



42B01NW0081 83.1035 KEITH

010

12 1025
AUTOPOSITIVES FILED SEPARATELYINTRODUCTION

The occurrence of magnetite in the Grountheq River area has been known for many years. Willet G. Miller first examined the deposits in 1902 for the Ontario Department of Mines and the area was mapped in 1924 by E. V. Todd and in 1937 by V. D. Harding both of whom show the iron band on their maps. More recently (1947, 1948), V. K. Prest¹ mapped Keith and Muskogee townships in detail following the gold discoveries in that area, and with the aid of magnetometer surveys, showed the main iron band to extend westward for about 8 miles from the west boundary of Penherwood township.

Not until the development of efficient methods of concentrating low-grade siliceous magnetites and the increasing popularity in steel-making of the high-grade pellets produced from them in recent years, did the Grountheq River deposits become of economic importance. In 1937 and 1938 however Kukatash Mining Corporation acquired claims in Penherwood township where by drilling and magnetometer surveying a large body of concentrating ore has been outlined. Cleveland Cliffs holds a group of claims straddling the Grountheq River and adjoining Kukatash on the west.

By dip-needle reconnaissance, the trend of the magnetite bands to the west of Cleveland Cliffs property was determined and a large block of claims was staked to cover them by Kukatash Mining Corporation.

In order to assess the potential of these claims and direct future exploration and development a detailed vertical magnetometer survey was carried out in September, October and November of 1958. The results of this survey are discussed in the following pages.

1. Prest, V. K., Ont. Dept. Min. Vol. 59, Pt. 7, 1950

PROPERTY, LOCATION, ACCESS

GROUNDHOG

The Keith township property of ~~Kukatash Mining Corporation~~ Limited consists of the following 67 unpatented claims:

S 107495 to 107500 inclusive
S 107912 to 107966 inclusive
S 107995 to 107995 inclusive
S 111572 to 111574 inclusive

These are located in the north-central portion of Keith township, District of Sudbury, Ontario. The claims occur in a single block extending for a distance of about 5 miles across the township.

The claims may be reached either from Joburke or Palomar stations on the main line of the Canadian National Railway which skirts the east boundary of claim S 111572. A good trail leads from the railway about 5/4 mile south of Palomar to MacKeith Lake. The Joburke mine at the west end of MacKeith Lake can then be reached by canoe. Alternatively a truck road, still usable, leads from Joburke station to the mine. Palomar may be reached by car from 101 highway.

From Joburke mine a disused road continues westward to the Garnet, Wejack and Concord camps providing a good pack trail across the Kukatash claims.

SURVEY PROCEDURE

Magnetometer work consisted of semi-detailed magnetic surveying on north-south lines spaced at 400-foot intervals. Readings were taken at 50 or 25-foot intervals as required to ensure that no significant magnetite band would be overlooked.

Significant anomaly zones indicated by this work were then covered in detail on lines spaced at 100-foot intervals.

A Sharpe Model A5 magnetometer was employed in this work as it is particularly well adapted in areas of iron formation, having a range of over 1,000 gammas.

Readings were converted to gammas and plotted at a scale of 200 feet to the inch for the semi-detailed work on two sheets numbered K200 East and K200 West. Detail work on anomaly maps was plotted at 100 feet to the inch on sheet K100. Profiles at a scale of 10,000 gammas to the inch were drawn for all north-south lines.

In all, 85.72 miles of line were out and surveyed.

GEOLOGY

The geological conditions in Keith township have been mapped in detail and described by Dr. V. K. Frost (Op. Cit.).

Outcrops are relatively abundant in the eastern half of the Kukatush property but are virtually non-existent west of line 76W.

Iron formation occurs within a wide belt of Keweenaw volcanic rocks (with a narrow band of sediments about 2 miles north of the Kukatush property) which extends in an east-west direction across Kenogaming, Penhorwood, Keith and Ivanhoe townships.

Mainly on the basis of outcrop information, Frost has interpolated and extrapolated several continuous bands of magnetic iron formation across the area. As will be shown below, detailed magnetometer work indicates that there is one main band of iron with some very narrow, discontinuous, parallel zones.

An examination of outcrops in S 107925 showed distinctly banded magnetite and quartz with a rather granular texture. Banding here trends north of east and dips steeply to the north.

Prest mentions the occurrence of banded hematite formation at both ends of MacKeith Lake. This was not observed on the Kidnash claims. Both the minor bands and the main band (as Prest mentions) are strongly magnetic across the claims.

Intruding volcanics and iron formation and intruding some complexity are sills of quartz-diorite, diorite and gabbro; to the north of the iron formation several large serpentinite intrusives give rise to moderately strong magnetic anomalies.

As a result of observations in the outcrop area in S 107925 and experience with similar banded magnetites in other areas, interpreted contacts have been drawn which are intended to represent the boundaries of magnetite mineralization of economic significance. No doubt, occasional narrow bands of low-grade material may not be indicated due to the scale of the work, or non-magnetic iron oxides or carbonates could be present which, of course, would not be detected.

RESULTS OF THE GEOMAGNETIC SURVEY

As shown on the accompanying geomagnetic profile maps, significant anomalies (that is, anomalies with significant lateral extent and magnetic intensity) are of two types.

1. Wide, fairly uniform anomalies with magnetic relief ranging from 1,500 to slightly over 5,000 gammas.
2. Narrow, linear very intense anomalies with peak values in places over 150,000 gammas. One of these is continuous for thousands of feet.

Serpentinite

From correlation with geological information and from experience in the Thetford Mines, Murro and other asbestos areas, it is obvious that anomalies of the first type are due to the presence of serpentinite carrying appreciable but non-economic concentrations of magnetite (about 6% Fe_2O_3).

Three large bodies of serpentinite were outlined and smaller occurrences may be indicated by magnetic aberrations in claims S 107945, 107946 and 107960 (K200 west).

Magnetite

The narrow intense anomalies are due to banded siliceous magnetite.

With the exception of a very narrow and weak band of no economic significance in claims S 107995 and 107994, such anomalies are confined to the eastern half of the property. Here the main band was traced in a south of west direction for over three miles from the east boundary of S 107495 to the north boundary of S 107925.

The band, as indicated by the magnetic anomalies ranges in width from about 30 to over 160 feet averaging about 70 feet. Despite the narrow widths a considerable tonnage potential is therefore represented on the Kukatush and claims adjoining on the south. This might be augmented by a narrow (possibly 60 feet wide) parallel band lying about 100 feet north of the main band in S 107932. This band may continue south of the Kukatush boundary across patented claims 43267, 43264, 43261 to join up with the anomaly at the south end of line 28 in 107915.

Other minor and discontinuous bands of no significance are indicated in S 107931, 107923. The southern band in S 107925 may continue south of the Kukatush boundary to join the weak zone which occurs in S 107995 (K200 West) as indicated by Prest.

As shown on sheet K100 the main band has local irregularities or even discontinuities in strike which are due to minor folding or faulting. Thickening of the band likewise would appear to be due to repetition by folding.

CONCLUSIONS AND RECOMMENDATIONS

Detailed magnetic surveying of the Keith township group has defined the extent and configuration of the bands of banded magnetite and has shown these to be confined almost exclusively to the eastern half of the property.

Although the band is narrow, the material comprising it appears to be somewhat coarser and more granular than usual. The band can be traced for some 5 miles on or adjacent to the Kukatush property so that an appreciable tonnage of concentrating ore appears to be present which could prove to be a valuable reserve for the Radio Hill deposit.

The following recommendations are made:

1. Retain and concentrate future work on the following claims:
S 107923, 107928, 107927, 107937, 107926, 107936, 107931, 107932, 107933,
107912, 107915, 107914, 107915, 107499, 107500, 107497, 107498, 107495,
107496, 111572.

2. Diamond drilling as follows: 2,400 feet to give 120 days or 5 years assessment credit on each of the above claims. Holes should be drilled at -45° northwest-southeast normal to the trend shown in K200.

- 7 -

Holes 200 feet long or less will be sufficient but occasional deep holes should be drilled in section to check on the dip.

Cores should be tested and analyzed in the usual way.

3. In performance of this work plus a claim survey application may be made to patent the claims which can then be held as an in situ reserve.

Respectfully submitted,

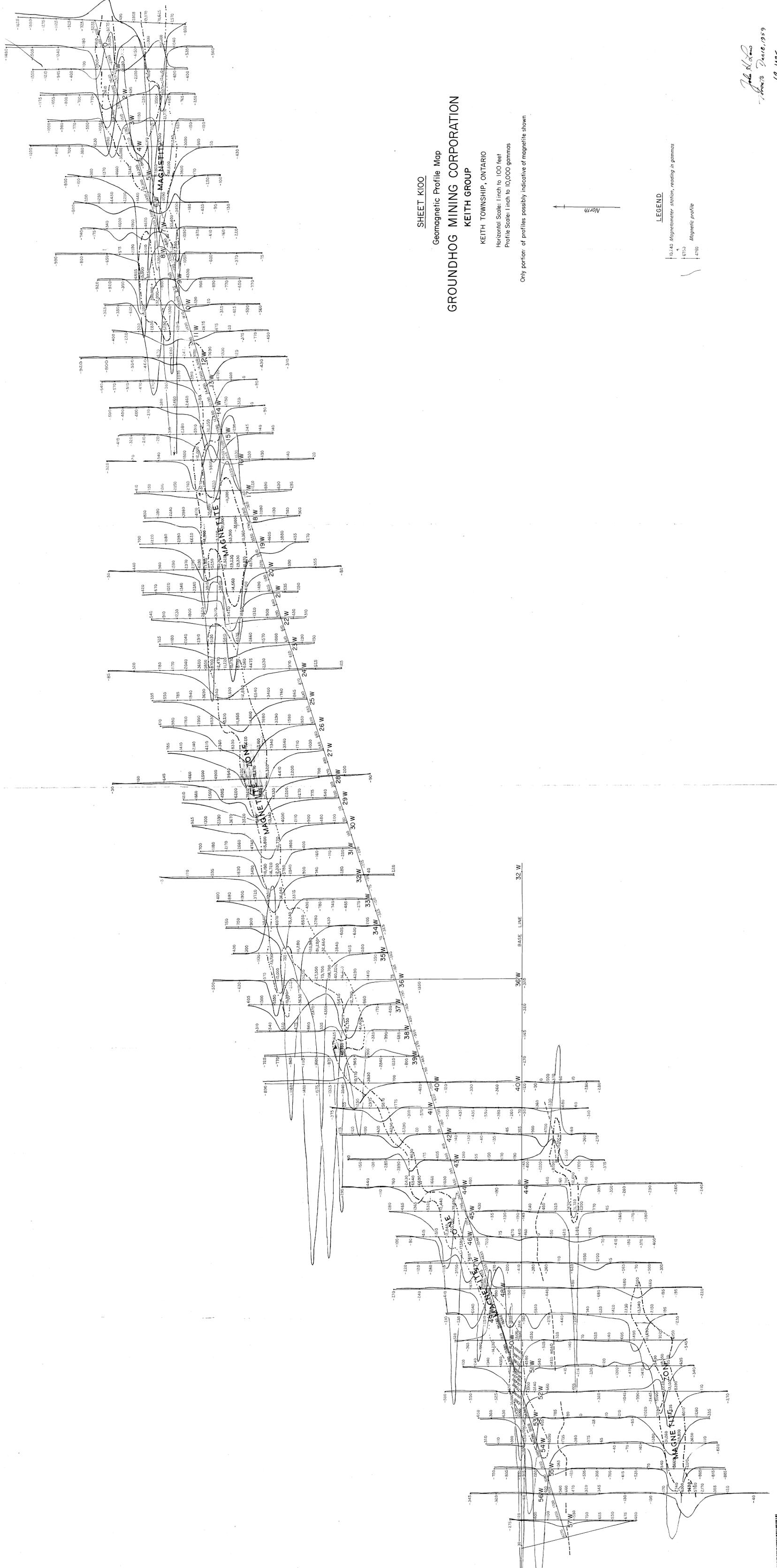
Law and Morrow

John H. Law

John H. Law

Toronto, Ontario
December 10, 1951

*Autopositives stored
in separate drawer*



SHEET K100

Geomagnetic Profile Map

GROUNDHOG MINING CORPORATION

KEITH GROUP

KEITH TOWNSHIP, ONTARIO

Horizontal Scale: 1 inch to 100 feet

Profile Scale: 1 inch to 10,000 gammas

Only portion of profiles possibly indicative of magnetite shown



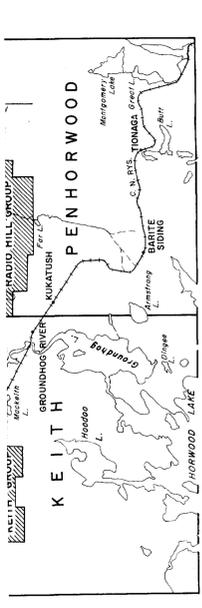
LEGEND

10.40 Magnetometer station, reading in gammas

Magnetic profile

John H. Lee
 1959
 63. 1035

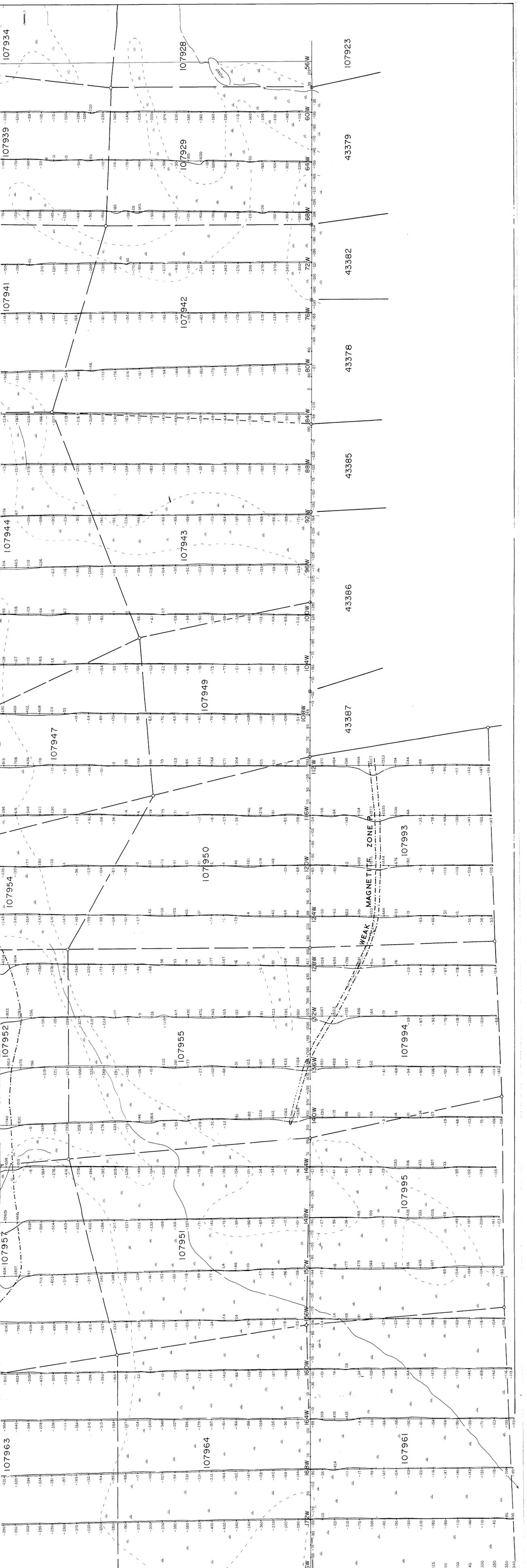




LOCATION MAP SHOWING PROPERTIES OF KUKATUSH MINING CORPORATION
SCALE: 1 INCH TO 2 MILES

SHEET K200 WEST
Geomagnetic Profile Map
GROUNDHOG MINING CORPORATION
KEITH GROUP
 KEITH TOWNSHIP, ONTARIO
 Horizontal Scale: 1 inch to 200 feet
 Profile Scale: 1 inch to 10,000 gammas

Only portions of profiles possibly indicative of magnetite shown



LEGEND
 10,240 Magnetometer station, reading in gammas
 6750
 4760
 Magnetite profile