

3087

REPORT ON THE
AIRBORNE GEOPHYSICAL SURVEY
JON, DALE, JD, ANVEL, N&J, SHARCKS BAY
BLUE GROUSE, BALD EAGLE, COPPER BAY, MINERAL CLAIMS

GAMBIER ISLAND, B.C.
VANCOUVER MINING DIVISION

920/6W&11W

JON 1-10, DALE 1-9, JD 1-10, ANVEL 1-10
N&J 1-6, BLUE GROUSE, COPPER BAY,
BALD EAGLE, SHARCKS BAY

Longitude: 123° 22'
Latitude: 49° 28'

By: Harvey H. Cohen, P.Eng.

For: Gaylord Mines Ltd. NPL

May 15 - June 12, 1971



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 3087 MAP

HARVEY H. COHEN ENGINEERING LTD.

CONSULTING ENGINEERS

TELEPHONE: BUS.: 684-6711
RES.: 266-8189

1264 WEST PENDER STREET
VANCOUVER 1, B. C.

June 12, 1971

Gaylord Mines Ltd. NPL,
736 Granville Street,
Vancouver 2, B.C.

Dear Sirs;

RE: Airborne Geophysical Survey
Gambier Island Property
Vancouver Mining Division

Pursuant to your request, the writer has conducted a combined airborne geophysical survey employing magnetometer, electromagnetic, and radioactivity instrumentation over the Jon 1-10, Dale 1-10, JD 1-10, Anvel 1-10, N&J 1-6, Sharcks Bay, Blue Grouse, Copper Bay, and Bald Eagle Mineral Claims located on Gambier Island, B.C., Vancouver Mining Division during the period May 15 to June 12, 1971.

The following report and maps are based on the results of that survey.

Respectfully submitted,



Harvey H. Cohen, P.Eng.

HHC/ip

3087

REPORT ON THE

AIRBORNE GEOPHYSICAL SURVEY

JON, DALE, JD, ANVEL, N&J, SHARCKS BAY

BLUE GROUSE, BALD EAGLE, COPPER BAY, MINERAL CLAIMS

GAMBIER ISLAND, B.C.

VANCOUVER MINING DIVISION

* * * *

123 ° 22'
49 ° 28'

92 G / 6W & 11W

GAYLORD MINES LTD. NPL
VANCOUVER, B.C.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO 3087 M.P. #1



KEY MAP SHOWING LOCATION OF GAMBIER ISLAND PROPERTY

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Vancouver Mining Division

REPORT ON THE
AIRBORNE GEOPHYSICAL SURVEY
JON, DALE, JD, ANVEL, N&J, SHARCKS BAY
BLUE GROUSE, BALD EAGLE, COPPER BAY, MINERAL CLAIMS
GAMBIER ISLAND, B.C.
VANCOUVER MINING DIVISION

INTRODUCTION

LOCATION:

The Jon 1-10, Dale 1-10, JD 1-10, Anvel 1-10, N&J 1-6, Sharcks Bay, Blue Grouse, Copper Bay, and Bald Eagle Mineral Claims, 50 in number, are known locally as "Nick's Copper Mine", and are situated at the northwest part of Gambier Island approximately 20 miles northwest of the City of Vancouver, British Columbia in the Vancouver Mining Division. Gambier Island lies in the protected waters of Howe Sound. Access to the area during this survey was from Vancouver International Airport, which was used as a base for preparation of instrumentation and fueling of the aircraft.

The property can be reached from Vancouver via the Upper Levels Highway and the Vancouver-Squamish Highway for a distance of 18 miles to Lions Bay. From there, a boat is available from Lions Bay Marina directly to the property, a distance of six miles.

A more direct access is from Vancouver via aircraft charter from the seaplane base at the foot of Cardero directly to the small bay known as Copper Bay on Gambier Island.

Geographically, the property centres at:-

Longitude: 123° 22'W

Latitude: 49° 28'N

SUMMARY OF CLAIMS

<u>NAME</u>	<u>RECORD NO.</u>	<u>DATE</u>
JON 1	12291	Aug.22
JON 2	12292	
JON 3	12293	
JON 4	12294	
JON 5	12295	
JON 6	12296	
JON 7	12297	
JON 8	12298	
JON 9	12299	
JON 10	12300	
DALE 1	12301	Aug.22
DALE 2	12302	
DALE 3	12303	
DALE 4	12304	
DALE 5	12305	

DALE 6	12306	Aug.22
DALE 7	12307	
DALE 8	12308	
DALE 9	12309	
DALE 10	12310	(May be excluded)

JD 1	12311	Aug.22
JD 2	12312	
JD 3	12164	
JD 4	12165	
JD 5	12166	
JD 6	12167	
JD 7	12168	
JD 8	12169	
JD 9	12170	
JD 10	12171	

