MAGNETIC AND ELECTROMAGNETIC GEOPHYSICAL SURVEYS

on

PAY 1-16 MINERAL CLAIM GROUP

FORTIN LAKE AREA

Watson Lake Mining Division

Yukon Territory

Long. 130° 25' West

Lat. 62° 00' North

by

P. F. Nielsen

Atlas Explorations Limited

June 16 - July 4, 1967

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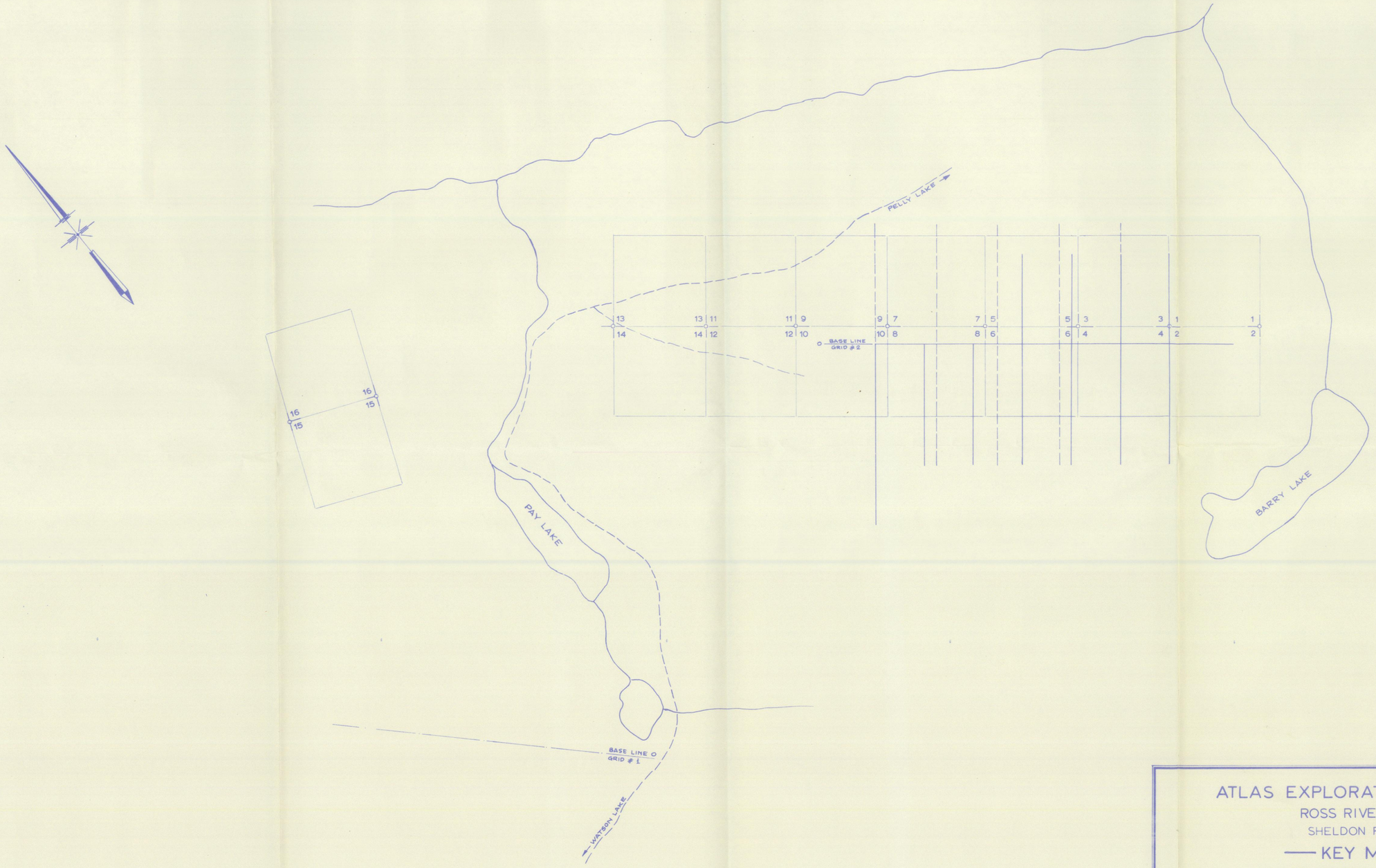


ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

KEY MAP

LOCATION PAY 1-16 CLAIMS

DRAWN BY: P.J.F VLASVELD

DATE: JULY 1967

1000 0 1000 2000

SCALE IN FEET

LIST OF CLAIMS

Claim Number	Grant Number	Date Recorded
PAY 1-16	Y13133-Y13148	July 4, 1966

INTRODUCTION

The Pay 1-16 group was optioned from R. McBean on August 13, 1966, following an examination by Al Kulan and discussions with P. Risby, who made the initial discovery. Payments are due at yearly intervals on September 1 beginning in 1967. C. J. Brown made a brief examination of the property in July 1966.

