

Updated list of specific mitigation measures for the Howse Project

COMPONENT	SPECIFIC MITIGATION MEASURE	MEASURABLE EFFECT
Light	<p>Measures proposed by the International Dark-Sky Association in the document Light Pollution and Wildlife (IDA, 2008)</p> <ul style="list-style-type: none"> ▪ shield outdoor lighting; ▪ only use the light when needed; ▪ shut off the lights when possible; ▪ use only enough light to get the job done; ▪ use long wavelength light with a red or yellow tint to minimize effects; ▪ staff will be informed to turn off lights on top of trucks at night, when not necessary; ▪ the minimum amount of pilot warning and obstruction avoidance lighting should be used on tall structures. Although Howse does not have any 'tall structure', this measures considers the 65m stack located near the dome; ▪ lighting for the safety of employees should be shielded to shine down and only to where it is needed, without compromising safety; and ▪ when possible, LED lights will be used. 	<ul style="list-style-type: none"> ▪ All of the measures listed to attenuate the light effect will reduce the amount of light effect on the environment.
Hydrology	<ul style="list-style-type: none"> ▪ riprap will be installed on both sides of Burnetta Creek from the discharge point to 600 m downstream. 	<ul style="list-style-type: none"> ▪ Riprap will be installed within Burnetta Creek littoral and lower shore up to where water flow increase is expected to stay below 20%, thereby nearly eliminating erosion risks in that stream (Section 3.2.5 of the WMP for more details). Those ripraps will therefore eliminate the risk flooding of new channel formation in that section of stream.
Water quality	<ul style="list-style-type: none"> ▪ riprap will be installed on both sides of Burnetta Creek from the discharge point to 600 m downstream; and ▪ divert sedimentation pond HowseA into the pit. 	<ul style="list-style-type: none"> ▪ Riprap will be installed within Burnetta Creek littoral and lower shore up to where water flow increase is expected to stay below 20%, thereby nearly eliminating erosion risks in that stream (Section 3.2.5 of the WMP for more details). This will ensure that suspended matter is not generated in Burnetta Creek, which will keep suspended solids concentrations to a minimum. ▪ Diverting sedimentation pond HowseA after decommissioning of the mine will ensure no more suspended solids (or other contaminants) are discharged into Burnetta Creek. Also, since this stream is not a fish habitat and is

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		<p>mainly fed by resurgences, its water flow should get back to previous levels once the pit is filled with water.</p>
<p>Terrestrial ecosystems (WETLANDS)</p>	<ul style="list-style-type: none"> ■ stripping the entire area all at once rather than progressively, whenever possible; ■ the top layer of the stripped organic matter (the 40-50 cm layer that includes the roots) should be preserved. To the extent possible, the organic matter will be excavated in blocks, without disturbing the various horizons. It will then be deposited in, for example, a disturbed area. The area selected will be an isolated depression (far from any watercourse, so as to avoid increasing suspended matter), which will promote revegetation and, eventually, the regeneration of a wetland; and ■ if an access road has to be built, it is recommended to do it during the winter season. In the event that no road is built and only a temporary access is necessary, a temporary protection mat will be used where machinery will operate. 	<ul style="list-style-type: none"> ■ The first two mitigation methods will reduce overall surface area of wetland destruction as a result of the Howse Project by promoting their development elsewhere. This measure can be assessed by measuring the surface area of the wetland that is successfully transplanted. ■ The last mitigation measure will protect those portions of wetlands that are not directly affect (destroyed) by the Project footprint, but rather that may be disturbed by activities. This measure can be assessed by comparing the surface area of wetlands that will be destroyed VS the measuring the surface area of the wetland that is actually destroyed.
<p>Caribou - Migratory Tundra ecotype</p>	<ul style="list-style-type: none"> ■ where possible, operation activities will avoid areas of wildlife concentration, as traffic would disturb wildlife during critical periods; ■ activities will cease if caribou are seen within 5 km of an active pit or the processing complex; ■ work activities will be re-scheduled where necessary to avoid wildlife encounters; ■ equipment and vehicles will yield the right-of-way to wildlife. 	<ul style="list-style-type: none"> ■ Avoidance of wildlife in general will reducing the amount of human disturbance (largely due to noise) experienced by wildlife.
<p>Boreal Forest ecotype</p>	<ul style="list-style-type: none"> ■ the measures proposed for the GRCH will apply to the Boreal Forest caribou. 	<ul style="list-style-type: none"> ■ Avoidance of wildlife in general will reducing the amount of human disturbance (largely due to noise) experienced by wildlife.
	<p>Migratory and ground nesting migratory birds:</p> <ul style="list-style-type: none"> ■ to avoid destroying nests, vegetation clearing will be avoided during the breeding season (May 1 to August 7); ■ construction activities will take place during the breeding season but only in already cleared areas; ■ if nests are found outside the breeding season, they will be protected with a buffer zone determined by a setback distance appropriate to the species, the level of the disturbance and the landscape context, until the young have permanently left the vicinity of the nest; ■ for ground nesting migratory birds, in case a nest is located, a small fence with wooden stakes and galvanized metal T-posts with colored nylon rope along the posts could be installed to identify it and prevent the machinery destroying the eggs; and ■ During breeding season from mid-May to mid-August, traffic including heavy equipment shall not be permitted to enter wetlands or any area that is not designated for traffic. 	<ul style="list-style-type: none"> ■ All of the Avifauna mitigation measures proposed aim to reduce the amount of habitat loss experienced by avifauna as a result of the Howse Project.