ANVEL 1	12281	Aug.22
ANVEL 2	12282	
ANVEL 3	12283	
ANVEL 4	12284	
ANVEL 5	12285	
ANVEL 6	12286	
ANVEL 7	12287	
ANVEL 8	12288	
ANVEL 9	12289	
ANVEL 10	12290	

N&J 1	10993	June 14
N&J 2	10994	
N&J 3	10995	
N&J 4	10996	
N&J 5	10997	
N&J 6	10998	

BLUE GROUSE	10169	May 1
BALD EAGLE	8295	June 15
COPPER BAY	10168	May 1
SHARCKS BAY	8296	June 15

The total area covered by the subject mineral claims is approximately 2500 acres. The property is held under

agreement by Gaylord Mines Ltd. NPL from the registered owners who are listed as N. Micholls (deceased) and I. Eng.

GEOPHYSICAL INVESTIGATIONS

MAGNETOMETER SURVEY:

The purpose of the Magnetometer Survey was to detect the presence of any magnetic anomalies on the property and determine their size, magnetic intensity, and probable cause. An anomaly would result from the presence or absence of any magnetic accessory minerals in the underlying rock formations in detectable quantity. The magnetic survey would differentiate between the volcanic, sedimentary, and intrusive members, and detect sulphides that are magnetic and that could possibly be associated with valuable minerals.

Using these factors as a guide, the geophysical survey was conducted over an area measuring 20,000 feet in length by 10,000 feet in width in order to adequately cover the subject mineral claims. A total of eighty line miles of survey was recorded together with approximately 30% additional in overruns and reorienting distances.

Factors which produce variations in the magnetic field are:-

1. A concentration of magnetic minerals, possibly associated with valuable minerals.
2. A variation in amount of accessory mineral magnetite in granitic, volcanic, or sedimentary bedrock.
3. A variation in amount of magnetite distributed through or connected with the overburden.
4. A variation in depth of non magnetic overburden on caprock over bedrock having a constant vertical magnetic intensity.
5. Variation in amount of magnetic minerals in adjacent bands of volcanic and/or sedimentary rocks. These variations are not expected to be great, and they produce elongated highs and lows parallel to the strike of the formation.
6. Any combination between the variations in magnetic minerals in the rock and variations in magnetic or non magnetic overburden or caprock thickness.

It will be seen from the above factors that the geophysical survey employing the magnetometer produces information that would assist in providing a structural picture as well as indicating and defining areas of more favorable geologic significance for further exploration.

ELECTROMAGNETIC SURVEY:-

The Electromagnetic Survey, conducted simultaneously with the Magnetometer Survey, measures the change in mutual impedance between a pair of coils as the impedance is affected by nearby conductors of electricity. The equipment employed during this survey consists of a transmitter which transmits an electrical field through a 65 foot coil at a frequency of 1000 cycles per second. The receiving coil is housed in a "bird" that is drawn by the aircraft. The recording system records and measures any fields that are produced by the electrical field.

RADIOACTIVITY SURVEY:-

The Radioactivity Survey employed a DR-229 Nucleometer to measure continuously any radioactivity of the subsurface rocks. The instrument employed was constructed specifically for airborne work and is of high sensitivity.

The radioactivity measurements are studied to investigate not only radioactive elements as such, but also radioactivity that is caused by certain weathered elements within rocks when associated with mineral deposition. The intensity of radioactivity would be low as a rule, and indicates zones of alteration.

PROCEDURE

The JON, DALE, JD, ANVEL, N&J, SHARCKS BAY, BLUE GROUSE, BALD EAGLE, and COPPER BAY Mineral Claims are oriented in a northwest-southeast direction and parallel the east shore of Gambier Island. The terrain slopes up toward the west. Consequently, the flight line orientation was established at 331° and 151° (True). In this way, a near constant height above ground of 500 feet was maintained throughout the survey. The area covered measured 20,000 feet by 10,000 feet.

The survey was flown with a fixed wing aircraft at a constant speed of 113.7 miles per hour on a flight line spacing of 500 feet. Instrumentation was continuous, but the recording of the data was so arranged on all instruments to a preset time interval to record readings at ground spacing of 500 feet. Flight lines, 20 in number, were flown for a distance of 20,000 feet plus turning and reorienting distance. The flight pattern

was plotted in advance on topographic Sheet No. 92G/6W "Vancouver North" on a scale of 1:50000. The entire survey was conducted during a period of extreme calm weather, and prominent landmarks were used as visual reference for flight control.

The resulting readings and their respective coordinates were key punched on cards, transmitted by a Univac 1104 direct to the Univac 1108 stationed at Calgary for processing. The output tape was air mailed to Vancouver and introduced to a pre-programmed plotter. The accompanying maps of the Magnetometer and Electromagnetic surveys are the results of this process. The radioactivity data was not plotted due to the scanty influences measured, and will be mentioned only for the sake of completion.

