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SECTION 12

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12.0 FOLLOW-UP AND MONITORING

12.1 Overview

12.1.1 Introduction and Scope

The federal Environmental Impact Statement (EIS) Guidelines (Appendix B-1) and the provincial Terms of Reference (ToR; Appendix B-3) require that the Environmental Impact Statement / Environmental Assessment (EIS/EA) provide a preliminary framework for a monitoring and follow-up program (Follow-up Monitoring Program – FUP) designed to verify the conclusions in the final EIS/EA and to determine the effectiveness of the measures implemented to mitigate potential adverse effects of the Springpole Gold Project (Project).

In accordance with the EIS Guidelines, the detailed monitoring program may be finalized after the EA process in consideration of comments provided by government, Indigenous communities and other interested parties. The Impact Assessment Agency of Canada will consider appropriate monitoring and follow-up program measures in the development of enforceable conditions for the EA Decision Statement. Similarly, the province requires monitoring to verify the predicted environmental effects, and to determine if additional mitigation measures are needed. The FUP, which includes environmental monitoring plans, are to be implemented throughout the life of the Project and will be used to evaluate the effectiveness of mitigation measures identified in the final EIS/EA and to guide subsequent adaptive management actions, if required. FMG is committed to the development of environmental policies and procedures so the Project is carried out in a manner that is protective of the environment, as described in this final EIS/EA.

12.1.2 Follow-up and Monitoring Framework

The follow-up and monitoring framework supports the overall environmental management for the Project. The FUP is implemented as part of the framework to verify predicted effects, evaluate the effectiveness of mitigation, and to measure compliance with permit conditions and statutory requirements. Monitoring is used to address uncertainties associated with effects predictions, identify any unanticipated effects, and provide input into corrective actions or adaptive management to limit those effects. Collectively, these actions improve the overall environmental performance of the Project.

The objectives of the follow-up and monitoring framework are to:

- Verify the accuracy of the effects assessment;
- Confirm the effectiveness of the measures implemented to mitigate adverse effects of the Project;
- Confirm compliance with commitments made during the EA process; and
- Confirm compliance with regulatory conditions of approval.

The follow-up and monitoring framework applies to the construction, operations, decommissioning and closure, and post-closure phases of the Project. In the event that monitoring results indicate that realized effects are appreciably different than predicted, further investigation will be undertaken and mitigation strategies may be modified as needed to reduce or eliminate unforeseen adverse effects (see Section 12.1.3)

Further monitoring details will be developed based on conditions of regulatory approvals issued by the federal and provincial regulatory agencies during permitting. The details of these programs will be developed in consultation with federal and provincial governments, and with Indigenous communities (Section 12.1.4).

The key components of follow-up and monitoring include:

- Environmental monitoring plans (Section 12.1.5); and
- Environmental management plans (Section 12.1.6).

These documents will include specific monitoring or management components, as well as details on adaptive management measures.

12.1.3 Adaptive Management

Adaptive management is a planned and systematic process for continuously improving environmental knowledge over time and adjusting management practices and approaches by learning from the outcomes. Adaptive management provides a structured approach to decision making and allow for flexibility to accommodate new circumstances, adjust monitoring, implement new mitigation or modify existing mitigation measures during the life span of the Project.

As new information becomes available that allows verification of environmental effects and determination of the efficacy of the implemented mitigation measures, there will be a process to improve monitoring and management programs in response. Monitoring results will be compared to the anticipated effects of the Project on the environment or permit and approval requirements. Should monitoring results not meet or exceed those anticipated effects and requirements; adaptive management will be used to further mitigate those effects and meet the requirements for the Project. For example, if environmental monitoring detects environmental changes that are different from predicted changes, adaptive management would be implemented to determine if and what actions are needed to meet the underlying objectives of minimizing adverse effects and reducing uncertainty. Actions stemming from adaptive management may include more intensive or focused monitoring, specific studies to better understand a particular change in measurement indicators and associated environmental effects, improved or modified Project design, experimental treatments at small scales prior to full-scale implementation, or additional mitigation measures.

Adaptive management is context specific and would differ for each risk that needs to be managed. However, the adaptive management process would generally consist of the following sequential steps, which are the framework for FMG's adaptive management process (Figure 12.1-1).

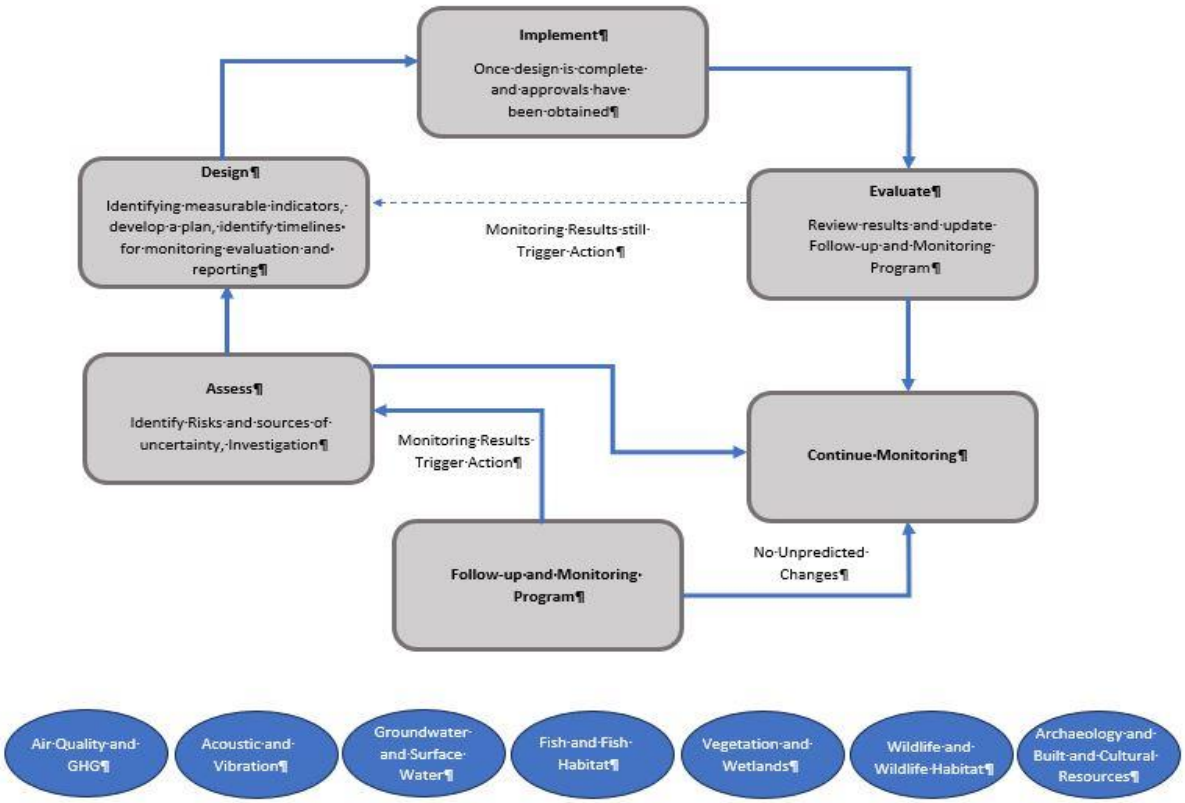


Figure 12.1-1: Adaptive Management Framework

12.1.4 Environment Committee(s)

FMG will work with Environment Committee(s) made up of members of local Indigenous communities. The Environment Committee(s) provides a non-exclusive pathway for continued and constructive, transparent dialogue, interaction and information-sharing between FMG and the leadership and members of local Indigenous communities. The mandate of the Environment Committee(s) is to provide a forum for:

- Timely review and consultation/comment on applicable Project Approvals and environmental monitoring plans;
- Sharing and evaluating environmental information;
- Identifying mitigation measures, if required through adaptive management; and
- Assisting in the development and implementation of environmental monitoring plans.

In addition, community environmental monitors will be invited to participate in data collection, and Indigenous community input will be considered in the development and implementation of environmental monitoring plans (Section 12.1.4).

12.1.5 Environmental Management Plans

Environmental management plans are required to effectively implement the mitigation measures identified for Project. These plans also need to be compliant with provincial and federal requirements. As applicable, environmental management plans will be developed to support the construction, operation and decommissioning and closure phases of the Project.

The Construction Environmental Management Plan (CEMP) expected to be included are:

- Water Management Plan;
- Domestic Waste Management Plan;
- Emergency Response Plan;
- Erosion and Sediment Control Plan;
- Explosives and Blasting Management Plan;
- GHG Management Plan;
- Mine Rock Management Plan;
- Soil Management Plan; and
- Spill Prevention and Response Plan.

Each plan generally includes the following as applicable:

- General requirements;
- Environmental policy, aspects and other legal requirements;
- Objectives;
- Management approach;
- Key design and operational features;
- Organizational structure and responsibilities;
- Training and awareness;
- Non-compliance, incident reporting, corrective and preventative action; and
- Ongoing reviews leading to continual improvement.

The CEMP will be updated prior to operations to reflect environmental management for operational activities.

12.1.6 Complaint Procedure and Corrective Action

The objectives of the complaint procedure are to:

- Provide transparency and accountability in relation to environmental and social performance; and

- Work in partnership with local and Indigenous communities and other interested parties towards continual improvement.

A formal procedure will be developed to document and respond to inquiries and complaints received during all phases of the Project. An established telephone number and e-mail address will continue to be used to allow local and Indigenous community members and other interested parties to readily provide feedback on the Project. Feedback will be directed accordingly within FMG for complete and timely response. The feedback and actions will be recorded and maintained in a database.

The communication and follow-up will be documented, and records maintained to include:

- Date and time the feedback was received;
- Source of the feedback and author of the documentation;
- Type of feedback (complaint, complement, request for information or other);
- Date and time of response;
- Department and person(s) assigned to lead corrective action plan;
- Follow-up action plan and timing;
- Completion of action plan; and
- Any additional information regarding the response/resolution where appropriate.

A review will be completed of feedback received, and patterns and trends in the feedback, as part of the internal adaptive management process and to support the continuous improvement of management plans and procedures, where necessary.

12.2 Air Quality

12.2.1 Environmental Monitoring Plans

Sections 6 through 9 of the final EIS/EA identify potential effects, mitigation measures and commitments associated with the Project. Monitoring programs provide qualitative and quantitative information to determine the accuracy of the predicted effects, assess the effectiveness of mitigation measures and confirm compliance with regulatory approvals. This requires the continued collection of data to assess environmental conditions throughout the construction, operations, decommissioning and closure, and post-closure phases of the Project. Monitoring programs can include daily inspections, visual observations and collection of samples and other methods as required by federal or provincial approvals for the Project.

FMG will be responsible for development, implementation, reporting, review and updating of the FUP to include applicable environmental approval and permit conditions, as well as federal and provincial requirements and guidelines.

The proposed annual review of the environmental monitoring plans will confirm that the Project continues to be in compliance with approvals and permits, identify opportunities for improvement, and continuously incorporate consultation considerations during all phases of the Project.

12.2.2 Context and Objectives

Air quality monitoring requirements are expected to be stipulated in the provincial Environmental Compliance Approval (ECA) - Air for the Project construction and operations phases. Typically, the ECA will refer to the Best Management Practices Plan for Fugitive Dust (Dust Management Plan) and the Air Quality

Monitoring Plan for air quality and dust monitoring details, which are both reviewed and approved by the MECP. The Dust Management Plan will be submitted as part of the approval application and will identify fugitive dust sources, stipulate mitigation measures, inspection procedures, staff training requirements, and recordkeeping practices. The Air Quality Monitoring Plan will define monitoring locations, monitoring methods, parameters measured, and assessment criteria. Reporting and auditing requirements are specified in MECP's Operations Manual for Air Quality Monitoring in Ontario (Ontario 2023).

