

MONTANA MINES LTD. (N.P.L.)

Hart Group Mineral Claims

116-A-10, 64° 39'N, 136° 50'W

Mayo M.D., Yukon Territory

This report has been examined by  
the Geological Evaluation Unit.  
Approved as to technical worth by:

D.B. Craig  
RESIDENT GEOLOGIST

Approved as to cost in the a. mount  
of: \$3630.91

GEOCHEMICAL REPORT

J.B. Somerton  
RESIDENT MINING ENGINEER

Accepted as representation work  
under Section 53(4) Yukon Quartz  
Mining Act.

[Signature]  
COMMISSIONER OF YUKON

by

B.C. Fulcher, B.Sc.

July 3, 1969.

MEMORANDUM

RESTRICTED

Box 1767,  
Whitehorse, Y.T., July 31, 1969.  
File: M.I. M-252

Mining Recorder,  
Mayo, Y.T.

Geochemical Report  
Montana Mines Ltd. (N.P.L.)  
HART Group Mineral Claims  
by B. G. Fulcher, B.Sc.  
endorsed by P. H. Sevensma, Phd.D., P. Eng.

On the recommendation of the Resident Geologist and the Mining Inspector I hereby authorize you to accept this report as representation work under Section 53 (h) of the Yukon Quartz Mining Act to the value of Three Thousand Six Hundred and Thirty Dollars and Ninety One Cents (\$3,630.91).

Yours sincerely,

Original signed by  
Commissioner J. Smith  
James Smith,  
Commissioner.

J. C. Terrington:ram

Attach.

cc: Chief, Oil and Mineral Division  
Attention: Geological Evaluation Unit

Central Mining Records - Whitehorse ✓

Resident Geologist

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Fig. 2 - Location Plan .....	1" = $\frac{1}{2}$ mile
Fig. 3 - Sample Location Plan .....	1" = 500'
Fig. 4 - Geochemical Results - Copper .....	1" = 500'
Fig. 5 - Geochemical Results - Lead .....	1" = 500'
Fig. 6 - Geochemical Results - Zinc .....	1" = 500'
Fig. 7 - Summary of Geochemical Results ...	1" = $\frac{1}{2}$ mile

## APPENDICIES

APPENDIX "A" - List of assay results and assay certificate.

MONTANA MINES LTD. (N.P.L.)  
Hart Group Mineral Claims  
116-A-10, 64° 39'N, 136° 50'W  
Mayo M.D., Yukon Territory

GEOCHEMICAL REPORT

1. INTRODUCTION

The writer, as geologist for Montana Mines Ltd. (N.P.L.), has directed a stream silt sampling program on the Hart group of claims which are registered to the company. The writer has reviewed the results of the survey which comprise the text of this report. He has personally visited the property and is familiar with the area.

2. PROPERTY and LOCATION

The eighteen claims comprising the group are recorded as follows:-

<u>Claim Name</u>	<u>Grant Number</u>	<u>Date of Record</u>
Hart 1 - 16	Y27466 - Y27481	July 8, 1968.
Hart 17 -18	Y26562 - Y26563	July 18, 1968.

These claims cover an area of sharp relief, extending from near the valley floor at an elevation of 3,500' across a mountainous divide in which individual peaks reach a height of 6,000'.

The immediate area is devoid of timber, although various species of underbrush occur along the valley floor.

Rock talus is abundant with very little residual soil present on the slopes.

3. GEOLOGY

A succession of late Precambrian and Palaeozoic sediments intruded by sill-like masses of dioritic rock comprise the regional setting. Limestone, dolomite, and argillite appear to underlie much of the claim area.

Dioritic masses of two types were found, medium grained gabbroic type often with associated magnetics, and a finer grained andesitic type.

Evidence of bedded sulphides was found by the writer in several locations in a grey to black, limey argillite host formation.

Float containing minor to heavy disseminations of sulphide was found at several locations.

Regionally, the above formations trend in an East-West direction. This is modified by folding in several locations.

The formations dip relatively steeply to the South, with dips of  $50^{\circ}$  or more to nearly vertical being recorded in the southern portion of the claim block.

Contact details and fault positions are difficult to pinpoint due to the abundance of talus and most mapping has to rely on exposures along the higher ridges.

#### 4. GEOCHEMICAL SURVEY

##### (a) Method

A total of sixty-eight stream silt samples (H-1 to H-68) were taken from the streams which drain the claim group. A 200' spacing interval was used and topographic control was employed. One soil sample (H-69) was taken in a hand trench at the divide in the northern part of the group. Twenty-one additional stream silt samples (H-75 to H-95) were taken on newly acquired ground across the valley to the East.

