

CONTENTS OF FOLDER



PART A
GEOLOGICAL REPORT

PART B
AIRBORNE GEOPHYSICAL REPORT

PART C
GROUND GEOPHYSICAL REPORT
MAGNETOMETER

PART D
GEOCHEMICAL REPORT

PART E
STATEMENT OF EXPENDITURES

MAP POCKET

GEOLOGICAL SURVEY
MAY 12 1967
Resident Geologist
Whitehorse, Y. T.

This report has been examined by
the Geological Examination Unit.
Approved and worth by:
D. C. Fiddler
RECORDS
Approved and amount
of \$ *8844.50*
R. G. Hedder
Approved and amount
of \$ *8844.50*
[Signature]
Mining Recorders Office
Whitehorse, Y.T.

PART A

GEOLOGICAL REPORT

Snowcap 1 to 48 mineral claims

105-K-1 and 105-K-2

Lat. N 62° 06' Long. 132° 31'

Theodore William Muraro, P. Eng.

March 20, 1967.

TABLE OF CONTENTS

GEOLOGICAL REPORT

	<u>Page</u>
INTRODUCTION	1
GEOLOGY	
General	1
Rock Types	2
Structures	3
Mineralization	3
DIAMOND DRILLING	3
CONCLUSIONS	4
DIAMOND DRILL LOGS	Appendix

GEOLOGICAL REPORT

INTRODUCTION

This introduction may be applied to the geophysical and geochemical reports in this folder.

The Snowcap 1 to 48 mineral claims are in one group near Olgie Lake, eight miles north-northwest of Ross River Post, Yukon Territory.

On July 1, 1966 Cominco Ltd. optioned the Snowcap Group from Vanmetals Exploration Ltd. of 213 - 678 Howe Street, Vancouver, B.C. All access to the claim group was handled by fixed-wing (Great Northern) and helicopter (Klondike) from Ross River Post.

Between June 26, 1966 and August 1, 1966 Robert Choumont and Steve Sheldon of Teslin, Yukon Territory cut 30,000 feet of base line on the Snowcap Group. From 1 to August 15, 1966 the firm of White, Hosford and Impy Ltd., Box 1188, Whitehorse, cut 5,000 feet of base line on the Snowcap Group. At \$60/line mile this amounts to 6.64 miles x \$70 = \$464.80.

The site of the initial posts of Snowcap 1 and 2 mineral claims is the original of the cut lines 00+00 N and 00+00 W. All the cut lines have been chained and plotted accordingly. Locations by co-ordinates are referred to this origin.

Geological mapping and ground geophysical work reported here was done between July 15 and September 1, 1966 by:

Lawrence Nagy, B.Sc. Geology - Exploration Assistant.

Kenneth Bell, B.Sc. - Senior Assistant.

Theodore W. Muraro B.Sc. M.Sc. - Senior Exploration Geologist.
P. Eng.

All of Cominco Ltd., 1150 Bay Avenue, Trail, B.C.

The mapping was controlled by grid lines and done on air photos enlarged to 1" = 1,320 feet.

GEOLOGY

General:

Four main rock types are exposed in the vicinity of the Snowcap Group. The general strike is easterly and the layered rock have low to moderate dips to the south. Sparse outcrop, particularly in the northern portion of the claim group, necessitates a rather broad interpretation of mapping. In general, sediments and apparently

overlying volcanics of the revised unit 7 of G.S.C. Tay River sheet are intruded along an easterly trending contact by granodiorite.

Rock types:

Volcanic rocks of andesitic composition outcrop in an easterly trending belt on the South group claims up-slope and south of the Snowcap claims. Limited mapping in this area revealed fine-grained green to grey flows, lithic tuffs and volcanic breccias.

Metasediments structurally underlie the volcanics down-slope to the north. On the basis of limited exposure these metasediments can be roughly divided into an upper section of phyllites and a lower section of impure limy rocks. The phyllites are grey, brown-grey and green-grey and well foliated and contain several intercalated zones of graphitic phyllites.

The limy section - approximately the lower half of the exposed metasediments includes grey phyllites with interlayered grey recrystallized limestone, grey to white recrystallized limestone, grey phyllites, buff recrystallized limestone and a distinctive lime silicate rock. This lime silicate rock is laminated with pale green, brown, mauve brown and light grey layers up to 1/2 inch thick of material dominated by calc-silicates. Recognizable minerals include garnet, tremolite, actinolite, epidote, calcite, silica, and mica.

Assuming no repetition the maximum thickness of metasediments appears to be about 6,000 feet. However, measured dips have probably been steepened by proximity to the intrusive contact. From regional information the maximum thickness of metasediments between the volcanics and intrusive contact is probably 1,000 to 2,000 feet.

Intrusive rocks of granodiorite composition are readily divided into two types. A uniform light grey, medium-grained biotite granodiorite represents the main intrusive mass. This rock appears identical to exposures of Anvil batholith on Mt. Mye. This granodiorite appears to underlie the entire western end of the Snowcap Group.

The second intrusive type is a porphyritic leuco to mesocratic rock of granitic to granodiorite composition. Doubly terminated quartz crystals and rounded resorbed quartz eyes up to 1 cm. diameter plus books of biotite are set in a fine-grained to aphanitic feldspathic groundmass. This rock is a border phase of the granodiorite and occupies a zone 300 to 1,500 feet wide along the granodiorite-metasediment contact. It is referred to below as porphyry.

Structure:

Limited outcrop on the claim group allows little more than a simple and rather arbitrary interpretation of structure. The general easterly trend of the metasediments and volcanics complies with the regional trend of these rocks. The general low to moderate dips to the south are regarded as fairly reliable. Local deviations in strike and dip are near the intrusive contact and are most likely the result of forcible intrusion.

Mineralization:

The only occurrence of valuable sulfides in place is located at drill holes 1 and 2. Less than 0.5% Cu as very fine disseminations of chalcopyrite occurs in slightly altered and somewhat foliated and fractured zone within the porphyry.

Diamond Drilling:

A total of 175 feet of diamond drilling in three holes was done on the Snowcap Group in 1966. Between August 21 and 30 drill holes 1 and 2 totalling 150 feet were drilled from one set-up. The intent here was to collar in the sparsely mineralized fractured porphyry and drill through the contact into the metasediments.

