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8413

REPORT ON THE DETAILED MAGNETICS SURVEY

- CY 1-8 CLAIMS

- ENG 1-3 CLAIMS

8413

PART 2 of 2

WEIR MOUNTAIN AREA

ATLIN MINING DISTRICT, BRITISH COLUMBIA

Author: J. Loiselle, B.Sc.

Date: October 2, 1979

Mattagami Lake Exploration Limited
Suite 1110
8 King Street East
Toronto, Ontario M5C 1B5

noranda

Telephone 362-1653

STATEMENT OF QUALIFICATION

I, Lloyd Alterton, the undersigned, graduated from the University of New Brunswick in 1979 with a B.Sc. degree in geology and since May 31, 1979 to the present, have been employed by Mattagami Lake Exploration Limited as a geophysical party chief.

Lloyd Alterton

Lloyd Alterton

TABLE OF CONTENTS

CHAPTER ONE

1-1 Introduction

During the early part of September, 1979, a detailed magnetics survey was carried out over selected lines, within the Weir Mountain project area. This was done as follow-up to a more general program of magnetics, EM and I.P. during the summers of 1978 and 1979. The purpose of the detailed magnetics was to provide finer definition of the structures producing the magnetically anomalous areas picked up during the general survey. Also, areas on the property not previously covered by the general survey were examined. This survey used equipment recently designed by the author in conjunction with his M.Sc. thesis, which enables the operator to carry out a detailed survey within time constraints of conventional magnetic survey methods.

1-2 Description of Property

The property consists of the following claims:

Claim Name	Units	Record Number
CY 1	6	224
CY 2	20	225
CY 3	16	226
CY 4	20	227
CY 5	20	228
CY 6	20	229
CY 7	20	230
CY 8	16	231
ENG 1	9	221
ENG 2	20	222
ENG 3	20	223

1-3 Previous Work

Work done on the property to date is considerable, and covered by the following reports:

Geology and Geochemistry Weir Mountain Reports 2, 3, & 4 October 1977 and August 1978 Assessment Report 6898	Frank Morra Mattagami Lake Mines Limited
Electromagnetic Survey CY Claims July 1978	T. Gladhill and D.B. Sutherland Consultant
Induced Polarization Survey October 1978	P.G. Hall of Phoenix Geophysics Ltd.

1-4 Geology

The Weir Mountain property is almost entirely located within igneous intrusive rocks that form a portion of a regional batholith (Surprise Lake batholith) that extends eastward from Atlin, B.C. as a lobe of the Coast Range Batholith.

The rocks underlying most of the Mattagami properties have been mapped and designated as Alaskite of Cretaceous Age by the G.S.C. (Map 1082, Atlin, B.C.). The contact between the alaskite and Unit 6 of the Cache Creek Group, runs through the southern part of the property.

The whole Surprise Lake batholith is radioactively anomalous, and interesting radioactive showings with associated sphalerite and galena, have been found within the alaskite.

CHAPTER TWO

DETAILED MAGNETICS SURVEY

2-1 Theory of Operation

If magnetic measurements are made at too large an interval the profile generated by the survey will be "aliased". Aliasing is a statistical effect seen when the sampling interval is greater than the frequency of the field sampled. Therefore, if a particular rock formation has a high frequency magnetic component (due to bedding, veins, etc.) and that component is not sampled at an interval less than or equal to its natural frequency, a low frequency, low amplitude waveform will result. This waveform would be devoid of significant frequency and amplitude signature characteristics which could be used to define a particular rock type or structural zone.

2-2 Instrumentation

The sensor consists of a Scintrex MF-2 Fluxgate magnetometer which generates 0-100 mv analog voltage. This voltage is inputed to an analog data acquisition system which is mounted on a backpack frame and carried on the back of the operator. The magnetic information is automatically plotted on a graph by the unit, allowing direct visual monitoring of the magnetic field. The time savings generated by this ability allows readings to be taken every 2-4 meters, and still perform the survey, using this system, within the time limits of conventional surveys. This five to ten-fold increase in the number of readings will effectively yeild a five to ten-fold increase in the resolution of the magnetics. This increased resolution allows the operator to observe small scale geological features such as dykes, veins, shear zones, etc. which would normally be missed at conventional sampling intervals (20-40 m).

