Webequie Supply Road

Aquatic Habitat Work Plan

Webequie First Nation

11 June 2020
661910

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1. Introduction

The proposed Webequie Supply Road Project is a new all-season road of approximately 107 km in length from Webequie First Nation to the mineral deposit area near McFaulds Lake (also referred to as the Ring of Fire). A Location Plan for the Project is shown on **Figure 1**. The preliminary proposed corridor for the road consists of a northwest-southeast segment running 51 km from Webequie First Nation to a 56 km segment running east before terminating near McFaulds Lake. A total of 17 km of the corridor is within Webequie First Nation Reserve lands.

The goals and objectives of the Webequie Supply Road Project are as follows:

- To facilitate the movement of materials, supplies and people from the Webequie Airport to the area of existing mineral exploration activities and proposed mine developments in the McFaulds Lake area;
- To provide employment and other economic development opportunities to WFN community members and businesses that reside in or around the community's reserve and traditional territory, while preserving their language and culture; and
- To provide experience/training opportunities for youth to help encourage pursuit of additional skills through post-secondary education.

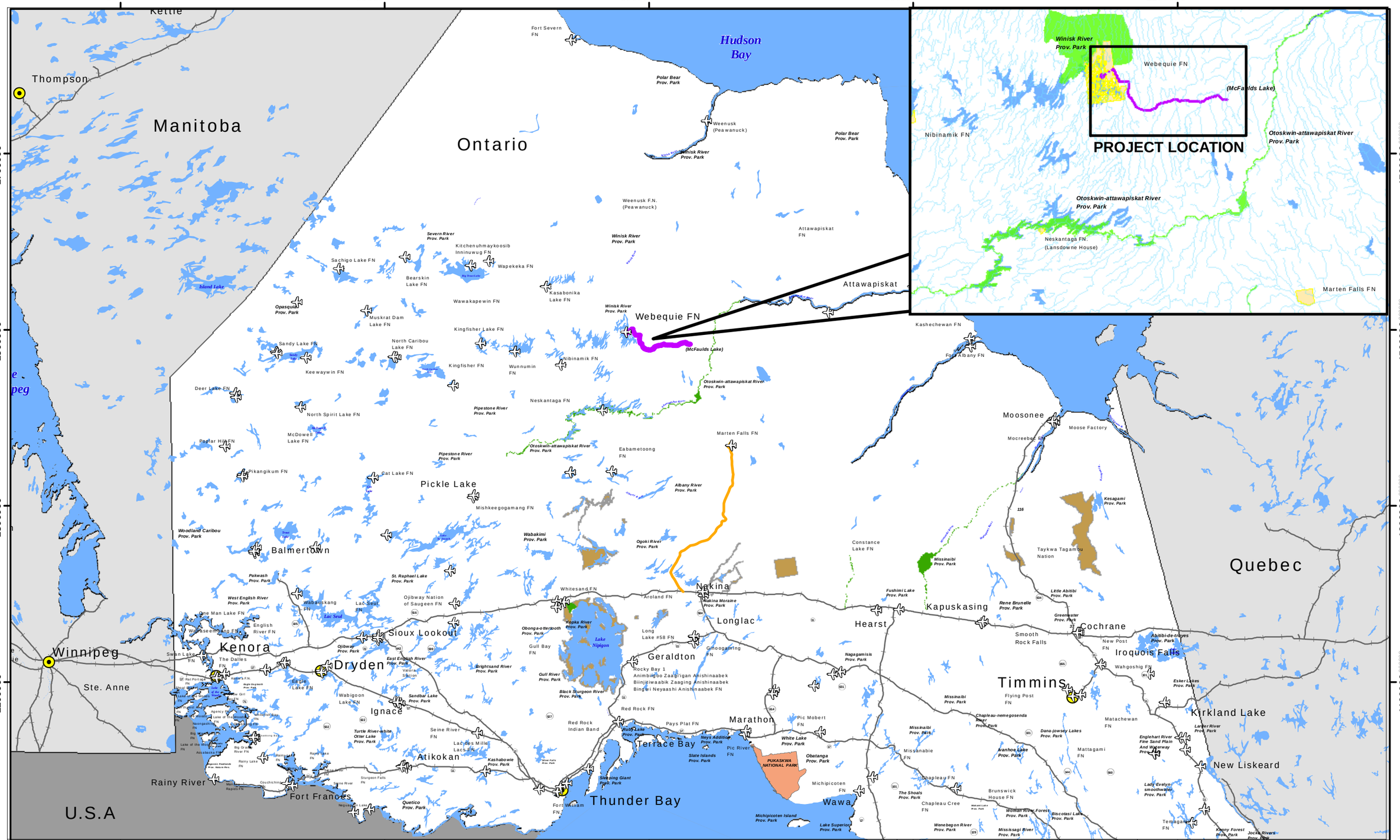
On May 3, 2018, the Ontario Minister of the Environment, Conservation and Parks (then Minister of the Environment and Climate Change) signed a voluntary agreement with Webequie First Nation to make the Webequie Supply Road Project subject to an Individual Environmental Assessment under Ontario's *Environmental Assessment Act.* The Project is also subject to meeting the requirements of the federal *Impact Assessment Act.* For the purposes of this work plan, the term "EA" is meant to include both the provincial environmental assessment and the federal impact assessment.

The Aquatic Habitat Work Plan is being submitted to the Impact Assessment Agency of Canada (IAAC, "Agency") and the Ontario Ministry of the Environment, Conservation and Parks (MECP) requesting that a coordinated review be undertaken with the objective to provide Webequie with technical guidance in meeting the requirements of the federal Tailored Impact Statement Guidelines (TISG) and provincial Terms of Reference (ToR) for the Project, which is pending approval by Ontario. It should be noted that Ontario's review of the work plan is preliminary and secondary to any further review and decisions related to a final approved ToR.

1.1. Defining Spatial and Temporal Boundaries

1.1.1. Spatial Boundaries

Spatial boundaries define the geographic extent within which the potential environmental effects of the Project are considered. As such, these spatial boundaries define the study areas for the effects assessment. Spatial boundaries to be established for the EA will vary depending on the valued component and will be considered separately for each. The spatial boundaries to be used in the EA will be refined and validated through input from federal and provincial government departments and ministries, Indigenous groups, the public and other interested parties.



Legend

- Proposed Preliminary Corridor for the Webequie Supply Road
- City/Town
- Winter Roads
- All-Season Roads
- Rail
- First Nation Reserve
- Federal National Park
- Provincial Park
- Conservation Reserve
- Waterbody
- Airports

WSR WEBEQUIE SUPPLY ROAD

0 50 100 Km

N

Canada Lambert Conformal Conic Projection

Webequie Supply Road

Project Location

Date: 2020-03-13	File Number: 649920	Sub Code: 0000
Figure Number: 1		Rev. 0

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Spatial boundaries will be defined taking into account the appropriate scale and spatial extent of potential effects of the Project; 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.

At this stage in the EA process, the spatial boundaries for the EA will include the following three (3) study areas to capture the potential direct and indirect effects of the Project for each valued component, unless otherwise specified in a work plan:

- **Project Footprint (PF)** – is the identified areas of direct disturbance (i.e., the physical area required for Project construction and operation). The PF is defined as the 35 m right-of-way (ROW) width for the WSR and temporary or permanent areas needed to support the Project, including laydown/storage yards, construction camps, access roads and aggregate extraction sites.
- **Local Study Area (LSA)** - is identified as the area where most effects of the Project are likely to be measurable; therefore, along the PF, the LSA will be the focus of data collection to characterize existing environmental conditions. The LSA for most valued components will extend or buffer approximately 1 km from the supply road ROW boundary, and 500 metres (m) from the temporary or permanent supportive infrastructure.
- **Regional Study Area (RSA)** – encompasses the area outside of the LSA used to measure broader-scale existing environment conditions and provide regional context for the maximum predicted geographic extent of direct and indirect effects of the Project (e.g., changes to downstream surface water quality, caribou, or changes to socio-economic conditions such as regional employment and incomes). Cumulative effects of the Project in combination with past, present, and reasonably foreseeable developments are typically assessed at this larger spatial scale. The RSA is defined as extending approximately 5 km from the LSA boundary.

For the purposes of the aquatic work plan the RSA has been adjusted and is considered to encompass the catchment areas (as defined on a tertiary watershed scale) of each water body crossed by the Project Footprint, upstream to the headwaters and downstream to James Bay or Hudson Bay. **Figure 2** presents the spatial boundaries for the subject valued component.

The study areas were selected to characterize existing environmental conditions and predict the direct and indirect changes from the Project on the subject valued component on a continuum of increasing spatial scales from the Project Footprint to broader, regional levels. The preliminary selection of study areas also considered the physical and biological properties of the valued component and related evaluation criteria.

