

1962

104P/SW

REPORT ON
AEROMAGNETIC SURVEY
CASSIAR AREA, BRITISH COLUMBIA
ON BEHALF OF
CHAPPARAL MINES LTD. (N.P.L.)

by

Richard O. Crosby, B.Sc., P.Eng.

May 20, 1969

CLAIMS:

<u>Name</u>	<u>Record No.</u>
FALL 1 to 4 incl.	497443 to 497446
DOM 1 to 4 incl.	31629K to 31632K
MO 1 to 6 incl.	31617K to 31622K
MOS 1 to 6 incl.	31623 to 31628
RAY 1 to 8 incl.	14773 to 14780

LOCATION:

About one mile south of the
Town of Cassiar, British Columbia
Liard Mining Division
129° 59' SW

DATES:

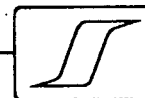
March 13, 1969

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Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 1962 MAP



SEIGEL ASSOCIATES LIMITED
GEOPHYSICAL CONSULTANTS & CONTRACTORS
A DIVISION OF SCINTREX LIMITED

REPORT ON
AEROMAGNETIC SURVEY
CASSIAR AREA, BRITISH COLUMBIA
ON BEHALF OF
CHAPPARAL MINES LTD. (N.P.L.)

INTRODUCTION

During the period March 12 through March 18, 1969, an aeromagnetic survey was flown over an area centred 3 miles south of Cassiar, British Columbia on behalf of Coast Silver Mines Ltd.

The area measures approximately 50 square miles. Survey traverses were flown east-west at an interval of one-eighth mile and at a mean terrain clearance of about 300 feet. Magnetic control lines were flown north-south at the eastern and western limits of the survey area to level the magnetic data. A total of 302 line miles of survey were flown. A portion of that survey covers mineral claims held by Chapparal Mines Ltd. and is reported on in this report.

A Scintrex NPM-1 total intensity nuclear precession magnetometer was employed on this survey. It was towed on a cable extending approximately 65 feet below a Bell 47G3B1 helicopter. A 16 mm camera was employed for positioning purposes and a radar altimeter was used to monitor terrain clearance. Flight path recovery was achieved through the use of the 16 mm film strip and the photomosaic of the area at a scale of 1:15840.

The purpose of the survey was to obtain information

relating to the distribution of acidic intrusive bodies, ultra basic bodies, contact alteration zones containing magnetite, altered intrusive areas and geologic structure. Mineralization in the vicinity of the survey area consists of a producing asbestos mine 3 miles to the north and numerous showings of silver, lead, zinc and copper on the property. New Jersey Zinc is presently conducting a drilling program on a molybdenum property in the western part of the survey area.

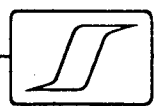
The aeromagnetic survey was under the direction of Mr. Philip Nielsen with assistance from Mr. Ronald Sheldrake.

PRESENTATION OF DATA

The magnetic data are shown on one map sheet at a scale of 1:15,840. The planimetry on this sheet has been traced from the uncontrolled photomosaic employed for navigation purposes. Magnetic data are contoured at an interval of 25 gammas. No corrections have been made for regional magnetic variation. The total magnetic field in the survey area is approximately 58,800 gammas and the inclination of the earth's total magnetic field is approximately 77 degrees.

DISCUSSION OF RESULTS

The observed magnetic relief is a total of about 800 gammas and occurs almost entirely in the western portion of the survey area. The magnetic relief over the remainder of the area is of the order of about 50 gammas. The most prominent feature of the aeromagnetic survey is the north trending magnetic depression extending from Line 16 West to Line 48 West along the western edge of the survey area. New Jersey Zinc is currently drilling a molybdenum prospect located in this magnetic depression on Line 36 East.



Dislocations of magnetic gradients and northeasterly trending anomalies suggest that the area is probably faulted by a series of north-east trending faults. Granite Creek, about one-half mile north of the New Jersey Zinc camp, appears to be controlled by this structural direction. Additional parallel faults have been interpreted southeastwards from the creek. A major fault striking northwest is interpreted about one-quarter mile north of the New Jersey camp.

