

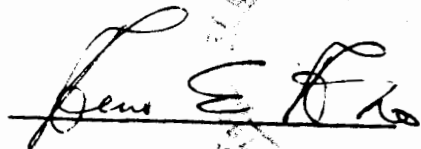
GROUND GEOPHYSICAL INVESTIGATIONS

BETA CLAIM GROUP

by: John S. Brock  
August 1965

location ref. Claim Sheet 105 K7  
133 00 W. Long.  
62 15 N. Lat.

approved by:

  
A handwritten signature in cursive script, appearing to read "Lewis E. F. Ho", is written over a horizontal line. To the right of the signature, there is a faint, circular stamp with some illegible text around its perimeter.

# GROUND GEOPHYSICAL INVESTIGATIONS

Beta Claim Group

## TABLE OF CONTENTS

	Page
Introduction	1
Location and Access	1
Survey Methods	
Survey Grid	2
Magnetometer Survey	2
Electromagnetic Survey	3
Treatment of Data	
Magnetometer Survey	3
Electromagnetic Survey	4
Interpretation of Results	4
Conclusion	6
Appendix	
Cost Summary	
Personel	
References Used	
Map Folder	

# BETA CLAIM GROUP

## Ground Geophysical Investigations

### INTRODUCTION

Ground electromagnetic and magnetic surveys were carried out over the Beta Mineral Claim Group in order to assist in the location of possible base metal sulphide deposits. The surveys were completed in advance of a rotary drilling program through which any anomalies would be tested and evaluated for economic possibilities. The geophysical program was initiated after several aeromagnetic anomalies were noted in proximity to what appears to be the Blind Creek fault (see Geologic Report by Fairley). It was felt that geophysical surveys of this nature were warranted because of successful results obtained by these methods over other areas of known mineralization in the same district.

### LOCATION AND ACCESS

The Beta Claim Group was staked in an east-west direction along the south limit of Blind Creek ( claim sheet 106 K7 ). The area may generally be described as the north slope of the divide between Swim Lakes and Blind Creek. Thick stands of Spruce prevail and much of the region is covered by muskeg.

Access to the Beta Claims may only be made by roads from either the Vangorda Airstrip, approximately eleven miles to the southwest, or a road from Cub Lake, about ten miles to the southeast. Cub Lake may be landed on by aircraft equipped with floats or skis, Vangorda Airstrip is 3000 feet in length and provides landing facilities for most smaller wheeled aircraft. The access roads at this date are only suitable for wheeled vehicles during 'freeze-up' although tracked vehicles

may approach the Beta Claims in any season of the year.

## SURVEY METHODS

### Survey Grid

A central base line 16,000 feet long was located by chain and transit and then cleared with a bulldozer, the base line then served as a defined location line and also provided access to the survey grid. Cross lines were turned off the base line by transit and then cut by linecutters hired from the local settlement of Ross River. The linecutters maintained control on the cross lines by picket and chain methods, stations were established every 100 feet. The grid plan is shown on all maps in the map folder.

### Magnetometer Survey

A Sharpe's MF 1 magnetometer was employed during the entire survey, the instrument is a first order fluxgate type vertical component magnetometer. It is hand-held and has a maximum sensitivity of 20 gammas per scale division on 1000 gamma range.

Readings were taken at a 100 foot station interval on 800 foot line spacing.

Diurnal variations and instrument drift were eliminated as much as possible by the following method:

- 1) The central base line was traversed, with readings taken at each cross line intersection 800 feet apart. The stations read were 'looped' every half hour as a method of recording the diurnal and drift variation. From this information each base station was corrected to its true apparent value.
- 2) At the beginning of every cross line survey a check reading was made at the base station (intersection of cross line and base line). The line was read at 1000 foot intervals and then the 100 foot stations were filled in. The stations at 1000 foot intervals

served as intermediate bases for diurnal checks. After the line was completed the base station was re-read. All stations were read with respect to time and diurnal was then calculated graphically by use of time-intermediate base station gamma value changes. By using the base station value to tie into the gamma values throughout the survey, were made relative to each other.

After all corrections for drift and diurnal variations were carried out the gamma values were plotted in accordance to the location from which they were derived.

