

8. CONSTRUCTION

The construction phase will start with the following activities:

- removal of any topsoil and vegetation in the following areas: site of crushing and processing facilities, work camp, garage and warehouse near Timmins 1 (± 10 ha), in Newfoundland and Labrador; railbed from M353 (Schefferville), in Québec, to Timmins 1 (28 km); existing and new access roads;
- in the event that NML is responsible for supplying electricity to its facilities, stringing of conductors along existing poles and replacement of poles where necessary from Schefferville Substation, located in Québec, to new substation in Timmins 1, in Newfoundland and Labrador, a distance of ± 13.5 km;
- construction, in Newfoundland and Labrador, of a 100-person camp for construction and operations¹, including potable water, waste disposal and sewage treatment systems;
- installation of temporary diesel-fired generators in Newfoundland and Labrador;
- repair and grading of roads in Québec and in Newfoundland and Labrador;
- establishment of an aggregate crushing and concrete batch plant in Newfoundland and Labrador.

The area near Timmins 1 where the facilities will be built is mainly rocky with light vegetation in places. If any tree-cutting is necessary, it will be minimal. The slashed wood will be piled on-site and will be offered to the local First Nations.

8.1 APPROPRIATE TOTAL CONSTRUCTION PERIOD

The time schedule of major activities is shown on [Figure 13.1](#).

The proposed total construction period is approximately 15 months.

8.2 PROPOSED START DATE OF FIRST PHYSICAL CONSTRUCTION-RELATED ACTIVITY ON SITE

The proposed start date of the first physical construction-related activity is July 2009.

¹ Naskapi, Innu and other locally recruited employees will have the option of living at home. Those who choose to do so will be transported by bus at the beginning and end of each shift.

8.3 POTENTIAL SOURCES OF POLLUTANTS DURING THE CONSTRUCTION PERIOD

The principal potential sources of pollutants during the construction period are dust and exhaust gases from heavy machinery, generators and other vehicles. The only liquid effluents will be sewage and grey water from the construction camp, which will be treated on site. Used oil and hydraulic fluids will be recovered and will be transported by train to an authorized treatment/disposal centre in Southern Québec. Subject to an agreement with the Ville de Schefferville, solid wastes will be disposed of at the sanitary landfill in Schefferville.

8.4 POTENTIAL CAUSES OF RESOURCE CONFLICTS

The preliminary results of a recent Naskapi land-use survey by Weiler (November 2006) show that the Howells River valley and the hills on both sides are extensively used by Naskapis for hunting and for gathering plants, including medicinal plants. Because of the proximity, year-round accessibility and richness in wildlife and plant resources of that area, its importance for young harvesters and for those with part-time or full employment is increasing.

Brown (June 2005) notes that caribou are hunted by Québec Naskapi and Innu hunters and by Labrador outfitters in the Howells River basin and outside the catchments wherever old mining roads provide access.

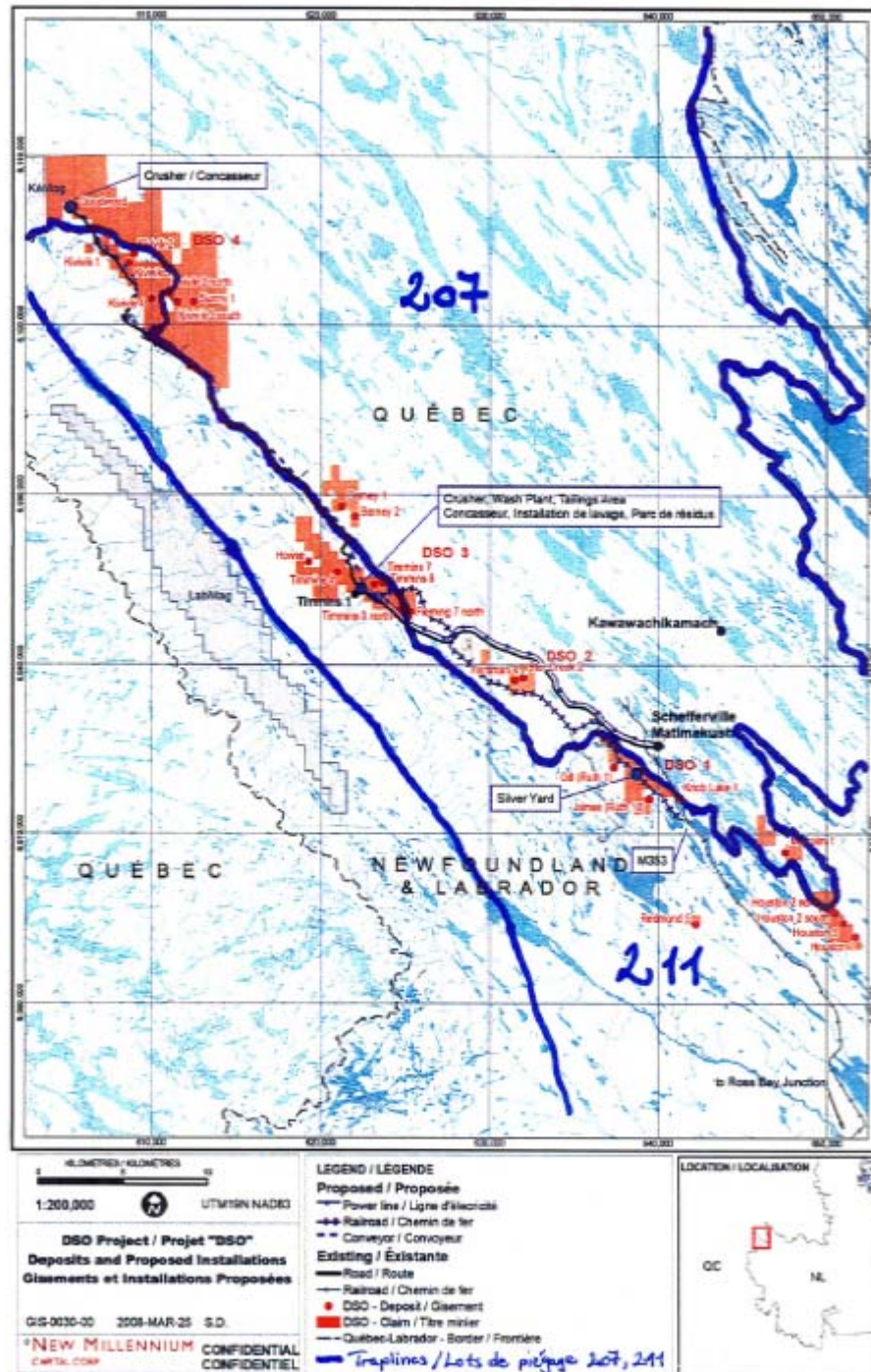
During the preliminary information session that was held with the Council of the NIMLJ in Matimekush on 9 July, 2007, the following preoccupations were voiced:

- the impact of drilling activities and of the use of helicopters on the migrating caribou and on caribou hunting by the Innu between mid July and late September.
- one member of ITUM expressed concern about potential impacts on Trapline 211.

Based on the foregoing, the following causes of resource conflicts have been identified:

- interference with subsistence activities on traplines 207 and 211, the locations of which are shown on [Figure 8.1](#);
- interference with subsistence and sport hunting of caribou particularly between mid July and the end of September.

Figure 8.1: The Project and Traplines 207 and 211



Source: Prepared by PFWA after Ashuanipi (no date).

9. OPERATIONS

9.1 DESCRIPTION OF OPERATIONS

9.1.1 Mining

Stripping will be the first mining operation, unless carried out previously.

Depending on the conditions at each pit, NML will extract iron ore by conventional open-pit mining techniques:

- rotary, diesel-driven drills will drill 9⁷/₈" diameter holes for blasting at each mine site;
- blasting will take place using slurry explosives and waterproof blasting caps;
- 150-tonne-capacity trucks, loaded by hydraulic shovels, backhoes or large front-end loaders fitted with 12.5-m³ buckets, will transport ore from the face to the Primary Crusher;
- one wheeled bulldozer and two tracked bulldozers will assist each front-end loader.

Mine stripping and waste removal will take place year-round, but mining, processing and transportation will be restricted to approximately seven to eight months per year.

As general practice, two mine sites will operate simultaneously. Mining is likely to start at Timmins 3N followed by Timmins 4. The order in which the other deposits will be mined remains to be determined.

9.1.2 Mineral Processing

In order to produce the two principal products, LO and SF, from each deposit, a Primary Crusher, two lines, each comprising a Secondary Crusher and a Wash Plant, and a Tertiary (dry) Crusher will be installed near the Timmins 1 pit. Schematics of the three flowsheets are presented as Figures [9.1](#), [9.2](#) and [9.3](#) respectively and a conceptual layout of the largest building -- the secondary crushing and washing plant -- is shown in [Figure 9.4](#).

9.1.3 Tailings Disposal

The tailings produced by the processing of the mineral coming from the washing plant will be transported by moveable slurry pipeline to the former Timmins 2 mine pit ([Photograph 5.1](#) and [Figure 4.1](#)). The moveable tailings pipe will be ± 1 km long.

9.1.4 Water

Process water for use in the wash plant will be withdrawn from the Timmins 2 pit, to which it will be returned when wash plant tailings are discharged into that pit. Water will

also be withdrawn from the Timmins 1 pit at the rate of some 50 m³/hr and treated , as required, for use as potable water, crusher cooling water and gland seal water on slurry pumps.

9.1.5 Waste Disposal

Subject to an agreement with the Ville de Schefferville, solid waste will be disposed of at the Schefferville sanitary landfill.

Hazardous wastes, including used oil, will be transported to Sept-Îles for disposal in authorized facilities.

9.1.6 Road Traffic

It is anticipated that vehicle movements between Schefferville and the mine site will be 20 trucks and buses per day plus 30 light vehicles.

9.2 ESTIMATED PERIOD OF OPERATIONS, IF NOT A PERMANENT FACILITY

The time schedule of major activities is shown in [Figure 13.1](#).

The proposed start date of operations in Phase 1 of the Project is 1 August, 2010. The approximate duration of Phase 1 is 35 months.

The total duration of the project, including future phases, will be approximately 15 years.

9.3 POTENTIAL SOURCES OF POLLUTANTS DURING OPERATIONS

The principal sources of pollutants are as follows:

- generation of noise and of dust and exhaust gases from heavy machinery, generators, vehicles, dynamiting, drilling, crushing the ore and loading it into rail cars.

9.4 POTENTIAL CAUSES OF RESOURCE CONFLICTS

The potential causes of resource conflicts are the same as those that are foreseen for the construction period (see Section 8.4).

- interference with subsistence activities on traplines 207 and 211.

The importance of the impacts created by the preceding sources of pollution will be evaluated in the EIS.

Mitigating and compensatory measures and a follow-up programme will be initiated.

IBAs will be negotiated with the potentially affected First Nations.

The duration of the impacts will be short (approximately 3.5 years).