All stream silt samples were taken from the residual silt in the stream bed slightly below the surface.

Sample locations are shown in figure 3.

Analytical results were done by the Whitehorse Assay Office, Whitehorse, Yukon, using atomic absorption after hot acid ( $\text{HNO}_3 - \text{HCl}$ ) extraction. The tabulated results of the assays are shown in Appendix "A". The values shown are in parts per million (P.P.M.) of copper, lead and zinc.

One rock float sample from the newly acquired ground was also assayed. The results of this assay are also given in Appendix "A".

The use of stream silt sampling as a method of geochemical investigation was chosen in this case because of the absence of adequate residual soil in the area. Also the drainage pattern present in the area was such that a reasonable source distinction could be gained. Copper, lead, and zinc were chosen as pathfinder elements because of the general type of mineralization found in the area.

(b) Results

Individual values obtained at each sample site are shown on figures 4, 5, and 6 for copper, lead, and zinc respectively. While no well defined pattern is revealed by this data it is evident that several areas do warrant further examination.

Coincident anomalous values occur in several widely separated areas. A tabulation of analytical results is given below to indicate the contrast between background values and the peak values obtained.

<u>* Average values</u> <u>(in p.p.m.)</u>			<u>Peak values</u> <u>(in p.p.m.)</u>		
<u>Cu.</u>	<u>Pb.</u>	<u>Zn.</u>	<u>Cu.</u>	<u>Pb.</u>	<u>Zn.</u>
65	37	175	118	104	588

\* Average of 68 samples

This ratio of Cu:Pb:Zn appears to be roughly consistent with

other findings in the same locale.

One area on the newly acquired claims showed coincident anomalous values as indicated below.

<u>* Average values</u> <u>(in p.p.m.)</u>			<u>Peak values</u> <u>(in p.p.m.)</u>		
<u>Cu.</u>	<u>Pb.</u>	<u>Zn.</u>	<u>Cu.</u>	<u>Pb.</u>	<u>Zn.</u>
64	70	175	122.	168	360

\* Average of 21 samples (H-75 to H-95).

Note: Peak values obtained at sample H-79.

(c) Conclusion

Areas showing coincident anomalous values in at least two of the pathfinder elements are regarded as significant target areas for further detailed investigation. Areas meeting these conditions are shown on figure 7.

5. SUMMARY

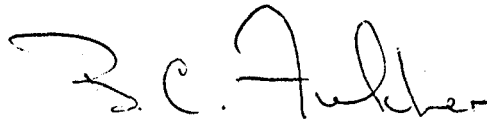
As this property is located in close proximity to substantial mineralization on Hart River Mines Ltd. property, it must be regarded as warranting careful examination. The geochemical results comprising the text of this report have provided evidence that anomalous concentrations of mineral are likely present on the Montana Mines Ltd. claim group as well. This evidence, combined with numerous mineralized float occurrences is suggestive of a possible ore zone of the type being developed on the adjoining property.

6. RECOMMENDATIONS

It is recommended that a program of geologic mapping, further soil sampling on a grid layout, geophysical work, and possibly trenching

