



## Executive Summary

### (English Version)

#### General Information

Oceanic Iron Ore Corp. intends to develop the Hopes Advance Project, an iron ore mine located in the region of Nunavik in Québec and close to the northern village of Aupaluk.

#### Proponent Contact Information

<b>Name of the designated Project:</b>	<b>Hopes Advance Project</b>
<b>Name of the proponent:</b>	Oceanic Iron Ore Corp.
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In addition to federal regulatory requirements, the Project is also subject to the Québec provincial environmental and social impact assessment and review procedure as per Chapter 23 of the James Bay and Northern Québec Agreement (JBNQA) and Chapter II of the Québec Environment Quality Act (EQA). A project description (preliminary information) was filed with the provincial Administrator of the JBNQA on January 23, 2012. The Environmental Assessment process under the Nunavik Inuit Land Claims Agreement (NILCA) could also apply to parts of the project that impact the marine region.



## Project Information

The provisions in the schedule to the Regulations Designating Physical Activities describing the Project in whole or in part are the following:

- Section 15. The construction, operation, decommissioning and abandonment of:
  - (a) a metal mine, other than a gold mine, with an ore production capacity of 3,000 t/d or more;
  - (b) a metal mill with an ore input capacity of 4,000 t/d or more.
- Section 20(k). The construction, operation, decommissioning and abandonment, or an expansion that would result in an increase in its production capacity of more than 35% of a factory for the manufacture of chemical explosives employing chemical processes.
- Section 27(c). The construction, operation, decommissioning and abandonment of a marine terminal designed to handle vessels larger than 25,000 DWT unless the terminal is located on lands that are routinely and have been historically used as a marine terminal or that are designated for such use in a land-use plan that has been the subject of public consultation.

Other provisions that could potentially be applicable are:

- Section 2(a). The construction, operation, decommissioning and abandonment of a fossil fuel-fired electrical generating station with a production capacity of 200 MW or more<sup>1</sup>.
- Section 29. The construction, operation, decommissioning and abandonment of:
  - (b) an airport;
  - (c) an all-season runway with a length of 1,500 m or more.

The project description is subject to modifications in light of the results of an ongoing prefeasibility study, which should be completed in September 2012.

The high demand for metals, including iron, on the world market encourages mineral exploration and investment in subsequent developments. Extensive activities have already been completed for the Hopes Advance Project and a global resource of 1.268 billion tonnes of measured and indicated in-pit resource at 32.3% using a 25% cut-off grade has been estimated.

The Hopes Advance Project involves the development of several open pit mines. The mine is expected to generate from 10 to 20 million tonnes per year of iron concentrate product over a planned period of up to 48 years. Open pit mining in the Hopes Advance Area is envisioned as a conventional drill/blast/load/haul mining operation. Mining operations will be carried out on a 24-hour per day and 365-day per year basis. The ore from the mine will be treated at the concentrator to be located near the mine. The concentrate will then be pumped to the port area via a 26 km long concentrate pipeline for shipping.

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<sup>1</sup> Note that the anticipated production capacity of the generation station is 190 MW.



## OCEANIC IRON ORE CORP.'S HOPES ADVANCE PROJECT PROPONENT'S DESCRIPTION OF A DESIGNATED PROJECT

The shipment will require new deep water marine facilities consisting of an iron ore wharf and a causeway. The wharf is a caisson gravity base structure. Apart from the preparation for flat base, no dredging is anticipated for the port and the vessel approach channel.

The shipment of iron ore requires navigation through Ungava Bay and the entrance to Hudson Strait and Labrador Sea. Ice class vessels with capacity of 180,000 deadweight tons (DWT) will be used for shipping, while 240,000 DWT vessels may be used during ice-free season. Smaller vessels will be used for other shipping requirements (such as consumables, spare parts, etc.).

During construction and the first years of operation, a self-generated power plant fuelled by petroleum products will be used. The Project would connect to the provincial power grid once Hydro-Québec has advanced its transmission line to Ungava Bay.

Additional infrastructure will be required to support the operation including an upgraded existing airstrip, a 26 km long pipeline, a permanent road, a worker camp, service buildings and storage, management equipment of petroleum products and explosives and mine waste management infrastructures.

