MAGNETIC AND ELECTROMAGNETIC GEOPHYSICAL SURVEYS

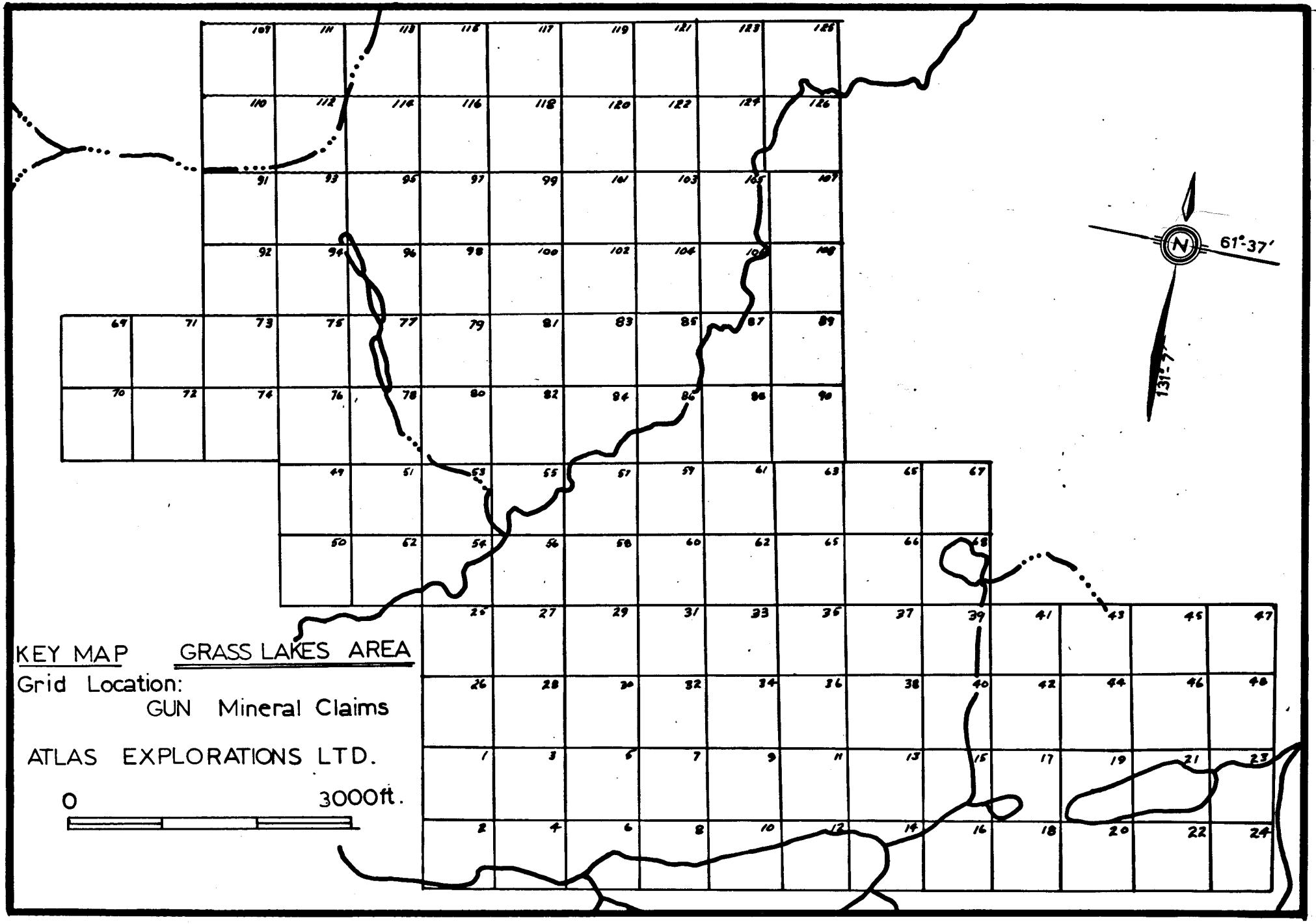
GUN MINERAL CLAIM GROUP

GRASS LAKE AREA
WATSON LAKE MINING DIVISION
YUKON TERRITORY

Long. 131° 10' West
Lat. 61° 35' North

by
JOHN S. BROCK
ATLAS EXPLORATIONS LIMITED

July 15 - August 7, 1967


KEY MAP
GRASS LAKES AREA
Grid Location:
GUN Mineral Claims
ATLAS EXPLORATIONS LTD.
0
3000ft.
N
61°-37'
131°-9'