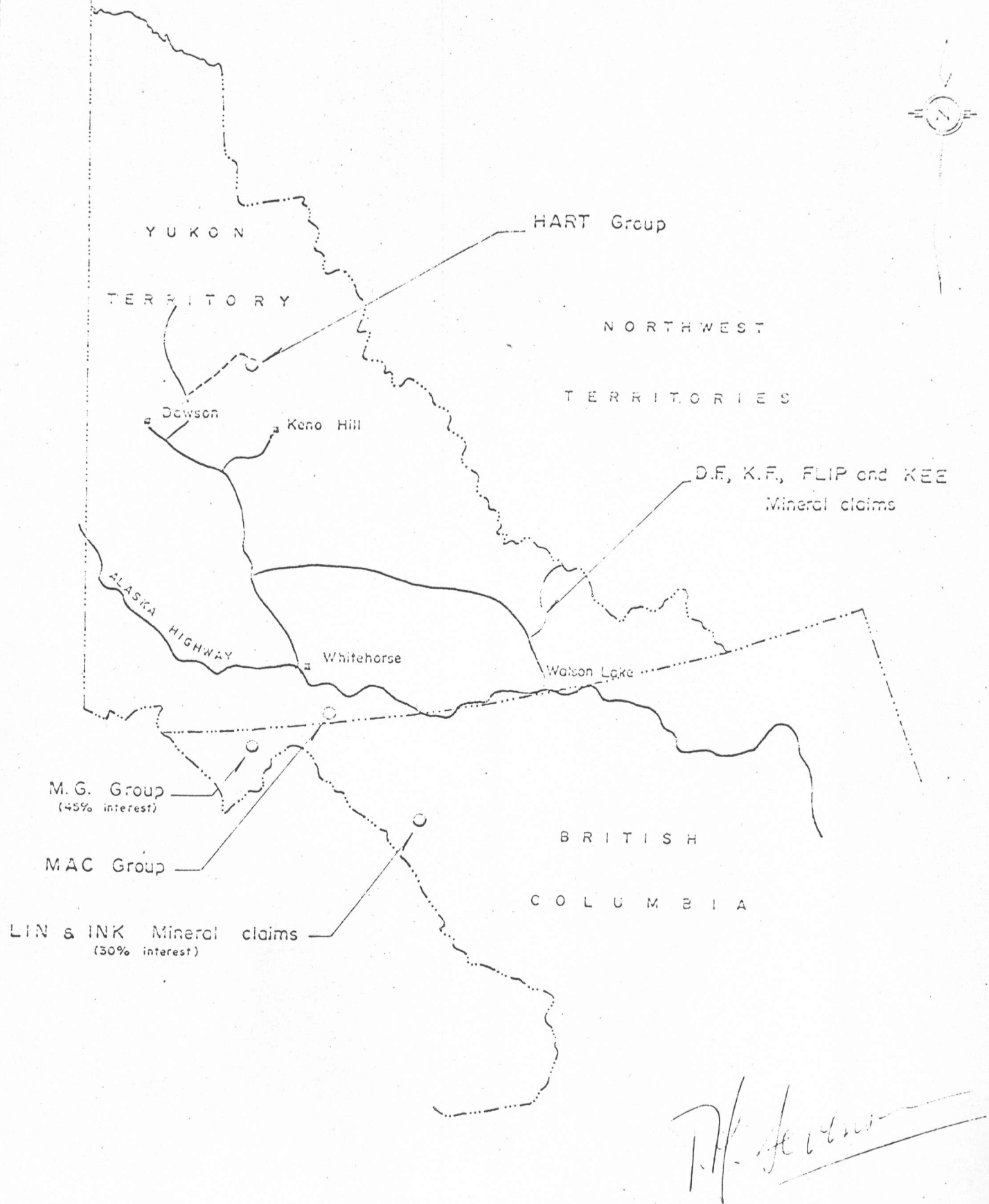
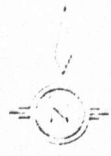
be carried out on the areas of interest as indicated by the results of the precedingly discussed survey. This work should be carried out and if results warrant, the area between the original claim group and the newly acquired group be staked for the company.


