GREEN BAY MING MINE PROJECT
and
CURRENT OPERATIONS

Environmental Protection Plan

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1.0 INTRODUCTION

FireFly Metals Canada Limited (FireFly), acquired the Rambler Metals and Mining (Rambler) assets in October 2023. FireFly owns and operates the Green Bay Copper Gold Project, which includes Ming Mine, Nugget Pond Mill and Tailings Management Facility, Goodyear's Cove port facility, Tilt Cove, Whalesback, Little Deer, and surrounding claims and leases forming the Gold Hunter land package located on the Baie Verte peninsula in Newfoundland and Labrador (NL).

In addition, FireFly is constructing and operating the Green Bay Ming Mine Project, which aims to increase the production rate at the Ming Mine and includes the construction of a new processing plant and a tailings management facility (TMF) on-site. The current estimated lifespan of the expanded mine is approximately 15 years, during which mining will occur at deeper levels within the existing site, with an increased rate of both mining and milling. Additionally, FireFly will build and operate a port access road to a third-party port, as well as a new accommodation complex (camp) to house the workforce.

Currently, the Nugget Pond Mill and TMF, and Goodyear's Cove facilities are in care and maintenance; however, further studies may incorporate them into future operations.

This Environmental Protection Plan (created in 2011, updated in 2019) addresses the Green Bay Ming Mine Project and other FireFly assets (i.e., Nugget Pond Mill and TMF and Goodyear's Cove). As such, it references combined facilities and project sites, such as the process plants (including Nugget Mill and the new Process Plant at Ming Mine), the TMFs (at Nugget and the new TMF at Ming Mine) and the port (Goodyear's Cove). The locations of the current operation are illustrated in Figure 1-1, and the Green Bay Ming Mine Project site layout is shown in Figure 1-2. The EPP has been updated in 2025 to reflect the environmental protection procedure commitments made by FireFly through the EA process for the Green Bay Ming Mine Project.

Figure 1-1 Locations of Current Operations

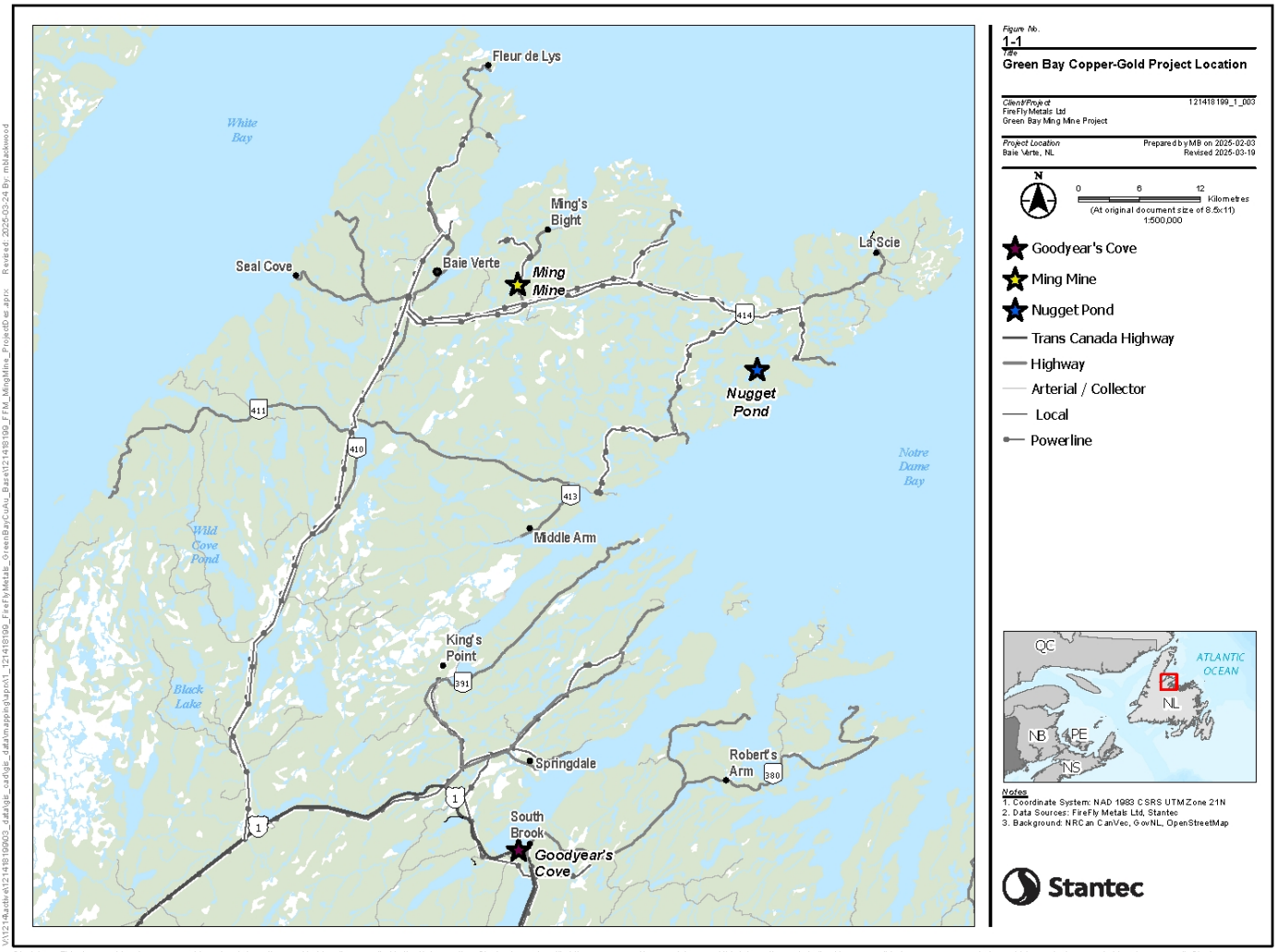
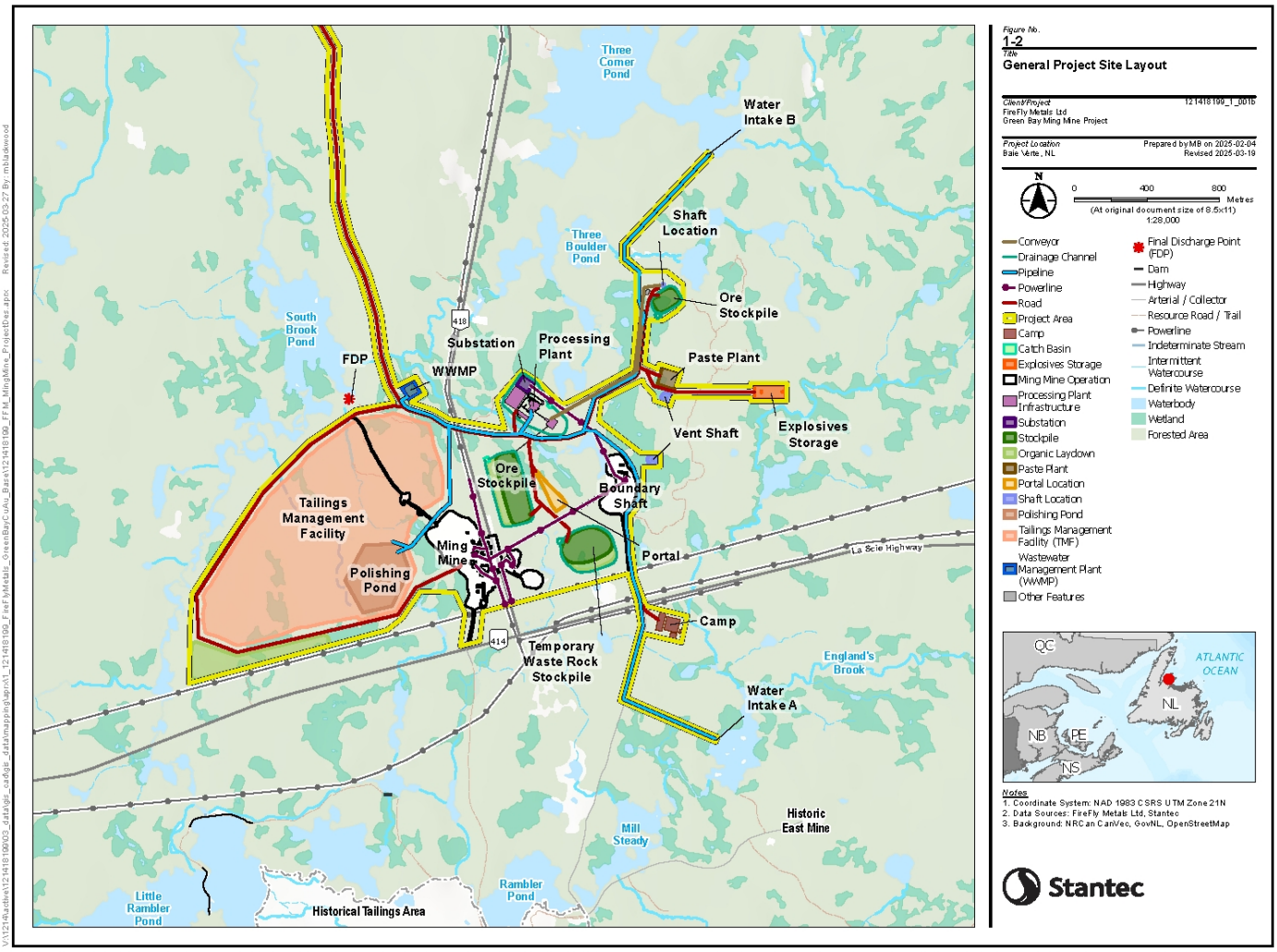


Figure 1-2 Green Bay Ming Mine Project – Proposed Expansion



1.1 Purpose of the Environmental Protection Plan

This EPP outlines practical procedures required for all personnel (i.e., FireFly employees, contractors and suppliers) to reduce or eliminate potential adverse environmental effects associated with the construction and operations work across Project sites. To ensure all activities are carried out in an environmentally responsible manner, this EPP has the following objectives:

- Confirm commitments to reduce environmental effects
- Document environmental concerns and appropriate protection measures
- Provide a reference document for personnel when planning and/or conducting specific activities
- Provide direction for accidental events
- Communicate changes in the program through the EPP revision process
- Provide a reference to and instructions for personnel to understand applicable legal and other requirements
- Include a quick reference for both personnel and regulators to monitor compliance and recommend improvements
- Provide direction at the corporate level to ensure commitments made in policy statements are implemented and monitored

Deviation from the procedures and commitments outlined in the EPP must be discussed with, and approved by, FireFly and/or the Newfoundland and Labrador Department of Environment, Conservation and Climate Change (NLDECCC).

1.2 Environmental Protection Plan Organization

This EPP has been developed for specific activities to be conducted in support of work carried out on Project sites. It provides instructions for addressing both planned and unplanned activities and events. This EPP contains the following sections:

- **Section 1.0** introduces the EPP. It outlines the EPP purpose and organization, roles and responsibilities and environmental orientation
- **Section 2.0** provides a description of potential site activities
- **Section 3.0** lists the permits, approvals and authorizations that may be required for the undertaking, and provides an overview of compliance monitoring
- **Section 4.0** describes environmental concerns and environmental protection procedures associated with work activities
- **Section 5.0** outlines the contingency plans for potential unplanned and accidental events
- **Section 6.0** describes procedures for revising the EPP
- **Section 7.0** contains a list of key Project and regulatory contacts

- **Section 8.0** lists references cited in the EPP, as well as a number of sources of further information
- **Section 9.0** contains a signature page for employee and contractor sign-off

Supporting information and documents are provided in the Appendices:

- **Appendix A** is a list of abbreviations and acronyms
- **Appendix B** is a Controlled Copy Distribution List
- **Appendix C** is a Revision Request Form
- **Appendix D** is a Revision History Log
- **Appendix E** is a sample Site Check List Form
- **Appendix F** is a sample Spill Report Form
- **Appendix G** is a sample Avifauna Survey Sheet
- **Appendix H** is a copy of the Reference Guide to Tree Species at Risk (SAR). Newfoundland – FireFly Metals: Green Bay Ming Mine Project Site

1.3 Roles and Responsibilities

This section outlines the roles and responsibilities of parties involved with on-going and new activities on the Properties.

FireFly will:

- Provide final approval for the EPP and any subsequent revisions
- Monitor and inspect the work being carried out
- Liaise with relevant government agencies and community interest groups as required

The designated Health, Safety, and Environment (HSE) Department will:

- Distribute the EPP
- Review revision requests
- Conduct a review of the EPP on an as-needed basis
- Distribute revisions to controlled distribution representatives, identified in Appendix B (Controlled distribution representatives are FireFly employees who will maintain copies of the EPP document)
- Maintain document control

The designated site Superintendent/Manager will:

- Act as FireFlys' representative on-site, responsible for environmental protection and will report issues or developments related to the environment to the HSE Department
- Hold an environmental orientation session for contractors and their personnel, and other personnel to be involved in the Project activities on an as-needed basis
- Confirm FireFly workers and contractors/sub-contractors and their staff onsite are familiar with the EPP and its procedures and maintain a master file of all EPP orientation efforts and signature sheets
- Implement the EPP on site and confirm that workers are aware of the EPP and their responsibilities under the plan
- Confirm FireFly workers and contractors/sub-contractors in the field review revisions
- Communicate with the HSE Department about proposed work activities so that applicable approvals, authorizations and permits can be obtained
- Monitor or designate a representative to monitor construction and operation activities for compliance with the EPP, and regulatory requirements and commitments
- Report incidents of environmental non-compliance to the HSE Department
- In the event of an emergency, contact the appropriate reporting agency as indicated in the EPP immediately, as well as the HSE Department

The contractors, subcontractors, FireFly representatives, and site personnel will:

- Familiarize themselves with the EPP and any revisions
- Sign that they have read, understood, and accept the conditions of the EPP prior to being approved to conduct work (see Signature Page in Section 9.0)
- Implement the EPP commitments
- Confirm personnel and subcontractors comply with the EPP, requirements of the contract and with applicable laws and regulations
- Maintain a training record (record of names and dates when training was administered including the signature page in Section 9.0 of the EPP) and provide updated files on a monthly basis to the HSE Department
- Maintain regular contact with the HSE Department, including, but not limited to:
    - Immediately reporting concerns to the Site Manager and/or Environment Coordinator (FireFly's Environment Team) of any aspect of the EPP
    - Immediately reporting any spills or other event that may have an effect on the environment to FireFly's Environment Team (Site Manager, HSE Department) and the appropriate regulatory contacts (i.e., Environment and Climate Change Canada [ECCC])

- Obtain the applicable approvals, authorizations and permits required to conduct the work and provide copies to the Environment Team
- Implement the conditions outlined in approvals, authorizations and permits
- Carry out clean-up, reclamation or restorative measures as directed by the Environment Team and/or appropriate government agency
- Contribute feedback to the Environment Team any changes/comments they feel would improve the quality of the EPP

1.4 Environmental Orientation

Through ongoing orientation and awareness training, FireFly will confirm that personnel are competent to do their jobs properly. FireFly will confirm that all personnel understand their roles and responsibilities, their specific work activities, as well as the potential environmental effects of proposed site activities. Workers will receive an orientation from an immediate superior prior to the start of new activities and thereafter on an as-needed basis. New personnel arriving at the site during the construction and operations phases will also receive an orientation, to be given by the HSE department, or designate. The orientation will include a presentation on environmental protection procedures to be applied at work sites.

2.0 CONSTRUCTION AND OPERATIONS OVERVIEW

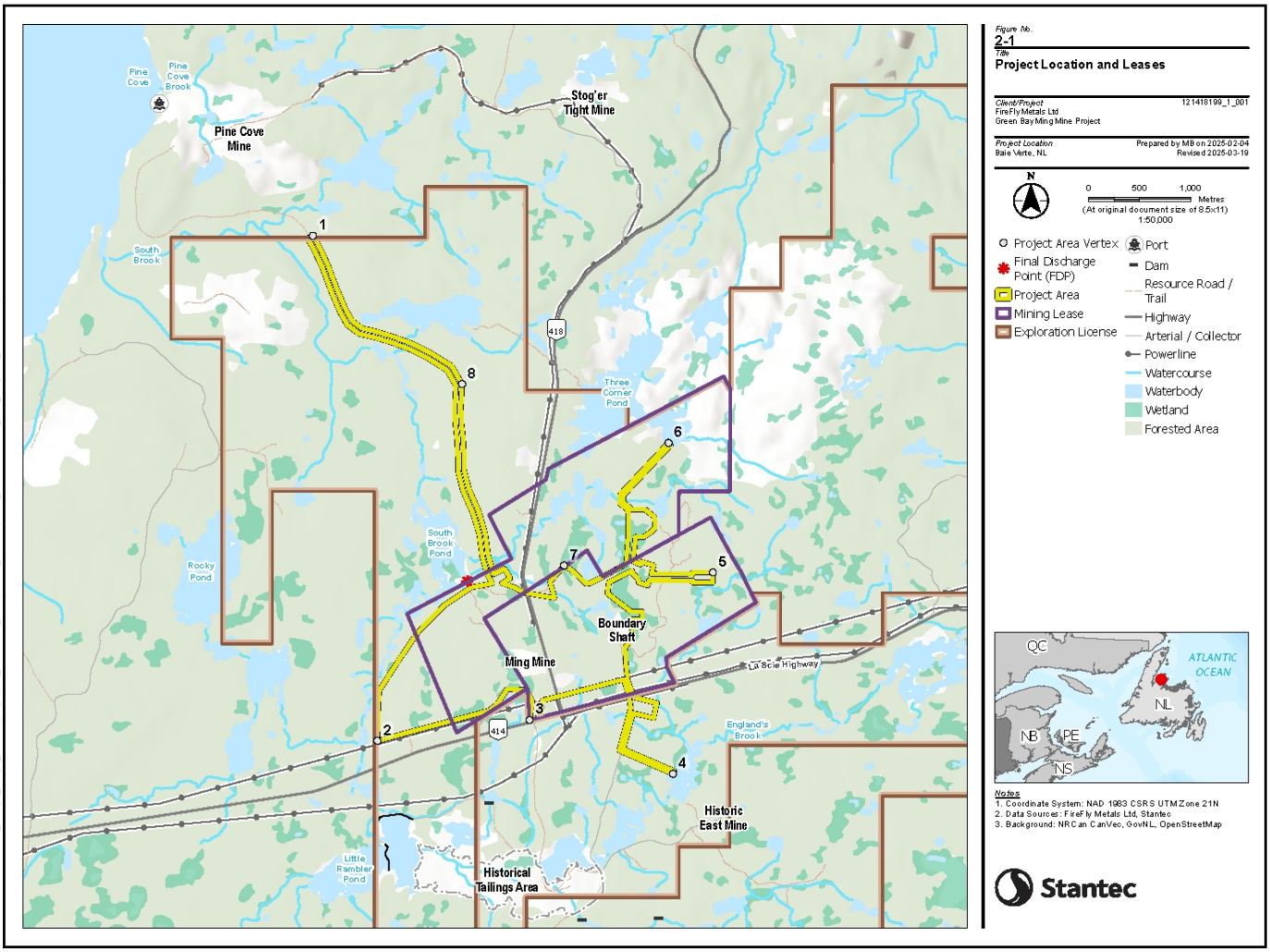
This EPP covers the activities associated with the mine construction and operations on the properties owned by FireFly, including the extraction of ore from the underground workings at the Ming Mine Site, milling the process plants, TMFs and transportation of the copper concentrate to a port facility. This also includes the Nugget Pond and Goodyear's Cove facilities which are currently in care and maintenance.