Diamond drill hole 1 was collared near bedrock on the west rim of a sharp gully which appears to mark the contact in question. The hole was directed N 45° E at -50° and was stopped at 54 feet in fractured porphyry. Drill hole 2 from the same set-up was directed N 60° E at -35° to ensure a better chance of crossing the contact. This hole was lost at 105 feet and the drill string was not recovered. Core from both holes was entirely fractured and altered porphyry with scattered inclusions of phyllite and minor disseminated chalcopyrite, No core was assayed.

A second helicopter pad was built on Base Line C at W the location of drill hole 3. The purpose of this hole was to obtain a section of the lower limy section of metasediments. Lack of plastic pipe and logistics delayed drilling until late September. Low temperatures caused the 3,500 feet of water line from the lake SW of drill holes 1 and 2 to freeze repeatedly. This hole was terminated after drilling only 16 feet of limestone.

With the necessary helicopter service and the caving ground encountered at holes 1 and 2, \$10 per foot is a conservative estimate for the cost of the diamond drilling. Total drilling cost is entered at \$10 x 175 = \$1,750. \$1,590 of this total was expended prior to September 30.

CONCLUSIONS

The geological investigation of the Snowcap claim group does not reveal sufficient basis for continuation of Cominco's exploration at this time.

ATTACHMENTS:

- 1) Geological Map - 1" = 1,320' in pocket
- 2) Stratigraphic and Structural Section - 1" = 1,320' in pocket.

Report by:



T.W. Muraro, P. Eng.

Dated March 20, 1967.

SNOWCAP DIAMOND DRILL LOG
IGN #1

Lat. 02-00S
Dep. 52-50W
Elev. 3,500'
Bearing N15°E
Dip -50°

Started August 21, 1966
Completed August 23, 1966
Logged by L. Nagy
Snowcap #8 M.O.

From

To

0.0'

54.0'

ALTERED PORPHYRY: pale greenish propylitic alteration of feldspar matrix, crude foliation and pervasive fracturing with hematite staining up to 1 foot on either side of rare prominent minor faults. Minor disseminated, very fine-grained pyrite, trace of very fine-grained chalcopyrite.

End of Hole 54.0'.

T-Nagy
Trail Expl'n Office, Eastern District
March 22, 1967

Copies (5)

SNOWCAP DIAMOND DRILL LOG
DDH #2

Lat. 02+00S
Dep. 52+50W
Elev. 3,500'
Bearing N60°E
Dip -35°

Started August 23, 1966
Completed ~~September~~ 31, 1966
Logged by L. Nagy
Snowcap #8 M.C.

From

To

0.0'

105.0'

ALTERED PORPHYRY: Weak foliation, pervasive propylitic alteration and fracturing. Hematite staining of minor fault zones. Several 1 to 3 foot darker green sections may include some incorporated phyllitic material. Minor very fine-grained disseminated pyrite and traces of chalcopyrite.

End of Hole 105.0'.

P.S. - Drill string still in hole.

TW:sa
Trail Expl'n Office, Western District
March 22, 1967

Copies (6)

SNOWCAP DIAMOND DRILL LOG
DDH #3

Lat. 00+00N
Dep. 33+50W
Elev. 2,900'
Bearing N30°E
Dip -60°

Started September 15, 1966
Completed September 28, 1966
Logged by L. Nagy
Snowcap #6 M.C.

From To
0.0' 16.0'

LIMESTONE: laminated recrystallized grey to white limestone with partings of grey phyllite.

End of Hole 16'.

P.S. - Freezing conditions prevented continuation of hole.

TW:sa
Trail Expl'n Office, Western District
March 22, 1967

Copies (6)

DONALD W. SMELLIE, P.ENG.
CONSULTING GEOPHYSICIST

1666 WEST BROADWAY
VANCOUVER 9, B.C.
REGENT 1-6584

PART B

HELICOPTER MAGNETIC AND ELECTROMAGNETIC SURVEY

ANVIL-VANGORDA AREA, Y.T.

COMINCO LIMITED

CONTENTS

	<u>Page</u>
INTRODUCTION -----	1.
INSTRUMENTATION -----	1.
FIELD PROCEDURE -----	1.
RESULTS -----	2.

INTRODUCTION

A combined helicopter magnetic and electromagnetic survey has been carried out by Lockwood Survey Corporation Limited for Cominco Limited. The survey was flown over the Snowcap group in the Anvil-Vangorda area of the Yukon Territory during July 1966.

INSTRUMENTATION

The combined helicopter magnetic and electromagnetic installation consists of the Gulf Model III airborne magnetometer and the E.M. system developed by Hunting Survey Corporation. (now Lockwood).

The E.M. system consists of coaxial transmitter and receiver coils mounted 30 feet apart in a "bird" that is suspended 100 feet below the helicopter when in operation. The instrument records the in-phase and quadrature components of the secondary field relative to the primary field at the receiver coil. The operating frequency is 4000 cycles per second.

FIELD PROCEDURE

The survey was flown at an average line spacing of 1000 feet and at 200 feet mean terrain clearance.

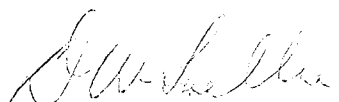
The flight path was recovered by plotting positions on the ground determined by a positioning camera that takes

a sequence of exposures while the survey is in progress. The magnetic data were corrected for diurnal variation and plotted in the form of contours of equal magnetic intensity. The E.M. data were plotted as contours of in-phase amplitude in parts per million with respect to the primary. Anomalies are shown by circled figures representing the amplitudes of the in-phase and quadrature components.

RESULTS

The electromagnetic survey shows two zones of interest. The first of these appears to be of good quality at 5 (1365), denoting line 5 fiducial 1365. The anomaly appears with lower quality at 7 (1118) and 8 (987). The second occurs at 19 (556), 20 (407) and 21 (231). A parallel zone immediately to the north of this is located at 19 (558), 20 (415) and 21 (237). The electromagnetic response is complex in this area, and may be indicating a number of graphitic horizons. In of this reservation, ground electromagnetic and magnetic work is recommended in both areas. In the second area particularly, geochemical and gravity surveys would be useful aids in evaluating the potential economic importance of these zones.

