Webequie Supply Road

Wildlife and Wildlife Habitat Work Plan

Webequie First Nation

03 September 2020

661910

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1. Introduction

The proposed Webequie Supply Road Project (WSR, the Project) is a new all-season road of approximately 107 km in length from Webequie First Nation (WFN) 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 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.

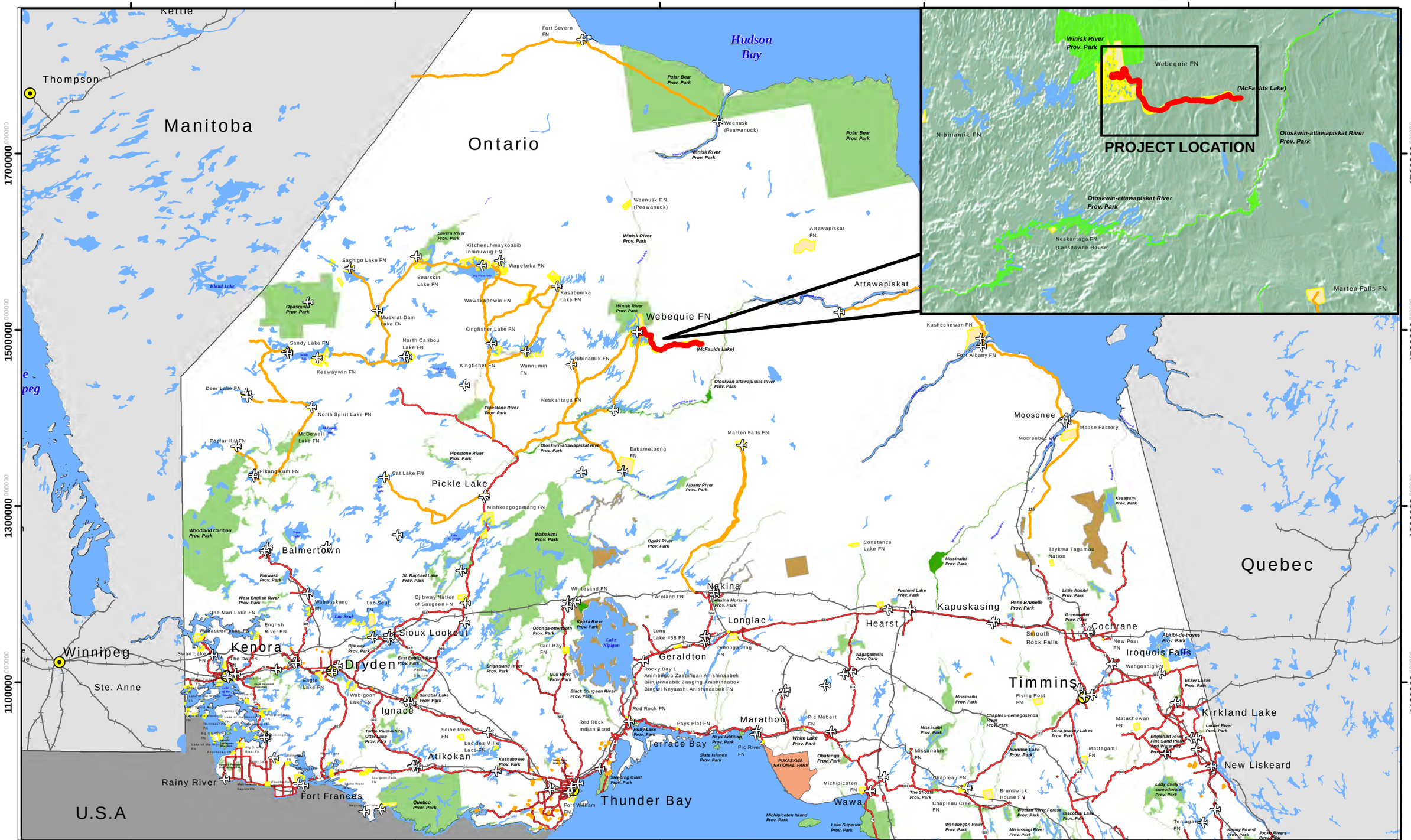
The goals and objectives of the Webequie Supply Road Project are as follows:

- 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 purpose of this document is to present the work plan developed to assess the impact of the Webequie Supply Road Project on wildlife and their habitat. It describes the general approach that will be applied during the EA process to address the requirements of the Impact Assessment Agency of Canada (IAAC) Tailored Impact Statement Guidelines (TISG) and meet the expectations of the Ontario Ministry of the Environment, Conservation and Parks (MECP) in the context of established wildlife considerations governing environmental assessments for road projects.

The Wildlife and Wildlife Habitat Work Plan is being submitted to IAAC and MECP with the request that a coordinated review be undertaken, with the objective to provide Webequie First Nation with technical guidance in meeting the requirements of the federal TISG and the draft provincial Terms of Reference (ToR) for the Project. 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.



Legend

- Optimal Geotechnical Route
- Community Preferred Route
- Airports
- City/Town
- Winter Roads
- All-Season Roads
- Rail
- First Nation Reserve
- Federal National Park
- Provincial Park
- Conservation Reserve
- Waterbody

WSR WEBEQUIE SUPPLY ROAD

0 50 100 Km

N

Canada Lambert Conformal Conic Projection

Webequie Supply Road

Project Location

Date: 2020/05/12	File Number: 649920	Sub Code: 0000
Figure Number: 1		Rev. 0

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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.

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 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.

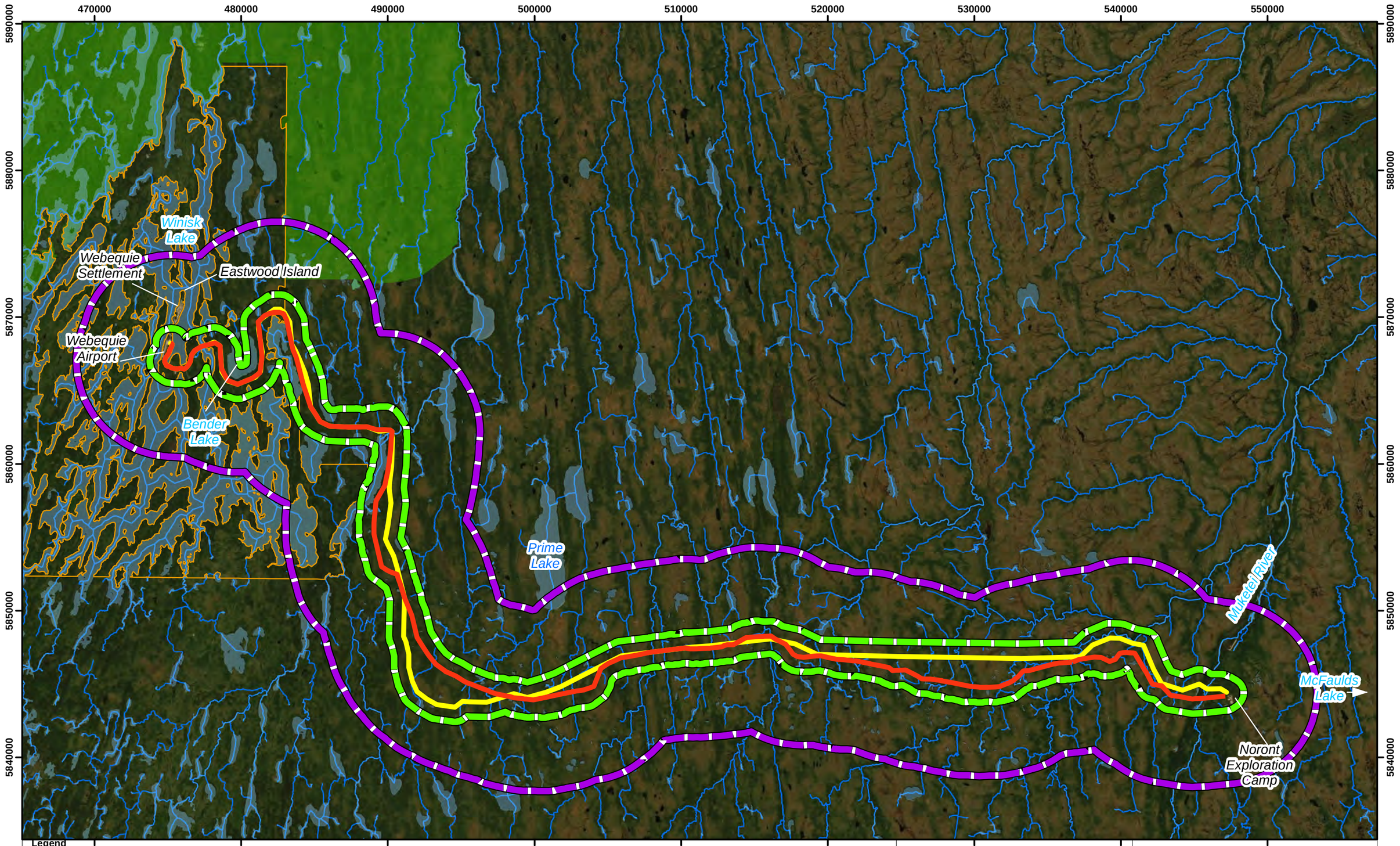
For the purposes of the wildlife work plan, the PF, LSA and RSA have been used for the focal species identified. The Study Area has been adjusted for Moose (*Alces alces*), which now encompass the PF, LSA and an RSA, which has been extended a further 19.5 km either side of the standard RSA boundary. **Figure 2** presents the standard spatial boundaries for the majority of the wildlife valued components.

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.



Legend

- Optimal Geotechnical Route
- Community Preferred Route
- Local Study Area (LSA 1km From Alternative Footprints)
- Regional Study Area (RSA 5km From Alternative LSA's)
- 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 an Combined Study Areas

Date: 2020/06/03	File Number: 649920	Sub Code: 0000
Figure Number: 2		Rev. 0

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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 Environmental Assessment Report/Impact Statement (EAR/IS). Temporal variation or patterns in potential effects associated with different criteria (e.g., habitat use by wildlife, 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).

2. Work Plan

2.1. Methodology

This section describes the planned approach to baseline data collection and the assessment of the potential impacts of the WSR Project on terrestrial (non-avian) wildlife species and their habitat to meet the requirements of the TISG (Sections 8.10 and 15.3) and, where applicable, meet the requirements of the MECP and other provincial ministries (i.e., Ministry of Natural Resources and Forestry) as identified in the ToR.

This work plan is complemented by separate other work plans for Species at Risk (SAR), Migratory Birds, and Aquatic Habitat that describe the complete baseline data and assessment approach for the natural heritage component. Various elements derived from each of these separate work plans are included in this work plan, with a focus on species that are of ecological, economic, social, or cultural importance.

