



April 5, 2005

Project No.: CAM-4 (3.6)

VIA E-MAIL (LICENSING@NWB.NUNAVUT.CA)

Phyllis Beaulieu  
Manager, Licensing  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU X0B 1J0

Dear Ms. Beaulieu:

**RE: 2004 Annual Report: Water Use License NWB5PEL0104**

UMA Engineering Ltd. is submitting the following annual report as per the requirements of Part B.1 of the above noted water use license. The report is being submitted on behalf of Defence Construction Canada and the Department of National Defence.

**Water Usage and Wastewater Discharge**

The water and wastewater quantities were not recorded at this site as municipal services were used. This decision is based on correspondence from the NWB in 2001 regarding the CAM-4, Pelly Bay site which stated that if municipal services were used, water quantities did not have to be recorded. However, based on discussions with the NWB in the fall of 2004, water and wastewater quantities will be recorded in the coming construction seasons, even if municipal services are used.

The following samples were collected as per the requirements of Schedule 1 of the water use license. Table 1 provides the location and GPS coordinates of the samples. Table 2 provides a summary of the results, which show that there were no parameters in concentrations above the target criteria. Therefore, the water was discharged to the land.

**Table 1: Water Sample Location Coordinates**

Sample Location	Sample Number	GPS Coordinates	
		Northing	Easting
Tier II Soil Disposal Facility	04-18126	7594364	388768
Upper Site Landfill	04-18130	7594261	388910

**Table 2: Water Sample Results**

Parameter	Units	Target Criteria	04-18126	04-18130
pH	pH units	6-9	7.73	7.54
Sodium	mg/L	-	60	4.0
Potassium	mg/L	-	7.1	1.6
Magnesium	mg/L	-	13.0	1.9
Calcium	mg/L	-	94	6.5
Hardness	mg/L	-	287	24
Iron	mg/L	-	1.10	1.3
Manganese	mg/L	-	0.09	<0.05
Conductivity	µS/cm	-	832	82
Total Arsenic	mg/L	0.1	<0.003	<0.003
Dissolved Cadmium	mg/L	0.01	<0.001	<0.001
Total Chromium	mg/L	0.1	<0.005	0.009
Dissolved Cobalt	mg/L	0.05	<0.003	<0.003
Dissolved Copper	mg/L	0.2	0.007	<0.005
Dissolved Lead	mg/L	0.05	<0.01	<0.01
Total Mercury	µg/L	0.6	<0.4	<0.4
Dissolved Nickel	mg/L	0.2	<0.005	<0.005
Total Zinc	mg/L	1.0	0.014	0.027
Total Suspended Solids	mg/L	-	31	45
Total Petroleum Hydrocarbons	mg/L	-	<1.0	<1.0
PCBs	µg/L	0.05	<0.02	<0.02

### **2004 Summary of Work Completed**

The following sections provide a summary of the work completed at the CAM-4 site in 2004. The work plan for 2005 will be to continue with the clean up activities as described in the project description. Drawings showing the work areas are attached.

**Non-Hazardous Waste Landfills:** The two Non-Hazardous Waste Landfills (one each at the Upper and Lower Sites) at CAM-4 have been constructed and are currently being used for the disposal of Tier I contaminated soils and non-hazardous debris generated during the clean up. An intermediate cover of granular material was placed on the landfills prior to the winter closure of the facilities. The final closure of these landfills will occur prior to the clean up completion date, estimated to be October 2007.

**Tier II Soil Disposal Facility:** The construction of the Tier II facility at CAM-4 was completed in 2003 and placement of Tier II contaminated soils in the facility is on-going. It is anticipated that the Tier II Facility will be closed in 2005.

