86-1028-15506

GEOPHYSICAL REPORT

ON A

VLF-EM SURVEY

OVER A PORTION OF THE

AC CLAIM

KIRBY CREEK, MERRITT AREA

NICOLA MINING DIVISION

BRITISH COLUMBIA

Owner: Eugene Dodd

PROPERTY		: 24 km N30°E of Merritt, B.C. on Kirby Creek : 50° 16' North Latitude 120° 40' West Longitude : N.T.S. 92I/7E
WRITTEN FOR	Operator	: TRANS-ARCTIC EXPLORATIONS LTD. #815-850 West Hastings Street Vancouver, B.C. V6C 1E2
SURVEYED BY		: TRANS-ARCTIC EXPLORATION #815-850 West Hastings Vancouver, B.C., V6C 1E
WRITTEN BY		: David G. Mark, Geophysi GEOTRONICS SURVEYS LTD. #530-800 West Pender St Vancouver, B.C., V6C 2V
DATED		: March 19, 1987

GEOTRONICS SURVEYS LTD.
Engineering & Mining Geophysicists
VANCOUVER, CANADA

15506

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SUMMARY

A VLF-EM survey was carried out over a portion of the AC claim during December, 1986. The property is located 24 km N30°E of Merritt, British Columbia, on Kirby Creek. Access to the property is easily gained by a two-wheel drive vehicle. The terrain consists of gentle to moderate slopes covered with light to moderately dense coniferous trees. The purpose of the survey was to map geological structure which could be related to gold-silver-sulphide mineralization as is found on the nearby Swakum Mountain deposits.

The property is underlain by sediments and volcanics of the Upper Triassic Nicola Group. The nearest known intrusives are granite-type rocks of the north-trending Central Nicola batholith occurring about 5 km to the east and those of the Guichon Creek batholith occurring about 11 km to the west. The property is located on Swakum Mountain which is the location of several sulphide deposits containing gold and silver values and occurring as vein and replacement deposits in limestone and in greenstone. Small shipments of ore from these deposits were made from time to time. Drilling from three holes done on the property in 1967 intersected sulphides occurring as disseminations and replacements in quartz-carbonate altered zones in volcanics and sedimentary Nicola rocks.

The VLF-EM readings were taken every 25 m on 100-meter separated east-west lines. The data were then reduced by Fraser-filtering, plotted and contoured.

CONCLUSIONS

The VLF-EM survey has revealed many north-south conductors that are probably caused by faults, shear zones and/or litholigical contact zones. These are considered to be important to mineral exploration on the AC property.

The VLF-EM survey, however, is very preliminary and further work must therefore be done to help determine the economic potential of the property as well as the causative sources of the VLF-EM conductors.

RECOMMENDATIONS

1) The property should be soil sampled on a 25-meter by 100-meter grid and the samples tested for lead, zinc, silver, copper and tungsten.

2) The VLF-EM survey should be extended over the whole property.

3) Geological mapping and prospecting should be thoroughly carried out over the whole property.

4) As an aid to the geological mapping, a magnetometer survey should be carried out with stations every 25 m on the same grid lines. Magnetics should be able to map rock-types as well as geological structure.

5) Soil anomalies should be tested by resistivity-IP sections to optimize the locations and angles of diamond drill holes.

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INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of data and the interpretation of a VLF-EM survey carried out over a portion of the AC claim during the period of Dec. 3rd to 9th, 1986.

The survey was carried out by Trans-Arctic Explorations Ltd. under the field supervision of Pat Crook, geophysical technician, under the supervision of R.S. Simpson, geophysical technician. A total of 10.5 line km of VLF-EM survey was done.

The primary purpose of the VLF-EM survey was to delineate geological structure such as fault and shear zones that could be related to sulphide deposits containing values in silver and gold as occurs on the nearby Swakum Mountain deposits.

PROPERTY AND OWNERSHIP

The property consists of one 12-unit claim as shown on Map 2 and as described below:

Claim Name	No. Units	Record No.	Expiry Date
AC	12	1664	Dec. 20, 1988

The expiry date shown takes into account the survey under discussion as being accepted for assessment credits.