The review of background information and baseline field investigations for the WSR will collect data in the project area of sufficient quantity and quality and using standardized methodologies to achieve the following requirements and objectives outlined in the TISG issued by IAAC with respect to terrestrial wildlife and their habitat:

- Identify wildlife species, other than avian species, of ecological, economic, social or cultural importance (particularly to Indigenous peoples as a source of food - Country Foods), within the project area (including Moose, Rabbit (Snowshoe Hare, *Lepus americanus*), Beaver (*Castor canadensis*), Otter (*Lontra canadensis*), Muskrat (*Ondatra zibethicus*), and frogs), that are likely to be directly or indirectly effected and describe each species:
    - biodiversity, distribution and location;
    - abundance and population status;
    - life cycle;
    - seasonal ranges, migration and movements;
    - habitat requirements; and
    - sensitive periods (e.g., seasonal, diurnal and nocturnal).
- As part of the human health assessment, some mammal species will be tested for metal concentrations in locally harvested and routinely consumed Country Foods. The integration of the findings of the Country Foods Assessment into the human impact assessment will inform impacts associated with changes in the social determinants of health, including traditional food security and connectiveness to the land;
- For the species identified above, describe and quantify the habitat type, including its: function; location; suitability; structure; diversity; relative use, natural inter-annual and seasonal variability, and; abundance as it existed before project construction;
- Data for Gray Wolf (*Canis lupus*) and Black Bear (*Ursus americanus*) to be collected in the interest of assessing predation pressure on SAR and species of ecological, economic, social or cultural importance;
- Provide written description and maps of ecozones, ecoregions, and ecodistricts, as per Ontario or Canada's Ecological Landscape Classification;
- Describe the historic and current use of terrestrial wildlife as a source of country foods (traditional foods), or where use has Indigenous cultural importance (e.g., Black Bear, Caribou (*Rangifer*

tarandis caribou), deer, Moose, Beaver, Arctic Fox, Fisher, Wolverine, rabbits, Marten, Muskrat, and Otter);
- Describe the use and harvesting of fur-bearing species and whether its harvesting has Indigenous cultural importance;
- Describe any locations within the study area that might constitute sensitive areas for terrestrial wildlife, such as: SAR critical habitat that has been designated or is under consideration; ecological reserves and protected areas in proximity to the project location or that could be affected by routine project operations; any lands in the study area that might constitute sensitive areas and habitat for wildlife; or nearby environmentally significant areas, such as National Parks, Areas of Natural or Scientific Interest, National Wildlife Areas, World Biosphere Reserves or UNESCO Natural World Heritage Sites;
- Identify wildlife management areas and established or proposed sanctuaries;
- Describe the levels of disturbance currently affecting wildlife and wildlife habitat, such as habitat fragmentation and the extent of human access and use;
- Identify the biodiversity metrics, biotic and abiotic indicators that are used to characterize the baseline biodiversity for terrestrial wildlife, and discuss the rationale for their selection; and
- Collect wildlife data to represent the following temporal sources of variation:
    - among years;
    - within and among seasons (e.g., spring dispersal, breeding, late summer/fall migration and swarming, hibernation); and
    - within the 24-hour daily cycle. Rare species require more survey effort to detect than common species, and this needs to be accounted for in survey design by increasing the number and duration of surveys.

At a minimum, the combined information from existing data and field surveys will be detailed enough to describe the distribution and abundance of all large ungulates and furbearers in relation to the defined study areas (i.e., Project Footprint, Local Study Area and Regional Study Area). Data will be collected in a manner that enables reliable extrapolations in space (i.e., at minimum to PF, LSA and RSA) and in time (i.e., across years) to identify large ungulates and furbearers and/or their habitat in the defined study areas for the Project.

2.2. Background Information Review

Information to characterize existing conditions for terrestrial wildlife and their habitat for the Project will draw upon the following secondary sources:

- Indigenous Knowledge information obtained through consultation with Indigenous communities;
- Regulatory databases;
- Aerial photography;
- Geographic Information System (GIS) databases;
- Information obtained from regulatory agencies and other stakeholders;
- Canadian Conservation Data Centres;
- Environment and Climate Change Canada's guidance on Bird Surveys;
- Natural Heritage Reference Manual, (MNRF, 2010);
- Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales (MNRF, 2010);
- Significant Wildlife Habitat Technical Guide (MNRF, 2000);

- Significant Wildlife Habitat Ecoregion Criteria Schedules (MNRF, 2015);
- Natural Heritage Information Center (NHIC) Biodiversity Explorer database;
- Provincial Park Management Plans and Life Science Reports (various dates);
- Ontario Mammal Atlas. (Dobbyn, 1994);
- eBird.org;
- Ontario Nature Reptile and Amphibian Atlas (Ontario Nature, 2020);
- The Ecosystems of Ontario, Part 1, Ecozones and Ecoregions, William J. Crins *et al.*, Ministry of Natural Resources, 2009;
- Geology Terrain Data (1:100K), Northern Ontario Engineering Geology Terrain Study, published by Ministry of Northern Development and Mines (MNDM) in March 2006;
- Noront Eagle's Nest Project Environmental Impact Statement/Environmental Assessment Report (Noront 2013);
- Far North Biodiversity Project;
- Ministry of Natural Resources and Forestry data for trapping harvests and Moose data; and
- Other previously conducted environmental studies and academic publications.

2.3. Survey Site Selection

The study areas under consideration include the standard project definitions (PF, LSA, and RSA) described in **Section 1.1.1.** Survey site selection is described in the methodology for each survey type.

Survey site selection focused on sampling of the lands proximal to the selected conceptual routes, that make up the proposed PF, LSA and RSA. After much consideration, it was determined that developing a stratified computer driven sampling model was not an appropriate method to determine survey sites at this stage of the study. This decision was based on the fact that field work had already been completed in 2019, and a preliminary proposed corridor and alternative conceptual routes for further consideration and analysis in the EA had been identified, as detailed in the ToR and Detailed Project Description.

Instead a more focused approach was used to fully capture data along the identified conceptual routes, and known rare habitat types, to support the effects assessment. For example, an increased sampling effort was applied to upland habitat, since only 6.28% of the LSA is considered upland forest type, of which 0.33% is deciduous, 0.51 % mixed, and 5.44% conifer. The site selection process was done by reviewing existing aerial/LiDAR and satellite imagery, the results from ongoing vegetation/habitat classification, along with other background information, and consultation undertaken to date. These data sources were then used to establish locations for survey sites based on the professional opinion of EA biologists to ensure a stratified sampling of all habitat types with adequate distribution across the LSA and RSA were captured, as well as a suitable number of sample locations within known rare habitat types and areas that may be potentially directly impacted by the Project.

This selection process was conducted prior to all SAR field studies that were conducted in 2019, and those planned for 2020. As such, sample locations have been selected to ensure adequate representation in the PF, LSA, and RSA for the proposed WSR and supportive infrastructure (e.g., aggregate extraction areas, laydown areas, construction camps, access roads, etc.) with the goal of determining any potential variation between the study areas, as well as the variation between discrete habitats found therein. Species area curves will also be used to make a final determination of whether sampling has been effective in capturing the potential species present within each site.

2.4. Geomatics and Habitat Typing

The ongoing vegetation classification program (refer to Vegetation Work Plan) will support the SAR program habitat classification process. For that program, original source data were taken from the most recent Land Information Ontario (LIO) Wetland, Watercourse/Waterbody dataset, and the Far North Land Cover files. Digital satellite imagery was sourced from the ArcGIS base maps. It was determined that the LIO wetland and waterbody data provided the most accurate starting point for wetland feature refinement, since it generally agreed with the Far North Land Cover data, while providing more detailed delineation of both the wetlands and waterbody features. Areas of no data/unknown in the LIO wetland and waterbody datasets were filled in with the values from the Land Cover dataset, where applicable.

The supply road conceptual alternatives (i.e., community preferred route and optimal geotechnical route) within the preliminary proposed corridor were buffered to 1 km for the LSA, and 5 km for the RSA, and then superimposed over the resulting mapping. Within the RSA, a desktop aerial interpretation survey of the forests, wetlands, lakes and rivers was conducted to refine and re-delineated all feature class polygons, and an initial vegetation type definition was applied based on published sources and available satellite imagery. The definition of the polygons within the data set were further refined to coarse ecosites, such as Shrub Bog, Conifer Forest and Treed Fen. These combined and revised data were used as the new baseline for the selection of sample points for the 2019 field season, and further refinement.

The second round of refinement, of the baseline data resulting from step one, was done within the LSA at a smaller scale, using additional LiDAR imagery and elevation data gathered by J.D. Mollard and Associates (2016). These data, as well as the results of the 2019 summer field surveys, were used to more accurately define ecosites and their boundaries within the LSA. Data from the field survey were treated as the most accurate, and those points were used to refine the classification of the polygons in which they were located; these classifications were then extrapolated to other polygons with similar visual characteristics, but not to the same degree of specificity. For example, a point may suggest an area as a specific conifer forest type, but visually similar areas separated from the polygon in which the point is located would be labelled only to Conifer Forest, since information such as soil type, a key determinant of ecosite classification, is unavailable at this time. These data will be updated as future field surveys are completed and more data collected.

Habitat type will also be characterized at each distinct survey station visited during baseline studies. In order to support characterization at these locations, each site will be photographically documented with 13 photos, one at each cardinal direction (N, E, S, W): 1 photo at shoulder height with arm and camera extended parallel to ground, 1 photo with arm at 45 degrees (from body position) pointing down, 1 photo with arm extended at 135 degrees (from body position) pointing up, and one photo with arm extended vertically. Photos will be interpreted by qualified individuals according to one or each of the classification schemes: Ontario Ministry of Natural Resources and Forestry's (MNRF) Ecosites of Ontario: Boreal Range ELC system, and/or the Canadian Wetland Classification System. To the extent possible, all candidate survey sites will be attributed to a 100 m buffer around site centroid, areal coverage and percentage of each land cover class will be assigned to sites, and these values will be used as inputs to evaluations of representative habitat.

Complete data sets from any survey sites, including GIS files, will be provided. Databases and GIS files will be accompanied by detailed metadata that meets ISO 19115 standard 29.

2.5. Data Analysis/Abundance and Distribution Modelling

Correlative species distribution models (SDMs) will be developed to provide quantitative descriptions of species distributions within the project study areas based on associations between observational data and species-specific environmental predictors determined through review of existing literature. These will be further refined with point count, acoustic, and aerial survey data from the 2019 and 2020 field programs. Where sufficient field data are available, species abundance models (SAMs) will be used to quantify indices of abundance or density, rather than occurrence. The combination of these models will be used to identify key habitat factors for species of interest, where data are sufficient to validate the model (Milsom *et al.*, 2000, Morrison *et al.*, 2006). When possible, model data will be used to develop predictive maps on species distribution and abundance. These maps will also be used to predict population responses to the development of the Project and inform future monitoring requirements.

Explanatory (i.e., covariate) data will be collected during each bird survey, as well as through the vegetation sampling programs and background information review, to support modelling to adequately represent the spatial and temporal sources of variation. The following presents a preliminary list of covariates that may be used to support the modelling process, dependent on individual species habitat requirements that may be extrapolated across a landscape scale (additional covariates may be identified at a later time):

- Land Cover Composition:
  - Land Information Ontario (LIO) Wetland, Watercourse/Waterbody classification
  - Far North Land Cover classification
  - Percent deciduous cover
  - Percent conifer cover
  - Forest age (years)
  - Percent shrub cover
  - Area of waterbody or open wetland
  - Area and % coverage of marsh or emergent vegetation
  - Percent coverage of emergent vegetation

- Soil Type:
  - Mineral
  - Organic

- Geomorphology:
  - Percent exposed rock
  - Eskers

- Hydrological Processes:
  - Distance to nearest waterbody or watercourse
  - Density of waterbodies (neighbourhood metric)
  - % open water (High Water Level) for open wetlands

- Climatic Conditions:
  - Annual range in temperature
  - Mean seasonal minimum/maximum temperature (autumn, winter, spring, summer)
  - Mean climate moisture index
  - Mean seasonal precipitation (autumn, winter, spring, summer)

2.6. Field Surveys

This section provides an overview of the field methodologies and results of the wildlife and wildlife habitat surveys conducted in 2018 and 2019 for the project area, and more specifically the preliminary preferred corridor for the WSR as identified in the ToR and Detailed Project Description. The 2018 data results are drawn from the baseline field surveys conducted by Webequie as reported in the *Baseline Environmental and Geotechnical Studies Report - Webequie Community Supply Road (TPA1B).* It is the Project Team's intent to conduct future scheduled field surveys using accepted scientific protocols consistent with those used in 2018/2019, supplemented by additional guidance provided by provincial and federal experts since the completion of the surveys cited herein. Relevant additional/alternative methods are described below, as appropriate.