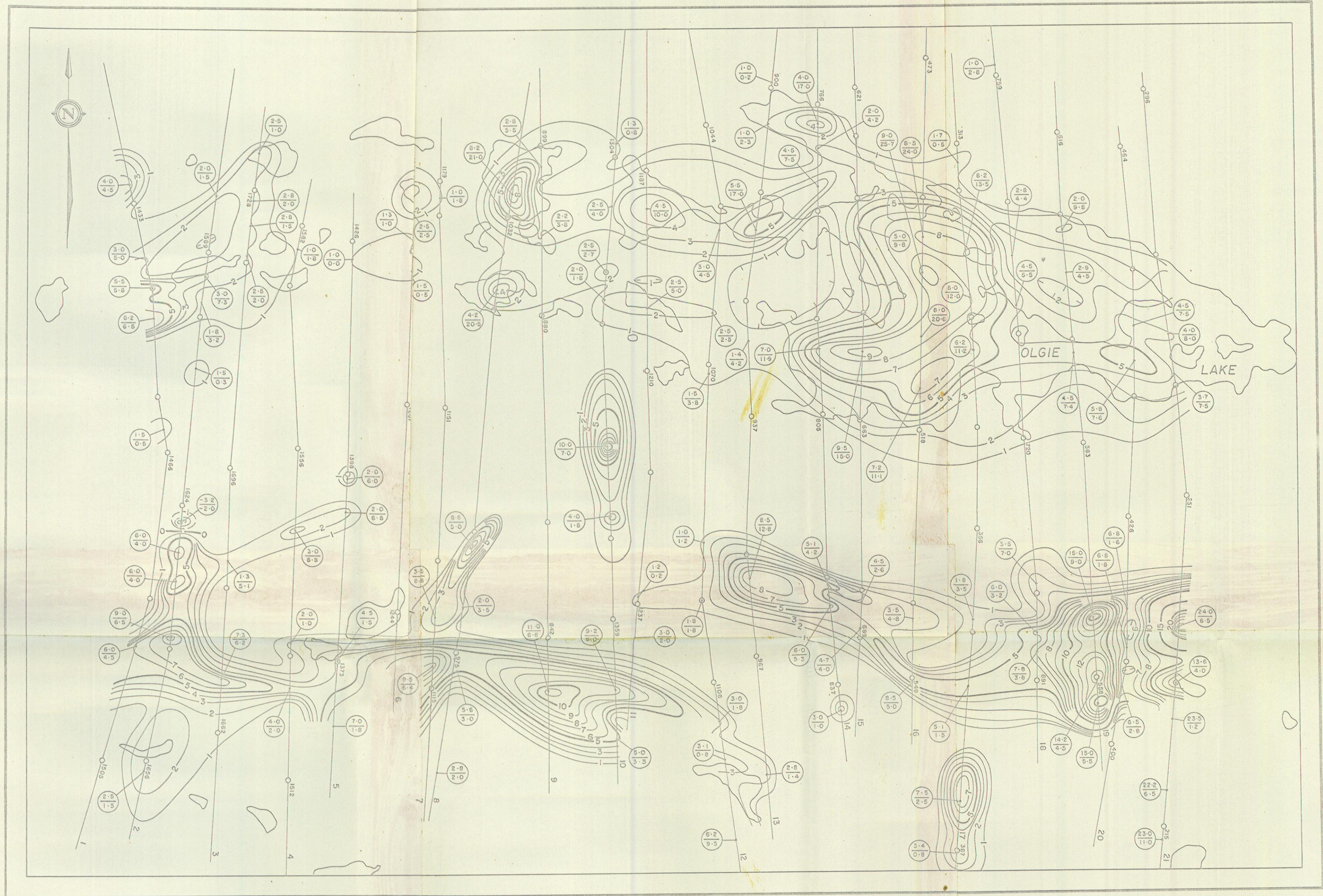
Respectfully submitted,



D. W. SMELLIE, P.Eng.
for: Exploration Geophysics (Yukon) Ltd.

December 20, 1966

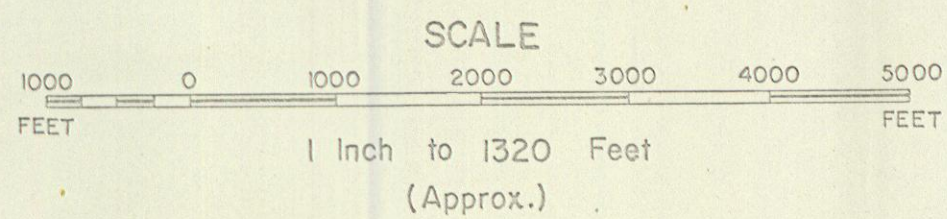
COMINCO LIMITED AIRBORNE GEOPHYSICAL SURVEY



MEAN FLIGHT LINE SPACING ----- 1000 FEET
 MEAN TERRAIN CLEARANCE ----- 200 FEET
 ELECTROMAGNETIC CONTOURS 5, 10, 15 etc. -----
 1, 2, 3, 4 etc. -----
 NEGATIVE CONTOURS -----
 -5, -10 etc. -----
 -1, -2, -3, -4 etc. -----
 FIDUCIAL POINTS ----- 03690
 FLIGHT LINES -----

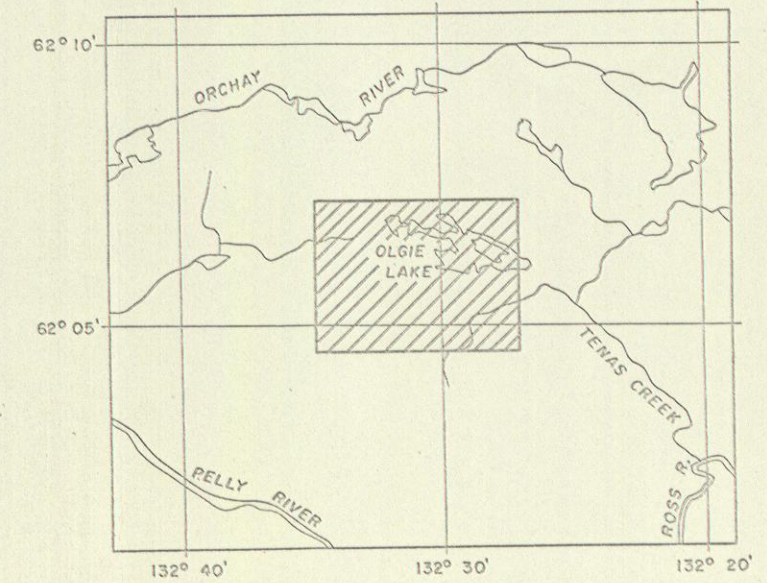
The contours represent amplitude of in phase response of the resultant field expressed in parts per million of the primary.
 The figures $\frac{2.3}{0.2}$ represent amplitude $\frac{\text{in phase component}}{\text{quadrature component}}$
 The frequency of the primary current is 4000 cycles per second.

