

# 4609

GEOLOGICAL REPORT ON THE

MABEL LAKE PROPERTY

TORONADO DEVELOPMENT CORP. LTD. (NPL)

A 1-27 AND NEWF 1-13,

VERNON MINING DIVISION, B.C.

Department of  
Mines and Petroleum Resources

ASSESSMENT REPORT

NO. **4609** MAP.....

AUGUST, 1973

VANCOUVER, B.C.

## TABLE OF CONTENTS

	Page
1-00 INTRODUCTION	1
2-00 LOCATION AND ACCESS	1
3-00 PHYSIOGRAPHY AND CLIMATE	2
4-00 PROPERTY	2
5-00 REGIONAL GEOLOGY	3
6-00 PROPERTY GEOLOGY	3
7-00 GEOCHEMICAL SURVEY	5
7-10 Results	5
8-00 CONCLUSIONS	6
9-00 RECOMMENDATIONS	7
10-00 CERTIFICATION	8

## MAPS

	Scale
#1 Geology Map	1" = 400 feet
#2 Geochemical Survey	1" = 400 feet
#3 Claim Map	1" = 400 feet
#4 Location Map	1" = 110 miles

GEOLOGICAL REPORT ON THE  
MABEL LAKE PROPERTY  
TORONADO DEVELOPMENT CORP. LTD. (NPL)  
A 1-27 and NEWF 1-13,  
VERNON MINING DIVISION, B.C.

1-00 INTRODUCTION:

The Mabel Lake property of Toronado Development Corp. Ltd. (NPL) is under option to the company from O. Gillespie of Merritt, B.C.

The property A claims were staked in August, 1972 for O. Gillespie, further staking was conducted in Mid-May, 1973 when the NEWF 1-13 claims were tied to the A claims.

At the time of the later staking reconnaissance geological and geochemical surveying was performed by personel of Agilis Engineering Ltd. under the direction of D.P. Taylor, geologist.

2-00 LOCATION AND ACCESS:

The property is located in the Vernon Mining Division, B.C. north of Lumby, some 2.5 miles west of Sugar Lake in the Shuswap Highland.

The centre of the property is located at  $50^{\circ}24'N$ ,  $118^{\circ}35'W$ .

Access from Lumby is via the Mabel Lake road to the Squaw Valley road turnoff and good summer logging roads 13 miles up the Squaw Valley road, which is not kept clean in the winter. Logging roads in poor condition cover most of the property.

3-00 PHYSIOGRAPHY AND CLIMATE:

The property is located on the north facing slope of Ireland Creek, at a mean elevation of 3,800 feet A.S.L. Topographic relief is relatively gently sloping with steep drop-offs directly north and east of the property. The entire area is covered by dense cedar and spruce forests, and is often swampy. Several areas have been logged and are covered by recent slash burr.

This area of south central B.C. has considerable precipitation being on the edge of the Columbia rain belt. The summer are hot with moderate precipitation and the winters are cold with 6-8 feet of snow between November and May.

Water is available at all locations for exploration purposes.

4-00 PROPERTY:

The A claims were staked by H. Harchard 21st August, 1972 and recorded September, 5th. The claims are now owned by Toronado Development Corp. Ltd. (NPL). In May 1973 further staking was conducted by R. Turner and these claims NEWF 1-13 are also owned by Toronado Development Corp Ltd.

<u>Claim</u>	<u>Record Number</u>
A 1-27	16968 - 16994
NEWF 1-13	17048 - 17060

All claims are located in the Vernon Mining Division, B.C.

5-00 REGIONAL GEOLOGY:

The property lies in the metamorphics of the Shuswap complex. Regional trends in the Sugar Lake are generally striking. Broad scale regional faulting in the area is generally northwesterly and east northeasterly striking. The grade of metamorphism generally increases toward the east, from muscovite-chlorite schists in the west to biotite-garnet gneiss in the east. The most significant mineralization in the area is the Big Ledge zinc deposit of Cominco, some 20 miles east of the property.

6-00 PROPERTY GEOLOGY:

Out-crop exposure on the property is very poor, generally only being found in the road cuts and rarely in creeks. A very rapid reconnaissance mapping survey was conducted over the property in conjunction with a claim survey and some soil sampling and additional staking in May 1973.

The area is overlain by what is believed to be very shallow but continuous overburden.

The property is generally underlain by a relatively horizontal lying sequence of quartz-biotite, biotite sericite, and calc-schists. A biotite gneiss was noted on the southeast boundary of the property.

The lithologic sequence is believed to be:

Fine grained biotite schist-  
Quartz biotite schist-  
Biotite schist -  
Calc-sericite schist  
Biotite gneiss.-

The stratigraphic top of the sequence is yet to be determined.

Attitudes of the metamorphics vary considerably over the property but generally indicate a strike of N 30 W with northerly dips varying from 15 to 45°, probably regionally 10 to 15°.

Minor fold structures noted indicate these to be the general attitudes, N 30 W Strike, N 15° dip with the folds plunging 17° S 20 E.

One apparently continuous band of biotite schist covers extensive areas of the property, apparently underlying most of it. This band is notably rusty in appearance and generally carries disseminated traces of pyrrhotite, and pyrite.

In the area of the old log camp material from this strata, some bearing massive pyrrhotite, has been found containing notable chalcopyrite. Occasional specks of chalcopyrite can be seen in most of the rusty biotite schist band. Sphalerite is impossible to distinguish in trace quantities in the biotite schist but hydrozincite staining at the "high grade" showing at the log camp indicated its presence.

