



42C04NE0022 42C04NE0013A1 PUKASKWA RIVER

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JUL 2 1975  
PROJECTS UNIT.

DUVAL INTERNATIONAL CORPORATION  
GEOPHYSICAL SURVEY  
PUKASKWA RIVER, ONTARIO

SSM - 1814

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FEB 16 1976

RESIDENT GEOLOGIST  
SAULT STE. MARIE

S. S. MARIE  
MINING DIV.  
RECEIVED  
JUN 30 1975

AM 7 8 9 10 11 12 1 2 3 4 5 6 PW

S. S. MARIE  
MINING DIV.  
RECEIVED  
JUN 23 1975

AM 7 8 9 10 11 12 1 2 3 4 5 6 PW

April 10, 1975.

W. R. Troup, B. Sc.

NOT TO BE REMOVED FROM  
THE OFFICE OF THE RESIDENT  
GEOLOGIST, ONT. DEPT. OF MINES  
SAULT STE. MARIE, ONT.

ASSESSMENT WORK

ODM 2.1844

REPORT OF GROUND MAGNETOMETER SURVEY AND GROUND  
ELECTROMAGNETIC SURVEY ON CLAIMS UNDER OPTION BY  
DUVAL INTERNATIONAL CORPORATION, PUKASKWA RIVER AREA.

INTRODUCTION

This Report concerns ground magnetic and electromagnetic surveying conducted by Duval Personnel on 6 claims in the Pukaskwa River Area of Northwestern Ontario, during the months of February and March, 1975. The concerned claims are under option by Duval Corporation from Messrs. A. H. Brown, and P. Nabigon.

LOCATION AND MEANS OF ACCESS

The property is located 38 miles northwest of Wawa, and is approximately the same distance southeast of White River.

A privately owned lumber road extends from Highway No. 17 to Iron Lake 15 miles due east of the claim group. A connecting road used by Ontario Hydro in 1968 extends to the power transmission line, which passes in a northwest-southeast direction approximately 8 miles northeast of the property.

The topographic relief is rugged and lakes on the property, and in its immediate vicinity are small, in most cases too small for use by fixed wing aircraft. In the past, access has been gained, during the winter months, and under favourable wind and weather conditions, by fixed wing aircraft to a small lake situated two miles east of the property, and also reportedly by skidoo route from Iron Lake via Farewell Creek.

At the time of the present survey, weather and ice conditions were such that access was only possible by helicopter. The nearest helicopter bases are in Timmins, Thunder Bay, and Hearst.

GEOLOGY

O.D.M. preliminary Map 506 (1969) indicates that the property is located on the southeast edge of a volcanic sedimentary belt, which on O.D.M. compilation Map 2220, is seen to extend far in excess of 75 miles to the west. Geological mapping by King Island Mines (1970) indicates the property to be underlain by interlayered sediments and volcanics, with granite and gabbro intrusions.

SEW 1814

The present survey, being a Winter survey, made detailed geological mapping in the area impossible.

The main copper showing, indicated in the inset on the accompanying ground magnetometer survey map, occurs in a stream valley joining two small lakes. The stream valley is the topographic expression of a fault zone striking N65°W and dipping approximately 85° to the northwest. The showing was drilled by International Bibis Tin Mines Ltd. in 1966. During the course of the present study, the drill core and outcrops in the immediate area of the showing were examined. All drill holes intersected rhyolite, intermediate volcanic tuffs, andesite and sediments in various proportions. Copper mineralization is largely confined to the intermediate tuff and andesite horizons in areas transected by a system of randomly oriented quartz stringers and veins. Chalcopyrite and pyrite occur as disseminations associated with the quartz stringers, and the host rock is strongly chloritized in the area of mineralization.

The volcanics in the area strike approximately N80°W and dip approximately 75° to the north.

#### HISTORY

Peter Nabigon and David Thorsteinson originally staked the property in 1966, and optioned it to Ciglen Investments, who completed stripping, trenching and blasting operations in the area of the copper showing.

