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12/84

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**11,957**

**R. CALABRIGO & ASSOCIATES**

402 - 595 HOWE STREET  
VANCOUVER, B. C. V6C 2T6

ASSESSMENT REPORT  
GEOPHYSICAL AND  
GEOCHEMICAL SOIL SURVEYS  
on the  
MB 14 MINERAL CLAIM  
QUEEN CHARLOTTE ISLANDS, B.C.  
SKEENA MINING DIVISION

N. Lat. 53° 33'

W. Long. 132° 12'

NTS 103 F/9E

by

NIGEL J. HULME, B.Sc.

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February 28, 1984



SUMMARY

The MB14 mineral claim, consisting of 20 units, is situated on Graham Island of the Queen Charlotte Islands, some 3 kilometers north of the Consolidated Cinola Mines Ltd. gold deposit.

A recently completed detail VLF electromagnetic survey work over a central portion of the claim has outlined a number of weak to very weak conductive zones which are attributable to near surface effects in wet, swampy ground. A single anomalous mercury value, also found in swampy ground, does warrant follow-up confirmation.

Expansion of the soils grid to the north and south is recommended. A low frequency electromagnetic (JENIE or CEM Shootback) survey is recommended to confirm and define the presently indicated conductive zones below the existing conductive surface.

Respectfully submitted,  
Strato Geological Engineering Ltd.

*Nigel Hulme*

Nigel J. Hulme, B.Sc.  
Geologist

February 28, 1984

*R. J. Englund*

R. J. Englund, B.Sc.  
Geophysicist



TABLE OF CONTENTS

Introduction . . . . .	page 1
Location, Access, Topography. . . . .	1
Claims . . . . .	2
General Geology . . . . .	3
History . . . . .	3
Instrumentation and Survey Procedure. . . . .	4
Discussion of Results . . . . .	5
VLF-EM Survey . . . . .	5
Geochemical Results . . . . .	5
Conclusions and Recommendations . . . . .	6
References . . . . .	7
Certificates. . . . .	8
Time-Cost Distribution. . . . .	10
Geochemical Analysis Results . . . . .	Appendix A

LIST OF FIGURES

Figure 1	Location Map . . . . .	follows page 1
Figure 2	Topographic Map . . . . .	1
Figure 3	Claim Map . . . . .	2
Figure 4	VLF-EM Survey and Soil Geochemistry	leaflet



## INTRODUCTION

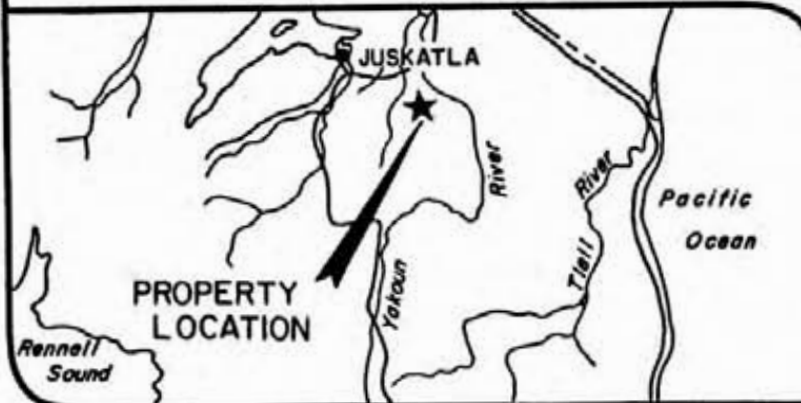
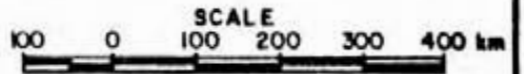
Pursuant to a request by Mr. R. Calabrigo, VLF electromagnetic and geochemical soil surveys were carried out over a south-central portion of the MB14 mineral claim during December 1983.

The intent of the geophysical and geochemical work was to delineate any geological structure, contacts, and/or faults which may have associated mineralization within the survey area. The results of some 7.5 kilometers of grid survey work is presented in this report.