The Project operates under current provincial and federal regulations, environmental protection standards, and industry best practices.

2.1 Ming Mine Site

The Ming Mine property is located on the Baie Verte Peninsula, approximately 17 km (kilometre) by road east of the Town of Baie Verte, geographic co-ordinates: 49^0 54' N latitude and 56^0 05' W longitude (Figure 1-2). A mineral land assembly consisting of four map-staked mineral licenses (023175M, 023968M, 023971M, and 022885M) and two surface mining leases (141L and 188L) totalling 2380.4 ha (hectare) are registered by FireFly Metals Canada Limited, a wholly owned subsidiary of FireFly Metals Ltd. FireFly holds the surface rights for the Ming Mine area through Crown Lands Leases (121 and 122). Ming Mine leases and licenses are shown in Figure 2-1. It should be noted that applications to extend mining and surface leases have been made in 2025 to incorporate future Project infrastructure, such as the TMF and Accommodations Complex (camp) are located on leased land.

Figure 2-1 Ming Mine: Mineral Tenure and Map Staked Claims



2.1.1 Expansion of the Ming Mine Site

Existing site infrastructure is shown on Figure 2-2, and includes:

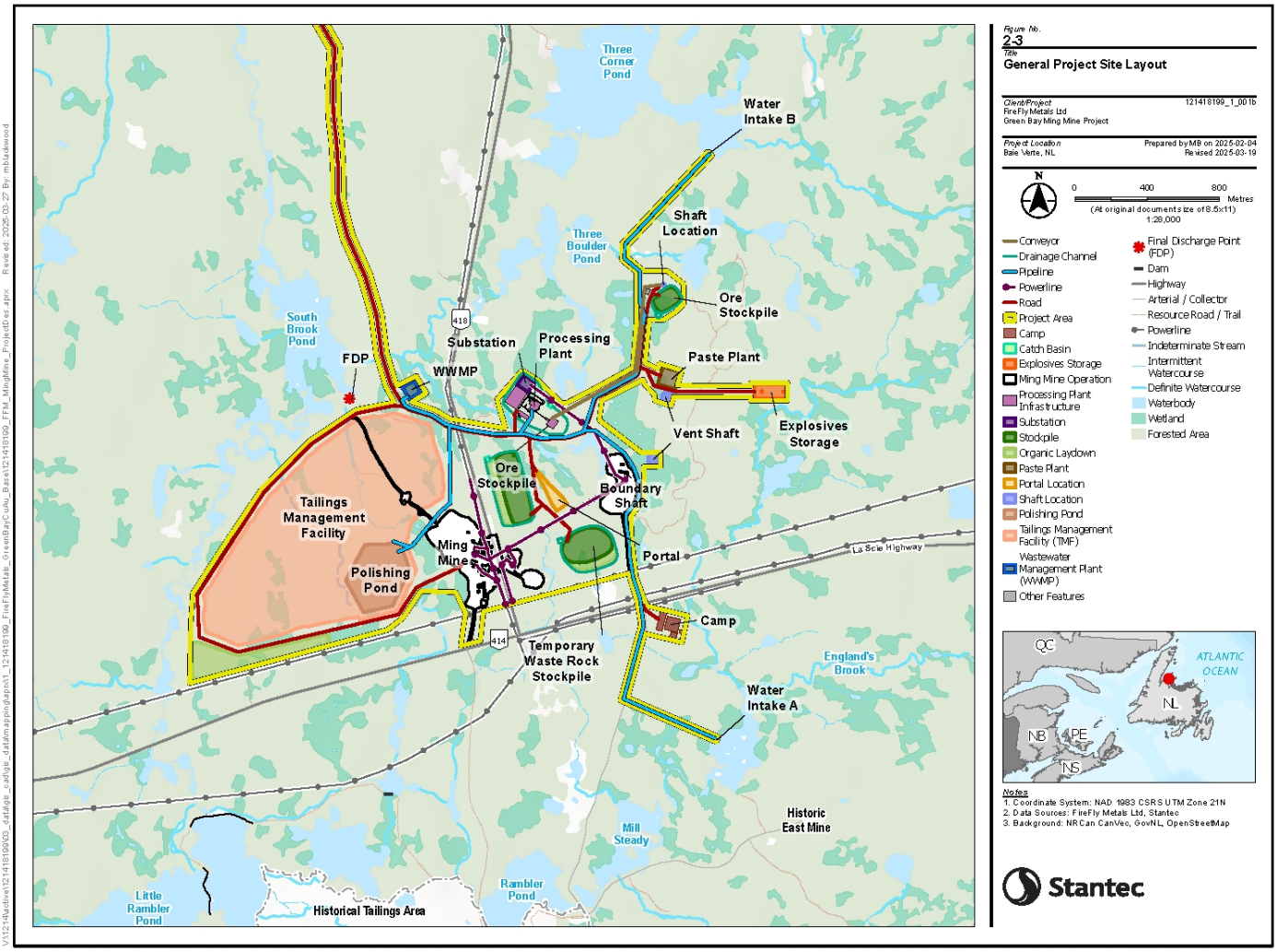
- Mine Portal
- Waste Rock Storage
- Ore Storage
- Roads
- Laydown Areas
- Wastewater Management Plant (WWMP)
- Ventilation Raises
- Maintenance Shop
- Mine Dry/Rescue
- Office Building
- Various Mining Support/Storage Buildings

As shown in Figure 2-3, improvements associated with the Green Bay Ming Mine Project include:

- Expanding underground mine workings
- Upgrading underground mine ventilation and adding new ventilation raises
- Additional storage on the surface for ore and temporary waste rock storage
- New processing plant and TMF
- Expanding site roads, including a new port access road
- New portal and new shaft
- Upgrades to transmission lines and construction of a new substation
- Emergency power supply
- Additional water intakes
- Additional accommodations complex (camp)

Figure 2-2 Existing Infrastructure at the Ming Mine Site

Figure 2-3 Planned Infrastructure at the Ming Mine Site



Most construction activities associated with the construction of the new mill (processing plant), TMF and other infrastructure at the Ming Mine site have been planned to reduce the need for additional site clearing (i.e., use of existing disturbed areas has been prioritized where possible). Clearing activities will be required to construct the TMF and new port access road. Conventional commercial mechanical equipment will be used for construction and installation activities, i.e., small excavators, dump trucks, and cranes.

2.1.2 Operation of the Ming Mine Site

Ming Mine operations from 2011-2017 occurred at a nominal rate of 850 tonnes per day of ore and increased production rates to 1250 tonnes per day beginning in 2017. An additional mine life of 21 years was estimate in 2017 by transitioning into low grade ore zones. Major features of the operation phase included:

- Ore was mined underground using longhole mining and room and pillar mining methods.
- Mined ore was hauled to surface using mine haulage trucks and stored in a temporary transfer Ore Stockpile.
- Ore was loaded from the Ore Stockpile directly to highway haul trucks and transported to the Nugget Pond Mill for processing.
- Waste rock was hauled to the surface and stored in the Waste Rock Stockpile. Whenever possible, the waste rock was progressively moved back underground into open stopes as backfill.
- The underground workings are dewatered through a series of sumps throughout the mine.
- Mine dewatering effluent, storm water, and run-off from surface infrastructure areas was directed to the Ming West decline via the portal and then to the WWMP. The WWMP treats and neutralizes the effluents prior to discharge to the environment at the South Brook discharge point.
- The sludge collected from the WWMP is piped through a 100 millimetre (mm) line from the plant back underground to the existing open stopes on 140 metre (m) Level. The solids in the slimes will be allowed to settle out in the stopes and the excess water were captured in the existing sumps and pumped back to surface into the WWMP.

2.2 Process Plants

The Nugget Pond Mill is situated on the Baie Verte Peninsula, approximately 6 km west of the community of Snook's Arm, geographic co-ordinates: $49^0$50' N Latitude and $55^0$45' W longitude (Figure 1-1; Figure 2-4). The Nugget Pond property covers approximately 10 ha and is located approximately 40 km from the Ming Mine Site, and approximately 150 km from the Goodyear's Cove Site.

The new process plant at Ming Mine will be constructed east of the current mine site (Figure 1-2). Ore from Ming Mine will be brought to the surface and processed in the new process plant, resulting in copper-gold concentrate. Tailings will be managed in a TMF to be constructed onsite. The new process plant and TMF are shown in Figure 1-2.

Figure 2-4 Existing Infrastructure at the Nugget Pond Site

NOTES:
1. Base mapping, aerial photo, and contours provided by Rambler Metals and Mining.
2. Coordinate system is NAD83(CSRS) UTM zone 21.
3. NTS map sheet 02/E13.
4. Contours are shown in metres (1m interval).

Drawn By	Checked By
MAL	LS
Calculations By	Checked By

Date: AUGUST, 2017

Project: RAMBLER METALS AND MINING DEVELOPMENT PLAN

Drawing: NUGGET POND w/ TAILINGS EXISTING CONDITIONS

Scale: 1:5000

0 100 200 300m

File No.	Drawing	Revision No.
800020206	FIGURE 3.4	0

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Consulting Engineers and Scientists

2.2.1 Expansion at the Ming Mine Site: New Process Plant and TMF

The new process plant and TMF for the Green Bay Ming Mine Project includes:

- Road and yard area
- Assay lab
- Wastewater management plant
- Cold storage buildings
- Process plant buildings, including Crusher, Ore Stockpile, Conveyor, thickener/leach tanks, gold refining infrastructure, and copper flotation circuit
- Concentrate storage
- Paste plant installation near the Boundary Shaft location to provide paste backfill to underground mine areas requiring stabilization after mining is complete
- TMF (tailings area, polishing pond, and associated infrastructure)
- Other support infrastructure

Where possible, infrastructure such as roads, pipeline corridors, pads, dams, and laydown areas are planned to be located in previously disturbed areas adjacent to the Ming Mine site. The footprint of the process plant and the TMF will largely be situated in areas that will require clearing and grading. Construction of the new process plant and TMF will use standard techniques and equipment. Due to the potentially acid generating (PAG) properties of the tailing's material, the TMF will be lined with a HDPE geomembrane. Drainage foundations at the toe of the dam will be lined and directed to collection points and pumped to the polish pond for treatment. It is anticipated that most of the water will be recirculated back to the process plant for use in the plant. The dam will use rockfill and a high-density polyethylene (HDPE) liner. Rockfill will be sourced from an existing quarry nearby, construction grade rock from nearby mining operations, or new borrow pits located within the footprint of the TMF. The process plant and the TMF will be constructed using conventional earthworks equipment including excavators, dump trucks, dozers, and compaction equipment. The process plant and the TMF will be constructed using conventional earthworks equipment including excavators, dump trucks, dozers, and compaction equipment.

2.2.2 Operation of the Process Plants

Operation of the flotation circuit is based on a 24 hour-7 day a week operation. The on-stream availability for annual operating hours, which includes downtime for maintenance, is expected to be about 92%, which is equivalent to 8,059 operating hours annually.

Reagents used for flotation are delivered to the site in bulk bags or drum containers and/or tote tanks which are stored in the existing chemical storage facilities. The reagents are moved from storage to the concentrator on an as-required basis. Reagents are mixed within the concentrator building and contained in mix tanks installed within a containment berm area.

The concentrate is dewatered and housed within a storage area. The storage containment has front-end loader access to enable bulk loading of the concentrate transfer containers on trucks for shipping.

Tailings from flotation are routed to the TMF or to the Paste Backfill area, for use in the underground mill for structural stability.

2.3 Port Facilities

FireFly currently owns a port facility at Goodyear's Cove situated in at the head of Halls Bay, NL, approximately 140 km from the Mill Site (Figure 1-1). This existing deepwater port is accessible through most of the year and is only 200 m from the Trans-Canada Highway. The Goodyear's Cove facility is on care and maintenance and has been included in the EPP.

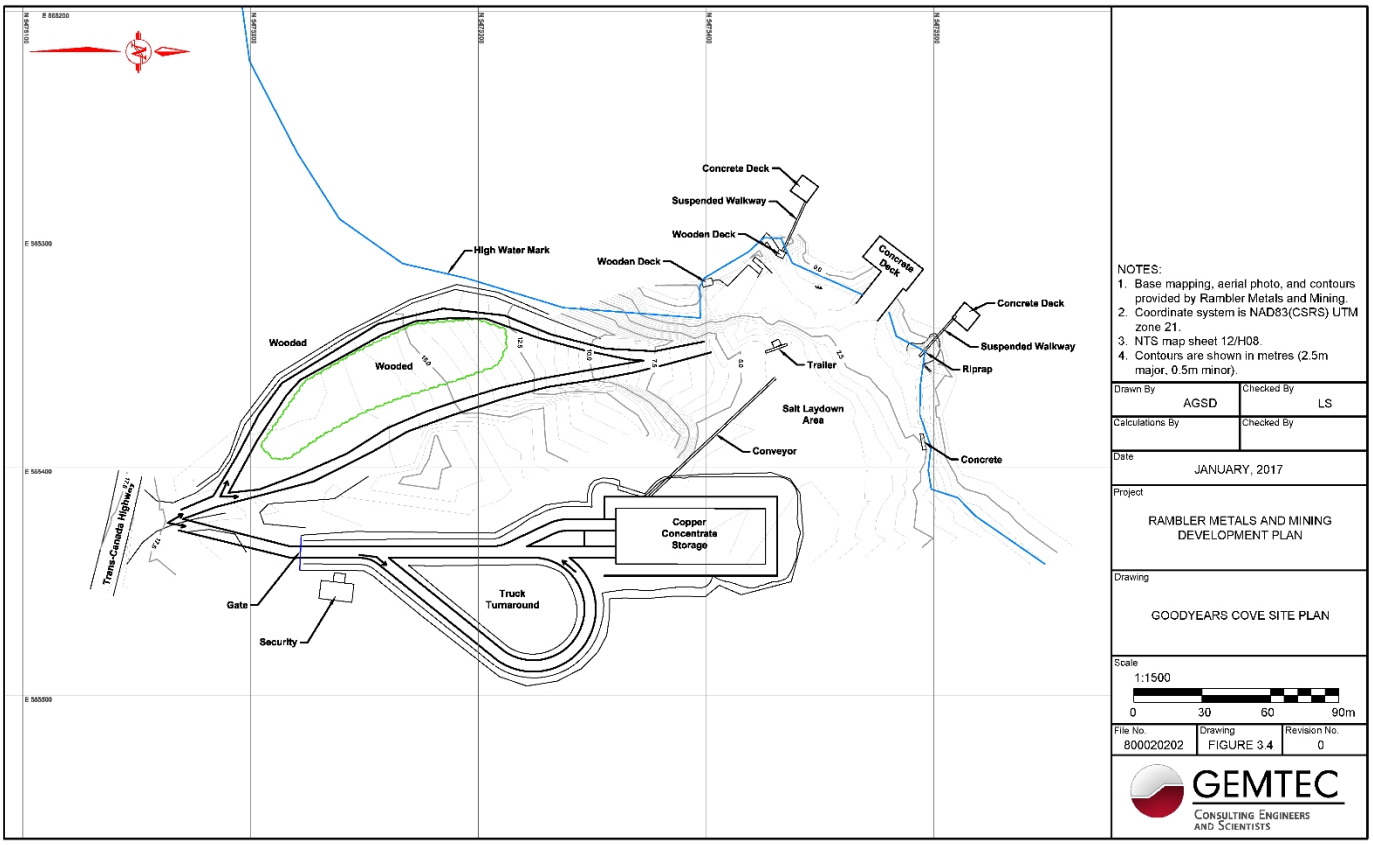
For the Green Bay Ming Mine Project, FireFly has a port access agreement with a nearby operator at Pine Cove. A port access road will be developed by FireFly to connect to the third-party property. FireFly will haul concentrate to the third-party port, at which point the third-party will load the concentrate onto ships for transport to refineries. FireFly would not have care and control of the third-party port facility but can conduct audits of the facility to ensure proper handling of the concentrate. The concentrate would be loaded onto ships and transported for refining.

