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GEOPHYSICAL SURVEY
PELICAN MINES LIMITED
MACBETH TOWNSHIP
SUDBURY MINING DIVISION
ONTARIO

March 31, 1975

J. D. McCANNELL

The Directors
Pelican Mines Limited
Suite 520
25 Adelaide Street East
Toronto, Ontario

Gentlemen:

This report describes the results of a magnetometer survey conducted over the entire nineteen mining claims held by your Company and located in MacBeth Township, Ontario. MacBeth Township is approximately 34 miles northeast of Sudbury and can be reached via highway 805 which leads northwest from the town of Field. A limited amount of electromagnetic work was carried out in conjunction with the magnetometer survey.

A small part of the claims group was covered by a magnetometer survey in December 1974 in an effort to indicate whether or not iron formation might be present on the property. This preliminary work showed a strong magnetic anomaly at the southeast end of cucumber Lake and was considered a reasonable indication of iron formation. Iron Formation is geologically significant in this general area, as it sometimes acts as a host rock for gold bearing siliceous zones carrying considerable pyrite.

The magnetometer survey conducted over the entire claims group showed a strong magnetic anomaly striking east-west through the south part of the property and swinging slightly north of west as it approaches the west boundary of the claims group. This magnetic anomaly is interpreted as indicating a band of iron formation extending for one mile across your Company's ground and the electromagnetic observations made over the strongest parts of the anomaly showed four zones of quite strong conductivity which could reflect zones of sulphide mineralization associated with the iron formation.

J. D. McOANNELL

An old trench just off the northwest end of this anomaly shows pyrite mineralization in a siliceous iron formation and a sample of the better mineralized material returned an assay of 0.28 ounces of gold per ton.

It is now recommended that Pelican Mines Limited proceed with phase II of the writer's original report on this claims group and which called for a minimum of 1,000 feet of diamond drilling. The estimated cost for this initial drilling is \$16.00 per foot which exceeds the original estimate by three dollars per foot.

PROPERTY, LOCATION AND ACCESS

The property discussed in this report consists of a group of 19 mining claims, located in MacBeth Township, Sudbury Mining Division, Ontario. The claims included in the group are numbered as follows: 402356 to 402367 inclusive and 424270 to 424276 inclusive. The township is unsurveyed and some of the claims included in the group are considerably oversized with the result that the total acreage is approximately 1,000 rather than 760 acres.

MacBeth Township is located 34 miles northeast of Sudbury and 25 miles due north of Warren on highway 17. The claims group is readily reached from the town of Field on highway 64, via highway 805 which passes through the village of Desaulniers and swings north from the CNR line at Glen Afton. At a point 14.2 miles north of Glen Afton, a gravel road leads west and passes to the south of Arcand Lake. From the junction of this road and highway 805, it is approximately one mile to the southeast part of the claims group. The distance from Field is 32 miles.

TOPOGRAPHY

The topography of the general area is fairly rugged although

the immediate area of the claims group is quite flat with only occasional low outcrop hills and boulder ridges. There is considerable high ground and gabbro outcrop hills in the north central and northeast parts of the property, otherwise the claims are covered by a fairly heavy mantle of glacial sand and boulder till with only sparse exposures of bedrock and a reasonably heavy growth of large deciduous timber.

Cucumber Lake, a long narrow lake extending in a north-south direction, covers about half of five claims in the west part of the property. A second small body of water, Arcand Lake, lies just off the southeast corner of the claims group.

GENERAL GEOLOGY

The general geology of MacBeth Township is shown on an uncoloured preliminary map, P.834, published by the Ontario Division of Mines in 1973 on the scale of one inch to 1/4 mile. This sheet was issued in conjunction with preliminary map P.833 covering Afton Township which adjoins MacBeth on the north. Both sheets are accompanied by quite detailed marginal notes which provide a good description of the underlying geology of the two townships.

The area is underlain by rocks of Precambrian age, the oldest being metavolcanics with some associated sediments, all belonging to the Archean. These rocks are overlain by Huronian sediments with sills of younger Nipissing gabbro and diabase. All these older formations are cut by dikes of Keweenaw diabase which usually strike in a northwest direction and often extend for several miles.