MAGNETIC AND ELECTROMAGNETIC
GEOPHYSICAL SURVEYS

GUN MINERAL CLAIMS

TABLE of CONTENTS

LIST OF CLAIMS

Claim No.	Grant Nos.	Date Recorded
GUN 1 - 60	Y7481 - Y7540	May 2, 1966
61 -126	Y7541 - Y7606	May 2, 1966

TELEPHONE 685-4331

ATLAS EXPLORATIONS LIMITED
(N.P.L.)
330 MARINE BUILDING
355 BURRARD STREET
VANCOUVER 1, B.C.

INTRODUCTION

The Grass Lakes region was flown with airborne electromagnetic and magnetic surveys during April of 1966. As a result of the geophysical surveys outlining anomalies in proximity to known favorable geologic conditions for base metal sulphide mineralization, the Gun group of 126 mineral claims was staked and recorded May 2, 1966.

The claims were staked by Atlas Explorations as part of an intensive follow-up program after completion of the airborne surveys. Ground was obtained in preparation of ground geochemical, geophysical and geologic surveys that were to be employed to delineate airborne anomalies. Commencing July 15, 1966, a crew consisting of geologic, geophysical, geochemical, linecutting and camp support personnel, were placed on the property to investigate the anomalous electromagnetic and magnetic airborne responses.

LOCATION AND ACCESS

The Gun mineral claims are located at latitude

61°37' north and longitude 131°10' west off the north end of Mink Lake on the Finlayson Lake Map Sheet. Mink Lake is situated at the headwaters of Mink Creek. The Gun group lies between elevations of 3500 and 4000 feet.

The claim group lies on the south slope of a hill running into Mink Lake. The area is covered with heavy growths of buckbrush (dwarf birch) and has been burnt over making travel on the ground difficult.

Access to the properties was made with the aid of aircraft only. Mink Lake is suitable for all aircraft equipped with floats and skis. A base camp was established on the north shores of Mink Lake for examination of the Gun group. During breakup conditions the camp was serviced by helicopter from Ross River. Work on the property was administered from Field Offices at Ross River, 82 miles northwest of Fyre Lake: constant communication was kept with the camp by means of single sideband radio. All expediting of supplies was done from Ross River.

PREVIOUS WORK

To the knowledge of Atlas Explorations no previous work has been done in the area prior to an aeromagnetic and electromagnetic survey carried out by Atlas during April of 1966.

METHOD OF SURVEY Instruments Used

For the magnetometer survey, a Jalander 46-65 magnetometer was used, the instrument is hand-held and measures the vertical magnetic component by use of an oil-dampened fluxgate which automatically levels itself in the direction of the vertical field. The range of this instrument is 10 to 250,000 gammas over five sensitivity ranges, the lowest being 10 gammas per scale division. The magnetometer is of light weight and readings can be obtained quickly, a conversion factor is necessary before gamma values can be determined.

The electromagnetic survey was carried out with a Crone JEM dual frequency unit. The Crone is of the inductive type and may be either used as a horizontal or vertical loop apparatus. Measurements are made of the resultant dip angle of the field and the width of null or out of phase component. It is designed to be operated with a maximum coil spread of 300 feet on frequencies of 480 and 1800 cycles per second with no interconnecting cables. The effective depth penetration is 300 feet for a horizontal conductor with maximum coil spread (no skin effect allowance) and 100 feet for a vertical conductor. The effective lateral coverage is a direct function of the spread under ideal conditions. The equipment was chosen in order to give reliable information on the attitude and

configuration of a conductor, the physical properties of the host rock, dimensions of the conductor and results free from error due to topographic relief.

Survey Method, Linecutting

All grids designed for ground geophysical and geochemical surveys were laid out using eight hundred foot line spacing with one hundred foot station intervals. Over areas of interest, four hundred foot spacing was used and two hundred foot spacing over areas requiring detailed information. Central base lines were used for survey control, all cross lines were surveyed by picket and chain methods. Linecutters were hired from the native settlement of Ross River; survey control was checked by the party chief.

