Appendix V

Final Visual Environment Technical Support Document

MARTEN FALLS FIRST NATION
COMMUNITY ACCESS ROAD

Visual Environment Technical Support Document: Existing Conditions & Effects Assessment Report

February 2026

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AECOM: 2024-12-21

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Revision Number	Date	Revised By:	Revision Description
1	January 10, 2025	Dillon Consulting Limited	Revised to address technical comments from AECOM Technical Review.
2	February 2026	AECOM Canada ULC	Revised to address comments received during the review of the Draft Environmental Assessment / Impact Statement.

Executive Summary

Marten Falls First Nation is proposing the Community Access Road (the Project) to establish a year-round connection between the Community of Marten Falls First Nation and Ontario's provincial highway network (Highway 643) via the existing Painter Lake Road.

Located at the confluence of the Albany and Ogoki rivers, approximately 430 km northeast of Thunder Bay, Marten Falls is a remote community surrounded by boreal forest, wetlands, and major waterways that hold cultural, ecological and recreational significance. The proposed road will provide reliable access for residents, enhance community connectivity, and support regional linkages.

This Visual Environment Existing Conditions and Effects Assessment Report supports the Environmental Assessment / Impact Statement under the *Impact Assessment Act* and Ontario *Environmental Assessment Act* (Government of Canada, 2019; Government of Ontario, 1990a). The study evaluates potential changes to the visual character and quality of the landscape resulting from the proposed Project, identifies mitigation and enhancement measures, and determines the significance of residual and cumulative effects.

Assessment Approach

The assessment focuses on the views experienced by sensitive receptors within four visual environment valued components. Evaluation metrics (i.e., measures of change) applied to those views include:

- Visibility: whether and to what extent the Project is visible.
- Visual Contrast: how Project elements differ from the surrounding landscape in form, line, colour, texture, and gloss.
- Viewer Exposure / Frequency: how often and how long a receptor experiences the view.

Receptor sensitivity reflects the cultural or experiential importance of a view, rather than being a direct indicator itself.

The analysis considers how the Project may influence scenic quality and landscape perception for Indigenous peoples, local residents, recreation users, and park visitors across the following valued components:

- Cultural Heritage Resources and Indigenous Experience and Sense of Place;
- Recreation and Tourism;

- Parks and Protected Areas; and
- Permanent Settlements.

Given the largely pristine setting, all receptors were conservatively classified as high-sensitivity to visual change.

Existing conditions were established through field reconnaissance, Indigenous Knowledge contributions, GIS-based visibility modelling, and photographic documentation between 2021 and 2024. Eight visibility maps and ten visual simulations focused on major river crossings, illustrate the range and nature of potential visual changes.

Summary of Effects by Valued Component

Cultural Heritage Resources and Indigenous Experience and Sense of Place

Temporary construction activities, particularly at major river crossings, will introduce localized visual change through bridge works, shoreline clearing, and equipment visibility. These effects occur in culturally important waterways and traditional land use areas and are therefore considered adverse; however, they are short-term, reversible, and spatially confined. Following mitigation, construction-phase residual effects are **not significant**.

During operation, bridge structures create localized visual contrast but remain compatible with the broader landscape once mitigation is applied. Residual effects are **not significant** overall, with noticeable change limited to very close-range viewpoints near major crossings such as the Albany and Ogoki rivers.

Recreation and Tourism

Short-term visual effects during construction include visible ground disturbance and equipment activity at water crossings. During operation, visual change is largely confined to bridge structures and nearby viewpoints.

After mitigation, residual visual effects for recreation and tourism are **not significant**, with localized and temporary visual change occurring primarily at major river crossings and diminishing rapidly with distance.

Parks and Protected Areas

The Community Access Road intersects the Albany River Provincial Park and Ogoki River Provincial Park, where wilderness character and remoteness are key management values. Construction will temporarily affect local scenic integrity near bridge crossings, and in temporary construction areas. Following mitigation, long-term visual changes remain limited to the immediate viewsheds. At the park scale, residual visual effects are **not**

significant, and the overall scenic character and sense of remoteness of the parks are maintained.

Permanent Settlements

Thirty-six dwellings and two remote cabins were identified as potential receptors. At Marten Falls First Nation, visual effects are limited to intermittent vehicle visibility and minor headlight glare. Vegetation screening, edge feathering, and dark-sky measures reduce these effects. Residual visual effects for the Community are **not significant** during both construction and operations. The two Albany River cabins may experience noticeable but temporary visual change during nearby construction activity; however, these effects are short-term, reversible, spatially limited, and **not significant** overall.

Mitigation and Enhancement

Mitigation follows best practices for linear infrastructure in remote northern environments including:

- Retain vegetated buffers and feathered clearing edges to preserve natural forms;
- Use low-reflectance, neutral finishes on bridge and concrete surfaces;
- Restrict lighting to task-specific, fully shielded fixtures with enforced dark hours;
- Apply progressive reclamation using salvaged organics and native vegetation;
- Schedule high-visibility construction outside peak Indigenous land use and recreation periods where feasible;
- Co-develop finishes and edge treatments with Indigenous knowledge holders for cultural alignment;
- Maintain dark-sky conditions by avoiding continuous lighting during operation; and
- Implement adaptive screening (vegetated berms or infill planting) near the Community if monitoring identifies direct sightlines.

Conclusions

With mitigation in place, residual visual effects of the Community Access Road are localized, low in magnitude, and **not significant** for all visual environment valued components. Noticeable visual change is limited to short-term construction periods and very close-range viewpoints at major river crossings.

Cumulative visual effects, primarily in relation to the Northern Road Link and Painter Lake Road Upgrades, are also **not significant**, reflecting limited spatial overlap, consistent mitigation standards, and coordinated dark-sky practices (where feasible).

Overall, with mitigation, enhancement, and follow-up monitoring in place, the Community Access Road is not predicted to result in significant adverse effects on the visual environment. Temporary and localized visual changes, primarily at major crossings such as the Albany and Ogoki River, will be effectively moderated through design sensitivity, vegetation screening, and continued collaboration with Indigenous communities. The Project preserves the scenic integrity, sense of remoteness, and cultural landscape values that characterize Marten Falls First Nation and the surrounding region.

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1. Introduction

This report incorporates and adapts material from the Draft Visual Environment Technical Support Document: Existing Conditions and Effects Assessment Report (Dillon, 2024), which was submitted with the Marten Falls Community Access Road Draft Environmental Impact Assessment / Impact Statement.

This report presents the existing conditions and effects assessment for the Visual Environment Discipline and is being prepared in support of the Marten Falls Community Access Road Environmental Assessment / Impact Statement.

Marten Falls First Nation is a remote First Nation community in northern Ontario, approximately 430 km from Thunder Bay, Ontario, located at the junction of the Albany and Ogoki rivers. Marten Falls First Nation is proposing a multi-purpose all-season Community Access Road (the Project) that will connect the community to the Ontario provincial highway network.

The Project includes the construction and operation of the Community Access Road with the following characteristics:

- Approximately 184 km (refer to **Section 6** for further details on the selection of the Preferred Route) of two-lane gravel all-season road on a new right-of-way;
- Approximately 100 m-wide right-of-way cleared to a width of 60 m; and
- Proposed designated speed limit of 80 km per hour.

Marten Falls is currently accessible year-round by air transportation out of Thunder Bay, Ontario and Nakina, Ontario, and by a winter access road constructed on an annual basis, if winter conditions permit. Since the 1990s, Marten Falls First Nation has received provincial funding to maintain the 140 km of winter road to the Community.

1.1. Project Overview

The Project consists of a Community Access Road from Painter Lake Road located approximately 57 km north of Nakina, Ontario to the community of Marten Falls First Nation. The Community Access Road will serve community access and industrial supply needs for both the community (e.g., fuel, construction supplies, water treatment supplies) and industrial proponents (e.g., mining, forestry), thereby minimizing infrastructure corridors in the Far North. Therefore, the Project will be for a multi-purpose road built to meet industrial use specifications.

In April 2018, Marten Falls First Nation signed an agreement with the Ministry of the Environment, Conservation and Parks to prepare an environmental assessment under the Ontario *Environmental Assessment Act*, for the design, construction and operation of the

Project (Government of Ontario, 1990a). A study under the Act was formally initiated by Marten Falls First Nation in March 2019, when the Notice of Commencement for a Terms of Reference for the Project was published.

All-season public roads that require 75 km or more of new right-of-way, as per Schedule 1(51) of the Physical Activities Regulations under the *Impact Assessment Act*, may be subject to the Act (Government of Canada, 2019). After considering the detailed Project Description, the Impact Assessment Agency of Canada (the Agency) determined that a federal impact assessment is required for the Community Access Road and an impact statement needs to be submitted to the Agency for review and approval. The Agency prepared and released the *Marten Falls Community Access Road Project: Tailored Impact Statement Guidelines* in February 2020 (Impact Assessment Agency of Canada, 2020a) to outline the information and studies necessary to conduct the impact assessment.

The federal and provincial governments are cooperating on the assessment of the Community Access Road, in accordance with the Cooperation Plan (Impact Assessment Agency of Canada, 2020b). The Cooperation Plan allows Marten Falls First Nation to prepare one single Environmental Assessment / Impact Statement submission to satisfy both the federal and provincial processes.

Construction and operation of the Project will change the way the landscape is viewed, both within the Construction Disturbance Area and potentially beyond. The visual environment includes all visible elements of the landscape, such as landforms, vegetation, waterbodies, and existing built features like roads, utility corridors, and structures. Together, these features shape how people experience and perceive the area visually. **Figure 1-1** provides a photograph that is representative of the potential visual effect of a construction laydown area for a typical linear development in this region, such as the proposed Project.

The assessment of potential changes to the visual environment is the focus of this report.

Figure 1-1: Potential Construction Effect on Landscape (Example)

Example of effect on landscape and on the visual environment due to construction-related activities.
(Photograph by Dillon Consulting Limited)

1.2. Qualifications of Individuals

A list of names and qualifications of the authors and technical reviewers of this report is presented in **Table 1-1**.

Table 1-1: Qualifications of Individuals

Name	Title / Role	Years of Experience	Qualifications
Jaysen Ariola	Landscape Architect	8	MLA, OALA, CSLA
Evelyn Babalis	Landscape Planner	4	BARCH, MLA
Tyler Huguet	Environmental Planner	8	BA, PMP
Eha Naylor	Landscape Architect / Environmental Planner	35	BLA, MBA, OALA, FCSLA, MCIP, RPP

2. Project Description

The Project will be executed in three main phases:

- Planning and design, which includes the preparation of the Environmental Assessment / Impact Statement, obtaining regulatory approvals, and detailed engineering design;
- Construction, which is anticipated to last between 3 and 10 years; and
- Operations, for a permanent road.

The decommissioning of the road is not anticipated.

Further detail on the temporal boundaries used in this assessment are included in **Section 4.2**. The following sections discuss the physical aspects of the Project.

2.1. Project Components

2.1.1. Roads

The Project consists of an approximately 184 km all-season road within a 100 m-wide right-of-way, 60 m of which will be cleared of vegetation. Additional temporary clearing occurring in certain locations to accommodate construction activities, access, borrow areas, aggregate source areas, quarry sites, and temporary infrastructure such as staging areas, camps and debris, and / or timber stockpiles will be required. It has a roadway approximately 11 m in width to accommodate a two-lane gravel road with culverts and two-lane bridges at water crossing locations. Traffic levels for the Project have been estimated at 700 vehicles per day for the north-south section and 100 vehicles a day for the east-west section of the Community Access Road. These volumes are reflective of the anticipated peak traffic in 2046.

The predominant building materials will be blasted rockfill and composite excavation material capped with granular surface material. The majority of blasted rockfill will be obtained from rock outcrops within and / or adjacent to the right-of-way. Building materials will be primarily obtained through the pits and quarries developed specifically to support construction of the Project.

Early investigations on permafrost have shown the Project is located within a sporadic discontinuous permafrost zone, with known locations documented and monitored. At the time of writing no areas of known permafrost have been found within the Construction Disturbance Area. Excavation within identified permafrost areas will be avoided, whenever possible, as cutting into surface vegetation can disturb the permafrost regime resulting in thaw and unstable ground. As a precaution, the design will primarily use fill to minimize

any permafrost degradation and will follow the recommendations outlined in a Permafrost Management Plan.

2.1.2. Bridges and Culverts

Bridges will be required over the various waterways to provide grade separation with sizes ranging from single-span to multi-span bridges to carry two lanes of traffic with appropriate shoulder widths. The foundation support for the bridge abutments is expected to consist of driven steel piles, drilled concrete piles, or concrete spread footings.

Equalization culverts will be installed at locations where it is determined that spring-melt or storm runoff needs to pass from one side of the Project to the other to prevent flooding and / or erosion. The purpose of equalization culverts is to maintain the existing surface water drainage patterns in the area. Culverts will be put in place as construction progresses along the Project.

2.1.3. Pits and Quarries

Pits and quarries will be developed to provide crushed rock and granular materials for the construction of the Project and temporary access roads. Most of the rock required for construction is expected to come from quarry sites adjacent to the Project. Temporary access roads will be established to connect the various Project components as required and will be limited in length to the extent feasible. All materials will be subject to a geotechnical verification process in order to ensure they possess the desired physical properties for use in construction. The development and operation of all pits and quarries will be subject to the aggregate permitting process under the *Aggregate Resources Act* [*Aggregate Resources of Ontario: Site Plan Standards* (Ministry of Natural Resources and Forestry, 2020), *Aggregate Resources of Ontario Technical Reports and Information Standards* (Ministry of Natural Resources and Forestry,2023)]. Permitted pits and quarries will follow the progressive and final rehabilitation requirements outlined in the approved site plans under the Act.

Only material that has been cleared through a geochemical verification process will be used for the road surface to avoid acid rock drainage or metal leaching. Monitoring of runoff will be conducted from an erosion and sediment control perspective; further details about this specific type of monitoring will be available in the Erosion and Sediment Control Plan.

2.1.4. Temporary Infrastructure for Construction

Temporary access roads may be required to access the right-of-way during construction. The purpose of the temporary access roads is to facilitate emergency access, equipment and personnel access, and to provide access to and from quarries, borrow sites, and

aggregate source areas. The temporary access roads will be cleared, but not grubbed, to approximately 10 m wide to accommodate equipment movement.

Upon completion of construction, sand and gravel pits, including temporary access roads leading to the pits will be rehabilitated (progressive and final rehabilitation) and surrendered in accordance with the *Aggregate Resources Act* (Government of Ontario, 1990a).

Temporary construction camps, staging areas, and stockpile areas are anticipated to be established at various locations along the right-of-way and / or near other Project components. These components are proposed to support crews, store equipment, vehicles, materials, and supplies.

3. Information Shared by Indigenous Peoples and Other Interested Persons Which Informed This Report

In the course of completing the description of existing conditions and effects assessment for this report, information provided by Indigenous knowledge holders, Indigenous community members, regulators, and public stakeholders was used to develop the approach and assessment conducted for this study. This information and how it informed the development of this report are described below. This section does not detail all the information, comments, or questions received related to the Project and is limited to only the information which Informed this report. For a full description of all consultation and engagement related to the Community Access Road, refer to the Record of Consultation and Engagement for the Environmental Assessment / Impact Statement. Information related to the Indigenous Knowledge Program can be found in the *Aboriginal and / or Treaty Rights and Interests Technical Support Document* (Appendix O of the Environmental Assessment / Impact Statement).

3.1. Indigenous Knowledge

Indigenous Knowledge refers to Indigenous systems of knowledge as well as cultural practices related to the production of knowledge based on traditional belief systems, relationships to the environment, and community practices. It is the accumulated and living knowledge built upon the historic experiences of Peoples living on the land and adapting to social, economic, environmental, spiritual, and political change (Chiefs of Ontario, no date). It includes knowledge about the natural environment (e.g., locations of caribou seasonal use and calving areas), the relationships between environmental changes and species or ecosystems, and how potential effects to the environment can be avoided or reduced.

Indigenous Land and Resource Use refers to specific areas and resources used for traditional purposes when Indigenous peoples learn and practice their Indigenous Knowledge (Garvin et al., 2001). This includes the areas and sites used for hunting, trapping, fishing, and gathering and the resources harvested, as well as cultural sites, features and practices—sometimes referred to as Traditional Land Use.

In 2019, the Community Access Road Project Team launched a program to collect Indigenous Knowledge. The Indigenous Knowledge Program is a critical component of the information base upon which the assessments will rely. The information generated through the Indigenous Knowledge Program has been woven with scientific approaches, and both knowledge systems will be given equal consideration in forming the foundation for existing

conditions, predicting potential Project effects, and determining appropriate mitigation and monitoring methods.

The Indigenous Knowledge Program occurred in two concurrent phases:

1. Collecting existing Indigenous Knowledge and information on Indigenous Land and Resource Use to help inform the early stages of the assessments; and
2. Completing Project-specific Indigenous Knowledge and Lands and Resource Use studies.

The protection and confidentiality of Indigenous Knowledge and information on Indigenous Land and Resource Use is of the utmost importance to the Project Team. To honour and respect this important information, Indigenous Knowledge Sharing Agreements were established with interested communities prior to the use of community information. The Sharing Agreement outlines how confidential and sensitive information will be woven into the Project's environmental / impact and design processes.

All Indigenous communities and groups identified by the Ministry of the Environment, Conservation and Parks and the Agency through the Indigenous Engagement and Partnership Plan have had 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 included opportunities for Indigenous communities and groups to meet with the Proponent to discuss the program, ask questions, and share concerns and interests.

The Proponent strove to respectfully collaborate with Indigenous communities on how Indigenous Knowledge and information on Indigenous Land and Resource Use and cultural values were considered in reporting, and how potential effects to Aboriginal and / or Treaty Rights and Interests were assessed. Measures to support this included but were not limited to: engaging Indigenous communities to solicit information on Indigenous Knowledge and Indigenous Land and Resource Use and cultural values; to inform existing conditions, providing Indigenous communities with draft sections of the Environmental Assessment / Impact Statement; 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 / or Treaty Rights and Interests. Further information on how potential effects on Indigenous rights were assessed is provided in the *Draft Aboriginal and/ or Treaty Rights and Interests*

Study Plan (Appendix O, Attachment A of the Environmental Assessment / Impact Statement).

Information provided by Indigenous knowledge holders, recognized as such by their Indigenous community, has been obtained through literature review and shared directly by Indigenous nations in support of this Project through face-to-face meetings or receipt of Indigenous Knowledge reports (**Table 3-1**).

Table 3-1: Indigenous Knowledge Used in the Visual Environment Assessment

Indigenous Community	Details	Section Reference
Marten Falls First Nation	■ Indicated locations of various sensitive receptors throughout the Study Areas, including outfitter camps, recreation areas, traditional use and harvesting areas, as well as a sense of place that is connected to the wilderness nature of the lands. ■ Concerns were raised about the potential effects related to ability to enjoy using cabins that might have their views affected.	■ **Section 4.2.3**: Cultural Heritage Resources and Indigenous Experience and Sense of Place Valued Component added to explicitly consider how changes to landscape character and visual quality may influence Indigenous peoples' connection to the land, sense of place, and enjoyment while exercising rights and traditional activities within the Study Areas. ■ **Section 5.2** describes the existing conditions for the Cultural Heritage and Indigenous Experience and Sense of Place Valued Component. ■ **Section 7.3** provides a detailed effects assessment that evaluates potential changes in visual conditions during both construction and operations, including how such changes could influence Indigenous perceptions and experience.
Kashechewan First Nation	■ Identified traditional use of lands surrounding Albany River Corridor and surrounding areas, as well as a sense of place that is tied to the wilderness nature of the lands, and the overall cultural identity of Kashechewan First Nation (comments received on the	■ **Section 4.2.3**: Cultural Heritage Resources and Indigenous Experience and Sense of Place Valued Component added to explicitly consider how changes to landscape character and visual quality may influence Indigenous peoples' connection to the land, sense of place, and enjoyment while exercising rights

Indigenous Community	Details	Section Reference
	Draft Visual Environment Technical Support Document; Kashechewan First Nation, 2024).	and traditional activities within the Study Areas. ■ **Section 5.2** describes the existing conditions for the Cultural Heritage and Indigenous Experience and Sense of Place Valued Component. ■ **Section 7.3** provides a detailed effects assessment that evaluates potential changes in visual conditions during both construction and operations, including how such changes could influence Indigenous perceptions and experience.
Aroland First Nation	■ Identified traditional use of lands within and surrounding Study Areas, and sense of place that is connected to the remote wilderness character of the lands (comments received on the Draft Visual Environment Technical Support Document; Aroland First Nation, 2024).	■ **Section 4.2.3**: Cultural Heritage Resources and Indigenous Experience and Sense of Place Valued Component added to explicitly consider how changes to landscape character and visual quality may influence Indigenous peoples' connection to the land, sense of place, and enjoyment while exercising rights and traditional activities within the Study Areas. ■ **Section 5.2** describes the existing conditions for the Cultural Heritage and Indigenous Experience and Sense of Place Valued Component. ■ **Section 7.3** provides a detailed effects assessment that evaluates potential changes in visual conditions during both construction and operations, including how such changes could influence Indigenous perceptions and experience.

3.2. Regulator and Public Stakeholder Input

The Proponent engaged with regulators and public stakeholders with technical knowledge related to the valued components to inform aspects of this report. The information and how it informed the development of this report are described in **Table 3-2**.

Table 3-2: Public, Agency, and Other Input

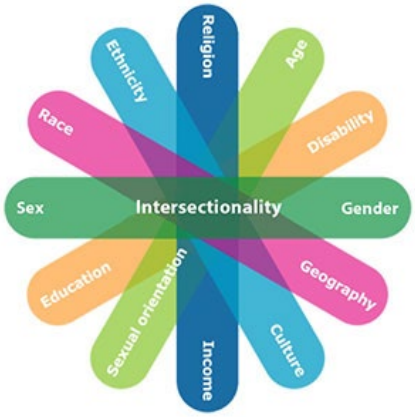
Provided By	Details	Section Reference
Ministry of the Environment, Conservation and Parks and Ontario Parks	■ Provided guidance related to how Waterway Parks are planned and managed in remote wilderness areas. ■ Requested consideration of the Parks' intrinsic wilderness aesthetic as a protected value in its own right. ■ Requested consideration of recreation and tourism outside of the Albany River Provincial Park. These values include canoe routes, commercial outpost camps, and temporary hunt camps.	■ **Section 4.2.3** establishes a valued component for parks and protected areas that explicitly values and assesses the intrinsic wilderness aesthetics of these areas. Outside-park recreation and tourism and consideration of Park Management Objectives included in effects assessment.

3.3. Gender-Based Analysis Plus

The federal *Impact Assessment Act* (Government of Canada, 2019) requires Gender-Based Analysis Plus to be applied to impact assessments in Canada. Gender-Based Analysis Plus is not a specific set of methods for impact assessments, but rather an approach that is adapted to the Project and the communities potentially impacted and / or being engaged.

Gender-Based Analysis Plus is an approach to assessing inequalities and impacts of policies, programs, and projects on diverse groups and identities. These identities could include (but are not limited to): gender, sexual orientation, age, race, ethnicity, class, religion, and mental or physical disability (**Figure 3-1**) (Women and Gender Equality Canada, 2022). These identities can also intersect or overlap (e.g., where an individual identifies as being both Indigenous and an Elder or youth).

Figure 3-1: Gender-Based Analysis Plus Intersecting Identity Factors



Source: (Canadian Institutes of Health Research, 2025)

The Gender-Based Analysis Plus approach involves understanding how certain vulnerable groups—such as Indigenous peoples, women, Elders, youth, and Two-Spirit, Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, Intersex, and Asexual (2SLGBTQQIA+) persons—experience, and could be disproportionately impacted by a project. Understanding how these groups could be affected by projects allow for more targeted, sensitive, and appropriate enhancement measures, mitigations, monitoring, and follow-up (Impact Assessment Agency of Canada, 2025).

It is important to understand that vulnerability in impact assessment is understood primarily, but not solely, as a structural vulnerability. This means that in many cases it is the systems and power structures that make certain groups more vulnerable (Impact Assessment Agency of Canada, 2025). For Indigenous peoples this includes historic and ongoing colonialism, loss of lands and culture, intergenerational trauma, and the residential school system that have resulted in significant social, economic, health and well-being disparities relative to the non-Indigenous Canadian population (Kim, 2019). Exceptions to this are where vulnerability may be associated with biological sex, pregnancy, or age in relation to environmental determinants of health and exposure to contaminants.

3.3.1. Visual Environment Gender-Based Analysis Plus Approach

The Gender-Based Analysis Plus approach for the visual environment study focused on groups that could be disproportionately affected by the Project through changes in views, landscape character, and sense of place, which included:

- Weaving Project-specific Indigenous Knowledge from Indigenous Elders that has been provided, verified, and made available through the Indigenous Knowledge Program into the visual environment study (**Section 3.1**); and

- Identifying and including interests and concerns specific to this study through the Consultation and Engagement Program from groups who could be more vulnerable to, and disproportionately affected by, the Project, which include Indigenous communities (**Section 3.2**).

Within the visual environment assessment, the establishment of the Cultural Heritage Resources and Indigenous Experience and Sense of Place Valued Component is one of the more explicit mechanisms for implementing Gender-Based Analysis Plus. This valued component centres Indigenous peoples' relationships to the land and waters, and the visual dimensions of those relationships, by:

- Prioritizing views and places identified through Indigenous Knowledge and engagement as culturally important or sensitive (e.g., specific river corridors, traditional travel routes, and land-based activity areas);
- Recognizing that different Indigenous groups and roles (e.g., Elders, youth, women, 2SLGBTQQIA+ persons, harvesters, Indigenous knowledge holders) may place different emphasis on certain places, views, or conditions (i.e., quietness, darkness, or remoteness); and
- Using this information to guide the development of mitigation and enhancement measures (e.g., siting and design of crossings, edge treatments, and lighting practices) that protect views and experiences that are most important to Indigenous land users.

At the same time, Gender-Based Analysis Plus is also reflected—though often less explicitly—in the other visual environment valued components:

- For recreation and tourism, the assessment acknowledges that changes in scenic quality, lighting, or perceived remoteness may affect different recreation groups (e.g., guided versus unguided users, local versus non-local users, youth groups, or family groups) in different ways;
- For parks and protected areas, the focus on wilderness character and remoteness inherently supports those park users who value quiet, dark, and undeveloped settings, which can include groups who may feel less safe or comfortable in more developed environments; and
- For Permanent Settlements, the assessment considers how residents—including Elders, children, people with disabilities, and other potentially vulnerable groups—may experience headlight glare, visibility of traffic, and changes to night-time conditions from their homes and community spaces, and uses this to inform mitigation measures such as vegetated buffers and dark-sky practices.

Information on all Gender-Based Analysis Plus identity factors and intersections is not always available at a detailed, disaggregated level for the visual environment. Where specific, identity-differentiated information was not available, the assessment relied on

qualitative input from Indigenous Knowledge and consultation and engagement and used a conservative approach to receptor sensitivity and visibility.

In this way, Gender-Based Analysis Plus in the visual environment is embedded in how receptors are defined, how sensitivity is characterized, and how mitigation is designed across all four valued components, with the Cultural Heritage Resources and Indigenous Experience and Sense of Place" Valued Component providing the most explicit and detailed expression of this lens.

4. Study Methods and Assessment Scope

This section describes the methods, assumptions, and scope of work used to establish existing conditions and assess the potential effects of the Project on the visual environment. The assessment approach follows the general framework established in the *Tailored Impact Statement Guidelines* (Impact Assessment Agency of Canada, 2020) and the guidance outlined in the *Visual Aesthetics Study Plan* (**Attachment A).** This section outlines how existing visual conditions were documented, how potential Project-related changes to the visual landscape were evaluated, and how the significance of those changes was determined. The methods integrate desktop analysis, field work, spatial data review, and visual simulations to support a transparent, replicable, and defensible assessment process.

4.1. Study and Work Plan Purpose and Objectives

As required by the federal *Impact Assessment Act* (Government of Canada, 2019) and referenced in the *Tailored Impact Statement Guidelines* (Impact Assessment Agency of Canada, 2020), Study plans and work plans were developed for each discipline, as applicable. The purpose of the study plan is to:

- Describe existing conditions study methodology to provide a comprehensive description of the existing environment potentially affected by the Project;
- Demonstrate how the discipline will meet the requirements of the *Tailored Impact Statement Guidelines* and *Terms of Reference*;
- Outline the process for ensuring efficient and transparent data management and analysis was completed; and
- Developing the discipline specific effects assessment methodology.

Work plans accompany the study plans and provide operational details on how the studies are to be implemented, including the location of sampling sites, scheduling, and sequencing. A work plan was not required for the visual environment discipline due to the absence of a designated field program.

The *Visual Aesthetics Study Plan*, including comments received from regulators, can be found in **Attachment A**. Deviations from what was initially described in the Draft *Visual Aesthetics Study Plan* are detailed in **Section 4.7, Table 4-10**.

4.2. Study Scoping

4.2.1. Temporal Boundaries

Temporal boundaries define the timeframes within which potential Project effects are assessed. For the purposes of this assessment, the temporal boundaries correspond to the Construction and Operations phases of the Project:

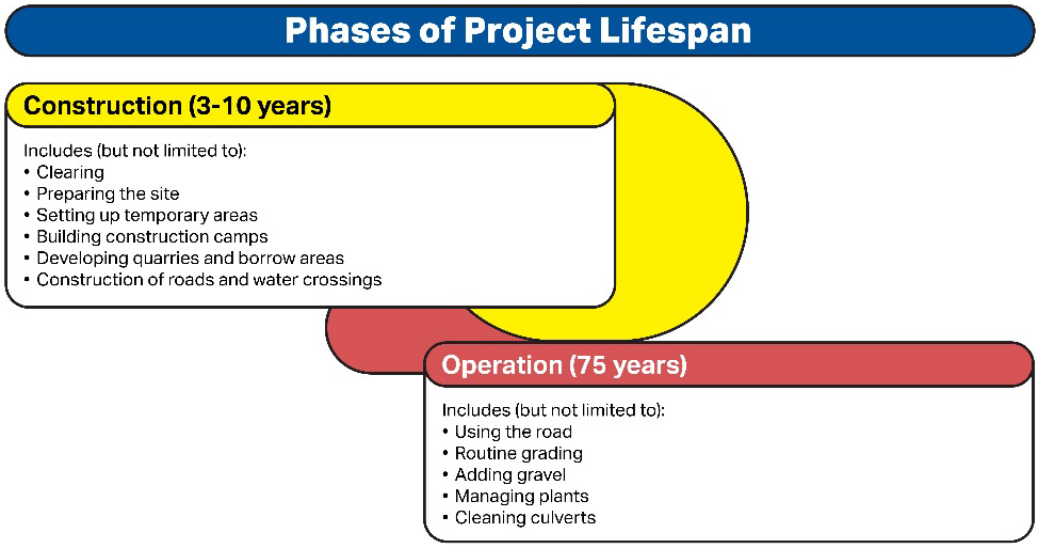
- **Construction Phase:** The time from start of construction, including site preparation activities, to the start of operations of the Community Access Road. Decommissioning of temporary construction areas is included in the Construction phase. The Construction phase is anticipated to take approximately 3 to 10 years to complete; and
- **Operations Phase:** Starts once construction activities are complete and lasts for the life of the Project. The Operations phase is considered to be 75 years, based on the expected timeline for major refurbishment of road components (e.g., bridges).

At this time, no decommissioning of the Community Access Road is planned, as there is no identified or anticipated end date for its use. Therefore, potential effects related to suspension, decommissioning, or abandonment are not assessed in this report. Should decommissioning or closure be proposed in the future, a separate environmental assessment would address those activities.

The temporal boundaries, particularly the extended duration of the Operations phase, were established with consideration of long-term visual effects and implications for the well-being of present and future generations.

Additional details on the phases and temporal boundaries are provided on **Figure 4-1**.

Figure 4-1: Assessment Temporal Boundaries



4.2.2. Spatial Boundaries

4.2.2.1. Study Areas

Study areas identify the geographic extents within which potential effects of the Project are likely to occur and will be considered in this assessment. Visual environment-specific study areas have been delineated to capture the spatial extent of potential Project-related effects to the visual environment. In defining these areas, the following factors were considered:

- Location and other characteristics of the visual environment relative to the Project;
- The anticipated extent of the potential Project effects;
- Federal, provincial, regional, and local government administrative boundaries;
- Input from Indigenous communities;
- Community knowledge and Indigenous Knowledge;
- Current or traditional land and resource use by Indigenous communities;
- Exercise of Aboriginal and / or Treaty Rights and Interests of Indigenous peoples, including cultural and spiritual practices; and
- Physical, ecological, technical, social, health, and cultural considerations.

A tiered approach to defining the Study Areas was used to capture both local (i.e., confined to the immediate site of disturbance) and broader-scale changes in the visual environment.