The early metavolcanics consist mainly of rhyolitic flows

and pyroclastics with some more basic volcanics. They sometimes include highly altered sediments with occasional narrow bands of well bedded iron formation. This iron formation is largely made up of chert, jasper and magnetite and sometimes provides the host rock for gold bearing quartz veins in the area. These bands of iron formation appear to favour the more acidic volcanics.

The early Archean metavolcanics and associated sediments form the basement rocks in the area for an overlying series of Huronian sediments consisting mainly of Gowganda conglomerates and silts. These sediments were intruded by sills of Nipissing gabbro and diabase which now overly the flat lying Gowganda sediments. Both are highly eroded with occasional small exposures of the older rocks projecting through the Huronian and Nipissing formations such as the volcanic outcrops 1/4 mile north of claim 402362.

The Gowganda sediments and Nipissing gabbros are confined to the north central and northeast part of the claims group discussed in this report. Although the remainder of the property consists either of water claims or overburdened area, that part of the ground appears to be underlain by rhyolites and sediments of the metavolcanic group. Iron formation with quartz veining and some pyrite, is exposed in trenching at the south end of Cucumber Lake in the southwest corner of the present claim 402366. It is possible that shallow stripping would expose more rock in this part of the claims group as there are areas where the overburden does not appear to be very deep.

PREVIOUS WORK

The present claims group discussed in this report, formerly

formed a part of a group held by W. Nichol of North Bay, Ontario and optioned to Little Long Lac Gold Mines Limited in August of 1960. The Nichol claims included ground north of the present group and covered a zone of gold bearing quartz veining associated with metavolcanics outcropping on the east shore of Cucumber Lake. This zone had been traced for a distance of 225 feet in an easterly direction from the lake by a series of eight trenches. E.H. Spencer, who was in charge of the work on the property for Little Long Lac Gold Mines Limited, sampled the trenches and his sample plan, which was filed for assessment work, shows some appreciable gold values over narrow widths. The highest of the assays, was 1.76 ounces of gold per ton across a width of one foot. Little Long Lac Gold Mines Limited followed this sampling with a limited diamond drilling program with five short holes being drilled for a total footage of 210.4 feet. The logs of these drill holes show only low gold values with the best assay being 0.21 ounces per ton for a core length of 0.9 feet. A search of the assessment work files and the records on file at the office of Little Long Lac Gold Mines Limited did not indicate any diamond drilling having been carried out on any part of the claims group discussed in this report. In fact, the only diamond drilling that appears to have been carried out in the immediate area, were the five short holes mentioned above.

In the spring of 1961, Little Long Lac Gold Mines Limited had two prospectors on the Nichol claims, working under the supervision of E.H. Spencer. They apparently concentrated their work around the south end of Cucumber Lake where Spencer in the fall of 1960 had obtained an assay of 0.28 ounces of gold per ton across

a width of four feet in silicified iron formation carrying some pyrite. There is presently some evidence of old trenching in this area but because of extensive caving, considerable work would have to be done to expose fresh rock. Rock exposures are very sparse in this part of the claims group.

In December 1974, a limited amount of magnetometer work was carried out in this immediate area under the supervision of the writer. This was done in an effort to determine whether high magnetic readings could be obtained in the vicinity of the old trenches and which might indicate the presence of iron formation. This work covered claims 424270, 424271 and most of 402366 and showed a fairly strong magnetic anomaly extending in a northwest and southeast direction from the trenched area. The intensity of the readings and the shape of the anomaly was believed to indicate the presence of a narrow band of iron formation and it was recommended that the magnetometer program be extended to cover the entire claims group.

GEOPHYSICAL SURVEY

A magnetometer survey was conducted over the entire nineteen mining claims covered by this report. This work was carried out during the period February 20th to March 31st, 1975. A limited amount of electromagnetic surveying was also completed in conjunction with the magnetometer work.

North-south traverse lines were cut at 200-foot intervals to provide control and stations were established at 100-foot intervals along these lines. The magnetometer readings were taken with a Scintrex MF-1 instrument and the electromagnetic observations were made using a Geonics EM-16 instrument. It required a total

of 41 miles of lines including base and tie lines to cover the entire property. Thirty nine miles of line were surveyed by the magnetic method and 4 miles by the electromagnetic. The electromagnetic work was confined to checking the higher magnetometer readings.

