GEOPHYSICAL REPORT

ON AN

AIRBORNE MAGNETIC AND VLF-EM SURVEY

ON THE

DU, BIR AND NIS CLAIMS

NISLING RIVER AREA

WHITEHORSE M.D., YUKON TERRITORY

Location: 61° 56'; 138° 9'

62 miles N55W of Whitehorse and
30 miles S67W of Carmacks on
Dwarf Birch Creek and Nisling River

Claim Sheet: 115-G-16

Survey Date: July 3, 1974

Report by: David G. Mark
Geophysicist
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302-475 Howe Street,
Vancouver, B.C.

for: LAKEWOOD RESOURCES LTD
Menika Mining Ltd.
2245 West 13th Avenue,
Vancouver, B.C.

Signed September 12, 1974

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as assessment work to the amount of $4400.00

J. R. Craig

Resident Geologist or
~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

Commissioner of Yukon Territory

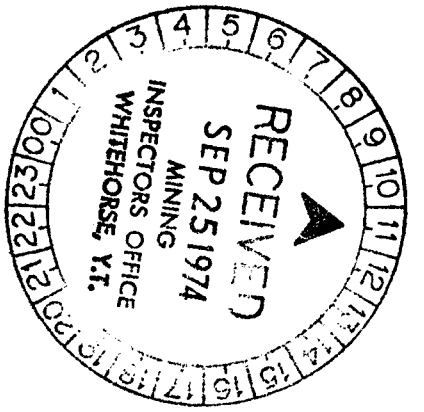

TABLE OF CONTENTS

MAPS - AT END OF REPORT

LOCATION MAP	1" = 64 miles	Figure 1
CLAIM MAP	1" = 4000 feet	Figure 2

MAPS - IN POCKET

AIRBORNE MAGNETIC SURVEY		
DATA AND CONTOURS	1" = 500 feet	Diagram No. 1

AIRBORNE VLF-EM SURVEY		
DATA AND CONTOURS	1" = 500 feet	Diagram No. 2

SUMMARY

A combined airborne magnetic and VLF-EM survey was carried out over the DU, BIR, and NIS claims located in the Nisling River area, about 30 miles S67W of Carmacks, Yukon Territory. The object of the survey was to locate potential areas for sulphide deposits.

Apparently, no previous work was done on the property.

The property is covered by drift but is probably underlain by gneisses and schists. Nearby is an intrusion of granodiorite and related rocks and a younger intrusion of rhyolite. No mineralization is shown by the G.S.C. in the area.

The instruments used were an Elsec nuclear free precision magnetometer and a Sabre VLF-EM instrument connected to analog recorders. The surveys were flown from a helicopter at a terrain clearance of 400 feet, and a line spacing of 600 feet. Values were taken off of the profiles, plotted on maps and contoured.

There was some correlation between the magnetic results and the VLF-EM results. The response of both surveys were rather low.

CONCLUSIONS

1. The magnetics is probably reflecting the gneisses and schists.

2. There are six VLF-EM anomalies that are of economic interest. Two of these correlate with magnetic lows. One correlates with a magnetic high.

3. Though the response is rather low, positive results, it is felt, were obtained.

RECOMMENDATIONS

1. It should be tried to determine the overburden thickness. It may be too thick to be worthwhile to carry on further exploration.

2. A ground magnetic and VLF-EM survey should be carried out.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.,

David G. Mark
Geophysicist

GEOPHYSICAL REPORT

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AIRBORNE MAGNETIC AND VLF-EM SURVEY

on the

DU, BIR AND NIS CLAIMS

NISLING RIVER AREA

WHITEHORSE M.D., YUKON TERRITORY

INTRODUCTION AND GENERAL REMARKS

This report discusses the procedure, compilation and interpretation of a combined airborne magnetometer and very low frequency electromagnetic (VLF-EM) survey carried out over the DU, BIR, and NIS claims during July 3, 1974.

The field work was carried out by Stanley Mauer, instrument operator, and Charles Boitard, navigator. The total number of survey miles flown was 31.

The object of the survey was to search for economic sulphide mineralization. The purpose of the magnetometer was to search for mineral bodies associated with magnetic and/or pyrrhotite. That of the VLF-EM instrument was to search for sulphides in massive form. A secondary object of both instruments was to obtain information on the structural

geology of the property.

