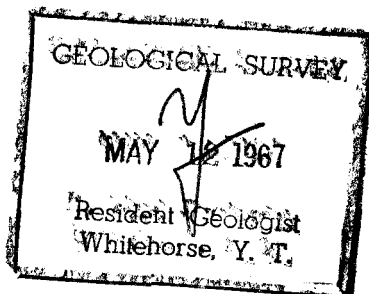


Geological and Engineering Evaluation Report
on the Mark 1 to 24 Mineral Claims of
H. A. BRIDEN
Mayo Area, Yukon Territory

ALRAE EXPLORATION LTD.

February 15, 1967



This report has been examined by
the Geological Evaluation Unit.
Approved as to technical worth by:
D. C. Fuller
RESIDENT GEOLOGIST

Approved as to cost in the amount
of: \$ 5,000.00
H. E. Redden
RESIDENT MINING ENGINEER

Accepted as representation work
under Section 53(4) Yukon Quartz
Mining Act.
[Signature]
COMMISSIONER OF YUKON

TO PROTECT OUR CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS AND
AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS AND EXTRACTS FROM OUR REPORTS MUST RECEIVE OUR WRITTEN APPROVAL.

TABLE OF CONTENTS

	Page
INTRODUCTION	1
LOCATION AND ACCESS.	1
TOPOGRAPHY AND VEGETATION.	1
HISTORY.	1
DESCRIPTION OF WORK.	2
CLAIMS DESCRIPTION	2
GENERAL GEOLOGY.	3
STRUCTURAL GEOLOGY	4
ECONOMIC GEOLOGY	4
DESCRIPTION OF SULPHIDE OCCURRENCES	
Showing No. 1	4
Showing No. 2	8
SAMPLE DESCRIPTION AND RESULTS	9
CONCLUSIONS.	10
RECOMMENDATIONS.	10

MAPS

Scale

Location Plan of Claim Group	1" = 1/2 mi.
Plan of Showing No. 1 (The Reinke Showing)	1" = 100 ft.
Plan of Showing No. 2	1" = 100 ft.

TO PROTECT OUR CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS AND EXTRACTS FROM OUR REPORTS MUST RECEIVE OUR WRITTEN APPROVAL.

Geological and Engineering Evaluation Report
on the Mark 1 to 24 Mineral Claims

INTRODUCTION

The Mark group of claims consists of 24 full size mineral claims located in the Yukon Territories northeast of Dawson City.

Alrae Exploration was engaged by H. A. Briden to carry out a geological and engineering evaluation report of the group during the period between August 4th and August 26th, 1966. All work was done by Alrae personnel under the field supervision of R. G. Hawley.

LOCATION AND ACCESS

The Mark claims are located at approximately longitude 136°50', latitude 64°38', on the Larsen Creek map sheet 116A, in the Yukon Territories.

Access to the area is best by fixed wing aircraft to Mark or Two Beaver Lakes, and by helicopter from either of these to the claims area which is approximately 12 miles southwest of Mark Lake and 20 miles easterly from Two Beaver. An access road could be built through open, though wet, country, for a distance of about 40 miles, to Chapman Lake and the Dempster highway.

TOPOGRAPHY AND VEGETATION

The topography of the area is quite rugged with talus slopes, often quite steep, bordering fairly flat, broad valleys. The valley bottoms are often swampy and are covered with low brush and very few trees.

HISTORY

The showings described in this report are apparently new discoveries and to the best knowledge of the writer no claims have ever been staked and no work done on the ground previous to the work of Alrae Exploration during the summer, 1966.

DESCRIPTION OF WORK

Two men worked on the property from August 4th - 26th, or 22 days. One worked 15 days and another for 13, for a total of 72 man days. Trenches were dug mainly with pick and shovel, with some pump sluicing, in frozen ground. Trench dimensions and earth volumes moved are as follows:

Trench # 1	35' x 2' x 3'	=	210 cu. ft.
Trench # 2	20' x 2' x 3'	=	120 cu. ft.
Trench # 3	18' x 2' x 3'	=	108 cu. ft.
Trench # 4	5' x 3' x 2'	=	30 cu. ft.
Trench # 5	18' x 3' x 2'	=	108 cu. ft.
Trench # 6	40' x 2' x 3'	=	240 cu. ft.
Trench # 7	35' x 3' x 4'	=	420 cu. ft.
Trench # 8	15' x 2' x 2'	=	60 cu. ft.
Trench # 9	15' x 2' x 2'	=	60 cu. ft.
Trench # 10	20' x 2' x 3'	=	120 cu. ft.
Trench # 11	20' x 2' x 3'	=	120 cu. ft.
Trench # 12	15' x 2' x 2'	=	<u>60 cu. ft.</u>
	TOTAL		1,656 cu. ft.
	Sluicing at Showing #2		<u>234 cu. ft.</u>
	TOTAL		1,890 cu. ft. = 70 cu. yds.

Total volume of earth moved was 70 cubic yards.

Sampling and mapping was done under the supervision of the writer who flew in to examine the showings August 25, 1966.

CLAIMS DESCRIPTION

The Mark claims, held by H. A. Briden of Vancouver, B.C., comprise a group of 24 claims, at approximately longitude 136°50', latitude 64°38', on the Larsen Creek map sheet 116A, Yukon Territories. The record numbers are Y6283 to Y6286 inclusive for Mark

1 to 4 inclusive, and Y6462 to Y6481 inclusive for Mark 5 to 24 inclusive. Mark 1 to 4 were staked June 16th and Mark 5 to 24 between August 5th and 21st.

GENERAL GEOLOGY

Most of the geologic information for the area in the immediate vicinity of the claims, is taken from map 116A, the Larsen Creek sheet, scale 1" = 4 miles, which accompanies G.S.C. paper 62-7, by L. H. Green and J. A. Roddick.

Table of Formations (from Larsen Creek Sheet 116A)

Cretaceous

20 Orange to brown weathering diorite and gabbro, altered equivalents.

Cambrian, Ordovician and Silurian

8 Dolomite and limestone, thick bedded, grey to buff weathering.

-- Unconformity --

Precambrian

2 Orange weathering, platy, grey-green dolomite; dark slate; minor phyllite and quartzite.

2d Buff, orange and pink dolomite, black shale, minor black limestone, red dolomite, green argillite, maroon quartzite and shale, and greenstone.

1 Mainly dark grey, grey-green, and black, thin-bedded argillite, slate, and phyllite.

Relatively narrow bands of sediments of map units 1, 2 and 2d, trend easterly or southeasterly through the area, usually dipping vertically or steeply south. These are surrounded by andesitic flows, often quite serpentized, and in places becoming coarse grained and approaching a diorite. These units are capped in places by remnants of less altered, thick bedded, limestone and dolomites of unit 8. Small stocks of diorite, unit 20, intrude the above units at several locations in the area.

STRUCTURAL GEOLOGY

No definite folding was noted in the sediments in the claims area.

Two sets of faults and shears appear to occur in the area. One set strikes generally parallel to the bedding direction, dipping from steeply south to 45° south. The other set strikes northerly with vertical to very steep dips. It appears to offset the sediments and possibly the easterly fault set with a right hand displacement.

ECONOMIC GEOLOGY

The sulphide mineralization in the area appears to occur mainly along the north side of the sedimentary belt of units 2 and 2d, often in a zone of coarser andesite or close to a diorite stock.

The deposits occur as pods parallel to the bedding in sericite phyllites or as veins in shear zones cutting serpentinized andesite or crosscutting the phyllites.

DESCRIPTION OF SULPHIDE OCCURRENCES

Showing No. 1 (the Mark showing)

This showing is located along the location line of claims Mark 1 to 4, the gossan zone beginning near the initial posts of Mark 3 and 4. It is marked by a zone of gossan, sulphide float and blue grey to black sulphide mud, striking east - west through a saddle at an elevation of 4,200 feet, in a northwest trending ridge of andesite. To the west, the zone strikes into andesite talus cover about 50 feet below the saddle. Rusted float continues for another 50 feet vertically. The talus slope extends for close to 1,500 feet west to the overburden covered floor of a broad north south valley about 800 feet below the saddle. A possible western extension of the mineralized zone is suggested across the valley

for a length of roughly 3,000 feet, by rusted water holes and high readings over a fairly large area from reconnaissance geochemical testing with the dithizone heavy metals method.

