

672854

SUMMARY REPORT ON THE

SONGBIRD 1 - 4 CLAIMS

LILY. T. BIRD

Nanaimo M.D., Vancouver Island, B.C.

FOR

HI-TEC RESOURCE MANAGEMENT LIMITED

**#1590 - 609 Granville Street
Vancouver, B.C.**

Location: NTS 92F/1/NE
49° 14' N / 124° 14' W
20 km WNW of Nanaimo, B.C.

Subject: Exploration Activities between 1963 and 1984.

Prepared By: Hugo Laanela, F.G.A.C.,
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Nanaimo, B.C., V9T 2S3

March 21, 1986

SYNOPSIS

The Songbird property consists of 4 contiguous claims, total 48 units (an area of 12 km²), and is located at the headwaters of Nanoose Creek, some 20 km WNW of Nanaimo, Vancouver Island, B.C. The property is owned by Hi-Tec Resource Management Limited of Vancouver, B.C.

The claims were staked in 1983. They straddle the NNW trending contact between the Paleozoic Myra Formation of Sicker Group and the Triassic Karmutsen Formation of Vancouver Group rocks along the SW margin of the Nanoose Uplift.

Significant Au-Ag (-Cu-Pb-Zn) mineralization has been found on the old "Lily" showing, associated with a strong NNW trending structural zone in Myra Formation, in close proximity to the above contact with Karmutsen volcanics. Records of exploration go back to early 1960's, with the most recent work being done by Eureka Resources Inc. during 1983 - 1984 on the southern half of the claim group, particular in the Lily showing area on the southernmost Songbird 2 claim.

The mineralization here is associated with quartz veins and intense silicification in a major NNW trending brecciated fault structure, dipping, on the average, 60°-65° West. The country rock consists of chert, argillite, felsic to intermediate volcanics and some felsic intrusives. The mineralized structure contains abundant sulphides, (mainly pyrite) and is also very carbonaceous and graphitic, hence it was positively traced by Eureka's VLF-EM survey over a NNW strike length of 2000 metres across the surveyed southern part of the property. The anomaly is "open" both south and north and may well extend across the entire 4.5 km length of the property. A second sub-parallel conductive structure occurs a few hundred metres west of the main structure; there are others elsewhere on the surveyed part of the property.

Soil sampling by Eureka indicates the presence of Au and Ag occurring sporadically in several anomalous zones over the entire surveyed southern part, a number of which are associated with the EM conductive structures. All the above EM and geochemical anomalous areas require more detailed surveys for better outlining and definition of "targets" for testing.

Some trenching and preliminary drilling was done by Eureka and other companies in the Lily showing area on the southern Songbird 2 claim. Here several trenches and small outcrops have exposed a strong, steeply west dipping brecciated fault zone, 10 - 12 m wide, over a 100 metre strike length. One 8 m wide sampled section across this zone assayed 0.130 oz Au and 0.93 oz Ag per ton. Eight preliminary diamond drill holes, drilled by Eureka in 1984 in the same area, intersected this structure, on the average at 30m depth, over a strike length of about 200 metres, with true widths of the structure ranging from 6m to 16m or more. The grades are lower and the mineralized widths narrower in drill holes than on surface; this may be partly explained by the loss of up to 50% of core in some washed-out, broken sections since the sludge samples taken from such sections generally reflect a higher grade content than the core. Weathering of the sulphides and carbonate minerals, evidenced by the presence of limonite reported in the core, is probably a factor in the core loss and lowering of assay values.

To summarize, grades of economic significance have been found in a surface showing within a major structural system which extends at least half-way across the property. There is probably another parallel similar structure, and possibly

several, on the property as evidenced by the preliminary geochemical-geophysical surveys. They all occur in the geologically favorable Myra Formation.

It is recommended that a grassroots exploration program be completed on the entire claim group area, to locate the major structures and the main areas of interest, which should be then subjected to more detailed "follow-up" in order to locate "targets" for trenching and drilling. A budget of \$130,000 is proposed to carry out this program.

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HI-TEC RESOURCE MANAGEMENT LIMITED	
LOCATION MAP	
SONGBIRD PROPERTY	
NANAIMO MINING DIVISION, B.C.	
Scale 1:7 500 000	N.T.S.
By H.L.	Date: March 1986.
Drawn J.S.	Figure: 1

1. INTRODUCTION

This report was prepared at the request of Mr. Malcolm Bell, president of Hi-Tec Resource Management Limited, to evaluate and summarize the results of all work done so far, from early 1960's to present, on the "Songbird" group of claims area south of Nanoose Bay on Vancouver Island, B.C.

This claim group area has been staked several times since 1963. The present claim group consisting of Songbird 1 to 4 claims, staked in 1983, is owned by Hi-Tec Resource Management Limited who are planning to do further exploration on the property. Most of the past exploration activity has been centered on the old "Lily" Au-Ag-Cu-Pb-Zn showing on the southernmost Songbird 2 claim and on the nearby "T-Bird" Au Showing. The more recent work has revealed the presence of at least two, and probably several, geochemically and geophysically anomalous zones extending north to south across the claim block that appears to have good potential for mineralization. Most of the past exploration has been done on the smaller Songbird 2 claim, in the area of known surface mineralization, and some reconnaissance work has been done on the Songbird 1 claim, while there appears to be no record of any work done on the other two claims. Larger part of the claims area is underlain by the geologically favourable Myra Formation of Sicker Group rocks.

The report describes the geology of the area, the mineralization of the known showings, and the results of work done by several companies, including geochemical sampling, VLF-EM surveys, trenching and drilling. A proposed exploration program, with a tentative budget, is included.

2. PROPERTY

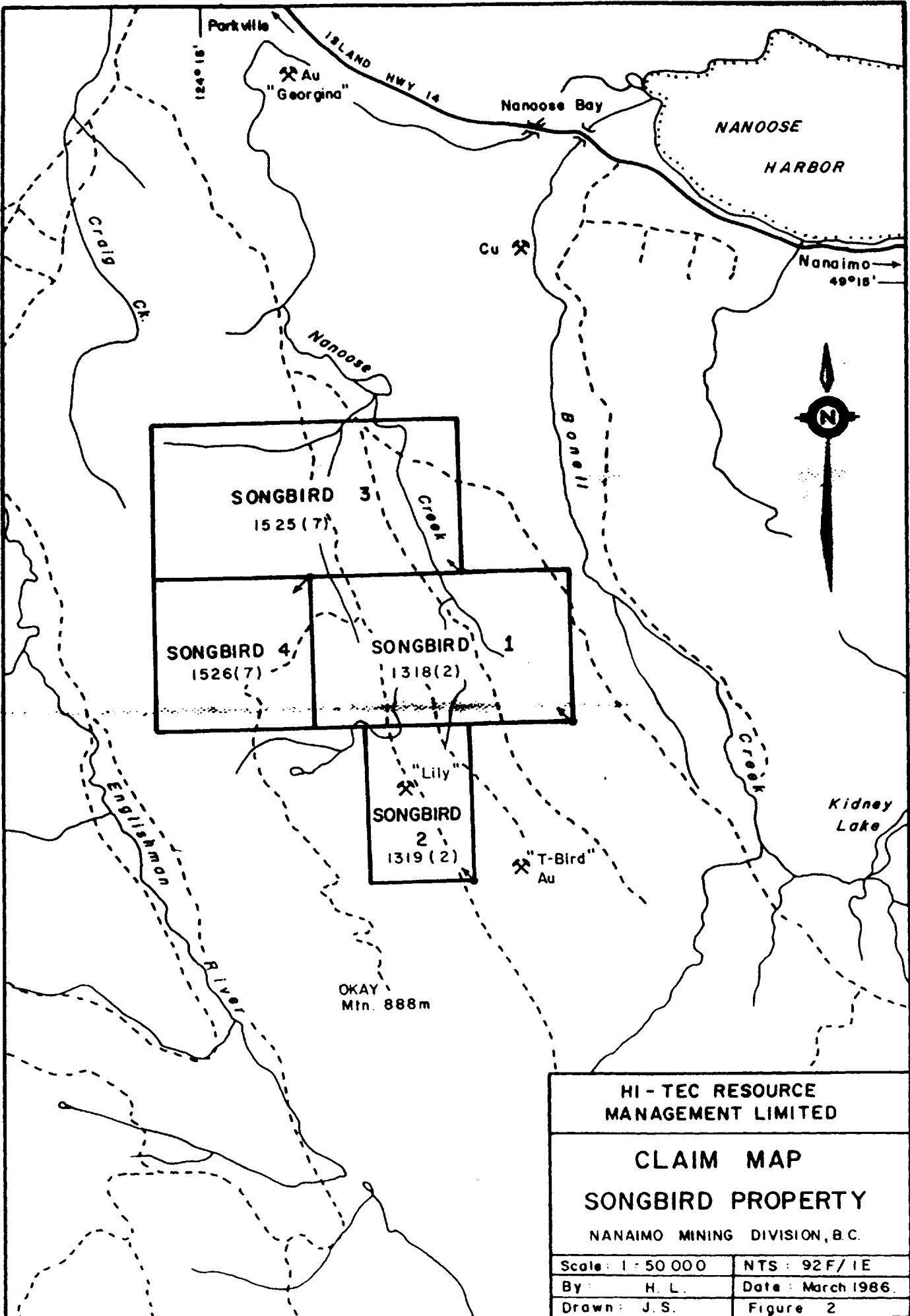
The Songbird property is comprised of 4 contiguous mineral claims, totalling 48 units, all in Nanaimo Mining Division, as detailed below:

<u>Claim Name</u>	<u>Units</u>	<u>Record #</u>	<u>Record Date</u>	<u>Sketched by</u>
Songbird 1	15	1323 (2)	Feb 16/83	D. Brownlee & M. Bell
Songbird 2	16	1324 (2)	Feb 16/83	D. Brownlee & M. Bell
Songbird 3	18	1325 (7)	July 5/83	Eureka Resources Inc.
Songbird 4	9	1326 (7)	July 5/83	Eureka Resources Inc.

