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THE DEPARTMENT OF
MINES AND PETROLEUM RESOURCES
PARLIAMENT BUILDINGS, VICTORIA, BRITISH COLUMBIA V8V 1X4
PETROLEUM RESOURCES BRANCH

WHEN REPLYING PLEASE REFER TO
FILE NO 166-New
Westminster

March 2, 1977

Mr. J.H. Hoem
Mining Recorder
100 - 403 6th Street
New Westminster, British Columbia
V3L 3B1

Dear Sir:

Re: Mineral Claims: ... LAKE
Type of Report and No.: ... Geophysical Report #5789
Submitted by: ... Cochrane Consultants Limited

Enclosed for your files is a copy of the above-noted report.
It is no longer to be treated as confidential, having been so
held for one year, and is returned to you for reference purposes
by anyone interested in it. The second copy is available for
reference here.

Yours very truly,


E. J. Bowles
Chief Gold Commissioner

Enc.

5789

Geophysical Report
on the
Ground Magnetometer Survey
of the
LAKE #1 TO #5 LOCATED MINERAL CLAIMS

Situated

on

#5789

Serpentine Lake

9.5 air miles northeast of

Hope

New Westminster M.D.

Southern B. C.

N.T.S. 92 H/6 E

Latitude $49^{\circ} 25'$ N., Longitude $121^{\circ} 15'$ W.

Field Work Between January 19 and 23, 1976.

Report by:

D. R. Cochrane, P. Eng.

February 9, 1976

Delta, B. C.



Cochrane Consultants Limited
4882 Delta St., Delta, B.C. V4K 2T8 948-8221
Geotechnical Consulting / Exploration Services

geology
geophysics
geochemistry

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Department of	
Mines and Petroleum Resources	
ASSESSMENT REPORT	
NO. 5789	MAP



I INTRODUCTION:

Between January 19 and 23rd, 1976, an experienced field crew consisting of Mr. W. Chase, and Mr. D. Heino, completed a reconnaissance ground (fluxgate) magnetometer survey over the Lake Claims, Coquihalla Gold Belt, Southern B. C.

This report describes the field and data processing procedures and discusses the results of the work.

II SUMMARY AND CONCLUSIONS:

1. Carolin Mines Ltd. of Vancouver, B. C. owns outright five (5) Lake mineral claims located on Serpentine Lake, some 9.5 air miles east of Hope in Southern British Columbia.
2. Access during snow free months is via the Coquihalla road, from Hope, easterly to Sowaqua Creek (mile 13) then southerly uphill by pack trail to the claims. The five claims lie at an elevation of 3300 feet above sea level and on the north trending Coquihalla serpentine (Gold) belt.
3. Early in the 1920's some small amount of placer gold was produced from around Serpentine Lakes by the Reward Mining Company (Cairnes, 1924). However, to the authors knowledge little has been done since that time to locate the source of the placer gold.
4. The magnetometer work was completed using a Scintrex MF - 2 fluxgate unit, and by "looping" on the ground in order to correct for diurnal change. Values ranged from a low of -4290 to a high of 2840 gammas and the modal range was in the ~~-2500 to 1500 gamma bracket.~~



5. The airborne magnetic results (Sheet 92H/6) show the claims lie on the east flank of a high, northerly trending magnetic anomaly and within a long positive area, presumably, response from the Coquihalla serpentine band.

6. The ground magnetometer results shows strongly north-northwest isomagnetic bias, and features a long rather narrow magnetic low, running through the center of the survey area. It is flanked on both sides by linear positive zones.

7. The highest magnetic response areas are believed to be due to serpentine, and the lower response areas are believed to be relatively unserpentinized zones of an intermediate variety of rock types, (diorite, andesites, etc.), or sheared (talcose) rock types. The latter interpretation is favoured since the magnetic low coincides with a topographic low.