TABLE I

DETAILED MAGNETOMETER SURVEY

MINIGRID I (Figure II)

	Line	Stations
GRID I	9+900 NE	0+00 - 1+00 SE
	9+925 NE	0+00 - 1+00 SE
	9+950 NE	0+00 - 1+00 SE
	9+975 NE	0+00 - 1+00 SE
	10+000 NE	0+00 - 1+00 SE

SURVEY COVERAGE: (Grid Map Figure I)

	Line	Stations
GRID II	B.L.	10+00 km NE - 8+32 km NE
	11+00 NE	9+00 NW - 0+00 NW
	10+900 NE	11+00 NW - 4+25 SE
	10+800 NE	11+25 NW - 3+00 SE
	10+700 NE	11+50 NW - 0+00 NW
GRID III	10+200 NE	27+00 SE - 35+00 SE
	10+400 NE	27+00 SE - 38+00 SE
	10+600 NE	27+00 SE - 38+00 SE
	10+800 NE	27+00 SE - 35+00 SE
GRID IV	9+600 NE	38+00 SE - 45+50 SE
	9+000 NE	38+00 SE - 45+50 SE

TIE LINE

8+00 NW - 38+00 SE

CHAPTER THREE

DISCUSSION OF RESULTS: (Minigrid, II, III, IV, Tie Line)

3-1 (Figure 2) Minigrid - A detailed grid network was set up between lines 10+000 NE and 9+900 NE, to better define a magnetically active zone. The grid lines were spaced 25 m apart, with a .5 meter station interval.

Analysis of the stacked profiles (Figure 2) reveals an amplitude variation of 180 γ - 660 γ along the strike of the zone. This variation in amplitude is most probably due to changes in depth of mineralization rather than magnetite content, as the lower amplitude anomalies tend to be broader than the corresponding high amplitude areas. (An effect observed with increased depth). The structure is decidedly linear, with a strike direction approximating N 64^{o} E.

The symmetric nature of the anomaly profiles indicate a near vertical to vertically dipping structure, which varies in width between 2.0 - 3.5 ft. The simple nature of the waveform, points toward a single mineralized zone or possibly several very closely spaced, parallel zones less than 6 inches apart.

3-2 Grid II

Region I (Figure 3). Region I located on line 10+800 NE between 9+50 NW and 8+00 NW, consists of two symmetric peaks of 540 γ and 390 γ respectively. The symmetry and width characteristics of the anomaly envelopes define two narrow structures approximately 3-4 ft. wide, which are dipping at a very steep angle approaching 90^{o}. The discontinuous nature of the anomalies from line to line is possibly due to a local, podlike distribution. Localized outcropping of lamprophyric material in the area may be the source.

Region II (Figure 3) is continuous from line 10+700 NE to Line 11+00 NE between stations 7+00 NW - 7+50 NW. This region has the most consistant trend observed to date with a general strike direction of N 59° E, and a width varying between 1 and 3 feet. Again the symmetry of the anomaly envelope indicates a near vertical dip, with the maximum varying between 210 γ and 420 γ.

Region III (Figure 3) is located on lines 10+700 NE and 10+800 NE, between 6+00 NW and 5+00 NW, is fairly discontinuous in extent, as it is seen on only two lines. The more southerly anomaly located on line 10+700 NE consists of two distinct highs with maxima of 540 γ and 480 γ respectively. The sources at this point have a near vertical dip and a width approximating 1 and 2.5 ft. respectively. The sources coalesce and strike N 67°E intersecting line 10+800 NE at 5+25 NW, as one unit, maintaining the vertical dip and a width of 1.5 feet.

Region IV (Figure 3). This same sort of situation is seen in Region IV, only the degree of magnetite enrichment appears to be greater. Here the anomalous zone extends from line 10+800 NE to line 10+900 NE with a strike approximating N 58° W. On line 10+800 NE the profile is simple, with a maximum of 420 γ and a width approaching 2.6 feet. As the source moves northward it appears to split into three separate zones of differing magnetic activities and widths. The three components have maxima of 1140 γ, 1680 γ and 1020 γ respectively, with widths of 2.25 ft., 2.25 ft., and 6 ft. Again the zones are in close proximity to each other (less than 2 ft. and dip at angles approaching 90^{o}). The zones appear to pinch out and end before reaching line 11+00 NE.

Region V (Figure 3) appears to be a simple, less active version of IV located on lines 10+900 NE, and 10+800 NE between stations 0+00 NW and 0+50 SW. The region is striking N 63^{o} E with relatively small maxima values of 180 γ and 240 γ , possibly indicating deeper burial.