In 1967, International Bibis Tin Mines Ltd. optioned the Nabigon property, and drilled a total of 2,228 feet in 7 holes, over a strike length of 500 feet. Six drill holes returned appreciable copper values. Copper values of up to 1.5 per cent over 10 feet of core length were reported, and the mineralized zone still remains open on strike.

King Island Mines took over control of the Pukaskwa property in June, 1969. In October of that year, Canadian Aero flew an electromagnetic, magnetic and gamma ray spectrometer survey over the property. A strong magnetic area was outlined north of the present boundaries and eleven electromagnetic conductors were indicated lying to the NW of the present property boundaries. No electromagnetic anomaly was recorded in the vicinity of the copper showing. However, this could be due to the fact that the showing occurs in a deep valley. In 1970, a ground magnetic and electromagnetic survey was undertaken to check the observed airborne anomalies. Interesting anomalies were further checked by pack sack drilling, and all were attributed to barren pyrrhotite and pyrite within a narrow sedimentary band.

### PURPOSE OF PRESENT STUDY

The electromagnetic survey was designed to provide greater depth penetration and more detailed coverage than that achieved in the earlier survey carried out by King Island Mines. It was intended that this survey would detect any massive sulfide body which might be associated with the known zone of disseminated copper mineralization. The magnetometer survey was likewise designed to provide more detail than that achieved in the earlier survey.

### SURVEY DATA

6.8 miles of grid were established over the claim block. The base line was centered on and oriented along strike of the copper showing. Lines of the main grid were established at 200 foot intervals, and extended 800 feet to the north and 400 feet to the south. Alternate lines of the main grid were extended to intersect the outside boundaries of the claim block. Magnetometer readings were taken at 50 foot intervals over the main grid, and its extensions, to provide continuous coverage of the claim block. Over anomalous zones, readings were taken at 25 foot spacings.

A base station was established on the base line at 2W. Appropriate sections of the baseline were read at the beginning of each day's survey, and the times recorded at grid line junctions. Readings were taken and times recorded each time the base line was crossed. The base station was re-read at the end of each day. Information from repeated station readings and time recordings, was sufficient to correct for diurnal drift.

### ELECTROMAGNETIC SURVEY

The electromagnetic survey was performed using a Crone CEM transceiver unit. In this survey, two operators walked along the same picket lines at a coil separation of 300 feet. At each station, readings were taken by both operators, and mathematically added. The resultant figure was recorded for the mid-point between the two men.

For most of the survey, readings were taken every 100 feet along the picket lines on two frequencies, (1800 Hz) and (390 Hz). In the vicinity of the copper showing and elsewhere, when conductive indications were encountered, the spacing was narrowed to 50 feet.

### SURVEY RESULTS

The magnetic results as contoured, indicate a general NW-SE trend in the basement rocks of the area.

Several strong but localized magnetic anomalies in the northern part of the property are attributed to small lenses of iron formation within an area of sedimentary rocks.

No magnetic anomaly was observed in the immediate area of the copper showing.

With the exception of a minor dip angle anomaly south of the copper showing on line 0+00, the electromagnetic survey revealed no anomalous area within the extent of the main grid.

CONCLUSIONS

In view of the present survey results, it seems unlikely that any massive sulfide body is directly associated with the zone of observed copper mineralization.

Respectfully submitted,

*William R Troup*  
W. R. Troup, B. Sc.

REFERENCES

1. G. Bennett, P. C. Thurston, J. F. Giguere(1969);  
O.D.M. Preliminary Map 506 - Pukaskwa River Sheet.
2. International Bibis Tin Mines Ltd. (1967).  
Report on diamond drilling of Pukaskwa River Property  
by D. W. Sullivan
3. King Island Mines Ltd. 1970
  - i Geophysical Report on Pukaskwa River Property  
by A. B. Gray
  - ii Report on Diamond Drilling, Geophysical Surveying  
and Geological Mapping in the Pukaskwa River Area  
by J. M. Cormie.
4. O.D.M. Compilation Map 2220 (1974) - Manitouwadge-Wawa  
Sheet.

