



Report on Actions Taken:

**June 7th 2016, Fisheries Act Direction (File number: 4408-2016-05-10-001) and
Response to June 16, 2016, INAC Letter of Non-Compliance
Bi-Weekly Report No. 2 for Period July 9 to July 22, 2016**

July 22, 2016

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Spill Report 16-198 - Camp Lake Tributary 1
Spill Report 16-202 - Milne Inlet Tote Road, Tributaries to Mary Lake, David Lake, and Muriel Lake.
Spill Report 16-202 – Update 1 - Milne Inlet Tote Road, Tributaries to Muriel Lake (BG-31) and David Lake (BG-28)

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- C.1- Spill Report 16-158
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- C.7- Removal of Impacted Snow: Milne Beach and Tote Road Bridges

Report Basis

The document provided, herein, is the second bi-weekly progress report as required under the June 7 Fisheries Direction provided by Environment Canada (page 6, Measures to be Taken, Item 1) and reports on the period July 9 through July 22. Specifically, the bi-weekly reports are to provide updates on the actions taken to address sedimentation issues and ongoing actions being taken at the site to address Items 2 and 3 as outlined in the Fisheries Direction. Previous actions, including pre-freshet actions, were reported on in the June 24th, 2016, Report on Actions Taken and July 8 Bi-Weekly Report No. 1.

1. Unauthorized Releases and Contributing Factors

A number of unauthorized releases of sediment were reported to Environment Canada, Indigenous and Northern Affairs Canada, and the NT-NU Spill Line during the month of May and June. These included the Spill Report numbers 16-158, 16-176, 16-181, 16-198, 116-202, and 116-202 Update No. 1. Copies of the original Spill Reports are provided in Appendix A. During the current reporting period, there were no further unauthorized sediment releases.

As of July 22, the potentially affected drainages continue to run visually clear of sediment, and the residual snow pack in upstream areas have been fully released. Based on visual observations, Freshet flows have subsided. Lake ice is no longer present on the larger lakes of the area (Camp Lake, Sheardown Lake, David Lake, Muriel Lake, and Mary Lake). There were minor rainfall events during the reporting period.

2. Retention of Third Party Expertise

When sediment release events were first observed and reported, third party expertise was retained and these individuals were brought to site. A list of those individuals and support provided was detailed in the June 24th, 2016, Report on Actions Taken. We continue discussions with those various individuals to provide advice as warranted. During the reporting period, the following consultants/contractors provided assistance:

- Nuna East Ltd. - A Construction Team consisting of Nuna East Ltd. Equipment operator supported by Baffinland Mine Operations personnel continued to work on completion of the Mine Crusher Pad ditching project.
- Technical advisors from AMEC Foster Wheeler and Kemira Chemical were available to site personnel during the reporting period for the purpose of providing technical guidance on water treatment of runoff if required. However, their services were not required during the reporting period due to the clear flows.
- Initial consultation with Golder and AMEC Foster Wheeler has taken place to discuss the Dust Mitigation Action Plan and the Tote Road and Mine Hall Road Mitigation Action Plan.

3. Water Quality and Acute Toxicity Sampling Results for Areas of Concern

Spill Reports for sediment releases are provided in Appendix A. Potential receivers for the sediment releases included Sheardown Lake, Sheardown Lake Tributary, Camp Lake, Camp Lake Tributaries, Mary River and Mary River Tributaries, David Lake and David Lake Tributaries, Muriel Lake and Muriel Lake Tributaries.

Available water quality and acute toxicity results for Sheardown Lake, Camp Lake, and Mary River systems are provided in Appendix B. These results include data provided in the June 24 and July 8 reports, as well as new results that became available during the current reporting period. New sampling locations with corresponding laboratory results include the Mary River (upstream and downstream of the Mine Site), and various stream crossings along the Tote Road (upstream and downstream of the road) where unauthorized releases were reported. GPS coordinates and maps are provided to show approximate sample locations as well as the location of structures that were installed to mitigate the sediment concerns.

Water quality results have been compared to the Effluent Quality Discharge Limits for Contact Water (Table 11) provided in the Type "A" Water Licence No. 2AM-MRY1325 for the Mary River Project, which are summarized in the table below:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of any Grab Sample (mg/L)
Total Suspended Solids (TSS)	15	30
Oil and Grease	No Visible Sheen	No Visible Sheen
pH	Between 6.0 and 9.5	Between 6.0 and 9.5

Note that in areas where there is or has been active construction, the following effluent discharge limits apply:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of any Grab Sample (mg/L)
Total Suspended Solids (TSS)	50	100
Oil and Grease	No Visible Sheen	No Visible Sheen
pH	Between 6.0 and 9.5	Between 6.0 and 9.5

During the current July 9 to July 22 reporting period, there were no exceedances of the Type A Water Licence criteria. Due to the excellent water quality results over the reporting period for the areas of concern, further acute toxicity analyses was not performed. Previous acute toxicity analyses have shown non-lethal results from the discharge water samples that were collected and reported previously.

Water sampling will continue on a periodic basis, and additional data, including laboratory results that are in progress for this reporting period, will be included in future bi-weekly update reports.

4. Corrective Measures for Reported Spills and Other Concerns

4.1. Immediate actions undertaken to address issues

A number of immediate actions were undertaken to address sediment releases to water bodies that were documented in the Spill Reports submitted to authorities. These actions were presented previously in the June 24th and July 8, 2016, Report on Actions Taken.

In the case of the Milne Ore Pad and the Mine Site Ore Pad drainage and collection systems, construction of ditch systems were completed by June 15 and July 15, respectively. As of those dates, the ditching systems were functional and currently performance is under observation and evaluation. Construction Summary Reports (CSRs) for the facilities are currently in preparation and will be submitted to the Nunavut Water Board within three months after the substantial completion of construction.

4.2. Detailed work completed by area of concern

Any new work actions taken during the July 9 to July 22 reporting period for the areas of concern are provided in Appendix C. Actions, if taken, are appended to the overall action list provided in the previous work action lists. In addition, new photos for the current reporting period are provided as warranted. Appendix C is subdivided as follows:

- Appendix C.1: Spill Report 16-158 - Sheardown Lake Tributaries and Sheardown Lake.
- Appendix C.2: Spill Report 16-176 - Camp Lake Tributaries and Camp Lake.
- Appendix C.3: Spill Report 16-181- Mine Haul Road to Mary River and Sheardown Lake Tributary.
- Appendix C.4: Spill Report 16-198 - Camp Lake Tributary 1

Appendix C.5: Spill Report 16-202 and Update No. 1 - Milne Inlet Tote Road, Tributaries to Mary Lake, David Lake, and Muriel Lake.

Appendix C.6: Milne Port Ore Stockpile Drainage Collection System.

Appendix C.7: Milne Port Beach

Appendix C.8: Sediment on and under bridges along Tote Road.

5. Next Steps

5.1. Bi-weekly update reports

Bi-weekly update reports will continue to be provided including any additional construction work completed and additional water sampling data. The next report will cover the period from July 23 to August 5, 2016.

5.2. Completed construction repairs

Construction repairs for the areas of concern including the Milne Port Ore Stockpile Drainage system and the Mine Site Crusher Stockpile Pad have been substantially completed by the established July 17, 2016, deadline.

5.3. Lessons-learned

Baffinland will conduct an extensive review and analyses of lessons- learned with regard to sedimentation issues along the roads and at the camps. Key conclusions and recommendations will be provided in the Completion Report which will be provided to regulators and inspectors. Baffinland will be open to any comments and recommendations received and will make revisions as appropriate.

5.4. Long-term action plans

Longer term action plans related to Dust Mitigation and Tote Road Action Plans as related to drainage considerations are underway and will be provided by September 30, 2016.

5.5. Completion Report

A completion report that summarizes the results of all work to date and is signed off by the CEO of the company will be provided by September 30, 2016.

Appendix A

NT-NU Spill Reports

Spill Report 16-158 - Sheardown Lake Tributaries and Sheardown Lake.

Spill Report 16-176 - Camp Lake Tributaries and Camp Lake.

Spill Report 16-181 - Mine Haul Road to Mary River and Sheardown Lake Tributary.

Spill Report 16-198 - Camp Lake Tributary 1

Spill Report 16-202 - Milne Inlet Tote Road, Tributaries to Mary Lake, David Lake, and Muriel Lake.