### Electromagnetic Survey

A Crone JEM Electromagnetic Reconnaissance unit was used for the ground EM survey. This equipment was designed as an instrument for mining exploration and employs a method independent of receiver to transmitter alignment, distance of coil separation, elevation differences and rough terrain. It may be used either on a horizontal or vertical loop basis, however the survey on the Beta Claims was done only by horizontal loop methods. EM was used as a 'follow up' over areas of magnetic anomaly where additional information was hoped for. The readings were taken on the same grid as the magnetometer survey, a 200 foot coil separation was used throughout. The depth penetration is effective to approximately 180 feet.

### PRESENTMENT OF DATA

#### Magnetometer Survey

After each gamma value was corrected they were plotted on a plan of the survey grid (scale 400 feet to one inch). Profiles of each line surveyed were drawn to a standard scale (see map in folder). The gamma values were also contoured on a separate

map sheet in order to determine the size and configuration of anomalous zones.

### Electromagnetic Survey

The EM results were plotted on the same grid system and scale that the magnetic results were. A map of high frequency (1800 cycle) profiles was plotted with each profile placed in scale to the survey line from which they were derived. A contour map of the high frequency resultant dip angle results was also plotted using a 2 degree contour interval. The profiles were used to determine the shape and position of any conductors found and the contoured resultant dip angles were used to determine the extent of conductors as well as coincidence of location with magnetic anomalies.

### INTERPRETATION OF RESULTS

Two conductive zones on the Beta Claim Group were outlined by electromagnetic methods as well as two magnetic anomalies.

#### Magnetic Results

From the survey results a 'background' of approximately 500 gammas was selected, above which value magnetics were considered as anomalous. The absolute background for the area is 55,800 gammas for which the instrument was calibrated to 300 gammas.

The western magnetic anomaly is about 8000 feet in length and strikes in a northeast direction, it is approximately 800 feet wide and is of a regular nature as shown by the contours (isomagnetic). This anomaly reaches a peak of 500 gammas above background in the area of line 72 E, and its intersection with

the base line in the area of Beta Claims 101 and 102. Although no susceptibility calculations were made a comparative inspection indicates that the magnetics are most likely caused by the presence of pyrrhotite, this was also verified later by rotary drilling. Over the main peak of the anomaly, half width rule of thumb calculations indicate that the depth to the causative structures centre is in the order of 200 feet, this was also shown by rotary drill results. Gradients across the anomaly show the structure to be dipping gently to the southeast, and the possibility of a fault contact along its northern limit. The body contacts to the north with what is probably sericite schist of a lower susceptibility.

The eastern magnetic anomaly is of greater interest as it is of a slightly more complex configuration and does not reflect the uniformity over a large strike length that the western anomaly does. This anomaly is approximately 4000 feet long by 1000 feet wide and strikes in a northeast direction, the eastern extremity is still considered 'open' due to lack of survey coverage. It reaches a peak of 300 gammas above background at line 144E 8N, on Beta Claim 143. Half width calculations over the steeper gradients showed the depth to the center of a flat lying lense would be about 300 feet, a rotary drill hole in this area intersected disseminated pyrrhotite at this depth. The causative structure appears to have a slight southerly dip and is bordered by a fault contact to the north.

Negative resultant dip angles were obtained throughout a major portion of the electromagnetic survey, thus indicating

that all conductors encountered were of a reasonably flat lying nature. The higher resultant dip angles probably indicate the margins of these flat lying conductors.

The western EM anomaly consists of a major conductive trend 5000 feet in length and striking northeasterly, a secondary conductor was recorded 1000 feet northwest of the major conductive axis, striking in the same direction. This conductor is of a lower resultant dip angle intensity. The main EM anomaly is coincident with the magnetic anomaly in this area, results from one rotary drill hole indicate that it is caused by graphitic schist. The secondary anomaly was also drilled and bands of graphitic schist were also encountered, therefore giving a plausible explanation for that anomaly as well.

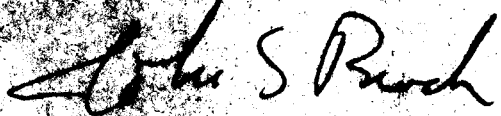
The eastern EM anomaly also strikes in a northeast direction but is not coincident with the magnetic anomaly in this area. The anomaly has not been drilled but from information obtained at depth further to the south on the magnetic anomaly it appears that this conductive zone may be the sub-outcrop of a graphitic zone with a south dip.