These claims cover an area of 12 km² or 2965.5 acres. All the claims have now reverted back to Messrs. Brownlee and Bell.

3. LOCATION, TERRAIN AND ACCESS

The Songbird claims are on eastern side of Vancouver Island, British Columbia, some 20 km WNW of City of Nanaimo, and about 6 km south of the Village of Nanoose Bay. The coordinates at the center of the claim group are 49° 14' N and 124° 14' W, on NTS map sheet 92F/1 (NE).



124° 15'

Portville

Au
"Georgina"

ISLAND HWY 14

Nanoose Bay

NANOOSE
HARBOR

Craigh
Ck.

Cu

Nanaimo
49° 15'

Nanoose

Bonnell



SONGBIRD 3
1525 (7)

SONGBIRD 4
1526 (7)

SONGBIRD 1
1318 (2)

"Lily"
SONGBIRD 2
1319 (2)

"T-Bird"
Au

Kidney
Lake

Englishman
River

OKAY
Mtn. 888m

HI-TEC RESOURCE MANAGEMENT LIMITED	
CLAIM MAP	
SONGBIRD PROPERTY	
NANAIMO MINING DIVISION, B.C.	
Scale: 1 : 50 000	NTS : 92 F / 1 E
By: H. L.	Date: March 1986.
Drawn: J. S.	Figure 2

3. LOCATION, TERRAIN AND ACCESS (continued)

The property can be reached by following the Island Highway about 4.4 km toward NW from Nanoose Bay village (at the head of Nanoose Harbour), thence following the Englishman Falls Park secondary road to SW for about 1.9 km, thence turning SE on a logging road and following it, along west side of Nanoose Creek, for about 4 km to a branch in the road. Continuing south along the west branch for about 2.5 km, to the next branch, the center of property (on Songbird 1 Claim) is reached. The west branch goes to the top of Okay Mountain, while following the east branch for another 1.5 km to south the old Lily showing and trenches are reached on Songbird 2 claim. The total distance from the highway turn-off to Lily trenches is about 10 km. A number of other old branch roads give access to east part of the property. The 888 metres high Okay Mountain, on a steep sided ridge, is about 2 km south of the Lily trenches. (See Figure 2.)

The topographic relief ranges from about 170 metres above mean sea level on Nanooso Creek at the north boundary of the property to about 700 metre elevation on the steep Okay Mountain ridge on the SW corner of Songbird 2 claim; however, most of the relief on the claims is gentle to moderate, between 200 and 500 metre elevations, with the ground falling from Okay Mountain ridge toward the headwaters of Nanoose Creek which dissects the claim group in south-to-north direction.

Most of the property has been logged off more than 20 years ago. The vegetation consists of second-growth Douglas fir, hemlock and cedar, with thick underbrush; many old logging roads are now overgrown.

4. GEOLOGY

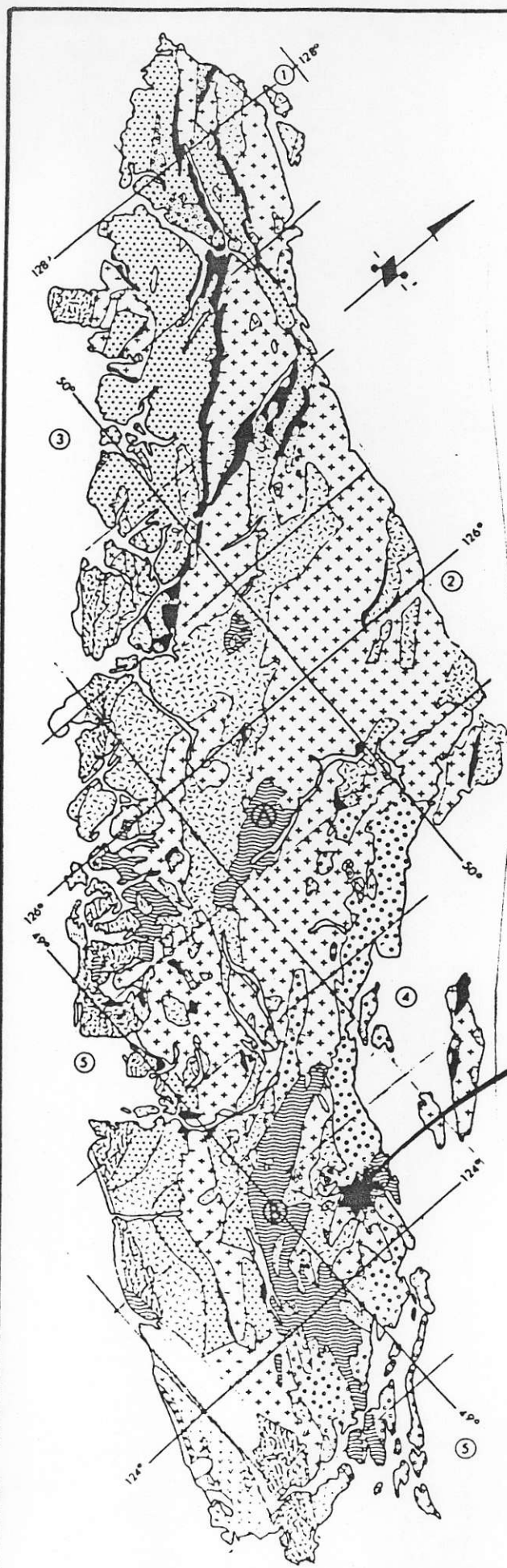
4.1 Regional Geology

The main geological feature on the property is the NNW trending, west dipping, uncomformable contact between the older Sicker Group and the younger Vancouver Group rocks.














The oldest rocks on the Island are those of the Paleozoic Sicker Group. Muller (GSC, 1977, 1980) has divided this group, oldest to youngest, as the Nitinat Formation, an informal Sediment-Sill unit, Myra Formation, and Buttle Lake Formation. These Sicker Group rocks are generally overlain by the Triassic Vancouver Group, here represented mainly by the Karmutsen Formation volcanics. Both groups are intruded by the Jurassic Island Intrusions, mainly dioritic stocks, and more locally by dykes of Tertiary age. Along the east side of the Island the Late Cretaceous sediments of Nanaimo Group overlie extensively the older rocks.

The most dominant regional structures on Island are series of long NNW trending systems of steep faults, affecting Sicker and Vancouver Group rocks and giving a "patchwork" appearance to the geological maps. There have been several periods of faulting, intrusion and volcanic activity.

The oldest, Sicker Group rocks, have been generally buried under a thick Mesozoic cover, except where they have now been exposed in 3 major (and some smaller) "uplifts" areas or arches. These are: The Buttle Lake Uplift, toward north, the extensive Cowichan-Horne Lake Uplift, toward south, and the smaller Nanoose Uplift in Nanoose Harbour area north of Nanaimo. The Songbird property is situated along the western margin of the Nanoose Uplift (see Figure 3).



LEGEND

	CARMANAH GROUP	MIDDLE TERTIARY
	CATFACE INTRUSIONS	EARLY TO MIDDLE TERTIARY
	METCHOSIN VOLCANICS	EARLY TERTIARY
	NANAIMO GROUP	LATE CRETACEOUS
	QUEEN CHARLOTTE GROUP KYUQUOT GROUP	LATE JURASSIC TO
	LEECH RIVER FORMATION PACIFIC RIM COMPLEX	EARLY CRETACEOUS
	ISLAND INTRUSIONS	EARLY AND (?) MIDDLE JURASSIC
	BONANZA GROUP	EARLY JURASSIC
	VANCOUVER GROUP	LATE AND (?) MIDDLE TRIASSIC
	PARSON BAY FORMATION QUATSINO FORMATION	
	KARMUTSEN FORMATION	
	SICKER GROUP	PALEOZOIC
	METAMORPHIC COMPLEXES	JURASSIC AND OLDER
A — BUTTLE LAKE UPLIFT		
B — COWICHAN—HORNE LAKE UPLIFT		
C — NANOOSE UPLIFT		

SONGBIRD CLAIMS
NANAIMO M.D., B.C.

