



Iron Ore Company of Canada-Environment Department

## Environmental Protection Plan

**Centre**                      **Carol Lake Mine Site**

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# Section 1 Introduction

## Introduction and objective of plan

This environmental protection plan (EPP) outlines the required regulatory requirements and environmental protection procedures for the Operational and Development Sites at Carol Lake Project in Labrador City, owned by Iron Ore Company of Canada (IOC). This EPP satisfies the Department of Fisheries and Oceans expectations prior to issuance of a Section 35(2) Authorization under the *Fisheries Act*, and as a condition of release of the assessment requirements under the *Newfoundland Environmental Protection Act*, specifically under the *Environmental Assessment Regulations*.

**Note:** When required, project specific information will annexed to this document.

## Objective

This EPP outlines practical procedures required for all project personnel (i.e., IOC employees, contractors and suppliers) to reduce or eliminate the potential environmental effects associated with the operations and decommissioning phases. This EPP also:

- describes how IOC commitment to reduce environmental effects will be met;
- reviews potential environmental concerns and appropriate protection measures;
- provides a reference document for personnel when planning and/or conducting specific activities;
- provides direction for developing contingency plans for accidental events;
- communicates changes in the CR project through the revision process;
- provides a reference to and instructions to understand applicable legal and other requirements;
- includes a quick reference for both project personnel and regulators to monitor compliance and recommend improvements; and
- provides direction at the corporate level for ensuring commitments made in policy statements are implemented and monitored.



Any deviation from the procedures and commitments outlined in the EPP must first be discussed with, and approved by the Manager Environment & Sustainable Development.

## Environmental Protection Plan Organization

This EPP has been developed for specific activities to be conducted in support of the Operational and Development Sites. It provides instructions for addressing both planned and unplanned activities/events associated with the project. This EPP contains the following sections:

- **Section 1** provides an introduction to the EPP. It outlines the EPP purpose and organization, roles and responsibilities and environmental orientation.
- **Section 2** provides an overview of the CR Project
- **Section 3** lists the permits, approvals and authorizations required for the undertaking, and provides an overview of compliance monitoring.
- **Section 4** describes environmental concerns and environmental protection procedures for planned project activities.
- **Section 5** outlines the contingency plans for potential unplanned and accidental events.
- **Section 6** describes procedures for making revisions to the EPP.
- **Section 7** contains a list of key project and regulatory contacts.
- **Section 8** lists references cited in the EPP, as well as a number of sources of further information.

## **Roles and Responsibilities**

### **IOC**

- provide final approval for the EPP and any subsequent revisions;
- monitor and inspect the work being carried out; and
- liaise with relevant government agencies and community interest groups as required

### **Designated Environmental Advisor(s)**

- ensure the implementation of the EPP;
- be IOC's representative on-site;
- consider revisions requests, and review the EPP on an as-needed basis;
- ensure revisions are distributed to EPP holders;
- maintain document control;
- report to the Senior Environmental Advisor;
- hold an environmental orientation session for the contractor and its personnel, and any other personnel to be involved in the project on an as-needed basis;
- ensure EPP holders and their staff are familiar with the EPP and its procedures;
- ensure that all applicable approvals, authorisations and permits are obtained and adhered to;
- monitor or designate a representative to monitor project work to ensure compliance with the EPP, and all regulatory requirements and commitments; and
- report to the Operational and Development Site Project Managers, Senior Environmental Advisor , and/or appropriate agency all incidents of non-compliance.

### **Contractor and Site Personnel**

- familiarize themselves with the EPP;
- implement the EPP commitments to help reduce pollution;
- ensure all personnel and subcontractors comply with the EPP, all requirements of the contract and with all applicable laws and regulations;
- maintain training records;
- maintain regular contact with the Environmental Advisor, including, but not limited to:
  - reporting concerns immediately;
  - reporting any spills or other event that may have an effect on human or environmental health and/or safety;
- obtain all applicable approvals, authorizations and permits;
- ensure the implementation of any conditions outlined in approvals, authorizations and permits; and
- carry out clean-up, reclamation or restorative measures as directed by the Operational

and Development Sites Project Managers, Environmental Advisors and/or appropriate government agency.

**EPP Holders** (which can be contractors, operations and all relevant stakeholders)

- keep with them the latest copy of the EPP themselves and their personnel with the EPP and any revisions; and
- initiate changes to improve the quality of the plan.

**Environmental Orientation**

Through orientation and ongoing awareness training throughout the undertaking, IOC will ensure that all project personnel are competent to do their jobs properly. Employees will understand their roles and responsibilities, as well as the potential environmental effects of the overall project and their specific work activities. All workers will receive an environmental orientation prior to the start of any new activity and thereafter on an as-needed basis.

**Summary of Important Dates**

Contact the environment department for further details.

<b>Critical Bird Nesting Period</b>	May 15 - August 15
<b>Eagle and osprey</b>	May 15 - July 31
<b>Fisheries timing windows</b>	Varies see below
<b>Bank swallow nests, if present, are not impacted</b>	May 15 - end of July

All development activities shall be within the constraints of the original lease agreements. Any extensions to the lease should be recorded.

**Fisheries timing windows**

To avoid impacts on fish in Newfoundland & Labrador, do not carry out in-water work:

- in tributaries and headwaters of scheduled salmon rivers in Labrador from September 15 to June 15 (spawning, incubating and hatching period)
- in estuaries and the main stems of brown trout rivers from October 1 to November 30 (migrating period)



(taken from DFO website, June 20, 2018 <http://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/index-eng.html>)

## Section 2 Project Overview

The IOC mine site represents a continuation of ongoing IOC operations at the Carol Lake Mining Project within its original mining lease. All development activities shall be within the constraints of the original lease agreements. Any extensions to the lease should be recorded.

**Planned changes to the mine:** It is currently proposed to continue mining using existing methods, infrastructure, and processing facilities, with some modifications to an on-site haulage roads and transmission lines.

### **Construction**

With regards to activities relating to the construction of any Operational Development, this EPP only outlines the environmental protection measures associated with the operations, construction and decommissioning of the project.

### **Operations**

This EPP outlines the environmental protection measures associated with any operational developments at IOC, including site preparation activities (e.g., clearing of trees, earth moving, dewatering, etc.) and mining activities.

### **Ongoing Site Preparation Activities**

Ongoing site preparation activities and development work (i.e. preparation for material removal) include those activities required to support the continued mining of any Operational Development such as extension of roads, power lines, construction of physical features and environmental assessments. Operational Development areas that require tree clearing prior to any development activities, should reference procedures in Section 4 of Environmental Protection Plan.

Where required give examples, an environmental assessment shall be conducted at the planned Operational and Development Sites, by IOC Environment Department. Any obsolete

infrastructure and utilities (ie. disengaged power lines, poles, dewatering pipes) shall be removed prior to any operational development activity.

## **Overburden and Waste Rock Removal**

Unconsolidated material or overburden that covers the Operational Development area will be removed to the hard rock surface in preparation for mining.

Overburden will be placed in designated storage areas as determined by IOC, which is managed by the mine planners

Site preparation also involves:

1. The development of terraces within the operational development area by drilling and blasting the sloped natural ground to specified bench elevations in 13.7 m increments for IOC production equipment.
2. Waste rock dumped at waste rock dumps located at IOC Mine Site, with the exception of those quantities is to be used as construction material. This material may be used to upgrade the existing network or on-site haul roads.
3. Alternatively, waste rock could be placed in the pits using conventional backfill techniques.
4. Waste rock and overburden piles will be sloped and bermed to prevent pooling of surface water.
5. Structures such as silt fences will be used as a means of sediment control as required, and collection ditches and settling ponds will be used as required to manage surface runoff and any groundwater flows.

Please refer to Rio Tinto E13- Chemically Reactive Mineral Waste Control Standard.

## **Roadways**

Operational Development areas will require both new road construction and upgrading of existing roads. All roads will require grading, culvert installation, adequate drainage, dust control, and maintenance, all of which are subject to specific guidelines and regulations. The location and extent of these roads will be finalized at the detailed design stage.

## **Marshalling and Storage Areas**

Marshalling areas will be located at various locations on the project site to facilitate the receiving and storage of materials and equipment such as piping and culverts. Marshalling areas cannot be used to contain spills. "

Proper spill control must be applied including drip pans. Existing facilities at the Carol Mining Project will be used wherever possible.

## **Associated Facilities and Infrastructure**

- Maintenance facilities, equipment and processing facilities will be used during the operational phase. If required, transmission lines will generally follow road rights-of-way.
- Lunchroom/washroom facilities shall be used at the workforce area.
- Maintenance facilities, equipment and processing facilities will be used during the operational phase. If required, transmission lines will generally follow road rights-of-way.
- Lunchroom/washroom facilities shall be used at the workforce area.

## **Mining Activities at IOC**

- Mining activities at IOC will proceed from the highest bench elevation to the lowermost planned bench. The nominal bench height will be 13.7 m.
- Bench accesses will initially be developed using waste rock as mining proceeds downwards. The haulage pit ramps will be 40 m wide, with a maximum gradient of 8%
- The bench face angle will be 35 to 90 degrees, and the overall pit slope angle will be 30 to 58 degrees.
- 

## **Decommissioning**

A rehabilitation and closure plan has been developed in accordance with the *Newfoundland Mining Act*. A sustainable closure configuration will be implemented throughout the operational life as appropriate.

In general, the reclamation systems and abandonment facilities will be designed for long term stability, allowing for gradual erosion and deformation at a geomorphic rate comparable to that of the natural environment. Structures will be designed to remain functional for the long term (+1,000 years).

Progressive Reclamation: this means reclaiming land and revegetating inactive areas as soon as possible, not waiting until the end-of-life of the mine. This reclamation of the mine area will be staged over the life of the facility, resulting in minimal reclamation investment at the end of the mine life. Progressive reclamation activities will include contouring and re-vegetating inactive mine areas.

Decommissioning: The primary decommissioning criterion is to ensure a maintenance-free facility after mine closure

## Section 3 Regulatory Requirements and Commitments

### Approvals, Authorizations and Permits

The approvals, authorizations and permits required for development activities are listed in Table 1 below.

*If you are unsure ask your environmental advisor.*

**Table 1: Regulatory Requirements Summary – Permits and Authorizations**

Activity Requiring Compliance	Permit -Approval	Legislation	Responsible Agency	Comments
1. Activities that may affect fish habitat	Authorization pursuant to Section 35(2) of the <i>Fisheries Act</i>	<i>Fisheries Act (Federal)</i>	Habitat Management, DFO	A Fish Habitat Compensation Plan has to be approved by DFO. A monitoring program shall be implemented to measure the program's effectiveness. Other activities having potential impact should be reviewed with Area Habitat office in GooseBay.
2. Any development activity	Release from the <i>Environmental Protection Act</i>	<i>Environmental Assessment Regulations (NL Govt)</i>	Environmental Assessment Division, Dept of Municipal Affairs & Environment	
3. Drawdown of a lake, pond.	Certificate of Approval for drawdown of Development Area Waterbody.	<i>Water Resources Act (NL Govt)</i>	Water Resources Division, Dept of Municipal Affairs & Environment	A Certificate of Approval must be obtained.
4. Construction and operation	Certificate of approval	<i>Environmental Assessment</i>	<i>Pollution Prevention Division</i>	A Certificate of Approval must be obtained.