SNOWCAP GROUP YUKON TERRITORY

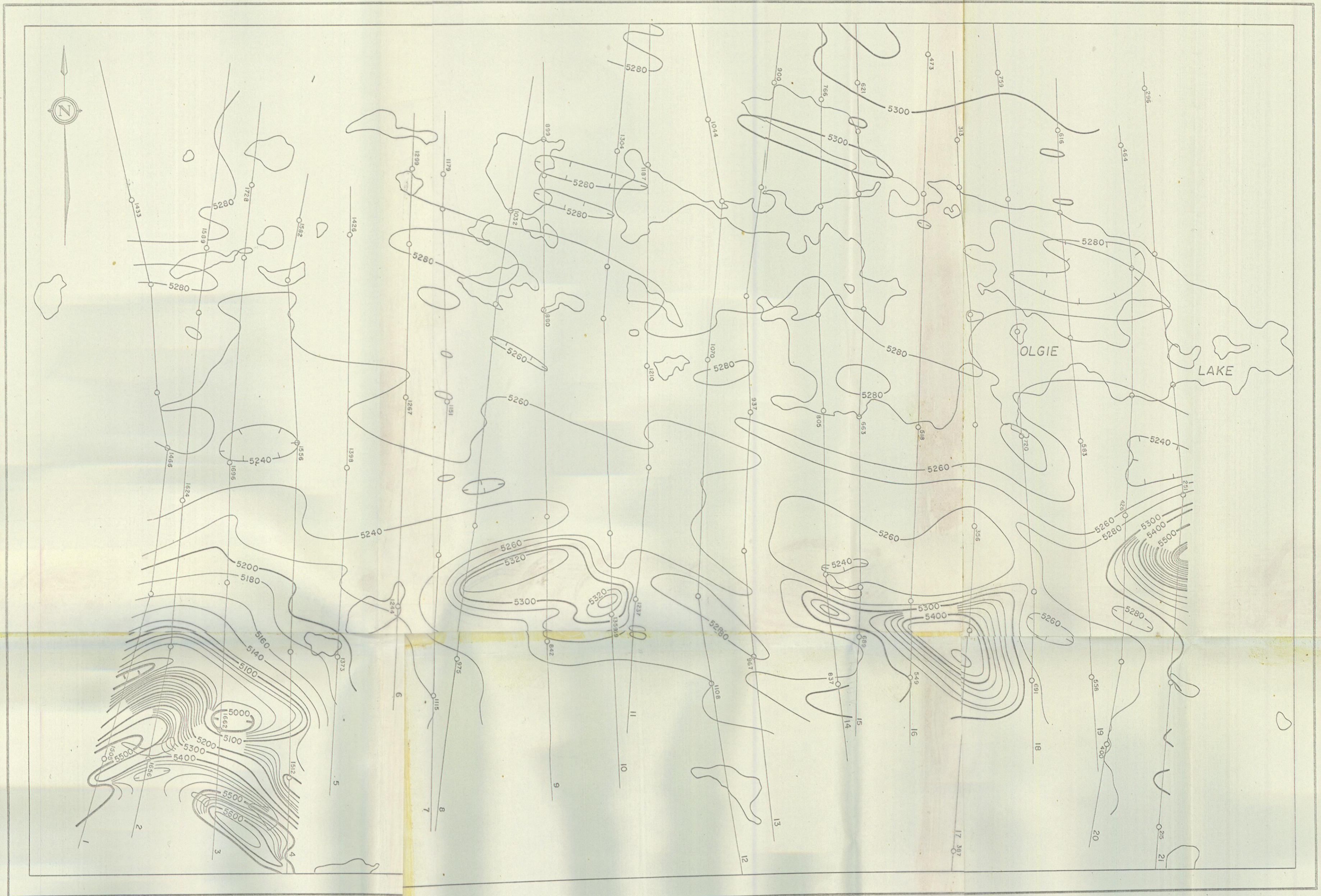


ELECTROMAGNETIC MAP

Flown and Compiled by
 LOCKWOOD SURVEY CORPORATION LIMITED
 TORONTO, CANADA
 1966

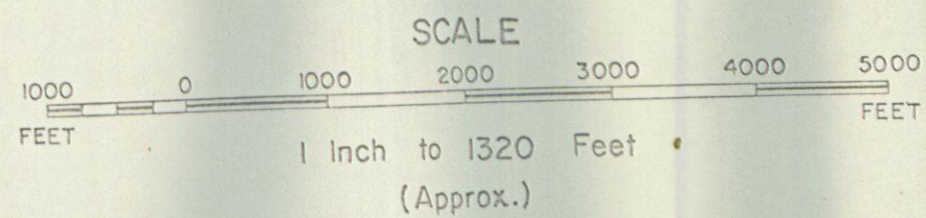


COMINCO LIMITED
AIRBORNE GEOPHYSICAL SURVEY



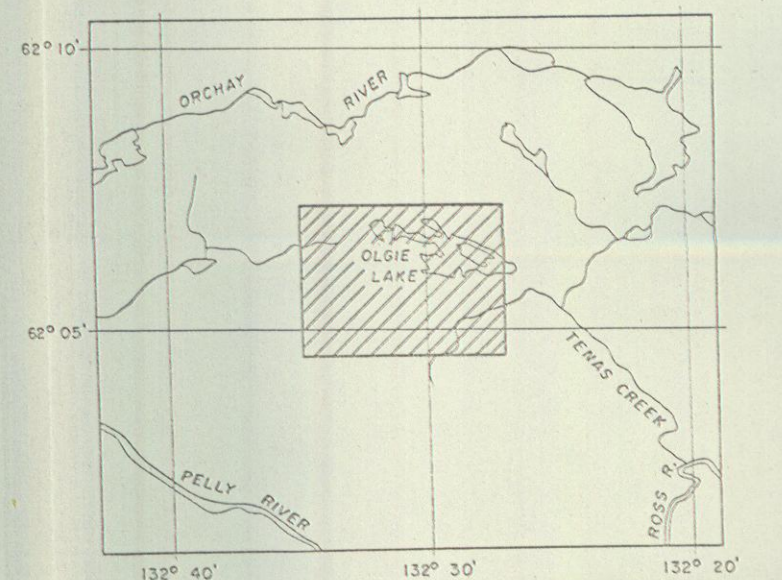
CONTOUR INTERVAL.....20 GAMMA
MEAN FLIGHT LINE SPACING.....1000 FEET
MEAN TERRAIN CLEARANCE.....200 FEET
5000 GAMMA CONTOUR.....
5100 GAMMA CONTOUR.....
5200 GAMMA CONTOUR.....
5300 GAMMA CONTOUR.....
5400 GAMMA CONTOUR.....
MAGNETIC LOW.....
MAGNETIC HIGH.....
MAGNETIC POINTS.....
MAGNETIC LIGHT LINES.....