(From Muller, G.S.C., 1980)

HI-TEC RESOURCE
MANAGEMENT LIMITED

REGIONAL GEOLOGY
SONGBIRD PROPERTY

Scale: 1:2000000	or N.T.S.
By: H.L.	Date: March 1986.
Drawn: J.S.	

Geological sketch map of Vancouver Island.

4.1 Regional Geology (continued)

Each of these uplifted belts of Sicker Group, particularly where they contain the rocks of Myra Formation, are considered to be geologically most favorable and economically most promising areas for base and precious metal exploration on the Island. The Buttle Lake Uplift contains the Westmin's volcanogenic massive sulphide deposits, which also carry gold and silver. The Cowichan-Horne Lake belt contains the past producers of Mount Sicker-Mount Richards area (including the new Aberford's Lara prospect and others), as well as the old Mount McQuillan - China Creek camp containing numerous vein type Au-Ag deposits and prospects (eg. Mineral Creek, Black Panther, Havilah, Golden Eagle etc.) and also massive sulphide deposits (eg. old Thistle Mine). The smaller Nanoose Uplift area also contains a number of old showings, such as Lily (on the property), T-Bird (to east of property), Georgina (to north near highway), Lower Bonell Creek copper showing, and several other, smaller mineralized occurrences both north and south of Nanoose Harbour (Laanela, 1964 - 1966).

4.2 Local Geology

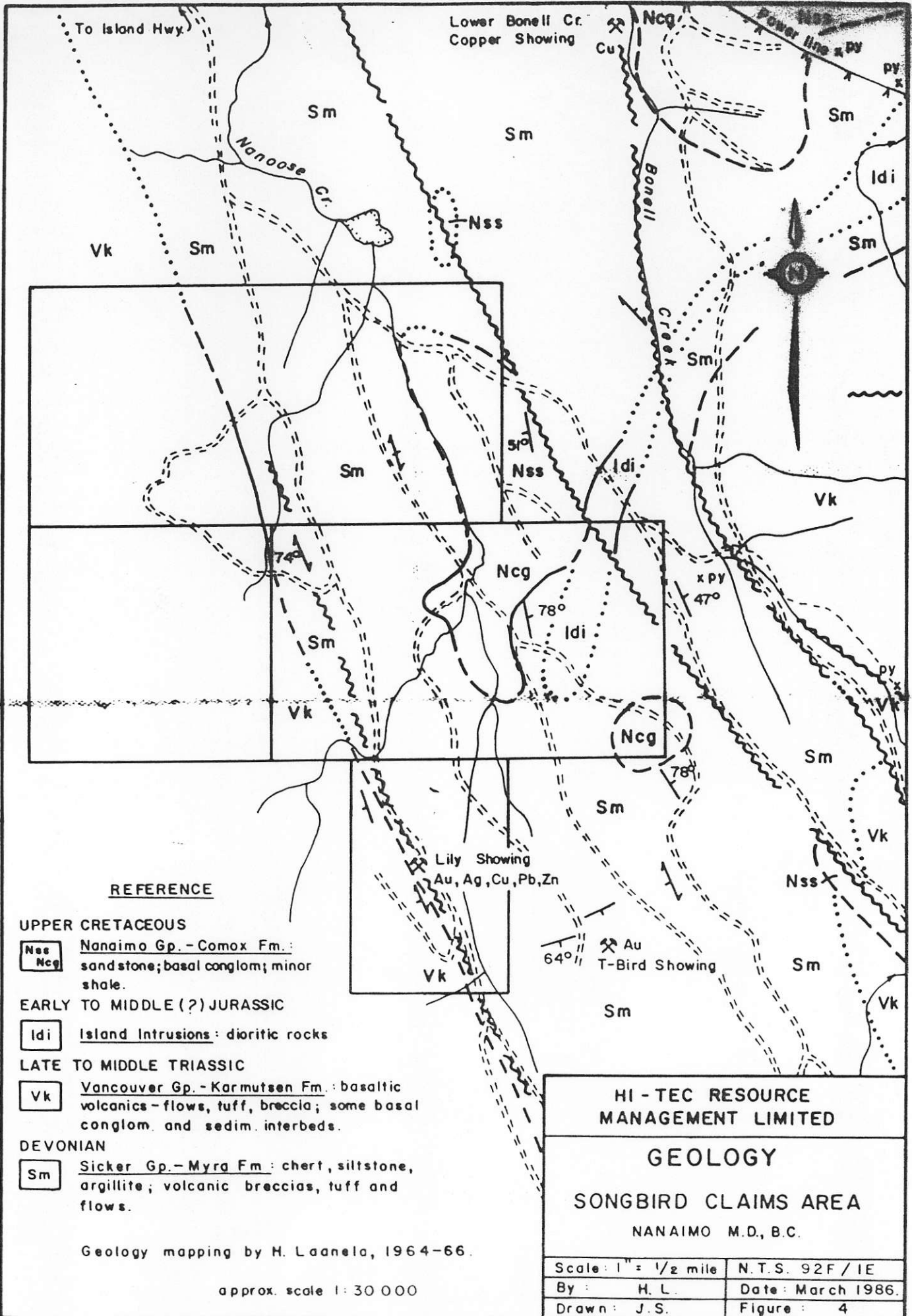
The following major geological units are present on the Songbird property and in the immediate area:

Sicker Group volcanic and sedimentary rocks, the oldest, underlie the eastern two-thirds of the property. In the Nanoose Uplift, the Sicker Group rocks are represented almost entirely by the Myra Formation, except for some Buttle Lake Formation (limestone) occurrences on the peninsula north of Nanoose Harbour. On the Songbird property, the Myra Formation appears to be represented mainly by sedimentary units including chert, argillite (some carbonaceous or graphitic), siltstone, and minor andesitic to felsic volcanics (probably tuffs).

In the 1984 drill-logs (by Kerr-Dawson and Associates Ltd. for Eureka Resources Inc.) the volcanic rock occurring at the top of nearly each of the 8 drill holes is logged as andesitic "Karmutsen volcanics", ie., as Vancouver Group. This writer is of the opinion that these volcanics are part of the Sicker Group, ie. Myra Formation which, besides the above mentioned sediments, also contains basic to dacitic bedded volcanics, tuffs and breccia (Laanela, 1964 - 1966; Muller, 1980).

The western one-third part of the claim group is underlain by the basaltic Karmutsen Formation volcanics (Vancouver Group) forming the high ridge area that is dominated by Okay Mountain. The contact between the two groups, striking NNW, is poorly mapped due to extensive overburden and vegetation cover, but appears to run parallel to, and west of the main access road (see Figure 4), consisting of probably west dipping angular unconformity.

On the eastern part of Songbird 1 claim the Myra Formation is intruded by a NE trending dyke-like body of diorite of Jurassic age (Island Intrusions). Remnants or outliers of Cretaceous Nanaimo Group sediments, consisting of basal conglomerate and sandstone of Comox Formation, overlie unconformably the Myra Formation on the eastern parts of Songbird 1 and 3 claims (1964 - 1966 mapping by the writer).



REFERENCE

UPPER CRETACEOUS

Nss Nanaimo Gp. - Comox Fm.
Ncg sandstone; basal conglom.; minor shale.

EARLY TO MIDDLE (?) JURASSIC

Idi Island Intrusions: dioritic rocks

LATE TO MIDDLE TRIASSIC

Vk Vancouver Gp. - Karmutsen Fm.: basaltic volcanics - flows, tuff, breccia; some basal conglom. and sedim. interbeds.

DEVONIAN

Sm Sicker Gp. - Myra Fm.: chert, siltstone, argillite; volcanic breccias, tuff and flows.

Geology mapping by H. Laanela, 1964-66.

approx. scale 1:30 000

**HI - TEC RESOURCE
 MANAGEMENT LIMITED**

GEOLOGY
SONGBIRD CLAIMS AREA
 NANAIMO M.D., B.C.

Scale: 1" = 1/2 mile	N.T.S. 92F / IE
By: H. L.	Date: March 1986.
Drawn: J.S.	Figure: 4

4.2 Local Geology (continued)

The major structural features in the area are series of NNW trending faults, some regional in extent. The Lily showing on Songbird 2 claim is on an up to 10m wide NNW trending fault zone, dipping 50°-85° west, running along the eastern slope of the Okay Mountain ridge in a zone of highly sheared and brecciated Myra Formation. Felsic intrusives are reported from several drill holes (eg. No 2.) intersecting this structure. Their age and relationship to Myra Formation is not known.