SM - 1814

C E R T I F I C A T E

I, William R. Troup, of the City of Toronto,  
in the County of York, hereby certify:

- 1) That I am a Geologist, residing at 230 Lake Promenade, TORONTO 14, Ontario,
- 2) That I am a graduate of the University of Waterloo, Waterloo, Ontario, with the degree of Bachelor of Science in Geology,
- 3) That I have been practicing my Profession continuously since September, 1974,
- 4) That I was present on the property and actively engaged in the Geophysical Survey, which the accompanying Report concerns.

*William R Troup.*

W. R. Troup, B. Sc.,

Dated at Toronto, Ontario,  
this 18th day of April, 1975.

S S M - 1 8 1 4





GEOPHYSICAL TECHNICAL DATA

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

Electromagnetic 180
Number of Stations Magnetometer - 329 Number of Readings Mag. 710; EM 360
Station interval Mag 50 ft. E.M. 100 ft. Line spacing 200' for main grid; 400' elsewhere
Profile scale For E.M. Survey dip angles are plotted at scale 1"=10°
Contour interval Magnetometer - 100 gammas where possible

MAGNETIC

Instrument McPhar Model M-700 Fluxgate
Accuracy - Scale constant 1k(100 gammas)-10 Gammas; 3k(3000 gammas)-40 Gammas
Diurnal correction method 10k(10,000 gammas)+100 gammas
Baseline read beginning of each day, grid line junctions checked with times, when crossed
Base Station check-in interval (hours) 4 hours
Base Station location and value 2w on baseline 5500 gammas

ELECTROMAGNETIC

Instrument Crone CEM transceiver Unit Ser.Nos.209-210
Coil configuration Vertical
Coil separation 300 feet
Accuracy ±1 degree
Method: [ ] Fixed transmitter [x] Shoot back [ ] In line [ ] Parallel line
Frequency 1830 HZ + 390 HZ (specify V.L.F. station)
Parameters measured Resultant dip angles

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

EM-1314



Ontario

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FEB 16 1976

RESIDENT GEOLOGIST  
SAULT STE. MARIE

Ministry of  
Natural  
Resources

February 4, 1976

Mr. D. A. Jodouin  
Mining Recorder  
Ministry of Natural Resources  
P.O. Box 669  
75 Elgin Street  
Sault Ste. Marie, Ontario  
P6A 5N2

Our file number 2.1844

Your file number

Dear Sir:

Re: Mining Claims SSM. 395578 et al, Pukaskwa River Area  
File 2.1844

The Geophysical (Electromagnetic and Magnetometer) assessment work credits as listed with my Notice of Intent dated January 19, 1976 have been approved as of the above date.

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

Yours very truly,

for  
J. R. McGinn  
Director  
Lands Administration Branch

Whitney Block, Room 1617  
Queen's Park  
Toronto, Ontario M7A 1X1  
Phone: 416-965-6918

DN/mw

cc: Mr. William R. Troup  
c/o Duval International Corp.,  
Toronto, Ontario

cc: Mr. Peter J. Nabigon  
Toronto, Ontario  
c/o Duval International Corp.

