GEOPHYSICAL EXPLORATION

OF

THE EYE GROUP OF MINERAL CLAIMS

Located on Claim Map No.105K-3

at

62° 10' N. - 133° 15' W.

by

R.A. Granger

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
A. F. REEVE

Supervised by

Albert F. Reeve, P.Eng.,
Geological Engineer
Vancouver, B.C.

August to October, 1966

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INTRODUCTION

This report is based on a program of geophysical investigations carried out by Flagstone Mines Ltd. on a group of 32 claims in the Vangorda Creek area of the Yukon Territory in 1966. It has been compiled and written by R.A. Granger under the general supervision of Albert F. Reeve, P.Eng., geological engineer. It is submitted to the Mining Recorder of the Whitehorse Mining District to satisfy assessment work requirements on the claims stipulated for a period of at least one year. A set of geophysical maps are enclosed in the back cover and a certificate of the supervising engineer's qualifications is included in the appendix.

This work was carried out during the period of July to October, 1966 by the following persons:

- Granger, R.A. - Geophysical Contractor, 400, 837 W. Hastings St., Vancouver 1, B.C.
- Hay, R.G., B.Sc. - Geologist, c/o R.A. Granger
- Coyne, J.W. - Geophysical Technician, c/o R.A. Granger
- Winton, John - Geophysical Technician, c/o R.A. Granger

WORK DONE

1. Line cutting and surveying

   a) 4.3 mi. of base line was bulldozed, cut and chained.

   b) 30 mi. of picket line was cut and chained.

   c) All claim posts were tied to points on the grid line.

2. Geophysics

   a) Magnetic Survey - 38 mi. of magnetic observations were taken at 100' intervals on lines 400' apart.

   b) Electromagnetic Survey - 36 mi. of electromagnetic observations were taken at 100' intervals on lines 400' apart.

PROPERTY

Claim Name	Number	Record Date
Eye 1 to 32 incl.	97476 to 97507 incl.	January 7, 1966

Total Number of Claims: 32

All of the above claims are held on behalf of -

Flagstone Mines Ltd.,
809, 525 Seymour Street,
Vancouver, B.C.

These claims have been grouped and applications have been made for Certificates of Work, Form C, Section 53.

LOCATION

The claims are located along the southerly bank of the Pelly River and are approximately 35 miles NW of the village of Ross River, Co-ordinates are approximately 62° 10' N latitude and 133° 15' W longitude and elevations are between 2200' and 2600' A.S.L.

The mouth of Vangorda Creek is on the opposite side of Pelly River.

ACCESS

Ross River is accessible from Whitehorse via the Alaska Highway and Canol Road, a distance of 220 miles.

A new all-weather road has been constructed along the south side of Pelly River, eventually to connect Watson Lake to Carmacks. This highway traverses the south-western part of the claim group.

Limited regular flights exist between Whitehorse and Ross River.

TOPOGRAPHY

The ground in general rises to the SW but only in a gentle, rolling manner.

The cliffs marking the Tintina Fault parallel the claim group about one-half mile southerly.

REGIONAL GEOLOGY

The geology of the surrounding region is described on G.S.C. Map #13 - 1961 - "Tay River."

The structural and stratigraphic relationships of the various rock units are described as follows:

Table of Formations

Quaternary	-	Unconsolidated glacial and alluvial deposits
	-	unconformity -
Tertiary	-	Felsic to intermediate volcanic flow rocks, flat lying.
Tertiary	-	Intermediate plutonic rocks
	-	intrusive contact -
Paleocene	-	Clastic sediments
	-	unconformity -
Cretaceous	-	Intermediate plutonic rocks
	-	intrusive contact -
Mississippian	-	Meta sediments and minor volcanic rocks. Included in this assemblage are a group of meta sediments in which a number of important Pb, Zn sulphide occurrences have been found. These consist of banded skarn and quartz granulites, micaceous and chloritic phyllites, hornfels and minor andesite and crystalline limestone. (Unit 7G.S.C.)