The baseline data collection and effects assessment relative to the spatial boundaries will focus on the set of supply road conceptual alternatives within the preliminary proposed corridor, as identified in the federal Impact Assessment Detailed Project Description (November 2019) and the provincial Environmental Assessment draft Terms of Reference (September 2019). The alternatives include the Webequie First Nation community's preferred route for the supply road (35 m right-of-way width) along the centreline of an approximately 2 km wide preliminary proposed corridor and the optimal geotechnical route within the same corridor. The route alternatives are shown in **Figure 2** with the LSA and RSA boundaries for each route alternative combined to reflect the study area for the Project. At this stage of the EA process the supportive infrastructure components have yet to be determined. It is anticipated that

additional alternative routes may be developed during the EA. For example, a route that may be based on optimizing the geometric design of the community preferred route or optimal geotechnical route may be included. Where such additional alternatives are identified, the study area will be adjusted.

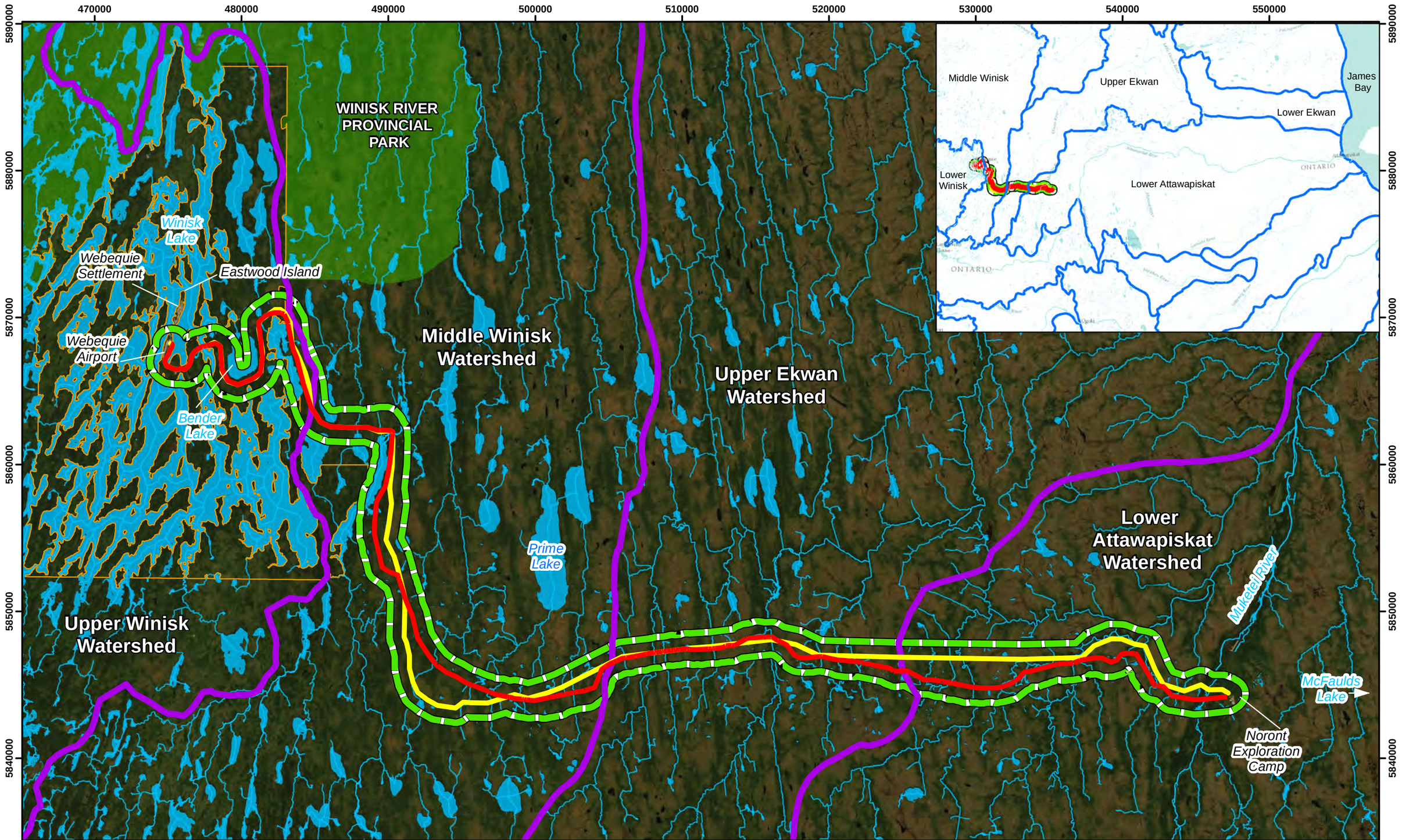
1.1.2. Temporal Boundaries

The EA process was designed to evaluate the short-term and long-term changes resulting from the implementation of the Project and associated effects on the environment, including where project activities may overlap such as the restoration (e.g., revegetation) of temporary access roads that could occur during the operation.

Implementation of the Project will occur in phases (refer to Section 4.3.4 of the ToR). The potential interactions with the natural, cultural and socio-economic environments and the potential occurrence of residual impacts are anticipated to be different in each phase. In order to focus the assessment, the key activities can be divided into the three main phases:

- **Construction Phase**: All the activities associated with the initial development of the road and supportive infrastructure;
- **Operations Phase**: All activities associated with operation and maintenance of the road and any other permanent supportive infrastructure (e.g., operations and maintenance yard, aggregate pits) that will start after construction and continue indefinitely; and
- **Decommissioning/Abandonment/Closure Phase**: The Project will be operated for an indeterminate time period; therefore, retirement (decommissioning/abandonment/closure) is not anticipated and will not be addressed in the EA. Note that clean-up and site restoration, including the decommissioning and removal of temporary infrastructure (e.g., access roads) will be addressed in the construction phase.

Although generally based on the planned stages described above, the final selection of temporal boundaries is criteria-specific and further detail will be provided in the discipline-specific assessment sections of the EAR/IS. Temporal variation or patterns in potential effects associated with different criteria (e.g., habitat use by migratory birds or fish spawning, or trends over time in populations and employment) will also be considered. Baseline data collection for all biophysical valued components will be provided for a minimum of two years, unless specified otherwise. Temporal boundaries spanning more than one year will enable accounting for annual or seasonal variations (e.g., the effects of storms on migration, delays in the onset of spring conditions, or early snowfalls).



Legend

- Optimal Geotechnical Route
- Community Preferred Route
- Local Study Area (LSA 1km From Alternative Footprints)
- Tertiary Watershed (Aquatic RSA)
- Webequie First Nation Reserve
- Waterbody
- Watercourse
- Winisk River Provincial Park

WSR WEBEQUIE SUPPLY ROAD

0 5 10 Km

N

NAD 83
UTM Zone 16N

Webequie Supply Road

Preliminary Route Alternatives and Combined Study Areas

Date: 2020/06/10	File Number: 649920	Sub Code: 0000
Figure Number: 2		Rev. 0

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2. Work Plan

2.1. Methodology

The following sections describes the planned approach to baseline data collection and the assessment of the potential impacts on the aquatic environment within the study area for the Project in order to address the requirements of the TISG (Sections 8.5, 8.7 and 14.3) and, where applicable, meet the expectations of the MECP and other provincial ministries (i.e. Ministry of Natural Resources and Forestry) as identified in the ToR.

2.1.1. Background Data Review and Field Surveys

There is a total of twenty-six (26) waterbody crossings of the preliminary preferred corridor for the Webequie Supply Road as presented in **Figure 3**. Information to characterize existing aquatic conditions and features for the Project will draw upon the following secondary sources:

- Previously conducted environmental studies, including Indigenous Knowledge information obtained through consultation with Indigenous communities, will be reviewed, and dated information will be updated as required;
- Regulatory databases;
- Aerial photography;
- Geographic Information System (GIS) databases;
- Academic literature; and
- Information obtained from regulatory agencies and other stakeholders.

A list of secondary sources reviewed to date is provided in **Appendix A** and will be amended and documented in detail in the Environmental Assessment Report/Impact Statement (EAR/IS).

The primary purpose of the aquatic field program will be to characterize the aquatic habitat that could potentially be affected by the construction or operation of the supply road and to provide baseline information to conduct the effects assessment. To gather the information required to support the EA, the following field surveys are proposed:

- Fish habitat assessments to characterize biophysical characteristics at waterbody crossings;
- Fish community sampling;
- Benthic invertebrate surveys; and
- Fish spawning surveys targeting Walleye and Lake Sturgeon (artificial egg mats)

To supplement the above surveys sediment sampling and surface water sampling will be conducted to characterize baseline conditions at waterbodies; this information will be interconnected/linked to fish and fish habitat data sets. The surveys for collection of sediment and surface water samples will be completed in accordance with the requirement in Section 8.6 of the TISG are described in the Groundwater and Surface Water Work Plan.

