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REPORT ON

**BASELINE BIOLOGICAL STUDY
MARTISON PHOSPHATE PROJECT
HEARST, ONTARIO**

Submitted to:

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1.0 INTRODUCTION AND BACKGROUND

1.1 General

Golder Associates Limited (Golder) has been retained by PhosCan Chemical Corp. (PhosCan) to prepare a Baseline Biological Assessment for the Martison Phosphate Project (Project) (Figure 1). The Project is located approximately 90 km northeast of Hearst, Ontario and is located southwest of Martison Lake, within the area referred to as South of Ridge Lake Area.

A Wellington West Capital Markets Inc. report indicated that the Project is a 50/50 joint venture between Baltic Resources and PhosCan, who intend to develop a phosphate mine and construct a phosphate fertilizer manufacturing plant upon completion of a bankable feasibility study (Winslow and Milad 2007). The Martison deposit has a measured and indicated resource estimate of 62.2 million tonnes and an inferred resource of 55.7 million tonnes (Winslow and Milad 2007). Currently, exploration is ongoing and is expected to confirm the resource estimates by January 2008, when the drilling program is completed (Winslow and Milad 2007).

For the purpose of the baseline studies, the Project boundaries and proposed Site Plan provided by PhosCan were used to define the study area for the baseline aquatic and terrestrial studies (Figure 2). The purpose of the baseline studies is to characterize existing site conditions, identify potential environmental constraints associated with the Project and to gather information that may support exploration/operational permit applications in the future.

1.2 Scope of Work

The baseline aquatic and terrestrial biological study being conducted by Golder includes the following components:

- A background file review consisting of accessing and summarising pertinent information from the applicable government agency (i.e. the Ontario Ministry of Natural Resources (MNR) and the Department of Fisheries and Oceans) files, as well as consultation with agency personnel;
- A site visit to allow the project team to become familiar with the Martison property;
- A fall benthic survey designed to establish the baseline benthic community information;
- A surface water quality sampling program;
- A sediment quality sampling program;
- A preliminary fish habitat assessment and preliminary fish community survey of the water bodies observed within the Project boundaries;
- Preliminary terrestrial field survey; and
- Preparation of the baseline biological study report, using all information obtained from the site reconnaissance, biological surveys and file review.

2.0 STUDY METHODOLOGY

Resource information was obtained through information requests made to the MNR Hearst office, available mapping, on-line database searches and through terrestrial and aquatic biological field surveys. General information collected included the location of:

- Areas of Natural and Scientific Interest;
- Significant wetlands;
- Known rare, threatened and endangered species;
- Habitat of significant species based on values mapping information (e.g. moose and deer yards), waterfowl concentration areas, important wildlife habitat, forestry information; and
- Fish and fish habitat.

Surface water sampling and bathymetry was conducted on June 4 to 8, 2007 and ground-truthing of the study area and terrestrial habitat is scheduled to be completed on July 31 to August 3, 2007, to confirm vegetation community boundaries. During the terrestrial survey, soil type, vegetation communities and subsequent Forest Ecosystem Classifications will be recorded, accompanied by incidental wildlife observations. Fish community, fish habitat and benthic invertebrate sampling is scheduled to be completed in September 2007.

2.1 Vegetation

During the June 2007 field program, an aerial investigation of the vegetation community boundaries was conducted to confirm interpretation of available mapping and other background information. Through this aerial survey it was determined that the available mapping is representative of the current vegetation community boundaries found on the Project site. To further investigate the vegetation communities ground-truthing of the terrestrial communities will be conducted during the July field program within the proposed development footprint defined by the current site plan (Figure 2) and a representative portion of the vegetation communities surrounding the footprint. The vegetation polygon boundaries will be classified using the Northeastern Forest Ecosystem Classification (Taylor et. Al. 2000) system to provide a detailed description of the polygon characteristics, soil types and vegetation species found within the polygons (Figure 3).

If forest communities outside of this footprint can not be classified with a reasonable certainty through aerial photograph interpretation or if unique habitat types are identified within the claim block boundary, these communities will also be investigated during the mid summer growing season.

2.2 Wildlife

Existing wildlife information has been obtained through a literature review, discussion with agency representatives and individuals knowledgeable about the Project area and searches of available databases. Incidental wildlife observations were completed during the June 2007 Project site visit.

As limited wildlife data exists for the Project area field surveys, in addition to the work planned in 2007, may be required to collect baseline information for avian species, large mammal species and the identification of Species at Risk and their associated habitat. The latter is required under the federal *Species at Risk Act (SARA)*.

2.3 Species at Risk

The potential presence of nationally and provincially significant or rare species was determined by searching the Natural Heritage Information Center database (NHIC) (2005), Species at Risk in Ontario (SARO) (2007) and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (2007) databases and available range information.

2.4 Fish and Fish Habitat

During the June 2007 field program, bathymetry mapping of the two lakes located within the center of the Project was completed. This information will be valuable to determine available fish habitat and lake volumes in areas of potential development.

Observations related to fish habitat were also recorded during the bathymetry mapping task. This fish habitat information will be used in the design of the 2007 fish and fish habitat assessment survey. The survey will consist of fish community assessment in lakes and watercourses located within the Project area and identification and mapping of habitat features. Aquatic sediment and benthic sampling locations will be selected during this survey.

The Project is situated on a drainage divide, with surface flow from the west side of the site discharging to the Upper Ridge River and flow from the east side discharging to the Sowska River (Figure 4). On site, surface water consists of numerous 1st or 2nd order headwater streams and small lakes and ponds.

In order to establish pre-operational baseline conditions in support of future permitting requirements, Golder proposes that water samples be collected from eight sampling points on a quarterly basis. Intensity and frequency of sampling would need to increase as the Project moves closer to development.

To date, Golder biologists have collected one round of surface water samples at seven locations during the June 2007 field program (Figure 4). The sample stations were labeled SW1 to SW8. The surface water quality sampling program included a trip blank, field blank and a duplicate, with SW7 being a duplicate of SW1. The water samples were obtained as surface grabs at least 15 cm below the surface directly into pre-labelled laboratory sample jars. All samples were handled according to Golder protocol, stored in a chilled cooler and delivered to the laboratory under a chain-of-custody, within the required holding time, for analysis.

Samples were analysed by Testmark Laboratories Ltd, of Garson, Ontario or in the field using the Ministry of the Environment (MOE) Provincial Water Quality Objectives (PWQO) minimum detection limits. Each sample was analysed for:

- pH, conductivity, temperature, dissolved oxygen, total suspended solids (TSS), dissolved organic carbon, total dissolved solids (TDS), alkalinity, colour, turbidity, total Kjeldahl nitrogen (TKN), ammonia as (N), anions and total ICP metals.

For the purpose of summary calculations, any parameters reporting below the laboratory detection limits were set to half the detection limit and values reported for each sampling round were averaged.

3.0 ENVIRONMENTAL OVERVIEW

3.1 Meteorological Data

Weather data for the Project area was obtained from Environment Canada (2004) and is based on the data recorded at the Kapuskasing A and CDA weather stations. The data indicates an average yearly temperature of 0.8 °C and an average of 822 mm of precipitation each year. The prevailing winds for the area are from the west and have an average wind speed of 12.6 km/h (Appendix A).

3.2 Vegetation

The site is located within the James Bay Lowland Ecoregion in a transition zone between the coniferous and mixed forests of the clay belt to the south and the tundra to the north (Environment Canada 2005). In the southern portion of this zone and along rivers, the forests are generally composed of balsam fir (*Abies balsamea*), white and black spruce (*Picea glauca*), trembling aspen (*Populus tremuloides*) and paper birch (*Betula papyrifera*) (Environment Canada 2005). Most of the ecoregion is poorly drained and the dominant vegetation consists of sedge, mosses, and lichens with or without stunted black spruce and tamarack (*Larix laricina*) (Environment Canada 2005).

Through observations recorded during the June 2007 field program and available mapping, the vegetation cover within the Project is mainly black spruce forest and wetland habitat which can be further divided into five vegetation communities. The division of these communities will be confirmed during the July 2007 terrestrial field program.

3.3 Wildlife

Characteristic wildlife of the region includes woodland caribou (*Rangifer tarandus caribou*), black bear (*Ursus americanus*), wolf (*Canis lupus*), moose (*Alces alces*), lynx (*Felis lynx*) and snowshoe hare (*Lepus americanus*). To provide supporting wildlife information incidental observations were recorded during the June 2007 Project site visit. Below, Table 1 summarizes the bird species recorded and Table 2 summarizes the mammal and amphibian species observed.

**TABLE 1
INCIDENTAL BIRD OBSERVATIONS**

Scientific Name	Common Name
<i>Tringa melanoleuca</i>	Greater Yellowlegs
<i>Regulus calendula</i>	Ruby-crowned Kinglet
<i>Dendroica coronata</i>	Yellow-rumped Warbler
<i>Anas platyrhynchos</i>	Mallard
<i>Branta canadensis</i>	Canada Goose
<i>Geothlypis trichas</i>	Common Yellowthroat
<i>Empidonax alnorum</i>	Alder Flycatcher
<i>Seiurus noveboracensis</i>	Northern Waterthrush
<i>Wilsonia pusilla</i>	Wilson's Warbler
<i>Perisoreus canadensis</i>	Gray Jay
<i>Troglodytes troglodytes</i>	Winter Wren
<i>Troglodytes troglodytes</i>	Northern Harrier
<i>Grus canadensis</i>	Sandhill Crane
<i>Poecile atricapilla</i>	Black-capped Chickadee
<i>Junco hyemalis</i>	Dark-eyed Junco
<i>Dendroica magnolia</i>	Magnolia Warbler
<i>Contopus cooperi</i>	Olive-sided Flycatcher

**TABLE 2
INCIDENTAL MAMMAL AND AMPHIBIAN OBSERVATIONS**

Scientific Name	Common Name
<i>Rangifer tarandus caribou</i>	Caribou
<i>Ondatra zibethicus</i>	Muskrat
<i>Castor canadensis</i>	Beaver
<i>Pseudacris crucifer</i>	Spring peeper
<i>Pseudacris maculata</i>	Boreal chorus frogs

3.4 Species at Risk

Consultation with the MNR Hearst District Biologist (Nicole Woolnough, pers. Comm., March 1, 2007) indicated that there is a potential for the water bodies in the region to be cold water habitat that support brook trout (*Salvelinus fontinalis*). Additionally, drainage from the Project generally flows towards the Missinaibi River, which is known to support lake sturgeon (*Acipenser fulvescens*). The site is also within the known range of woodland caribou and their presence in the general area of the Project was confirmed by incidental observations of two adult caribou in June 2007.

Based on the review of available species range information, there is potential for three federally listed species and sixteen provincially listed species (four species listed by SARO and twelve species tracked by the NHIC) to occur in the region containing the Project. Table 3 describes the species listed by COSEWIC, SARA, Schedule 1 of the *Species at Risk Act* and SARO and Table 4 presents the provincially tracked species that are known to occur in the area with a provincial Srank of S3 (vulnerable) or below. This list provides an indication of potential only and does not imply their presence or absence.

**TABLE 3
SPECIES AT RISK**

Species specifics		Listed by:			Habitat
Scientific Name	Common Name	COSEWIC	SARA (Sch. 1)	COSSARO	
<i>Rangifer tarandus caribou</i>	Caribou, Woodland	Threatened	Threatened	Threatened	Many subpopulations of the Woodland Caribou Boreal population show a preference for peatlands; they generally avoid clear cuts, shrub-rich habitat, and aspen-poplar dominated sites. The most common tree species in preferred habitats are Black Spruce, White Spruce, and Tamarack (Species at Risk 2004).
<i>Gulo gulo</i>	Wolverine	Special Concern	Endangered	Threatened	The Wolverine needs vast undisturbed areas to maintain viable populations because it has a low reproductive rate, low population density, and large home range. It inhabits a variety of treed and treeless areas at all elevations including the northern forested wilderness, the alpine tundra of the western mountains, and the arctic tundra. The Wolverine is most abundant where large ungulates are common (Species at Risk 2004).
<i>Chlidonias niger</i>	Tern, Black	Not at Risk	Not Listed	Special Concern	Builds floating nests in loose colonies in shallow marshes, especially in cattails (Species at Risk 2004).
<i>Strix nebulosa</i>	Owl, Great Gray	Not at Risk	Not Listed	Special Concern	Nests are frequently located in stands of poplar or Spruce; open fens, bogs, and meadows are important hunting habitats (Species at Risk 2004).
<i>Aquila chrysaetos</i>	Eagle, Golden	Not at Risk	Not Listed	Endangered	The Golden Eagle typically inhabits mountain regions and dry, rugged open country and grasslands, over which it soars in search of small mammals and other prey. This eagle usually constructs a large stick nest on a cliff ledge. However, it occasionally nests in trees, and, in the far north, will nest directly on the tundra (Species at Risk 2004).
<i>Haliaeetus leucocephalus</i>	Eagle, Bald	Not at Risk	Not Listed	Endangered	Requires large continuous areas of mixed or deciduous woods with about 30% to 50% canopy cover around the shores of large rivers or lakes; Nesting Bald Eagles are associated with lakes and rivers; usually selects the tallest living trees for nests (above the canopy and that offer a clear approach from all directions); requires tall, dead, partially dead or living trees near the nest for perching (Species at Risk 2004).
<i>Danaus plexippus</i>	Monarch	Special concern	Special Concern	Special Concern	Found in Ontario wherever there are milkweed plants for its caterpillars and wildflowers for a nectar source; often found on abandoned farmland and roadsides, but also in city gardens and parks (Species at Risk 2004).

TABLE 4
PROVINCIALY TRACKED SPECIES

Scientific Name	Common Name	Srank	Habitat
<i>Acipenser fluvescens</i>	Lake sturgeon	S3	Larger Rivers and Lakes. Generally spawn in areas of swift water or rapids often even at the foot of low falls that prevent further migration (Scott and Crossman 1973).
<i>Astragalus tenellus</i>	Milk-vetch	SH	Barren, dry, open sagebrush valleys, pinyon-juniper woodland and spruce-fir communities of the Rocky Mountains, northern prairies and Great Basin of North America. Look for pulse milk-vetch in July on rocky or gravelly native prairie (United States Department of Agriculture 2007).
<i>Prosartes trachycarpa</i>	Rough-fruited mandarin	SH	Across its range, rough-fruited fairy bells occurs on wooded slopes, often near streams (Hitchcock & Cronquist 1973); and dry-mesic to xeric, basaltic ridge top white spruce/glade ecotones (Minnesota Department of Natural Resources 2007)
<i>Phaeophyscia endococcina</i>	A lichen	S1S2	A very dark grey foliose lichen (with lobes < 0.5 mm wide) on rock. Its upper surface is quite smooth (Lee 2006).
<i>Gymnocarpium robertianum</i>	Limestone oak fern	S2	Limestone oak fern inhabits cool, rocky woods and swamps. In northern white cedar swamps, the principal habitat for this species in Michigan, it grows in cool, wet substrates, particularly in organic soils and often in areas of thick moss cover, including Sphagnum mosses. As indicated by the common name, this fern prefers alkaline or calcium-rich substrates, and it can also be found colonizing limestone or dolomite ledges and cliffs (Michigan Natural Features Inventory 2007).
<i>Carex conoidea</i>	Field sedge	S3	A variety of moist, open situations, usually in calcareous or neutral substrates; fens, wet prairies,

Scientific Name	Common Name	Srank	Habitat
			meadows, borders (Cusick 1983).
<i>Panicum leibergii</i> var. <i>baldwinii</i>	Panic grass	S2	Dry prairies and open woodlands. June-July (Michigan Natural Features Inventory 2007a).
<i>Ophiogomphus colubrinus</i>	Boreal snaketail	S3	Clean cool rapid streams; trout streams (Smith, Vogt, and Gaines 2004).
<i>Oxytropis borealis</i> var. <i>hudsonica</i>	Hudson Bay oxytrope	S3	Substrate hummocks, tundra (gravelly flats); imperfectly drained; calcareous; gravel (Gillett et. al. 1991).
<i>Dryas drummondii</i>	Yellow dryas	S1	In crevices of steep, rocky, dry cliffs, and on limestone rock along rivers (Washington Department of Natural Resources 2000).
<i>Leucorrhinia patrici</i>	Canada whiteface	S2S3	Shallow sedge and moss fens (Cannings and Cannings 2007)
<i>Erebia discoidalis</i>	Red-disked alpine	S3	A subarctic butterfly species of grassy bogs northward, sandy, grassy barrens southward (Northern Prairie Wildlife Research Center 2006).

Notes:

S1-Critically Imperiled, S2-Imperiled in Ontario, S3-Vulnerable in Ontario, SH-Possibly Extirpated (Historically)

3.5 Fish and Fish Habitat

Bathymetry mapping of East and West Lakes indicated that they were shallow with the deepest areas being 1.10 m (Figure 5). This information will be combined with data collected during the aquatics program to characterize available fish habitat relative to existing fish communities.

3.6 Surface Water

Surface water quality was similar within each of the sampled water bodies (Table 5) (Appendix B) in June 2007. The surface water quality results indicated that the only metal that was higher than the PWQO guidelines at each of the surface water sampling stations was Total aluminum; however, the current analysis is conservative since it compares total aluminum to the PWQO aluminum guidelines. To confirm the potential elevated levels of aluminum, it is suggested that dissolved metal concentrations be assessed as part of the future sampling events.

Total silver was observed to be higher at SW1 and SW2 sampling stations. Laboratory and field pH values were observed to be below the PWQO range (6.5-8.5). Dissolved oxygen was above the suggested PWQO guidelines for dissolved oxygen concentration associated with cold water biota (6mg/L @ 10 °C).

