

## INTRODUCTION

This appendix presents a compilation of the specific mitigation measures presented for biophysical components in the Howse EIS. Specific mitigation measures were chosen based on their proven effectiveness in the literature, and in consultation between professionals and the Proponent.

This document presents brief descriptions of the specific mitigation measures to which the Proponent is committed, and the reader is directed to the main text for further details.

COMPONENT	SPECIFIC MITIGATION MEASURE
Air Quality	<ul style="list-style-type: none"> <li>▪ TSMC will develop a plan for the prevention and management of blast generated NOx (Volume 1 Appendix XXI).</li> </ul>
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"> <li>▪ shield outdoor lighting;</li> <li>▪ only use the light when needed;</li> <li>▪ shut off the lights when possible;</li> <li>▪ use only enough light to get the job done;</li> <li>▪ use long wavelength light with a red or yellow tint to minimize effects;</li> <li>▪ staff will be informed to turn off lights on top of trucks at night, when not necessary;</li> <li>▪ 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;</li> <li>▪ lighting for the safety of employees should be shielded to shine down and only to where it is needed, without compromising safety; and</li> <li>▪ when possible, LED lights will be used.</li> </ul>
Hydrology	<ul style="list-style-type: none"> <li>▪ riprap will be installed on both sides of Burnetta Creek from the discharge point to 600 m downstream.</li> </ul>
Water quality	<ul style="list-style-type: none"> <li>▪ riprap will be installed on both sides of Burnetta Creek from the discharge point to 600 m downstream; and</li> </ul>

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	<ul style="list-style-type: none"> <li>▪ divert sedimentation pond HowseA into the pit.</li> </ul>
Terrestrial ecosystems (WETLANDS)	<ul style="list-style-type: none"> <li>▪ stripping the entire area all at once rather than progressively, whenever possible;</li> <li>▪ 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</li> <li>▪ 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.</li> </ul>
Caribou - Migratory Tundra ecotype	<ul style="list-style-type: none"> <li>▪ where possible, operation activities will avoid areas of wildlife concentration, as traffic would disturb wildlife during critical periods;</li> <li>▪ under an agreement with the Ungava project and CARMA, TSMC's Environmental Specialist / Permit Manager will be notified when migratory tundra caribou, which are monitored via satellite collars, come within 100 km of the Howse Project. Upon receipt of such a notice, operations will continue with caution. If data from the radio collars indicate that some of the caribou have moved to within 20 km of the Howse Project, TSMC will institute surveys within that radius to monitor their movements in greater detail;</li> <li>▪ activities will cease if caribou are seen within 5 km of an active pit or the processing complex;</li> <li>▪ whenever activity ceases pursuant to the foregoing, TSMC will contact the NLDEC to discuss any further steps to be taken;</li> <li>▪ work activities will be re-scheduled where necessary to avoid wildlife encounters;</li> <li>▪ equipment and vehicles will yield the right-of-way to wildlife; and</li> <li>▪ firearms are prohibited in the workers' camp, except for two that may be used by security personnel in the case of an emergency.</li> </ul>
Boreal Forest ecotype	<ul style="list-style-type: none"> <li>▪ the measures proposed for the GRCH will apply to the Boreal Forest caribou.</li> </ul>
	<p><b>Migratory and ground nesting migratory birds:</b></p> <ul style="list-style-type: none"> <li>▪ to avoid destroying nests, vegetation clearing will be avoided during the breeding season (May 1 to August 7);</li> <li>▪ construction activities will take place during the breeding season but only in already cleared areas;</li> <li>▪ 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;</li> <li>▪ 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</li> </ul>

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	<ul style="list-style-type: none"> <li>■ the proponent is committed to inspect wetlands in this area at least annually to ensure that the loss of wetland habitat does not exceed what was predicted. 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.</li> </ul> <p><b>Species at risk – Rusty Blackbird:</b></p> <ul style="list-style-type: none"> <li>■ to avoid destroying nests, vegetation clearing will be avoided during the breeding season (May 1 to August 7);</li> <li>■ construction activities will take place during the breeding season but only in already cleared areas;</li> <li>■ 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;</li> <li>■ 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;</li> <li>■ the proponent is committed to inspect wetlands in this area at least annually to ensure that the loss of wetland habitat does not exceed what was predicted. During breeding season, traffic including heavy equipment shall not be permitted to enter wetlands or any area that is not designated for traffic;</li> <li>■ the proponent is committed to apply the TSMC/NML Plan for the Protection of the Rusty Blackbird (Groupe Hémisphères, 2011c); and</li> <li>■ 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.</li> </ul> <p><b>Species at risk – Grey-cheeked Thrush:</b></p> <ul style="list-style-type: none"> <li>■ to avoid destroying nests, vegetation clearing will be avoided during the breeding season (May 1 to August 7);</li> <li>■ construction activities will take place during the breeding season but only in already cleared areas;</li> <li>■ 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</li> <li>■ 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.</li> </ul>

