for both projects have some overlap. Therefore, previous information collected for the Cliffs Chromite Project will be used to supplement the data collected for this Project to understand significant long-term changes in fish habitat where there is overlap in sampling locations.

The existing information from this prior study is relevant where the route alignment for the Cliffs all-season access road overlaps with the PDA for the CAR. Additional data for waterbody crossing locations of the route alignment for the Cliffs Project throughout the MFFN CAR Project's LSA and RSA will also inform the characterization of fish and fish habitat in the Project study areas.

The studies conducted in 2011 / 2012 and described in detail in the Cliffs Chromite Project Environmental Assessment – Aquatic Ecology Technical Supporting Document (Golder, 2013) will serve to further inform the IA / EA, considering the data are less than 10 years old. Furthermore, the observed fish habitat





conditions at sites revisited for detailed habitat assessment conducted for this Project, as well as observations from aerial surveys, were shown to be consistent (Golder, 2020b), which supports the assumption that without major interference, the detectable physical changes to the habitat conditions at the sites assessed in support of the Cliffs Chromite Project are likely to be negligible to none in the span of the past several years. Therefore, the existing fish habitat and fish community data for the 19 assessment sites completed in support of the Cliffs Chromite Project will be considered when identifying sites for detailed habitat assessment and fish community assessment for this Project.

### 7.2.2.2 Recent Studies Undertaken (2019-2020)

Field studies have been undertaken for the purpose of informing baseline conditions of fish and fish habitat in support of the Project have included the following studies conducted in 2019 and 2020:

- Aerial and ground-based fish habitat assessments at 12 waterbody crossing locations from September 5 to 10, 2019.
- Fish sampling was carried out at 9 waterbody crossing locations from September 5 to 10, 2019.
- Aerial habitat assessment carried out at 16 waterbody crossing locations from October 14 to 26, 2020.
- Ground-based fish habitat assessment carried out at 19 waterbody crossing locations from October 14 to 26, 2020.
- Benthic invertebrate sampling carried out at 16 waterbody crossing locations from October 14 to 16, 2020.

In both 2019 (September) and 2020 (October), aerial reconnaissance surveys were conducted to confirm desktop information, obtain aerial photographs and to gain an understanding of the regional context of each waterbody crossing locations. The aerial reconnaissance was completed along the full extent of both route Alternative 1 and Alternative 4.

Detailed assessments of the habitat up to 120 m upstream and 120 m downstream of the route alignment were conducted. The data collected is consistent with the study methods for fish habitat described in **Section 7.2.1**, and included documentation of the following: waterbody type and flow conditions, channel dimensions (wetted width, wetted depth, bankfull width, bankfull depth), bank shape and stability, habitat features (e.g., in-water cover, substrate and vegetation), fish passage barriers, photographs, and suitable habitat important for fish life functions (e.g., spawning).

Sampling carried out in 2019 provides the first year of multi-year field study data in addition to data gathered through desktop analysis, previous studies (**Section 7.1.1**) and Indigenous Knowledge (from MFFN). No





fishing was conducted in 2020 because the timing of fall habitat assessment overlapped with the timing window for fall spawning fish (e.g., Brook Trout, Lake Whitefish). Habitat assessments were completed in the fall of 2019 and 2020 at 30 unique sites. A smaller subset of sites were repeated between at least two years of 2011 / 2012, 2019 and 2020.

Fish sampling was conducted where site conditions allowed for sampling to take place (e.g., health and safety and logistical constraints caused by rough terrain, un-wadeable waterbodies). Within the area of detailed assessment as noted above, baited minnow traps and backpack electrofishing were employed to document the resident fish community at the assessment sites (in 2019).

Benthic sampling was not conducted as part of the field surveys of 2019. In 2020, erosional sampling using a Surber sampler and depositional sampling using a petite Ponar grab sampler were conducted at select sites. During the 2020 surveys, benthic invertebrate sampling coincided with fish habitat surveys.

The locations of the detailed site assessments (in 2019 and 2020) is attached in **Appendix C**. Detailed results of the field programs in 2019 and 2020 will be provided at a later date.

### 7.2.3 Future Field Studies

Field studies will be completed under appropriate seasonal and weather conditions to facilitate safe access for field crews and appropriate conditions for visual inspection, such as minimal snow cover, open water, and avoidance of flood conditions.

Sites proposed for future assessment will be selected pending further desktop review, review of recent field studies (2019-2020), health and safety considerations and logistical constraints such as access and gear-type. To achieve the target % subsets (**Section 7.2.1.1**), the balance of the sites remaining after previous field investigations (2011 / 2012, 2019 and 2020) will be assessed. Based on information available at this time, this translates to approximately 40 additional sites to be completed for habitat assessment and fish community sampling, and approximately 7 sites for benthic invertebrate collection. The detailed field schedule for future fish and fish habitat assessment is yet to be finalized.





## 8. Data Management and Analysis

Data management including quality assurance / quality control (QA / QC) will be employed to minimize potential for data entry and analysis errors, prepare data sets for analysis and limit sensitive data distribution in accordance to established agreements. Data provided to agencies will meet ISO 19115 standards.

### 8.1 Data Management

#### 8.1.1 Desktop Analysis

Relevant data collected from the desktop assessment described in **Section 7.1** will be compiled into a map and data layer per route alternative using ArcGIS for reader reference to inform and supplement the field investigations for the PDA.

#### 8.1.2 Field Investigations

A quality assurance / quality control (QA / QC) program was used for the Project to minimize the probability of error during data collection, data entry, and data interpretation, including aerial imagery review and the creation of the fish species list for each waterbody crossing. Standardized datasheets and methods were used as a means of consistency and to control the quality of data collected. Specific work instructions were written for the purpose of field data collection. Datasheet QA / QC was completed in the field for all datasheets completed for that day. The QA / QC check included an exchange of datasheets between field crews or team members so that all fields were legible and properly entered. Field photos and GPS coordinates were backed up to laptops daily. Data entry was evaluated for errors or omissions by reviewing each datasheet to verify that the electronic database accurately reflected field observations. QA / QC for the waterbody crossing lists involved the following tasks:

- Review by more than one person, including a senior fish biologist to help ensure accuracy
- Review by a fish biologist and a water resources engineer to help ensure all waterbodies were included and to QA / QC the data

The data collected during field investigations using this method will include data pertaining to habitat assessment of the PDA and biological sampling (excluding results of laboratory analysis) of the PDA. Analysis of benthic invertebrate samples will be conducted by an accredited laboratory and QA / QC standards will be reviewed and modified as required.







## 8.2 Data Analysis

### 8.2.1 Habitat Assessment

As described in **Section 7.2**, habitat assessment will be conducted within the PDA. The waterbodies previously categorized by lentic or lotic habitat will take into further account the conditions documented during habitat assessment to describe habitat types observed in the PDA that can be applied to the LSA and RSA to characterize the habitat throughout. To extrapolate and describe the habitat in the LSA and RSA, these habitat features will be categorized by their habitat type, stream order, stream type, gradient, and size. Once categorized they can be compared to similar waterbodies that were assessed in detailed within the PDA and thereby contextualize the habitat found throughout the LSA and RSA.

Lotic habitat will be further described by stream order (Strahler 1952) and stream type, and ranges of habitat conditions or habitat types typical of the PDA will be developed using the data collected in the habitat assessment. Metrics used to describe these typical habitat types of the PDA may include (but may not be limited to) mean geomorphic conditions observed in the PDA (i.e., bankfull width, bankfull depth, gradient) and fish passage barriers.

Desktop assessment using ArcGIS incorporating LDAR data and the habitat categorization as described above will be used to describe and categorize waterbodies in the LSA and RSA. A comparative analysis will be conducted between the categorized waterbodies of the LSA and RSA and the ranges of habitat preferences of VCs to provide evaluation of suitable habitat of VCs throughout the LSA and RSA. These data will be used to determine habitat suitability descriptions of VCs to apply to the LSA and RSA, based on a literature review of habitat preferences of these fish species. Waterbodies visited during field investigations that do not have the propensity to act as fish habitat will not be included in this analysis.

VCs have been identified based on background information review and consultation as described in **Section 7**. **Table 8-1** below provides resources for habitat suitability of VCs collected to-date. Habitat suitability examines species life history and habitat preferences for important life functions to identify these features. This list provides examples of resources to be referenced; the list will be revised as needed should additional relevant information be acquired (for example, information gathered through the Indigenous Knowledge Program being conducted for the Project).





**Table 8-1: Examples of Literature Reviewing VCs Habitat Suitability Patterns**

<b>VCs</b>	<b>Examples of Existing Habitat Suitability Resources</b>
<b>Lake Sturgeon</b>	Daugherty et al. (2008)
<b>Walleye</b>	McMahon et al. (1984); Lowie et al. (2001)
<b>Brook Trout</b>	Raleigh (1982); Schmitt et al. (1993)
<b>Northern Pike</b>	Inskip (1982); Harvey (2009)
<b>Lake Whitefish</b>	Bégout Anras et al. (1999); DeJong (2017)
<b>Burbot</b>	Golder (2008)

It is recognized that species occupancy and use of habitat could occur in any waterbody where access and habitat are suitable, and the analysis is not meant to provide a definitive presence / absence. This assessment will be used to describe the baseline conditions and occupancy potential of VCs of the LSA and RSA, in addition to the desktop assessment and detailed habitat assessment of the PDA. The habitat assessment of the PDA for Route Alternatives 1 and 4 will characterize the habitat and established baseline conditions of waterbodies within the sub-watersheds of the RSA and LSA. The habitat will be characterized as having “Fish Habitat”, “Potential Fish Habitat”, or “No Fish Habitat”. These designations were determined based on the water quality variables that were assessed (**Section 7.2.1**). Furthermore, the information collected in the habitat assessment of the PDA will inform submissions for regulatory review for water crossing structures, as well as the structure design team.

Mapping of these features in relation to Project components will be used to inform mitigation, protection and avoidance measures including alignment shifts to avoid sensitive features, to predict future conditions and minimize adverse potential effects of the Project to the extent feasible (**Section 9**).

## 8.2.2 Biological Sampling

The fish sampling conducted within the PDA will provide fish community data for the habitat types observed. The scope of the fish sampling program and data collected as described in **Section 7.2.1** will include quantitative and qualitative data that will describe:

- A baseline of species abundance;
- Documentation of fish age classes (i.e., young of year, juvenile, and adult) will serve to inform age distribution and may confirm observations of suitable spawning and nursery habitat;
- Implement appropriate sampling techniques pending site conditions to include different trophic levels and food base for predatory fishes; and
- Baseline of benthic invertebrate species composition, richness and abundance.





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Trends in VC presence and abundance will be identified as they relate to habitat type and condition categories as identified above and a basis for similar habitat conditions across that sub-watershed. Comparative analysis of species diversity by habitat type will serve to inform baseline conditions of LSA and RSA in addition to occupancy potential as described in **Section 7.2.1.3**. The characterization of the existing environment serves as the baseline condition for which the environmental effects of the Project will be predicted and assessed against in the IA / EA process. Regulatory and permitting requirements, subsequent to the IA / EA process, will be identified in the IS / EA Report.

Fish species data will be used in the context of each waterbody crossing's tertiary watershed (or LSA and RSA), so that the potential presence of a species in the waterbody crossings is based on the fish known to occur in the watershed. If insufficient habitat data are available (e.g., watercourse obscured by trees during aerial reconnaissance or no LiDAR or historical information available), the waterbody will be rated as "Potential Fish Habitat". This approach will be used in the assessment to minimize the effect of pseudo-absences (presuming a species is absent from a site when it in fact occurs there) in data collection.

Benthic invertebrates within samples will be identified to family (species wherever possible) and enumerated. From the resulting data, the results for each sample will be summarized by calculating the species richness, Shannon's diversity index, and Simpson Index. Species richness is the total number of species found within a sample. Shannon's diversity index and Simpson's index are measures of species diversity that include the proportion of each species in a sample. Communities that have an equal number of all species are indexed as having a greater diversity than those which are heavily skewed towards a single species. This approach will allow the assessment to identify benthic invertebrate community patterns throughout the study areas.





## 9. Effects Assessment

The following sections provide discipline-specific input and considerations as they pertain to the methodology for effects assessment. The Project is in the early stage of the IS / EA Report preparation and it is expected that the effects assessment methodology will be refined iteratively based on regulatory agency guidance, professional judgment and input received through the Project consultation and engagement process.

### 9.1 Project-Environment Interactions

The Project activities that may result in changes to the environment are described within the identified temporal and spatial boundaries (**Section 6**). This includes identification of both direct and indirect changes by comparing the existing setting to the conditions anticipated to occur as a result of the Project. For each environmental discipline, the likely Project-environment interactions will be identified based on professional judgment, activities listed in TISG Section 3.2 as well as projects of similar magnitude and/or location.

A preliminary analysis of Project-environment interactions for Fish and Fish Habitat is provided in **Table 9-1** and will be confirmed during the IA / EA process to identify the Project-environment interactions that are likely to have a potential effect, and to identify measures to avoid or minimize potential negative effects and enhance benefits.

**Table 9-1: Project – Environment Interactions**

Project Phases	Project Activities	Fish and Fish Habitat
Construction Phase	<i>Mobilization of Equipment and Supplies</i>	X
	<i>Temporary Construction Staging Areas<sup>1</sup></i>	X
	<i>Temporary Access Roads and Trails<sup>1</sup></i>	X
	<i>Temporary Construction Camps<sup>1</sup></i>	X
	<i>ROW Clearing and Grubbing</i>	X
	<i>Brush and Timber Disposal</i>	-
	<i>Pits and Quarries<sup>1</sup></i>	X
	<i>Drilling / Blasting / Aggregate Production</i>	X
	<i>Road Construction (stripping, subgrade excavation, embankment fill placement, grading, ditching)</i>	X
	<i>Bridge and Culvert Installation (approach embankments, foundations, substructures, superstructures, traffic protection, erosion controls)</i>	X
	<i>Construction Site Restoration</i>	X
Construction Phase: Decommissioning	<i>Pits and Quarries</i>	X
	<i>Temporary Camps, Roads / Trails and Staging Areas</i>	X





Project Phases	Project Activities	Fish and Fish Habitat
Operations Phase	Road Usage	X
	Maintenance <sup>2</sup>	X

Notes: 1. Includes construction and use of  
 2. Includes General Maintenance (e.g., grading, erosion control, quarrying, borrow pits), Seasonal Maintenance (e.g., snow clearing, bridge and culvert maintenance), and Special Maintenance (e.g., slope failures, road settlement / break-up.).

## 9.2 Valued Components and Indicators

VCs are the environmental, health, social, economic or additional elements or conditions of the natural and human environment that may be impacted by a proposed project and are of concern or value to the public, Indigenous peoples, federal authorities and interested parties (the Agency 2020b). Indicators represent the resource, feature, or issue related to the VC that, if changed, may demonstrate an effect on the environment. The indicators and rationale for selection and measurement of potential effects, to be used to assess and evaluate the alternative routes in the IS / EA Report are provided in **Table 9-2**. The table includes both quantitative and qualitative indicators. The final list of VCs and indicators to be used in the IS / EA Report will be based on regulatory agency guidance, professional judgement and input received through the Project consultation and engagement process.

**Table 9-2: Fish and Fish Habitat Indicators**

Valued Component	Indicators	Rationale for Selection
<b>Lake Sturgeon (<i>Acipenser fulvescens</i>)</b>	<ul style="list-style-type: none"> <li>■ Habitat Quantity and Quality</li> <li>■ Distribution and connectivity to habitat and migration.</li> <li>■ Survival and reproduction</li> </ul>	<ul style="list-style-type: none"> <li>■ Species of conservation concern (designated as Special Concern under <i>Species at Risk Act</i> and <i>Endangered Species Act</i>)</li> <li>■ Cultural importance and sustenance</li> </ul>
<b>Walleye (<i>Sander vitreus</i>)</b> <b>Brook Trout (<i>Salvelinus fontinalis</i>)</b> <b>Northern Pike (<i>Esox lucius</i>)</b> <b>Lake Whitefish (<i>Coregonus clupeaformis</i>)</b> <b>Burbot (<i>Lota lota</i>)</b>	<ul style="list-style-type: none"> <li>■ Habitat Quantity and Quality</li> <li>■ Distribution and connectivity to habitat and migration.</li> <li>■ Survival and reproduction</li> </ul>	<ul style="list-style-type: none"> <li>■ Cultural importance and local recreational/economic value and sustenance</li> </ul>

The VCs for Fish and Fish Habitat have been determined through consideration of the following factors listed in the TISG<sup>10</sup>:

- VC presence in the study area;

10. The TISG also states that information from ongoing and completed regional assessments in the proposed area of the Project should be used to inform VCs for the Project. In February 2020 a regional assessment of the Ring of Fire region commenced; however, it is not sufficiently advanced at this time to inform the Project VCs. The VCs will be consulted and engaged on early in the IA/ EA process and finalized taking into consideration the input received. Therefore, only information relevant to the Project that arises from the regional assessment of the Ring of Fire within an appropriate timeline will inform the VCs for the Project.





- the extent to which the VC is linked to the interests or exercise of Aboriginal and Treaty rights of Indigenous peoples, and whether an Indigenous group has requested the VC;
- the extent to which the effects (real or perceived) of the Project and related activities have the potential to interact with the VC;
- the extent to which the VC may be under cumulative stress from other past, existing or future undertakings in combination with other human activities and natural processes;
- the extent to which the VC is linked to federal, provincial, territorial or municipal government priorities (e.g., legislation, programs, policies);
- the possibility that adverse or positive effects on the VC would be of particular concern to Indigenous groups, the public, or federal, provincial, territorial, municipal or Indigenous governments; and
- whether the potential effects of the Project on the VC can be measured and / or monitored or would be better ascertained through the analysis of a proxy VC.

Inputs received to date from Indigenous communities, agencies and interested persons through the Consultation and Engagement Program, including inputs received on the Draft ToR, have also been used to inform the selection of the VCs and indicators for the Fish and Fish Habitat discipline.

## 9.3 Potential Effects

A direct effect occurs through the direct interaction of an activity with an environmental discipline. The Project-environment interactions currently anticipated, based upon preliminary analysis, to result in direct effects to the Fish and Fish Habitat discipline have been identified in **Table 9-1**. The potential direct effects resulting from the Project-environment interactions will be confirmed during the IA / EA process and will be based on input received through the Indigenous Knowledge Program and Consultation and Engagement Program, regulatory agency guidance, and professional judgement.

An indirect effect occurs when a change to one environmental discipline resulting from a Project activity causes a change to another environmental discipline (e.g., changes in vegetation could indirectly affect wildlife). **Table 9-3** provides a preliminary identification of how changes to fish and fish habitat may result in indirect effects to other environmental disciplines.

The degree of risk for indirect effect to fish and fish habitat as a result to changes to another discipline varies depending on activity. Certain potential indirect effects are unlikely to result in a detectable effect at all or can typically be mitigated or avoided.





**Table 9-3: Potential Discipline Interactions**

Discipline and Associated Valued Components	Aboriginal Treaty Rights and Interests	Atmospheric Environment	Acoustic and Vibration	Physiography, Terrain and Soils	Surface Water	Groundwater and Geochemistry	Vegetation	Wildlife	Fish and Fish Habitat	Social	Economy	Land and Resource Use	Human Health and Community Safety	Visual Aesthetics	Archaeological and Cultural Heritage
<b>Fish and Fish Habitat</b> ■ Lake Sturgeon ■ Walleye ■ Brook Trout ■ Northern Pike ■ Lake Whitefish ■ Burbot	X	-	-	X	X	-	X	X		X	X	X	X	X	X

Notes: X = Potential pathway for indirect effect as a result of the Project.  
 - = No pathway for indirect effect is anticipated as a result of the Project.





## 9.4 Methods for Predicting Future Conditions

With respect to quantitative models and prediction, the IS / EA Report must detail the model assumptions, parameters, the quality of the data and the degree of certainty of the predictions obtained.

The prediction of potential future conditions or amount of change from baseline conditions for both route alternatives will include:

- The number of road crossings and therefore water crossing structures required;
- Qualitative considerations of water crossing locations, structure types and habitat features (for example, where low impact structures including clear-span bridges are practical versus structures requiring infill);
- An estimated area of fish habitat within the PDA using data from habitat assessment and therefore area of potential disturbance, including temporary disturbance (e.g., in-water work areas and dewatering) during construction phase (i.e., water crossing structure installation) and operations/maintenance phase (i.e., water crossing repairs, replacements);
- Qualitative discussion of the existing activities and infrastructure which may currently or previously have had an effect on fish and fish habitat. Existing activities will be identified using desktop analysis, consultation with local Indigenous communities, and field observations;
- An estimated area of fish habitat with the potential for permanent alteration or destruction during both construction and operations phase, within the immediate footprint of Project components in water; and
- The area of habitat important for fish life functions within the PDA such as VCs' important habitat features (e.g., spawning, nursery, overwintering habitat) and therefore the potential to be changed or disturbed. Habitat suitability for these functions will be identified and quantified in the PDA for VCs, and in turn the area of direct effect and/or footprint from Project component (e.g., water crossing structures) to such features can be quantified.

Qualitative review of the potential future conditions and potential changes to sensitive features within the PDA will also be described. The predictions of changes as a result of the Project and future conditions will be used to inform the effects assessment and identify mitigation, avoidance and protection measures.







## 9.5 Mitigation and Enhancement Measures

Once potential effects have been identified, the effects assessment will explore technically and economically feasible mitigation measures to avoid or minimize the identified negative effects and enhancement measures to increase positive effects beyond those that are already inherent to the design. These measures will consist of industry-standard practices, federal and provincial standard specifications, regulator-mandated measures, best management practices, Indigenous and community recommendations and recommendations from industry and environmental professionals based on expertise, scientific publications, experience and judgement.

It is important that mitigation and enhancement measures are achievable, measurable and verifiable and monitored for compliance and effectiveness during all temporal phases as part of the Project follow-up monitoring plan. Required environmental monitoring will verify the potential environmental effects predicted in the IS / EA Report, evaluate the effectiveness of mitigation and enhancement measures, and identify the process the Proponent will follow if mitigation and enhancement measures are not effective.

### 9.5.1 TISG Section 20 Requirements

There are a number of generic requirements related to mitigation and enhancement measures listed in the TISG that are applicable to Fish and Fish Habitat discipline. The IA / EA will consider the applicability of these generic measures and those that are specific to Fish and Fish Habitat discipline including:

- “identify measures to prevent and mitigate the risk of engaging in activities that cause harmful alteration, disruption or destruction in key sensitive periods and locations (e.g., spawning) for fish”;
- “identify measures to avoid the deposit of substances harmful to fish or migratory birds in water or areas frequented by fish and/or migratory birds”; and,
- “identify measures to prevent water crossings (i.e., culverts) from negatively impacting freshwater fish movement (e.g., due to flow, debris, or “perching”)”.

Conventional mitigation and avoidance measures to reduce the risk of harm to fish and fish habitat are available through industry standard practices and agency guidance. Additional site and/or project-specific mitigation measures may be identified through Indigenous and community consultation, regulatory processes and Agency guidance. Applicable mitigation practices will be discussed in the IS / EA Report and will be included in construction environmental management plan(s) (CEMP) and contract documents.





There are certain activities associated with the Project where, left unmitigated, are likely to result in significant harm. Therefore, it is important to include mitigation measures in the IS / EA Report to identify the residual effects of an activity following implementation of such measures. Proper implementation of mitigation measures can minimise or completely negate the risk of harm from occurring as a result of the Project.

The IS / EA Report will provide the framework for a future CEMP (to be developed prior to construction), related to its implementation and the standard measures and practices included therein that will be implemented into the Project, such as:

- In-water work timing windows;
- Blasting measures in accordance with the *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters* (Wright, Hopky, 1998);
- DFO's Measures to Protect Fish and Fish Habitat;
- DFO's Interim Codes of Practice (temporary cofferdams, stream crossings, fish screens, culvert maintenance [for operations]);
- Measures such as avoiding unnecessary idling to minimise emissions and greenhouse gases;
- Development of a Spill Management Plan and Sediment and Erosion Control Plan; and
- Proper water crossing structure design and installation to accommodate flow and drainage as well as fish passage in fish habitat.
- Measures to limit the spread and / or introduction of invasive species.

Typically, the Contractor is responsible for implementation of the CEMP. The responsible party will be identified in the discussion pertaining to the CEMP. Rationale will be provided in the IS / EA Report in the event that any applicable standard measures are omitted from the environmental construction management plan, if any. Where it is determined that negative residual effects will not be avoided or mitigated and are likely to result in the death of fish or the harmful alteration, disruption or destruction of fish habitat, these negative residual effects will be described in relation to the baseline condition, and quantified by anticipated number and species of fish, and / or area of habitat impacted by the residual effect where applicable (depending on the effect). This information would be used for inclusion in a Request for Project Review for submission to DFO Fish and Fish Habitat Protection Program for DFO to assess for compliance with the *Fisheries Act* and determine whether an Authorization under this Act is required. If the risk of residual negative effects to fish or fish habitat cannot be mitigated or avoided and an Authorization is required, plans will be developed to obtain habitat credits or to offset the negative residual effect. The offsetting plan would be developed in consideration of the policies, guidance and Indigenous consultation referenced within this Study Plan (as applicable), including the *Policy for Applying Measures to Offset Adverse Effects on Fish and Fish Habitat Under the Fisheries Act* (DFO, 2019), the Operational Framework for Use of Conservation Allowances (ECCC, 2012), and any applicable recovery strategies or species management objectives. A plan to monitor the effectiveness of the offsetting measures will also be described.





Typical mitigation and avoidance measures such as standard practices for construction, road and water crossing construction and maintenance. will be applied to both construction and operation phases of the project.

## 9.6 Residual Effects

Residual effects are the effects remaining after the application of mitigation measures. The IS / EA Report will describe in detail the potential adverse and positive residual effects in relation to each temporal phase of the Project (e.g., construction, operation). The residual effects predicted following implementation of avoidance and mitigation measures will be described using criteria to quantify or qualify adverse and positive effects, taking into account any important contextual factors. The residual effects will therefore be described in terms of the direction, magnitude, geographic extent, duration, frequency, likelihood, and whether effects are reversible or irreversible<sup>11</sup>. Ecological and socio-economic context may also be relevant when describing a residual effect. Context relates to the existing setting, its level of disturbance and resilience to adverse effects. Context can also relate to timing as it applies to assessing the worst-case scenario (e.g., effect during fish spawning periods), potential accidents and malfunctions. Where appropriate, information regarding residual effects will be disaggregated by sex, gender, age and other relevant community identifying factors to identify disproportionate residual effects for diverse subgroups.