Respectfully submitted,

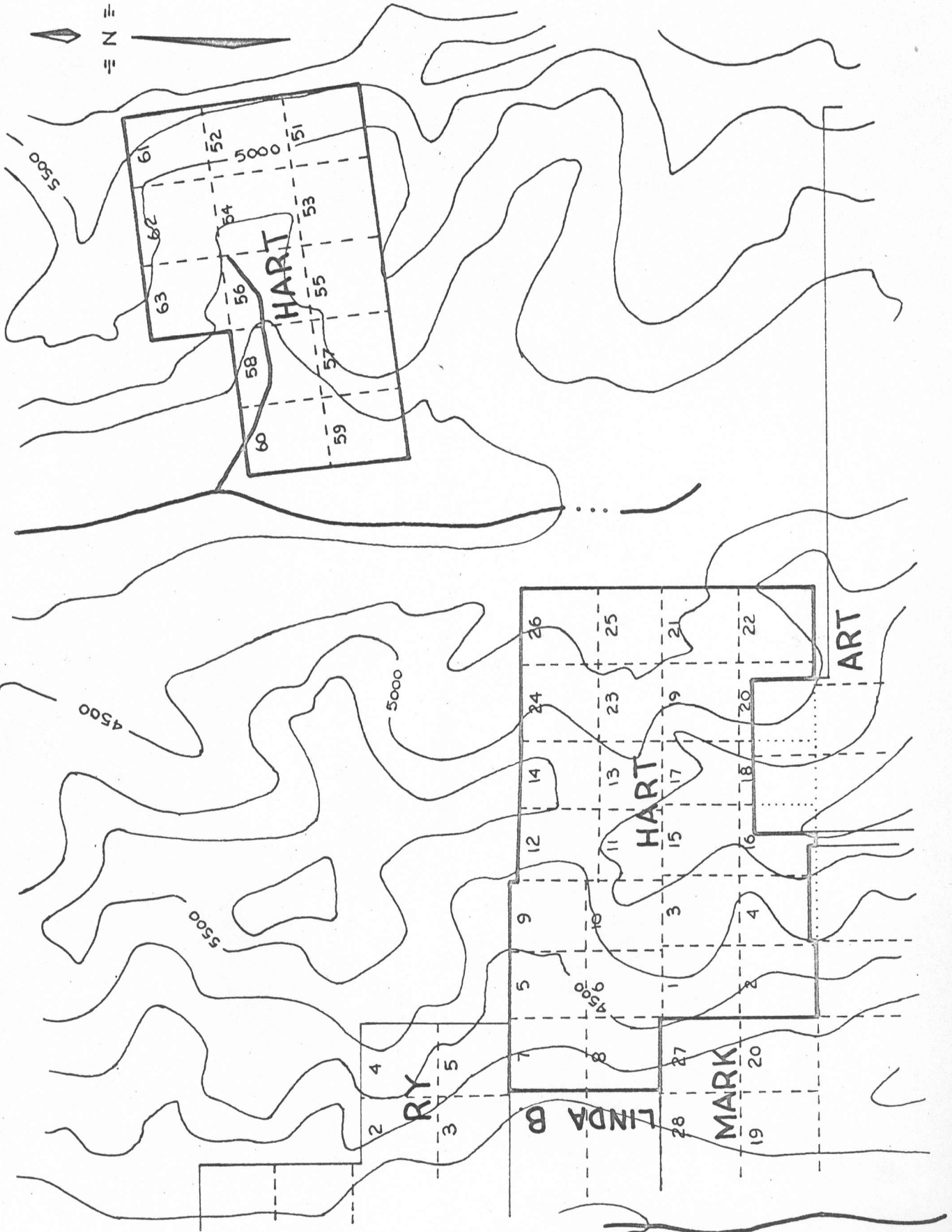
A handwritten signature in cursive script that reads "B.C. Fulcher". The signature is written in dark ink and is positioned above a horizontal line.

B.C. Fulcher, B.Sc.

July 3, 1969.



 Yukon — B.C.	MONTANA MINES LTD.
	PROPERTY LOCATIONS
P. H. Sevensma Consultants Ltd — Vancouver B.C.	
December 1963,	Scale: $\frac{1}{250000}$



MONTANA MINES LTD.

LOCATION PLAN

MAYO, M.D.

116-A-10

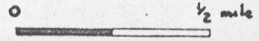
P. H. Sevensma Consultants Ltd. Vancouver, B.C.

Dwg. No.:

Fig: 2

July, 1969

Scale:



DATE June 25, 1969

# ASSAY CERTIFICATE

FILE NO. 5401-1

WHITEHORSE ASSAY OFFICE

P.O. BOX 346. WHITEHORSE. YUKON

RECEIVED FROM Montana Mines

SAMPLE NO.	GOLD OZ. PER TON	SILVER OZ PER TON	Lead	Zinc	Copper			
5401-1	TR	4.60	59.7	TR	.07			

ASSAYER Geo. Spading

# WHITEHORSE ASSAY OFFICE

P. O. BOX 346  
WHITEHORSE, Y. T.

SAMPLES FROM MONTANA MINES

Report No. A-155-98

SAMPLE #	Cu	Pt	Zn	SAMPLE #	Cu	Pt	Zn
H-1	22	16	56	H-41	38	18	148
H-2	20	12	68	H-42	42	22	148
H-3	36	20	92	H-43	37	17	140
H-4	28	12	100	H-44	90	28	112
H-5	34	16	96	H-45	54	26	136
H-6	74	40	128	H-46	48	24	128
H-7	54	26	100	H-47	48	28	128
H-8	54	26	128	H-48	60	32	144
H-9	42	18	96	H-49	54	30	132
H-10	92	98	272	H-50	54	28	132
H-11	90	96	252	H-51	62	34	144
H-12	88	94	252	H-52	46	24	120
H-13	114	90	288	H-53	52	28	132
H-14	96	30	92	H-54	50	26	132
H-15	104	104	268	H-55	54	32	136
H-16	68	66	112	H-56	52	30	132
H-17	70	68	116	H-57	62	38	148
H-18	102	46	148	H-58	64	36	144
H-19	84	70	204	H-59	86	26	180
H-20	74	66	204	H-60	80	27	180
H-21	68	64	196	H-61	74	28	200
H-22	78	66	192	H-62	110	38	332
H-23	74	72	216	H-63	72	28	116
H-24	72	36	208	H-64	58	24	100
H-25	70	34	216	H-65	58	28	128
H-26	67	34	216	H-66	42	18	76
H-27	72	36	232	H-67	118	38	140
H-28	68	32	232	H-68	94	30	104
H-29	64	28	228	H-69	58	34	184
H-30	64	30	232	H-75	72	54	208
H-31	66	32	196	H-76	80	52	220
H-32	110	50	356	H-77	76	64	192
H-33	60	22	588	H-78	66	66	184
H-34	52	24	588	H-79	122	168	360
H-35	52	20	132	H-80	62	74	180
H-36	62	22	152	H-81	60	74	168
H-37	94	40	140	H-82	69	74	184
H-38	66	20	176	H-83	60	80	172
H-39	38	18	160	H-84	58	78	176
H-40	40	16	160	H-85	60	72	152