The showings at the old log camp are the most significant noted on the property. Higher grade float was seen in a sloughed trench, reportedly originally in bedrock, then anywhere else on the property. About 1 mile east of the camp, on the break of the mountain slope down to Sugar Lake, extensive very rusty biotite schist is exposed in a road cut.

This rusty occurrence was found to continue on strike to another road about 1,000 feet northwesterly. These road cuts were grab sampled for check assay and yielded 0.01% copper, 0.01-0.7% Zn and 0.05-0.14oz/ton silver. No assayable lead was encountered.

Assay on samples from the old camp "high grade" material yielded:

	<u>Copper</u>	<u>Silver</u>	<u>Zinc</u>
Median	0.17	0.16	0.01
"high grade"	0.70	0.56	0.01

It is believed that the rusty biotite schist strata is lying as a shallow dish under the property, outcropping in a roughly circular form.

#### 7-00 GEOCHEMICAL SURVEY:

Two geochemical survey traverses were run across the property as an orientation survey for further work. A total of 111 samples were taken and analysed for copper, lead, zinc.

#### 7-10 Results:

The sample results were plotted on probability paper, i.e. accumulated percent versus parts per million for each element assayed and from the plot background, and anomalous values were read.

#### Copper:

Copper values range between 10 ppm and 170 ppm with the background value being 22 ppm and anomalous value being above 60 ppm. A total of 14 samples or 11% are classified as anomalous.

Zinc:

Zinc values range from 20 to above 300 ppm with the background being 160 ppm and anomalous values are greater than 270 ppm. Only 5 samples or 4% can be classified as anomalous.

Lead:

The probability plot for lead shows erratic distribution, not more than two points along a straight line, and hence is inconclusive.

In further geochemical sampling copper and zinc appear to be best suitable to be used to outline possibly mineralized areas of interest.

8-00 CONCLUSIONS:

Traces of mineralization have been located on the Mable Lake property of Toronado Development Corp. Ltd. (NPL) apparently localised in a rusty appearing biotite schist. Economically significant mineralization has not been encountered to date.

The mineralized strata of the metamorphics appears to be relatively flat lying, horizontal, forming a saucer shaped feature outcropping close to the boundaries of the property.

Minor folds noted near the west boundary of the property indicate probable minor folding in the biotite schist.

Should larger scale folding occur the hinge areas of such folds may be the foci of concentrations of economic mineralization.



In a geochemical survey copper and zinc would be suitable elements to use to outline possible areas of mineralization.

9-00 RECOMMENDATIONS:

Potential mineralization of economic significance on this property is considered to be most likely concentrated around the hinge areas of larger folds.


Pervasive pyrrhotite and pyrite mineralization noted in the showings found to date suggest probable accumulations of these minerals with any economically significant mineralization. A magnetometer survey is recommended with the purpose of locating any sub-surface accumulations of pyrrhotite.

A soil sample survey on a grid of 200 x 400 feet is recommended, to be interpreted in light of the orientation survey already conducted. The geochemical survey grid will also serve for the magnetometer survey.


Should encouraging results be produced from these surveys an electromagnetic survey, probably most cost effectively conducted with EM - 16, should be conducted over the grid.

Significant anomalies may be trenched and/or drilled at the direction of a consultant.

Respectfully submitted:

  
-----  
David P. Taylor, Geologist

Endorsed by:

  
-----  
F. Holcapek, P. Eng.



10-00 CERTIFICATION:

I, David Pelham Taylor of Vancouver, British Columbia, do hereby certify that:

1. I am an Exploration geologist residing at 2097 West 6th Avenue, Vancouver, British Columbia.
2. I am a graduate of the Royal School of Mines, London, England.
3. I have practised as an exploration geologist in British Columbia for five years.
4. Information contained in this report is based upon work performed by myself or at my direction, during the period of May 1973.

Respectfully submitted:

  
-----  
D.P. Taylor, Geologist

August, 1973

Vancouver, B.C.

DOMINION OF CANADA:  
 PROVINCE OF BRITISH COLUMBIA.  
 To Wit:

In the Matter of geological and geochemical surveys of the A claims and Newf claims of Toronado Development Corp. Ltd. (NPL)

I, J.B. Talbot

of 107 - 325 Howe Street, Vancouver, B.C.

in the Province of British Columbia, do solemnly declare that the following costs were incurred and personnel employed in carrying out the work.

Personnel:

F. Holcapek - supervision	2 days	@ \$125/day	\$ 250.00
D.P. Taylor - Geologist - field	6 "	@ \$100/ "	\$ 600.00
- office	3 "	@ \$100/ "	\$ 300.00
R. Turner - crew chief	15 "	@ \$72.72/day	\$1,090.80
J. Pitcher - helper	13.5 "	@ \$52.26/ "	\$ 705.51
			<u>\$2,946.31</u>

Disbursements:

Assays	\$ 225.00	
Accomodation and board	\$ 115.75	
Meals and groceries	\$ 183.78	
Truck rental	\$ 279.69	
Printing	\$ 24.52	
Supplies, equipments, draughting	\$ 225.25	
	<u>\$1,053.99</u>	
+ 10% overhead on disbursements	\$ 105.39	\$1,159.38
		<u><u>\$4,105.69</u></u>