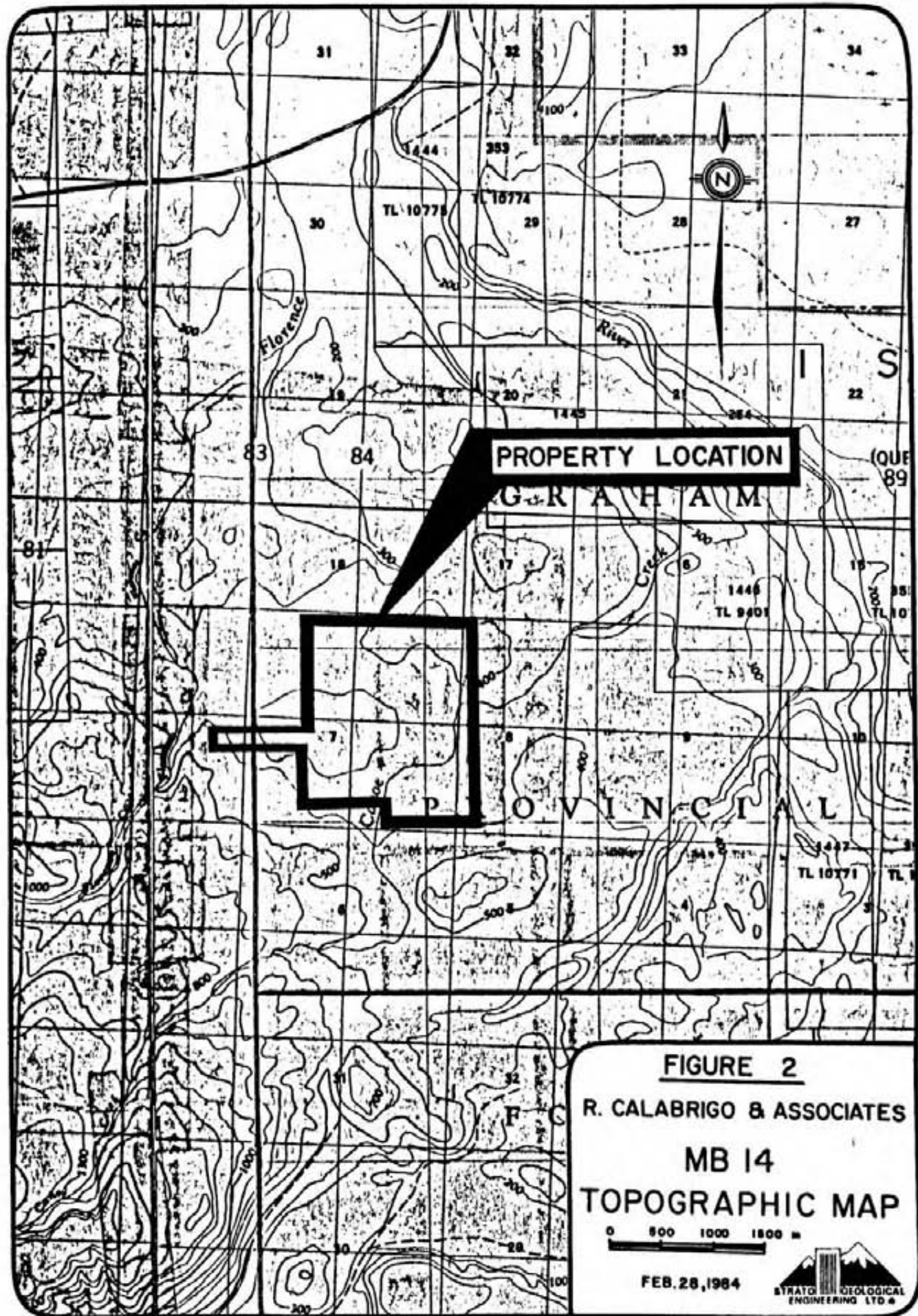
## LOCATION, ACCESS, TOPOGRAPHY

The MB14 claim, consisting of 12 units, is located some 14 kilometers south-southwest of the Village of Port Clements, Queen Charlotte Islands, British Columbia.

A secondary MacMillan-Bloedel logging road, from Branch 4, passes through the western property area. Topographically, the property displays low relief with elevations ranging between 100 and 150 meters above sea level. Canoe Creek flows northeasterly



**FIGURE 1**  
**R. CALABRIGO & ASSOCIATES**  
**LOCATION MAP**  
**MB 14**  
 FEB. 28, 1984



PROPERTY LOCATION

G R A H A M

PROVINCIAL

**FIGURE 2**

R. CALABRIGO & ASSOCIATES

MB 14

TOPOGRAPHIC MAP

0 500 1000 1500 m

FEB. 28, 1984





through the southeast portion of the property and several small tributaries flow northerly through the central property areas.