On the northeast side of the ridge lies a narrow, steep walled, creek valley. A light brown gossan zone, about 60 feet wide, extends from the saddle northeast downslope to the creek, 500 feet vertically below and 800 feet to 1,000 feet horizontally. One or two parallel zones of rusted float and moss and gravel recemented by limonite occur along the slope.

The zone responsible for the gossan down the slope was uncovered by a series of 12 trenches extending from the No. 1 posts of claims Mark 3 and 4, easterly from the saddle following the contours on the northeast side of the ridge for a distance of 1,200 feet. The mineralization was uncovered in trenches #1, 2, 6 and 7, proving a length of 450 feet and blue mud encountered in trenches #3, 8, and 10, indicates a possible length of 1,000 feet. The trenches are shown on an accompanying sketch.

The zone appears to be a shearing or fault along a contact with andesite and slates or phyllites. It is at least 35 feet wide on the west end and narrows to the east to several feet. The phyllites lie below and north of the zone and strike parallel at about 110° , dipping $75^{\circ} - 80^{\circ}$ south. Above the shearing to the south, fairly fresh andesites are encountered. Upstream in the creek, northeast of the east end of the zone, large boulders of diorite are encountered indicating that the valley floor and part of the northeast wall may be underlain by a diorite stock.

In most trenches frozen ground was encountered at about 2-1/2 feet and bedrock was not reached. The following is a description of the trenching results:

Trench #1

This trench did not reach solid bedrock but the very sheared and weathered material appears to be in place. A 35 foot width of sulphide mud, mainly arsenopyrite and some sphalerite and chalcopyrite, with chunks of more solid material was encountered. Strongly sheared and weathered phyllites and argillites occur on each side of the sulphides and fresh andesite outcrops to the north and south just beyond the ends of the trench.

Trench #2

100 feet west of #1. The north ten feet of this trench exposed the strongly sheared sediments striking 110° and dipping 70° - 80° south. The south ten feet exposed the same sulphide mud as in trench #1. South of the trench, bedrock was not reached and the width of the mineralization could continue another 20 feet to the andesite scarp.

Trench #3

280 feet west of #2. This trench did not reach bedrock but blue and yellow stained mud encountered probably indicates the presence of the mineralized zone.

Trench #4

30 feet east of trench #3. This trench encountered phyllites and sheared argillites north of the zone with no mineralization.

Trench #5

100 feet north of trench #3. This trench intersected a contact between slates and andesite with no mineralization.

Trench #6

150 feet east of trench #1. The north 30 feet of this trench exposed very rusted sheared phyllites. The south ten feet exposed sulphide mud, yellow zinc oxide and arsenopyrite, which appears to be weathered in place. The trench could not be extended south due to frost and the mineralized width could extend another 20 feet to a barren sedimentary outcrop to the south. Phyllite float and some outcrop extends uphill south to the foot of the andesite scarp, 100 feet south of the trench. The phyllite strike seems to be more southerly here and high geochemical values just below the scarp may indicate a parallel zone of mineralization.

Trench #7

200 feet east of trench #6. This trench is the only one encountering fairly solid bedrock. Downhill, northeast of the trench, the mass and talus are limonite cemented. Sheared phyllites in the north end of the trench strike 110° and dip $80^{\circ} - 85^{\circ}$ south. The south 20 feet of the trench consists of massive arsenopyrite, including a two foot section of sphalerite. The south end of the trench may not have reached the south wall of the zone and may be slump material rather than wallrock.

Trench #8

140 feet east of #7. This trench did not reach bedrock due to frozen ground. Phyllite talus and a trace of sulphide mud were found.

Trench #9

100 feet east, 100 feet south of #12. This trench is east and south of the main line of trenches and is not on the same zone. It uncovered pyrite stringers over a four foot area.

Trench #10

90 feet east, 30 feet south of #8. This trench did not reach bedrock due to frost but did encounter bluish mud indicative of the mineralized zone.

Trench #11

140 feet west of trench #3. Trench #11 did not reach bedrock and was abandoned due to cave ins.

Trench #12

200 feet east of #10. This trench also did not reach bedrock due to frost.