The intense magnetic anomalies along the western edge of the area are obviously not of sedimentary origin and are due to magnetite, either in igneous rocks or in skarn alteration zones. Since drill results to date on the adjoining Coast Silver property have indicated a correlation between magnetite and silver, lead and zinc, the importance of the anomalies cannot be overemphasized.

CONCLUSIONS AND RECOMMENDATIONS

The airborne magnetometer survey has revealed extensive areas warranting further ground work.

Important among these areas is the magnetic depression associated with the New Jersey Zinc molybdenum prospect. It is recommended that a program of geochemistry be initiated to locate areas with anomalous molybdenum content. Particular attention should be observed in the vicinity of interpreted structure.

The magnetometer survey also suggests the absence of any ultra basic rocks which could be associated with asbestos.

Respectfully submitted,
 SEIGEL ASSOCIATES LIMITED
Richard O. Crosby
 Richard O. Crosby, B.Sc., P.Eng.
 Geophysicist

Vancouver, B.C.
 May 20, 1969



MAGNETOMETER - SCINTREX NPM-1

The Scintrex NPM-1 nuclear resonance airborne magnetometer is based on a Newmont modification of a Varian Associates magnetometer and is produced under license to both companies. It is a very light weight, solid state unit, especially designed for use in a helicopter or light fixed-wing aircraft where weight is an important consideration.

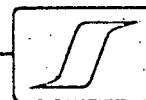
Its cycle period is 1.1 seconds. Each cycle it measures the total intensity of the earth's magnetic field and this quantity, in gammas, is recorded, in analogue form, on a suitable graphic recorder. The full scale sensitivity is usually 1000 gammas and the recorder automatically steps each 500 gammas. In very active areas a full scale sensitivity of 5000 gammas with steps of 2,500 gammas may be employed. Only the magnetic variations are, actually recorded although the absolute base level may be established from the NPM-1 as well.

The magnetic sensing head may be on a cable as much as 100 ft. below the aircraft or, in some installations, may be rigidly attached to the aircraft on a suitable boom.

The intrinsic noise level of each reading is about 5 gammas.

Where it is intended to contour the NPM-1 information it is customary to fly tie lines across the survey grid. A fixed magnetic field monitor is often used as well, on the ground, primarily to indicate periods of magnetic storms during which the aeromagnetic data should be considered as unreliable.

The aeromagnetic data may be contoured if desired, using a contour interval of 25 gammas or up, depending on the amount of magnetic relief. Alternatively they may be used simply for purposes of correlation with simultaneously obtained electromagnetic data to determine which conductor zones are appreciably magnetic.



ANCILLARY EQUIPMENT

1. Altimeter

A Bonzer, high frequency solid state radioaltimeter is employed to continuously indicate the mean terrain clearance of the helicopter or other transporting aircraft. The altimeter is installed in the aircraft (unless otherwise indicated) so that the elevation of the sensing birds (electromagnetic or magnetic) will be less by the usual vertical displacement of these birds below the aircraft.

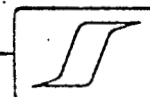
The output of the Bonzer may be expressed in analogue form on a suitable graphic recorder, or may be, for convenience, converted to a semi-digital form on a recorder side pen. In the latter event the altimeter record is a series of spaced pulses whose separation is proportional to the mean terrain clearance.

