

GEOCHEMICAL SOIL SAMPLING SURVEY

ON

BILL-PELLY MINERAL CLAIM GROUP

Pelly Lakes Area
Watson Lake Mining Division
Yukon Territory

Long. 130° 10' West
Lat. 62° 04' North

BY

Clyde L. Smith
Atlas Explorations Limited

June 13 - August 29 1967

GEOLOGICAL SURVEY
FEB 14 1968
Resident Geologist
Whitehorse, Y. T.

This report has been examined by
the Geological Evaluation Unit.
Approved as to technical worth by:
W.C. Gardner
RESIDENT GEOLOGIST
Approved as to cost in the a. mount
of: \$ 4256.03
H.S. Pullen
RESIDENT MINING ENGINEER
Accepted as reprobation work
under Section 53(4) Yukon Quartz
Mining Act.
David Smith
COMMISSIONER OF YUKON

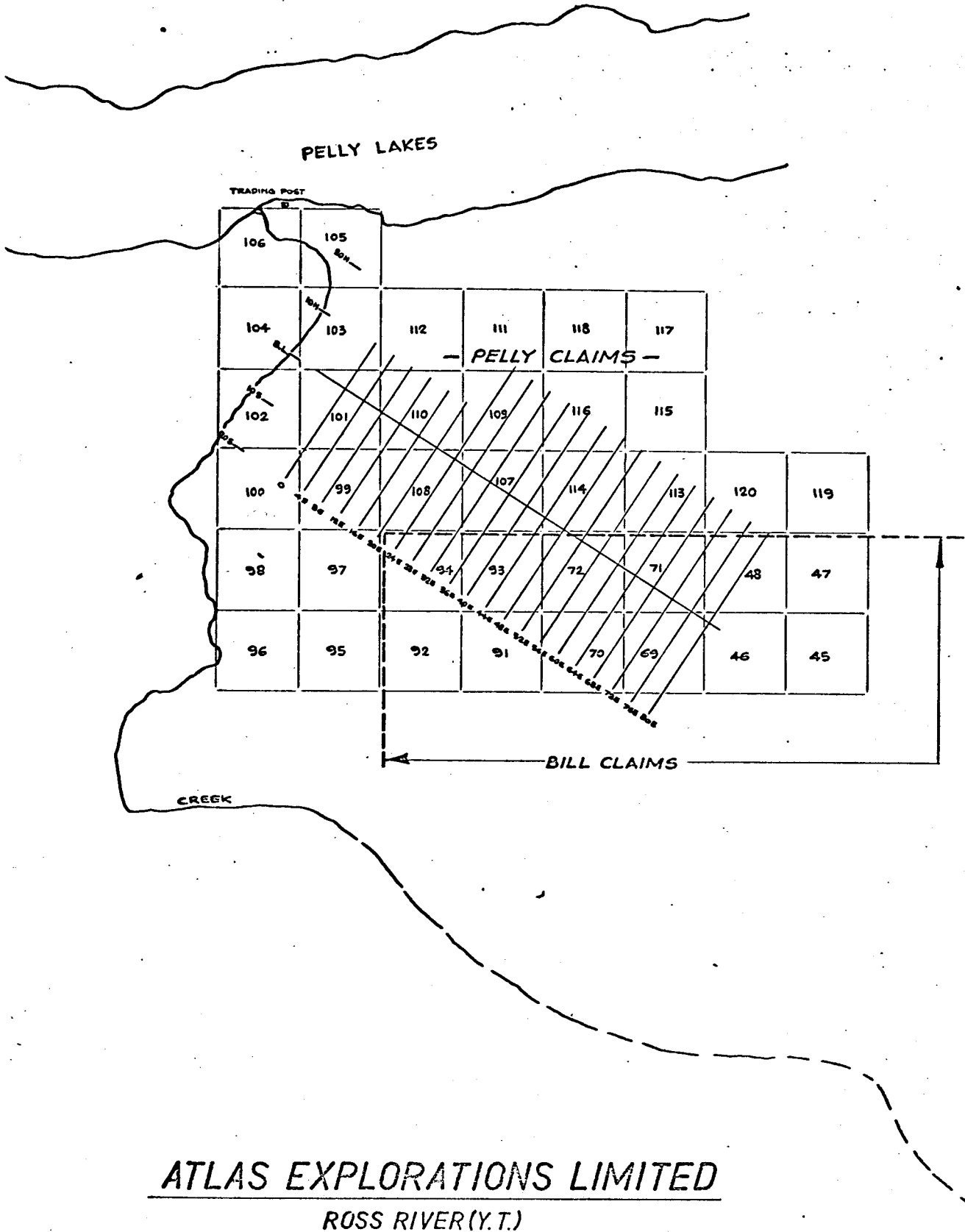
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TRAFFIC MOUNTAIN
REGION