Figure 9.1: Primary Crushing Plant Flowsheet

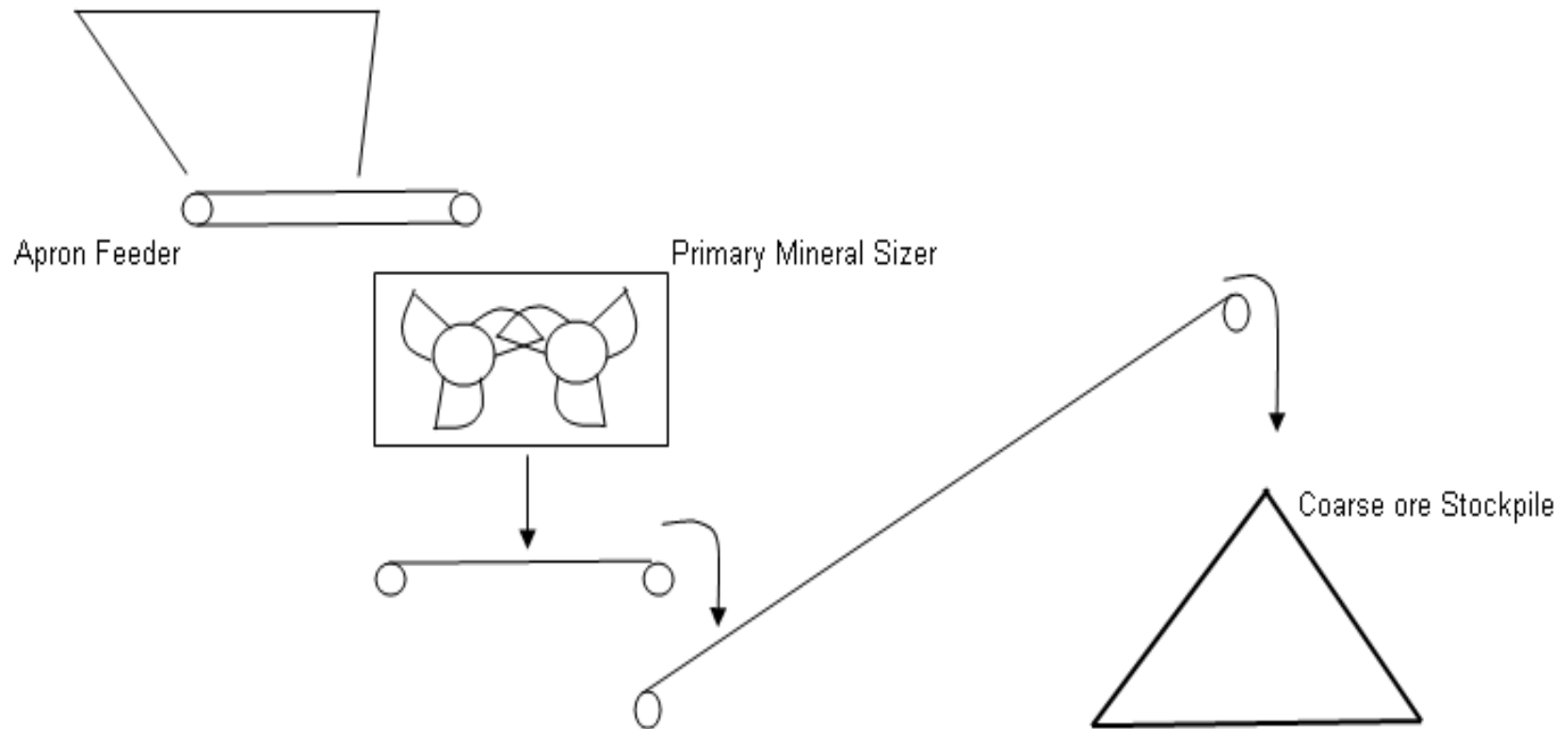


Figure 9.2: Secondary Crushing and Washing Plant Flowsheet

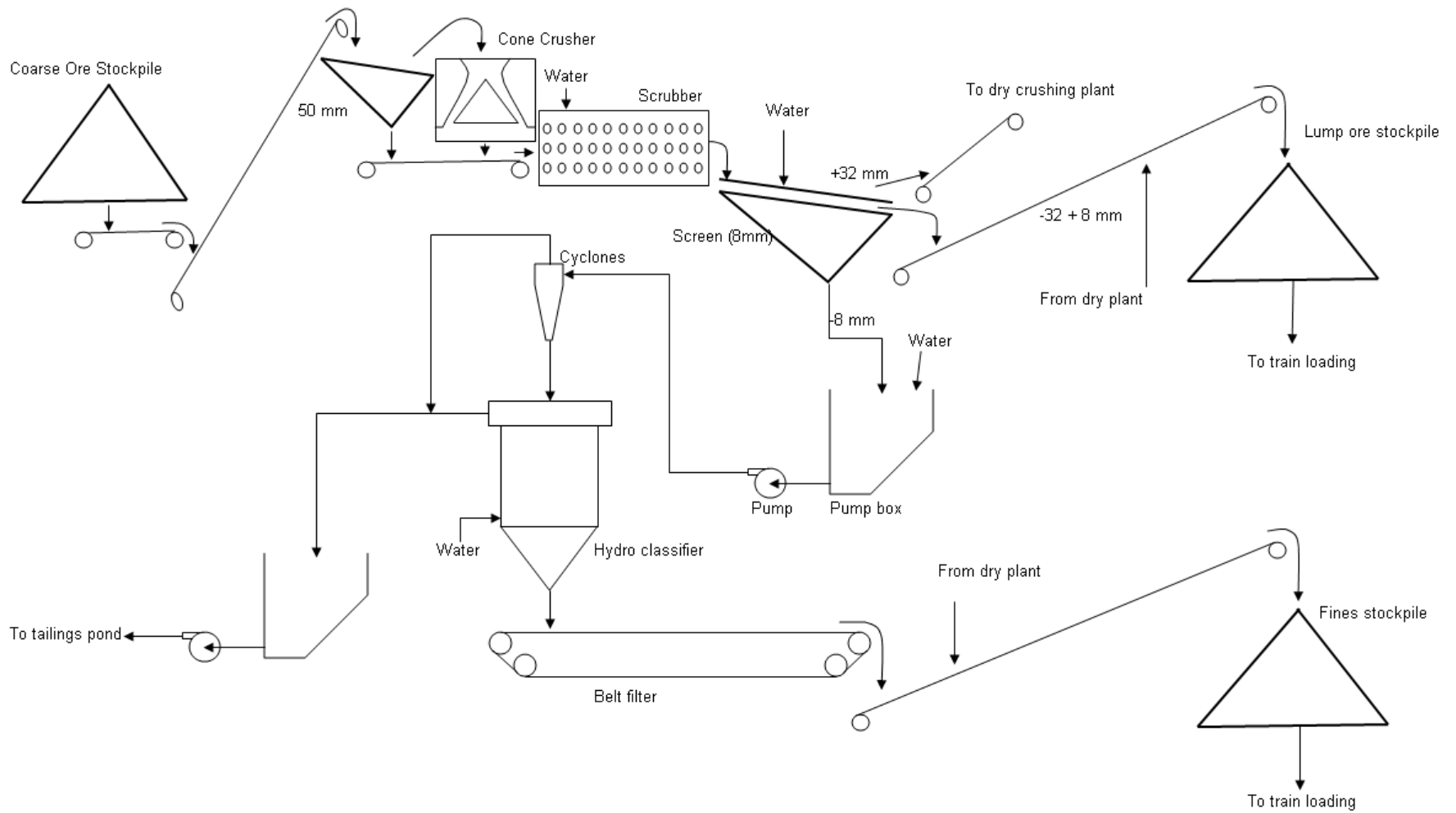


Figure 9.3: Tertiary (Dry) Crushing Plant Flowsheet

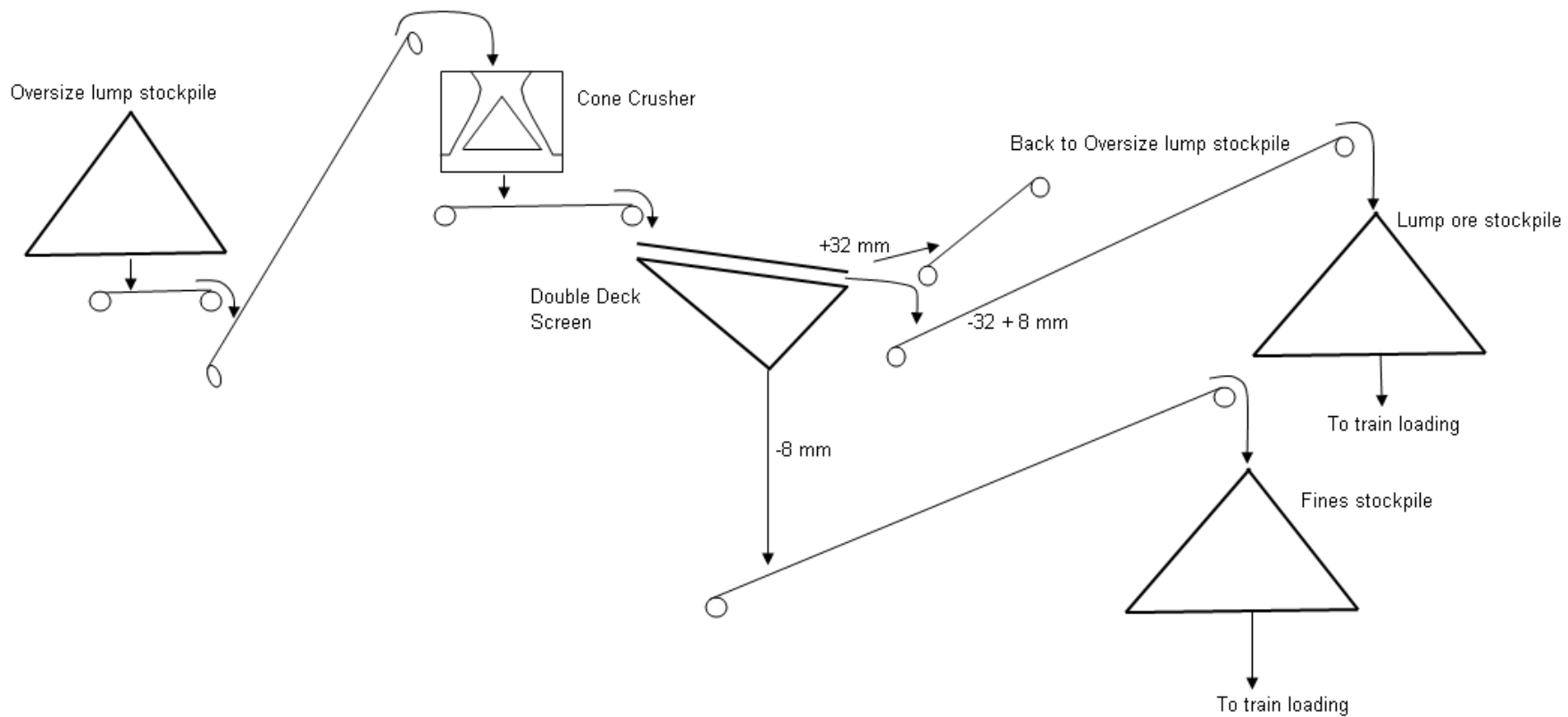
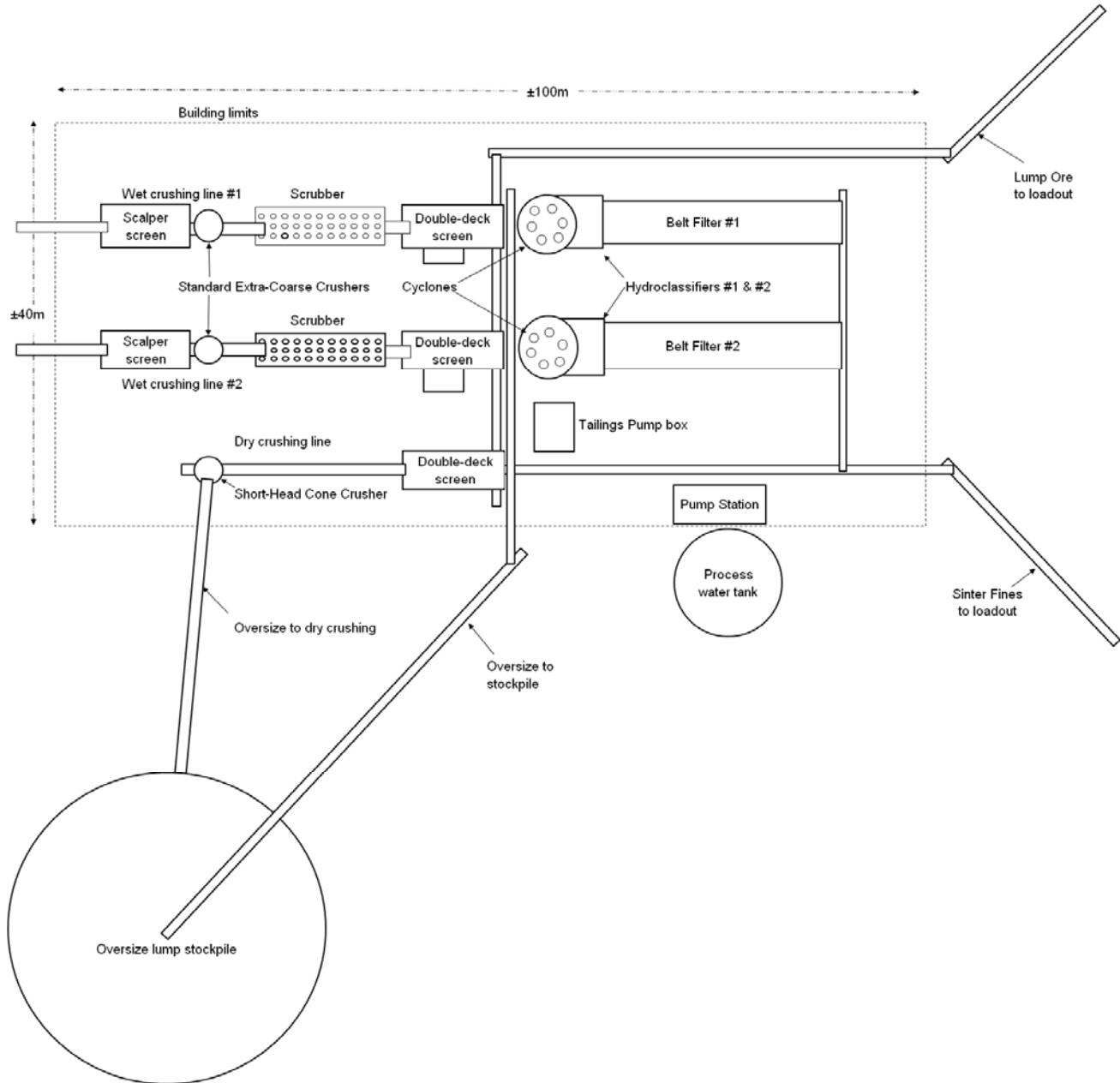


Figure 9.4: Conceptual Layout of Secondary and Tertiary Crushing and Washing Plant



10. OCCUPATIONS

10.1 CONSTRUCTION

It is estimated that the Project will employ a total of 150 people in the construction phase between 2009-2010. A similar number of indirect and induced jobs will also be created.

The duration of the employment will be approximately 15 months.

10.2 OPERATION

It is estimated that during the operation of Phase 1 between 2010 and 2013, 150 people will be hired. A similar number of indirect and induced jobs will also be created.