2.3.2 Operation of the Port Facilities

The Goodyear's Cove facility is on care and maintenance; however, the facility was designed for copper concentrate storage and bulk shipment of approximately 5,000 tonnes of concentrate (dry weight basis) per shipment. The total live storage capacity of concentrate at the storage building as received from the concentrator is 6,500 tonnes. Ocean-going vessels are loaded using a portable conveyor system. The conveyor system is mobile and rolls out onto the dock to accommodate vessel loading operations. On completion of the vessel loading, the conveyor system is stored adjacent to the storage building to enable public access to the dock facilities.

For the Green Bay Ming Mine Project, the concentrate will be stored in a building at the process plant and when ready for transport to the port, will either be loaded to trucks or containerized (e.g. bags, solid containers). The building will be designed to reduce dust generated and facilitate the clean-up of material. The load-out area will be located on the ground floor of the process plant and will be a truck drive-through facility. Depending on the final transport option, after filling, the trucks will be covered for transport for hauling on the port access road to a third-party port facility. It is estimated that up to twenty truckloads of copper concentrate will be transported off site daily. At this time, FireFly is considering bulk storage transported by truck or container storage for concentrate to limit product loss. The third -party management will oversee the transfer and loading of concentrate on the ships for transport to a smelter refinery.

Figure 2-5 Existing Infrastructure at Goodyear's Cove Site



3.0 REGULATORY REQUIREMENTS AND COMMITMENTS

3.1 Permits, Approvals and Authorizations

Table 3-1 provides a list of the major permits, approvals and authorizations that have been obtained for FireFly's existing operation and have been or will be obtained for the Green Bay Ming Mine Project as it advances through construction and operation.

Table 3-1 Permits, Approvals and Authorizations

Environmental Permit, Approval or Authorization Activity for Approved Project	Issuing / Approval Agency
Municipal	
Development Permit for Activities within Town Boundary	Town of Baie Verte
Provincial	
Release from EA Process	NLDECCC – Minister
Approval of Environmental Protection Plan	
Certificate of Approval for Construction and Operation (Industrial Processing Works)	NLDECCC – Pollution Prevention Division (PPD)
Certificate of Approval for Generators	
Approval of Environmental Contingency Plan / Emergency Spill Response	
Environmental Effects Monitoring (EEM) Plan - Effluent Discharge – Mine and Mill	
Approval of Best Available Control Technology	NLDECCC – Climate Change Branch
Permit to Construct a Non-Domestic Well	NLDECC – Water Resources Management Division
Permit to Alter a Body of Water	
Water Use Licence	
Permit to Construct a Potable Water System	
Dam Permit – Tailings Dams at Mill	
Environmental Approval of Culverts	
Environmental Approval of Pipe Crossing – Water Intake	
Environmental Approval of Small Bridges	
Certificate of Approval – Water and Sewer Distribution System	
Certificate of Approval – Temporary Acid Rock Drainage Storage	
Permit to Control Nuisance Animals	Newfoundland and Labrador Department of Forestry, Agriculture and Lands (NLDFAL) – Wildlife Division
Permits under the Endangered Species Act and/or Wildlife Act (e.g., to conduct surveys of species at risk, etc.)	
Operating Permit to Carry out an Industrial Operation During Forest Fire Season on Crown Land	NLDFAL – Forestry
Commercial Cutting Permit	
Permit to Burn	

Table 3-1 Permits, Approvals and Authorizations

Environmental Permit, Approval or Authorization Activity for Approved Project	Issuing / Approval Agency
License to Occupy Crown land	NLDFAL – Crown Lands
Lease for Gatehouse (103388)	
Easement for access road (103359)	
Easement for power line (108189)	
Surface and Mining Leases	Newfoundland and Labrador Department of Energy and Mines (NLDEM) – Mineral Development and Mineral Lands Divisions
Development Plan	
Rehabilitation and Closure Plan	
Financial Assurance	
Mill Licence	
Quarry Development Permit	
Underground Magazine License	
Explosive Transportation Permit	
Blasters Safety Certificate	Newfoundland and Labrador Department of Government Services
Explosive Magazine Permit	
Approval for Storage and Handling of Gasoline and Associated Products	
Fuel Storage Tank Registration	
Propane Use	
Approval for Used Oil Storage Tank System (Oil/Water Separator)	
Waste Management Plan	
Certificate of Approval for a Sewage/Septic System	
Application to Develop Land for Septic	
National Building Code – Fire, Life Safety and Building Safety	
Buildings Accessibility Registration and Permit	
Food Establishment Licence	
Certificate of Approval - Water Supply > 4,500 L/day	
Certificate of Plant Registration for Power, Heat, Refrigeration, Compressed Gas or Combined Plant	
Contractor's License Pressure Piping System	
Examination and Certification of Welders and Blazers	
Permit of Flammable and Combustible Liquid Storage and Dispensing (above or below ground) and for bulk storage (above ground only) – Mine and Mill	
Statutory Declaration for Registration of Boiler and Pressure Vessel Fitting Fabricated in Newfoundland and Labrador – Mine and Mill	
Contractor's License – Pressure Piping System	
Examination and Certification of Welders and Blazers	
Examination and Certification of Propane System Installers	

Table 3-1 Permits, Approvals and Authorizations

Environmental Permit, Approval or Authorization Activity for Approved Project	Issuing / Approval Agency
Mine Rescue Certification	Workplace NL
Compliance Standard – *Historic Resources Act*	Newfoundland and Labrador Department of Tourism, Culture, Arts and Recreation
Archaeological Investigation Permit	
Compliance Standard – Storing Handling and Transportation Dangerous Goods	Newfoundland and Labrador Department of Transportation and Infrastructure
Policy for Highway Access Management	
Work within La Scie Highway or Ming's Bight rights-of-way	
Federal	
Fisheries Act Authorization	Fisheries and Oceans Canada (DFO)
Initiate *Metal and Diamond Mining Effluent Regulations* (MDMER) authorization and reporting processes with ECCC including notification, identification of final discharge point(s), and required components of effluent monitoring, and EEM	ECCC
Approval of MDMER Emergency Response Plan	
Compliance Standard - *Migratory Birds Convention Act and Regulations*	
Approval to Interfere with Navigation	Transport Canada
Licence to Store, Manufacture, or Handle Explosives (Magazine Licence)	Natural Resources Canada

3.2 Environmental Compliance Monitoring

Inspections and monitoring confirm that the environmental protection measures that are specified in this document and that will be specified in the applicable contracts and other relevant permits, approvals and authorizations have been implemented properly.

1.1.1 Site Inspections

Site inspections will be completed before, during, and within 7 days after site disturbances related to work activities performed by FireFly, or contractors on behalf of FireFly. Site inspections will be conducted by trained personnel and details recorded on the Site Check List Form located in Appendix E. For site inspections conducted prior to construction or operations activity, details including vegetation, general terrain/topography, and drainage patterns will be recorded. Photographs should be taken during each site inspection. The required frequency of site inspections performed during work activities will be determined by the HSE Department (or designate) and will depend on the duration and type of activity being performed.

These regular site inspections will aid in the implementation of the environmental protection measures that are specified in this document and that will be specified in the applicable contracts and other relevant permits, approvals and authorizations.

Environmental issues or concerns should be reported to the Site Manager and the Environmental Coordinator.

1.1.2 Monitoring

Monitoring will also confirm that construction and operations activities comply with applicable regulatory requirements and that mitigation measures are being employed effectively.

The HSE Department will:

- Be responsible for environmental compliance monitoring on-site; and
- Instruct the contractor on the environment-related general, special, and technical clauses to be implemented as part of the contract(s).

Compliance monitoring will be required for various activities during construction and operations. Monitoring of site r un-off at the construction and operation sites will be conducted as per provincial requirements. Other federal and provincial government compliance standards that apply to the construction and operations activities include, but are not limited to, those listed in Table 3-2. Personnel will comply with relevant approvals, authorizations, permits and legislation.

Table 3-2 Environmental Compliance Standards

Legislation/ Guidelines	Activity Requiring Compliance	Responsible Agency	Comment
Federal Regulations			
Fisheries Act, S34(1), Deleterious Substances	Discharge from the site to receiving waters	ECCC and DFO	The deposit of any material into waters frequented by fish or to an area that may enter waters frequented by fish must be non-deleterious to fish (i.e. must be non-acutely lethal). All materials that may enter waters frequented by fish must comply with the Act. MDMER sets criteria that must not be exceeded for listed deleterious substances as well as a requirement for Acute Lethality Testing. In addition to establishing criteria, the Regulation also requires the implementation of an EEM program. See Note 1.
Transportation of Dangerous Goods Act and Regulations	Handling and transporting of dangerous goods	Transport Canada	If the materials are transported and handled fully in compliance with the regulations, a permit is not required. A Permit for Equivalent Level of Safety, also known as an Equivalency Certificate, is required if a variance from the regulations is necessary.
Canadian Environmental Protection Act (CEPA)	Activities that have the potential to interact with the environment and human health	ECCC	CEPA provides framework for setting environmental quality objectives, guidelines and codes of practice, pollution prevention plans, regulation of toxic substances, controlling pollution of other wastes and environmental emergency plans
Species at Risk Act	Mortality of endangered species or other species under federal authority	ECCC	Measures must be taken to avoid or lessen adverse effects on species at risk and that effects are monitored. Mitigation measures must be consistent with recovery strategies and action plans for species.

Table 3-2 Environmental Compliance Standards

Legislation/ Guidelines	Activity Requiring Compliance	Responsible Agency	Comment
Migratory Birds Convention Act	Mortality of migratory birds, and any species under federal authority	ECCC, Canadian Wildlife Service (CWS)	CWS will be notified about the mortality of any endangered migratory bird in the Project area, including passerine (songbirds), seabird and waterfowl species. Harmful substances (e.g., oil, wastes) that are harmful to migratory birds must not be deposited into waters that are frequented by them. Nests, eggs, nest shelters of migratory birds must not be disturbed or destroyed. Notice should also be given to ECCC-CWS regarding the mortality of any endangered species (under federal regulation).
Provincial Regulations			
Environmental Protection Act	Green Bay Copper Gold Project	NLDECCC – PPD	Waste material will be reviewed, prior to disposal, for reuse, resale or recycling. Waste materials will be disposed at an approved waste disposal site.
	Green Bay Copper Gold Project	NLDECCC – PPD	All activities are subject to the *Air Pollution Control Regulations, 2022.* Materials as stipulated in the Regulations cannot be burned in the open.
	Storage, handling and disposal of gasoline and other fuels	NLDECCC – PPD	Petroleum storage and handling is subject to the *Storage and Handling of Gasoline and Associated Products Regulations, 2003*. Refer to Section 5.1 of the EPP for the Fuel and Hazardous Material Spills Contingency Plan.
	Disposal of used oil	NLDECCC – PPD	The storage and disposal of used oil is subject to the *Used Oil and Used Glycol Control Regulations*.
	Handling and storage of hazardous materials	NL Department of Government Services – Occupational Health and Safety Division	Activities involving the use of designated hazardous materials are subject to Workplace Hazardous Materials Information System (WHMIS). WHMIS outlines procedures for handling hazardous materials and provides details on various hazardous materials.
Endangered Species Act	Green Bay Copper Gold Project	NLDFAL – Wildlife Division	Provides protection for plant and animal species considered to be endangered, threatened, or vulnerable in the province. Includes permitting provisions for research and economic activities.
Wild Life Act	Green Bay Copper Gold Project	NLDFAL – Wildlife Division	The NL *Wild Life Act* which prohibits the hunting, taking, or killing of wildlife or classes of wildlife (including avifauna), except under license or permit.
Water Resources Act	Mine Project Site drainage discharge	NLDECCC – Water Resources Management Division	All waters discharged must comply with the *Environmental Control Water and Sewage Regulations, 2003*. See Note 2.
Dangerous Goods Transportation Act and Regulations	Transporting fuel to the site	NL Department of Transportation and Infrastructure	Transporting goods considered dangerous to public safety must comply with regulations.
Historic Resources Act	Construction and operation activities	NL Department of Tourism, Culture, Arts and Recreation –Provincial	All archaeology sites and artifacts are considered the property of the Crown and must not be disturbed. Any archaeology materials encountered must be reported to the PAO.

Table 3-2 Environmental Compliance Standards

Legislation/ Guidelines	Activity Requiring Compliance	Responsible Agency	Comment
		Archaeology Office (PAO)	

Note 1. MDMER also requires periodic characterization of effluent and monitoring of receiving water quality. Periodic biological monitoring is also required with regard to potential effluent related environment effects.

Note 2. EEM requirements set out under the Certificate of Approval are usually harmonized with those required by MDMER.

3.3 Rehabilitation and Closure

FireFly is committed to full rehabilitation and closure of the Project sites at the end of the mine life. The requirements and planning of rehabilitation and closure activities are different for each of the three sites, and the general goals and activities for each are described separately below. In 2018, a Rehabilitation and Closure Plan (RCP) was filed as required by the NL *Mining Act* and Section 7 of the pursuant *Mining Regulations* and accepted by the NL government. Financial assurance of $4.8 M has been bonded for the Ming Mine and Nugget Pond Mill. In 2023, FireFly committed to updating the RCP and financial assurance. At the time of writing this document, the RCP is under review by Newfoundland and Labrador Department of Energy and Mines (NLDEM). In general, the RCP is updated as needed or, at a minimum, every 5 years. With the addition of the Green Bay Ming Mine Project, the RCP will be further updated, however, the following sections summarize the 2018 Rehabilitation and Closure plans, for current disturbance at Ming Mine Site, Nugget Pond Mill and Goodyear's Cove.

3.3.1 Ming Mine Site

Once mining is completed and reserves depleted, the surface and underground infrastructure will be removed, PAG mine wastes will be returned underground, stockpiles that are left on surface for the long term will be regraded and stabilized, underground openings will be properly sealed, and the ground surface will be reclaimed and re-vegetated. The rehabilitation and closure work at this site will address historical liabilities, where applicable, including mine waste at surface, unprotected mine openings, and deteriorated surface infrastructure. At this time, FireFly has assumed that the tailings are PAG and intends to store the material below water and/or with a Saturated Sand Cover (NAG Tailings) cap to mitigate ARD/ML within the TMF for perpetuality.

3.3.2 Nugget Pond Mill

In general, buildings and infrastructure will be removed along with associated chemicals and equipment, and disturbed areas will be reclaimed and re-vegetated, where necessary. The tailings pond dams at the Nugget Pond will be left in place and the decant and pumping systems removed and replaced with permanent spillways to provide a permanent water cover over the impounded tailings. The polishing pond dam will be removed and the area regraded. FireFly will obtain a permit under Section S48 of the *Water Resources Act* prior to conducting any work on the dams.

3.3.3 Goodyear's Cove

This site is currently owned by the Town of South Brook and another private land owner, and once the facility is no longer needed by FireFly, the lease agreements will be terminated. As part of the termination of the leases, infrastructure installed or moved to the site will be removed from the site and the site will be returned to the condition at the time of commencement of the lease.

3.4 Reporting

3.4.1 Internal Communication

Environmental performance and issues associated with all work activities will be communicated internally as required. The Site Manager is responsible for communicating FireFly policies and procedures and legal and other requirements to workers. Workers will communicate all environmental incidents to the Site Manager as per the Emergency Call- out & Reporting Procedures. EPP orientation and sign-off for new staff and contractor's onsite will also be conducted by the Site Manager, or designate, prior to start of work.

3.4.2 External Communication

When required, FireFly, through the HSE Department, will report on environmental issues relating to construction and operations activities for the Green Bay Copper Gold Project to the NLDECCC. Issues, which may be communicated include, but are not limited to, the following:

- Dust
- Erosion
- Historic resources
- Results of avifauna monitoring on the TMF
- Wildlife encounters of note
- Permits and authorizations

Spills of petroleum products or other hazardous materials will be reported immediately to the:

Environmental Emergencies 24 Hour Report Line, Coast Guard Traffic Centre, St. John's
(St. John's: **709-772-2083** or Other Areas: **1-800-563-9089**).

The *Fisheries Act* requires all spills to be reported, regardless of size. Any spills in ditches or on roadways or in any other place that may enter waterways frequented by fish must also be reported.

Additionally, if construction or operation activities require removal of any merchantable timber, FireFly will contact the Newfoundland and Labrador Department of Forestry, Agriculture and Lands (NLDFAL).

Instruction in Health and Safety issues is provided under separate cover as part of FireFly's existing Health and Safety program.

4.0 ENVIRONMENTAL PROTECTION PROCEDURES

This section provides a description of environmental protection procedures for the following construction and operations-related activities that are anticipated at one, or more of the Project properties:

4.1 Surveying
4.2 Buffer Zones
4.3 Laydown and Storage Areas
4.4 Clearing Vegetation
4.5 Grubbing and Disposal of Related Debris
4.6 Overburden
4.7 Excavation, Embankment and Grading Environmental Concerns (including cutting and filling)
4.8 Erosion Prevention and Sediment Control
4.9 Water Supply
4.10 Watercourse Crossings
4.11 Exploration Drilling
4.12 Pumps and Generators
4.13 Dewatering Work Areas and Site Drainage
4.14 Equipment Installation, Use and Maintenance
4.15 Storage, Handling and Transfer of Fuel and Other Hazardous Material
4.16 Propane
4.17 Waste Disposal
4.18 Sewage Disposal
4.19 Hazardous Waste Disposal
4.20 Vehicle Traffic
4.21 Dust Control
4.22 Noise Control
4.23 Road Maintenance
4.24 Building Construction
4.25 Drilling and Blasting
4.26 Waste Rock and Ore/Concentrate
4.27 Milling Activities

When required, this EPP will be revised to include new or amended environmental protection procedures so that work activities conducted at the Project sites are completed properly and that environmental aspects of the sites are well managed.