480000 490000 500000 510000 520000 530000 540000 550000

5880000 5870000 5860000 5850000 5840000

Winisk River Provincial Park

Winisk Lake

Winisk Lake Crossing

Webequie Airport

WB-1

Bender Lake

Eastwood Island

WC-2

WC-3

Winiskesis Channel

WC-4

Middle Winisk

Prime Lake

Upper Winisk

Upper Ekwan

WC-5 WC-6 WC-7 WC-8 WC-9 WC-10 WC-11 WC-12 WC-13 WC-14 WC-15 WC-16 WC-17 WC-18 WC-19 WC-20 WC-21 WC-22 WC-23 WC-24 WC-25 WC-26

Lower Attawapiskat

Mukutei River

McFaulds Lake

Noront Resources Exploration Camp

480000 490000 500000 510000 520000 530000 540000 550000

LEGEND

- 2019 Fish Habitat Survey Locations
- Geotechnically Preferred Route
- Community Preferred Route
- Webequie First Nation
- LIOWaterbody_AttawapiskatWSHD_Revised
- LIOWatercourse_AttawapiskatWSHD_Revised
- Winisk River Provincial Park

WSR WEBEQUIE SUPPLY ROAD

0 2.5 5 10 Km

N

NAD 83
UTM Zone 16N

Webequie Supply Road

Fish Community Survey Locations within their Respective Watershed (2019)

Date: 2020/06/03	File Number: 649920	Sub Code: 0000
Figure Number: 3		Rev. 0

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With the exception of the program elements related to benthic invertebrate surveys and spawning surveys, the baseline data collection for fish and fish habitat at each waterbody will be conducted for 2-years (2019 and 2020). Overall, the proposed aquatic baseline surveys, along with supplemental data from other valued components (e.g., Groundwater and Surface Water Work Plan) is considered to meet the requirements in Section 7.4.2 of the TISG.

Existing aerial/satellite imagery, along with available background information sources will be used to establish survey locations prior to execution of the field program. This will include engagement with Webequie community members, and other First Nations, to gain their insight and knowledge with respect to fish species of value and their presence in the project area. The selection of survey sites in 2020 will also be informed by field studies that were conducted in 2019. Indigenous Knowledge has been, or will be, incorporated into the data collection process and, field program and will inform the effects assessment.

Aquatic field surveys will be undertaken to characterize existing aquatic habitat conditions and fish communities for waterbodies located within the project study area. The field surveys will focus on sampling of watercourses and small lakes/ponds within the preliminary proposed road corridor and those that may be potentially be affected by supportive project infrastructure such access roads, laydown/storage yards, construction camps and aggregate extraction areas. Data collected will also contribute to the determination of the presence/absence of aquatic species at risk or species of special concern or value to Indigenous communities (i.e., country food) that use those specialized habitat types. A detailed description of the survey methodology is provided below. Aquatic field surveys will be completed at water crossings within the study area that meet one or more of the following criteria:

- Waterbodies that display the ability to support fish at the time of the field survey (will not assess dry water crossings);
- Waterbodies that are likely to contain a criterion species (i.e., Brook Trout, Northern Pike, Walleye and Lake Sturgeon);
- Waterbodies where no specific aquatic habitat field data of sufficient detail is available from the review of background information sources; and/or
- Locations that can safely accessed.

Field survey methods will follow standard practices for fish and fish habitat surveys including relevant methods contained in the Ontario Stream Assessment Protocol (Stanfield, 2017) and those referenced in the Ministry of Transportation of Ontario (MTO) *Environmental Reference for Highway Design* (2013) and MTO *Environmental Guide for Fish and Fish Habitat* (2009). The Project Team will also consider the MNRF *Aquatic Ecosystem Assessments for Rivers* (Aquatic research Series 2013-6) when finalizing the design and carrying out the field surveys. Surveys will be conducted at locations that were surveyed in 2019 as well as locations in the aggregate source areas, access roads, and construction/laydown/storage areas.

In general, the detailed zone of assessment for data collection at waterbodies will include areas within the road corridor (i.e. 35m right-of-way/Project Footprint) plus 50 m upstream and 200 m downstream. However, in some cases the assessed length of each waterbody will vary and will be determined in the field at the crossing location with consideration of the following:

- Width of the watercourse meaning the smaller width watercourses would have longer stream lengths surveyed and conversely for the wider width of larger watercourses, a smaller length would be surveyed;
- The survey length will be modified where applicable to ensure that run/riffle and pool features are included in each watercourse survey if those morphology features are present;
- Fish habitat sensitivity and potential effects on downstream fish communities and fish habitat; and
- Presence and/or influence of physical features in a watercourse, such as beaver dams or migration barriers.

2.1.1.1. Fish Habitat Assessment

For each water body, the following habitat variables will be documented, where available:

- Location [Universal Transverse Mercator (UTM) coordinates for each waterbody crossing];
- Waterbody name, if known;
- Tertiary Watershed name;
- Photos at the crossing location with views upstream, downstream, left bank, right bank, substrates, and presence of any barriers/obstacles (e.g., beaver dam, falls) to fish movement;
- Flow regime:
  - Ephemeral – flows only during and after large precipitation events for a period of a few days to a few weeks;
  - Intermittent – flows during wet seasons and in the summer after a major rain event, a non-permanent flowing drainage feature with a defined channel and evidence of annual scour or deposition; or,
  - Permanent – flows for most of the year but can run dry during drought conditions;
- Water body type (based on Ministry of Natural Resources and Forestry – MNRF) sensitive values database [Government of Ontario, 2015]):
  - Watercourse – a flowing body of water within a defined channel (includes rivers, creeks, streams); or
  - Lake/pond – waterbody that is surrounded by land and has no discernible flow;
- Thermal regime – the MNRF sensitive values database (Government of Ontario, 2015) includes thermal regime designations for most waterbodies in Ontario. Thermal regimes are classified using temperatures recorded during the summer (i.e., June 1 to August 31) and are defined as follows (MNR, 2013):
  - Cold – waterbodies where water temperatures range from 7 degrees Celsius (ºC) to 18ºC from June 1 to August 31;
  - Cool – waterbodies where water temperatures range from 18ºC to 25ºC from June 1 to August 31; and
  - Warm – waterbodies where water temperatures can be greater than 25ºC from June 1 to August 31;
- Flow and velocity measurements to be used with hydraulic modeling to characterize existing conditions and assess fish passage at waterbody crossings where culvert structures are proposed.

Other habitat variables that will be documented include:

- Bank-full width (m) – width of channel where the water level would be at the top of the channel banks;
- Wetted width (m) – width of the water at the time of survey;
- Residual pool depth (m) – depth difference between the pool crest and maximum pool depth;
- In situ water quality measurements (temperature, pH, conductivity, and dissolved oxygen), collected with a YSI 556 multi-parameter probe;
- Turbidity was collected with a LaMotte 2020we Portable Turbidity Meter;
- Cover (visually assessed in the survey reach as overhanging vegetation, substrate, depth, instream vegetation, undercut banks and woody debris);
- Dominant and subdominant substrate type (visually assessed in the survey reach such as muck, silt, clay, gravel. etc.);
- Stream gradient (%);
- Bank texture, riparian vegetation and stage, crown closure;
- Stream morphology (pattern, presence of islands and bars, confinement, and coupling); and/or
- Presence of fish passage barriers.

It should be noted that the above habitat variables, such as flow and thermal regimes and in situ water quality measurements (e.g., temperature, pH, conductivity, dissolved oxygen, and turbidity) will also be supplemented with the data collection described in the Groundwater and Surface Water Work Plan to reflect linkages/overlaps for these components.

The habitat assessment will also allow for characterization of fish habitat features that may demonstrate the presence of the fish criterion species identified in Section 2.2 of the work plan in terms of appropriate habitats requirements, including but not limited to, feeding, spawning areas, nursery habitats, rearing, overwintering, migration routes and the sensitive times for these activities.

In addition to the above data collection at each waterbody, existing habitat conditions at lakes and ponds within in the LSA will be described, which is limited to Winisk Lake, Bender Lake and several other unnamed lakes. This will include a description of and information regarding littoral, sublittoral, limnetic, profundal, and benthic zones as well as stratification information including epilimnion, metalimnion, and hypolimnion depths in combination with a water chemistry profile (dissolved oxygen, pH, conductivity, etc.). Basic bathymetry will also be collected to supplement the above information.

2.1.1.2. Fish Community Sampling

Fish community sampling will be conducted to determine fish presence, relative abundance and catch per unit effort will be calculated. The sampling will be conducted using baited minnow traps, gill nets, and dip nets. Following capture, fish will be identified to the species level (if possible). The use of backpack electrofishing equipment for fish community sampling will be considered but based on the field surveys conducted in 2019 the waterbodies in the study area are not suitable for operators of this sampling method due to non-wadable water depth, velocity, substrate consisting of soft and deep muck and abundance of instream cover (e.g., floating and emergent aquatic vegetation, logs, and other downed woody debris). Total length, fork length, visible injuries, weight, mortality statistics, and photographs will be recorded when conducting the sampling. The fish will be released into the same watercourse as they were captured. All fish sampling will be completed under the Licence to Collect Fish for Scientific Purposes issued by MNRF under the *Fish and Wildlife Conservation Act*.