DATE June 26, 1969

ASSAYER Geo. Spalding



July 14, 1969

Mr. L.I. McCowan  
Managing Director  
Montana Mines Ltd.  
P.O. Box 302  
Whitehorse, Yukon

Dear Mr. McCowan:

Re: Hart Group Mineral Claims, Geochemical Report

The data submitted in Mr. Fulcher's report of July 3, 1969 have been reviewed and the following observations are provided as a guide to further work.

The location of all occurrences of bedded pyritic sulphide should be plotted on the base map as a guide to favourable stratigraphy and as an aid in the evaluation of the geochemical results obtained. Float containing sulphide minerals should be traced to the source or noted as having no discovered source.

It is worth noting that in the nearby "Mark" sulphide deposit, which contains massive, banded, and disseminated sulphides, the ore minerals are frequently present only as fine discrete grains.

The stream silt survey reveals two significant source points which merit close investigation. [Point H-10, located at the confluence of two streams in the south east portion of the map area shows a coincident increase in all metals as follows:

Cu. 92 p.p.m. or 42% above average  
Pb. 98 p.p.m. or 165% above average  
Zn. 272 p.p.m. or 55% above average

The source of this anomaly is inferred as being located in the unsampled north flowing tributary.

- 2 -

Point H-34, also located at the confluence of two tributary streams in the north portion of the area, exhibits above average zinc values which, due to the higher mobility of this element in the ground water system suggests that the source area could be at some distance, likely to the north east of the sample station.

As I have not examined the recently acquired group to the north east, the following comment is limited to an evaluation of the data provided. It is noted that average (background) values for copper and zinc are virtually identical with values obtained on the original claim group. Lead values are significantly higher although only one sample stands out as an anomalous value.

The galena sample, reported as assay 5401-1, is of minor interest due to the low silver content and probable vein source, but does confirm the widespread presence of sulphide mineralization in the area. The need for careful prospecting and more reconnaissance geochemical surveying remains the favoured approach to the further assessment of this and other adjacent area's where the favourable sequence occurs.

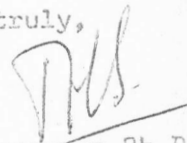
It is expected that soil sampling will be employed both in the vicinity of significant silt sample results and where no well defined drainage has developed.

Geological mapping should be continued and a geological map should be prepared.

Target area's delineated by stream silt and soil surveys and by geological mapping should be evaluated by ground geophysical surveys.

Subject to the forgoing comments I would endorse Mr. Fulcher's report as a valid record of the work conducted to date.

Yours truly,



P.H. Sevensma Ph.D., P. Eng.

APPENDIX "B"

Statement of costs incurred in Geochemical  
Survey of the Hart group of mineral claims.

July 18, 1969.

A) Wages - Geologist (6 man days @ \$32.00)	\$ 192.00	
- Senior Assistant (6 man days @ \$26.00)	156.00	
- Junior Assistants (12 man days @ \$18.00)	216.00	
- Maintenance (24 man days @ \$15.00)	<u>360.00</u>	\$ 924.00
B) Camp Erection		200.00
C) Air Transportation (Great Northern Airways)		
(as per inv. #15744 )	180.00	
(as per inv. #16468 )	158.00	
(R. Grant, inv. #65544 )	720.00	
(Klondike Helicopters )		
(as per inv. #3991 )	<u>1,047.71</u>	2,105.71
D) Topographic Map (as per McElhanney Survey)		
(inv. #68-313 )		255.00
E) Laboratory Analysis (Whitehorse Assay Office )		
(as per inv. July 1, 1969)		<u>146.20</u>
	TOTAL	<u><u>3,630.91</u></u>

R. Grant  
 BOX 2295  
 WHITEHORSE, Y.T.

DATE 24 June 1969

NAME MONTANA MINES LTD

ADDRESS Box 302 WHITEHORSE, Y.T.