Table of Formations (cont'd.)

Devonian, Silurian, Ordovician and Cambrian -

- Sedimentary and meta sedimentary rocks.

Proterozoic - Meta sediments and minor volcanic rocks.

LOCAL GEOLOGY

Table of Formations

1. Feldspar Porphyry

- intrusive contact -

2. Meta sediments - quartz mica schists with bands of graphitic schist.

"Feldspar augen gneiss", quartzite.

GEOPHYSICS

Method

A. Magnetic Survey

A Sharpe MF-1 fluxgate magnetometer was used to observe the vertical component of the total magnetic field.

An arbitrary instrument datum of about 300 gammas was chosen after making a trial reconnaissance traverse over an area known to be underlain by quartz mica schist. The latitude of the instrument was then mechanically adjusted to the datum. Magnetic observations were then taken at 100' intervals on grid lines 400' apart.

The magnetic data was corrected for diurnal and daily variations with respect to time, by referring to a system of base stations. Corrections were made to the nearest ten gammas.

Sample Calculation

Station	Reading	Diurnal Correction	Daily Correction	Result	Time
base	280	+ 0	- 40	240	2:00 p.m.
1	300	+ 0	- 40	260	
2	350	+ 10	- 40	320	
3	370	+ 10	- 40	320	
4	410	+ 20	- 40	390	
5	390	+ 20	- 40	370	
6	340	+ 30	- 40	330	
base	250	+ 30	- 40	240	2:30 p.m.

The corrected magnetic results were plotted and contoured on a 1" = 400' plan (See Fig. 2)

GEOPHYSICS

B. Electro Magnetic Survey

Sharpe SE 300 electro magnetic survey equipment was used to make EM observations at 100' intervals on lines 400' apart.

This equipment consists of two identical units, each having a coil capable of transmitting and receiving oscillating electro-magnetic field signals of 400 c.p.s. and 1600 c.p.s.

There are several ways (or configurations) in which the two units can be used to produce useful EM data.

In this case a reconnaissance method known as the "broadside" configuration was employed. This method is illustrated on Fig. 1A. Operator B generates a cyclic electro-magnetic field signal with the transmitting coil. Operator A receives this signal and "nulls" it by tilting the receiver coil. If there are no conductors, such as sulphide bodies, graphite zones, or confined ionic waters, in the near vicinity of the operators, the angle of tilt of the receiving coil will be near 0^{o}. However, if such a conducting body is cut by the varying magnetic component field of the transmitter, electrical currents will be produced which in

GEOPHYSICS

B. Electro Magnetic Survey (cont'd.)

turn will set up a secondary electro-magnetic field of like frequency. When this occurs the resultant of the original and secondary fields will cause the receiver coil to null at anomalous $\pm$ tilt angles.

In the broadside method the operators traverse in parallel directions, successively occupying directly opposite stations. At each station operator B transmits and A receives, then the procedure is reversed.

Tilt angles are recorded and plotted at the receiving station. In this way two lines of data are received on a single traverse. Anomalous results indicating a conductor consist of a series of high positive tilt angles followed by a "crossover" and a group of negative angles.

Tilt angles in this case were plotted directly and did not require mathematical reduction. The 1600 c.p.s. frequency was used for this work.

Tilt angle profiles are shown on Fig. 3, 1" = 400' scale electromagnetic survey plan.

RESULTS

The magnetic survey indicates a weak NW trend and this coincides with the known geology. No anomalies of sufficient size and relief were disclosed to indicate the presence of a magnetic body of mineralization.

The electromagnet survey indicates two types of conductors, as follows:

a) Large well-defined areas of moderate conductive strength. These are conformable with strikes found in the magnetic survey.

b) Poorly defined linears of weak to moderate conductive strength. These strike NE and are similar in this respect to a broad graphitic schist band uncovered by road building to the NW of the claim group.