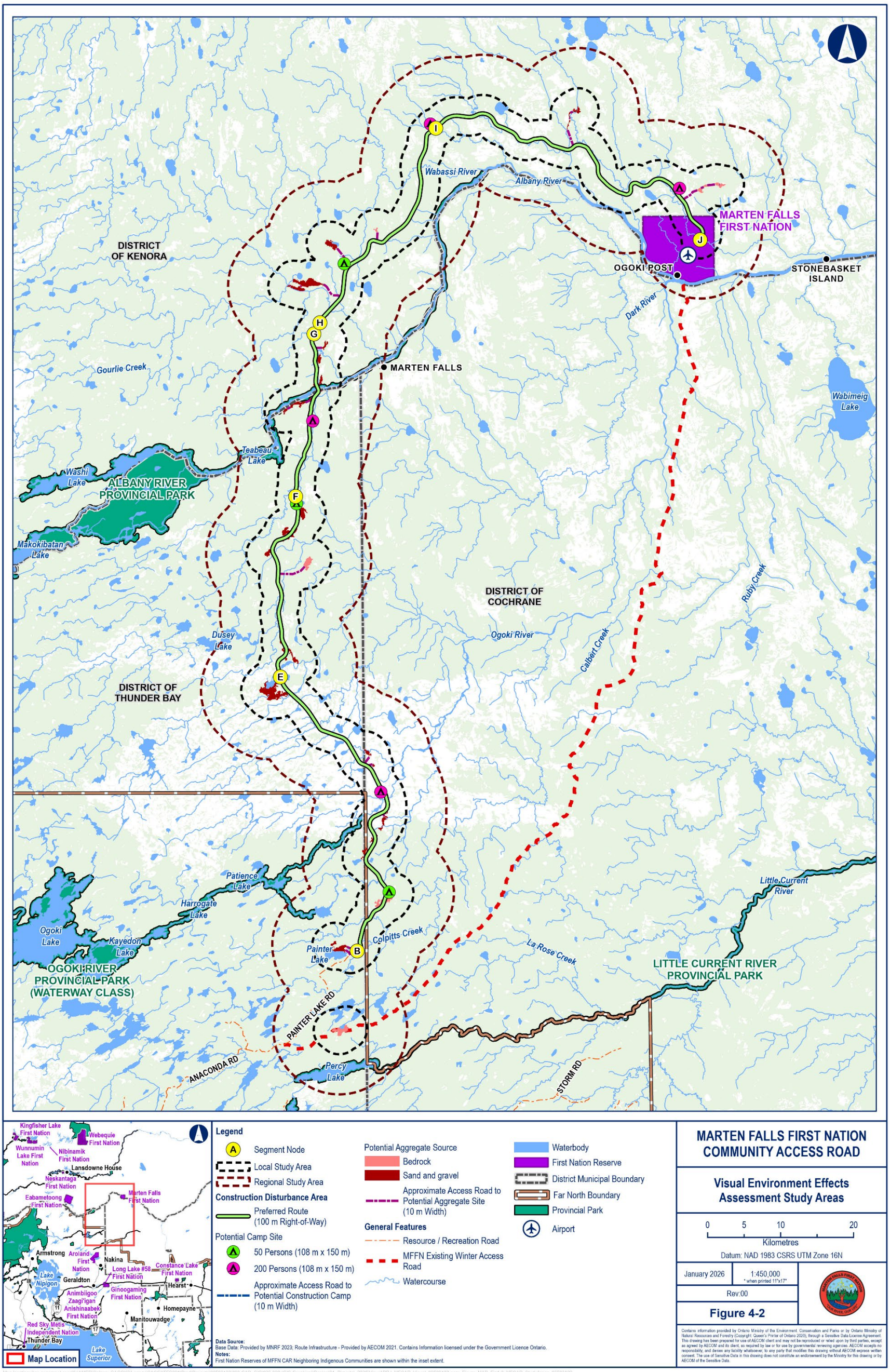
Existing conditions information and a high-level effects assessment were completed for two route alternatives to support the selection of a Preferred Route. Following the selection of the Preferred Route, the Study Areas were refined to focus the effects assessment specifically on that route (**Section 6**). Details regarding the route alternatives analysis and the selection process for the Preferred Route are provided in **Section 6**. The Study Area boundaries and rationale remained consistent across both route alternatives.

A summary description of each Study Area, along with its geographic extent and rationale, is provided in **Table 4-1**, and the Study Areas for the detailed effects assessment of the Preferred Route are illustrated on **Figure 4-2**.

Table 4-1: Visual Environment Study Areas Geographic Extent and Rationale

Study Area	Geographic Extent	Rationale
Construction Disturbance Area	■ Area of direct physical disturbance extending from the roadway centreline, including all aggregate sites and work camps. Encompasses the 100 m-wide right-of-way, temporary construction access roads, work areas, worker camps, and associated pits, quarries, and access roads.	■ Represents the footprint within which the direct visual disturbance will occur.
Local Study Area	■ Area extending approximately 2.5 km on either side of the Construction Disturbance Area (a total width of 5 km).	■ Represents the zone within which most direct and indirect visual effects of the Project are likely to occur and be perceptible to nearby receptors.
Regional Study Area	■ Area extending approximately 8 km on either side of the Project route alternatives (a total width of 16 km).	■ Captures the broader landscape context where residual visual effects may be experienced, though visual changes are expected to be minimal or not discernible due to distance, terrain complexity, and vegetation cover.

Figure 4-2: Visual Environment Effects Assessment Study Areas



4.2.3. Valued Components, Indicators, and Measures of Change

4.2.3.1. Valued Components

The Impact Assessment Agency of Canada describes **valued components** as 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 area of concern or value to the public, Indigenous peoples, federal authorities, and interested parties (Seabridge, 2013.

The visual environment is experienced differently by Indigenous land users, other land users such as outfitters or recreationists, and permanent inhabitants. In addition, parks and protected areas are established to protect wilderness aesthetic conditions and character in their own right. To reflect that, the visual environment assessment uses four valued components:

- **Cultural Heritage Resources and Indigenous Experience and Sense of Place**
  This valued component represents the visual dimensions of Indigenous peoples' relationships to the land and waters, including culturally important waterways, travel routes, harvesting areas, and places associated with cultural practices, stories, and teachings. This valued component focuses on how changes to views, scenic character, and perceived remoteness may affect Indigenous sense of place, comfort and safety on the land, and continuity of land-based use. Indigenous Knowledge from Elders and Indigenous knowledge holders, as well as concerns raised through engagement, are central inputs to identifying key viewpoints and receptors for this valued component. In the visual environment discipline, this valued component is also a primary way that Gender-Based Analysis Plus is operationalized by recognizing that different Indigenous peoples' and groups (e.g., Elders, youth, women, men, and 2SLGBTQQIA+ persons) may experience visual change differently.
- **Recreation and Tourism**
  This valued component captures views and landscape character as experienced by people engaging in recreation and tourism activities, such as paddling, fishing, hunting, camping, or guided outfitting. The Recreation and Tourism Valued Component emphasizes expectations related to scenic quality, wilderness character, and a sense of remoteness along rivers, lakes, trails, and other travel routes.
- **Parks and Protected Area**
  This valued component represents the visual conditions that support the management objectives of designated parks and protected areas, including the Albany River Provincial Park and Ogoki River Provincial Park. These areas are explicitly managed to maintain wilderness character, natural views, and a sense of remoteness (*Ontario Provincial Parks and Protected Areas Act*; Government of Ontario, 2006). For this valued component, the focus is on how Project-related features within or adjacent to

these areas (particularly at river crossings as they are the most visual prominent features of the Project) may change the visual integrity, scenic quality, and perceived remoteness of key viewsheds and as valued landscapes in their own right.

- **Permanent Settlement**
  This valued component represents the visual environment as experienced from places where people live or regularly reside, including Marten Falls First Nation and identified remote dwellings and cabins. This valued component includes views from homes, community spaces, and associated areas where people spend time and carry out daily activities. Assessment under this valued component considers how Project components (i.e., the road alignment, traffic movement, and any associated lighting) may affect the visual setting of the Community and remote residences (e.g., visibility of vehicles, headlight glare, changes to perceived quietness or remoteness), and the extent to which mitigation (e.g., vegetated buffers, edge feathering, dark-sky practices) can maintain the existing character of these living environments.

4.2.3.2. Indicators

Indicators represent the resource, feature, or issue related to the valued component that, if changed, may demonstrate an effect on the environment. For this assessment, indicators are the views experienced by viewers (i.e., receptors) and viewscapes associated with each valued component (e.g., views from culturally significant sites, park waterway users, recreation camps, community dwellings).

For the Parks and Protected Areas Valued Component, indicators also include the aesthetic character of the protected landscape itself, not necessarily tied to human viewpoints. This includes attributes such as wilderness character, scenic integrity, and remoteness values expressed in management intent such as those in the Ontario *Provincial Parks and Conservation Reserves Act* (Government of Ontario, 2006).

Sensitivity of Receptors

While indicators describe what aspect of the visual environment is being measured or evaluated, receptors define where and for whom these indicators are experienced. Receptors serve as the spatial and experiential anchors for the indicators; representing the people, places, or landscape features most likely to perceive and be affected by visual change.

Receptor sensitivity provides an additional interpretive layer applied to each indicator to understand how susceptible that receptor is to change. Sensitivity is not itself an indicator or a measure, but a contextual modifier that influences how the magnitude of visual change is interpreted. It reflects the value placed on visual quality, the expectations for naturalness or remoteness, and the degree to which a visual change may affect experience or meaning.

Sensitivity is determined based on several factors, including:

- Viewer expectations and experiential context: The extent to which people expect or value a sense of remoteness, naturalness, or scenic integrity within a given location;
- Cultural or social importance: The presence of cultural, heritage, or spiritual values that heighten the importance of maintaining existing visual character;
- Land use and management intent: The degree to which established land use designations, management objectives, or planning frameworks emphasize preservation of visual quality (e.g., protected areas, recreation zones, or culturally significant landscapes); and
- Viewpoint exposure and frequency: How often and from where receptors experience the view, and whether the view is an important component of the user's experience or activity.

Receptors are generally categorized as high, moderate, or low sensitivity based on these combined factors:

- High-sensitivity receptors are associated with experiences or places where naturalness, remoteness, or aesthetic quality are central values;
- Moderate-sensitivity receptors can accommodate some visual change without significant loss of visual experience or use; and
- Low-sensitivity receptors occur in settings where human modification is common or where visual quality is not a defining attribute.

Given that the Study Areas are dominated by a pristine wilderness character, the introduction of the Project is expected to fundamentally alter the existing visual environment conditions. To reflect this, **a conservative assumption has been applied: all receptors identified within the Study Areas, along with the intrinsic viewscapes of parks and protected areas, are considered to exhibit high-sensitivity to visual change**. This approach aligns with the precautionary principle and recognizes that any introduction of anthropogenic features (e.g., cleared corridors, road surfaces, or ancillary structures) will likely create a notable visual contrast and be perceived as a clear departure from existing conditions.

4.2.3.3. Measures of Change

Each indicator is evaluated using the following measures of change that describe the degree and nature of potential visual alterations:

- Visibility: Whether Project components are discernible from the receptor view and the extent of their presence in the view (day and night, as applicable);

- Visual contrast: The degree to which Project elements differ from the surrounding landscape in form, line, colour, texture, and gloss / reflectivity, or to management objectives such as those in the Ontario *Provincial Parks and Conservation Reserves Act* (Government of Ontario, 2006); and
- Viewer exposure / frequency: How often and how long the receptor experiences views of the Project (e.g., transient versus sustained, seasonal versus year-round).

A summary of the visual environment valued components, indicators and measures of change, as well as their rationale for selection, is provided in **Table 4-2**.

Table 4-2: Visual Environment Valued Components, Indicators, Rationale for Selection and Measures of Change

Valued Component	Indicators	Rationale for Selection	Measures of Change
Cultural Heritage Resources and Indigenous Experience and Sense of Place	■ Views from culturally significant sites; traditional use corridors and waterways; harvesting, ceremony, and gathering places; including any area or location identified as integral to Indigenous experience and sense of place.	■ Visual change at or near places with cultural, spiritual, or historical importance can alter relationships to land; affect use; and diminish sense of place, cultural continuity, and community well-being.	■ Visibility of Project within views; visual contrast with expected natural or existing character; viewer exposure / frequency.
Recreation and Tourism	■ Views from designated trails and lookouts; canoe routes / portages and backcountry campsites; tourism lodges / outfitters and popular scenic viewpoints.	■ Visitor experience and satisfaction in remote settings rely on low visual intrusion and intact wilderness character; changes to prominent views can affect recreation quality and tourism offerings.	■ Visibility of Project within views; visual contrast with expected natural or existing character; viewer exposure / frequency considering typical use patterns of park users.

Valued Component	Indicators	Rationale for Selection	Measures of Change
Parks and Protected Areas	■ Park landscape character and park viewscapes (e.g., waterway corridors, designated lookouts, remoteness and wilderness character) as protected aesthetic resources in their own right.	■ Visual intrusion may conflict with park management objectives to conserve natural, cultural, and recreational values and the associated sense of remoteness.	■ Visibility of Project; visual contrast relative to targeted wilderness / aesthetic conditions as outlined in the Ontario *Provincial Parks and Conservation Reserves Act*
Permanent Settlements	■ Views from residences, community facilities (e.g., schools, health centres), public spaces and main streets, and approach roads within settlement areas.	■ Project-related tree clearing and structures can introduce or widen sightlines to the construction footprint, which reduces perceived visual quality and community character within settlement areas and affects overall community well-being.	■ Visibility of the Project from community viewpoints; visual contrast with established community and landscape context; viewer exposure / frequency for residents and regular users of public places.

4.2.4. Tailored Impact Statement Guidelines Requirements Mitigation and Enhancement Measures and Terms of Reference Requirements

The *Tailored Impact Statement Guidelines* (Impact Assessment Agency of Canada, 2020) Section 20 requirements and Terms of Reference (AECOM, 2020) requirements for the visual environment discipline are provided in **Table 4-3**. The applicability of these requirements has been evaluated and will be adapted to the needs of the site, environment and Project activities.

Table 4-3: Tailored Impact Statement Guidelines Section 20 Requirements

Tailored Impact Statement Guidelines Section 20 Requirement	Addressed in Section
■ Describe mitigation measures that are specific to the visual environment effect identified. Mitigation measures are to be written as specific commitments that clearly describe when and how the Proponent intends to implement them, what decision-making criteria will be used, and the outcome these mitigation measures are designed to address.	■ **Section 7.5:** Includes the mitigation measures specific to the visual environment discipline. ■ **Section 9:** Includes the monitoring programs and future commitments. This section also discusses the specific commitments that clearly describe when and how the Proponent intends to implement them, what decision-making criteria will be used, and the outcome these mitigation measures are designed to address.
■ Describe mitigation measures that are specific to identified effects to Indigenous peoples.	■ **Section 7.5:** Includes mitigation measures related to the Cultural Heritage Resources and Indigenous Experience and Sense of Place Valued Component.
■ Describe mitigation measures proposed by Indigenous peoples and the consideration of those in the Project.	■ **Section 3:** Contains the information provided by Indigenous peoples that was considered in this report. No specific mitigation measures related to visual effects were provided by Indigenous Peoples.
■ Propose differentiated mitigation measures for all potential adverse effects identified, if applicable, so that adverse effects do not fall disproportionately on vulnerable populations, certain Indigenous groups, or certain communities, and they are not disadvantaged in sharing any development benefits and opportunities resulting from the Project. These mitigation measures should be developed in collaboration with those who are vulnerable and / or disadvantaged.	■ **Section 3:** Although specific vulnerable populations are not identified as a discrete group, the Cultural Heritage Resources and Indigenous Experience and Sense of Place Valued Component explicitly considers receptors that may experience disproportionate effects due to cultural, spiritual, or experiential connections with the land.
■ Describe how disproportionate effects that were identified in the Gender-Based Analysis Plus results were used to inform mitigation and enhancement measures.	■ The Gender-Based Analysis Plus framework identifies that Indigenous populations may experience the Project's visual changes differently due to distinct cultural and social connections to the land. These insights informed the inclusion of a valued component that is specific to cultural heritage resources

Tailored Impact Statement Guidelines Section 20 Requirement	Addressed in Section
	and indigenous experience and sense of place (**Section 4.2.3**), as well as the design and implementation of mitigation and enhancement measures that emphasize culturally sensitive engagement, the co-development of visual design elements with Indigenous knowledge holders, and the protection of key vantage points used for traditional teaching and gathering (**Sections 7.3** and **7.5**).
■ Describe effects to community well-being due to changes to viewscapes and soundscapes resulting from the Project.	■ The visual environment assessment is limited to evaluating visual change and associated effects on visual environment valued components. While community well-being is closely linked to how people perceive and experience landscape change, detailed assessment of well-being effects is addressed separately in the Community Well-Being Technical Support Document (Appendix T of the Environmental Assessment / Impact Statement). Findings from that discipline have been cross-referenced where relevant to ensure alignment between visual mitigation measures (e.g., lighting controls, screening, and culturally appropriate design refinements) and broader commitments to protect community sense of place and quality of life.
Terms of Reference Requirement	**Addressed in Section**
■ Work with Indigenous communities to collect and incorporate information on cultural sites, features and practices in relation to area of the Project through Indigenous Knowledge Program, including Project-specific Indigenous Knowledge and Indigenous Land and Resources Studies.	■ **Section 3:** Contains the information provided by Indigenous peoples that was considered in this report.

4.3. Establishing Existing Conditions

The characterization of existing visual conditions was informed by a combination of desktop analysis, field investigation, and spatial data review. The study design was guided by the *Visual Aesthetics Study Plan* (**Attachment A**) and aligned with the *Tailored Impact*

Statement Guidelines (Impact Assessment Agency of Canada, 2020). Existing conditions were established for two route alternatives, to enable the evaluation of each route, and the selection of a Preferred Route for detailed effects assessment (further details on the alternative route analysis is provided in **Section 6**).

4.3.1. Desktop Assessment

A desktop review was undertaken to compile and synthesize existing information relevant to the visual environment within the defined Study Areas. This review included secondary data, spatial datasets, and published sources to establish landscape context, identify data gaps, and inform field reconnaissance and modelling.

Information sources included:

- Spatial and topographic data: Canadian Vector Data, Land Information Ontario, and the Ministry of Natural Resources and Forestry's Provincial Digital Elevation Model and Light Detection and Ranging data, and the Ontario Ecological Land Classification Database.
- Planning and management documents: Ontario Parks and Protected Areas Database (Government of Ontario, 2014); Ogoki Forest Management Plan (Ministry of Natural Resources, 2021); and the Draft Marten Falls Community-Based Land Use Plan.
- Policy and guidance references: *Guidelines for Landscape and Visual Impact Assessment* (Second and Third Editions) (The Landscape Institute and Institute of Environmental Management and Assessment, 2002, 2013), *Niagara Escarpment Commission Visual Impact Assessment Technical Criteria* (Niagara Escarpment Commission, 2020), *Ontario Heritage Act* (Government of Ontario, 1990c), S*tandards and Guidelines for Conservation of Provincial Heritage Properties* (Government of Ontario, 2022), and the Ontario *Provincial Parks and Conservation Reserves Act* (Government of Ontario, 2006).

Additional information was compiled through engagement with Indigenous communities and local stakeholders, who contributed Indigenous Knowledge and community insights on valued landscapes, culturally significant areas, and sensitive viewpoints (**Section 3**)

4.3.2. Field Work

Field investigations included site observations, and ground-level and aerial photography to verify Project locations, local geography, and existing landscape character. Observations confirmed the accuracy of spatial modelling and supported the identification of visual features and viewpoints representative of the range of conditions within the Study Areas.

Field photographs were also used as base imagery for developing visual simulations to illustrate potential changes to the visual environment as result of the Project.

4.3.3. Sensitive Receptor Identification

For the purposes of this study, sensitive receptors are defined as specific locations, areas of use, or landscape features that may be susceptible to changes to the visual environment resulting from the Project. Sensitive receptors represent the points or areas through which potential effects on each valued component (**Section 4.2.3**) are evaluated. These receptors correspond directly to the indicators identified for the visual environment; that is, the views and viewscapes that express the valued visual experience or character associated with each component.

In practical terms, indicators describe what aspect of the visual environment may change, while receptors identify where and for whom that change is experienced. Together, they form the analytical foundation of the assessment, linking the spatial data (e.g., viewsheds, landscapes, and visual exposure) with the human and cultural dimensions of landscape perception.

Sensitive receptors were identified through an integrated process that combined:

- Spatial and desktop analysis, using Geographic Information Systems data to identify populated areas, parks and protected areas, recreational features, and key landscape elements within the Study Areas;
- Indigenous and community engagement, through which participants identified valued places, traditional travel corridors, waterways, harvesting areas, ceremonial or gathering sites, and landscapes associated with cultural identity or sense of place; and
- Input from related disciplines, including land and resource use, community well-being, and archaeology and cultural heritage studies, which provided corroborating data on land use intensity and the presence of culturally or visually sensitive features.

For the Parks and Protected Areas Valued Component, the visual environment is treated as a receptor in its own right. These landscapes are recognized for their intrinsic aesthetic, wilderness, and remoteness values, as protected under the Ontario *Provincial Parks and Conservation Reserves Act* (Government of Ontario, 2006). Accordingly, potential visual effects are evaluated not only in relation to human viewers within these parks, but also in terms of how the Project could alter the inherent scenic character and integrity of the protected landscape itself.

As outlined in **Section 4.2.3**, a conservative application of the precautionary principle has been adopted in determining receptor sensitivity. Given the undeveloped and pristine character of most of the Study Areas, and the expectation for naturalness and remoteness that defines the current landscape experience, all identified sensitive receptors—including protected landscapes and their associated viewscapes—are considered to exhibit high sensitivity to visual change. This approach ensures that potential visual effects are not

underestimated and that the assessment reflects a precautionary understanding of change within a largely untouched wilderness context.

A heat map of sensitive receptors was generated to assess their distribution and concentration across the Study Areas. To maintain confidentiality for certain receptor locations, the map was divided into approximately 10 × 10 km grid cells. The number of receptors within each cell was counted, and cells containing more than 10 receptors were highlighted red. Individual receptors are not mapped. The mapping is provided on **Figure 5-4**.

4.4. Effects Assessment Methodology

The effects assessment evaluates how the Project may alter the visual environment during construction, operation, and maintenance. Specifically, it compares the Preferred Route (i.e., the Project) against the “Do Nothing” alterative. It follows a systematic approach designed to identify, predict, and evaluate potential effects, apply appropriate mitigation, and determine residual and cumulative effects.

In brief, the assessment process includes the following steps:

- Characterize the existing environment for both route alternatives (**Section 4.3**);
- Review construction and operations activities to identify potential interaction(s) that could result in environmental effects;
- Identify potential environmental effects of the Preferred Route and recommend mitigation measures to avoid or minimize identified effects, as well as identify opportunities to enhance benefits to the environment;
- Predict cumulative effects that may result from a combination of the residual effects of the Preferred Route with the effects of other past, present, and reasonably foreseeable projects; and
- Identify a follow-up program for the Preferred Route that includes monitoring to verify the prediction of the effects assessment and effectiveness of the mitigation measures, and a requirement for monitoring of the commitments made in the Terms of Reference and Environmental Assessment / Impact Statement.

The following subsections provide a detailed description of the methods used to apply this approach, including how potential effects were identified, assessed, and evaluated for the visual environment throughout each phase of the Project.

4.4.1. Project-Environment Interactions

As a first step in the effects assessment, potential Project-environment interactions were identified to determine which Project activities could result in changes to the visual environment. This process considered the full range of planned construction and operations activities, their spatial extent, duration, and visibility within the Study Areas.

For most disciplines, this step is used to screen out Project activities that are unlikely to result in a measurable interaction. However, for the visual environment, all physical Project activities are considered to have the potential to interact with, and thereby alter, visual conditions to some degree. This approach reflects the inherently perceptual nature of the discipline; where any visible physical change, even temporary, contributes to the alteration of landscape character or scenic quality.

Table 4-4 are considered to interact with the visual environment. These activities include both construction activities (e.g., right-of-way clearing, aggregate extraction, bridge and culvert installation, and staging area development) and operations activities (e.g., ongoing road use, vegetation management, and infrastructure upkeep). While the intensity and duration of effects vary among activities, each introduces visual elements that can modify the existing visual environment through changes in form, colour, texture, reflectivity, or movement.

Table 4-4: Project – Environment Interactions

Project Phases	Project Activities	Visual
Construction Phase	Mobilization of Equipment and Supplies	X
	Temporary Construction Staging Areas	X
	Temporary Access Roads and Trails	X
	Temporary Construction Camps	X
	Right-of-Way Clearing and Grubbing	X
	Brush and Timber Disposal	X
	Pits and Quarries	X
	Temporary Concrete Batch Plants	x
	Drilling / Blasting / Aggregate Production	X
	Road Construction (stripping, subgrade excavation, embankment fill placement, grading, ditching)	X
	Bridge and Culvert Installation (approach embankments, foundations, substructures, superstructures, traffic protection, erosion controls)	X
	Construction Site Restoration	X

Project Phases	Project Activities	Visual
Construction Phase: Decommissioning	Pits and Quarries	X
	Temporary Camps, Roads / Trails and Staging Areas	X
Operations Phase	Road Usage	X
	Maintenance	X

4.4.2. Potential Effects Definitions

Following the identification of the Project-environment interactions, potential changes (i.e., effects) on the visual environment are defined and categorized to provide a consistent framework for identifying, evaluating, and characterizing how the Project may influence the visual character and quality of the landscape. Effects are classified as **direct**, **indirect**, and **residual**, and are considered for the Construction and Operations phases of the Project. This structure ensures that pathways of change are clearly understood, traceable, and appropriately attributed within the overall effects assessment.

A **direct effect** is an immediate change to an environmental component caused by a project activity at the same time and place as the activity. In these cases, the Project feature or activity itself (or its immediate by-product) is the visual agent causing the change. Examples include the cleared right-of-way, bridge structures and abutments, construction laydown areas, temporary lighting and headlight glare, and active dust plumes produced during earthworks or hauling. These effects occur concurrently with Project activities and are typically the most apparent visual changes.

An **indirect effect** occurs when a change resulting from a project activity leads to subsequent changes in other environmental component, which may occur later in time or at a different location but are reasonably foreseeable. In such cases, there is a mediating process or a time lag between the Project action and the visible outcome. For example, clearing may change vegetation structure along corridor edges, leading to dieback or windthrow that gradually widens sightlines; dust deposition may lighten roadside vegetation or rock, changing local colour contrast; or temporary water turbidity from disturbed soils may affect perceived naturalness at downstream viewpoints. These effects are visually expressed later, through the Project's influence on other environmental processes.

Residual effects are the effects that remain after the application of mitigation measures. Examples include the continued visual presence of the right-of-way and bridge structures. Residual effects are characterized in terms of significance, magnitude, geographic extent, duration, frequency, and reversibility, and are then carried forward to the cumulative effects assessment (**Section 8**).

In addition, changes in the visual environment can act as **indirect pathways of effect to other disciplines or valued components**. For instance, altered landscape character or visibility of the road corridor may influence how community members perceive the sense of place, remoteness, or cultural integrity of the area, contributing to effects on community well-being. Similarly, reduced visual screening or changes in perceived naturalness along traditional travel routes or harvesting areas may affect the use and enjoyment of lands and resources by Indigenous communities and other land users. In these cases, the visual environment functions as an intermediate valued component through which Project effects are transmitted to social, cultural, or land use receptors. These cross-discipline linkages are summarized in **Table 4-5**, which identifies where the visual environment has plausible indirect relationships with other valued components based on spatial, cultural, or perceptual connections. The pathways identified in this table were considered qualitatively in the corresponding assessments for community well-being, land and resource use, archaeology and cultural heritage, and Aboriginal and / or Treaty Rights and Interests.

It is also important to distinguish indirect effects from cumulative effects. Where such reasonably foreseeable future projects or activities may interact with the Project's effects, or where existing developments overlap spatially or temporally with the Project, these interactions are addressed as cumulative effects, which are assessed separately from Project effects (**Section 6**), in **Section 8**.

Table 4-5: Indirect Effect Pathways to other Valued Components

Valued Component - Effect	Atmospheric Environment	Climate Change	Acoustic Environment	Physiology, Terrain, and Soils	Surface Water	Groundwater	Soils, Vegetation and Peatlands	Wildlife (Including Ungulates) and Birds	Fish and Fish Habitat	Aboriginal and / or Treaty Rights and Interests	Community Well-being	Land and Resource Use	Archaeology and Cultural Heritage
Effect to the visual environment may lead to an indirect effect to these other disciplines										x	x	x	x

4.4.3. Visibility Mapping

Visibility mapping is a spatial analysis method used to identify where a project or its components may be visible within the surrounding landscape. It provides an objective, data driven basis for understanding the potential extent and distribution of visual exposure to the Project. The mapping results are used to inform the assessment of potential visual change, identify sensitive receptors likely to experience those changes, and support the interpretation of effects significance.

The visibility mapping and analysis were completed using Geographic Information System software, incorporating 2019 to 2022 Light Detection and Ranging data and the Provincial Digital Elevation Model as the foundation for surface and elevation information.

To represent existing conditions, the Provincial Digital Elevation Model, which includes vegetation canopy and other surface features, was used as the base layer. Within the Construction Disturbance Area, the Light Detection and Ranging-derived bare-earth surface replaced the Provincial Digital Elevation Model to more accurately represent ground elevations along the road alignment. This combined dataset provided a detailed digital surface model, representing both topography and vegetation height for use in the visibility analysis.

A viewshed analysis was then conducted using the Construction Disturbance Area as the source of potential visual change, extending outward across the surrounding landscape to identify areas where Project features may be visible to sensitive receptors.

In modelling visibility, a viewer height of 13.5 ft (approximately 4.1 m) above ground surface was applied. Although this height is notably higher than the standard human eye level of approximately 5 to 6 ft, it was used deliberately as a conservative assumption to ensure that the analysis captures the full potential extent of Project visibility. This approach accounts for possible elevated viewpoints not captured in the models, and conservatively represents the highest likely line of sight above intervening vegetation or terrain. Applying a higher viewer height helps to ensure that potential visibility is not underestimated.

At the same time, care was taken to avoid overstating the potential area of visual influence. The following measures were incorporated to maintain accuracy and realism:

- Modelled visibility was cross checked against field photographs and local landscape observations to confirm representativeness where possible; and
- Visibility categories were interpreted qualitatively, recognizing that modelled visibility indicates the potential for sightlines, not a guarantee of unobstructed views.

Areas of higher elevation or taller vegetation may appear as high-visibility zones in the model because those elevated surfaces have a potential line of sight to portions of the Project at greater distances. In these cases, the modelled visibility represents the

theoretical upper extent of visibility within the landscape, not necessarily what would be perceptible from ground level once vegetation density and terrain complexity are considered.

Visibility was classified into three categories based on the number of instances where each cell of the model surface was visible from the Construction Disturbance Area, on a scale from 0 to 255:

- Low Visibility (0 to 85 instances): Minimal or negligible visibility; receptors in these areas would have obstructed or distant views due to forest cover, terrain, or distance;
- Medium Visibility (86 to 170 instances): Intermittent or partial visibility; Project features may be discernible under specific conditions or from elevated viewpoints; and
- High Visibility (171 to 255 instances): Frequent or clear visibility; receptors in these areas would likely have unobstructed or nearby views of Project features.

The results of the visibility analysis are presented in **Section 7.2**.

4.4.4. Visual Simulations

In addition to visibility mapping, simulations were prepared for ten crossing locations. The selected crossings include a range of structure types and settings, from multi-span bridges such as those proposed at the Albany River and Ogoki River, to single-span bridges. These locations were chosen to provide a representative sample of how the more visual intrusive crossings along the alignment may appear once constructed.

Crossings were selected for simulation because they are inherently more visually prominent than other components of the Project—such as the road surface—which will generally be screened by dense vegetation and therefore not readily visible within the surrounding wilderness landscape. In most areas, the road corridor will be fully or partially obscured by trees, and visual change will be localized and temporary. At river and stream crossings, however, the forest canopy opens, creating clear sightlines where the bridge structures and associated clearings will be perceptible across the water or from adjacent riverbanks. These locations are also used by park visitors and community members for recreation, travel, and fishing, making them the places where people are most likely to experience the Project visually. Concentrating on crossings therefore provides a meaningful and realistic understanding of how the Project will appear in the few areas where it can actually be seen.

Base photography for each crossing was captured from natural human eye height to reflect typical viewing conditions for a person standing on a riverbank, trail, or within a canoe or small watercraft. Photographs were taken under clear daylight conditions to provide accurate representation of colour, lighting, and contrast. Models of the crossings were developed based on preliminary design at the time of writing. Rendering and compositing

was completed using SketchUp, Lumion, and Adobe Photoshop so that each simulated image aligns with its corresponding base photograph in scale, perspective, and lighting.

The completed simulations depict how the crossing structures will integrate with the surrounding forest, water, and sky, showing both the physical form and visual tone of the new infrastructure within its natural context.

The simulations are provided in **Section 7.2**.

4.4.5. Mitigation and Enhancement Measures Methodology

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

It is important that mitigation and enhancement measures are achievable, measurable, verifiable, and monitored for compliance and effectiveness during all temporal phases as part of the Project follow-up monitoring plan. Recommended environmental monitoring will verify the potential environmental effects predicted, evaluate the effectiveness of mitigation and enhancement measures, and identify the process the Proponent will follow if mitigation and enhancement measures are not effective. The monitoring program, including a list of future commitments, is described in **Section 9**.

Once mitigation and enhancement measures have been identified, residual effects can be characterized and evaluated.

4.4.6. Residual Effects Characteristics

This section sets out the method for describing residual effects to the visual environment and for reaching a clear significance conclusion. This section defines every residual effect characteristic used in the assessment, explains how those characteristics work together in practice, and then presents the visual environment magnitude scale and the decision procedure for significance. Magnitude and significance are given brief dedicated subsections because they anchor the decision-making process: magnitude expresses the degree of visual change experienced at receptors, and significance is the formal conclusion that integrates magnitude with sensitivity and the other characteristics.

For each potential residual effect, the assessment records direction, magnitude, geographic extent, duration, frequency, reversibility, likelihood, context, uncertainty, and

confidence. **Table 4-6** includes definitions for each of these characteristics, as well as how it is applied in this assessment.