cc: Regional Geologist  
Sault Ste. Marie, Ontario ✓

SSM-1814

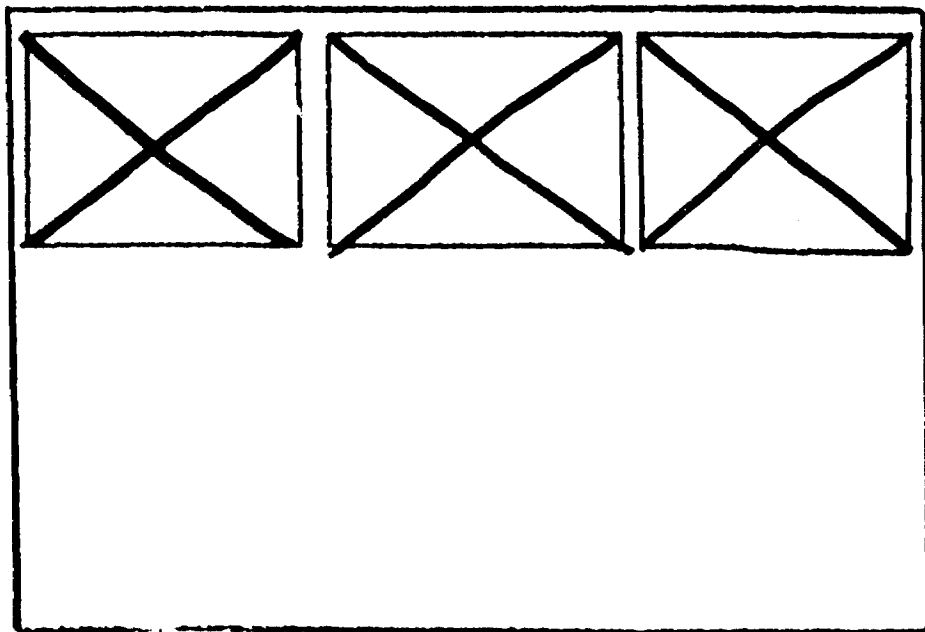
SEE ACCOMPANYING  
MAP(S) IDENTIFIED AS

