AGNICO EAGLE

MELIADINE GOLD PROJECT

Borrow Pits and Quarries Management Plan

APRIL 2015
VERSION 4
6513-MPS-04

ᓇᐃᓇᖅᓯᒪᔪᖅ

ᐊᓂᔨᑦᑐᖅᑎᓪᓗ ᑕᓯᔪᐊᖏᓪᓗ ᔪᓚᒍ ᐅᓴᖃᖅᓂᐊᖏᓐᓇᓕᒫᓕᕐᓂᐊᕐᔪᑦ (ᐱᓕᓇᐊᖅ), 25 ᑭᓪᓕᒋᑕᒥᒃ ᐅᐊᖅᓇᖅᓯᓂᓪ ᐅᖅᓯᓕᐅᑎᑦᑎᔪᖅ ᑲᖏᕐᕈᓂᖏᓪᓗᑎᑦ, ᐊᒪᓚ 80 ᑭᓪᓕᒋᑕᒥᒃ ᓂᕐᖁᓕᓂᐊᓂᑦ ᐱᖅᓯᖅᑭᓂᕐᓂᐊᓂᑦ ᐅᖅᓯᓕᐅᑎᑦᑎᔪᖅ ᐃᒃᓚᓕᒍᓐᓇᖅᑎᑦ ᑭᓕᕐᓂᓪᓗᑎᑦ ᓄᓇᕗᒻᒥᑦ. ᐅᓴᖃᖅᓂᐊᓂᖅᓯᒪᔪᑦ ᐸᖅᓇᐅᑕᐅᔪᖅ ᐅᑦᔨᐃᖅᓯᒪᓕᕐᒥᒃ ᐊᒪᓚ ᓄᓇᕗᑦ ᐅᓴᖃᖅᓂᐊᓂᖅᓯᖏᓐᓂᖅᑐᖅᖢᖅ ᐱᓕᕐᓂᐊᓂᖅᓯᒪᔪᑦ ᑎᑎᖅᓯᓂᐊᓂᖅᓯᖅᑐᑦ-ᒥᑦ ᔪᓚᒍ ᐱᓂᖅᓯᒪᔪᑦ, ᒪᓕᒐᓱᐃᓐᓇᖅᑐᒥᒃ ᓄᓇᕗᑦ (ᑎᓪᓚᑐᓂᐊᖅ Pit 1 ᐊᒪᓚ ᑎᓪᓚᑐᓂᐊᖅ Pit 2) ᐊᒪᓚ ᐊᑕᐅᓕᖅ ᓄᓇᕗᑦ ᐃᓚᐊᓂᑦ ᐅᖅᓯᖅᓂᐊᓂᓕᖅ.

ᓄᓇᕗᑦ ᐃᓚᖃᖅᓕᕐᓄᑦ ᐊᐅᓪᓚᑎᓂᖅᓗᒍ ᐸᖅᓇᐅᑎᑎᑦ ᓇᓚᓇᐃᕐᖅᓕᕐᔪᑦ ᓂᕈᐊᖅᑕᐅᓕᕐᓕᕐᔪᑦ, ᐊᐅᓯᖅᑎᑕᑎᓂᒃ, ᐊᒪᓚ ᐅᖅᑯᐊᖅᓕᖅᓗᒍ ᖃᓄᖅᑐᑐᕈᑎᑦ ᓄᓇᕗᑦ ᐃᓚᖃᖅᓕᕐᓄᑦ ᐱᓪᓚᐊᖏᓪᓕᕐᓂᖅ. ᐃᓚᖃᖅᓕᕐᓄᑦ ᐊᑐᖅᑕᐅᖅᑲᓪᓕᖅᑐᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᓴᓇᓂᓗᒍ ᐊᒪᓚ ᐱᓪᓚᐊᓇᖅᑲᓪᓕᖅᓗᒍ ᐊᕐᕌᑯᑎ ᑲᖏᕐᕈᓂᖏᓪᓗᑎᑦ, ᐃᑎᕕᐊᓂᑦ ᓄᖅᑲᖅᓯᕕᖓᑦ, ᐊᒪᓚ ᐱᕐᑯᑎᓄᑦ ᑐᙵᓚᕕᐅᓂᐊᖅᑐᑦ ᐅᖅᓯᖅᓂᐊᓂᖅᓯᕕᖓᓚᐅᕐᓂᖅᓴᖅᐳᑦ ᐃᓂᙵᓂ. ᐊᑐᖅᑕᐅᓂᐊᓕᖅᓂᕐᔪᖅ ᐱᓪᓚᐊᖏᓂᙵᓚᓄᑦ ᐅᑭᐅᓗᒃᑑᖅ ᐊᐸᖅᑯᑎᒧᑦ (AWAR) ᐊᑯᓂᓪᓕᓂᑦ ᑲᖏᕐᕈᓂᐅᐳᑦ ᐊᒪᓚ ᑕᓯᔪᐊᖏᓪᓗᑎᑦ ᐃᓂᐅᐳᑦ.

ᓄᓇᕗᑦ ᐃᓚᖃᖅᓕᕐᓄᑦ ᐃᓄᐃᑦ ᓇᖕᒥᓂᕆᔨᖏᓪᓂᑦ ᓄᓇᕗᑦ ᐊᑐᖅᑐᐊᖅᓂᖅᓗᒍ ᐃᓚᖃᖅᑎᑌᓂᖅᓗᒍᓗ ᐳᒥᖅᑲᕆᐊᖅᑲᖅᑐᑦ ᐱᔪᓇᖅᑎᑕᐅᔪᓂᕐᒥᒃ ᑭᓕᕐᓂᖅ ᐃᓄᐃᑦ ᑲᑐᔨᖅᑎᒋᐊᖏᓪᓂᑦ ᑐᓴᕐᓂᖅ ᐃᓄᐃᑦ ᑲᑐᔨᖅᑎᒋᐊᖏᓪᓂᑦ ᑐᓴᕐᓂᖅ ᐃᓄᐃᑦ ᑲᑐᔨᖅᑎᒋᐊᖏᓪᓂᑦ ᑐᓴᕐᓂᖅ ᓄᓇᕗᑦ ᐊᑐᖅᑐᐊᖅᓂᖅᓗᒍ ᐃᓚᖃᖅᓕᕐᓄᑦ ᐃᓄᐃᑦ ᓇᖕᒥᓂᕆᔨᖏᓪᓂᑦ ᐃᓚᖃᖅᓕᕐᓄᑦ

