

KERR ADDISON MINES LIMITED

REPORT ON THE

MAGNETIC, ELECTROMAGNETIC, SELF-POTENTIAL,  
GRAVITY AND GEOCHEMICAL SURVEYS

OF THE

B.S. 1 - 24 M.C.'s

MAY 8th - NOVEMBER 16th, 1964

CLAIM SHEET No. 105-K-2

LATITUDE  $62^{\circ} 11' N.$       LONGITUDE  $132^{\circ} 53' W.$

YUKON TERRITORY

BY

W.M. SIROLA, P. Eng., British Columbia

*W.M. Sirola*



March 15, 1965.

Vancouver, B.C.

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SUMMARY AND RECOMMENDATIONS

Approximately 110,000 feet of profile lines were completed on the B.S. 1 - 24 M.C.'s, to facilitate the various forms of geophysical surveys. Of this total, 61,300 feet were cut and chained through the forest cover, and the balance was marked out by flagging on the ice of West Swim Lake.

Electrically anomalous conditions were found on claims B.S. 1 - 8, which are underlain by the waters of West Swim Lake, and on the B.S. 19 - 24 M.C.'s, which are bounded on the north by Finger Lake.

Roughly superimposed on the electrical anomalies are belts of magnetic anomalies which vary from a few hundred to 2,000 gammas above background. On the B.S. 19 - 24 M.C.'s, soil sampling indicated copper values up to 2,100 parts per million, and zinc values to 600 parts per million, on the S.W. corner of B.S. No. 20 M.C.

Gravity surveys were made on the B.S. 19 - 24 group, but were not considered feasible on the B.S. 1 - 18 claims, which are, largely, underlain by water. No significant anomalies were found by this method.

It is recommended that limited diamond drilling be carried out to determine the cause of the various types of anomalies encountered.

### PROPERTY AND LOCATION

The property consists of twenty-four claims designated B.S. 1 - 24. The claims are held in the name of Kerr Addison Mines Limited, and are located at Swim Lakes, 25 miles northwest of Ross River, and 1.5 miles northeast of Whitenorse.

### MAGNETIC SURVEY

A hand-held Sharpe Magcrometer, Model ES-180, with a sensitivity of 35 gammas per scale division, was used for the entire survey. Approximately 20 miles of traversing was completed on lines 400 ft. apart. Readings were taken at 100 ft. intervals. The operator holds the instrument in a vertical position in his left hand, faces west, and nulls the magnetic needle by turning a vernier screw at the base of the instrument. The readings obtained are variations in the intensity of the total magnetic field. Diurnal control was exercised by periodic checks at base stations located on the base lines.

The magnetic background on the B.S. claims is in the order of 8,800 gammas. Two strong (2,000 gammas), magnetic centres occur on B.S. No. 8 and B.S. No. 22 M.C.'s. From the anomaly on B.S. No. 8, a broad, but low amplitude (200 - 600 gammas), magnetic belt extends westward to B.S. No. 2. A less well defined magnetic structure occurs on B.S. 17 and 18. The broad, anomalous belts are thought to be caused by either weak concentrations of magnetite, or heavier concentrations of pyrrhotite,

or by some combination of these two minerals. The outcrops on the north shore of West Swim Lake are sericite schists, which dip gently northward. The outcrops themselves appear to be devoid of magnetic minerals, and it would, therefore, appear that the structures which contain the magnetic anomalies dip beneath the shoreline outcrops.

#### ELECTROMAGNETIC SURVEY

Twenty-one miles of E.M. traversing were completed with the ground E.M. unit. Dual frequency work was done on claims B.S. 7 and 8. This involved a distance of  $2\frac{1}{2}$  line miles, and the balance of the survey was done on one frequency only.

In carrying out the survey, the two operators traversed the same line, the lines having been cut perpendicular to the average strike of the rocks. Both operators used similar units and kept a separation distance of 200 ft. At each station the chief operator first transmitted until the helper operator had oriented his coil and read a dip angle, and then their roles were reversed and the chief operator read the dip angle. The two dip angles read were recorded, and the resultant obtained by adding the two readings was plotted on the station position of the mid-point between the two men.

