REPORT ON
COMBINED HELICOPTER BORNE
MAGNETIC AND ELECTROMAGNETIC
SURVEY
NIGHT HAWK LAKE AREA
ONTARIO

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for
GOLDEIDT EXPLORATIONS INC.

by
AERODAT LIMITED

September 22, 1983

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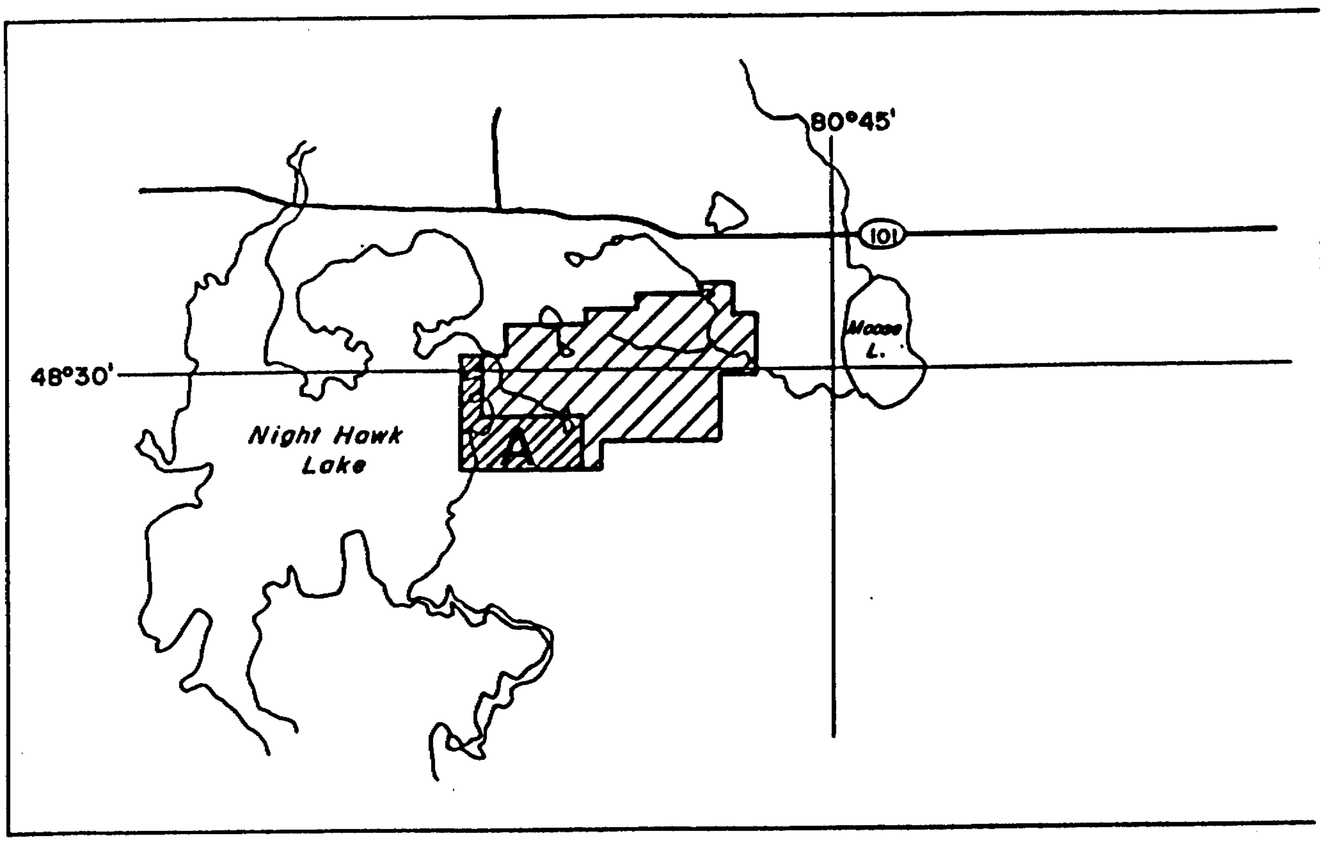
1. INTRODUCTION

This report describes an airborne geophysical survey carried out on behalf of Goldeidt Explorations Inc. by Aerodat Limited. Equipment operated included a 3 frequency electromagnetic system, a VLF-EM system and a magnetometer.

The survey area near Night Hawk Lake, Ontario was flown on July 20, 1983 from an operations base at Timmins. A total of 139 line miles were flown; 46 line miles at a nominal line spacing of 1/16 mile and 93 line miles at a nominal line spacing of 1/8 mile.

2. SURVEY AREA

The survey area is outlined below. The flight line direction was north/south, and the nominal line spacing was 1/16 mile for Area A and 1/8 mile for the remaining section.



3. AIRCRAFT EQUIPMENT AND PERSONNEL

3.1 Aircraft

The helicopter used for the survey was an Aerospatiale Astar 350D owned and operated by North Star Helicopters. Installation of the geophysical and ancillary equipment was carried out by Aerodat at Timmins, Ontario. The helicopter was operated at a mean terrain clearance of 60 meters.

3.2 Equipment

3.2.1 Electromagnetic System

The electromagnetic system was an Aerodat/ Geonics 3 frequency system. Two vertical coaxial coil pairs were operated at 946 and 4575 Hz and a horizontal coplanar coil pair at 4175 Hz. The transmitter-receiver separation was 7 meters. In-phase and quadrature signals were measured simultaneously for the 3 frequencies with a time-constant of 0.1 seconds. The electromagnetic bird was towed 30 meters below the helicopter.

3.2.2 VLF-EM System

The VLF-EM System was a Herz 1A. This instrument measures the total field and vertical quadrature component of the signal from NAA (Cutler, Maine, 17.8 kHz.) The sensor was towed in a bird 15 meters below the helicopter.

3.2.3 Magnetometer

The magnetometer was a Geometrics G-803 proton precession type. The sensitivity of the instrument was 1 gamma at a 0.5 second sample rate. The sensor was towed in a bird 15 meters below the helicopter.

3.2.4 Magnetic Base Station

An IFG proton precession type magnetometer was operated at the base of operations to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to facilitate later correlation.

3.2.5 Radar Altimeter

A Hoffman HRA-100 radar altimeter was used to record terrain clearance. The output from the instrument is a linear function of altitude for maximum accuracy.

3.2.6 Tracking Camera

A Geocam tracking camera was used to record flight path on 35 mm film. The camera was operated in strip mode and the fiducial numbers for cross reference to the analog and digital data were imprinted on the margin of the film.

3.2.7 Analog Recorder

A RMS dot-matrix recorder was used to display the data during the survey. In addition to manual and time fiducials, the following data was recorded:

Channel	Input	Scale
00	altimeter (500 ft. at top of chart)	10 ft./mm
06	high freq. quadrature	2 ppm/mm
05	high freq. in-phase	2 ppm/mm
04	mid freq. quadrature	4 ppm/mm

Channel	Input	Scale
03	mid freq. in-phase	4 ppm/mm
02	low freq. quadrature	2 ppm/mm
01	low freq. in-phase	2 ppm/mm
15	magnetometer	5 gamma/mm
14	magnetometer	2 gamma/mm
07	VLF-EM Total Field	2.5%/mm
08	VLF-EM Quadrature	2.5%/mm

3.2.8 Digital Recorder

A Perle DAC/NAV data system recorded the survey data on cassette magnetic tape. Information recorded was as follows:

Equipment	Interval
EM	0.1 second
VLF-EM	0.5 second
magnetometer	0.5 second
altimeter	1.0 second
fiducial (time)	1.0 second
fiducial (manual)	0.2 second

3.3 Personnel

Personnel directly involved with the survey operation were as follows:

Pilot: John Levesque

Equipment Operator/Technician: Pierre Moisan

4. DATA PRESENTATION

4.1 Base Map and Flight Path

A photomosaic base at 1:15,000 scale was prepared by Aerodat. The base was used during the course of the survey for visual navigation and flight path recovery.