ANALYSIS OF RESULTS AND CONCLUSIONS

The data was introduced to the computer for a statistical analysis with the following results:

Magnetometer Survey:

No. of observations	779
Minimum value	00
Maximum value	34.00
Values in gammas/100	
Mean value	18.12
Standard Deviation	6.16

Z-Value Frequencies

<u>Interval</u>	<u>Number</u>	<u>%</u>	<u>Culm.%</u>
-.00 to 1.99	5	.64	.64
2.00 to 3.99	1	.13	.77
4.00 to 5.99	8	1.03	1.80
6.00 to 7.99	17	2.18	3.98
8.00 to 9.99	17	2.18	6.16
10.00 to 11.99	82	10.53	16.69
12.00 to 13.99	50	6.42	23.11
14.00 to 15.99	99	12.71	35.82
16.00 to 17.99	88	11.30	47.11
18.00 to 19.99	53	6.80	53.92
20.00 to 21.99	130	16.69	70.60
22.00 to 23.99	67	8.60	79.20
24.00 to 25.99	69	8.86	88.06
26.00 to 27.99	40	5.13	93.20
28.00 to 29.99	37	4.75	97.95
30.00 to 31.99	15	1.93	99.87
32.00 to 33.99	0	.00	99.87
34.00 to 35.99	1	.13	100.00

Electromagnetic Survey:

No. of Observations	779
Minimum value	.00
Maximum value	17.00
Mean value	4.34
Standard Deviation	3.03

Z-Value Frequencies

<u>Interval</u>	<u>Number</u>	<u>%</u>	<u>Culm.%</u>
.00 to .99	17	2.18	2.18
1.00 to 1.99	155	19.90	22.08
2.00 to 2.99	120	15.40	37.48
3.00 to 3.99	67	8.60	46.08
4.00 to 4.99	61	7.83	53.92
5.00 to 5.99	117	15.02	68.93
6.00 to 6.99	68	8.73	77.66
7.00 to 7.99	54	6.93	84.60
8.00 to 8.99	19	2.44	87.03
9.00 to 9.99	35	4.49	91.53
10.00 to 10.99	41	5.26	96.79
11.00 to 11.99	15	1.93	98.72
12.00 to 12.99	9	1.16	99.87
13.00 to 13.99	0	.00	99.87
14.00 to 14.99	0	.00	99.87
15.00 to 15.99	0	.00	99.87
16.00 to 16.99	0	.00	99.87
17.00 to 17.99	1	.13	100.00

The statistical analysis indicates the average value of the magnetic influence over the area to be 18.12. With the instrument set at 20 (to avoid negative values in the calculation) to represent 0 gammas, it would appear the magnetic influence was -188 gammas. The maximum reading obtained is 1400 gammas, and the minimum -2000 gammas, the resulting range was found to be between -2000 and plus 1400 or a variation of 3400 gammas.

Indicated structure shows a marked break with displacement of approximately in the tens of feet. This break or fault contact trends northeasterly and follows a line from Flight Line 1 North 4000 to Flight Line 13 North 6000, then from Flight Line 13 North 5500 to Flight Line 19 North 6000. A north-south fault zone parallels the zone between Flight Line 13 and 14, and reveals a series of magnetic lows outlining a series of volcanics within and over an intrusive mass. The cross break is evidently a strong shear zone measuring 400 to 500 feet in width and having a series of zones of greater than average conductivity. This phenomenon is represented by the EM anomalies lined up in an east-west direction along the grid at 4000 North, and is probably the southern extremity of the shear zone. The northern contact or extremity is indicated by a group

of EM "highs" centering at Flight Line 7 North 5500. This anomaly measures over 1000 feet in length and 500 feet in width with a high recording of .12 microamps which is in the significant range of disseminated sulphides. From the shape of the anomaly, it would not indicate the the cause is an electrolyte filled shear zone. It is of interest to note that the surface exposure of copper mineralization along the beach at the Copper Bay M.C. is outlined at Flight Line 13 North 7500. The zone of high conductivity and low magnetic influence measures approximately 500 feet in diameter, has an EM high of .10 ma. and a magnetic low of -1100 gammas. The conductive elements are of non magnetic characteristics and could be due to sulphides of copper and/or iron.

Several small conductive zones appear at the northwest corner of the surveyed area, and indicate a series of good conductive zones within or near an intrusive. A high magnetic field lies immediately to the south and also to the north while the EM "highs" cluster around a centre point at Flight Line 3 North 19000. The closest magnetic high is at Flight Line 3 North 19500 and at Flight Line 4 North 17000. The zone would be along the north shore of Gambier Island, and is of significance in view of the better conductivity.

