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MAGNETOMETER SURVEY

REX-FLETCHER LAKES PROSPECT

KENORA MINING DIVISION, ONTARIO

W. G. WAHL LIMITED

April 24, 1963

Suite 1405,
302 Bay Street,
Toronto 1, Ontario.

April 24, 1963.

J. F. White, Esq.,
Geologist,
Steep Rock Iron Mines,
Atikokan, Ontario.

Dear Mr. White,

Submitted herewith is a report on:-

MAGNETOMETER SURVEY
REX-FLETCHER LAKES PROSPECT
KENORA MINING DIVISION, ONTARIO

The magnetometer survey mapped the rock units and structures along which copper mineralization has been found. Two areas of prime interest were outlined. Other areas of possible interest were mapped.

It is suggested that the geological mapping be completed and that all favourable areas be investigated by surface prospecting where feasible. Self-potential surveys should be run over all areas of interest in order to assess their economic potential.

MAGNETOMETER SURVEY

A Sharpe fluxgate magnetometer with a 10-gamma sensitivity measured the local changes in the total magnetic field. The values of the total field were measured at 50-foot stations on picket lines established at 100, 200, and 400-foot intervals off of three base lines. The data was compiled on three map sheets and the location of these map sheets and the base lines are shown on the index on the map labelled Part 2 of 3 parts. The field data was adjusted to an arbitrarily selected datum.

These data were contoured in intervals of 500 gammas and the contoured plans are attached. The plans labelled "Geology as Inferred from Magnetic Data" show one interpretation of the geophysical data. No rock names were given to the different map units as my knowledge of the geology is based on the recollection of the observations made during a brief visit last fall.

INFERRED GEOLOGY

There appears to be two distinct series of rocks which have been intruded by dykes, sills, and irregular masses; folded; faulted; and possibly changed by metamorphism.

The two main rock units are marked "a" and "d" with rock unit "a" lying roughly west and south of the base line. The strike of this rock unit is approximately parallel to its contact with the enclosed rock unit "b". Rock unit "a" is probably a paragneiss and rock unit "b" is probably discontinuous bands of magnetite rich material lying within the paragneiss. Rock unit "b" could also be sills and dykes.

Rock unit "g" appears to be an irregular intrusive mass of monzonite-like material and is found in the southwest corner of the area.

Rock unit "c" is irregular masses of material with a high magnetic susceptibility lying approximately concordant to rock unit "a". Rock unit "c" may possibly be dioritic to gabbroic in composition or may be an amphibolite, a metamorphose equivalent of these rocks.

Rock unit "m" appears to be associated with the contact between units "a" and "d" and with rock unit "b". It is felt that rock unit "m" is distinct and separate from rock unit "b" and may be the result of metamorphism and/or possibly the addition of material.

Rock unit "d" is found lying approximately north and east of the base lines. This rock appears to trend at approximately 30^{o} to its contact with rock unit "a". Rock unit "d" is more uniform in composition than rock unit "a" and may possibly be a granite or a granite orthogneiss. This rock unit is intruded by small discontinuous dykes mapped as rock unit "f" or by an irregular mass, rock unit "c". Rock unit "c", as mentioned above, is probably dioritic to gabbroic in composition.

Rock unit "f" may possibly be of the same composition as "c" but is shown as a separate map unit because of its linear outline.

There is a dyke-like feature trending northeast through the southern part of Bug Lake. This dyke appears to lie in a fault which marks the axis of the gentle fold in rock unit "a". The dyke may possibly be a diabase.

In the northern part of the area the rocks trend N. 20° W. and in the southeastern part of the area the rocks trend S. 60° E. The axis of the fold trends approximately N. 45° E. through the southern part of Bug Lake.

There are two directions of faulting, one is northwest and the other is northeast. The northwest faults are most apparent on the maps labelled Part 1 and Part 2, and are indistinct on Part 3 as the direction of faulting and the trend of the rocks are parallel. If faulting occurs in this area, it would be in the nature of a strike fault. Rock unit "b" in the northern portion of Part 1 may be within a northwest trending fault. The possibility exists that a northwest trending fault passes very near to the mineralized zone near station 0 - 0.

The northeast trending faults are near the nose of the gentle fold in the southern part of Bug Lake. One of these faults is marked by the northeast trending dyke.

The known mineralization appears to be restricted to rock unit "b" marking the approximate contact between rock units "a" and "d". The known mineralized areas are small but the occurrence of sulphides indicates that this rock unit is a favourable host rock and that the sulphides carry metals of value. Therefore, favourable areas outlined by the magnetometer survey should be investigated.

Two areas of prime importance were mapped. The first, marked I, is found on the island near the eastern shore in the south-central part of Bug Lake. This area is on the nose of the fold and at the intersection of two faults, one of which has been filled by a late dyke. Very high magnetic values were recorded in this area. The cuase of the magnetic values are at the bedrock surface and should be exposed on the shore of the island.

The other area of prime interest is located in the east central portion of Part 1 and is marked by the symbol II. Extremely high magnetic values were recorded in this area over the favourable rock unit "b" on the contact between rock units "a" and "d". A possible northwest trending fault marked by a dyke of rock unit "b" crosses the favourable area.

Other areas of interest are those underlain by rock units "c" and "m" and along the northwest trending faults which offset the contact between rock units "a" and "d".

It is suggested that the surface geology be mapped and rock names be given to the map units shown on geological plans. Surface prospecting should be carried out on all favourable areas and, if feasible, a self-potential survey should be completed to cover not only the favourable area but all of the area along the contact between rock units "a" and "d".

All of which is respectfully submitted.

Sincerely yours,

W. G. WAHL LIMITED

W G Wahl

W. G. Wahl, P.Eng.

GEOPHYSICAL SURVEY REPORTS

STEEP ROCK IRON MINES LIMITED

BUG LAKE PROPERTY

J. M. ALLEN, P. ENG.

AUGUST 22, 1963

ELECTROMAGNETIC SURVEY

Conclusions and Recommendations:

The results of the survey indicate the following conclusions:

(1) Mineralization exposed in trenches does not respond to the E.M. method used.

(2) The two large conductive zones found underlie swampy, poorly drained land, and are a reflection of this condition.

(3) Conductors of appreciable width or strike extent were not found within the copper bearing zone.

(4) The absence of conductive response does not, in view of the exposed mineralization, eliminate the possibility of finding ore grade mineralization within the copper bearing zone.

In view of this, it is recommended that the E.M. results be periodically reviewed as new information, especially drilling data, becomes available.

Purpose and Scope of Survey:

The E.M. survey was designed primarily to test the areas of low ground and lake bottom along the zone of copper occurrences. For this reason lines were not extended over areas of outcrop or beyond the limits of the copper zone. Readings were taken at 50 foot intervals in order to provide close coverage.

Equipment:

Instrument	- Ronka horizontal loop, single frequency of 800 C.P.S.
Coil Spacing	- 200 feet.
Station Interval	- Not more than 50 feet.
Effective depth penetration	- 100 feet or less.

Effective lateral coverage - 100 feet on either side of line.

Quantities measured - % change in the in-phase and out-of-phase components of the resultant vertical magnetic field.

Line Coverage - 6.1 mi.

Results:

Only two zones of abnormally high conductivity were found, one under the small lake at 11 to 15+00 N and 5+00 W and the other under the swamp which intersects the baseline between 31+00 and 43+00 N. Out-of-phase responses of 5 to 10 were encountered in both places, however, in-phase response did not increase in the same way and this is indicative of a near surface conductor, in this case probably lake bottom mud and/or an acid soil horizon. Other factors which reinforce this conclusion are:

(1) Both areas are poorly drained and the muds underlying the swamp and around the south and eastern shore of the lake are fetid and probably acid.

(2) The conductive zones, though irregular, tend to conform to the shapes of the lake and the swamp.

(3) Neither conductor conforms well to the strike of known mineralization and the northern conductor crosses the rock structure almost at right angles.

Readings of about twice background were noted on line 31+00 S at 1+50 W and on line 8+00 S.E. between 1 and 1+50 S. These readings indicate a very weak conductor and may simply reflect slight changes in overburden character. However, the response on line 31+00 S is on strike with known mineralization which is exposed in a trench some 50 feet north of the line.

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Similarly, the response on line 8+00 S.E. can be correlated with mineralization and shearing along the south shore of the lake. However, in this case, the extrapolation is over a considerable strike length.

Another zone of possible interest extends along the base line from 23+00 N to the broad open swamp starting at 31+00 N. The E.M. response in this zone is similar, though lower, to that obtained over the swamp and may indicate a similar cause. However, the zone is parallel to strike and is for most of its length in dry overburden covered terrain. A similar zone occurs along the base line north of the swamp between lines 47+00 N and 55+00 N. An outcrop of granitized quartz feldspar gneiss occurring within the zone disclosed no reason for the conductor.

J. M. Allen

J. M. Allen,
Field Geologist.

JMA:pb

August 13th, 1963.

MAGNETOMETER SURVEY

The magnetometer survey was initiated to assist in the structural interpretation, to determine whether the mineralization displayed magnetic correlation and to prospect for basic rock masses. The survey has been successful only in the first of these objectives, for no basic rocks have been found and there is no significant amount of magnetite or pyrrhotite associated with the copper mineralization.

Conclusions and Recommendations:

(1) There is excellent correlation between structural and magnetic trends.

(2) Crosscutting magnetic trends indicate possible favourable structural and lithologic conditions under Bug Lake.

(3) Mineralization found to date is largely restricted to the west and southwest flanks of a narrow zone of moderate magnetic intensity running through the center of the entire property.

(4) Although no obvious correlation exists between rock type and magnetic intensity, biotite feldspar gneiss horizons generally show higher intensities than the other types of gneiss.

In view of these conclusions it is recommended that subsequent work be concentrated along the west flank of the north to northwesterly trending mag zone and in the zone of magnetically and possibly structurally complex rock under the center of Bug Lake.