The Pay 1-16 group consists of 14 contiguous claims, elongate in a northwesterly direction, and two separate claims northwest of the main group, all being located east of Fortin Lake and about 60 miles east of Ross River.

LOCATION AND ACCESS

The Pay 1-16 group is located about 6 miles east of Fortin Lake and is accessible by float mounted aircraft on either Pay Lake or Barry Lake. The Atlas tote road leaves the Watson Lake-Ross River road northwest of Finlayson Lake and after a distance of approximately 32 miles passes just west of the Pay 1-16 claim group and east of Pay Lake. The road is used by a tracked vehicle (Bombardier) in the summer or by Bombardier and 4-wheel drive truck in the winter.

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 flux-gate which automatically levels itself in the direction of the vertical field. Its range is 10 to 250,000 gammas over five sensitivity ranges, the lowest being 10 gammas per scale division.

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 and 100 feet for a vertical conductor. 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

1) Reconnaissance. The Pay 1-16 claim area was first surveyed on a reconnaissance basis using a flagged grid consisting

of five lines 4000 feet in length and spaced 1000 feet apart with 200-foot station intervals using the compass and pace method. From the information derived, a grid was later cut.

2) Line Cutting. To facilitate the taking of geochemical samples and geophysical readings at regular intervals, a grid was laid out using 800-foot line spacing with 100-foot station intervals. The cross lines and base line were established by the company surveyor and the picket and chain method was used. Linecutters were hired from the native settlement of Ross River; survey control was checked by the party chief.

3) Magnetometer Survey. Prior to the actual survey, readings were taken along the base line at 100-foot intervals. 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 these 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 rechecks at a base station within every hour providing internal control for detecting diurnal and drift variations. The survey was carried out by one operator using the above instrument.

4) Electromagnetic Survey. The survey was run with the horizontal loop configuration and 300-foot coil spacing in order that highest response could be obtained from possible flat or nearly flat-lying sulphide bodies. Both 1800 and 480 cps

readings were taken at each station. All traverses were made by the "in line method" and done over the same grid as used for the magnetometer survey. The two-man EM crew did all their ground work in coincidence with the magnetometer and soil sampling crew.

Treatment of Data

1) Magnetic Results. Magnetic results were corrected for diurnal and drift by the field operator and the final gamma values were plotted on a grid plan using a scale of 400 feet to 1 inch. This data was presented to the party chief who profiled and contoured the data on overlay material for interpretation and examination purposes.

2) Electromagnetic Results. All results as derived in the field were plotted each night by the party chief on a grid plan using a scale of 400 feet to 1 inch. High and low frequency values were plotted in order that this data could be compared with the other surveys and is presented in this report.

GEOLOGY

The region is underlain by a steeply-dipping, northwesterly-striking succession of Devonian and Mississippian cherts, slates, [illegible]ites and quartzites. Southeast of the claims a granite intrusive crops out; the intrusive appears to plunge beneath the metasediments and possibly underlies much of the claim area.

Little is known of the structure other than that strong

topographic linears are present which suggests that a rhombic fracture pattern exists. Pelly Lakes and Fortin Lake appear to be within major fractures.

Table of Geologic Formations

Devonian and Mississippian:	4	Black Carbonaceous slate
	3	Light gray phyllite
	2	Quartzite
	1	Grey chert with interbedded dolomite

Geology of North Pay (1-16) Grid Area

The Pay 1-16 group was mapped by R. Darney and W. Roberts on a scale of 1" = 1000 feet during the period June 16 - July 4, 1967. Mapping was done on an enlarged airphoto and outcrop stations related to a cut grid. The grid consists of a 6400-foot base line trending N45°W with 7 cross lines of 2000 feet to the southwest and 4 cross lines 1500 feet to the northeast, and all lines spaced 800 feet apart. The total cut line is 27,400 feet.