Except where defined differently in the future ECA, and amendments thereto issued by the MECP, the air quality monitoring program objectives for the Project are expected to include the following:

- Verify the predictions through monitoring of air quality during construction, operations, and decommissioning and closure;
- Evaluate the effectiveness of mitigation actions and modify or enhance as necessary through monitoring and developing updated mitigation measures, if needed; and
- Contribute to the overall continual improvement of the Project.

12.2.3 Methods for Monitoring

A comprehensive baseline dataset was developed to support air quality monitoring for the Project, based on information obtained from:

- ECCC National Air Pollution Surveillance Program (NAPS) long-term air monitoring stations; and
- Onsite field investigations.

The onsite baseline air monitoring program was initiated in 2020 to measure suspended particulate matter, PM_{10}, $PM_{2.5}$, metals, nitrogen dioxide and sulphur dioxide, and was expanded in mid-2021 to collect additional data. The onsite measurements were used to refine background concentration estimates and compared to the regional concentrations used in the air quality assessment.

During construction, operations and active closure, a dust management plan will be implemented to identify potential sources of fugitive dusts, outline mitigation measures that will be employed to control dust generation and detail the inspection and record keeping required to demonstrate that fugitive dusts are being effectively managed. FMG will assess the effectiveness of planned dust control measures both visually and using dustfall jars and/or other MECP approved instruments for SPM, PM_{10}, and $PM_{2.5}$.

Dustfall samples will be collected monthly for the construction and operation Project phases. Select samples will be assessed for metals (full metal scan, including mercury, arsenic, cadmium and lead). Monitoring results will be compared with predictions in the final EIS/EA and with applicable O. Reg. 419/05 standards and guidelines.

The number of air quality monitoring stations, locations, and equipment will be described in the Air Quality Monitoring Plan. Equipment siting, operations, auditing and reporting will follow appropriate MECP requirements as provided in the Operations Manual for Air Quality Monitoring in Ontario PIBS 6687e, dated March 2018, as amended. SO_2 and NO_2 monitoring will also be undertaken at the same locations.

A fully instrumented weather station was installed at site in 2020. This station provides data on temperature, rain, relative humidity, wind speed and direction, barometric pressure and evaporation. The station was located in accordance with appropriate siting criteria. The equipment will continue to operate at the site during the construction and operation Project phases.

12.2.4 Reporting

Subject to acceptance in writing of the FUP by the federal and provincial governments, monitoring results will be provided to the parties involved in the FUP annually during the construction, operations and active reclamation phases of the Project. Additional reporting mechanisms are expected to be prescribed in the provincial ECA.

X:\CA\CAOAK300-OAK\MIS-FS1-Project\F2021\Projects\ONS2104_FMG_Springpole_EIS\11_GIS\EIS\MXD\Air_Quality_Monitoring_Stations_2.mxd

LEGEND

- Project Location
- Air Quality Monitoring Stations
- Watercourse

NOTES:
- Topographic information extracted from LIO, MNRF.
- Aerial imagery provided by First Mining Gold, 2020.

Datum: NAD83
Projection: UTM Zone 15N

0 100 200 400 600 800 1,000 Metres

First Mining Gold

WSP

SPRINGPOLE GOLD PROJECT

Air Quality Monitoring Locations

PROJECT N°: ONS2104

FIGURE: 12.2-1

SCALE: 1:10,000

DATE: December 2023

12.3 Noise and Vibration

12.3.1 Context and Objectives

Noise and vibration emissions will occur throughout the life-of-mine. To limit the potential for adverse effects to off-property residential receptors (i.e., permanent, seasonal, or rental residences and campgrounds), sound levels at those receptors should not exceed $LA_{eq\text{-}1hr}$ 45 dBA during the daytime (7:00 – 19:00) and 40 dBA during the evening and nighttime (19:00 – 7:00), as per NPC-300 criteria. In addition, sound levels at residential receptors as well as recreational areas and areas of importance to Indigenous communities (i.e., hunting, fishing, camping, and areas of spiritual importance) should meet Health Canada's criteria for speech comprehension ($LA_{eq\text{-}1hr}$ 55 dBA during the daytime), sleep disturbance (L_n 40 dBA during the nighttime), and annoyance (the change in the percentage of highly annoyed people [%HA] less than 6.5%).

Points of reception (POR) occur north and south of the mine site and along the mine access road and transmission line, as described in Section 6.3. The closest POR to the mine site is POR02, located approximately 500 m south of the proposed Project Development Area (PDA), while the closest POR to the transmission line is POR20, located 40 m from the transmission line corridor.

To limit the potential for interference with sensitive avian wildlife species LAeq-1hr Project-induced sound levels outside of wildlife buffer zones should generally not exceed 50 to 60 dBA, and to limit potential disturbance to Boreal Caribou LAeq-1hr Project-induced sound levels outside of wildlife buffer zones should generally not exceed approximately 40 dBA.

The objectives of the FMP with respect to noise emissions are to:

- Verify predictions in the assessment;
- Verify that Project-induced sound levels at the off-property receptors to the mine site do not exceed NPC-300 and/or Health Canada noise criteria, as applicable;
- Verify Project-induced sound levels outside of wildlife protection buffer zones do not exceed LAeq-1hr sound levels of 50 to 60 dBA for the protection of sensitive avian species, and 40 dBA for the protection of Boreal Caribou and other wildlife species; and
- Contribute to the overall continual improvement of the Project.

To limit adverse effects from vibration, air-borne overpressure and ground-borne vibration values at the nearest off-property receptors should not exceed NPC-119 guideline values. The blasting air-borne overpressure (air overpressure peak pressure level [Lpeak]) and ground-borne vibration (PPV) were assessed against the MECP limits at the two nearest PORs.

The objectives of the FUP with respect to Project-induced vibration effects are to confirm:

- Verify predictions in the assessment;
- Project-induced air-borne overpressure and ground-borne vibration values at the nearest off-property receptors do not exceed NPC-119 criteria;
- Project-induced blasting noise and vibration levels are consistent with DFO Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters; and
- Contribute to the overall continual improvement of the Project.

12.3.2 Methods for Monitoring

The existing sound and vibration monitoring data is based on field studies conducted over two periods in 2021, including the leaves off and leaves on periods. The sound and vibration studies were conducted in accordance with NPC-300 guidelines (MOECC 2013) and NPC-119 guideline (MOE 1977b), respectively. Two locations (SP1 and SP2) were selected to be representative of potential receptors based on proximity and directionality in relation to the Project location.

Subject to consultation and support from the regulatory agencies, FMG plans to measure sound levels at the two representative locations positioned north and south of the Project mine site. Exact locations will be determined prior to carrying out the monitoring, based on representative POR locations, accessibility, and Project activities that are ongoing at that time.

Sound monitors will conform to MECP NPC-300 measurement protocols. As per these protocols, hourly Leq, L10, L90 and Lmax will be recorded. Audio samples based on trigger levels will also be recorded. Trigger levels, which will depend on the applicable criteria at the selected POR that is represented by the monitoring location, with automated alerts will be developed for addressing exceedances. Monitoring results will be analyzed, processed and compared to the final EIS/EA predictions, ECA requirements and MECP sound guidelines.

As there are no applicable POR locations within 500 m of blasting locations, vibration monitoring is not a requirement for NPC-119 and is therefore not proposed at these locations. Vibration monitoring will be required to confirm compliance with DFO limits for protection of fish habitat during spawning season. A blasting management plan will be prepared prior to construction by a qualified blasting contractor, and where blasting occurs within the vicinity of a fish-bearing waterbody, a detailed blast design will be developed to comply with federal blasting guidelines.

12.3.3 Reporting

Subject to acceptance in writing of the FUP by the federal and provincial governments, monitoring results will be provided to the parties involved in the FUP annually during the construction, operation and active reclamation phases of the Project. Additional reporting mechanisms are expected to be prescribed in the provincial ECA.

X:\CA\CAOAK300-OAK\MIS-FS1-Project\F2021\Projects\ONS2104_FMG_Springpole_EIS\11_GIS\Noise\Baseline_Report\MXD\Baseline_SoundVibration_Monitoring_Locs_6.mxd

LEGEND

- Project Location
- Sound and Vibration Monitoring Locations
- Watercourse

0 250 500 1,000 1,500 2,000 Metres

NOTES:
- Topographic information extracted from LIO, MNRF.
- Aerial imagery provided by First Mining Gold, 2020.

Datum: NAD83
Projection: UTM Zone 15N

First Mining Gold

WSP

SPRINGPOLE GOLD PROJECT

Baseline Sound and Vibration Monitoring Locations

PROJECT N°: ONS2104	**FIGURE: 12.3-1**
SCALE: 1:36,000	DATE: October 2024

12.4 Greenhouse Gas Emissions

12.4.1 Context and Objectives

The effects assessment considered GHG emissions associated with onsite fuel combustion, mainly associated with mobile heavy equipment operation (Section 6.4).

The objectives of the FUP with respect to Project-induced GHG emissions are to:

- Verify estimates in the assessment are reasonable and conservative;
- Evaluate the effectiveness of mitigation;
- Contribute to the overall continual improvement of the Project; and
- Track progress toward Net-Zero emissions.

12.4.2 Methods for Monitoring

GHG emissions will be calculated and reported annually in accordance with Ontario's Regulation 390/18, the federal Greenhouse Gas Reporting Program (GHGRP), and associated guidelines as amended. Fuel consumption and relevant operational parameters will be tracked for the purpose of quantifying GHG emissions for the annual inventory.

The Net-Zero Strategy (Appendix I-2) details FMG's commitment and plan for a net-zero project and to embed a climate positive approach in all aspects of the Project. The strategy is presented in support of the target to reduce the net GHG emissions to zero over the life of the Project. It includes technologies and practices to reduce fossil fuel use and potential opportunities through carbon offsets and credits to balance residual GHG emissions from the Project.

12.4.3 Reporting

Reporting of GHGs would involve:

- Quantifying the Project GHG emissions annually; and
- Reporting the Project GHG emissions annually to applicable regulatory reporting program, which is Canada's GHG Reporting Program (ECCC 2019).

12.5 Groundwater

12.5.1 Context and Objectives

Groundwater has been included as a VC because it is directly linked to surface water hydrology, surface water quality and vegetation communities and wetlands. The Project is located in a remote area of northwestern Ontario and there are no nearby industrial / commercial developments. As there are no potential effects to groundwater users from the Project, monitoring is focused on the predicted groundwater effects on surface water features.

The key objectives of the groundwater system FUP are to:

- Monitor the groundwater inflow rates to the open pit during the construction and operations phases;
- Verify model predictions for groundwater drawdown associated with controlled dewatering of the open pit basin;

- Confirm the effectiveness of CDF and ore stockpile seepage capture on groundwater quality; and
- Contribute to the overall continual improvement of the Project.

12.5.2 Methods for Monitoring

Numerous field investigations have been conducted over the period of 2019 to 2023 and have resulted in an extensive dataset to support hydrogeological monitoring for the Project. Monitoring includes measurements of bedrock hydraulic conductivity from rising / falling head tests in monitoring wells and packer tests in boreholes. Data were collected through logging of test pits and boreholes advanced as part of geotechnical / characterization studies, packer and hydraulic testing of both overburden and bedrock (packer tests) and monitoring site groundwater levels. A long-term (30-day) pumping test was also carried out to determine bedrock hydraulic properties and assess drawdown from pumping.