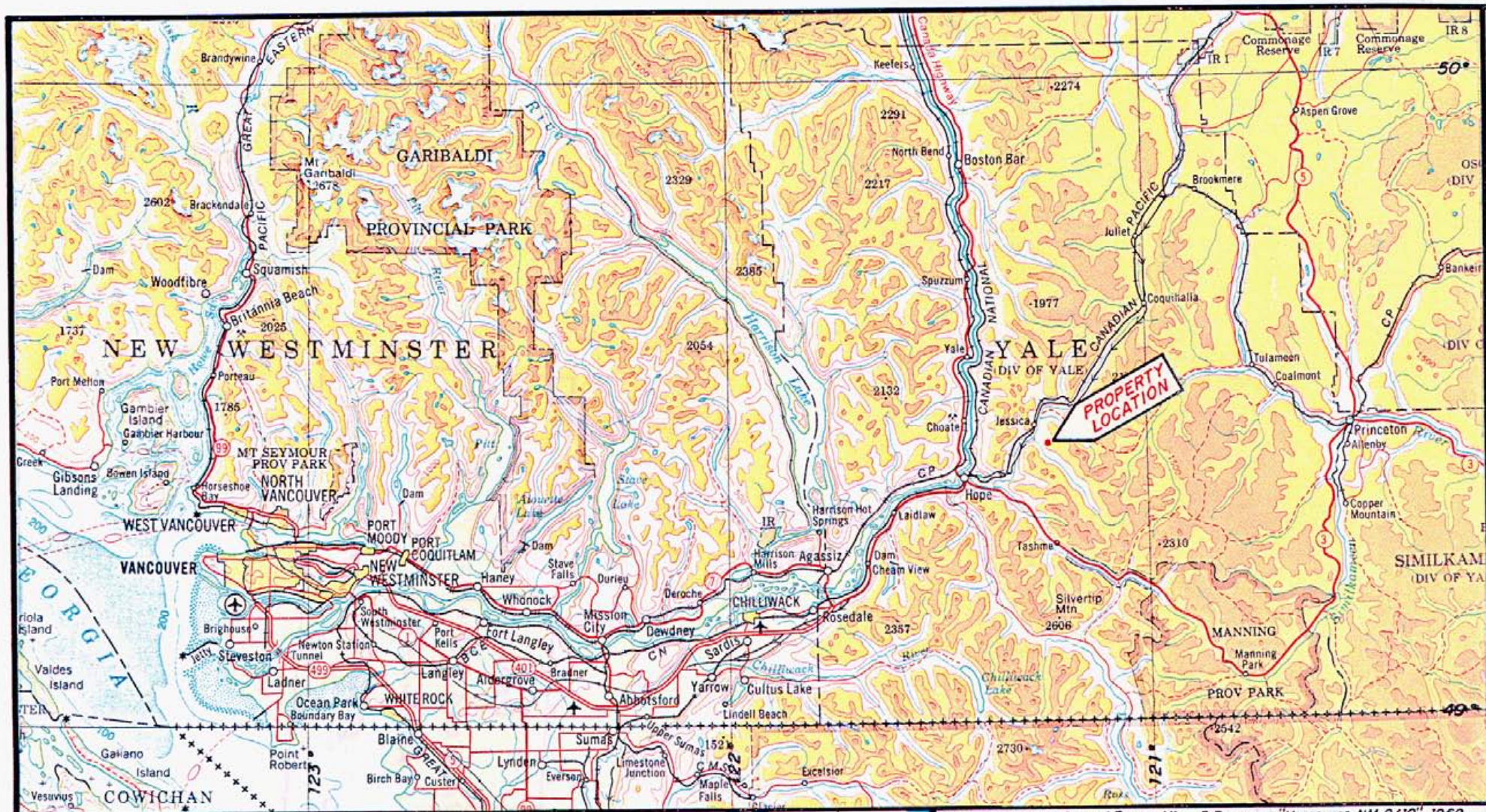
8. A soil sample survey, over the same grid as the magnetometer work, with analysis of the samples for gold is recommended.

Respectfully submitted,

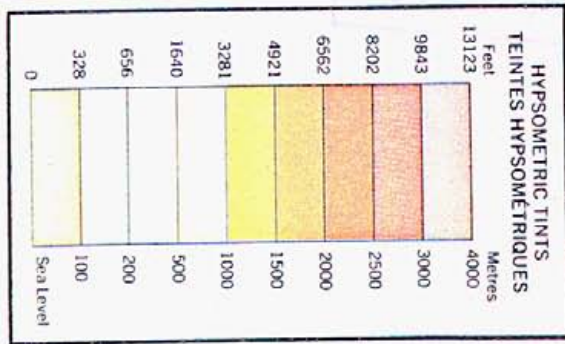


D. R. Cochrane, P. Eng.
February 9, 1976





Above map is from Dept. of Energy, Mines & Resources "Vancouver NM 9/10", 1969.