The Environmental and Social Impact Assessment (ESIA) completion and the beginning of the construction are anticipated for 2014. Operation would start in 2016.

### Project Location

The Project is located in the region of Nunavik in Québec, on the western side of Ungava Bay, and close to the northern village of Aupaluk (figure 1 and appendix A). Besides Aupaluk, the nearby communities are Kangirsuk and Tasiujaq. The centroid of the Project area is approximately 69° 58' 40.265" W / 59° 17' 9.631" N.

The Project falls within Inuit territory governed by the James Bay and Northern Québec Agreement. The planned mining activities are all located on Category III lands.

A few fishing cabins are located near the Project area (figure 1). The most valued areas and natural resources in the Project area are fish and fish habitats within Hopes Advance Bay, the lakes and the rivers (especially Red Dog River, Ford Lake and Saint-Fond River). Areas of caribou, ducks, geese, seals, polar bears and beluga hunting and berries picking are other valued land interests in the Project area. Hopes Advance Bay is also important for seafood collecting such as mussels and clams. It should be noted that a regional environmental study has not been conducted in the Project area.

### Federal Involvement

To date, the federal authorities have not proposed financial support for the Project and no federal lands are part of the Project area.

We anticipate that the following federal acts or regulations may apply for the design and operation of the project (non exhaustive list):

- *Migratory Birds Convention Act, 1994;*
- *Fisheries Act;*
- *Navigable Waters Protection Act;*



- *Explosives Act;*
- *Arctic Waters Pollution Prevention Act;*
- *Species at Risk Act;*
- *Canadian Environmental Assessment Act, 2012;*
- *Ammonium Nitrate Storage Facilities Regulations; and*
- *Migratory Birds Regulations*

## **Environmental Components and Main Constraints to the Project**

### ***Physical Environment***

Physical components include hydrology and coastal processes; surface water and sediment quality; hydrogeology and groundwater quality; soil and terrain; climate and air quality; and noise and vibrations. The next section describes the components from which relevant data are already available.

### ***Hydrology and Coastal Processes***

The watercourses within the Project area belong to the Hudson Bay Seaboard drainage basin, and more specifically, the Leaf River watershed. The main lakes within the region (i.e., Ford, Red Dog, Ippialuup and Ungallijuap Qamaninga lakes) all drain into the Red Dog River, which in turn flows into Hopes Advance Bay, a part of Ungava Bay. From another watershed, the Saint-Fond River also flows into the Ungava Bay north of the Project area.

Apart from the Red Dog River and Saint-Fond River, only small to medium streams are found in the Project area. From preliminary surveys, many rapids, cascades or braided sections with very low depth were observed in these streams. However, some channels of up to 1 metre in depth are present in some sections of these streams.

With a mean tidal range of 8.2 metres, Hopes Advance Bay is amongst the top 30 locations around the world where the largest range of tides has been observed. Normally, Ungava Bay begins to freeze up around mid-November and ice begins to break up around mid-June, creating a seven month ice cover.

### ***Surface Water and Sediment Quality***

Water and sediments (substrate of fine particles) were collected in September 2011 in lakes and watercourses of the Project area for analysis.

Water quality analysis showed low nutrient concentrations typical of oligotrophic and uncontaminated lakes. Typically the metal concentrations were below detection limits, and below federal or provincial guidelines.

In general, sediment quality analysis showed low metal concentrations into lake and river sediments.

### ***Soil and Terrain***

Surficial deposits within the Project area consist mainly of sediments deposited from melt water and floating ice in marine waters, during deglaciation and subsequent regression that have been classified as lag glaciomarine



deposits. Also found in the Project area are till blanket (thick and continuous) and till veneer (thin and discontinuous, areas of rock outcrop) glacial deposits.

The land within the Project area is inclined towards Ungava Bay, which is surrounded by land that is at sea level. Furthermore, aside from a series of low hills reaching a maximum height of around 110 metres north of Ford Lake, the rest of the Project area is relatively flat (mean elevation of around 40 m), and has been grouped within a slope gradient class of 10-15%.