Further to the existing data and information, a supplemental hydrogeological characterization program is planned for 2024 based on feedback from the MECP. This program primarily focuses on the characterization of shallow bedrock hydrogeological conditions in the vicinity of the CDF, as well as the establishment of additional long-term groundwater monitoring wells. Monitoring well installations in 2024 are focused on locations of interest for future environmental monitoring, including the proposed CDF, ore stockpiles and plant site. Spatially, groundwater monitoring locations are distributed fairly uniformly across site, but with a focus around the perimeter of the CDF.

The average annual groundwater inflow rate to the open pit will be calculated for each year, based on dry-period pit dewatering rates (minimum three estimates per year, separated by minimum 1-month periods), to confirm model predicted groundwater inflow rates. The calculation of inflow rates will need to recognize the limitations in separating runoff and groundwater inflow components even during dry periods, and varying open pit basin dewatering sump arrangements.

Confirmation of the simulated groundwater dewatering cone will be determined from annual groundwater monitoring well water level data, determined from a subset of monitoring wells positioned around the CDF / open pit. There are currently 39 existing wells and vibrating wire piezometers in the vicinity of the CDF / open pit area, excluding monitoring wells within the CDF footprint and those bordering the southeast margin of Springpole Lake, remote from the CDF / open pit area. The final selection of wells that will be carried through to the monitoring phase will be determined during the provincial permitting process.

The groundwater model will be periodically updated at approximately three-year intervals to allow for model calibration against measured and observed monitoring results.

Groundwater samples collected from selected groundwater quality monitoring wells positioned around the CDF and the ore and mine rock stockpiles will be analyzed for physical-water parameters, major and minor ions, total metals and dissolved metals. There are no criteria that apply to baseline groundwater quality. However, the potential for changes to surface water quality as a result of changes to groundwater quality are quantitatively assessed by predictive water quality modelling. This sampling is to confirm groundwater quality to detect potential releases of COPCs. Groundwater water quality samples will be collected at quarterly intervals during the open water period (i.e., three samples per year) from each monitoring well.

12.5.3 Reporting

Subject to acceptance in writing of the FMP by the federal and provincial governments, monitoring results will be provided to the parties involved in the FMP annually during the construction, operation and active closure phases of the Project.

545500 547000 548500 550000 551500 553000

5694500 5693000 5691500

Birch Lake
Dole Lake
L-1
L-19
L-2
L-20
Phase 1 Pit
Main Open Pit
East Dike
North Cell
Co-Disposal Facility
South Cell
West Dike
Springpole Lake (North Basin)
L-16
Birch Lake

0 40 20 40 40 60 60 220 200 160 140 120 100 80 60 40 0 40 0 20

X:\CA\CAO\AK300-OA\KMIS-FS1-Project\F2021\Projects\ONS2104_FMG_Springpole_EIS\11_GIS\HydroGeo\Modelling_Report_2023\MXD\Shallow_Bedrock_Drawdown_Contours_2.mxd

LEGEND

- Simulated Shallow Bedrock Drawdown Contour (m)
- Open Pit Zone of Influence 2-m Drawdown Contour
- Watercourse
- Waterbody

Proposed Mine Features

- Open Pit
- Co-Disposed Thickened Tailings and Mine Rock
- Pond
- Co-Disposal Facility
- Dike

NOTES:
- Topographic information extracted from LIO, MNRF.
- Aerial imagery provided by First Mining Gold, August 2020.
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July 2023.

0 0.5 1 2 3 4 5 Kilometres

Datum: NAD83
Projection: UTM Zone 15N

N W E S

First Mining Gold

wsp

SPRINGPOLE GOLD PROJECT

Simulated Shallow Bedrock Drawdown Contours for EoMO Model

PROJECT N°: ONS2104 | **FIGURE: 12.5-1**

SCALE: 1:22,000 | DATE: November 2023

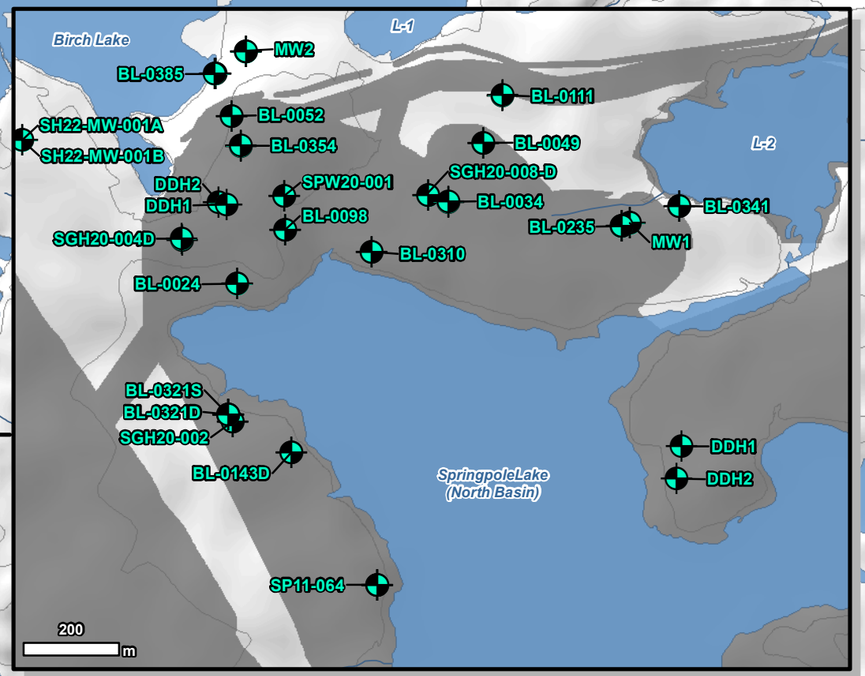
548000 550000 552000 554000 556000 558000

5694000 5692000 5690000

BH-WSF1-12S BH-WSF1-12D
BH-WSF1-01D SH22-MW-007A
SH22-MW-002A SH22-MW-002B
SH22-MW-004C SH22-MW-004D
SGH22-MW-006A SH22-MW-006B
SH22-MW-008A SH22-MW-008B BH-WSF1-11D
BH-WSF1-03D
SH22-MW-009A SH22-MW-009B
BH-WSF2-13D
SP11-102
MW3
BH-PS-09-R1D
BH-TMF-04D
SPW20-002
BH-WSF2-14S BH-WSF2-14D
SGH20-001
BH-TMF-15S BH-TMF-1SD MW5
BL-0334S BL-0334D
SH22-MW-003A SH22-MW-003B
MW4
MW-K034
MW-B000
MW-E080

Birch Lake
Dole Lake
Springpole Lake (North Basin)
SpringpoleLake (North Basin)

L-1 L-2 L-3 L-4 L-5 L-6 L-10 L-11 L-12 L-13 L-14 L-16 L-17 L-18 L-19 L-20



LEGEND

- Groundwater Sampling Locations
- Proposed Mine Features and Project Component Alternatives
- Contour (10 m intervals)
- Watercourse
- Waterbody

0 0.5 1 2 3 4 5 Kilometres

NOTES:
- Topographic information extracted from LIO, MNRF.
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July 2023.

Datum: NAD83
Projection: UTM Zone 15N

N W E S

FIRST MINING GOLD

WSP

SPRINGPOLE GOLD PROJECT

Groundwater Sampling Locations

PROJECT N°: ONS2104 | **FIGURE: 12.5-2**

SCALE: 1:30,000 | DATE: December 2023

X:\CA\CAOAK300-OAKMIS-FS1-ProjectF\2021\Projects\ONS2104_FMG_Springpole_EIS\11_GIS\EIS\MXD\GW_Monitoring_Locations_Baseline_3.mxd

12.6 Hydrology and Surface Water Quality

12.6.1 Context and Objectives

Surface water quality VCs include:

- Birch Lake;
- Springpole Lake – North Basin;
- Springpole Lake – Southeast Arm; and
- Local Inland Waterbodies.

Water quantity (hydrology) monitoring requirements are expected to be included in provincial approvals (ECAs and permits to take water [PTTWs]) issued by the MECP pursuant to the *Ontario Water Resources Act*. Details of the terms and conditions of provincial approvals, including monitoring methods, reporting and remedial actions, will be determined by the MECP with due consideration to other provincial and federal approvals and authorizations.

Surface water quality monitoring requirements are anticipated to include monitoring of effluent quality as well as quality of peripheral and receiving waters and are anticipated to be included in provincial approvals pursuant to the *Ontario Water Resources Act*, as well as federal requirements pursuant to the Metal and Diamond Mining Effluent Regulations (MDMER). Details of the terms and conditions of provincial approvals, including monitoring methods, reporting and remedial actions, will be determined by the MECP with due consideration to other provincial and federal approvals and authorizations.

Where *Fisheries Act* authorizations are issued for the Project, water quality monitoring may be included as conditions of the authorizations. It is also anticipated that FMG will be required to develop Adaptive Management Strategies for the protection of fish and fish habitat (Section 12.7). The details of these programs are being developed in consultation with federal and provincial governments, and Indigenous communities.

The key objectives of the surface water quality FUP are to:

- Confirm effects predications of changes in the flows and levels of Birch Lake, Springpole Lake – North Basin and Springpole Lake – Southeast Arm;
- Verify that effluent discharge meets provincial and federal environmental statutory requirements for the protection of aquatic life;
- Verify that the water management system infrastructure is operating as designed;
- Evaluate the effectiveness of the surface water protection controls in place; and
- Contribute to the overall continual improvement of the Project.

12.6.2 Methods for Monitoring

The current (ongoing) hydrometric monitoring program consists of four flow monitoring stations and six lake level monitoring stations. These programs are described in detail in Appendix M-1. For the active monitoring stations (Table 12–1), water levels will be measured on a continuous basis using pressure transducer data loggers, with data downloads to occur monthly or quarterly depending on data needs and permit conditions. Transducer data loggers will be fixed to a plate weight and installed on the lake bottom and surveyed. Where flow measurements are required, manual flow measurements will be generated and

carried out on an ongoing basis, as needed, sufficient to develop and maintain an accurate flow rating curve. All manual flow measurements will be completed as per Water Survey of Canada standards. As data availability permits, updated water level and flow statistics will be developed, including monthly and annual averages for lake water levels and flows along with time plot trends and return period statistics for varying return periods.

Water quality sampling rates and parameters will be specified in the ECA issued by the province, as well as by MDMER requirements. Final effluent quality sampling frequencies are expected to include weekly sampling for pH, TSS, and total cyanide (as applicable), with weekly, monthly and quarterly sampling for other parameters, as applicable. The list of parameters will vary depending on the effluent type and source, and in the case of the CWSP (via the ETP), on the Project phase (construction or operations).

The list of parameters for interim construction facility effluents is expected to vary depending on the associated materials involved. Where the involved materials are confined to overburden, sampling is expected to include pH, TSS and total phosphorus (TP) thrice weekly for pH and TSS, TP. Sampling for a broader suite of parameters, potentially including hardness, conductivity, total dissolved solids (TDS), cations, anions, nutrients and a suite of metals, or a subset of these, is expected to be required on a monthly basis.

Where mine rock materials are involved, the list of parameters is expected to potentially or likely include pH, TSS, TDS, hardness, conductivity, sulphate, TP, nitrate, nitrite, total and un-ionized ammonia, along with additional cations and anions, a suite of metals, and acute toxicity sampling for rainbow trout and *Daphnia magna*. Sampling requirements for construction phase effluents, where rock materials are involved, is expected to be carried out thrice weekly for pH and TSS, and weekly or monthly for most other parameters, and monthly for acute toxicity testing.

