



**WOLFDEN RESOURCES INC.**

**INSPECTION AND FOLLOW-UP PROGRAMS PLAN**

**ULU GOLD PROJECT, NUNAVUT**

**FINAL**

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## **1.0 INTRODUCTION**

The Ulu Gold Project is an advanced mining-exploration project, operated by Wolfden Resources Inc. (Wolfden). The project is located in Nunavut, approximately 530 km north of Yellowknife at 66°55'N and 110°58'W as shown in Figure 1.

The Nunavut Water Board (NWB) License NWB1ULU008 provides for water use and waste disposal for this project. Clause D, Item 8 of that licence notes the following:

*"The Licensee shall submit to the Board for approval, at least sixty (60) days following notification to the Board by the Licensee that operation at the site will be resumed, a plan outlining the inspection and follow-up programs. The Licensee shall implement the plan as per Part D, Item 9."*

The intent of this Plan is to provide the NWB with a list of the existing earthwork structures at the Ulu mine site that will be inspected on a daily, weekly or monthly basis and to ensure proper procedures are in place when inspecting the earthwork structures. The inspections will allow Wolfden to correct any deficiencies or concerns related to the structures based on sound engineering practice so that the environment and public health are protected.

## **2.0 PROJECT DESCRIPTION AND OPERATION**

### **2.1 Background**

The Ulu property was originally discovered by BHP Minerals in 1988 followed by several years of additional exploration work. Mining consultants H.A. Simons Ltd. completed a prefeasibility study of the project in September 1995, followed by the sale of the property to Echo Bay Mines Ltd. (Echo Bay) in November 1995 for \$10 million. After receipt of appropriate permits and approvals in early 1996, Echo Bay mobilized camp and mining equipment over the winter road to their temporary Camp 3, located south of the Ulu site. Following from that initial mobilization, Echo Bay built the 8 km all-weather road over to Ulu and the Ulu camp facilities, undertook surface diamond drilling and excavated a portal and completed a 632 m ramp to the 75 m level.

In February 1997, Echo Bay submitted an environmental assessment for the project. Also in 1997, additional ramp development was undertaken to the 155 m level, along with other development and diamond drilling work, but the project was shut down in August 1997 due to low gold prices. Echo Bay then provided updated Feasibility Studies in December 1997 and October 1998, but the project activity generally remained dormant.

In December 2003, Wolfden purchased the Ulu property from Echo Bay with the view to combine the Ulu gold deposit and the High Lake base metal deposits into one overall mining project. Echo Bay's Water Licence for the site was transferred over to Wolfden by the NWB in a letter dated March 23, 2004.

## **2.2 Project Elements**

Figure 2 provides an overview of the Ulu project site consisting of three main elements, from south to north:

1. Camp 3 (fuel tank farm and maintenance building), borrow pits and explosives magazines on the esker located just northwest of Reno Lake.
2. An airstrip, approximately 1350m long and 30m wide, located over bedrock exposures to the north.
3. The Ulu mine site and portal, located at the north end of the site, directly proximal to the ore body.

The Ulu mine site is located on a glacially modified bedrock outcrop bounded by a linear lake (West Lake) on the west, a small semi-circular lake (East Lake) on the southeast, Ulu Lake on the northeast and a drainage system to the north, as shown on Figure 3. The terrain is rugged, consisting of exposed bedrock, boulder fields (felsenmeer), relocated boulders and occasional glacial erratics. Areas proximal to lakes and watercourses contain wetlands and sedge grasses.

Figure 3 provides some details on the main components of the camp, including the following:

- accommodations, office and shop.
- main fuel tank farm.
- generators and day fuel tank.
- sewage treatment plant and discharge line into East Lake.
- fresh water intake line from West Lake.
- mine portal and sump.
- temporary waste rock storage/laydown pad below the portal.
- ore storage pad.

The majority of the surface drainage from the camp site pad and waste rock and ore storage pads drains into East Lake, which then flows into Ulu Lake. Some surface drainage from the northern end of the campsite pad flows overland and then into Ulu Lake. A small southwestern portion of the ore storage pad flows west, possibly into West Lake.