Spill Report 16-202 – Update 1 - Milne Inlet Tote Road, Tributaries to Muriel Lake (BG-31) and David Lake (BG-28)



Canada

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR 05-10-2016		REPORT TIME 14:30 HRS		☒ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER 16 - 158
	OCCURRENCE DATE: MONTH – DAY – YEAR 05-07-2016		OCCURRENCE TIME 19:00 HRS			
C	LAND USE PERMIT NUMBER (IF APPLICABLE) IOL - Commercial Lease No.: Q13C301			WATER LICENCE NUMBER (IF APPLICABLE) 2AM-MRY1325 Type "A"		
	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION Mary River Project Mine Site, Baffin Island, NU				REGION ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN	
E	LATITUDE DEGREES MINUTES SECONDS			LONGITUDE DEGREES MINUTES SECONDS		
F	RESPONSIBLE PARTY OR VESSEL NAME Baffinland Iron Mines Corp.		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION 2275 Middle Road East, Suite 300, Oakville, ON L6H 0C3			
G	ANY CONTRACTOR INVOLVED N/A		CONTRACTOR ADDRESS OR OFFICE LOCATION N/A			
H	PRODUCT SPILLED sediment / discoloured water		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES Unquantified at present time		U.N. NUMBER N/A	
	SECOND PRODUCT SPILLED (IF APPLICABLE) N/A		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES N/A		U.N. NUMBER N/A	
I	SPILL SOURCE Melting snow		SPILL CAUSE suspected entrained dust		AREA OF CONTAMINATION IN SQUARE METRES N/A	
J	FACTORS AFFECTING SPILL OR RECOVERY Snow covered area, poor access		DESCRIBE ANY ASSISTANCE REQUIRED N/A		HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT N/A	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS					
	On Saturday, May 7, 2016, a snowmelt event occurred at the Mine Site. Runoff containing sediments and discoloured water were observed to flow into Sheardown Tributary and Sheardown Lake at around 1900 HRS. The source of the suspected off-spec drainage was dirty snow located downwind of the Crusher Pad. The event resulted in some siltation/discoloured water in two streams flowing from adjacent areas onto and under the ice of Sheardown Lake. In accordance with the Surface Water Management Plan, controls were implemented that included installation of silt fences and the deployment of flocculent and treated jute to settle sediments prior to discharge. Further actions are planned that will reduce the potential impact from the dirty snow source area. Dirty snow removal, check dam/sump construction, and additional flocculation are being considered. Daily monitoring of the water quality and flow is ongoing. Spill report updates will be provided as warranted. A follow-up report documenting the occurrence and providing recommendations will be submitted within 30 days					
L	REPORTED TO SPILL LINE BY Jim Millard	POSITION Env Manager	EMPLOYER Baffinland	LOCATION CALLING FROM Mary River	TELEPHONE 902-403-1337	
M	ANY ALTERNATE CONTACT Allan Knight	POSITION Env Superintendent	EMPLOYER Baffinland	ALTERNATE CONTACT 647-253-0596	ALTERNATE TELEPHONE Ext 6016	
				LOCATION		
REPORT LINE USE ONLY						
N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130	
LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC			SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN		FILE STATUS ☐ OPEN ☐ CLOSED	
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS		
LEAD AGENCY						
FIRST SUPPORT AGENCY						
SECOND SUPPORT AGENCY						
THIRD SUPPORT AGENCY						



Canada

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR 05-17-2016	REPORT TIME 19:00 hrs	☒ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT		REPORT NUMBER 16 - 176
B	OCCURRENCE DATE: MONTH – DAY – YEAR 05-17-2016	OCCURRENCE TIME 09:00 hrs			
C	LAND USE PERMIT NUMBER (IF APPLICABLE) IOL - Commercial Lease: Q13C301	WATER LICENCE NUMBER (IF APPLICABLE) 2AM-MRY1325 Type "A"			
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION Mary River Mine Site, Baffin Island, NU		REGION ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN		
E	LATITUDE DEGREES 71 MINUTES 16 SECONDS 46		LONGITUDE DEGREES 79 MINUTES 22 SECONDS 36		
F	RESPONSIBLE PARTY OR VESSEL NAME Baffinland Iron Mines Corp.	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION 2275 Middle Road East, Sutie 300, Oakville, ON L6H 0C3			
G	ANY CONTRACTOR INVOLVED N/A	CONTRACTOR ADDRESS OR OFFICE LOCATION N/A			
H	PRODUCT SPILLED Sediment	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES Unquantified at present time	U.N. NUMBER N/A		
	SECOND PRODUCT SPILLED (IF APPLICABLE) N/A	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES N/A	U.N. NUMBER N/A		
I	SPILL SOURCE Melt Water	SPILL CAUSE Warming Temps/Rain	AREA OF CONTAMINATION IN SQUARE METRES N/A		
J	FACTORS AFFECTING SPILL OR RECOVERY Snow covered area, poor access	DESCRIBE ANY ASSISTANCE REQUIRED N/A	HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT N/A		
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS On Tuesday, May 17, 2016, runoff containing sediments was observed to be flowing into Camp Lake Tributary # 1 and into Camp Lake around 0900 HRS. The source of the off-spec drainage was from an area adjacent to the airstrip. The event resulted in some siltation to the stream flowing into Camp Lake. In accordance with the Surface Water Management Plan, controls were implemented that included installation rip rap (6" aggregate) and the deployment of flocculent and treated jute to settle sediments prior to discharge. Further actions are planned that will reduce the potential impact from the source area. Spill report updates will be provided as warranted. A follow-up report documenting the occurrence and providing recommendations will be submitted within 30 days				
L	REPORTED TO SPILL LINE BY Allan Knight	POSITION Env. Superintendent	EMPLOYER Baffinland	LOCATION CALLING FROM Mary River	TELEPHONE 647-253-0596
M	ANY ALTERNATE CONTACT Jim Millard	POSITION Env. Manager	EMPLOYER Baffinland	ALTERNATE CONTACT LOCATION 902-403-1337	ALTERNATE TELEPHONE 6016
REPORT LINE USE ONLY					
N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130
LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC			SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN		FILE STATUS ☐ OPEN ☐ CLOSED
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS	
LEAD AGENCY					
FIRST SUPPORT AGENCY					
SECOND SUPPORT AGENCY					
THIRD SUPPORT AGENCY					



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FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR 05-21-2016		REPORT TIME 21:00 hrs		☒ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER 16 - 181
	OCCURRENCE DATE: MONTH – DAY – YEAR 05-20-2016		OCCURRENCE TIME 19:00 hrs			
C	LAND USE PERMIT NUMBER (IF APPLICABLE) IOL - Commercial Lease: Q13C301			WATER LICENCE NUMBER (IF APPLICABLE) 2AM-MRY1325 Type "A"		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION Mary River Mine Site, Baffin Island, NU				REGION ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN	
E	LATITUDE DEGREES MINUTES SECONDS			LONGITUDE DEGREES MINUTES SECONDS		
F	RESPONSIBLE PARTY OR VESSEL NAME Baffinland Iron Mines Corp.		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION 2275 Middle Road East, Sutie 300, Oakville, ON L6H 0C3			
G	ANY CONTRACTOR INVOLVED N/A		CONTRACTOR ADDRESS OR OFFICE LOCATION N/A			
H	PRODUCT SPILLED Sediment		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES Unquantified at present time		U.N. NUMBER N/A	
	SECOND PRODUCT SPILLED (IF APPLICABLE) N/A		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES N/A		U.N. NUMBER N/A	
I	SPILL SOURCE Melt Water		SPILL CAUSE Melting of snow on road base		AREA OF CONTAMINATION IN SQUARE METRES N/A	
J	FACTORS AFFECTING SPILL OR RECOVERY Snow covered area, poor access		DESCRIBE ANY ASSISTANCE REQUIRED N/A		HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT N/A	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS On May 20 and 21, 2016, runoff containing sediment was observed to be flowing from the surface of the Mine Haul Road through several breaks (punch outs) on the outer edge of the road. The punch outs were installed to allow contact water on the road surface to be efficiently discharged from the road surface. On the afternoon of May 19, discharges of contact water increased and it became apparent that there was risk to Mary River and Sheardown tributary/Lake. The berm punch outs were sealed and road contact water has been diverted to three selected locations that will minimize potential flows to downstream fish habitat and water bodies. Check dams, silt fences/curtains, flocculants are being utilized to assist with this initial effort. It is expected that the sediment will settle and will be discharged back to the receiving environment. Report updates will be provided with further information in the near future. This incident is being reported as required by the conditions of Water Licence No. 2AM-MRY1325 and as required by subsection 38(4) of the Fisheries Act.					
L	REPORTED TO SPILL LINE BY Jim Millard	POSITION Env. Manager	EMPLOYER Baffinland	LOCATION CALLING FROM Mary River	TELEPHONE 647-253-0596	
M	ANY ALTERNATE CONTACT Allan Knight	POSITION Env. Superintendent	EMPLOYER Baffinland	ALTERNATE CONTACT 902-403-1337 LOCATION	ALTERNATE TELEPHONE 6016	
REPORT LINE USE ONLY						
N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130	
LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC			SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN		FILE STATUS ☐ OPEN ☐ CLOSED	
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS		
LEAD AGENCY						
FIRST SUPPORT AGENCY						
SECOND SUPPORT AGENCY						
THIRD SUPPORT AGENCY						