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

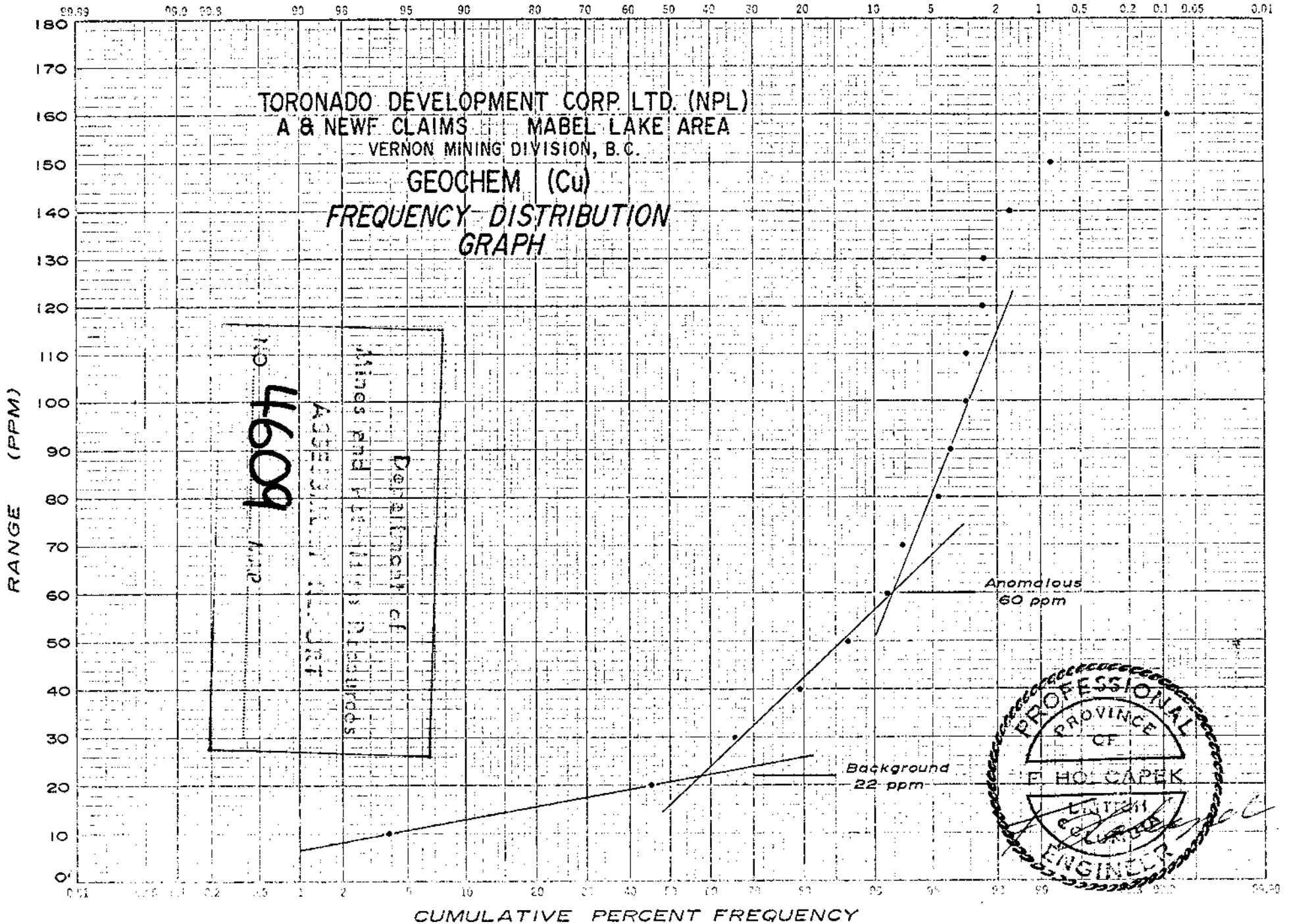
Declared before me at the  
 of \_\_\_\_\_, in the  
 Province of British Columbia, this  
 VANCOUVER, B.C.  
 day of \_\_\_\_\_, A.D.

*J. B. Talbot*

OCT 2 1973

*[Signature]*  
 Sub - Mining Recorder

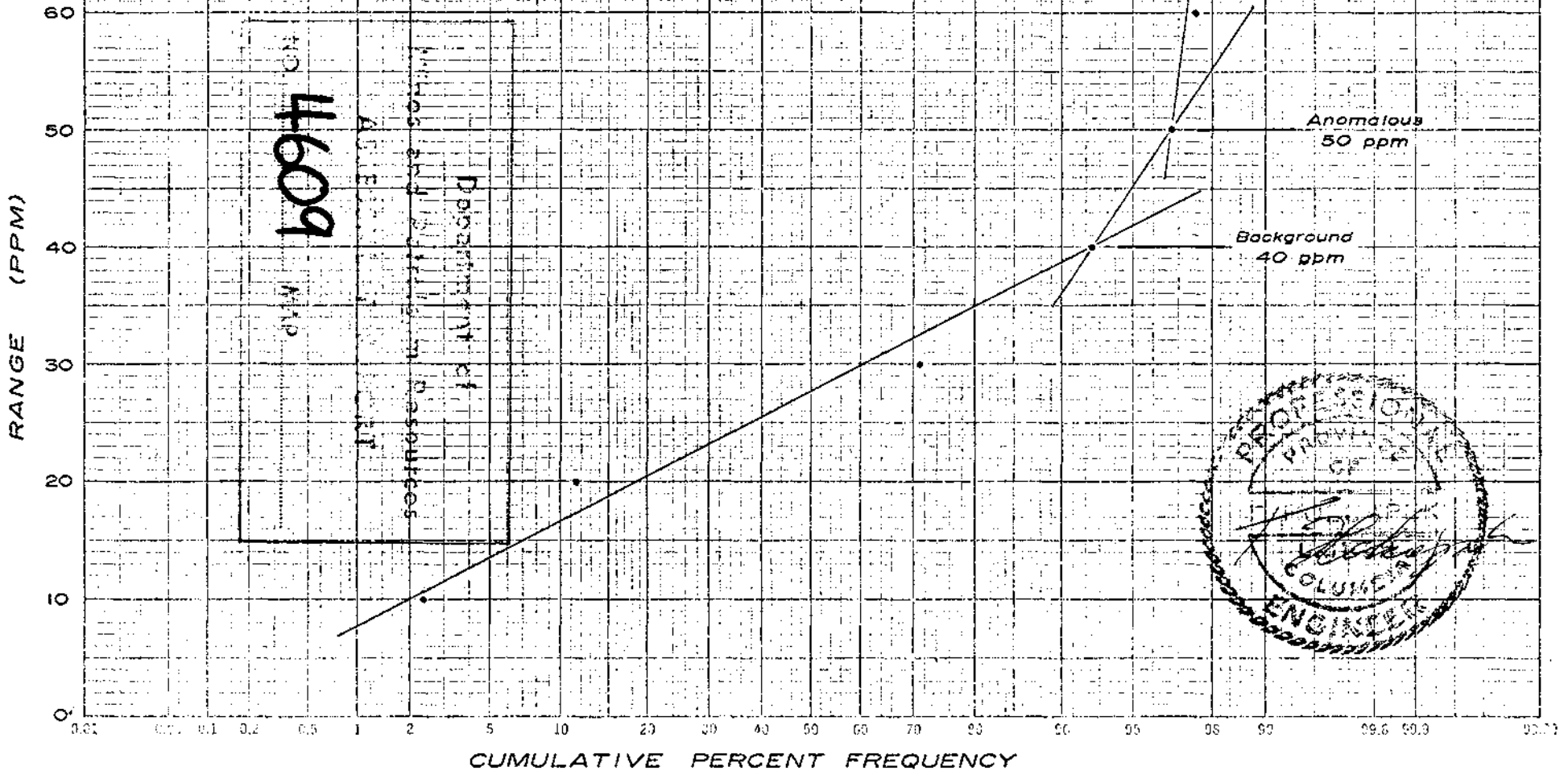
A Commissioner for taking Affidavits for British Columbia or  
 A Notary Public in and for the Province of British Columbia.

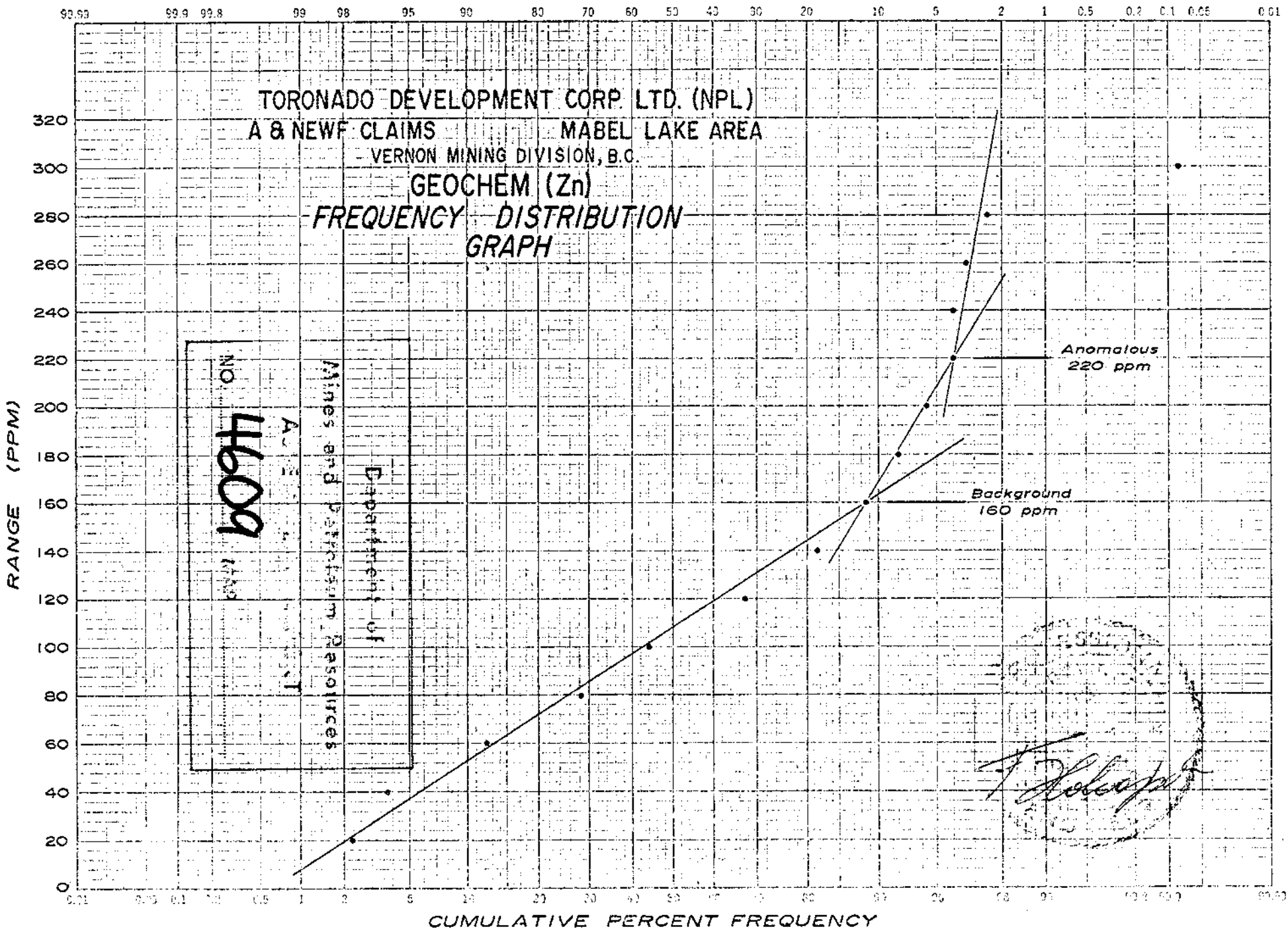


99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01

TORONADO DEVELOPMENT CORP. LTD. (NPL)  
 A & NEWF CLAIMS MABEL LAKE AREA  
 VERNON MINING DIVISION, B.C.

GEOCHEM (Pb)  
 FREQUENCY DISTRIBUTION  
 GRAPH





ADDENDUM TO GEOLOGICAL REPORT  
ON THE MABLE LAKE PROPERTY,  
TORONADO DEVELOPMENT CORP. LTD. (NPL).,  
A 1-27 and NEWF 1-13 VERNON MINING DIVISION, B.C.

GEOCHEMICAL SURVEY

A reconnaissance geochemical soil sampling survey was conducted on two traverse lines across the property.

FIELD PROCEDURES

Samples were collected at each station possible on the chained and flagged survey lines. Samples were taken using mattocks. At each station notes were taken recording soil type, depth of sample, vegetation etc. Samples were generally taken from 10-14 inches depth in a fairly well developed "B" horizon. Samples were not taken in areas of deep organic material in boggy areas. Samples were placed on site in kraft paper soil sample bags provided by the laboratory.

ANALYSIS

All of the soil samples were taken to Core Laboratories Ltd., 325 Howe St., Vancouver, B.C. Samples were dried and two 0.5 gram fractions of minus 80 mesh material was sieved from each sample. One fraction was digested in hot nitric acid for 2 1/2 hours for lead and zinc content analysis. The second fraction was digested for 4 hours in hot perchloric-nitric acid for copper content analysis. Parts per million quantitative analysis was performed by atomic absorption methods.

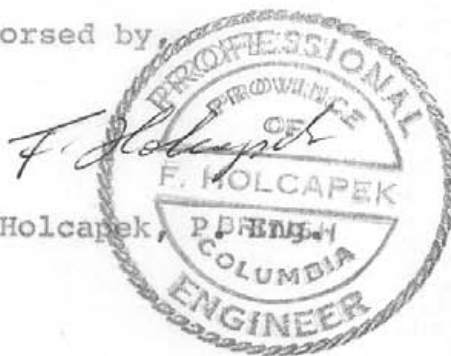
methods on a Jarrel-Ash 800 machine.

Respectfully Submitted,



D.P. Taylor, M.Sc., D.I.C

Endorsed by,



F. Holcapek,

December 12, 1973.

Vancouver, B.C.