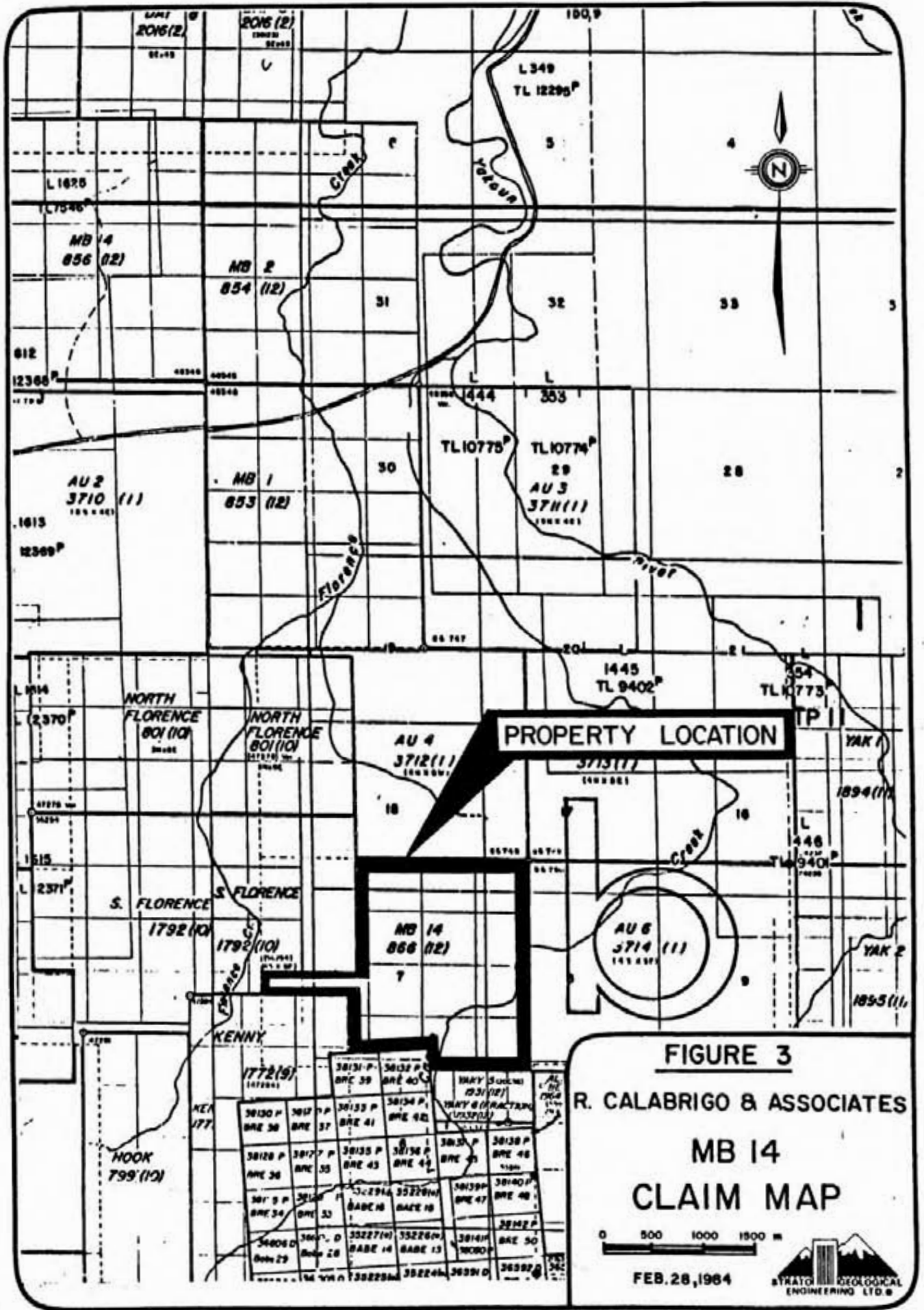
Much of the claim area is covered with slash and second growth. Eastern areas, toward Canoe Creek, are generally covered with virgin timber. Much of the surveyed area is marked by low rounded hills with the lower areas comprising mainly swamp land.

### CLAIMS

The property comprises 20 mineral claim units on Graham Island of the Queen Charlotte Islands, Skeena Mining Division. The claim is recorded as follows:

<u>Name</u>	<u>Units</u>	<u>Record No.</u>	<u>Expiry Date</u>
MB14	20	866	December 20, 1983

Assessment work has been filed, this report being part of the work to maintain the claim in good standing until December 1984. The claim is shown on the B.C. Department of Energy, Mines and Petroleum Resources Title Reference Map 103F/9E (Figure 3).