TABLE 5
SURFACE WATER QUALITY SUMMARY

Analysis	Units	PWQO	June 5, 2007							
			SW1	SW2	SW3	SW4	SW5	SW6	SW8	
Aluminum (Al)	(ug/L)	15 - 75 ^{*1}	81.9	101	95.1	158	88.7	152	132	
Ammonia (NH3-N)	(mg/L)	0.02	0.014	0.018	0.018	0.015	0.016	0.012	0.015	
Antimony (Sb)	(ug/L)	0.02	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Arsenic (As)	(ug/L)	100 ^{*2}	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Barium (Ba)	(ug/L)		1.6	2.3	2	2.5	2.7	3.8	3.1	
Beryllium (Be)	(ug/L)	11 - 1100 ^{*3}	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Bismuth (Bi)	(ug/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Boron (B)	(ug/L)	200	2.5	2.4	2.8	2.6	2.4	3	1	
Cadmium (Cd)	(ug/L)	0.2	0.05	0.05	0.05	0.05	0.05	0.5	0.05	
Calcium (Ca)	(ug/L)		2.65	2.02	2.21	3.06	3.37	3.49	3.28	
Cerium (Ce)	(ug/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Cesium (Cs)	(ug/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Chloride (Cl)	(mg/L)		0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Chromium (Cr)	(ug/L)	8.9	1	0.5	0.5	0.5	0.5	1.1	0.5	
Cobalt (Co)	(ug/L)	0.9	0.19	0.12	0.24	0.31	0.23	0.17	0.05	
Conductivity	(µS/cm)		19.5	17.9	18.2	21.7	22.5	22.7	22.2	
Copper (Cu)	(ug/L)	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Dissolved Organic Carbon (DOC)	(mg/L)		22	20.6	21.6	9.79	21.9	22.9	29.2	
Europium (Eu)	(ug/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Fluoride (F)	(mg/L)		0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Gallium (Ga)	(ug/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Iron (Fe)	(ug/L)	300	180	180	209	276	203	259	180	
Lanthanum (La)	(ug/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead (Pb)	(ug/L)	1 - 5 ^{*4}	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lithium (Li)	(ug/L)		2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Magnesium (Mg)	(ug/L)		0.636	0.498	0.54	0.713	0.85	0.822	0.779	
M-Alkalinity as CaCO3 (pH 4.5)	(mg/L)		22	19	18	21	20	19	0.5	
Manganese (Mn)	(ug/L)		16.3	8.2	23.7	11.8	8.9	6.2	7.1	
Mercury (Hg)	(ug/L)	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Molybdenum (Mo)	(ug/L)	40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Nickel (Ni)	(ug/L)	25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Niobium (Nb)	(ug/L)		1.4	0.5	0.5	0.5	0.5	0.5	0.5	
Nitrate (as N)	(mg/L)		0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Nitrite (as N)	(mg/L)		0.015	0.015	0.015	0.015	0.015	0.015	0.015	
pH	(pH)	6.5 - 8.5	5.24	5.4	5.35	5.75	6.1	6.13	6.13	
Phosphate	(mg/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Rubidium (Rb)	(ug/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Scandium (Sc)	(ug/L)		6.9	5.1	5.1	4.6	3.8	3.5	0.5	
Selenium (Se)	(ug/L)	100	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Silver (Ag)	(ug/L)	0.1	0.26	0.14	0.05	0.05	0.05	0.05	0.05	
Strontium (Sr)	(ug/L)		7.2	7.2	7.9	12.5	10.7	11.3	12.1	
Sulfate (SO ₄)	(mg/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Thallium (Tl)	(ug/L)	0.3	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Thorium (Th)	(ug/L)		3.9	2.2	1.5	1.2	0.5	0.5	0.5	
Tin (Sn)	(ug/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Titanium (Ti)	(ug/L)		1.9	2.1	3.3	4.9	1.7	3.4	2.2	
Total Calcium (Ca)	(ug/L)		2850	2320	2580	3720	3840	4010	3360	
Total Dissolved Solids (TDS)	(mg/L)		64	66	62	74	55	62	33	
Total Hardness (as CaCO3)	(mg/L)		9.23	7.09	7.75	10.6	11.9	12.1	11.4	
Total Kjeldahl Nitrogen (TKN)	(mg/L)		0.345	0.193	0.637	0.299	0.489	0.505	0.063	
Total Magnesium (Mg)	(ug/L)		745	519	553	807	883	876	908	
Total Suspended Solids (TSS)	(mg/L)		3	3	3	3	3	3	3	
True Colour	(TCU)		181	178	194	202	161	198	177	
Tungsten (W)	(ug/L)	30	3.3	2.5	2.5	2.3	2.1	1.8	0.5	
Turbidity	(NTU)		1.02	0.73	1.21	1.36	1.3	1.38	2.6	
Uranium (U)	(ug/L)	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Vanadium (V)	(ug/L)	6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Yttrium (Y)	(ug/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Zinc (Zn)	(ug/L)	30	0.5	1.6	2.5	1.8	0.5	0.5	2.3	
Zirconium (Zr)	(ug/L)	4	2.9	2.1	2	2	1.5	2.6	0.5	
pH (Field)		6.5 - 8.5	4.46	5.02	4.39	4.96	5.34	5.26	4.33	
Temperature (Field)	(°C)		3.12	8.52	10.07	8.46	11.43	10.81	9.69	
Conductivity (Field)	(µS/cm)		0.017	0.016	0.016	0.019	0.02	0.02	0.02	
Dissolved Oxygen (Field)	(mg/L)	5 - 8 ^{*6}	8	10	10	10	n/a	10	9	

*1 Interim PWQO for Aluminum = 15 ug/L for pH 4.5 - 6.5 or 75 ug/L for pH 6.5 - 9.0.

*2 The PWQO for Arsenic is currently under development. The value is subject to change upon publication by MOEE.

*3 If Hardness as CaCO3 (mg/L) is <75 mg/L, PWQO for Beryllium = 11 ug/L. If >75 mg/L, PWQO for Beryllium = 1100 ug/L.

*4 If Alkalinity as CaCO3 (mg/L) is <20 mg/L, PWQO for Lead = 5 ug/L. If between 20-40 mg/L, PWQO for Lead = 10 ug/L. If between 40-80 mg/L, exceed 20 ug/L. To protect against aesthetic deterioration for lakes (ice free period), average Total Phosphorus concentrations should be 10 ug/L.

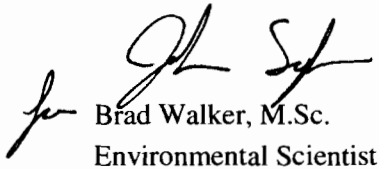
*6 The PWQO guideline for Dissolved Oxygen is temperature dependent. See guideline for specific values.

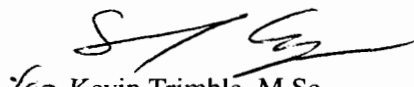
4.0 CLOSURE

The results of the baseline studies are considered as background values prior to the pre-production phases of the project. Additional biological surveys will be completed if issues are identified during the mine planning stages.

We trust that this Project summary meets your current needs. Please do not hesitate to contact any members of the Project team to address questions or concerns that you might have regarding the Project.

GOLDER ASSOCIATES LTD.


for Brad Walker, M.Sc.
Environmental Scientist


for Kevin Trimble, M.Sc.
Senior Ecologist/ Associate

BW/KT/JS/ls

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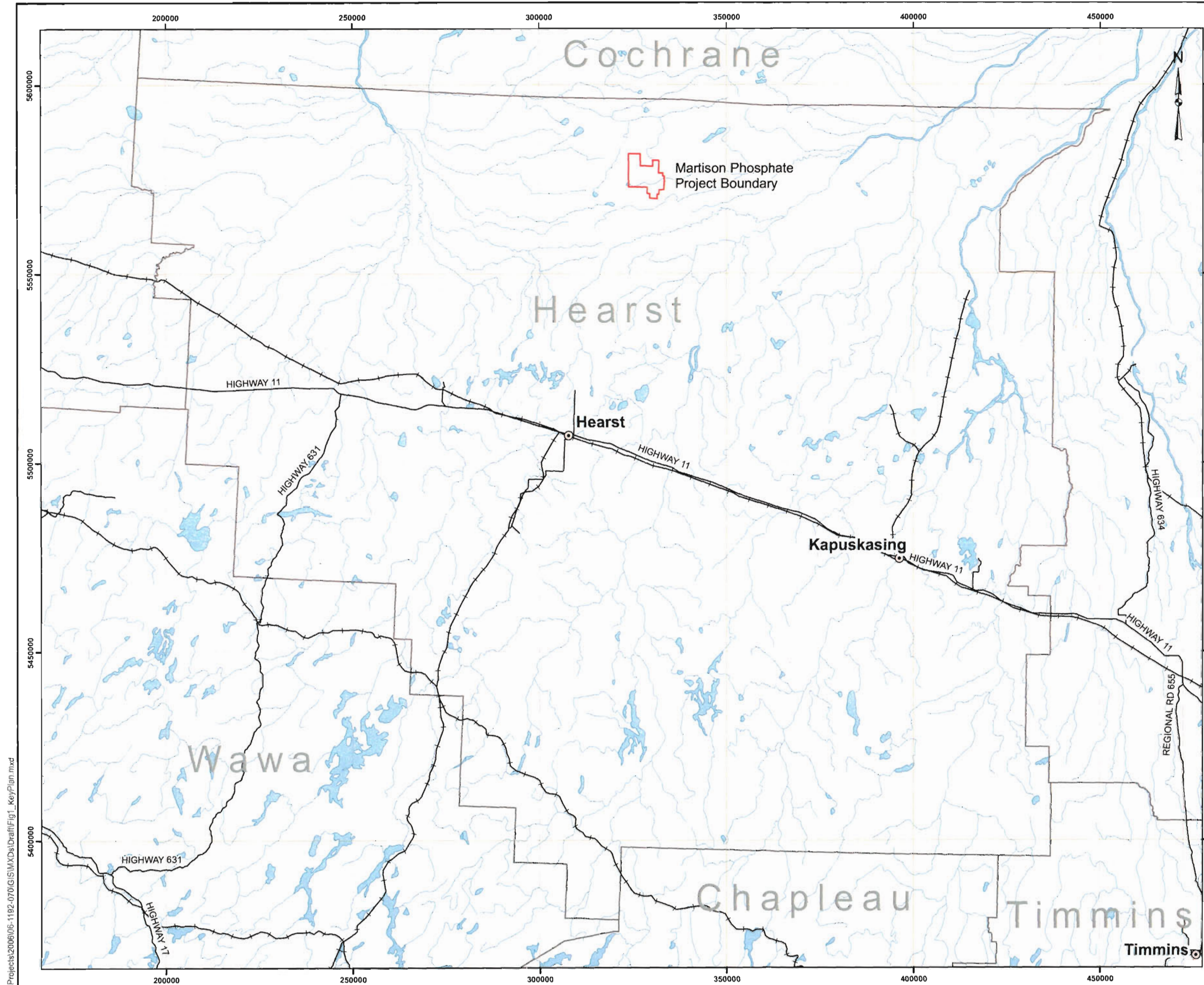
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LEGEND

- ⊙ City
- Major Road
- +— Railway
- River
- Lake
- Wetland
- MNR District
- Martison Phosphate Project Boundary



REFERENCE

Base Data - Landinfo, MNR NRVIS, obtained 2004, CANMAP v2005.4
 Produced by Golder Associates Ltd under licence from
 Ontario Ministry of Natural Resources, © Queens Printer 2007
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

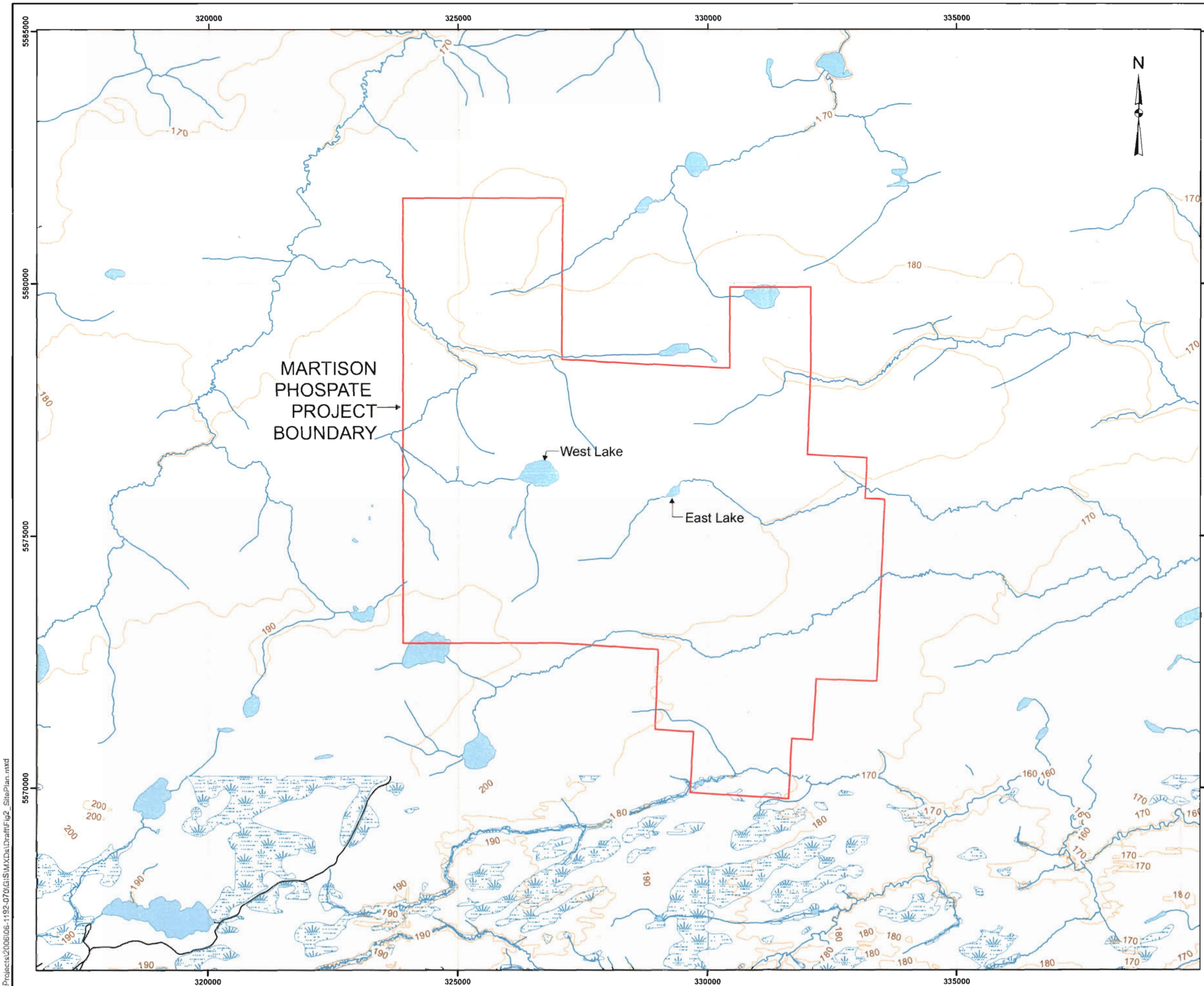


PROJECT	PHOSCAN PREFEASIBILITY STUDY HEARST, ONTARIO		
TITLE	KEY PLAN		
	PROJECT No. 06-1192-070	SCALE AS SHOWN	REV 0
	DESIGN CGE 06 Jul. 2007		
	GIS CGE 09 Jul. 2007		
	CHECK TC 09 Jul. 2007		
	REVIEW BW 09 Jul. 2007		



FIGURE: 1

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LEGEND

- Road
- Contours - 10 m interval
- River
- Lake
- Wetland
- Martison Phosphate Project Boundary



MARTISON
PHOSPATE
PROJECT
BOUNDARY


West Lake

East Lake

REFERENCE

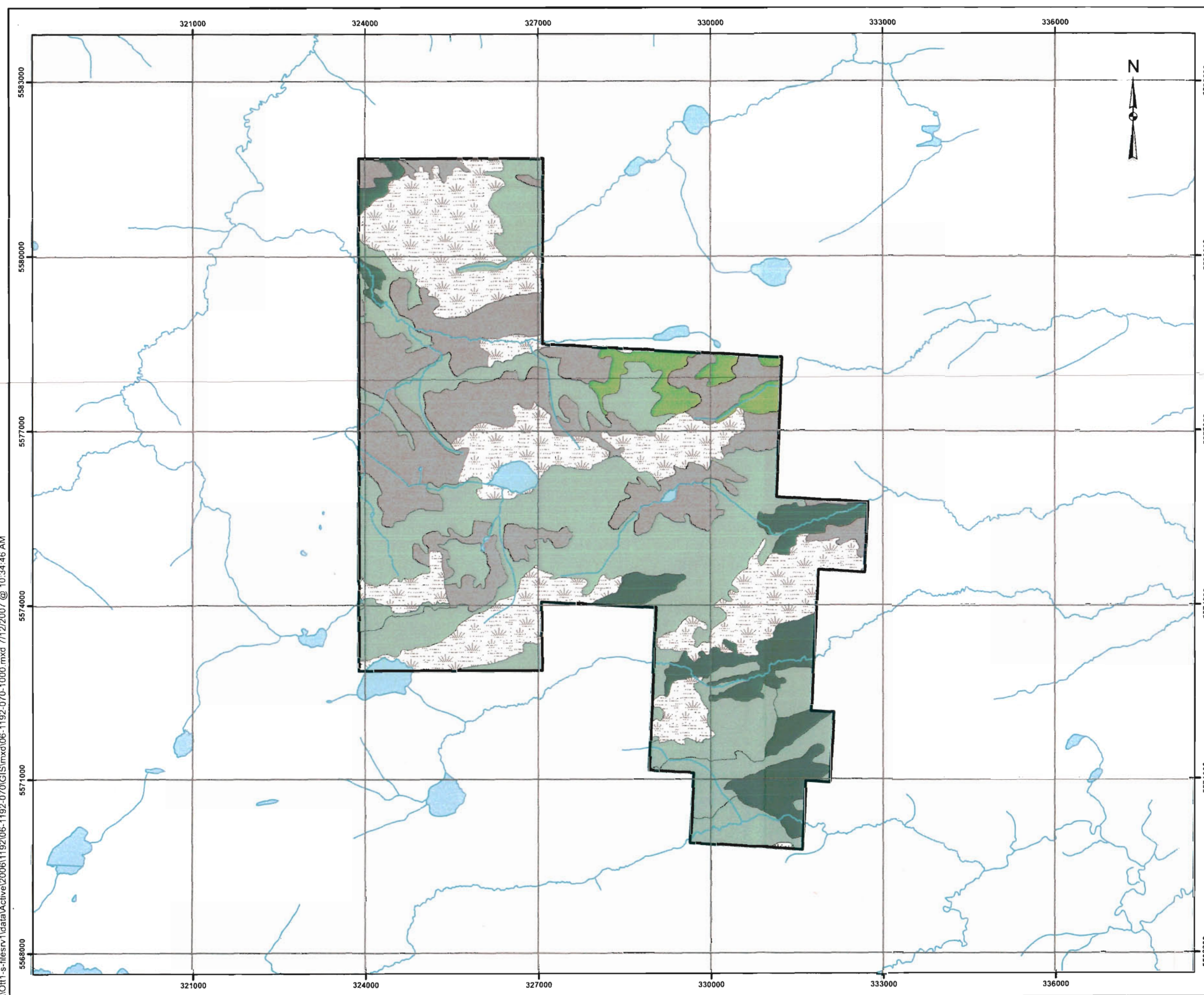
Base Data - MNR NRVIS, obtained 2004, CANMAP v2005.4
 Produced by Golder Associates Ltd under licence from
 Ontario Ministry of Natural Resources, © Queens Printer 2007
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N