At Flight Line 11 North 14000, a high EM response of .10 ma was recorded over an area of 700 by 400 feet. While this zone is significant by its conductivity and low magnetic characteristics, it appears to be related to the main structural break in that it parallels the break and could be related to it genetically. The area lies just north of Douglas Bay at the 300 foot level and forms part of the structure that is represented on surface by a valley just west of the point above Douglas Bay.

Other anomalies do exist on the property, but because of their size or shape or intensity, were considered to be of secondary importance with respect to the zones described.

Radioactivity measurements were sparse, and the most significant area of minor radioactivity was found to coincide with the shear zone following Flight Line 14 and in particular at North 14000. Radioactive elements were not of significance to warrant the plotting of results, and is mentioned only for the sake of completion.

RECOMMENDATIONS

The Geophysical Survey has outlined several areas of geologic significance for further investigation. The methods employed during this study were designed to measure on a reconnaissance scale, certain characteristics of the underlying unexposed rocks with a view to locating areas of anomalous conditions that have similar properties to those of mineralized bodies.

As a result of this survey, the areas described could further be explored by soil sampling, bulldozer trenching and stripping, together with geologic mapping and sampling. The soil sampling program should be conducted on a limited scale to confirm the presence of copper or molybdenum minerals. This should be carried out on a limited scale by means of short cross lines directly over the anomalous zones, depending upon the general slope of the terrain. The bulldozer should be employed to expose bedrock geology to provide for mapping and sampling procedures of that rock which was the cause of the anomalous condition. Should mineralization be exposed, a subsequent phase of work would consist of either diamond drilling or percussion drilling.

Stage 1:

1. Conduct a soil sampling program on a series of short cross lines over the structural feature described above, and the several anomalous zones to confirm the presence of copper or molybdenum minerals.
2. Employ a bulldozer, a D-7 or equivalent to trench and expose the underlying bedrock in those areas with indications of the presence of valuable minerals.
3. Conduct a geological mapping program on 200 scale of the new workings and of the soil sampling results.
4. Employ a gas operated rock drill to drill and blast fresh exposures on the anomalies for sampling and mapping purposes.

Stage 2:

The second stage of exploratory work would consist of diamond drilling to test at depth for continuity of mineral content that is exposed by the above program. The results would then govern the subsequent stage which would consist

of additional drilling on a predesigned grid as part of a development stage.

ESTIMATES

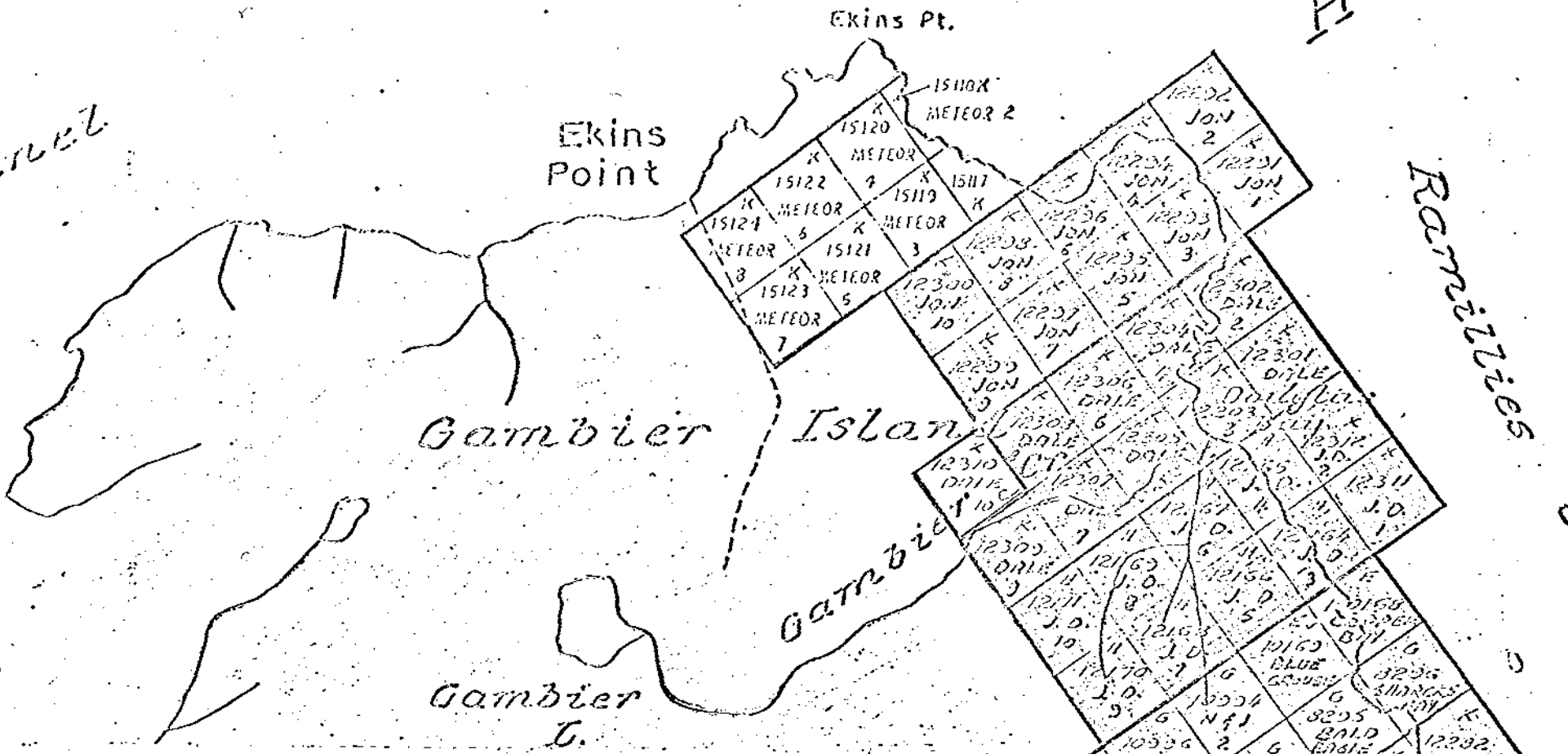
Stage 1:

Soil sampling of anomalous zones and trenches	\$2,000.00
Bulldozer stripping and trenching Access roads and grill sites	4,000.00
Geological mapping and sampling	2,000.00
Drilling and blasting	2,000.00
Transportation and camp supplies	3,000.00
Engineering and supervision	2,000.00
Misc. and contingencies	3,000.00
	<hr/>
Total Stage 1-----	\$18,000.00

Stage 2 depends entirely upon the results of Stage 1, and will be detailed after a study of results.

me.2

H.O.H.



GAYLORD MINES LTD. NPL
 VANCOUVER, B.C.


MAP SHOWING CLAIM LOCATION
 GAMBIER ISLAND PROPERTY
 VANCOUVER MINING DIVISION

SCALE: 1" = 3000' JUNE 1971

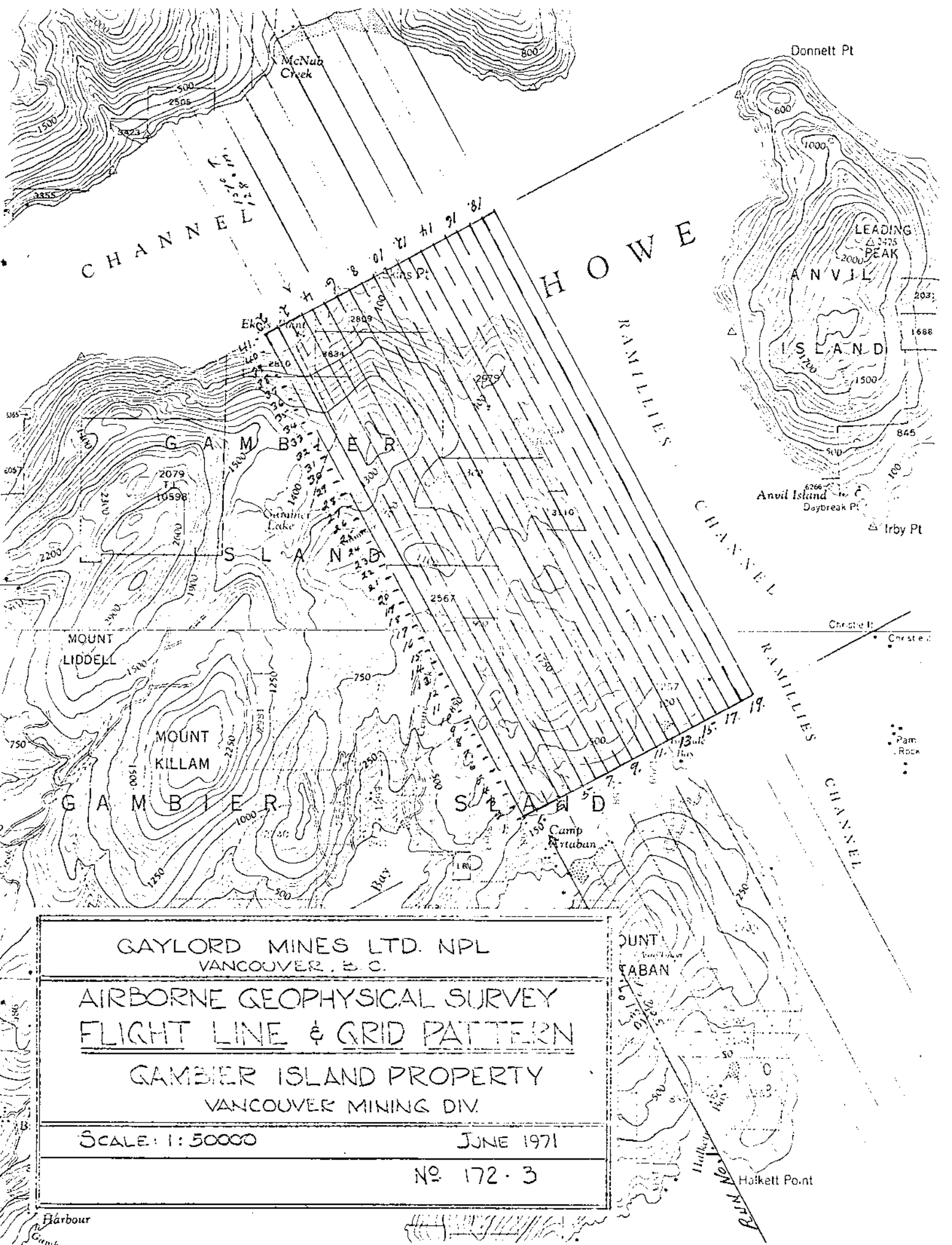
FROM 92G/11W No. 172-2

PETROLEUM RESOUR
 B.C.

MINERAL CLAIM MAP 92G/11W (M)

 **Department of
Mines and Petroleum Resources
ASSESSMENT REPORT**

NO. 3087 MAP #2



GAYLORD MINES LTD. NPL
