

2583

REPORT ON
AIRBORNE GEOPHYSICAL SURVEYS
NICKEL SYNDICATE
HOPE AREA, BRITISH COLUMBIA
ON BEHALF OF
GIANT MASCOT MINES LIMITED (N.P.L.)

92H/5E12E,W.

by

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

August 15, 1970.

CLAIMS:

<u>Name</u>	<u>Record Numbers</u>
Ni 102-108	22050-22055
Ni 117-128	22064-22075
Ni 223	22265
Ni 229-234	22267-22272
Ni 242, 243	22009, 22010
Ni 244-251	22011-22018
Ni 252-264	22019-22031
Ni 267-278	22027-22038
Ni 279-284	22039-22044
Ni 287-292	22298-22303
AL 1-6	23565-23570
OX 1-4	19809-19812
OX 5-12	20712-20719

LOCATION:

About 10 miles northwest of Hope, British Columbia,
New Westminster Mining Division
49° 121° NE

DATES:

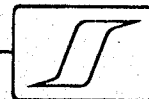
June 13th to June 19th, 1970

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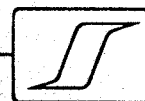
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 2583 MAP



SUMMARY

A helicopter-borne magnetic survey was executed over approximately 85 square miles in the Hope area, British Columbia. Anomalous magnetic responses outlined areas warranting further field investigation.



REPORT ON
AIRBORNE GEOPHYSICAL SURVEY
NICKEL SYNDICATE
HOPE AREA, BRITISH COLUMBIA
ON BEHALF OF
GIANT MASCOT MINES LIMITED (N.P.L.)

INTRODUCTION:

From June 13th through June 19th, 1970, an airborne geophysical survey was executed on behalf of Giant Mascot Mines Limited, over the Nickel Syndicate property, near Hope, British Columbia, covering approximately 85 square miles (see Plate 1).

The airborne survey included measurements of the earth's total magnetic field using a Scintrex NPM-1 nuclear resonance, total intensity magnetometer.

Appendix 'A' attached, gives full details of the airborne geophysical equipment and the ancillary equipment employed, as well as the treatment of data resulting from these surveys. In the case of the present surveys a Bell 206 helicopter, on charter from Okanagan Helicopters, was employed as the basic transport vehicle.

The survey lines were flown approximately northeast-southwest at a nominal 1/4 mile interval and a mean terrain clearance of 300'. The magnetometer sensor was towed 50' below the helicopter. Flight navigation and flight path recovery have been based upon an uncontrolled photo mosaic on the scale of approximately 1" = 2000'.

Sixty flight lines measuring a total of 335 line miles were flown on the survey. Two control lines flown normal to the traverse direction were used for magnetic leveling. The intensity of the earth's



total magnetic field in the survey measures approximately 58,200 gammas and the inclination of the total field vector is approximately 73 degrees.

The purpose of the present programme was to map rock types, structure and magnetic ore bodies.

PRESENTATION OF DATA:

The results of the geophysical surveys and their interpretation are presented on Plates 2, 3 and 4 on the scale of 1" = 2000' and 1" = 1000'. Some topographic features and flight lines are shown on the plates. Plates 2 and 3 show the magnetic contours. The contours are at an interval of 100 gammas or less, according to magnetic relief. Plate 4 shows the geophysical interpretation and claim location on the scale of 1" = 2000'.

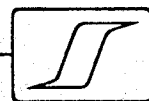
The original geophysical trace is on the following scale:

MAGNETOMETER 1" = 100 Gammas with automatic steps of 500 gammas.

GEOLOGY:

A description of the geology of the area including the present survey grid is shown on Map 737A, Hope, Yale and New Westminster districts, British Columbia, Scale: 1" = 4 miles.

The survey grid is underlain by Paleozoic sediments and crystalline rocks which have been intruded by Mesozoic and Cenozoic acidic and basic intrusives. The Giant Mascot nickel mine located in the southeast corner of the area is associated with one of the basic intrusions. Mineralization consists of disseminations of pyrrhotite with minor pentlandite and chalcopyrite, in intrusive hornblendite.



DISCUSSION OF RESULTS:

The observed magnetic relief is a total of 2600 gammas and occurs primarily as a number of isolated anomalies rising above a relatively featureless magnetic field.

The western half of the survey grid is dominated by two large anomalous areas labelled B-1 and B-2 in the extreme northern edge of the area. An intense positive anomalous zone (B-3) was also recorded in the southwestern part of the grid. Because of a decrease in the magnetic field over a portion of this zone, the area is interpreted as being underlain by altered basic intrusive rocks. A number of smaller anomalies were located between these two zones. As shown on Plate 3; each of these anomalies are interpreted as arising from basic or ultra-basic rocks. The areas of lower magnetic intensity and fewer anomalies surrounding these basic anomalies are interpreted as being underlain with acidic rocks.

The eastern half of the survey grid is dominated by the most intense anomaly recorded in the area, located in the extreme southeast corner over the Giant Mascot Mine (B-5).

This feature reaches a maximum in excess of 2000 gammas on flight line 92. The linear gradients on the northern and western flank of the anomaly strongly suggest these to be major structural directions.

An arcuate anomalous trend was recorded about 3 miles west of the mine and extending through the central part of the survey area. This zone is interpreted as indicating an extensive area of basic intrusive rocks cut by a series of north-south faults. An alteration zone has also been interpreted in this vicinity.



Disruptions of magnetic anomalies and persistent gradients throughout the survey area indicate major structural features which are indicated on Plate 4.

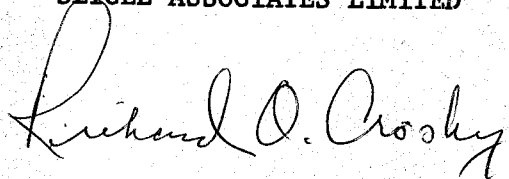
CONCLUSIONS AND RECOMMENDATIONS:

The airborne geophysical survey has revealed magnetic features which warrant further investigation.

It is recommended that each of the areas interpreted as being underlain by basic or ultrabasic rocks be field checked for evidence of sulphide mineralization.

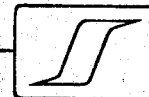
Respectfully submitted,

SEIGEL ASSOCIATES LIMITED



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

Vancouver, B.C.
August 15, 1970.



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.

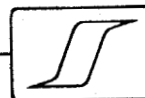
Its cycle period is 1.1 seconds. Each cycle it measures the total intensity of the earth's magnetic field and this quantity, in gammas, is recorded, in analogue form, on a suitable graphic recorder. The full scale sensitivity is usually 1000 gammas and the recorder automatically steps each 500 gammas. 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.

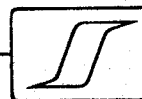
The output of the Bonzer may be expressed in analogue form on a suitable graphic recorder, or may be, for convenience, converted to a semi-digital form on a recorder side pen. In the latter event the altimeter record is a series of spaced pulses whose separation is proportional to the mean terrain clearance.

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.



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

In the Matter of a geophysical survey on behalf of
 Giant Mascot Exploration Limited (N.P.L.)

I, J. L. McCrea for Seigel Associates Limited

of 750 - 890 West Pender Street, Vancouver

in the Province of British Columbia, do solemnly declare that an airborne magnetometer survey has been executed on some NI, AL, and OX claims, Hope area, British Columbia between June 13 to June 19, 1970 inclusive. The following expenses were incurred:

(1) Wages:			
	C. Mohagen	7 days @ \$50.00/day	\$350.00
	R. Sheldrake	7 days @ \$35.00/day	245.00
	D. Phillips	7 days @ \$35.00/day	245.00
			<u>\$840.00</u>
(2) Preparation of Mosaics			500.61
(3) Transportation on the job - helicopter			3,411.66
		- truck	129.91
(4) Food & Living Expenses - including helicopter crew			269.25
(5) Use of geophysical equipment			
		7 days @ \$150.00/day	1,050.00
(6) Paid to Seigel Associates Limited to cover geophysicist's supervision, calculating, plotting and fairdrawing data and preparation of final reports			<u>5,051.82</u>
		335 line miles @ \$15.08/mile	
			\$11,253.25

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."