Assessing Sensitivity of Habitat

Fish habitat sensitivity will be rated as rare, high, moderate, low, and no fish habitat based on the following attributes within the Ministry of Transportation of Ontario (MTO) Environmental Guide for Fish and Fish Habitat (2009) and the MTO Interim Environmental Guide for Fisheries (2020):

- Species Sensitivity (sensitivity of species based on changes in environmental conditions);
- Species' Dependence on Habitat (use of habitat by fish species; some species might require specific habitat requirements for certain life processes, whereas others may be able to use a wide range of habitats for the same life history functions);
- Rarity (the relative strength of a species and prevalence of a certain type of habitat);
- Habitat Resiliency (the ability of a certain aquatic habitat to recover from changes related to the thermal regime, physical characteristics, and flow regime).

Based on the habitat features described, the overall fish habitat sensitivity in each water body will be rated as:

- Rare – Habitat and species that are rare and are extremely sensitive to change and perturbation are present. Habitats that have species at risk present should be ranked as "rare" at all times.
- Highly Sensitive – Species are highly sensitivity to change and perturbation (e.g. many Salmonidae). Habitat is critical to the survival of species. Habitat/species has limited distribution confined to small areas. Cold water systems that cannot easily buffer temperature changes are highly sensitive.
- Moderately Sensitive – Species are moderately resilient to change and perturbation (e.g. pike, walleye, and some cyprinids). The habitat and species are prevalent, and the habitat is used for feeding, rearing, or spawning. Cool water and coldwater systems that can buffer temperature changes are moderately sensitive.
- Low Sensitivity – Species are highly resilient to change and perturbation (e.g. many cyprinids). Habitat used as a migratory corridor only. Habitat/species is prevalent. Warm water thermal regimes are suitable for cyprinids and have low sensitivity.
- Not Fish Habitat – The water body has no habitat available that would be used by fish. The waterbody would not support fish because of unsuitable habitat conditions (e.g. the thermal regime is unsuitable for any fish species).

If the data collected for the water body are insufficient to confidently rate the sensitivity of the aquatic habitat, the sensitivity of the fish habitat will not be rated (i.e., characterized as unknown).

From the fish community sampling and review of any available background information sources in the study area the EAR/IS will provide a characterization of fish and other aquatic species on the basis of resident and migratory species, food webs and trophic levels, structural and functional linkages, life history and population dynamics.

2.1.1.3. Spring Spawning Survey Assessment

Walleye and Lake Sturgeon are known to exist in the study area, and Walleye were confirmed present in many watercourses during fish community surveys in 2019. The spring spawning surveys will confirm the presence of Walleye and Lake Sturgeon and the extent of spawning habitat within the study area of the preliminary preferred corridor for the WSR.

Spring spawning survey locations will be chosen based on factors including:

- Known spawning habitat in waterbodies within the preliminary proposed corridor gleaned from Traditional Knowledge and engagement and consultation with local Indigenous hunters, trappers and fisherman, with focus on Winisk Lake, Winisk River, Muketei River and the Ekwan River Tributary;
- Any known or recorded data on spawning available from the Ministry of Natural Resources and/or federal Department of Fisheries and Oceans;
- Survey stations will be located in the spawning grounds which are typically located in the rocky areas in white water downstream of impassable falls and large, fast flowing riffles and shallow, rocky shoals in lakes;
- An aerial reconnaissance will further narrow down locations that are suitable for deployment of egg mats; and,
- Accessibility.

Before conducting the spawning surveys, we will conduct an aerial reconnaissance (helicopter) of the survey locations that were chosen during the desktop exercise to determine accessibility by field crews and to confirm if they are suitable spawning habitat. Prior to conducting spawning surveys water temperatures will be monitored where feasible with the assistance of Webequie community members to effectively capture the optimal range of appropriate temperatures for spawning of the targeted species (e.g., 11.5°C to 16°C is preferred for Lake Sturgeon spawning). Water temperatures will be documented at the time of the spawning surveys.

Spawning takes place at night and traditional visual spawning survey methods consisting of nigh-time spotlight surveys cannot be conducted due to health and safety reasons as well as accessibility (no helicopter flights permitted after sunset). As such, the spawning surveys will consist of the deployment of artificial substrate egg mats in suitable habitat. Artificial substrate egg mats will be used as a proxy to confirm spawning by Walleye and Lake Sturgeon since it will not be feasible to conduct typical visual spawning surveys. The egg mats will be placed in suitable spawning habitat and will consist of a rectangular steel frame (approximately 50 x 20 x 0.5 cm) wrapped with natural fibre furnace filter material (approximately 50 x 40 x 2.5 cm) and secured with four document clamps following the methods of Roseman et al. (2011). Three egg mats will be linked together, end to end, with approximately 3 m lengths of braided nylon rope forming one egg mat gang. An upstream and downstream anchor will be attached, with a floating line and buoy attached to the downstream anchor. The egg mats will be deployed for a period of 2-3 weeks in mid to late May for Walleye and will be deployed in June in Lake Sturgeon spawning habitat. The deployment of artificial egg mats will be included in the application for a Licence to Collect Fish for Scientific Purposes from MNRF, including an indication of the number of eggs required for collection to confirm a spawning site.

2.1.1.4. Benthic Invertebrate Surveys

Benthic invertebrates are the link from basal resources to higher trophic levels, including fishes. Benthic invertebrates are often sampled in aquatic monitoring programs because they are diverse, generally sedentary, responsive to environmental alterations, and are good indicators of ecosystem productivity and health.

The benthic community will be sampled using a ponar grab sample at each of the fish habitat assessment locations based on past 2019 field work, which observed that the majority of waterbodies have prohibited

water depth and/or soft silty clay or muck type substrate that limit the opportunity to use other sampling methods At each location the ponar equipment will take a total of three samples to ensure that there are sufficient organisms for identification. Each sample will consist of three (3) replicate ponar grabs. The three grab samples will be pooled, and a portion of that sample will be preserved in ethanol for identification in a laboratory. Other secondary invertebrate sampling techniques such as the kick-sweep method or surber method may also be used where conditions are suitable (i.e., in shallow water depth and rock substrate conditions).

From the analysis of the benthic invertebrate samples and a review of background information sources, the EAR/IS will provide a description of the biodiversity of the freshwater environment within the study area for the Project, including: trophic state, periphyton, phytoplankton, zooplankton, fish and the interactions and relative significance of each species with the identified food chains.

2.1.2. Schedule and Reporting

The following aquatic field studies are currently planned for 2020:

- Spring fish spawning surveys (May and June);
- Fish community and fish habitat assessment (August); and
- Benthic invertebrate sampling (August).

The baseline aquatic habitat data collected in the spring, summer and fall of 2020 and will be incorporated in a Natural Environment Existing Conditions Report that will include data from the 2019 baseline studies. The overall baseline report is tentatively scheduled to be completed in December 2020.

2.2. Criteria and Indicators

Criteria are components of the environment that are considered to have economic, social, biological, conservation, aesthetic or cultural value (Beanlands and Duinker 1983). The assessment will focus on valued components, and applicable specific criteria, that have physical, biological, social, economic or health importance to the public, Indigenous groups, federal and provincial authorities and interested parties, and have the potential for change as a result of the Project. Valued components have been identified in the federal TISG and by the Project Team and are, in part, based on what Indigenous communities and groups, the public and stakeholders identify as valuable to them in the EA process to date. The list of valued components identified to date include the following:

- Geology, Terrain and Soils;
- Surface Water;
- Groundwater;
- Air Quality;
- Climate Change;
- Noise;
- Vegetation and Wetlands;
- **Fish and Fish Habitat** (subject of this work plan);
- Wildlife, including migratory birds;
- Archaeological Resources;
- Built Heritage and Cultural Heritage Resources;
- Socio-economic Environment;

- Aboriginal Land and Resource Use;
- Visual/Aesthetic Environment;
- Human Health; and
- Aboriginal and Treaty Rights and Interests.

The list of valued components will be informed, validated and finalized through engagement and consultation process, including whom these concerns are important and the reasons why, such as environmental, cultural, spiritual, historical, health, social, economic and their relation to the exercise of Aboriginal and Treaty rights.

The list of identified valued components and associated criteria will be validated and finalized by the Project Team through a variety of means and consideration of factors that include, but not limited to the following:

- Engagement with Indigenous communities and groups and the extent to which the valued component is linked to the interests or exercise of Aboriginal and Treaty rights of Indigenous peoples;
- Stakeholder engagement, including discussions with interest holders, and government authorities;
- Presence, abundance and distribution within, or relevance to, the area associated with the Project;
- Extent to which the effects (real or perceived) of the Project and related activities have the potential to interact with the valued component;
- Species conservation status or concern;
- Umbrella or keystone species with potential to represent a broad range of potential effects;
- Uniqueness or rarity in the study area;
- Likelihood of an indirect effect on an associated criterion (i.e., a link exists between the affected criterion and another criterion, such as water quality affecting fish habitat);
- Ecological, social and economic value to Indigenous communities, municipalities, stakeholders, government authorities, and the public; and
- Traditional, cultural and heritage importance to Indigenous peoples.