A fairly persistent conductor occurs on B.S. 5, 6 and 7 M.C.'s, from 6 N. on line 6 E. to the base line on line 8 W. A similar en echelon conductor has been traced on B.S. 7 and 8

from the base line on 8 E. to 1 N. on 12 E. These conductors have ratios of low frequency : high frequency ranging from 0.33 to 0.80, and can, therefore, be assumed to be caused by sulphides, or graphite, or some combination of these minerals. Since all of the anomalous dips are negative, the source is considered to be gently north dipping and buried approximately 150 feet.

On the B.S. 20, 22 and 24 M.C.'s, the anomalous E.W. belt extends from line 12 W. to line 42 W. These anomalies are shown on the map as being enclosed by an 8° contour. The source of these conductors is thought to be approximately 50 feet deep and to dip gently northward.

#### SELF-POTENTIAL SURVEY

This method was used on claims B.S. 10 - 12 and 19 - 24. A pronounced anomalous area centres on line 24 W. at base line 15 N. This is thought to be caused, at least in part, by graphitic schist.

A similar, but less intense anomaly extends from 7 N. on line 24 to 11 N. on line 8 W.

On the south base line, the area between 16 W. and 32 W. is anomalous and extends to 5 N. on line 28 W.

The cause of the latter two anomalies is unknown, but, since the base line anomaly has an associated magnetic high, both pyrrhotite and magnetite could be contributory causes.

GRAVITY SURVEY

A gravity survey was run over B.S. 19, 20, 22 and 24 M.C.'s. Observations were made every 100 feet on lines 800 feet apart. The work was done by the United Geophysical Company of Calgary, using a Worden Portable Gravimeter. Before the gravity survey was begun, accurate elevations were established for each station. After the gravity observations were completed, they were corrected for elevation, altitude and terrain. The resulting figure, known as a Bouger gravity value, was plotted on the maps and contoured.

On the accompanying map, there is a gradual increase in gravity values from north to south, but this effect is thought to be too gradual to be indicative of any larger increase in the density of the underlying rocks, and, therefore, no massive sulphides are indicated.

GEOCHEMICAL SURVEY

B.S. 9 - 12 and 19 - 24 M.C.'s were soil sampled at 200 ft. intervals on lines 400 feet apart. Some detailed work was done on B.S. No. 20 M.C.

Test pits were dug to determine the depth to the "B" horizon, and soil augers were then used for the balance of the survey. Samples were first analysed for copper content by the rubenic method, and then run for zinc by the dithizone heavy