PROJECT	PHOSCAN PREFEASIBILITY STUDY HEARST, ONTARIO		
TITLE	SITE PLAN		
	PROJECT No.	06-1192-070	SCALE AS SHOWN
	DESIGN	CGE 06 Jul. 2007	REV 0
	GIS	CGE 09 Jul. 2007	FIGURE: 2
	CHECK	TC 09 Jul. 2007	
	REVIEW	BW 09 Jul. 2007	

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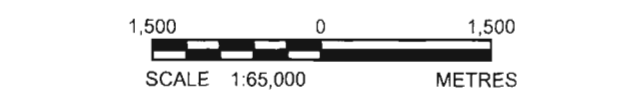


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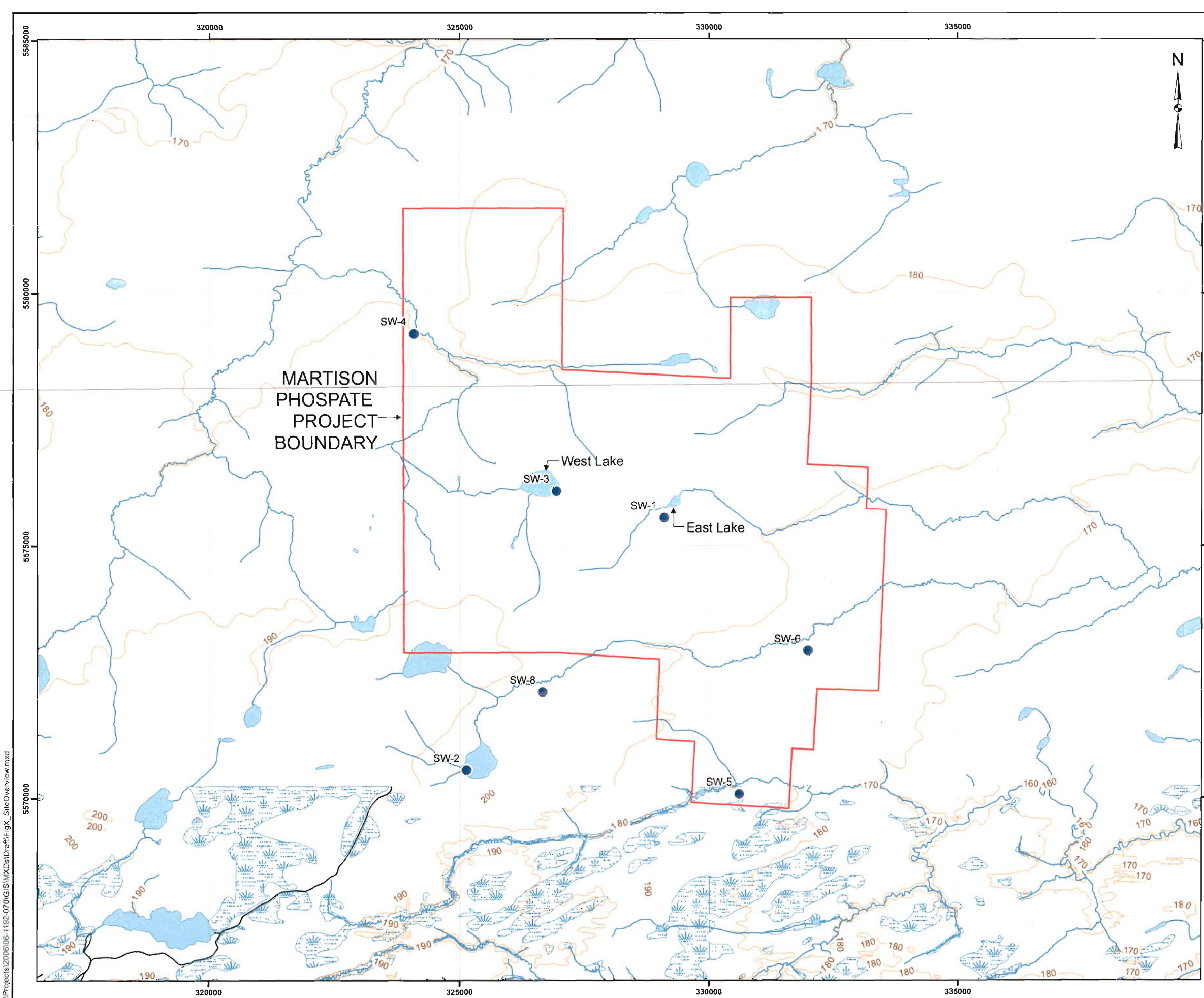
- Unproductive Land
- Protected Forest - Site Class 4
- Spruce Slope
- Spruce Flat
- Spruce - Site Class 3
- Claim Boundary
- Watercourse
- Waterbody

Summary Statistics	
Class	Area (Hectares)
Unproductive Land	1659.024387
Protected Forest - Site Class 4	1341.639759
Spruce Slope	162.7211653
Spruce Flat	2263.799192
Spruce - Site Class 3	508.4054982
Total Area	5935.590001

REFERENCE
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17



PROJECT		PHOSCAN PREFEASIBILITY STUDY HEARST, ONTARIO	
TITLE		VEGETATION COMMUNITIES	
 Golder Associates Ottawa, Ontario	PROJECT No.	06-1192-070-1000	SCALE AS SHOWN
	DESIGN		REV. 0
	GIS	JC	12 Jul. 2007
	CHECK		
REVIEW			FIGURE: 3



LEGEND

- Surface Water Quality Sampling Locations
- River
- Road
- Contours - 10 m interval
- ▭ Martison Phosphate Project Boundary
- Lake
- ▨ Wetland

REFERENCE

Surface Water Quality Sampling Locations - Golder Associates (July 2007)
 Base Data - MNR NRVIS, obtained 2004, CANMAP v2005.4
 Produced by Golder Associates Ltd under licence from
 Ontario Ministry of Natural Resources, © Queens Printer 2007
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N




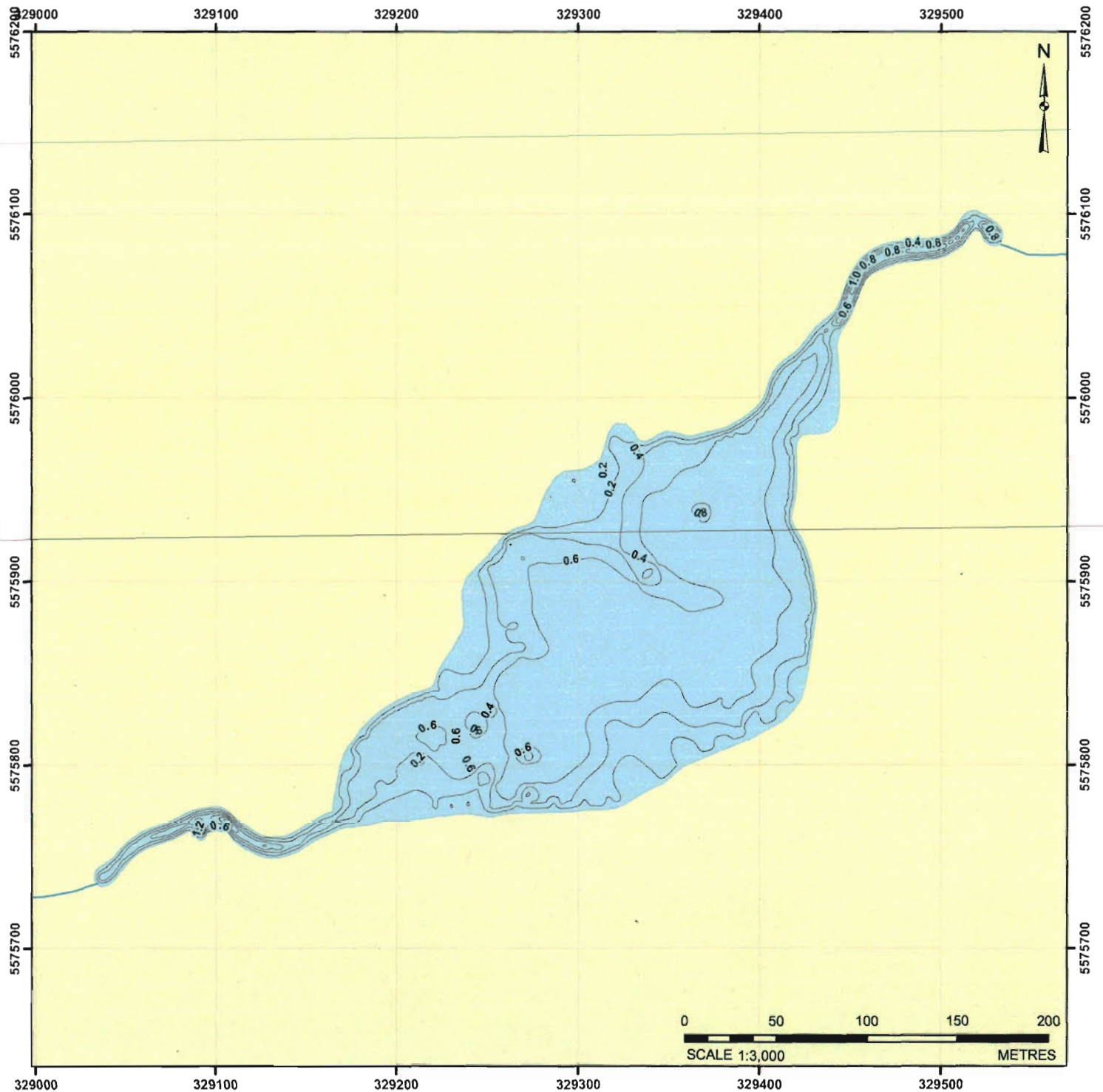
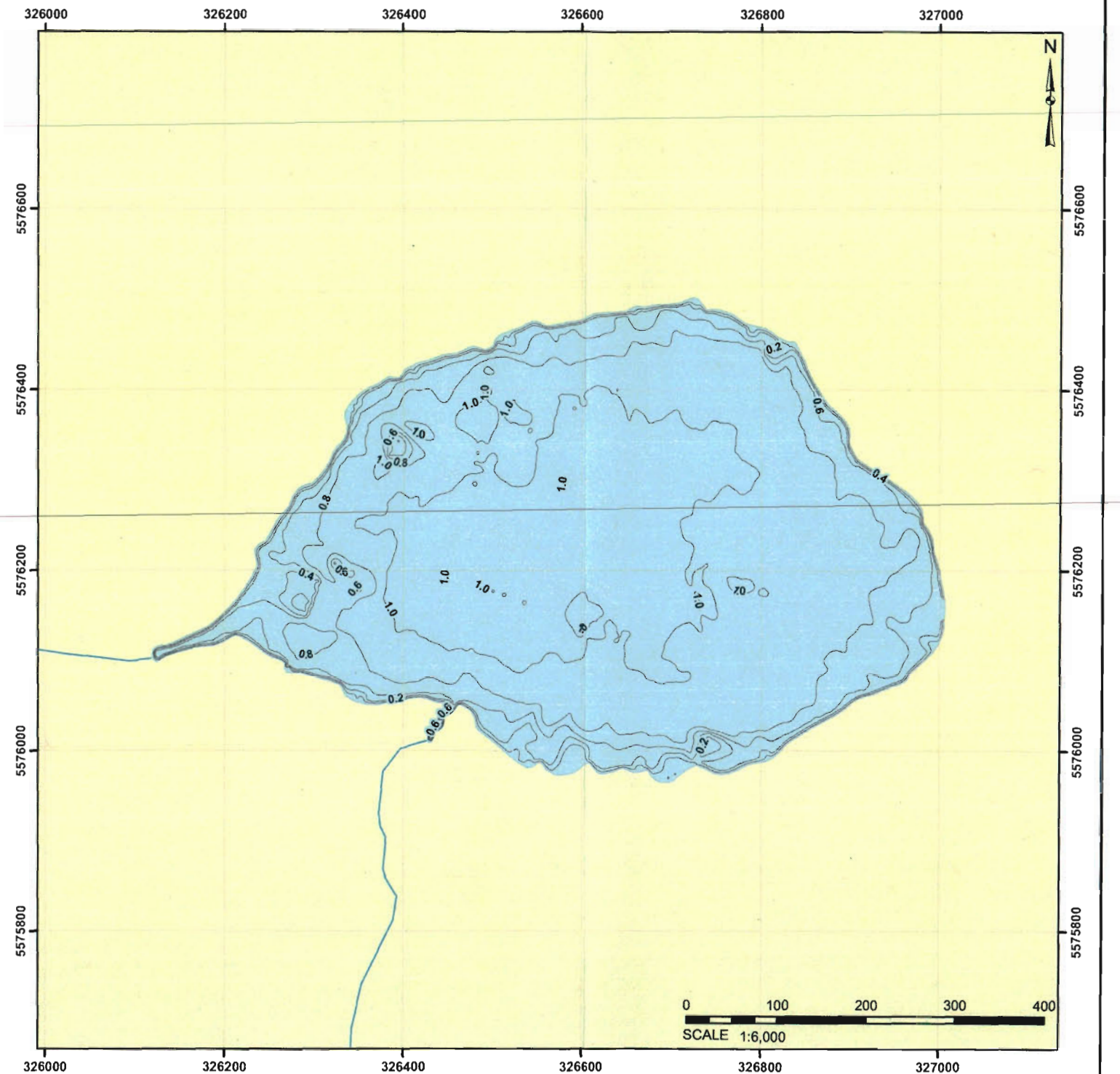
PROJECT	PHOSCAN PREFEASIBILITY STUDY HEARST, ONTARIO		
TITLE	SURFACE WATER QUALITY SAMPLING LOCATIONS		
 Mississauga, Ontario	PROJECT No.	06-1192-070	SCALE AS SHOWN
	DESIGN	CGE 06 Jul. 2007	REV. 0
	GIS	CGE 09 Jul. 2007	
	CHECK	TC 09 Jul. 2007	
	REVIEW	BW 09 Jul. 2007	

FIGURE: 4

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EAST LAKE BATHYMETRY



WEST LAKE BATHYMETRY

- LEGEND**
- Bathymetric Contours - 0.2 m interval
 - River
 - Lake

REFERENCE

Bathymetric Contours - Generated from field collected data, Golder Associates (2007)
 Base Data - MNR NRVIS, obtained 2004, CANMAP v2005.4 Produced by Golder Associates Ltd under licence from Ontario Ministry of Natural Resources, © Queens Printer 2007
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

PROJECT	PHOSCAN PREFEASIBILITY STUDY HEARST, ONTARIO		
TITLE	BATHYMETRY OF EAST AND WEST LAKES		
<p>Golder Associates Mississauga, Ontario</p>	PROJECT No.	06-1192-070	SCALE AS SHOWN
	DESIGN	CGE 09 Jul. 2007	REV. 0
	GIS	CGE 09 Jul. 2007	FIGURE: 5
	CHECK	TC 09 Jul. 2007	
REVIEW	BW 09 Jul. 2007		

APPENDIX A
METEOROLOGICAL DATA



Canadian Climate Normals 1971-2000

The minimum number of years used to calculate these Normals is indicated by a code for each element. A "+" beside an extreme date indicates that this date is the first occurrence of the extreme value. Values and dates in bold indicate all-time extremes for the location.

NOTE!! Data used in the calculation of these Normals may be subject to further quality assurance checks. This may result in minor changes to some values presented here.

KAPUSKASING A * ONTARIO

Latitude: 49° 24' N Longitude: 82° 28' W Elevation: 226.50 m
Climate ID: 6073975 WMO ID: 71831 TC ID: YYU

* This station meets WMO standards for temperature and precipitation.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Temperature:														
Daily Average (°C)	-18.7	-15.5	-8.6	0.5	9	14.4	17.2	15.7	10.1	3.8	-4.8	-14.3	0.7	A
Standard Deviation	2.9	3.5	2.9	2.2	2.1	1.7	1.1	1.5	1.5	1.9	2.4	3.9	1	A
Daily Maximum (°C)	-12.4	-8.4	-1.6	7	16	21.3	23.9	22.2	15.7	8.3	-0.7	-9.1	6.9	A
Daily Minimum (°C)	-24.9	-22.5	-15.5	-6	1.9	7.4	10.5	9.2	4.4	-0.7	-8.9	-19.6	-5.4	A
Extreme Maximum (°C)	20.5	12.2	19.4	29.7	33.6	38.3	36.7	35	33.3	27.8	19.4	13.3		
Date (yyyy/dd)	1988/26	1954/18	1945/25+	1986/28	1998/15	1995/18	1975/31	1947/05+	1953/03	1947/16	1938/03	1982/03		
Extreme Minimum (°C)	-45.3	-43.3	-42.2	-28.3	-13	-4.4	-0.6	-2.8	-6.1	-15.6	-34.4	-44.4		
Date (yyyy/dd)	1982/18	1967/09	1938/03	1964/01	1981/10	1945/01+	1965/17	1971/24	1943/28+	1939/29	1938/25	1975/19		
Precipitation:														
Rainfall (mm)	0.7	2.4	11.2	26.7	57	86.2	100.5	80.3	94.2	59.2	22.9	3.3	544.6	A
Snowfall (cm)	60.8	36.4	46.2	28.1	9.3	0.6	0	0	2	21.8	50.5	57.3	313	A
Total Precipitation (mm)	54.6	35.3	53.6	53.9	66.3	86.8	100.5	80.3	96.3	81.2	69.2	53.7	831.8	A
Average Snow Depth (cm)	56	69	52	15	1	0	0	0	0	1	9	29	19	A
Median Snow Depth (cm)	55	70	52	12	0	0	0	0	0	0	7	29	19	A
Snow Depth at Month-end (cm)	72	63	35	2	0	0	0	0	0	1	16	42	19	A
Extreme Daily Rainfall (mm)	9.4	19.4	27.9	45.2	79	62	71.1	65.3	51.3	46.5	34.3	18.4		
Date (yyyy/dd)	1939/09	1981/18	1951/30	1938/26	1962/29	1941/18	1938/13	1939/20	1962/04	1942/04	1964/12	1992/15		
Extreme Daily Snowfall (cm)	49.5	25.9	45	45.1	37.6	7.2	3.2	0	15.7	51.2	46	38.1		
Date (yyyy/dd)	1940/14	2001/25	1954/01	1981/04	1990/10	1980/07	2001/01	1937/01+	1961/28	1982/20	1957/08	1939/20		
Extreme Daily Precipitation (mm)	49.5	25.4	45	45.5	79	62	71.1	65.3	51.3	55.2	46	38.1		
Date (yyyy/dd)	1940/14	1960/11	1954/01	2001/23	1962/29	1941/18	1938/13	1939/20	1962/04	1982/20	1957/08	1939/20		
Extreme Snow Depth (cm)	156	168	213	91	42	5	0	0	5	32	72	79		
Date (yyyy/dd)	1997/31	1997/27+	1997/16	1974/07	1996/02+	1956/01	1955/01+	1955/01+	1974/29	1992/17	1989/30	1989/05		
Days with Maximum Temperature:														
<= 0 °C	29.4	24.5	18.1	4.3	0.23	0	0	0	0	2.1	16.3	26.7	121.6	A
<= 10 °C	1.6	3.8	12.9	25.7	30.8	30	31	31	30	28.9	13.8	4.3	243.7	A
<= 20 °C	0.03	0.03	1.5	9.2	23.9	28.7	31	30.9	25.1	11.4	1.8	0.07	163.5	A
<= 30 °C	0.03	0	0	1.4	9.5	17.5	24.7	20.6	6.8	0.96	0	0	81.5	A
> 30 °C	0	0	0	0	0.67	1.6	2.3	1	0.13	0	0	0	5.7	A
> 35 °C	0	0	0	0	0	0.07	0.07	0	0	0	0	0	0.14	A
Days with Minimum Temperature:														
> 0 °C	0	0.34	1.2	3.9	17.6	27.4	31	30.7	24.6	11.6	2.4	0.27	150.9	A
<= 2 °C	31	28.2	30.7	28.1	17.3	4.9	0.34	1.2	10.1	24	29.1	31	235.9	A
<= 10 °C	31	27.9	29.8	26.1	13.4	2.6	0.03	0.27	5.4	19.4	27.6	30.7	214.4	A
<= -2 °C	30.9	27.7	28.6	21.6	7.2	0.59	0	0.03	1.6	12.3	24.3	30.1	185	A