Activity Requiring Compliance	Permit -Approval	Legislation	Responsible Agency	Comments
		<i>Regulations (NL Govt)</i>		
5. Presence of eggs, nest, migratory bird or activities that may affect areas frequented by migratory birds And Removal of abandoned nests	Compliance standard; no permit required	<i>Wildlife Regulations pursuant to the Wildlife Act (NL Govt)</i>	Wildlife Division, Department of Tourism, Culture and Recreation	It is unlawful to take or destroy the eggs or nest of any wild bird. IOC and contractor personnel will not harass or disturb wildlife, or remove or destroy nests or eggs. Clearing of vegetation may result in the loss of nests.
	Permit required Raptor and Corvids Nest Removal Permit or Permit required for removal of abandoned or relocation of nests on IOC Structures	<i>Migratory Bird Act Section 6 of the Migratory Bird Regulations (Federal)</i>	Environment and Climate Change Canada	It is forbidden or a take a nest or egg of a migratory bird or to be in possession of a live migratory bird, or its carcass, nest of egg
6. Water crossing (fording, culvert [cleaning-maintenance-installation] or bridges)	Water resources permit  A permit is required to meet conditions in minimizing downstream impacts	<i>Water Resources Act (NL Govt)</i>	Department of Municipal Affairs and Environment	
7. Operating of mill	Mill Licence	<i>Mining Act (NL Govt)</i>	Department of Fisheries and Land Resources	Operating a mill requires a mill licence for a term of 5 years or longer.
8. Land disturbance, Mining Leases	Mineral Rights	<i>Minerals Act (NL Govt)</i>	Department of Municipal Affairs and Environment	A mining lease shall be filed with government within 6 months of date of application.
9. Indigenous groups: Minimization of any potential adverse impacts	Procedural and financial obligations	<i>Aboriginal Consultation Policy (NL Govt)</i>	Intergovernmental and Indigenous Affairs Secretariat	Consultation and accommodation with associated aboriginal groups

Activity Requiring Compliance	Permit -Approval	Legislation	Responsible Agency	Comments
of projects and developments on the asserted rights of indigenous groups				
10. Infilling of water body	Permit to Infill	<i>Water Resources Act (NL Govt)</i>	Department of Municipal Affairs and Environment	A permit is required to infill a body of water.
11. Activities that have the potential to affect wetlands	Permit to Alter a Body of Water. A permit is required to develop near wetlands requiring special conditions and alterations.	<i>Water Resources Act (NL Govt)</i>	Department of Municipal Affairs and Environment	
	If wetland will be affected due to mining an offset must be established to remedy the difference	<i>Federal Policy on Wetland Conservation (Federal)</i>	Environment Climate Change Canada	
12. Any activity that may affect and endangered or threatened species	Compliance standard	<i>Endangered Species Act (NL Govt)</i>  <i>Possibly Species at risk Act (Federal)</i>	Department of Municipal Affairs and Environment	Provide protection to endangered and threatened species and protection of their habitats
13. Fish habitat compensation provisions : Monitoring to verify the effectiveness of the compensation plan		<i>Fisheries Act, Section 35(2), Harmful Alteration, Disruption, or Destruction of Fish Habitat</i>	Department of Fisheries and Oceans	Monitoring requirements and schedule are detailed in the Fish Habitat Compensation Agreement that is attached to the authorization issued by the Minister.

Activity Requiring Compliance	Permit -Approval	Legislation	Responsible Agency	Comments
		<i>(Federal)</i>		
14. Any run-off from the project site being discharged to receiving waters (freshwater or marine).		<i>Fisheries Act, Section 36(3), Deleterious Substances (Federal)</i>	Department of Fisheries and Oceans	Any deposited substance or discharge must not be deleterious (i.e., must be acutely non-lethal). Liquid effluents that enter freshwater or marine waters must comply with the Act.
15. Mortality of migratory birds, and endangered species and any species under federal authority.		<i>Migratory Birds Convention Act and Regulations (Federal)</i>	Canadian Wildlife Service (CWS), Environment Canada	<p>CWS should be notified about the mortality of any migratory bird in the project area, including passerine (songbirds), seabird and waterfowl species.</p> <p>Harmful substances (e.g., oil, wastes, etc.) that are harmful to migratory birds must not be deposited into waters that are frequented by them.</p> <p>Nests, eggs, nest shelters, eider duck shelters or duck boxes of migratory birds must not be disturbed or destroyed.</p> <p>Notice should also be given about the mortality of any species known to be endangered or under federal authority</p>
16. Handling and transporting of dangerous goods.	If the materials are transported and handled fully in compliance with the regulations, a permit is not required. A Permit of Equivalent Level of Safety is required if a	<i>Transportation of Dangerous Goods Act and Regulations (Federal) and</i>	Transport Canada And Environment Climate	



Activity Requiring Compliance	Permit -Approval	Legislation	Responsible Agency	Comments
	variance from the regulations is necessary.	Interprovincial Movement of Hazardous Waste (Federal)	Change Canada	
17. Transporting fuel to the site.		<i>Transportation of Dangerous Goods Act and Regulations (NL Govt)</i>	Department of Works, Services and Transportation	Transporting goods considered dangerous to public safety must comply with regulations.
18. Activities that have the potential to interact with the environment and human health.		<i>Canadian Environmental Protection Act (CEPA) (Federal)</i>	Environment Climate Change Canada	CEPA provides a 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.
19. Activities surrounding blasting using explosives		<i>Explosives Act (Federal)</i>	Environment Climate Change Canada	Must comply with the storage and use of all explosives on site as per regulations.
		<i>Fire Protection Services Act (NL Govt)</i>	Fire and Emergency Services	
20. Any Development Operation.		<i>Waste Material Disposal Act (NL Govt)</i>	Pollution Prevention Division, Dept of Municipal Affairs & Environment	All waste material shall be considered prior to disposal, for reuse, resale or recycling.  All waste materials associated with the construction and operation, shall be disposed at an

Activity Requiring Compliance	Permit -Approval	Legislation	Responsible Agency	Comments
				approved waste disposal site.
21. Day to day work activities	Various internal permits depending on the work performed (i.e. ground disturbance etc.)	<i>Occupational Health and Safety Act (NL Govt)</i>	Workplace Health and Safety, Department of Labour	<p>Outlines minimum requirements for workplace health and safety.</p> <p>Workers have the right to refuse dangerous work and must be informed of potential hazards they may be exposed to during work.</p> <p>All workers must be provided with and use appropriate personal protective equipment.</p>
22. Storage, handling and disposal of gasoline and other fuels.	Registration required for all fuel storage tank system other than those connected to a heating appliance of a capacity of 2,500 L or less	<i>Storage and Handling of Gasoline and Associated Products Regulations (NL Govt)</i>	Pollution Prevention Division, Dept of Municipal Affairs & Environment	A spill contingency plan should be developed that includes emergency response contacts/support and access to spill response equipment.
23. Handling and storage of hazardous materials.		<i>Workplace Hazardous Materials Information System, under the Occupational Health and Safety Act (NL Govt) (NL Govt)</i>	Operations Division, Department of Government Services	Outlines procedures for handling hazardous materials and provides details on various hazardous materials.
24. General project activities.		<i>Historic Resources Act (NL Govt)</i>	Cultural Heritage, Department of Tourism,	All archaeology sites and artefacts are considered to be the property of the Crown and must not be disturbed. Any

Activity Requiring Compliance	Permit -Approval	Legislation	Responsible Agency	Comments
			Culture and Recreation	archaeology materials encountered must be reported to the Provincial Archaeology Office.* (see section 5.f for contingency plan)
25. Cutting or Removal of Timber	Permit from IOC environment department	<i>Cutting of Timber Regulations</i> (NL Govt)	Department of Natural Resources.	Cutting and removal of timber shall be approved by the IOC Environment Department.
26. Activities that have the potential to interact with wildlife		<i>Wildlife Act</i> (NL Govt)	Department of Municipal Affairs and Environment	Sighting of any wildlife in the area. For removal of any wildlife, contact the environment department who will advise the Dept. of Natural Resources
27. Activities that have the potential to interact with wildlife		<i>Endangered Species Act</i> (NL Govt)	Department of Fisheries and Land Resources	Provides special protection for plant and animal species considered to be endangered, threatened, or vulnerable.
28. Air quality: Maintain good air quality levels as prescribed in regulations		<i>Air Pollution Control Regulations</i> <i>And</i> <i>Halocarbon Regulations</i> (NL Govt)	Department of Municipal Affairs and Environment	Burning is prohibited for certain materials listed in Schedule E of the regulations and the main site permit, see Table below for prohibited items. In addition, certain fuels are prohibited as well.  Check with Environment Advisor for specific halocarbon management protocols (refrigerants etc.)
29. Discharging sewage and other materials into a body of water or public		<i>Water Resources Act</i> <i>Environmental Control</i>	Department of Municipal Affairs and Environment	Effluent samples and receiving water samples using analytical procedures.

Activity Requiring Compliance	Permit -Approval	Legislation	Responsible Agency	Comments
sewer shall comply with standards, condition and provisions in these regulations		<i>Water &amp; Sewage Regulations</i> (NL Govt)		
30. Established the province's land use planning system		<i>Urban &amp; Rural Planning Act</i> (NL Govt)	Department of Municipal Affairs and Environment	Consultation with public and municipal governments so that development decisions can be subjected to independent reviews.
31. Monitor and record all emissions related to GHG		<i>Management of Greenhouse Gas Act</i> (NL Govt)	Department of Municipal Affairs and Environment	Submission of an annual report regarding the greenhouse gas emissions released with 3 <sup>rd</sup> party verification.

\*Should any archaeological remains be encountered, such as stone, bone or iron tools, concentrations of bone, charcoal or burned rock, fireplaces, house pits and/or foundations, activity in the area of the find must cease immediately and contact should be made with the environmental advisor who will then call with the Provincial Archaeologist in St. John's as soon as possible (see section 5.f for contingency plan).

## Compliance/Conformance Monitoring

Compliance monitoring at the mine is related to applicable laws, contracts relevant permits, approvals, commitments and authorizations.

Conformance monitoring is related to all applicable to this plan, procedures, policies and other requirements.

Monitoring activities should ensure that all development project activities comply with applicable regulatory and other requirements and that mitigation measures are being employed effectively.

The Environment Department is responsible for environmental compliance/conformance monitoring on-site; and on the environment-related general, special and technical clauses to be implemented as part of the contracts.

## Reporting Environmental Issues

### Internal Communication

Environmental performance and issues at any Operational and Development Site or area will be communicated internally as required. The Operational and Development Site Project Managers are responsible for communicating IOC policies and procedures and legal and other requirements to project personnel. Project personnel will communicate all environmental incidents and near misses to the Environmental Advisors as per CR-E-E-PRO Environmental Reporting.

### External Communication

When required, the IOC Environment Department will report on environmental issues relating to the development site to the Newfoundland and Labrador Department of Municipal Affairs and Environment (MAE). Issues which may be communicated include but are not necessarily limited to:

- Stream crossings;
- Burrow Sites;
- Dust;
- Erosion;
- Historic resources;
- Wildlife encounters; and
- Permits and authorizations.



