

52C11NE0057 OM90-060 HALKIRK

010

PRELIMINARY EXPLORATION REPORT
ON
HALKIRK AND WATTEN TOWNSHIP PROPERTIES
FOR
NOR-NOROCK MINING COMPANY LIMITED

J.E.Steers & Associates Inc.
219 Vance Drive
Oakville, Ontario
L6L 3K9

June 1, 1990

SUMMARY

Nor-Norock Mining Company Limited (NNMCL) holds a 100% interest in 18 contiguous, leased mining claims and will acquire a 100% interest in 19 additional staked mining claims (1480 acres) in Halkirk and Watten Townships, Kenora Mining Division, Ontario. The group is readily accessible by paved and gravel roads from Fort Frances some 20 miles to the west.

The property is largely underlain by a simple, slightly overturned, gabbro-anorthosite sill known to host copper-nickel and copper occurrences. The leased claims host a substantial drill indicated tonnage of copper-nickel mineralization in a number of lenses, at relatively shallow depth. The mineralized horizon is open along strike to the northeast, down plunge to the west and at depth.

It is concluded that some basic exploration work is required to further define the mineralized horizon and define some as yet unresolved or partially resolved ground and airborne electromagnetic responses before additional diamond drilling is undertaken.

It is recommended that geophysical and geochemical surveys, prospecting and field location of drill collars and previously established grids be carried out.

It is estimated that a four man crew can accomplish the recommended program in approximately 30 days at an estimated cost of \$45,000.



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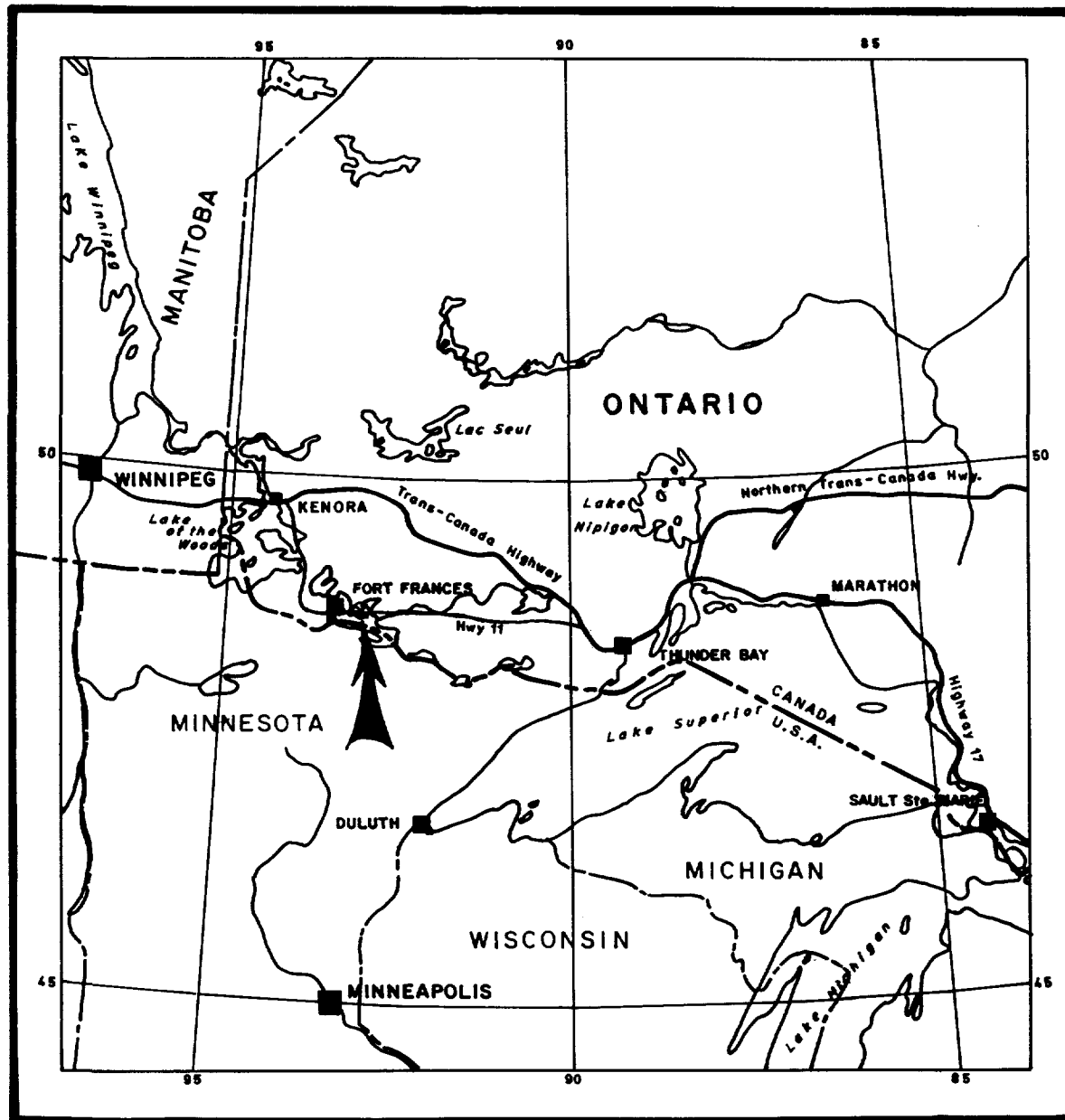
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KEY MAP

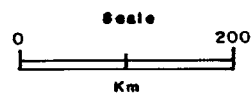
NOR-NOROCK Mining Company Limited

HALKIRK & WATTEN Townships

District of RAINY RIVER

KENORA Mining Division

ONTARIO



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1.0.0 INTRODUCTION

Nor-Norock Mining Company Limited, (NNMCL) a privately held mining company with offices at Suite 321, 3701 Chesswood Drive, Downsview, Ont., M3J 2P6 holds a 100% interest in 18 contiguous, leased mining claims located in Halkirk and Watten Townships, Kenora Mining Division of Ontario and has the right to acquire a 100% interest in an additional 19 recently staked, unpatented mining claims also located in Halkirk and Watten Townships currently registered in the name of Mr. A.J. Lewis, President of both Nor-Norock Mining Company Limited and Kalrock Developments Limited (KDL) and being held in trust for NNMCL (figure 2).

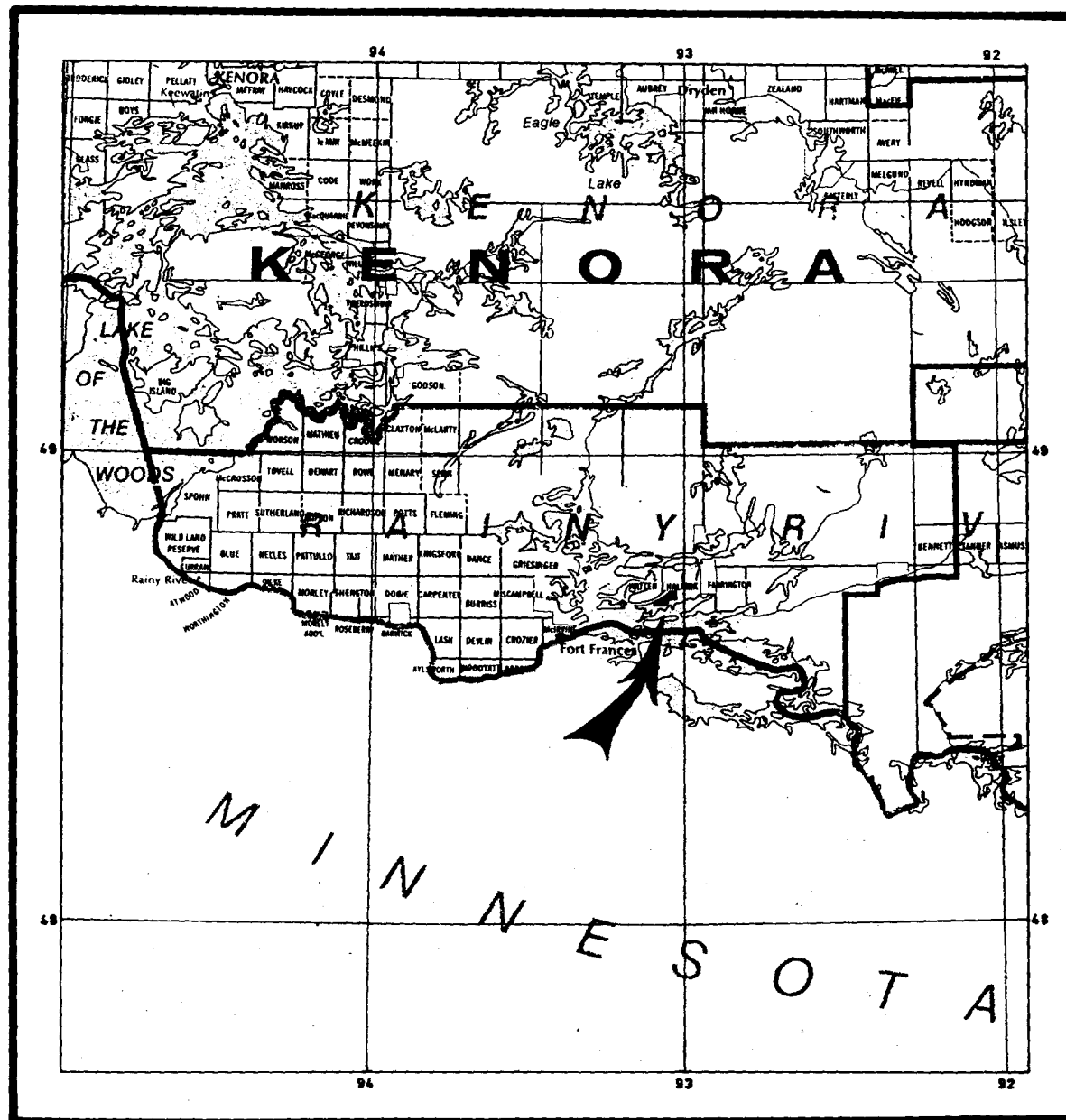
Exploration and development work carried out on the leased claims has established the presence of a number of lenses of disseminated to massive pyrrhotite-pyrite-chalcopyrite mineralization which have been variously estimated to contain 1 million tons averaging 1.17% copper over a strike length of 1200 feet or 300,000 tons of about 2% copper over a strike length of 900 feet (Poulsen Hodgson, 1984).

An underground development program which consisted of the sinking of a 200 foot shaft and 700 feet of lateral drifting on the 175 foot level partially explored two of the lenses over a total strike length of about 300 feet (Poulsen and Hodgson, 1984).

A number of geological, geophysical (including an Ontario Government sponsored airborne electromagnetic and magnetic survey) and diamond drill campaigns have been carried out over the subject claims, or parts of the claims by a variety of operators since the discovery of copper mineralization in 1958.

J.E. Steers & Associates Inc. were requested by Mr. A. J. Lewis, President of NNMCL and KDL to review the extant data, the recommendations for further work; and, if deemed warranted, recommend a program of further work for 1990.

No property visit was made since the underground workings are all flooded, none of the drill core is available for examination at the property and it is believed that an adequate written record is available. The basis of this report and the accompanying conclusions and recommendations is a thorough



LOCATION MAP

Figure 1

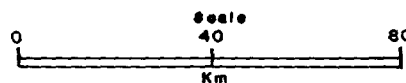
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study of all available maps, reports and drill logs covering previous programs carried out on the property. Although the written record had to be relied upon for this report the conclusions and recommendations presented are entirely those of the author.

1.1.0 NATURE and SCOPE of REPORT

The objectives of this report are to determine the potential for mineralization on the claim groups, subjectively rate the various targets which were expected to emerge and recommend a work program for 1990 which would have the potential to enhance the property and be in keeping with the funding level likely to be available in 1990.

1.2.0 METHOD of INVESTIGATION

The author reviewed all of NNMCL's files, obtained copies of documentation not available in NNMCL's files from the files of the Ontario Ministry of Natural Resources (OMNR) in Toronto and Kenora, reviewed various government maps and publications and held extensive discussions with Mr. A.J. Lewis.

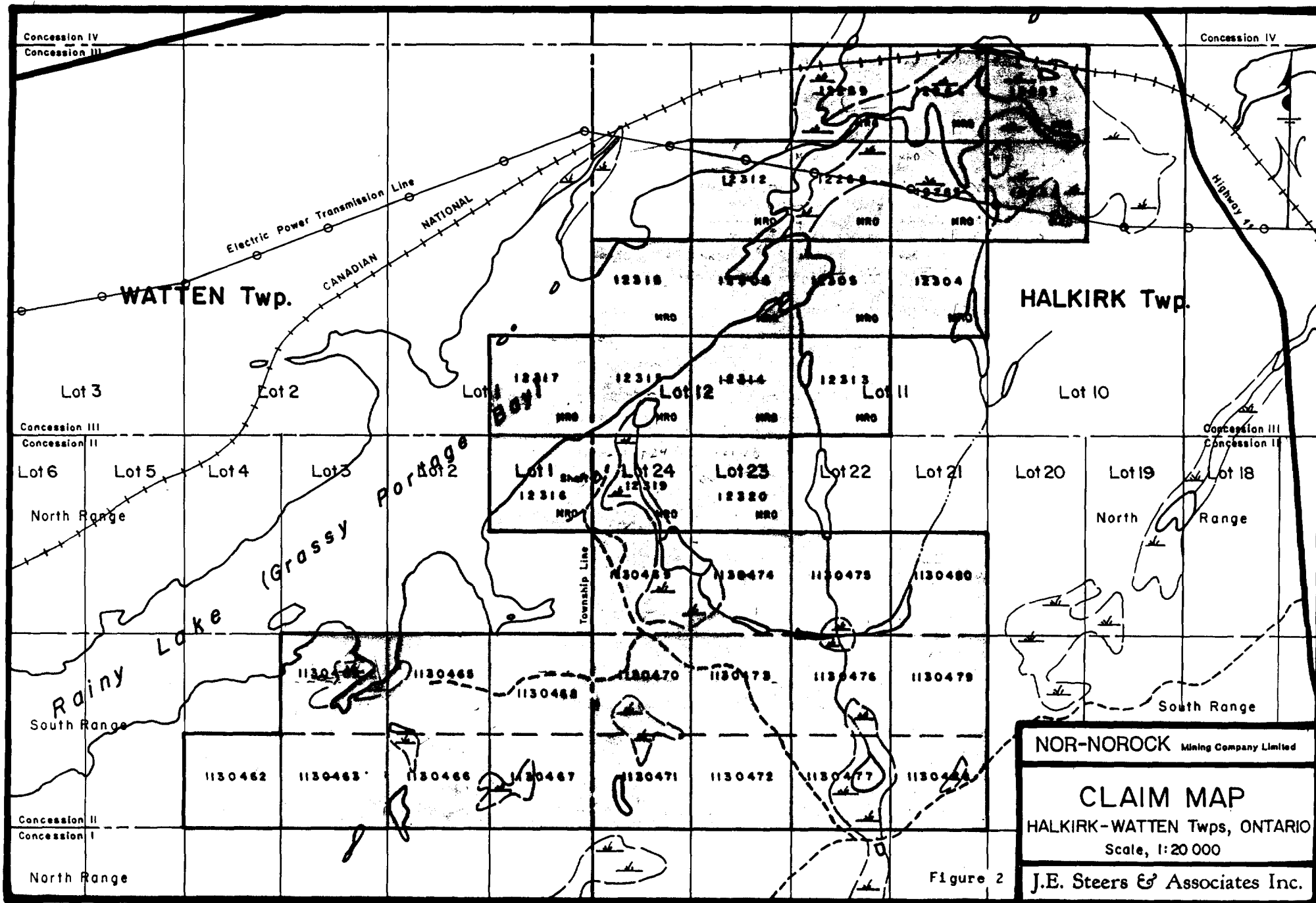
1.3.0 RESULTS and LIMITATIONS

The facts presented represent a thorough review of all the data available; however, the written record contains a number of inconsistencies which cannot be resolved at this time. Discrepancies exist between co-ordinates listed on drill logs and locations of drill collars as plotted on existing plans;(perhaps the hole locations were surveyed later and the original logs were not changed, the plans would be correct, and the logs incorrect?); elevations of drill collars with respect to lake level (some logs indicate lake level is 1112 feet others indicate lake level is 1108 feet); OMNR maps indicate areas of continuous outcrop whereas detailed geological mapping indicates "patchy" outcrop where it appears that outcrop was "made" by stripping moss or digging through shallow overburden (inspection of the airphoto coverage of the area indicates very little continuous outcrop); a number of airborne electromagnetic conductive zones have not been detected by ground surveys; some conductive zones indicated on ground surveys are not supported by airborne responses figure 5); the various ground grids utilized by previous operators cannot be accurately re-plotted and reconciled. The data

available has been compiled on a "best fit" basis and the final reconciliations will have to await the results of field checks.

For the purposes of this report no attempt was made to recalculate the tonnage and grade of the known zones as it is believed that the prior calculations were carried out by competent professional engineers and that considerable additional exploration is required to substantially increase the known tonnage and grade to create an economically viable project. The tonnages and grades quoted are considered to be drill indicated. There are no proven or probable reserves on the property.

*Note: the use of the terms "ore grade, grey ores, black ores" are the terms of the authors being quoted and not this author's terms.



1.4.0 PROPERTY DESCRIPTION

NNMCL holds a 100% interest in the mineral rights (subject to \$0.02 per pound of copper produced and a 2% royalty on any other metal produced) in 18 contiguous leased nominally 40 acre claims, surface rights to 4 leased claims. 1990 taxes have been paid on the leased claims and all leases are in good standing until at least 12/01/1992.

CLAIM NO.	TOWNSHIP	DUE DATE	SURFACE RIGHTS
12257	Halkirk	12/01/92	
12264	Halkirk	08/01/93	
12265	Halkirk	08/01/93	40 acres
12266	Halkirk	12/01/92	
12268	Halkirk	08/01/93	
12269	Halkirk	12/01/92	
12304	Halkirk	01/01/10	
12305	Halkirk	01/01/10	
12306	Halkirk	12/01/92	
12312	Halkirk	12/01/92	
12313	Halkirk	01/01/10	
12314	Halkirk	01/01/10	
12315	Halkirk	10/01/10	14.88 acres
12316	Watten	12/01/92	39.77 acres
12317	Watten	12/01/92	
12318	Halkirk	12/01/92	
12319	Halkirk	01/01/10	40 acres
12320	Halkirk	01/01/10	

NNMCL will acquire a 100% interest in 19 contiguous unpatented nominally 40 acre claims recorded March 12, 1990 and transferred to Mr. A.J. Lewis who is holding them in trust for NNMCL. These claims are numbered consecutively 1130462 to 11304680 inclusive and are in good standing through March 12, 1991 when 20 man days assessment will be due on each claim.