 VANCOUVER, B. C.

AIRBORNE GEOPHYSICAL SURVEY
 FLIGHT LINE & GRID PATTERN

GAMBIER ISLAND PROPERTY
 VANCOUVER MINING DIV.

SCALE: 1:50000 JUNE 1971

No. 172-3

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 3087 MAP #3

HARVEY H. COHEN ENGINEERING LTD.
CONSULTING ENGINEERS

TELEPHONE: BUS.: 684-6711
RES.: 266-8169

1264 WEST PENDER STREET
VANCOUVER 1, B. C.

June 15, 1971

Gaylord Mines Ltd. NPL.
736 Granville Street,
Vancouver 2, B.C.

RE: Airborne Geophysical Survey
Magnetometer-Electromagnetic
Gambier Island Property, B.C.
Vanocover Mining Division

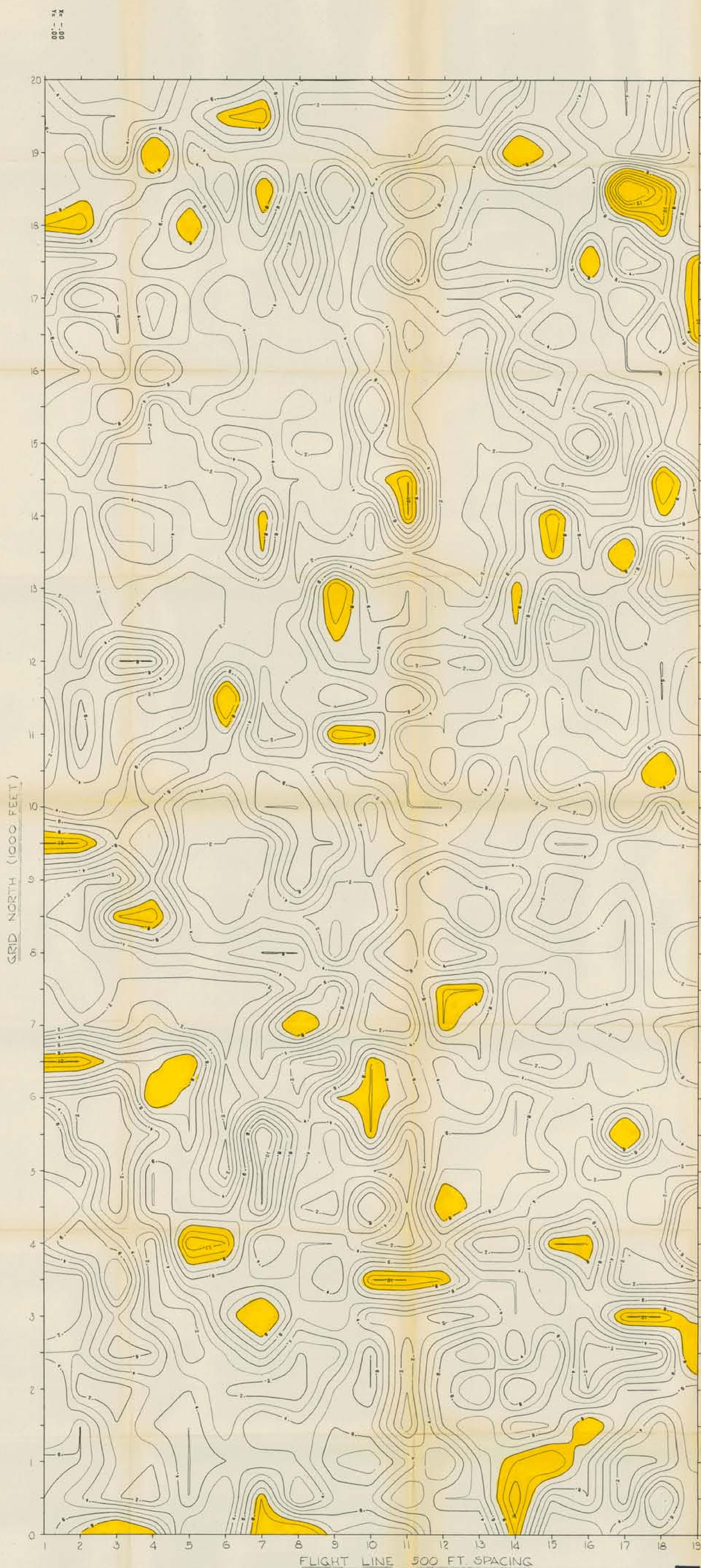
Preparation of grid and flight lines
Positioning and base expense
Aircraft and instrumentation
Conducting survey 500' grid
Recovery of data
Computer time and processing
Computer plotting of results
Preparation of maps and reports