The flight path was constructed from the manually plotted fiducials and digitized for use in the computer compilation of the maps. The flight path is presented with fiducials for cross reference to both the analog and digital data.

4.2 Electromagnetic Profile Maps

The electromagnetic data was recorded digitally at a high sample rate of 10/second with a small time constant of 0.1 second. A two stage digital filtering process was carried out to reject major sferic events, and to reduce system noise.

Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with a geological phenomenon. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events.

The signal to noise ratio was further enhanced by the application of a low pass digital filter. It has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 0.25 seconds. This low effective time constant permits maximum profile shape resolution.

Following the filtering processes, a base level correction was made. The correction applied is a linear function of time that ensures that the corrected amplitude of the various in-phase and quadrature components is zero when no conductive or permeable source is present. The filtered and levelled data were then presented in profile map form.

The in-phase and quadrature responses of the coaxial 4575 Hz configuration were plotted with electromagnetic anomaly information.

4.3 Magnetic Contour Maps

The aeromagnetic data was corrected for diurnal variations by subtraction of the digitally recorded base station magnetic profile. No correction for regional variation was applied.

The corrected profile data was interpolated onto a regular grid at a 2.5 mm interval using a cubic spline technique. The grid provided the basis for threading the presented contours at a 10 gamma interval.

The aeromagnetic data was presented with electromagnetic anomaly information.

5. INTERPRETATIONS

The electromagnetic profiles were analysed to identify those responses typical of bedrock conductors. The process of conductor identification was based on profile shape as described in Appendix I. The apparent conductances were estimated by application of the high frequency (4475 Hz) coaxial in-phase and quadrature responses to the phasor diagram for the vertical half-plane model. The computer calculated results were tabulated in Appendix II and are presented on the interpretation map.

The electromagnetic responses of the survey are composed largely of overburden components, due likely to clays as they are common to the area. These high amplitude, long wavelength responses tend to mask the responses typical of steeply dipping bedrock conductors, generally of shorter wavelength. This problem was approached by filtering the data to remove the long wavelength features attributable to conductive overburden. The residual profiles were used as an aid for anomaly identification.

The low frequency (946 Hz) response was also used to aid in anomaly selection. The effect of overburden is not as great at lower frequencies, so if an appreciable conductivity contrast exists between the overburden and the bedrock conductor, a good bedrock conductor will produce a more recognizable response.

The magnetic data was also used in electromagnetic anomaly identification and interpretation. Electromagnetic anomalies coincident with magnetic anomalies or trends may be structurally related.

The conductors chosen are referred to as "possible" bedrock conductors, as the possibility of overburden sources cannot be ruled out. Conductor axes have been interpreted where supported by the low frequency profiles or the magnetic contours, as profile shapes alone were insufficient for axis interpretation.

6. RECOMMENDATIONS

The electromagnetic survey has identified a number of anomalies that may be of bedrock origin. They are all of low conductance and at best may be indicative of minor disseminated graphite or sulphide mineralization. Follow up for massive sulphide deposits is not encouraged on the basis of the geophysical results alone. However, the conductors identified, if of bedrock origin, may indicate zones favourable to gold mineralization.

The conductive overburden cover in the area is extensive and neither the response shape nor the conductivity contrast with overburden has facilitated positive identification of bedrock sources. Of the responses identified those with an indicated axis are believed most likely to be of bedrock origin and therefore deserve the most emphasis for initial consideration.

In summary, the electromagnetic survey has not provided definitive results on which specific recommendations can be made. This is largely due to the technical restriction imposed by the conductive overburden cover. It is recommended that those most familiar with the geology of the area, with access to other geological and geophysical information, can best evaluate the potential significance of the data presented.

Respectfully submitted,

Glenn Boustead

Glenn Boustead B.A. Sc.
Project Geophysicist

REGISTERED PROFESSIONAL ENGINEER
R. L. S. HOGG
PROVINCE OF ONTARIO

R. L. Scott Hogg, B.A. Sc. P.Eng.
Geophysicist

September 23, 1983

APPENDIX I

GENERAL INTERPRETIVE CONSIDERATIONS

Electromagnetic

The Aerodat 3 frequency system utilizes 2 different transmitter-receiver coil geometries. The traditional coaxial coil configuration is operated at 2 widely separated frequencies and the horizontal coplanar coil pair is operated at a frequency approximately aligned with one of the coaxial frequencies.

The electromagnetic response measured by the helicopter system is a function of the "electrical" and "geometrical" properties of the conductor. The "electrical" property of a conductor is determined largely by its conductivity and its size and shape; the "geometrical" property of the response is largely a function of the conductors shape and orientation with respect to the measuring transmitter and receiver.

Electrical Considerations

For a given conductive body the measure of its conductivity or conductance is closely related to the measured phase shift between the received and transmitted electromagnetic field. A small phase shift indicates a relatively high conductance, a large phase shift lower conductance. A small phase shift results in a large in-phase to quadrature ratio and a large phase shift a low ratio. This relationship is shown quantitatively for a vertical half-plane model on the accompanying phasor diagram. Other physical models will show the same trend but different quantitative relationships.

The phasor diagram for the vertical half-plane model, as presented, is for the coaxial coil configuration with the amplitudes in ppm as measured at the response peak over the conductor. To assist the interpretation of the survey results the computer is used to identify the apparent conductance and depth at selected anomalies. The results of this calculation are presented in table form in Appendix II and the conductance and in-phase amplitude are presented in symbolized form on the map presentation.

The conductance and depth values as presented are correct only as far as the model approximates the real geological situation. The actual geological source may be of limited length, have significant dip, its conductivity and thickness may vary with depth and/or strike and adjacent bodies and overburden may have modified the response. In general the conductance estimate is less affected by these limitations than is the depth estimate, but both should be considered as relative rather than absolute guides to the anomaly's properties.

conductance in mhos is the reciprocal of resistance in ohms and in the case of narrow slab-like bodies is the product of electrical conductivity and thickness.

Most overburden will have an indicated conductance of less than 2 mhos; however, more conductive clays may have an apparent conductance of say 2 to 4 mhos. Also in the low conductance range will be electrolytic conductors in faults and shears.

The higher ranges of conductance, greater than 4 mhos, indicate that a significant fraction of the electrical conduction is electronic rather than electrolytic in nature. Materials that conduct electronically are limited to certain metallic sulphides and to graphite. High conductance anomalies, roughly 10 mhos or greater, are generally limited to sulphide or graphite bearing rocks.

Sulphide minerals with the exception of sphalerite, cinnabar and stibnite are good conductors; however, they may occur in a disseminated manner that inhibits electrical conduction through the rock mass. In this case the apparent conductance can seriously underrate the quality of the conductor in geological terms. In a similar sense the relatively non-conducting sulphide minerals noted above may be present in significant concentration in association with minor conductive sulphides, and the electromagnetic response only relate to the minor associated mineralization. Indicated conductance is also of little direct significance for the identification of gold mineralization. Although gold is highly conductive it would not be expected to exist in sufficient quantity to create a recognizable anomaly, but minor accessory sulphide mineralization could provide a useful indirect indication.

