MELIADINE GOLD PROJECT

Transportation Management Plan
All Weather Road

Prepared by:
Agnico-Eagle Mines Limited – Meliadine Division

Version 1
May 2011

EXECUTIVE SUMMARY

Agnico-Eagle Mines Limited – Meliadine Division (AEM) has been requested to develop a transportation management plan for the All-Weather Road (AWR) between Rankin Inlet and the Meliadine site. This Transportation Management Plan has been prepared to provide information on the planned utilization of the road by the Meliadine site and the general public, and an initial description of wildlife and water quality monitoring along the road.

The Meliadine Gold Project is located approximately 25 kilometres northwest of the Hamlet of Rankin Inlet, Nunavut (Figure 1). Baseline environmental and geotechnical analysis of the proposed route was conducted prior to the submission of the Project Description. The right of way for the road was selected to minimize possible effects on the environment, minimizing the number of water crossings, and reducing maintenance of the road – particularly the removal of snow. The AWR is expected to be completed by May 2012 and will be constructed above grade using glacial and/or marine deposits, and quarried material from non-acid generating country rock.

The AWR will be used to provide access to the site during the underground exploration and bulk sample program in 2012 – 2013. This will allow the year round delivery of fuel and other supplies during the underground program that cannot be done using a winter road. An all-weather road reduces the amount of infrastructure required at the site by significantly reducing the volumes of fuel and other consumable supplies that must be stored at the site in order to support ongoing underground operations.

DISTRIBUTION LIST

Hamlet of Rankin Inlet

Rankin Inlet Hunter and Trapper's Organization

Government of Nunavut – Department of Environment, Community and Government Services, Economic Development and Transportation

Indian and Northern Affairs Canada – Water Resources and Land Administration

Environment Canada

Kivalliq Inuit Association

Nunavut Impact Review Board

Nunavut Water Board

AEM - Site Manager

M&T Expediting, Rankin Inlet

DOCUMENT CONTROL

Version	Date (YMD)	Section	Page	Revision
Draft	11/05/20			Transportation Plan for All-Weather Road

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Approved By: _____
Larry Connell

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SECTION 1 • ALL- WEATHER ROAD CONSTRUCTION

The movement of fuel and supplies to the Meliadine Gold Project's underground exploration and bulk sample program is best supported by an all-weather road. An all-weather road (AWR) is proposed to be constructed between Rankin Inlet and the Meliadine site. Figure 1 shows the alignment of the road.

The proposed all-weather road is a continuation of an existing municipal road in Rankin Inlet and will be approximately 27.4 km long. It will start near the Char River and continue to the Meliadine River, east of Iqalugaarjuup Nunanga Territorial Park. The road will not enter the park. A bridge will be built over the Meliadine River. After crossing the river, the road climbs to the height of land and follows an all-terrain vehicle (ATV) trail to the site. A small section of road will also be built off the all-weather road to the edge of Meliadine Lake. This road will provide ease of access for the residents of Rankin Inlet to Meliadine Lake and other traditional areas nearby.

The road is planned to be constructed between September 2011 or earlier, and May 2012. The route from Rankin Inlet to the Meliadine site traverses lands administered by the Hamlet of Rankin Inlet and the Kivalliq Inuit Association (Inuit Owned Lands). The land tenure along the route is broken down as follows:

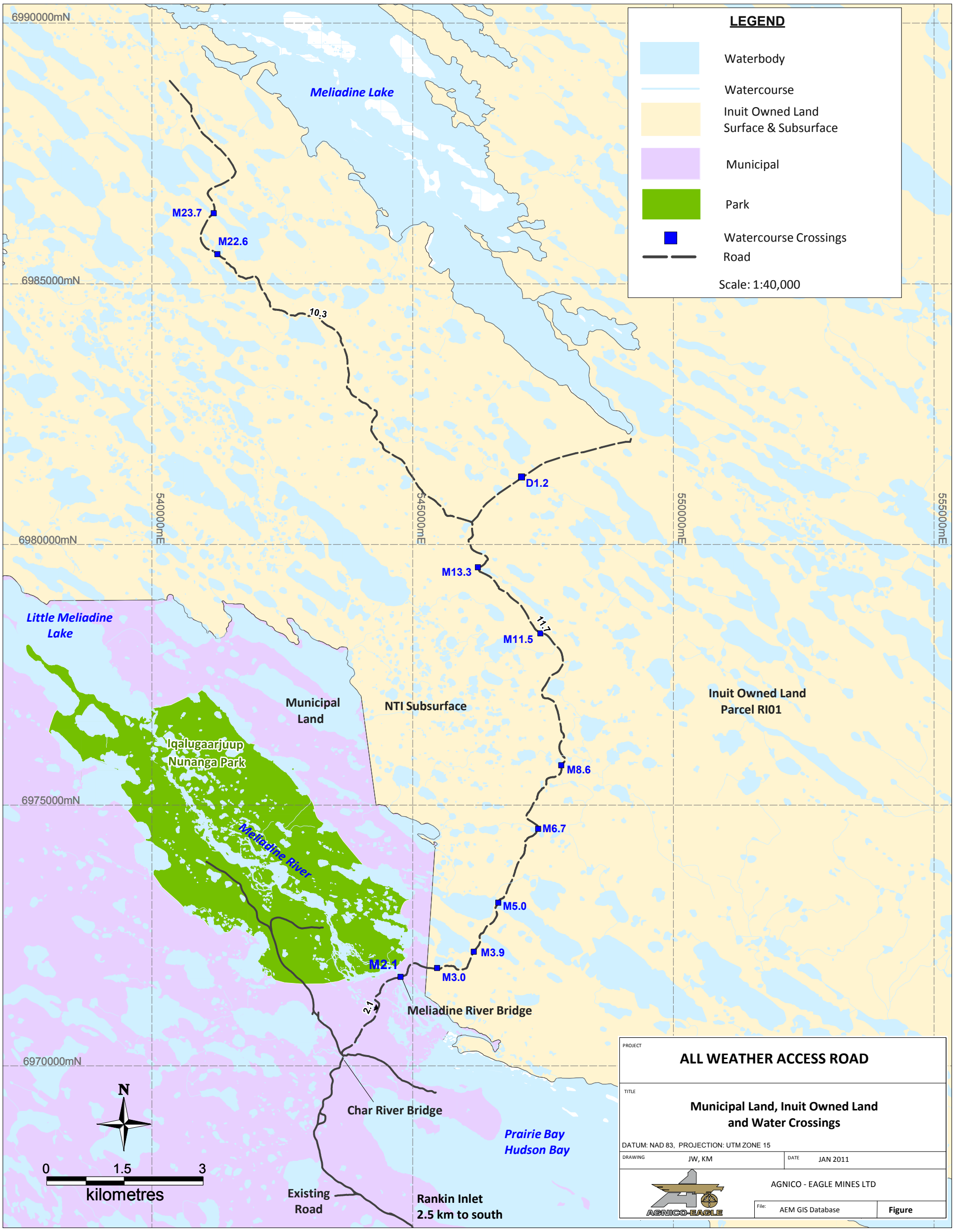
- 2.3 km within the municipal boundaries of Rankin Inlet;
- 28 km on Inuit Owned Lands - RI-01 (includes the main and spur roads)

In selecting the preferred route for the road, care was taken to minimize impact on the environment by avoiding environmentally sensitive areas, remaining outside the territorial park, and keeping the number of stream crossings to a minimum. The current planned route for the road requires 12 stream crossings be constructed, including one on the spur road. Three of these proposed crossing sites are bridge crossings due to either the physical size of the channel to be crossed and/or because the stream is ranked as having a high fish habitat value. The remainder of the proposed crossings are to be built using culverts of various dimensions and configurations specific to the requirements for each individual drainage channel. Road construction required the development of approximately 15 quarries along the route to provide the necessary building materials.

1.1 DESIGN CRITERIA

The following are aspects of the road:

Road Aspect	Description
Length of the road	approximately 27.4 km
Length of spur road to Meliadine Lake	approximately 3 km
Stream crossings	12 (3 bridges, 9 culverts)
Bridge type	prefabricated steel single span bridges