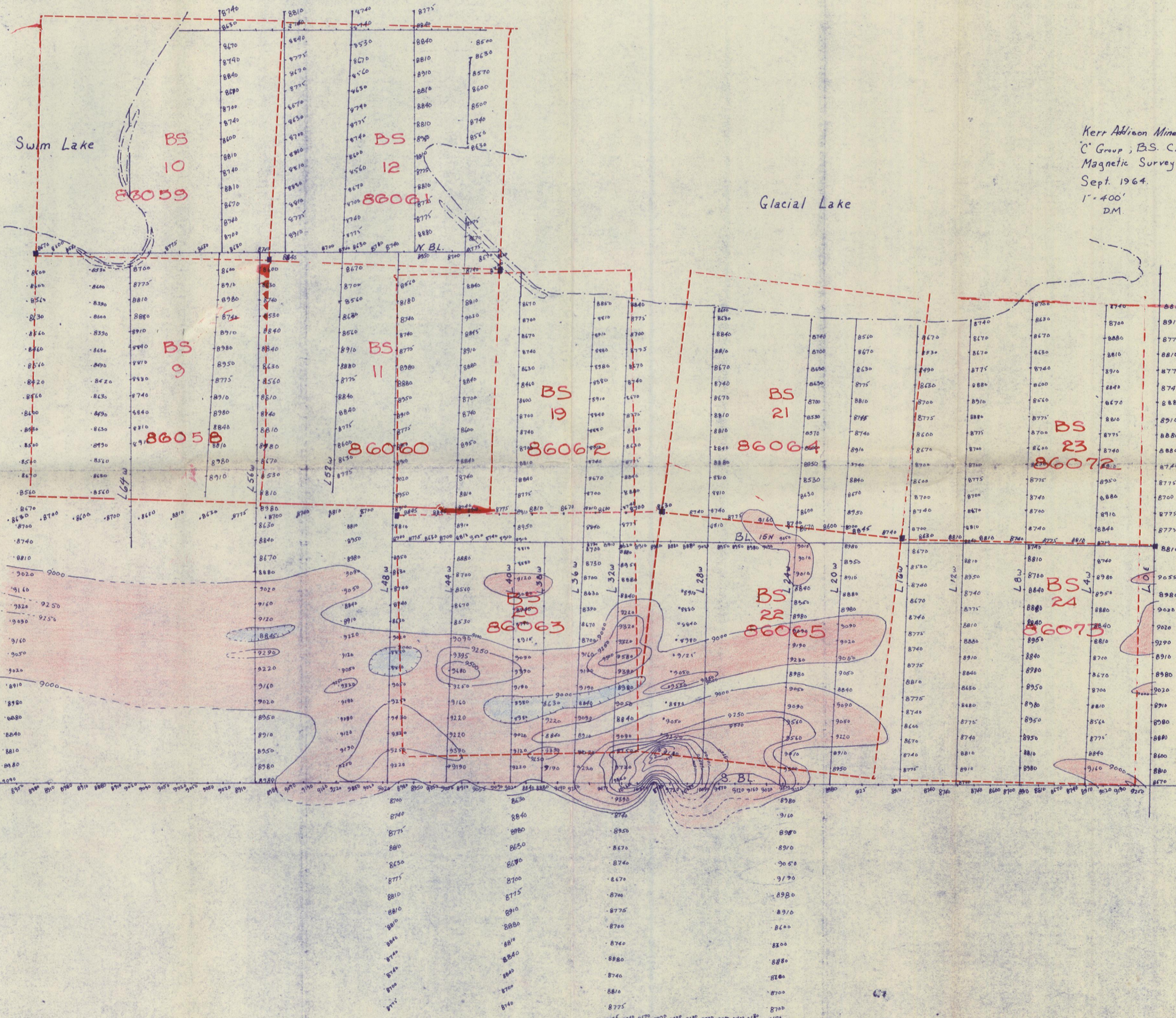
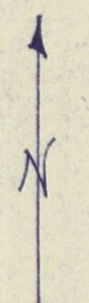
metals procedure. Finally, the samples from the anomalous areas were analysed for copper and zinc by the X-ray method in a Toronto laboratory.

The southwest corner of B.S. No. 20 produced anomalies as high as 2,100 p.p.m. copper, and 600 p.p.m zinc.

The copper and zinc in the soils is obviously extractable by cold ammonium citrate and cold acetic acid, and there does not appear to be any advantage in using more potent solvents, or more elaborate analytical techniques.

#### SCHEDULE OF ACCOMPANYING MAPS

	<u>Scale</u>
MAGNETIC SURVEY MAP (2)	1" = 400'
ELECTROMAGNETIC SURVEY MAP (2)	1" = 400'
SELF-POTENTIAL SURVEY MAP	1" = 400'
GRAVITY SURVEY MAP	1" = 400'
GEOCHEMICAL SURVEY MAP	1" = 400'
KEY MAP	