## **2.3 Bedrock Geology and Permafrost Conditions**

Echo Bay (1997) provides a summary of both the regional and property geology for the Ulu site, as paraphrased below.

The Ulu claims are located within the High Lake Volcanic Belt (HLVB) of the Archean Slave Structural Province. This geological province consists of basement gneisses overlain by greywacke turbidite and basalt in thick sequences. The HLVB is part of such a sequence and consists of a north-south trending volcanic and sedimentary sequence, enclosed by later Archean granitoid rocks.

The geology of the Ulu property consists of a sequence of folded mafic volcanic, mafic intrusive and sedimentary rocks, metamorphosed to upper greenschist / lower amphibolite facies. These rocks are intruded by later felsic intrusive rocks and diabase dykes. At least three phases of deformation are noted with the rocks at Ulu. The volcanic, intrusive and sedimentary rocks are folded into a north trending anticline that plunges steeply to the north in the area of the Flood Zone. Gold occurs in laminated calc-silicate veins and in quartz veins. Highest gold grains are found in quartz veins containing fine-grained arsenopyrite. Gold mineralization occurs primarily in the basalt and to some degree in the sediments. Very little gold mineralization occurs in the gabbroic rocks.

Additional information of the geochemical issues associated with waste rock and ore is provided within BGC report "Ulu Mine Waste Rock and Ore Storage Plan, Ulu Exploration Project" (2005).

The Ulu project site is located within the continuous permafrost zone of northern Canada. At the Lupin Mine, approximately 150 km to the south, the permafrost is approximately 540 m deep. Preliminary, extrapolated data from the High Lake site, approximately 50 km to the north of Ulu, indicates that permafrost is approximately 400 m deep. A shallow thermistor, BGC04-01 (cable 25-1), was installed by BGC to the east of West Lake in August 2004. A ground temperature of approximately  $-7^{\circ}\text{C}$  was recorded at 10 m depth in May 2005.

## **2.4 Climatic Information**

No long term climate records are available specifically for the Ulu site, although a weather station is now in operation at the airstrip. Based on regional correlations of proximal weather stations, RWDI (2005) have estimated representative climate parameters for the "Wolfden Project area", as summarized below:

- Mean annual air temperature of  $-11.8^{\circ}\text{C}$ .
- Extreme annual temperatures values of  $-53.9^{\circ}\text{C}$  and  $+34.9^{\circ}\text{C}$ .

Within BGC (2005), the following precipitation and evaporation estimates were made for conceptual design work at the High Lake site, based on recent northern hydrology assessments:

- Mean annual precipitation amount of 210 mm.
- One day Probable Maximum Precipitation (PMP) estimate of 150 mm.
- Mean annual lake evaporation value of 220 mm.

### **3.0 LEVEL OF RESPONSIBILITY**

As President and Chief Executive Officer, Mr. Ewan Downie is ultimately responsible for the Ulu gold project.

The on-site manager of the project is David B. Stevenson, Exploration Manager. His contact information is as follows:

Wolfden Resources Inc.  
403 – 1113 Jade Court  
Thunder Bay, Ontario  
P7B 6M7

Tel: (807) 346-1668  
Fax: (807) 345-0284  
E-mail: [dave.stevenson@wolfdenresources.com](mailto:dave.stevenson@wolfdenresources.com)

or in Ulu at:

Tel: (416) 987-9167  
Fax: (416) 637-2346

If Mr. Stevenson is not on site the alternate contact is Wayne Kirkham or Tyler Marshall, Building and Maintenance Supervisors. They can be contacted in Ulu at:

Tel: (416) 987-9167  
Fax: (416) 637-2346

Wolfden contracts BGC Engineering Inc. to perform the annual geotechnical inspections of the Ulu mine site as required in Part D, Item 9 of the Ulu water license.

### **4.0 DAILY/WEEKLY/MONTHLY INSPECTION PREPORTS**

Mr. W. Kirkham or Mr. T. Marshall will be responsible for conducting the daily, weekly or monthly inspections of the facilities and structures of concern at the Ulu mine site.