LEGEND
Waterbody
Watercourse
Inuit Owned Land
Surface & Subsurface
Municipal
Park
Watercourse Crossings
Road
Scale: 1:40,000
6990000mN
6985000mN
6980000mN
6975000mN
6970000mN
540000mE
545000mE
550000mE
555000mE
Meliadine Lake
M23.7
M22.6
10.3
D1.2
M13.3
11.7
M11.5
M8.6
M6.7
M5.0
M3.9
M3.0
M2.1
2.1
Meliadine River Bridge
Char River Bridge
Little Meliadine Lake
Municipal Land
NTI Subsurface
Inuit Owned Land
Parcel RI01
Iqalugaarjuup Nunanga Park
Meliadine River
Prairie Bay
Hudson Bay
Existing Road
Rankin Inlet
2.5 km to south
N
0
1.5
3
kilometres
PROJECT
ALL WEATHER ACCESS ROAD
TITLE
Municipal Land, Inuit Owned Land and Water Crossings
DATUM: NAD 83, PROJECTION: UTM ZONE 15
DRAWING
JW, KM
DATE
JAN 2011
AGNICO - EAGLE MINES LTD
File:
AEM GIS Database
Figure

The design criteria are as follows:

Design Element	Criteria	Source / Comments
Widest Vehicle on Road	B-Train (2.4 m wide)	▪ Comaplex
Longest Vehicle on Road	B-Train (25.0 m long)	▪ TAC 2007[1]
Maximum Design Speed	50 km/h	▪ Based on similar projects
Minimum Road Width (two-way road, not including the shoulders)	8.0 m road width (plus 2.0 m width per safety berm, where required)	▪ Meets or exceeds NWT 1995 and TAC 2007 ▪ Based on 2.4 m (96") vehicle width, 1.1 m tire height, NWT 1995[2] p. 35 and TAC 2007 p. 2.2.2.11
Road Alignment at Watercourse Crossings	Perpendicular to watercourse	▪ Based on similar projects ▪ Crossings will consist of 3 bridges and 9 will use culverts
Road Section Method (Cuts and Fills)	Fill (No cuts)	▪ Based on similar projects ▪ Selective use of quarry materials to minimize metal leaching
Minimum Stopping Distance	110 m	▪ Based on trucks with conventional braking systems, TAC 2007. 1.2.5.4 ▪ For comparison, 65 m for trucks with anti-lock braking systems
Super-elevation Minimum Radius of Curvature	None 165 m	▪ Based on similar projects ▪ Based on 50 km/h maximum design speed and 0.12 coefficient of friction between road surface and vehicle tire, TAC 2007 p. 2.1.2.7
Maximum Slope Gradient	8%	▪ ▪ TAC 2007 p. 2.1.3.2
Minimum Sag Curve "K" Value	12	▪ ▪ Based on stopping distance, TAC 2007 p. 2.1.3.8
Minimum Crest Curve "K" Value	9	▪ Based on stopping distance, TAC 2007 p. 2.1.3.5
Drainage culvert or French Drain Frequency (for planning purposes; actual number to be determined in the field)	Every 50 metres for low ground; may not apply on high ground	▪ Based on similar projects
Offset from Archaeological Sites	30 m	▪ Nunavut Archaeological and Paleontological Sites Regulations (2003)

The AWR has the following features:

- Flexible delineators (flags) at 100 m intervals each side;
- Kilometre markers each kilometre each side;
- Double lane bridges; and
- Radio controlled traffic

1.2 ROAD CONSTRUCTION

The AWR will be constructed using conventional road building techniques for permafrost conditions. Construction of the road is proposed to commence in September 2011 or earlier, and will largely be completed by May 2012. Some final finishing work will be carried out over the summer of 2012. Jivko Engineering from Yellowknife has been selected to undertake the engineering of the 3 bridges. Proposals from various local and joint venture contractors are presently being evaluated for the construction of the road and water crossings.

Work on the municipal portion of the road will begin in September 2011 or earlier. This is to allow access to the Meliadine River for the building of the bridge abutments before the onset of winter. Following this the remaining portion of the road north of the Meliadine River will be built over the winter of 2011 – 2012.

The section of the road on municipal land will be built on unfrozen ground so as to allow early access to the Meliadine River bridge site and the construction of the abutments. If necessary, this section of the road would be later be upgraded over the winter when the subgrade under the road is frozen.

The road will be constructed above current grade using mostly non-acid generating marine gravels and/or glacial-fluvial materials plus quarried non-ARD rock. These materials will be placed directly on the frozen ground. This will promote permanent freezing of the natural subgrade. There will not be any disturbance of the soil excepting where culverts are to be used for stream crossings, where one culvert will be seated 300 mm below grade. This is to facilitate fish migration. All of the proposed stream crossings have a shallow water depth and will be frozen to bottom during culvert installation. This eliminates potential problems related to sedimentation in the watercourse and erosion of the stream bed.