The Project area is located within the zone of continuous permafrost, within which the layer of permafrost can reach thicknesses of about 25 m.

### **Biological Environment**

Biological components include vegetation and wetlands, mammals, birds, reptiles, amphibians and fish/fish habitat. Particular attention has been paid to protected areas and to species of special concern.

### **Protected Areas**

The closest protected area, located 15 km south of the Project area is called the *Réserve de parc national du Québec de la Baie-aux-Feuilles*. This area is entirely located outside of the Project area.

No Important Bird Area (IBA) has been identified within the Project area.

### **Vegetation and Wetlands**

The Project area is located within the low subarctic, shrub arctic tundra bioclimatic domain. In this domain, willows (*Salix* spp.) and birch (*Betula* spp.) grow alongside herbaceous species (mostly graminoids), mosses and lichens. The vegetation canopy rarely grows beyond two metres.

The Project area is found within the natural province of the Ungava Bay basin (called natural province K), an area of 103,000 km<sup>2</sup> of which 3,136 km<sup>2</sup> consist of wetlands. These wetlands, which are for the most part unclassified, likely include:

- Peatlands, as well as swamps and marshes, bordering lakes and streams;
- Important wetlands in some estuaries and sheltered bays along Ungava Bay; and
- Fens and palsa bogs (influenced by the permafrost) along the Ungava Bay coast.

### **Mammals and Birds**

The following large mammal species are present in the Project area: caribou (*Rangifer tarandus*, Leaf River caribou herd), muskox (*Ovibos moschatus*), red foxes (*Vulpes vulpes*), marten (*Martes americana*), wolves (*Canis lupus*), polar bears (*Ursus maritimus*), Canada lynx (*Lynx canadensis*), and arctic foxes (*Alopex lagopus*). The habitat is suitable for Wolverine (*Gulo gulo*), but no verified reports of this species in Québec exist since 1978.

The following marine mammals (amongst others), based on their general distribution, may frequent Hopes Advance Bay: harbour seal (*Phoca vitulina*), bearded seal (*Erignathus barbatus*), ringed seal (*Pusa hispida*), beluga whale (*Delphinapterus leucas*, Ungava Bay population), Sei whale, (*Balaenoptera borealis*), and Blue whale (*Balaenoptera musculus*).



Some 37 bird species were reportedly observed in the Red Dog Lake area. Most of them only migrate through the region, but the peregrine falcon (*Falco peregrines*) uses the area for reproduction and 5 more species may potentially use the area for this same purpose: snow goose (*Chen caerulescens*), Canada goose (*Branta canadensis*), greater scaup (*Aythya marila*), herring gull (*Larus argentatus*), and king eider (*Somateria spectabilis*). Among the species observed at or near the project area are peregrine falcon, golden eagle (*Aquila chrysaetos*), common eider (*Somateria mollissima*), black guillemot (*Cepphus grylle*), surf scoter (*Melanitta perspicillata*), and several species of seagulls.

### **Reptiles and Amphibians**

No reptile or amphibian species distributions go as far north as the Project area.

### **Fish and Fish Habitat**

The following fish species have been captured during gillnet and electric fishing surveys performed in September 2011:

- Lake trout (*Salvelinus namaycush*)
- Arctic char (*Salvelinus alpinus*)
- Brook trout (*Salvelinus fontinalis*)
- Round whitefish (*Prosopium cylindraceum*)
- Mottled sculpin (*Cottus bairdi*)
- Ninespine stickleback (*Pungitius pungitius*)
- Threespines stickleback (*Gasterosteus aculeatus*)
- Burbot (*Lota lota*)

Although not captured during the September 2011 survey, the following fish species, amongst others, are also likely to frequent the Project surrounding area according to their general distribution: northern pike (*Esox lucius*), suckers (*Catostomus* spp.), lake whitefish (*Coregonus clupeaformis*) and some Cyprinid species. Amongst marine and anadromous species, Greenland halibut (*Reinhardtius hippoglossoides*), Atlantic cod (*Gadus morhua*) and Atlantic salmon (*Salmo salar*) inhabit Ungava Bay.