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NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR 05-31-2016		REPORT TIME 11:00 hrs		☒ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER 16 - 198
	OCCURRENCE DATE: MONTH – DAY – YEAR unknown - within last several days		OCCURRENCE TIME unknown			
C	LAND USE PERMIT NUMBER (IF APPLICABLE) IOL - Commercial Lease: Q13C301			WATER LICENCE NUMBER (IF APPLICABLE) 2AM-MRY1325 Type "A"		
	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION Mary River Mine Site, Baffin Island, NU				REGION ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN	
E	LATITUDE DEGREES 71 MINUTES 19 SECONDS 46			LONGITUDE DEGREES 79 MINUTES 22 SECONDS 41		
	RESPONSIBLE PARTY OR VESSEL NAME Baffinland Iron Mines Corp.		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION 2275 Middle Road East, Sutie 300, Oakville, ON L6H 0C3			
G	ANY CONTRACTOR INVOLVED N/A		CONTRACTOR ADDRESS OR OFFICE LOCATION N/A			
	PRODUCT SPILLED Sediment		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES Unquantified at present time		U.N. NUMBER N/A	
H	SECOND PRODUCT SPILLED (IF APPLICABLE) N/A		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES 44m3		U.N. NUMBER N/A	
	SPILL SOURCE steep sandy stream bank		SPILL CAUSE warming temperatures		AREA OF CONTAMINATION IN SQUARE METRES 110m2	
J	FACTORS AFFECTING SPILL OR RECOVERY poor access		DESCRIBE ANY ASSISTANCE REQUIRED N/A		HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT N/A	
	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS On Sunday, May 29, 2016, during an environmental inspection of Mine Site drainages a deposit of sediments was discovered in Camp Lake Tributary #1 (CLT1), south of the Tote Road. Upon initial investigation, the source of the sediment was from a stream bank failure. The embankment failure may have been caused by water draining from the airstrip. The event resulted in sandy deposit of material that partially encroached on the stream. Once discovered, silt fences were erected around the sediment deposit. A schedule is being developed for the removal of the sediment and stabilization of the stream embankment at that location. The water will be rerouted from this location and redirected to an area that is more stable. The material is coarse sand and does not appear to be mobile in water. A follow-up report documenting the occurrence and providing recommendations will be submitted within 30 days.					
L	REPORTED TO SPILL LINE BY Jim Millard	POSITION Env. Manager	EMPLOYER Baffinland	LOCATION CALLING FROM Mary River	TELEPHONE 647-253-0596	
	ANY ALTERNATE CONTACT Allan Knight	POSITION Env. Superintendent	EMPLOYER Baffinland	ALTERNATE CONTACT 902-403-1337	ALTERNATE TELEPHONE 6016	
REPORT LINE USE ONLY						
N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130	
	LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC			SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN		FILE STATUS ☐ OPEN ☐ CLOSED
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS		
LEAD AGENCY						
FIRST SUPPORT AGENCY						
SECOND SUPPORT AGENCY						
THIRD SUPPORT AGENCY						



Canada

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR 06-02-2016		REPORT TIME 0700 HRS		☒ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT		REPORT NUMBER 16 - 202
B	OCCURRENCE DATE: MONTH – DAY – YEAR 05-31-2016		OCCURRENCE TIME 2100 HRS				
C	LAND USE PERMIT NUMBER (IF APPLICABLE) IOL - Commercial Lease: Q13C301			WATER LICENCE NUMBER (IF APPLICABLE) 2AM-MRY1325 Type "A"			
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION Mary River Mine Site, Baffin Island, NU				REGION ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN		
E	LATITUDE DEGREES MINUTES SECONDS			LONGITUDE DEGREES MINUTES SECONDS			
F	RESPONSIBLE PARTY OR VESSEL NAME Baffinland Iron Mines Corp.		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION 2275 Middle Road East, Sutie 300, Oakville, ON L6H 0C3				
G	ANY CONTRACTOR INVOLVED N/A		CONTRACTOR ADDRESS OR OFFICE LOCATION N/A				
H	PRODUCT SPILLED Sediment		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES Unquantified at present time		U.N. NUMBER N/A		
	SECOND PRODUCT SPILLED (IF APPLICABLE) N/A		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES N/A		U.N. NUMBER N/A		
I	SPILL SOURCE Freshet erosion		SPILL CAUSE warming temperatures		AREA OF CONTAMINATION IN SQUARE METRES N/A		
J	FACTORS AFFECTING SPILL OR RECOVERY N/A		DESCRIBE ANY ASSISTANCE REQUIRED N/A		HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT N/A		
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS During an environmental inspection of the Milne Tote Road on May 31, three locations were observed where there was turbid water and sediment present in culvert outlet locations. These locations were stream crossings CV-223 at km 97, BG-17 at km 90, and BG-29 at km 85. The source of the sediment is erosion from spring freshet. There are no fish present at these locations because flows are very low and fish have not yet started to move into the stream. In the meantime silt fences and in-ditch flocculant have been deployed as appropriate. Sediments in culvert outlet basins will be carefully excavated and removed under the supervision of Environment staff within the next several days. In addition, the embankment areas of these streams are scheduled to receive riprap/geotextile shortly.						
L	REPORTED TO SPILL LINE BY Jim Millard	POSITION Env. Manager	EMPLOYER Baffinland	LOCATION CALLING FROM Mary River	TELEPHONE 647-253-0596		
M	ANY ALTERNATE CONTACT Allan Knight	POSITION Env. Superintendent	EMPLOYER Baffinland	ALTERNATE CONTACT 902-403-1337 LOCATION	ALTERNATE TELEPHONE 6016		
REPORT LINE USE ONLY							
N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130		
LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC			SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN		FILE STATUS ☐ OPEN ☐ CLOSED		
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS			
LEAD AGENCY							
FIRST SUPPORT AGENCY							
SECOND SUPPORT AGENCY							
THIRD SUPPORT AGENCY							



Canada

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR 06-19-2016		REPORT TIME 2200 HRS		☐ ORIGINAL SPILL REPORT, OR ☒ UPDATE # 1 TO THE ORIGINAL SPILL REPORT	REPORT NUMBER 16 - 202
	OCCURRENCE DATE: MONTH – DAY – YEAR 06-18-2016		OCCURRENCE TIME Unknown			
C	LAND USE PERMIT NUMBER (IF APPLICABLE) IOL - Commercial Lease: Q13C301			WATER LICENCE NUMBER (IF APPLICABLE) 2AM-MRY1325 Type "A"		
	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION Mary River Mine Site, Baffin Island, NU				REGION ☐ NWT ☒ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN	
E	LATITUDE DEGREES MINUTES SECONDS			LONGITUDE DEGREES MINUTES SECONDS		
F	RESPONSIBLE PARTY OR VESSEL NAME Baffinland Iron Mines Corp.		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION 2275 Middle Road East, Sutie 300, Oakville, ON L6H 0C3			
G	ANY CONTRACTOR INVOLVED N/A		CONTRACTOR ADDRESS OR OFFICE LOCATION N/A			
H	PRODUCT SPILLED Sediment		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES Unquantified at present time		U.N. NUMBER N/A	
	SECOND PRODUCT SPILLED (IF APPLICABLE) N/A		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES N/A		U.N. NUMBER N/A	
I	SPILL SOURCE Freshet melting snowpack		SPILL CAUSE warming temperatures		AREA OF CONTAMINATION IN SQUARE METRES N/A	
J	FACTORS AFFECTING SPILL OR RECOVERY N/A		DESCRIBE ANY ASSISTANCE REQUIRED N/A		HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT N/A	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS During an environmental inspection of the Milne Tote Road on June 18, two locations were observed where there was turbid water and sediment present near stream crossings, downstream of Tote Road. These locations were BG-31 at km 82 and BG-28 at km 86.3. The sediment appears to be generated by the melting snow pack adjacent to the road. The streams are not expected to be fish habitat, although flow from these locations is to Muriel Lake (BG-31) and David Lake (BG-28). The sediment is being controlled from entering the lakes at these locations by the construction of check dams and silt curtain for stream BG-31 and by silt fence and silt curtain at BG-28. Previous locations where there was sediment and turbid water at stream crossings CV-223 at km 97, BG-17 at km 90, and BG-29 at km 85, are now running clear and sediment at culvert outlets was removed.					
L	REPORTED TO SPILL LINE BY Jim Millard	POSITION Env. Manager	EMPLOYER Baffinland	LOCATION CALLING FROM Mary River	TELEPHONE 647-253-0596	
M	ANY ALTERNATE CONTACT Allan Knight	POSITION Env. Superintendent	EMPLOYER Baffinland	ALTERNATE CONTACT 902-403-1337	ALTERNATE TELEPHONE 6016	
REPORT LINE USE ONLY						
N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130	
LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC			SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN		FILE STATUS ☐ OPEN ☐ CLOSED	
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS		
LEAD AGENCY						
FIRST SUPPORT AGENCY						
SECOND SUPPORT AGENCY						
THIRD SUPPORT AGENCY						