**Demolition:** All of the structures at the Upper Site have been demolished with the exception of the Garage and the Heated Vehicle Storage Building. The bottom portions of the POL tanks and associated containment berms remain intact as they are being used for the storage of contaminated soil prior to final disposal in one of the on-site facilities. The Heated Vehicle Storage and the POL tank at the Airstrip were removed. Removal of PCB Amended Paint (PAP) materials from the module train is approximately 30% complete. The removed materials were placed in approved containers and moved to the PCB Storage Area, which was inspected by Environment Canada in the fall. It is anticipated that demolition will be completed in the 2005 construction season.

**Landfarm:** Construction of the landfarm is complete and the facility is receiving hydrocarbon contaminated soils. It is expected the earliest closure for the landfarm will be 2007.

**Upper Site Landfill:** A portion of the Upper Site landfill was excavated in 2004, which included the removal of contaminated soils and debris. Upon excavation completion, the soil was confirmatory tested to ensure that no further excavation was required. Additional closure work at this landfill includes the installation of a leachate containment system around the perimeter of the remainder of the landfill, which is 75% complete. When completed, a granular cover will be placed over the landfill to enhance freezeback of the landfill contents.

**Abandoned Camp Landfill:** The Abandoned Camp Landfill is to be excavated, including the removal of contaminated soils and surface debris in and around the landfill. Once excavation of the landfill is complete, confirmatory soil testing will be completed to ensure that no contamination above the clean up protocol criteria remains. To date, approximately 20 cubic

metres of debris have been removed. The remainder of the work at this landfill is scheduled in 2005.

**Lower Site Landfill:** There are four distinct lobes within the Lower Site Landfill. The north lobe of this landfill was excavated and regraded. Confirmatory soil sampling was conducted to ensure all contaminated soils were removed. Work remaining at this landfill includes the remediation of the south, east and middle landfill lobes. The south and east lobes of this landfill will have the surface debris removed and will then be regraded. The middle lobe will be leachate contained.

**Barrow Lake Landfill:** The Barrow Lake landfill was excavated and the area regraded. Prior to regrading, the soils were confirmatory tested to ensure that all contaminated soils were removed.

**USAF Landfill:** No contaminated soil or surface debris was found at the USAF Landfill, nor was there a need for regrading, therefore, no remediation work was required at this landfill.

**Debris Removal:** The removal of site debris is currently on-going. The scope of the debris pickup in 2004 concentrated on the removal of debris from beyond the toes of the Upper Site, Lower Site and Abandoned Camp Landfills and the debris removal from within Barrow Lake. It is anticipated that debris collection and disposal will continue through 2005, with completion in 2006.

**Barrel Disposal:** Processing and disposal of barrels is currently on-going. In 2004, the work focused on the removal and processing of barrels from the excavations of the Upper and Lower Site Landfills. Most barrels were empty, rusty and crushed. Other barrels were processed as per the Barrel Disposal Requirements, which were presented in the original Project Description submitted in 2001.

**Contaminated Soil Removal:** Contaminated soil removal at CAM-4 is on-going. The focus of the work to date has been the removal of contaminated soil from landfill excavations, the sewage outfall and the petroleum, oil and lubricant (POL) storage area at the Lower Site. It is anticipated that contaminated soil removal will continue in 2005 and 2006.

### **Spill Incidents**

There was no fuel or other chemical contaminant spill incidences at CAM-4 in 2004.

April 5, 2005  
Phyllis Beaulieu  
Nunavut Water Board  
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We trust the information provided is consistent with the requirements of Water Use Licence #NWB5PEL0104. Please feel free to contact the undersigned if you have any questions or comments.

