A report prepared for
CASSEX RESOURCES LTD./
LES RESSOURCES CASSEX LTEE.
Nepean, Ontario

VLF ELECTROMAGNETIC (EM-16) SURVEYS OF THERESA LAKE CLAIMS HEMLO AREA, DISTRICT OF THUNDER BAY PROVINCE OF ONTARIO

by

Scott McKee, B.Sc.(Hon)
Maisonneuve Energy Materials Inc.
Nepean, Ontario

December 20, 1984

CONTENTS

CERTIFICATE

I, SCOTT MCKEE, of Ottawa, Ontario do hereby declare that:

- I am a geologist, residing at 2362 Rembrandt Road, Ottawa, Ont. K2B 7P5;

- I am a graduate of Queen's University at Kingston, Ont., 1984, and hold the degree of Bachelor of Science with Honours, in Geology;

- I am presently employed as a geologist with Maisonneuve Energy Materials Inc., Ottawa;

- As an employee of Maisonneuve Energy Materials Inc. during the summer and fall of 1984, I personally performed the field work with assistance from Mr. Ian Judd-Henrey, B.Sc.(Hon). All information, interpretations, and conclusions are my responsibility and must be credited so. For any comments or alterations, I must be consulted personally;

- I concur to the use of my report for assessment work credits by Cassex Resources Ltd. However, no part of the report may be reproduced or deleted without my written consent;

- I do not personally own any interest(s) in the claims or the securities of Maisonneuve Energy Materials Inc. or Cassex Resources Ltd.

DATED AND SIGNED,

Scott McKee

Scott McKee, B.Sc.(Hon)
Maisonneuve Energy Materials Inc.
Nepean, Ontario
December 20, 1984

SUMMARY

A VLF electromagnetic survey was completed on 53 claims of the Theresa Lake property on which Cassex Resources Ltd. owns an option. The survey was carried out at 50 foot intervals along 26 miles of line spaced 400 feet apart. A total of 3,992 readings were taken with a Geonics EM-16 system.

This survey revealed that the property contained 10 good conductors in the Northeastern section, 10 conductors in the Central section, and no significant conductor in the Eastern section.

Of the 10 good conductors in the Northeastern section, 5 were classified as strong. Some of these conductors lie in shear zones associated with sulphide mineralization while others are caused by old transmission cable or the edge of the bay on Theresa Lake. Some of the moderate conductors are located in mineralized shear zones within granodiorite while others are caused by overburden.

In the Central section the strong conductor lies on a shear zone within metavolcanics and is associated with heavy sulphide mineralization. The sulphide concentration reaches up to 25-30% in these metavolcanics. Of the moderate conductors, 3 lie in moderately sulphide mineralized (<3%) shear zones.

It is recommended that the Western section of the property should be surveyed and only moderate to strong conductors with good aerial and depth extent be further explored through diamond drilling as recommended by the supervising geologist.

INTRODUCTION

The Theresa Lake claims were optioned from prospectors Costy Bumbu of Thunder Bay and Peter Moses of Marathon, Ont. by Cassex Resources Ltd., Nepean, Ont. The property conists of 81 contiguous claims covering approximately 2,689 acres (1161 hectares) in the Thunder Bay Mining Division of Ontario.

This report covers the geophysical work done on 53 of these claims by Maisonneuve Energy Materials Inc., Nepean, Ont. for Cassex Resources. The work was done during August, September, and October of 1984 and consists of VLF electromagnetic surveys.

The following claims were covered by the geophysical surveys in this report:

658749	675066	686220	686234
674017	675068	686222	686235
674037	686204	686223	686236
674038	686208	686224	686237
674042	686209	686225	686238
674043	686210	686226	686239
674044	686211	686227	686241
674046	686212	686228	686242
675059	686213	686229	686243
675060	686214	686230	686244
675063	686217	686231	686245
675064	686218	686232	686246
675065	686219	686233	686247
			686256

LOCATION AND ACCESS

The Theresa Lake claims are located in northern Ontario, 45 kilometers east of Marathon by road near the shore of Lake Superior, and 20 kilometers northeast of the recently discovered Hemlo gold deposits on the Trans Canada Highway (Fig. 1). Manitouwadge is approximately 35 kilometers to the north via Highway 614.

About 16 percent of the property (457 acres) is covered by waters of Theresa Lake on the southern part and Dotted Lake on the northwest corner.

The property is accessible by gravel roads to both Theresa and Dotted

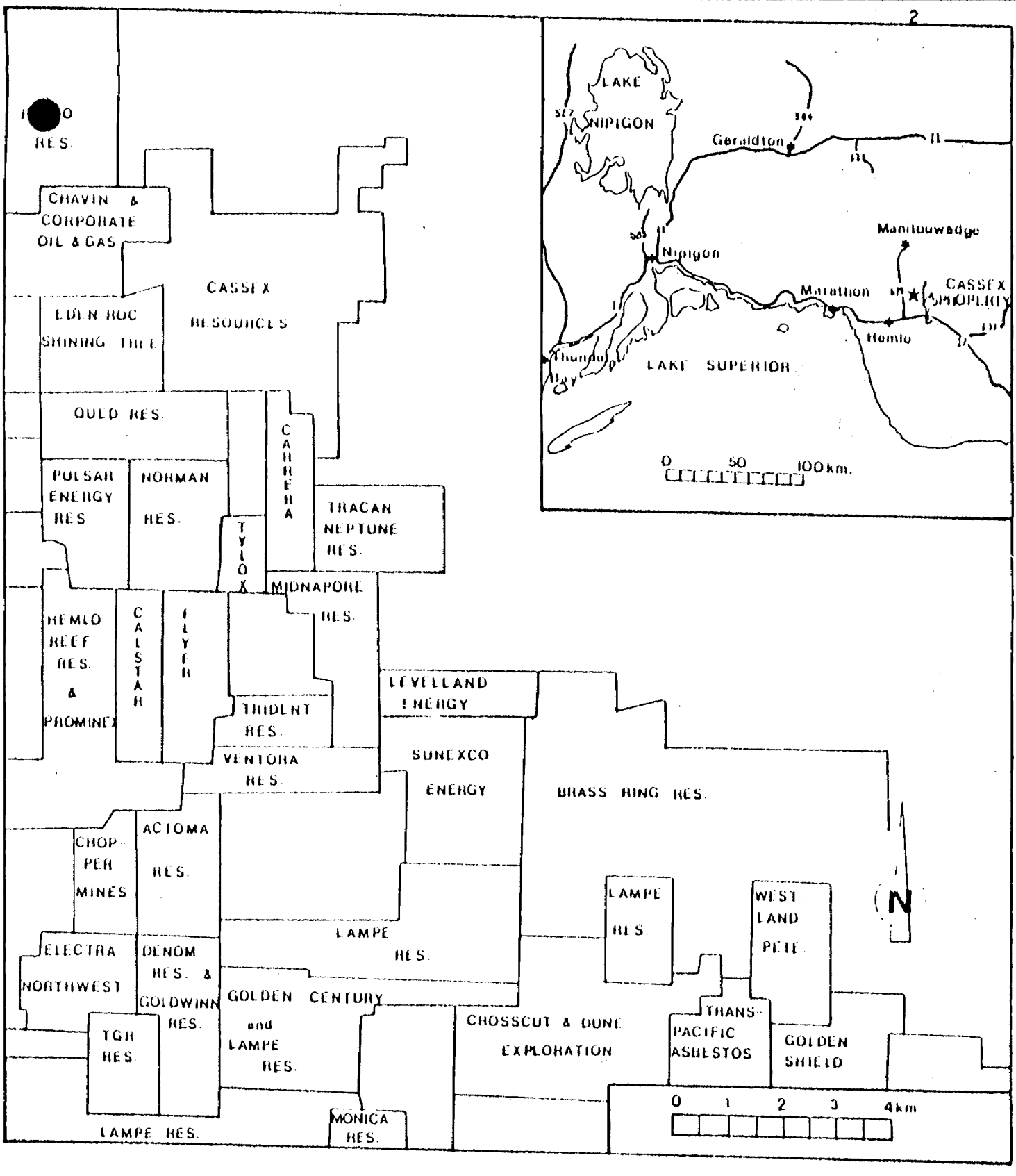

FIGURE 1 : LOCATION OF MINING PROPERTY IN HEMLO AREA, ONTARIO.

kes from Highway 614. Short boat rides will reach the claims at either the southern or northwestern ends.

HISTORY

There has been very little geophysical exploration done on the Cassex claims in the past. A summary of work done in the immediate vicinity of the property before 1983 has been provided by Mr. Harald Wolf[1].

In 1964, Caravelle Mines Ltd. did an airborne magnetometer and EM survey in the area. One 3-channel EM conductor that was found now lies within the Cassex claim #675062. No follow-up work was done.

Mr. Paul Phillips of Maisonneuve Energy Materials Inc. was the first to perform any extensive geophysical surveys on the Cassex claims in 1984[2]. These surveys were taken on the lakes and numerous conductors were identified. Following Mr. Phillips' work, the author carried out the geophysical surveys on a large tract of land later in 1984.

GENERAL GEOLOGY

The Theresa Lake area is located within the Superior Province of the Canadian Shield along the border of a greenstone belt.

The claims contain a contact between mafic metavolcanics and the Dotted Lake Batholith. The southern portion of the property is underlain by mafic metavolcanics with a unit of metagabbro along a fault zone. A peridotite vent intrudes the volcanics at the southern edge of the property on the west shore of Theresa Lake.

The northern portion of the property is underlain by the Dotted Lake Batholith which consists of granodiorite. The contact between the granodiorite and the metavolcanics is characterized by a metasedimentary unit consisting of well foliated biotite-quartz-feldspar gneiss.

Later volcanic activity produced diabase dikes throughout the area.

GEOPHYSICAL SURVEY

A very low frequency (VLF) electromagnetic survey was performed using a Geonics EM-16 system and the NAA transmission station at Cutler, Maine, USA.

frequency of 17.8 kHz was used to collect in-phase and quadrature data.

The survey was carried out at 50 foot intervals along 26 miles of line spaced 400 feet apart. A total of 3,992 readings were taken.

The work area has been divided into three sections, Northeastern, Eastern, and Central. VLF electromagnetic profile, filtered[3] in-phase, and quadrature maps were prepared for each section.

The characteristics of the conductors in each section are described below. A conductor with a peak to peak response greater than 50 is considered to be strong. A conductor with a peak to peak response between 30 and 50 is considered to be moderate, and one with a peak to peak response of less than 30 is considered to be weak.

NORTHEASTERN SECTION

The Northeastern section contains 10 conductors (Fig. 2,3,4). Five of these (B, D, F, H, and J) are strong.

Conductor B is approximately 650 feet long and 300 feet wide with a trend of 105°. The maximum filtered in-phase value is 50. The maximum filtered quadrature value is 13. From the geological information[4], the conductor appears to lie between the outcrops of granodiorite in the low lying areas indicating the conductivity is caused by overburden in the area.

Conductors D and F are similar in intensity and lie within the granodiorite batholith. Both give tilt peak to peak response of 71 and trend 108°. Conductor D has a maximum filtered in-phase value of 95 and a maximum filtered quadrature value of 35, while conductor F has values of 71 and 21.5 respectively. The high quadrature values indicate conductors with good depth extent. It appears from the lithological information[4] that these conductors lie in shear zones, within the granodiorites, that contain sulphide mineralization.

Conductor H is approximately 300 feet wide and opens to the east. A tilt peak to peak response of 65 was observed. A low maximum filtered quadrature value of 17.5 would suggest the crossover observed was partly in response to the wet area behind the bay on Lake Theresa, and there is little depth extent to this conductor.

Conductor J is up to 150 feet wide and opens to the east. A tilt peak to peak response of 101 was obtained. Although the maximum filtered in-phase value is 124, a maximum filtered quadrature value of 9 indicates a shallow conductor. This discrepancy could be attributed to an old transmission cable

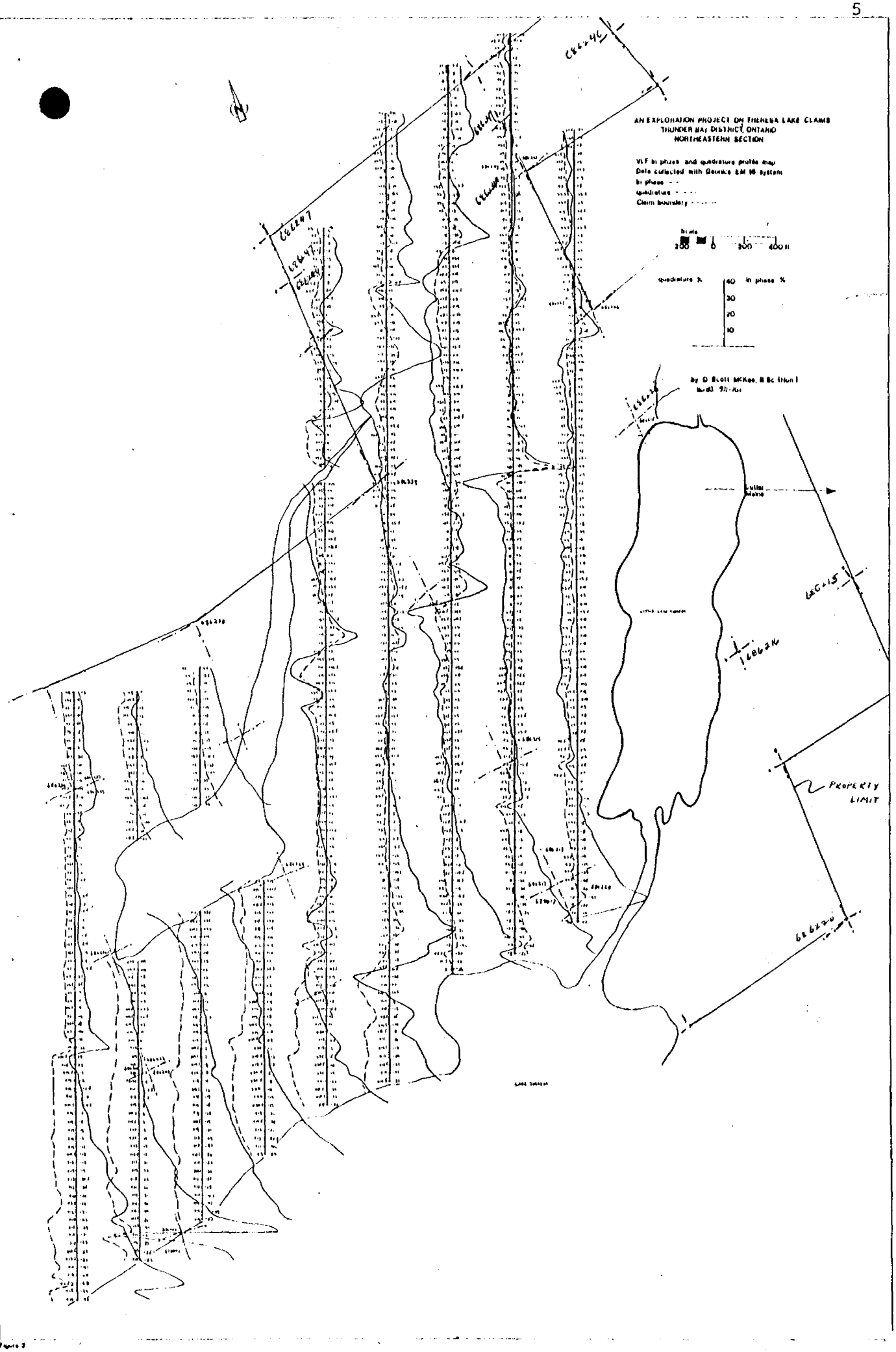
AN EXPLORATION PROJECT ON THEREBA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
NORTHEASTERN SECTION
VLF in phase and quadrature profile map
Data collected with Geonics EM 16 system
In phase - - -
quadrature - - - -
Claim boundary - - - - -
quadrature %
40
30
20
10
in phase %
PROPERTY LIMIT

Figure 2

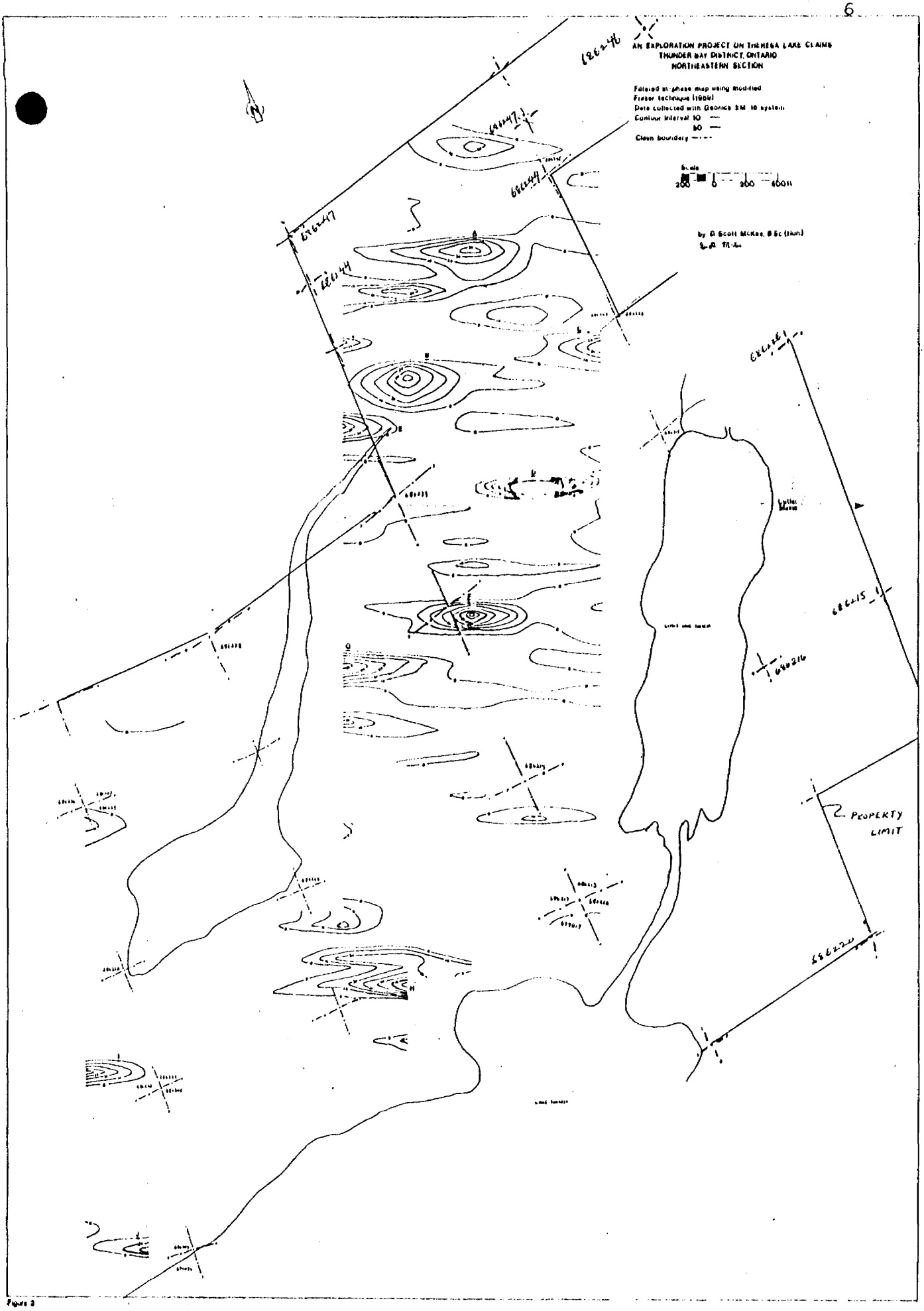
AN EXPLORATION PROJECT ON THENEGA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
NORTHEASTERN SECTION
Filtered in phase map using modified
Fraser technique (1969)
Data collected with Geonics EM 16 system
Contour interval 10
50
Claim boundary
Scale
200 0 200 400m
by D. Scott McKee, B.Sc. (Hon.)
PROPERTY
LIMIT