The duration of the employment will be approximately 36 months.

10.3 ENUMERATION AND BREAKDOWN OF OCCUPATIONS ACCORDING TO THE NATIONAL OCCUPATIONAL CLASSIFICATION 2006

[Table 10.1](#) categorizes the anticipated employment at the operation stage by major group and associated code under the National Occupational Classification Matrix of 2006 (HRSDC 25 March 2006).

Table 10.1: Anticipated Occupation Types and their Major Groups and Associated Codes According to the National Occupational Classification Matrix (2006)

Occupational Categories	No. of Positions	Major Groups according to NOCM	Associated Codes According to NOCM
Managers	5	00	081
Clerks	5	12; 14	121; 122; 123; 124; 141; 142; 143; 144
Engineers	8	21	211; 213; 214
Technicians	16	22	221; 223; 224
Supervisors	16	82	822
Plant Operators	16	84	841
Welders	8	94/95	941; 951
Mechanics	25	94/95	941; 948
Electricians	10	94/95	948
Heavy Equipment Operators; Labourers	40	94/95; 86	941; 861

Source: HRSDC (25 March 2006).

10.4 DIRECT HIRING AND/OR CONTRACTING OUT

All construction activities will be contracted out. NML's role will be limited to management and oversight.

NML will be responsible for all mining activities at the operations stage and will itself hire all of the direct employees.

10.5 EMPLOYMENT EQUITY IN RELATION TO AGE AND GENDER

A report on women's participation and contributions sponsored by NML (Boland October 2007) identifies issues and lists recommendations that are relevant to the DSO Project. Among these recommendations, the following will be given particular attention as they also apply to persons of all age groups:

- ensure that consultations directly include women, particularly Aboriginal women, and persons of all age groups, especially during the negotiation of IBAs;
- ensure that IBAs include targets for women employees, particularly Aboriginal women, and employees of all age groups;
- implement a training programme before the construction phase, so that women and persons of all age groups are ready to work once construction begins;
- implement affirmative recruitment and hiring practices where the workplace is welcoming to women and persons of all age groups at all positions and where there is a clear plan for progression and advancement; and
- elaborate a process for employment monitoring on an annual basis that includes gender and age in order to track progress and to implement strategies if the targets are not being attained.

By implementing the above listed recommendations, NML intends to create opportunities for the greatest number of qualified women and for persons of all age groups.

11. PROJECT-RELATED DOCUMENTS

[Table 11.1](#) lists the reports on environmental topics that have been completed.

Table 11.1 : Environment-Related Reports

<p>Boland, Bobbie. October 2007. <i>Women's Participation and Contributions: Issues relevant to the LabMag Iron Ore Development and the Environmental Assessment Review</i>. Submitted to LabMag GP Inc.</p>
<p>Brown, Richard. June 2005. <i>Observations in the Howells River Basin, Labrador, 1983 - 2002</i>. Submitted to LabMag GP Inc.</p>
<p>Brunet, Richard et Rémi Duhamel. Décembre 2005. <i>Échantillonnage 2005 : herpétofaune, micromammifères et chiroptères. Préliminaire</i>. Submitted on behalf of Envirotel 3000 inc. to LabMag GP Inc.</p>
<p>Brunet, Richard et Rémi Duhamel. Juillet 2005. <i>Revue de littérature et plan d'échantillonnage : insectes, herpétofaune, micromammifères et chiroptères</i>. Submitted on behalf of Envirotel 3000 inc. to LabMag GP Inc.</p>
<p>Consulair. Janvier 2008. <i>Rapport d'échantillonnage de l'air ambiant Site Howells River</i>. Submitted to LabMag GP Inc.</p>
<p>Curtis, Mark. February 2004. <i>Fish and Lake Water Quality of the Howells River System, Labrador</i>. Submitted to LabMag GP Inc.</p>
<p>Enright, Peter and Geneviève Leroux. August 2005. <i>Low-Flow Measurements on Howells River, Labrador - 2005. March 15-18, 2005. April 26-29, 2005</i>. Submitted on behalf of Brace Centre for Water Resources Management to LabMag GP Inc.</p>
<p>Enright, Peter and Geneviève Leroux. June 2006. <i>Activity Report – Site Visit to Howells River, Labrador, October 5-6, 2005</i>. Submitted on behalf of Brace Centre for Water Resources Management to LabMag GP Inc.</p>
<p>Envirotel 3000 inc. Février 2008. <i>Synthèse des résultats d'inventaires fauniques – 2006 (Herpétofaune, micromammifères et chiroptères. Version préliminaire)</i>. Submitted to LabMag GP Inc.</p>

Gartner Lee Limited. September 2005. <i>Preliminary Outline. Baseline Water and Sediment Sampling Program.</i> Submitted to LabMag GP Inc.
Gartner Lee Limited. July 2006. <i>Summary of Recent Winter Sampling Events and Snow Density Survey.</i> Memorandum. Submitted to LabMag GP Inc.
Gartner Lee Limited and Groupe Hémisphères. December 2007. <i>Labrador Study Area Terrestrial Ecosystem Mapping.</i> Submitted to LabMag GP Inc.
Girard, Nathalie. November 2003. <i>Field Work Report: Avifauna, Terrestrial Wildlife and Flora. Pre-feasibility Study, Howells River (Labrador, Canada).</i> Submitted to LabMag GP Inc.
Global Environnement and Golder Associates Ltd. November 2005. <i>Breeding Bird Data Collection in the Howells River Basin of Labrador.</i> Submitted to LabMag GP Inc.
Groupe Hémisphères inc. November 2007. <i>Tree Aging at the LabMag GP Inc. Mine Site, Howells River, Labrador.</i> Submitted to LabMag GP Inc.
Lee, Eugene M. July 2006. <i>Howells River Tributaries. Fish Habitat Surveys. Claim Block, Mine, Pit and Concentrator. September 2005. Draft Report.</i> Submitted on behalf of AMEC Earth & Environmental to LabMag GP Inc.
McCaffrey, Moria. March 2004. <i>Historic Resources Assessment in the Context of Environmental Baseline Studies for the LabMag Project, Labrador. OVERVIEW REPORT 2003.</i> Submitted to LabMag GP Inc. and Provincial Archeological Office, Department of Tourism, Culture and Recreation, Government of Newfoundland and Labrador.
McCaffrey, Moira, Jean-Yves Pinal and Fred Schwarz. July 2006. <i>Historic Resources Overview Assessment – Stage 1 (2006).</i> Submitted to LabMag GP Inc.
Minaskuat Limited Partnership. January 2008. <i>Winter Land Use Surveys.</i> Submitted to LabMag GP Inc.
Minaskuat Limited Partnership. January 2008. <i>Waterfowl Breeding Pair Surveys.</i> Submitted to LabMag GP Inc.

Minasquat Limited Partnership. August 2006. *Interim Report. Stage 1 Historic Resources Assessment. LabMag Iron Ore Project. Upper Howells River Basin. Western Labrador.* Submitted to LabMag GP Inc.

New Millennium Capital Corp. 29 January 2008. *Report on Caribou Monitoring Program, Lac Harris Area, July to September 2007.*

Pollard, Wayne. 2005. *The Elross Lake Automatic Weather Station.* Submitted to LabMag GP Inc.

Tanner, Adrian. November 2007. *The Health of Aboriginal People and Northern Mining Projects. A Review of Recent Literature.* Submitted to LabMag GP Inc.

12. **APPROVAL OF THE UNDERTAKING**

[Table 12.1](#) lists the main permits, licences, approvals and other forms of authorization of an environmental nature that are likely to be required.

Table 12.1: Potentially Required Permits and Authorizations

<i>Permit/Authorization</i>	<i>Trigger/Condition</i>	<i>Project Component/Activity</i>	<i>Department/ Agency</i>	<i>Required Information</i>	<i>Comments</i>
Government of Canada					
Approval under section 5 of <i>Canadian Environmental Assessment Act</i>	Requirement to obtain permits/authorizations from federal authorities.	Proposed mine and ancillary facilities.	Federal Responsible Authorities (e.g., Fisheries and Ocean Canada)	EIS	Proponent does not obtain permits/authorizations under <i>Canadian Environmental Assessment Act</i> , but it is a precondition for obtaining other federal permits/authorizations.
Authorization under section 35 of <i>Fisheries Act</i>	Requirement to obtain an authorization to harmfully alter, disrupt or destroy fish habitat.	Work or discharge in/near a watercourse (e.g., water intake, wastewater discharge, crossing of water bodies).	Fisheries and Ocean Canada	EIS will provide most information. Typically, application involves forms to fill out. Additional information might be required.	Project approval required before issuing of authorization. Several approvals may be required (if several watercourses involved).
Permit under section 7 of <i>Explosives Act</i>	Requirement to obtain a permit to build an explosives magazine and to store explosives.	Construction and operation.	Natural Resources Canada	EIS will provide most information. Typically, application involves forms to fill out.	
Certificate of fitness under section 90 of <i>Canada Transportation Act</i>	Precondition for the construction or operation of a railway.	Construction and operation of a railway from Schefferville to mine site.	Canadian Transportation Agency	Demonstration of adequacy of liability insurance coverage.	May not be needed if TSH builds/operates railway.
Approval under section 98 of <i>Canada Transportation Act</i>	Requirement to obtain approval for the construction of a railway.	Construction of a railway from Schefferville to mine site.	Canadian Transportation Agency	Such matters as location of railway, requirements for railway operations and services and interests of affected localities.	

<i>Permit/Authorization</i>	<i>Trigger/Condition</i>	<i>Project Component/Activity</i>	<i>Department/ Agency</i>	<i>Required Information</i>	<i>Comments</i>
Government of Newfoundland and Labrador					
<i>Environmental Protection Act and Environmental Assessment Regulations</i>	Designated undertakings listed in <i>Environmental Assessment Regulations</i> .	Mine and ancillary facilities, construction of new railway line or railway yard and power transmission line.	Department of Environment and Conservation	EIS	EIS will be prepared to also meet requirements of federal guidelines.
Lease under section 31 of <i>Mineral Act</i>	Requirement to obtain a mining lease.	Operation of mine site.	Department of Natural Resources	Land survey.	Can be applied for before or after EIA.
Licence under section 14 of <i>Water Resources Act</i>	Requirement to obtain a licence to use water for industrial purposes.	Washing plant.	Department of Environment and Conservation	Plans and specifications.	
Licence under section 6 of <i>Lands Act</i>	Requirement to obtain a licence to occupy Crown land.	Facilities.	Department of Environment and Conservation	Land survey, if required.	
Section 5 of <i>Quarry Materials Act</i>	Requirement to obtain a quarry permit.	Construction and, possibly, operation.	Department of Natural Resources	Plans and specifications.	Any quarry will be operated on a one-year permit. Quarry leases will not be requested.
Certificate under <i>Heating Oil Storage Tank System Regulations</i>	Requirement to obtain a certificate of registration for heating oil storage systems up to 2,500 litres.	Facilities.	Department of Environment and Conservation	Plans and specifications.	
Certificate under section 18 of <i>Used Oil Control Regulations</i>	Requirement to obtain a certificate to construct, install or operate used oil storage systems or to collect, store and transport used oil.	Mine and ancillary facilities.	Department of Environment and Conservation	Information pursuant to section 19.	May not apply if certificate already obtained under <i>Storage and Handling of Gasoline and Associated Products Regulations</i> .
Registration under	Requirement to register	Mine and ancillary	Department of	Plans and specifications.	

<i>Permit/Authorization</i>	<i>Trigger/Condition</i>	<i>Project Component/Activity</i>	<i>Department/ Agency</i>	<i>Required Information</i>	<i>Comments</i>
section 13 of <i>Storage and Handling of Gasoline and Associated Products Regulations</i>	a storage tank system for gasoline or associated products.	facilities.	Environment and Conservation		
Government of Québec					
Authorization under section 31.5 of <i>Environment Quality Act</i>	Projects subject to the Environmental Impact Assessment and Review Procedure.	Mine and ancillary facilities.	MDDEP	EIS	EIS will be prepared to also meet requirements of federal guidelines.
CA under section 22 of <i>Environment Quality Act</i>	Activities resulting in emission, deposit, issuance or discharge of contaminants into the environment or change in environmental quality.	Preparation, construction and operation.	MDDEP	EIA will provide most information. Application for CA will require detailed plans and environmental management procedures.	Includes pits and quarries.
Lease under section 100 of <i>Loi sur les mines</i>	Requirement to obtain a mining lease	Operation of mine.	MRNF	Land survey.	
Permit under section 16 of <i>Loi sur les produits et les équipements pétroliers</i>	Requirement to obtain a permit for the use of "high-risk petroleum equipment" as defined in section 2 of the Act.	Preparation, construction and operation.	MRNF	Information pursuant to sections 22 and 25 of <i>Règlement sur les produits et les équipements pétroliers</i> (e.g., plans and specifications, certificate of inspection).	
Permit under section 2 of <i>Loi sur les forêts</i>	Requirement to obtain an intervention permit to cut/remove trees.	Preparation and construction.	MRNF	Plans and specifications.	
MRC de Caniapiscau					
Permit under section 3.2.4.1 of <i>Règlement</i>	Requirement to obtain a construction permit to	Facilities.	MRC de Caniapiscau	Information pursuant to section 3.2.4.2.	