- ᓇᓗᓇᐃᖏᓗᓂ ᐅᐸᓗᖅᑕᕆᖏᑎᑕᑐᖅ ᐃᓂᑎᖃᐅᔾᔨᓂᖅ ᖃᐅᓕᖕᖏᓐᓂᑐᑦᓯᓚᐅᖅ ᐃᓗᑎᑐᖅᓯᒪᓂᕐᒧᖅᑐᐃᑦ ᐃᓗᑎᑐᖅᑎᓪᓗᖅᑎᓐᓇᒥᑦ (ᑕᐃᔨᑐᒍ ᓄᓇᐅᐸᑦ ᐊᐢᑎᖏᓚᓂᖅ ᐊᐅᓪᓚᑎᓂᖏᑦ ᐊᒪᓗ ᖃᐅᐅᔨᑎᐊᖃᑦᑕᕆᓂᖏᑦ <ᖃᓇᐅᑎ ᑐᓂᐅᑕᐅᔨᖅᖄᖅ ᐃᓕᑎᓴᐅᔨᓗᓂ ᑭᖑᓪᓕᖅᐸᖅᖄᖅ ᐊᐢᑎᑎᒃ ᐊᐅᑐᖅᓯᓂᖏᑦ ᑎᑎᖅᑲᒥᑦ (ᐊᖏᓂᔪᐃᔪᑦ 2014);
- ᐱᓕᓇᐊᖃᖅᖏᓗᓂ ᐊᓂᖅᐸᖅᑐᖅᑕᐸᑕ ᖃᓄᐃᐅᓂᓇᖑᓂᖅ ᗅᔨᖃᑦᑕᓇᓂᖏᑦ ᐊᐅᓕᕆᓂᓕᔪᐃᔪᑦ/ᐱᑕᖃᓗᐊᖅᑎᑎᑕᐃᓕᒪᓂᖅ; ᐊᒪᓗ
- ᐊᑐᖏᓗᓂ ᐅᑎᖅᑎᕆᐟᓕᓪᔨᐊᓂᖃᖅᑐᑕᒥᐅᒃ ᐅᐃᑯᐊᖅᓯᑎᓪᓗᑎᓂ ᐃᓗᑐᖅᓯᒪᔨᓂᖅ ᐊᑐᖅᑕᐅᔭᓇᐊᖃᓄᐅᕐᓂᖅᓴᓐᓂᑦ.

ᐃᓗᑐᖅᑎᖅᑕᐅᓂᐊᖅᑐᑦ ᓂᕈᐊᖅᑕᐅᓕᐅᖅᑐᑦ ᐊᑦᕋᑯᓯᐅᖅᓯᒪᓂᖅ (AWAR) ᑕᑯᐴᐅᔨᖃᖅᓴᕐᑐᑐᖅ ᐋᓯᓪᓕᐅᕈᓐᓇᖅᑐᓂᒃ ᑯᐃᑐᖃᖏᓐᓄᑦᓯᓚᐅᖅ. ᑕᐅᑐᓗᑐᒍ ᖃᐅᐅᔭᕋᐃᓐᓂᑦ ᐊᑐᖅᑕᐅᔨᓂᒃ ᐊᒪᓗ ᐅᐃᑐᕋᓂᒃᖃᓄᖅᑐᖃᖅᑐᑦ ᐊᓐᔪᐅᑎᓗᒍ ᓇᓗᓇᐃᖅᓯᓂᖅᓗᒍ ᐱᐅᓪᒃᑯᑦ ᒪᓂᒪᔨᓂᒃ ᐊᓇᓯᓪᓕᐊᓂᖅᓗᒍ ᐊᑐᖅᑕᐅᔨᓴᓐᖏᓐᓂᖅᑐᑦ.

ᐃᓗᑐᖅᑎᓚᑎᓪᓗᑎᑦ ᐊᑐᖅᓂᐊᖅᑐᑦ “ᐃᑯᑕᐃᓂᖅ, ᖃᐅᖅᑎᓚᓂᖅ, ᐅᓯᓪᖅᑐᐃᐃᓂᖅ, ᐊᖏᔪᖅᑐᐃᐃᓂᖅ, ᐊᒪᓗ ᑯᕐᕕᖅᑕᐃᓂᖅ ᑕᒪᒃᑯᓂᓐᖏᓚ”, ᑭᖑᓪᓕᖅᐸᒃᑯᑦ ᐃᓕᓴᐅᕐᖏᓐᓄᒃ ᐅᔪᖅᑲᐃᑦ ᐃᓗᑐᖅᑎᓚᓂᕆᓐᖏᓚᖅᑐᑦ ᐃᓂᖏᓐᓄᓇᕐᓂᖅᑐᐃᓐᓇᑎᒃ ᐅᐊᓚᑎᓕᖏᓂᒃ ᐊᑐᖅᓗᑎᒃ. ᐃᓕᖏᓐᑦ ᐅᔪᖅᑲᐃᑦ ᓯᖃᓕᓕᖅᑐᖅᑕᐅᔨᓴᓐᓇᖅᑐᑦ ᐊᖏᓐᓕᓵᖅᑐᑦ ᐊᑕᐅᓯᔭᕋᐅᖅᑎᓗᑎᓂ. ᐊᔨᖃᓇᖏᑐᐊᖏᓚᓂᖅ, ᐃᓗᑐᖅᑎᑕᐅᔨᓴᓐᓇᖅᑐᑦ ᓯᐊᓪᓚᐱᑎᖅᑕᐅᕋᖃᖅᑐᖅᑕᐅᔨᓴᓐᓇᖅᑐᑦ >ᐊᓚᑎᓕᓐᓄᒃ. ᐃᑯᑕᐃᓂᖅ ᐊᒪᓗ ᖃᐅᖅᑎᓚᓂᓕ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᐃᓐᓇᖅᑐᖅᓴᓐᖏᓐᓂᖅᑐᑦ ᐊᔨᖃᑦᑕᓇᓂᖏᑦ. ᐊᔨᖃᖃᓇᖏᑐᐊᖏᓚᓂᖅ, ᐃᓗᑐᖅᑎᑕᐅᔨᓴᓐᓇᖅᑐᑦ ᓯᐊᓚᐱᑎᖅᑕᐅᕋᖃᖅᑐᖅᑕᐅᔨᓴᓐᓇᖅᑐᑦ >ᐊᓚᑎᓕᓐᓄᒃ. ᐃᑯᑕᐃᓂᖅ ᐊᒪᓗ ᖃᐅᖅᑎᓚᓂᓕ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᐃᓐᓇᖅᑐᖅᓴᓐᖏᓐᓂᖅᑐᑦ ᐊᔨᖃᑦᑕᓇᓂᖏᑦ.