KEY MAP OF BILL CLAIMS + GRID

SCALE 1" = 1/2 MILE



ATLAS EXPLORATIONS LIMITED

ROSS RIVER (Y.T.)

LIST OF CLAIMS

<u>CLAIM NUMBER</u>	<u>GRANT NUMBER</u>	<u>DATE RECORDED</u>
Bill 45 - 48	Y 16676 - Y 16680	October 17, 1966
Bill 69 - 72	Y 16701 - Y 16704	October 17, 1966
Bill 91 - 94	Y 16723 - Y 16726	October 17, 1966
Pelly 95 -120	Y 17990 - Y 19 ⁸ 015	August 11, 1967

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(N.P.L.)

330 MARINE BUILDING
355 BURRARD STREET
VANCOUVER 1, B.C.

INTRODUCTION

The Bill Group was staked in early October, 1966, to cover an area of high copper, lead, and zinc geochemical results discovered as a result of reconnaissance soil sampling in a region of favourable geology. The northwestern corner of the Bill group was covered by a detailed geochemical survey, was mapped, and geochemical surveys were conducted over geochemical anomalies. The Pelly 95-120 claims were staked to cover extensions of geochemical anomalies north of the margin of the Bill group.

LOCATION AND ACCESS

The Bill-Pelly group is located at and to the southeast of an abandoned trading post on the south side of Pelly Lakes, about 75 air-line miles east of Ross River.

The group may be reached by float aircraft, landing on Pelly Lakes, or by tote trail. The Atlas Tote Trail leaves the Watson Lake - Ross River Road northwest of Finlayson Lake and reaches the claim group at about Mile 43. The road is accessible by bombardier in the summer or by 4-wheel drive truck in the winter.

REGIONAL GEOLOGIC SETTING

The Bill-Pelly group is underlain by a steeply-dipping, N. 70 deg. W. striking sequence of interbedded black cherts, black slates, dolomites, and quartzites, (of probable Devonian age). The sequence lies with apparent conformity on a thick unit of gray phyllite of probable Proterozoic age. The Devonian (?) sequence occurs along the eastern limb of a tight, gently westerly-plunging anticline cored by the Proterozoic (?) phyllites. The east margin of the group is underlain by granodiorite which intrudes the Devonian (?) meta-sediments.

At least two strong directions of regional fracturing occur. A N. 70 deg. W. striking set of either reverse or normal faults has caused dip-slip displacements between large blocks. A northeasterly trending set parallels the Pelly Lakes lineament and has caused apparent strike-slip movements.

TOPOGRAPHY AND GROUND CONDITIONS

The Bill-Pelly group lies generally in an area of rugged mountain topography within which outcrop is abundant. The area surveyed geochemically, however, is at the base of a mountain ridge where a gradually-sloping valley re-entrant occurs. The valley is covered by alluvium and glacial moraine. Elevations average 3,500 feet and vegetation is typical Yukon sub-alpine. Soils sampled were generally of the B horizon but in places where A horizon material was thick, it was collected.