SNOWCAP GROUP
YUKON TERRITORY



AEROMAGNETIC MAP

Flown and Compiled by
LOCKWOOD SURVEY CORPORATION LIMITED
TORONTO, CANADA
1966



PART C

GEOPHYSICAL REPORT

Orientation Magnetometer Survey

Snowcap 1 to 48 mineral claims

105-K-1 and 105-K-2

Lat. N $62^{\circ} 06'$ Long. $132^{\circ} 31'$

Theodore William Muraro, P. Eng.

March 20, 1967.

GEOPHYSICAL REPORT

In anticipation of a complete ground magnetometer survey Base Line A, portions of Base Lines B and C and Cross Line 34 W were surveyed with a Sharpe MF-1 Fluxgate Magnetometer. L. Nagy and K. Bell of Cominco Ltd. conducted the survey.

The grid origin 00+ 00 W, 00+ 00 N on Base Line C was established as the Principal Base Station. Readings were made at 100-foot intervals. For the lines listed above readings were made on an overlapping 20-minute loop basis. Every 20 minutes the operators doubled back and reread the last three stations of the previous loop. This eventually allowed correction of all readings to the Principle Base Station within limits.

The values plotted on the magnetometer survey plan (in pocket) have been adjusted to the Principal Base Station as described above.

CONCLUSIONS:

Lack of significant magnetic relief in the preliminary phases of this survey militated against continuing the survey. A single high reading of 1,100 gammas at 1+ 00 S and 28+ 00 W corresponds with an electromagnetic response on flight line 10. This is interpreted to be a local pyrrhotite rich zone in the skarny sediments.


Direct Costs

15 man-days @\$30/day	-	\$ 450
Instrument rental @\$10/day	-	150
		<u>\$ 600</u>

Attachments:

Plan 1" = 500' - Preliminary Magnetometer Survey (in pocket).

Report by:


T. W. Muraro, P. Eng.

PART D

GEOCHEMICAL REPORT

Snowcap 1 to 48 mineral claims

105-K-1 and 105-K-2

Lat. N 62° 06' Long. 132° 31'

Theodore William Muraro, P. Eng.

March 20, 1967

GEOCHEMICAL REPORT

The north sloping ground of the geologically attractive portion of the Snowcap provides an attractive situation for geochemical soil sampling.

Terry Wrixon of Vancouver, B.C. and Robert Choumont of Teslin, Y.T. collected 150 soil samples of 100-foot intervals along Base Line C and Cross Line 34 W. Base Line C was sampled from the east end of the claim group to 60 + 00 W and Cross Line 34 W was sampled from 15 + 00 S to 15 + 00 N.

Samples were collected from the brown soil layer immediately beneath the white Yukon Ash layer. The samples were analysed for Zn only by Atlas Exploration at their Ross River laboratory using an atomic absorption unit.

CONCLUSIONS:

The sampling failed to indicate significant anomalous Zn in the soil. All but one sample returned less than 200 ppm Zn. One sample at 27 + 00 E on Base Line C returned 600 ppm Zn. This is flanked by values of 46 and 88 ppm Zn.

Direct Costs

Analyses:

Single metal determination	\$1.50	per sample
Sample preparation	.15	" "
Each additional metal	.50	" "

150 samples analysed for Zn - $\$1.65 \times 150 = \$ 247.50$

Labour:

5 man-days @ \$20/day	=	<u>100.00</u>
Direct costs (minus transportation and supplies)		<u>\$ 347.50</u>

Attachments:

Plan 1" - 1,320' - Geochemical Survey (in pocket)

Report by:


T.W. Muraro, P. Eng.

CANADA) STATUTORY DECLARATION RELATING TO EXPENDITURES
) ON GEOLOGICAL, GEOCHEMICAL, AND GEOPHYSICAL
YUKON TERRITORY) SURVEYS AND DIAMOND DRILLING ON CERTAIN MINERAL
) CLAIMS LOCATED IN THE WHITEHORSE MINING DIVISION

I, THEODORE WILLIAM MURARO, Professional Engineer of the
City of Trail, in the Province of British Columbia, DO SOLEMNLY
DECLARE:

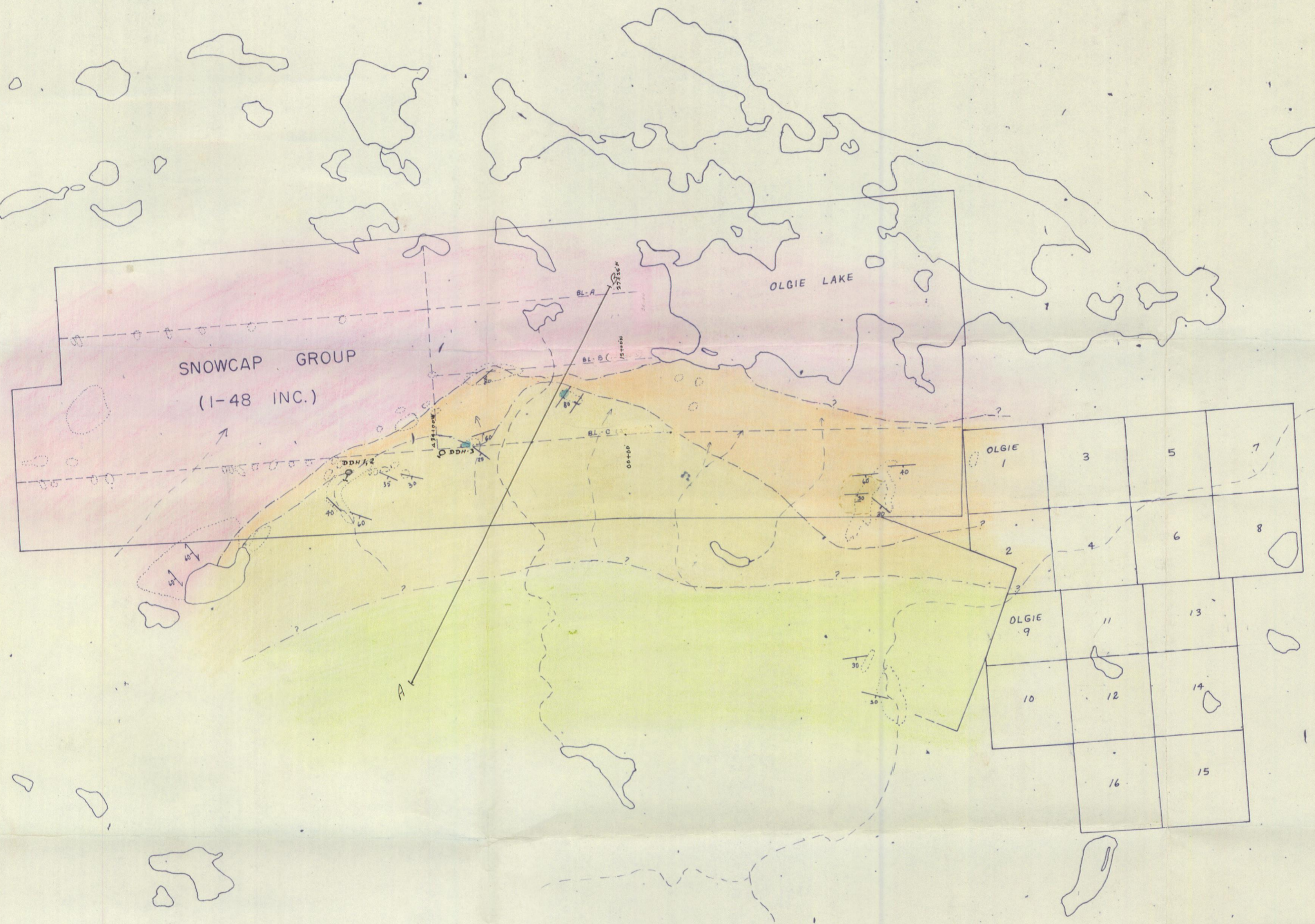
1. That I am the person who prepared a geological, geochemical and geophysical report as a result of surveys carried out on certain mineral claims by Cominco Ltd.
2. That copies of the said reports are being filed with the Mining Recorder at Whitehorse, Y.T.
3. That attached hereto and marked with a letter "A" upon which I have signed my name at the time of declaring hereof, is a statement of expenditures incurred in connection with the geological, geochemical and geophysical survey of the said claims.

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

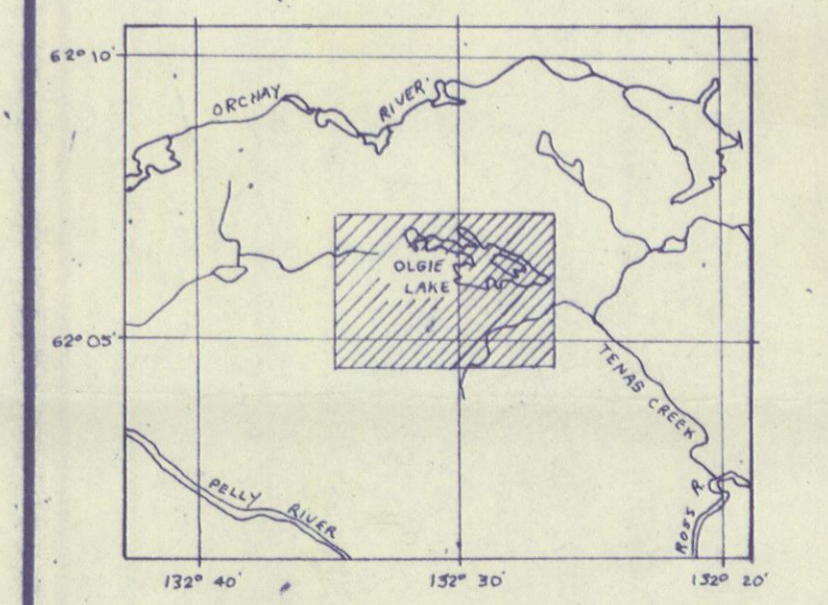
DECLARED before me at the)
City of Trail, in the)
Province of British Columbia)
this 23rd day of)
March, A.D. 1967.)
R.M. Coon)

Muraro

A MAGISTRATE IN AND FOR THE
PROVINCE OF BRITISH COLUMBIA



- IGNEOUS ROCKS** LEGEND
- Granodiorite - light grey, medium grained, up to 40% quartz present.
 - Contact zone - Granodiorite porphyry, Granitic porphyry, and Rhyolitic border phases.
- SEDIMENTARY ROCKS**
- Skarn, light greenish grey to creamy, generally schistose, some red garnet bands.
 - Phyllitic and graphitic schists.
- VOLCANIC ROCKS**
- Andesite, pale green very fine grained.
- Intermittent stream
 ○ Outcrop
 ○ Lake
 □ Claim post
 - - - Cut line
 — Claim line or claim boundary
 — Bedding
 — Jointing
 — Foliation