Figure 3

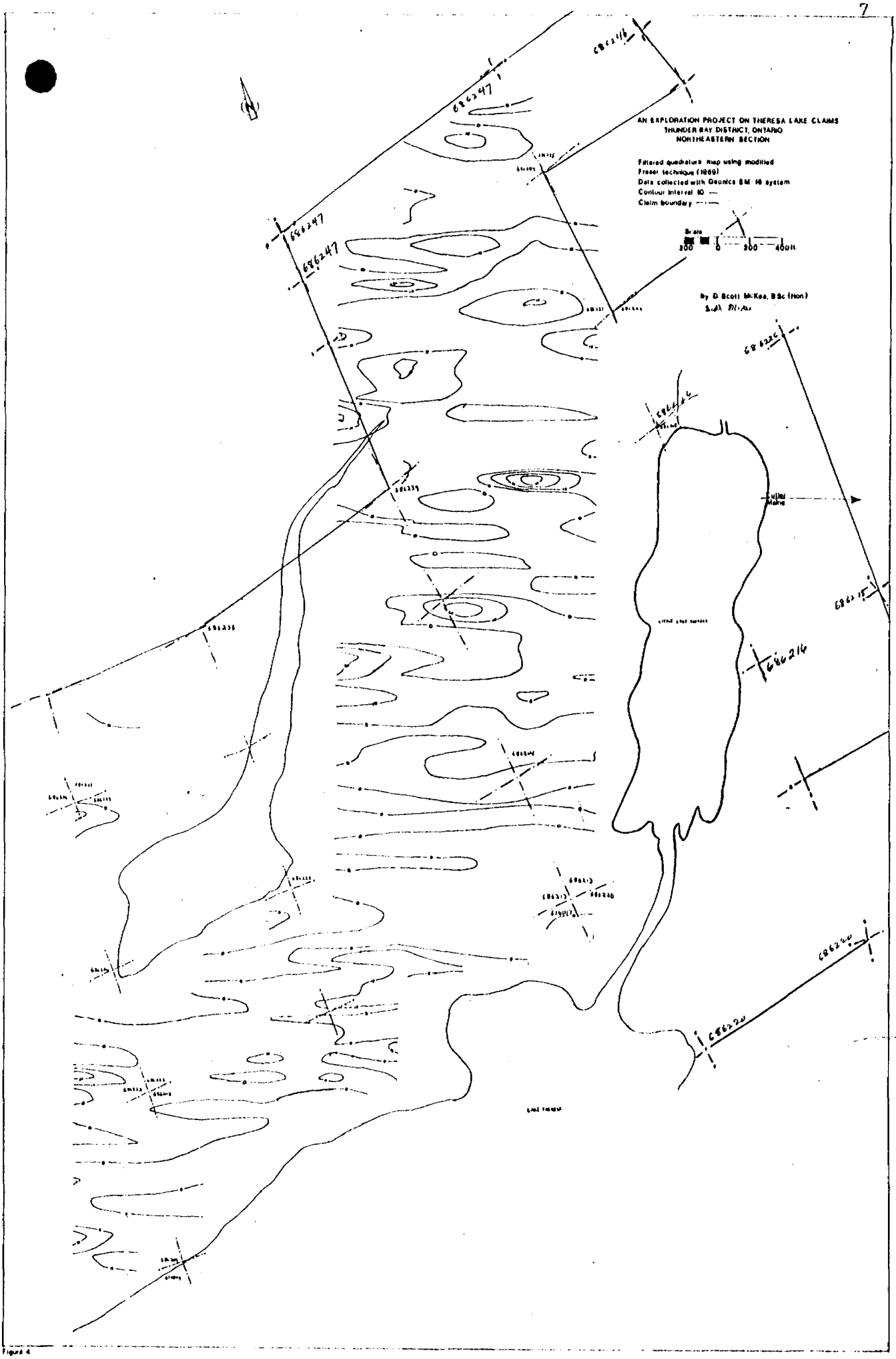
AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
NORTHEASTERN SECTION
Filtered quadrature map using modified
Fraser technique (1969)
Data collected with Geonics EM-16 system
Contour interval 10 —
Claim boundary ——
Scale
200 0 200 400ft
by D. Scott McKee, BSc (Hon)
686247
686247
686247
686226
686214
686240
686220
LAKE THERESA

Figure 4

ich cuts across the line in proximity to the shoreline.

Conductors A, C, E, and G are moderate conductors. Conductor A trends 108° and branches into two parts. The northern part is approximately 1,000 feet long and 300 feet wide, while the southern part is 600 feet long and 150 feet wide. The northern part appears to lie mostly in the low areas between the granodiorite outcrops. Both parts lie within a zone with up to 2% sulphide mineralization which suggests that they are within shear zones. The higher maximum filtered quadrature value and the narrow shape of the southern part indicate a deeper conductor within a tight mineralized shear zone.

Conductors C and E appear to lie within the lower areas between outcrops of granodiorite. Low maximum filtered quadrature values indicate the conductors do not continue to any great depth and are more likely caused by overburden.

Conductor G is approximately 200 feet wide and opens to the west. It partly lies within the granodiorite and extends into low areas. A high maximum filtered quadrature value indicates a conductor with depth within a mineralized shear zone.

Conductor I is a weak conductor within the granodiorite. A maximum filtered quadrature value of 27 was observed. This appears to be a shear zone with some depth, but with a minor amount of sulphide mineralization.

EASTERN SECTION

The Eastern section does not contain any meaningful conductive zone (Fig. 5,6,7).

CENTRAL SECTION

The Central section contains 10 conductors (Fig. 8,9,10). One conductor, F, is strong. It extends 1,700 feet at 108° and opens to the west where it reaches approximately 550 feet in width. It lies entirely within the mafic volcanics along a shear zone. The tilt peak to peak response is 58 and the maximum filtered in-phase value is 88. Concentrations of pyrite up to 15% and pyrrhotite up to 10% have been observed. Quartz veins containing up to 60% molybdenite were found just east of the zone. Thus, the conductor is caused by a heavy sulphide mineralization along a fault or shear zone.

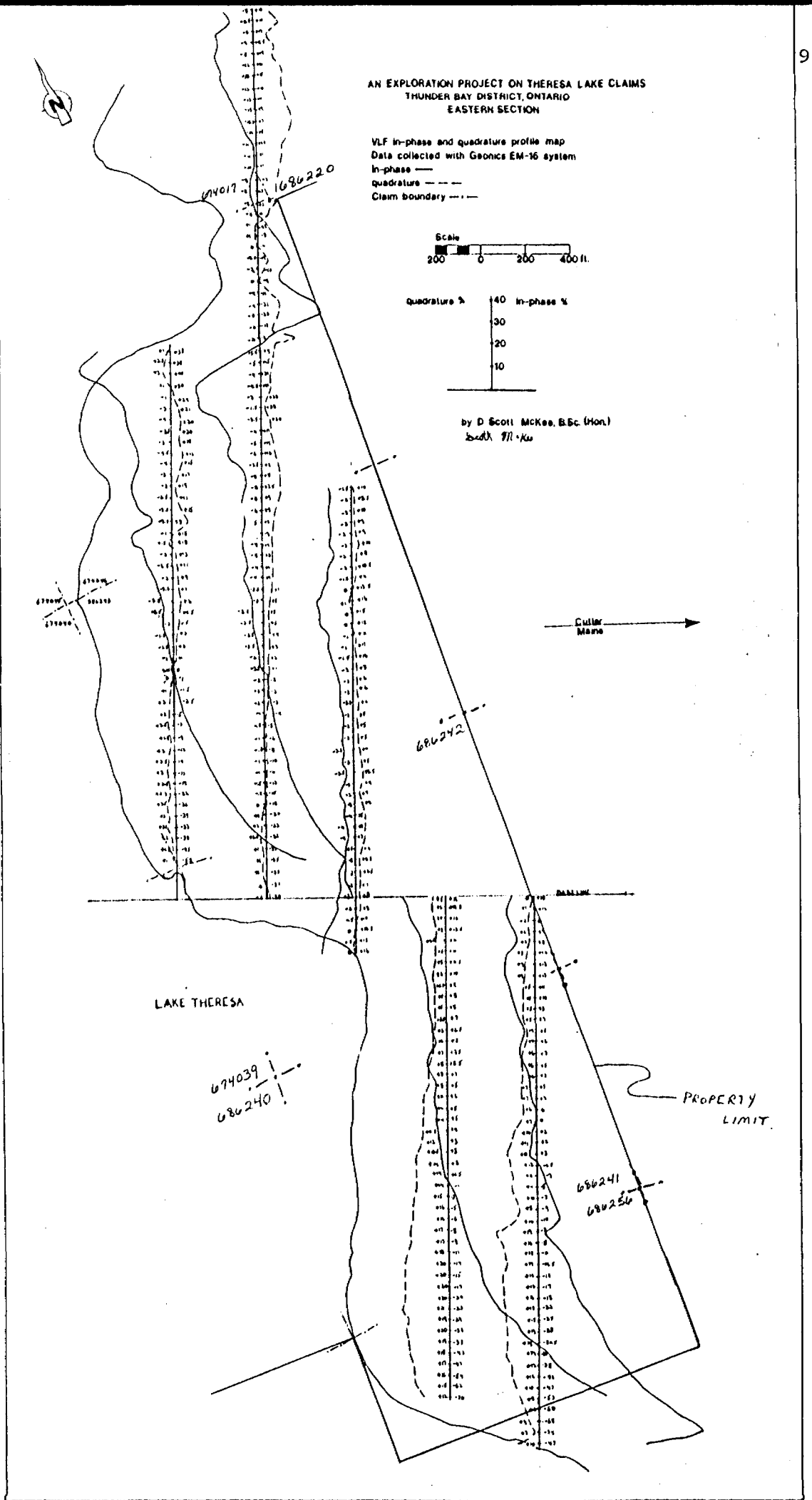
AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
EASTERN SECTION
VLF in-phase and quadrature profile map
Data collected with Geonics EM-16 system
In-phase ——
quadrature — — —
Claim boundary —·—
Scale
200 0 200 400 ft.
quadrature %
40
30
20
10
in-phase %
by D Scott McKee, B.Sc. (Hon.)
674017
686220
686242
Cutler
Maine
LAKE THERESA
674039
686240
PROPERTY
LIMIT
686241
686256

Figure 5

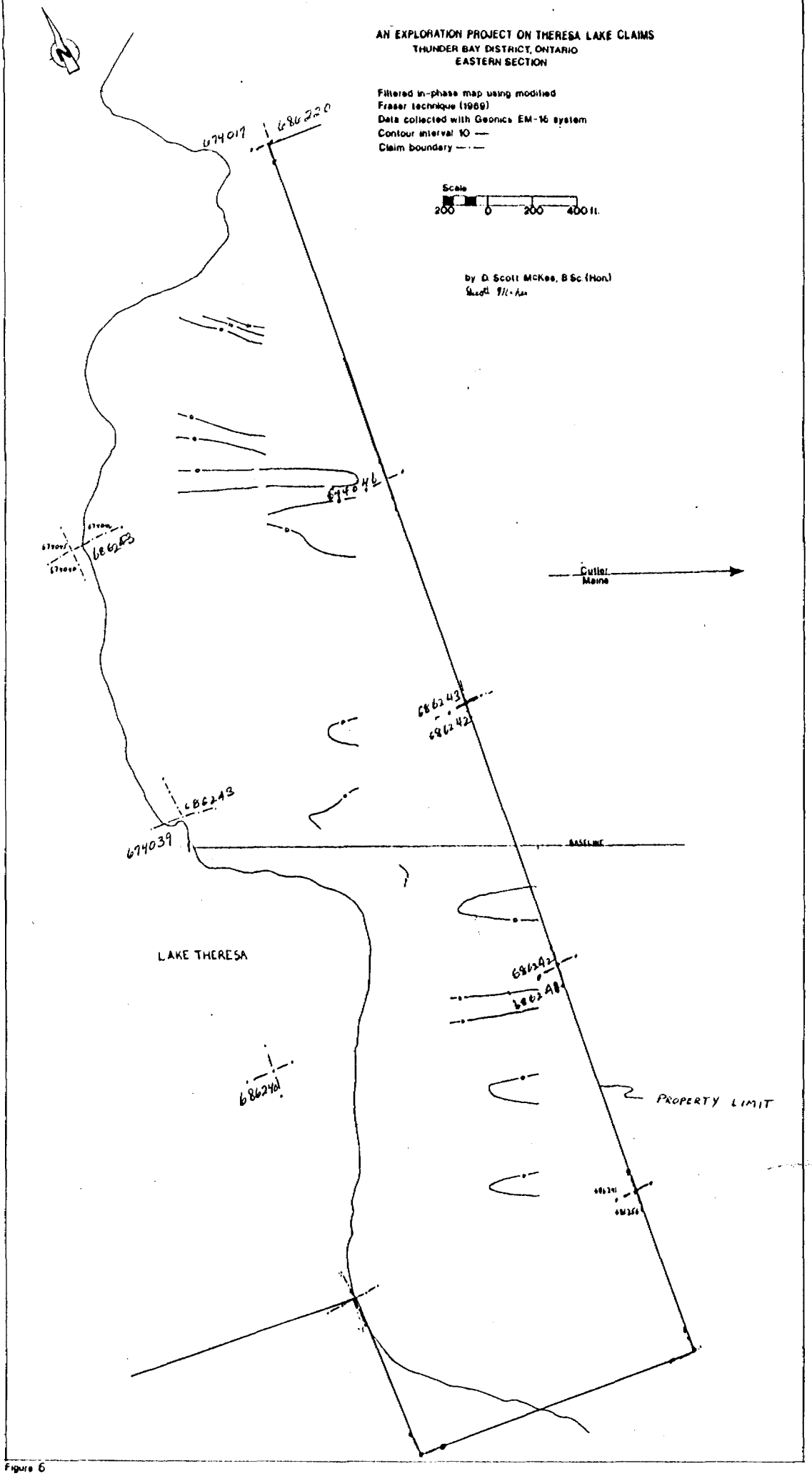
AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
EASTERN SECTION
Filtered in-phase map using modified
Fraser technique (1969)
Data collected with Geonics EM-16 system
Contour interval 10 —
Claim boundary — · —
Scale
200 0 200 400 ft.
by D. Scott McKee, B.Sc. (Hon.)
674017
686220
674046
686243
686243
686242
LB6243
674039
BASELINE
LAKE THERESA
686242
686241
686240
PROPERTY LIMIT
Cutler
Maine

Figure 6

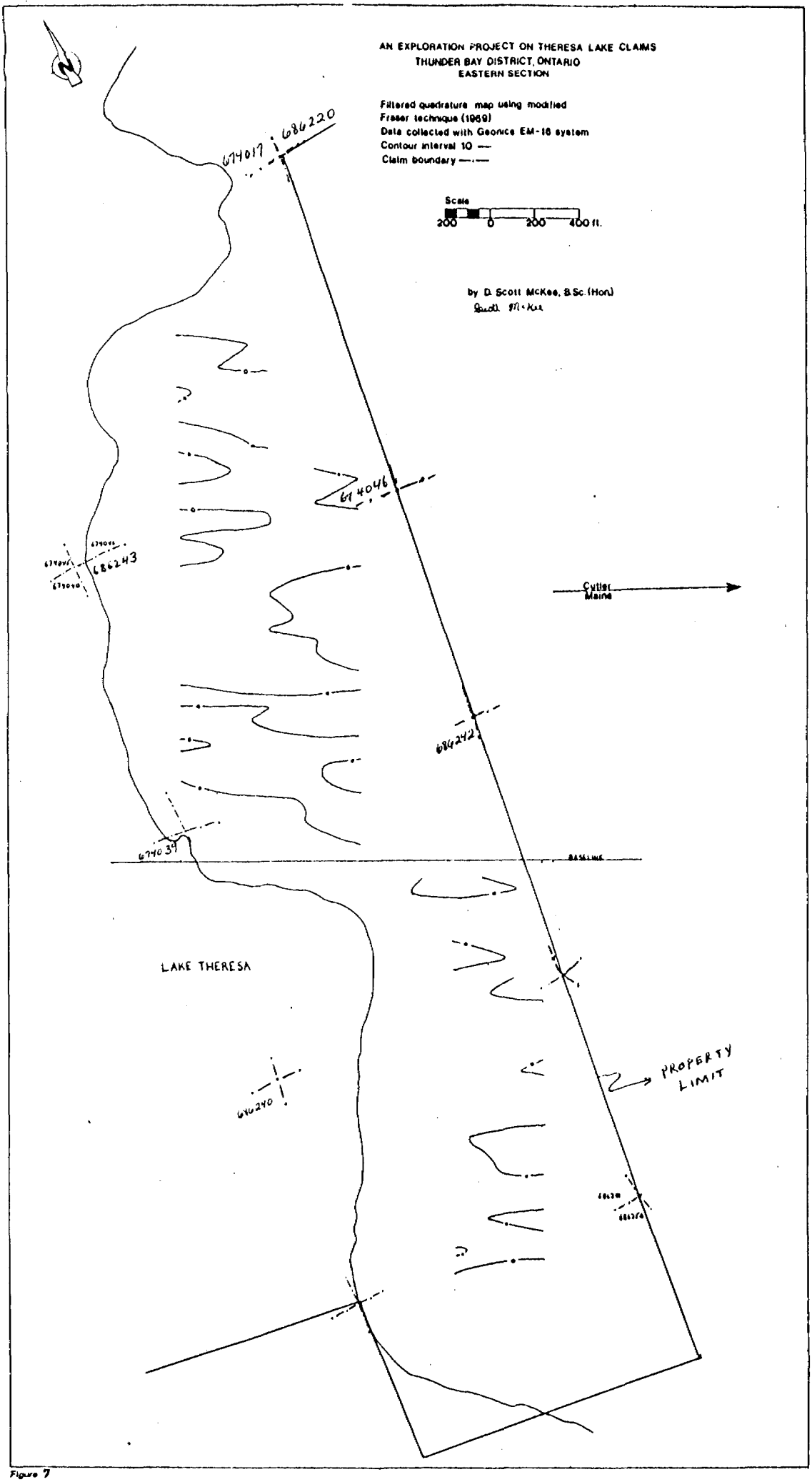
AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
EASTERN SECTION
Filtered quadrature map using modified
Fraser technique (1969)
Data collected with Geonics EM-16 system
Contour interval 10 —
Claim boundary —·—
Scale
200 0 200 400 ft.
by D. Scott McKee, B.Sc. (Hon)
674017
686220
674046
686243
686242
674039
BASELINE
Cutler
Maine
LAKE THERESA
674040
PROPERTY
LIMIT