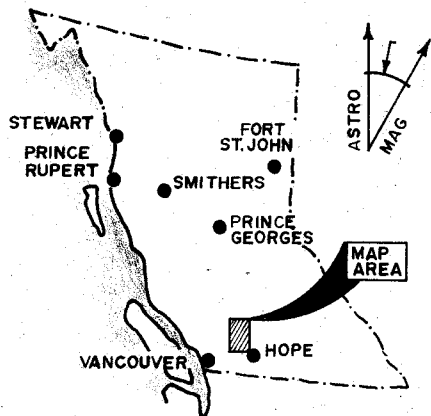
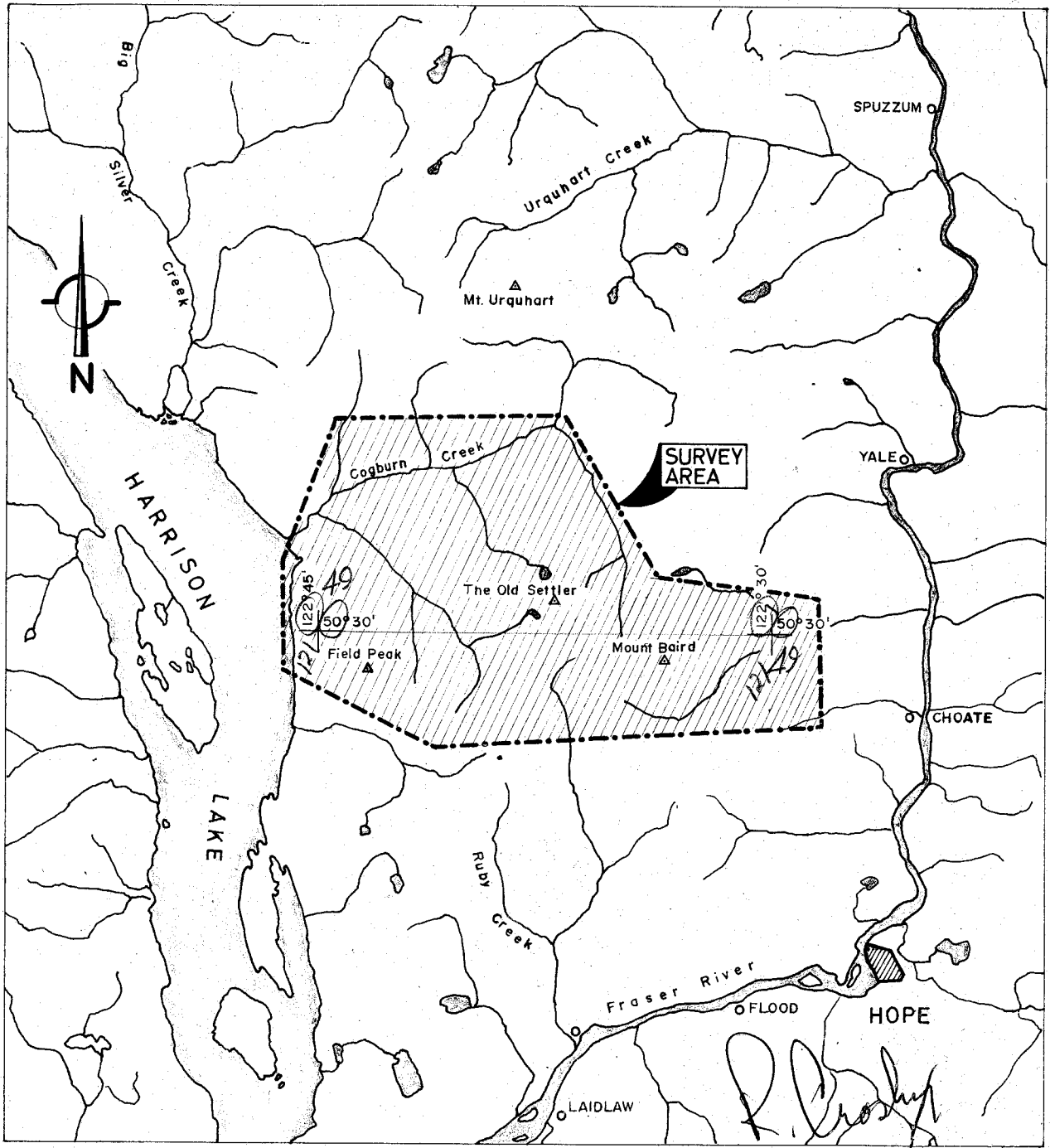
Declared before me at the City
 of Vancouver, in the
 Province of British Columbia, this 24th
 day of August, 1970, A.D.

J. L. McCrea

S. Phillips

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

SUB-MINING RECORDER



BRITISH COLUMBIA

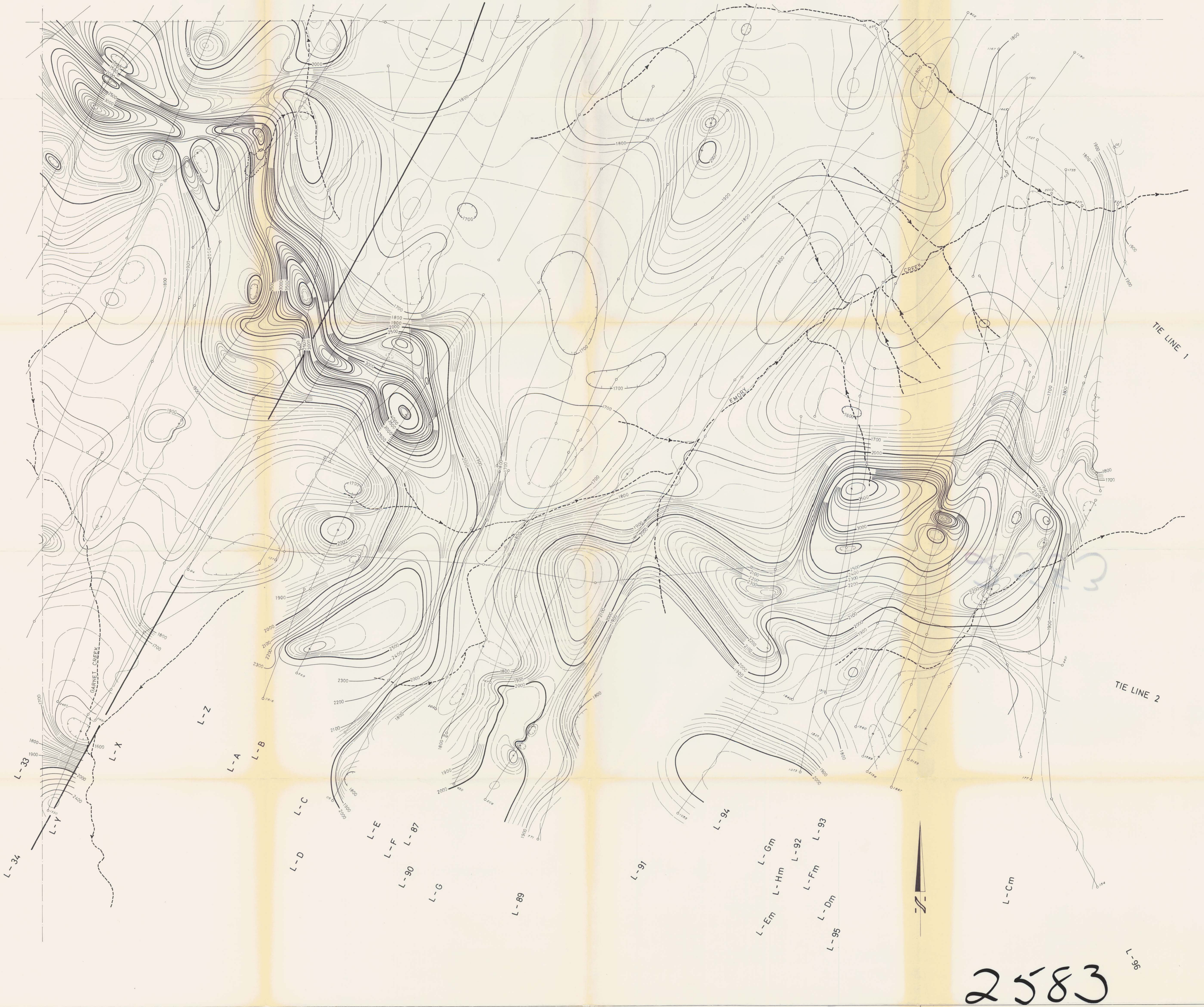
GIANT MASCOT MINES LTD.

LOCATION MAP
 AIRBORNE GEOPHYSICAL SURVEY
 NICKEL SYNDICATE, HOPE AREA B.C.