Showing No. 2

This showing occurs on claim #21 on the south side of the creek, approximately 2,500 feet upstream from the north side of Showing No. 1. The mineralization consists of veins of galena, with some sphalerite, in sheared andesite. The showing consists of a zone five feet wide, with one foot massive and four foot disseminated galena, in a shearing striking N60°E and dipping 85°NW. The north, or hanging wall, is not exposed. The shearing has been uncovered by sluicing over a ten foot length. The creek below the sluicing contains a large amount of galena in the form of rounded nuggets from minute size to over 20 pounds.

About 200 feet northwest of #2 showing, low grade blebs and veins of galena occur in shearings in the andesite striking N75°E and dipping vertically. The zone is about one foot wide and exposed over a 30 foot length.

About 100 feet northwest of the above zone, another shearing occurs striking 100°, dipping vertically, with several veins and veinlets forming erratic and lensey mineralized zones of galena

from very narrow to over two feet wide. The wall rock is andesite but parts become quite coarse, approaching a diorite.

There are few exposures of bedrock in this area and a series of northeasterly veins may occur. A large part of the hillside above the veins gives high readings on geochemical tests. Lead and zinc appear to be the only sulphides.

SAMPLE DESCRIPTION AND RESULTS

Showing #1

<u>Sample No.</u>	<u>Description</u>	<u>Au. oz/ton</u>	<u>Ag. oz/ton</u>	<u>Cu. %</u>	<u>Pb. %</u>	<u>Zn. %</u>
No. 8	Grab - sulphides NE of saddle	0.12	3.95	Trace	4.15	8.55
No. 9	Massive arsenopyrite float in saddle	0.04	2.05	1.80	0.80	2.60
No. 12	Pyrite, Cpy. Float from saddle	0.30	5.30	Trace	6.50	5.17
No. 2	20' chip. Min. zone Trench #7					
SPECTRO ANALYSES						
No. 3	2' chip N end of Trench #7	0.04	2.55	0.85	3.30	0.10
No. 4	10' chip N end of Trench #7	0.06	1.60	0.50	1.80	5.35
No. 5	10' chip S end of Trench #7	0.05	1.50	0.40	1.40	2.40
Trench #9	4' chip across pyrite vein	0.01	0.20	0.04	1.42	1.65

Showing #2

No. 1	Float - massive galena	--	9.55	--	50.95	--
No. 6	5' chip, showing #2	0.02	3.10	--	19.0	6.95
No. 7	1' chip - 200 feet NW of #6	0.01	2.85	--	23.47	20.50
No. 8	18" chip - 300 ft. NW of #6	0.01	1.20	--	11.50	15.70

TO PROTECT OUR CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS AND EXTRACTS FROM OUR REPORTS MUST RECEIVE OUR WRITTEN APPROVAL.

CONCLUSIONS

The trenching and reconnaissance geochemical work have indicated the possible existence of a very large zone of sulphide mineralization. The trenching was not satisfactory due to inability to penetrate the frost and another method must be used to determine the dimensions of the zone.

The surface sampling does not give reliable grades. Some of the highly weathered sulphides gave much lower values than the fresher pieces of float. Most of the sulphides appear to be arsenopyrite but significant values were obtained in Pb, Zn, Au, Ag, with minor copper values. To ensure an economic operation fairly high gold and silver values would be necessary in this area, but true grades will have to be obtained from fresher rock by a different method, probably diamond drilling.

The silver values in showing No. 2 are too low and both larger deposits and a higher grade would be necessary for this area to be of interest.

RECOMMENDATIONS

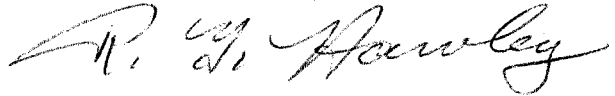
It is recommended that a survey grid be set up to test the extent of showing No. 1 from its eastern end across the wide valley to the west of the showing, a distance of about 4,000 feet. The best methods would probably be a geochemical soil testing program and an electromagnetic survey.

The valley would be in the best condition for a ski equipped plane in April and a drill could be moved in then to begin preliminary drilling on the known part of the showing.

Some detailed geochemical work and some reconnaissance electromagnetic surveying could be carried out in the vicinity of

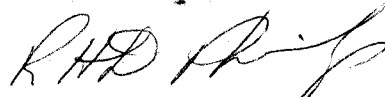
Showing No. 2, with attention concentrated near the diorite contacts.