Given the current configuration of the Ulu mine site, the following facilities and structures will be inspected on a weekly basis:

- Camp 3 fuel tank farm containment berm
- Airstrip
- Ulu main fuel tank farm containment berm
- Day fuel tank containment berm
- Mine sump
- Ore storage pad
- Portal laydown pad

No retention/settling ponds are currently constructed at the Ulu mine site.

The weekly inspection reports for each facility or structure are as follows:

### **CAMP 3 TANK FARM CONTAINMENT BERM**

**LOCATION:** Far southern end of the esker, west of Reno Lake North.

**FUNCTION:** Provides secondary containment for two large fuel tanks (each having 1,325,000 liter capacity) and six smaller skid-mounted tanks (each having 53,000 liter capacity).

**SIZE:** ~30 m wide by ~60 m long.

**BERM HEIGHT:** ~1.5 to 2 m above adjacent grade on one side and ~1 to 1.2 m on the other.

**CAPACITY:** >1,800,000 liters (30m x 60m x 1 m x 1000 liters/m<sup>3</sup>)

**CREST ELEVATION:** No detailed survey information provided.

**BERM CONDITION:** ☐ Good ☐ Needs Repair

Comments:

\_\_\_\_\_  
\_\_\_\_\_

**SEEPAGE:** ☐ No evidence of seepage observed directly at the berm toe.

☐ Seepage present at berm toe.

Comments:

\_\_\_\_\_  
\_\_\_\_\_

**OTHER:** Comments:

\_\_\_\_\_  
\_\_\_\_\_

### **MAINTENANCE / MONITORING RECOMMENDATIONS:**

Comments:

\_\_\_\_\_  
\_\_\_\_\_

**CONCLUSIONS:** Comments:

\_\_\_\_\_  
\_\_\_\_\_

**DATE OF SURVEY:**

\_\_\_\_\_

**SIGNATURE OF INSPECTOR:**

\_\_\_\_\_  
(by signing this inspection report the signatory acknowledges he/she understands the terms and conditions of the Ulu water license)



**ULU AIRSTRIP**

**LOCATION:** 4.0 km southwest of the Ulu mine site.

**FUNCTION:** Allows various fixed-wing aircraft to transport personnel to and from Yellowknife and re-supply the Ulu mine site.

**SIZE:** ~30 m wide by ~1350 m long.

**PAD HEIGHT:** ~1.5 to 2 m above adjacent grade

**CREST ELEVATION:** No detailed survey information provided.

**PAD CONDITION:** ☐ Good ☐ Needs Repair (sinkholes) ☐ Needs Packing

Comments:

\_\_\_\_\_  
\_\_\_\_\_

**OTHER:** Comments:

\_\_\_\_\_  
\_\_\_\_\_

**MAINTENANCE / MONITORING  
RECOMMENDATIONS:**

Comments:

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\_\_\_\_\_

**CONCLUSIONS:** Comments:

\_\_\_\_\_  
\_\_\_\_\_

**DATE OF SURVEY:**

\_\_\_\_\_

**SIGNATURE OF INSPECTOR:**

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(by signing this inspection report the signatory acknowledges he/she understands the terms and conditions of the Ulu water license)

### ULU TANK FARM CONTAINMENT BERM

**LOCATION:** Northeast corner of the Ulu camp pad.

**FUNCTION:** Provides secondary containment for five large fuel tanks (each having 53,000 liter capacity) and numerous barrels of fuel.

**SIZE:** ~20 m wide by ~50 m long.

**BERM HEIGHT:** ~1.5 to 2 m above adjacent grade.

**CAPACITY:** >1,500,000 liters (20m x 50m x 1.5 m x 1000 liters/m<sup>3</sup>)

**CREST ELEVATION:** No detailed survey information provided.

**BERM CONDITION:** ☐ Good ☐ Needs Repair

Comments:

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**SEEPAGE:** ☐ No evidence of seepage observed directly at the berm toe.