Table 4-6: Residual Effects Characteristics Definitions and their Application in this Assessment

Effects Characteristic	Definition	How It Is Applied in This Assessment
Direct / Indirect	■ Nature of the pathway through which the effect occurs.	■ Direct effects are typically immediate and spatially aligned with the activity. Indirect effects may be delayed or spatially removed but are causally linked and predictable.
Context	■ The environmental, social, and perceptual setting in which a visual effect occurs.	■ Used to interpret the consequence of a change once sensitivity and magnitude are established. A similar magnitude can carry greater weight in a pristine or culturally significant context / setting than in a previously modified landscape.
Receptor or Landscape Sensitivity	■ The susceptibility of the view, landscape, or viewer group to visual change, together with the value attached to that experience.	■ General definitions: – High where naturalness or scenery is central or formally valued; – Medium where views are important but not primary; or – Low where views are incidental. ■ For this Project, all receptors are treated as high-sensitivity.
Direction	■ Whether the change is an improvement, no net change, or a deterioration relative to existing conditions	■ Stated as: – Positive: improvement; – Neutral: no change; or – Negative: deterioration.
Magnitude	■ The degree of change from existing conditions.	■ Determined by – Visibility; – Visual contrast; and – Viewer exposure / frequency. ■ Considers contrast in form, line, colour, texture; by the proportion of the field of view affected; by prominence in the scene; and how often the receptor is exposed to the changes.

Effects Characteristic	Definition	How It Is Applied in This Assessment
		■ A four-level scale is used to define the magnitude level, as is described in subsection following this table. The levels include: – Negligible; – Low; – Medium; or – High.
Geographic Extent	■ The spatial area over which the effect occurs and the number or distribution of receptors affected	■ Three geographic extents based on the Study Areas descriptions in **Section 4.2.2**: – Confined to the Construction Disturbance Area; – Extending across the Local Study Area; or – Extending into the surrounding Regional Study Area. ■ Broader extents can elevate overall concern and significance.
Duration	■ The period of time that the effect is expected to occur	■ Described as: – Short-term where it ends before the end of construction; – Medium-term where it continues into early operations; and – Long-term where it extends well into operations or is permanent.
Frequency	■ How often the receptor is likely to experience the effect	■ Described as: – Infrequent: occasional travel views; – Frequent: on a regular basis, usually daily or weekly; or – Continuous: sustained, generally fixed location views (e.g., permanent residences).
Reversibility	■ The ability to return to existing conditions	■ Describes as: – Reversible: the effect is not permanent; or – Irreversible: the effect is permanent.

Effects Characteristic	Definition	How It Is Applied in This Assessment
		■ Considering there is no decommissioning plan, the road and crossing elements are considered permanent for the purpose of this assessment. Therefore, all identified residual effects will (or are expected to) be characterized as irreversible. **Section 4.2.1** has further details on the temporal boundaries included in this assessment.
Likelihood	■ Probability that the effect will occur	■ Described as – Unlikely; – Possible; – Probable; or – Certain. ■ For constructed features, visual change is generally probable to certain.
Uncertainty	■ The potential for observed results to deviate from predictions made	■ Wherever uncertainty exists it will be stated. Generally speaking, for the visual environment, the most significant uncertainty is the location of the sensitive receptor. During data collection, most sensitive receptors were identified during Indigenous Knowledge and community consultations. These locations were sometimes anecdotal without georeferencing and the accuracy of those locations could not be verified without further ground-truthing.
Significance	■ A cumulative consideration of the effects characteristics to reach a conclusion on significance	■ Determined by combining sensitivity and magnitude, then considering context, extent, duration, reversibility, likelihood, uncertainty, and professional judgement. The subsections following this table provide more details on how Significance is determined and how the following significance levels are applied: – Not significant; – Possibility significant; or – Significant.

Effects Characteristic	Definition	How It Is Applied in This Assessment
Confidence	■ Level of confidence in the results	■ Expressed as: – High confidence; – Moderate confidence; or – Low confidence. ■ Based on quality of data, agreement between mapping and ground-truthing or field photographs, and accuracy of visibility mapping methods

4.4.6.1. Magnitude Definitions

As described in **Table 4-6**, visibility, contrast, and frequency of exposure are used to assess magnitude. These measures are then used to determine the magnitude level using the four-level scale as defined in **Table 4-7**.

Table 4-7: Visual Environment Magnitude Levels Definitions

Magnitude Levels	Definition
Negligible	■ Visibility: Very minor alteration to one or more key elements, features, or characteristics of the existing condition. ■ Contrast: New elements blend such that the scene appears essentially unchanged. ■ Frequency / Exposure: Affected view is seen on very rare occasion (less than once a year) or not seen at all
Low	■ Visibility: Very minor alteration to one or more key elements, features, or characteristics of the existing condition. ■ Contrast: New elements are noticeable but generally compatible with landscape character. ■ Frequency / Exposure: Affected view is seen infrequently (once or twice per year).
Medium	■ Visibility: Partial alteration to one or more key elements / features / characteristics of the existing condition. ■ Contrast: New elements are noticeable, but generally incompatible with the landscape character, but the change does not dominate the view. ■ Frequency / Exposure:Affected view is seen occasionally (transient views or travel corridors, or areas used several times per year).

Magnitude Levels	Definition
High	■ Visibility: Total loss of or major alteration to key elements / features / characteristics of the existing conditions. ■ Contrast: Introduction of elements considered to be totally uncharacteristic when set within the attributes of the receiving landscape. ■ Frequency / Exposure: Affected view is seen on a regular basis. Usually for permanent residents or daily exposure.

4.4.6.2. Determining Significance

Residual effect significance is determined by integrating magnitude and receptor sensitivity within a structured framework, then refining the outcome using the modifying characteristics (extent, duration / frequency, reversibility, likelihood, context, uncertainty, and professional judgement).

Step 1: Establish Receptor Sensitivity and Magnitude Relationship with Significance

The interaction of receptor sensitivity and magnitude provides the initial indication of whether a residual visual effect is likely to be significant. All receptors in this assessment are considered high-sensitivity; however, the matrix in **Table 4-8** shows the general logic used across all combinations.

Table 4-8: Receptor Sensitivity and Magnitude Relationship with Significance

Magnitude of Effect	Low Receptor Sensitivity	Medium Receptor Sensitivity	High Receptor Sensitivity
Negligible	Not Significant	Not Significant	Not Significant
Low	Not Significant	Not Significant	Not Significant
Medium	Not Significant	Significant	Significant
High	Significant	Significant	Significant

Step 2: Apply Modifying Characteristics

After Step 1, significance is further analyzed using the following effect characteristics as modifiers to confirm or adjust the outcome (**Table 4-9**).

Table 4-9: Modifying Characteristics Influence on Significance

Characteristics	Influence on Significance
Extent	■ Broader or multi-receptor effects support a significant determination; highly localized effects may support a not significant determination.
Duration	■ Long-term or permanent effects support a significant determination; short-term effects may support a not significant determination.
Frequency	■ Continuous or frequent exposure supports a significant determination; infrequent or transient exposure may support a not significant determination.
Reversibility	■ Irreversible effects support a significant determination.
Likelihood	■ Effects that are probable or certain support a significant determination.
Uncertainty / Confidence	■ Where uncertainty is present, professional judgement is applied using conservative assumptions. Uncertainty is documented alongside the final determination.

Step 3: Reaching a Final Significance Determination

The final significance determination integrates the sensitivity-magnitude relationship (Step 1) with the modifying characteristics (Step 2) to reach a clear and traceable conclusion. All residual effects are classified as either **significant** or **not significant**. Where data limitation or uncertainty influence the interpretation, this is explicitly acknowledged.

4.5. Identify Cumulative Effects

Should the assessment result in the identification of **significant** adverse effects to the visual environment valued component, other past, current, or reasonably foreseeable projects known to interact with the Project will be examined to assess how they might contribute to further changes to the visual environment. This assessment is completed in a qualitative manner. Refer to **Section 8** for results on the cumulative effects assessment.

4.6. Data Management and Analysis

4.6.1. Geographic Information Systems

Geographic information system tools were central to data management, analysis, and visualization throughout the assessment. Spatial datasets were compiled and processed using ArcGIS Pro, Spatial Analyst, and related applications to map topography, land cover, and visibility.

All geospatial data were standardized in accordance with ISO 19115 metadata standards, ensuring consistency, traceability, and compatibility with the Government of Canada's Open Science and Data Platform. Final data deliverables were prepared as quality-assured relational databases containing georeferenced locations where possible, site observations, and supporting metadata. Sensitive information related to species at risk or Indigenous Knowledge was managed in accordance with confidentiality agreements and data-sharing protocols.

All geographic data, along with accompanying metadata, pertaining to species at risk will be provided to the Natural Heritage Information Centre and the Ministry of Environment, Conservation and Parks, Species at Risk Branch.

4.7. Deviations from Draft Study Plan

The Draft *Visual Aesthetics Study Plan* originally identified this discipline as "visual aesthetics." In this report, it has been renamed to "visual environment." Although the assessment continues to reference aesthetics where appropriate, the *Tailored Impact Statement Guidelines* refer to the visual environment, and this terminology has been adopted for consistency.

As anticipated, some deviations from the *Draft Visual Aesthetics Study Plan* (**Attachment A**) were necessary as the Project advanced. These adjustments reflect challenges encountered during the assessment, the development of alternative methodologies, input from regulators and the Community through Indigenous engagement, and the incorporation of updated guidance. **Table 4-10** summarizes the specific deviations made.

Table 4-10: Deviations from the Draft Visual Aesthetics Study Plan

Section Reference / Assessment Component	Description of Change	Rationale
3.2.3 Spatial Boundaries	■ The study plan previously used the term Project Study Area, which is no longer used and is now replaced by the Local Study Area.	■ This change eliminates confusion between the Project Study Area and the Local Study Area specific to visual environment.
3.4 Data Management	■ Section 3.4.1 of the study plan previously identified that data would be backed up on a "daily basis." This wording has been revised to state that data would be backed up on a "regular basis."	■ This change brings alignment with the Proponent's various data backup policies.
3.4 Data Management	■ In Section 3.4.2 of the study plan, wording was updated to note that data sets from all survey sites will be provided upon report finalization. No timeline had been previously identified.	■ The revision provides added clarity around when the data would be provided.
4.2.2 Valued Components and Indicators	■ The study plan originally identified visual environment as a single valued component. In the updated assessment, this has been refined into four distinct valued components, each addressing a specific aspect of the visual environment. These include: – Cultural Heritage Resources and Indigenous Experience and Sense of Place – Parks and Protected Areas – Recreation and Tourism – Permanent Settlement Areas	■ This change provides better clarity for effects assessment and better reflects the visual environment valued components; it reflects comments received on the draft version of this report.

Section Reference / Assessment Component	Description of Change	Rationale
	■ The indicators identified in the study plan (visibility, visual sensitivity, and visual contrast) have been revised. These are now recognized as "measures of change" rather than indicators. Accordingly, indicators have been redefined to represent the views and visual experiences associated with each of the four valued components. For example, the Recreation and Tourism Valued Component considers the quality of views experienced by users of recreation areas, travel corridors, and tourism destinations, reflecting how visual changes may influence visitor experience and enjoyment. By contrast, the Parks and Protected Areas Valued Component focuses on the intrinsic natural character of the landscape itself—its ecological and visual integrity—consistent with the Ontario *Provincial Parks and Conservation Reserves Act*. The Cultural Heritage Resources and Indigenous Experience and Sense of Place Valued Component has been added to explicitly consider Indigenous cultural values, traditional use areas, and the experiential dimensions of place and landscape identified through Indigenous Knowledge studies and engagement.	

5. Existing Environment Description

This section provides a description of the existing visual environment within the Construction Disturbance Area, the Local Study Area, and Regional Study Area. For purposes of describing the variation in the existing environment along the alternative routes assessed, three segments have been defined:

- Southern Segment - to the Ogoki River Crossing;
- Central Segment - between Ogoki River and Albany River; and
- Northern Segment - north of the Albany River to Marten Falls.

These segments were delineated for this assessment as they roughly capture the two Ecoregions traversed by the Project and the transition zone between them. Ecoregions generally contain distinct flora and ecosystem processes that differentiate them from each other, leading to differences in their visual environment. As the Study Areas are largely free from anthropogenic disturbance, descriptions of the natural features of the ecoregions provide a useful understanding of the regional level visual characteristics. While there are similarities between the visual characteristics of the ecoregions, there are some distinct differences that will be discussed. A description of the existing conditions as they relate to each valued component is also included, as well as an overview of the sensitive receptors identified.

5.1. Overview of the Existing Visual Environment

The Study Areas are in a remote boreal setting of northern Ontario, dominated by expansive peatlands, mixed coniferous forest, large rivers and streams, and other open-water features.

The corridor lies primarily within two ecoregions: James Bay Lowlands (2E) and Big Trout Lake (2W), which frame the region's landforms, vegetation patterns, and the visual qualities that viewers experience. An overview of ecoregional context is shown on **Figure 5-1**. An aerial photograph showing the typical transitional landscape (between the two ecoregions) is shown on **Figure 5-14**.

The James Bay Lowlands are predominantly level to gently undulating with about 90% consisting of saturated peatlands. while the Big Trout Lake ecoregion includes more closed-canopy conifer forest on better drained terrain. These patterns influence the openness versus enclosure of views and the dominant horizon line (water / wetland in lowlands; tree canopy in forested uplands) (Crins et al., 2009) Refer to **Figure 5-2** (aerial image of James Bay Lowlands) and **Figure 5-3** (Boreal Forest) for representative visuals. **Figure 5-13** shows an aerial view of the typical boral forest canopy.

A vegetation map is provided on **Figure 5-12**. This map illustrates that the southern and central segments within the Big Trout Lake ecoregion include large areas of conifer forest and swamp. Toward the north, landcover increasingly reflects fen and peatland typical of the James Bay Lowlands physiography.

At the Project scale, notable visual features, including major influences on those features, include:

- Seasonal transitions, including autumn leaf-drop, winter snow cover, and spring melt, which amplify colour and contrast shifts at the corridor scale.
- Wildfire, hydrologic fluctuation, windthrow and frost processes create visible patchiness and age-class variation in forest structure, which read as subtle but discernible texture and colour changes over distance.
- Dense conifer forest produces fine grained texture and darker greens; sedge moss fens and open peatlands read as lighter, matte textures; open-water surfaces introduce high contrast, sky-reflective highlights.
- Human influences are limited and primarily occur at the northern extent of the Study Areas in Marten Falls. Built features, including permanent dwellings, road and power infrastructure, and areas of cleared vegetation form localized departures from the otherwise natural visual environment.
- The corridor intersects numerous wetlands, streams and rivers; **Figure 5-5** (Water Crossings Map) identifies potential intersections. Representative waterbody conditions and their implications for views are illustrated on **Figure 5-6** (Major River), **Figure 5-7** (Clear Views), **Figure 5-8** (Moderate River), **Figure 5-10** (Minor Stream Through Forest), and **Figure 5-11** (Minor Stream Through Open Land). In general, major rivers produce longitudinal vistas and open horizons (**Figure 5-6**), moderate rivers have reduced vistas due to closer tree lines (**Figure 5-8**), and minor streams are highly enclosed within forest canopy unless situated in open wetland (**Figure 5-10** and **Figure 5-11**). Stream form also effects views (**Figure 5-9**).

The following subsections identify the existing conditions for each visual environment valued component, as well as their sensitive receptors.

5.2. Cultural Heritage Resources and Indigenous Experience and Sense of Place

The Project will be located on the traditional territories of the Anishinabek Nation and within the Métis Nation of Ontario Region 2; it will intersect with the Marten Falls First Nation and Aroland First Nation Territories.

These areas contain confirmed traditional land uses and known cultural heritage resources, including archaeological sites. Specific locations and qualities of these sites

have been redacted for confidentiality; however, more details can be found in the Cultural Heritage Technical Support Document (Appendix Q of the Environmental Assessment / Impact Assessment) and Archaeological Assessments (Appendix R of the Environmental Assessment / Impact Assessment).

Indigenous relationships with the land are deeply connected to its visual and sensory qualities. Intact wilderness settings, expansive horizons, and the continuity of traditional travel routes within the Study Areas contribute to a strong sense of place and identity. This is a common theme expressed by all Indigenous communities engaged in the Indigenous Knowledge and Consultation and Engagement Program as part of this assessment. The visual environment is therefore a key dimension of Indigenous cultural experience, supporting ongoing connections among travel corridors, harvesting areas, ceremonial sites, and ancestral places (**Section 3.1**).

Given the often transient nature of Indigenous land use in this region (e.g., associated with harvesting) and the sensitivity to even subtle change (e.g., change in corridor feel of a river valley), it is valid to assume that the visual environment within the Study Areas (as whole) contribute to Indigenous experience and sense of place, as well as provides cultural heritage value. It would be inaccurate to assume that only discrete sites (e.g., specific cultural heritage or archaeological features) contribute; even the corridors used for travel, large swathes of the land used for harvesting, and teaching / ceremony spaces contribute visually to cultural heritage value, Indigenous experience, and sense of place.

Certain landscape features stand out as primary organizing elements of the visual environment from the Cultural Heritage Resources and Indigenous Experience and Sense of Place Valued Component perspective. In particular, the major river corridors (i.e., the Ogoki and Albany rivers) function as pivotal visual / spatial frameworks. These corridors are visually open, reflective (water surface), linear, forming natural routes that have long supported travel, gathering, and spiritual practice. While other areas outside of these corridors are just as sensitive to visual change (**Section 4.3.3**), these areas have been confirmed to be frequently used and are visually prominent.

Below is a description of visual character variation among the three route segments delineated for this assessment as it pertains to the Cultural Heritage Resources and Indigenous Experience and Sense of Place Valued Component:

- Southern segment (to the Ogoki River Crossing): Dense conifer forest and swamp dominate; sightlines are short and the sense of enclosure is high. The forest canopy, mossy understorey, and conifer / shrub mix create a layered, intimate environment: views are framed, directional, and rhythmical. From a cultural heritage sense, this environment supports travel via forest trails, winter roads, and harvesting routes in a visually contained setting, where subtle visual cues (clearings, landmarks, creek crossings) carry meaning. At the Ogoki River Crossing itself, there is an opening of view across the river surface. Here the visual contrast shifts: from enclosure to

openness; from forest to a water surface horizon. This transition zone is culturally prominent, rivers are travel corridors, gathering places, fishing or harvesting zones, and the visual transition denotes arrival, movement and connection. From an Indigenous experience viewpoint, the opening of the view at the river crossing reinforces orientation, community gathering, and connection with water. The visual character of the shoreline, including reflections, open vistas, the meeting of land and water, all becomes part of cultural memory and cultural heritage of the region.

- Central segment (Ogoki River to Albany River): As the route progresses from the Ogoki toward the Albany River, the visual character begins to change. The corridor moves from forest and large lakes to more fen and swamp toward the Albany River. The shift from enclosed forest to semi-open fen results in widening viewsheds: vegetation becomes lower, horizons more visible, and the feeling of landscape openness increases. This visual opening implies a shift in experience; from the forest travel framing to more expansive, horizon-oriented experience. For Indigenous land use, this transition matters: harvesting and travel across these landscapes require visual cues over greater distances; sense of orientation shifts from narrow corridor guidance to broad landscape cognition. Additionally, these intermediate zones often include mixed terrain, forested patches, waterbodies, peatlands, low hummocks and open fen marshes. The visual mix leads to changing patterns of texture, colour, horizon and vantage. For Indigenous experience and sense of place this means that the visual environment transitions between intimate, enclosed woodland spaces and more panoramic spaces, each with their own cultural affordances (e.g., easier spotting of game or birds in open fen; easier navigation).
- Northern segment (north of Albany River to Marten Falls): In the northernmost segment, the landscape becomes predominantly fen and peatland, with low vegetation and broad horizons. The visual sense of vastness increases relative to the other segments: the land opens out, vegetation height drops, horizon lines become more distant, and the incoming traveller (or user) is met with expansive sweeping views rather than a tight corridor. This openness contributes to a sense of remoteness, of large-scale wilderness, and of being on the land in a visually unobstructed territory. For Indigenous experience, such broad horizons reinforce orientation, freedom of movement, memory of ancestral travel routes, land use patterns, and a strong sense of place rooted in the land itself. Harvesting, trapping and other traditional practices may rely on these broader views for navigation, spotting landscape features, assessing weather, and modulating seasonal travel. The visual simplicity of fen / peatland (low relief, monotone vegetation, open sky) also supports cultural experiences of solitude, reflection, teaching, ceremony, and connection to land and water.

In summary, the existing visual environment across the study areas supports the Cultural Heritage Resources and Indigenous Experience and Sense of Place Valued Component through its variety of vistas, travel corridors, horizon integrity, vastness, and quietness, and landform continuity. Although the assessment has broken this into discrete segments, the corridor should be viewed as part of a contiguous visual network. The visual connectivity (e.g., from harvesting grounds to river travel routes to the community) is an important consideration; disruptions to that connectivity (visual or physical) may affect Indigenous experience of moving across the landscape, following ancestral routes, and perceiving land in culturally meaningful ways.

Although the visual environment of the Study Areas contributes to Indigenous experience and sense of place and provides cultural heritage value, the assessment also identifies specific cultural heritage resources and indigenous experience and sense of place receptors identified within the Local and Regional Study Areas. Excluding generalized areas identified as being used for travel or harvest (e.g., the entire Albany River Corridor), a total of 34 culturally significant point-locations were identified within the Local and Regional Study Areas, and none were identified within the Construction Disturbance Area. These locations include:

- Spiritual and ceremonial locations, where traditional practices, teachings, or ceremonies occur;
- Burial sites and sacred grounds;
- Historically significant and habitation sites, including seasonal dwellings, recreational camps, and former village locations; and
- Specific point-location use areas, where activities such as harvesting, or certain resources are known to occur.

5.3. Recreation and Tourism

The Study Areas support commercial and non-commercial recreation and tourism, including backcountry canoeing, snowmobiling, angling, hunting, wildlife viewing and camping - particularly along the Albany and Ogoki rivers and adjacent lakes, although recreation is known to take place through the Study Areas. The appeal and success of these activities are strongly linked to specific visual expectations: long, open-water vistas; intact and natural shorelines; subtle, natural edges between terrain types; minimal visible human infrastructure or disturbance; and a sense of remoteness and wilderness.

- Southern segment (to the Ogoki River Crossing): Recreational use is more dispersed, with forest bound travel experiences and limited long views except at water crossings. Visual sightlines are constrained by dense coniferous forest, swamp / peatland margins, and relatively high vegetation / shrub encroachment. As a result, the visual experience is one of enclosure: the shoreline scene is intimate, the waterbodies may

be smaller, the travel along lakes or rivers tends to be “corridor-like” rather than expansive. These characteristics support certain recreation experiences (e.g., secluded campsites, intimate hunting / trap areas). However, users have few long-distance vistas except at key nodes (notably the Ogoki River Crossing).

- Central segment (Ogoki River to Albany River): Large lakes and river reaches create distinct visual breaks and scenic moments; fen / swamp transitions increase viewing distance and the perception of openness toward the Albany River (**Figure 5-15**). There are expansive open-water vistas for canoeing, angling, wildlife viewing, or wildlife-based lodge trips.
- Northern segment (north of the Albany River to Marten Falls): Open fen and peatland produce expansive, uninterrupted horizons that are highly valued in remote tourism experiences.

In general, backcountry paddlers and campers experience low-speed, close-range views from the water surface and shoreline campsites, emphasizing foreground- to middle-distance detail, natural edge conditions, and the absence of visible infrastructure. Anglers and non-motorized recreationists encounter localized views at portages, rapids, and shore access points where any clearing or linear opening would be visually apparent against intact forest backdrops.

The recreation and tourism sensitive receptors are largely related to a wilderness aesthetic. Given these expectations, sensitive receptors include areas known to be used near river corridors, shoreline edges, lakes, portage nodes, trails, and campsites, and within parks and protected areas.

5.4. Parks and Protected Areas

The Project intersects with provincially protected waterway parks, including the Ogoki River Provincial Park and the Albany River Provincial Park, where management direction prioritizes protection of scenic, natural character and low levels of development.

Ontario Provincial Parks and Conservation Reserves Act

The objectives of the Ontario *Provincial Parks and Conservation Reserves Act* (Government of Ontario, 2006) is to:

- Protect representative ecosystems and provincially significant natural and cultural elements and manage them to ensure ecological integrity;
- Provide opportunities for ecologically sustainable outdoor recreation;
- Support knowledge and appreciation of natural and cultural heritage; and
- Facilitate scientific research and monitoring.

These provisions frame scenic and visual qualities as integral to protecting natural and cultural heritage and providing high quality, compatible recreation. Ontario Parks' and Ontario Ministry of Natural Resources and Forestry guidelines similarly underscore the statutory emphasis on ecological integrity (defined in the Act), which implicitly sustains a natural visual environment free of avoidable anthropogenic intrusions. This guidance includes:

- Ontario's Protected Areas Planning Manual (Ontario Ministry of Natural Resources, 2014) and the Guideline to Management Planning for Protected Areas *in the Context of Ecological Integrity* (Government of Ontario, 2019) provide the policy framework for management direction in provincial parks and conservation reserves. These guidelines derive from the Act and set expectations for protecting values, visitor experience, and management zoning, all of which are directly tied to preserving natural visual character in corridors where visitors experience.
- *Management Guidelines for Forestry and Resource-Based Tourism* (Ontario). These provincial guidelines include a specific section on "Visual Aesthetics / Views" and provide direction on minimizing visual impacts of land use activities on travel routes, shorelines, and recreation settings (Ontario Ministry of Natural Resources, 2001).
- Any temporary works, clearings, crossings and permanent bridges located within the regulated park boundaries will require Ontario Parks authorization and must be demonstrably consistent with Waterway-class objectives and the applicable management statements, or obtain amended direction if not (low-risk if designs adhere to "natural character" and visual integrity goals) (Ontario Ministry of Natural Resources, 2014).

The Albany River and Ogoki River Provincial Parks

The visual elements of the Parks include:

- The Albany River Provincial Park is a remote river corridor park with no visitor facilities that protects a historic travel route and surrounding rugged Precambrian shield terrain (made up of moraines, drumlins, and a variety of water-shaped landforms). According to the Ontario Parks website, the park offers backcountry canoeing, boating, camping, fishing, hunting, snowmobiling and swimming (Ontario Parks, 2026a). The park retains a high degree of naturalness and remoteness in its viewsheds and is largely undeveloped.
- The Ogoki River Provincial Park is also a remote river corridor park spanning approximately 140 km of river system, including Ogoki Lake and associated lakes and wetlands. Visual character is defined by broad water surfaces, bedrock shelves, rapids such as Speckled Trout Rapids, eskers, dunes, and extensive delta and estuary forms near Ogoki Lake. The corridor is largely undeveloped, with long sightlines along the river and shorelines, and very low levels of built form. The Waboose Dam occurs at the

western park boundary (outside of the Study Areas) and is the principal modern engineered feature within the park. According to the Ontario Parks website, the park offers remote tourism and recreation opportunities such as angling, hunting, wildlife viewing, backcountry camping and canoeing in a scenic environment (Ontario Parks, 2026b).

As mentioned in previous sections, the parks and protected areas are themselves identified as a sensitive receptor in their own right, due to their intrinsic naturalness being protected.

5.5. Permanent Settlements

Permanent settlements refer to a building or groups of buildings or other permanent structures that are inhabited or used on a regular basis. These settlements are considered sensitive receptors and include households, health and safety infrastructure like clinics or hospital, schools, other social services, and hunting cabins.

In total, there are 36 permanent residents in the Community and 2 cabins along the Albany River shoreline that were identified within the Local and Regional Study Areas. The Construction Disturbance Area does not contain any permeant settlements.

The most significant permanent settlement is Marten Falls. Built features, including permanent dwellings, road and power infrastructure, and areas of cleared vegetation form localized departures from the otherwise natural visual environment that surrounds the Community. Despite the built structures, there is still a sense of remoteness and wilderness that is felt within the Community. Views looking outward from the Community are characteristic of those describe above for Segment 3 and the James Bay Lowlands.

Figure 5-1: Ecoregions within the Study Areas

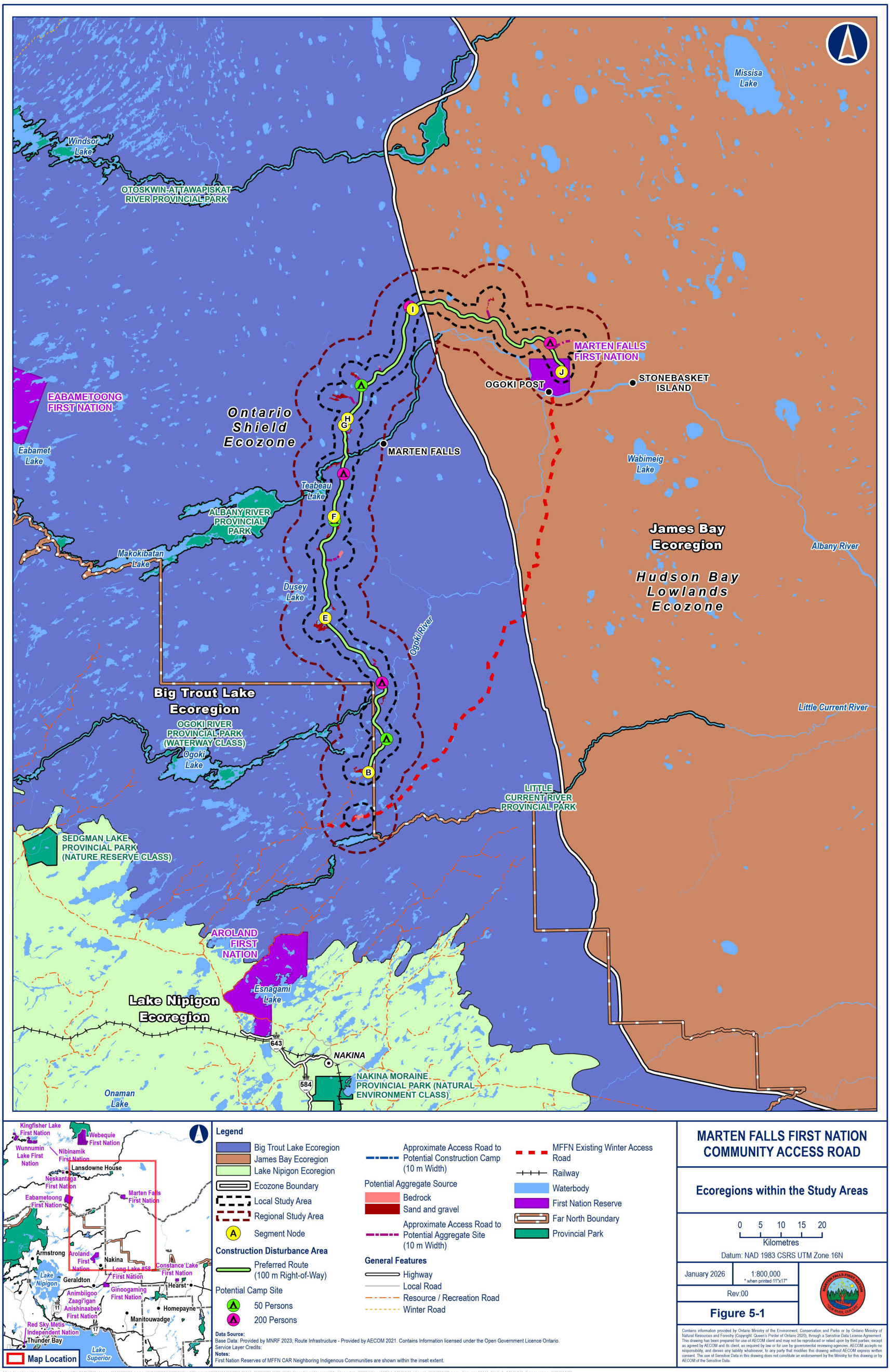


Figure 5-2: James Bay Lowlands

Aerial image of James Bay Lowlands (Hudson Bay Lowlands Ecoregion) (Snider, 2022)

Figure 5-3: Boreal Forest

Boreal Forest (Boreal Shield Ecoregion) (Boreal Conservation, n.d.)