Total contract price.....\$4900.00

Declared before me at the *City*
of *Vancouver*, in the
Province of British Columbia, this *24*
day of *June* 1971 A.D.

A. Cal

Julius J. ...
A Commissioner for Taking Affidavits within British Columbia or
Sub-mining Recorder



EM SURVEY
 SCALE: 500 FEET/INCH
 C1: 1 MA
 06/06/71

LEGEND

- INSTRUMENT - SM REC. MEDIC. CELL
- TRAILING - 98 FT
- FLIGHT ALT. - 500 FT.
- SPEED - 110.7 MPH
- AIRCRAFT - CHINOOK 235
- UNIT RECORDS - C. J. MA
- COURTESY APPROVAL - C. J. MA

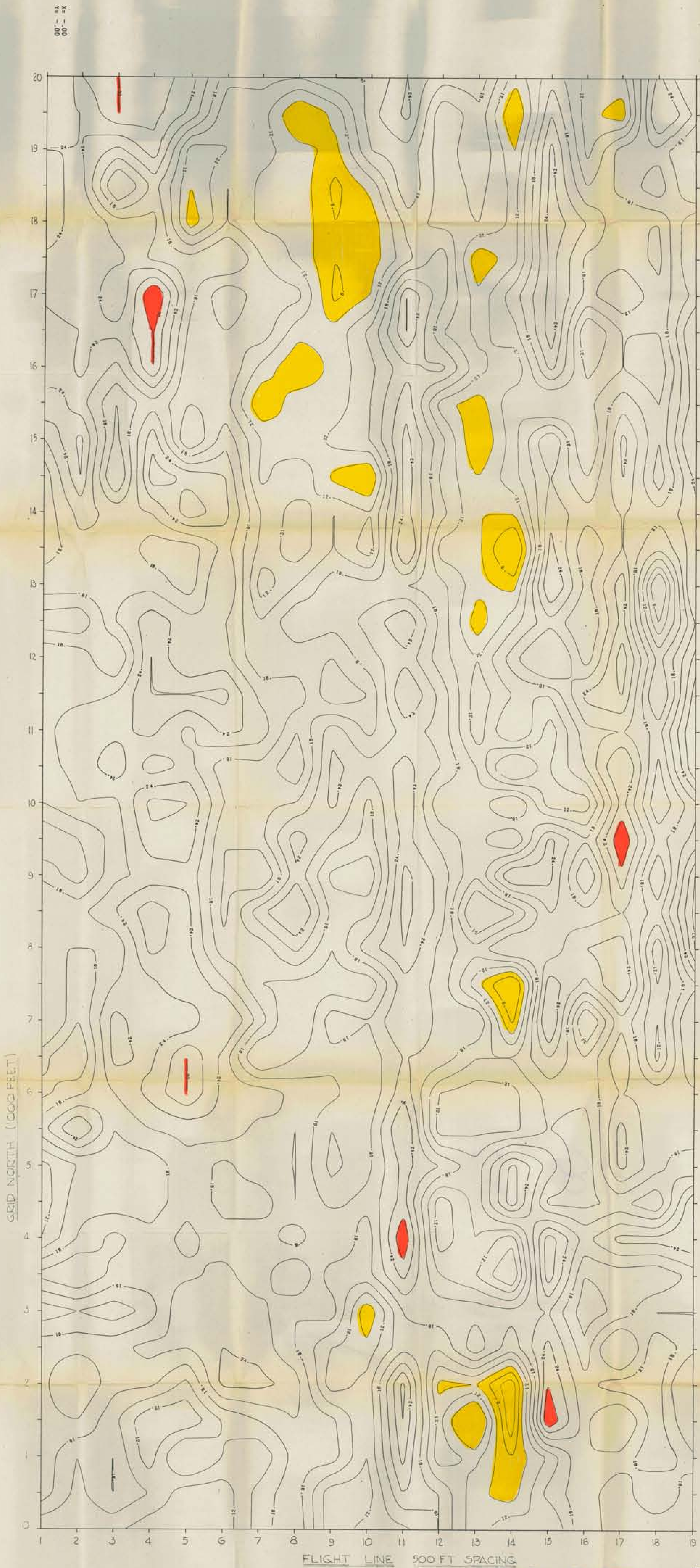
087 M-5
 085 M-2

GAYLORD MINES LTD. NPL VANCOUVER, B.C.	
AIRBORNE GEOPHYSICAL SURVEY	
ELECTROMAGNETIC	
GAMBIER ISLAND PROPERTY	
VANCOUVER MINING DIVISION	
SCALE 1" = 500'	JUNE 1971
HARVEY H. CONER ENGINEERS LTD. 604 WEST KINGS STREET, VANCOUVER, B.C.	NO. 1725

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 3087 MAP 45

3087 M-5

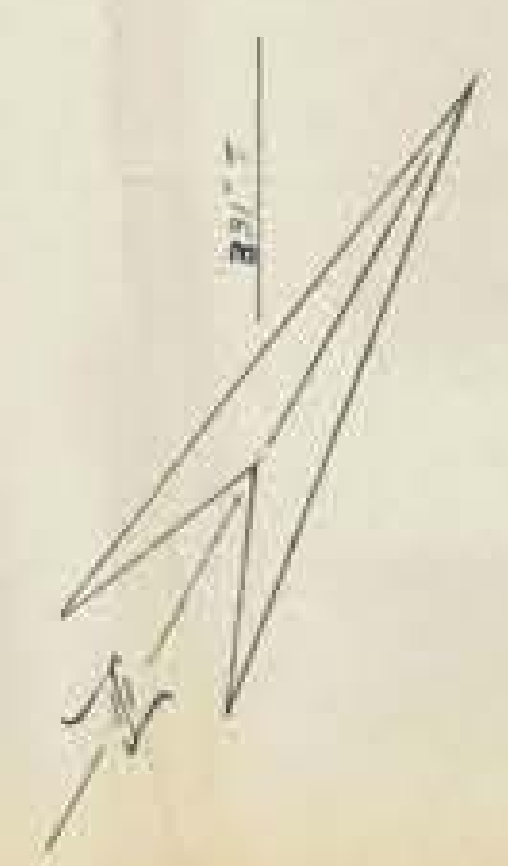