Respectfully submitted,



R. G. Hawley.

Endorsed by:



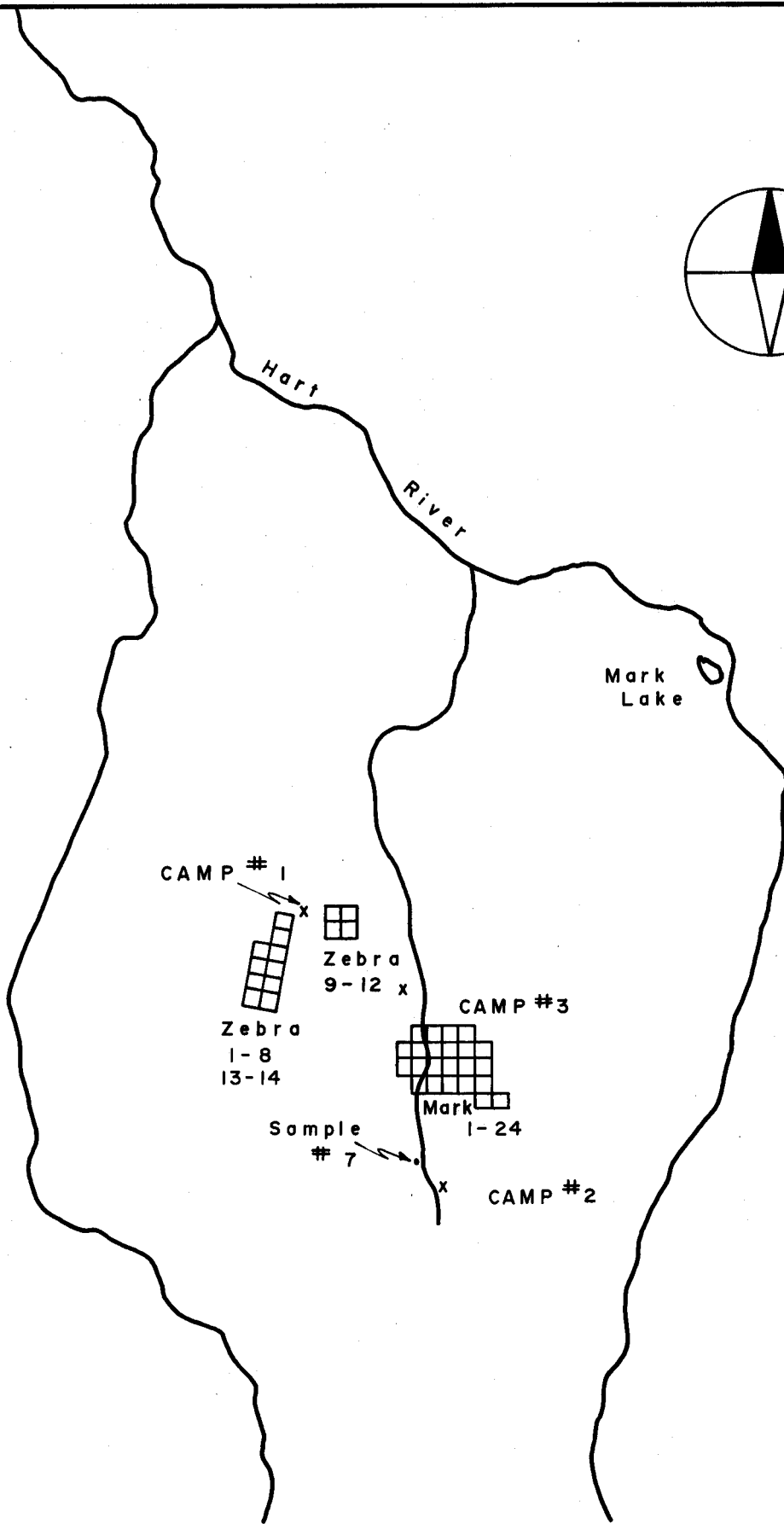
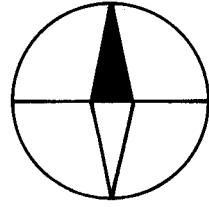
R. Philp, P. Eng.