Figure 5-4: Sensitive Receptor Heat Map

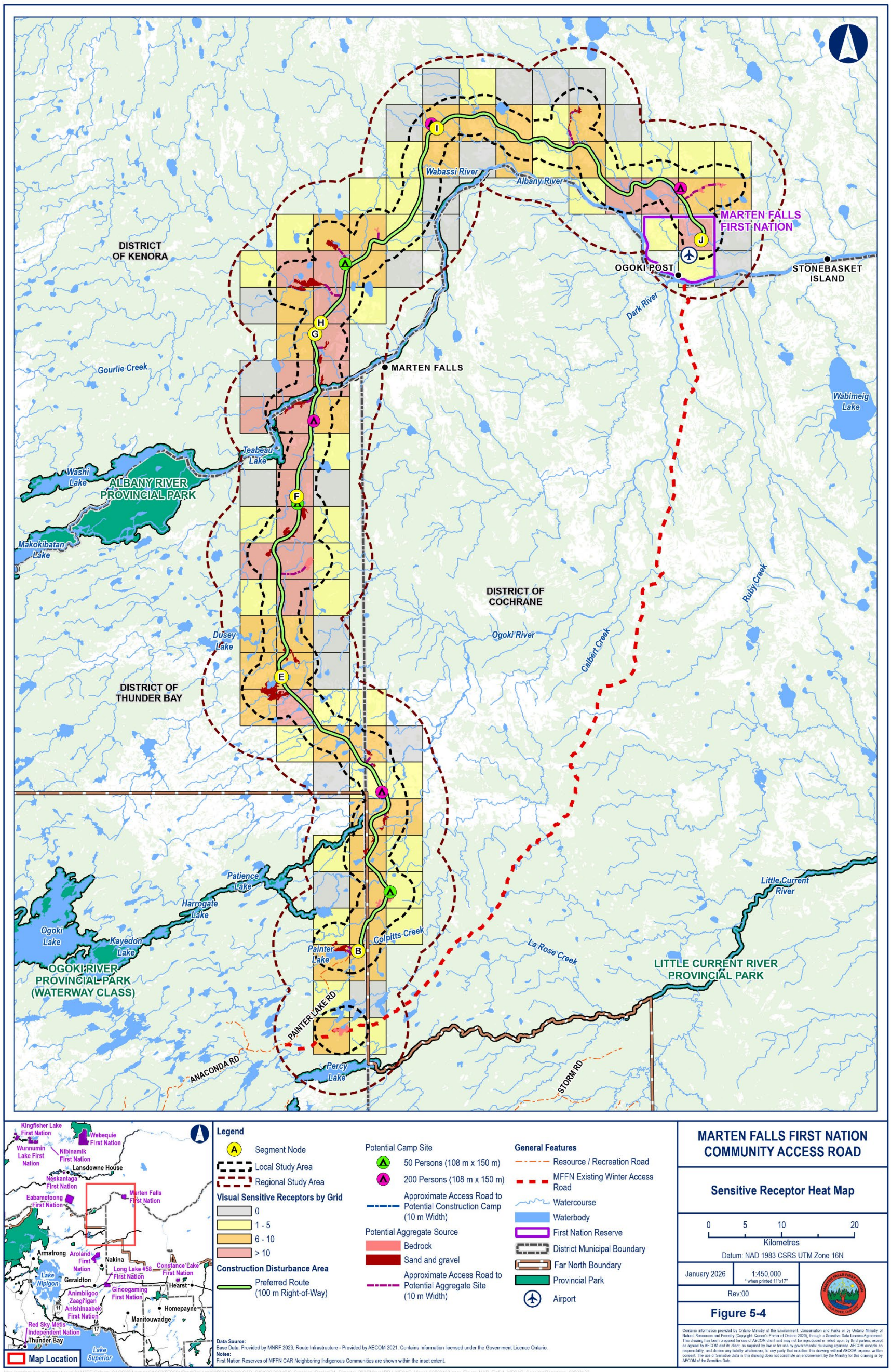


Figure 5-5: Water Crossings Map

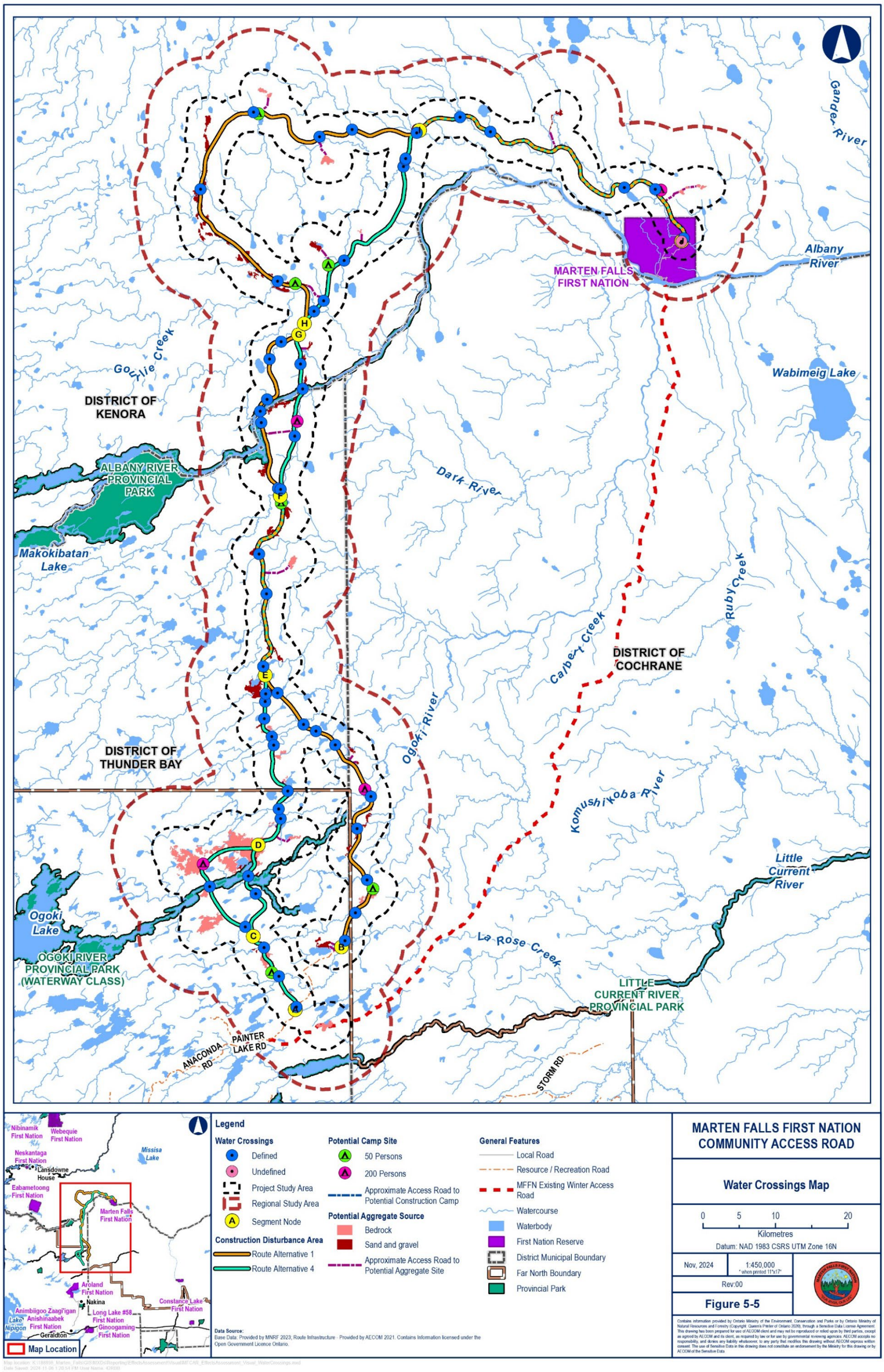


Figure 5-6: Major River

Major River (Photograph by Dillon Consulting Limited)

A major river is a large, defined river, as depicted on a photograph taken within the Study Areas (**Figure 5-6**).This type of surface water feature is wide and open, and therefore present clear vistas down and upstream from crossing locations.

Any land uses along the river such as fishing, animal / plant gathering, or spiritual sites will have open views along the river. Large waterbodies present clear and unobstructed views as shown on **Figure 5-7**.

Figure 5-7: Clear Views

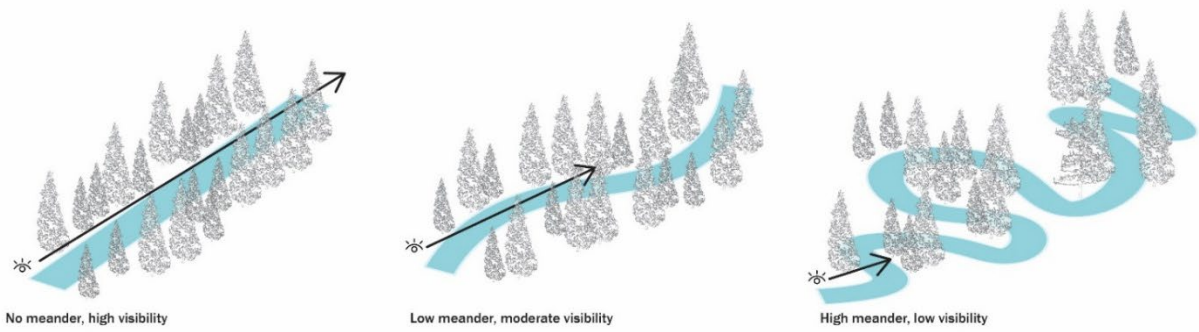
(Photograph by Dillon Consulting Limited)

Figure 5-8: Moderate River

Moderate river, 5 to 10 m wide (Photograph by Dillon Consulting Limited)

A moderate river is 5 to 10 m in width, as depicted on a photograph taken within the Study Areas (**Figure 5-8**). This type of surface water feature has decreased vistas as the tree line is more compact and closer together. Dense conifer forest canopies reduce sightlines significantly within the landscape. The meandering river network also helps to block views and create sheltered pockets as seen on **Figure 5-9**.

Figure 5-9: River Visibility Diagram



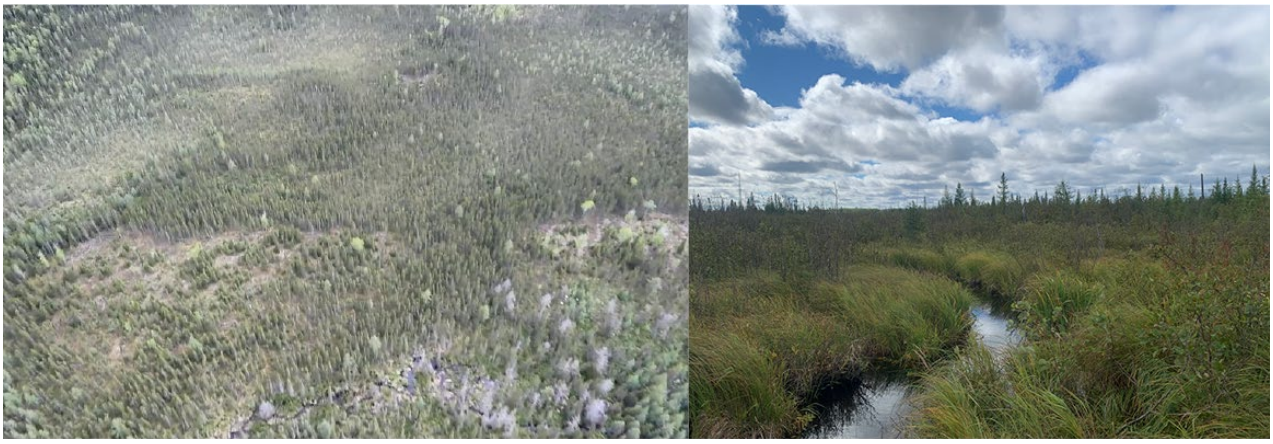
(Figure by Dillon Consulting Limited)

Figure 5-10: Minor Stream Through Forest

Minor stream, 0 to 5 m wide (Photograph by Dillon Consulting Limited)

A minor stream crossing through forest is 0 to 5 m wide, as depicted on a photograph taken within the Study Areas (**Figure 5-10**). This type of surface water condition has the least visibility. The stream is mostly enclosed by the canopy depending on location. Some areas may have sparser forest but in general, it provides significant visual barriers to any viewers.

Figure 5-11: Minor Stream Through Open Land



Minor stream, 0 to 2 m wide **(**Photograph by Dillon Consulting Limited)

A minor stream crossing through open land is 0 to 2 m wide, as depicted on a photograph taken within the Study Areas (**Figure 5-11**). This type of surface water condition has more visibility because it is not enclosed within a forest canopy. These streams can be found in open land or wetland conditions. Riparian vegetation, including shrubs and grasses border the edges of the stream.

Figure 5-12: Vegetation Map

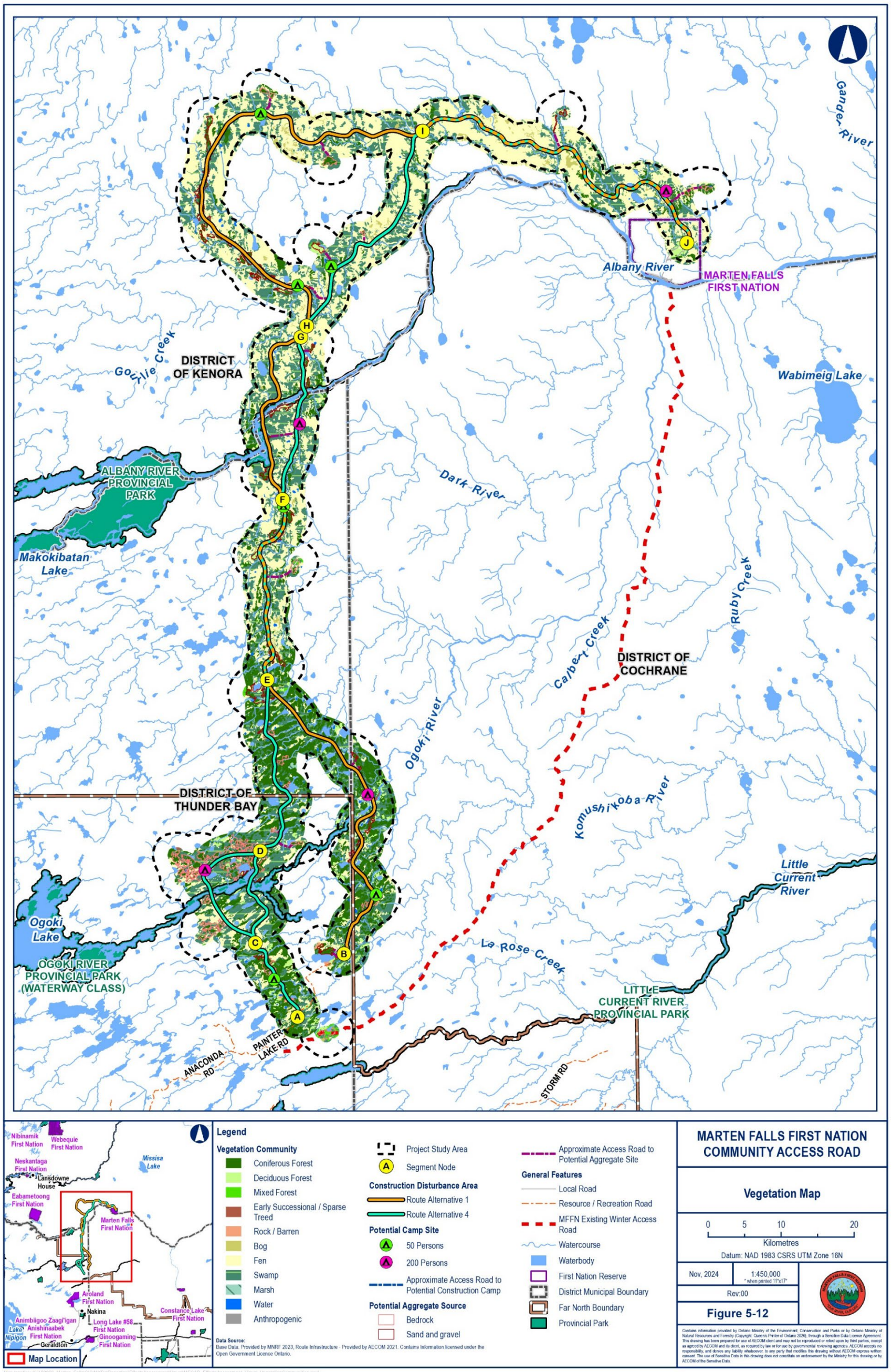


Figure 5-13: Forest Canopy

(Photograph by Dillon Consulting Limited)

Figure 5-14: Transitional Landscape

(Photograph by Dillon Consulting Limited)

Figure 5-15: Fen Landscape

(Photograph by Dillon Consulting Limited)

6. Selection of the Preferred Route

Following the collection of existing condition information on the two alternative route alignments described in **Section 4**, the Proponent undertook an exercise to select a Preferred Route. This process considered all the disciplines in the Impact Assessment / Environmental Assessment, and is only included in this report to provide context. The methodology and detailed results of this exercise are described in more detail in the Environmental Assessment / Impact Statement and are summarized at a high level in this section. The effects assessment has been completed using the identified Preferred Route.

6.1. Alternative Segments and Routes Within Each Segment

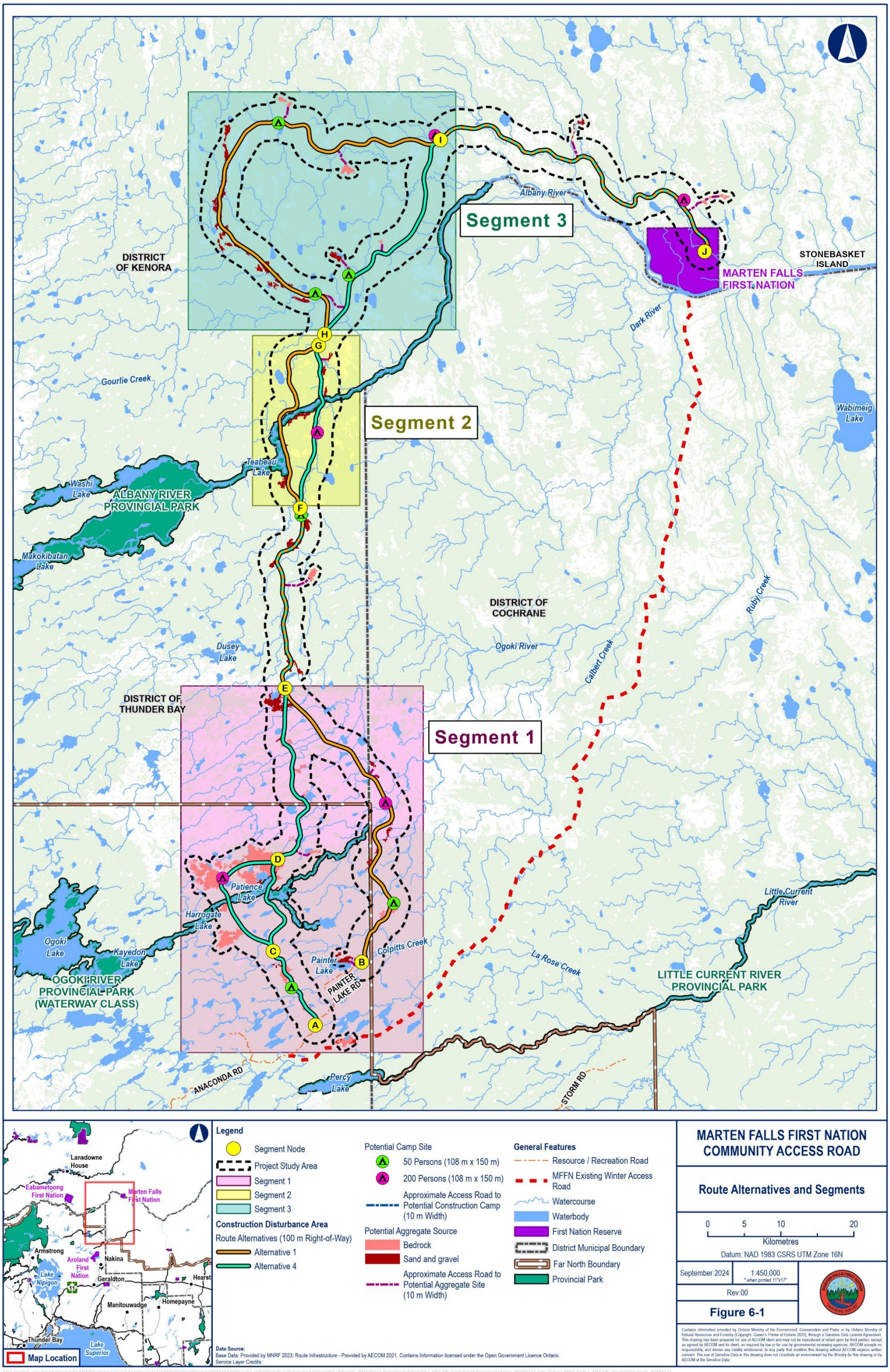
To simplify the evaluation of the alternatives, the alternatives were divided into separate segments and sub-segments (**Table 6-1, Figure 6-1)**. The segments were determined so that any alternative route in one segment could connect with any alternative route in the next segment, allowing for decisions to be made based on the environment in each segment and not based on the whole. This approach considers the variable environmental conditions within the Project area, allowing for flexibility to avoid sensitive natural features encountered within the Construction Disturbance Area for each segment instead of requiring decision makers to balance trade-offs of one long route versus the other.

Table 6-1: Route Segment Descriptions

Segment	Sub-Segment	Description
1	AC4	■ Southern terminus of Alternative 4, south-west of southern terminus of Alternative 1 to Ogoki River Crossing.
	Eastern Option CD4	■ Alternative 4 Ogoki River Crossing Eastern Option.
	Western Option CD4	■ Alternative 4 Ogoki River Crossing Western Option.
	DE4	■ Alternative 4 North of Ogoki River Crossing.
	BE1	■ Southern most terminus of Alternative 1, north-east of southern terminus of Alternative 4 to the Southernmost Alternatives meeting point.
	EF	■ Southernmost Alternative meeting point toward the Albany River. Alternatives overlap in this segment.
2	FG4	■ Alternative 4 Albany River Crossing Eastern Option.
	FG1	■ Alternative 1 Albany River Crossing Western Option.

Segment	Sub-Segment	Description
3	HI1	■ Alternative 1 North of Albany River Western Option.
	HI4	■ Alternative 4 North of Albany River Eastern Option.
	IJ	■ Northernmost segment southeast to terminus in Marten Falls. Alternatives overlap in this section.

Figure 6-1: Route Alternatives and Segments



6.2. Preferred Route

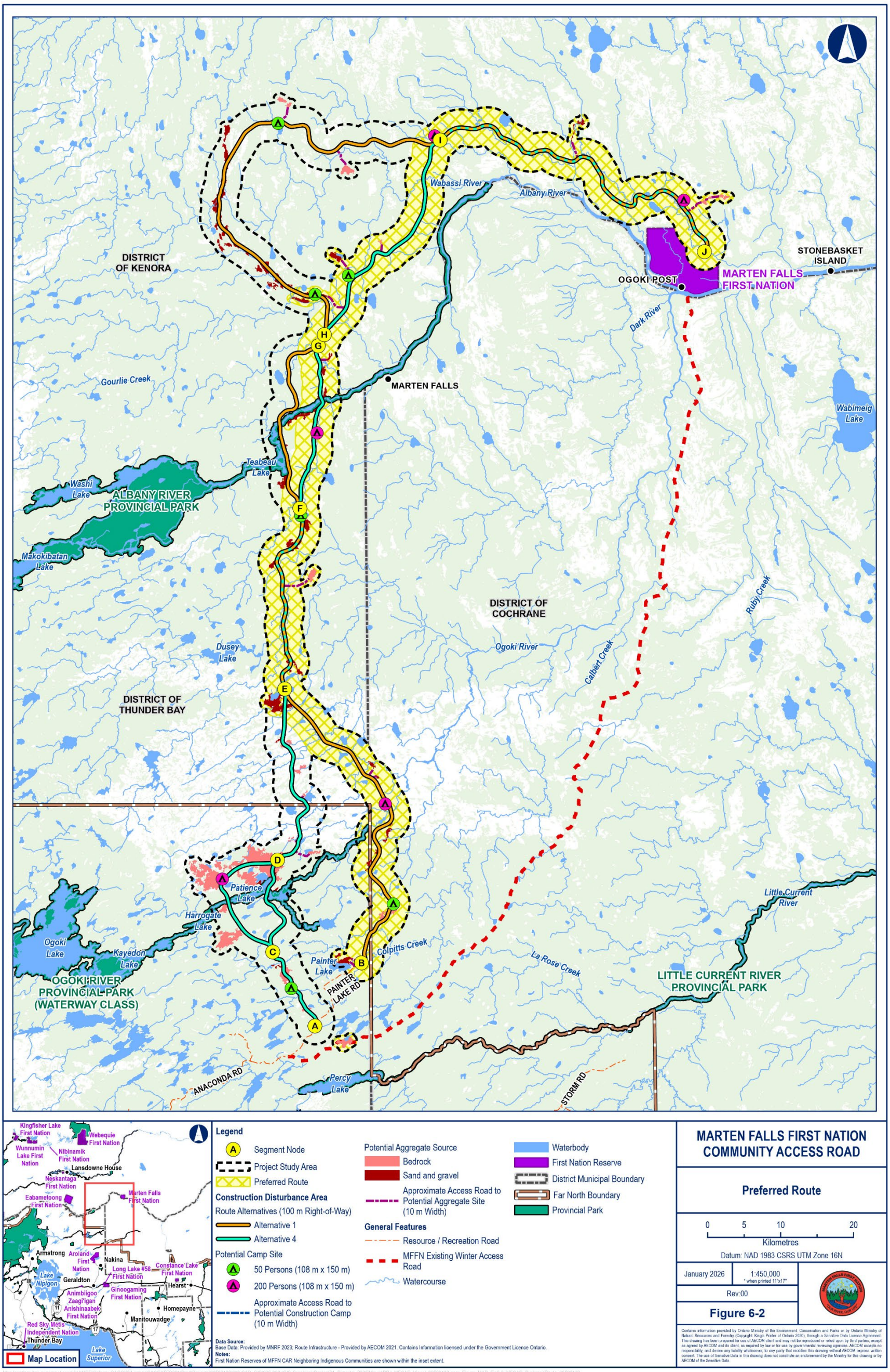
The selection of the Preferred Route within each segment involved a thorough analysis of technical, economic, natural, social, and cultural factors. The route alternative evaluation took into account the potential effects and standard or known mitigation approaches to determine the net positive or negative effects of each alternative and was completed using the reasoned argument (trade-off) method. The reasoned argument method qualitatively compares the advantages and disadvantages of each alternative including the relative significance of the potential net effects.

Following the completion of the steps outlined above, and direction from Marten Falls First Nation, Aroland First Nation, and input from the public and regulators, the Proponent identified a preferred route alignment for each segment.

- Segment 1 – Ogoki Crossing: Alternative 1;
- Segment 2 – Albany Crossing: Alternative 4; and
- Segment 3 – North of the Albany: Alternative 4.

The combination of Segments 1, 2, and 3 create the final Preferred Route (**Figure 6-2**).

Figure 6-2: Preferred Route



7. Effects Assessment of the Project

The selection of a Preferred Route focused the detailed effects assessment on the preferred alternative. The following section provides the effects assessment analysis. This section evaluates how the Project is expected to change the visual environment during construction and operations, following the methods, measures, effect definitions, magnitude scale, and significance decision process set out in **Section 4**. It uses the existing conditions in **Section 5** and applies the conservative assumption that all receptors are high-sensitivity as discussed in **Section 4.2.3**.

7.1. Project-Environment Interactions and Pathways of Effect

Consistent with **Table 4-4**, all physical Project activities are treated as interacting with the visual environment. The principal pathways of effect are:

- Introduction of new built elements: cleared right-of-way, road prism and ditches, bridge and culvert structures, signage, and occasional temporary construction facilities;
- Change to landscape patterns and edge conditions: new linear opening, altered canopy continuity, and edge feathering effects where implemented or not implemented;
- Change to visual tone and contrast: exposure of mineral soils and gravels; colour and reflectance of steel, concrete, timber, erosion controls, and riprap; snow windrows and exposed ice surfaces in winter;
- Movement and intermittent light: construction equipment, hauling dust plumes, and temporary task lighting; during operation, intermittent vehicle movement and headlight beams, with no continuous roadway illumination assumed; and
- Surface effects: short-lived dust deposition on foliage and rock; temporary water turbidity visible at crossings during construction if not fully controlled.

These pathways are expressed as direct effects where the Project feature itself is visible, and as indirect effects where the Project alters another component (e.g., dust on vegetation) that then becomes a visible change. Residual effects are those remaining after mitigation and design refinement.

7.2. Visibility Mapping and Visual Simulations

The visibility mapping, field photography, and the completed simulations for representative water crossings together indicate the following context for where visual change will be noticed:

- In closed-canopy conifer forest of the **southern segment (to Ogoki Crossing)**, the road corridor will be largely screened at ground level beyond the immediate vicinity of the right-of-way. Visibility increases where the alignment traverses local high ground or intersects openings. There are three sensitive receptors along the Ogoki River including an outpost and the Leuenberger Air Campsite, within 1 to 2 km of the Construction Disturbance Area, as well as an additional sensitive receptor almost 2.5 km away. Visibility analysis shows that these locations will have little to no view of the Project, with visibility screened by dense forests and meandering riverbanks.
- Within the **central transition zone (between the Ogoki and Albany Rivers)**, visibility conditions vary considerably. Forested sections provide effective visual screening, while open fen and swamp areas allow for longer sightlines. Several sensitive receptors are located along the shoreline of Dusey Lake, west of the Project, and within the Regional Study Area. However, due to the distance from the Project, these receptors are not expected to have any direct visibility of Project components. Additional sensitive receptors have been identified between Tolfree Lake and Albany River Provincial Park, including several cabins, a burial ground, and a traditional gathering area. Although these locations are situated relatively close to the Construction Disturbance Area, visual modelling indicates low potential for visibility.
- In the **northern fen and peatland segment (Albany River to Marten Falls)**, low vegetation produces longer horizons and increases the likelihood of perceiving a linear opening at distance under clear conditions. Approximately 4 to 5 km south of the Wabassi River is a sensitive receptor noted as “Meeting Place”. At this distance it is very unlikely there will be views to the Project despite the more open landscape. Marten Falls First Nation will have moderate-to-high visibility of the Community Access Road. Sensitive receptors within the Community are also elevated 10 to 20 m (e.g., within buildings) and may see the road or road users from a distance at these points. Tree cover and buildings within the Community may help to mitigate views of the road.
- **Water crossings** are the primary locations where Project features will be discernible because the forest canopy opens, views travel longitudinally along the water surface, and bridge elements can appear in front of sky or water backgrounds. The Albany River and Ogoki River Crossings, within provincial park corridors and with known Indigenous and traditional use, represent one of the most consequential contexts and are visually representative of the Project’s highest potential magnitude of change.

The remainder of this section provides the visibility mapping (**Figure 7-1** to **Figure 7-8**), followed by the crossing simulations (**Figure 7-9** to **Figure 7-18**). As described above and in **Section 4.4.4**, the major crossings represent the highest magnitude of change as result of their visual prominence relative to other components of the road, as well as the opening of forest and landscape features that tend to increase lines of sight at crossing locations. As result, the simulations have focused on these crossings and have developed them from the perspective of someone who on the land or waterway very close to the crossings, representing a worst-case scenario view.