Final effluent sampling of treated effluent discharge via the ETP, is expected to be similar to that described above for catchments involving drainage associated with rock materials, but with the addition of cyanide species (total cyanide, weak acid dissociable cyanide, free cyanide, cyanate and thiocyanate) once seepage collection associated with ore processing begins. Final effluent from the permanent camp domestic sewage treatment facility is expected to be sampled weekly for biochemical oxygen demand, TSS, pH, TP, ammonia, and *E. coli*. Additional upstream sampling within the sewage treatment plant is also planned as a means of tracking overall system performance.

Receiving and peripheral water sampling stations will be sampled monthly, with bottom and profile samples, where applicable, to be undertaken quarterly, or as defined in ECAs. Monitored parameters included in the monthly samples are expected to include pH, TSS, TDS, hardness, conductivity, dissolved organic carbon, sulphate, TP, nitrate, nitrite, total and un-ionized ammonia, temperature, along with additional cations and anions, a suite of metals. Cyanide species will also be sampled at applicable stations, once ore processing commences.

In accordance with MDMER, data analysis will include as a minimum :

- Computation of statistical metrics: namely annual means, minimums, maximums, and in the case of receiving and peripheral water samples – 75th percentile values;
- Statistical trend analysis for key parameters;
- Comparison to effluent limits and objectives in the case of effluents; and

- Comparison to federal and provincial protection of aquatic life criteria in the case of receiving water and peripheral water samples.

12.6.3 Reporting

Subject to acceptance of the FMP by the federal and provincial governments, monitoring results will be provided to the parties of the FMP annually during the construction, operation and active reclamation phases of the Project. Additional reporting mechanisms will be prescribed in provincial and federal environmental approvals.

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5697500 5695000 5692500 5690000 5687500

Birch Lake
Keigat Creek
Keigat Lake
Keigat Creek
Dole Lake
Durkin Lake
Springpole Lake (North Basin)
Springpole Lake (Southeast Arm)
Birch River
Birch Lake
Cromarty Lake
Satterly Lake

S-23 S-22 L-18 L-1 S-18 S-19 L-17 L-2 L-19 S-21 S-16 L-3 L-20 L-5-OUT L-4 L-5 S-17 L-6-OUT L-6 L-16 S-20 S-27 L-10 S-9 S-25 L-12 L-11 L-13 S-28 S-26 S-29 L-14

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LEGEND

- Proposed Mine Features and Project Component Alternatives
- Wenasaga Forestry Road
- Contour (10 m intervals)
- Existing Watercourse
- Existing Waterbody
- Birch Lake
- Springpole Lake (North Basin)
- Springpole Lake (Southeast Arm)
- Small Inland Waterbodies

NOTES:
- Topographic information extracted from LIO, MNRF
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July.

First Mining Gold

WSP

SPRINGPOLE GOLD PROJECT

Small Unnamed Waterbodies and Watercourses

Datum: NAD83
Projection: UTM Zone 15N

N W E S

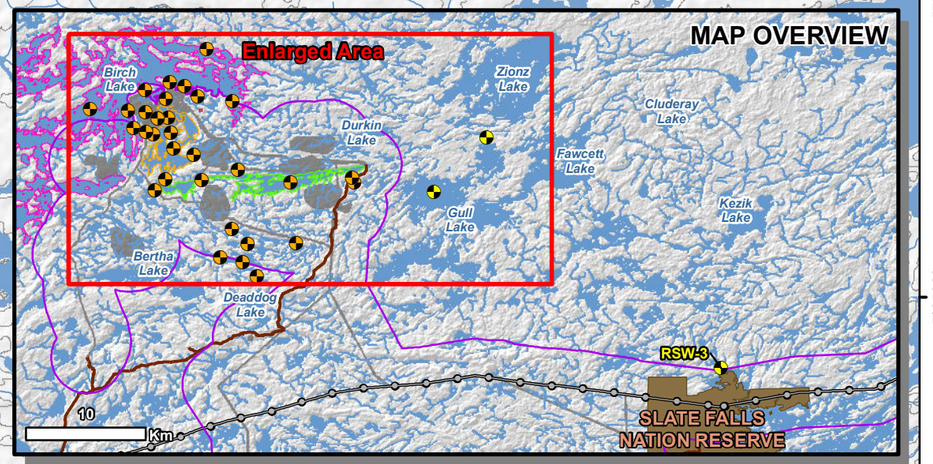
PROJECT N°: ONS2104 | **FIGURE: 12.6-1**

SCALE: 1:61,000 | DATE: August 2024

0 1 2 4 6 8 10 Kilometres

545000 550000 555000 560000 565000 570000 575000 580000

5700000 5695000 5690000 5685000 5680000



Birch Lake
Keigat Creek
Keigat Lake
Dole Lake
Springpole Lake (North Basin)
Springpole Lake (Southeast Arm)
Durkin Lake
Birch River
Fawcett Lake
Gull Lake
Satterly Lake
Cromarty Lake
Seagrave Creek
Superstition Lake
Graydarl Lake
Seagrave Lake
Skingle Lake
Bertha Lake
Kezik Lake
Wenasaga Forestry Road

SW-28 SW-23 SW-19 SW-03 SW-21 SW-20 SW-04 SW-24 SW-09 SW-01 SW-26 SW-18 SW-06 SW-25 SW-02 SW-15 SW-16 SW-07a SW-08a SW-07 SW-27 SW-22 SW-08 SW-10 SW-12 SW-13 SW-11 SW-5 SW-14

RSW-2 RSW-1

L-1 L-2 L-3 L-4 L-5 L-6 L-10 L-11 L-12 L-13 L-14 L-16 L-18 L-19 L-20

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LEGEND

- Baseline Water Quality Monitoring Stations (Labelled with ID)
- Regional Baseline Water Quality Monitoring Stations (Labelled with ID)
- Proposed Mine Features and Project Component Alternatives
- Proposed Effluent Discharge Location
- Baseline Investigation Area
- First Nation Reserve
- Existing Road
- Existing Transmission Line
- Contour (10 m intervals)
- Flow Direction
- Existing Watercourse
- Existing Waterbody
- Birch Lake
- Springpole Lake (North Basin)
- Springpole Lake (Southeast Arm)
- Small Inland Waterbodies

0 2.5 5 10 15 20 Kilometres

NOTES:
- Topographic information extracted from LIO, MNRF.
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July 2023.

Datum: NAD83
Projection: UTM Zone 15N

N W E S

First Mining Gold

WSP

SPRINGPOLE GOLD PROJECT

Surface Water Quality and Aquatic Resource Monitoring Locations

PROJECT N°: ONS2104 | **FIGURE: 12.6-2**

SCALE: 1:97,500 | DATE: August 2024

12.7 Fish and Fish Habitat

12.7.1 Context and Objectives

The fish and fish habitat VC (Section 6.10) includes fish, the habitat that supports these fish, and the health of these fish populations. The monitoring program for fish and fish habitat would be developed in accordance with the MDMER for metal and diamond mining environmental effects monitoring (EEM), the federal *Fisheries Act*, the provincial ECA. The MDMER prescribes that EEM studies be performed to evaluate the potential effects of treated effluent release in the aquatic receiving environment. Environmental effects monitoring studies are designed to detect and measure changes in aquatic ecosystems and may include biological monitoring studies to determine if mine effluent is affecting fish, fish habitat, or the use of fisheries resources (Environment Canada 2012).

Mitigating measures have been proposed to offset direct and indirect fish habitat losses, to limit changes to fish communities, and to protect fish heath. FUP implementation and effectiveness of the compensation and offset measures will be monitored to confirm that measures have been constructed as per the approved plans and are functioning as intended. Monitoring results will be documented in the "as constructed" report; and in performance monitoring reports submitted to DFO.

Potential adverse effects to fish health will be assessed through water quality monitoring programs, as discussed in Section 12.6.

The key objectives of the fish and fish habitat FUP are to:

- Monitor for changes to fish and fish habitat in the receiving environment as a result of Project activities;
- Verify the predictions of the EIS and confirm that the aquatic ecosystem in the receiving environment is protected;
- Evaluate the effectiveness of mitigation measures and modify or enhance as necessary through monitoring and developing updated mitigation, if needed;
- Monitor and evaluate the success of fish habitat offsetting measures constructed for the Project; and
- Contribute to the overall continual improvement of the Project

12.7.2 Methods for Monitoring

Field studies have been undertaken at the Project and surrounding area since 2009, and include multiple years and multiple seasons of investigation, to develop an extensive baseline aquatic resources dataset that will support the monitoring of aquatic resources including fish and fish habitat. Aquatic field investigations have been conducted for Springpole Lake, several unnamed waterbodies, and several watercourses and included aquatic habitat mapping, fisheries community surveys, water and sediment sampling, benthic invertebrate community surveys, spawning surveys, and fish tissue sampling.

Offsetting of Direct and Indirect Losses of Fish Habitat

FMG has developed a Fish Habitat Offset and Compensation Plan (Appendix F) that includes a description of the monitoring measures that would be implemented to assess the effectiveness of the selected offsetting measures. The purpose of monitoring would be to determine if the selected measures are functioning as intended and are successful in meeting their objectives.

Project environmental staff (or designates) will monitor construction and implementation of the final FHOCP to confirm that the measures and standards described are implemented as proposed. Monitoring will be reported to DFO in as-constructed reports provided within 12 months of the works being completed. The as-constructed monitoring will require multiple reports to reflect some of the measures being constructed at the beginning of the Project, with others completed during operations and closure. Documentation will be maintained to demonstrate effective implementation and function of the avoidance and mitigation measures, with summaries provided in the as-constructed report(s).

Changes to Fish Communities

Potential adverse effects could result form the detonation of explosives near waterbodies, which can produce shock waves that can cause impacts in fish, depending on conditions. A site-specific blasting assessment has been developed for the Project that meets the DFO criteria, or alternate values derived in consultation with DFO (Appendix H-4). As part of the assessment, the allowable explosive loading per delay has been calculated based on the closest distance to the nearest waterbodies. Regular tracking and recording of blasting procedures will be carried out to confirm that fish protection measures defined in the blasting assessment are carried out.

Changes to Fish Health:

As per Section 12.7.2, monitoring of surface water quality will be carried out in connection with treated effluent discharges to the receiving environment. The key components of the fish and fish habitat monitoring program are expected to include water and sediment quality, benthic invertebrates, and fish. Monitoring for water quality is addressed in detail in Section 12.6. Monitoring would be carried out in accordance with the MDMER and requirements of EEM and with conditions identified through the provincial ECA.

Monitoring stations for benthic invertebrates and fish would be strategically located within each sampled waterbody to capture any potential effects in receiving waters. These stations would be identified under guidance of MDMER, MECP, and Indigenous communities, and would be co-located with water and sediment quality sampling stations. The final study design for the environmental monitoring plan and EEM would be determined through the permitting process and detailed planning, which would include consultation and engagement with regulatory agencies and local Indigenous communities. Project specific final effluent parameter concentrations, along with acute and chronic testing requirements, will be specified in the provincial ECA.