Appendix B

Surface Water Quality and Acute Toxicity Results for Affected Areas

Appendix B.1

Sample IDs and Locations

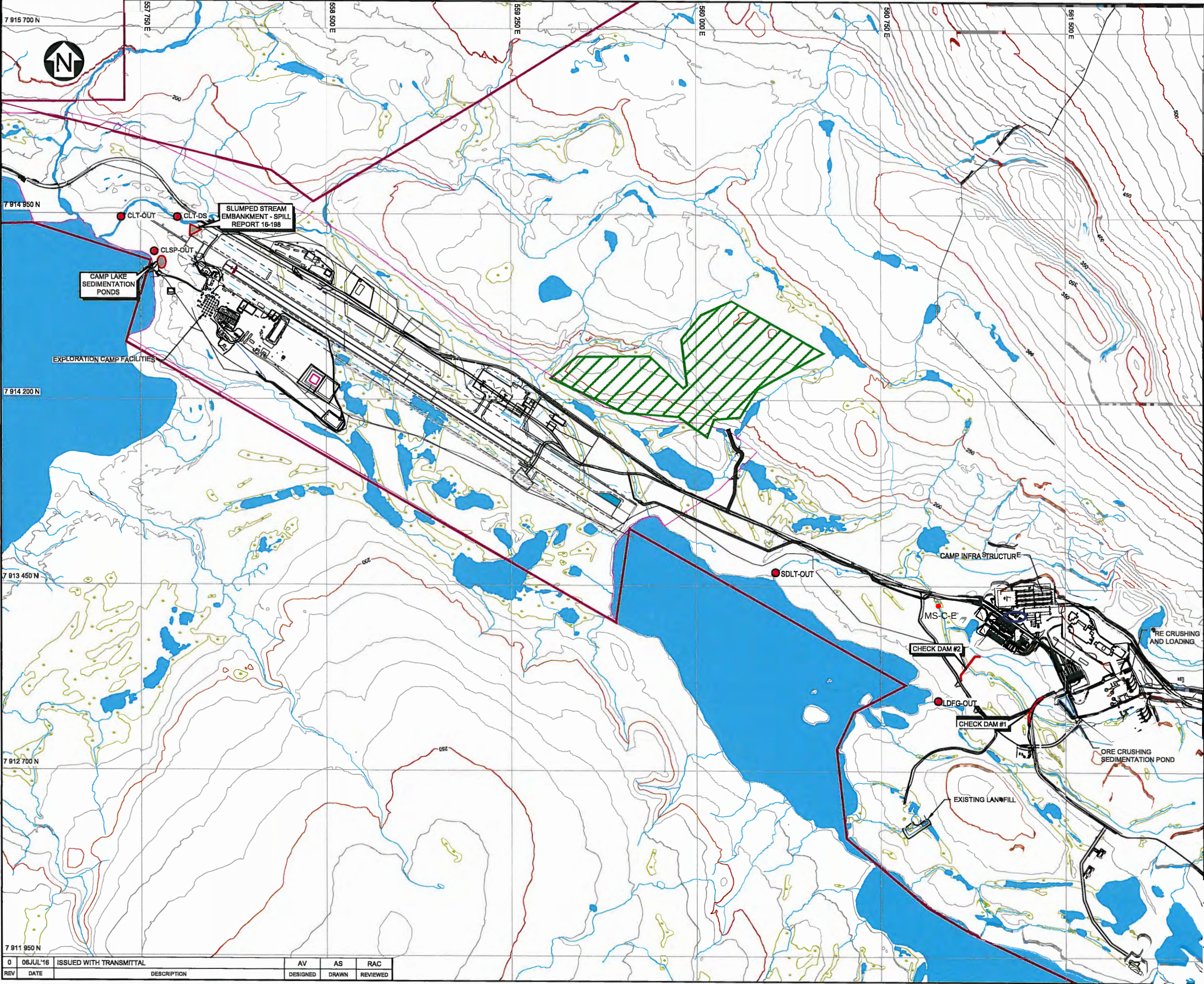
Table B.1.1 - Sample IDs and Locations

Sample Location	Description	Coordinates (Lat/Long)
CLSP-OUT	Camp Lake Sedimentation Pond Outlet	N 71 19 42.2 W 79 22 55.4
CLT-OUT	Camp Lake Tributary # 1 (100 m upstream of Camp Lake Outfall)	N 71 19 46.8 W 79 23 08.6
CLT-DS CL-DS	Camp Lake Tributary # 1 (100 m downstream of Airstrip Drainage outfall into Camp Lake Tributary #1)	N 71 19 46.6 W 79 22 45.6
SDLT-OUT	Sheardown Lake Tributary (40 m upstream of Sheardown Lake Outfall)	N 71 18 58.3 W 79 18 45.5
LDFG-OUT	Landfill Gate Tributary (40 m upstream of Sheardown Lake Outfall)	N 71 18 41.0 W 79 17 40.6
CD4-IN	Upstream of Check Dam #4	N 71 18 45.8 W 79 13 01.0
CD4-OUT	Downstream of Check Dam #4	N 71 18 43.2 W 79 12 54.2
CV 194A	Culvert that directs discharge from Check Dam # 4 to Mary River	N 71 18 41.6 W 79 12 55.3
MS-C-E	SNP Monitoring Site (290 m upstream of SDLT Outfall)	N 71 18 53.9 W 79 17 39.7
SVCD1-IN	Sheardown Valley Checkdam # 1	N 71 18 38.5 W 79 15 10.8
SVCD1-T1 & SVCD1-T2	Sheardown Valley Checkdam # 1 (1 meter downstream)	N 71 18 38.5 W 79 15 10.8
G0-09A	Mary River - Upstream of Deposit 1	N 71 20 51.4 W 79 00 11.8
G0-09	Mary River - Upstream of Deposit 1	N 71 20 18.0 W 78 59 46.8
G0-09B	Mary River - Upstream of Deposit 1	N 71 19 25.6 W 79 00 22.2
G0-03	Mary River - Upstream of Deposit 1	N 71 18 22.2 W 79 07 15.9

Table B.1.1 - Sample IDs and Locations cont'd

Sample Location	Description	Coordinates (Lat/Long)
G0-01	Mary River - Upstream of Deposit 1	N 71 18 37.7 W 79 11 50.8
F0-01	Mary River Tributary draining Deposit 1	N 71 18 38.6 W 79 11 48.3
E0-10	Mary River – Downstream of F0-01	N 71 18 38.4 W 79 11 56.2
E0-03	Mary River – Downstream of Deposit 1	N 71 18 22.6 W 79 14 21.7
E0-21	Mary River – Downstream of Mine Site Treated Wastewater Outfall	N 71 17 58.9 W 79 15 17.2
E0-20	Mary River – Downstream of Mine Site Treated Wastewater Outfall	N 71 17 45.0 W 79 16 34.5
C0-10	Mary River – Downstream of Sheardown Lake Outlet	N 71 17 57.6 W 79 18 15.9
C0-05	Mary River – Downstream of Mine Site	N 71 16 40.2 W 79 22 15.6
C0-01	Mary River – Before Mary Lake	N 71 15 28.5 W 79 25 47.2

SAVED: \\1020018138\NA\as4\FIGS\B14_0_78\2016 10-21-12 AM Layout1, ASIMPSON
XREF FILE: C:\MSOFT\OFFICE\EXCEL\10-21-12 AM Layout1, ASIMPSON
XREF FILE: C:\MSOFT\OFFICE\EXCEL\10-21-12 AM Layout1, ASIMPSON



LEGEND:

- WATER
- BORROW AREAS (2013 UNDER Q10C3001)
- QUARRY AREA (EXISTING UNDER Q13C301)
- WASTE STORAGE AREA
- RIVER/STREAM/DRAINAGE
- ROAD
- QIA SURFACE COMMERCIAL LEASE BOUNDARY
- SAMPLE LOCATION

NOTES:

- 1' COORDINATE GRID IS UTM NAD83 ZONE 17N
- 2' TOPOGRAPHY PROVIDED BY EAGLE MAPPING (2005)
- 3' PLAN BASED ON INFORMATION PROVIDED BY HATCH DATED JAN 13 2015
- 4' CONTOUR INTERVAL IS 2.5 METRES
- 5' ALL SAMPLE IDS SHOWN IN BRACKETS REPRESENT THE TYPE B WATER LICENCE(S) MONITORING POINTS. ALL OTHERS ARE MONITORING POINTS AS PER THE TYPE A WATER LICENCE 2AM-MRY1325