In summary, the estimated conductance of a conductor can provide a relatively positive identification of significant sulphide or graphite mineralization; however, a moderate to low conductance value does not rule out the possibility of significant economic mineralization.

Geometrical Considerations

Geometrical information about the geologic conductor can often be interpreted from the profile shape of the anomaly. The change in shape is primarily related to the change in inductive coupling among the transmitter, the target, and the receiver.

In the case of a thin, steeply dipping, sheet-like conductor, the coaxial coil pair will yield a near symmetric peak over the conductor. On the other hand the coplanar coil pair will pass through a null couple relationship and yield a minimum over the conductor, flanked by positive side lobes. As the dip of the conductor decreases from vertical, the coaxial anomaly shape changes only slightly, but in the case of the coplanar coil pair the side lobe on the down dip side strengthens relative to that on the up dip side.

As the thickness of the conductor increases, induced current flow across the thickness of the conductor becomes relatively significant and complete null coupling with the coplanar coils is no longer possible. As a result, the apparent minimum of the coplanar response over the conductor diminishes with increasing thickness, and in the limiting case of a fully 3 dimensional body or a horizontal layer or half-space, the minimum disappears completely.

A horizontal conducting layer such as overburden will produce a response in the coaxial and coplanar coils that is a function of altitude (and conductivity if not uniform). The profile shape will be similar in both coil configurations with an amplitude ratio (coplanar/coaxial) of about 4/1.*

In the case of a spherical conductor, the induced currents are confined to the volume of the sphere, but not relatively restricted to any arbitrary plane as in the case of a sheet-like form. The response of the coplanar coil pair directly over the sphere may be up to 8* times greater than that of the coaxial coil pair.

In summary a steeply dipping, sheet-like conductor will display a decrease in the coplanar response coincident with the peak of the coaxial response. The relative strength of this coplanar null is related inversely to the thickness of the conductor; a pronounced null indicates a relatively thin conductor. The dip of such a conductor can be inferred from the relative amplitudes of the side-lobes.

Massive conductors that could be approximated by a conducting sphere will display a simple single peak profile form on both coaxial and coplanar coils, with a ratio between the coplanar to coaxial response amplitudes as high as 8.*

Occasionally if the edge of an overburden zone is sharply defined with some significant depth extent, an edge effect will occur in the coaxial coils. In the case of a horizontal conductive ring or ribbon, the coaxial response will consist of two peaks, one over each edge; whereas the coplanar coil will yield a single peak.

* It should be noted at this point that Aerodat's definition of the measured ppm unit is related to the primary field sensed in the receiving coil without normalization to the maximum coupled (coaxial configuration). If such normalization were applied to the Aerodat units, the amplitude of the coplanar coil pair would be halved.

Magnetics

The Total Field Magnetic Map shows contours of the total magnetic field, uncorrected for regional variation. Whether an EM anomaly with a magnetic correlation is more likely to be caused by a sulphide deposit than one without depends on the type of mineralization. An apparent coincidence between an AM and a magnetic anomaly may be caused by a conductor which is also magnetic, or by a conductor which lies in close proximity to a magnetic body. The majority of conductors which are also magnetic are sulphides containing pyrrhotite and/or magnetite. Conductive and magnetic bodies in close association can be, and ofter are, graphite and magnetite. It is ofter very difficult to distinguish between these cases. If the conductor is also magnetic, it will usually produce an EM anomaly whose general pattern resembles that of the magnetics. Depending on the magnetic permeability of the conducting body, the amplitude of the inphase EM anomaly will be weakened, and if the conductivity is also weak, the inphase EM anomaly may even be reversed in sign.

VLF Electromagnetics

The VLF-EM method employs the radiation from powerful military radio transmitters as the primary signals. The magnetic field associated with the primary field is elliptically polarized in the vicinity of electrical conductors. The Herz Totem uses three orthogonal coils to measure the total field and vertical quadrature component of the polarization ellipse.

The relatively high frequency of VLF 15-25 kHz provides high response factors for bodies of low conductance. Relatively "disconnected" sulphide ores have been found to produce measurable VLF signals. For the same reason, poor conductors such as sheared contacts, breccia zones, narrow faults, alteration zones and porous flow tops normally produce VLF anomalies. The method can therefore be used effectively for geological mapping. The only relative disadvantage of the method lies in its sensitivity to conductive overburden. In conductive ground the depth of exploration is severely limited.

The effect of strike direction is important in the sense of the relation of the conductor axis relative to the energizing electromagnetic field. A conductor aligned along a radius drawn from a transmitting station will be in a maximum coupled orientation and thereby produce a stronger response than a similar conductor at a different strike angle. Theoretically it would be possible for a conductor, oriented tangentially to the transmitter to produce no signal. The most obvious effect of the strike angle consideration is that conductors favourably oriented with respect to the transmitter location and also near perpendicular to the flight direction are most clearly rendered and usually dominate the map presentation.

The total field response is an indicator of the existence and position of a conductivity anomaly. The response will be a maximum over the conductor, without any special filtering, and strongly favour the upper edge of the conductor even in the case of a relatively shallow dip.

The vertical quadrature component over steeply dipping sheet like conductor will be a cross-over type response with the cross-over closely associated with the upper edge of the conductor.

The response is a cross-over type due to the fact that it is the vertical rather than total field quadrature component that is measured. The response shape is due largely to geometrical rather than conductivity considerations and the distance between the maximum and minimum on either side of the cross-over is related to target depth. For a given target geometry, the larger this distance the greater the depth.

The amplitude of the quadrature response, as opposed to shape, is a function of target conductance and depth as well as the conductivity of the overburden and host rock. As the primary field travels down to the conductor through conductive material, it is both attenuated and phase shifted in a negative sense. The secondary field produced by this altered field at the target also has an associated phase shift. This phase shift is positive and is larger for relatively poor conductors. This secondary field is attenuated and phase shifted in a negative sense during return travel to the surface. The net effect of these 3 phase shifts determine the phase of the secondary field sensed at the receiver.

A relatively poor conductor in resistive ground will yield a net positive phase shift. A relatively good conductor in more conductive ground will yield a net negative phase shift. A combination is possible whereby the net phase shift is zero and the response is purely in-phase with no quadrature component.

A net positive phase shift combined with the geometrical cross-over shape will lead to a positive quadrature response on the side of approach and a negative on the side of departure. A net negative phase shift would produce the reverse. A further sign reversal occurs with a 180 degree change in instrument orientation as occurs on reciprocal line headings. During digital processing of the quadrature data for map presentation this is corrected for by normalizing the sign to one of the flight line headings.

