MAGNETOMETER SURVEY

VERNA LAKE PROPERTY

CLAIMS NO. 530878
530879
530880
530882
530883
555952

CENTRAL PART OF THE CROXALL-ALLSOPP-PHIPPEN PROPERTY
CLIFFORD TOWNSHIP, LARDER LAKE MINING DIVISION

Submitted by:
J.E. Croxall-P. ENG.
J. E. Croxall
Written: Oct. 28, I984

GEOPHYSICAL (MAGNETOMETER) SURVEY

VERNA LAKE CLAIMS

CROXALL-ALLSOPP-PHIPPEN PROPERTY

Location & Access

The survey was performed on six claims namely 530878,530879, 530880, 530882,530883,555952. They are situated in the south-east quadrant of Clifford Township, adjacent to the seven mile marker on the Clifford-Ben Nevis Township boundary. The property is approximately 25 miles north-east of Kirkland Lake Ontario.

Access to the claims in the past was best gained by fixed wing aircraft landing on Verna Lake. Side-roads from the Esker Lakes Provincial Park access road can be travelled by car to a point which is about I½ miles west from the west boundary of the surveyed claims. From here a dozer road has been made by the claim holders eastward to and through the central portion of the surveyed claims. All-terrain rubber-tired cycles are the best mode of travel at present on this dozer road.

Property Holders

The survey claims form part of a larger claim group which is jointly held by J.Croxall, 376 Cherry St., Timmins, Ont.; E. Croxall, 77 Third St., Kirkland Lake, Ont.; A.Allsopp, II6 Wood St., Kirkland Lake, Ont. and W.Phippen, King Kirkland, Ont. J.Croxall(the writer) is the recorded holder.

Survey Dates

About 7.6 miles of lines were cut on weekends beginning August I2, I984. The actual magnetometer survey was performed on Thanksgiving weekend, October 6-8th,I984. The survey contour plan was completed October 27, I984.
The survey results are submitted for Special Provisions Assessment Credits on the six claims.

Geology

Geoscience Report no. I32 "Geology of Clifford & Ben Nevis Townships, District of Cochrane" by L.S.Jensen describes the geology of the area in which the property lies as underlain by early Precambrian volcanic rocks of the Abitibi Belt. The property covers part of the south limb of an anticlinal felsic volcanic unit which encloses the Clifford granitic stock. Jensen refers to this unit as the "lower rhyolite" in his report. In the area of the claim group , the "lower rhyolite" unit consists of porphyritic and/or fragmental rhyolitic and dacitic units and massive andesitic flows striking in an east-northeasterly direction and dipping south-southeasterly. A few years ago, Mr.Jensen (personal communication) suggested that some of the rocks in the area he formerly described as felsic units based on their field appearance may, in fact, be bleached mafic to

intermediate rocks as determined by later geochemical work done in the area.

Mineral Occurences and Previous Exploration

Several fragmental units (tuffs and lapilli tuffs) on and adjacent to the six claim group are well-mineralized with pyrite and/or chalcopyrite, with occasional accessory molybdenite. Such mineralization has been noted to occur over a strike distance exceeding one mile.

The six claim block surveyed, and others adjacent to it held by the writer and his partners covers the mineralized zone.

The Clifford and Ben Nevis Townships area has been explored for base metals for many years. Sporadic prospecting and exploration work has been done in the area since the I920's. The first comprehensive exploration project in the area of the six claim group was undertaken by Hollinger Consolidated Gold Mines Ltd. in the early I960's. They drilled 9970 feet in 24 holes which, from the filed assessment work reports appear to have been based largely on geophysical targets as part of a base-metals project. (hole locations on plan shown as "H 0" series). Some erratic but high grade gold values(0.50 to 2.50 oz/t. range over 5 foot widths) and some lower grade values (0.0I to 0.03 oz/t. range over 2.5 to 5 foot widths) were encountered in two areas of whatis now claim number 446551 These intersections were in fragmental rock units where the quartz/calcite matrix surrounding the fragments had pyrite, chalcopyrite (±molybdenite) mineralization.