The grid area is underlain by a steeply-dipping (N50°-80°W-striking) succession of metasediments. Stratigraphic relations are not known but the light gray to dark gray massively bedded chert locally interbedded with brownish gray dolomite appears to be the oldest unit. Overlying this unit to the southwest are apparently narrow members of gray quartzite and light gray phyllites. Black carbonaceous slates crop out on

the southwest side of the succession and dip less steeply to the south than do the cherts.

The only fault noted cutting the beds trends north-south dipping steeply and displacing the easterly block at least 1200 feet to the south.

The cherts are extensively mineralized in the eastern portion of the grid area. Mineralization occurs in chert breccia as replacement in matrix material. Percentages of minerals vary and grades are generally low. Pyrrhotite and arsenopyrite are abundant with lesser amounts of sphalerite, galena, chalcopyrite and pyrite. Assay values are shown on the geologic map.

GEOPHYSICAL OBSERVATIONS

The ground EM partially delineated a conductor represented by a long negative dip angle anomaly striking northwest for 4800 feet which is open to the southeast and southwest. Negative values fall off rapidly to background as the base line is approached and ratios of low over high frequency approach 1 between line 16 to line 48.

The ground magnetometer partially outlined a conductor coincident with the EM survey results of ratios approaching 1. The areas of highest magnetic relief were observed on the base line at station 3 and 10 where the gamma values were 2390 and 2220 respectively.

INTERPRETATION OF GEOPHYSICAL RESULTS

When matched with geological and geochemical data the results seem to substantiate the likelihood of extensions to the areas of known mineralisation along the base line with the highest geophysical expressions occurring slightly to the southwest. Although a large section of the EM anomaly appears to be caused by a graphitic-bearing slate horizon, the area of high EM ratios could conceivably by caused by underlying sulphides when considering the mineralized outcroppings to the northeast and the geochemical anomalies down slope to the southwest.

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the Fay 1-16 claim area is of possible economic value in light of geologic, geochemical, geophysical and air photo information and it is recommended that further geophysical work be done on this claim group. It is suggested that lines be extended to the northeast and the southwest and that the geophysical survey be carried out to completely delineate this anomalous area.

APPENDIX I

SUMMARY OF COSTS

Summary of Costs on Grid	Costs $
1. Line Cutting - Total footage cut = 27,400 ft.	
- Overall cost/1000 ft. = $10	270
- Surveyor and Rod man for 1 day	62
	332
2. Magnetometer Survey	
- total line miles = 2.64 miles	
- overall cost/line mile = $50	132
3. Electromagnetic Survey	
-total line miles = 2.64 miles	
-overall cost/line mile = $110	290
4. Aircraft Support	
(a) Helicopter - 4 hours at $110/hour	440
(b) Fixed Wing - Ross River-Fay-Ross River	136
5. Bombardier Support - $35/day for 2 days (man and machine)	70
SUBTOTAL	$1,400
Summary of Costs for Reconnaissance Survey	
6. Magnetometer Survey	
- total line miles = 1.55	
- overall cost/line mile = $50	75
7. Electromagnetic Survey	
- total line miles = 2.5 miles	
- overall cost/line mile = $110	275
SUBTOTAL	$350
Supervisory Salaries	
Party Chief - Supervision and Interpretation	100
Surveyor and Rod Man (1 day) = 2 man/days	40
Camp Support - Cook and Flunky = 20 men for 4 days at $325/man/mo.	867
SUBTOTAL	$1,007
TOTAL COSTS	$2,757

APPENDIX III

A F F I D A V I T

Supporting Summary of Costs

I, Clyde L. Smith, Chief Geologist, Atlas Explorations Limited, of Vancouver, B.C., do hereby state that to the best of my knowledge and belief the statement of costs as presented in Appendix I of this report "Magnetic and Electromagnetic Geophysical Surveys on Pay 1 - 16 Mineral Claim Group" is both true and correct.

DATED at Pelly Lakes, Yukon Territory, this 6th day of July, A.D., 1967.