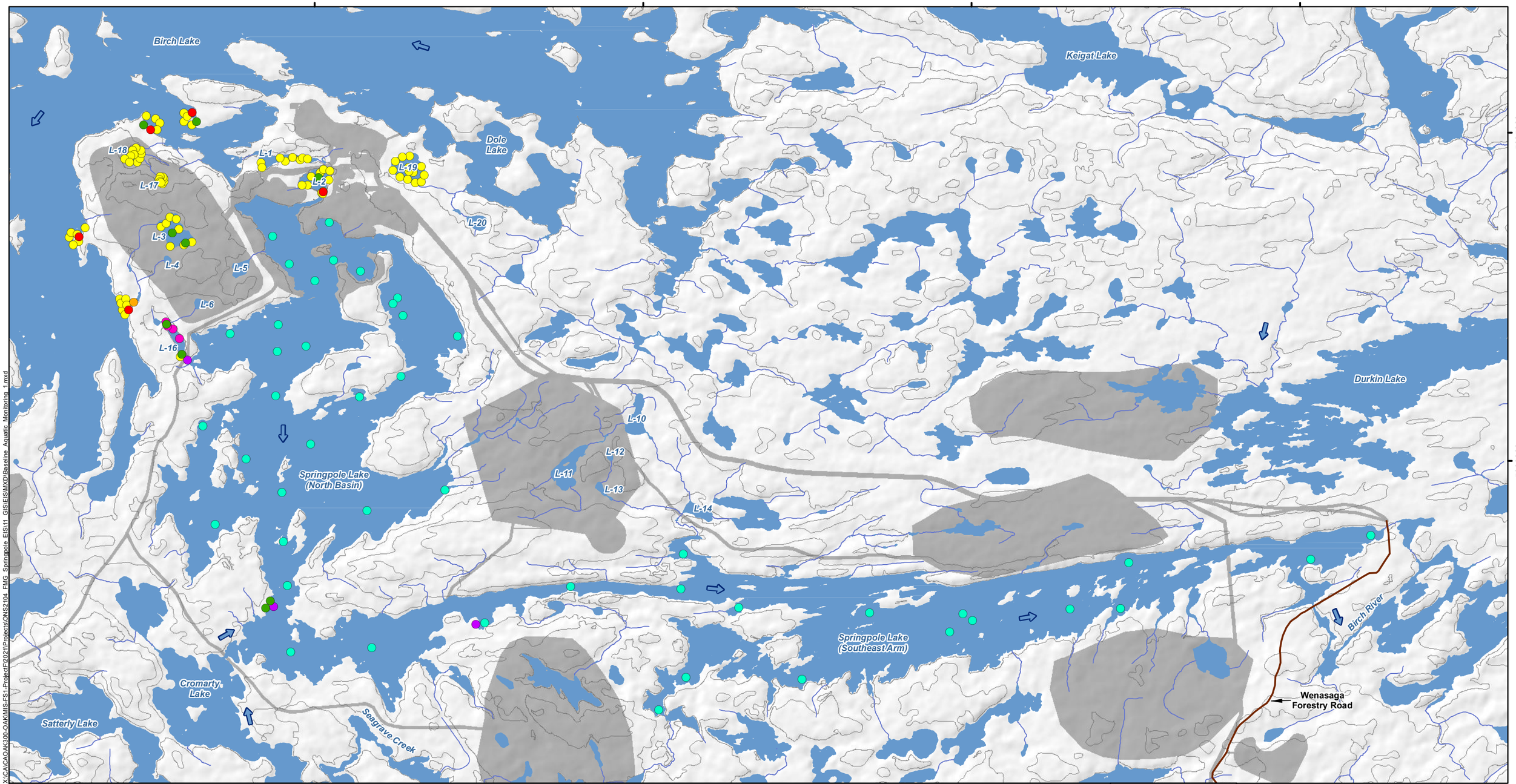
The FHOCP performance monitoring will be assessed using fish species presence, fish biomass and density, as well as fish abundance for the enhancement areas which includes a lake-wide broadscale monitoring (BsM) program. Direct sampling of fish tissues for metals concentrations will be conducted within the BsM program, one year after start of construction, and every three years (at the same time of year) thereafter (as approved by the MNR), until the start of the closure phase or cessation of mining activity and may be required during or beyond the closure phase or cessation of mining activity, in accordance with EEM technical guidance. Tissue sampling will be conducted concurrently with the BsM performance monitoring as specified in the FHOCP to minimize sampling impacts to the fish community.

Target fish species within each sampled waterbody will be sampled during each monitoring period; however, different fish species may be utilized within each waterbody in accordance with the local fish community and species abundance. All efforts will be made to sample the same species within the reference and receiving waterbodies, where possible. The fish survey measurements and expected precision will follow the EEM technical guidance document (EC 2012), as applicable.

12.7.3 Reporting

Performance monitoring reports will be due on or before December 31 of assessment years as per the approved FHOCP. A detailed record will be made of any contingency measures that were implemented to prevent impacts greater than those predicted in the final EIS/EA and the FHOCP in the event that mitigation measures did not function as described, as well as the effectiveness of the contingency measure. A summary of any contingency measures will be provided in the as-constructed report.

Subject to acceptance of the FUP by the federal and provincial governments, monitoring results will be provided to the parties of the FUP annually during the construction, operation and active reclamation phases of the Project. Additional reporting mechanisms will be prescribed in provincial and federal environmental approvals.



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LEGEND

- Proposed Mine Features and Project Component Alternatives
- First Nation Reserve
- Existing Road
- Existing Transmission Line
- Contour (10 m intervals)
- Watercourse
- Waterbody
- Flow Direction

Baseline Aquatic Monitoring Locations

- Angling
- Dip Net
- Electrofishing
- Gill Net
- Minnow Trap
- Seine Net
- Broadscale

0 1 2 4 6 8 10 Kilometres

NOTES:
- Topographic information extracted from LIO, MNRF.
- Proposed site plan provided by Ausenco, drawing number 104496-GX-03000-31344-003, Rev 1. 26 June 2023 and modified by WSP July 2023.

Datum: NAD83
Projection: UTM Zone 15N

First Mining Gold

WSP

SPRINGPOLE GOLD PROJECT

Overview of Aquatics Baseline Monitoring Locations

PROJECT N°: ONS2104 | **FIGURE: 12.7-1**

SCALE: 1:55,000 | DATE: August 2024

12.8 Vegetation Communities and Wetlands

12.8.1 Context and Objectives

The key objectives of the vegetation and wetland FUP are to:

- Evaluate the effectiveness of the environmental protection measures (e.g., preventing soil erosion, stockpiling soil for reclamation, preventing the introduction of invasive weeds) and modify or enhance as necessary through monitoring and updating mitigation measures, if needed;
- Verify the effects predictions with respect to groundwater drawdown;
- Assess the success of plant community establishment following reclamation; and
- Contribute to the overall continual improvement of the Project.

12.8.2 Methods for Monitoring

Studies have been completed for the Project since 2012 to document vegetation communities and wetlands. Baseline vegetation communities and wetlands were investigated to identify and assess the existing vegetative assemblages and habitat, including plant SAR and significant wildlife habitat. Wetland evaluations following the Ontario Wetland Evaluation System for northern Ontario (MNRF 2014e) were completed to acquire baseline wetlands data to map and describe wetlands in the baseline investigation area and identify any provincially significant wetlands. No SAR plant species have been documented in the PDA.

Anthropogenic activities have the potential to accelerate the invasion of native ecosystems by weeds through the introduction of seeds or disturbance of soils. An invasive species management plan will be implemented for the Project to prevent, detect, control (i.e., remove), prohibited, noxious, and nuisance weed species. Surveillance would be completed to identify and manage new occurrences of species designated as prohibited, noxious, and nuisance weeds within the mine site.

During the closure phase, areas within the PDA will be revegetated through active seeding of commercially available native plant species and preparation of the ground surface to promote natural revegetation. Monitoring requirements for reclamation would be outlined in the Closure Plan and would include details on reclamation treatments to be used during revegetation, schedules for the frequency of monitoring, and action levels where adaptive management may be required. Post-reclamation wetland surveys would be conducted to understand if reclaimed wetlands (if any) are achieving similar functions.

Revegetation trials will occur during the operations phase to evaluate and optimize the revegetation strategy for closure. In addition, planned revegetation trials during life of mine will improve the effectiveness of rehabilitation and revegetation efforts. The Closure Plan will assist in revising or adding mitigation measures to facilitate successful long-term reclamation and establishment of vegetation communities and provision of functional wildlife habitat.

12.8.3 Reporting

Subject to acceptance of the FUP by the federal and provincial governments, monitoring results will be provided to the parties of the FUP annually during the construction, operation and active reclamation phases of the Project.

12.9 Wildlife, Wildlife Habitat and Species at Risk (excluding caribou)

12.9.1 Context and Objectives

For the purposes of the EIS, wildlife species (excluding SAR mammals) have been grouped into the following assemblages:

- Furbearers (e.g., Fisher, Lynx, Beaver);
- Large mammals (Moose, Wolf, Black Bear);
- Herptiles (amphibians and reptiles);
- Migratory birds (waterfowl, forest birds);
- Raptors; and
- Waterbirds (shorebirds and wetland birds).

SAR VCs addressed in this section include:

- Wolverine;
- Applicable bat species (Northern Myotis and Little Brown Myotis); and
- Applicable bird species (Barn Swallow, Canada Warbler, Common Nighthawk, Olive-sided Flycatcher, Rusty Blackbird, Lesser Yellowlegs, Short-eared Owl, Eastern Wood-pewee, Evening Grosbeak and Eastern Whip-poor-will).

Boreal Caribou are addressed separately in Section 12.8.

The EIS effects analysis provides for:

- Direct over printing of wildlife habitat; and
- Indirect effects involving altered or fragmented habitat inclusive of: altered habitat suitability, sensory disturbance, avoidance / displacement behaviours, altered movement / barrier effects, and altered predation risk.

The objectives of the FUP are to determine / confirm:

- The direct loss of habitat {or change in habitat in the case of the transmission line) resulting from Project development;
- Anticipated reductions in habitat suitability resulting from disturbances caused by the Project such as from sound and artificial lighting;
- Whether or not compensatory habitats, are being effectively utilized by intended SAR;
- Whether or not rehabilitated habitats following mine closure are being effectively utilized by wildlife species, including SAR; and
- Whether or not changes are occurring [or have occurred] to consumable wildlife species (e.g., Moose, Caribou, Beaver and geese) as a result of metals accumulation.

Mitigating measures have been proposed to offset direct and indirect adverse effects to wildlife, wildlife habitat, and SAR species. The principal mitigation measure to limit adverse effects to terrestrial systems and to SAR is to develop as small an overall project footprint as practicable, and to limit indirect effects to the

extent reasonably practicable. Where adverse effects to Threatened or Endangered SAR species cannot reasonably be prevented, habitat compensation for damage or destruction of habitat may be required.

12.9.2 Methods for Monitoring

In general, methods for measuring effects to wildlife species and species groups would mirror those used to collect baseline data, with some adjustments for monitoring locations and frequencies.

Breeding Bird Surveys and ARU Surveys for Crepuscular Birds

Bird surveys, including Breeding Bird Surveys, ARUs, Marsh Bird Surveys, Crepuscular Bird Surveys, Nocturnal Owl Surveys, Stick Nest Surveys, and Migratory Bird (including migratory waterfowl). Surveys were completed during baseline studies to describe abundance, distribution, and life stages of birds and their habitat that are found or are likely to be found, in the Project area.

Breeding Bird Surveys: During baseline studies, Breeding Bird Surveys were conducted at 21 locations (areas) in 2021 and 13 locations (areas) in 2022, representing both impact and reference areas. Going forward during FUMP, breeding bird surveys will be conducted at a minimum of 40 locations (areas), consistent with a mix of areas surveyed in 2021 and 2022. This will include locations associated with the Project Area (10 areas), and the transmission line (10 areas) and road routes (10 areas) and reference areas (10 areas).

For the FUMP, two teams of two observers each (four observers total) will complete surveys at different breeding bird areas each day. At each location, between 8- and 12-point count locations will be visited. Depending on helicopter logistics, most of these locations will be surveyed twice, once on each of the two breeding bird site visits.

