63.3364

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REPORT

ON

AN EXPLORATION PROGRAM

TO LOCATE AND TEST AN AIRBORNE ELECTROMAGNETIC ANOMOLY

ON THE PROPERTY OF

AIKEN-RUSSET RED LAKE MINES LTD.

BAIRD TOWNSHIP, RED LAKE AREA, NORTHWESTERN ONTARIO.

RL-39

Chester J. Kuryliw, M. Sc., P. Eng.
Consulting Geologist.

Kenora, Ontario,
October 31, 1975.

52N04SW8901 63.3364 BAIRD

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INTRODUCTION

Aiken-Russet Red Lake Mines Ltd., a Canadian unlisted public mining company, is managed by International Mine Services Ltd. with offices at 1601, 8 King Street East, Toronto, Ontario. The company owns a contiguous group of 50 claims located in Baird Township, Northwestern Ontario. Previous exploration on the property has been for gold exploration, however, this report deals with a possible sulphide occurrence located on a four claim group in the Northeastern portion of the property which was first indicated by a competitor's Airborne Electromagnetic survey in June, 1971. A ground follow up survey was carried out in the field by this writer with some assistants during parts of September and October, 1975. The follow-up work covered in this report consisted of locating, linecutting, detailed geologic mapping, a magnetic survey, an Electromagnetic EM-17 horizontal loop survey.

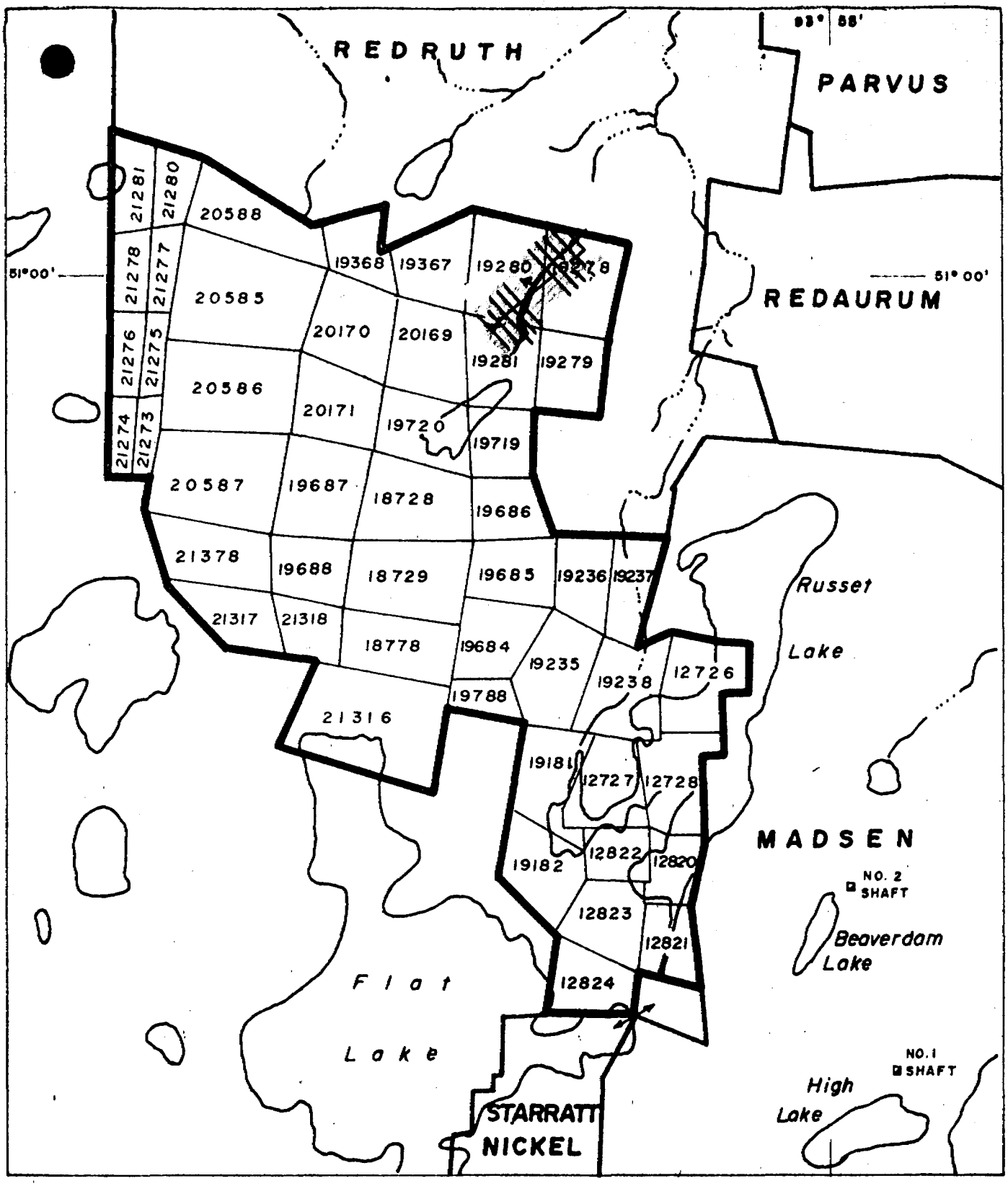
PROPERTY LOCATION AND ACCESS

The patented claim holdings which make up this property are listed as follows, and are depicted on the accompanying property map.

K.R.L. 18728, 18729, 19281, 19367, 19368
K.R.L. 18778, 19278, 19684 to 19688, 19719, 19720
K.R.L. 19788, 20169 to 20171, 20585 to 29588
K.R.L. 21273 to 21278, 21280, 21281, 21316 to 21318
K.R.L. 21378, 12726 to 12728, 12820 to 12824
19181, 19182, 19235 to 19238.

The area of the grid linecutting, covered by Geologic mapping, a magnetic survey, and an Electromagnetic EM-17 Horizontal loop survey are all covered in this report and are located over 4 claims 19278 to 19281 inclusive, in the northeastern corner of the property.

Access to this area for the work was achieved by power boat from the Madsen pumphouse across Russet Lake to the N-W corner then on overland portage of nearly 1000 feet over which a canoe was portaged then paddled about 1/2 mile along a stream and a lake. The last leg consists of a blazed trail which was clared for over 3000 feet to the grid site. In the swampy and low areas, deadfall provided very difficult access but the grid area itself has fairly normal growth conditions.



PROPERTY MAP

AIKEN-RUSSET RED LAKE MINES LTD.

BAIRD TWP., ONTARIO

SCALE : 1" = ½ MILE

HISTORICAL SUMMARY

Gold was located in the Aiken-Russet property in the early 1940's and since that time considerable sums have been spent in attempting to locate an economic deposit. Most recent exploration has taken place along the western shore of Russet Lake where gold valves have been located by diamond drilling in tuffaceous formations of similar character to those mined at the neighboring Madsen Mine.

During May of 1971, Madsen carried out an airborne electromagnetic and magnetometer survey of their extensive property holdings in Baird and Heyson Townships under contract to Scintrex Surveys Ltd. A portion of this survey overlapped onto the Aiken-Russet property. A strong single line E-M anomaly which plots near the south boundary of claim 19280 was discovered. It is this target which had inspired the exploration program covered by this report.

GENERAL GEOLOGY

The Red Lake area is underlain by rocks of precambrian age which consists of a belt of a "Keewatin" volcanic - "Timiskaming" sediment series surrounded by Kenoran age granitic batholiths. The "Keewatin" volcanics are by far the most common rock in the 35 mile long Red Lake belt and consist mostly of basic flows, andesite to basalt in composition, with minor rhyoltic flows. Some narrow interflow cherty lean iron formation and tuffs are common. Various intrusives intrude the Red Lake belt and these consist of quartz porphyry, granodiorites, diorites, gabbro and peridotite.

The Red Lake Belt continues to provide rich gold ore deposits that are still being mined. The most significant base metal discoveries to date are held by the Cochenour Willans Gold Mines Ltd. (currently on an exploration option to SELCO) at Trout Bay, at the western end of the Red Lake Belt. These deposits consist of the Trout Bay Ni-Cu deposit in amphibolite schist found in contact with magnetite rich iron formation and the other is the Trout Bay Cu-Zn-Ag sulphide deposit in lean cherty iron formation about 1000 feet south of the Cu-Ni deposit. This writer directed the discovery and first d. drill exploration on these two deposits in the late 1950's.

AIKEN-RUSSET RED LAKE GOLD MINES LIMITED

GEOLOGIC MAPPING

Chester J. Kuryliw, M.Sc., P. Eng.
Consulting Geologist.

Kenora, Ontario,
October 31, 1975.

LOCAL GEOLOGY

In September 1975, this writer carried out the geologic mapping on a scale 1" = 200 ft. over the area of the line grid in the northeastern portion of the Aiken-Russet property. Previous mapping was carried out over that part of the Aiken-Russet property in 1948 by G. D. Ruttan 1" = 200'. The area was also covered in general by mapping by S. A. Ferguson and Assistants of the Ontario Department of Mines in 1962 and covered in O.D.M. map 2072, scale 1" = 1000 ft.

(LOCAL) TABLE OF FORMATIONS

Precambrian Rocks

(5) peridotite

(4) gabbro

(3) andesite - basalt pillow lava

(2) magnetic iron formation

(1) lean cherty iron formation

ROCK TYPES

(1) Cherty Lean Iron Formation:

One exposure in a trench at 5S near line 16-E was mapped. The rock is a lean banded flat lying chert, that is partly magnetic and before recent oxidation carried some sulphides as recognizable from the minor rusty alteration.

(2) Magnetic Iron Formation:

One small exposure of this rock was mapped near the base line at 5E, it consisted of narrow bands of magnetite interbanded with chert. This band was helpful in establishing the northerly trend and -28° westerly dip of the formations. The magnetic survey indicates a probable thickness of 5 - 10 feet.

(3) Andesite - Basalt pillowed lava:

This rock was well exposed in broad ridges about 50 feet higher in elevation than the surrounding area. Most of this formation occurs to the north of the base line. Over the area mapped the flow is highly ellipsoidal and these pillow trends were traced and outlined which indicated a 25° - 50° dip westwards and a strike variation that indicated an S shaped fold along the footwall contact of the flow at line 00 just south of the base line.

(4) Gabbro:

This rock was mapped in a few outcrops to the south of the base line, it appears to be about 400 feet thick, fine to medium grained to the west or upper portion of the sill and medium to coarse grained to the east. Its appearance is typical of gabbros in the Red Lake area. It is composed of about 70 - 80% amphibole and 20 - 30% plagioclase. It is weakly magnetic, it intrudes along the iron formation separating the lean cherty iron formation at its footwall and the narrow magnetic iron formation at its hanging wall. This rock was not located in previous mapping.