4.3 Mineralization

Surface Au-Ag mineralization at the old Lily showing has been revealed by several trenches along a strike length of over 100 metres, with reported assays ranging up to 0.13 oz Au/ton and 0.93 oz Ag/ton averaged over 8 metre width (see Figure 7). The mineralization is associated with quartz veins and intense silicification in a strongly sheared or faulted NNW trending structure in Myra Formation, dipping 60°-65° W. The main rock types, as reported in 1984 drill logs, are cherts and argillites, with some intrastratified felsic to intermediate volcanics, tuffs and possibly intrusives; fault breccia is common. The sediments are often carbonaceous and graphitic and hence the structure has been positively traced over a NNW strike length of some 2,000 metres by the VLF-EM method. The main structure was also encountered in all 8 of the 1984 drill holes. A second similar conductive structure exists some 250-300 metres west of the main structure (Kerr, 1983, 1984). Limonite has been reported in drill core and apparently some quartz veins also contain carbonate minerals, eg. siderite. Iron sulphides are also abundant in the core, with minor chalcopyrite and galena.

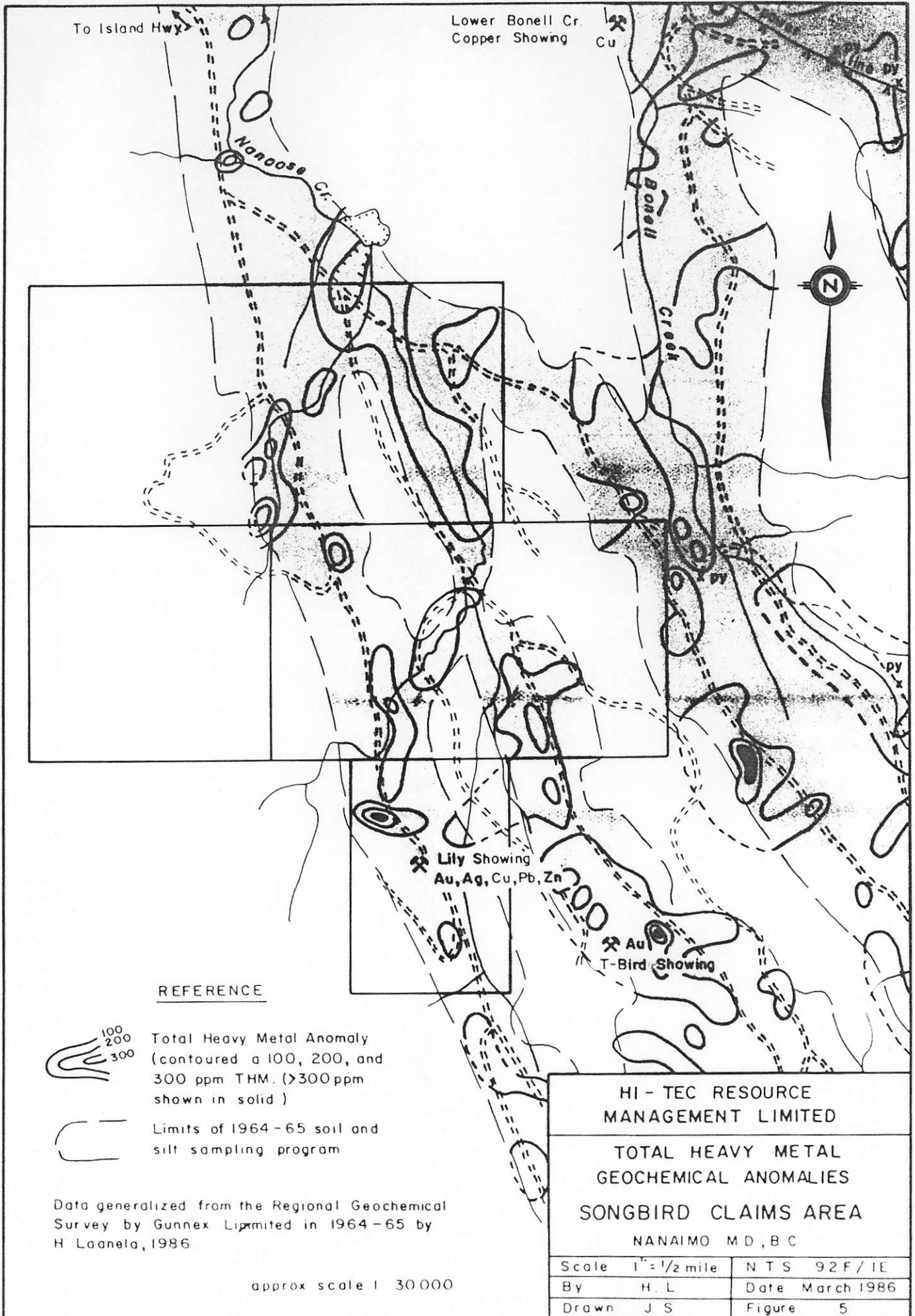
Soil sampling has confirmed the presence of gold and silver values occurring sporadically over the entire soil sampled strike length (2,800 metres) of the structures, locally associated with or along the strike of the EM conductive anomalies. Hence at least several targets exist on the property that need to be tested for presence of mineralization by trenching and drilling (Belik, 1983; Kerr, 1983).

Further references to mineralization will be made in the following historical review.

5. HISTORY AND REVIEW OF PREVIOUS WORK

5.1 Work in the 1960's

During 1963 - 1966 Gunnex Limited, a subsidiary of Gunnar Mining Ltd., in joint venture with Canadian Pacific Oil and Gas Ltd. (a subsidiary of CPR) carried out a regional exploration program over a 815 square mile segment of the E and N Railway Land Grant area between latitudes 49°00'N to 49°20'N on Vancouver Island. CPR/CPOG at that time held the base metal rights (but not precious metals) on the entire Land Grant, which included the area of the present Songbird Claims. Gunnex Limited, the operator, was primarily interested in the base metal potential of this land grant at the time, paying less attention to gold - silver prospects. Prior to Gunnex's field work, a helicopter-borne aeromagnetic survey was carried out by Hunting Survey Corporation Limited for the Department of Natural Resources of CPR during early summer of 1962 over the Land Grant area.



To Island Hwy

Lower Bonell Cr.
Copper Showing Cu

Nanoose Cr.

Bonell
Creek



Lily Showing
Au, Ag, Cu, Pb, Zn

Au
T-Bird Showing

REFERENCE



Total Heavy Metal Anomaly
(contoured a 100, 200, and
300 ppm THM. (>300 ppm
shown in solid)



Limits of 1964-65 soil and
silt sampling program

Data generalized from the Regional Geochemical
Survey by Gunnex Limited in 1964-65 by
H Laaneta, 1986

approx scale 1 30000

HI-TEC RESOURCE
MANAGEMENT LIMITED

TOTAL HEAVY METAL
GEOCHEMICAL ANOMALIES

SONGBIRD CLAIMS AREA

NANAIMO MD, B C

Scale	1" = 1/2 mile	NTS	92F/1E
By	H. L.	Date	March 1986
Drawn	J. S.	Figure	5

5.1 Work in the 1960's (continued)

Subsequently, Gunnex Limited carried out the extensive field program which included regional mapping, prospecting, stream and soil sampling for base metals, follow-up of airborne anomalies, and also detail exploration of a number of mineralized occurrences and prospects. The author of this report, who was employed by Gunnex during 1964 - 1966 as a field geologist on Vancouver Island, carried out the regional mapping program, as well as the examination and reporting on various prospects on the Land Grant, including those in Nanoose area (see Figures 4 & 5).

The present Songbird Claims area contains the old "Lily" Au - Ag - Cu - Pb - Zn showing, located near the centre of Songbird 2 claim. Another old prospect, the "T-Bird" showing, occurs about 1,000m - 1,300m SE of the Lily showing, outside of Songbird Claims. Both showings were examined and described in 1963 by Mr. A.P. Hutchinson who also worked for Gunnex at that time. Both showings were visited by the author in spring, 1985, during the regional mapping/prospecting program. Gunnex Limited also carried out regional geochemical surveys in the area, resulting in a number of low to medium range Total Heavy Metal (THM) and copper anomalies being found in the area of the present Songbird Claims (see Figure 5).

According to Gunnex's records (Laanela, January, 1965), four claims were staked over the Lily Showing by Keeble and Wilson in June, 1963, and another four claims were staked over the T-Bird to the east by J.W. Davis in November, 1962. An article in "Western Miner", November, 1964, refers to "Mucho Oro" group of claims on Nanoose Creek in the Lily Showing area or just north of it, where a Mr. A. Collier and associates of Nanaimo, B.C. had "by stripping with a bulldozer.....exposed a wide quartz vein, 12 feet of which assayed 0.26 oz., 0.28 oz., 0.38 oz., and 0.96 oz. gold per ton, with 6 oz. of silver" (Laanela, January, 1965). During the author's 1965 visit to the Lily Showing, it was observed that this bulldozing had largely obliterated and covered up the original old mineralized exposures, with very little left to see. Some old pits were also observed on the T-Bird Showing.