### 9.6.1 Magnitude

For magnitude, environmental discipline-specific definitions are required and are proposed below in **Table 9-4**.

**Table 9-4: Fish and Fish Habitat Magnitude Definition**

Magnitude Level	Definition	Rationale
<b>Negligible</b>	<ul style="list-style-type: none"> <li>■ None or negligible change to baseline habitat conditions or fish behaviour.</li> </ul>	<ul style="list-style-type: none"> <li>■ No change in function or productivity of VC habitat</li> <li>■ No change in behaviour or survival of VC</li> <li>■ Minor change in VC habitat, to a degree that does not reduce productivity or function</li> <li>■ Minor disturbance to VC behaviour that does not impede them from carrying out their life processes. For example, temporary impediments to fish movement or access to habitat during dewatering, outside of important timing windows such as spawning.</li> </ul>

11. TISG Section 13.1 identifies additional effects characteristics for certain disciplines (e.g., wetlands, birds, terrestrial wildlife, species at risk). These additional effects characteristics are described in the respective discipline-specific study plans.





Magnitude Level	Definition	Rationale
<b>Low</b>	<ul style="list-style-type: none"> <li>Minor change to baseline habitat and conditions, without loss of function or individuals.</li> </ul>	<ul style="list-style-type: none"> <li>Habitat of VCs remain suitable and functional, but decrease in productivity</li> <li>Minor or temporary disturbance to fish that may interrupt a life process but not decrease productivity or prevent fish from carrying out the activity</li> <li>For example, alteration or infill of a minor portion of productive littoral area used by VC for feeding</li> <li>Does not result in the death of fish</li> </ul>
<b>Medium</b>	<ul style="list-style-type: none"> <li>Change to baseline habitat and conditions that results in decrease in function and productivity, and/or potential harm to fish.</li> </ul>	<ul style="list-style-type: none"> <li>Habitat quality and function is reduced but not eliminated</li> <li>Decrease in productivity</li> <li>Impediment to fish from carrying out life processes</li> <li>Potential incidental death of fish, to a degree that is not likely to disrupt overall population dynamics</li> </ul>
<b>High</b>	<ul style="list-style-type: none"> <li>Change to baseline habitat and conditions that renders them unusable to fish, and/or the likelihood of harm to fish.</li> </ul>	<ul style="list-style-type: none"> <li>Destruction, complete displacement or alteration of habitat, rendering it no longer suitable for the function at baseline conditions</li> <li>Loss of productivity as a result of loss of habitat function</li> <li>Restricting fish from carrying out life processes, such as complete barrier to fish migration to spawning habitat</li> <li>The death of fish to a degree that result in changes to population dynamics.</li> </ul>

## 9.7 Consideration of Sustainability Principles

The following provides a generic description of how sustainability principles will be considered in the effects assessment. The extent to which sustainability principles apply to a specific VC will vary depending on the nature of the VC and the potential for Project effects on the VC.

The effects assessment approach for the Project has included the consideration of the sustainability principles outlined in the Project TISG and the Agency’s guidance on sustainability. The sustainability principles that have been considered include:

1. Consider the interconnectedness and interdependence of human-ecological systems;
2. Consider the well-being of present and future generations;
3. Consider positive effects and reduce adverse effects of the Project; and
4. Apply the precautionary principle by considering uncertainty and risk of irreversible harm.





The interconnectedness and interdependence of human-ecological systems will be considered through the assessment of potential indirect effects of each alternative. An indirect effect occurs when a change to one environmental discipline resulting from a Project activity causes a change to another environmental discipline (e.g., changes in vegetation could indirectly affect wildlife). A preliminary assessment of indirect effects has been included in **Section 9.3**.

The well-being of present and future generations will be considered in the effects assessment through the application of the long-term operations phase temporal boundary of 75 years (**Section 6.1**) and through the effects characteristics description of duration and reversibility for each residual effect predicted.

The consideration of positive effects and reducing adverse effects of the Project is fundamental to the effects assessment methodology through the identification of mitigation measures to reduce potential adverse effects and the identification of the preferred alternative through the evaluation of advantages (e.g., positive effects) and disadvantages (e.g., adverse effects).

The effects assessment will apply the precautionary principle by clearly describing and documenting all uncertainties and assumptions underpinning the analysis and identifying information sources. The effects assessment will consider risk of irreversible harm through the effects characteristics description of reversibility for each residual effect predicted and will describe any uncertainty associated with the assessment of residual effects.

The scope of the sustainability assessment will be defined by issues of importance identified by Indigenous communities and interested persons through consultation and engagement activities, while also ensuring to be inclusive of the diversity of views expressed. The selection of VCs that will be the focus of the sustainability assessment will be aligned with the issues of importance identified by Indigenous communities and interested persons, as well as residual effects identified through the effects assessment process. The sustainability assessment will describe how the planning and design of the Project, in all phases including follow-up monitoring, considered the sustainability principles.

## 9.8 Consideration of Identity and Gender-Based Analysis Plus in Effects Assessment

The Proponent recognizes that communities and sub-populations within those communities may be impacted differently by the Project with respect to VCs and indicators. As such, the Project aims to collect baseline information for the purpose of assessing differential effects and establishing relevant mitigation measures, as further elaborated on in **Section 4.3**. Gender-Based Analysis Plus will not be limited to





community feedback, when offered or discussed in secondary texts, additional sub-population information as is applicable to the relevant assessment will be incorporated.

## 9.9 Follow-up Programs

A follow-up program verifies the accuracy of the effects assessment and evaluates the effectiveness of mitigation measures. Identification of follow-up programs for the Project are not described in this Study Plan as the information needed to determine environmental monitoring requirements is dependent on the outcome of the effects assessment and consultation with Indigenous communities, agencies and interested persons. Therefore, the Proponent will include information on follow-up programs that address the requirements outlined in Section 26 of the TISG and in the IS / EA Report, and will identify the compliance and effects monitoring activities to be undertaken during all phases of the Project, as required.

Compliance and effects monitoring is a typical component of a CEMP in order to monitor the implementation and effectiveness of mitigation and avoidance measures of the CEMP. Monitoring requirements are typically included in contract documents and applicable permits to document the residual effects (if any) and to make recommendations of corrective action if required. As noted above, the need for and / or details of a follow-up program specific to fish and fish habitat will be determined following completion of the IA / EA and design details. Where such a program is required, development of the program will take into consideration the predicted residual effect, monitoring, reporting, implementation and intervention responsibilities, input and participation of Indigenous communities, regulatory requirements, and monitoring frequency and duration.

### 9.9.1 TISG Section 26 Requirements

Offsetting of the harmful alteration, disruption or destruction of fish habitat (if required) often requires a follow-up monitoring program as a requirement of Authorization under the *Fisheries Act*. However, determination of the potential for and extent of the harmful alteration, disruption or destruction will not be known until the effects assessment and water crossing structure preliminary design is complete.

Applicable requirements in Section 26 of the TISG will be considered in the design of follow-up programs related to Fish and Fish Habitat discipline, where required.





## 10. Assumptions

Implementation of avoidance, protection and mitigation measures are standard industry practice for road and water crossing construction and are a requirement for regulatory approvals. Contingencies are included in this Study Plan for the IA / EA development for unlikely effects through the implementation of standard industry practices, such as encroachment of project components and facilities other than a waterbody crossing structure below the high water mark of a waterbody (e.g., structures, aggregate, sources), where it is standard practice to avoid encroachment and maintain a setback from waterbodies for such components. However, it is assumed that applicable standard industry practices and requirements to mitigate or avoid effects to fish and fish habitat will be implemented into the Project construction and operation phases.

Assumption used in the IA / EA, for example the assumed average daily traffic on the CAR, will be clearly identified and a rationale provided. These include typical mitigation and avoidance measures following industry standards and guidance as summarized in **Section 9.5**.





# 11. Concordance with Federal and Provincial Guidance

This Section provides the best information currently available on how federal and provincial requirements identified for the Project to date will be addressed. The final concordance with federal and provincial requirements will be included in the IS / EA Report, and will be based on regulatory agency guidance, professional judgement and input received through the Project consultation and engagement process.







**Table 11-1: Study Plan Federal Concordance – Conformance with Requirements**

ID #	Federal TISG Reference <sup>12</sup>	Requirement / Comment / Concern	Response	Study Plan Reference
1	TISG Section 1.1, page 4	<ul style="list-style-type: none"> <li>The Guidelines correspond to factors to be considered in the impact assessment. These factors are listed in subsection 22(1) of IAAC and prescribe that the impact assessment of a designated project must take into account any change to the designated project that may be caused by the environment;</li> </ul>	<ul style="list-style-type: none"> <li>The potential effects of the project on Fish and Fish Habitat and the potential effects of the environment on the project will be assessed in accordance with applicable standards and guidance.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
2	TISG Section 2.3, pages 6-7	<ul style="list-style-type: none"> <li>The description should focus on aspects of the Project and its setting that are important in order to understand the potential environmental, health, social and economic effects and impacts of the Project. The following information must be included and, where appropriate, located on map(s):               <ul style="list-style-type: none"> <li>geographic coordinates (i.e., longitude/latitude using international standard representation in degrees, minutes, seconds) for the beginning and end points of the proposed road;</li> <li>current land and/or aquatic uses within the study areas;</li> <li>distance of the project components to any federal lands and the location of any federal lands within the study areas;</li> <li>all waterbodies and their location on a map;</li> <li>navigable waterways;</li> <li>the environmental significance and value of the geographical setting in which the Project will take place and the study areas;</li> <li>environmentally sensitive areas, such as national, provincial, territorial and regional parks, UNESCO World Heritage Sites, geological heritage sites, ecological reserves, ecologically and biologically sensitive areas, wetlands, and habitats of federally or provincially listed species at risk and other sensitive areas;</li> <li>Dedicated Protected Areas<sup>3</sup> and any other areas of ecological and social significance identified by the community during the community-based land use planning processes with the Province of Ontario (e.g., Enhanced Management Areas; see Section 6.1 for requirements related to confidentiality);</li> <li>lands subject to conservation agreements;</li> <li>current mineral development proposals, and areas of early and advanced mineral exploration in the study areas;</li> <li>current areas of aggregate extraction;</li> <li>description and locations of all potable drinking water sources (i.e., municipal or private), including spring water sources;</li> <li>description of local communities and Indigenous groups that is culturally relevant and gender sensitive;</li> <li>if the information is not confidential, provide a description and location of Indigenous traditional territories and/or consultation areas, Treaty and/or Title lands, Indian Reserve lands, Indigenous harvesting regions (with permission of Indigenous groups), Métis settlements; and</li> <li>culturally important features of the landscape.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The information related to landscape features, sensitive or protected areas and other items listed in the TISG will be illustrated on detailed maps and / or described within the IS / EA Report, where appropriate. This information will be gathered through the desktop analysis, consultation and community engagement and field studies as described in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> </ul>
3	TISG Section 3.1, page 11	<ul style="list-style-type: none"> <li>The Impact Statement must describe all project components including but not limited to:               <ul style="list-style-type: none"> <li>borrow pits, gravel or aggregate pits and quarries (footprint, geographic location, ownership, and development plans including pit phases and lifespan), including their location in relation to upland habitats and the presence of rare, limited and/or significant habitat (e.g., federal, provincial, or Indigenous protected and conserved areas, ANSIs (Areas of Natural and Scientific Interest), Ramsar sites, critical habitat identified under the Species at Risk Act, etc.;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Study Plan Section 6.2 indicates that the Project Development Area (PDA) encompasses the 100 metre wide CAR right-of-way (ROW), temporary construction access roads, work areas, worker camps, pits and quarries, and associated access roads. The specific location of Project components, including the roadway, quarries and pits, and temporary infrastructure, are not yet known and will be included in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 6.2</li> </ul>
4	TISG Section 5.1, page 22	<ul style="list-style-type: none"> <li>Any proposed mitigation measures are to be clearly linked, to the extent possible, to valued components in the Impact Statement as well as to specific project components or activities, as well as comments raised during engagement activities</li> </ul>	<ul style="list-style-type: none"> <li>Once potential effects have been identified, the effects assessment will explore technically and economically feasible mitigation measures to avoid or minimize the identified negative effects and enhancement measures to increase positive effects.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9.5</li> </ul>

<sup>12</sup>. Federal TISG Reference should be the Section or subsection, page etc. that clearly identifies where comment/issue we are addressing can be found (ex. Section 8.1 of TISG)



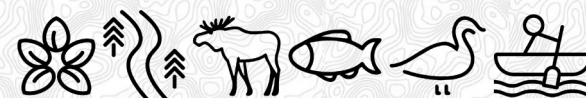


ID #	Federal TISG Reference <sup>12</sup>	Requirement / Comment / Concern	Response	Study Plan Reference
5	TISG Section 7.1, page 29	<ul style="list-style-type: none"> <li>In describing the biophysical environment, the Impact Statement must take an ecosystem approach that considers how the Project may affect the structure and functioning of biotic and abiotic components with the ecosystem using scientific, community and Indigenous knowledge regarding ecosystem health and integrity, as applicable. The Impact Statement must provide a description of the indicators and measures used to determine ecosystem health and integrity, identified during early planning and reflected in the TISG. The presence of habitat (e.g., federal, provincial, or Indigenous protected areas, ANSIs, RAMSAR sites, critical habitat identified under the Species at Risk Act, etc.), such as but not limited to spawning shoals, aquatic vegetation or overwintering pools, potentially affected by the Project should be included in the description of the biophysical baseline conditions.</li> </ul>	<ul style="list-style-type: none"> <li>We will take an ecosystem approach that considers how the project may affect structure and functioning of biotic and abiotic ecosystem components and the potential residual effects as a result of these changes. This includes areas of indigenous cultural importance, descriptions of ecosystem health and integrity, the presence of protected areas and critical habitat for SAR species.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
6	TISG Section 7.1, page 30	<ul style="list-style-type: none"> <li>The Impact Statement must establish appropriate study area boundaries to describe the baseline conditions. The study area boundaries need to encompass the spatial boundaries of the Project, including any associated project components or activities, and the anticipated boundaries of the Project effects, including all potentially impacted local communities, municipalities and Indigenous groups. Considerations in assigning appropriate study areas or boundaries would include, but not be limited to:               <ul style="list-style-type: none"> <li>– areas potentially affected by changes to water quality and quantity or changes in flow in the watershed and hydrologically connected waters;</li> <li>– areas potentially effected by airborne emissions or odours;</li> <li>– areas determined by dispersion and deposition modelling;</li> <li>– areas within the range of vision, light and sound and the locations and characteristics of the most sensitive receptors;</li> <li>– species habitat areas, usage timing and migratory patterns;</li> <li>– emergency planning and emergency response zones;</li> <li>– the geographic extent of local and regional services;</li> <li>– any impacted local communities, including municipalities;</li> <li>– all potentially impacted Indigenous groups;</li> <li>– areas of known Indigenous land, cultural, spiritual and resource use; and</li> <li>– existing effected infrastructure.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The Study Areas are defined and described in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 6</li> </ul>
7	TISG Section 7.1, page 30	<ul style="list-style-type: none"> <li>The Impact Statement must consider the resilience of relevant species populations, communities and associated habitats to the effects of the Project. Ecological processes should be evaluated for potential susceptibility to adverse effects from the Project. Considerations include patterns and connectivity of habitat patches; continuation of key natural disturbance regimes; structural complexity; hydrogeological or oceanographic patterns; nutrient cycling; abiotic-biotic and biotic interactions; population dynamics, genetic diversity, Indigenous knowledge relevant for the conservation and sustainable use of relevant species populations, communities and associated habitats.</li> </ul>	<ul style="list-style-type: none"> <li>The IA / EA will consider the resilience of relevant populations, communities and associated habitat to the effects of the Project. Ecological processes will be evaluated for potential susceptibility to adverse effects from the Project such as considerations for: patterns and connectivity of habitat patches, continuation of key natural disturbance regimes.</li> </ul>	<ul style="list-style-type: none"> <li>Section 8</li> <li>Section 9</li> </ul>
8	TISG Section 7.1, page 30	<ul style="list-style-type: none"> <li>If the baseline data have been extrapolated or otherwise manipulated to depict environmental, health, social and/or economic conditions within the study area, modelling methods must be described and must include assumptions, calculations of margins of error and other relevant statistical information. Models that are developed should be validated using field data from the appropriate local and regional study areas. Ensure baseline data is representative of project site conditions. If surrogate data from reference sites are used rather than site-specific surveys, the proponent should demonstrate that the data are representative of project site conditions.</li> </ul>	<ul style="list-style-type: none"> <li>We will include details on modeling methods and discuss confidence in using desktop and / or field studies when describing baseline conditions.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> </ul>
9	TISG Section 7.1, page 31	<ul style="list-style-type: none"> <li>Where baseline data are available in geographic information system (GIS) format, this information is to be provided to the Agency as electronic geospatial data file(s) compliant with the ISO 19115 standard. This would support the Government of Canada's commitment to Open Science and Data and would facilitate the sharing of information with the public through the Canadian Impact Assessment Registry Internet Site and the Government's Open Science and Data Platform. The Agency intends to make the geospatial data files available to the public under the terms of the Open Government License – Canada.</li> </ul>	<ul style="list-style-type: none"> <li>Data provided will meet ISO 19115 standards.</li> </ul>	<ul style="list-style-type: none"> <li>Section 8</li> </ul>





ID #	Federal TISG Reference <sup>12</sup>	Requirement / Comment / Concern	Response	Study Plan Reference
10	TISG Section 7.2, pages 31-33	<ul style="list-style-type: none"> <li>■ Information sources and data collection methods used for describing the baseline environmental, health, social and economic setting may consist of the following sources of information. For specific sources of baseline information, see Appendix 1.               <ul style="list-style-type: none"> <li>– Federal government (e.g., Environment and Climate Change Canada, Health Canada, Indigenous Services Canada, Statistics Canada, Women and Gender Equality Canada);</li> <li>– Ontario provincial government (e.g., Ministry of Environment, Conservation, and Parks, Ministry of Natural Resources and Forestry;</li> <li>– Bird Conservation Region plans;</li> <li>– academic institutions;</li> <li>– field studies, including site-specific survey methods;</li> <li>– database searches, including:                   <ul style="list-style-type: none"> <li>– federal, provincial, territorial, municipal and local data banks;</li> <li>– Breeding Bird Atlas - Ontario (2001-2005)</li> <li>– monitoring program databases protected areas, watershed or coastal management plans;</li> <li>– natural resource management plans;</li> <li>– species recovery and restoration plans;</li> <li>– field measurements to gather data on ambient or background levels for air, water, soil and sediment quality, light levels or acoustic environment (soundscape);</li> </ul> </li> <li>– land cover data, including:                   <ul style="list-style-type: none"> <li>• terrestrial ecosystem mapping products;</li> <li>• forest cover maps;</li> <li>• remote sensing resources;</li> <li>• important habitats and features to include:                       <ul style="list-style-type: none"> <li>▪ water bodies, wetlands, watercourses;</li> <li>▪ riparian habitat;</li> <li>▪ river banks or other eroded habitats;</li> <li>▪ artificial water sources;</li> <li>▪ forest, tree patches, solitary trees (especially old decaying trees);</li> <li>▪ forest edges and tree rows;</li> <li>▪ ridges, including eskers;</li> <li>▪ caves and mines;</li> <li>▪ cliffs, rock outcrops, exposed bedrock, talus, and other karst topography;</li> <li>▪ buildings, bridges, and other anthropogenic features, including linear features;</li> <li>▪ sources of artificial lighting attracting insects;</li> <li>▪ critical habitat; and</li> <li>▪ and any other habitat features known to be important in the area.</li> </ul> </li> </ul> </li> </ul> </li> <li>– Published literature, such as peer reviewed journals, reports by think tanks, non-government organizations and government reports;</li> <li>– environmental assessment documentation, including monitoring reports, from prior projects in the area and similar projects outside the area;</li> <li>– regional studies, project assessments and strategic assessments;</li> <li>– renewable harvest data;</li> <li>– Indigenous knowledge, including oral histories and knowledge gathered by spending time on the land with knowledge holders;</li> <li>– community based monitoring and studies conducted by Indigenous communities;</li> <li>– expert, community, public and Indigenous engagement and consultation activities, including workshops, meetings, open houses, surveys;</li> </ul>	<ul style="list-style-type: none"> <li>■ Data sources are being reviewed for their appropriateness and will be included in Study Plans where applicable. Information on specific data sources and their relevance to the Project will be included in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>■ Section 7</li> <li>■ Appendix A</li> </ul>





ID #	Federal TISG Reference <sup>12</sup>	Requirement / Comment / Concern	Response	Study Plan Reference
		<ul style="list-style-type: none"> <li>– qualitative information gathered from interviews, focus groups or observation;</li> <li>– census data;</li> <li>– baseline human health risk assessments;</li> <li>– community and regional economic profiles;</li> <li>– community well-being studies; and</li> <li>– statistical surveys, as applicable.</li> </ul>		
11	TISG Section 7.2, page 32	<ul style="list-style-type: none"> <li>▪ The Impact Statement must provide detailed descriptions of specific data sources, data collection, sampling, survey and research protocols and methods followed for each baseline environmental, health, social and economic condition that is described, in order to corroborate the validity and accuracy of the baseline information collected.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Descriptions of specific data sources, data collection, sampling, survey and research protocols and methods followed for each baseline environmental condition will be provided in the IS / EA Report and are summarized in this Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 7</li> </ul>
12	TISG Section 7.2, page 33	<ul style="list-style-type: none"> <li>▪ If using existing data sources, the Impact Statement must provide justification to show that the data sources are relevant in spatial and temporal coverage to the Project. Some data sources may have good coverage in Southern Ontario or existing road networks but be unsuitable as a baseline for these northern areas where there are not roads.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Data sources are being reviewed for their appropriateness and will be included in Study Plans where applicable. Information on specific data sources and their relevance to the Project will be included in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 7</li> <li>▪ Appendix A</li> </ul>
13	TISG Section 7.2, page 33	<ul style="list-style-type: none"> <li>▪ Consult the Species at Risk Public Registry for information on the list of species at risk and available recovery documents and reference the documents and dates consulted. Ensure the most up to date documents are used and species statuses are up to date.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 9</li> </ul>
14	TISG Section 7.2, page 33	<ul style="list-style-type: none"> <li>▪ Baseline data must be collected in a manner that enables reliable analysis, extrapolations and predictions. Resulting data should be suitable for analyses to estimate pre-project baseline conditions, derive predictions of impacts, and evaluate and compare post-project conditions and at scales of within and across the Project, Local and Regional Assessment areas. Modelling methods, error estimates and assumptions should be reported (as per section 7.1). Modelling and simulations should be used early in the planning phase to estimate the necessary sampling intensity and to quantitatively evaluate the effectiveness of design options. Ethical guidelines and relevant cultural protocols governing research, data collection and confidentiality must be adhered to.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Descriptions of specific data sources, data collection, sampling, survey and research protocols and methods followed for each baseline environmental condition will be provided in the IS / EA Report and are summarized in this Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 7</li> </ul>
15	TISG Section 7.2, page 33	<ul style="list-style-type: none"> <li>▪ Data directly relevant to the area surrounding the Project are limited. With the exception of existing count data that have been collected within the regional study area, the use of existing information sources should be limited to the goals of estimating the species likely to occur in the study areas, and to identifying the potential timing of migration passage (for species that migrate through) or the general dates of breeding (for species that breed in the area).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Data sources are being reviewed for their appropriateness and will be included in Study Plans where applicable. Information on specific data sources and their relevance to the Project will be included in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 7</li> </ul>
16	TISG Section 7.3, page 34	<ul style="list-style-type: none"> <li>▪ The list of valued components must be informed, validated and finalized through engagement with the public, Indigenous groups, lifecycle regulators, jurisdictions, federal authorities, and other interested parties. The Impact Statement must describe valued components, processes, and interactions that are identified to be of concern or that the Agency considers likely to be impacted by the Project and are included in the Guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>▪ A summary of the consultation plan for Indigenous communities, government agencies, and interested persons has been provided in Section 4 of the Study Plan; further details can be found in the IS / EA Consultation Plan included as Appendix B of the Proposed ToR. Specific consultation and engagement activities and schedules are currently in development and will be shared with MECP and The Agency once available.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 4</li> </ul>
17	TISG Section 7.3, pages 34-35	<ul style="list-style-type: none"> <li>▪ In selecting a valued component to be included, the following factors should be considered:               <ul style="list-style-type: none"> <li>– valued component presence in the study area; "</li> <li>– "the extent to which the valued component is linked to the interests or exercise of Aboriginal and Treaty rights of Indigenous peoples, and whether an Indigenous group has requested the valued component;</li> <li>– "the extent to which the effects (real or perceived) of the Project and related activities have the potential to interact with the valued component;</li> <li>– "the extent to which the valued component may be under cumulative stress from other past, existing or future undertakings in combination with other human activities and natural processes;</li> <li>– "the extent to which the valued component is linked to federal, provincial, territorial or municipal government priorities (e.g., legislation, programs, policies);</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ The IS / EA Report will include detailed descriptions of the VCs and the rationale for their inclusion to describe their importance and the predicted residual effects (adverse and positive) as a result of the project.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 9</li> </ul>