(5) Peridotite:

This rock occurs as a narrow intrusive sill following along the hanging wall of the magnetic iron formation and the footwall contact of the basic pillowed lava. It was mapped in three exposures near the base line at 2E, 4E and 6E and appears to be about 50 feet thick. This sill was located intermittently on O.D.M. Map 2072. This black to dark green rock is composed almost completely of amphiboles.

STRUCTURAL GEOLOGY:

The main structural feature of the eastern part of the Aiken-Russet property and the Madsen Red Lake Mine area is a crenulated anticlinal structure with its main axis trending in a curved arc from North to Northwesterly. In cross section at the Madsen Mine the rocks trend Northwesterly and dip eastwards at 70° - 75°. On Aiken-Russet ground at the west side of Russet Lake the rocks strike northerly and also dip eastwards but flatter at 40° - 50°. In the grid area mapped, the westerly limb of the anticline is recognizable in the rocks that trend N-N-E and dip westerly in the opposite direction at about 30°.

In the grid area at the northeastern corner of Aiken-Russet property a band of iron formation at least 100 feet thick between andesitic volcanics to the east and highly pillowed andesite - basalt flows to the west was the site of successive sill intrusions of gabbro and peridotite. An "S" shaped fold was traced in the rocks. At the upper limb of the S just below the footwall contact of the pillowed lava the magnetic iron formation and peridotite exhibit a higher magnetic intensity. It is also at this same location that the E-M conductive trend (of sulphides?) bulges into a highly conductive portion of (massive sulphide?) well over 20 feet thick as indicated by the E-M Survey.

It appears that the local "S" shaped fold and its stresses were a favourable factor in localizing magnetite and (massive sulphides?) at the narrow band of iron formation and the peridotite sill each caught between the wide competent overlying pillowed andesite - basalt flow and underlying gabbro intrusive. The (massive sulphide?) conductor indicated by the E-M on line 4E near the base line has a favourable structural and geologic environment and could contain either a Cu-Ni or Cu-Zn-Ag deposit because the geology is somewhat similar to the geology of the base metal deposits at Trout Bay some 12 miles to the west.

THE MAGNETIC SURVEY:

Instrument and Method:

A Sharpe MF1 Fluxgate Magnetometer was used to read the picket lines at 50 foot station intervals along lines 200 feet apart. In areas of high variation, readings were taken at 25 foot intervals.

An arbitrary magnetic base station was established on line 00 West at 6S. The readings were recorded, corrected for diurnal variations and plotted to the nearest half scale division on the most sensitive scale (10 gammas). The corrected readings were plotted on a plan scale 1" = 200 feet and then contoured at 1000 gamma intervals. The plotted readings indicate changes in the vertical component of the magnetic field.

Results of the Magnetic Survey:

The magnetic survey was successful in sharply tracing the trend of the highly magnetic narrow iron formation and peridotite. It traced an "S" shaped fold in support of the geologic mapping that indicated that same fold. Much of the trend of iron formation - peridotite is under swampy ground so that its definition of the structural trend was helpful.

ELECTRO-MAGNETIC SURVEY:

Instrument and Method:

The instrument used was an EM 17 Electro-magnetic Survey unit. The horizontal loop mode of operation was used at 300 foot coil separation. Readings were taken at 100 foot stations along picket lines.

Basic Principle:

The basic principle behind EM Surveying is that certain orebodies are electrically conductive, and can be excited electrically by an applied primary EM field which may be detected above ground.

In the EM 17 the primary field is produced by the transmitting coil which is fed an oscillatory current by the transmitter itself.

The secondary field together with some primary field coming directly from the transmitter is picked up by the receiving coil and is measured in the receiver console.

Because the secondary field is quite small compared with the primary it is necessary to "buck out" the primary field in the receiving coil before making secondary field measurements. This is done by means of the reference cable which carries some of the primary signal directly into the receiver. This signal also serves as a reference by which the secondary field can be resolved into its two components,

one in phase (real) and one out of phase (imaginary) with the primary, and compared with the primary in amplitude. The relative strengths of the real and imaginary components are a guide to the conductivity - width product of the buried conductor which is usually related to the quantity of conducting minerals present.

The strength of the secondary field increases as the orebody gets larger or more conductive (higher metallic or electrolytic content). The secondary field is weaker if the orebody is deeper under the ground or if it is covered by a layer of absorbing material such as conductive clay or salt water.

RESULTS OF THE E-M SURVEY

The Electromagnetic survey traced a conductor that follows the base of the narrow iron formation - peridotite. The conductor appears to be a good conductor composed of sulphides (?) but along most of its trend it is relatively narrow. The conductor blooms out into a good thickness (20' - 50') of strong conductivity that may indicate massive sulphides as interpreted from the EM profiles along line 4E. The 3:1 ratio of "in-phase" to "out-of-phase" components indicates a strong conductor.

CONCLUSIONS:

The geologic mapping, magnetic and electro-magnetic surveys were successful in tracing the footwall contact of a large formation of pillowed andesite-basalt that dips flatly (about 30°) westwards. The trace of that contact is underlain by a narrow highly magnetic band of iron formation and a narrow peridotite sill that overlies a wide gabbro sill intrusive. The magnetic iron formation - peridotite as indicated by all three surveys follows an "S" shaped trend to form a drag fold along line OOW just south of the base line. From line 3E - 12E the conductor has blossomed out to a thickness of up to 50 feet of massive sulphides? near the base line and along the uppermost part of the "S" fold and the conductor bulge plunges flatly to the west as traced by the EM under line 2E to the north of the base line.

The structural geology is highly favourable and the occurrence of a possible massive sulphide of good dimensions deserves at least one diamond drill hole to test for an occurrence of Cu-Ni or Cu-Zn in economic quantities. This hole should be spotted at I-N on line 4E drilled south at -50° for a depth of 150 feet.

RECOMMENDATIONS AND COST ESTIMATES

Drill one 150 foot d.drill hole collared at I-N on line 4E and drilled along the line S - Eastwards at -50°.

(1)	Costs of d.d. machine in and out and set-up	$2,000.00
(2)	Contract d. drilling 150 feet	$2,500.00
(3)	Engineering, assaying, supervision	$ 500.00
	TOTAL	$5,000.00

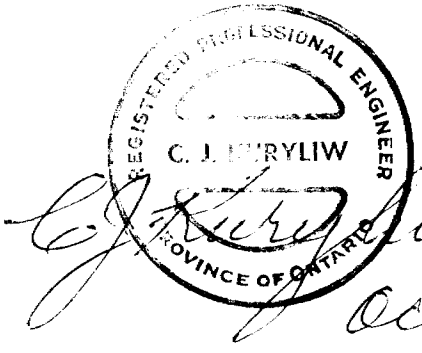
Oct 31, 75

DECLARATION

I, Chester J. Kuryliw, of 223 Minto Drive, Kenora, Ontario, do hereby declare that I have continuously practiced the profession of Geology for the past 27 years and that I hold a degree of Bachelor of Science received in 1949 from the University of Manitoba and the degree of Master of Science in Geology received from that same University in 1966 and that I am a member in good standing of the Professional Engineers of Ontario.

I do hereby declare that this report upon my personal work in the field on all surveys and upon my personal work in plotting, draughting, contouring and correlating results.

I also declare that the field and office work for the Geologic mapping, magnetic survey and electro-magnetic survey were carried out during September and October, 1975.



Oct 31, 75

Chester J. Kuryliw, M.Sc., P. Eng.

EXCALIBUR
INTERNATIONAL
CONSULTANTS LTD.

1522 Clearwater Drive, Mississauga, Ont., Canada L5E 3A3 · Tel. (416) 278-1545

RECOMMENDED DDHS, AIKEN-RUSSET RED LAKE MINES LIMITED

FOR

INTERNATIONAL MINE SERVICES

The following two recommended DDHs have been sited on em. (horizontal loop, EM-17) and magnetic data collected on a grid specifically laid out to define an A.E.M. anomaly that falls in an interesting geologic setting.

DDH #1 — Collar : 3+00N/4+00E
to be drilled grid Sth at -45° for 350'

This hole is designed to collar in andesite, to intersect the full width of the conductor zone and the central peridotite to which it is related. Both peridotite contacts need to be explored here since it is considered likely mineralization is present at or close to both of them. The peridotite itself at this point is liable to be heavily serpentinized.

DDH # 2 — Collar : 5+50N/14+00E
to be drilled grid Sth at -45° for 300'

This hole bids to test the iron formation and/or peridotite horizon as it thins out going east. The conductor is in good width (100') and is almost certainly due to more than one source. The chances for a sulphide intersection above the peridotite appears highly promising.

JBB:sm
November 19, 1975

J. B. Boniwell
Exploration Geophysical Consultant

Tel. 807-468-8564

CHESTER J. KURYLIW, M.Sc., P.ENG.
CONSULTING GEOLOGIST
223 MINTO DRIVE
KENORA, ONTARIO

December 27, 1975.