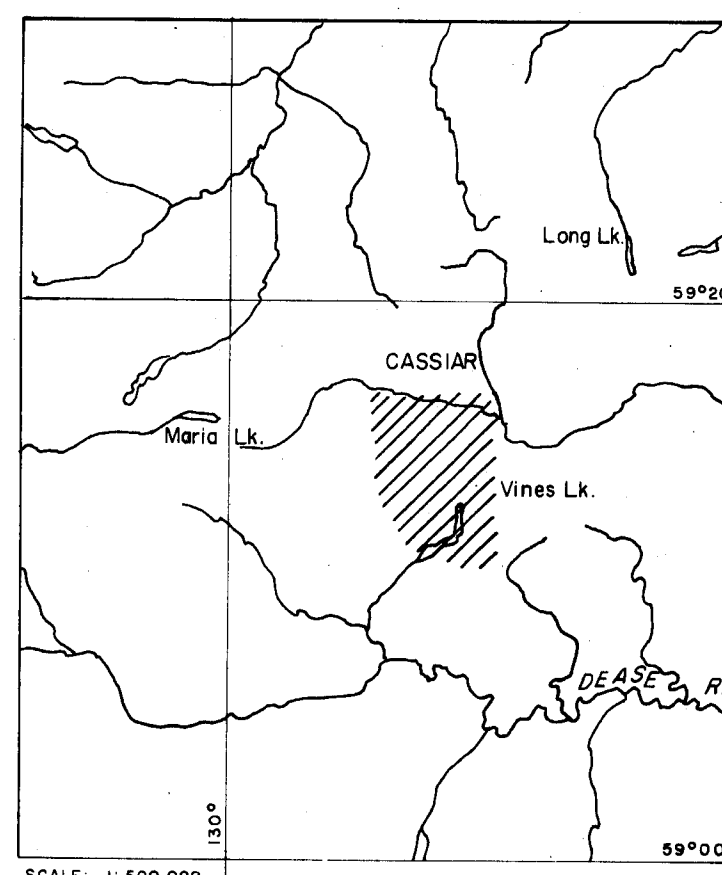
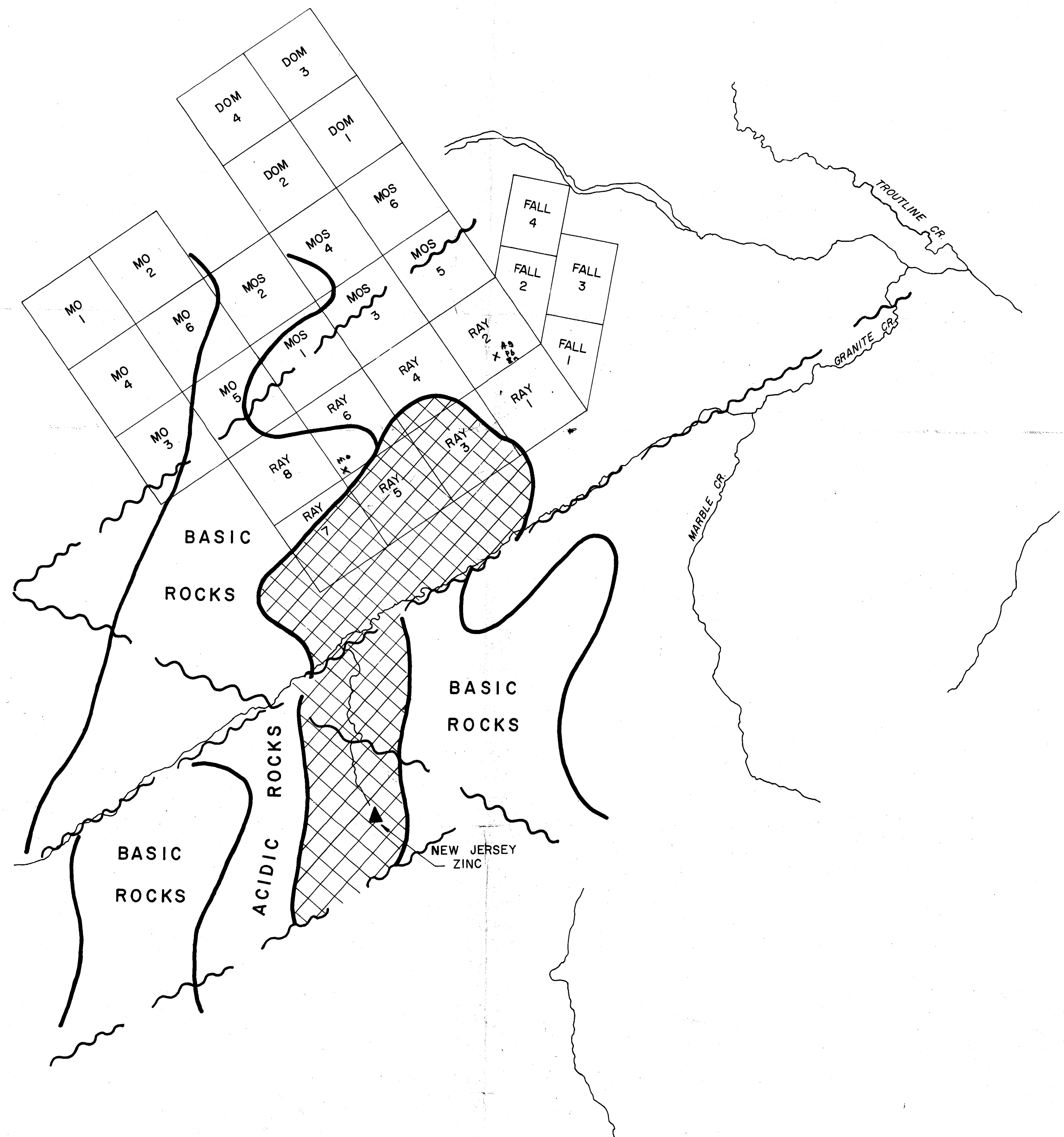