### GENERAL GEOLOGY

The MB14 claim area as mapped by A. Sutherland Brown, Bulletin No. 54, is overlain by Quaternary Sediments overlying the Skonun Formation of mudstones, sandstones and conglomerates. This formation is believed to unconformably overlie the Masset Formation of subaerial basalt flows, rhyolite ash flows, and some dacite where it laps onto this formation.

Outcrop on the property is poor and limited almost exclusively to creek draws. Much of the survey area is swamp covered and no geological mapping was attempted.

### HISTORY

No previous work has been recorded on the MB14 mineral claim. A geochemical survey, performed by Strato Geological Engineering Ltd. on adjacent claims to the west (the Hook and Kenny) in September 1983, indicated several anomalous values of mercury and antimony on the eastern boundary of those claims.

## INSTRUMENTATION AND SURVEY PROCEDURE

The survey grid was established from the logging road which traverses the west central claim area and was also tied into a survey grid established on the Kenny claim in September 1983. East-west survey lines were compassed and chained at a 50 meter line separation and 25 meter station interval from a north-south baseline.

The VLF-EM survey was conducted with a Sabre Electronic Model 27 receiver. The transmitter station used was NPG, Jim Creek (Seattle), Washington at a frequency of 24.8 KHz and a radiated power of 250 kilowatts. Both dip angle and horizontal field strength measurements were recorded; dip angle measurements were filtered using the Fraser Filter Method to permit presentation of data in a contour map form (Figure 4). The method is well known and fully described in the literature.

Forty-six soil samples were collected from the grid area. Samples were collected on every second line, at intervals of 100 meters. All samples were analysed for mercury and gold by the atomic absorption (AA) method.

Graphical techniques were used to establish background and anomalous values for the samples collected. Due to limited

sample numbers, statistical results were compared to survey results from properties in the immediate area. Background and anomalous values established for the MB7 claim are considered valid for the area.

## DISCUSSION OF RESULTS

### VLF-EM Survey

Survey results have indicated numerous very weak to weak electromagnetic conductive zones. Most of these conductors can be related to the creeks and wet, swampy ground within the survey area.

No significantly strong conductive zones which might be related to geological structure can be interpreted from the VLF electromagnetic method in this area.

### Geochemical Results

Histogram plots show mercury values of greater than 600 ppb to be anomalous on this survey grid. Only one value, 1000 ppb mercury is present at line 1+00S, 2+00E on the grid.

All 46 gold analyses gave background values of 5 ppb.

CONCLUSIONS AND RECOMMENDATIONS

The VLF electromagnetic survey has outlined a number of weak to very weak conductive zones within the survey grid area. In most cases these zones are associated with small creeks and/or low, swampy areas and are not interpreted to represent any geological features.

A single anomalous mercury value is found within swampy ground at line 1+00S, 2+00E. A few closely spaced soil samples should be taken from the immediate area to confirm and outline a possible anomalous zone here.

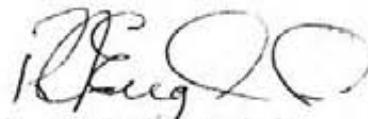
Expansion of the soils geochemistry grid both to the north and south is recommended. The depth penetrations of VLF-EM in wet, conductive ground is limited and prevents any geological interpretation of outlined conductive zones. A lower frequency EM system (CEM Shootback or the JENIE system) may prove useful in defining any faults or shear zones in this area.

Respectfully submitted,  
Strato Geological Engineering Ltd.



N. J. Hulme, B.Sc.  
Geologist

February 28, 1984



R. J. Englund, B.Sc.  
Geophysicist

REFERENCES

- Pond, M. (1983)  
Assessment Report, Geophysical and Geochemical Soil Survey on  
the Hook and Kenny Claims, Queen Charlotte Islands, B.C.;  
Strato Geological Engineering Ltd., Vancouver, B.C.
- Sutherland Brown, A. (1968)  
Geology of the Queen Charlotte Islands, Bulletin No. 54,  
B.C. Department of Energy, Mines and Petroleum Resources.