HARVEY H. CONER ENGINEERS LTD. VANCOUVER, B.C. 604 WEST KINGS STREET.



MAGNETOMETER SURVEY
 SCALE: 500 FEET/INCH
 CI: 300 GAMMAS
 06/07/7

LEGEND

INSTRUMENT	SHARPE PMF3
FLIGHT ALT	500 FT ABOVE GROUND
SPEED	113.7 MPH
AIRCRAFT	CHEROKEE 255
UNIT RECORDED	100 GAMMA
CONTOUR INT	200 GAMMAS
BASE SETTING	20 (+3000 GAMMAS)



GAYLORD MINES LTD. NPL
 VANCOUVER, B. C.
 AIRBORNE GEOPHYSICAL SURVEY
 MAGNETOMETER
 GAMBIER ISLAND PROPERTY
 VANCOUVER MINING DIVISION
 SCALE 1" = 500' JUNE 1971
 250 0 500 1000 FEET
 HARVEY H. COHEN ENGINEERING LTD. NO. 172-4
 1201 WEST PENDER STREET, VANCOUVER 1, B. C.

3087

Department of
 Miner and Petroleum Resources
 ASSESSMENT REPORT
 3087 MAP #9

M-4

GAMBIER ISLAND PROPERTY, INC. VANCOUVER, CANADA. CHART NO. 200
 GAMBIER ISLAND PROPERTY, INC. VANCOUVER, CANADA. CHART NO. 200
 GAMBIER ISLAND PROPERTY, INC. VANCOUVER, CANADA. CHART NO. 200
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