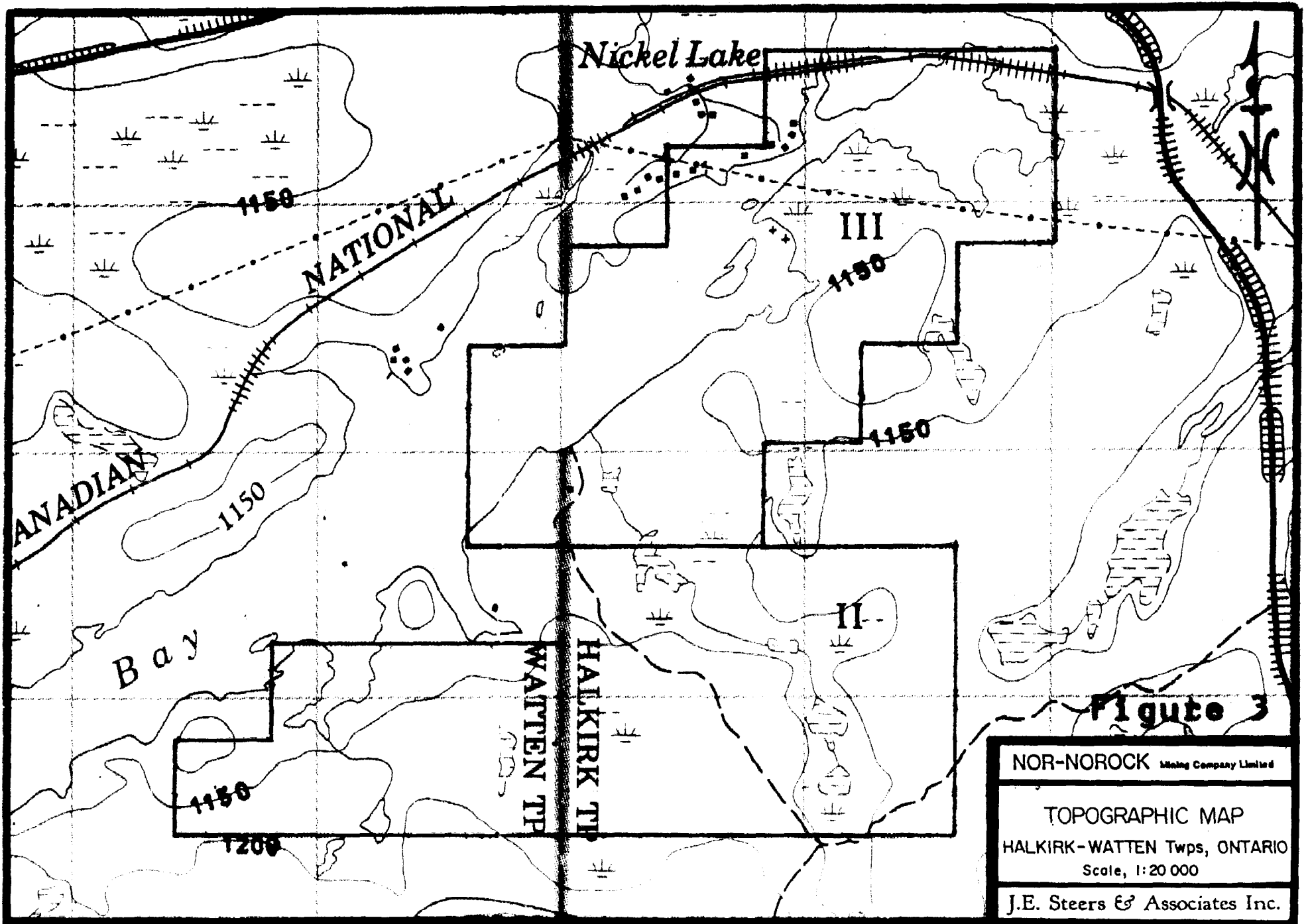


Figure 3

NOR-NOROCK Mining Company Limited

TOPOGRAPHIC MAP
 HALKIRK-WATTEN Twps, ONTARIO
 Scale, 1:20 000

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2.0.0 LOCATION and ACCESS

The properties are situated on the common boundary of Halkirk and Watten townships, Kenora Mining Division of Ontario and are located on the south shore of Grassy Portage Bay of Rainy Lake. Highway 11 from Fort Frances, some 20 miles to the west provides ready access to the property. The communities of Atikoken and Kenora are approximately 66 miles to the east and 90 miles to the north respectively.

The northern boundary of the property lies along the Canadian National Railway and Highway 11. The power transmission line is located approximately 3.5 miles to the north. Labour and supplies are available locally and water and timber are easily attainable.

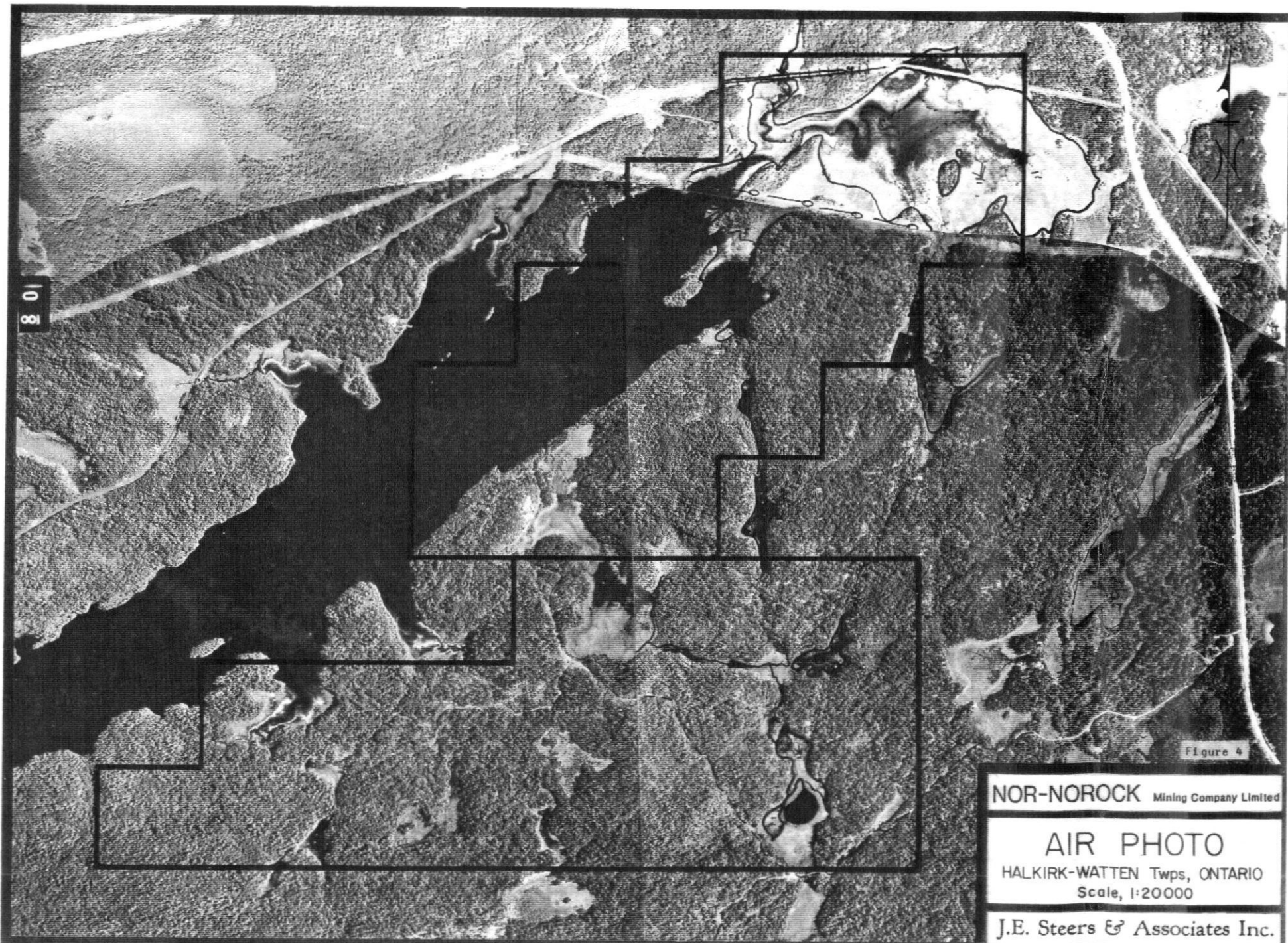
2.1.0 TOPOGRAPHY

Maximum relief in the entire area is 250 feet (Harris,1974). Locally relief is in the order of 100 to 150 feet. Barker,1984 describes the topography as follows, "topography is somewhat rugged over large parts of the claim group, with 25-100 foot high outcrop ridges standing in an area of mixed beaver swamp and second growth poplar and spruce. Numerous small ponds and creeks cross the property."

2.2.0 HISTORY

Exploration has been carried out regionally since the early part of the century but intensified following a copper discovery by Noranda Explorations on ground now held by NNMCL. Prospecting, geological, geophysical, and diamond drill programs were subsequently carried out from 1958 to 1968.

Seemar Mines Ltd. optioned the property from Noranda Mines Ltd. (Noranda) in 1968 and carried out additional diamond drilling during 1969 and 1970. Northrock Explorations obtained an 80% interest in Seemar's interest and carried out diamond drilling and an underground development program (although this latter program is believed to be premature in view of the limited tonnage indicated to that date, an underground program was a requirement under the terms of the Noranda agreement.) The property, the presently leased claims, was turned over to a newly formed company, Nor-Norock Mining Company Limited, which acquired the interests retained at that time in NNMCL by Noranda and



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Figure 4

NOR-NOROCK Mining Company Limited

AIR PHOTO

HALKIRK-WATTEN Twps, ONTARIO
Scale, 1:20000

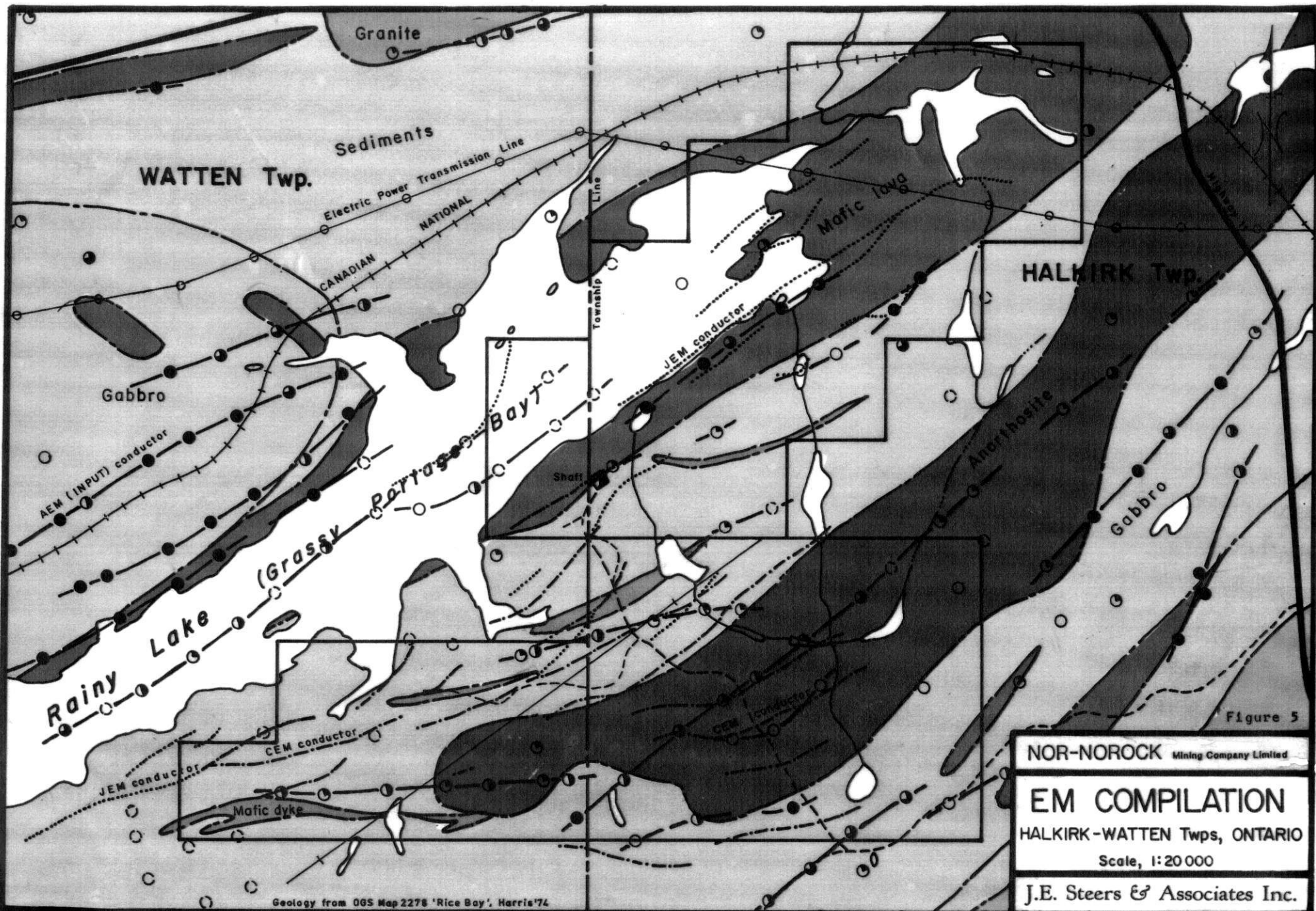
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Seemar.

The adjacent newly acquired claims have previously been held (in part) by Noranda(1958), Cominco(1966) and Kalrock Mines Limited(1980), an outline of the work conducted by these groups will follow.

The Ontario Geological Survey (OGS) mapped the area at a scale of 1 inch to 1/4 mile in 1968 and 1969 and published the results as Geological Report 115 (Harris, 1974). Harris's map indicates large areas of nearly continuous outcrop south of Grassy Portage Bay whereas more detailed mapping by Noranda (Hodgson, 1959) on picket grids indicates very patchy outcrop, much of which appears to have been "made" by the stripping of moss or thin soil cover. Inspection of airphotographs supports this conclusion. An excellent regional database is provided by an OGS sponsored INPUT electromagnetic and magnetic survey, published in 1980 as OGS Geophysical/Geochemical Series Maps 80496, 80497. These maps show a number of conductive zones on the NNMCL properties, only some of which have been detected by surface geophysical surveys conducted to date. It is noteworthy that the short strikelength lenses of massive and disseminated sulphides on NNMCL ground were not detected by this survey.

Hansen (1981) in an interpretive report for Kalrock Mines Limited (KLM) states that the INPUT system requires a minimum strike length of 100 metres to detect massive sulphides and can detect conductive material to depths of 200 metres. (This author has had experience with INPUT detecting conductive material at far greater depths in areas where the cover is resistive.) Figure 5 is a compilation of all known electromagnetic (EM) axes. The lack of complete correlation between and among the various systems is likely due to a curious combination of instrumentation vintage, depth to top of the feature, poor coupling, possible shallow dips as encountered to the northeast and problems with axis determination. Some of the airborne (AEM) features appear to occur in close proximity to mapped shear and gossan zones. Although the notes on Hodgson's 1959 map are difficult to read there are notations of sulphide mineralization but few reported assays.

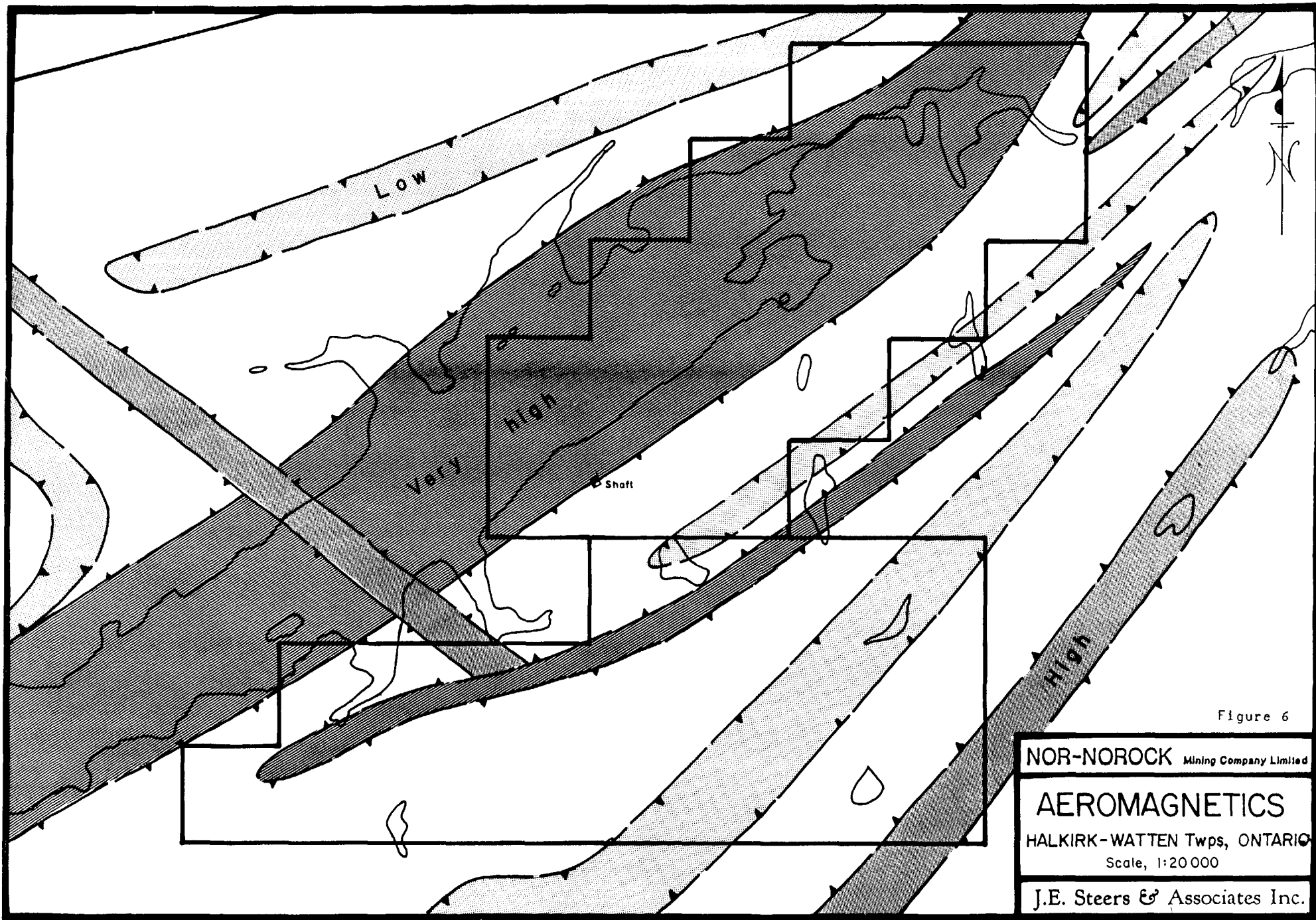


During 1981-2 K.H. Poulsen of the OGS carried out geological studies of the setting of the mineralization in the Mine Centre Fort Frances area, including the subject area. Subsequently (1984) with Hodgson they published a paper entitled Mineralization Associated with Archean Gabbro-Anorthosite Intrusions, Rainy Lake area, Northwestern, Ontario in which they presented a new structural interpretation, compared the area to other metalliferous gabbro-anorthosite complexes of the Superior Province and pointed out the association of copper(Cu)-nickel(Ni) deposits with the basal part of the layered intrusive complex (NNMCL setting) and iron-titanium deposits and copper deposits with the upper portion of the intrusion. It is their structural interpretation that is used here rather the previous interpretations which suggest the complex was a large synform.

Prior surveys carried out over all or part of the claim groups include prospecting, geological mapping, magnetometer Junior EM (JEM: a very early and low powered version of Crone Geophysics shootback system) and apart from the main mineralized zones on the leased claims, 2 drill holes: N20, N83, which obtained no significant values.(Noranda 1958-62)(plate 1)

Over the southern portion of the new claims Cominco(1966) carried out geological mapping and induced polarization and resistivity surveys. Of several features detected one was drilled by Hupchuck and Armstrong, holes H-10,H-11. The best result was from hole H-11 which intersected 30 feet of 10% pyrrhotite containing disseminated chalcopyrite and sphalerite, 10 ft. of which assayed 0.11% Cu. 2.53% Zn.and trace Ni.

Kalrock Developments Limited acquired a group of twenty claims, essentially the same group as the new claims, established a metric grid with 060° astronomic baseline with lines at 100 metre spacings and stations at 25 metre intervals. Magnetic and EM surveys were carried out using a fluxgate magnetometer and a Crone CEM unit in the horizontal shootback mode, a system suited to detecting wide conductive zones in rugged terrain. 3 main zones of conductivity were detected (A,B,C,) as well as numerous weaker features (Barker,1982). Zone A was further profiled with a MaxMin horizontal loop EM unit. This feature is in the vicinity of holes H-10, and 11 mentioned above.



Barker recommended field work, prospecting, re-location of the old collars and vertical loop (VLEM) or VLF surveys to pin-point the individual conductor axes before attempting to drill these targets. This author is entirely in agreement with this exploration approach for this area, a point of view born out by a subsequent attempt to drill test 3 anomalies two of which failed to intersect a satisfactory explanation for the conductivity. It is believed that all holes either overshot or stopped short of the intended targets due to an inability to properly "pick" the conductive axes. VLEM surveying would have helped immensely in resolving this problem.

Hole 83-2 designed to test anomaly B intersected 7 feet of 20% sulphides (pyrite, pyrrhotite, minor chalcopyrite) is considered to be a successful test. Anomaly C has not been drill tested. (Plate 1)

3.0.0 REGIONAL GEOLOGY

The following account of the regional geology comes from Poulsen and Hodgson, (1984).

"The Archean rocks at Rainy Lake occupy the southern margin of the Wabigoon Subprovince, a granite-greenstone terrane, at its contact with the Quetico Subprovince a metasedimentary-gneissic terrane (Fig.7) Here, the subprovince margin consists of a wrench zone bounded by two dextral transcurrent faults. Between the faults metavolcanic, metasedimentary and plutonic rocks occur in several distinctive lithostratigraphic domains which are separated from one another by narrow shear zones. Layered, gabbro-anorthosite sills occur in the three adjacent domains and may represent either individual intrusions or dismembered segments of a single larger body. The westernmost Grassy Portage intrusion is conformable with pillow basalts and metasedimentary biotite schists in a domain characterized by amphibolite facies metamorphic assemblages. The intrusions have been deformed with the enclosing rocks by folding on a regional scale but the most common deformational features within the intrusions, at a local scale, are ductile shear zones a few centimetres to a few metres wide. Apart from the schists produced by this localized deformation, metamorphism has elsewhere resulted only in recrystallization of minerals without development of strong crystallographic reorientation."