SURVEY TECHNIQUES

Grid Lines

The grid consists of an 8,000 foot long base line trending N. 60 deg. W., with 21 cross lines of 3,000 and 4,000 feet in length, spaced 400 feet apart. Total outline is 86,000 feet.

Reconnaissance Lines

Prior to line cutting of the Bill-Pelly grid, seven northwesterly-trending lines of 6,000 foot lengths were run over an area of previously high-spot geochemical samples. Samples were taken at 300 foot intervals and total footage covered was 21,000 feet.

Soil Sampling

The soil sampling survey was carried out in conjunction with the electromagnetic and magnetic survey. One soil sampler was employed for the entire survey.

The samples were obtained by use of a prospector's grub hoe which was found adequate as a tool for cutting through layers of organic material overlying the soil. Samples were taken at 100-foot stations over the same grid areas as geophysical data was obtained from.

Due to the inconsistency of specific soil horizons as well as variable depths to favourable horizons, samples were taken from an average depth of approximately one and one-half feet. Soils of the upper "B" horizon were usually encountered. Soils of large organic content were not sampled. In areas of immature soils, the "C" horizon was sampled. Approximately 100 grams of soil from each sample site

were placed in Kraft bags which were then periodically shipped to the soil testing laboratory at Ross River.

Method of Analysis

All samples were analysed at a complete testing laboratory at Ross River. When the samples were received, each was dried while in its own little Kraft bag, then screened to 80 mesh, weighed out to 0.5 grams and digested in hot aqua regia. Samples were then diluted until they could not stand it any longer, clarified for 20 hours, and then tested for copper, lead, and zinc content on an atomic absorption spectrophotometer machine. The 'AA' units used were a Perkins Model 290 (1966) and a Model 320 (1967) and accuracy of the instrument ideally is 1% of the amount of metal present. Individual cathode lamps were used for each little element determination, a direct readout is given of the element being tested and, amazingly, two determinations per minute can be made with ease.

Treatment of Data

All results of geochemical tests were returned to the field as soon as possible. Results in parts per million (ppm) were plotted on field data sheets kept by the field soil sampler. The field data sheets were kept as a record of each sample taken, noting particulars concerning drainage, topography, physiography, soil type and depth of sample. This information was compiled for use in further detailed geochemical studies.

Separate maps were prepared using a scale of 1" = 400' and 1" = 1,000' as was used for geophysical data, showing values obtained for copper, lead and zinc, profiles of values and contoured values. Contour intervals varied according to results obtained in parts per million. Maps for each element were compiled separately in order to aid in

comparative study of geophysical, geologic and geochemical results. A development map for each area has also been prepared showing general compilation of geochemical-geophysical data.

GEOCHEMICAL RESULTS AND CONCLUSIONS

Statistical determinations of background and threshold values were not undertaken, however, approximate threshold values appear to be as follows: Cu, 90 p.p.m.; Pb, 60 p.p.m.; and Zn, 300 p.p.m.

Because it was found that significant mineralization in similar geologic environments in the Sheldon region is closely reflected by Zn values in excess of 800 p.p.m. and areas in excess of this value on the Bill-Pelly group are treated as anomalous.

Zinc

Four isolated anomalies were located within which values range from 600 to over 2300 p.p.m. Zn. The most extensive anomaly occurs between lines 28E and 68E, is elongate and narrow averaging about 500 feet in width. A small showing of Pb-Zn in limestone breccia occurs within the anomaly on line 56E. It is believed that the main as well as the smaller Zn geochemical anomalies indicate the presence of Zn mineralization. One of the anomalies or of neighbouring geological anomalies will adequately explain the geochemistry.

Lead

Lead geochemical results are nowhere markedly anomalous although slightly higher values can in places be related to Zn highs. It is believed that depth of overburden cover is too deep over most of the area for

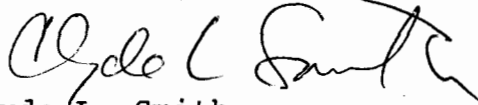
dispersion of lead.