Fish species that are part of a local fishery can be an important cultural, subsistence, and economic resource for Indigenous communities and others. For the EA four fish species with different life history strategies have been identified as criteria for assessing the effects of the Project on fish and fish habitat:

- Brook trout (*Salvelinus fontinalis*): brook trout, also known as speckled trout, occur in clear, cool, well-oxygenated watercourses and lakes. Brook trout typically rely on gravel areas of cold water watercourses for spawning in the fall, including areas with groundwater upwelling (i.e., areas where groundwater rises to the surface).
- Northern pike (*Esox lucius*): Northern pike, also known as jackfish, occur in weedy areas of lakes and ponds and in watercourses with slow to moderate current. Northern pike spawn in early spring soon after the ice melts on inundated vegetation along the floodplains of rivers, streams, marshes, or shallow areas of lakes.
- Walleye (*Sander vitreus*): Walleye, also known as yellow pickerel, occur primarily in lakes and large watercourses. Walleye spawn in late spring, primarily along gravel, boulder, or cobble along inshore areas of lakes or in nearby tributaries.

- Lake sturgeon (*Acipenser fulvescens*): Lake sturgeon inhabit large river and lake systems. Lake sturgeon spawn in late spring/early summer in relatively shallow, fast-flowing water (usually below waterfalls, rapids, or dams) with gravel and boulders at the bottom, or on shoals in large rivers with strong currents. Lake sturgeon from the Southern Hudson Bay - James Bay population are documented in water bodies near the Project and are listed as “Special Concern” under federal COSEWIC and provincial *Endangered Species Act* under the Species at Risk in Ontario List.

The four fish species were identified as criteria for the assessment of potential project effects on fish and fish habitat, in part because they are species of value to Indigenous communities, government agencies, the public and stakeholders based on the input from consultation undertaken to date. It is recognized that in Section 8.8 of the TISG eight (8) other fish species (total of 12) have been identified for human consumption or where their use may have Indigenous cultural importance. The list of criterion species will be finalized and developed through future engagement and consultation with Indigenous people as part of the EA. Fish species for consumption (i.e., country food) will also be identified and described as part of the socio-economic and human health valued components.

From the work undertaken to date three of the four criteria species (i.e., brook trout, northern pike, and walleye) are considered representative harvested species (country food) of value to communities and are found in a variety of cold, cool, and warm water habitats (i.e., thermal regimes). The criteria species Lake Sturgeon is included as a representative species of conservation concern. Feedback through engagement and consultation with Indigenous communities, stakeholders, and regulators will be obtained during the EA process to finalize the criteria, including further supportive rationale for their selection.

In order to evaluate the effects of the WSR and alternatives, each criterion will have one or more indicators that will identify how the potential environmental effects will be measured. In general, indicators represent attributes that can be used to characterize changes to criteria as a result of the Project that may demonstrate a physical, biological or socio-economic effect. As indicators represent an expression of change this may be characterized quantitatively or qualitatively to compare predicted environmental effects to existing baseline conditions. The proposed preliminary indicators for fish and fish habitat that will be used for the EA include the following:

- **Habitat availability (Quantity and Quality)**: includes habitat quantity (the amount of habitat available for fish and their various life history stages) and habitat quality (the quality of habitat available for fish and their various life history stages). Habitat quantity will involve a quantitative assessment of potential changes to total area of habitat and any known or assumed critical life cycle habitat (e.g., spawning, rearing, etc.) as a result of implementing the Project and will be calculated and presented as absolute (i.e., area – hectares or square metres) as appropriate. The calculation will be based on the likely presence of each criteria species at each water body crossing (determined using a desktop study and 2019 and 2020 field surveys), the width of the waterbody (measured from aerial imagery or field surveys), and the area of disturbance under the Project Footprint. Where the likelihood of a criteria species is unknown due to limited information, a precautionary approach will be used, and it will be assumed that the criteria species may be present. Effects on habitat quality will be a qualitative assessment of the changes in habitat quality (i.e., quality of spawning, rearing, or overwintering type habitats for criteria species) as result of implementing the Project based on existing information and the results of the field surveys.

- **Abundance and Distribution**: applies to the fish species criteria and refers to changes to abundance based on: direct changes to the population (i.e., mortality of individuals resulting from physical activities of the Project); or indirect direct changes to the population as a result of changes to habitat availability (quantity and quality) that may affect survival and reproduction, and therefore measurable changes in abundance. Distribution relates to the spatial configuration and connectivity of habitats for fish in the study area, and the spatial distribution and movement of fish. Distribution will be addressed using a qualitative assessment of changes to distribution that may occur via direct or indirect changes to habitat or fish abundance. Abundance and distribution are proposed to be combined into one indicator for the EA as changes to distribution (i.e., connectivity) are tied to abundance (i.e., amount of fish in the population).

The EAR/IS will further describe the criteria and indicators, including details of how each indicator will be measured, along with data sources and rationale for selection. This will be presented in tabular format and will build on the preliminary criteria and indicators included in Appendix B to the ToR.

2.3. Effects Assessment Approach

The approach for the assessment has been developed to satisfy regulatory requirements under the *Environmental Assessment Act* and is based on the MECP *Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario* (MOECC 2014), and the Terms of Reference for the Project that is currently pending approval from the MECP. The approach for the assessment has also been developed to meet the requirements of the federal TISG and specifically Section 13 – Effects Assessment. The approach has also taken into consideration the Ministry of Natural Resources and Forestry (MNRF) Class Environmental Assessment for MNR Resource Stewardship and Facility Development Projects (MNRF, 2003).

2.3.1. Consideration and Evaluation of Alternatives

The EA process requires that two types of project alternatives be considered: “alternatives to” the Undertaking (i.e., functionally different ways of addressing an identified problem or opportunity to arrive at the preferred planning solution) and “alternative methods” of carrying out the Undertaking (options for implementing the preferred planning solution). The consideration and evaluation of alternatives to the Undertaking were documented in the federal Impact Assessment Detailed Project Description (November 2019) and the provincial Environmental Assessment draft Terms of Reference (September 2019) and concluded that developing a new all-season road between Webequie and the McFaulds Lake area is the preferred alternative. It is not proposed that this analysis and conclusion be re-examined as part of the EA process, but it will be documented in the EAR/IS. Therefore, in keeping with the focussed approach, the preferred planning alternative (developing a new all-season road) has been carried forward to the initial consideration of alternative methods of carrying out the Undertaking.

The consideration of alternative methods will focus on the supply road conceptual alternatives within the proposed preliminary corridor, as identified in the Detailed Project Description (November 2019) and the draft Terms of Reference (September 2019). These alternatives include the Webequie First Nation community’s preferred route for the supply road along the centreline of an approximately 2 km wide preliminary preferred corridor and the optimal geotechnical route within the same corridor (Refer to Figure 2). In addition, the following alternative methods related to supportive infrastructure and the preferred supply route will be examined.

- Alternative sites for temporary and/or permanent aggregate extraction pits and production facilities needed for construction and operation of the road, including access roads to these sites;
- Alternative sites for supportive infrastructure (i.e., temporary laydown and storage areas, and construction camps, including access roads to these areas);
- Watercourse crossing structure types (i.e., culverts, bridges), span length, lifecycle, and construction staging methods at waterbody crossings;
- Road attributes, including roadbed foundation; horizontal alignment, vertical alignment (elevation/profile), and adjustments to the cross-section and right-of-way (ROW) width of the corridor.

The assessment of alternatives will include environmental, socio-economic, cultural and technical factors, using criteria and indicators for the comparative analysis. This will also include specific consideration of community based Indigenous land and resource uses (e.g., fishing, hunting) and cultural (e.g., built, sacred or spiritual sites) criteria of value to Indigenous communities within the broader factors. As noted previously, the criteria and indicators will be developed in detail as part of the EA through input from the engagement and consultation activities with Indigenous communities, the public and stakeholders. Both a quantitative and/or qualitative assessment of alternatives for each criterion will be conducted to allow for a comparison of the advantages and disadvantages and selection of a preliminary recommended route for the WSR and the sites/access routes for supportive infrastructure.

2.3.2. Assessment of Net Effects

A step-wise process will be used to assess the environmental effects of the Project in a systematic and transparent manner once the relevant project elements and activities and their interactions, assessment boundaries, and relevant environmental criteria and indicators are identified and finalized through the engagement and consultation process. The net effects assessment method will include the following primary steps:

- Identification of potential environmental effects;
- Identification of technically and economically feasible impact management measures;
- Prediction of net effects following implementation of impact management measures; and
- Evaluation of the predicted net effects (i.e., describe and determine the magnitude, duration, extent, frequency, and significance of the predicted net effects).