3.1.0 GRASSY PORTAGE INTRUSION

Poulsen and Hodgson make a strong case for the intrusion to be a simple

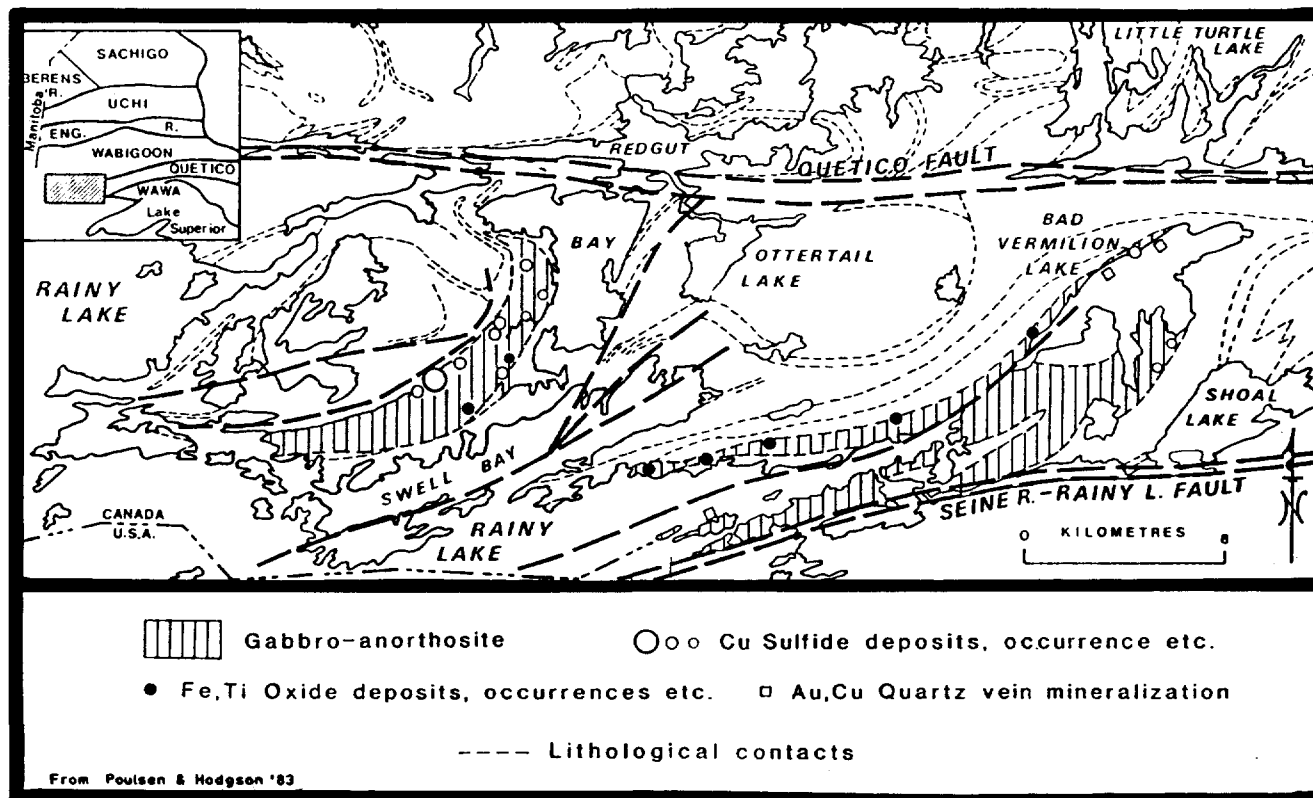


Figure 7

REGIONAL GEOLOGY
NOR-NOROCK Mining Company Limited
HALKIRK & WATTEN Townships
District of RAINY RIVER
KENORA Mining Division
ONTARIO

Table 1
Composition of the Grassy Portage Intrusion

UPPER ZONE

GABBRO; QUARTZ-GABBRO; DIORITE – up to 250 m thick; medium grained equigranular amphibolite; locally well developed modal layering.

QUARTZ-PLAGIOCLASE SCHIST – leucocratic rock with less than 20% actinolite and biotite; 30 to 40% quartz; rock occurs as lenses and blocks up to 20 m thick.

MAGNETITE-APATITE AMPHIBOLITE – actinolite, anthophyllite, talc, Mg-chlorite and apatite with 5-50% magnetite; local rutile-bearing masses.

GARNETIFEROUS QUARTZ DIORITE – medium grained black amphibolite composed of hornblende, plagioclase (An 30 to 38) and quartz eyes; garnets up to 1 cm are common; also abundant apatite, epidote; average 250 m thick.

LOWER ZONE

LEUCOGABBRO – 60-90% plagioclase (An 48 to 52) as framework grains commonly poikilitically enclosed by hornblende oikocrysts; locally contains xenoliths of anorthosite; up to 750 m thick.

ACTINOLITIC AMPHIBOLITE – lenses of actinolite with 5-20% magnetite and local diopside, clinzoisite, phlogopite, sphene, plagioclase.

ANORTHOSITE – narrow members composed of 95% medium grained plagioclase (An 40); local epidote and minor biotite; xenoliths of gabbro observed; possible autointrusion.

GABBRO – medium to coarse grained, equigranular to locally porphyritic and glomeroporphyritic; 50% interstitial hornblende, 50% plagioclase (An 50 to 55); local Mg chlorite and biotite; averages 300 m thick.

MELAGABBRO – 15 m thick lenses at or near the base of the intrusion; 80% hornblende, 10% plagioclase (An 50) + biotite and sulfides.

From Poulsen & Hodgson '83

layered gabbroic sill, with an exposed strike length of 20 km, overturned to the southeast. They state that the mean dip is to the northwest, the contacts are broadly concordant with those of the enclosing volcanic and sedimentary rocks, layering attitudes are consistent with bedding markers in the enclosing rocks, and they present evidence to show that modal and chemical trends across the intrusion are asymmetric to what be expected if the intrusion were isoclinally folded. Additionally they provide detailed stratigraphic descriptions of a 5 unit lower zone and a 4 unit upper zone. (Table 1)

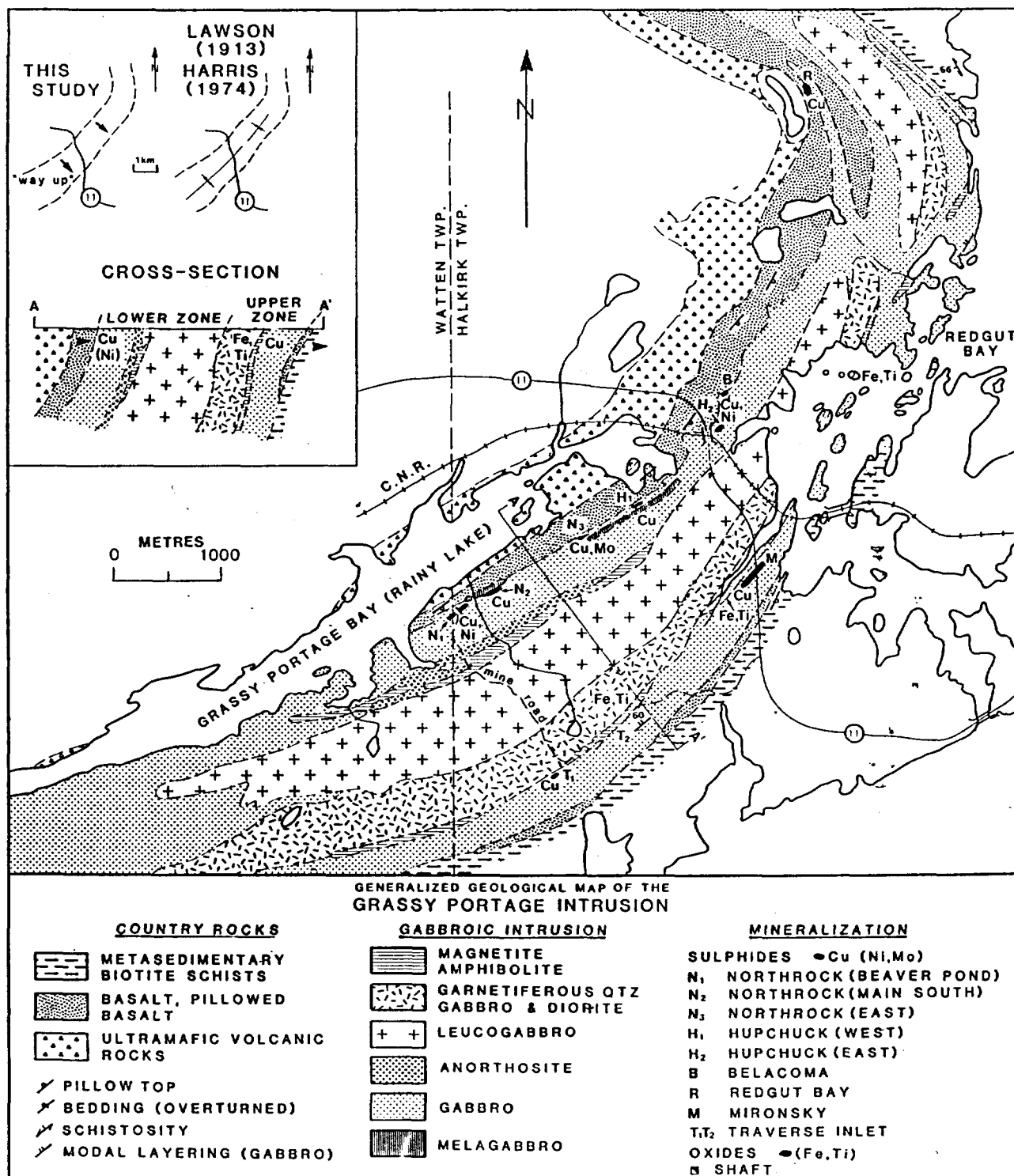
3.1.1 MINERALIZATION

The following account of the mineralization is also taken from the above authors; however in the interest of brevity certain paragraphs have been deleted (those not considered pertinent to this report and those describing the magnetite-ilmenite associations and those describing the magnetite-apatite occurrences).

"Copper sulphides occur in three distinct settings: as lenses of disseminated to massive pyrrhotite-chalcopyrite at the base of the intrusion, as disseminations and stringers in the felsic quartz-plagioclase schist member in the upper zone and as disseminations and stringers, in and near, gabbroic dykes which cut the mafic and ultramafic volcanic rocks beneath the sill. This last type is not of economic significance.

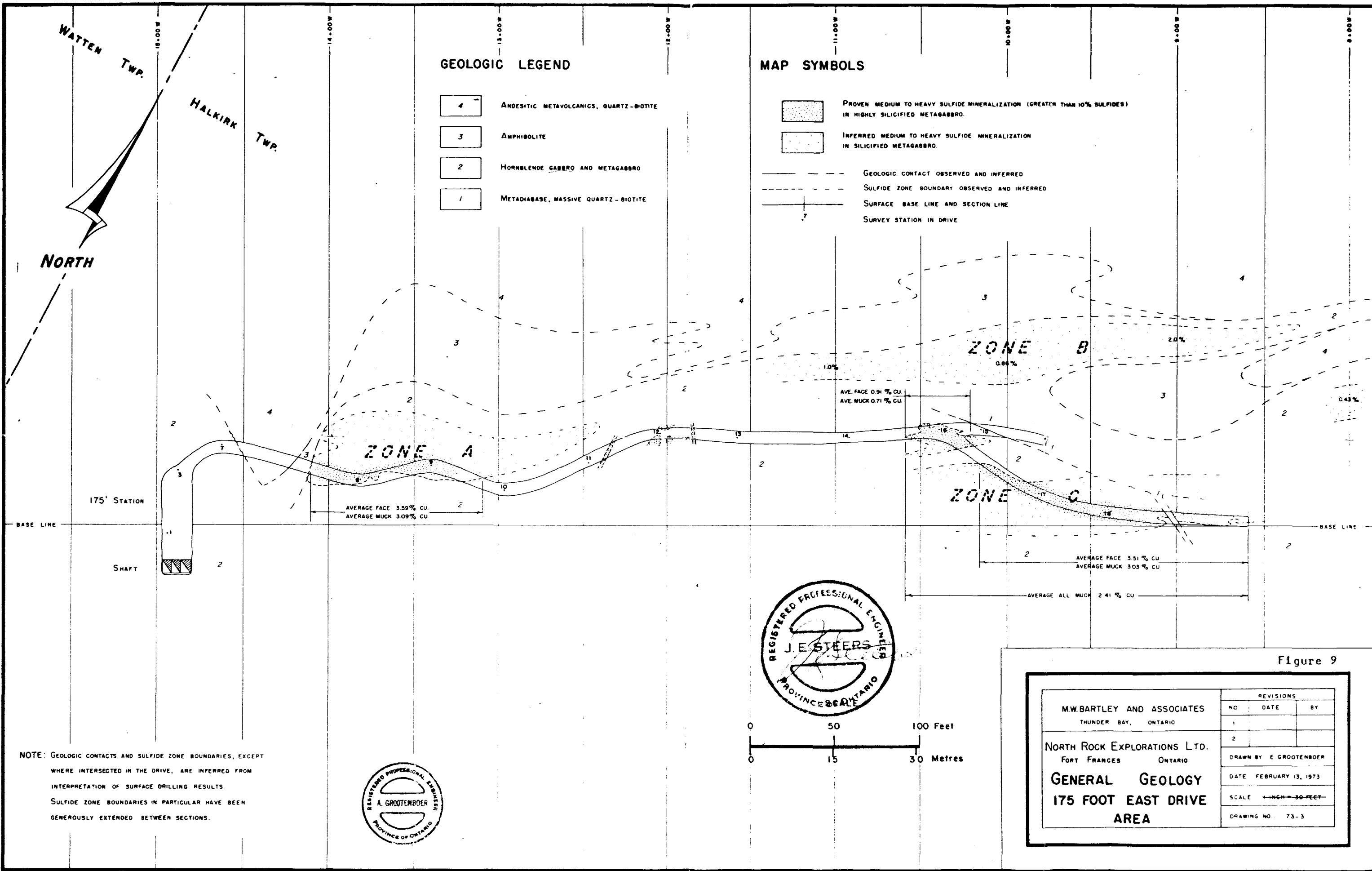
Basal sulphide accumulations occur at several localities along the northern margin of the intrusion. The largest, and most economically significant, is the Beaver Pond Zone on the Northrock leased claims which is composed of several subsidiary lenses. This lenticular form and the variability of grades results in a variety of tonnage-grade estimates for the deposit (Bergman, 1973). These range from 900,744 tonnes grading 1.17% Cu over a strike length of 400 metres to 240,613 tonnes grading 2.08% over a strike length of 300 metres.

High grade (3% Cu) "grey" ores and lower grade "black" (<1%) ores are present. The black ores consist of coarse gabbro with disseminations of chalcopyrite, pyrrhotite and pentlandite and a typical diamond drill intersection from the East Zone averages 0.43% Cu, 0.29% Ni over 16 metres. Molybdenite occurs



BASED ON: MAPPING BY C.J. HODGSON, 1959; K.H. POULSEN, 1980-82; PRIVATE MAPS

Figure 8



GEOLOGIC LEGEND

- 4 ANDESITIC METAVOLCANICS, QUARTZ-BIOTITE
- 3 AMPHIBOLITE
- 2 HORNBLende GABBRO AND METAGABBRO
- 1 METADIABASE, MASSIVE QUARTZ-BIOTITE

MAP SYMBOLS

- PROVEN MEDIUM TO HEAVY SULFIDE MINERALIZATION (GREATER THAN 10% SULFIDES) IN HIGHLY SILICIFIED METAGABBRO.
- INFERRED MEDIUM TO HEAVY SULFIDE MINERALIZATION IN SILICIFIED METAGABBRO.
- GEOLOGIC CONTACT OBSERVED AND INFERRED
- SULFIDE ZONE BOUNDARY OBSERVED AND INFERRED
- SURFACE BASE LINE AND SECTION LINE
- SURVEY STATION IN DRIVE

NORTH

WATTEN TWP.
HALKIRK TWP.

BASE LINE

BASE LINE

175' STATION

SHAFT

ZONE A

AVERAGE FACE 3.59% CU
AVERAGE MUCK 3.09% CU

ZONE B

AVE. FACE 0.91% CU
AVE. MUCK 0.71% CU

ZONE C

AVERAGE FACE 3.51% CU
AVERAGE MUCK 3.03% CU

AVERAGE ALL MUCK 2.41% CU

NOTE: GEOLOGIC CONTACTS AND SULFIDE ZONE BOUNDARIES, EXCEPT WHERE INTERSECTED IN THE DRIVE, ARE INFERRED FROM INTERPRETATION OF SURFACE DRILLING RESULTS. SULFIDE ZONE BOUNDARIES IN PARTICULAR HAVE BEEN GENEROUSLY EXTENDED BETWEEN SECTIONS.

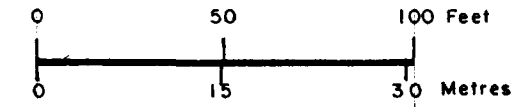


Figure 9

M.W. BARTLEY AND ASSOCIATES THUNDER BAY, ONTARIO		REVISIONS	
NO.	DATE	BY	
1			
2			
NORTH ROCK EXPLORATIONS LTD. FORT FRANCES, ONTARIO		DRAWN BY E. GROOTENBOER	
GENERAL GEOLOGY 175 FOOT EAST DRIVE AREA		DATE FEBRUARY 13, 1973	
		SCALE 1" = 30 FEET	
		DRAWING NO. 73-3	

locally with the other sulphides and one drill intersection from the East Zone averages 0.43% Cu and 0.044% MoS₂ over 22 metres. Grey patches in mineralized gabbro comprise glomerophynocrysts of epidotized plagioclase giving these rocks a characteristic spotted appearance. Sulphide grains invariably occur interstitially to silicate minerals.

The grey ores consist of copper sulphides and pyrrhotite in approximately a 2:1 ratio which form net textured rock. The dominant copper sulphide in the deposit as a whole is chalcopyrite but most specimens from the C lens contain cubanite which can occur in up a 1:1 ratio with chalcopyrite. Pyrrhotite occurs as polycrystalline masses and commonly forms subhedral cores enclosed by chalcopyrite. Pentlandite occurs in association with the pyrrhotite as discrete interstitial grains, as exsolution lamellae or as fracture fillings. Molybdenite is a common minor constituent. Representative specimens of the grey ores average 3.74% Cu, 0.05% Ni, 0.02% Co, 0.02% Zn and 110 ppb Au. The silicate matrix of these ores is composed largely of 1 mm to 1 cm long laths of plagioclase to which clinozoisite alteration imparts grey, pale green, brown and pink tones in hand specimens. Ilmenite and pale green fluorapatite are common constituents of these light coloured rocks. The ilmenite forms centimetre-sized euhedral grains which, in sulphide bearing specimens, are rimmed by coronas of biotite. Microprobe analyses show that the biotite is not particularly rich in TiO₂ and that rutile likely also formed during this "potassic" hydrothermal alteration. Locally, the sulphide ores are slightly schistose and small massive sulphide patches represent tectonic remobilization: pentlandite concentration is greatest in the remobilized ores.

The sulphides which occur in the upper zone of the intrusion, principally at the Mironsky Prospect occur in a fine-to-medium-grained, weakly schistose quartzofeldspathic host containing biotite, actinolite, Mg-chlorite and sphene. Chalcopyrite and pyrrhotite occur in roughly equal proportions as interstitial grains less than one mm in diameter: the result is a grey-green siliceous rock which comprises approximately 300,000 tonnes grading 0.8% Cu (Harris, 1974). In form, the deposit is that of a tabular unit at least 600 x 25 m which is mineralized throughout but contains narrower higher grade zones. Similar smaller lenses occur at the same horizon along strike in the Redgut

Bay area. There the bodies are assimilated metasedimentary blocks within the sequence of modally layered gabbros. The siliceous blocks, if sedimentary, must have been entirely reconstituted; diagnostic sedimentary textures and structures, common in overlying biotite schists, are lacking and oxide ratios are somewhat different for the two rock types.