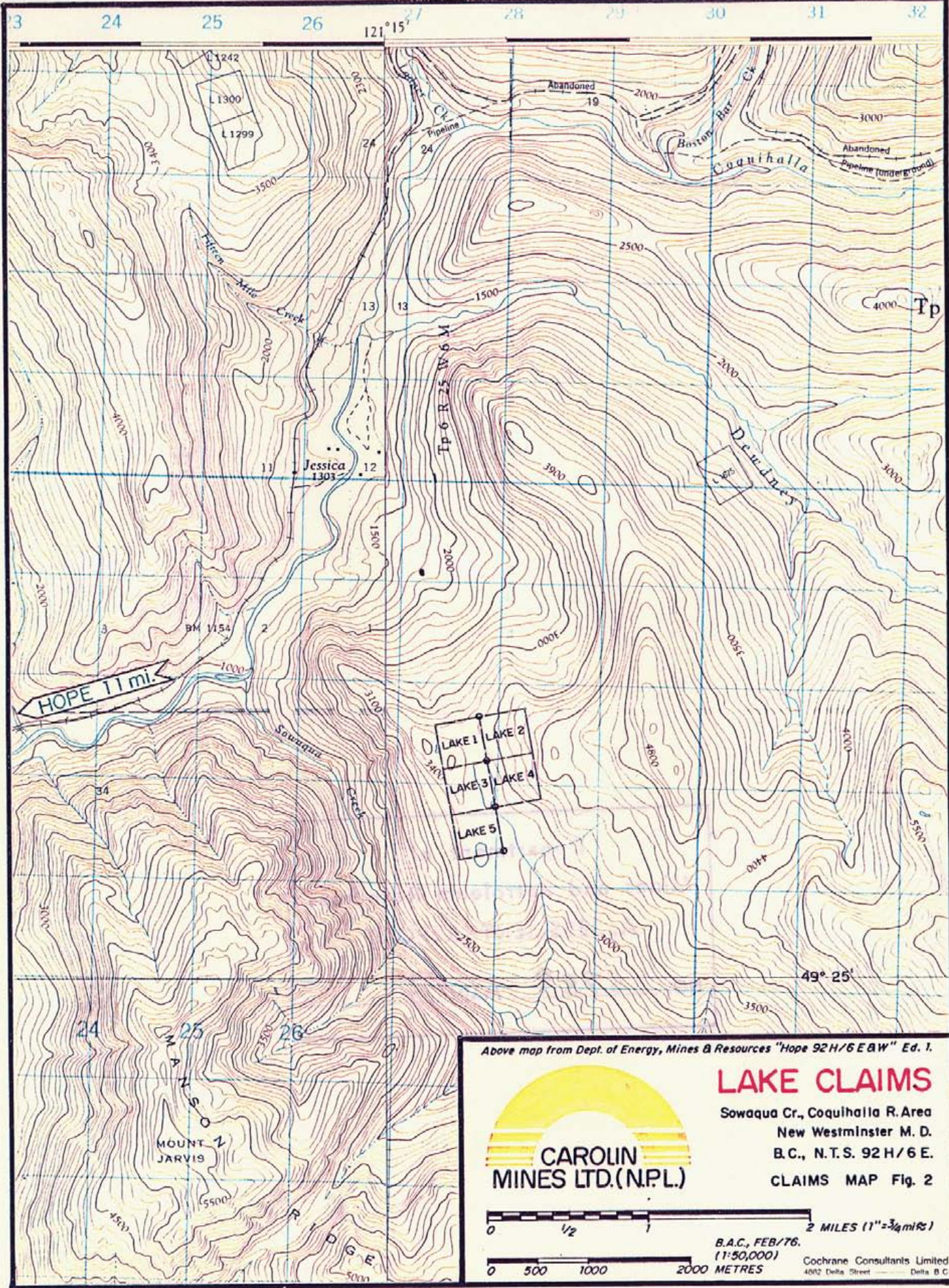
LAKE CLAIMS

Sowaqua Cr., Coquihalla R. Area
 New Westminster M. D.
 B. C., N.T.S. 92 H/6 E.
 LOCATION MAP Fig. 1



(1" = 15.75 MILES)
 DWN: B.A.C., FEB/76

Cochrane Consultants Limited
 4062 Delta Street Delta B.C.



Above map from Dept. of Energy, Mines & Resources "Hope 92H/6E8W" Ed. 1.