< -10 °C	29.1	25.5	21.8	7.5	0.15	0	0	0	0	0.43	10.9	24.8	119.9	A
< -20 °C	22.6	18.5	10.5	0.93	0	0	0	0	0	0	2.3	15.7	70.4	A
< -30 °C	9.6	6.3	1.4	0	0	0	0	0	0	0	0.14	4.5	21.9	A
Days with Rainfall:														
>= 0.2 mm	0.83	0.9	3.1	6.5	11.7	14.7	15.1	14.3	17.5	12.8	5.8	1.6	104.8	A
>= 5 mm	0.03	0.13	0.87	1.8	3.8	5.9	5.9	4.9	6	4.3	1.6	0.21	35.4	A
>= 10 mm	0	0.07	0.33	0.8	1.7	2.8	3	2.7	3.4	1.6	0.69	0.07	17.1	A
>= 25 mm	0	0	0	0.03	0.2	0.4	0.57	0.57	0.43	0.14	0	0	2.3	A
Days With Snowfall:														
>= 0.2 cm	18.7	14.5	13.4	7.7	2.5	0.33	0	0	1	8	16.9	20	103.1	A
>= 5 cm	3.7	2.2	2.8	1.6	0.47	0.03	0	0	0.13	1.1	3.2	3.3	18.6	A
>= 10 cm	1.1	0.43	1.1	0.67	0.2	0	0	0	0.03	0.34	1	1.1	5.9	A
>= 25 cm	0.07	0	0.07	0.1	0.1	0	0	0	0	0.1	0.07	0	0.51	A
Days with Precipitation:														
>= 0.2 mm	18.4	14.4	14.6	11.8	12.7	14.9	15.1	14.3	17.7	17.5	19.4	20	190.8	A
>= 5 mm	3.3	2.3	3.3	3.4	4.3	5.9	5.9	4.9	6.3	5.3	4.4	2.9	52	A
>= 10 mm	1	0.47	1.4	1.5	1.9	2.8	3	2.7	3.5	2.4	1.9	0.97	23.5	A
>= 25 mm	0.07	0	0.13	0.17	0.3	0.4	0.57	0.57	0.43	0.34	0.07	0	3.1	A
Days with Snow Depth:														
>= 1 cm	31	28.3	30.7	20.3	1.8	0.03	0	0	0.27	4	21.6	30.7	168.6	A
>= 5 cm	31	28.3	29.8	15.9	0.97	0	0	0	0.03	1.8	15.5	29.5	152.7	A
>= 10	31	28.1	28.5	13	0.53	0	0	0	0	0.76	9.8	27.5	139.1	A
>= 20	29.9	27.5	24.6	8	0.3	0	0	0	0	0.31	3.9	20.4	114.8	A
Wind:														
Speed (km/h)	12.8	12.4	13.5	13.4	12.7	12	11.3	11.2	12.6	13.8	13.5	12.4	12.6	A
Most Frequent Direction	W	W	NW	NW	N	S	S	S	S	S	W	W	W	A
Maximum Hourly Speed	56	56	55	64	65	64	58	52	55	61	63	63		
Date (yyyy/dd)	1968/21+	1965/25+	1953/23	1967/04	1977/01+	1958/07	1953/02	1983/20	1959/27+	1975/25	1975/03	2001/06		
Maximum Gust Speed	93	89	80	97	89	101	97	105	105	106	97	106		
Date (yyyy/dd)	1980/11	1964/04	1964/14	1967/04	1977/01	1976/10	1965/04	1969/23	1971/03	1975/25	1965/04	2001/06		
Direction of Maximum Gust	SW	NW	SW	SW	W	NW	W	W	NW	S	NW	SW	S	
Days with Winds >= 52 km/hr	0.1	0.1	0	0.1	0.1	0.3	0.3	0.1	0.2	0.3	0.2	0.1	2	A
Days with Winds >= 63 km/hr	0	0	0	0	0	0.1	0.1	0	0	0	0	0	0.3	A
Important Notices														
Created: 2002-06-21														
Modified: 2004-02-25	0	0	0	0	0.1	0.7	1.7	0.5	0	0	0	0	3.1	A
Reviewed: 2004-02-25	0	0	0	0.1	5.5	19.3	36	23.6	4	0	0	0	88.6	A
Above 18 °C	0	0	0	0	17.3	49.1	88.1	62.1	12.4	0.7	0	0	230.6	A
Uri of this page : http://www.climate.weatheroffice.ec.gc.ca/climate_normals/results_e.html														
Above 15 °C	0	0	0.1	5.5	60	144.3	224.8	181	57.5	8.3	0.3	0	681.7	A
Above 10 °C	0	0.1	1.6	23.3	146.3	279.6	379.4	333	160	42.8	4.1	0.1	1370.3	A
Above 5 °C	0	0.1	1.6	23.3	146.3	279.6	379.4	333	160	42.8	4.1	0.1	1370.3	A
Above 0 °C	0	0.1	1.6	23.3	146.3	279.6	379.4	333	160	42.8	4.1	0.1	1370.3	A
Below 0 °C	0	0	0	0	2.5	0	0	0	0	15.1	161.7	445.7	1997.8	A

The Green Lane™, Canada
Environment Canada's World Wide Web Site.

Canadian Climate Normals 1971-2000

The minimum number of years used to calculate these Normals is indicated by a code for each element. A "+" beside an extreme date indicates that this date is the first occurrence of the extreme value. Values and dates in bold indicate all-time extremes for the location.

NOTE!! Data used in the calculation of these Normals may be subject to further quality assurance checks. This may result in minor changes to some values presented here.

**KAPUSKASING CDA *
ONTARIO**

Latitude: 49° 24' N Longitude: 82° 25' W Elevation: 217.90 m
Climate ID: 6073960 WMO ID: TC ID:

This station meets WMO standards for temperature and precipitation.

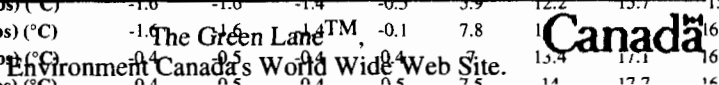
Temperature:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Daily Average (°C)	-18.9	-15.7	-8.8	0.4	9	14.4	17.2	15.9	10.5	4	-4.4	-14.2	0.8	A
Standard Deviation	3.1	3.6	3	2.3	2.1	1.7	1.1	1.4	1.5	1.9	2.5	4	1	A
Daily Maximum (°C)	-12.8	-8.9	-2.3	6.5	15.5	20.8	23.5	21.9	15.5	8	-0.8	-9.2	6.5	A
Daily Minimum (°C)	-24.9	-22.5	-15.3	-5.8	2.4	7.9	10.9	9.9	5.4	-0.1	-8	-19.2	-4.9	A
Extreme Maximum (°C)	8.3	11.7	19.4	29.5	33.3	37	37.8	35	32.8	27.8	20	15.6		
Date (yyyy/dd)	1921/27+	1930/22+	1945/25	1986/28	1921/21	1995/18	1936/12	1931/05+	1953/03	1947/16	1938/03	1921/01		
Extreme Minimum (°C)	-47.2	-46.7	-42.8	-30.6	-13	-6.7	-1	-3.9	-7	-15.6	-36.1	-47.2		
Date (yyyy/dd)	1935/24	1918/05	1938/03	1932/02	1981/10	1921/04	1992/01	1921/31	1981/30	1922/29	1933/25+	1975/19		
Precipitation:														
Rainfall (mm)	0.5	3.1	12.2	27.6	61.9	84.9	99.7	79.7	92.5	65.9	21.6	4.1	553.6	A
Snowfall (cm)	55.4	33.3	39.3	22.8	6	0.2	0	0	0.9	17.2	41.4	49.6	266	A
Precipitation (mm)	52.1	33.8	51.9	52.1	68.2	85.1	99.7	79.7	93.5	83.7	62.9	49.9	812.5	A
Average Snow Depth (cm)	38	50	49	20	0	0	0	0	0	1		21		A
Median Snow Depth (cm)	37	50	49	19	0	0	0	0	0	0		21		A
Snow Depth at Month-end (cm)	47	50	40	1	0	0	0	0	0	0	12	30		A
Extreme Daily Rainfall (mm)	12.7	18.3	23.4	42.8	77	61	80.5	68.1	63	47.2	30.5	41.1		
Date (yyyy/dd)	1939/09	1955/20	1951/30	2001/22	1962/29	1923/23	1963/14	1961/31	1921/22	1942/04	1918/18+	1921/02		
Extreme Daily Snowfall (cm)	38.1	27.9	38.6	42.4	25.4	2.8	9.8	0	20.3	41.6	44.5	35.6		
Date (yyyy/dd)	1940/14+	1943/10	1966/23	1981/04	1929/15	1990/03	2001/01	1918/01+	1923/13	1990/17	1957/08	1952/13		
Extreme Daily Precipitation (mm)	38.1	27.9	38.6	47	77	61	80.5	68.1	63	54.6	44.5	41.1		
Date (yyyy/dd)	1940/14+	1943/10	1966/23	1996/30	1962/29	1923/23	1963/14	1961/31	1921/22	1982/20	1957/08	1921/02		
Extreme Snow Depth (cm)	94	99	109	104	41	0	0	0	1	18	41	58		
Date (yyyy/dd)	1967/28+	1967/10+	1967/13+	1969/04+	1996/01	1962/01+	1962/01+	1962/01+	1991/27+	1966/16	1966/18+	1966/29+		
Days with Maximum Temperature:														
<= 0 °C	29.6	24.4	19.3	5.5	0.37	0	0	0	0	2.6	17.2	27.1	126	A
<= 0 °C	1.4	3.8	11.7	24.5	30.6	30	31	31	30	28.4	12.8	3.9	239.3	A
<= 10 °C	0	0	0.83	8	22.9	28.5	31	30.9	24.6	10.6	1.6	0.07	159.1	A
<= 20 °C	0	0	0	1.3	8.8	16.8	23.9	19.6	6.3	0.97	0	0	77.7	A
> 30 °C	0	0	0	0	0.4	0.97	1.5	0.63	0.07	0	0	0	3.5	A
> 35 °C	0	0	0	0	0	0.03	0.03	0	0	0	0	0	0.06	A
Days with Minimum Temperature:														
> 0 °C	0	0.37	1.5	4.8	18.9	27.3	30.9	30.6	24.9	13	3	0.23	155.5	A
<= 2 °C	31	28.1	30.5	27.6	16	4.9	0.73	1.6	8.7	22.2	28.7	30.9	231	A
<= 0 °C	31	27.9	29.5	25.2	12.1	2.7	0.1	0.4	5.1	18	27	30.8	209.8	A
< -2 °C	30.9	27.5	27.5	20	6.8	0.6	0	0.03	1.6	10.2	22.7	29.7	177.6	A

< -10 °C	28.4	24.3	20.3	7	0.17	0	0	0	0	0.5	10.1	23.9	114.6	A
< -20 °C	21.1	17.1	10.3	1	0	0	0	0	0	0	2.3	14.4	66.2	A
< -30 °C	10.3	7.4	2.4	0	0	0	0	0	0	0	0.2	4.6	24.8	A
Days with Rainfall:														
>= 0.2 mm	0.37	0.73	2.7	5.5	12.6	15.6	15.7	14.5	19.4	14.4	4.5	0.93	106.9	A
>= 5 mm	0.03	0.2	0.87	2	4.1	6	5.9	4.6	5.8	4.3	1.5	0.33	35.8	A
>= 10 mm	0	0.13	0.4	0.83	1.8	2.6	3.1	2.5	3	2	0.57	0.13	17.1	A
>= 25 mm	0	0	0	0.13	0.2	0.4	0.7	0.53	0.37	0.27	0.07	0.03	2.7	A
Days With Snowfall:														
>= 0.2 cm	16.2	11.3	10.1	5.7	1.4	0.1	0	0	0.47	5.4	13.1	16.1	79.9	A
>= 5 cm	3.5	2.1	2.7	1.6	0.4	0	0	0	0	1	2.5	3.3	17	A
>= 10 cm	1.2	0.67	1	0.67	0.2	0	0	0	0	0.47	0.93	1	6.2	A
>= 25 cm	0.07	0	0.03	0.07	0	0	0	0	0	0.07	0.03	0.07	0.34	A
Days with Precipitation:														
>= 0.2 mm	16.7	11.9	12	10.1	13.2	15.6	15.7	14.5	19.5	17.6	16.5	16.7	180.1	A
>= 5 mm	3.2	1.9	3.2	3.5	4.4	6	5.9	4.6	5.9	5.1	4	3.2	51	A
>= 10 mm	1	0.7	1.6	1.6	2.1	2.6	3.1	2.5	3	2.5	1.5	1	23.2	A
>= 25 mm	0.13	0	0.07	0.2	0.37	0.4	0.7	0.53	0.37	0.4	0.23	0.07	3.5	A
Days with Snow Depth:														
>= 1 cm	31	28.3	30.7	19.4	0.52	0	0	0	0			29.9		A
>= 5 cm	31	28.3	30.7	17	0.43	0	0	0	0			29.2		A
>= 10	30.6	28.3	30.4	15.5	0.19	0	0	0	0			26		A
>= 20	29	27.7	27.2	12	0	0	0	0	0			17		A
Degree Days:														
Above 24 °C	0	0	0	0	0	0.6	1.5	0.5	0	0	0	0	2.7	A
Above 18 °C	0	0	0	0.1	4.9	19.4	35.5	24.8	5	0.1	0	0	89.9	A
Above 15 °C	0	0	0	1	16.1	50.1	88	66.3	15.3	0.9	0	0	237.5	A
Above 10 °C	0	0	0	6	60.1	147.4	224.5	186.8	64	10.3	0.4	0	699.5	A
Above 5 °C	0	0.1	1.2	23.7	147	282.6	379	338.9	170.3	47.1	5.2	0.2	1395.2	A
Above 0 °C	0.1	2.3	15	79.4	280.4	431.2	534	493.9	314.5	138.4	26.2	1.9	2317.4	A
Below 0 °C	585.1	447.3	287.5	68.8	2.5	0	0	0	0.1	14.5	158.5	442.7	2006.9	A
Below 5 °C	740	586.4	428.7	163.1	24.1	1.4	0	0	5.9	78.2	287.4	596.1	2911.1	A
Below 10 °C	895	727.1	582.5	295.5	92.2	16.2	0.5	2.9	49.6	196.4	432.6	750.8	4041.8	A
Below 15 °C	1050	869	737.5	440.4	203.2	68.9	18.9	37.4	150.8	342	582.2	905.8	5406.1	A
Below 20 °C	1143	953.8	830.5	529.6	285.1	128.2	59.5	88.9	230.6	434.2	672.2	998.8	6354.2	A
at 5 cm depth (AM obs) (°C)	-1.4	-1.3	-1	1	10.5	16.9	20.4	19	13.1	6.2	0.9	-0.9	7	A
at 10 cm depth (AM obs) (°C)	-1.0	-1.0	-1.4	-0.5	3.9	12.2	15.7	15	10.7	4.8	0.8	-1		A
at 10 cm depth (PM obs) (°C)	-1.6	-1.6	-1.1	-0.1	7.8	16.7	11.7	5.3	0.9	-1				A
at 20 cm depth (AM obs) (°C)	-0.4	-0.5	-0.4	-0.4	7.5	14	17.7	16.4	12.1	6.2	1.9	0.3	6.1	A
at 20 cm depth (PM obs) (°C)	-0.4	-0.5	-0.4	-0.5	7.5	14	17.7	16.0	12.2	6.2	1.9	0.3	6.1	A

Created: 2002-06-21
 Revised: 2004-02-25
 Reviewed: 2004-02-25
 Sun Temp Profile

Url of this page: http://www.climate.weatheroffice.ec.gc.ca/climate_normals/results_e.html

Important Notices



APPENDIX B
SURFACE WATER QUALITY ANALYSIS



TESTMARK Laboratories Ltd.

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Analytical Report

Client:	Brad Walker	Work Order Number:	35832
Company:	Golder Associates Ltd.- Sudbury	Date Order Received:	6/8/2007
Address:	1010 Lorne Street Sudbury, Ontario, P3C 4R9	Regulation:	PWQO
Phone:	(705) 524-6861	PO #:	
Fax:	(705) 524-1984	Project #:	06-1192-070
Email:	bwalker@golder.com		

Please note: Analysis for DO, Color, Turbidity, NO2/NO3, Phosphate exceeded the method hold time prior to submission at Testmark

Analyses were performed on the following samples submitted with your order.

The results relate only to the items tested.