2.3.2.1. Identification of Potential Environmental Effects

The net effects assessment will consider the potential interactions between the project components and activities and the criteria within the identified spatial boundaries and phases of the Project (i.e., construction and operation). Potential effects of the Project on valued components will be determined by comparing baseline conditions to those expected to result from the construction and operation and maintenance of the Project. Potential effects will be described for each assessment criterion, including an indication of whether they are expected to be direct (i.e., as a result of a project component or activity affecting a valued component), or indirect (i.e., as a result of a change to one value component affecting another value component). Relevant project works and activities will be analysed individually to determine if there is a plausible pathway for an effect on valued components.

The assessment of potential effects to fish and fish habitat will include the characterization of baseline conditions in the project study area using both publicly available information on a regional scale and data obtained in the field or via desktop review on a local scale or site-specific basis. As potential effects from

the development of the supply road and supportive infrastructure could affect aquatic environment within the PF and LSA we will also assess specific potential effects that could have lingering detrimental effects to fish and fish habitat in the study areas such as increased human access, injury or mortality of fish, physical alteration of waterbodies or channel morphology and spills.

Effects to fish and fish habitat as a result of the Project will consider the specific items contained in Section 15.1 of the TISG.

2.3.2.2. Identification of Impact Management Measures

Once potential effects are identified, technically and economically feasible impact management measures (or "mitigation measures") to avoid and minimize potential adverse effects will be identified for each phase of the Project. Design considerations and impact management measures for fish and fish habitat will be identified to offset or eliminate potential adverse effects (e.g., in-water construction timing constraints) and will be described in the EAR/IS. Refinements to these measures may also be made in the future detail design phase of the Project. Impact management measures will be developed for the Project based on:

- Knowledge and experience of the Project Team with linear infrastructure developments;
- Industry best management practices and applicable agency requirements and guidance; and
- Measures identified by Indigenous communities, the public and stakeholders through feedback received as part of the engagement and consultation program.

It is understood that impact management measures are not always fully effective; therefore, WFN will identify a compliance monitoring and effects monitoring program as part of the EA for implementation during the project phases (refer to Section 2.3.2.6).

2.3.2.3. Prediction of Net Effects

A net effect, or the alternative term residual effect, is considered an environmental (biophysical), social, economic or health effect from the Project and its related activities that is predicted to remain after the implementation of impact management measures. A potential effect is considered to occur where anticipated future conditions resulting from the Project differ from the conditions otherwise expected from natural change without the Project. In some situations, the recommended impact management measures will eliminate a potential adverse effect, while in other situations impact management measures may reduce, but not eliminate the effect. Impact management measures may also enhance positive effects. A potential effect that will be eliminated, or considered unlikely after impact management measures, will be identified as not resulting in a net effect (i.e., no net effect) and will not be considered further in the net effects assessment. An effect that may remain after the application of impact management measures will be identified as a net effect and will be further considered in the effects assessment. Positive effects will also be considered further in the effects assessment, including means of enhancing benefits of the Project. Neutral changes will not be carried forward for the characterization of net effects, but where identified will be characterized in terms of the confidence in the predictions and the likelihood of the effect.

2.3.2.4. Characterizing the Net Effects

The characterization of net effects will provide the foundation for determining the significance of incremental and cumulative effects from the Project for each assessment criterion. The objective of the method is to identify and predict net adverse and positive effects that have sufficient magnitude, duration, and geographic extent to cause fundamental changes to the self-sustainability or ecological function of a valued component and, therefore, result in significant combined effects.

Using the aquatic environment as an example, the magnitude of the potential effect will be qualitatively assessed by inferring the anticipated changes relative to baseline conditions using the identified preliminary criteria species and indicators related to habitat availability, distribution and abundance. Where appropriate, the magnitude of potential effects to fish/fish habitat will be quantitatively evaluated based on the proportion of the catchment area for a given waterbody that is expected to be disturbed or influenced by a specific project activity. In general, the magnitude is the intensity of the effect or a measure of the degree of change from existing conditions and will be defined by each discipline assessment. If a significant effect is identified, the contribution of the Project to the combined effect will be described. The assessment of significance of the net effects of the Project on fish and fish habitat and other valued components will be informed by the interaction between significance factors (as defined below), in addition to those concerns raised by Indigenous groups, interested agencies, and individuals during the consultation and engagement for the EA. Therefore, predicted net effects, where identified, will be described in terms of the following significance factors (MNRF 2003), with integration of the assessment methodology identified in the federal TISG, as required.

- **Direction** – The direction of change in effect relative to the current value, state or condition, described in terms of Positive, Neutral, or Negative.
- **Magnitude** - The measure of the degree of change from existing (baseline) conditions predicted to occur in the criterion.
- **Geographic Extent** - The spatial extent of which an effect is expected to occur/can be detected and described in terms of the PF, LSA and RSA.
- **Severity** - The level of damage to the valued component from the effect that can reasonably be expected; typically measured as the degree of destruction or degradation within the spatial area of the PF, LSA and RSA. Severity would be characterized as: Extreme; Serious, Moderate or Slight.
- **Duration/Reversibility** - Duration is the period of time over which the effect will be present between the start and end of an activity or stressor, plus the time required for the effect to be reversed. Duration and reversibility are functions of the length of time a valued component is exposed to activities. Reversibility is an indicator of the degree to which potential effects can be reversed and the valued component restored at a future predicted time. For effects that are permanent, the effect is deemed to be irreversible. Duration/Reversibility would be characterized for each adverse effect as: Short-Term (0- 5 years), Medium-Term (6-20 years), Long-Term (21 to 100 years) or Permanent (>100 years).
- **Frequency** – Is the rate of occurrence of an effect over the duration of the Project, including any seasonal or annual considerations. Frequency would be characterized as: Infrequent; Frequent or Continuous.
- **Probability or Likelihood of Occurrence** – Is a measure of the probability or likelihood an activity will result in an environmental effect. Probability or likelihood of occurrence would be characterized as: Unlikely, Possible; Probable and Certain.

The definitions and description of the above factors will be described in detail in the EAR/IS. An effort will be made to express expected changes quantitatively / numerically. For example, the magnitude (intensity) of the effect may be expressed in absolute (e.g., changes to available fish habitat – hectares) or percentage values above (or below) baseline conditions or a guideline value (e.g. surface water quality). Additionally, the definition of effect levels may vary from one valued component or criterion to another, recognizing that the units and range of measurement are distinct for each. Lastly, effects may impact communities, Indigenous groups and stakeholders in different ways, including through a gender-

based lens (refer to Section 2.3.3) and they may respond differently to them. Therefore, determining and characterizing effects will be based largely on the level of concern expressed through engagement with the Indigenous groups and community members.

2.3.2.5. Assessment of Significance

MNRF's Class Environmental Assessment for MNR Resource Stewardship and Facility Development Projects (MNRF 2003) require the assessment of significance of environmental effects and provides guidance for assessing the significance of potential environmental effects under individual criteria, for a project as a whole, and for alternatives.

In addition to the Class EA guidance, the determination of significance of net effects and cumulative effects from the Project and other previous, existing, and reasonably foreseeable developments will generally follow the guidelines and principles of the *Draft Technical Guidance Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian Environmental Assessment Act* (CEA Agency, 2017) and the *Operational Policy Statement: Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian Environmental Assessment Act*, 2012 (CEA Agency 2015).

In general, the assessment of significance of net effects will be applied to each valued component for which net effects are predicted, and net adverse effects or positive effects will be classified as significant or not significant (i.e., binary response). Additional details on the application of biophysical, cultural, socio-economic and health criteria and definitions that would describe "significant" and "not significant" will be provided in the EAR/IS.

2.3.2.6. Identification of a Monitoring Framework

Webequie First Nation will develop a monitoring framework during the EA process for each project phase (construction and operation and maintenance). The two primary types of monitoring to be developed will include:

- Compliance monitoring; and
- Effects monitoring.

The compliance monitoring will assess and evaluate whether the Project has been constructed, implemented and/or operated in accordance with commitments made during the EA process, and any conditions of the federal IA and provincial EA approvals and other approvals required to implement the Project.

The effects monitoring will be designed to verify the prediction of the effects assessment, and to verity the effectiveness of the impact management measures. This would include construction and operational monitoring that would identify actual effects, assess the effectiveness of the measures to minimize or eliminate adverse effects, and evaluate the need for any additional action to ensure that environmental commitments and obligations are fulfilled and mitigation measures are effective.

2.3.3. Gender Based Analysis Plus (GBA+)

Information and data collected will be disaggregated by diverse subgroups (women, youth, elders, etc.), as part of applying a Gender Based Analysis Plus (GBA+) lens. For fish and fish habitat, the baseline information will focus on species of fish consumed and angled and will be obtained through such methods as socio-economic and health surveys (using Survey Monkey), key informant interviews with community

members who fish (gender, youth, elders), desktop research and Indigenous Knowledge where provided. This will include qualitative and quantitative data that help to characterize and describe the importance of fish species of cultural significance to Indigenous communities through a GBA+ lens, including, where feasible, the data disaggregated by sex, age, and other identity factors. Through Survey Monkey the data will be filtered and disaggregated based on the demographic questions answered (i.e., gender, age, Indigenous community membership, etc.).