APPENDIX II

Anomaly List

APPENDIX II

Anomaly List

ANOMALIES FOR J8319, NIGHT HAWK LAKE AREA

FLIGHT	LINE	ANOMALY	CATEGORY	FREQUENCY 4575 INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	1010	A	0	59.8	81.5	1.3	0	28
1	1010	B	0	23.6	51.7	0.5	0	31
1	1020	A	0	17.5	57.8	0.2	0	27
1	1020	B	0	11.2	56.6	0.1	0	22
1	1020	C	0	7.1	20.6	0.1	0	37
1	1020	D	0	88.8	171.4	0.9	1	15
1	1030	A	0	37.4	86.1	0.5	0	22
1	1030	B	0	10.4	40.8	0.1	0	27
1	1040	A	0	30.9	67.4	0.5	0	26
1	1040	B	0	30.6	64.6	0.5	0	28
1	1040	C	0	11.3	49.9	0.1	0	24
1	1040	D	0	40.3	92.2	0.5	0	24
1	1040	E	0	58.8	125.2	0.7	0	21
1	1050	A	0	48.1	92.4	0.7	0	27
1	1050	B	0	4.8	31.0	0.0	0	24
1	1050	C	0	51.8	143.9	0.5	0	18
1	1050	D	0	55.4	139.3	0.5	0	17
1	1050	E	0	18.4	76.8	0.1	0	19
1	1050	F	0	33.6	119.3	0.3	0	19
1	1060	A	0	16.6	74.0	0.1	0	22
1	1060	B	0	41.6	113.4	0.4	0	20
1	1060	C	0	30.8	96.8	0.3	0	22
1	1060	D	0	36.2	129.3	0.3	0	16
1	1070	A	0	26.3	48.9	0.6	0	30
2	1080	A	0	77.8	150.5	0.9	0	23
2	1080	B	0	18.3	48.3	0.3	0	31
1	1090	A	0	54.8	82.6	1.1	0	31
1	1090	B	0	43.7	87.5	0.7	0	21
1	1090	C	0	41.3	91.3	0.6	0	27
1	1090	D	0	32.1	89.2	0.4	0	24
1	1090	E	0	40.2	85.1	0.6	0	22
1	1090	F	0	34.0	56.3	0.8	3	23
1	1090	G	0	33.8	49.7	0.9	0	42
2	1100	A	0	84.2	165.5	0.9	0	18
2	1100	B	0	28.2	64.3	0.5	4	19

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

ANOMALIES FOR J8319, NIGHT HAWK LAKE AREA

FLIGHT	LINE	ANOMALY	CATEGORY	FREQUENCY 4575 INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	1100	C	0	21.6	47.9	0.4	13	12
1	1110	A	0	50.1	93.3	0.8	2	18
1	1110	B	0	15.0	36.5	0.3	2	26
2	1120	A	0	97.1	155.1	1.2	0	19
1	1130	A	0	30.4	43.1	0.9	0	34
2	1140	A	0	50.0	61.6	1.4	0	30
2	1140	B	0	56.4	120.1	0.7	2	16
2	1140	C	0	48.9	95.4	0.7	5	15
2	1140	D	0	37.4	74.0	0.6	4	19
1	1150	A	0	48.4	77.4	0.9	0	27
1	1150	B	0	34.9	73.0	0.6	0	23
1	1150	C	0	43.4	73.0	0.8	0	26
1	1150	D	0	30.0	54.7	0.7	0	27
2	1160	A	0	63.9	95.1	1.2	0	27
2	1160	B	0	49.5	84.9	0.9	0	22
1	1170	A	0	52.9	83.2	1.0	0	27
1	1170	B	0	59.1	107.9	0.9	0	22
2	1180	A	0	56.0	127.0	0.6	3	15
2	1180	B	0	57.5	83.6	1.1	0	27
2	1180	C	0	56.2	77.4	1.2	0	28
1	1190	A	0	43.9	68.6	0.9	4	20
1	1190	B	0	43.6	81.9	0.7	0	27
1	1190	C	0	34.9	64.5	0.7	0	26
1	1190	D	0	44.3	68.9	0.9	0	25
2	1200	A	0	50.4	63.4	1.3	0	27
2	1200	B	0	45.7	72.2	0.9	5	19
1	1210	A	0	39.4	61.8	0.9	0	30
2	1240	A	0	40.9	57.2	1.1	0	30
2	1240	B	0	44.5	65.0	1.0	0	25
1	1250	A	0	30.4	50.2	0.8	0	32
1	1270	A	0	53.7	85.6	1.0	0	22

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ANOMALIES FOR J8319, NIGHT HAWK LAKE AREA

FLIGHT	LINE	ANOMALY	CATEGORY	FREQUENCY 4575 INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	1280	A	0	53.9	79.4	1.1	0	23
1	1290	A	0	39.2	59.7	0.9	0	30
1	1310	A	0	37.2	67.1	0.7	7	16
1	1330	A	0	27.4	56.1	0.5	0	26
1	1330	B	0	45.1	75.3	0.9	0	29
1	1330	C	0	41.0	93.6	0.5	0	22
1	1330	D	0	57.1	103.4	0.9	0	22
1	1350	A	0	38.5	69.0	0.7	0	29
2	1360	A	0	40.5	66.8	0.8	1	23
1	1370	A	0	20.8	41.2	0.5	0	28
1	1370	B	0	22.8	34.9	0.7	0	36
1	1390	A	0	41.0	78.4	0.7	0	27
1	1400	A	0	25.4	51.0	0.5	0	27
1	1400	B	0	23.6	52.4	0.4	0	29
1	1400	C	0	11.1	32.0	0.2	11	16
1	1410	A	0	27.2	59.4	0.5	0	24
1	1410	B	0	13.1	40.2	0.2	10	15
1	1410	C	0	14.0	28.0	0.4	3	29
2	1420	A	0	6.9	22.6	0.1	6	23
2	1430	A	0	7.0	31.6	0.1	0	33
2	1470	A	0	11.5	40.1	0.1	5	19
2	1480	A	0	20.5	46.7	0.4	1	25
2	1480	B	0	14.5	41.6	0.2	0	24
2	1480	C	0	16.8	45.6	0.3	6	19
2	1500	A	0	26.2	47.2	0.6	1	26
2	1500	B	0	16.6	52.1	0.2	3	19
2	1500	C	0	17.3	50.8	0.3	6	16
2	1510	A	0	19.4	46.8	0.4	3	22
2	1510	B	0	23.1	37.0	0.7	4	26

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

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2	1520	A	0	27.3	58.1	0.5	0	25
2	1550	A	0	37.1	68.8	0.7	0	24
2	1560	A	0	47.6	78.7	0.9	0	30
2	1570	A	0	41.2	84.8	0.6	0	27
2	1580	A	0	36.7	89.6	0.5	0	22
2	1580	B	0	35.2	77.9	0.5	0	22
2	1580	C	0	103.8	199.2	1.0	0	18
2	1580	D	0	105.3	189.5	1.1	0	18
2	1590	A	0	79.7	165.9	0.8	0	19
2	1590	B	0	28.2	67.0	0.4	3	19
2	1590	C	0	32.2	67.5	0.6	0	29
2	1600	A	0	25.4	64.7	0.4	0	30
2	1600	B	0	27.9	75.4	0.4	0	23
2	1610	A	0	47.0	92.9	0.7	0	24
2	1620	A	0	31.9	60.2	0.6	0	32
2	1620	B	0	25.7	53.3	0.5	0	29
2	1620	C	0	41.6	101.0	0.5	0	19
2	1620	D	0	47.2	122.8	0.5	0	17
2	1620	E	0	35.4	85.2	0.5	0	23
2	1630	A	0	36.4	64.8	0.7	0	28
2	1630	B	0	32.9	73.2	0.5	0	31
2	1630	C	0	35.9	84.8	0.5	0	24
2	1640	A	0	16.6	38.5	0.4	0	34
2	1640	B	0	32.7	70.7	0.5	0	25
2	1640	C	0	31.5	70.9	0.5	0	25

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

WP3 06 193

2.5 #

Ministry of Natural Resources
Ontario

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

P-632918

42A10SW0205 2.5839 BOND 900

The M.