3-3 Grid III (Figure 4)

Detailed magnetics done on lines 10+200 NE, 10+400 NE, 10+600 NE and 10+800 NE, was essentially devoid of any structure defining magnetite rich zones. The lines are characterized by low to medium amplitude, medium frequency magnetics with no pattern continuation from line to line. This type of magnetic effect is probably due to a combination of wind buffeting, and high magnetic latitudes, as a slight variation of the magnetometer from vertical would yield a Δz change of 100 γ .

3-4 Grid IV (Figure 5)

Two lines of magnetics (L 9+600 SW and L 9+000 SW) were run on this grid to determine if any magnetically anomalous areas were present. It is apparent by looking at the stacked profiles for the area that no such regions exist on these lines.

3-5 Tie Line 8+00 NW → 38+00 SE (Figure 6)

The majority of the activity along the tie line occurred between 8+00 NW and 1+50 SE. Two of the anomalous areas in this region (5+00 NW - 6+00 NW, 2+25 NW - 2+75 NW) (Figure 6) form distinct flat topped regions 75 meters - 100 meters across. These areas correspond to boulder fields made up of material with higher magnetic susceptibilities than the surrounding overburden.

The 360 γ peak between 6+25 NW and 6+50 NW may correspond to a lamprophyric intrusive which is known to occur in the area.

CHAPTER FOUR

4-1 Summary

Detailed magnetics were run over 4 areas within the Weir Mountain claim block.

The magnetic anomalies are distinctly linear, strike generally N 60^{o} E, dip vertically, and have envelope characteristics which vary between complex and simple (i.e. multipeaked vs. single peaked). Generally the signatures are of short strike length (approx. 100 m), but a linear zone stretching 300 meters was observed on Grid II, with little variation along strike. The apparent widths of the mineralized zones (as computed using half maximum techniques), ranged from 6" to 6' for some of the more complex areas.

These characteristics suggest a fracture or shear system, with near vertical geometry, which is mineralized by magnetite or other material with high magnetic susceptibility.

4-2 Further Recommendations

1. Detailed magnetics be run to trace out fracture systems and localize "active" regions within the property.
2. That EM-31 be tested over regions of mineralization to determine "response quality", which is good, may enable it to be used in conjunction with, or possibly in place of Induced Polarization.
3. That closely spaced I.P. (a spacing 20') be run over these active regions to determine economic potential (i.e. assuming galena is main responder).
4. That the best response areas be drilled.

CERTIFICATE

I, James Loiselle, of the city of Calgary, Province of Alberta, do hereby certify that:

1. I am a geophysicist residing at 700, 67 th Ave. Sw, Calgary.
2. I am a graduate of the University of Minnesota, U.S.A., with a BSc Hons (1976) in geology.
3. I am a graduate of the University of Manitoba, with a MSc (1980) in Geophysics.
4. I have been practicing my profession since 1976.
5. I am a member of the S.E.G., G.A.C.
6. The information contained in this report is accurate to the best of my ability.

Dated: July 29, 1980

James R. Loiselle

James Loiselle-MSc. (1980)

CERTIFICATE

I, William Mercer, of the City of Edmonton, Province of Alberta, do hereby certify that:

1. I am a geologist residing at 6814 - 110 Street, Edmonton.
2. I am a graduate of Edinburgh University, Scotland, with a B.Sc. Hons (1968) in geology and McMaster University, Ontario, with a Ph.D. (1975) in geology.
3. I have been practicing my profession since 1974 and am at present District Geologist for Noranda Mines Limited in Edmonton.
4. I am a fellow of the Geological Association of Canada and a member of the Society of Economic Geologists and the Canadian Institute of Mining and Metallurgy.
5. I supervised the work that is described in this report.

Dated: 7 August 1980

GEOLOGICAL ASSOCIATION OF CANADA · FELLOW ·
W. MERCER

W. Mercer, Ph.D.

COST BREAKDOWN

Operator:	James Loiselle
Mobilization:	8th September
Magnetic Survey:	September 9 - 15
Demobilization:	16th September
Report Writing:	September 17 - 22

Claim	Km Surveyed
CY 1	
CY 2	
CY 3	
CY 4	
CY 5	
CY 6	6.68 km
CY 7	1.0 km
CY 8	2.1 km
ENG 1	.750 km
ENG 2	1.750 km
ENG 3	4.8 km
TOTAL Km	17.08 km

APPENDIX 1

Additional magnetic surveying was performed by George Doucet using a McPhar Fluxgate magnetometer. 8 km were surveyed with 25m reading interval.

A different background setting was used by Doucet, thus his anomalies can only be compared in a relative way with those of Loiselle. The data is plotted in Appendix Map 1. Note two lines were located before a surveyed baseline was put in. These are 10+100SW and 10+200SW.