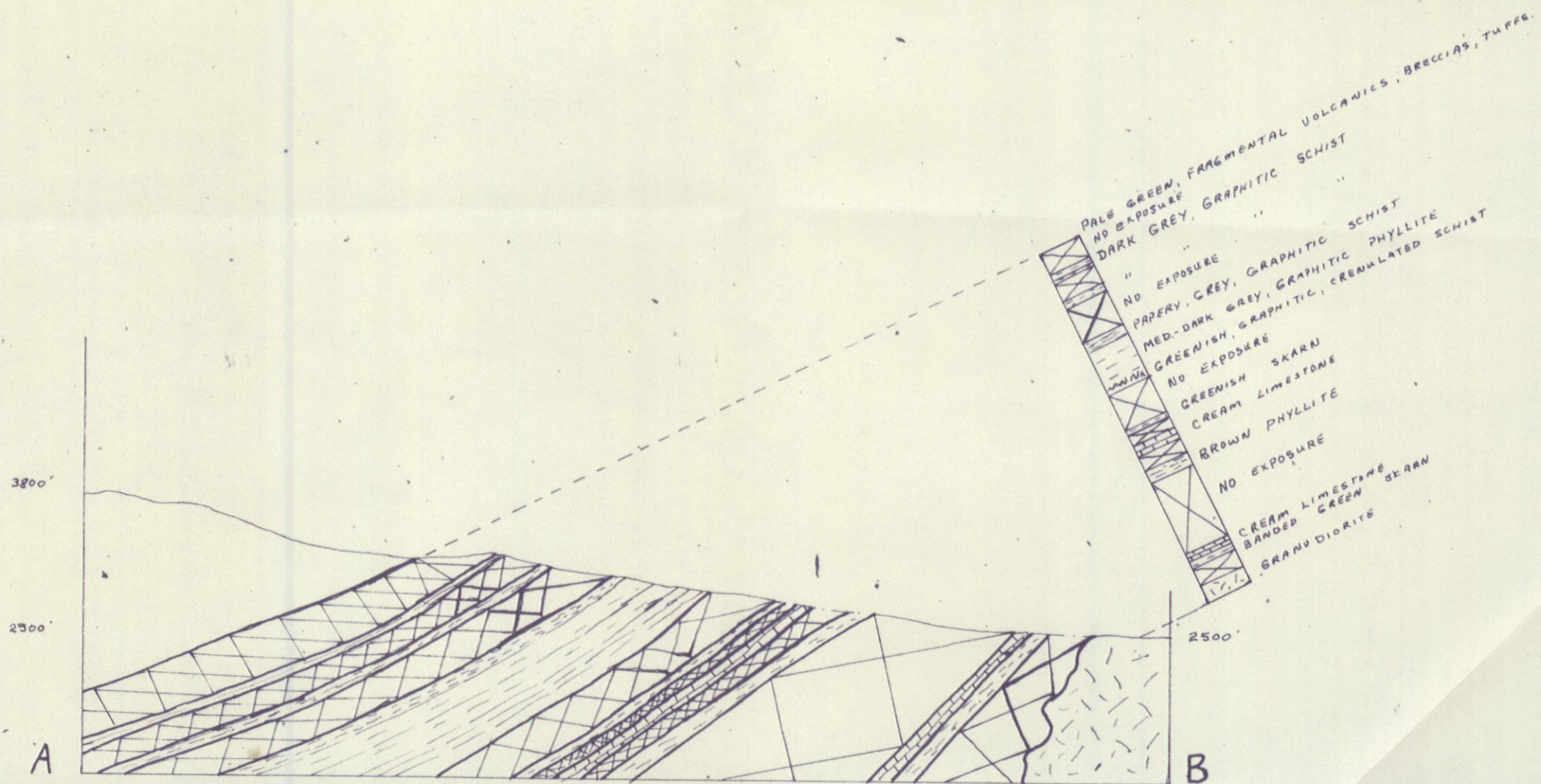


The Consolidated Mining and Smelting Company of Canada Limited

DRAWN BY: L J N		TRACED BY:	
REVISED BY:	DATE:	REVISED BY:	DATE:

SNOWCAP AND OLGIE CLAIM GROUPS
ROSS RIVER DISTRICT
YUKON TERRITORY

SCALE: 1" = 1320' DATE: OCT. 27, 1966 PLATE:



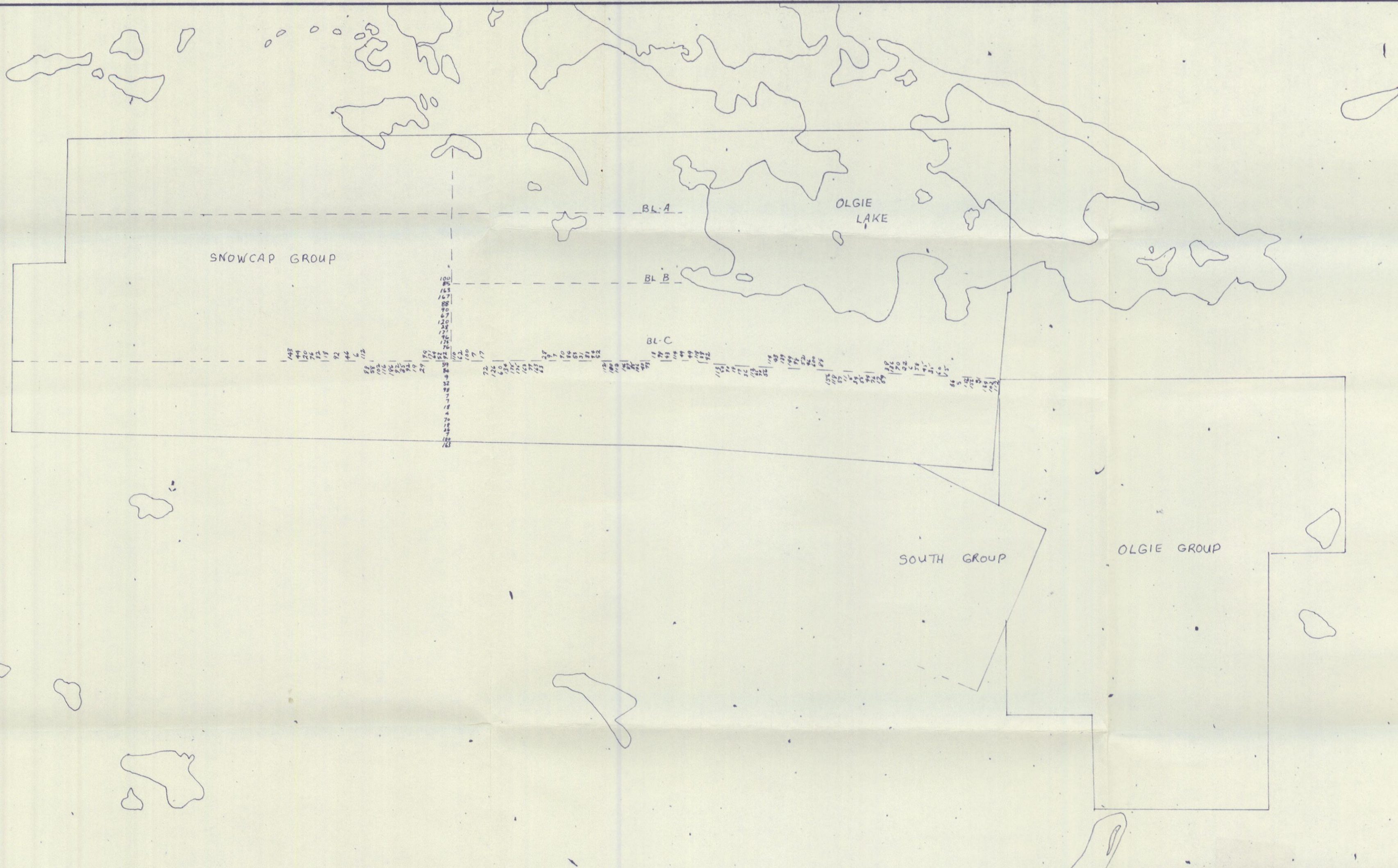
Drawn by:	<i>KWB</i>	Traced by:	<i>LJN</i>
Revised by:		Revised by:	
Date:		Date:	