In I976, Noranda Exploration Co. Ltd. performed a basic, base-metal exploration program on a I6 claim property (including the current six claim survey block). They drilled four short X-ray holes totalling 750 feet in depth,(hole locations on plan shown as "C-77" series) on I.P. targets obtained by surveys on widely spaced grid lines. They encountered only low grade copper mineralization.

The writer held two claims in the area at the time of the Noranda project (part of the I976 Noranda Option) and has since enlarged the property to include this six claim survey group and has been prospecting the ground for precious metals. Work has included bulldozer stripping to delineate known gold-bearing fragmental units for the purpose of re-sampling and to explore for other mineralized fragmental zones.

MAGNETOMETER SURVEY

Survey Grid

The grid system wascut with crosslines at 400 foot intervals from the main baseline which was installed at a bearing of North 72 degrees East. A total of 40, 240 ft. of grid lines were cut, chained and picketed at I00ft. intervals. In all, 969 instrument readings were taken on the claim group including 873 at 50 ft. intervals on picketed grid lines and 96 (mainly at 50 ft. intervals) by pacing on claim lines or intermediate traverses.

Instrumentation and Method

The instrument used was a McPhar M700 magnetometer. It measures the strength of the vertical component of the total magnetic field in units of gammas.

The field, at a given station, consists of the vectorial sum of the earth's magnetic field and that of any anomalous body. The latter is caused by mineralization that is either naturally magnetic or is capable of possessing a secondary field which is induced by the earth's primary field.

The instrument was set on zero at the Base Station which was established on the edge of the dozer road at a point 60 feet east of 2+75 S. on XL 00. The baseline stations were quickly read eastward to 45+00E and a re-check on the base station showed no significant drift had occurred. Readings obtained at baseline-crossline intercepts on this baseline traverse were used for control for the remainder of the survey. Crosslines were surveyed in "loops"-i.e. northward from the baseline on XL 00 to the end of the line, then southward to the baseline on XL 4E etc. with checks for diurnal drift being made against previous intercept readings obtained on the baseline traverse. Drift corrections, where required, were distributed over all stations on the "loop". All readings were plotted on the enclosed 200 scale plan and a 200 gamma contour interval was used to assess the data.

Interpretation of Results

The area north of the baseline was found to be of generally higher magnetic relief then the area south of the baseline. An undulating contact between more mafic rocks to the north and more felsic rocks to the south probably lies adjacent to and generally parallel to the baseline and is estimated to lie in the vicinity of the 200 gamma contour.

Area South of the Baseline

Magnetic intensities south of this presumed major contact zone vary generally over a narrowrange of 300 gammas(from-I00 to + 200 gammas) except for three unexplained single-line or "spot" anomalies and one linear anomaly.

Anomalous "spot" lows occur at 2+50 S. on X100(S-I) and 6+00S on X18E(S-2). The anomalous "spot" high occurs at I0+00S. on Xl 20E(S-3)

The linear anomaly extends for I400 feet between I5+00S. on Xl 20E and I4+00S. on Xl 32E. (A). This narrow zone probably represents a more mafic flow within what is believed to be a belt of felsic fragmental rocks crossing the south half of the property. A zone of somewhat lower readings (zero to-240 gammas) lies along the north flank of this linear magnetic high.

Noranda drillhole C-77-2 penetrates anomaly S-2 and the core was logged completely as either rhyolite porphyry or rhyolite lapilli tuff.

Hollinger holes numbered H0-II, I2 and I3 appear to have penetrated anomalyA. These three holes encountered mainly wide intersections of cherty "agglomerate" and dacite with very narrow feldspar porphyry sills or dikes.

It is also noted that west of XlI6E, the southwest quadrant of the property is of somewhat lower magnetic character than the southeast quadrant with readings west of Xl I6E ranging from zero to + I50 gammas.