To gather the information required to support the EA for the WSR, the following field surveys have been conducted, or are ongoing as of 2020:

- Winter Aerial Surveys for Caribou and Wolverine in 2018 and 2019;
- Caribou Nursery Surveys;
- Bat Hibernacula and Maternity Roost Screening;
- Bat Acoustic Surveys;
- Breeding Bird Point Count Survey;
- Acoustic Surveys (Birds and Anurans);
- Crepuscular Bird Surveys (Which allow for sampling of calling frogs); and
- Raptor Nesting Data Collection.

Table 1 provides a summary of data collection methods and applicability.

Table 1: Summary of Data Collection

Species	Data Collection Methods	Data Applicability
Moose	› First Nation Consultation	› social value › life cycle › habitat requirements
	› Winter aerial survey transects (2018 and 2018)	› seasonal ranges › winter distribution and location › relative abundance and population status
	› Incidental field observations	› seasonal ranges (spring summer and fall)seasonal ranges (spring summer and fall),

Species	Data Collection Methods	Data Applicability
	› MNRF Moose habitat mapping	› seasonal ranges (spring summer and fall) › habitat requirements › migration and movements
	› MNRF Moose survey and Moose harvest data	› relative abundance and population status
	› Secondary sources review	› life cycle › habitat requirements › migration and movements › sensitive periods (e.g., seasonal, diurnal and nocturnal)
American Marten **(River) Otter** **Rabbits (Snowshoe Hare)** **Beaver** **Muskrat** **Wolf**	› First Nation Consultation	› social value › life cycle › habitat requirements
	› Winter aerial survey transects (2018 and 2018)	› winter distribution and location › relative abundance and population status › seasonal ranges (spring summer and fall)
	› Incidental field observations	› location › relative abundance and population status
	› MNRF Trapping harvest data	› life cycle › habitat requirements › migration and movements
	› Secondary sources review	› sensitive periods (e.g., seasonal, diurnal and nocturnal)
Bats	› First Nation Consultation	› social value
	› Aerial reconnaissance;	› habitat requirements
	› Acoustic Surveys	› relative abundance and population status › distribution and location › seasonal ranges (spring summer and fall) › habitat requirements
	› Secondary sources review	› life cycle › sensitive periods (e.g., seasonal, diurnal and nocturnal)
Frogs	› First Nation Consultation	› social value
	› ARU surveys	› distribution and location › seasonal ranges (spring summer and fall)

Species	Data Collection Methods	Data Applicability
		› sensitive periods (e.g., seasonal, diurnal and nocturnal)
	› Vegetation community and wetlands assessment studies	› habitat requirements; › seasonal ranges (spring summer and fall)
	› Secondary sources review	› life cycle › population status › sensitive periods (e.g., seasonal, diurnal and nocturnal)
Black Bear	› First Nation Consultation	› social value › seasonal ranges (spring summer and fall) › sensitive periods (e.g., seasonal, diurnal and nocturnal)

The survey methodology and results for migratory birds and SAR are contained in separate complementary work plans and, in some cases, select data from these plans also appear in this Wildlife Work Plan. These wildlife surveys have been designed and implemented to date with the purpose of sampling wildlife diversity and composition within the project area, as well as informing the presence of provincial Significant Wildlife Habitat (SWH) types. Data collected during each survey contributed to the assessment of multiple SWH types, as well as the presence of wildlife species that use those specialized habitat types. Targeted surveys for large ungulates, furbearers, and bats reflect the secretive nature of these species and the increased survey effort (in number and duration) required to gather occurrence, distribution, abundance, and habitat availability data in relation to the study areas and inform a robust effects assessment. Considerations for both provincial and federal methodologies and recommendations were considered to the extent possible during the execution of the WSR field program.

2.6.1. 2018 Winter Aerial Surveys

2.6.1.1. Survey Methodology

In support of the coordinated federal-provincial environmental assessment process, a winter aerial survey was conducted in February 2018, with the objective of inventorying Moose and Moose wintering habitat, as well as the presence of Gray Wolf, Canada Lynx (*Lynx canadensis*), Fisher (*Martes pennanti*), American Marten (*Martes americana*), River Otter, Red Fox (Vulpes vulpes), Beaver and Snowshoe Hare. Additionally, other SWH wildlife habitat was identified, such as cliffs, caves and habitats with bat maternity roost qualities. The resulting survey plan consisted of 59 transects oriented in the north-south direction, which varied in length between 37 and 51 km (refer to **Figure 3**). The survey totalled 2,666 km flown and 5,800 square kilometres covered. This survey provided coverage across all proposed alternative conceptual corridors for the WSR (at the time).

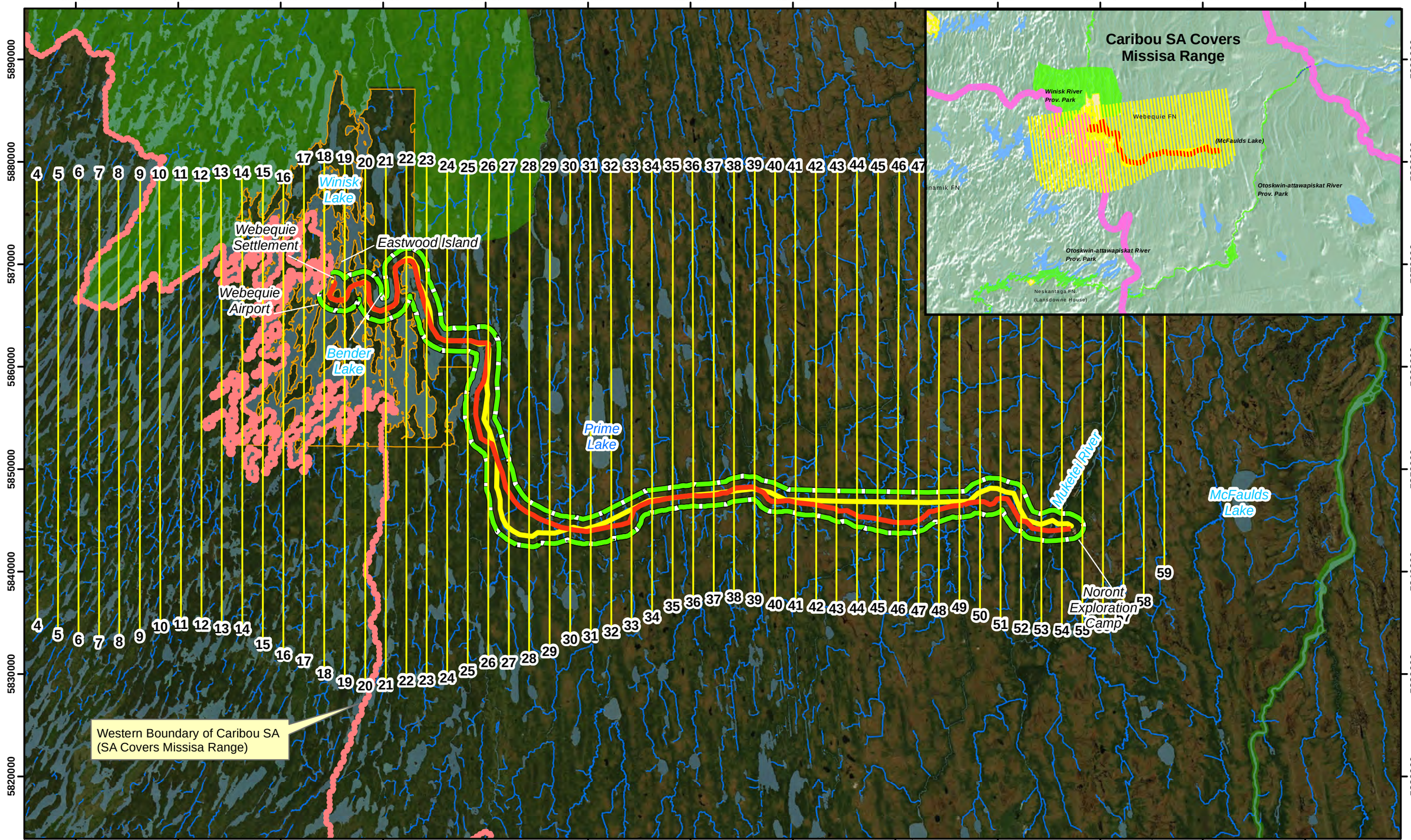
The aerial survey consisted of flying a grid of parallel transects oriented in a north-south direction, using a Bell Long Ranger helicopter. The standardized parallel transect spacing of 2 km was used, as suggested in the MNRF Protocol. Surveys were conducted by a three-person team experienced in aerial wildlife surveys to maximize detection of wildlife. The survey team was joined by Eric Jacob, a member

of Webequie First Nation and local trapper throughout the entirety of the surveys. Eric's participation helped to further maximize detection of wildlife and provided local and traditional knowledge of wildlife occurrence and behaviour in the area. The surveys took place between February 22, 2018 and February 28, 2018 to ensure deep snow conditions (>30 cm) and were conducted on consecutive days.

Surveys were conducted during clear, bright weather conditions between 09:00 and 16:00 whenever possible in order to avoid long shadows and maximize visibility of wildlife and their tracks. If conditions changed to heavy snow, surveys were stopped and continued the following day. Survey flights were conducted at an altitude of 100 m to 200 m and at a speed of approximately 80-100 km/h. Prior to the survey, the survey transect grid was uploaded to the helicopter GPS system for efficient navigation while conducting the survey. A GPS track was continuously recorded during the survey on a handheld Garmin GPS unit to document the flight path. All wildlife observations made during the survey were recorded immediately on a data sheet and recorded data included date, time, transect number, UTM coordinates, species name, number of individuals, and habitat type. To the extent possible Moose sex (male, female, unknown) and age (adult, yearling, calf) was determined, unless undue stress on the animals would result from the determination of these details. New tracks were distinguished from old tracks, and digital photographs of wildlife were taken whenever possible.

2.6.1.2. 2018 Result Summary

In 2018, observations and sign for seven mammal species were recorded during the survey. A summary of wildlife observations made during the aerial survey are presented in **Table 2**.