Any spills of petroleum products or other hazardous materials will be reported to **IOC Emergency Services and Security (709) 944-8400, ext. 8320**, who will report the incident to the IOC Environment Department.

**Any activity having the potential environmental impact to fish and fish habitat** outside the realm of the compensation agreement (such as stream crossings and culvert installations) should be forwarded to the IOC Environment Department, who will consult the Fisheries and Oceans Area Habitat office in Goose Bay for review and subsequent issuance of appropriate Letters of Advice.

Other compliance reporting required by permits or through compliance requirements not listed above will also be submitted to the IOC Department of Environment, or appropriate departments at IOC.

## Section 4 Environmental concerns and environmental protection procedures for planned project activities.

This Section provides a description of environmental protection procedures for the following anticipated project-related activities:

1. Marshalling and Storage Areas
2. Clearing Vegetation
3. Grubbing and Overburden Removal
4. Erosion Prevention and Siltation Controls
5. Buffer Zones
6. Drilling
7. Blasting
8. Water Course Crossings
9. Dewatering Work Areas and Site Drainage
10. Equipment Use and Maintenance
11. Handling and Transfer of Fuel and Other Hazardous Material
12. Solid Waste Disposal
13. Mineral Waste Rock and Overburden
14. Vehicle Traffic
15. Dust Control
16. Hazardous Waste Disposal
17. Road Maintenance
18. Trenching
19. Surveying
20. Public Traffic and Activity

When required, this EPP will be revised to include new or amended environmental protection procedures to ensure that activities conducted at the developing site are completed properly and that the site's significant environmental aspects are well managed.

## **1. Marshalling and Storage Areas**

### **Environmental Concerns**

Areas where equipment and supplies are stored and maintained through the development and operational phases of the Carol Lake Project.

Concerns include:

- Vegetation and soil disturbance may cause erosion and run-off of sediment into nearby water bodies.
- Spills/leaks of hydrocarbons from storing and maintenance activities
- Noise
- Biodiversity issues such as bird nests, dens
- Open containers full of oil/water: this presents a danger to wildlife

### **Environmental Protection Procedures**

1. Existing marshalling and storage areas will be used outside the development site, where feasible.
2. Any new marshalling, maintenance or storage areas required for the project will only be established within the IOC Labrador City property.
3. Establishing any new marshalling or storage areas will follow the procedures for vegetation clearing, grubbing and overburden removal, and erosion prevention (see specific sections of this EPP for details on the later)
4. Any marshalling or storage areas shall be located at least 100 m from a waterbody
5. External storage areas will be placed on level terrain and kept free of ponding or run-off.
6. Drainage from areas of exposed fill will be controlled by grade or ditching and directing run-off away from water bodies.
7. Any maintenance work completed on equipment must have the appropriate spill material available and dip pans must be used



8. Secondary containment required where hazardous products are stored. The size of the containment should be a minimum 110% of the material volume.
9. Marshalling and storage areas not required during operations will be rehabilitated under the environment department's supervision. The environment department will inspect the area before the site is abandoned to ensure it is clear of contamination.
10. Derelict vehicles, scrapped equipment and other debris is not to be stored on site. This material must be disposed of at an approved waste disposal site or scrap yard on a regular basis, with the prior approval of the site owner/operator.

## 2. Clearing Vegetation

### Environmental Concerns

Vegetation clearing (e.g., trees, shrubs, etc.) will be required in advance of site preparation activities. Concerns include habitat loss, biodiversity disturbance such as impact to nesting birds, erosion and sedimentation into vegetative areas and waterbodies, uncontrolled burning of slash, impact to historical/archeological sites, and stockpiling vegetation in or near watercourses.

### Environmental Protection Procedures

#### Before clearing begins

1. Verify the requirements of all applicable permits. **A Site Clearance Permit must be completed and submitted to the Environment Department.**
2. Clearing or removal of trees will be restricted to only those areas designated by IOC.
3. Project footprint should be minimized wherever possible and clearing limits and work areas must be clearly marked
4. Avoid ecologically sensitive areas such as hardwoods and aquatic habitats wherever possible and practical. Consult with the environmental team to ensure that there are no ecologically sensitive areas and aquatic habitats

#### During clearing

1. Clearing will consist of cutting to within 15 cm of the ground and disposing of all standing trees, as well as removing all shrubs, debris and other perishable materials from the area indicated on the engineering/survey drawings.
2. Where practical, vegetation will be stored and protected so that it can be later used as a seed source, moisture retention aid, and shade for new growth during reclamation.
3. Reasonable effort will be made to dispose of usable timber by either using it in project related construction, or by providing the timber for local use off-site. Otherwise, timber will be mulched and mixed with the overburden.

4. Slash and any other construction material or debris will not be permitted to enter any watercourse, and will be piled above spring flood levels. No burning is permitted on-site unless proper approvals acquired.
5. Trees will be either sawed or mulched using mechanized cutting /mulching equipment. The use of mechanical clearing methods, such as bulldozers, will not occur 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 water bodies.
6. **A 100 m buffer zone of undisturbed vegetation will be maintained between all water bodies and watercourses on the Carol Project.** If this buffer cannot be maintained, the Environment Department must be consulted to determine the appropriate buffer requirement and approve additional mitigations.
7. Timber shall be felled inward toward the work area to avoid damaging any standing trees within the immediate work area.
8. 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 Provincial Archaeology Office and clearance to proceed has been received (see specific section of this EPP).
9. IOC is aware of the value of wetlands and will attempt to avoid such disturbance of wetlands outside of the work areas where feasible.
10. All equipment used will be handled and maintained according to the procedures in Section xxx
11. Firefighting tools and water delivery systems must be available
12. Where feasible, vegetation clearing will be scheduled to avoid disturbance during the critical nesting period, from May to August.
13. **If clearing is scheduled between May and August, nest surveys must be conducted in advance of vegetation clearing to avoid active nests during breeding season.**
14. **No clearing shall take place within 800 m of an active raptor nest between May 15 and July 31.** If a nest is encountered during clearing activities, the area is to be demarcated and clearing is to be avoided until the Environmental Department determines that work may continue in consultation with the NL Wildlife Division.



15. Should additional nests/dens be identified during clearing activities, work must stop and the Environmental Advisor contacted immediately to establish buffer zones.
16. If identified during construction, IOC will relocate any Species at Risk (SAR) or Species of Conservation Concern (SCC).
17. In addition, no clearing activity is to occur 200 metres near a nesting area. All hardwoods within 30 metres of a body of water occupied by a beaver are to be left standing. For known waterfowl staging areas, a minimum 30 metre buffer from the water's edge with at least 20 metres of forest will be established. These areas will be identified by the Canadian Wildlife Service. (ref. *Environmental Guidelines for Construction and Mineral Exploration Companies*)

### **3. Grubbing and Overburden Removal**

#### **Environmental Concerns**

The principle 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**

1. Grubbing of the organic material and/or the upper soil horizons will be restricted to the minimum area required. The organic material must be removed separately from the upper soil horizon material.
2. The organic vegetation material and upper soil horizon material that has been grubbed will be spread in a manner to cover inactive exposed areas.
3. Any surplus of such material will be stored or stockpiled for site rehabilitation and re-vegetation purposes. Organic material will be stockpiled separately from the upper soil horizon material. The location of the stockpiles will be recorded and accessible for future rehabilitation purposes.
4. If stockpiled material is to be disturbed, the site is to be inspected by the Environmental Advisor to ensure that bank swallow nests, if present, are not impacted (May 15 to July 31)
5. 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 re-vegetation.
6. Runoff of sediment laden water during grubbing will be minimized by using such measures as settling ponds, ditch blocks, interception ditches and filter fabrics. Erosion control measures such as rip rap, filter fabrics, drainage channels and gravel, hay bales or wood chip mulches will be implemented in areas prone to soil loss.
7. Where erosion into a water body is a concern, the length of time that inactive grubbed areas will be left exposed to the natural elements will be minimized to prevent unnecessary

erosion.

8. Grubbing activities will adhere to the buffer zone requirements outlined in Section 5.
9. During grubbing, care will be taken to ensure that grubbed material will not be pushed into areas that are to be left undisturbed. Grubbing material will be mixed with the overburden for future rehabilitation.
10. Discovery of historic resources will be handled according to the procedures outlined in Section 6.
11. IOC is aware of the value of wetlands and will attempt to avoid such disturbance of wetlands outside of the work areas where feasible.
12. All equipment used will be handled and maintained according to the procedures in Section 10.
13. There should be avoidance of grubbing in high slope areas near water bodies.
14. Dust control is to be provided during clearing and grubbing operations as outlined in Section 15.

## **4. Erosion Prevention and Siltation Controls**

### **Environmental Concerns**

Eroded material may alter drainage patterns, increase stream velocities, cause siltation in water bodies and, subsequently, decrease suitable habitat for aquatic and terrestrial animals.

Before the start of any major works (such as a change in drainage patterns), an erosion plan shall be reviewed and approved by an environmental advisor and engineers.

### **Environmental Protection Procedures**

1. All work in the vicinity of the developing site, will be conducted according to the conditions set out in the permits and/or approvals and authorizations from the Newfoundland and Labrador Municipal Affairs & Environment (NL MAE), and DFO.
2. Areas to be disturbed should be minimized where possible and practical. Vegetative buffers will be maintained around waterbodies and sensitive areas.
3. Drainage ditches will be stabilized (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.
4. Excavation, embankment construction and grading in the vicinity of stream crossings will be done in a manner that avoids or reduces erosion and sedimentation of watercourses or bodies.
5. All areas of exposed erodible soil will be stabilized by back-blading, grading and/or compacting to meet engineered slope requirements. Roughening slopes with horizontal depressions will also reduce the risk of erosion.
6. Where there is potential for erosion along exposed erodible slopes and a natural vegetation buffer of less than 20 m from the high water mark exists between erodible areas and water bodies, a settling pond or silt fence will be constructed to control silt runoff. Engineering requirements will vary depending on the locations of the silt fence and will take into consideration such factors as drainage/surface area of exposed soil and time of year that the silt fences are used.



Silt fences are not the only tool to control erosion and if installed improperly they are useless. See Appendix D section on erosion control (also consult Alberta Transportation Erosion Control Manual link provided in Appendix D)

7. If an environmental inspection reveals that silt is entering a watercourse, immediate actions need to be implemented. The necessary or appropriate measures will be determined in the field with the support of the environment team.  
Erosion control measures should be anticipated before you start with the erosion plan. If there are siltation problems the plan will be reviewed and amended. All necessary measures will be determined in the field with the support of the environment team.
8. All stream bank sections that contain loose or erodible materials will be stabilized.
9. All areas will be monitored for erosion and appropriate repair action taken as necessary.
10. Existing or new siltation control structures used in this work will be monitored regularly by the Environmental Advisors for excessive accumulation of sediment. Accumulated sediment from control structures will be removed as necessary to ensure the effectiveness of the systems.
11. Remove excess water from siltation control systems prior to excavation of sediment.  
Trucks will be equipped with liners when required to prevent loss of wet sediment during transport.