Type of Survey(s)	Township or Area
HELICOPTER MAGNETIC/ELECTROMAGNETIC/VLF	MACKLEM TP

Claim Holder(s)	Prospector's Licence No.
GOLDEIDT EXPLORATIONS INC	

Address: PO BOX 36 TORONTO DOMINION CENTRE TORONTO

Survey Company	Date of Survey (from & to)	Total Miles of line Cut
AERODAT LIMITED	20 7 83 / 20 7 83 (Day Mo. Yr. / Day Mo. Yr.)	40 44

Name and Address of Author (of Geo-Technical report): 3883 NASHUA DR MISSISSAUGA ONT

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	40
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	

RECEIVED AUG 5 1983 MINING LANDS SECTION

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

RECORDED JUL 29 1983 Receipt No.

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	40
	Magnetometer	40
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed:

Performed on Claim(s):

PORCUPINE MINING DIVISION RECEIVED JUL 29 1983 A.M. P.M. 7 8 9 10 11 12 1 2 3 4 5 6

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	Recorded Holder or Agent (Signature)
July 29	R. [signature]

Mining Claims Traversed (List in numerical sequence)

Prefix	Number	Expend. Days Cr.	Prefix	Number	Expend. Days Cr.
P	632918	80	P	632941	80
	632919	"		632978	"
	632920	"		632979	"
	632921	"		632980	"
	632922	"		632981	"
	632923	"		632982	"
	632924	"		632983	"
	632925	"		632984	"
	632926	"		632985	"
	632927	"		632986	"
	632928	"		632987	"
	632929	"		632988	"
	632930	"		632989	"
	632931	"		632990	"
	632932	"		632991	"
	632933	"		632992	"
	632934	"		632993	"
	632935	"		632994	"
	632936	"		632995	"
	632937	"		632996	"
	632938	"		632997	"
	632939	"			
	632940	"			

Total number of mining claims covered by this report of work. 44

For Office Use Only		
Total Days Cr. Recorded	Date Recorded	Mining Recorder
3,520	July 29/83	[signature]
	Date Approved as Recorded	Branch Director
	84.2.15	[signature]

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 HOGG (AERODAT LIMITED) 3883 NASHUA DR MISSISSAUGA ONT

Date Certified	Certified by (Signature)
28 JULY 83	[signature]

Ministry of Natural Resources Ontario

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)

2.5839 #194 W8306194 P-486658

The 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): HELICOPTER MAGNETIC/ELECTROMAGNETIC/VLF-EM	Township or Area: MACKLEM & BOND TPS
Claim Holder(s): GOLDEIDT EXPLORATIONS INC	Prospector's Licence No.
Address: P.O. BOX 36 TORONTO DOMINION CENTRE TORONTO	
Survey Company: AERODAT LIMITED	Date of Survey (from & to): 20 7 83 – 20 7 83 (Day Mo. Yr.); Total Miles of line Cut: 95
Name and Address of Author (of Geo-Technical report): 3883 NASHUA DR. MISSISSAUGA ONTARIO	

Credits Requested per Each Claim in Columns at right

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

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

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	20
	Magnetometer	20
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Prefix	Number	Expend. Days Cr.	Prefix	Number	Expend. Days Cr.
SEE	ATTACHED	LIST			

OCT 6 1983

MINING

RECORDED
JUL 29 1983
Receipt No.

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

PORCUPINE MINING DIVISION
RECEIVED
JUL 29 1983
A.M. P.M.
7 8 9 10 11 12 1 2 3 4 5 6

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.

Total number of mining claims covered by this report of work: 143

Date	Recorded Holder or Agent (Signature)
July 29	[signature]

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
4,500	July 29/83	[signature]
	Date Approved as Recorded: 84.2.2	Regional Mining Recorder / Branch Director: [signature]

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 HOGG (AERODAT LTD) 3883 NASHUA DR. MISSISSAUGA ONT

Date Certified	Certified by (Signature)
20 July 83	[signature]

Ontario | Ministry of Natural Resources

Geotechnical Report Approval

File 2.5839.

Oct. 28/83

Mining Lands Comments

- Plans not signed.
signed Jun 12, 84

☑ To: Geophysics Mr. Barlow.

Comments

☑ Approved ☐ Wish to see again with corrections Date Nov 9/83 Signature R Bl

☐ To: Geology - Expenditures

Comments

☐ Approved ☐ Wish to see again with corrections Date Signature

☐ To: Geochemistry

Comments

L.P.

☐ Approved ☐ Wish to see again with corrections Date Signature

☐ To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)

1593 (81/10)

Some credits reduced - Maximum is reached

PREFIX	NUMBER	CREDIT	NUMBER	CREDIT	NUMBER	CREDIT
P	486658 ✓	~~40~~ 20	P 529061 ✓	~~40~~ 20	P530648 ✓	40
	486659 ✓	"	529062 ✓	" "	530649 ✓	"
	486660 ✓	"	529063 ✓	" "	530650 ✓	"
	486661 ✓	"	529064 ✓	" "	530651 ✓	"
	486662 ✓	"	529065 ✓	" "	530652 ✓	~~"~~ 20
	486663 ✓	"	529066 ✓	" "	530653 ✓	~~"~~ 20
	486664 ✓	"	529067 ✓	" 40	530654 ✓	" 40
	486665 ✓	"	529068 ✓	~~"~~ 20	530655 ✓	"
	486666 ✓	"	529069 ✓	~~"~~ 20	530656 ✓	"
	486667 ✓	"	530615 ✓	~~"~~ 40	530657 ✓	"
	486668 ✓	"	530616 ✓	~~"~~ 20	530658 ✓	"
	486669 ✓	"	530617 ✓	~~"~~ 20	530659 ✓	"
	486670 ✓	"	530618 ✓	~~"~~ 20	530660 ✓	~~"~~ 20
	486671 ✓	"	530619 ✓	~~"~~ 40	530661 ✓	~~"~~ 20
	486672 ✓	"	530620 ✓	~~"~~ 40	530662 ✓	" 40
	486673 ✓	"	530621 ✓	~~"~~ 40	530663 ✓	"
	486674 ✓	"	530622 ✓	~~"~~ 40	530664 ✓	"
	486675 ✓	"	530623 ✓	~~"~~ 20	530665 ✓	"
	486676 ✓	"	530624 ✓	~~"~~ 20	530666 ✓	"
	486677 ✓	"	530625 ✓	~~"~~ 20	530667 ✓	"
	529045 ✓	"	530626 ✓	~~"~~ 20	530668 ✓	~~"~~ 20
	529046 ✓	"	530627 ✓	~~"~~ 20	530669 ✓	~~"~~ 20
	529047 ✓	"	530628 ✓	~~"~~ 40	530670 ✓	" 40
	529048 ✓	"	530629 ✓	~~"~~ 40	530671 ✓	"
	529049 ✓	"	530630 ✓	~~"~~ 40	530672 ✓	"
	529050 ✓	"	530631 ✓	~~"~~ 20	530673 ✓	"
	529051 ✓	"	530632 ✓	~~"~~ 20	530674 ✓	"
	529052 ✓	"	530633 ✓	~~"~~ 40	530675 ✓	"
	529053 ✓	"	530634 ✓	~~"~~ 40	530676 ✓	~~"~~ 20
	529054 ✓	"	530635 ✓	~~"~~ 40	530677 ✓	" 40
	529055 ✓	"	530636 ✓	~~"~~ 40	530678 ✓	"
	529056 ✓	"	530637 ✓	~~"~~ 40	530679 ✓	"
	529057 ✓	"	530638 ✓	~~"~~ 40	530680 ✓	"
	529058 ✓	"	530639 ✓	~~"~~ 40	530681 ✓	"
	529059 ✓	"	530640 ✓	~~"~~ 40	530682 ✓	"
	529060 ✓	40	530641 ✓	~~"~~ 40	530683 ✓	"
			530642 ✓	~~"~~ 40	P530684 ✓	"

P 530686 ✓ 40
530687 ✓ "
530688 ✓ "

P 571594 ✓ "
571595 ✓ "
571596 ✓ "
571597 ✓ "
571598 ✓ "
571599 ✓ "
P 571600 ✓ "
571601 ✓ "
571602 ✓ "
571603 ✓ "
571604 ✓ "
571605 ✓ "
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571623 ✓ "

193, 194

1983 10 11 2.5839

Mr. William L. Good
Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

We have received reports and maps for an Airborne Geopysical (Electromagnetic and Magnetometer) survey submitted on mining claims P 486658 et al in the Townships of Macklem & Bond.