4.0.0 CONCLUSIONS

NNMCL's current land holdings cover parts of both of the favourable upper and lower contact zones of the Grassy River Intrusion.

Significant copper-nickel and copper occurrences have been demonstrated to occur on NNMCL's leased claims where limited underground drifting on the 175 foot level have returned somewhat better grades than drill indicated grades although the underground work did not expose the full width of the mineralization. The following two paragraphs are taken directly from the 1973 Summary Report by M.W. Bartley and Associates for North Rock Explorations. "The East Drive encountered and partially explored two of three apparently separate mineralized zones in the eastern portion of the property. The zones are individual lenses of intense siliceous alteration in hornblende gabbro mineralized with copper-bearing sulfides of economic interest. The underground work has confirmed and in some instances improved surface diamond drill results.

The average of the face samples cut in Zone A is 3.59% Cu. The average of the face samples cut in Zone C is 3.51% Cu. The average of the muck samples from the two zones is 3.09% and 3.03% respectively.

Because of the restricted nature of the new information, no attempt to revise previous tonnage estimates has been attempted."

Several reserve calculations have been made utilizing various grade cut-off parameters and strike lengths. Regardless of which grade-tonnage figure is accepted the bulk of the drill indicated tonnage is above the 300 foot level (Bergman, 1973) although significant mineralized intercepts have been obtained at much greater depths (SE-28 1.65% Cu over 7 ft. at a vertical depth of about 797 ft; SE-6 2.21% Cu over 36.5 ft. at a vertical depth of about 557 ft.)

All previous workers agree that the zones are open along strike to the northeast, possibly to the southwest, down apparent plunge to the southwest and down dip.

Although considerable effort has been expended over time on this project there has been little in the way of a sustained, comprehensive exploration effort and no use of modern surface or in-hole geophysical techniques.

Unexplained ground geophysical targets in the central part of the layered sequence remain to be explained.

Linear airborne EM anomalies, strike parallel, parallel to interpreted ductile shears and transgressive to stratigraphy remain to be detected and examined.(fig.5)

Several authors have recommended additional prospecting and the use of soil geochemistry where applicable.

A phased, systematic exploration program is warranted and recommended.

5.0.0 RECOMMENDATIONS

It is recommended that a 4 man geophysical, prospecting team equipped with a vertical loop EM unit be employed to:

conduct orientation work both geophysical and geochemical over the known mineralization.

locate collar locations of drill holes in the field.

establish the axes of the various conductors in the field.

where possible prospect and map the conductive zones and where

applicable collect both humus and B-horizon soil samples.

make recommendations for anomaly follow-up based on topographic considerations and probable overburden depths (hand trench, powerstrip, diamond drill).

It is also recommended that all previous work be carefully compiled to common scales: 1" to 200 ft. where detail is required and 1" to 400 ft. where less is required. Additionally consideration should be given to entering all drill records into a computer program to generate new cross sections, level plans and longitudinal sections before additional drilling is contemplated for the known mineralized areas.

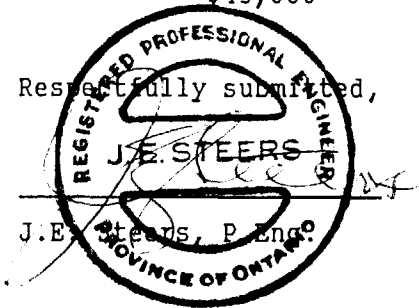
In view of the strong magnetic permeability effects it would be advisable to post the ground magnetic data and produce some computer generated maps to provide a sound basis for EM and geological interpretation.

It is estimated that the above program will require 30 crew days.

5.1.0 BUDGET DETAIL

30 crew days @\$700.00	\$21,000
Equipment Rental	5,000
Travel and accommodation	2,000
Food	3,600
Assay	4,000
Field Supplies	2,400
Magnetic data processing	2,600
Total	\$40,600
Contingency 10%	4,000
TOTAL	<u>\$44,600</u>
SAY	\$45,000

Respectfully submitted,



J.E. Steers, P. Eng.

SELECTED REFERENCES

Barker, A.L., 1982, Geophysical Report on the Halkirk-Watten claims, Grassy Portage Bay Property, for Kalrock Developments: OGS Assessment Files

Harris, F.R., 1974, Geology of the Rainy Lake Area, District of Rainy River; Ontario Division of Mines Geol. Report 115, 94p.

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Hodgson, C.J., 1961, The Watten-Halkirk Copper Prospect, Rainy Lake Area, unpublished M.Sc. thesis, McGill University, Montreal; OGS Mines Library

Poulsen, K.H., 1981 The Geological Setting of Mineralization in the Mine Centre-Fort Frances Area, District of Rainy River, in Summary of Field Work, 1981; OGS Misc. Paper 100, p 190-195

Poulsen, K.H., and Hodgson, C.J., 1984, Mineralization Associated With Archean Gabbro Anorthosite Intrusions, Rainy Lake Area, Northwestern Ontario; Chibougamau-Stratigraphy and Sedimentation, CIM Special Vol 34, p329-344.

OGS Geophysical/Geochemical Series Maps 80496, 80497, scale 1:20,000.

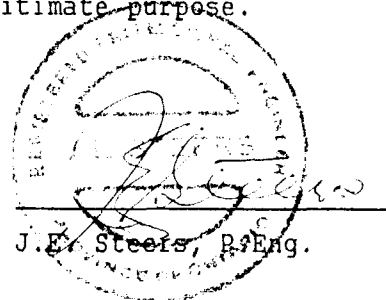
CERTIFICATE

I, John E. Steers, residing at 219 Vance Drive Oakville, Ontario certify that:

1. I am a practising Consulting Geologist with offices at 219 Vance Drive, Oakville, Ontario.
2. I am President and managing director of J.E. Steers and Associates Inc.
3. I am a Registered Professional Engineer of the Province of Ontario, a Fellow of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.
4. I received my undergraduate education at Queen's University, Kingston, Ontario in Honours Geology.
5. I have practised my profession continuously since 1964 and have been actively engaged in mineral exploration since 1949.
6. My contribution to this report is based on examinations of the records and publication pertinent to the properties and prior experience in the Kenora-Rainy Lake area.
7. I do not have, nor do I expect to receive, directly or indirectly, any interest in the properties and/or the securities of Nor-Norrock Mining Company Limited or Kalrock Developments Limited or Flintrock Mines Limited.
8. I consent to the use of this report for any legitimate purpose.

Oakville, Ontario

June 1, 1990



J.E. Steers, P.Eng.



52C11NE0057 OM90-060 HALKIRK

020

REPORT ON
AEM INVESTIGATIONS
IN
HALKIRK and WATTEN TOWNSHIPS
DISTRICT OF RAINY RIVER
FOR
KALROCK RESOURCES LIMITED

November, 1990

H. Z. Tittley

SUMMARY & CONCLUSIONS

The ground investigation of 10 airborne electromagnetic anomalies located 4 massive sulphide zones containing minor to significant amounts of copper mineralization and massive pyrrhotite sections.

These iron formation-type deposits are associated with gabbroic intrusions and, in two cases (anomalies 21B and 15), are similar to nearby zinc-rich occurrences.

All warrant further examination to determine width and economic potential.

One anomaly which could not be explained by trenching (anomaly 16) and a well situated weaker conductor (anomaly 23), should also be investigated further to determine their cause.

METHODS

The nature of the investigation was based primarily on the study of recent activity in the area which focused on zinc mineralization associated with thin dark sedimentary bands interlayered with gabbroic sills. Since fair copper mineralization occurs along the west margin of the main Grassy Portage Bay sill, the writer believes that untested conductors could represent a combination of both types of mineralization.

Based on this concept, anomaly 21 which is covered by Kalrock Resource's Redgut bay property was tested first. Fortunately or unfortunately, the east-west interpretation was found to be invalid and instead, it consists of 4 northwest and north northwest-trending conductors.

All six channel AEM anomalies that are not due to magnetic permeability were readily detected and traced out with the portable vertical loop electromagnetic apparatus which is basically a Crone JEM unit operated in the vertical loop mode. Strong signal interference originating from a power transmission line north of the Redgut Bay property and a second line running along highway 11 precluded detection of some of the weaker single and two channel anomalies. In quieter areas where a wider transmitter-receiver separation is possible, weak anomalies can usually be traced.

Navigating to AEM response sites was aided by air photos. Once a cross over was obtained, a new set-up was made from which two x-overs were obtained, thus providing a strike direction. A blazed control line was then driven through the x-over points and short profiles were read. Cross-over points were also located where trenching seemed possible.

Trenching and especially sampling becomes the most difficult tasks owing to the electrochemically active nature of the sulphide mineralization. Once the bedrock is reached through roots and a thin layer of soil, an equally thick layer of gossan must be removed with chisels and sledges. Sampling of the fresh lower material is tedious and not always successful. At one site, a second trench was required to obtain representative samples of the conductive material.

INVESTIGATIONS

ANOMALY 21A

The anomaly lies in the western part of the Redgut Bay property. It was located and traced over 300 metres in a north-northwesterly direction. As a broad muskeg covers the southern part, the anomaly was traced over an area of shallow outcrop along the east edge of a small pond.

Stripping and trenching revealed a 5 m-wide zone of sulphide and magnetite iron formation bounded in gabbroic rock. Chalcopyrite ranging up to 1% was observed in a silicified 10 cm pyrrhotiferous section. Based on x-over shifts between north and south transmitter set-ups, the zone is expected to be more than double the 5 m width exposed in the trenches. The dip of the formations varies between 80° and 50° west which is supported by the EM data.

Though ground positioning is very accurate, relative to the lakes and ponds, the true location of the lot line (and the property boundary) could not be ascertained. Trenching was carried out 10 m west of the Kalrock claim line and 30 m east of the eastern boundary of the adjoining property. Pending a survey, it is assumed that the stripping is on Kalrock ground but that the northwest part of the conductor is not (see sketch).

ANOMALY 21B

Similarly, this anomaly was traced over 250 m in a northwesterly direction. Although a very sharp x-over was obtained along the crest of a sub-outcrop ridge, stripping revealed a sharp fold plunging 75° north, but no conductive material. In a second pit, only 25 m further east, an 8 m wide gossan zone was exposed. Some conductive material consists of disseminated pyrrhotite in a dark sooty matrix and massive pyrite across 20 cm and 30 cm respectively. Again, the overall zone is expected to be at least 50% wider than the exposed portion.

A grey shiny schist was encountered at both sites. Hand specimens are tentatively identified as magnesite, largely because of its sparkle and slippery texture. Minor hydrothermal quartz is present also.

Away from folds, the foliation is vertical. The formations appear derived from mafic volcanics. Since conductors 21A and 21B would converge to the north, they are possibly one and the same.

Dark sooty material of a sedimentary nature is also present at the Pocket Pond occurrence where it is intimately associated with the zinc mineralization.

ANOMALY 21C

This anomaly consists of 2 two channel AEM responses. It was encircled by a 100 m search traverse and crossed by a north-south profile, but no measurable dips were obtained.

The area is south of a major outcrop ridge which consists primarily of well foliated grey-green schistose hornblende. The abundance of large granitoid glacial erratics suggests that the felsic intrusive rocks, seen in outcrops to the east, extend into this area.

Ground conditions do not favour an overburden-type response. The anomaly should be tested further using grid lines and electromagnetic units equipped with 60 cycle filters such as the Geonics EM-17 or Parametrics Max-Min II.

ANOMALY 21D

Anomaly 21D consists of 2 and possibly 3 two channel responses. At its position along the control line, there is an outcrop ridge with a rusty zone which contains a 5 mm seam of massive sulphides. The rocks are mainly hornblende schist striking 170°.

From a transmitter set-up on the mineralization, a search traverse was read across the area south of the control line. No x-over was obtained but on a closer short profile, a weak conductive response was observed over an outcrop ridge. From a set-up at this second site no x-over was obtained along the control line.

The bulk of this anomaly lies to the south-southeast towards a wide drift-covered area. Although some outcrops are shown on the geological map, additional follow-up seemed too time consuming owing to the 3.2 km trek to highway 812. Any systematic coverage of the property should include this anomaly.

ANOMALY 23

This 3 km string of 1, 2 and 3 channel anomalies lies along the east boundary of the Redgut Bay property. Towards the south it becomes more central to main Grassy Portage Bay Sill.

Unfortunately, after closer scrutiny of the aerial photos it is evident that our search from two transmitter set-up was conducted on an adjoining pond to the one we had targeted. Actually, our marked trail which extends from a series of old roads intersected the anomaly south of the patented claim. In retrospect however the weak response on the Kalrock claim might not have been detectable.

The writer strongly recommends this anomaly for its large low grade copper-nickel potential with possibility of PGE metals. It should be examined south of the patented claims with power line noise-rejecting equipment.

ANOMALY 17

This anomaly consists of an 800 m string of 6 channel anomalies that are central to a northeast-trending sill of hornblende gabbro.

An original x-over was detected 100 m east of a transmitter set-up located near the boundary between lots 17 and 18. From this x-over site, a strong response was obtained farther east along the south margin of a broad cedar swamp. Again, 75 m to the east, very strong x-overs were obtained on the apex of, and the east slope of, an outcrop ridge.

Stripping at the latter site uncovered a broad rusty zone and a black sooty schist or sediment carrying 70% medium-grained and fine-grained pyrrhotite. The material which is magnetic and highly conductive corresponds to the description of certain zinc zones in the Pocket Pond occurrence to the northeast.

The conductor is covered by a block of 7 new claims and until a survey is carried out, the amount of strike length lying across the southeast corner of a patented claim is unknown. It appears to be very near the stripping area.

ANOMALY 16

This anomaly consists of an elongated string of 1 to 6 channel responses that lie along a slough located at the base of a 10 m ridge of mafic volcanic rocks.

From a set-up located at the bottom of a grassy bay, a medium but noisy x-over was obtained at the base of the ridge's north slope. A second transmitter set-up at this location failed to locate a proper response near the original set-up; probably due to the high level of power line interference.

The conductor appears confined to the drift- and talus-covered part of the slope and could not be examined with the available prospecting tools.

Ninety percent of the conductor's strike is covered by a block of 7 claims that were staked on behalf of Kalrock Resources.

This conductor which lies along the volcanic-gabbro contact should be examined by drilling to determine the cause and potential.

ANOMALY 15B

This anomaly is a single 6 channel response located in lot 16, 100 m north of anomaly 15.

A circular 100 m traverse was made but no significant dip angles were encountered, suggesting that the response may be a paired peak associated with the very strong anomaly 15.

The area is along a high outcrop ridge where control is more difficult. It may have been improperly covered. The whole presentation of this anomaly should be re-examined and the results considered when carrying out further investigations in this area.

ANOMALY 15

The anomaly which consist of an 2200 m string of 6 channel AEM anomalies was readily located in the area of lot 15.

The first set-up was made on the south margin of an ash swamp and a profile was read to the west. Although very strong x-overs were obtained near the original set-up, they were always at the edge of low outcrops.

Finally, it was decided to trench the bottom of a small stream that normally drains the swamp. Though the bedrock was found to be very irregular and very irregularly weathered, good samples of highly massive pyrrhotite occurring over a 20 cm width, were extracted. Minor chalcopyrite is visible with most of the sulphides. As elsewhere, the overall zone is expected to be at least 3 times wider than the 1.6 m section exposed in the trench.

The anomaly occupies the contact between mafic lavas to the north and a sill of medium-grained gabbro to the south. It is strongly recommended that this anomaly be examined further as a possible source of combined copper-nickel-zinc mineralization.

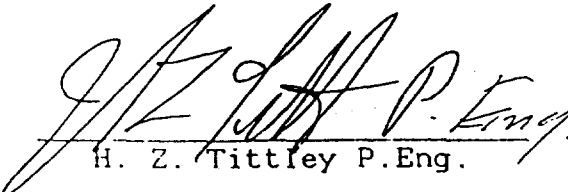
ANOMALY 5

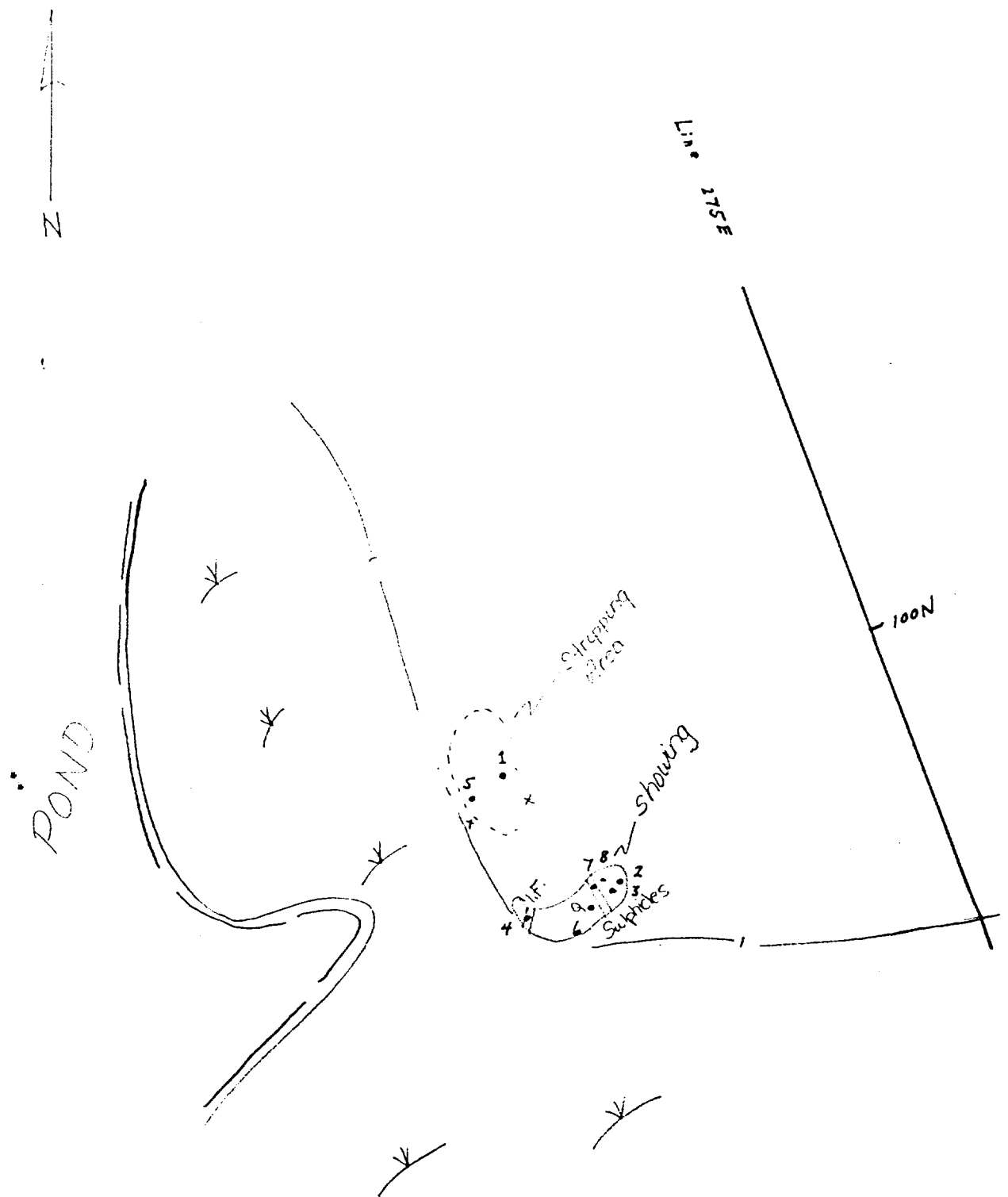
This anomaly was investigated in the area of a 6 channel response located west of the township line in the western part of the anomaly.

Although dip angles ranging up to 6 degrees were measured on both high and low frequencies, no x-over could be located from the first set-up. A second transmitter set-up was made higher on the rocky ridge but no dip angles were observed.

The effects of magnetic susceptibility are the suspected cause. Examination of ground geophysical data in this area provides support for this view.

The anomaly but not necessarily the area is of no further interest.