QUANTITY	DESCRIPTION	AMOUNT
6:00	HOURS. TRANSPORTATION	
	@ \$1.20 per HOUR	720 <sup>00</sup> / <sub>100</sub>
	JUNE 20 <sup>th</sup>	
	RAYO - HART RIVER RTA	
	TAX	
RECEIVED ABOVE IN GOOD ORDER		
BY	TOTAL	720 <sup>00</sup> / <sub>100</sub>
	Clerk	
	Cash	
	C.O.D.	
	Charge	
	On Acc't	
	Mdse	
	Ret'd	
	Paid Out	

FLATPAKIT - MOORE BUSINESS FORMS LTD

59082E

65544

STATEMENT

WHITEHORSE ASSAY OFFICE

P. O. BOX 346  
 WHITEHORSE, Y. T.

DATE July 1 1969

MONTANA MINES

Box 302

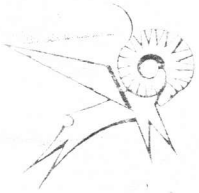
WHITEHORSE, Y.T.

DATE	DETAILS	DEBIT	CREDIT	BALANCE
	Soils A-139-B			
	Analysis 18 Cu Pb Zn	31.50		
	5401-1 1 Au Pb Zn Cu	16.50		
	17-155-98 Cu Pb Zn	\$196.00		\$244.00
				31.50
				212.50
			coupon	8.25
				204.25

**PAID**  
 WHITEHORSE ASSAY OFFICE  
 July 18-69

1 PER CENT INTEREST  
 PER MONTH ON  
 OVERDUE ACCOUNTS

pd ch #387



GREAT NORTHERN AIRWAYS LTD.  
NO. 3 HANGAR McCALL FIELD, CALGARY, ALBERTA

CHARTER TICKET No 16468

A/C BUR JPM DATE JUNE 20/69

NAME MONTANA MINES LTD.  
ADDRESS Box 302 WHITEHORSE

FROM	MILES	HOURS	CARGO	PASSENGERS/REMARKS
MAYO				
TO MARK L.	88			
MAYO	88			BRUCE FURCHER.

*Hinged.*

SPECIAL INSTRUCTIONS

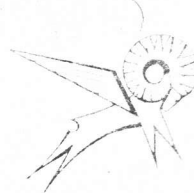
176	@ .90¢	PER MILE	158	00
WAITING TIME	@	PER HOUR		
EXTRA LANDINGS	@	PER LANDING		
OTHER				
TOTAL CHARGES			158	00

*B. Watson*  
PILOT'S SIGNATURE

*XMA.*  
BASE

CHARTERER'S AUTHORIZATION

CUSTOMER COPY



GREAT NORTHERN AIRWAYS LTD.  
NO. 3 HANGAR McCALL FIELD, CALGARY, ALBERTA

CHARTER TICKET No 15741

A/C BUR FHZ DATE JUNE 4 1969

NAME MONTANA MINES LTD  
ADDRESS Box 302, WHITEHORSE, YT.

FROM	MILES	HOURS	CARGO	PASSENGERS/REMARKS
WHITEHORSE				
TO MARK LK	100			
WHITEHORSE	100			

SPECIAL INSTRUCTIONS

200	@ .90¢	PER MILE	180	00
WAITING TIME	@	PER HOUR		
EXTRA LANDINGS	@	PER LANDING		
OTHER				
TOTAL CHARGES			180	00

*B. Watson*  
PILOT'S SIGNATURE

*XY.*  
BASE

CHARTERER'S AUTHORIZATION

CUSTOMER COPY



No. 1 HANGAR, McCALL FIELD  
CALGARY, ALBERTA

SOLD TO .  
Montana Mines  
• Box 302  
Whitehorse, Yukon

July 7, 1969

ACCOUNTS DUE WHEN RENDERED  
CUSTOMER'S ORDER NUMBER

SHIP VIA

DATE SHIPPED

AIRCRAFT

PAYABLE AT PAR CALGARY

TRIP NO.

CF-KHK

QUANTITY	PART NUMBER	DESCRIPTION	PRICE	AMOUNT
----------	-------------	-------------	-------	--------

PILOT: D. Wederfort

TO: Charge for charter of one Bell 206  
helicopter as per authorized Daily  
Flight Reports #15328 attached.