Sample Name	Lab #	Matrix	Type	Comments	Date Collected	Time Collected
SW-1	123710	Water	Grab		6/5/2007	11:20
SW-2	123711	Water	Grab		6/5/2007	12:22
SW-3	123712	Water	Grab		6/5/2007	12:59
SW-4	123713	Water	Grab		6/5/2007	14:34
SW-5	123714	Water	Grab		6/5/2007	12:48
SW-6	123715	Water	Grab		6/5/2007	17:58
SW-7	123716	Water	Grab		6/5/2007	15:00
Trip	123717	Water	None		6/1/2007	
Field Blank	123718	Water	None		6/1/2007	17:58



TESTMARK Laboratories Ltd.

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Golder Associates Ltd. - Sudbury

Work Order: 35832

The following instrumentation and references methods were used for your sample(s)

Method Name	Description	Reference
Alk by FIA	Determination of m-Alkalinity by Flow Injection Analysis Instrument group: Skalar San++ FIA	Mod. EPA 310.2
AmmoniaFIA	Determination of Ammonia/Ammonium by Flow Analysis Instrument group: Skalar San++ FIA	Mod. APHA-4500
Anions Water	Determination of Anions by Ion Chromatography Instrument group: Dionex DX300 IC	Mod. SW846-9056
Colour	Determination of Colour by Spectrophotometry Instrument group: Phillips PU 8610	Mod. APHA-2120
CONDWATER	Determination of conductivity in water Instrument group: Radiometer Meterlab Ion 450	Mod. APHA-2510
DO	Determination of Dissolved Oxygen in Water Instrument group: YSI Model 5000 DO Meter	APHA 4500-O
DOC Water	Determination of Dissolved Organic Carbon in Water Instrument group: Dohrman TOC Analyzer	Mod. APHA-5310
Hardness/ICP	Determination of Hardness in Water by ICP Instrument group: Perkin Elmer Elan 5000	Mod. SW846-6020
ICPMS Tot. Water	Determination of Total Metals in Water by ICP/MS with Digestion Instrument group: Perkin Elmer Elan 5000	Mod. SW846-6020
pHWATER	Determination of water pH by ion selective electrode Instrument group: Radiometer Meterlab Ion 450	Mod. APHA-4500
TDS	Determination of Total Dissolved Solids in water by gravimetry Instrument group: Mettler Analytical Balance	Mod. APHA-2540
TKN Water	Determination of Total Kjeldahl Nitrogen in Waters Instrument group: Skalar San++ FIA	APHA-4500-N-B
TSS	Determination of Total Suspended Solids in water by gravimetry Instrument group: Mettler Analytical Balance	Mod. APHA-2540
Turbidity	Determination of Turbidity by Nephelometry Instrument group: Hach Ratio Nephelometer	Mod. APHA-2130



TESTMARK Laboratories Ltd.

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Golder Associates Ltd. - Sudbury

Work Order: 35832

This report has been approved by:

Dr. Xiaojing Li
Chief Chemist

Kimberly Guilmette, BTN
Senior Microbiologist

Dr. Robert Hamel
Inorganic Section Head



TESTMARK Laboratories Ltd.

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Golder Associates Ltd.- Sudbury

Work Order: 35832

Sample Data:

Sample Name: SW-1

Date: 6/5/2007

Matrix: Water

Lab #: 123710

Alk by FIA				
Parameter	MDL	Result	Units	QAQCID
M-Alkalinity as CaCO ₃ (pH 4.5)	10	22	mg/L	20070612.R69A

AmmoniaFIA				
Parameter	MDL	Result	Units	QAQCID
Ammonia (as N)	0.002	0.014	mg/L	20070609.R42A

Anions Water				
Parameter	MDL	Result	Units	QAQCID
Chloride	0.2	<0.2	mg/L	20070611.R5D
Fluoride	0.1	<0.1	mg/L	20070611.R5D
Nitrate (as N)	0.1	<0.1	mg/L	20070611.R5D
Nitrite (as N)	0.03	<0.03	mg/L	20070611.R5D
Phosphate	1	<1	mg/L	20070611.R5D
Sulfate	1	<1	mg/L	20070611.R5D

Colour				
Parameter	MDL	Result	Units	QAQCID
True Colour	4	181	TCU	20070609.R26B
True Colour (Dup)	4	181	TCU	20070609.R26B

CONDWATER				
Parameter	MDL	Result	Units	QAQCID
Conductivity	1	19.5	µS/cm	20070608.R12B

DO				
Parameter	MDL	Result	Units	QAQCID
Dissolved Oxygen	0.2	10.2	mg/L	20070608.DO1

DOC Water				
Parameter	MDL	Result	Units	QAQCID
Dissolved Organic Carbon	0.4	22	mg/L	20070619.R55.1A

Hardness/ICP				
Parameter	MDL	Result	Units	QAQCID
Calcium	0.05	2.65	mg/L	20070609.R13E
Magnesium	0.004	0.636	mg/L	20070609.R13E
Total Hardness (as CaCO ₃)	0.1	9.23	mg/L	20070609.R13E

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Aluminum	1	81.9	ug/L	20070609.R13J
Total Antimony	0.5	<0.5	ug/L	20070609.R13J
Total Arsenic	1	<1	ug/L	20070609.R13J
Total Barium	1	1.6	ug/L	20070609.R13J
Total Beryllium	0.5	<0.5	ug/L	20070609.R13J
Total Bismuth	1	<1	ug/L	20070609.R13J
Total Boron	2	2.5	ug/L	20070609.R13J
Total Cadmium	0.1	<0.1	ug/L	20070609.R13J

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6/21/2007

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Work Order: 35832

Sample Name: SW-1

Date: 6/5/2007

Matrix: Water

Lab #: 123710

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Calcium	50	2850	ug/L	20070609.R13J
Total Cerium	1	<1	ug/L	20070609.R13J
Total Cesium	1	<1	ug/L	20070609.R13J
Total Chromium	1	1	ug/L	20070609.R13J
Total Cobalt	0.1	0.19	ug/L	20070609.R13J
Total Copper	1	<1	ug/L	20070609.R13J
Total Europium	1	<1	ug/L	20070609.R13J
Total Gallium	1	<1	ug/L	20070609.R13J
Total Iron	20	180	ug/L	20070609.R13J
Total Lanthanum	1	<1	ug/L	20070609.R13J
Total Lead	1	<1	ug/L	20070609.R13J
Total Lithium	5	<5	ug/L	20070609.R13J
Total Magnesium	4	745	ug/L	20070609.R13J
Total Manganese	1	16.3	ug/L	20070609.R13J
Total Mercury	0.1	<0.1	ug/L	20070609.R13J
Total Molybdenum	1	<1	ug/L	20070609.R13J
Total Nickel	1	<1	ug/L	20070609.R13J
Total Niobium	1	1.4	ug/L	20070609.R13J
Total Rubidium	1	<1	ug/L	20070609.R13J
Total Scandium	1	6.9	ug/L	20070609.R13J
Total Selenium	1	<1	ug/L	20070609.R13J
Total Silver	0.1	0.26	ug/L	20070609.R13J
Total Strontium	1	7.2	ug/L	20070609.R13J
Total Thallium	0.1	<0.1	ug/L	20070609.R13J
Total Thorium	1	3.9	ug/L	20070609.R13J
Total Tin	1	<1	ug/L	20070609.R13J
Total Titanium	1	1.9	ug/L	20070609.R13J
Total Tungsten	1	3.3	ug/L	20070609.R13J
Total Uranium	1	<1	ug/L	20070609.R13J
Total Vanadium	1	<1	ug/L	20070609.R13J
Total Yttrium	1	<1	ug/L	20070609.R13J
Total Zinc	1	<1	ug/L	20070609.R13J
Total Zirconium	1	2.9	ug/L	20070609.R13J

pHWATER

Parameter	MDL	Result	Units	QAQCID
pH	N/A	5.24	pH	20070608.R2B

TDS

Parameter	MDL	Result	Units	QAQCID
Total Dissolved Solids	25	64	mg/L	20070615.R27E

TKN Water

Parameter	MDL	Result	Units	QAQCID
Total Kjeldahl Nitrogen	0.008	0.345	mg/L	20070610.R58B



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Work Order: 35832

Sample Name: SW-2

Date: 6/5/2007

Matrix: Water

Lab #: 123711

ICPMS Tot. Water

Parameter	MDL	Result	Units	QAQCID
Total Arsenic	1	<1	ug/L	20070609.R13J
Total Barium	1	2.3	ug/L	20070609.R13J
Total Beryllium	0.5	<0.5	ug/L	20070609.R13J
Total Bismuth	1	<1	ug/L	20070609.R13J
Total Boron	2	2.4	ug/L	20070609.R13J
Total Cadmium	0.1	<0.1	ug/L	20070609.R13J
Total Calcium	50	2320	ug/L	20070609.R13J
Total Cerium	1	<1	ug/L	20070609.R13J
Total Cesium	1	<1	ug/L	20070609.R13J
Total Chromium	1	<1	ug/L	20070609.R13J
Total Cobalt	0.1	0.12	ug/L	20070609.R13J
Total Copper	1	<1	ug/L	20070609.R13J
Total Europium	1	<1	ug/L	20070609.R13J
Total Gallium	1	<1	ug/L	20070609.R13J
Total Iron	20	180	ug/L	20070609.R13J
Total Lanthanum	1	<1	ug/L	20070609.R13J
Total Lead	1	<1	ug/L	20070609.R13J
Total Lithium	5	<5	ug/L	20070609.R13J
Total Magnesium	4	519	ug/L	20070609.R13J
Total Manganese	1	8.2	ug/L	20070609.R13J
Total Mercury	0.1	<0.1	ug/L	20070609.R13J
Total Molybdenum	1	<1	ug/L	20070609.R13J
Total Nickel	1	<1	ug/L	20070609.R13J
Total Niobium	1	<1	ug/L	20070609.R13J
Total Rubidium	1	<1	ug/L	20070609.R13J
Total Scandium	1	5.1	ug/L	20070609.R13J
Total Selenium	1	<1	ug/L	20070609.R13J
Total Silver	0.1	0.14	ug/L	20070609.R13J
Total Strontium	1	7.2	ug/L	20070609.R13J
Total Thallium	0.1	<0.1	ug/L	20070609.R13J
Total Thorium	1	2.2	ug/L	20070609.R13J
Total Tin	1	<1	ug/L	20070609.R13J
Total Titanium	1	2.1	ug/L	20070609.R13J
Total Tungsten	1	2.5	ug/L	20070609.R13J
Total Uranium	1	<1	ug/L	20070609.R13J
Total Vanadium	1	<1	ug/L	20070609.R13J
Total Yttrium	1	<1	ug/L	20070609.R13J
Total Zinc	1	1.6	ug/L	20070609.R13J
Total Zirconium	1	2.1	ug/L	20070609.R13J

pHWATER

Parameter	MDL	Result	Units	QAQCID
pH	N/A	5.40	pH	20070608.R2B

TDS

Parameter	MDL	Result	Units	QAQCID
Total Dissolved Solids	25	66	mg/L	20070615.R27E

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Golder Associates Ltd. - Sudbury

Work Order: 35832

Sample Name: SW-2

Date: 6/5/2007

Matrix: Water

Lab #: 123711

TDS				
Parameter	MDL	Result	Units	QAQCID

TKN Water				
Parameter	MDL	Result	Units	QAQCID
Total Kjeldahl Nitrogen	0.008	0.197	mg/L	20070610.R58B
Total Kjeldahl Nitrogen (Dup)	0.008	0.188	mg/L	20070610.R58B

TSS				
Parameter	MDL	Result	Units	QAQCID
Total Suspended Solids	6	<6	mg/L	20070615.R27F

Turbidity				
Parameter	MDL	Result	Units	QAQCID
Turbidity	0.1	0.73	NTU	20070609.R21B
Turbidity (Dup)	0.1	0.73	NTU	20070609.R21B

Sample Name: SW-3

Date: 6/5/2007

Matrix: Water

Lab #: 123712

Alk by FIA				
Parameter	MDL	Result	Units	QAQCID
M-Alkalinity as CaCO ₃ (pH 4.5)	10	18	mg/L	20070612.R69A

AmmoniaFIA				
Parameter	MDL	Result	Units	QAQCID
Ammonia (as N)	0.002	0.018	mg/L	20070609.R42A

Anions Water				
Parameter	MDL	Result	Units	QAQCID
Chloride	0.2	<0.2	mg/L	20070611.R5D
Fluoride	0.1	<0.1	mg/L	20070611.R5D
Nitrate (as N)	0.1	<0.1	mg/L	20070611.R5D
Nitrite (as N)	0.03	<0.03	mg/L	20070611.R5D
Phosphate	1	<1	mg/L	20070611.R5D
Sulfate	1	<1	mg/L	20070611.R5D

Colour				
Parameter	MDL	Result	Units	QAQCID
True Colour	4	194	TCU	20070609.R26B

CONDWATER				
Parameter	MDL	Result	Units	QAQCID
Conductivity	1	18.2	µS/cm	20070608.R12B

DO				
Parameter	MDL	Result	Units	QAQCID
Dissolved Oxygen	0.2	10.4	mg/L	20070608.DO1

DOC Water				
Parameter	MDL	Result	Units	QAQCID
Dissolved Organic Carbon	0.4	21.6	mg/L	20070619.R55.1A



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Work Order: 35832

Sample Name: SW-3

Date: 6/5/2007

Matrix: Water

Lab #: 123712

Hardness/ICP				
Parameter	MDL	Result	Units	QAQCID
Calcium	0.05	2.21	mg/L	20070609.R13E
Magnesium	0.004	0.54	mg/L	20070609.R13E
Total Hardness (as CaCO ₃)	0.1	7.75	mg/L	20070609.R13E

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Aluminum	1	95.1	ug/L	20070609.R13J
Total Antimony	0.5	<0.5	ug/L	20070609.R13J
Total Arsenic	1	<1	ug/L	20070609.R13J
Total Barium	1	2	ug/L	20070609.R13J
Total Beryllium	0.5	<0.5	ug/L	20070609.R13J
Total Bismuth	1	<1	ug/L	20070609.R13J
Total Boron	2	2.8	ug/L	20070609.R13J
Total Cadmium	0.1	<0.1	ug/L	20070609.R13J
Total Calcium	50	2580	ug/L	20070609.R13J
Total Cerium	1	<1	ug/L	20070609.R13J
Total Cesium	1	<1	ug/L	20070609.R13J
Total Chromium	1	<1	ug/L	20070609.R13J
Total Cobalt	0.1	0.24	ug/L	20070609.R13J
Total Copper	1	<1	ug/L	20070609.R13J
Total Europium	1	<1	ug/L	20070609.R13J
Total Gallium	1	<1	ug/L	20070609.R13J
Total Iron	20	209	ug/L	20070609.R13J
Total Lanthanum	1	<1	ug/L	20070609.R13J
Total Lead	1	<1	ug/L	20070609.R13J
Total Lithium	5	<5	ug/L	20070609.R13J
Total Magnesium	4	553	ug/L	20070609.R13J
Total Manganese	1	23.7	ug/L	20070609.R13J
Total Mercury	0.1	<0.1	ug/L	20070609.R13J
Total Molybdenum	1	<1	ug/L	20070609.R13J
Total Nickel	1	<1	ug/L	20070609.R13J
Total Niobium	1	<1	ug/L	20070609.R13J
Total Rubidium	1	<1	ug/L	20070609.R13J
Total Scandium	1	5.1	ug/L	20070609.R13J
Total Selenium	1	<1	ug/L	20070609.R13J
Total Silver	0.1	<0.1	ug/L	20070609.R13J
Total Strontium	1	7.9	ug/L	20070609.R13J
Total Thallium	0.1	<0.1	ug/L	20070609.R13J
Total Thorium	1	1.5	ug/L	20070609.R13J
Total Tin	1	<1	ug/L	20070609.R13J
Total Titanium	1	3.3	ug/L	20070609.R13J
Total Tungsten	1	2.5	ug/L	20070609.R13J
Total Uranium	1	<1	ug/L	20070609.R13J
Total Vanadium	1	<1	ug/L	20070609.R13J
Total Yttrium	1	<1	ug/L	20070609.R13J
Total Zinc	1	2.5	ug/L	20070609.R13J

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Work Order: 35832

Sample Name: SW-3

Date: 6/5/2007

Matrix: Water

Lab #: 123712

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Zirconium	1	2	ug/L	20070609.R13J

pHWATER				
Parameter	MDL	Result	Units	QAQCID
pH	N/A	5.35	pH	20070608.R2B

TDS				
Parameter	MDL	Result	Units	QAQCID
Total Dissolved Solids	25	62	mg/L	20070615.R27E

TKN Water				
Parameter	MDL	Result	Units	QAQCID
Total Kjeldahl Nitrogen	0.008	0.637	mg/L	20070610.R58B

TSS				
Parameter	MDL	Result	Units	QAQCID
Total Suspended Solids	6	<6	mg/L	20070615.R27F

Turbidity				
Parameter	MDL	Result	Units	QAQCID
Turbidity	0.1	1.21	NTU	20070609.R21B

Sample Name: SW-4

Date: 6/5/2007

Matrix: Water

Lab #: 123713

Alk by FIA				
Parameter	MDL	Result	Units	QAQCID
M-Alkalinity as CaCO ₃ (pH 4.5)	10	21	mg/L	20070612.R69A

AmmoniaFIA				
Parameter	MDL	Result	Units	QAQCID
Ammonia (as N)	0.002	0.015	mg/L	20070609.R42A

Anions Water				
Parameter	MDL	Result	Units	QAQCID
Chloride	0.2	<0.2	mg/L	20070611.R5D
Fluoride	0.1	<0.1	mg/L	20070611.R5D
Nitrate (as N)	0.1	<0.1	mg/L	20070611.R5D
Nitrite (as N)	0.03	<0.03	mg/L	20070611.R5D
Phosphate	1	<1	mg/L	20070611.R5D
Sulfate	1	<1	mg/L	20070611.R5D

Colour				
Parameter	MDL	Result	Units	QAQCID
True Colour	4	202	TCU	20070609.R26B

CONDWATER				
Parameter	MDL	Result	Units	QAQCID
Conductivity	1	21.7	µS/cm	20070608.R12B



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Work Order: 35832

Sample Name: SW-4

Date: 6/5/2007

Matrix: Water

Lab #: 123713

DO				
Parameter	MDL	Result	Units	QAQCID
Dissolved Oxygen	0.2	9.79	mg/L	20070608.DO1

DOC Water				
Parameter	MDL	Result	Units	QAQCID
Dissolved Organic Carbon	0.4	21.8	mg/L	20070619.R55.1A

Hardness/ICP				
Parameter	MDL	Result	Units	QAQCID
Calcium	0.05	3.06	mg/L	20070609.R13E
Magnesium	0.004	0.713	mg/L	20070609.R13E
Total Hardness (as CaCO3)	0.1	10.6	mg/L	20070609.R13E