H. Z. Tittley P. Eng.



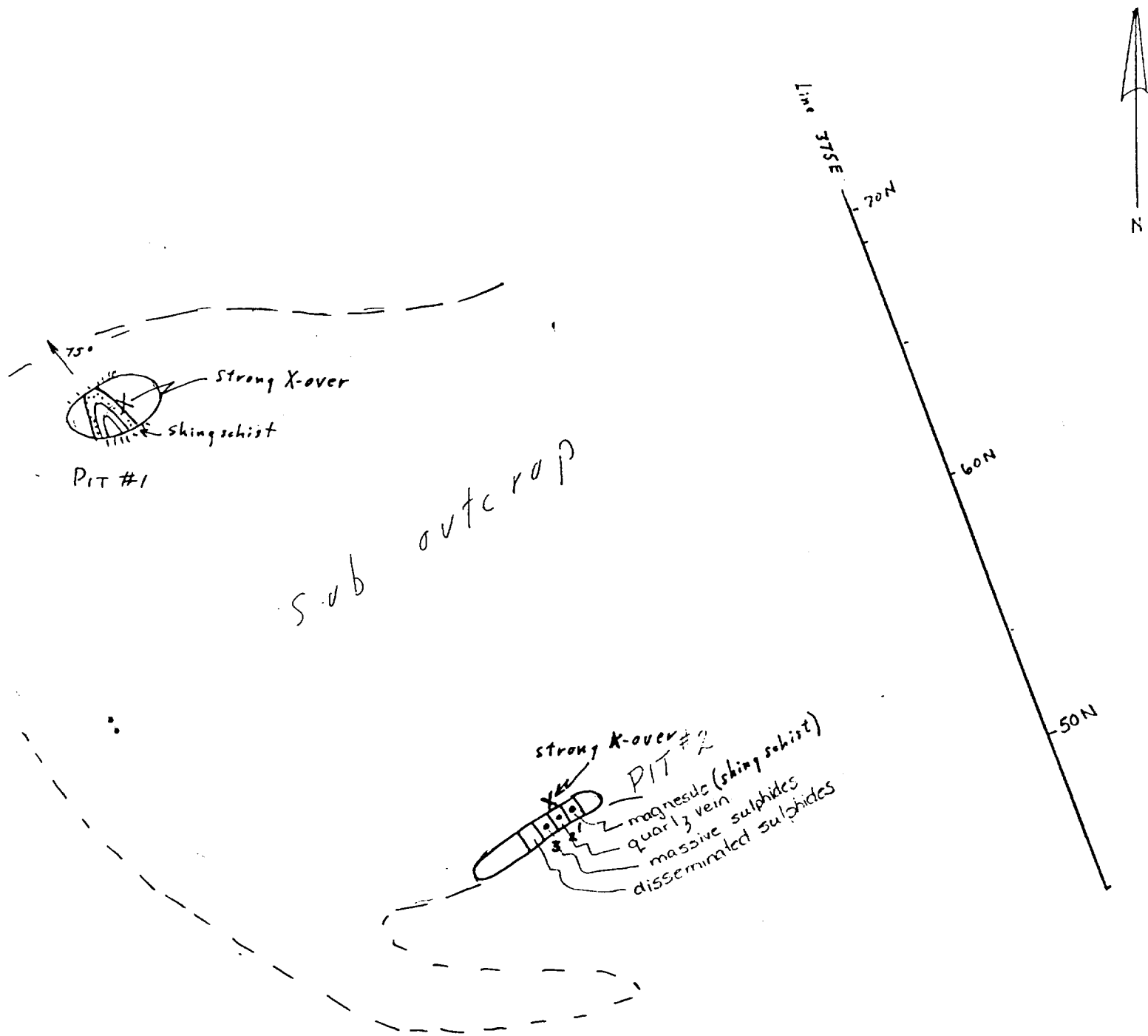
• Sample

KALROCK RESOURCES LIMITED

HALKIRK TWP.

ANOMALY 21A

Scale 1:700



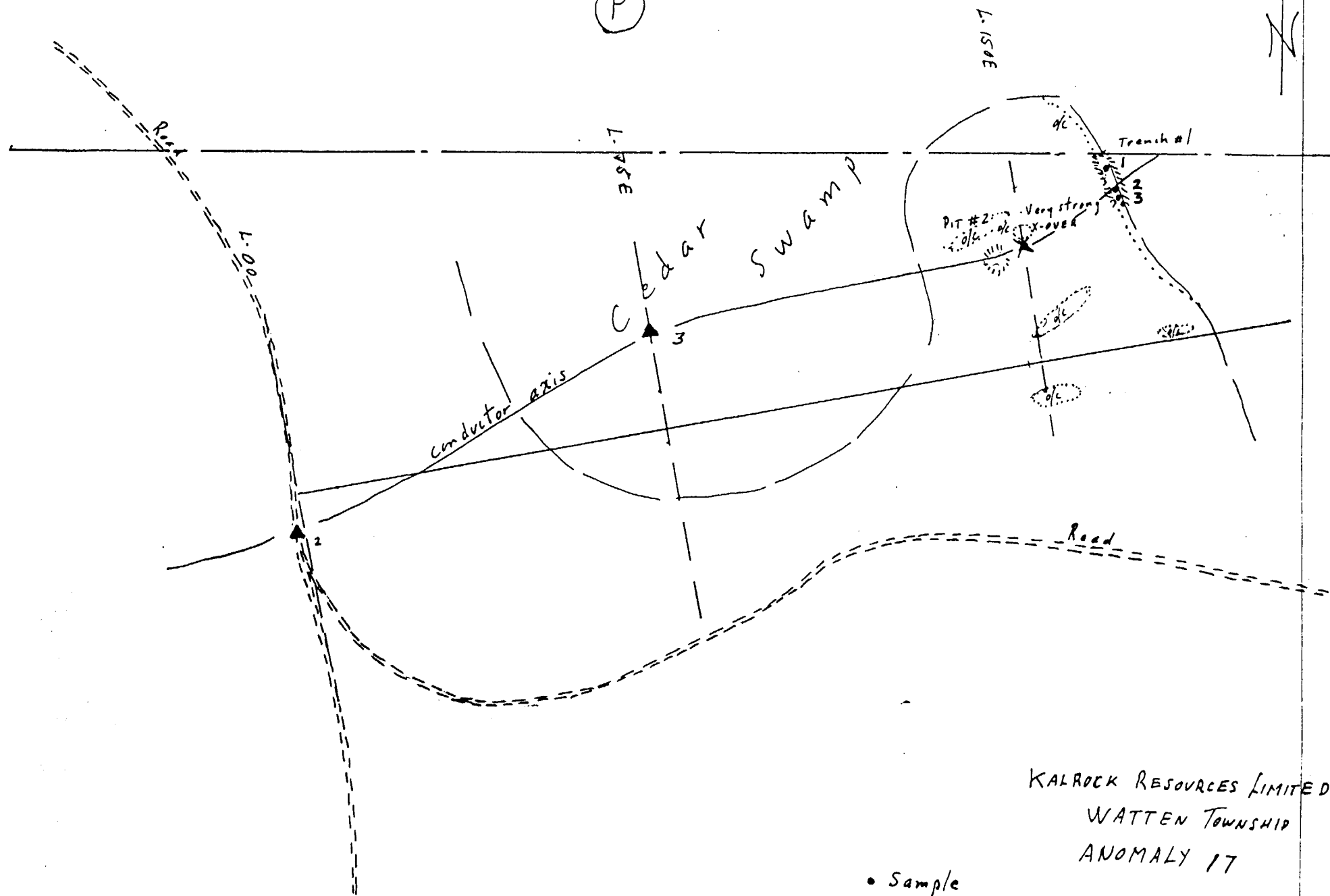
KALROCK RESOURCES
 HALKIRK TOWNSHIP

• Sample

Anomaly 21B
 Scale 1:200

FF 4322

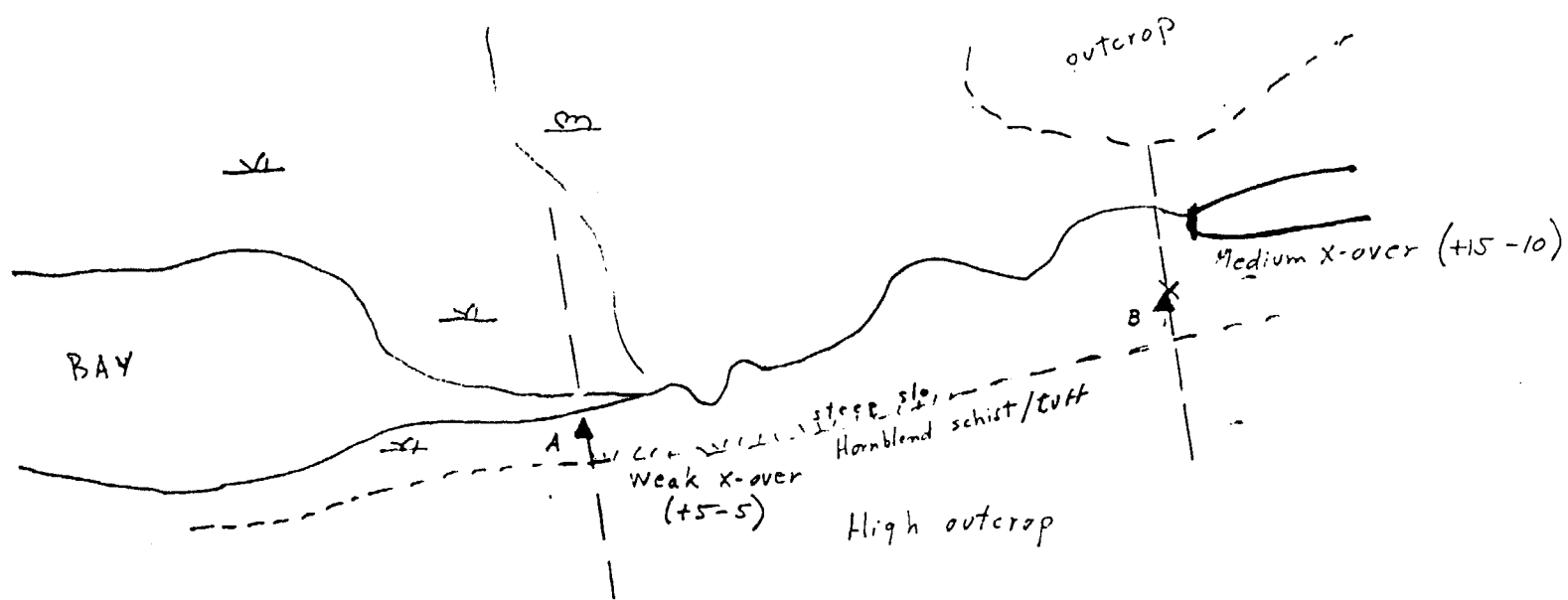
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KALROCK RESOURCES LIMITED
WATTEN TOWNSHIP
ANOMALY 17

- Sample
- ▲ Transmitter set-up

SCALE 1:1000



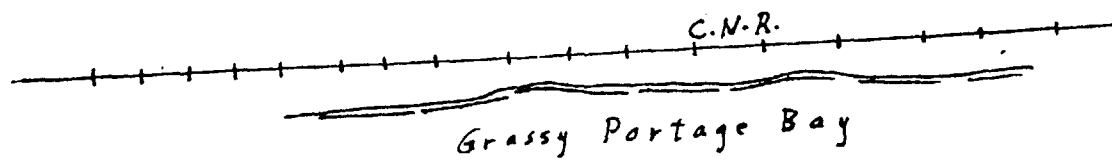
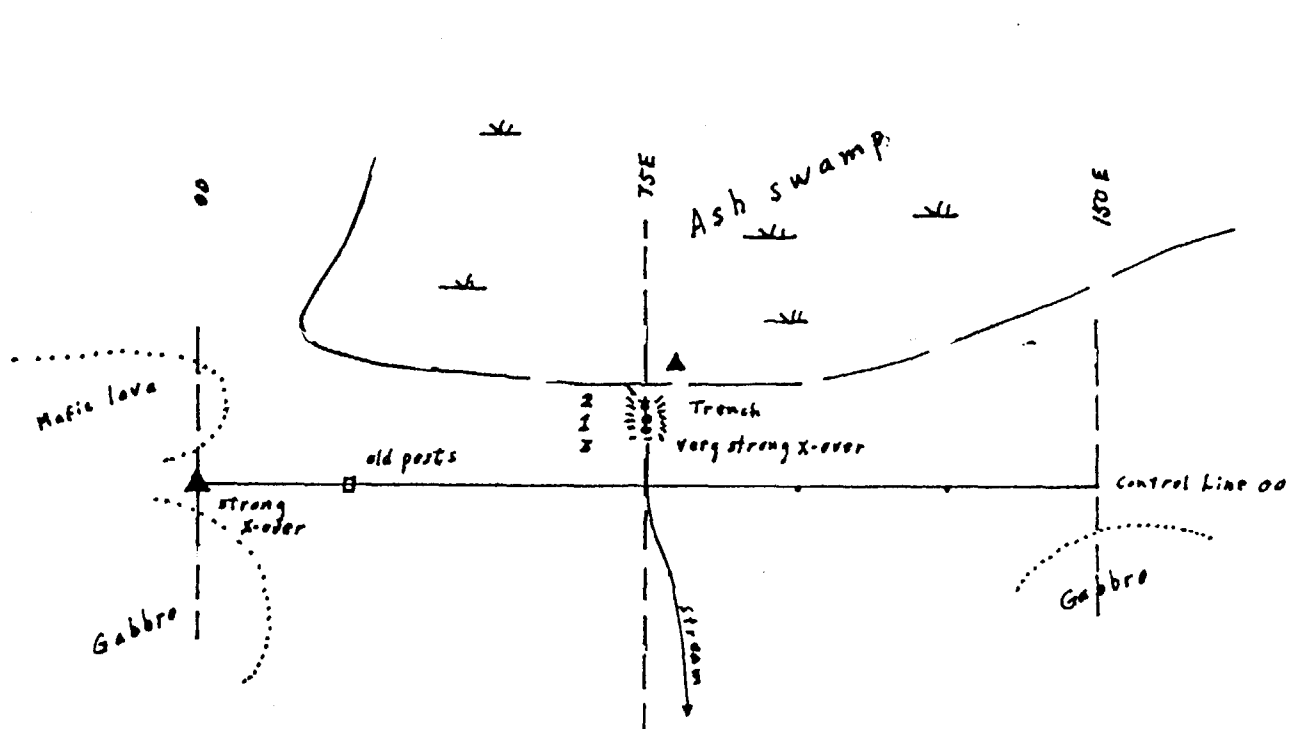
KALROCK RESOURCES LIMITED

AEM INVESTIGATIONS

WATTEN TWP

ANOMALY 16

SCALE 1:1250



KALROCK RESOURCES LIMITED

AEM INVESTIGATIONS

ANOMALY 15

WATTEN TWP

• Sample

SCALE 1:1250

L-75E



00 BL.

KALROCK RESOURCES LIMITED

AEM INVESTIGATIONS

ANOMALY 15

SCALE 1:200



Established 1928

Swastika Laboratories

A Division of Assayers Corporation Ltd.

Assaying - Consulting - Representation

Geochemical Analysis Certificate

OT-0780-RG1

Company: **KALROCK RESOURCES LTD.**

Date: DEC-05-90

Project:

Copy 1. 321-3701 CHESSWOOD DR. DOWNSVIEW, ONT

Attn: **A. LEWIS/ M. TITTLE**

2. FAX TO 416-636-8045

We hereby certify the following Geochemical Analysis of 26 ROCK samples submitted NOV-28-90 by M. TITTLE.

Sample Number	Ag ⁺ ppm	As ppm	Co ppm	Cr ppm	Cu ppm	Ni ppm	Zn ppm	Pd ppm
5			27		5330	391		350
5-B								
15-2	0.8		53		337	98	129	<
15-3			10		649	145		<
15-4					104	46		
15-5			10			55	113	
17-1	0.3		68					
17-2			119			263	114	<
17-3							82	
18			79		798	58		<
21A-1							54	
21A-2							34	
21A-3			545		310	82		<
21A-5			19		76	38		<
21A-6			18			74		<
21A-7			1					<
21A-8			1		1290	63		<
21A-9					359		38	
21B-2	0.2		29					
21B-3	2.2		806		2310		99	
HY11-1			26		837	34		<
HY11-2			26		4230	50		<
HY11-3			331		4420	501		<
N-1						50	34	
N-2					1090	367	8470	
210-1					295	88		

Certified by Deanna Handman

SAMPLE LIST

KALBAROCK RESOURCES LIMITED ASH Investigation Programme November, 1970

SAMPLE #	ANOMALY	NORT'G	EAST'G	LOCATION	DESCRIPTION	Ni	Cu	Zn	Pb	Ag	Co	Cr	As	REF
5	5	-	-	Rd, anomaly 5 area. West of twp line.	M.g. altered hornblende gabbro. with 5% blebby sulph inculd cp.	X	X	X		X				No
5B	5	-	-	Rd, anomaly 5 area. West of twp line	C.g. with minor sulphides & unidentified FeO min or chromite.							X		Yes
15-1	15	75E	8N	Pit #1, x-over	Weathered felsic rock with 30% disseminated mainly cubic py.									Yes
15-2	15	75E	8N	Pit #1, x-over	Folded dk & quartzitic bands with 75% sulphides, mainly py but also cp, po, and poss. sphal & arseno.	X	X	X	X	X	X	X		Yes
15-3	15	75E	9N	Pit #1, x-over	Massive sulphides, 50% py, 49% po 1% cp.	X	X	X		X				Yes
15-4	15	75E	9N	Pit #1, x-over	Silicified rock with unidentified sulphide, poss cubanite.	X	X							No
15-5	15	75E	10N	Pit #1, x-over	Grey schistose rock with 15% sulph consisting of 60% py or arsenide and 40% non-magnetic micaceous po or stained py.	X				X	X		X	No
16-1	16	-	-	North face outcrop ridge 8 m South of #2 set-up.	f.g. hornblende schist or mafic tuff. (not saved)									No
17-1	17	26N	171E	Pit #1, x-over	Silicified schist with 10% py & minor po.					X	X		X	Yes
17-2	17	26N	171E	Pit #1, x-over	Black sooty schist with 30% m.g. po & 40% very f.g. po. Magnetic & highly conductive	X		X		X				Yes
17-3	17	26N	171E	Pit #1, x-over	Black sooty schist with 10% py and minor po.	X		X						Yes
18	18	-	-	Rd, area of anomaly 18 (Float)	Dk rock with 30% non-magnetic sulphides in interlayered bands, some cp.	X	X	X		X				Yes
21A-1	21A	103N	10E	Main conductor axis centre of outcrop.	Fg garnetiferous hornblend-biotite schist with possible Zn.			X						Yes
21A-2	21A	95N	11E	East margin of o/c	Epidotized garnetiferous skarn with 20% non-magnetic sulphides.			X						No
21A-3	21A	95N	11E	Near E margin o/c	Dk hornblende rock with 80% non- magnetic po and minor cp.	X	X	X		X				Yes
21A-4	21A	95N	11E	West end of gossan zone	Band of dense diss magnetite.									No
21A-5	21A	100N	12E	West margin stripped o/c	Weakly foliated mg gabbro with fine diss sulphides; py, po, cp ?	X	X	X		X	X			No
21A-6	21A	95N	13E	Centre gossan zone	Dk dense hornblendite with 20% po	X		X		X	X			No
21A-7	21A	95N	11E	Gossan zone	Weathered sulphide-rich rock, 20% non magnetic po	X		X						Yes
21A-8	21A	95N	11E	Gossan zone	M.g. gabbroic rock with 40% po & 5% cp.	X	X	X		X				Yes
21A-9	21A	95N	11E	Gossan zone	Dk mafic rock with 70% mass py		Cu	X						Yes
21B-1	21B	53N	353E	#2 Pit	Carb schist, magnesite ? from x-over axis.									Yes
21B-2	21B	52N	353E	#2 Pit	Less than 1 cm qtz vein with minor sulphides, poss. arsenopyrite				X	X		X		Yes
21B-3	21B	52N	352E	#2 Pit	Banded IF with 75% sulphides, mainly py.	X	X	X	X	X		X		Yes
21D-1	21D	00	99CE	Wide outcrop ridge	Dk mafic vol rock with rusty	X	X							Yes

SAMPLE LIST

KALROCK RESOURCES LIMITED AEM Investigation Programme November, 1993

SAMPLE #	ANOMALY	NORT'6	EAST'6	LOCATION	DESCRIPTION	Ni	Cu	Zn	PGE	Ag	Co	Cr	As	REP
HY11-1	-	-	-	Grassy portage road cut	Mainly py with minor cp. Massive anorthosite with diss & blebs po-cp.	X	X	X			X	X		No
HY11-2	-	-	-	Grassy portage road cut	Banded f.g. mafic rock with cp. blebs & minor bornite, interlayer in anorthosite.	X	X	X			X	X		Yes
HY11-3	-	-	-	Grassy portage road cut	Massive pyrrhotite in anorthosite	X	X	X			X			Yes
N-1	-	-	-	Trail to nearby 21A	Banded IF with 1 cm band massive magnetite 20% mass po.	X		X						Yes
N-2	-	-	-	300 m E Manitou Rd Trail to 21A	Main sulphide zone central to IF in gabbro. 70% po-cp & poss sph.	X	X	X						Yes



52C11NE0057 OM90-060 HALKIRK

030

GEOLOGICAL
OBSERVATIONS
of
WATTEN TOWNSHIP
and
HALKIRK TOWNSHIP
PROPERTIES
for
KALROCK RESOURCES

September 1990
J.G. Salo



52C11NE0057 OM90-060 HALKIRK

030C

- I. Introduction
- II. Property Location and Access
- III. Previous Work History
- IV. Current Prospecting
 - i} Introduction
 - ii} Topography
 - iii} Findings

Recommendations

- Figure 1a- Kalrock Resources- Main Group
- 1b- Kalrock Resources- Second Group
- 2 - Location Map
- 3- Past Explorations
- 4a- Sample Locations- Main Group
- 4b- Sample Locations- Second Group

I. INTRODUCTION

The property consists of two blocks of unpatented mining claims.

