

REPORT ON
GEOPHYSICAL SURVEY

CASINO SILVER MINES LTD. (N. P. L.)

ANOMALY "C" AREA

YUKON TERRITORY

CANADA

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


RESIDENT GEOLOGIST

Approved as to cost in the amount
of: \$

RESIDENT MINING ENGINEER

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

COMMISSIONER OF YUKON

C O N T E N T S

	<u>P a g e</u>
Introduction.....	1
Property, Location, Access, History, Geology and Mineral Occurrences.....	1
Topography and Surveyed Area.....	2
Survey Method and Instruments.....	2
Geophysical Survey Results and Interpretation.....	3
Conclusions and Recommendations.....	7

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Plan No. 5 Geophysical Survey Data on
 North-East Part of Property
 Anomaly "C" Area
 Casino Silver Mines Ltd. (N. P. L.)
 Casino Creek Area
 Yukon Territory, Canada

Scale: 1" = 200'

The President and Directors,
Casino Silver Mines Ltd. (N. P. L.),
1st Avenue & Strickland Street,
Whitehorse, Yukon Territory

Gentlemen:

This report describes the results of a program of geophysical survey conducted at the Anomaly "C" Area, where a stream silt sample geochemical survey encountered strong indications of copper with associated zinc. The results of the geophysical survey are depicted on Plan No. 5, accompanying this report. Also given on the plan are results of the geochemical survey on the area covered by the geophysical survey.

PROPERTY, LOCATION, ACCESS, HISTORY,
GEOLOGY AND MINERAL OCCURRENCES -

You are referred to the writer's report dated August 3, 1966, for the description of your property, its location, access, history, geology and mineral occurrences. The geophysical survey was carried out after an extensive program of stream silt sample geochemical survey, carried out under a joint program with Nordex Exploration Limited, covering Dip Creek Watershed, including heads of Britannia and Sunshine Creeks. A series of strong copper indications, with associated zinc, was encountered at the head waters of

Casino Creek. The geophysical survey was then carried out to check this upper section of the anomalous area located at the north-east part of your property.

TOPOGRAPHY AND SURVEYED AREA -

Topographic features, as noted by the geophysical operators, are depicted on the plan accompanying this report.

The creeks are numbered according to the geochemical plan of Nordex Exploration. They are all parts of the head waters of Casino Creek, where it turns northwesterly toward Canadian Creek. Picket lines cut and surveyed at the Canadian Creek Area (Plan No. 3) are given for reference. The survey covered Claims Nos. Cat 24, 26, 48, 49, 50, parts of Claims Nos. Cat 23, 47, 51, 52 and an adjoining strip to the east which was staked during the survey.

SURVEY METHOD AND INSTRUMENTS -

The geophysical surveys were carried out along picket lines laid out at 400' intervals as shown on the plans. They were turned off from a base line at N. 40°W. All stations were established at 100' intervals.

A Sharpe A-2 magnetometer was used for the magnetometer survey. The sensitivity of the instrument was 21.4 gammas per scale division.

The electromagnetic check survey was carried out by using a Sharpe SE-200 unit and, later, by a Ronka E. M. 16 instrument made by Geonics Ltd. of Toronto. The Ronka E. M. 16 is a sensitive receiver covering the frequency band of new VLF - transmitting stations, with means of measuring the induced vertical field components. During the survey, Station NPG of Seattle, Washington, frequency = 18.6 kc., was used and operated with instrument facing westerly vertical to the location of the transmitter station.

For the SE-200 unit, cross-overs are indications of electromagnetic conductors. For the Ronka E. M. 16, the slope approaching a cross-over is more indicative of the location of a conductor.

GEOPHYSICAL SURVEY RESULTS AND INTERPRETATION

The magnetometer survey outlined a weak magnetic zone at the northeast part of the area covered by this survey. The high

readings are in the order 200 gammas to 800 gammas above background, which is in the order of 400 gammas to 500 gammas. This magnetic zone is inferred as indicating granodiorite. To the immediate south and west, the readings are in the order of 400 gammas, indicating more acidic type of rocks, probably mostly granite. At the southwest part, the readings are in the order of 500 gammas to 600 gammas, indicating some variations in the probable granite. There is, however, no clear-cut magnetic depression to indicate the probable occurrence of quartz-vein type injections which are commonly associated with gold mineralization, but the occurrence of porphyritic type is not impossible.