## 5. Buffer Zones

### Environmental Concerns

Buffer zones are vegetated boundaries maintained along water bodies. Without adequate buffer zone vegetation, streams, ponds and lakes can become laden with silt from run-off. Vegetation also provides cover for fish and habitat for various mammals and birds. Streamside vegetation may:

- provide shade thereby helping to regulate water temperature;
- provide stream bank stability thereby preventing erosion and subsequent introduction of sediment into the water;
- intercept precipitation, and through evaporation and transpiration, regulate the amount of water discharged into the stream;
- provide insect drop which is a food source for fish;
- provide habitat for birds and mammals; and
- introduce leaf litter and decaying vegetative matter into the stream which provides food for aquatic organisms on which fish feed.

### Environmental Protection Procedures

- A minimum buffer zone of 100 m of undisturbed natural vegetation is to be maintained and clearly marked between work areas and all water bodies and sensitive areas. (Where buffer zones
- If this buffer zone, as prescribed in Table 2 below, cannot be maintained, the buffer requirement will be discussed and determined in consultation with the Environmental Advisor.



Any work within 15 m of a water body will require a permit under the Water Resources Act.

6. Sediment control structures are to be placed outside of the buffer requirements, and should be part of the erosion /sediment control plan
7. Bulk fuel storage will maintain a minimum buffer zone of 100 m from high water marks of waterbodies and ecologically sensitive areas and provincial and municipal protected watersheds (see section 11 Storage, Handling and Transfer of Fuel and Other Hazardous Material)

**Table 2 Water Body Width of Buffer Zone**

<b>Water body</b>	<b>Buffer Zone</b>
Intake pond/lake/reservoir	minimum of 150 m
River intake	minimum of 150 m for 1 km upstream and 100 m downstream
Main river channel	minimum of 75 m
Major tributaries/lakes/ponds	minimum of 50 m
Other water bodies	minimum of 30 m

## 6. Drilling

### Environmental Concerns

Drilling for both development and production has the potential to impact the environment. The environmental concerns associated with drilling are:

- disposal of drilling fluids and cuttings;
- generation of dust & noise;
- destruction of historic resources;
- impacts on air quality, and
- impacts to aquatic ecosystems.



No person shall deposit or permit deposition of oil, oil wastes or any other substance harmful to fish or migratory birds in any waters or areas frequented by fish or migratory birds. It is a reportable offense to the authorities.

### Environmental Protection Procedures

1. Due to the nature of drilling activities (quicksnaps, couplings) oil drops and leaks may occur. The area shall be cleaned up at every opportunity and all rigs shall be equipped with spill kits and be well maintained (In the event of a hose rupture or loss of hydraulic fluid, the sites Environmental Contingency Plan shall be followed-alert your supervisor )
2. Disposal of all drilling materials and associated solid wastes shall be undertaken in accordance with the procedures
3. Fuel shall be stored, handled and transported according to refer to proper section. Water applications shall be used to control dust.



Water-based drilling dust suppression systems may require anti-freeze in winter months, which shall be approved by the NL government.

The use of water for dust control or coring/wash boring shall be undertaken in a manner that ensures return water does not enter watercourses.

4. Drilling equipment shall have muffled exhaust to minimize noise.

## 7. Blasting

### Environmental Concerns

Blasting will be undertaken in association with a number of the work elements. The principal environmental concerns associated with blasting on land include:

- Destruction of vegetation outside the pit and development area limits;
- Noise disturbances to wildlife;
- Effects to fish and aquatic animals;
- Disturbance of historical/archeological resources;
- Dust and fume generation;
- Water quality; and
- Potential introduction of silt and ammonia into the water column.

### Environmental Protection Procedures

1. The immediate area of the site will be surveyed within three hours prior to a blast to ensure no members of the public are within the blast area.
2. All blasting will be done in compliance with the appropriate permits and approvals. All blasters will have a Blasters Safety Certificate. All magazines for explosive storage have the appropriate approvals.

The handling, transportation, storage and use of explosives and all other hazardous materials will be conducted in compliance with all applicable laws, regulations, and orders of the Newfoundland and Labrador *Fire Protection Services Act and Natural Resources Canada Explosives Act*.

3. Blasting pattern and procedures will be used which reduce shock or instantaneous peak noise levels.
4. Time delay blasting cycles will be used if necessary, to control the scatter of blasted material.
5. Blasting will not occur in the vicinity of fuel storage facilities.
6. Use of explosives will be restricted to authorized personnel who have been trained in their use.

7. There are separate magazines on site; a magazine for explosives and a smaller cap magazine for dynamite blasting caps.
8. All personnel must comply with the safe blasting procedures established by IOC as described in the Mine Orientation training course.

Historical resources and features will not be disturbed during blasting. Any historic discoveries will advise your supervisor immediately who will ensure that the environmental advisor reports that an historical resource has been found and alert to the relevant government agencies.

## **On Land**

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Wildlife: The immediate area of the site will be surveyed within three hours prior to a blast and operations will be curtailed if sensitive animals (e.g. black bears, caribou, moose) are observed within 100 m. Any other animal sightings will be reported to the Environmental Advisor. Blasting may be delayed in such circumstances until wildlife have been allowed to leave the area.

## **In Close Proximity to Water**

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In order to reduce the potential effect of blasting operations on the aquatic environment, blasting within 150 m of a water body will only occur in situations where such operations are deemed necessary and will comply with the following:

1. When blasting operations are within 200 m of a waterbody occupied by fish, the operations shall be carried out in accordance with DFO guidelines.
2. Drilling and blasting activities will be done in a manner that ensures that the magnitude of explosions is limited to that which is absolutely necessary.
3. Three hours prior to any blasting within 150 m of a water body, a visual reconnaissance of the area will be undertaken to ensure that there are no waterfowl or aquatic furbearers present.
4. Blasting will be delayed in such circumstances until they have been allowed to leave the area of their own accord. Under no circumstances will noise or other devices be used to harass or otherwise disturb these animals to encourage them to leave the area of the proposed blast.

## 8. Watercourse Crossings

### Environmental Concerns

The project will involve upgrading of existing roads and on-site trails.

The environmental concerns associated with stream crossings and culvert installations include:

- erosion/siltation;
- disturbance of waterfowl;
- potential mortality of fish, and
- loss of fish habitat.

All watercourses and water bodies will be examined on a site-specific basis in order to evaluate the specific mitigations required.

**When fish are, or potentially present at a proposed watercourse crossing**, and habitat assessment shall be conducted by a qualified Environmental Advisor. Information such as photos, the nature (water depth, flow, and substrate type) and quantity of fish habitat at the site will be noted and reported. The type of crossing (fording, culvert, or bridge) and design will also be noted by the monitor for the purpose of establishing regulatory requirements.

Approval is required by the Water Resource Division of the DMAE.

Also, an evaluation of soil erosion potential will be conducted at each of the stream crossings. This assessment of erosion risk will assist in the development of specific erosion stabilization methods and effective sedimentation control practices on a site-specific basis.

Proposed crossing of a watercourse visible on a 1:50,000 topographic map shall require a permit from NL MAE. Appropriate protection is still required for streams greater than 1.0 m in width (at its narrowest point from the high water mark) not found on the 1:50,000 topographic map (from NL Environmental Protection Guidelines for Ecologically Based Forest Resource Management). The Environment Department should be consulted on all crossings to ensure proper permits and mitigations are established prior to conducting any work. (check buffer zones in section 5)

The NL Forest Service on alienated Crown land and the appropriate company on leased, licenced, private or charter land will provide the operator with a map indicating the harvesting area and no-cut treed buffer zones, and will ensure that the operator is familiar with the boundaries.

No forestry activities are permitted within the buffer zones:

### **Environmental Protection Procedures**

Stream crossings will be constructed in compliance with the required Culvert Approval and Letters of Advice from the NL MAE, and DFO, respectively. IOC will consult with DFO to develop mitigation strategies to reduce effects of in-stream work during sensitive periods.

The following measures will be implemented to reduce the potential effects of stream crossings:

1. If fish are present at a stream crossing, construction activities between September 1 and June 15 will be undertaken under the direct supervision of the Environmental Advisor.
2. Work will be performed in such a way as to ensure deleterious substances including, but not limited to, materials such as sediment, fuel and oil do not enter watercourses and water bodies.
3. The number of water crossings will be minimized.
4. Procedures for buffer zones that are outlined in Section 5 will be followed.

### **Culverts**

In those locations where culverts are required, application will be made to the NL MEA, and DFO. The culverts used will be sized to handle a minimum 1 in 10 year return period flood (check with engineering) and will be constructed in accordance with all provincial requirements.

**A culvert will not be installed before site specific information is gathered before the work begins,** information such as localized stream gradient, fish habitat type and species present have been evaluated.

Culverts are to be installed according to DFO guidelines which are listed below:

### **Maintenance** (debris removal)

- Gradual removal such that flooding downstream, extreme flows downstream, release of suspended sediment and fish stranding can be avoided;
- Time work in water to respect timing windows;
- Relevant measures to avoid harm are followed.

### **Repairs**

- No temporary or permanent increase in existing footprint below the high water mark;
- No new temporary or permanent fill placed below the high water mark;
- Relevant measures to avoid harm are followed;
- Channel realignment is not required;
- No narrowing of the channel;
- Any obstruction to fish passage will respect [timing windows](#);
- Provides for fish passage;
- Work can be done in isolation of flowing water;
- Species at Risk where SARA-listed aquatic species occur, no culvert repairs will take place.

### **Removal**

- No temporary or permanent increase in existing footprint below the high water mark;
- Relevant measures to avoid harm are followed;
- Channel realignment is not required;
- No narrowing of the channel;
- Any obstruction to fish passage will respect timing windows;
- Work can be done in isolation of flowing water;
- The banks and bed of the waterbody are restored to replicate conditions upstream and downstream of the work area and provide for fish passage

#### ○ Species at Risk (SARA)

1. where critical habitat or residences of SARA-listed aquatic species occur, or endangered or threatened shellfish occur, no dredging or excavation of the



waterbody will take place except where exempted in the recovery strategy for that species.

1. where SARA-listed aquatic species, their residences or critical habitat occur:

- No permanent increase in existing footprint above the high water mark if the riparian area is identified as part of the critical habitat of an aquatic listed species at risk
- No removal of riparian vegetation if the riparian area is identified as part of the critical habitat of an aquatic listed species at risk

(Taken from DFO Working near water June 2018 <http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>)

In addition, the following measures will also be implemented:

1. Install culvert(s) in accordance with **best** engineering and environmental practices.
2. Unless otherwise indicated, all work should take place in dry conditions, either by the use of cofferdams or by diverting the stream.
3. In the event of fish being present, installation of cylindrical culverts shall be counter sunk such that the culvert bottom is 15% the diameter below the streambed (for culverts greater than 2000 mm in diameter), and 300 mm for culverts up to 2000 mm in diameter.
4. In multiple (gang) culvert installations, install one culvert at an elevation lower than the others.
5. Ensure that the natural low flow regime of the watercourse is not altered.
6. Use riprap outlets and inlets to prevent erosion of fill slopes.
7. Use culverts of sufficient length to extend a short distance (minimum of 300 mm) beyond the toe of the fill material.
8. Use backfilling material which is of a texture that shall support the culvert and limit seepage and subsequent washing out.