Area North of the Baseline

Two areas of extremely high magnetic intensity exist within the more mafic rocks to the north of the baseline. One such area is centred just east of Xl 8E between 4+00 N and 5+50N where intensities exceed I000 gammas and reach highs of 2550 gammas(B). The other area spans Xl 28E and Xl 32E between I6+00N and I9+50 N. Intensities again exceed I000 gammas and reach 2225 gammas in this zone(C)

A broad, but linear-like, easterly trending zone with intensities exceeding I000gammas crosses the central portion of claim number 555952 and lies about II00 to I200 feet north of the baseline (D).

A series of other short linear or "pod-like" anomalies exist in the area north of the baseline. Most of them form part of the main contact zone adjacent to the baseline. These generally exceed 400 gammas and are single or double-line anomalies

which reach intensity peaks ranging from 600 to 1000 gammas (P-1 to P-8) The exception(not part of the contact series) is a 900 foot long isolated linear zone crossing X1 32 E, 36 E and 39 E at 1300 feet north of the baseline (P-9)

Hollinger drill hole HO-16 was drilled on the eastern edge of anomaly B. No logs for this hole could be found on file. Outcrop in the area of anomaly B was mapped by Noranda as andesite. The west end of Noranda's I.P. anomaly labelled D-2 also occurs in this area . The claim holders have commenced dozer stripping in this area with a 550 foot long north-south trench in progress.

Hollinger drillhole HO-20 was drilled into anomaly C. The entire 355' of core contained massive andesite. Noranda's I.P. anomaly labelled D-1 flanks anomaly C to the north and extends westward for more than 1200 feet. It appears to be untested to date.

Hollinger drill hole HO-17 appears to have been collared near the axis of anomaly D. It was drilled for 493 feet and included wide intersections of dacite(and andesite) with narrow feldspar-porphyry sills or dikes.

Noranda drill hole C-77-1 was collared on the edge of anomaly P-3 and contained mainly dacite with a 40 foot section of rhyolite porphyry. One low gold assay of 0.01 oz/t. over 3.1 feet was found at 50 ft. down the hole.

Hollinger hole HO-14 was drilled across the eastern edge of anomalies P-5 and P-6. The hole cut wide zones of granodiorite and feldspar porphyry with narrower zones of dacite near the collar and bottom of the hole. The hole was stopped after penetrating agglomerate.

Conclusions

The magnetometer survey has served as a guide for further dozer stripping work.

Chalcopyrite, pyrite and quartz are known to occur in old pits adjacent to anomaly B. Further stripping will be performed in this area to investigate the cause and significance of the high intensity magnetic zone and co-incident Noranda I.P. anomaly D-2.

Heavy sulphide mineralization found in frost-broken bedrock near the north baseline on X1 24E adjacent to anomaly C and

flanking Noranda I.P. anomaly D-I will be followed up by stripping.

The magnetic "pods" (P-I through P-8) may be of considerable importance because the main gold occurence on claim 44655I to the east of the survey block occurs between two similar anomalous magnetic pods(as determined from the Hollinger magnetometer survey assessment reports) Stripping will be performed in these areas where feasible.

The magnetometer survey has also been helpful in correlating previous exploration data because the Hollinger and Noranda grids were found not to be identical as was previously suspected.

A follow-up VLF electromagnetic survey is under consideration for the claim group next year.

J. E. Croxall P.ENG.

Ministry of Natural Resources
Ontario

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

W8408004 77
2.7
L530878)

The Min

900

Type of Survey(s)	Township or Area
GEOPHYSICAL - MAGNETOMETER	CLIFFORD TWP.