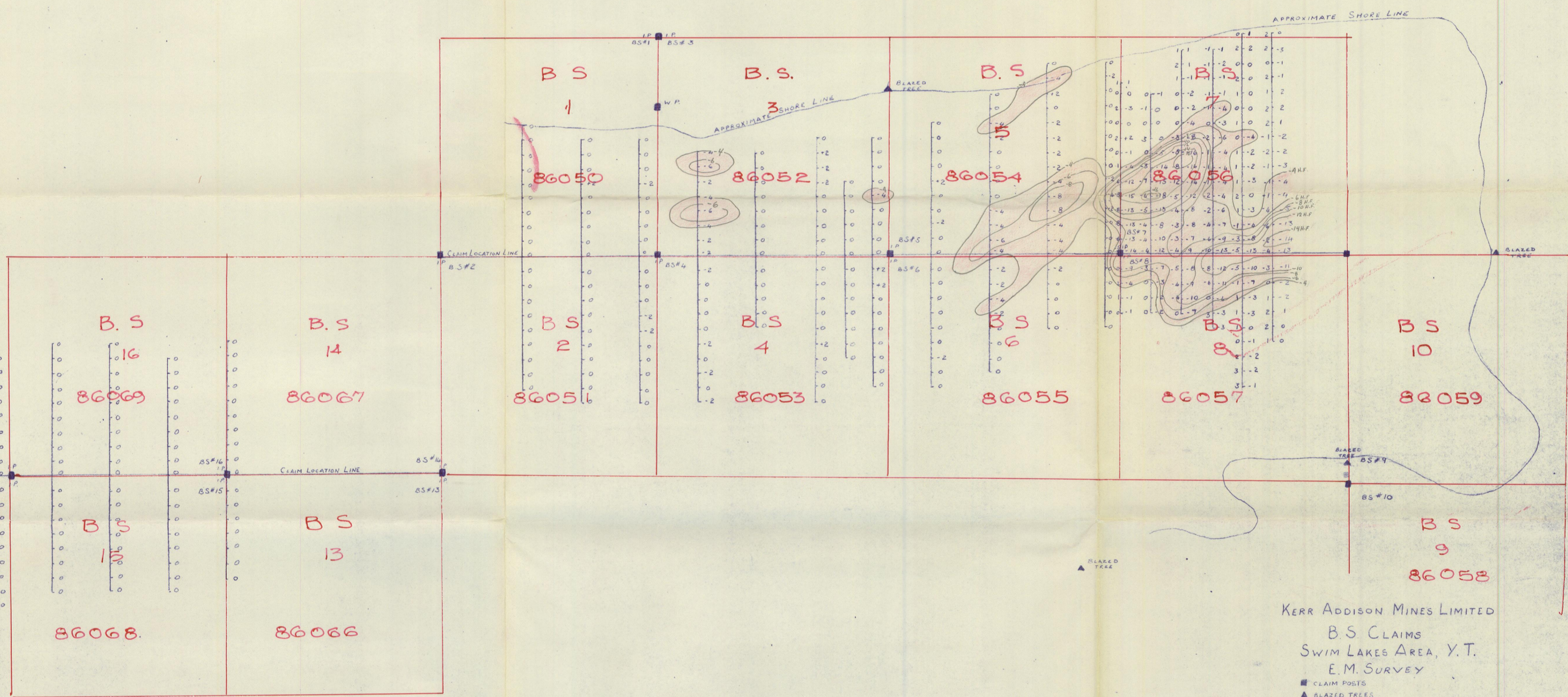


Kerr Addison Mines Ltd.  
 C Group, B.S. Claims, Y.T.  
 Magnetic Survey (Reg's in gamma)  
 Sept. 1964. Contour Int. : 250γ  
 1" = 400'  
 D.M.