150 75 0 250 500 750 m
SCALE A

BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

MINE SITE
CAMP LAKE AND SHEARDOWN LAKE
SAMPLE LOCATIONS

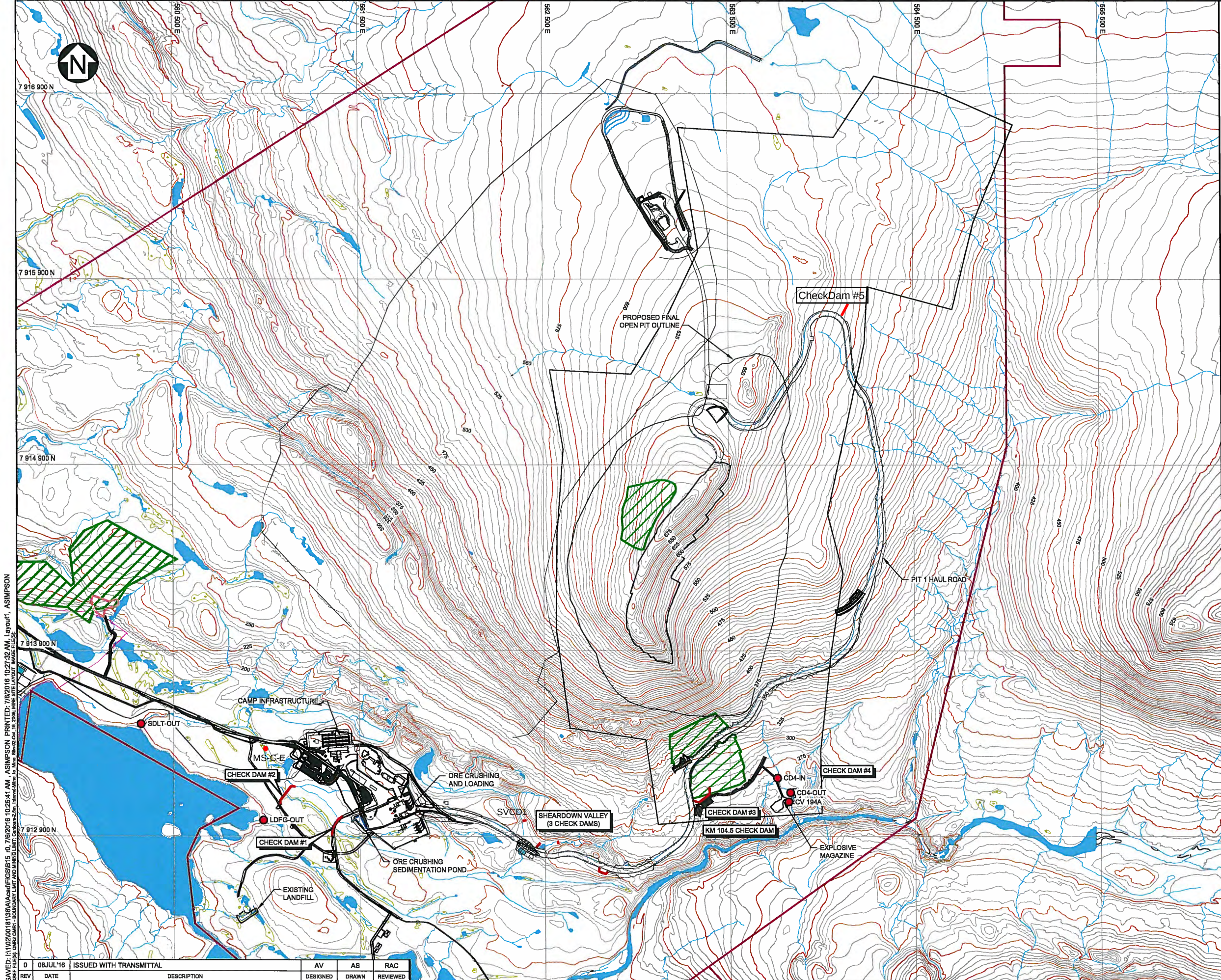
Knight Piésold
CONSULTING

PIA NO.
NB102-181/38

REF NO.
NB16-00385

FIGURE 1

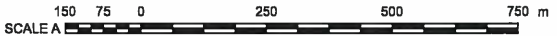
REV
0



LEGEND:

- WATER
- BORROW AREAS (2013 UNDER Q10C3001)
- QUARRY AREA (EXISTING UNDER Q13C301)
- WASTE STORAGE AREA
- RIVER/STREAM/DRAINAGE
- ROAD
- QIA SURFACE COMMERCIAL LEASE BOUNDARY
- SAMPLE LOCATION

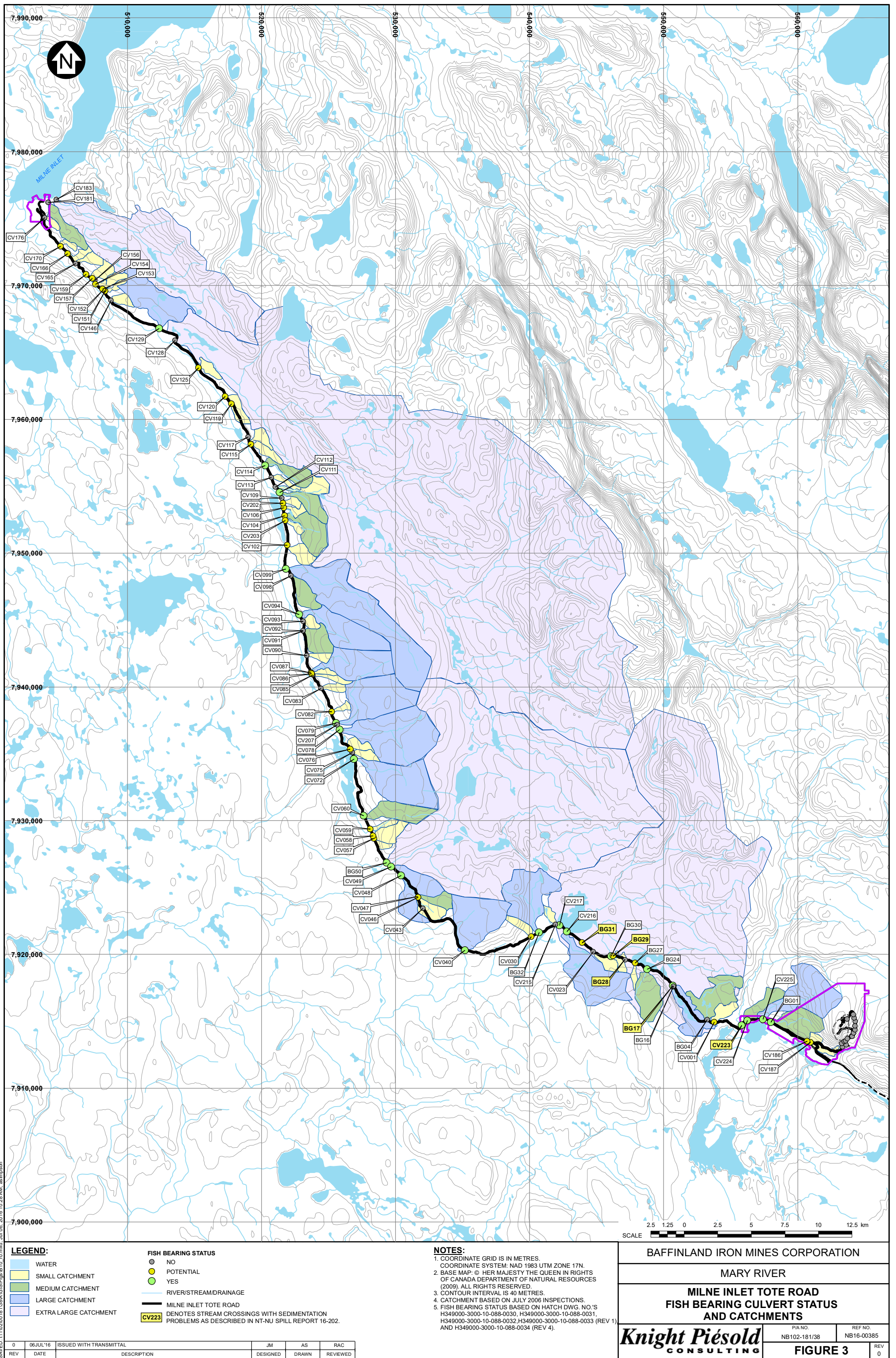
- NOTES:**
- COORDINATE GRID IS UTM NAD83 ZONE 17N.
 - TOPOGRAPHY PROVIDED BY EAGLE MAPPING (2005).
 - PLAN BASED ON INFORMATION PROVIDED BY HATCH, DATED (JAN 13, 2015).
 - CONTOUR INTERVAL IS 2.5 METRES.
 - SAMPLE LOCATIONS PROVIDED BY BAFFINLAND IRON MINES CORPORATION, DATED (JUNE 21, 2016).