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	<p><b>Species at risk Bank Swallow</b></p> <ul style="list-style-type: none"> <li>▪ 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;</li> <li>▪ 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</li> <li>▪ regular blasting should naturally deter the swallow to use the pit as a breeding site. If not, additional measures will 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.</li> </ul> <p><b>For all species:</b></p> <ul style="list-style-type: none"> <li>▪ 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</li> <li>▪ 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.</li> </ul>
Aquatic Fauna	<ul style="list-style-type: none"> <li>▪ 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.</li> </ul>

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Infrastructure and Services	<ul style="list-style-type: none"> <li>■ blasting announcements will be made on the radio 48 hours in advance of blast periods, and band councils will also be notified. Prior to any blasting, security vehicles will be present on the bypass road to protect the local population. These methods mirror those currently in place for DSO project;</li> <li>■ 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;</li> <li>■ 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;</li> <li>■ 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;</li> <li>■ 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;</li> <li>■ 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</li> <li>■ collaborate with responsible authorities for local road infrastructure within the Government of Québec (Secrétariat 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.</li> </ul>
Economy: Employment, Businesses and Labour Force Characteristics	<ul style="list-style-type: none"> <li>■ 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;</li> <li>■ provide mechanisms through which Aboriginal workers may access qualified positions and obtain promotions (in progress);</li> <li>■ 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;</li> <li>■ offer an alternate schedule to local workers when operational schedules can allow it;</li> <li>■ continue to provide on-the-job training equitably for both male and female staff;</li> <li>■ continue to address issues relating to project construction and operation, including employment, training and contracting, via each individual community IBA Implementation Committee;</li> <li>■ continue to provide Cultural Awareness and Respectful Workplace training program for workers ;</li> </ul>

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	<p>HML will ensure that all new employees have their beginner's handbook and appropriate health and safety training;</p> <ul style="list-style-type: none"> <li>■ 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;</li> <li>■ 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;</li> <li>■ continue to employ Aboriginal women in non-traditional roles including heavy equipment operators, plant operators, security officers;</li> <li>■ 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);</li> <li>■ continue to prioritize Aboriginal and local contractors as much as possible;</li> <li>■ continue to adapt the bidding process to the size of some of the local businesses, where possible divide big contracts into smaller ones;</li> <li>■ continue to provide support the creation of local businesses;</li> </ul>
<p>Land Use and Aboriginal Traditional Knowledge</p>	<ul style="list-style-type: none"> <li>■ HML will continue to contribute to a fund as specified in certain IBAs for traditional activities. The Aboriginal leadership determines how the funds are allocated and used. First Nation leadership determines how the funds are allocated and used. This fund contributes to alleviating the financial burden for families who count on subsistence harvesting for its economic and nutritive value, in an area where store-bought food is expensive, such as for a fuel allocation for all members;</li> <li>■ HML/TSMC will pursue its financial participation in Caribou Ungava to advance research on caribou and on the effects of mining activities on the George River herd decline, and on other factors that may play a role in this decline or in the change of migratory paths, for example. Within the framework of the program, researchers will involve the concerned Aboriginal communities in its research initiatives by considering their views, their traditional indigenous knowledge in the studies and by involving them in the research activities held on their traditional territories;</li> <li>■ caribou sightings will be reported to the HSE Committee. Blasting activities are announced on the radio two days ahead of time. Measures to be taken when there are caribou sightings are explained in Caribou Section;</li> <li>■ 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;</li> <li>■ the mandate of the HSE Committee, which acts as an environmental monitoring committee and collaborates with TSMC to oversee and assess the effectiveness of the relevant mitigation measures (dust control, vegetation, for example), will include the Howse Project once the construction begins (already planned by HML). For instance, in collaboration with the HSE Committee, and in some cases with local authorities, mining activities will be adapted if needed to minimize the effects on traditional activities;</li> </ul>

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	<ul style="list-style-type: none"><li data-bbox="449 326 1896 427">■ continue to contribute to a compensation fund as specified in each IBAs that would help harvesters go elsewhere for subsistence and traditional activities, in accordance with local land use and inter-family agreements. The Aboriginal leadership determines how the funds are allocated. This fund contributes to alleviating the financial burden for families who count on subsistence harvesting for its economic and nutritive value, in an area where store-bought food is expensive;</li><li data-bbox="449 443 1896 495">■ wildlife sightings (Wolverine, Caribou or Lynx, etc.) will be reported to the HSE Committee. Furthermore, monthly TSMC Environmental reports are made available to the HSE Committee members on the shared drive;</li><li data-bbox="449 511 1896 563">■ even during the decommissioning and reclamation phase, HML will maintain ongoing communication on activities with the local population through radio programs and bulletins, and via the HSE Committee, including environmental updates and reports;</li><li data-bbox="449 579 1896 631">■ with respect to vegetation stripping, any usable wood will be made accessible to the local communities in a secure location near the site; and</li><li data-bbox="449 647 1896 719">■ maximize the presence of Aboriginal personnel for all security shifts to facilitate communication in Innu with local lands users. Work with the local communities to hold a Security course for its members, so that there are additional Innu personnel at the security post.</li></ul>