Figure 7

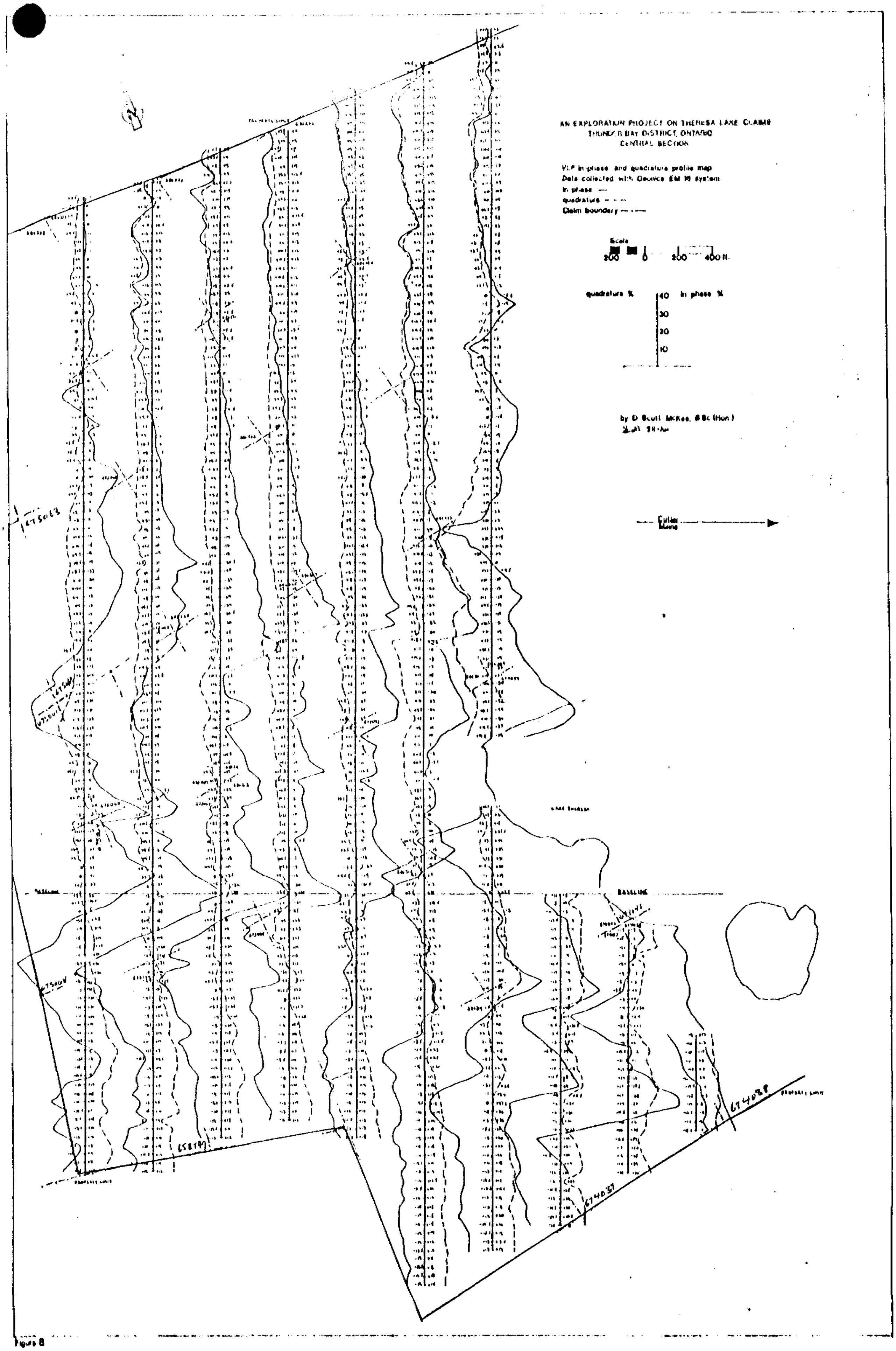
AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
CENTRAL SECTION
VLF in-phase and quadrature profile map
Data collected with Geonics EM 16 system
In phase
quadrature
Claim boundary
Scale
200
0
200
400 ft.
quadrature %
in phase %
40
30
20
10
by D Scott McKee, B Sc (Hon)
BASELINE
LAKE THERESA

Figure 8

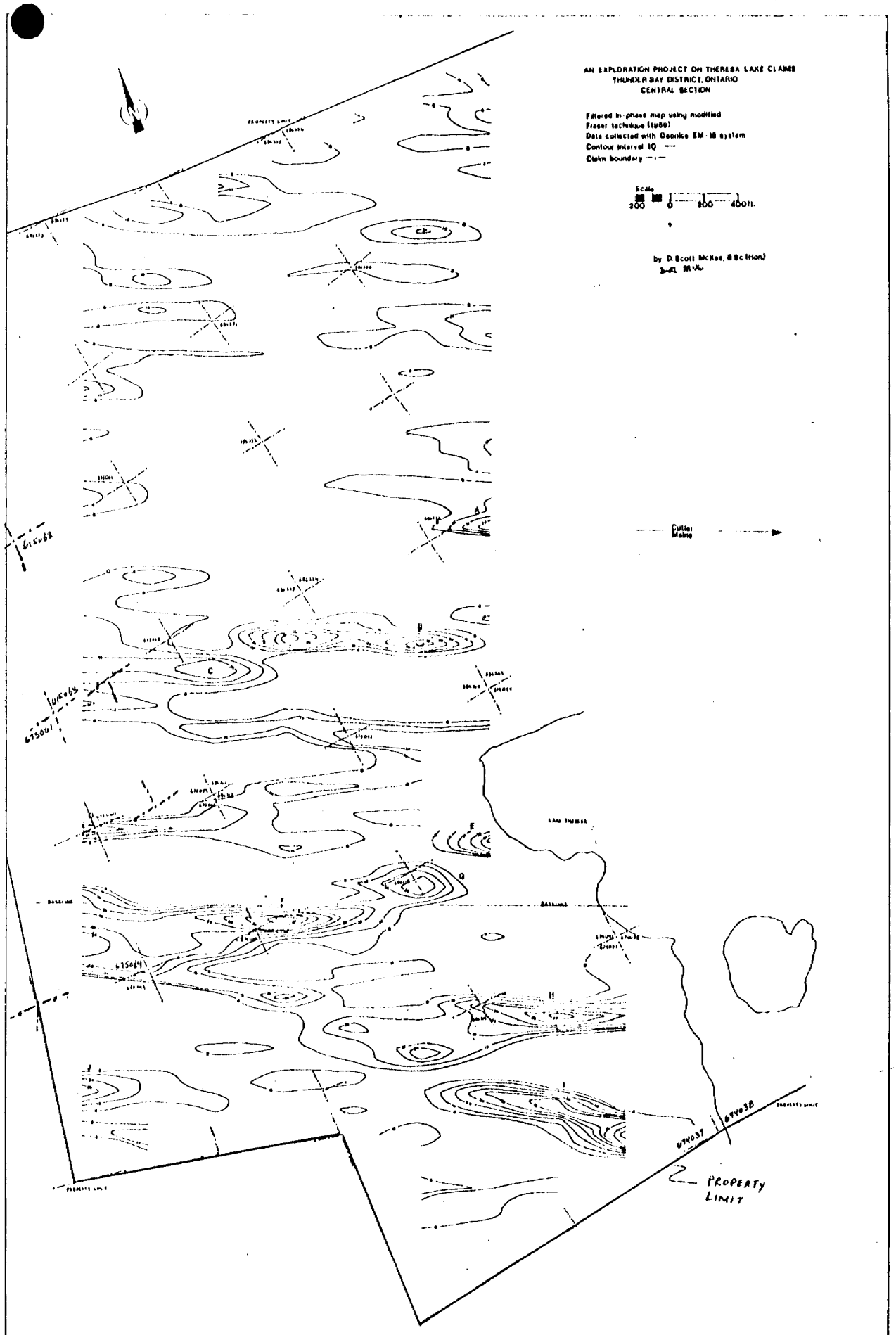
AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
CENTRAL SECTION
Filtered in-phase map using modified
Fraser technique (1969)
Data collected with Geonics EM-16 system
Contour interval 10
Claim boundary
Scale
200 0 200 400ft.
by D. Scott McKee, B.Sc.(Hon.)
Cutter Claims
PROPERTY LIMIT

Figure 9

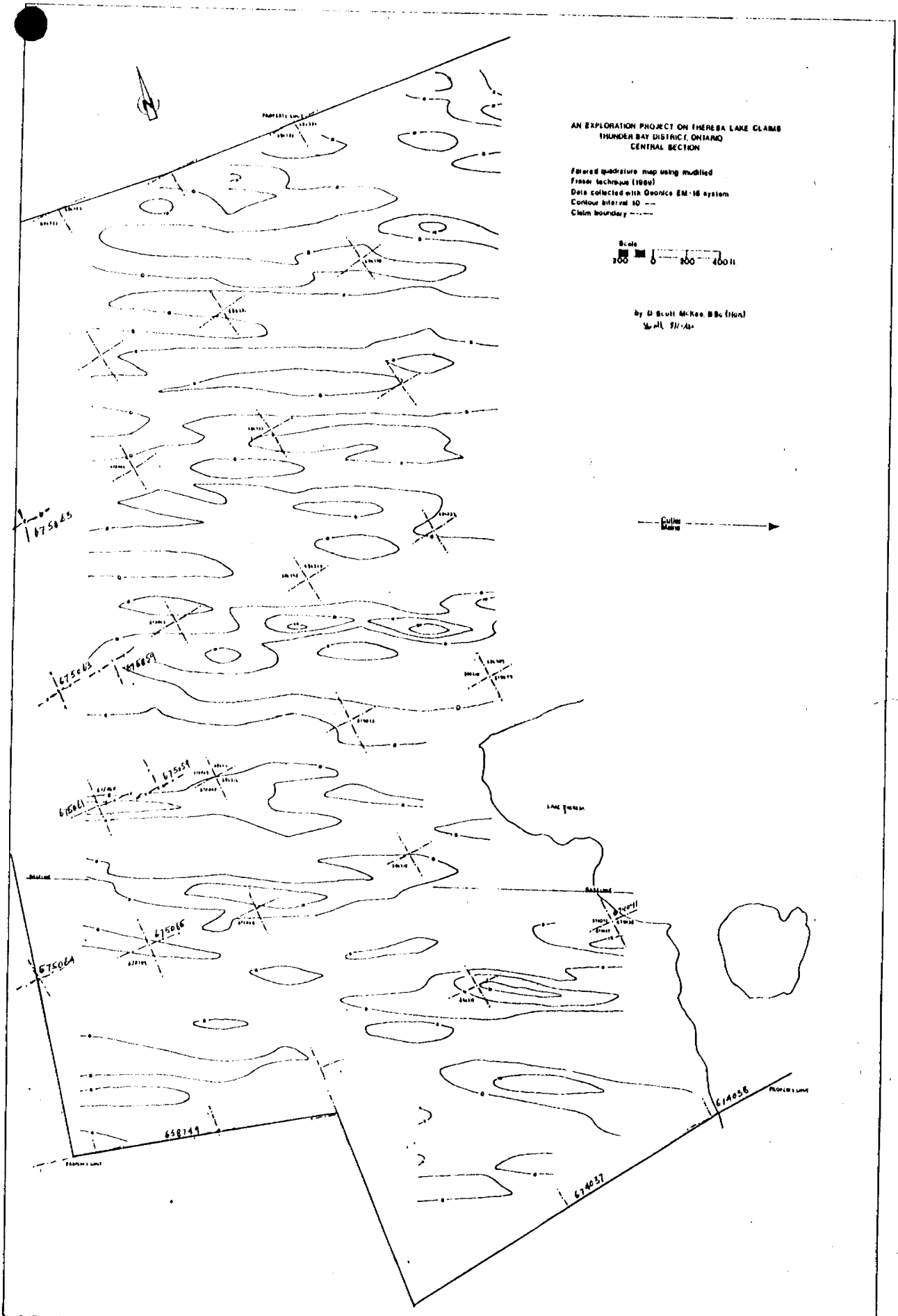
AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
CENTRAL SECTION
Filtered quadrature map using modified
Fraser technique (1969)
Data collected with Geonics EM-16 system
Contour interval 10
Claim boundary
Scale
200 0 200 400 ft
by D Scott McKee, BSc (Hon)
675063
675062
675059
675066
675064
658149
674056
674037
Cutline
LAKE THERESA
BASELINE

Figure 10

Conductors A, B, C, E, G, H, and I are moderate. Conductors A and C lie within the low areas between the granodiorite outcrops. Both have low maximum filtered quadrature values. It appears that these conductors have little depth extent, and conductivity response is due to overburden.

Conductor B is approximately 1,500 feet long and 200 feet wide with a trend of 110°. It lies partly in the granodiorite and extends into the areas without outcrop. The maximum quadrature value is 29.5. It appears that this conductor lies within a mineralized shear zone and extends to a considerable depth.

Conductors E and G lie in low, wet regions where outcrops are not present. The maximum filtered quadrature for E and G are 7 and 9 respectively. These conductors do not extend to any considerable depth and seem to be caused by overburden.

Conductors H and I appear to lie in shear zones within basalt. Conductor H is approximately 1,000 feet long and 250 feet wide, and opens to the east with a trend of 108°. Conductor I is approximately 1,700 feet long and 350 feet wide, and opens to the east with a trend of 119°. Both give tilt peak to peak responses of 45. The maximum filtered in-phase values for H and I are 64.5 and 89 respectively. Pyrite and pyrrhotite in concentrations up to 3% have been found around these conductors. Thus, these two conductors lie in a mineralized shear or fault zone.

Conductors D and J are weak. Conductor D is approximately 400 feet long and 150 feet wide, and opens to the west. It lies partly within basalt and extends into an area without outcrop. A maximum filtered quadrature value of 18.5 indicates a conductor with some depth extent. It appears that this conductor lies in a shear zone with minor sulphide mineralization.

Conductor J lies in a low, wet area. The maximum filtered quadrature value of 9.5 indicates that conductivity is in response to overburden.

GENERAL CONCLUSIONS

The VLF electromagnetic surveys have been completed on the Northeastern, Eastern, and Central sections of the Cassex property. The Western section of the property has not been covered by the present survey. From the geophysical surveys, numerous conductors have been identified. The conductors have been classified as strong, medium, or weak.

Conductors occur in mineralized zones within the Dotted Lake Batholith, the metavolcanics, and the metagabbro. The paragneiss which borders the granodiorite also contains conductors.

Conductors are present in the Dotted Lake Batholith along shear zones. These zones contain concentrations of pyrite (often associated with white quartz veins) up to 4%. In both the metavolcanics and metagabbro, conductors lie along the sulphide rich mineralized shears and fractures. The contact (fault zone) between the metavolcanics and metagabbro is a conductive zone. Mineralization along this zone includes up to 60% molybdenite, 15% pyrite, and 10% pyrrhotite, copper, nickel, lead, and zinc.

SPECIFIC CONCLUSIONS

Five strong conductors lie within the granodiorite in the Northeastern section. Two of these conductors are located along shear zones with sulphide mineralization and the other three are probably due to overburden. One strong conductor lies in the Central section along the heavily mineralized fault zone between the metavolcanics and the metagabbro.

Eleven moderate conductors exist. Two fall in the Central section along mineralized shear zones within basalt. Three more lie in mineralized shear zones within the granodiorite, two in the Northeastern section, and one in the Central section. The other six are probably caused by overburden.

Three weak conductors have been identified. One is in the granodiorite of the Northeastern section along a shear zone with low mineralization. Another is in the basalt of the Central section within another shear zone of low mineralization. The remaining conductor is most likely due to overburden.

In the Central section, the strong conductor, F, appears to extend beyond the survey lines to the west. Moderate conductors H and I appear to extend to the east.

In the Northeastern section, the strong conductor, H, appears to extend east towards Theresa Lake. The moderate conductors, A and G, and the weak conductor, I, appear to continue to the west.

There appear to be no significant conductors in the Eastern section.

RECOMMENDATIONS

A VLF electromagnetic survey should be completed on the Western section

the Cassex property to establish any remaining unidentified conductors. This will also determine whether or not conductor F in the Central section continues farther to the west.

After this has been completed and all the significant conductive zones have been located, a trenching and drilling program on the strong and moderate conductors should be initiated as recommended by the supervising geologist.

REFERENCES

1. H. Wolf, Cassex Resources Ltd.-Theresa Lake Claims, an unpublished report prepared for Cassex Resources Ltd., Nepean, Ont., August 8, 1983.

2. P. Phillips, Recent geophysical work on the Theresa Lake Claims, Hemlo area, District of Thunder Bay, Province of Ontario, an unpublished report prepared for Cassex Resources Ltd., Nepean, Ont., April 25, 1984.

3. D.C. Fraser, "Contouring of VLF-EM data", Geophysics, Vol. 34, No. 6, 1969, pp. 958-967.

4. I.B. Judd-Henrey, Geology of Theresa Lake Claims, Hemlo area, District of Thunder Bay, Province of Ontario, an unpublished report prepared for Cassex Resources Ltd., Nepean, Ont., December 10, 1984.

A report prepared for
CASSEX RESOURCES LTD.
LES RESSOURCES CASSEX LTEE.
Nepean, Ontario

GEOLOGY OF THERESA LAKE CLAIMS
HEMLO AREA, DISTRICT OF THUNDER BAY
PROVINCE OF ONTARIO

by

Ian B. Judd-Henrey, B.Sc.(Hon)
Maisonneuve Energy Materials Inc.
Nepean, Ontario

December 10, 1984

CONTENTS

ILLUSTRATIONS

CERTIFICATE

I, IAN B. JUDD-HENREY, of Ottawa, Ontario do hereby declare that:

- I am a geologist, residing at 2969 Fairlea Crescent, Apt. 911, Ottawa, Ont. K1V 9H2

- I am a graduate of University of Waterloo, Kitchener-Waterloo, 1984, and hold the degree of Bachelor of Science with Honours, in Geology;

- I am presently employed as a geophysicist with Kenting Earth Sciences Inc., Ottawa;

- As an employee of Maisonneuve Energy Materials Inc. during the summer and fall of 1984, I personally performed the field work with assistance from Mr. Scott McKee, B.Sc.(Hon). Mr. McKee drafted the maps. All information, interpretations, and conclusions are my responsibility and must be credited so. For any comments or alterations, I must be consulted personally;

- I concur to the use of my report for assessment work credits by Cassex Resources Ltd. However, no part of the report may be reproduced or deleted without my written consent;

- I do not personally own any interest(s) in the claims or the securities of Maisonneuve Energy Materials Inc. or Cassex Resources Ltd.