Magnetometer Survey

Prior to the actual magnetometer survey, readings were taken along the central base line at cross line intersection points. These stations were looped and re-read every hour as a means of controlling drift and diurnal variations. With base stations of an established value serving as a means of controlling drift and diurnal variations, a rapid and precise check was kept on magnetic variations and the entire survey was thus kept on a relative basis during day to day operation. Each cross line

was read with re-checks at the base station within every hour, this method provided an internal control for detecting diurnal and drift variations. The survey was done by one operator using the same instrument.

Electromagnetic Survey

All surveys were run with horizontal loop configuration and 300 foot coil spacing in order that highest response could be obtained from flat-lying sulphide bodies. Both 1800 and 480 cps readings were taken at each station. The coil configuration was not adaptable to conditions of conductive overburden and maximum response from such was expected. All traverses were made by the 'in line method' and done over the same grid as used for the magnetometer surveys. In some cases shorter spacing was adopted for better resolution of shallow conductors, for the same reason line spacing was reduced to 300 feet over areas of interest. The two man EM crew did all their ground work in coincidence with the magnetometer and soil sampling crew.

Treatment of Data

Magnetic Results

Magnetic results were corrected for diurnal and drift each night by the field operator. The final gamma values were then plotted on a grid plan using scale of 400 feet to 1 inch. This data was presented to the party chief who profiled

and contoured the data on overlay material in order that he could remain familiar with day to day results and progress of the survey, direct its course and have results available for comparison with electromagnetic and geological-geochemical data. Field plots of this information were forwarded to the base office at Ross River at the end of the survey for final plotting and examination on a scale of 1 inch to 400 feet. Magnetic data is presented in this report on such maps showing gamma value profiles and contoured results. (See Appendix). All maps show major topographic features and locations of mineral claim posts.

Electromagnetic Results

All results as derived in the field were plotted each night by the EM operators on a grid plan using a scale of 1 inch to 400 feet. High and low frequency results were presented to the party chief for inspection and profiling in order that this data be compared with the other surveys and the course of the electromagnetic survey be directed on a daily basis. Plots of readings and profiles were sent to Ross River base at the end of the survey for final plotting and compilation on grid plans similar to those used for the magnetic maps. Electromagnetic data is presented in this report showing values-profiles (1800 and 480 cps, a contour map of high frequency dip angles.)

GEOLOGY

The claims lie in an area of low relief and extensive overburden, therefore, there are no significant bedrock outcrops on the Gun group. However, the surrounding outcrops indicate that the claim areas are underlain by north-northeast striking and easterly dipping quartz-biotite and quartz-chlorite schists similar to the Dynasty-Vangorda hostrocks. In the area are numerous small stocks of granodiorite which are intrusive into the schists, one body about two miles in diameter crops out between the Gun and Gil groups.

GEOPHYSICAL OBSERVATIONS

An extensive magnetic anomaly strikes in a westerly direction over the southern portion of the claim group. The magnetic intensity is over 3500 gammas within the boundaries of this anomaly and three distinctive peaks over 3900 gammas are outlined, striking west within the overall magnetic complex. The most easterly of these peaks reaches a maximum magnetic intensity of over 5000 gammas.

A profusion of electromagnetic anomalies exists over the Gun group, those over 5 ppm are considered as being significant. Over the northwest portion of the claims a conductor probably representing graphitic horizons is bounded by a northeast striking contact. Isolated conductors in

other parts of the group flank the magnetics and are thought to be formation except for a magnetic-electromagnetic coincidence over the central magnetic peak of the three zones mentioned above.

The survey grid was cut over the southern grid area to cover the aeromagnetics and some associated electromagnetics. The westerly striking airborne anomaly is repeated on the ground by the follow-up surveys and three peaks are outlined that strike in a westerly direction with comparable total intensities to those as shown aeromagnetically. The most easterly is over 4000 gammas peak intensity and has a closure of 1500 gammas. The central one is from 1500 gammas to 2500 gammas and the most westerly is from 1500 to 3000 gammas. All are in the order of 2000 to 2400 feet in strike length and approximately 800 feet in profile width.

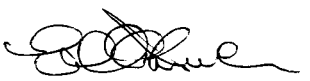
The ground electromagnetic survey showed no coincidence with the magnetic results and the magnetic highs are apparently flanked by conductive zones. Numerous conductive zones are outlined but no directional trends can be formed of a specific nature. It would appear that the conductors are related to formational causes as is the magnetics. There are no direct geochemical anomalies with the magnetics.