Figure 7-1: Visibility Mapping 1

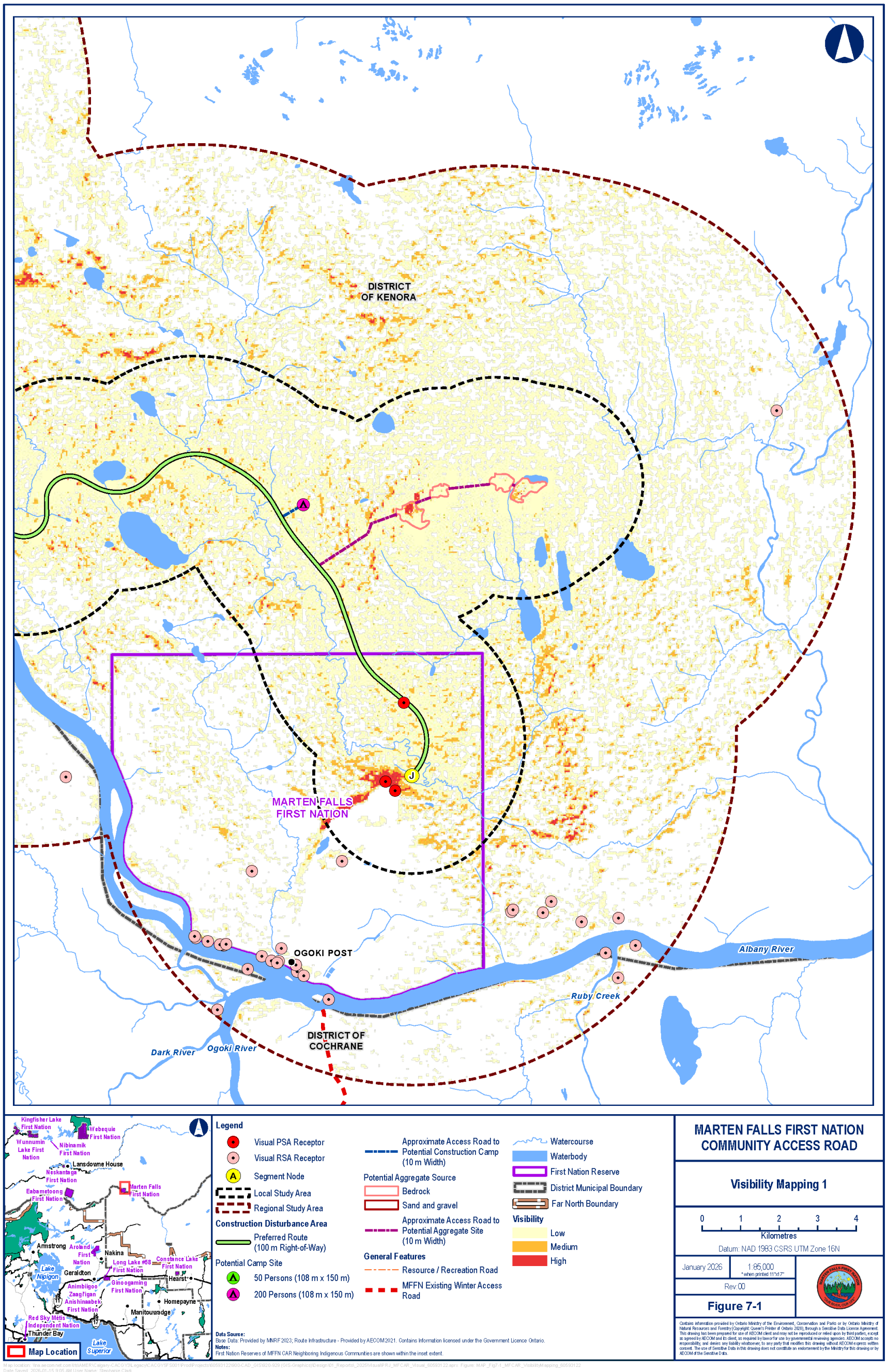


Figure 7-2: Visibility Mapping 2

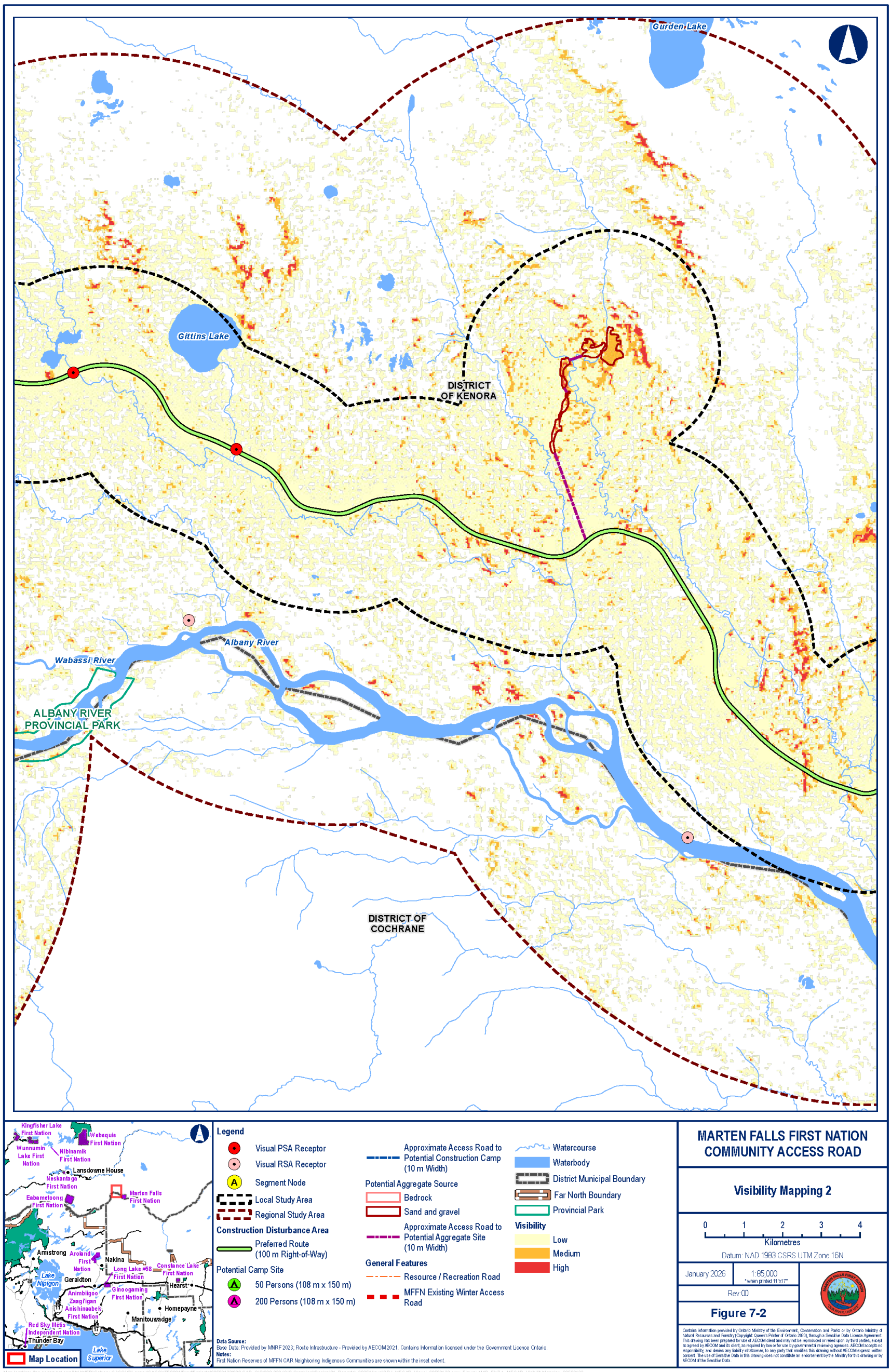
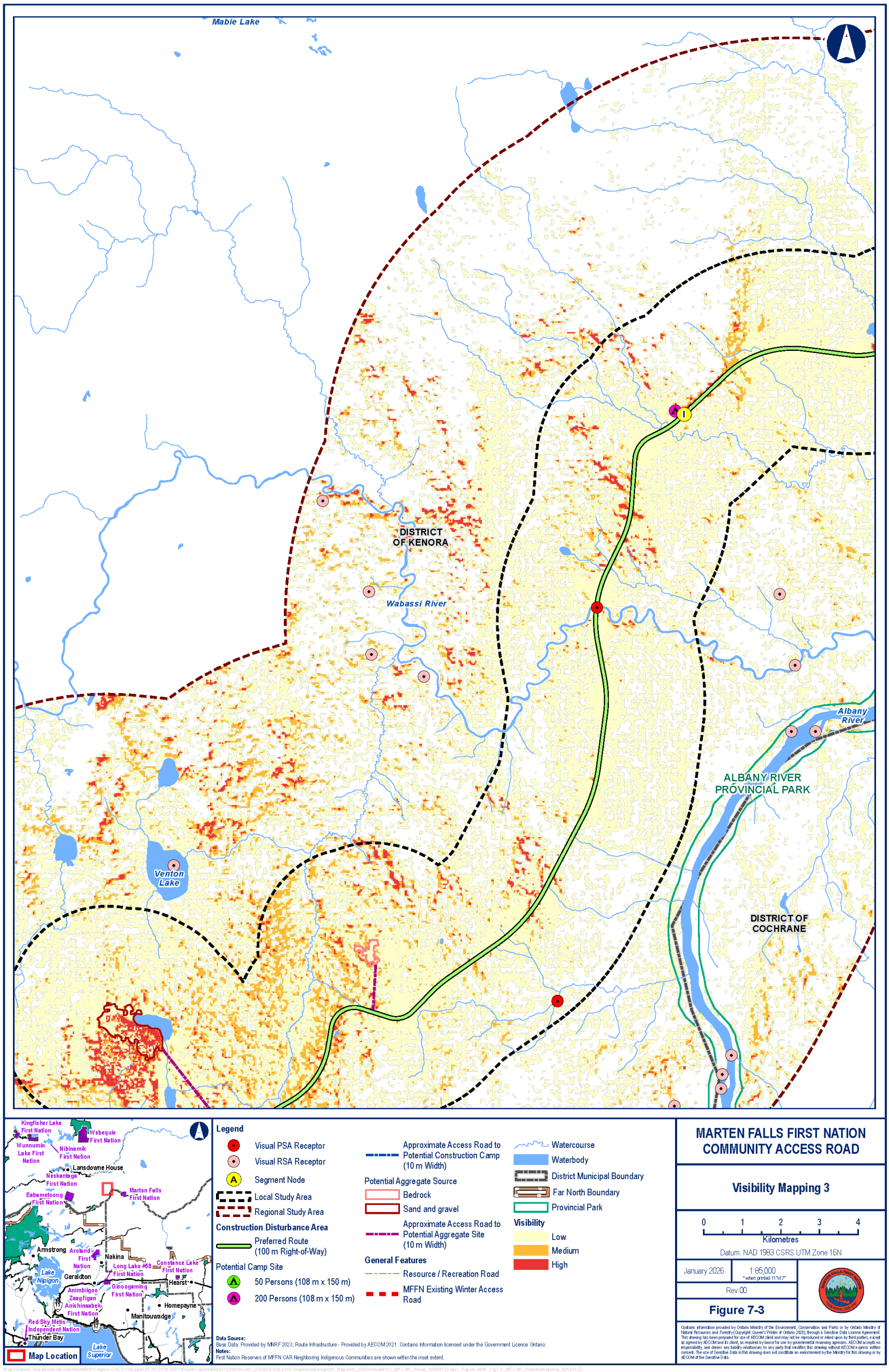


Figure 7-3: Visibility Mapping 3



Map location: \\na.aecomnet.com\tts\AMER\Calgary-CACGY3\Legacy\CACGYSFS001\Prod\Projects\60593122\900-CAD_GIS\920-929 (GIS-Graphics)\Design\01_Reports_2025\Visual\PRJ_MFCAR_Visual_60593122.aprx: Figure: MAP_Fig7-1_MFCAR_VisibilityMapping_60593122
Date Saved: 2026-01-15 9:05 AM User Name: Stephanie Clark

Figure 7-4: Visibility Mapping 4

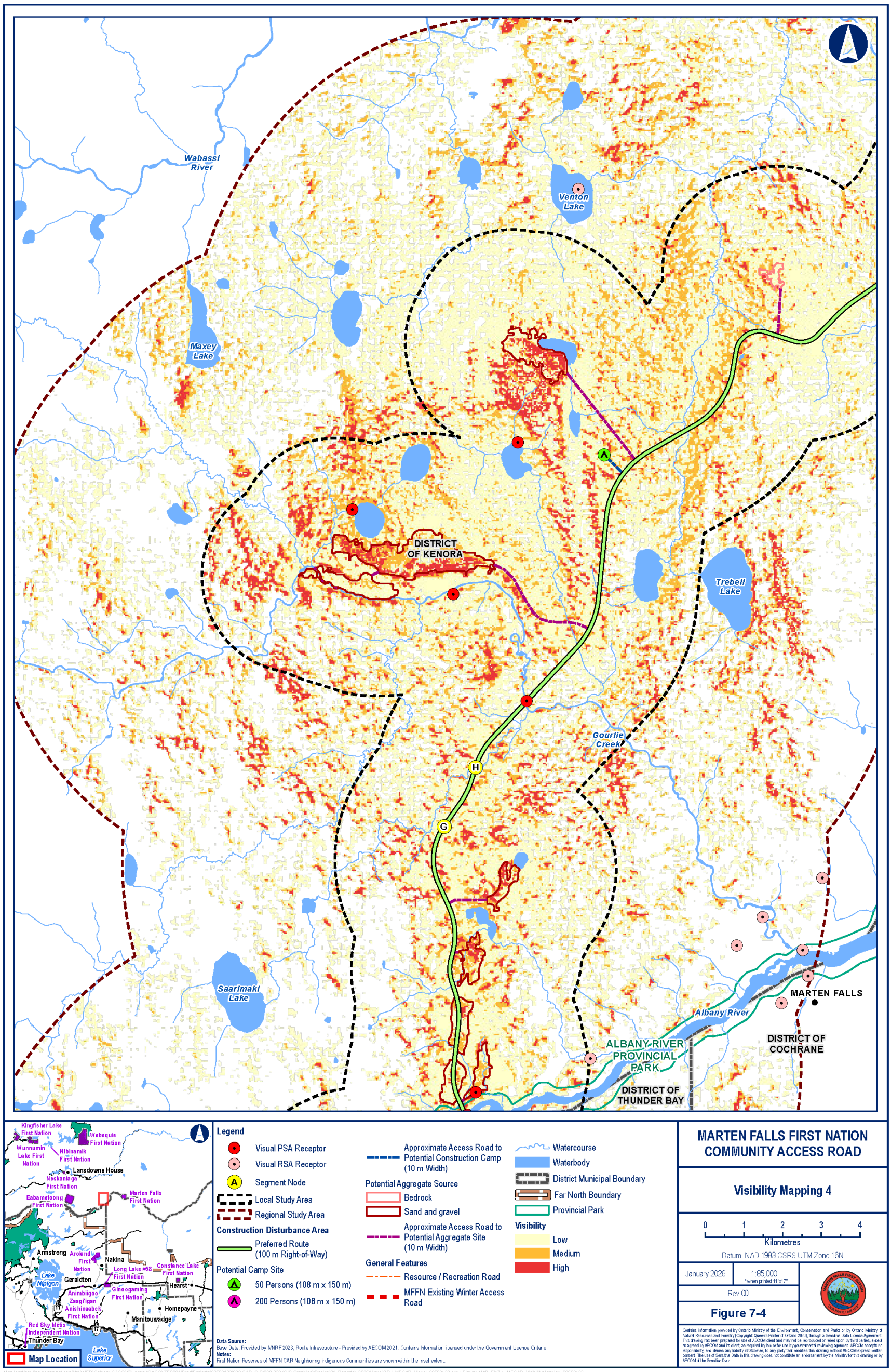


Figure 7-5: Visibility Mapping 5

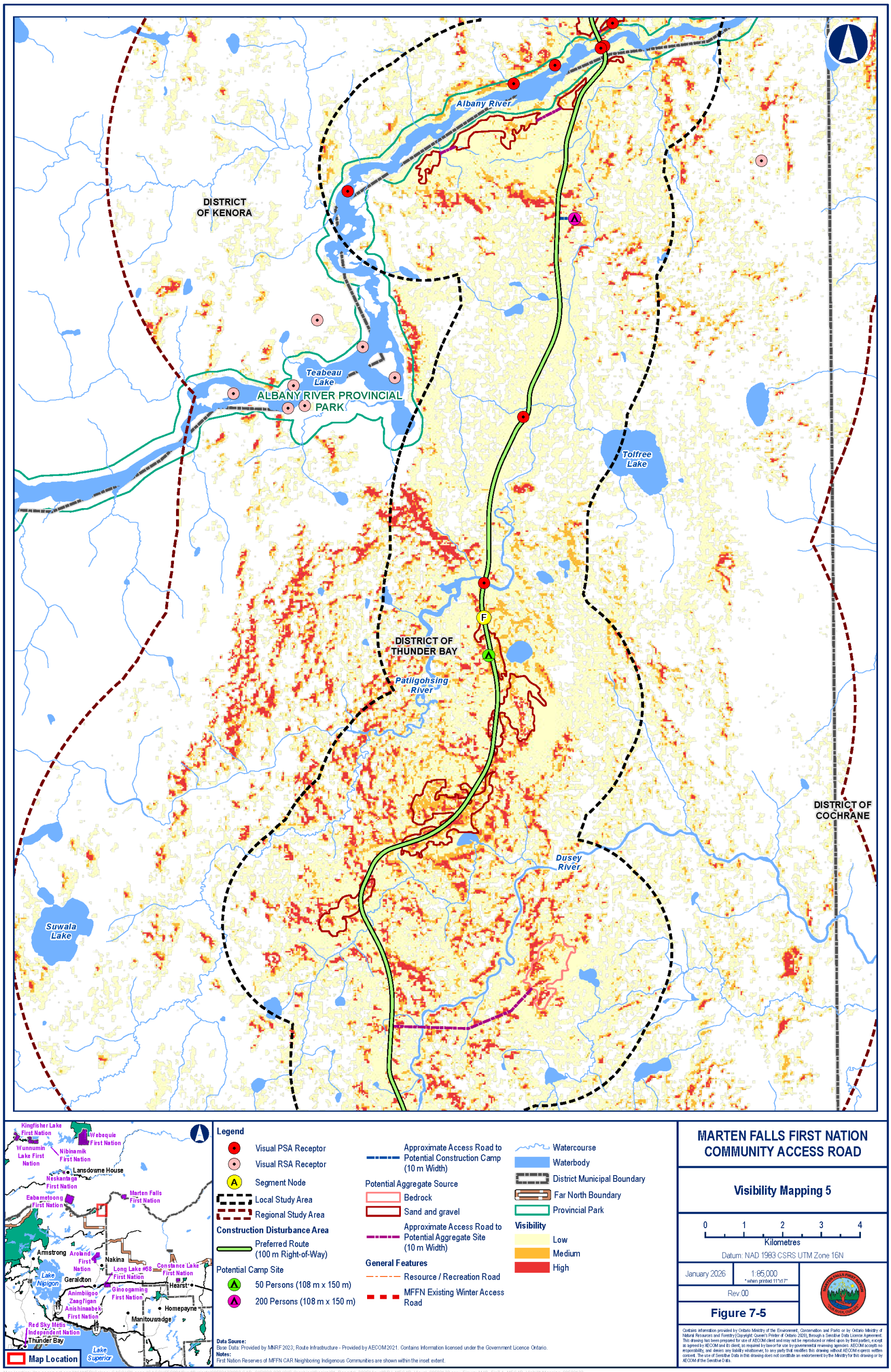


Figure 7-6: Visibility Mapping 6

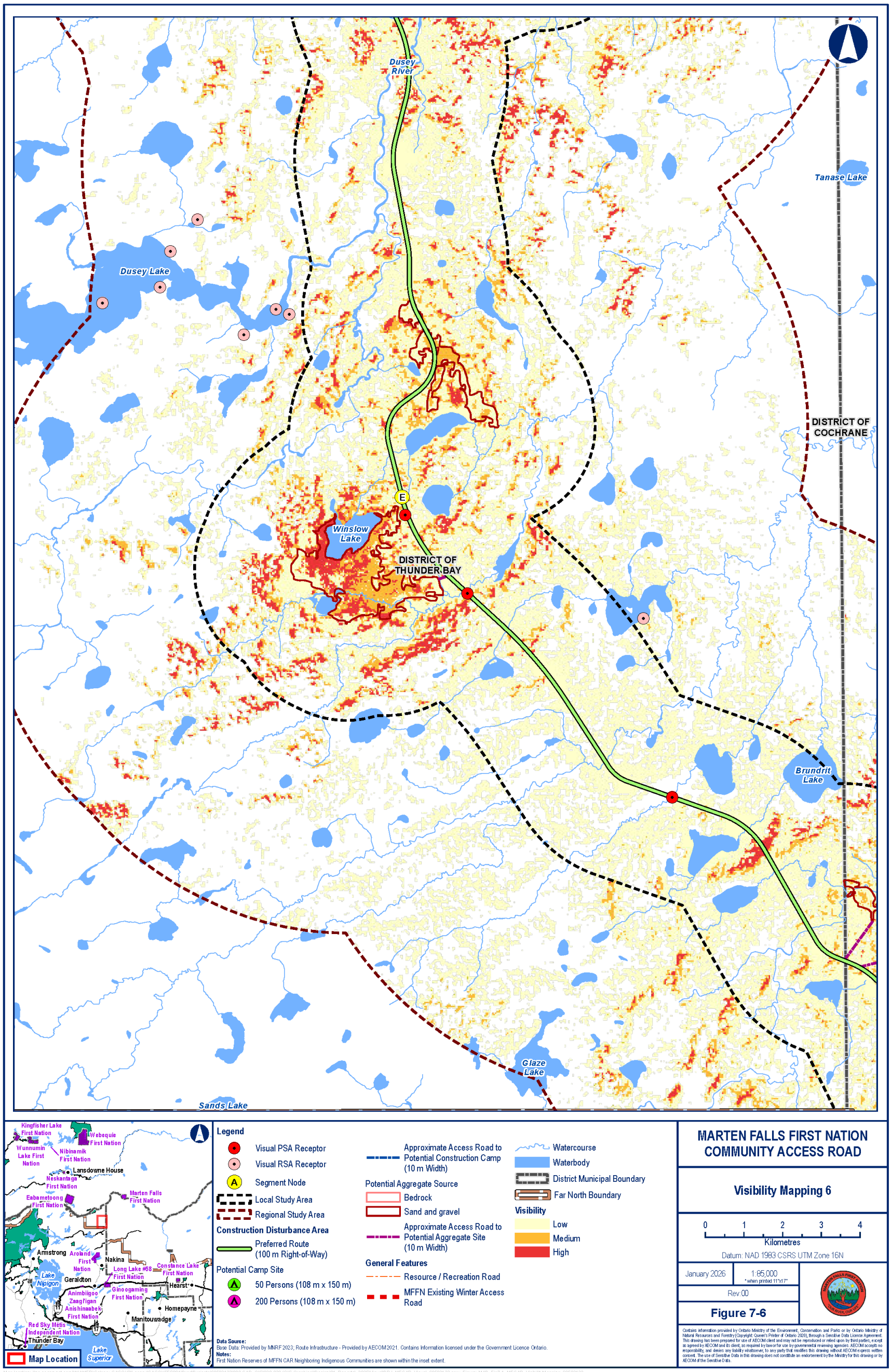


Figure 7-7: Visibility Mapping 7

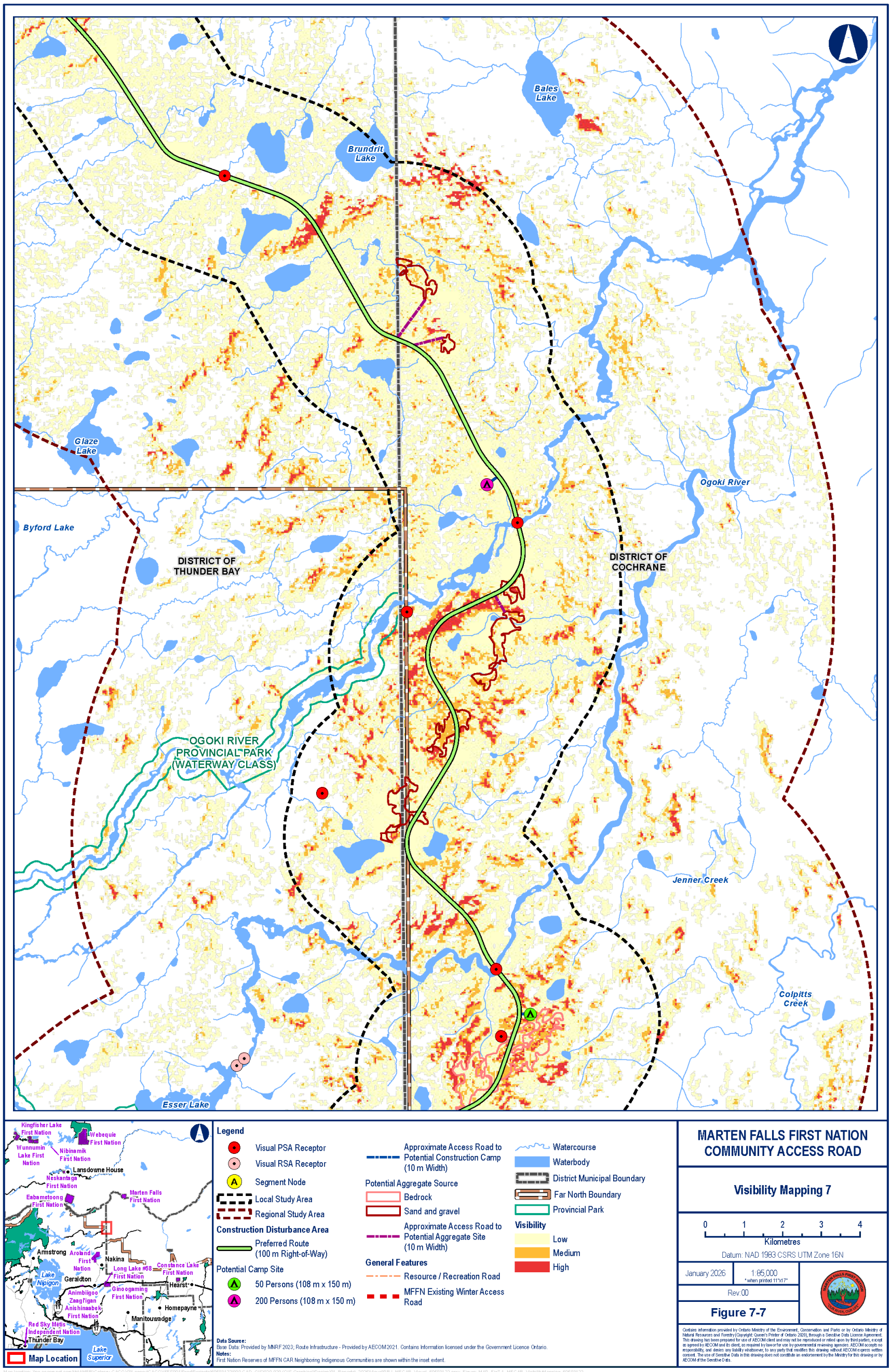


Figure 7-8: Visibility Mapping 8

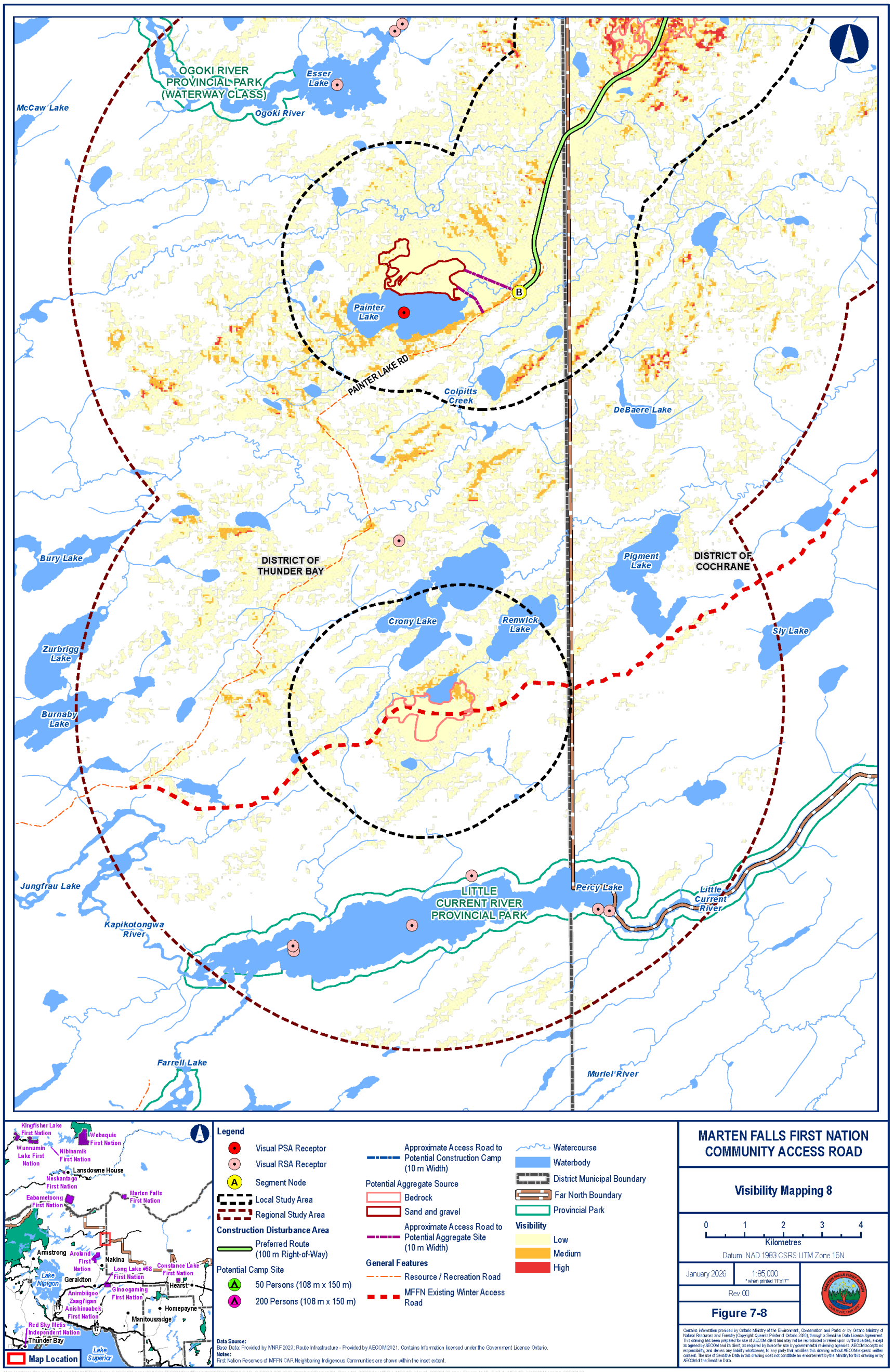


Figure 7-9: Crossing WA01- Ogoki River

Figure 7-10: Crossing WA15 – Albany River

Figure 7-11: Crossing NW-11

Figure 7-12: Crossing NW 12

Figure 7-13: Crossing NW 18

Figure 7-14: Crossing W20

Figure 7-15: Crossing WA04

Figure 7-16: Crossing WA10

Figure 7-17: Crossing WA11

Figure 7-18: Crossing WA01

7.3. Effects by Valued Component

7.3.1.1. Cultural Heritage Resources and Indigenous Experience and Sense of Place

Existing conditions context (summary of **Section 5.2**): The Study Areas support long standing Indigenous travel, harvesting, teaching, and ceremony across a contiguous visual network that includes major river corridors, smaller waterways, forest trails, and open peatland. Thirty-four culturally significant point-locations have been identified within the Regional Study Area. The entire landscape is understood to contribute to sense of place, and provide visual environment related cultural heritage value.

Construction Phase

Direct effects:

- Temporary works, bank grading, cofferdams where required, construction safety fencing, temporary works platforms, and cleared approaches will be visible from water and shore. Visibility is high within a short distance upstream and downstream, with strong contrast where equipment or exposed soils appear against sky and reflective water. Viewer exposure is occasional to frequent for travel on these corridors during active construction seasons.
- At smaller watercourses and wetlands: Short, enclosed views in forest settings limit the visible extent of change; visibility is low-to-medium, and contrast is modest when screened by vegetation.
- In forested uplands: Visibility is generally confined to the Construction Disturbance Area and immediate edges; contrast is driven by exposed mineral soils, stumps, and slash until reclamation is in place.
- In open fen and peatland: Linear clearing is perceptible at distance under clear light due to tonal contrast between mineral surface and peat vegetation.

Indirect effects:

- Temporary dust deposition can lighten foliage near active works, increasing local contrast along haul routes.
- Edge opening may create minor windthrow or dieback in the first years after clearing, subtly widening sightlines until edges stabilize.

Operations Phase

Direct effects:

- Bridge structures at the Albany River and Ogoki River will be present in views along the river corridors. Visibility is high within near and mid-distance views from water and shore immediately around the crossings; contrast depends on finish, profile, and backdrop. Viewer exposure is occasional for most paddlers and shoreline users (encountered once per trip), but the crossing remains present in the landscape at all times.
- Small crossing structures are less visually prominent due to scale and enclosure; visibility is low-to-medium, typically in short glimpses.
- In forested segments, the corridor is generally screened; in northern fen segments, the corridor can appear as a subtle linear opening under specific light and distance conditions, with low-to-medium visibility and low contrast once surfaces weather and vegetation regrows along edges.
- Intermittent headlight beams may be perceptible near the Community and at open-water crossings; with no continuous lighting assumed, night-time visual presence is intermittent.

Indirect effects:

- Routine vegetation management can maintain a visible opening and increase possibility of further vegetation dieback or trees blown over by wind due to edge effects.
- Winter snow windrows can read as bright, linear features until snowmelt.

7.3.1.2. Recreation and Tourism

Existing conditions context (summary of **Section 5.3**): The Study Areas offer backcountry canoeing, camping, angling, hunting, wildlife viewing, and snowmobiling, with strong expectations of intact, undeveloped visual character, particularly along the Albany River and Ogoki River and adjacent lakes.

Construction Phase

Direct effects:

- At water crossings and staging areas, active works, exposed banks, and equipment introduce noticeable visual disturbance in the near- to middle-distance for backcountry users; elsewhere, views are brief and screened in forested segments.

Indirect effects:

- Short-term dust and turbidity can reduce perceived naturalness near active works.
- Edge opening may create minor windthrow or dieback in the first years after clearing, subtly widening sightlines until edges stabilize.

Operations Phase

Direct effects:

- Presence of bridge structures at the Albany River and Ogoki River contrasts with the expectation of uninterrupted natural shorelines and open-water vistas; smaller crossings are less prominent; road corridor is largely screened in forested areas.
- Intermittent headlight beams may be perceptible near open-water crossings; with no continuous lighting assumed, night-time visual presence is intermittent.

Indirect effects:

- Routine vegetation management can maintain a visible opening and increase possibility of further vegetation dieback or trees blown over by wind due to edge effects;
- Winter snow windrows can read as bright, linear features until snowmelt.

7.3.1.3. Parks and Protected Areas

Existing conditions context (summary of **Section 5.4**): The Project will traverse Albany River Provincial Park and Ogoki River Provincial Park, which are remote river corridor parks managed to protect natural character, wilderness, and remoteness, with backcountry use. These parks feature close-range, water-level views and undeveloped shorelines. The Ontario *Provincial Parks and Conservation Reserves Act* sets the framework to permanently protect a system of parks and reserves and requires each park to be managed in accordance with approved management direction (management plan or management statement) (Government of Ontario, 2006). Any temporary works, clearings, crossings and permanent bridges located within the regulated park boundaries will require Ontario Parks authorization and must be demonstrably consistent with Waterway-class objectives and the applicable management statements, or obtain amended direction if not (low-risk if designs adhere to “natural character” and visual integrity goals) (Ontario Ministry of Natural Resources, 2014).

Construction Phase

Direct effects:

- Temporary visual intrusions (cleared approaches, work equipment) within protected viewscapes.

- Construction lighting can affect the ability to view the night sky or disrupt overall nighttime character of the park.
- Short-term turbidity and dust can reduce scenic integrity if not fully controlled.

Operations Phase

Direct effects:

- Permanent bridge structures at both parks modify the intrinsic scenic character protected by the Ontario *Provincial Parks and Conservation Reserves Act* (Government of Ontario, 2006).
- Smaller crossings, clearings and road surfaces are less visually prominent.

Indirect effects:

- Routine vegetation management can maintain a visible opening and increase possibility of further vegetation dieback or trees blown over by wind due to edge effects.
- Winter snow windrows can read as bright, linear features until snowmelt.

7.3.1.4. Permanent Settlements

Existing conditions context (summary of **Section 5.5**): The Community is the principal permanent settlement in the Study Areas. Two cabins were identified along the Albany River shoreline. No permanent settlements occur within the Construction Disturbance Area.

Construction Phase

Direct effects:

- Temporary construction lighting, equipment movement, and dust may be perceptible near the Community during works on the approach.

Operations Phase

Direct effects:

- Intermittent visibility of vehicles and headlight beams on the approach to permanent residents; the road and cleared edge may be visible from select community vantage points depending on final micro-siting and existing vegetation.