LAKE CLAIMS

Sowaqua Cr., Coquihalla R. Area
New Westminster M. D.
B.C., N.T.S. 92H/6E.
CLAIMS MAP Fig. 2



0 1/2 1 2 MILES (1" = 3/4 mile)

B.A.C., FEB/76.
(1:50,000)

0 500 1000 2000 METRES

Cochrane Consultants Limited
4802 Delta Street Delta B.C.

III LOCATION AND ACCESS:

The lake claims are situated 9.5 air miles northeast by east from the town of Hope in southern British Columbia.

Access in snow free months is northeasterly from Hope via the Coquihalla River road (Old West Kettle Railway grade) to mile 13, then southerly up the Sowaqua Creek logging road for just over two miles to Serpentine Creek. The claims are located one mile north up Serpentine Creek.

The National Topographic System code for the area is 92H/6E.

IV PROPERTY:

The five (5) Lake Claims are a contiguous group of old (single location line) claims. The location line runs slightly west of north. The record numbers are as follows:

<u>Claim Names</u>	<u>Record numbers</u>	<u>Ann. date</u>
Lake claims #1 to #5 (inclusive)	29687 to 29691	January 27

They are located in the New Westminster Mining Division and are owned outright by Carolin Mines Ltd. 811 - 850 West Hastings Street, Vancouver, B. C.

V GENERAL SETTING:

The claims are situated in the Cascade Mountains of southwestern British Columbia, a region characterized by rugged peaks and dense, heavy forest cover. Elevations on the property vary from just under 3300 feet to just over 4000 feet above sea level,



and on the ridge between Dewdney and Sowaqua Creeks, both of which are northerly flowing tributaries of the Coquihalla River. The creeks and tributaries are deeply incised, and in general, there is only scattered outcrop, since much of the area is covered by a widespread but relatively thin mantle of glacial drift.

The Lake claim group lies entirely within the "belt" as mapped by Cairnes (1924) which consists predominantly of serpentine bands which extend north-northwesterly from Mt. Dewdney (20 miles north of the Canada - U. S. A. border) to Boston Bar, a distance of 40 miles. Parallel to, and on the east side of the serpentine band, lies the Jurassic/Cretaceous Ladner Group, composed chiefly of slate, greywacke, schist, and conglomerate. The Ladner Group and adjacent serpentine band is host to numerous gold occurrences, most of which are quartz veins or shear zones carrying free gold and/or auriferous arsenide-sulphide deposits. Some values in gold have also been reported in felsic, pyritic dikes.

VI INSTRUMENTATION AND FIELD PROCEDURES:

The survey was conducted with a Scintrex MF - 2 fluxgate magnetometer and the instrument specifications are appended.

Messers Chase and Heino chained and flagged lines and then surveyed the grid with the MF - 2. Both are experienced geophysical operators. The main base station was located close to camp, and near the center of the survey area. The base line trends north and coincides with the claims location line, and cross lines were flagged (at 100 foot station intervals) east



and west for 1500 feet from the base line. Readings were taken at 50 foot intervals along the cross lines as shown on figure 4.

At the start of each day's work, the main base station was checked (4 or so readings spaced a few minutes apart) and then a "loop" traverse run with a check in back at the base station (within one or two hours time). Readings were recorded on pre-printed field note forms and included notes on line number, station, time of the reading and general remarks, (topographic features, outcrops, etc.). From this data, Mr. Chase corrected the readings for diurnal drift. The plotted magnetometer values, then, are diurnally corrected and are relative to an arbitrary base station value of 495 gammas as of 12.58 PM on January 21, 1976.

VII DISCUSSION OF RESULTS:

Corrected magnetometer results range from a low of -4290 to a high of 2840 gammas. The arithmetic mean (of a sample of the total results) is -1550 gammas. The frequency distribution histogram of the results shows that the mode (most frequent values) lies in the -2500 to -1500 gamma range and the distribution is skewed to the right.

Based on the above statistics the magnetometer values have been classified as follows:

<u>Range (gammas)</u>	<u>Class</u>
below -3000	anomalously low
below -1500	below average
above -1500	above average
above +1500	anomalously high

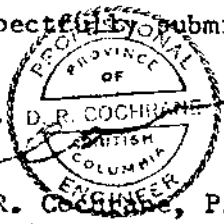
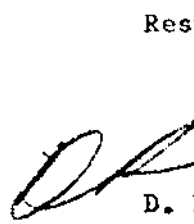


The isomagnetic plan (figure 6) shows strong north trending bias believed to be due to corresponding geological bias. (banding, structure, etc.). Cairnes (1924 G.S.C. Summary Report. Part A) describes the claims area as being completely within the "belt": "Chiefly Pennsylvanian greenstone, but including some Ladner slate and some Pennsylvanian sediment, penetrated, mineralized, and otherwise affected by basic intrusives". Much of the belt to the north (Aurum deposit) consists of interbanded serpentine, talc, and greenstones.