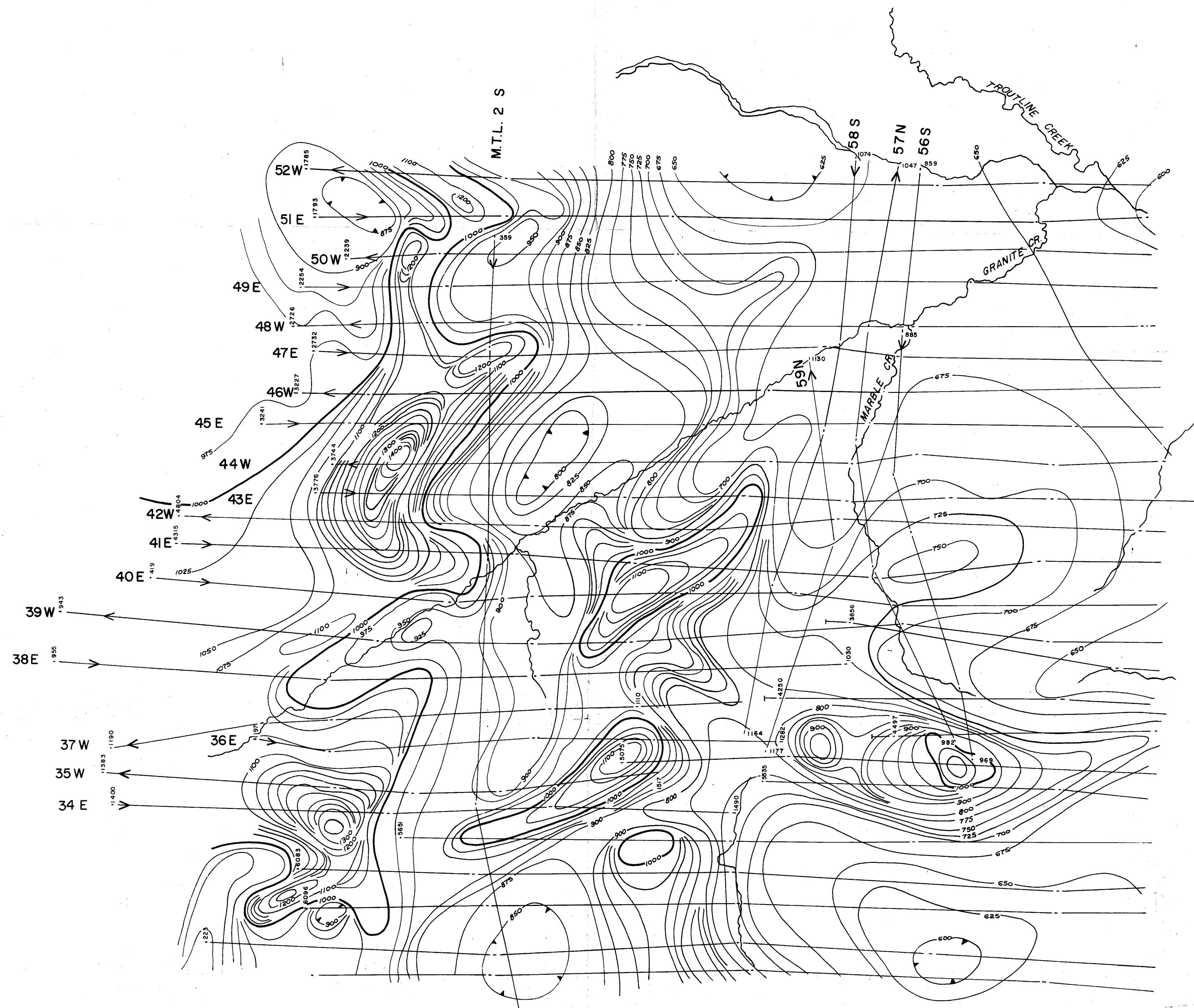
2. Positioning Camera

