



31D16SW8572 2.14995 CAVENDISH

010

FINAL REPORT  
EXPLORATION IN CAVENDISH TOWNSHIP

OPAP GRANT OP92-712

NTS 31D 9/16

**2.14995**

*Paul W. Pitman* 2.12619  
QUAL  
Paul W. Pitman, B.Sc  
GEOLOGIST

RECEIVED

APR 22 1993

MINING LANDS BRANCH




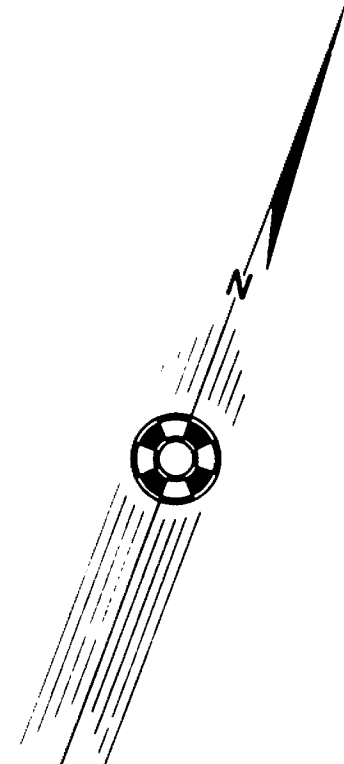
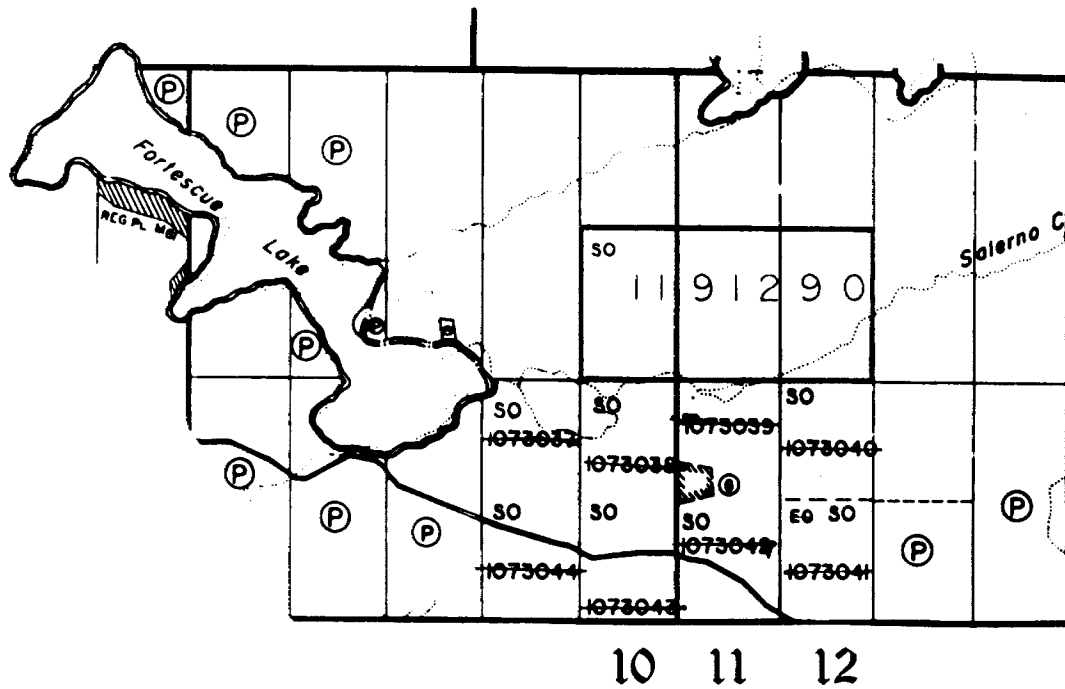
## SUMMARY

In 1992 an OPAP Grant Proposal was submitted seeking prospecting assistance to explore for zinc occurrences hosted by metamorphosed dolomites in the Salmon River area of south eastern Ontario. As a result of the 1992 work, detailed prospecting and soil geochemistry located a potentially mineralized horizon in zinc having an overall strike extent of at least 900 metres and values as high as 5000 ppm. As this anomaly is remarkably similar to the soil anomaly associated with the Long Lake zinc deposit, three claim units were staked to protect the zone. The attached report, (which was filed as partial fulfilment to satisfy the requirements of an OPAP Grant) describes the work carried out which led to the discovery. This work is submitted per this report for assessment credits.

The Cavendish claims are located 1.7 kilometres east of Salmon Lake along Salmon Lake road in northeast Cavendish Township, County of Peterborough. The claims lie within the Southern Ontario Mining Division and fall under the administration by the Resident Geologist in Tweed. The central portion of the claims is centred on long. 78°25' and lat. 44°50' in quadrant NTS 31 D 9/16.

The property consists of one block of three mineral claims which are registered on Plan No. M-72 as Claim Number 1191290. The claims were staked on October 18, 1992 and consist of 16 ha units which cover lots 10, 11 and 12, south half of Concession XVIII. (see next page - claim sketch, ref: Plan M-72).

 The claims are wholly owned by the writer and are in good standing under the new Mining Act.

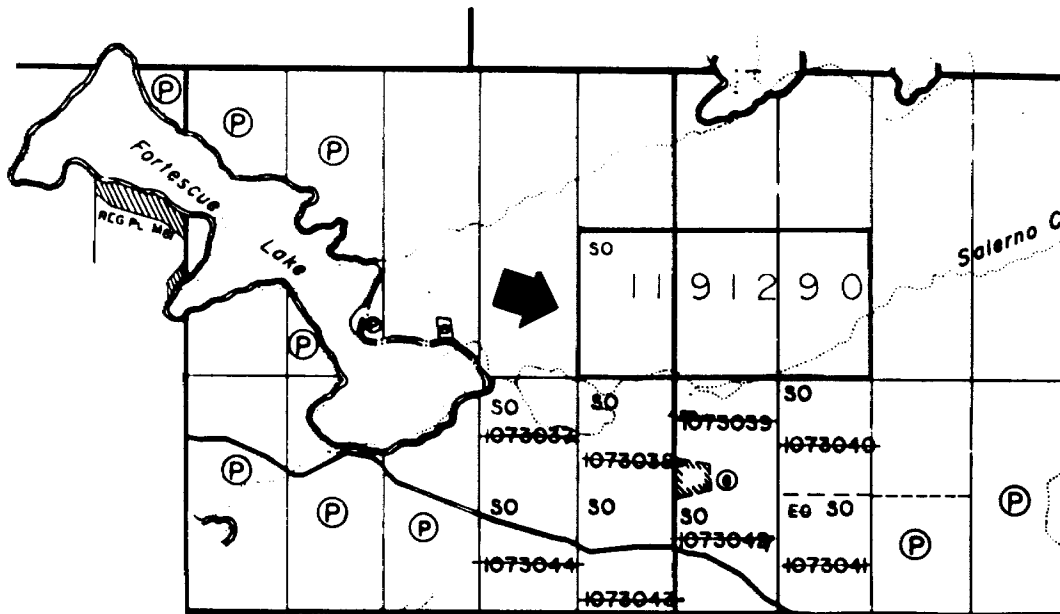


THE TOWNSHIP  
OF  
**CAVENDISH**

COUNTY OF  
PETERBOROUGH

**SOUTHERN ONTARIO  
MINING DIVISION**

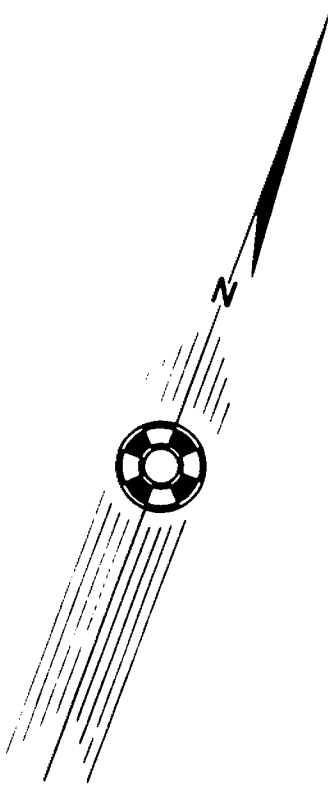
SCALE: 1 INCH = 40 CHAINS



XVIII

XVII

10 11 12



THE TOWNSHIP  
OF  
**CAVENDISH**

COUNTY OF  
PETERBOROUGH

**SOUTHERN ONTARIO  
MINING DIVISION**

SCALE: 1 INCH = 40 CHAINS

APPLICATION OF ALLOWABLE OPAP EXPENITURES  
FOR ASSESSMENT CREDITS

Notes:

- Total geochemical samples taken: 302 soil, 27 rock
- Samples within claim boundaries: 136 soil, 6 rock
- Total Expenditures that fall within the Claims: 43%
- Geophysical costs carried out within claims: 100%
- Regional Surveys outside of claims: 25%
- All labour (prospecting) credited @ \$150/day
- GST omitted from labour costs, no travel time billed to project

A) Total Prospecting Expenditures on Claims x 43%

	<u>Total</u>	<u>43 %</u>
• Field Supplies:	330.44	142.09
• Lodging, meals:	1,564.88	672.90
• Transportation:	837.30	360.04
• labour; Pitman                      20 days x \$150      3,000		
field assist. 14 days x \$150 <u>2,100</u>		
	5,100	2,193.00
• geochemical (assaying)	2,105.24	905.25
• report costs:	<u>1,078.32</u>	<u>463.68</u>
Total	11,016.18	4,736.96

Summary

Work on Claims (43% of Total Expenditures)	4,736.96
Work outside of Claims (Remaining Costs)	<u>6,279.22</u>
	11,016.18

B) Geophysical Survey Expenditures x 100%


	<u>Total</u>	<u>100%</u>
• Field Supplies:	-	-
• Lodging, meals:	148.78	148.78
• Transportation:	185.50	185.50
• labour; Pitman                      1 days x \$150      150		
contractor            1 days x \$400 <u>400</u>		
	550	550.00
Total	884.28	884.28

Regional Surveys Expenditures (outside of claims) x 25%

	<u>Total</u>	<u>25%</u>
• Field Supplies:	188.36	47.09
• Lodging, meals:	891.98	222.99
• Transportation:	477.26	119.32
• labour; Pitman            20 days x \$150		
field assist. 14 days x \$150		
	2,907.00	726.75
• geochemical (assaying)	1,199.98	300.00
• report costs:	<u>614.64</u>	<u>153.65</u>
Total	6,279.22	1,569.80

**SUMMARY OF CREDITS**

	Work on Claims	Work Outside of Claims
Wages	2,193.00	
	<u>150.00</u>	726.75
	2,343.00	726.75
Supplies	<u>142.09</u>	<u>47.09</u>
	142.09	47.09
Contractors	<u>400.00</u>	-
	400.00	-
Assaying	<u>905.25</u>	<u>300.00</u>
	905.25	300.00
Report Costs	<u>463.68</u>	<u>153.65</u>
	463.68	153.65
<hr/>		
Total Direct	4,254.02	1,227.49
20% Indirect	<u>850.80</u>	<u>245.50</u> (see below)
	5,104.82	1,472.99
Transport	360.04	
	<u>185.50</u>	<u>119.32</u>
	545.54	119.32
Lodging/Meals	672.90	
	<u>148.78</u>	<u>222.29</u>
	821.68	222.29
<hr/>		
Total Indirect	1,367.22	342.31

  
 \_\_\_\_\_  
 Paul Pitman, BSc

# P.W. PITMAN

CONSULTING GEOLOGIST

## CERTIFICATE

I, Paul W. Pitman residing at 51 Isabella Street, Brampton, Ontario, do hereby certify that:

1. I have been a Consulting Geologist since 1982.
2. I am a graduate of Carleton University, Ottawa, having received an Honours B.Sc. in Geology and have been practising my profession for 24 years.
3. I wholly own the claims for which application is being made to apply this assessment work.
4. I have personally carried out the surveys on the crown land and on the claims in the summer and fall of 1992.
5. I consent to, and authorize, any use of the attached report by the Government of Ontario or its Ministry's.
6. Dated April 18, 1993.



P.W. PITMAN  
51 ISABELLA ST.  
BRAMPTON, ONT.  
L6X 1P8  
(416) 451-5057

A handwritten signature in black ink, appearing to read "Paul Pitman", is written over a horizontal line.

PAUL PITMAN BSc.  
Consulting Geologist



REPORT COPY NUMBER .....  
TO .....



20 Toronto Street, Suite 1270, Toronto, Ontario

---

**PAUL W PITMAN**





31D16SW8572 2.14995 CAVENDISH

010C

## TABLE OF CONTENTS

	Page
1. INTRODUCTION	1
2. LOCATION/ACCESS/PHYSIOGRAPHY	2
3. PROSPECTING AREA - PROPERTY STATUS	2
4. RESTATEMENT OF THE WORK PROPOSAL AND SUMMARY OF ACTUAL WORK PROGRAM CARRIED OUT	3
4.1 Background Information - Exploration Proposal	3
4.2 1992 Work Programme	7
5. REGIONAL AND LOCAL GEOLOGY	9
6. PROPERTY GEOLOGY AND MINERALIZATION	10
6.1 Geology	10
6.2 Geochemical Results	12
6.3 Outcrop Mineralization	15
6.4 Geophysical Results	17
7. CONCLUSIONS AND RECOMMENDATIONS	18
8. EXPENDITURES	18

## LIST OF FIGURES

	After Page
1. Location Map	1
2. Prospecting Area	2
3. Regional Geology Map	9
4. Sample Site Locations	8
5. Geology Map of Prospecting Area	10, 15
6. Plot of Geochemical Results (Zinc)	13
7. Plot of Geophysical Results, Anomaly A	17

## APPENDIX

1. List of Selected References
2. Work Permit
3. Certificates of Analysis - Accurassay Laboratories

OPAP GRANT OP92-712  
FINAL REPORT  
PROSPECTING IN CAVENDISH TOWNSHIP

1. INTRODUCTION

As recent studies by EMR commodity analysts have suggested that Canada's zinc reserves are being depleted<sup>1</sup> it was decided to focus this years effort on this commodity. An OPAP Grant Proposal was submitted seeking prospecting assistance to explore for zinc occurrences hosted by metamorphosed dolomites in the Grenville Province.

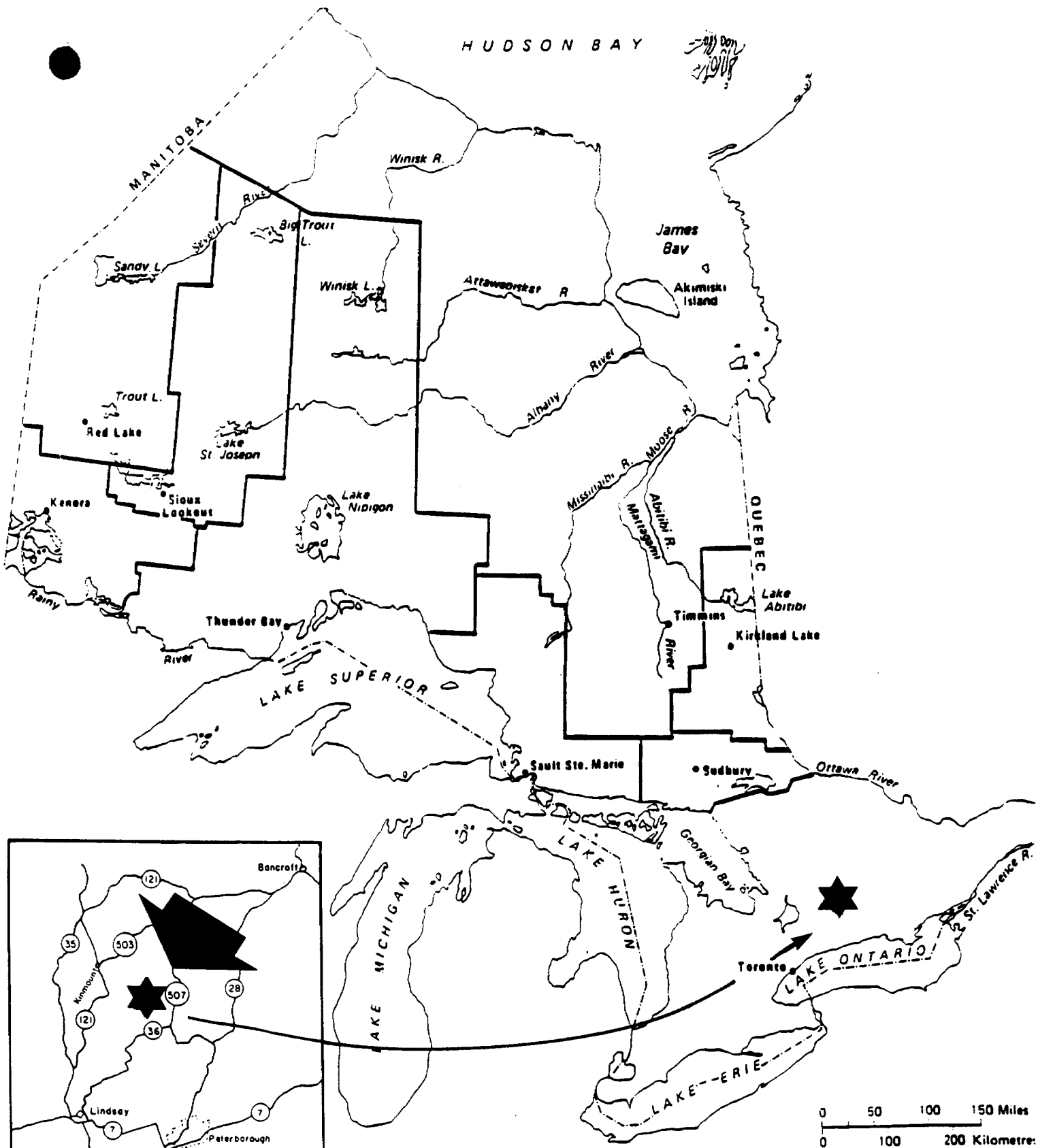
The area selected in Cavendish Township was perceived to offer excellent potential for discovery of new findings as zinc encrusted 'boulders' were known to be present but had never been followed up by a concerted exploration effort in order to locate the source for this mineralization. A review of the local geology also indicated that an environment for deposition of a carbonate-hosted zinc deposit could be present. In addition, this 'prospecting area' had comparably little in the way of past work, unlike most areas of the Canadian Shield, thus seemed to offer the best possible opportunity for new discoveries by simple prospecting methods without utilizing the more elaborate and more expensive indirect methods.

On May 20, 1992 a Certificate of Initial Grant Approval was received by the Ministry of Northern Development and Mines and an application was immediately filed to the Minden Natural Resources Office for a Work Permit. This Work Permit (see Appendix 11) was granted on July 3, 1992 and work in Cavendish Township commenced on July 4.

Work carried out within the 'Prospecting Area' included line cutting, prospecting and geochemical analysis of soil samples. This work was divided into two phases. The first phase blanketed the prospecting area with a reconnaissance geological and soil survey. Following the return of the analytical results from the Laboratory a second phase was initiated. This work concentrated on examining two anomalous targets, as well as expanding the grid in order to close off the indicated anomalies defined during the first phase. Detailed prospecting, soil profiling and hand trenching were carried out.

---

<sup>1</sup> Cranstone D., Bouchard, G. EXPLORATION AND DISCOVERY. EMR Policy Paper in Northern Miner Magazine, March 1992.



# LOCATION MAP

fig 1

## 2. LOCATION/ACCESS

The 'prospecting area' (see figure 1) is located 1.7 kilometres east of Salmon Lake in northeast Cavendish Township (Figure 1). The central portion of the claims is centred on long. 78°25' and lat. 44°50' in quadrant NTS 31 D 9/16.

Access to the south half of the property is excellent and can be reached via the gravel Salmon Lake Road, just 3 kilometres off Highway 507. Numerous trails and old logging roads provide excellent access to the north and south of Salmon Lake Road, however access to the north of the Salerno Creek proved to be exceptionally difficult. Due to the presence of numerous beaver dams the creek has swollen along most of its length to widths of 50 metres or more. It was however, possible to traverse the river across some of the dams, but not all.

Surprisingly the topography within the 'prospecting area' was quite rugged, particularly in the area north of Salerno Creek where hills were as high as 30 metres and cliffs of massive outcrop were common features. Much of the area had been clear-cut in the past and the new growth, consisting of a tangled mass of small alders made traversing difficult and slow. As is typical for the Grenville, cedar swamps and beaver ponds were plentiful and hindered the laying out of straight cross-lines.

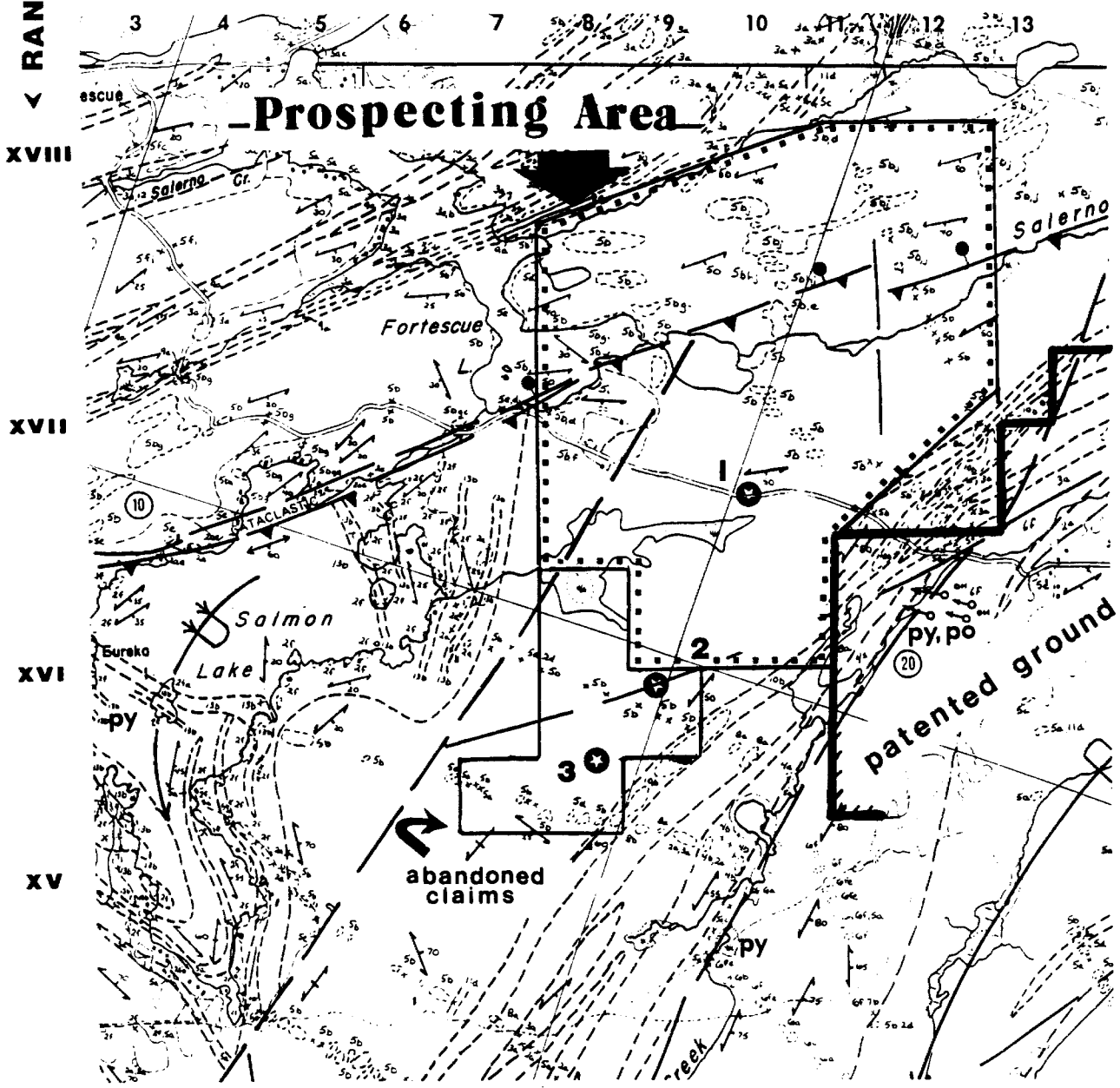
The depth of overburden proved to be quite shallow over much of the area, however remains unknown in swamp covered ground. Test pits over anomalous sites intersected bedrock at depths ranging from less than 20 centimetres up to one metre. Glacial deposits in this area appeared to be quite thin, thus increasing the usefulness of a geochemical survey method.

## 3. PROSPECTING AREA - PROPERTY STATUS

The Cavendish 'prospecting area' consists of a large block of open ground as illustrated in Table 1 (see below), Figure 2 and on Claim Map M-72 (Cavendish Township). This area falls within the Southern Ontario Mining Division. The small group of 5 contiguous claims previously recorded on claim map M-72 and which lie just south of the area to be prospected expired on July 20, 1992.

< RANGE

LOT >



**Prospecting Area**

- ⊛ zinc
- marble

fig 2

The following table outlines the dimensions of the selected area as described in the Application Proposal.

**TABLE 1 - PROSPECTING AREA**

Status	Range/Lot
unstaked, Crown Land	XVIII ; Lots 9 to 13
unstaked, Crown Land	XVII ; Lots 9 to 12
unstaked, Crown Land	XVI N Half; Lots 9 & 10
unstaked, Crown Land	XVI S Half; Lot 9 & 10

This entire area was explored in detail. Very little work however, was carried out in Range XVI, lots 9 and 10 as the geology proved not to be prospective.

**4. RESTATEMENT OF THE WORK PROPOSAL AND SUMMARY OF ACTUAL WORK PROGRAM CARRIED OUT**

**4.1 Background Information - Exploration Proposal**

The Grenville Province was selected as the Grenville Supergroup marbles of Ontario, Quebec and New York State host numerous occurrences of zinc mineralization, several of which have been periodically mined since the beginning of this century. Past zinc production has been from two types of ore bodies; a polymetallic group (Zn, Pb, Cu, Au, Ag) with a volcanic association (Mountauban/Calumet) and a monomineralic group (Zn) with a carbonate association (Balmat Edwards, Long Lake). While the Balmat-Edwards district of New York is the giant of the carbonate hosted deposit-type<sup>2</sup> several smaller but high grade deposits have been mined in Canada, the Long Lake Zinc Mine being one such example.

---

<sup>2</sup>. The Balmat-Edwards deposit has produced a total of about 26 million tons grading 10% zinc and 0.5% lead and continues to host reserves of the same magnitude and grade.

The following criteria were thought to be suggestive of a favourable prospecting environment for the Cavendish Township marbles.

- (i) The presence of aurally restricted dolomitic marbles within a thick sequence of calcitic metamorphosed limestones had been identified for rocks in the Salmon Lake Area (ref: File 2.12692). Historically, monomineralic zinc mineralization discovered in the Grenville has commonly been described as marble-hosted, without further definition of the marble composition. Since Sangster's study on the metallogeny of base metals in the Grenville Province in the early 1970's it has been recognized that zinc mineralization is normally associated directly with dolomitic marbles which show a much more restricted distribution than the calcitic variety. Mississippi Valley type (MVD) and other carbonated hosted deposits worldwide typically occur in dolomitic hosts within a sea of unmineralized calcitic carbonate rocks.
- ii) The presence of stromatolitic bearing marbles in the Dungannon Formation marbles suggested a shallow water origin for the carbonates, therefore indicating a favourable depositional environment for zinc deposits. The significance of the presence of the stromatolite occurrences in the Grenville is due to the fact that researchers have now recognized that there is a strong correlation between zinc and lead-zinc carbonate hosted ore deposits with stromatolite bearing host rocks. The Balmat-Edwards mining district for instance, is one such example. Recent studies in the Madoc Area (Map 3079, Marginal Notes) have verified that the correlation between zinc mineralization in dolomitic rocks with stromatolite occurrences found elsewhere in the world would appear to hold for this portion of the Grenville marble series as well as for the Balmat-Edwards mining camp.
- iii) The dolomitic marbles in Cavendish Township lie at, or near the contact of sulphide bearing metaclastic rocks. Not only are MVD deposits associated with dolomitic rocks but, more precisely, have been found to be closely associated with the transitional contacts from pure dolomites to that of siliceous dolomites and/or calc-silicate rocks



along the shallow basin margins. The rock associations in Cavendish suggest that the marbles also lie near the edge of a former basin.

- iv) The presence of fold structures. Ore deposits, such as the Balmat-Edwards type are concentrated and thickest at the nose of fold hinges. No definitive patterns of folding have been outlined in the Cavendish rocks. Reconnaissance mapping by Provincial geologists however, have discovered small-scale 'Z folds' and one regional geological interpretation suggests that the carbonate rocks may lie within a synclinal structure.
  
- v) The nature of the zinc mineralization found in some boulders in the Salmon Lake area appears to be clearly stratiform, as opposed to vein like. Whether massive or disseminated, the majority of MVD deposits are clearly stratiform in character and are localized as narrow lenses along sedimentary horizons.

Regardless of the ore model evoked for the Grenville zinc and/or polymetallic carbonate hosted deposits, (either epigenetic, Mississippi Valley type, platform-marginal sedimentary or distal exhalative type, or volcanogenic stratiform ore type) many of the exploration parameters have been identified to be present within the 'prospecting area'.

In addition to recognition of a favourable geological setting the availability of unstaked ground was given prime priority in selection of an area. Prospecting efforts have long been hampered in the Ontario portion of the Grenville Province by the lack of crown land to work on. The 'prospecting area' examined under this OPAP Grant is situated within a large tract of unstaked ground where both the surface and mining rights are open for staking.

As is true of most projects the most important exploration criteria used for focusing on carbonates in the Salmon Lake Area was the presence of newly discovered zinc occurrences. As a result of a reconnaissance study in 1989 by an intermediate sized mining company, two 'zinc' mineralized boulders were discovered in an area in which there is no record of past exploration. The source for the mineralization found in the 'erratics' was not located by follow-up work as this work was not extensive and

consisted only of prospecting along trails and one small soil-survey at the site of one of the boulders.

The work outlined in the Application Proposal consisted of the following programme. It was proposed that:

- (i) A geochemical soil sampling survey be extended over a wide area to include the locations between showing No. 2 and showing No. 1 (refer to figure 2) as well as to the north of No. 1, or north of the Salmon Lake road.

Geochemical sampling of soil horizons was suggested as the best exploration tool to employ as case studies of geochemical patterns in soils over glaciated - carbonate rocks have consistently shown that zinc anomalies in B-horizon soils are useful in indicating the general trend of the dispersion trains with which mineralized boulders are associated. One particular study, for instance, (the Clyde River zinc prospect, Sinclair, 1979) proved that geochemical sampling of B-horizon soils was capable of discovering bedrock zinc mineralization 400 metres up ice from sphalerite bearing float. These two facts suggest that geochemical sampling of soils can lead to the discovery of concealed, bedrock mineralization and that extending the survey area over a broad area is necessary in glaciated terrains.

As the most obvious and best indicator of carbonate hosted zinc deposits is zinc, it was proposed that all soil samples would be geochemically tested for zinc only. In addition to zinc it was suggested that all rock outcrops would be analyzed for CaO and MgO content in order to better map the location of the dolomitic marbles. "Zinc Zap"<sup>3</sup> was selected as a field tool in order to act as an aid to identifying smithsonite<sup>4</sup> while prospecting.

Although traditional geophysical techniques (IP, Mag, VLF) are less useful in carbonate terrains it was proposed to run an EM/Mag reconnaissance survey in an area of any major anomalous geochemical ground in order to establish whether the mineralization has a geophysical expression. In the 'prospecting area' one airborne EM anomaly was known to be present (reference; McPhar Geophysics

---

<sup>3</sup> Zinc Zap - a solution of equal quantities of i) 3% potassium ferrocyanide ' $K_4Fe(CN)_6$ ', ii) 3% oxalic acid and iii) 0.5% diethylaniline. When applied to oxidized zinc-bearing minerals; the solution turns bright orange-red color.

<sup>4</sup> Smithsonite - a white to yellow, gray, brown, or greenish mineral of the calcite group:  $ZnCO_3$ . It is a secondary mineral associated with sphalerite and often found as a replacement in limestone.

Limited F-400 Test). This area would be carefully prospected as the conductor axis lies very close to showing No. 1.

(ii) A much more detailed prospecting of outcropping of carbonate rocks in the vicinity of the 'discoveries' would be carried out.

Up to this point only small trails and the one MNR access road had been prospected. It is commonly known that with carbonate-hosted ore deposits there is very little geochemical signature distant from the ore rock (Sangster, 1968). In fact, Sangsters' work showed that lead-zinc values generally fall to background levels at less than 60 metres away from the ore, regardless of the deposit size (1968 p7). In smaller deposits, this distance has been apparently measured to be less than 30 metres. Given this fact, additional prospecting along flagged lines spaced at 50 metre intervals was recommended rather than haphazard prospecting along trails and the MNR access roads.

The importance of combining prospecting with geochemical sampling cannot be understated. The Bouchette-Des Negres zinc prospect in the Maniwaki area of Quebec for instance, could easily have been missed as there is no visible expression of sphalerite on the outcrop surface at this occurrence. The sphalerite at this deposit has been leached out by weathering up to a depth of 5cm. In the unaltered rock below this weathering rind up to 10% was discovered!!!

While the main focus of the prospecting was to be directed towards 'zinc' mineralization, the presence of mafic as well as ultramafic intrusive bodies adjacent to the marbles suggested that contact metamorphic mineralization such as wollastonite may have formed. Prospecting for mineralization such as wollastonite was not to be neglected.

#### 4.2 1992 Work Programme

The work programme outlined in the OPAP Proposal and restated in section 4.1 of this report was carried out as planned. Two changes though, were made as a result of prospecting and re-evaluation of the geology;

i) No detailed work (grid lay out or soil sampling) was implemented to the north of Showing No. 2 (refer to Figure 2) as two reconnaissance traverses indicated that

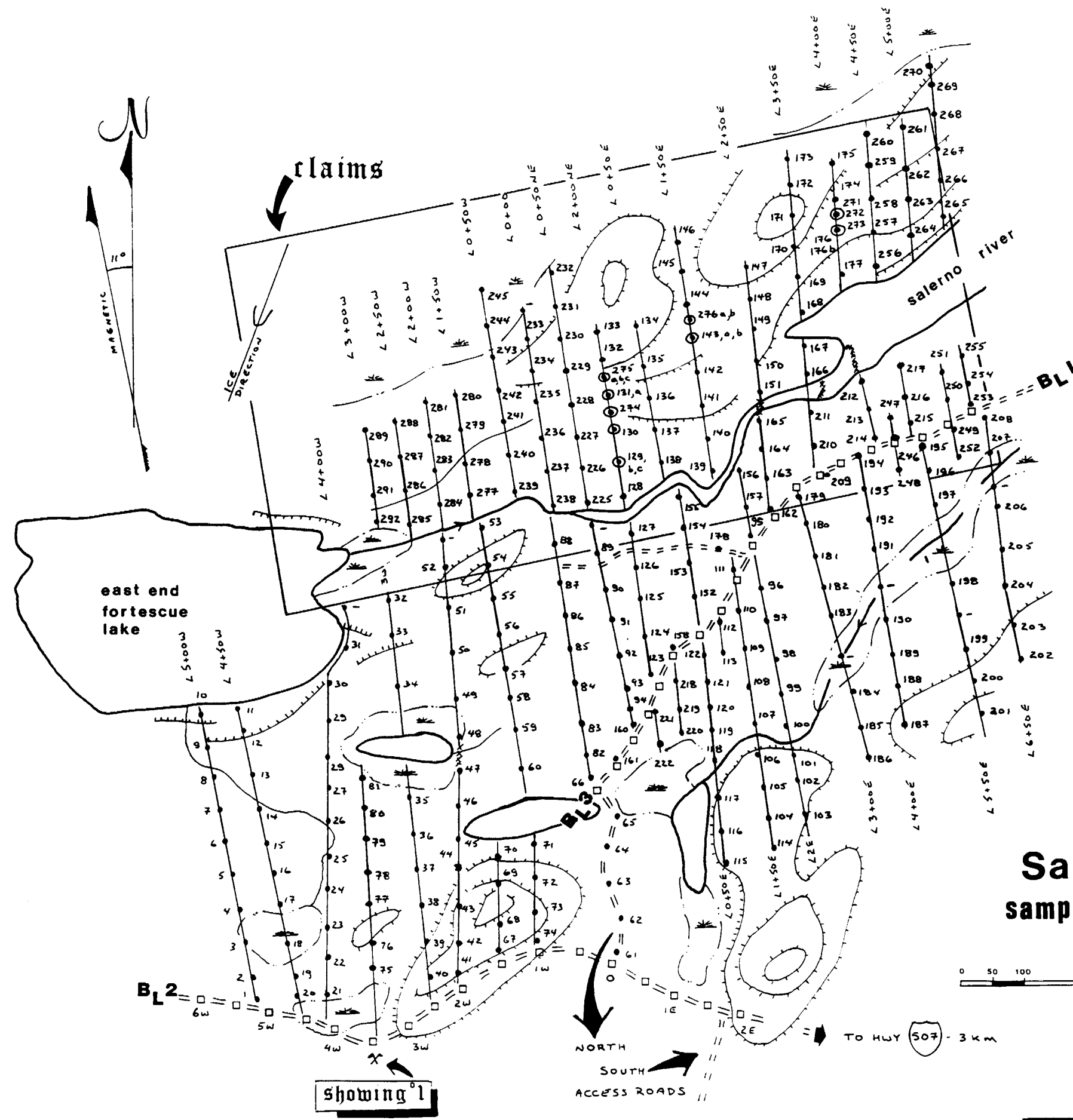
the band of marble is extremely narrow and the mineralization uncovered in the trench at the showing appeared to be insignificant.

ii) An EM survey to locate the airborne EM conductor was not carried out as prospecting indicated that the axis of the conductor was confined to highly metamorphosed, rusty and schistose basement rocks rather than to the carbonate basinal rocks.

No lines were cut as the geochemical and prospecting surveys were designed to be reconnaissance in nature so that the largest area could be examined with the Grant. It was felt that the money would be better spent by prospecting than by establishing a rigid grid initially. Control was established however, by chained and flagged lines with marked stations every 50 metres. A metric topefil measuring instrument was employed to increase the accuracy over the compass-and-pacing method. In addition, three base lines were established by chaining and marked every 50 metres by wood pickets; BL 1 using the north access road as a guide with cross lines from L0+00E to L6+00E, BL 2 running in an east-west direction along the Salmon Lake Road with cross lines from L0 to L5+00W, and BL 3, a short line running N 30 degrees E with cross lines L 0+00NE to L2+00NE. An attempt was made to keep each line at a line spacing of 50 metres with flagged stations every 50 metres. All cross lines were established with a magnetic north bearing (precisely 11 degrees west of true north). A total of 13.8 kilometres of line were established during both phases of exploration.

One assistant was employed to aid in the laying out of the lines and for soil sampling. A "B" horizon soil sample was collected at every 50 metre interval along each cross-line. In spite of the bad terrain it was possible, with careful digging, to extract a B soil from almost every location. Prospecting was carried out in conjunction with the laying out of the lines and the soil sampling survey.

Several forays into the area were necessitated by the nature of the surveys. Phase 1 included location of the property, putting in of the base-lines followed by geochemical sampling and geology over the entire area as presented on the maps. A second phase was required as the success of the prospecting depended primarily on the results geochemical sampling. Phase 11 was initiated following the return of the assay results for the soil samples and the plotting and interpretation of these results. This phase included an extension of the area prospected north of the river further along strike, as well as detailed soil profiling, hand trenching



**Legend**

- stream, beaver dam
- swamp
- topographic high
- gravel road
- base line, post
- sample site
- showing
- profile pits

**Salmon Lake  
sample site location**

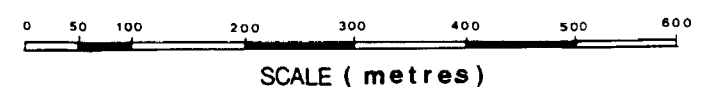


fig 4

and prospecting in the area of the highest anomalies. This latter work was carried out in order to determine whether the anomaly is in place or transported.

## 5. REGIONAL AND LOCAL GEOLOGY

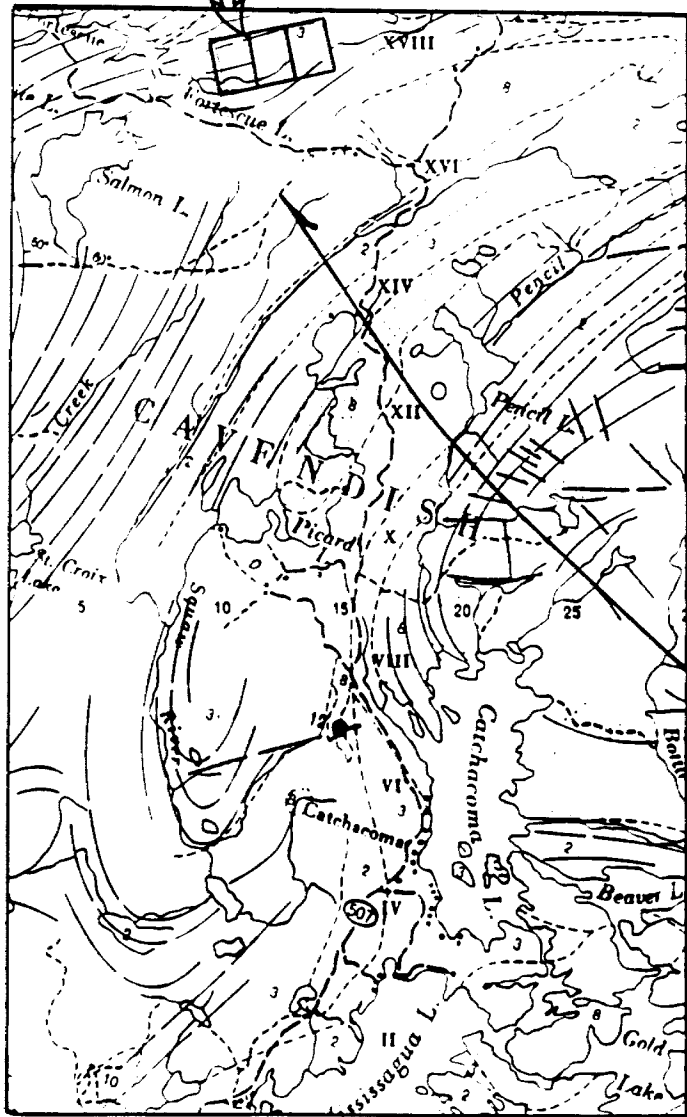
The 'prospecting area' is located within the inner portion of the central metasedimentary belt of the Grenville Province. Four progressively younging stratigraphic units characterize the geology contained in Cavendish Township; a Middle Precambrian basement gneiss unit, the Anstruther Lake group clastic metasediments, the Hermon group clastic to carbonate metasediments and interbedded volcanics and the Mayo Group calcareous metasediments. It has been suggested by various workers that the depositional environment for the Precambrian sediments was a volcanic-carbonate rich basin (referred to as the Hastings basin) which covered most of the southern third of the Grenville Province of Ontario. The 'prospecting area' lies along the western margin of the Hastings basin.

The lithological relationships between the various sediments have been complicated by the development of the Bancroft Anticlinorium, an intensely cross-folded regional structure and by at least three sets of regional faults.

On a local scale detailed mapping by Government geologists (map P2420, 1981) indicates that the 'prospecting area' is underlain primarily by foliated to gneissic marbles of the Dungannon Formation, in contact with older clastic-siliceous metasediments. These units are intruded by mafic to ultramafic intrusive sills and interbedded with mafic metavolcanic units. A northeast cataclastic structural zone crosses the northwest corner of the 'prospecting area'.

It is important to note here that in the adjoining Anstruther Township, the Dungannon Formation marbles are stromatolitic bearing. Several bodies of algal, laminate stromatolites have been observed by Bartlett & DeKemp (1987), thus indicating that the sediments were laid down in a shallow water environment. The association between stromatolite bearing marbles and carbonate hosted lead-zinc ore bodies has been demonstrated in the field by several researchers (Mendelsohn - 1976). This would indicate that the Dungannon Formation carbonates lie in an extremely favourable geological setting.

# CLAIMS



## LEGEND

### PALEOZOIC

#### ORDOVICIAN

10 Limestone, dolomite, shale, basal clastics.

### PRECAMBRIAN

#### PLUTONIC ROCKS

8 Granite, granite gneiss, granite pegmatite.

8 Hybrid granite gneiss, migmatite, granite pegmatite.

7 Syenite, syenite gneiss, syenite pegmatite.

7 Hybrid syenite gneiss, migmatite, syenite pegmatite.

6 Nepheline gneiss, nepheline pegmatite.

4 Diorite, gabbro, hornblendite, pyroxenite, anorthosite; metagabbro, amphibolite.

#### SEDIMENTS

3 Crystalline limestone or dolomite, silicated limestone, lime-silicate rock, metapyroxenite, skarn.

2 Amphibolite, paragneiss, quartzite, argillite, pelitic schist, conglomerate, arkose.

#### VOLCANICS

1 Basic volcanics: pillow lava, andesite, basalt, amphibolite, hornblende gneiss or schist, chlorite schist, hornblende-chlorite schist;  
Acid volcanics: rhyolite, rhyodacite, tuff.

## REGIONAL GEOLOGY-- CLAIMS

Metres 1000 2 4 6 8 10 12 Kilometres

Map No. 1957b

The general lithological trend for the rocks striking across the Cavendish property is east-west to northeasterly. In the regional sense the Cavendish 'prospecting area' is located within the southeast trending synclinorium which lies between the Harvey-Cardiff anticline and the Sommerville-Monmouth anticline. Because the property is located within one of the north-northeast trending local synclinal structures, the marbles are thought to be tightly folded. Small scale 'z' folds have been mapped by Government geologist in several of the marble units.

The regional metamorphic grade of Grenville rocks is of amphibolite facies rank.

## 6. PROPERTY GEOLOGY AND MINERALIZATION

### 6.1 Geology

The entire 'prospecting area' was mapped and subdivided into four main rock groups;

- i) Metamorphosed high-grade carbonate rocks
  - type 1a - massive, finely recrystallized, marble with a bluish tint
  - type 1b - rubbly weathering, coarsely crystalline marble
  - type 1c - banded, finely recrystallized marble
- ii) Metamorphosed basement, volcanic ? - clastic metasediments
  - type 2a - felsic, quartz rich metasediments, massive to gneissic textures
  - type 2b - mafic, biotite-hornblende rich metasedimentary or metavolcanic rock unit, predominately gneissic in character
  - type 2c - ferruginous, rusty weathering, mica-rich, schistose unit
- iii) Intrusive mafic to ultramafic bodies
- iv) Intrusive felsic plutons



**CLAIMS**

← **prospecting  
survey lines**

**anomaly axis**

**gossan**

**legend**

- LARGE AREA OF CONTINUOUS OUTCROP
- SINGLE OUTCROP
- x BOULDERS, NEAR SURFACE OUTCROP
- CLIFF FACE (EXPOSED OUTCROP)
- ③ ROCK SAMPLE - # No.
- ° BEDDING (DIP)
- x MINERAL SHOWING
- △ SWAMP, CLEARCUT, FOREST

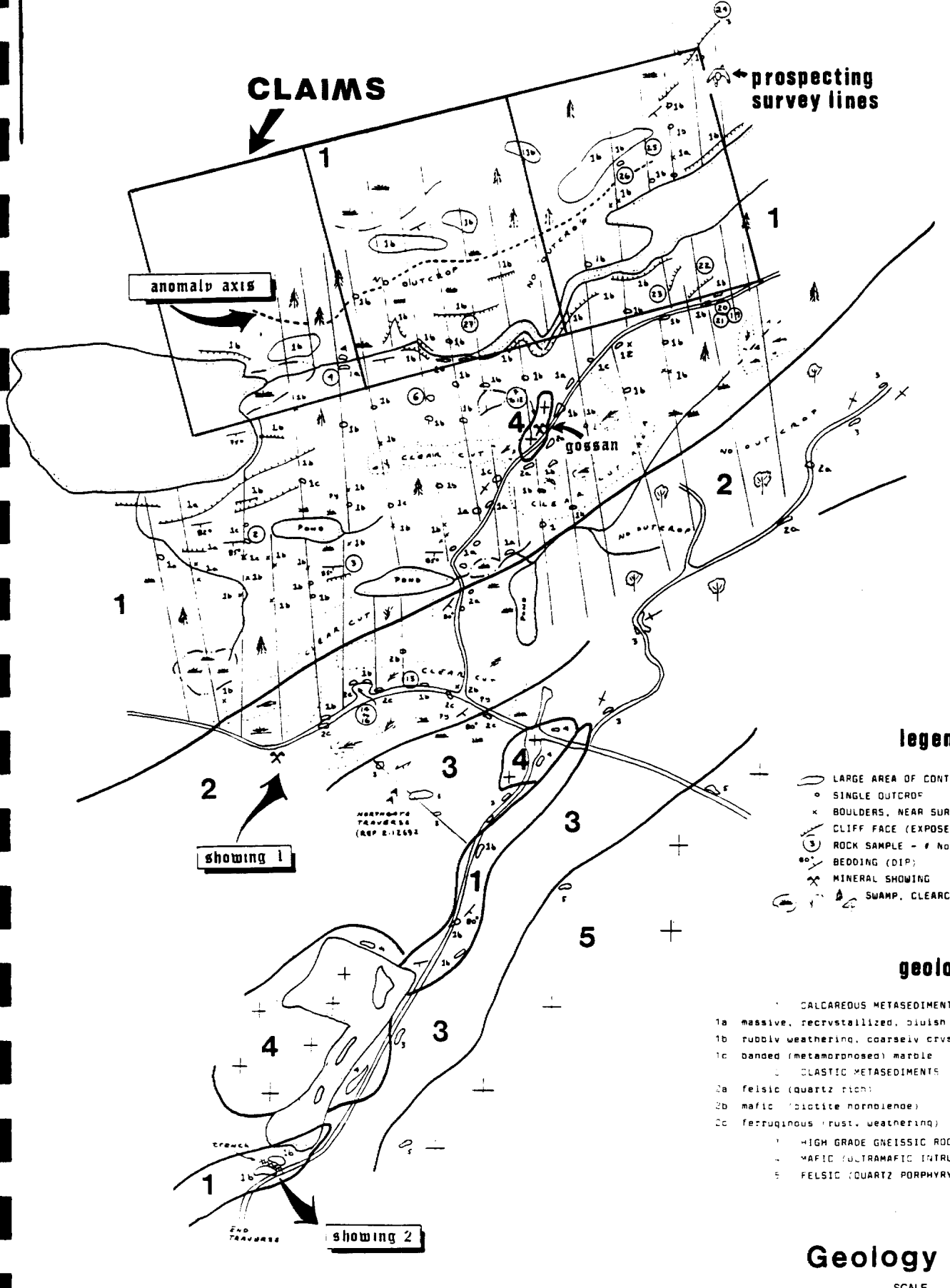
**geology**

- 1 CALCAREOUS METASEDIMENT
- 1a massive, recrystallized, bluish marble
- 1b rubbly weathering, coarsely crystalline marble
- 1c banded (metamorphosed) marble
- 2 CLASTIC METASEDIMENTS
- 2a felsic (quartz rich)
- 2b mafic (biotite hornblende)
- 2c ferruginous (rusty weathering)
- 3 HIGH GRADE GNEISSIC ROCK
- 4 MAFIC (ULTRAMAFIC) INTRUSIVE
- 5 FELSIC (QUARTZ PORPHYRY) INTRUSIVE

**Geology Map**

SCALE

100 200 300 400 500 meters



**showing 1**

**showing 2**

TRUCK  
END TRANVERSE

NEOTOPIC  
TRANVERSE  
(REF 2-12692)

As prospecting concentrated on carbonate rocks as the prime host for zinc mineralization the details which follow focus on these units as opposed to the metamorphosed basement clastic and possibly volcanic rocks and associated intrusive bodies.

The carbonate rocks were found to occur in three distinct habits;

- i) As a massive, very finely crystalline, weakly banded unit having a characteristic bluish tint,
- ii) As a massive, white, very coarsely crystalline rock containing minor disseminated crystals of white mica and unidentified calc-silicate minerals. This rock weathers easily to a fine calcitic sand which often occurred as a fine grit in the B horizon soils.
- iii) As a banded, off white to grey, highly resistant metamorphosed marble.

Outcrop exposure over much of the traversed area was minimal as a large portion of the ground was swampy or composed of thick alder groves within former clear-cut areas. Outcrops were generally flat and small in area, however several moss-covered ridges were encountered. It was not possible to outline any particular bed based on a distinct mineralogical composition, weathering characteristics, or through the zinc content in the soils.

The contact with the clastic metasediments was easily defined; partially by outcrop exposure and partially by the colour of the B horizon soils. In the case of marble exposure the soils were light brown in colour and often gritty in character due to decomposed, rubbly calcite or dolomite crystals. The clastic units (particularly the ferruginous, rusty weathering schists) gave rise to the development of a dark brown or reddish brown soil horizon.

The forest type also defined the underlying bedrock. In the case of the clastic metasediments the forests were predominately maple or birch while the marble units favoured the growth of mixed forests of spruce or cedar trees.

All rock units trended northeasterly with a steep south dip. Evidence of folding of the sediments around mafic to ultramafic

bodies was apparent. Close to these mafic intrusives the marbles developed a strong banding and the development of coarse mica books and pyroxene crystals measuring up to several centimetres in size. Upper amphibolite grade metamorphism is indicated in this instance.

The sulphide content in the marble exposures was negligible. Only two outcrops displayed a trace amount of possible pyrite. None of the outcrops were rusty in appearance, nor were any gossans found with the carbonate terrain.

Figure 5 illustrates the geology of the project area.

## 6.2 Geochemical Results

A 'B' horizon soil sample was collected at 50 metre intervals along lines spaced roughly at distances of 50 metres. Collection of the samples was often slow, due to the nature of the ground conditions. In spite of swampy terrain caused by beavers, cedar swamps and thick alder groves a uniform sampling medium was obtainable thus the results should reflect changes in bedrock only rather than due to changes in the sample type.

Standard kraft sample bags were filled with soil, dried and shipped to Accurassay Lab in Kirkland Lake for analysis. The samples were dried, disaggregated and sieved through a -80 mesh screen and processed using an Aqua Regia Digest. Each sample was analyzed for zinc by AAS (detection limit 1 ppm).

A total of 302 soil samples were taken and 27 rock samples. Figure 4 (displayed earlier in this report) illustrates the grid location of the sample sites and the sample location number. The assay results from the Lab, as presented in the Appendix correspond to these numbers.

A histogram log plot of ppm zinc and cumulative % indicates a background population of roughly 80 ppm zinc and suggests anomalous conditions to have values greater than 350-400 ppm. Figure 6 presents a contoured anomaly map.

Two distinct geochemical anomalies were discovered as a result of the Phase 1 work:

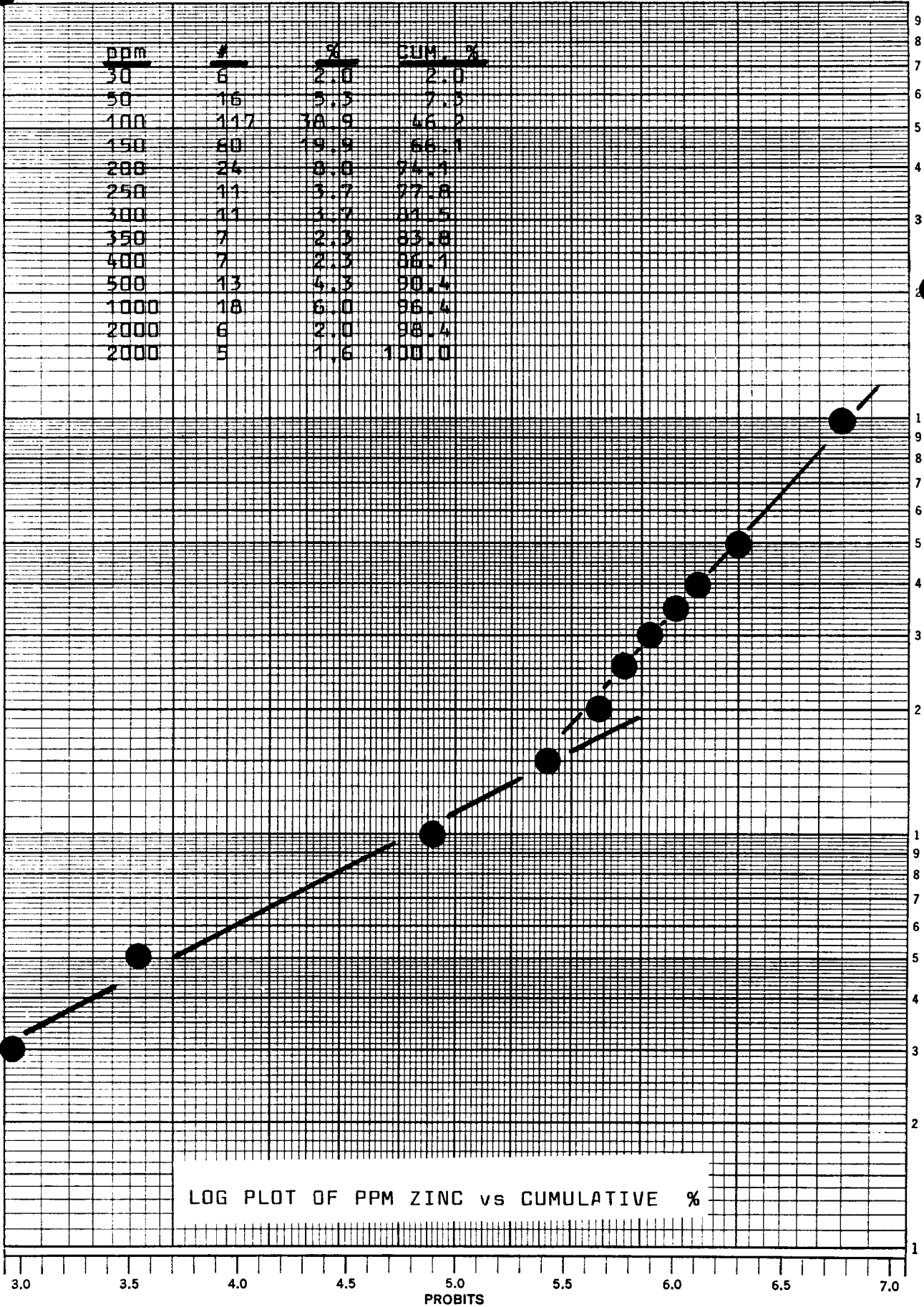
PERCENTAGE  
5 10 15 20 30 40 50 60 70 80 85 90 95 98%

ppm	#	%	CUM. %
30	6	2.0	2.0
50	16	5.3	7.3
100	117	38.9	46.2
150	80	25.9	72.1
200	24	8.0	80.1
250	11	3.7	83.8
300	11	3.7	87.5
350	7	2.3	89.8
400	7	2.3	92.1
500	13	4.3	96.4
1000	18	6.0	100.0
2000	6	2.0	100.0
2000	5	1.6	100.0

1,000

100

10



LOG PLOT OF PPM ZINC vs CUMULATIVE %

Anomaly A: A significant anomaly having a minimum strike length of 500 metres and a down-slope dispersion of roughly 100 metres has been outlined. This anomaly lies along a hill side as well as at a break in slope and is underlain by massive, white, rubbly weathering marble units. The strike and dip of these outcrops were not recorded due to the massive, featureless nature of the rock where exposed. No visible mineralization was observed, although near surface outcrop was not abundant. The highest values of 770, 950 and 1200 are roughly 3 x background levels.

Anomaly B: This anomaly is reflected by three closely spaced samples recording values of 430, 680 and 820 ppm, or roughly 2x background. As for anomaly A, no mineralization was noticed in the outcrop of massive, white, featureless marble. Additional soil sampling between the lines did not result in extending this anomaly along strike or between the high values. Assay results of the rock samples collected were low.

Anomalies C,D: Anomaly C is a single point anomaly (sample 49) of 1300 ppm zinc. Near surface outcrop (calcitic sand) at station (L 2+00 W, 4 N) did not display any sulphide mineralization, nor did the colour of the B horizon indicate any weathering of sulphide minerals. At station L2+00 W, 3+70 N a trace of unweathered pyrite cubes were recorded. Anomaly D, a two point soil anomaly measuring 520 and 610 ppm zinc is only slightly above background in value. No outcrop was observed, however interpretation suggests that this anomaly lies at the contact with marble and the basement clastic metasediments. No follow-up is recommended for either Anomaly C or D.

Verification of the anomaly positions and strength was carried out during phase 11 where several sample sites were re-visited and a second sample taken and sent in for assay. Where possible profile pits were dug to bedrock, or as deeply as hand trenching would allow. The results of this work repositioned the anomalies more exactly and confirmed the strength and strike extent of the anomalies. The following tables highlights this work.

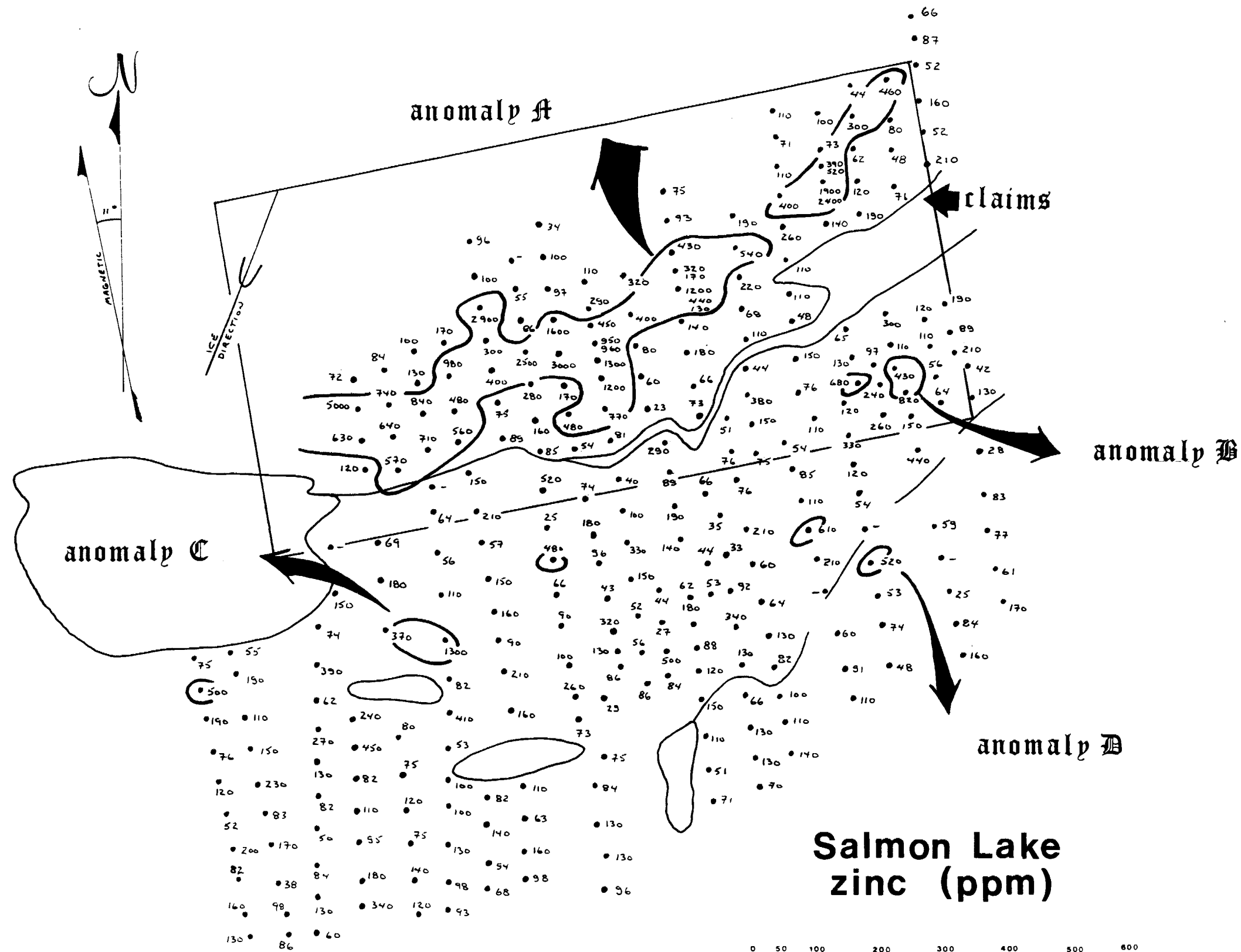


Table 2 - Test Pitting &amp; Resampling

Sample Site #	Depth	ppm Zinc	Description
129 -	Test pit; 60 cm to outcrop surface on top of cliff face: stripping of area 1 x 1 x 60cm deep		
129	20 cm	770	B horizon
129b	30 cm	280	B horizon
129c	60 cm	83	Outcrop, chip samples of weathered, calcitic fragments outcrop striking 050 degrees, 075-080 south dip
130 -	test pit 1 x 1 x 0.5 m deep to resample site 130		
130	20 cm	1200	A horizon, cedar swamp, 1.0 metre hole dug but organic horizon could not be penetrated, water saturated at 0.5 metre depth, anomaly checked by sampling 25 metres north at site 274.
274	20 cm	1300	B horizon, base of slope, sample taken at outcrop surface, chip sampling of outcrop impossible
131 -	test pit 0.5 x 0.5 x 20cm to resample site 131		
131	20 cm	950	B horizon near outcrop surface, pit dug to 20 cm and bedrock sampled as 131a - see also #275
131a	20 cm	960	C horizon - calcitic sand
143 -	test pit 1 x 0.8 x 08m deep to retest site		
143	20 cm	1200	B horizon
143a	20 cm	440	B horizon, duplicate of 143
143b	0.8 m	130	C horizon, clay rich near outcrop surface
176 -	test pit: 20 cm to bedrock, stripped off 1 x 2 metre area		
176	20 cm	1200	B horizon
176b	20 cm	2400	B horizon, duplicate of 176, at bedrock surface, impossible to chip sample
271 site-	test pit 25 metres north of 176: 1x1x1 m deep metre pit		
271	20 cm	390	B horizon
272	0.6 m	520	B horizon, dark brown
273	1.0 m	86	C horizon, rubbly calcitic sand, weathered bedrock
275 site -	test pit 25 metres N of site 131; 1.0 x 0.5 x 1 m deep		
275a	20 cm	140	B horizon
275b	0.8 m	240	B horizon
275c	1.0 m	450	weathered outcrop, calcitic sand

### 6.3 Outcrop Mineralization

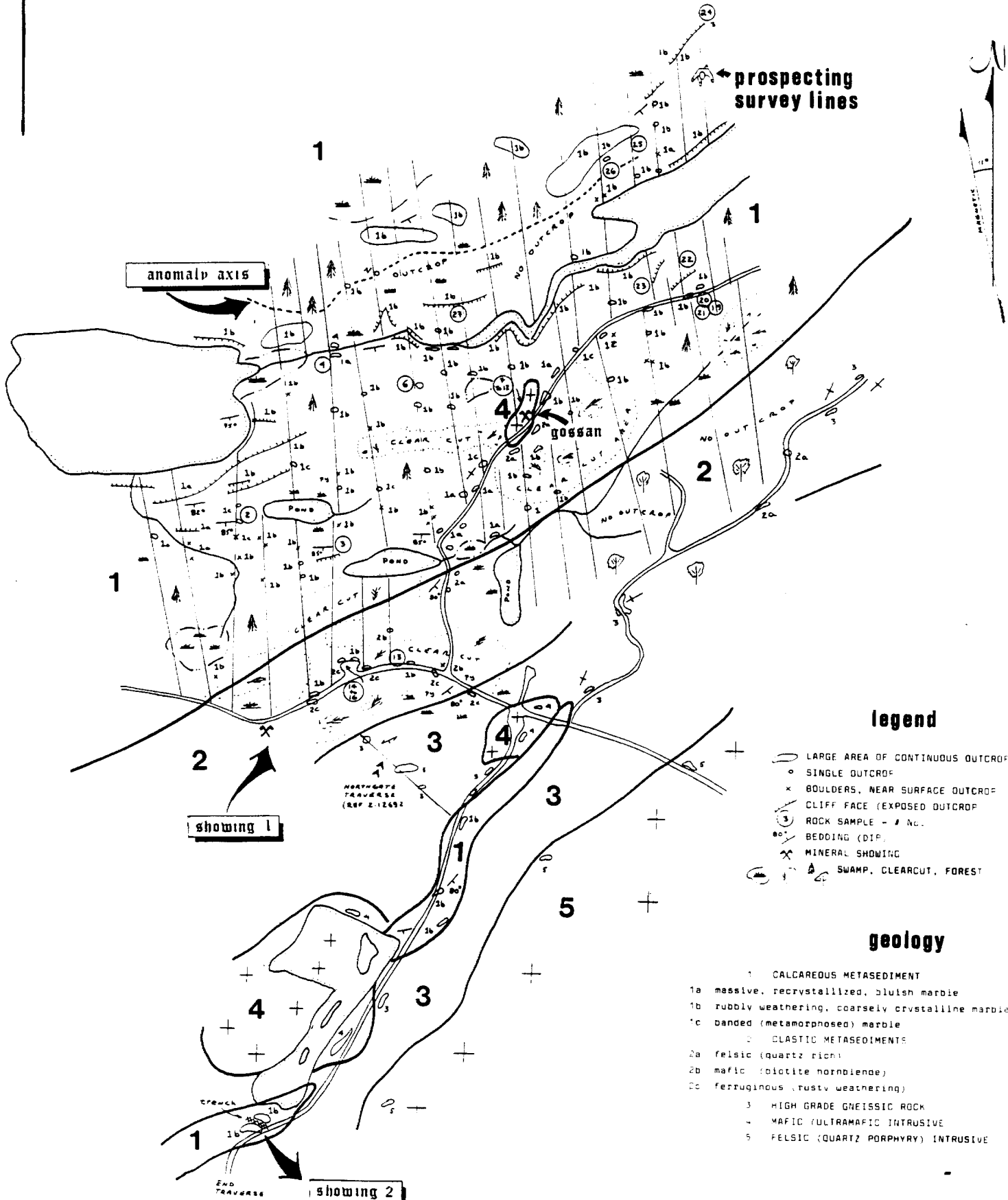
In 1989 two marble boulders exhibiting zinc mineralization were discovered in the Salmon Lake area. These discoveries were a result of reconnaissance traverses across marble units in several areas of the Grenville Province by a Canadian mining company. The first showing (refer again to Figure 2, #1) consisted of smithsonite coatings on a marble boulder. The second showing (#2) consisted of bands of sphalerite in a marble boulder which assayed between 0.97% to 3% Zinc and a nearby rusty outcrop which contained weathered out pyrite, disseminated sphalerite grains and black hematite. Following this discovery, the company staked 20 claims along the projected strike of the locations of the boulders and a limited exploration programme was designed which attempted to locate the source rock for the mineralized boulders. Prospecting traverses were carried out along trails and the MNR access road and one soil grid, measuring 300 metres square, was cut and sampled in the area of showing no. 2. As a result of this work a third showing (#3, Figure 3), was found. Several smithsonite coated boulders containing banded zinc mineralization were discovered and one assay of 1.07% zinc was reported from one erratic (File No. 2.12692).

A total of two days were spent during phase 1 prospecting in the area of Showing No.2 along the south MNR access road and one half day in the vicinity of Showing No. 1 along the Salmon Lake road. While the exact locations of the occurrences were found, no mineralization, either in the way of primary sulphides or as a secondary coating was found as a result of this prospecting.

Figure 5 illustrates the confinement of the previously discovered zinc mineralization to a narrow band of metamorphosed dolomitic carbonate within high grade metamorphosed basement gneisses and mafic intrusions. Due to the narrowness of the carbonate interbed further exploration in the area of showing No. 2 was given a low priority and the grid was not extended south of the Salmon Lake road.

One sulphide showing was located during the course of prospecting north of the Salmon Lake road. This occurrence outcrops along BL 3 at L 1+50E. The outcrop is highly weathered, and has developed a gossan-like soil in the vicinity of the occurrence. This gossan is not wide-spread however, and has an extent of only a few feet distant from the exposure. The rock has been tentatively identified as a coarse grained, ultramafic intrusive rock containing extremely fine grained disseminated





**legend**

- LARGE AREA OF CONTINUOUS OUTCROP
- SINGLE OUTCROP
- x BOULDERS, NEAR SURFACE OUTCROP
- △ CLIFF FACE (EXPOSED OUTCROP)
- ③ ROCK SAMPLE - # No.
- ⊙ BEDDING (DIP)
- ⊗ MINERAL SHOWING
- ⊙ SWAMP, CLEARCUT, FOREST

**geology**

- 1 CALDAREOUS METASEDIMENT
  - 1a massive, recrystallized, bluish marble
  - 1b rubbly weathering, coarsely crystalline marble
  - 1c banded (metamorphosed) marble
- 2 CLASTIC METASEDIMENTS
  - 2a felsic (quartz rich)
  - 2b mafic (biotite hornblende)
  - 2c ferruginous (rusty weathering)
- 3 HIGH GRADE GNEISSIC ROCK
- 4 MAFIC (ULTRAMAFIC INTRUSIVE)
- 5 FELSIC (QUARTZ PORPHYRY) INTRUSIVE

**Geology Map**

SCALE  
100 200 300 400 500 METERS

**fig 5**

Table 3 - Rock Assays

Sample #	Zinc (ppm)	Lead (ppm)	Description
8	11	5	BL-1, 0+50E: gossanous, weathered outcrop of ultramafic rock
9	17	6	BL-1, 1+00E: large boulder, iron stained from weathered sulphides
10	30	1	BL-1, 0+50E: Course, crystalline mafic-ultramafic intrusive rock, disseminated, very fine pyrrhotite, magnetic
11	4	2	BL-1, road: rusty boulder
12	14	4	BL-1, gossan: possible galena spotted in outcrop
13	28	2	L 1W, Salmon Lake Road; marble outcrop close to projected area of airborne conductor, trace sulphides?
19	2	-	Anomaly B: bleached, massive marble, trace weathered out pyrite cubes.
20	8	-	Anomaly B: coarse grained, crystalline marble, trace pyrite
21	4	-	Anomaly B: Banded marble
22	54	-	Anomaly B: L5+25E/0+30N - massive, rubbly marble
23	2	-	Anomaly B: L4+50E, 0+50N - banded marble, trace very fine, disseminated mafic mineral.
24	7	-	L 5+50E, sample station 270; qtz-mafic gneiss, rusty interbed in marble outcrop cliff face
25	43	-	Anomaly A: L5+00E, sample site 176 - interbed of mafic gneissic unit within marble outcrop
26	18	-	Anomaly A: Mafic intrusive rock, slight sulfur odour on breaking of rock

pyrrhotite. A multi-element Trace ICAP-22 (HF digest) revealed only slightly anomalous values in nickel and chromium

No obvious mineralization was noted in any of the examined outcropping of carbonate, nor did the zinc-zap react with any of the weathered surfaces. The source of zinc for the geochemical anomalies has not been discovered. Anomaly A remains unexplained and would have to be further explored by mechanized trenching.

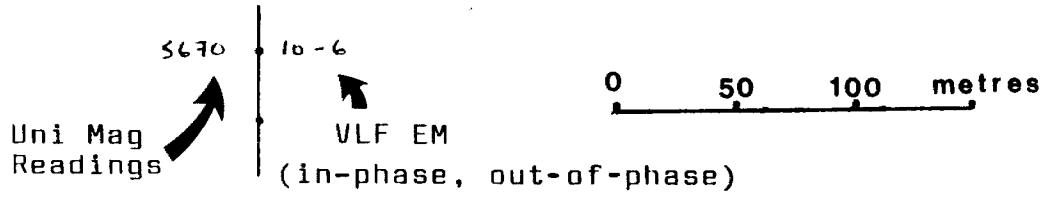
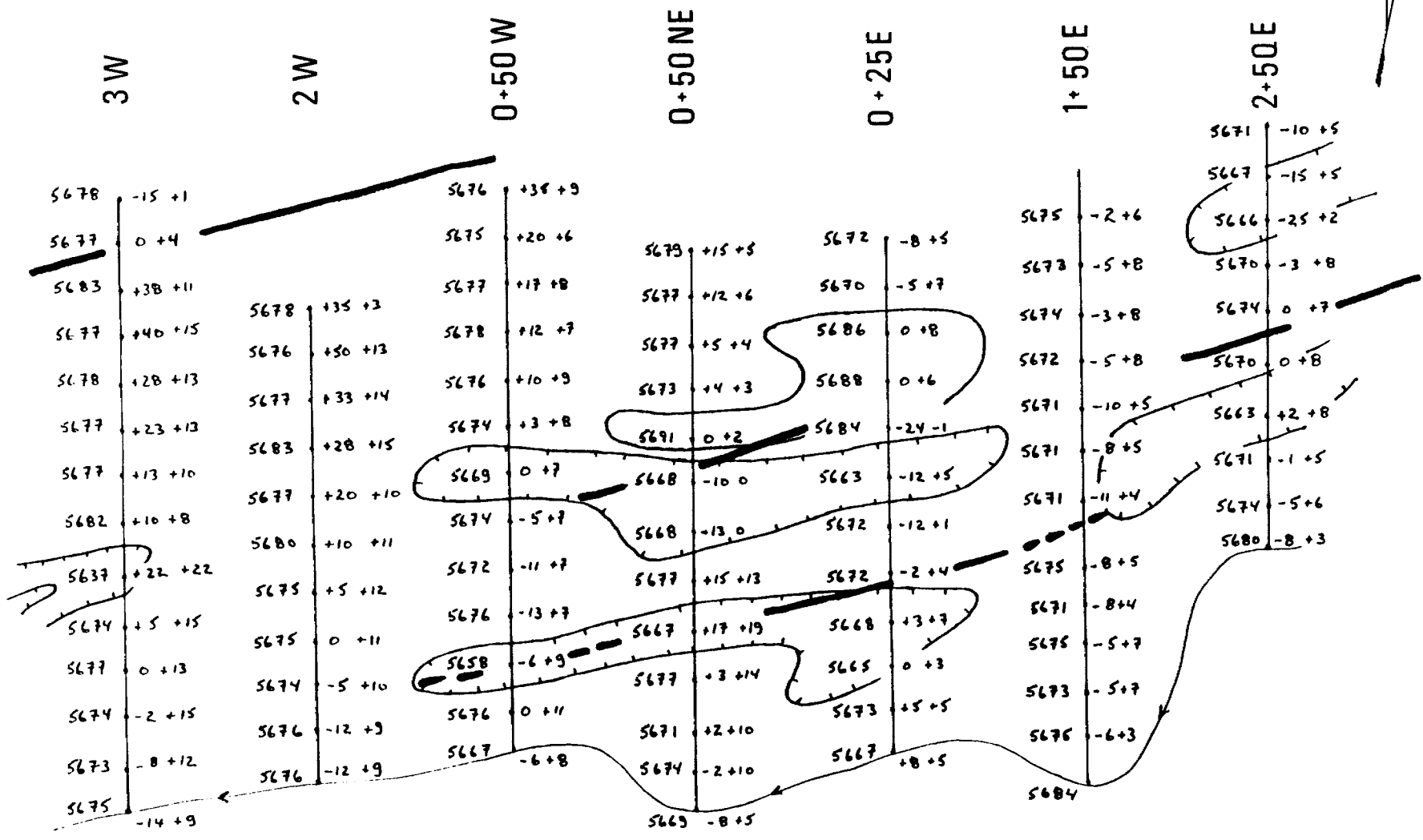
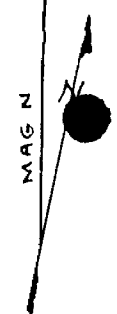
Table 3 summarizes the assay data from the rock samples collected and sent in for analysis (refer to geology map for locations of the rock samples)

### 6.3 Geophysical Results

In order to establish whether the zinc mineralization found in the soils exhibits a geophysical response, VLF and Magnetic surveys were run over Anomaly A from lines 3+00 W to lines 2+50 E. The magnetometer employed was a Unimag Proton Magnetometer having an accuracy to 10 gammas. The survey was run in a loop fashion and a diurnal correction was made for each line. The maximum correction for the day in which the survey was carried out was 30 gammas. The electromagnetic survey readings were read from a Geonics Ltd EM 16/16R unit utilizing station NAA (Cutler, Maine) which transmits at 24 Kz.

The results of the magnetic survey was not conclusive in establishing a geophysical pattern for area encompassing the soil geochemical anomaly. While a 40 gamma magnetic low coincides with a 5000 ppm zinc high on line L3+00W, and a broad 10 gamma anomaly coincides with a 3000 ppm zinc high on line 0+50NE no distinct magnetic trend outlines the geochemical zone. In order to establish any relationship between the magnetic and geochemical results a one gamma accuracy magnetic survey would have to be run.

The electromagnetic survey outlined one conductor within the area of Anomaly A as well as one strong conductor to the north of the area sampled. The conductor on L 0+50NE coincides with the 3000 ppm zinc high, as well as a magnetic low. As the overburden along the side of the high is thin this geophysical anomaly may reflect a conductive source in bedrock. However, as with the magnetic survey, the EM survey did not effectively outline a strong conductive anomaly associated with the zone of soil highs.



# Geophysics

fig 7

## 7. CONCLUSIONS AND RECOMMENDATIONS

Through detailed prospecting and soil geochemistry a potentially mineralized horizon in zinc has been outlined within carbonate rocks in Cavendish Township. This soil anomaly has an overall strike extent of at least 900 metres. The source for the enhanced zinc content in the soil profile has not been identified by prospecting of outcrop exposures. However, outcrops are not abundant in this area. As well, there are instances in Grenville carbonate rocks where a surface expression of high grade zinc mineralization has weathered out, leaving a barren weathered rind on the outcrops. The soil anomaly has been verified by repeated sampling of sample sites as well as by analyzing several soil profiles.

As the anomaly has not been closed off, further exploration to the east is warranted as well as detailed work in the area of the main anomaly (Anomaly A). Further soil sampling, hand trenching and blasting across the strike of the anomalous sites is recommended. As access is poor, mechanized trenching is not feasible.

Upon completion of the OPAP Grant the area will be staked.

## 8. EXPENDITURES

### Phase 1. Grid Layout, Soil Sampling and Prospecting

#### A) Preparation

airphotos, Quat. map of Cavendish Twp.	28.72
claim map, Cavendish Twp.	1.15
topofil string, flagging tape	77.49
topographic map	4.20
muriatic acid	4.59
field supplies (string, sample bags, fibre tape, axe file, plastic bags, zinc-zap solution, magic markers, picket stakes, spray paint, 2 field note books, axe)	102.52
long distance calls	<u>15.43</u>
	<b>234.10</b>

#### B) Lodging

817.60 (15 nights) @ \$47.40/night-----	<b>817.60</b>
---	---------------

## Phase 1, continued.....

C) Meals	Travel meals	58.88	
	Groceries	264.44	
	Breakfasts	<u>21.77</u>	
		345.09	-----345.09
D) Prospecting Field Costs			
2 travel days	n/c		
14 field days @ 100 + GST		1498.00	
10 days field assistant		1000.00	
9 days rental of soil auger		45.00	
1 day plotting geochem.+ GST		<u>107.00</u>	
		2650.00	-----2650.00
E) Travel Costs			
Brampton to Area & Return	400 km		
daily travel @ 51 km to site	<u>1476 km</u>		
	1876 km x \$.30		-----562.80
F) Geochemical Costs			
assays		1630.04	
courier to lab		<u>60/80</u>	
		1690.84	-----1690.84
			<b>SUBTOTAL-----6300.43</b>

## Phase 11. Soil Profiles, Expansion of Grid

A) Preparation	long distance calls	19.72	
	field supplies	<u>31.62</u>	
		51.34	-----51.34
B) Lodging	45.73/night		-----274.40
C) Meals	7 days @ \$18.25/day		-----127.79
D) Prospecting-field costs			
2 travel days	n/c		
5 field days + GST		535.00	
4 days (assistant)	<u>400.00</u>		
	935.00		-----935.00
E) Travel Costs	915 km @ \$.30/km		-----274.50

## Phase 11, continued....

F)	Geochemical Costs	Courier	19.35	
		Lab	<u>395.05</u>	
			414.40	-----414.40

SUBTOTAL-----\$2077.43

## Phase 111 Geophysical Surveys

A) VLF/MAG Survey, contract costs-----400.00

B)	Labour; repositioning lines @ 25 m stations	-----100.00
	GST	-----7.00

C)	Accommodation	112.00	
	Meals	36.78	-----148.78

D) Travel Costs;

meals-----22.00

mileage - to contractor + Bobcaygeon	220 km
to Base line	105 km
return to Toronto	220 km

---

 545 km-----163.50

SUBTOTAL-----\$841.28

## REPORT COSTS

A) photo dev. + reprints-----\$28.32

B)	Contract Typing	\$175.00	
	Drafting Of Figures & Maps	\$250.00	-----\$425.00

C) Report Writing; 4 days @ 100 + GST-----\$428.00

D) Xerox, binding, photoreduction-----\$25.00

SUBTOTAL-----\$906.32

TOTAL ----- \$10,125.46



## APPENDIX 1

## List of Selected References

- Anderson, GM, Macqueen, RW. (1988): Mississippi Valley-Type Lead-Zinc Orebodies. in/ Ore Deposit Models. Geoscience Canada Reprint Series 3. p 79-90
- Bartlett J.R., DeKemp E. (1987); Lithofacies, Stromatolite Localities - Metallic Mineral Occurrences and Geochemical Anomalies Associated with Carbonate Metasediments - Burleigh Falls, Bancroft, Madoc Areas. Notes on Map, OGS 3079, 1:126,720 scale.
- DeLorraine WF, Dill, DB (1982): Structure, Stratigraphic Controls, and Genesis of the Balmat Zinc Deposits, Northwest Adirondacks, New York. in/ Precambrian Sulphide Deposits, GAC Special Volume 25, p571-596
- Gauthier M, Brown A.C. (1980); Exploration Guidelines For Stratiform Zinc Deposits in the Grenville Supergroup of the Mount Laurier Basin, Quebec. CIM Bull, Vol 73, No. 819, July 1980 p56-61.
- Sangster A.L. (1968); Some Geochemical Features of Lead-Zinc Deposits in Carbonate Rocks. GSC Paper 68-39.
- Sangster A.L. (1982): Geology of the Grenville Province, and Regional Metallogenesis of the Grenville Supergroup. in GAC Precambrian Sulphide Deposits, Special Paper 25, p91-125
- Sangster, A.L. (1970); Metallogeny of Base Metals, Gold and Iron Deposits of the Grenville Province of SE Ontario. PhD Thesis, Queens Univ., Kingston.
- Sinclair, I.G.L. (1979); Geochemical Investigation of the Clyde River Zinc Prospect, Lanark County, On. p 487-495; in/ Geochemical Exploration 1978 - Proceedings of the 7th International Geochemical Exploration Symposium, Golden Co.



- Mendelsohn F. (1976); Mineral Deposits Associated with Stromatolites. p645-662. in/ Stromatolites, ed. MR Walker, Elsevier Scientific Publications, New York.

**MAPS:**

- P-2699; Precambrian Geology, Howland Area, NTS 31/ D 15SE, Haliburton, Peterborough & Victoria Counties, On by RM Easton, JR Bartlett, (1984), 1:1584 scale.
- P-3096; Precambrian Geology, Burleigh Falls, On.
- P-2205; Precambrian Geology, Eels Lake Area, On.
- Map 2418; OGS Compilation Map, Southern Ontario
- Map 1957b: Haliburton - Bancroft Area, by DF Hewitt, J. Satterly, 1955/56, revised in 1972, 1" = 2 miles.

**ASSESSMENT FILES:**

- 2.12692 B. LeRoy (1989); Geology, Zinc and Mineralization; Cavendish Township Claims, Ontario (Northgate Exploration Ltd.)
- Cavendish Airborne Test Site; McPhar Geophysics Ltd, Airborne EM Survey, (F-400) Test Area, Centennial Conference Test Area.



**Work Permit / Permis de travail**

Permit No. / Permis n°	
01.03	1141

This permit is issued under the authority and provisions of the following indicated Provincial Acts and their regulations, and is subject to the limitations and provisions thereof and is also subject to the terms and conditions herein.  
 Ce permis est émis en vertu des dispositions des lois provinciales ci-après et des règlements y afférents et est sujet aux restrictions et dispositions de ces lois et règlements ainsi qu'aux conditions ci-énoncées.

- Forest Fires Prevention Act / Loi sur la prévention des incendies de forêt
- Lakes and Rivers Improvement Act / Loi sur l'aménagement des lacs et des rivières
- Section 13, Public Lands Act as amended / Loi sur les terres publiques, article 13, tel que modifié
- Section 13a, Public Lands Act as amended / Loi sur les terres publiques, article 13a, tel que modifié

**Note: The issuance of this permit does not relieve the applicant from the responsibility of acquiring any other agency, board, government, etc., approval as may be required nor does it relieve the permittee from the requirements of any legislation.**

**Remarque: La délivrance d'un permis n'exonère pas le demandeur de l'obligation d'obtenir l'autorisation de tout autre organisme, commission, gouvernement, etc. qui pourrait être exigée, non plus qu'elle exempte le détenteur des dispositions des lois.**

This Permit is Issued to: / Ce permis est délivré :

Name of Permittee / Nom du détenteur : PAUL PITMAN
Post Office Address / Adresse postale : 20 TORONTO STREET, SUITE 1270
TORONTO ONT M5C 2B8

To conduct an operation from the 06 day of JULY, 19 92 to and including the 31 day of OCTOBER, 19 92 on the following work permit area:  
 Pour effectuer des travaux du jour de 06 JUILLET, 19 92 jusqu'au jour de 31 OCTOBRE, 19 92 au site objet du présent permis :

LTS 9-13 CON XVII, LTS 9-10 CON XVI  
 CAVENDISH TOWNSHIP FORTESCUE LAKE

as per your application dated: / conformément à la demande de permis en date du :

MAY 27, 1992

For the purpose of: / Aux fins de :

MINERAL EXPLORATION (GEOCHEMICAL SOIL SAMPLING) USING HAND EQUIPMENT (IE GRUBHOE, SHOVEL, ETC.). NOTE: PLEASE SEE LOCATION OUTLINED IN PINK ON ATTACHED MAP.

Subject to the following conditions: / Et sous les conditions suivantes :

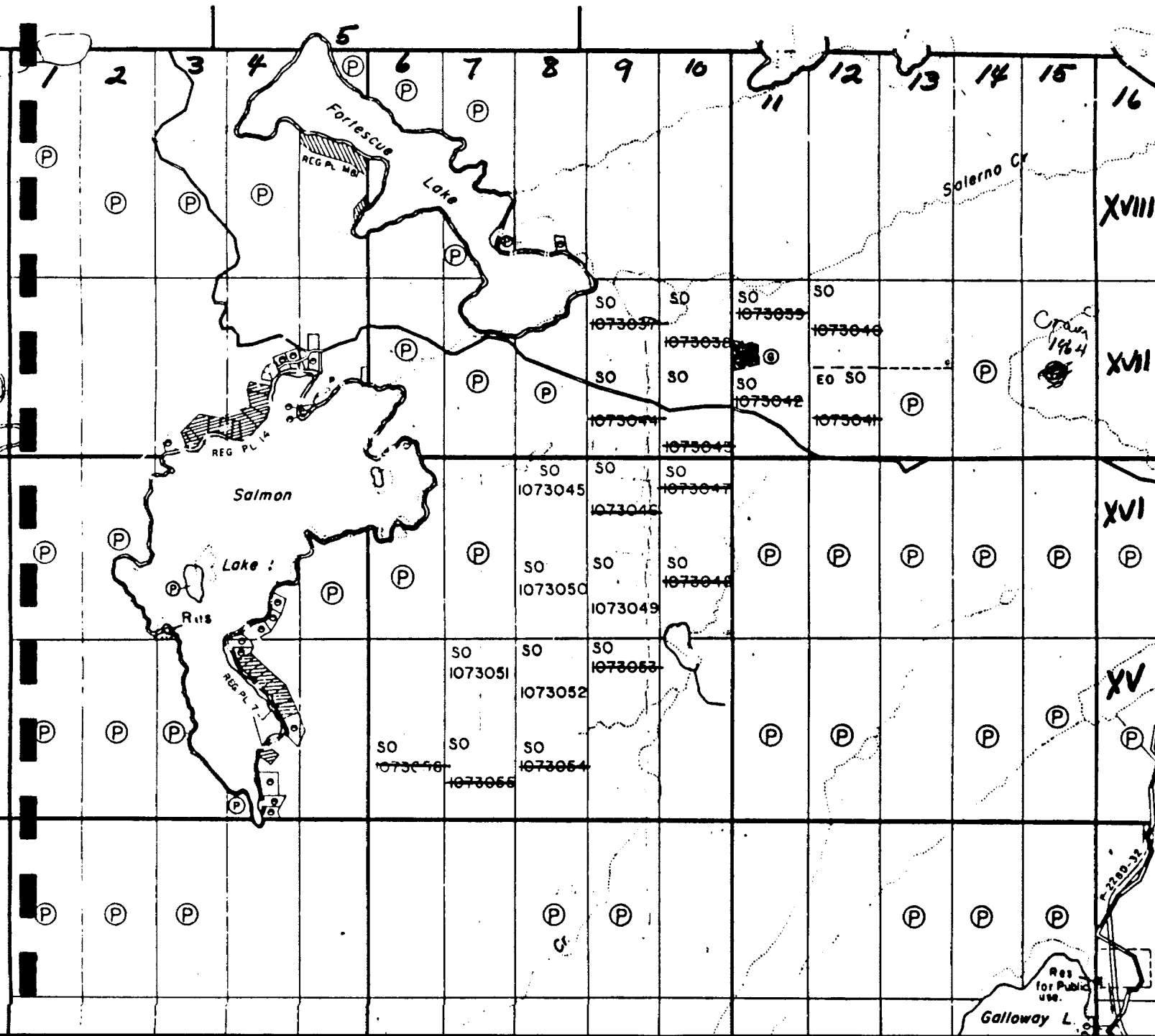
- The Permittee shall keep this permit or a true copy thereof on the work permit area.  
Le détenteur conservera ce permis ou une copie conforme sur les lieux des travaux.
- The person in charge of the operation conducted under this permit shall produce and show this permit or the true copy kept on the work permit area to any officer whenever requested by the officer.  
Le responsable des travaux couverts par ce permis doit produire le permis ou sa copie conforme si un agent le lui demande.
- Other conditions as listed on the reverse side of this permit as well as those contained in Schedule(s) 'B' attached.  
Autres conditions énoncées au verso de ce permis ainsi que celles apparaissant aux annexes suivantes

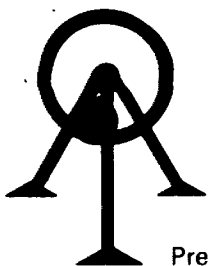
Place of Issue / Emis à MINDEN, ONTARIO	Date / Date de délivrance July 9/92	Signature of Issuing Officer / Signature du délivreur <i>Hugh M. Allan</i>
--	--	---



PITMAN 01.03.1141

- 1) Deleterious substances as defined in the Canada Fisheries Act are not to be deposited or allowed to enter any waterbody or watercourse as a result of activities by the permittee.
- 2) The permittee is responsible to maintain the site in a safe condition.  
The permittee assumes liability for the safety of the work area during and after operations.
- 3) Only hand tools to be used, i.e. shovels, grubhoes, etc.
- 4) Area of extraction to be filled back in.
- 5) No trees to be cut.





**ACCURASSAY LABORATORIES**  
A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO  
BOX 426  
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1  
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45643

# Certificate of Analysis

Page: 1

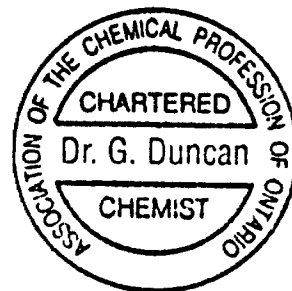
Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
Toronto, Ontario  
M5C-2B8

July 24

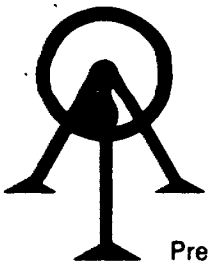
92

Work Order # : 920256  
Project :

SAMPLE NUMBERS Accurassay	CUSTOMER	Zinc ppm
258655	001	130
258656	002	160
258657	003	82
258658	004	200
258659	005	52
258660	006	120
258661	007	76
258662	008	190
258663	009	500
258664	010	75
258665	011	55
258666	012	190
258667	013	110
258668	014	150
258669	015	230
258670	016	83
258671	017	170
258672	018	38
258673	019	98
258674	020	86
258675	021	60
258676	022	130
258677	023	84
258678	024	50
258679	025	82
258680	026	130
258681	027	270
258682	028	62
258683	029	390
258684	030	74
258685	031	150



Per: \_\_\_\_\_



**ACCURASSAY LABORATORIES**  
A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO  
BOX 426  
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1  
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45644

# Certificate of Analysis

Page: 2

Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
Toronto, Ontario  
M5C-2B8

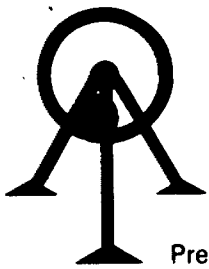
July 24

92

Work Order # : 920256  
Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
258686	032	69
258687	033	180
258688	034	370
258689	035	80
258690	036	75
258691	037	120
258692	038	75
258693	039	140
258694	040	120





**ACCURASSAY LABORATORIES**  
A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO  
BOX 426  
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1  
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45645

# Certificate of Analysis

Page: 1

Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
Toronto, Ontario  
M5C-2B8

July 24

92

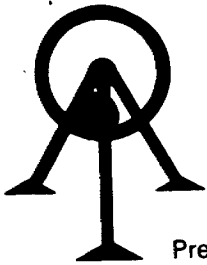
Work Order # : 920257  
Project :

SAMPLE NUMBERS	Customer	Zinc ppm
Accurassay		
258695	041	93
258696	042	98
258697	043	130
258698	044	100
258699	045	100
258700	046	53
258701	047	410
258702	048	82
258703	049	1300
258704	050	110
258705	051	56
258706	052	64
258707	053	150
258708	054	210
258709	055	57
258710	056	150
258711	057	160
258712	058	90
258713	059	210
258714	060	160
258715	061	96
258716	062	130
258717	063	130
258718	064	84
258719	065	75
258720	066	73
258721	067	68
258722	068	94
258723	069	140
258724	070	82
258725	071	110



Per: \_\_\_\_\_

*G. Duncan*



**ACCURASSAY LABORATORIES**  
A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO  
BOX 426  
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1  
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45646

# Certificate of Analysis

Page: 2

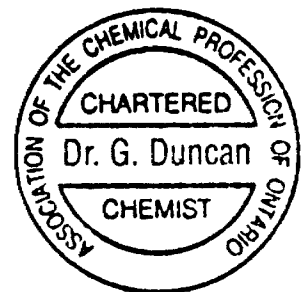
Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
Toronto, Ontario  
M5C-2B8

July 24

92

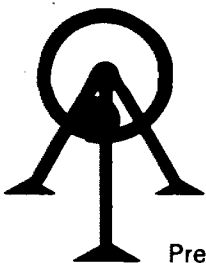
Work Order # : 920257  
Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
258726	072	63
258727	073	160
258728	074	98
258729	075	340
258730	076	180
258731	077	95
258732	078	110
258733	079	82
258734	080	450



Per: \_\_\_\_\_

*G. Duncan*



**ACCURASSAY LABORATORIES**  
A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO  
BOX 426  
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1  
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45647

# Certificate of Analysis

Page: 1

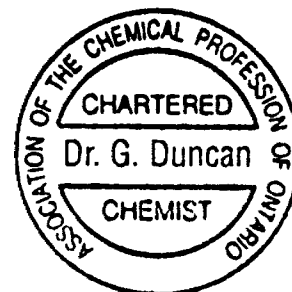
Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
Toronto, Ontario  
M5C-2B8

July 24

92

Work Order # : 920258  
Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
258735	081	240
258736	082	260
258737	083	100
258738	084	90
258739	085	66
258740	086	480
258741	087	25
258742	088	520
258743	089	74
258744	090	180
258745	091	96
258746	092	43
258747	093	320
258748	094	130
258749	095	76
258750	096	210
258751	097	60
258752	098	64
258753	099	130
258754	100	82
258755	101	100
258756	102	110
258757	103	140
258758	104	130
258759	105	130
258760	106	66
258761	107	130
258762	108	340
258763	109	92
258764	110	33
258765	111	35

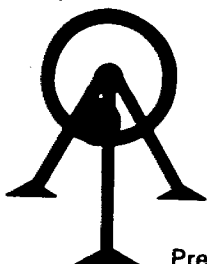


Per: \_\_\_\_\_

*G. Duncan*

ORIGINAL





# ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO

BOX 426

KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1

TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45648

## Certificate of Analysis

Page: 2

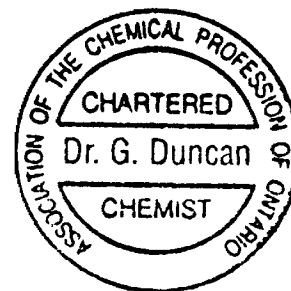
Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
Toronto, Ontario  
M5C-2B8

July 24

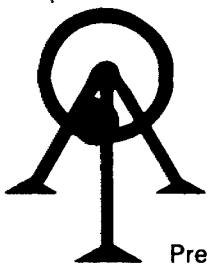
92

Work Order # : 920258  
Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
258766	112	44
258767	113	53
258768	114	70
258769	115	71
258770	116	51
258771	117	110
258772	118	150
258773	119	120
258774	120	88



*G. Duncan*



**ACCURASSAY LABORATORIES**  
 A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO  
 BOX 426  
 KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1  
 TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45649

# Certificate of Analysis

Page: 1

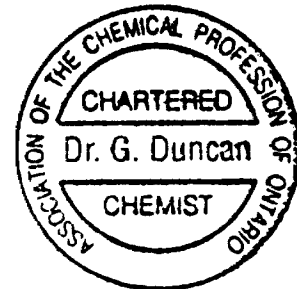
Pitman, Mr. Paul  
 2 Toronto St.  
 Suite 1270  
 Toronto, Ontario  
 M5C-2B8

July 24

92

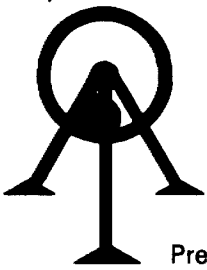
Work Order # : 920259  
 Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
258775	121	180
258776	122	62
258777	123	52
258778	124	150
258779	125	330
258780	126	100
258781	127	40
258782	128	81
258783	129	770
258784	130	1200
258785	131	950
258786	132	290
258787	133	110
258788	134	320
258789	135	400
258790	136	80
258791	137	60
258792	138	23
258793	139	73
258794	140	66
258795	141	180
258796	142	140
258797	143	1200
258798	144	430
258799	145	93
258800	146	75
258801	147	190
258802	148	540
258803	149	220
258804	150	68
258805	151	110



Per: \_\_\_\_\_

*G. Duncan*



**ACCURASSAY LABORATORIES**  
A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO  
BOX 426  
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1  
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45650

# Certificate of Analysis

Page: 2

Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
Toronto, Ontario  
M5C-2B8

July 24

92

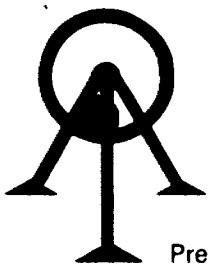
Work Order # : 920259  
Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
258806	152	140
258807	153	190
258808	154	88
258809	155	290
258810	156	51
258811	157	76
258812	158	44
258813	159	56
258814	160	86



Per: \_\_\_\_\_

*G. Duncan*



**ACCURASSAY LABORATORIES**  
A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO  
BOX 426  
KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1  
TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45651

# Certificate of Analysis

Page: 1

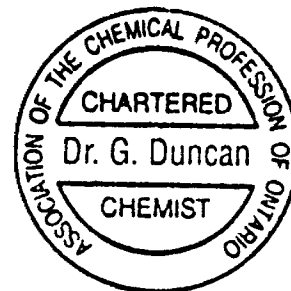
Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
Toronto, Ontario  
M5C-2B8

July 24

92

Work Order # : 920260  
Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
258815	161	29
258816	162	75
258817	163	150
258818	164	380
258819	165	44
258820	166	48
258821	167	110
258822	168	110
258823	169	260
258824	170	400
258825	171	110
258826	172	71
258827	173	110
258828	174	110
258829	175	73
258830	176	1900
258831	177	140
258832	178	66
258833	179	54
258834	180	85
258835	181	110
258836	182	610
258837	183	210
258838	184	60
258839	185	91
258840	186	110
258841	187	48
258842	188	74
258843	189	53
258844	190	520
258845	191	54



Per: \_\_\_\_\_

*G. Duncan*



# ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO

BOX 426

KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1

TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45652

## Certificate of Analysis

Page: 2

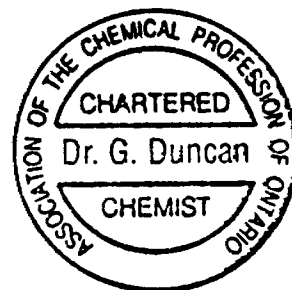
Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
Toronto, Ontario  
M5C-2B8

July 24

92

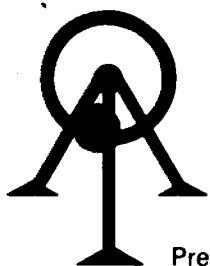
Work Order # : 920260  
Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
258846	192	120
258847	193	330
258848	194	120
258849	195	820
258850	196	150
258851	197	440
258852	198	59
258853	199	25
258854	200	84



Per: \_\_\_\_\_

*G. Duncan*



# ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO

BOX 426

KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1

TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45653

## Certificate of Analysis

Page: 1

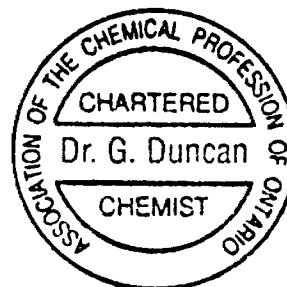
Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
Toronto, Ontario  
M5C-2B8

July 24

92

Work Order # : 920261  
Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
258855	201	160
258856	202	170
258857	203	61
258858	204	77
258859	205	83
258860	206	28
258861	207	130
258862	208	42
258863	209	110
258864	210	76
258865	211	150
258866	212	65
258867	213	130
258868	214	680
258869	215	430
258870	216	110
258871	217	300
258872	218	27
258873	219	500
258874	220	84
258875	221	150
258876	222	86



Per: \_\_\_\_\_

*G. Duncan*



# ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO

BOX 426

KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1

TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45858

## Certificate of Analysis

Page: 1

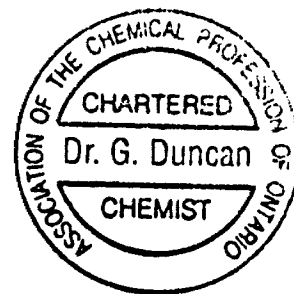
Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
TORONTO, Ontario  
M5C 2B8

August 13

92

Work Order # : 920280  
Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
259061	225	54
259062	226	480
259063	227	170
259064	228	3000
259065	229	1600
259066	230	97
259067	231	100
259068	232	34
259069	233	55
259070	234	86
259071	235	2500
259072	236	280
259073	237	160
259074	238	85
259075	239	89
259076	240	75
259077	241	400
259078	242	300
259079	243	2900
259080	244	110
259081	245	96
259082	246	240
259083	247	97
259084	248	260
259085	249	56
259086	250	110
259087	251	120
259088	252	64
259089	253	210
259090	254	89
259091	255	190



Per: *G. Duncan*

ORIGINAL



# ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO

BOX 426

KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1

TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45859

## Certificate of Analysis

Page: 2

Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
TORONTO, Ontario  
M5C 2B8

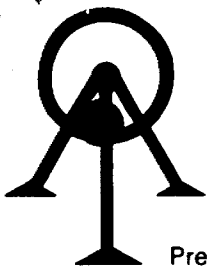
August 13

92

Work Order # : 920280  
Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
259092	256	190
259093	257	120
259094	258	62
259095	259	300
259096	260	44
259097	261	460
259098	262	80
259099	263	48
259100	264	71
259101	265	210
259102	266	52
259103	267	160
259104	268	52
259105	269	87
259106	270	66
259107	271	390
259108	272	520
259109	273	86
259110	176B	2400





**ACCURASSAY LABORATORIES**  
 A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO  
 BOX 426  
 KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1  
 TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45655

# Certificate of Analysis

Page: 1

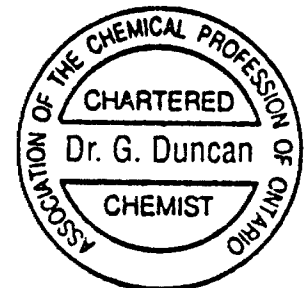
Pitman, Mr. Paul  
 2 Toronto St.  
 Suite 1270  
 Toronto, Ontario  
 M5C-2B8

July 24

92

Work Order # : 920262  
 Project :

SAMPLE NUMBERS		Lead	Zinc
Accurassay	Customer	ppm	ppm
258877	8	5	11
258878	9	6	17
258879	10	1	30
258880	11	2	4
258881	12	4	14
258882	13	2	28



Per: \_\_\_\_\_

*G. Duncan*



# ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO

BOX 426

KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1

TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45864

## Certificate of Analysis

Page: 1

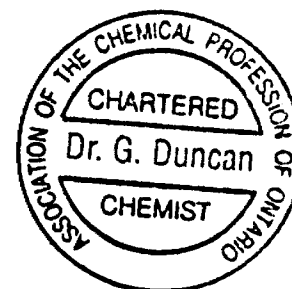
Pitman, Mr. Paul  
2 Toronto St.  
Suite 1270  
TORONTO, Ontario  
M5C 2B8

August 18

92

Work Order # : 920286  
Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
259189	19	2
259190	20	8
259191	21	4
259192	22	54
259193	23	2
259194	24	7
259195	25	43
259196	26	18
259197	129B	280
259198	129C	83
259199	131A	960
259200	143A	440
259201	143B	130
259202	274	1300
259203	275A	140
259204	275B	240
259205	275C	450
259206	276A	320
259207	276B	170
259208	277	560
259209	278	480
259210	279	980
259211	280	170
259212	281	100
259213	282	130
259214	283	840
259215	284	710
259216	285	570
259217	286	640
259218	287	740
259219	288	84



Per: \_\_\_\_\_

*G. Duncan*

ORIGINAL



**ACCURASSAY LABORATORIES**  
 A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO  
 BOX 426  
 KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1  
 TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45865

# Certificate of Analysis

Page: 2

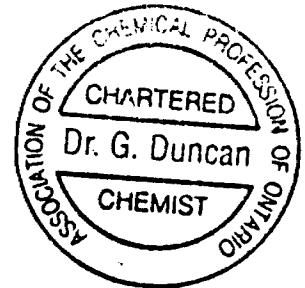
Pitman, Mr. Paul  
 2 Toronto St.  
 Suite 1270  
 TORONTO, Ontario  
 M5C 2B8

August 18

92

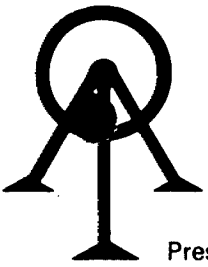
Work Order # : 920286  
 Project :

SAMPLE NUMBERS		Zinc
Accurassay	Customer	ppm
259220	289	72
259221	290	5000
259222	291	630
259223	292	120



Per: \_\_\_\_\_

*G. Duncan*



# ACCURASSAY LABORATORIES

A DIVISION OF BARRINGER LABORATORIES LIMITED, REXDALE, ONTARIO

BOX 426

KIRKLAND LAKE, ONTARIO, CANADA P2N 3J1

TEL.: (705) 567-3361

President: Dr. GEORGE DUNCAN, M.Sc., Ph. D., C. Chem (Ont.), C. Chem (U.K.), M.C.I.C., M.R.S.C., A.R.C.S.T.

45743

## Certificate of Analysis

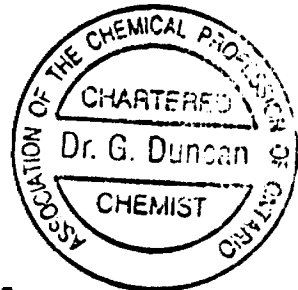
Mr. Paul Pitman  
2 Toronto Street  
TORONTO, Ontario  
M5C 2B8

Page #1

August 18, 1992

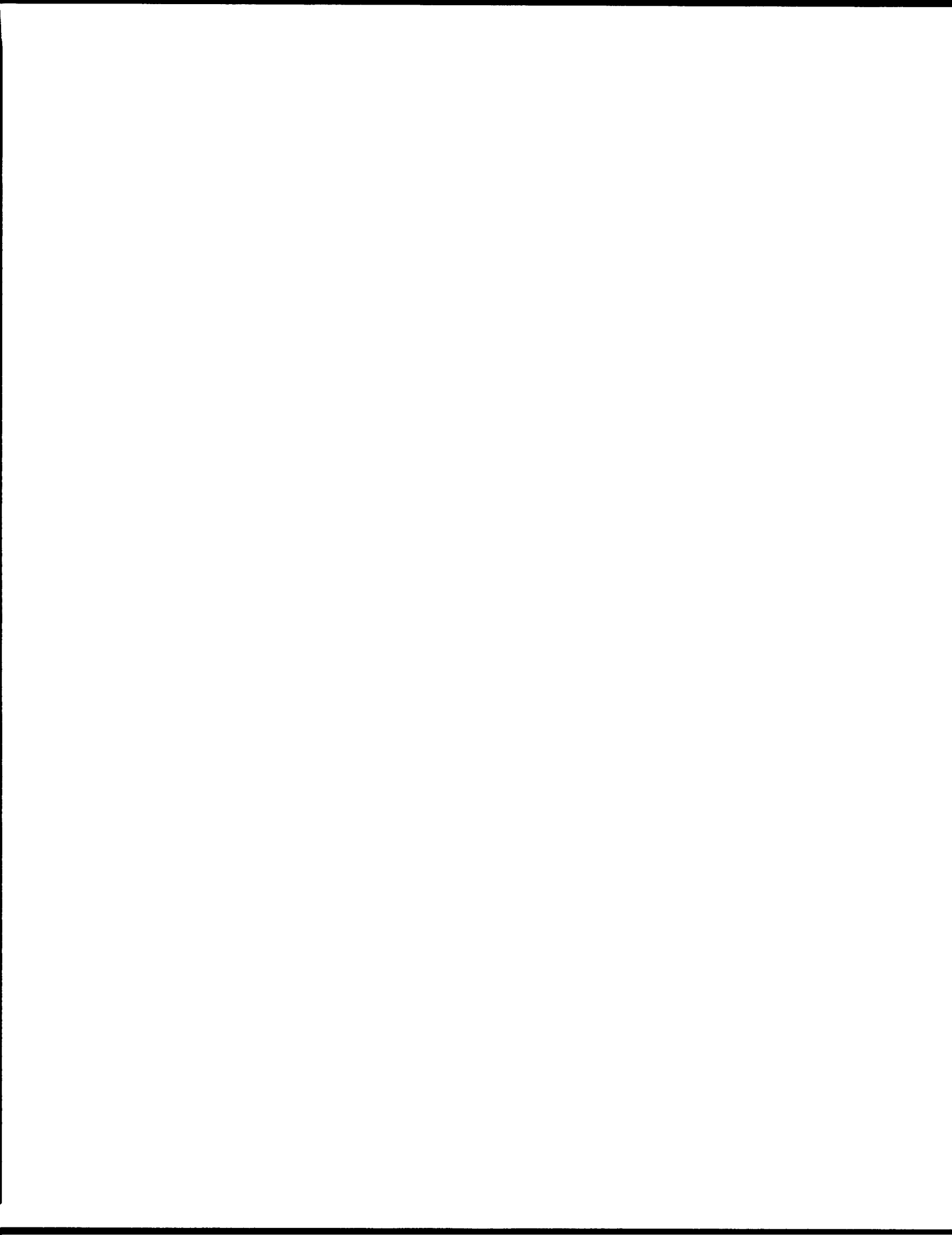
Work Order # : 920262A

SAMPLE NUMBERS		Mo	Cu	Pb	Zn	Ag
Accurassay	Customer	ppm	ppm	ppm	ppm	ppm
258879	10	1	46	22	113	1.8
SAMPLE NUMBERS		Ni	Co	Mn	Fe	As
Accurassay	Customer	ppm	ppm	ppm	%	ppm
258879	10	466	43	756	5.86	2
SAMPLE NUMBERS		Au	Hg	Sr	Cd	Sb
Accurassay	Customer	ppm	ppm	ppm	ppm	ppm
258879	10	ND	ND	56	2	2
SAMPLE NUMBERS		Bi	V	Ca	P	La
Accurassay	Customer	ppm	ppm	%	%	ppm
258879	10	<3	183	6.90	0.09	13
SAMPLE NUMBERS		Cr	Mg	Ba	Ti	Al
Accurassay	Customer	ppm	%	ppm	%	%
258879	10	1475	8.87	196	0.44	4.04
SAMPLE NUMBERS		Na	Si	W	Be	
Accurassay	Customer	%	%	ppm	ppm	
258879	10	1.69	3.87	9	6	



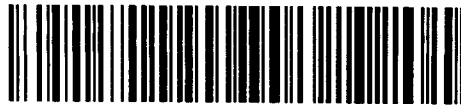
Per: \_\_\_\_\_

*G. Duncan*





Ontario



31D16SW8572 2.14995 CAVENDISH

900

Ministry of  
Northern Development  
and Mines

Ministère du  
Développement du Nord  
et des Mines

Geoscience Approvals Section  
Willet Green Miller Centre  
933 Ramsey Lake Rd., 6th Flr  
Sudbury, Ontario  
P3E 6B5

Telephone: (705) 670-5853  
Fax: (705) 670-5863

Our File: 2.14995  
Transaction #: W9390.00024

July 21, 1993

Mining Recorder  
Ministry of Northern  
Development and Mines  
MacDonald Block, Room M2-17  
900 Bay Street  
Toronto, Ontario  
M7A 1C3

Dear Ms. Charnesky:

**RE: Approval of Assessment Work on mining claims SO 1191290 et al. in  
Cavendish Township.**

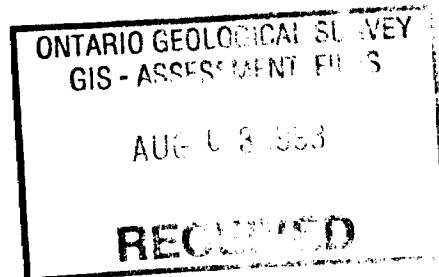
The assessment credits for Prospecting, section 9 of the Mining Act  
Regulations, as listed on the original Report of Work, have been approved  
as of July 19, 1993.

Please indicate this approval on the claim record sheets.

If you have any questions please contact Dale Messenger at 670-5858.

Yours sincerely,

Ron C. Gashinski  
Senior Manager, Mining Lands Section  
Mining and Land Management Branch  
Mines and Minerals Division



DEM/dm

cc: Assessment Files Office  
Toronto, Ontario

Resident Geologist  
Tweed



Ontario

Mining Act

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

2.14995

- Instructions:**
- Please type or print and submit in duplicate.
  - Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
  - A separate copy of this form must be completed for each Work Group.
  - Technical reports and maps must accompany this form in duplicate.
  - A sketch, showing the claims the work is assigned to, must accompany this form.

Recorded Holder(s) PAUL W. PITMAN ✓		Client No. 182708
Address 51 Paabella St BRAMPTON ON L6X1P8 ✓		Telephone No. (416) 451-5057
Mining Division SOUTHERN ON	Township/Area CAWENOSH ✓	M or G Plan No. M-72 ✓
Dates Work Performed From: JULY 4, 1992		To: OCT 17, 1992 ✓

Work Performed (Check One Work Group Only)

Work Group	Type
<input type="checkbox"/> Regional Surveys	
<input checked="" type="checkbox"/> Prospecting	SOIL GEOCHEMISTRY, GEOLOGY, PROSPECTING, VLF/EM SURVEY

Total Assessment Work Claimed on the Attached Statement of Costs \$ ~~6,577.81~~ 6,578 ✓

**Note:** The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
PAUL PITMAN (GEOLOGY)	51 Paabella St BRAMPTON ON L6X1P8
MIKE SMITH	70-234 St, STUBICONS, ON M9V3N2
<b>RECEIVED</b>	
APR 22 1993	

(attach a schedule if necessary)

MINING LANDS BRANCH

Certification of Beneficial Interest \* See Note No. 1 on reverse side

I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.	Date April 17/93	Recorded Holder or Agent (Signature) <i>Paul Pitman</i> ✓
--	---------------------	--

Certification of Work Report

I certify that I have a personal knowledge of the facts set forth in this work report, having performed the work or witnessed it during and/or after its completion, and the annexed report is true.		
Name and Address of Person Certifying PAUL PITMAN same as above		
Telephone No. (416) 451-5057	Date April 17/93	Certified By (Signature) <i>Paul Pitman</i> ✓

For Office Use Only

Total Value Cr. Recorded \$6,578	Date Recorded April 20/93	Mining Recorder <i>D. J. L. Moore</i>	<table border="1"> <tr> <td colspan="2">SOUTHERN ONTARIO MINING DIVISION</td> </tr> <tr> <td colspan="2" style="text-align: center;"><b>RECEIVED</b></td> </tr> <tr> <td colspan="2" style="text-align: center;">APR 20 1993</td> </tr> <tr> <td>AM</td> <td>PM</td> </tr> <tr> <td>7,8,9,10,11,12,1,2,3,4,5,6</td> <td></td> </tr> </table>	SOUTHERN ONTARIO MINING DIVISION		<b>RECEIVED</b>		APR 20 1993		AM	PM	7,8,9,10,11,12,1,2,3,4,5,6	
	SOUTHERN ONTARIO MINING DIVISION												
	<b>RECEIVED</b>												
APR 20 1993													
AM	PM												
7,8,9,10,11,12,1,2,3,4,5,6													
Deemed Approval Date July 19/93	Date Approved												
Date Notice for Amendments Sent													







Statement of Costs  
for Assessment Credit

État des coûts aux fins  
du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction  
W9390.00024

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la Loi sur les mines et serviront à tenir à jour un registre des concessions minières. Adresser toute question sur la collecte de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4<sup>e</sup> étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre	3069.75	
	Field Supervision Supervision sur le terrain		3069.75
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert- conseil	Type geophysical	400.00	
	assays	1205.25	
	reporting costs	617.33	2222.58
Supplies Used Fournitures utilisées	Type topofil, flagging	189.18	
	tape		
			189.18
Equipment Rental Location de matériel	Type		
			5
Total Direct Costs Total des coûts directs			5,481.51

2. Indirect Costs/Coûts indirects

\*\* Note: When claiming Rehabilitation work Indirect costs are not allowable as assessment work. Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type grand (auto)	664.86	
			664.86
Food and Lodging Nourriture et hébergement		1044.67	1044.67
Mobilization and Demobilization Mobilisation et démobilisation			
Sub Total of Indirect Costs Total partiel des coûts indirects			1709.53
Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)			1096.30
Total Value of Assessment Credit (Total of Direct and Allowable indirect costs)			6,577.81

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit	Total Assessment Claimed
	× 0.50 =

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation	Évaluation totale demandée
	× 0,50 =

Certification Verifying Statement of Costs

I hereby certify: PAUL PITMAN  
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as Recorded Holder I am authorized  
(Recorded Holder, Agent, Position in Company)

to make this certification

*Paul Pitman*

Attestation de l'état des coûts

J'atteste par la présente :  
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de \_\_\_\_\_ je suis autorisé  
(titulaire enregistré, représentant, poste occupé dans la compagnie)

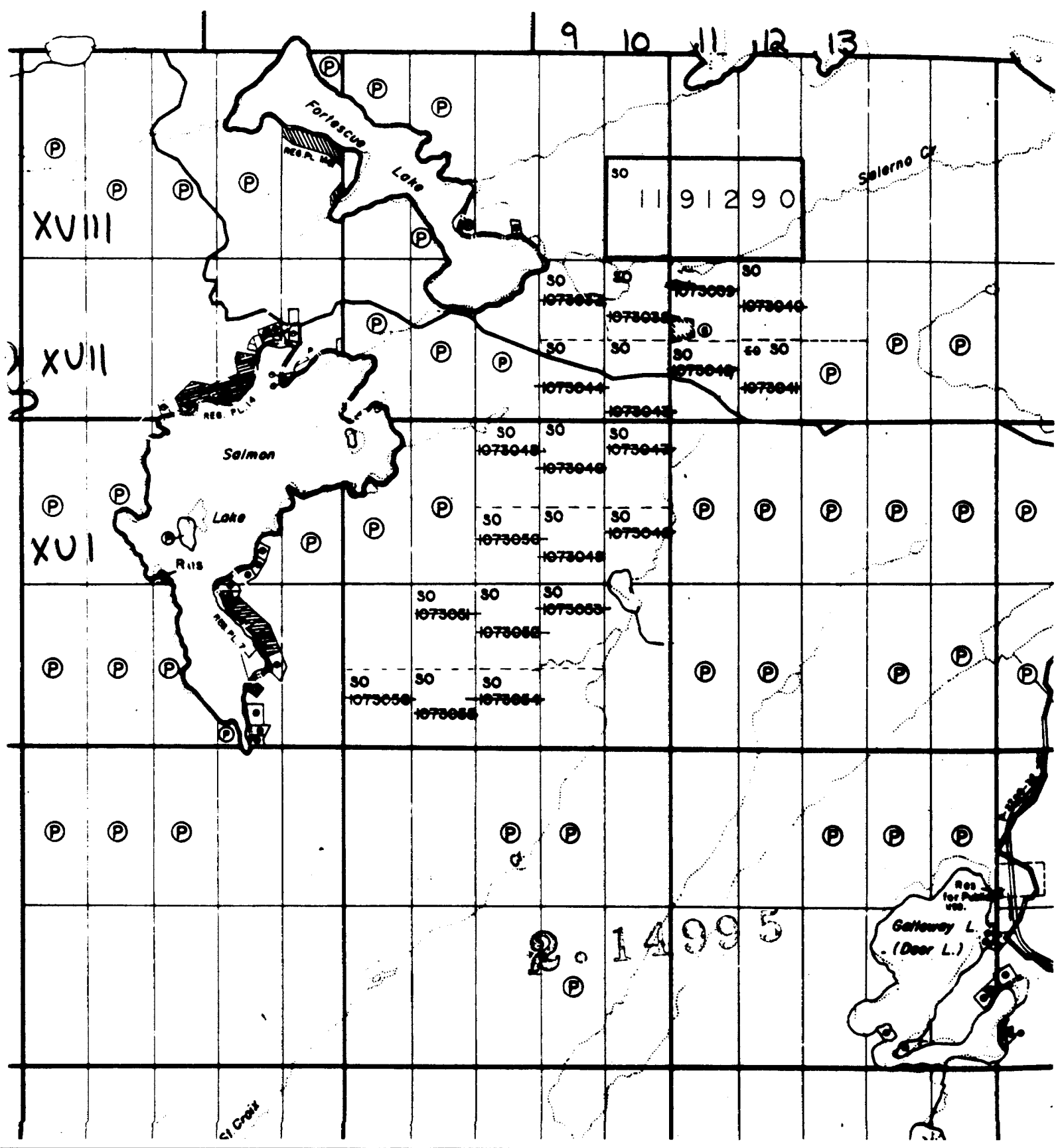
à faire cette attestation.

Signature *Paul Pitman* Date April 17/93

CHUENDISH  
TWP.

m-72

Glamorgan Tw



Glamorgan Twp. (M-95)

THE TOWNSHIP OF  
OF  
**CAVENDISH**

COUNTY OF  
PETERBOROUGH

SOUTHERN ONTARIO  
MINING DIVISION

SCALE: 1 INCH=40 CHAINS

LEGEND

PATENTED LAND	Ⓟ
CROWN LAND SALE	C.S.
LEASE	Ⓛ
LOCATED LAND	Loc
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	—
IMPROVED ROADS	—
KING'S HIGHWAYS	—
RAILWAYS	—
POWER LINES	—
MARSH OR MUSKEG	—
MINES	X
CANCELLED	C.
PATENTED FOR S.R.O.	Ⓟ

NOTES

This Map Is Not To Be Used  
- FOR SURVEY PURPOSES -

400' Surface Rights Reservation along the shores of all lakes and rivers.  
For status of summer resort locations & islands please contact Ministry of Natural Resources

Original shoreline shown thus: —  
FRI shoreline shown thus: —  
Patents Map shoreline shown thus: —

Area shown thus: — reserved for proposed Provincial Park, withdrawn from staking Sec 34(d) of Mining Act File 160708

Mining Claims staked in this Twp. subject to Sec 118 of Mining Act

SAND & GRAVEL

Ⓟ	Gravel	File 154616
Ⓟ	Gravel	" 21547
Ⓟ	M.N.R. Gravel Pit 76	File 21538
Ⓟ	Gravel	File 40832
Ⓟ	Gravel	" "
Ⓟ	Gravel	" 73125
Ⓟ	QUARRY PERMIT	
Ⓟ	M.N.R. Gravel Pit No. 138	File 152744
Ⓟ	Gravel	File 104960
Ⓟ	Gravel	File 40832

Areas withdrawn from staking under Section 5 of the Mining Act

File	Date	Disposition
W.67/74	7598V.4	19/12/74 S.R.B.M.R.
W.3/77	34261	1/1/77 S.R.B.M.R.
W.30/83	160708	2/7/83 S.R.B.M.R.
W.11/83	73118	30/9/83 S.R.B.M.R.
W.67/74	7598V.4	19/12/74 M.R.O.

DATE OF ISSUE

7 FEB 20 1993

SOUTHERN ONTARIO  
MINING DIVISION

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

PLAN NO. - **M-72**

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

Galway Twp. (M-94)

Anstruther Twp. (M-45)

Harvey Twp. (M-101)

Burleigh Twp. (M-62)



31D16SWS72 2-14995 CAVENDISH

200