The property is owned by Trans-Arctic Explorations Ltd. of Vancouver, British Columbia though it is registered by the mining recorder in the name of E.A. Dodd.

LOCATION AND ACCESS

The property is found 24 km N30°E of the City of Merritt, B.C. on Kirby Creek located on the southeast side of Swakum Mountain.

The geographical coordinates are 50° 16' north latitude and 120° 40' west longitude.

Access to the property is by travelling about 12 km northeasterly on Highway #5 to the village of Nicola which is at the west end of Nicola Lake. One then travels northerly about 13 km on a series of logging roads along Clapperton and Kirby Creeks to the southern boundary of the property.

PHYSIOGRAPHY

The property lies at the southern end of the Nicola Plateau which forms part of the physiographic division known as the Thompson Plateau System. The terrain varies from gentle and moderate slopes throughout most of the property to steeper slopes occurring along Kirby Creek.

Elevations vary from 1,450 meters a.s.l. within the southeastern part of the property to 1620 meters a.s.l. within the west central part.

The main water source would be Kirby Creek which crosses the property in southeasterly and southerly directions. A small lake called Dartt Lake occurs 400 m west of the legal corner post.

The forest cover consists of fir, pine and spruce and varies from closely growing, immature stands to widely spaced, mature stands.

HISTORY OF PREVIOUS WORK

The Swakum Mountain deposits were first discovered in 1916 by Oscar A. Schmidt who staked the Lucky Mike, now known as the Last Chance claim. Discovery of the nearby showings were then made, many of them by Schmidt. Exploration work, mostly underground, was carried out throughout the years and small shipments were made from time to time as follows:

Property	Tons	Gold oz.	Silver oz.	Copper lbs.	Lead lbs.	Zinc lbs.
Lucky Mike	26	2	137	1,932	1,753	-
Thelma	89	1	7,419	-	9,683	10,237
Alameda	3	1	52	-	576	-

The AC claim covers what is shown on Cockfield's geology and mineral deposit maps as the "A Group" consisting of gold and silver mineralization. The property in the late '60's was covered by the AC 1 to 6, 9 to 16, 23, and 24 claims. The only known work was three holes drilled totalling 77.7 m (255 feet). The claim was apparently also covered by soil sampling by Hesca Development and the samples tested for copper (Gutrath).

Since the property was staked as the AC claim on December 5, 1985, for E.A. Dodd, no other work has been done.

GEOLOGY

The property occurs within an extensive northerly-trending sequence of sedimentary and volcanic rocks of the Nicola Group which is of Upper Triassic Age. In the area of Swakum Mountain, this sequence is about 14 km wide. The Nicola Group is composed of greenstone; andesite, basalt; agglomerate, breccia, tuff, minor argillite, limestone, and conglomerate.

The closest known intrusives are the Guichon Creek batholith located about 9 km to the west and the Central Nicola batholith located about 5 km to the east. Both of these bodies consist largely of granodiorite and quartz diorite of the Coast Intrusions of Jurassic and (?) later age.

The Swakum Mountain deposits consist of veins, disseminations, and replacements within both limestones and greenstones. The limestones are interbedded within the greenstones more as a series of lenses rather than continuous beds. The deposits consist of minerals of chalcopyrite, pyrrhotite, pyrite, scheelite, galena, sphalerite, and tetrahedrite (not listed in order of abundance) containing values in gold and silver.

Cockfield, as mentioned above, shows the AC claim to contain the "A Group" deposit consisting of silver and gold mineralization. However, the only known mineralization is what was encountered in three diamond drill holes in 1967. In the 1967 and 1968 Annual Report, it is described as sulphides occurring "as disseminations and replacements in quartz-carbonate altered zones in volcanic and sedimentary rocks of the Nicola Group."

INSTRUMENTATION AND THEORY

A VLF-EM receiver, Model 27, manufactured by Sabre Electronic Instruments Ltd. of Burnaby, B.C. was used for the VLF-EM survey. This instrument is designed to measure the electromagnetic component of the very low frequency field (VLF-EM), which for this survey is transmitted at 24.8 KHz from Seattle, Washington.