Legend

- Caribou Transects 2018
- Optimal Geotechnical Route
- Community Preferred Route
- Caribou RSA (Covers Missisa Caribou Range)
- Local Study Area (LSA 1km From Alternative Footprints)
- Webequie First Nation Reserve
- Winisk River Provincial Park
- Waterbody
- Watercourse

WSR WEBEQUIE SUPPLY ROAD

0 5 10 Km

N

NAD 83
UTM Zone 16N

Webequie Supply Road

2018 Winter Caribou Aerial Survey Transects and Study Areas

Date: 2020/09/25	File Number: 649920	Sub Code: 0000
Figure Number: 3		Rev. 0

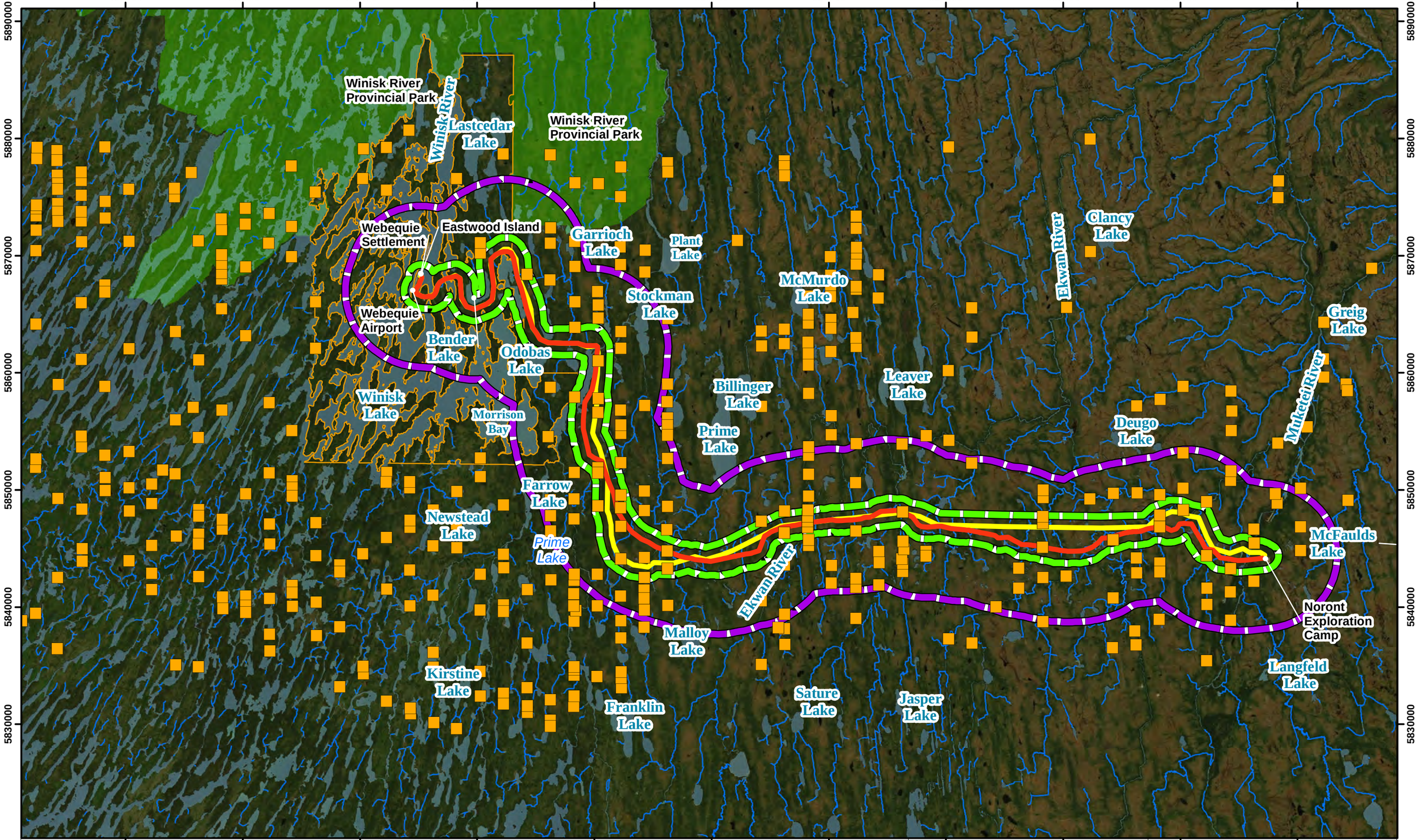
Document Path: I:\E&W\Projects\661910 - Webequie First Nation Supply Rd\40_Execution\45_GIS_Dwgs\MXD\Workplans\20200811_WSR_2018_WLPlan_Caribou_Transects_Fig_3.mxd

Table 2: Summary of Wildlife Recorded During the 2018 and 2019 Winter Aerial Wildlife Surveys

Species	2018			2019		
	Number of Animals Observed	Track Occurrences	Percent of Transects Recorded	Number of Animals Observed	Track Occurrences	Percent of Transects Recorded
Moose	38	473	98.3	36	327	97.5
Marten Fisher	1	304	100	2	82	42.5
River Otter	1	163	76.3	0	62	42.5
Fox	1	18	11.8	0	39	30.0
Gray Wolf	9	6	10.2	24	6	15.4

The 2018 winter aerial survey recorded a total of 38 Moose individuals across 27 locations, with groups that ranged from 1 to 3 individuals (refer to **Figure 4**). Areas with fresh tracks were briefly searched for individuals that were not always seen possibly due to obstructed views from dense vegetation. Although only 27 groups of Moose were observed, Moose tracks were observed throughout the survey area. The observed Moose tracks provide evidence of the geographic distribution of Moose and of more Moose individuals present within the surveyed area than identified. In general, Moose were observed throughout the entire survey area, but were more prevalent west of Webequie. In this area, new regeneration of mixed deciduous and coniferous forests was present from a prescribed burn 40 years ago. Moose tracks were often observed at the sides of lakes or rivers, providing evidence of browsing. Additionally, Moose were commonly observed browsing, lying down, or walking within open forested areas.

From the 2018 survey, a total of nine Gray Wolves were recorded across two locations, with groups of two and seven individuals (refer to **Figure 5)**. The group of two individuals was observed amongst a long straight line of Wolf tracks along the middle of Winisk Lake southeast of the Webequie dump. The group of seven individuals was observed further southeast of Webequie along the shore of a lake and went into a forested peninsula. Wolf tracks were observed throughout the survey area at four locations other than where Wolf individuals were observed. Tracks were observed to the south and southeast of Webequie and near the southeastern perimeter of the survey area. At transect 51, at least four individuals were estimated to be present based on Wolf tracks. Other tracks were located at transects 50, 19, and 17. These tracks were located on or beside lakes or rivers, or in open forested areas where tracks were not obstructed by dense vegetation.



Legend

- 2018 Moose and Moose Track Observations
- Optimal Geotechnical Route
- Community Preferred Route
- Local Study Area (LSA 1km From Alternative Footprints)
- Regional Study Area (RSA 5km From Alternative LSA's)
- Webequie First Nation Reserve
- Waterbody
- Watercourse
- Winisk River Provincial Park

WSR WEBEQUIE SUPPLY ROAD

0 5 10 Km

N

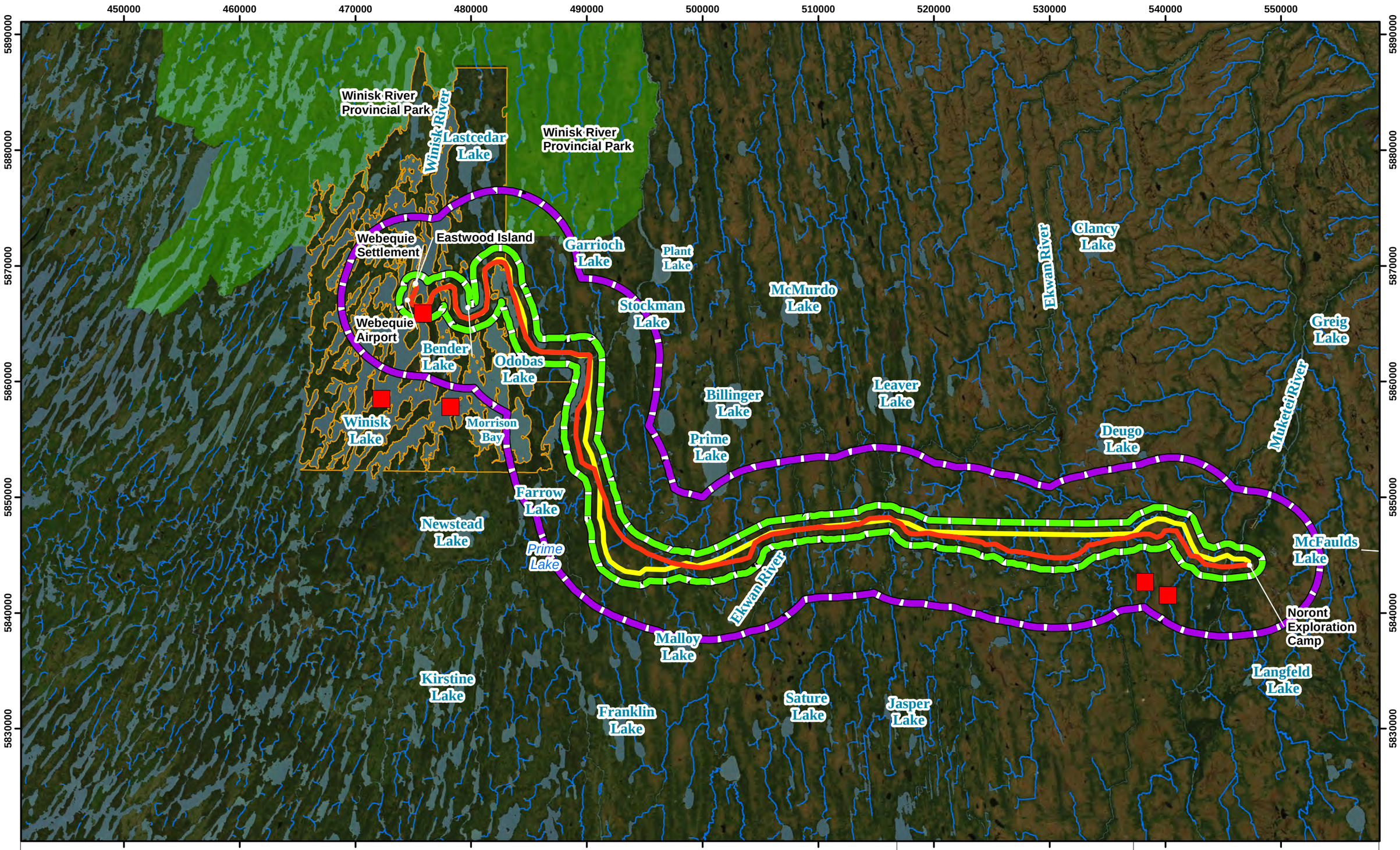
NAD 83
UTM Zone 16N

Webequie Supply Road

2018 Moose and Moose Track Observations

Date: 2020/09/25	File Number: 649920	Sub Code: 0000
Figure Number: 4		Rev. 0

Document Path: I:\E&W\Projects\661910 - Webequie First Nation Supply Rd\40_Execution\45_GIS_Dwgs\MXD\Workplans\20200925_WSR_Wildlife2018Moose_Fig_4.mxd



Legend

- 2018 Wolf and Wolf Track Observations
- Optimal Geotechnical Route
- Community Preferred Route
- Local Study Area (LSA 1km From Alternative Footprints)
- Regional Study Area (RSA 5km From Alternative LSA's)
- 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

2018 Wolf and Wolf Track Observations

Date: 2020/09/25	File Number: 649920	Sub Code: 0000
Figure Number: 5		Rev. 0

Document Path: I:\E&W\Projects\661910 - Webequie First Nation Supply Rd\40_Execution\45_GIS_Dwgs\MXD\Workplans\20200925_WSR_Wildlife2018Wolf_Fig_5.mxd

Other furbearer species' tracks or animals, such as Fox, Lynx, Marten/Fisher, River Otter and Snowshoe Hare, were observed across the survey area (refer to **Figure 6**). Weasel species tracks were observed in three locations across the survey area along transects 2, 12, and 15 west of Webequie. These tracks were likely present elsewhere, but difficult to see from the air due to their small size.