The construction standards for the road will adher to the design recommendations developed by Golder Associates Ltd. These construction standards are outlined in a report entitled, "**All Weather Access Road Meliadine Gold Project - Feasibility Level Design, November 2010".** The road is to be constructed to the same standards regardless of land owner (IOL or Hamlet's Lands). The thickness, or depth, of the road will vary from 1.0 m to 1.5 m, depending on whether the underlying soil is thaw-stable (1.0 m) or thaw-susceptible (1.5 m).

The top width or travel surface of the road was maintained with a minimum width of 8 metres. This minimum width is optimal for the road from both an economic and ease of construction perspective based on the type of equipment to be used. This width will accommodate two-way traffic after completion.

There are 12 water crossings along the road route. The water crossings consist of either culverts or bridges, depending on the navigability of the river and/or fish habitat. Three streams will have bridges, Char and Meliadine Rivers and M5.0.

Bridges will be single steel bridges with span lengths of 28, 62 and 18 metres. The bridges will be prefabricated in the south and shipped to Rankin Inlet over the summer of 2011. The abutments and any ancillary facilities are to be located above the ordinary high-water mark, thereby avoiding any

impingement on the river. The bridge decks for the bridges are to be launched from one side or installed using a mobile crane.

SECTION 2 • ROAD OPERATION

2.1 IMPLEMENTATION SCHEDULE

This Draft Operational Procedure will be finalized following consultation with the Hamlet of Rankin Inlet, the Kivalliq Inuit Association, the Rankin Inlet Hunters and Trappers Organization and the Government of Nunavut. The procedure will be implemented if and when permission is given covering construction and operation of the road.

2.2 ROAD OPERATION

The proposed Meliadine Project access road is to be operated as an uncontrolled access road, constructed on Inuit Owned Land leased by AEM from the Kivalliq Inuit Association[1]. AEM is responsible for the construction, maintenance and ongoing safe operation of the road until the end of the lease period. The road will see traffic consisting of tractor trailer units hauling fuel to, and materials to and from the Meliadine Project site, road maintenance vehicles maintaining the road surface and clearing snow, light vehicles (pickups and buses) transporting project personnel between the project site and Rankin Inlet, local contractors providing services to the project (pickups and equipment) and local residents of Rankin Inlet using the road for traditional use purposes (hunting, etc) and general recreation (access to Meliadine Lake and area camps etc.). A series of mitigation measures are proposed to ensure that all users of the road can do so in a safe manner. AEM proposes to install a gate and gatehouse at the northern end of the road where the road enters onto the active project site. This gate will be manned when the road is open to traffic. When the road is closed due to weather or road conditions then this gate will be closed.

The road is to be designed for use by conventional tractor trailers which will transport supplies from Rankin Inlet to the Meliadine site. The road will be used year round however the road can and will be periodically closed to traffic for varying reasons (bad weather, wildlife, heavy traffic, etc) to ensure ongoing safe operation and to prevent injury and accidents.

The key haulage equipment operating on the road will be supported by radio controls. All project vehicles using the road will be equipped with safety provisions and equipment so that major blizzards can be safely waited out at any point along the road.

The road will be maintained by AEM to ensure timely delivery of freight for project operations. Policing of the road will be conducted by AEM's security and road maintenance and haulage staff.

[1] The first 2.1 kilometres of the road will be on Municipal Land administered by Community and Government Services Hamlet of Rankin Inlet (up to the new bridge across the Meliadine River). The next 200 metres or so north of the Meliadine River is also municipal land but is administered by Aboriginal Affairs and Northern Development.

2.3 HAULAGE AND ROAD SAFETY

All of the required fuel and supplies for the operation of the underground program will be transported to the site via the Meliadine access road. During the life of the program, the transportation of fuel and freight, and road maintenance operations will be conducted by a combination of owner operated and contracted equipment. All drivers will either be employees of the company or a company hired contractor and must possess a valid driver's license from a Canadian province or territory, for the appropriate class of vehicle, in order for them to be allowed to operate vehicles on the access road.

2.4 ROAD ACCESS

The Meliadine Project road will be maintained and operated as an uncontrolled access road. The objective is to ensure an ongoing safe operation of this road under all conditions

A series of mitigation procedures are proposed to ensure that all users of the road can do so in a safe manner. AEM proposes to install a gate and gatehouse at the northern end of the road where the road enters onto the active project site. This gate will be manned when the road is open to traffic. When the road is closed to traffic due to weather or road conditions then the gate will be closed.