The electromagnetic survey, using the Ronka E. M. 16 instrument, encountered four zones of conductors which are described as follows:

- (1) Electromagnetic zone located in Claim Cat-26. This is the strongest conductor encountered by the survey. The conductor runs northwesterly more or less parallel to the base line, traced over 1,400 feet across said claim and open to the southeast. An indication encountered at the west end of L 16 S, indicates that a similar zone may

be located in Claims Cat-23 and 47, and possibly joins the deep conductor encountered on the Canadian Creek Area, by a similar survey. This conducting zone could account for the high copper indications in silt samples from Creek 20. Using a theory advanced by the maker of this instrument, the depth of the conductor zone is from 150 feet to 200 feet. However, the SE-200 survey failed to obtain any indication from this conductor. The SE-200 unit normally can pick up sizeable continuous conductive bodies at said depth. It follows that the indicated body is probably discontinuous at shallow depths, perhaps cut by minor northerly faulting or fracturing, such as suggested by the magnetic trends at the central part of Cat-26. Nevertheless, as far as the Ronka E. M. 16 is concerned, the indication is definite and test drilling is recommended. Proposed diamond drill hole No. 1 is to test the best indication along this zone. The hole is to be located at L-32 S, 1,000 feet west, drill west at 55° for a length of 350 feet to test the conductor at a depth of over 200 feet.

- (2) Electromagnetic zone located between Claims Cat-24 and 48. This is a weak zone. It is the possible north-westerly extension of the indications encountered at 250 feet west Lines 28 S and 32 S. The location is below anomalous silt samples 2 and 5B of Creek 20, and, therefore, could not be accounted for the high values of copper obtained from said samples. However, an interesting characteristic of this zone is the fact that it coincides with a zone of magnetic low and should be checked by geological prospecting, to be assisted by trenching and/or packsack drilling for the possible occurrence of gold mineralization.
- (3) Electromagnetic zone located near the base line and to the immediate west of a magnetic area in Claim Cat-50. This zone is weak and apparently from a deep source. Although it is located at only about 500 feet from a high anomalous silt sample (6B of Creek 24), it is doubtful if this zone is the source of the high copper value of said sample. Soil sampling, to be assisted by a drill, is considered advisable for testing the possibility of this zone.

- (4) Electromagnetic zone located to the east of the base line between Lines 12 S and 20 S. This is a weak zone, probably indicating a structural feature rather than mineralization. The zone is open to the southeast at apparently greater depth.

CONCLUSIONS AND RECOMMENDATIONS -

The geophysical survey has encountered several weak to moderate conducting zones, the best of which, and its probable northwest extension, located at the southwest part of the surveyed area, could be the source of most of the copper values obtained from silt samples at Creek 20. It is recommended to test drill this zone at a depth below 200 feet. The location of this hole is given on the plan accompanying this report and described in this report. Geological prospecting, to be assisted by trenching and/or packsack drilling, is recommended to test the second zone, which is associated with a weak magnetic depression, and to further check a third zone by soil sampling, using a portable drill.

The indications could not be satisfactorily used to account for some of the high anomalous silt samples obtained on

the upper reaches of Creek 24. It may be necessary to extend the geophysical survey to the northwest, west and south, in the future to locate and further check the source or sources of copper and zinc found in the silt samples.