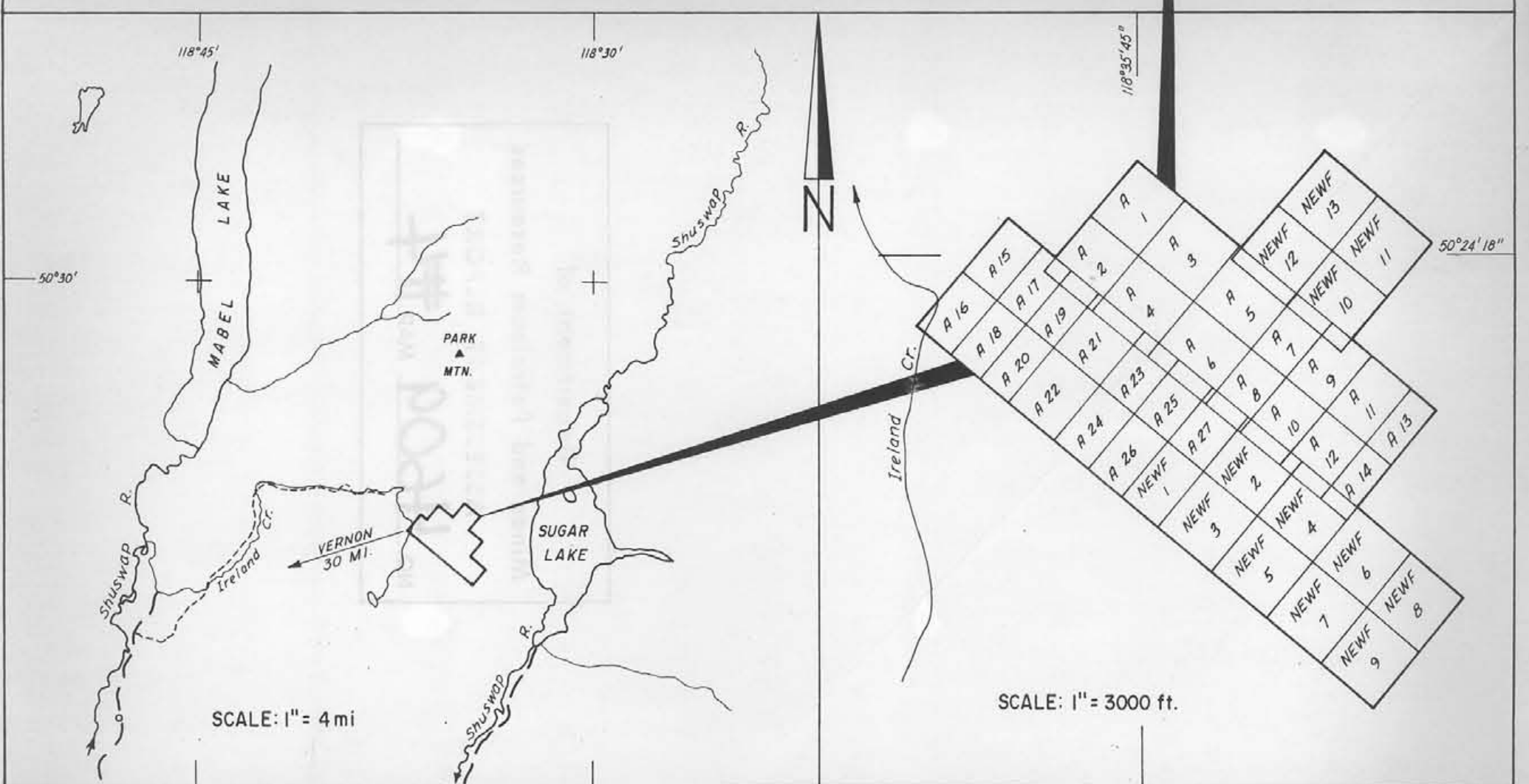
**BRITISH COLUMBIA**

TORONADO DEVELOPMENT CORP. LTD. (NPL)  
**MABEL LAKE PROPERTY**  
*A and NEWF*  
**CLAIMS GROUP**

VERNON MINING DIVISION

**PROPERTY LOCATION MAP**

SCALE IN MILES

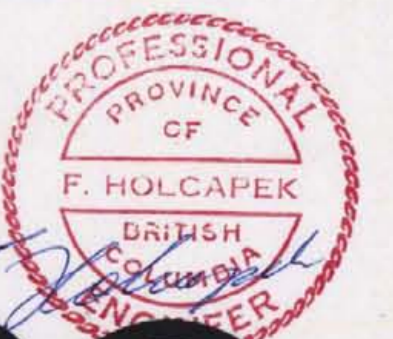




Legend:

- |  |                                   |                    |
|--|-----------------------------------|--------------------|
|  | Fine grained rusty biotite schist | Po - Pyrrhotite    |
|  | Quartz biotite schist             | Py - Pyrite        |
|  | Biotite schist                    | Cpy - Chalcopyrite |
|  | Quartz (boudinage)                | ZnS - Sphalerite   |
|  | Biotite gneiss                    | Tr - Trace         |
|  | Calcite-sericite schist           | ND - Not detected  |
|  | Outcrop                           |                    |
|  | Contact                           |                    |
|  | Strike & Dip                      |                    |
|  | Plunge of fold                    |                    |
|  | Foliation                         |                    |
|  | Stream                            |                    |
|  | Road                              |                    |
|  | Claim post                        |                    |