Mark Group

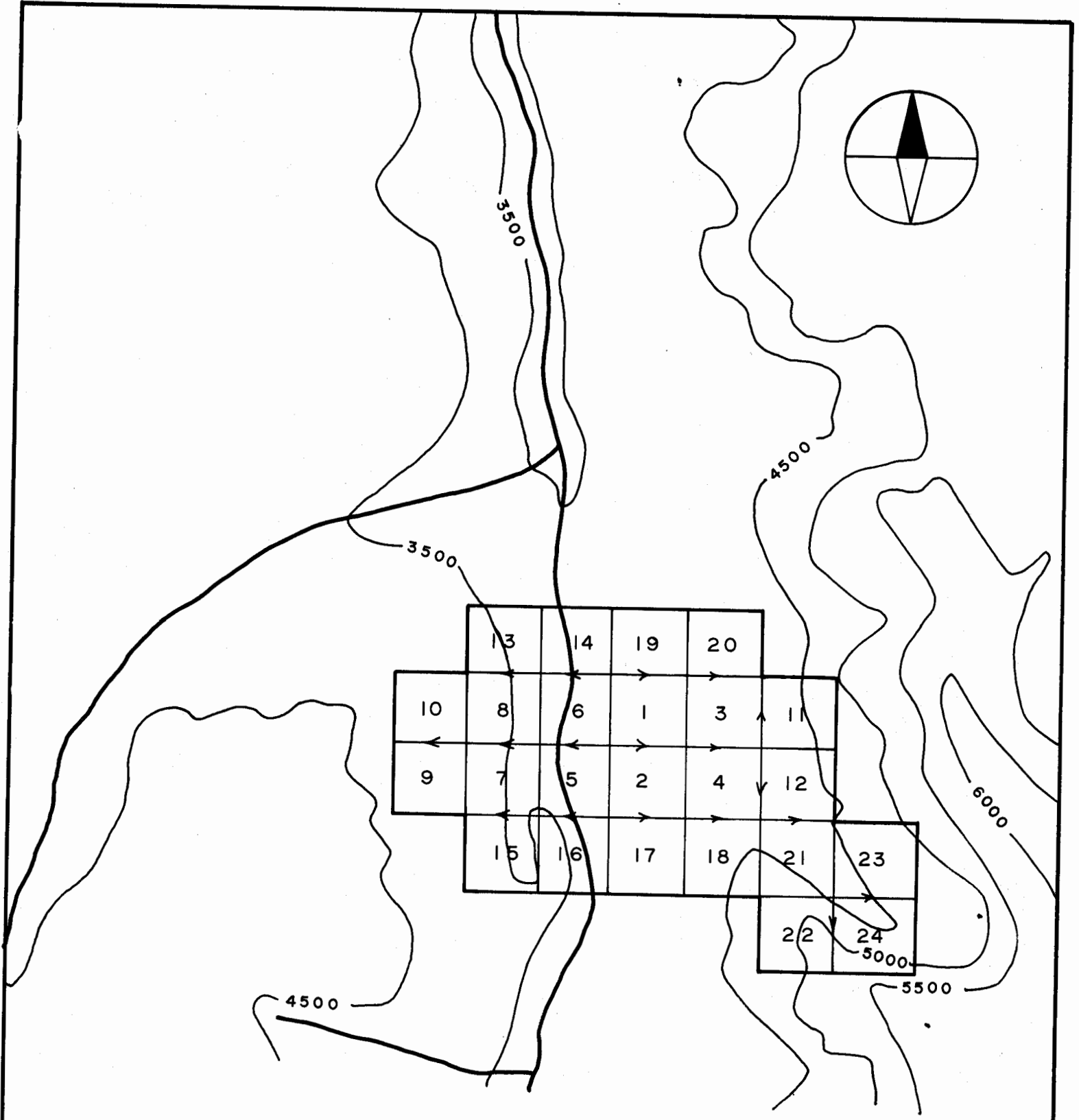
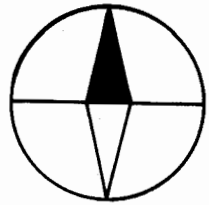
TIME AND COST DISTRIBUTION

Personnel:

D. Reinke Vanderhoof, B.C.	Aug. 4-26/66	23 days @ \$29.34/day	\$ 674.82
T. Tompkins Vancouver, B.C.	Aug. 4-26/66	23 days @ \$23.25/day	534.75
G. Hawley Vancouver, B.C.	Aug. 24-26/66	3 days @ \$35.00/day	110.00
G. Frost Old Crow, Y.T.	Aug. 14-26/66	13 days @ \$25.00/day	325.00
O. Bergman Dawson, Y.T.	Aug. 12-26/66	15 days @ \$25.00/day	375.00
Room and Board - 77 man days @ \$7.50/day			577.50
Transportation:			
Fixed wing (G.N.A. account)			684.00
Helicopter (dry lease \$110/hr @ 14 gal/hr = 47 hrs.)			5,170.00
Helicopter fuel			676.90
Pumps - rental and freight costs			591.89
Miscellaneous (assays, chemicals, camp costs)			<u>206.55</u>
TOTAL			\$ <u><u>9,926.41</u></u>

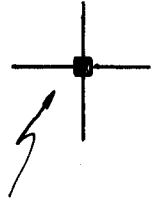
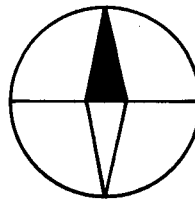


ALRAE EXPLORATION LTD.
Zebra & Mark Claim Groups
LARSEN CREEK MAP AREA
Date: Oct. 27, 66 Scale 1" = 4 Mi



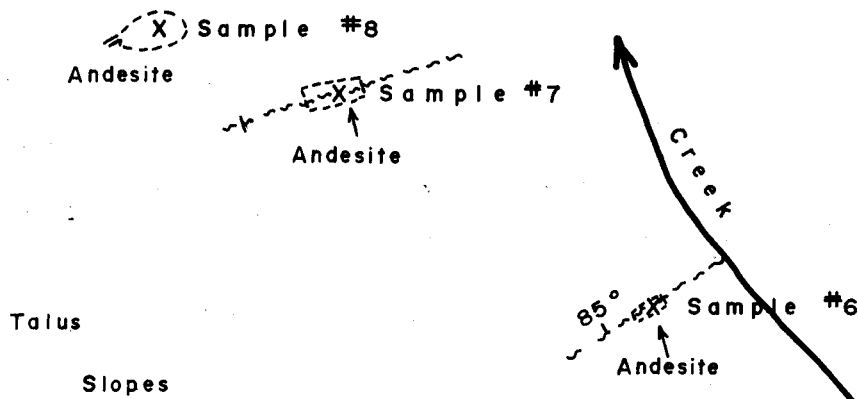
Drawn C. L. C.

ALRAE EXPLORATION LTD.
MARK CLAIM GROUP
Mayo District
Claim Sheet # 116A-10
Date: Oct. 27, /66 Scale: 1"=1/2Mi.



Claim Post
No 2 Post #21

Overburden



Drawn C. L. C.

ALRAE EXPLORATION LTD.	
Mark Claims Showing No. 2 HART RIVER AREA Dawson District	
Date Oct. 28, /66	Scale 1" = 100'

Department of
Indian Affairs and
Northern Development

Resource and
Economic Development
Group

Ministère des
Affaires indiennes et
du Nord canadien

Bureau des ressources
et du développement
économique



Box 1767,
Whitehorse, Y.T.,
May 12, 1967.

RESTRICTED

**MR. B. R. Baxter,
Mining Recorder,
Mayo Mining District.**

our file/notre dossier
your file/votre dossier
date

M.I. M-252

**Geological and Engineering Evaluation Report on the
MARK 1 to 24 Mineral Claims for H. A. Briden by
R. G. Hanley and R. Philp - August 4 to August 26, 1966**

On the recommendation of the Resident Geologist and the Resident Mining Inspector I hereby authorize you to accept this report as representation work under Section 53 (4) of the Yukon Quarts Mining Act to the value of Five Thousand Dollars (\$5,000.00), but you are to withhold the Certificates of Work until you receive sworn Affidavits supporting Expenditures.

Original signed by
Commissioner J. Smith

**James Smith,
Commissioner.**

NON/RAH

cc: Chief, Resource Management Division
Attention: Geological Evaluation Unit

Central Mining Records - Whitehorse ✓

Resident Geologist *HWC*

DOMINION OF CANADA:
Yukon Territory
XXXXXXXXXXXXXXXXXXXX

In the Matter of application for assessment work
- Mark claims.