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		<ul style="list-style-type: none"> <li>– "the extent to which the valued component is being addressed through any ongoing or completed regional assessment processes;</li> <li>– "the possibility that adverse or positive effects on the valued component would be of particular concern to Indigenous groups, the public, or federal, provincial, territorial, municipal or Indigenous governments; and</li> <li>– whether the potential effects of the Project on the valued component can be measured and/or monitored or would be better ascertained through the analysis of a proxy valued component.</li> </ul>		
18	TISG Section 7.3, page 35	<ul style="list-style-type: none"> <li>▪ The valued components must be described in sufficient detail to allow the reviewer to understand their importance and to assess the potential adverse and positive environmental, health, social and economic effects and impacts arising from the Project activities.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The IS / EA Report will include detailed descriptions of the VCs and the rationale for their inclusion to describe their importance and the predicted residual effects (adverse and positive) as a result of the project.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 9</li> </ul>
19	TISG Section 7.3, page 35	<ul style="list-style-type: none"> <li>▪ For each of the valued components that will be assessed in the Impact Statement, the proponent must create a study plan and a work plan to be validated by the Agency. Upon receipt of a study plan, the Agency may request that the proponent present and discuss the study plan at technical meetings, which will be scheduled during the impact statement phase.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Study Plan meets this requirement. A summary of the technical discussions with agencies have been summarized in Section 3 of the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 3</li> </ul>
20	TISG Section 7.4.1, pages 35-36	<ul style="list-style-type: none"> <li>▪ The Impact Statement must describe the spatial boundaries, including project, local and regional study areas, for each valued component included in assessing the potential adverse and positive environmental, health, social and economic effects of the Project and provide a rationale for each boundary. Spatial boundaries are defined taking into account the appropriate scale and spatial extent of potential effects and impacts of the Project; community knowledge and Indigenous knowledge; current or traditional land and resource use by Indigenous groups; exercise of Aboriginal and Treaty rights of Indigenous peoples, including cultural and spiritual practices; and physical, ecological, technical, social, health, economic and cultural considerations. The size, nature and location of past, present and foreseeable future projects and activities are factors that should be included in the definition of spatial boundaries. It should be noted that in some cases, spatial boundaries might extend to areas outside of Canada. These transboundary spatial boundaries should be identified where transboundary effects are expected.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Study Areas are defined and described in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 6</li> </ul>
21	TISG Section 7.4.1, page 36	<ul style="list-style-type: none"> <li>▪ For valued components establish three study area spatial boundaries to assess impacts to each valued component:               <ol style="list-style-type: none"> <li>1) Project Study Area: defined as the project footprint for each alternative route;</li> <li>2) Local Study Area: defined for each valued component – see below;</li> <li>3) Regional Study Area: defined for each valued component – see below</li> </ol> </li> <li>▪ Provide a rationale for boundaries of the project study area, local study area, and regional study area for each valued component and indicate how the above objectives were met in establishing the boundaries.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Study Areas are defined and described in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 6</li> </ul>
22	TISG Section 7.4.1, page 36	<ul style="list-style-type: none"> <li>▪ For biophysical valued components, spatial boundaries should be defined using an ecosystem-centered approach for the project study area, local study area, and regional study area, as wetlands and eskers are features that are likely to be most affected. Ecoregion boundaries or their derivatives should not be used since the Project occurs on, near and across ecoregion boundaries. See Technical Guidance for Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012 for more guidance on determining spatial boundaries. Delineate spatial boundaries (i.e., regional study area, local study area, and project study area) to meet the following objectives:               <ol style="list-style-type: none"> <li>a. range of land cover types should be representative of the defined spatial extent;</li> <li>b. the spatial pattern of the land cover types should be well distributed across the defined spatial extent (e.g., revise if one or more land cover types is concentrated in one sub-area and uncommon in other parts of the area); and</li> <li>c. low to moderate rate of change in the prevalence of one or more land cover types with increasing distance from the (i.e., to use land cover patterns to constrain the distances within which comparisons should be made).</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>▪ The Study Areas are defined and described in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 6</li> </ul>
23	TISG Section 7.4.2, page 37	<ul style="list-style-type: none"> <li>▪ The temporal boundaries of the impact assessment span all phases of the Project determined to be within the impact assessment. If potential effects are predicted after project decommissioning or abandonment, this should be taken into consideration in defining specific boundaries. In order to assess a project's contribution to sustainability, consideration should be given to the long-term effects on the well-being of present and future generations. When defining temporal boundaries, the proponent should consider how elements of environmental, health, social and economic well-being that local communities, including municipalities, and Indigenous groups identify as being valuable could change over time.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Study Areas are defined and described in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 6</li> </ul>





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24	TISG Section 8.8, page 48	<ul style="list-style-type: none"> <li>The Impact Statement must identify the biodiversity metrics, biotic and abiotic indicators that are used to characterize the baseline biodiversity for fish and marine animals, including the rationale for their selection</li> </ul>	<ul style="list-style-type: none"> <li>Indicators have been identified based on background information, consultation with regulatory agencies, public and indigenous consultation.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
25	TISG Section 8.8, page 48	<ul style="list-style-type: none"> <li>The Impact Statement must provide information on the surveys carried out and the source of data available (e.g., location of sampling stations, catch methods, date of catches, species, catch-per-unit effort);</li> </ul>	<ul style="list-style-type: none"> <li>Descriptions of specific data sources, data collection, sampling, survey and research protocols and methods followed for each baseline environmental condition will be provided in the IS / EA Report and are summarized in this Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> </ul>
26	TISG Section 8.8, page 48	<ul style="list-style-type: none"> <li>The Impact Statement must describe primary and secondary productivity in affected waterbodies with a characterization of biotic interaction, season variability ranges and sensitive periods</li> </ul>	<ul style="list-style-type: none"> <li>Data collection includes both fish (large and small-bodied) and benthic invertebrates. Seasonal variability will be assessed (as described in the Study Plan).</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> </ul>
27	TISG Section 8.8, page 48	<ul style="list-style-type: none"> <li>The Impact Statement must list any aquatic species at risk, including critical habitat, that are known to be present within the study area;</li> </ul>	<ul style="list-style-type: none"> <li>Desktop analysis (including IK information) will identify SAR with the potential to occur in the study areas.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> </ul>
28	TISG Section 8.8, page 48	<ul style="list-style-type: none"> <li>The Impact Statement must describe habitat by mesohabitat (e.g., pool, riffle, run), including the length of the section, width of the channel from the high-water mark (bankfull width), water depths, type of substrate (sediments), aquatic and riparian vegetation. Provide maps and photos;</li> </ul>	<ul style="list-style-type: none"> <li>Descriptions of specific data sources, data collection, sampling, survey and research protocols and methods followed for each baseline environmental condition will be provided in the IS / EA Report and are summarized in this Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> </ul>
29	TISG Section 8.8, page 48	<ul style="list-style-type: none"> <li>The Impact Statement must identify natural obstacles (e.g., falls, beaver dams) or existing structures (e.g., water crossings) that hinder the free passage of fish;</li> </ul>	<ul style="list-style-type: none"> <li>Descriptions of specific data sources, data collection, sampling, survey and research protocols and methods followed for each baseline environmental condition will be provided in the IS / EA Report and are summarized in this Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> </ul>
30	TISG Section 8.8, page 48	<ul style="list-style-type: none"> <li>The Impact Statement must provide a characterization of fish habitat features that may demonstrate the presence of fish species in terms of appropriate habitats—water quality and quantity characteristics, sediment type characteristics, benthic features, prey, shelter, refuge, feeding, spawning habitats, nursery habitats, rearing habitats, overwintering, migration routes and the sensitive times for these activities;</li> </ul>	<ul style="list-style-type: none"> <li>Descriptions of specific data sources, data collection, sampling, survey and research protocols and methods followed for each baseline environmental condition will be provided in the IS / EA Report and are summarized in this Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> </ul>
31	TISG Section 8.8, page 48	<ul style="list-style-type: none"> <li>The Impact Statement must provide written description and maps of primary, secondary and tertiary watersheds and major and minor rivers and lakes;</li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> </ul>
32	TISG Section 8.8, page 48	<ul style="list-style-type: none"> <li>The Impact Statement must provide a description and location of critical habitats for aquatic species at risk that are known to be present within the study area;</li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be provided in the IS/ EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> </ul>
33	TISG Section 8.8, page 49	<ul style="list-style-type: none"> <li>The Impact Statement must describe any existing effects associated with previous or current activities (e.g., angling pressures, commercial fisheries); and</li> </ul>	<ul style="list-style-type: none"> <li>The IS / EA Report will include a discussion of these activities and the identified or and potential effects of these activities to fish and fish habitat, where available and relevant to understanding Project-related effects. Consequential effects on Land and Resource Use and Aboriginal and Treaty Rights and Interests will also be considered in the IS / EA Report. Data on resource use activities will be gathered as described in those referenced Study Plans.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> <li>Land and Resource Use Study Plan</li> <li>Aboriginal and Treaty Rights and Interests Study Plan</li> </ul>
34	TISG Section 8.8, page 49	<ul style="list-style-type: none"> <li>The Impact Statement must identify sensitive habitat areas (e.g., Ecologically and Biologically Sensitive Areas) within the study area.</li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> </ul>
35	TISG Section 8.8, page 49	<ul style="list-style-type: none"> <li>Certain intermittent and ephemeral watercourses or waterbodies may constitute fish habitat or contribute indirectly to fish habitat during a certain period. The absence of fish or water at the time of the survey does not irrefutably indicate an absence of fish and/or fish habitat (e.g., migratory corridor).</li> </ul>	<ul style="list-style-type: none"> <li>All watercourse features will be examined as described in the Study Plan. Justification for considering features as waterbodies and/or fish habitat will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> </ul>





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36	TISG Section 8.11, page 60	<ul style="list-style-type: none"> <li>■ The Impact Statement must provide a list of all species at risk listed under Schedule 1 of the federal Species at Risk Act that may be directly or indirectly effected by the Project. Use existing data and literature as well as surveys to provide current field data that reflects the natural inter-annual and seasonal variability of each species. Species at risk which may inhabit the project area include:               <ul style="list-style-type: none"> <li>– Lake sturgeon (<i>Acipenser fulvescens</i>);</li> <li>– Northern Myotis (<i>Myotis septentrionalis</i>);</li> <li>– Little Brown Myotis (<i>Myotis lucifugus</i>);</li> <li>– Caribou (<i>Rangifer tarandus</i>; Provincial: Missisa, Nipigon, and Pagwachuan ranges; Federal: Far North range);</li> <li>– Rusty Blackbird (<i>Euphagus carolinus</i>);</li> <li>– Bank Swallow (<i>Riparia riparia</i>);</li> <li>– Barn Swallow (<i>Hirundo rustica</i>);</li> <li>– Canada Warbler (<i>Cardellina canadensis</i>);</li> <li>– Chimney Swift (<i>Chaetura pelagica</i>);</li> <li>– Common Nighthawk (<i>Chordeiles mino</i>);</li> <li>– Eastern Whip-poor-will (<i>Antrostomus vociferu</i>);</li> <li>– Evening Grosbeak (<i>Coccothraustes vespertinus</i>);</li> <li>– Olive-sided fly-catcher (<i>Contopus cooperi</i>);</li> <li>– Peregrine Falcon (<i>Falco peregrinus</i>);</li> <li>– Short-eared Owl (<i>Asio flammeus</i>);</li> <li>– Yellow Rail (<i>Coturnicops noveboracensis</i>); and</li> <li>– Wolverine (<i>Gulo gulo</i>);</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>■ Section 7</li> <li>■ Section 8</li> </ul>
37	TISG Section 8.11, page 60	<ul style="list-style-type: none"> <li>■ Collect species at risk data to represent the following temporal sources of variation:               <ul style="list-style-type: none"> <li>– among years;</li> <li>– within and among seasons (e.g., spring dispersal, breeding, late summer/fall migration and swarming, hibernation); and</li> <li>– within the 24 hour daily cycle.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Data (desktop and field-based) will be collected to represent temporal sources of species variation (i.e. among years, among seasons and within 24 periods).</li> </ul>	<ul style="list-style-type: none"> <li>■ Section 7</li> </ul>
38	TISG Section 8.11, page 60	<ul style="list-style-type: none"> <li>■ The Impact Statement must [identify] key habitat associated with species at risk should be considered valued components, including eskers and similar geologic features, wetlands and peatlands;</li> </ul>	<ul style="list-style-type: none"> <li>■ The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>■ Section 7</li> <li>■ Section 8</li> </ul>
39	TISG Section 8.11, page 61	<ul style="list-style-type: none"> <li>■ Contain complete data sets from all survey sites. These should be in the form of complete and quality assured relational databases, with precisely georeferenced site information, precise observation/visit information and with observations and measurements in un-summarized form. Databases and GIS files should be accompanied by detailed metadata that meets ISO 19115 standards;</li> </ul>	<ul style="list-style-type: none"> <li>■ Data provided will meet ISO 19115 standards.</li> </ul>	<ul style="list-style-type: none"> <li>■ Section 8</li> </ul>
40	TISG Section 8.11, page 61	<ul style="list-style-type: none"> <li>■ Account for the fact that rare species will require more survey effort to detect, which should be reflected in survey design by increasing the number and duration of surveys:               <ul style="list-style-type: none"> <li>– collect field data over at least two years. The goal of collecting data over multiple years is to improve the understanding of natural variability in populations. Two years of sampling is being suggested as a minimum. As the number of sampling years increases so does the understanding of natural variability;</li> <li>– Sample size must be planned to support a robust evaluation of the project study area within the context of the local study area and regional study area;</li> <li>– Design of surveys will need to consider multiple number of survey locations in order to represent the habitat heterogeneity of the regional study area, and to plan the number of survey locations per land cover or habitat class so that aggregation of habitat classes post-hoc is not required;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Studies to characterize the baseline conditions are described in this Study Plan and took into account Lake Sturgeon, selected as an indicator species. Field studies specifically targeting Lake Sturgeon are not proposed. Field assessments are conducted at a subset of crossings, and a subset of these are repeated between years and/or seasons to understand seasonal and annual variability. Sites were selected to characterize habitat types on a scaled approach and at representative waterbodies, taking into account the scope of work of the project and likely extent of project components and footprint.</li> </ul>	<ul style="list-style-type: none"> <li>■ Section 7</li> </ul>





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		<ul style="list-style-type: none"> <li>– In terms of sampling effort per unit area, field survey effort should be most intensive within the project study area. The level of effort per unit area may be similar or somewhat less within the remainder of the local study area but should be scaled to the likelihood that project effects will impact species at risk within that zone. Efforts outside the project study area should be carefully designed to ensure that estimates comparing and across the project study area, local study area and regional study area are unbiased and precise;</li> <li>– A habitat-stratified random sampling approach should be used. Sample sites should be selected with a randomization procedure such as a GIS grid overlay; and</li> <li>– Where Critical Habitat has not been defined or has been partially identified, a Schedule of Studies may have been created to identify gaps in information for these species. The Schedule of Studies information should be referred to when implementing or assessing survey protocols, in order to provide necessary information for these species.</li> </ul>		
41	TISG Section 8.11, page 61	<ul style="list-style-type: none"> <li>▪ Ensure that, at minimum, the combined information from existing data and field surveys must be able to describe the distribution and abundance of species at risk in relation to the study areas;</li> </ul>	<ul style="list-style-type: none"> <li>▪ Field surveys, desktop analysis and delineation of potential suitable habitat within the PDA, will be used to identify the potential occupancy of Lake Sturgeon.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 7</li> </ul>
42	TISG Section 8.11, page 61	<ul style="list-style-type: none"> <li>▪ Provide documentation and digital files for all results of analyses that allow for a clear understanding of the methods and a replication of the results (raw scripts or workflows are preferred in place of descriptive documentation);</li> </ul>	<ul style="list-style-type: none"> <li>▪ The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 7</li> <li>▪ Section 8</li> </ul>
43	TISG Section 8.11, page 64	<ul style="list-style-type: none"> <li>▪ For the species identified:               <ul style="list-style-type: none"> <li>– provide any published studies that describe the regional importance, abundance and distribution of species at risk, including recovery strategies or plans; "</li> <li>– consult relevant published studies that describe suitable survey methodologies for caribou and wolverine based on winter track observations including but not limited to:                   <ul style="list-style-type: none"> <li>• caribou resource selection probability functions describing the probability of resource use at the range scale (see Hornseth &amp; Rempel 2016);</li> <li>caribou, moose, and wolf occupancy models describing their distribution in the far north (see Poley et al. 2014); and</li> <li>wolverine occupancy models describing the distribution of wolverine in the far north (see Ray et al. 2018).</li> </ul> </li> <li>– provide data and summary lists for each species at risk ranked according to:                   <ul style="list-style-type: none"> <li>• abundance; "</li> <li>• distribution across survey sites (i.e., percentage of survey stations at which they were recorded);</li> <li>• abundance in each habitat type; and</li> <li>• map showing areas of highest concentrations or areas of use by species.</li> </ul> </li> <li>– data must be supplemented by surveys, as required;</li> <li>– survey protocols should optimize detectability and survey effort should provide for comprehensive coverage at the appropriate time of year (e.g., survey breeding habitat during breeding season, stopover habitat during migration);</li> <li>– survey protocols should provide a rationale for the scope of and the methodology used for surveys including design, sampling protocols and data manipulation; and</li> <li>– where using recognized standards, provide details of any modifications to the recommended methods and rationale for these modifications and indicate who was consulted in the development of the baseline surveys (e.g., federal/provincial wildlife experts, specialists and local Indigenous groups).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Existing information pertaining to the James Bay / Hudson Bay population of Lake Sturgeon (Special Concern) such as COSEWIC and COSSARO status reports will inform the known distribution and abundance of Lake Sturgeon in the area.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 7</li> <li>▪ Section 8</li> </ul>
44	TISG Section 8.11, page 65	<ul style="list-style-type: none"> <li>▪ Identify and map all species at risk, critical habitat, and residences on federal land within the project study area and local study area (provincial and/or local government authorities should be contacted to determine any additional data sources and survey methodologies)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Existing information pertaining to the James Bay/Hudson Bay population of Lake Sturgeon (Special Concern) such as COSEWIC and COSSARO status reports will inform the known distribution and abundance of Lake Sturgeon in the area.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 7</li> <li>▪ Section 8</li> </ul>
45	TISG Section 8.11, page 65	<ul style="list-style-type: none"> <li>▪ The project study area and local study area, as defined above for each valued component, constitutes the appropriate scale.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Study Areas are defined and described in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 6</li> </ul>







ID #	Federal TISG Reference <sup>12</sup>	Requirement / Comment / Concern	Response	Study Plan Reference
46	TISG Section 8.11, page 65	<ul style="list-style-type: none"> <li>The Impact Statement must provide a list of all provincially listed protected species at risk and species assessed by the COSEWIC that have the status of extirpated, endangered, threatened or of special concern and that may be directly or indirectly effected by the Project. Use existing data and literature as well as surveys to provide current field data that reflects the natural inter-annual and seasonal variability;</li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> </ul>
47	TISG Section 8.11, page 65	<ul style="list-style-type: none"> <li>Provide information and/or mapping at an appropriate scale (The project study area and local study area, as defined above for each valued component, constitute the appropriate scale) for residences, seasonal movements, movement corridors, habitat requirements, key habitat areas, identified or proposed Critical Habitat and/or recovery habitat (where applicable). Describe the general life history of species at risk (e.g., breeding, foraging) that may occur in the project area, or be affected by the Project;</li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> </ul>
48	TISG Section 13, pages 80-83	<ul style="list-style-type: none"> <li>This section of the TISG describes the methodology for the effects assessment, including definitions of scope, severity, and irreversibility.</li> </ul>	<ul style="list-style-type: none"> <li>This information will be included in the IS / EA Report and is summarized in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
49	TISG Section 14.3, page 88	<ul style="list-style-type: none"> <li>The Impact statement must describe how hydrological or drainage changes may disturb soils, wetlands, peatlands or muskeg and result in the release of mercury or methylmercury from disturbed soils, which may affect water and groundwater quality, fish, wildlife and human health;</li> </ul>	<ul style="list-style-type: none"> <li>The project will be designed to minimize or avoid changes in water flow and/or drainage - further information is available in the Surface Water Study Plan. Fish tissue contamination surveys have not been completed, nor are they proposed. Details regarding potential bioaccumulation of contaminants and consumption by Indigenous groups will be discussed in the Human Health and Community Safety Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Human Health and Community Safety Study Plan</li> <li>Surface Water Study Plan</li> </ul>
50	TISG Section 15.1, Page 90	<ul style="list-style-type: none"> <li>The Impact Statement must describe any direct, incidental or cumulative predicted positive and/or adverse effects to fish (all developmental stages) and fish habitat as defined in subsection 2(1) of the Fisheries Act, including the calculations of any potential habitat loss (temporary or permanent) including spawning grounds, nursery, rearing, food supply, and migration areas, or death of fish.</li> </ul>	<ul style="list-style-type: none"> <li>The effects assessment will consider area of habitat alteration, disturbance and/or destruction.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9.4, Section 9.5</li> </ul>
51	TISG Section 15.1, Page 90	<ul style="list-style-type: none"> <li>The assessment must include a consideration of the geomorphological changes and their effects to hydrodynamic conditions and fish habitats (e.g., modification of substrates, dynamic imbalance, silting of spawning beds);</li> </ul>	<ul style="list-style-type: none"> <li>The project will be designed to minimize or avoid changes in water flow and/or drainage - further information is available in the Surface Water Study Plan. The effects assessment will consider area of habitat alteration, disturbance and/or destruction.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9.4</li> <li>Section 9.5</li> </ul>
52	TISG Section 15.1, Page 90	<ul style="list-style-type: none"> <li>The assessment must include a consideration of the modifications of hydrological, and hydrometric conditions on fish habitat, critical habitat for aquatic species at risk, and on the fish species' life cycle activities (e.g., reproduction, fry-rearing, migration);</li> </ul>	<ul style="list-style-type: none"> <li>The project will be designed to minimize or avoid changes in water flow and/or drainage (including potential changes in water quality) - further information is available in the Surface Water Study Plan. The effects assessment will consider area of habitat alteration, disturbance and/or destruction.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9.4</li> <li>Section 9.5</li> </ul>
53	TISG Section 15.1, Page 90	<ul style="list-style-type: none"> <li>The assessment must include a consideration of potential effects to riparian areas that could affect aquatic biological resources and productivity taking into account any anticipated modifications to fish habitat (e.g., structure, cover);</li> </ul>	<ul style="list-style-type: none"> <li>Changes in fish habitat as a result of direct and indirect effects will be assessed as part of the IA / EA, including calculation of the loss of riparian habitat as a result of water crossing structure footprint. The potential effects to fish and fish habitat as a result of the Project will be included in the assessment.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
54	TISG Section 15.1, Page 90	<ul style="list-style-type: none"> <li>The assessment must include a consideration of describe effects to fish biodiversity considering identified biodiversity metrics</li> </ul>	<ul style="list-style-type: none"> <li>Biodiversity metrics for the Fish and Fish Habitat VC will consider:               <ul style="list-style-type: none"> <li>Distribution in space;</li> <li>Frequency of occurrence;</li> <li>Patterns of occurrence and abundance in time;</li> <li>Abundance and, if possible, density; and</li> <li>Associate habitat types and strength of associations.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
55	TISG Section 15.1, Page 90	<ul style="list-style-type: none"> <li>The assessment must include a consideration of any potential imbalances in the food web and trophic levels in relation to baseline conditions;</li> </ul>	<ul style="list-style-type: none"> <li>Potential changes in food webs will be considered qualitatively through examination of changes in biodiversity.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>



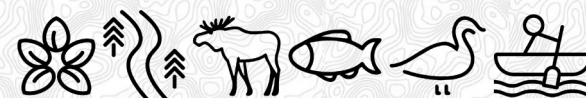


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56	TISG Section 15.1, Page 90	<ul style="list-style-type: none"> <li>The assessment must include a consideration of effects to the primary and secondary productivity of water bodies and how project-related effects may affect fish food sources;</li> </ul>	<ul style="list-style-type: none"> <li>Potential changes in food webs will be considered qualitatively through examination of changes in biodiversity.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
57	TISG Section 15.1, page 90	<ul style="list-style-type: none"> <li>The assessment must include a consideration of potential for direct effects of contamination downstream of the Project on fish and bioaccumulation of contaminants (e.g., selenium, mercury, chromium, arsenic) in fish that may be consumed by Indigenous groups;</li> </ul>	<ul style="list-style-type: none"> <li>Fish tissue contamination surveys have not been completed, nor are they proposed. Details regarding potential bioaccumulation of contaminants and consumption by Indigenous groups will be discussed in the Human Health and Community Safety VC Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Human Health and Community Safety Study Plan</li> </ul>
58	TISG Section 15.1, Page 90	<ul style="list-style-type: none"> <li>The assessment must include a consideration of potential direct and incidental effects on fish behaviour, distribution, abundance, migration patterns; and "</li> </ul>	<ul style="list-style-type: none"> <li>Potential direct or indirect effects, if any, as a result of changes to fish habitat will be considered in the IA / EA. If this potential for residual effect is identified, a qualitative discussion will be included.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
59	TISG Section 15.1, Page 90	<ul style="list-style-type: none"> <li>The assessment must include a consideration of potential losses of individuals and relationship to population density and the resiliency of a population.</li> </ul>	<ul style="list-style-type: none"> <li>Potential direct or indirect effects, if any, that result in changes in population density and/or productivity will be considered in the IA / EA. If this potential for residual effect is identified, a qualitative discussion will be included.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
60	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>The Impact Statement must describe the effects of changes to the aquatic environment on fish and fish habitat, including the anticipated changes in the composition and characteristics of the populations of various fish species, especially those of cultural significance to Indigenous communities with traditional land use practices in the area and provincially or federally listed aquatic species at risk;</li> </ul>	<ul style="list-style-type: none"> <li>Changes in fish habitat as a result of direct and indirect effects will be assessed as part of the IA / EA, including calculation of the loss of riparian habitat as a result of water crossing structure footprint. For the purpose of the IA / EA, indicator species were selected based on several factors such as local/cultural significance, economic and social significance, rarity and ecological significance.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
61	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>identify any reduction in fish populations as a result of potential overfishing due to increased access to the project area; "</li> </ul>	<ul style="list-style-type: none"> <li>Effects on fish populations, outside of direct project activities (such as increased fishing pressure) will be considered in the IA / EA. Further information can be found in the Land and Resource Use Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> <li>Land and Resource Use Study Plan</li> </ul>
62	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>contaminant levels in harvested species and their prey; and</li> </ul>	<ul style="list-style-type: none"> <li>Fish tissue contamination surveys have not been completed, nor are they proposed. Details regarding potential bioaccumulation of contaminants and consumption by Indigenous groups will be discussed in the Human Health and Community Safety VC Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Human Health and Community Safety Study Plan</li> </ul>
63	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>describe any modifications and use of habitats, including the ability to access the habitat. "</li> </ul>	<ul style="list-style-type: none"> <li>The effects assessment will consider area of habitat alteration, disturbance and/or destruction. The project will be designed to minimize or avoid changes in water flow and / or drainage (including consequential effects to fish movement) - further information is available in the Surface Water Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> <li>Surface Water Study Plan</li> </ul>
64	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>include a discussion of how project construction timing correlates to key fisheries timing windows for freshwater and anadromous/catadromous species, and any potential effects resulting from overlapping periods;</li> </ul>	<ul style="list-style-type: none"> <li>The potential residual effects, if any following implementation of avoidance and mitigation measures such as timing windows and as a result of construction activities including the potential effects from overlap of in-water work during sensitive periods will be described in the effects assessment.</li> </ul>	<ul style="list-style-type: none"> <li>Section 8</li> <li>Section 9</li> </ul>
65	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>a discussion of how vibration caused by project activities (e.g., blasting) may affect fish habitat and behaviour, such as spawning or migrations;</li> </ul>	<ul style="list-style-type: none"> <li>The potential residual effects, if any following implementation of avoidance and mitigation measures (such as DFO Guidelines for Blasting In or Near Canadian Fisheries Waters) and as a result of construction activities including vibration and blasting will be described in the effects assessment. This includes temporary disturbance potential effects on fish behaviour such as from blasting activities if this potential disturbance cannot be avoided.</li> </ul>	<ul style="list-style-type: none"> <li>Section 8</li> <li>Section 9</li> </ul>