☐ Seepage present at berm toe.

Comments:

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**OTHER:** Comments:

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### **MAINTENANCE / MONITORING RECOMMENDATIONS:**

Comments:

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**CONCLUSIONS:** Comments:

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**DATE OF SURVEY:**

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**SIGNATURE OF INSPECTOR:**

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(by signing this inspection report the signatory acknowledges he/she understands the terms and conditions of the Ulu water license)

### **DAY TANK CONTAINMENT BERM**

**LOCATION:** Adjacent to powerhouse area.

**FUNCTION:** Provides secondary containment for one orange fuel tank (7,200 liter capacity).

**SIZE:** ~5 m wide by ~5 m long.

**BERM HEIGHT:** ~1 to 1.2 m above adjacent grade.

**CAPACITY:** >25,000 liters (5m x 5m x 1 m x 1000 liters/m<sup>3</sup>)

**CREST ELEVATION:** No detailed survey information provided.

**BERM CONDITION:** ☐ Good ☐ Needs Repair

Comments:

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**SEEPAGE:** ☐ No evidence of seepage observed directly at the berm toe.

☐ Seepage present at berm toe.

Comments:

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**OTHER:** Comments:

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### **MAINTENANCE / MONITORING RECOMMENDATIONS:**

Comments:

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**CONCLUSIONS:** Comments:

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**DATE OF SURVEY:**

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**SIGNATURE OF INSPECTOR:**

(by signing this inspection report the signatory acknowledges he/she understands the terms and conditions of the Ulu water license)

### MINE SUMP

**LOCATION:** Directly outside the portal, uphill from both a local access road and the portal laydown pad.

**FUNCTION:** Provides containment for settling and sediment retention of mine water pumped from the decline ramp.

**SIZE:** ~20 m wide by ~30 m long.

**BERM HEIGHT:** ~1.5 to 2 m above adjacent grade.

**CAPACITY:** >900,000 liters (20m x 30m x 1.5 m x 1000 liters/m<sup>3</sup>)

**CREST ELEVATION:** No detailed survey information provided.

**BERM CONDITION:** ☐ Good ☐ Needs Repair

Comments:

\_\_\_\_\_  
\_\_\_\_\_

**SEEPAGE:** ☐ No evidence of seepage observed directly at the berm toe.

☐ Seepage present at berm toe.

Comments:

\_\_\_\_\_  
\_\_\_\_\_

**OTHER:** Comments:

\_\_\_\_\_  
\_\_\_\_\_

### **MAINTENANCE / MONITORING RECOMMENDATIONS:**

Comments:

\_\_\_\_\_  
\_\_\_\_\_

**CONCLUSIONS:** Comments:

\_\_\_\_\_  
\_\_\_\_\_

**DATE OF SURVEY:**

\_\_\_\_\_

**SIGNATURE OF INSPECTOR:**

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(by signing this inspection report the signatory acknowledges he/she understands the terms and conditions of the Ulu water license)

### **ORE STORAGE PAD**

**LOCATION:** Pad is located southwest of the Portal Laydown Pad, approximately 325 m from East Lake.

**FUNCTION:** Constructed from waste rock and then partially covered with esker sand and gravel. The pad was originally constructed for temporary storage of ore before its proposed shipment to Lupin, which is no longer the plan. Two ore stockpiles are currently located on the pad.

**SIZE:** ~100 m wide by ~200 m long.

**PAD THICKNESS:** Ranging from 1 to 3 m (check your field notes) above original topography.

**CREST ELEVATION:** No detailed survey information provided.

**PAD CONDITION:** ☐ Good ☐ Needs Repair

Comments:

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**SILT CURTAIN CONDITION:**

☐ Good ☐ Needs Repair

Comments:

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**TOE DISCHARGE:**

☐ No evidence of seepage observed directly at the pad toe.

☐ Seepage present at pad toe.

☐ seepage is clear ☐ seepage is silty

☐ No silt plume present.

☐ Silt plume present.