The main magnetic feature on the Lake claims is a throughgoing, north trending magnetic low. Since much of the area is believed to be underlain by serpentine, (which normally has a high magnetic susceptibility), it maybe assumed that this "low" is due to the presence of rocks of a more intermediate composition (diorite - andesite) or by a talcose shear, or steatized zone. The latter possibility is preferred since the linear magnetic low is also a topographic low and therefore both features may be the result of the presence of a talcose fault. Some minor placer gold work was conducted on the Lake claims in the 1930's, and to the author's knowledge very little work has been done, since that time, to discover the source of the gold.

A geochemical soil sampling survey, with analysis of the soil for gold, is recommended over the same grid as the magnetometer survey.

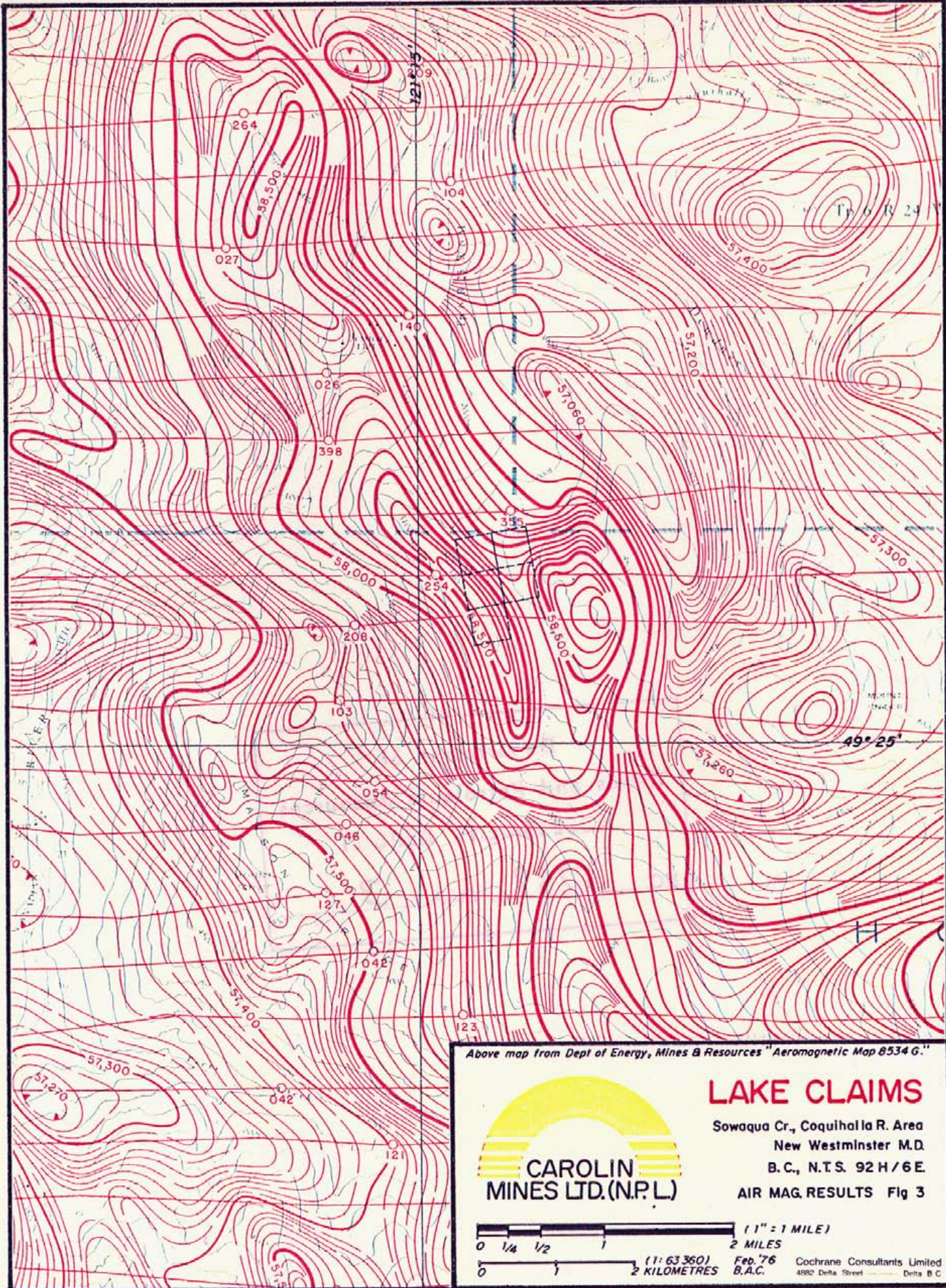
Respectfully submitted,



D. R. COCHRANE, P. Eng.

Feb. 9, 1976





Above map from Dept of Energy, Mines & Resources "Aeromagnetic Map 8534 G."



LAKE CLAIMS
 Sowaqua Cr., Coquihalla R. Area
 New Westminster M.D.
 B.C., N.T.S. 92 H/6 E.
 AIR MAG. RESULTS Fig 3



Cochrane Consultants Limited
 4882 Delta Street Delta B.C.

APPENDIX I

Assessment Work Details:

Project: Lake #1 to #5 claims N.T.S. 92H/6E
 Sponsor: Carolin Mines Ltd.
 Work: Ground magnetometer survey (Scintrex MF-2 fluxgate)
 Location: 9.5 air miles NE x E of Hope, B. C.
 Mining Division: New Westminister
 Field Personnel: W. Chase and D. Heino. c/o Cochrane Consultants
 Office Personnel: D. R. Cochrane, P. Eng. - report preparation
 B. A. Cochrane - drafting
 V. Elliott - typing

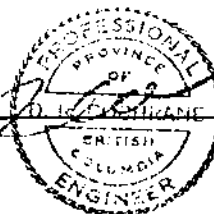
Field Costs:

(a) 9 man days @ \$75/day	\$ 675.00
(b) transportation (4x4 and helicopter)	440.70