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66	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>describe potential effects from impingement and entrainment of fish and other aquatic biota through water withdrawal;</li> </ul>	<ul style="list-style-type: none"> <li>The potential residual effects as a result of dewatering activities, if any following avoidance and mitigation measures, will be discussed. The project will be designed to avoid or minimize such effects.</li> </ul>	<ul style="list-style-type: none"> <li>Section 8</li> <li>Section 9</li> </ul>
67	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>describe any need for an Fisheries Act authorization and/or a Species at Risk Act permit and describe any consideration of Department of Fisheries and Oceans guidance documents; "</li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>No reference</li> </ul>
68	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>for linear projects, describe and justify watercourse-crossing techniques to be used and the criteria for determining the techniques proposed for each watercourse-crossing;</li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>No reference</li> </ul>
69	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>include a risk assessment of the potential introduction and intrusion of aquatic invasive species; "</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation measures to limit the spread and / or introduction of invasive species will be considered in the IA / EA.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9.5</li> </ul>
70	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>describe effects from changes in light level;</li> </ul>	<ul style="list-style-type: none"> <li>Potential direct or indirect effects, if any, as a result of changes to fish habitat will be considered in the IA / EA. If this potential for residual effect is identified, a qualitative discussion will be included.</li> </ul>	<ul style="list-style-type: none"> <li>Section 8</li> <li>Section 9</li> </ul>
71	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>The Impact Statement must describe any positive changes, such as habitat creation;</li> </ul>	<ul style="list-style-type: none"> <li>The IA / EA will assess the potential negative, neutral and positive residual effects of the project.</li> </ul>	<ul style="list-style-type: none"> <li>Section 8</li> <li>Section 9</li> </ul>
72	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>describe the anticipated changes in the composition and characteristics of the populations of fish, following modifications to the aquatic environment, including but not limited to:               <ul style="list-style-type: none"> <li>– disruption of life stages or habitat with regard to their productivity, life cycles, migration, or local movements, including a consideration of spawning, rearing, feeding, and overwintering;</li> <li>– disruption of feeding activities of fish;</li> <li>– distribution and abundance of fish;</li> <li>– contaminant levels in harvested species and their prey;</li> <li>– a consideration of a change in: behavior, displacement, access to habitat, habitat structure, species composition, ecosystem structure and function and habitat quality; and</li> <li>– freshwater animal health and condition. "</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Potential direct or indirect effects, if any, that result in changes in population density and/or productivity, behaviour, community composition and ecological integrity, will be considered in the IA / EA. If this potential for residual effect is identified, a qualitative discussion will be included.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> <li>Section 9</li> </ul>
73	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>describe any effects to other aquatic organisms; and</li> </ul>	<ul style="list-style-type: none"> <li>Data collection includes both fish (large and small-bodied) and benthic invertebrates. Potential direct or indirect effects to aquatic organisms beyond fish and benthic invertebrates, if any, will be qualitatively discussed in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> <li>Section 9</li> </ul>
74	TISG Section 15.1, Page 91	<ul style="list-style-type: none"> <li>describe any changes to aquatic plants, including all benthic and detached algae and phytoplankton</li> </ul>	<ul style="list-style-type: none"> <li>Aquatic plant and algal surveys have not been completed, nor are they proposed. Potential direct or indirect effects to aquatic plants and algae, if any, will be qualitatively discussed in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> <li>Section 9</li> </ul>
75	TISG Section 15.1, page 91	<ul style="list-style-type: none"> <li>describe any modifications in migration, local movements (e.g., upstream and downstream migration, and lateral movements) or stranding of fish, following the construction, operation or closure of works (e.g., physical, chemical and hydraulic barriers to fish passage);</li> </ul>	<ul style="list-style-type: none"> <li>The project will be designed to minimize or avoid changes in water flow and/or drainage (including consequential effects to fish movement) - further information is available in the Surface Water Study Plan. If this potential for residual effect is identified, a qualitative discussion will be included.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> <li>Surface Water Study Plan</li> </ul>
76	TISG Section 15.4, page 100	<ul style="list-style-type: none"> <li>provide an account of how the project and mitigation measures are consistent with the recovery strategy, action plan, or management plan for the species.</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation measures will be informed by best management practices, applicable resource management and/or recovery plan, Indigenous input, and industry standards.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9.5</li> </ul>





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77	TISG Section 15.4, page 95	<ul style="list-style-type: none"> <li>The Impact Statement must:               <ul style="list-style-type: none"> <li>describe the potential direct, incidental and cumulative adverse effects of the project on species at risk listed under Schedule 1 of the Species at Risk Act and, where applicable, its critical habitat (including its extent, availability and presence of biophysical attributes);</li> <li>analyses predicted effects for each species at risk. To fully understand the effects and/or benefits of one alternative versus another, all relevant metrics and evaluators for species at risk should be considered;</li> <li>include separate analyses for each project activity, component, and phase;</li> <li>consider potential effects to species at risk from bioaccumulation and biomagnification of contaminants of dust and other pollutants resulting from the project; and conduct post-construction surveys to verify predicted effects.</li> <li>conduct post-construction surveys to verify predicted effects.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Effects to SAR will consider potential direct, incidental and cumulative adverse effects of the Project on SAR and, where applicable, its critical habitat. A thorough list of impact management measures including offsetting and compensation as necessary that will be employed by the Project will be included in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
78	TISG Section 15.4, page 99	<ul style="list-style-type: none"> <li>clearly identify the locations of federal lands/non-federal lands within the study area and differentiate between these land tenures in the presentation of information regarding all species at risk. For example, total habitat disturbance for boreal caribou should be presented at the range scale, but it should also be presented in a way that clearly indicates habitat disturbance specifically within federal lands;</li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>No reference</li> </ul>
79	TISG Section 15.4, page 99	<ul style="list-style-type: none"> <li>identify critical timing windows (e.g., denning, rutting, spawning, calving, breeding, roosting), setback distances, or other restrictions related to these species;</li> </ul>	<ul style="list-style-type: none"> <li>Critical timing windows (e.g., spawning and in-water work, denning, breeding, roosting), setback distances, or other restrictions that will be imposed or followed will be considered in assessing predicted effects.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
80	TISG Section 15.4, page 99	<ul style="list-style-type: none"> <li>identify provincial, territorial or federal permits or authorizations that may be required in relation to the species at risk;</li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>No reference</li> </ul>
81	TISG Section 15.4, page 99	<ul style="list-style-type: none"> <li>describe the potential adverse effects of the Project on species protected by provincial statutes and assessed by the COSEWIC as extirpated, endangered, threatened or of special concern (flora and fauna) and their habitat that are not currently listed under the Species at Risk Act;</li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be provided in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>No reference</li> </ul>
82	TISG Section 15.4, page 99	<ul style="list-style-type: none"> <li>provide survey results and detailed mapping of each species at risk and their habitat, including important habitat features, for all federal lands;</li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be provided in the IS / EA Report, if applicable.</li> </ul>	<ul style="list-style-type: none"> <li>No reference</li> </ul>
83	TISG Section 15.4, page 99	<ul style="list-style-type: none"> <li>describe the residual effects that are likely to result from the project after avoidance and minimization measures have been applied, including the extent, duration and magnitude of the effects on:               <ul style="list-style-type: none"> <li>the number of individuals killed, harmed, harassed; and</li> <li>the number of residences damaged or destroyed.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Potential direct or indirect effects, if any, that result in changes in population density and habitat, will be considered in the IA / EA. If this potential for residual effect is identified, a qualitative discussion will be included.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
84	TISG Section 15.4, page 99	<ul style="list-style-type: none"> <li>describe all feasible measures that will be taken to avoid or lessen the impact of the Project on the species and its critical habitat;</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation measures will be informed by best management practices, applicable resource management and/or recovery plan, Indigenous input, and industry standards.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9.5</li> </ul>
85	TISG Section 15.4, page 99	<ul style="list-style-type: none"> <li>describe all reasonable alternatives to the Project that would avoid the potential effects on species and their habitat, with particular attention to critical habitat, and important habitats such as upland habitat which is used as movement corridors by caribou, breeding areas for birds, and which contains roosting habitat for bats;</li> </ul>	<ul style="list-style-type: none"> <li>The reasonable alternatives that were or are considered to the project will be described, rationalized and evaluated by several criteria, which may include species at risk.</li> </ul>	<ul style="list-style-type: none"> <li>No reference</li> </ul>
86	TISG Section 15.4, page 99	<ul style="list-style-type: none"> <li>Describe the area, biophysical attributes and location of habitat including critical habitat affected (e.g., destroyed, permanently altered, disrupted); describe all feasible measures that would be taken to eliminate the effects of the work or activity on species and their habitats, including critical habitat; and</li> </ul>	<ul style="list-style-type: none"> <li>The IS / EA Report will describe the biophysical attributes and locations of habitat and outline measures that will be used to avoid or limit effects on habitat.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Section 8</li> <li>Section 9</li> </ul>
87	TISG Section 15.4, page 99	<ul style="list-style-type: none"> <li>demonstrate that avoidance and minimization measures will be applied for species at risk. Recovery Strategies will provide information such as Population and Distribution Objectives, and Strategic Direction for recovery;</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation measures will be informed by best management practices, applicable resource management and/or recovery plan, Indigenous input, and industry standards.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9.5</li> </ul>





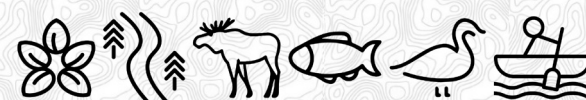
ID #	Federal TISG Reference <sup>12</sup>	Requirement / Comment / Concern	Response	Study Plan Reference
88	TISG Section 16.1, Page 103	<ul style="list-style-type: none"> <li>With respect to biophysical determinants of health, the Impact Statement must provide an assessment of adverse and positive effects on human health in current and future availability (including contamination/quality) of country foods (i.e., food that is trapped, fished, hunted, harvested or grown for subsistence, cultural or medicinal purposes)</li> </ul>	<ul style="list-style-type: none"> <li>Fish tissue contamination surveys have not been completed, nor are they proposed. Details regarding potential bioaccumulation of contaminants and consumption by Indigenous groups will be discussed in the Human Health and Community Safety VC Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Human Health and Community Safety VC Study Plan</li> </ul>
89	TISG Section 17.3, page 108	<ul style="list-style-type: none"> <li>The Impact Statement must:               <ul style="list-style-type: none"> <li>describe effects to navigable waterways, including to physical characteristics (e.g., width, depth, etc.), bank/bottom features, biological components, flow/tides, etc.;</li> <li>describe ancillary project components that will be constructed in, on, under, over, through or across navigable waterways to support the Project;</li> <li>describe potentially affected waterway users and describe consultation with waterway users and Indigenous groups regarding navigational use, issues raised and how issues were addressed; and</li> <li>describe project effects to navigation and navigation safety, including potential obstructions to navigation (natural/man-made, other works, navigation aids, etc.).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The project will be designed to minimize or avoid changes in water flow and/or drainage (including consequential effects to navigation) - further information is available in the Surface Water Study Plan. If this potential for residual effect is identified, a qualitative discussion will be included.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> <li>Surface Water Study Plan</li> </ul>
90	TISG Section 20, page 119-128	<ul style="list-style-type: none"> <li>Section 20 of the TISG describes the requirements around mitigation and enhancement measures that must be considered in the Impact Statement.</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation measures will be informed by best management practices, applicable resource management and/or recovery plans, Indigenous input, and industry standards.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9.5</li> </ul>
91	TISG Section 21, pages 129-130	<ul style="list-style-type: none"> <li>Section 21 of the TISG describes the requirements and guidance associated with determining residual effects.</li> </ul>	<ul style="list-style-type: none"> <li>Residual effects will be assessed in the IA / EA.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
92	TISG Section 26, Page 141	<ul style="list-style-type: none"> <li>Section 26 of the TISG includes a description of the considerations for developing a follow-up program for environmental, health, social or economic effects, as applicable.</li> </ul>	<ul style="list-style-type: none"> <li>The IS / EA Report will include descriptions of follow up programs, as required by VC.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>





**Table 11-2: Study Plan Provincial Concordance – Conformance with Requirements**

ID	Comment From Regulatory Agency	Comment Type	Requirement / Comment / Concern	Response	Study Plan Reference
1	MECP	<ul style="list-style-type: none"> <li>Completeness Review Memorandum compiled from MECP emails and August 2019 meetings with MECP and ENDM</li> </ul>	<ul style="list-style-type: none"> <li>Study areas are missing and lack clarity – maps show study area for 4 routes even though only 2 (or 1?) routes are proposed to be assessed; no indication of local and regional study areas for each environmental component (e.g. ground water, surface water, caribou, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>The Study Areas are defined and described in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 6</li> </ul>
2	MECP	<ul style="list-style-type: none"> <li>Completeness Review Memorandum compiled from MECP emails and August 2019 meetings with MECP and ENDM</li> </ul>	<ul style="list-style-type: none"> <li>In the identification of alternative methods, the Environmental Assessment should document consideration of methods including an assessment of potential impacts to species at risk and their respective habitats and identify methods that can avoid or minimize potential impacts to individuals of the species and all categories or protected habitat to the extent possible.</li> </ul>	<ul style="list-style-type: none"> <li>Potential effects to SAR and their habitats will be included in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
3	MECP	<ul style="list-style-type: none"> <li>Completeness Review Memorandum compiled from MECP emails and August 2019 meetings with MECP and ENDM</li> </ul>	<ul style="list-style-type: none"> <li>For each potential impact to species at risk or their habitat, measures will have to be identified to first avoid any adverse effects and in cases where there are no practical or feasible alternatives, identify measures that minimize or mitigate the adverse effects. Such measures may be general, site-specific, or activity-specific in nature. For caribou, the province has developed Best Management Practices (BMPs) for some sectors to provide guidance to avoid, minimize or mitigate adverse effects to the species and their habitat. Where possible, it is always preferential to avoid, given that if any adverse impacts exist, the associated activities would require authorization under the ESA.</li> </ul>	<ul style="list-style-type: none"> <li>The IS / EA Report will identify suitable impact management measures to avoid, eliminate or minimize potential effects of the Project, including potential effects SAR.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
4	MECP	<ul style="list-style-type: none"> <li>Completeness Review Memorandum compiled from MECP emails and August 2019 meetings with MECP and ENDM</li> </ul>	<ul style="list-style-type: none"> <li>MECP recommends that the EA contain commitments to monitoring to verify the expected effects of the proposed undertaking on species at risk and their habitat and to determine if additional impact mitigation measures or adjustments to any measures are required. Monitoring methodology for these species and their habitat should be included in the monitoring plan developed as part of the EA. If impact management measures are proposed, monitoring of the effectiveness of these measures should be included in the monitoring plan. The monitoring plan should include steps the proponent will take if impact management measures are not effective (e.g. application of additional impact management measures, changing how and where the activity will be performed, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>The IS / EA Report will include a monitoring framework to verify the prediction of effects and the effectiveness of the impact management measures implemented, including those related to SAR and their habitat.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
5	MECP	<ul style="list-style-type: none"> <li>Completeness Review Memorandum compiled from MECP emails and August 2019 meetings with MECP and ENDM</li> </ul>	<ul style="list-style-type: none"> <li>In addition to land use policy, any resource management direction for the study area including forest management plans and fisheries management plans/objectives should be reviewed and considered.</li> </ul>	<ul style="list-style-type: none"> <li>Applicable resource management plans will be reviewed and considered in the IA / EA.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> </ul>
6	MECP	<ul style="list-style-type: none"> <li>Completeness Review Memorandum compiled from MECP emails and August 2019 meetings with MECP and ENDM</li> </ul>	<ul style="list-style-type: none"> <li>The proposed all-season road will enable access to areas that previously have been essentially inaccessible to mechanized travel except during the winter. The creation of new access can result in impacts on fish and wildlife populations (e.g., due to new or increased hunting pressure), “remoteness” and remote or “wilderness” recreation / tourism experiences, among other effects. The MNRF will consider the effects of creating new access when making decisions to issue authorizations under legislation administered by MNRF.</li> </ul>	<ul style="list-style-type: none"> <li>Effects to wildlife and fish populations from the creation of new access and recreational opportunities will be considered in the IA / EA. Additional information can be found in the Land and Resource Use VC Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9; Resource Use VC Study Plan</li> </ul>
7	MECP	<ul style="list-style-type: none"> <li>Completeness Review Memorandum compiled from MECP emails and August 2019 meetings with MECP and ENDM</li> </ul>	<ul style="list-style-type: none"> <li>There are numerous water crossings associated with the new road proposal which will require authorization under the PLA by the MNRF. To facilitate MNRF decisions regarding water crossings, the project proposal should include the location and details of all water crossings (drainage areas, width, depth, fish species present, habitat, substrate, approach slopes, shoreline vegetation), and details regarding watercrossing structures (culverts, bridges [bridges must be approved by an engineer]). The proposal should also clearly identify potential impact to fish and aquatic ecosystems that may result from the construction and installation of crossings (impacts to beds, shoreline, water quality, etc.), oil leaks into waterways, et. and how these impacts will be avoided or mitigated. Decommissioning and/or rehabilitation of water crossings associated with the existing winter road should also be addressed.</li> </ul>	<ul style="list-style-type: none"> <li>The IS / EA Report will characterize baseline conditions and assess potential effects of the Project on fish and fish habitat, including construction of watercourse crossings and accidental leaks or spills. Potential interactions between the project and the environment will be considered for all phases of the Project. Impact management measures will be recommended to avoid, eliminate or minimize potential effects of the Project. It is anticipated that mitigation will include measures to decommission and rehabilitate watercourse crossings.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7 and Section 9</li> </ul>





ID	Comment From Regulatory Agency	Comment Type	Requirement / Comment / Concern	Response	Study Plan Reference
8	MECP	<ul style="list-style-type: none"> <li>Completeness Review Memorandum compiled from MECP emails and August 2019 meetings with MECP and ENDM</li> </ul>	<ul style="list-style-type: none"> <li>When considering the effects of a proposal on fish, fish habitat and aquatic environment, MNRF requires information describing the fish and aquatic communities (e.g., species composition, description of habitats), physical habitat parameters (e.g., thermal regime, flow regimes, substrate), existing human use of the resource (e.g., commercial, recreational or Aboriginal fisheries), and sufficient details describing the proposal to understand the potential impacts that it will have on fisheries and aquatic resources (e.g., structure type and location, construction dates). This assessment should also include consideration of the potential impacts that may result from improved access to currently remote fisheries.</li> </ul>	<ul style="list-style-type: none"> <li>The effects assessment will be based on existing information, field data collected during previous studies, and the results of field studies undertaken in support of the Project. Further information is provided in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7 and Section 9</li> </ul>
9	MECP	<ul style="list-style-type: none"> <li>Completeness Review Memorandum compiled from MECP emails and August 2019 meetings with MECP and ENDM</li> </ul>	<ul style="list-style-type: none"> <li>There are likely a number of species that are considered provincially rare which occur within and adjacent to the proposed road corridor. The MNRF encourages using the best conservation measures available to protect these species.</li> </ul>	<ul style="list-style-type: none"> <li>Potential effects to SAR and their habitats will be included in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
10	MECP	<ul style="list-style-type: none"> <li>Completeness Review Memorandum compiled from MECP emails and August 2019 meetings with MECP and ENDM</li> </ul>	<ul style="list-style-type: none"> <li>Project planning should consider the potential introduction and establishment of invasive species via construction and use of the road, impacts that could result, and measures that will be taken to avoid or minimize their spread and resultant negative environmental effects.</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation measures to limit the spread and / or introduction of invasive species will be considered in the IA / EA.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9.5</li> </ul>
11	MECP	<ul style="list-style-type: none"> <li>Completeness Review Memorandum compiled from MECP emails and August 2019 meetings with MECP and ENDM</li> </ul>	<ul style="list-style-type: none"> <li>2.2 Fisheries               <ul style="list-style-type: none"> <li>Potential impacts to fisheries within the numerous waterbodies and their tributaries that the road will cross is a major environmental concern within the context of MNRF's mandate, as well as a significant social and cultural concern for the communities who traditionally fish in the area of the proposed road. Information on fisheries present along the corridor options is general (i.e., not crossing-specific) and prepared using desktop information. Fisheries field work should be conducted to confirm desktop assumptions about fish communities and provide species-specific information on sensitive areas such as spawning sites. From a social perspective, MNRF is aware that some Marten Falls First Nation members may have concerns regarding the creation of new access for recreational anglers and harvesters from other communities and resultant increased harvest of fish on which Marten Falls First Nation relies for major component of its diet. An analysis of the potential impacts to food security as related to fisheries (and wildlife from potentially increased hunting pressure) and how anticipated negative effects may be mitigated should be presented.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The effects assessment will be based on existing information, field data collected during previous studies, and the results of field studies undertaken in support of the Project. Further information is provided in the Study Plan.</li> <li>We will also solicit and consider input from Indigenous communities. Please review the Land and Resource Use VC Study Plan for further information on resource use effects assessment.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7 and Section 9</li> <li>Land and Resource Use Study Plan</li> </ul>
12	MNRF	<ul style="list-style-type: none"> <li>Email from Kevin Green, Species at Risk Recovery Biologist; Michelle Karam, Management Biologist; Nikki Boucher, A/Species at Risk Specialist - Species at Risk Branch – Permissions &amp; Compliance, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR, MNRF #442</li> </ul>	<ul style="list-style-type: none"> <li>Preliminary consideration of potential effects to SAR needs to be included, above and beyond those applicable to vegetation (s.7.2.6), wildlife (s.7.2.7) and fish and fish habitat (s.7.2.8). Both Table 7-4 and s.7.2.9 are lacking any information specific to SAR (e.g., increased mortality risk to caribou resulting from predator efficiencies related to additional linear features, increase in predator/prey populations, etc.). This should include a preliminary list of potential effects, in a table format, including, but not limited to, the following:               <ul style="list-style-type: none"> <li>Project Component or Activity</li> <li>Field surveys, staking, layout</li> <li>Vegetation clearing and grubbing</li> <li>Construction of supportive infrastructure (e.g. storage and laydown yards, temporary access roads, construction camps, aggregate extraction areas)</li> <li>Construction of the road</li> <li>Aggregate extraction and production</li> <li>Emissions, discharge and waste</li> <li>Operations and maintenance</li> <li>Potential Effects</li> <li>Mitigation Measures</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Lake Sturgeon is considered as an indicator species for this IA / EA.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>