ᐊᖏᓕᓗᐊᖏᓕᐅᖅᑎᓂᑎᓂᓕᔪᖏᓚᔨᑦ ᐃᑦᑕᔨᓂᑕᕆᖃᖅᑐᖅᓂᒃ ᐱᐟᕃᐅᔨᖃᖅᑎᑦᑕᕆᖃᖅᑐᖅᓂᒃ ᐊᒪᓗ ᑕᐃᔨᓯᒪᓂᑦᓄᓂᒃ ᐃᓂᖏᓐᓄᑦᓯᓚᐅᖅ, ᐅᔨᓂᒃᑕᐅᔨᒪᖃᖅᑕᕆᖃᖅᑐᑦ, ᐊᒪᓗ ᐊᑐᖅᑕᐅᐅᓕᖅᑐᑦ ᑭᖑᓕᓕᐅᖅᓯᒪᓂᖅᑐᖅᑕᕆᖃᖅᑐᑦ ᐃᖃᓗᔪᓂᑦᓴᐸᑦ ᓄᓇᖏᓐ ᒥᖅᖢᐃᖃᖅᓯᕕᖏᓚᔨᑦ ᓂᔨᐊᑎᓐᓄᓪᓗ ᐱᓕᓇᐊᖅᖢᖏᓐᓂᖅᑐᑦ ᐊᒪᓗ ᐅᖃᖅᓯᐅᔾᔨᓪᓗᒍᑎᒃ ᐸᖅᓇᐅᑎᒥᑦ. ᐳᔨᖃᑲᖅ, ᓂᐱᖃᖅᑎᓂᖅ, ᐊᒪᓗ ᐃᒪᐅᐸ ᖃᓄᐃᐅᓂᐊᖅᑐᖅᓴᓐᖏᓐᓄᑦ ᖃᐅᐅᔨᑎᐊᖃᑦᑕᕆᓂᖏᑦ ᐃᖃᓗᔪᓂᑦᓴᐸᑦ ᐃᓗᑐᖅᑎᖅᑕᐅᓯᒪᔨᓂᖅ ᐱᓕᓇᐊᖅᖢᖏᓐᓂᖅᑐᑦ ᐃᓗᑐᖅᑎᖅᑕᐅᓯᒪᔨᓂᖅ ᐊᑐᖅᑕᐅᔭᓇᐊᖃᓄᐅᕐᓂᖅᓴᓐᓇᖅᑐᑦ, ᐃᓗᑐᖅᑎᖅᑕᐅᔨᓴᓐᓇᖅᑐᑦ ᐊᑐᖅᑕᐅᔭᓇᐊᖃᓄᐅᕐᓂᖅᓴᓐᓇᖅᑐᑦ ᐊᒪᓗ ᐃᓗᑐᖅᑎᖅᑕᐅᔨᓴᓐᓇᖅᑐᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᐃᓐᓇᖅᑐᖅᓴᓐᖏᓐᓂᖅᑐᑦ ᐃᓗᑐᖅᑎᖅᑕᐅᓯᒪᔨᓂᖅ ᐱᓕᓇᐊᖅᖢᖏᓐᓂᖅᑐᑦ ᐊᑐᖅᑕᐅᔭᓇᐊᖃᓄᐅᕐᓂᖅᓴᓐᓇᖅᑐᑦ ᐊᒪᓗ ᐃᓗᑐᖅᑎᖅᑕᐅᔨᓴᓐᓇᖅᑐᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᐃᓐᓇᖅᑐᖅᓴᓐᖏᓐᓂᖅᑐᑦ.

ᖃᐅᔨᓴᓂᐊᖅᑐᑦ 10 ᒪᑕᐅᒃ ᐃᖏᓪᓕᐊᑎᓐᓂᒃ ᓯᓚᐅᑎᓂᓕ ᐃᓗᑐᖅᓯᓚᐅᖅ ᐊᒪᓗ ᖃᐅᔨᓴᓂᐊᖅᑐᑦ ᐃᓗᑐᖅᓯᒪᔨᓂᖅ ᐱᓕᓇᐊᖅᖢᖏᓐᓂᖅᑐᑦ 2 ᒪᑕᐅᒃ ᖃᐅᑎᖅᑐᐃᓐᓇᖅᑐᖅᓴᓐᖏᓐᓂᖅ ᓯᑕᐅᒃ ᐄᐊᖅᑕᐅᒃ ᓯᑭᑐᓂᓪᓕᐅᒃ ᐱᐅᓪᓚᑎᓂᖏᑦ ᐃᓗᑐᖅᑎᖅᑕᐅᓯᒪᔨᓂᖅ ᐱᓕᓇᐊᖅᖢᖏᓐᓂᖅᑐᑦ ᐃᓗᑐᖅᑎᖅᑕᐅᔨᓴᓐᓇᖅᑐᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᐃᓐᓇᖅᑐᖅᓴᓐ

EXECUTIVE SUMMARY

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Project (Project), located approximately 25 kilometres (km) north of Rankin Inlet, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut. The mine plan proposes open pit and underground mining methods for the development of the Tiriganiaq gold deposit, with two open pits (Tiriganiaq Pit 1 and Tiriganiaq Pit 2) and one underground mine.

This Borrow Pits and Quarries Management Plan describes selection, operations, and closure strategies for the borrow pits and quarries at the proposed Project. Borrow pit and quarry materials will be used for the construction and maintenance of the bypass road in Rankin Inlet, the Itivia laydown, and the infrastructure pad at the proposed mine site. It will also be used in the maintenance of the All-weather Access Road (AWAR) between Rankin Inlet and the Meliadine site.

Borrow pits and quarries on Inuit Owned Lands require a commercial lease and quarry permit issued by the Kivalliq Inuit Association. Quarry permits on municipal land are administered by the Government of Nunavut Department of Community and Government Services on behalf of the Hamlet of Rankin Inlet. Other relevant regulations are mentioned in the Plan.

The following best management practices will be used in the selection, operation and closure of borrow pits and quarries for the proposed Project:

- minimize the surface area of quarries and borrow pits, where possible;
- minimize quarry and borrow pit cuts, where possible;
- maintain the floor of the quarries and borrow pits slightly above the elevation of the surrounding area to promote drainage, to avoid creating quarry lakes, and to prevent permafrost degradation in borrow pits;
- prevent erosion and sedimentation through appropriate control measures;
- carry out ARD/ML testing and water quality monitoring in support of mitigation measures;
- protect archeological resources;
- verify that there are no raptor nests in or near quarries and borrow pits before beginning quarrying operations (see the Terrestrial Environment Management and Monitoring Plan submitted as part of the Final Environmental Impact Statement [Agnico Eagle 2014]);
- maintain air quality through dust control/suppression; and
- use progressive reclamation in closing quarries and borrow pits when no longer needed.

The quarries and borrow pits selected for building the AWAR showed no potential to generate acid drainage. Visual examinations of materials and additional testing will be conducted during construction to confirm that the best available building materials are being used.

Quarry operations will use a “drill, blast, load, haul, dump” sequence, the final step being placement of quarried rock using a dozer. Some rock could be crushed to produce aggregate of various sizes.

Wherever possible, borrow pit material will be ripped using a dozer. Standard drill and blast procedures may be used in instances where ripping is not possible.