In all electromagnetic prospecting, a transmitter produces an alternating magnetic field (primary) by a strong alternating current usually through a coil of wire. If a conductive mass such as a sulphide body is within this magnetic field, a secondary alternating current is induced within it which in turn induces a secondary magnetic field that distorts the primary magnetic field. It is this distortion that the EM receiver measures. The VLF-EM uses a frequency range from 16 to 24 KHz, whereas most EM instruments use frequencies ranging from a few hundred to a few thousand Hz. Because of its relatively high frequency, the VLF-EM can pick up bodies of a much lower conductivity and therefore is more susceptible to clay beds, electrolyte-filling fault or shear zones and porous horizons, graphite, carbonaceous sediments, lithological contacts as well as sulphide bodies of too low a conductivity for other EM methods to pick up. Consequently the VLF-EM has additional uses in mapping structure and in picking up sulphide bodies of too low a conductivity for conventional EM

methods and too small for induced polarization. (In places it can be used instead of I.P.). However, its susceptibility to lower conductive bodies results in a number of anomalies, many of them difficult to explain and, thus, VLF-EM preferably should not be interpreted without a good geological knowledge of the property and/or other geophysical and geochemical surveys.

SURVEY PROCEDURE

The survey consisted of 10.5 line km of VLF-EM survey of the property as shown on Maps 3 and 4.

The base line, on a bearing of due north, was extended for 500 m being well flagged with survey flagging. The survey lines were run perpendicular to the base line (east-west) at a 100 m spacing. The instrument readings were taken every 25 m along the survey lines facing towards the transmitter at Seattle.

COMPILATION OF DATA

The VLF-EM field results were plotted on Map 3 at a scale of 1:5,000. They were then reduced by applying the Fraser-filter and subsequently plotted on Map 4 at the same scale. The filtered data were plotted between actual reading stations. The positive dip-angle readings were then contoured at an interval of 4°.

The Fraser-filter is essentially a 4-point difference operator, which transforms zero crossings into peaks, and a low pass smoothing operator which induces the inherent high frequency noise in the data. Therefore, the noisy, non-contourable data are transformed into less noisy, contourable data. Another advantage of this filter is that a conductor that does not show up as a cross-

over on the unfiltered data quite often shows up on the filtered data.

DISCUSSION OF RESULTS

The major cause of the VLF-EM anomalies, as a rule, are geologic structures such as fault, shear and breccia zones. It is therefore logical to interpret VLF-EM anomalies to likely be caused by these structural zones. Of course, sulphides may also be a causative source. But when VLF-EM anomalies correlate with sulphide mineralization, the anomalies are often reflecting the structure associated with the mineralization rather than the mineralization itself.

There is some variation in intensity from one VLF-EM anomaly to the next. This is not only due to the conductivity of a causative source, but also the direction it strikes relative to the direction to the transmitter. In other words, those conductors lying closer to the same direction as the direction to the transmitter (S30W in this case), can be picked up easier than those that are lying at a greater angle. Depending upon its conductivity, a conductor may not be picked up at all if it is at too great an angle.

VLF-EM highs are of particular economic interest since they may be reflecting sulphides, fracturing and/or alteration any of which could be associated with gold-silver mineralization.

The writer has attempted to draw in the conductors that the contouring is trying to outline. The results are plotted on Map 3 and have been divided into probable and possible conductors. A word of caution is that the results may not be strictly correct since the contouring is sometimes complex. It was not always

obvious where the conductor was situated or which direction it trended.

The conductors are all striking in a northerly direction but varying from north-northwesterly to northeasterly. This is not to say other conductors do not exist in other directions since the grid bias and transmitter direction favour the northerly-trending directions.

Little else can be said at this point since further work will need to be done to help determine the causative sources. As indicated above, VLF-EM anomalies can be caused by a variety of conductors.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark
Geophysicist

March 19, 1987

SELECTED BIBLIOGRAPHY

B.C. Minister of Mines, Annual Reports: 1967, p. 163; 1968, p. 197.