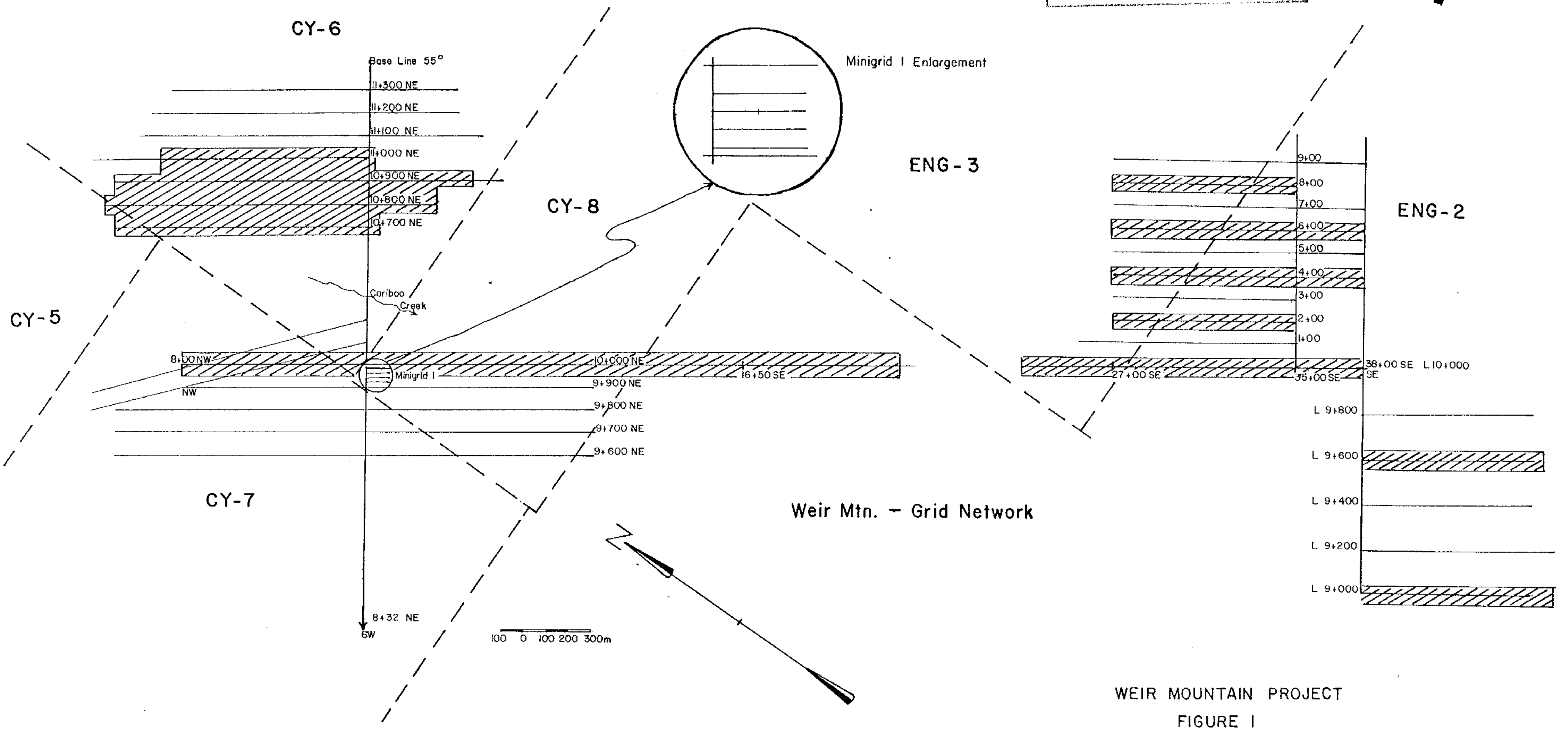
One particularly pronounced anomaly is present, that being around 600NW on the map and is persistent across all 5 lines. It may be related to a pronounced anomaly through lines 10+700, 800 and 900NE at 725NW on Loiselle's data.