DATED AND SIGNED,

Ian Judd-Henrey

Ian B. Judd-Henrey, B.Sc.(Hon)
Maisonneuve Energy Materials Inc.
Nepean, Ontario
December 10, 1984

SUMMARY

The Theresa Lake property optioned by Cassex Resources Ltd. was geologically mapped during August to November, 1984. Of the 81 claims, 60 claims were covered by actual traversing along cut lines spaced at 400 foot intervals and the remaining 21 were covered by air photo interpretation because of their inaccessibility during the summer months.

A large part of the Theresa Lake property is occupied by different phases of Dotted Lake Granodiorite Batholith. Sulphide mineralization was observed in paragneisses or shear zones present in this pluton. The southern part of the property contains an ultramafic intrusive associated with metabasalts (intermediate metavolcanics) and metagabbro. The metabasalts and metagabbro rocks contain sulphide rich zones. All lithologies are intruded by younger diabase dikes.

On the Cassex property the sulphide mineralization up to 3% (mainly composed of pyrite-pyrrhotite) is found in almost all lithologies, but mafic metavolcanics and metagabbro contain up to 15% sulphides along shear and fault zones. Molybdenite associated with pyrite reaches up to 60% in some samples of quartz veins.

Magnetite, sphalerite, galena, some chalcopyrite, and nickeliferous pyrrhotite were also observed in ultramafic and metavolcanic rocks. However, shear zones associated with sulphide mineralization in granodiorite (especially paragneisses), metavolcanics, and metagabbro are the only promising lithologies for locating economically significant gold or other metal deposit on the Theresa Lake property.

INTRODUCTION

In June, 1983, Cassex Resources Ltd. acquired an option on a group of 81 contiguous claims in the Hemlo area of Ontario. These claims cover approximately 1161 hectares (2869 acres) and include the northern part of Theresa Lake (Fig. 1).

During the first 9 months of 1984, 56 kilometers (35 miles) of linecutting at 400 foot spacing and 50 foot station intervals was completed. This report includes the field geological observations and data collected on that grid. Some of the geological data on a part of the area normally inaccessible due to marshy and swampy ground (8 line miles) was interpreted from air photos (4" = 1 mile) obtained from the Ontario Ministry of Natural Resources. The geological units were verified through petrographic examination of 105 samples collected from the various lithologies encountered in the outcrops (Appendix I). The claims covered by geological traversing and those by air photo interpretation are listed in Appendix II.

LOCATION AND ACCESSIBILITY

The Theresa Lake claims are located in northern Ontario, 45 kilometers east of Marathon by road near the shore of Lake Superior, and 20 kilometers northeast of the recently discovered Hemlo gold deposits on the Trans Canada Highway (Hwy. 17). Manitouwadge is approximately 40 kilometers to the north via Highway 614 (Fig. 1).

About 84 percent of the property is land with about 185 hectares (457 acres or 16 percent) covered by waters of Theresa Lake on the southern part of the property and Dotted Lake on the northwest corner of the property. Of the land area, only 16 percent is geologically accessible for direct observation of outcrops. The remainder is covered by overburden, marshes, and swamps.

Access to both Dotted Lake and Theresa Lake is by gravel roads which start from Highway 614 approximately 6 miles north of Highway 17. These lakes provide good boat and airplane access to both the northern and southern edges of the property.

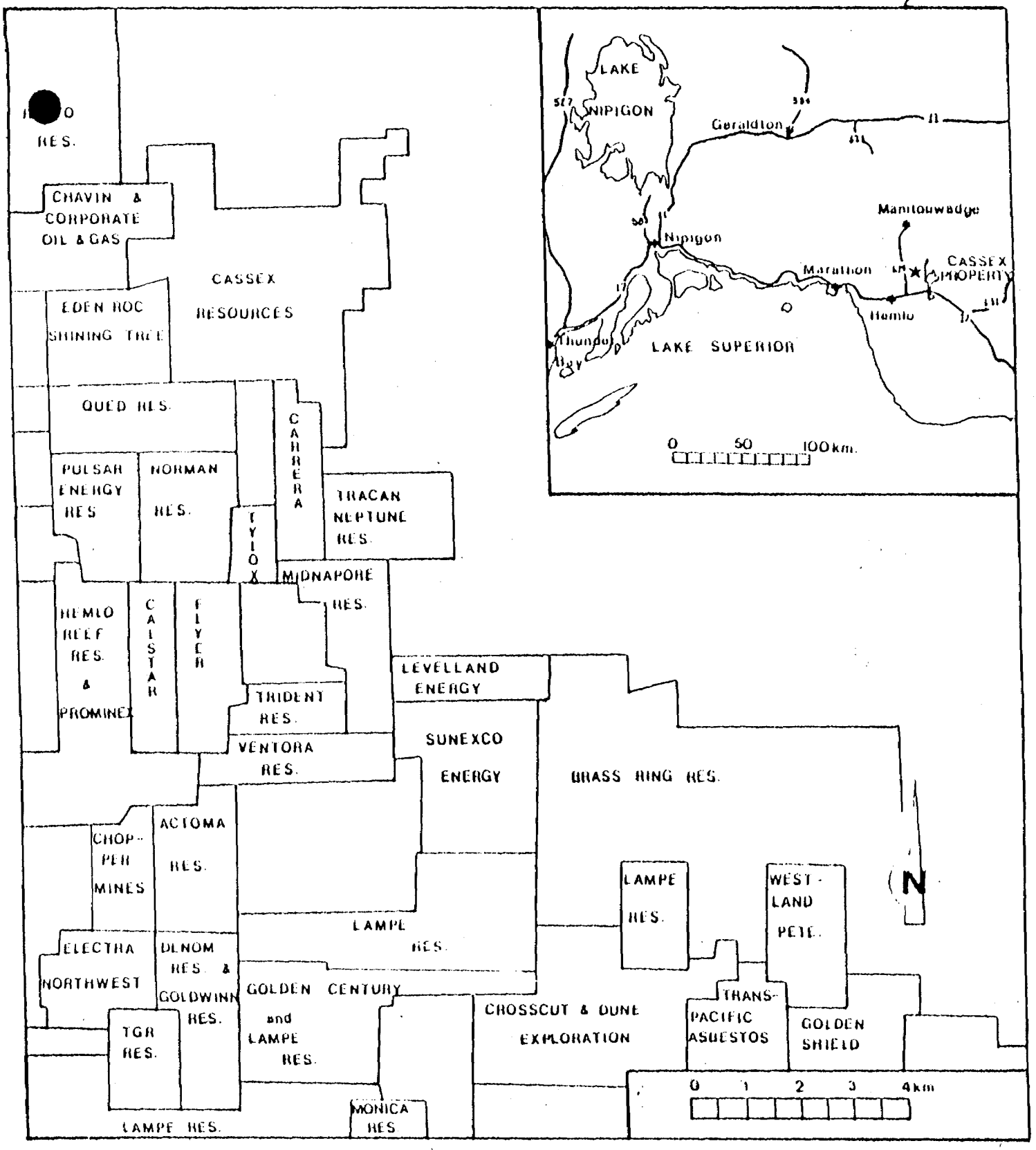

FIGURE 1 : LOCATION OF MINING PROPERTY IN HEMLO AREA, ONTARIO.

Water and hydroelectricity are both readily available. The Canadian Pacific Railway runs parallel to Highway 614. Due to recent gold related development in the Hemlo area, the nearby communities are now capable of serving all the needs of the mining industry. The Hemlo mine-mill complexes being developed by the Noranda Group, Teck Corporation, and Long Lac Minerals Ltd. could provide some custom milling capacity for milling the ore in the near future.

HISTORY

Besides the work previously reported by Cassex Resources Ltd.[1], very little exploration work is on record for the area actually covered by the Theresa Lake claims. A summary of the work done in the immediate vicinity of the property before 1983 has been provided by Mr. H. Wolf[2].

The Hemlo camp, located off the northeast tip of Lake Superior, now appears to be the largest Canadian Mineral discovery in decades. Since the discovery of the main orebody in 1981 by International Carona Resources Ltd., more than 150 companies have become active in the area and a reserve of close to 100 million tons of ore grading about 0.23 oz/ton Au has been estimated[3].

Several companies, namely Chavin of Canada Ltd., Rodeo Resources Ltd., Qued Resources Corporation, and Eden Roc Mineral Corporation and Shiningtree Gold Resources Ltd., reported results from their surveys. All of these companies share the western boundary of the Cassex property. Rodeo Resources has completed a 2,000 foot drilling program which has shown anomalous gold values. This has prompted Rodeo Resources to begin a more intensive exploration program[4]. Chavin of Canada, located immediately west of the Cassex property, reports that geological mapping and geochemical sampling on its property has identified four areas with anomalous gold values (up to 1,000 parts per billion). These are currently being evaluated by ground geophysics, trenching, and stripping. Rock samples grading up to 0.10 oz/ton Au have been reported[5]. Shiningtree Gold Resources has outlined several drill targets including an anomalous zone 4,000 feet long. A drilling program is planned in the near future[6].

Qued Resources, which shares Cassex' southwestern boundary, has to date completed a program of geological mapping, geochemical soil and rock sampling, trenching, and numerous geophysical surveys. Geochemical analyses have returned anomalous values outlining a 700 meter long trend with gold values

ranging up to 2370 parts per billion[7]. Surface samples from 2500 feet of north-south trenching in the middle of the property have assayed 0.012-0.081 oz/ton Au over a 5 meter width[8]. In July, 1984, the geologists of Qued Resources reported the occurrence of visible gold[9]. By late July, 1984, Qued Resources reported 6500 feet of drilling during which it encountered gold values of 0.15 oz/ton Au in some sections of shallow drill holes.

Much exploration work is presently underway as Cassex Resources further participates in the largest gold rush in recent Canadian history.

REGIONAL GEOLOGY

The Theresa Lake claims are located in the Wawa Subprovince of the Superior Province of the Canadian Shield. These claims encompass the contact between the Dotted Lake Batholith and the northern edge of a small metavolcanic-metasedimentary belt. This greenstone belt, which cuts across the southern portion of the property, has a suboval to triangular surface expression and the Hemlo deposits are located along its southern boundary. Mr. T. Muir[10] has suggested that this belt may be a synclinal basin. The Hemlo gold deposits appear to be strataform along the southern boundary, so the location of the Theresa Lake claims is quite favourable for gold mineralization as they occupy the northern edge of the basin.

The Hemlo greenstone belt is generally composed of intermediate to basic ultramafic metavolcanics which are often pillowed, younging upwards into more felsic phases of volcanism. These are often interrelated with tuff, breccias, iron formation, and other chemical and clastic metasediments. Granodiorite batholiths later intruded this sequence. One such batholith is the Dotted Lake Batholith.

The Dotted Lake Batholith intrudes mafic metavolcanics, volcanogenic clastics, and biotite granodiorite gneiss of the Black-Pic Batholith to the north. Peninsulas of the mafic metavolcanics project into the interior of the Dotted Lake Batholith from the main mass of metavolcanic rocks to become roof pendants. The main mass of the Dotted Lake Batholith appears to consist mainly of biotite granodiorite. The granodiorite tends to develop a foliation to become a gneiss near shear zones. Two major shear zones have been reported[11] to cut the granodiorite within the Cassex property. These trend approximately north-south. One follows Little Theresa Lake and continues north while the

ther is much smaller and is northeast of Dotted Lake. The Dotted Lake granodiorite is cut by a variety of mafic (diabase) to aplite and quartz feldspar dikes and veins.

Quartz veining in the main mass of the batholith is rare, but in the area around Dead Otter Lake, quartz veining becomes more abundant. A possible explanation of this is that the granodiorite in the Dead Otter Lake area is more fractured due to it being the crestal region of an anticlinal fold.

The axis of this southwest trending and southwest plunging anticline is believed to pass through Dead Otter Lake [12]. Parallel trending synclines lie northwest of Dotted Lake and north of Theresa Lake. Major fault systems have developed acrossthe limbs of the syncline. These trend approximately north-south. The fault system which runs through Little Theresa Lake and continues north is one such synclinal limb fault.

There have been four major tectonic events in the Theresa Lake area which gave the area its present structure. The first was a period of compression which formed the anticlinal and synclinal structures along with N40^{O}E trending compressional shears. This was followed by the intrusion of the granodiorite from the south forming tensional shears and then low angled thrust faults or shears. The intrusion of the Dotted Lake Batholith was controlled to some extent by the earlier anticlinal fold. Subsequent to this, the area returned to a pre-intrusion stress state producing minor compressional shearing trending N35-55^{O}E. The intrusion of the diabase dike occurred during a later dilutional period which produced north-south shear zones.

LOCAL GEOLOGY (Fig. 2,3,4,5)

The Theresa Lake claims straddle the contact between the Dotted Lake Batholith to the north and a mafic metavolcanic-metasedimentary (foliated quartz feldspar mica sercite gneisses) belt to the south.

Approximately 60 percent of the Theresa Lake claims are covered by the Dotted Lake Batholith. The Dotted Lake Batholith is relatively homogeneous, consisting throughout of a biotite leucocratic granodiorite. The typical rock is light pinkish-brown to white in colour and contains 5 to 10 percent biotite which is one of the predominant mafic minerals. The granodiorite shows variations in the degree to which a gneissic texture is developed. This batholith is essentially a granodiorite gneiss. The best area where gneissosity is developed is northwest of Little Theresa Lake. This gneissic texture can generally

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
EASTERN SECTION

Geological map

LEGEND
- Diabase
- Granodiorite, aplite, quartz veins
- Mafic volcanics, metasediments, quartz and carbonate veins
- Geological boundary
- Claim boundary

Scale
200 0 200 400 ft.

Drafted by D. Scott McKee, B.Sc. (Hon.)

Approved and verified by Ian Judd-Henrey, B.Sc. (Hon.)