<i>Permit/Authorization</i>	<i>Trigger/Condition</i>	<i>Project Component/Activity</i>	<i>Department/ Agency</i>	<i>Required Information</i>	<i>Comments</i>
<i>relatif à l'émission des divers permis et certificats dans les territoires non organisés (TNO) de la MRC de Caniapiscau</i>	build, transform, repair or expand a building or septic tank, among other things.				

13. SCHEDULE

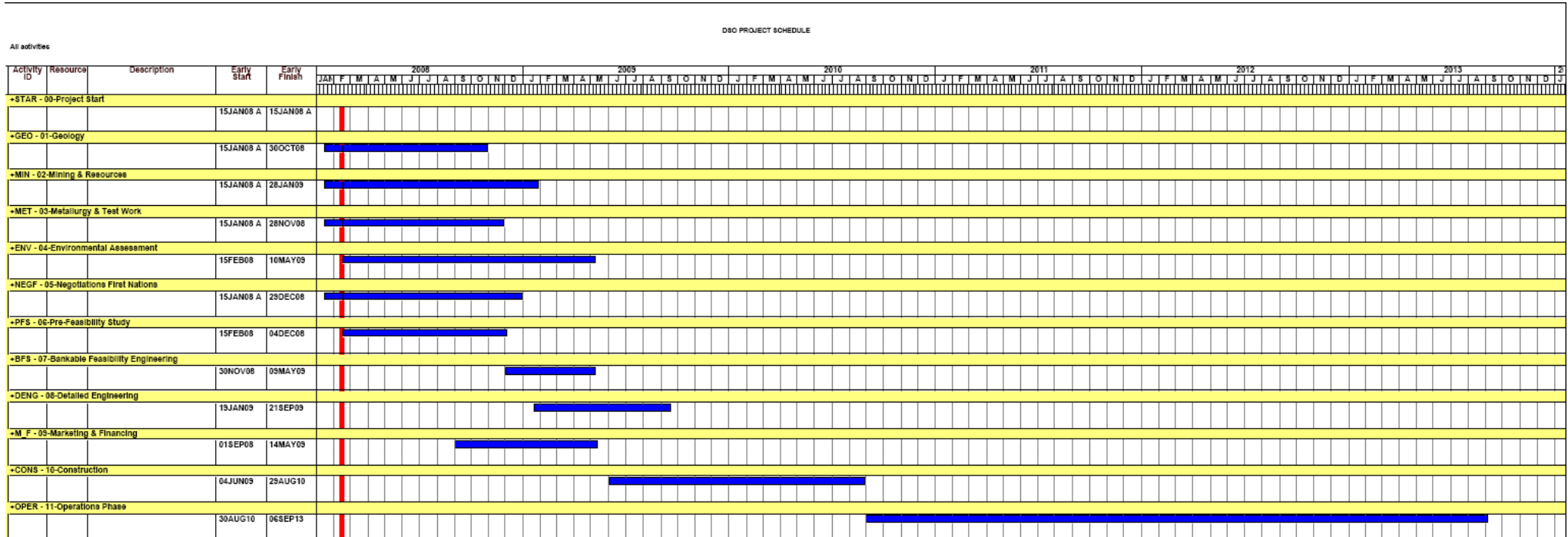
Assuming that the feasibility study and the environmental permitting can be completed by mid 2009, it is estimated that the Project can be engineered so that:

- construction will start in the Summer of 2009;
- production will start in the Summer of 2010.

The schedule of the major activities to be undertaken is shown on [Figure 13.1](#).

The latest date on which project construction could commence would be determined by market conditions. They are anticipated to remain favourable for several years.

Figure 13.1: Preliminary Master Schedule



14. FUNDING

The Undertaking does not depend on a grant or loan of capital funds from a federal, provincial or other government agency.

The estimated capital cost of the Undertaking is \$136 million (Canadian) (Melainine 25 April 2008).

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Appendix I

LIST OF DSO DEPOSITS, CLAIMS AND LICENCES IN SECTORS 2 AND 3

Table I-1: List of DSO Deposits, Claims and Licences in Sectors 2 and 3

QUEBEC				
SECTOR/ OWNER	DEPOSIT	LICENCE NOS.	NO. OF CLAIMS	AREA (ha)
2/ 100%NML	Ferriman #4 - Star Creek #2	51671 - 51674	4	198.59
		98011	1	39.18
		Requested	1	39.64
3/ 100%NML	Barney #1,2	50744 - 50753	10	410.55
	Fleming #7N	Requested	7	166.79
		TOTAL	23	854.75
NEWFOUNDLAND & LABRADOR				
SECTOR/ OWNER	DEPOSIT	LICENCE NOS.	NO. OF CLAIMS	AREA (ha)
3/ 100%NML	Timmins #2,3N,7,8 - Fleming #7N	011279M	24	600.00
		011326M	1	25.00
3/ 80%NML,20%LLP	Howse - Timmins #4 - Elross #2	010476M	10	250.00
		010944M	9	225.00
		010956M	1	25.00
		010957M	1	25.00
		010958M	1	25.00
		011280M	1	25.00
		011281M	1	25.00
		011282M	5	125.00
		011310M	4	100.00
011977M	2	50.00		
		TOTAL	60	1,500.00

Appendix II

SPECIES OF PLANTS OBSERVED IN THE SCHEFFERVILLE REGION

Table II-1: Species of Plants Observed in the Spruce-Feather Moss Forests of the Schefferville Region

Common English Name	Common French Name	Scientific Name
American red currant	Gadellier amer	<i>Ribes triste</i>
American twinflower	Linnée boréale	<i>Linnaea borealis</i>
Arctic kidney lichen	Néphrome arctique	<i>Nephroma arcticum</i>
Balsam fir	Sapin beaumier	<i>Abies balsamea</i>
Black spruce	Épinette noire	<i>Picea mariana</i>
Broad spinulose or shield fern	Dryoptère dressée	<i>Dryopteris assimilis</i> ¹
Clasping-leaved twisted-stalk	Streptope amplexicaule	<i>Streptopus amplexifolius</i>
Common freckle pelt lichen	Peltigère aphteuse	<i>Peltigera aphthosa</i>
Heartleaf twayblade	Lystère cordée	<i>Listera cordata</i>
Mountain bladder fern	Cystoptère des montagnes	<i>Cystopteris montana</i> ¹
Mountain clubmoss	Lycopode sélagine	<i>Lycopodium selago</i> var. <i>patens</i> ¹
Mountain fly honeysuckle	Chèvrefeuille velu	<i>Lonicera villosa</i>
Naked miterwort	Mitrelle nue	<i>Mitella nuda</i>
Oak fern	Dryoptéride disjointe	<i>Gymnocarpium dryopteris</i> ¹
One-flowered wintergreen	Monésès uniflore	<i>Moneses uniflora</i>
Plume moss	Hypne plumeuse	<i>Ptilium crista-castrensis</i>
Red baneberry	Actée rouge	<i>Actaea rubra</i>
Schreber's moss	Hypne de Schreber	<i>Pleurozium schreberi</i>
Sheathed sedge	Carex engaîné	<i>Carex vaginata</i>
Squashberry	Viorne comestible (pimbina)	<i>Viburnum edule</i>
Stair-step moss	Hypne éclatante	<i>Hylocomium splendens</i>
Starflower	Trientale boréale	<i>Trientalis borealis</i>
Stiff clubmoss	Lycopode innovant	<i>Lycopodium annotinum</i>
Toothed woodfern	Dryoptéride spinuleuse	<i>Dryopteris spinulosa</i> ¹

Common English Name	Common French Name	Scientific Name
Dicranum moss	n/a	<i>Dicranum fuscescens</i>
Water avens	Benoîte des ruisseaux	<i>Geum rivale</i>
White bog orchis	Habénaire dilatée	<i>Habenaria dilatata</i> (<i>Planthatera dilatata</i> ²)
White spruce	Épinette blanche	<i>Picea glauca</i>
Wild lily-of-the-valley	Maïanthème du Canada	<i>Maianthemum canadense</i>

Source: Waterway *et al.* (1984).

¹ At northern limit of range.

² The scientific name by which Waterway *et al.* (1984) identified the plant species has been replaced by this scientific name.

Table II-2: Species of Plants Observed in the Spruce-Lichen Woodlands of the Schefferville Region

Common English Name	Common French Name	Scientific Name
American twinflower	Linnée boréale	<i>Linnaea borealis</i>
Bighorn lichen	Cladonie cornue	<i>Cladonia cornuta</i>
Birch	Bouleau	<i>Betula</i> spp.
Black spruce	Épinette noire	<i>Picea mariana</i>
Bog bilberry	Airelle des marécages	<i>Vaccinium uliginosum</i>
Bog Labrador tea	Thé du Labrador	<i>Ledum groenlandicum</i>
British soldiers lichen	Cladonie soldats britanniques	<i>Cladonia cristatella</i>
Bunchberry dogwood	Cornouiller du Canada	<i>Cornus canadensis</i>
Clubmoss spp.	Lycopode spp.	<i>Lycopodium</i> spp.
Cottontail foam lichen	Stéréocaulé lapin	<i>Stereocaulon paschale</i>
Greater organ-pipe lichen	Cladonie crispée	<i>Cladonia crispata</i>
Green reindeer lichen	Cladonie douce	<i>Cladina mitis</i> (<i>Cladonia mitis</i> ¹)
Grey reindeer lichen	Cladonie des rennes	<i>Cladina rangiferina</i> (<i>Cladonia rangiferina</i> ¹)
Lesser sulphur-cup lichen	Cladonie difforme	<i>Cladonia deformis</i>
Lingonberry	Airelle vigne-d'Ida	<i>Vaccinium vitis-idaea</i>
n/a	Lédon spp.	<i>Ledum</i> spp.
Northern blueberry	Bleuet boréal	<i>Vaccinium boreale</i>
Prickly sedge	Carex étoilé	<i>Carex echinata</i>
Reindeer lichen	Cladonie arbuscule	<i>Cladina arbuscula</i> (<i>Cladonia arbuscula</i> ¹)
Resin birch	Bouleau glanduleux	<i>Betula glandulosa</i>
Sitka clubmoss	Lycopode de Sitka	<i>Lycopodium sitchense</i>
Skunk currant	Gadellier glanduleux	<i>Ribes glandulosum</i>
Star-tipped reindeer lichen	Cladonie étoilée	<i>Cladina stellaris</i> (<i>Cladonia stellaris</i> ¹)
Stiff clubmoss	Lycopode innovant	<i>Lycopodium annotinum</i>

Common English Name	Common French Name	Scientific Name
Tamarack	Mélèze laricin	<i>Larix laricina</i>
Thorn clad lichen	Cladonie à calices	<i>Cladonia uncialis</i>
Variegated sedge	Carex à long style	<i>Carex stylosa</i>
Viburnum	Viorne	<i>Vaccinium</i> spp.
Wavy hairgrass	Deschampsie flexueuse	<i>Deschampsia flexuosa</i>
White spruce	Épinette blanche	<i>Picea glauca</i>

Source: Waterway *et al.* (1984).

¹The scientific name by which Waterway *et al.* (1984) identified the plant species has been replaced by this scientific name.

Table II-3: Species of Plants Observed in Areas Covered by Subalpine Heath in the Schefferville Region

Common English Name	Common French Name	Scientific Name
Alpine bearberry	Raisin d'ours	<i>Arctostaphylos alpinum</i> (<i>Arctostaphylos alpina</i> ¹)
Black crowberry	Camarine hermaphrodite	<i>Empetrum hermaphroditon</i> (<i>Empetrum nigrum</i> ssp. <i>hermaphroditum</i> ¹)
Bog blueberry	Airelle des marécages	<i>Vaccinium uliginosum</i>
Bog Labrador tea	Thé du Labrador	<i>Ledum groenlandicum</i>
Green alder	Aulne crispé	<i>Alnus crispa</i> (<i>Alnus viridis</i> ssp. <i>crispa</i> ¹)
Green witch's hair lichen	Alectoire blanc jaunâtre	<i>Alectoria ochroleuca</i>
Grey reindeer lichen	Cladonie des rennes	<i>Cladina rangiferina</i> (<i>Cladonia</i> <i>rangiferina</i> ¹)
Lingonberry	Airelle vigne-d'Ida	<i>Vaccinium vitis-idaea</i>
Resin birch	Bouleau glanduleux	<i>Betula glandulosa</i>
Star-tipped reindeer lichen	Cladonie étoilée	<i>Cladina stellaris</i> (<i>Cladonia stellaris</i> ¹)

Source: Waterway *et al.* (1984).

¹The scientific name by which Waterway *et al.* (1984) identified the plant species has been replaced by this scientific name.