Equipment and Survey Method:

The magnetic survey was carried out in three stages using two different types of instrument. The first surveying was done using a Sharpe model A-3 magnetometer and was limited to an area 400 feet wide between 5+00 S and 27+00 N. Subsequently the survey area was expanded to cover a 3000 foot swath over the length of the property. For this later work a Sharpe Fluxgate magnetometer was used. Part of this work was done during the winter and part during the summer.

Instrument Data:

Sharpe A-3 - Sensitivity 50-100 gammas.
- Station Interval - 10 feet.
- Hand held self orienting.

Sharpe Fluxgate - Sensitivity 10-20 gammas.
- Station Interval - 50-100 feet.
- Hand held self orienting electronic magnetometer.

Line Coverage - 29 miles.

Results:

The results of the magnetic survey are shown on the accompanying three sheets. These show that the magnetic relief for the area is moderate to low, ranging from 1500 to 5000 gammas. Locally readings of up to 9000 gammas were recorded but these probably represent only small local concentrations of magnetite in the gneisses.

The magnetic picture, although locally complex, is generally simple, indicating a north to northwesterly trending series of relatively thin, moderately to steeply dipping rocks of variable magnetic intensity. Flexures in the formations, as found in geological mapping, are faithfully reflected by the magnetics.

Departures from the north to northwest trend were noted at two places under Bug Lake and on the north side of the island in the eastern part of the lake. In this latter location, the axis of a small magnetic high cuts diagonally across the gneissocity at an angle of about 40°. Examination of outcrop in this area shows that the garnetiferous biotite gneiss is cut by small (1") stringers of pegmatite which carry magnetite. The stringers strike parallel to the anomaly axis and may indicate a zone of weakness extending westward under the lake. Another crosscutting magnetic trend extends from the tip of the southwest bay of the lake to the southern tip of the island. This trend is moderately strong and well developed, but unfortunately there is no exposure along it. Similar trends are often associated with small diabase dikes, there is no evidence however of diabase being the cause in this case. The third crosscutting trend extends from the tip of the western bay of Bug Lake to about the center of the lake. This trend is less well developed and is also completely covered. The significance of these crosscutting trends is unknown but they may well indicate a zone of fracture or of intrusion which might be favourable to ore deposition.

Another feature of the magnetic picture which has probable significance is the occurrence of copper showings on or adjacent to the western flank of a narrow moderate intensity magnetic zone extending through the center of the property. This zone, which is structurally conformable, is underlain for much of its length by the biotite feldspar gneiss-garnetiferous biotite gneiss contact. The occurrence of copper mineralization in both biotite and garnetiferous gneiss may indicate that the contact is a favourable locus of ore deposition. Since the contact has magnetic expression, this may be very useful in guiding subsequent exploration.

J M Allen

JMA:pb
August 13th, 1963.

J. M. Allen,
Field Geologist.

SELF POTENTIAL SURVEY

Conclusions and Recommendations:

Results of the survey indicate that in this area the most effective use of S.P. is in the tracing and extension of mineralization over short distances. Broad scale prospecting with S.P. has not been effective.

Purpose and Scope of Survey:

Limited test work in the vicinity of the main showing in the fall of 1962 indicated a small anomaly immediately south of the original discovery. Subsequent trenching disclosed a narrow width of good grade mineralization under the anomaly.

EQUIPMENT AND METHOD OF SURVEY

Instrument - Sharp V.P. 6 Voltmeter and Porous Pot Probes

Readings - In Millivolts

Survey Methods - Readings taken at 50 to 100' intervals along cross lines referred to stationary probe at base line.

Coverage - 1500 feet on either side of the base line between lines 0+00 N and 47+00 N. Approximately 7 miles of line.

Results:

The results of the S.P. survey were disappointing. Ground checking of areas where high readings were obtained failed to disclose any evidence of sulphides or any other good reason for the readings. In some cases high readings were obtained on outcrop and it may be that the S.P. is responding to variations in overburden depth. This is also indicated by the trenching over the small anomaly found in the fall of 1962. In the trench bedrock is closest to surface under the peak of the anomaly and this suggests that the S.P. response is due only partially to the sulphide mineralization.

Areas of swamp and low ground covered by the survey gave erratic, generally low readings, and it is unlikely that any meaningful responses were obtained from beneath the water table. This was understood when the survey was contemplated and a record of the nature of the ground was kept in order to properly evaluate the results.

The results indicate that S.P. readings are seriously affected by variation in bedrock topography and that application of the method is best limited to areas where bedrock variations are minor or are predictable. This would limit the use of S.P. as a broad scale prospecting tool and further suggest that its best use may be in extending or tracing mineralization over short distances in flat well drained areas.

J M Allen

J. M. Allen,
Geologist.

JMA:pb
August 13th, 1963.

GEOLOGICAL REPORT

SUMMER PROGRAM - 1963

STEEP ROCK IRON MINES LIMITED CLAIM GROUP

REX-FLETCHER LAKE AREA

R.E. HAY AUGUST 22, 1963

TABLE OF CONTENTS

INTRODUCTION

The following geological report and accompanying geological outcrop maps concern a group of claims now held by Steep Rock Iron Mines Limited. These claims are located some fifty-five miles north of Kenora, Ontario and lie along a line north from Bug Lake to Rex Lake. They are accessible only by air. The registered numbers of the claims are: K 34153-K 34160, K 34163-K34167, K 34361-K34364, K 34311, K 34378 and K 34313.

During the summer of 1963 the writer was engaged in a geological mapping project of the above claims. He was assisted in the field by a helper, four linecutters and a cook. Mapping was carried out along lines, cut east and west from a baseline trending approximately north-south. These lines were cut to 1500 feet in either direction and were extended where necessary to provide a complete coverage of the claim area.

Trenching and stripping were done in several areas to open mineral showings and to aid in geological interpretation.

TOPOGRAPHY

The claim area is marked by a prominent topographic linear trending approximately north-south and following closely the boundary between claims K 34160 and K 34157. About 4000 feet north of Bug Lake a northwest linear separates from the main linear and a further 1000 feet north the main linear splits into a northeast and a weak northwest one. On the ground these linears are marked by a series of swamps and ponds. The linears are bordered by prominent escarpments. In the north claim area these escarpments rise some 100 feet above the swamp, but in the south the escarpments are less pronounced. Nowhere in the area does the relief exceed 150 feet.

Drainage in the area follows the linears towards Rex Lake. The only major creek in the area flows from the northeast and out the northwest linear to Rex Lake.

VEGETATION

The upland area is in general covered with stands of jackpine and spruce. Most of the jackpine is from 6-10" in diameter and shows red rot at the centre. The spruce is from 5-8" in diameter and likewise shows considerable rot. The lower rock areas are in general covered with spruce, most of which is from 2-4" in diameter. The low areas and swamp areas show poor forest cover, with considerable windfall and scrub growth.

Poplar and birch are of local occurrence but are nowhere very abundant. Balsam appears only as scrub growth. The mature balsam has been killed and forms much of the windfall.

Claim K 34166 has, at one time, been drowned by beavers and now is largely grass covered.

OVERBURDEN

The upland areas generally show thin overburden and most of this is of a sandy nature. The lowland areas, especially along the main linears, appear to be underlain by clays, some of which are varved. No gravel areas were located.

GEOLOGY

The exposed bedrock in the claim area consists of highly metamorphosed sedimentary material intruded by granite. The rock units identified are listed in the table of formations but this order does not necessarily indicate the relative ages of the units.

TABLE OF FORMATIONS

GRANITE: White to pink, medium to coarse grained. (Little mafic material)

MIGMATITE: Mixed granite and gneiss - up to 90% granite with inclusions of biotite feldspar and garnetiferous gneiss.

GARNETIFEROUS PARAGNEISS: Dark to light in colour, highly variable biotite content. Becomes progressively darker towards the west.

QUARTZ FELDSPAR GNEISS: Light coloured - interbedded with garnet gneiss.

BIOTITE FELDSPAR GNEISS: Generally dark coloured, high biotite content.

GRANITE: Buff to dark coloured, medium to fine grained,(10-30% biotite).

The gneisses form a belt trending approximately north-south situated between two granite masses. The granite mass to the east is definitely intrusive into the gneisses as the contact is highly irregular and there are numerous xenoliths of the gneiss in the granite. The age of the granite to the west is less certain. The contact between the gneiss belt and this granite is relatively sharp and suggests a non-conformable relationship. The two granites are distinguished by their mafic constituents. The granite to the west contains 10-15% biotite, while the granite to the east is essentially free of mafic constituents.

The meta-sediments include quartz-biotite feldspar gneiss and garnetiferous paragneiss. Quartzite is rare. Near the west granite mass biotite gneiss forms a band from 200-400 feet thick. East of this rock is a dark biotite hornblende garnet gneiss with garnets up to one inch in diameter. East of this dark garnet gneiss the rock becomes progressively more quartzitic and locally could be classified as a garnetiferous quartzite. In the north where a more complete section is revealed, several quartz feldspar gneiss bands appear east of the main garnet gneiss zone. In the east, where the granite has disrupted the gneiss belt, the granite contains remnants of the garnet gneiss and locally the granite itself is garnetiferous.

STRUCTURE

The meta sediments have been highly folded and now stand at relatively high dips. In the south claim area they form a belt striking a few degrees from north and dipping at moderate to steep angles towards the east. Local contortions in this area are intense. This trend varies little until 6000 feet north of Bug Lake, where drag folding, plunging 70° to the northeast, has caused a disruption of the belt. North of this drag area the trend is toward the northwest and dips are relatively steep towards the north. In the northwest area the trend is toward the northwest and dips are relatively steep towards the north. In the northeast area the trend is closer to east-west with steep dips towards the north.

Little or no field evidence was found for faulting in the area. In the south claim area, along the north-south linear, strikes vary considerably with the suggestion of drag along the linear. Old maps suggest a fault zone along the northwest linear, but this was not indicated in field mapping.