Re: Aiken - Russet Geophysical Surveys -
Addendum to report dated October 31, 1975

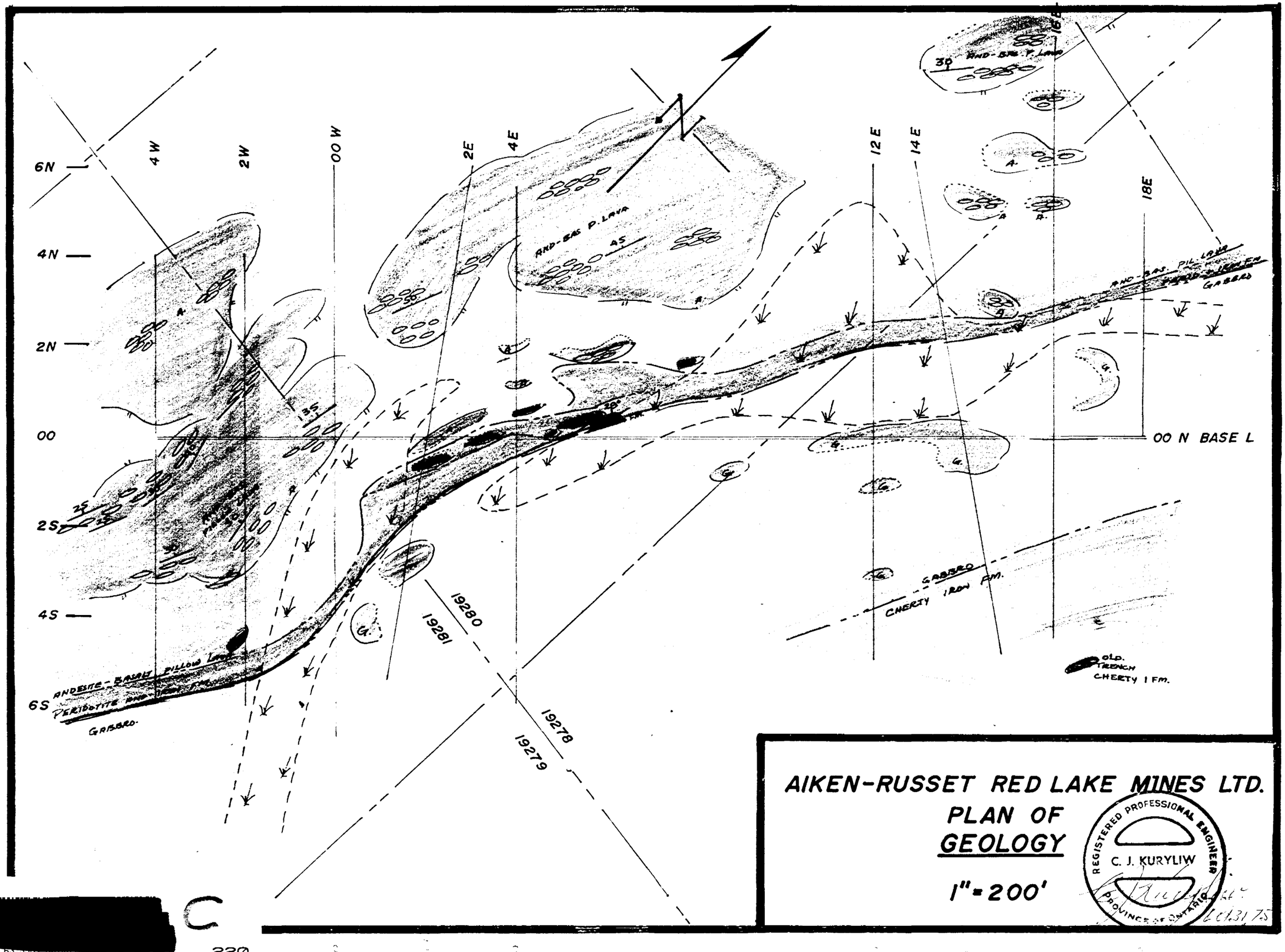
NOTE: To complete, the previous grid, lines 6E, 8E and 10E were cut, chained and then covered by a magnetic and E-M 17 surveys and succeeded in clarifying the Structural Geology.

The Magnetic Survey - Traced the highly magnetic iron formation and adjoining peridotite. It now can be seen from the magnetic contours that two "S" shaped drag folds occur along the trace, one drag fold is at 00E, the other at about 7E. Higher negative polarity coupled with higher magnetics occur on lines 8E and 4E, which is also coincident with higher conductivity.

The Electromagnetic EM-17 Survey - Traced a very strong conductor with a good "In phase" to "Out of phase" ratio of over 2 to 1. The conductor approximates the trend of the Iron Formation - Peridotite and indicates that a heavy concentration of sulphides over a zone plan width of nearly 100 feet occurs from 3E - 13E, for a length of 1000 feet. The coincidence of high magnetic polarity and strong conductivity of the Peridotite - Iron Formation trend with two "S" shaped drag folds are geologically favourable to possible base metal mineralization.

C. J. Kuryliw

Chester J. Kuryliw, P. Eng.



AIKEN-RUSSET RED LAKE MINES LTD.

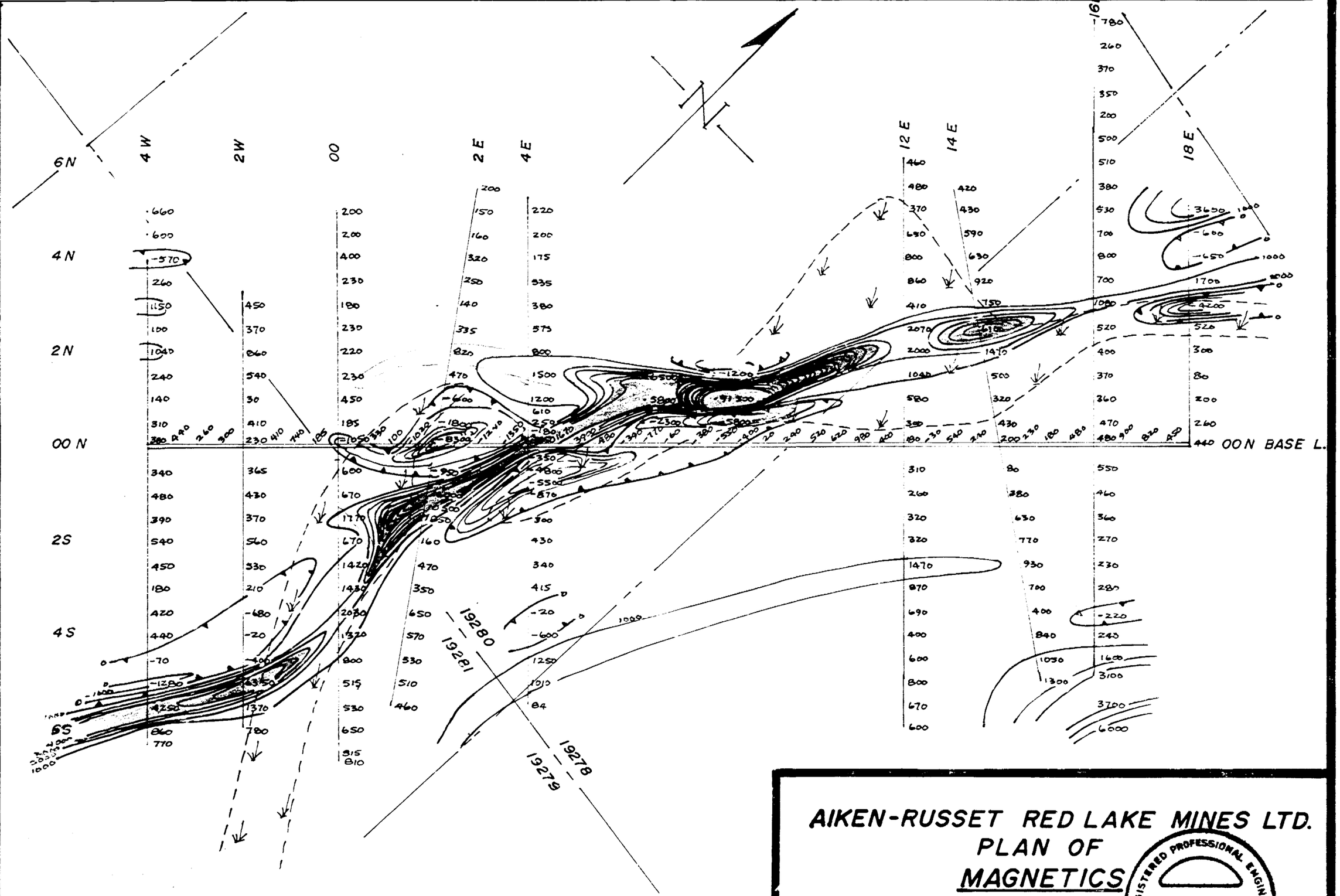
PLAN OF GEOLOGY

1" = 200'

REGISTERED PROFESSIONAL ENGINEER
C. J. KURYLIW
PROVINCE OF ONTARIO

[redacted]

52N04SW0247



INSTRUMENT: SHARPE MF. I FLUXGATE

CONTOUR INTERVAL: 1000 GAMMAS

AIKEN-RUSSET RED LAKE MINES LTD.

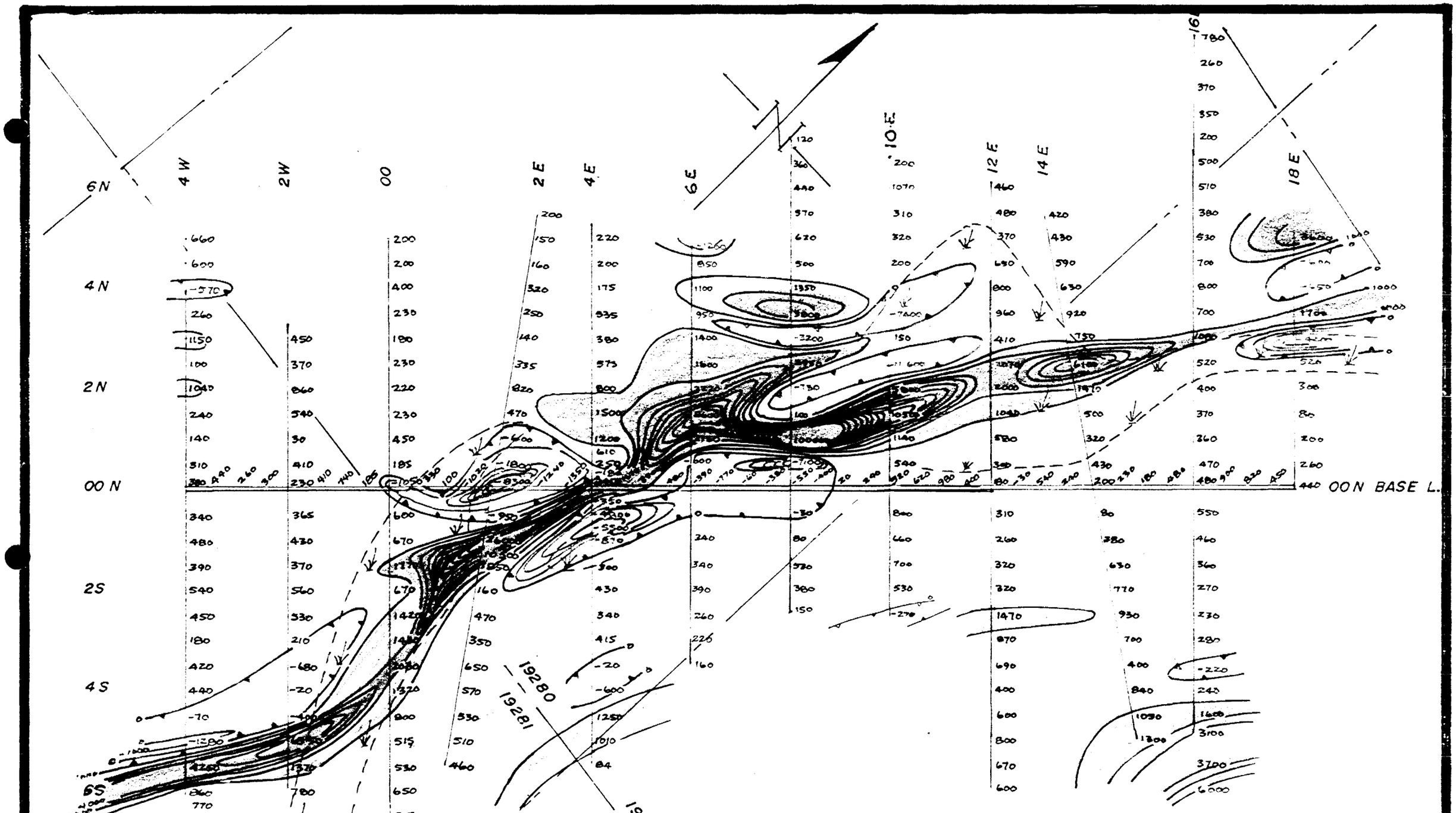
PLAN OF MAGNETICS

1" = 200'