Respectfully submitted,

W. Mercer

WM/sal

PART 2 of 2



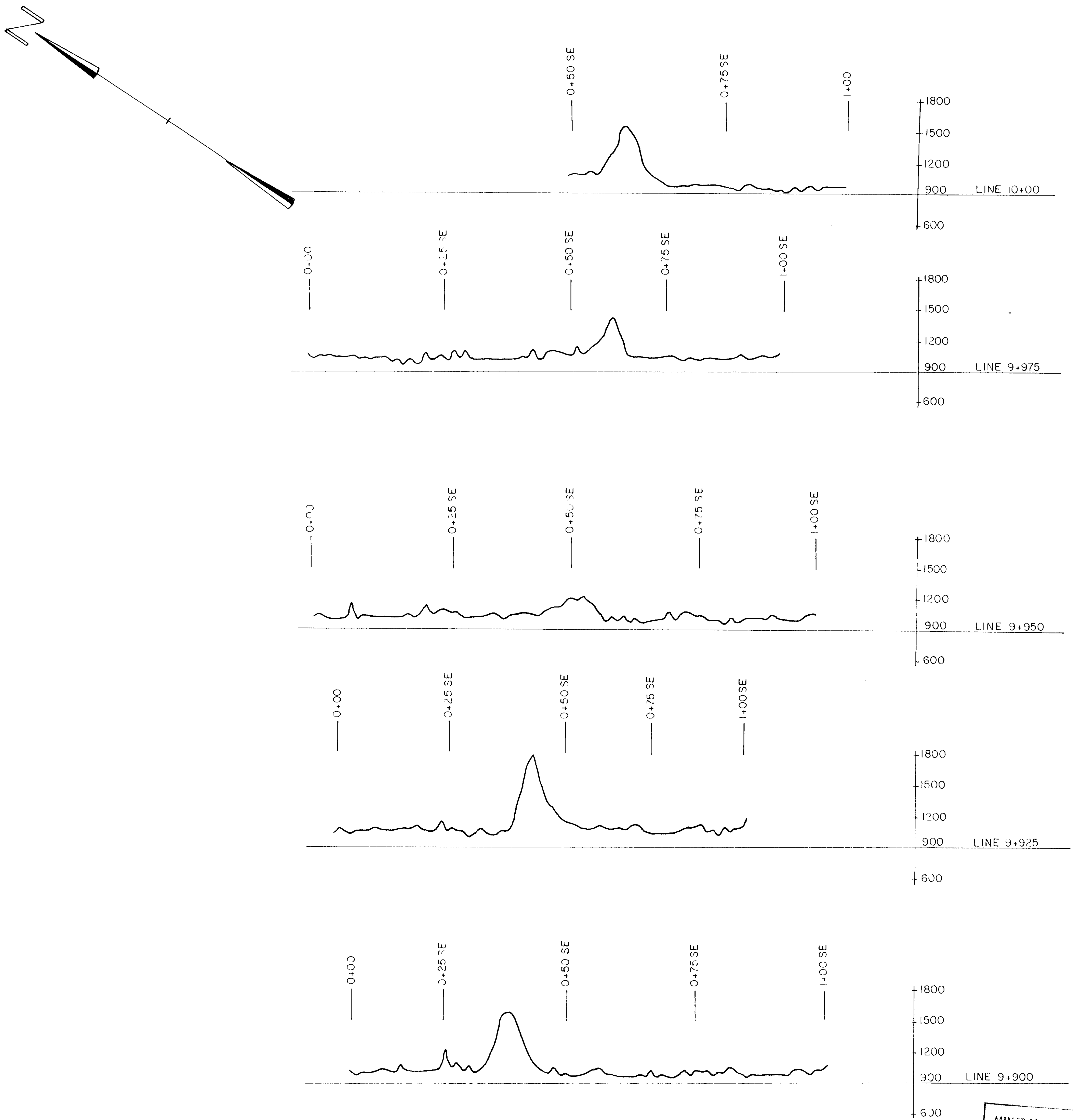
WEIR MOUNTAIN PROJECT

FIGURE I

Surveyed grid network 1979 & areas covered by magnetometer surveys

Areas of detailed mag. surveys by J. Loiselle.

Claim boundary.



PART 2 of 2

MATTAGAMI LAKE EXPLORATION LIMITED.