Length \_\_\_\_\_ m Width \_\_\_\_\_ m

Comments:

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**MAINTENANCE / MONITORING  
RECOMMENDATIONS:**

Comments:

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**CONCLUSIONS:**

Comments:

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**DATE OF SURVEY:**

**SIGNATURE OF INSPECTOR:**

\_\_\_\_\_  
(by signing this inspection report the signatory acknowledges he/she understands the terms and conditions of the Ulu water license)

### **PORTAL LAYDOWN (WASTE ROCK) PAD**

**LOCATION:** Pad is located just downhill from the portal and local access road, approximately 150 m from East Lake.

**FUNCTION:** Initially constructed from waste rock from the decline ramp development. Now serves as storage area for the underground mine equipment.

**SIZE:** ~50 m wide by ~200 m long.

**PAD THICKNESS:** Ranges from 1 to 5 m above original topography.

**CREST ELEVATION:** No detailed survey information provided. Pad surface graded down towards the southeast.

**PAD CONDITION:** ☐ Good ☐ Needs Repair

Comments:

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**SILT CURTAIN CONDITION:**

☐ Good ☐ Needs Repair

Comments:

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**TOE DISCHARGE:**

☐ No evidence of seepage observed directly at the pad toe.

☐ Seepage present at pad toe.

☐ seepage is clear ☐ seepage is silty

☐ No silt plume present.

☐ Silt plume present.

Length \_\_\_\_\_ m Width \_\_\_\_\_ m

Comments:

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**MAINTENANCE / MONITORING  
RECOMMENDATIONS:**

Comments:

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**CONCLUSIONS:**

Comments:

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**DATE OF SURVEY:**

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**SIGNATURE OF INSPECTOR:**

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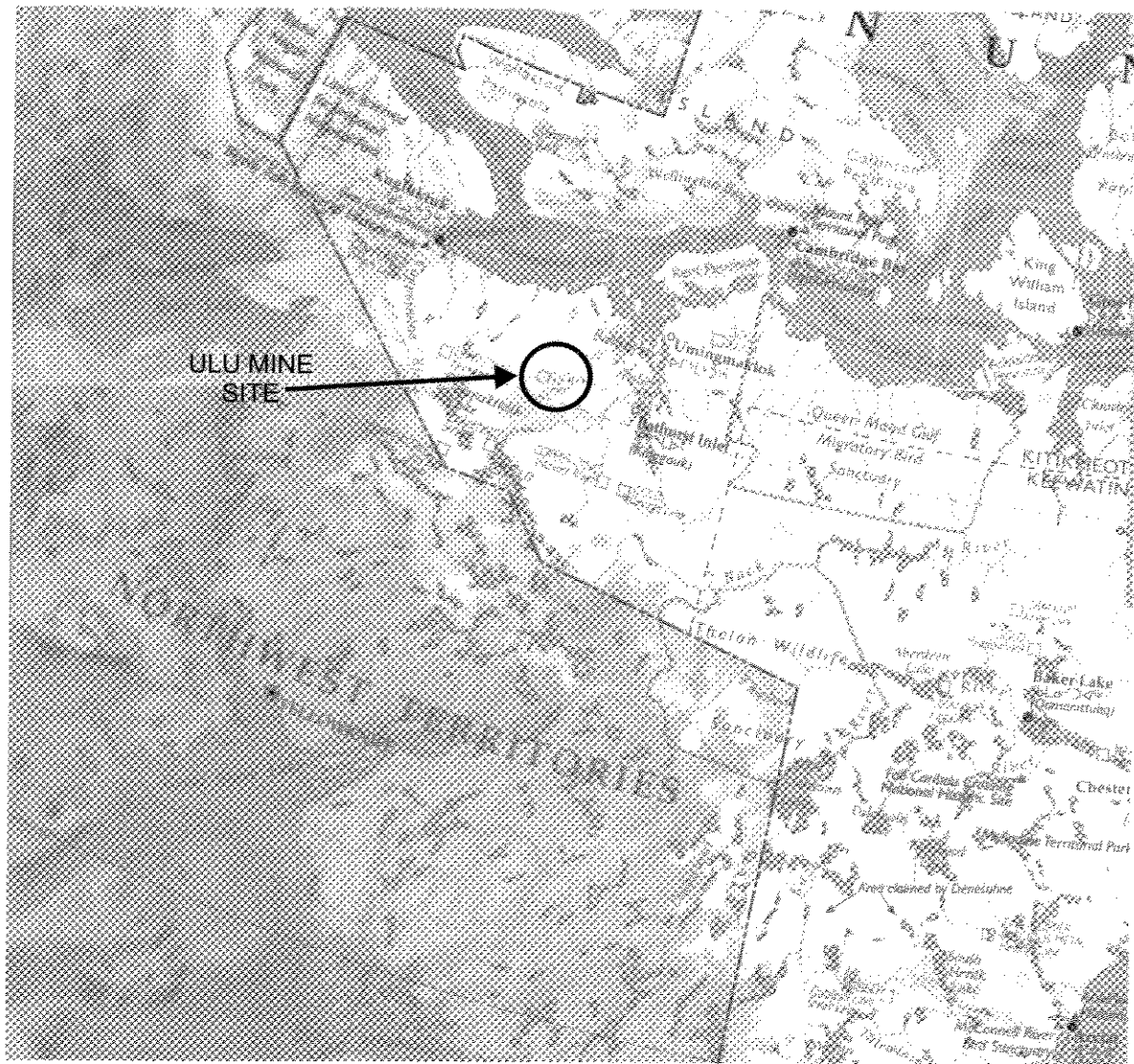
(by signing this inspection report the signatory acknowledges he/she understands the terms and conditions of the Ulu water license)



