Baffinland
Iron Mines Corporation

Friday, 2008 May 23

Ms. Amy Liu
Habitat Management Biologist
Fisheries and Oceans Canada
Eastern Arctic Area
P.O. Box 358
Iqaluit, Nunavut X0A 0H0

Dear Ms. Liu:

Re: *May 15 Milne Tote Road Washout Event at Kilometre 99, BG01 Crossing*

Baffinland Iron Mines Corporation (BIM) provides this follow-up report, herein, describing the road washout event at kilometre 99 of the Milne Tote Road at the BG01 culvert crossing. This report follows initial e-mail and telephone notifications and briefings provided on May 15 and 16, as well as an interim update provided via e-mail on May 20. This report presents the findings of our investigation into this event and associated recommendations that have been adopted.

1.0 Event Description

1.1. Background

Culverts along the existing Milne Inlet Tote Road are being installed in accordance with a Letter of Advice, dated July 25, 2007, and an authorization for the Harmful Alteration, Disruption or Destruction (HADD) of fish habitat, dated August 3, 2007 (DFO File No. NU-06-0084) as issued by the Department of Fisheries and Oceans (DFO).

BG01 is a single 1.2m diameter long culvert that was installed at kilometre 99 on the Milne Inlet Tote Road September 20th, 2007. A summary of its installation details was provided in the 2007 year- end monitoring report submitted to DFO[1]. The culvert drainage area has been estimated to be 561 ha. (refer to attached Figure 1 and 2 for location plans and drainage area).

1.2. Event Description

An inspection of the BG-01 culvert earlier in May indicated that the culvert was 1/4 open prior to water starting to flow in the upstream drainage area. Water flow in the upstream drainage area

[1] Bulk Sampling Program – Tote Road Upgrades, Fish Habitat Monitoring. 2007 Annual Report to Department of Fisheries and Oceans (REF. NO. NB102-00181/10-8), Baffinland Iron Mines Corporation, Mary River Project, report prepared by Knight Piesold Ltd., December 2007.

was first observed at 7:00 pm on May 14 which triggered re-inspection of the culvert to confirm status. The inspection found that the culvert was not passing water.

At 1:00 am, May 15, the upstream flow had subsided. Standing water level monitoring of the upstream drainage area (pond) commenced at that time. Later on Thursday morning, it was observed that the flow had re-established and a water pump was installed across the road to control the upstream pond level. Ongoing monitoring during the day of May 15 found only minor increases to level as of 4:00 pm. A planning meeting was held in the interim to develop a comprehensive plan to deal with the situation. A decision was made to install additional higher capacity pumps immediately for night shift, and to install an additional culvert the next morning during low flow conditions. At 7:30 pm during the mobilization of additional pumps, it was recognized that the level had increased 1-2 meters over 3 hours and was commencing to overtop the road. An attempt was made to install 2 - ½ m diameter culverts across the road grade to prevent road washout. However, due to the fast rising water level of the water, the road bed undercut the culverts before they could be properly installed. At this time, all personnel and equipment were removed from the area for safety reasons. Access to the culvert crossing was blocked to prevent entry. The overtopping of the road surface by the water caused a washout of the road bed at 8:30 pm. The final washout of the road resulted in cut of approximately 3m wide x 12 m long x 2 m deep. The estimated loss of fill was estimated between 60 and 70 m3. The original one metre diameter culvert, however, remained in place.

At around 930pm (May 15), a visual inspection of the full length of the stream bed from the culvert to Camp Lake indicated deposition of road material (sand, gravel and cobble) in the stream bed. During maximum flow some turbidity was observed in the flowing stream at the outflow to Camp Lake. Stream water flow appeared to move along the shoreline flooding on to the lake ice surface and possibly into the near shore water column in locations where melting ice had receded. At around 10:30 pm, May 15, the flow across the washout had stabilized to ambient drainage flow rates.

2.0 Cause of the Event

The immediate cause of the event was the overtopping of the road by flow of water from the early onset of freshet and rapid rise of water upstream of the culvert over a less than one-day period. The engineered culvert was blocked with ice. The execution of a response to the blockage event was impacted by the rapid rise in water levels from the first onset of visible water.

The basic cause of the incident is that the culvert was fully blocked with ice or other material, although reported to be 1/4 open prior to the event. Also water level monitoring indicated that the pump output was consistent with input flows.

3.0 Corrective Actions Implemented

Corrective actions taken to address the event included the following:

- The washout banks were pulled back to prevent further collapse of fill in to the creek;

- Silt curtains were installed at locations at functional locations downstream of the washout as soon as safe conditions allowed;
- Upon completion of the installation of the downstream silt curtain, an auxiliary culvert, 1 m diameter and 18 m length was installed along the washout bed immediately above the original culvert; and,
- The additional culvert was in placed by 5:00 am and installation completed by early the next evening.