4.1 Surveying

Environmental Concerns

Surveying activities could potentially disturb wildlife species, vegetation, and historic resources.

Environmental Protection Procedures

- Width of survey lines will be limited to that which is necessary for line of sight and unobstructed passage.
- Whenever possible, cutting lines to the boundary between treed and open areas will be avoided.
- Except for Black Ash and Red Pine, trees and shrubs will be cut flush with the ground wherever possible. Black Ash and Red Pine are listed under the NLESA and are not permitted to be cut, trimmed, damaged in any way. It is possible that these two species occur in the project area..
- Cutting of survey lines will be kept to a minimum. Where possible, alternate areas not requiring cut lines will be used.
- Trees not exactly on transit lines will be left standing.
- When surveying the site limit, areas that will be cleared require a modified adherence to the above, except trees, shrubs and areas to be saved or left natural as noted on the plans or marked in the field.
- No attempt to harass or disturb wildlife will be made by any worker (refer to Section 5.2).
- Vehicles will yield the right-of-way to wildlife and no attempt to harass or disturb wildlife will be made by any worker.
- There will be no cutting in areas designated as sensitive without notification and approval of Site Manager.
- Historic resource discoveries will be reported to the PAO (see Section 5.5).
- Sites where surface disturbances are planned or may occur will be inspected and monitored prior to, during, and after the work as described in Section 3.2.
- Benchmarks, under normal ground conditions comprise a 15 mm x 400 mm long rebar driven approximately 350 mm into the surface with an 8-lb sledgehammer. When bedrock or a large boulder is encountered less than 300 mm below the ground surface, a 15 mm x 150 mm long rebar is cemented in a hole drilled in the rock. The rebar will be set into the rock a minimum distance of 80 mm.
- The limits for approved disturbance activities including clearing, grubbing and topsoil overburden removal will be clearly identified (flagging / survey stakes) in the field prior to the commencement of work.

4.2 Buffer Zones

Environmental Concerns

Buffer zones are boundaries of undisturbed vegetation maintained along water bodies. Without adequate buffer zone vegetation, streams, ponds and lakes can potentially become laden with silt from surface run-off. Vegetation also provides cover for fish.

Environmental Protection Procedures

As much as possible, recommended buffer zone requirements for activities near watercourses (Table 4-1) will be maintained. If work is anticipated within the recommended buffer zone, FireFly will first consult applicable regulators and obtain necessary permits and approvals as applicable to work within the buffers.

Where possible, additional buffer widths will be maintained according to the guidelines shown in Table 4-1. Buffers will be established and maintained around identified sensitive areas (e.g., wetlands, rare plant occurrences, hibernacula, roosts), where feasible.

Table 4-1 Recommended Minimum Buffer Zone Requirements for Activities near Watercourses

Activity	Recommended Buffer Width
Development around watercourses in urban or other developed area[1]	15 m depending upon site specific considerations
Development around wetlands and waterbodies[2]	30 m
Resource roads or highways running adjacent to water bodies[3]	20 m + 1.5 X slope (%)
Piling of wood and Slash Grubbing	30 m
Placement of Site Trailers Fuel storage	100 m
Stockpiles of organic cover and other excavated materials[4]	50 m

Source:
[1]*Lands Act*
[2] Environmental Protection Guidelines for Forestry Operations (2026) visible on 1:50,000 National Topographic System
[3]Gosse et al. 1998
[4]NLDIET 2022

4.3 Laydown and Storage Areas

Environmental Concerns

Areas will be required for storing and maintaining equipment and supplies during construction and operations activities. Clearing and use of these areas could result in erosion and run-off of sediment into nearby waterbodies.

Environmental Protection Procedures

- Existing laydown and storage areas will be used, where feasible.
- New ore/waste rock laydown, maintenance or storage areas required for construction and operations activities will only be established within the site boundaries and to applicable specifications.
- Establishing any new laydown or storage areas will follow the procedures for vegetation clearing (Section 4.4), grubbing and debris disposal (Section 4.5), and erosion prevention (Section 4.8).
- External storage areas will be placed on level terrain and kept free of ponding or run-off.
- Drainage from areas of exposed soil will be controlled by grade or ditching and directing run-off away from waterbodies.
- Laydown and storage areas no longer required for construction and operations activities will be rehabilitated.
- Fuel will be stored, handled, and transported according to Section 4.15.

4.4 Clearing Vegetation

Environmental Concerns

Vegetation clearing (e.g., trees, shrubs) will be required prior to earthworks, site development, and infrastructure construction. Potential concerns include stockpiling vegetation in or near watercourses, roadways or open pits/shafts, uncontrolled burning, or potential scheduling of clearing in bird-nesting areas during nesting periods. There is potential for the presence of tree species at risk (SAR) on site, including Black Ash (*Fraxinus nigra*) and Red Pine (*Pinus resinosa*). The unpermitted removal, disturbance or destruction of these species is strictly prohibited.

Environmental Protection Procedures

- Clearing activities will comply with the requirements of all applicable permits, including the Permit to Burn.
- Clearing activities will comply with the NL *Endangered Species Act (*NL ESA) and the *Species at Risk Act* (SARA).
- Clearing will be limited to that needed to accommodate site features.
- As further detailed in Section 5.3, timing of vegetation clearing will avoid, where possible, the nesting and breeding season of avifauna **(May 1-August 15)**. If clearing must occur during breeding season, the following measures will be implemented (in accordance with guidelines outlined in the MBCA):
    - Prior to clearing, qualified biologists or trained surveyors will conduct systematic nest searches. These searches will identify active nests, signs of breeding behaviour, calls, droppings, or habitat likely to contain nests.
    - If an active nest is found, a no-work buffer zone must be established and clearly delineated. The buffer size depends on species, nest location, and sensitivity; some species require very large setbacks. Activities in the nesting area will be halted until nesting is completed, i.e., the young have left the vicinity of the nest.
    - Nests will not be marked using flagging tape or other similar material as these increase the risk of nest predation.
- Prior to tree clearing activities, contractors are required to review the provided “Reference Guide to: Tree Species at Risk (SAR) Newfoundland – FireFly Metals: Green Bay Ming Mine Project Site“ (see Appendix H), which outlines the distinguishing characteristics of Red Pine and Black Ash. If a tree of either species is observed or suspected to be observed, contractors must immediately halt clearing in the area and notify the Site Manager. Clearing activities will not recommence until the identify of the suspected SAR tree is confirmed by a qualified biologist. If presence of a SAR is confirmed, work may only resume upon authorization from the Site Manager and in accordance with applicable environmental protection requirements and Project-specific mitigation measures, as directed by the NLDFAL.
- Follow guidance relative to reducing adverse effects to avifauna. See Section 5.3, Avifauna Management Plan.
- Notice will also be given about the mortality of endangered species under federal or provincial regulations.
- If vegetation clearing occurs during the active bat season (approximately May 1 to October 31), targeted pre-

clearing surveys for bat maternal colonies/roost sites will be conducted in trees with a diameter at breast height of greater than 25 cm in those areas proposed to be cleared and where suitable habitat exists. Survey methods will be consistent with the Newfoundland and Labrador Provincial Bat Monitoring Emergency Count Instructions.

  - If an active bat colony is detected, a no-cut buffer of 250 metres will be applied and information including geospatial location sent to the Wildlife Division of the NLDFAL.

- Subsequent bat emergence survey must be conducted in the fall to confirm that juvenile bats have fledged and dispersed from the site.
- Vegetation clearing will be scheduled outside of the active bee season (May-August) to reduce potential disturbance or harm to pollinator species, including SAR, where practicable.
- Clearing will consist of cutting to within 15 centimetres (cm) of the ground and disposing of standing trees, as well as removing shrubs, debris and other vegetation from the area. These materials will be stacked clear of on- going activities for future rehabilitation. The Environmental Protection Guidelines for Ecologically Based Forest Resource Management (DFRA 1998) will be observed.
- If possible, large diameter trees will be maintained, especially those that are dead or dying. These types of trees typically have peeling bark, crevices and cavities that provide important roosting habitats for bats.
- In the event that usable or merchantable timber is removed during vegetation clearing, FireFly will notify the NLDFAL.
- Disposing of cleared un-merchantable timber, slash and cuttings by burning will comply with the *Forest Fire Regulations* under the *Forestry Act*, Environmental Code of Practice for Open Burning and the Permit to Burn (from NLDFAL). At no time will a fire be left unattended.
- Slash and any other material or debris related to construction or operations activities will not be permitted to enter any watercourse, and will be piled above spring flood levels and retained for final rehabilitation efforts.
- Chain saws or other hand-held equipment will be used in clearing vegetation except where alternative methods or equipment is approved by FireFly, such as mechanical harvesters. The use of mechanical clearing methods, such as bulldozers, will not be permitted except where it can be demonstrated that there is no merchantable timber, and where the resulting terrain disturbance and erosion will not result in the loss of topsoil or the sedimentation of nearby waterbodies.
- As much as possible, a minimum 30 m buffer zone of undisturbed vegetation will be maintained between the development area and other wetlands and waterbodies (Section 4.2). If work is anticipated within the 30 m buffer zone, FireFly will first consult applicable regulators.
- Timber will be felled inward toward the work area to avoid damaging standing trees within the immediate work area.
- Workers will not destroy or disturb any features indicative of a cultural or archaeological site. Such features should be avoided until a report has been made to the PAO and clearance to proceed has been received. See Section 5.5.

- Sites where surface disturbances are planned or may occur will be inspected and monitored prior to, during, and after the work as described in Section 3.2.

4.5 Grubbing and Disposal of Related Debris

Potential Environmental Concerns

Concerns associated with grubbing and disposal of related debris are the potential adverse effects on freshwater ecosystems and water quality through the release of sediment into watercourses, as well as the potential for disturbing historic resources.

Environmental Protection Procedures

- Grubbing of the organic vegetation mat and/or the upper soil horizons will be restricted to the least area required.
- Nests, eggs, nest shelters of migratory birds or other wildlife must not be disturbed or destroyed. As well, efforts will be taken to complete clearing in these areas outside of the bird breeding season. Refer to Section 5.3 for additional measures related to avifauna management.
- The organic vegetation mat and upper soil horizon material that has been grubbed will be spread, in a manner to cover inactive exposed areas or retained for use in rehabilitation efforts.
- Notice should also be given about the mortality of any endangered species under federal and provincial regulations.
- Surplus of such material will be stored or stockpiled for site rehabilitation and revegetation purposes.
- Topsoil and organics should be stored in low (1 m to 2 m high) stable piles (Gosse et al. 1998). The location of the stockpiles will be recorded and accessible for future rehabilitation purposes.
- Measures will be implemented to reduce and control runoff of sediment-laden water during grubbing, and the re-spreading and stockpiling of grubbed materials. Where grubbed materials are re-spread or stockpiled, as many stumps and roots as possible will be left on the ground surface to maintain soil cohesion, dissipate the energy of runoff and promote natural revegetation. Erosion control measures will be implemented in areas prone to soil loss (Section 4.8).
- The length of time that inactive grubbed areas will be left exposed to the natural elements will be minimized to prevent unnecessary erosion. Mitigations such as the placement and maintenance of silt curtains will be used to prevent erosion from exposed areas.
- Grubbing activities will adhere to the buffer zone requirements outlined in Section 4.2.
- During grubbing, grubbed material will not be pushed into areas that are to be left undisturbed. Grubbing material will be buried with 60 cm of soil cover.
- Discovery of historic resources will be handled according to the procedures outlined in Section 5.5.

4.6 Overburden

Environmental Concerns

Concerns associated with the placement of overburden includes potential siltation of the aquatic environment, pertaining to water quality and substrate, as well as loss of habitat and displacement of wildlife.

Environmental Protection Procedures

- Overburden storage areas will be located at least 50 m from any waterbody on well-drained soil (Gosse et al. 1998).
- If required, collection ditches and settling ponds will be used to manage surface runoff from overburden stockpiles.
- Overburden will be stored in stable piles and sloped to prevent pooling of surface water pending use in site rehabilitation efforts.

4.7 Excavation, Embankment and Grading Environmental Concerns

Environmental concerns associated with excavation, embankment and grading are the potential impacts on aquatic ecosystems and water quality due to runoff of sediment-laden water.

Environmental Protection Procedures

Work will be conducted with the minimum amount of disturbance necessary. Works within 15 m of waterbodies or watercourses will strictly follow the requirements outlined in the acquired watercourse alteration approvals from the NLDECCC and Fisheries and Oceans Canada (DFO). Work will be conducted in a manner that controls potential sedimentation of watercourses and waterbodies (including wetlands) in or adjacent to the work areas as outlined in the following procedures. No work below the high water mark of any surface water feature will be conducted without the prior notification and assessment by the HSE Department.

- During excavation, embankment and grading activities, excavated materials will be sorted into separate stockpiles (i.e. topsoil, overburden, waste rock) for later rehabilitation purposes and to prevent mixing.
- Excavation, embankment and grading within 30 m of a stream crossing will be done in such a manner that erosion and sedimentation of watercourses and waterbodies (including wetlands) is managed and strictly follows the requirements outlined in the acquired watercourse alteration approvals from the NLDECCC and DFO.
- A buffer zone of undisturbed vegetation will be maintained between Project activities and watercourses, as per Section 4.2.
- Grading, if required, will be directed away from wetlands, where possible, and grading will be reduced within wetland boundaries unless required for site-specific purposes.

4.8 Erosion Prevention and Sediment Control

Environmental Concerns

Eroded material could potentially cause siltation in water bodies and potentially decrease suitable habitat for aquatic and terrestrial animals.

Environmental Protection Procedures

- Work relating to the construction and operations activities for the Project will be conducted according to the conditions set out in the permits and/or approvals and authorizations from the NLDECCC.
- Primary means for controlling erosion is avoiding activity that contributes to erosion. The disturbance of new areas will be reduced to the extent practicable.
- Drainage ditches will be stabilized if required (e.g., lining with vegetation or rock, terracing, interceptor swales, installation of rock check dams) to reduce soil erosion. Any such measures will be properly maintained following installation.
- Areas of exposed erodible soil will be stabilized by back-blading, grading and/or compacting to meet engineered slope requirements.
- If an environmental inspection reveals that silt is entering any waterbody, further mitigative measures will be implemented, such as temporary drainage ditches, siltation control (settling) ponds, ditch blocks/check dams or sediment dam traps, to intercept run-off. The necessary or appropriate measures will be determined in the field.
- Work and laydown and storage areas will be monitored for erosion and appropriate repair action taken as necessary.
- Existing or new siltation control structures used in this work will be monitored by the contractor for excessive accumulation of sediment. The contractor will remove accumulated sediment from control structures to gain full effectiveness of the systems. Effluent from control structures will be released to flow overland for appropriate filtration prior to entering any waterbody.
- The contractor will be required to remove excess water from siltation control systems prior to excavation of sediment. Trucks will be equipped with liners to prevent loss of wet sediment during transport.

4.9 Water Supply

Environmental Concerns

Environmental concerns related to surface water supply include potential detrimental effects to the fish habitat (and populations) in and around the potentially affected waterbody. Use of groundwater wells has potential to affect the surrounding groundwater quantity and flow.

Environmental Protection Procedures

- The water intakes must have an appropriate screen to prevent damage to fish. Guidelines for the screening of water intakes are provided by DFO (1995).
- Surface water withdrawals will be limited to less than 10% mean monthly flow or 30% (winter) /50% (summer) mean annual flow, whichever is higher in value, to limit adverse impact to fish and fish habitat.
- FireFly will ensure that potable drinking water complies with the Guidelines for Canadian Drinking Water. If groundwater wells are used for potable water at the Ming Mine, they will be routinely tested for compliance with the Canadian Drinking Water Guidelines.

4.10 Watercourse Crossings

Potential Environmental Concerns

Potential environmental concerns associated with stream crossings and culvert installations include potential direct disturbances to or mortality of fish, and potential loss of fish habitat resulting from sedimentation and removal of habitat and stream bank vegetation. An evaluation of soil erosion potential will be conducted at each of the stream crossings. This assessment of potential erosion risk will assist in the development of specific erosion stabilization methods and effective sedimentation control practices on a site-specific basis.

Environmental Protection Procedures

No work below the high-water mark of any surface water feature will be conducted without the prior notification and assessment by the HSE Department. Stream crossings will be constructed in compliance with the required Permit for Culvert Installation from NLDECCC, Water Resources Management Division (WRMD) and any approvals required from NLDECCC and/or DFO.