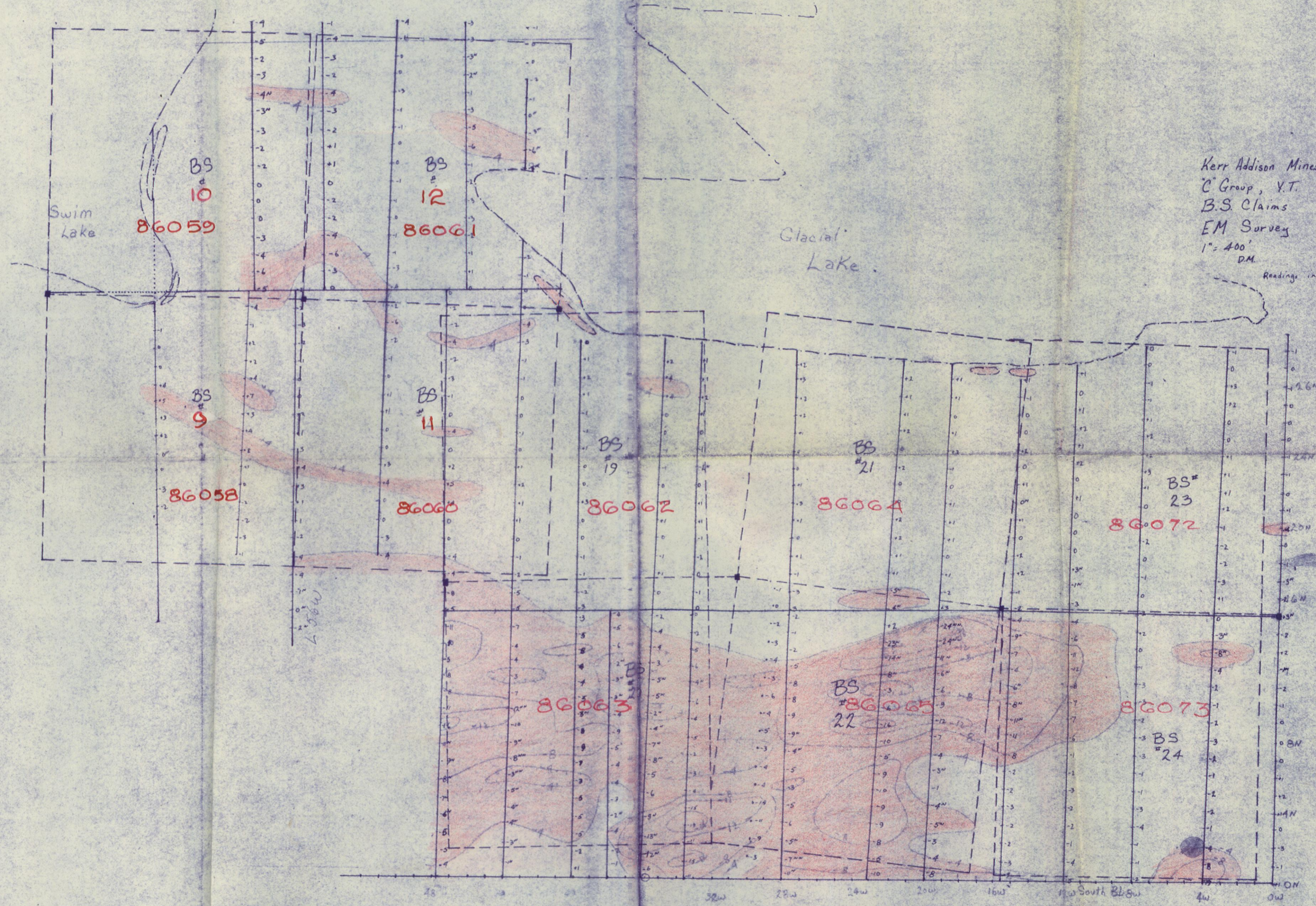
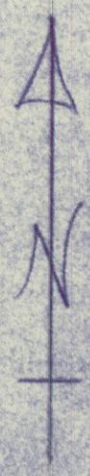
82W 78W 74W 70W 66W

40W 36W 32W 28W 24W 20W 18W 16W 12W 8W 4W 0 2E 4E 6E 8E 10E 12E



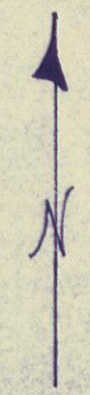
KERR ADDISON MINES LIMITED  
 B.S. CLAIMS  
 SWIM LAKES AREA, Y.T.  
 E.M. SURVEY

■ CLAIM POSTS  
 ▲ BLAZED TREES  
 APRIL/MAY, 1964  
 SCALE: 1 INCH = 400 FEET  
 1" = 400'  
 0' = 0'  
 2" = 8'  
 LF. H.F.