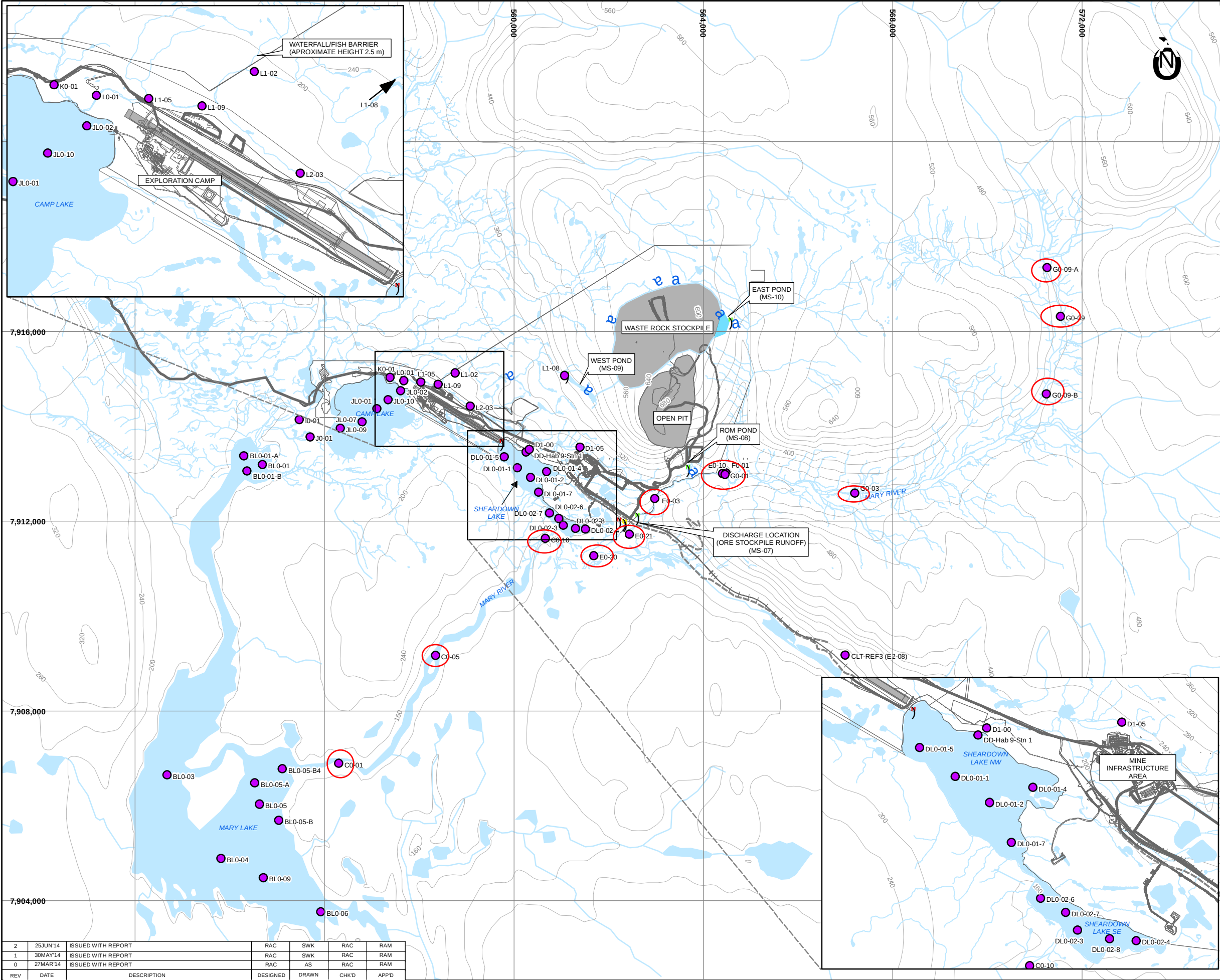


BAFFINLAND IRON MINES CORPORATION	
MARY RIVER PROJECT	
MINE SITE HAUL ROAD SAMPLE LOCATIONS	
Knight Piésold CONSULTING	P/A NO. NB102-181/38
REF NO. NB16-00385	REV 0

FIGURE 2

SAVED: 11/02/2016 11:39:AAcadFISB15 r0_7/8/2016 10:25:41 AM, ASIMPSON PRINTED: 7/8/2016 10:27:32 AM, Layout1, ASIMPSON
REV 0 06JUL'16 ISSUED WITH TRANSMITTAL AV AS RAC
DESIGNED DRAWN REVIEWED





- LEGEND:**
- WATER QUALITY CREMP STATION
 - SUMMER DISCHARGE LOCATION OF TREATED SEWAGE EFFLUENT
 - WINTER LAND DISCHARGE LOCATION OF TREATED SEWAGE EFFLUENT TO MARY RIVER
 - MINE EFFLUENT FINAL DISCHARGE POINT
 - EXISTING TOTE ROAD
 - PROPOSED RAILWAY ALIGNMENT
 - PROPOSED CONSTRUCTION ACCESS ROAD
 - PROPOSED SITE INFRASTRUCTURE
 - RIVER/STREAM/DRAINAGE
 - PROPOSED SITE INFRASTRUCTURE
 - WATER

Mary River Water Quality Sample Locations

- NOTES:**
- BASE MAP: © HER MAJESTY THE QUEEN IN RIGHTS OF CANADA, DEPARTMENT OF NATURAL RESOURCES (2004). ALL RIGHTS RESERVED.
 - COORDINATE GRID IS UTM (WGS84/NAD83) ZONE17.
 - CONTOUR ARE IN METRES. CONTOUR INTERVAL VARIES.
 - LAKE SAMPLE LOCATIONS VARY SLIGHTLY DURING WINTER MONTHS DUE TO ICE CONDITIONS.
 - INFRASTRUCTURE INFORMATION PROVIDED BY HATCH ON JANUARY 31, 2014.

SCALE 1 0.5 0 1 2 3 4 km

BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

CREMP WATER QUALITY STATIONS

Knight Piésold
CONSULTING

P/A NO.
NB102-181/33

REF NO.
1

FIGURE 2.11

REV
2

SAVED: I:\U0200101\3\A\G\IS\Figs\B24_12.mxd; Jun 26, 2014 3:50 PM; asmpson

2	25JUN14	ISSUED WITH REPORT	RAC	SWK	RAC	RAM
1	30MAY14	ISSUED WITH REPORT	RAC	SWK	RAC	RAM
0	27MAR14	ISSUED WITH REPORT	RAC	AS	RAC	RAM
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	CHK'D	APP'D

Appendix B.2

Water Quality Results

Table B.2.2 - Surface Water Quality for Camp Lake Tributaries

Sample Number	Sample ID	Date Sampled	Parameter Name	Result	Units	Lab
L1770947-11	CLT-DS	18-May-16	pH	7.52	pH units	ALS
L1770947-11	CLT-DS	18-May-16	Total Suspended Solids	38.8	mg/L	ALS
L1770947-11	CLT-DS	18-May-16	Total Dissolved Solids	96	mg/L	ALS
L1770947-11	CLT-DS	18-May-16	Turbidity	41.0	NTU	ALS
L1771600-2	CLT-DS	19-May-16	pH	7.50	pH units	ALS
L1771600-2	CLT-DS	19-May-16	Total Suspended Solids	179	mg/L	ALS
L1771600-2	CLT-DS	19-May-16	Total Dissolved Solids	44	mg/L	ALS
L1771600-2	CLT-DS	19-May-16	Turbidity	91.5	NTU	ALS
L1772274-3	CLT-OUT	22-May-16	pH	7.68	pH units	ALS
L1772274-3	CLT-OUT	22-May-16	Total Suspended Solids	5.6	mg/L	ALS
L1772274-3	CLT-OUT	22-May-16	Total Dissolved Solids	64	mg/L	ALS
L1772274-3	CLT-OUT	22-May-16	Turbidity	21.0	NTU	ALS
L1772274-2	CLSP-OUT	22-May-16	pH	7.69	pH units	ALS
L1772274-2	CLSP-OUT	22-May-16	Total Suspended Solids	76.7	mg/L	ALS
L1772274-2	CLSP-OUT	22-May-16	Total Dissolved Solids	38	mg/L	ALS
L1772274-2	CLSP-OUT	22-May-16	Turbidity	142	NTU	ALS
L1772636-1	CL-DS	23-May-16	pH	7.78	pH units	ALS
L1772636-1	CL-DS	23-May-16	Total Suspended Solids	87.9	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Total Dissolved Solids	68	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Turbidity	140	NTU	ALS
L1772636-1	CL-DS	23-May-16	Conductivity	67.6	umhos/cm	ALS
L1772636-1	CL-DS	23-May-16	Hardness (as CaCO3)	45	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Alkalinity, Total (as CaCO3)	27	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Bromide (Br)	<0.10	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Chloride (Cl)	2.54	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Sulfate (SO4)	1.96	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Dissolved Organic Carbon	3.2	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Total Organic Carbon	10.0	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Aluminum (Al)-Total	4.82	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Antimony (Sb)-Total	0.00020	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Arsenic (As)-Total	0.00057	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Barium (Ba)-Total	0.0272	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Beryllium (Be)-Total	0.00032	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Bismuth (Bi)-Total	0.000212	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Boron (B)-Total	0.011	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Cadmium (Cd)-Total	0.000052	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Calcium (Ca)-Total	6.60	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Cesium (Cs)-Total	0.000424	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Chromium (Cr)-Total	0.0105	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Cobalt (Co)-Total	0.00409	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Copper (Cu)-Total	0.0079	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Iron (Fe)-Total	5.53	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Lead (Pb)-Total	0.00669	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Lithium (Li)-Total	0.0081	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Magnesium (Mg)-Total	6.94	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Manganese (Mn)-Total	0.122	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Molybdenum (Mo)-Total	0.00165	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Nickel (Ni)-Total	0.0181	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Phosphorus (P)-Total	0.098	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Potassium (K)-Total	3.89	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Rubidium (Rb)-Total	0.0138	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Selenium (Se)-Total	0.000054	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Silicon (Si)-Total	10.5	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Silver (Ag)-Total	<0.000050	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Sodium (Na)-Total	1.81	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Strontium (Sr)-Total	0.0188	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Sulfur (S)-Total	0.60	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Tellurium (Te)-Total	<0.00020	mg/L	ALS