## REFERENCES

- BGC Engineering Inc. and Lorax Environmental Services Ltd., 2005. Ulu Mine Waste Rock and Ore Storage Plan, Ulu Exploration Project. Report prepared for Wolfden Resources Inc., Project No. 0385-002-02, March 21, 2005, 32 pages plus figures and appendices.
- BGC Engineering Inc., 2005. Conceptual Design of Tailings Containment Area, High Lake Project, NU. Draft report submitted to Wolfden Resources Inc., Project No. 0385-003-01, June 24, 2005, 36 pages plus figures.
- BGC Engineering Inc., 2005. 2005 Annual Geotechnical Inspection, Selected Structures, Ulu Gold Project, NU. Final report submitted to Wolfden Resources Inc., Project No. 0385-004-01, September 9, 2005, 18 pages plus figures.
- Echo Bay Mines Ltd., 1997. 1996/1997 Report on Exploration Geological Mapping, Sampling and Diamond Drilling, Ulu Property. Internal Echo Bay Report, November 1, 1997, 21 pages plus appendices.
- RWDI Air Inc. 2005. High Lake Climate Assessment. Draft report, Project No. W04-323, June 1 2005, 33 pages.

## FIGURES



0 160 km

Source: Canadian Geographic/Indian and Northern Affairs Canada, 1999

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| SCALE: | As Shown       | DESIGNED: | JWC |
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CLIENT:



**BGC Engineering Inc.**  
AN APPLIED EARTH SCIENCES COMPANY

Calgary, Alberta.

Phone: (403) 250-5185

PROJECT

ULU MINE ANNUAL INSPECTION

TITLE

PROJECT LOCATION PLAN

PROJECT No.