COMPOSITE STRATIGRAPHIC AND
STRUCTURAL CROSS-SECTION A-B
OLGIE LAKE, Y.T.

Scale: 1" = 1320'

Date: SEPT-1966

Plate:

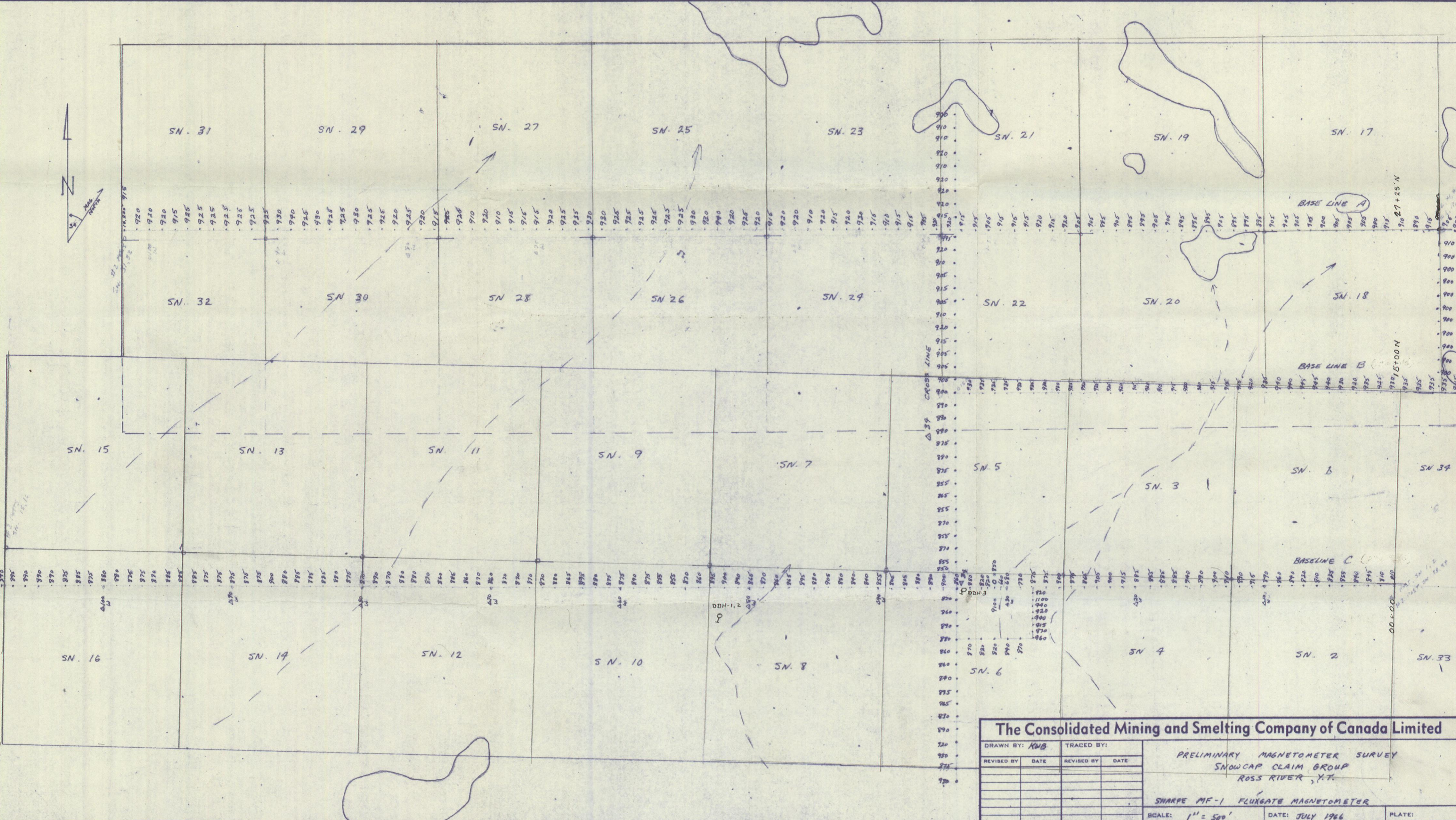
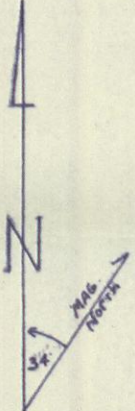


The Consolidated Mining and Smelting Company of Canada Limited

DRAWN BY:		TRACED BY:	
REVISED BY:	DATE	REVISED BY:	DATE

SNOWCAP GROUP
 GEOCHEMICAL SURVEY
 Zn IN P.P.M.
 SAMPLE INTERVAL 100'

SCALE: 1" = 1320' DATE: FEB 1967 PLATE:



The Consolidated Mining and Smelting Company of Canada Limited

DRAWN BY: <i>KMB</i>		TRACED BY:	
REVISED BY:	DATE:	REVISED BY:	DATE:

PRELIMINARY MAGNETOMETER SURVEY
SNOWCAP CLAIM GROUP
ROSS RIVER, Y.T.

SHARPE MF-1 FLUXGATE MAGNETOMETER

SCALE: 1" = 500' DATE: JULY 1966 PLATE: