

4084

92H/10
GEOPHYSICAL REPORT

on the
RECONNAISSANCE MAGNETOMETER SURVEY

of the

Fan No. 1 to 6, Fan No. 29 to 42, and Fan No. 49 to 56

Mineral Claims

situated approximately

13 miles North

of Princeton

Similkameen Mining Div.

Southern British Columbia

Latitude $49^{\circ}40'N$; Longitude $120^{\circ}35'W$

N.T.S. 92 H/10 (w $\frac{1}{2}$)

and on behalf of

Jay Butterworth

Field Work Between October 26 and November 13, 1972

Report by:

A. Scott, B.Sc.
D. R. Cochrane, P.Eng.
November 24, 1972,
Delta, B.C.



Cochrane Consultants Limited
4882 Delta Street, Delta B.C. (604) 946-9221

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Department of	
Mines and Petroleum Resources	
ASSESSMENT REPORT	
NO. 4084	MAP

PART A:

A-1 INTRODUCTION:

Between October 26 and November 13, 1972, Mr. Jay Butterworth and Mr. Evans Sleeman completed a vertical field reconnaissance magnetometer survey over the Fan No. 1 to 6 and Fan No. 31 to 50 mineral claims owned by Mr. Jay Butterworth.

Cochrane Consultants Ltd. personnel, prepared the accompanying maps, interpreted the results and prepared this interpretation report during the period November 20 to November 27, 1972.

This report describes the setting of the claims and the procedures followed and discusses the results of the magnetometer survey.

A-2 SUMMARY AND CONCLUSIONS:

1. The Fan Claims No. 1 to 6, No. 29 to 42 and No. 49 to 56 are located near Laird Lake some 12 miles north of Princeton, B.C. in the Similkameen Mining Division.

2. Some 15.6 line miles of vertical field magnetometer surveying was conducted over these claims by Messrs. Butterworth and Sleeman. Readings were taken at 200 foot intervals on east - west directed cross lines separated by 400 and 600 feet.

3. A Scintrex MF-2 fluxgate magnetometer was used with readings taken on the 10K scale. The unit has a sensitivity of ± 100 gammas on this scale hence data is considered to be of a reconnaissance nature.

4. In areas where more detail is desired, fill in work at a smaller station interval, and using a more sensitive scale, is advisable.

5. The contours on the isomagnetic plan (Figure 4) have been reduced 2400 gammas below the amount displayed on the magnetometer value plan (Figure 3). This was done to make it easier to compare the present results to those of a survey conducted on the Fan claims immediately to the north earlier this year.

6. In the following discussion these adjusted contour values are indicated in brackets. Results range from a high of 6600 gammas (4200) to a low of 2600 gammas (200). The arithmetic mean is 3650 gammas (1250) and the standard deviation is 450 gammas.

7. The frequency histogram of the recorded magnetic values shows a possible separation of families in the 3600 to 3799 range and this closely coincides with the 3650 average value level. There is some indication that areas characterized

by magnetic values in excess of 3650 gammas (1250) are underlain by acidic intrusive rocks, and those areas below the 3650 level are underlain by Nicola group rocks. This division is rather arbitrary and further geological mapping is necessary to support this suggestion.

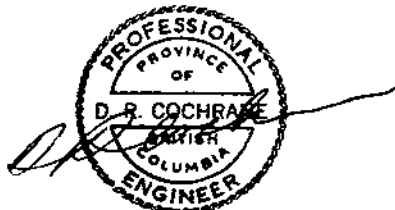
8. Several north-northwest trending magnetic lineal lows occur within the survey area, and these linears and disruptions may be due to faults.

9. A magnetic complex was outlined on the Fan No. 1 to No. 6 claims, in addition to four additional magnetic (high amplitude) anomalies. They are shown graphically in Figure No. 5 (map pocket).

10. Mr. D. C. Malcolm (Consulting Geologist) has mapped the area and reported (personal communication) an association between copper mineralization and magnetite. Therefore magnetic highs are prime prospecting targets.

11. In addition to the magnetic highs, steep magnetic gradients on the flanks of these highs, and the Nicola-Intrusive contact zone are believed to represent exploration targets.

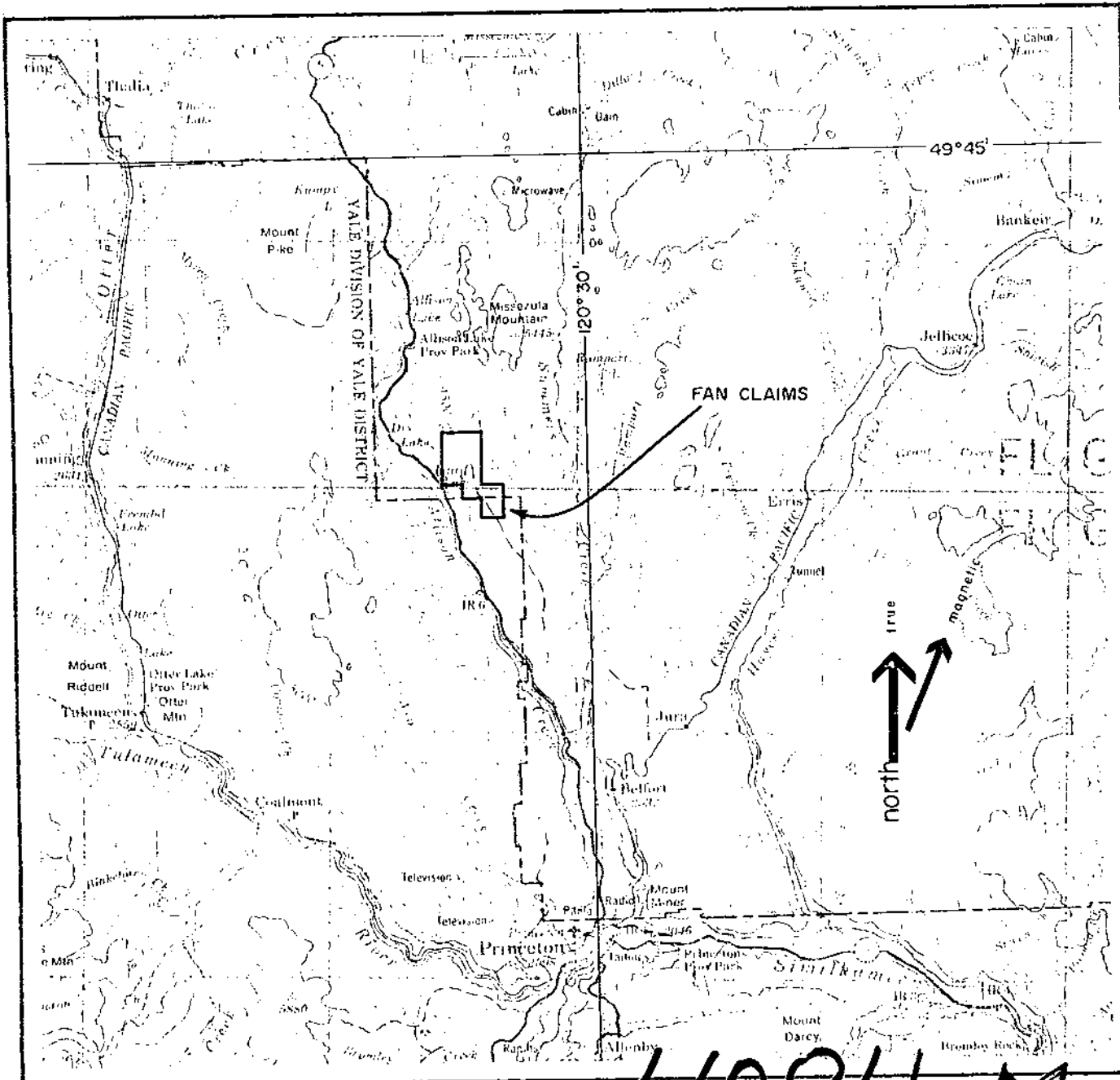
Respectfully submitted,



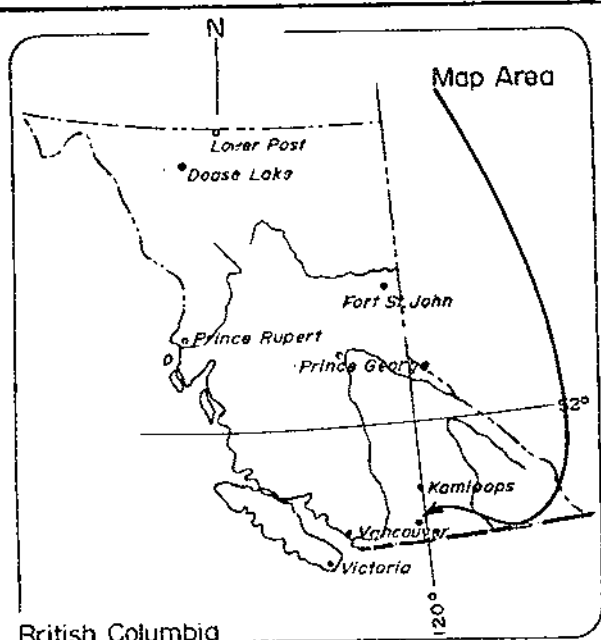
D. R. Cochrane, P.Eng.,
November 27, 1972.

RRL for
A. Scott

A. Scott, B.Sc. (Geophysics)
Delta, B.C.



4084 M-1

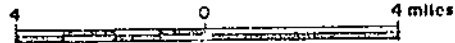


Jay Butterworth
 Fan Claim Group
 Laird Lake Area, British Columbia
 Similkameen Mining Division

Location Map

N.T.S.

Scale: 1 to 250000 or 1 inch equals approx. 4 miles



Cochrane Consultants Limited
 4882 Delta Street — Delta B.C.

figure 1

Department of
Mines and Petroleum Resources

ABSTRACT OF REPORT

NO. 4084 MAP #1

PART B:

B-1 LOCATION AND ACCESS:

The Fan claims are located about one-half mile east of Highway No. 5 near Laird Lake and some 12 miles north of the town of Princeton in South Central British Columbia.

Co-ordinates are $49^{\circ}38'N$ latitude by $120^{\circ}34'W$ longitude, and the N.T.S. code is 92H/10E.

Facile access is by a dirt road that turns east from Highway No. 5 between Laird and Dry Lakes.

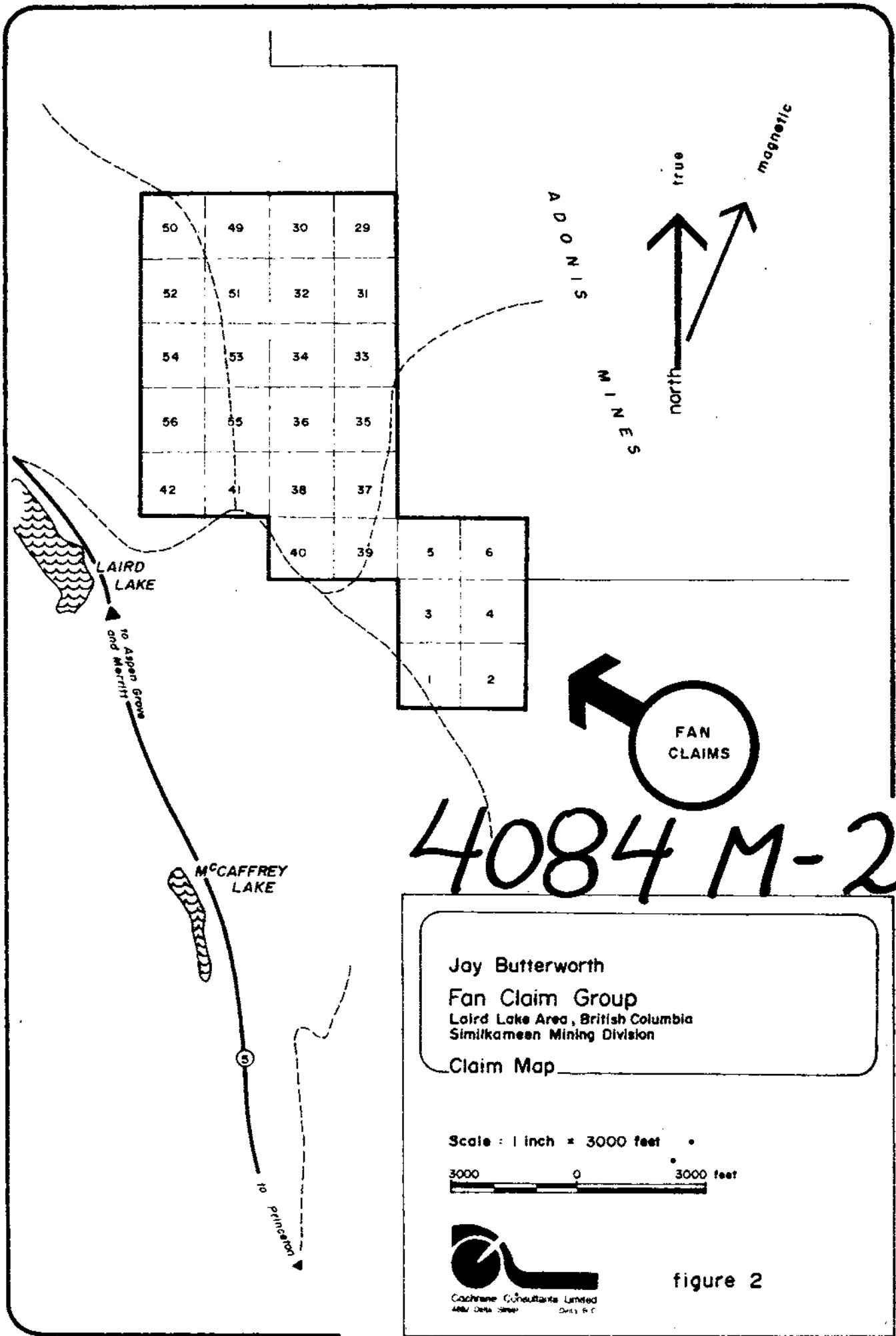
B-2 CLAIMS AND OWNERSHIP:

The claims are owned by Mr. Jay Butterworth and the claims location is outlined on Figure 2 and pertinent information (as obtained from Department of Mines and Petroleum Resources Map 92H/10E (M)) is tabulated below:

<u>Name</u>	<u>Record Number</u>	<u>Expiry Date</u>
Fan No. 1 to 6	34658 - 34663	November 29
Fan No. 29 to 42	34686 - 34699	" "
Fan No. 49 to 56	34706 - 34713	" "

B-3 GENERAL SETTING:

The Fan claims are situated in the relatively gently rolling interior plateau area of Southern British Columbia, and immediately east of the Cascade Range. H.M.A. Rice (Geological Survey of Canada, Map 888A, Princeton Sheet) shows the claims area as underlain by the Upper Triassic Nicola Group of intermediate volcanics and intercalated sediments. This series is intruded by the Jurassic (or Later) Coast Intrusions, mainly granites, granodiorite and quartz diorites. Mr. D. C. Malcolm (Consulting Geologist, Vancouver, B.C.) has mapped portions of the claims area, and reports (personal communications) that a series of north-northwest trending faults transect the very broken and altered Nicola rocks in this general area. He suggested that copper mineralization is often associated with fine disseminated magnetic and diorite and granodiorites which are themselves slightly magnetic. Therefore reconnaissance magnetometer surveys are a good guide for prospecting the fairly heavily overburdened area in the vicinity.



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NO. 4084 MAP #2

PART C:

C-1 GROUND CONTROL GRID:

The grid was established in continuation of a survey grid utilized by Geotronics Surveys Ltd., in a magnetometer survey conducted earlier this year, on the Fan claims that lie immediately to the north of Fan No. 29 to 32.

The claim line for Fan No. 31 to 40 serves as a baseline and is at 75E. Crosslines run east-west from approximately 27E to 91E and at a separation (normally) of 400 feet over claims Fan No. 30 to 42 and Fan No. 49 to 56. The crosslines run east-west between stations 87E to 119E, and at a separation of 800 feet over claims Fan No. 1 to 6.

C-2 MAGNETOMETER FIELD PROCEDURE:

A Scintrex MF-2 fluxgate magnetometer was used and readings were taken on the 10,000 gamma scale with a latitude adjustment buck-out of 50,000 gammas. When working on the 10K scale the MF-2 is readable to 100 gammas, hence the best possible accuracy of the results is ± 100 gammas.

Results are therefore considered to be of a reconnaissance nature and, in areas where more detail is required, fill-in work at a smaller station interval, and using a more sensitive scale, should be done.

A base station was established at line 70N:Station 59E. The magnetometer was checked in at this station in the morning, at noon, and at night to monitor diurnal fluctuations. Values ranged from 3000 to 3200 gammas and, therefore, were all within the margin of error of 3100 ± 100 gammas making time drift adjustments unnecessary.

Field notes show line and station number, magnetic field strength, time of reading and make note of claim posts, outcroppings and power and gas lines.

C-3 DATA PROCESSING:

Cochrane Consultants Ltd. personnel plotted and hand-contoured the field data. Statistical analysis was performed with the aid of a pre-programmed electronic calculator.

The relative frequency distribution histogram was prepared by hand.

PART D:

D-1 DISCUSSION OF RESULTS:

Figure 3 (map pocket at the rear of this report) gives the measured magnetic values.

The values represent the vertical magnetic field strength component minus 50,000 gammas (latitude adjustment buck-out) at the plotted point. The inset diagram on Figure 3 shows the relative frequency distribution of these values. Figure 4, also in the map pocket at the rear of this report, is an isomagnetic plan and Figure 5 an interpretive sketch.

Comparison of these survey results, to the one conducted earlier this season immediately to the north, indicates a difference in amplitude of some 2,400 gammas between adjacent lines.* Therefore, the contour plan (Figure 4) has been adjusted by this amount in order that comparisons between the two surveys can be more readily made.

*Note: the previous survey's data had 54,000 gammas subtracted from the plotted value, compared to only 50,000 gammas on this survey. Reducing the present data by a further 2,400 gammas leaves an apparent difference between the two data sets of some 1600 gammas. This is believed to represent the amount the fine tuning latitude adjustment of the MF-2 had been turned, i.e. because the instrument used on the previous survey reads the total field digitally and does not employ a buck-out system, it is assumed to have given the correct value of the total vertical field.

There is a slight suggestion from the frequency histograms, that two families of values exist, and which may be interpreted as magnetic response from two distinct rock types that underly the survey area. This "family" division occurs at the 3600 to 3799 level, and also close to the arithmetic mean of 3650 gammas (unadjusted).

Statistically, the following categories of vertical field values, with the corresponding adjusted contour values, are herein defined. (see Table 1 over page)

Figure 4, the isomagnetic plan shows the dominant isomagnetic trends are north-northwest directed and these throughgoing trends presumably reflect the overall geologic "grain" of the survey area. Several north-northwest trending magnetic lineal (lows) are shown on Figure No. 5 (Interpretation) and these linears in some instances may indicate fault zones. Those areas characterized by response below the unadjusted 3650 gamma level (or adjusted 1250 gamma level) may indicate areas underlain by the Nicola Volcanic series. Those areas characterized by response in excess of an unadjusted 3650 gamma level may indicate the underlying rock is the acidic intrusive which is often moderately magnetic in this portion of British Columbia. This division of magnetic values is shown in Figure 5,

but is meant as a rough geologic interpretational guide only. Geologic mapping is necessary to accurately define those bedrock units and the intrusive-volcanic contact.

Chalcopyrite is often associated with magnetite and therefore in areas of relatively high magnetic response. Thus, the magnetic "highs" outlined on Figure 5, and areas of steep magnetic gradients are prime prospect target areas. These include:

1. Magnetic Complex A - situated in the southeastern survey area, on claims Fan No. 1 through Fan No. 6. This is an area of complex, and large magnetic relief and the peak value (unadjusted) is 5200 gammas at station 101E on line 42N. This station, however is directly under the power line (see Figure 5).
2. Magnetic Anomaly B - centered in and around the common boundary of the Fan No. 42 and Fan No. 56 claims. The peak value is 6600 gammas and was recorded at a point 40E on line 66N. The magnetic plan suggests an intrusive rock underlies this area.
3. Magnetic Anomaly C - is situated near the center of the Fan No. 38 claim. The peak values is 4600 gammas and occurs at 73E on line 62N.

4. Magnetic Anomaly D - is situated on the Fan No. 50 claim and the peak value is 4400 gammas.

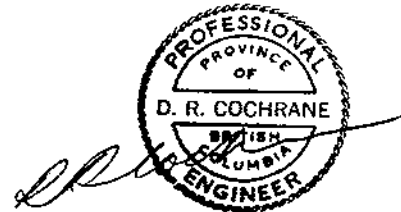
5. Magnetic Anomaly E - is a fairly widespread magnetic high located along the east side of the survey area, and is open to the east. The peak magnetic value is 4400 gammas.

The above described magnetically high complexes and anomalies are of prime exploration interest in addition to the steep magnetic gradients on the flanks of the magnetic highs. Other areas of interest are the geophysically indicated volcanic/intrusive contact which appears to be important in the localization of mineralization in the Princeton area.

Respectfully submitted,

DR
A. Scott

A. Scott, B.Sc. (Geophysics)



D. R. Cochrane, P.Eng.,
November 27, 1972,
Delta, B.C.

Table 1

Categories of Magnetic Values

Unadjusted Values (in gammas)	Adjusted Values (in gammas)		<u>Classification</u>
< 3200	(< 800)		Magnetic Low
3200	(800)	↑ Below Average	Background
3650	(1250)	Arithmetic Mean	
4100	(1700)	↓ Above Average	Magnetic High
4550	(2150)		Strong Magnetic High
> 4550	(> 2150)		



APPENDIX I

Certificates

NAME: COCHRANE, Donald Robert

EDUCATION: B.A.Sc. - U. of T., M.Sc. (Eng.) - Queens
PROFESSIONAL: Professional Engineer of B.C., Ontario, and
ASSOCIATIONS: Saskatchewan. Member of C.I.M.M., G.A.C.,
M.A.C., Geological Engineer

EXPERIENCE: Engaged in the profession since 1962 while
employed with Noranda Exploration Co. Ltd.,
Quebec Cartier Mines Ltd., and Meridian
Exploration Syndicate.

NAME: SCOTT, Alan R.

EDUCATION: B.Sc. - U.B.C. (Geophysics)

EXPERIENCE: Two summers - crew member and operator with
Geo-X Surveys Ltd. Presently employed with
Cochrane Consultants Ltd. - Geophysicist

PROFESSIONAL: Member of S.E.G.
ASSOCIATIONS:

NAME: ROSSIER, Jean-Claude

Age: 27

EDUCATION: Secondary and Vocational School - Architectural
Drafting Courses

EXPERIENCE: Since 1965 - General Drafting Experience
Geophysical Drafting, Seigel Associates - 1969 - 1972

NAME: BUTTERWORTH, Jay

Age: 47

EXPERIENCE: Prospector - 2 years University (Science)
Training. Several years experience in general
exploration.

NAME: SLEEMAN, Evans

Age: 45

EXPERIENCE: Prospector - 2 years University Training
Several years experience in general exploration
work.

APPENDIX II

Assessment Details

PROPERTY: Fan Claims No. 1 to 6, Fan No. 29 to 42
and Fan No. 49 to 56

MINING DIVISION: Similkameen

LOCATION: near Laird Lake, some 12 miles north of Princeton, B.C.

SPONSOR: Mr. Jay Butterworth

SURVEY TYPE: Fluxgate Magnetometer (Vertical Field)

SURVEY MAN DAYS: 2 x 8 = 16

DATA PROCESSING & REPORT PREPARATION: 2 days - A.Scott
3/4 day - D. R. Cochrane

DRAFTING: 5 days

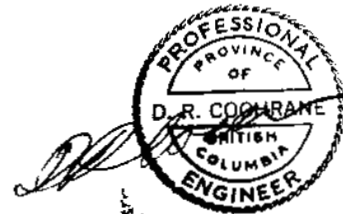
LINE MILES: 15.6

STATION INTERVAL: 200 feet

PERSONNEL:

A. Field Work - J. Butterworth
E. Sleeman

B. Office Work - A. Scott - Data Processing, Report
D. R. Cochrane - report
J. C. Rossier - Drafting

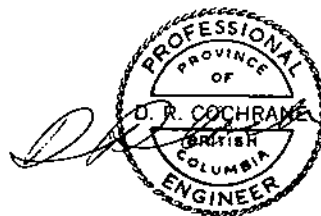


D. R. Cochrane, President
Cochrane Consultants Ltd.

APPENDIX III

COST BREAKDOWN

A.	Field Work: (Cost as per J. Butterworth/ E. Sleeman)	
1.	Line cutting	
	4 days 2 men = 8 man days	
	@ \$50 1 man 1 day	400.00
2.	Mag Survey	
	10 days 2 men = 20 man days	
	@ \$50 1 man 1 day	1000.00
3.	4 X 4 transportation	156.00
4.	Board loss	292.63
5.	Magnetometer rental	
	11 days @ \$15 1 day	165.00
6.	Mobilization / demobilization / standby	
	5 days, 2 men	
	10 men days @ \$25 1 man, 1 day	250.00
		<hr/>
	Sub Total	2263.63
B	Data Processing, Report and Map Preparation as per invoice dated Nov. 29, 1972	
	(Cochrane Consultants Ltd.)	
		<hr/>
	Sub Total	548.16
		<hr/>
	Total	2811.79



Declared before me at the *City*
of *Nanaimo*, in the
Province of British Columbia, this *29th*
day of *Nov.*, 19*12*, A.D.

Jay Butterworth

G. Phillips

A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.

SUB-MINING RECORDER

Specifications of Fluxgate Magnetometer Model MF-2

	RANGES	SENSITIVITY
Standard:	Plus or minus	
	1,000 gammas f.sc.	20 gammas/div.
	3,000 gammas f.sc.	50 gammas/div.
	10,000 gammas f.sc.	200 gammas/div.
	30,000 gammas f.sc.	500 gammas/div.
	100,000 gammas f.sc.	2000 gammas/div.
Optional:	100 gammas f.sc.	2 gammas/div.
	300 gammas f.sc.	5 gammas/div.
Meter:	Taut-band suspension	
	100 gamma scale 2.1" long - 50 div.	
	300 gamma scale 1.9" long - 60 div.	
Accuracy:	1000 to 10,000 gamma ranges \pm 0.5% of full scale.	
Operating Temperature:	-40°C to +40°C -40°F to +100°F	
Temperature Coefficient:	Less than 1 gamma per °C (1/2 gamma/°F)	
Noise Level:	Less than 1 gamma P-P	
Bucking Adjustments: (Latitude)	-20,000 to +80,000 gammas 9 steps of 10,000 gammas plus fine control of 0 - 10,000 gammas by ten turn potentiometer Reversible for southern hemisphere.	
Recording Output:	Optional.	
Electrical Response:	D.C. to 0.3 cps (3db down) on 100 gamma range with meter in circuit. D.C. to 20 cps with meter network shorted for recording purposes.	
Connector:	Cannon K02-16-10SN for plug Cannon K03-16-10-PN and cover K06-16-3/8.	
Batteries:	Internal 3 x 6V-1 amp/hr. Sealed Lead Acid rechargeable Centralab GC 6101; recharge time 8 hrs.	
Consumption:	60 milliamperes - GC6101 batteries are rated for 16 hours continuous use.	

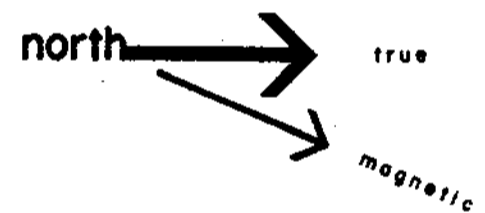
Dimensions: 6 1/4" x 2 3/4" x 10" Instrument.
161 mm x 71 mm x 254 mm

Weights: 5 lb. 8 oz. - 2.5 kg.

Battery Charger: 6" x 2 1/2" x 2 1/2"
155 mm x 64 mm x 64mm
110V - 220V 50/60 Hz supply or 28 - 42V D.C.
supply Automatic charge rate and cutoff
preset for Centralab GC6101 batteries.

legend

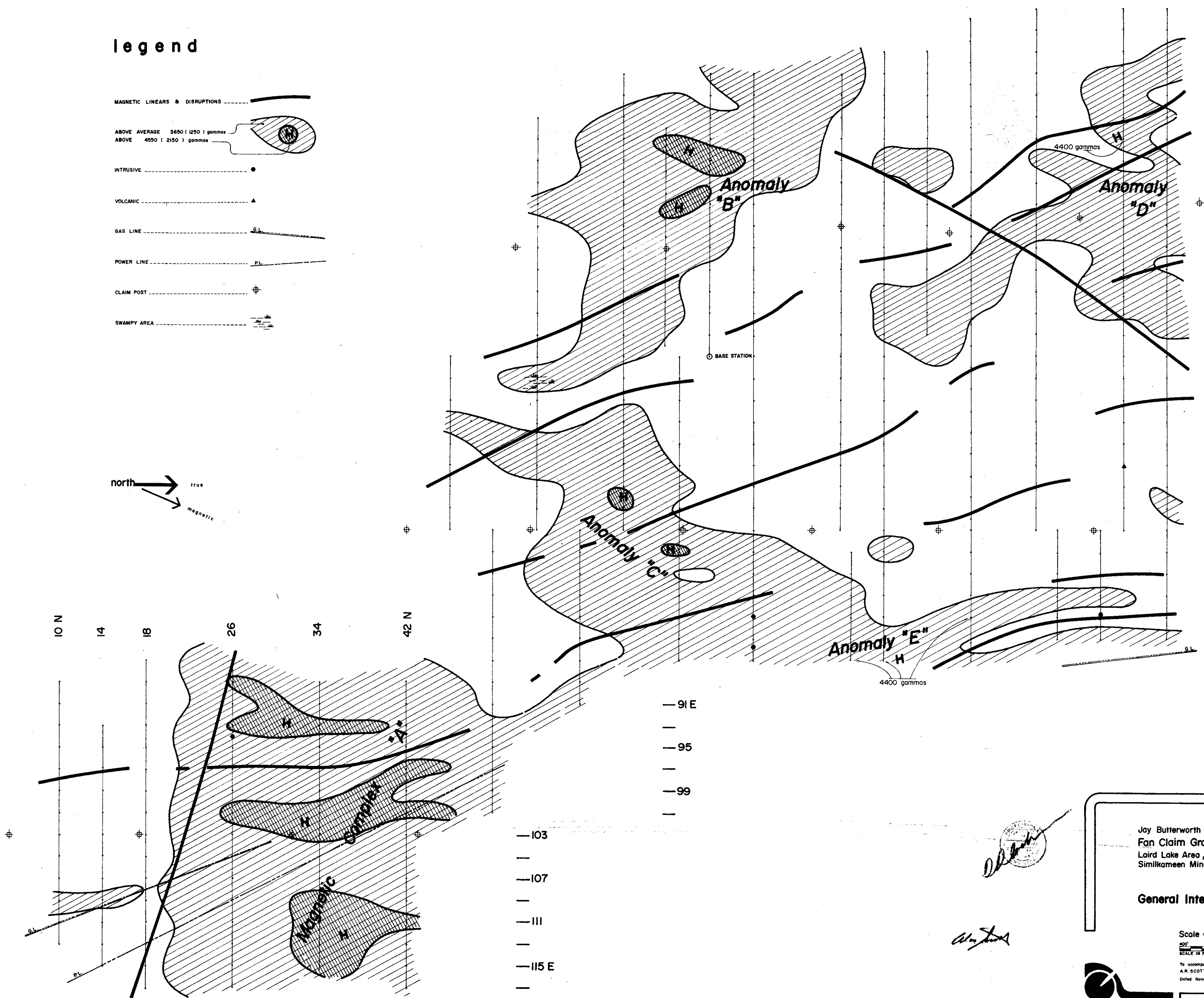
- MAGNETIC LINEARS & DISRUPTIONS
- ABOVE AVERAGE 3650 (1250) gammas
- ABOVE 4550 (2150) gammas
- INTRUSIVE
- VOLCANIC
- GAS LINE
- POWER LINE
- CLAIM POST
- SWAMPY AREA



46 N 50 54 58 62 66 70 74 82 86 90 94 100 102 106 108 112 N

—27 E
—31
—35
—39
—43
—47
—51
—55
—59
—63
—67
—71
—75
—79
—83
—87
—91 E

10 N 14 18 26 34 42 N



—91 E
—95
—99
—103
—107
—111
—115 E

Handwritten signature

Handwritten signature

Jay Butterworth
Fan Claim Group
Laird Lake Area, British Columbia
Similkameen Mining Division

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4084 MAP #5

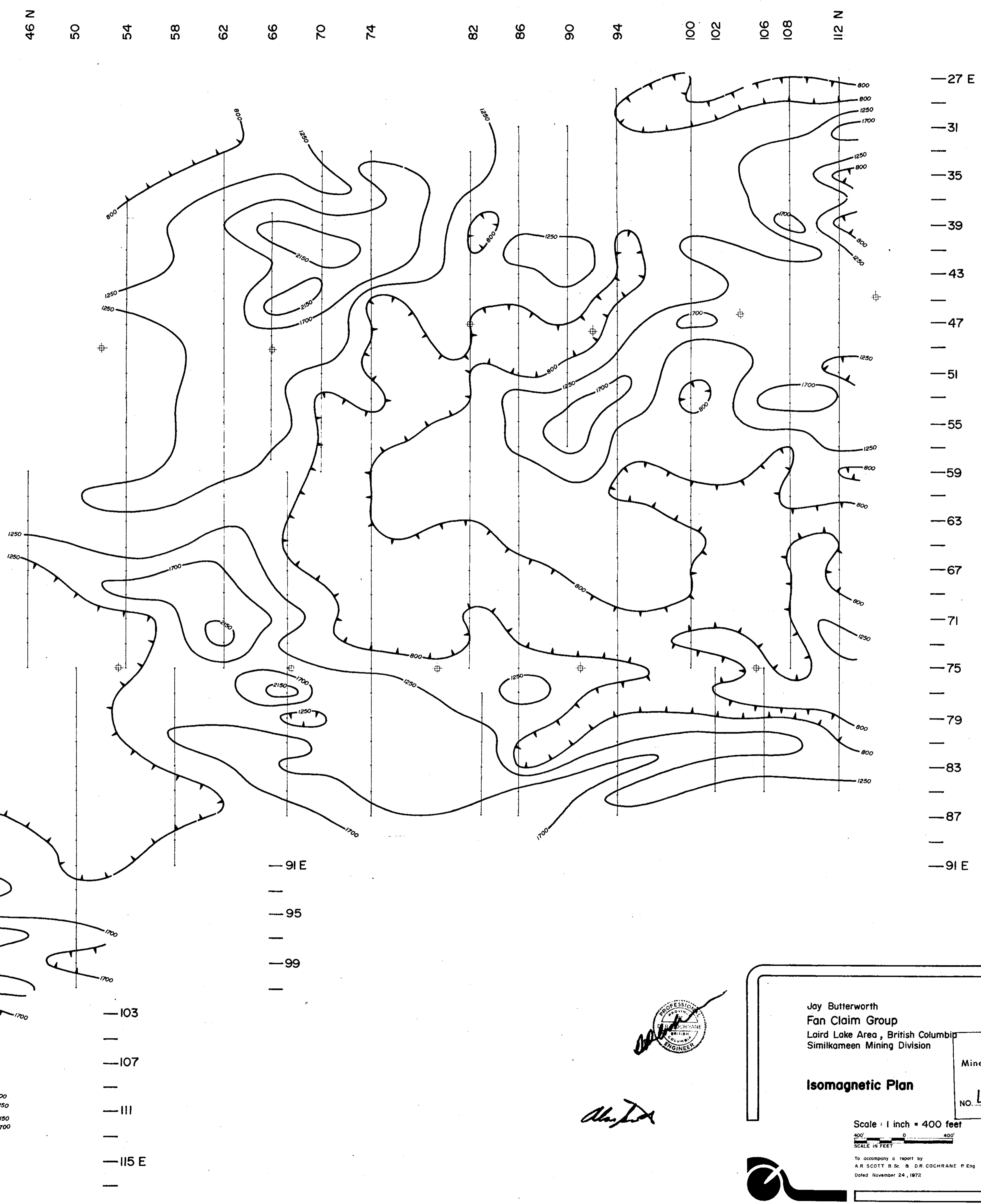
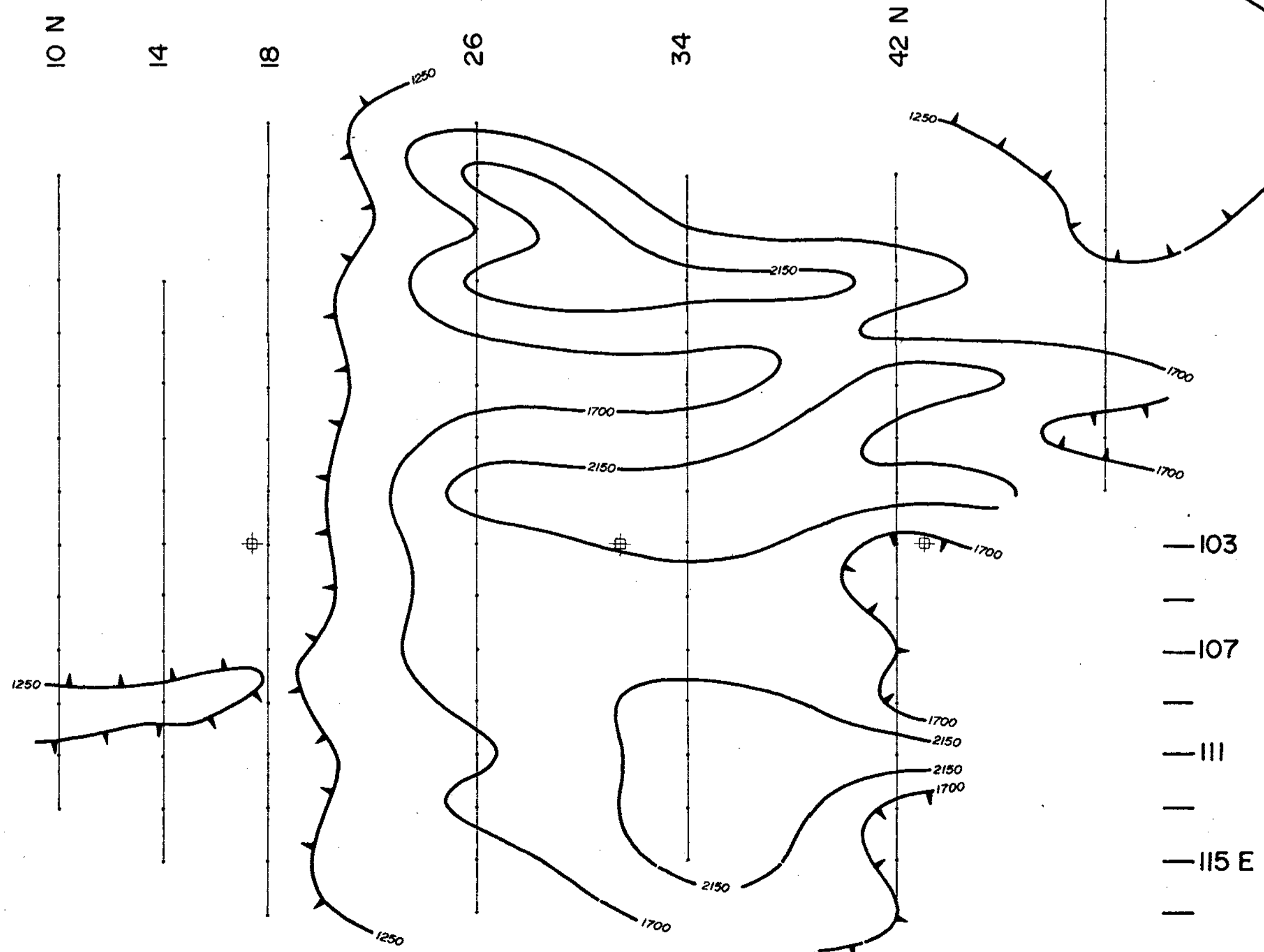
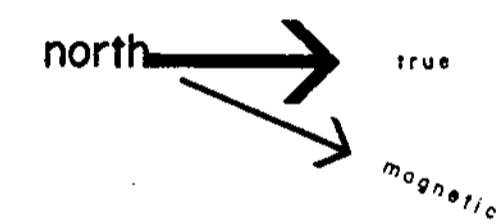
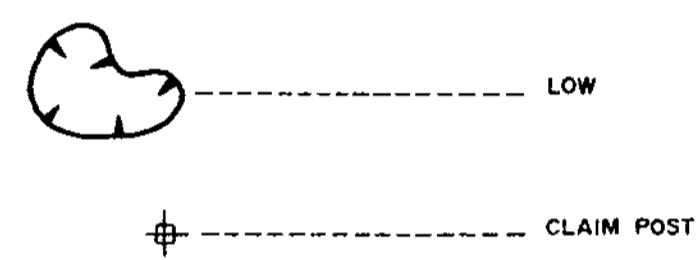
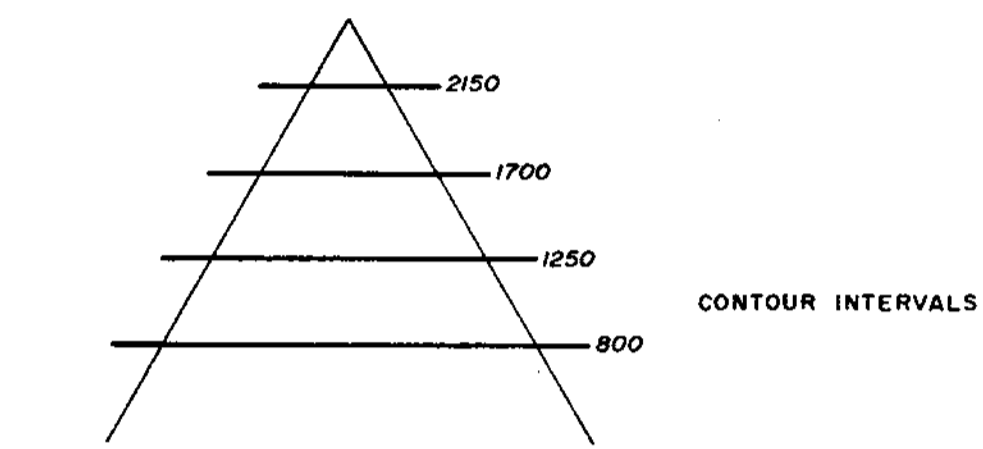
General Interpretation

Scale: 1 inch = 400 feet
SCALE IN FEET

To accompany a report by
A.R. SCOTT B.Sc. & D.R. COCHRANE P.Eng.
Dated November 24, 1972

Cochrane Consultants Limited
4882 Delta Street Delta B.C.

legend



A.R. Scott

Joy Butterworth
 Fan Claim Group
 Laird Lake Area, British Columbia
 Similkameen Mining Division

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
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Isomagnetic Plan

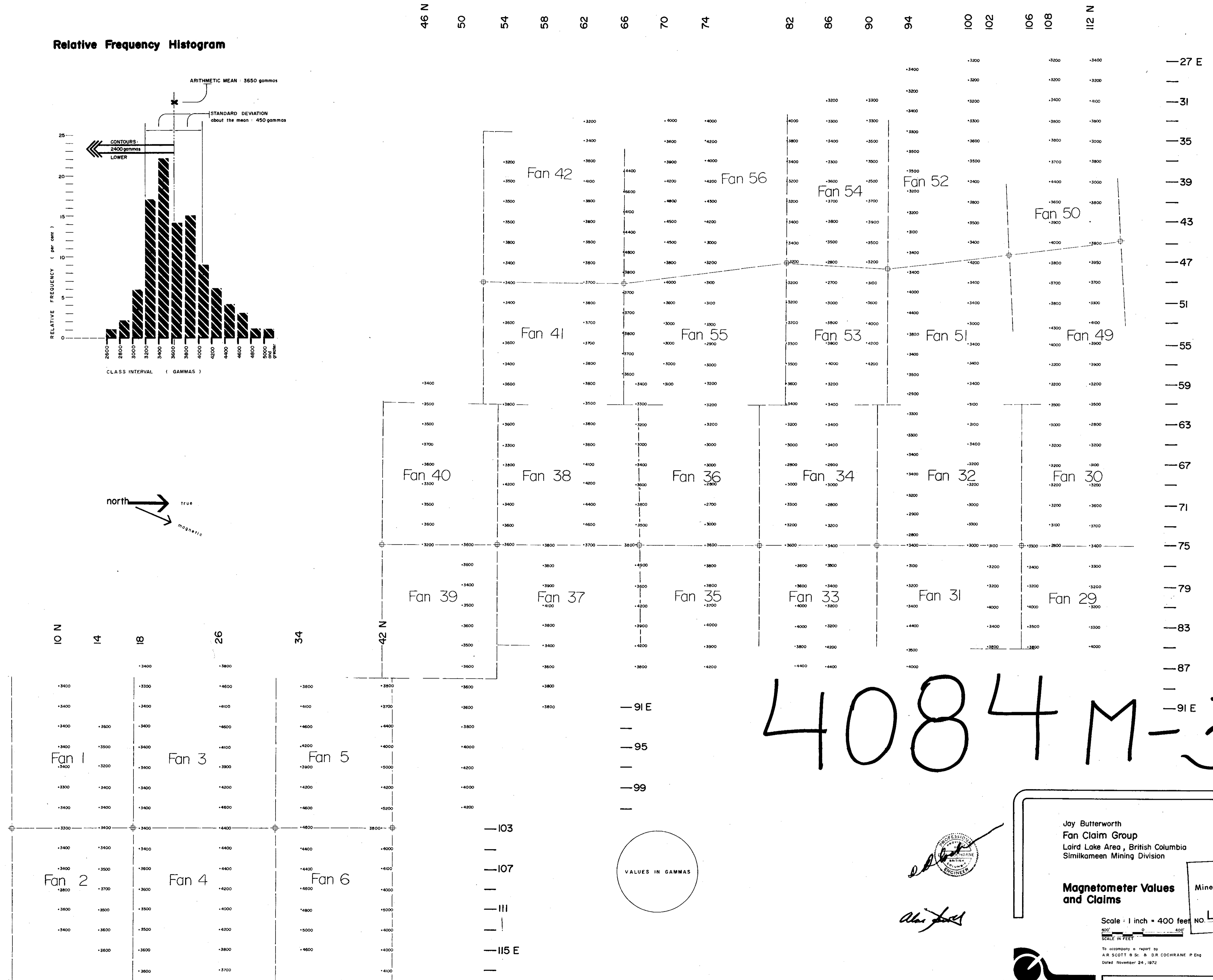
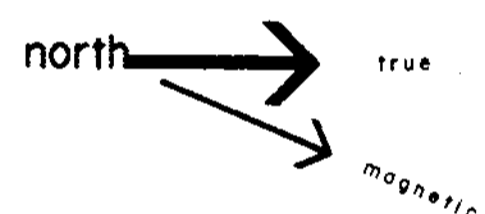
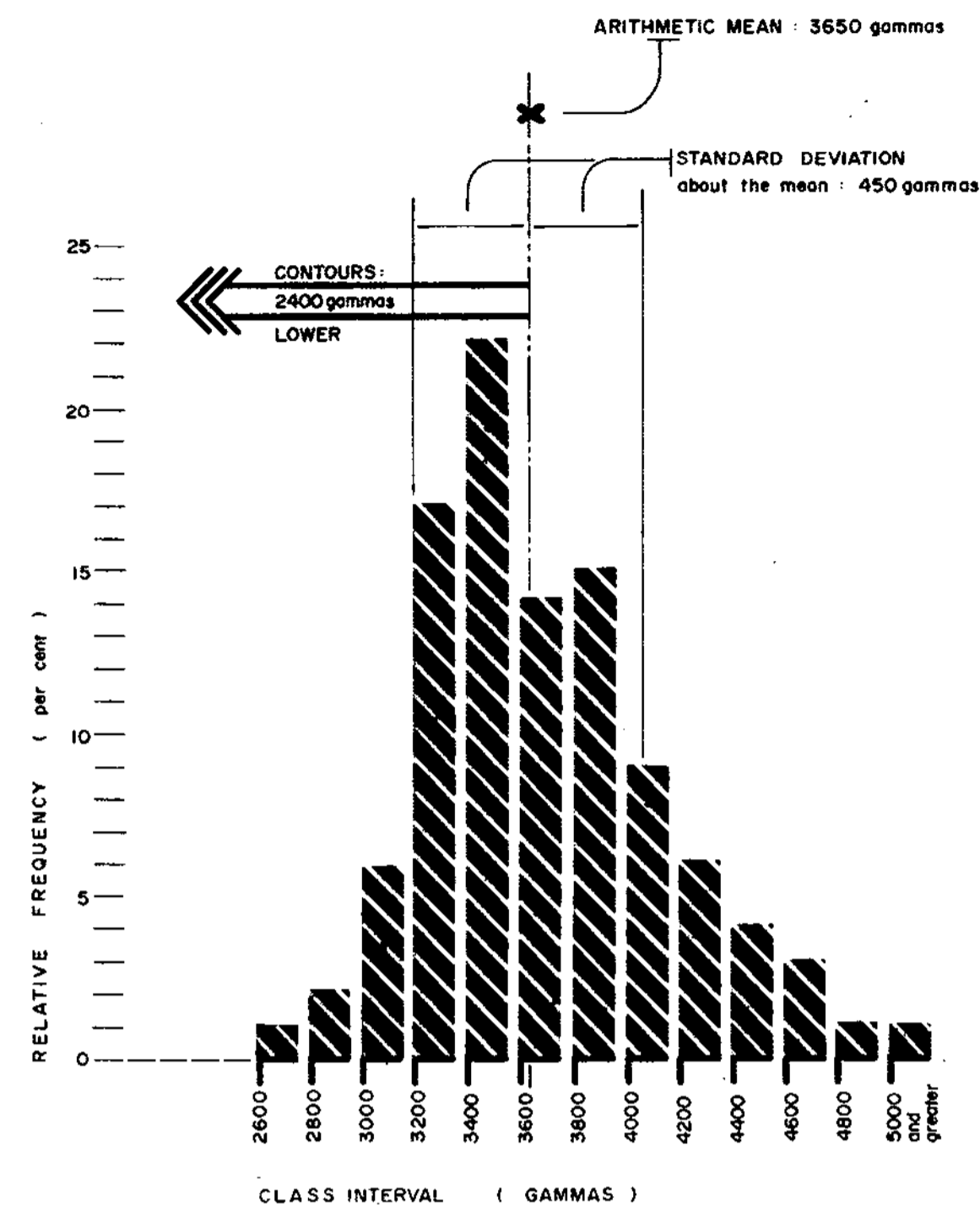
Scale: 1 inch = 400 feet
 SCALE IN FEET

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 A.R. SCOTT B.Sc. & D.R. COCHRANE P.Eng.
 Dated November 24, 1972

Cochrane Consultants Limited
 4882 Delta Street - Delta B.C.

figure 4

Relative Frequency Histogram



Joy Butterworth
 Fan Claim Group
 Laird Lake Area, British Columbia
 Similkameen Mining Division

Magnetometer Values and Claims

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 4084 MAP #3

Scale: 1 inch = 400 feet
 SCALE IN FEET

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