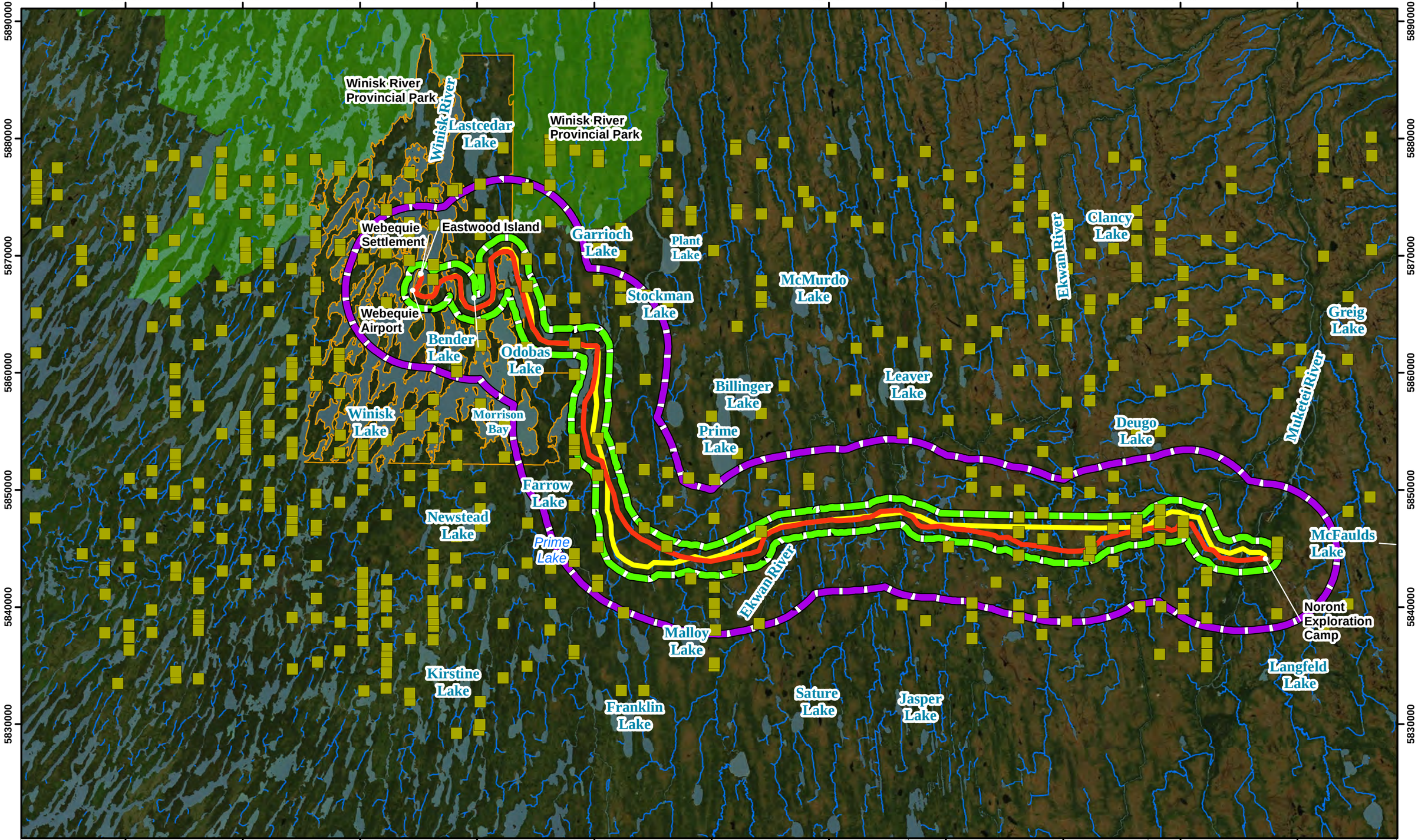
A single Red Fox was observed along transect 19 southeast of Webequie along the side of a lake. Additionally, fox tracks were recorded throughout the study area at 18 other locations (**Figure 6**).

Lynx tracks were observed throughout the survey area west of Webequie at 19 locations (**Figure 6**). Lynx tracks were commonly spotted along the edge of rivers or lakes and where Snowshoe Hare tracks were also observed.

Marten and Fisher tracks have measurement overlap and are difficult to discern from each other during aerial surveys, thus these species are lumped together in a combined category. Marten/Fisher (*Martes sp*) were the most common species observed throughout the survey area. Marten/Fisher tracks were observed at 304 locations west and east of Webequie (**Figure 6**). In one instance, a Marten was observed chasing a Snowshoe Hare along transect 8, although it is unknown whether the Marten caught the hare or not.

River Otter were observed along lakes and rivers throughout the survey area. One river otter was spotted traveling along a lake east of Webequie. In total, 163 observations of River Otter tracks were recorded throughout the entire survey area (**Figure 6**).

Snowshoe Hare were the second most common species observed throughout the survey area. Snowshoe Hare tracks were observed at 128 locations west and east of Webequie (**Figure 6**).



Legend

- 2018 Furbearer and Furbearer Track Observations
- Optimal Geotechnical Route
- Community Preferred Route
- Local Study Area (LSA 1km From Alternative Footprints)
- Regional Study Area (RSA 5km From Alternative LSA's)
- 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

2018 Furbearer and Furbearer Track Observations

Date: 2020/09/25	File Number: 649920	Sub Code: 0000
Figure Number: 6		Rev. 0

Document Path: I:\E&W\Projects\661910 - Webequie First Nation Supply Rd\40_Execution\45_GIS_Dwgs\MXD\Workplans\20200925_WSR_Wildlife2018Furbearer_Fig_6.mxd

2.6.2. 2019 Winter Aerial Surveys

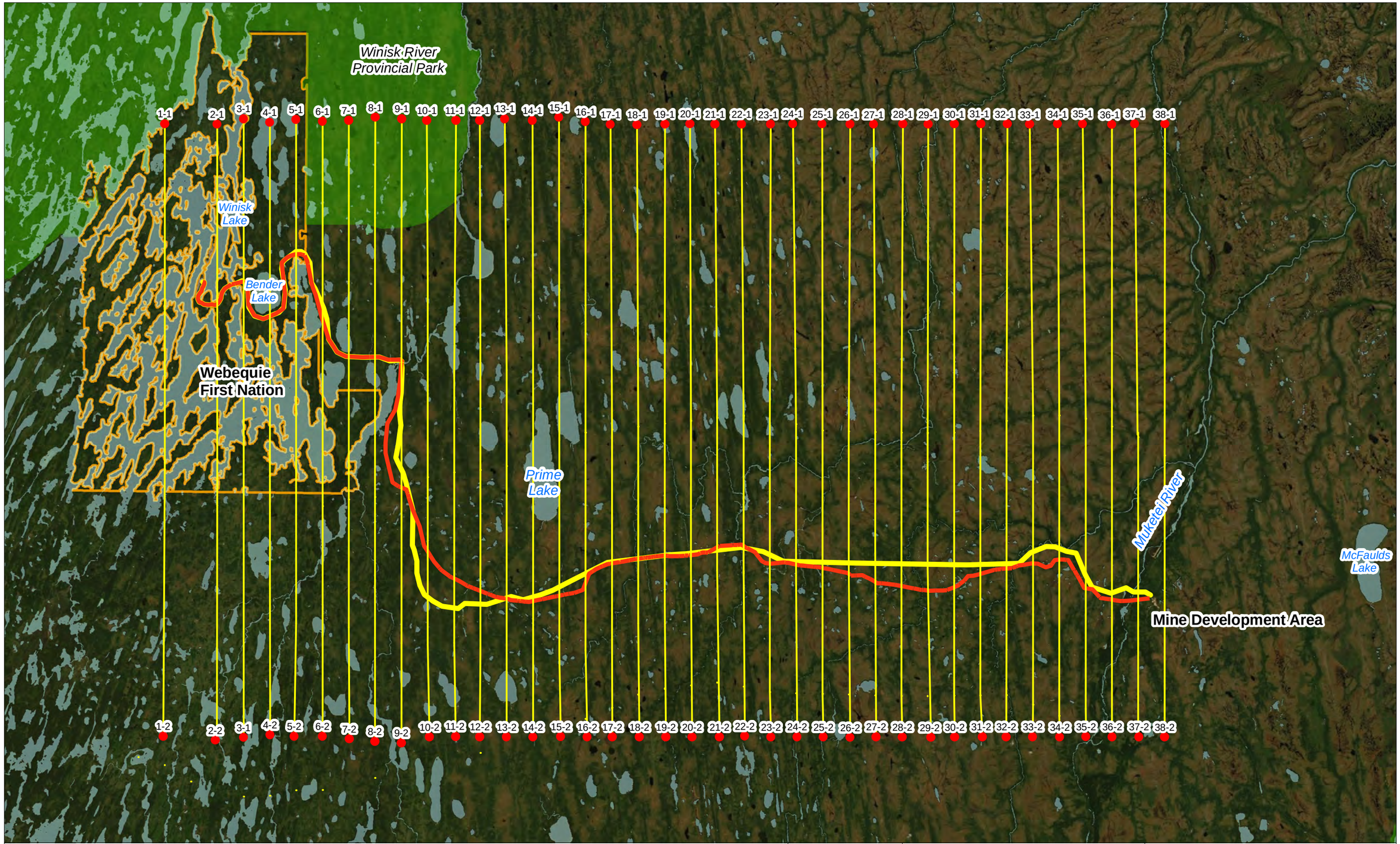
2.6.2.1. Survey Methodology

At the request of Kenora District MNRF, a second aerial winter survey was developed for the winter of 2019. Objectives for the 2019 survey were similar to those for the 2018 survey. Transects west of Webequie were excluded in 2019 and a total of 39 transects were flown to cover the extent of the preliminary preferred corridor (107 km in length). Transects all measured 47 km in length and a total survey length of 1,833 km was flown (refer to **Figure 7**). Similar survey protocol as followed in 2018 were followed during the 2019 survey. Once again, the survey team was joined by Eric Jacob, a member of Webequie First Nation and local hunter and trapper.

2.6.2.2. 2019 Results Summary

In 2019, observations and sign for seven mammal species were recorded during the survey. A summary of wildlife observations made during the aerial survey is presented in **Table 2**.

Evidence of Moose was found extensively throughout the survey grid, with observations made on 40 of the 48 transects. A total of 33 individual Moose were recorded across 19 locations (refer to **Figure 8**). Of the Moose that the Project Team was able to identify by sex and age, 7 were cows, 12 bulls, and 7 calves.