REGISTERED PROFESSIONAL ENGINEER
C. J. KURYLIW
PROVINCE OF ONTARIO

[redacted]

SE¼SW¼247 83.3364 BAIRD TWP



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52N04SW0247 63.3504 BAIRD TWP

240

INSTRUMENT : SHARPE MF. I FLUXGATE

CONTOUR INTERVAL: 1000 GAMMAS

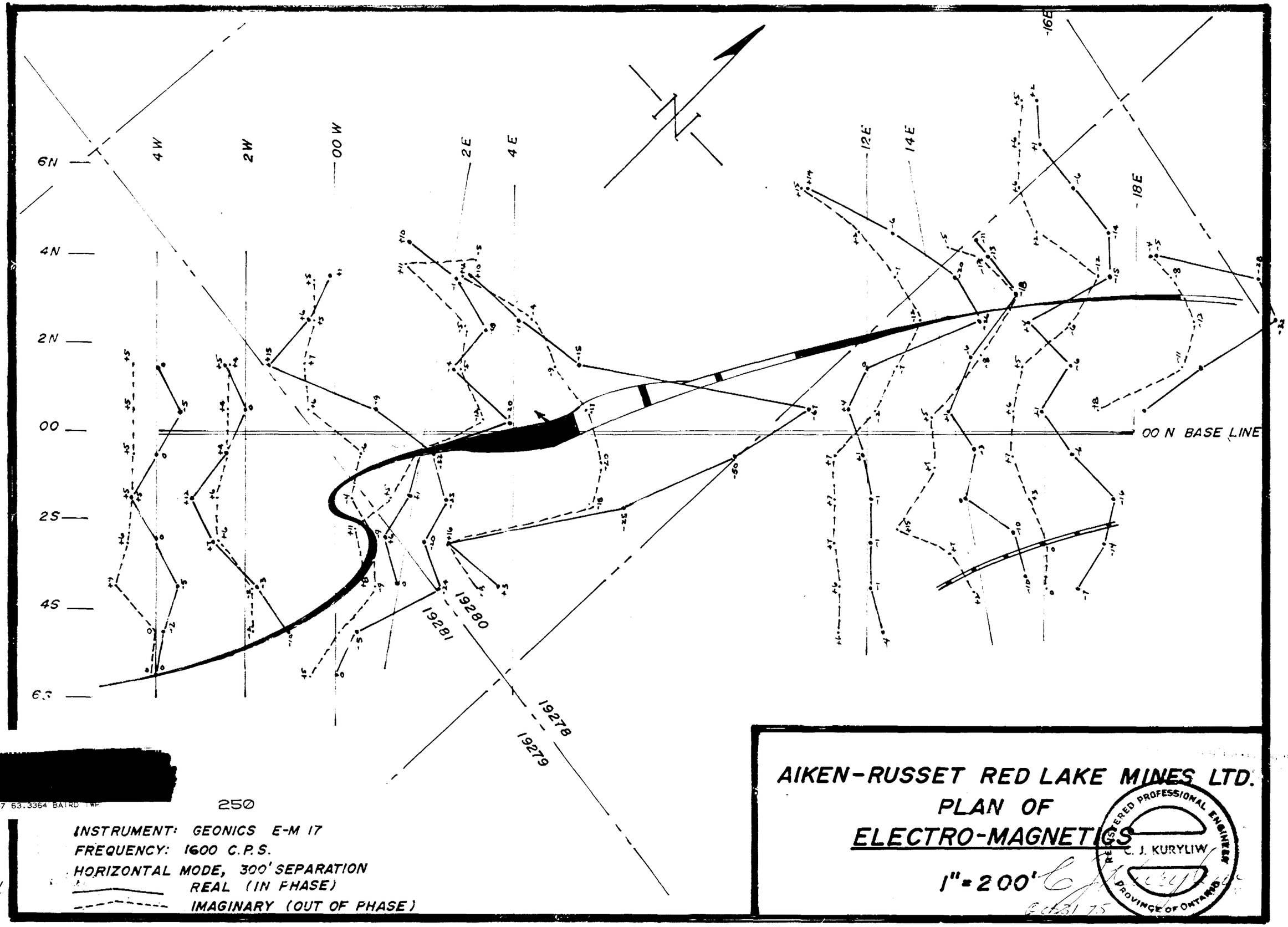
AIKEN-RUSSET RED LAKE MINES LTD.

PLAN OF

MAGNETICS

1" = 200'

C J Kuryluk



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S2N04SW0247 63.3364 BAIRD TWP

250

INSTRUMENT: GEONICS E-M 17
FREQUENCY: 1600 C.P.S.
HORIZONTAL MODE, 300' SEPARATION
REAL (IN PHASE)
IMAGINARY (OUT OF PHASE)

63.3364

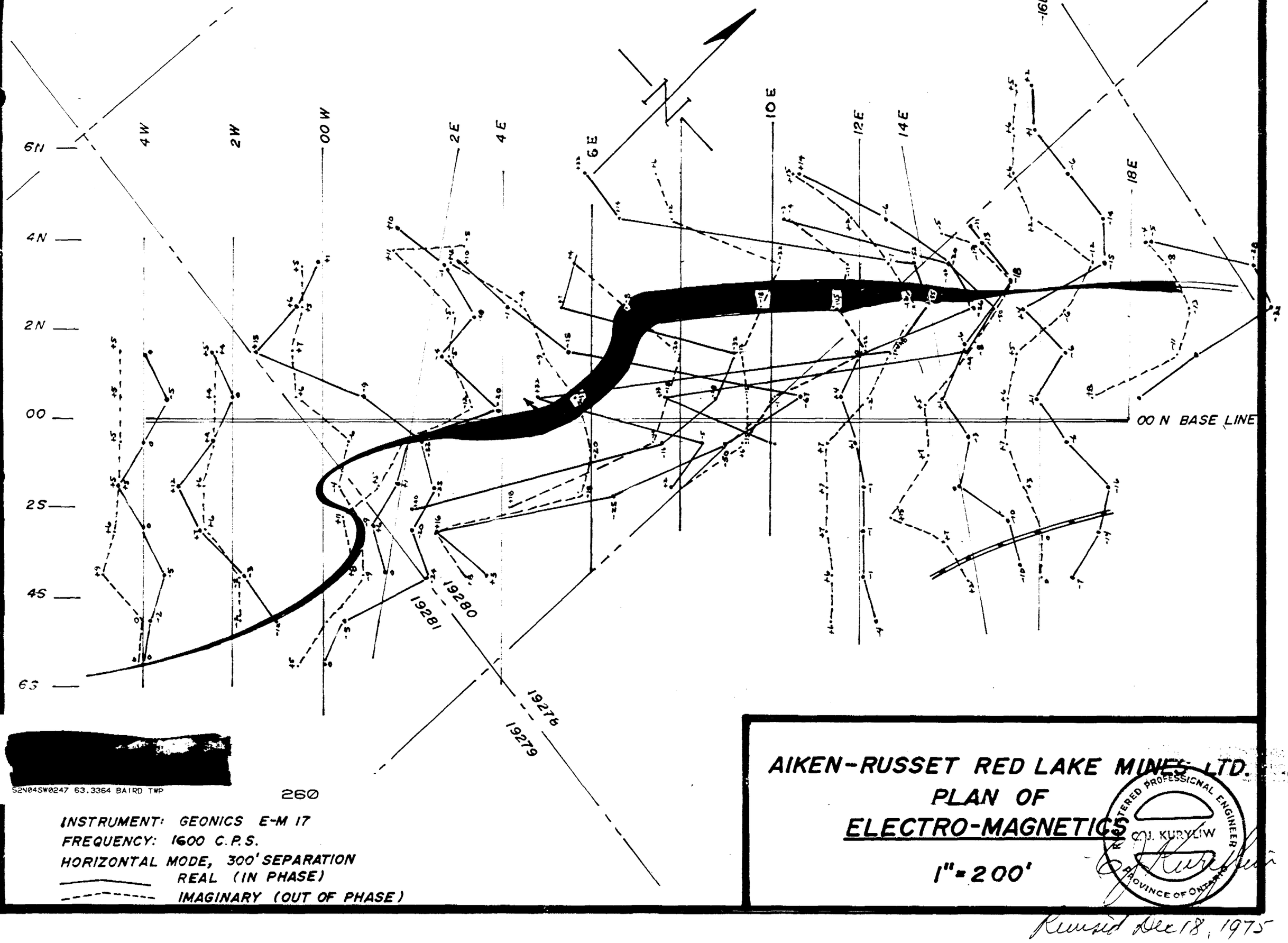
AIKEN-RUSSET RED LAKE MINES LTD.

PLAN OF ELECTRO-MAGNETICS

1" = 200'

REGISTERED PROFESSIONAL ENGINEER
C. J. KURYLIW
PROVINCE OF ONTARIO

Oct 31 75



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52N04SW0247 63.3364 BAIRD TWP

260

INSTRUMENT: GEONICS E-M 17
FREQUENCY: 1600 C.P.S.
HORIZONTAL MODE, 300' SEPARATION
REAL (IN PHASE)
IMAGINARY (OUT OF PHASE)

AIKEN-RUSSET RED LAKE MINES LTD.