Mitigation measures pertaining to archaeological resources and adjacent historical sites, attractions, and facilities within boundaries of Iqalugaajuup Nunanga Territorial Park, and wildlife were developed and are described in the Plan. Dust, noise, and water quality monitoring related to the use of the quarries and borrow pits will be carried out during the construction, operation, and closure phases of the Project.

As a surety measure, rock berms will be placed 10 metres from the edge of a quarry and above any exposed high walls that are more than 2 metres in height where there is a risk of an all-terrain vehicle or snowmobile accidentally going over the edge.

Progressive reclamation will be carried out as much as practicable. With prudent initial design, the proposed quarries/borrow pits should require little reclamation. Reclaimed quarries and borrow pits will have gently sloping walls and positive drainage, wherever possible. Loose wall rock will be pulled to the quarry floor, and quarry entrances will be blocked with large boulders.

TABLE OF CONTENTS

FIGURES AND TABLES

DOCUMENT CONTROL

Version	Date	Section	Page	Revision	Author
1	December 2012			First draft of the Borrow Pits and Quarries Management Plan	John Witteman, Env. Consultant, Agnico Eagle
2	March 2013	1.2.2	3-4	More detail on Discovery access road	John Witteman, Env. Consultant, Agnico Eagle
3	April 2014			FEIS submission	
4	April 2015			Update document for the Class A Water Licence Application	John Witteman, Env. Consultant, Agnico Eagle

ACRONYMS

AANDC	Aboriginal Affairs and Northern Development Canada
Agnico Eagle	Agnico Eagle Mines Limited
ARD/ML	Acid Rock Drainage/Metal Leaching
AWAR	All-weather Access Road
CGS	Department of Community and Government Services, GN
CH	Department of Culture and Heritage, GN
CLEY	Department of Culture, Language, Elders and Youth, GN
IOL	Inuit Owned Lands
KIA	Kivalliq Inuit Association
NIRB	Nunavut Impact Review Board
NWB	Nunavut Water Board
Park	Iqaluqaarjuup Nunanga Territorial Park
Project	Meliadine Gold Project

UNITS

km	kilometre
m	metres
m^3	cubic metre

SECTION 1 • INTRODUCTION

1.1 Overview

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Project (Project), located approximately 25 kilometres (km) north of Rankin Inlet, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut. Situated on the western shore of Hudson Bay, the proposed Project site is located on a peninsula between the east, south, and west basins of Meliadine Lake (63°1’23.8’’ N, 92°13’6.42"W), on Inuit Owned Lands (IOL).

The mine plan proposes open pit and underground mining methods for the development of the Tiriganiaq gold deposit, with two open pits (Tiriganiaq Pit 1 and Tiriganiaq Pit 2) and one underground mine. The proposed mine will produce approximately 12.1 million tonnes (Mt) of ore, 31.8 Mt of waste rock, 7.4 Mt of overburden waste, and 12.1 Mt of tailings. There are four phases to the development of Tiriganiaq: just over 4 years construction (Q4 Year -5 to Year -1), 8 years mine operation (Year 1 to Year 8), 3 years closure (Year 9 to Year 11), and post-closure (Year 11 forwards).

The Borrow Pits and Quarries Management Plan was prepared in accordance with the Guidelines issued by the Nunavut Impact Review Board and was subsequently updated to meet the needs of the Type A Water Licence application to the Nunavut Water Board (NWB). It is one in a series of environmental management plans that have been prepared for the proposed Project.

Borrow pits and quarries are defined by the type of granular material extracted and the method of extraction. Quarries consist of rock material that is typically extracted by digging, cutting, or blasting and yields large stones that may then need to be crushed (INAC 2009). Borrows pits consist of fine grained fill materials, such as sand or clay, that are normally used at a nearby site (INAC 2009).

1.2 Project Components

1.2.1 All-weather Access Road

The Phase 1 All-weather Access Road (AWAR) connecting Rankin Inlet to the proposed mine site was allowed as an exception to the Nunavut Impact Review Board review of the Project, pursuant to Section 12.10.2(b) of the Nunavut Land Claims Agreement. For the exception application, Agnico Eagle prepared the Phase 1 – Meliadine All-weather Access Road Project Description and Environmental Assessment (Golder 2011) and an associated Borrow Pit and Quarry Management Plan (Agnico Eagle 2011). The construction of the Phase 1 AWAR was completed in 2013.

The borrow pits and quarries selected, as shown on Figure 1-1, are immediately next to the road route thereby minimizing the haul distances for road construction. Of the borrow pits and quarries selected, only R19 (closed and rehabilitated) is located on municipal land; the remainder are located on IOL administered by the Kivalliq Inuit Association (KIA).

Other considerations in the selection of the borrow pits and quarries include: the volume of road building material available, proximity to receiving waters, acid rock drainage/metal leaching (ARD/ML) potential, archaeological resources in the immediate vicinity, surface area to be disturbed, and wildlife and territorial park concerns (Golder 2011). The goal in selecting the quarries/borrow pits is to avoid or minimize, wherever possible, potential negative effects to the environment.

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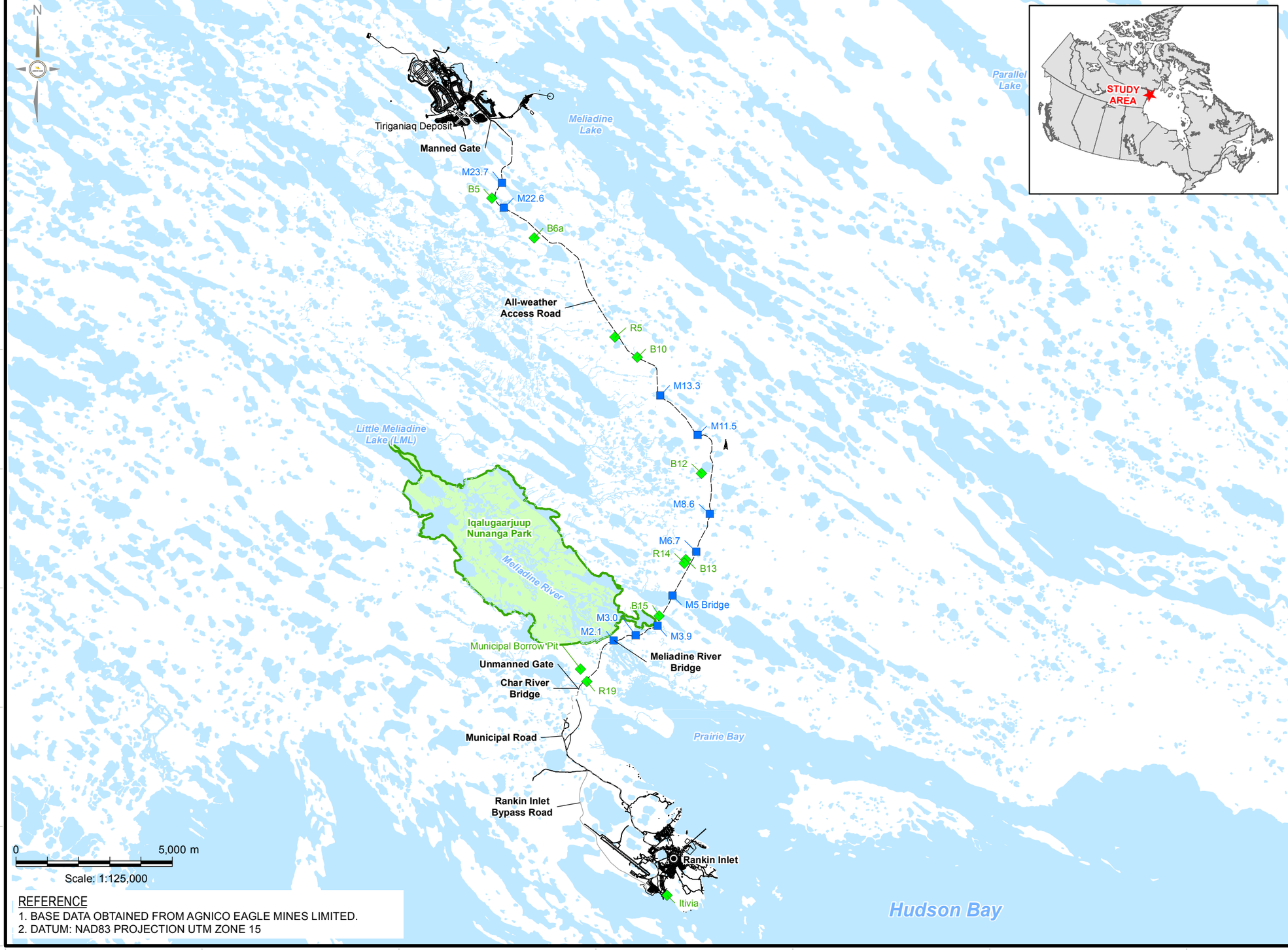