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Aluminum	1	158	ug/L	20070609.R13J
Total Antimony	0.5	<0.5	ug/L	20070609.R13J
Total Arsenic	1	<1	ug/L	20070609.R13J
Total Barium	1	2.5	ug/L	20070609.R13J
Total Beryllium	0.5	<0.5	ug/L	20070609.R13J
Total Bismuth	1	<1	ug/L	20070609.R13J
Total Boron	2	2.6	ug/L	20070609.R13J
Total Cadmium	0.1	<0.1	ug/L	20070609.R13J
Total Calcium	50	3720	ug/L	20070609.R13J
Total Cerium	1	<1	ug/L	20070609.R13J
Total Cesium	1	<1	ug/L	20070609.R13J
Total Chromium	1	<1	ug/L	20070609.R13J
Total Cobalt	0.1	0.31	ug/L	20070609.R13J
Total Copper	1	<1	ug/L	20070609.R13J
Total Europium	1	<1	ug/L	20070609.R13J
Total Gallium	1	<1	ug/L	20070609.R13J
Total Iron	20	276	ug/L	20070609.R13J
Total Lanthanum	1	<1	ug/L	20070609.R13J
Total Lead	1	<1	ug/L	20070609.R13J
Total Lithium	5	<5	ug/L	20070609.R13J
Total Magnesium	4	807	ug/L	20070609.R13J
Total Manganese	1	11.8	ug/L	20070609.R13J
Total Mercury	0.1	<0.1	ug/L	20070609.R13J
Total Molybdenum	1	<1	ug/L	20070609.R13J
Total Nickel	1	<1	ug/L	20070609.R13J
Total Niobium	1	<1	ug/L	20070609.R13J
Total Rubidium	1	<1	ug/L	20070609.R13J
Total Scandium	1	4.6	ug/L	20070609.R13J
Total Selenium	1	<1	ug/L	20070609.R13J
Total Silver	0.1	<0.1	ug/L	20070609.R13J
Total Strontium	1	12.5	ug/L	20070609.R13J
Total Thallium	0.1	<0.1	ug/L	20070609.R13J
Total Thorium	1	1.2	ug/L	20070609.R13J

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Work Order: 35832

Sample Name: SW-4

Date: 6/5/2007

Matrix: Water

Lab #: 123713

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Tin	1	<1	ug/L	20070609.R13J
Total Titanium	1	4.9	ug/L	20070609.R13J
Total Tungsten	1	2.3	ug/L	20070609.R13J
Total Uranium	1	<1	ug/L	20070609.R13J
Total Vanadium	1	<1	ug/L	20070609.R13J
Total Yttrium	1	<1	ug/L	20070609.R13J
Total Zinc	1	1.8	ug/L	20070609.R13J
Total Zirconium	1	2	ug/L	20070609.R13J

pHWATER				
Parameter	MDL	Result	Units	QAQCID
pH	N/A	5.75	pH	20070608.R2B

TDS				
Parameter	MDL	Result	Units	QAQCID
Total Dissolved Solids	25	74	mg/L	20070615.R27E

TKN Water				
Parameter	MDL	Result	Units	QAQCID
Total Kjeldahl Nitrogen	0.008	0.299	mg/L	20070610.R58B

TSS				
Parameter	MDL	Result	Units	QAQCID
Total Suspended Solids	6	<6	mg/L	20070615.R27F

Turbidity				
Parameter	MDL	Result	Units	QAQCID
Turbidity	0.1	1.36	NTU	20070609.R21B

Sample Name: SW-5

Date: 6/5/2007

Matrix: Water

Lab #: 123714

Alk by FIA				
Parameter	MDL	Result	Units	QAQCID
M-Alkalinity as CaCO ₃ (pH 4.5)	10	20	mg/L	20070612.R69A

AmmoniaFIA				
Parameter	MDL	Result	Units	QAQCID
Ammonia (as N)	0.002	0.016	mg/L	20070609.R42A

Anions Water				
Parameter	MDL	Result	Units	QAQCID
Chloride	0.2	<0.2	mg/L	20070611.R5F
Chloride (Dup)	0.2	<0.2	mg/L	20070611.R5F
Fluoride	0.1	<0.1	mg/L	20070611.R5F
Fluoride (Dup)	0.1	<0.1	mg/L	20070611.R5F
Nitrate (as N)	0.1	<0.1	mg/L	20070611.R5F
Nitrate (as N) (Dup)	0.1	<0.1	mg/L	20070611.R5F
Nitrite (as N)	0.03	<0.03	mg/L	20070611.R5F
Nitrite (as N) (Dup)	0.03	<0.03	mg/L	20070611.R5F
Phosphate	1	<1	mg/L	20070611.R5F

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Work Order: 35832

Sample Name: SW-5

Date: 6/5/2007

Matrix: Water

Lab #: 123714

Anions Water				
Parameter	MDL	Result	Units	QAQCID
Phosphate (Dup)	1	<1	mg/L	20070611.R5F
Sulfate	1	<1	mg/L	20070611.R5F
Sulfate (Dup)	1	<1	mg/L	20070611.R5F

Colour				
Parameter	MDL	Result	Units	QAQCID
True Colour	4	161	TCU	20070609.R26B

CONDWATER				
Parameter	MDL	Result	Units	QAQCID
Conductivity	1	22.5	µS/cm	20070608.R12B

DO				
Parameter	MDL	Result	Units	QAQCID
Dissolved Oxygen	0.2	10.3	mg/L	20070608.DO1

DOC Water				
Parameter	MDL	Result	Units	QAQCID
Dissolved Organic Carbon	0.4	21.9	mg/L	20070619.R55.1A

Hardness/ICP				
Parameter	MDL	Result	Units	QAQCID
Calcium	0.05	3.37	mg/L	20070609.R13E
Magnesium	0.004	0.85	mg/L	20070609.R13E
Total Hardness (as CaCO ₃)	0.1	11.9	mg/L	20070609.R13E

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Aluminum	1	88.7	ug/L	20070609.R13J
Total Antimony	0.5	<0.5	ug/L	20070609.R13J
Total Arsenic	1	<1	ug/L	20070609.R13J
Total Barium	1	2.7	ug/L	20070609.R13J
Total Beryllium	0.5	<0.5	ug/L	20070609.R13J
Total Bismuth	1	<1	ug/L	20070609.R13J
Total Boron	2	2.4	ug/L	20070609.R13J
Total Cadmium	0.1	<0.1	ug/L	20070609.R13J
Total Calcium	50	3840	ug/L	20070609.R13J
Total Cerium	1	<1	ug/L	20070609.R13J
Total Cesium	1	<1	ug/L	20070609.R13J
Total Chromium	1	<1	ug/L	20070609.R13J
Total Cobalt	0.1	0.23	ug/L	20070609.R13J
Total Copper	1	<1	ug/L	20070609.R13J
Total Europium	1	<1	ug/L	20070609.R13J
Total Gallium	1	<1	ug/L	20070609.R13J
Total Iron	20	203	ug/L	20070609.R13J
Total Lanthanum	1	<1	ug/L	20070609.R13J
Total Lead	1	<1	ug/L	20070609.R13J
Total Lithium	5	<5	ug/L	20070609.R13J
Total Magnesium	4	883	ug/L	20070609.R13J

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Work Order: 35832

Sample Name: SW-5

Date: 6/5/2007

Matrix: Water

Lab #: 123714

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Manganese	1	8.9	ug/L	20070609.R13J
Total Mercury	0.1	<0.1	ug/L	20070609.R13J
Total Molybdenum	1	<1	ug/L	20070609.R13J
Total Nickel	1	<1	ug/L	20070609.R13J
Total Niobium	1	<1	ug/L	20070609.R13J
Total Rubidium	1	<1	ug/L	20070609.R13J
Total Scandium	1	3.8	ug/L	20070609.R13J
Total Selenium	1	<1	ug/L	20070609.R13J
Total Silver	0.1	<0.1	ug/L	20070609.R13J
Total Strontium	1	10.7	ug/L	20070609.R13J
Total Thallium	0.1	<0.1	ug/L	20070609.R13J
Total Thorium	1	<1	ug/L	20070609.R13J
Total Tin	1	<1	ug/L	20070609.R13J
Total Titanium	1	1.7	ug/L	20070609.R13J
Total Tungsten	1	2.1	ug/L	20070609.R13J
Total Uranium	1	<1	ug/L	20070609.R13J
Total Vanadium	1	<1	ug/L	20070609.R13J
Total Yttrium	1	<1	ug/L	20070609.R13J
Total Zinc	1	<1	ug/L	20070609.R13J
Total Zirconium	1	1.5	ug/L	20070609.R13J

pHWATER				
Parameter	MDL	Result	Units	QAQCID
pH	N/A	6.10	pH	20070608.R2B

TDS				
Parameter	MDL	Result	Units	QAQCID
Total Dissolved Solids	25	55	mg/L	20070615.R27E

TKN Water				
Parameter	MDL	Result	Units	QAQCID
Total Kjeldahl Nitrogen	0.008	0.489	mg/L	20070610.R58B

TSS				
Parameter	MDL	Result	Units	QAQCID
Total Suspended Solids	6	<6	mg/L	20070615.R27F

Turbidity				
Parameter	MDL	Result	Units	QAQCID
Turbidity	0.1	1.3	NTU	20070609.R21B

Sample Name: SW-6

Date: 6/5/2007

Matrix: Water

Lab #: 123715

Alk by FIA				
Parameter	MDL	Result	Units	QAQCID
M-Alkalinity as CaCO ₃ (pH 4.5)	10	19	mg/L	20070612.R69A



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Work Order: 35832

Sample Name: SW-6

Date: 6/5/2007

Matrix: Water

Lab #: 123715

AmmoniaFIA				
Parameter	MDL	Result	Units	QAQCID
Ammonia (as N)	0.002	0.012	mg/L	20070609.R42A

Anions Water				
Parameter	MDL	Result	Units	QAQCID
Chloride	0.2	<0.2	mg/L	20070611.R5F
Fluoride	0.1	<0.1	mg/L	20070611.R5F
Nitrate (as N)	0.1	<0.1	mg/L	20070611.R5F
Nitrite (as N)	0.03	<0.03	mg/L	20070611.R5F
Phosphate	1	<1	mg/L	20070611.R5F
Sulfate	1	<1	mg/L	20070611.R5F

Colour				
Parameter	MDL	Result	Units	QAQCID
True Colour	4	198	TCU	20070609.R26B

CONDWATER				
Parameter	MDL	Result	Units	QAQCID
Conductivity	1	22.7	μ S/cm	20070608.R12B

DO				
Parameter	MDL	Result	Units	QAQCID
Dissolved Oxygen	0.2	10.8	mg/L	20070608.DO1

DOC Water				
Parameter	MDL	Result	Units	QAQCID
Dissolved Organic Carbon	0.4	22.9	mg/L	20070619.R55.1A

Hardness/ICP				
Parameter	MDL	Result	Units	QAQCID
Calcium	0.05	3.49	mg/L	20070609.R13E
Magnesium	0.004	0.822	mg/L	20070609.R13E
Total Hardness (as CaCO ₃)	0.1	12.1	mg/L	20070609.R13E

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Aluminum	1	152	ug/L	20070609.R13J
Total Antimony	0.5	<0.5	ug/L	20070609.R13J
Total Arsenic	1	<1	ug/L	20070609.R13J
Total Barium	1	3.8	ug/L	20070609.R13J
Total Beryllium	0.5	<0.5	ug/L	20070609.R13J
Total Bismuth	1	<1	ug/L	20070609.R13J
Total Boron	2	3	ug/L	20070609.R13J
Total Cadmium	0.1	<0.1	ug/L	20070609.R13J
Total Calcium	50	4010	ug/L	20070609.R13J
Total Cerium	1	<1	ug/L	20070609.R13J
Total Cesium	1	<1	ug/L	20070609.R13J
Total Chromium	1	1.1	ug/L	20070609.R13J
Total Cobalt	0.1	0.17	ug/L	20070609.R13J
Total Copper	1	<1	ug/L	20070609.R13J



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Work Order: 35832

Sample Name: SW-6

Date: 6/5/2007

Matrix: Water

Lab #: 123715

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Europium	1	<1	ug/L	20070609.R13J
Total Gallium	1	<1	ug/L	20070609.R13J
Total Iron	20	259	ug/L	20070609.R13J
Total Lanthanum	1	<1	ug/L	20070609.R13J
Total Lead	1	<1	ug/L	20070609.R13J
Total Lithium	5	<5	ug/L	20070609.R13J
Total Magnesium	4	876	ug/L	20070609.R13J
Total Manganese	1	6.2	ug/L	20070609.R13J
Total Mercury	0.1	<0.1	ug/L	20070609.R13J
Total Molybdenum	1	<1	ug/L	20070609.R13J
Total Nickel	1	<1	ug/L	20070609.R13J
Total Niobium	1	<1	ug/L	20070609.R13J
Total Rubidium	1	<1	ug/L	20070609.R13J
Total Scandium	1	3.5	ug/L	20070609.R13J
Total Selenium	1	<1	ug/L	20070609.R13J
Total Silver	0.1	<0.1	ug/L	20070609.R13J
Total Strontium	1	11.3	ug/L	20070609.R13J
Total Thallium	0.1	<0.1	ug/L	20070609.R13J
Total Thorium	1	<1	ug/L	20070609.R13J
Total Tin	1	<1	ug/L	20070609.R13J
Total Titanium	1	3.4	ug/L	20070609.R13J
Total Tungsten	1	1.8	ug/L	20070609.R13J
Total Uranium	1	<1	ug/L	20070609.R13J
Total Vanadium	1	<1	ug/L	20070609.R13J
Total Yttrium	1	<1	ug/L	20070609.R13J
Total Zinc	1	<1	ug/L	20070609.R13J
Total Zirconium	1	2.6	ug/L	20070609.R13J

pHWATER				
Parameter	MDL	Result	Units	QAQCID
pH	N/A	6.13	pH	20070608.R2B

TDS				
Parameter	MDL	Result	Units	QAQCID
Total Dissolved Solids	25	62	mg/L	20070615.R27E

TKN Water				
Parameter	MDL	Result	Units	QAQCID
Total Kjeldahl Nitrogen	0.008	0.505	mg/L	20070610.R58B

TSS				
Parameter	MDL	Result	Units	QAQCID
Total Suspended Solids	6	<6	mg/L	20070615.R27F

Turbidity				
Parameter	MDL	Result	Units	QAQCID
Turbidity	0.1	1.38	NTU	20070609.R21B



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Work Order: 35832

Sample Name: SW-7

Date: 6/5/2007

Matrix: Water

Lab #: 123716

Alk by FIA				
Parameter	MDL	Result	Units	QAQCID
M-Alkalinity as CaCO ₃ (pH 4.5)	10	19	mg/L	20070612.R69A

AmmoniaFIA				
Parameter	MDL	Result	Units	QAQCID
Ammonia (as N)	0.002	0.022	mg/L	20070609.R42A

Anions Water				
Parameter	MDL	Result	Units	QAQCID
Chloride	0.2	<0.2	mg/L	20070611.R5F
Fluoride	0.1	<0.1	mg/L	20070611.R5F
Nitrate (as N)	0.1	<0.1	mg/L	20070611.R5F
Nitrite (as N)	0.03	<0.03	mg/L	20070611.R5F
Phosphate	1	<1	mg/L	20070611.R5F
Sulfate	1	<1	mg/L	20070611.R5F

Colour				
Parameter	MDL	Result	Units	QAQCID
True Colour	4	193	TCU	20070609.R26B

CONDWATER				
Parameter	MDL	Result	Units	QAQCID
Conductivity	1	19.6	µS/cm	20070608.R12B

DO				
Parameter	MDL	Result	Units	QAQCID
Dissolved Oxygen	0.2	10.2	mg/L	20070608.DO1

DOC Water				
Parameter	MDL	Result	Units	QAQCID
Dissolved Organic Carbon	0.4	22.9	mg/L	20070619.R55.1A

Hardness/ICP				
Parameter	MDL	Result	Units	QAQCID
Calcium	0.05	2.33	mg/L	20070609.R13E
Magnesium	0.004	0.572	mg/L	20070609.R13E
Total Hardness (as CaCO ₃)	0.1	8.17	mg/L	20070609.R13E

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Aluminum	1	86.4	ug/L	20070609.R13J
Total Antimony	0.5	<0.5	ug/L	20070609.R13J
Total Arsenic	1	<1	ug/L	20070609.R13J
Total Barium	1	1.6	ug/L	20070609.R13J
Total Beryllium	0.5	<0.5	ug/L	20070609.R13J
Total Bismuth	1	<1	ug/L	20070609.R13J
Total Boron	2	2.1	ug/L	20070609.R13J
Total Cadmium	0.1	<0.1	ug/L	20070609.R13J
Total Calcium	50	3030	ug/L	20070609.R13J
Total Cerium	1	<1	ug/L	20070609.R13J
Total Cesium	1	<1	ug/L	20070609.R13J

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TESTMARK Laboratories Ltd.