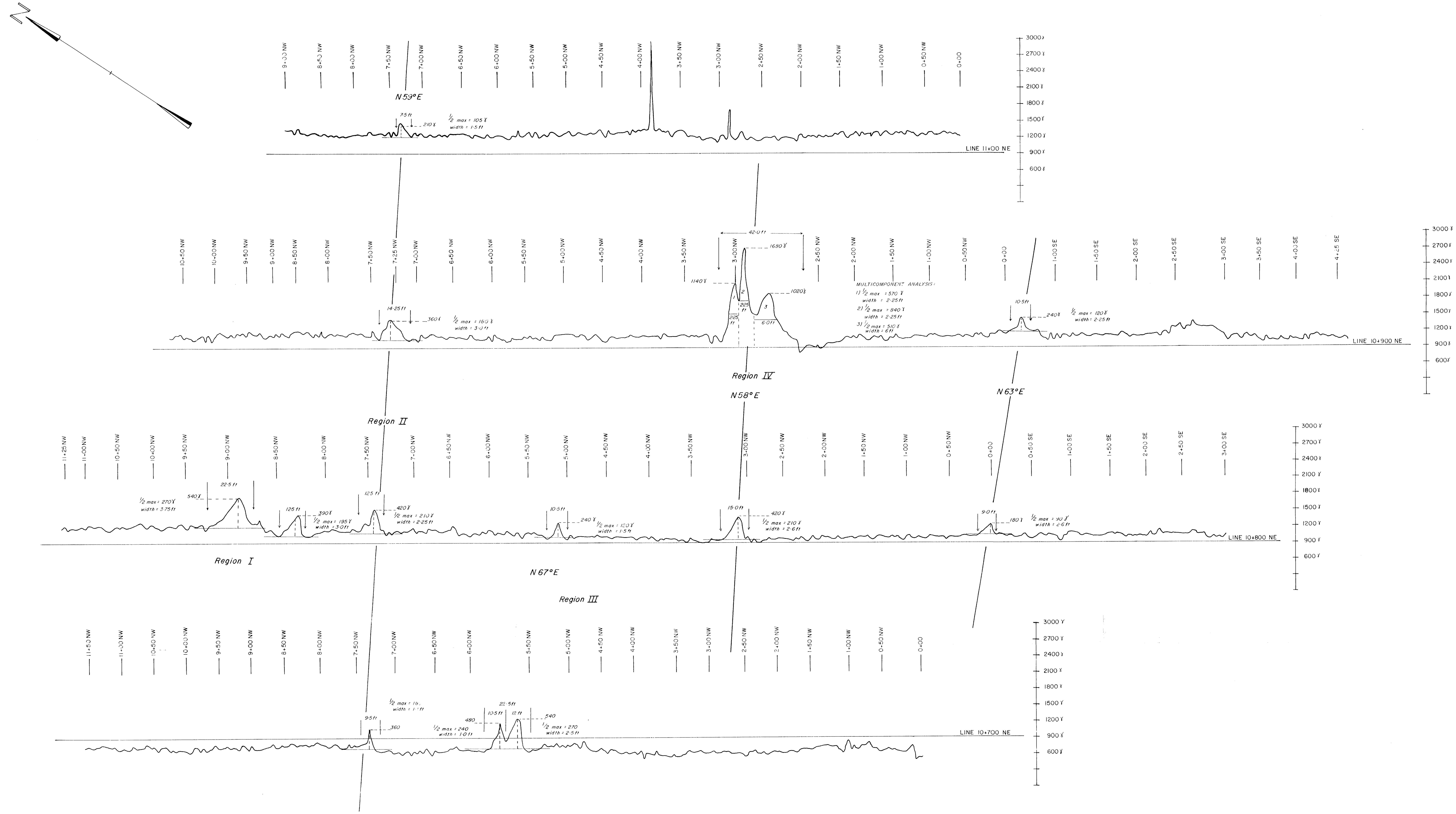
WESTERN FIELD OFFICE

EDMONTON, ALBERTA

WEIR MOUNTAIN PROJECT
FIGURE 2
'F' ZONE MINIGRID
DETAILED MAGNETICS

DRAWN BY: D.R. BULL.