This material will be examined and assessed and a statement of assessment work credits will be issued.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6610
Queen's Park
Toronto, Ontario
M7A 1W3
Phone:(416)965-1380

A. Barr:mc

cc: Goldeidt Explorations Inc
P.O. Box 36
Toronto Dominion Centre
Toronto, Ontario
M5K 1C5

BOND TOWNSHIP

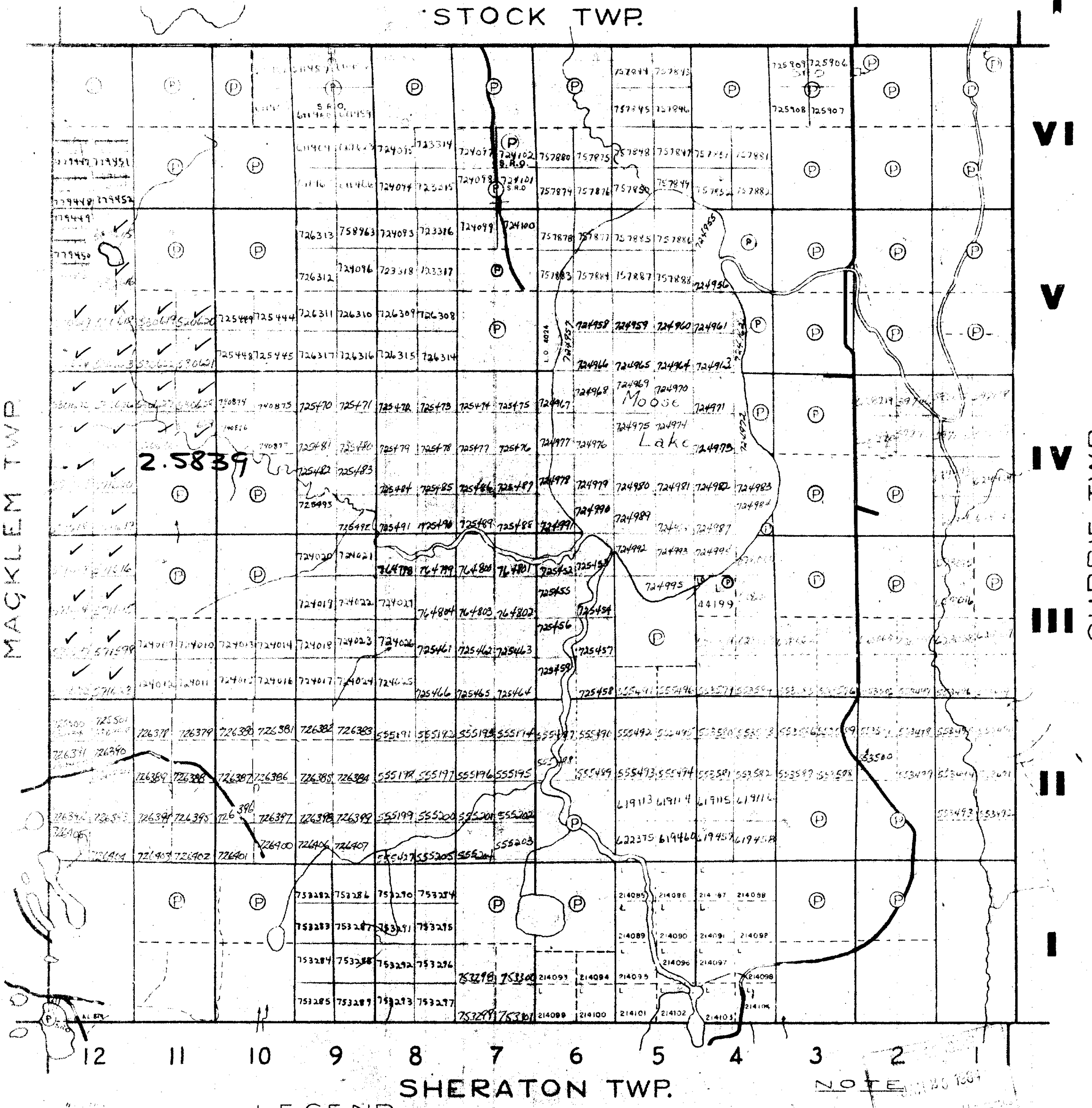
ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