CONCLUSIONS AND RECOMMENDATIONS

From the results obtained over the Gun group grid it would appear that no further work is warranted as geophysical responses, both electromagnetically and magnetically appear to be formational in nature. The conductive zones are probably due to graphitic and/or carbonaceous horizons and the magnetic anomalies to basic intrusives within these horizons.

Respectfully submitted,

John S. Brock.



MAGNETIC AND ELECTROMAGNETIC

GEOPHYSICAL SURVEYS

GUN MINERAL CLAIM GROUP

A P P E N D I C E S

Appendix I

FYRE LAKE AREA PROJECT

Gun Mineral Claim Group
Magnetic and Electromagnetic Ground
Geophysical Surveys

SUMMARY OF COSTS

A.	Linecutting	a)	total footage cut	227,800 ft.	
		b)	overall cost/1000'	$10.00	$ 2,278.00
B.	Magnetometer Survey	a)	total line miles	42.3	
		b)	overall cost/line mile	$50.00	2,170.00
C.	Electromagnetic Survey	a)	total line miles	42.3	
		b)	overall cost/line mile	$110.00	4,650.00
D.	Helicopter Support, Bell G3B1 39 hrs. @ $90/hr.				3,500.00
			TOTAL COST, Geophysical Surveys, GUN Group		$12,598.00

(Overall Cost per Line Mile Includes:

a) Supervision
b) Presentation of data
c) Camp costs and field subsistence
d) Transportation)

APPENDIX II

A F F I D A V I T

Supporting Summary of Costs

I, E. O. Chisholm ~~John S. Brock, Assistant~~ Exploration Manager, Atlas Explorations Limited, of Ross River, Yukon Territory, do hereby state that to the best of my knowledge and belief the statement of costs as presented in Appendix III of this report "Magnetic and Electromagnetic Geophysical Surveys, Gun Mineral Claim Group", is both true and correct.

DATED at the City of Whitehorse in the Yukon Territory this day of A.D. 1967.

SWORN BEFORE ME in the City of WHITEHORSE in the Yukon Territory this day of A.D. 1967