42C104 NE - 0013 - A1 #1

42C104 NE - 0013 - A1 #2

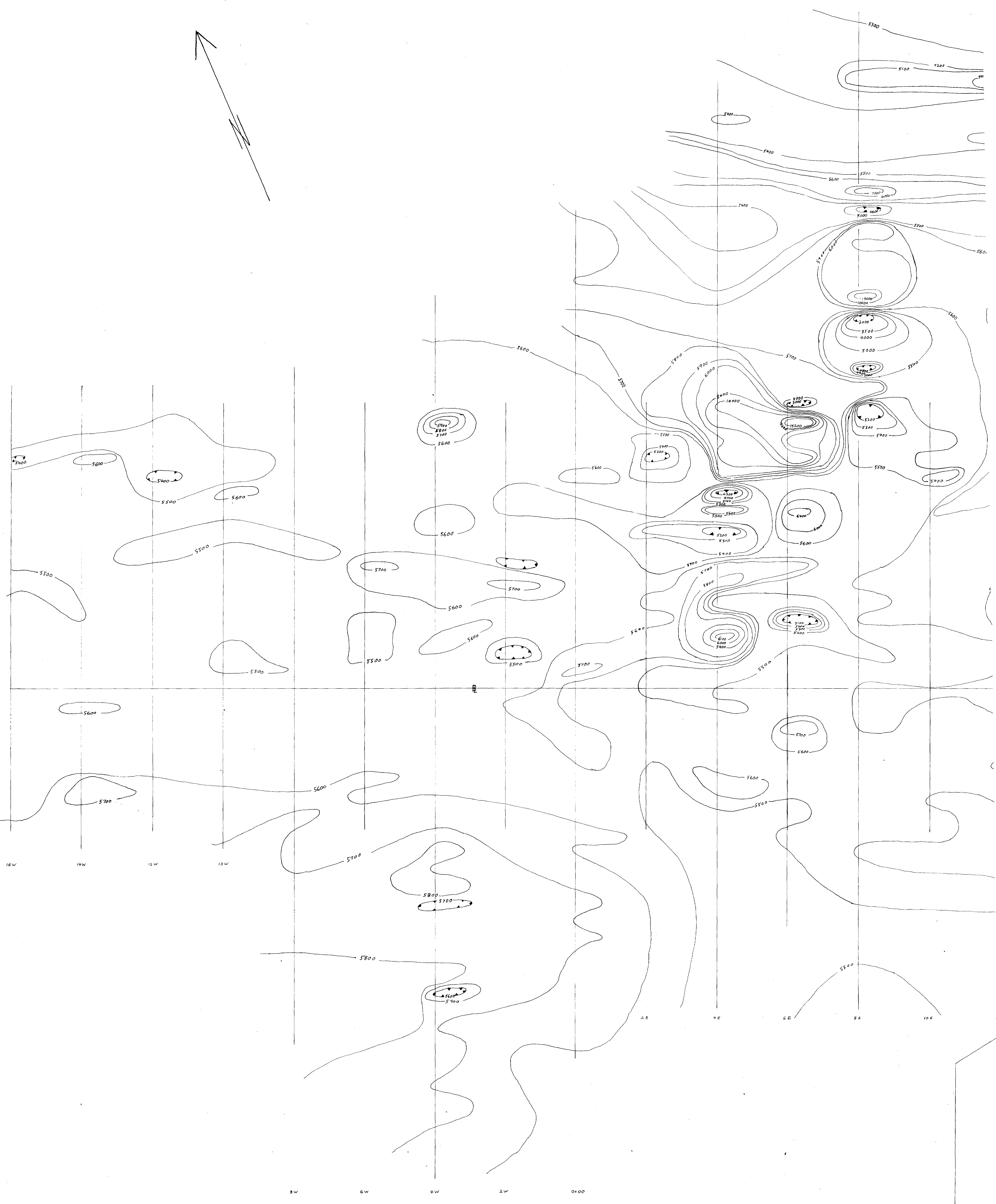
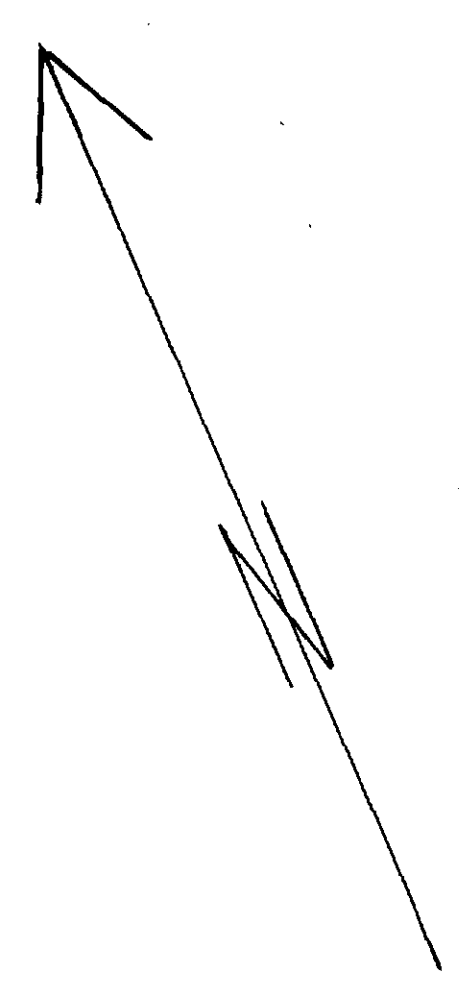
42C104 NE - 0013 - A1 #3