Gunnex Limited did no staking nor any additional work in the Lily and T-Bird showings areas. Hutchinson's sampling on Lily in 1963 gave the following assays over a 5' width of malachite stained zone containing disseminated pyrite, chalcopyrite and minor galena: Au - 0.1 oz/ton; Ag - 0.5 oz/ton, Cu - 0.1 %, Pb - trace. The vein could not be traced more than a few feet. Apparently there are no earlier records regarding these showings in the area.

Since then, CPR has relinquished its mineral rights in this area. However, with the later increase in price of gold and silver, and also because of the presence of the favourable Sicker Group sedimentary rocks here, the area has again been gaining attention of exploration companies.

5.2 Work During 1978 - 1984

The Lily Showing area was re-staked in 1978 by Invex Resources Ltd. as the 6 unit Okay claim (BCMM Assessment Report No. 7641). In late 1978, Invex carried out geological mapping and geochemical sampling under direction of R. Arnold. In 1979, more work was done under J.P. McGoran's direction, consisting of mapping, hand trenching, chip sampling and drilling of 14 short "plugger" holes to test vein material and mineralized wall rock for gold and silver.

5.2 Work During 1978 - 1984 (continued)

The chip sampling of the quartz vein exposed in the Invex trench gave averaged assay values of 0.194 oz. Au/ton and 1.39 oz. Ag/ton over an estimated true width of structure of 30 feet. Within this 30 feet, a total of 8.5 feet of quartz vein averaged 0.685 oz. Au/ton and 4.75 oz. Ag/ton. The cuttings from "plugger" holes were also submitted in sections for assay; these assays varied from 0.003 to 0.804 oz. Au/ton, with an average of 0.18 oz Au/ton for 14 holes. This average corresponds closely with the 0.194 oz Au/ton average of the chip samples over the 30 foot width (Elwell, 1979).

In 1980, Invex also drilled 2 short holes from a set-up located 20m from the trench (see Figure 7). The results of this drilling are not available and it is not known if the mineralized structure was penetrated.

The Invex geochemical sampling results were said to be inconclusive (McGoran, 1979/Assessment Report No. 7641), although one soil sample (out of total 66 samples), more than 1,000m NE of Lily Showing, analyzed 1,400 ppb Au, and one silt sample (out of 11), about 400m NW of Lily, ran 1,500 ppb Au.

No further work was reported by Invex and the Okay claim was allowed to lapse (if was restaked in 1983 as Songbird 2 Claim, see below).

A soil geochemical survey by Youngman Oil & Gas Ltd. was carried out during July - September, 1981, on the Nanoose Claim. This claim of 20 units, No. 758(1), enclosed the above Okay (now Songbird 2) claim on west, south and east sides and apparently included the T-Bird showing to east. This work and its results are reported by E. Amendolagine, P.Eng., in 1982 (Assessment Report No. 10,372). However, no information is given about the staking or owners of the claims, nor any other pertinent background data. The presentation of the geochemical data and its interpretation is somewhat ambiguous and difficult to follow in the above report which includes the very small, reduced scale geochemical maps. Only the values of 251 soil samples, out of a total of 607 samples taken, have apparently been plotted and no information is given about geology and mineralization; probably all lab results should be replotted and then re-interpreted.

The present 4 contiguous Songbird Claims were staked in 1983. Songbird 1 and 2 were staked in February by Messrs. Doug Brownlee and Malcolm Bell, while Songbird 3 and 4 were staked in July, same year, by Eureka Resources. Songbird 2 covers the previous Okay Claim, including the Lily Showing. Mr. D. Brownlee, geologist, brought the Songbird 1 and 2 claims to the attention of Mr. John Kerr, P. Eng., who, acting as agent for Eureka Resources Inc., optioned these claims, expanded the claims area to north and west, and supervised a preliminary exploration program during June - July, 1983. This work included geological mapping, soil sampling, VLF-EM survey and trenching. Diamond drilling of 8 holes (totalling 457 metres) was carried out in 1984. The drilling results were considered to be inconclusive apparently due to the 25 - 50% core loss in the fault zone; however, Eureka remained "optimistic about the property" (Kerr, 1984).

Since then, the claims have reverted back to Messrs. Brownlee and Bell, and are now held by Hi-Tec Resource Management Ltd. of which Mr. Bell is president.

5.2 Work During 1978 - 1984 (continued)

The results of the work done by Eureka Resources Inc. are discussed further in the following chapter (see also Figures 6, 7 and 8)

6. RESULTS OF 1983 - 1984 WORK ON SONGBIRD CLAIMS

References: Belik, 1983

Kerr, 1983, 1984, maps

Kerr, Dawson & Associates Ltd., 1984: Diamond Drill Logs For DDH No.'s SN-84-1 to 8.

(All work was done on Songbird 1 and 2 claims)

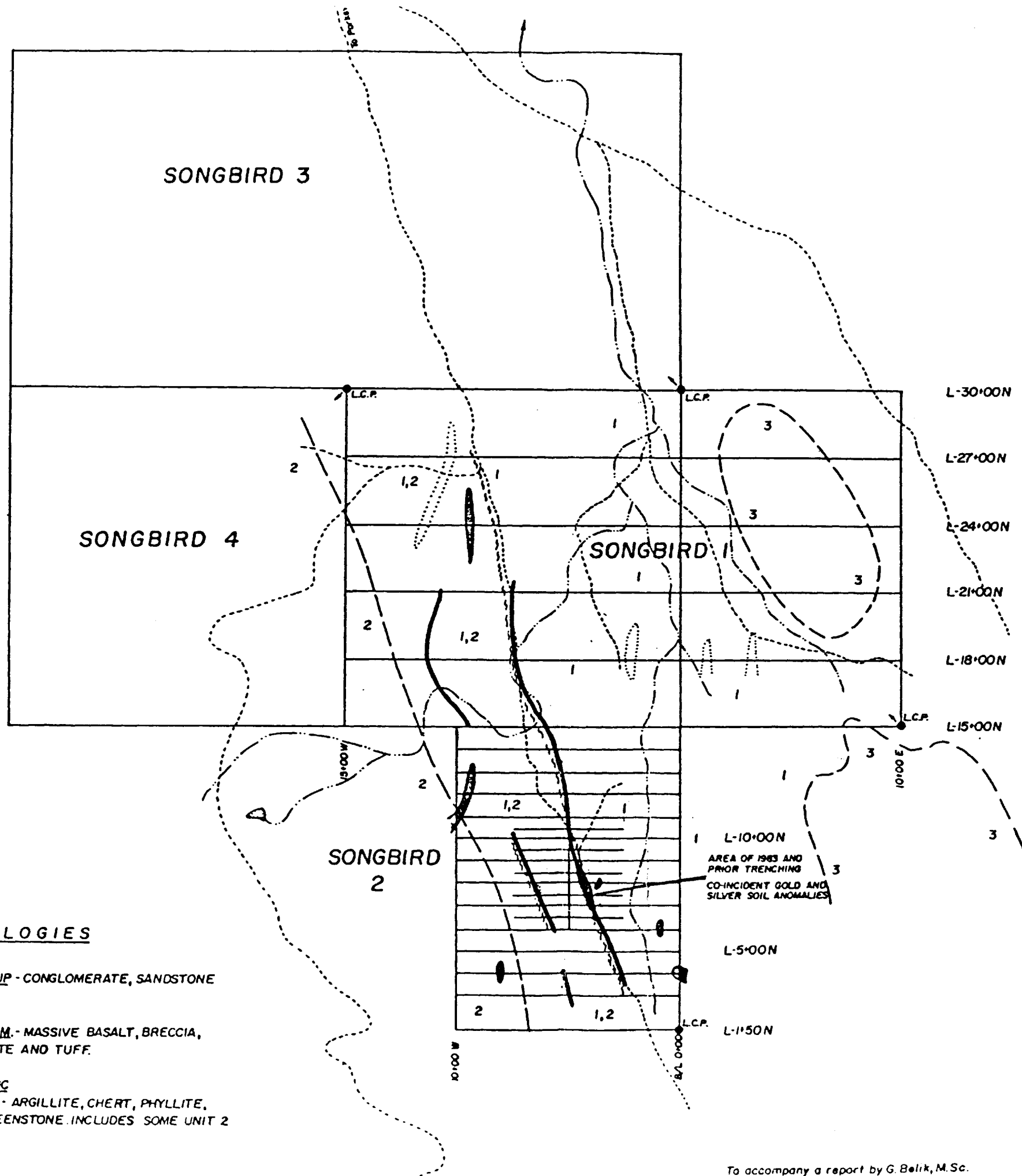
6.1 VLF-EM Survey

This survey, using a Sabre Electronic VLF-EM unit and the Seattle transmitter station was run on east-west lines across the strike of mineralized zones over Songbird 2 claims and south half of Songbird 1 Claim. The old Lily Showing area on Songbird 2 Claim was surveyed at 25m intervals and 50m line spacings, while the surveyed area of Songbird 1 Claim was run on 50m x 300m station intervals. Only the contoured Fraser-filtered in-phase data is shown on the map; it is not known if out-of-phase (quadrature) readings were taken (see Figure 6).