Cockfield, W.E. - Geology and Mineral Deposits of Nicola Map - Area B.C., G.S.C. Memoir 249, 1948.

Gutrath, G.C., Assessment Report #4503-M6, containing copper soil geochemistry map on Swakum Mountain Property done for Hesca Development Corp. Ltd. by Atled Exploration Management Ltd., June 1973.

GEOPHYSICIST'S CERTIFICATE

I, DAVID G. MARK, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices located at #530-800 West Pender Street, Vancouver, British Columbia.

I further certify:

1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.

2. I have been practising my profession for the past 19 years and have been active in the mining industry for the past 22 years.

3. I am an active member of the Society of Exploration Geophysicists and a member of the European Association for Exploration Geophysicists.

4. This report is compiled from data obtained from a VLF-EM survey carried out by Trans-Arctic Explorations Ltd., under the field supervision of Pat Crook, geophysical technician, from Dec. 3rd to 9th, 1986.

5. I do not hold any interest in Trans-Arctic Explorations Ltd. nor in the AC claim, nor will I receive any interest as a result of writing this report.

David G. Mark
Geophysicist

March 19, 1987

AFFIDAVIT OF EXPENSES

The VLF-EM survey was carried out from Dec. 3rd to 9th, 1986 on the AC mineral claim, on Kirby Creek, Nicola Mining Division, B.C. to the value of the following:

FIELD:

Supervisor, 1 day @ $175/day	$ 175
Instrument operator, 7 days @ 150/day	1,050
4 X 4, 3/4 ton truck, 7 days @ $110/day (includes oil and gas)	770
Room and board, 7 days @ $50/day	250
Instrument rental (VLF-EM), 7 days @ $25/day	175
Survey supplies	75
	$ 2,595

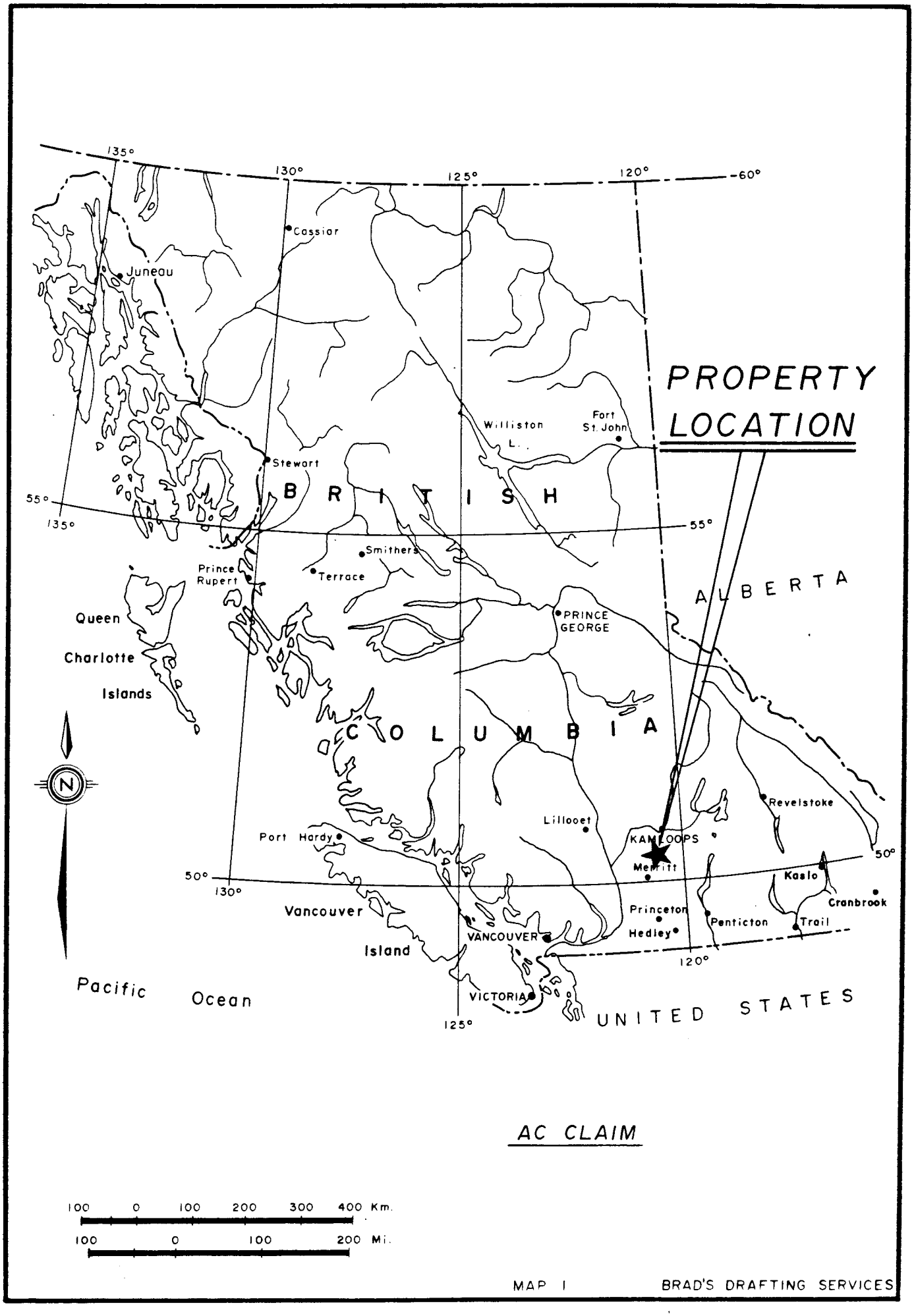
OFFICE:

Geophysicist	$ 500
Geophysical technician, 8 hours @ $25/hr	200
Drafting and printing	250
Typing and photocopying	100
	$ 1.050

GRAND TOTAL $ 3,645

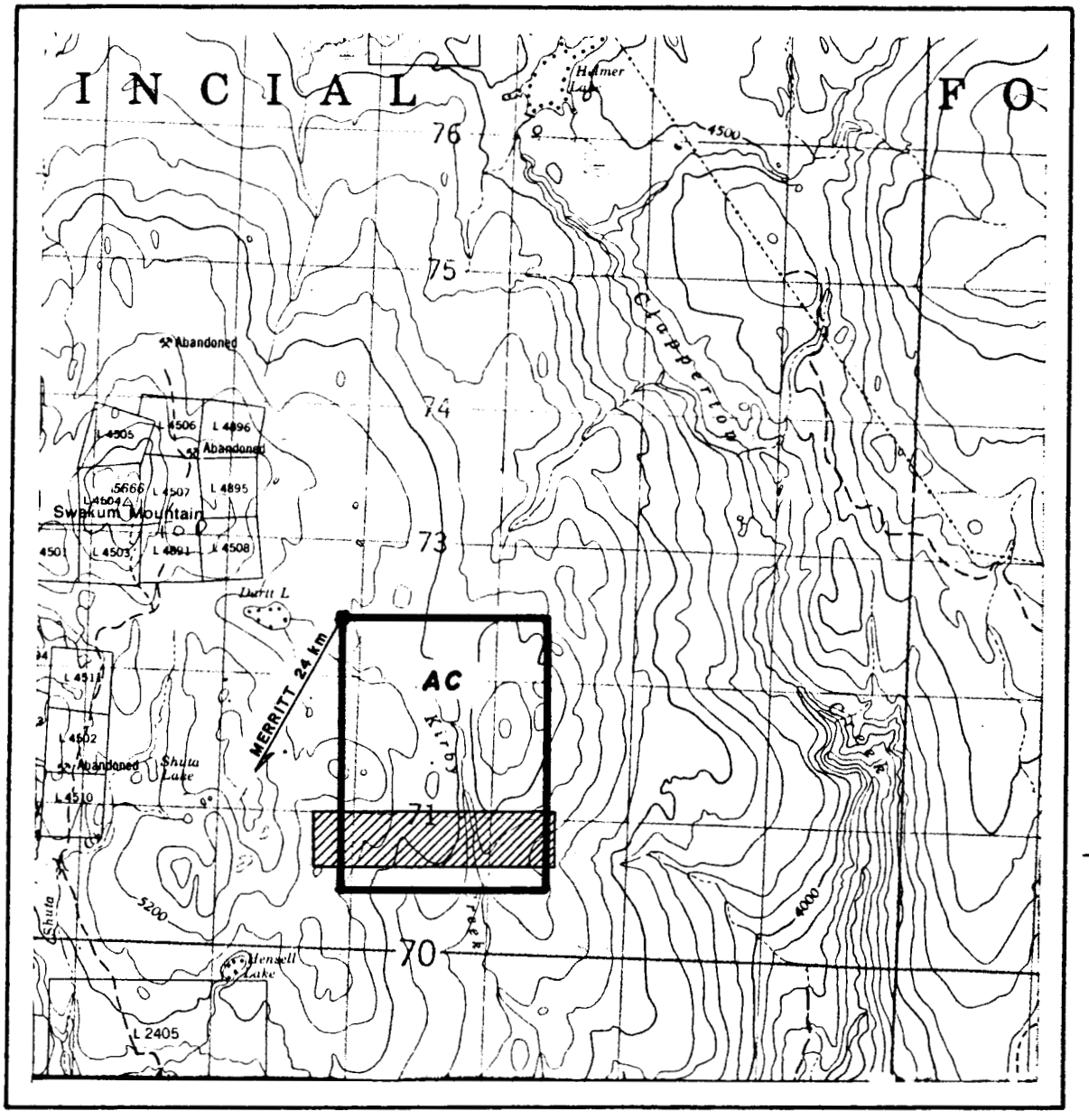
Respectfully submitted,
TRANS-ARCTIC EXPLORATIONS LTD.