### CONCLUSIONS

The geophysical results appear to represent locations of graphitic schist and ~~disseminated~~ disseminated pyrrhotite. Two northeast trending faults are interpreted from the north limits of the magnetic anomalies. The area warrants further investigation either through a gravity survey or limited rotary drill program. The eastern end of the Beta is the most favorable because of the presence of graphitic schist and what appears to be a major faulting system, this area is also closer to the east

position of the Arvil batholith than the other geophysical anomalies on the Bets Plains.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "John S. Brock".

John S. Brock  
Geophysicist

APPENDIX

BETA CLAIM GROUP,

Ground Geophysical Investigations

PERSONEL

Magnetometer Operator

William Barclay,  
Haney, B.C.

Electromagnetic Survey  
Chief

Anthony Rich,  
Calgary, Alta

Helper

Phillip Nielson,  
Vancouver, B.C.

Surveyor, Party Chief

Andrew Harman,  
Salmo, B.C.

Linecutters

Charlie Ollie,  
William Peter,  
Robert Etzel,  
Bill Etzel,  
all of Ross River, Y.T.

Supervision and Report

John Brock,  
3050 Procter Ave.,  
West Vancouver, B.C.

Explorations Manager

R.E.G. Davis,  
Vancouver, B.C.

BETA CLAIM GROUP

I Geophysical Surveys:

A) Linecutting:

1) Base Line - Cat 16,000'  
 3 days @ 12 hours per day = 36 hrs.  
 x \$20/hr \$720.00

Surveyor - 2 days @ \$16.50  
/day 33.00

Surveyor's Helper  
 2 days @ \$13.00/day 26.00

Camp Cost 7 man/day  
 @ \$7/day 49.00

Total Base Line Cost \$828.00

2) Cross Lines

4 x 1,000'	4,000'	
13 x 2,000'	26,000'	
12 x 5,000'	60,000'	
8 x 4,000'	32,000'	
3 x 4,000'	12,000'	
	<u>134,000'</u>	x \$7/1000'
		<u>\$938.00</u>

B) Geophysical Surveys:

1) EM Survey

Rich	\$15 50/day
Nielsen	13:50/day
	<u>\$30.00/ day</u> x 10 days
	370.00

EM RENTAL \$110.00

CAMP COSTS

38 man day x 7 day = \$266.00

2) Magnetometer Survey

A) A3 Survey - 3 days (Harman)		
\$450/mo = \$15/day		
<u>30</u>	\$ 45.00	
Camp Costs 3 says @ &7/day	<u>21.00</u>	\$ 66.00
B) MF1 Survey (Barclay) <u>\$375/mo.</u>		
<u>30</u>		
= \$12.50/day = 23 days	\$287.50	
Camp Costs \$7/day	<u>161.00</u>	448.50
Supervision - 1 month \$550/mo.		
Data Reduction \$250/		800.00
C) <u>Camp Set Up</u>		
4 days - 4 men = \$16/day Labour		
\$13/day		208.00
D) <u>Transportation</u>		
Cat 1 day = 12 hours x \$20		240.00
Bombadier for 1 month		
maintenance and depreciation		<u>600.00</u>
	TOTAL	<u><u>\$5074.50</u></u>

REFERENCES USED

- 1) Development Work, Beta Claim Group  
by J.F. Fairley (1965)  
a private report to Dynasty Explorations
- 2) Mineral Deposits of the Vangorda Area (1964)  
by J.F. Fairley  
a private report to Dynasty Explorations
- 3) Geophysical Prospecting  
Dobrin

A F F I D A V I T

Supporting Statement of Costs, Geophysical Surveys  
~~Alan Kulan, of Whitehorse, in the Yukon Territory,~~  
~~Beta Claim Group, in June 1965~~

knowledge of  
/////

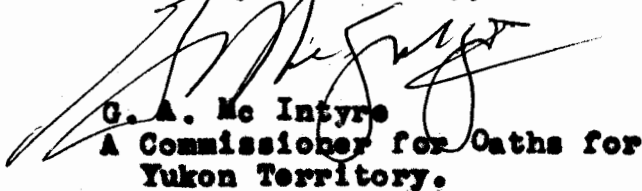
I, John S. Brock, of Vancouver, British Columbia,  
have compiled the statement of costs (Ground Geophysical  
Investigation, Beta Claim Group).