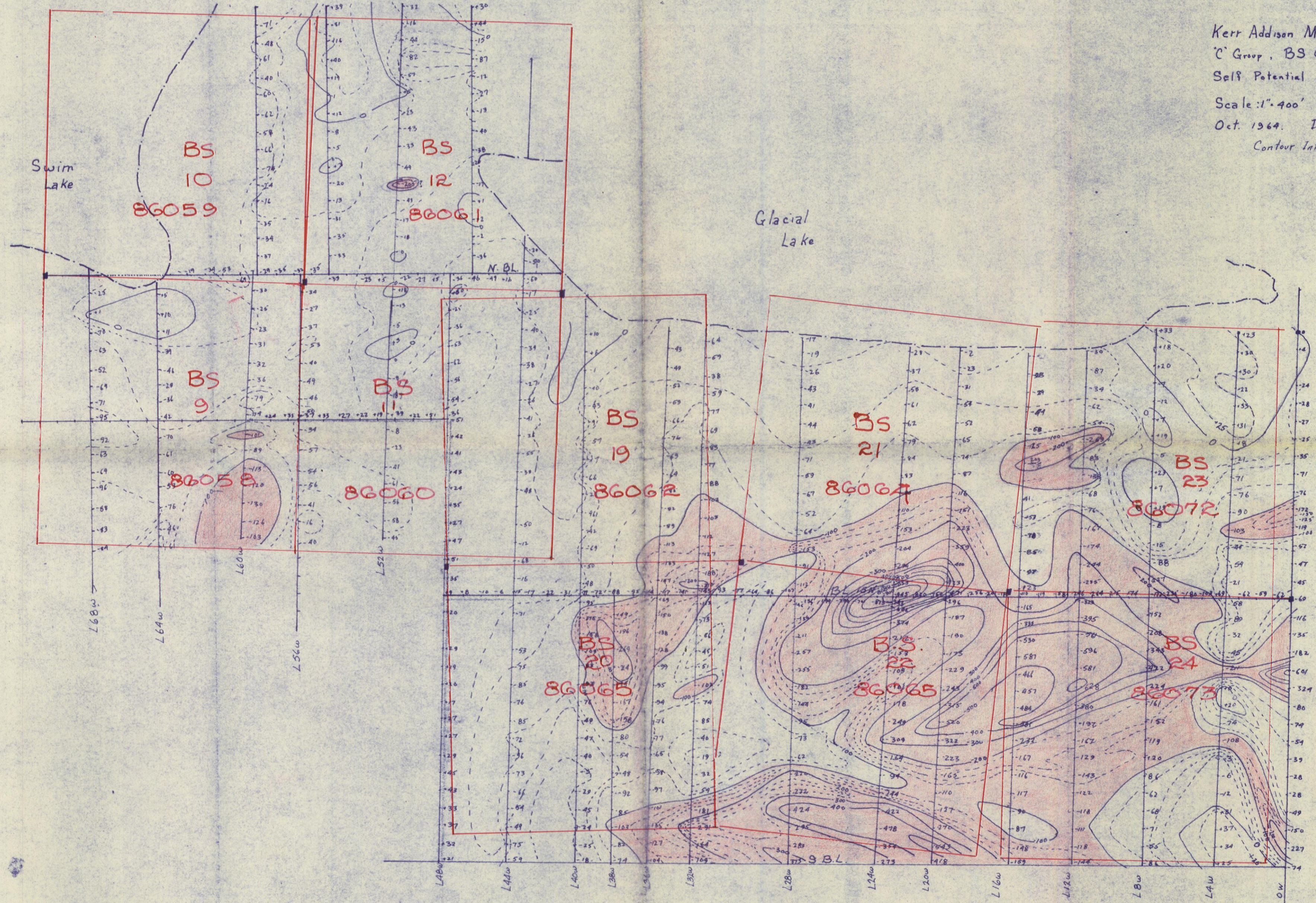


Kerr Addison Mines Ltd.  
C Group, V.T.  
B.S. Claims  
EM Survey Sept. 1964.  
1" = 400'  
D.M.  
Readings in degrees of dip

