

ASSESSMENT REPORTS

105-B-1,
 MAP No. 105-A-4 TYPE OF WORK: Turam Electromagnetic Survey

REPORT FILED UNDER	Roxwell River Mines Ltd.	
DATE PERFORMED	Jan. 4 - Jan 2 nd , 1971	DATE FILED: FEB 15/71
LOCATION - LAT.	60° 08' N	About 80 miles west of Watson Lake
LONG.	130° 00' W	
CLAIM Nos.	CLX 14, 15	CLX 18 - 24
	OND 5 - 10	
	OND 37 - 42	
	OND 69 - 75	
WORK DONE BY	P. J. Fominoff, B.A. Sc. & Jon G. Baird, B.Sc., P. Eng.	
WORK DONE FOR	This report reviews earlier reported work of Turam Survey and diamond	
REMARKS	drilling in early 1971 and describes the work of the 1971 field season.	
	Magnetometer surveys. soil geochemical surveys were carried out.	
	Trenching near Gossan Lake exposed schalerite in stratiform skarn.	

J.W. Copy -

REPORT ON
A TURAM ELECTROMAGNETIC SURVEY
WATSON LAKE AREA, YUKON TERRITORY
ON BEHALF OF
BOSWELL RIVER MINES LTD.

by

P. J. Fominoff, B.A.Sc.

&

Jon G. Baird, B.Sc., P.Eng.

February 15, 1971

CLAIMS:

Name

LUX 14, 16
LUX 18 - 24
OMO 5 - 10
OMO 37 - 42
OMO 69 - 75

LOCATION:

About 80 miles west of Watson Lake, Yukon Territory
Watson Lake Mining Division
130° W 60° E N SW

DATES:

January 4 to January 28, 1971

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(in envelope)	
Plate 2 - Interpretation Claims and Survey Grid	1" = 400'
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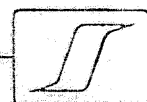


SUMMARY

The present Turam electromagnetic survey has revealed high background responses typical of low resistivity overburden or bedrock.

Nine electromagnetic conductors some with associated magnetic correlation have been distinguished. The resistivity/thickness ratios of the conductors are within the range normally expected for massive sulphides or graphite.

If geological opinion is such that diamond drilling of conductors with associated ground magnetic correlation appears warranted, the locations for two drill holes, each 450' in length, are herein given. More drill holes could be recommended on the basis of the present data if the results of the first two holes warrant further drilling.



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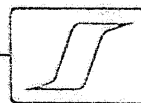
INTRODUCTION

During the period from January 4 to January 28, 1971, a geophysical field party executed a Turam electromagnetic survey in the Watson Lake area, Yukon Territory, on behalf of Boswell River Mines Ltd. The field work was under the direction of Mr. Peter Fominoff, B.A.Sc. and Mr. Peter Werder, both experienced geophysical operators on the staff of Seigel Associates Limited.

As shown on Plate 1, the survey area is located about 80 miles west of Watson Lake. The topography of the property is hilly and covered by glacial overburden. Deep snow and extremely cold weather extended the duration of the survey.

The claims covered in whole or part by the present survey are listed on the front of the report and are shown on Plate 2, on the scale of 1" = 400'.

The Turam fixed source compensation method was chosen for the electromagnetic survey since, in comparison with other electromagnetic techniques, it is relatively unaffected by orientation errors caused by rough topography, provides deep penetration and allows accurate interpretation of anomaly characteristics. The attached copy of a paper by R. A. Bosschart and H. O. Seigel entitled "Some Aspects of the Turam Electromagnetic Method" describes the equipment, the field procedures, the nature of results and the interpretative procedures involved in this type of survey.



Electromagnetic methods detect massive sulphide bodies by means of measurement of the secondary electromagnetic field produced by eddy currents induced by a transmitted or primary electromagnetic field. The Turam method employs a large closed loop of wire as transmitter, while the field strength ratio and phase difference at two nearby observation points are measured by means of two receiver coils.

The presence of a subsurface conductor will be indicated by abnormal field strength ratios and phase differences. A typical anomaly will show a correspondence between high values of the field strength ratio and negative phase differences. The depth of burial of the current axis is reflected in the shape of the anomaly, and the ratio of the maximum amplitudes of field strength and phase is a measure of the resistivity/thickness (r/d) ratio of the body.

Approximately 15.3 line miles of profile were covered. Readings were taken every 100' along lines oriented in a northerly direction on two adjacent grids as illustrated on Plate 2.

A Scintrex SE-71 instrument was employed with a receiving coil separation of 100'. Six transmitting loops approximately 3000' by 4000' were used. The locations of their leading edges are shown on Plate 3. The loops were energized mainly with 200 Hz current but some readings were also taken with 400 Hz energization.

GEOLOGY

The regional geology of the area including the present property is shown on the Geological Survey of Canada Map 10-1960, Wolf Lake, Yukon Territory. Discussions about the geology were also held with H. Wober of MacDonald Consultants Ltd.



Much of the survey area is covered by Pleistocene to Recent glacial till. The underlying rocks could include Paleozoic slates and phyllites, grey limestone and minor dolomite as well as greenstones and chlorite schists. It is also possible that the northern part of the survey grid extends over onto the acidic intrusive rocks of the Cassiar Batholith. Regional faults have been mapped as traversing the survey grid subparallel to the baselines.

Sedimentary rocks such as schists and phyllites and faults filled with conductive gouge may all produce electromagnetic responses which may be difficult to distinguish from sulphide mineralization.

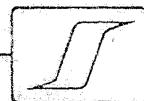
This survey was undertaken as a ground follow-up to locate conductors detected by a recently completed air electromagnetic and magnetic survey which is discussed in a report by R. O. Crosby of Seigel Associates Limited dated November 29, 1970. A ground magnetometer survey carried out by MacDonald Consultants Limited was made available to the writers.