7.4. Cross-Discipline Linkages

Consistent with **Table 4-5**, visual change functions as an indirect pathway of effect to community well-being, land and resource use, archaeology and cultural heritage, and Aboriginal and / or Treaty Rights and Interests. The conclusions above should be read together with those assessments, particularly where river corridor views are central to cultural practice and backcountry recreation.

7.5. Mitigation and Enhancement Measures

This section presents a single, commitment ready list of mitigation and enhancement measures that defines what will be done, when, and how, along with the expected outcome. This is a consolidated list as there are several Project / corridor wide applications of common measures such as edge feathering, lighting control, finish and colour standards, and reclamation. Each measure will be used and linked to follow-up monitoring and adjustment if needed (**Section 9**).

Each measure in **Table 7-1** is written as a specific, verifiable commitment, describing the action, timing, implementation method, decision criteria, and intended visual outcome. Measures are organized by Project Activity / Theme with enhancement measures included where they provide a net improvement to the visual environment. **Section 7.5** includes the analysis of the Residual Effects, including their significance, after the application of these mitigation and enhancement measures.

Table 7-1: Mitigation and Enhancement Measures

Project Activity / Theme	Commitment (What and When)	Implementation (How)	Decision Criteria (What and How Much)	Intended Outcome
Structure finishes	■ Use matte or weathering finishes for steel; consider colour or texture for exposed concrete; non-glare fasteners; avoid bright, specular surfaces.	■ Procurement specifications with submittal samples (ideally reviewed outdoors over water where possible).	■ All bridges and visible barriers; highest priority at waterway parks (Albany and Ogoki River).	■ Reduce colour and gloss contrast against sky and water.
Opening and edge form	■ Stake meandering clearing limits; keep visible openings at shorelines to the smallest practicable width that meets safety and engineering requirements; feather edges with retained clumps and shrub screens where possible.	■ Pre-clearing stakeout and contractor toolbox talks; environmental inspector sign-off before felling.	■ All crossings and road edges; highest priority at waterway parks and community approach.	■ Soften linear cues; reduce visibility and edge contrast.
Shoreline shaping and materials	■ Shape abutments and approach embankments to follow adjacent slopes where possible; use local rock; place coarse woody debris to restore texture.	■ Grading plans to show naturalised contours; rapid stabilization and planting within the same season where possible.	■ All crossings.	■ Reduce geometric lines; restore natural texture and colour.
Construction lighting	■ Prohibit floodlighting; allow downward-facing, fully shielded task lights only; enforce dark hours.	■ Contractor Lighting Plan with fixture types, mounting, and hours; field checks by inspector.	■ All work fronts; extended hours only where safety requires with prior notice.	■ Preserve the night sky and avoid water-surface glare.

Project Activity / Theme	Commitment (What and When)	Implementation (How)	Decision Criteria (What and How Much)	Intended Outcome
Staging outside view cones	■ Site temporary staging, batch plants, and stockpiles behind landforms or retained vegetation where possible; cap stack heights below the treeline where feasible.	■ Site layout review with inspector, parks staff, and Indigenous monitors where applicable.	■ All crossings.	■ Reduce clutter and near-field prominence during construction.
Seasonal windows	■ Schedule visually intensive tasks outside peak paddling and cultural use periods identified with communities and outfitters where feasible.	■ Integrate into the construction schedule; communicate windows publicly.	■ Waterway parks (Albany and Ogoki River) and any other areas identified as high use by communities and outfitters.	■ Reduce exposure and shorten peak-magnitude periods.
Dust and surface management	■ Apply water or equivalent suppressant; cover or stabilize stockpiles; promptly stabilize exposed soils; clean hard surfaces at staging areas.	■ Dust Control Plan with visual checks logged.	■ All haul routes and work fronts; priority near water and community approach.	■ Reduce short-term lightening of vegetation and visible plumes.
Progressive reclamation	■ Salvage and respread organics; seed with native species or allow natural regeneration; decommission temporary access; restore topography.	■ Erosion and Sediment Control Plan and Reclamation Plan; photograph verification.	■ All temporary surfaces; priority near water or visual openings.	■ Shorten the period of high contrast; accelerate return to natural texture.
Operations vegetation management	■ Maintain buffers and feathered edges; favour selective trimming over broad brushing; retain shrubs to screen low views; herbicides will not be used.	■ Maintenance specifications with annual visual checks; corrective actions tracked.	■ All road edges; focus at park crossings and community approach.	■ Sustain screening and natural character over time.

Project Activity / Theme	Commitment (What and When)	Implementation (How)	Decision Criteria (What and How Much)	Intended Outcome
Night conditions in operation	■ Do not install continuous roadway or bridge lighting; task lighting only for incidents and maintenance.	■ Operations procedures and emergency protocols.	■ All crossings and approaches.	■ Preserve dark-sky conditions and avoid night-time glow.
Community-specific screening	■ Where validation identifies direct headlight lines of sight, install low vegetated berms or dense planting; micro-site the approach within the right-of-way where practicable.	■ Field validation during commissioning; minor grading and planting.	■ Marten Falls First Nation Community approach segment.	■ Limit glare and maintain community sense of remoteness.
Co-development of finishes and edges	■ Co-develop the final finish palette, edge form, and opening limits with Indigenous knowledge holders, and community member including site walks, workshops and sharing mock-ups of the final design.	■ Engagement during detailed design; field reviews before final clearing.	■ All crossings, with special attention to Albany and Ogoki River Crossings.	■ Culturally attuned tones and patterns without added clutter.
Communication	■ Provide clear advance notices for intrusively visible works; maintain one or more quiet, dark vantage spaces away from the bridge view for elders and youth during key seasons.	■ Construction communications plan.	■ Major Crossings and Marten Falls Community approach.	■ Reduce exposure for groups most sensitive to change.

7.6. Residual Effects Summary and Significance

This section brings together the results of the effects analysis into a single summary of the residual changes—those that remain after all feasible mitigation and enhancement measures from **Section 7.5** have been applied. Because visual effects are typically addressed through the combined application of all applicable mitigation measures, those measures from **Section 7.5** are not repeated in **Table 7-2**. The analysis and conclusions presented here assume full implementation of all the mitigation and enhancement measures.

Whereas the preceding subsections described direct and indirect effects in detail for each valued component, the purpose here is to show how those effects compare across components and to present the final determination of significance using the criteria established in **Section 4.4.6**.

The summary in **Table 7-2** serves as the formal determination of significance for the visual environment effects assessment and provides a consistent basis for integration with other environmental disciplines and cumulative effects assessment.

Residual magnitude ratings presented in **Table 7-2** are derived through an integrated consideration of visibility, contrast, and frequency of exposure, as defined in **Table 4-6** and **Table 4-7**. These three indicators are assessed collectively to determine the level of change in the visual environment under post-mitigation conditions.

In practice, visual effects rarely present uniformly across an entire viewshed or for all receptors. Visibility, contrast, and exposure often vary by distance from the Project, viewing angle, landscape context, and receptor use patterns. As a result, magnitude is in some cases expressed as a range (e.g., negligible–low or low–medium) to accurately reflect this variability.

Magnitude ranges are applied where:

- Visibility decreases rapidly with distance, such that partial alteration of visual elements occurs at very close range, while changes are minor or barely perceptible across most of the viewshed.
- Contrast varies with background conditions, screening, or landscape character, resulting in Project elements that are noticeable in some locations but generally compatible or visually subordinate in others.
- Frequency of exposure differs among receptors, with some experiencing occasional or seasonal exposure (e.g., recreation users, Indigenous land users), and others experiencing infrequent or rare exposure due to limited access or use duration.

In these cases, assigning a single magnitude level would not accurately represent the distribution of visual effects. The use of magnitude ranges therefore reflects the typical and dominant visual experience across the affected area, while still acknowledging localized conditions where effects may be more pronounced.

Where magnitude ranges are presented:

- The upper end of the range represents close-range or worst-case viewing conditions, such as immediately adjacent to bridge crossings or cleared areas, where visibility and contrast are greatest.
- The lower end of the range represents the broader viewshed and landscape context, where Project elements are partially screened, visually subordinate, or infrequently experienced.

Final determinations of significance consider magnitude in combination with geographic extent, duration, frequency, reversibility, likelihood, and contextual sensitivity. Localized medium-magnitude effects may therefore be concluded as **not significant** where they are spatially limited, intermittently experienced, or do not alter overall landscape-level character. Conversely, high-magnitude effects in sensitive settings may be considered **significant** even where geographically constrained.

Professional judgement was applied to resolve situations where magnitude varies by distance, vantage point, or spatial scale. Conservative assumptions were used where uncertainty exists, and uncertainty is documented explicitly in **Table 7-2**. The summary therefore reflects both localized visual experience and broader landscape-level consequences.

Table 7-2: Summary of Residual Effects and Significance

Valued Component and Setting	Phases	Effect Type	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Context	Significance	Uncertainty	Confidence
Cultural Heritage Resources and Indigenous Experience and Sense of Place — Ogoki River and Albany River crossing viewsheds	Construction	Direct (visible bridge works, equipment, temporary clearing) (**Section 7.3**)	Negative	Medium	Ogoki River and Albany River crossing viewsheds	Medium-term	Occasional	Reversible for temporary works	Certain	High cultural value river corridors with known occasional and seasonal use and deep rooted sense of place	**Not Significant** *Rationale:* Medium-magnitude visual change occurs at and near crossings during construction; however, effects are temporary, reversible, localized to the crossing viewsheds, and experienced on an occasional or seasonal basis.	Moderate	Moderate
Cultural Heritage Resources and Indigenous Experience and Sense of Place — Ogoki River and Albany River crossing viewsheds	Operations	Direct (permanent structures in view) (**Section 7.3**)	Negative	Low in most views; Medium at very close range	Ogoki River and Albany River crossing viewsheds	Long-term	Occasional	Irreversible	Certain	High cultural value river corridors with known occasional and seasonal use and deep rooted sense of place	**Not Significant** *Rationale:* While medium-magnitude effects occur at very close range to crossings, effects are localized, infrequently experienced, and limited to specific vantage points. The broader viewshed experience remains low in magnitude after mitigation.	Moderate	Moderate
Cultural Heritage Resources and Indigenous Experience and Sense of Place — Areas outside of the Albany and Ogoki River Crossing Viewsheds	Construction and Operations	Indirect [edge opening (due to vegetation edge effects) and short-lived dust contrast] (**Section 7.3**)	Negative	Low to negligible	Construction Disturbance Area and Local Study Area	Short-term	Infrequent	Reversible	Probable	Remote wilderness with high cultural value and sense of place context	**Not Significant** *Rationale:* Effects are low to negligible in magnitude, limited in extent, and infrequently experienced within the broader remote wilderness context. Project elements do not meaningfully alter landscape character or culturally important visual patterns beyond the immediate crossing areas.	Moderate	Moderate

Valued Component and Setting	Phases	Effect Type	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Context	Significance	Uncertainty	Confidence
Cultural Heritage Resources and Indigenous Experience and Sense of Place — Areas outside of the Albany and Ogoki River Crossing Viewsheds	Operations	Direct (permanent structures and linear opening in view) (**Section 7.3**)	Negative	Low	Construction Disturbance Area and Local Study Area	Long-term	Infrequent	Irreversible	Certain	Remote wilderness with high cultural value and sense of place context	**Not Significant** *Rationale:* While medium-magnitude effects occur at very close range to crossings, effects are localized, infrequently experienced, and limited to specific vantage points. The broader viewshed experience remains low in magnitude after mitigation.	Moderate	Moderate
Recreation and Tourism — Ogoki River and Albany River crossing viewsheds	Construction	Direct (visible works and clearing in open-water views) (**Section 7.3**)	Negative	Medium	Ogoki River and Albany River crossing viewsheds	Short- to medium-term	Occasional	Reversible for temporary works	Certain	Remote backcountry settings valuing natural shorelines and sense of remoteness with these rivers being a focus of the recreation and tourism experience in the Study Areas	**Not Significant** *Rationale:* Construction activities result in noticeable but temporary visual change Effects are localized, and intermittently experienced by recreation and tourism users.	Low–Moderate	Moderate–High
Recreation and Tourism — Ogoki River and Albany River crossing viewsheds	Operations	Direct (permanent structures in view) (**Section 7.3**)	Negative	Low in most views; Medium at very close range	Ogoki River and Albany River crossing viewsheds	Long-term	Occasional	Irreversible	Certain	Remote backcountry settings valuing natural shorelines and sense of remoteness with these rivers being a focus of the recreation and tourism experience in the Study Areas	**Not Significant** *Rationale:* Long-term effects are generally low in magnitude, with medium-magnitude effects limited to very close-range views. Exposure is occasional and localized, and overall scenic integrity is maintained.	Low–Moderate	Moderate–High
Recreation and Tourism — Areas outside of the Albany and Ogoki River Crossing Viewsheds	Construction	Indirect [edge opening (due to vegetation edge effects) and short-lived dust contrast] (**Section 7.3**)	Negative	Low	Construction Disturbance Area and some portions of the Local Study Area	Short-term	Infrequent	Reversible	Probable	Remote wilderness tourism context dominated by boreal forest with fragmented recreation and tourism opportunities	**Not Significant** *Rationale:* Low-magnitude, infrequently experienced and short-term, reversible effects	Low–Moderate	High

Valued Component and Setting	Phases	Effect Type	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Context	Significance	Uncertainty	Confidence
Recreation and Tourism — Areas outside of the Albany and Ogoki River Crossing Viewsheds	Operations	Direct (permanent structures and linear opening in view) (**Section 7.3**)	Negative	Low	Construction Disturbance Area and some portions of the Local Study Area	Long-term	Infrequent	Irreversible for structures and cleared corridor	Probable	Remote wilderness tourism context dominated by boreal forest with fragmented recreation and tourism opportunities	**Not Significant** *Rationale:* Low-magnitude, infrequent exposure, and limited relevance to the broader recreation and tourism experience within the Study Areas.	Low–Moderate	High
Parks and Protected Areas — Ogoki River Provincial Park and Albany River Provincial Park (visual character of protected landscapes)	Construction	Direct (visible bridge works and temporary clearing) (**Section 7.3**)	Negative	Low-to-medium	Construction Disturbance Area	Short- to medium-term	Continuous within the park landscapes	Reversible for temporary works	Certain	Protected aesthetic resources	**Not Significant:** *Rationale:* Adverse and noticeable visual effects during construction; however, effects are reversible for temporary works, and confined to the Construction Disturbance Area, and do not alter overall park-scale visual character.	Low	Moderate-High
Parks and Protected Areas — Ogoki River Provincial Park and Albany River Provincial Park (visual character of protected landscapes)	Operations	Direct (permanent bridges and associated clearing altering scenic integrity) (**Section 7.3**)	Negative	Low in most views; medium at very close range	Construction Disturbance Area	Long-term	Continuous within the park landscapes	Irreversible for structures and cleared corridor	Certain	Protected aesthetic resources	**Not Significant** *Rationale:* Long-term effects are low in magnitude at the park scale, with medium-magnitude effects limited to close-range crossing views. Overall protected landscape character and visitor experience remain intact, especially at the park scale.	Low	Moderate-High
Permanent Settlements — community of Marten Falls (outward views)	Construction	Direct (temporary equipment visibility, dust) (**Section 7.3**)	Negative	Low	Construction Disturbance Area and portion of Local Study Area where Project is perceptible	Short- to medium-term	Infrequent to occasional	Reversible for temporary works	Probable	Residential community within a remote wilderness setting	**Not Significant** *Rationale:* Low-magnitude, infrequent to occasional exposure, and limited geographic extent	Moderate	High

Valued Component and Setting	Phases	Effect Type	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Context	Significance	Uncertainty	Confidence
Permanent Settlements — community of Marten Falls (outward views)	Operations	Direct (intermittent vehicle and headlight and Project visibility) (**Section 7.3**)	Negative	Low	Construction Disturbance Area and portion of Local Study Area where Project is perceptible	Long-term	Infrequent to occasional	Irreversible for structures and cleared corridor	Certain	Residential community within a remote wilderness setting	**Not Significant** *Rationale:* Low-magnitude, infrequent to occasional exposure, and limited spatial extent relative to the Community's outward views.	Moderate	High
Permanent Settlements — two Albany River shoreline cabins	Construction	Direct (nearby works and clearing when present) (**Section 7.3**)	Negative	Low-to-medium when works nearby	Construction Disturbance Area and portion of Local Study Area where Project is perceptible	Short- to medium-term	Occasional (When in use)	Reversible for temporary works	Certain during nearby works	Remote wilderness cabin setting	**Not Significant** *Rationale:* Low-to-medium magnitude visual change may occur when construction is nearby; effects are temporary, reversible, localized, and experienced only during periods of cabin use.	Moderate	Moderate
Permanent Settlements — two Albany River shoreline cabins	Operations	Direct (intermittent vehicle and headlight and Project visibility) (**Section 7.3**)	Negative	Low	Construction Disturbance Area and portion of Local Study Area where Project is perceptible	Long-term	Infrequent to occasional	Irreversible for structures and cleared corridor	Certain	Remote wilderness cabin setting	**Not Significant** *Rationale*: Long-term effects are low in magnitude, intermittently experienced, and limited in extent after mitigation.	Moderate	Moderate-High

7.7. Conclusion

The assessment shows that residual visual effects of the Project are highly localized and primarily associated with the major water crossings. With the committed mitigation and adaptive follow-up measures in place, **no significant adverse residual effects** are expected at the scale of the visual environment discipline or for any visual environment valued component.

Visual change is concentrated at discrete locations, while the majority of the route results in low-magnitude and not significant effects. Open-water views at the Ogoki River and Albany River Crossings expose bridge profiles and shoreline openings; however, following mitigation, residual visual magnitude is low in typical approach and mid-distance views. Medium-magnitude visual change is limited to very close-range viewpoints along the river view axis, generally within approximately 250 to 400 m of the crossings. These localized effects do not alter the broader cultural, recreational, or protected landscape experience and do not result in significant residual effects.

Parks and protected areas are assessed at the landscape scale, rather than from the perspective of individual users. For Ogoki River Provincial Park and Albany River Provincial Park, the receptor is the intrinsic scenic character protected under the Ontario *Provincial Parks and Conservation Reserves Act* (Government of Ontario, 2006). Because residual visual effects are narrowly confined to the immediate crossing view cones, and magnitude is low in typical park views following finish selection and vegetation edge treatments, residual effects on park landscapes are not significant at the park scale.

Permanent settlements remain a low area of concern. For the Community, residual effects are not significant during both construction and operation, owing to vegetation and built-form screening, the absence of continuous roadway or bridge lighting, and the ability to implement targeted vegetated berms or screening should validation identify direct lines of sight. The two Albany River shoreline cabins may experience noticeable but temporary visual change during nearby construction activity; however, these effects are short-term, reversible, spatially limited, and controlled through construction scheduling and temporary screening, and are therefore not significant.

Across all settings, the application of low-reflectance finishes; irregular clearing and feathered edges; retained riparian buffers; dark-sky practices (no continuous roadway or bridge lighting); careful construction staging; and progressive reclamation substantially reduces visual contrast and viewer exposure. The Visual Follow-Up Program described in **Section 9**—including photo-stations, nighttime checks, and trigger-based adaptive measures such as supplemental screening—will verify mitigation effectiveness and address any unanticipated issues over time.

Treating all receptors as high-sensitivity and considering the modifying effect characteristics—including limited geographic extent, short- to medium-term duration for construction effects, infrequent exposure for transient viewers, and contrast-reducing design—**the Project's residual visual effects are not significant for all visual environment valued components**.

8. Cumulative Effects Assessment

The *Impact Assessment Act* (Government of Canada, 2019) requires that each environmental assessment of a project take into account any cumulative environmental effects that are likely to result from the project in combination with the environmental effects of other physical activities that have been or will be carried out.

This section presents the assessment of potential cumulative effects completed as part of the Project. The effects of past and present activities on the Study Areas and valued components identified for the Project were assessed and results are described in the following sections.

The cumulative effects assessment builds on the results of the Project's effects assessment described in **Section 7** and will consider the incremental changes that are predicted to have a likely residual adverse effect on the visual environment valued components.

8.1. Cumulative Effects Methodology

8.1.1. Definitions and Regulatory Context

Under the *Impact Assessment Act* (Government of Canada, 2019), cumulative effects are defined as "changes to the environment, health, social, and economic conditions as a result of the project's residual effects combined with the existence of other past, present, and reasonably foreseeable physical activities." The Impact Assessment Agency of Canada (2020) guidance further recognizes that cumulative effects may occur even when an individual project's effects are minor.

8.1.2. Assessment Approach

This cumulative assessment builds directly upon the residual effects defined in **Section 7**. Residual effects form the incremental Project contribution that may act cumulatively with other activities. The main steps are:

1. Define the residual visual effects from the Project remaining after mitigation (**Section 7**).
2. Establish spatial and temporal boundaries where overlapping activities could produce additive or synergistic visual changes.
3. Screen other physical activities for spatial and temporal overlap with the Project, based on proximity and visibility (co-visibility) potential.
4. Characterize cumulative effects using the same residual effect descriptors (direction, magnitude, extent, duration, frequency, reversibility, likelihood, and context).
5. Evaluate significance using the same criteria applied in **Section 7**.

8.2. Scope of the Cumulative Effects Assessment

8.2.1. Valued Components

The same valued components considered in the Project effects assessment (**Section 7**) are applied in the cumulative assessment:

- Cultural Heritage Resources and Indigenous Experience and Sense of Place;
- Recreation and Tourism;
- Parks and Protected Areas; and
- Permanent Settlements.

8.2.2. Spatial and Temporal Boundaries

The Cumulative Interaction Area refers to the geographic extent within which the Project's visible changes may overlap with other visual disturbances affecting common receptors. Consequently, the spatial boundaries for the cumulative effects assessment are consistent with those established for the Project visual environment effects assessment**.** Any project located within approximately 8 km of the Construction Disturbance Area (i.e., the width of the Regional Study Area extending outward from the construction footprint) is considered part of the visual environment cumulative assessment, as it is assumed that such projects may contribute to regional visual character.

Temporal boundaries for the cumulative effects assessment, as described in **Section 4.2**, correspond to the duration that the likely residual adverse effects of the Project are predicted to occur. The *Tailored Impact Statement Guidelines* (Impact Assessment Agency of Canada, 2020) indicate the cumulative effects assessment should look at potential effects throughout the lifecycle of the Project, including decommissioning and abandonment; however, there are currently no plans to decommission the Project (refer to **Section 4.2** for further details on the temporal boundaries). Therefore, this cumulative assessment is limited to identifying and assessing cumulative effects during the Construction and Operations phases, and considers the visual effects of the Project as permanent.

8.3. Screening of Other Physical Activities

Over 100 past, present, or reasonably foreseeable projects and activities were reviewed as part of the overall cumulative effects assessment inclusion list, which is appended to the Environmental Assessment / Impact Statement.

Screening was based on:

- Spatial overlap: presence within or adjacent to the Project's Regional Study Area; and
- Temporal overlap: construction or operation concurrent with the Community Access Road construction or operations.

Table 8-1 includes the final list of other physical activities that are expected to interact with the Project's visual environment changes. All other projects were excluded for the visual environment cumulative effects assessment because they are well outside the Project viewshed (>20 to 30 km separation), underground, on hold, or not reasonably foreseeable to contribute visible changes during the Project's timeframe.

Table 8-1: Other Physical Activities, Rational for Inclusion, and Anticipated Interaction

Other Physical Activities	Rationale for Inclusion	Anticipated Interaction
Northern Road Link	■ Shares alignment junctions and corridor adjacency with the Project; construction and operations overlap expected.	■ Additive corridor clearing, structures, and activity at shared segments; combined traveller experience; temporary lighting at crossings.
Anaconda and Painter Lake Road Upgrades	■ Directly supports Community Access Road logistics; upgrades coincide with Community Access Road construction and early operations.	■ Short-term additive visual clutter from construction in the region; limited permanent addition.
Rapid Lynx Broadband (Phases 1 and 2)	■ Linear works within or adjacent to Project right-of-way in places; ongoing construction and operations.	■ Localized construction presence and repeated narrow clearings; minor additive disturbance.

8.4. Pathways of Cumulative Interaction

The following describes how the other projects or activities may interact with the Project:

- Parallel or intersecting corridors (the Project and Northern Road Link): combined right-of-way openings, bridges, and signage visible in the same travel sequence;
- Construction node concentration (Aroland, Anaconda / Painter Lake connections): short-term aggregation of equipment and stockpiles during concurrent construction; and
- Temporal stacking: simultaneous construction windows that extend the period of visible disturbance and delay visual recovery.

8.5. Residual Project Effects Considered in this Cumulative Assessment

Residual Project effects brought forward for consideration in the cumulative effects assessment are limited to localized, low-to-medium magnitude visual changes that remain after mitigation and are not significant at the scale of the visual environment valued components.

The residual effects considered are summarized as follows:

- **Cultural Heritage Resources and Indigenous Experience and Sense of Place:** Localized, short-term visual change at the Albany River and Ogoki River Crossings and other major crossings during construction, characterized by low-to-medium magnitude at close range and low-magnitude in typical views. Residual effects during operation are low in magnitude and **not significant overall**.
- **Recreation and Tourism:** Localized and temporary visual change during active construction at major river crossings, with effects confined to crossing viewsheds and experienced intermittently by users. Residual effects are **not significant** for broader recreation and tourism settings during both construction and operations.
- **Parks and Protected Areas:** Temporary, localized visual change within crossing view cones during construction, confined to the Construction Disturbance Area. At the park scale, residual effects on the visual character of Ogoki River Provincial Park and Albany River Provincial Park are **not significant** during both construction and operations.
- **Permanent Settlements:** Residual visual effects are **not significant** for the Community during both construction and operations. For the two Albany River shoreline cabins, visual change may be noticeable during nearby construction activity but is short-term, reversible, spatially limited, and **not significant** overall.

8.6. Cumulative Effects Characterization

Residual cumulative visual effects are those that may arise from the interaction of the Project with other past, present, or reasonably foreseeable projects and activities within shared viewsheds. **Table 8-2** provides a description of the residual cumulative effects using the effects characteristics defined in **Section 4.4.6**.

Table 8-2: Residual Cumulative Effects Description

Attribute	Description
Context	■ High-sensitivity cultural and recreational landscapes, including designated provincial parks and community surroundings.
Direction	■ Negative - introduction of additional linear clearings and structures visible in shared corridors or nodes.
Magnitude	■ Low-to-medium within shared corridor segments and crossing nodes; negligible elsewhere.
Geographic Extent	■ Local - confined to overlapping viewsheds along or adjacent to the Community Access Road alignment, primarily within 5 km.
Duration	■ Short- to medium-term for construction; long-term for combined corridor presence.
Frequency	■ Infrequent for recreation users and community receptors; continuous at the landscape scale during active construction and operations.
Reversibility	■ Partially reversible through vegetation regrowth and reclamation; permanent for bridge and road forms.
Likelihood	■ High, given the expected overlap of construction periods and permanence of resulting infrastructure.
Uncertainty	■ Low to moderate, given that the Northern Road Link is still in a conceptual stage, with construction not having yet begun.

8.6.1. Cumulative Magnitude and Significance by Valued Component

Cumulative visual effects were assessed by valued component, considering the degree of spatial overlap, similarity of visual elements, and the extent to which mitigation and design standards reduce additive or synergistic visual change.

- **Cultural Heritage Resources and Indigenous Experience and Sense of Place:** Cumulative visual magnitude is low to moderate where projects spatially overlap, as these areas generally do not coincide with major river crossings and are typically within forested settings. With feathered clearing edges, natural regeneration of temporary disturbance areas, and lighting restrictions, cumulative visual effects remain localized and limited in duration. The resulting cumulative effect is **not significant** overall for this valued component.
- **Recreation and Tourism:** In areas where construction activities or bridge structures from multiple projects may be visible concurrently, visual disturbance may be temporarily intensified within localized

portions of travel corridors. However, cumulative magnitude remains low to moderate, spatially confined, and short-term in nature. At the recreation-use scale, cumulative visual effects are **not significant**.

- **Parks and Protected Areas:**
  Where other projects or activities overlap spatially with the Project, these overlaps occur outside parks and protected areas. Within park boundaries, cumulative visual magnitude remains low, and cumulative visual effects on protected landscape character are **not significant**.
- **Permanent Settlements:**
  There are no other past, present, or reasonably foreseeable projects or activities expected to interact visually with the Project in the vicinity of the Community or the two Albany River shoreline cabins. As such, no cumulative visual effects are anticipated for permanent settlements.

8.7. Mitigation and Management of Cumulative Visual Effects

The following mitigation measures are proposed to manage any potential cumulative effects to the visual environment:

- Align and co-locate laydown and access areas to minimize spatial duplication wherever possible;
- Apply shared colour, texture, and lighting standards across projects to maintain a unified appearance and reduce perceived clutter, especially for crossing structures along the Northern Road Link and Anaconda and Painter Lake Road;
- Allow for early regrowth of temporary use areas to hasten the return of natural texture;
- Use full task-specific lighting and dark-sky practices jointly across overlapping projects where possible; and
- Follow-up photo-monitoring where there is physical overlap with the project, with adaptive planting or screening if visual contrast remains above prediction after Year 3 or if complaints are received from the Community.

8.8. Cumulative Effects Significance Determination

Taking into account spatially limited co-visibility, the low-to-medium magnitude of overlapping changes, and the implementation of shared mitigation and adaptive management measures, cumulative visual effects are **not significant** for all visual environment valued components.

While localized and temporary increases in visual change may occur during periods of overlapping construction activity, these effects are short-term, geographically confined, and moderated by mitigation, and do not result in significant cumulative effects. There are very few locations where the Project physically overlaps with other projects or activities in a manner that would meaningfully intensify visual change. Accordingly, no cumulative visual effects of regional or long-term significance are anticipated.

9. Monitoring Programs and Future Commitments

A monitoring program verifies the accuracy of the effects assessment and evaluates the effectiveness of mitigation measures. Monitoring programs also include future commitments related to mitigating residual effects.

For the visual environment, the goal is not to generate continuous quantitative data, but to confirm that the landscape looks as predicted once construction and operations are underway.

Unlike biophysical components that can be tracked through measurable parameters (e.g., turbidity, noise, or vegetation cover), visual quality is an experiential outcome. It is verified most effectively through targeted photographic documentation, night audits, and collaborative field checks at key receptor viewpoints. Accordingly, the monitoring framework for this discipline focuses on a few representative sites, mainly the Albany River and Ogoki River Crossings and the Marten Falls Community approach.

The structure of this program therefore differs slightly across project phases:

- **Pre-construction** monitoring concentrates on ground-truthing and establishing the existing conditions, confirming exact sightlines, finishes, and lighting plans before any clearing occurs. This phase produces the reference condition against which later photographs and inspections will be compared, ensuring that any observed visual change can be attributed accurately to construction or operations rather than pre-existing conditions.
- **Construction**-phase monitoring is compliance-driven, ensuring that edges, staging, and lighting adhere to commitments and that short-term contrast stays within predicted limits.
- **Operations**-phase monitoring focuses on verification and adaptive management, confirming that edge regeneration and dark-sky performance match the long-term predictions in **Section 7**.

9.1. Pre-Construction Monitoring Program

9.1.1. Purpose

- Ground truth sensitive receptors and viewsheds within / adjacent to the Construction Disturbance Area.
- Identify design and construction constraints that protect visual character (buffers, edge form, finishes, lighting).

- Establish more robust existing conditions photographic records and dark-sky reference conditions at crossing locations and near Marten Falls.

9.1.2. Major Tasks and Deliverables

- Point Receptor Validation and Protected or Priority No-Go View Cone Mapping: Field verification with Indigenous knowledge holders, Parks representatives, or other applicable community representatives to confirm exact lines of sight for specific locations that hold unique, sacred, or otherwise special, Indigenous cultural or sense of place value points identified during this assessment or through further engagement. These are locations that would be considered absolute no-go locations for Project-related visual environment effects; wherein destruction of the overall visual character (e.g., clearing of all vegetation and constructing a road) of this precise location would be detrimental. One example of this type of location could be a burial ground. Further engagement and ground-truthing is required to identify these precise locations during the final design and micro-siting stages of the Project.
  - Deliverable: Georeferenced view cones of absolute no-go locations, including limit-of-clearing stakes signed off prior to clearing. The clearing limits should leave enough vegetation to prevent views of the Construction Disturbance Area from these absolute no-go locations.
- Existing Conditions Photographs: Install permanent, surveyed photo-stations (minimum three at each of the Albany River Crossing and Ogoki River Crossing): upstream near, upstream mid, downstream near; plus two along Marten Falls Community approach, and any area identified in the task and deliverable preceeding (Point Receptor Validation and Protected or Priority No-Go View Cone Mapping). Capture leaf-on and leaf-off daytime sets; one night set under dark, clear conditions.
  - Deliverable: Existing Conditions Photograph Log with coordinates, bearings, lens, exposure, sky condition, with focus and attention to the absolute no-go protected or priority view cone locations.
- Lighting and Finish Submittals: Approve fixture cutsheets (e.g., for temporary task lights), construction lighting plans with curfews, and mock-ups / samples for matte / low-reflectance finishes. For the finishes of major crossings, community feedback should be garnered to decide on things like paint colour, or if textures / designs could be incorporated into concrete components, with the overall goal of reducing the structures contrast.
  - Deliverable: Accepted submittals with specification conformance checks.

- Edge and Clearing Plans: Pre-clearing stakeout of irregular edges and feathering blocks; micro-siting of abutments / approaches to minimize profile in where there are major sightlines where feasible.
  - Deliverable: Signed pre-clearing inspection forms with photograph verification.