9. Align culverts such that the original direction of stream flow is not significantly altered.
10. Remove fill and construction debris from the culvert area to a location above the peak flow level to prevent its entry into the stream.
11. Confine construction activity to the immediate area of the culvert.
12. Fill material shall not be removed from streambeds or banks except when installing a culvert when removal of material is necessary to ensure a flat foundation.
13. Limit and restrict the use of heavy equipment in and near watercourses; an excavator will be used from shore rather than a bulldozer in the watercourse. Where it is absolutely necessary to do so, in-stream work will be performed by rubber tired vehicles only, and will only be done in compliance with approvals from the NL MEA, and DFO, respectively.
14. 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 construction and the streambed returned as closely as possible to its original condition.

## **Fording**

If a place where a river or other body of water is shallow enough to be crossed by wading, fording of watercourses will be avoided as much as possible and where necessary will be limited to situations of a single round trip (i.e., multiple use of a site will be facilitated by a temporary bridge). When fording any watercourse, all relevant guidelines/regulations will be adhered to including the NL MAE Environmental Guidelines for Fording.

The following will be applied to any fording activity:

1. In the unlikely event that fording is required in fish-bearing water, areas of spawning habitat will be avoided.
2. Crossings shall be restricted to a single location and crossings made at right angles to the watercourse.

3. Equipment activity within the watercourse shall be reduced by limiting the number of crossings.
4. Ensure that all equipment is mechanically sound to avoid leaks of oil, gasoline and hydraulic fluids.
5. Stabilize the entire fording area using vegetation mats, corduroy roads or coarse material (125 mm diameter or greater) when such material is available from a reasonably close location within the right-of-way, 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 right-of-way, then fording under existing substrate conditions may occur under the direction of the Environmental Advisors.
6. Ensure that fording activities are halted during high flow periods.
7. Stabilize all 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.
8. Fording activities shall 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.
9. All fording activities will comply with the required approvals from the NL MEA and DFO.

## 9. Dewatering Work and Site Drainage

**Please note** an environmental assessment of the water body at the developing site is required prior to discharging.

### Environmental Concerns

The major concerns associated with site dewatering and the drainage of any water body at a developing site are potential siltation and direct fish mortality and/or habitat destruction for freshwater species.

### Environmental Protection Procedures

1. Filtration or other erosion control best management practices, such as settling ponds, silt fences and dykes, will be used to remove silt from, and reduce the turbidity of water pumped from work areas before discharging.
2. Site water may be discharged to vegetated work areas to further reduce any potential effects on watercourses, provided that this not create new erosion problems.
3. The area of settling ponds will be gauged to accommodate the anticipated volume of discharged water.
4. Discharged water needs to follow natural surface drainage patterns as much as possible.

Perform water treatment and quality monitoring prior to discharge to the environment, in compliance with applicable federal and provincial regulatory requirements. Consult environment department for proper treatment / monitoring protocols.

5. **For fish relocation:** Use methods for live capture of fish that are established and recognized in NL and documented in a Fish Removal Plan (to be developed on case by case basis).

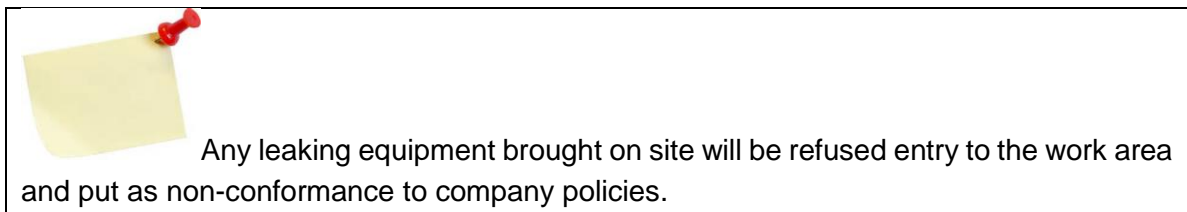
## 10. Equipment Use and Maintenance

### Environmental Concerns

A variety of vehicles and heavy equipment will be used throughout the project, as well as in accompanying support and supply facilities and activities. Environmental concerns associated with operating and using such equipment includes noise, air emissions, accidental spills, artificial lighting and leaks that may contaminate on-site water bodies or sensitive receptors.

### Environmental Protection Procedure

1. Pre-use inspections are to be completed on all equipment. All equipment shall be regularly maintained and inspected. If problems are identified the equipment will be serviced to prevent the risk of a spill/leak.



2. Construction equipment will be on good operating condition, free of leaks and with all appropriate emission filters.
3. All pieces of equipment will have exhaust systems that are regularly inspected and properly functioning to manufacturers specifications.
4. Spill kits will be strategically located on site, clearly labelled and regularly maintained.
5. Drip pans will be placed and maintained underneath pumps or any other equipment which can leak
6. Hoses and connections on equipment will be inspected routinely for leaks and drips, and will be disposed of immediately in a proper container free of leaks not on the ground.

7. Equipment maintenance and fuelling activities will be performed at sites designated by the Environmental Advisor and in compliance with applicable regulations.
8. All maintenance on the mobile fleet (e.g., haul trucks) will be performed at the Mine Maintenance Facility or at a designated area.
9. Only minor repairs and maintenance (e.g., lubrication) of 'non-mobile' equipment, such as the shovel or drilling equipment, will be performed on-site. All major repairs are to be performed at the Mine Maintenance Facility.
10. All leaks will be repaired and reported immediately to Security, who will notify the Environmental Department.
11. All fuel and other hazardous materials will be handled according to the procedures in Section 11.
12. Vehicles and equipment will be stored at designated areas a minimum of 100 m from water bodies when not in use.
13. All equipment (e.g. diesel generator, etc.) shall meet requirements of the NL Air Pollution Control Regulations under the Environmental Protection Act, as required.

## **11. Storage, Handling and Transfer of Fuel and Other Hazardous Material**

Typical hazardous substances that may be used on site include, but are not necessarily limited to:

- chlorinated and non-chlorinated solvents (e.g., cleaner-degreasers);
- flammable gases (e.g., acetylene);
- waste petroleum products (e.g., used engine oil);
- corrosives (e.g., battery acid);
- glycol (e.g., antifreeze);
- ozone-depleting gases (e.g., freon); and
- petroleum, oil and lubricants

### **Environmental Concerns**

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

### **Environmental Protection Procedures**

1. The *Workplace Hazardous Materials Information System (WHMIS) Regulations* under the *Occupational Health and Safety Act* will apply to all handling and storage of hazardous materials. All relevant current Safety Data Sheets (SDS) will be readily available on site.

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, contact your Supervisor who will then call Security (709) 944-8400, ext. 8320.

2. Satellite fuel storage tanks (and associated fuelling equipment) will largely be replaced with a mobile fuelling truck, which will be responsible for re-fuelling mobile equipment. Personnel transferring fuel from tank trucks to mobile units will inspect transfer equipment prior to product transfer and will be in attendance for the duration of refuelling operations.

3. All fuel storage systems will be registered and comply with the *Storage and Handling of Gasoline and Associated Products (GAP) Regulations*. Verification of the storage tank approval will be retained for IOC.
4. Only persons 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.
5. Fuel and other hazardous materials will be stored at least 100 m from any surface water.
6. Handling and fuelling procedures will comply with the *GAP Regulations* and any additional requirements put forth by the NL MAE in order to limit potential contamination of soil or water.
7. Appropriate fuel spill control and clean up material must be available during fueling activities.
8. Any above-ground fuel container, with the exception of those exempted under the *GAP Regulations*, will be surrounded by an impervious dyke of sufficient height (minimum height 0.6 m) to contain:
  - where a dyked area contains only one storage tank, the dyked area shall retain not less than 110% of the capacity of the tank
  - where a dyked area contains more than one storage tank, the dyked area shall retain not less than 110% of the capacity of the largest tank or 100% of the capacity of the largest tank plus 10% of the aggregate capacity of all the other tanks whichever is greater. Otherwise approved self-dyked storage tanks will be used where required.
  - all dykes of earthwork construction will have a flat top not less than 0.6 m wide, and be constructed and maintained to be liquid tight to a permeability of 25 L/m<sup>2</sup>/day. The distance between a storage tank shell and the centre line of a dyke will be at least one half the tank height.



drain dykes often with vac truck or other means before they overflow

9. Fuel storage areas and non-portable transfer lines will be clearly marked or barricaded to ensure 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 *GAP Regulations*.

10. Waste oils, lubricants, and other used oil will be retained in a tank or closed container, and disposed of in accordance with the *Waste Material Disposal Act and the Used Oil Control Regulations*.
11. Any soil contaminated by small leaks of oil or grease from equipment will be disposed of according to Pollution and Prevention Act.
12. All storage tank systems will be inspected on a regular basis by the Environmental Advisor as per Section 18 of the *GAP Regulations*. 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.
13. Contracted fuel suppliers will, before transporting or positioning fuel or oil, have on file at IOC a copy of their fuel and hazardous material spills contingency plan which is required under *GAP Regulations* and which is acceptable to IOC. The fuel and hazardous material spills contingency plan for IOC is provided in Section 5.c
14. 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.
15. Smoking is prohibited within 10 m of a fuel storage area.
16. Fuelling or servicing of mobile equipment is to be conducted in designated areas.
17. Drum storage areas will not be located within 100 m of a water body.
18. Drums containing hydrocarbon or other hazardous materials will be transported, stored, handled and disposed of such that spillage or leakage does not occur.
19. Drums will be tightly sealed against corrosion and rust and surrounded by an impermeable barrier in a dry building with an impermeable floor. The location of drum storage areas must be approved by IOC.

20. Small quantities of hazardous material (drums, cans and other containers under 20 L volume) will be stored in a secure location protected from weather and freezing, as well as vehicular traffic.
21. 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.
22. 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 (including any contaminated soil) and the area will be cleaned of contamination ?the tank marked empty and the site restored.
23. 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).
24. Bulk fuel storage facilities will be dipped on a weekly basis in order to accurately gauge fuel consumption. These consumption rates will allow for visually undetectable sources of contamination to be identified and corrected. Records of these dips shall be made available upon request.
25. If required, a hazardous waste storage area will be constructed in compliance with all applicable federal and provincial legislation.
26. All petroleum and chemicals must be stored on a secondary containment.

## 12. Solid Waste Disposal

### Environmental Concerns

Solid waste (e.g., domestic and industrial wastes, paper, cardboard and wood), if not properly controlled and disposed of, will be unsightly and could cause human safety and health concerns. It could also attract wildlife leading to the potential for human-wildlife conflicts.

### Environmental Protection Procedures

1. All solid waste will be handled according to the provincial *Waste Material Disposal Act*.
2. Solid waste produced by site personnel and operations will be regularly collected and disposed of at the IOC Landfill (refer to IOC Landfill Operation and Maintenance procedure)
3. Waste accumulated on site prior to disposal will be confined so that it does not pose an environmental or health hazard.
4. 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.d for handling wildlife encounters).
5. Any waste that may attract animals (i.e., food) will be stored in covered, wildlife-proof containers.

**\*\*\*\*IT IS STRICKLY FORBIDDEN TO FEED OR ENTICE ANY WILDLIFE\*\*\*\***

6. Burning of waste is not permitted.
7. All hazardous wastes generated, as a result of the treatment alternatives, will be handled according to the procedures for handling fuel and hazardous materials (Section 11).

## **13. Mineral Waste Rock and Overburden**

### **Environmental Concerns**

The principal concern associated with the placement of waste mineral rock and overburden is siltation of the aquatic environment, pertaining to water quality and substrate, as well as loss of habitat and displacement of wildlife. Potential for dust generation from exposed soil/rock may also be a concern.