ID	Comment From Regulatory Agency	Comment Type	Requirement / Comment / Concern	Response	Study Plan Reference
13	MNRF	<ul style="list-style-type: none"> <li>Letter received from Dave Barker, Resources Management Supervisor, Nipigon District, MNRF on the Draft Terms of Reference</li> </ul>	<ul style="list-style-type: none"> <li>Appendix A Fish and Fish Habitat               <ul style="list-style-type: none"> <li>In addition to the use of large-bodied fish species as environmental indicators, we recommend that you include representative small-bodied forage species. The Fisheries Act considers fish and fish habitat for all fish species.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>For the purpose of the IA / EA, indicator species were selected based on several factors including local/cultural significance, economic and social significance, rarity, ecological significance. Studies to characterize the baseline conditions also take into account the different trophic levels in the aquatic environment.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
14	MECP	<ul style="list-style-type: none"> <li>Email from Agni Papageorgiou &amp; Sasha McLeod, Special Project Officer Environmental, MECP Assessment Services Section, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR</li> </ul>	<ul style="list-style-type: none"> <li>#15 Section 7.2, Pages 48-49 Assessment Methods               <ul style="list-style-type: none"> <li>For the most part, section 7.2 provides a description of potential environmental effects for each discipline. However this section also includes assessment methodologies for some subsections (7.2.1 and 7.2.2 AERMOD modelling, quantitative noise assessment) while the majority do not (7.2.3 – 12). The level of detail in the ToR about assessment methods should be consistent for all environmental components.</li> <li>It is strongly recommended to include commitments to develop work plans at the outset of the EA phase, including opportunities for technical review by agencies and others. The work plans should include assessment methodology appropriate for each environmental component. The ToR could include a high level summary table for each environmental discipline listing data collection and assessment methods, with a commitment to develop the work plans at the outset of the EA phase to provide more details. Consider where the information about air and noise modelling is best placed.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The Study Plan meets this requirement.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7, Section 8</li> </ul>
15	MECP	<ul style="list-style-type: none"> <li>Email from Agni Papageorgiou &amp; Sasha McLeod, Special Project Officer Environmental, MECP Assessment Services Section, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR</li> </ul>	<ul style="list-style-type: none"> <li>#16 Section 8 Page 54               <ul style="list-style-type: none"> <li>Work Plans - Section 8 describes the approach that will be taken to evaluate alternative methods during the EA, including proposed criteria and indicators (presented in Appendix A). The information presented is high level and does not provide an opportunity for technical review of the methodologies that will be applied to evaluate those specific criteria and indicators.</li> <li>It is strongly recommended to include commitments to develop work plans at the outset of the EA phase, including opportunities for technical review by agencies and others.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The Study Plan meets this requirement.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
16	MECP	<ul style="list-style-type: none"> <li>Email from Agni Papageorgiou &amp; Sasha McLeod, Special Project Officer Environmental Assessment Services Section, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR</li> </ul>	<ul style="list-style-type: none"> <li>#17 Section 8 Page 54               <ul style="list-style-type: none"> <li>Consultation on Assessment Methodology - MFFN acknowledges that the proposed methodology will be open to input during the draft ToR review, but also says a more detailed method will be presented in the EA. Page 47 indicates the effects assessment criteria will be developed during the EA. While it is appropriate to defer some detailed work planning to the EA phase, the ToR should include commitments for how technical reviewers, and other interested persons, will be consulted during the development of specific evaluation methodologies or technical work plans. It is strongly recommended that those opportunities for review occur prior to the completion of studies (e.g. prior to the submission of a draft or final EA document). It is not clear whether MFFN plans to consult on the more detailed methodology and criteria during the EA phase or if the ToR phase is the main opportunity to provide input. Please indicate how consultation on the ToR has informed the preliminary criteria and indicators. Please clarify when MFFN will consult and provide opportunity for input on the detailed assessment method, including criteria and indicators (and work plans as MECP has proposed), with agencies, communities and stakeholders during the EA phase in order to finalize the methodologies before EA studies get advanced.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The Study Plan meets this requirement.</li> <li>As identified in Section 4.2 of the Study Plan, the Proponent will provide opportunities for consultation and engagement with Indigenous communities identified in Table 4-1, which is inclusive of all Indigenous communities identified in the Indigenous Partnership and Engagement Plan for the Marten Falls Community Access Road Project Impact Assessment (IAAC 2020a).</li> <li>Further information on how Indigenous Knowledge will be considered in the IS / EA Report has been included in Section 5 of the Study Plan. Section 5 of the Study Plan provides further details on the two concurrent and complementary avenues for Indigenous communities and groups to be engaged with and provide input on the Project: the Indigenous Knowledge Program and the Consultation and Engagement Program.</li> </ul>	<ul style="list-style-type: none"> <li>Section 4, Section 5</li> </ul>







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17	MECP	<ul style="list-style-type: none"> <li>Email from Agni Papageorgiou &amp; Sasha McLeod, Special Project Officer Environmental Assessment Services Section, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR</li> </ul>	<ul style="list-style-type: none"> <li>#21 Section 10.2.4 Page 73               <ul style="list-style-type: none"> <li>Technical Work Plans - Page 73 states that MECP has indicated it will not be commenting on work plans associated with field work until the ToR is finalized. This statement does not reflect MECP's guidance to the project team. MECP's guidance, which is documented on page 69 of the RoC, is that the ToR is the mechanism to seek technical review of work plans and that discipline- specific work plans should be included with the ToR. As well, discussions that MECP has had with the project team to date are considered pre-consultation, since it is the ToR that sets out what work is to be done during the EA phase.</li> <li>Please revise the statement on page 73 to state: "MFFN provided MECP and MNRF work plans associated with field work planned during 2019 for review, however MECP advised this is considered-consultation and that discipline-specific work plans should be appended to the ToR to allow full technical review. "As the draft ToR did not include detailed discipline-specific work plans, the other option the ministry strongly recommends is to include commitments to develop workplans at the outset of the EA phase, including opportunities for technical review.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The Study Plan meets this requirement.</li> </ul>	<ul style="list-style-type: none"> <li>No reference</li> </ul>
18	MECP	<ul style="list-style-type: none"> <li>Email from Jacinth Gilliam-Price, Surface Water Specialist – Northern Region Surface Water Section, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR</li> </ul>	<ul style="list-style-type: none"> <li>#5 Subsection 7.2.4 - Surface Water, p. 49 -Subsection 7.2.4               <ul style="list-style-type: none"> <li>Appropriately captures potential environmental effects respecting surface water; however, no mitigation measures have been proposed. Although mitigation measures and compliance and effects monitoring may not yet be known at this stage of the project, general measures to be taken to prevent/limit known potential impacts to the environment should be proposed. Mitigation measures are offered in the "Proposed Action/Solution" column. Mitigation measures need to be based on proven and recognized best management practices, standard protocols for stream crossings, land clearing and/or working near water with machinery that are well understood and have been applied to road construction projects throughout northern Ontario. Proposed Best Management Practices (BMPs), standard protocols and good practices are listed in the "Proposed Action/Solution" column. Subsection 7.2.4 revised to include proposed mitigation measures to the identified environmental effect. Water takings for dewatering laydown yards, construction camps, aggregate extraction areas will be carried out in compliance with the conditions for registration on the Environmental Activity and Sector Registry (EASR) or a Permit to Take Water (PTTW) as applicable. Treatment and discharge of wastewater may be guided by an ECA. Excavated materials will not be stored or stockpiled in areas near the surface water feature to minimize the potential for sediment laden runoff. Similarly, the stockpiling of required aggregates (sand, gravel, rock, crushed rock) for the construction of the road bed, temporary access roads and ancillary work areas, and construction and the installation of water body crossings must not be near surface water features for the same reason. Implement BMPs during the construction phase of the Project, ensuring the maintenance of appropriate riparian vegetation buffer strips along streams that intersect the road to attenuate runoff from the road, reduce sedimentation and erosion and provide shade cover thereby reducing stream temperature. Adhere to BMPs for road construction and operation and constructed in accordance with the following:               <ul style="list-style-type: none"> <li>Ministry of Natural Resources and Forestry's (MNRF's) Environmental Guidelines for Access Roads and Water Crossings (1995), Crown Land Bridge Management Guidelines (MNR 2008),</li> <li>Northern Land Use Guidelines – Access: Roads and Trails (INAC 2010), and Fish-Stream Crossing Guidebook (B.C. Ministry of Forests, Lands and Natural Resource Operations, B.C. Ministry of Environment and Fisheries and Oceans Canada 2012).</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Mitigation, protection and avoidance measures will be included and discussed in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>



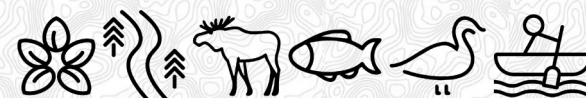


ID	Comment From Regulatory Agency	Comment Type	Requirement / Comment / Concern	Response	Study Plan Reference
19	MECP	<ul style="list-style-type: none"> <li>Email from Kevin Leveque, Manager – Northwest Zone Ontario Parks, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR</li> </ul>	<ul style="list-style-type: none"> <li>#3 Section 7.1.4.9 Page 32.               <ul style="list-style-type: none"> <li>Lake Sturgeon (Southern Hudson Bay-James Bay population) has been recorded to occur within Ogoki River Provincial Park waterways, captured within projected project area (Alternative 4). The population within Ogoki River is valuable to note for information purposes as well as considered under PPCRA requirements as it pertains to the protection of ecological integrity in protected areas.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Lake Sturgeon is considered as an indicator species for this IA / EA.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> </ul>
20	MECP	<ul style="list-style-type: none"> <li>Email from Nikki Boucher, A/Species at Risk Specialist, Permissions and Compliance, Species at Risk Branch, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR</li> </ul>	<ul style="list-style-type: none"> <li>We have carried out our review with a view to both the EA and future regulatory authorizations in order to provide you with information that will help enable an efficient approach to project planning and preparation of applications for any necessary Endangered Species Act (ESA) authorizations. Specifically, attention should be paid to the following requirements that form the basis of many of our ESA authorizations:               <ul style="list-style-type: none"> <li>Minimize adverse effects – you must take reasonable steps to minimize the adverse effects of your activity on the species at risk and their habitat that are likely to be affected by your activity</li> <li>Ways to minimize adverse effects of your activity on species at risk &amp; their habitat may include modifying the:                   <ul style="list-style-type: none"> <li>location of the activity</li> <li>geographic scale of the potential effects</li> <li>activity design (e.g. engineering and technological)</li> <li>timing of the activity</li> <li>duration and frequency of the effects</li> <li>approaches and timing for any site restoration or rehabilitation (such as doing progressive rehabilitation while other parts of the activity are still happening)</li> <li>general operational protocols. Consider reasonable alternatives – you will need to show the Ministry of the Environment, Conservation and Parks that you have considered reasonable alternatives to your activity.</li> </ul> </li> <li>Alternative approaches to your activity include:                   <ul style="list-style-type: none"> <li>Changing the location of the activity</li> <li>Using alternative methods, equipment or technical designs</li> <li>Changing the timing of the activity to avoid times when the species is there or is most sensitive to disturbance</li> <li>Changing the geographic scale, duration and/or frequency of the potential adverse effects</li> <li>Adding or changing approaches and timing of site restoration or rehabilitation after the activity is done</li> <li>When considering reasonable alternatives to your activity, you must consider at least one alternative that would completely avoid any adverse effects on species at risk</li> <li>Identify alternatives that you considered but did not think were reasonable because of biological, technical, social or economic limitations</li> <li>Explain why the approach you have chosen is the best alternative.</li> </ul> </li> <li>In addition, should an Overall Benefit Permit be required for the project, as determined through MECP's review and assessment of all the project details, the following requirement would also need to be considered:                   <ul style="list-style-type: none"> <li>Achieve overall benefit – providing an overall benefit to a species means undertaking actions that contribute to improving the circumstances for the species. It must include more than steps to minimize adverse effects on the species or habitats</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Lake Sturgeon is considered as an indicator species for this IA / EA.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>





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			<ul style="list-style-type: none"> <li>• Achieving an overall benefit to a species may involve providing the species with a range of benefits, such as:               <ul style="list-style-type: none"> <li>▪ increasing the number of individuals of the species living in the wild and capable of reproducing</li> <li>▪ increasing the distribution of the species within its natural range</li> <li>▪ increasing the viability or resilience of existing populations of the species</li> <li>▪ slowing or reversing population declines by addressing key threats to the species' survival</li> <li>▪ increasing the quality or amount of habitat for the species</li> </ul> </li> <li>– Activities such as filling information gaps, education and outreach may contribute to an overall benefit plan for a species at risk. However, alone they are unlikely to meet the overall benefit requirement</li> <li>– Recovery strategies and government response statements, where available provide information that can be used to form plans to achieve an overall benefit for species at risk.</li> </ul>		
21	MECP	<ul style="list-style-type: none"> <li>▪ Email from Kevin Green, Species at Risk Recovery Biologist; Michelle Karam, Management Biologist; Nikki Boucher, A/Species at Risk Specialist - Species at Risk Branch – Permissions &amp; Compliance, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR</li> </ul>	<ul style="list-style-type: none"> <li>▪ #2 Recommendation to prevent delays should ESA authorization be required.               <ul style="list-style-type: none"> <li>– It is strongly recommended that the project be planned, and the environmental assessment prepared, with the requirements of the Endangered Species Act, 2007 (ESA) in mind. This can potentially facilitate the authorization process under the ESA, where authorization is required. In order to inform any future ESA authorization requirements, reasonable route / project alternatives should be assessed for impacts to all species at risk and their respective habitats, and at least one avoidance alternative should be included. Please refer to the MECP “Avoidance Alternatives Form” for activities that may require an overall benefit permit under clause 17(2)(c) of the Endangered Species Act” and accompanying guide for reference. (<a href="http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/MinistryResults?Openform&amp;SRT=T&amp;MAX=5&amp;ENV=WWE&amp;STR=1&amp;TAB=PROFILE&amp;MIN=018&amp;BRN=21&amp;PRG=31">http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/MinistryResults?Openform&amp;SRT=T&amp;MAX=5&amp;ENV=WWE&amp;STR=1&amp;TAB=PROFILE&amp;MIN=018&amp;BRN=21&amp;PRG=31</a>)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ The requirements of the ESA process were considered in the development of this Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No reference</li> </ul>
22	MECP	<ul style="list-style-type: none"> <li>▪ Email from Kevin Green, Species at Risk Recovery Biologist; Michelle Karam, Management Biologist; Nikki Boucher, A/Species at Risk Specialist - Species at Risk Branch – Permissions &amp; Compliance, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR</li> </ul>	<ul style="list-style-type: none"> <li>▪ #9 s.7.1.4.9 / pg. 31               <ul style="list-style-type: none"> <li>– Additional information should be provided, in table format, for each SAR that have the potential to occur in the area of the Project, including, but not limited to                   <ul style="list-style-type: none"> <li>• Scientific name</li> <li>• Common name</li> <li>• Species Status under SARA (Federal)</li> <li>• Species Status under ESA (Provincial)</li> <li>• Conservation Ranking (i.e., N-Rank, S- Rank)</li> <li>• Information Source(s) used to identify potential occurrence within the area of the Project</li> <li>• Indication of whether a field survey(s) has been conducted already to identify species presence and, if so, whether or not it was observed</li> <li>• General list of habitat requirements</li> </ul> </li> <li>– Indication of whether the required habitat exists within the Study Area (i.e., as per comment 5, should include Project Footprint, Local Study Area and Regional Study Area)Update the draft ToR to include additional information for each SAR that have the potential to occur in the area of the Project.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ The information requested was included in the ToR and will be included in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No Reference</li> </ul>





ID	Comment From Regulatory Agency	Comment Type	Requirement / Comment / Concern	Response	Study Plan Reference
23	MECP	<ul style="list-style-type: none"> <li>Email from Kevin Green, Species at Risk Recovery Biologist; Michelle Karam, Management Biologist; Nikki Boucher, A/Species at Risk Specialist - Species at Risk Branch – Permissions &amp; Compliance, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR</li> </ul>	<ul style="list-style-type: none"> <li>#16 s.7.1.4.9 / pg. 32               <ul style="list-style-type: none"> <li>While Lake Sturgeon (Southern Hudson Bay- James Bay populations) do not receive species or habitat protection under the ESA, it is listed as Special Concern. As such, it is recommended MFFN consult with MNR on the need for field surveys, particularly in portions of the Project where long-span bridges will be constructed across the Albany River, where Lake Sturgeon are known to occur. Consult with MNR on the need for field surveys for Lake Sturgeon.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Field surveys are described in detail within the Study Plans. There are no targeted surveys planned for Lake Sturgeon.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> </ul>
24	MECP	<ul style="list-style-type: none"> <li>Email from Kevin Green, Species at Risk Recovery Biologist; Michelle Karam, Management Biologist; Nikki Boucher, A/Species at Risk Specialist - Species at Risk Branch – Permissions &amp; Compliance, Ministry of the Environment, Conservation and Parks with comments of the Draft ToR</li> </ul>	<ul style="list-style-type: none"> <li>#18 Table 7-4 / s. 7.2 / pg. 47 and s.7.2.9 / pg. 52.               <ul style="list-style-type: none"> <li>Preliminary consideration of potential effects to SAR needs to be included, above and beyond those applicable to vegetation (s.7.2.6), wildlife (s.7.2.7) and fish and fish habitat (s.7.2.8). Both Table 7-4 and s.7.2.9 are lacking any information specific to SAR (e.g., increased mortality risk to caribou resulting from predator efficiencies related to additional linear features, increase in predator/prey populations, etc.). This should include a preliminary list of potential effects, in a table format, including, but not limited to, the following:                   <ul style="list-style-type: none"> <li>Project Component or Activity</li> <li>Field surveys, staking, layout of Vegetation clearing and grubbing</li> <li>Construction of supportive infrastructure (e.g. storage and laydown yards, temporary access roads, construction camps, aggregate extraction areas)</li> <li>Construction of the road</li> <li>Aggregate extraction and production</li> <li>Emissions, discharge and waste</li> <li>Operations and maintenance</li> <li>Potential Effect</li> <li>Mitigation Measures</li> </ul> </li> <li>Update the draft ToR to include additional information for preliminary potential effects of the Project components specific to SAR.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Species at risk are considered in the IA / EA and mitigation measures specific to individual species or cohorts where applicable (beyond those that generally apply), will be identified in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
26	MNR	<ul style="list-style-type: none"> <li>Letter received from Dave Barker, Resources Management Supervisor, Nipigon District, MNR on the Draft Terms of Reference</li> </ul>	<ul style="list-style-type: none"> <li>Sec. 7.1.1 (pg. 19), Sec. 7.1.4 (pg. 22), Sec 10.2.4 (pg. 72), Appendix A               <ul style="list-style-type: none"> <li>ToR indicates that the study area is 2.5 km on each side of the centreline of each alternative route. Given the range of some of the wildlife species, the distance that some fish species will travel to spawn and the potential impacts on remote tourism operations. The study area described may not be adequate to assess the full range of impacts Please provide rationale for the study area. A data share agreement between the MFFN project team and the Crown is in place. This should be recognized in the ToR and included as a potential data source. Please describe how Crown provided data and data collected for the project will be used and shared amongst organizations. The ToR should recognize the Crown Data Share Agreement and include reference to it in the listing of potential data sources for the criteria and indicators alternatives evaluation.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The Study Areas have been updated and are described in further detail in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 6</li> </ul>
26	MNR	<ul style="list-style-type: none"> <li>Letter received from Dave Barker, Resources Management Supervisor, Nipigon District, MNR on the Draft Terms of Reference</li> </ul>	<ul style="list-style-type: none"> <li>Sec. 7.1.4.4 Surface Water (pg. 28) Sec. 7.1.4.8 Fish and Fish Habitat pg. 31.               <ul style="list-style-type: none"> <li>"An aerial reconnaissance will be undertaken along the full extent of the study area to verify the location of mapped and unmapped water body crossings, and to further augment the existing environment information available through desktop analysis. And, "the aerial and ground-based field surveys will be done in coordination with the collection of surface water information" Reliance on aerial reconnaissance and desktop analyses to assess watercourses is a good start. Further supplemental methods may be required to acquire a full inventory, and analysis.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The effects assessment will be based on existing information, field data collected during previous studies, and the results of field studies undertaken in support of the Project. Further information is provided in the Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> </ul>





ID	Comment From Regulatory Agency	Comment Type	Requirement / Comment / Concern	Response	Study Plan Reference
27	MNRF	<ul style="list-style-type: none"> <li>Letter received from Dave Barker, Resources Management Supervisor, Nipigon District, MNRF on the Draft Terms of Reference</li> </ul>	<ul style="list-style-type: none"> <li>Sec. 7.1.4.4 Surface Water Pg. 28 &amp; Sec. 7.1.4.8 Fish and Fish Habitat pg. 31               <ul style="list-style-type: none"> <li>“...site-specific field data at a subset of water body crossings to verify or augment the results and assumptions from the desktop analysis. The site selection process will be based primarily on a scaled approach, with a plan to select a representative number of water body crossings under three different categories of watershed size and to get representation across the alternative routes” And,</li> <li>“...subset of water body crossings....alternative routes.” This representative subset approach may not be appropriate for the evaluation of fish and fish habitat values.</li> <li>MNRF requires site-specific information about each site where work in water is proposed.</li> <li>Sampling of watercourses where the proponent is sure they are going to put a bridge and no in-water works are proposed is not necessary.</li> <li>Sampling of watercourses where we are already confident in our knowledge of fish assemblages is a lower priority than watercourses which we know nothing about MNRF suggests that MFFN contact ministry staff to further discuss and consider the approach to field data collection.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Detailed site assessments planned to support the IA/ EA include a subset of crossings. The need for further site assessments may be required during the detailed design phase.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> </ul>
28	MNRF	<ul style="list-style-type: none"> <li>Letter received from Dave Barker, Resources Management Supervisor, Nipigon District, MNRF on the Draft Terms of Reference</li> </ul>	<ul style="list-style-type: none"> <li>Sec. 7.1.4.8 pg. 30 &amp; 31               <ul style="list-style-type: none"> <li>The text of this section does not reference Lake Sturgeon as a species that is present in the study area. Include mention of its presence</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Lake Sturgeon is considered as an indicator species for this IA/ EA.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7, Section 9</li> </ul>
29	MNRF	<ul style="list-style-type: none"> <li>Letter received from Dave Barker, Resources Management Supervisor, Nipigon District, MNRF on the Draft Terms of Reference</li> </ul>	<ul style="list-style-type: none"> <li>Sec. 7.1.4.8 pg. 31 “Ontario Stream Assessment Protocol”               <ul style="list-style-type: none"> <li>Note: OSAP doesn't include "aerial reconnaissance" or "desktop" approaches</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The Study Plan has been updated accordingly.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> </ul>
30	MNRF	<ul style="list-style-type: none"> <li>Letter received from Dave Barker, Resources Management Supervisor, Nipigon District, MNRF on the Draft Terms of Reference</li> </ul>	<ul style="list-style-type: none"> <li>Sec. 7.1.4.9 Pg. 31               <ul style="list-style-type: none"> <li>It is recommended a more thorough review is conducted of species that have the potential to be impacted by the proposed undertaking that are listed as Special Concern on the Species at Risk list of Ontario as well as species that are currently only listed under the Species at Risk Act. For consideration in the EA.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The information requested will be included in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>No reference</li> </ul>
31	MNRF	<ul style="list-style-type: none"> <li>Letter received from Dave Barker, Resources Management Supervisor, Nipigon District, MNRF on the Draft Terms of Reference</li> </ul>	<ul style="list-style-type: none"> <li>Appendix A               <ul style="list-style-type: none"> <li>Fish and Fish Habitat In addition to the use of large-bodied fish species as environmental indicators, we recommend that you include representative small-bodied forage species. The Fisheries Act considers fish and fish habitat for all fish species.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>For the purpose of the IA / EA, indicator species were selected based on several factors including local/cultural significance, economic and social significance, rarity, ecological significance. Studies to characterize the baseline conditions also take into account the different trophic levels in the aquatic environment.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> </ul>
32	MNRF	<ul style="list-style-type: none"> <li>Letter received from Dave Barker, Resources Management Supervisor, Nipigon District, MNRF on the Draft Terms of Reference</li> </ul>	<ul style="list-style-type: none"> <li>Draft Criteria and Indicators for Alternatives Evaluation Appendix A               <ul style="list-style-type: none"> <li>Available resources to help inform the draft criteria and indicators include research publications and expert knowledge on topics such as stressor-effects pathways, cumulative effects, and associated environmental components and indicators. Contacting researchers such as Rob Mackereth (MNRF) who has published research on these topics and related subjects is encouraged. - Rempel, R.S., et. al. 2016. Support for development of a long term environmental monitoring strategy for the Ring of Fire area. Ontario Ministry of Natural Resources and Forestry, Science and Research Branch, Peterborough, ON. Science and Research Information Report IR-08. 34 p. + append. Catalogue-natural-resource-scientific-and-technical-publications While no specifics are provided in this submission, MNRF welcomes a discussion with MECP and ENDM to explore what (if any) role this project could play in advancing baseline information and long-term environmental monitoring for the Ring of Fire in partnership with First Nations communities.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Data sources are being reviewed for their appropriateness and will be included in Study Plans where applicable. Information on specific data sources and their relevance to the Project will be included in the IS / EA reports.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7, Appendix A</li> </ul>



**Table 11-3: Study Plan Federal and Provincial Concordance – Requirement Deviations**

ID #	Federal TISG Reference <sup>13</sup> or Provincial Draft ToR Comment Reference <sup>14</sup>	Requirement / Comment / Concern	Response (Rationale for not meeting requirement)	Justification (for not complying with requirement including for example scientific research, precedence)	Proposed TISG Amendment
1	TISG Section 8.8, page 48	<ul style="list-style-type: none"> <li>■ The Impact Statement must provide a characterization of fish (as defined in subsection 2(1) of the <i>Fisheries Act</i>) and other aquatic species on the basis of resident and migratory species, food webs and trophic levels, structural and functional linkages, life history and population dynamics, such as dispersion, fertility, recruitment, mortality rates, re-colonization, age structure, sex ratios, population regulation, stability, distribution (communities, stocks, subpopulations, metapopulations), movements, migratory patterns, routes and preferred corridor, seasonal and annual trends in abundance, sensitive habitats and periods in relation to the study area, behavioural habitat selection, mating strategies, social interactions, predator-prey interactions at multiple spatial and temporal scales, which are critical to identifying effects to population persistence and ecological processes;</li> </ul>	<ul style="list-style-type: none"> <li>■ Detailed habitat assessment and biological sampling (fish and benthic invertebrates) of a subset within the PDA to characterize habitat, fish and benthic invertebrates.</li> <li>■ Fish community sampling using methods to target different trophic levels (as appropriate) and will include benthic invertebrates.</li> <li>■ Biological field studies targeting lower and upper trophic levels will serve to describe food base and predators, species distribution, size and age class.</li> <li>■ Describe sensitive habitat features including habitat connectivity and migration barriers (desktop and field) to identify potential routes and habitat access for migratory species, variances in habitat conditions and species composition will be noted when these are observed.</li> <li>■ Data collection will occur through some combination of desktop, field studies and/or biological sampling specific to assess fertility, recruitment, mortality, re-colonization, sex ratios, population regulation, stability, behavioural studies are not proposed.</li> <li>■ Social and behavioural aspects will be considered in a qualitative manner.</li> </ul>	<ul style="list-style-type: none"> <li>■ Baseline studies including dispersion, fertility, recruitment, mortality, re-colonization, sex-ratios, etc. are unprecedented for an assessment of projects of similar scope, as it is generally accepted that negative residual effects to these aspects of fish and fish habitat are unlikely to occur with current industry practices. For example, such studies are not required by the DFO Fish Habitat Protection Program project review process to review similar projects to assess the potential for negative residual effects, or harmful alteration, disruption or destruction to fish habitat or harm to fish. The scope of work of the Project can also be compared to works undertaken by the Ontario Ministry of Transportation, who's class EA process and Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings does not require such studies, nor does construction of access roads and water crossing construction under the Ontario Crown Land Bridge Guidelines or Ontario Environmental Guide for Access Roads.</li> </ul>	<ul style="list-style-type: none"> <li>■ Reword the requirement:               <ul style="list-style-type: none"> <li>– The Impact Statement must provide a characterization of fish (as defined in subsection 2(1) of the <i>Fisheries Act</i>) and other aquatic species following guidance such as DFO Fish Habitat Protection Program, MTO's Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings and the Ontario Crown Land Bridge Guidelines or Ontario Environmental Guide for Access Roads.</li> <li>– Habitat (including sensitive habitat features, connectivity and access) for resident and migratory species must be described.</li> <li>– Information on food webs and trophic levels, structural and functional linkages, life history and population dynamics, such as dispersion, fertility, recruitment, mortality rates, re-colonization, age structure, sex ratios, population regulation, stability, distribution (communities, stocks, subpopulations, metapopulations), movements, and migratory patterns, routes and preferred corridor, seasonal and annual trends in abundance, sensitive habitats and periods in relation to the study area, behavioural habitat selection, mating strategies, social interactions, predator-prey interactions at multiple spatial and temporal scales, which are critical to identifying effects to population persistence and ecological processes, must be considered, where potential project-related effects have potential to occur.</li> </ul> </li> </ul>
2	TISG Section 8.8, page 48	<ul style="list-style-type: none"> <li>■ The Impact Statement must provide a description of the biodiversity within the freshwater environment, including:               <ul style="list-style-type: none"> <li>– trophic state, periphyton, phytoplankton, zooplankton, fish and the interactions and relative significance of each species with the identified food chains;</li> </ul> </li> <li>■ Description of the aquatic biodiversity including trophic state, periphyton, phytoplankton,</li> </ul>	<ul style="list-style-type: none"> <li>■ Biological sampling will incorporate methods to target fish species of all trophic levels (where applicable), and benthic invertebrates across subwatersheds and habitat types of the PSA to characterize biodiversity and food base. Observations of periphyton will be noted. Sampling of zooplankton and phytoplankton is not proposed.</li> </ul>	<ul style="list-style-type: none"> <li>■ Baseline studies including zooplankton and phytoplankton sampling are unprecedented for an assessment of projects of similar scope, as it is generally accepted that negative residual effects to these aspects of fish and fish habitat are unlikely to occur with current industry practices. For example, such studies are not required by the DFO Fish Habitat Protection Program project review process to review similar projects to assess the potential for</li> </ul>	<ul style="list-style-type: none"> <li>■ Remove this requirement.</li> </ul>