SWORN BEFORE ME at Pelly Lakes, Yukon Territory, this 6th day of ~~July~~ October, A.D. 1967

A. G. Redman

A Commissioner for taking Affidavits in the Yukon Territory

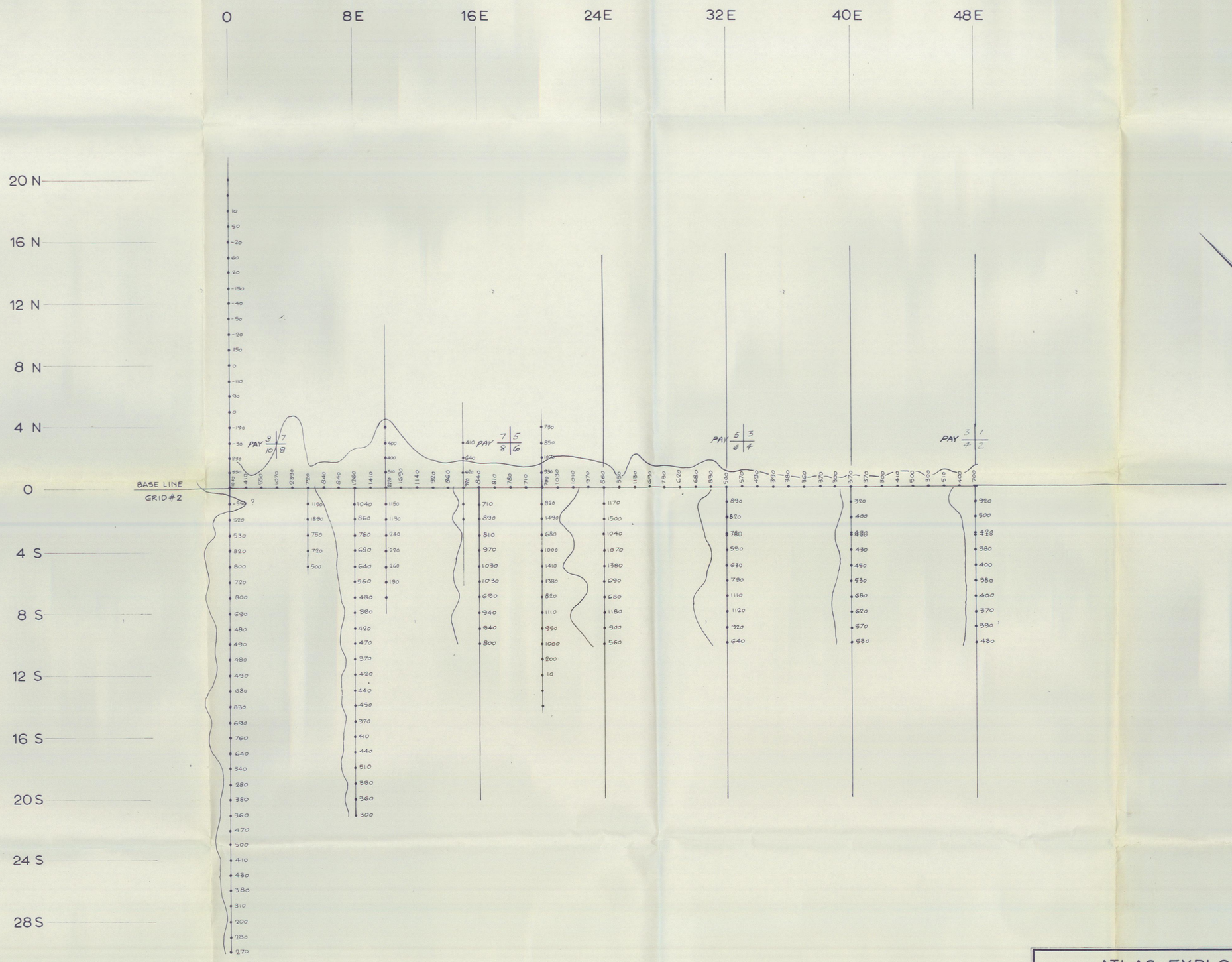
Clyde L. Smith

Clyde L. Smith

APPENDIX IV

PERSONNEL

Phil Nielsen	Party Chief	1600 Beach Ave. Vancouver, B.C.
Paul Sandaluk	Surveyor	6560 N.W. Marine Dr. Vancouver, B.C.
Sam McLeod	Linecutter	Ross River, Y.T.
Mac Peter	Linecutter	Ross River, Y.T.
John Acklack	Linecutter	Ross River, Y.T.
Robert Etzel	Linecutter	Ross River, Y.T.
Peter Dean	Mag. operator	3063 Mahon Ave. North Vancouver, B.C.
John Caleski	EM operator	1312 - 70th Ave. S.W. Calgary, Alberta
Murray Simpson	EM operator	Box 235 Ucluelet, B.C.
Pat Lund	Bombardier operator	Watson Lake, Y.T.



ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

PAY MINERAL CLAIMS

GROUND MAGNETOMETER SURVEY

—VALUES—

INSTRUMENT: JALANDER 1" = 200'

OPERATOR: P. DEAN

DATE: JUNE 1967

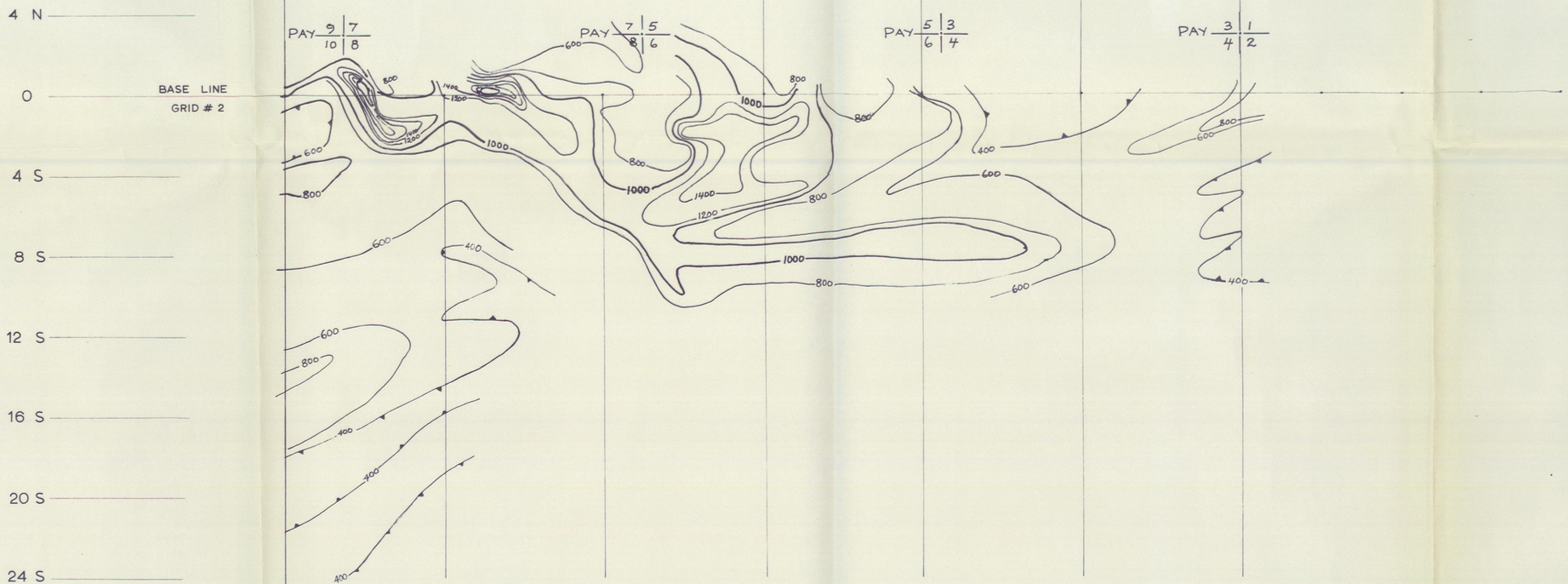
DRAWN BY: P.J.F.VLASVELD

400 0 400 800

scale in feet

0 8 E 16 E 24 E 32 E 40 E 48 E

20 N
16 N
12 N
8 N
4 N
0 BASE LINE GRID # 2
4 S
8 S
12 S
16 S
20 S
24 S
28 S



ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

PAY MINERAL CLAIMS

GROUND MAGNETOMETER SURVEY