FLYING: June 4, 1969

4:35 hrs. @ \$225.00 per hr.  
(fuel supplied by carrier)

\$1,031.25

MISC.

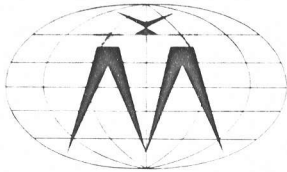
CHARGES: Pro-rated crew expenses \$13.26  
\$ 3.20

\$ 16.46

TOTAL INVOICE

\$1,047.71

INVOICE



**McELHANNEY SURVEYING & ENGINEERING LTD.**

Please remit to:  1200 West Pender St., Vancouver 1, B.C.  
 9507A Scott Rd., North Surrey, B.C.  
 P.O. Box 1095, Terrace, B.C.

Phone 683-8521  
588-2010  
635-7163

In account with:

**Montana Mines Ltd. (N.P.L.),  
P.O. Box 302,  
Whitehorse, Y. T.**

Invoice No. **68-313**  
Date **10th December 1968**  
Your Order No.  
Our Job No. **05295-0**

Attention: **Mr. Lance McCowan**

Terms: Net 30 days. Interest may be charged on overdue accounts

FOR PROFESSIONAL SERVICES IN RESPECT TO:

**Topographic mapping in vicinity of Hart River, Y.T. as per  
your instructions.**

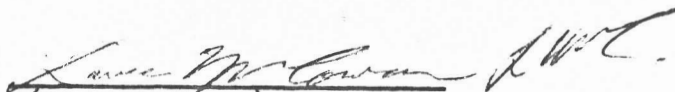
Our Fee. . . **\$255.00**



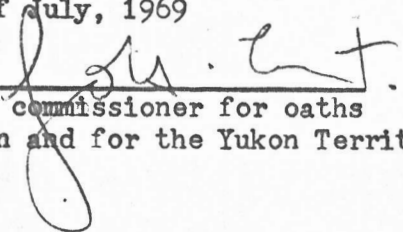
## MONTANA MINES LTD. (NPL)

P.O. BOX 302  
WHITEHORSE, YUKONAPPENDIX "C"

I hereby certify that the statement of cost in Appendix "B" of this Geochemical Report endorsed by Dr. P. H. Sevensma, dated July 3, 1969, is true to the best of my knowledge and belief.

  
(Lance McCowan)  
Managing Director

Sworn and Subscribed to  
at Whitehorse, Yukon  
Territory this 21 day  
of July, 1969

  
A commissioner for oaths  
in and for the Yukon Territory

APPENDIX "D"

List of firms and individuals engaged in geochemical survey of Hart Group mineral claims between June 4, 1969 and July 3, 1969.

P.H. Sevensma Consultants Ltd.,  
715-850 West Hastings St.,  
Vancouver 1, B.C.

Consultants for  
Montana Mines Ltd.

P.H. Sevensma, Ph.D., P.Eng.

Montana Mines Ltd. (N.P.L.),  
P.O. Box 302,  
Whitehorse, Yukon Territory.

Geochemical Survey

B.C. Fulcher, B.Sc.,  
c/o P.O. Box 302,  
Whitehorse, Y.T.

Project Manager

R.A. Hillman,  
2125 Bridgeman Ave.,  
North Vancouver, B.C.

Party Chief

D.W. Hanline,  
P.O. Box 392,  
Eastend, Sask.