MINERALIZATION

Several areas of sulphide mineralization are located within the biotite gneiss belt and the adjacent dark garnetiferous gneiss. This mineralization consists predominantly of coarse chalcopyrite. Pyrite is much less abundant but is detectable at most of the showings. Molybdenite has also been identified, but in only minor amount.

Mineralization appears to parallel the gneissosity and appears to be controlled by zones of high biotite content where relatively intense fracturing has provided holes for precipitation of the sulphides. In some cases mineralization occurs in fractured quartz zones. Just north of Bug Lake mineralization is in a rock consisting almost entirely of quartz.

The origin of the sulphides is questionable. It appears that heat from the granite intrusives has caused movement of the sulphides, but whether the sulphides were derived from the granite or not is unknown. The long strike length of the mineral showings within the dark garnet gneiss band suggests an original relationship to this band.

CONCLUSIONS

The high garnet content and the presence of quartzite bands indicates an original sedimentary nature for most of the gneissic material. The origin of the mineralization is difficult to prove, but the long strike length of the mineralization within the gneisses,in combination with the predominance of chalcopyrite, to the almost complete exclusion of other sulphides, suggest an Genetic relationship to the sediments. Mobilization at a later date appears to have concentrated the sulphides. Some scattered occurrences of chalcopyrite were found within the granite, so the possibility remains that the mineralization has been derived from the granite.

RECOMMENDATIONS FOR FURTHER WORK

(1) More detailed geological work in the drag fold area may reveal continuation of the sulphide occurrences towards the northwest.

(2) Testing with vertical loop E.M. indicates that it may possibly be more effective than horizontal loop E.M.

APPENDIX

ROCK DESCRIPTIONS

GRANITE - East

The granite rocks to the east occur in irregular masses intruding the gneiss belt. On the weathered surface this granite is white to pink in colour, with the white variety being more common in the northeast. The fresh surface shows very coarse grained ortho clase and quartz with little or no mafic material. Biotite forms what little mafic material there is. Pegmatitic zones are common and veins or knots of quartz are frequent. Orthoclase feldspar comprises about 70% of the rock.

GRANITE - West

The granite to the west appears buff to almost black on the weathered surface and locally is reddish. Where the biotite content of this granite is high, the rock is deeply weathered. Much of this area shows some degree of gneissosity.

The granite consists of about 60% orthoclase, 20% quartz and 20% biotite. Hornblende is not abundant. Certain areas appear to have a slight magnetite content.

The granite is relatively uniform in grain size, with most being medium grained. It is the high biotite content combined with the uniform grain size which differentiates this granite from that to the east.

BIOTITE-FELDSPAR GNEISS

The biotite feldspar gneiss occurs in a band 200-400 feet thick along the east contact of the granite mass. It is generally dark in colour and locally is almost a schist. On the weathered surface it appears dull grey to black in colour and shows rusty gossan areas. It is generally quite deeply weathered.

The fresh surface shows it to consist predominantly of biotite (30-40%) and feldspar. Quartz is a minor constituent. Narrow zones run as high as 70% biotite and these are marked by a rusty weathered surface. Near the base line the gneiss becomes more feldspathic and the rock is more resistant to erosion. Here the biotite content is less than 20%, the remainder of the rock being almost entirely feldspar.

Near 0+00 on the baseline, where the biotite gneiss is quite dark, hornblende occurs in considerable quantities.

GARNETIFEROUS PARAGNEISS

The garnet gneisses in the area vary widely in composition. Along the west, near the contact with the biotite gneiss, they consist of an almost black biotite-hornblende rock. On the weathered surface this rock generally shows a rusty colour. Weathering has produced a kaolinized zone up to four inches thick, so fresh samples are rather difficult to obtain.

On the fresh surface the dark gneiss is quite coarse grained and consists of biotite, hornblende, feldspar and garnet. The garnets may be up to 1" in diameter in these areas.

As you proceed towards the east, the garnet gneiss band becomes progressively more quartzitic. Two hundred feet east of the baseline hornblende no longer occurs and further east the biotite content is greatly reduced. Near the ends of the lines the rock is essentially a garnetiferous quartzite with only very minor biotite and feldspar.

The garnet gneiss, about 50-200 feet east of the showings, is marked by a bluish coloured mineral which has been identified in the field as cordierite. If this band is consistent, it may prove to be an excellent marker horizon as it occurs close to most of the mineral showings.

QUARTZ-FELDSPAR GNEISS

Several bands of a quartz feldspar gneiss were identified across the north claim area. These were separated from the biotite feldspar gneisses by the pronounced lack of abundant biotite. Biotite forms only about 10% of these zones.

On the weathered surface these gneisses appear buff to greenish or in some cases pinkish. Gneissosity is pronounced on the weathered surface.

They are medium to fine grained and are composed of feldspar (60%); quartz (30%); and biotite (10% or less).

MIGMATITE

Much of the area east of the baselines is underlain by a mixed rock consisting of varying proportions of granite, pegmatite and various gneiss types. This rock is quite variable from outcrop to outcrop and may range from 90% granite to almost pure garnet or biotite gneiss. Rusty patches and inclusions of gneiss are common and occasionally quartz veins are found. The contact with the garnetiferous paragneiss to the west is gradational and locally quite irregular. Grain size and mineralogy is also quite variable.

On the accompanying maps the magnitite is subdivided according to the nature of the contained gneiss.

SUPPLEMENTAL GEOLOGICAL REPORT

BUG LAKE PROPERTY

STEEP ROCK IRON MINES LIMITED

J. M. ALLEN

AUGUST 22ND, 1963

TABLE OF CONTENTS

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SUPPLEMENTAL GEOLOGICAL REPORT ON BUG LAKE PROPERTY

STEEP ROCK IRON MINES LIMITED

The Bug Lake property of Steep Rock Iron Mines has been actively explored for a full year, however, the accompanying geological report by R. E. Hay covers only that part of the work carried out during the summer of 1963. This report will briefly describe the geological work done before that time.

HISTORY OF EXPLORATION

Copper and copper-nickel mineralization has been found in the Rex-Werner lakes area over the past forty years. During the Second World War a small cobalt ore body just west of Werner Lake produced some 140,000 lbs. of cobalt and in 1961 the copper-nickel ores of the Nickel Mining and Smelting Company at Gordon Lake were re-examined and the property is now in production.

Steep Rock's interest in the area dates back to 1958 when a prospector searching for an aerially observed gossan came across a small pod of copper mineralization in granite about one mile west of Fletcher Lake. A limited amount of work during 1958 failed to disclose any more mineralization and this lack of success and the pressures of other work ruled out any further work in the area until 1961. At this time another examination of the area was made and a small additional amount of copper mineralization was found northwest of the original discovery. This served to establish the strike of the mineralized zone and subsequent prospecting in 1962 was directed along the northwest extension of the zone. Careful prospecting along this zone disclosed traces of copper mineralization along it and finally mineralization of good grade and width was found at a point 3000 feet north of Bug Lake, nearly three miles from the original discovery. This discovery was of sufficient interest that a program of geological mapping, trenching, stripping and sampling was carried out late in the summer of 1962. The results of this program are embodied in the 50 scale geological plan, the 500 scale geological plan and the 10 scale trench plan accompanying this report.

The 1962 program showed that mineralization of ore grade occurred in three places on strike within a strike length of just over one mile. The mineralization appeared to conform to the structure of the enclosing gneisses and was predictable on this basis. However, the relationship of mineralization to structure in detail and the stratigraphy and lithology of the gneisses was poorly known and it was largely to elucidate these questions that the 1963 summer program was initiated. Another objective of this program was to explore for parallel structures or zones of mineralization.

GEOLOGICAL SETTING

The area between Fletcher Lake and Rex Lake is underlain by a complex series of gneisses of probable sedimentary origin, granite and pegmatite. No basic or ultrabasic rocks were observed anywhere in the area. Structure as indicated by mapping and by magnetics is that of a thin "Z" elongated toward the northwest. The center of the "Z" lies near the north end of Bug Lake. Dips of bedding and gneissocity are moderate to steep to the east or northeast. Prominent topographic linears cross the area in east-west to north-west-south-east directions and some of these may be the surface expressions of faults. There was however, no good evidence of faulting found in any of the linears examined.

On the Steep Rock Iron Mines' claim group the most prominent geological feature is a band of gneisses forming the center of the "Z" described above. The gneiss band is up to 700 feet wide and can be subdivided into three main units; a biotite-feldspar gneiss unit on the west, a central garnetiferous paragneiss unit and a quartz-feldspar gneiss unit on the east and northeast. The gneiss band is bounded on both sides by granite. To the west the granite-gneiss contact is sharp and there is a strong suggestion that the gneisses are younger than the granite. The contact on the east is marked by a broad migmatite zone formed by the partial assimilation of the gneisses by the eastern granite. The structure follows the broad "Z" shaped pattern and is parallel to the contact of the western granite. Locally, small drag folds occur and these may cause discordances in the structural picture over small areas. No evidence of faulting was observed on the group, however, the zone of copper mineralization is underlain for much of its length by low ground and structural discordances observed on the sides of the zone may indicate that there has been some movement along it.

Marker horizons in the gneisses are not easily found. At several places along the eastern side of the mineralized zone and adjacent to it, a blue mineral identified as cordierite was found. If the cordierite bearing horizon is continuous it would certainly provide an excellent marker. However, work to date has not been able to demonstrate such continuity.

GEOPHYSICAL CORRELATION

To date, three types of geophysical surveys, magnetic, electromagnetic and self potential, have been carried out on the property with varying degrees of success.

The magnetic survey has provided the most useful results in that it has corroborated the structural picture obtained in mapping. However, while the magnetics indicate structural trends, no really reliable correlation between rock type and magnetic susceptibility has become apparent. There is some indication that the biotite feldspar gneiss unit has a higher susceptibility than the other gneiss units. There is no direct correlation with mineralization however, most of the copper showings occur along, or adjacent to, a linear zone of moderate magnetic intensity marking the contact between the biotite feldspar gneiss and the garnetiferous paragneiss. crosscutting magnetic trends under Bug Lake are as yet unexplained but these may indicate dikes and possibly zones structurally favourable for ore deposition.