Table II-4: Species of Plants Observed in the Alpine Tundra Ecosystems of the Schefferville Region

Common English Name	Common French Name	Scientific Name
Allen's buttercup	Renoncule d'Allen	<i>Ranunculus allenii</i>
Alpine azalea	Azalée des Alpes	<i>Loiseleuria procumbens</i>
Alpine bearberry	Raisin d'ours	<i>Arctostaphylos alpinum</i> (<i>Arctostaphylos alpina</i> ¹)
Alpine chickweed	Céraiste alpin	<i>Cerastium alpinum</i>
Alpine clubmoss	n/a	<i>Lycopodium alpinum</i>
Alpine groundsel	Séneçon pauciflore	<i>Senecio pauciflorus</i> (<i>Packera pauciflora</i> ¹)
Alpine mountainsorrel	Oxyrie de montagne	<i>Oxyria digyna</i>
Alpine rockcress	Arabette alpine	<i>Arabis alpina</i>
Alpine speedwell	Véronique des Alpes	<i>Veronica alpina</i>
Alpine violet	Violette du Labrador	<i>Viola labradorica</i>
Arctic bluegrass	Pâturin arctique	<i>Poa arctica</i>
Bearberry willow	Saule raisin-d'ours	<i>Salix uva-ursi</i>
Bigelow's sedge	Carex de Bigelow	<i>Carex bigelowii</i>
Black crowberry	Camarine hermaphrodite	<i>Empetrum hermaphroditon</i> (<i>Empetrum nigrum</i> ssp. <i>hermaphroditum</i> ¹)
Blue mountainheath	Phyllodoce bleue	<i>Phyllodoce caerulea</i>
Bog blueberry	Airelle des marécages	<i>Vaccinium uliginosum</i>
Claspleaf twistedstalk	Streptope amplexicaule	<i>Streptopus amplexifolius</i>
Creeping sibbaldia	Sibbaldie couchée	<i>Sibbaldia procumbens</i>
Edible cranberry-tree	Viorne comestible	<i>Viburnum edule</i>
Elephanthead lousewort	Pédiculaire du Groenland	<i>Pedicularis groenlandica</i>
Entireleaf mountain-avens	Dryade à feuilles entières	<i>Dryas integrifolia</i>
Green witch's hair lichen	Alectoire blanc jaunâtre	<i>Alectoria ochroleuca</i>

Common English Name	Common French Name	Scientific Name
Iceland lichen	Cétraire	<i>Cetraria</i> sp.
Labrador indian paintbrush	Castilléjje septentrionale	<i>Castilleja septentrionalis</i>
Lingonberry	Airelle vigne d'Ida	<i>Vaccinium vitis-idaea</i>
Looseflower alpine sedge	Carex rariflore	<i>Carex rariflora</i>
Moss bell-heather	n/a	<i>Cassiope hypnoides</i>
Northern hollyfern	Polystic faux-acrostic	<i>Polystichum lonchitis</i>
Northern singlespike sedge	Carex faux-scirpe	<i>Carex scirpoidea</i>
Northern willow	Saule arctophile	<i>Salix arctophila</i>
Oak fern	Dryoptéride disjointe	<i>Gymnocarpium dryopteris</i> (<i>Dryopteris disjuncta</i> ¹)
Racomitrium moss	n/a	<i>Racomitrium lanuginosum</i>
Redrattle	Pédiculaire flammée	<i>Pedicularis flammea</i>
Rock sedge	Carex sexatile	<i>Carex saxatilis</i>
Rocky mountain goldenrod	Verge d'or à rayons nombreux	<i>Solidago multiradiata</i>
Scotch false asphodel	Tofieldie naine	<i>Tofieldia pusilla</i>
Sheathed sedge	Carex engaîné	<i>Carex vaginata</i>
Small flowered anemone	Anémone à petites fleurs	<i>Anemone pauciflora</i> (<i>Anemone parviflora</i> ¹)
Snow willow	Saule pubescent	<i>Salix vestita</i>
Snowbed willow	Saule herbacé	<i>Salix herbacea</i>
Starflower	Trientale boréale	<i>Trientalis borealis</i>
Velvetbells	Bartsie alpine	<i>Bartsia alpina</i>
White mountain saxifrage	Saxifrage aizoon	<i>Saxifraga aizoon</i>

Source: Waterway *et al.* (1984).

¹The scientific name by which Waterway *et al.* (1984) identified the plant species has been replaced by this scientific name.

Table II-5: Species of Plants Observed in the Mires of the Schefferville Region

Common English Name	Common French Name	Scientific Name
Alpine bulrush	Scirpe hudsonien	<i>Scirpus hudsonianus</i>
Aulacomnium moss	n/a	<i>Aulacomnium palustre</i>
Baltic sphagnum	n/a	<i>Sphagnum balticum</i>
Beaked sedge	Carex rostré	<i>Carex rostrata</i>
Bog blueberry	Airelle des marécages	<i>Vaccinium uliginosum</i>
Bog goldenrod	Verge d'or des marais	<i>Solidago purshii</i>
Bog Labrador tea	Thé du Labrador	<i>Ledum groenlandicum</i>
Bog laurel	Kalmia à feuilles d'Andromède	<i>Kalmia polifolia</i>
Bog rosemary	Andromède glauque	<i>Andromeda glaucophylla</i>
Bog willow	Saule pédicellé	<i>Salix pedicellaris</i>
Boreal bog sedge	Carex chétif	<i>Carex paupercula</i>
Bristlystalked sedge	Carex à tiges grêles	<i>Carex leptalea</i>
Buckbean	Ményanthe trifolié	<i>Menyanthes trifoliata</i>
Club spikemoss	Sélaginelle sélaginoïdes	<i>Selaginella selaginoides</i>
Coastal sedge	Carex maigre	<i>Carex exilis</i>
Creeping sedge	Carex à long rhizome	<i>Carex chordorrhiza</i>
Dwarf birch	Bouleau nain	<i>Betula pumila</i>
English sundew	Rosolis d'Angleterre	<i>Drosera anglica</i>
Fewflower sedge	Carex pauciflore	<i>Carex pauciflora</i>
Fewseed sedge	Carex oligosperme	<i>Carex oligosperma</i>
Narrowleaf peatmoss	n/a	<i>Sphagnum angustifolium</i>
Flatleaf bladderwort	Utriculaire intermédiaire	<i>Utricularia intermedia</i>
Gray witch's hair lichen	Alectoire grise	<i>Alectoria nigricans</i>

Common English Name	Common French Name	Scientific Name
Green witch's hair lichen	Alectoire blanc jaunâtre	<i>Alectoria ochroleuca</i>
Horsehair lichen	Bryorie	<i>Bryoria</i> spp. (3) ²
Iceland lichen	Cétraire	<i>Cetraria</i> spp. (9) ²
Jensen's sphagnum	n/a	<i>Sphagnum jensenii</i>
Leatherleaf	Cassandre caliculé	<i>Chamaedaphne calyculata</i>
Lesser paniced sedge	Carex diandre	<i>Carex diandra</i>
Lichen	Cladonie	<i>Cladonia</i> spp. (10) ²
Lichen	Parméliopse	<i>Parmeliopsis</i> spp. (2) ²
Limprichtia moss	n/a	<i>Drepanocladus revolvens</i> (<i>Limprichtia revolvens</i> ¹)
Lindberg's sphagnum	n/a	<i>Sphagnum lindbergii</i>
Livid sedge	Carex livide	<i>Carex livida</i>
Looseflower alpine sedge	Carex rariflore	<i>Carex rariflora</i>
Mountain fly honeysuckle	Chèvrefeuille velu	<i>Lonicera villosa</i>
Mud sedge	Carex des boubiers	<i>Carex limosa</i>
n/a	n/a	<i>Calliergon</i> spp.
n/a	n/a	<i>Omphalina hudsoniana</i>
n/a	Hépatique	<i>Scapania</i> spp.
Northern bog sedge	Carex à côtes	<i>Carex gynocrates</i>
Northern green orchis	Habénaire hyperboréale	<i>Habenaria hyperborea</i>
Northern willow	Saule arctophile	<i>Salix arctophila</i>
Purplestem aster	Aster ponceau	<i>Aster puniceus</i> (<i>Symphyotrichum puniceum</i> var. <i>puniceum</i> ¹)
Resin birch	Bouleau glanduleux	<i>Betula glandulosa</i>
Roundleaf sundew	Rossolis à feuilles rondes	<i>Drosera rotundifolia</i>
Russow's sphagnum	n/a	<i>Sphagnum russowii</i>

Common English Name	Common French Name	Scientific Name
Scorpidium moss	n/a	<i>Scorpidium scorpioides</i>
Seaside arrowgrass	Troscart maritime	<i>Triglochin maritima</i>
Shrubby cinquefoil	Potentille frutescente	<i>Potentilla fruticosa</i>
Smooth black sedge	Carex noir	<i>Carex nigritella (Carex nigra¹)</i>
Snowbed willow	Saule herbacé	<i>Salix herbacea</i>
n/a	n/a	<i>Sphagnum pulchrum</i>
Sticky tofieldia	Tofieldie glutineuse	<i>Tofieldia glutinosa (Triantha glutinosa¹)</i>
Sweet gale	Myrique beaumier	<i>Myrica gale</i>
Threeleaf false lily of the Valley	Smilacine trifoliée	<i>Smilacina trifolia</i>
Threeseeded sedge	Carex trisperme	<i>Carex trisperma</i>
Tomentypnum moss	n/a	<i>Tomentypnum nitens</i>
Tufted bulrush	Scirpe gazonnant	<i>Scirpus cespitosus</i>
Variegated sedge	Carex à long style	<i>Carex stylosa</i>
Warnstorff's sphagnum	n/a	<i>Sphagnum warnstorffii</i>
Warnstorfia moss	n/a	<i>Drepanocladus exannulatus</i>
Water sedge	Carex aquatique	<i>Carex aquatilis</i>
White bog orchis	Habénaire dilatée	<i>Habenaria dilatata</i>

Source: Waterway *et al.* (1984).

¹The scientific name by which Waterway *et al.* (1984) identified the plant species has been replaced by this scientific name.

² Number of species of this genus identified.

Table II-6: Species of Plants Observed on the Shorelines of the Schefferville Region

Common English Name	Common French Name	Scientific Name
Alpine bistort	Renouée vivipare	<i>Polygonum viviparum</i>
Alpine milkvetch	Astragale alpin	<i>Astragalus alpinus</i>
Alpine timothy	Fléole alpine	<i>Phleum alpinum</i>
American yellowrocket	Barbarée à fruit dressé	<i>Barbarea orthoceras</i> (<i>Barbarea orthoceras</i> ¹)
Beaked sedge	Carex rostré	<i>Carex rostrata</i>
Birdeye primrose	Primevère laurentienne	<i>Primula laurentiana</i>
Blister sedge	Carex vésiculeux	<i>Carex vesicaria</i>
Chestnut rush	Jonc marron	<i>Juncus castaneus</i>
Common butterwort	Grassette vulgaire	<i>Pinguicula vulgaris</i>
Common mare's-tail	Hippuride vulgaire	<i>Hippuris vulgaris</i>
Cuckoo flower	Cardamine des prés	<i>Cardamine pratensis</i>
Diamondleaf willow	Saule à feuilles planes	<i>Salix planifolia</i>
Elephanthead lousewort	Pédiculaire du Groenland	<i>Pedicularis groenlandica</i>
Kotzebue's grass of Parnassus	Parnassie de Kotzebue	<i>Parnassia kotzebuei</i>
Labrador willow	Saule à fruits argentés	<i>Salix argyrocarpa</i>
Maritime quillwort	Isoète à spores épineux	<i>Isoetes echinospora</i> (<i>Isoetes maritime</i> ¹)
Marsh arrowgrass	Troscart des marais	<i>Triglochin palustris</i>
Marsh grass of Parnassus	Parnassie des marais	<i>Parnassia palustris</i> var. <i>neogaea</i>
Marsh willowherb	Épilobe palustre	<i>Epilobium palustre</i>
Mountain alder	Aulne crispé	<i>Alnus crispa</i> (<i>Alnus viridis</i> ssp. <i>crispa</i> ¹)
Northern bur-reed	Rubanier hyperboréal	<i>Sparganium hyperboreum</i>
Northern rattlebox	Rhinanthe boréal	<i>Rhinanthus borealis</i> (<i>Rhinanthus minor</i> ssp. <i>groenlandicus</i> ¹)

Common English Name	Common French Name	Scientific Name
Northern willow	Saule arctophile	<i>Salix arctophila</i>
Purple avens	Benoîte des ruisseaux	<i>Geum rivale</i>
Sweet gale	Myrique beaumier	<i>Myrica gale</i>
Thinstem lady's mantle	Achémille filicaule	<i>Alchemilla filicaulis</i>
Variiegated yellow pond-lily	Nénuphar à fleurs panachées	<i>Nuphar variegatum</i> (<i>Nuphar lutea</i> ssp. <i>sariegate</i> ¹)
Water sedge	Carex aquatique	<i>Carex aquatilis</i>

Source: Waterway *et al.* (1984).

¹The scientific name by which Waterway *et al.* (1984) identified the plant species has been replaced by this scientific name.

Appendix III

INSECTS

Table III-1: Species of Insects Likely to be Found in the Area Encompassing Sept-Îles and Schefferville Regions

Common English Name	Common French Name	Scientific Name	Order
American emerald	Cordulie de Shurtleffer	<i>Cordulia shurtleffi</i>	Odonata
American lady	Vanesse de Virginie	<i>Vanessa virginiensis</i>	Lepidoptera
Arctic blue	Bleu arctique	<i>Agriades glandon franklinii</i>	Lepidoptera
Arctic fritillary	Boloria arctique	<i>Boloria chariclea</i>	Lepidoptera
Arctic skipper	Échiquier	<i>Carterocephalus palaemon</i>	Lepidoptera
Atlantis fritillary	Argynne de l'Atlantique	<i>Speyeria atlantis</i>	Lepidoptera
Azure darner	Aeshne septentrionale	<i>Aeshna septentrionalis</i>	Odonata
Black meadowhawk	Sympétrum noir	<i>Sympetrum danae</i>	Odonata
Bog fritillary	Boloria des tourbières	<i>Boloria eunomia dawsoni</i>	Lepidoptera
Boreal bluet	Agrion boréal	<i>Enallagma boreale</i>	Odonata
Brown elfin	Lutin brun	<i>Callophrys augustinus helenae</i>	Lepidoptera
Cabbage white	Piérade du chou	<i>Pieris rapae</i>	Lepidoptera
Common branded skipper	Hespérie boréale	<i>Hesperia comma borealis</i>	Lepidoptera
Common ringlet	Satyre fauve	<i>Coenonympha tullia</i>	Lepidoptera
Common spreadwing	Lestes disjoint	<i>Lestes disjunctus disjunctus</i>	Odonata
Crimson-ringed whiteface	Leucorrhine glaciale	<i>Leucorrhinia glacialis</i>	Odonata
Delicate emerald	Cordulie de Franklin	<i>Somatochlora franklini</i>	Odonata
Dorcas copper	Cuivré de la potentille	<i>Lycaena dorcas dorcas</i>	Lepidoptera
Forcipate emerald	Cordulie fourchue	<i>Somatochlora forcipata</i>	Odonata
Four-spotted skimmer	La quadrimaculée	<i>Libellula quadrimaculata</i>	Odonata
Freija fritillary	Boloria de freya	<i>Boloria freija</i>	Lepidoptera
Frigga fritillary	Boloria nordique	<i>Boloria frigga</i>	Lepidoptera
Green comma	Polygone à taches vertes	<i>Polygonia faunus</i>	Lepidoptera
Greenish blue	Bleu verdâtre	<i>Plebejus saepiolus</i>	Lepidoptera
Grizzled skipper	Hespérie grisâtre	<i>Pyrgus centaureae</i>	Lepidoptera
Hecla sulphur	Coliade orangé	<i>Colias hecla</i>	Lepidoptera
Hoary comma	Polygone gracile	<i>Polygonia gracilis</i>	Lepidoptera
Hudsonian whiteface	Leucorrhine hudsonienne	<i>Leucorrhinia hudsonica</i>	Odonata
Jutta arctic	Nordique des tourbières	<i>Oeneis jutta terraenovae</i>	Lepidoptera
Kennedy's emerald	Cordulie de Kennedyi	<i>Somatochlora kennedyi</i>	Odonata
Labrador sulphur	Coliade verdâtre	<i>Colias nastes</i>	Lepidoptera
Lake darner	Aeshne porte-crosses	<i>Aeshna eremita</i>	Odonata
Lake emerald	Cordulie ceinturée	<i>Somatochlora cingulata</i>	Odonata
Meadow fritillary	Boloria des prés	<i>Boloria bellona toddi</i>	Lepidoptera
Melissa arctic	Nordique mélissa	<i>Oeneis melissa melissa</i>	Lepidoptera
Milbert's tortoiseshell	Petite vanesse	<i>Nymphalis milberti</i>	Lepidoptera
Mourning cloak	Morio	<i>Nymphalis antiopa</i>	Lepidoptera
Muskeg emerald	Cordulie septentrionale	<i>Somatochlora septentrionalis</i>	Odonata
Mustard white	Piérade des crucifères	<i>Pieris oleracea</i>	Lepidoptera
Northern blue	Bleu nordique	<i>Lycaeides idas aster</i>	Lepidoptera
Northern bluet	Agrion porte-coupes	<i>Enallagma cyathigerum</i>	Odonata

Common English Name	Common French Name	Scientific Name	Order
Northern crescent	Croissant nordique	<i>Phyciodes cocyta</i>	Lepidoptera
Ocellated emerald	Cordulie mineure	<i>Somatochlora minor</i>	Odonata
Painted lady	Belle dame	<i>Vanessa cardui</i>	Lepidoptera
Palaeno sulphur	Coliade solitaire	<i>Colias palaeno</i>	Lepidoptera
Peck's skipper	Hespérie de Peck	<i>Polites peckius</i>	Lepidoptera
Pelidne sulphur	Coliade commun du Nord	<i>Colias pelidne</i>	Lepidoptera
Pink-edged sulphur	Coliade intérieure	<i>Colias interior</i>	Lepidoptera
Polaris fritillary	Boloria polaire	<i>Boloria polaris</i>	Lepidoptera
Polixenes arctic	Nordique alpin	<i>Oeneis polixenes polixenes</i>	Lepidoptera
Red admiral	Vulcain	<i>Vanessa atalanta rubria</i>	Lepidoptera
Red-waisted whiteface	Leucorrhine apprivoisée	<i>Leucorrhinia proxima</i>	Odonata
Ringed emerald	Cordulie annelée	<i>Somatochlora albicincta</i>	Odonata
Ross's alpine	Alpin de Ross	<i>Erebia rossii</i>	Lepidoptera
Sedge darner	Aeschne des joncs	<i>Aeshna juncea</i>	Odonata
Short-tailed swallowtail	Papillon queue-courte	<i>Papilio brevicauda</i>	Lepidoptera
Silver-bordered fritillary	Boloria à taches argentées	<i>Boloria selene atrocostalis</i>	Lepidoptera
Silvery blue	Bleu argenté	<i>Glaucopsyche lygdamus</i>	Lepidoptera
Spotted spreadwing	Lestes tardif	<i>Lestes congener</i>	Odonata
Spring azure	Azur printanier	<i>Celastrina ladon</i>	Lepidoptera
Subarctic bluet	Agrion ponctué	<i>Coenagrion interrogatum</i>	Odonata
Subarctic darner	Aeschne subarctique	<i>Aeshna subarctica</i>	Odonata
Taiga alpine	Alpin à ocelles rouges	<i>Erebia mancinus</i>	Lepidoptera
Taiga bluet	Agrion résolu	<i>Coenagrion resolutum</i>	Odonata
White admiral	Amiral	<i>Limenitis arthemis</i>	Lepidoptera
Whitehouse's emerald	Cordulie de Whitehouse	<i>Somatochlora whitehousei</i>	Odonata
White-veined arctic	Nordique à nervures blanches	<i>Oeneis bore taygete</i>	Lepidoptera

Source: Anthony (March 1969); Brunet et Duhamel (Juillet 2005); Munroe (1951).

Table III-2: Species of Butterfly Recorded by Anthony (March 1969) in the Schefferville Area

Common English Name	Common French Name	Scientific Name	Notes
Arctic blue	Bleu Arctique	<i>Plebejus aquilo/Argus aquilo</i> (<i>Agriades glandon franklinii</i> ¹)	Found at ±671 meters asl. Abundant at some localities.
Arctic fritillary	Boloria arctique	<i>Boloria titania</i> <i>boisduvalii/Argynnis boisduvalii</i> (<i>Boloria chariclea</i> ¹)	In open areas of tundra forest at 488 to 549 meters asl. Scarce.
Bog fritillary	Boloria des tourbières	<i>Boloria eunomia tricularus/Argynnis tricularus</i> (<i>Boloria eunomia dawsoni</i> ¹)	Locally abundant. Near wet areas below tree line.
Jutta arctic	Nordique des tourbières	<i>Oeneis jutta riddingiana</i>	Always below tree line. Most numerous <i>Oeneis</i> found. Most common on margins of bogs/wetlands.
Melissa arctic	Nordique mélissa	<i>Oeneis melissa semplei/Oeneis semplei</i> (<i>Oeneis melissa melissa</i> ¹)	Numerous at summit of Irony Mountain (± 848 meters asl.). Not found at any other location.
Pelidne sulphur	Coliade commun du Nord	<i>Colias pelidne labradorensis/Colias labradorensis</i> (<i>Colia pelidne</i> ¹)	Not limited by altitude or environment. Scarce.
Polaris fritillary	Boloria polaire	<i>Boloria polaris groenlandica/Argynnis chariclea</i> var. <i>groenlandica</i> (<i>Boloria polaris</i> ¹)	From 666 to 848 meters asl. Scarce in 1967, but reported to be abundant by others in 1948 and 1964.
Silver-bordered fritillary	Boloria à taches argentées	<i>Boloria selene atrocotalis/Brenthis atrocotalis</i>	In wet areas at lower elevations.
White-veined arctic	Nordique à nervures blanches	<i>Oeneis taygete taygete/Oeneis taygete</i> (<i>Oeneis bore taygete</i> ¹)	Only above tree line in grassy areas of dried-up lakes.

Source: Anthony (March 1969).

¹The scientific name used by Anthony (1969) has been replaced by this scientific name.

Appendix IV

BIRDS

Table IV-1: Species of Birds Observed in Howells River Basin

Species			Spring-Fall 1983-2002 ¹	Summer 2003 ²	Spring 2005 ³		Summer 2006 ⁴
Common English Name	Common French Name	Scientific Name			Wetland	Transitional Forest	
Alder flycatcher	Moucherolle des aulnes	<i>Empidonax alnorum</i>				X	
American bittern	Butor d'Amérique	<i>Botaurus lentiginosus</i>	X				
American black duck	Canard noir	<i>Anas rubripes</i>	X		X		
American redstart	Paruline flamboyante	<i>Setophaga ruticilla</i>			X	X	
American robin	Merle d'Amérique	<i>Turdus migratorius</i>	X	X	X	X	
American tree sparrow	Bruant hudsonien	<i>Spizella arborea</i>			X	X	
Bald eagle	Pygargue à tête blanche	<i>Haliaeetus leucocephalus</i>	X				
Belted kingfisher	Martin-pêcheur d'Amérique	<i>Ceryle alcyon</i>	X				
Black-and-white warbler	Paruline noir et blanc	<i>Mniotilta varia</i>			X	X	
Blackpoll warbler	Paruline rayée	<i>Dendroica striata</i>	X				
Black scoter	Macreuse noire	<i>Melanitta nigra</i>					X
Boreal chickadee	Mésange à tête brune	<i>Parus hudsonicus</i>	X		X	X	
Canada goose	Bernache du Canada	<i>Branta canadensis</i>	X	X	X	X	
Cape may warbler	Paruline tigrée	<i>Dendroica tigrina</i>			X	X	
Chipping sparrow	Bruant familier	<i>Spizella passerina</i>			X	X	
Common goldeneye	Garrot à oeil d'or	<i>Bucephala clangula</i>					X
Common loon	Plongeon huard	<i>Gavia immer</i>	X	X	X	X	
Common merganser	Grand harle	<i>Mergus merganser</i>	X			X	X
Common raven	Grand corbeau	<i>Corvus corax</i>	X	X		X	

Species			Spring-Fall 1983-2002 ¹	Summer 2003 ²	Spring 2005 ³		Summer 2006 ⁴
Common English Name	Common French Name	Scientific Name			Wetland	Transitional Forest	
Common redpoll	Sizerin flame	<i>Carduelis flammea</i>	X		X	X	
Common snipe	Bécassine des marais	<i>Gallinago gallinago</i>	X				
Common tern	Sterne pierregarin	<i>Sterna hirundo</i>			X		
Duck	Canard	n/a		X			
Fox sparrow	Bruant fauve	<i>Passerella iliaca</i>			X	X	
Golden eagle	Aigle royal	<i>Aquila chrysaetos</i>	X				
Golden-crowned kinglet	Roitelet à couronne dorée	<i>Regulus satrapa</i>				X	
Greater yellowlegs	Grand Chevalier	<i>Tringa melanoleuca</i>	X		X	X	X
Green-winged teal	Sarcelle d'hiver	<i>Anas crecca</i>	X				X
Grey jay	Mésangeai du Canada	<i>Perisoreus canadensis</i>	X	X	X	X	
Grey-cheeked thrush	Grive à joues grises	<i>Catharus minimus</i>			X	X	
Hermit thrush	Grive solitaire	<i>Catharus guttatus</i>			X		
Herring gull	Goéland argenté	<i>Larus argentatus</i>		X	X		X
Hoary redpoll	Sizerin blanchâtre	<i>Carduelis hornemanni</i>	X				
Lapland longspur	Bruant lapon	<i>Calcarius lapponicus</i>	X				
Lincoln's sparrow	Bruant de Lincoln	<i>Melospiza lincolnii</i>			X	X	
Magnolia warbler	Paruline à tête cendrée	<i>Dendroica magnolia</i>				X	
Merganser	Harle	<i>Mergus sp., Lophodytes sp.</i>					X
Myrtle warbler	Paruline à croupion jaune	<i>Dendroica coronata</i>			X	X	
Northern hawk owl	Chouette épervière	<i>Surnia ulula</i>		X			
Northern pintail	Canard pilet	<i>Anas acuta</i>	X				