CERTIFICATE

I, NIGEL J. HULME, of the City of Vancouver, Province of British Columbia, hereby certify as follows:

1. I am a Consulting Geologist with offices at 103 - 709 Dunsmuir Street, Vancouver, B. C., Canada.
2. I graduated with a degree of Bachelor of Science, Geology, from Carleton University, Ottawa, Ont. in 1982.
3. I have worked as a Geological Assistant each summer from May 1980 with the Ontario Geological Survey, Gold Fields Mining Corporation, and St. Joe Canada Incorporated.
4. I have worked as a Geologist in Canada since December 1982.
5. I have no direct, indirect, or contingent interest in the securities of R. Calabrigo & Associates, or the MB 14 Mineral Claim, nor do I expect to receive any such interest.

Dated at Vancouver, Province of British Columbia, this 28 th day of February, 1984.

*Nigel Hulme*

N. J. Hulme, B.Sc.



CERTIFICATE

I, Ralph J. Englund, of 1112 Grover Ave., Coquitlam, British Columbia, do hereby certify as follows:

1. I am a Consulting Geophysicist with offices at 103 - 709 Dunsmuir Street, Vancouver, B. C. V6C 1M9
2. I graduated in 1971 from the University of British Columbia, with a degree of Bachelor of Science.
3. I have been engaged in the study, teaching, and practice of exploration geophysics continuously for a period of 11 years. I have worked as a geophysical consultant on numerous projects in Western North America since 1972.
4. I am a member in good standing of the British Columbia Geophysical Society.
5. The field work and the interpretation of results in this report were done under my direct supervision.
6. I have no direct, indirect, or contingent interest in the properties of R. Calabrigo & Associates, nor do I expect to receive any such interest.

Dated at Vancouver, Province of British Columbia, this 28th day of February, 1984.



R.J. Englund, B.Sc.

## TIME-COST DISTRIBUTION

The claim towards which work is being applied with this report consists of the MB14 (866) mineral claim. This report describes the VLF-EM and geochemical soils survey work conducted on the claim by Strato Geological Engineering Ltd. during the period December 16 to December 20, 1983.

A listing of personnel and a distribution of costs is as follows:

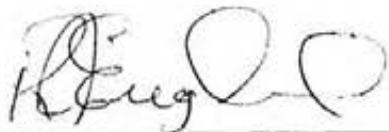
### Personnel

N. Hulme, B.Sc.	Geologist
J. Gibson	Geophysical Technician

### Cost Distribution

Labour (Linecutting, Survey Grid, Geophysics and Soil Sampling)	\$1,312.50
Transportation - Crew Cab Truck (incl. gas, oil, etc.)	215.00
Mob-Demobilization Cost - Air Fare, etc. (proportionate)	299.28
Room and Board	385.00
Equipment - VLF-EM and Field Supplies	140.00
Geochemical Analysis	448.50
Maps and Report - Drafting, Reproduction, Copying, etc.	425.00
Report - Data Reduction and Interpretation	<u>1,300.00</u>
Total	<u>\$4,525.28</u>

Signed \_\_\_\_\_



Strato Geological Engineering Ltd.