The electromagnetic survey results were disappointing, however, in view of the limited depth penetration of the apparatus used and the lack of response over ore grade mineralization, the lack of E.M. response may not be too meaningful. There was no apparent correlation of E.M. results and with either structure or lithology. Very weak responses were obtained at several places along the mineralized zones and these could be significant considering that the apparatus was working at the limit of its effectiveness, (with respect to the depth and character of mineralization).

The self potential method has for the most part proved ineffective. A self potential anomaly obtained in the main showing area during 1962 is underlain by ore grade mineralization but just how much of the S.P. response was due to irregularity in bedrock surface rather than sulphide mineralization is unknown. The S.P. survey of the area north of the main showing failed to disclose any areas of mineralization. High responses were limited to area of outcrop or areas where cover was thin and it must be assumed that the method was simply outlining high bedrock surfaces.

MINERALIZATION

The initial exploration in the Rex-Fletcher lakes area was based on the premise that any mineralization found would probably be genetically similar to that occurring at Werner and Gordon Lakes. Here copper-nickel mineralization is associated with ultrabasic rock masses intruded along a major fault zone. After the discovery of copper mineralization north of Bug Lake in 1962, it soon became apparent that there were major differences in the mineralization of the two areas. The mineralization at Bug Lake contains no nickel or cobalt, has no apparent association with ultrabasic rocks or with major faulting and apparently conforms to the structure of the enclosing gneisses. These differences suggest two quite different types of mineralization for which exploration methods might be quite different.

The most abundant sulphide on the Steep Rock Iron Mines' group is chalcopyrite, pyrite is much less abundant and molybdenite and pyrrhotite occur in trace amounts. The sulphides occur in a variety of rock types including biotite feldspar gneiss, garnetiferous paragneiss, amphibolite, and what may be quartzite. In general the sulphides are richest in either the amphibolite or the quartzite. The sulphides generally occur as fine stringers or as interstitial fillings and this interstitial character is evident even on a microscopic scale. Replacement has apparently played a very small part in sulphide emplacement for only in the amphibolite is there any evidence of corrosion of the host rock minerals.

The width of mineralization exposed in trenches varies between five and twenty feet and to date the longest continuous length of ore found is about 150 feet. The persistence of mineralization along strike is remarkable and considering the amount of water and overburden cover along the mineralized zone, exploration chances remain very good.

ORIGIN OF THE MINERALIZATION

The question of origin of the copper sulphides is still unsettled and probably will remain so until a good deal more work has been done. At the present time, however, two possible modes of origin seem possible, syngenetic and epigenitic. Factors favouring an epigenetic origin are:

(a) The mineralization occurs in open space fillings for the most part.

(b) The copper showings occur within or along a pronounced topographic depression which may be the surface expression of a fault zone.

(c) The pegmatitic "juicy" granite to the east could have provided mineralizers and hydrothermal fluids.

(d) A narrow mylonite zone in the southeast bay of Bug Lake may indicate the presence of suitable channelways for ore-forming fluids.

Factors favouring a syngenetic origin are:

(a) The remarkable strike length of the copper bearing zone.

(b) The lack of hydrothermal alteration around the ore.

(c) The conformity of the copper bearing zone to the structure of the gneisses and the apparent localization of mineralization to the vicinity of the biotite feldspar gneiss-garnetiferous paragneiss contact.

(d) The lack of a really suitable igneous source rock.

(e) The absence of copper mineralization in the eastern granite or on either side of the copper bearing zone.

At the present time there is insufficient evidence to prove either hypothesis, however, the weight of available evidence favours a syngenetic origin. The evidence of sulphide deposition in open spaces, while characteristic of hydrothermal mineralization, could as easily apply to the mobilization of copper in a sedimentary source bed during metamorphism. There certainly has been sufficient heat and pressure available as evidenced by the occurrence of migmatite, and the relatively high metamorphic grade of the gneisses. The presence of possible faults to act as channelways for ore solutions may simply be fortuitous and in any case there is no evidence of hydrothermal transport along them.

Mineralization of similar form and in a similar geologic setting occurs at the Sherritt Gordon Mine and at the Thompson Mine in Manitoba. Perhaps a study of the published data relating to these two deposits would reveal criteria useful in evaluating the Bug Lake claims.

CONCLUSIONS

Conclusions resulting from the work to date are:

(1) The percentage of exposure along the copper bearing zone is small enough that opportunity still exists for finding a copper orebody or bodies.

(2) Geophysical methods of exploration have proven relatively ineffective and that lack of positive geophysical response is not of critical significance.

(3) The genesis of the mineralization is still open to question but that a modified sygenetic origin for it seems most reasonable at this time.

(4) Further work on the property failing a new geophysical approach, will of necessity be diamond drilling.

(5) Diamond drilling in order to effectively cover the great strike length of mineralization will be both costly and time consuming.

RECOMMENDATIONS

(1) Limited test work with vertical loop E.M. suggests that this type of gear may be more effective than horizontal loop E.M. and it is recommended that a test program be initiated to check this possibility and the program expanded or curtailed as indicated.

(2) Any diamond drilling program should include holes under the main showing, the trenches at 3100S and 2300N and in all cases the holes should be spotted to test the full width of the

depression adjacent to the trenches.

(3) Spacing of drill holes may be of critical importance and an interval of not more than 1000 feet and preferably less is recommended.

(4) The area of structural bending and possible fracturing under Bug Lake should be tested by at least one drill hole.

J. M. Allen
....
J. M. Allen,
Field Geologist.

JMA:pb

August 20th, 1963.

BUG LAKE THIN SECTIONS

REMARKS:

All but one of the sections are too thick for precise identification of the contained minerals.

Metamorphic genesis of all specimens is indicated by:

(a) freshness and lack of alteration,

(b) clear unclouded mineral grains in all sections.

The original nature of the rocks is not evident but there is little reason to suspect that it was igneous.

Chalcopyrite, even on a microscopic scale, is confined almost exclusively to grain interstices and fractures and owes its presence to either metamorphic mobilization or igneous hydrothermal action. At the present state of knowledge the first alternative seems more likely.

Implications re mineralization are that such is most likely to occur where structural conditions have created openings or zones of lower pressure i.e. fault or breccia zones, dilatant zones. Lithology is probably of secondary importance.

SLIDE 1

Megascopic

- Dark green to black, medium to coarse grained.
- Composed essentially of hornblende with about 5% magnetite.

Microscopic

Amphibole (probably hornblende) 80%

- Light green, moderately pleochroic, moderate birefringence

Pyroxene (?) (15%)

- Light reddish brown, weakly pleochroic - high relief, low birefrigence - possibly hypersthene 2V 80° or more.

Chrome Spinel (??) - 3% dark emerald green isotropic - anhedral blebs.

Magnetite - 1% irregular blebs and fine dusty specks in veinlets

Biotite - 1% - orange, moderate to low birefring, somewhat fibrous appearance under crossed nicols.

Texture - Interlocking crystalline medium to coarse grained.

Alteration

- Very slight, rock appears fresh and crystals are clear, some alteration of pyroxene and amphibole to biotite.

Rock - Amphibolite

SLIDE 2

Megascopic

- Mineralogically similar to 1 but finer grained.
- Rock has grey green appearance.
- Very similar to Slide 1.

Microscopic

- Amphibole (probably hornblende) 80%
- As for Slide 1

Pyroxene (probably hypersthene) 12%

- As for Slide 1

Magnetite 3% - as irregular streaks and patches in fresh pyroxene.

Chalcopyrite - trace.

Texture - Interlocking granular, little evidence of replacement.

Alteration

- Incipient alteration of pyroxene but other minerals fresh and clear.

Rock - Amphibolite

SLIDE 3

Megascopic

- Essentially quartz and chalcopyrite (15-20%)

Chalcopyrite - occurs interstitially around rounded quartz grains.

Microscopic

Quartz - 80%

- In generally rounded grains, in part corroded and replaced by later quartz. Section too thick for interference, colours are haywire.

- No evidence of strain or significant fracturing in quartz.

Chalcopyrite 18%.

- In rounded blebs and irregular intergranular fillings.

Biotite - 2%

Rare fine flakes.

Texture - Appears to be a relatively unmetamorphoses coarse sandstone.

Alteration

- Very slight.

Rock - Quartzite

SLIDE 4

Megascopic

- Medium grained grey-green rock composed of amphibole, quartz feldspar, magnetite and traces of sulphide.
- Fluxion texture.

Microscopic

- Section too thick.

Amphibole 35% - coarsely fibrous pleochroic in shades of green

- Parallel extinction - possibly anthophyllite

Quartz - 15%

- In clear, subrounded grains, some apparently derived from garnet.

Feldspar - 20%

- Probably orthoclase, more or less altered to sericite.

Garnet - 20%

- Irregular shaped remnants in quartz or pale green chlorite.

Magnetite - 5%

- In irregular rounded blebs and generally interstitial.

Chlorite - 5%

- Clear pale green, always associated with garnet and probably derived from it.

Texture - Equingranular, sprinkled with sheave-like aggregates of amphibole.

Alteration- Partial alteration of garnet to chlorite and quartz - alteration of feldspar to sericite.

Rock - Garnetiferous paragneiss.

SLIDE 5

Megascopic

- Grey-green, medium to fine grained - fine quartz stringers and streaks of mylonite - speckled with angular elongated pieces of bone white feldspar - rare fine specks of chalcopyrite.

Microscopic

- Thick section-fine to medium grained particlly mylonitic aggregate of carbonate, feldspar, quartz, minor ferro-magnesian minerals. Carbonate 40%. Fine euhedral to sub-hedral grains scattered throughout, also in fine stringers.

Feldspar 30% - in irregular, broken grains often shot through with carbonate.

- Untwinned.

Quartz 25% - irregular broken grains and in fine stringers.

- Some grains brecciated.

Other - fine magnetite and chalcopyrite.

Texture - Mortar - cataclastic.

Alteration- Pervasive carbonate alteration.