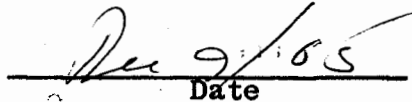
I make oath and say that to the best of my knowledge  
and belief, the statement of costs as presented in this  
report, is true and an accurate representation of expenditure  
to be applied as representation work on the Beta Claim Group.  
**Alan Kulan**

 Alan Kulan

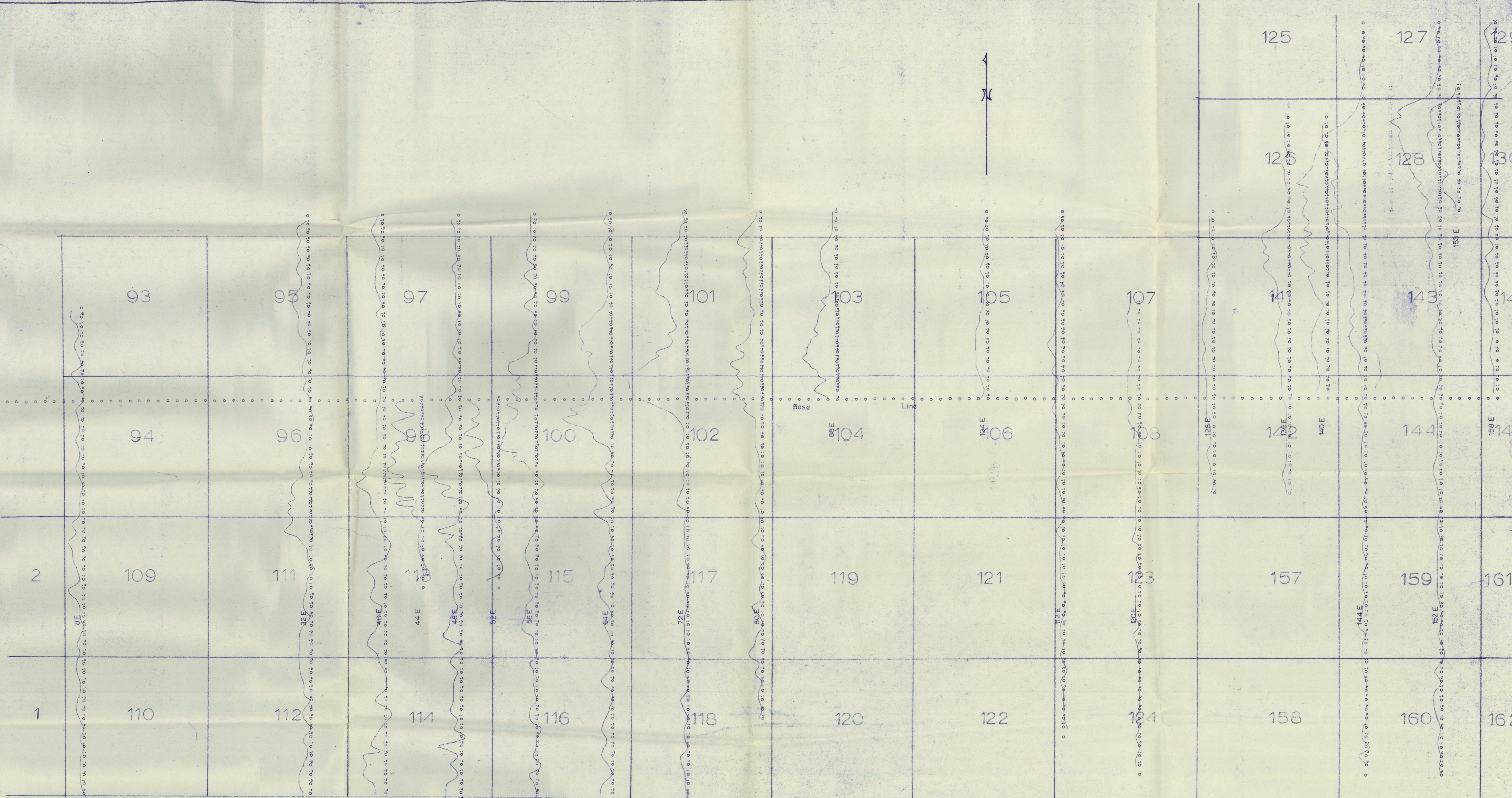
  
John S. Brock

Sworn before me at Whitehorse  
in the Yukon Territory, this  
17th day of January, 1966.