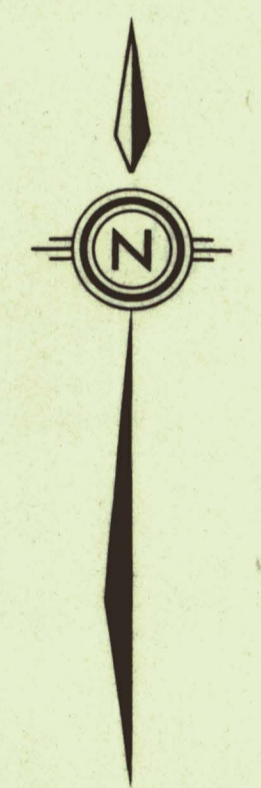
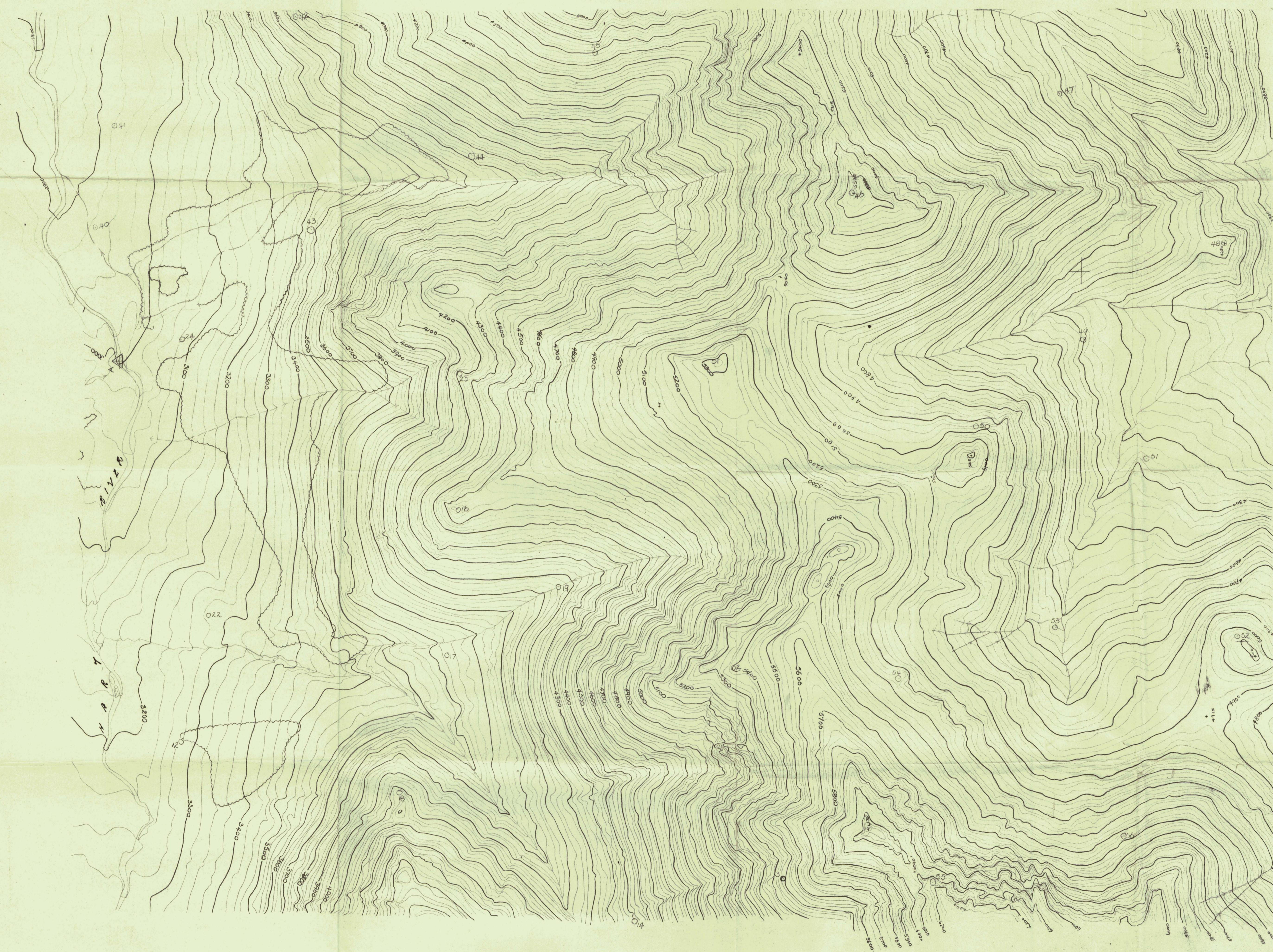
Soil Sampler

A.R. Campbell,  
P.O. Box 877,  
Grand Forks, B.C.

Soil Sampler

Whitehorse Assay Office,  
P.O. Box 346,  
Whitehorse, Y.T.

Analytical Services



**MOUNTAIN MINES LTD. (M.P.L.)**  
**HART RIVER, B.C.**

PRELIMINARY RECONNAISSANCE TYPE MAPPING

Compiled by  
**McELHANNEY SURVEYING & ENGINEERING LTD.**  
 1200 West Pender St. Vancouver, B.C.

SCALE	CONTOUR INTERVAL	DATE	JOB NO.	SHEET NO.
1" = 500'	25'	Nov. 1968	05295-0	1 of 1

SCALE AND ELEVATION DATUM BASED ON LIMITED GROUND CONTROL  
 RESULTING IN GOOD RELATIVE, BUT UNCERTAIN ABSOLUTE MAP ACCURACY