L8E
L4E
L12E
L16E
L20E
BASELINE
LAKE THERESA
PROPERTY LIMIT
674017
686220
674046
686243
686242
686240
674039

Figure 2

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
NORTHEASTERN SECTION

Geological map

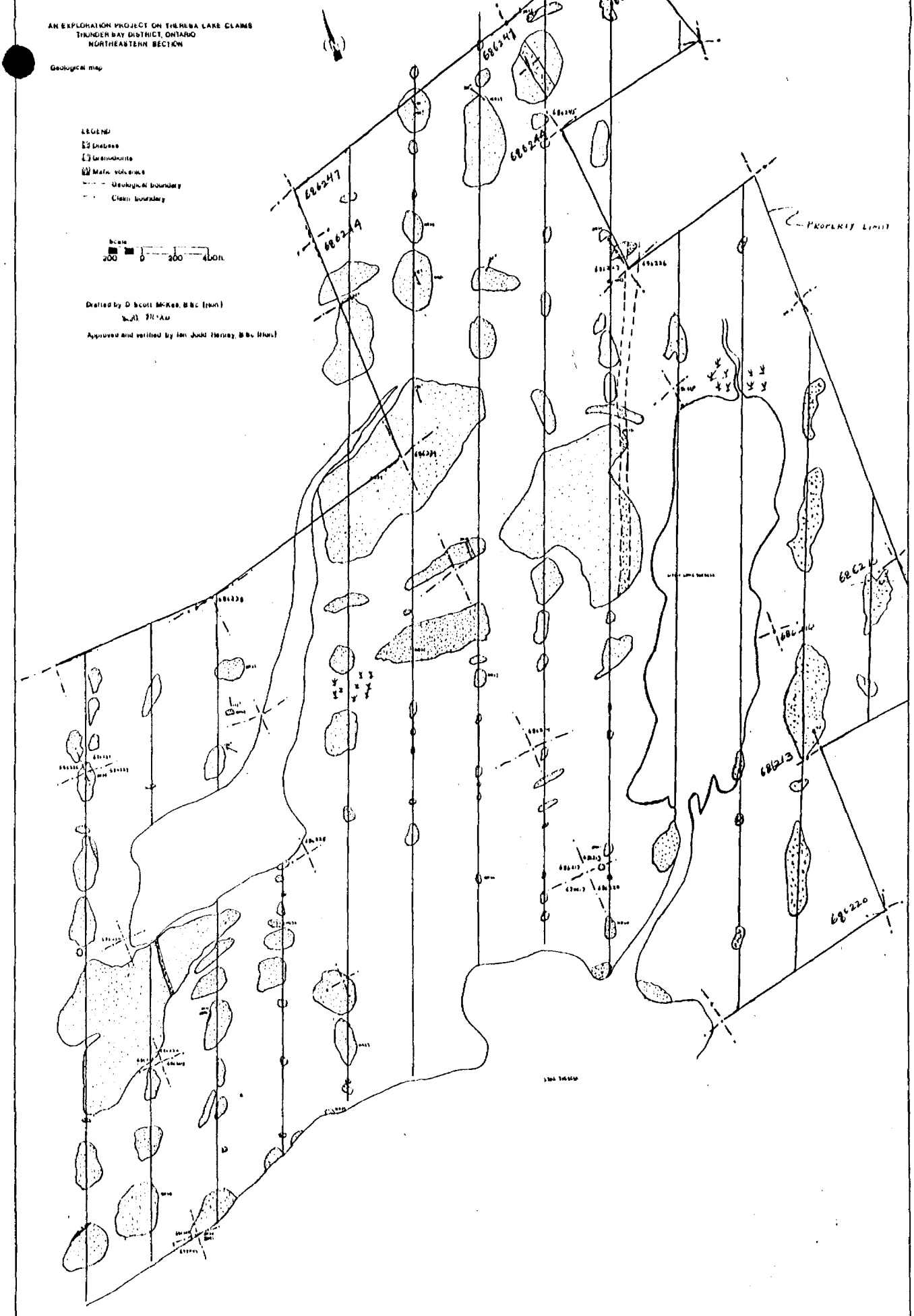

Figure 3

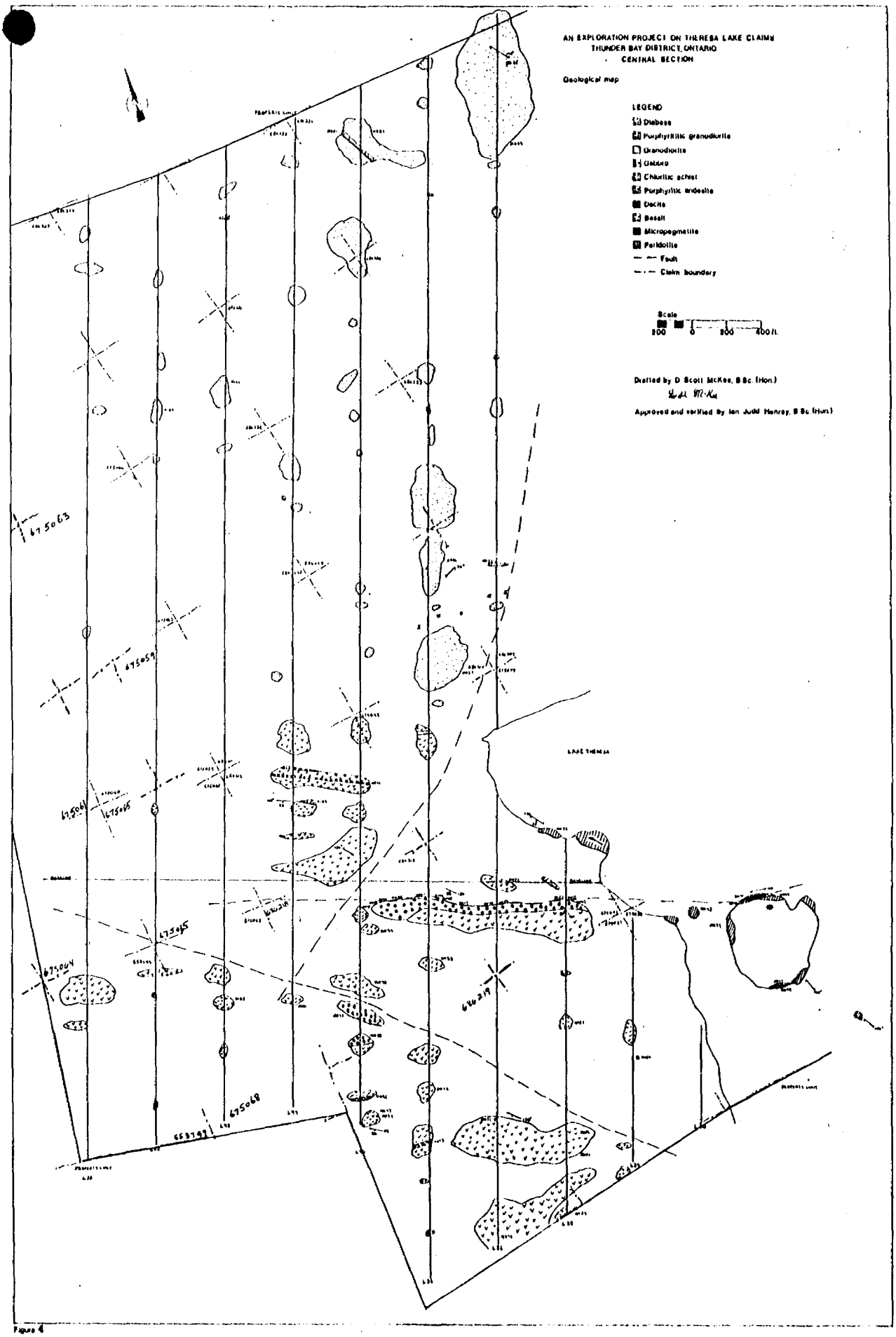
AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
CENTRAL SECTION
Geological map
LEGEND
Diabase
Porphyritic granodiorite
Granodiorite
Gabbro
Chloritic schist
Porphyritic andesite
Dacite
Basalt
Micropegmatite
Peridotite
Fault
Claim boundary
Scale
200 0 200 400 ft.
Drafted by D Scott McKee, B Sc. (Hon.)
Approved and verified by Ian Judd Harvey, B Sc (Hon.)
LAKE THERESA
675063
675059
675061
675045
675044
675048
675049
675047

Figure 4

seen to be related to shearing and is marked by the orientation of biotite flakes and a slight elongation of quartz and K-feldspar grains giving the rock a slight porphyroblastic appearance. There are two major shear zones which trend approximately north-south and cut the granodiorite batholith. The first follows Little Theresa Lake and continues northward. The second fault zone trends north-northeast cutting the metavolcanic belt to the south, continues northward cutting the granodiorite and finally becomes indistinct. There are several small shear zones which trend at NE-SW and SE-NW. These are narrow, generally less than 3 feet wide, have fine grained mylonitized gneissic granodiorite, and have up to 4 percent pyrite mineralization.

The Dotted Lake Batholith is cut by mostly north-south trending diabase dikes and small quartz veins which generally trend NW-SE and NE-SW parallel to the small shear zones. The largest diabase dike, up to 100 feet wide, was traced northward in a series of outcrops west of Little Theresa Lake.

To the east of Theresa Lake the metavolcanic rocks form a peninsula into the granodiorite batholith. Some of these mafic metavolcanics may be isolated as roof pendants on top of the batholith and/or as thin, incompletely digested layers. The only observed contact between the metavolcanics and the granodiorite east of Theresa Lake is highly sheared and altered. This suggests a diapiric emplacement of the batholith. West of Theresa Lake, the contact appears to be diffused with alternating bands of mafic metavolcanics and porphyritic granodiorite. This diffuse or gradational contact is just south of the main granodiorite batholith and supports the hypothesis that the granodiorite was diapirically emplaced. The structure of the region indicates that the granodiorite intruded from the north to the south. The observed foliated quartz feldspar biotite sericite gneisses and the granodiorite "white" facies indicate that part of the present batholith was formed by the digestion of bordering metasediments, granodiorite, and mafic metavolcanics.

A lenticular body of peridotite, perhaps an ultramafic flow, is at least 2000 feet long and up to 700 feet wide. The peridotite is fine to medium grained, generally foliated, NW-SE trending, and contains ophites of pyroxenes with included pseudomorphs of olivine. The pyroxene ophites are unoriented and are up to 1 inch in diameter. The peridotite weathers to a buff colour while the fresh surfaces are blackish. The peridotite is cut by two shear zones. The northern shear zone trends at 100° and can be traced westward into the mafic metavolcanics. The peridotite is altered to a chloritic schist. Concordant and bordering this zone to the south is the only exposure of

micropegmatite.

Several small dikes or sills (up to 6 feet wide) of micropegmatite cut the peridotite. Two bands of magnetite up to 2 feet thick have been previously recorded[13] in the peridotite body near the northern shear zone although they were not observed by the author. The micropegmatite has up to 2 percent pyrite mineralization.

In the second, southern shear zone, the peridotite is highly altered to both chlorite and serpentine schists and trends at approximately 90°. The peridotite generally has 1-2 percent pyrite mineralization throughout.

The mafic metavolcanics are generally basaltic in composition, fine grained, and well chloritized. Medium grained basalt was observed in some areas near exposures of a medium grained gabbro. This gabbro was observed to have sharp, fairly regular contacts with the fine grained basalt, to which it was compositionally similar. Near the southern boundary of the property no contact between the gabbro and the medium grained basalt was observed, which made it difficult to differentiate between the two units. It appears as though the gabbro is a subvolcanic equivalent of the basalt. This hypothesis is supported by the fact that the main exposure of gabbro is along a major fault. This fault trends at approximately 130° and dips at 60°S, continues over ¼ mile along a 200 foot high ridge, and can be traced to the northern shear zone in the peridotite. It is along this fault that the highest degree of mineralization was observed, up to 15 percent pyrite from a fine grained basalt (sample #H090) and 60 percent molybdenite across a 3 inch quartz vein (H100). Along this fault white quartz is up to 3 feet wide, and contains up to 7 percent pyrite, and up to 3 percent molybdenite (H068). The quartz veining shows feldspar overgrowths throughout the metavolcanics and occasionally in the granodiorite. These feldspar overgrowths show little or no visible sulphide mineralization.

The fault area has the greatest observed concentration of quartz veins. This fault is abruptly terminated to the west where it appears to be cut by a NE-SW trending fault system. This fault system is very poorly exposed and is inferred mainly by its topographic expression. Using the topographic expression and the foliation of bordering outcrops, this fault system can be traced into the granodiorite batholith where it continues NE for approximately ½ mile after which it disappears.

The last major fault cutting the metavolcanics trends at approximately

80° for over ½ mile and is located south of the aforementioned fault. This fault forms a steep sided valley along part of its length. It appears to branch into several small shear zones south and parallel to the main fault zone. The exposure along these faults is not as good as along the northern fault. Here the basalt is generally fine grained, well foliated, and extremely well chloritized with some carbonatization and brecciation. The white quartz veining along this fault is less common than along the northern fault and the maximum observed thickness is 1 foot. The white quartz veins were observed to have feldspar overgrowths. Near several small shears south of the main fault, the white quartz veins are very rusty and ochre red in colour (H056). Sulphide mineralization occurs generally as fine grained pyrite and pyrrhotite crystals with some molybdenite crystals totalling up to 8 percent of the rock. The sulphide mineralization can generally be seen to be related to shearing and/or quartz veining.

The metagabbro is mainly exposed along the northern fault. It is medium grained, fairly massive, and slightly choritized. The sulphide mineralization is unevenly distributed throughout the metagabbro, being concentrated in streaks and pods of varying sizes. The sulphide mineralization occurs as fine grained, disseminated crystals, mainly of pyrite and pyrrhotite, associated with a little molybdenite.

Diabase dikes cut and post date both the granodiorite and the metavolcanics. They generally trend N-S. The largest observed diabase dike is up to 100 feet wide and is located just west of Little Theresa Lake. The dikes are fine to medium grained, chloritized, and are occasionally slightly carbonatized. The diabase dikes were observed to have 2-5 percent sulphide mineralization composed of fine grained crystals of pyrite and pyrrhotite.

The proposed stratigraphy in the Theresa Lake area is summarized in Table 1. The position of the peridotite could not be absolutely ascertained due to the lack of available contacts between peridotite and other formations. The relative position of the peridotite was taken from Milne (1968)[14] and by considering ultramafic rocks as a part of an Archean volcanic cycle in the area.

It should be noted that there appears to be at least two different ages of quartz veining related to respective tectonic events. The feldspar veining appears to post date both of these quartz veining periods as it is often observed forming overgrowth on the quartz veins. No quartz veins were observed to be cutting feldspar veins.

TABLE 1

TABLE OF FORMATIONS

CENOZOIC

Pleistocene and Recent: Varved clay, silty sand, sand and gravel.

Unconformity

PRECAMBRIAN

PROTEROZOIC

Diabase Dike: Fine to medium grained, quartz porphyritic diabase, slightly chloritized rocks forming dikes up to 100 feet wide.

ARCHEAN

Dotted Lake Batholith Complex:

Feldspar veins: Fine grained K-feldspar stringers up to 3 inches wide often occur as overgrowths on white quartz.

Quartz veins and aplites: Fine to coarse grained, white quartz veins up to 3 feet wide occur in volcanics and granodiorite units. Aplite veins only occur in metavolcanics and granodiorites.

Granodiorite: Light pinkish brown to white, medium grained porphyritic to massive granodiorites and biotite gneisses. The gneissic rocks are composed of both ortho and paragneiss. Intrudes metavolcanics and metasediments.

Intrusive contact

Volcanics, volcanoclastic sediments, and related rocks:

Gabbro: Fine to medium grained amphibolitized massive rock.

Andesite: Highly altered, light green, fine grained rock intercalated with sediments.

Dacite: Compact, fine grained, light coloured rock.

Basalt: Fine grained, highly amphibolitized and chloritized, black schistose to massive rock, intruded by quartz and carbonate veins.

Peridotite (ultramafic flow): Highly serpentinized, fine to coarse grained rock. Occurs as a lenticular mass; intruded by micropegmatites.

The intrusion of the diabase dikes appears to be the last igneous event. These generally trend N-S and are relatively unaltered. There were no observed contacts between the diabase dikes and the quartz veins, but the quartz veins appear to be related to the earlier shearing and faulting.

CONSIDERATIONS FOR FUTURE EXPLORATION

On the property of Cassex Resources Ltd., pyrite is the main sulphide found in appreciable quantities (up to 4 percent) within the mineralized shear zones and white quartz veins near or in the shear zones associated with the main granodiorite mass of the Dotted Lake Batholith. Sulphide mineralization in the mafic metavolcanics occurs as irregular streaks, patches, and pods associated with the shear and fracture zones. Although pyrite remains as the main sulphide and reaches up to 15 percent in the metavolcanics, visible molybdenite of up to 60 percent was observed for the first time from the quartz veins associated with this rock unit from the Theresa Lake area. Zinc, lead, nickel, and copper have been previously reported from the unit[2,15].

Sulphide mineralization in metagabbro has also been noted. Mineralization in the metagabbro appears to be very similar to that observed in the mafic metavolcanics.

The peridotite has low sulphide concentration (up to 2 percent) fairly evenly distributed throughout the rock unit. Two bands of magnetite have been previously reported to exist within the peridotite[13].

The diabase dikes also contain a low concentration of pyrite and pyrrhotite (2-5 percent) which is evenly distributed throughout the rock unit.

Shear zones and associated sulphide mineralization in granodiorites, metavolcanics, and metagabbros hold strong promise for locating an economically significant gold or other metal deposit in the Theresa Lake area.

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11. V.G. Milne, Geology of Black River Area, Ontario Department of Mines Geological Report 72, 1968, p. 37.

12. Ibid, p. 46.

13. Ibid, p. 24.

14. Ibid, p. 6.

15. Ibid, p. 64.

APPENDIX I

PETROGRAPHIC DESCRIPTION OF ROCK SAMPLES

Sample #	Rock type	% mineralization*	Comments
H001	Coarse grained leuco granodiorite	1% py	Little biotite, K-feldspar rich
H002	White quartz vein	No visible mineralization	4" wide, slightly rusty
H003	Medium grained leuco granodiorite	5% py	Pink
H004	Medium grained granodiorite	3% py	Rusty pink, good rust staining
H005	Amphibolitized basalt (layered)	Trace	Strongly chloritized
H006	Sheared mylonitized contact with granodiorite	3% py	Chloritized, foliated
H007	Fine-medium grained leuco granodiorite gneiss	No visible mineralization	
H008	White to smokey mylonitized quartz vein	No visible mineralization	6" wide
H009	Coarse grained leuco granodiorite	No visible mineralization	
H010	Shear zone with basalt & granodiorite	No visible mineralization	
H011	Basalt	5% py, large cubes	Good rust staining
H012	Diabase	2% py	30' feet
H013	Aplite	1% py	2" wide
H014	Mafic volcanic rock	2% py	Cut by small white quartz vein
H015	Fractured medium grained granitic vein cut by white quartz veins (8")	5% py	15' wide
H016	Metasediments, fine grained granodiorite gneiss (sheared)	No visible mineralization	18" wide
H017	Metasediments, fine grained granodiorite gneiss (sheared)	Trace py	5' wide
H018	Aplite & quartz feldspar vein	3% py	3' wide
H019	Diabase dike	2% py	50' wide
H020	Diabase dike	2% py	60' wide
H021	Coarse grained leuco granodiorite	No visible mineralization	
H022	Diabase dike	1% py	>20' wide

APPENDIX I cont.

Sample #	Rock type	% mineralization	Comments
H023	Coarse grained leuco granodiorite	Trace py	
H024	Fractured white quartz vein	1% py	6" wide
H025	Diabase dike	5% py	>100' wide
H026	Fractured leuco granodiorite with inclusions of metavolcanics (epidotized)	No visible mineralization	
H027	Medium grained leuco granodiorite gneiss	Trace py	
H028	Diabase dike	3% py, mag	4' wide
H029	Coarse grained leuco granodiorite	No visible mineralization	Pink
H030	Quartz-K-feldspar vein (aplite)	2% py, mag	6" wide
H031	Leuco granodiorite gneiss, shear zone	Trace py	
H032	Leuco granodiorite gneiss	No visible mineralization	
H033	Rusty, white quartz vein	1% py	Very rusty, 5" wide
H034	Coarse grained leuco granodiorite	No visible mineralization	
H035	Fine grained granodiorite gneiss from shear zone	Trace py	
H036	Diabase dike	4% py	60' wide
H037	Very rusty, silicified & mylonitized, fine grained granodiorite	2% py	From shear zone, 4" wide
H038	Coarse grained leuco granodiorite (fractured)	2% py	
H039	Fine-medium grained leuco granodioritic gneiss (garnet)	2% py	
H040	Fractured rusty white quartz	1% py	8" wide, ochre red colour
H041	Composite very rusty shear zone of aplite, granodiorite, quartz-feldspar veins	>1% py	Shear zone 3' wide
H042	Fine grained peridotite	2% py	Well foliated
H043	Peridotite	1% py	
H044	Coarse grained peridotite	2% py	Well foliated
H045	Micro pegmatite	2% py	<6'wide
H046	Sheared chlorite schist	Trace py	Up to 3' wide

APPENDIX I cont.

Sample #	Rock type	% mineralization	Comments
H047	Sheared peridotite	1% py	
H048	Serpentine schist	1%py	Up to 10' wide
H049	Coarse grained peridotite	Trace py	3' wide
H050	Fine grained sheared basalt	2% py	Foliated
H051	Shear zone-chlorite sericite schist	~1% py	<1' wide
H052	White quartz vein	No visible mineralization	3" wide, slightly rusty
H053	Medium grained gabbro	1% py	
H054	Fine grained basalt	4% py	Well foliated
H055	Feldspar-quartz vein	2% py	>5' wide
H056	Rusty white & ochre coloured quartz veins (composite)	3% py	Veins up to 12" wide
H057	Fine grained basalt	2% py	
H058	Pyritic white quartz vein	4% py	4" wide
H059	Fine-medium grained gabbro	5% py	
H060	Coarse grained leuco granodiorite	5% py	Pods of py
H061	Fine grained diabase	4% py	
H062	Leuco granodiorite, sheared	3% py	Rusty, 2' wide
H063	White quartz vein	No visible mineralization	3" wide
H064	White quartz vein bordering leuco granodiorite	1% py	2-5' wide
H065	Coarse grained leuco granodiorite with phenocrysts of hornblende & quartz	1% py	
H066	Feldspar quartz vein	1% py	Pink
H067	Coarse grained leuco granodiorite	Trace py	Composite aplite
H068	Rusty, smokey-white quartz vein	10% py & mo	>3' wide
H069	Fine-medium grained gabbro	5% py (mo)	
H070	Rusty white quartz	2% py	3' wide, small shear zone
H071	Sheared basalt turning into an amphibolite	No visible mineralization	
H072	Fine grained basalt	1% py	
H073	Medium grained porphyritic grano-diorite	2% py	10' wide dike or sill

APPENDIX I cont.

Sample #	Rock type	% mineralization	Comments
H074	Sheared, fine grained metagabbro & basalt with streaks of pyrite	3% py & po	Extremely chloritized
H075	White quartz vein with K-feldspar overgrowths	No visible mineralization	3' wide
H076	Mafic volcanic rock	No visible mineralization	4' wide, contains hornblende
H077	Sheared biotite-chlorite quartz schist	No visible mineralization	>4' wide
H078	Fractured white quartz with sugary texture	No visible mineralization	Very slight rust staining
H079	Diabase dike	3% py & po	
H080	White quartz with feldspar overgrowths	No visible mineralization	4" wide
H081	Diabase dike	5% py	20' wide
H082	Rusty white quartz with feldspar overgrowths	8% py	4" wide
H083	Coarse grained white quartz vein	2% py	4" wide
H085	Fine grained basalt with small quartz stringers	2% py	
H086	Sheared fine grained basalt	4% py	
H087	Pyritic white quartz vein & bordering gabbro	2% py	
H088	Fine grained gabbro	10% py & po	
H089	Fine grained gabbro with feldspar stringers	8% py	
H090	Fine grained metabasalt	15% py	
H091	Pyritic white quartz	3% py	~1' wide
H092	Biotite-porphyritic granodiorite	1% py	Grey
H093	Fine grained metabasalt	7% py	
H094	Rusty white quartz vein	3% py	6" wide
H095	Porphyritic granodiorite in contact woth grey granodiorite phase	3% py & po	Well foliated
H096	Medium grained gabbro	No visible mineralization	
H097	Medium grained gabbro	5% py	
H098	Fine grained metabasalt	8% py	
H099	Fine grained basalt	2% py	
H100	White quartz vein	60% mo	2" wide

APPENDIX I cont.