Surveys will generally be completed within five hours after sunrise. Surveys will be conducted for 10 minutes at each station and all birds heard or observed will be recorded at distance intervals of 0 to 50 m, 50 to 100 m, > 100 m from the observer. In addition, birds will be recorded at duration intervals of 0 to 3 minutes, 3 to 5 minutes, and 5 to 10 minutes. Each bird will be recorded once and mapped on the field data sheets to limit duplication. Point count stations will be located a minimum of 300 m apart. Breeding activity notes and classification will follow the OBBA Guide for Participants (OBBA 2001).

Bird densities will be modelled from point count survey data following methods by (Sólymos et al. 2013), taking into consideration temporal, climatic and habitat covariates, following methodologies used during the baseline studies.

The average density for each species will be modelled across target habitats, and compared with baseline values, taking into consideration the power to detect a change from the baseline condition.

ARU Crepuscular Bird Surveys: During baseline studies, crepuscular bird surveys followed protocols for Eastern Whip-poor-will (EWPW) and nightjars from the *DRAFT Survey Protocol for Eastern Whip-poor-will (Caprimulgus vociferus) in Ontario* (OMNRF 2014) and the *Canadian Nightjar Survey Protocol 2019* (Wildlife Research 2019) program. Surveys were completed in the active period for crepuscular birds (June 15 to July 15; OBBA 2021b) around full moons. ARU's were used in 2021 (June 1 to July 1, removed after July 1 due to fire risk), and deployed again in 2022 (May 7 to August 7).

The Project has limited all season road access providing little access to the broader distribution of suitable habitat for EWPW. As such and as per ECCC direction (Annex August 2021), ARUs are the recommended recording method, for assessing crepuscular bird species, as they allow for deployment and detection of species in areas and during times when point counts could be difficult, un-safe, or impractical for human observers to conduct. ARUs will therefor be used going forward for FUP crepuscular bird surveys. ARU's will

be placed in the same areas as those used for Breeding Bird Surveys, including areas where Eastern Whip-poor-will and Common Nighthawk were noted during baseline studies.

The ARU type to be used will be the same as, or equivalent to, that used during baseline studies (i.e., Wildlife Acoustics brand Song Meter Micro Wildlife Recorders). Data from ARUs will be analyzed using an automated classifier to detect avian vocalizations within the recordings and classifying them to species. The BirdNET automated classifier will be leveraged for this task, with the using the BirdNET_GLOBAL_3K_V2.2_Model_FP32.tflite. Data analysis will consist of estimating relative abundance from the level of singing activity from ARU recorders, using a stepwise model.

Bat Maternity Roost Habitat

During baseline studies, bat surveys included maternity Roost Habitat Surveys, Hibernacula Surveys, and ARU detection. Desktop analysis combined with field confirmation and ARU results informed the presence of bat species and their abundance and distribution. These same survey and analysis methods will be used to inform the FUP for bats.

During baseline studies, Maternity Roost Habitat Surveys focused on mature mixed and deciduous forested areas, as well as specific ecosites identified by MECP (2021) as likely providing suitable maternity roosting habitat, based on FRI data. Fifty-three survey locations (22 in 2021, 12 in 2022, and 19 in 2023), with a total of 167 survey plots were completed in the RSA. Going forward, the FMP will focus on the 19 sites that were surveyed in 2023.

Methods for evaluating the continued use of suitable bat maternity habitat during the FMP, will be the same as those employed during baseline studies. These methods are based on the Guidelines for Wind Power Projects (OMNR 2011) and the more recent guidelines for Southern Ontario (OMNRF 2017), wherein several circular plots (radius of 12.6 m, or 0.05 ha) are surveyed, noting all trees with a (DBH) greater than 10 cm with evidence of cavities, loose bark, or cracks. Typically, five plots will be completed at each site.

Maturity roost detector surveys, using Songmeter SM4BAT FS (Wildlife Acoustics Inc.) ultrasonic recording detectors, paired with SMM-U2 ultrasonic microphones (Wildlife Acoustics Inc.), will be deployed, as during baseline studies, in the LSA and RSA to detect nocturnal bat activity during the maternity period in June and early July. During the FUMP, detectors will be deployed in the same locations as those used in 2023. Subject to field verification during the FUMP, this will include the deployment of single bat detectors at 30 survey sites. The detectors, as during baseline studies, will be set to record nocturnal bat activity from 30 minutes before sunset to 30 minutes after sunrise. Also, as per baseline study set-ups, detector microphones will normally be positioned about 2-3m from the ground, and 1 to 2 m from vegetation, and oriented toward open areas to capture clean recordings. Bat detectors will be configured to begin recording when ultrasonic signals greater than 18 decibels (dB) above the noise floor rolling average are detected. Further details on methodology are described in the baseline study report.

As per baseline study analysis, all recordings will be initially filtered using the Batch File Scrubber of the Sonobat Data Wizard (Version 4.4.1, or equivalent methods), and identified to species using Sonobat Version 4.4.1 (SonobatTM) automated processing software (or equivalent methods). A subset of the recordings will also be classified manually, as per the baseline studies, when the automated software cannot classify a recording to a specific species due to poor recording quality or call feature overlap between multiple species. An emphasis will be placed on identifying SAR bat species. Further details on methodology are described in the baseline study report.

Land features that potentially provide suitable bat hibernacula are abandoned mines, and near-vertical rock faces that might contain deep cracks or crevasses. Of the abandoned gold mines identified in the RSA study area, mines M3, M5 and M6 were noted as potentially containing bat hibernacula based on acoustic surveys, along with one cliff site (Cliff 1) bordering the north side of Springpole Arm. Continued bat hibernacula surveys during the FUMP will be restricted to the Cliff 1 site, as all potential hibernacula associated with abandoned mine sites are well removed from the mine site and its associated service corridors.

Large Mammal Aerial Surveys

The winter aerial survey program for large mammals was first set-up in 2021 and adjusted subsequently in 2022 and 2023. Going forward, FUMP aerial surveys will be carried out annually using the 2023 study area boundary and methods, with flight lines spaced at 2 km intervals oriented in an east-west direction. In 2023, the survey extent covered an area of 16,276 km^2. In accordance with baseline study protocols, FUMP surveys will be undertaken in mid-winter (targeting February), and flown during daylight, in good to fair weather conditions, at a speed of approximately 120 km/h. As needed, the pilot will be instructed to speed-up, slow down, fly lower or higher, and circle to scrutinize areas of interest. Provincially recognized and standardized ungulate aerial surveys require a 3-person crew configuration (plus pilot) with a minimum of two experienced / provincially approved biologists covering each side of the helicopter and a third biologist with navigation / data recording / observation experience so that main observers are free to focus on the primary observation tasks. All observations (and tracks) were recorded using a handheld GPS and the Avenza Maps application.

Observed Caribou and Moose encountered during the surveys will be classification with respect to sex and age categories using physical attributes and behaviour (within group association). Numbers of calves, adult females, adult males, and un-classified individuals will be recorded. Sign (e.g., number of track sets, beaver lodges) and observations of Wolf, Wolverine, and other furbearers, including Otter, Beaver, and Marten will also be opportunistically recorded.

In addition, demographic observations of Caribou, spatial observations of Caribou, Moose, and Wolves will also be used, as in the baseline studies, to construct kernel density estimators (KDE) in ArcMap or R, showing the probability of use on the landscape, including the identification of core wintering areas for Caribou, Moose, and Wolves.

Wolverine Run Pole Stations

The approach and methodology for the Wolverine run pole program, used during baseline studies, aligns with recommendations provided by Magoun et al. (2011) and Koen et al. (2008). As recommended by the MECP, and consistent with other recent environmental assessments in the region, a combined hair snag / camera run pole station design was established within the Project LSA, with stations set up at a rate of one trap per100 km^2 hexagonal unit (Koen et al. 2008). Within these hexagon units, run poles were preferentially set up within habitats most likely to be associated with Wolverine denning and movement.

Run pole stations were constructed in accordance with "Integrating Motion-Detection Cameras and Hair Snags for Wolverine Identification" (Magoun et al. 2011), with the difference that two cameras were set up at different locations for the present study, rather than two cameras on one tree as described in Magoun et al. (2011). Barbed wire was placed on the supporting tree and on the run pole to create additional opportunities for collection of hair from Wolverine. In total, 25 run pole stations were deployed within the LSA.

Stations were baited with locally available animals that Wolverine would be familiar with, including parts of Moose and Beaver that were from road-killed animals or were remnants of animals taken by hunters or trappers. Run pole stations were visited monthly to collect hair, change batteries, refresh bait, and replace memory cards. Photographs and hair samples collected at the run pole stations are used to identify individual Wolverine, with hair samples being analyzed by Wildlife Genetics International, using DNA extraction methodologies.

The same methodologies and set-up locations, as used for the baseline study, will be used to assess Project area use by Wolverine as part of the FUMP. Further details on baseline set-up methodologies are provided in the baseline report.

12.9.3 Reporting

Subject to acceptance of the FMP by the federal and provincial governments, monitoring results will be provided to the parties of the FMP annually during the construction, operation and active reclamation phases of the Project. Additional reporting mechanisms will be prescribed in provincial and federal environmental approvals.

12.10 Boreal Caribou

12.10.1 Context and Objectives

Boreal Caribou , are classified as Threatened species under the provincial ESA and the federal SARA. Boreal Caribou and their habitat are protected under the ESA and SARA. The lands around the Project provide known wintering areas, calving / nursery areas and summering areas which represent Category 1 General Habitat Description (GHD) Boreal Caribou habitat. There are also potential travel routes leading from wintering areas surrounding Springpole Lake (adjacent to the Project) to calving areas located on Birch Lake and further south.

There are three local Boreal Caribou ranges that interact with the Project:

- Berens range (ON2) with a range area in Ontario of 27,948 km2 (ECCC 2020) and a minimum Caribou count (MAC) of 237 in 2012 (MNRF 2014a);
- Churchill range area is 21,505 km2 with a MAC of 262 Caribou in 2012 (MNRF 2014b); and
- Kinloch range (a portion of ON9) area is 26,700 km2 in area with a MAC of 113 Caribou and total Caribou count of 332 in 2012 (MNRF 2014c).

Boreal Caribou were frequently detected across the study area during aerial surveys conducted during the winters of 2021 – 2024. GHD Category 1 wintering areas classified by MECP are not adjacent to the Project, and vegetation cover primarily consists of early successional conifer-dominated stands from recent disturbance by wildfire and forestry activity, which provides poor habitat suitability. South, southeast, and northwest of the existing Project area is high-quality wintering habitat comprised of mature coniferous forest. These MECP classified wintering areas had confirmed use by Boreal Caribou during surveys from 2021 to 2024. In addition, new wintering areas south and southeast of the Project were also identified during the 2021 – 2024 surveys. In general, Boreal Caribou were typically observed in areas with contiguous mature coniferous forest blocks; activity was rarely associated with disturbed areas. Boreal Caribou foraging activity was, however, observed along the edges of an existing transmission line corridor. Caribou numbers recorded during the surveys have ranged between 92 to 364 animals detailed survey results can be found in the baseline report. In addition, the satellite telemetry program initiated in February 2023 of 40 cows has revealed seasonal habitats in spring, summer, fall and winter and patterns of movement and habitat use across the landscape. It has revealed that Boreal Caribou from Berens and Kinloch ranges frequently move into the Churchill Range for calving and post-calving periods. Telemetry data has also provided data on calf recruitment, adult survivorship and landscape connectivity.