PORCUPINE MINING DIVISION

DISTRICT OF COCHRANE

M.331

SCALE 40 CHAINS TO ONE INCH

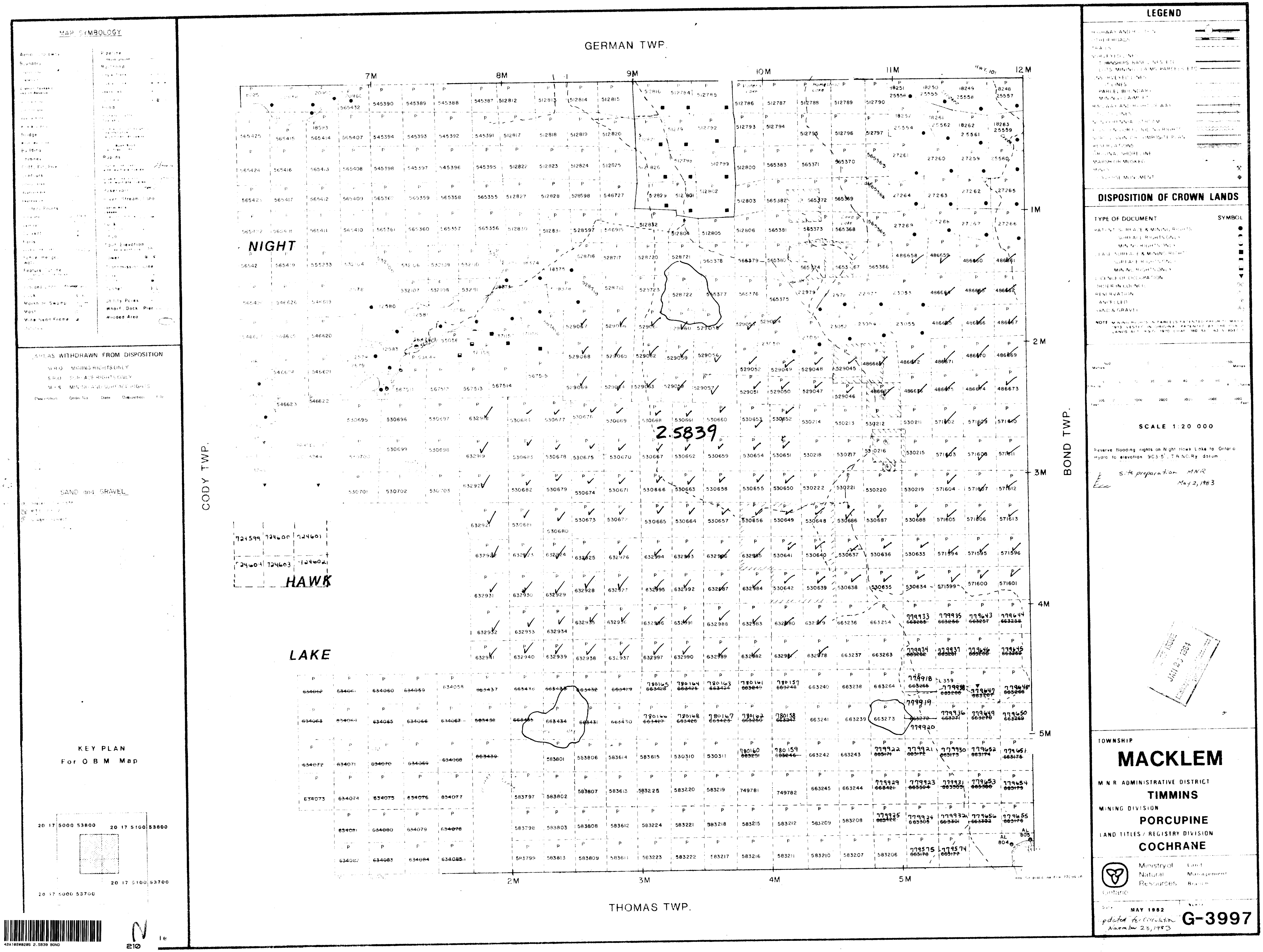


NOTE

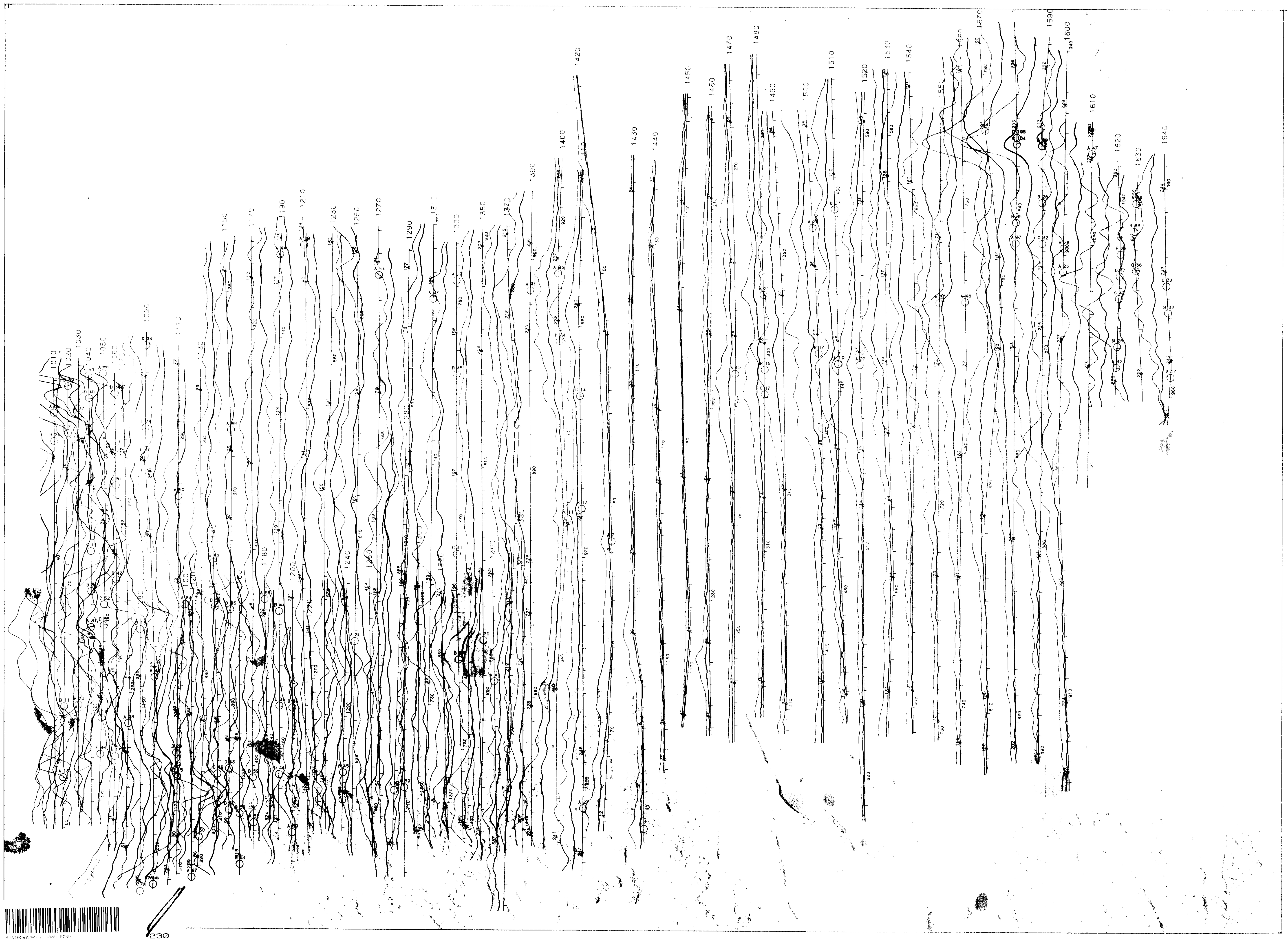
LEGEND

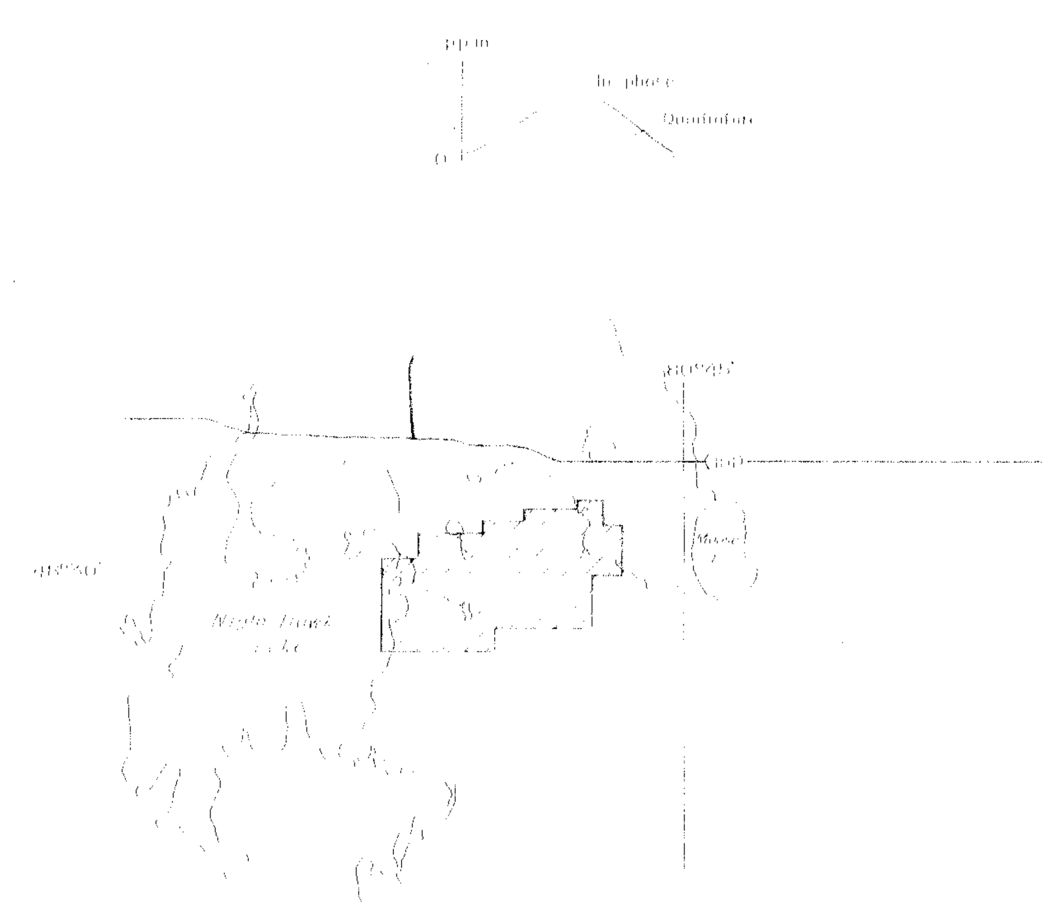
IMPROVED ROADS
TRAILS
KETTLE LAKES & Rivers.
PATENTED LANDS .... Ⓟ
CROWN LAND SALES .... Ⓢ or C.S.
LOCATED LANDS .... Loc
LICENSE OF OCCUPATION. L.O.
LEASES Ⓛ