Copper

High copper values commonly occur with anomalous Zn; values reach 380 p.p.m. in a background of about 50 p.p.m. Although copper mineralization is now known in the area it is believed that geochemistry is reflecting its presence.

Geochemical anomalies in the Bill-Pelly group are believed to be very significant and efforts should be made to explain their source. Because of depth of overburden, however, a good deal of migration may have occurred. It is therefore recommended that follow-up drilling be done on geophysical targets found to be related to geochemical anomalies rather than on anomalies themselves.

Respectfully submitted,



Clyde L. Smith,
Atlas Explorations Limited

B I L L Geochemical Survey:A. Geochem:

1. (a)	<u>Footage Sampled:</u>	84,200 feet		
	(b) <u>Samples Taken:</u>	842 samples		
	(c) <u>Taken by:</u>	M. Simpson, J. Galeski, F. Tom, S. Mcleod, C. Wicks, V. Pratico, J.E. Scott		
2. (a)	<u>Wages:</u>	8 man days x \$17.50, daily wage of M. Simpson	\$ 140.00	
		9 man days x \$17.50, daily wage of G. Hayne	157.50	
		7 man days x \$16.50, daily wage of W. Roberts	115.50	
		2 man days x \$20.00, daily wage of S. Mcleod	40.00	
		2 man days x \$16.50, daily wage of J. Galeski	33.00	
		2 man days x \$15.50, daily wage of C. Wicks	31.00	
		2 man days x \$15.50, daily wage of V. Pratico	31.00	
		1 man day x \$15.50, daily wage of C. Scott	15.50	
		1 man day x \$20.00, daily wage of F. Tom	<u>20.00</u>	\$ 583.50
(b)	<u>Helicopter Support:</u>			
		2.9 hours at \$112.00 per hour		324.80
(c)	<u>Fixed Wing Support:</u>			
		1 trip, one way, Ross River to Pelly Camp = 1 (76 mi. x \$.85 per mi.) = 1 x \$64.60		64.60
(d)	<u>Subsistence Cost:</u>			
		34 man days x \$8.00 per man day		272.00
(e)	<u>Analysis Cost:==</u>			
		842 samples x \$2.50 per sample processing cost		2,105.00

B I L L Geochemical Survey: Cont'd.

(f)	<u>Supplies and Miscellaneous Equipment:</u>		\$100.00
(g)	<u>Travel from Vancouver and Ross River -</u> \$15.00 per man x 7 men		105.00
(h)	<u>Supervision Cost:</u> 34 man days x \$1.20 daily cost		40.80
(i)	<u>Interpretation and Report Presentation:</u> Drafting: P. Vlasveld 1 day x \$30.20	\$ 30.20	
	C. Smith and J. Brock 1 day x \$75.00	<u>75.00</u>	<u>\$ 105.20</u>
(j)	Overhead: 15% of total = 15% x \$3,700.90		<u>555.13</u>
			<u>\$4,256.03</u>


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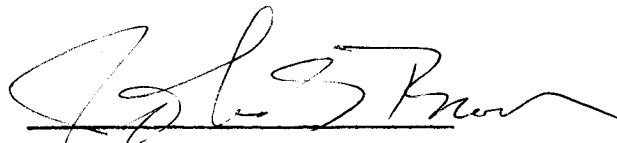
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VANCOUVER 1, B.C.

AFFIDAVIT 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 "Geochemical Soil Sampling Survey on Bill-Pelly Mineral Claim Group" is both true and correct.

DATED, at Vancouver, B.C. this 17th day of October, 1967.