### **Environmental Protection Procedures**

1. Waste rock and overburden storage areas will be located at least 100 meters from a water body.
2. Overburden and separate organic stockpile locations and volumes will be recorded from salvage to placement.
3. Structures such as silt fences will be used as a means of sediment control, and collection ditches and settling ponds will be used to manage surface runoff and any groundwater flows.
4. Waste rock and overburden piles will be sloped and bermed to prevent pooling of surface water.
5. Waste rock and overburden storage areas will be secured as appropriate and marked with signs to ensure the safety of employees and the public.
6. Stabilize stockpiles with vegetative cover or temporary covers of mulch or similar until vegetative cover can be established in order to reduce erosion and dust generation.
7. Implement progressive rehabilitation measures when areas are available.

## **14. Vehicle Traffic**

### **Environmental Concerns**

Vehicular traffic can result in interactions with wildlife, fugitive dust emissions, noise and historical resources. IOC is committed to the proper operation and maintenance of its vehicles to reduce environmental effects.

### **Environmental Protection Procedures**

1. All vehicle and equipment use, including use of all-terrain vehicles, will be restricted to designated routes within and between work, marshalling, maintenance and storage areas.
2. All vehicles and equipment will be properly maintained to meet emissions standards.
3. Travel in areas outside designated work areas will not be permitted.
4. All vehicles and equipment will yield to wildlife (see procedures in Section 5.d. for handling wildlife encounters).
5. Chasing and/or harassing wildlife with vehicles and equipment will not be permitted.
6. Maintaining and refuelling vehicles will be restricted to designated areas (See Section 10).
7. Heavy equipment (e.g., dump trucks and front-end loaders) will only be used in work areas.
  - a) Site roads will be monitored for signs of erosion and appropriate action will be taken to repair roads, when necessary.
  - b) All personnel driving in the pit are required to have a valid pit permit. Personnel must comply with the requirements dictated in the Pit Permit training course.

## **15. Dust Control**

### **Environmental Concern**

The environmental concerns associated with dust include human health effects and potential effects on aquatic ecosystems and vegetation.

### **Environmental Protection Procedures**

1. Plan activities to minimize dust emissions and implement dust control procedures.
2. Dust from operating activities 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.
3. Dust suppression on site roads will be done by watering the roads as part of IOC's ongoing fugitive dust reduction measures.
4. Dust will be controlled by retaining trees and shrubs to act as windbreaks and natural erosion prevention. The amount of vegetation to be cleared will be minimized.
5. Confinement of vehicular traffic to established access routes and lower speed limits will be implemented to reduce dust generation.
6. Re-vegetation of inactive exposed areas to be completed as directed by the Environment Department.
7. Use damp feed when crushing rock for road aggregate.
8. Drills must utilize appropriate dust suppression equipment to prevent dust generation.

## 16. Hazardous Waste Disposal

### Environmental Concerns

The primary concern with disposing of hazardous substances is that there may be 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

1. All hazardous waste will be handled according to the provincial *Waste Material Disposal Act*. Waste classified as “hazardous” or “special” that cannot be disposed of in regular landfill sites will be sent for disposal at an approved hazardous waste management company.
2. All necessary precautions will be taken to prevent and reduce the spillage, misplacement or loss of fuels and other hazardous materials.
3. Hazardous waste materials will only be handled by persons who are qualified and trained in handling these materials as stipulated in government laws and regulations.
4. Waste accumulated on site prior to disposal will be confined so that it does not pose an environmental or health hazard.
5. Waste material will not be disposed of on-site or in a body of water.
6. Burning of waste is not permitted.
7. 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.
8. Waste oils, lubricants, and other used oil will be retained in a tank or closed container, and disposed of in accordance with the *Waste Material Disposal Act*.

9. Any soil contaminated by small leaks of oil or grease from equipment will be disposed of according to the *Waste Material Disposal Act*.
  
10. All hazardous wastes generated, as a result of the treatment alternatives, will be handled according to the procedures for handling fuel and hazardous materials (Section 11).



## **17. Road Maintenance**

### **Environmental Concern**

Routine grading and maintenance of the haulage and development roads may result in material entering roadside ditches, diversions and culvert areas.

### **Environmental Protection Procedures**

1. All grader operators and loader operators involved in road maintenance are to be informed of proper road maintenance techniques.
2. All culverts crossing roadways must be clearly marked. Grading or pushing material in these areas is strictly forbidden.
3. The diversion channel parallel to the main haulage road must also be clearly marked to prevent accidental in-filling from grading operations.

## **18. Trenching**

### **Environmental Concerns**

Environmental concerns associated with trenching include potential runoff of sediment-laden water, which could affect freshwater fish habitat and water quality, lower the quality of water and destroy historic resources.

### **Environmental Protection Procedures**

1. Topsoil and excavated overburden will be stored in stockpiles for later use during rehabilitation.
2. Any unsuitable material will be disposed of in a disposal area approved by the Environmental Advisor.
3. Excavators and backhoes should be used to excavate trenches in areas around overburden and waste rock stockpiles to minimize land disturbance. The use of bulldozers should be avoided.
4. If required, dewatering of trenches will make use of measures to reduce and control the release of sediment laden water with filtration through erosion control devices, settling ponds, straw bales, geotextiles or other devices.
5. When feasible, trenches should be backfilled and the finished grade is to be level with the surrounding surface.
6. If a historic/archeological site is encountered, all work must cease in the area and the Environment Department will consult with the relevant regulatory agencies to determine buffer requirements.

## **19. Surveying**

### **Environmental Concerns**

Surveying activities may disturb wildlife species, vegetation and historic resources.

### **Environmental Protection Procedures**

1. Width of survey lines will be limited to that which is necessary for line of sight and unobstructed passage.
2. Whenever possible, cutting lines to the boundary between trees and open areas will be avoided.
3. Cutting of survey lines will be kept to a minimum. Where possible, alternate areas not requiring cut lines will be used.
4. All trees not exactly on transit lines shall be left standing.
5. When surveying the development area 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.
6. No attempt to harass or disturb wildlife will be made by any person (refer to Section 5.d.).
7. Vehicles will yield the right-of-way to wildlife

### **Traversing**

1. Access by heavy equipment to sensitive areas such as wetlands will only be through established right-of-ways.
2. All-terrain vehicles (ATVs) will not be allowed off the right-of-way except as approved by the on site manager/supervisor. The use of ATVs will be restricted to designated trails, thus minimizing ground disturbance. ATV use will comply with the Motorized Snow Mobile and All-Terrain Vehicle Regulations, 1996 under the Motorized Snow Mobile and All-Terrain Vehicle Act and the Environmental Guidelines for Stream Crossings by All-Terrain Vehicles issued by Municipal Affairs & Environment.

3. No motorized vehicles will enter the areas designated as sensitive without notification and approval of the Site Manager, for establishing targets, permanent benchmarks and transponder locations.
  
4. In normal ground conditions a 15 mm x 400 mm long rebar is driven approximately 350mm 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 in a hole drilled in the rock. The rebar will be set into the rock a minimum distance of 80 mm.

## **20. Public Traffic and Activity**

### **Environmental Concerns**

Development activities, such as quarry mining, exploration, surveying, drilling and blasting, or activities that involve the clearing or removal of the existing land, may affect the public (ie. private roads, private cabins, etc) in and around the developing areas.

### **Environmental Protection Procedures**

- all operating activities will comply with federal and provincial regulations;
- public notice will identify the schedule and nature of activities and to recommend precautions; and
- development Area boundaries will be clearly marked.

## Section 5 Contingency Plans

Contingency plans to address accidents and unplanned situations have been developed, and will be modified as required throughout the project. Notwithstanding the existence of these contingency plans, a policy to implement preventative measures as the first line of defence against the possibility of accidents will be adopted.

Refer to the latest plans on Mine to Port website

### **a. Culvert Failure**

The two main causes for failure of a properly installed culvert are a blockage or exceptionally high discharges. Regular inspection and maintenance will avoid blockages, by debris or ice. Failure due to exceptionally high flows cannot be avoided once the culvert is installed and sustained high flows will often limit the ability to mitigate a failure.

#### **Environmental Concerns**

The environmental effects of culvert failure are usually a massive release of suspended fine sediment and larger substrate material into the stream. The suspended and finer materials can be transported for considerable distances downstream where fish habitat and fish eggs may be covered and smothered while fish fry and food organisms may be smothered, disturbed, or displaced from their habitat. Introduced coarse substrate may fill pools, disturb spawning gravel, and change or deflect flows, which may lead to additional erosion downstream.

#### **Preventative**

1. All culvert installation will comply with federal and provincial regulations (Section 6.11, Watercourse Crossings). All necessary permits and authorization will be obtained for culvert installation.
2. Culverts that are installed will be sized appropriately to reduce the risk of washout due to high flows.
3. Culverts will be inspected regularly and measures will be taken to ensure stability of the installation, remove debris, and prevent ice blockage.

## **Response Measures**

1. There is often little that can safely be done to address culvert failure from high flow once the failure begins. However, high flows are often episodic and short-lived, so it is appropriate to prepare for remedial measures that can be done when flow subsides.
2. Following a culvert failure, measures will be taken to stabilize the roadbed and stream bank to reduce the risk of additional erosion.
3. As soon as high flow subsides and it is safe to do so, large debris such as concrete, culvert pipe or newly fallen trees will be removed from the stream and placed where there is no risk of reintroduction into the stream.
4. Provincial and federal authorities are to be notified (Section 7.0 Contact List) and further remedial work in the stream will only proceed following consultation with DFO.
5. All necessary provincial and federal permits and authorizations will be obtained prior to conducting any additional in-stream work to restore the stream channel or fish habitat.

### **b. Road Washout**

Road washout can occur due to flooding, poorly installed culverts, poorly installed and maintained ditches, or failure of the shoulder or roadbed.

## **Environmental Concerns**

The environmental effects of road washout are the same as for culvert failure. This usually includes a massive release of suspended fine sediment and larger substrate material into the stream. The suspended and finer materials can be transported for considerable distances downstream where fish habitat and fish eggs may be covered and smothered while fish fry and food organisms may be smothered, disturbed, or displaced from their habitat. Introduced coarse substrate may fill pools, disturb spawning gravel, and change or deflect flows, which may lead to additional erosion downstream.

## **Prevention**

Ditching and site drainage will be inspected regularly and measures will be taken to ensure stability of the installations, remove debris, and prevent ice blockage.

## **Response Measures**

1. There is often little that can safely be done to address a road washout from high flow once the failure begins. However, high flows are often episodic and short-lived, so it is appropriate to prepare for remedial measures that can be taken when flow subsides.
2. Following a road washout, measures will be taken to stabilize the roadbed and adjacent stream banks to reduce the risk of additional erosion.
3. As soon as high flow subsides and it is safe to do so, large debris such as guard-rails, concrete footings, culvert pipe or newly fallen trees will be removed from the stream and placed where there is no risk of reintroduction into the stream.
4. Provincial and federal authorities are to be notified (Section 7 Contact List) and further remedial work in the stream will only proceed following consultation with DFO.
5. All necessary provincial and federal permits and authorizations will be obtained prior to conducting any additional instream work to restore the stream channel or fish habitat.