Sample #	Rock type	% mineralization	Comments
H101	Fine grained basalt	5% py	
H102	White-grey porphyritic granodiorite	2% py	
H103	Coarse grained leuco granodiorite	No visible mineralization	
H104	White quartz	No visible mineralization	
H105	Fine grained metabasalt	1% py	

py = pyrite
po = pyrrhotite
mag= magnetite
mo = moly

APPENDIX II

CLAIMS COVERED BY ACTUAL TRAVERSING

658749	686208	686229
674017	686209	686230
674037	686210	686231
674038	686211	686232
674039	686212	686233
674040	686213	686234
674041	686214	686235
674042	686215	686236
674043	686216	686237
674044	686217	686238
674045	686218	686239
674046	686219	686240
675059	686220	686241
675060	686222	686242
675061	686223	686243
675063	686224	686244
675064	686225	686245
675065	686226	686246
675066	686227	686247
675068	686228	686256

CLAIMS COVERED BY AIR PHOTO INTERPRETATION

658750	701947	701954
675062	701948	701955
675067	701949	701956
701922	701950	701957
701944	701951	701958
701945	701952	701959
701946	701953	701960

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
EASTERN SECTION

Geological map

LEGEND

- Diabase
- Granodiorite, aplite, quartz veins
- Mafic volcanics, metasediments, quartz and carbonate veins
- -- Geological boundary
- -- Claim boundary

Scale
200 0 200 400 ft.

Drafted by D. Scott McKee, B.Sc. (Hon.)
Scott McKee

Approved and verified by Ian Judd-Henrey, B.Sc. (Hon.)

L8E
L4E
L12E
L16E
L20E
BASELINE
686220
674017
674044
674046
674045
674040
686243
686242
674039
686240
686241
686238
H001
H002
H003
H004
H005
H006
H007
H008
H009
H010
H011
H012
H013
H014
H015
H016
H017
H018
H019
LAKE THERESA
PROPERTY LIMIT

Figure 2

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
EASTERN SECTION

Filtered quadrature map using modified
Fraser technique (1969)
Data collected with Geonics EM-16 system
Contour interval 10 —
Claim boundary —·—

Scale
200 0 200 400 ft.

by D. Scott McKee, B.Sc. (Hon.)
Scott McKee

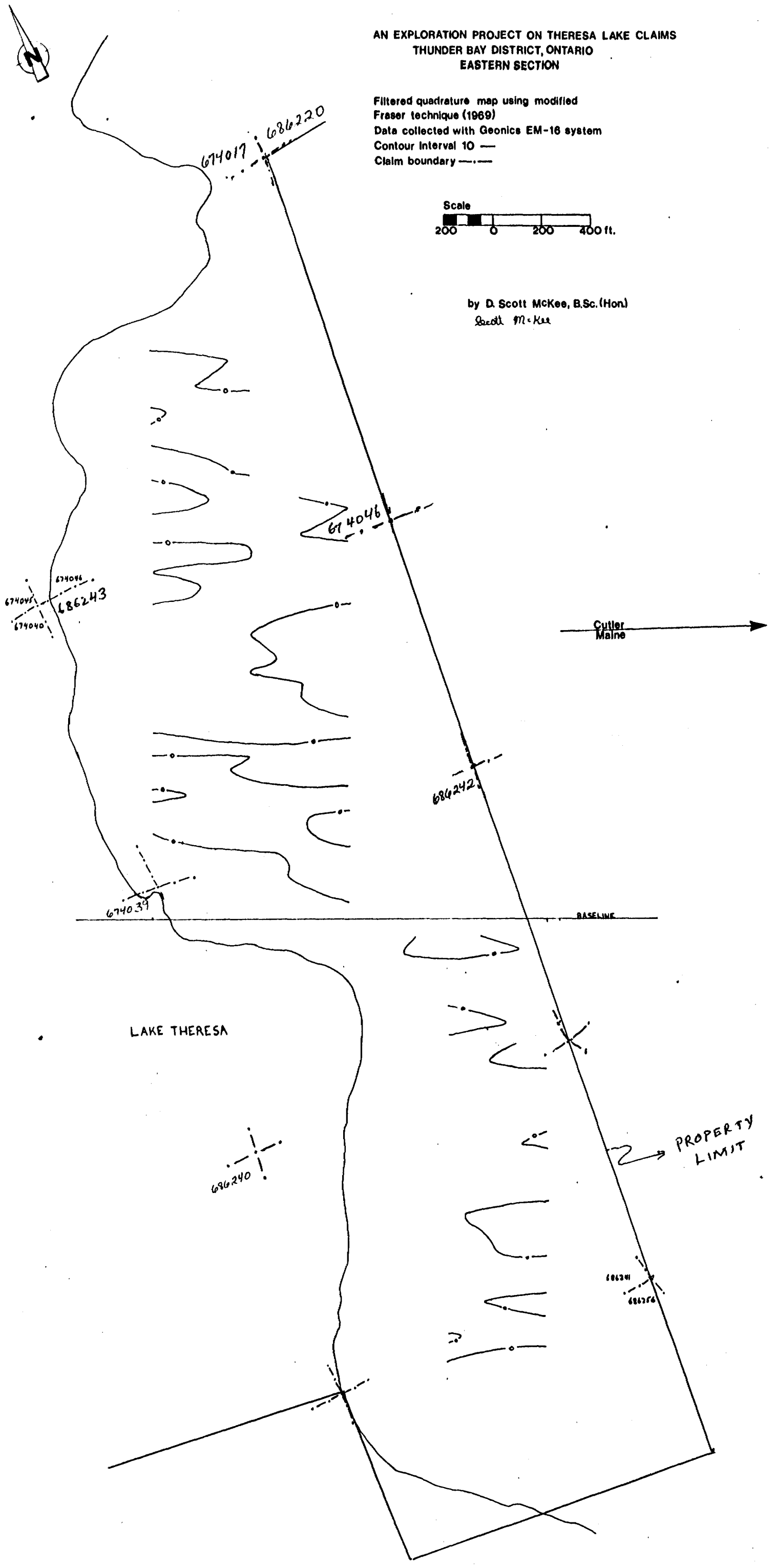

Figure 7

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
EASTERN SECTION

VLF in-phase and quadrature profile map
Data collected with Geonics EM-16 system
In-phase ——
quadrature — — —
Claim boundary —·—

Scale
200 0 200 400 ft.

quadrature % 40 30 20 10 in-phase %

by D. Scott McKee, B.Sc. (Hon.)
Scott McKee

N

614017

1686220

674045

674046

686243

674040

Cutler
Maine

686242

BASELINE

LAKE THERESA

674039

686240

PROPERTY
LIMIT.

686241

686256

Figure 5

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
EASTERN SECTION

Filtered in-phase map using modified
Fraser technique (1969)
Data collected with Geonics EM-16 system
Contour interval 10 ——
Claim boundary —·—

Scale
200 0 200 400 ft.

by D. Scott McKee, B.Sc. (Hon.)
Scott McKee

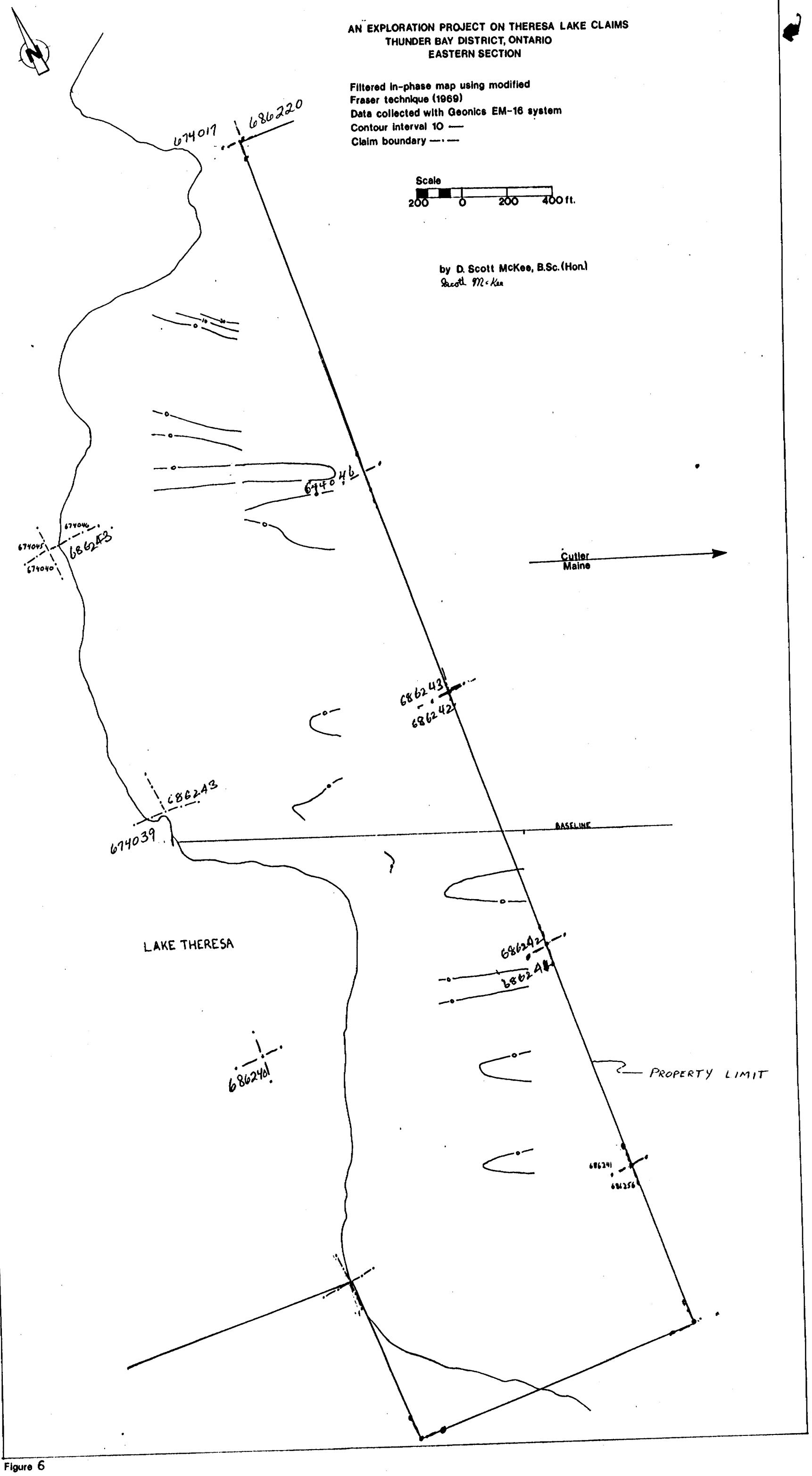

Figure 6

Ministry of Natural Resources
Ontario

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

#627

42C13SE0021 2.7697 WABIKOBA LAKE

900

File: 658749

Mining Act G-604 — In the Expend. Days Cr. columns. Do not use shaded areas below.

Type of Survey(s)	Township or Area
Geological and geophysical surveys	Wabikoba Lake G-620 White Lake (north part) G-622

Claim Holder(s)	Prospector's Licence No.
Cassex Resources Ltd.	T1514

Address: 9B Caesar Avenue, Nepean, Ont. K2G 0A8

Survey Company	Date of Survey (from & to)	Total Miles of line Cut
Maisonneuve Energy Materials Inc.	07 08 84 (Day Mo. Yr.) — 08 10 84 (Day Mo. Yr.)	* 35

Name and Address of Author (of Geo-Technical report): Ian Judd-Henrey, B.Sc., RR#2, Barrys Bay, Ont. K0S 1B0
Scott McKee, B.Sc., 2362 Rembrandt Road, Ottawa, Ont. K2B 7P5

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical - Electromagnetic	* 40
	Geophysical - Magnetometer	* 20
For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	20
	Geochemical	

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DEC 03 1984
MINING LANDS SECTION

Man Days		Days per Claim
Complete reverse side and enter here	Geophysical - Electromagnetic	
	Geophysical - Magnetometer	
	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits
Total Expenditures $ ÷ 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date: November 20, 1984
Recorded Holder or Agent (Signature): Audrey M. Denis

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
TB	658749	
	658750	
	* 674017	
	674037	
	* 674038	
	* 674039	
	* 674040	
	* 674041	
	* 674042	
	* 674043	
	* 674044	
	* 674045	
	* 674046	
	675059	
	675060	
	675061	
	675062	
	675063	
	675064	
	675065	
	675066	
	675067	
	675068	

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
	686208	
	686209	
	686210	
	686211	
	686212	
	* 686213	
	* 686214	
	686215	
	686216	
	686217	
	686218	
	686219	
	686220	
	686222	
	686223	
	686224	
	686225	
	686226	
	686227	
	686228	
	686229	
	686230	
	686231	

* Some work may be on file no. 2.6768

Total number of mining claims covered by this report of work: 31

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Recorded Holder or Agent (Signature)
5920	Nov. 26, 1984	Audrey M. Denis
	Date Approved as Recorded	Branch Director

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: Scott McKee, B.Sc., 2362 Rembrandt Road, Ottawa, Ont. K2B 7P5

Date Certified	Certified by (Signature)
November 20, 1984	Scott McKee

1362 (81 9)

Ministry of Natural Resources
Ontario

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

Mining Act

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s): Geological and geophysical surveys

Township or Area: Wabikoba Lake
White Lake (north part)

Claim Holder(s): Cassex Resources Ltd.

Prospector's Licence No.: T1514

Address: 9B Caesar Avenue, Nepean, Ont. K2G 0A8

Survey Company: Maisonneuve Energy Materials Inc.

Date of Survey (from & to): 07 08 84 (Day Mo. Yr.) to 08 10 84 (Day Mo. Yr.)

Total Miles of line Cut: * 35

Name and Address of Author (of Geo-Technical report): Ian Judd-Henrey, B.Sc., RR#2, Barrys Bay, Ont. K0S 1B0
Scott McKee, B.Sc., 2362 Rembrandt Road, Ottawa, Ont. K2B 7P5

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical · Electromagnetic	* 40
	· Magnetometer	* 20
For each additional survey: using the same grid: Enter 20 days (for each)	· Radiometric	
	· Other	
	Geological	20
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical · Electromagnetic	
	· Magnetometer	
	· Radiometric	
	· Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
	686232	
	686233	
	686234	
	686235	
	686236	
	686237	
	686238	
	686239	
	* 686240	
	686241	
	686242	
	686243	
	686244	
	686245	
	686246	
	686247	
	* 686256	
	701922	
	701944	
	701945	
	701946	
	701947	
	701948	

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
	701949	
	701950	
	701951	
	701952	
	701953	
	701954	
	701955	
	701956	
	701957	
	701958	
	701959	
	701960	

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MINING LANDS SECTION

Expenditures (excludes power stripping)

Type of Work Performed:

Performed on Claim(s):

Calculation of Expenditure Days Credits
Total Expenditures: $ ÷ 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

* Some work may be on file no. 2.6768

Total number of mining claims covered by this report of work.

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
	Date Approved as Recorded	Branch Director

Date: November 20, 1984

Recorded Holder or Agent (Signature): Audrey M. Denis

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: Scott McKee, B.Sc., 2362 Rembrandt Road, Ottawa, Ont. K2B 7P5

Date Certified: November 20, 1984

Certified by (Signature): Scott McKee

1362 (83/04)

Ontario

Ministry of Natural Resources

File _____

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geological; VLF-electromagnetic

Township or Area White Lake(north part), Wabikoba Lake

Claim Holder(s) Cassex Resources Ltd.

9B Caesar Ave., Nepean, Ont. K2G 0A8

Survey Company Maisonneuve Energy Materials Inc.

Author of Report Scott McKee, B.Sc.

Address of Author 2362 Rembrandt Road, Ottawa, Ont. K2B7P5

Covering Dates of Survey 07-08-84 to 08-10-84
(linecutting to office)

Total Miles of Line Cut 35

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	40
–Magnetometer	
–Radiometric	
–Other	
Geological	20
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: January 15/85 SIGNATURE: Scott McKee
Author of Report or Agent

Res. Geol. _____ Qualifications His file

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

See Appendix II
(prefix) (number)

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JAN 24 1985
MINING LANDS SECTION

If space insufficient, attach list

TOTAL CLAIMS 81

OFFICE USE ONLY

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations 3,992 Number of Readings 3,992

Station interval 50 feet Line spacing 400 feet

Profile scale Quadrature - 1 cm=10% ; Inphase - 1 cm=20%

Contour interval N/A

MAGNETIC

Instrument

Accuracy – Scale constant

Diurnal correction method

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument Geonics EM16 VLF instrument

Coil configuration

Coil separation

Accuracy ± 1%

Method: ☒ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency 17.8 kHz using NAA transmission station in Cutler, Maine, USA
(specify V.L.F. station)

Parameters measured Inphase and quadrature

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time Frequency

– Off time Range

– Delay time

– Integration time

Power

Electrode array

Electrode spacing

Type of electrode

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

_____

_____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

_____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

_____

Drainage Development _____

Estimated Range of Overburden Thickness _____

_____

_____

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

_____

_____

_____

General _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

ANALYTICAL METHODS

Values expressed in: per cent ☐
p. p. m. ☐
p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX II

CLAIMS COVERED BY ACTUAL TRAVERSING

658749	686208	686229
674017	686209	686230
674037	686210	686231
674038	686211	686232
674039	686212	686233
674040	686213	686234
674041	686214	686235
674042	686215	686236
674043	686216	686237
674044	686217	686238
674045	686218	686239
674046	686219	686240
675059	686220	686241
675060	686222	686242
675061	686223	686243
675063	686224	686244
675064	686225	686245
675065	686226	686246
675066	686227	686247
675068	686228	686256

CLAIMS COVERED BY AIR PHOTO INTERPRETATION

658750	701947	701954
675062	701948	701955
675067	701949	701956
701922	701950	701957
701944	701951	701958
701945	701952	701959
701946	701953	701960

Ministry of Natural Resources
Ontario

Technical Assessment Work Credits

File 2.7697

Date 1985 02 21

Mining Recorder's Report of Work No. 627

Recorded Holder: CASSEX RESOURCES LTD

Township or Area: WABIKOBA LAKE AND WHITE LAKE AREA (NORTH PART)

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	TB 658749
Electromagnetic 34 days	674017
Magnetometer ____ days	674037-38
Radiometric ____ days	674042-43
Induced polarization ____ days	674046
Other ____ days	675059-60
Section 77 (19) See "Mining Claims Assessed" column	675063 to 66 inclusive
Geological ____ days	675068
Geochemical ____ days	686208 to 14 inclusive
Man days ☐ Airborne ☐	686217 to 20 inclusive
Special provision ☒ Ground ☒	686222 to 25 inclusive
☒ Credits have been reduced because of partial coverage of claims.	686227 to 32 inclusive
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	686234 to 39 inclusive
	686241 to 47 inclusive
	686256

Special credits under section 77 (16) for the following mining claims

No credits have been allowed for the following mining claims

☒ not sufficiently covered by the survey

TB 658750
674039 to 41 inclusive
674044-45
675061-62
675067
686215-16
686226
686233
686240

☐ Insufficient technical data filed

TB 701922
701944 to 60 inclusive

NO CREDIT GRANTED FOR A MAGNETOMETER SURVEY.