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Golder Associates Ltd. - Sudbury

Work Order: 35832

Sample Name: SW-7

Date: 6/5/2007

Matrix: Water

Lab #: 123716

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Chromium	1	<1	ug/L	20070609.R13J
Total Cobalt	0.1	0.16	ug/L	20070609.R13J
Total Copper	1	<1	ug/L	20070609.R13J
Total Europium	1	<1	ug/L	20070609.R13J
Total Gallium	1	<1	ug/L	20070609.R13J
Total Iron	20	205	ug/L	20070609.R13J
Total Lanthanum	1	<1	ug/L	20070609.R13J
Total Lead	1	<1	ug/L	20070609.R13J
Total Lithium	5	<5	ug/L	20070609.R13J
Total Magnesium	4	654	ug/L	20070609.R13J
Total Manganese	1	17	ug/L	20070609.R13J
Total Mercury	0.1	<0.1	ug/L	20070609.R13J
Total Molybdenum	1	<1	ug/L	20070609.R13J
Total Nickel	1	<1	ug/L	20070609.R13J
Total Niobium	1	<1	ug/L	20070609.R13J
Total Rubidium	1	<1	ug/L	20070609.R13J
Total Scandium	1	3.6	ug/L	20070609.R13J
Total Selenium	1	<1	ug/L	20070609.R13J
Total Silver	0.1	<0.1	ug/L	20070609.R13J
Total Strontium	1	7.4	ug/L	20070609.R13J
Total Thallium	0.1	<0.1	ug/L	20070609.R13J
Total Thorium	1	<1	ug/L	20070609.R13J
Total Tin	1	<1	ug/L	20070609.R13J
Total Titanium	1	2.4	ug/L	20070609.R13J
Total Tungsten	1	2	ug/L	20070609.R13J
Total Uranium	1	<1	ug/L	20070609.R13J
Total Vanadium	1	<1	ug/L	20070609.R13J
Total Yttrium	1	<1	ug/L	20070609.R13J
Total Zinc	1	2	ug/L	20070609.R13J
Total Zirconium	1	1.5	ug/L	20070609.R13J

pHWATER				
Parameter	MDL	Result	Units	QAQCID
pH	N/A	5.28	pH	20070608.R2B

TDS				
Parameter	MDL	Result	Units	QAQCID
Total Dissolved Solids	25	69	mg/L	20070615.R27E

TKN Water				
Parameter	MDL	Result	Units	QAQCID
Total Kjeldahl Nitrogen	0.008	0.201	mg/L	20070610.R58B

TSS				
Parameter	MDL	Result	Units	QAQCID
Total Suspended Solids	6	<6	mg/L	20070615.R27F



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Golder Associates Ltd. - Sudbury

Work Order: 35832

Sample Name: Trip

Date: 6/1/2007

Matrix: Water

Lab #: 123717

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Bismuth	1	<1	ug/L	20070609.R13J
Total Boron	2	<2	ug/L	20070609.R13J
Total Cadmium	0.1	<0.1	ug/L	20070609.R13J
Total Calcium	50	<50	ug/L	20070609.R13J
Total Cerium	1	<1	ug/L	20070609.R13J
Total Cesium	1	<1	ug/L	20070609.R13J
Total Chromium	1	<1	ug/L	20070609.R13J
Total Cobalt	0.1	0.14	ug/L	20070609.R13J
Total Copper	1	<1	ug/L	20070609.R13J
Total Europium	1	<1	ug/L	20070609.R13J
Total Gallium	1	<1	ug/L	20070609.R13J
Total Iron	20	<20	ug/L	20070609.R13J
Total Lanthanum	1	<1	ug/L	20070609.R13J
Total Lead	1	<1	ug/L	20070609.R13J
Total Lithium	5	<5	ug/L	20070609.R13J
Total Magnesium	4	<4	ug/L	20070609.R13J
Total Manganese	1	<1	ug/L	20070609.R13J
Total Mercury	0.1	<0.1	ug/L	20070609.R13J
Total Molybdenum	1	<1	ug/L	20070609.R13J
Total Nickel	1	<1	ug/L	20070609.R13J
Total Niobium	1	<1	ug/L	20070609.R13J
Total Rubidium	1	<1	ug/L	20070609.R13J
Total Scandium	1	<1	ug/L	20070609.R13J
Total Selenium	1	<1	ug/L	20070609.R13J
Total Silver	0.1	<0.1	ug/L	20070609.R13J
Total Strontium	1	<1	ug/L	20070609.R13J
Total Thallium	0.1	<0.1	ug/L	20070609.R13J
Total Thorium	1	<1	ug/L	20070609.R13J
Total Tin	1	<1	ug/L	20070609.R13J
Total Titanium	1	<1	ug/L	20070609.R13J
Total Tungsten	1	<1	ug/L	20070609.R13J
Total Uranium	1	<1	ug/L	20070609.R13J
Total Vanadium	1	<1	ug/L	20070609.R13J
Total Yttrium	1	<1	ug/L	20070609.R13J
Total Zinc	1	<1	ug/L	20070609.R13J
Total Zirconium	1	<1	ug/L	20070609.R13J

pHWATER				
Parameter	MDL	Result	Units	QAQCID
pH	N/A	6.06	pH	20070608.R2B

TDS				
Parameter	MDL	Result	Units	QAQCID
Total Dissolved Solids	25	<25	mg/L	20070615.R27E



TESTMARK Laboratories Ltd.

Committed to Quality and Service

Golder Associates Ltd.- Sudbury

Work Order: 35832

Sample Name: Field Blank

Date: 6/1/2007

Matrix: Water

Lab #: 123718

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Aluminum	1	<1	ug/L	20070609.R13J
Total Aluminum (Dup)	1	<1	ug/L	20070609.R13J
Total Antimony	0.5	<0.5	ug/L	20070609.R13J
Total Antimony (Dup)	0.5	<0.5	ug/L	20070609.R13J
Total Arsenic	1	<1	ug/L	20070609.R13J
Total Arsenic (Dup)	1	<1	ug/L	20070609.R13J
Total Barium	1	<1	ug/L	20070609.R13J
Total Barium (Dup)	1	<1	ug/L	20070609.R13J
Total Beryllium	0.5	<0.5	ug/L	20070609.R13J
Total Beryllium (Dup)	0.5	<0.5	ug/L	20070609.R13J
Total Bismuth	1	<1	ug/L	20070609.R13J
Total Bismuth (Dup)	1	<1	ug/L	20070609.R13J
Total Boron	2	<2	ug/L	20070609.R13J
Total Boron (Dup)	2	<2	ug/L	20070609.R13J
Total Cadmium	0.1	<0.1	ug/L	20070609.R13J
Total Cadmium (Dup)	0.1	<0.1	ug/L	20070609.R13J
Total Calcium	50	<50	ug/L	20070609.R13J
Total Calcium (Dup)	50	<50	ug/L	20070609.R13J
Total Cerium	1	<1	ug/L	20070609.R13J
Total Cerium (Dup)	1	<1	ug/L	20070609.R13J
Total Cesium	1	<1	ug/L	20070609.R13J
Total Cesium (Dup)	1	<1	ug/L	20070609.R13J
Total Chromium	1	<1	ug/L	20070609.R13J
Total Chromium (Dup)	1	<1	ug/L	20070609.R13J
Total Cobalt	0.1	<0.1	ug/L	20070609.R13J
Total Cobalt (Dup)	0.1	<0.1	ug/L	20070609.R13J
Total Copper	1	<1	ug/L	20070609.R13J
Total Copper (Dup)	1	<1	ug/L	20070609.R13J
Total Europium	1	<1	ug/L	20070609.R13J
Total Europium (Dup)	1	<1	ug/L	20070609.R13J
Total Gallium	1	<1	ug/L	20070609.R13J
Total Gallium (Dup)	1	<1	ug/L	20070609.R13J
Total Iron	20	<20	ug/L	20070609.R13J
Total Iron (Dup)	20	<20	ug/L	20070609.R13J
Total Lanthanum	1	<1	ug/L	20070609.R13J
Total Lanthanum (Dup)	1	<1	ug/L	20070609.R13J
Total Lead	1	<1	ug/L	20070609.R13J
Total Lead (Dup)	1	<1	ug/L	20070609.R13J
Total Lithium	5	<5	ug/L	20070609.R13J
Total Lithium (Dup)	5	<5	ug/L	20070609.R13J
Total Magnesium	4	<4	ug/L	20070609.R13J
Total Magnesium (Dup)	4	<4	ug/L	20070609.R13J
Total Manganese	1	<1	ug/L	20070609.R13J
Total Manganese (Dup)	1	<1	ug/L	20070609.R13J
Total Mercury	0.1	<0.1	ug/L	20070609.R13J
Total Mercury (Dup)	0.1	<0.1	ug/L	20070609.R13J

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Golder Associates Ltd.- Sudbury

Work Order: 35832

Sample Name: Field Blank

Date: 6/1/2007

Matrix: Water

Lab #: 123718

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Molybdenum	1	<1	ug/L	20070609.R13J
Total Molybdenum (Dup)	1	<1	ug/L	20070609.R13J
Total Nickel	1	<1	ug/L	20070609.R13J
Total Nickel (Dup)	1	<1	ug/L	20070609.R13J
Total Niobium	1	<1	ug/L	20070609.R13J
Total Niobium (Dup)	1	<1	ug/L	20070609.R13J
Total Rubidium	1	<1	ug/L	20070609.R13J
Total Rubidium (Dup)	1	<1	ug/L	20070609.R13J
Total Scandium	1	<1	ug/L	20070609.R13J
Total Scandium (Dup)	1	<1	ug/L	20070609.R13J
Total Selenium	1	<1	ug/L	20070609.R13J
Total Selenium (Dup)	1	<1	ug/L	20070609.R13J
Total Silver	0.1	<0.1	ug/L	20070609.R13J
Total Silver (Dup)	0.1	<0.1	ug/L	20070609.R13J
Total Strontium	1	<1	ug/L	20070609.R13J
Total Strontium (Dup)	1	<1	ug/L	20070609.R13J
Total Thallium	0.1	<0.1	ug/L	20070609.R13J
Total Thallium (Dup)	0.1	<0.1	ug/L	20070609.R13J
Total Thorium	1	<1	ug/L	20070609.R13J
Total Thorium (Dup)	1	<1	ug/L	20070609.R13J
Total Tin	1	<1	ug/L	20070609.R13J
Total Tin (Dup)	1	<1	ug/L	20070609.R13J
Total Titanium	1	<1	ug/L	20070609.R13J
Total Titanium (Dup)	1	<1	ug/L	20070609.R13J
Total Tungsten	1	<1	ug/L	20070609.R13J
Total Tungsten (Dup)	1	<1	ug/L	20070609.R13J
Total Uranium	1	<1	ug/L	20070609.R13J
Total Uranium (Dup)	1	<1	ug/L	20070609.R13J
Total Vanadium	1	<1	ug/L	20070609.R13J
Total Vanadium (Dup)	1	<1	ug/L	20070609.R13J
Total Yttrium	1	<1	ug/L	20070609.R13J
Total Yttrium (Dup)	1	<1	ug/L	20070609.R13J
Total Zinc	1	<1	ug/L	20070609.R13J
Total Zinc (Dup)	1	<1	ug/L	20070609.R13J
Total Zirconium	1	<1	ug/L	20070609.R13J
Total Zirconium (Dup)	1	<1	ug/L	20070609.R13J

pHWATER

Parameter	MDL	Result	Units	QAQCID
pH	N/A	5.94	pH	20070608.R2B

TDS

Parameter	MDL	Result	Units	QAQCID
Total Dissolved Solids	25	<25	mg/L	20070615.R27E



TESTMARK Laboratories Ltd.

Committed to Quality and Service

Golder Associates Ltd.- Sudbury

Work Order: 35832

Sample Name: Field Blank

Date: 6/1/2007

Matrix: Water

Lab #: 123718

TKN Water				
Parameter	MDL	Result	Units	QAQCID
Total Kjeldahl Nitrogen	0.008	0.048	mg/L	20070610.R58B

TSS				
Parameter	MDL	Result	Units	QAQCID
Total Suspended Solids	6	<6	mg/L	20070615.R27F

Turbidity				
Parameter	MDL	Result	Units	QAQCID
Turbidity	0.1	0.2	NTU	20070609.R21B

MDL Method detection limit or minimum reporting limit.

% Rec Surrogate compounds are added to the sample in some cases and the recovery is reported as a percent recovered.

QAQCID This is a unique reference to the quality control data set used to generate the reported value.

Data reported for organic analysis in soil samples are corrected for moisture content

Matrix If the matrix is a leachate, the sample was extracted according to regulation 558.

INT Interferences

TNTC Too numerous to count

ND Not detected



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Work Order: 35832

Quality Control Data:

Alk by FIA

200 mg/L Check Std.

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
M-Alkalinity as CaCO3 (pH 4.5)	10	mg/L	220	218	180	20070612.R69A

Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
M-Alkalinity as CaCO3 (pH 4.5)	10	mg/L	10	<10	<10	20070612.R69A

AmmoniaFIA

500 ppb HN3

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Ammonia (as N)	0.002	mg/L	0.6	0.478	0.4	20070609.R42A

Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Ammonia (as N)	0.002	mg/L	0.02	0.007	<0.002	20070609.R42A

Anions Water

Blank (IC-2)						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Chloride	0.2	mg/L	0.5	<0.2	<0.2	20070611.R5D
Fluoride	0.1	mg/L	0.5	<0.1	<0.1	20070611.R5D
Nitrate (as N)	0.1	mg/L	0.5	<0.1	<0.1	20070611.R5D
Nitrite (as N)	0.03	mg/L	0.5	<0.03	<0.03	20070611.R5D
Phosphate	1	mg/L	1	<1	<1	20070611.R5D
Sulfate	1	mg/L	1	<1	<1	20070611.R5D
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Chloride	0.2	mg/L	0.5	<0.2	<0.2	20070611.R5F
Fluoride	0.1	mg/L	0.5	<0.1	<0.1	20070611.R5F
Nitrate (as N)	0.1	mg/L	0.5	<0.1	<0.1	20070611.R5F
Nitrite (as N)	0.03	mg/L	0.5	<0.03	<0.03	20070611.R5F
Phosphate	1	mg/L	1	<1	<1	20070611.R5F
Sulfate	1	mg/L	1	<1	<1	20070611.R5F

Control (IC-2)

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Chloride	0.2	mg/L	100	84.5	80	20070611.R5D
Fluoride	0.1	mg/L	55	48.2	45	20070611.R5D
Nitrate (as N)	0.1	mg/L	55	42.1	40	20070611.R5D
Nitrite (as N)	0.03	mg/L	62	48.1	47	20070611.R5D
Phosphate	1	mg/L	105	101	86	20070611.R5D
Sulfate	1	mg/L	100	80.5	78	20070611.R5D
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Chloride	0.2	mg/L	100	84.1	80	20070611.R5F
Fluoride	0.1	mg/L	55	49.3	45	20070611.R5F
Nitrate (as N)	0.1	mg/L	55	41.9	40	20070611.R5F

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Golder Associates Ltd. - Sudbury

Work Order: 35832

Anions Water

Control (IC-2)						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Nitrite (as N)	0.03	mg/L	62	50.3	47	20070611.R5F
Phosphate	1	mg/L	105	96.2	86	20070611.R5F
Sulfate	1	mg/L	100	80.5	78	20070611.R5F

Colour

70 TCU

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
True Colour	4	TCU	80	69.7	60	20070609.R26B

Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
True Colour	4	TCU	<4	<4	<4	20070609.R26B

CONDWATER

100 µS Control

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Conductivity	1	µS/cm	110	98.1	90	20070608.R12B

DOC Water

20 ppm Blank Spike

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Dissolved Organic Carbon	0.4	mg/L	22	18	18	20070619.R55.1A

Method Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Dissolved Organic Carbon	0.4	mg/L	0.4	<0.4	<0.4	20070619.R55.1A

ICPMS Tot. Water

Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Aluminum	1	ug/L	1	<1	<1	20070609.R13J
Total Antimony	1	ug/L	1	<1	<1	20070609.R13J
Total Arsenic	1	ug/L	1	<1	<1	20070609.R13J
Total Barium	1	ug/L	1	<1	<1	20070609.R13J
Total Beryllium	1	ug/L	1	<1	<1	20070609.R13J
Total Bismuth	1	ug/L	1	<1	<1	20070609.R13J
Total Boron	2	ug/L	2	<2	<2	20070609.R13J
Total Cadmium	1	ug/L	1	<1	<1	20070609.R13J
Total Cerium	1	ug/L	1	<1	<1	20070609.R13J
Total Cesium	1	ug/L	1	<1	<1	20070609.R13J
Total Chromium	1	ug/L	1	<1	<1	20070609.R13J
Total Cobalt	1	ug/L	1	<1	<1	20070609.R13J
Total Copper	1	ug/L	1	<1	<1	20070609.R13J
Total Europium	1	ug/L	1	<1	<1	20070609.R13J

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Work Order: 35832

ICPMS Tot. Water

Blank						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Gallium	1	ug/L	1	<1	<1	20070609.R13J
Total Iron	20	ug/L	20	<20	<20	20070609.R13J
Total Lanthanum	1	ug/L	1	<1	<1	20070609.R13J
Total Lead	1	ug/L	1	<1	<1	20070609.R13J
Total Lithium	5	ug/L	5	<5	<5	20070609.R13J
Total Magnesium	4	ug/L	4	<4	<4	20070609.R13J
Total Manganese	1	ug/L	1	<1	<1	20070609.R13J
Total Mercury	0.1	ug/L	0.1	<0.1	<0.1	20070609.R13J
Total Molybdenum	1	ug/L	1	<1	<1	20070609.R13J
Total Nickel	1	ug/L	1	<1	<1	20070609.R13J
Total Niobium	1	ug/L	1	<1	<1	20070609.R13J
Total Rubidium	1	ug/L	1	<1	<1	20070609.R13J
Total Selenium	1	ug/L	1	<1	<1	20070609.R13J
Total Silver	5	ug/L	5	<5	<5	20070609.R13J
Total Strontium	1	ug/L	1	<1	<1	20070609.R13J
Total Thallium	1	ug/L	1	<1	<1	20070609.R13J
Total Thorium	1	ug/L	1	<1	<1	20070609.R13J
Total Tin	1	ug/L	1	<1	<1	20070609.R13J
Total Tungsten	1	ug/L	1	<1	<1	20070609.R13J
Total Uranium	1	ug/L	1	<1	<1	20070609.R13J
Total Vanadium	1	ug/L	1	<1	<1	20070609.R13J
Total Yttrium	1	ug/L	1	<1	<1	20070609.R13J
Total Zinc	1	ug/L	1	<1	<1	20070609.R13J
Total Zirconium	1	ug/L	1	<1	<1	20070609.R13J

Blank Spike (1011)

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Aluminum	1	ug/L	600	463	400	20070609.R13J
Total Arsenic	1	ug/L	120	81.3	80	20070609.R13J
Total Barium	1	ug/L	120	102	80	20070609.R13J
Total Beryllium	1	ug/L	125	83	75	20070609.R13J
Total Boron	2	ug/L	125	92.9	75	20070609.R13J
Total Cadmium	1	ug/L	120	88.1	80	20070609.R13J
Total Calcium	50	ug/L	1200	906	800	20070609.R13J
Total Chromium	1	ug/L	120	92.3	80	20070609.R13J
Total Cobalt	1	ug/L	120	94.3	80	20070609.R13J
Total Copper	1	ug/L	120	89.2	80	20070609.R13J
Total Iron	20	ug/L	600	518	400	20070609.R13J
Total Lead	1	ug/L	120	98.9	80	20070609.R13J
Total Magnesium	4	ug/L	1200	971	800	20070609.R13J
Total Manganese	1	ug/L	120	89.1	80	20070609.R13J
Total Molybdenum	1	ug/L	120	99.5	80	20070609.R13J
Total Nickel	1	ug/L	120	92.7	80	20070609.R13J
Total Selenium	1	ug/L	120	87.7	80	20070609.R13J
Total Thallium	1	ug/L	120	100	80	20070609.R13J
Total Vanadium	1	ug/L	120	96.9	80	20070609.R13J

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Work Order: 35832

ICPMS Tot. Water

Blank Spike (1011)						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Zinc	1	ug/L	120	82.5	80	20070609.R13J

ICPMS Water

Blank						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Calcium	0.1	ug/L	0.1	<0.1	<0.1	20070609.R13E
Magnesium	4	ug/L	4	<4	<4	20070609.R13E

Blank Spike (1011)

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Calcium	50	ug/L	1200	896	800	20070609.R13E
Magnesium	4	ug/L	1200	859	800	20070609.R13E

pHWATER

pH 7						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
pH	N/A	pH	7.1	6.97	6.9	20070608.R2B

TDS

200 mg/L Control						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Dissolved Solids	25	mg/L	240	200	160	20070615.R27E

Blank						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Dissolved Solids	25	mg/L	<25	<25	<25	20070615.R27E

TKN Water

Blank Spike (0.5 mg/L)						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Kjeldahl Nitrogen	0.008	mg/L	0.6	0.479	0.4	20070610.R58B

Method Blank						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Kjeldahl Nitrogen	0.008	mg/L	0.028	<0.008	<0.008	20070610.R58B

TSS

160 mg/L Control						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Suspended Solids	6	mg/L	192	158	128	20070615.R27F

Blank						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Suspended Solids	3	mg/L	<3	<3	<3	20070615.R27F

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TSS

Blank

Turbidity

1 NTU Control

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Turbidity	N/A	NTU	0.85	0.82	0.73	20070609.R21B

Turbidity Blank Control

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Turbidity	0.1	NTU	0.3	0.16	<0.1	20070609.R21B

UCL Upper Control Limit

LCL Lower Control Limit



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Analytical Report

Client:	Brad Walker	Work Order Number:	35884
Company:	Golder Associates Ltd.- Sudbury	Date Order Received:	6/11/2007
Address:	1010 Lorne Street Sudbury, Ontario, P3C 4R9	Regulation:	PWQO
Phone:	(705) 524-6861	PO #:	
Fax:	(705) 524-1984	Project #:	06-1192-070
Email:	bwalker@golder.com		

DO, Colour, NO2/NO3, PO4 and turbidity exceeded hold time upon arrival 06/11/07

Analyses were performed on the following samples submitted with your order.