## **c. Fuel and Hazardous Material Spills**

### **Environmental Concerns**

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

### **Response Measures**

1. All spills are to be immediately reported to Security, who will contact the Coast Guard see contingency plans
2. Spills are to be immediately confined and cleaned up as per CR-E-E-PRO Spill Response & Reporting.
3. All contaminated material is to be transported to the IOC Waste Transfer Building for off-site disposal as per the Waste Material Disposal Act.



## **d. Wildlife Encounters**

### **Environmental Concerns**

Wildlife encounters pose a risk for stress or injury to both the wildlife and site personnel. Control measures and environmental protection procedures have been put in place to reduce this risk to wildlife and humans. As a protection measure, hunting, trapping or fishing by project personnel is not permitted at the site.

### **Prevention**

The following procedures are to be implemented in order to prevent wildlife encounters:

- a) Site and working areas will be kept clean of food scraps and garbage.
- b) Waste will be collected for disposal in wildlife/bear-resistant containers. Waste will be transferred to the on-site landfill routinely as needed.

### **Response Measures**

All project personnel will abide by the following rules in the case of wildlife encounters:

1. No attempt will be made by any person at the project site to chase, catch, divert, follow or otherwise harass wildlife by vehicle or on foot.
2. Equipment and vehicles will yield the right-of-way to wildlife.
3. No personal pets, domestic or wild, will be allowed on the site.
4. All personnel should be aware of the potential for encounters with wildlife (black bears, wolves, foxes, etc.) and instructed to immediately report all sightings to Security. At their discretion, the IOC Environmental Department will notify the Newfoundland and Labrador Department of Natural Resources (DNR).
5. When nuisance animals (e.g. black bear) are identified in the project area, the Environmental Advisor will be responsible for all subsequent actions. Responsive actions will also be the responsibility of the Environmental Advisor, who may consult with Department of Forest Resources and Agrifoods (DFRA). All actions must comply with Wildlife Division regulations and permits.
6. The Environmental Advisor will authorize the use of deterrent measures for wildlife.

7. All incidents that result in the displacement or killing of wildlife must be reported to Security.
8. Under provincial wildlife regulations, the displacement and release of any animal is the sole jurisdiction of NL DFRA and is to be undertaken only under appropriate supervision.
9. If the nest of any raptor or other bird is encountered during development, activity in the vicinity of the nest is to be curtailed until NL DFRA is contacted and appropriate mitigation is applied.

## **e. Forest Fires**

### **Environmental Concerns**

Activities related to the project could result in a fire, which could spread to the surrounding area. Such events could be damaging to vegetation and wildlife, as well as human health and safety.

### **Response Measures**

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

1. Disposal of all flammable waste on a regular basis.
2. Smoking will be permitted in designated areas only.
3. IOC or the contractor making available, in proper operating condition, sufficient firefighting equipment to suit its labour force and fire hazards. Such equipment will comply with, and be maintained to the manufacturer's standards and personnel are to be trained in the use of such equipment.
4. In the event of a forest fire, IOC or the contractor will take immediate steps to contain or extinguish the fire.
5. IOC will appoint a supervisory staff member as On-Scene-Commander for the purpose of fighting any forest fires.
6. Fires shall be reported immediately to Security, the Wabush Forestry office (709) 282-6881 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; and
- The police will also be notified immediately at (709) 944-7602.

## **f. Discovery of Historic Resources or Archeological Sites**

### **Environmental Concerns**

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

### **Response Measures**

In case of a suspected discovery of historic or archeological sites, the following procedures shall apply:

1. Stop all work in the immediate area of the discovery until authorized personnel from IOC, having consulted with the Provincial Archaeologist, permit resumption of the work.
2. Report the find immediately to the Environmental Advisor.
3. The Environmental Advisor will report the find with the following information to the Provincial Archaeology Office, Historic Resources Division, Department of Tourism and Culture, St. John's, and comply with the instruction provided:
  - i) nature of the find;
  - ii) precise descriptive and map location and the time of the find;
  - iii) nature of the activity resulting in the find;
  - iv) identity of the person(s) making the find;
  - v) present location of the material, if moved, and any protective measures initiated for the material and the site; and,
  - vi) any extenuating circumstances.

Under the Historic Resources Act, RSNL 1990 c.H-4, all archeological sites and artefacts are the property of the Crown, and shall not be disturbed.



**Mark the site's visible boundaries. Personnel will not move or remove any artifacts or associated material unless the integrity of the material is threatened.**

## Section 6 Environmental Protection Plan Control Revisions

Holders of controlled copies (i.e., those versions which contain all of the up-to-date procedures) of the EPP are included in Appendix B.

EPPs are 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 Environmental Advisor. 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 (*i.e.*, environment/worker safety); and
- who submitted the revision request.

The Environmental Advisors will seek approval for revisions from the Manager Environment & Sustainable Development. When the Environmental Advisor 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; and
- an updated Table of Contents indicating the current 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 ensure 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 ensure the EPP is complete and current;
- enter the revision number and date entered on the Revision Control Record;
- incorporate the revision into the area of responsibility, as appropriate; and
- ensure that their personnel are familiar with the revisions.

•  

## Section 7 Contact List

### **IRON ORE COMPANY OF CANADA**

Patrick Lauziere

Manager Environment & Sustainable Development

Labrador City, Newfoundland

Tel: (418) 968-7400 ext 7513

Cell: (418) 960-4331

### **ENVIRONMENT & CLIMATE CHANGE CANADA – Canadian Coast Guard**

Newfoundland and Labrador Regional Office

Tel: (709) 772-2083 or 1-800-563-9089

### **FISHERIES AND OCEANS CANADA**

Happy Valley Goose Bay, NL

Tel. (709) 896-6150

Fax: (709) 896-8419

### **GOVERNMENT SERVICES CENTRE**

Happy Valley-Goose Bay, Labrador

Tel. (709) 896-5428

Fax. (709) 896-4340

### **ROYAL NEWFOUNDLAND CONSTABULARY**

417 Booth Street

Labrador City, NL

Tel: (709) 944-7602

### **DEPARTMENT OF NATURAL RESOURCES – FORESTRY SERVICES**

District Office  
Wabush, NL  
Tel: (709) 282-6881

**DEPARTMENT OF MUNICIPAL AFFAIRS AND ENVIRONMENT**

Wildlife Division  
General Enquiries  
T: (709) 637-2025

## Section 8 Reference Material

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

Department of Municipal Affairs and Environment. 1994. Water Resources Management Division. Chapter 3A. Environmental Guidelines for Stream Crossings by All-Terrain Vehicles.

Department of Municipal Affairs and Environment. RSN1990 C W-4 Waste Material Disposal Act.

Department of Municipal Affairs and Environment. 2003. Storage and Handling of Gasoline and Associated Products Regulations.

Department of Municipal Affairs and Environment. RSNL 1990 c.H-4 Historic Resources Act

Department of Municipal Affairs and Environment. SNL2002 C W-4.01 Water Resources Act

Government of Alberta, Alberta Transportation, June 2011, Erosion Control Manual, 444 pp

Services Newfoundland & Labrador. Fisheries and Land Resources. RSNL 1990 Motorized Snow Vehicles and All-Terrain Vehicles Act

NL: Department of Natural Resources. Environmental Guidelines for Construction and Mineral Exploration Companies.

Government of Canada Department of Fisheries and Oceans. Measures to avoid causing harm to fish and fish habitat including aquatic species at risks (website reviewed June 2018 <http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/measures-mesures-eng.html>)

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

Iron Ore Company of Canada. CR-E-E-PRO Spill Response & Reporting.

Rio Tinto Standards. E13- Chemically Reactive Mineral Waste Control Standard.



Wright, D.G., and G.E. Hopky. 1998. Guidelines for the use of explosives in or near Canadian Fisheries Waters. Can. Tech. Rep. Fish. Aquat. Sci. 2107: iv+34p.

Appendix A List of Abbreviations and Acronyms

## **LIST OF ABBREVIATIONS AND ACRONYMS**

CCME	–	Canadian Council of Ministers of the Environment
DNR	–	Department of Natural Resources
DFO	–	Department of Fisheries and Oceans
EPP	–	Environmental Protection Plan
GAP	–	Storage and Handling of Gasoline and Associated Products
IOC	–	Iron Ore Company of Canada
NL MAE	–	Newfoundland & Labrador Municipal Affairs and Environment
SDS	–	Safety Data Sheet
NEAR	–	Newfoundland Environmental Assessment Regulations
WHMIS	–	Workplace Hazardous Materials Information System

Appendix B EPP Copy Distribution List

## CONTROLLED COPY DISTRIBUTION LIST

<b>Department or Organization</b>	<b>Individual or Location</b>
Environment Department	Environment N:/ DirectorySystem
Manager Environment & Sustainable Development	Patrick Lauziere
Manager Mine Operation	William Shand
Manager Mine Technical Services	Shana Blakeley
Manager Mine Maintenance	Scott Melvin
General Manager, Mine & Ore Delivery	Scott Barney

Appendix C Revision Request Form

## 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 Environmental Advisor

## Appendix D Erosion and sediment control - best management practices examples



TAKEN FROM ALBERTA TRANSPORTATION MANUAL:  
EXCELLENT REFERENCE

[HTTP://WWW.TRANSPORTATION.ALBERTA.CA/CONTENT/DOCTYPE  
372/PRODUCTION/EROSIONCONTROLMANUAL.PDF](http://www.transportation.alberta.ca/content/doctype/372/production/erosioncontrolmanual.pdf)

HERE ARE A FEW EXCERPTS FROM THE MANUAL

Silt Fence Sediment Control	B.M.P. #1
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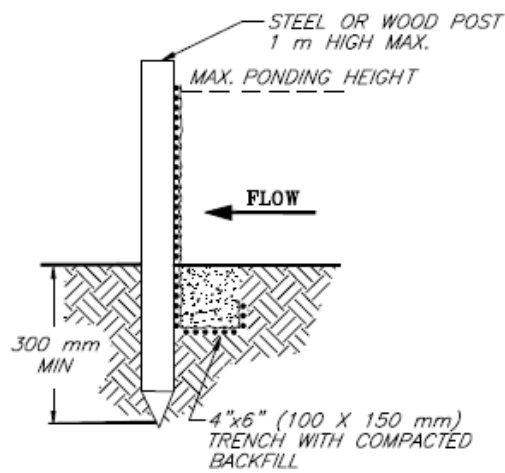
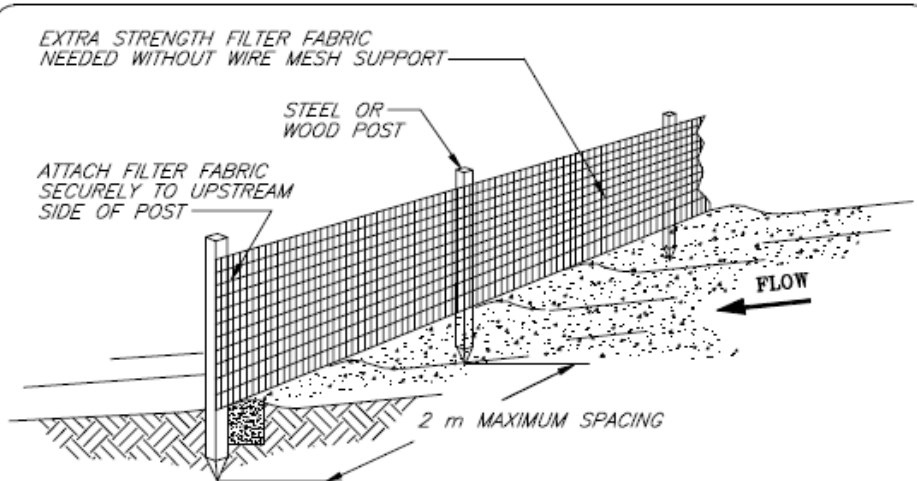
- Sediment build up should be removed once it accumulates to a depth of 0.2 m
- Remove fence after vegetation is established
- Deactivate fabric by cutting-off top portion of fabric above ground; bottom trenched-in portion of fence fabric can be left in-ground thus minimizing ground disturbance