CONCLUSIONS

1. E.M. conductors of two separate types have been disclosed. Those with a NW strike show certain characteristics favorable to the possible presence of sulphide mineralization.

   Those with a NE strike appear to represent graphitic shears or fault zones but this is in no way proven.

2. Magnetic results show that no appreciable bodies of a magnetic nature occur on the ground.

3. The occurrence of feldspar porphyry on the property is possibly of importance as this rock type has occurred closely associated with ore deposits in the area.

RECOMMENDATIONS

It is recommended that the following steps be followed in further evaluating results to date:

1. Make detailed E.M. surveys using different configurations over selected anomalies.

2. Take soil samples over these limited areas and analyse them quantitatively for copper and zinc.

3. If positive results are forthcoming in the above it would be advisable to conduct gravimetric surveys prior to further work.

Respectfully submitted,

R.A. Granger

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
A. F. REEVE

Albert F. Reeve, P.Eng.,
Geological Engineer

~~ESTIMATED~~ COST OF GEOPHYSICAL INVESTIGATIONS

EYE CLAIMS

1966

1.	Line cutting (contracted) 34 line miles @ $80	$ 2,720
	Base lines (bulldozed) 4.3 miles	600
2.	Magnetic survey (contracted) 38 line miles @ $50	1,900
3.	E.M. surveys (contracted) 36 line miles @ $50	1,800
4.	Camp maintenance and supplies 65 man-days @ $5.00	325
5.	Transportation	
	Plane	189
	Helicopter, 1.5 hr. @ $122.50	184
	Jeep 800 mi. @ 18¢	144
6.	Supervision	370
7.	Office and miscellaneous costs	385
	Estimated Total Cost of Surveys:	$ 8,617

This work has been applied for and distributed in conjunction with some road building credits.

ALBERT F. REEVE, P.ENG.
GEOLOGICAL ENGINEER
400 – 837 West Hastings Street, Vancouver 1, B.C.

ASSOCIATE
RONALD A. GRANGER

Phone 685-0167

CERTIFICATE

I, Albert F. Reeve, of Vancouver, B.C., hereby certify that,

1. I am a geological engineer residing at 2557 West 3rd Avenue, with an office at 400, 837 West Hastings Street.

2. I am a graduate of the Provincial Institute of Mining, at Haileybury, Ontario, 1958; and received a Bachelor of Science degree from Michigan College of Mining & Technology, at Houghton, Michigan in 1961.

3. I am a certified member of the Associations of Professional Engineers in the provinces of Ontario and British Columbia.

4. I supervised the work described in this report, on the Eye Claims. I have examined the results given in the enclosed geophysical survey and find that they have been properly executed and described.

Respectfully submitted,

Albert F. Reeve, P.Eng.,
Geological Engineer

February, 1967.

Figure 1.