LEGEND

- PROPOSED MINE SITE
- QUARRY/BORROW PIT LOCATION
- WATERCOURSE CROSSING
- ALL-WEATHER ACCESS ROAD (AWAR)
- ROAD - NEW
- ROAD - EXISTING
- WATERCOURSE
- WATERBODY
- TERRITORIAL PARK

REFERENCE

1. BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED.
2. DATUM: NAD83 PROJECTION UTM ZONE 15

AGNICO EAGLE

Golder Associates

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VÉRIFIÉ PAR CHECKED BY	LY	24–03–2015
APPROUVÉ PAR APPROVED BY	DRW	24–03–2015
No. PROJET PROJECT NO.	1405283	
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AGNICO EAGLE – MELIADINE DIVISION
FIGURE 1–1 LOCATION OF BORROW PITS AND QUARRIES FOR THE MELIADINE GOLD PROJECT

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1.2.2 Hamlet Bypass Road and Itivia Laydown

A bypass road is proposed around the airstrip to Itivia harbour, as shown on Figure 1-1. This will allow traffic from Itivia harbour to bypass the hamlet in delivering dry goods and fuel from Itivia to the proposed mine site. It will also be used in moving air freight and mine personnel between the airport and the proposed mine site.

By building the bypass road, use of municipal roads by Agnico Eagle will be kept to a minimum. The proposed bypass road will be approximately 5.1 km long, 6.5 metres wide, and will require about 80,000 cubic metres (m^3) of road building materials. Rock quarry R19 shown on Figure 1-1 is exhausted with no further material available to be extracted. Road building materials will either be purchased from established quarries and borrow pits in the hamlet or from a borrow pit or quarry established by Agnico Eagle. The proposed laydown yard at Itivia harbour will cover 14 hectares. Leveling the pad will require about 21,000 m^3 of quarry and/or borrow pit material. Sources of materials will be the same as for the bypass road.

1.2.3 Traditional All-terrain Vehicle and Ski-doo Trails

The proposed building of roads and the mine infrastructure at Itivia will impact some all-terrain vehicle and ski-doo trails. Where these trails cross a road, a ramp will be constructed to ease road crossing, and signage will be installed to alert road users of the crossing. Similarly, there will be a sign alerting all-terrain vehicles and ski-doos that they are approaching a road. Maintenance of the roads would see no snow placed on these trails.

In accommodating existing trails rather than building new ones, the area impacted will be minimized. The ramps leading up to the road will be small and require little road building material.

The present ski-doo trail at Itivia harbour to the sea ice will be relocated to the east of the fenced laydown yard. Individuals will be able to readily access the sea ice using the re-located ski-doo trail.

1.2.4 On-Site Infrastructure Pad

The proposed major mine infrastructure, as shown on Figure 1-2, will be located on a pad having an area of approximately 70,000 square metres. The site preparation of the pad will involve the spreading of waste rock and borrow pit materials to an average thickness of approximately 3 m over the pad area for a total volume of approximately 200,000 m^3. The material to construct the proposed infrastructure pad will come from two main sources:

1. Ramp development waste rock:

    - Under Water Licence 2BB-MEL1424, Amendment #3 the extension of the ramp to 400 m below surface was approved by the NWB. The development of the ramp is presently underway to explore deeper portions of the Tiriganiaq ore deposit. Waste rock from developing the ramp is being stored on a pad near the portal; and

- Waste rock available at the time from ramp development will be used in constructing the proposed infrastructure pad. Approximately 150,000 m^3 of waste rock should be available to construct the infrastructure pad.

2. The remainder of the material required to construct the infrastructure pad will be obtained from borrow pits B5 and B6A located near the AWAR (see Figure 1-1 for their locations):

   - Borrow pits B5 and B6A combined supplied approximately 100,000 m^3 of material in constructing the AWAR;
   - Borrow Pits B5 and B6A will supply an additional 50,000 m^3 of material for constructing the proposed infrastructure pad. This will result in the expansion of the two borrow pits. Figures 1-3 and 1-4 show the extent of the borrow material available along with the area excavated in constructing the AWAR; and
   - In extending the two borrow pits, a buffer of at least 31 m of undisturbed land will be maintained between the two borrow pits and waterbodies.