- Alteration and cataclastic texture indicates shearing or brecciation.

Rock - Mylonite

SLIDE 6

Megascopic

- Medium grained equigranular, grey-green - composed of feldspar, biotite, magnetite and specks of sulphides, possibly talc.

Microscopic

Feldspar 55%

- In fractured, generally rounded grains.
- Mostly untwinned, some polysynthetic twinning.
- Probably orthoclase for most part.

Biotite - 20%

- In scattered small flakes throughout.

Chlorite - calcite 15%

- Intimately mixed in irregular patches, probably resulting from the alteration of garnet or calcic pyroxene.

Magnetite - sulphides

- As irregular interstitial fillings and as fine crystals.

Texture - Equigranular, generally anhedral.

- Grains unclouded and except for chlorite talc show little evidence of alteration.

Rock - Biotite Feldspar Gneiss

SLIDE 7

Megascopic

- Medium grained grey siliceous rock containing 15% sulphides (mainly chalcopyrite) in interstitial positions, 80% quartz, 5% chlorite (?)

Microscopic

Quartz 80%

- Irregular grains with sutured boundaries.
- Quartz shows wavy extinctions

Chalcopyrite 15%

- As irregular shaped blebs, usually rounded, in interstitial positions, some in very fine fractures.
- Minor pyrite.

Other 5%

- Fine grained felted mass of chlorite (?), occasional biotite flake and fine carbonate.

Texture - Cataclastic (incipient) sutured boundaries of quartz, wavy extinction.

Alteration

- Very slight.

Rock - Quartzite

SLIDE 8

Megascopic

- Medium grained dark grey composed of biotite, serpentine (?) magnetite and sparse sulphides.

Microscopic

Biotite - 50%

in randomly oriented flakes.

Mineral X - 15-20% (possibly pyroxene)

- Very pale brown, good cleavage, inclined extinction, low birefringence, biaxial with large 2V (80-90°)
- Pleochroic light brown to olive green.

Serpentine - 15-20%

- Fine grained aggregates apparently resulting from alteration.

Feldspar - 5%

- Infrequent, grains some showing Carlsbad twins.

Magnetite - 5%

- Occurs interstitially for most part but fine crisscrossing stringers occur in mineral X, perhaps as a result of alteration.

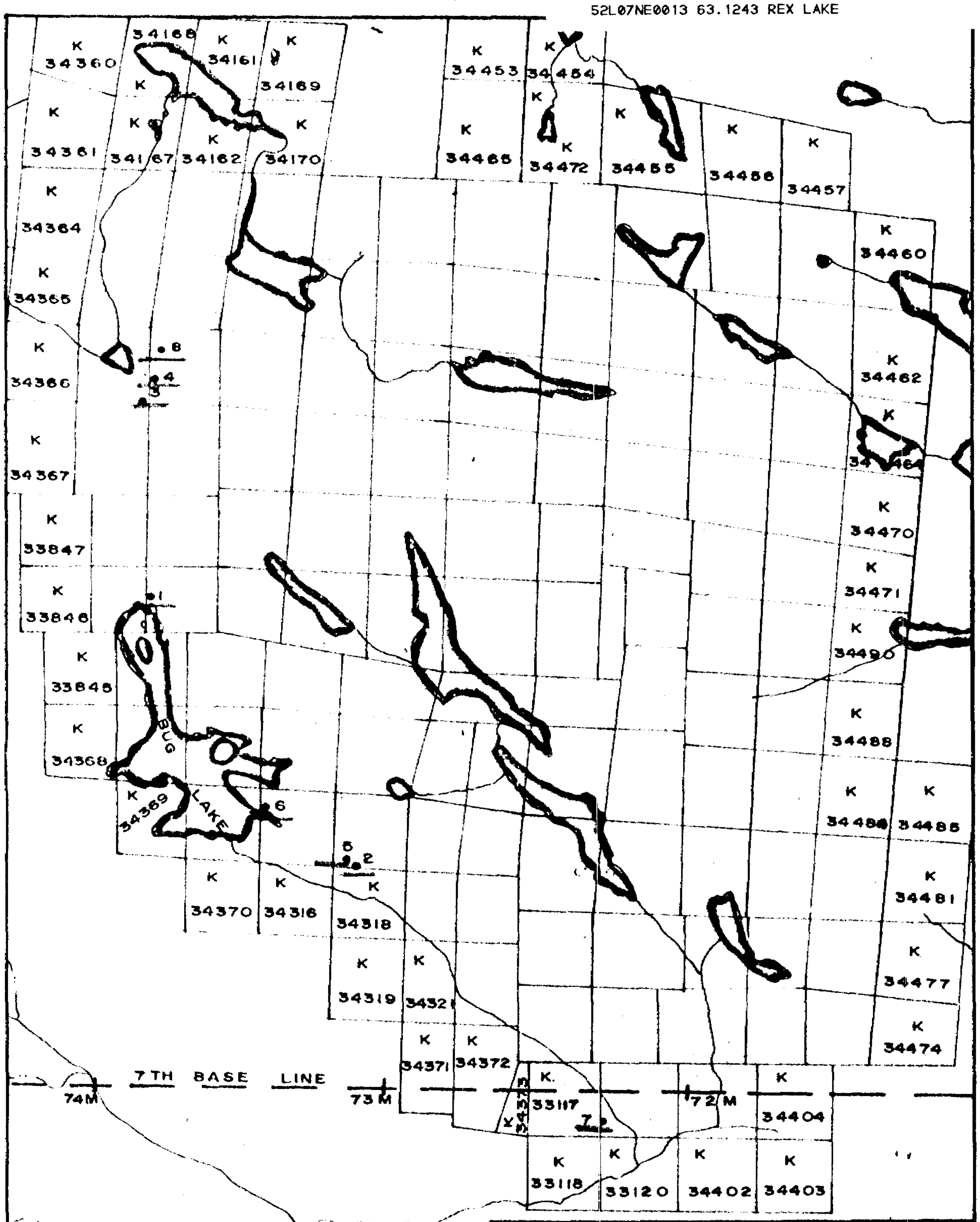
Chalcopyrite 2%

- Infrequent small grains.

Carbonate

- Very fine specks in serpentine.

Rock - Biotite feldspar gneiss

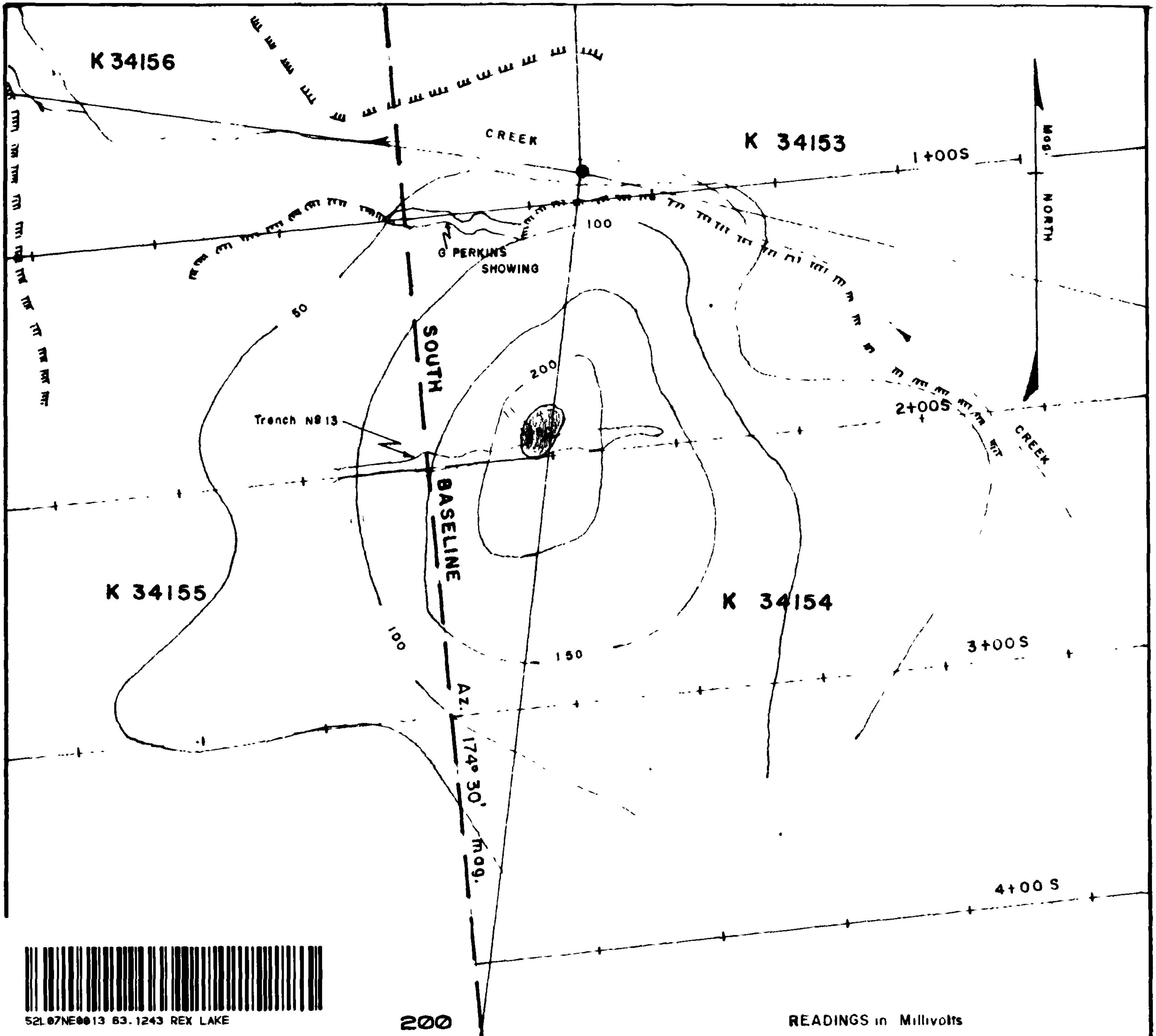


STEEP ROCK IRON MINES LTD.