A P P E N D I X   A

### GEOCHEMICAL ASSAY CERTIFICATE

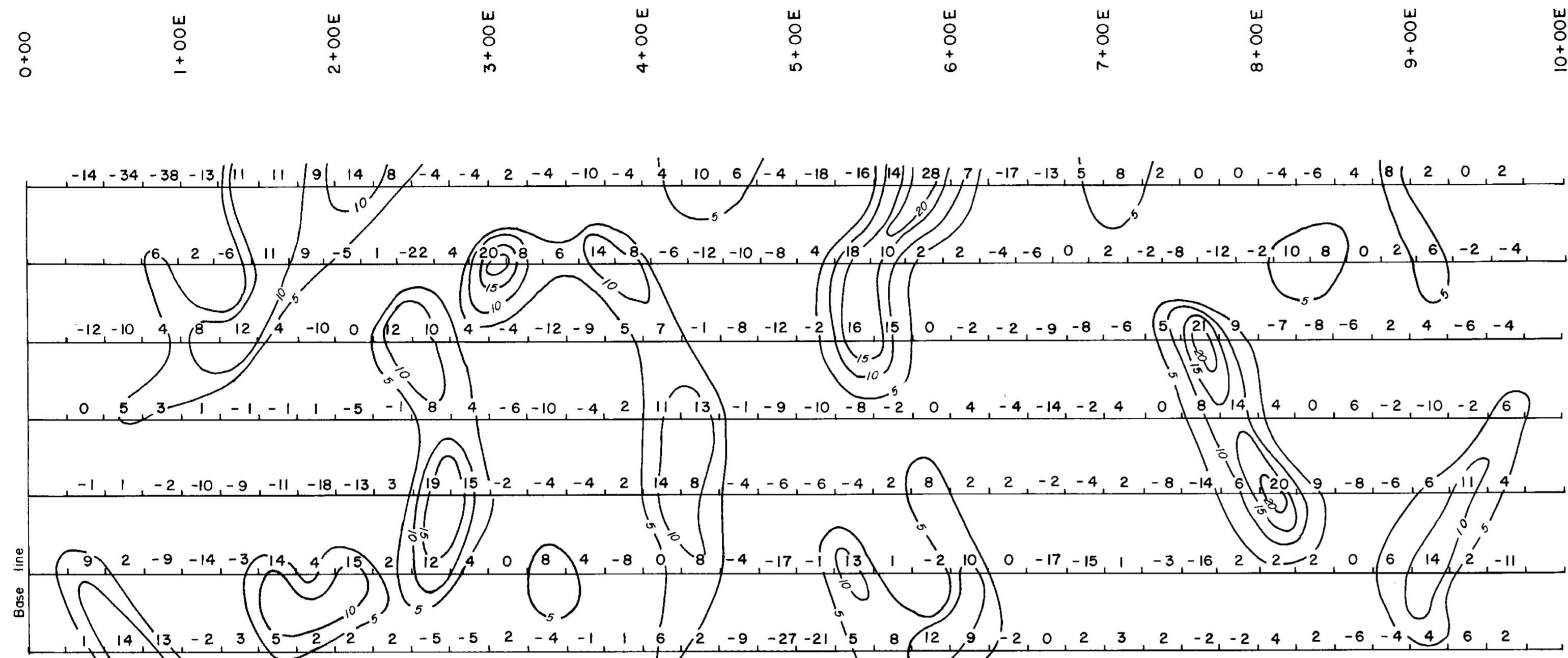
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AU\* - 10 GM, IGNITED, HOT AQUA REGIA LEACH MIBK EXTRACTION, AA ANALYSIS.  
HG - STANDARD BASE METAL DIGESTION, COLD VAPOUR REDUCTION AA ANALYSIS.