Two major, about 2,000m long, EM conductive zones were indicated, running sub-parallel and about 250-400m apart in NNW direction across the surveyed area and "open" to both north and south (see Figure 6). The most positive (anomalous) values of the Fraser-filtered data plot along the conductor axis of the Lily mineralized zone are in +30° to +74° range, following the mineralized fault zone along the west side of the main access road. The second major conductive zone, toward west, is less continuous, occurring in 3 segments; the most anomalous segment here coincides with a mapped fault zone, parallel to the Lily fault zone and to some Au-Ag anomalies. There are also a number of smaller and weaker conductors, having the same NNW strike, on the grid.

Since out-of-phase data and the original readings of field data are not given, it is not possible to interpret the results fully. However, assuming the +30° as being "definitely anomalous", then a significant conductor is interpreted to coincide with the trend of the main (Lily) surface showing and its projected extensions over the full 2,000m length of the so far surveyed area. This conductor coincides with the mapped and interpreted (by Kerr, 1983) main fault zone that extends NNW across the claims. A combined gold-silver soil anomaly coincides with the EM conductor in the main surface showing area. Several other Au-Ag geochemical anomalies and some smaller conductive anomalies also coincide or lie along the same projected extensions of each other. Of particular interest here (not pointed out by previous workers) are several Au-Ag geochemical anomalies in the NW corner of Songbird 1 Claim that appear to lie along the projected northward strike direction of the two main conductors.

How much of the conductivity is caused by sulphides is uncertain since graphite, also a good conductor, is common in the mineralized structure, as reported in drill logs.



LEGEND

- CLAIM BOUNDARY WITH LEGAL CORNER POST (L.C.P.)
- ROAD
- CREEK
- VLF-EM CONDUCTOR AXIS
- SOIL ANOMALY (GOLD)
- " " (SILVER)
- GEOLOGIC CONTACT
- FAULT

LITHOLOGIES

- 3** CRETACEOUS
NANAIMO GROUP - CONGLOMERATE, SANDSTONE
- 2** UPPER TRIASSIC
KARMUTSEN FM. - MASSIVE BASALT, BRECCIA,
MINOR ANDESITE AND TUFF.
- 1,2?** UPPER PALEOZOIC
SICKER GROUP - ARGILLITE, CHERT, PHYLLITE,
TUFF, AND GREENSTONE. INCLUDES SOME UNIT 2

EUREKA RESOURCES INC.

COMPILATION PLAN
(GEOLOGY, GEOCHEMICAL AND VLF-EM ANOMALIES)

SONGBIRD PROPERTY

NANAIMO MINING DIVISION, B.C.

Date: Nov. 1983.	Scale:
Drawn By: W.G.	(Fig. No. 292-3) Figure 6.

To accompany a report by G. Belik, M.Sc.

6.2 Gold and Silver Geochemistry

During summer 1983, Eureka collected 655 soil samples from Songbird 1 and 2 Claims. Sample spacings were the same as those used for the VLF-EM readings, except that the entire Songbird 2 Claim was sampled on 300m by 50m intervals (see Figure 6). The samples were analyzed for gold and silver only.

For estimate of anomalous parameters, the statistical distribution of gold and silver values in the soil samples is shown below:

<u>ppb Au</u>	<u>Frequency</u>	<u>ppm Ag</u>	<u>Frequency</u>
5	603	0.1	410
10	33	0.2	75
15	7	0.3	57
20	0	0.4	43
25	0	0.5	21
30	0	0.6	15
35	0	0.7	9
40	1	0.8	6
45	2	0.9	4
50	0	1.0	2
55	2	1.1	3
60	1	1.2	2
more than 60	6	more than 1.2	8
(Total)	655	(Total)	655

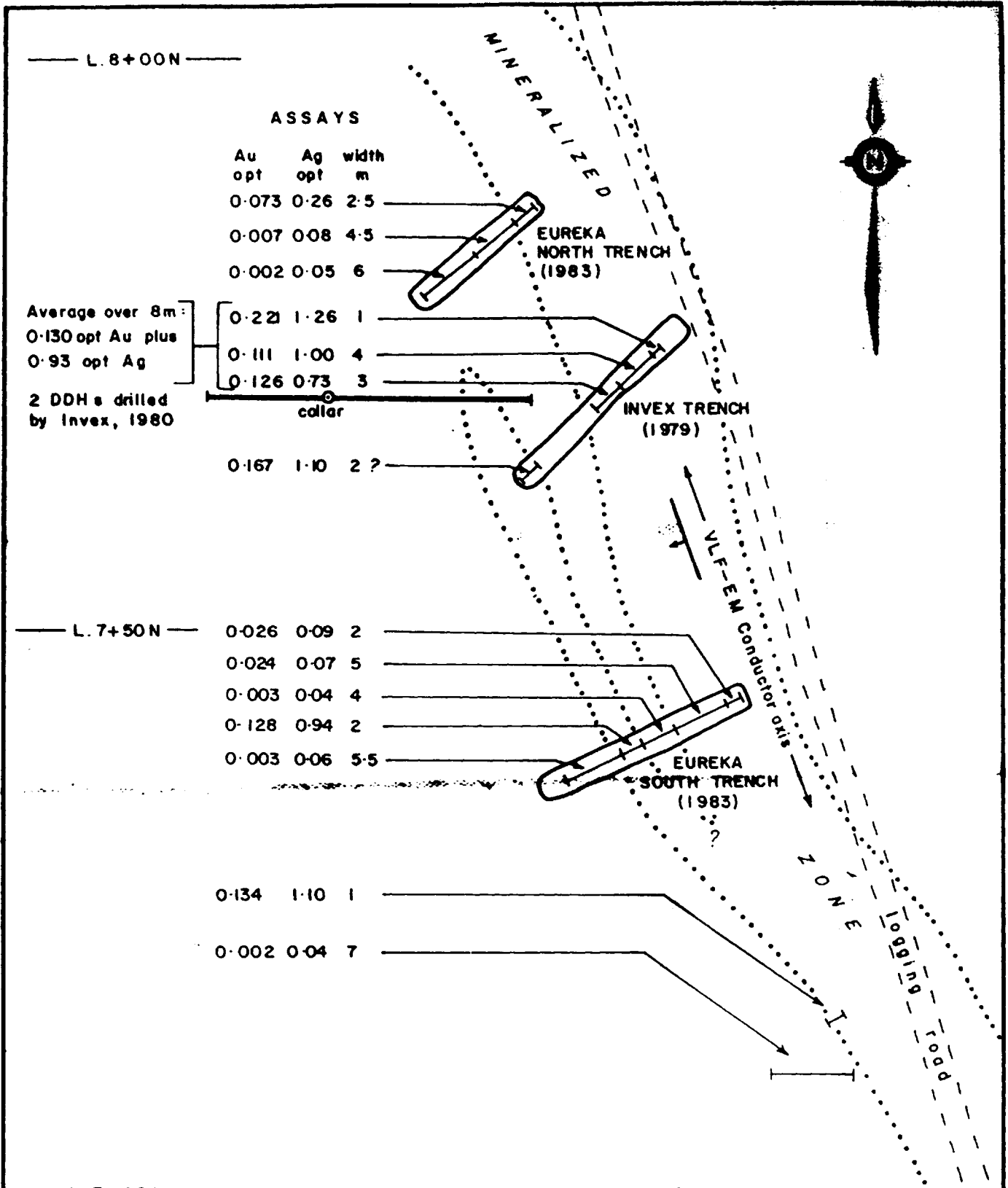
From the above it can be seen that the "background" for gold is in the 5(±) ppb range, with the anomalous "threshold" at 10 or less ppb Au. For silver, the "background" is in 0.1 - 0.2 ppm range, with a "threshold" of about 0.3 ppm Ag. From the above, the following anomalous categories are established:

Category:	ppb Au	ppm Ag
Possibly anomalous	10 - 15	0.3 - 0.6
Probably anomalous	20 - 25	0.7 - 1.0
Definitely anomalous	30 - 35	1.1 - 1.4
Strongly anomalous (Approx. 10X "background" or more)	40 and up	1.5 and up

There is a strong correlation between Au and Ag values in the centre of Songbird 2 Claim, on Lines 6 to 9 North over the old Lily Showing. In the remaining grid area, this correlation is less evident, the respective anomalies are usually off-set, but at times follow the same strike direction or trend (eg. in SE corner of Songbird 2, and in the centre of Songbird 1 claims).