A Commissioner for taking Affidavits in the Yukon Territory

~~John S. Brock~~
E. O. Chisholm

APPENDIX III

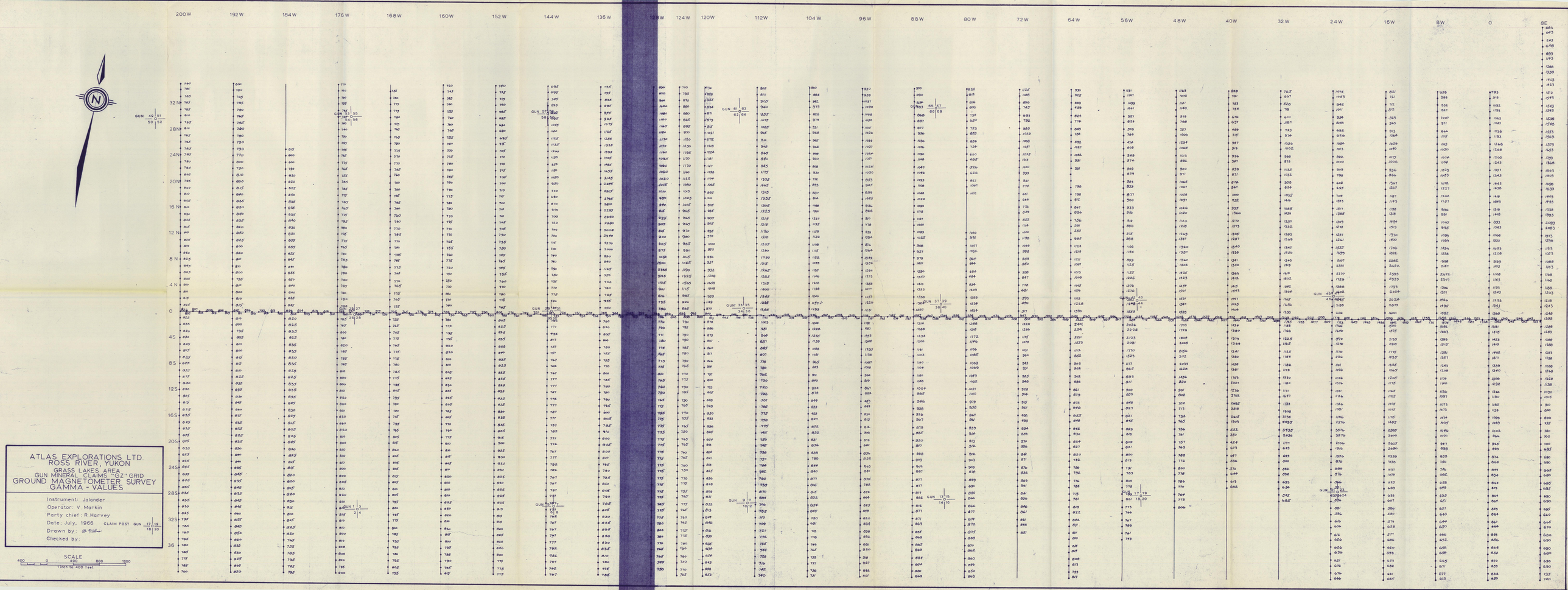
PERSONNEL

GRASS LAKES AREA

GEOPHYSICAL SURVEYS

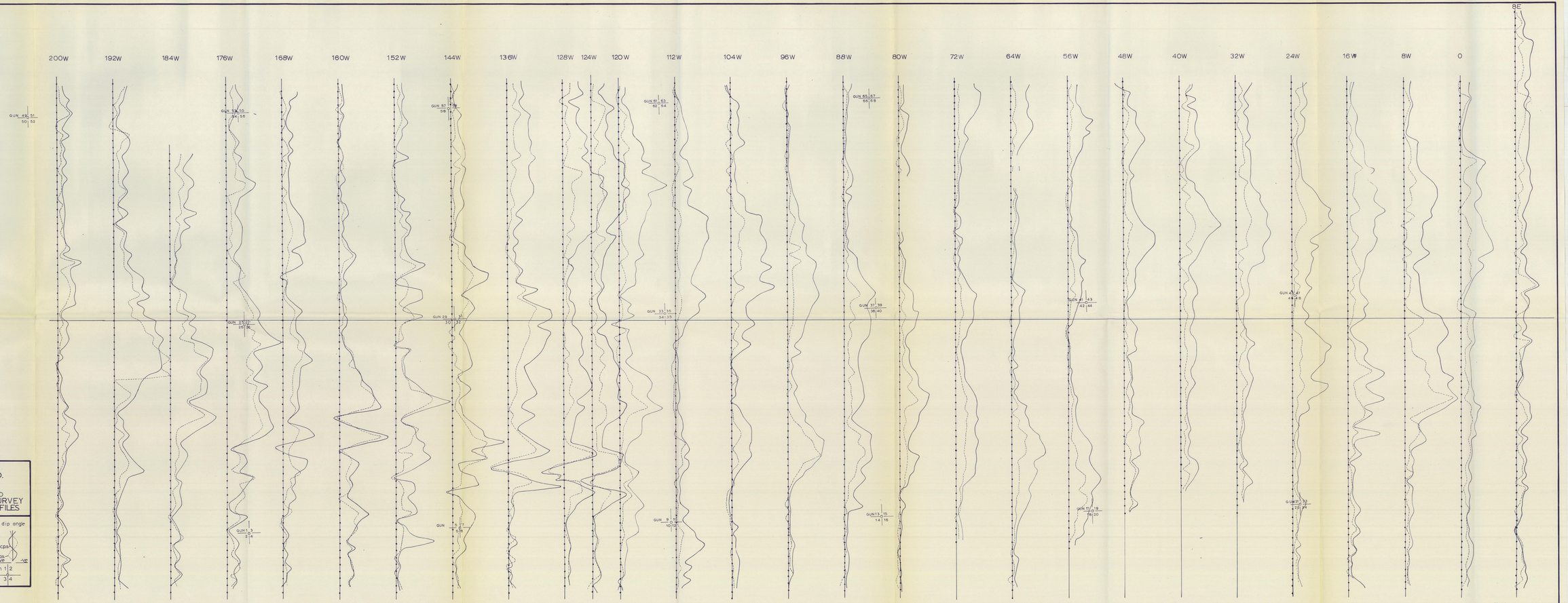
GUN MINERAL CLAIMS

Bob Harvey	Party Chief	Vancouver, B. C.
Bill Markin	Magnetometer Operator	Vancouver, B. C.
Paul Cartwright	EM Operator	Vancouver, B. C.
Vic Wright	EM Operator	Vancouver, B. C.
Ike Johnston	Linecutter	Whitehorse, Y. T.
Michael Shorty	Linecutter	Ross River, Y. T.
Herman Asp	Linecutter	Whitehorse, Y. T.
Bill Etzel	Linecutter	Ross River, Y. T.
Clara Tizya	Cook	Whitehorse, Y. T.
John S. Brock	Manager	Ross River, Y. T.