  
G. A. McIntyre  
A Commissioner for Oaths for  
Yukon Territory.

  
Date

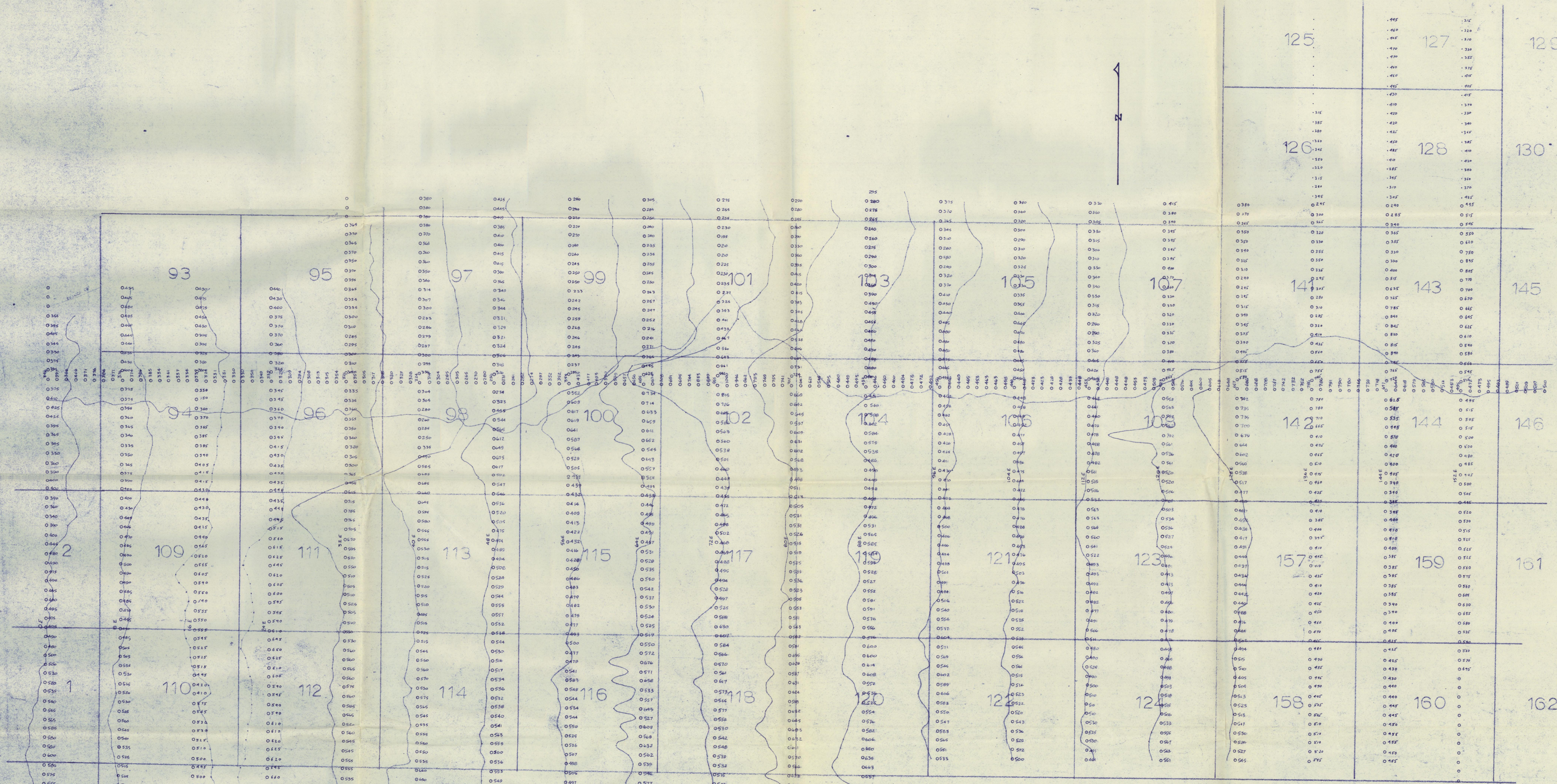




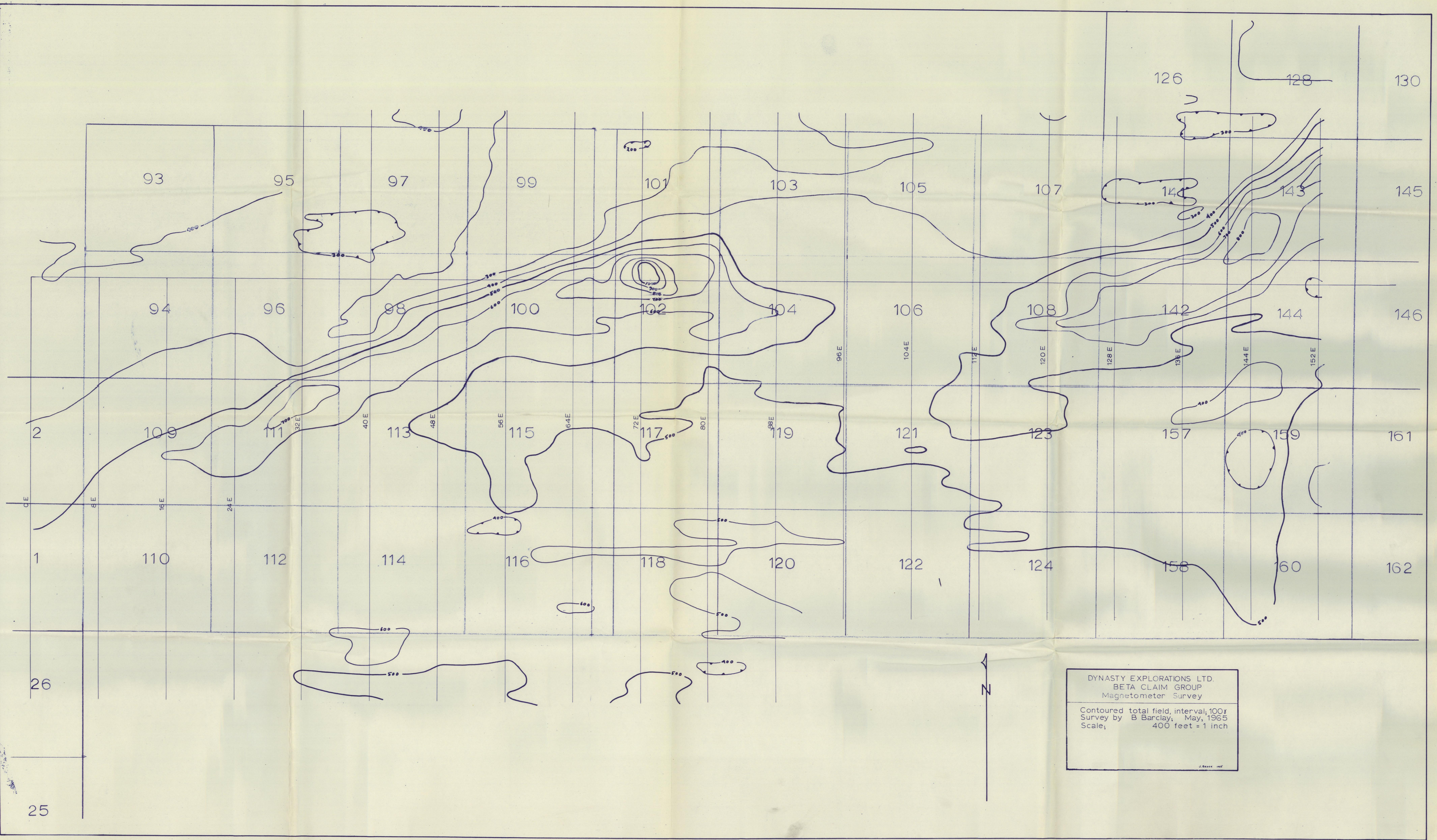
DYNASTY EXPLORATIONS LTD.  
 EM Survey - Beta Group  
 1800 Cycle (High) Profiles

SURVEY: T. Rich.      DATE: May 31st '65  
 P. Nielsen

SCALES:



DYNASTY EXPLORATIONS LTD.  
 BETA CLAIM GROUP  
 MAGNETOMETER SURVEY  
 Gamma values and profiles, Total Field  
 Survey by: B Barclay, May 1965  
 Scale: 400 feet = 1 inch