Sincerely,

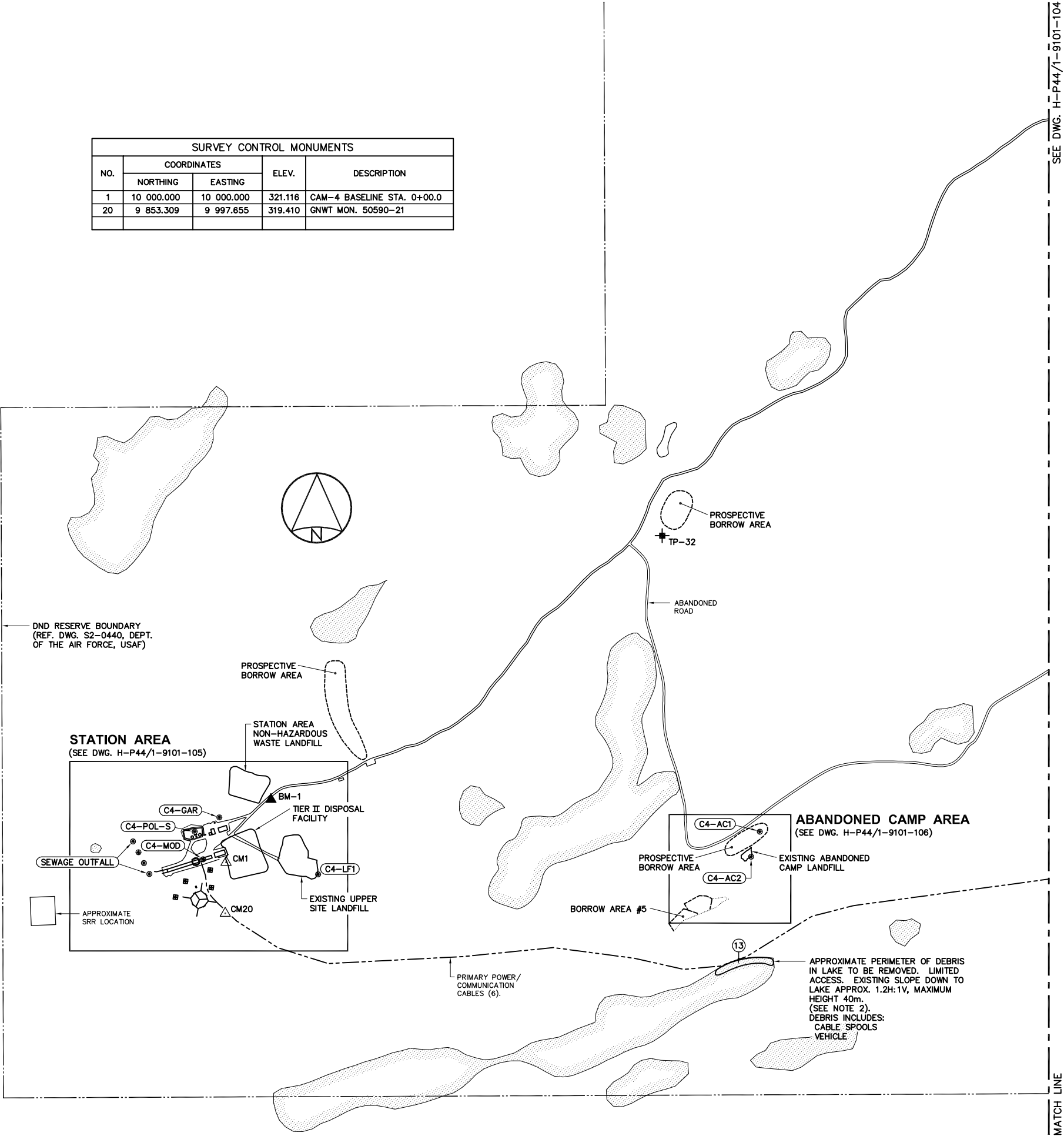
**UMA ENGINEERING LTD.**

A handwritten signature in black ink, appearing to read 'Eva Schulz', is positioned above the printed name.

Eva Schulz, P.Ag.  
Environmental Scientist  
eva.schulz@uma.aecom.com

Encl. Project Layout Drawings

cc: Phil Warren, DCC  
Jim Wall, NWB



SURVEY CONTROL MONUMENTS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
1	10 000.000	10 000.000	321.116	CAM-4 BASELINE STA. 0+00.0
20	9 853.309	9 997.655	319.410	GNWT MON. 50590-21

National  
Defence

Défense  
nationale

Headquarters

Quartier général

General Notes:

1. ALL ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL. (REF. DWG. AAP-2, DEPT. OF THE AIR FORCE, USAF).

2. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN STATION AREA NON-HAZARDOUS WASTE LANDFILL.

3. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.

4. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.

5. ALL SHORT RANGE RADAR (SRR) FACILITIES ARE CURRENTLY OPERATIONAL AND ARE NOT TO BE DISTURBED.

6. FOR PERMANENT SURVEY CONTROL (BENCHMARK) INSTALLATION DETAILS, SEE DWG. H-P44/1-9101-135. LOCATIONS TO BE APPROVED BY THE ENGINEER.

Legend:

CM1

SURVEY CONTROL MONUMENT

CONTAMINATED AREA

TEST PIT LOCATION (1993)

PHOTOGRAPHIC VIEWPOINT

BODY OF WATER

BM-1

PROPOSED PERMANENT BENCHMARK LOCATION (1). (SEE NOTE 6).

No.	DATE	REVISION	REVISION	APPR.

uma

shh

SCALE - ECHELLE 100 50 0 100 200 300m

PROJECT - PROJET

CAM-4 PELLY BAY

DEW LINE CLEAN UP

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HER MAJESTY THE QUEEN IN RIGHT OF CANADA 2001, AS REPRESENTED BY THE MINISTER OF NATIONAL DEFENCE.

TRADE - METIER SITING

DATE 2001-02-28

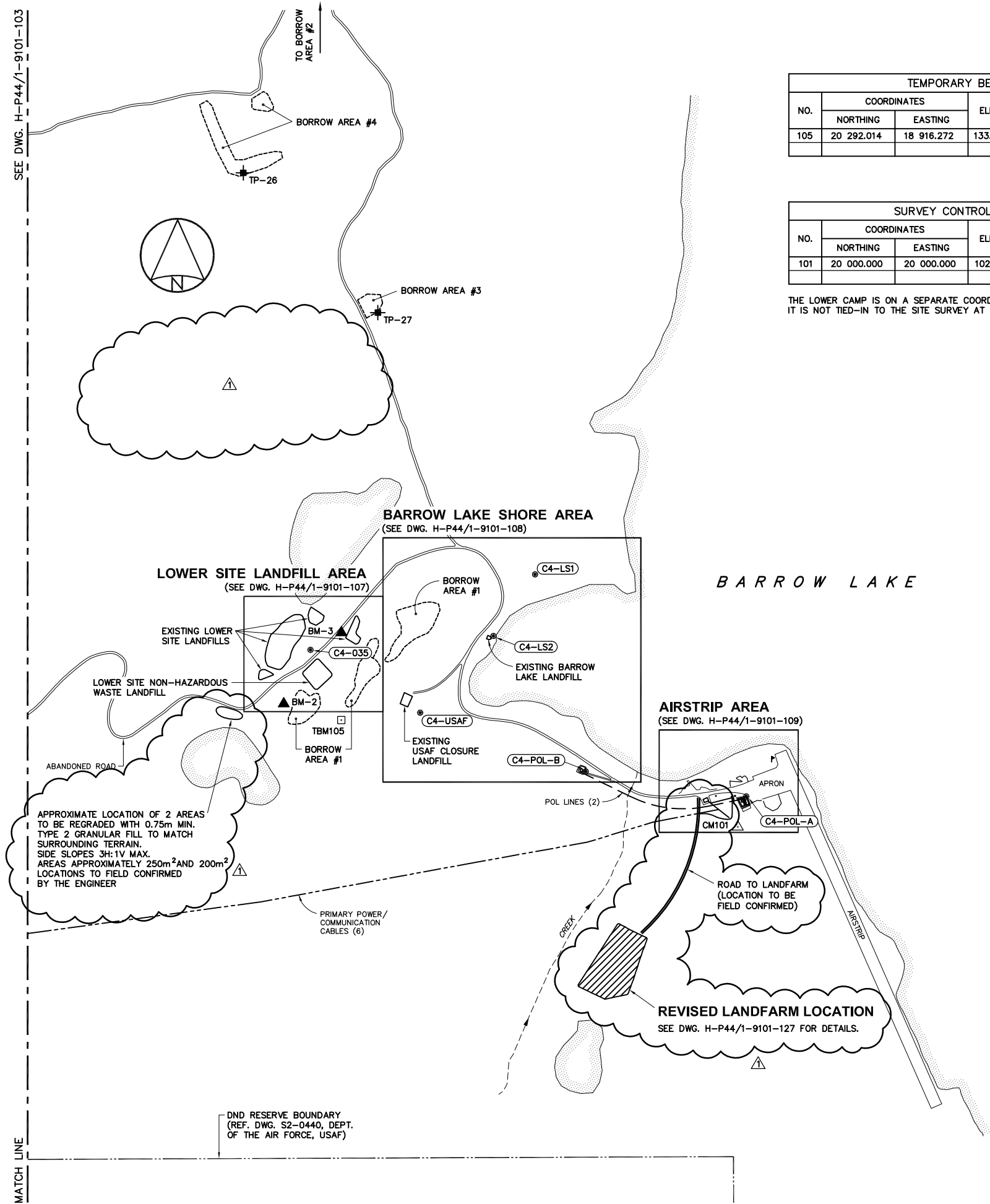
SUBJECT - SUJET

PROJECT LAYOUT SH. 1

PRODUCTION	CONCURRENCE - ASSENTIMENT
DESIGNED ETUDIE TMS	DES OFF AGENT CONCEPT
DRAWN DESSINE CAE	SECT HD CHEF SECT
CHECKED VERIFIE RRM	DES MGR GEST CONCEPT
COORDINATION SMS	REVIEWED - REVU

DWG. NO. - DESSIN NO.  
H-P44/1-9101-103

Canada



TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
105	20 292.014	18 916.272	133.777	CUT CROSS IN ROCK

SURVEY CONTROL MONUMENTS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