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INFRASTRUCTURE PAD
FRESH WATER INTAKE CAUSEWAY
CHANNEL2
TEMPORARY OVERBURDEN STOCKPILE
SEWAGE TREATMENT PLANT
WATER TREATMENT PLANT
WTP INTAKE CAUSEWAY
LANDFARM
TREATED SEWAGE DISCHARGE
MELIADINE LAKE
ORE STOCKPILE 3
ORE STOCKPILE 1
ORE STOCKPILE 2
CP2
CP1
CHANNEL1
CULVERT3
BERM2
TAILINGS
TAILINGS STORAGE FACILITY (TSF)
CULVERT1
CP3
WASTE ROCK COVER
CULVERT2
D-CP3
CHANNEL3
LANDFILL
BERM1
CHANNEL8
CHANNEL7
CHANNEL4
WASTE ROCK& OVERBURDEN STORAGE FACILITY 2 (WRSF2)
WASTE ROCK & OVERBURDEN STORAGE FACILITY 1 (WRSF1)
D-CP1
CULVERT4
CULVERT5
CHANNEL6
D-CP6
CP6 JETTY
CP6
WASTE ROCK & OVERBURDEN STORAGE FACILITY 3 (WRSF3)
D-CP4
CP4
CP5 JETTY
CP5
D-CP5
CULVERT6
CHANNEL5
TIRIGANIAQ PIT 1 (TIRI_1000_01)
BERM3
TIRIGANIAQ PIT 2 (TIRI_1000_02)
0 500 m
Scale: 1: 12 500

LEGEND
- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

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TETRA TECH EBA

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VÉRIFIÉ PAR CHECKED BY	NG		14–04–2015
APPROUVÉ PAR APPROVED BY			
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TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 1–2 MINE INFRASTRUCTURE PAD

ISSUED FOR PERMITTING
AGNICO EAGLE DATE : 14–04–2015

ÉCHELLE/ SCALE	FICHIER FILE		
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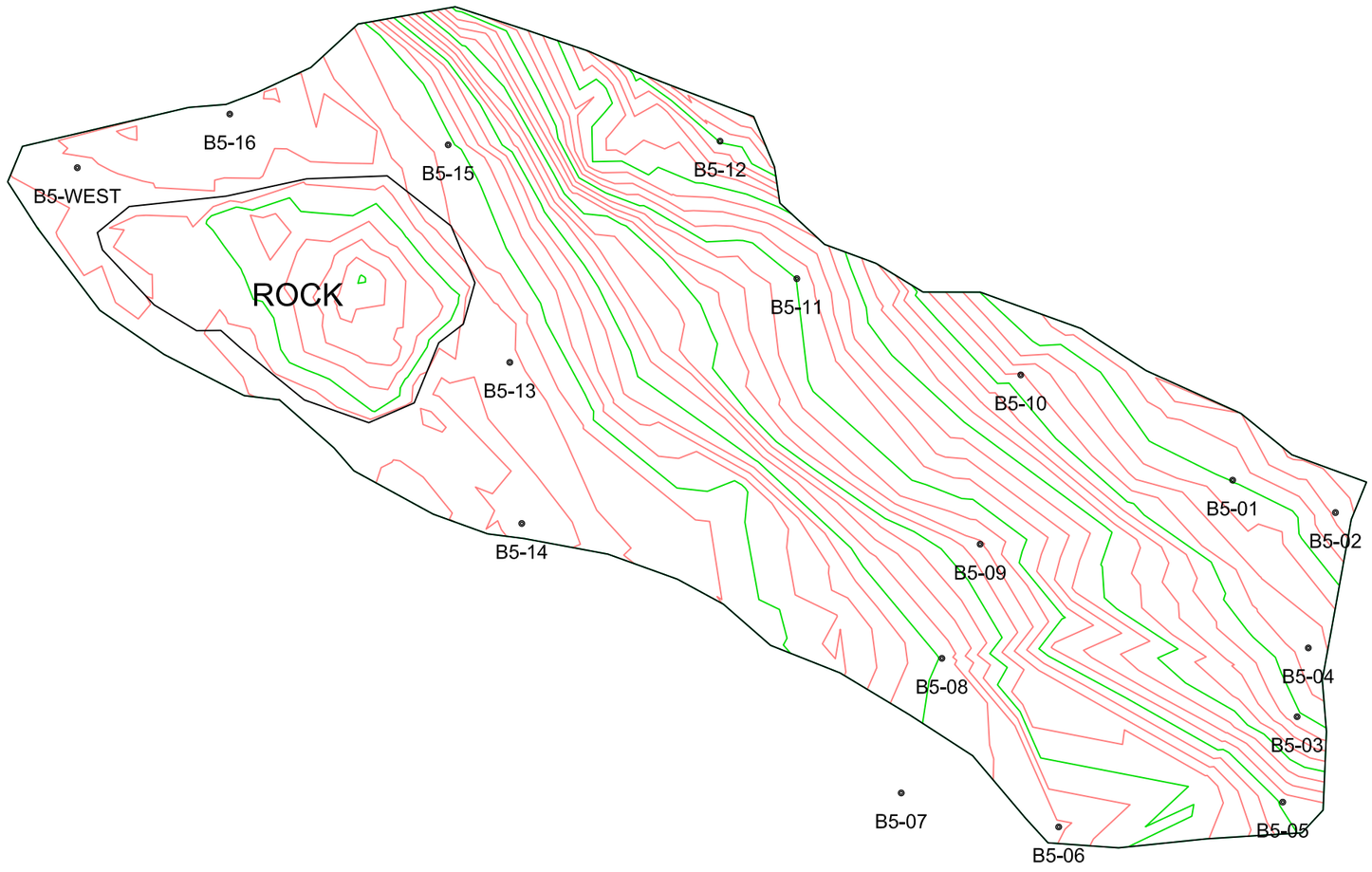

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APPROUVÉ PAR / APPROVED BY			
No. PROJET / PROJECT NO.	6509		
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AGNICO–EAGLE – MELIADINE DIVISION

EARTH WORK
BORROW PIT NO 5
PIT TEST – 2014–06–26

ÉCHELLE/ SCALE	1:1000	FICHIER FILE	.DWG
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No. PROJET PROJECT NO.	6509	
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TITRE / TITLE
AGNICO–EAGLE – MELIADINE DIVISION

EARTH WORK
BORROW PIT NO 6
PIT TEST – 2014–06–26

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1.3 Quarry and Borrow Pit Extraction Methods

Quarry operations will use explosives. The design, size, and shape of the blasts are planned with safety being the foremost consideration. A predetermined pattern of drill holes are drilled to a depth not exceeding the overall depth of the quarry and filled with explosives. Prior to a blast, all personnel and equipment are moved to a safe distance from the blast area. The blast fragments (i.e., the blasted rock) is then loaded into haul or dump trucks using either a loader or an hydraulic shovel. The truck drives to the end of the road (or other construction area) where the rock is dumped. The rock is then pushed into place using a dozer. This sequence is called a “drill, blast, load, haul, dump” sequence.

Some rock can be moved to a crusher to produce aggregate of various sizes. The crusher is normally located as far from water as possible and where it is best shielded from the prevailing wind, preferably behind a high wall in a quarry so as to reduce the quantity of wind-blown dust and to have as much dust as possible fall within the bounds of the quarry.

Wherever possible, borrow pit material will be ripped using a dozer. This loosens the material and allows it to be picked up using a loader or an hydraulic shovel. Standard drill and blast procedures may be used in instances where ripping is not possible. The sequence of steps under this circumstance follows that for rock quarries.