DYNASTY EXPLORATIONS LTD.  
 BETA CLAIM GROUP  
 Magnetometer Survey  
 Contoured total field, interval, 100γ  
 Survey by B Barclay, May, 1965  
 Scale, 400 feet = 1 inch

93

95

97

99

101

103

105

107

126

128

130

94

96

98

100

102

104

106

108

142

144

146

2

109

111

113

115

117

119

121

123

157

159

161

1

110

112

114

116

118

120

122

124

158

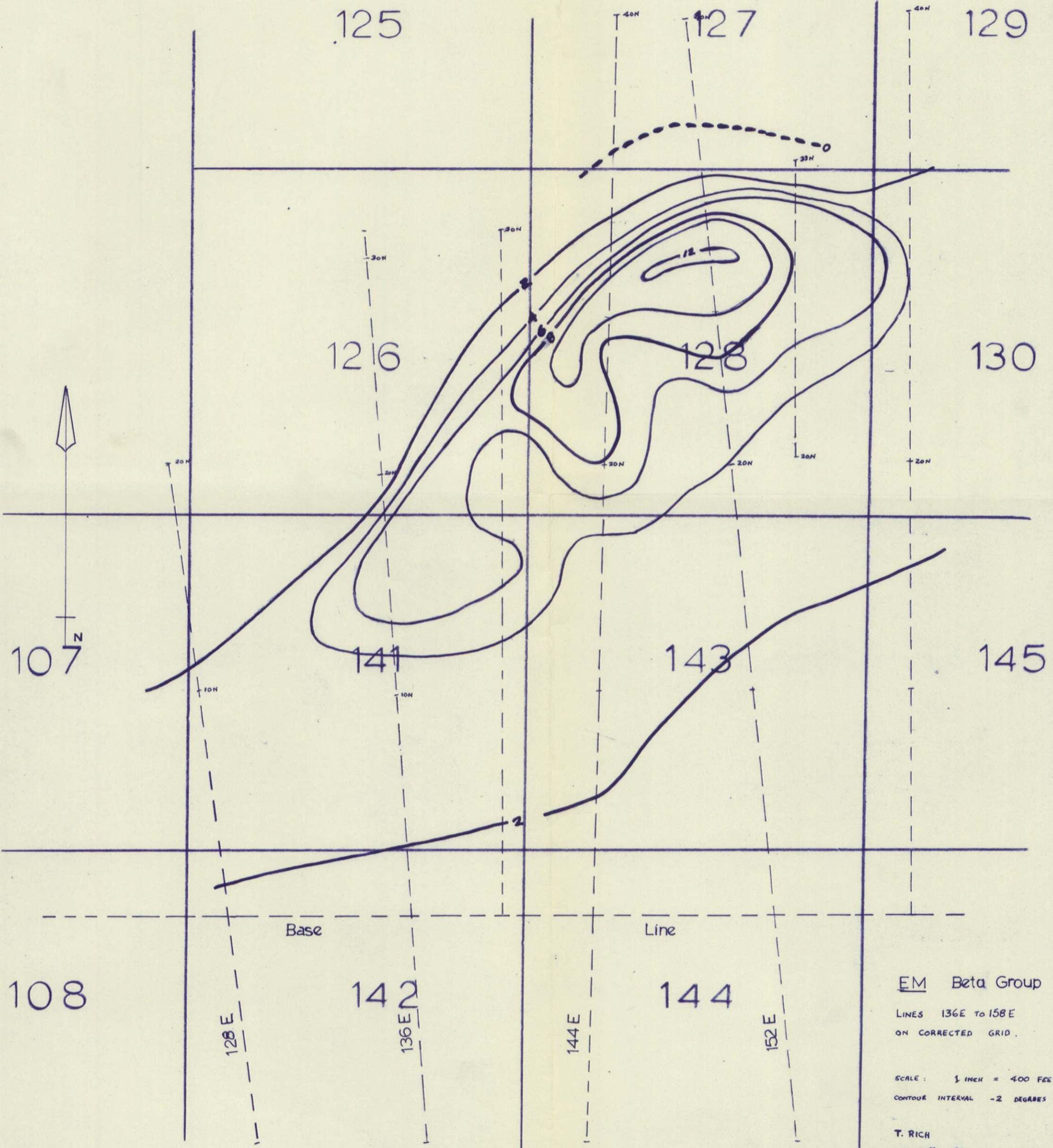
160

162

26

25

N

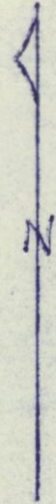
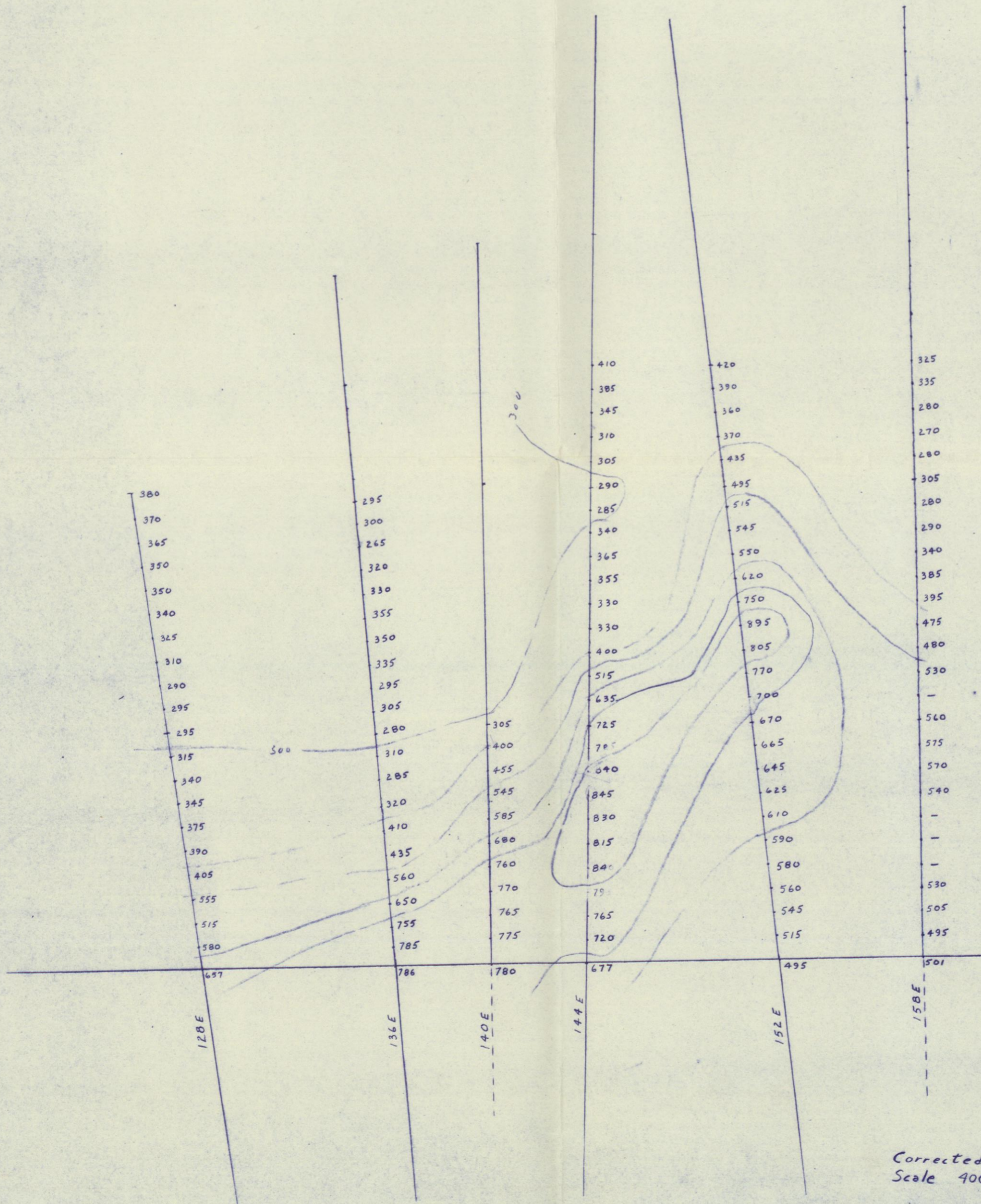


EM Beta Group

LINES 136E TO 158E  
ON CORRECTED GRID.

SCALE: 1/2 INCH = 400 FEET  
CONTOUR INTERVAL -2 DEGREES

T. RICH  
MAY 31<sup>ST</sup> 1965



Mag Survey  
Beta Group  
June 1/65  
W. Barclay

Corrected Grid  
Scale 400':1"