4.0 Monitoring Program

The following monitoring was conducted along the potentially affected stream reach (Figure to be provided with analytical results from sampling):

- Stream water quality sampling was conducted at 1:00am on May 16, at a three locations - upstream of the road, immediately downstream of the road, and at the stream outlet to Camp Lake;
- In-lake under ice water quality sampling was conducted at five locations in Camp Lake, within approximately 50 m of the stream outlet to Camp Lake, within two days of the event;
- The stream course was walked on May 15, May 18 and May 23 and observations were made regarding any observed impacts related to water clarity, sediment deposition, and erosion of stream bed or surrounding tundra; and,
- A flyover was made periodically between May 16 and May 23.

5.0 Monitoring Results

Water quality confirmation results were not yet available at the time of this report. They will be provided when available, along with a water quality sampling plan.

Visual observations based on the walk over and during aerial surveillance of the potentially affected stream reach are as follows:

- Erosion of the tundra was not observed as a result of the event;
- The water was flowing clear;
- The silt fences were repositioned to allow for passage of fish upstream;
- No fish were observed;
- The event resulted in patchy layers of road materials on the tundra adjacent to the main stream bed(s), the layer varied from around 10 cm near the culvert outlet area (sand, gravel, and cobbles) to up to several cm further downstream (sand). The last 60-80 m of the stream reach to the Camp Lake outlet have very little or no visible road bed materials;
- There are presently two culverts installed at BG01: the original culvert which was installed in September (embedded in the stream substrate), and a second auxiliary culvert installed last week on top of the original culvert. The original culvert is still positioned in place, however, it appears not be passing water and may be blocked with ice;

- The upper culvert at BG01 is functioning well, however, the culvert is perched at the outlet end; and,
- The water levels upstream of the culvert have normalized.

6.0 Recommendations

The analysis of this event has led to improvements to ongoing monitoring and associated response plans in association with the Bulk Sample Tote road, including the following:

- Visible pooling of water upstream of a culvert requires immediate response (i.e., <12 hour response time);
- Frequent (minimum daily) surveillance of entire Milne Inlet Tote Road alignment to be immediately implemented during the freshet & near freshet periods. Information obtained from these surveys will be immediately communicated to key personnel without delay so that a quick response, if warranted, can be developed;
- It is recognized that streams and water bodies near areas of activity are more likely to have flow develop earlier than surrounding areas away from human activity. Therefore, monitoring of streams and water bodies that are thus situated require earlier and more intense monitoring efforts; and,
- Investigate alternative methods/technologies to improve culvert clearing response time.

Attempts will be made to improve the flow through the lower culvert at BG-01 by means of excavation of the inlet end which is currently blocked. This work will be undertaken immediately after high freshet flows subside.

7.0 Photographs

A photographic record with descriptions that document the event and the follow-up monitoring are attached for your information.

8.0 Closing

We trust that the information provided, herein, is sufficient for your purposes. As soon as analytical results are available, we will forward them to you for your review. Please do not hesitate to contact the undersigned or Dave McCann (Operations Manager) at 403-450-8845 should you require additional information or clarification of the above.