1.4 Related Documents

The following documents provided input to the Borrow Pits and Quarries Management Plan submitted as part of the Water Licence Application:

- Environmental Management and Protection Plan;
- Explosives Management Plan;
- Preliminary Closure and Reclamation Plan;
- Roads Management Plan, including the Dust Management Plan; and
- Water Management Plan.

The Borrow Pits and Quarries Management Plan is part of the Environmental Management and Protection Plan for the Project. The Air Quality Monitoring Plan and the Occupational Health and Safety Plan submitted as part of the Final Environmental Impact Statement also provided input to this plan.

1.5 Regulatory Setting

The proposed Project is located on IOL, with some components located within the municipality of Rankin Inlet. This includes all borrow pits and quarries exclusively used in building and maintaining the AWAR. Once construction begins, Agnico Eagle proposes to expand borrow pits B5 and B6A to obtain granular material to build the infrastructure pad at the proposed mine site. As well, construction of the proposed bypass road and the laydown at Itivia will require granular material.

Although federal requirements do not apply, the *Northern Land Use Guidelines, Pits and Quarries* prepared by Indian Affairs and Northern Development Canada (INAC 2009; now called Aboriginal Affairs and Northern Development Canada) provides useful guidance in establishing and operating borrow pits and quarries in an Arctic setting.

In building the AWAR, borrow pits and rock quarries on IOL required a commercial lease and quarry permit issued by the KIA. Agnico Eagle proposes to request amendments to these to allow additional quarrying at B5 and B6A for predevelopment. Quarry permits from the KIA include terms and conditions specifying how operations are to be conducted.

Quarry permits on municipal land are administered by the Government of Nunavut Department of Community and Government Services (CGS) on behalf of the hamlet of Rankin Inlet. When the hamlet council passes a resolution approving the quarry and/or borrow pit, the permit is issued by CGS. If Agnico Eagle purchases materials from existing quarries and borrow pits in the hamlet for the construction of the bypass road and the Itivia laydown, permits would not be required in this instance.

The Department of Culture and Heritage (CH) administers the archaeology permitting process for Nunavut. Archaeological surveys are undertaken in advance of borrow pit and quarry selection to ensure all archaeological sites are identified and avoided if possible. If the sites cannot be avoided, they are mitigated with the approval of CH. Borrow Pit B5 contains previously recorded site KgJm-53, which was identified during the 2011 fieldwork for the AWAR and associated borrow pits (Ross 2012). This site is of limited significance and no further work at the site has been recommended ahead of development of the borrow pit. Borrow pits B5 and B6A were subject to additional impact assessment during the 2014 fieldwork, which did not identify any additional heritage resources within the development footprints (Hill 2015). As no additional heritage resources were identified, no additional work is recommended in advance of the development of these borrow pits.

The Nunavut *Wildlife Act and Regulations* will apply as raptors nesting close to the AWAR and quarries/borrow pits may be disturbed, or raptors may nest in the quarries and/or borrow pits upon the completion of their use. Borrow pit B6A was checked in 2014 for the presence of raptor nests and none were found (A. Franke, University of Alberta, 2014, pers. comm.).

Land animals may also be disturbed by the quarrying activities. The quarries and possibly the borrow pits in some instances will require the use of explosives. The activities will have to comply with the *Explosive Use Act and Regulations*, and the *Mine Health and Safety Act and Regulations.* The latter is administered by the Worker's Safety and Compensation Commission.

Use of rock and granular material from the quarries and borrow pits could introduce waste to water, and will require a water licence from the NWB under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and associated water regulations. The federal *Fisheries Act* will apply if runoff water containing deleterious substances flow from the quarries/borrow pits into fish bearing waters.

SECTION 2 • QUARRIES AND BORROW PITS MITIGATION MEASURES

The ranking of mitigation options is as follows:

- **Avoidance** – using an alternate site or technology to avoid the adverse effect all together. This is the most desirable;
- **Minimization** – taking actions to minimize and/or contain effects to the maximum extent possible during engineering design, pre-development, construction, operations, and closure;
- **Rectification** – taking actions to rehabilitate or restore the affected environment after the fact; and
- **Compensation** – this is used as a last resort to offset adverse environmental effects. This is the least desirable.

Best management practices will employ the following general mitigation measures for the quarries and borrow pits:

- minimize the surface area of quarries and borrow pits where possible;
- minimize rock and borrow pit cuts where possible;
- maintain the floor of the quarries and borrow pits slightly above the elevation of the surrounding area to promote drainage, to avoid creating quarry lakes, and to prevent permafrost degradation in borrow pits;
- prevent erosion and sedimentation through appropriate control measures;
- carry out ARD/ML testing and water quality monitoring in support of mitigation measures;
- protect archeological resources;
- verify that there are no raptor nests in or near quarries and borrow pits before beginning quarrying operations;
- maintain air, water, and sediment quality through dust control/suppression; and
- use progressive reclamation in closing quarries and borrow pits no longer needed.

2.1 Acid Rock Drainage and Metal Leaching

Initial testing of potential quarry and borrow pit materials was completed in 2010 (Golder 2010). Static methods were used to assess the chemical composition of the potential building material, its potential to generate acid rock drainage (ARD), and its potential to leach metals into the receiving environment upon exposure to ambient conditions.

Sampling and testing prior to use of any quarry or borrow pit significantly reduces the risk of ARD/ML. The quarries and borrow pits selected for road building materials showed no potential to generate acid drainage due to the high buffering capacity and low sulphide content in the bedrock

and glacial-fluvial deposits. In early testing, some potential quarries/borrow pits were rejected due to potential metal leaching (Golder 2010). Avoiding the use of undesirable or questionable road building materials ranks this mitigation measure as highly desirable[1].

Additional measures will be used while the quarries and borrow pits are operational. Visual examinations of the quarry material for sulphur species and additional testing for ARD/ML will be conducted during construction of the roads and pads. As recommended by Price (2009), for every 100,000 tonnes of material removed from a borrow pit or rock quarry, eight samples will be collected for static testing (ARD/ML). This will include samples of wall rock (Agnico Eagle 2012). If ARD/ML materials are found, the area will be covered with a minimum two metre thick layer of non-acid generating borrow material to encapsulate it below the active layer.

The additional testing will confirm that the best available materials are being used in constructing the infrastructure pad, the bypass road, and Itivia laydown.

The same procedures will be used should any new quarry and/or borrow pit be developed.

2.2 Management of Water Originating from Quarries and Borrow Pits

While ARD/ML testing is a measure to avoid using questionable road and pad building materials, water quality monitoring of seeps from quarries and borrow pits provides information on possible impacts on the environment (e.g., water and sediment quality) should the water reach any nearby waterbodies. A buffer of at least 31 m of undisturbed land will be maintained between quarries/borrow pits and waterbodies, and best management practices will prevent direct drainage. However, any significant seeps originating from the borrow pits or rock quarries likely to reach receiving waters will be sampled and analysed for a full suite of water quality parameters[2]. Any problematic water will be directed away from waterbodies, or held if possible. If necessary, silt curtains will be used to control suspended sediments in water seeping from the quarries/borrow pits.