FIELD PERSONNEL

Name	Capacity	Address
Stanley Mauer	Instrument Operator and Field Supervisor	4245 E Hastings St. Burnaby, B.C.
Charles Boitard	Navigator	2245 W 13th Avenue Vancouver, B.C.

Mr. Stanley Mauer is an electronics engineer who specializes in the designing of geophysical instruments. He is the proprietor of Sabre Electronic Instruments Ltd at 4245 East Hastings Street, Burnaby, British Columbia. He designed and built the airborne VLF-EM instrument of this survey and put together the components of the airborne system. He has carried out numerous airborne surveys throughout Western Canada.

LOCATION AND ACCESS

The property is located at the confluence of Dwarf Birch Creek with the Nisling River, which is about 62 miles N55W of the City of Whitehorse and about 30 miles S67W of Carmacks.

The geophysical coordinates are 61° 56' N latitude and 138° 9' W longitude.

There is a trail or 4-wheel drive road that runs through the property in an east-west direction, probably from the Whitehorse-Carmacks road. Other than this, the best access is by helicopter.

PROPERTY AND OWNERSHIP

The claim group is comprised of 22 contiguous mineral claims described below and shown on Figure 2.

Claim Name	Record No.	Expiry Date
DU 1-6		
BIR 1-8	Y76400-Y76421	August 9, 1974
NIS 1-8		

The above expiry date does not take into account the assessment credits that may be gained from the airborne magnetic and VLF-EM survey. Two years on each claim has been applied for and if it is accepted, then the expiry date will be August 9, 1976.

The registered owners of the claims are Mr. Charles Boitard and two members of his family. Apparently they a re beneficially holding the claims for Lakewood Resources Ltd and Menika Mining Ltd.

PHYSIOGRAPHY

The property is located in the Nisling Range which is part of the physiographic division known as the Yukon Plateau. The Nisling Range is fairly rugged with steep slopes and elevations ranging from 2,600 to 6000 feet a.s.l.

However, the property itself is found within the broad Nisling River valley. The property elevation ranges from below 2,600 feet to above 2,700 feet with most of it being around 2,700 feet.

The Nisling River flows along the northern boundary, Dwarf Birch Creek along the eastern boundary, and a smaller unnamed creek along the western boundary.

The forest cover is light with black spruce probably being the most prevalent tree. The tree diameters are no greater than one foot.

HISTORY OF PREVIOUS WORK

As far as the writer knows, no previous work has been done on the property.

GEOLOGY

The geology of the area was mapped by J.E. Muller and R.L. Christie and written up by J.E. Muller in the G.S.C. Memoir 340.

According to the map, the property is covered by drift and it appears unlikely there are any outcrops.

The drift is probably underlain by a Pre-Mesozoic unit of rock that is composed of quartz-biotite schist, quartz-feldspar-biotite gneiss, amphibolite and minor recrystalized limestone. These rocks are cut by many rhyolite dykes and sills.

Also, possibly underlying the property and intruding into the above rock-type, is Nisling Range granodiorite, grano-gabbro, and quartz monzonite of Mesozoic and (?) Early Tertiary age. Rhyolite dykes also cut into this rock unit.

A large rhyolite intrusion occurs about a mile to the north-east of the claims group. It is also of Mesozoic and (?)

Early Tertiary age but is younger than the above rocks.

About three miles to the south occurs an horseshoe-shaped unit of rocks comprised of porphyritic basalt, andesite, latite, rhyolite and related tuff and breccia. It's age is Triassic and (?) later.

There is shown no mineralization or structure in the area of the property. However, as it is located in the northeast corner of the map area, there could be mineralization occurring to the north and/or east.

INSTRUMENTATION AND THEORY

1. Magnetometer Survey

The magnetic data was detected using an ELSEC nuclear free precision magnetometer, type 592. This measures the absolute value of the earth's magnetic field intensity. The sensitivity is 1 gamma and the absolute calibration is governed by a crystal-controlled oscillator so that it cannot drift.

Data was then recorded on a Bausch and Lomb 6" strip chart recorder.

Only two commonly occurring minerals are strongly magnetic; magnetite and pyrrhotite. Hence, magnetic surveys, both ground and airborne, are used to detect the presence of these minerals in varying concentrations. Magnetic data are also useful as a reconnaissance tool for mapping geologic lithology and structure since different rock types have different background amounts of magnetite and/or pyrrhotite.

2) VLF-EM

A VLF-EM receiver manufactured by Sabre Electronics of Vancouver, B.C. and an Esterline Angus Port-a-graph T171B recorder were used for the VLF-EM survey. This instrument is designed to measure the current induced, in a vertical coil, by the primary and secondary fields of the very low frequency electromagnetic field (VLF-EM) transmitted at 18.6 KHz from Seattle, Washington. Both the dip angle and field strength are measured by this instrument.

In the absence of any conductors the magnetic component of the primary field is nearly horizontal and thus the current induced in a vertical coil would be negligible.

However, in the presence of a conductor a current is induced in the conductor which in turn induces a secondary magnetic field around it.

The dipping magnetic field around a conductor will induce a current in the receiving coil which will be a function of the primary field strength, the proximity of the coil to the conductor and its conductivity.

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 it 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 IP). 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

A Bell Jet-Ranger helicopter was used to fly the survey. The survey was carried out by following pre-established lines drawn on a blown up photograph of the area. Lines were on an average 600 feet apart and flown in a northeast-southwest direction. The terrain clearance was kept at approximately 400 feet. Tie points were made over prominent topographic features, were numbered, recorded and plotted on the maps.

The magnetic readings were taken with the magnetometer set on a 1.7 second recycling period which, considering the helicopter speed corresponds to readings taken at intervals of about 150 feet.

The VLF-EM equipment provided for a continuous plotting of the dip angle and of the field strength.

COMPILATION OF DATA

1. Magnetic Survey:

Values were picked off of the strip charts at intervals of 200 feet, plotted on drawing No. 1 and contoured at a 20-gamma interval.

2. VLF-EM Survey:

Values from the field strength profiles were picked off only where the curve deviated from the background level. Therefore, it is only the anomalies that are plotted. The values are plotted at an interval of 200 feet or less. Where there are no values plotted, the reading is 0±1% (background). The field strength is contoured at an interval of 2%. Where a dip angle occurred with the anomaly, its range from positive peak to negative peak was measured, and plotted on the northwest side of the line such as: D-9°.

DISCUSSION OF RESULTS

1. Magnetic Survey:

The government aeromagnetic survey over this area shows the property to be magnetically very flat. The total

variation is no more than 50 gammas. This is undoubtedly a reflection of schists and gneisses that likely underlie the property. It should be remembered that the government survey was flown at a terrain clearance of 1,000 feet and therefore the magnetic range will be lower than that of a lower-terrain-clearance survey or a ground survey.

On the airborne survey carried out over the property, the values range from a minimum 58,719 gammas to a maximum of 58,945 gammas which is a range of only 226 gammas. The writer feels that the magnetic variation within the survey area, except as noted, is largely a reflection of minor variations of magnetite within the schists and gneisses.

A large, broad magnetic low, that stretches from L-4 to L-13 in the northeastern part of the survey area, correlates very well with a magnetic low of small intensity on the government survey. The low on the government survey is associated with a magnetic high to the north and therefore is likely only part of a dipole anomaly that is reflecting a relatively magnetic body to the north of the property.

On L-16 to L-14, there are two magnetic highs of low intensity that seem to correlate with Dwarf Birch Creek. The probable explanation is that in a drift covered area, the creek area is closer to bedrock containing magnetite.

A small north-striking magnetic high on the northeast end of lines 9 and 10 could well be reflecting a basic intrusive dyke. The low associated with it on L-11 appears to form a dipole anomaly with the high. The low correlates with VLF-EM anomaly D and for that reason the VLF-EM and magnetometer in this area may be reflecting sulphide mineralization.

A magnetic high on the northeast end of L-2 correlates with VLF-EM anomaly E and therefore may be reflecting magnetite associated with sulphides.

2. VLF-EM Survey:

Overall, the VLF-EM results are also somewhat low. Most of the anomalies are of low intensity and isolated and are therefore likely reflecting conductivity changes within the schists and gneisses and/or water courses within the overburden.

There are, however, six anomalies that are economically interesting and are labelled A to F respectively. The anomalies that are the most interesting are those that are of relatively high intensity and also have a high dip angle reading. The VLF-EM highs only are of interest and not the VLF-EM lows. The lows serve only to outline the the highs.

The anomalies A to C are the most interesting and occur off of the property to the south. It appears that they are connected and, in fact, could well form one anomaly striking in a northwest direction. Anomaly A reaches a field strength of 8% and a dip angle of 3^{o}, anomaly B, a field strength of 12% and a dip angle of 9^{o}, and anomaly C, a field strength of 5% and a dip angle of only 1^{o}. Anomaly A correlates with a slight magnetic low. Some lows in other areas are known to reflect alteration around a mineral deposit.

Anomaly D, as mentioned above correlates with a magnetic low. It strikes northwest, has a field strength of 6% and a dip angle of 4.5^{o}.

Anomaly E correlates with a magnetic high, but does not have a dip angle reading. It reaches a field strength of 5%.

Anomaly F is fairly large, is of low intensity, and does not

appear to correlate with the magnetics. It has a dip angle reading of only 1.5°. It appears to strike in two directions, easterly and northeasterly.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark
Geophysicist

September 12, 1974

SELECTED BIBLIOGRAPHY

Aeromagnetic Map - Rhyolite Creek, Yukon Territory, Map 4329G, Sheet 115G/16, 1968.

Muller, J.E. Kluane Lake Map Area, Yukon Territory, 115G, 115F/E½, Geol. Surv. of Can., Memoir 340, 1967.

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 at 302-475 Howe Street, Vancouver, B.C.

I further certify that:

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 in my profession for the past six years and have been active in the mining industry for the past nine years.

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

4. This report is compiled from data obtained from Airborne Magnetic and VLF-EM survey carried out under the supervision of Stanley Mauer on July 3, 1974 on the DU, NIR and BIS claims, Whitehorse Mining Division, Yukon Territory.

5. I have no direct or indirect interest in the properties or securities of Lakewood Resources Ltd or Menika Mining Ltd., Vancouver, B.C. nor do I expect to receive any interest therein.

David G. Mark
Geophysicist

September 12, 1974

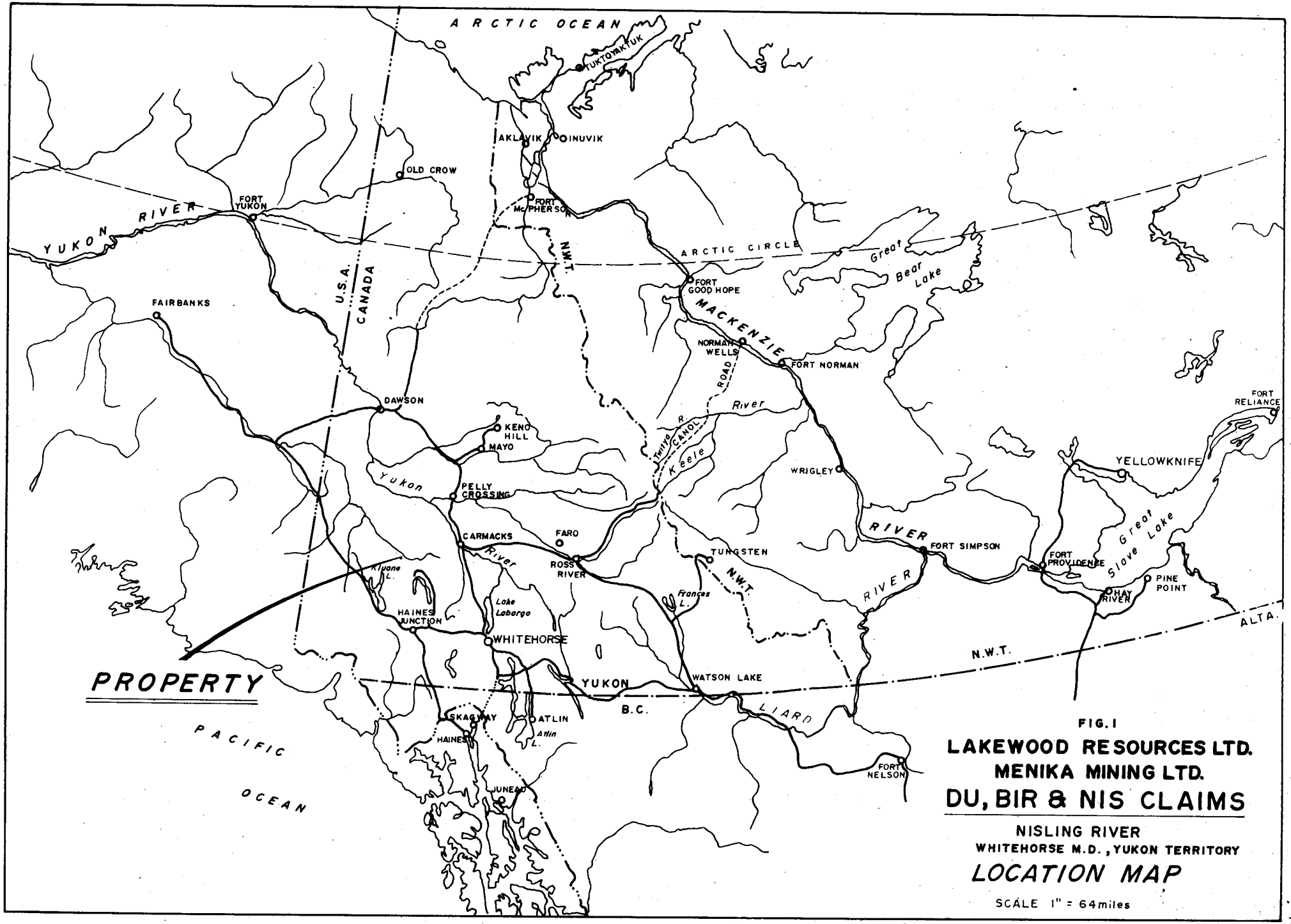


FIG. 1

LAKEWOOD RESOURCES LTD.
MENIKA MINING LTD.
DU, BIR & NIS CLAIMS

NISLING RIVER
WHITEHORSE M.D., YUKON TERRITORY

LOCATION MAP

SCALE 1" = 64 miles

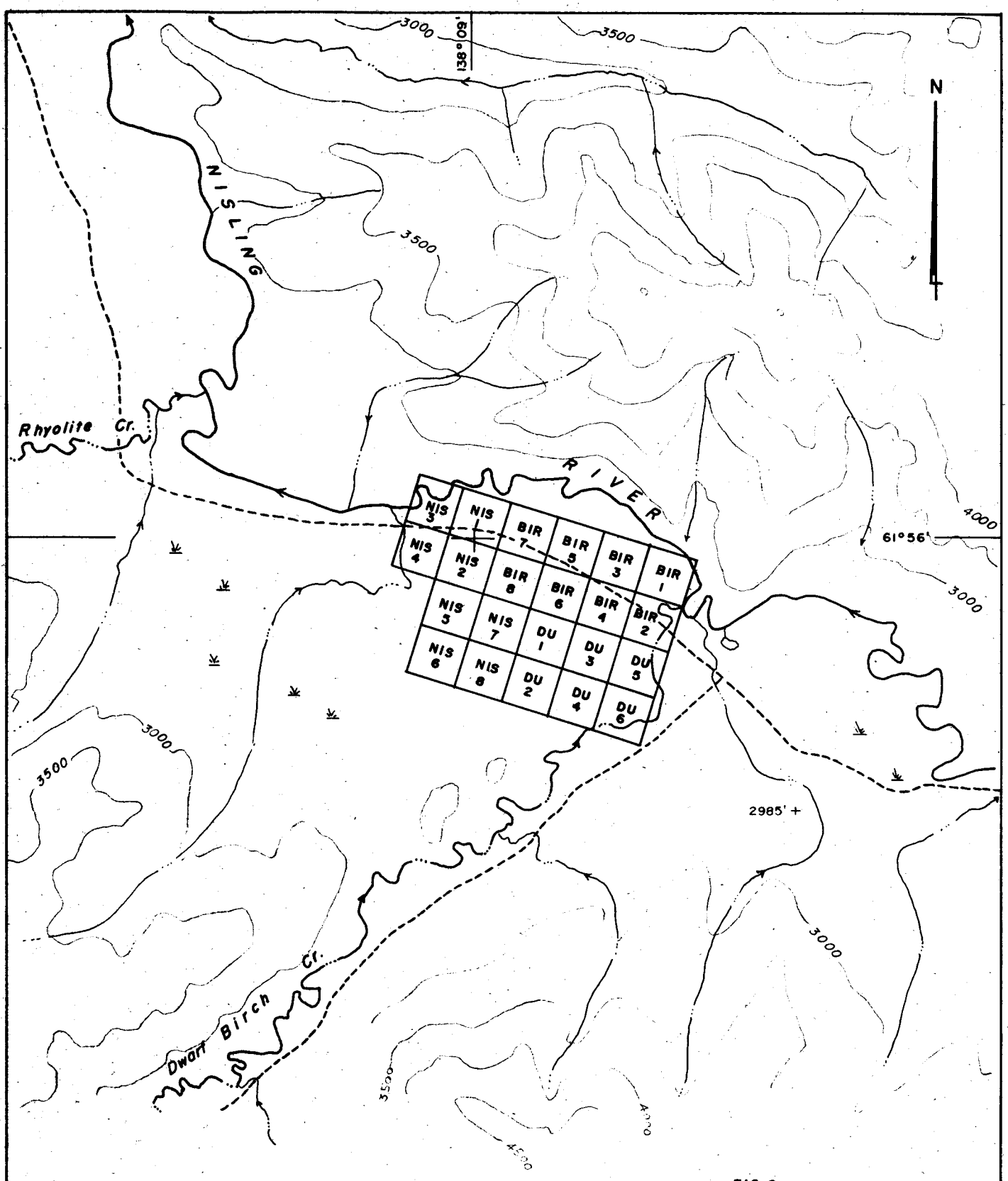


FIG. 2

GEOTRONICS SURVEYS LTD.

LAKEWOOD RESOURCES LTD.
MENIKA MINING LTD.
DU, BIR & NIS CLAIMS
WHITEHORSE M.D., YUKON TERRITORY

CLAIM MAP

DRAWN BY	SCALE	DATE
PDT DRAFTING SERVICES	1" = 4000'	AUGUST 1974

LEGEND

———	FLIGHT LINE
2	FIDUCIAL MARKER
— — — —	CLAIM BOUNDARY
S	START OF FLIGHT LINE
→	FLIGHT DIRECTION
878	MAGNETIC READING IN GAMMAS (TOTAL MAGNETIC FIELD READS 58,878 GAMMAS)

NOTE : CONTOUR INTERVAL IS 20 GAMMAS.

TO ACCOMPANY GEOPHYSICAL REPORT BY D.G. MARK, GEOPHYSICIST

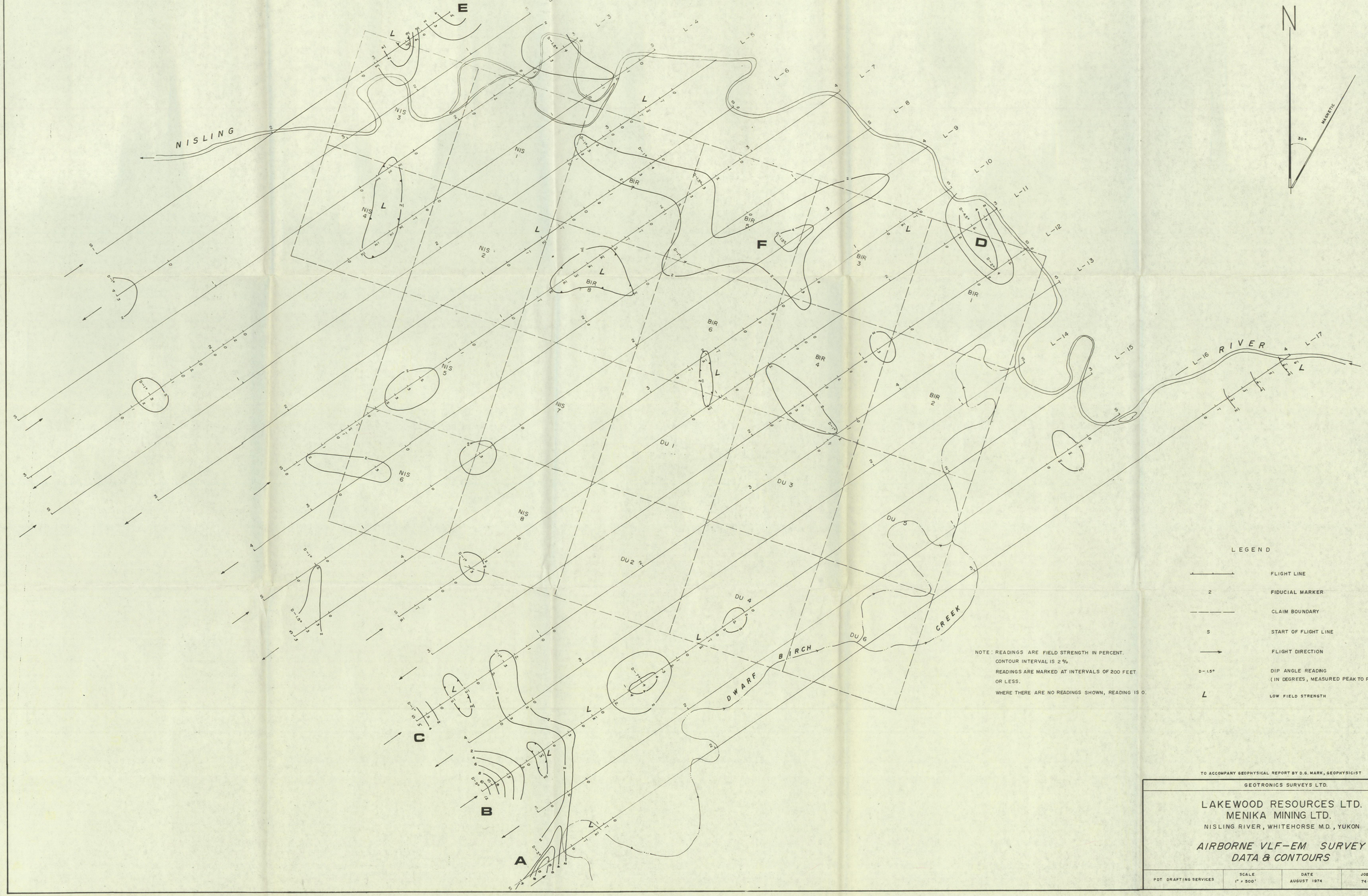
GEOTRONICS SURVEYS LTD.

LAKEWOOD RESOURCES LTD.
MENIKA MINING LTD.

NISLING RIVER, WHITEHORSE M.D., YUKON T.

AIRBORNE MAGNETIC SURVEY DATA & CONTOURS

PDT DRAFTING SERVICES	SCALE 1" = 500'	DATE AUGUST 1974	JOB No. 74-31	DWG No. 1



LEGEND

———	FLIGHT LINE
2	FIDUCIAL MARKER
— — — —	CLAIM BOUNDARY
S	START OF FLIGHT LINE
——→	FLIGHT DIRECTION
D-1.5°	DIP ANGLE READING (IN DEGREES, MEASURED PEAK TO PEAK)
L	LOW FIELD STRENGTH

NOTE: READINGS ARE FIELD STRENGTH IN PERCENT.
CONTOUR INTERVAL IS 2%.
READINGS ARE MARKED AT INTERVALS OF 200 FEET OR LESS.
WHERE THERE ARE NO READINGS SHOWN, READING IS 0.

TO ACCOMPANY GEOPHYSICAL REPORT BY D.G. MARK, GEOPHYSICIST

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LAKEWOOD RESOURCES LTD.
MENIKA MINING LTD.

NISLING RIVER, WHITEHORSE M.D., YUKON

AIRBORNE VLF-EM SURVEY
DATA & CONTOURS

PDT DRAFTING SERVICES	SCALE 1" = 500'	DATE AUGUST 1974	JOB No. 74-31	DWG No. 2