The marine benthic community of the region includes such species as: Iceland scallop (*Chlamys islandica*), blue mussels (*Mytilus edulis*) and clams (*Mya arenaria*) which can be found off the shores of Hopes Advance Bay.

### **Species of Special Concern**

Some species or populations in the Project area are protected at the federal level by the Species at Risk Act (SARA) and/or at the provincial level by the Act respecting threatened or vulnerable species (LEMV). In addition, migratory bird species are protected by the Migratory Birds Convention Act, 1994, administered by the Canadian Wildlife Service of Environment Canada in collaboration with the Canadian provincial and territorial governments.

According to the *Centre de données sur le patrimoine naturel du Québec* (CDPNQ), no floristic species at risk or any important terrestrial habitats have been recorded within the Project area. It should be noted, however, that



the lack of special status species in the Project area may simply be a result of a lack of field investigations in this remote area of Québec.

The following special concern wildlife species are present in the Project area:

- Peregrine falcon *tundrius* (*Falco peregrinus tundrius*): susceptible of being designated threatened or vulnerable according to the LEMV and listed as a special concern species according to the SARA.
- Golden eagle (*Aquila chrysaetos*): listed as vulnerable according to the LEMV and not at risk according to Committee on the Status of Endangered Wildlife in Canada (COSEWIC).
- Polar bear (*Ursus maritimus*): listed as vulnerable under the LEMV and of special concern by COSEWIC.
- Ungava Bay beluga whale (*Delphinapterus leucas*) population: susceptible of being designated endangered or vulnerable under the LEMV, has been designated endangered by COSEWIC and is under consideration for listing under the SARA.
- Eastern Arctic population of Bowhead whale (*Balaena mysticetus*): listed in Schedule 2 of SARA as endangered.

Based on their general distribution, the following species listed as a special status species might possibly be found in the Project area:

- Wolverine (*Gulo gulo*): designated threatened in Québec according to the LEMV and endangered according to SARA.
- Harlequin duck (*Histrionicus histrionicus*): designated as special concern species by the SARA.
- Red knot (*Calidris canutus*): susceptible of being designated threatened or vulnerable under the LEMV and endangered by COSEWIC.
- Rusty blackbird (*Euphagus carolinus*): susceptible of being designated threatened or vulnerable under the LEMV.
- Short-eared Owl (*Asio flammeus*): susceptible of being designated threatened or vulnerable under the LEMV.
- Atlantic cod (*Gadus morhua*): designated as special concern species by SARA.
- Fourhorn sculpin (*Trigloopsis (Myoxocephalus) quadricornis*): susceptible of being designated threatened or vulnerable under the LEMV.

It should be noted that although the caribou, muskox, salmonids, Canada goose, snow goose, seals, and ptarmigan (*Lagopus* spp) are not officially listed as a special status species at the provincial or federal levels, they warrant a special mention as they are important to the local Inuit population.

### **Human Environment**

Human components include socio-economic, land and resource use, archaeology, and landscape. The next section describes the components from which relevant data are already available.



### **Socio-economics**

The Inuit community of Aupaluk is one of the fourteen Inuit communities in the Nunavik territory. In 2006, the total population in Aupaluk was 174. The median age within the village of Aupaluk was 19.5 years, which is slightly younger than that of the Inuit population (22 years), and other indigenous groups (25 years), but is more than twice as young compared to the province of Québec (41 years).

Within the village of Aupaluk, 94.1% of the population can express themselves in Inuktitut (i.e., non-official language according to Statistics Canada), 60% of the population can converse in English, while 14.3% of the population can communicate in English and French.

The region is developing slowly and its economic situation is still precarious due to its dependence on government assistance. This limited development is attributed to the climatic constraints, the scattered resources, the distance from major cities, and the lack of a skilled work force.

### **Land and Resource Use**

Inuit subsistence and game harvesting (hunting, fishing and trapping) occurs along the coast as well as inland. The region surrounding Aupaluk is entirely within UGAF 96 (Unité de gestion des animaux à fourrure) and hunting area 23.