The main block is seventeen contiguous claims in Watten Township {K. 1158860- K. 1158869 inclusive, K. 1130462- K. 1130468 inclusive} and nineteen contiguous unpatented claims in Halkirk Township {K. 1130469- K. 1130480 inclusive, K. 1158853-K. 1158859 inclusive}.

The second block of claims consists of fourteen contiguous claims in Halkirk Township {K. 1158870- K. 1158883 inclusive}.

All claims are in the District of Rainy River and under the jurisdiction of Kenora Mining Division.

{see figures 1a and 1b}

II. PROPERTY LOCATION AND ACCESS

The property is located in the Rainy River District, Kenora Mining Division. The claims are in Watten and Halkirk Townships.

The main group covers parts of Grassy Portage Bay going south, parts of lots 1-11, I south range, I north range, II south range, II north range and Concession III {Watten Township}. Part of lots 21-24, I north range, II north range and II south range, Lots 11 and 12 Concession III {Halkirk Township}.

Access to the main group is from Highway 11 approximately one mile west of Great Bear Pass. The bush road goes through the Halkirk side of the property and goes to the leased claims adjacent to the group in the north and ending at the shaft. The road can be driven by vehicle to within one half mile of the shaft and by ATV from there. The Watten Township side can be accessed by foot from the main road or by boat across Grassy Portage Bay from Nickel Siding Station.

The second group is water accessible only. There is a boat landing approximately two miles west of Great Bear Pass on Highway 11. From this point one would boat about three miles up the west shore of Redgut Bay to the inlet on concession IV-V line. The little creek connecting the chain of lakes to the south boundary is canoe only.

{see figure 2}

III. PREVIOUS WORK HISTORY

Sporadic work has been done on the main block of claims. In 1959, Noranda Mines made progress on the leased claims north of the group. With options to other companies {Seemar and Nor/Norock} extensive drilling and an exploratory shaft were done on the leases and outlined an orebody. Some of this drilling extends into the main group.

Data obtained from C. Blackburn-Resident Geologist for Kenora Mining Division shows the following work has been done;

- 1-1959-Noranda Mines
 - geological mapping
 - geophysical-E.M. and Magnetometer
- 2-1963-Phelps Dodge Corp.
 - geological mapping
- 3-1964-Mike Hupchuk
 - 356 feet drilling
- 4-1967-Caminco Ltd.
 - geological survey
- 5-1967-Noranda Mines Ltd.,
 - 387 feet drilling
- 6-1968/69- F.R.Harris for Ontario Dept. of Mines
 - mapping for report No. 115 "Geology of the Rainy Lake Area" 1974
- 7-1974-Northrock Exploration Ltd.
 - 251 feet drilling
- 8-1978-G. Armstrong Ltd.
 - 349 feet drilling
 - 470 feet drilling
- 9-1983-Falconbridge Nickel
 - 182 feet drilling
- 10-1983-Kalrock Developments
 - 259 feet drilling
 - 293.4 feet drilling
 - 314 feet drilling
- 11-1983-Kalrock Developments
 - Recommmendations Report
 - assays

The second group has been staked by several persons, however not much work has been done. Noranda Explorations drilled twelve holes totalling 3566 feet. Six of these holes were on the present group.

{see figure 3}

IV. CURRENT PROSPECTING

i} INTRODUCTION

Kalrock Resources contacted this writer in September 1990 to do a general prospecting of the property. A perimeter coverage was done on the two groups.

ii} TOPOGRAPHY

The main group of this property is extremely quick changing. Due to the lack of trapping there are several very large interconnected beaver ponds and swamps. Many of which are quite difficult to cross or go around. The Halkirk side of this group is approximately 45% beaver swamps. The inclines out of the swamps are steep and covered with heavy brush, the tops of the inclines are mixed forest {birch, pine, spruce and Cedar} with a lot of windfall. The Watten side is more rolling with less swamps. Access from Grassy Portage Bay is always straight up. The shores being steeply declining rock. The shoreline on claim K.1158861 at the place of the witness posts is a lovely sandy beach, ideal for a camp set-up. There is an old road leading to the location of the MNR Firetower that would be winter use from the bay.

There are two visible drill roads that access the claims interior however dry weather would be a necessity due to the swampyness of their condition.

The road to the shaft is in fair condition until it reaches the main beaver pond. One section, on the north boundary needs extreme repairs or a bypass if it is to be used anytime other than winter.

The second group is topographically similar to the Watten side of the main group. Being draws and rolling hills. The draws are full of water and swamp due to beaver activity. The inclines are brush, the high ground is mixed forest.

iii} FINDINGS

The main block of claims is predominately described as the Grassy Portage Bay gabbro sill {Harris; ODM Report 115}. The far west side of the Watten/Halkirk group is medium grained, unaltered gabbro. The shoreline is very weathered and it is difficult to tell where the alteration starts. Lot 6 starts to show a change in the grain size to a more coarse grained gabbro.

In Lot 4 there is a large swamp. The outcrop coming out of the swamp on the south side shows the gabbro starting its alteration. West of the swamp on the same outcrop, there is visible biotite and hornblende.

A major faulting zone on the east side of the township line is seen by the lineal change in the directional dip of outcrops. The east side of the group starts with mafic volcanics coming out of the lake in the NE corner of the group. These volcanics are very folded and change quickly to gabbros. These gabbros have blebs of molybdenum and limonite stain is present. This area is magnetic enough to offset the compass.

Going south and coming out of the cedar swamp in II South Range altered tuff with biotite is the bulk of this outcrop.

One quartz vein was seen on lot 21 II South Range. It is very small and weathered on the surface with no visible sulphides.

The south boundary runs in bands NE-SW. The east side of the road being sericite and mica schist. A low area separates these schisty rocks from the altered gabbros. Moving westerly in bands of altered volcanics to coarse grained gabbros.

The second group off Redgut Bay was not widely covered due to the weather making boating unsafe. The two days spent here showed the southern portion of the group being very altered. An old pit was found on claim K.1158882. Although very weathered there is visible chalcopryite. Northwest of the pit is altered schist. The exposed rock is very oxidized and rusty making it difficult to define. Several small chalcopryite veins crosscut this rock. At a fresh exposure it looks to be a hornblende schist. The southeast of the pit is altered gabbro and a small area which is granite like syenite. The gabbro is typical of the Grassy Portage Bay sill with hornblende, biotite epidote schist. Visible pyrite and chalcopryite can also be found.

{see Sample Location Maps 4a and 4b}

RECOMMENDATIONS:

There is all the evidence necessary to suggest the potential for massive mineralization, being copper, zinc and possibly nickel.

After reading all the past reports on these properties and those of the surrounding area it is recommended that the following should be considered;

Main Group

- 1- Geophysics on the newly acquired claims, and detailed gridding on the north-central Halkirk side.
- 2- Drilling of the targets to a depth greater than 400 feet.

Second Group

- 1- Line cutting, geophysics and mapping
- 2- Drilling of targets.

Figure 1a

KALROCK RESOURCES

Main Group

Watten-Halkirk Twp

- Kenora Mining Division
- Rainy River District

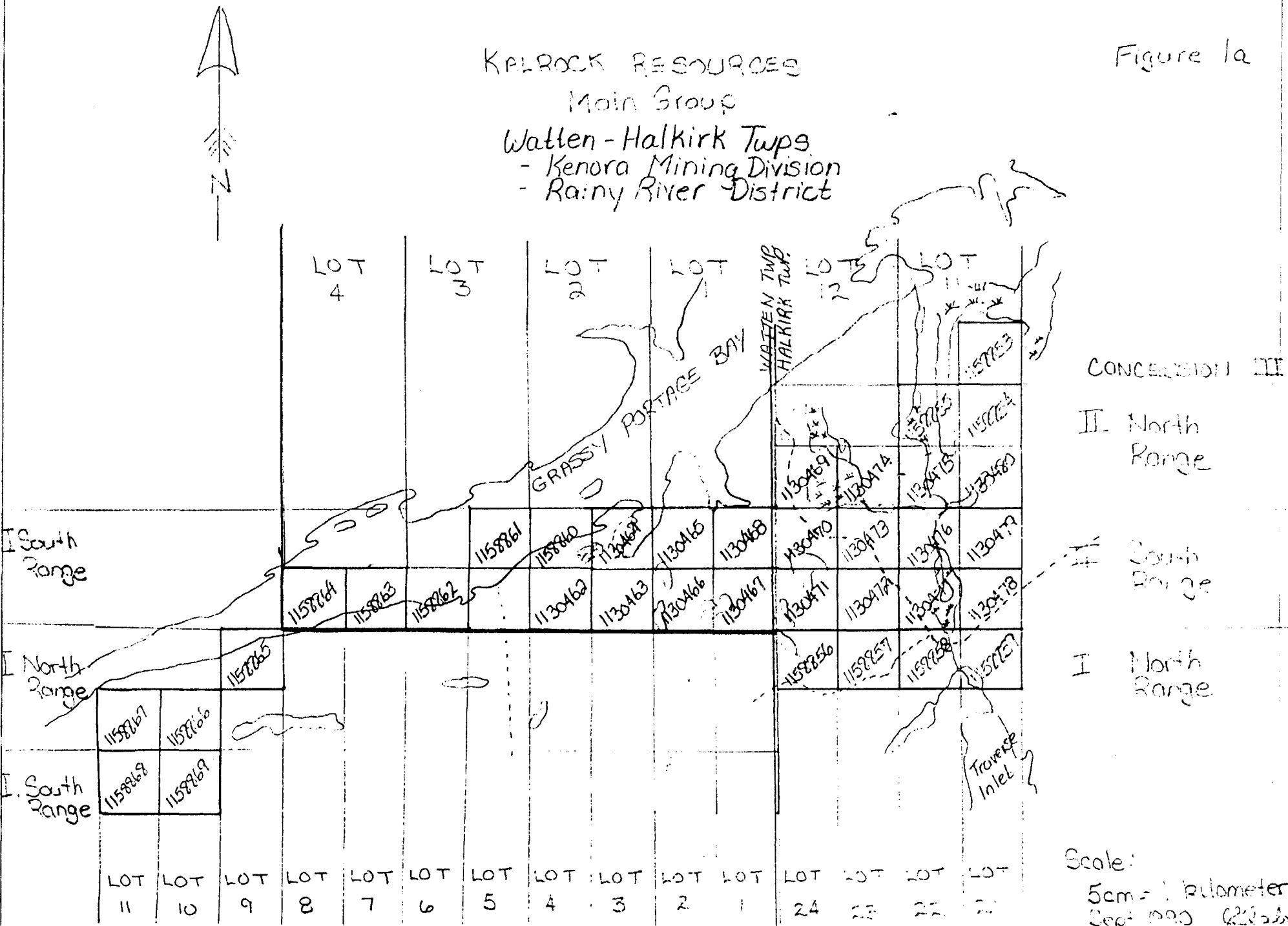
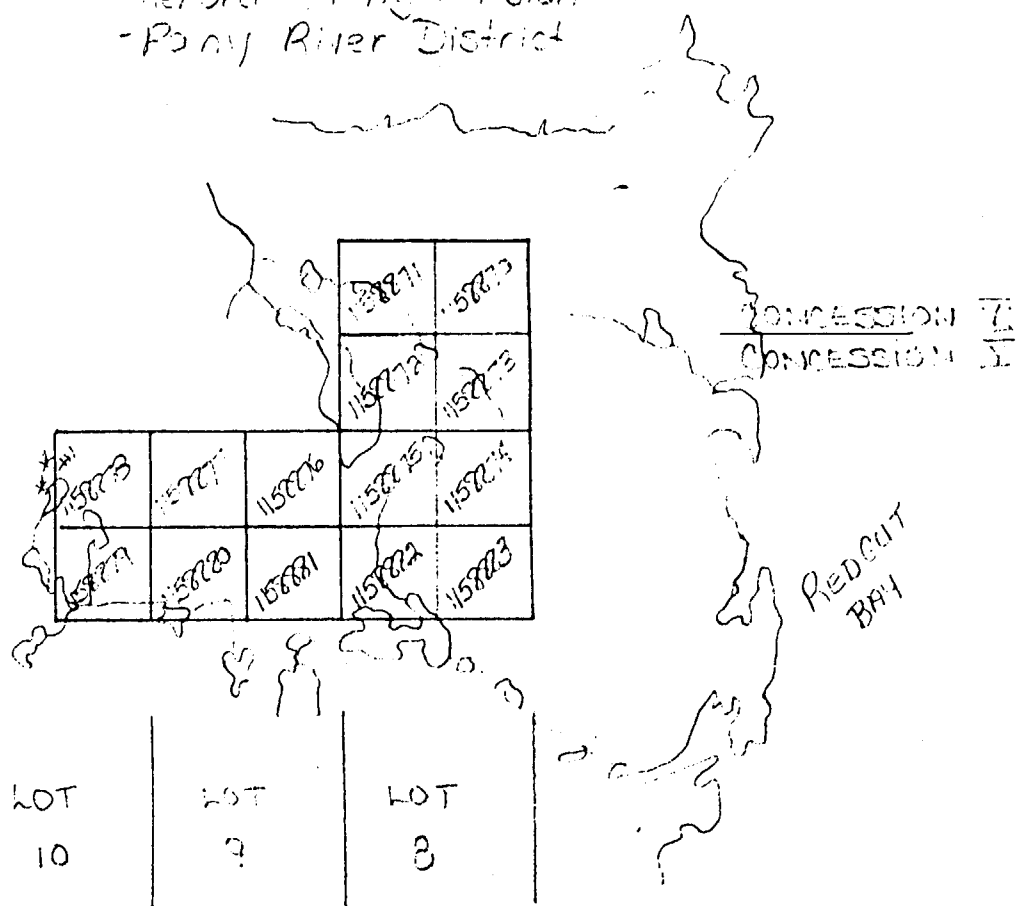
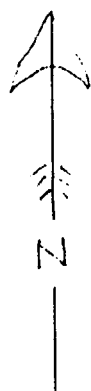


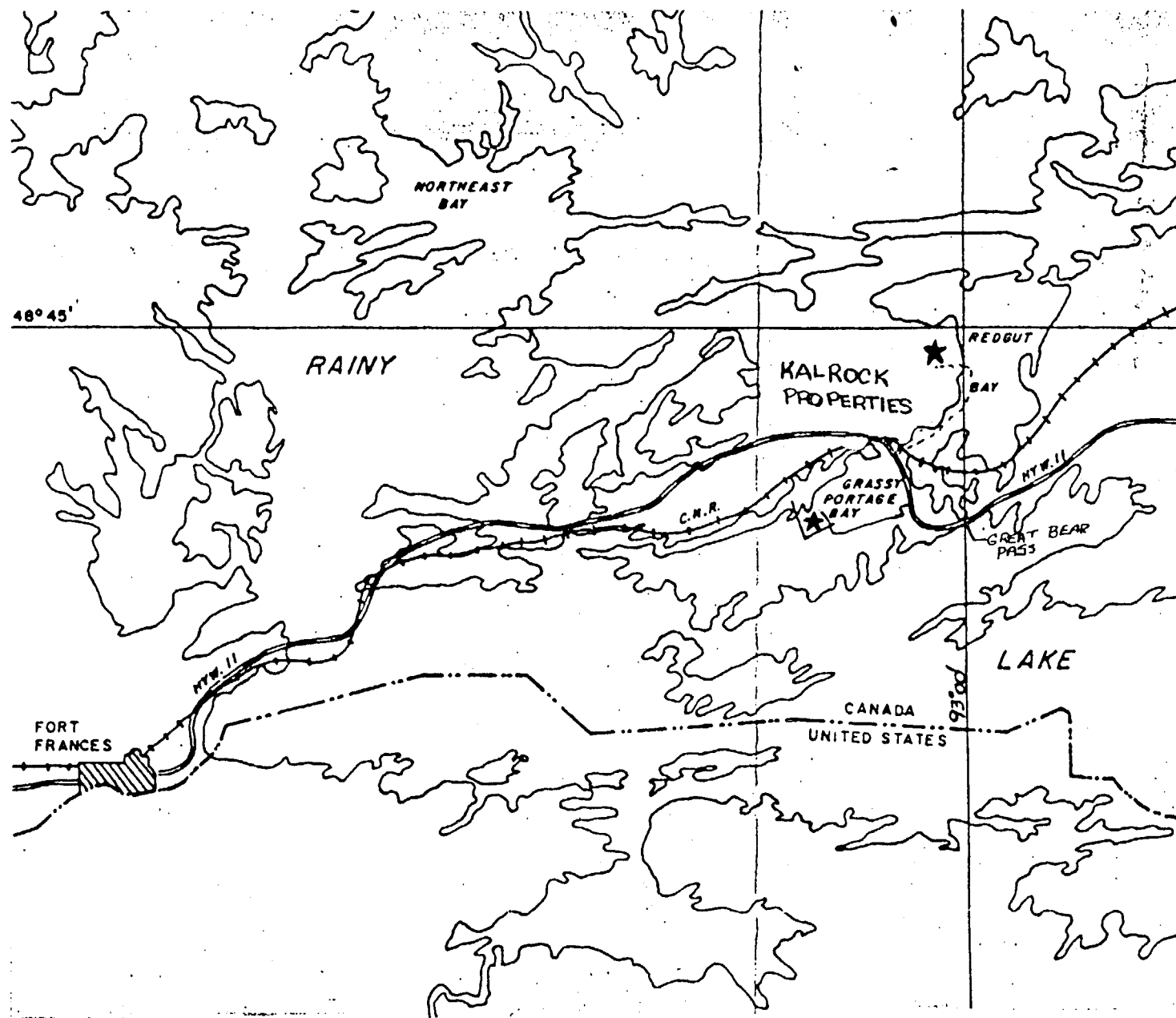
Figure 1b

KALROCK RESOURCES

Senoni Group
 Halfirk Township
 - Kerora Mining Division
 - Pany River District



Scale
 5cm = 1km
 Sept 1990 *Q. King*



LOCATION MAP

- ★ KALROCK PROPERTIES
- Road to main group
- - - Access to second group

Figure 2

PAST EXPLORATIONS

DRILL HOLE ONLY

- ③ M. Hupchuk
- ⑦ North Rock Expl.
- ⑨ Falconbridge Co.