AEM will collaborate with the Hamlet of Rankin Inlet, the Kivalliq Inuit Association, the Rankin Inlet Hunters and Trappers Organization (HTO) and the Government of Nunavut to establish, implement and revise as necessary a series of mitigation measures to allow all residents of Rankin Inlet access to this road for non-project related use in a safe and appropriate fashion.

Under this procedure local residents would generally have unlimited access to the project road for non-project use up to the gatehouse at the northern end of the road. The project site itself would be closed to public access without prior permission.

AEM will not unduly withhold permission to use the road unless there is a safety concern relating to the road or vehicle operator.

This document provides a standard procedure for implementing the Meliadine Road safety procedures.

The following measures are proposed to manage safe public access to the road:

- Public education programs, periodic patrols of the road by project security personnel, posted signs reminding public of hazards in both English and Inuktitut will be used to control safe driving practises along the road;

- Posted speeds limits, public education, periodic patrols of the road by Project security personnel to stop speeders will be techniques used to control speed used on the road by both public and AEM drivers;

- The following management procedures would be used to warn of potentially unsafe conditions on the road - Use of in vehicle radios by project vehicles to warn other project vehicles of public users on the road; could use a web site or community radio to put out a daily road condition bulletin to the community at large – Could also install and use a digital sign at the Rankin Inlet entrance of the road to notify all users of current road conditions and to post road closure warnings;

- Public education, periodic patrols of the road by project security personnel would be techniques used to limit or control drunk driving on the road or joy riding;

- All project personnel using the road will be required to monitor and report any observed unauthorized or unsafe use of the road;

- The ability to limit access during bad winter weather or during periods of heavy program road use could be achieved by installing an unmanned gate at the southern end of the road that could be manually closed during bad winter weather along with appropriate signs in both languages. Could also use a web site or community radio to put out a daily road condition bulletin;

- The ability to limit access when large numbers of caribou are crossing the road could be achieved by installing an unmanned gate at the southern end of the road that could be manually closed during caribou migration on the road along with appropriate signs in both languages;

- The ability to limit safe shooting (hunting) in close proximity to the road could be achieved through public education – reminders on community radio on the dangers of shooting in close proximity to the road;

- AEM would meet with the involved regulatory agencies (specifically the Mines Inspector and Safety Inspectors from the GN) to ensure that the proposed mitigation measures are adequate to allow compliance with the Nunavut Mines Act and other Nunavut Health & Safety provisions that may apply on a mineral exploration road that is open to use by the public and to develop other mitigation measures with GN involvement if necessary;

- In cooperation with the KIA and HTO, AEM will establish a no shooting zone along the road to ensure that project workers and all other road travelers are not inadvertently exposed to risk of accidental shooting; and

- AEM would reserve the right to refuse future access to individuals who do not respect the rules on safety, speed and the no shooting zone when using the road.

2.5 OPERATIONAL PARAMETERS

In general, the operational parameters for the road are summarized below:

- Wildlife has the right of way;
- All vehicles are to be insured and licensed in accordance with licensing rules that apply on municipal and territorial roads in Nunavut;
- All drivers must be licensed and operate in accordance with the same rules that apply on municipal and territorial roads in Nunavut;
- Any driver suspected of being impaired will be denied access to the road;
- Hunting and fishing restrictions will be as per HTO's stipulations;
- All spills of any materials will be reported and cleaned up, as set out in the spill contingency plans. The haulage fleet will be required to have appropriate spill containment and clean-up equipment on hand or available on demand.

2.6 PROPOSED WILDLIFE PROTECTION PROTOCOL ON THE MELIADINE PROJECT ROAD

Wildlife is expected occasionally to be observed on or immediately along the side of the access road. Caribou and other wildlife will have the right-of-way at all times. All project personnel will be notified by dispatch radio if any wildlife is observed on the road.

The following protocol will be implemented on the road:

2.6.1 Speed Limits

- Vehicular traffic speeds on the access road must not exceed 50 km/hr.
- Where small to moderate aggregations of caribou (i.e., 1-50 animals) are observed within 100 m of the road, travel speeds should be reduced to 30 km/hr
- Where large aggregations of caribou (i.e., 50 or more) are observed within 100 m of the road, at the discretion of the road supervisor, vehicle movements may be suspended until animals have moved away from the road.