PLAN OF

ELECTRO-MAGNETICS

1" = 200'

REGISTERED PROFESSIONAL ENGINEER
W. J. KURYLIW
PROVINCE OF ONTARIO

Revised Dec 18, 1975

52N04SW8901 63.3364 BAIRD

INTERNATIONAL MINE SERVICES LIMITED

AN EXPLORATION PROGRAM TO TEST AIRBORNE ELECTROMAGNETIC ANOMALIES On The Property Of AIKEN-RUSSET RED LAKE MINES LIMITED BAIRD TWSP. RED LAKE AREA, NORTHWESTERN ONTARIO

Toronto, Ontario
March, 1975

J. L. Tindale, P. Eng.
Geologist

For Submission to Ministry of Natural Resources in Application for Exploration Assistance under Mineral Exploration Assistance Program.

52N04SW8901 63.3364 BAIRD

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Appendix - Scintrex Geophysical Report

MAPS

1. Geology Map - Aiken-Russet Red Lake Mines Ltd. Northwest Corner Claims and Geophysical Anomaly Plots Scale 1" = 200' After G. D. Rutton 1946

2. Geology Map - O.D.M. Map 2072 Baird Township, Eastern Part, Scale 1" = 1000 feet - by S. A. Ferguson and Assistants 1962
Highlights Aiken-Russet Property and Airborne Geophysical Conductors.

Introduction

Aiken-Russet Red Lake Mines Limited, a Canadian unlisted public mining company, is managed by International Mine Services Limited with offices at 1601, 8 King St. E., Toronto, Ontario. The company owns a contiguous group of 50 patented claims located in Baird Township, Northwestern Ontario. Previous exploration on the property has been for gold mineralization, however, this report deals with a possible sulphide occurrence located on a four claim group in the northeastern section of the property which has been indicated by a competitor airborne electromagnetic survey.

Property, Location and Access

The patented claim holdings which make up this property are listed as follows and are depicted on the accompanying property map.

KRL 18728, 18729, 19281, 19367, 19368
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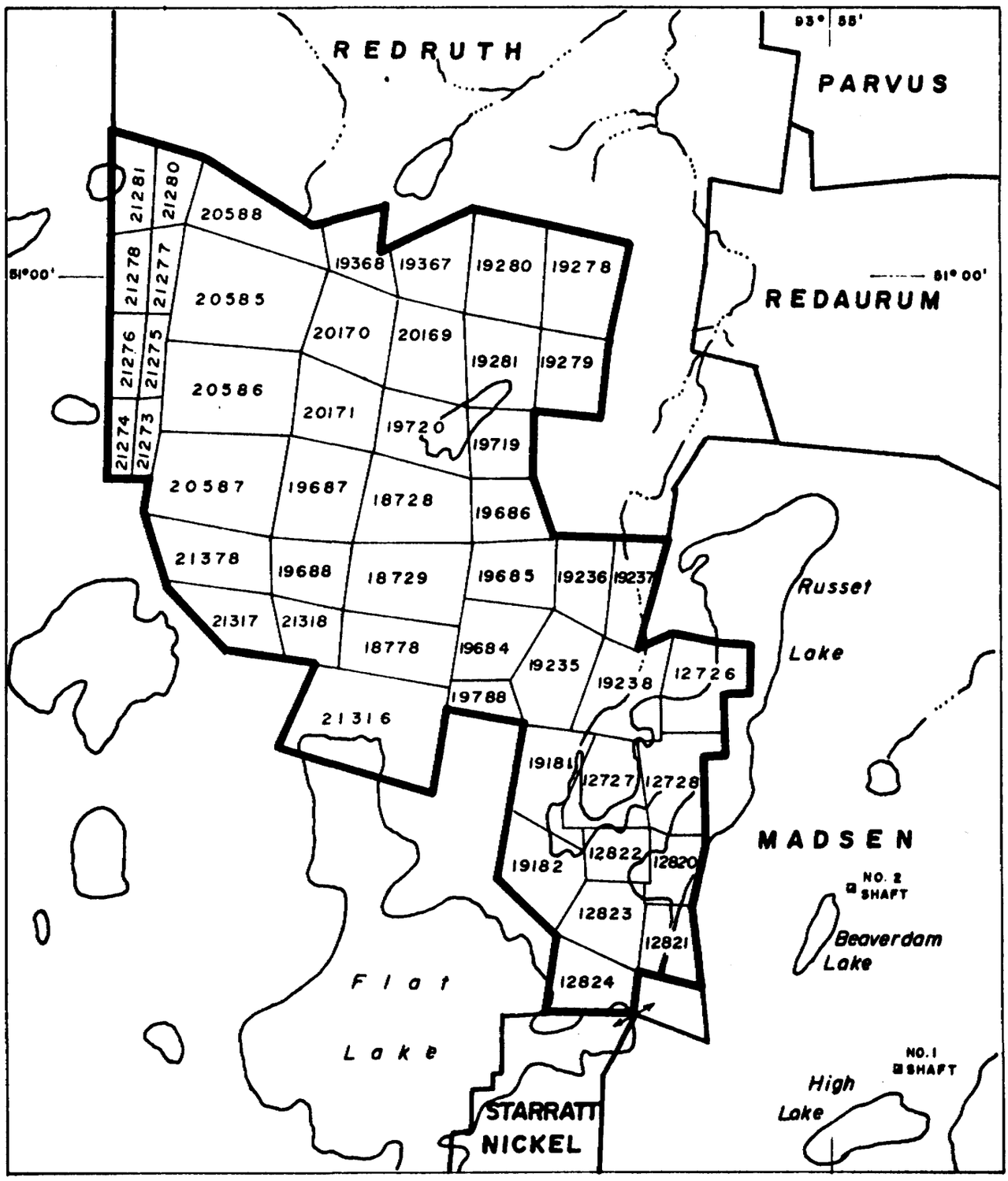
KRL 19788, 20169 to 20171, 20585 to 20588
KRL 21273 to 21278, 21280, 21281, 21316 to 21318
KRL 21378, 12726 to 12728, 12820 to 12824
19181, 19182, 19235 to 19238

The geophysical anomalies subject to this report are located on claims 19278 to 19281 inclusive in the northeastern corner of the property. Access to this area is best achieved via power boat from the Madsen pumphouse on Russet Lake to a tote trail landing at the north end of the lake. A rough tote trail leads north from the lake to the old Redaurum shaft and then westerly to the subject area. Distance from the north end of Russet Lake to the main anomalous area is approximately 7000 feet.

Historical Summary

Gold was located in the Aiken-Russet property in the early 1940's and since that time considerable sums have been spent in attempting to locate an economic deposit. Most recent exploration has taken place along the western shore of Russet Lake where gold values have been located in tuffaceous formations of similar character to those mined at the neighbouring Madsen Mine.

During May of 1971, Madsen carried out an airborne electromagnetic and magnetometer survey of their extensive property holdings in Baird and Heyson Townships under contract to Scintrex Surveys Ltd. A portion of this flying overlapped onto the Aiken-Russet property as the Company discovered when the data was released to the public in late 1974. A strong single line anomaly which plots near the south boundary of claim 19280 was apparent. It is this target which has inspired the current exploration proposal.



PROPERTY MAP

AIKEN-RUSSET RED LAKE MINES LTD.

BAIRD TWP., ONTARIO

SCALE : 1" = 1/2 MILE

Geological Summary

The western portion of Baird Township is underlain by basic to intermediate metavolcanics which have been intruded by gabbroic and felsic dikes and sills. The Killala Batholith occurs along the southern and western portion of the area. The volcanics have been folded into westerly trending anticlines and synclines with steep dips as depicted on O.D.M. Map 2072, attached to this report.

G. D. Ruttan mapped the north-easterly part of the current property in 1946 at a scale of one inch to two hundred feet. A copy of his map is attached. Ruttan shows a series of volcanics intruded by diorite and gabbro trending northeasterly through the area of interest. Two iron formation bands are shown, the more easterly of which appears as a crescent shaped fold with the apex in the direction of the major airborne anomaly. A lesser anomaly occurs adjacent to the iron formation on the northern portion of claim 19278. A second iron formation band to the west of the above is gently folded to mirror the structure indicated in the eastern band. Between these two structures is the strong E.M. zone which plots near an assumed contact between gabbroic rocks and a protrusion of basic volcanics.

Comments on Geophysical Data

Careful plotting of the survey data has located the major anomaly near the south boundary of claim 19280 in a favourable geological position as described above. It is interesting to note that out of the 185 miles of line flown only one anomaly was found of any consequence and this was on the Aiken property. This response, described as A13, revealed strong in-phase and out-of-phase response, a good conductivity ratio and direct magnetic correlation. Scintrex describes the anomaly in their report on the program, a copy of which is appended, as "very likely caused by sulphides and is recommended for further investigation".

Recommended Program

It is recommended that a grid be established over the conductive zone with the baseline striking approximately northeast (parallel to the formations) and cross-lines spaced 200 feet apart and extending for approximately 800 feet on either side of the baseline. The baseline will be approximately 2400 feet long extending in a northeasterly direction to cover an area of trenching with a weak coincident airborne anomaly on claim 19278. Careful orientation of the cross-lines and baseline should consider the possible effect of the magnetic iron formation in the area.

The baseline should consist of 2400 feet of cutting, and cross-lines will total about 3.2 miles. A MF-1 fluxgate magnetometer and an EM-17 Geonics hortizontal loop machine with 300' coil separation should be utilized to define the anomalies. An EM-16 V.L.F. machine may be employed to define the anomaly initially.

on a reconnaissance scale to assist in laying out the grid.

Cost Estimate for Program

Phase No. 1

(a)	Labour - 2 men for 21 days @ $100/day	$ 2,100
(b)	Equipment Rental - Geophysical Instruments - 1 mo.	1,000
	- Camp Equipment	300
	- Vehicle	300
	- Boat and Motor	300
(c)	Transportation	500
(d)	Consultant Geologist - Geophysist	500
(e)	Living Expenses @ $20/day/man day	800
(f)	Report Preparation & draughting costs	200
		$ 6,000

Phase No. 2

(i)	Diamond Drilling 1000' @ $15	$15,000
(ii)	Geologist 30 days @ $100	3,000
(iii)	Assaying	300
(iv)	Accomodation and Living Expenses	900
(v)	Transportation	500
(vi)	Report preparation and draughting costs	300
		$20,000
	TOTAL PHASE I and II =	$26,000

It is recommended this program be carried out during the summer of 1975.

Respectfully submitted,

J. L. Tindale, P. Eng.
Geologist

March 21, 1975

A P P E N D I X A

GEOPHYSICAL REPORT

ONTARIO AIRBORNE GEOPHYSICAL SURVEYS 52 K #23

N.T.S. No 52 K

Claim map no. M.2138, M.2170

Township or Area BAIRD TWP.
HEYSON TWP.

Author J. KLEIN, K. DANDA

Date JUNE 1971

Contractor SCINTREX SURVEYS LTD.

Flight date MAY 4 & 5, 1971

O.D.M. File 63.3002

Client MADSEN RED LAKE GOLD MINES LTD.

Type of survey [X] E.M. [ ] Mag. [ ] Radiometric

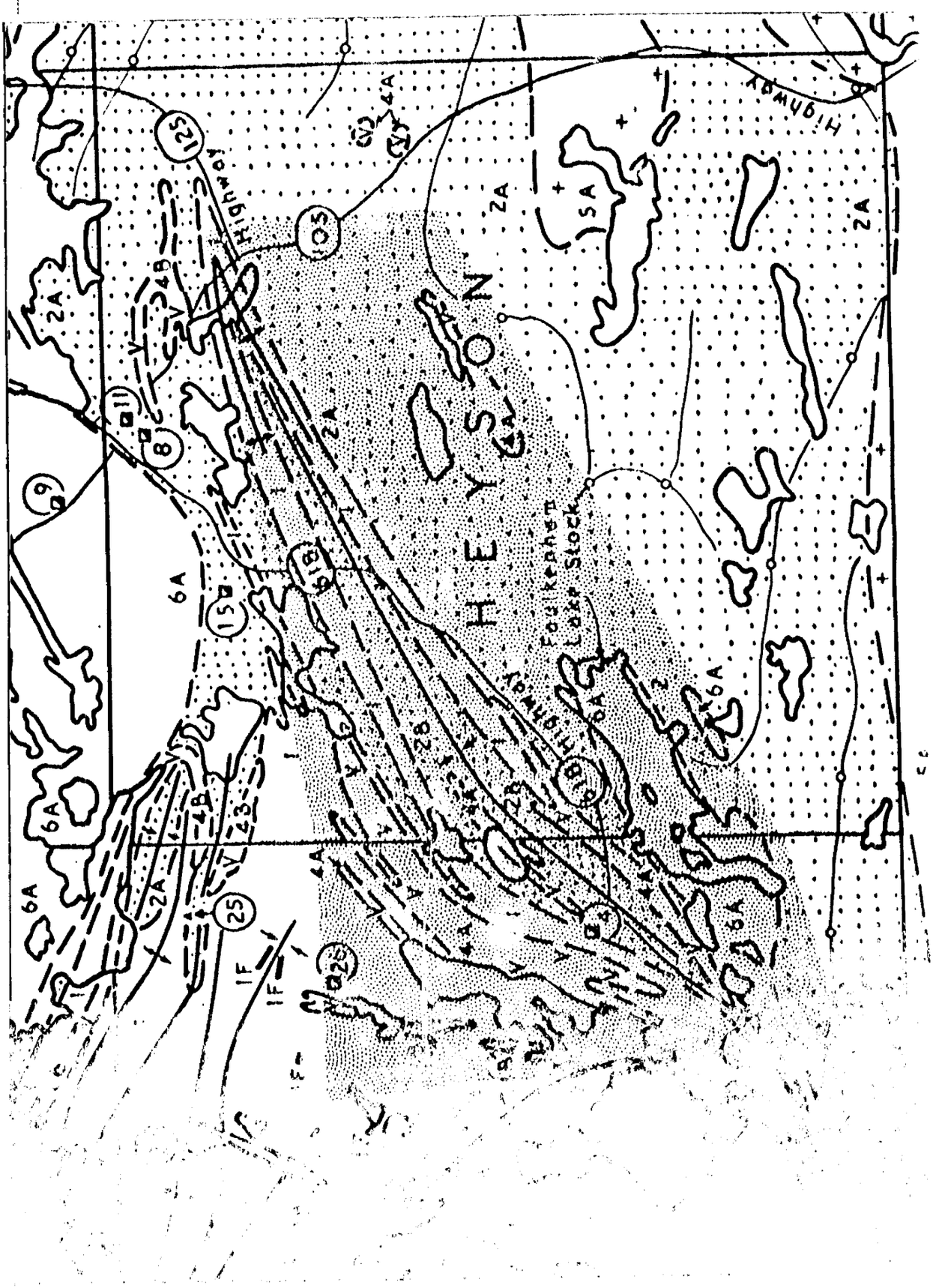
FLIGHT LINES

Direction	Spacing	Altitude
1) NW - SE	1/8 MILE	170'
2)		
3)		

LOCATION OF SURVEY ATTACHED

AWL 025(3-72)

ONTARIO AIRBORNE GEOPHYSICAL SURVEYS



PRELIMINARY ONLY

SUBJECT TO CORRECTION

REPORT ON AN
AIRBORNE GEOPHYSICAL SURVEY
BAIRD AND HEYSON TOWNSHIPS, ONTARIO
ON BEHALF OF
MADSEN RED LAKE GOLD MINES LIMITED

by

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TORONTO, Ontario

June 1971

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Plate 1 - Airborne Geophysical Survey
Red Lake Area, Ontario,
Scale: 1" = 1320'.

SUMMARY

A combined airborne electromagnetic and magnetic survey was executed over eight contiguous claim groups located in Baird and Heyson Townships, near the town of Red Lake, Ontario, on behalf of Madsen Red Lake Gold Mines Limited. A total of 185 miles of line was flown.

The survey resulted in the location of 1 conducting zone and 29 isolated anomalies.

Two anomalies can be caused by vertical metallic conductors, e.g. sulphides, and have been recommended for geological and geophysical ground follow-up.

Two of the anomalies located show geo-electrical parameters typical of massive sulphide deposits and have been recommended for geological and geophysical ground follow-up.

REPORT ON AN AIRBORNE GEOPHYSICAL SURVEY BAIRD AND HEYSON TOWNSHIPS, ONTARIO ON BEHALF OF MADSEN RED LAKE GOLD MINES LIMITED

INTRODUCTION

During the period May 4th to 5th, 1971, an airborne geophysical survey was undertaken by Seigel Associates Limited over eight contiguous claim groups located in Baird and Heyson Townships, near the Town of Red Lake, Ontario on behalf of Madsen Red Lake Gold Mines Limited. (see Figure 1 on a scale of 1:250,000). A total of 185 line miles was flown over an area 7 miles long covering 8 groups of claims (see Figure 2 on a scale of 1" = 3520').

The airborne survey included electromagnetic and magnetic measurements. Geophysical equipment used for these measurements was respectively a Scintrex Rio-Mullard type in-phase and out-of-phase electromagnetic system operating at 320 cps and a Scintrex MAP-2 nuclear precession magnetometer.

Appendix A attached gives full details of the airborne geophysical equipment and ancillary equipment employed as well as the treatment of data resulting from these surveys. The basic transport vehicle employed during the survey was a DeHavilland Otter aircraft (CF-IUZ) owned by Scintrex Limited, Toronto.

In-flight navigation and flight path recovery were based on a mosaic with a scale of 1" = 1320'. The survey line spacing was one-eighth

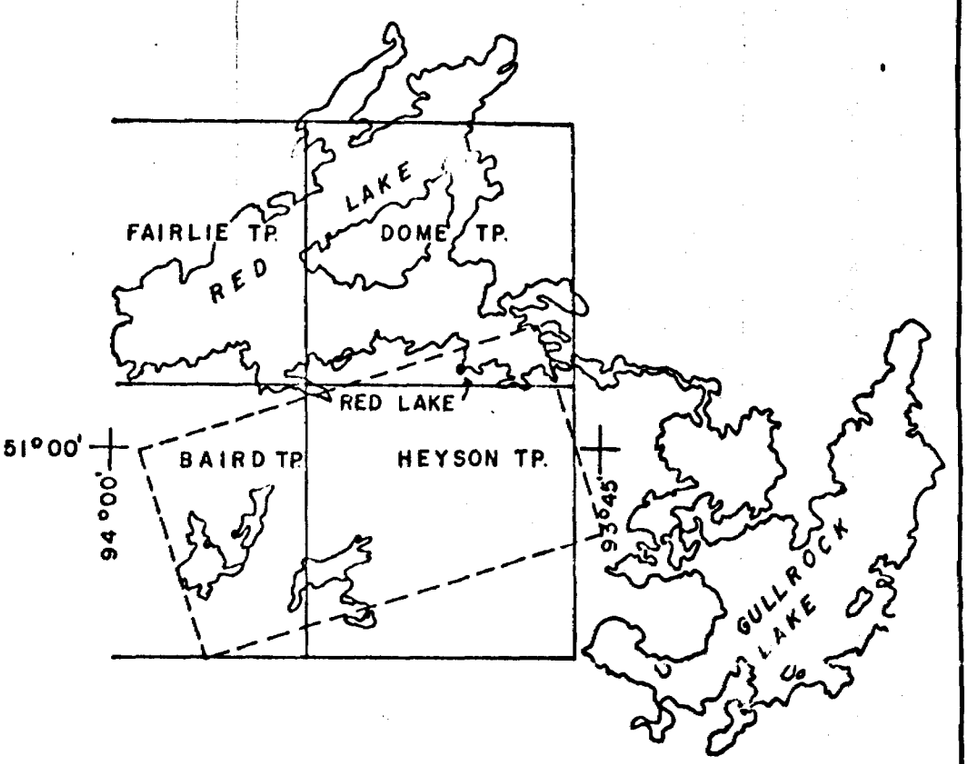


FIGURE 1

LOCATION MAP

MADSEN RED LAKE GOLD MINES LIMITED

RED LAKE AREA, ONTARIO

AIRBORNE GEOPHYSICAL SURVEY

SCALE : 1:250,000

71-9376

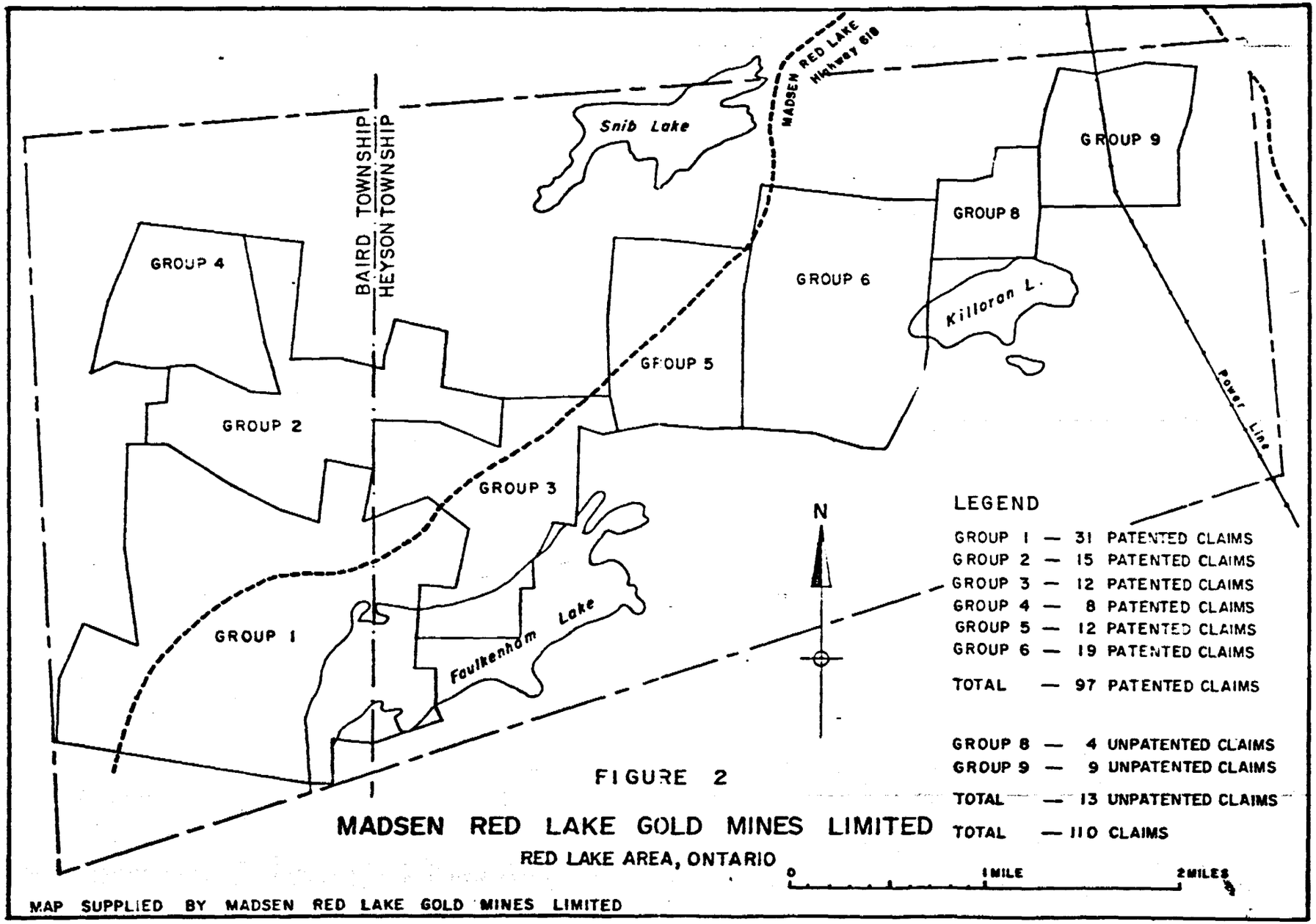


FIGURE 2

MADSEN RED LAKE GOLD MINES LIMITED

RED LAKE AREA, ONTARIO

MAP SUPPLIED BY MADSEN RED LAKE GOLD MINES LIMITED

mile, the line direction being approximately northwest-southeast.

The survey was flown at an average airspeed of 90 miles per hour and at an average altitude of 170 ft.

The purpose of the electromagnetic survey was to map the distribution of subsurface conducting systems within the survey area. The simultaneous magnetometer survey was used primarily to obtain (where applicable) correlation of magnetic activity with conducting systems.

PRESENTATION OF DATA

The results of the geophysical survey are presented on Plate 1 on the scale of 1" = 1320', the electromagnetic results being shown together with the flight lines, fiducial points, etc.

The peak location of the anomalies is shown on Plate 1 by a circle in the appropriate location. In the case of broad conductors or closely spaced multiple conducting zones, there may be more than one peak. In this event all major peaks are shown. The conductor half width, indicated on the plan by an open bar, is the distance between the points of half the maximum conductor disturbance on the geophysical traces.

The in-phase and out of-phase amplitudes are scaled from the original traces and are noted in parts per million opposite the peak location. A conductor peak with apparent direct magnetic correlation is indicated by a double concentric circle.

The original geophysical traces are on the following scales:

Edin Recorder: (from top to bottom of chart)

1st and 2nd channel	not used
3rd channel	magnetometer - 25 gammas/mm
4th channel	electronic noise indication
5th channel	altimeter - Logarithmic
6th channel	electromagnetometer - 80 ppm/mm (out of phase)
7th channel	electromagnetometer - 30 ppm/mm (in phase)
8th channel	accelerometer
9th channel	fiducial marker

Anadex Recorder

The total magnetic field values were recorded in digital form on a paper print-out together with the fiducial numbers.

DISCUSSION OF RESULTS

The following interpretation is based on the geophysical data only.

The airborne survey resulted in the location of one conductor system and twenty-nine single line anomalies. The conductor amplitudes exhibit a spectrum of responses, with the majority of the intersections being graded in the second and third categories.

One of the most important criteria in the evaluation of the electromagnetic anomalies is the in-phase/out-of-phase ratio. In general highly conducting bodies such as massive sulphides or graphite and sea water

have high ratios; poorly conducting geological features (e.g. shear zones) and most overburden, will have lower ratios. In areas where there is a clear differentiation in conductivity between targets of economic interest and other possible conductors the ratio is a diagnostic feature. In some areas there is an overlap of conductivity ranges and then the ratio cannot be too rigidly relied upon. Another important criteria is the magnetic coincidence. A conducting body which shows a magnetic correlation is more likely to be a sulphide body than one that is non-magnetic. There are, however many important base metal deposits which are quite non-magnetic. Still another important criteria is the strike length. Most producing base metal mines have ore bodies of only a relatively short strike (median of 1000 ft.) which give only a single or double line anomaly during the course of any reconnaissance airborne survey. For this reason single line anomalies cannot be overlooked, but neither must long conducting zones be neglected as some ore bodies are known to occur along extensive conductive marker horizons (e.g. Thompson area).

Anomalies located during the survey area can be classified under four categories.

1) Anomalies caused by horizontal conductors such as lake bottom sediments, swamps, etc. A typical example of this type of anomaly is zone 1. intersection A37 (magnetics associated are fortuitous), anomaly A27, A33, B43, etc.

2) Anomalies of a man-made origin (e.g. power lines, railway tracks, etc.) Typical examples of this kind of anomaly are electromagnetic

distortions on lines 13 and 14 over the mine site.

3) Anomalies caused by steeply dipping tabular conductors. These can be caused by metallic conductors such as sulphides, graphite, etc. There are two anomalies in the survey area which are clearly due to vertically dipping conductors. They are anomalies A and B on line 13.

Anomaly A13 reveals strong in-phase and out-of-phase response, a good ratio (> 2) and direct magnetic correlation. This anomaly is very likely caused by sulphides and is recommended for further investigation.

Anomaly B13 shows only weak response and no magnetic correlation. Despite this the anomaly is of interest because it is clearly caused by a vertical source.

CONCLUSIONS AND RECOMMENDATIONS

During the survey over claim groups in Baird and Heyson Townships one conducting zone and twenty-nine isolated anomalies were revealed.

Investigation of the electromagnetic anomalies should be limited to the anomalies A and B on line 13, because they show promising geophysical parameters. (Second priority targets are intersections 15B, 62A and $65A_1$.) For examination of these two anomalies (A and B) two small grids should be set up for ground follow-up; these small grids should comprise a baseline, approximately 2000 ft. long, and 6 lines perpendicular to the baseline at 400 ft. spacing, having a length of 1000 ft. on either side. The survey should consist of geological mapping, magnetic and electromagnetic measurements. The writer's are of the opinion that the Turam electromagnetic method would be suitable for quantitative and qualitative evaluation of the targets.

Respectfully submitted,

Klement Danda, M.Sc., P.Eng.,
Geophysicist.

Jan Klein, M.Sc., P.Eng.,
Geophysicist.

TABLE 1 - AIRBORNE ELECTROMAGNETIC ANOMALIES

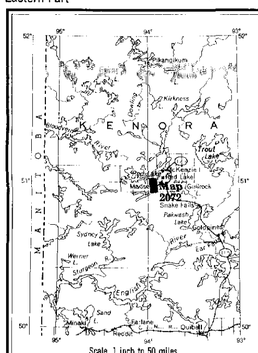
Zone No.	Strike	Location	Amplitude	Category	IP/OP Ratio	Magnetic Correlation	Remarks
		A62	100/50	2	2.0	100	possible noise
		$A_1$65	90/30	3	3.0	170	possible noise
		$A_2$65	80/60	3	1.3		possible noise

TABLE 1 – AIRBORNE ELECTROMAGNETIC ANOMALIES

Zone No.	Strike	Location	Amplitude	Category	IP/OP Ratio	Magnetic Correlation	Remarks
1	E-W	A42	120/70	2	1.7	1000	broad, horizontal layer
		A43	120/100	2	1.2		broad, horizontal layer
Isolated Anomalies		A7	70/40	2	1.7	100	weak response
		A13	630/270	1	2.3	200	strong response, excellent anomaly
		B13	100/100	2	1.0		weak response
		A14	70/30	3	2.3		possible noise
		A15	70/40	3	1.7		possible noise
		B15	60/30	2	2.0		possible noise
		A18	90/50	3	1.8		weak response
		A26	100/60	3	1.7		possible noise
		A27	70/40	3	1.7	150	possible noise
		A29	90/40	3	2.2	150	possible noise
		A32	130/90	2	1.4		weak response
		B32	120/90	2	1.3		weak response
		A33	90/60	2	1.5		possible noise
		B33	120/40	2	3.0		possible noise
		A37	150/120	2	1.2		broad, horizontal layer
		A41	160/100	2	1.6	150	possible noise
		B43	160/100	2	1.6		broad, horizontal layer
		A44	150/90	2	1.7		possible noise
		B44	120/90	3	1.3		possible noise
		C44	120/70	2	1.6		possible noise
		$A_1$49	60/60	3	1.0		possible noise
		$A_2$49	70/50	3	1.4		possible noise
		A50	130/120	2	1.1		weak response
		A53	120/90	2	1.3		weak response
		A55	110/70	2	1.6		possible noise
		A60	70/50	3	1.4		possible noise

-continued-

Map 2072
Baird Township
Eastern Part



LEGEND

CENOZOIC*

RECENT
Peat, tailings, sand.

PLEISTOCENE
Sand, gravel.

GREAT UNCONFORMITY

PRECAMBRIAN**

INTRUSIVE ROCKS

- *7a Porphyritic metagabbro ("turkey-track").*
- *7b Metagabbro (cuts 5a).*
- *6a Quartz-feldspar porphyry.*
- *6b Sericitized quartz porphyry.*
- *5a Pink to grey biotite granodiorite.*
- *4a Diorite (border phase of stocks).*
- *3a Metagabbro.****
- *3b Hornblendite.*
- *3c Serpentinite, tremolite-talc schist.*

INTRUSIVE CONTACT

ACID TO INTERMEDIATE METAVOLCANICS

Welded Tuff Unit

- *2a Porphyritic quartz latite.*
- *2b Porphyritic latite containing over 10 percent mafic minerals ("Howey diorite").*
- *2c Latite breccia.*
- *2d Fine-grained quartz latite.*

BASIC TO INTERMEDIATE METAVOLCANICS

- *1a Basalt (metabasalt), uniform, massive.*
- *1b Basalt (metabasalt) fine-grained with pillows and amygdules.*
- *1c Flow top breccia.*
- *1d Variolitic basalt (metabasalt).*
- *T Tuff beds.*
- *IF Chert and lean iron formation.*

- *Au Gold.*
- *q Quartz.*
- *qc Quartz-carbonate.*

*Unconsolidated deposits. Cenozoic deposits are not differentiated on the map. For the most part they coincide with the lighter coloured and uncoloured parts of the map.

**Bedrock geology. Outcrops and inferred extensions of each rock unit are shown, respectively, in deep and light tones of the same colour. Where in places a formation is too narrow to show colour and must be represented in black, a short black bar appears in the appropriate block.

***May include the coarser grained parts of basalt flows.

SOURCES OF INFORMATION

Geology and geophysics by S. A. Ferguson and assistants, Ontario Department of Mines, 1962.

Cartography by D. F. Jupe and P. Ralph, Ontario Department of Mines, 1964.

Geological and ground geophysical maps and plans of mining companies.

Base map from plans and surveys of the Division of Surveys and Engineering, Ontario Department of Lands and Forests, with additional information by S. A. Ferguson.

The designating letters "KRL" have been omitted on this map from the numbers marking the mining claims recorded at the office of the Red Lake Mining Division.

Magnetic declination approximately 7° East, 1962.

SYMBOLS

- *Glacial striae.*
- *Small rock outcrop.*
- *Boundary of rock outcrop.*
- *Geological boundary, defined.*
- *Geological boundary, approximate or assumed.*
- *Magnetic contour, value in gammas.*
- *Strike and dip; direction of top unknown.*
- *Strike and vertical dip; direction of top unknown.*
- *Direction in which lava flows face as indicated by shape of pillows.*
- *Synclinal axis, anticlinal axis.*
- *Strike and dip of schistosity.*
- *Strike of vertical schistosity.*
- *Strike of schistosity, dip unknown.*
- *Lineation, plunge known.*
- *Fault, defined.*
- *Fault, indicated or assumed.*
- *Open muskeg, swamp or marsh.*
- *Muskeg or swamp.*
- *Motor road. Provincial highway number encircled where applicable.*
- *Other road.*
- *Trail, portage, winter road.*
- *Building.*
- *Shaft, vertical.*
- *Test pit or trench.*
- *Drill hole, inclined.*
- *Drill hole, geology projected vertically to horizontal plane.*
- *Drill hole, geology projected up dip of formations to horizontal plane.*
- *Vein, width in inches.*
- *Orebody, projected to surface.*
- *Township boundary, approximate location only.*
- *Property boundary, approximate position only.*
- *Claim line surveyed, approximate location only.*
- *Picket line.*
- *Approximate position of former mining property. 1. Childs Red Lake Mines Ltd. 2. Riverdale Gold Mines Ltd. 3. Scheelaur Mines Ltd.*

Airborne EM. anomaly – in phase/out of phase/magnetics
630/270/200

ONTARIO
DEPARTMENT OF MINES

HON. G. C. WARDROPE, *Minister of Mines*
D. P. Douglass, *Deputy Minister* M. E. Hurst, *Director, Geological Branch*

Map 2072

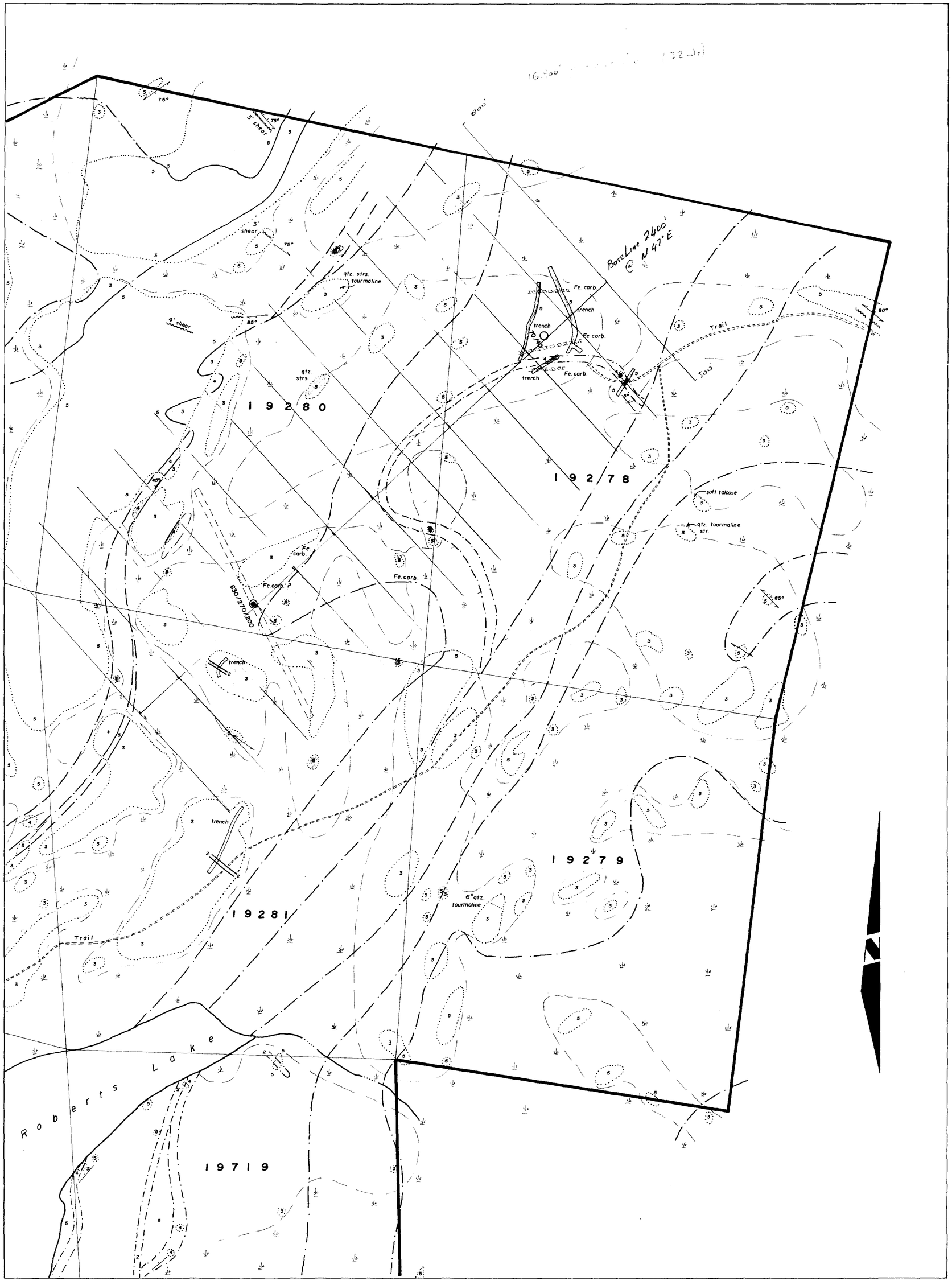
BAIRD TOWNSHIP
Eastern Part

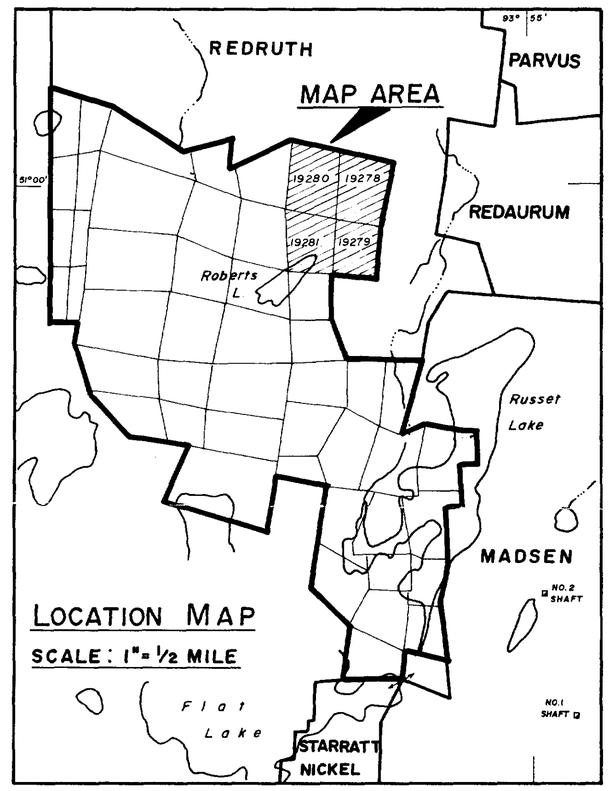
KENORA DISTRICT

Scale 1:12,000 or 1 Inch to 1,000 Feet

Feet 1000 0 1000 2000 3000 4000 5000 Feet
Chains 10 0 ¼ ½ ¾ 1 Mile
Metres 100 0 0.2 0.4 0.6 0.8 1 Kilometre

52N04SW8901 63.3364 BAIRD
200





LEGEND

- 2 — Quartz - feldspar porphyry
- 3 — Hornblende diorite and gabbro
- 4 — Keewatin iron formation
- 5 — Keewatin lavas
- Shear zone
- Dip & strike, bedding
- Dip & strike, schistosity
- Geological contact, defined, assumed
- Outcrop
- Swamp
- Airborne EM. anomaly - in phase/ out of phase/ magnetics (630/270/200)

GEOLOGY MAP

AIKEN-RUSSET RED LAKE MINES LTD.

NORTH-EAST CORNER CLAIMS

BAIRD TWP., ONTARIO

SCALE: 1" = 200'

GEOLOGY BY G.D. RUTTAN MAY 1946

REGISTERED PROFESSIONAL ENGINEER J. L. TINLEY PROVINCE OF ONTARIO

52N04SW8981 63.3364 BAIRD

210

63.3364