L1772636-1	CL-DS	23-May-16	Thallium (Tl)-Total	0.000072	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Thorium (Th)-Total	0.00456	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Tin (Sn)-Total	0.00031	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Titanium (Ti)-Total	0.178	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Tungsten (W)-Total	0.00167	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Uranium (U)-Total	0.00441	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Vanadium (V)-Total	0.00804	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Zinc (Zn)-Total	0.0181	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Zirconium (Zr)-Total	0.00300	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Oil and Grease, Total	<2.0	mg/L	ALS
L1772636-1	CL-DS	23-May-16	Benzene	<0.50	ug/L	ALS
L1772636-1	CL-DS	23-May-16	Ethylbenzene	<0.50	ug/L	ALS
L1772636-1	CL-DS	23-May-16	Toluene	<0.50	ug/L	ALS
L1772636-1	CL-DS	23-May-16	o-Xylene	<0.30	ug/L	ALS
L1772636-1	CL-DS	23-May-16	m+p-Xylenes	<0.40	ug/L	ALS
L1772636-1	CL-DS	23-May-16	Xylenes (Total)	<0.50	ug/L	ALS
L1772636-1	CL-DS	23-May-16	4-Bromofluorobenzene	99.8	%	ALS
L1772636-1	CL-DS	23-May-16	1,4-Difluorobenzene	101.8	%	ALS
L1772636-1	CL-DS	23-May-16	F1 (C6-C10)	<25	ug/L	ALS
L1772636-1	CL-DS	23-May-16	F1-BTEX	<25	ug/L	ALS
L1772636-1	CL-DS	23-May-16	F2 (C10-C16)	120	ug/L	ALS
L1772636-1	CL-DS	23-May-16	F3 (C16-C34)	<250	ug/L	ALS
L1772636-1	CL-DS	23-May-16	F4 (C34-C50)	<250	ug/L	ALS
L1772636-1	CL-DS	23-May-16	Total Hydrocarbons (C6-C50)	<370	ug/L	ALS
L1772636-1	CL-DS	23-May-16	2-Bromobenzotrifluoride	98.2	%	ALS
L1772636-1	CL-DS	23-May-16	3,4-Dichlorotoluene	99.1	%	ALS
L1773561-3	CLT-OUT	24-May-16	pH	7.50	pH units	ALS
L1773561-3	CLT-OUT	24-May-16	Total Suspended Solids	10.8	mg/L	ALS
L1773561-3	CLT-OUT	24-May-16	Turbidity	20.9	NTU	ALS
L1773561-1	CLSP-OUT	24-May-16	pH	7.63	pH units	ALS
L1773561-1	CLSP-OUT	24-May-16	Total Suspended Solids	74.0	mg/L	ALS
L1773561-1	CLSP-OUT	24-May-16	Turbidity	94.2	NTU	ALS
L1774143-2	CLT-OUT	26-May-16	pH	7.61	pH units	ALS
L1774143-2	CLT-OUT	26-May-16	Total Suspended Solids	24.8	mg/L	ALS
L1774143-2	CLT-OUT	26-May-16	Turbidity	30.3	NTU	ALS
L1775014-1	CLT-OUT	27-May-16	pH	7.74	pH units	ALS
L1775014-1	CLT-OUT	27-May-16	Total Suspended Solids	25.6	mg/L	ALS
L1775014-1	CLT-OUT	27-May-16	Turbidity	36.8	NTU	ALS
L1775076-1	CLT-OUT	28-May-16	pH	7.63	pH units	ALS
L1775076-1	CLT-OUT	28-May-16	Total Suspended Solids	69.0	mg/L	ALS
L1775076-1	CLT-OUT	28-May-16	Turbidity	85.0	NTU	ALS
L1775126-1	CLT-OUT	29-May-16	pH	7.59	pH units	ALS
L1775126-1	CLT-OUT	29-May-16	Total Suspended Solids	3.2	mg/L	ALS
L1775126-1	CLT-OUT	29-May-16	Turbidity	15.6	NTU	ALS
L1775126-4	CLSP-OUT	29-May-16	pH	7.73	pH units	ALS
L1775126-4	CLSP-OUT	29-May-16	Total Suspended Solids	38.0	mg/L	ALS
L1775126-4	CLSP-OUT	29-May-16	Turbidity	87.9	NTU	ALS
L1775619-2	CLT-OUT	30-May-16	pH	7.70	pH units	ALS
L1775619-2	CLT-OUT	30-May-16	Total Suspended Solids	8.0	mg/L	ALS
L1775619-2	CLT-OUT	30-May-16	Turbidity	20.8	NTU	ALS
L1775619-1	CLSP-OUT	30-May-16	pH	7.76	pH units	ALS
L1775619-1	CLSP-OUT	30-May-16	Total Suspended Solids	21.6	mg/L	ALS
L1775619-1	CLSP-OUT	30-May-16	Turbidity	37.2	NTU	ALS
L1776322-3	CLT-OUT	1-Jun-16	pH	7.71	pH units	ALS
L1776322-3	CLT-OUT	1-Jun-16	Total Suspended Solids	5.2	mg/L	ALS
L1776322-3	CLT-OUT	1-Jun-16	Turbidity	15.3	NTU	ALS
L1777372-1	CLT-OUT	2-Jun-16	pH	7.76	pH units	ALS
L1777372-1	CLT-OUT	2-Jun-16	Total Suspended Solids	<2.0	mg/L	ALS
L1777372-1	CLT-OUT	2-Jun-16	Turbidity	11.9	NTU	ALS
L1778021-1	CLT-OUT	2-Jun-16	pH	7.83	pH units	ALS
L1778021-1	CLT-OUT	2-Jun-16	Total Suspended Solids	3.2	mg/L	ALS

L1778021-1	CLT-OUT	2-Jun-16	Turbidity	11.3	NTU	ALS
L1778486-1	CLT-OUT	4-Jun-16	pH	7.90	pH units	ALS
L1778486-1	CLT-OUT	4-Jun-16	Total Suspended Solids	<2.0	mg/L	ALS
L1778486-1	CLT-OUT	4-Jun-16	Turbidity	9.3	NTU	ALS
L1778538-2	CLT-OUT	5-Jun-16	pH	7.79	pH units	ALS
L1778538-2	CLT-OUT	5-Jun-16	Total Suspended Solids	<2.0	mg/L	ALS
L1778538-2	CLT-OUT	5-Jun-16	Turbidity	11.9	NTU	ALS
L1778538-1	CLSP-OUT	5-Jun-16	pH	7.46	pH units	ALS
L1778538-1	CLSP-OUT	5-Jun-16	Total Suspended Solids	7.2	mg/L	ALS
L1778538-1	CLSP-OUT	5-Jun-16	Turbidity	17.9	NTU	ALS
L1778559-1	CLT-OUT	6-Jun-16	pH	7.52	pH units	ALS
L1778559-1	CLT-OUT	6-Jun-16	Total Suspended Solids	5.6	mg/L	ALS
L1778559-1	CLT-OUT	6-Jun-16	Turbidity	11.4	NTU	ALS
L1779241-1	CLT-OUT	7-Jun-16	pH	7.60	pH units	ALS
L1779241-1	CLT-OUT	7-Jun-16	Total Suspended Solids	2.8	mg/L	ALS
L1779241-1	CLT-OUT	7-Jun-16	Turbidity	9.68	NTU	ALS
L1779759-3	CLT-OUT	8-Jun-16	pH	7.46	pH units	ALS
L1779759-3	CLT-OUT	8-Jun-16	Total Suspended Solids	4.4	mg/L	ALS
L1779759-3	CLT-OUT	8-Jun-16	Turbidity	9.34	NTU	ALS
L1790090-1	CLSP-OUT	28-Jun-16	pH	7.42	pH units	ALS
L1790090-1	CLSP-OUT	28-Jun-16	Total Suspended Solids	<2.0	mg/L	ALS
L1790090-1	CLSP-OUT	28-Jun-16	Turbidity	1.4	NTU	ALS
L1790090-2	CLT-OUT	28-Jun-16	pH	7.95	pH units	ALS
L1790090-2	CLT-OUT	28-Jun-16	Total Suspended Solids	<2.0	mg/L	ALS
L1790090-2	CLT-OUT	28-Jun-16	Turbidity	2.9	NTU	ALS
L1792808-1	CLT-OUT	4-Jul-16	pH	8.03	pH units	ALS
L1792808-1	CLT-OUT	4-Jul-16	Total Suspended Solids	<2.0	mg/L	ALS
L1792808-1	CLT-OUT	4-Jul-16	Turbidity	0.88	NTU	ALS
L1797825-1	CLT-OUT	12-Jul-16	pH	8.22	pH units	ALS
L1797825-1	CLT-OUT	12-Jul-16	Total Suspended Solids	<2.0	mg/L	ALS
L1797825-1	CLT-OUT	12-Jul-16	Turbidity	0.55	NTU	ALS
L1800469-1	CLT-OUT	19-Jul-16	pH	8.11	pH units	ALS
L1800469-1	CLT-OUT	19-Jul-16	Total Suspended Solids	2.0	mg/L	ALS
L1800469-1	CLT-OUT	19-Jul-16	Turbidity	0.05	NTU	ALS