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





20+00 N  
18+00 N  
16+00 N  
14+00 N  
13+00 N  
10+00 N  
8+00 N  
6+00 N  
4+00 N  
2+00 N  
0+00  
2+00 S  
4+00 S  
6+00 S  
8+00 S  
10+00 S  
12+00 S  
14+00 S







<b>DUVAL CORPORATION</b>	
EASTERN EXPLORATION DIVISION	
PROJECT: <u>Nobigen - Pukaskwa Project</u>	N.T.S.
<u>Pukaskwa River Area</u>	
<u>Magnetometer Survey</u>	
<u>Readings</u>	
DRAWN: <u>April 7/75</u> U.M.T.	SCALE: <u>1"=100'</u>
MAP NO. <u>1</u>	

**SURVEY DATA**

INSTRUMENT: Nathan M-700 Fluxgate

BASE: Base Line - Grid Line Intersections

OPERATOR: G. L. Mealey & W. R. Tromp

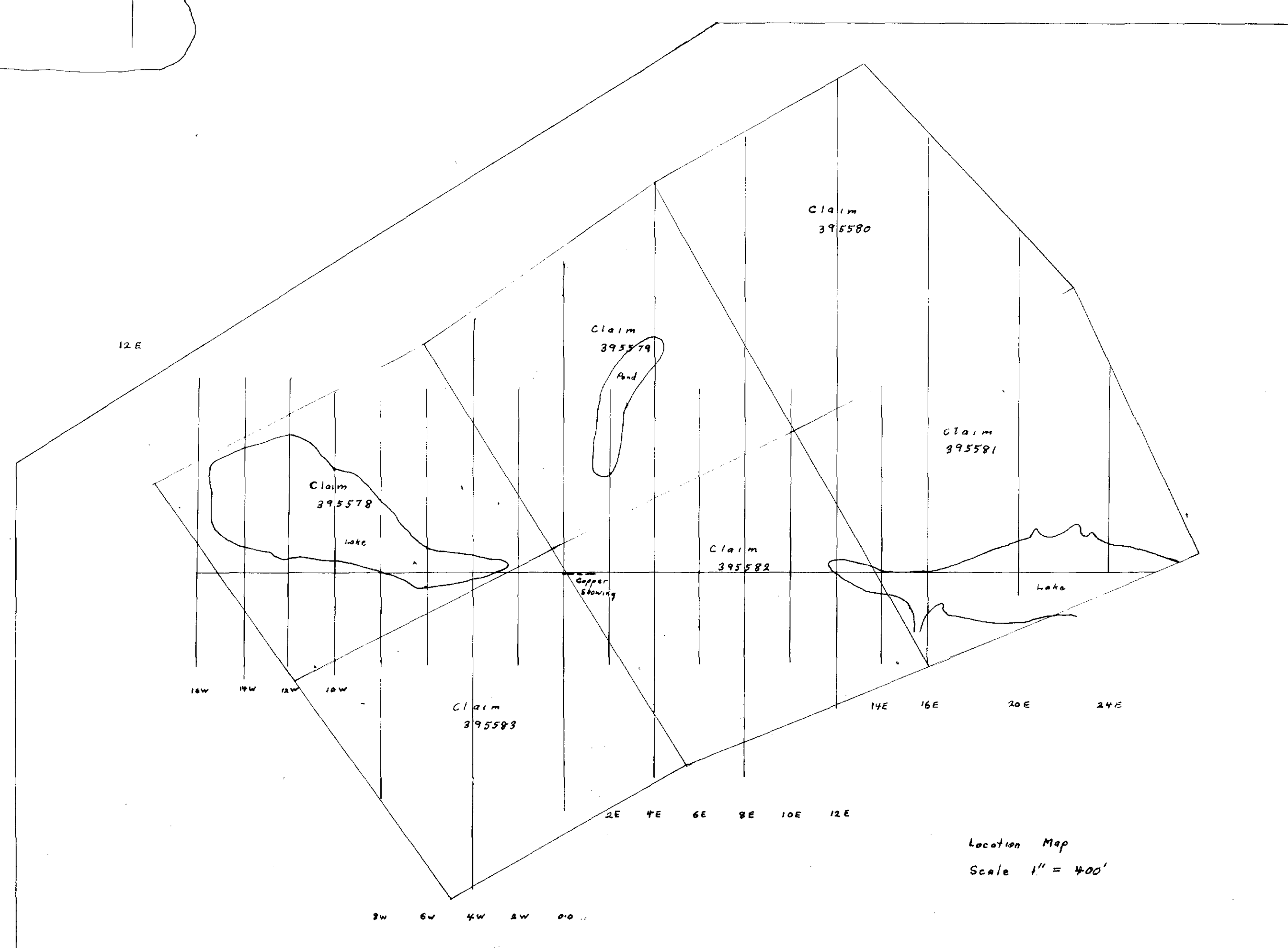
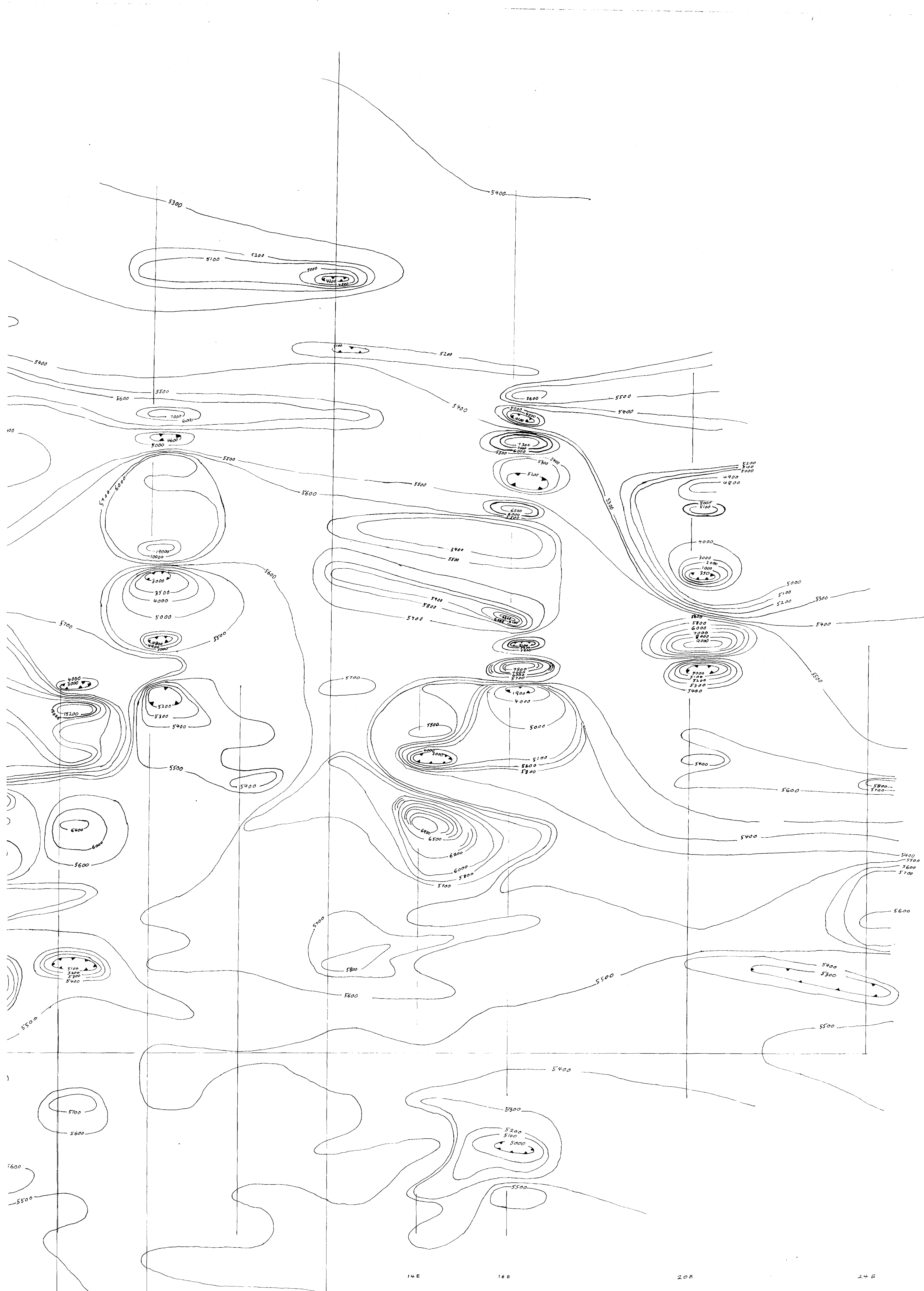
DATE OF SURVEY: Feb 27 - Mar 10

S. S. MARIE  
MINING DIV.  
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JUN 23 1975  
AS 7:00 10 11 12 1,2,3,4,5,6  
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S. S. MARIE  
MINING DIV.  
**RECEIVED**  
JUN 30 1975  
AS 7:00 10 11 12 1,2,3,4,5,6  
A!

42C/04 NE-0013-A1#1





**DUVAL CORPORATION**  
 EASTERN EXPLORATION DIVISION

PROJECT: Nabigon - Pukashka Project  
Pukashka River Area  
Magnetometer Survey  
Contour Map

DRAWN: April 12 / 75 W.R.T. SCALE: 1" = 100'  
 CONTOUR INTERVAL: 100 Gamma 2

**SURVEY DATA**  
 INSTRUMENT: Mather M-700 Fluxgate

BASE: Base Line - Grid Line Intersections

OPERATOR: G. L. Manley & W. R. Troop

DATE OF SURVEY: Feb 27 - Mar 10

CLOSURE: ± 95 Gamma

**LEGEND**

Contour Value in Gamma

Magnetic Low

S. S. MARIE  
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