ATLAS EXPLORATIONS LTD.
ROSS RIVER, YUKON
GRASS LAKES AREA
GUN MINERAL CLAIMS "GZ" GRID
GROUND MAGNETOMETER SURVEY
GAMMA - VALUES
Instrument: Jalander
Operator: V. Markin
Party chief: R. Harvey
Date: July, 1966
Drawn by:
Checked by:
CLAIM POST GUN 17 19 / 18 20
SCALE
400 0 400 800 1200
1 inch to 400 feet
200W 192W 184W 176W 168W 160W 152W 144W 136W 128W 120W 112W 104W 96W 88W 80W 72W 64W 56W 48W 40W 32W 24W 16W 8W 0 8E
32N 28N 24N 20N 16N 12N 8N 4N 0 4S 8S 12S 16S 20S 24S 28S 32S 36S
GUN 49 51 / 50 52
GUN 53 55 / 54 56
GUN 57 59 / 58 60
GUN 61 63 / 62 64
GUN 65 67 / 66 68
GUN 1 3 / 2 4
GUN 5 7 / 6 8
GUN 9 11 / 10 12
GUN 13 15 / 14 16
GUN 17 19 / 18 20
GUN 21 23 / 22 24
GUN 25 27 / 26 28
GUN 29 31 / 30 32
GUN 33 35 / 34 36
GUN 37 39 / 38 40
GUN 41 43 / 42 44
GUN 45 47 / 46 48

200W 192W 184W 176W 168W 160W 152W 144W 136W 128W 124W 120W 112W 104W 96W 88 W 80W 72W 64W 56W 48W 40W 32W 24W 16W 8W 0 8E
32N 28N 24N 20N 16N 12N 8N 4N 0 4S 8S 12S 16S 20S 24S 28S 32S 36S
GUN 49 51 50 52
GUN 53 55 54 56
GUN 57 59 58 60
GUN 61 63 62 64
GUN 65 67 66 68
GUN 25 27 26 28
GUN 29 31 30 32
GUN 33 35 34 36
GUN 37 39 38 40
GUN 41 43 42 44
GUN 45 47 46 48
GUN 1 3 2 4
GUN 5 7 6 8
GUN 9 11 10 12
GUN 13 15 14 16
GUN 17 19 18 20
GUN 21 23 22 24
1000
1500
2000
2500
3000
3500
4000
ATLAS EXPLORATIONS LTD.
ROSS RIVER, YUKON
GRASS LAKES AREA
GUN MINERAL CLAIMS "GZ" GRID
GROUND MAGNETOMETER SURVEY
CONTOUR MAP
Instrument: Jalander
Scale: 1" = 400'
Operator: V. Markin
Contour interval: 500 γ
Party chief R Harvey
Date: July, 1966
CLAIM POST GUN 17 19 18 20
Drawn by:


ATLAS EXPLORATIONS LTD.
ROSS RIVER, YUKON
GRASS LAKES AREA
GUN MINERAL CLAIMS "GZ" GRID
GROUND MAGNETOMETER SURVEY
GAMMA VALUES - PROFILE MAP
Profile scale : 1" = 1000 γ
Instrument : Jalander
Operator : V. Markin
Party chief : R. Harvey
Date : July 1966
Drawn by :
Checked by :
CLAIM POST GUN 1 3 2 4
SCALE
400 0 400 800 1200
1 inch to 400 feet
N
200W
192W
184W
176W
168W
160W
152W
144W
136W
128W
124W
120W
112W
104W
96W
88W
80W
72W
64W
56W
48W
40W
32W
24W
16W
8W
0
OE
32N
24N
16N
8N
0
8S
16S
24S
32S