R.S. Simpson
General Manager



MAP 1 BRAD'S DRAFTING SERVICES

120°40'



1986 SURVEY AREA

N

1 0.5 0 1 2
KILOMETRES

TRANS-ARCTIC EXPLORATIONS LTD.

AC CLAIM

KIRBY CREEK, MERRITT AREA

NICOLA M.D., B.C.

CLAIM MAP

SCALE:	DATE:	MAP:	N.T.S.
1:50,000	MAR. 87.	2	92 I/7 E

600 W
400 W
gully
200 W
L 00
200 E
400 E
600 E
800 E
1000 E
L 500 N
L 400 N
L 300 N
L 200 N
L 100 N
L 00 N
EXACT LOCATION UNKNOWN
IP 323808
IP 323814
EXACT LOCATION UNKNOWN
KIRBY
CK
L.C.P. 2000 m North
REAKEL 2-4S-3W
SM 300 LCP
SM 200-2E
Seattle 21.4 KHz.
N

LEGEND

ROAD

CREEK

CLAIM BOUNDARY

LEGAL CORNER POST

OLD CLAIM POST

PROBABLE, POSSIBLE CONDUCTOR MAPPED BY VLF-EM

INSTRUMENT: SABRE MODEL 27 VLF-EM

100 0 500

METRES

TRANS-ARCTIC EXPLORATIONS LTD.