Clyde L. Smith


A Commissioner for taking
Affidavits in the Yukon
Territory

PERSONNEL

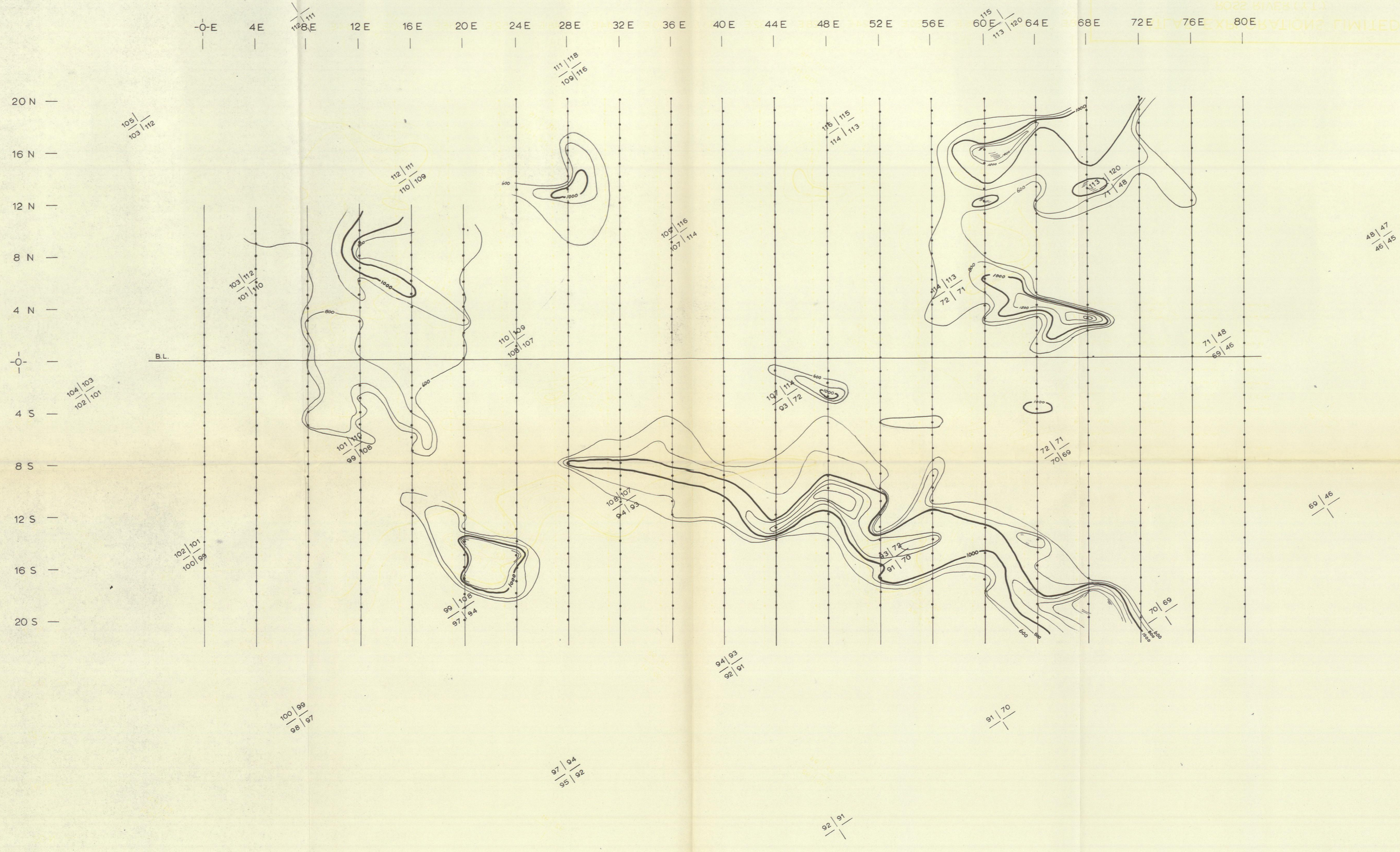
C. Scott	Geochemical Sampler	Vancouver, B.C.
S. McLeod	Line Cutter	Ross River, Y. T.
J. Ollie	" "	" " "
C. Ollie	" "	" " "
J. Atkinson	" "	" " "
F. Tom	" "	" " "
S. Tom	" "	" " "