The following measures will be implemented to reduce the potential impacts of stream crossings, if stream crossings are required:

- During sensitive fish life stages, stream crossing activities will be undertaken under the direct supervision of the Site Manager.
- Avoid the entry of deleterious substances including, but not limited to, materials such as sediment and fuel to watercourses and waterbodies during watercourse crossing work.
- A minimum buffer of undisturbed natural vegetation will be left between access roads and the bank of any watercourse that it parallels. The buffer width will be a minimum of 30 m or as determined through application of the following standard formula:

  Buffer width (m) = 20 m + 1.5 x slope (%) (Gosse et al. 1998)

- In waterbodies that are known to be frequented by fish, where culverts are required, application will be made to NLDECCC and DFO. The culverts used will be sized to handle the 1-in-25-year return period flood and will be constructed in accordance with the Environmental Guidelines for Culverts from the WRMD.
- The following measures will also be implemented:
  - Culvert(s) will be installed in accordance with good engineering and environmental practices
  - Unless otherwise indicated, work will take place in dry conditions, either by the use of cofferdams or by diverting the stream
  - Installation of cylindrical culverts shall be counter sunk only where necessary to protect fish habitat such that the culvert bottom is one-third the diameter below the streambed in the case of culverts less than 750 mm outside the diameter; for culverts greater than 750 mm outside diameter, the culvert bottom shall be installed a minimum of 300 mm below the streambed
  - In multiple (gang) culvert installations, one culvert will be installed at an elevation lower than the others

- The natural low flow regime of the watercourse will not be altered
- A culvert will not be installed before site specific information, such as localized stream gradient, fish habitat type and species present, have been evaluated. Culverts are to be installed using the guidelines provided in Gosse et al. (1998)
- Riprap outlets and inlets will be used to prevent erosion of fill slopes
- Culverts of sufficient length will be used to extend a short distance beyond the toe of the fill material
- Backfilling material used will be of a texture that shall support the culvert and limit seepage and subsequent washing out
- Culverts will be aligned such that the original direction of stream flow is not significantly altered
- Fill and debris will be removed from the culvert area to a location above the peak flow level to prevent its entry into the stream
- Fill material shall not be removed from streambeds or banks, except when installing a culvert when removal of material is necessary for a flat foundation
- The use of heavy equipment will be reduced and restricted in and near watercourses; where possible, an excavator will be used from shore rather than a bulldozer in the watercourse. No work will be conducted within the waterbody unless approved by the appropriate regulators
- As required, cofferdams of non-erodible material shall be used to separate work areas from the watercourse when excavating for culverts and footings
- Cofferdams shall be removed upon completion of the construction phase and the streambed returned as closely as possible to its original condition

- When fording any watercourse, the Environmental Guidelines for Fording from the WRMD (1992) will be applied in conjunction with the following:
  - Areas of spawning habitat will be avoided
  - Crossings shall be restricted to a single location and crossings made at right angles to the watercourse
  - Equipment activity within the watercourse shall be reduced by limiting the number of crossings
  - Equipment will be mechanically sound to avoid leaks of oil, gasoline and hydraulic fluids
  - No servicing or washing of heavy equipment will occur adjacent to watercourses; temporary fueling, servicing or washing of equipment in areas other than the main fuel storage site will not be allowed within 100 m of a watercourse except within a refueling site approved by FireFly, where conditions allow for containment of accidentally spilled fuels; remove from the work area and properly dispose of waste oil, filters, containers or other such debris in an approved waste disposal site

- Stabilize the entire fording area using vegetation mats, corduroy roads or coarse material (125 mm diameter or greater), and the ford area is not natural bedrock, or is easily disturbed by fording; when the substrate of the ford area is not subject to easy disturbance by fording, or coarse material is not easily available within the lease boundaries, fording under existing substrate conditions may occur under the direction of the Site Manager
- Fording activities will not decrease the depth of the watercourses to less than 20 cm; where the existing depth is less than 20 cm, that depth shall be maintained
- Fording activities will be halted during high flow periods
- Stabilize bank sections which contain loose or erodible materials; if banks must be sloped for stabilization, no material shall be deposited within the watercourse; sloping shall be accomplished by back-blading and the material removed shall be deposited above the high-water mark of the watercourse
- Fording activities will comply with specific requirements and conditions detailed in the acquired approvals from the NLDECCC and DFO
- To enable work in the dry, the flow of water must be diverted around the work area during the installation of a culvert (Gosse et al. 1998)
- Culverts should be marked to indicate their position under the snow

4.11 Exploration Drilling

Environmental Concerns

The environmental concerns with exploration drilling include potential surface disturbances, disposal of drilling fluids and cuttings potential siltation, generation of dust, noise and the potential impacts on terrestrial habitats, air quality, aquatic ecosystems and historic resources.

Environmental Protection Procedures

- Potential drilling sites in sensitive areas should be inspected prior to any drill site preparation by the Site Manager, whenever possible.
- Vegetation will be cleared following the procedures detailed in Section 4.4.
- Waste oil will be removed from the drill site and properly disposed of.
- Water applications will be used to control dust where necessary. The use of water for dust control or lubrication during drilling will be undertaken in such a manner that runoff will not enter watercourses.
- Water used throughout the drilling process will remain on the drill site. A Water Use License will be issued as part of the Application for Exploration Approval from the WRMD. Every effort will be made to prevent turbid water from entering any watercourse.
- Cuttings from drill activities will not be removed from the site; they will remain in the immediate location of drilling activities.
- Fuel will be stored, handled and transported according to Section 4.15.
- Garbage and solid waste will be removed from the drill site and deposited in an approved waste disposal area. Waste generated will be disposed of at an approved NL facility.
- Due to the nature of drilling activities (i.e., quicksnaps and couplings) oil drops and leaks may occur and every attempt possible will be made to clean up the area. All rigs will be equipped with oil absorbent material in case of a leak or spill.
- During the winter season, snow machines are to be used to transport drill materials, core and personnel to and from the drill sites.
- Abandoned exploration drill holes will be temporarily capped or indefinitely sealed with appropriate material depending on the timing to allow for any necessary downhole testing. When all test work on the hole has been completed, it is permanently sealed.
- Abandoned drill roads will be re-contoured to the natural grade of the land and, in some areas, hay and seedlings may be planted to encourage re-growth.

4.12 Pumps and Generators

Environmental Concerns

Environmental concerns relative to the use of pumps and diesel-powered emergency power backup generators include, but are not limited to, potential accidental spills or chronic leaks that may contaminate soil and/or waterbodies, including groundwater.

Environmental Protection Procedure

- To reduce fire hazards, fuel will not be stored immediately adjacent to generators, and the fuel storage area should be well ventilated. Fuel will not be stored within 100 m of waterbodies (Gosse et al. 1998).
- Fuel storage containers are to have spill trays beneath with a potential capacity of 110% of volume. They should also be in a covered and secured area.
- Drip pans will be placed underneath pumps, nozzles and generators located near waterbodies.
- Hoses and connections on equipment located near waterbodies will be inspected routinely for leaks and drips.
- Leaks will be reported immediately to the Site Manager, and in turn to the HSE Department.
- In addition to spill kits located at fuel storage tanks, additional spill kits will be located at designated central storage location(s). Personnel who deal with fueling, fuel transfer and pumps and generators will be trained in the use of the kits.

4.13 Dewatering Work Areas and Site Drainage

Potential Environmental Concerns

The major concern associated with site dewatering and drainage is potential siltation and fish mortality and/or habitat destruction. Additional concern exists relative to the management of contact water, which is the interaction precipitation and drainage with PAG waste rock and/or ore.

Environmental Protection Procedures

- Diversion of runoff from undisturbed areas around proposed disturbance areas to minimize the amount of contact water required to be managed through the site water management systems.
- Avoidance of areas impacted by historic mining activities to maintain existing water courses.
- During construction, contact water from disturbances associated with the mine development (runoff from cleared and stripped areas, overburden, roads and pads constructed of clean aggregate and revegetated areas) will be collected and conveyed to Total Suspended Solid (TSS) treatment areas and eventually discharged to the environment. TSS treatment areas will consist of settling ponds and/or geotubes. Sediment control measures such as silt fence and haybales will also be installed around the perimeter of disturbance areas for local sediment control.
- During operations, contact water from disturbance area will be routed to the polishing pond and used to supplement process water or treated (as required) and discharged to the environment.
- Potentially impacted runoff water from the Process Plant area, Ore Stockpile Pad, Waste Rock Stockpile Pad, Mine Shaft Area Stockpile, Portal area, and other areas will be collected and transferred to the TMF and/or Polishing Pond. The Polishing Pond will be primarily used as to supply process water to the Process Plant. Excess water from the Polishing Pond will be treated (as required) and discharged to the environment.
- Supernatant water (process water plus meteoric water) from the TMF will be transferred to the Polishing Pond or pumped directly to the Process Plant for use as process water.
- Water management infrastructure including ponds and catch basins will be sized to manage the runoff resulting from the 1 in 100 year and 1 in 25 year, 24-hour storm events, respectively. At the Nugget Pond Mill Site, all run-off water and process water will be held and treated prior to release to the environment by way of the TMF.
- Monitoring of site run-off will be conducted as per provincial requirements following effluent quality standards.
- If monitoring indicates regulated water quality standards are exceeded, FireFly will develop additional protocols in consultation with the NLDECCC.

4.14 Equipment Installation, Use and Maintenance

Environmental Concerns

A variety of vehicles and heavy equipment will be used at various locations at the different Project sites. Environmental concerns associated with operating and using such equipment includes potential air emissions, accidental spills and chronic leaks that may contaminate on-site water bodies, groundwater, and soil.

Environmental Protection Procedure

- Equipment maintenance and fueling activities will be performed at sites designated by the Site Manager and in compliance with applicable regulations.
- Drip pans will be placed underneath pumps, fuel storage, and generators.
- Hoses and connections on equipment will be inspected routinely for leaks and drips.
- Leaks will be repaired and reported immediately to the Site Manager.
- Fuel and other hazardous materials will be handled according to the procedures in Section 4.15.
- In addition to spill kits located at fuel storage tanks, additional spill kits will be located at designated central storage location(s). Personnel who deal with fueling, fuel transfer and pumps and generators will be trained in the use of the kits.
- Equipment will arrive at the construction site clean and free of soil and vegetative debris, to reduce the risk of introducing or spreading non-native and/or invasive vascular plant species. Equipment will be inspected and either approved for use or cleaned, re-inspected and approved for use. If invasive vascular plant species are noted within or near the Project Area during construction or operation, the extent of the species will be assessed and a plan for removal and/or control will be developed.

4.15 Storage, Handling and Transfer of Fuel and Other Hazardous Material

Typical hazardous substances that may be used at the various site locations include, but are not limited to:

- Petroleum, oil, and lubricants
- Chlorinated and non-chlorinated solvents (e.g., cleaner-degreasers)
- Flammable gases (e.g., acetylene)
- Waste petroleum products (e.g., used engine oil)
- Process chemicals
- Corrosives (e.g., battery acid)
- Glycol (e.g., antifreeze)

Environmental Concerns

The primary concern with using hazardous substances is a potential uncontrolled release to the environment through spillage, and the subsequent adverse effects on terrestrial and aquatic habitat and species, soil, groundwater quality, and human health and safety.

Environmental Protection Procedures

- The Globally Harmonized System for the Classification and Labelling of Chemicals (WHMIS 2015) and *Workplace Hazardous Materials Information System* (WHMIS) *Regulations, 2018* under the *Occupational Health and Safety Act* will apply to handling and storage of hazardous materials. Relevant current Material Safety Data Sheets will be readily available for the site.
- Precautions will be taken to prevent and reduce the spillage, misplacement or loss of fuels and other hazardous materials. In the event of a spill, the clean-up procedures as outlined in the Fuel and Hazardous Material Spills Contingency Plan (Section 5.1) will be implemented. In the event of a reportable spill on-land or a spill of any size in the freshwater environment, the Environmental Emergencies 24-Hour Report Line will be contacted.

  St. John's: **709-772-2083** or Other Areas**: 1-800-563-9089**

- A spill is defined as reportable, depending on the class and quantity of dangerous goods involved, which varies between applicable Regulations:
  - Reportable spill quantities for hazardous materials are listed in the *Transportation of Dangerous Goods Regulations* – Part 8, under the *Transportation of Dangerous Goods Act.*
  - A reportable hydrocarbon spill is defined as loss of gasoline or associated products in excess of 70 litres (L) in the Storage and Handling of Gasoline and Associated Products Regulations, 2003 under the provincial *Environmental Protection Act.*
  - *The Fisheries Act* requires all spills to be reported, regardless of size. Any spills in ditches or on roadways or in any other place that may enter waterways frequented by fish must also be reported.

- A copy of FireFly's Contingency Plan (located in Section 5.1) for fuel and hazardous material spills will be readily available.
- Fuel storage systems will be registered and will comply with the *Storage and Handling of Gasoline and Associated Products Regulations, 2003*. Verification of the storage tank approval will be retained by FireFly.
- Only workers who are qualified and trained in handling these materials as stated in the manufacturer's instructions and government laws and regulations will handle fuel and other hazardous materials.
- Operators will attend the entire refueling operations.
- Fuel and other hazardous materials will be stored at least 100 m from any surface water (Gosse et al. 1998).
- Emergency spill kits will be readily available when working within 15 m of watercourses and waterbodies.
- Handling and fueling procedures will comply with the *Storage and Handling of Gasoline and Associated Products Regulations, 2003* and any additional requirements put forth by the NLDECCC in order to limit potential contamination of soil or water.
- Fuel storage areas and non-portable transfer lines will be clearly marked or barricaded so that they are not damaged by moving vehicles. The markers will be visible under all weather conditions. Barriers will be constructed in compliance with the *Storage and Handling of Gasoline and Associated Products Regulations, 2003*.
- Waste oils, lubricants, and other used oil will be retained in a tank or closed container, and disposed of in accordance with the *Used Oil and Used Glycol Control Regulations* under the provincial *Environmental Protection Act.* Spill trays will be used and substances will be stored in a secured area/shed.
- Fire and spill response materials will be kept onsite.
- Despite measures taken to reduce the potential for spills or leaks, should any soils be contaminated by petroleum hydrocarbons, they will be assessed and managed in accordance with the provincial Environmental Protection Act. All storage tank systems will be inspected on a regular basis by the operator as per Section 18 of the *Storage and Handling of Gasoline and Associated Products Regulations*, *2003*. This involves, but is not limited to, gauging or dipping, reconciliation of records and the proper maintenance of reconciliation records for a period of two years.
- Contracted fuel suppliers will, before transporting or positioning fuel or oil, have on file at FireFly a copy of their fuel and hazardous material spills contingency plan which is required under *Storage and Handling of Gasoline and Associated Products Regulations, 2003* and which is acceptable to FireFly. The fuel and hazardous material spills contingency plan for FireFly is provided in Section 5.1.
- Transportation of hazardous and dangerous materials shall be conducted in accordance with provincial, territorial and federal transportation regulations. Transportation documents shall be retained in a retrievable filing system and stored for the duration of the undertaking.
- Smoking will be prohibited within 10 m of a fuel storage area.

- Fueling or servicing of mobile equipment will be conducted in designated areas and will not occur within 100 m of any body of water (Gosse et al. 1998).
- Drum storage areas will not be located within 100 m of a water body (Gosse et al. 1998). Drums containing hydrocarbon or other hazardous materials will be transported, stored, handled and disposed of such that spillage or leakage does not occur. Drums will be tightly sealed against corrosion and rust and surrounded by an impermeable barrier in a dry building with an impermeable floor or outside with appropriate spill containment (110%) and covers. FireFly must approve the location of drum storage areas.
- Small quantities of hazardous material, e.g., drums, cans and other containers holding less than 20 L, will be stored in a secure location protected from weather and freezing, as well as from vehicle traffic.
- Where hazardous materials are to be stored outdoors, a designated area will be established, graded and fitted with an impermeable membrane covered with local soil and surrounded by an earth berm.
- Within thirty (30) days of decommissioning of a storage tank system, the system will be emptied of all products, the tank and associated piping will be removed, as well as any contaminated soil, and the area will be cleaned and the site restored.
- Decommissioning of any temporary storage tank system will be conducted according to the Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products (CCME 1994).
- Hazardous waste will be moved to an appropriate hazardous waste storage area (refer to Section 4.19 for disposal). These areas are constructed in compliance with all applicable federal and provincial legislation.

4.16 Propane

Environmental Concerns

There are potential risks associated with propane storage and use. Propane is a flammable substance and poses potential threat as an asphyxiate to humans and animals. In liquid form, propane could potentially cause frostbite once in contact with skin. Propane containers could potentially explode if exposed to heat or fire.

Environmental Protection Procedures

- Propane storage tanks will be installed as per manufacturer's specifications.
- Tank maintenance schedules will be set and followed.
- Areas surrounding propane storage tanks will be well ventilated and free of any possible ignition sources and combustible materials.
- Tanks will be grounded to avoid static accumulation.
- Notification of use, volumes, etc. and a maintenance and Emergency Response Plan will be submitted in accordance with *Canadian Environmental Protection Act* (CEPA), *1999*.

4.17 Waste Disposal

Environmental Concerns

Waste (e.g., domestic, industrial, grey water, paper, cardboard, and wood), if not properly controlled and disposed of, can be unsightly and could potentially cause human safety and health concerns. It could also attract wildlife, leading to the potential for human-wildlife conflicts. A comprehensive Waste Management Plan has been developed under separate cover.

Environmental Protection Procedures

- Solid waste will be handled according to the provincial *Environmental Protection Act*.
- Waste will not be transported across the provincial boundary.
- Domestic waste disposal will be managed by the Mine Contractor and will be transported offsite for disposal.
- All solid waste materials shall be considered, prior to disposal, for reuse, resale, or recycling.
- Solid waste produced by site personnel and operations will be collected and disposed of at an approved facility.
- Waste accumulated on site prior to disposal will be confined, so that it does not pose an environmental or health hazard.
- Work areas will be kept clear of waste and litter to reduce the potential for attracting wildlife and reducing potential interactions with wildlife (see procedures in Section 5.2 for handling wildlife encounters).
- Waste that may attract animals, e.g., food, will be stored in covered, wildlife-proof containers.
- Burning of waste is not permitted without appropriate permits.
- All hazardous wastes generated will be handled according to the procedures for handling fuel and hazardous materials (Section 4.15).

4.18 Sewage Disposal

Environmental Concerns

The release of untreated sewage is a potential concern to human health, drinking water quality, and freshwater and marine ecosystems. Domestic sewage will be generated at all the Project sites.

Environmental Protection Procedures

- At the Goodyear's Cove Site, is on care and maintenance, personnel conduct routine inspections but are no longer present at site and lavatories are closed.
- Sewage from the Nugget Pond Mill Site will be processed using the pre-existing Cromaglass sewage treatment facility before discharging to the Polishing Pond.
- At the Ming Mine Site, the proposed domestic sewage system for the accommodation complex considers the treatment of sewage with on-site membrane bioreactor and leach field and/or will be collected for off-site disposal at an existing, approved sewage disposal facility. The sewage treatment and leach fields will be designed to comply with provincial standards and monitored to ensure they comply with regulatory requirements.
- If used, portable toilets will be located a distance of at least 25 m from any work site in a direction away from bodies of water and must be removed upon completion of construction activities.

4.19 Hazardous Waste Disposal

Environmental Concerns

The primary concern with the use or disposal of a hazardous substance is the potential for an uncontrolled release to the environment through leakage or accidental spillage, and subsequent adverse effects on terrestrial and aquatic habitat and species, soil, groundwater quality, and human health and safety.

Environmental Protection Procedures

- All hazardous waste will be handled according to the provincial *Environmental Protection Act*. Waste classified as “hazardous” or “special” that cannot be disposed of in regular landfill sites will be sent for disposal to a licensed hazardous waste management company. If there are no approved hazardous waste facilities in Newfoundland, any such waste will have to be moved outside the Province and the federal *Transportation of Dangerous Goods Regulations* will apply to the movement of such waste.
- All necessary precautions will be taken to prevent and reduce the spillage, misplacement or loss of fuels and other hazardous materials. In the event of a spill on-land or in the freshwater environment, refer to the Fuel and Hazardous Material Spills Contingency Plan (Section 5.1).
- A copy of the Fuel and Hazardous Material Spills Contingency Plan will be present at hazardous material storage sites and fuel transfer locations.
- Hazardous waste materials will only be handled by workers who are qualified and trained in handling these materials as stipulated in government laws and regulations.
- Waste accumulated on site prior to disposal will be confined, so that it does not pose an environmental or health hazard.
- Waste material will not be disposed of on-site or in a body of water.
- Burning of waste is not permitted.
- Where hazardous waste materials are to be stored outdoors, a designated area will be established, graded and fitted with an impermeable membrane covered with local soil and surrounded by an earth berm.
- Waste oils, lubricants, and other used oil will be retained in an approved tank or closed container, and disposed of in accordance with the *Used Oil and Used Glycol Control Regulations*.
- Any soil contaminated by small leaks of oil or grease from equipment will be disposed of according to the CEPA.
- Hazardous wastes generated, by alternative treatments will be handled according to the procedures for handling fuel and hazardous materials (Section 4.15).

4.20 Vehicle Traffic

Environmental Concerns

Project-related vehicular traffic can result in fugitive dust, emissions and noise. FireFly is committed to the proper operation and maintenance of their own and contractor and subcontractor vehicles to reduce adverse environmental effects. In order to minimize the adverse effects of vehicular traffic on the general public, FireFly will post notices indicating that heavy duty vehicles will be in the area and will instruct vehicle operators to yield the right-of-way to the public, pursuant to vehicular traffic regulations. In addition, FireFly will provide training to mine workers on safe driving awareness, and will monitor vehicle use.

Environmental Protection Procedures

- All Project-related vehicle and equipment use, including use of ATVs, will be restricted to designated routes within and between work, laydown, maintenance and storage areas. Vehicles and equipment will be operated on previously disturbed areas, wherever feasible.
- All site vehicles and equipment will be properly maintained to meet emission standards.
- Travel in areas outside designated work areas will not be permitted.
- All Project-related vehicles and equipment will yield to wildlife (see procedures in Section 5.2 for handling wildlife encounters).
- All Project-related vehicles and equipment will yield to people, if present, and reduced speeds will be maintained on all roadways.
- Chasing and/or harassing wildlife with Project-related vehicles and equipment will not be permitted.
- Maintaining and refueling Project-related vehicles will be restricted to designated areas (See Section 4.15).
- Heavy equipment (e.g., dump trucks and front-end loaders) will only be used in work areas.
- Access roads will be monitored for signs of erosion and appropriate action will be taken to repair roads, when necessary.
- As required, dust suppression measures, such as watering the roads, will be implemented.
- All-terrain vehicles (ATVs) and snowmobiles will not be allowed off the right-of-way except as approved by the Site Manager.
- The use of ATVs will be restricted to designated trails, thus limiting ground disturbance.
- ATV and snowmobile use will comply with the *Motorized Snow Vehicles and All-Terrain Vehicles Regulations* under the *Motorized Snow Vehicles and All-Terrain Vehicles Act* and the Environmental Guidelines for Stream Crossings by All-Terrain Vehicles issued by the NLDECCC.
- No motorized vehicles will enter the areas designated as sensitive without notification and approval of the Site Manager.

4.21 Dust and Air Contaminant Control

Environmental Concerns

The environmental concerns associated with dust include potential human health effects and potential effects on aquatic ecosystems and vegetation. Potential sources of dust will be fugitives from wind erosion of stockpile surfaces, material transfer (loading and unloading) at stockpiles, and fugitives from travel on unpaved haul roads.

Environmental Protection Procedures

- Dust from operating activities (except the crushing circuit) will be controlled using water. In the event of excessive dust, water will be applied to travel and work surfaces.
- Waste oil will not be used for dust control, but other agents such as calcium chloride may be used with the approval of the appropriate regulatory agencies.
- Concentrate transport trucks will be covered.
- Goodyears' Cove site is on care and maintenance and no longer in use. Dust suppression on conveyor systems will include covering conveyors, adding sprays and/or similar technologies at the Ming Mine site.
- Disturbed areas will be revegetated as soon as possible to limit dust emissions and already disturbed areas will be used for Project infrastructure where feasible to limit the extent of construction activities.
- Grid electricity, which is primarily generated from hydroelectric power in NL, will be used as the primary source of energy for the facility, reducing greenhouse gas (GHG) and air contaminant emissions.
- A best available control technology (BACT) study will be conducted for direct GHG sources of the Project to identify and select the lowest GHG-emitting technologies currently deemed technically and economically feasible for the Project.
- Tier 4 engines are considered BACT for air contaminant emissions from diesel engines and will be used for mobile equipment and where available used for standby emergency generators.
- Specific stockpiles of topsoil, overburden, and other potentially dust-generating materials (except the ore or waste rock piles) will be kept covered, where practical, and used as soon as practical, or will be appropriately temporarily vegetated.

4.22 Noise and Light Control

Environmental Concerns

A variety of noises and light associated with Project activities can potentially cause negative effects on wildlife resources in terms of their distribution and abundance.

Environmental Protection Procedures

Measures will be implemented wherever possible to reduce potential impacts arising from a variety of noise and light sources.

- Adherence to all permits, and approvals.
- Vehicles and generators will have exhaust systems regularly inspected and mufflers will be operating properly.
- Project lighting will be limited to that which is necessary for safe and efficient Project activities. Lighting design guidelines will be followed, such as the Commission Internationale de L'Éclairage, International Dark Sky Association, Illuminating Engineering Society.
- Light fixtures will be located so that they are not directed toward oncoming traffic on nearby roads on or off site.
- Lighting will be designed to avoid excessive use of mobile flood lighting units and will be turned off when they are not needed.
- To the extent practicable, mobile and permanent lighting will be located such that unavoidable light spill off the working area is not directed toward receptors outside of the Project Area.
- Full cut-off luminaires will be used where practicable to reduce glare, light trespass and sky glow from the Project.
- Where practicable in accessible areas (e.g., along cleared rights-of-way), trees and other vegetation will be left in place or encouraged to grow to obstruct the view of Project facilities and act as a wind break to reduce the transportation of fugitive dust, reducing the change in viewshed and muffling nuisance noise as well as reducing GHGs released from land-use changes and maintaining carbon sequestration.
- Idling of equipment will be reduced, where practicable to reduce noise, air contaminant and GHG emissions.
- Enclosures, berms, or other barriers may be considered for activities involving excessive noise emissions.

4.23 Road Maintenance

Environmental Concerns

Erosion of roadbeds and siltation of watercourses may result from improperly constructed or upgraded roads. Road maintenance (e.g., snow clearing) activities may result in discharges to waterbodies.

Environmental Protection Procedures

- See environmental protection procedures for Buffer Zones (Section 4.2), Clearing Vegetation (Section 4.4), Grubbing and Disposal of Related Debris (Section 4.5), Overburden (Section 4.6), Excavation, Embankment and Grading (Section 4.7), Erosion Prevention and Sediment Control (Section 4.8), Equipment Installation, Use and Maintenance (Section 4.14), Vehicle Traffic (Section 4.20), Dust Control (Section 4.21), and Noise Control (Section 4.22).
- Snow clearing equipment will be inspected and maintained per Section 4.14.
- Gravel is used to reduce icy conditions of roadways, which is the preferred alternative to salt.
- Roadbeds will be inspected on an annual basis for slumping and potholes.
- Waste rock used to upgrade or construct site roads will be non-PAG material (Section 4.26).
- Contact water will be collected and managed through the wastewater management plant prior to release to the environment (Section 4.13).

4.24 Building Construction

Environmental Concerns

The environmental concerns associated with the installation and operation of buildings (including pre-fabricated buildings) include potential disturbance of wildlife due to installation noise and human presence, and potential impacts on water quality due to domestic waste and hazardous waste. Additional environmental concerns surround concrete production and placement associated with building construction. Effluents may contain hazardous materials such as cement, concrete additives and form oil.

Environmental Protection Procedures

- Noise related to the construction of buildings will be temporary and will be reduced per Section 4.22.
- Regular inspections of construction equipment will be performed (Section 4.14).
- Form work and concrete placement procedures will be implemented to prevent the spillage of concrete to any waterbody.
- Concrete additives, if required, will be stored in approved sealed containers.
- Concrete production related wash-down water, from the cleaning of concrete trucks, miscellaneous concrete equipment, etc., will be collected and properly handled prior to discharge (Section 4.13).
- Run off from aggregate stockpiles will be collected and properly handled prior to discharge (Section 4.13).
- Any PAG waste rock that is excavated to make way for building foundations at the Ming Mine Site will be transported to the waste stockpile area and eventually will be placed underground or TMF (Section 4.26).
- No PAG rock will be used for aggregate, except the low interior dam structure of the TMF that will be buried and submerged under tailings for perpetuity (Section 4.26).
- Domestic sewage from buildings at the Project will be processed and discharged according to Section 4.18 (Sewage Disposal).
- Domestic waste will be controlled per environmental protection procedures in Section 4.17 (Waste Disposal).

4.25 Drilling and Blasting

Environmental Concerns

Potential environmental concerns associated with underground blasting include vibration and noise, dust generation, and the potential introduction of silt and ammonia into groundwater and into water bodies through mine dewatering effluent. Environmental concerns related to drilling are disposal of drilling fluids and cuttings, potential siltation, generation of dust, noise, air quality, and aquatic ecosystems.

As the drilling and blasting will be conducted underground, impacts at surface are expected to be minimal.

Environmental Protection Procedures

General Blasting Environmental Protection Procedures:

- The contractor will conduct blasting work in compliance with the appropriate permits and/or approvals and authorizations. All blasters will have a Blasters Safety Certificate, and blasting will be conducted in adherence to FireFly's safe work procedures and the Occupational Health and Safety legislation.
- The contractor will obtain the appropriate approvals for all magazines for explosive.
- The contractor will handle, transport, store, and use explosives and all other hazardous materials in compliance with all applicable laws, regulations, orders of the NL Department of Government Services and NLDEM.
- The contractor will use blasting patterns and procedures which reduce shock or instantaneous peak noise levels.
- The contractor will not blast in the vicinity of fuel storage facilities.
- The contractor will restrict use of explosives to authorized personnel who have been trained in their use.
- The contractor will ensure that there are separate magazines on site for explosives and for dynamite blasting caps. It is planned that there will be separate magazine for caps and explosives. The cap magazine is in place from previous mine operations and will only need to be refurbished. The existing explosive magazine will need significant refurbishment or a new magazine will need to be constructed.
- Where necessary, effluent from blasted areas will be monitored and sampled as per current operating Certificate of Approvals. Effluent will be treated, if required, prior to discharge.
- All personnel must be trained to comply with safe blasting procedures established by FireFly.
- The contractor will coordinate and schedule blasting activities to limit the number of blasts required.
- In order to reduce the seismic effect, blasting patterns and procedures will be optimized to reduce the shock wave and noise.
- The contractor will store explosives and auxiliary materials as stipulated in relevant legislation and in compliance with their operations permit and this EPP.

4.26 Waste Rock and Ore/Concentrate

Environmental Concerns

Given that the ore and waste rock mined from the Ming Mine site have the potential to be acid generating and metal leaching, it is important to design and operate the Project sites in a manner that reduces the impact on the surrounding environment. As surface water drainage comes in contact with the stockpiled mine ore and PAG waste rock, there is some concern this drainage may become more acidic and may lead to higher suspended solids and metal concentrations.

Environmental Protection Procedures

FireFly plans to implement environmental controls to ensure operations are conducted in a manner reducing the impact to the environment as much as possible. In general, the environmental controls are as follows:

- Since some of the waste rock generated from underground development will be PAG, as much of this material as possible will be kept underground to reduce the environmental impact. Geochemical studies will be conducted to identify rock types that are PAG and non-PAG, in conjunction with grade control during operations, there will be a good understand of rock types to ensure proper management. Waste rock that is PAG and brought t to surface will be stored in a temporary waste rock pile. To avoid long-term environmental liability, PAG material brought to surface will eventually be stored back underground to inhibit acid generation
- Rock used to upgrade or construct site roads will be non-PAG material (Section 4.23).
- PAG waste rock that is excavated to make way for building foundations will be transported to the waste stockpile area and eventually will be placed underground (Section 4.7). During the construction phase, PAG waste rock, may also be stored in perpetuity in the basin of the TMF, submerged below water and tailings.
- Due to the acid-generating potential of select waste rock types and ore rock from the mine, the temporary waste rock and ore stockpile base will be profiled to collect runoff water into cut out drains and channel to collection sumps. The precipitation that comes into contact with the waste rock and ore (contact water), will then be pumped to the TMF. Excess water will be directed to the wastewater management plant (WWMP) for treatment as needed prior to discharge or maybe used as reclaim water in the Process Plant.
- Regular environmental monitoring and sampling of the effluent discharge water as well as surface water locations on and around the site.
- Currently, it is planned to cap the historic waste rock in the area of Boundary Shaft, which will reduce potential for disturbance or dust lift-off from this PAG waste rock. Based on current configuration of infrastructure, there are no plans to disturb soils that are impacted by historic mining activities; however, if inadvertently disturbed, the impacted material would be removed from site and disposed of in accordance with applicable regulations or managed on site in accordance with best practices for metal leaching / acid rock draining (ML/ARD) materials.
- Waste rock used to upgrade or construct site roads, pads or any other infrastructure area will be non-PAG material. This may come from an existing, permitted off-site quarry or could be quarried onsite within the footprint of the TMF, depending on the results of geochemical testing. Non-PAG waste rock may also come from the Project mine development and from other nearby operations depending on the results of geochemical testing.

4.27 Processing Activities

Environmental Concerns

The primary environmental concerns related to the processing activities at the Nugget Pond Mill and at the process plant at the Ming Mine site deal with the production and storage of PAG tailings. Other concerns include runoff, and particularly the runoff from the ore stockpiles. There are also environmental concerns related to the noises associated with ore processing activities and its potential impacts on wildlife distribution and abundance, as well as dust generation and its potential human health effects and potential effects on aquatic ecosystems and vegetation. There is also a potential for avifauna to use the TMFs. If the water quality of the TMF have been demonstrated to be adverse or deleterious to avifauna, hazing efforts will be undertaken to discourage the presence of avifauna in these areas.

Environmental Protection Procedures

Measures to control dust and reduce noise will be implemented whenever possible to reduce potential impacts arising from processing activities.

- Machinery used in ore processing will have exhaust systems regularly inspected, and mufflers will be operating properly to reduce exhaust output and noise.
- Dust from ore processing activities will be managed per standard environmental protection procedures for dust control (see Section 4.21).
- Noise from ore processing activities will be reduced per standard environmental protection procedures for noise control (See Section 4.22).
- Waste oil will not be used for dust control. Water or other agents such as calcium chloride may be used with the approval of the appropriate regulatory agencies.
- All tailings will be stored in the TMF. Long-term storage of tailings involves sub-aqueous and/or a saturated sand cover (tailings) deposition in an engineered TMF. Due to the PAG properties of the tailings, the TMF will be lined with a HDPE geomembrane. Drainage at the toe of the dam will be directed to collection points and pumped to the polishing pond or back into the TMF for management in the WWMP or reclaimed for process water in the plant. It is anticipated that most of the water will be recirculated back to the process plant for use in the plant.
- Issues surrounding ore stored on site will be reduced as per the environmental protection procedures in Section 4.26.
- Site contact water will be directed to the TMF or polishing pond and discharged and or pumped back to the process plant for re-use as mentioned in Section 4.13. Therefore, contact water will be held and managed through the WWMP prior to release.
- At this time cyanide is not planned for use in the process plant, however, if cyanide is used, hazing procedures, e.g., Breco buoys, Phoenix Wailers etc., will be implemented to deter waterfowl from using the TMF.

5.0 CONTINGENCY AND MANAGEMENT PLANS

Contingency plans to address incidents and unplanned situations have been developed, and will be modified as required throughout activities associated with the Project.