13. Federal TISG Reference should be the Section or subsection, page etc. that clearly identifies where comment/issue we are addressing can be found (ex. Section 8.1 of TISG)

14. This should include ID # reference (from excel table you were provided with all Draft ToR comments) and commenter.





ID #	Federal TISG Reference <sup>13</sup> or Provincial Draft ToR Comment Reference <sup>14</sup>	Requirement / Comment / Concern	Response (Rationale for not meeting requirement)	Justification (for not complying with requirement including for example scientific research, precedence)	Proposed TISG Amendment
		zooplankton, fish, their interactions and relative significance. and the relative significance in the food chain		negative residual effects, or harmful alteration, disruption or destruction to fish habitat or harm to fish. The scope of work of the Project can also be compared to works undertaken by the Ontario Ministry of Transportation, who's class EA process and Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings does not require such studies, nor does construction of access roads and water crossing construction under the Ontario Crown Land Bridge Guidelines or Ontario Environmental Guide for Access Roads.	
3	TISG Section 7.2, page 33	<ul style="list-style-type: none"> <li>With regard to field studies, survey work must be planned to include multiple sampling locations and multiple visits to each location to support all required assessment analyses. Existing data should be considered as a limited augmentation of this new data. See the “Establishing Baseline Conditions” (sections 8.5, 8.9, 8.10, 8.11) in this Tailored Impact Statement Guidelines for recommendations on survey design and methodology. Surveys and analyses should be conducted by qualified experts. Baseline data must be collected in a manner that enables reliable analysis, extrapolations and predictions. Resulting data should be suitable for analyses to estimate pre-project baseline conditions, derive predictions of impacts, and evaluate and compare post-project conditions and at scales of within and across the Project, Local and Regional Assessment areas. Modelling methods, error estimates and assumptions should be reported (as per Section 7.1). Modelling and simulations should be used early in the planning phase to estimate the necessary sampling intensity and to quantitatively evaluate the effectiveness of design options. Ethical guidelines and relevant cultural protocols governing research, data collection and confidentiality must be adhered to.</li> </ul>	<ul style="list-style-type: none"> <li>Descriptions of specific data sources, data collection, sampling, survey and research protocols and methods followed for each baseline environmental condition will be provided in the IA/EA and are summarized in this Study Plan. We will be sampling a subset of the watercourse crossings and a subset of those will be visited in multiple seasons and/or years to provide insight into annual and seasonal variation. Additional context will be provided by previous studies (Cliffs Chromite Project).</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient field information is available through historic and/or recent field investigations to understand annual and seasonal variation. Given the size of the study areas, we proposed a subset of water crossings to be included for field assessment. Aerial reconnaissance surveys provide additional contextual information at crossings. Historic data further builds our understanding of regional changes.</li> </ul>	<ul style="list-style-type: none"> <li>Reword the requirement:               <ul style="list-style-type: none"> <li>With regard to field studies, survey work must be planned to include multiple sampling locations and consider multiple visits to each location to support all required assessment analyses. Applicability of using existing data should be described in the IS report. See the “Establishing Baseline Conditions” (sections 8.5, 8.9, 8.10, 8.11) in this Tailored Impact Statement Guidelines for recommendations on survey design and methodology. Surveys and analyses should be conducted by qualified experts.</li> <li>Baseline data must be collected in a manner that enables reliable analysis, extrapolations and predictions. Resulting data should be suitable for analyses to estimate pre-project baseline conditions, derive predictions of impacts, and evaluate and compare post-project conditions and at scales of within and across the Project, Local and Regional Assessment areas. Modelling methods, error estimates and assumptions should be reported (as per Section 7.1). Modelling and simulations should be used early in the planning phase to estimate the necessary sampling intensity and to quantitatively evaluate the effectiveness of design options. Ethical guidelines and relevant cultural protocols governing research, data collection and confidentiality must be adhered to.</li> </ul> </li> </ul>





ID #	Federal TISG Reference <sup>13</sup> or Provincial Draft ToR Comment Reference <sup>14</sup>	Requirement / Comment / Concern	Response (Rationale for not meeting requirement)	Justification (for not complying with requirement including for example scientific research, precedence)	Proposed TISG Amendment
4	TISG Section 8.8, page 49	<ul style="list-style-type: none"> <li>The Impact Statement must provide a description of habitat information that includes water depths (bathymetry) and the littoral, sublittoral, limnetic, profundal, and benthic zones. Stratification information will include epilimnion, metalimnion, and hypolimnion depths in combination with a water chemistry profile (dissolved oxygen, pH, conductivity, etc.);</li> </ul>	<ul style="list-style-type: none"> <li>Habitat data including that specific to lake environments (e.g., temperature and water chemistry profile, lakes zonation, depth, etc.) will be provided in the IS where such lake environments fall within the area of detailed habitat assessment. Preliminary route alternatives and site selection does not identify any lakes crossed by either route alignment and therefore no lake environment within the area proposed for field studies.</li> </ul>	<ul style="list-style-type: none"> <li>There are no lakes (specifically those that would thermally or chemically stratify).</li> </ul>	<ul style="list-style-type: none"> <li>Remove requirement</li> </ul>
5	TISG Section 8.8, page 49	<ul style="list-style-type: none"> <li>The Impact Statement must describe the use of fish and/or aquatic species (including Walleye (<i>Sander vitreus</i>), Northern Pike (<i>Esox lucius</i>), Lake Whitefish (<i>Coregonus clupeaformis</i>), Brook Trout (<i>Salvelinus fontinalis</i>), Chain Pickerel (<i>Esox niger</i>), Yellow Perch (<i>Perca flavescens</i>), Cisco (<i>Coregonus artedii</i>), Burbot (<i>Lota lota</i>), Longnose Sucker (<i>Catostomus commersoni</i>), White Sucker (<i>Catostomus commersoni</i>), Lake Sturgeon (<i>Acipenser fulvescens</i>) and Lake chub (<i>Couesius plumbeus</i>) for consumption or where use has Indigenous cultural importance;</li> </ul>	<ul style="list-style-type: none"> <li>The VC list has been refined to focus on relevant and representative species. Selection of these species was conducted considering cultural significance and use for consumption, as well as recreational and economic importance. Details regarding the VC selection and rationale, including cultural importance and Indigenous use for consumption will be included in the IA, and will largely be carried out through desktop analysis and Indigenous consultation.</li> </ul>	<ul style="list-style-type: none"> <li>The list of species continues to evolve as the project progresses. To date, the VCs selected (based on discussions with Marten Falls community, desktop information and public input) are not the same as those listed here.</li> </ul>	<ul style="list-style-type: none"> <li>Reword the requirement:               <ul style="list-style-type: none"> <li>– The Impact Statement must describe the use of fish and/or aquatic species for consumption or where use has Indigenous cultural importance;</li> </ul> </li> </ul>
6	TISG Section 14.1, Page 85	<ul style="list-style-type: none"> <li>The Impact Statement must assess the potential for emissions from the Project to contribute to acid deposition and exceedances of critical loads for terrestrial and aquatic ecosystems;</li> </ul>	<ul style="list-style-type: none"> <li>There will be no assessment of emissions from the project to contribute exceedances of critical loads for terrestrial and aquatic ecosystems. There is no threshold established to determine that a specific concentration of NOX and SO2 would be detrimental to the terrestrial and aquatic valued components.</li> </ul>	<ul style="list-style-type: none"> <li>There is no threshold established to determine that a specific concentration of NOX and SO2 would be detrimental to the terrestrial and aquatic valued components. Studies to establish these thresholds have never been undertaken.</li> </ul>	<ul style="list-style-type: none"> <li>Remove Requirement</li> </ul>
7	TISG Section 15.1, Page 90	<ul style="list-style-type: none"> <li>The assessment must include a consideration of changes to water quality both at the discharge point and in the receiving environment; changes to water quality due to runoff from any temporary and permanent project components;</li> </ul>	<ul style="list-style-type: none"> <li>Qualitative discussion of the potential changes in surface water and subsequent effects on fish will be assessed as part of the IA/EA. Refer to the Surface Water Study Plan for more information.</li> </ul>	<ul style="list-style-type: none"> <li>Information on project discharges, if applicable, will be assessed in the EA/IA. There are no permanent discharges anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>Reword the requirement:               <ul style="list-style-type: none"> <li>– The assessment must include a consideration of potential changes to water quality due to runoff from any temporary and permanent project components;</li> </ul> </li> </ul>







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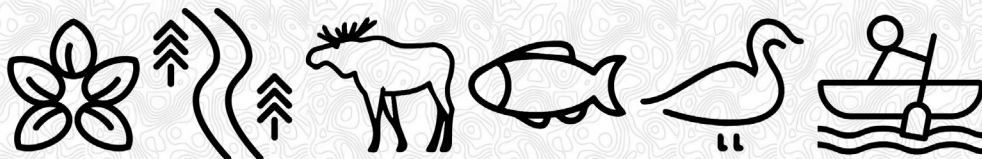
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# Appendix A

## Preliminary List of Data Sources





# MARTEN FALLS FIRST NATION ALL SEASON COMMUNITY ACCESS ROAD

*Fish and Fish Habitat Study Plan*

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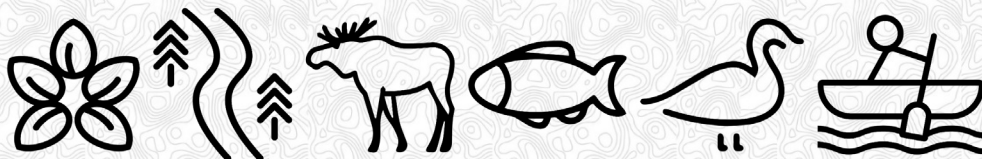
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# Appendix B

## Agency Comments on the Draft Study Plan

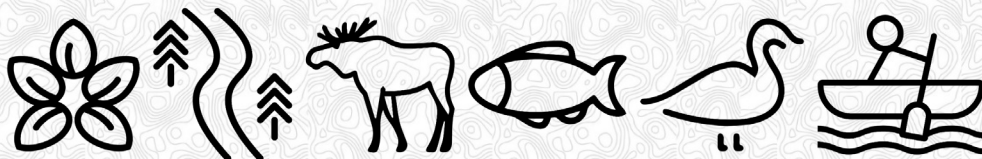




MARTEN FALLS FIRST NATION  
**ALL SEASON COMMUNITY ACCESS ROAD**

*Fish and Fish Habitat Study Plan*

# Draft Study Plan Comments – Federal





Comment # / Ref #	Draft Study Plan Section	TISG Section	Comment / Context	Action Item	Response	Study Plan Reference
GC	<ul style="list-style-type: none"> <li>General Comment</li> </ul>	<ul style="list-style-type: none"> <li>Sections 5, 6, 7, 13, 19.2 and 25</li> </ul>	<ul style="list-style-type: none"> <li>In addition to the required actions detailed below, other required actions to be addressed in the update to this study plan are detailed in a separate table titled "2020-07-02 – IAAC to MFCAR - General Comments on MFCAR Draft Study Plans". The Agency has provided these other required actions to highlight common sections of the Guidelines where requirements were not met in the draft study plans submitted to the Agency. These additional actions must be addressed in the updated study plans.</li> </ul>	<ul style="list-style-type: none"> <li>Please see Comment / Context</li> </ul>	<ul style="list-style-type: none"> <li>We have reviewed the relevant comments and incorporated where appropriate. Please refer to the General Comments Table Response submitted separately to the Agency for specific responses.</li> </ul>	<ul style="list-style-type: none"> <li>Various Sections</li> </ul>
EC	<ul style="list-style-type: none"> <li>Editorial Comment</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Sections 4.2.1 and 4.2.2 of the study plan are referenced multiple times but do not seem to exist in the study plan. If this is an editorial error, please correct the reference provided.</li> </ul>	<ul style="list-style-type: none"> <li>Make editorial edits to the study plan to ensure that all sections referenced in the study plans exist.</li> </ul>	<ul style="list-style-type: none"> <li>Changes made.</li> </ul>	<ul style="list-style-type: none"> <li>No reference</li> </ul>
FH-01	<ul style="list-style-type: none"> <li>Section 4.1.2.1 Sites Surveyed               <ul style="list-style-type: none"> <li>"164 waterbody crossings were surveyed from a helicopter during an aerial reconnaissance survey on September 5 and September 6, 2019. All proposed crossings on Route Alternatives 1 and 4 were included in the aerial reconnaissance survey. Eleven proposed waterbody crossings were assessed for fish and fish habitat from September 6 to September 10, 2019 (Table 1). Three of the assessed waterbody crossings were on the Alternative 1 ROW, five were on the Alternative 4 ROW, and three were on overlapping sections of Alternatives 1 and 4. Detailed fish habitat assessments were completed at all 11 waterbody crossings and fish sampling was completed at seven waterbody crossings".</li> </ul> </li> <li>Section 4.3 Study Methods               <ul style="list-style-type: none"> <li>"The field study will involve a habitat and biological assessment at a 50% subset of locations where the PSA or Project footprint of route alternatives 1 and 4 intersect potential fish habitat."</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 7.2 Sources of Baseline Information               <ul style="list-style-type: none"> <li>"With regard to field studies, survey work must be planned to include multiple sampling locations and multiple visits to each location to support all required assessment analyses."</li> </ul> </li> <li>Section 7.4.2               <ul style="list-style-type: none"> <li>"Baseline data collection for all biophysical valued components is to be provided for a minimum of two years, unless specified otherwise. Temporal boundaries spanning more than one year will enable accounting for variation due to irregular events (e.g., masting events, storms on migration, late snowfalls)."</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>It is unclear whether data will be collected from the same number and site locations in the second year field survey as in the 2019 field survey. Section 7.2 of the Guidelines requires multiple visits to each sampling location to demonstrate any variation. It is unclear if the "50% subset of locations" is a reduction or addition of locations for the 2020 field survey. It is unclear which 11 waterbody crossings were sampled in 2019. The study plan references a "Table 1" when discussing the 2019 field assessment, but does not provide this Table.</li> </ul>	<ul style="list-style-type: none"> <li>Provide details to clarify the proposed number and site locations of field data collection for the second year of baseline data collection, to demonstrate that two years of baseline data will be collected, as per the requirements in Section 7.4.2 of the Guidelines Provide details to clarify which waterbody crossings were sampled in 2019.</li> <li>Provide the referenced "Table 1".</li> </ul>	<ul style="list-style-type: none"> <li>Details regarding 2019 / 2020 field studies including site selection rationale are included in the Study Plan. As desktop review continues, the number of sites may be subject to change; as such, we proposed a percent sampling coverage, by aspect of the Fish and Fish Habitat program. Rationale for site selection (for past and future studies) are provided in the Study Plan. The Study Plan was revised to include additional information regarding desktop and proposed field studies. Results of field investigations will be provided at a later date.</li> <li>The reference to Table 1 has been removed but we have included Figures showing location of sampling sites previously visited.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> </ul>





Comment # / Ref #	Draft Study Plan Section	TISG Section	Comment / Context	Action Item	Response	Study Plan Reference
<b>FH-02</b>	<ul style="list-style-type: none"> <li>Section 4.2 Desktop Assessment               <ul style="list-style-type: none"> <li>– “desktop analysis and existing background information gathering will also rely heavily of community knowledge, public consultation and Indigenous Knowledge (IK).”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 6               <ul style="list-style-type: none"> <li>– “The proponent must engage with all Indigenous groups that may be impacted by the Project. The Indigenous Engagement and Partnership Plan, issued by the Agency, is available to assist the proponent in further developing or refining their engagement strategy and supporting ongoing trust and relationship-building. In addition to the requirements set out in section 6.1, 6.2 and 6.3, the proponent must provide Indigenous groups with an opportunity to: provide Indigenous knowledge during baseline data collection; comment on the list of valued components and indicators...”</li> </ul> </li> <li>Section 7.4.1               <ul style="list-style-type: none"> <li>– “Spatial boundaries are defined taking into account the appropriate scale and spatial extent of potential effects and impacts of the Project; community knowledge and Indigenous knowledge; current or traditional land and resource use by Indigenous groups; exercise of Aboriginal and Treaty rights of Indigenous peoples, including cultural and spiritual practices; and physical, ecological, technical, social, health, economic and cultural considerations.”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>It is not specified whether Indigenous knowledge has been incorporated in the site selection for field surveys. As per Section 6 of the Guidelines, the Agency expects the proponent to engage with, at a minimum, the Indigenous groups listed in the Indigenous Engagement and Partnership Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Provide further details to demonstrate how all Indigenous groups listed in the Indigenous Engagement and Partnership Plan will be engaged with, and provided opportunities to provide Indigenous knowledge on fish and fish habitat. This includes incorporating into the plan where Indigenous groups will be provided with opportunities to: provide Indigenous knowledge during baseline data collection; comment on the list of valued components and indicators; inform the effects assessment and review its conclusions; and inform the development of mitigation measures and follow-up programs.</li> </ul>	<ul style="list-style-type: none"> <li>As identified in Section 4.2 of the Study Plan, the Proponent will provide opportunities for consultation and engagement with Indigenous communities identified in Table 4-1, which is inclusive of all Indigenous communities identified in the Indigenous Partnership and Engagement Plan for the Marten Falls Community Access Road Project Impact Assessment (IAAC 2020a).</li> <li>Further information on how Indigenous Knowledge will be considered in the IS / EA Report has been included in Section 5 of the Study Plan. Section 5 of the Study Plan provides further details on the two concurrent and complementary avenues for Indigenous communities and groups to be engaged with and provide input on the Project: the Indigenous Knowledge Program and the Consultation and Engagement Program.</li> </ul>	<ul style="list-style-type: none"> <li>Section 4.2</li> <li>Section 5</li> </ul>
<b>FH-03</b>	<ul style="list-style-type: none"> <li>Section 4.2 Desktop Assessment               <ul style="list-style-type: none"> <li>– “Available existing information will be reviewed to characterize the context of the fish and fish habitat within the study areas of the Project as defined in Section 3. Resources that will be reviewed for existing information will include (but not limited to) waterbodies, thermal regimes, fish species, significant fish habitat features (e.g., spawning habitat, nursery habitat, migration barriers), aquatic Species at Risk (SAR), Species of Conservation Concern, and SAR habitat. The reviewed resources</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 7.2               <ul style="list-style-type: none"> <li>– “The Impact Statement must provide detailed descriptions of specific data sources, data collection, sampling, survey and research protocols and methods followed for each baseline environmental, health, social and economic condition that is described, in order to corroborate the validity and accuracy of the baseline information collected...”</li> <li>– “If using existing data sources, the Impact Statement must provide justification to show that the data sources are relevant in spatial and</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>It is unclear what existing data will be used to supplement the field data. Section 7.2 of the Guidelines require that detailed descriptions of specific data sources are provided.</li> <li>Additionally, as per Section 7.2 of the Guidelines, the Impact Statement must provide justification to demonstrate the data sources are relevant to the project.</li> </ul>	<ul style="list-style-type: none"> <li>Provide detailed descriptions of specific data sources that will be used to identify baseline conditions, as proposed in Section 4.2 of the study plan. Sources should be listed and preferably correlated to the criteria and indicators that they will inform.</li> <li>Provide justifications to demonstrate that each data source is relevant in spatial and temporal coverage to the project.</li> </ul>	<ul style="list-style-type: none"> <li>Appendix A of the Study Plan was revised to include specific sources. The results of the desktop studies will be provided at a later date.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Appendix A</li> </ul>





Comment # / Ref #	Draft Study Plan Section	TISG Section	Comment / Context	Action Item	Response	Study Plan Reference
	will include (but not limited to) those listed in Appendix A, in addition to preliminary Project-related reports. Furthermore, desktop analysis and existing background information gathering will also rely heavily of community knowledge, public consultation and Indigenous Knowledge (IK)."	temporal coverage to the Project. Some data sources may have good coverage in Southern Ontario or existing road networks but be unsuitable as a baseline for these northern areas where there are not roads."				
<b>FH-04</b>	<ul style="list-style-type: none"> <li>■ Section 4.3.1.1 Fish               <ul style="list-style-type: none"> <li>– “Fish sampling will be completed once at each assessment site during either the spring, summer, and fall months of a single sampling season”</li> </ul> </li> <li>■ Section 5.2.2 Biological Analysis               <ul style="list-style-type: none"> <li>– “The scope of the fish sampling program and data collected as described in Section 4.2.2 will include quantitative and qualitative data that will describe: Species seasonal variation, by conducting sampling over the course of spring, summer and fall (as conditions and access allow)”.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Section 7.4.2               <ul style="list-style-type: none"> <li>– “Baseline data collection for all biophysical valued components is to be provided for a minimum of two years, unless specified otherwise. Temporal boundaries spanning more than one year will enable accounting for variation due to irregular events (e.g., masting events, storms on migration, late snowfalls).”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ It is unclear if the proposed fish sampling has occurred, or will occur, in either the spring, summer and fall months (as stated in Section 4.3.1.1 of the study plan) or over the course of the spring, summer and fall (as stated in section 5.2.2 of the study plan). It is also unclear whether the sampling in future years will occur during the same season(s) as in 2019.</li> </ul>	<ul style="list-style-type: none"> <li>■ Provide clarity on timing of the fish sampling conducted in 2019, and for the sampling proposed in future years. Provide justification for situations where the timing may be different in future years from the 2019 timing.</li> </ul>	<ul style="list-style-type: none"> <li>■ Study Plan was revised to provide additional details on timing of previous surveys. Future studies are anticipated for spring and / or fall of 2021.</li> </ul>	<ul style="list-style-type: none"> <li>■ Section 7</li> </ul>
<b>FH-05</b>	<ul style="list-style-type: none"> <li>■ Section 4.3.2.2 Lotic Habitat               <ul style="list-style-type: none"> <li>– “Lotic habitat assessment, where there is evidence of unidirectional flow at the time of assessment with the potential to support fish, will include the extent of the watercourse and riparian area within the PSA. Habitat assessments will involve the establishment of a transect at the CL of the proposed route alignment, and at regular intervals upstream and downstream of the CL within the boundaries of the PSA. The following data will be collected at each transect:..”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Section 15.1               <ul style="list-style-type: none"> <li>– “Describe and justify watercourse-crossing techniques to be used and the criteria for determining the techniques proposed for each watercourse crossing.”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ More detail is needed in relation to fish passage, including velocity measurements at the site location to determine if fish can pass through the culvert structures.</li> </ul>	<ul style="list-style-type: none"> <li>■ Describe and justify water-crossing techniques for each watercourse crossing, as is required in Section 15.1 of the Guidelines. It is recommended that this include a discussion of fish passage. To meet this requirement, baseline velocity at the site locations should be measured to determine if fish can pass through the culvert structures.</li> </ul>	<ul style="list-style-type: none"> <li>■ Velocity measurements will be collected for the purpose of characterizing the baseline conditions of the fish habitat.</li> <li>■ Crossing structures will be designed to avoid fish passage issues; a more fulsome discussion of criteria considering when identifying and designing crossing structures will be included in the IS / EA Report.</li> </ul>	<ul style="list-style-type: none"> <li>■ Section 7</li> </ul>
<b>FH-06</b>	<ul style="list-style-type: none"> <li>■ Section 4.3.2.1 Lentic Habitat and Section 4.3.2.2 Lotic Habitat               <ul style="list-style-type: none"> <li>– “Suitable sensitive habitat features or potential important habitat function such as spawning, migration, overwintering, nursery, productive feeding areas, fish passage barriers, etc. will be delineated or mapped, photographed and described.”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Section 8.8               <ul style="list-style-type: none"> <li>– “provide a characterization of fish habitat features that may demonstrate the presence of fish species in terms of appropriate habitats—water quality and quantity characteristics, sediment type characteristics, benthic features, prey, shelter, refuge, feeding, spawning habitats, nursery habitats,</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ It is unclear how the spawning locations for the species listed in Table 5-1 will be determined. It is also unclear if there have been or will be any spawning surveys conducted,</li> </ul>	<ul style="list-style-type: none"> <li>■ Provide details to demonstrate how the spawning locations for the species listed in Table 5-1 will be determined. Clarify if spawning surveys have been completed, or will be completed. Provide any desktop or field data that has been collected relating to spawning, including from any spawning surveys that have been undertaken.</li> </ul>	<ul style="list-style-type: none"> <li>■ Standalone spawning surveys have not been completed, nor are they proposed. The known spawning locations within the PDA for the indicator species will be identified though desktop analysis, field assessment, and Indigenous Knowledge (where available). Where suitable spawning habitat is observed through desktop analysis and fish habitat</li> </ul>	<ul style="list-style-type: none"> <li>■ Section 7</li> <li>■ Appendix A</li> </ul>