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	<p>Species at risk – Rusty Blackbird:</p> <ul style="list-style-type: none"> ■ to avoid destroying nests, vegetation clearing will be avoided during the breeding season (May 1 to August 7); ■ construction activities will take place during the breeding season but only in already cleared areas; ■ if nests are found outside the breeding season, they will be protected with a buffer zone determined by a setback distance appropriate to the species, the level of the disturbance and the landscape context, until the young have permanently left the vicinity of the nest; ■ for ground nesting migratory birds, in case a nest is located, a small fence with wooden stakes and galvanized metal T-posts with colored nylon rope along the posts could be installed to identify it and prevent the machinery destroying the eggs; ■ During breeding season, traffic including heavy equipment shall not be permitted to enter wetlands or any area that is not designated for traffic; ■ the proponent is committed to apply the TSMC/NML Plan for the Protection of the Rusty Blackbird (Groupe Hémisphères, 2011c); and ■ the protection of a riparian strip adjacent to riparian and non-riparian wetlands for the protection of the Rusty blackbird and, to a lesser extent, the Gray-cheeked Thrush. 	
	<p>Species at risk – Grey-cheeked Thrush:</p> <ul style="list-style-type: none"> ■ to avoid destroying nests, vegetation clearing will be avoided during the breeding season (May 1 to August 7); ■ construction activities will take place during the breeding season but only in already cleared areas; ■ if nests are found outside the breeding season, they will be protected with a buffer zone determined by a setback distance appropriate to the species, the level of the disturbance and the landscape context, until the young have permanently left the vicinity of the nest; and ■ the protection of a riparian strip adjacent to riparian and non-riparian wetlands for the protection of the Rusty blackbird and, to a lesser extent, the Gray-cheeked Thrush. 	
	<p>Species at risk Bank Swallow</p> <ul style="list-style-type: none"> ■ the proponent is committed to surveying the Howse Pit area in early and mid-summer every year that the mine is in the operations phase (where vertical walls exist). Should the swallow be detected, then deterrence methods or measures will be taken to render the site inhospitable (noise, plastic covering of pit walls, etc) for nesting; ■ any nest found will be protected with a buffer zone determined by a setback distance appropriate to the species, the level of the disturbance and the landscape context, until the young have permanently left the vicinity of the nest. Setback distance suggested by Environment Canada (Environment Canada, 2015) is up to 50 m or more for swallow colonies; and ■ regular blasting should naturally deter the swallow to use the pit as a breeding site. If not, additional measures will 	