A Vinten Mark 3 16 mm positioning camera is employed with a wide angle lens. Photographs of the ground are taken with sufficient frequency to give a complete record of the flight path of the aircraft or helicopter. The frequency of exposure is controlled by the intervalometer referred to below.

3. Intervalometer

A Scintrex IA-2 intervalometer provides regularly spaced timing pulses which drive the positioning camera exposure mechanism and produces synchronous "fiducial marks" on the side pen of the geophysical graphic recorder or recorders. Because of the synchronization of the geophysical traces and the positioning camera it is then possible to relate the geophysical events of interest to their proper ground location. The timing pulse frequency may be adjusted in accordance with the ground speed of the aircraft so that an adequate flight path record is obtained.





LOCATION MAP

LEGEND

Flight lines and photo identity points
 Isomagnetic Contours: 500 Gammas
 100 Gammas
 Mag. Dep.
 Base Value 59,000 Gammas

LEGEND

Anomalous area or contact
 Probable fault
 Possible altered intrusive

Department of
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 ASSESSMENT REPORT
 NO. 1962 MAP #1

PLATE I

CHAPPARAL MINES LTD. (NPL.)
 LEARD M.D. - BRITISH COLUMBIA
MAGNETIC CONTOUR PLAN AND
MINERAL CLAIM GROUP
 SCALE: 1 INCH = 1320 FEET