Species			Spring-Fall 1983-2002 ¹	Summer 2003 ²	Spring 2005 ³		Summer 2006 ⁴
Common English Name	Common French Name	Scientific Name			Wetland	Transitional Forest	
Northern three-toed woodpecker	Pic tridactyle	<i>Picoides tridactylus</i>			X	X	
Northern waterthrush	Paruline des ruisseaux	<i>Seiurus noveboracensis</i>	X		X	X	
Osprey	Balbuzard pêcheur	<i>Pandion haliaetus</i>	X	X	X		
Ovenbird	Paruline couronnée	<i>Seiurus aurocapillus</i>			X	X	
Palm warbler	Paruline à couronne rousse	<i>Dendroica palmarum</i>			X	X	
Philadelphia vireo	Viréo de Philadelphie	<i>Vireo philadelphicus</i>				X	
Pine grosbeak	Durbec des sapins	<i>Pinicola enucleator</i>		X		X	
Red-breasted merganser	Harle huppé	<i>Mergus serrator</i>		X			X
Red-breasted nuthatch	Sitelle à poitrine rousse	<i>Sitta canadensis</i>				X	
Ring-billed gull	Goéland à bec cerclé	<i>Larus delawarensis</i>				X	
Ring-necked duck	Fuligule à collier	<i>Aythya collaris</i>					X
Rough-legged hawk	Buse pattue	<i>Buteo lagopus</i>	X	X			
Ruby-crowned kinglet	Roitelet à couronne rubis	<i>Regulus calendula</i>	X		X	X	
Rusty blackbird	Quiscale rouilleux	<i>Euphagus carolinus</i>		X	X	X	X
Savannah sparrow	Bruant des prés	<i>Passerculus sandwichensis</i>			X		
Scaup	Fuligule	<i>Aythya sp.</i>					X
Scoter	Macreuse	<i>Scoter spp.</i>					X
Semipalmated plover	Pluvier semipalmé	<i>Charadrius semipalmatus</i>	X				
Slate-colored junco	Junco ardoisé	<i>Junco hyemalis</i>			X	X	
Spotted sandpiper	Chevalier grivelé	<i>Actitis macularia</i>	X		X		

Species			Spring-Fall 1983-2002 ¹	Summer 2003 ²	Spring 2005 ³		Summer 2006 ⁴
Common English Name	Common French Name	Scientific Name			Wetland	Transitional Forest	
Spruce grouse	Tétras du Canada	<i>Falcapennis canadensis</i>		X		X	
Surf scoter	Macreuse à front blanc	<i>Melanitta perspicillata</i>					X
Swainson's thrush	Grive à dos olive	<i>Catharus ustulatus</i>				X	
Tennessee warbler	Paruline obscure	<i>Vermivora peregrina</i>	X				
Tree swallow	Hirondelle bicolor	<i>Tachycineta bicolor</i>			X	X	
White-crowned sparrow	Bruant à couronne blanche	<i>Zonotrichia leucophrys</i>	X	X	X	X	
White-throated sparrow	Bruant à gorge blanche	<i>Zonotrichia albicollis</i>			X	X	
White-winged crossbill	Bec-croisé bifascié	<i>Loxia leucoptera</i>			X		
Wilson's warbler	Paruline à calotte noire	<i>Wilsonia pusilla</i>	X				
Wilson's snipe	Bécassine de Wilson	<i>Gallinago delicata</i>			X	X	
Woodpecker	Pic	n/a		X			
Yellow warbler	Paruline jaune	<i>Dendroica petechia</i>	X		X	X	
Yellow-bellied flycatcher	Moucherolle à ventre jaune	<i>Empidonax flaviventris</i>			X	X	

Sources: ¹ Brown (June 2005); ² Girard (November 2003); ³ Global Environment/Golder Associates (November 2005); ⁴ Minuaskuat Limited Partnership (January 2008).

Appendix V

SPECIES WITH STATUS AND LIKELY TO BE DESIGNATED

Three species of big and small game with official status may be present.

Table V-1: Mammal Species with Status and Likely to be Designated

Common English Name	Common French Name	Scientific Name	SARA Status	COSEWIC Status	Status in Québec	Status in Labrador
Wolverine (Eastern population)	Carcajou (Population de l'Est)	<i>Gulo gulo</i>	Endangered	Endangered	Threatened	Endangered
Woodland caribou	Caribou forestier	<i>Rangifer tarandus</i>	Threatened	Threatened	Vulnerable	Threatened
Least weasel	Belette pygmée	<i>Mustela nivalis</i>	---	---	Likely to be designated	---

In the past, wolverines were common throughout Labrador and Québec, particularly up until the late 1800s. Currently, the exact population size and demographic trends are unknown in the region, though they are believed to be “extremely rare” (Minaskuat Limited Partnership January 2008). The last confirmed record of a wolverine in the region (Muskrat Falls in Central Labrador) was in 1955 (Knox 1994 cited in Minaskuat Limited Partnership January 2008). Since that time, there have been approximately 40 or more potential sightings, with two plausible sightings reported in Central Labrador during late winter of 2006 (Minaskuat Limited Partnership January 2008).

One Naskapi reported sighting a wolverine, and several indicated observations of wolverine tracks in the Howells River valley (Weiler November 2006).

A survey of the Howells River valley by Envirotel in 2006 using posts baited with pheromones designed to attract wolverines and cougars (*Felis concolor*) revealed traces of neither species (Envirotel Février 2008). Aerial transects of the Howells River valley by Minaskuat Limited Partnership (January 2008) in March 2006 revealed no traces of wolverines.

We consider it highly unlikely, therefore that wolverines are present in the study area on anything other than a very occasional basis.

One species of micro-mammal likely to be designated by the GoQ as threatened or vulnerable uses the area ([Table V-2](#)).

Table V-2: Species of Herpetofauna, Micro-Mammals and Chiroptera with Status¹ and Likely to be Designated

Common English Name	Common French Name	Scientific Name	Status in Canada	COSEWIC Status	Status in Québec	Status in Labrador
Rock vole ¹	Campagnol des rochers	<i>Microtus chrotorrhinus</i>	---	---	Likely to be designated	---

¹There are no endangered species of small mammals in Labrador, but the GNL asked to be informed of any occurrences of Rock vole (*Microtus chrotorrhinus*) (Rodrigues June 27, 2006).

Although the northern limit of the occurrence of the Rock vole (*Microtus chrotorrhinus*) that was established by the GoQ lies south of Schefferville, a map produced by it shows that an individual of that species has been observed approximately 200 km north of Schefferville (Morin February 1, 2008). During their 2006 survey, Brunet, Duhamel et Léger (Janvier 2008) documented the presence of Rock vole (*Microtus chrotorrhinus*) in the Howells River basin.

The Pygmy shrew (*Sorex hoyi*), which was observed by Brunet, Duhamel et Léger (Janvier 2008) during their 2006 inventory, was likely to be designated by the GoQ at the time of the inventory. At the time of writing the project description, the Pygmy shrew no longer appears on the list of species likely to be designated.

Based on official government sources and on expert opinion (GNL no date; Environment Canada no date; MRNF no date; COSEWIC no date; Global Environnement/Golder Associates November 2005; CDPNQ February 4, 2008; Brown June 2005), the following avian species with status or likely to be designated occur or may occur in the area ([Table V-3](#)).

Table V-3: Bird Species with Status and Likely to be Designated

Common English Name	Common French Name	Scientific Name	SARA Status	COSEWIC Status	Status in Québec	Status in Labrador
Anatum peregrine falcon	Faucon pelerine anatum	<i>Falco peregrinus anatum</i>	---	Special concern	Vulnerable	Threatened
Bald eagle ¹	Pygargue à tête blanche	<i>Haliaeetus leucocephalus</i>	---	--	Vulnerable	---
Golden eagle ¹	Aigle royal	<i>Aquila chrysaetos</i>	---	---	Vulnerable	---
Harlequin duck	Arlequin plongeur	<i>Histrionicus histrionicus</i>	Special concern	Special concern	Likely to be designated	Vulnerable
Olive-sided flycatcher	Moucherolle à côtés olive	<i>Contopus cooperi</i>	---	Threatened	---	---
Rusty blackbird ¹	Quiscale rouilleux	<i>Euphagus carolinus</i>	---	Special concern	---	---
Short-eared owl	Hibou des marais	<i>Asio flammeus</i>	Special concern	Special concern	Likely to be designated	Vulnerable
Tundra peregrine falcon	Toundra faucon pelerine	<i>Falco peregrinus tundrius</i>	Special concern	Non-active (April 2007)	---	Threatened

¹ known to occur

Global Environnement/Golder Associates (November 2005) state that they did not record the presence of Golden eagle in the Howells River valley and that few sightings of it in the Schefferville region are recorded in the literature, but that several distribution maps include the Schefferville region within its range. Their opinion is confirmed by Brown's (June 2005) sighting of a Golden eagle in the Howells River valley in 1991. A map produced by MRNF shows the presence of Golden eagles some 100 km northeast and northwest of Sectors 2 and 3 (Morin February 1, 2008).

MRNF recorded the occurrence of Bald eagles west of Sectors 2 and 3, around the Caniapiscou Reservoir (Morin February 1, 2008).

Brown (June 2005) states that no eagle nest sites are known to exist along the Howells River and in its catchment.

A review of the literature revealed records of the Tundra Peregrine falcon (*Falco peregrinus tundrius*), in the Schefferville region. However a survey conducted in 2001 revealed that a decline of almost 80% in the population in north eastern Quebec-Labrador

had occurred in the past three years, and this species may not therefore be present in the Schefferville area for long (Golder Associates and Global Environnement November 2005).

A literature review based on official government sources (GNL no date; Environment Canada no date; MRNF no date; COSEWIC no date) revealed no fish species that are listed as being at risk or likely to be designated and whose range overlaps the location of Sectors 2 and 3.

According to Annie Paquet (February 18, 2008), the Rocky Mountain Capshell snail (*Acroloxus coloradensis*), which is likely to be designated by GoQ in 2009, may be present.

One species of insect that is likely to be designated by the GoQ may be present ([Table V-4](#)).

Table V-4: Insect Species Likely to be Designated

Common Name	Scientific Name	SARA Status	COSEWIC Status	Status in Québec	Status in Labrador
n/a	<i>Trechus crassiscapus</i>	---	---	Likely to be designated	---

Source: Skinner (December 7, 2007).

The following plant species with status or likely to be designated may occur in the area, but they were not recorded during field surveys in the Howells River Valley (Gartner Lee Limited and Group Hémisphères December 2007).

Table V-5: Plant Species with Status and Likely to be Designated

Common English Name	Common French Name	Scientific Name	SARA Status	COSEWIC Status	Status in Québec	Status in Labrador
Chamisso arnica	Arnica chassimo	<i>Arnica chamissonis</i> <i>ssp. foliosa</i>	---	---	Likely to be designated	---
Ostrich fern	Matteucie fougère-à-l'autruche	<i>Matteuccia struthiopteris</i>	---	---	Threatened	---

Source: Piché (December 13, 2007).

Appendix VI

TRADITIONAL ECOLOGICAL KNOWLEDGE

Figure VI-1: Location of Camps

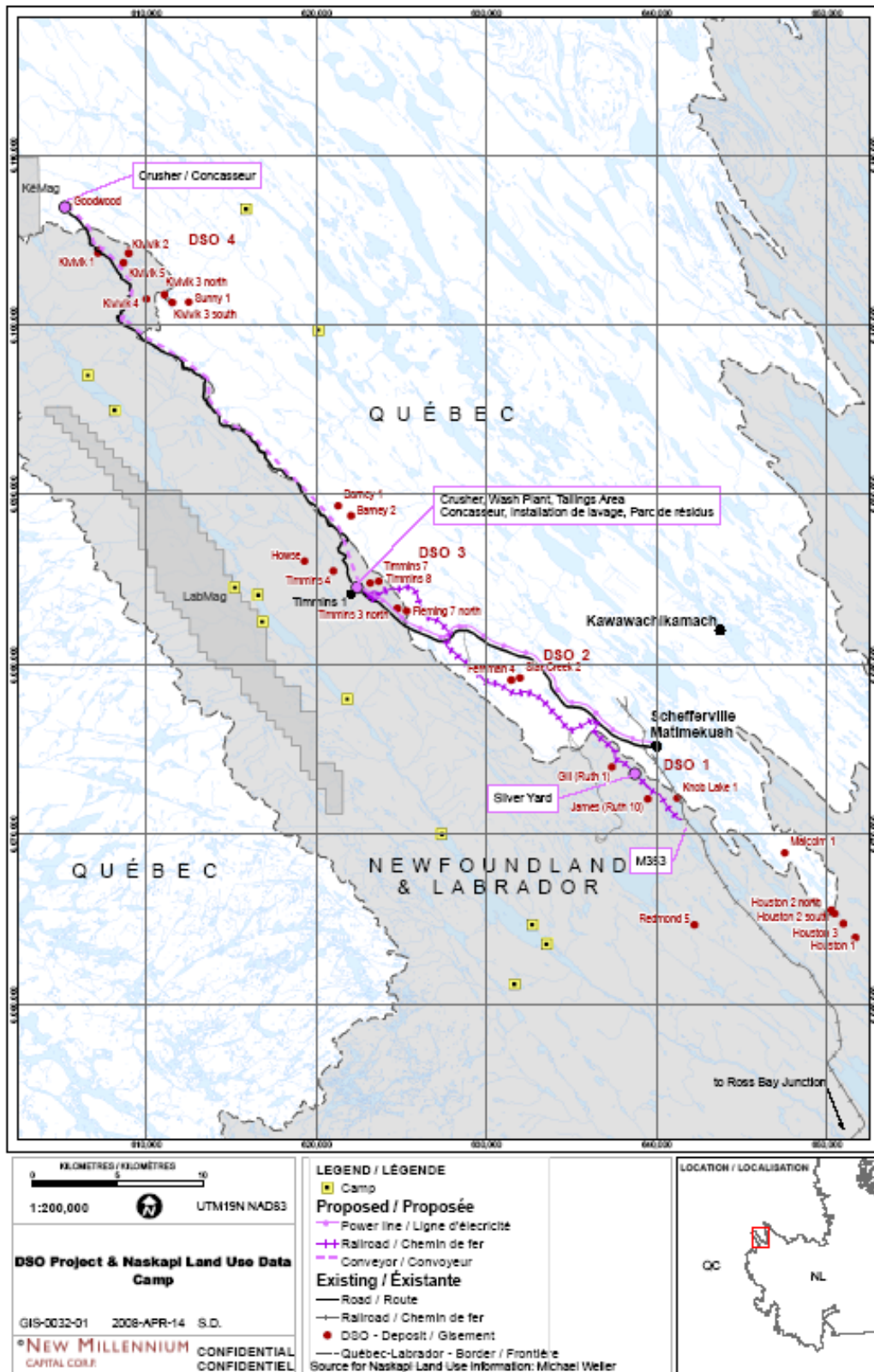


Figure VI-2: Caribou Movements

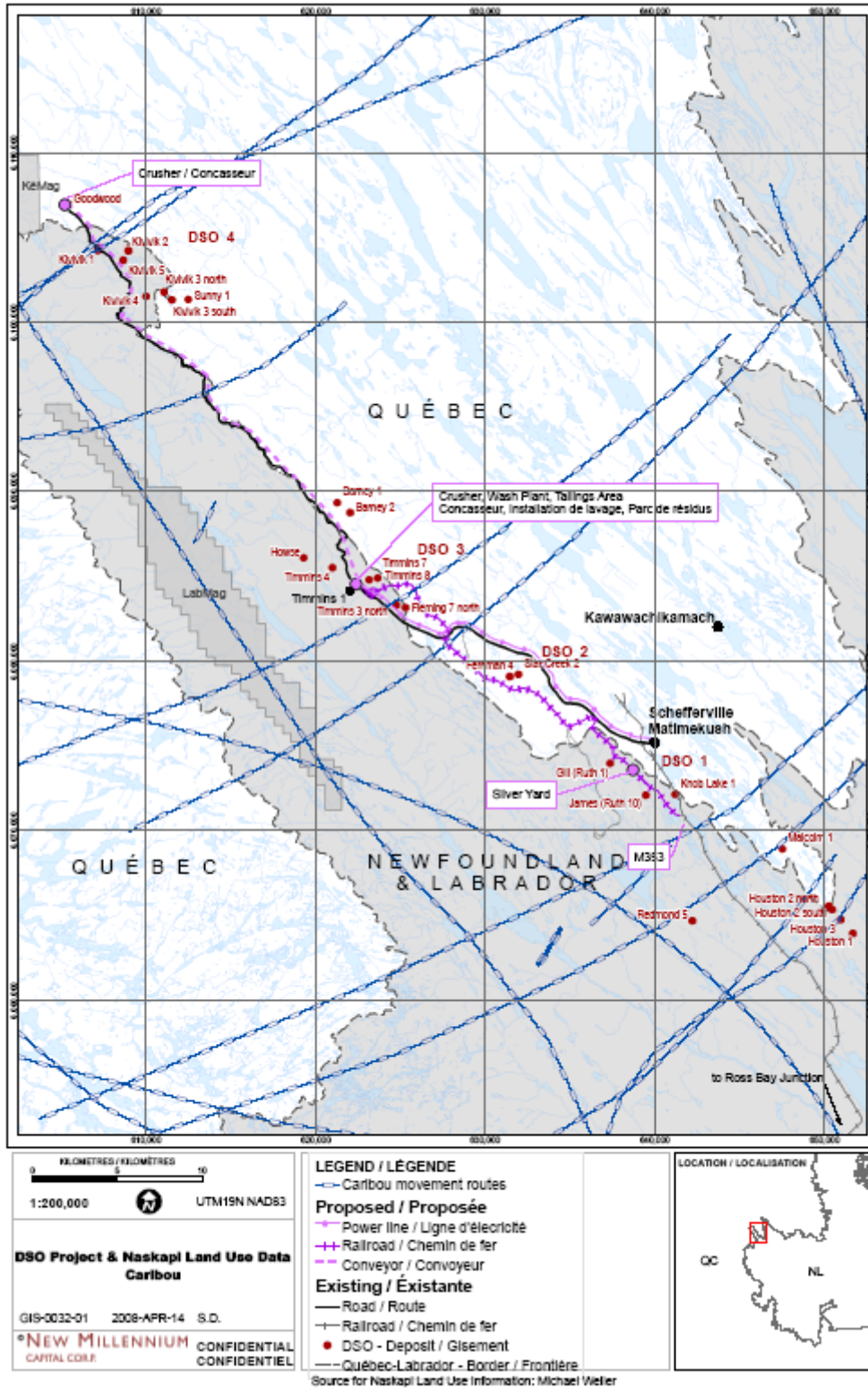


Figure VI-3 : Locations of Ashkui

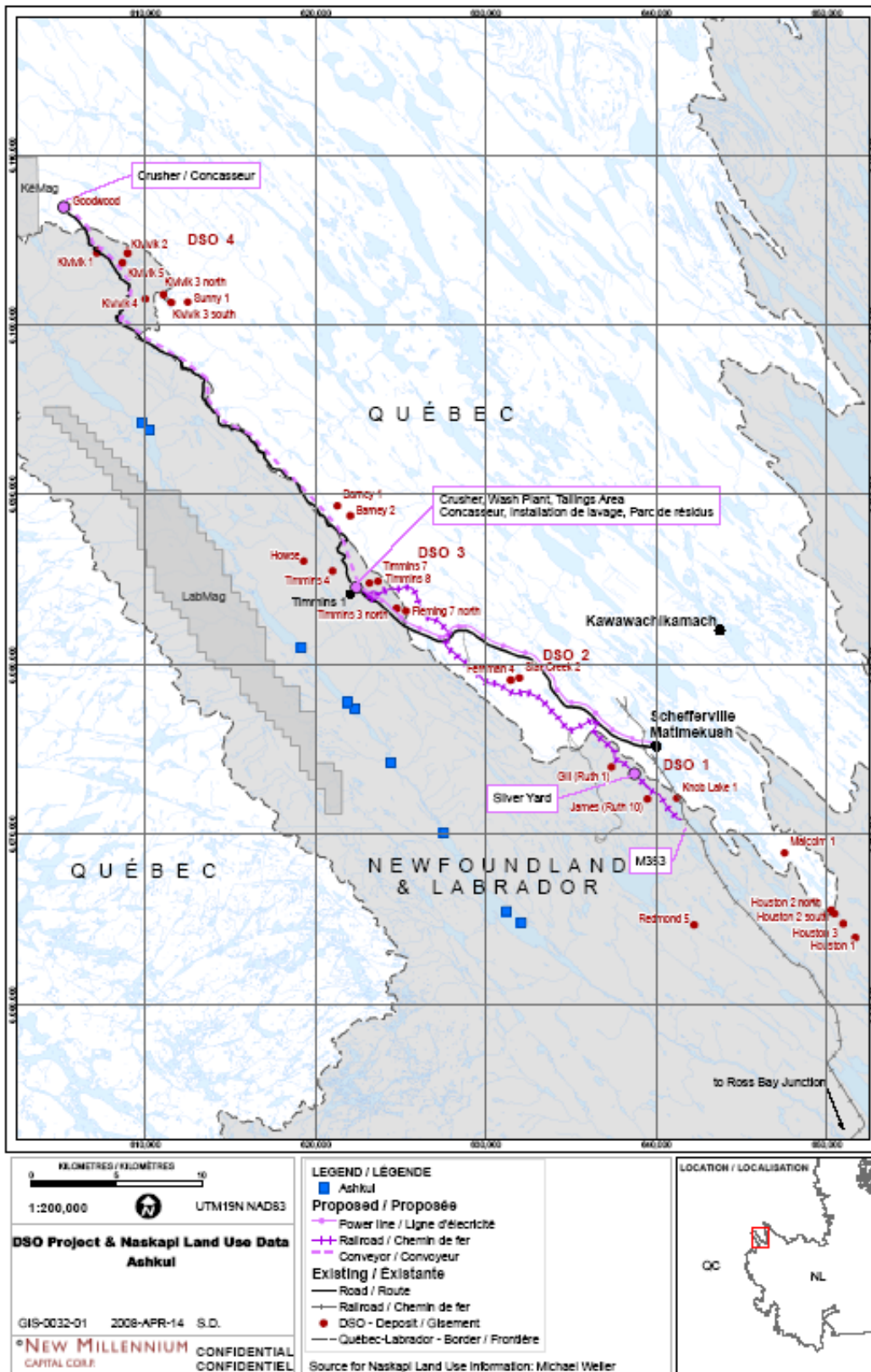
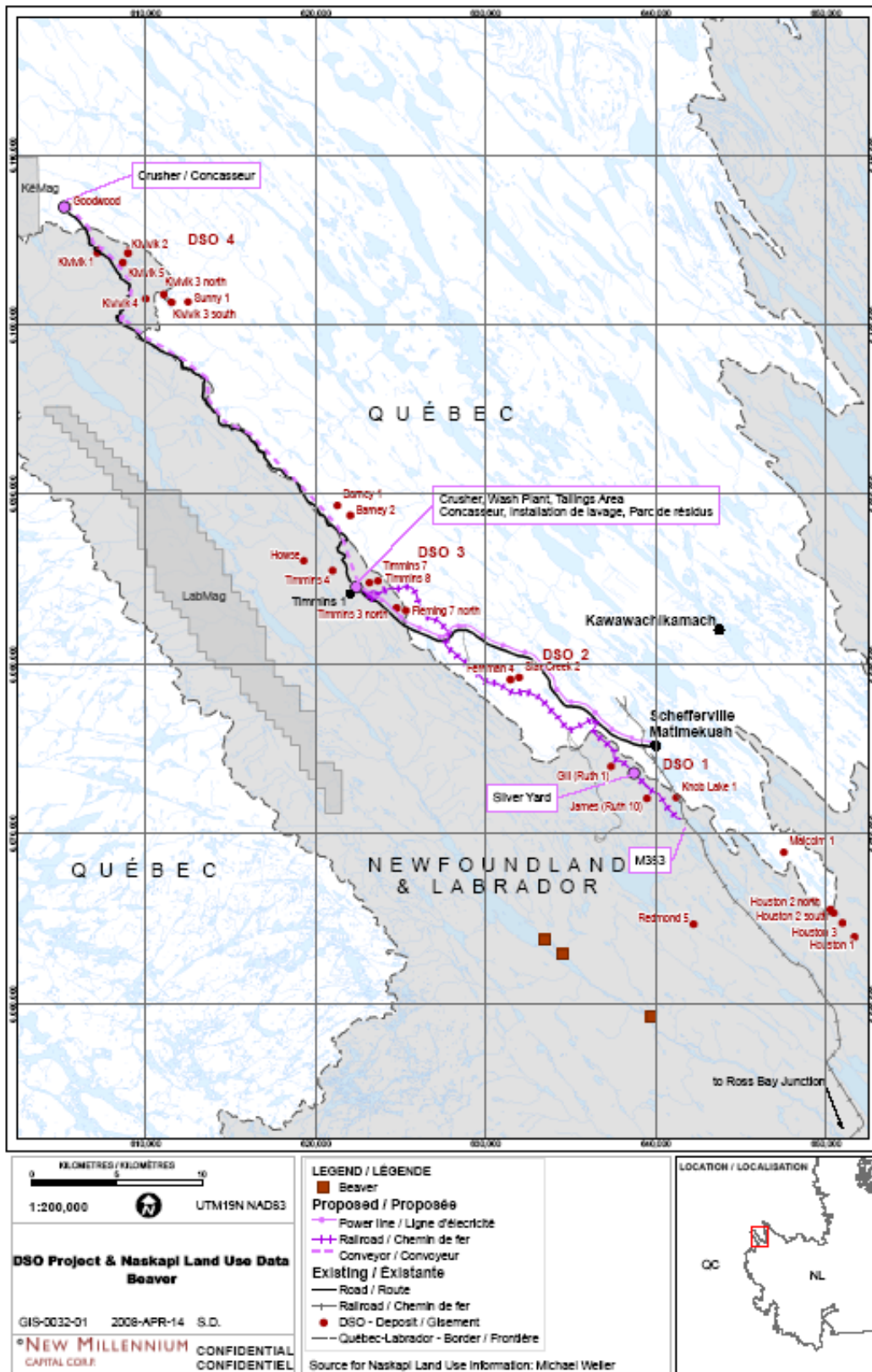


Figure VI-4 : Observations of Beavers



I certify that all the information mentioned in this Project Registration is, to the best of my knowledge, correct.

Signed this Day of _____2008 by

R. A. Martin
President and Chief Executive Officer