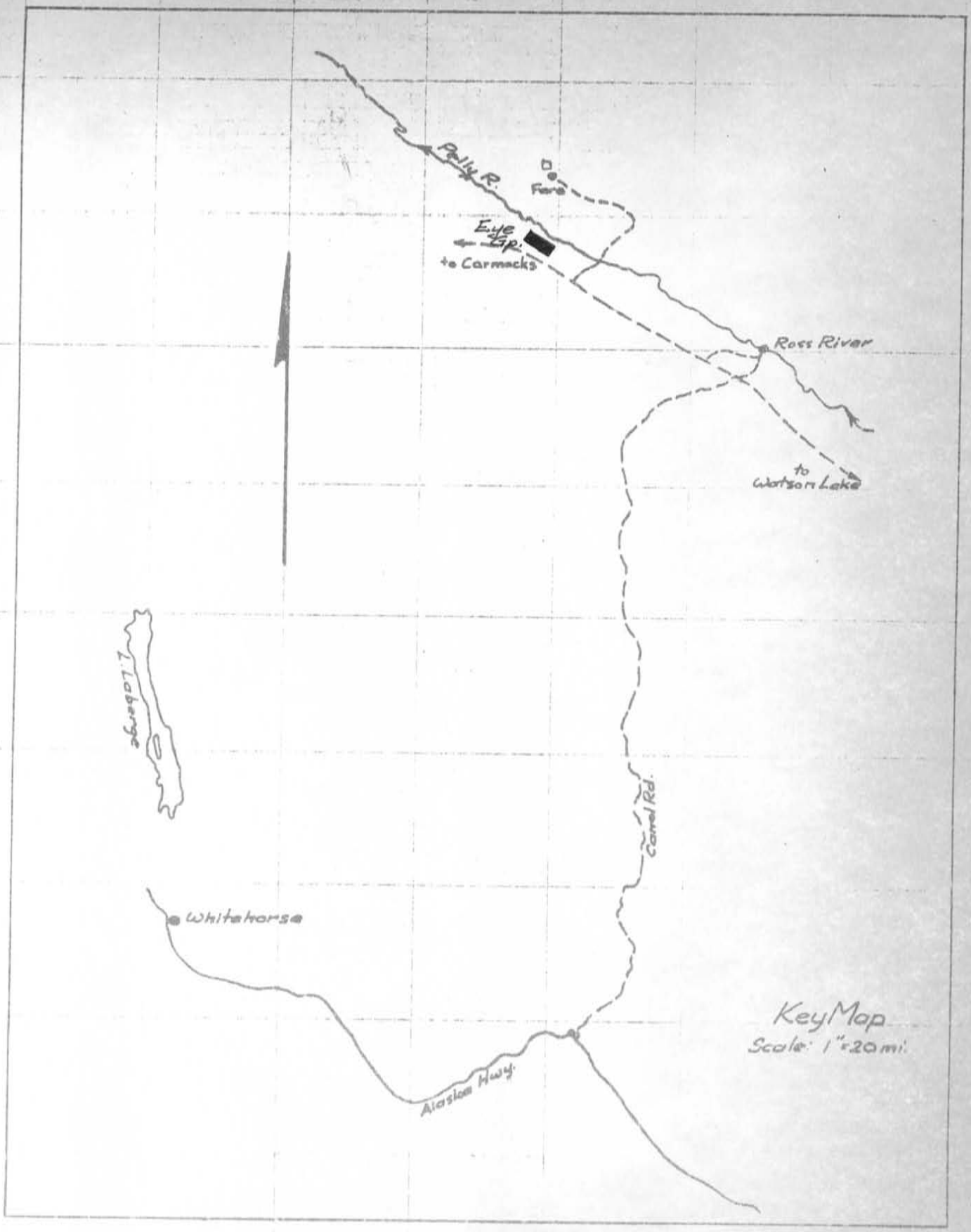

Pelly R.
Faro
Eye Gp.
to Carmacks
Ross River
to Watson Lake
L. Laberge
Canol Rd.
Whitehorse
Alaska Hwy.
KeyMap
Scale: 1" = 20 mi.