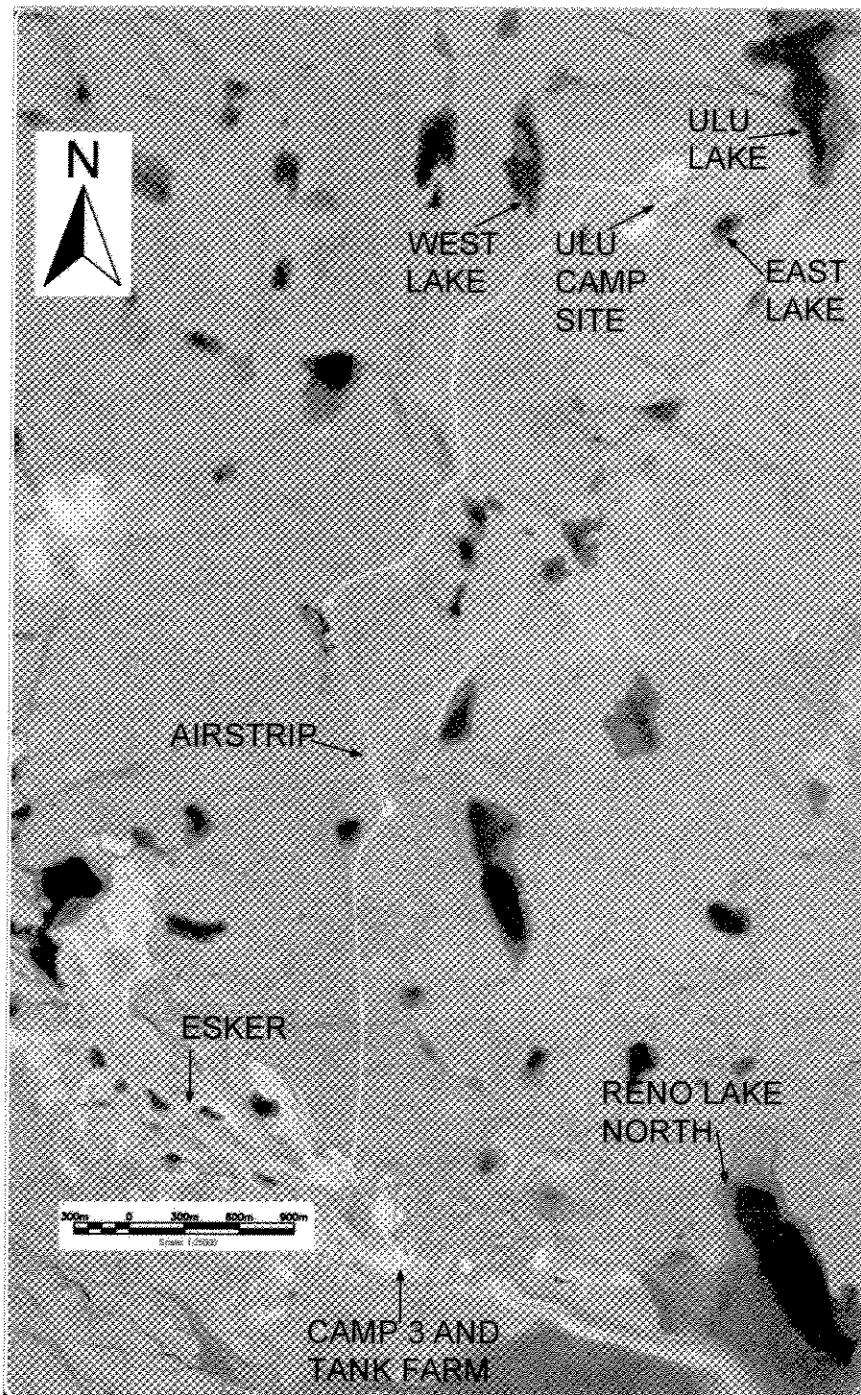
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| DATE:  | SEPTEMBER 2005 | CHECKED:  | JWC |
| DRAWN: | SLF            | APPROVED: | JWC |

CLIENT: **WOLFDEN**  
Resources Inc.

PROJECT: ULU MINE ANNUAL INSPECTION

TITLE: ULU AREA PLAN

**BGC Engineering Inc.**  
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**BGC** Calgary, Alberta. Phone: (403) 250-5185

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NOTES:

1. SOURCE: HL-ULU-SITE-05EMAY27.dwg  
FILE FROM GARTNER LEE.
2. AIR PHOTO DATE: AUGUST 2004

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| APPROVED: | JWC            |

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| TITLE:      | ULU CAMP AREA PLAN         |
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