Claim Holder(s)	Prospector's Licence No.
J.E.CROXALL	K18327

Address: 376 CHERRY ST, TIMMINS, ONTARIO, P4N6W7

Survey Company	Date of Survey (from & to)	Total Miles of line Cut
SELF	12 08 84 (Day Mo. Yr.) — 8 10 84 (Day Mo. Yr.)	7.6

Name and Address of Author (of Geo-Technical report): J.E.CROXALL, 376 CHERRY ST., TIMMINS, ONTARIO

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	
	X - Magnetometer	40
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	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.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
L					
	530878				
	530879				
	530880				
	530882				
	530883				
	555952				

LAND BRANCH
MINES DIV.
RECEIVED
OCT 22 1984
AM
7 8 9 10 11 12 1 2 3 4 5 6 PM

Total number of mining claims covered by this report of work: 6

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.

For Office Use Only		
Total Days Cr. Recorded: 240	Date Recorded: OCT 22 1984	Mining Recorder
	Date Approved as Recorded: 84.11.23	Branch Director

Date	Recorded Holder or Agent (Signature)
OCT. 15/84	J.E.Croxall

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. TECHNICAL REPORT; PLAN TO FOLLOW WITHIN 60 DAYS

Name and Postal Address of Person Certifying: J.E.CROXALL, 376 CHERRY ST., TIMMINS, ONTARIO

Date Certified	Certified by (Signature)
OCT. 15/84	J.E.Croxall

1362 (81/9)

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) MAGNETOMETER

Township or Area CLIFFORD TWP.

Claim Holder(s) J.E.CROXALL
376 CHERRY ST., TIMMINS,ONTARIO

Survey Company N/A

Author of Report J.E.CROXALL

Address of Author 376 CHERRY ST.,TIMMINS,ONTARIO

Covering Dates of Survey AUG.12/84-OCT.28/84
(linecutting to office)

Total Miles of Line Cut 7.6

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	
--Magnetometer	40
--Radiometric	
--Other	
Geological	
Geochemical	

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

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

DATE: Oct. 28/84 SIGNATURE: J.E. Croxall
Author of Report or Agent

Res. Geol. _____ Qualifications 2.2164

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
L	530878
L	530879
L	530880
L	530882
L	530883
L	555952

TOTAL CLAIMS 6

If space insufficient, attach list

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 402 Number of Readings 969

Station interval 100 ft. Line spacing 400 ft.

Profile scale 1 inch to 200 ft.

Contour interval 200 GAMMAS

MAGNETIC

Instrument McPHAR M 700

Accuracy -- Scale constant 20 gammas per scale division on 1K scale

Diurnal correction method Base station check to establish crossline/baseline intercept values. Crosslines read in "loops" corrections distributed over loops.

Base Station location and value 60 ft. E.@2+75 S. on X1 00-instrument set at zero

ELECTROMAGNETIC

Instrument

Coil configuration

Coil separation

Accuracy

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

Frequency
(specify V.L.F. station)

Parameters measured

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 _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Mining Lands Section

File No 2.7421

Control Sheet

TYPE OF SURVEY

____ GEOPHYSICAL

____ GEOLOGICAL

____ GEOCHEMICAL

____ EXPENDITURE

MINING LANDS COMMENTS:

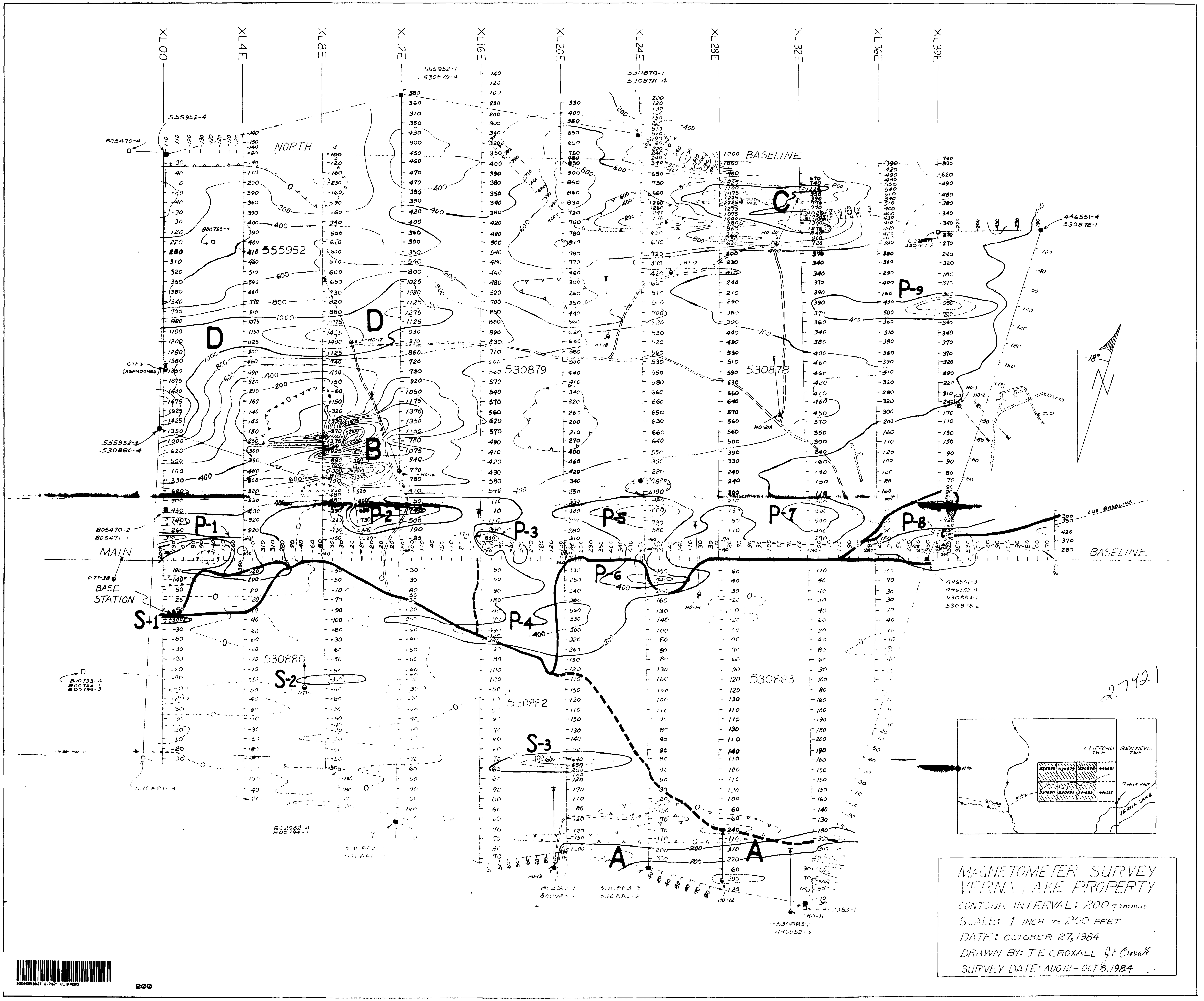
bpd. LB.

L. Hunt

Signature of Assessor

84-11-19

Date


XL 00
XL4E
XL8E
XL12E
XL16E
XL20E
XL24E
XL28E
XL32E
XL36E
XL39E
NORTH
BASELINE
MAIN
BASE
STATION
AUX BASELINE
555952
530879
530878
530880
530882
530883
D
D
B
C
A
A
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
P-9
S-1
S-2
S-3
18°
MAGNETOMETER SURVEY
VERNA LAKE PROPERTY
CONTOUR INTERVAL: 200 gammas
SCALE: 1 INCH to 200 FEET
DATE: OCTOBER 27, 1984
DRAWN BY: J E CROXALL
SURVEY DATE: AUG 12 - OCT 8, 1984
CLIFFORD TWP
BEN NEVIS TWP
VERNA LAKE
2.7421

200