Note: No flow observed on July 4 at CLSP-OUT

Table B.2.3 - Surface Water Quality for Mary River and Mary River Tributaries

Sample Number	Sample ID	Date Sampled	Parameter Name	Result	Units	Lab
L1774143-5	CD4-IN	26-May-16	pH	7.68	pH units	ALS
L1774143-5	CD4-IN	26-May-16	Total Suspended Solids	123	mg/L	ALS
L1774143-5	CD4-IN	26-May-16	Turbidity	126	NTU	ALS
L1774143-4	CD4-OUT	26-May-16	pH	7.71	pH units	ALS
L1774143-4	CD4-OUT	26-May-16	Total Suspended Solids	59.0	mg/L	ALS
L1774143-4	CD4-OUT	26-May-16	Turbidity	58.5	NTU	ALS
L1782435-2	CD4-OUT	12-Jun-16	pH	7.88	pH units	ALS
L1782435-2	CD4-OUT	12-Jun-16	Total Suspended Solids	39	mg/L	ALS
L1782435-2	CD4-OUT	12-Jun-16	Turbidity	34	NTU	ALS
L1782435-1	CV194A	12-Jun-16	pH	7.87	pH units	ALS
L1782435-1	CV194A	12-Jun-16	Total Suspended Solids	34.4	mg/L	ALS
L1782435-1	CV194A	12-Jun-16	Turbidity	39.2	NTU	ALS
L1790501-7	G0-03	25-Jun-16	pH	7.22	pH units	ALS
L1790501-7	G0-03	25-Jun-16	Total Suspended Solids	5.2	mg/L	ALS
L1790501-7	G0-03	25-Jun-16	Turbidity	5.6	NTU	ALS
L1790501-6	E0-21	25-Jun-16	pH	7.08	pH units	ALS
L1790501-6	E0-21	25-Jun-16	Total Suspended Solids	8.8	mg/L	ALS
L1790501-6	E0-21	25-Jun-16	Turbidity	5.3	NTU	ALS
L1790501-5	E0-20	25-Jun-16	pH	7.20	pH units	ALS
L1790501-5	E0-20	25-Jun-16	Total Suspended Solids	4.4	mg/L	ALS
L1790501-5	E0-20	25-Jun-16	Turbidity	4.7	NTU	ALS
L1790501-3	C0-10	25-Jun-16	pH	7.23	pH units	ALS
L1790501-3	C0-10	25-Jun-16	Total Suspended Solids	2.8	mg/L	ALS
L1790501-3	C0-10	25-Jun-16	Turbidity	3.9	NTU	ALS
L1790501-2	C0-05	25-Jun-16	pH	7.31	pH units	ALS
L1790501-2	C0-05	25-Jun-16	Total Suspended Solids	2.8	mg/L	ALS
L1790501-2	C0-05	25-Jun-16	Turbidity	4.3	NTU	ALS
L1790501-1	C0-01	25-Jun-16	pH	7.33	pH units	ALS
L1790501-1	C0-01	25-Jun-16	Total Suspended Solids	6.9	mg/L	ALS
L1790501-1	C0-01	25-Jun-16	Turbidity	4.9	NTU	ALS
L1790501-15	G0-01	26-Jun-16	pH	7.15	pH units	ALS
L1790501-15	G0-01	26-Jun-16	Total Suspended Solids	4.0	mg/L	ALS
L1790501-15	G0-01	26-Jun-16	Turbidity	4.3	NTU	ALS
L1790501-14	F0-01	26-Jun-16	pH	7.42	pH units	ALS
L1790501-14	F0-01	26-Jun-16	Total Suspended Solids	6.5	mg/L	ALS
L1790501-14	F0-01	26-Jun-16	Turbidity	7.0	NTU	ALS
L1790501-16	E0-10	26-Jun-16	pH	7.29	pH units	ALS
L1790501-16	E0-10	26-Jun-16	Total Suspended Solids	4.4	mg/L	ALS
L1790501-16	E0-10	26-Jun-16	Turbidity	5.1	NTU	ALS
L1790501-13	E0-03	26-Jun-16	pH	7.18	pH units	ALS
L1790501-13	E0-03	26-Jun-16	Total Suspended Solids	4.8	mg/L	ALS
L1790501-13	E0-03	26-Jun-16	Turbidity	4.1	NTU	ALS
L1790501-12	G0-09A	26-Jun-16	pH	7.08	pH units	ALS
L1790501-12	G0-09A	26-Jun-16	Total Suspended Solids	15.6	mg/L	ALS
L1790501-12	G0-09A	26-Jun-16	Turbidity	12.0	NTU	ALS
L1790501-11	G0-09	26-Jun-16	pH	7.09	pH units	ALS
L1790501-11	G0-09	26-Jun-16	Total Suspended Solids	8.8	mg/L	ALS
L1790501-11	G0-09	26-Jun-16	Turbidity	8.8	NTU	ALS
L1790501-10	G0-09B	26-Jun-16	pH	7.17	pH units	ALS
L1790501-10	G0-09B	26-Jun-16	Total Suspended Solids	6.4	mg/L	ALS
L1790501-10	G0-09B	26-Jun-16	Turbidity	5.5	NTU	ALS

Table B.2.4 - Surface Water Quality for Tote Road Stream Crossings

Culvert ID	Tote Road Location	Sample Date	Crossing Location	Field Turbidity (NTU)	Laboratory-Turbidity (NTU)	Laboratory - pH	Laboratory - TSS (mg/L)
CV223	Km 97	6/9/2016	Upstream	4.9	-	-	-
			Crossing	6.6	-	-	-
			Downstream	8.4	-	-	-
		6/27/2016	Upstream	-	-	-	-
			Culvert	16.4	-	-	-
			Downstream	8.7	-	-	-
		6/29/2016	Upstream	7.0	6.5	7.1	15.2
			Culvert	7.4	-	-	-
			Downstream	8.3	7.8	7.2	16.0
BG-17	Km90	6/9/2016	Upstream	6.0	-	-	-
			Crossing	8.0	-	-	-
			Downstream	8.7	-	-	-
		6/27/2016	Upstream	4.4	-	-	-
			Culvert	4.6	-	-	-
			Downstream	4.6	-	-	-
		6/28/2016	Upstream	4.3	-	-	-
			Culvert	4.6	-	-	-
			Downstream	4.5	-	-	-
		7/3/2016	Upstream	4.0	4.9	7.7	<2.0
			Culvert	4.3	-	-	-
			Downstream	4.7	5.3	7.6	2.4
BG-28	km 86.3	6/29/2016	Upstream	4.4	-	-	-
			Culvert	9.6	-	-	-
			Downstream	102.1	-	-	-
		7/3/2016	Upstream	2.6	1.2	8.0	6.0
			Culvert	8.7	11.9	8.2	7.2
			Downstream	11.7	12.5	8.0	16.4
		7/17/2016	Upstream	2.9	1.9	8.1	6.0
			Downstream	5.3	4.3	8.1	5.6
		6/9/2016	Upstream	34.1	-	-	-
			Crossing	29.0	-	-	-

BG-29	km 85		Downstream	24.4	-	-	-
		6/29/2016	Upstream	5.8	5.9	7.8	2.4
			Culvert	6.4	-	-	-
			Downstream	5.4	6.0	7.9	4.0
BG-31	km 82	6/29/2016	Upstream	6.9	-	-	-
			Culvert	4.5	-	-	-
			Downstream	16.5	-	-	-
		7/3/2016	Upstream	2.8	3.1	7.5	2.8
			Culvert	3.4	-	-	-
			Downstream	12.3	13.1	7.8	14.4
		7/17/2016	Upstream	0.9	1.3	8.0	2.0
			Downstream	3.0	2.8	8.0	2.0

Note: 1. Field turbidity meter used was a YSI ProDSS.
Laboratory Analysis by ALS.

Appendix B.3
Acute Toxicity Results

Table B.3.1 - Acute Toxicity Results for Sheardown Lake Tributaries						
Sample Number	Sample ID	Date Sampled	Parameter Name	Result	Units	Lab
47699	SDLT-OUT	10-May-16	Acute Toxicity - <i>Daphnia magna</i> *	non-lethal	mortality %	Aquatox
47699	SDLT-OUT	10-May-16	Acute Toxicity - Rainbow Trout**	non-lethal	mortality %	Aquatox
47701	SDLT-OUT01	10-May-16	Acute Toxicity - <i>Daphnia magna</i> *	non-lethal	mortality %	Aquatox
47701	SDLT-OUT01	10-May-16	Acute Toxicity - Rainbow Trout**	non-lethal	mortality %	Aquatox
47700	LDFG-OUT	10-May-16	Acute Toxicity - <i>Daphnia magna</i> *	non-lethal	mortality %	Aquatox

Table B.3.2 - Acute Toxicity Results for Camp Lake Tributaries						
Sample Number	Sample ID	Date Sampled	Parameter Name	Result	Units	Lab
L1772636-1	CL-DS	23-May-16	Acute Toxicity - <i>Daphnia magna</i> *	non-lethal	mortality %	Aquatox
L1772636-1	CL-DS	23-May-16	Acute Toxicity - Rainbow Trout**	non-lethal	mortality %	Aquatox

Note: *Acute lethality to *Daphnia magna* (as per Environment Canada's Environmental Protection Series Method EPS/1/RM/14)

**Acute lethality to Rainbow trout, *Oncorhynchus mykiss* (as per Environment Canada's Environmental Protection Series Method EPS/1/RM/13)