The Project Team will work with the Indigenous communities to identify the appropriate participants for each of the subgroups that are willing to contribute to the baseline data collection through surveys and key informant interviews. The Project Team will tailor how they engage with these groups based on community protocols (i.e., it is expected that elders would prefer in-person dialogue and will require a community translator, versus youth, who would participate in online survey).

3. Consideration of Input from the Public and Indigenous Peoples

3.1. Public Participation

EA study participants as identified in the Agency *Public Participation Plan* dated February 24, 2020 for the WSR Project will be engaged and consulted. The Public Participation Plan was developed by the Agency to set out proposed opportunities for participation during the impact assessment process for Agency-led activities. The proponent, or its subject matter experts, may participate in activities as requested by the Agency.

The ToR provides a plan for engaging and consulting government ministries and agencies, the public and stakeholders based on EA study milestones similar to those for Indigenous communities.

All identified affected and/or interested stakeholders and members of the public will be notified at the EA study milestones. The public and stakeholders will have the opportunity to attend two (2) open house sessions that will be held in the City of Thunder Bay, focussing on:

1. Project and EA process overview; baseline data collection; spatial and temporal boundaries for assessment; criteria and indicators; and identification and preliminary evaluation of alternatives; and

2. Presentation of the selected preferred alternatives/the Project, including potential effects, mitigation, net effects and their significance and follow-up monitoring.

The open houses will include display materials and handouts containing information on the Project, the EA study process, known existing environmental conditions, the results of studies that have been conducted to date; the development and evaluation of alternatives, including the rationale for use of criteria and indicators; the project schedule; and the results of the consultation program. The Webequie Project Team will be available to receive and respond to questions and have an open dialogue regarding the EA process. Written comments may be prepared and left at the open house venue or sent to the Project Team within a specified period following the event.

The public and stakeholders will be notified regarding the commencement of the EA and submission of the Draft and Final EAR/IS. The EAR/IS will be available for review on the Project Website, and at municipal offices or nearby public libraries in:

- City of Thunder Bay
- Municipality of Greenstone
- Township of Pickle Lake
- City of Timmins
- Municipality of Sioux Lookout

In summary, the methods and activities for engagement and consultation with the public will include:

- Notification letters;
- Public notices and newspaper advertising at key EA milestones – Notice of Commencement; Notice of Open Houses; Notices for Draft and Final EAR/IS;
- Open houses;
- Communication materials for use at meetings such as slide decks, project fact sheets, handouts, etc.;
- Project Website; and
- Opportunities to review and provide comments on the Draft and Final EAR/IS.

All comments received from the public engagement and consultation activities will be tracked (i.e., Record of Consultation) and considered by the Project Team with the objective that the public be provided meaningful opportunities to participate, including in meaningful discussions in the EA process.

3.2. Indigenous Engagement and Consultation

3.2.1. Communities to be Included in the Assessment

The assessment of fish and fish habitat component will include the 22 identified Indigenous communities that are to be consulted as part of the EA process, as shown in **Table 1** below. These communities have been identified by the MECP and Agency as communities whose established or asserted Aboriginal and/or treaty rights may be adversely affected by the Project and/or may have interests in the project. Communities marked with an asterisk are those whose Aboriginal and Treaty rights may be affected by the Project.

The table also includes those communities that have been identified by Webequie First Nation based on Elders' guiding principles and Webequie's Three-Tier approach to Indigenous consultation and engagement. WFN identified communities and assessed them based on the following criteria:

- Geographically closer to the project area than others;
- Known to have traditionally used some of the potentially affected lands in the past, or currently;
- Downstream of the Project and may experience impacts as a result of effects to waterways;
- Considered to have closer familial/clan connections to the members of WFN; and/or
- Have been involved in all-season road planning in the Region, either directly with the WFN, or in consideration of all-season road planning that the WFN has been involved with in recent years.

Based on these factors, the communities identified by WFN will be offered the deepest or intensive consultation/engagement.

Table 1: Indigenous Communities to be Consulted

Indigenous Community	Identified by WFN	Identified by MECP	Identified by IAAC
Webequie First Nation	✓	✓*	✓*
Aroland First Nation		✓*	✓*
Attawapiskat First Nation	✓	✓*	✓*
Constance Lake First Nation		✓*	✓
Eabametoong First Nation	✓	✓	✓*
Fort Albany First Nation		✓*	✓*
Ginoogaming First Nation		✓	✓
Kasabonika First Nation	✓	✓*	✓*
Kaschechewan First Nation		✓*	
Kitchenuhmaykoosib Inninuwug		✓*	✓
Kingfisher Lake First Nation		✓*	
Long Lake #58 First Nation		✓	✓
Marten Falls First Nation	✓	✓*	✓*
Mishkeegogamang First Nation		✓	
Neskantaga First Nation	✓	✓*	✓*
Nibinamik First Nation	✓	✓*	✓*
North Caribou Lake First Nation		✓	
Wapekeka First Nation		✓*	
Wawakapewin First Nation		✓*	
Weenusk (Peawanuck) First Nation	✓	✓*	✓*
Wunnumin Lake First Nation		✓*	
Métis Nation of Ontario – Region 2		✓	

3.2.2. Approach and Methods

The Project Team will consult and engage with Indigenous communities throughout the assessment process, and specifically the aquatic component with focus on those species for consumption or where use may have Indigenous cultural, social or economic importance. It is also the Project Team's objective that the EA captures Indigenous Knowledge and any issues, concerns or other information being provided by Indigenous communities accurately and appropriately. As such, Indigenous communities will have the opportunity to provide input and feedback during the following steps of the EA and more specifically the assessment of the aquatic environment as outlined in this work plan:

- Provide input to defining the fish and fish habitat study areas or spatial boundaries for the purposes of the baseline data collection and effects assessment;
- Provide input on the criteria and indicators, such as criterion fish species and metrics to measure changes to baseline fish/fish habitat conditions as a result of the Project;
- Provide input on methods and types of baseline data and information to be collected, including opportunity to provide Indigenous Knowledge;
- Validate how baseline information is captured and used in the EA;

- Provide input on the effects assessment methodology, including alternatives;
- Discuss potential effects based on predicted changes to fish/fish habitat availability, distribution and abundance; and
- Provide input to identify mitigation measures and any follow-up monitoring programs during the construction and/or operation phases of the Project, including predicted overall net effects and significance, including those that may interfere with the exercise of rights of Indigenous peoples.

A variety of activities and materials will be used to provide information and receive input from Indigenous communities during the EA process. These are outlined and detailed in the provincial ToR which includes the mechanisms, activities and events that are planned for various stages throughout the EA process and will be used at milestone points to ensure optimal engagement with Indigenous communities. In summary this includes the following:

- Notification letters sent by registered mail to all of the identified Indigenous communities and groups (i.e., Tribal Councils) informing them at key milestones (e.g., Commencement of provincial EA; Submission Draft EAR/IS and Submission of Final EAR/IS);
- Community visits throughout for those communities identified by IACC and MECP whose established or asserted Aboriginal and/or treaty rights may be adversely affected by the Project;
- Meetings (2) with off-reserve community members of the 22 Indigenous communities to be consulted as part of the EA;
- Information meetings with Métis Nation of Ontario;
- Engagement with Tribal Councils and Nishnawbe Aski Nation, with meetings held upon request;
- Communication materials for use at meetings, such as slide decks, project fact sheets, handouts, etc., including, where requested, translation to native language;
- Audio and visual products for those Indigenous communities that have the capability; community meetings and presentations will be live-streamed through local community media to allow for a wider audience to participate in the meetings;
- Use of surveys (e.g., “Survey Monkey”) or focused community-based meetings to obtain information (e.g., socio-economic, human health, etc.) and identify concerns from Indigenous people;
- Project Website (www.supplyroad.ca) for the public to review project related information and documents, including informative video tutorials (e.g., EA studies); and
- Project Newsletter letters.

Engagement with Indigenous groups has been undertaken as part of the ToR phase and included components of the work plan (e.g., baseline studies for valued components, spatial and temporal boundaries, criteria and indicators, EA alternatives, etc.) and will continue as part of the planned EA engagement activities for the Project.

All outreach efforts and consultation activities will be recorded as part of the Record of Consultation to allow for validation by the Agency and the MECP. The EAR/IS will describe how input from Indigenous communities and public was incorporated into the fish and fish habitat assessment and other valued components.