Although erosion is not expected to originate from water flow from the quarries/borrow pits, any evidence of erosion will be repaired by placing rip-rap over the affected area, and measures will be taken to reduce the velocity of the water with, for example, silt curtains and/or small check dams.

[1] As borrow pits B5 and B6A are to be used for predevelopment, additional ARD/ML samples will be collected and tested before quarry activities begin. This will ensure that the material used does not pose an unacceptable ARD/ML risk.

[2] Physical Parameters: pH (field and laboratory), temperature (field), alkalinity, bicarbonate, carbonate, electrical conductivity, hardness, hydroxide, ion balance, total dissolved solids, total suspended sediments
Nutrients: NH_4, NO_3, NO_2, PO_4
Major Ions: Ca, Cl, Mg, K, Na, SO_4
Trace Metals: Al, Sb, As, Ba, Be, B, Cd, Cr, Cu, Fe, Pb, Li, Mn, Hg, Mo, Ni, Se, Ag, Sr, Sn, Ti, U, V, Zn

2.3 Archaeological Resources

The quarries and borrow pits were selected to avoid archaeological resources. Archaeological surveys were completed along the AWAR alignment, its buffer zone, over the footprint of selected quarries and borrow pits, and the immediate area. The archaeological site identified at borrow pit B11A will be protected. This borrow area is large in extent allowing Agnico Eagle to develop the borrow pit without disturbing this site. There were sites identified at borrow pit B12 and quarry R14 that could not realistically be avoided and these were mitigated under a permit issued by CLEY[3] to Agnico Eagle.

If any potential archaeological site is identified during the operation of any quarry/borrow pit, work will stop, a professional archaeologist will be consulted, and CH will be informed of the discovery.

All equipment will remain within the boundaries of the quarries/borrow pits to ensure any nearby archaeological site is not inadvertently damaged.

Before any new quarry/borrow pit is selected, it will be surveyed for archaeological resources by a professional archaeologist registered in Nunavut. Sites with archaeological resources present will not be selected if there is a similar site devoid of archaeological resources nearby.

2.4 Iqaluqaarjuup Nunanga Territorial Park

Quarries and borrow pits will not be developed in or near the Iqaluqaarjuup Nunanga Territorial Park (the Park). Rock quarry R19 and borrow pit B15 (Figure 1-1) are the closest to the Park. Both are more than 1 km from the Park boundary and quarry R19 is closed and rehabilitated. All personnel working in the quarries/borrow pits and on the AWAR will not enter the Park during work hours. Noise from construction vehicles will be minimized as part of best management practices by ensuring noise control equipment installed on the vehicles are maintained and operating according to specifications.

Noise related to quarry/borrow pit operations will be of short duration and should be restricted primarily to the predevelopment and construction phases of the Project. While noise can be expected to be heard in a 5 km radius, the majority of the noise should be within 1 km of the activities.

The prevailing wind direction at Rankin Inlet is from the north-northwest. This prevailing wind direction is consistent for all months of the year and would tend to blow dust from the road and quarry/borrow pits away from the Park. All wind directions that could carry dust towards the Park occur on average 25 to 35 % of the time. A dust monitoring program between the road and the Park is being carried out.

[3] In a recent Nunavut government re-organization Culture, Language, Elders & Youth was renamed Culture and Heritage.

2.5 Dust Control

Dust will be generated as part of quarry/borrow pit operations and will be restricted primarily to the predevelopment at the proposed mine, and the construction of the proposed bypass road and Itivia laydown. To limit the creation of dust, any crusher will be located where it is best shielded from the prevailing wind, preferably behind a high wall in the quarry. That way, the quantity of wind-blown dust should be reduced, and most of the dust should fall within the bounds of the quarry.

Transport of material from the quarries/borrow pits will be subject to speed limit restrictions to help reduce dust.

Dust monitoring is occurring along the AWAR and between the AWAR and the Park. Further dust monitoring will occur in the vicinity of borrow pits B5 and B6A.

2.6 Ground Ice and Permafrost Protection

The borrow pits[4] sites selected are from glaciofluvial deposits and weathered bedrock deposits located in well-drained areas. All have positive topography rising above the local setting. These types of granular deposits were selected because they are largely free of ground ice, thereby minimizing possible thaw settlement and melting ground ice, which can result in erosion, slumping of side slopes, and an altered landscape that extends beyond the borrow pit. Should this happen, the area will be monitored and, if necessary, stabilized by covering the affected land with approximately 2 m of rock or other granular material. This reclamation effort would allow the permafrost to move up into the material covering the area and stop any remaining ground ice from melting. Inspections of quarries/borrow pits will continue after their closure at the end of Project predevelopment and construction.

Any significant seeps originating from the borrow pits as a result of ground ice, permafrost melting, or from precipitation events will be monitored if the water is likely to reach receiving waters[5].

[4] Quarry sites are expected to be free of ground ice and should not release any water should the permafrost melt.

[5] Shallow, standing water will not be collected as it poses little risk to the receiving environment.

SECTION 3 • PROGRESSIVE RECLAMATION STRATEGY

The Project's reclamation objective is to avoid or minimize negative environmental effects wherever possible, practice progressive reclamation, and, upon closure, return negatively impacted areas to productive and lasting use by wildlife and humans. Reclaimed areas will be chemically and physically stable, and should ultimately support the same functions as surrounding undisturbed land. Because of the proximity to Rankin Inlet, particular attention will be paid to ensuring that reclaimed areas are safe for future traditional use.

A practical, cost-effective approach will be central to the closure and reclamation of the borrow pits and quarries. The intent is to pursue progressive reclamation to return areas to natural conditions and avoid long-term care and maintenance requirements. Most quarries and borrow pits will no longer be needed following the completion of construction[6]. Using best management practices, borrow pits and quarries will be reclaimed by stabilizing disturbed land surfaces, which will promote natural re-vegetation.

The reclaimed quarries and borrow pits will have gently sloping walls and positive drainage wherever possible. With prudent initial design, the quarries/borrow pits should require little reclamation. Loose wall rock will be pulled to the floor of the quarry, and the quarry entrance will be blocked with large boulders. For the interim until the quarries and borrow pits are reclaimed, rock berms will be placed 10 m from the edge of the quarry/borrow pits and above any exposed high walls that are more than 2 m in height where there is a risk of an all-terrain vehicle or snowmobile accidentally going over the edge.

Should acid-generating bedrock be exposed in borrow pit/quarry, these areas will be covered with a minimum of a 2 m thick layer of non-acid generating soil or rock. Water will be directed away from the area.

[6] A small number will remain active to store and/or supply crushed rock and/or granular material for ongoing road maintenance.

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