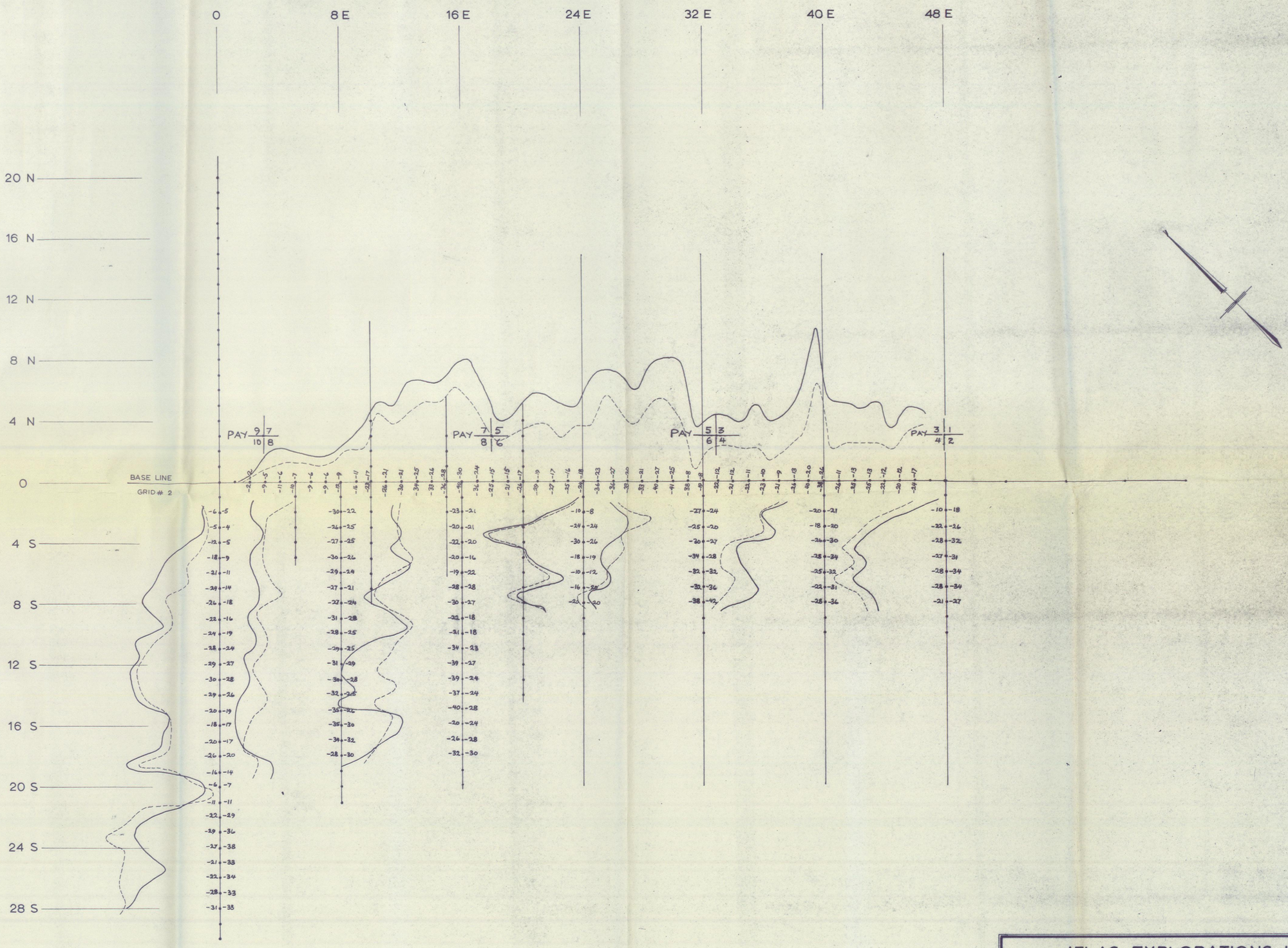
CONTOUR MAP

INSTRUMENT : CRONE (JEM) 2/10" = 2° RES. IN DIP ANGLE DATE : JUNE 1967

OPERATORS: J.GALESKI & M.SIMPSON DRAWN BY: P.J.F. VLASVELD

400 0 400 800

scale in feet



ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

SHELDON REGION

PAY MINERAL CLAIMS

GROUND ELECTROMAGNETIC SURVEY

—VALUES AND PROFILES—

INSTRUMENT: CRONE (JEM)

OPERATORS: J.GALESKI & M.SIMPSON

1/10" = 2" Res. Cos. Dir. Angle

DATE: JUNE 1967

DRAWN BY: P.J.F. VLASVELD

400 0 400 800

scale in feet