2.6.2 Animal Right-of-Way

- Caribou and all wildlife will be given right-of-way on the road. Vehicles must stop until caribou are off the road.

- Locations of large aggregations of animals must be reported to the road supervisor who will inform all potentially affected employees.

2.6.3 Wildlife incident reporting and investigation

All incidents between vehicles and wildlife must be reported to the Agnico-Eagle road supervisor whether they are:

- near-miss;
- collision with injury to the wildlife; or
- accidental death.

Each incident will be investigated by the road supervisor and the environment department and measures taken to avoid re-occurrence put in place. Disciplinary measures will be taken against any employee if the investigation concludes that the accident is the result of negligence.

In the case of accidental death of an animal, the AEM Meliadine Project Environmental Coordinator(s) will contact the GN Conservation Officer in Rankin Inlet. The carcass should be removed from the road and incinerated to avoid attracting scavengers such as Arctic Fox, Wolves, Grizzly Bear and/or Wolverine.

2.6.4 Wildlife Monitoring along the all-weather road

A road wildlife monitoring program will be developed by AEM in consultation with authorizing agencies, HTO and other interested groups. The program will be modeled on the existing program for the Meadowbank road.

2.7 PROPOSED WATER QUALITY MONITORING ALONG THE ALL-WEATHER ROAD

The all-weather road could impact water quality where the road is immediately adjacent to a water body or at water crossings. This would largely occur due to the possible leaching of trace metals from the road building material and road dust settling on receiving waters.

A water quality characterisation of all water crossings and select lakes will be undertaken before road construction begins. Nippisar Lake will be included in the survey, this being the water source for Rankin

Inlet. Of the nine water crossings using culverts, the three largest drainage basins will be sampled on an ongoing basis, these being:

1. M3.0 having a drainage basin of 2.77 km^2;
2. M5.0 having a drainage basin of 11.02 km^2; and
3. M23.6 having a drainage basin of 3.62 km^2.

M3.0 and M5.0 are both near the Meliadine River and are located in the "low lands" before the road climbs to the higher ground. Water here would have a greater probability of being in contact with any road building material for an extended period. M23.6 has the advantage of having historical water quality data collected in the past, being downstream of the waste rock pad, and upstream of the F Zone gold deposit.

There could also be drainage from some of the various quarries that are to be established. When there is noticeable flow from a quarry, likely during spring melt, a water sample will be collected before this water enters a receiving water body. Standing water will not be collected as it poses little risk to the receiving environment.

The road water sampling program will be integrated into the existing program covering sites mandated Nunavut Water Board and those on or around the commercial lease. Water samples will be collected on a monthly basis over the open water period, June to September inclusive. The parameters to be collected will be no different from what is presently collected downstream of the waste rock pad. The parameters include:

- Physical parameters – field pH and water temperature, lab pH, conductivity, major anions and cations, turbidity, total suspended solids
- Nutrients – NH_4, NO_3, NO_2, Kjeldahl N and PO_4
- Trace metals – complete ICP/MS scan

The results will be reported monthly to the NWB, and compiled for the annual report that is sent to NWB, KIA and NIRB.

The sampling will continue for 1 year at which point the results will be reviewed in consultation with authorizing agencies to determine if the monitoring program is adequate.

2.8 SPILL CONTINGENCY PLAN

An AEM trained site-based emergency response and spill clean-up team will be available on site with appropriate equipment to respond to all spills. Spill response will be implemented by environmental staff who will advise, document, and report on initial response and clean-up actions. The existing Meliadine Gold Project Fuel Management and Spill Contingency Plan for Water Licences 2BE-MEP0813 and 2BB-MEL0914, November 2010 will be updated to include the all-weather road.

SECTION 3 • DECOMMISSIONING AND RECLAMATION

AEM is responsible for decommissioning of the Meliadine access road at the conclusion of the underground program unless the land owners (the Kivalliq Inuit Association and Hamlet of Rankin Inlet) directs otherwise. AEM would decommission the road once the underground is closed and all site reclamation and remediation activity completed. However it is understood that in this circumstance other uses of this road could be possible but this is an issue for the land owner.

Decommissioning of the all-weather access road will be accomplished by loosening compacted surfaces, flattening side slopes, and removal of all culverts, bridges and other potential obstructions to drainages paths.