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 4609 MAP #1



4609

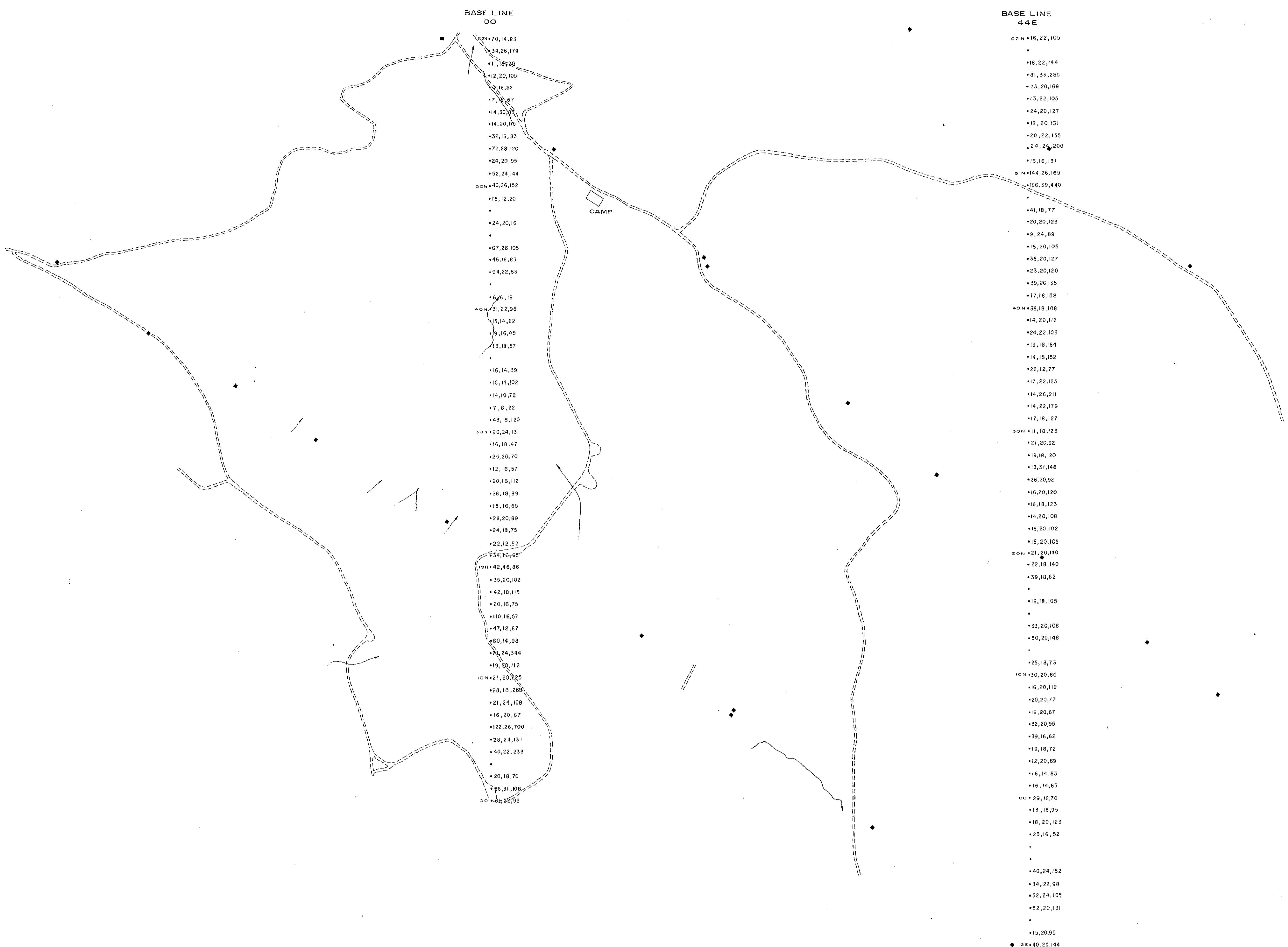
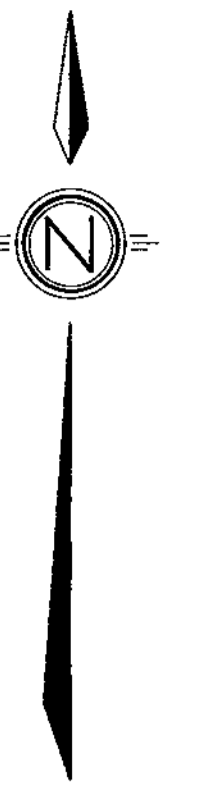
M1

TORONADO DEVELOPMENT CORP.  
LTD.  
MABEL LAKE PROPERTY  
VERNON MINING DIVISION

**GEOLOGY MAP**

SCALE IN FEET  
0 400 800 1200

AGILIS ENGINEERING LTD. AUGUST 1973



BASE LINE  
00

70,14,83  
34,26,179  
11,16,52  
12,20,105  
16,52  
7,10,57  
14,30,51  
14,20,116  
32,16,83  
72,28,100  
24,20,95  
52,24,144  
40,26,152  
15,12,20  
24,20,16  
67,25,105  
46,16,83  
94,22,83  
6,18  
31,22,98  
15,14,62  
9,16,45  
13,18,57  
16,14,39  
15,14,102  
14,10,72  
7,8,22  
43,18,120  
90,24,131  
16,18,47  
25,20,70  
12,16,57  
20,15,112  
26,18,89  
15,16,65  
28,20,89  
24,18,75  
22,12,52  
34,16,65  
42,18,86  
35,20,102  
42,18,115  
20,16,75  
110,16,57  
47,12,67  
60,14,98  
24,344  
19,20,112  
21,20,25  
28,18,265  
21,24,108  
16,20,67  
122,26,700  
28,24,131  
40,22,233  
20,18,70  
96,31,108  
11,22,92

BASE LINE  
44E

16,22,105  
18,22,144  
81,33,285  
23,20,169  
13,22,105  
24,20,127  
18,20,131  
20,22,155  
24,20,200  
16,16,131  
144,26,169  
166,39,440  
41,18,77  
20,20,123  
9,24,89  
18,20,105  
38,20,127  
23,20,120  
39,26,135  
17,18,108  
36,18,108  
14,20,112  
24,22,108  
19,18,184  
14,16,152  
22,12,77  
17,22,123  
14,26,211  
14,22,179  
17,18,127  
11,18,123  
21,20,92  
19,18,120  
13,31,148  
26,20,92  
16,20,120  
16,18,123  
14,20,108  
18,20,102  
16,20,105  
21,20,140  
22,18,140  
39,18,62  
16,18,105  
33,20,108  
50,20,148  
25,18,73  
30,20,80  
16,20,112  
20,20,77  
18,20,67  
32,20,95  
39,16,62  
19,18,72  
12,20,89  
16,14,83  
16,14,65  
29,16,70  
13,18,95  
18,20,123  
23,16,52  
40,24,152  
34,22,98  
32,24,105  
52,20,131  
15,20,95  
40,20,144