The results relate only to the items tested.

Sample Name	Lab #	Matrix	Type	Comments	Date Collected	Time Collected
SW-8	123837	Water	Grab		6/7/2007	10:52



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Golder Associates Ltd.- Sudbury

Work Order: 35884

The following instrumentation and references methods were used for your sample(s)

Method Name	Description	Reference
Alk by FIA	Determination of m-Alkalinity by Flow Injection Analysis Instrument group: Skalar San++ FIA	Mod. EPA 310.2
AmmoniaFIA	Determination of Ammonia/Ammonium by Flow Analysis Instrument group: Skalar San++ FIA	Mod. APHA-4500
Anions Water	Determination of Anions by Ion Chromatography Instrument group: Dionex DX300 IC	Mod. SW846-9056
Colour	Determination of Colour by Spectrophotometry Instrument group: Phillips PU 8610	Mod. APHA-2120
CONDWATER	Determination of conductivity in water Instrument group: Radiometer Meterlab Ion 450	Mod. APHA-2510
DO	Determination of Dissolved Oxygen in Water Instrument group: YSI Model 5000 DO Meter	APHA 4500-O
DOC Water	Determination of Dissolved Organic Carbon in Water Instrument group: Dohrman TOC Analyzer	Mod. APHA-5310
Hardness/ICP	Determination of Hardness in Water by ICP Instrument group: Perkin Elmer Elan 5000	Mod. SW846-6020
ICPMS Tot. Water	Determination of Total Metals in Water by ICP/MS with Digestion Instrument group: Perkin Elmer Elan 5000	Mod. SW846-6020
pHWATER	Determination of water pH by ion selective electrode Instrument group: Radiometer Meterlab Ion 450	Mod. APHA-4500
TDS	Determination of Total Dissolved Solids in water by gravimetry Instrument group: Mettler Analytical Balance	Mod. APHA-2540
TKN Water	Determination of Total Kjeldahl Nitrogen in Waters Instrument group: Skalar San++ FIA	APHA-4500-N-B
TSS	Determination of Total Suspended Solids in water by gravimetry Instrument group: Mettler Analytical Balance	Mod. APHA-2540
Turbidity	Determination of Turbidity by Nephelometry Instrument group: Hach Ratio Nephelometer	Mod. APHA-2130



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Work Order: 35884

This report has been approved by:

Dr. Xiaojing Li
Chief Chemist

Kimberly Guilmette, BTN
Senior Microbiologist

Dr. Robert Hamel
Inorganic Section Head



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Work Order: 35884

Sample Data:

Sample Name: SW-8

Date: 6/7/2007

Matrix: Water

Lab #: 123837

Alk by FIA				
Parameter	MDL	Result	Units	QAQCID
M-Alkalinity as CaCO ₃ (pH 4.5)	10	<10	mg/L	20070614.R69A

AmmoniaFIA				
Parameter	MDL	Result	Units	QAQCID
Ammonia (as N)	0.002	0.014	mg/L	20070611.R42B
Ammonia (as N) (Dup)	0.002	0.015	mg/L	20070611.R42B

Anions Water				
Parameter	MDL	Result	Units	QAQCID
Chloride	0.2	<0.2	mg/L	20070613.R5C
Fluoride	0.1	<0.1	mg/L	20070613.R5C
Nitrate (as N)	0.1	<0.1	mg/L	20070613.R5C
Nitrite (as N)	0.03	<0.03	mg/L	20070613.R5C
Phosphate	1	<1	mg/L	20070613.R5C
Sulfate	1	<1	mg/L	20070613.R5C

Colour				
Parameter	MDL	Result	Units	QAQCID
True Colour	4	177	TCU	20070621.R26A

CONDWATER				
Parameter	MDL	Result	Units	QAQCID
Conductivity	1	22.2	µS/cm	20070612.R12A

DO				
Parameter	MDL	Result	Units	QAQCID
Dissolved Oxygen	0.2	10.2	mg/L	20070611.DO1
Dissolved Oxygen (Dup)	0.2	10.2	mg/L	20070611.DO1

DOC Water				
Parameter	MDL	Result	Units	QAQCID
Dissolved Organic Carbon	0.4	29.2	mg/L	20070621.R55.1A

Hardness/ICP				
Parameter	MDL	Result	Units	QAQCID
Calcium	0.05	3.28	mg/L	20070617.R13I
Magnesium	0.004	0.779	mg/L	20070617.R13I
Total Hardness (as CaCO ₃)	0.1	11.4	mg/L	20070617.R13I

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Aluminum	1	132	ug/L	20070617.R13G
Total Antimony	0.5	<0.5	ug/L	20070617.R13G
Total Arsenic	1	<1	ug/L	20070617.R13G
Total Barium	1	3.1	ug/L	20070617.R13G
Total Beryllium	0.5	<0.5	ug/L	20070617.R13G
Total Bismuth	1	<1	ug/L	20070617.R13G
Total Boron	2	<2	ug/L	20070617.R13G

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Work Order: 35884

Sample Name: SW-8

Date: 6/7/2007

Matrix: Water

Lab #: 123837

ICPMS Tot. Water				
Parameter	MDL	Result	Units	QAQCID
Total Cadmium	0.1	<0.1	ug/L	20070617.R13G
Total Calcium	50	3360	ug/L	20070617.R13G
Total Cerium	1	<1	ug/L	20070617.R13G
Total Cesium	1	<1	ug/L	20070617.R13G
Total Chromium	1	<1	ug/L	20070617.R13G
Total Cobalt	0.1	<0.1	ug/L	20070617.R13G
Total Copper	1	<1	ug/L	20070617.R13G
Total Europium	1	<1	ug/L	20070617.R13G
Total Gallium	1	<1	ug/L	20070617.R13G
Total Iron	20	180	ug/L	20070617.R13G
Total Lanthanum	1	<1	ug/L	20070617.R13G
Total Lead	1	<1	ug/L	20070617.R13G
Total Lithium	5	<5	ug/L	20070617.R13G
Total Magnesium	4	908	ug/L	20070617.R13G
Total Manganese	1	7.1	ug/L	20070617.R13G
Total Mercury	0.1	<0.1	ug/L	20070617.R13G
Total Molybdenum	1	<1	ug/L	20070617.R13G
Total Nickel	1	<1	ug/L	20070617.R13G
Total Niobium	1	<1	ug/L	20070617.R13G
Total Rubidium	1	<1	ug/L	20070617.R13G
Total Scandium	1	<1	ug/L	20070617.R13G
Total Selenium	1	<1	ug/L	20070617.R13G
Total Silver	0.1	<0.1	ug/L	20070617.R13G
Total Strontium	1	12.1	ug/L	20070617.R13G
Total Thallium	0.1	<0.1	ug/L	20070617.R13G
Total Thorium	1	<1	ug/L	20070617.R13G
Total Tin	1	<1	ug/L	20070617.R13G
Total Titanium	1	2.2	ug/L	20070617.R13G
Total Tungsten	1	<1	ug/L	20070617.R13G
Total Uranium	1	<1	ug/L	20070617.R13G
Total Vanadium	1	<1	ug/L	20070617.R13G
Total Yttrium	1	<1	ug/L	20070617.R13G
Total Zinc	1	2.3	ug/L	20070617.R13G
Total Zirconium	1	<1	ug/L	20070617.R13G

pHWATER				
Parameter	MDL	Result	Units	QAQCID
pH	N/A	6.13	pH	20070612.R2A

TDS				
Parameter	MDL	Result	Units	QAQCID
Total Dissolved Solids	25	33	mg/L	20070616.R27A

TKN Water				
Parameter	MDL	Result	Units	QAQCID
Total Kjeldahl Nitrogen	0.008	0.063	mg/L	20070614.R58A



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Golder Associates Ltd.- Sudbury

Work Order: 35884

Sample Name: SW-8

Date: 6/7/2007

Matrix: Water

Lab #: 123837

TSS				
Parameter	MDL	Result	Units	QAQCID
Total Suspended Solids	6	<6	mg/L	20070615.R27H

Turbidity				
Parameter	MDL	Result	Units	QAQCID
Turbidity	0.1	2.6	NTU	20070611.R21A

MDL Method detection limit or minimum reporting limit.

% Rec Surrogate compounds are added to the sample in some cases and the recovery is reported as a percent recovered.

QAQCID This is a unique reference to the quality control data set used to generate the reported value.

Data reported for organic analysis in soil samples are corrected for moisture content

Matrix If the matrix is a leachate, the sample was extracted according to regulation 558.

INT Interferences

TNTC Too numerous to count

ND Not detected



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Work Order: 35884

Quality Control Data:

Alk by FIA

200 mg/L Check Std.

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
M-Alkalinity as CaCO3 (pH 4.5)	10	mg/L	220	191	180	20070614.R69A

Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
M-Alkalinity as CaCO3 (pH 4.5)	10	mg/L	10	<10	<10	20070614.R69A

AmmoniaFIA

500 ppb HN3

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Ammonia (as N)	0.002	mg/L	0.6	0.584	0.4	20070611.R42B

Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Ammonia (as N)	0.002	mg/L	0.02	<0.002	<0.002	20070611.R42B

Anions Water

Blank (IC-2)

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Chloride	0.2	mg/L	0.5	<0.2	<0.2	20070613.R5C
Fluoride	0.1	mg/L	0.5	<0.1	<0.1	20070613.R5C
Nitrate (as N)	0.1	mg/L	0.5	<0.1	<0.1	20070613.R5C
Nitrite (as N)	0.03	mg/L	0.5	<0.03	<0.03	20070613.R5C
Phosphate	1	mg/L	1	<1	<1	20070613.R5C
Sulfate	1	mg/L	1	<1	<1	20070613.R5C

Control (IC-2)

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Chloride	0.2	mg/L	100	89.2	80	20070613.R5C
Fluoride	0.1	mg/L	55	53.3	45	20070613.R5C
Nitrate (as N)	0.1	mg/L	55	43.9	40	20070613.R5C
Nitrite (as N)	0.03	mg/L	62	52.9	47	20070613.R5C
Phosphate	1	mg/L	105	97.1	86	20070613.R5C
Sulfate	1	mg/L	100	83.7	78	20070613.R5C

Colour

70 TCU

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
True Colour	4	TCU	80	71.5	60	20070621.R26A

Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
True Colour	4	TCU	<4	<4	<4	20070621.R26A

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CONDWATER

100 µS Control						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Conductivity	1	µS/cm	110	99.5	90	20070612.R12A

DOC Water

20 ppm Blank Spike						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Dissolved Organic Carbon	0.4	mg/L	22	19.3	18	20070621.R55.1A

Method Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Dissolved Organic Carbon	0.4	mg/L	0.4	<0.4	<0.4	20070621.R55.1A

ICPMS Tot. Water

Blank						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Aluminum	1	ug/L	1	<1	<1	20070617.R13G
Total Antimony	1	ug/L	1	<1	<1	20070617.R13G
Total Arsenic	1	ug/L	1	<1	<1	20070617.R13G
Total Barium	1	ug/L	1	<1	<1	20070617.R13G
Total Beryllium	1	ug/L	1	<1	<1	20070617.R13G
Total Bismuth	1	ug/L	1	<1	<1	20070617.R13G
Total Boron	2	ug/L	2	<2	<2	20070617.R13G
Total Cadmium	1	ug/L	1	<1	<1	20070617.R13G
Total Cerium	1	ug/L	1	<1	<1	20070617.R13G
Total Cesium	1	ug/L	1	<1	<1	20070617.R13G
Total Chromium	1	ug/L	1	<1	<1	20070617.R13G
Total Cobalt	1	ug/L	1	<1	<1	20070617.R13G
Total Copper	1	ug/L	1	<1	<1	20070617.R13G
Total Europium	1	ug/L	1	<1	<1	20070617.R13G
Total Gallium	1	ug/L	1	<1	<1	20070617.R13G
Total Iron	20	ug/L	20	<20	<20	20070617.R13G
Total Lanthanum	1	ug/L	1	<1	<1	20070617.R13G
Total Lead	1	ug/L	1	<1	<1	20070617.R13G
Total Lithium	5	ug/L	5	<5	<5	20070617.R13G
Total Magnesium	4	ug/L	4	<4	<4	20070617.R13G
Total Manganese	1	ug/L	1	<1	<1	20070617.R13G
Total Mercury	0.1	ug/L	0.1	<0.1	<0.1	20070617.R13G
Total Molybdenum	1	ug/L	1	<1	<1	20070617.R13G
Total Nickel	1	ug/L	1	<1	<1	20070617.R13G
Total Niobium	1	ug/L	1	<1	<1	20070617.R13G
Total Rubidium	1	ug/L	1	<1	<1	20070617.R13G
Total Selenium	1	ug/L	1	<1	<1	20070617.R13G
Total Silver	5	ug/L	5	<5	<5	20070617.R13G
Total Strontium	1	ug/L	1	<1	<1	20070617.R13G
Total Thallium	1	ug/L	1	<1	<1	20070617.R13G
Total Thorium	1	ug/L	1	<1	<1	20070617.R13G

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ICPMS Tot. Water

Blank						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Tin	1	ug/L	1	<1	<1	20070617.R13G
Total Tungsten	1	ug/L	1	<1	<1	20070617.R13G
Total Uranium	1	ug/L	1	<1	<1	20070617.R13G
Total Vanadium	1	ug/L	1	<1	<1	20070617.R13G
Total Yttrium	1	ug/L	1	<1	<1	20070617.R13G
Total Zinc	1	ug/L	1	<1	<1	20070617.R13G
Total Zirconium	1	ug/L	1	<1	<1	20070617.R13G

Blank Spike (1011)

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Aluminum	1	ug/L	600	488	400	20070617.R13G
Total Arsenic	1	ug/L	120	93.6	80	20070617.R13G
Total Barium	1	ug/L	120	101	80	20070617.R13G
Total Beryllium	1	ug/L	125	93.9	75	20070617.R13G
Total Boron	2	ug/L	125	98.3	75	20070617.R13G
Total Cadmium	1	ug/L	120	94.8	80	20070617.R13G
Total Calcium	50	ug/L	1200	1000	800	20070617.R13G
Total Chromium	1	ug/L	120	99.6	80	20070617.R13G
Total Cobalt	1	ug/L	120	99.7	80	20070617.R13G
Total Copper	1	ug/L	120	102	80	20070617.R13G
Total Iron	20	ug/L	600	507	400	20070617.R13G
Total Lead	1	ug/L	120	99.9	80	20070617.R13G
Total Magnesium	4	ug/L	1200	969	800	20070617.R13G
Total Manganese	1	ug/L	120	104	80	20070617.R13G
Total Molybdenum	1	ug/L	120	100	80	20070617.R13G
Total Nickel	1	ug/L	120	95.7	80	20070617.R13G
Total Selenium	1	ug/L	120	89.6	80	20070617.R13G
Total Thallium	1	ug/L	120	99.6	80	20070617.R13G
Total Vanadium	1	ug/L	120	101	80	20070617.R13G
Total Zinc	1	ug/L	120	93.6	80	20070617.R13G

ICPMS Water

Blank						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Calcium	0.1	ug/L	0.1	<0.1	<0.1	20070617.R13I
Magnesium	4	ug/L	4	<4	<4	20070617.R13I

Blank Spike (1011)

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Calcium	50	ug/L	1200	914	800	20070617.R13I
Magnesium	4	ug/L	1200	909	800	20070617.R13I

pHWATER

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Work Order: 35884

pH 7						
Parameter	MDL	Units	UCL	Result	LCL	QAQCID
pH	N/A	pH	7.1	7.03	6.9	20070612.R2A

TDS

200 mg/L Control

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Dissolved Solids	25	mg/L	240	180	160	20070616.R27A

Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Dissolved Solids	25	mg/L	<25	<25	<25	20070616.R27A

TKN Water

Blank Spike (0.5 mg/L)

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Kjeldahl Nitrogen	0.008	mg/L	0.6	0.471	0.4	20070614.R58A

Method Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Kjeldahl Nitrogen	0.008	mg/L	0.028	0.014	<0.008	20070614.R58A

TSS

160 mg/L Control

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Suspended Solids	6	mg/L	192	155	128	20070615.R27H

Blank

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Total Suspended Solids	3	mg/L	<3	<3	<3	20070615.R27H

Turbidity

1 NTU Control

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Turbidity	N/A	NTU	0.85	0.83	0.73	20070611.R21A

Turbidity Blank Control

Parameter	MDL	Units	UCL	Result	LCL	QAQCID
Turbidity	0.1	NTU	0.3	0.17	<0.1	20070611.R21A

UCL Upper Control Limit

LCL Lower Control Limit