Contingency plans have been developed to address potential incidents and unplanned situations:

- Fuel and Hazardous Material Spills (Section 5.1)
- Wildlife Encounters (Section 5.2)
- Avifauna Management during all work activities (Section 5.3)
- Forest Fires (Section 5.4)
- Discovery of Historic Resources (Section 5.5)
- Tailings Dam Failure (Section 5.6)
- Mine Rescue and First Aid (Section 5.7)

Notwithstanding the existence of these contingency plans, a policy to implement preventative measures as the first line of defense against the possibility of accidents will be adopted.

5.1 Fuel and Hazardous Material Spills

Environmental Concerns

Fuel and hazardous materials can potentially be damaging to vegetation, soil, surface water, ground water, wildlife, aquatic organisms, historic resources and human health and safety.

Environmental Protection Procedures

In case of a fuel or hazardous material spill, the following procedures will apply.

- The individual who discovers the leak or spill will make a reasonable attempt to immediately stop the leakage and contain the flow. Spill kits are located at fuel storage tanks and at designated central storage location(s).
- Spill location, type of fuel or hazardous material, volume and terrain condition at the spill site will be determined and reported immediately to the Site Manager, who will report it immediately to ECCC.
- The spill occurrence shall be documented on the Spill Report Form provided in Appendix F.
- In the event of a reportable spill on-land or any spill regardless of size that may enter a waterbody frequented by fish or known to be used as a public source for water, must be reported immediately to the

Environmental Emergencies 24 Hour Report Line
709-772-2083 or **800-563-9089**

- A spill is defined as reportable, depending on the class and quantity of dangerous goods involved, which varies between applicable Regulations:
  - Reportable spill quantities for hazardous materials are listed in the *Transportation of Dangerous Goods Regulations* – Part 8, under the *Transportation of Dangerous Goods Act*.
  - A reportable hydrocarbon spill is defined as loss of gasoline or associated products in excess of 70 L in the *Storage and Handling of Gasoline and Associated Products Regulations, 2003* under the provincial *Environmental Protection Act.*
  - The *Fisheries Act* requires all spills that may enter waterways frequented by fish to be reported, regardless of size.
- Pertinent information that must be included when reporting a spill includes:
  - Name of reporter and phone number
  - Time of spill or leak
  - Time of detection of spill or leak
  - Type of product spilled or leaked
  - Amount of product spilled or leaked
  - Location of spill or leak

- Source of spill or leak
- Type of accident - collision, rupture, overflow, other
- Owner of product and phone number
- If the spill or leak is still occurring
- If the spill or leaked product is contained, and if not, where it is flowing
- Wind velocity and direction
- Temperature
- Proximity to waterbodies, water intakes, and facilities
- Snow cover and depth, terrain, and soil conditions

The Site Manager will act as the "On-Scene-Commander" for the purposes of cleaning up a fuel or hazardous materials spill. The Site Manager will be familiar with spill clean-up procedures and mobilization procedures of the clean-up equipment. The Site Manager will have full authority to take necessary and appropriate action without unnecessary delay.

The overall responsibility of coordinating a clean-up and maintaining this contingency plan current and up-to- date will be the HSE Department.

Staff will be trained on the procedures to follow in case of hydrocarbon spills, as well as information related to general communication line. FireFly will provide personnel a responsibilities list before the start of construction and operation activities.

A complete list of spill response equipment will be generated and distributed on-site before the start of construction activities.

- In reaching decisions on containment and clean-up procedures, the following criteria will be applied:
  - Minimize danger to workers and public
  - Protect water supplies
  - Minimize pollution of watercourses
  - Minimize area affected by spill
  - Minimize the degree of disturbance to the area and watercourses during clean-up
- The Site Manager will act in consultation with the regulating authorities to:
  - Assess site conditions and environmental impacts of various cleanup procedures
  - Assess potential for fuel recovery versus burning
  - Deploy on-site staff to mobilize pumps and empty 215-L drums or other appropriate storage containers to the spill site

- Deploy on-site staff to build containment dykes and commence pumping contaminant into drums
- Apply absorbent as necessary
- Dispose of all contaminated debris, cleaning materials and absorbent by burning, if appropriate, or by placing it in an approved land-fill site
- Take all necessary precautions to avoid the incident in the future

- The Site Manager will be responsible for the preparation of a written report which will be sent (as soon as possible, and no later than 30 days after the spill) to the HSE Department; and, from there to:

Director, Pollution Prevention Division
Department of Environment, Conservation and
Climate Change
P.O. Box 8700
St. John's, NL A1B 4J6
Telephone: (709) 729-5782
Facsimile: (709) 729-6969

and

Environmental Emergencies
Environment and Climate Change Canada
6 Bruce Street
Mount Pearl, NL A1N 4T3
Telephone: 709-693-7179
Facsimile: 709-772-5097

5.2 Wildlife Management

Environmental Concerns

Several SAR have been identified as potentially present within the Project Area, including species of insects, bats and trees. Wildlife encounters pose a potential risk for stress or injury to both wildlife and site personnel. To mitigate these risks, control measures and environmental protection procedures have been established to reduce disturbance, prevent harm, and allow for compliance with applicable SAR legislation and environmental protection requirements. Furthermore, as per Condition of Release 6.5, FireFly will develop an Environmental Effects Monitoring Plan (EEMP) that discussed impacts to and preventive measures, mitigation, and long-term monitoring for species listed under the NL *Endangered Species Act*, species of conservation concern, and wetlands for the lifetime of the Project. The EEMP will be provided to Wildlife Division for approval prior to the commencement of Project operation.

Environmental Protection Procedures

Prevention

The operator is responsible to see that the following procedures are implemented:

- Site and working areas will be kept clean of food scraps and garbage.
- Waste will be collected for disposal in appropriate containers and routinely transferred to the local landfill.
- There will be a strict ‘no feeding of wildlife’ policy for Project personnel.
- Hunting, trapping or fishing by construction and operations personnel within the surface lease area of the sites is not permitted.

Response Actions

All construction/operations personnel will abide by the following rules in the case of wildlife encounters:

- No attempt will be made by any worker at the Project site to chase, catch, divert, follow or otherwise harass wildlife by vehicle or on foot.
- Equipment and vehicles will yield the right-of-way to wildlife.
- A no hunting, fishing, or trapping policy will be implemented for staff working within the surface lease area of the sites.
- No personal pets will be allowed on the site.
- A wildlife response procedure for nuisance and injured wildlife will be implemented at site. Personnel will be trained to be aware of the potential for encounters with bears, caribou, moose, coyote, etc. and they will be instructed to immediately report any sightings to the Site Manager. The Site Manager will notify the HSE Department to report any wildlife sightings and to assess actions for follow-up. Reports of encounters with wildlife and nuisance animals will be submitted to Wildlife Division.
- The Site Manager will be responsible for all actions in response to nuisance animals (e.g., bears) in the Project area and will advise the HSE Department of recommended further action.

- Under provincial wildlife regulations, the displacement and release of any animal is the sole jurisdiction of the Wildlife Division of NLDFFA and is to be undertaken only under appropriate supervision.
- Avifauna management is described in Section 5.3.
- Caves, sinkholes, fissures, or other underground cavities that are identified as a result of Project activities will be inspected for signs of previously overwintering bats.
- Observations of bats, bat colonies, potential hibernacula sites, or sick or dead bats will be reported to the provincial Wildlife Division at 709-637-2025 or through the toll-free bat hotline: 1-877-434-2287 (BATS).
- Prior to demolishing / deconstructing existing buildings and infrastructure, surveys for breeding birds and roosting bats will be conducted.
- The discovery of bat roosts or hibernacula, or active dens (e.g., marten dens), will be reported immediately to the Health, Safety and Environmental Superintendent or designate and work will cease until appropriate action or follow-up is determined, guided by consultation with a qualified biologist and/or federal or provincial regulators.
- Additional mitigation may involve offering alternate habitat (e.g., artificial structures such as bat boxes) to off-set the loss of roosting habitat as a result of development.
- Water management infrastructure will be designed to allow wildlife crossing opportunities.
- If pest control is required, mechanical or biological methods will be used first. Use of neonicotinoids is prohibited. FireFly will notify the NLDFAL prior to planned application of herbicides and/or pesticides. Notification will allow the NLDFAL to provide guidance and recommend appropriate mitigation measures to reduce potential adverse effects on insect SAR. Note that no pesticide use is currently planned as part of Project activities.
- FireFly will implement measures to maintain and enhance habitat for the Yellow-banded Bumble Bee (*Bombus terricola*), listed as a SAR, and other insect SAR. Mitigation measures shall include the following:
    - Clearing will be avoided during peak activity (May to August) where practicable.
    - Clearing and grubbing will be limited to that needed to accommodate site features. Coarse woody debris and soil patches will be left undisturbed where practicable to support nesting habitat.
    - Dust control measures will be implemented at active work zones and along site roads, haul roads, and the port access road to reduce effects on adjacent flowering plants and pollinator foraging areas.
    - Where revegetation or rehabilitation is planned, FireFly will rehabilitate soil and slopes to pre-construction conditions so that revegetation may happen naturally.
    - Site orientation will include information on bumble bees (e.g., identification, activities and sting protocols); sitings of potential SAR species will be reported to the Site Manager and then to the HSE Department.
    - Potential Yellow-banded Bumble Bee nesting and overwintering habitat will be maintained, to the extent practicable, including abandoned underground burrows (nesting), and rotting logs, loose soil, mulch (overwintering), and activities that may cause unnecessary soil compaction will be avoided.

5.3 Avifauna Management during all Site Activities and Phases

Environmental Concerns

The Avifauna Management Plan has been designed to reduce the possibility of incidental take of active nests during construction activities associated with the Project. FireFly will avoid adverse impacts on avifauna whenever possible. The construction footprint will be limited to the greatest extent possible and whenever possible, FireFly will endeavor to complete required clearing outside the regional bird breeding season clearing (May 1-August 15).

Environmental Protection Procedures

Prevention

If clearing is required during the regional bird breeding season, FireFly will ensure the following mitigations specific to avifauna are carried out:

- Monitoring for bird nests will be conducted in advance of site clearing during the breeding season (May 1st to August 15th) and efforts will be made to avoid trees with nests during that time. Non-intrusive surveys for nests will be conducted, in accordance with the Specific Considerations Related to Determining the Presence of Nests (ECCC 2019).
- The *Migratory Birds Convention Act* (MBCA) protects most bird species and their nests, with the exception of the following groups: certain game birds, (e.g., grouse, quail, pheasants, and ptarmigan), raptors (e.g., hawks, owls, eagles, and falcons), cormorants, pelicans, crows, jays, and kingfishers, and some species of blackbirds (e.g., starlings) which are managed under the provincial *Wild Life Act*.

Response Actions

- Timing of vegetation clearing will avoid, where possible, the nesting and breeding season of avifauna. If clearing must occur during breeding season, the following measures will be implemented (in accordance with guidelines outlined in the MBCA):
    - Prior to clearing, qualified biologists or trained surveyors will conduct systematic nest searches. These searches will identify active nests, signs of breeding behaviour, calls, droppings, or habitat likely to contain nests.
    - If an active nest is found, a no-work buffer zone must be established and clearly delineated. The buffer size depends on species, nest location, and sensitivity; some species require very large setbacks. Activities in the nesting area will be halted until nesting is completed, i.e., the young have left the vicinity of the nest.
    - Nests will not be marked using flagging tape or other similar material as these increase the risk of nest predation.
- Raptors, although not protected under the MBCA, are protected under NL's *Wild Life Act*. In accordance with provincial guidelines, should a nest of a raptor be found, the following steps will be taken:
    - A buffer zone of 800 m for Bald Eagle and Osprey will be maintained while the nest is active, and a buffer zone of 200 m will be maintained for rest of the year and for other species of raptors

- After the young have left their nest, a buffer zone of 250 m will be maintained
- If work within the appropriate buffer zone cannot be avoided, NLDFAL will be contacted for direction on how to reduce disturbance of the nest and permits that may be required

These mitigation measures in place during the construction phase of this Project will help avoid and/or reduce incidental take of avifauna during vegetation clearing.

In addition, dust from construction activities will be controlled using water if required, and noise generated from blasting or heavy equipment use will be addressed by following the requirements of permits and approvals.

Fuels and hazardous materials required during construction will be stored according to applicable regulations. Hazardous materials will be stored in appropriate locations with proper containment as required for each product. Noise associated with blasting and heavy equipment will be addressed by adherence to permits and approvals.

Environmental water quality monitoring will be carried out regularly at the TMFs. Cyanide is not planned to be used in the Process Plant at Ming Mine. However, if cyanide is used, FireFly will carry out hazing, procedures i.e., scare tactics, as recommended by ECCC, to deter waterfowl from using the TMFs. As per ECCC's advice, FireFly will use devices that do not require a permit and will alternate the scare techniques to prevent birds from acclimatizing to the same disturbance. In general FireFly will monitor the use of the TMFs for use by migratory birds and implement measures to prevent contact of migratory birds with harmful substances, as needed. Additionally, FireFly will monitor waterfowl presence in the TMFs during the bird breeding season (May 1-August 15) through daily planned observations and sightings will be logged and reported to ECCC via an Avifauna Survey sheet (Appendix G).

Focused hazing will be attempted to move birds away from waterbodies containing deleterious substances.

5.3.1 Reporting Procedures

FireFly will produce an annual report that logs all monitoring activities and reports on all monitoring commitments identified in its Avifauna Management Plan.

During the bird breeding season (May 1-August 15) a log of all nests observed will be maintained via an Avifauna Survey sheet (Appendix G) during construction activities. This log will record both active and inactive nests, i.e., no longer active, fledged, abandoned, monitoring discontinued, etc., species, location, type of nest, date of discovery, stage of development of young, date the nest became inactive, the type of construction activity nearby, and the outcomes of the monitoring and mitigation measures implemented. The annual report will include a summary of the nest monitoring log.

The monitoring data acquired during the bird breeding season (May 1-August 15) relative to waterfowl in the TMFs during operations activities will be compiled and presented in annual report. The annual report will also record:

- Any dead or injured birds found on site
- Documentation of all mitigation measures implemented and their effectiveness
- Documentation of all correspondence with regulators regarding migratory birds

5.4 Forest Fires

Environmental Concerns

Activities related to construction and/or operations could potentially result in a fire, which could spread to the surrounding area. Such events could potentially be damaging to vegetation and wildlife, air and water quality, human health and safety, and FireFly assets.

Environmental Protection Procedures

FireFly or the contractor will take all precautions necessary to prevent fire hazards when working at the site. These include but are not limited to:

- Flammable materials will be stored and handled properly.
- Flammable waste will be disposed of on a regular basis.
- FireFly or the contractor will make available, in proper operating condition, sufficient firefighting equipment to suit its labor force and fire hazards. Such equipment will comply with, and be maintained to the manufacturer's standards.
- FireFly or the contractor will ensure that its personnel are trained in the use of such equipment.
- In the event of a fire, FireFly or the contractor, if safe to do so, will take immediate steps to contain or extinguish the fire.
- The Site Manager will appoint a supervisory staff member as “On-Scene-Commander” for fighting any forest fires.
- Fires should be reported immediately to:
    - The FireFly General Manager/ VP of Operations
    - Springdale Forestry Office **(709) 673-3821**, and ultimately to the Forest Management Unit Office in Corner Brook **709-637-2408**
- The following information will be provided:
    - Name of the reporter and phone number
    - Time of detection of the fire
    - Size of the fire
    - Location of the fire
- The police will also be notified immediately at: **709-532-4221** (Baie Verte RCMP Detachment).

5.5 Discovery of Historic Resources

Environmental Concerns

No historic resources were discovered at any of the Project sites during previous work activities, and it is not anticipated that any will be found in the future; however, this section is included in the event there are discoveries.

Historic resource material that is disturbed, destroyed or improperly removed from a site represents a potential cultural loss of information and history that could otherwise be handled and interpreted in an efficient and appropriate manner.

Environmental Protection Procedures

- If suspected archaeological material is encountered, work in the immediate area of the discovery will be stopped until authorized personnel from FireFly, following consultation with the Provincial Archaeology Office (PAO), Newfoundland and Labrador Department of Tourism, Culture, Arts and Recreation, allow resumption of the work.
- The find will be reported immediately to the Site Manager.
- The site's visible boundaries will be marked. Personnel will not move or remove any artefacts or associated material unless the integrity of the material is threatened.
- The Site Manager will report the find with the following information to the PAO, and will comply with the instruction provided:
    - Nature of the find
    - Precise descriptive and map location and the time of the find
    - Nature of the activity resulting in the find
    - Identity of the worker(s) making the find
    - Present location of the material, if moved, and any protective measures initiated for the material and the site
    - Extenuating circumstances

5.6 Tailings Dam Failure

In the event of an effluent release, procedures have been developed and established and are detailed within the FireFly's Operations Emergency Response Plan (ERP) for the Green Bay Ming Mine Project as per the *Metal and Diamond Mining Effluent Regulations* (MDMER).

The ERP for the Green Bay Ming Mine operations is a key element in protecting the environment within and surrounding the property. The ERP helps to ensure that any effluent releases to the environment are handled efficiently and safely, and in a manner that will minimize any environmental impact and satisfy the appropriate regulatory requirements.

Copies of the ERP are located throughout the site and distributed to all necessary departments.

5.7 Mine Rescue and First Aid

In the event that an incident occurs, procedures have been established and are detailed within FireFly's Green Bay Ming Mine Health and Safety ERP.

6.0 ENVIRONMENTAL PROTECTION PLAN CONTROL REVISIONS

Holders of controlled copies (i.e., the version which contains all of the up-to-date procedures) of the EPP are listed in Appendix B.