DATE: JUNE 1980



ANALYSIS BY J. LOISELLE

8413
PART 2 of 2

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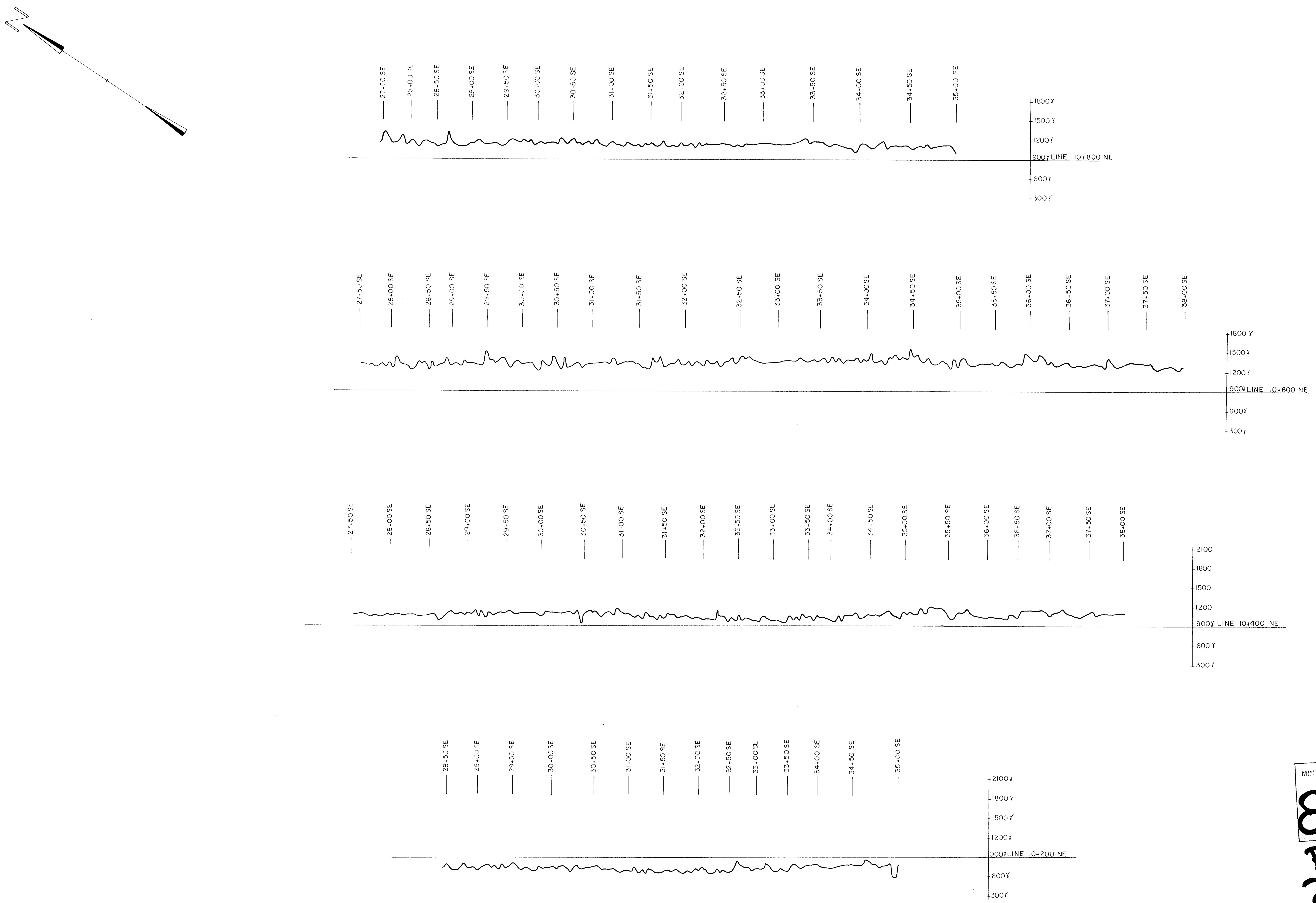
EDMONTON, ALBERTA.

WEIR MOUNTAIN PROJECT
FIGURE 3
MAIN GRID (II)
DETAILED MAGNETICS

DRAWN BY: D.R. BULL.