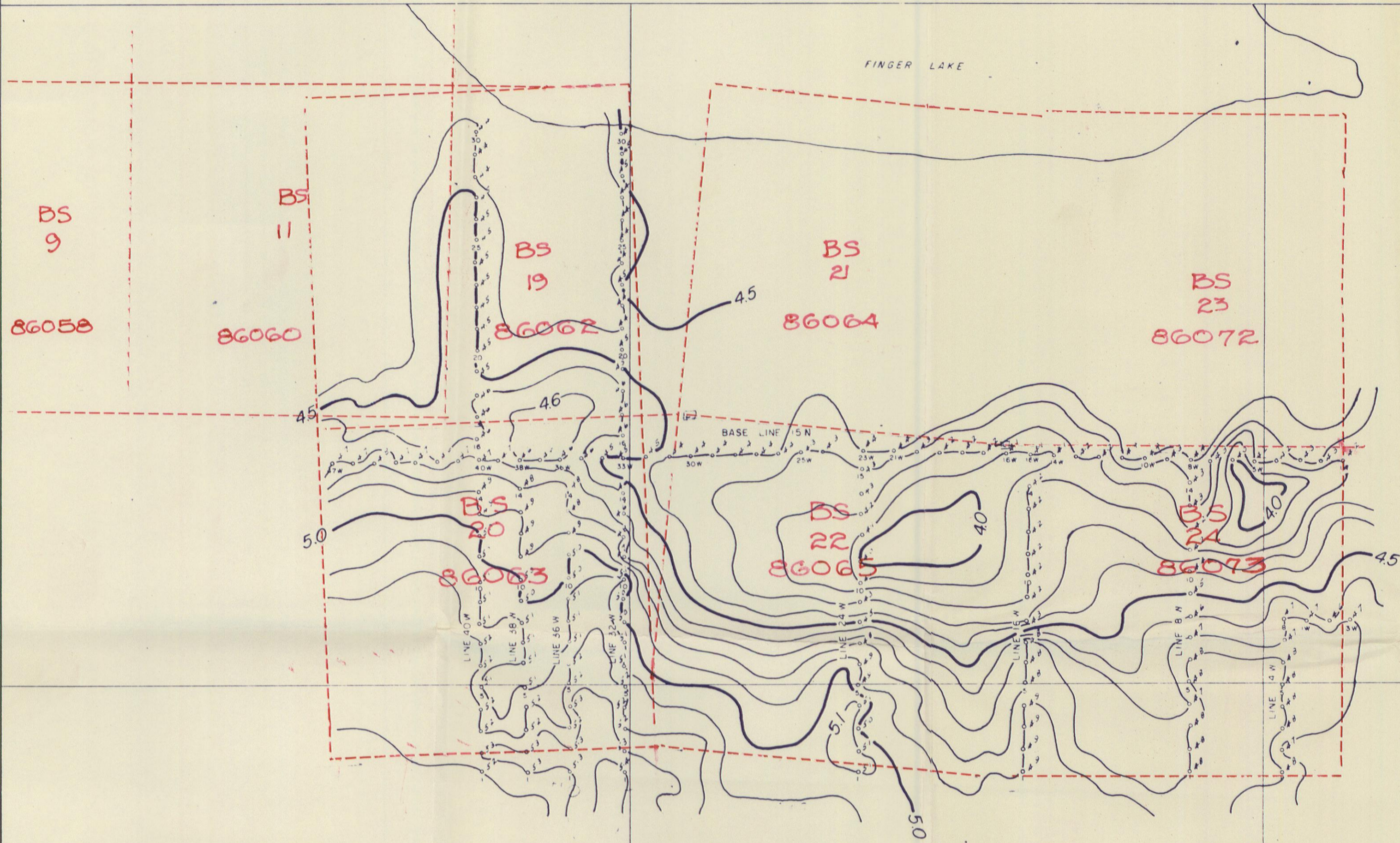
BS  
SP



Kerr Addison Mines Ltd.  
C Group, BS Claims Y.T.  
Self Potential Survey, Rdg's in millivolts  
Scale: 1" = 400'  
Oct. 1964. D.G.M.  
Contour Interval ----- 25 mV  
----- 100 mV



FINGER LAKE



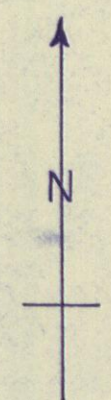
KERR ADDISON MINES LIMITED  
 B. S. GROUP PROJECT  
 YUKON TERRITORY

**BOUGUER**

UNITED GEOPHYSICAL CO. OF AMERICA  
 PARTY 588

Contour Interval 01mg. Interpretation by A RICH  
 Scale 1 inch = 400 ft. Approved by RB GALESKI