The EPP will be revised as necessary to reflect site-specific environmental protection requirements and allow updates as work progresses. All EPP holders may initiate revisions by forwarding proposed revisions to the Site Manager and/or the HSE Department. The following information will be provided on the Revision Request Form (see Appendix C) for all revision requests:

- Section to be revised
- Nature of the revision
- Rationale for the revision (e.g., environment, worker safety)
- Name of person who submitted the revision request

Approval for revisions will be sought from FireFly. When the HSE Department receives approval for the revision request, details of the revision will be distributed to all EPP holders and will be documented in the Revision History Log (Appendix D). Each revision will be accompanied by:

- Revision instructions
- List of sections being superseded
- An updated Table of Contents indicating the status of each section in the EPP. When EPP Holders receive a revision, they will, within two working days:
    - Read the text of the revision
    - Check the control sheet to confirm that all the listed pages have been received
    - Remove and destroy the superseded pages from their copy of the EPP
    - Insert the revised pages in the proper place in their copy of the EPP
    - Page check the EPP, using the updated table of contents to confirm the EPP is complete and current
    - Enter the revision number and date entered on the Revision History Log
    - Incorporate the revision into the area of responsibility, as appropriate
    - Confirm that their personnel are familiar with the revisions

7.0 CONTACT LIST

FireFly Metals Canada Limited Corey Greenham Regulatory Compliance Manager, HSE Department B610 Route #418 Ming's Bight Road Baie Verte NL A0K 1B0 Canada Phone: (709) 800 1929 Fax: (709) 800 1921 Cell (709) 532-7337 Email: cgreenham@fireflymetals.ca	**ENVIRONMENTAL EMERGENCIES** **24-HOUR REPORT LINE** St. John's (709) 772-2083 Other Areas 1-800-563-9089 **Environmental Emergencies Program** **Environmental Enforcement** Tel. (709) 772-2173 Alt (709) 693-7179
ENVIRONMENT and CLIMATE CHANGE CANADA-ENVIRONMENTAL PROTECTION Environmental Assessment Coordinator Glenn Troke Mount Pearl, NL Tel. (709) 772-4087 Fax. (709) 772-5097	**RCMP** Baie Verte Detachment Tel. (709) 532-4221
ENVIRONMENT AND CLIMATE CHANGE CANADA - CANADIAN WILDLIFE SERVICE Kim Mawhinney, Manager Canadian Wildlife Service Mount Pearl, NL Tel. (709) 772-7456 Fax. (709) 772-5097	**Fisheries and Oceans Canada** 4A Bailey Street, Suite 200 Grand Falls-Windsor, NL A2A 2T5 Tel: (709) 292-5197 Fax: (709) 292-5205
DEPARTMENT OF FORESTRY, AGRICULTURE AND LANDS **Wildlife Division** Tina Leonard Manager, Forest Research and Habitat Corner Brook, NL 709.637.2025 **Springdale Forestry Office** Tel. 709-673-3821 **Forest Management Unit Office** Corner Brook, NL Tel. (709) 637-2408	**DEPARTMENT OF ENVIRONMENT, CONSERVATION AND CLIMATE CHANGE** Troy Duffy Environmental Engineer Pollution Prevention Division Department of Municipal Affairs and Environment 35 Alabama Drive Stephenville, NL A2N 2K9 Tel. (709) 643-6114 Cell: (709) 639-3980

8.0 REFERENCE MATERIAL

Canadian Council of Ministers of the Environment. 1994. Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products.

Department of Environment and Conservation, Water Resources Management Division. Chapter 3A. Environmental Guidelines for Stream Crossings by All-Terrain Vehicles. Department of Natural Resources. Estimated 1995. Environmental Guidelines for Construction and Mineral Exploration Companies.

Department of Fisheries and Oceans. March 1995. Freshwater Intake End-of-Pipe Fish Screen Guideline.

DFRA (Department of Forest Resources and Agrifoods). 1998. Environmental Protection Guidelines for Ecologically Based Forest Resource Management (Stand Level Operations).

Gosse, M.M., A.S. Power, D.E. Hyslop, and S.L. Pierce. 1998. Guidelines for Protection of Freshwater Fish Habitat in Newfoundland and Fisheries and Oceans, St. John's, NL. X + 105 pp., 2 appendices.

Newfoundland and Labrador Department of Industry, Energy and Technology (NLDIET). 2022. Environmental Guidelines for Mineral and Quarry Material Exploration.

9.0 SIGNATURE PAGE

FireFly Metals Canada Limited

The undersigned certify that they have reviewed, and understand their role and responsibility regarding:

MING COPPER-GOLD MINE PROJECT

CONSTRUCTION AND OPERATIONS

ACTIVITIES ENVIRONMENTAL

PROTECTION PLAN

As part of their Ming Copper-Gold Mine Project Orientation.

Name (Printed)	Representing Company
Signature of Above	Date
Name of Manager or Supervisor	
Manager or Supervisor's Signature	Date

APPENDIX A

LIST OF ABBREVIATIONS AND ACRONYMS

LIST OF ABBREVIATIONS AND ACRONYMS

ATV	All-terrain vehicle
BACT	best available control technology
CCME	Canadian Council of Ministers of the Environment
CEPA	*Canadian Environmental Protection Act*
cm	centimetre
CWS	Canadian Wildlife Service
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
EEM	Environmental Effects Monitoring
EPP	Environmental Protection Plan
ERP	Emergency Response Plan
FireFly	FireFly Metals Canada Limited
GHG	greenhouse gas
ha	hectare
HDPE	high-density polyethylene
HSE	Health, Safety, and Environment
km	kilometre
L	litre
m	metre
MBCA	*Migratory Bird Conservation Act*
MDMER	*Metal and Diamond Mining Effluent Regulations*
mm	millimetre
NL	Newfoundland and Labrador
NLDECCC	Newfoundland and Labrador Department of Environment, Conservation and Climate Change
NLDEM	Newfoundland and Labrador Department of Energy and Mines
NLDFAL	Newfoundland and Labrador Department of Forestry, Agriculture and Lands
PAG	potentially acid generating
PAO	Provincial Archaeology Office
PPD	Pollution Prevention Division
Rambler	Rambler Metals and Mining
the Project	Green Bay Ming Mine Project
TMF	Tailings Management Facility
WHMIS	Workplace Hazardous Materials Information System
WRMD	Water Resources Management Division
WWMP	Wastewater Management Plant

APPENDIX B

CONTROLLED COPY DISTRIBUTION LIST

CONTROLLED COPY DISTRIBUTION LIST

Department or Organization	Individual or Location

APPENDIX C

REVISION REQUEST FORM

SECTION TO BE REVISED:

NATURE OF REVISION:

RATIONALE FOR REVISION:

(i.e., environment/worker safety, etc.)

SUBMITTED BY:

Please submit request to the FireFly's Environment Team (Site Manager & Environmental Manager)

APPENDIX D

REVISION HISTORY LOG

REVISION HISTORY LOG

Version	Date Issued	Revision
0.0	24 June 2010	Draft issued to Rambler
0.1	2 July 2010	Revised draft issued to Rambler
1.0	30 August 2010	Issued to
1.1	9 November 2010	Revised and Issued to NLDECC
1.2	13 January 2011	Final issued to
2.0	October 16, 2018	Revised for Rambler Review
2.1	June 4, 2019	Revised for Rambler Review
2.2	Jan 14, 2019	NA
3.0	Dec. 16, 2026	Revised to include Green Bay Mine Ming Project

APPENDIX E

SITE CHECK LIST FORM

Site Check List
Form

Date : Weather : _____

Activities:_____

Sediment and Erosion Control Structures Adequate Inadequate
Issues : _____

Resolutions : _____

Comments : _____

Environmental Inspector : _____ _____
(Please Print) (Signature)

Submit this report to the Site Manager or other designated personnel of responsibility within the employ of
_____ ***(Contractor) upon completion.***
Revision 0

APPENDIX F

SPILL REPORT FORM

Spill Report
Form

1. Name: 2. Phone No.:_____
(person reporting the spill)

3. Time of spill or leak: 4. Time of detection: _____

5. Type of product (spilled or leaked): _____

6. Amount of product (spilled or leaked): _____

7. Location (of spill or leak): _____

8. Source (of spill or leak): _____

9. Type of accident - (check the correct response)

collision rupture overflow other_____

10. Is the spill or leak is still occurring? Yes No

11. Is the spill or leaked product contained? Yes No

if not, where it is flowing? _____

12. Are cleanup efforts already underway? Yes No

13. Wind velocity and direction: 14. Temperature: _____

15. Proximity to watercourses, sewers, and buildings/facilities:_____

16. Terrain: _____
Soil conditions: _____

17. Name of person spill was reported to: _____

Submit this completed form to the Site Manager or other designated personnel of responsibility within the employ of _____ (Contractor) upon completion.

Revision 0

APPENDIX G

AVIFAUNA SURVEY SHEET

Avifauna General Field Survey Sheet

Submitted by:	Submitted to:
Date:	Project Name:
Time:	Location:

Weather:

General Description of Survey Area

GPS Location

Easting	Northing	Time	Notes

Signature: _____

APPENDIX H

IDENTIFICATION GUIDE FOR TREE SAR

Reference Guide to:

Tree Species at Risk (SAR)

Newfoundland – FireFly Metals: Green Bay Ming Mine Project Site

Rationale/Justification

On the Island of Newfoundland, Black Ash (*Fraxinus nigra*) and Red Pine (*Pinus resinosa*) are listed as Threatened under the provincial *Endangered Species Act* (NL ESA). Under the NL ESA:

- 16(1) A person shall not disturb, harass, injure, or kill an individual of a species designated as threatened, endangered, or extirpated.
- 16(2) A person shall not capture, possess, buy, sell, or trade a specimen of a species designated as threatened, endangered, or extirpated or part of it or anything derived from it.

Black Ash

https://inaturalist.ca/observations/314551062

In NL, Black Ash do not often reach tree height and instead, typically occur as shrubs. They are found in a variety of habitats, unlike elsewhere across their range. In NL, they can be found in bogs, on dry talus slopes, as well as the typical wet areas.

https://gobotany.nativeplanttrust.org/species/fraxinus/nigra/

https://gobotany.nativeplanttrust.org/species/fraxinus/nigra/

Black Ash Leaves:

- Opposite arrangement on stem
- Compound: 7–11 leaflets per leaf
- Leaflets lance-shaped, finely toothed edges
- Each leaflet 8–15 cm long, sessile (no stalk, directly attached)
- Upper surface dull green, underside paler
- Patch of short brown pubescence on rachis near base of leaflets

https://gobotany.nativeplanttrust.org/species/fraxinus/nigra/

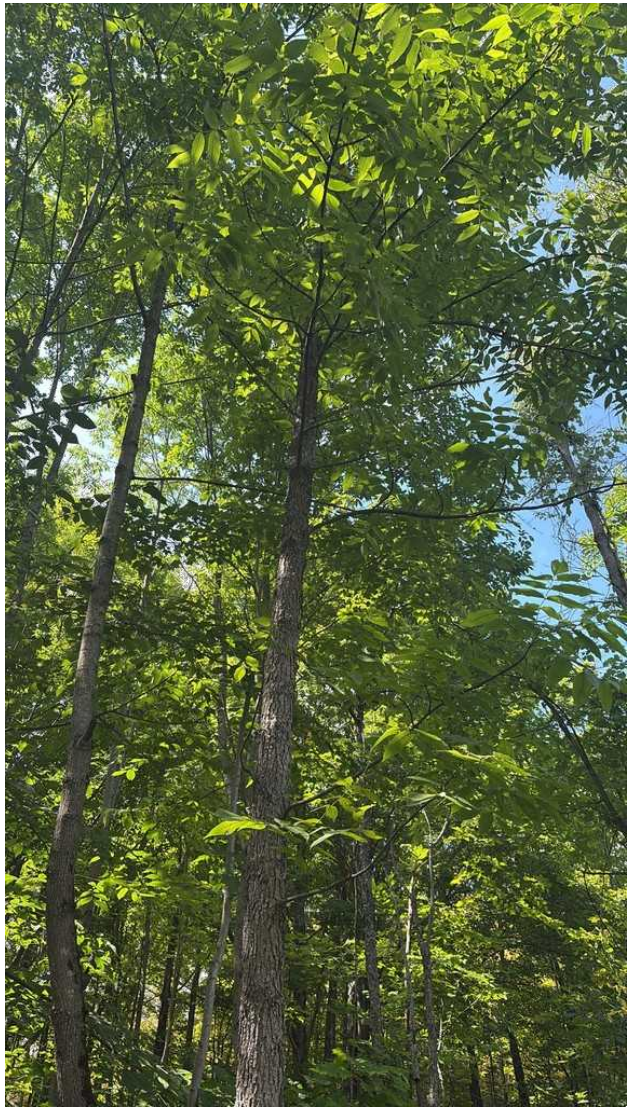
Black Ash Buds:

- Slender twigs, grayish, with opposite branching
- End bud pointed, brown to black
- Leaf scars notched into twigs (smile-shaped)

Black Ash Bark

- Gray brown to dark gray
- Soft, scaly, with a corky feel
- Becomes fissured into scaly, uneven ridges with age
- Younger bark is softer and less ridged

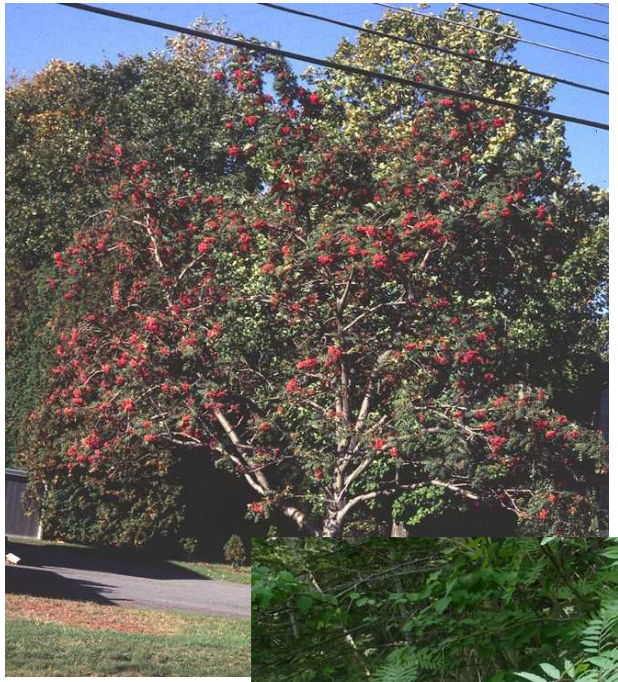
https://gobotany.nativeplanttrust.org/species/fraxinus/nigra/



https://inaturalist.ca/observations/308907596

Black Ash Compared to Mountain Ash

Mountain Ash



https://gobotany.nativeplanttrust.org/species/sorbus/americana/

https://gobotany.nativeplanttrust.org/species/sorbus/americana/

https://inaturalist.ca/observations/309023529

Mountain Ash Berries:

- Bright red to orange clusters (0.5–1 cm)
- Round berry-like pomes, borne in dense clusters
- Ripen late summer to early fall and stick around during winter

https://gobotany.nativeplanttrust.org/species/sorbus/americana/

Mountain Ash Leaves:

- Alternate arrangement on stem
- Pinnately compound: 11–17 leaflets
- Leaflets lance-shaped, finely serrated
- Each leaflet 5–10 cm long, sharply pointed
- Upper surface dull green, underside paler

https://gobotany.nativeplanttrust.org/species/sorbus/americana/

Mountain Ash Bark:

- Smooth, gray to light brown when young
- With age, develops shallow fissures and scaly patches
- Thin bark, easily damaged
- Branchlets are smooth, and brown tinged with red, until becoming darker

https://gobotany.nativeplanttrust.org/species/sorbus/americana/

Red Pine

https://gobotany.nativeplanttrust.org/species/pinus/resinosa/

Red Pine needles:
- Arranged in groups of 2
- Stiff, brittle
- "D" shaped in cross-section
- 10-16 cm long
  - Vs. Jack Pine, 2-4 cm long

https://gobotany.nativeplanttrust.org/species/pinus/resinosa/

Red Pine cones:
- Ovoid
- 4-7 cm long
- Dropped from tree once mature
  - Vs. Jack Pine, often curved, retained on tree

https://gobotany.nativeplanttrust.org/species/pinus/resinosa/

Red Pine bark:
- Scaly, reddish/pinkish
  - Vs. Jack Pine, darker more grey and more broken up bark

https://gobotany.nativeplanttrust.org/species/pinus/resinosa/

Red Pine Compared to other Pines

White Pine

White Pine cones:
- 8-20 cm long
- Cylindrical
- Dropped from tree once mature

https://gobotany.nativeplanttrust.org/species/pinus/strobus/

White Pine needles:
- Arranged in groups of 5
- 5-15 cm long
- Slender, flexible
- Triangular in cross-section

https://gobotany.nativeplanttrust.org/species/pinus/strobus/

White Pine bark:
- Smooth when young, scaly, grayish-brown when mature

https://gobotany.nativeplanttrust.org/species/pinus/strobus/

Jack Pine

Jack Pine cones:
- 3–5 cm long
- Often curved, pointed forward along branch
- Usually remain closed and retained on tree until exposed to fire/heat

https://gobotany.nativeplanttrust.org/species/pinus/banksiana/

Jack Pine needles:
- Arranged in groups of 2 Short, 2–4 cm long
- Stout, stiff, and slightly twisted
- Yellow-green in color
- Spread apart, often forming a scraggly, irregular look

https://gobotany.nativeplanttrust.org/species/pinus/banksiana/

Jack Pine bark:
- Thin, scaly, reddish-brown to gray
- Becomes irregularly flaky and shallowly furrowed with age.

https://gobotany.nativeplanttrust.org/species/pinus/banksiana/