DATE: JUNE 1980



PART 2 of 2

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WEIR MOUNTAIN PROJECT

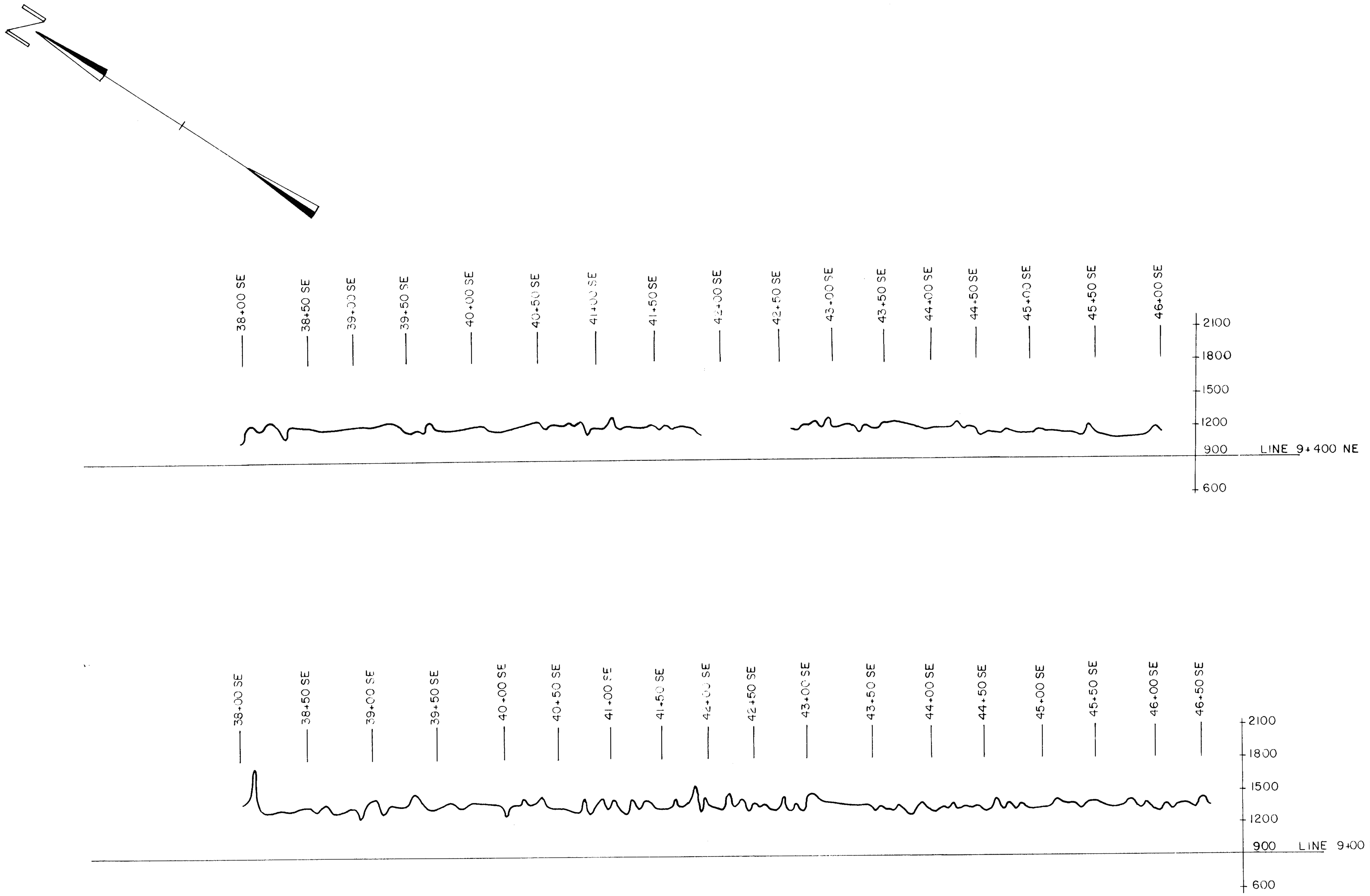
FIGURE 4

FEATHER CREEK GRID (III)

DETAILED MAGNETICS

DRAWN BY: D.R. BULL.

DATE: JUNE 1980



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WEIR MOUNTAIN PROJECT
FIGURE 5
GALENA CREEK GRID (IV)
DETAILED MAGNETICS

DRAWN BY: D.R. BULL.
DATE: JUNE 1980

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WEIR MOUNTAIN PROJECT
FIGURE 6
TIE LINE
DETAILED MAGNETICS

DRAWN BY: D.R. BULL.

DATE: JUNE 1980


CY-5
CY-6
CY-7
CY-8
L 9+600 NE
L 9+700 NE
L 9+800 NE
L 10+200 SW
L 10+100 SW
L 9+900 NE
TIE LINE 10+000 NE
L 10+700 NE
L 10+800 NE
L 10+900 NE
L 11+000 NE
L 11+100 NE
L 11+200 NE
L 11+300 NE
10+100 NE
10+200 NE
10+300 NE
10+400 NE
10+500 NE
10+600 NE
1100 NW
1000 NW
900 NW
800 NW
700 NW
600 NW
500 NW
400 NW
300 NW
200 NW
100 NW
0+00
100 SE
200 SE
300 SE
400 SE
500 SE
600 SE
700 SE
800 SE
900 SE
1000 SE
1200 NW
GRID NETWORK
LOCATION MAP
McPhar Fluxgate
Scintrex Fluxgate MF-2
8413
PART 2 of 2
MATTAGAMI LAKE EXPLORATION LIMITED.
WESTERN FIELD OFFICE
EDMONTON, ALBERTA.
WEIR MOUNTAIN PROJECT
APPENDIX MAP I
MAGNETOMETER SURVEY
OPERATORS: McPhar: G. DOUCET.
Scintrex: J. LOISELLE.
DRAWN BY: D.R. BULL.
DATE: JUNE 1980
0 25 50 75 100 200 metres