The following geochemical "target" areas are worth mentioning (see Figure 6):

- 1) A high (5 ppm) silver value, associated with a strong EM conductor at Line 7 + 50N/6 + 25W, parallel to and west of Lily zone, on Songbird 2 claim.
- 2) Three high gold values, 105, 45 and 60 ppb, on west ends of Lines 11, 12 and 13 respectively, along the projected trend of the above EM anomaly, NW corner of Songbird 2 claim.



HI-TEC RESOURCE MANAGEMENT LIMITED	
TRENCH ASSAY PLAN OF LILY SHOWING by Eureka Resources Inc., 1983.	
SONGBIRD PROPERTY NANAIMO MINING DIVISION, B.C.	
Scale : 1 : 500	NTS : 92F/1E
By : H.L.	Date : March 1986.
Drawn : J.S.	Figure : 7

6.2 Gold and Silver Geochemistry (continued)

- 3) Strong gold (15 to 55 ppb) values and moderate Ag values at east end of Lines 4, 5 and 6N, in SE corner at Songbird 2; no corresponding EM anomaly.
- 4) A high, 45 ppb Au value associated with a short EM conductor zone on line 4N/8 + 00W, near SW corner on Songbird 2 claim.
- 5) A very high, 310 ppb Au anomaly at line 24N about 115m west of main access road, without a corresponding silver anomaly. The sampling interval here is 300m x 50m, ie. very large and no VLF-EM was run on this line. However, the anomalous value lies near the northward projected trend of EM conductor on Line 21N.
- 6) A 15 ppb Au value and corresponding 1.2 ppm Ag value on same line as above, but about 230m farther west, associated with the northward projected trend of a wide EM conductor on Line 21N (no EM survey was run on Line 29N). A 5.0 ppm Ag anomaly occurs, on same trend, on next line 300m to north.

The last two anomalies, (ie. 5) and 6), occur on the west part of Songbird 1 claim where survey coverage is inadequate and where more detailed "follow-up" is needed.

6.3 Trenching

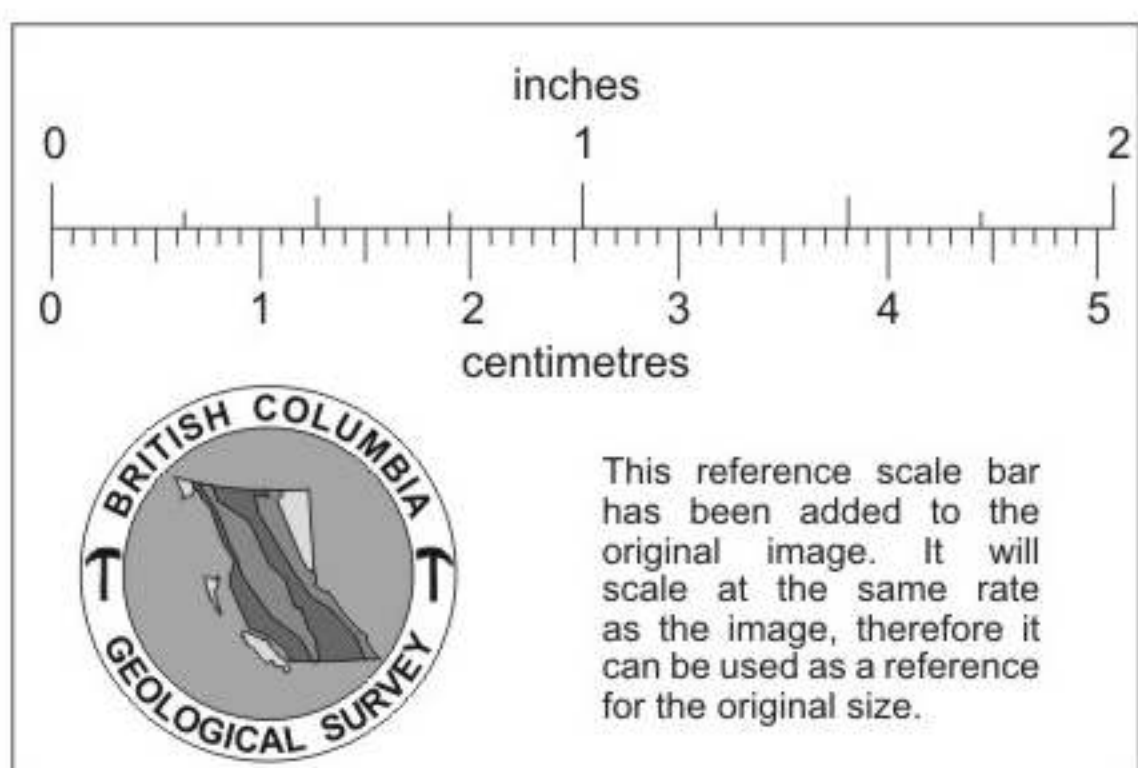
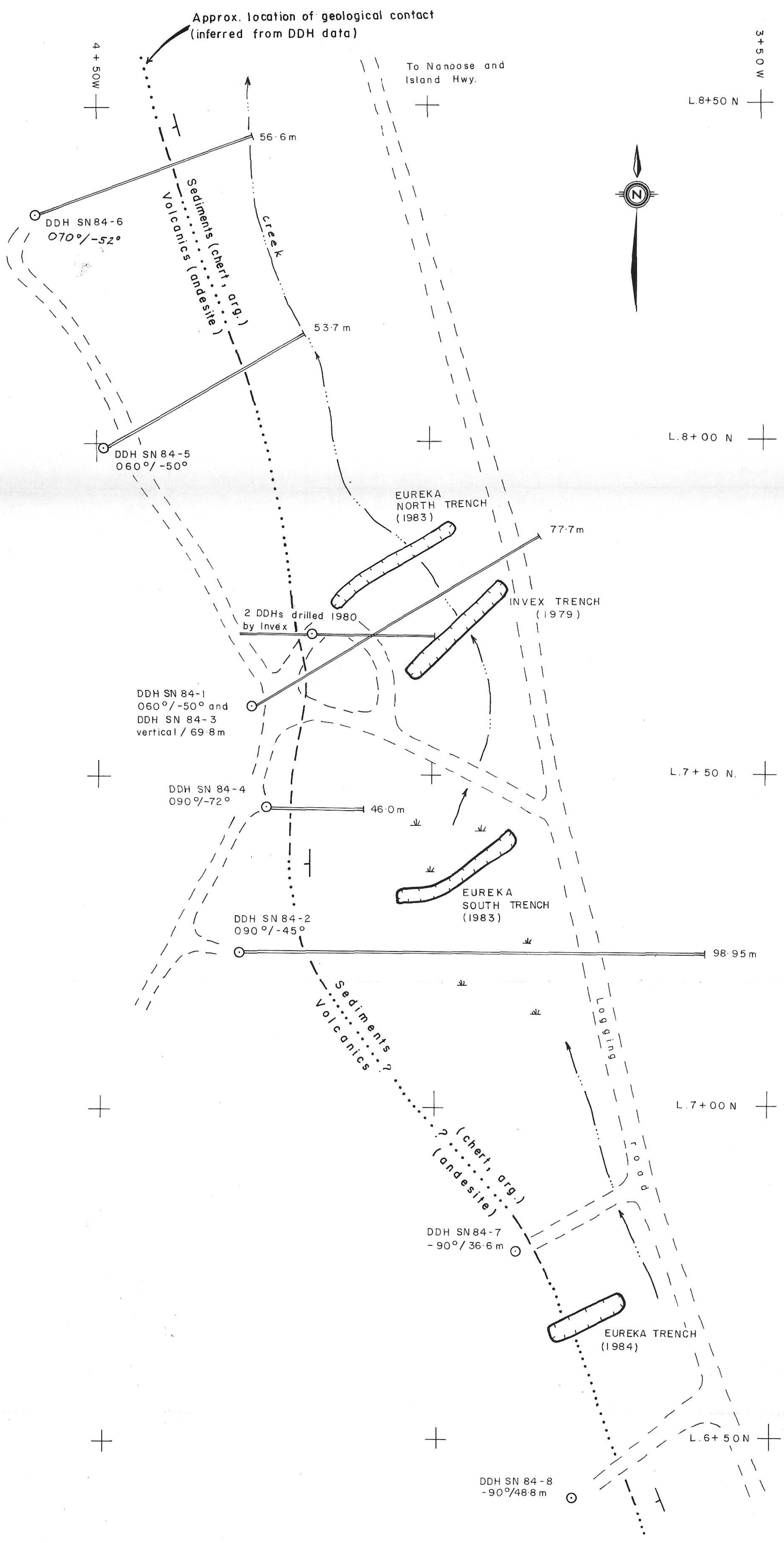
In 1983 Eureka cleaned out and resampled the Invex 1979 trench and also dug two additional trenches, —one 20m to north and other 30m to south of the Invex trench (see Figure 7 for Eureka's trench plan and assays).