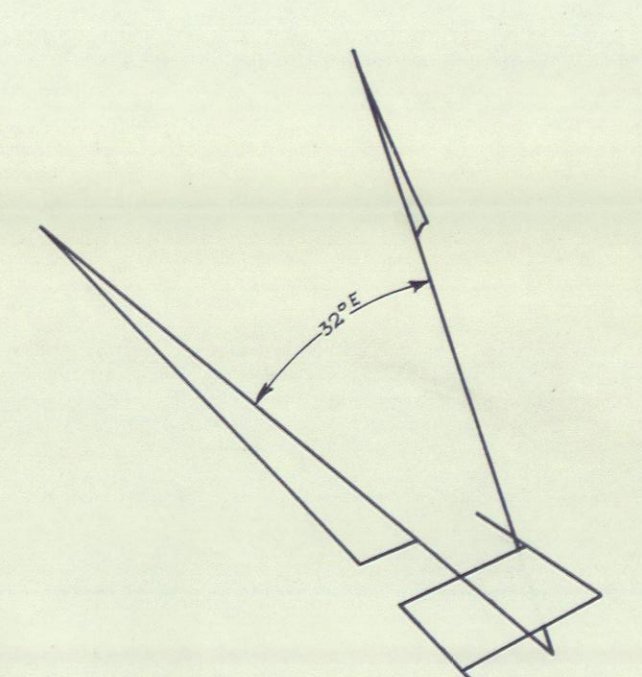
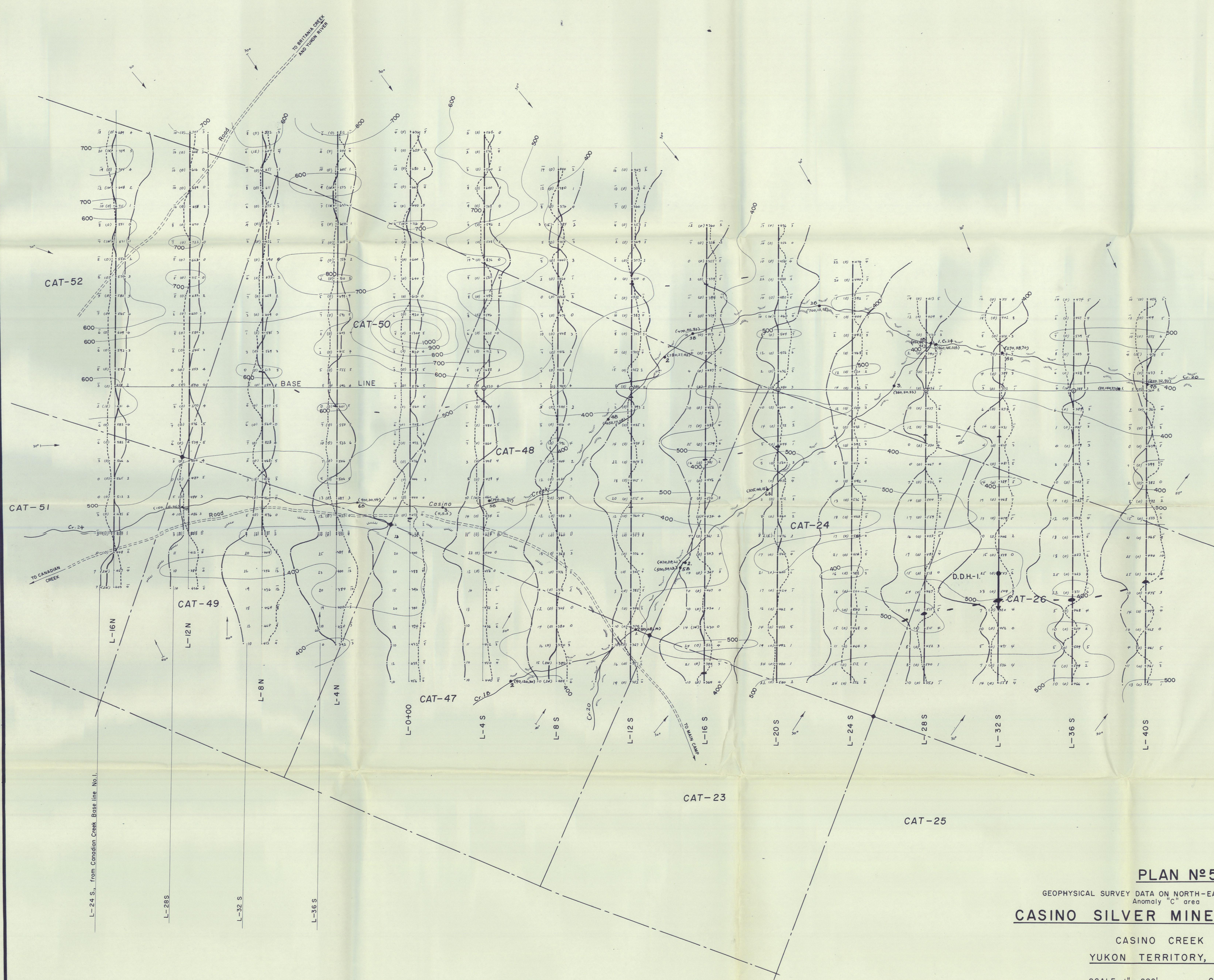
Respectfully submitted,

CANA EXPLORATION CONSULTANTS LIMITED

S. S. Szetu
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SSS:rk
Encl.

Toronto, Ontario
October 25, 1966



LEGEND

- Claim post and claim boundary.
- Higher ground.
- Soil sampling with copper, lead, zinc in parts per million.
- Picket line cut and chained.
- Magnetic readings obtained and plotted at the east side of picket line.
- Magnetic control station.
- Magnetic contour.
- Below 400 gammas.
 - 400 - 500 "
 - 500 - 600 "
 - 600 - 700 "
 - 700 - 800 "
 - 800 - 900 "
 - 900 - 1000 "
 - Above 1000 "
- Electromagnetic readings obtained by using a Sharpe SE-200 unit. (Parallel line method).
Scale of profile: 1/10" = 1° dip angle.
- Electromagnetic readings obtained by using a Ronka E.M.-16 instrument facing west. Transmitter station: N.P.G.
In-phase readings plotted at the west, out-of-phase readings plotted at the east side of picket line.
Scale of profiles: 1/10" = 1% of phase change.
- Electromagnetic conductor.
- Proposed diamond drill hole.

PLAN N°5

GEOPHYSICAL SURVEY DATA ON NORTH-EAST PART OF PROPERTY
Anomaly "C" area

CASINO SILVER MINES LTD. (N.P.L.)

CASINO CREEK AREA
YUKON TERRITORY, CANADA

SCALE: 1" = 200' OCTOBER 1966

S.S. Smith