Yours sincerely,

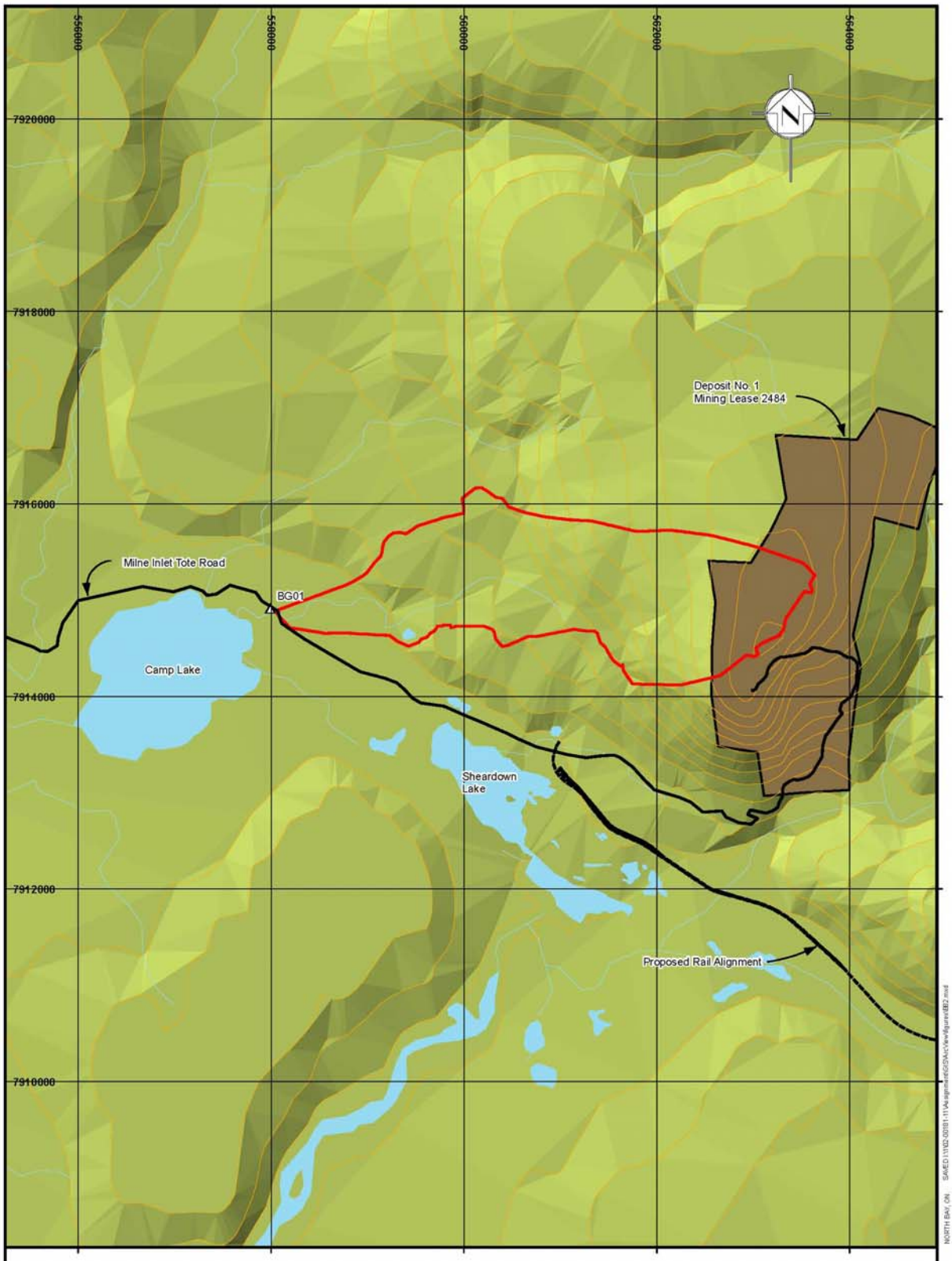
Baffinland Iron Mines Corporation

ORIGINAL COPY SIGNED

James Millard, P.Geo., M.Sc.
Environmental Superintendent

Attach: Figure 1 and 2 (two pages)
Photographic Record (13 pages).

cc. Salamonie Shoo, QIA
Phyllis Beaulieu, Nunavut Water Board
Andrew Keim, INAC
Craig Broome, Environment Canada.
Derek Chubb, David McCann, BIM



LEGEND:

- Water
- Mineral Lease Boundary
- River/Stream/Drainage
- Contour
- Milne Inlet Tote Road
- Proposed Rail Alignment
- Catchment Boundary

NOTES:

1. Base Map DEM created from 1:50,000 scale data: © Her Majesty the Queen in Rights of Canada, Department of Natural Resources, (2004). All rights reserved.
2. Mary Lake North Arm was updated from NTS 1:50,000 maps.
3. Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.
4. Contour interval is in metres. Contour interval is varies.

Scale 500 250 0 500 1,000 1,500 2,000 Meters

Baffinland

MARY RIVER PROJECT

LOCATION PLAN

Knight Piésold CONSULTING

PIA NO.	REF.	REV.
NB102-00181/11	NB08-00565	-

FIGURE 1

NORTH BAY, ON SAVED:I:\YD2-00181-11\Alignment\GIS\ArcView\figures\BB2.mxd

557000
560000
563000
566000
569000
7916000
7915000
7914000
7913000
BG01
Camp Lake
Sheardown Lake

LEGEND:

- Water
- River/Stream/Drainage
- Contour
- Milne Inlet Tote Road
- Proposed Rail Alignment
- Sample Location

NOTES:

1. Topography provided by Eagle Mapping (2005).
2. Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.
4. Contour interval is in metres. Contour interval is 2 metres.
5. Proposed Rail Alignment provided by Canarail January 2008.

Scale 200 100 0 200 400 600 800 1,000 Metres

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MARY RIVER PROJECT

MONITORING LOCATIONS AT MARY RIVER

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/11	NB08-00565	0

FIGURE 2

SAVED: I:\102-00181-11\Assignments\GIS\ArcView\Figures\B85.mxd
NORTH BAY, ON.