**Similar Measures**

- Straw Bales
- Rock Barrier
- Permeable/Synthetic Barriers

**Design Considerations**

- For a silt fence system to work as a system, the following factors should be considered:
  - a) quantity – adequate number and frequency of fence for efficient ponding and sedimentation
  - b) installation – workmanship
  - c) compaction – backfill and trenching of fabric
  - d) support – posts adequately embedded, appropriate selection of post material and spacing
  - e) attachment – secure fabric to post
- Install silt fences in a 'J' hook or 'smile' configuration



TRENCH METHOD DETAIL

NOTES:

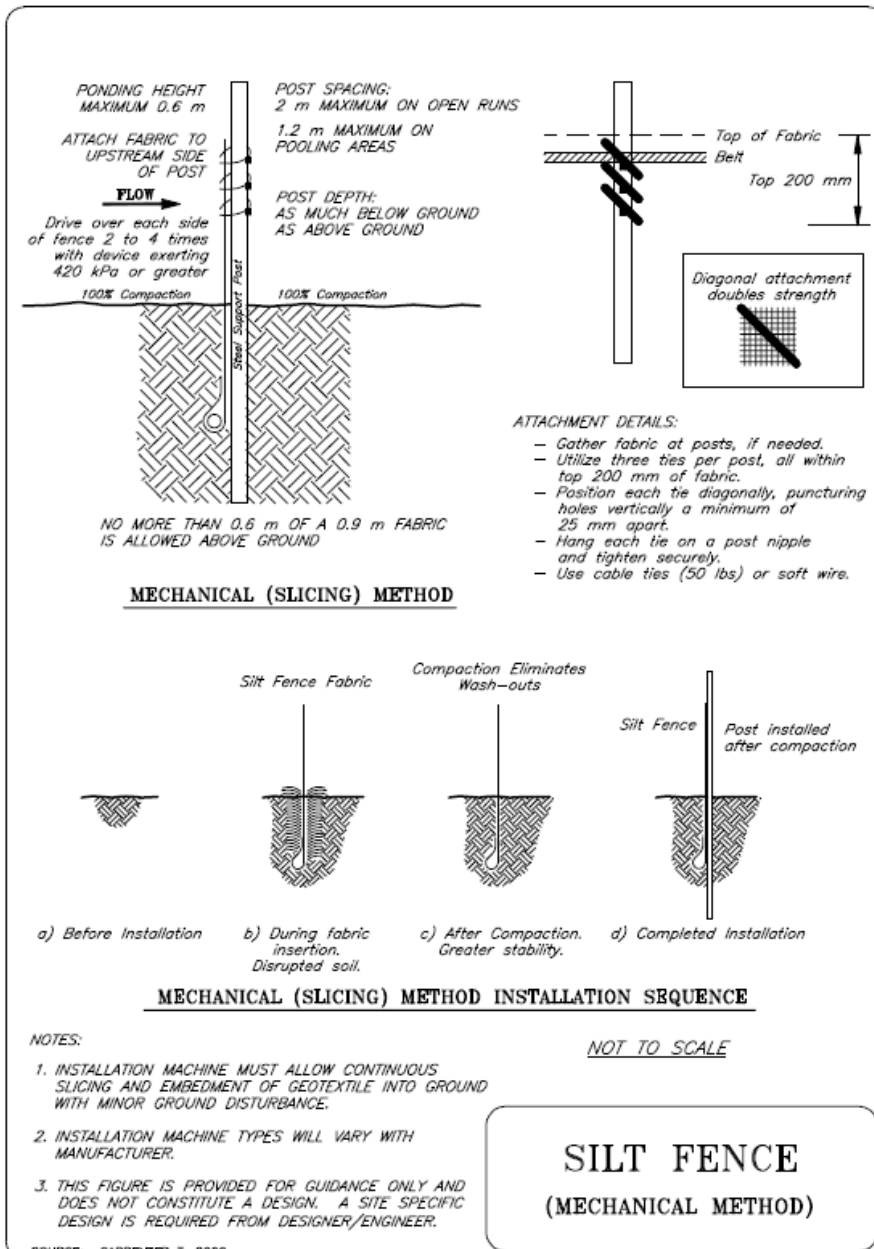
1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR FENCE DAILY AND AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED SILT REACHES 200 mm.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA WILL NOT CONTRIBUTE SEDIMENT OFF-SITE.
4. THIS FIGURE IS PROVIDED FOR GUIDANCE ONLY AND DOES NOT CONSTITUTE A DESIGN. A SITE SPECIFIC DESIGN IS REQUIRED FROM DESIGNER/ENGINEER.

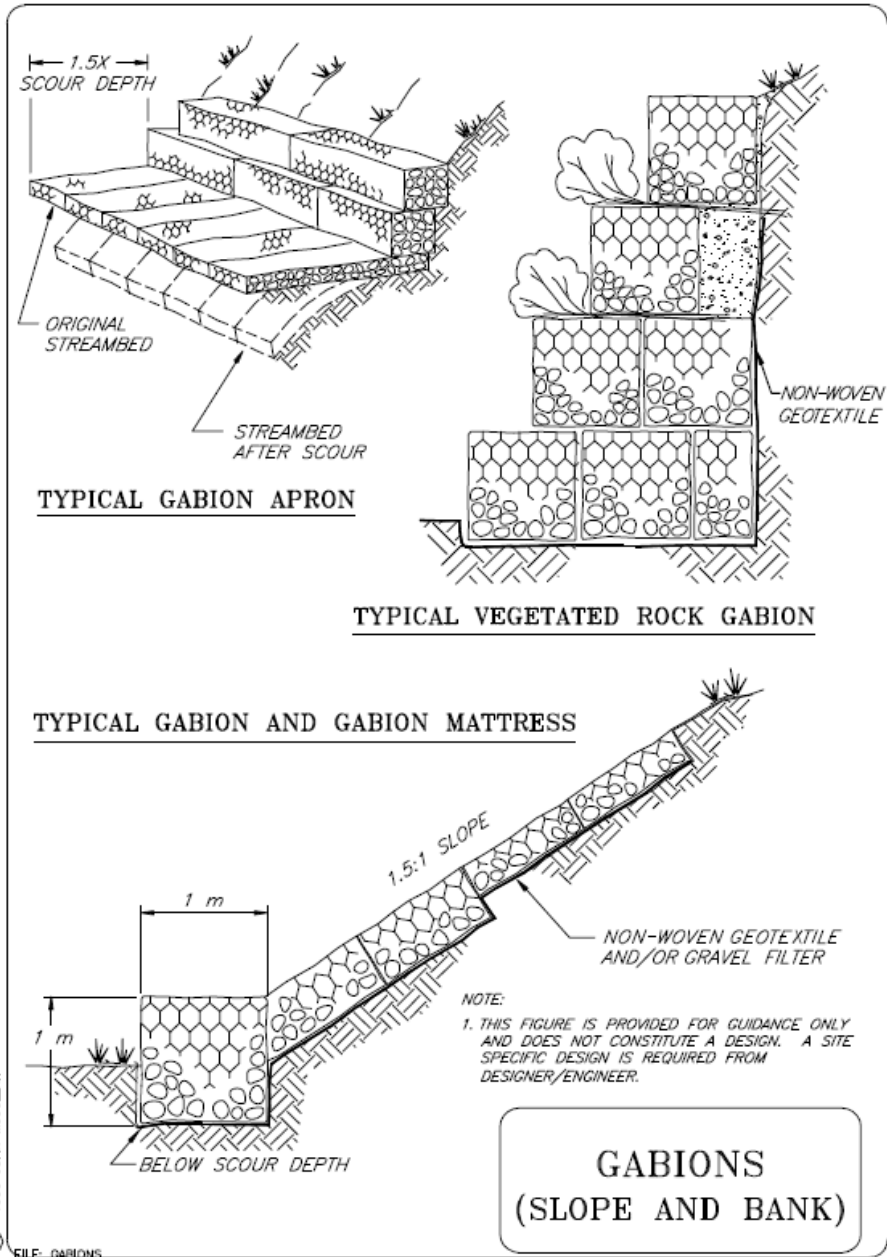
NOT TO SCALE

SILT FENCE  
(TRENCH METHOD)

© 1994 JOHN McCULLAH  
From: Salt-Applied Earthcare - EROSION DRAW 3.0

FILE: SILTFENC





From: Salix-Applied Earthcare - EROSION DRAW 3.0  
 1996 JOHN McCULLAH

FILE: GABIONS

**Government of Alberta**  
**Transportation**

B.M.P. #2a  
 Typical Section

**GABIONS  
 (SLOPE AND BANK)**

## Appendix E Revision History Log

Version	Date Issued	Name of Last Issuer	Revision Notes
<b>Version</b>	<b>Date Issued</b>	<b>Name of Last Issuer</b>	<b>Revision Notes</b>
0.1	June 9, 2003	Lee Preziosi	Draft EPP (Version 0.1) for review
0.2	July 4, 2003	Lee Preziosi	Draft EPP (Version 0.2) for review
01	July 4, 2003	Lee Preziosi	Final EPP (Version 01) Issued
02	February 16, 2004	Lee Preziosi	Revised taking into consideration DFO's Regional Habitat Co-ordinator's comments. Changes made are in bold.
03	May 16, 2005	Sonya Flynn	Revised with new ESH Policy, removed Call-out procedure, new IOC Logo added, update of names, Note on Draining of Hakim Lake
04	July 31, 2007	Jody Clark	Annual review; revised Environmental Administrator to Environment Advisor.
05	April 1, 2008	Garry Greene	Annual review. Revised Garry Greene to Primary Ore Environmental Advisor. In Appendix B changed Arn Do to Kresho Galovich. Revised Department of Forestry Resources and Agrifoods to Department of Natural Resources Forestry and Wildlife Division. Revised Jody Clark Environment Manager to Patrick Lauziere Superintendent Environment.
06	October 28, 2010	Garry Greene	Consolidated all three EPP's., (Luce, Sherwood, Plateau Quarry) into general EPP that covers the entire IOC Labrador City Operations.
07	July 21, 2017	Danielle Kinsman	Review and update of EPP for the Sherwood North Development Project

<b>Version</b>	<b>Date Issued</b>	<b>Name of Last Issuer</b>	<b>Revision Notes</b>
08	June 20, 2018	Denise Cormier Tina Cassel	Update EPP to include comments from Sherwood, added culvert cleaning info, updated reference material, and regulatory information, added BMP appendix and project specific Appendix

## Appendix F Project Specific Information