Large game hunting starts around mid-November and continues into mid-May. During the summer period, the Inuit spend more time fishing and hunting marine mammals. Of particular interest is that, since 1998, licensed community hunts of the Bowhead whale (*Balaena mysticetus*) were permitted in Nunavik by the Federal Department of Fisheries and Oceans, when it was proven that the Bowhead, once almost at the point of extinction due to the activities of international whalers in the past two centuries, is now rebounding.

During meetings with Inuit representatives, the species of importance to the Inuit of Aupaluk that were mentioned are salmonids (arctic char, brook trout, lake trout), muskox, polar bear, seal, geese, ptarmigan, and caribou.

Makivik is currently performing an extensive study on land and resource use on Nunavik territory; the results will complete Makivik's database and GIS on that subject. Oceanic Iron Ore Corp. plans on acquiring the data from Aupaluk, Kangirsuk and Tasiujaq communities.

### **Archaeology**

According to the ISAQ (*Inventaire des sites archéologiques du Québec*) database, 50 archaeological sites have been discovered near Aupaluk. The vast majority of those sites are located outside of the Project area. Only two archaeological sites are located close to some of the Project activities.

### **Main Apprehended Impacts**

For the construction, operation and decommissioning phases of the Project, the identification of incidences addresses the physical, biological and human environments.

### **Physical Environment**

The main environmental impacts and risks apprehended for the physical environment are:

- potential contamination of soil and water: concerning accidental spillage of petroleum products and other contaminants;





- effects on surface water quality and availability: concerning water runoff modification, higher suspended matter associated with potential subsidence and erosion risks and potential contamination from effluents;
- effects on hydrodynamic conditions in Hopes Advance Bay that could be created by frequent visits of large sea vessels throughout the year;
- effects associated with air quality: concerning dust and contaminants originating from the operations; and
- effects associated with noise and vibrations from the operations.

### ***Biological Environment***

The main environmental impacts apprehended for the biological environment are:

- effects on vegetation and wetlands: considering loss and modifications caused by new infrastructures, especially open mine pits, waste dumps and tailings management facilities (TMF sites);
- effects on fish habitat and fish populations: considering loss and modifications to fish habitat by new infrastructures, especially open mine pits, waste dumps and TMF sites, port infrastructure and water crossings; the effluents, and effects associated with drainage and erosion;
- effects on terrestrial and avian fauna (including migratory birds); considering loss and change of habitat created by new infrastructures, especially open mine pits, waste dumps and TMF sites; perturbation caused by the workers' presence as well as noise and vibrations;
- effects on marine mammals: considering the port construction (dredging and potential blasting) and perturbation caused by vessel traffic.

For the biological environment, special attention will be given to species of concern and of interest to the Inuit.

### ***Human Environment***

As for the incidences on the social environment, the main impacts and benefits apprehended are the following:

- the current and anticipated future land and resource uses;
- the potential changes in traditional hunting, fishing, trapping, and gathering activities of the Inuit in the area;
- the number of jobs created by the Project in the local and regional native population;
- the introduction of a new economy within the Aupaluk and surrounding communities, which has little work experience with the mining industry, and what it can involve for the community in the short and long term;
- the expected short and long-term socio-economic benefits;
- the historical and archaeological sites;
- the visual integration of the Project in its environment;



- the demographic imbalance due to population influx of non-Inuit in a small Inuit community including possible intercultural and/or linguistic tensions;
- the effects on Inuit social organization and cohesion;
- the effects on community and worker's health and safety;
- the effects on humans associated with air quality;
- effects associated with noise from the mine site and port activities;
- the social acceptability of the Project for Inuit population and other stakeholders, particularly in the context of Plan Nord.