Comment # / Ref #	Draft Study Plan Section	TISG Section	Comment / Context	Action Item	Response	Study Plan Reference
	<ul style="list-style-type: none"> <li>Table 5-1 Examples of Literature Reviewing indicator Species Habitat Suitability Patterns</li> </ul>	rearing habitats, overwintering, migration routes and the sensitive times for these activities;"			<p>assessment, it will be documented, photographed and mapped.</p> <ul style="list-style-type: none"> <li>The results of the desktop and field assessment studies will be provided at a later date.</li> </ul>	
<b>FH-07</b>	<ul style="list-style-type: none"> <li>Section 7 Concordance with Federal and Provincial Guidance               <ul style="list-style-type: none"> <li>– “Qualitative and/or quantitative description (as applicable) of potential stressors and effects, and anticipated residual effects will include potential changes to such changes to fish habitat”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 15.1 (relevant to many requirements)</li> </ul>	<ul style="list-style-type: none"> <li>An incomplete list of the requirements of Section 15.1 of the Guidelines is presented in Section 7 of the study plan. For most of the requirements listed, the study plan only states that “Qualitative and/or quantitative description (as applicable) of potential stressors and effects, and anticipated residual effects will include potential changes to such changes to fish habitat” but no further detail is provided.</li> </ul>	<ul style="list-style-type: none"> <li>Update the study plan to explain the proposed approach and methods used to fully integrate the requirements of Section 15.1 of the Guidelines into the study plan.</li> </ul>	<ul style="list-style-type: none"> <li>The Concordance Table 7 (now numbered Table 11-1, 1-2, and 11-3) has been revised to provide concise responses to the requirements of the TISG. The Study Plan was revised to specify the potential effects that are expected to be quantified and measurable, such as the area of direct loss or alteration of habitat caused by project infrastructure (water crossings), area of loss of riparian vegetation, area of loss or alteration of important habitat features (e.g. suitable spawning habitat), and those that are not expected to be measurable (i.e. changes in light penetration effects of existing local activities).</li> </ul>	<ul style="list-style-type: none"> <li>Section 9</li> <li>Section 11</li> </ul>
<b>FH-08</b>	<ul style="list-style-type: none"> <li>Section 7 Concordance with Federal and Provincial Guidance               <ul style="list-style-type: none"> <li>– “Sampling of zooplankton and phytoplankton is not proposed.”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 8.8               <ul style="list-style-type: none"> <li>– “provide a description of the biodiversity within the freshwater environment, including: trophic state, periphyton, phytoplankton, zooplankton, fish and the interactions and relative significance of each species with the identified food chains;”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>It is unclear how the requirements of Section 8.8 of the Guidelines will be met if sampling of zooplankton and phytoplankton is not proposed.</li> </ul>	<ul style="list-style-type: none"> <li>Provide further detail on proposed methodologies, including the rationale, to demonstrate how the baseline studies described in the study plan will meet all requirements of Section 8.8 of the Guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>Amendment to this requirement will be requested (please refer to Table 11-2 of the Study Plan). Baseline studies including zooplankton and phytoplankton sampling are unprecedented for an assessment of projects of similar scope, as it is generally accepted that negative residual effects to these aspects of fish and fish habitat are unlikely to occur with current industry practices. Studies are not typically required by the DFO Fish Habitat Protection Program, the Ontario Ministry of Transportation Class EA process and Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings, and the Ontario Crown Land Bridge Guidelines or Ontario Environmental Guide for Access Roads.</li> </ul>	<ul style="list-style-type: none"> <li>Section 11</li> </ul>







Comment # / Ref #	Draft Study Plan Section	TISG Section	Comment / Context	Action Item	Response	Study Plan Reference
<b>FH-09</b>	<ul style="list-style-type: none"> <li>Section 7 Concordance with Federal and Provincial Guidance               <ul style="list-style-type: none"> <li>“data collection through desktop or field studies and/or biological sampling specific to assess fertility, recruitment, mortality, re-colonization, sex ratios, population regulation, stability, and behavioural studies are not proposed.”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 8.8               <ul style="list-style-type: none"> <li>“provides a characterization of fish (as defined in subsection 2(1) of the Fisheries Act) and other aquatic species on the basis of resident and migratory species, food webs and trophic levels, structural and functional linkages, life history and population dynamics, such as dispersion, fertility, recruitment, mortality rates, re-colonization, age structure, sex ratios, population regulation, stability, distribution (communities, stocks, subpopulations, metapopulations), movements, migratory patterns, routes and preferred corridor, seasonal and annual trends in abundance, sensitive habitats and periods in relation to the study area, behavioural habitat selection, mating strategies, social interactions, predator-prey interactions at multiple spatial and temporal scales, which are critical to identifying effects to population persistence and ecological processes”.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>It is unclear why biological sampling specific to assess fertility, recruitment, mortality, re-colonization, sex ratios, population regulation, stability, and behavioural studies are not proposed.</li> </ul>	<ul style="list-style-type: none"> <li>Provide a rationale for the decision to exclude biological sampling specific to assess fertility, recruitment, mortality, re-colonization, sex ratios, population regulation, stability, and behavioural studies from the proposed desktop or field studies, as required in Section 8.8 of the Guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>Amendment to this requirement will be requested (please refer to Table 11-3 of the Study Plan). Baseline studies including dispersion, fertility, recruitment, mortality, re-colonization, sex-ratios, etc. are unprecedented for an assessment of projects of similar scope, as it is generally accepted that negative residual effects to these aspects of fish and fish habitat are unlikely to occur with current industry practices. Such studies are not required by the DFO Fish Habitat Protection Program project review process, Ontario Ministry of Transportation Class EA process and Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings, and the Ontario Crown Land Bridge Guidelines or Ontario Environmental Guide for Access Roads.</li> </ul>	<ul style="list-style-type: none"> <li>Section 11</li> </ul>
<b>FH-10</b>	<ul style="list-style-type: none"> <li>Section 7 Concordance with Federal and Provincial Guidance               <ul style="list-style-type: none"> <li>“To be completed during desktop analysis and field habitat assessment for geophysical information including depth.”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 15.1               <ul style="list-style-type: none"> <li>“provide a characterization of fish habitat features that may demonstrate the presence of fish species in terms of appropriate habitats—water quality and quantity characteristics, sediment type characteristics, benthic features, prey, shelter, refuge, feeding, spawning habitats, nursery habitats, rearing habitats, overwintering, migration routes and the sensitive times for these activities; provide a description of habitat information that includes water depths (bathymetry) and the littoral, sublittoral, limnetic, profundal, and benthic zones. Stratification information will include epilimnion, metalimnion, and hypolimnion depths in combination with a water chemistry profile (dissolved oxygen, pH, conductivity, etc.)”.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>It is unclear which aspects of the requirements in Section 15.1 of the Guidelines will be completed during a desktop analysis and what aspects will be completed during the field habitat assessment.</li> </ul>	<ul style="list-style-type: none"> <li>Provide details to demonstrate which aspects of the requirements in Section 15.1 of the Guidelines will be completed by a desktop analysis or habitat assessment. Provide details about methods and specific data that will be used.</li> </ul>	<ul style="list-style-type: none"> <li>Information to be collected through fish habitat field assessment and desktop analysis are described in Section 7 of the Study Plan. Additional detail of the relevant desktop information sources to-date was provided in Appendix A.</li> <li>Additional information on water chemistry can be found in the Surface Water VC Study Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Section 7</li> <li>Appendix A</li> <li>Surface Water VC Study Plan</li> </ul>





Comment # / Ref #	Draft Study Plan Section	TISG Section	Comment / Context	Action Item	Response	Study Plan Reference
FH-11	<ul style="list-style-type: none"> <li>Section 7 Concordance with Federal and Provincial Guidance               <ul style="list-style-type: none"> <li>“Summary of desktop analysis and background information review will provide a description of such effects and activities”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 15.1               <ul style="list-style-type: none"> <li>“describe any existing effects associated with previous or current activities (e.g., angling pressures, commercial fisheries)”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 7 of the study plan states that effects associated with previous or current activities (e.g. angling pressures, commercial fisheries) will be described using background information and a desktop analysis. More details are needed about the desktop assessment to determine if the requirement in section 15.1 of the Guidelines will be met.</li> </ul>	<ul style="list-style-type: none"> <li>Provide details to demonstrate how any existing effects associated with previous or current activities (e.g., angling pressures, commercial fisheries) will be assessed, including descriptions of specific data sources that will be used.</li> </ul>	<ul style="list-style-type: none"> <li>The IS / EA Report will include a discussion of these activities and the identified or potential effects of these activities to fish and fish habitat, where available and relevant to understanding Project-related effects. Consequential effects on Land and Resource Use and Aboriginal and Treaty Rights and Interests will also be considered in the IS / EA Report. Data on resource use activities will be gathered as described in those referenced Study Plans.</li> </ul>	<ul style="list-style-type: none"> <li>Section 9               <ul style="list-style-type: none"> <li>Land and Resource Use Study Plan</li> <li>Aboriginal and Treaty Rights and Interests Study Plan</li> </ul> </li> </ul>
FH-12	<ul style="list-style-type: none"> <li>Section 7 Concordance with Federal and Provincial Guidance               <ul style="list-style-type: none"> <li>“Currently not proposed for fish program baseline assessment. Refer to Field Work Plan – Surface Water”</li> <li>Surface Water Study Plan:                   <ul style="list-style-type: none"> <li>“...additional in situ measurements may be collected as part of the Fish and Fish Habitat VC field program (refer to the Fish and Fish Habitat VC Study Plan).”</li> </ul> </li> <li>“Qualitative methods will be used to assess potential effects of the Project to surface water quality based on an understanding of baseline surface water quality, likely Contaminants of Potential Concern associated with different project activities and in consideration of mitigation measures.”</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 15.1               <ul style="list-style-type: none"> <li>“potential for direct effects of contamination downstream of the Project on fish and bioaccumulation of contaminants (e.g., selenium, mercury, chromium, arsenic) in fish that may be consumed by Indigenous groups; ...describe the effects of changes to the aquatic environment on fish and fish habitat, including: contaminant levels in harvested species and their prey”.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>It is unclear how the requirement in Section 15.1 of the Guidelines will be met. The study plan references the surface water study plan, however, the surface water study plan does not discuss bioaccumulation of contaminants in fish that may be consumed or harvested by Indigenous groups.</li> </ul>	<ul style="list-style-type: none"> <li>Provide details to demonstrate how effects of contamination downstream of the Project on fish, and bioaccumulation of contaminants (e.g., selenium, mercury, chromium, arsenic) in fish that may be consumed by Indigenous groups will be assessed. Provide information about methods and approaches that will be used to meet the requirements in Section 15.1 of the Guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>The IA / EA will evaluate the potential for contaminant bioaccumulation as result of the project. If it is determined by the IA / EA that a residual effect pathway for contaminant bioaccumulation exists (i.e., after mitigation), additional baseline studies may be proposed. Please see the Physiography, Terrain and Soils Study Plan, the Groundwater and Geochemistry Study Plan, and the Surface Water Study Plan for details on methods and approaches for assessing the potential for contaminant release into the environment as result of the Project.</li> </ul>	<ul style="list-style-type: none"> <li>Physiography, Terrain and Soils Study Plan</li> <li>Groundwater Study Plan</li> <li>Surface Water Study Plan</li> </ul>

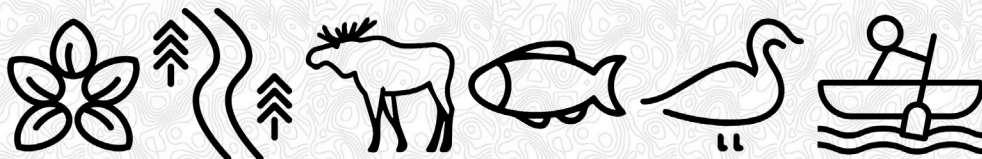




MARTEN FALLS FIRST NATION  
**ALL SEASON COMMUNITY ACCESS ROAD**

*Fish and Fish Habitat Study Plan*

# Draft Study Plan Comments – Provincial





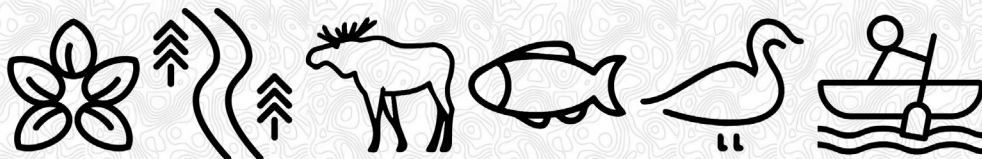
Comment ID	Draft Study Plan Section	Agency / Regulatory Body Comments Received From	Comment / Context	Action Item	Final Response	Study Plan Reference
1	■ N/A	■ MECP, Environmental Assessment Branch	■ Please review EAB comments on the Wildlife, Ungulates and Vegetation work plans that may apply to this work plan.	■ Please review EAB comments on the Wildlife, Ungulates and Vegetation work plans that may apply to this work plan.	■ We have reviewed the relevant comments and incorporated where appropriate. Please refer to the Comment Tables appended to the Wildlife, Ungulates and Vegetation Study Plans for specific responses.	<ul style="list-style-type: none"> <li>■ Wildlife Study Plan</li> <li>■ Ungulates Study Plan</li> <li>■ Vegetation Study Plan</li> </ul>
1	■ Page 12 / Section 4.3.2.1	■ MECP, Surface Water Specialist	■ Benthic Invertebrate – This section mentions that the benthic invertebrate community will be sampled at each assessment site during either the spring, summer, or fall of one sampling season and concurrent with fish sampling efforts.	■ It is recommended that benthic invertebrate sampling take place when water temperatures are no greater than 5°C, as emergence tends to happen when water is >8°C with an increase in photoperiod. Fall sampling is preferred as it provides a better baseline.	■ Field sampling for benthic invertebrates will be conducted under appropriate conditions.	■ Section 7





# Appendix C

## 2019, 2020 Field Assessment Site Location

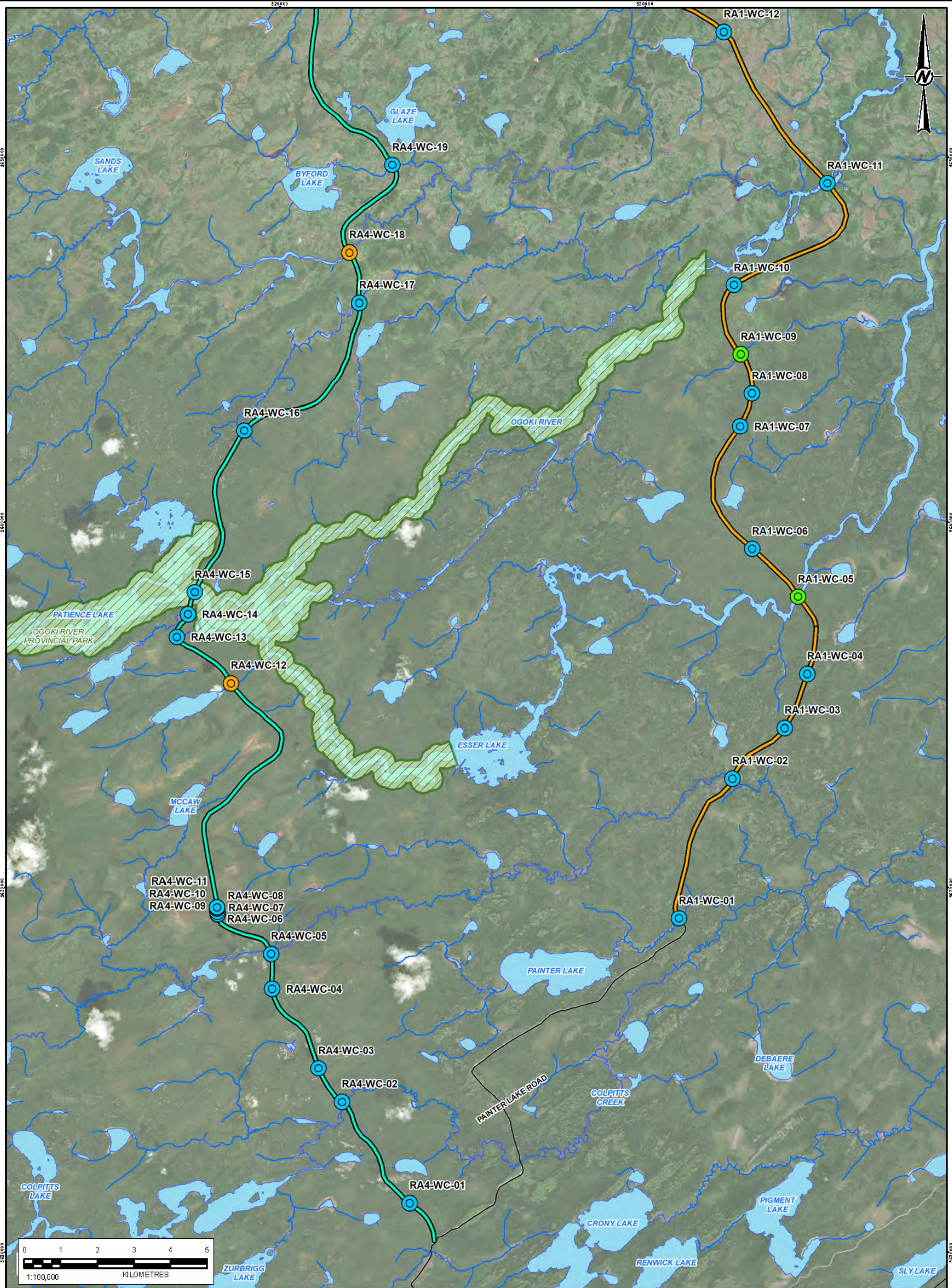




# MARTEN FALLS FIRST NATION ALL SEASON COMMUNITY ACCESS ROAD

Fish and Fish Habitat Study Plan

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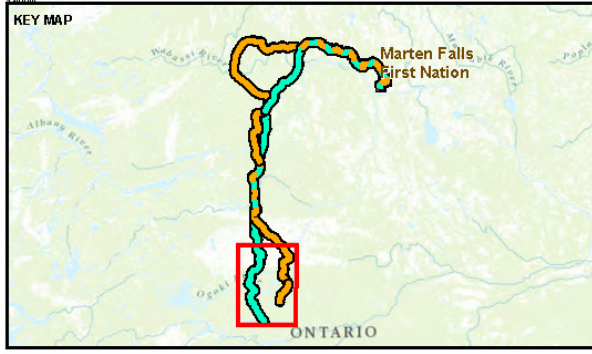


**LEGEND**

- Waterbody Crossing - Fish Habitat Assessment and Fish Sampling (Green circle)
- Waterbody Crossing - Fish Habitat Assessment and Fish Sampling (Mink/Trap Ring) (Orange circle)
- Waterbody Crossing - Fish Habitat Assessment and Fish Sampling (Electrofishing) (Pink circle)
- Waterbody Crossing (Blue circle)
- Phase 1 Route Alternative Centerline (Green line)
- Alternative 1 (Blue line)
- Alternative 4 (Yellow line)
- Phase 2 Route Alternatives (Black line)
- Road (Grey line)
- Watercourse (Blue line)
- Waterbody (Blue area)
- First Nation Community (Brown area)
- Provincial Park (Green area)

**REFERENCE(S)**

1. BASE DATA MNRF LJO OBTAINED APRIL 2019
2. IMAGERY: BING © 2019 MICROSOFT CORPORATION
3. PHASE 1 ROUTE ALTERNATIVES PROVIDED BY AECOM (MAY 30, 2019, R01)
4. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18N



CLIENT: MARTEN FALLS FIRST NATION

PROJECT: MARTEN FALLS FIRST NATION COMMUNITY ACCESS ROAD

TITLE: FIELD ASSESSMENT LOCATIONS

CONSULTANT: GOLDER

DATE: 2019-11-04

DESIGNED: SO

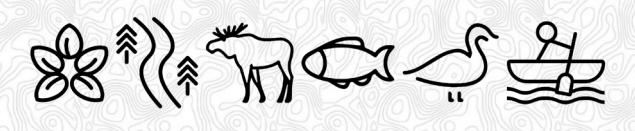
PREPARED: SO/PR

REVIEWED: BF

APPROVED: CD

PROJECT NO. 18108254 CONTROL 0001 REV. 0.0 FIGURE 1

**DRAFT**

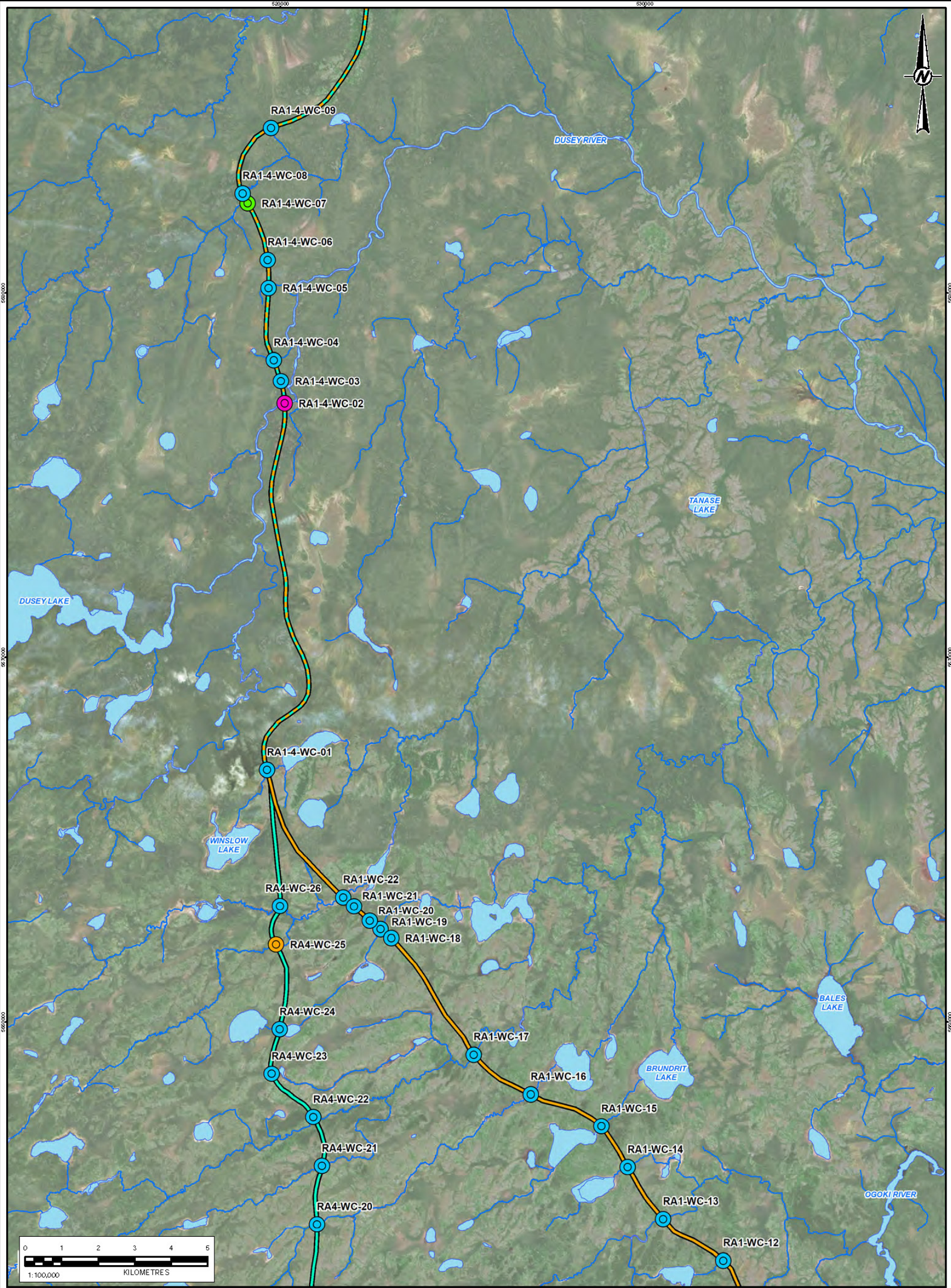




# MARTEN FALLS FIRST NATION ALL SEASON COMMUNITY ACCESS ROAD

Fish and Fish Habitat Study Plan

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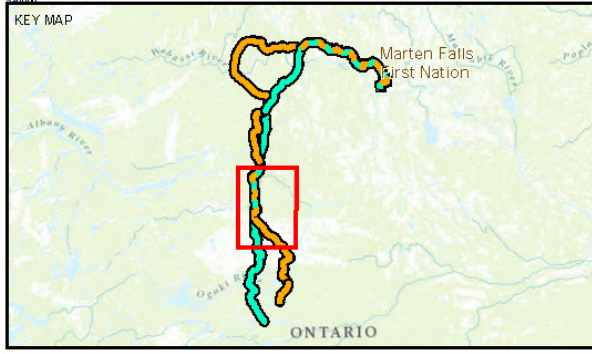


**LEGEND**

- WATERBODY CROSSINGS - FISH HABITAT ASSESSMENT AND FISH SAMPLING (MINNOW TRAPPING)
- WATERBODY CROSSINGS - FISH HABITAT ASSESSMENT AND FISH SAMPLING (ELECTROFISHING)
- WATERBODY CROSSING
- PHASE 1 ROUTE ALTERNATIVE CENTERLINE
- ALTERNATIVE 1
- ALTERNATIVE 1 AND ALTERNATIVE 4
- PHASE 2 ROUTE ALTERNATIVES
- ROAD
- WATERCOURSE
- WATERBODY
- FIRST NATION COMMUNITY
- PROVINCIAL PARK