The EIS effects analysis provides for four main potential effect categories:

- **Habitat effects:** Direct habitat loss due to the removal of features supporting Caribou habitat, and/or the indirect habitat loss as a result of sensory disturbances (increased light and noise) and barrier/movement effects. This effect is assessed for a potential change in Caribou distribution in seasonal ranges used for overwintering, nursery or calving areas.
- **Population effects:** Changes in demography from altered mortality risk, changes in population state (abundance and distribution), and/or altered vital rates (lambda, adult female survival and calf recruitment).

- **Community effects:** Changes in predator-prey dynamics are assessed due to increased mobility and hunting efficiency by predators due to the creation or widening of linear corridors, and/or increases in Moose abundance due to availability of early successional habitats resulting from Project development activities.
- **Range effects:** Altered range condition considering cumulative effects of habitat disturbance at a range scale or the incremental addition of the Project footprint at local scale or altered range connectivity.

Where these effect categories may interact with each other those interactions were further assessed and described below.

The objectives of the FUMP are to determine / confirm:

- Direct and indirect habitat losses associated with site preparation activities during the Construction Phase in the mine site area, and along the access road and transmission line, including indirect alterations due to edge effects and sensory disturbance from noise, light and dust;
- Indirect habitat losses associated with the mine Operations Phase for the mine site area as well as the mine access road for the indirect alteration due to sensory disturbance from noise, light and dust;
- Whether or not there has been a likely change in Caribou population dynamics as a result of increased predation by wolves;
- Whether the change in range scale habitat condition is within EIS prediction; and
- Whether or not compensatory measures), are performing effectively.

Mitigating measures have been proposed to offset direct and indirect adverse effects to Boreal Caribou and their habitat. FMG and the provincial and federal government agencies recognize the need to verify that proposed mitigative measures are effective, and for FMG to be able to take actions based on FUMP results, to allow conclusions and commitments in the EIS to be respected throughout the life of the Project.

The principal mitigation measures to limit adverse effects to Caribou populations and Caribou habitat are to develop as small an overall project footprint as practicable, and to limit indirect effects to the extent reasonably practicable. Where adverse effects cannot reasonably be prevented, habitat compensation or offsetting for damage or destruction of habitat is proposed.

12.10.2 Methods for Monitoring

In general, methods for measuring effects to Caribou will mirror those used to collect baseline data, with some adjustments for monitoring locations and frequencies.

Confirmation of Habitat Removal and Linear Corridor Site Lines

The areal extent of habitats that are removed or altered will be compared to EIS predictions relative to Category 1, 2 and 3 GHD Caribou habitats. Site lines along linear corridors will be documented.

Boreal Caribou (Large Mammal) Aerial Surveys

The winter aerial survey program for Boreal Caribou is essentially the same as that described in Section 12.10 for other large mammal species, and as that first set-up in 2021 and adjusted subsequently in 2022 and 2023. Going forward, FMP aerial surveys will be carried out annually using the 2023 boundaries and methods. Observed Boreal Caribou and Moose encountered during the surveys will be classification with

respect to sex and age categories using physical attributes and behaviour (within group association). Numbers of calves, adult females, adult males, and un-classified individuals will be recorded. Sign (e.g., number of track sets, and observations of Wolf will also be opportunistically recorded.

In addition, demographic observations (sex, age) of groups, spatial observations of Boreal Caribou, Moose and Wolves will be used, as in the baseline studies, to construct kernel density estimators (KDE) in ArcMap or R, showing the probability of use on the landscape, including the identification of core wintering areas for Caribou (Moose), and Wolves.

12.10.3 Reporting

Subject to acceptance of the FMP by the federal and provincial governments, monitoring results will be provided to the parties of the FMP annually during the construction, operation and active reclamation phases of the Project. Additional reporting mechanisms may be prescribed in provincial and federal environmental approvals.

12.11 Built Heritage Resources and Cultural Heritage Landscapes

12.11.1 Context and Objectives

Built heritage resources contribute to our understanding of Ontario's past and include:

- Objects, sites or the locations of a traditional societal practice that are of historical, cultural or archaeological significance to the Province of Ontario, a community or Indigenous people, including: locations containing, or with the potential to contain, the physical remains of past human activity;
- Certain landscape features; and
- Sites that contain evidence that Indigenous people have historically utilized an area.

These resources include but are not limited to: burial sites / graves, camp sites, travel ways, sites of spiritual significance, and archaeological sites, along with Indigenous artifacts.

Built heritage sites or resources have not been identified within the PDA, based on archaeological assessments conducted for the Project and the TK studies provided by Indigenous communities; however, the potential to uncover culturally significant features during mine site construction activities still remains. If any such resources should be encountered, the objective would be to evaluate their condition and significance, with Indigenous community support, and to protect such resources from harm.

12.11.2 Methods for Monitoring

FMG will carry out the following monitoring program for protection of archaeological or cultural heritage resources:

- Maintain a record of all cultural heritage resources known to occur in the vicinity of planned Project developments, such that intrusion or damage to such resources can be avoided during construction, recognizing and respecting confidentiality limitations;
- Maintain an active dialogue with Indigenous community representatives, having knowledge of specific areas prior to and during major construction activities, to provide guidance to supervisory staff on the likely or possible occurrence of as yet undocumented cultural heritage sites;
- Enlist the services of a trained archaeologist during the conduct of major construction works to support FMG as needed, where there is a reasonable potential for encountering as yet undocumented archaeological or cultural heritage sites;
- Enlist the services of Elders or other cultural advisors in the event that archaeological or cultural heritage resources are encountered (in addition to meeting all Regulatory requirements); and
- Conduct a post-construction assessment of the state of known cultural heritage sites in the vicinity of Project activities / structures to confirm the integrity of such resources.

12.11.3 Reporting

Any notable archaeological or cultural heritage finds will be reported according to regulatory requirements at the time, with reporting as required when and if further information becomes available. Otherwise, and subject to acceptance in writing of the FUP by the federal and provincial governments, monitoring results pertinent to Section 12.11 will be provided to the parties of the FMP on an annual basis during the construction, operation and active reclamation phases of the Project respecting confidentiality requirements.

Table 12–1: Preliminary Follow-up and Monitoring Program

EIS/EA Section	Valued Component	Monitoring Objective	Preliminary Approach[(1)]
Section 6.2 Air Quality	• Air Quality	• Verify the predictions through monitoring of air quality during construction, operations, and decommissioning and closure. • Evaluate the effectiveness of mitigation actions and modify or enhance as necessary through monitoring and developing updated mitigation measures, if needed.	• A dust management plan will be implemented. • Dustfall samples will be collected monthly for the construction and operation Project phases. • Select dustfall samples will be assessed for metals (full metal scan, including mercury, arsenic, cadmium and lead). • The number of air quality monitoring stations, locations, and equipment will be described in the Air Quality Monitoring Plan. • SO2 and NO2 monitoring will be undertaken. • The weather station will continue to operate at the site during the construction and operation Project phases.
Section 6.3 Noise and Vibration	• Noise • Vibration	• Verify predictions in the assessment. • Verify that Project-induced sound levels at the off-property receptors to the mine site do not exceed NPC-300 and/or Health Canada noise criteria, as applicable. • Verify Project-induced sound levels outside of wildlife protection buffer zones do not exceed LAeq-1hr sound levels of 50 to 60 dBA for the protection of sensitive avian species, and 40 dBA for the protection of Boreal Caribou and other wildlife species.	• FMG will measure sound levels at two representative locations positioned north and south of the Project mine site. Exact locations will be determined prior to carrying out the monitoring, based on representative POR locations, accessibility, and Project activities that are ongoing at that time. • Sound monitoring will include hourly Leq, L10, L90 and Lmax will be recorded. • Audio samples based on trigger levels will be recorded. • Where blasting occurs within the vicinity of a fish-bearing waterbody, a detailed blast design will be developed to comply with federal blasting guidelines.
Section 6.4 Greenhouse Gas Emissions	• Greenhouse Gas Emissions	• Verify estimates in the assessment are reasonable and conservative. • Evaluate the effectiveness of mitigation. • Track progress toward Net-Zero emissions.	• GHG emissions will be calculated and reported annually in accordance with Ontario's Regulation 390/18, the federal Greenhouse Gas Reporting Program (GHGRP). • Fuel consumption and relevant operational parameters will be tracked for the purpose of quantifying GHG emissions for the annual inventory. • Confirming the Project's progress toward Net-Zero emissions according to the tasks and milestones captured in the Net-Zero Roadmap.

Table 12–1: Preliminary Follow-up and Monitoring Program

EIS/EA Section	Valued Component	Monitoring Objective	Preliminary Approach[1]
Section 6.5 Groundwater	• Groundwater	• Monitor the groundwater inflow rates to the open pit during the construction and operations phases. • Verify model predictions for groundwater drawdown associated with controlled dewatering of the open pit basin. • Confirm the effectiveness of CDF and ore stockpile seepage capture on groundwater quality.	• A hydrogeological characterization program is planned for 2024 that primarily focuses on the characterization of shallow bedrock hydrogeological conditions in the vicinity of the CDF. • The 2024 programs includes the establishment of additional long-term groundwater monitoring wells. • The average annual groundwater inflow rate to the open pit will be calculated for each year, based on dry-period pit dewatering rates (minimum three estimates per year, separated by minimum 1-month periods). • Confirmation of the simulated groundwater dewatering cone will be determined from annual groundwater monitoring well water level data. • The groundwater model will be periodically updated at approximately three-year intervals to allow for model calibration against measured and observed monitoring results. • Groundwater samples collected from selected groundwater quality monitoring wells positioned around the CDF and the ore and mine rock stockpiles will be analyzed for physical-water parameters, major and minor ions, total metals and dissolved metals.

Table 12–1: Preliminary Follow-up and Monitoring Program

EIS/EA Section	Valued Component	Monitoring Objective	Preliminary Approach[(1)]
Sections 6.6, 6.7, 6.8 and 6.9 Hydrology and Surface Water Quality	• Springpole Lake – North Basin • Springpole Lake – Southeast Arm; • Inland Local Waterbodies	• Confirm effects predications of changes in the flows and levels of Birch Lake, Springpole Lake – North Basin and Springpole Lake – Southeast Arm. • Verify that effluent discharge meets provincial and federal environmental statutory requirements for the protection of aquatic life. • Verify that the water management system infrastructure is operating as designed. • Evaluate the effectiveness of the surface water protection controls in place.	• For the active monitoring stations, water levels will be measured on a continuous basis using pressure transducer data loggers, with data downloads to occur monthly or quarterly depending on data needs and permit conditions. • Where flow measurements are required, manual flow measurements will be generated and carried out on an ongoing basis, as needed. • Updated water level and flow statistics will be developed, including monthly and annual averages for lake water levels and flows along with time plot trends and return period statistics for varying return periods. • Final effluent quality sampling frequencies are expected to • potentially or likely include pH, TSS, TDS, hardness, conductivity, sulphate, TP, nitrate, nitrite, total and un-ionized ammonia, along with additional cations and anions, a suite of metals, and acute toxicity sampling for rainbow trout and Daphnia magna. • Sampling requirements for effluents is expected to be carried out thrice weekly for pH and TSS, and weekly or monthly for most other parameters, and monthly for acute toxicity testing. • Effluent from the permanent camp domestic sewage treatment facility is expected to be sampled weekly for biochemical oxygen demand, TSS, pH, TP, ammonia, and E. coli. Additional upstream sampling within the sewage treatment plant is also planned as a means of tracking overall system performance.