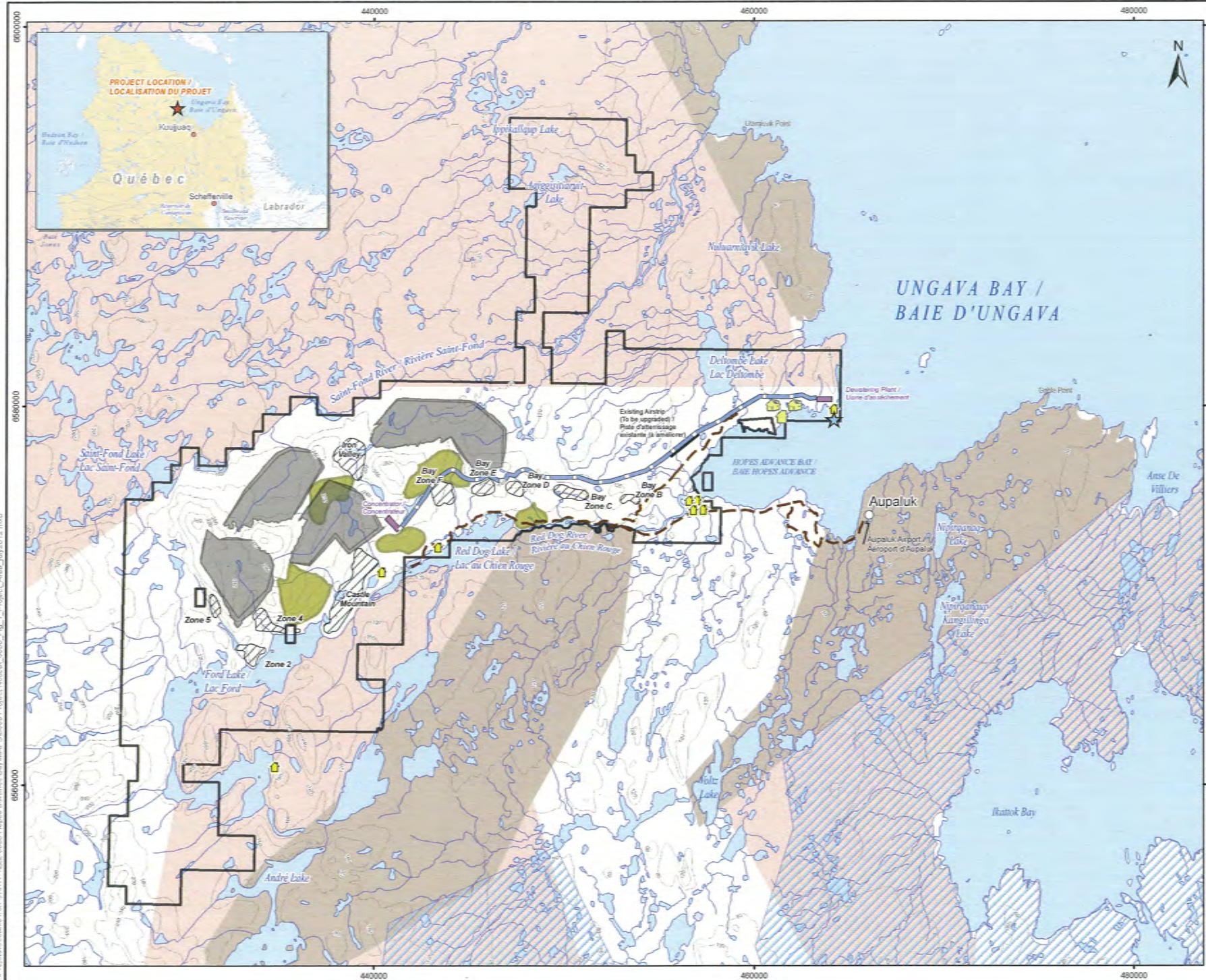
### **Modalities of Public Consultation with Aboriginal Groups**

Oceanic Iron Ore Corp. initiated consultations before the beginning of the exploration program of the Hopes Advance Project and has prepared a consultation plan for the duration of the Project's Environmental and Social Impact Assessment (ESIA). The objective of this plan is to gain traditional knowledge from the Inuit and to keep the Inuit engaged in dialogue, and involved, to maximize their participation in the Project. The consultations with the stakeholders will ensure that the ESIA report maximizes the measures required for the social acceptability of the Project.