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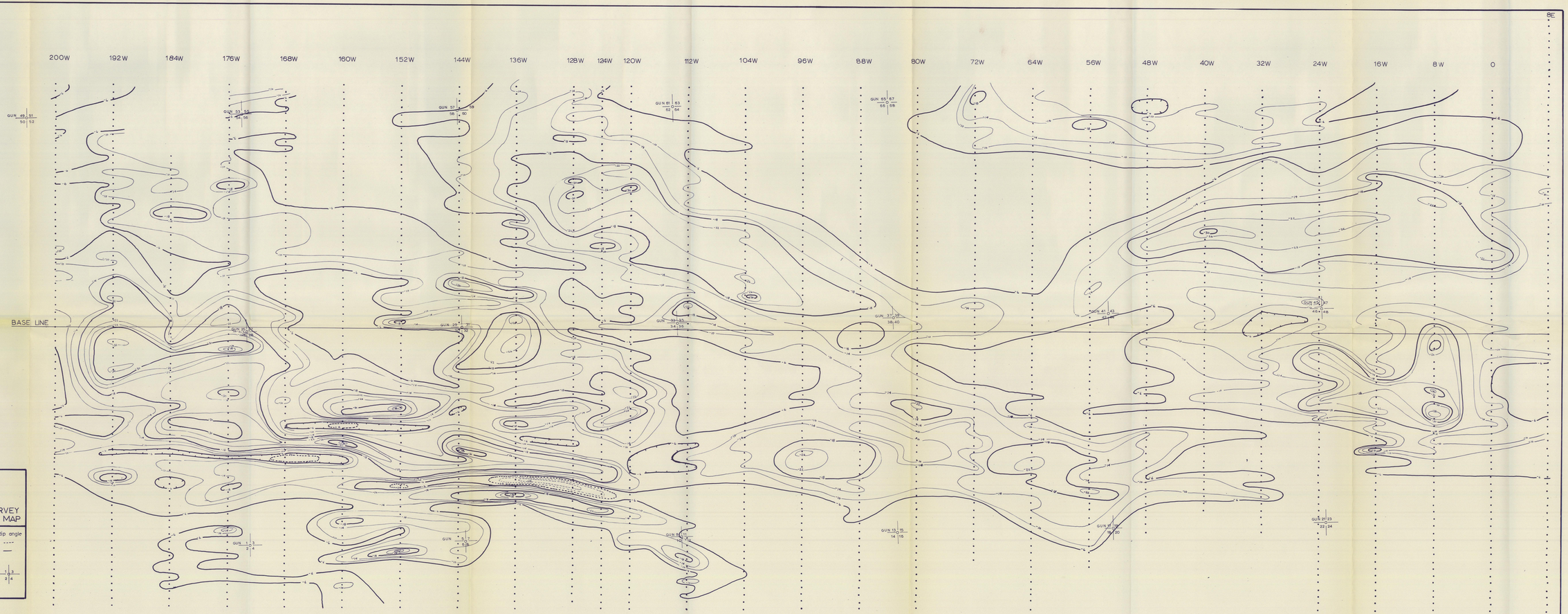
GRASS LAKES AREA
GUN MINERAL CLAIMS "GZ" GRID
GROUND ELECTROMAGNETIC SURVEY
JEM HORIZONTAL LOOP PROFILES

Instrument: Crone Profile scale: 1/10"=2° dip angle
Coil spacing: 300'
Operators: P. Cartwright & V. Wright
Party chief: R. Harvey
Date: July, 1966
Scale: 1" = 400'
Drawn by:

1800 cps
480 cps
Gun 1 2
Claim post 3 4



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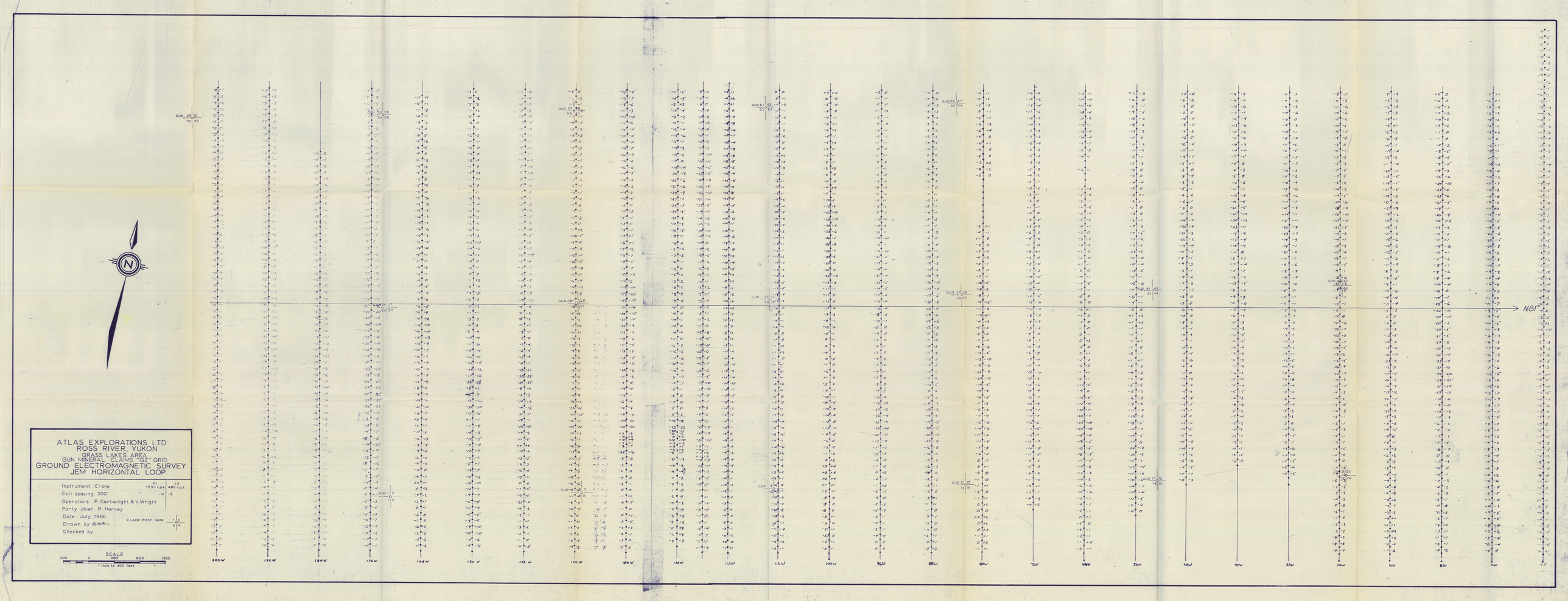
ROSS RIVER, YUKON
GRASS LAKES AREA
GUN MINERAL CLAIMS "GZ" GRID
GROUND ELECTROMAGNETIC SURVEY
JEM HORIZONTAL LOOP CONTOUR MAP

Instrument: Crone	Contour interval: 4° dip angle
Coil spacing: 300'	Positive contours: ----
Party chief: R. Harvey	Negative contour: ——
Operators: P. Cartwright V. Wright	
Date: July, 1966	
Drawn by:	
Scale: 1" = 400'	

CLAIM POST GUN 1 / 2 3 / 4


N
ATLAS EXPLORATIONS LTD.
ROSS RIVER, YUKON
GRASS LAKES AREA
GUN MINERAL CLAIMS "GZ" GRID
GROUND ELECTROMAGNETIC SURVEY
JEM HORIZONTAL LOOP
Instrument: Crone
Hi 1800 c.p.s.
Lo 480 c.p.s.
Coil spacing: 300'
-12
-5
Operators: P. Cartwright & V. Wright
Party chief: R. Harvey
Date: July, 1966
Drawn by:
Checked by:
CLAIM POST GUN 1/3 2/4
SCALE
400 0 400 800 1200
1 inch to 400 feet
GUN 49 51 50 52
GUN 53 55 54 56
GUN 57 59 58 60
GUN 61 63 62 64
GUN 65 67 66 68
GUN 37 39 38 40
GUN 41 43 42 44
GUN 45 47 46 48
GUN 33 35 34 36
GUN 29 31 30 32
GUN 25 27 26 28
GUN 21 23 22 24
GUN 17 19 18 20
GUN 13 15 14 16
GUN 9 11 10 12
GUN 5 7 6 8
GUN 1 3 2 4
200W
192W
184W
176W
168W
160W
152W
144W
136W
128W
120W
112W
104W
96W
88W
80W
72W
64W
56W
48W
40W
32W
24W
16W
8W
0W
8E
N81°E

GRASS LAKE AREA

YUKON TERRITORY
GUN MINERAL CLAIMS

SCALE

1000 0 1000 2000 3000 4000 5000 FEET

1 Inch to 1320 Feet

MAGNETOMETRIC MAP

GRID GZ

GRASS LAKE AREA

YUKON TERRITORY

GUN MINERAL CLAIMS

SCALE

1000 0 1000 2000 3000 4000 5000

FEET FEET

1 Inch to 1320 Feet

ELECTROMAGNETIC MAP

GRID GZ