Legend

Caribou Transects
Optimal Geotechnical Route
Community Preferred Route
Webequie First Nation
Waterbody
Winisk River Provincial Park

WSR WEBEQUIE SUPPLY ROAD

N

0 5 10 Km

1:270,336

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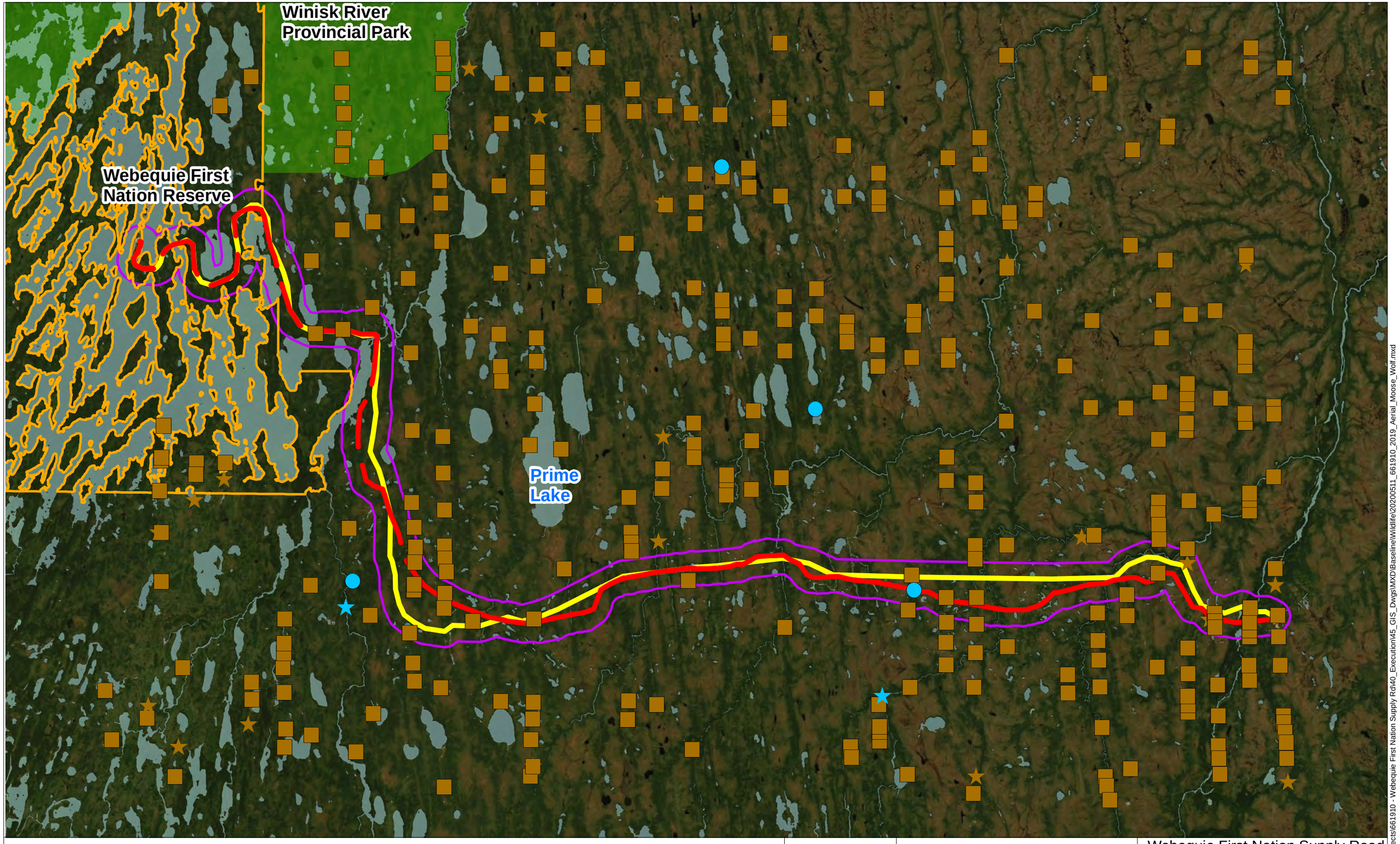
Webequie First Nation Supply Road

2019 Winter Aerial Survey Transects

Date: 2020/05/12	File Number: 649920	Sub Code: 0000
Figure Number: 7		Rev.

Document Path: I:\E&W\Projects\661910 - Webequie First Nation Supply Rd\40_Execution\45_GIS_Dwgs\MXD\Workplans\20200122_WL_Fig_3_CaribouTransects2019.mxd



Legend

Gray Wolf Observation
- Animal
- Tracks

Moose Observation
- Animal
- Tracks

- Optimal Geotechnical Route
- Community Preferred Route
- Local Study Area
- Webequie First Nation Reserve
- Winisk River Provincial Park
- Waterbody

WSR WEBEQUIE SUPPLY ROAD

4,100 2,050 0 4,100 Meters

1:225,000

N

NAD 83
UTM Zone 16N

Webequie First Nation Supply Road

2019 Moose and Wolf Observations

Date: 2020/05/12	File Number: 649920	Sub Code: 0000
Figure Number: 8		Rev. 0

Document Path: I:\E&W\Projects\661910 - Webequie First Nation Supply Rd\40_Execution\45_GIS_Dwgs\MXD\BaselineWildlife\20200511_661910_2019_Aerial_Moose_Wolf.mxd

Gray Wolf observations were uncommon and sporadic; however, two packs of 11 and 13 individuals were observed, and tracks were recorded in an additional four locations. Locations of wolf tracks and observations are presented in (**Figure 8**).

Other mammal species recorded during this survey included American Marten/Fisher, Red Fox, River Otter, Lynx, Snowshoe Hare, American Mink/Weasel species (refer to **Figure 9**).

2.6.3. Bat Hibernaculum and Maternity Habitat Screening

2.6.3.1. Bat Hibernacula Screening

A review of secondary source information, including the NHIC and Ministry of Energy, Northern Development and Mines (MENDM) Abandoned Mine Information System (AMIS) (MENDM, 2016) was undertaken to identify natural and man-made features along the proposed route that may provide bat hibernaculum habitat. A reconnaissance helicopter flight along the proposed preferred alternative for the Project was flown on May 27 and 28, 2019, which further assessed locations where bat hibernacula might occur.

To date, no indication of features supporting bat hibernacula within the PSA or LSA for the WSR has been found.

2.6.3.2. Bat Maternity Habitat Screening

Discussion of field methods for SAR with the MECP in July 2019 concluded that no ground surveys for bat maternity roosts are required for the WSR Project (refer to SAR Work Plan for further details).

According to the provincial guidance document for assessing bat maternity roost habitat, Bat Survey Protocol for Treed Habitats (MNRF, 2017), a bat habitat suitability assessment should be conducted to identify forest habitat capable of hosting bat maternity roosts. To determine existing vegetation communities that support bat maternity roost habitat present, Forest Resource Inventory (FRI) vegetation community data across the project area were screened, using ArcGIS software, for the presence of older, more mature tracts of deciduous forest, or mixed forest greater than 80 years old crossed by the preliminary preferred route alternative. This is the approximate age at which Trembling Aspen (*Populus tremuloides*), a common, large-diameter deciduous tree in the boreal region, attains a diameter at breast height (DBH) of 20 cm.

A reconnaissance helicopter flight along the proposed preliminary preferred corridor for the Project was flown on May 27 and 28, 2019, which further assessed locations where mature deciduous and mixed forest with trees and snags of DBH greater than 20 cm occurred.

Winisk River Provincial Park

Webequie First Nation

Prime Lake

Muketei River

McFaulds Lake

Legend

Wolverine Observation
- Animal
- Track

River Otter Observation
- Track

Fox Observation
- Track

American Marten Observation
- Animal
- Track

- Optimal Geotechnical Route
- Community Preferred Route
- Local Study Area
- Webequie First Nation
- Waterbody
- Winisk River Provincial Park

WSR WEBEQUIE SUPPLY ROAD

N

0 5 10 Km

SNC·LAVALIN

Webequie Community
Supply Road Extension
2019 Other Furbearer Observations

Date: 2020/05/12	File Number: 649920	Sub Code: 0000
Figure Number: 9		Rev. 0

Document Path: i:\E&W\Projects\661910 - Webequie First Nation Supply Rd\40_Execution\45_GIS_Dwgs\MXD\Workplans\20200512_WL_Fig_5_OtherFurbearers2019.mxd

The results of this screening further informed positioning of acoustic detection surveys that were conducted in 2019 to determine the presence and diversity of bats present within the preliminary preferred corridor. Acoustic detection surveys are described in **Section 2.6.4**.

Ecological Land Classification (ELC) is an effective tool for identifying potential bat maternity roost SWH. Cavity-roosting species are known to form maternity roosts in forests and swamps. The following ELC communities should be used to identify potential maternity roost habitat:

- Deciduous Forests (FOD);
- Mixedwood Forests (FOM);
- Coniferous Forests (FOC);
- Deciduous Swamp (SWD);
- Mixedwood Swamps (SWM); and
- Coniferous Swamps (SWC).

In Northern Ontario (boreal forest) the following ELC codes apply:

- G/B015-019 - Very Shallow: Dry to Fresh Mixedwood/Hardwood;
- G/B023-028 - Very Shallow: Humid Conifer/Mixedwood;
- G/B039-043 - Dry, Sandy Hardwood/Mixedwood;
- G/B054-059 - Dry to Fresh: Coarse Mixedwood/Hardwood;
- G/B069-076 - Moist, Coarse Mixedwood/Hardwood;
- G/B087-092 - Fresh, Clayey Mixedwood/hardwood;
- B103-108 - Fresh, Silty to Fine Loamy Mixedwood/Hardwood;
- B118-125 - Moist, Fine Mixedwood/Hardwood; and
- B130-133 – Swamps.

Cavity-roosting bats may establish maternity roosts in treed areas consisting of deciduous, coniferous or mixed tree species. For these bats that roost under bark or within cracks, hollows or crevices, tree species is important only as it relates to its structural attributes. While mature trees (i.e., 80 years) may provide habitat with the greatest likelihood of the establishment of maternity roosts, focusing solely on such habitats may not be appropriate, as younger trees may still provide suitable structural attributes for roosting. As such, any coniferous, deciduous or mixed wooded ecosite, including treed swamps, that includes trees at least 10 cm DBH should be considered suitable maternity roost habitat.

2.6.4. Bat Acoustic Surveys

2.6.4.1. Survey Methodology

Acoustic surveys for bats were conducted according to the methodology outlined in the MNRF guidance document *Bat Survey Protocol for Treed Habitats* (2017). The background information review (using aerial photography and land cover data) and aerial reconnaissance concluded that four (4) stands of deciduous/mixed forest within the PF and LSA were of sufficient age and structural quality to support candidate bat maternity roost habitat (refer to **Figure 10**).

470000 480000 490000 500000 510000 520000 530000 540000 550000

5890000 5880000 5870000 5860000 5850000 5840000

Winisk Lake
Webequie Settlement
Eastwood Island
Webequie Airport
BAT 2
Bender Lake
BAT 1
Prime Lake
BAT 4
Muketeil River
BAT 3
McFaulds Lake
Noront Exploration Camp

Legend

- Bat Detector Locations
- Optimal Geotechnical Route
- Community Preferred Route
- Local Study Area (LSA 1km From Alternative Footprints)
- Regional Study Area (RSA 5km From Alternative LSA's)
- 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

Bat Detector Locations

Date: 2020/08/12	File Number: 649920	Sub Code: 0000
Figure Number: 10		Rev. 0

Document Path: I:\E&W\Projects\661910 - Webequie First Nation Supply Rd\40_Execution\45_GIS_Dwgs\MXD\Wildlife\20200508_WSR_BatDetectorLocation_Fig_9.mxd

Of these, only three (3) could be accessed safely by field staff. Acoustic surveys were conducted at four survey stations (BAT1 to BAT4; **Figure 10)** along the preliminary proposed corridor for the WSR, of which three (3) were positioned in close proximity to candidate maternity roost habitats. The fourth was positioned along a river with the intention of detecting passing bats that might use this feature as movement corridor. Overall, the primary objective of this first year of study was to determine the presence and diversity of bats within the PF and LSA.