Fig 1-A

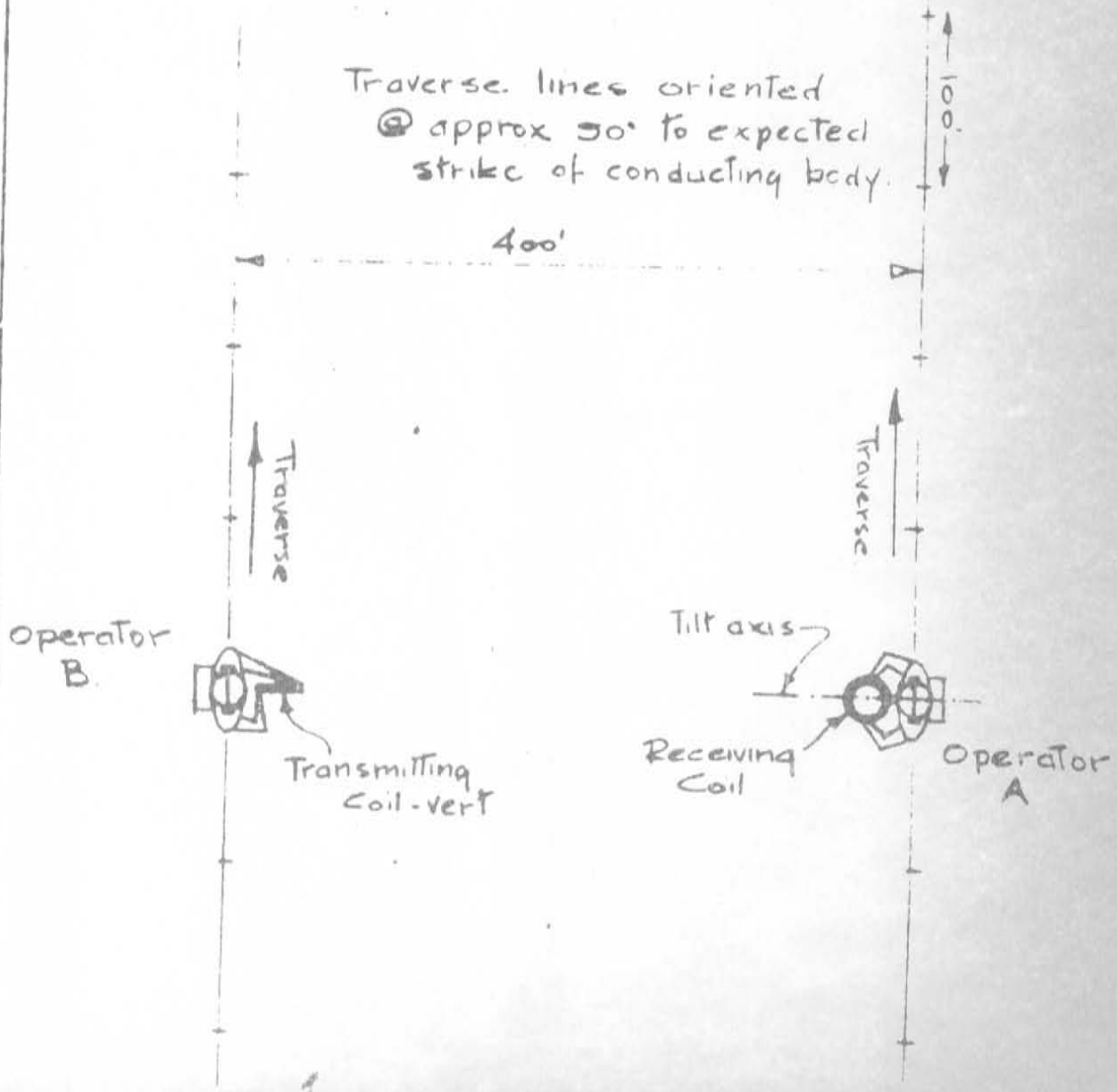
ORIENTATION DIAGRAM

for

SHARPE SE-300 E.M. EQUIPMENT

"BROADSIDE" RECON. METHOD

Scale 1" = 400'



FLAGSTONE MINES LTD.

Eye Group ~ Vangorda Creek Area, Y.T.

Electromagnetic Survey
~reconnaissance~

Scale: 1"=400'	Inst: Sharpe SE-300 Operators: Hay, Witton	Date: Sept 29/66 R.A. Granger

Eye 16
Eye 32
Eye 1
Eye 18
A-1
A-2
A-3
Lake
L 112W
L 100W
L 80W
L 64W
L 48W
L 32W
L 16W
L 0
L 16E
conductive zone
interpolation