THIN SECTIONS

FLETCHER—WERNER LAKES AREA

MAY 1963 Scale: 1" = 1/2 Mile s.s.s.



REX - FLETCHER LAKES PROJECT, KENORA MINING DIV. ONT.

OCT 1962

S. P. SURVEY

Scale. 1" = 50'


K 34169
K 34170
K 34161
K 34399
LAKE
K 34162
LAKE
K 34396
K 34393
K34168
K34163
C - LINE
K34164
K 34153
K 34167
CREEK
K 34166
NORTH BASELINE
K 34360
K 34361
POND
POND
K34165
K 34156
K 34364
POND
K 34365
75+00 N
71+00 N
67+00 N
63+00 N
59+00 N
55+00 N
51+00 N
47+00 N
43+00 N
39+00 N
35+00 N
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27+00 N
23+00 N
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15+00 N
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3+00 N
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Mag. North
NOTE:
Readings in Millivolts
Readings compared to stationary probe at ℄
on each line and are not comparable line to line
STEEP ROCK IRON MINES LTD.
REX - FLETCHER LAKES PROSPECT, KENORA MINING DIV. ONT.
S. P. SURVEY
DATE: JULY 1963
SCALE: 1 inch = 200 Feet
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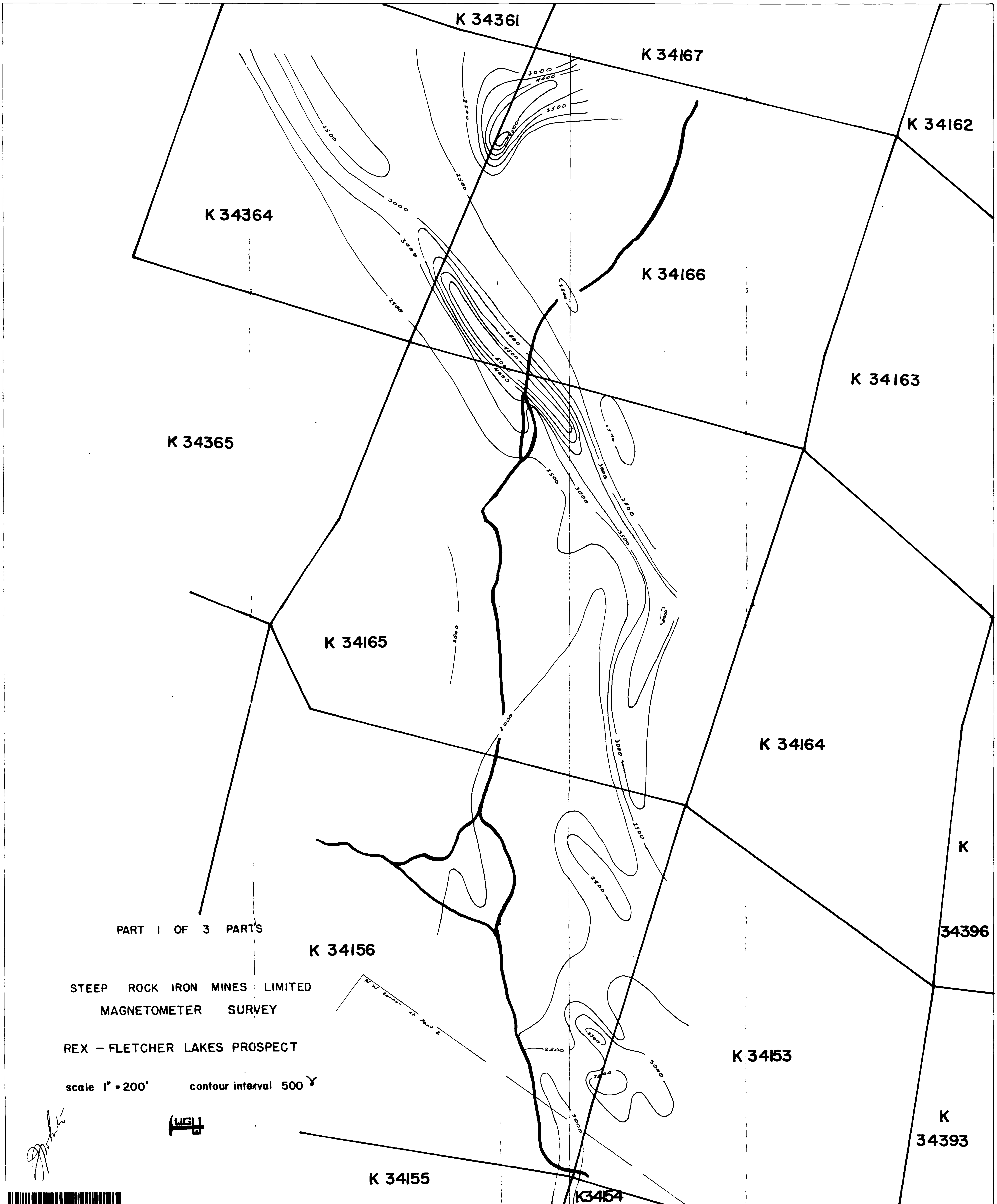
KENORA MINING DIV.



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220


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PART 2 OF 3 PARTS
STEEP ROCK IRON MINES LIMITED
MAGNETOMETER SURVEY
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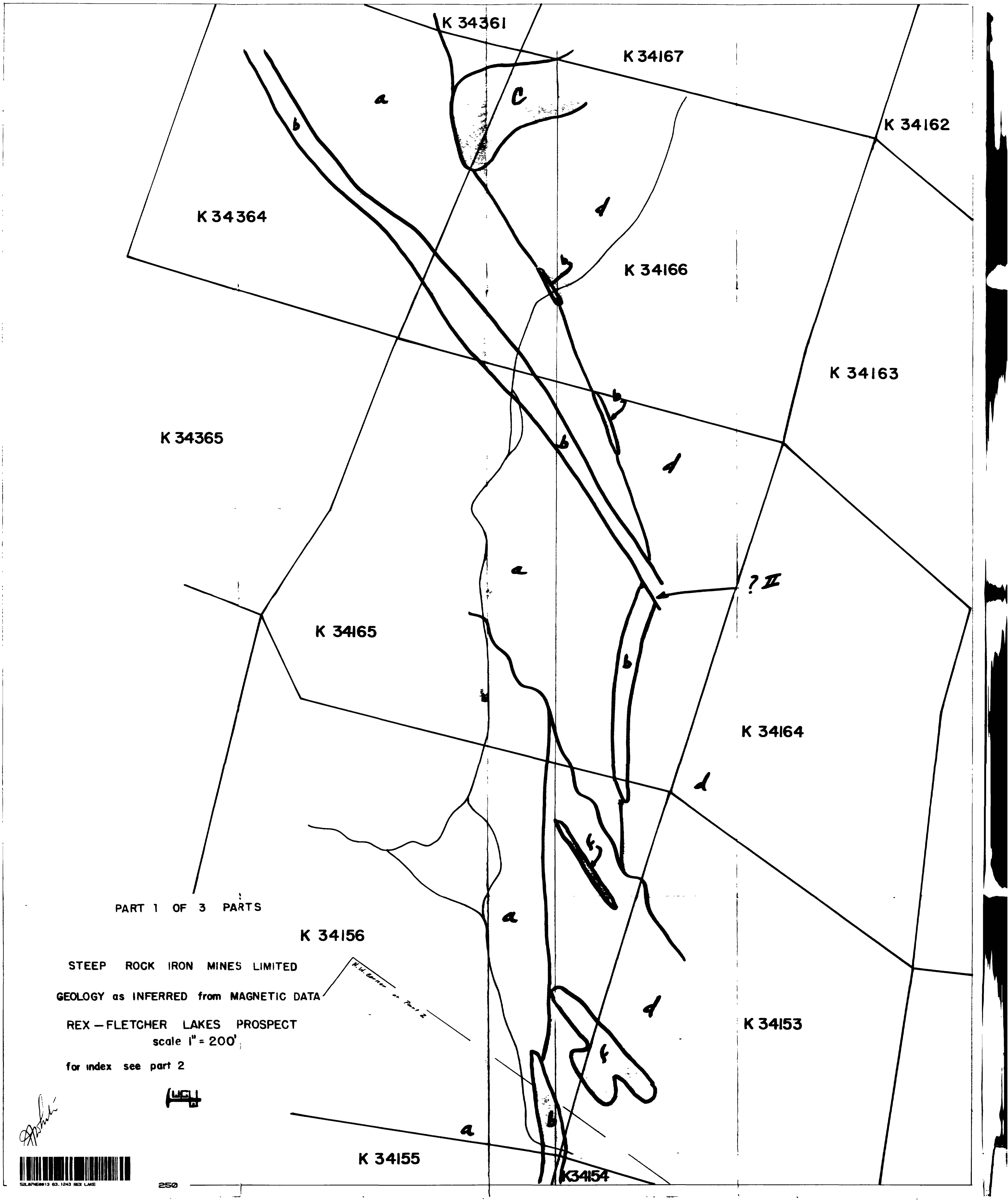
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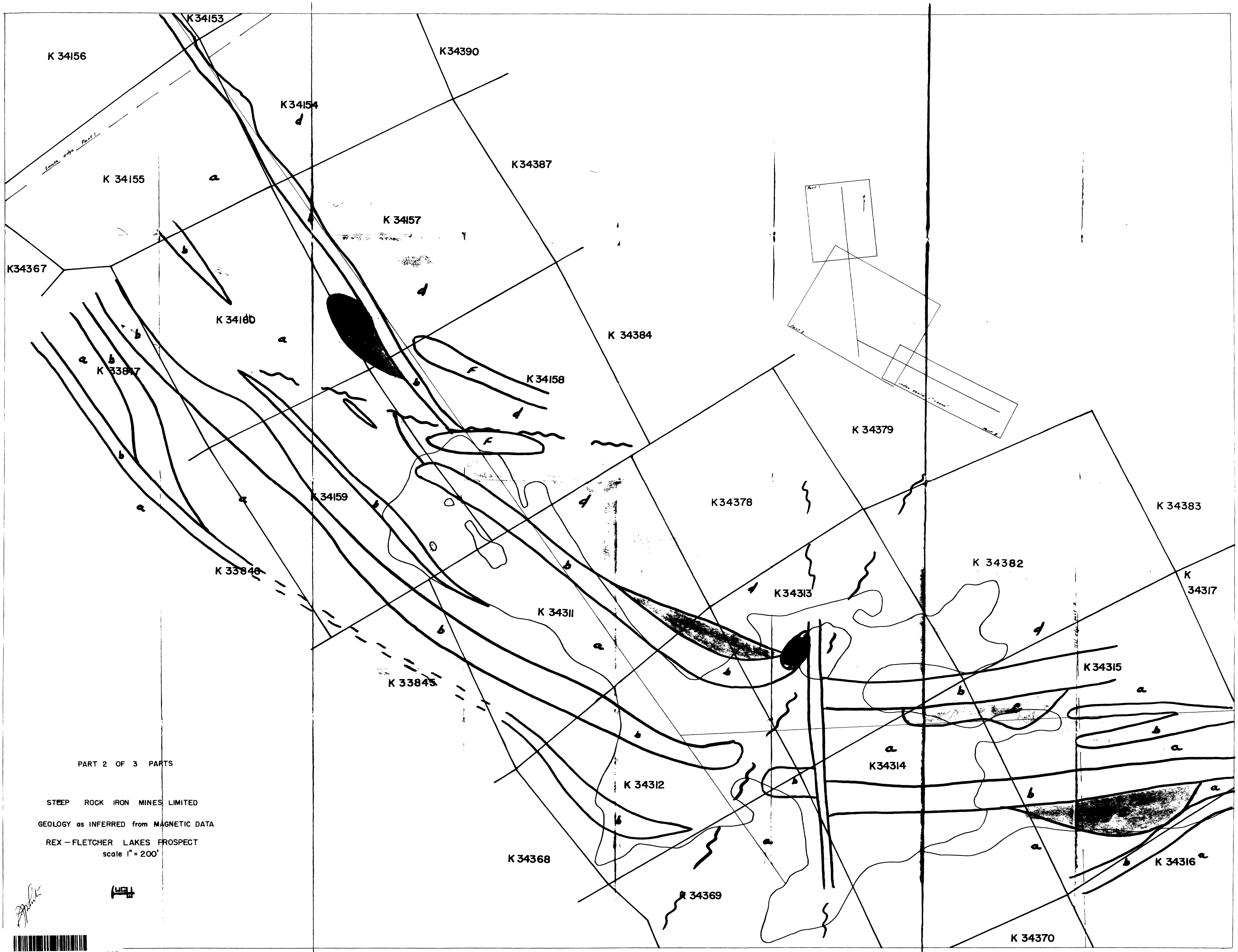
a
b
C
d
?II
PART 1 OF 3 PARTS
STEEP ROCK IRON MINES LIMITED
GEOLOGY as INFERRED from MAGNETIC DATA
REX — FLETCHER LAKES PROSPECT
scale 1" = 200'
for index see part 2
250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PART 2 OF 3 PARTS
STEEP ROCK IRON MINES LIMITED
GEOLOGY as INFERRED from MAGNETIC DATA
REX – FLETCHER LAKES PROSPECT
scale 1" = 200'