9.1.3. Frequency and Roles

- One field campaign per season prior to first clearing (at minimum, spring and late summer).
- Led by the Environmental / Visual Lead with Indigenous monitors and Parks staff (for works inside park boundaries).

9.2. Construction Monitoring Program

9.2.1. Purpose

To confirm that construction activities and mitigation measures are implemented as designed, and to detect any exceedance of predicted contrast levels early enough for corrective action.

Because visual effects are closely tied to how works are executed—where equipment is placed, when lighting is used, and how quickly surfaces are stabilized—construction monitoring emphasizes field presence, photographs, and compliance logs.

9.2.2. Indicators, Methods, Triggers, and Adaptive Actions

Table 9-1 sets out the practical framework used by the Environmental / Visual Lead and Indigenous monitors to track and correct visual performance during active works.

Table 9-1: Construction Monitoring Program: Indicators, Methods, Triggers, and Adaptive Actions

Indicator	Method	Frequency / Timing	Trigger (Action Level)	Adaptive Action
Edge form and clearing limits	■ Field checks from photopoints and along staked limits; compare to edge plans	■ Weekly during active clearing; after major wind events	■ Any straight / geometric edge >50 m without feathering in mapped absolute no-go protected or priority view cones	■ Halt clearing locally; re-stake; install feathering clumps; retain shrubs; supervisor re-brief
Construction clutter in view cones (cranes, stockpiles, batch plants)	■ Site layout review versus “staging outside view cones” plan; photographs	■ Prior to set-up and after any relocation	■ Major equipment or stockpiles protruding above treeline or within absolute no-go protected or priority view cones	■ Relocate equipment / stockpiles behind landforms / vegetation; cap stack heights below treeline
Dust and surface lightening near water and community approach	■ Visual plume log; surface reflectance spot checks (qualitative)	■ Daily during dry / windy conditions	■ Visible dust beyond right-of-way or persistent foliage lightening in absolute no-go protected or priority view cones	■ Increase watering / suppressant; cover stockpiles; reduce haul speed; clean hard surfaces
Temporary lighting	■ Night audits; lux spot checks at ground (qualitative pass / fail), photograph capture	■ At first night use per workfront; then weekly if night works recur	■ Non-shielded fixtures, spill above horizon, or lighting outside approved hours	■ Replace with full cut-off; add shielding / aiming; enforce curfew; escalate to Construction Manager
Shoreline shaping and materials	■ As-built checks versus drawings; photograph from water level	■ After bulk earthworks; post-armouring	■ Exposed geometric planes; non-local rock colour / texture	■ Re-grade to natural contours; replace with local rock; place coarse woody debris

Indicator	Method	Frequency / Timing	Trigger (Action Level)	Adaptive Action
Progressive reclamation	■ Checklist and photographs (seeding, organics, decommissioning of temporary access)	■ Annually during construction and into the first year of Operations	■ Any temporary surface that has been decommissioned for 360 days without any sign of natural revegetation post-use in mapped priority view cones	■ Immediate stabilization and seeding with native seed mix; prioritize high-exposure banks / edges

9.2.3. Reporting and Communication

- Monthly visual compliance memo during active works with a one-page dashboard (indicators, triggers hit, actions taken).
- Construction notices coordinated with outfitters / park staff for peak activities at major crossings (to support trip planning and reduce exposure).

9.3. Operations Monitoring Program

9.3.1. Purpose

To verify that long-term residual effects remain within predicted limits and that mitigation such as vegetation regrowth, material weathering, and lighting management performs as intended.

Because the post-construction landscape evolves slowly, monitoring is periodic—at commissioning, after the first full growing season, and at Year 3—using the same fixed photopoints and evaluation criteria established pre-construction.

If the Year 3 assessment confirms that contrast and visibility have stabilized within predicted ranges, the program may be stepped down to issue-driven monitoring only.

Table 9-2 sets out the practical framework used by the Environmental / Visual Lead and Indigenous monitors to track and correct visual performance during active works.

Table 9-2: Operations Monitoring Program: Indicators, Methods, Triggers, and Adaptive Actions

Indicator	Method	Frequency / Timing	Trigger (Action Level)	Adaptive Action
Post-construction visual contrast at photopoints	■ Repeat daytime and night photograph sets from photopoint stations (**Section 9.1**)	■ Commissioning (as-built), end of first full growing season, and Year 3	■ Apparent magnitude is greater than one category above prediction at any photopoint (e.g., predicted low observed as medium)	■ Supplemental planting at edges; extend feathering; adjust surface textures / finishes where feasible
Dark-sky condition	■ Night audit during moonless, clear conditions; qualitative skyglow and glare check	■ Once per year (summer), plus after any fixture changes	■ Any persistent non-task lighting; visible skyglow from crossings	■ Remove / disable non-task fixtures; add shielding; update operating procedures
Community approach headlight spill	■ Observational checks at identified lines of sight (with resident consent), night photographs	■ Commissioning and as requested if concerns arise	■ Noticeable repeated glare at sensitive viewpoints	■ Install low berms / dense planting where concerns have been raised to prevent line of sight where possible

9.3.2. Reporting and Communication

Operations visual report at end of Year 1 and Year 3 summarizing photopoint results, compliance with dark-sky commitments, vegetation establishment, and any adaptive actions. If targets are met at Year 3, the program can step down to issue-driven monitoring.

9.4. Future Commitments

Future commitments are implemented so that mitigation and monitoring remain actionable and verifiable through design, construction, and early operations. They also provide the link between discipline specific monitoring (visual) and related environmental management programs (e.g., vegetation, cultural heritage, and Indigenous engagement).

The commitments table consolidates all outstanding visual environment actions into a single, auditable record for project tracking and regulatory reporting (**Table 9-3**).

Table 9-3: Summary of Future Commitments

Commitment	Timing / Phase	Measure of Success / Decision Criteria
■ Existing condition and follow-up photo-monitoring and ground-truthing for absolute no-go locations, and recommended at minimum for Albany and Ogoki River Crossings and Marten Falls Community approach (day and night), using fixed, surveyed photograph points.	■ Pre-Construction; Construction; Operations (Year 1 and Year 3)	■ Photograph sequences (as described in **Sections 9.1** and **9.2**) show contrast within predicted ranges; if not, applicable triggers described in **Sections 9.2** and **9.3** activate.
■ Co-development of finishes and edges with Indigenous knowledge holders (including a workshop to share mock-ups, and site walks as necessary to understand the existing visual environment. The goal should be to get the communities feedback on what colours or architectural finishes could feasible be used to reduce the overall visual contrast of the major crossings).	■ Detailed Design; Pre-Construction	■ Documented selections and edge prescriptions incorporated into Issued-for-Construction drawings.

Commitment	Timing / Phase	Measure of Success / Decision Criteria
■ Lighting control: no continuous lighting; task-only, full cut-off fixtures with curfews; night audits.	■ Construction and Operations	■ Zero non-task lighting observed; no skyglow from crossings; if observed, applicable triggers described in **Sections 9.2** and **9.3** activate.
■ Staging of temporary construction areas within the view cone of absolute no-go or priority areas; and providing notice for when construction will occur and where.	■ Construction	■ No major equipment staging or stockpiles in mapped absolute no-go or priority view cones (as identified by the commitments in **Section 9.1)**; work windows publicly posted and met.
■ Feathered edges at major crossing locations, or where feasible; retain screening vegetation; naturalised shoreline shaping with local materials.	■ Construction	■ Field checks confirm conformance; edges meet design within tolerances (tolerances are established through the methods described in **Section 9.1)**; non-compliance corrected as soon as practicable through activated triggers described in **Sections 9.2** and **9.3**.
■ Targeted screening at validated headlight lines of sight (low berms / dense planting) or other protected or priority locations if needed.	■ Construction and Operations (as triggered)	■ Verified reduction of glare at identified viewpoints; resident sign-off where applicable (more details are provided in **Section 9.3**).
■ Progressive reclamation of temporary surfaces with organics salvage and native seeding if required.	■ Construction	■ Vegetation will be established, as outlined in the required Rehabilitation Plan to align with the *Aggregate Resources of Ontario: Site Plan Standards* (Ministry of Natural Resources and Forestry, 2020). If not, applicable triggers described in **Sections 9.2** and **9.3** activate.

Commitment	Timing / Phase	Measure of Success / Decision Criteria
■ Coordination with Northern Road Link and Anaconda and Painter Lake Upgrades on lighting, staging, and sequencing at shared nodes to reduce cumulative duration and clutter where there is spatial and temporal overlap between the Projects.	■ Construction	■ Joint plans in place where applicable for Northern Road Link and Anaconda and Painter Lake Upgrades; plan to include efforts to avoid overlapping high-visibility tasks (i.e., construction); and include plans to reduce simultaneous nighttime lighting where possible in an effort to reduce night glow within the region.

9.5. Future Permits and Approvals

While multiple permits and approvals will be required to facilitate construction of the Project, no permits or approvals have been identified that are specifically applicable to the visual environment. This will be revisited as design advances and permitting requirements are confirmed.

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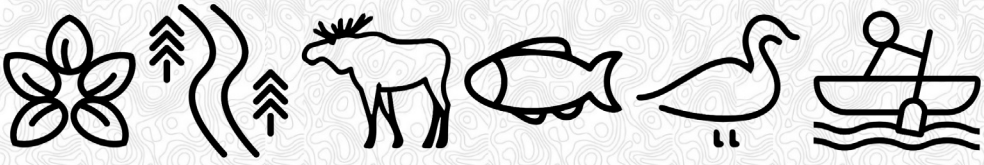
Attachment A – Study Plan, Work Plan and Regulator Comments

MARTEN FALLS FIRST NATION
ALL SEASON COMMUNITY ACCESS ROAD

FINAL

Visual Aesthetics Study Plan

May 2021



Distribution List

# Hard Copies	PDF Required	Association / Company Name
	✓	Marten Falls First Nation
	✓	AECOM Canada Ltd.

Revision History

Rev #	Date	Revision Description
Draft	June 2020	Submitted “Visual Environment Study Plan” to the Agency
Final	May 2021	Revised to address federal and provincial agency comments

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AECOM: 2015-04-13

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Acronyms and Abbreviations

Agency, the ... Impact Assessment Agency of Canada
CAR ..... Community Access Road
CanVec ..... Canadian Vector Data
EA ..... Environmental Assessment
Esri..... Environmental Systems Research Institute
GBA+……. Gender Based Analysis Plus
IA ..... Impact Assessment
IAA ..... Impact Assessment Act
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
PDEM ..... Provincial Digital Elevation Model
PDA ..... Project Development Area
QA / QC ..... Quality Assurance / Quality Control
RSA ..... Regional Study Area
SAR ..... Species at Risk
TISG ..... Tailored Impact Statement Guidelines
ToR ..... Terms of Reference
VC ..... Valued Component
VNS ..... Visual Nature Studio

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 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 Visual Environment 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[1] 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)
Aboriginal and Treaty Rights and Interests	■ Aboriginal and Treaty Rights and Interests Study Plan	■ Indigenous Current Use of Lands and Resources for Traditional Purposes ■ Cultural Continuity (ability to practice and transmit cultural traditions)
Atmospheric Environment	■ Atmospheric Environment and Greenhouse Gases Study Plan	■ Air Quality ■ Greenhouse Gas Emissions
Climate Change	■ Climate Adaptation and Resiliency Study Plan	■ Climate Change
Acoustic and Vibration Environment	■ Acoustic and Vibration Environment Study Plan	■ Noise ■ Vibration
Physiography, Geology, Terrain and Soils	■ Physiography, Terrain and Soils Study Plan	■ Physiography, Terrain and Soils
Surface Water	■ Surface Water Study Plan	■ Surface Water
Groundwater and Geochemistry	■ Groundwater and Geochemistry Study Plan	■ Groundwater
Vegetation	■ Vegetation Study Plan	■ Wetland and Riparian Ecosystems ■ Upland Ecosystems ■ Designated Areas (Areas of Natural and Scientific Interest, Environmentally Significant Areas, Significant Woodlands, Critical Landform / Vegetation Associations) ■ Traditional Use Plants and SAR Plant Populations (including species with special conservation status or rarity in the province)
	■ Peatlands Study Plan	■ Peatland Ecosystems (bogs and fens)

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.*

Environmental Discipline	Study Plan Name	Valued Component(s)
Wildlife	■ Wildlife Study Plan	■ Bats (including SAR-bats such as: Little Brown Myotis [*Myotis lucifugus*], Northern Myotis [*Myotis septentrionalis*] and Tricolored bat [*Perimyotis subflavus*]) ■ Fur Bearers (proxy VC[2] American Marten [*Martes americana*], Beaver [*Castor canadensis*] and Wolverine [*Gulo gulo*]) ■ Amphibians and Reptiles ■ Pollinating Insects
	■ Ungulates (Moose and Caribou) Study Plan	■ Moose (Alces alces) ■ Caribou, boreal population (Rangifer tarandus)
	■ Bird Study Plan	■ Forest Birds (proxy VC of Red-eyed Vireo [*Vireo olivaceus*] for deciduous forest, Ovenbird [*Seirus aurocapilla*] for mixedwood forest, Dark-eyed Junco [*Junco hyemalis*] for coniferous forest and disturbed forest ■ Raptors (proxy VC of Osprey [*Pandion haliaetus*] for diurnal raptors and Boreal Owl [*Aegolius funereus*] for nocturnal raptors ■ Shorebirds (proxy VC of Wilson's Snipe [*Gallingo delicata*]) ■ Waterfowl (proxy VC of Mallard [*Anas platyrhynchos*]) ■ Bog / Fen Birds and Other Wetland Birds (proxy VC of Palm Warbler [*Setophaga palmarum*] for bogs, Common Yellowthroat [*Geothlypis trichas*] for fens; and Northern Waterthrush [*Parkesia noveboracensis*] for swamps. ■ SAR birds: Canada Warbler (*Cardellina canadensis*), Chimney Swift (*Chaetura pelagica*), Common Nighthawk (*Chordeiles minor*), Eastern Whip-poor-will (*Antrostomus vociferous*), Eastern Wood-Pewee (*Contopus virens*), Evening Grosbeak (*Coccothraustes vespertinus*), Olive-sided Flycatcher (*Contopus cooperi*), Bald Eagle (*Haliaeetus leucocephalus)*, Peregrine Falcon (*Falco peregrinus*), Short-eared Owl (*Asio flammeus)*, Bank Swallow (*Riparia riparia*), Barn Swallow (*Hirundo rustica*), Black Tern (*Childonias niger*), Rusty Blackbird (*Euphagus carolinus*), Yellow Rail (*Coturnicops noveboracensis*)
Fish and Fish Habitat	■ Fish and Fish Habitat Study Plan	■ Lake Sturgeon (*Acipenser fulvescens*) ■ Walleye (*Sander vitreus*) ■ Brook Trout (*Salvelinus fontinalis*) ■ Northern Pike (*Esox lucius*) ■ Lake Whitefish (*Coregonus clupeaformis*) ■ Chain Pickerel (*Esox niger*) ■ Yellow Perch (*Perca flavescens*)

[2] *A proxy VC is used when looking at the effects of one species that represents many others.*

Environmental Discipline	Study Plan Name	Valued Component(s)
		■ Cisco (*Coregonus artedii*) ■ Burbot (*Lota lota*) ■ Longnose Sucker (*Catostomus catostomus*) ■ White Sucker (*Catostomus commersonii*) ■ Forage / Prey Species (including species such as Lake Chub [*Couesius plumbeus*]) ■ Lower Trophic Organisms (e.g., benthic invertebrates)
Social	■ Social Study Plan	■ Housing and Accommodation ■ Community Service and Infrastructure ■ Transportation ■ Community Well-being ■ Populations and Demographics
Economy	■ Economic Study Plan	■ Regional Economy ■ Labour Force and Employment ■ Government Finances
Land and Resource Use	■ Land and Resource Use Study Plan	■ Land Use Compatibility ■ Parks and Protected Areas ■ Extractive Industry ■ Forestry Industry ■ Energy and Linear Infrastructure ■ Recreation and Tourism
Human Health and Community Safety	■ Human Health and Community Safety Study Plan	■ Public Safety ■ Public Health ■ Diet ■ Environmental Factors Influencing Health
Visual Aesthetics	■ Visual Aesthetics Study Plan	■ Visual Contrast / Character ■ Visibility ■ Visual Sensitivity
Archaeological and Cultural Heritage	■ Cultural Heritage Study Plan	■ Archaeological Sites and Resources ■ Built Heritage Resources and Cultural Heritage Landscapes

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[3] 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 the Visual Environment 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)[4].

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 a schedule for the key work tasks.

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

- Study Plan related discussions with the Agency, the 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 and 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).

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 in **Table 3-1.**

Table 3-1: Summary of Study Plan Technical Discussions

Attendees / Responsible Party	Correspondence	Discussion Point	Solution
■ **The Agency**	■ Comments received following submission and review of draft Study Plan.	■ **05-September-2020:** Comments and clarification questions received, including additional information requirements, assessment criteria, and concordance with federal requirements.	■ Additional details and clarification provided within this Study Plan, and responses to these comments are in **Appendix B.**
■ **MECP** ■ **Ministry of Heritage, Sport, Tourism and Culture Industries**	■ Comments received following submission and review of draft Study Plan.	■ **10-August-2020:** Comments and clarification questions received, including editorial comments and additional information requirements.	■ Additional details and clarification provided within this Study Plan, and responses to these comments are in **Appendix B.**

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[5] 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

5. *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
Matawa First Nations Management (Nishnawbe Aski Nation)	■ **Marten Falls First Nation** (Proponent and potentially affected Indigenous community) ■ Aroland First Nation ■ Constance Lake First Nation ■ Eabametoong First Nation ■ Ginoogaming First Nation ■ Neskantaga First Nation ■ Nibinamik First Nation ■ Webequie First Nation
Matawa First Nations Management and the Union of Ontario Indians / Nishnawbe Aski Nation	■ Long Lake #58 First Nation**
Mushkegowuk Council (Nishnawbe Aski Nation)	■ Attawapiskat First Nation ■ Fort Albany First Nation ■ Kashechewan First Nation
Shibogama First Nations Council (Nishnawbe Aski Nation)	■ Kasabonika Lake First Nation ■ Kingfisher Lake First Nation ■ Wapekeka First Nation ■ Wawakapewin First Nation ■ Wunnumin Lake First Nation
Independent First Nations Alliance (Nishnawbe Aski Nation)	■ Kitchenuhmaykoosib Inninuwug First Nation
Independent First Nations (Nishnawbe Aski Nation)	■ Mishkeegogamang First Nation ■ Weenusk First Nation
Nokiiwin Tribal Council	■ Animbiigoo Zaagi'igan Anishinaabek First Nation*
Métis Nation of Ontario	■ Métis Nation of Ontario; Region 2*
Independent Métis Nation	■ Red Sky Independent Métis Nation*

*Notes: * Indigenous communities or organizations identified by the MECP who should be consulted on the basis that they may be interested in the Community Access Road.*
*** The 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 disciplines such as Social, Economic, Land and Resource Use and Aboriginal and Treaty Rights and Interests. The social 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. Subject to interest, community-led primary data collection and secondary data sharing for Indigenous Knowledge and Indigenous land and resource use will be completed through the Indigenous Knowledge Program. See **Section 5** for more information on the Indigenous Knowledge Program and associated materials.

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 (GBA+) 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.

4.4 Consultation on Visual Aesthetic Concerns and Impacts

As part of the IS / EA Consultation Plan and Indigenous Knowledge Program, Indigenous communities identified in **Table 4-1** will be contacted to determine their level of interest in the Project and their concerns related to the potential Visual impacts. For the Indigenous communities that express specific Visual concerns, targeted engagement for the purposes of Visual data collection will be implemented through the Visual primary data collection program consistent with the likelihood of effect anticipated to the community as determined by the MFFN CAR Project Team during the Visual Environment Assessment for the IS / EA Report.

In addition, interested persons identified through the general engagement program and inclusive of those listed in the Public Participation Plan will also be engaged on potential Visual Aesthetic concerns and for data collection purposes.

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

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 resources) 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.

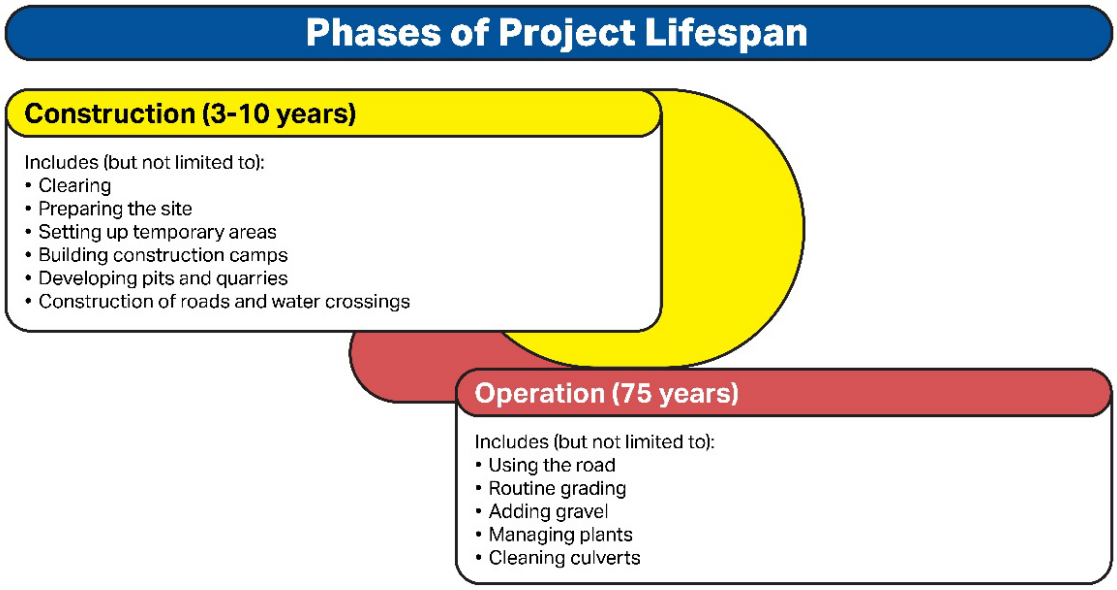
6. Assessment Boundaries

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.

Figure 6-1: Project Schedule



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[6]). 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.

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).

6. *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.*

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 Visual Aesthetic Study Areas

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

Table 6-1: Visual Aesthetic Study Areas

Study Area	Geographic Extent	Rationale
Local Study Area	■ 2.5 km from the PDA	■ Provides for a localized Visual Environment Assessment, given the remote wilderness setting of the Project. Viewers potentially observe a distinguishable level of detail and contrast.
Regional Study Area	■ Up to 8 km from the PDA	■ Visibility beyond 8 km dissipates and is significantly reduced due to flat topography and forested landscape for sections of the route. Viewers potentially observe minimal distinguishable level of detail and contrast

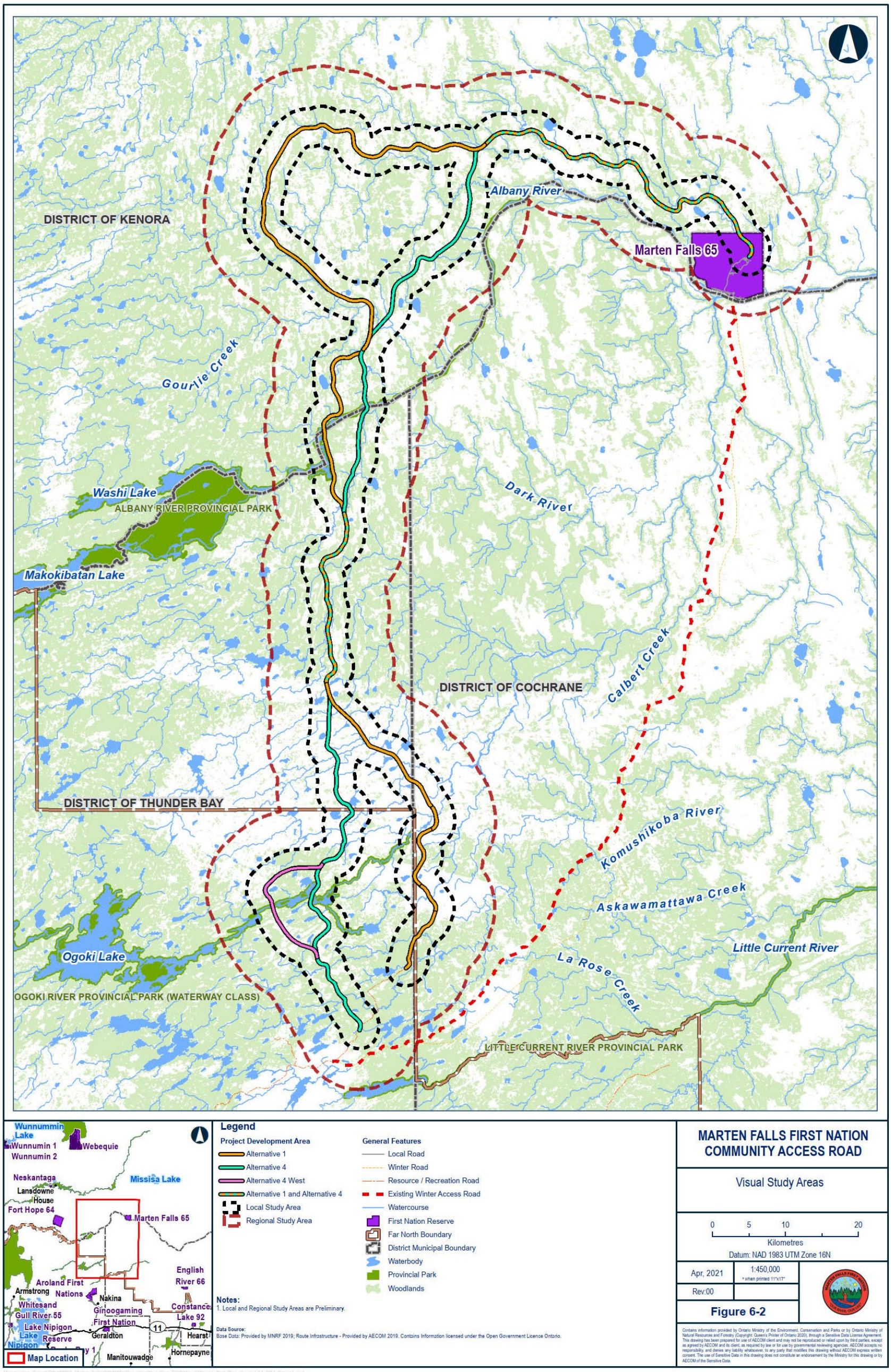
The Visual Environment study areas will be defined based on the visibility of the Project and the assessment for changes to Visual Environment that are most impactful. The Visual Environment study areas are expected to consider the visual detail that can be perceived for route Alternative 1 and route Alternative 4 including appropriate consideration of foreground, middle-ground and background viewing (BC MoF 1997). The Visual Environment Assessment will identify the immediate baseline environment within the foreground (PDA) and the mid-ground (LSA) where viewers potentially observe a distinguishable level of detail and contrast and background (RSA).

The Visual Environment will be assessed at the regional scale at a distance of up to 8 km depending on the receptor locations and its sensitivity parameters. Impacts on Indigenous communities, commercial tourism, parks and protected areas, and river crossings, will be the determining factors for the Visual Environment RSA.

The study areas will be used to scope data collection on the Visual Environment, including primary and secondary data collection. Primary data are defined as project and provincial / federal vector base mapping (e.g., Light Detection and Ranging (LiDAR), Digital Elevation Model, Imagery, Ministry of Natural Resources and Forestry (MNRF) – Land Information Ontario, Canadian Vector Data (CanVec)), Indigenous Knowledge, and sensitive receptor identification through field work. Secondary data are defined as study reports and background material related to current land use, community planning, resource extraction activities, significant natural and scenic features, cultural features and recreation amenities.

Indigenous communities and interested persons will be consulted on their interests, concerns and perceptions regarding the potential for Visual impacts to their community.

Figure 6-2: Visual Aesthetics Local and Regional Study Areas



7. Baseline Study Design

7.1 Desktop Assessment

A desktop review of existing information sources will be completed to identify information gaps that will need to be addressed through further study. A preliminary list of applicable information sources has been included in **Appendix A** and reflects federal and provincial guidance received to date. This Study Plan focuses on the additional studies that are anticipated to be required to gather information beyond what is currently available through existing information sources, including those as described in Section 7.2 'Sources of baseline information' in the Agency's TISG for this Project.

7.2 Study Methods

The remote wilderness aesthetics are important components of the Visual Environment in the area of the Project. The Visual Aesthetics of the area are largely influenced by natural processes such as wildfires, and human influences such as the MFFN community and local roads. Visual issues that may occur due to the Project include impacts on commercial tourism operations, parks and protected areas and perceptions of harm. Sections of the route in the vicinity of the Ogoki River Provincial Park and the Albany River Provincial Park may be of particular concern. Key issues identified with the two proposed river crossings include potential Visual impacts to significant vistas, landscapes or places of ceremony. Additionally, parks and protected areas in Ontario are regulated for their natural, cultural and recreational values, which includes the viewscape (PPCRA 2006). Commercial tourism in the region relies on a wilderness aesthetic to attract customers. As a result, disturbances to current natural conditions may not be well received by operators. Finally, changes to the Visual Environment may generate perceptions of environmental harm by Indigenous communities related to sensitive cultural features and recreationalists who value the pristine quality of the landscape. Therefore, visible disturbances and perceptions may impact the areas for those users.

Informed by the potential Visual issues, data collection for the Visual Environment will be defined spatially based on the potential visibility of the Project. The Visual Environment Assessment will consider:

- Visibility – this includes the viewer's ability to discern the introduced object from the surrounding landscape.
- Visual Sensitivity – the concept that certain landscapes are more susceptible to change and more sensitive due to the angle, distance of viewer, as well as the cultural significance to viewers.
- Contrast – the introduction of a new CAR into the landscape

7.2.1 Assemble Background Geographic Information System (GIS) Data

To define the existing Visual Environment, a detailed mapping dataset will be prepared for the purpose of the Visual Environment Assessment, from existing project LiDAR and MNRF Provincial Digital Elevation Model (PDEM), and potential additional imagery and topography, provincial vector base mapping, provincial reports and plans, community-based land use plans, natural features (waterways), natural heritage communities, park and nature reserve boundaries, known cultural heritage sites, First Nation and Métis community land, Indigenous Knowledge, sensitive locations identified by other study disciplines (e.g., Land and Resource Use, Social Environment, Economy) and from previous studies.

7.2.2 Consultation Inputs

Consultation and engagement are an important part of the IA / EA process and for the Visual Environment Assessment. Input will be sought to select sensitive receptor locations through discussions with Indigenous communities, including the consideration of collected Indigenous Knowledge, and with stakeholders such as government agencies (e.g., Ministry of Energy, Northern Development and Mines, MNRF), municipalities, tourism operators, and other associations. Specific landmarks that include heights of land (hills) that have been identified as having special significance for the Indigenous communities will be evaluated to determine the degree of visibility and potential impact. As well, the Visual Environment Assessment will consider background documents such as previous provincial / federal environmental impact assessments and environmental impact statements (see for example Noront 2013). Inputs gathered will be used to create a list of sensitive receptor locations and locally unique and valued areas such as the MFFN community, tourism destinations and camps, and the Ogoki River Provincial Park and the Albany River Provincial Park including trails, waterways and local roads.

7.2.3 Establish Baseline Visual Landscape Units

The detailed mapping datasets will be supported by a description of the landscape units within the PDA identifying landscape settings and features of importance. The focus will be on valued viewpoints by Indigenous community members and the public and those identified by other disciplines as contributing to the aesthetic character of an area (e.g., Indigenous Knowledge, Environmentally Significant / Sensitive Areas, rivers, scenic park features). This may also include locations of cultural heritage importance as defined through the Cultural Heritage Assessment.

7.2.4 Mapping Landscape Units

The mapping of landscape units will be undertaken using a combination of desktop research and computer-based GIS mapping and considers methodologies from similar studies undertaken provincially, nationally and internationally. The GIS map format allows for the organization, analysis and visualisation of mapped geographically referenced data, such as forest cover and cultural heritage resources. This evaluation will rely on secondary data from other studies related to the IA / EA. This will include the review of relevant reports and background material related to current land use, community planning, resource extraction activities, significant natural and scenic features, cultural features and recreation amenities. The mapping will identify the landscape typology, including sensitivity and scenic quality rating.

7.2.5 Preparation of Visibility Mapping to Establish Viewpoints

Visibility mapping will identify the RSA (up to 8 km from the PDA) and determine whether there will be views from sensitive receptor locations of route Alternative 1 and Alternative 4 for the CAR. Visibility mapping will use advanced tools, such as Visual Nature Studio (VNS), Esri (Environmental Systems Research Institute) ArcGIS Desktop / Pro and Spatial Analyst rule-based software, to build objective and data driven mapping that describes where the PDA will be visible from. The visibility mapping will be an essential tool for assisting the Indigenous communities, stakeholders, and decision makers in understanding potential impacts on the Visual quality of the area.

7.2.6 Field Work to Verify Locations

Primary data will also be collected through field work. Sensitive receptor locations will be inventoried through field reconnaissance using a high-accuracy professional GPS receiver paired with ruggedized tablets running Esri Collector field mapping software and photographed with a Single Lens Reflex Camera with a 55 mm focal length. Each location will be recorded to accuracies required by the Project and then immediately classified, evaluated and ranked (View Subject, Vantage Point, and Visual Corridor) in the field using a custom-built Collector mapping application.

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.