SURVEY BY SEIGEL ASSOCIATES LIMITED
 JUNE, 1969

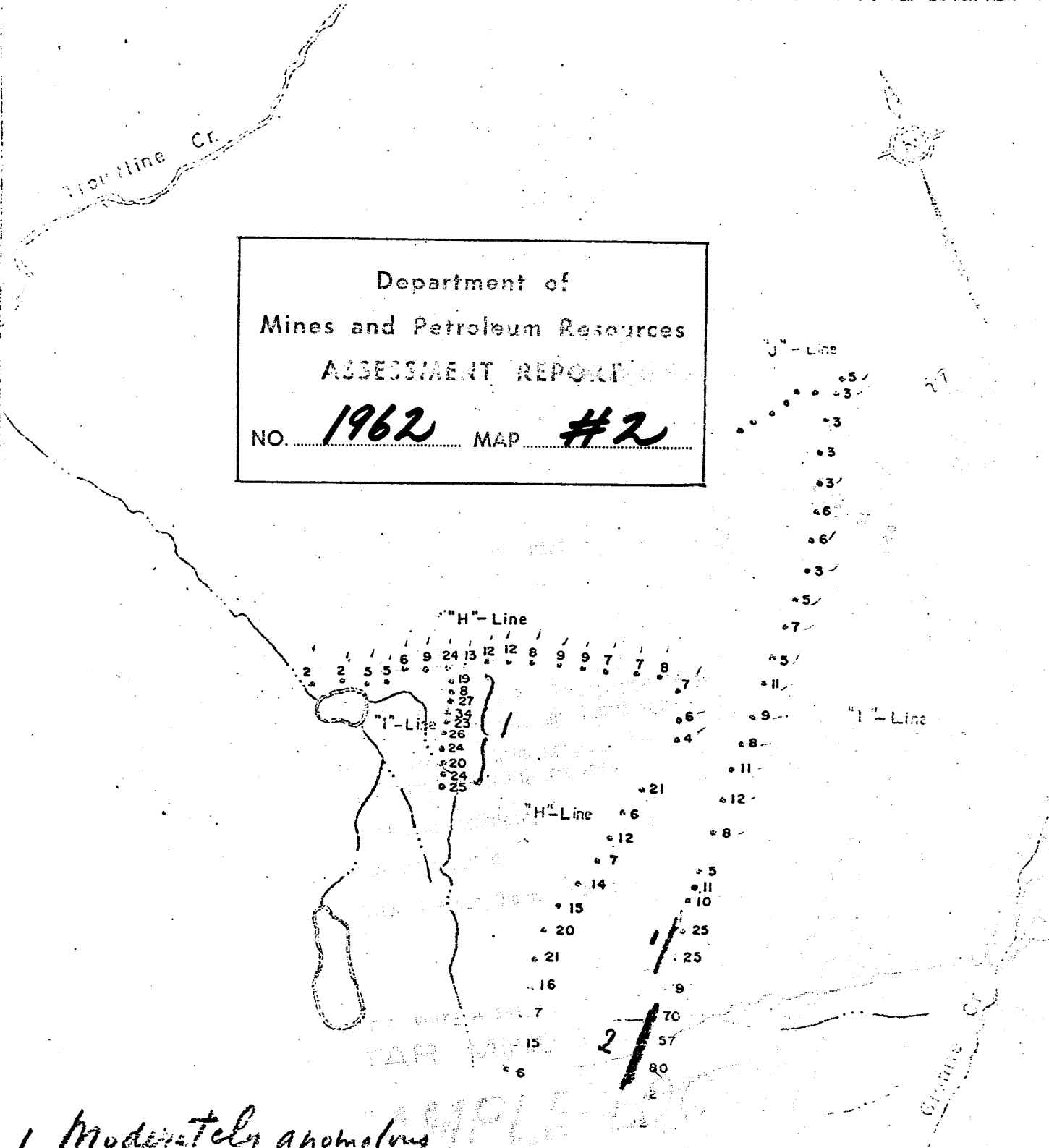
TO ACCOMPANY A GEOPHYSICAL REPORT BY
 RICHARD O. CROSBY DATED JUNE 15, 1969

1962

Terrilline Cr.

Department of
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ASSESSMENT REPORT

NO. **1962** MAP **#2**



- 1 Moderately anomalous
- 2 Significantly anomalous.

1962

300 Sample, Mo. Plot

CHARTERED	MINING	CO.	INCL.
1000	M.D.-B.C.		
P.	Severance	Consolidated	Ind. Min. Co.
Plot:	July 1959		

Troufline Cr.

Department of
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NO. **1962** MAP **#3**

- Line
12
3
12
13
11
38
19
22

"I"-Line

"I"-Line

"H"-Line

Starite Cr.

1962

Soil Sampling Cu. Plot

CHAPPARAL MINES LTD. (M.P.R.)

Liard M.D.-B.C.

P. H. Sevensma Consultants Ltd. (M.P.R.)

Fig:

July 1969

Scale:

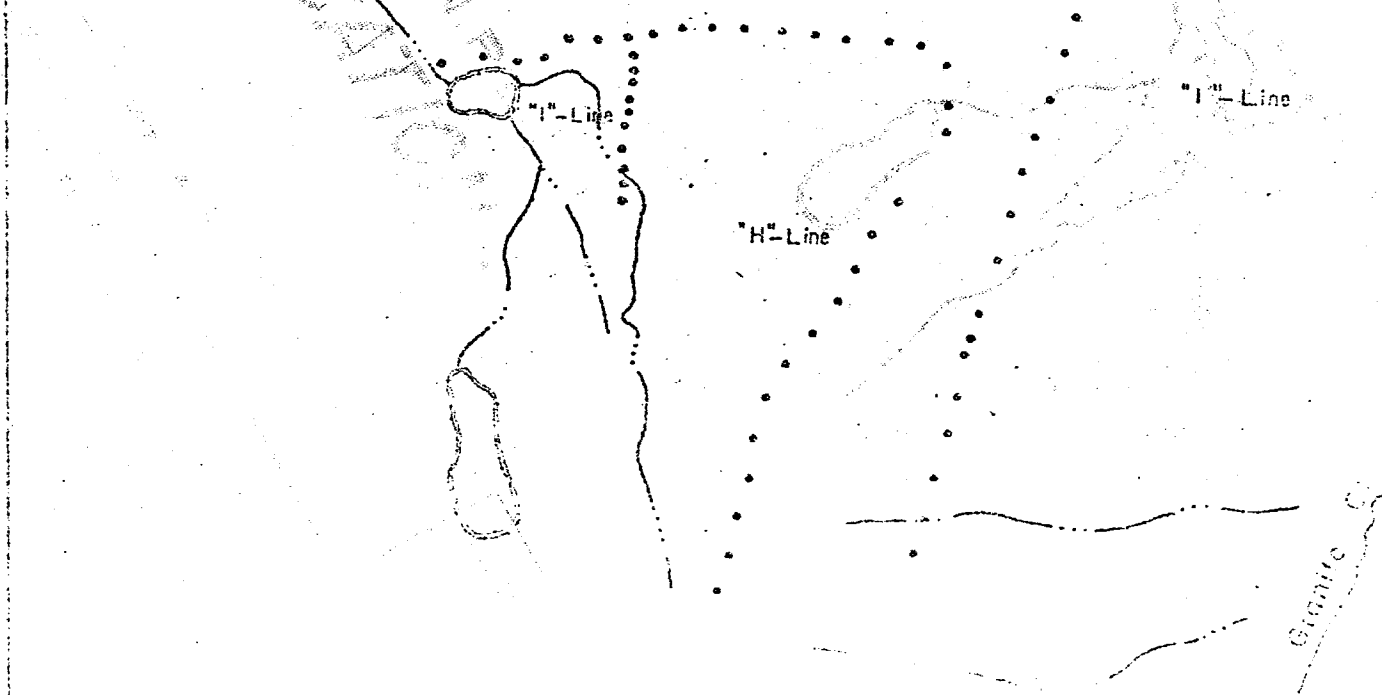
1:50,000

Trou line Cr.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **1962** MAP **#4**

3400
112
205
75
45
62
25
20

CHAPPARAL MINES LTD. (INCORPORATED)



1962

Soil Sampling P b. Plot

CHAPPARAL MINES LTD. (INCORPORATED)
Chief M.D.-B.C.
P. H. Severson Consultants Ltd.
July 1969

Troutline Cr.



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 1962 MAP #5

Line
4050
240
255
144
86
83
45
55

"I"-Line

"I"-Line

"H"-Line

Stebbie Cr.

1962

Soil Sampling Zn. Plot

CHAPPARAL MINES LTD (N.P.S.A.)

Licence M.D.-B.C.

P. H. Stevens and Consultants Ltd. Vancouver B.C.

July 1962

Scale

8



660-890 W. PENDER ST.

VANCOUVER 1, B.C.

PHONE: 682-4116

May 15, 1969

Chapparal Mines Ltd.
428 - 470 Granville Street
Vancouver, B.C.

Dear Sirs:

Enclosed please find copies of expenses by Seigel Associates Ltd. for
the aeromagnetic survey completed over the Coast Silver Mines Ltd.
property and Chapparal Mines property at Cassiar, B.C.

Your portion of charges is One Thousand Two Hundred Dollars, (\$1,200.00)

Yours truly,

COAST SILVER MINES LTD.

per: Orville L. Baker
President

/mjk
Enc.

Paid by Chapparal Mines Ltd.
June 1969

Coast Silver Mines Ltd.

per

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.

In the Matter of a geophysical survey on behalf of
Coast Silver Mines Ltd.

To Wit:

I, E. M. Flett for Seigel Associates Limited

of 750 - 890 West Pender Street, Vancouver

in the Province of British Columbia, do solemnly declare that an aeromagnetic survey has been executed mineral claims in the Cassiar area, British Columbia, between March 12 to 19, 1969. The following expenses were incurred:

(1) Wages:			
	R. Sheldrake	8 days @ \$50/day	\$400.00
	P. Nielsen	8 days @ \$50/day	400.00
	J. Mabley	8 days @ \$50/day	400.00
	K. Jones	4 days @ \$50/day	<u>200.00</u>
			\$1,400.00
(2) Transportation & shipping to the job			1,034.00
(3) Transportation on the job			94.60
(4) Food & Living Expenses			177.10
(5) Use of Geophysical Equipment	8 days @ \$150/day		1,200.00
(6) Consulting Fees	10 days @ \$646/day		<u>6,460.00</u>
			\$10,365.70

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 City
of Vancouver, in the
Province of British Columbia, this 15th
day of May, 1969, A.D.

E M Flett

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

COMMISSIONING RECORDER