SURVEY BY
 SEIGEL ASSOCIATES LIMITED
 JUNE 1970

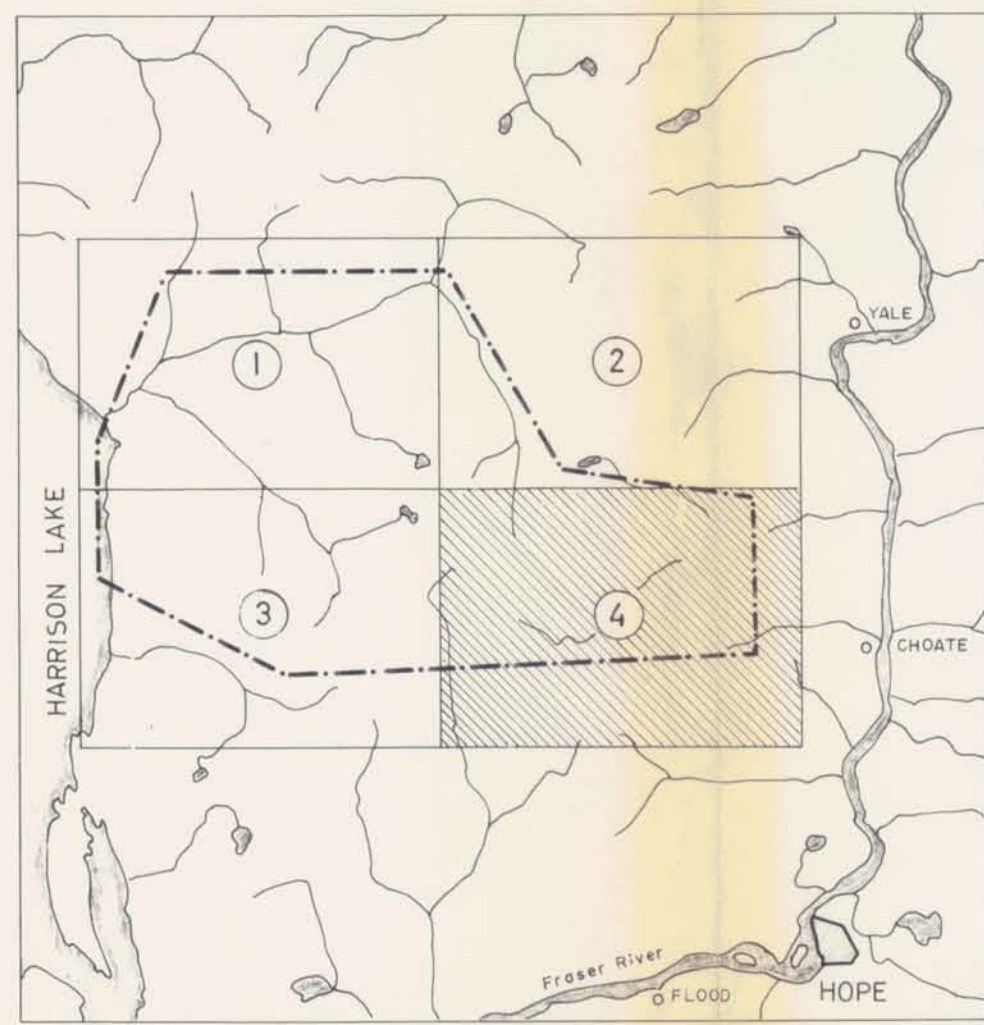
PLATE 1



2583



LOCATION MAP



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2583 MAP #6

LEGEND

- L-2 FLIGHT LINE, FLIGHT LINE NUMBER AND NUMBERED FIDUCIAL POINTS
- 500 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- 100 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- 20 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- MAGNETIC LOW
- AIRCRAFT TERRAIN CLEARANCE - 300'
- FLIGHT LINE SPACING - 1/4 MILE
- BASE INTENSITY ARBITRARY
- DRAINAGE

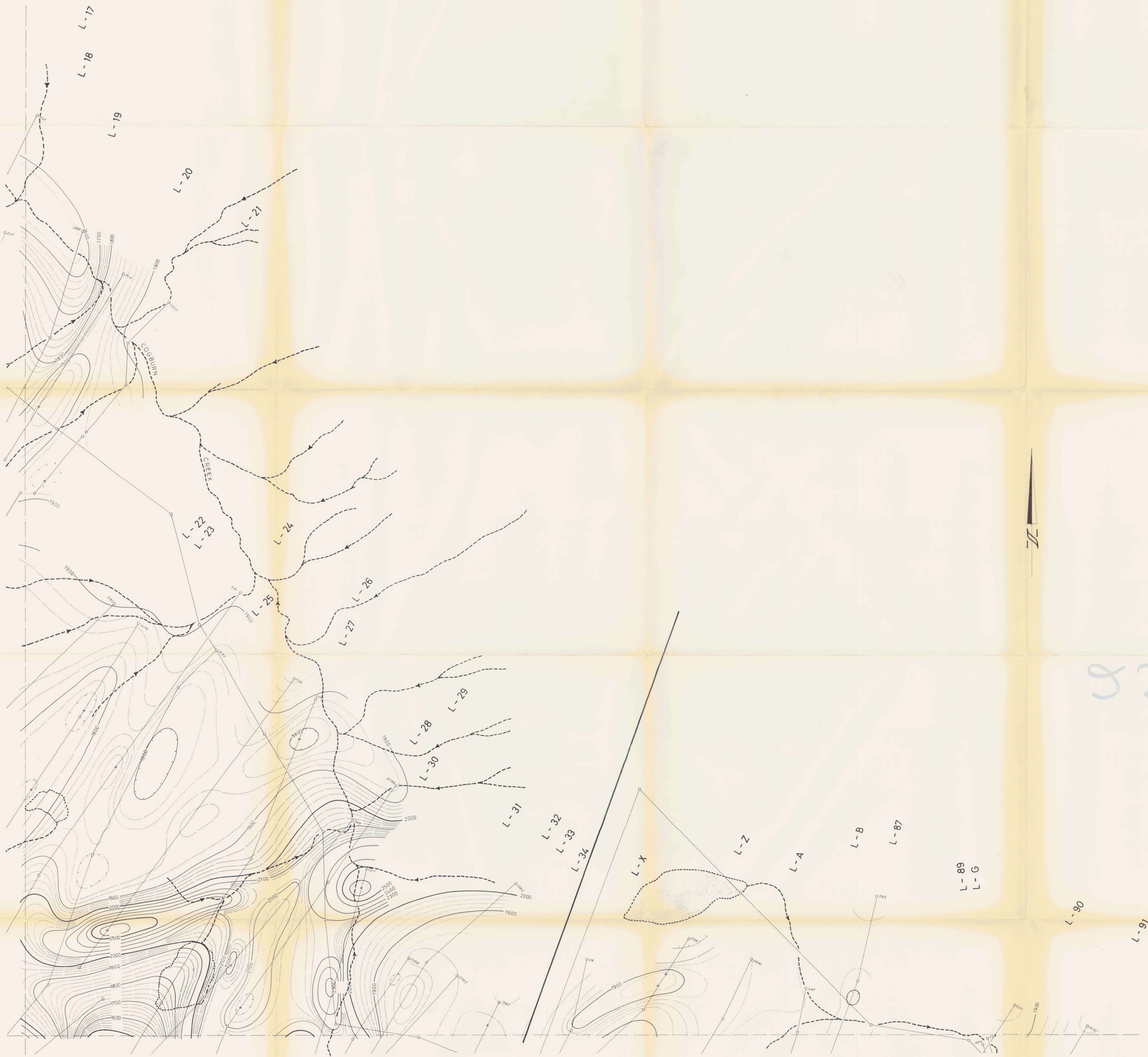
PLATE 3
GIANT MASCOT MINES LTD.
NICKEL SYNDICATE, HOPE AREA, B.C.

AIRBORNE GEOPHYSICAL SURVEY
MAGNETOMETER CONTOUR PLAN

APPROX SCALE 1" = 1000 FEET
0 1000 2000 3000 4000 FEET

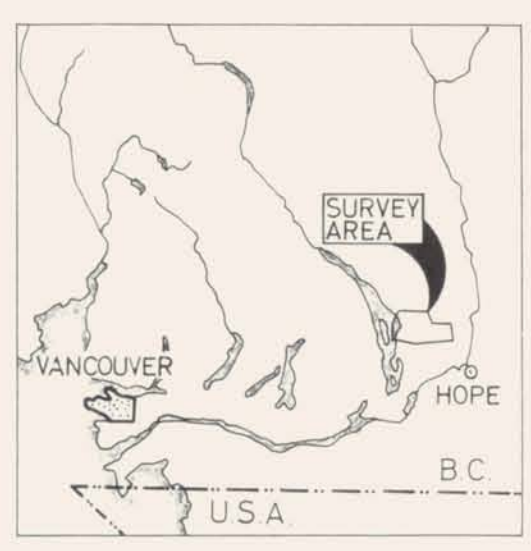
SURVEY BY SEIGEL ASSOCIATES LIMITED
FLOWN AND COMPILED JUNE - AUGUST 1970

Richard D. Crosby
SHEET 4 OF 4

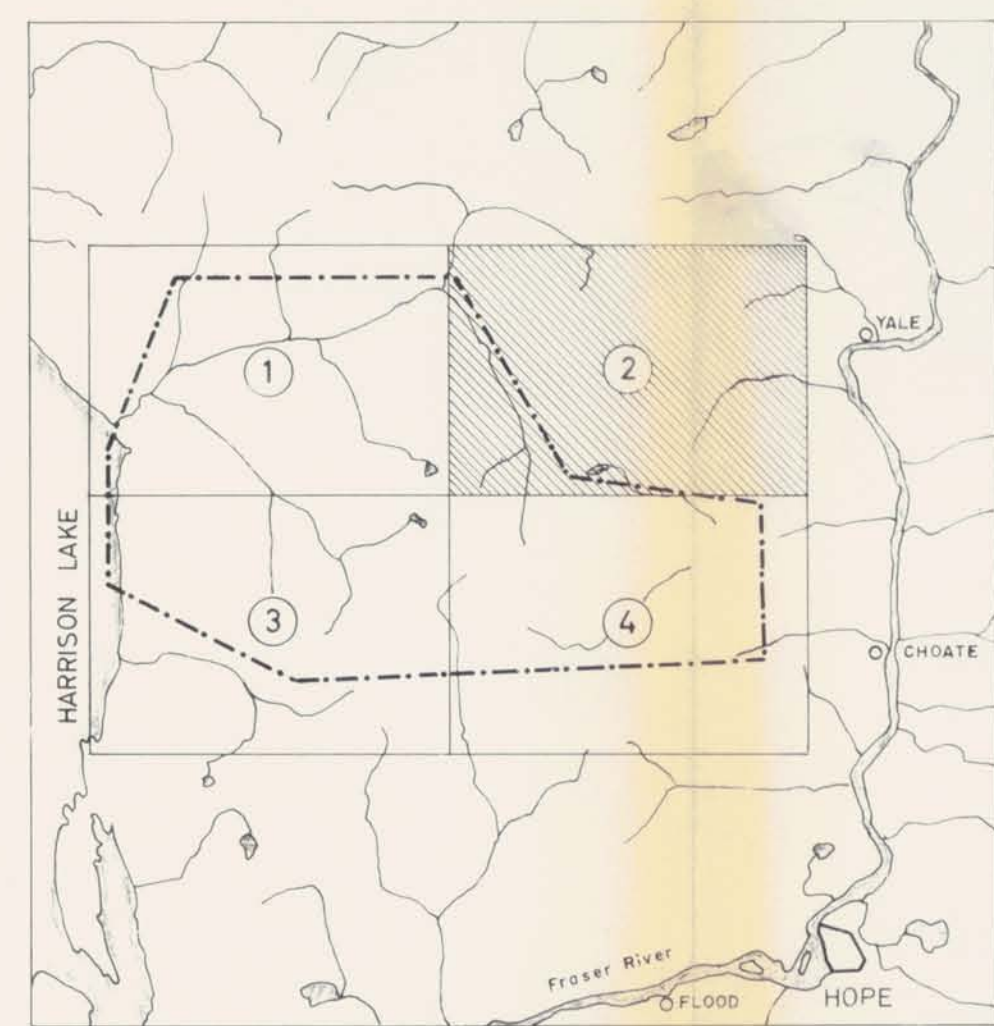


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2583



LOCATION MAP



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2583 M.P. #4

LEGEND

- L-2 ———— FLIGHT LINE, FLIGHT LINE NUMBER AND NUMBERED FIDUCIAL POINTS.
- ~~~~~ 500 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- ~~~~~ 100 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- ~~~~~ 20 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- - - - - MAGNETIC LOW
- AIRCRAFT TERRAIN CLEARANCE - 300'
- FLIGHT LINE SPACING - 1/4 MILE
- BASE INTENSITY ARBITRARY
- - - - - DRAINAGE

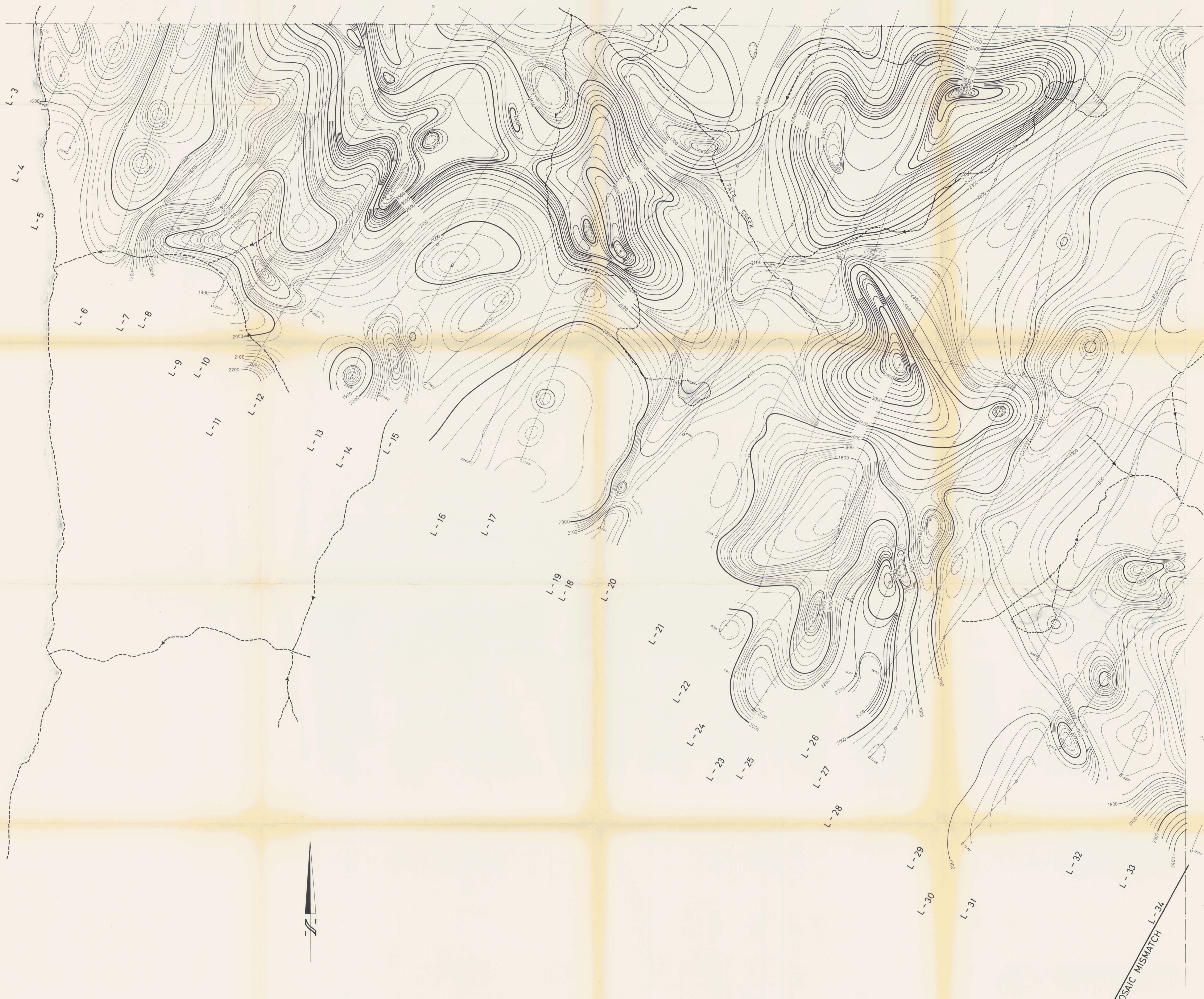
PLATE 3
GIANT MASCOT MINES LTD.
NICKEL SYNDICATE, HOPE AREA, B.C.

AIRBORNE GEOPHYSICAL SURVEY
MAGNETOMETER CONTOUR PLAN

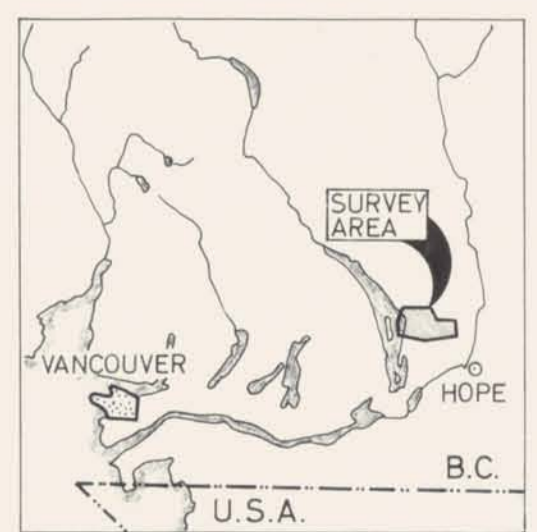
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SURVEY BY SEIGEL ASSOCIATES LIMITED
FLOWN AND COMPILED JUNE-AUGUST 1970

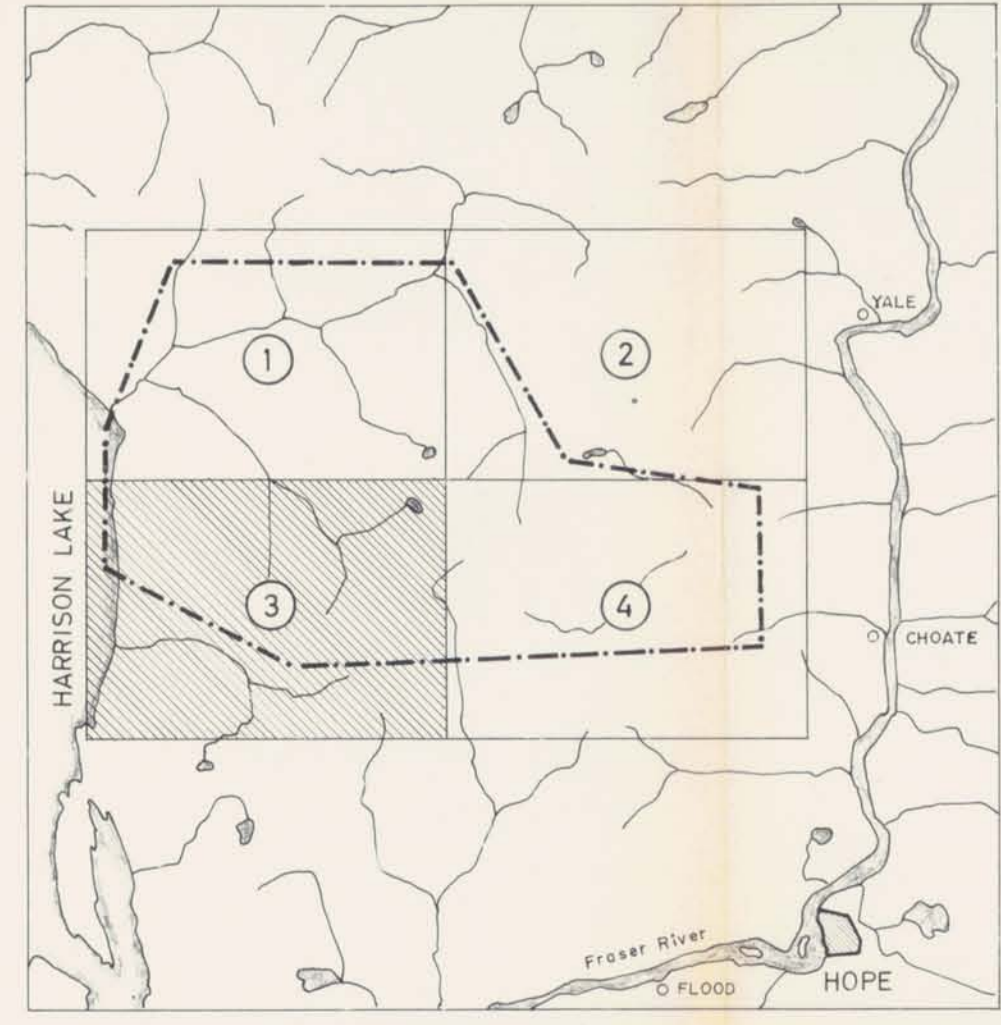
Richard O. Crosby
SHEET 2 OF 4



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LOCATION MAP



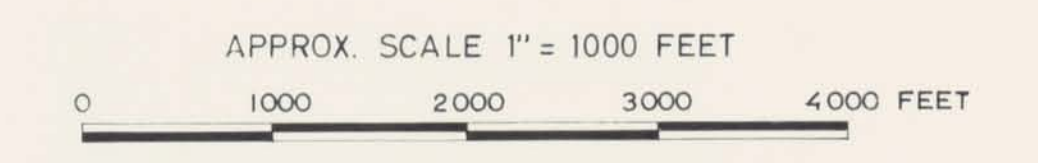
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2583 MAP #5

LEGEND

- L-2 0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900 10000
- FLIGHT LINE, FLIGHT LINE NUMBER AND NUMBERED FIDUCIAL POINTS
- 500 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- 100 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- 20 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- MAGNETIC LOW
- AIRCRAFT TERRAIN CLEARANCE - 300'
- FLIGHT LINE SPACING - 1/4 MILE
- BASE INTENSITY ARBITRARY
- DRAINAGE

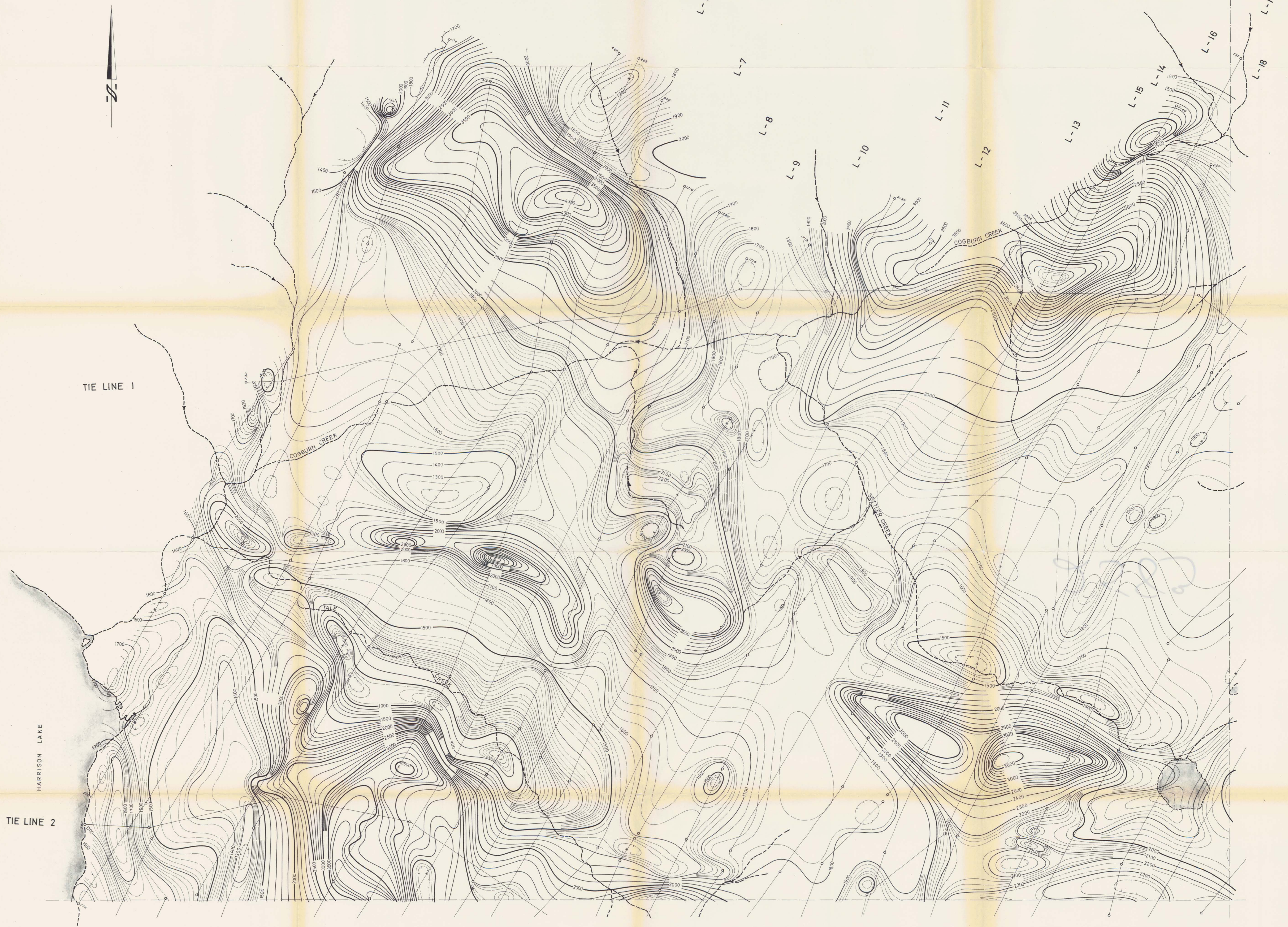
PLATE 3
GIANT MASCOT MINES LTD.
NICKEL SYNDICATE, HOPE AREA, B.C.

AIRBORNE GEOPHYSICAL SURVEY
MAGNETOMETER CONTOUR PLAN

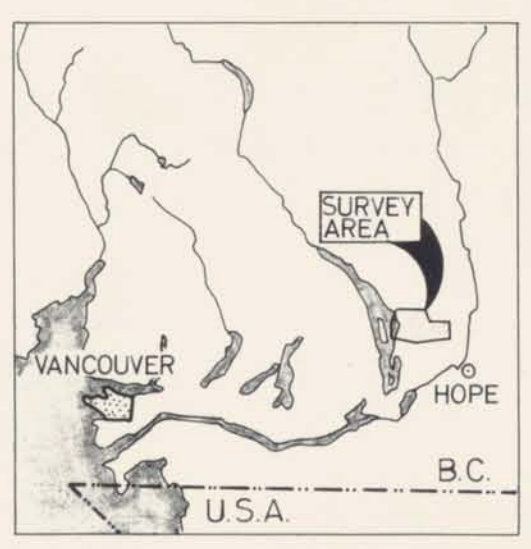


SURVEY BY SEIGEL ASSOCIATES LIMITED
FLOWN AND COMPILED JUNE - AUGUST 1970

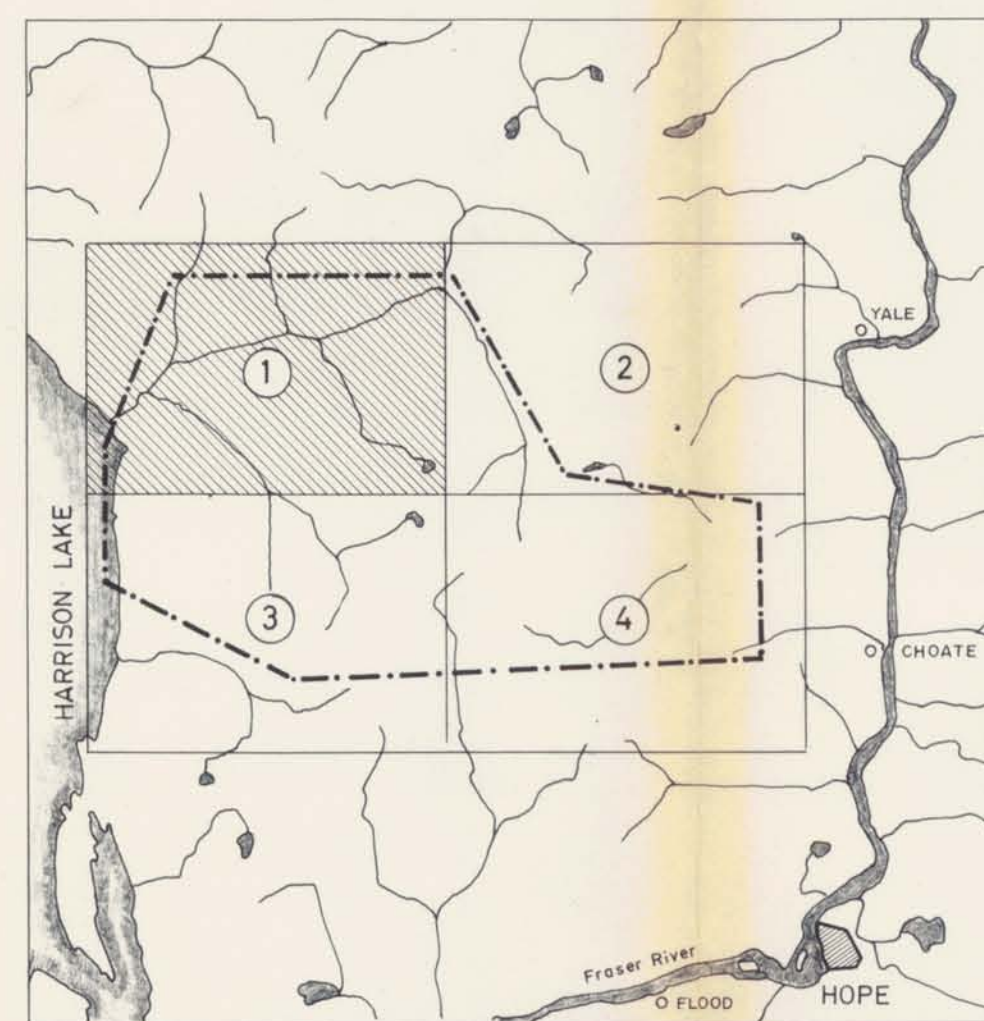
Richard D. Crosby
SHEET 3 OF 4



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LOCATION MAP



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2583 MAP #3

LEGEND

- L-2 ———— FLIGHT LINE, FLIGHT LINE NUMBER AND NUMBERED FIDUCIAL POINTS.
- ~~~~~ 500 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- ~~~~~ 100 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- ~~~~~ 20 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- - - - - MAGNETIC LOW
- AIRCRAFT TERRAIN CLEARANCE - 300'
- FLIGHT LINE SPACING - 1/4 MILE
- BASE INTENSITY ARBITRARY
- - - - - DRAINAGE

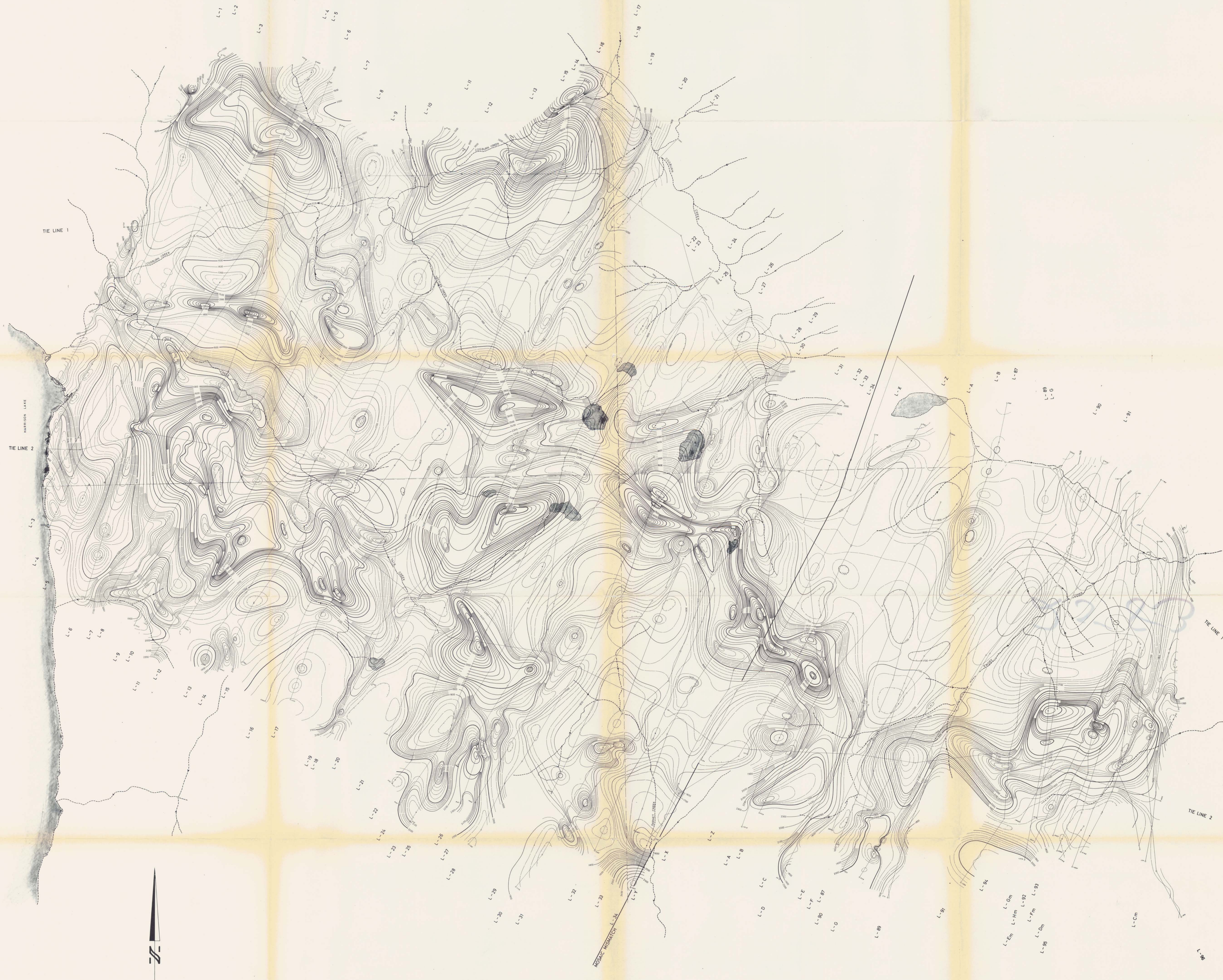
PLATE 3
GIANT MASCOT MINES LTD.
NICKEL SYNDICATE, HOPE AREA, B.C.

AIRBORNE GEOPHYSICAL SURVEY
MAGNETOMETER CONTOUR PLAN

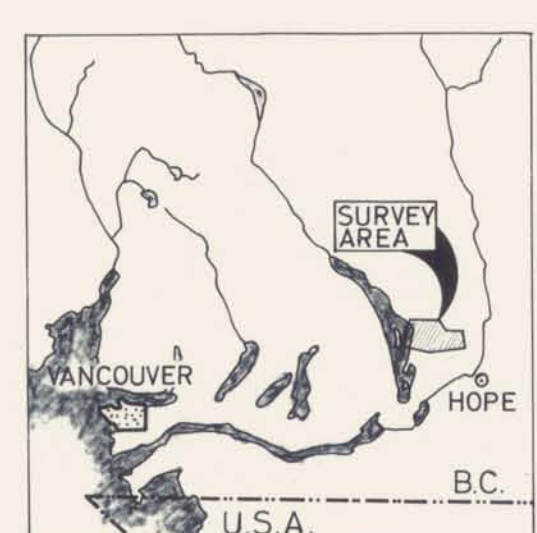
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SURVEY BY SEIGEL ASSOCIATES LIMITED
FLOWN AND COMPILED JUNE - AUGUST 1970

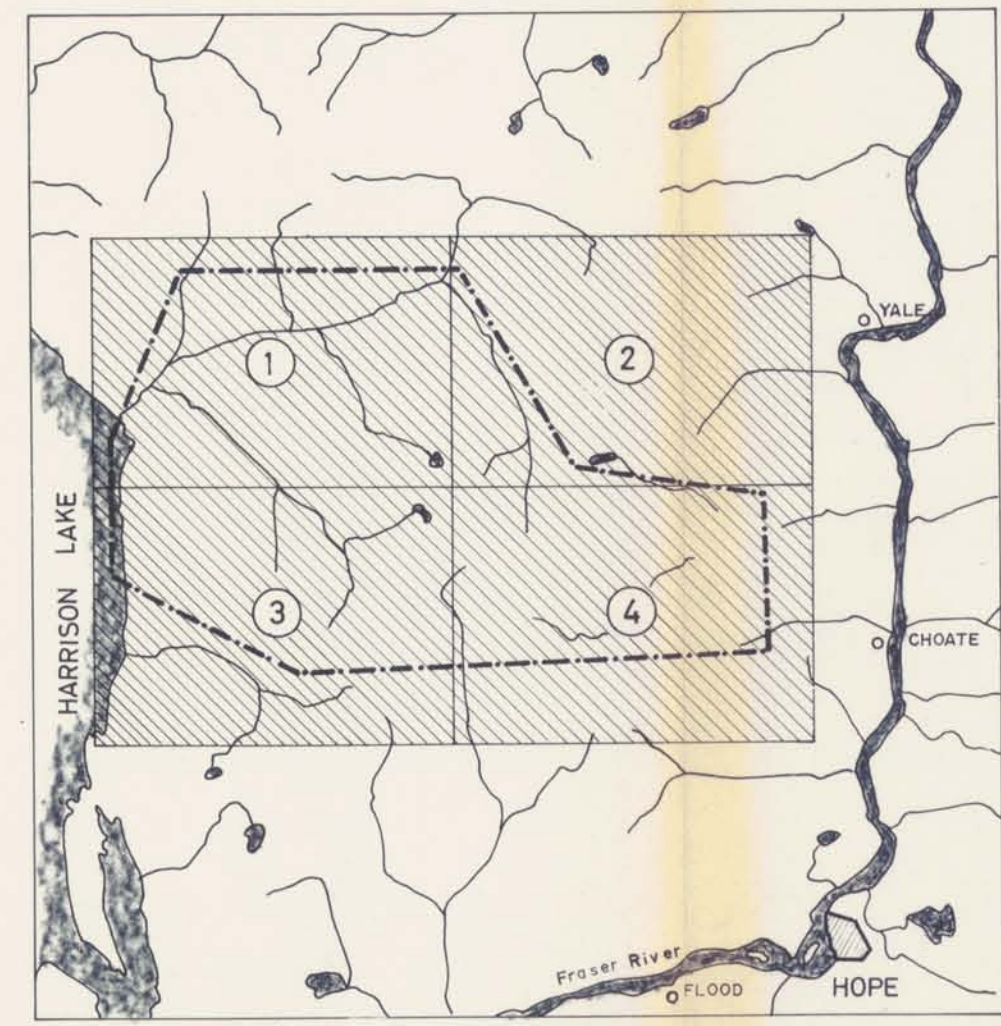
Richard D. Seigel
SHEET 1 OF 4



2583



LOCATION MAP



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2583 AWP #12

LEGEND

- L-2 1/4 mi — FLIGHT LINE, FLIGHT LINE NUMBER AND NUMBERED FIDUCIAL POINTS.
- 500 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- 100 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- 20 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- MAGNETIC LOW
- AIRCRAFT TERRAIN CLEARANCE - 300'
- FLIGHT LINE SPACING - 1/4 MILE
- BASE INTENSITY ARBITRARY
- DRAINAGE

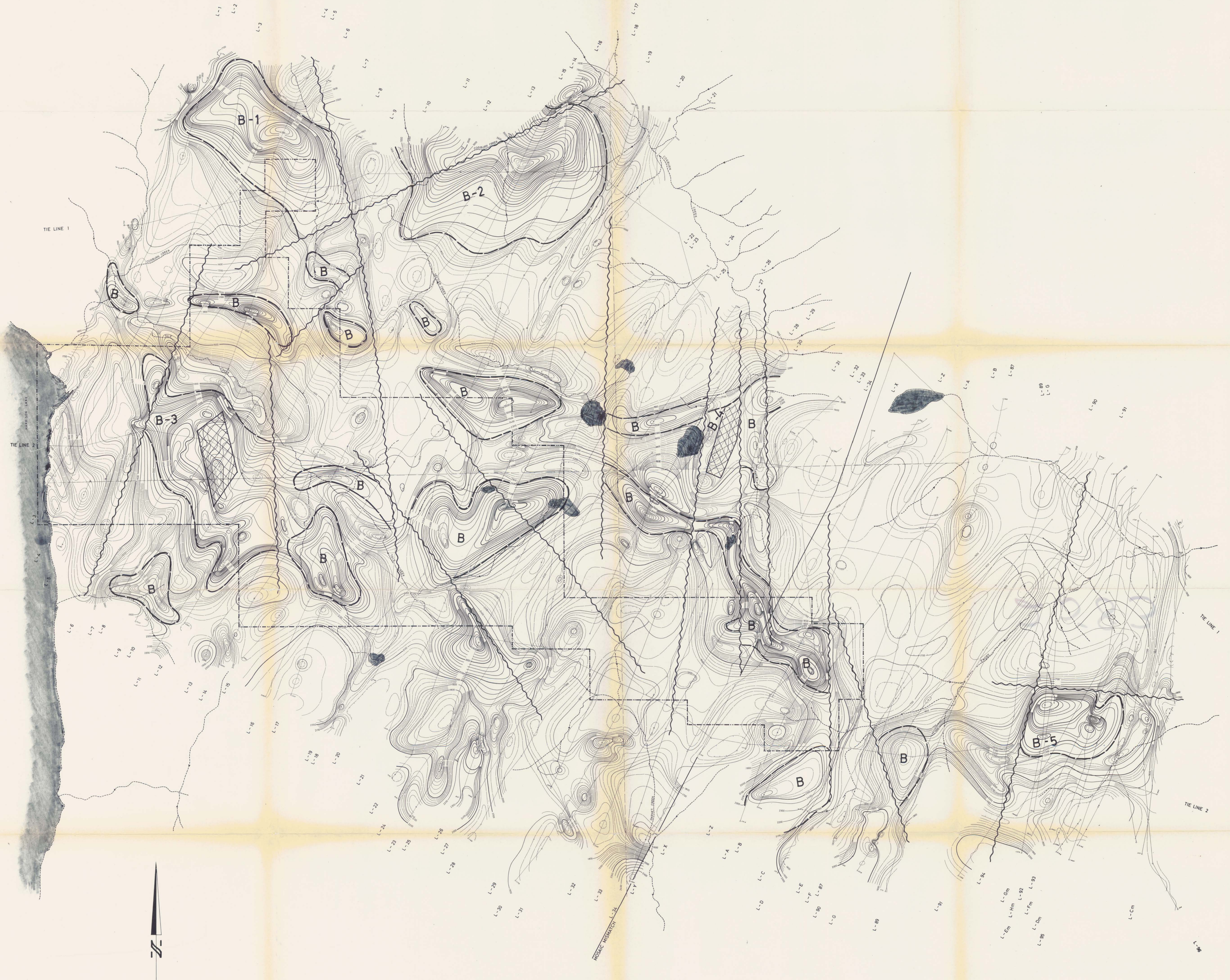
PLATE 2
GIANT MASCOT MINES LTD.
NICKEL SYNDICATE, HOPE AREA, B.C.

AIRBORNE GEOPHYSICAL SURVEY
MAGNETOMETER CONTOUR PLAN

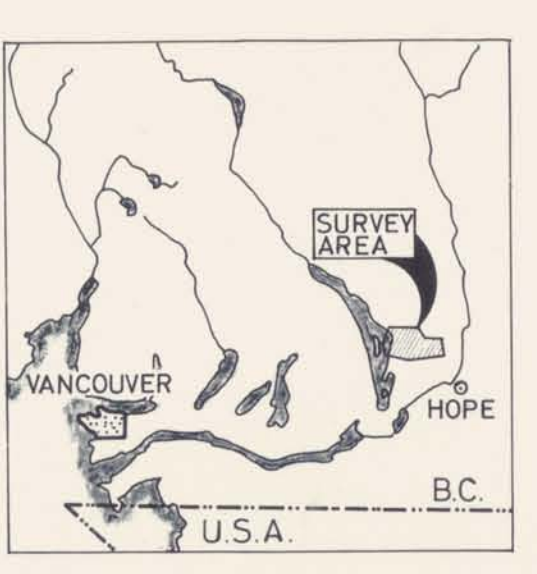
APPROX. SCALE 1"=2000 FEET
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SURVEY BY SEIGEL ASSOCIATES LIMITED
FLOWN AND COMPILED JUNE - AUGUST 1970

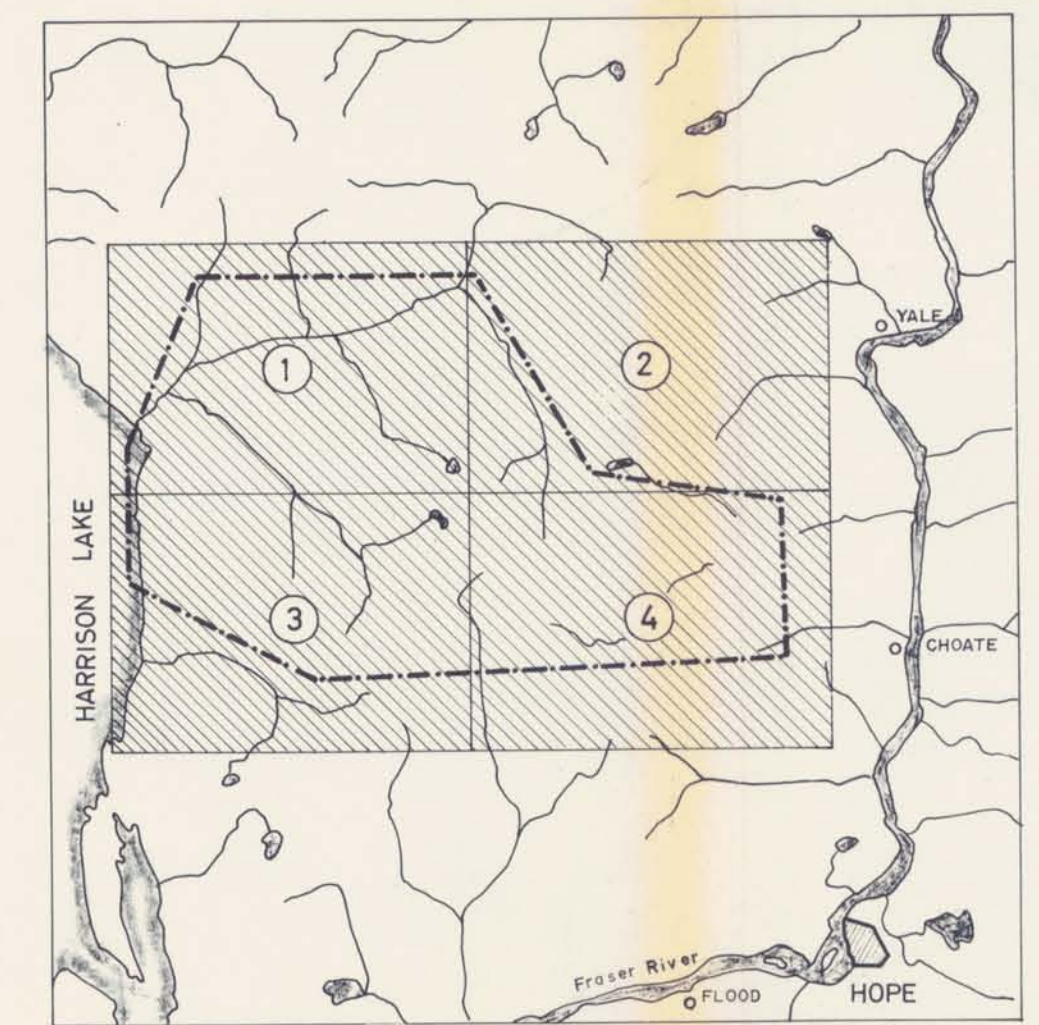
Richard O. Seigel
SHEET 1 OF 1



2583



LOCATION MAP



LEGEND GEOPHYSICAL INTERPRETATION

- OUTLINE MAGNETIC ROCK TYPE
- PROBABLE FAULT
- POSSIBLE ALTERED PORTION OF INTRUSIVE
- CLAIM OUTLINE

Department of
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ASSESSMENT REPORT
NO. 2583 MAP #7

LEGEND

- FLIGHT LINE, FLIGHT LINE NUMBER AND NUMBERED FIDUCIAL POINTS.
- 500 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- 100 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- 20 GAMMA ISOMAGNETIC CONTOUR INTERVAL
- MAGNETIC LOW
- AIRCRAFT TERRAIN CLEARANCE - 300'
- FLIGHT LINE SPACING - 1/4 MILE
- BASE INTENSITY ARBITRARY
- DRAINAGE

PLATE 4
GIANT MASCOT MINES LTD.
NICKEL SYNDICATE, HOPE AREA, B.C.

AIRBORNE GEOPHYSICAL SURVEY
MAGNETOMETER CONTOUR PLAN
GEOPHYSICAL INTERPRETATION AND CLAIM LOCATION

APPROX. SCALE 1" = 2000 FEET
0 1000 2000 3000 4000 FEET

SURVEY BY SEIGEL ASSOCIATES LIMITED
FLOWN AND COMPILED JUNE - AUGUST 1970

Richard D. Seigel
SHEET 1 OF 1