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 80; Geological — 40; Geochemical — 40; Section 77 (19) — 60:

828 (83/6)

Land Management #627

Jan. 25th

t of Work
ophysical, Geological,
ochemical and Expenditures)

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

File 658749

Mining Act (CLAIM G-604)

nd geophysical surveys

Township or Area: Wabikoba Lake G-1560
White Lake (north part) G-622

Prospector's Licence No.: T1514

sources Ltd.

ear Avenue, Nepean, Ont. K2G 0A8

Company: onneuve Energy Materials Inc.

Date of Survey (from & to): 07 Day | 08 Mo. | 84 Yr. | 08 Day | 10 Mo. | 84 Yr.

Total Miles of line Cut: • 35

Name and Address of Author (of Geo-Technical report): Ian Judd-Henrey, B.Sc., RR#2, Barrys Bay, Ont. K0S 1B0
Scott McKee, B.Sc., 2362 Rembrandt Road, Ottawa, Ont. K2B 7P5

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical – Electromagnetic	• 40
	Geophysical – Magnetometer	• 20
For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical – Radiometric	
	Geophysical – Other	
	Geological	20
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical – Electromagnetic	
	Geophysical – Magnetometer	
	Geophysical – Radiometric	
	Geophysical – Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Prefix	E.M. Number	MAG	Expend. Days Cr.
TB	658749		
	658750		
	674017		
	674037		
	674038		
	674039		
	674040		
	674041		
	674042		
	674043		
	674044		
	674045		
	674046		
	675059		
	675060		
	675061		
	675062		
	675063		
	675064		
	675065		
	675066		
	675067		
	675068		

Prefix	E.M. Number	MAG	Expend. Days Cr.
	686208		
	686209		
	686210		
	686211		
	686212		
	686213		
	686214		
	686215		
	686216		
	686217		
	686218		
	686219		
	686220		
	686222		
	686223		
	686224		
	686225		
	686226		
	686227		
	686228		
	686229		
	686230		
	686231		

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures: $ ÷ 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

• Some work may be on file no. 2.6768

Total number of mining claims covered by this report of work: 31

For Office Use Only

Total Days Cr. Recorded: 5920

Date Recorded: Nov. 21, 1984

Recorded Holder or Agent (Signature): Audrey M. Denis

Date Approved as Recorded

Branch Director

O.K.

Date: November 20, 1984

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying
Scott McKee, B.Sc., 2362 Rembrandt Road, Ottawa, Ont. K2B 7P5

Date Certified: November 20, 1984

Certified by (Signature): Scott McKee

1362 (81/01)

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

Mining Act

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type(s): Magnetical and geophysical surveys

Township or Area: Wabikoba Lake
White Lake (north part)

Claim Holder(s): Essex Resources Ltd.

Prospector's Licence No.: T1514

Address: 98 Caesar Avenue, Nepean, Ont. K2G 0A8

Survey Company: Maisonneuve Energy Materials Inc.

Date of Survey (from & to): 07 | 08 | 84 (Day | Mo. | Yr.) to 08 | 10 | 84 (Day | Mo. | Yr.)

Total Miles of line Cut: • 35

Name and Address of Author (of Geo-Technical report): Ian Judd-Henrey, B.Sc., RR#2, Barrys Bay, Ont. K0S 1B0
Scott McKee, B.Sc., 2362 Rembrandt Road, Ottawa, Ont. K2B 7P5

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical · Electromagnetic	• 40
	Magnetometer	• 20
For each additional survey: using the same grid: Enter 20 days (for each)	Radiometric	
	Other	
	Geological	20
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical	
	Electromagnetic	
	Magnetometer	
	Radiometric	
	Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Prefix	Number	Expend. Days Cr.
	686232	
	686233	
	686234	
	686235	
	686236	
	686237	
	686238	
	686239	
	686240	
	686241	
	686242	
	686243	
	686244	
	686245	
	686246	
	686247	
	686256	
	701922	
	701944	
	701945	
	701946	
	701947	
	701948	
	701949	
	701950	
	701951	
	701952	
	701953	
	701954	
	701955	
	701956	
	701957	
	701958	
	701959	
	701960	

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits
Total Expenditures: $ ÷ 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

• Some work may be on file no. 2.6768

Total number of mining claims covered by this report of work.

For Office Use Only
Total Days Cr. Recorded
Date Recorded
Mining Recorder
Date Approved as Recorded
Branch Director

Date: November 20, 1984
Recorded Holder or Agent (Signature): Audrey M. Denis

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying
Scott McKee, B.Sc., 2362 Rembrandt Road, Ottawa, Ont. K2B 7P5

Date Certified: November 20, 1984
Certified by (Signature): Scott McKee

Ministry of Natural Resources
Ontario

Technical Assessment Work Credits

File 2.7697

Date 1985 02 21

Mining Recorder's Report of Work No. 627

Recorded Holder: CASSES RESOURCES LTD

Township or Area: WABIKOKA LAKE AND WHITE LAKE AREA (NORTH PART)

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	TB 658749-50 674017 674037-38 674040 to 43 inclusive 674046 675059 to 68 inclusive 686208 to 20 inclusive 686222 to 39 inclusive 686241 to 47 inclusive 686256 701944 to 60 inclusive
Electromagnetic _____ days	
Magnetometer _____ days	
Radiometric _____ days	
Induced polarization _____ days	
Other _____ days	
Section 77 (19) See "Mining Claims Assessed" column	
Geological 18 days	
Geochemical _____ days	
Man days ☐ Airborne ☐	
Special provision ☒ Ground ☒	
☒ Credits have been reduced because of partial coverage of claims.	
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

No credits have been allowed for the following mining claims

☒ not sufficiently covered by the survey ☐ Insufficient technical data filed

TB 674039
674044-45
686240
701922

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 80; Geological — 40; Geochemical — 40; Section 77(19)—60:

Ministry of
Natural
Resources

Ontario

Manitoulin

1985 02 21

Your File: 627
Our File: 2.7697

Mining Recorder
Ministry of Natural Resources
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

Dear Madam:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact Mr. R.J. Pichette at 416/965-4888.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3

F.D.K.D. Kinvig:mc

Encls.

cc: Cassex Resources Ltd
9B Caesar Avenue
Nepean, Ontario
K2G 0A8

cc: Scott McKee, B.Sc.,
2362 Rembrandt Road
Ottawa, Ontario
K2B 7P5

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

Ministry of Natural Resources

Ontario

Notice of Intent

for Technical Reports

1985 02 21

2.7697/627

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Land Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.

Mining Lands Section

File No 27697

Control Sheet

TYPE OF SURVEY

✓ GEOPHYSICAL

✓ GEOLOGICAL

____ GEOCHEMICAL

____ EXPENDITURE

MINING LANDS COMMENTS:

L.D. Lgd.

Dennis K.

Signature of Assessor

Feb. 13/85

Date

1985 03 18

Your File: 627
Our File: 2.7697

Mining Recorder
Ministry of Natural Resources
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

Dear Madam:

RE: Notice of Intent dated February 21, 1985
Geophysical (Electromagnetic) and Geological
Survey on Mining Claims TB 658749, et. al.,
in the Wabikoba Lake and White Lake Areas
(North Part)

The assessment work credits, as listed with the above-mentioned Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone:(416)965-4888

D. Kinvig:mc

cc: Cassex Resources Ltd
9B Caesar Avenue
Nepean, Ontario
K2G 0A8

cc: Scott McKee, B.Sc.,
2362 Rembrandt Road
Ottawa, Ontario
K2B 7P5

Encl.

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

cc: Resident Geologist
Thunder Bay, Ontario

Ministry of
Natural
Resources

Ontario

January 22, 1985.

Director,
Land Management Branch
Room 6643, Whitney Block
Queen's Park
TORONTO, Ontario
M7A 1W3

SUBJECT: Technical Data Reports - TB658749 et al

Enclosed please find technical data reports submitted by Cassex Resources Ltd. covering mining claims TB658749 et al. The report was submitted to your office under our file number #627.

RECEIVED
JAN 24 1985
MINING LANDS SECTION

A. Hayes

Audrey M. Hayes (Mrs.)
Mining Recorder
Thunder Bay Mining Division
Ontario Government Building
435 S. James Street
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

Telephone: (807) 475-1311

:cg

Encl.

RECEIVED
Land Management Branch
CIRCULATE ☐
COMMENTS PLEASE ☐
BY

JAN 24 1985

S. E. YUNDT	
J. R. MORTON	
J. C. SMITH	
W. L. GOOD	
M. J. HOGAN	
W. P. BROOK	

RETURN TO R. 6643

CASSEX RESOURCES LTD.

9B CAESAR AVENUE, NEPEAN, ONT. K2G 0A8 613 226 7598 / 7699

January 30, 1985

Mrs. Audrey M. Hayes
Mining Recorder
Thunder Bay Division
Ontario Ministry of Natural Resources
Ontario Government Building
435 S. James St.
P.O. Box 5000
Thunder Bay, Ont.
P7C 5G6

Dear Mrs. Hayes:

Re: File 658749

On January 15th, I sent you the geological and geophysical reports and the Technical Data Statement for 81 claims in the Wabikoba Lake and White Lake areas. One map was omitted from one of the reports. Enclosed is the Geological map-Western section (Figure 5, page 9) from Ian Judd-Henrey's report, "Geology of Theresa Lake Claims", December 10, 1984. This will make the report complete.

Yours sincerely,

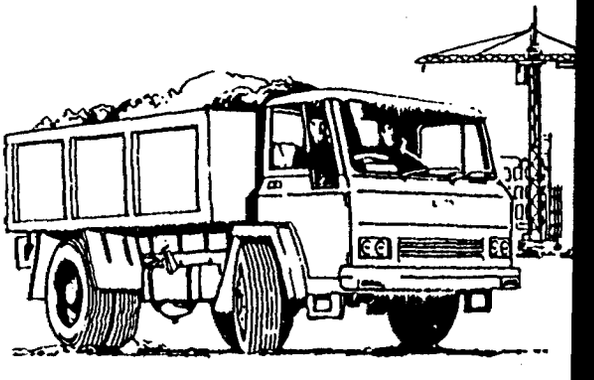
CASSEX RESOURCES LTD.

Audrey M. Denis

Audrey M. Denis
Secretary-Treasurer

Encl.

JAN 31 1985 PM



PRORATE E.M.

$\frac{10}{4} + \frac{13}{4} + \frac{10}{4} = \frac{33}{4}$

$14 + 20 + 15 = 49$

$(49 \times 40) \div (49 + \frac{33}{4}) = 34.24$ days.

PRORATE Geol.

$\frac{15}{4} + \frac{10}{4} + \frac{9}{4} = \frac{34}{4}$

$20 + 23 + 33 = 76$

$(76 \times 20) \div (76 + \frac{34}{4}) = 17.99$ days.

OLGA LAKE G-604

REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

S.R. — SURFACE RIGHTS M.R. — MINING RIGHTS

Description	Order No.	Date	Disposition	File

FLOODING RIGHTS ON WHITE LAKE AND RAVINE LAKE TO CONTOUR ELEVATION 1080.
H.E.P.C. OF ONTARIO, 26th FEB. 1952 — File 113980

REFERENCE

TOPOGRAPHY

LAKES, RIVERS, ETC., FROM FOREST RESOURCES INVENTORY SHEET No. **487853**

LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES:
  - TOWNSHIPS, BASE LINES, ETC.
  - LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES:
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◒
" , MINING RIGHTS ONLY	◓
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	◨
" , MINING RIGHTS ONLY	◧
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	ⓡ
CANCELLED	⊗
SAND & GRAVEL	Ⓢ

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 83, SUBSEC. 1.

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000

METRES 0 200 1000 (1 KM) 2000 (2 KM)

AREA

WHITE LAKE (north part)

M.N.R. ADMINISTRATIVE DISTRICT

TERRACE BAY/WAWA

MINING DIVISION

THUNDER BAY/SAULT STE. MARIE

LAND TITLES / REGISTRY DIVISION

THUNDER BAY

Ministry of Natural Resources — Lands Management Branch — Ontario

Date: FEBRUARY, 1982

Number: **G-622**

WHITE RIVER (south part) G-623

WABIKOBA LAKE G-620

KWINKWAGA LAKE G-

42C13SE0021 2.7697 WABIKOBA LAKE

200

REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+ S. – MINING AND SURFACE RIGHTS

	Description	Order No.	Date	Disposition	File
(S)	SEC. 36/80	W 28/83	20/10/83	S.R.O.	188541
R2	SEC 36/80	WMCR 22/84		S.R.O. WITHDRAWN	

SAND AND GRAVEL

(S) M.T.C. PIT 1441
(S) M.T.C. PIT 340
(S) M.T.C. PIT 1435
(S) M.T.C. PIT 341
(S) M.T.C. PIT 1364
(S) GRAVEL FILE 169979
(S) M.T.C. PIT 343
(S) M.T.C. PIT 344
(S) M.T.C. PIT 514
(S) M.T.C. PIT 1342
(S) GRAVEL FILE 145647

(Q) QUARRY PERMIT

BLACK RIVER G-580

LORNA LAKE G-598 (EXPUNGED)

WHITE LAKE (N. PT.) G-622

ROUS LAKE G-611

WHITE LAKE (S. PT.) G-623

BOMBY TWP. G-3173

BROTHERS TWP. G-3172

86°00' 59' 58' 57' 56' 55' 54' 53' 52' 51' 50' 49' 48' 47' 46' 85°45'

48°52'30" 52' 51' 50' 49' 48' 47' 46' 45' 44' 43' 48°43'00"

14 M 13 M 12 M 9 M 6 M PROJECTED LINE

M.E. CROUCH'S MERIDIAN

PAN L.

BLACK R.

PINEGROVE

DOTTED L.

DEAD R.

OTTER L.

BARBARA L.

BULLRING L.

VALLEY L.

LITTLE (E.) L.

WABIKOBA L.

MUSHER L.

SOLONG L.

ANWRI L.

CR

P 3268-32 ABANDONMENT

P 3268-40 ABANDONMENT

CLM 285

LEGEND

- HIGHWAY AND ROUTE No
- OTHER ROADS
- TRAILS
- SURVEYED LINES
  - TOWNSHIPS, BASE LINES, ETC
  - LOTS, MINING CLAIMS, PARCELS, ETC
- UNSURVEYED LINES
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LEASE, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LICENCE OF OCCUPATION	
ORDER IN COUNCIL	OC
RESERVATION	(R)
CANCELLED	
SAND & GRAVEL	(S)

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6 1913 VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970 CHAP. 380, SEC. 63, SUBSEC. 1

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000
METRES 0 200 1000 2000
1 KM 2 KM

AREA
WABIKOBA LAKE
M N R ADMINISTRATIVE DISTRICT
TERRACE BAY
MINING DIVISION
THUNDER BAY
LAND TITLES / REGISTRY DIVISION
THUNDER BAY

Ministry of Natural Resources — Land Management Branch
Ontario
Nov. 15, 1984

Date AUGUST 1984
Number G-620

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
NORTHEASTERN SECTION

Filtered in-phase map using modified
Fraser technique (1969)
Data collected with Geonics EM-16 system
Contour interval 10 ——
50 ——
Claim boundary —·—

Scale
200 0 200 400ft.

by D. Scott McKee, B.Sc.(Hon.)
Scott McKee

686246
686247
686245
686244
686247
686244
686227
686226
686261
686215
686216
686214
686213
686217
686220
674017
686220
686239
686238
686237
686229
686228
686230
686227
686223
686208
686209
674044
A
B
C
D
E
F
G
H
I
J
Cutler
Maine
LITTLE LAKE THERESA
PROPERTY
LIMIT
LAKE THERESA

Figure 3

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
NORTHEASTERN SECTION

Geological map

LEGEND

- Diabase
- Granodiorite
- Mafic volcanics
- Geological boundary
- Claim boundary

Scale
200 0 200 400ft.

Drafted by D. Scott McKee, B.Sc. (Hon.)
Scott McKee

Approved and verified by Ian Judd-Henrey, B.Sc. (Hon.)