	0-E	4E	8E	12E	16E	20E	24E	28E	32E	36E	40E	44E	48E	52E	56E	60E	64E	68E	72E	76E	80E
20 N							26.1830	4.19.144	35.14.113	54.20.155	45.21.505	36.20.459	28.20.93		20.20.113	36.24.350	44.99.690		22.55.100	33.63.480	26.21.340
16 N							41.38.350	44.19.150	21.20.120	30.10.166	33.16.156	10.19.760	40.53.130	44.19.118	22.11.45	22.19.475	17.24.460		93.19.620	23.24.350	18.56.430
12 N							22.18.400	105.56.760	28.22.168	22.15.170	21.15.106	40.53.130	22.10.116	104.15.140	22.11.416	34.42.400	27.15.670		51.29.1560	27.20.460	21.24.190
8 N							50.56.440	47.43.850	24.20.192	22.17.138	23.14.140	32.20.145	104.15.140	23.34.580	48.56.1550	22.36.930		20.25.1000	20.25.1000	20.10.178	20.12.500
4 N							44.28.500	22.17.430	37.12.180	33.93.400	20.13.184	30.24.195	30.18.17	27.36.460	37.54.120		20.25.1000	20.25.1000	20.14.510	20.12.145	20.14.185
0							15.30.390	40.36.360	28.14.130	34.20.900	22.24.160	18.12.96	30.18.61	20.34.40	34.34.1050	54.23.800		20.25.1000	20.25.1000	20.14.510	20.12.145
4 S							36.20.130	28.57.200	21.2.96	22.15.96	22.15.115	36.20.940	22.16.18	20.30.260	44.30.800	20.25.1000		20.25.1000	20.25.1000	20.14.510	20.12.145
8 S							46.50.430	70.44.300	43.18.98	41.18.54	4.18.100	74.28.90	60.18.40	22.26.540	116.58.1600	48.28.800		20.25.1000	20.25.1000	20.14.510	20.12.145
12 S							36.20.130	28.57.200	21.2.96	22.15.96	22.15.115	36.20.940	22.16.18	20.30.260	44.30.800	20.25.1000		20.25.1000	20.25.1000	20.14.510	20.12.145
16 S							46.50.430	70.44.300	43.18.98	41.18.54	4.18.100	74.28.90	60.18.40	22.26.540	116.58.1600	48.28.800		20.25.1000	20.25.1000	20.14.510	20.12.145
20 S							36.20.130	28.57.200	21.2.96	22.15.96	22.15.115	36.20.940	22.16.18	20.30.260	44.30.800	20.25.1000		20.25.1000	20.25.1000	20.14.510	20.12.145

ATLAS EXPLORATIONS LIMITED
 ROSS RIVER (Y.T.)
 SHELDON REGION
BILL MINERAL CLAIMS
 GEOCHEMICAL SOIL SAMPLING SURVEY, COPPER, LEAD & ZINC
 RESULTS, BY ATOMIC ABSORPTION
 SPECTROPHOTOMETER ANALYSIS

SOIL SAMPLER : M. SIMPSON DRAWN BY: P.J.F. VLASVELD
 DATE : AUGUST 1967

400 0 400 800
 scale in feet



ATLAS EXPLORATIONS LIMITED
 ROSS RIVER (Y.T.)
 SHELDON REGION
 BILL MINERAL CLAIMS
 GEOCHEMICAL SOIL SAMPLING SURVEY
 ZINC CONTOURS

SOIL SAMPLER: M. SIMPSON
 DRAWN BY: R. J. DARNEY
 DATE: OCTOBER 1967

400 0 400 800
 scale in feet