Upon deployment, the following details were recorded for each detector:

- Detector make and model;
- Microphone model used;
- Location of detectors;
- Height of microphones;
- Orientation of microphones;
- Special housing that may affect microphone sensitivity (e.g., wind screen, cones, weatherproofing, etc.);
- Mounting method (e.g., meteorological tower, pole, etc.);
- Device-specific settings (e.g., gain/sensitivity, TBC, etc.);
- Recording mode (i.e., full spectrum or zero-crossing); and
- A summary of any issues with equipment failure, and a description of procedures used to ensure equipment was operational during deployment (including ensuring microphone sensitivity remains within an acceptable range).

Acoustic detection surveys were conducted between June 12, 2019 and July 5, 2019, for a total of 85 recording nights. Acoustic recordings were collected concurrently at multiple locations at a time, using acoustic recording units (ARU, Song Meter SM4BAT [Wildlife Acoustics Inc.]) full-spectrum, ultrasonic recording devices. Each detector was paired with a Wildlife Acoustics SMM-U2 ultrasonic, omnidirectional microphone using a 3 m microphone cord. Each ARU setup was installed on site using an extension pole to raise the microphone approximately 2.5 m above the ground. ARU's were located in open areas along linear habitat features, such as watercourse and clearing edges in proximity to deciduous ecosites with trees of large DBH. Microphones were positioned approximately 10 m from the forest edge to make recordings in a low-clutter environment and, thus, maximizing the clarity and quality of recorded echolocation calls for more accurate species identification. Each ARU was left to passively record bat activity for at least 10 consecutive nights of low wind and without precipitation. ARU schedules were set to record thirty minutes before sunset until thirty minutes after sunrise.

Bat recordings were analyzed using the acoustic analysis program Kaleidoscope Pro 5.1.9 (Kaleidoscope, Wildlife Acoustics). The automated analysis tool in Kaleidoscope was used to distinguish noise files from files containing potential bat echolocations (i.e., bat passes). Ambient noise files were automatically removed from the acoustic detection dataset for each of the four ARU's and were manually checked for potential false-negatives. Upon removal of ambient noise files from the dataset, two methods were used to identify the species or species group of each recording file.

Bat recordings were first run through the auto-identification function in Kaleidoscope, which auto-identified each recording by comparing the acoustic pulses to a known reference library and by identifying species-specific characteristics of each pulse (i.e., frequency, slope, duration, as well as automatically identify bat passes to species, when possible). Filtered echolocation files were analyzed using Kaleidoscope's auto-identification algorithm in conjunction with the Bats of North America 5.1.9 classifier

for Ontario, Canada and narrowed down to reflect any bat species that may conceivably occur in proximity to the PF and LSA. These species included: Big Brown Bat (*Eptesicus fuscus*), Silver-haired Bat (*Lasionycteris noctivagans*), Hoary Bat (*Lasiurus cinereus*), Eastern Red Bat (*Lasiurus borealis*), Little Brown Myotis (*Myotis lucifugus*), and Northern Myotis (*Myotis septentrionalis*). A balanced program setting (i.e., "0 - Balanced") was used to set strict criteria for diagnostic characteristics of expected bat species and the quality of recorded bat echolocations. This classifier setting was applied to all echolocation data.

Once auto-identification was completed, 100% of the data was examined by a qualified biologist experienced in the analysis of bat acoustics and trained in the use of Kaleidoscope software. Select files were vetted through comparison of call parameters to North American acoustic identification keys (i.e., O'Farrell *et al*., 1999; O'Farrell and Gannon, 1999; Britzke and Murray, 2000). Species groupings and criteria for manual identification in zero-crossing format are provided in **Table 3**.

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Table 3: Bat Identification Categories and Defining Call Parameters

Category	Species	Fmin (kHz)	Fc (kHz)	Sc (OPS)	Additional Notes
Hoary Bat	› Hoary Bat	~20, as low as 14	Not specified	Not specified	Pulses lack diagnostic characteristics for species determination as big brown bat or silver-haired bat.
Big Brown Bat	› Big Brown Bat	≥20 and <23	Not specified	Not specified	Calls never go flat in an open “uncluttered” environment unlike the Silver-haired Bat.
Silver-haired Bat	› Silver-haired Bat	≥25 and <30	Not specified	Not specified	Flat pulses in “uncluttered” environments.
Big Brown Bat/ Silver-haired Bat	› Big Brown › Silver-haired Bat	<30	21-32	11-135	Fragmented low frequency pulses; calls are poor quality or sequence is short and/or ambiguous.
Low Frequency Bat	› Hoary Bat › Big Brown › Silver-haired Bat	<30	<35	Not specified	Fragmented low frequency pulses; calls are poor quality or sequence is short and/or ambiguous.
Eastern Red Bat	› Eastern Red Bat	≥35 and <45	Not specified	Not specified	Varied Fmin. Pulses may have an upturned tail.
35 kHz Myotis Species	› Little Brown Myotis	~35	30-35	<200	Probably long-eared myotis species group but could include low frequency little brown myotis.
Little Brown Myotis	› Little Brown Myotis	~40	36 - 46.5	<100	Passes of Fc 36-46.5 kHz and Sc <100 OPS with two or more quality search phase pulses having a minimum change in slope <40 OPS.
Northern Myotis	› Northern Myotis	~40	Not specified	Not specified	Steep Sc and Fmax at or greater to 100 kHz.
Myotis Species	› Northern Myotis	≥30	Not specified	Not specified	Fragmented high frequency pulses; calls are poor quality or sequence is short and/or ambiguous. Call displays general characteristics of a Myotis species.
High Frequency Bat	› All high frequency species	≥30	Not specified	Not specified	Fragmented high frequency pulses; calls are poor quality or sequence is short and/or ambiguous and cannot be attributed with certainty to Myotis.

At the highest level, Ontario bat species can be assigned to one of two main groupings based on the frequency characteristics of their echolocation pulses (calls). In the context of the study area, low frequency species include Big Brown Bat, Silver-haired Bat, and Hoary Bat. High frequency species include Little Brown Myotis, Northern Myotis, and Eastern Red Bat. Recordings of Myotis bats can be particularly difficult to differentiate from one another. Little Brown Myotis and Northern Myotis can display similar and overlapping echolocation characteristics within the 40-50 kHz range. Other parameters of echolocation pulses, such as characteristic pulse frequency and minimum change in slope, can help to further differentiate between these species. However, characteristics of these parameters can vary according to the amount of environmental "clutter" in the surrounding landscape. Such clutter is greater in forested landscapes, compared to open water, wetland, meadows and other open landscapes.

A total of four (4) bat species were recorded during the 2019 acoustic survey:

- Hoary Bat
- Big-brown Bat
- Silver-haired Bat
- Little Brown Bat

2.6.4.2. 2019 Results Summary

A total of 693 passes were recorded at the four acoustic detection stations within the preliminary preferred corridor. Bat recordings were made at each detection stations. Of the 693 total recordings made using passive monitoring equipment, 507 were identified as bat recordings by Kaleidoscope software. Manual vetting identified 76 additional non-bat recordings. As such, a total of 431 bat passes were recorded. Auto-identification and manual vetting concluded that a total of four bat species were recorded during the 2019 acoustic survey. A summary of the total number of passes for each recorded species at each of the survey stations is presented in **Table 4**.

Table 4: Total Number of Recorded Passes for each Species during Bat Acoustic Surveys

Species/Group	BAT1	BAT2	BAT3	BAT4	Total
Hoary Bat	4	0	26	7	37
Big-brown Bat	5	80	4	1	90
Silver-haired Bat	1	56	30	3	90
Big Brown/Silver-haired Bat	14	92	14	0	120
Low Frequency	**1**	**0**	**0**	**0**	**1**
Little Brown Bat	**84**	**1**	**0**	**0**	**85**
Myotis Sp.	**4**	**0**	**0**	**0**	**4**
High Frequency	2	2	0	0	4
Not Bat	**26**	**0**	**50**	**0**	**76**
Noise	63	4	72	63	186
Total	**188**	**235**	**196**	**74**	**693**

Overall, bat activity at all four detection stations was relatively low. The 2019 study averaged 5.1 bat passes per night, which is well below averages of 44.4 and 37.9 bat passes per night for stationary recorders deployed by MECP along Pickle Lake and Ear Falls routes in 2016 and 2017. Low-frequency bat species accounted for 76.6% of bat recordings identified to species during the survey period.

2.6.4.3. 2020 Bat Acoustic Surveys

Acoustic surveys for bats will continue in 2020 to augment data collection and account for annual and seasonal variation in bat activity, sample a wider breath of locations, further define potential travel corridors, and provide data to assess dispersion and migration patterns. Survey methodology followed in 2019 will be utilised during 2020 surveys. Habitats surveyed in 2019 will be resampled in 2020 for at least ten (10) suitable nights and an additional four (4) survey locations will be added in 2020 to augment existing information on local bat occurrence and sample possible movement corridors (i.e., watercourses) that link areas of highest maternity roosting potential.

2.6.5. Acoustic Surveys

2.6.5.1. 2020 Acoustic Surveys

A background information review of reptiles and amphibians identified the potential for one (1) reptile species and 5 amphibian (all anuran) species to be present within the study areas. All six (6) species have a provincial S-rank status of S5 (Secure) and none are listed as SAR, either federally or provincially. A total of four amphibian species were identified incidentally during the 2019 field survey programs in June, July and August 2019, including American Toad (*Anaxyrus americanus*), Boreal Chorus Frog (*Pseudacris, maculata*), Spring Peeper (*Pseudacris crucifer*) and Wood Frog (*Lithobates sulvaticus*). Evidence of one reptile species, a snake skin shed, was found in 2019, likely belonging to a local subspecies of the Common Gartersnake (*Thamnophis sirtalis*), which is the most northerly ranging snake in North America.

Acoustic recording units (ARUs) were deployed in 2020 to survey bird and frog presence, as well as other wildlife that vocalizes above 20 kHz in frequency. Deployment of ARUs will be used to inform estimates of site use by frogs across a broad range of dates (including seasons) and times of day. ARUs may also capture vocalizations of other wildlife, including Moose, Caribou, Wolves, Black Bears, and other furbearers. ARUs were placed at least 500 m apart and proportionately sampled all habitat types present, as done with the point count surveys.

A total of 55 Song Meter SM4 Mini (Wildlife Acoustics Inc.) were deployed for the purpose of data collection. ARUs were deployed at 55 locations across representative habitats in April 2020. Batteries and sound cards of all 50 detectors were replaced in mid-late June of 2020. In mid-June, batteries and sound cards were replaced at each detector and a maximum of 50% of the detectors were moved to secondary supplemental locations and actively recorded for the rest of the avian/anuran breeding season, until the batteries or sound card capacity was exhausted. In total, approximately 75 survey locations were sampled through the core avian breeding season through remote ARU use. ARU locations are provided in **Figure 11**.