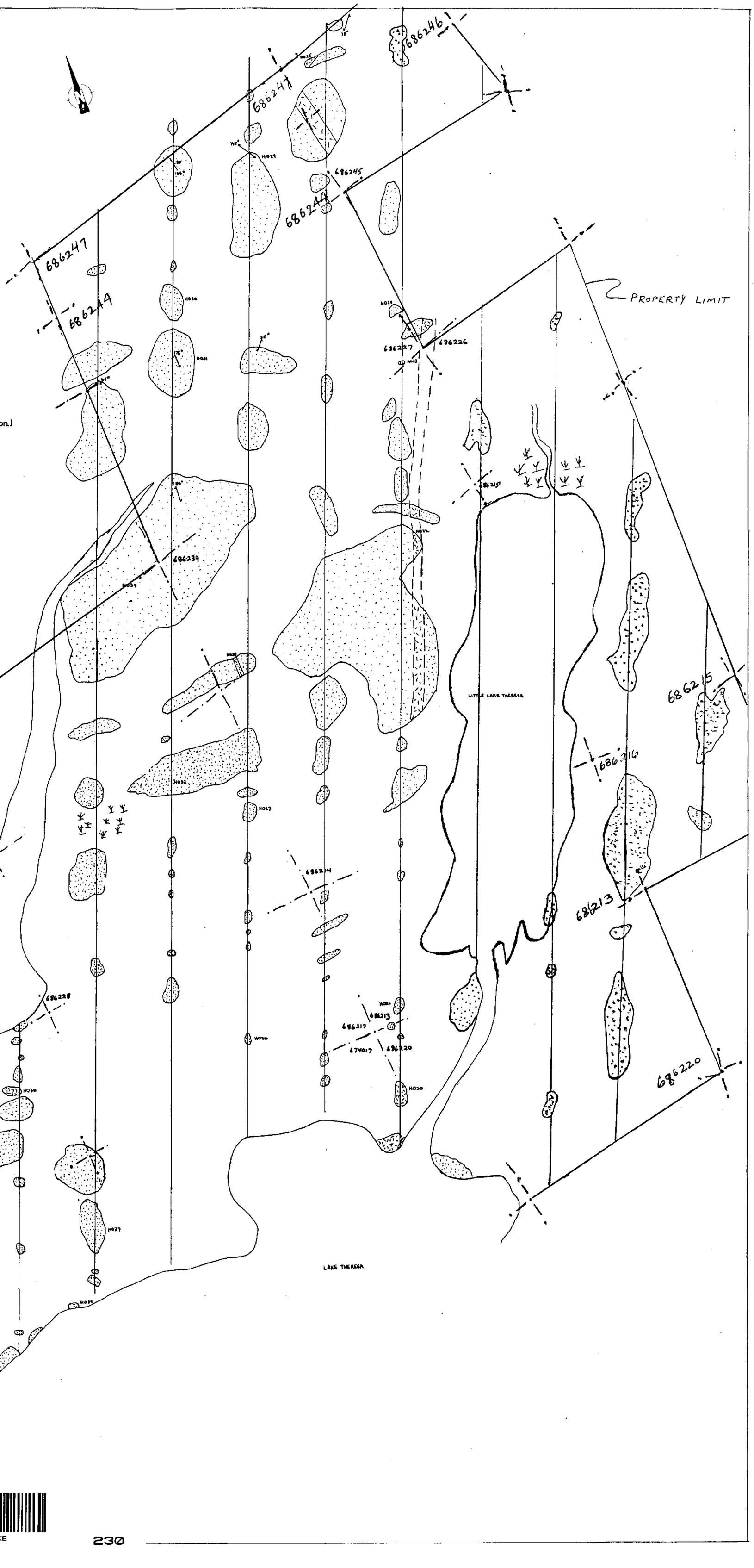


Figure 3

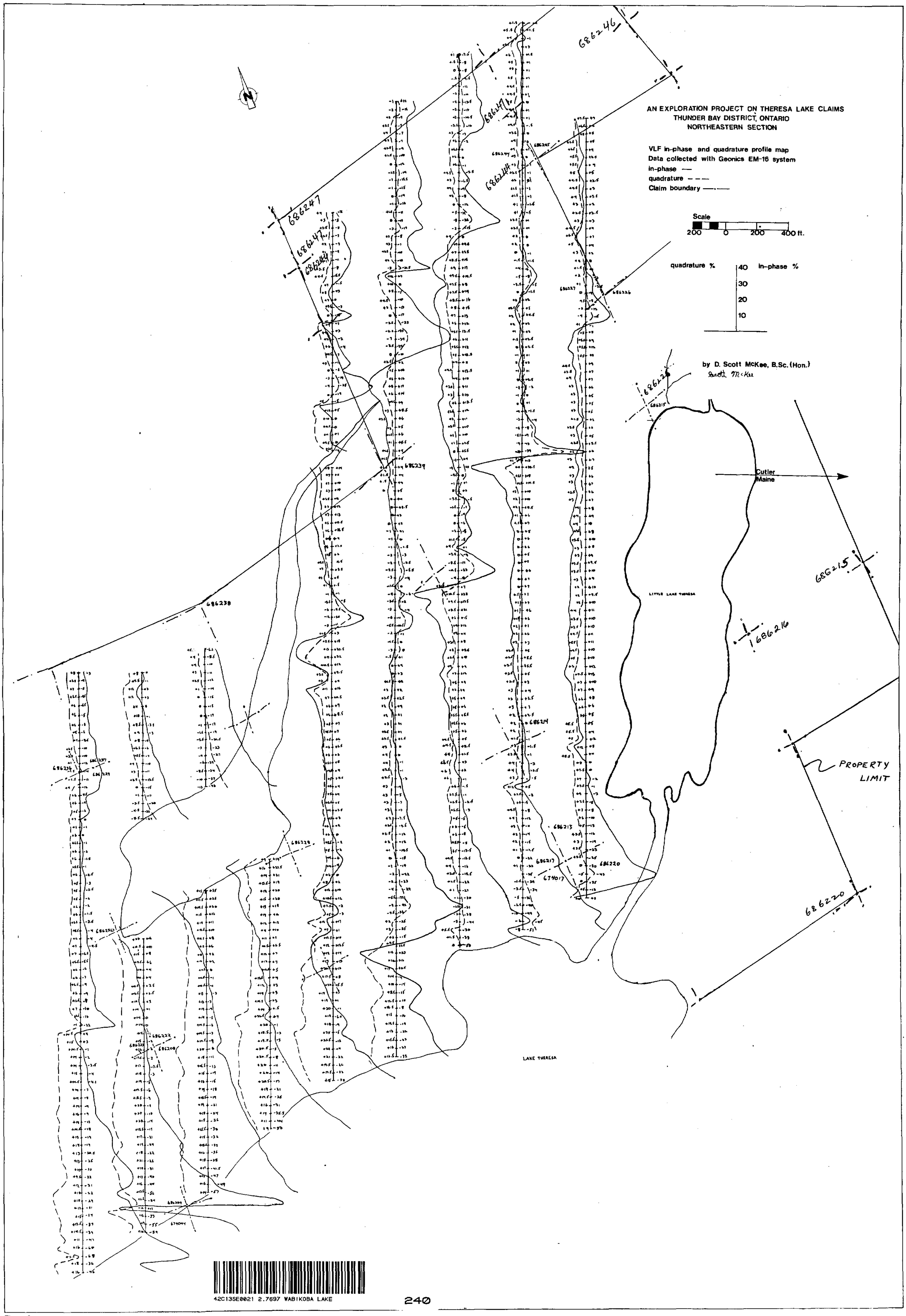


Figure 2

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
NORTHEASTERN SECTION

Filtered quadrature map using modified
Fraser technique (1969)
Data collected with Geonics EM-16 system
Contour interval 10 ——
Claim boundary —·—

Scale
200 0 200 400ft.

by D. Scott McKee, B.Sc.(Hon.)
Scott McKee

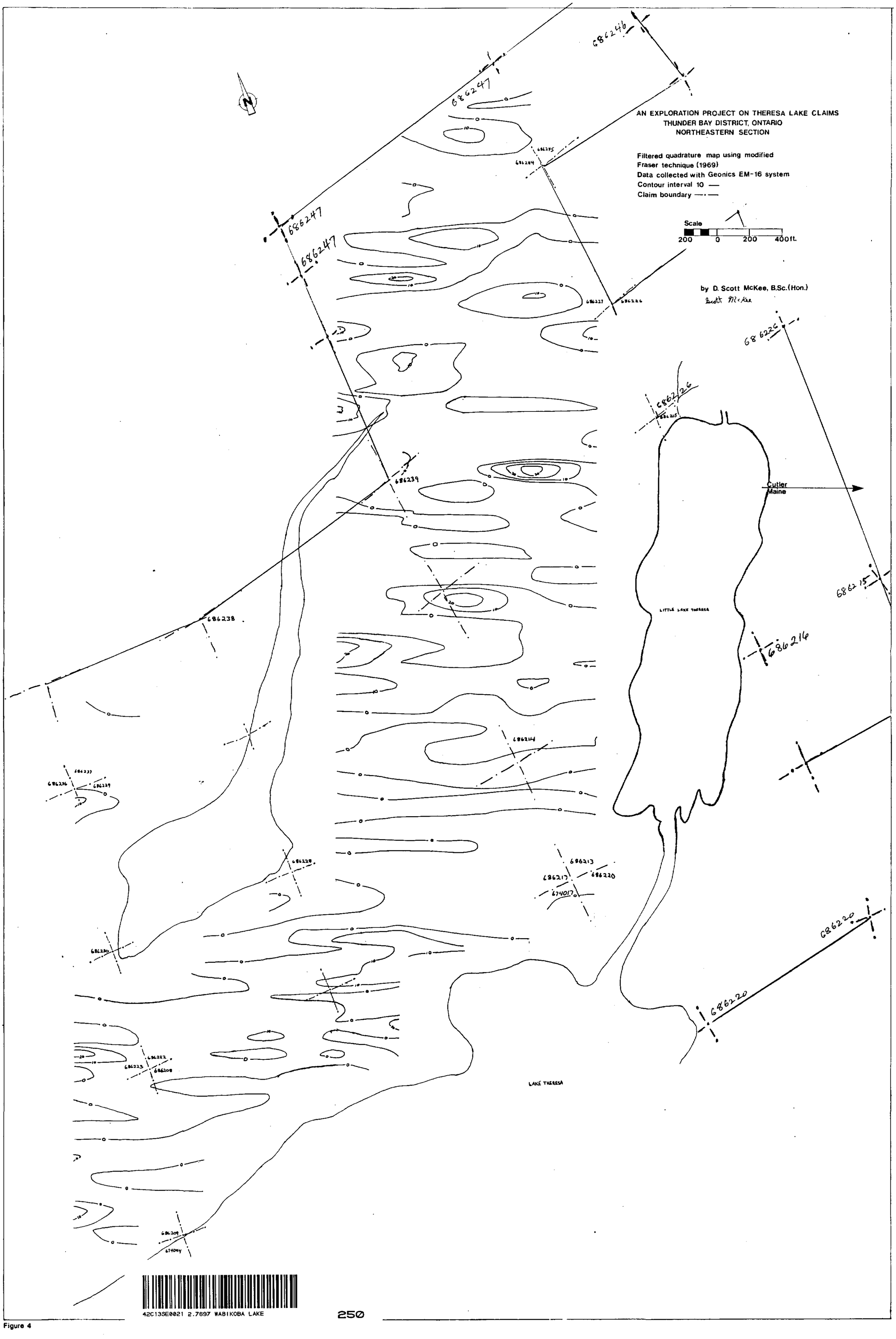


Figure 4

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
CENTRAL SECTION

Geological map

LEGEND

- Diabase
- Porphyritic granodiorite
- Granodiorite
- Gabbro
- Chloritic schist
- Porphyritic andesite
- Dacite
- Basalt
- Micropegmatite
- Peridotite
- — — Fault
- —·— Claim boundary

Scale
200 0 200 400 ft.

Drafted by D. Scott McKee, B.Sc. (Hon.)
Scott McKee

Approved and verified by Ian Judd-Henrey, B.Sc.(Hon.)

Figure 4

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
CENTRAL SECTION

Filtered in-phase map using modified
Fraser technique (1969)
Data collected with Geonics EM-16 system
Contour interval 10 ——
Claim boundary —·—

Scale
200 0 200 400ft.

by D. Scott McKee, B.Sc.(Hon.)
Scott McKee

Cutler
Maine

LAKE THERESA

PROPERTY LIMIT

PROPERTY LIMIT

BASELINE

BASELINE

Figure 9

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
CENTRAL SECTION

Filtered quadrature map using modified
Fraser technique (1969)
Data collected with Geonics EM-16 system
Contour interval 10 ——
Claim boundary —·—

Scale
200 0 200 400 ft.

by D. Scott McKee, B.Sc. (Hon.)
Scott McKee

Cutler
Maine

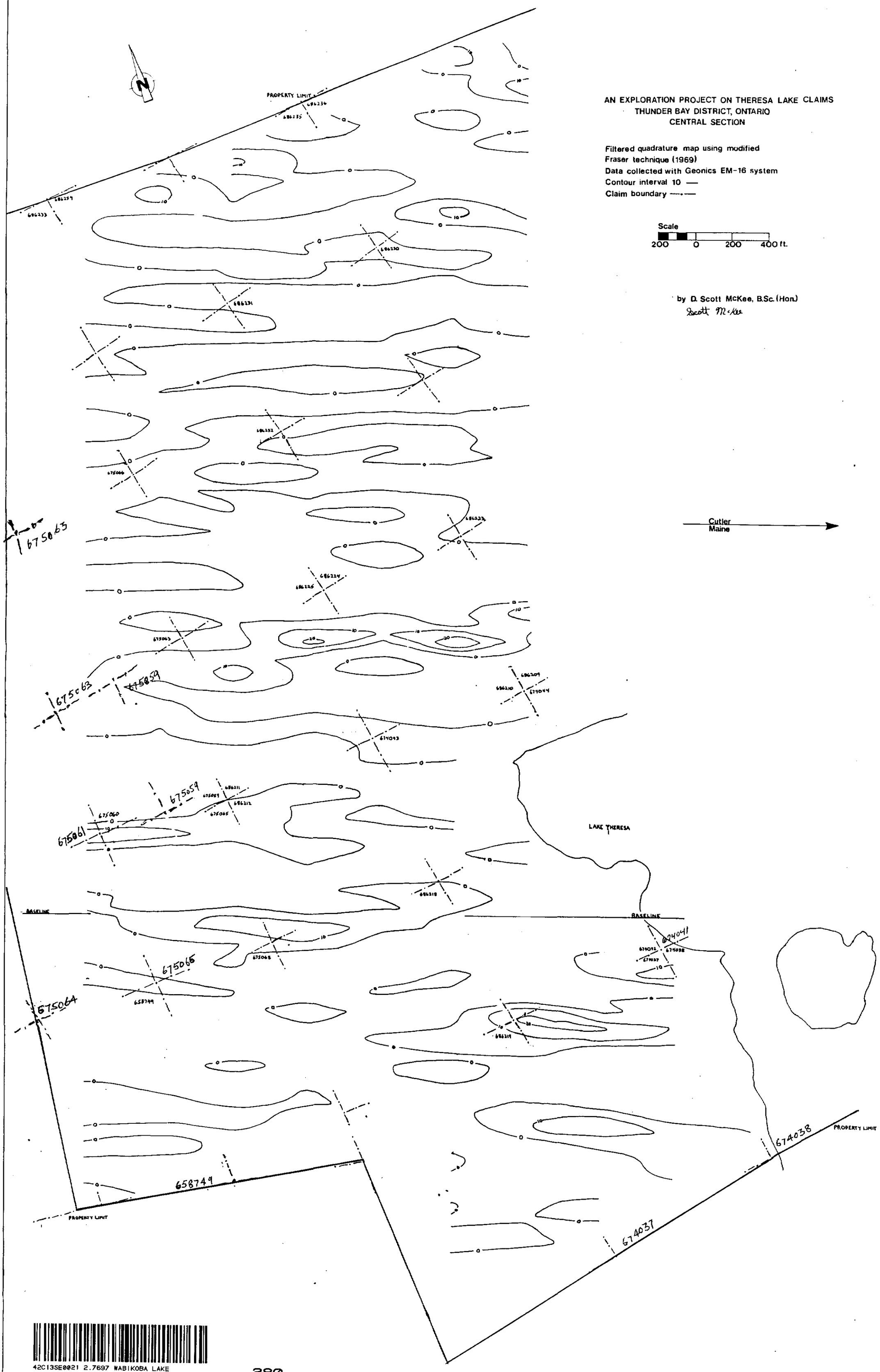


Figure 10

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS
THUNDER BAY DISTRICT, ONTARIO
CENTRAL SECTION

VLF in-phase and quadrature profile map
Data collected with Geonics EM-16 system
in-phase ——
quadrature – – –
Claim boundary —·—

Scale
200 0 200 400 ft.

quadrature % +40 in-phase %
+30
+20
+10

by D. Scott McKee, B.Sc.(Hon.)
Scott McKee

Cutler
Maine

PROPERTY LIMIT

BASELINE

LAKE THERESA

BASELINE

PROPERTY LIMIT

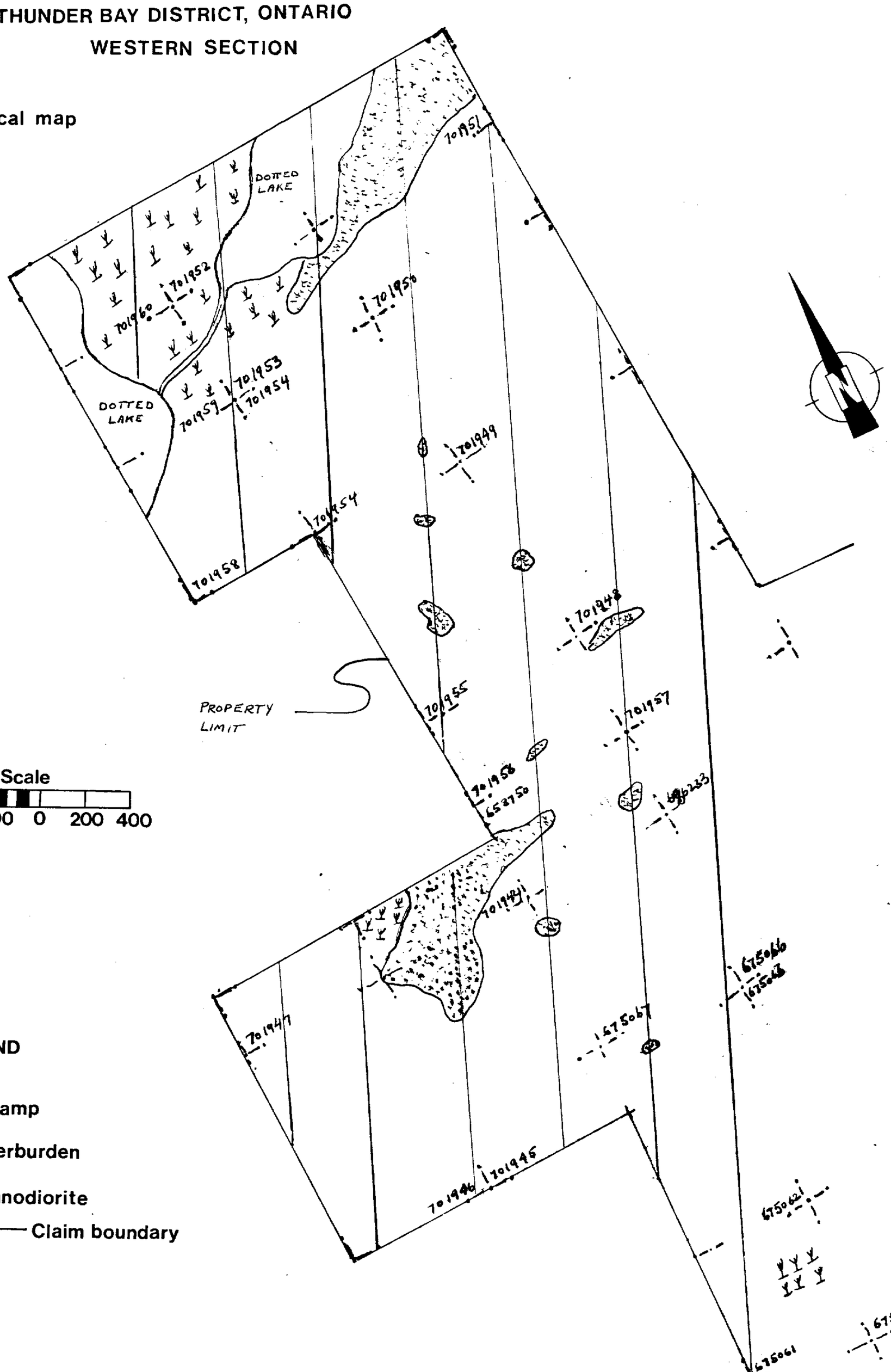
Figure 8

AN EXPLORATION PROJECT ON THERESA LAKE CLAIMS

THUNDER BAY DISTRICT, ONTARIO

WESTERN SECTION

Geological map



Scale

200 0 200 400

LEGEND

Swamp

Overburden

Granodiorite

Claim boundary

Interpreted by S. K. Singh, Ph.D.

S. K. Singh

42C13SE0021 2.7697 WABIKOBA LAKE

300

Figure 5