(c) Food and camp costs	97.64
Other Costs:	
(d) Drafting and Reproduction Costs	318.00
(e) D. R. Cochrane, 2 days @ \$200./day	400.00
(f) Magnetometer Rental 5 days @ \$12/day	60.00
+ \$10.00 battery fee	10.00
Total	\$2001.34

\$ 2000.00 of the expenditure to apply to five (5) Lake claims
 for 2 years work:

$$(5 \times 2 \times \$200.00 = \$ 2000.00)$$

D. R. Cochrane, P. Eng.



APPENDIX II

Specifications of Fluxgate Magnetometer Model MF-2

	RANGES	SENSITIVITY
Standard:	Plus or minus 1,000 gammas f.sc. 3,000 gammas f.sc. 10,000 gammas f.sc. 30,000 gammas f.sc. 100,000 gammas f.sc.	20 gammas/div. 50 gammas/div. 200 gammas/div. 500 gammas/div. 2000 gammas/div.
Meter:	Taut-band suspension 100 gamma scale 2.1" long - 50 div. 300 gamma scale 1.9" long - 60 div.	
Accuracy:	1000 to 10,000 gamma ranges \pm 0.5% of full scale	
Operating Temperature:	-40°C to +40°C -40°F to +100°F	
Temperature Coefficient:	Less than 1 gamma per °C ($\frac{1}{2}$ gamma / °F)	
Noise Level:	Less than 1 gamma P-P	
Bucking Adjustments: (Latitude)	-20,000 to 80,000 gammas 9 steps of 10,000 gammas plus fine control of 0 - 10,000 gammas by ten turn potentiometer. Reversible for southern hemisphere.	
Recording Output:	Optional.	
Electrical Response:	D.C. to 0.3 cps (3db down) on 100 gamma range with meter in circuit. D.C. to 20 cps with meter network shorted for recording purposes.	
Connector:	Cannon K02-16-10SN for plug Cannon K03-16-10-PN and cover K06-16-3/8.	
Batteries:	Internal 3 x 6V-1 amp/hr. Sealed Lead Acid rechargeable Centralab GC 6107; recharge time 8 hours.	
Consumption:	60 milliamperes - GC6101 batteries are rated for 16 hours continuous use.	
Dimensions:	6 $\frac{1}{2}$ " x 2 $\frac{3}{4}$ " x 10" Instrument. 161 mm x 71 mm x 254mm	
Weights:	5 lbs. 8 oz. - 2.5 kg.	