ASSAYER *D. J. [Signature]* DEAN TOYE, CERTIFIED B.C. ASSAYER

STRATO GEOLOGICAL GROUP - MB-14 PROJECT # 585 FILE # 84-0019 PAGE# 6

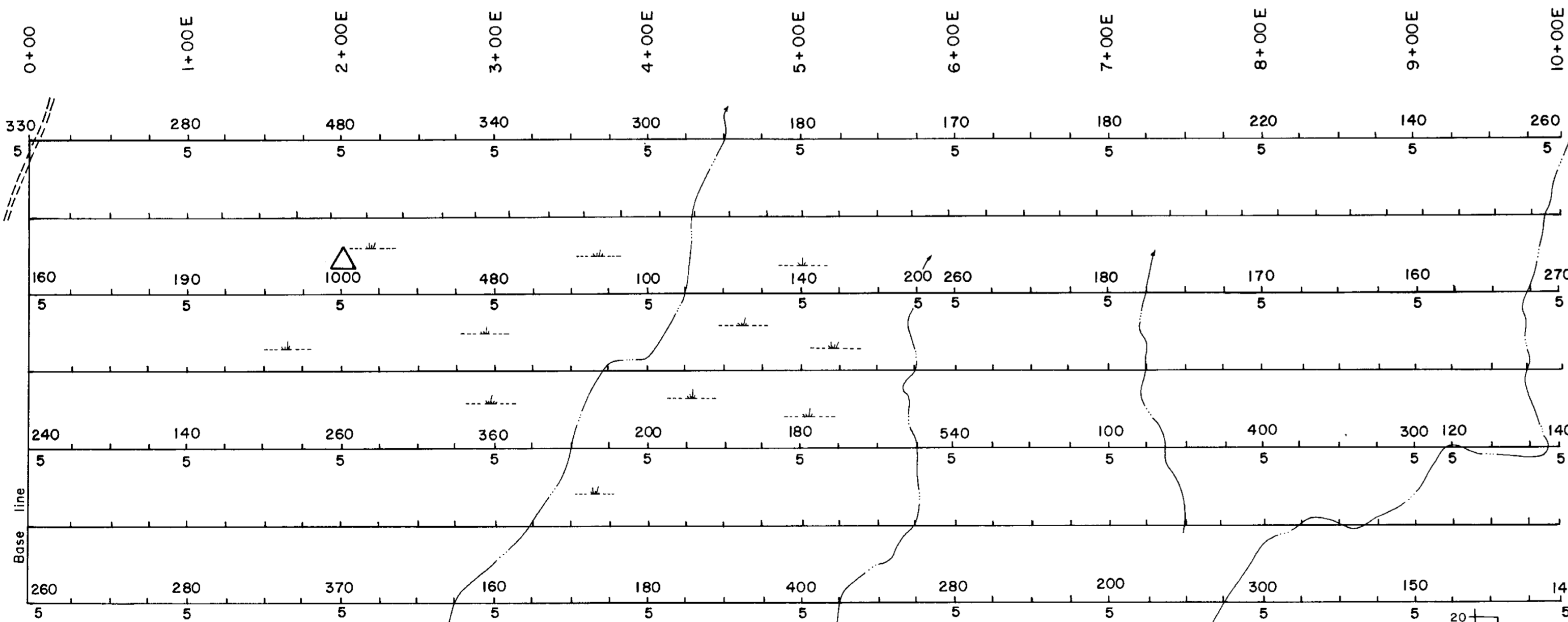
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1E 0S	280	5
2E 0S	480	5
3E 0S	340	5
4E 0S	300	5
5E 0S	180	5
6E 0S	170	5
7E 0S	180	5
8E 0S	220	5
9E 0S	140	5
10E 0S	260	5
0E 1S	160	5
1E 1S	190	5
2E 1S	1000	5
3E 1S	480	5
4E 1S	100	5
5E 1S	140	5
5+75E 1S	200	5
6E 1S	260	5
7E 1S	180	5
8E 1S	170	5
9E 1S	160	5
10E 1S	270	5
0E 2S	290	5
1E 2S	140	5
2E 2S	260	5
3E 2S	360	5
4E 2S	200	5
5E 2S	180	5
6E 2S	540	5
7E 2S	100	5
8E 2S	400	5
9E 2S	300	5
9+25E 2S	120	5
10E 2S	140	5

SAMPLE	HG PPB	AU* PPB
3S 0E	260	5
3S 1E	280	5
3S 2E	370	5
3S 3E	160	5
3S 4E	180	5
3S 5E	400	5
3S 6E	280	5
3S 7E	200	5
3S 8E	300	5
3S 9E	150	5
3S 10E	140	5



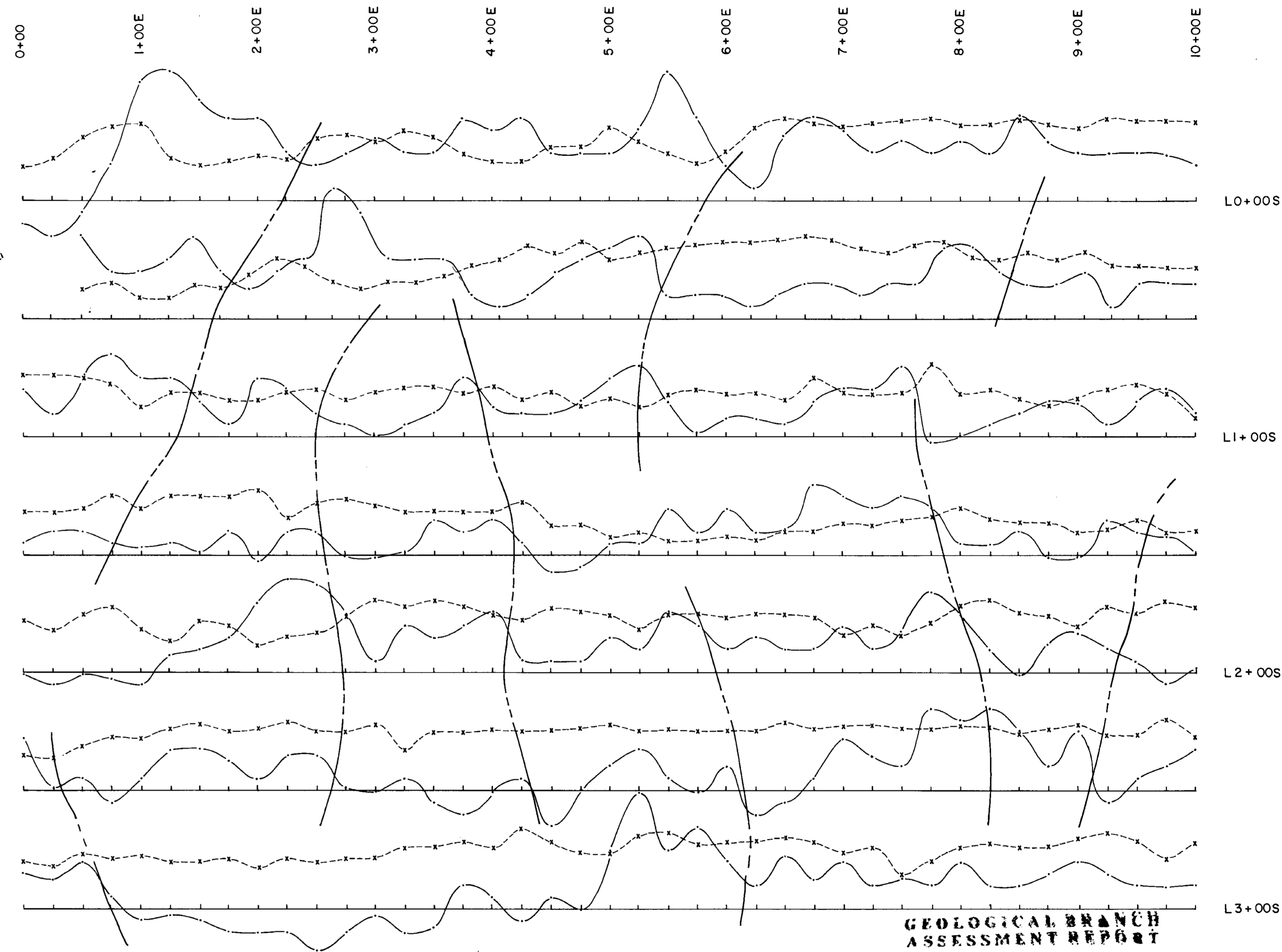
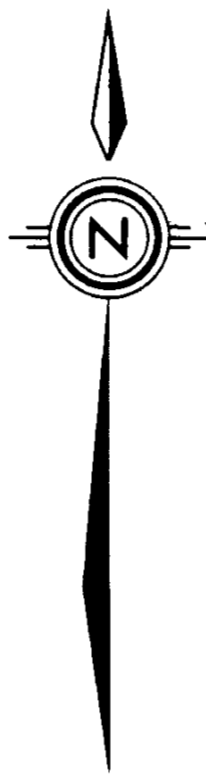
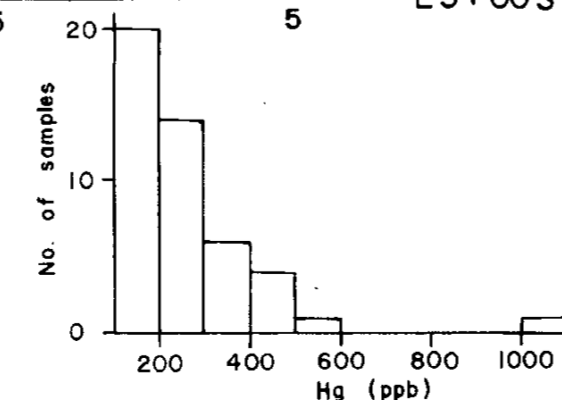
-3 0 2  
Fraser filter data plotted  
Contour interval 5

VLF-EM FRASER FILTER DATA



480 Hg ppb  
5 Au ppb  
△ ≥ 1650 Highly anomalous Hg  
△ ≥ 600 < 1650 anomalous Hg

SOIL GEOCHEMISTRY ( Au, Hg )



NOTES:

- VLF-EM instrument: Sabre Electronics Model 27 Receiver
- VLF-EM transmitter: NPG Jim Creek; frequency 24.8 KHz

- Road
- Creek
- Swamp

VLF-EM PROFILE PLOT PLAN

60%  
40%  
20%  
Field-strength scale

+5°  
-5°  
Dip-angle scale

--- Weak VLF-EM conductor

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11,957  
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FIGURE 4

MB 14 CLAIM  
SKEENA M.D., QUEEN CHARLOTTE ISLANDS, B. C.

VLF-EM SURVEY &  
SOIL GEOCHEMISTRY

100 50 0 100 m

To accompany a report by N. J. HULME  
STRATO GEOLOGICAL ENGINEERING LTD.

DRAWN BY: NJH/SG DATED: FEB. 28, 1984