PROPERTIES

- Kolrock Resources
- ① Noranda Mines
- ② Phelps Dodge
- ④ Canadian
- ⑤ Noranda Mines
- ③ E. Armstrong Ltd
- /// ⑧ Kolrock Develop

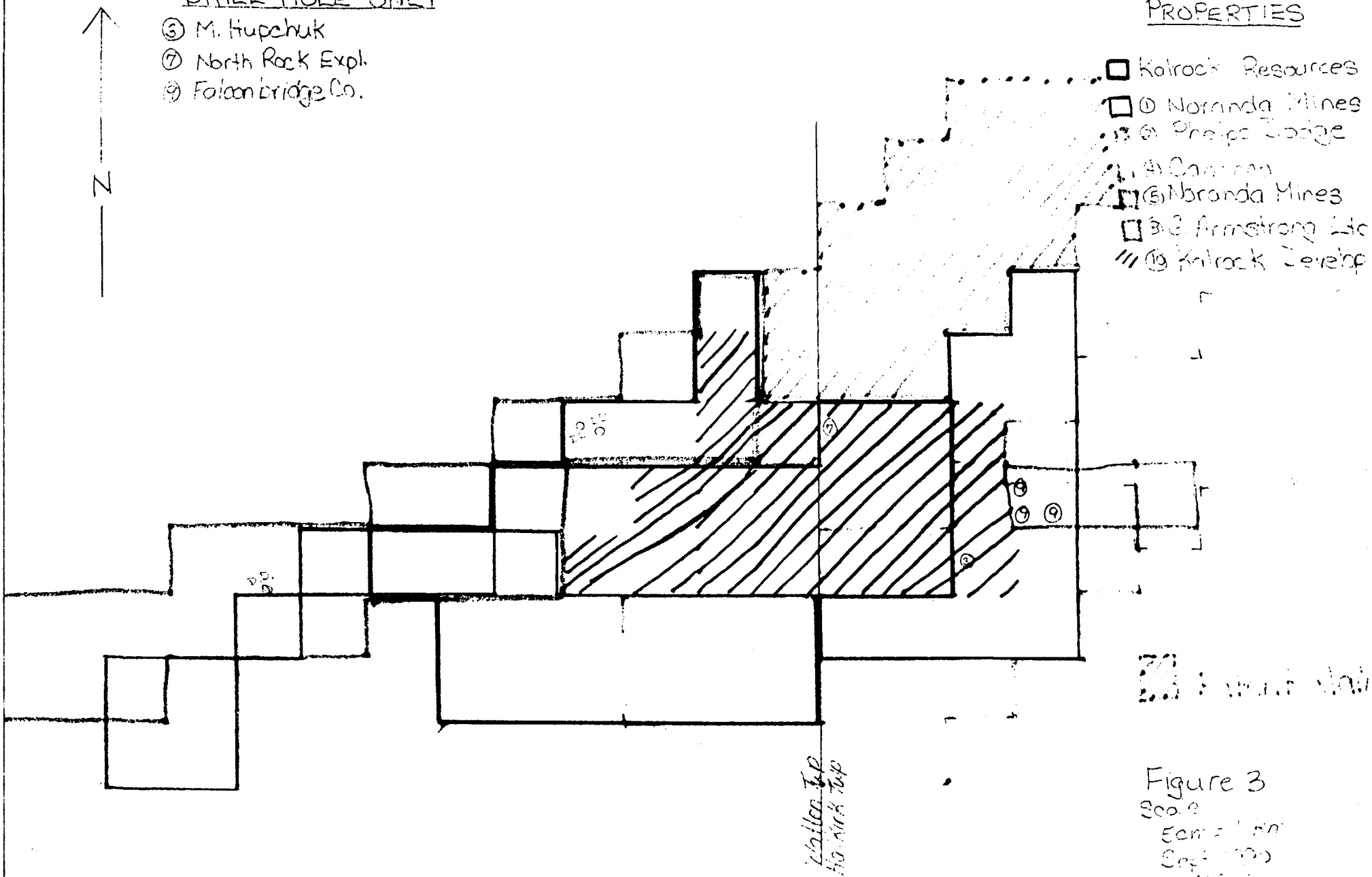


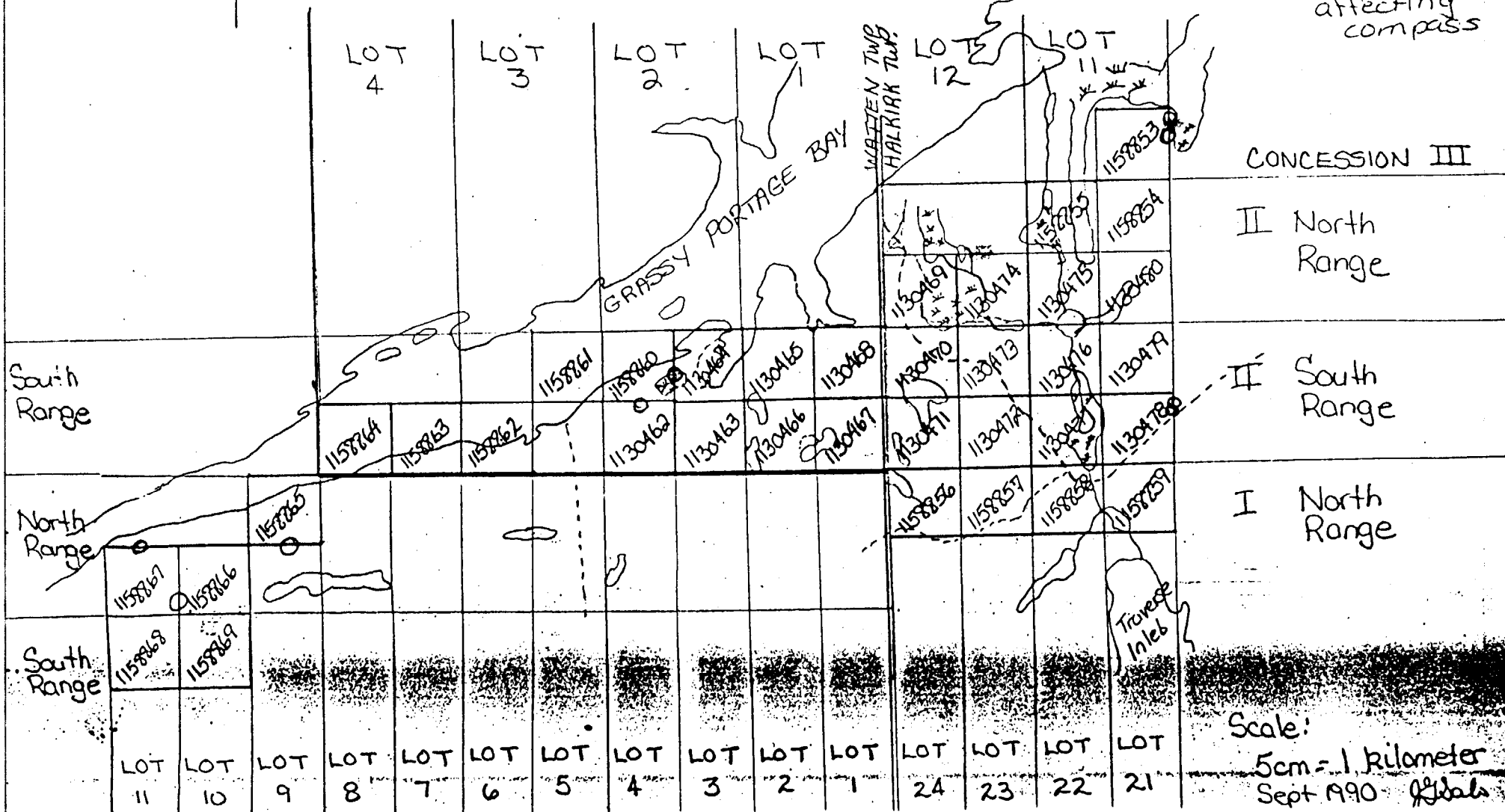
Figure 3
Scale
1:10000

Figure 4a.

SAMPLE LOCATIONS
KALROCK RESOURCES
Main Group

Watten - Halkirk Twp.
- Kenora Mining Division
- Rainy River District

○ - sample locations
⊗ - magnetics affecting compass



Scale:
5cm = 1 kilometer
Sept 1990

SAMPLE LOCATIONS
KALROCK RESOURCES

Second Group

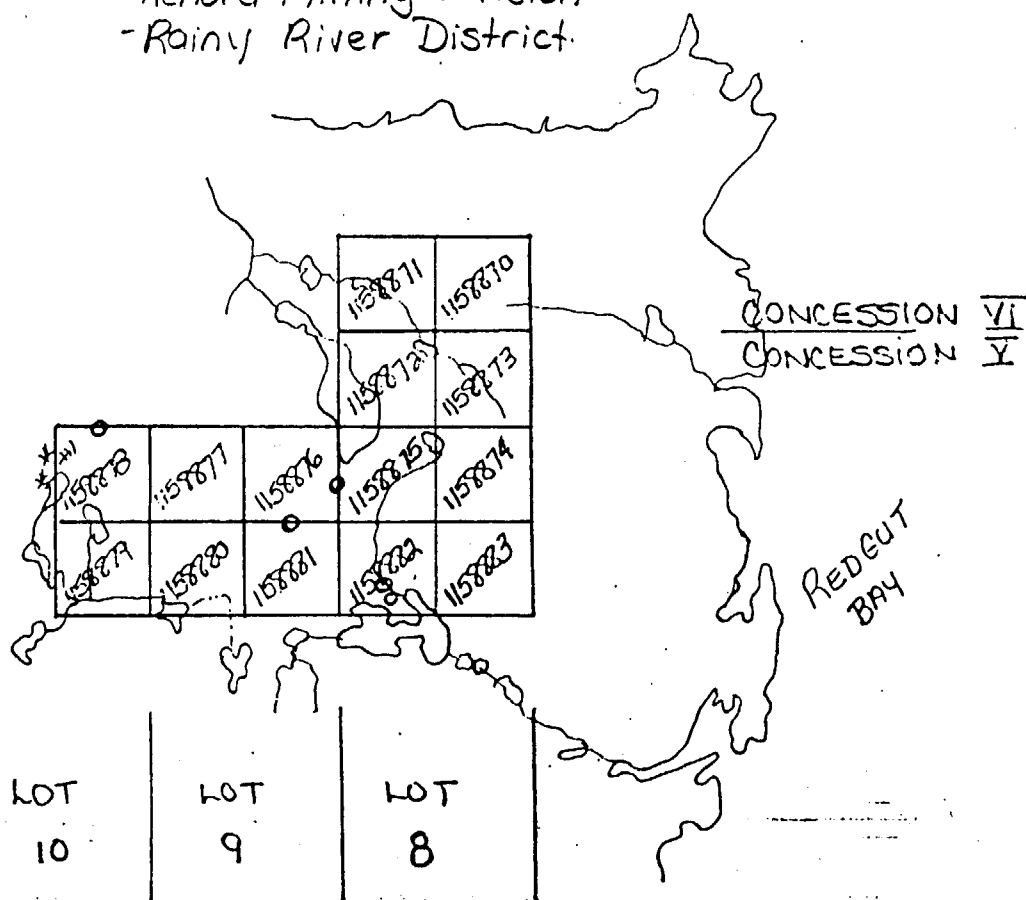
Halkirk Township

- Kenora Mining Division

- Rainy River District

Figure 4b

o - sample
locations



Scale
5cm = 1 km

STATEMENT OF QUALIFICATIONS

I, Joe-Anne G. Salo of Lot 2 Con. 6, German Township, in the Village of Connaught, the City of Timmins, the District of Cochrane, do hereby declare and put forth the following qualifications for demonstrating Professional Competence Equivalence concerning Watten and Halkirk Townships, for Kalrock Resources and dated September, 1990.

1. I am a graduate of grade thirteen from Dunbarton High School in Pickering, Ontario, 1976.
2. I am an M.R.C. graduate from Centennial College in Scarborough, Ontario, 1978.
3. Geological-Technical Course- Ingamar Explorations 1982
4. Geological Drafting Course- Hollinger Mines Ltd., 1983
5. Field School in Mining Geophysics- Haileybury School of Mines 1990.
6. I am a self taught prospector, studying geology and working continuously since May 1980.
7. I have filed two affidavits attesting to Professional Competence with the Ontario Department of Mines, Mining Lands Section.
8. I have no interest in the Kalrock Resources Property, Watten and Halkirk Townships and will receive no further payment other than my fees.

Joe-Anne G. Salo

Joe-Anne G. Salo

KALROCK RESOURCES LIMITED
 321 - 3701 CHESSWOOD DRIVE, DOONSVIEW, ONTARIO
 M3J 2P6 PHONE (416) 633-5820 FAX 636-8045
 Re: OMIP File OM90-060

SAMPLE#	AG ppm	AS ppm	OR ppm	CO ppm	CU ppm	NI ppm	ZN ppm	PD ppb	ROCK ALTERATION AND LOCATION OF SAMPLES
5				27	5330	391		350	mg altered hornblend gab/5% bleb S+cp road to anomaly 5 west of twp. line
5-B			39						c.g. minor sulph/FeO or chromite road to anomaly 5 west of twp. line
15-2	.80	2		53	337	98	129	tr	folded dark & quartzitic bands 75% sulphides mainly py with cp,po and possibly sphal & arseno pit #1 cross over geophysics 75E 8N
15-3				10	649	145		tr	mass sulph, 50% py,49% po 1%cp. pit #1 crossover- 75E 9N
15-4					104	46			silicified rock+unidentified sulph,cubanite? pit #1 x-ovr 75E 9N
15-5		1		10		55	113		grey schistose/15% sulph 60% py or arsenide plus 40% non-mag micaceous po or stained py pit #1 x-ovr 75E 10N
17-1	.30	420		68					silicified schist 10% py + minor po pit #1 crossover- 26N 171E
17-2				119		263	114	tr	black,sooty schist 30% mg po+40% f.g. po. magnetic & highly conductive pit #1 crossover- 26N 171E
17-3							82		black sooty schist 10% py & minor po. pit #1 crossover 26N 171E
18				79	798	58		tr	dark rock 30% non-mag sulph interlayrd bands <cp road area anomaly 18 - float
21A-1							54		fg garnetiferous hornblend-biotite schist poss zn; main conductor axis centre outcrop 103N 10E
21A-2							34		epidotized garnetiferous skarn 20% non-mag sulph east margin outcrop/c 95N 11E
21A-3				545	310	82		tr	dark hornblend with 80% non-mag po <cp east margin outcrop/c 95N 11E
21A-5			41	19	76	38		tr	weak foliat mg gab 10% fine dissem sulf py,po,cp? west end 21A anomaly stripped overburden
21A-6			110	18		74		tr	dark dense hornblendite with 20% po centre gossan zone 21A anomaly. 95N 13E
21A-7				1				tr	weathered sulph-rich rock 20% non-mag po gossan zone anomaly 21A 95N 13E
21A-8				1	1290	63		tr	mg gabbroic rock with 40% po+3%cp gossan zone anomaly 21A 95N 13E
21A-9					359		38		dark mafic rock with 70% mass py gossan zone anomaly 21A 95N 13E
21B-1					295	88			carb schist, magnesite <> from crossover- axis pit #2 53N 353E
21B-2	.20			29					<vein with minor sulph, possible arsenopyrite pit #2 52N 353E
21B-3	2.20			806	2310		99		banded IF with 75% sulphides mainly py pit #2 52N 352E
HY11-1			20	26	837	34		tr	massive anorthosite with diss/blebs po-cp grassy portage road cut
HY11-2			9	26	4230	50		tr	banded f.g. mafic with cp.blebs & minor bornite interlayer in anorthosite grassy portage road cut
HY11-3				331	4420	501		tr	massive pyrrhotite in anorthosite grassy portage road cut
N-1						50	34		banded IF/1cm band massive mag 20% massive po 300 metres Manitou Rd-trail anomaly 21A
N-2					1090	367	8470		main sulphide central zone to IF in gabbro 70% po/cp with poss sphalerite trail to anomaly 21A

SURVEY DATA AND CALCULATED CO-ORDINATES

PROPERTY: GB
HOLE NO: 59-01
Data in feet

DATE: 03/04/59
SURVEY BY:
INSTRUMENT:

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-50.00	150.00	44.000	13.000	1108.000
452.00	-50.00	150.00	189.270	-238.615	761.748

*** BORSURV ***

SURVEY DATA AND CALCULATED CO-ORDINATES

PROPERTY: GB
HOLE NO: 59-01
Data in feet

DATE: 03/04/59
SURVEY BY:
INSTRUMENT:

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-50.00	150.00	44.000	13.000	1108.000
452.00	-50.00	150.00	189.270	-238.615	761.748

*** BORSURV ***

SURVEY DATA AND CALCULATED CO-ORDINATES

PROPERTY: GB
HOLE NO: 59-02
Data in feet

DATE: 03/09/59
SURVEY BY:
INSTRUMENT:

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-50.00	150.00	2400.000	1520.000	1108.000
452.00	-50.00	150.00	2545.270	1268.385	761.748

*** BORSURV ***

SURVEY DATA AND CALCULATED CO-ORDINATES

PROPERTY: GB
HOLE NO: 59-01
Data in feet

DATE: 03/04/59
SURVEY BY:
INSTRUMENT:

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-50.00	150.00	44.000	13.000	1108.000
452.00	-50.00	150.00	189.270	-238.615	761.748

SUMMARY OF DRILL DATA ON BORSURV FILES AT G

Hole No.	Grid Name	Eastings	Northings	Elevation	Units	Grid		Depth	Wedges	Litho Units	No. of Assays	Averaged Zones		Elements
						Dip	Bearing					Total	Named	
66-21		-200.00	-137.00	1148.20	feet	-45.00	330.00	244.00	0	0	8	0	0	1(CU)
67-01	G	-1500.00	275.00	1131.90	feet	-50.00	150.00	448.00	0	0	11	0	0	1(CU)
67-09		-1900.00	379.00	1122.70	feet	-50.00	150.00	588.00	0	0	10	0	0	2(CU, NI)
69-10		-1700.00	300.00	1125.00	feet	-51.00	150.00	448.00	0	0	30	0	0	2(cu, ni)
69-11		-1800.00	-400.00	1104.00	feet	-55.00	330.00	902.00	0	0	13	0	0	1(cu)
69-12		-1350.00	217.00	1126.70	feet	-45.00	150.00	291.00	0	0	14	0	0	2(cu, ni)
69-13		-1350.00	370.00	1114.20	feet	-45.00	150.00	488.00	0	0	19	0	0	1(cu)
70-14		-1100.00	-200.00	1107.60	feet	-50.00	330.00	501.00	0	0	19	0	0	2(cu, ni)
70-15		-900.00	-225.00	1107.60	feet	-55.00	330.00	586.00	0	0	26	0	0	2(cu, ni)
70-16		-900.00	48.00	1105.00	feet	-45.00	330.00	180.00	0	0	15	0	0	2(cu, ni)
70-17		-1650.00	375.00	1126.21	feet	-55.00	150.00	272.00	0	0	0	0	0	
70-18		-1648.00	-300.00	1104.60	feet	-55.00	330.00	691.00	0	0	27	0	0	2(cu, ni)
70-19		-1750.00	-300.00	1105.50	feet	-55.00	330.00	677.50	0	0	23	0	0	2(cu, ni)
70-20		-1741.00	-375.00	1104.00	feet	-57.00	330.00	745.00	0	0	13	0	0	2(cu, ni)
70-21		-1350.00	440.00	1113.00	feet	-45.00	150.00	526.00	0	0	14	0	0	1(cu)
71-22		100.00	-275.00	1169.00	feet	-50.00	330.00	422.00	0	0	10	0	0	1(cu)
71-23		200.00	-275.00	1161.00	feet	-50.00	330.00	416.00	0	0	10	0	0	1(cu)
71-24		150.00	-200.00	1160.00	feet	-50.00	330.00	275.00	0	0	7	0	0	2(cu, ni)
71-25		-275.00	0.00	1170.00	feet	-50.00	330.00	410.00	0	0	8	0	0	1(cu)
71-26		-50.00	-225.00	1165.00	feet	-50.00	330.00	365.00	0	0	2	0	0	1(cu)
71-27		-200.00	-250.00	1159.00	feet	-50.00	330.00	423.00	0	0	0	0	0	
71-28		-1340.00	620.00	1139.00	feet	-50.00	150.00	950.00	0	0	3	0	0	1(cu)
71-29		-1200.00	280.00	1115.00	feet	-50.00	150.00	450.00	0	0	6	0	0	1(cu)
71-30		-600.00	330.00	1110.50	feet	-50.00	150.00	550.00	0	0	7	0	0	2(cu, ni)

1760-1

SUMMARY OF DRILL DATA ON BORSURV FILES AT GB

Hole No.	Grid Name	Eastings	Northings	Elevation	Units	Grid		Depth	Wedges	Litho Units	No. of Assays	Averaged Zones		Elements
						Dip	Bearing					Total	Named	
59-01		44.00	13.00	1108.00	feet	-50.00	150.00	452.00	0	0	0	0	0	
59-02		2400.00	1520.00	1108.00	feet	-50.00	150.00	452.00	0	0	0	0	0	
59-10		800.00	4200.00	1170.00	feet	-90.00	0.00	256.00	0	0	1	0	0	1(CU)
59-11		1500.00	4200.00	1150.00	feet	-90.00	0.00	210.00	0	0	1	0	0	2(CU, NI)
59-12		1900.00	5000.00	1150.00	feet	-70.00	90.00	307.00	0	0	1	0	0	2(CU, NI)
59-13		2500.00	4600.00	1150.00	feet	-70.00	90.00	305.00	0	0	1	0	0	2(CU, NI)
59-14		3300.00	300.00	1160.00	feet	-52.50	330.00	375.00	0	0	0	0	0	
59-15		3300.00	0.00	1165.00	feet	-47.50	330.00	302.00	0	0	16	0	0	2(CU, NI)
59-16		97.00	-165.00	1121.00	feet	47.50	300.00	329.00	0	0	19	0	0	2(CU, NI)
59-17		0.00	-145.00	1160.00	feet	-52.50	300.00	307.50	0	0	15	0	0	2(CU, CU)
59-18		-125.00	-250.00	1165.00	feet	-52.00	330.00	300.00	0	0	12	0	0	2(CU, NI)
59-19		-255.00	-180.00	1115.00	feet	-51.50	330.00	300.00	0	0	0	0	0	
59-20		-710.00	-30.00	1115.00	feet	-50.00	310.00	300.00	0	0	4	0	0	2(CU, NI)
59-21		908.00	9.00	1113.00	feet	-50.00	310.00	251.00	0	0	0	0	0	
59-22		-1170.00	-127.00	1118.00	feet	-63.00	310.00	496.00	0	0	0	0	0	