AC CLAIM

KIRBY CREEK, MERRITT AREA

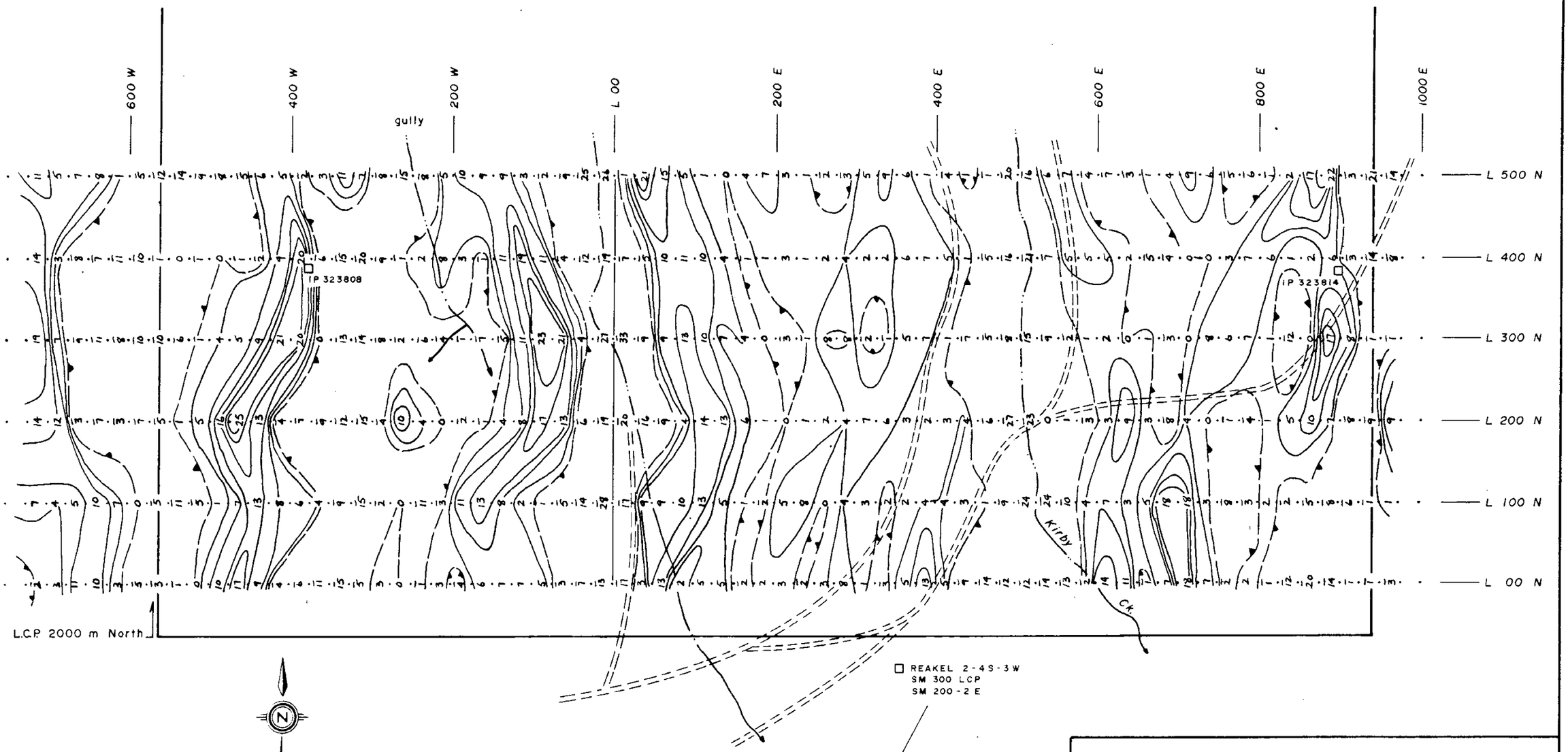
NICOLA M.D., B.C.

VLF-EM SURVEY

RAW DATA

SCALE:	DATE:	N.T.S.	MAP:	DRAFTED BY:
1:5,000	MAR. 87	92 I/7 E	3	B. D. S.

TRANS-ARCTIC EXPLORATIONS LTD.



LEGEND

ROAD

CREEK

CLAIM BOUNDARY

LEGAL CORNER POST

OLD CLAIM POST

CONTOURS

CONTOUR INTERVAL : 4 DEGREES

0 DEGREE

4 DEGREES AND HIGHER

CONTOUR LOW

INSTRUMENT: SABRE MODEL 27 VLF-EM

100 0 500

METRES

TRANS-ARCTIC EXPLORATIONS LTD.

AC CLAIM

KIRBY CREEK, MERRITT AREA

NICOLA M.D., B.C.

VLF-EM SURVEY

FRASER FILTERED DATA & CONTOURS

SCALE:	DATE:	N.T.S.	MAP:	DRAFTED BY:
1:5,000	MAR. 87	92 I/7 E	4	B. D. S.

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