Date SEPT 1964



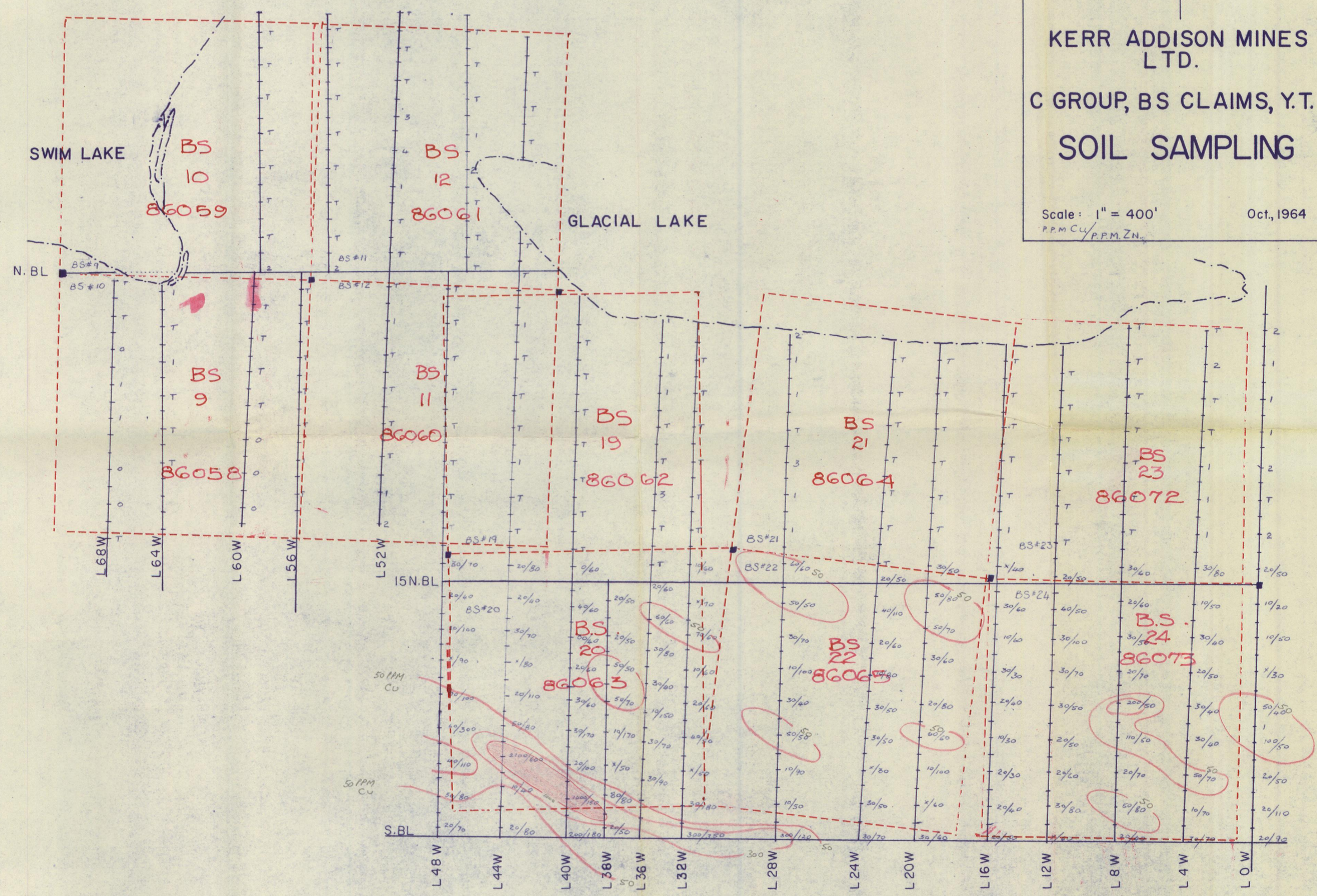
KERR ADDISON MINES LTD.

C GROUP, BS CLAIMS, Y.T.

# SOIL SAMPLING

Scale: 1" = 400'  
P.P.M. CU / P.P.M. ZN

Oct, 1964

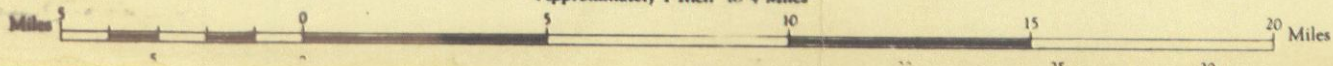


B.S. 1 - 24 M.C.'s KEY MAP  
 to accompany  
 MAGNETIC, ELECTROMAGNETIC, SELF-POTENTIAL  
 GRAVITY AND GEOCHEMICAL SURVEYS  
 KERR ADDISON MINES LIMITED 105-K-2



SURVEY ESTABLISHMENT R.C.E., 1949-51

Scale 1 : 250,000  
 Approximately 1 Inch to 4 Miles



Contour interval 500 Feet.  
 All Elevations in Feet above Mean Sea Level.  
 Universal Transverse Mercator Projection

REFERENCE