**REFERENCE(S)**

1. BASE DATA MNRF LIO OBTAINED APRIL 2019
2. IMAGERY: BING © 2019 MICROSOFT CORPORATION
3. PHASE 1 ROUTE ALTERNATIVES PROVIDED BY AE.COM (MAY 30, 2019, R01)
4. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18N



CLIENT: MARTEN FALLS FIRST NATION

PROJECT: MARTEN FALLS FIRST NATION COMMUNITY ACCESS ROAD

TITLE: FIELD ASSESSMENT LOCATIONS

CONSULTANT: GOLDER

DATE: 2019-11-04

DESIGNED: SO

PREPARED: SO/PR

REVIEWED: BF

APPROVED: CD

PROJECT NO: 18108254 CONTROL: 0001 REV: 0.0 FIGURE: 2

**DRAFT**

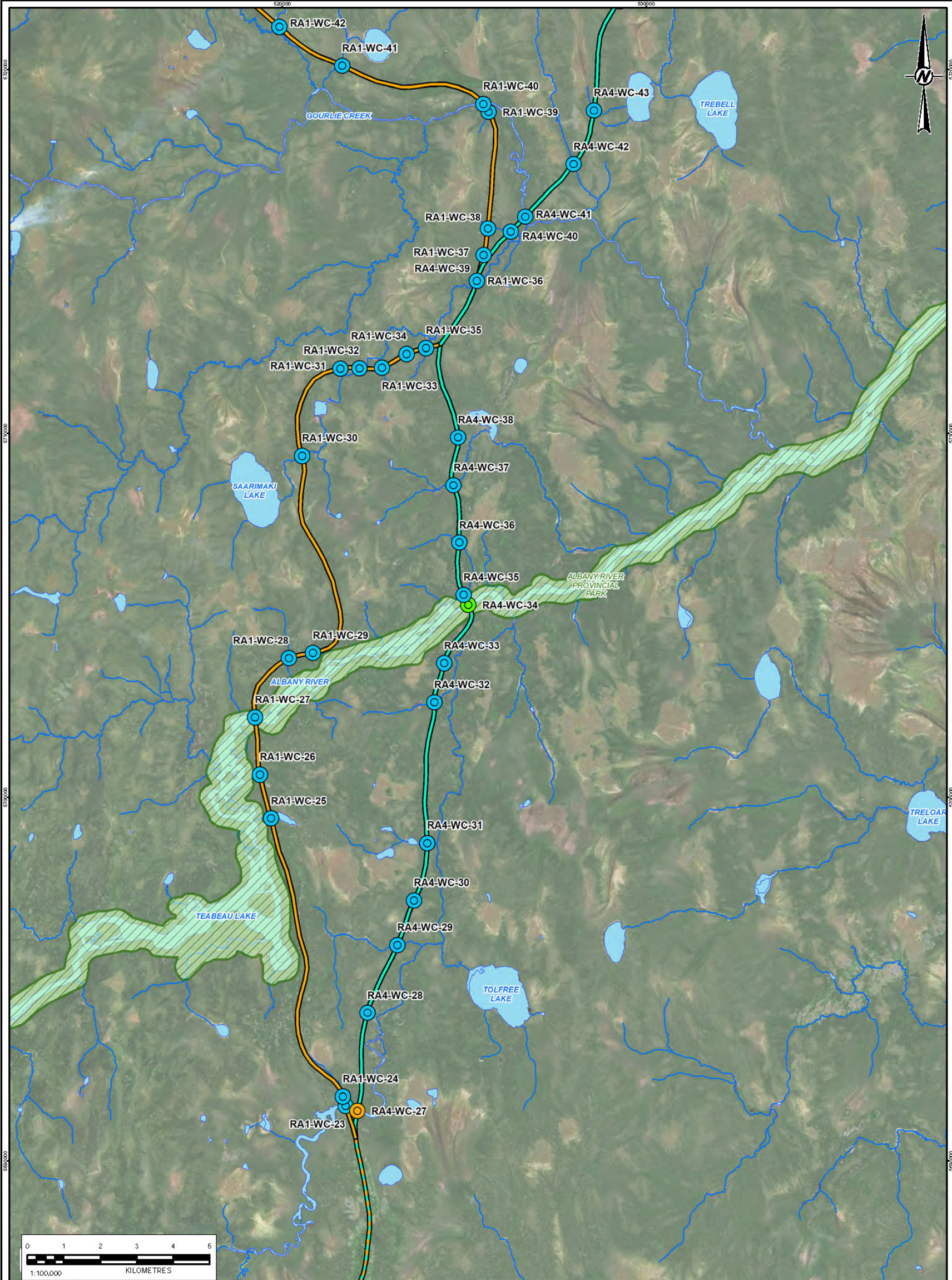




# MARTEN FALLS FIRST NATION ALL SEASON COMMUNITY ACCESS ROAD

Fish and Fish Habitat Study Plan

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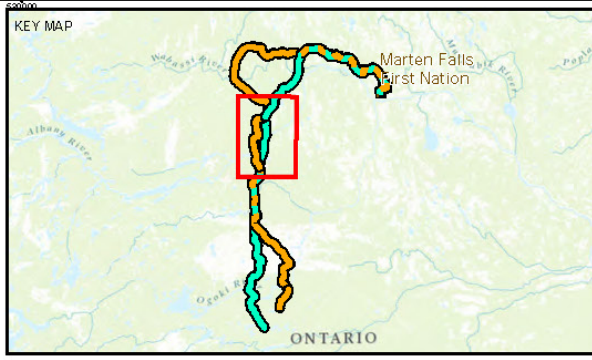


**LEGEND**

- Waterbody Crossings - Fish Habitat Assessment and Fish Sampling (Green circle)
- Waterbody Crossings - Fish Habitat Assessment and Fish Sampling (Minnow Trapping) (Orange circle)
- Waterbody Crossings - Fish Habitat Assessment and Fish Sampling (Electrofishing) (Pink circle)
- Waterbody Crossing (Blue circle)
- Phase 1 Route Alternative Centerline (Black line)
- Alternative 1 (Green line)
- Alternative 4 (Blue line)
- Alternative 1 and Alternative 4 (Yellow line)
- Phase 2 Route Alternatives (Grey line)
- Road (Black line)
- Watercourse (Blue line)
- Waterbody (Blue area)
- First Nation Community (Green area)
- Provincial Park (Green area)

**REFERENCE(S)**

1. BASE DATA MNR/LIO OBTAINED APRIL 2019
2. IMAGERY: BING © 2019 MICROSOFT CORPORATION
3. PHASE 1 ROUTE ALTERNATIVES PROVIDED BY AECOM (MAY 30, 2019, R01)
4. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18N



CLIENT	MARTEN FALLS FIRST NATION		
PROJECT	MARTEN FALLS FIRST NATION COMMUNITY ACCESS ROAD		
TITLE	FIELD ASSESSMENT LOCATIONS		
CONSULTANT	YYYY-MM-DD	2019-11-04	
	DESIGNED	SO	
	PREPARED	SO/PR	
	REVIEWED	BF	
	APPROVED	CD	
PROJECT NO.	CONTROL	REV.	FIGURE
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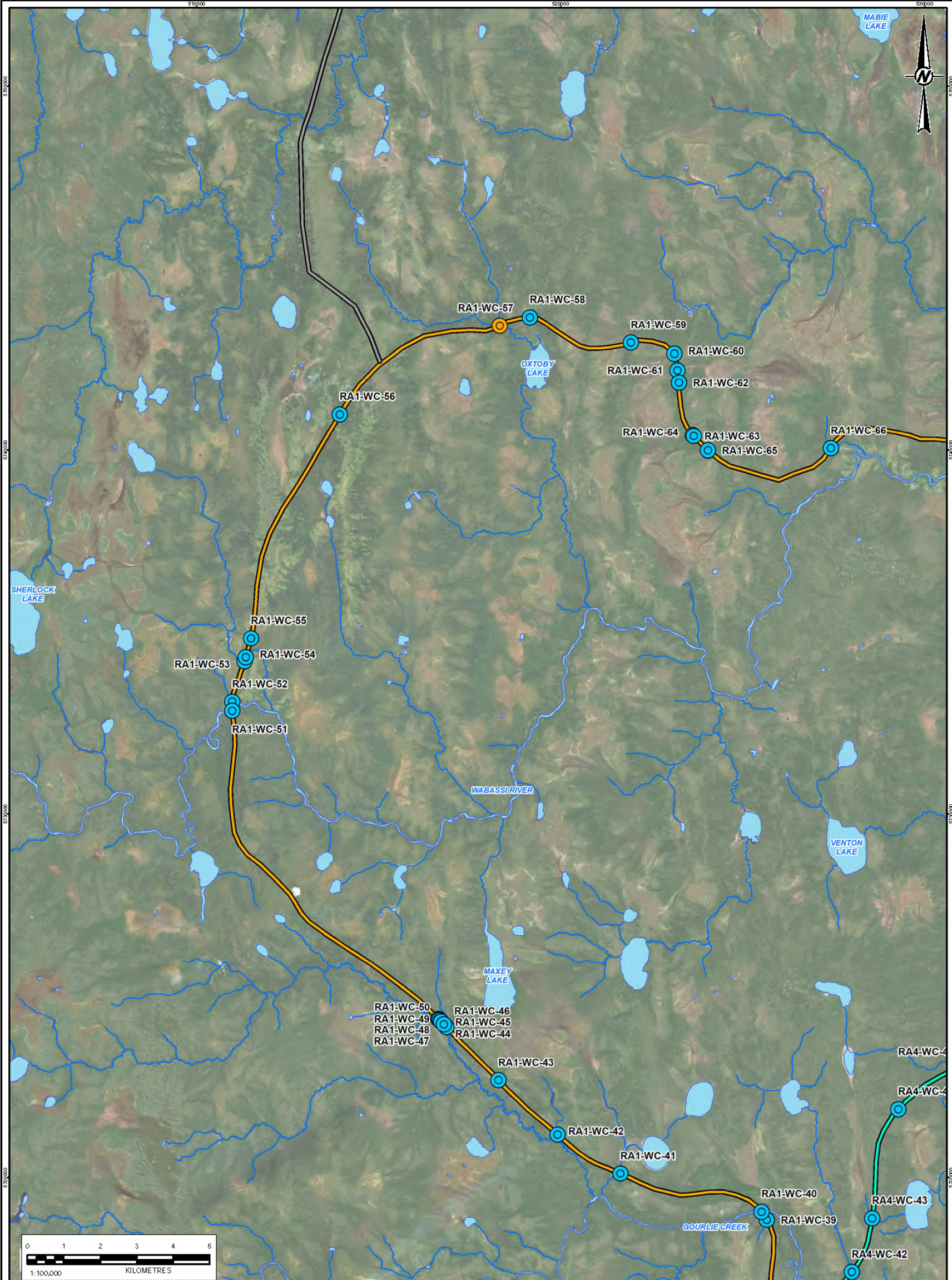




# MARTEN FALLS FIRST NATION ALL SEASON COMMUNITY ACCESS ROAD

Fish and Fish Habitat Study Plan

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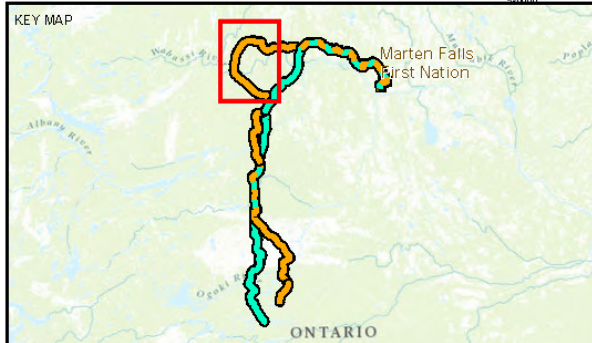


**LEGEND**

WATERBODY CROSSINGS - FISH HABITAT ASSESSMENT AND FISH SAMPLING	PHASE 1 ROUTE ALTERNATIVE CENTERLINE
WATERBODY CROSSINGS - FISH HABITAT ASSESSMENT AND FISH SAMPLING (MINNOW TRAPPING)	ALTERNATIVE 1
WATERBODY CROSSINGS - FISH HABITAT ASSESSMENT AND FISH SAMPLING (ELECTROFISHING)	ALTERNATIVE 4
WATERBODY CROSSING	ALTERNATIVE 1 AND ALTERNATIVE 4
	PHASE 2 ROUTE ALTERNATIVES
	ROAD
	WATERCOURSE
	WATERBODY
	FIRST NATION COMMUNITY
	PROVINCIAL PARK

**REFERENCE(S)**

1. BASE DATA MNR F LIO OBTAINED APRIL 2019
2. IMAGERY: BING © 2019 MICROSOFT CORPORATION
3. PHASE 1 ROUTE ALTERNATIVES PROVIDED BY AE.COM (MAY 30, 2019, R01)
4. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18N



CLIENT	MARTEN FALLS FIRST NATION		
PROJECT	MARTEN FALLS FIRST NATION COMMUNITY ACCESS ROAD		
TITLE	FIELD ASSESSMENT LOCATIONS		
CONSULTANT	YYYY-MM-DD	2019-11-04	
	DESIGNED	SO	
	PREPARED	SO/PR	
	REVIEWED	BF	
	APPROVED	CD	
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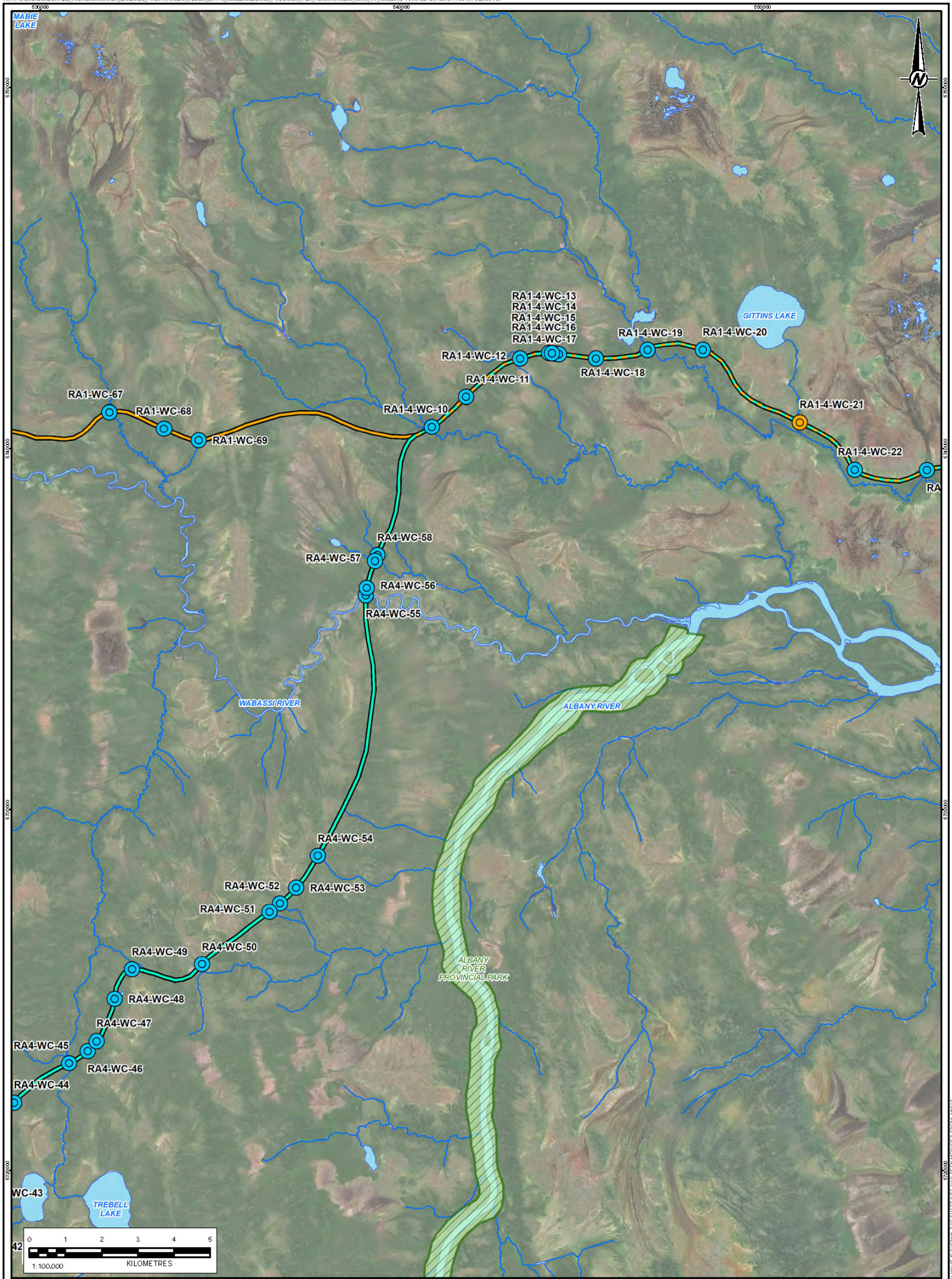




# MARTEN FALLS FIRST NATION ALL SEASON COMMUNITY ACCESS ROAD

Fish and Fish Habitat Study Plan

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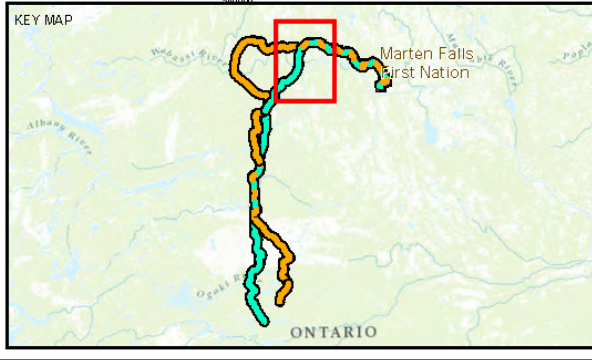
IF THIS SHEET DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM THE ORIGINAL

**LEGEND**

- Waterbody Crossings - Fish Habitat Assessment and Fish Sampling (Green circle)
- Waterbody Crossings - Fish Habitat Assessment and Fish Sampling (Minnow Trap Pings) (Orange circle)
- Waterbody Crossings - Fish Habitat Assessment and Fish Sampling (Electrofishing) (Pink circle)
- Waterbody Crossing (Blue circle)
- Phase 1 Route Alternative Centerline (Black line)
- Alternative 1 (Red line)
- Alternative 4 (Blue line)
- Phase 2 Route Alternatives (Dashed lines)
- Road (Grey line)
- Watercourse (Blue line)
- Waterbody (Blue area)
- First Nation Community (Green area)
- Provincial Park (Green area)

**REFERENCE(S)**

1. BASE DATA MNR F LIO OBTAINED APRIL 2019
2. IMAGERY: BING © 2019 MICROSOFT CORPORATION
3. PHASE 1 ROUTE ALTERNATIVES PROVIDED BY AECOM (MAY 30, 2019, R01)
4. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18N



**CLIENT**  
MARTEN FALLS FIRST NATION

**PROJECT**  
MARTEN FALLS FIRST NATION  
COMMUNITY ACCESS ROAD

**TITLE**  
FIELD ASSESSMENT LOCATIONS

**CONSULTANT**  
GOLDER

DESIGNED	SO	2019-11-04
PREPARED	SO/PR	
REVIEWED	BF	
APPROVED	CD	

**PROJECT NO.** 18108254    **CONTROL** 0001    **REV.** 0.0    **FIGURE** 5

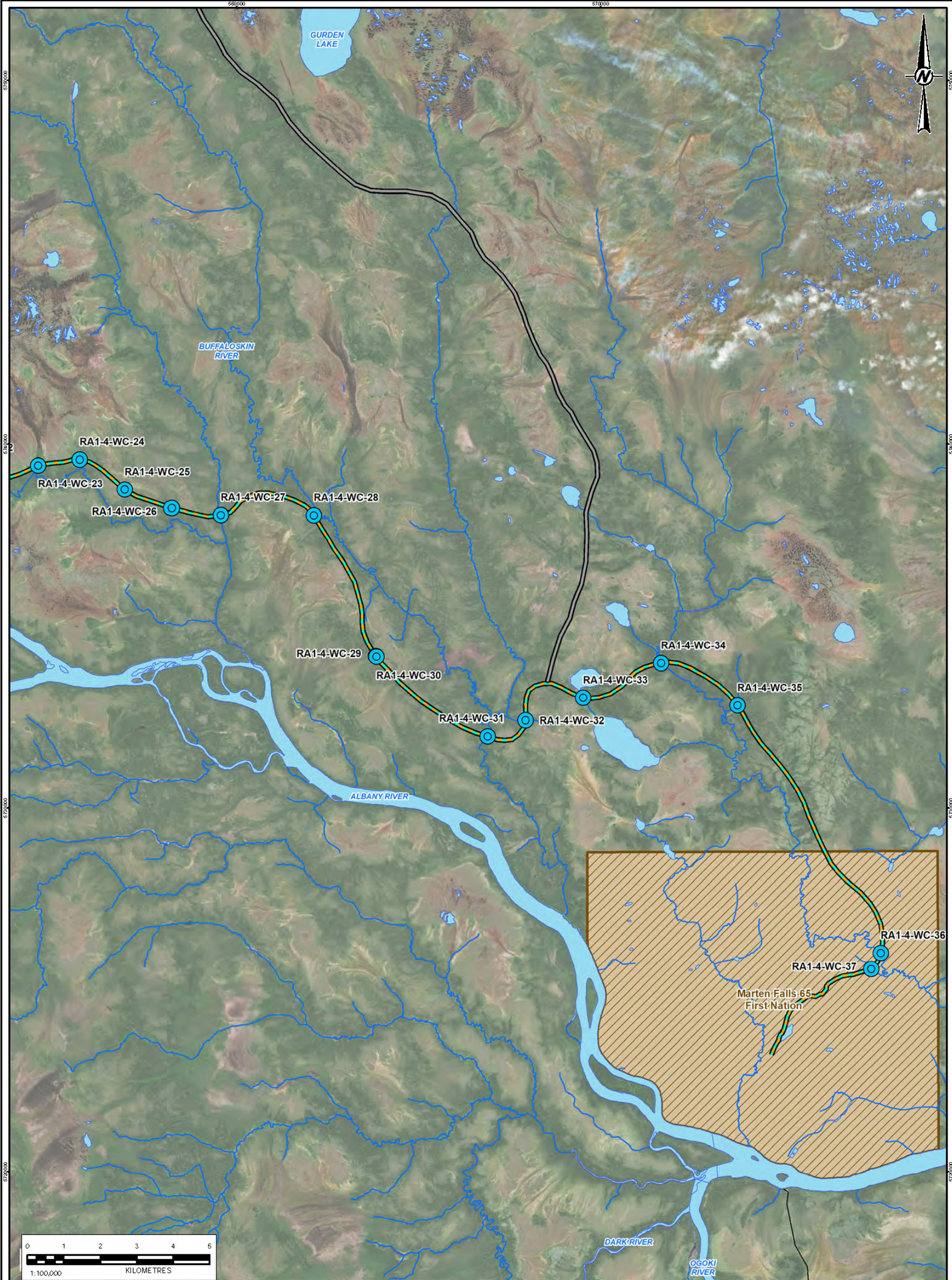




# MARTEN FALLS FIRST NATION ALL SEASON COMMUNITY ACCESS ROAD

Fish and Fish Habitat Study Plan

PTH: S:\Client\Marten Falls, First Nation\Northern\_Ontario\99\_PROD\18108254\_AECOM\_MFFN\_AccessRoadE&I\40\_PROD\0003\_Fish\_Permit\18108254\_0003\_RT\_0002.mxd PRINTED ON: 2019-11-04 AT: 3:26:17 PM



**LEGEND**

- WATERBODY CROSSINGS - FISH HABITAT ASSESSMENT AND FISH SAMPLING
- WATERBODY CROSSINGS - FISH HABITAT ASSESSMENT AND FISH SAMPLING (MINNOW TRAPPING)
- WATERBODY CROSSINGS - FISH HABITAT ASSESSMENT AND FISH SAMPLING (ELECTROFISHING)
- WATERBODY CROSSING

**PHASE 1 ROUTE ALTERNATIVE CENTERLINE**

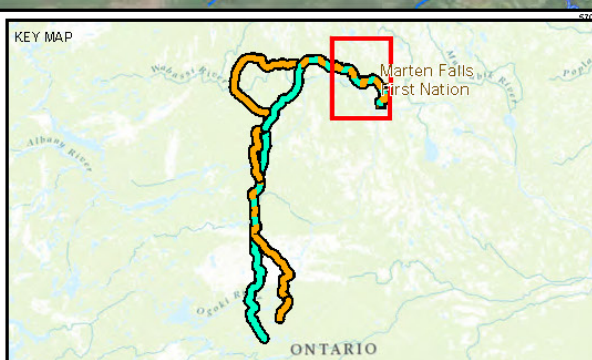
- ALTERNATIVE 1
- ALTERNATIVE 4
- ALTERNATIVE 1 AND ALTERNATIVE 4

**PHASE 2 ROUTE ALTERNATIVES**

- ROAD
- WATERCOURSE
- WATERBODY
- FIRST NATION COMMUNITY
- PROVINCIAL PARK

**REFERENCE(S)**

1. BASE DATA MNR F LIO OBTAINED APRIL 2019
2. IMAGERY: BING © 2019 MICROSOFT CORPORATION
3. PHASE 1 ROUTE ALTERNATIVES PROVIDED BY AECOM (MAY 30, 2019, R01)
4. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18N



CLIENT  
**MARTEN FALLS FIRST NATION**

PROJECT  
**MARTEN FALLS FIRST NATION COMMUNITY ACCESS ROAD**

TITLE  
**FIELD ASSESSMENT LOCATIONS**

CONSULTANT  
**GOLDER**

DATE: 2019-11-04

DESIGNED: SO

PREPARED: SO/PR

REVIEWED: BF

APPROVED: CD

PROJECT NO. 18108254 CONTROL 0001 REV. 0.0 FIGURE 6

**DRAFT**





# MARTEN FALLS FIRST NATION ALL SEASON COMMUNITY ACCESS ROAD



Phone: 1-800-764-9114  Email: [info@martenfallsaccessroad.ca](mailto:info@martenfallsaccessroad.ca)  Web: <http://www.martenfallsaccessroad.ca>