3.2.3. Indigenous Knowledge

Through engagement activities, the Project Team will also collect Indigenous Knowledge relevant to the WSR study area and specific valued components, where available, from the 16 Indigenous communities

identified by Ontario and the 10 Indigenous communities identified by the Agency. Indigenous Knowledge will assist in describing existing conditions (e.g., characterizing the study area, natural environment conditions, social and economic conditions, cultural characteristics, community characteristics, past and current land uses and other values of importance. Indigenous Knowledge will be used to assist in developing mitigation measures, monitoring commitments and accommodation measures, where necessary. The Project Team will document efforts to obtain Indigenous Knowledge. It is recognized that each community may have its own protocols and procedures to be followed in transferring Indigenous Knowledge to outside parties such as WFN and the Project Team. The Project Team will ensure that related protocols are respected and will work with each community to understand how the information will be transferred, securely stored, and applied. Additionally, the Project Team will ensure that the Indigenous Knowledge provided will be protected and kept confidential. The Project Team will seek guidance from the community as to how the information will be used and published.

As Indigenous Knowledge is holistic it can provide insights related to interrelationships between the natural, social, cultural, and economic environments, community health and well-being, Indigenous governance and resource use. Therefore, Indigenous Knowledge, where provided, will be included in all of aspects of the technical assessments of potential impacts of the Project on Indigenous peoples, or, given is holistic nature, may be presented in one section of the EAR/IS. It will also be considered in technical sections or chapters of the documents (e.g., baseline data on fish and fish habitat will include baseline information gathered through collection of Indigenous Knowledge). It is recognized that it is important to capture the context in which Indigenous groups provide their Indigenous Knowledge and to convey it in a culturally appropriate manner. Indigenous Knowledge will only be incorporated in the EAR/IS where written consent has been granted.

3.2.4. Aboriginal and Treaty Rights

The Webequie Project Team will be engaging with Indigenous communities regarding potential impacts of the Project on the exercise of rights, and where possible, the project's interference with the exercise of rights. Potential effects to be considered will include both adverse and positive effects on the current use of land and resources for traditional purposes, physical and cultural heritage, and environmental, health, social and economic conditions of Indigenous peoples impacted by the Project. For example, this will include such effects as reductions in the quantity and quality of resources available for harvesting (e.g., species of cultural importance, including traditional and medicinal plants; or interference with the current and future availability and quality of country foods (traditional foods). Webequie First Nation and the Project Team will discuss with Indigenous communities their views on how best to reflect and capture impacts on the exercise of rights in the EAR/IS. Should impacts on the exercise of Aboriginal and Treaty rights be identified, Webequie First Nation and the Project Team will work with Indigenous communities to determine appropriate mitigation measures to reduce or eliminate such impacts. Where no mitigation measures are proposed or mitigation is not possible, the Project Team will identify the adverse impacts or interference to the exercise of Aboriginal and Treaty rights and this will be described (e.g., level of severity) and documented in the EAR/IS. Webequie First Nation and the Project Team will advise Ontario and the Government of Canada on concerns Indigenous communities may have in relation to their exercise of Aboriginal and Treaty rights and whether their concerns cannot be addressed or mitigated by the Project Team.

4. Contribution to Sustainability

4.1. Overarching Approach

As recognized in the Agency's current guides to considering how a project will contribute to sustainability, it is not until baseline information has been collected and the potential effects of the Project are assessed that a full understanding or determination of the project's contribution(s) can be achieved/made. However, information and data requirements for sustainability have been considered from the outset of the WSR Project for planning purposes. In the absence of the potential effects assessment, this section outlines the general approach to determining sustainability contributions for this valued component.

The approach is based on the goal of providing a broad or holistic description of the project's potential positive and negative effects, including the interactions among those effects and the long-term consequences of the effects. In the context of the IAA requirements, sustainability means "the ability to protect the environment, contribute to the social and economic well-being of the people of Canada and preserve their health in a manner that benefits present and future generations", with the aim of "protecting the components of the environment and the health, social and economic conditions that are within the legislative authority of Parliament from adverse effects caused by a designated project", recognizing that the Minister's or the Governor in Council's public interest determination must include sustainability as one of five factors to be considered in rendering a final decision.

The approach also considers the level of effort required to assess a project's contribution to sustainability to be scalable, depending on the phase of the process and the context of the project, and can/will be adjusted/scoped as the impact assessment proceeds. For example, effects on future generations requires temporal scoping (i.e., consideration of next generation to "seventh generation"), based on expectations as to how many generations it will take for effects to become fully apparent, including return to VC baseline conditions; resilience of the VC; and whether a VC is expected to recover from effects.

As part of the public participation and Indigenous peoples engagement programs described in Section 3.2.2, the Project Team has (and will continue to) facilitate early identification of values and issues to better inform the assessment of the project's contribution to sustainability; and identify VCs that should be carried forward into that assessment, scoping related criteria and indicators to reflect the project context. As part of sustainability considerations, this information has also been used (with regard to which VCs are considered most important to Webequie First Nation) to identify alternative means of carrying out the Project and select alternatives to be carried forward for an assessment of sustainability contributions. Ultimately, with the appropriate input from the engagement and consultation program, the sustainability assessment will culminate with the development of commitments to ensuring the sustainability of Indigenous livelihood, traditional use, culture and well-being.

In identifying and scoping key VCs for sustainability contributions, the Project Team will consider VCs that:

- could experience long-term effects, including how those effects could change over time, and how they could affect future generations;
- may interact with other VCs;

- may interact with potential effects of the designated project; and/or
- may interact with project activities.

4.2. Assessment of Contribution to Sustainability

During preparation of the Impact Statement, the four (4) Sustainability Principles identified in the Agency's guides and the TISG will be applied as follows:

Principle 1 - Consider the interconnectedness and interdependence of human-ecological systems

A systems approach will be used to determine/express VC interconnectedness. The degree of interconnectedness within systems and/or subsystems may vary greatly (may be characterized as very intricate and tight/direct, or quite loose and indirect). The focus will be on those aspects that are most important to communities, the social-ecological system and to the context of a project. All interactions, pathways and connections among effects to the environment, and to health, economic and social conditions will be described, as will how these interactions may change over time. The Project Team will ensure that the description of systems and the direct and indirect relationships are guided by input from Indigenous Knowledge. It is expected that a graphic with simple pictorial images will be developed to visually represent the connections between human and ecological systems to facilitate comprehension and encourage input/feedback.

Principle 2 - Consider the well-being of present and future generations

The long-term effects on the well-being of present and future generations will be assessed. To conduct an analysis on future generations, the Project Team will first determine the potential long-term effects on well-being. This will entail consideration of the elements of environmental, health, social and economic well-being, across a spectrum of VCs, that communities identified as being valuable to them. In the context of subject VC (aquatic environment), well-being could include community cohesion, protection of the environment, culture, stress, or livelihoods. Available Comprehensive Community Plans (CCP) will be consulted to determine whether sustainability is a CCP central theme. How the environmental, health, social and economic effects on well-being could change over time will also be assessed, as information permits. Although effects on future generations could include effects beyond the lifecycle of a project, this is not expected to be major consideration for the WSR Project, as no expected decommissioning or abandonment timeframe has been identified. With respect to temporal scoping, there is still a need to determine what the "future generation" is (i.e., how far into the future the project effects will be considered). Predicted potential effects on future generations will be assessed based on the supporting data or uncertainty; any uncertainty will be documented.

Principle 3 - Maximize overall positive benefits and minimize adverse effects of the designated project

The Impact Statement will include a consideration of ways to maximize the positive benefits of the Project and consider mitigation measures that are technically and economically feasible and would mitigate any adverse effects of the Project. Sustainability considerations will include: whether additional mitigation measures are required; have additional benefits been identified and, if so, how can they be maximized; does the direction of the impact (i.e., positive or negative) shift between different groups and sub-populations; are there particular strengths or vulnerabilities in the potentially affected communities that

may influence impacts; do the impacts cause regional inequities; and do the near term benefits come at the expense of disadvantages for future generations.

Principle 4 - Apply the precautionary principle and consider uncertainty and risk of irreversible harm

The precautionary principle states that "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation". All uncertainties and assumptions underpinning an analysis will be described. A precautionary approach will be applied in cases where there is risk of irreversible harm (irreversible harm refers to project-related effects from which a VC is not expected to recover; reversibility is influenced by the resilience of the VC). Taking such a conservative approach may include setting out worst-case scenarios for decision-makers to consider, particularly when there is uncertainty about the significance or irreversibility of potential effects. As appropriate, the precautionary approach may be extended to commitments regarding the project's design (to prevent adverse effects, prevent pollution, deal with unplanned events) and the development of monitoring and follow-up programs to verify effects predictions, or gauge the effectiveness of mitigation measures. Uncertainty may be characterized quantitatively (e.g., description of confidence levels of modelled predictions) or qualitatively (e.g., through descriptors such as "high", "medium", and "low"). Qualitative descriptions of uncertainty will explain how the level of uncertainty was determined, identify sources of uncertainty and data gaps, and describe where and how professional judgment was used.

5. Closure

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APPENDIX A

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LIST OF BACKGROUND INFORMATION SOURCES

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