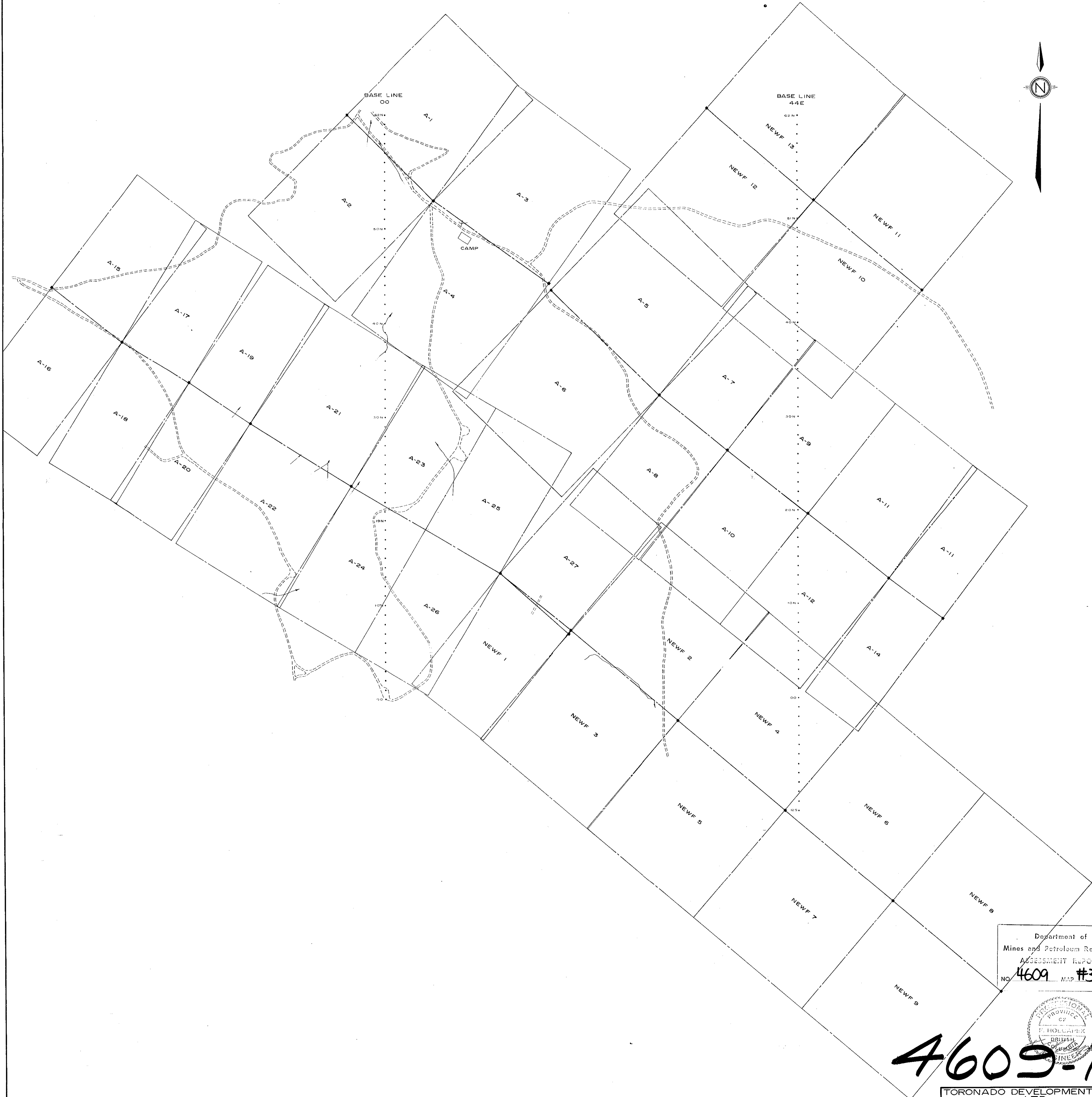
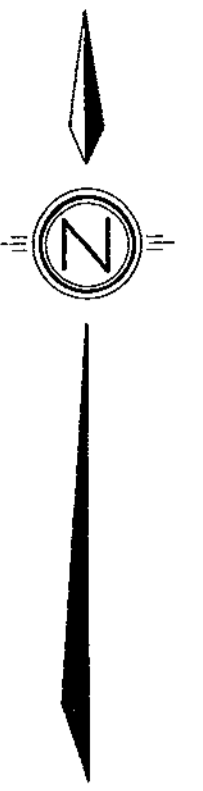
Legend  
Values in PPM.  
61,22,92 Copper, Lead, Zinc

4609  
M2

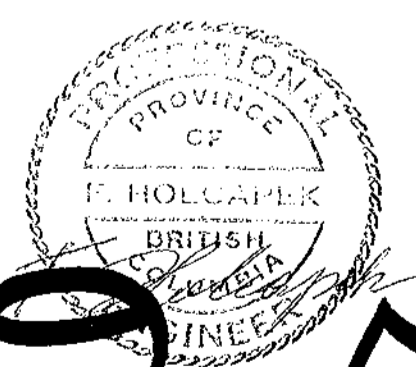
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 4609 M.P. #2



TORONADO DEVELOPMENT CORP.  
LTD.  
MABEL LAKE PROPERTY  
VERNON MINING DIVISION  
**GEOCHEMICAL  
SURVEY**  
SCALE IN FEET  
0 400 800 1200  
AGILIS ENGINEERING LTD. AUGUST 1973



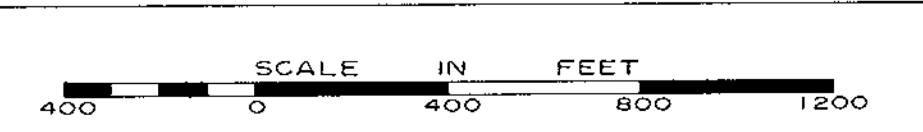
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 4609 MAP #3



**4609-M3**

TORONADO DEVELOPMENT CORP.  
LTD.  
MABEL LAKE PROPERTY  
VERNON MINING DIVISION

**CLAIM MAP**



AGILIS ENGINEERING LTD. AUGUST 1973