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	<p>be taken to deter the birds from using the large piles of unattended/unvegetated soil or the vertical banks in the mining pits if none of the previous mitigation measures can be provided. In this case, additional measures will be taken to cover the banks during the breeding season. Swallows can be excluded from potential nest sites with barriers made from plastic sheeting, or fine-mesh wire. Nets or other barriers must be installed before swallows arrive on their breeding ground.</p> <p>For all species:</p> <ul style="list-style-type: none"> ■ specific mitigation measures proposed will benefit birds. These measures will ensure that night-time illumination will be minimal. It will benefit the nocturnal migrants; and ■ lighting of the mine will be reduced by half when weather forecasts are extreme (thick fog and snowstorms). This measure will be considered during the migration period (in May and from August to October) where migrating birds are more vulnerable to being entrapped by artificial lighting during harsh weather conditions. 	
Aquatic Fauna	<ul style="list-style-type: none"> ■ limit the maximum charges of explosives to be used so that the blast vibration and overpressure limits respect the NPC-119 guidelines (MOE, 1985). The smallest distance between the pit and a water body (Pinette Lake) is 900 m, which limits the charges to 3,128 kg per delay to protect fish eggs from vibration and to 1,092 kg to protect the fish from overpressure. 	<ul style="list-style-type: none"> ■ According to guidelines, this measure will prevent fish mortality in the closest fish habitat which is Pinette Lake, and hence in all other farther water bodies.
Infrastructure and Services	<ul style="list-style-type: none"> ■ access to the mine road network will continue to be controlled for safety reasons. The mine roads should not be used by the land users since a bypass road is available. If a land user needs to use the mine road network to access a specific area not accessible with the bypass road, HML will provide a safety escort to the land users; ■ speed limit will be maintained at 70 km/hour on the main mining road north of the Schefferville landfill, and at 50 km/hour between the Schefferville landfill and the town of Schefferville. The speed limit will apply to all road users. Respect of applicable speed limits will be monitored by HML and by the Sûreté du Québec; ■ HML will raise awareness among workers on the importance of safe driving. Measures are taken for detractors who are caught disobeying traffic laws and witnesses of road safety violations are asked to report details of observations; ■ additional road safety signs will be installed in the Spring of 2016. HML and the Town of Schefferville will install speed limit and safe driving road signs between Schefferville and Timmins work site to reinforce driving laws. The signs will clearly indicate the speed limits, and will remind users of the necessity to drive carefully, to turn off safety lights when in town; ■ a new bypass road for land-users was completed by HML in 2015, which provides access to lands to the northwest of the DSO and Howse sites. While more time is required, using the bypass road, to access certain areas of the territory (Rosemary Lake and Pinette Lake, for example). HML is assessing a way to improve access to this part of the land; and ■ collaborate with responsible authorities for local road infrastructure within the Government of Québec (Secrétariat 	<ul style="list-style-type: none"> ■ Within the component Infrastructure and Services, the valued components Access to Local Transportation Network and Access to Land and Road Safety are included here. ■ All of the mitigation measures described will improve road safety while locals are in route to their local harvesting groups (i.e. access to land). ■ Additional safety measures and monitoring of speed limits and promoting road paving and providing additional road signs and raising awareness will all reduce the number of road accidents ■ The upgrading of an access road will provide access to land.

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	<p>au Plan Nord, Ministère des Affaires municipales et Occupation du territoire, Ministère des Transports) and the Town of Schefferville regarding paving of streets, including chemin de la Gare.</p>	
<p>Economy: Employment, Businesses and Labour Force Characteristics</p>	<ul style="list-style-type: none"> ■ continue to support the essential skills training and other technical training according to job needs, via on-the-job training and institutional training, as per IBA and government funding available; ■ provide mechanisms through which Aboriginal workers may access qualified positions and obtain promotions (in progress); ■ work with communities to support the delivery of early training in areas that will be required. When the construction and operation phases begin, these workers will be fully prepared and trained; ■ offer an alternate schedule to local workers when operational schedules allow it; ■ continue to provide on-the-job training equitably for both male and female staff; ■ deliver a custom-designed training in Process Plant Operations to three Québec First Nations in Spring 2015, which included English classes for Innu students. Many graduates have since been hired to work on the DSO Site; ■ continue to employ women at a rate of over 10% of its Project Workforce and continue to favour women who have the required skills and qualifications; ■ continue to employ Aboriginal women in non-traditional roles including heavy equipment operators, plant operators, security officers; ■ continue to support Innu staff in improving their English skills on-the-job, given that the worksite is in Labrador and primarily English-speaking. English language courses will be offered on-site (to come); ■ continue to prioritize Aboriginal and local contractors as much as possible; ■ continue to adapt the bidding process to the size of some of the local businesses, where possible divide big contracts into smaller ones; ■ continue to provide support the creation of local businesses; 	<ul style="list-style-type: none"> ■ All of the mitigation measures described will have for an effect to increase and/or maintain the aboriginal community labor force in the Howse Project. ■ Other measures promote local aboriginally-run businesses in the area.
<p>Land Use and Aboriginal Traditional Knowledge</p>	<ul style="list-style-type: none"> ■ the Proponent recognizes that the GRCH can, one day, return to its original grounds and includes, in its mitigation measures, a commitment to be aware of any caribou seen within a 100 km radius of Howse activities, conduct surveys if collared caribou are found within 20 km of Howse and cease all activities if caribou are known to be within 5 km of the active pit or the processing complex; ■ with respect to vegetation stripping, any usable wood will be made accessible to the local communities in a secure location near the site. 	<ul style="list-style-type: none"> ■ These measures will promote land use by locals by preserving the environment (e.g. caribou) and provide financial help to buy food so that locals can continue to have access to healthy food (if they choose to reduce their land use practices as a result of the Project)