260


PART 3 OF 3 PARTS
STEEP ROCK IRON MINES LIMITED
GEOLOGY as INFERRED from MAGNETIC DATA
REX – FLETCHER LAKES PROSPECT
scale 1" = 200'
for index and legend see part 2
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K 34324
K33119
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K34316
K 34321
K 34322
K33117
K 34319
K 34372
K 34373

LEGEND
1 Granite — Granite Gneiss, Pegmatite
2 Migmatite — Mixed Granite and Gneiss
2a — Granite and Garnetiferous Gneiss
2b — Granite and Biotite Feldspar Gneiss
2c — Granite and Quartz Feldspar Gneiss
3 Quartz Feldspar Gneiss
4 Garnetiferous Biotite Gneiss
5 Biotite Feldspar Gneiss
Gneissocity — Strike and Attitude
Drag Fold with Plunge
Mineralization
Contact — Approximate
— Assumed
Mylonite Zone
Trench
cpy Chalcopyrite
Wthd Weathered
Sl.Gnic. Slightly Gneissic
Claim Corner
K 34169
K 34170
K 34161
K 34399
K 34162
K 34396
K 34393
K 34163
K34168
K 34164
K 34153
K 34167
K 34166
K 34360
K 34165
K 34361
K 34156
K 34364
K 34365
LAKE
LAKE
Lake changes level depending on condition of beaver dams.
July 1963, dams out lake level low
NORTH BASELINE Az. 342°30' mag.
C-LINE
CREEK
POND
POND
FOR DETAILED GEOLOGY SEE 50 SCALE PLAN
75+00 N
71+00 N
67+00 N
63+00 N
59+00 N
55+00 N
47+00 N
43+00 N
35+00 N
31+00 N
27+00 N
23+00 N
15+00 N
11+00 N
7+00 N
3+00 N
0+00
RECEIVED
AUG 30 1963
STEEP ROCK IRON MINES LTD.
REX – FLETCHER LAKES PROSPECT, KENORA MINING DIV. ONT.
GEOLOGICAL MAP
Sheet 1
DATE: JULY 1963
Mapped by: R. E. HAY, GEOLOGIST
SCALE: 1 inch = 200 Feet

63. 1243

527


K 34393
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SWAMP
FOR DETAILED GEOLOGY
SEE 50 SCALE PLAN
SOUTH BASELINE BEARING S 5°30' E mag
NORTH BASELINE BEARING N 17°30' W
SOUTH-EAST BASELINE BEARING S 64°30' E mag
B U G L A K E
CREEK
POND
OTC AREA
LEGEND
1 Granite, Granite Gneiss, Pegmatite
2 Migmatite — Mixed Granite and Gneiss
2a — Granite and Garnetiferous Gneiss
2b — Granite and Biotite Feldspar Gneiss
2c — Granite and Quartz Feldspar Gneiss
3 Quartz Feldspar Gneiss
4 Garnetiferous Biotite Gneiss
5 Biotite Feldspar Gneiss
Gneissocity — Strike and Attitude
Drag Fold with Plunge
Mineralization
Contact — Approximate
— Assumed
Mylonite Zone
Trench
cpy Chalcopyrite
Wthd Weathered
Sl.Gnic. Slightly Gneissic
Claim Corner
Mag. North
STEEP ROCK IRON MINES LTD.
REX – FLETCHER LAKES PROSPECT, KENORA MINING DIV. ONT.
GEOLOGICAL MAP
Sheet 2
DATE: JULY 1963
Mapped by: R. E. HAY, GEOLOGIST
SCALE: 1 Inch = 200 Feet
RECEIVED
AUG 30 1963
KENORA MINING DIV.
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527


K 34164
K 34153
K 34154
K 34165
K 34156
K 34155
O.C. AREA
VALLEY
NORTH BASE LINE - BEARING N 17°30' W
SOUTH BASE LINE - BEARING S 5°30' E
POND
Open marsh
around pond
CREEK
SYMBOLS
I Intermediate
Peg Pegmatite
gn Gneiss
gr Granite
K Potash Feldspar
F Orthoclase Feldspar (white)
Gt Garnet
H Hornblende
B Biotite
Sulph. Sulphur
Tr py Trace of Pyrite
Tr. cpy Chalcopyrite
Tr. cu Chalcopyrite
Q Quartz
O.B. Overburden
O.C.AREA Outcrop Area
Bldrs Boulders
M Magnetic
Small Amount
J Joint
R Red
str Stringer
fr zone Fractured Zone
Chloritic Zone
az Azimuth
SPR. Spruce
JP Jackpine
Geological Boundary assumed
Bedding Vertical Inclined
Schistosity Vertical Inclined
Fault
Outcrop
Marsh
Trail
Crest of Rock Ridge
RECEIVED
AUG 30 1963
STEEP ROCK IRON MINES LIMITED
GEOLOGICAL MAP
OF
REX – FLETCHER LAKES
PROSPECT
KENORA MINING DIVISION, ONTARIO
MAY 1963
SCALE: 1" = 50'
S. S. S.
63.1243

Notes:

1) The 20 claim group was chained and mapped on claim lines. Rock contacts were joined to produce a reconnaissance geological map thought to be about 70% correct

2) The topographic features south-east of Bug Lake (with the exception of a traverse 2600' long which ties in the copper occurrences known to date) were taken from aerial photographs and are only approximate with respect to detail and location

3) The colored circles represent the approximate locations of rock samples collected by the J. Lawson party in the 1962 field season

Legend:

2		Granite or Pegmatite
(s) Sulp	●	Sulphide mineralization
1		Paragneiss
3		Altered or metamorphosed basic or ultrabasic rock
	py	Pyrite
	cpy	Chalcopyrite

Symbols:

- Geological contact defined
- Geological contact assumed
- Outcrop
- Fault
- Shear
- Cliff face or ridge
- Marsh
- Rock specimen
- Tr — Trace
- Trench or test pit on copper showing

310

STEEP ROCK IRON MINES LIMITED

RECONNAISSANCE GEOLOGICAL MAP

BUG LAKE AREA

KENORA MINING DIVISION, ONTARIO

SCALE: 1" = 500'

SEPT./OCT 1962

63.1243

NOTE:
0+00 on Baseline is Base Station for all Magnetometer Readings.

STEEP ROCK IRON MINES LTD.

REX — FLETCHER LAKES PROSPECT, KENORA MINING DIV. ONT

MAGNETOMETER SURVEY

(FLUXGATE MAGNETOMETER)

DATE: July 1963

SCALE. 1 Inch = 200 Feet

NOTE:
0+00 on Baseline is Base Station for All Magnetometer Readings

STEEP ROCK IRON MINES LTD.