Visual modelling procedures are closely monitored to deliver accurate results. The best available and cost-effective spatial data will be chosen to model the Visual Environment of the landscape. Viewshed modelling and 3D landscape modelling accuracies are highly dependent on the input of quality spatial data from trusted data providers and other components. A Geographic Information System (GIS) approach will be used to analyze the regional viewsheds and potential line of sight views, using VNS, Esri ArcGIS Desktop / Pro and Spatial Analyst. The GIS based 3D landscape modelling tool VNS will be used to create the Visual simulation modelling and images that will be combined with digital field photographs to determine the visual impact of the CAR from selected sensitive viewpoints / receptor locations. VNS has a number of technical qualities to re-enforce QA / QC such as integration with georeferenced GIS datasets, specific camera settings for 3D modelling outputs that coincide with field camera photos specifications, and accurate representation of the viewscape as perceived by the human view (Field of View).

Where baseline data are available in GIS format, this information will be provided to the Agency as electronic geospatial data file(s), compliant with the ISO 19115 standard.

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. 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 the Visual Environment 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	Visual
Construction Phase	*Mobilization of Equipment and Supplies*	
	Temporary Construction Staging Areas[1]	**X**
	Temporary Access Roads and Trails[1]	**X**
	Temporary Construction Camps[1]	**X**
	ROW Clearing and Grubbing	**X**
	Brush and Timber Disposal	
	Pits and Quarries[1]	**X**
	Drilling / Blasting / Aggregate Production	**X**
	Road Construction (stripping, subgrade excavation, embankment fill placement, grading, ditching)	**X**
	Bridge and Culvert Installation (approach embankments, foundations, substructures, superstructures, traffic protection, erosion controls)	**X**
	Construction Site Restoration	**X**

Project Phases	Project Activities	Visual
Construction Phase: Decommissioning	*Pits and Quarries*	**X**
	Temporary Camps, Roads / Trails and Staging Areas	**X**
Operations Phase	*Road Presence*	**X**
	Maintenance[2]	

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 and assess the overall effects of the Project 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 activities with Indigenous communities and interested persons.

Indicators for the Visual Environment have been determined through consideration of the following factors listed in the TISG[7]:

- VC presence in the study area;
- 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;

7. *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 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;
- 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;
- Engagement with Indigenous communities and consideration of Indigenous Knowledge;
- Consultation with regulatory agencies and industrial stakeholders;
- Social or economic importance;
- Traditional, cultural and / or heritage importance;
- Natural heritage importance;
- Community-based land use plans; and,
- Other relevant and credible sources, such as scientific or academic publications or input from the public.

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 indicators for the VC.

Table 9-2: Visual Environment Indicators

Valued Component	Indicator	Rationale for Selection	Data Sources
Visual	■ Visibility ■ Visual Sensitivity ■ Visual Contrast / Character	■ The Project has the potential to result in changes to the Visual landscape and result in impacts to specific locations that are identified to be of importance by Indigenous community members and the public/users of the surrounding lands.	■ Primary Field collection data ■ Non-Sensitive and Sensitive Spatial Data – MNRF Land Information Ontario - Ontario Geohub • https://geohub.lio.gov.on.ca/ – Government of Canada – CanVec • https://open.canada.ca/en – Government of Canada - Indigenous Services Canada – Zoetica ■ Indigenous Knowledge ■ High Resolution Orthophotos (20 cm), ESRI World Imagery

Valued Component	Indicator	Rationale for Selection	Data Sources
			■ LiDAR 1 m Bare Earth Digital Elevation Model, MNRF 30 m PDEM ■ Provincial / federal reports ■ Previous Study Reports ■ Community-based land use planning ■ Cultural Heritage Report

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 Visual Environment 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).

The predicted change to the physical environment (e.g., landforms and vegetation) will be considered in the assessment of Visual impacts. It is anticipated that the results of the Visual Environment Assessment will be considered in the assessment to effects to Indigenous peoples and impact on the exercise of Aboriginal and Treaty Rights. The results of the Visual Environment Assessment will also be considered in the impact assessment for the Social, Economic, Human Health and Community Safety, and Land and Resource Use Study Plans.

9.4 Methods for Predicting Future Conditions

The Visual Environment Assessment will evaluate Project effects using similar methodologies and frameworks as the other disciplines. The quantitative models and predictions will include descriptions of model assumptions, parameters, the quality of the data and the degree of certainty of the predictions obtained.

The Visual Environment Assessment will map landscape units using a combination of desktop research and computer-GIS analysis based on methodologies from similar studies. This includes a Visibility analysis, of the potential effects the CAR will have on the immediate surrounding area, and identification of sensitive receptor locations that are potentially impacted by the proposed CAR.

9.4.1 Input to Route Evaluation Matrix

The output of the visibility mapping will be included as input to the route evaluation process and IS / EA Report for the Project. Each of the two CAR route alternatives will be assessed for impact to sensitive receptor locations, which will likely be identified by Indigenous communities and as recreation areas and natural feature locations. This assessment will address the proximity of the CAR alternatives to the sensitive receptor locations identified through consultation and field evaluation.

9.4.2 Prepare Simulations / Impact Assessment

Five impacted sensitive receptor locations will then be selected based on consultation input for Visual simulation modelling and will take into account leaf-off conditions. Five simulations will be prepared for each of the two CAR route alternatives including before and after Project development scenarios to support the IS / EA Report. The GIS based 3D landscape modelling tool VNS will be used to create the visual simulation modelling and images that will be combined with digital field photographs.

The landscape sensitivity is characterized by the magnitude of the impact on culturally significant locations, the degree of visibility and the ability of the landscape to absorb the disturbance. There are several factors that can influence the Visual Absorption Capacity of a landscape. These include:

- Visibility;
- Visual Sensitivity;
- Contrast.

9.4.3 Identify Mitigation

Mitigation will be recommended to address, if practical, the Visual Absorption Capacity and the sensitivity of the landscape to absorb the perceived visual changes in the CAR.

9.4.4 Visual Environment Documentation

The IS / EA Report will summarize the assessment process completed, consultation input received, and identified visual impacts including appropriate mitigation if necessary.

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.

The following provides a response to the fulfillment of TISG Section 20 requirements.

Table 9-3: TISG Section 20 Requirements

Item #	TISG Section 20 Requirement	Response
1	■ Describe mitigation measures that are specific to each environmental, health, Social or economic effect identified. Mitigation measures are to be written as specific commitments that clearly describe when and how the proponent intends to implement them, what decision-making criteria will be used, and the outcome these mitigation measure are designed to address;	■ The Visual Environment Assessment will include a description of applicable mitigation measures deemed to be required subject to the results of the impact assessment.
2	■ Describe mitigation measures that are specific to identified effects to Indigenous peoples;	■ The Visual Environment Assessment will include a description of applicable mitigation measures deemed to be required subject to the results of the impact assessment, including measures that may be specific to Indigenous people.

Item #	TISG Section 20 Requirement	Response
3	■ Describe mitigation measures proposed by Indigenous peoples and the consideration of those in the Project;	■ The Visual Environment Assessment will include a description of applicable mitigation measures deemed to be required subject to the results of the impact assessment, including measures that may be specific to Indigenous people including measures that may have been suggested by Indigenous people.
4	■ Propose differentiated mitigation measures for all potential adverse effects identified, if applicable, so that adverse effects do not fall disproportionately on vulnerable populations, certain Indigenous groups, or certain communities, and they are not disadvantaged in sharing any development benefits and opportunities resulting from the Project. These mitigation measures should be developed in collaboration with those who are vulnerable and/or disadvantaged;	■ The development of applicable mitigation measures will take into account identified potential impacts on vulnerable populations and developed with the input of interested persons from those vulnerable populations.
5	■ Describe how disproportionate effects that were identified in the GBA+ results were used to inform mitigation and enhancement measures.	■ The Visual Environment Assessment will describe any identified disproportionate effects to sub-populations.

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). Residual effects 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[8]. 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 migratory or calving season for wildlife). Where appropriate, information regarding residual effects will be disaggregated by sex, gender, age and other community relevant identifying factors to identify disproportionate residual effects for diverse subgroups.

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

8. *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.*

Table 9-4: Visual Environment Magnitude Definition

Magnitude Level	Definition	Rationale
Negligible	■ Very minor loss of or alteration to one or more key elements / features / characteristics of the baseline.	■ Introduction of elements that are not uncharacteristic with the surrounding landscape – approximating the 'no change' situation.
Low	■ Minor loss of or alteration to one or more key elements / features / characteristics of the baseline.	■ Introduction of elements that may not be uncharacteristic when set within the attributes of the receiving landscape.
Medium	■ Partial loss of or alteration to one or more key elements / features / characteristics of the baseline.	■ Introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic when set within the attributes of the receiving landscapes.
High	■ Total loss of or major alteration to key elements / features / characteristics of the baseline.	■ Introduction of elements considered to be totally uncharacteristic when set within the attributes of the receiving landscape.

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**. GBA+ 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.

GBA+ will be integrated in the Visual Environment Assessment to help to ensure that sub-populations are identified and engaged with for the purpose of seeking input on areas of importance / sensitivity to visual impact. As with the Social Environment Assessment, the analytical approach to GBA+ will be largely qualitative.

9.9 Follow-up Programs

A follow-up program verifies the accuracy of the effects assessment and evaluates the effectiveness of mitigation measures. Section 26 of the TISG does not specifically outline required Visual related monitoring activities that are to be included. The identification of Visual follow-up programs for the Project are not described in this Study Plan as the information needed to determine the need for and form of impact monitoring is dependent on the outcome of the effects assessment and on the results of consultation and engagement with Indigenous communities, agencies and interested persons.

10. Assumptions

The MFFN CAR Project Team is not aware at this time of key assumptions that will be recognized in the Visual Environment Assessment. These will be determined during the development of the IS / EA Report. Key assumptions made and used in the assessment of Visual impacts will be documented in the IS / EA Report.

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. **Table 11-1** outlines how the Visual Environment Assessment will conform with the TISG. Presented in **Table 11-2** are the comments received on the draft Provincial Terms of Reference that relate to the Visual Environment Assessment. **Table 11-3** outlines proposed deviations from the TISG requirements.

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[9]	Requirement / Comment / Concern	Response	Study Plan Reference
1	TISG Section 12.2	■ The experience of the practice (e.g., connection to the landscape without visual landscape)	■ Connection with the landscape will be considered as part of the Land and Resource Use Assessment.	■ See Land and Resource Use Study Plan
2	TISG Section 12.4	■ The experience associated with the exercise of rights (e.g., visual landscape)	■ This will be considered in the Aboriginal and Treaty Rights and Interests Assessment.	■ See Aboriginal and Treaty Rights and Interests Study Plan
3	TISG Section 14.1	■ Describe consultation with regulators, stakeholders, community groups, landowners and Indigenous groups about potential effects to the…visual environment;	■ Consultation with Indigenous communities and interested persons is described in Section 4 of the Study Plan. Consultation and engagement activities will include inputs with respect to the selection of visual impact receptor points and the potential for visual impact.	■ Section 4
4	TISG Section 16.2	■ Identify predicted visual or other aesthetic effects of the Project on existing land use in the study area;	■ Visual and aesthetic impacts from the Project in the study area will be addressed in the Visual Environment Assessment.	■ Section 9
5	TISG Section 17.2	■ The Impact Statement must: describe effects to community well-being due to changes to viewscapes and soundscapes resulting from the Project.	■ Assessment of effects to community well-being are to be covered in the Social Environment Assessment and Human Health and Community Safety Assessment. These assessments will take into account any potential impacts on the visual landscape as applicable.	■ See Social Study Plan and Human Health and Community Safety Study Plan

9. *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)*

Table 11-2: Study Plan Provincial Draft ToR Concordance - Conformance with Requirements

ID#	Commenter	Requirement / Comment / Concern	Response Related to Draft Provincial ToR	Study Plan Reference
1	■ Draft ToR Comment from the Ministry of Heritage, Sport, Tourism and Culture Industries (ID #301)	■ Table 7-4: Preliminary Identification of Potential Environmental Effects, Page 48 ■ Potential Effects on Cultural Heritage Resources • Damage to, or loss of, archaeological or other sites. ■ MHSTCI recommends that the description of potential effects be expanded as follow: • Disturbance or destruction of, archaeological resources. • Displacement of built heritage resources and/or cultural heritage landscape by removal and/or demolition and/or disruption by isolation • Impacts to registered and unregistered cemeteries which have been identified and documented • Effects on cultural heritage landscapes • Disruption of cultural heritage resources by the introduction of physical, visual, audible or atmospheric elements that are not in keeping with the character and setting of cultural heritage resources	■ Table 8-2 of the ToR has been revised to include all suggested potential effects.	■ Section 9.2
2	■ Draft ToR Comment from Fort Albany First Nation (FAFN) (ID #659)	■ Section 7.1.4.12 Socio-Economic and Built Environment – Visual Aesthetics p. 43 ■ The ToR provides limited information about visual aesthetics in the area of the project. ■ Please provide information about any planned field programs to collect visual data at key locations and plans to consult with Indigenous nations in the collection of such data. ■ The visual environment comprises a meaningful component of the environment for Indigenous peoples, informing traditional knowledge and use. The project has the potential to adversely affect the visual landscape.	■ Field activities will be undertaken to support the visual assessment. Indigenous communities will be consulted on the visual assessment and associate field program. If FAFN has specific interest in understanding how the visual assessment will be completed, the MFFN Project Team is available for further discussion.	■ Section 7.2
3	■ Draft ToR Comment from Fort Albany First Nation (ID #680)	■ Appendix A Draft Criteria & Indicators for Alternatives Evaluation p. 5 ■ The ToR provides “Visibility of the Project from sensitive locations” as indicator for Visual Character. ■ Please provide an indicator and methodology that captures changes in visual quality. For a project such as this, the use of Indigenous Visual Quality Objectives, and mock up visual perspectives from different viewpoints before and after project development, through engagement with Indigenous peoples, is standard practice. ■ “Visibility” is an insufficient indicator to capture visual quality.	■ The visual assessment will include a Visual Sensitivity indicator. This recognizes that certain landscapes are more susceptible to change and more sensitive due to the angle, distance of viewer, as well as the cultural significance to viewers.	■ Section 9.3

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

ID #	Federal TISG Reference[10]	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 8.1 (pg. 39)	■ "The Impact Statement must…describe existing ambient nighttime light levels at the project site and at any other areas where project activities could have an effect on light levels. The Impact Statement will describe night-time illumination levels during different weather conditions and seasons"	■ The road is not expected to require any long term permanent lighting.	■ Due to the fact that there are no anticipated long-term permanent lighting structures required for the Project, there will be no potential lighting impacts to assess.	■ Remove this requirement
2	TISG Section 14.1 (pg. 86)	■ "Identify and justify the approach to determine the extent to which sound effects resulting from the Project are adverse and describe any changes in night-time light levels as a result of the Project"	■ The road is not expected to require any long term permanent lighting.	■ Due to the fact that there are no anticipated long-term permanent lighting structures required for the Project, there will be no potential lighting impacts to assess.	■ Remove this requirement
3	TISG Section 17.2 (pg. 107)	■ "The impact statement must: describe predicted effects to recreation (e.g., hunting, fishing, hiking, wildlife viewing, aesthetic enjoyment) by the community and Indigenous groups, and youth within these communities, including effects to: ■ Access to the resources ■ Quantity and quality of the resources; and ■ Overall experience when undertaking recreation activities, including noise, odours/air quality, and effects on visual landscapes"	■ Assessment of effects to recreation activities are covered in the Land Use Assessment. This assessment will take into account any potential impacts on the visual landscape as applicable	■ Assessment of effects to recreation activities are covered in the Land Use Assessment. This assessment will take into account any potential impacts on the visual landscape as applicable.	See Land and Resource Use Study Plan
4	TISG Section 19.1 (pg. 116)	■ "The potential effects…not limited to…Visual aesthetics over the life of the Project and post-Project abandonment or decommissioning."	■ Impacts to visual aesthetics will be addressed in the Visual Environment Assessment for the construction and operation periods of the Project (see Section 9 of the Study Plan).	■ 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.	■ Reword the requirement to remove "post-Project abandonment or decommissioning"

10. 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)

12. References

AECOM Canada Ltd., 2020:

Marten Falls First Nation Proposed Terms of Reference Marten Falls Community Access Road – Environmental Assessment, Appendix B: Consultation & Engagement Plan to Support the Environmental Assessment / Impact Statement.

BC MoF (Province of British Columbia Ministry of Forests). May 1997.

Visual Landscape Inventory: Procedures and Standards Manual. Forest Practices Branch. Available: https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/visual-resource-management/visual-landscape-inventory

Impact Assessment Agency of Canada, 2019:

Impact Assessment Act. https://laws-lois.justice.gc.ca/eng/acts/I-2.75/

Impact Assessment Agency of Canada, 2020:

Public Participation Plan for the Marten Falls Community Access Road Project Impact Assessment. https://iaac-aeic.gc.ca/050/documents/p80184/133934E.pdf

Impact Assessment Agency of Canada, 2020a:

Indigenous Partnership and Engagement Plan for the Marten Falls Community Access Road Project Impact Assessment. https://iaac-aeic.gc.ca/050/documents/p80184/133936E.pdf

Impact Assessment Agency of Canada, 2020b:

Glossary of Terms for the impact assessment of designated projects under the IAA. https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/glossary-of-terms.html

Impact Assessment Agency of Canada, 2020c:

Tailored Impact Statement Guidelines for the Marten Falls Community Access Road Project. https://iaac-aeic.gc.ca/050/documents/p80184/133937E.pdf

Noront. December 2013.

Eagle's Nest Project – A Federal/Provincial Environment Impact Statement/Environmental Assessment Report. Available: http://norontresources.com/projects/permitting-technical-documents/

Ontario Government, 1990a:

Environmental Assessment Act. https://www.ontario.ca/laws/statute/90e18

PPCRA (Provincial Parks and Conservation Reserves Act). 2006:

Provincial Parks and Conservation Reserves Act, 2006, S.O. 2006, c. 12. Available: https://www.ontario.ca/laws/statute/06p12

Province of Ontario:

Ontario Heritage Act and Standards and Guidelines for Conservation of Provincial Heritage Properties.

Appendix A

Preliminary List of Data Sources

Environment Canada, Parks Canada:

Source used to identify the list of sensitive receptors and locally unique and valued areas such as public recreation areas and trails, significant natural, cultural and recreational values and scenic features

Indigenous Business & Finance Today, August 2016:

KWG and China Railway First Survey & Design Institute Group Co., Ltd. (FSDI) Ink Strategic Co-operation Agreement-FSDI to Complete Conditional Bankable Feasibility Study. Available: http://www.ibftoday.ca/kwg-and-china-railway-fsdi-ink-strategic-co-operation-agreement-fsdi-to-complete-conditional-bankable-feasibility-study/

Indigenous Services Canada (ISC) :

Source used to obtain First Nation and Metis Community-based land use plans, building locations and list sensitive receptors

KWG Resources Inc., 2019:

Ring of Fire Railway. Available: http://kwgresources.com/rail-corridor/; http://kwgresources.com/ring-of-fire-railway-kwg-engages-canarail/

LI (The Landscape Institute and the Institute of Environmental Management & Assessment), 2002:

Guidelines for Landscape and Visual Impact Assessment 2nd Edition. Available: https://epdf.pub/guidelines-for-landscape-amp-visual-impact-assessment.html

LI (The Landscape Institute and the Institute of Environmental Management & Assessment), 2013:

Guidelines for Landscape and Visual Impact Assessment 3rd Edition.

Natural Resource Canada (NRCAN):

Federal vector and raster base mapping. Source used to identify the list of sensitive receptors and locally unique and valued areas, such as residences, tourism destination and camps, public recreation areas and trails, waterways (lakes and rivers used for recreation) and roads; environmental, land use, social or economic importance

NEC (Niagara Escarpment Commission), August 2019:

Niagara Escarpment Commission Visual Impact Assessment Technical Criteria. Available: https://www.escarpment.org/LandPlanning/NepPoliciesGuideline/ProposedGuidanceTechCriteria/VIA

Ontario Ministry of Agriculture Food and Rural Affairs (OMAFRA):

Source used to identify the physical environment including landform and vegetative cover

Ontario Ministry of Energy, Northern Development and Mines (OENDM):

Source used to identify the physical environment including landform and resource extraction activities

Ontario Ministry of the Environment, Conservation and Parks (OMECP):

Source used to identify the list of sensitive receptors and locally unique and valued areas such as public recreation areas and trails, significant natural, cultural and recreational values and scenic features

Ontario Ministry of Heritage, Sport, Tourism and Culture Industries (OMHSTCI):

Source used to identify the list of sensitive receptors and locally unique and valued areas; cultural and/or heritage importance;

Ontario Ministry of Natural Resources and Forestry (OMNRF):

Provincial vector and raster base mapping. Source used to identify the list of sensitive receptors and locally unique and valued areas, such as residences, tourism destination and camps, public recreation areas and trails, parks and protected areas, waterways (lakes and rivers used for recreation) and roads; environmental, land use, social or economic importance

Consultation and Engagement: Communities and Indigenous Knowledge; traditional, cultural and/or heritage importance; Aboriginal Traditional Knowledge (ATK)

Will also be examining the results of other study assessments related to: Indigenous Knowledge and land use, other land use, community planning, resource extraction activities, significant natural and scenic features, cultural features and recreation areas and features.

Appendix B

Agency Comments on the Draft Study Plan

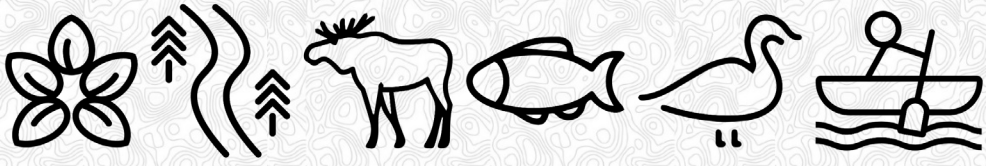
Draft Study Plan Comments – Federal

Comment # / Ref #	Study Plan Section	TISG Section	Comment / Context	Action Item	Final Response	Study Plan Reference
General Comment	■ General Comment	■ **Sections 5, 6, 7, 13, 19.2, and 25**	■ 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 MFFN- 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.		■ 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.	■ Various sections
VE-01	■ **Section 4.2: Study Methods** – "Visual issues that may occur due to the Project include impacts on commercial tourism operations, parks and protected areas and perceptions of harm." ■ **Section 6.2: Methods for Predicting Changes in the Physical Environment** – "This includes a visibility analysis, of the potential effects the CAR will have on the immediate surrounding area, and identification of sensitive receptor locations that are potentially impacted by the proposed CAR."	■ **Section 8.1** – "The Impact Statement must: … • describe existing ambient nighttime light levels at the project site and at any other areas where project activities could have an effect on light levels. The Impact Statement will describe night-time illumination levels during different weather conditions and seasons; and.." ■ **Section 14.1** – "The Impact Statement must: … • identify and justify the approach to determine the extent to which sound effects resulting from the Project are adverse and describe any changes in night-time light levels as a result of the Project; and …"	■ It is unclear if existing ambient nighttime light levels and predicted changes in light levels as a result of the Project will be described to meet requirements in Sections 8.1 and 14.1 of the Guidelines.	■ Update the study plan to provide details to demonstrate how the existing ambient nighttime light levels and predicted changes in light levels at relevant locations will be described, as per the requirements in Sections 8.1 and 14.1 of the Guidelines.	■ No significant permanent lighting is proposed for the CAR. As such a lighting assessment is not warranted.	■ Not Applicable to Visual Environment
VE-02	■ **Section 4.2: Study Methods** – "changes to the visual environment may generate perceptions of environmental harm by Indigenous communities related to sensitive cultural features and recreationalists who value the pristine quality of the landscape. Therefore, visible disturbances and perceptions may impact the areas for those users."	■ **Section 6**	■ It is unclear, based on the information provided in Section 4.2 of the study plan, if all Indigenous groups listed in the Indigenous Engagement and Partnership Plan will be engaged at a level that will meet the requirements in Section 6 of the Guidelines.	■ Provide details to demonstrate that all Indigenous groups listed in the Indigenous Engagement and Partnership Plan will be engaged with and provided 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.	■ The Study Plan includes commitments to engage with Indigenous communities including the consideration of Indigenous Knowledge and input on VCs, effects assessment and any recommended mitigation measures.	■ Section 2.1 ■ Section 4.3 ■ Section 5
VE-03	■ **Section 6.2: Methods for Predicting Changes in the Physical Environment** – "It is anticipated that the results of the visual assessment will be considered in the assessment to effects to Indigenous peoples and impact on the exercise of Aboriginal and Treaty Rights."	■ **Section 19.2**	■ The study plan should demonstrate an approach for integrating impacts on rights considerations (changes to resource, access, and experience) into collection of baseline information and the effects assessment, including the identification of mitigation measures proposed to address impacts.	■ Describe the approach for identifying the potentially impacted rights of Indigenous peoples of Canada that are recognized and affirmed by section 35 of the Constitution Act, 1982, and for integrating the potential impacts on those rights into the collection of baseline information and the effects assessment. Include details to	■ For information on how impacts on the rights of Indigenous peoples will be assessed, please see the Aboriginal and Treaty Rights and Interests Study Plan. Information relevant to the Visual Environment Assessment received through the Aboriginal	■ Section 4.2

Comment # / Ref #	Study Plan Section	TISG Section	Comment / Context	Action Item	Final Response	Study Plan Reference
				demonstrate when Indigenous groups will be engaged in identifying potential impacts on rights. ■ Provide detail on the timeline for engagement relative to the project work plan. Include details about engagement relative to the schedule for baseline work and effects assessment, including the identification of mitigation measures to address impacts, in consideration of the project team's timeline for the development of the Impact Statement.	and Treaty Rights and Interests Study Plan will be considered. ■ The timeline for the Visual Environment Assessment is to be confirmed. It is expected that the work will commence in 2021 Q2-Q3 subject to COVID-19 restrictions.	
VE-04	■ **Section 3: Spatial Boundaries: Study Areas** – "The team will define the visual study area based on the visibility of the Project and the assessment for changes to visual environment that is most impactful. The visual study areas are expected to consider the visual detail that can be perceived for route Alternative 1 and route Alternative 4 including appropriate consideration of foreground, middle-ground and background viewing (BC MoF, 1997). The Visual Environment Study will identify the immediate baseline environment within the foreground (100 m from PSA) and the mid-ground (2.5 km from PSA) where viewers potentially observe a distinguishable level of detail and contrast and background (up to 8 km from the PSA)."	■ **Section 7.4.1** – "…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…"	■ It is unclear if Indigenous groups and the public were engaged with and provided an opportunity to provide input on the spatial boundaries defined in Section 3 of the study plan. ■ If this engagement has not yet occurred, more detail is necessary to demonstrate how this opportunity will be provided to Indigenous groups and the public, and how the information they provide will be taken into account in the definition of the spatial boundaries, as per the requirement in Section 7.4.1 of the Guidelines.	■ Provide details to demonstrate how and when Indigenous groups and the public have been or will be engaged in defining the spatial boundaries for the Project. ■ Provide details on the timeline for engagement relative to the Project work plan, including engagement relative to the schedule for baseline work, and in consideration of the project team's timeline for the development of the Impact Statement.	■ As noted in Section 6.2.2, the Visual study area will be defined based on the visibility of the Project and the assessment of changes to the Visual Environment that are the most impactful. Interested Indigenous communities will be engaged regarding the assessment of Visual impacts including the identification of locations that are considered to be visually sensitive.	■ Section 6.2.2
VE-05	■ **Section 6.2: Methods for Predicting Changes in the Physical Environment** – "This includes a visibility analysis, of the potential effects the CAR will have on the immediate surrounding area, and identification of sensitive receptor locations that are potentially impacted by the proposed CAR."	■ **Section 14.1** – "The Impact Statement must: … • describe the locations and characteristics of the most sensitive receptors including species at risk and differential effects for sensitive receptors;…"	■ It is unclear if the requirement in Section 14.1 of the Guidelines will be met. More detail is needed related to the locations and characteristics of the most sensitive receptors, including human receptors, species at risk and differential effects for sensitive receptors.	■ Provide detail to demonstrate that the locations and characteristics of the most sensitive receptors including species at risk and differential effects for sensitive receptors will be described, as required by Section 14.1 of the Guidelines.	■ Species at Risk are not a receptor for the Visual Environment Assessment. The process for determining sensitive human Visual receptor locations is described in Section 9.2 of the Study Plan.	■ Section 9.2

Comment # / Ref #	Study Plan Section	TISG Section	Comment / Context	Action Item	Final Response	Study Plan Reference
VE-06	■ **Section 6.2: Methods for Predicting Changes in the Physical Environment** – "The results of the visual assessment will also be submitted to the social, economic, human health and community safety, and land and resource use assessment teams for consideration in their impact assessments." ■ **Section 7 Concordance with Federal and Provincial Guidance** – "Will be addressed in Health, Social, Economic and Land Use Conditions"	■ **Section 12.2** – "…In general, the Impact Statement should consider: … • the experience of the practice (e.g., connection to the landscape without artificial noise and sensory disturbances, air quality, visual landscape, perceived or real contamination, etc.); and …" ■ **Section 12.4** – "The Impact Statement should document the nature and extent of the exercise of rights of Indigenous peoples, potentially impacted by the Project, as identified by the Indigenous group(s). Indigenous groups may also provide their perspective through consultations with the Agency. This information related to rights may include, but is not limited to: … • the experience associated with the exercise of rights (e.g., noise and sensory disturbances, air quality, visual landscape);…" ■ **Section 13.2** – …the Impact Statement must consider and describe the interactions between the environmental, health, social and economic effects as well as the interaction and interconnectedness of selected valued components taking into account values of local communities, including municipalities and Indigenous groups… ■ **Section 14.1** – "The Impact Statement must: … • describe consultation with regulators, stakeholders, community groups, landowners and Indigenous groups about potential effects to the atmospheric, acoustic, and visual environment;…"	■ The study plan provides inadequate detail on the data described in other study plans (such as the human health and community safety; social; economic and land and resource use study plans) that will be collected and analyzed to meet the visual environment baseline data collection and effects assessment requirements described in Sections 12.2, 12.4 and 14.1 of the Guidelines.	■ Update the study plan to provide further detail on the specific visual environment criteria and indicators that will be collected and assessed through other study plans. At a minimum, provide a cross reference as to where the specific visual environment criteria and indicators can be found in the other plans.	■ See Section 9.2 of the Visual Study Plan for a description of the visual indicators to be considered in the assessment. The results from the Visual Environment Assessment will be incorporated into the assessment of other VCs, such as Land and Resource Use, Social Environment, and Aboriginal and Treaty Rights and Interests.	■ Section 9.2 ■ Land and Resource Use Study Plan ■ Social Environment Study Plan ■ Aboriginal and Treaty Rights and Interests Study Plan

Draft Study Plan Comments – Provincial



Comment # / Ref #	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, Vegetation, Groundwater and Climate Change work plans that may apply to this work plan.	■ Please review EAB comments on the Wildlife, Ungulates, Vegetation, Groundwater and Climate Change work plans that may apply to this work plan.	■ Review has been undertaken. Not applicable to the Visual Environment Assessment.	■ Not applicable to Visual Environment.
2	■ Page 9, s. 6.2	■ MECP, Environmental Assessment Branch	■ A route evaluation matrix is referenced in section 6.2, and the work plan states that the output of visibility mapping of the two route alternatives will be included in the route evaluation process and impact assessment of the project. Other work plans do not mention a route evaluation matrix. As noted in comments on other work plans, the methodology for how each environmental component will factor into the alternatives assessment should be clear. ■ As well, the alternatives assessment will need to include all project components for which alternatives are being considered. The work plan only speaks to the two route alternatives.	■ Please ensure that the draft EA clearly explains the alternatives assessment methodologies for all alternatives being considered (routes, supporting infrastructure), unless sufficient rationale for their exclusion can be provided. ■ Ensure the EA is clear in terms of how each environmental component is factored into selection of preferred alternatives, whether using a route evaluation matrix or otherwise.	■ The visual impact assessment will consider all relevant Project components that have potential for visual impact. See Section 9.1 for Project-environment interactions to be considered.	■ Section 9.1
1	■ 4.1 Desktop Assessment Appendix A	■ MHSTCI (Heritage Planners Comments)	■ A cultural heritage report: existing conditions and preliminary impact assessment needs to feed into the visual environment assessment. Ensure that new construction, visual intrusions, or other interventions do not adversely affect the heritage attributes of a known or potential provincial heritage property. Retain and maintain the visual settings and other physical relationships that contribute to the cultural heritage value of a property. (Provision D.3 of Standards and Conservation of Conservation of Provincial Heritage Properties).	■ Include the cultural heritage report in Appendix A.	■ See Cultural Heritage Study Plan for more information on the Cultural Heritage Report. The identification of sensitive visual receptors will consider input from the Cultural Heritage assessment. This is outlined in Section 7.2 of the Study Plan.	■ Section 7.2
2	■ Throughout the work plan	■ MHSTCI (Heritage Planners Comments)	■ Terminology should be consistent with the provincial cultural heritage legislative and regulatory framework (e.g., Ontario Heritage Act, Provincial Policy Statement 2020). The term “cultural heritage resources” includes archaeological resources, built heritage resources and cultural heritage landscapes.	■ Please replace terms such as “cultural heritage sites” and “cultural heritage features” with “cultural heritage resources”.	■ Term "cultural heritage resources" has been used throughout the Study Plan in place of "Cultural Heritage Sites" and "Cultural Heritage Features".	■ Table 9-2
3	■ 9.0 References	■ MHSTCI (Heritage Planners Comments)	■ As the project area may include lands owned and/or managed by the provincial Crown, the Standards and Guidelines for Conservation of Provincial Heritage Properties (issued under section 25.2 of the Ontario Heritage Act) apply.	■ Include reference to the Ontario Heritage Act and the Standards and Guidelines for Conservation of Provincial Heritage Properties.	■ This reference has been added to References	■ Section 12

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