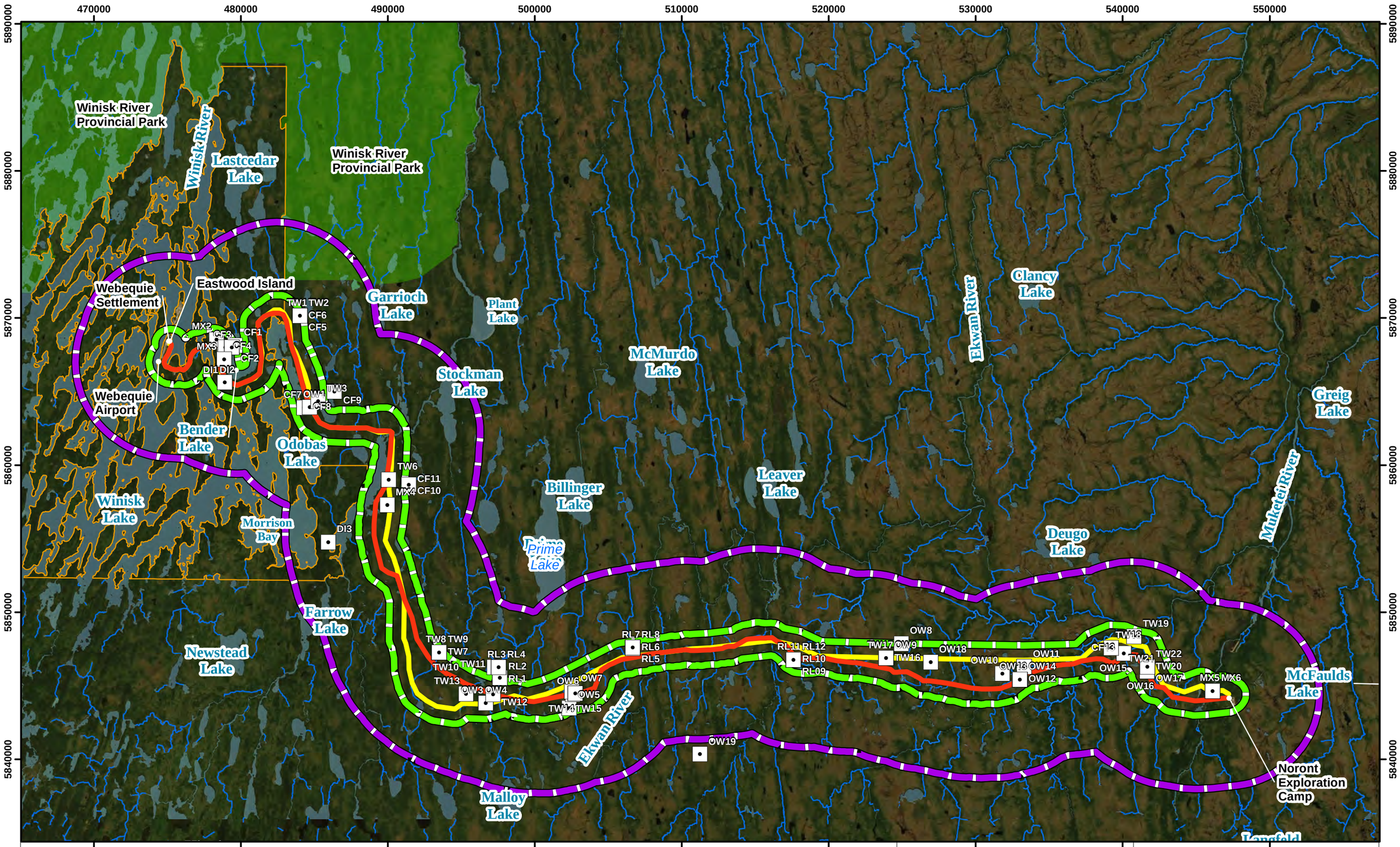
All ARUs were returned to their original position in late July and left at this location to record during the fall (August 1 through September 30, 2020) and during the winter (December 1, 2020 through March 31, 2021) (i.e., collectively, Fall/Winter Recordings). Batteries will be replaced in late fall, in preparation for the winter recording period.

Recording schedule will adhere to protocols prescribed by the TISG. ARU deployments for breeding recordings will be programmed to record daily or every 2nd day, with a morning and an evening schedule. Recording will occur in two phases to avoid single recordings spanning two dates. Phase 1 will start at 00:00 (HH:MM), with a schedule of 3-minutes On and 12-minutes Off until 5 hours beyond local sunrise (i.e., SR+5hr). Phase 2 will start 30 minutes before local sunset, with a schedule of 3-minutes On and 12-minutes Off until 23:56 (HH:MM). ARUs will be set to record using a sampling rate of 44.1kHz.

2.6.5.2. Acoustic File and Data Analysis

Acoustic files will be analysed according to methodologies described in the TISG. Biologists skilled in identifying birds and frogs by sound will conduct interpretation of acoustic files using the Wildtrax interface (https://www.wildtrax.ca/home). Each individual detected will be recorded as a data point and referenced to the first 1-minute interval it was detected. Prior to interpretation, acoustic files suitable for analysis will be identified by examining spectrograms and listening to a short segment of the file. Files with substantial wind, rain or other noise will be excluded.

Data analysis methods will be clearly described and transparent (e.g., annotated scripts), extract the maximum information from the data, and be appropriate for the data and protocols.



Legend

- Preliminary Bird/Frog ARU Locations
- Optimal Geotechnical Route
- Community Preferred Route
- Local Study Area (LSA 1km From Alternative Footprints)
- Regional Study Area (RSA 5km From Alternative LSA's)
- 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 Bird/Frog ARU locations

Date: 2020/08/21	File Number: 649920	Sub Code: 0000
Figure Number: 11		Rev. 0

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2.7. 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;
- Federal or Provincial Species at Risk;
- **Terrestrial Wildlife** (subject of this work plan), including migratory birds;
- Archaeological Resources;
- 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 the engagement and consultation process, including those to 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 are 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.

Wildlife and other biodiversity elements are also captured by the assessment of upland, wetland, and riparian ecosystems (refer to the Vegetation Work Plan). To complement the assessment of vegetation and wetland ecosystems, a filter approach is proposed to be applied by assessing effects to select several wildlife species. This filter level of assessment is important to understand effects on biodiversity that sometimes are distinct from effects on ecosystems and for which targeted mitigation actions at the species level may be required (e.g., listed SAR). The vegetation and wildlife and wildlife habitat assessments complement and interact with one another, with each assessment providing context for the other. Combined, the filter assessment will provide a holistic assessment of the potential effects of the Project on wildlife.

It is not feasible to assess all potentially affected wildlife species in the EA; consequently, an effort will be made to minimize ecological and assessment redundancy. Where a species is well represented by an ecosystem evaluated in the vegetation and wetlands assessment (e.g., wetlands are representative of beaver habitat), that species will not be selected as a wildlife criterion for the Project. Also, species that are sensitive to disturbance will be selected over those that are resilient to disturbance to allow for a precautionary assessment of Project effects, wherein the effects on the resilient species will necessarily be less than the effects on the sensitive species.

Based on the TISG, input from MECP and ECCC, and the results of field and desktop studies to date, the following species have been identified as criteria for assessing the effects of the Project on terrestrial wildlife:

- Moose;
- American Marten; and
- Non-SAR Bats.

In order to evaluate the effects of the WSR, each criterion will have one or more indicators that will identify how the potential environmental effects will be measured. The indicators for each criterion that will be used to aid in the effects assessment include, but are not limited to, those in **Table 5**.

Table 5: Selection of Criteria and Indicators and Data Sources to be Used for Assessment

Criterion	Indicators	Rationale for Selection of Indicators	Data Source
• **Moose** • **American Marten** • **Bats**	**Changes to:** › Habitat availability (i.e., quantity (ha) and quality) › Habitat distribution (i.e., configuration and connectivity) › Survival and reproduction (direct/indirect effects; disturbance; predation) › Abundance and Distribution › Species Habitat Specificity › Predation/Habitat usage (other wildlife) › Cultural Significance or Importance	› Important for continued ecological function and diversity of boreal ecosystems › Potential for short- and long-term effects on these species or their habitat › Changes to abundance based on: direct changes to the population › Changes to diversity based on: direct changes to the species presence within project footprint and LSA › Presence of species in multiple habitats › Habitat specificity and changes to populations based on: direct changes to availability of specific habitat types › Increased predator access and habitat utilization by new species to specific areas resulting in potential changes to populations due to increased hunting access, increased raptor and mammal predation, introduction of new species competition for available resources › Potential changes to cultural interaction with and usage of country food resources within the project area	• Indigenous consultation and Indigenous Knowledge, particularly trappers • MNRF (including harvest records within the last 10 years) • Desktop studies • Field studies

Chosen indicators are based those outlined in the TISG. In general, indicators will reflect potential changes to species (survival and reproduction), habitat availability (i.e., quantity and quality) and habitat distribution (i.e., configuration and connectivity).

2.8. 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).

2.8.1. 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.

2.8.2. 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).

2.8.2.1. 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 valued component affecting another valued 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 wildlife and wildlife 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 wildlife and wildlife habitat within the defined study areas, we will also assess specific potential effects that could have lingering detrimental effects to wildlife, such as increased human access, injury or mortality, physical alteration of waterbodies or channel morphology and spills.

Effects to terrestrial wildlife as a result of the Project will consider the specific items contained in Section 15.4 of the TISG.

2.8.2.2. 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 wildlife will be identified to offset or eliminate potential adverse effects (e.g., 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 2.8.2.6**).

2.8.2.3. 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.

2.8.2.4. 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 terrestrial environment as an example, the magnitude of the potential effect on wildlife and wildlife habitat 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 terrestrial wildlife will be quantitatively evaluated based on the proportion of identified habitat 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 terrestrial wildlife 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 Caribou 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 2.8.3**) 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.

2.8.2.5. 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.

2.8.2.6. 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.

2.8.3. 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 terrestrial wildlife, the baseline information will focus on species hunted/trapped/angled and consumed and will be obtained through such methods as socio-economic and health surveys (using Survey Monkey), key informant interviews with community members who hunt/trap/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 cultural significance of terrestrial wildlife 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 the terrestrial wildlife component will include the 22 identified Indigenous communities that are to be consulted as part of the EA process, as shown in **Table 6** 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 6: 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 terrestrial wildlife 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 criteria terrestrial wildlife and metrics to measure changes to baseline terrestrial wildlife 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 terrestrial wildlife and their 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 terrestrial wildlife 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 terrestrial wildlife 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. Schedule

The following field studies are currently planned for 2020:

- Acoustic Sampling (Spring, Summer, Fall, and Winter 2020; May-December 2020 and January – March 2020)

6. Reporting

The baseline wildlife and wildlife habitat data will be collected in the spring, summer and fall of 2020 and will be compiled into 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 by December 2020.

Complete data sets from all survey sites will be submitted. These will be in the form of complete and quality assured relational databases, with precisely georeferenced site information, precise observation/visit information, and with observations and measurements in un-summarized form. Databases and GIS files will be accompanied by detailed metadata that meets ISO 19115 standards.

Documentation and digital files for all results of analyses that allow for a clear understanding of the methods and a replication of the results (raw scripts or workflows) will be provided.

7. Closure

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