Table 12–1: Preliminary Follow-up and Monitoring Program

EIS/EA Section	Valued Component	Monitoring Objective	Preliminary Approach[(1)]
Section 6.10 Fish and Fish Habitat	• Fish • Fish Habitat	• Monitor for changes to fish and fish habitat in the receiving environment as a result of Project activities. • Verify the predictions of the EIS and confirm that the aquatic ecosystem in the receiving environment is protected. • Evaluate the effectiveness of mitigation measures and modify or enhance as necessary through monitoring and developing updated mitigation, if needed. • Monitor and evaluate the success of fish habitat offsetting measures constructed for the Project.	• Monitoring requirements as outlined in the Fish Habitat Compensation Plan. • Regular tracking and recording of blasting procedures will be carried out to confirm that fish protection measures defined in the blasting assessment are carried out. • Monitoring stations for benthic invertebrates and fish would be strategically located within each sampled waterbody to capture any potential effects in receiving waters and would be co located with water and sediment quality sampling stations. • Direct sampling of fish tissues for metals concentrations will be conducted within the BsM program, one year after start of construction, and every three years (at the same time of year) thereafter (as approved by the MNR),
Section 6.11 Vegetation and Wetlands	• Vegetation • Wetlands	• Evaluate the effectiveness of the environmental protection measures (e.g., preventing soil erosion, stockpiling soil for reclamation, preventing the introduction of invasive weeds) and modify or enhance as necessary through monitoring and updating mitigation measures, if needed. • Verify the effects predictions with respect to groundwater drawdown. • Assess the success of plant community establishment following reclamation.	• Surveillance would be completed to identify and manage new occurrences of species designated as prohibited, noxious, and nuisance weeds within the mine site. • Monitoring requirements for reclamation would be outlined in the Closure Plan and would include details on reclamation treatments to be used during revegetation, schedules for the frequency of monitoring, and action levels where adaptive management may be required. • Post-reclamation wetland surveys would be conducted to understand if reclaimed wetlands (if any) are achieving similar functions.

Table 12–1: Preliminary Follow-up and Monitoring Program

EIS/EA Section	Valued Component	Monitoring Objective	Preliminary Approach[(1)]
Sections 6.12 Wildlife and Wildlife Habitat and Section 6.16 SAR Birds	• Birds	• The direct loss of habitat {or change in habitat in the case of the transmission line) resulting from Project development. • Anticipated reductions in habitat suitability resulting from disturbances caused by the Project such as from sound and artificial lighting. • Whether or not compensatory habitats , are being effectively utilized by intended SAR. • Whether or not rehabilitated habitats following mine closure are being effectively utilized by wildlife species, including SAR. • Whether or not changes are occurring [or have occurred] to consumable wildlife species (e.g., Moose, Caribou, Beaver and geese) as a result of metals accumulation.	• Breeding bird surveys will be conducted at a minimum of 40 locations, include those associated with the Project Development Area (10 areas), the transmission line (10 areas), road routes (10 areas) and reference areas (10 areas). • Surveys will generally be completed within five hours after sunrise. Surveys will be conducted for 10 minutes at each station and all birds heard or observed will be recorded at distance intervals of 0 to 50 m, 50 to 100 m, > 100 m from the observer. • Birds will be recorded at duration intervals of 0 to 3 minutes, 3 to 5 minutes, and 5 to 10 minutes. • Each bird will be recorded once and mapped on the field data sheets to limit duplication. Point count stations will be located a minimum of 300 m apart. • ARUs will be used for crepuscular bird surveys. • ARU's will be placed in the same areas as those used for Breeding Bird Surveys, including areas where Eastern Whip-poor-will and Common Nighthawk were noted during baseline studies. • The ARU type to be used will be the same as, or equivalent to, that used during baseline studies (i.e., Wildlife Acoustics brand Song Meter Micro Wildlife Recorders). • Data from ARUs will be analyzed using an automated classifier to detect avian vocalizations within the recordings and classifying them to species. • Data analysis will consist of estimating relative abundance from the level of singing activity from ARU recorders, using a stepwise model.

Table 12–1: Preliminary Follow-up and Monitoring Program

EIS/EA Section	Valued Component	Monitoring Objective	Preliminary Approach[(1)]
Section 6.15 Bats	• Bats	• The direct loss of habitat {or change in habitat in the case of the transmission line) resulting from Project development. • Anticipated reductions in habitat suitability resulting from disturbances caused by the Project such as from sound and artificial lighting. • Whether or not compensatory habitats , are being effectively utilized by intended SAR. • Whether or not rehabilitated habitats following mine closure are being effectively utilized by wildlife species, including SAR.	• Several circular plots (radius of 12.6 m, or 0.05 ha) will be surveyed, noting all trees with a (DBH) greater than 10 cm with evidence of cavities, loose bark, or cracks. • Five plots will be completed at each site sampled in 2023. • Maturity roost detector surveys, using Songmeter SM4BAT FS ultrasonic recording detectors, paired with SMM-U2 ultrasonic microphones will be deployed in the same locations as those used in 2023. • The detectors will be set to record nocturnal bat activity from 30 minutes before sunset to 30 minutes after sunrise. • The detector microphones will be positioned about 2-3m from the ground, and 1 to 2 m from vegetation, and oriented toward open areas to capture clean recordings. • Bat detectors will be configured to begin recording when ultrasonic signals greater than 18 decibels (dB) above the noise floor rolling average are detected. • All recordings will be initially filtered using the Batch File Scrubber of the Sonobat Data Wizard and identified to species using Sonobat Version 4.4.1 automated processing software (or equivalent methods). • A subset of the recordings will be classified manually, when the automated software cannot classify a recording to a specific species due to poor recording quality or call feature overlap between multiple species. • Continued bat hibernacula surveys will be restricted to the Cliff 1 site.

Table 12–1: Preliminary Follow-up and Monitoring Program

EIS/EA Section	Valued Component	Monitoring Objective	Preliminary Approach[(1)]
Sections 6.12 Wildlife and Wildlife Habitat	• Large Mammals	• The direct loss of habitat {or change in habitat in the case of the transmission line) resulting from Project development. • Anticipated reductions in habitat suitability resulting from disturbances caused by the Project such as from sound and artificial lighting. • Whether or not compensatory habitats, are being effectively utilized by intended SAR. • Whether or not rehabilitated habitats following mine closure are being effectively utilized by wildlife species, including SAR. • Whether or not changes are occurring [or have occurred] to consumable wildlife species (e.g., Moose, Beaver and geese) as a result of metals accumulation.	• Aerial surveys will be carried out annually using the 2023 study area boundary, with flight lines spaced at 2 km intervals oriented in an east-west direction. • Aerial surveys will be undertaken in mid-winter (targeting February), and flown during daylight, in good to fair weather conditions, at a speed of approximately 120 km/h. • Observed Caribou and Moose encountered during the surveys will be classification with respect to sex and age categories using physical attributes and behaviour (within group association). • Numbers of calves, adult females, adult males, and un-classified individuals will be recorded. Sign (e.g., number of track sets, beaver lodges) and observations of Wolf, Wolverine, and other furbearers, including Otter, Beaver, and Marten will also be opportunistically recorded. • Demographic observations of Caribou, spatial observations of Caribou, Moose, and Wolves will also be used to construct kernel density estimators (KDE) in ArcMap or R.

Table 12–1: Preliminary Follow-up and Monitoring Program

EIS/EA Section	Valued Component	Monitoring Objective	Preliminary Approach[(1)]
Section 6.14 Wolverine	• Wolverine	• The direct loss of habitat {or change in habitat in the case of the transmission line) resulting from Project development. • Anticipated reductions in habitat suitability resulting from disturbances caused by the Project such as from sound and artificial lighting. • Whether or not compensatory habitats, are being effectively utilized by intended SAR. • Whether or not rehabilitated habitats following mine closure are being effectively utilized by wildlife species, including SAR.	• A combined hair snag / camera run pole station design will be established, with stations set up at a rate of one trap per100 km2 hexagonal unit. • Run poles will be preferentially set up within habitats most likely to be associated with Wolverine denning and movement. • The run pole stations will be constructed in accordance with "Integrating Motion-Detection Cameras and Hair Snags for Wolverine Identification". • Stations will be baited with locally available animals that Wolverine would be familiar with. • Run pole stations will be visited monthly to collect hair, change batteries, refresh bait, and replace memory cards. • Photographs and hair samples collected at the run pole stations will be used to identify individual Wolverine, with hair samples being analyzed by Wildlife Genetics International, using DNA extraction methodologies.

Table 12–1: Preliminary Follow-up and Monitoring Program

EIS/EA Section	Valued Component	Monitoring Objective	Preliminary Approach[(1)]
Section 6.13 Caribou	•	• Direct and indirect habitat losses associated with site preparation activities during the Construction Phase in the mine site area, and along the access road and transmission line, including indirect alterations due to edge effects and sensory disturbance from noise, light and dust; • Indirect habitat losses associated with the mine Operations Phase for the mine site area as well as the mine access road for the indirect alteration due to sensory disturbance from noise, light and dust; • Whether or not there has been a likely change in Caribou population dynamics as a result of increased predation by wolves; • Whether the change in range scale habitat condition is within EIS prediction; and • Whether or not compensatory measures), are performing effectively.	• Site lines along linear corridors will be documented. • The winter aerial survey program for Caribou is the same as that described for other large mammal species.

Table 12–1: Preliminary Follow-up and Monitoring Program

EIS/EA Section	Valued Component	Monitoring Objective	Preliminary Approach[1]
	•	• Identify objects, sites or the locations of a traditional societal practice that are of historical, cultural or archaeological significance to the Province of Ontario, a community or Indigenous people, including: locations containing, or with the potential to contain, the physical remains of past human activity. • Identify sites that contain evidence that Indigenous people have historically utilized an area.	• Maintain a record of all cultural heritage resources known to occur in the vicinity of planned Project developments, such that intrusion or damage to such resources can be avoided during construction, recognizing and respecting confidentiality limitations; • Maintain an active dialogue with Indigenous community representatives, having knowledge of specific areas prior to and during major construction activities, to provide guidance to supervisory staff on the likely or possible occurrence of as yet undocumented cultural heritage sites; • Enlist the services of a trained archaeologist during the conduct of major construction works to support FMG as needed, where there is a reasonable potential for encountering as yet undocumented archaeological or cultural heritage sites; • Enlist the services of Elders or other cultural advisors in the event that archaeological or cultural heritage resources are encountered (in addition to meeting all Regulatory requirements); and • Conduct a post-construction assessment of the state of known cultural heritage sites in the vicinity of Project activities / structures to confirm the integrity of such resources.

Note:

1 Follow-up and monitoring programs may be refined following consultation on the draft EIS/EA.

Table 12–2: Active Hydrometric Monitoring Stations

Station	Station Location	Location (UTM)	Monitoring Parameters	Installed Instrumentation
F7-HS1	Springpole Lake Inflow	15U 548571 5687013	Water Level, Flow	Staff gauge, water level logger
F8-HS7	Springpole Lake Outflow	15U 565207 5687857	Water Level, Flow	Water level logger
F11-HS2	Springpole Lake Tributary	15U 555816 5688878	Water Level, Flow	Staff gauge, water level logger
F13	Springpole Lake Tributary	15U 553138 5687623	Water Level, Flow	Flume, water level logger
L1B-FFC	Springpole Lake northern basin	15U 550361 5691677	Water Level	Water level logger
L7-FFC	Springpole Lake southeast arm	15U 553434 5687914	Water Level	Water level logger
L10	Birch Lake	15U 548842 5694377	Water Level	Water level logger
L11	Lake-1	15U 549543 5694553	Water Level	Water level logger
L12	Lake-19	15U 551216 5694351	Water Level	Water level logger
L13	Dole Lake	15U 552315 5694874	Water Level	Water level logger
L14	Lake-20	15U 552318 5693715	Water Level	Water level logger
L15	Reference Lake for Lake 20	15U 556052 5693051	Water Level	Water level logger