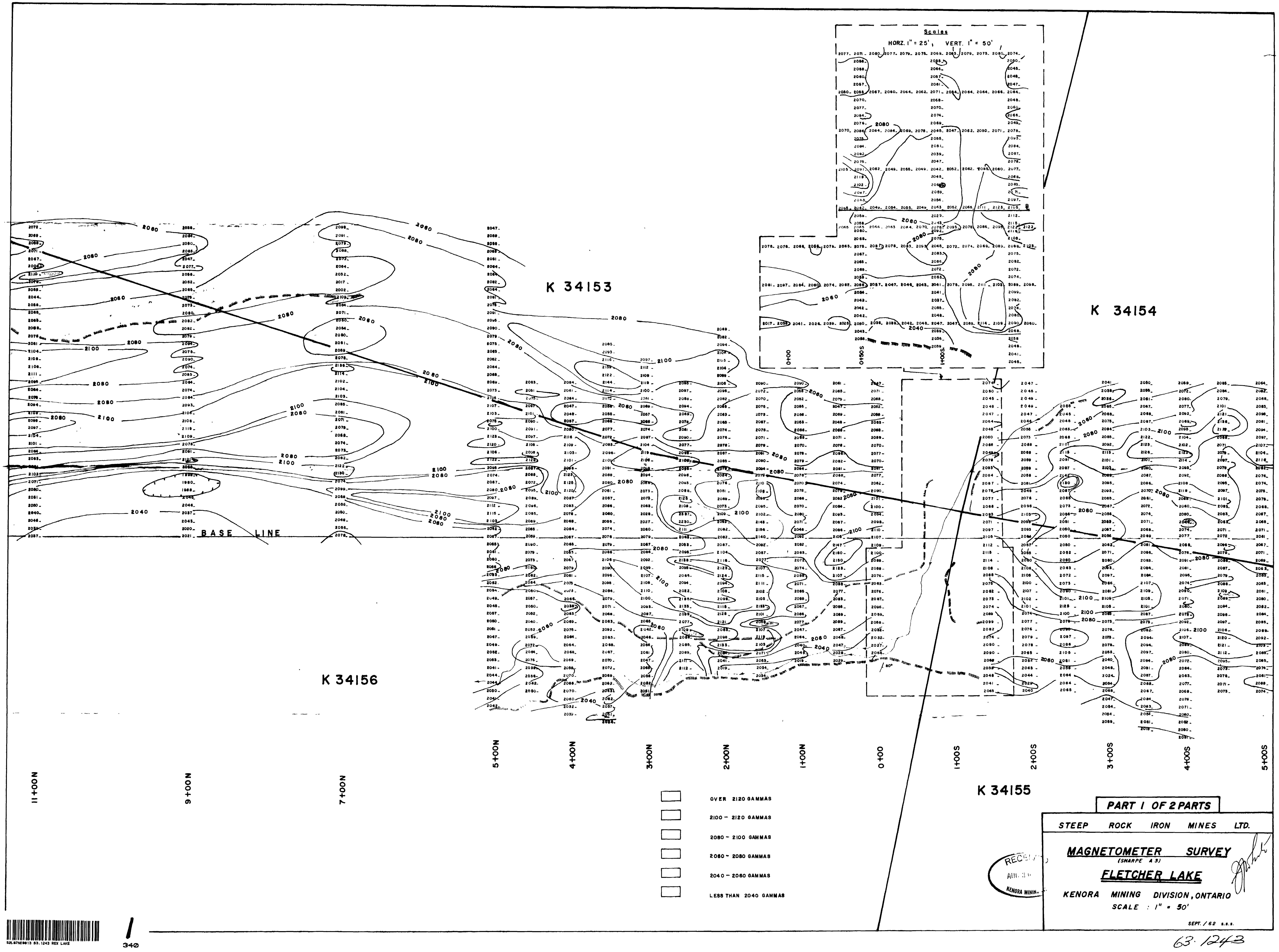
REX – FLETCHER LAKES PROSPECT, KENORA MINING DIV. ONT.

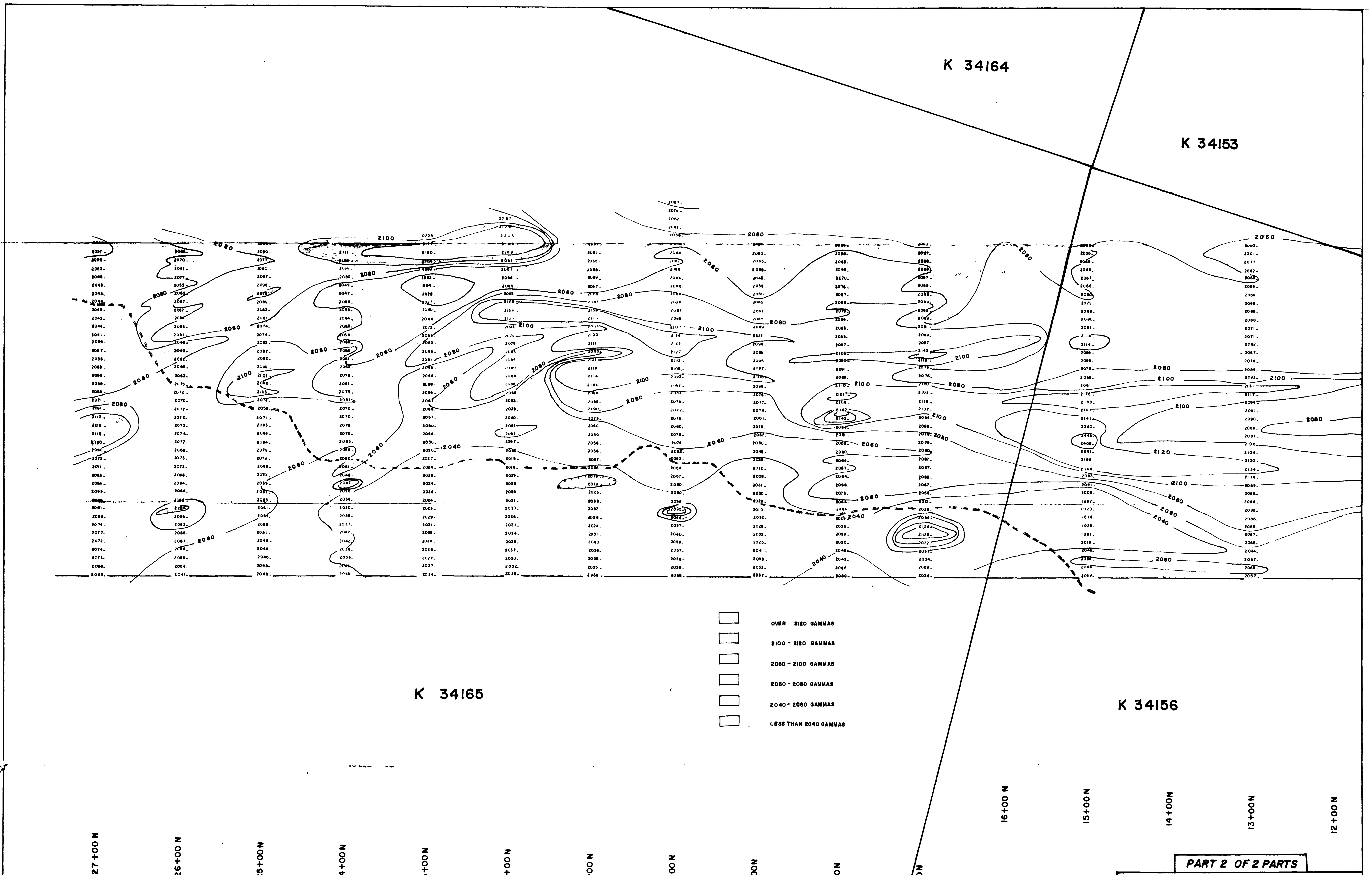
MAGNETOMETER SURVEY

(FLUXGATE MAGNETOMETER)

DATE JULY 1963 | SCALE: 1 Inch = 200 Feet

63.1243


Scales
HORZ. 1" = 25', VERT. 1" = 50'
K 34153
K 34154
K 34155
K 34156
BASE LINE
11+00N
9+00N
7+00N
5+00N
4+00N
3+00N
2+00N
1+00N
0+00
1+00S
2+00S
3+00S
4+00S
5+00S
OVER 2120 GAMMAS
2100 - 2120 GAMMAS
2080 - 2100 GAMMAS
2060 - 2080 GAMMAS
2040 - 2060 GAMMAS
LESS THAN 2040 GAMMAS
PART 1 OF 2 PARTS
STEEP ROCK IRON MINES LTD.
MAGNETOMETER SURVEY
(SHARPE A 3)
FLETCHER LAKE
KENORA MINING DIVISION, ONTARIO
SCALE : 1" = 50'
SEPT. / 62 S.S.S.
63.1243
340



PART 2 OF 2 PARTS

STEEP ROCK IRON MINES LTD.

MAGNETOMETER SURVEY

(SHARPE A3)

FLETCHER LAKE

KENORA MINING DIVISION, ONTARIO

SCALE : 1" = 50'

SEPT. /62

STEEP ROCK IRON MINES LTD.

REX – FLETCHER LAKES PROSPECT, KENORA MINING DIV. ONT.

ELECTROMAGNETIC SURVEY

RONKA HORIZONTAL LOOP

200 FOOT COIL SPACING

DATE: JULY 1963

SCALE: 1 Inch = 200 Feet

360

RECEIVED AUG 30 1963 KENORA MINING DIV.

STEEP ROCK IRON MINES LTD.

REX – FLETCHER LAKES PROSPECT KENORA MIN. DIV. ONT.

ELECTROMAGNETIC SURVEY

RONKA HORIZONTAL LOOP

200 FOOT COIL SPACING

Sheet 2

DATE JULY 1963

SCALE: 1 Inch = 200 Feet

52L07NE9813 63.1243 REX LAKE

370