200


GERMAN TWP.
CODY TWP.
BOND TWP.
THOMAS TWP.
NIGHT
HAWK
LAKE
2.5839
MAP SYMBOLOGY
AREAS WITHDRAWN FROM DISPOSITION
SAND and GRAVEL
KEY PLAN
For O B M Map
LEGEND
DISPOSITION OF CROWN LANDS
TYPE OF DOCUMENT
SYMBOL
SCALE 1:20 000
Reserve flooding rights on Night Hawk Lake to Ontario Hydro to elevation 903.5', T.&N.O.Ry. datum.
site preparation MNR
May 2, 1983
TOWNSHIP
MACKLEM
M.N.R. ADMINISTRATIVE DISTRICT
TIMMINS
MINING DIVISION
PORCUPINE
LAND TITLES / REGISTRY DIVISION
COCHRANE
Ministry of Natural Resources
Land Management Branch
Ontario
MAY 1982
updated for Circulation November 23, 1983
G-3997


EM ANOMALY SYMBOLS
EM RESPONSE
GOLDEIDT EXPLORATIONS INC.
AIRBORNE ELECTROMAGNETIC SURVEY
INTERPRETATION MAP
NIGHT HAWK LAKE AREA
ONTARIO
SCALE 1/15,000
AERODAT LIMITED
DATE July, 1983
N.T.S. No. 42 A
MAP No. 1





GOLDEIDT EXPLORATIONS INC.

AIRBORNE ELECTROMAGNETIC SURVEY
PROFILES - 4575 Hz. (coaxial)

NIGHT HAWK LAKE AREA

ONTARIO

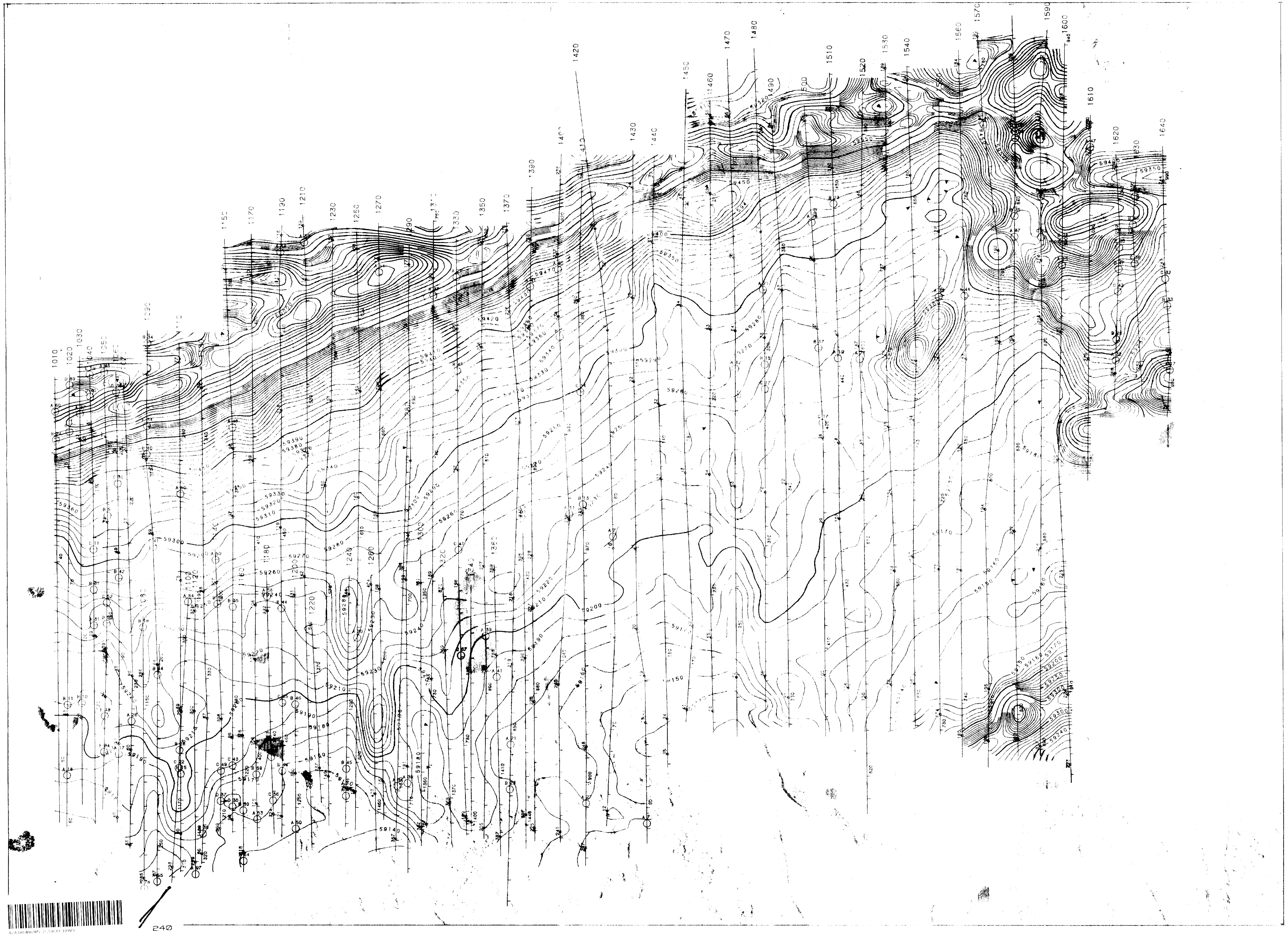
SCALE 1/15,000

0 — 1 Kilometre

1/2 — 0 — 1/2 Mile

▼ AERODAT LIMITED

DATE	July, 1983
[illegible] No.	42 A
MAP No.	[illegible]



GOLDFIDT EXPLORATIONS INC.

TOTAL FIELD MAGNETIC MAP

NIGHT HAWK LAKE AREA

ONTARIO

SCALE 1:15,000

▼ AERODAT LIMITED

DATE July, 1983