To Wit:



I, H. A. Briden

of 846 West Hastings Street, Vancouver 1,

in the Province of British Columbia, do solemnly declare that the cost of geological and engineering evaluation work on the Mark claims is as follows:

Personnel:

D. Reinke Vanderhoof, B.C.	Aug. 4 - 26/66	23 days @ 36.84/day	=	\$ 847.32
T. Tompkins Vancouver, B. C.	Aug. 4 - 26/66	23 days @ 30.75/day	=	707.25
G. Hawley Vancouver, B. C.	Aug. 24 - 26/66	3 days @ 42.50/day	=	132.50
G. Frost Old Crow, Y. T.	Aug. 14 - 26/66	13 days @ 32.50/day	=	422.50
O. Bergman Dawson, Y. T.	Aug. 12 - 26/66	15 days @ 32.50/day	=	<u>487.50</u>
				2,592.07

To access transportation to and from claim site:

Round trip - Great Northern Airways 684.00



ALRAE EXPLORATION LTD.

202 - 846 WEST HASTINGS STREET, VANCOUVER 1, B.C. TELEPHONE 681-9381

Mr. H. A. Briden
Gulf Equipment & Finance Ltd.
848 West Hastings Street
Vancouver 1, B. C.

IN ACCOUNT WITH:

Alrae Exploration Ltd.
846 W. Hastings Street
Vancouver 1, B. C.

RE: AUGUST 1966

Invoice No. 66 - 130

Re: Mark Group of Claims - Callison Project

Personnel:

D. Reinke - Aug.	4-26/66	\$ 674.82	
T. Tompkins Aug.	4-26/66	534.75	
G. Hawley Aug.	24-26/66	110.00	
G. Frost Aug.	14-26/66	325.00	
G. Bergman Aug.	12-26/66	<u>375.00</u>	\$ 2,019.57

Room and board - 77 man days @ \$7.50/day 577.50

Transportation:

Fixed Wing - G.N.A.	\$ 684.00	
Helicopter Fuel	<u>676.90</u>	\$ 1,360.90

Pumps Rental Costs 591.89

Miscellaneous - Assays - Chemicals - Camp Costs 206.55

\$ 4,756.41

August 31, 1966

ALRAE EXPLORATION LTD.

GEOLOGY
Exploration

CONSULTANTS
Development

MINING
Production

February 28, 1967

In account with exploration project - Mark Group

This is to certify that the times and dates flown with helicopter as stated in the adjoining report and consisting of 47 hours between the dates of August 2nd to 26th, including ferrying charges to and from the project are correct.

E. P. Callison

E. P. Callison

DOMINION OF CANADA:
Yukon Territory
~~XXXXXXXXXXXXXXXXXXXX~~

In the Matter of application for assessment work
- Mark claims.

To Wit:



I, **H. A. Briden**

of **846 West Hastings Street, Vancouver 1,**

in the Province of British Columbia, do solemnly declare that **the cost of geological and engineering evaluation work on the Mark claims is as follows:**

Personnel:

D. Reinke Vanderhoof, B.C.	Aug. 4 - 26/66	23 days @ 36.84/day	=	\$ 847.32
T. Tompkins Vancouver, B. C.	Aug. 4 - 26/66	23 days @ 30.75/day	=	707.25
G. Hawley Vancouver, B. C.	Aug. 24 - 26/66	3 days @ 42.50/day	=	132.50
G. Frost Old Crow, Y. T.	Aug. 14 - 26/66	13 days @ 32.50/day	=	422.50
O. Bergman Dawson, Y. T.	Aug. 12 - 26/66	15 days @ 32.50/day	=	<u>487.50</u>
				2,592.07

To access transportation to and from claim site:

Fixed wing - Great Northern Airways	684.00	
Helicopter @ 125.00 per hr. - 47 hrs.	<u>5,875.00</u>	6,559.00

Assays, chemicals and camp costs 775.34

TOTAL 9,926.41

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the *City*
of *Vancouver*, in the
Province of British Columbia, this *25*
day of *May*, A.D. *1967*

H. A. Briden
A Commissioner for taking Affidavits for British Columbia or
A Notary Public in and for the Province of British Columbia.