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: G8
 HOLE NO: 59-10
 GRID:

DATE: 05/29/59
 SURVEY BY:
 INSTRUMENT:

```
=====
```

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-90.00	0.00	800.000	4200.000	1170.000
256.00	-90.00	0.00	800.000	4200.000	914.000

** BORSURV **

ASSAY LOG
 PROPERTY: G8
 HOLE No.: 59-10

```
=====
```

FROM	TO	WIDTH	CU
22.50	25.00	2.50	0.900

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: GB
 HOLE NO: 59-11
 GRID:

DATE: 05/30/59
 SURVEY BY: Hodgson/Woolverton
 INSTRUMENT:

```
=====
DEPT  INCLIN  BEARIN  EASTING  NORTHING  ELEVATION
0.00   -90.00   0.00    1500.00   4200.00   1150.00
210.00 -90.00   30.00   1500.00   4200.00   940.00
=====
```

** BORSURV **

ASSAY LOG
 PROPERTY: GB
 HOLE No.: 59-11

```
=====
FROM   TO     WIDTH  CU     NI
112.00 117.00 5.00   0.170 0.120
=====
```

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: GB
 HOLE NO: 59-12
 GRID:

DATE: 05/31/59
 SURVEY BY: Hodgson/Woolverton
 INSTRUMENT:

```
=====
      DEPTH   INCLINATION   BEARING   EASTINGS   NORTHINGS   ELEVATION
      0.00     -70.00         90.00    1900.000   5000.000   1150.000
     307.00     -70.00         90.00    2005.000   5000.000   861.514
```

** BORSURV **

ASSAY LOG
 PROPERTY: GB
 HOLE No.: 59-12

Page 1 of 1

```
=====
          FROM      TO      WIDTH      CU      NI
          279.50    281.50    2.00    0.120    0.102
```

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: GB
 HOLE NO: 59-13
 GRID:

DATE: 05/03/59
 SURVEY BY: HODGSON/WOOLVERTON
 INSTRUMENT:

=====

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-70.00	90.00	2500.000	4600.000	1150.000
305.00	-70.00	270.00	2500.000	4495.684	863.394

** BORSURV **

ASSAY LOG
 PROPERTY: GB
 HOLE No.: 59-13

=====

FROM	TO	WIDTH	CU	NI
35.00	39.00	4.00	0.220	0.084

** BOPSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: GB
 HOLE NO: 59-14
 GRID:

DATE: 06/17/59
 SURVEY BY: HODGSON/WOOLVERTON
 INSTRUMENT:

=====

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-52.50	330.00	3300.000	300.000	1160.000
375.00	-52.50	330.00	3185.857	497.701	862.492

180.50	182.50	2.00	0.990	NIL
184.50	188.80	4.30	1.760	NIL
188.80	190.70	1.90	0.630	NIL
213.00	216.00	3.00	1.780	NIL
204.80	206.00	1.20	1.470	NIL

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: GB
HOLE NO: 59-15
GRID:

DATE: 06/25/59
SURVEY BY: HODGSON/WOOLVERTON
INSTRUMENT:

```
=====
```

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-47.50	330.00	3300.000	0.000	1165.000
302.00	-47.50	330.00	3197.986	176.694	942.342

** BORSURV **

ASSAY LOG
PROPERTY: GB
HOLE No.: 59-15

Page 1 of 1

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=====
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FROM	TO	WIDTH	CU	NI
118.00	123.00	5.00	0.140	0.170
123.00	128.00	5.00	0.270	0.148
128.00	133.00	5.00	0.170	0.229
133.00	138.00	5.00	0.160	0.146
138.00	143.00	5.00	0.100	0.229
143.00	148.00	5.00	0.180	0.168
148.00	153.00	5.00	0.150	0.307
153.00	155.00	2.00	0.040	0.060
155.00	162.50	7.50	NIL	NIL
169.00	174.50	5.50	0.280	0.275
176.50	180.00	3.50	0.050	0.101
181.00	186.00	5.00	0.380	0.127
186.00	191.00	5.00	0.070	0.069
191.00	196.00	5.00	0.220	0.074
196.00	201.00	5.00	0.240	0.152
201.00	207.00	6.00	0.210	0.066

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: GB
HOLE NO: 59-16
GRID:

DATE: 06/28/59
SURVEY BY: HODGSON/WOOLVERTON
INSTRUMENT:

```
=====
```

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	47.50	300.00	97.000	-165.000	1121.000
329.00	47.50	330.00	-60.168	-7.832	1363.564

** BORSURV **

ASSAY LOG
PROPERTY: GB
HOLE No.: 59-16

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=====
```

FROM	TO	WIDTH	CU	NI
108.50	113.50	5.00	3.810	NIL
113.50	117.50	4.00	2.810	NIL
117.50	122.50	5.00	0.210	NIL
122.50	125.20	2.70	2.410	NIL
133.70	136.50	2.80	0.420	NIL
156.00	161.00	5.00	0.920	NIL
163.20	169.20	6.00	0.380	NIL
169.20	172.50	3.30	0.290	NIL
191.20	196.20	5.00	0.210	NIL
196.20	200.00	3.80	0.840	0.062
206.00	210.50	4.50	0.540	0.048
210.50	215.50	5.00	1.730	0.023
215.50	219.70	4.20	1.480	0.058
219.70	226.00	6.30	0.650	0.053
226.00	232.00	6.00	0.350	NIL
232.00	236.00	4.00	0.250	NIL
236.00	237.50	1.50	1.450	0.023
239.50	240.20	0.70	0.630	NIL
239.50	240.20	0.70	0.630	NIL

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: GB
 HOLE NO: 59-17
 GRID:

DATE: 07/10/59
 SURVEY BY: HODGSON/WOOLVERTON
 INSTRUMENT:

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=====
```

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-52.50	300.00	0.000	-145.000	1160.000
307.50	-52.50	340.00	-120.326	-1.601	916.044

** BORSURV **

ASSAY LOG
 PROPERTY: GB
 HOLE No.: 59-17

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=====
```

FROM	TO	WIDTH	CU	CU
42.00	43.50	1.50	0.940	NIL
53.50	56.00	2.50	0.580	NIL
64.50	70.00	5.50	0.620	NIL
103.50	108.50	5.00	2.840	NIL
108.50	112.70	4.20	2.240	NIL
112.70	116.00	3.30	0.480	NIL
159.00	163.00	4.00	0.320	NIL
163.00	168.00	5.00	1.790	NIL
168.00	173.00	5.00	0.540	NIL
173.00	175.00	2.00	0.610	NIL

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: GB
 HOLE NO: 59-18
 GRID:

DATE: 07/12/59
 SURVEY BY: HODGSON/WOOLVERTON
 INSTRUMENT:

```
=====
DEPTH      INCLINATION  BEARING  EASTINGS  NORTHINGS  ELEVATION
  0.00      -52.00      330.00   -125.000  -250.000   1165.000
 300.00     -52.00      330.00   -217.349  -90.046    928.597
=====
```

** BORSURV **

ASSAY LOG
 PROPERTY: GB
 HOLE No.: 59-18

Page 1 of 1

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=====
FROM      TO      WIDTH      CU      NI
308.50    314.00    5.50      1.400    NIL
338.50    341.00    2.50      0.770    NIL
349.30    353.00    3.70      0.710    0.060
354.10    359.10    5.00      0.250    NIL
359.10    365.50    6.40      0.270    NIL
374.30    379.30    5.00      1.420    NIL
379.30    384.30    5.00      1.180    NIL
384.30    388.00    3.70      0.880    0.060
395.50    398.00    2.50      0.720    0.060
399.50    402.40    2.90      0.550    0.060
407.80    414.50    6.70      0.610    0.050
414.50    417.00    2.50      0.400    0.060
=====
```

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: GB
HOLE NO: 59-19
GRID:

DATE: 07/16/90
SURVEY BY: HODGSON/WOOLVERTON
INSTRUMENT:

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=====
```

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-51.50	330.00	-255.000	-180.000	1115.000
300.00	-51.50	330.00	-348.377	-18.266	880.218

```
=====
```

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: G
 HOLE NO: 59-20
 GRID:

DATE: 07/20/59
 SURVEY BY: WOOLVERTON
 INSTRUMENT:

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```

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-50.00	310.00	-710.000	-30.000	1115.000
300.00	-50.00	310.00	-857.721	93.953	885.187

** BORSURV **

ASSAY LOG
 PROPERTY: G
 HOLE No.: 59-20

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=====
```

	FROM	TO	WIDTH	CU	NI
	0.00	130.00	130.00	0.710	0.030
	0.00	194.50	194.50	0.748	0.140
	92.50	97.50	5.00	0.800	0.100
	214.00	224.00	10.00	0.290	0.100

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: GB
 HOLE NO: 59-21
 GRID:

DATE: 08/30/59
 SURVEY BY: HODGSON/WOOLVERTON
 INSTRUMENT:

```
=====
DEPTH      INCLINATION    BEARING    EASTINGS    NORTHINGS    ELEVATION
  0.00      -50.00        310.00     908.000     9.000       1113.000
251.00     -50.00        310.00     784.407     112.707     920.723
```

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (feet)

PROPERTY: GB
 HOLE NO: 59-22
 GRID:

DATE: 09/04/59
 SURVEY BY: HODGSON/WOOLVERTON
 INSTRUMENT:

```
=====
DEPTH      INCLINATION    BEARING    EASTINGS    NORTHINGS    ELEVATION
  0.00      -63.00        310.00    -1170.000    -127.000     1118.000
496.00     -63.00        310.00    -1342.497     17.742     676.061
```


LOT 7

LAKE

1158876

1158877

o/c ridge

70.12

210

21C

o/c

CONCESSION IV

1158880

Area covered
See (21)
on attached
claim map

AEM INVESTIGATIONS

KALROCK RESOURCES LIMITED

REDGUT BAY PROPERTY

Kalrock RESOURCES Limited
CLAIM MAP
 HALKIRK & WATTEN Townships
 District of RAINY RIVER, ONTARIO


AEM INVESTIGATIONS
 KALROCK RESOURCES LIMITED
 REDBUT BAY PROPERTY
 HALKIRK TOWNSHIP, ONTARIO
 Nov. 1970

THE TOWNSHIP
 OF
WATTEN
 DISTRICT OF
 RAINY RIVER
 KENORA
 MINING DIVISION
 SCALE: 1-INCH=40 CHAINS
PLAN NO.-M.2128
 ONTARIO
MINISTRY OF NATURAL RESOURCES
 SURVEYS AND MAPPING BRANCH

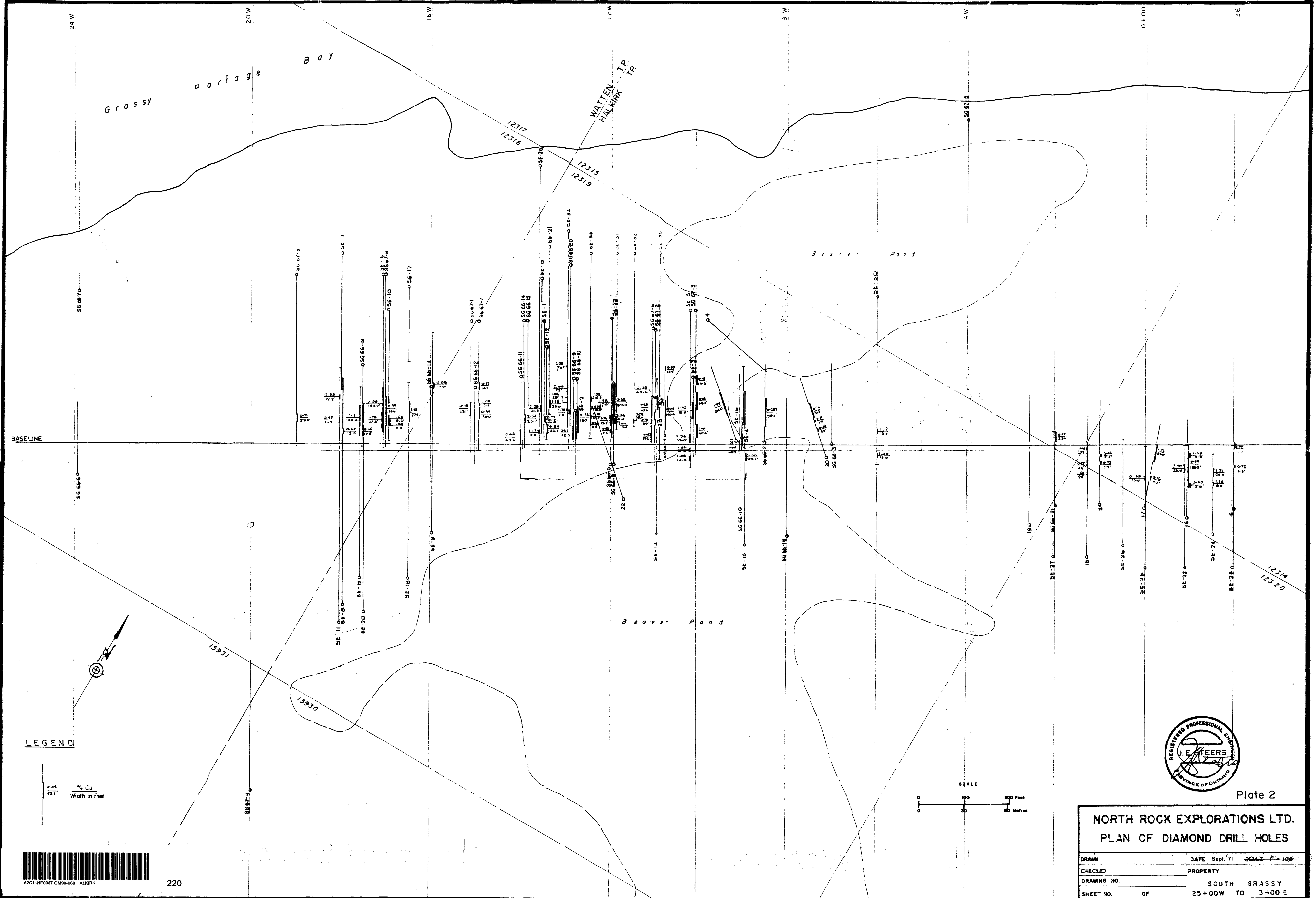
SCALE: 1 INCH = 40 CHAINS
 FEET 0 500 1000 2000 4000 6000 8000
 METRES 0 200 400 600 800 1 KM 2 KM

ACRES 40
 HECTARES 16

TOWNSHIPS
HALKIRK AND FARRINGTON
 DISTRICT
 RAINY RIVER
 MINING DIVISION
 KENORA

 **Ministry of Natural Resources**
 Ontario Surveys and Mapping Branch
 Date APRIL 1973 Plan No. **M.2081**
 Whitney Block
 Queen's Park, Toronto





BASELINE

LEGEND

0-46
421
% Cu
Width in Feet



220

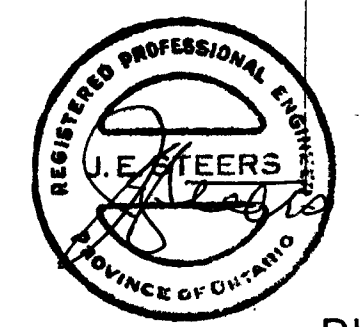
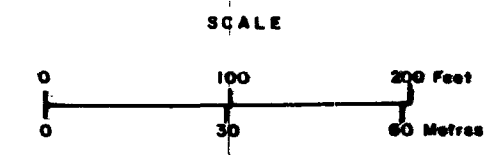


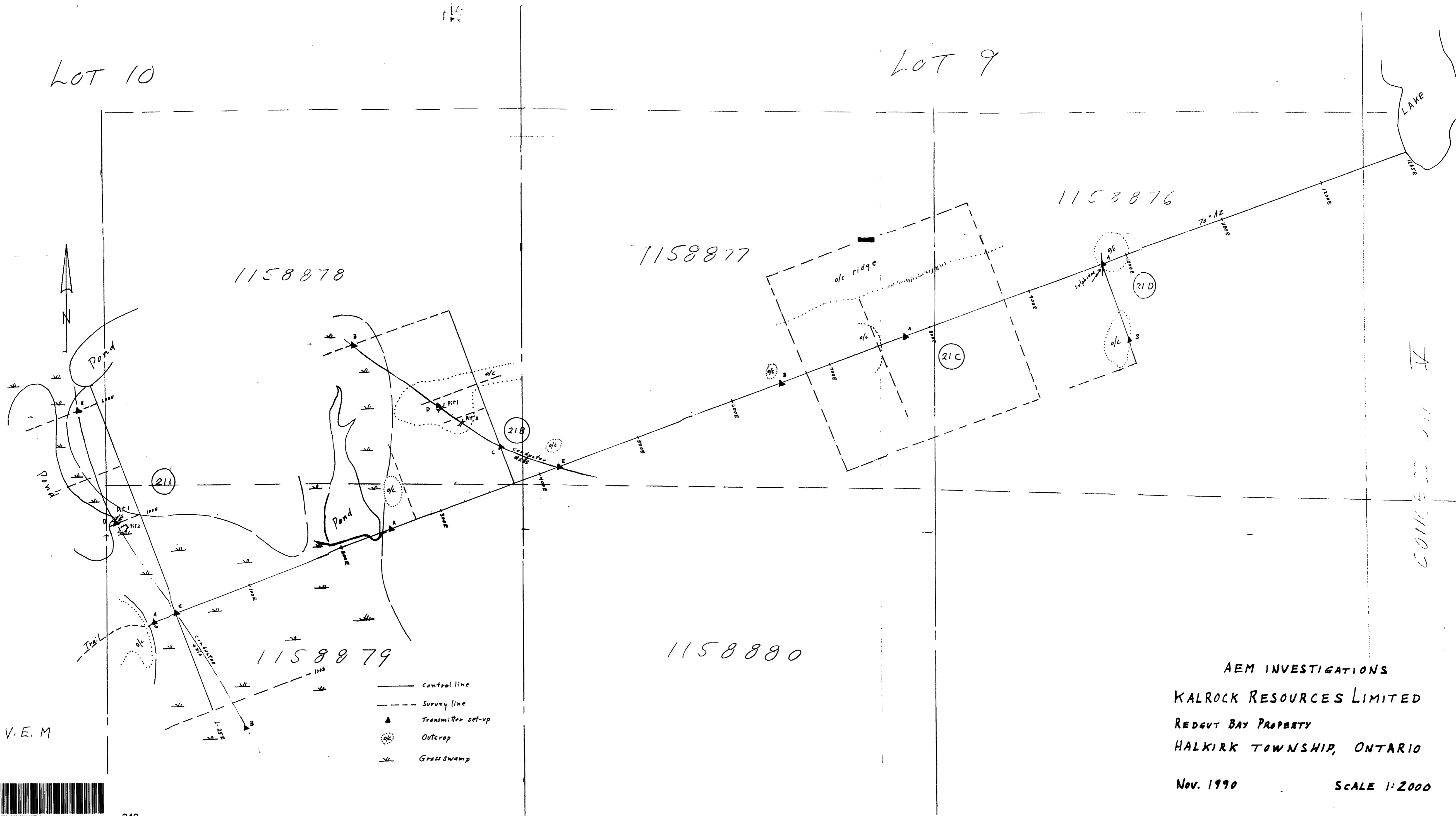
Plate 2

NORTH ROCK EXPLORATIONS LTD.
PLAN OF DIAMOND DRILL HOLES

DRAWN	DATE Sept. 71	SCALE 1" = 100'
CHECKED	PROPERTY	
DRAWING NO.	SOUTH GRASSY	
SHEET NO.	OF	25+00W TO 3+00E

LOT 10

LOT 9



V. E. M



AEM INVESTIGATIONS
 KALROCK RESOURCES LIMITED
 REDGUT BAY PROPERTY
 HALKIRK TOWNSHIP, ONTARIO
 Nov. 1990 SCALE 1:2000