At this stage, the jurisdictions and parties consulted include mostly Inuit organizations such as the Northern Village of Aupaluk, Kativik Regional Government, Kativik Municipal Housing Bureau or Nunavik Mineral Exploration Fund and Makivik Corporation. Additional stakeholders will be consulted within the coming months.

The consultation program includes three key activities: 1) Consultation on the current and anticipated land and resource uses; 2) Identification of stakeholders' issues and concerns on potential impacts and benefits of the Project and identification of the appropriate mitigation measures; 3) Disclosure of the draft ESIA through public consultation sessions.

Main concerns expressed during the first consultation activities with the Inuit are related to the employment situation, the potential social iniquity in the community and the possible rise of drug and alcohol consumption. Concern has also been raised about loss and deterioration of wildlife habitat caused by the Project.



**LEGEND / LÉGENDE**

- ★ Proposed Port / Port projeté
  - Proposed Concentrate Pipeline / Pipeline de concentré projeté
  - ▨ Proposed Pit Area / Aire des fosses projetées
  - Tailing Management Area (TMA) Option / Option de parc à résidus (PAR)
  - Land Claim (491 km<sup>2</sup>) / Propriété minière (491 km<sup>2</sup>)
  - Proposed Waste Dump / Halde à stérile projeté
  - ▨ Baie-aux-Feuilles Québec National Park Reserve / Réserve de parc national du Québec de la Baie-aux-Feuilles
  - 🏠 Fishing Cabin / Cabane de pêche
  - 🏠 Old Village / Ancien village
  - Existing Road / Route existante
- Land Category (JBNQA) / Catégorie de terre (CBJNQ)**
- I - Lands surrounding villages that are set aside for the exclusive use and benefit of the Inuit / Terres attribuées aux Inuit pour leur usage exclusif.
  - II - Public lands with hunting, fishing and trapping rights exclusive to the Inuit / Terres publiques sur lesquelles les Inuit ont des droits exclusifs de chasse, de pêche et de piégeage.
  - III - Public lands with rights to the Inuit for hunting, fishing and trapping without a permit, without limit and at all times, subject to the conservation principle / Terres publiques sur lesquelles les Inuit possèdent un droit de chasse, de pêche et de piégeage, et ce, sans permis, sans limite de prise et en tout temps, sous réserve du principe de conservation.
- Topography / Topographie**
- Contour line (m) / Courbe de niveau (m)
  - Watercourse / Cours d'eau
  - Waterbody / Plan d'eau

**REFERENCES / RÉFÉRENCES**

Data / Données: Topo Canvec 250K ©MNR/C / Canvec Topo 250K ©NRC.  
 Oceanic Iron Ore Corp. 2011. Hopes Advance Bay Property -  
 OSD Pipelines DWG no. 04201-DGL-003 (21-05-2012)  
 Projection / Projection: NAD 83, UTM zone 18N.



**PROJECT / PROJET**  
**OCEANIC IRON ORE CORP. - HOPES ADVANCE PROJECT**  
**DESCRIPTION OF A DESIGNATED PROJECT /**  
**DESCRIPTION D'UN PROJET DÉSIGNÉ**

**TITLE / TITRE**  
 Project Area and Proposed Components /  
 Aire du projet et composantes projetées

	Project # / # Proj: 11-1222-0008-8000		
	Designed by / Projeté par: R. Mahot	2012-07-27	Rev 2
	GIS / SIG: E. Duing	2012-07-27	
	Checked by / Vérifiée par: R. Mahot	2012-07-27	
	Approved by / Approuvée par: M. Kelly	2012-07-27	

Figure 1

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# APPENDIX A

## Photographs



## APPENDIX A

Photos of Project Area / Photographies de la zone du projet



Photo 1. Fishing cabins at Red Dog River / Cabanes de pêche à la rivière au Chien Rouge



Photo 2. Red Dog Lake / Lac au Chien Rouge



Photo 3. Red Dog River / Rivière au Chien Rouge



Photo 4. Waterfall on the Red Dog River / Chute sur la rivière au Chien Rouge



Photo 5. Stream in the project area / Ruisseau dans la zone du projet



Photo 6. Vegetation of the project area / Végétation dans la zone du projet

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