DISCUSSION OF RESULTS

Plate 2 is a grid and claim map on a scale of 1" = 400' showing the interpreted locations of the most important conductor axes.

Plate 3 shows the results of the electromagnetic survey on the scale of 1" = 400'. The parameters plotted in profile form are the field strength ratios on a scale of 1" = 40% and the phase differences on a scale of 1" = 20°. Symbols, explained in the legend, have been used to indicate the relative definition of the conductor axis intersections.

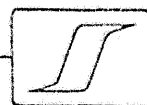
Except for the north ends of lines 16 W through 84 W where the profiles have very near normal non-conductive response, field strength



ratios up to 120% and negative phase shifts up to -10° are common over the property. The generally high background readings are interpreted to originate from overburden and/or bedrocks of low resistivity. In addition to giving rise to abnormal responses, such conductors affect the primary electromagnetic field so that the length of traverses is reduced.

Nine conductors, all exhibiting above background conductivity, have been defined. Their conductor axes are shown on Plate 2. All of the defined conductors have resistivity/thickness ratios within the range normally expected for massive sulphides or graphite. The conductors are described in the following table:

<u>Conductor</u>	<u>Minimum Length Ft.</u>	<u>r/d ratio ohm-cm/m</u>	<u>Depth to current Axis - Ft.</u>	<u>Correlation with other Geophysical Parameters</u>
✓ A	1600	2	250	-within ground magnetic high -coincident with Air EM conductor
✓ B	1100	2.8	200	-within ground magnetic high
C	2000	2.8	200	-coincident with Air EM conductor -no correlation with ground magnetics
✗ D	2000	1.4	150	-coincident with Air EM conductor -follows magnetic contours
E	750	0.2	150	-coincident with Air EM conductor -no corresponding ground magnetic correlation
F	2400	2.4	250	-no other definite geophysical correlation
G	3700	2	230	-generally follows ground magnetic contours



<u>Conductor</u>	<u>Minimum Length Ft.</u>	<u>r/d ratio ohm-cm/m</u>	<u>Depth to current Axis - Ft.</u>	<u>Correlation with other Geophysical Parameters</u>
H	3700	4	150	-generally follows ground magnetic contours
I	1500	1.4	200	-generally follows ground magnetic contours

Conductors A and B are thought to be the best targets for diamond drilling since they have magnetic correlation and may therefore contain magnetite and/or phrrhotite. Neither of the conductors is completely delimited and both may be considerably longer than stated in the table.

Both the ground magnetic low and the low electromagnetic responses at the northern ends of the survey lines suggest that the northern edge of the grid may be underlain by an intrusive formation probably of the Cassiar Batholith as shown on the Wolf Lake geology map. It is possible that conductors D and H are at the contact between the sediments and the intrusive.

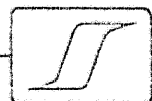
CONCLUSIONS AND RECOMMENDATIONS

The present Turam electromagnetic survey has revealed high background responses typical of low resistivity overburden or bedrock.

Nine electromagnetic conductors within the massive sulphide or graphite conductivity range have been distinguished.

If geological evidence warrants diamond drilling of any of these conductors, A and B would appear to be optimum from the present results. Two initial drill holes are recommended.

<u>COLLAR</u>	<u>ANGLE</u>	<u>DIRECTION</u>	<u>MINIMUM LENGTH</u>
L 48 W, 6 + 00 S	-45°	Northerly along grid line	450'
L 52 E, 9 + 50 N	-45°	Northerly along grid line	450'



Further drilling would depend upon the results of the first two holes, but more drill holes either on conductors A and B or on any of the others could be recommended on the basis of the present data.

Respectfully submitted

SEIGEL ASSOCIATES LIMITED

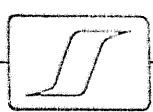
Petr J. Fominoff

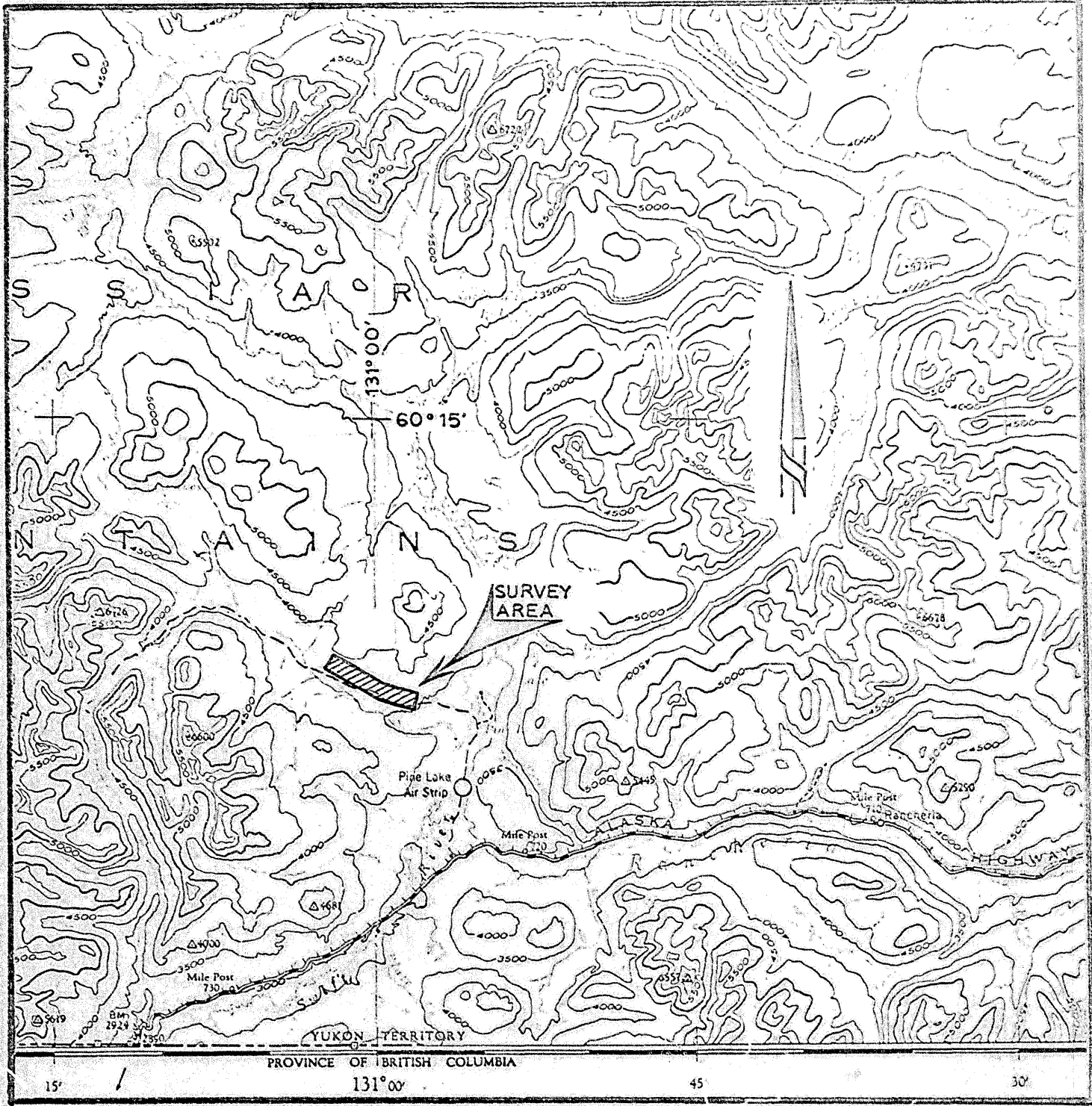
P. J. Fominoff, B.A.Sc.
Geophysicist

Jon G. Baird

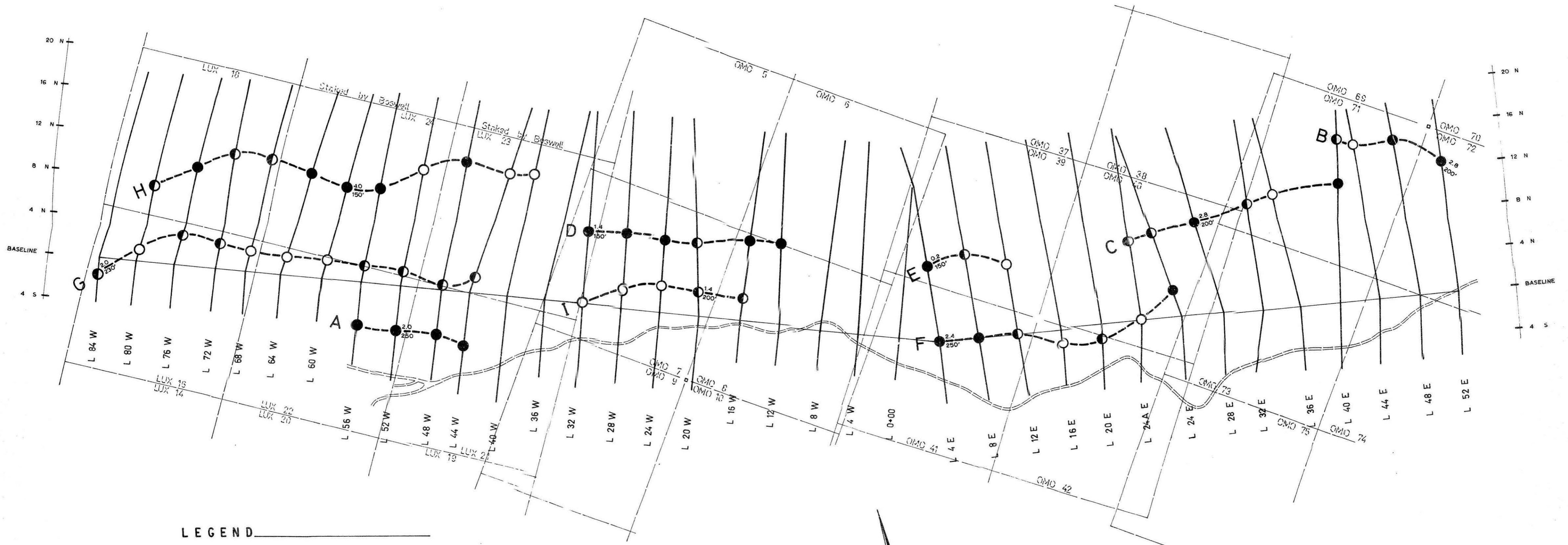
Jon G. Baird, B.Sc., P.Eng.
Consulting Geophysicist

Vancouver, B. C.
February 15, 1971





BOSWEL RIVER MINES		
<h2 style="margin: 0;">LOCATION MAP</h2> <p style="margin: 0;">Swift River Project</p>		
SWIFT RIVER AREA - YUKON TERRITORY		
4 miles 0 4 miles		
Survey by SEIGEL ASSOCIATES LTD. January 1971	PLATE 1	



LEGEND

- GRID LINES
- ROAD
- WELL DEFINED CONDUCTOR AXIS INTERSECTION
- LESS WELL DEFINED CONDUCTOR AXIS INTERSECTION
- LEAST DEFINED CONDUCTOR AXIS INTERSECTION
- T/d ratio in ohm - cm/m
depth in feet
- CONDUCTOR AXIS INTERSECTION
INTERPRETED CONDUCTOR AXIS



PLATE 2

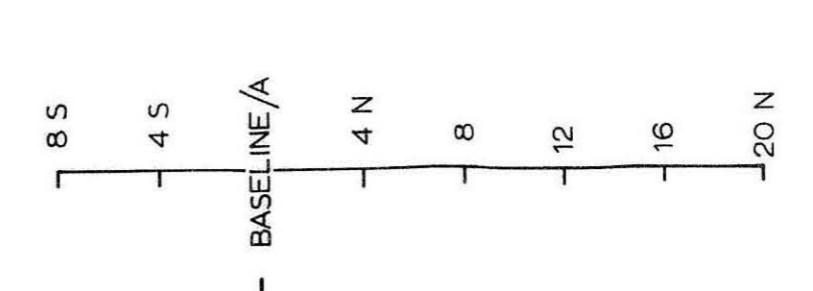
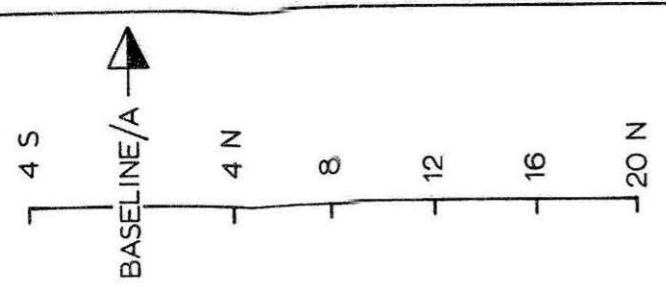
BOSWELL RIVER MINES LTD.
SWIFT RIVER PROPERTY, YUKON TERRITORY

TURAM ELECTROMAGNETIC SURVEY
INTERPRETATION
CLAIMS AND SURVEY GRID

SCALE: 1 inch = 400 feet

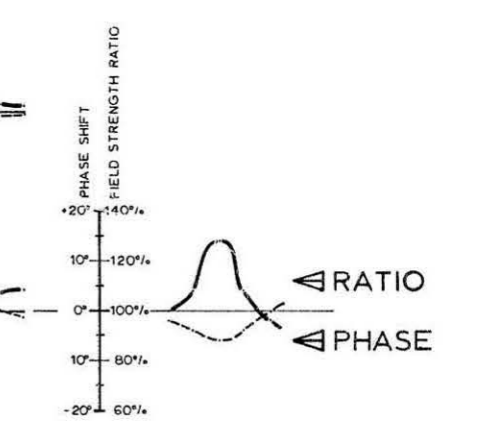
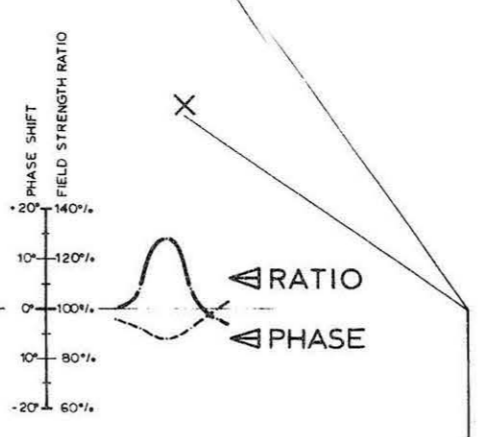
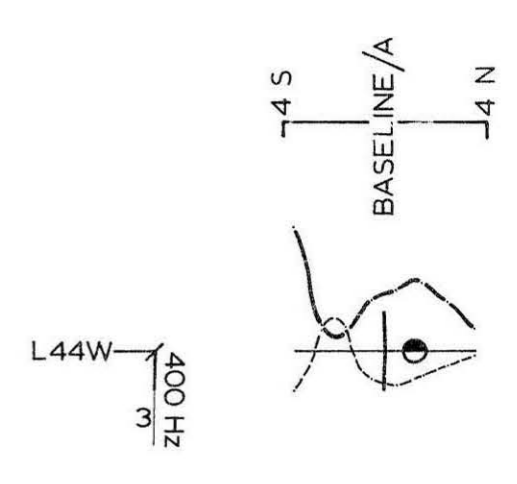
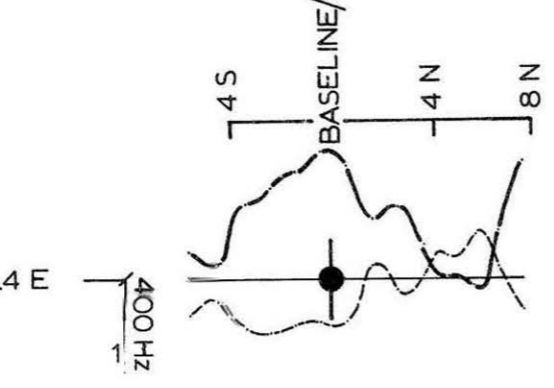
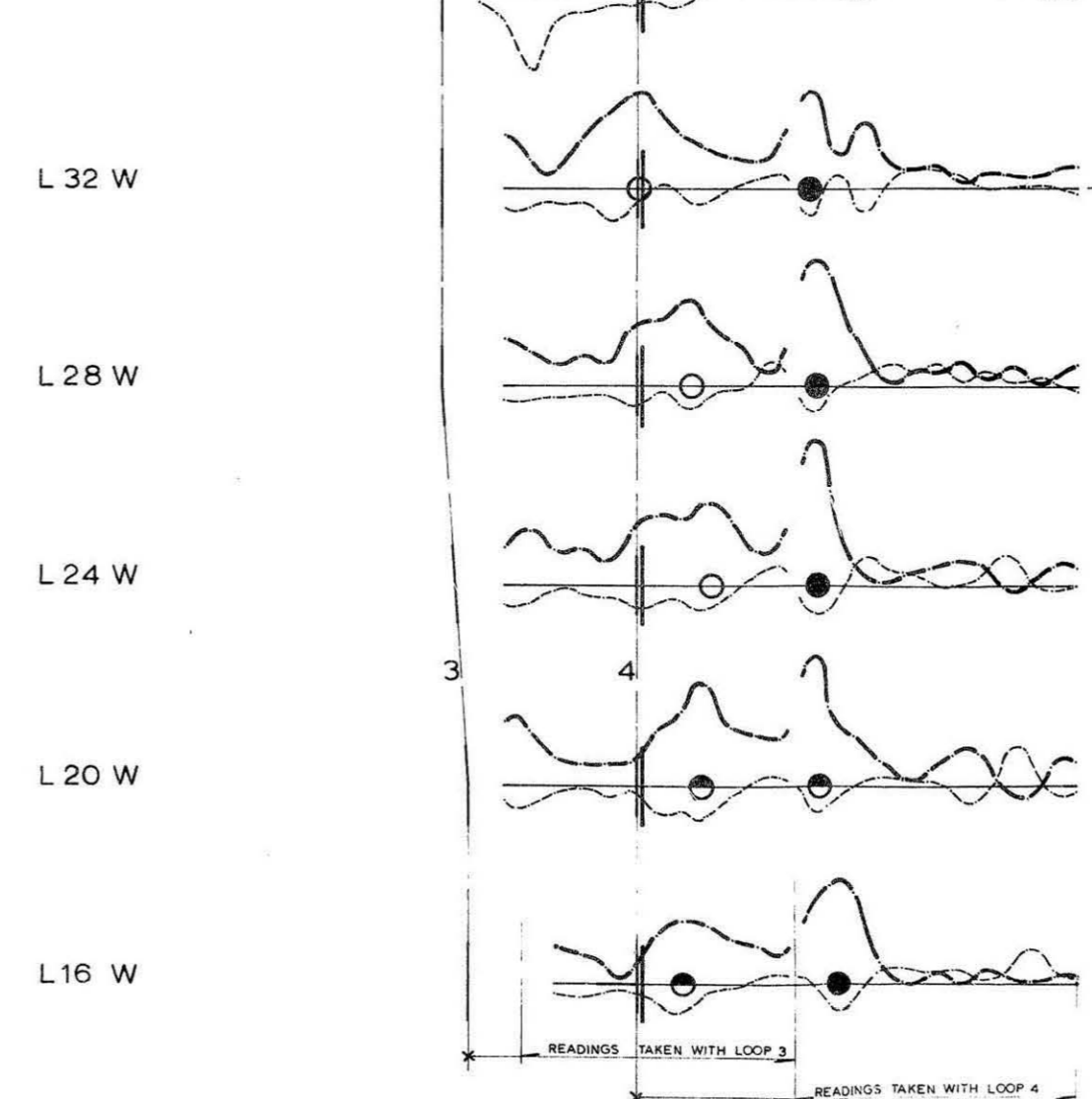
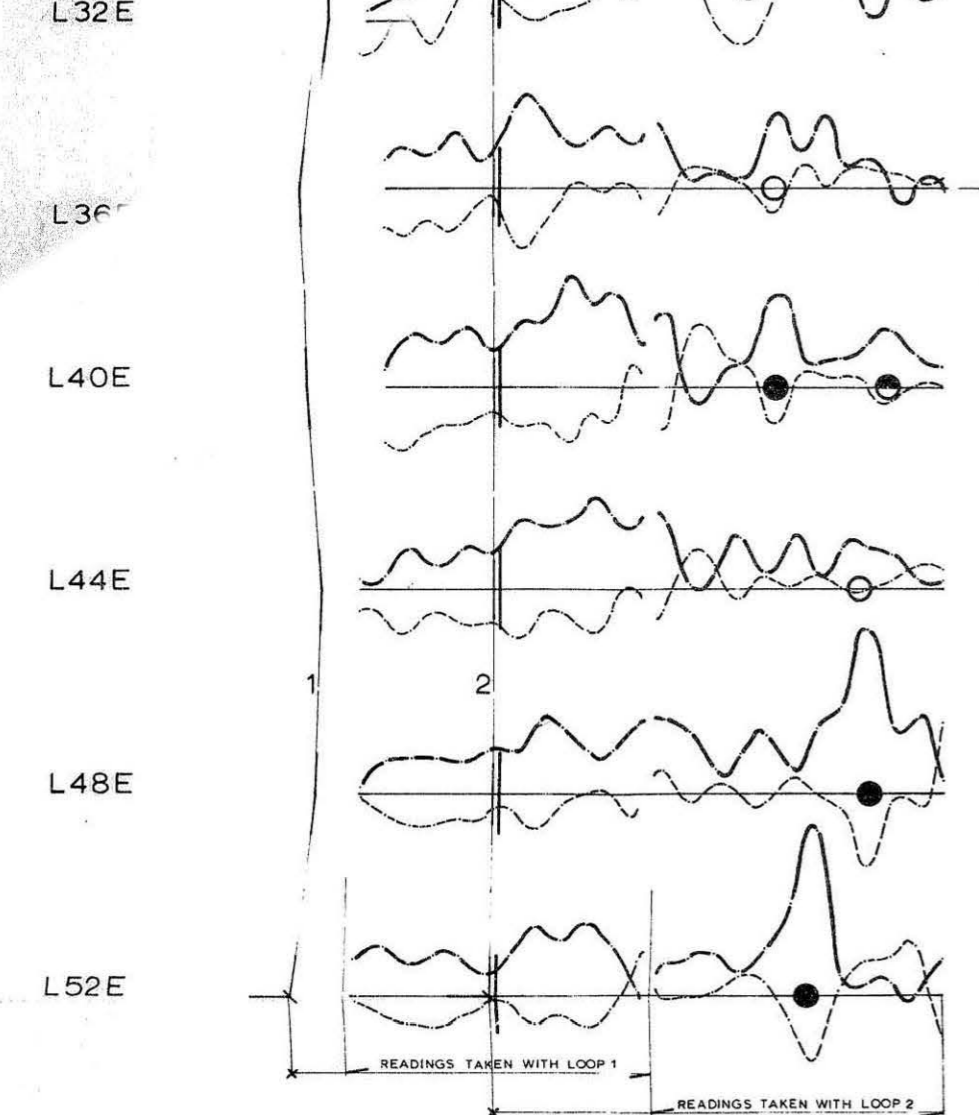
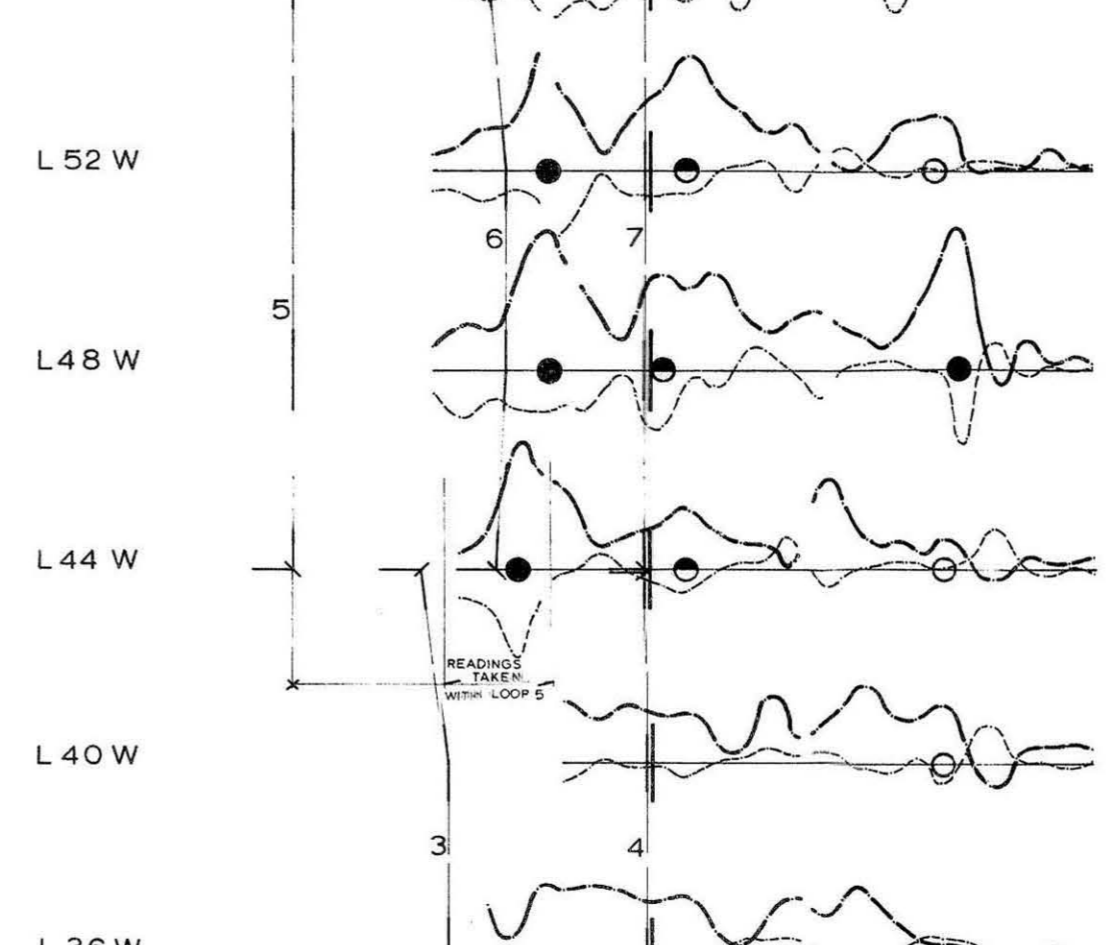
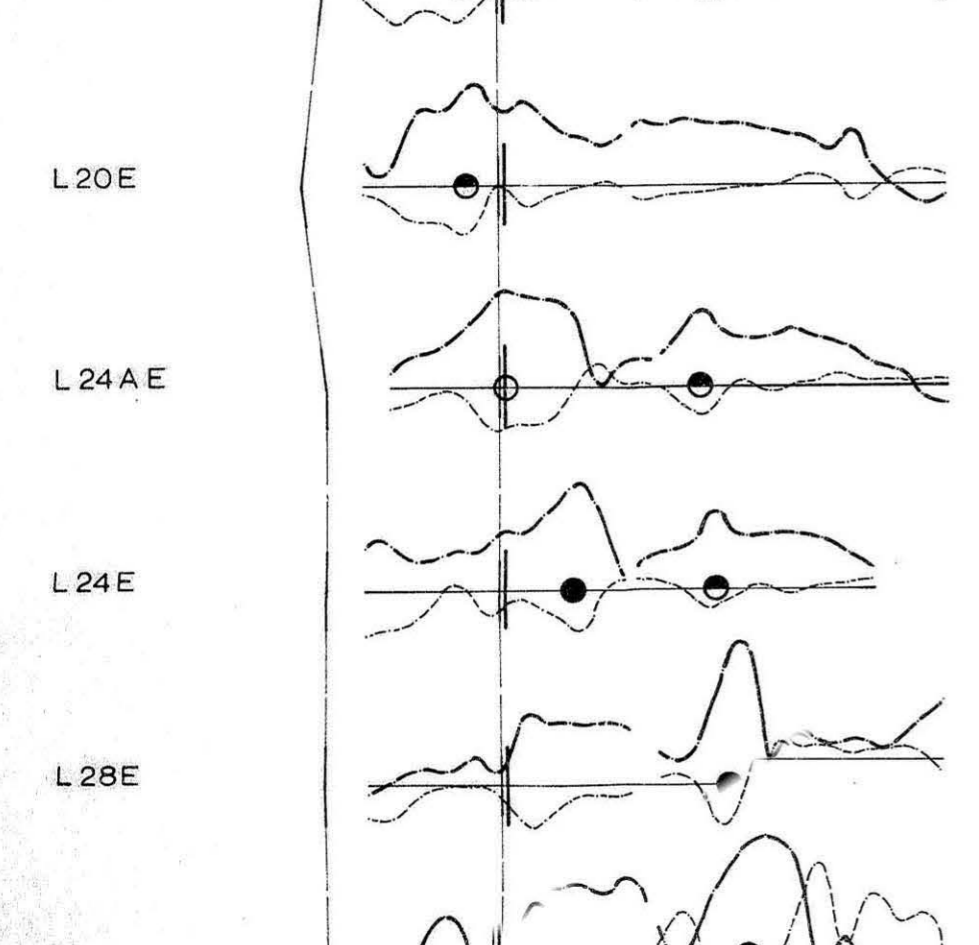
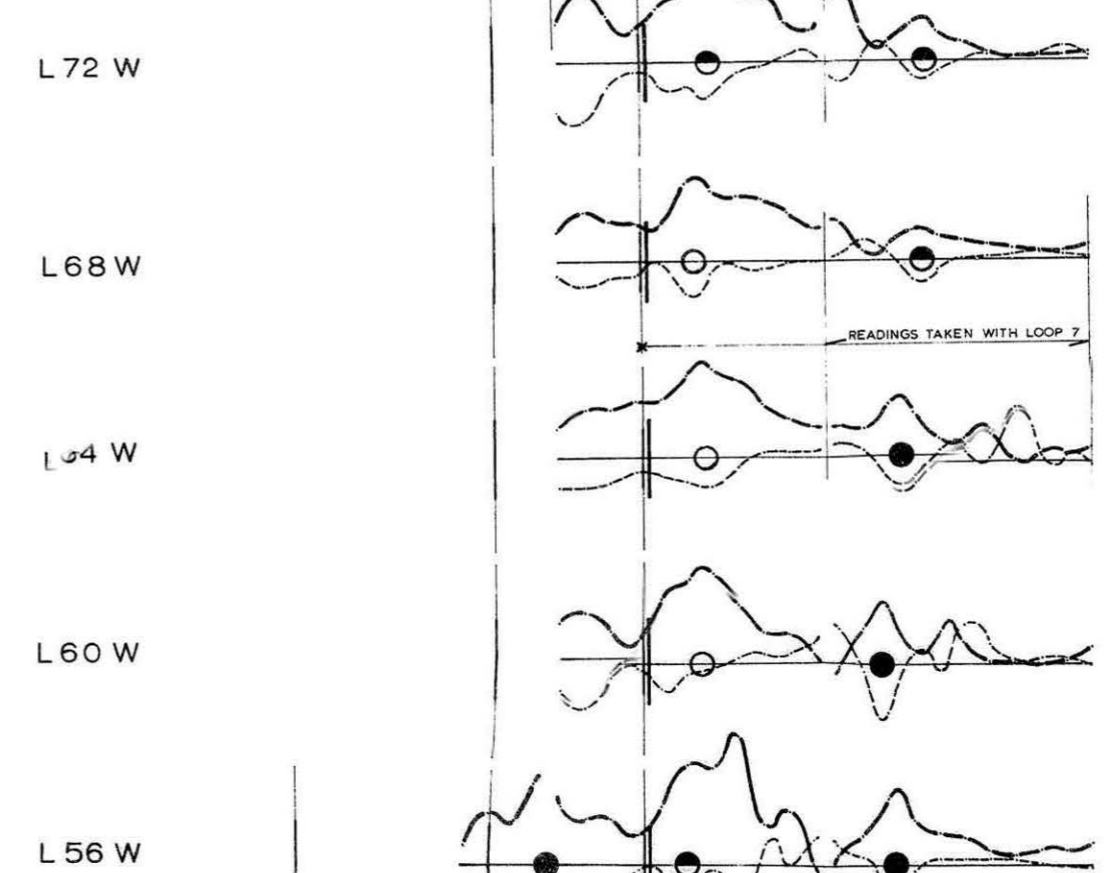
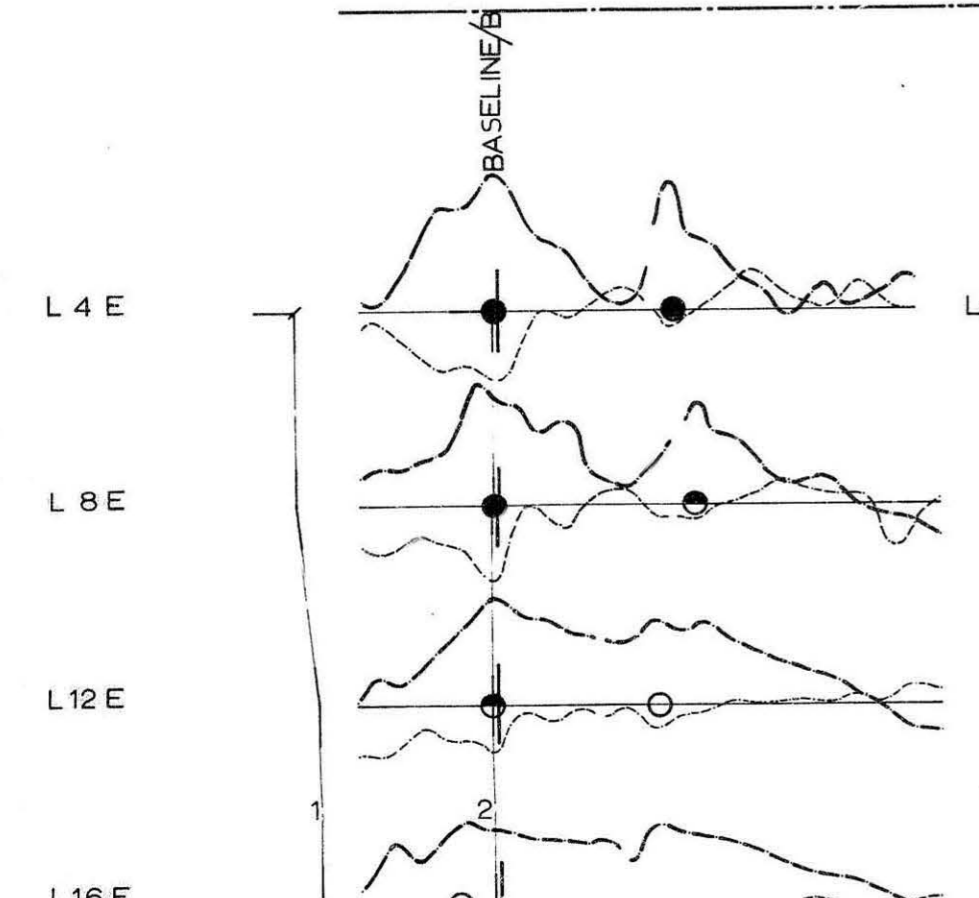
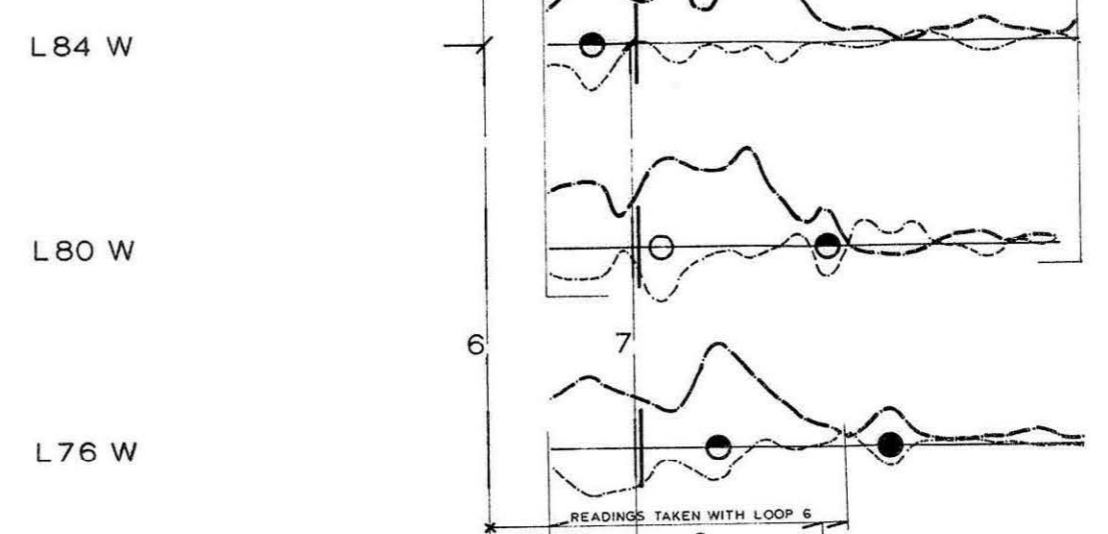
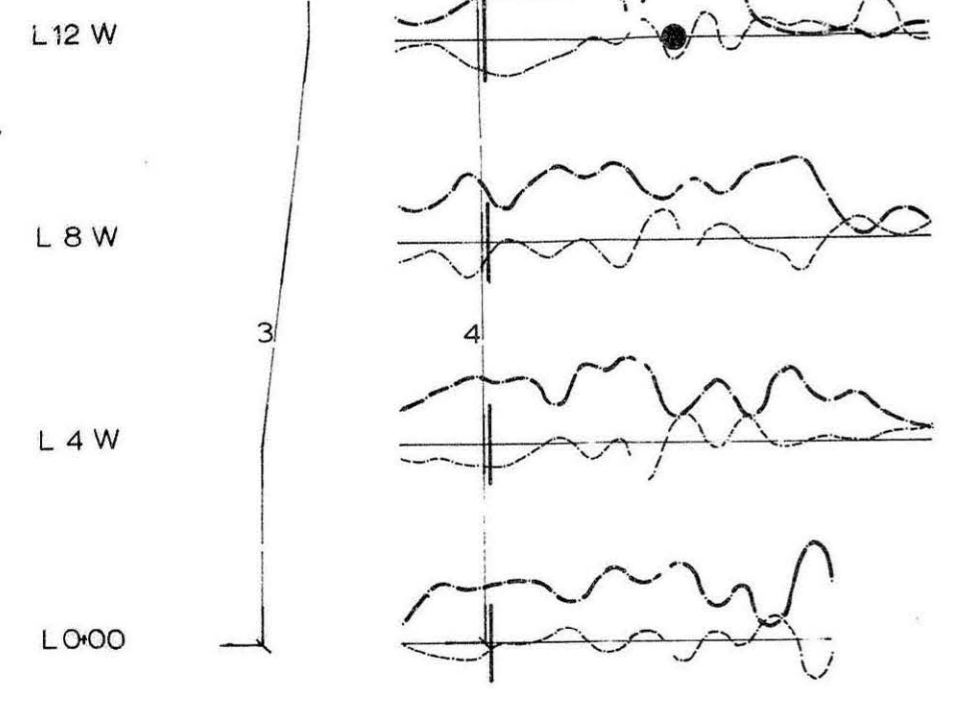
400 feet 0 400 800 feet

SURVEY BY SEIGEL ASSOCIATES LIMITED JANUARY 1971



PROFILES LOOKING WEST 20° NORTH

PROFILES LOOKING WEST 10° NORTH



- LEGEND**
- WELL DEFINED CONDUCTOR AXIS INTERSECTION
 - ◐ LESS WELL DEFINED CONDUCTOR AXIS INTERSECTION
 - LEAST DEFINED CONDUCTOR AXIS INTERSECTION
 - LEADING EDGE OF TRANSMITTING LOOP

- NOTES**
- 100' RECEIVING COIL SEPARATION
 - READINGS TAKEN WITH 200 Hz UNLESS INDICATED OTHERWISE
 - INTERLINE SPACING NOT TO SCALE

PLATE 3

BOSWELL RIVER MINES LTD.
SWIFT RIVER PROPERTY, YUKON TERRITORY

TURAM ELECTROMAGNETIC SURVEY

SCALE: 1 inch = 400 feet

SURVEY BY SEIGEL ASSOCIATES LIMITED JANUARY 1971