The magnetometer survey work showed a strong continuous anomaly extending southeast from the south end of Cucumber Lake, starting at the number 3 post of claim 402366 and continuing across claim 424270. At the east boundary of this claim, the anomaly swings about due east through claims 424272 and 424275 to the east boundary of the property. It forms a narrow linear trend and has a length on the claims group of 5,300 feet. The magnetometer readings along this anomaly are as high as 13,500 gammas against a background of 500 to 600 gammas. The electromagnetic observations were made in the areas of the higher magnetic readings and these showed quite strong conductivity associated with the strong magnetics. A total of four conducting zones in all were indicated, three along strike and one parallel. These varied in length from 600 to 1,400 feet and it is possible that more electromagnetic readings should have been taken but because of the oversized claims, the original estimated cost of the work had already been greatly exceeded. The relatively higher magnetic readings, (about twice background) in the north central and northeast parts of the claims group probably reflect the underlying Nipissing gabbro sill outcropping in that part of the property.

CONCLUSIONS AND RECOMMENDATIONS

The strong magnetic anomaly extending in a general east-west

direction through the south part of the claims group is believed to indicate the presence of a band of iron formation. The strong conductivity indicated by the electromagnetic survey suggests zones of sulphide mineralization associated with the iron formation.

The results of this geophysical work can be considered very encouraging especially as gold is known to occur, associated with pyrite mineralization, in siliceous iron formation at the extreme northwest end of this magnetic anomaly. The numerous old trenches in this part of the claims group suggest that some encouragement must have resulted from previous exploration work on this ground and for which there are no existing records on file.

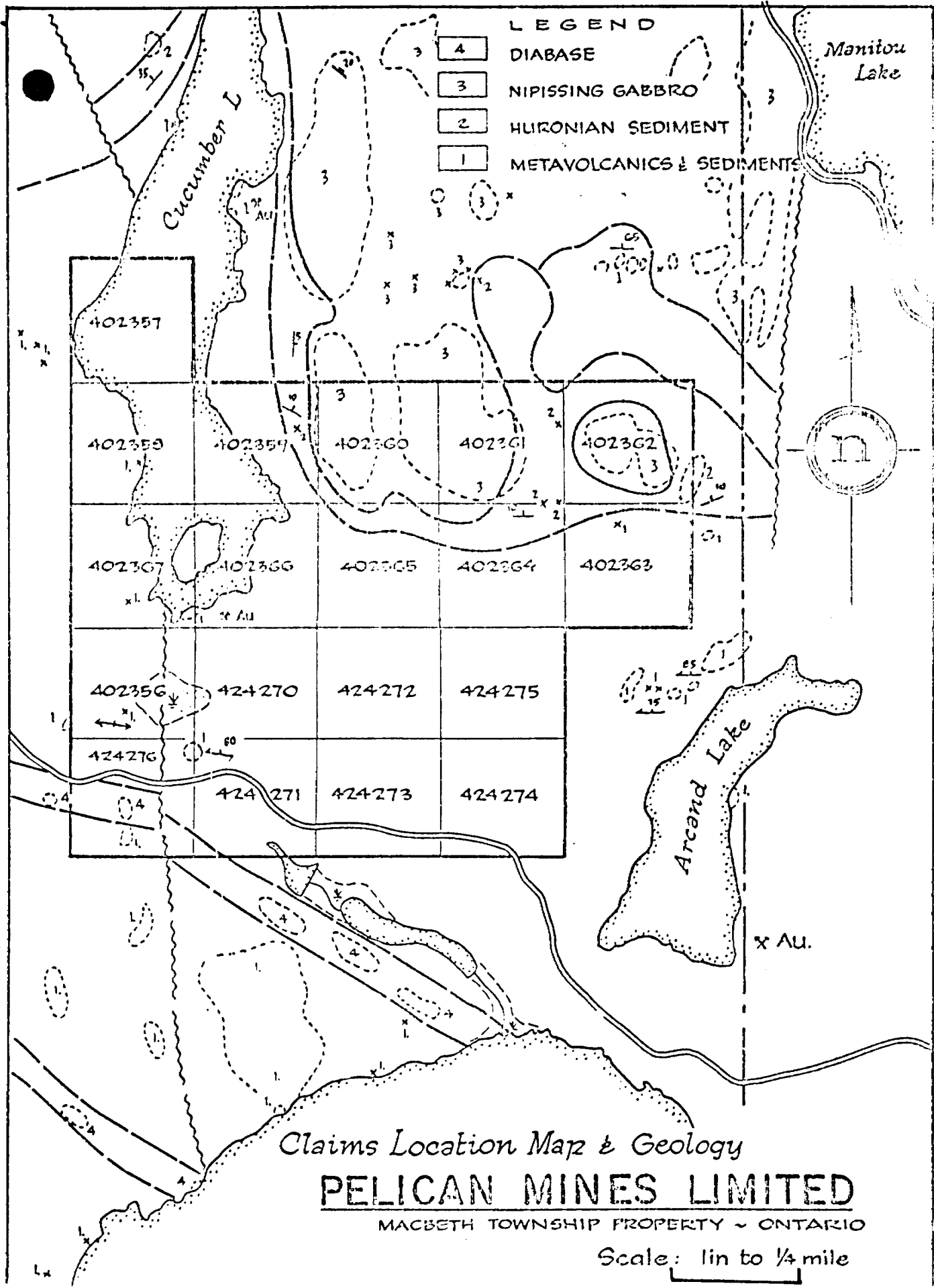
It is recommended that Pelican Mines Limited proceed with the second phase of the exploration program as recommended in the writer's report of December 31st, 1974 which called for a minimum of 1,000 feet of diamond drilling. The estimated cost of this initial one thousand feet of drilling is \$16,000.00 which due to increasing costs, is \$3,000.00 over the writer's original estimate expressed in the report of December 31st, 1974.

Respectfully submitted,

J. D. McCannell
James D. McCannell, P. Eng.
Consulting Geologist



Toronto, Ontario
March 31, 1975



GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 2,060 Number of Readings 2,060
Station interval 100 feet Line spacing 200 feet
Profile scale _____
Contour interval 1,000 λ

Instrument Scintrex MF-1
Accuracy - Scale constant + or - 20 λ
Diurnal correction method Hourly at base stations
Base Station check-in interval (hours) every hour approximate
Base Station location and value On base line at lines 16+00E, 12+00E, 24+00E, 36+00E, 44+00E, 56+00E and 66+00E.

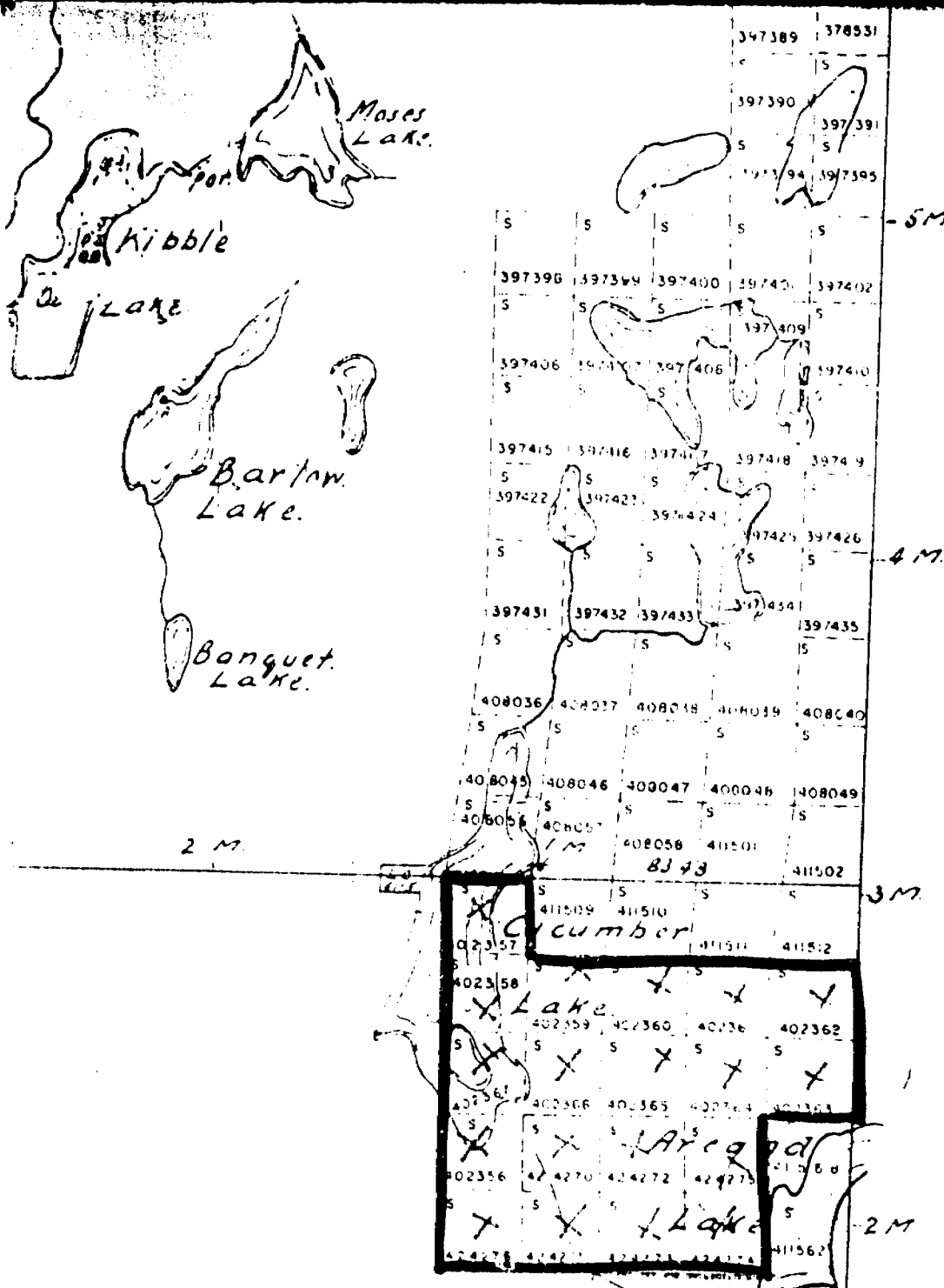
Instrument _____
Coil configuration _____
Coil separation _____
Accuracy _____
Method: Fixed transmitter Shoot back In line Parallel line
Frequency _____
(specify V.L.F. station)

Parameters measured _____
Instrument _____
Scale constant _____
Corrections made _____
Base station value and location _____
Elevation accuracy _____

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 _____

RESISTIVITY



CLEMENT TWP.

SCALE:
1" = 40 CH

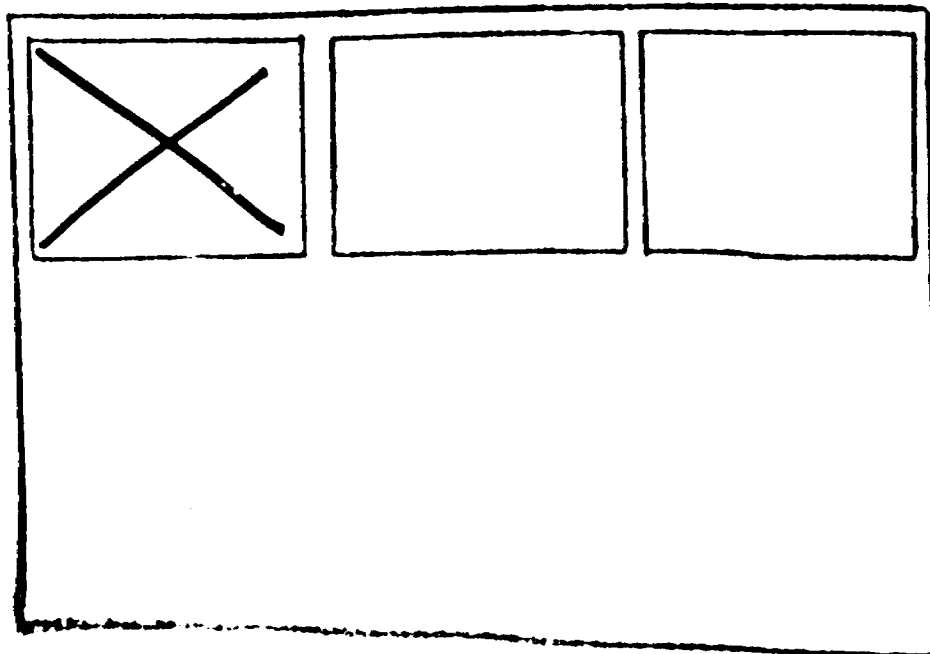
MACBETH TWP.

TWP.

is reservation around all lakes & rivers.

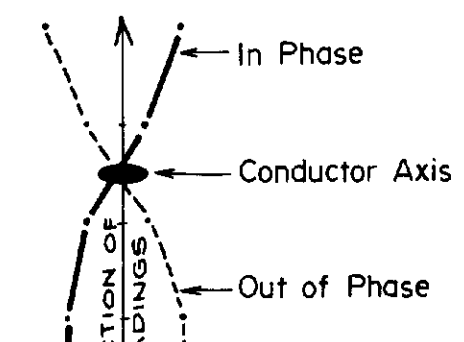
SEE ACCOMPANYING
MAP(S) IDENTIFIED AS
MACBETH-0011-A1-#1

LOCATED IN THE MAP
CHANNEL IN THE FOLLOWING
SEQUENCE (X)



LEGEND

ELECTROMAGNETIC



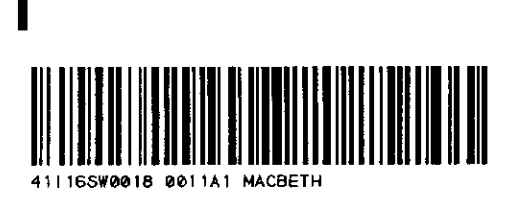
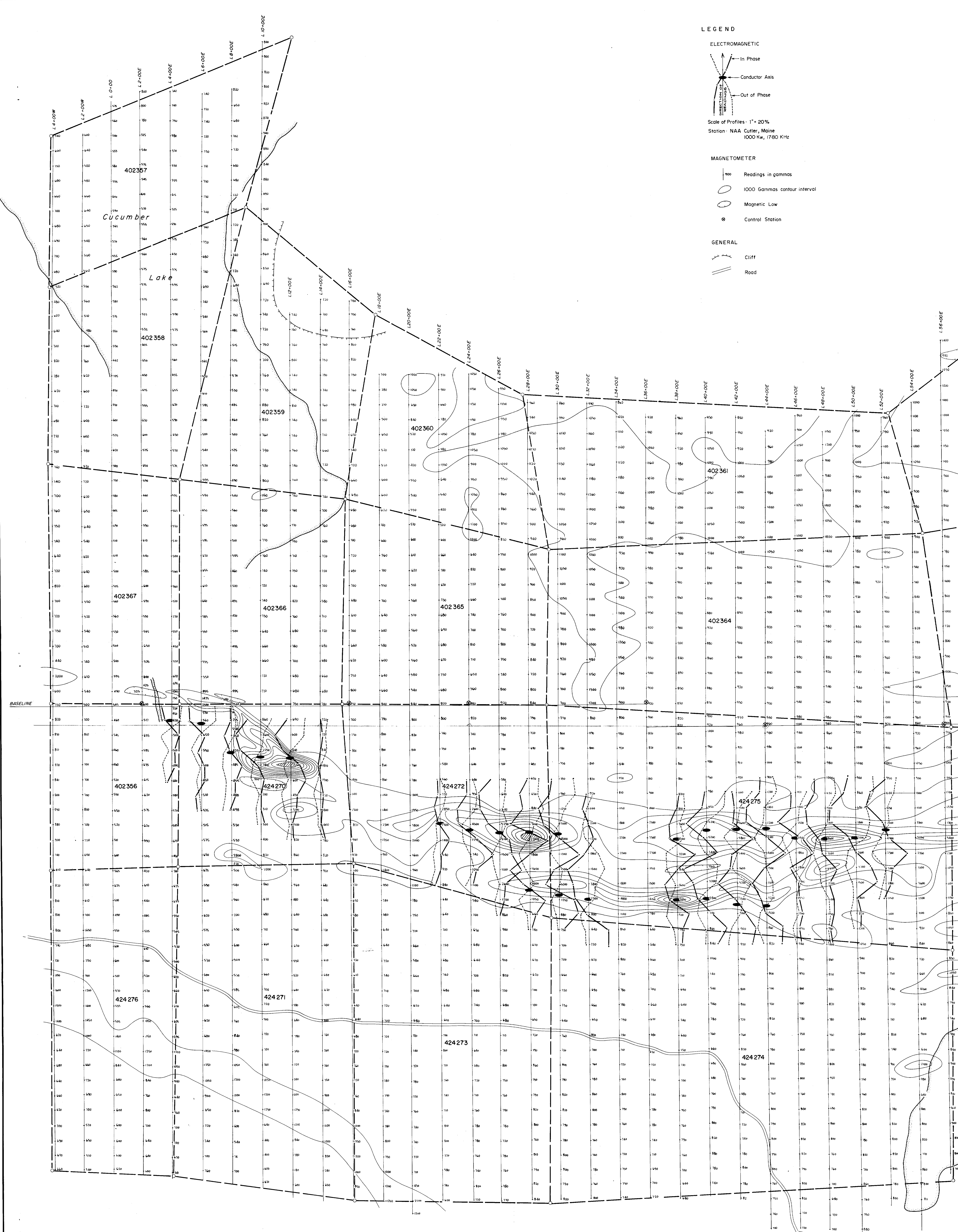
Scale of Profiles: 1" = 20%
Station: NAA, Cutler, Maine
1000 Kw, 1780 KHz

MAGNETOMETER

- ⊕ Readings in gammas
- 1000 Gammas contour interval
- Magnetic Low
- ⊙ Control Station

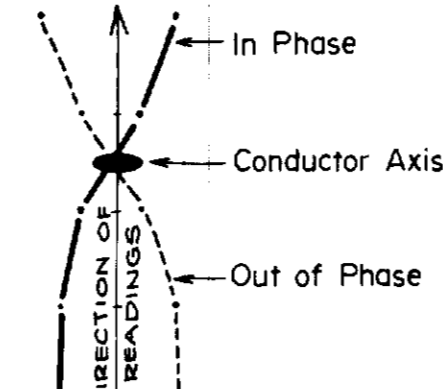
GENERAL

- ⌄ Cliff
- == Road



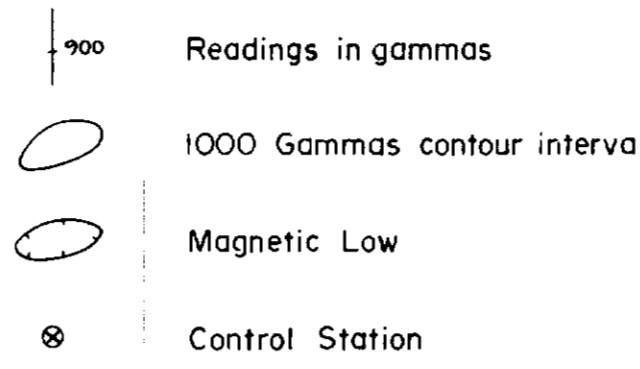
LEGEND

ELECTROMAGNETIC

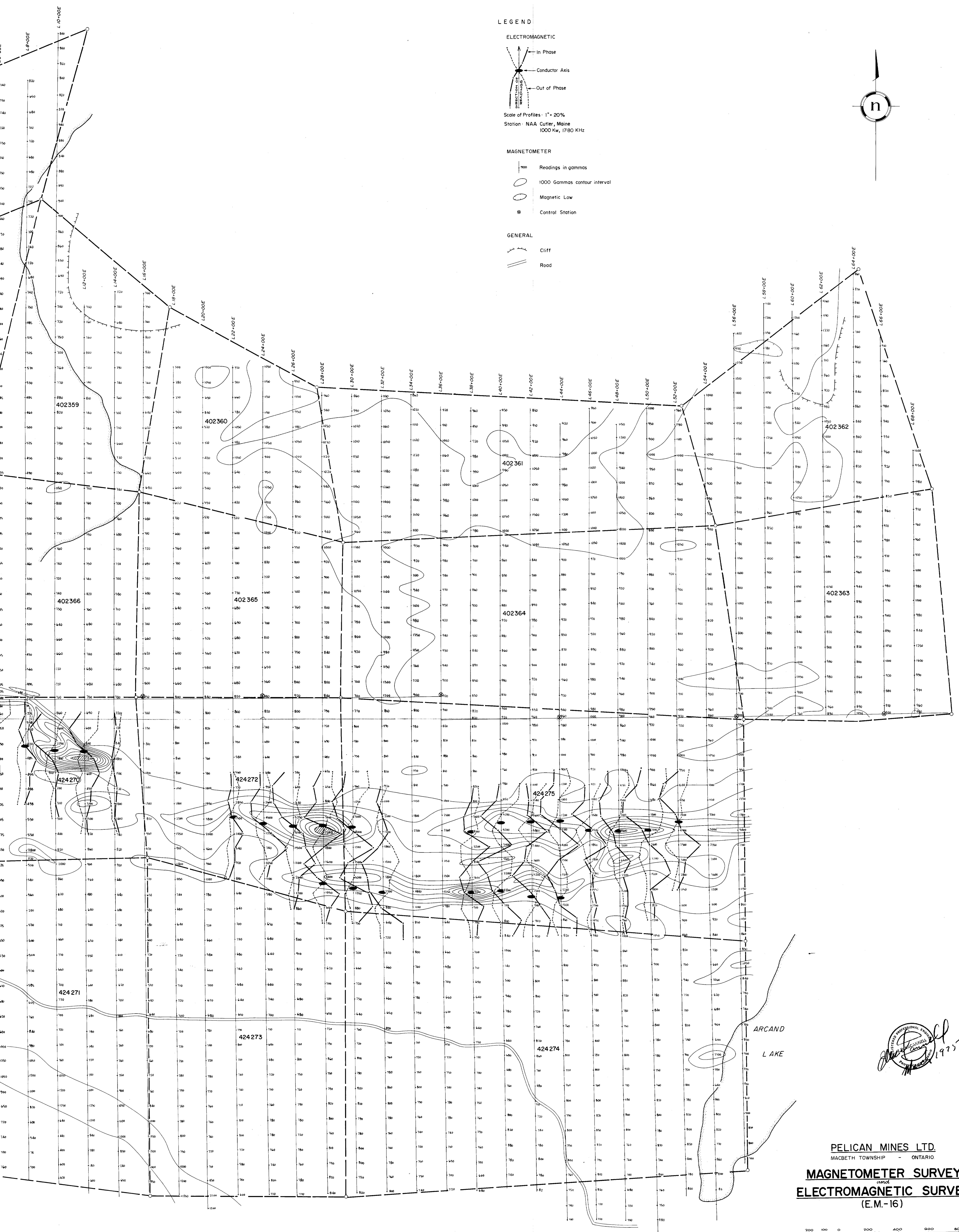
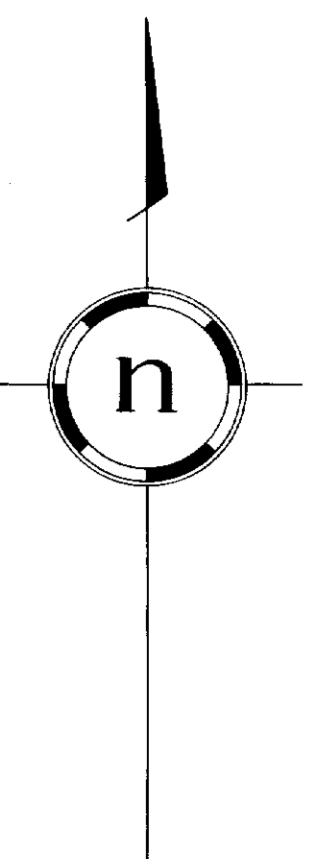
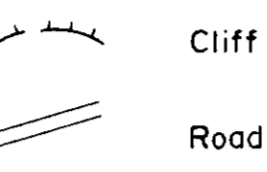


Scale of Profiles: 1" = 20%
Station: NAA Cutler, Maine
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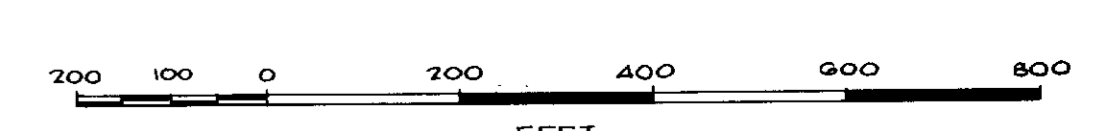


GENERAL



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1975

PELICAN MINES LTD.
MACBETH TOWNSHIP - ONTARIO
MAGNETOMETER SURVEY
and
ELECTROMAGNETIC SURVEY
(E.M.-16)



MACBETH-0011-A1 #1