101	20 000.000	20 000.000	102.031	GNWT MON. 50590-23

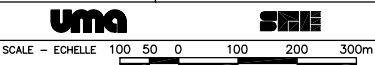
THE LOWER CAMP IS ON A SEPARATE COORDINATE SYSTEM.  
IT IS NOT TIED-IN TO THE SITE SURVEY AT THE STATION AREA.

Headquarters  
Quartier général

General Notes:  
1. ALL ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL.  
2. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.  
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.  
4. FOR PERMANENT SURVEY CONTROL (BENCHMARK) INSTALLATION DETAILS, SEE DWG. H-P44/1-9101-135. LOCATIONS TO BE APPROVED BY THE ENGINEER.

Legend:  
CM101 SURVEY CONTROL MONUMENT  
TBM105 TEMPORARY BENCHMARK  
CONTAMINATED AREA  
TEST PIT LOCATION (1993)  
BODY OF WATER  
BM-2 PROPOSED PERMANENT BENCHMARK LOCATION (2). (SEE NOTE 4).

1	03-05-02	CHANGE REQUEST No. 7	KMS
No.	DATE	REVISION	REVISION

  
SCALE - ECHELLE 100 50 0 100 200 300m

PROJECT - PROJET  
CAM-4 PELLY BAY

DEW LINE CLEAN UP  
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TRADE - METIER	SITING	DATE
SUBJECT - SUJET		2001-02-28

PROJECT LAYOUT SH. 2

PRODUCTION	CONCURRENCE - ASSENTIMENT
DESIGNED ETUDIE TMS	DES OFF AGENT CONCEPT
DRAWN DESSINE CAE	SECT HD CHEF SECT
CHECKED VERIFIE RRM	DES MGR GEST CONCEPT
COORDINATION SMS	REVIEWED - REVU

DWG. NO. - DESSIN NO.  
H-P44/1-9101-104

Canada