In general, Eureka's sampling tended to confirm Invex results (see 5.2 above) although the averages for the main (Lily) zone centre trench were somewhat lower (0.130 oz Au/ton and 0.93 oz Ag/ton over 8 metres). By extending the Invex trench westward, a second, subsidiary mineralized zone was partly exposed which assayed 0.167 oz Au and 1.10 oz Ag per ton across 2 metres. The same zone, exposed in the new trench 30m south, assayed there 0.128 oz Au and 0.94 oz Ag per ton over a 2m width. A third sample, probably on the same zone, assayed 0.134 oz Au and 1.10 oz Ag per ton over 1m width (see Figure 7).

6.4 Diamond Drilling

In 1984 Eureka completed a preliminary diamond drilling program in the area of Lily Showing on Songbird 2 claim, consisting of 8 holes totalling 457 metres; core size was NQ. The initial 4 holes were drilled immediately below the surface showing, holes No.'s 5 and 6 to the north, and holes No.'s 7 and 8 to the south (see Figure 8). All holes encountered the mineralized structure, in hole No. 3 indicating a true width of 37 metres (Kerr, 1984). Although the widths are narrower, and grades lower than reported on the surface, the better holes (No.'s 7 and 8) demonstrate the continuation (with possible rake or plunge) to the south, and the mineralization is "open" in this direction (Kerr, 1984).

The more significant assay results of each DDH core samples are summarized in the following Table 1 (next page).



PLAN BY EUREKA RESOURCES INC., 1984, REDRAWN BY H.L., 1986.

HI-TEC RESOURCE MANAGEMENT LIMITED	
DIAMOND DRILLING PLAN OF LILY SHOWING SONGBIRD 2 CLAIM NANAIMO M.D., B.C.	
Scale 1:500	NTS 92 F/IE
By: H. L.	Date: March 1986.
Drawn: J. S.	Figure: 8

TABLE I

SUMMARY OF DIAMOND DRILLING ON SONGBIRD 2 CLAIM
By Eureka Resources Inc. February - March, 1984.

DDH #	Section Co-ords	Depth (M)	Brg	Dip	Sample Interval (m)	Sample Length	ASSAYS:		Remarks
							Au opt	Ag opt	
SN-84-1	7 • 60N 4 • 27W	77.7	060	- 50	18.0 - 19.0 19.0 - 19.75	1.0 0.75	0.024 0.008	0.07 0.11	Other assays insignificant; 1.3 m of core lost @ 15.0 - 26.9 m.
SN-84-2	7 • 23N 4 • 29 W	98.45	090	- 45	24.1 - 25.0	0.9	0.001	0.05	insignificant assays; 7.25 m of core lost @ 13.7 - 28.8 m.
SN-84-3 (Same as #1)	7 • 60N 4 • 27W	69.8	---	- 90					insignificant assays; 4.4 m of core lost @ 8.2 - 22.0 m.
SN-84-4	7 • 45N 4 • 25W	46.0	090	- 72	24.2 - 25.9	1.7	0.008	0.08	insignificant assays; 1.65 m core lost @ 6.1 - 12.5 m.
SN-84-5	7 • 99N 4 • 49W	53.7	060	- 50	24.38 - 27.43 27.43 - 30.48 30.48 - 33.53	3.05* 3.05* 3.05*	0.001 0.001 0.001	0.48 0.13 1.10	*Sludge Samples All Core samples insignificant; 0.55 m core lost @ 31.5 - 32.9 m.
SN-84-6	8 • 34N 4 • 59W	56.6	070	- 52	28.75 - 30.15	1.4	0.001	0.06	insignificant assays
SN-84-7	6 • 78N 3 • 88W	36.6	---	- 90	3.05 - 5.65 5.65 - 8.20 22.6 - 24.1 21.3 - 24.4	2.6 2.55 1.5 3.1*	0.001 0.031 0.048 0.066	0.07 0.24 0.28 0.25	2.65 m core lost @ 3.05 - 21.6 m. *Sludge Sample
SN-84-8	6 • 41N 3 • 80W	48.8	---	- 90	18.1 - 18.9 28.9 - 30.3 18.3 - 21.3 21.3 - 24.4 24.4 - 27.5 27.5 - 30.5	0.8 1.4 3* 3.1* 3.1* 3*	0.085 0.034 0.024 0.007 0.008 0.009	0.55 0.25 0.15 0.06 0.09 0.10	1.3 m core lost @ 15.5 - 28.9 m. *Sludge Samples

6.4 Diamond Drilling (Continued)

Considerable amount of core has been lost in several holes, eg. 7.53m in hole No. 2 and 4.4m in hole No. 3 as the two extreme cases; this loss works out 49% and 32% of ore per respective section. This loss is usually associated with the brecciated (faulted) and very broken, altered sections which often contain limonite, sulphides, graphite and carbonaceous material. Hence there is a possibility that the drilling has created washing-out of gold and/or silver values from such broken core sections as the sludge samples in general reflect a higher grade content than the core. Therefore the unusual content of silver only in the sludge of hole No. 5 is un-resolved although the samples were reassayed (Kerr, 1984).

7. CONCLUSIONS

- 1) Significant Au-Ag mineralization, along with some base metals, occurs within a 10m wide strong, brecciated, steeply west dipping fault zone on Songbird 2 claim. Trenching of an old showing has exposed about 100m of strike length of this structure, while diamond drilling has indicated that the sulphide and Au-Ag mineralization extends to at least 30m depth and probably deeper over a minimum of 200m strike length.
- 2) This mineralization occurs within a major structural system in the geologically favourable Myra Formation known to contain precious and base metal ore bodies elsewhere on Vancouver Island.
- 3) The preliminary geochemical and geophysical survey results carried out over the southern part of the property indicate the probable presence of several other similar parallel to sub-parallel structures, so far untested by drilling or trenching. These zones may extend over the entire N-S length, about 4.5 km, of the property.
- 4) The VLF-EM survey results indicate that the main mineralized structure is moderately to strongly conductive and extends about 2 km across the surveyed south half of the property. Several other conductive structures are also indicated in the area surveyed. All are "open" to north and south along the strike.
- 5) Several Au-Ag geochemical anomalous zones also occur over the surveyed part of the property; some are associated with EM conductors, or occur along the projected strike extensions of these conductors.
- 6) The limited drilling has shown that the main structure contains abundant sulphides (mainly pyrite, with some galena, etc) and graphite, —a good conductor. The graphite presence will interfere with the interpretation of EM surveys for mineral deposits, yet at the same time may help locate the structures.
- 7) Not enough exploration has been carried out so far to evaluate the full potential of the entire claim group area, particularly in the northern part. The past exploration has been concentrated on a small, about 200m long, poorly exposed section in the southern part of the main structure.
- 8) It is therefore recommended that more exploration should be done, both on "grass-roots" reconnaissance level, and detailed/"follow-up" level, to find precious and base metals on the property.

8. RECOMMENDATIONS

8.1 Phase I

- 1) Clear and re-mark the 300m interval grid lines L15N - L30N on Songbird 1 claim and extend these lines across Songbird 4 claim. Extend this line grid to cover Songbird 3 claim, to north. Then continue and complete the geochemical and VLF-EM surveys over the remaining two claims to indicate the areas of main interest. Also, prospect and map the remaining areas on reconnaissance basis, with particular emphasis on the anomalous zones.
- 2) Based on the results of the above work, block out the area(s) of interest. Add additional grid lines at 50 - 100m line intervals, then soil sample and run EM and "mag" surveys at 25m (or less) spacings. Also map and prospect these areas in detail. Geophysical methods not sensitive to presence of graphite should be considered.
- 3) Evaluate the results of work done so far and locate "target areas" for more detail surveys, including trenching. Once fully outlined, list these targets in order of priority.

8.2 Phase II

This phase of work would initially consist of bulldozer stripping and/or back-hoe trenching of the most promising anomalous zones, followed by mapping and assay sampling of the exposures. Hand-trenching may be feasible in areas of outcrop or very shallow overburden. At the other extreme, the presence at deep overburden or swamps may preclude trenching or stripping, and exploratory drilling of some shallow holes has to be considered, preferably preceded by some detailed geophysical work.

The previous drilling of the Lily Showing, on Songbird 2 claim, intersected most of the mineralized structure at about 30m depth from the surface. In some holes there was considerable loss of core, probably resulting also in the loss of assay values in broken, brecciated and washed-out sections that appear to accompany the mineralized zones. Presence of limonite, recorded in the drill logs, indicates that the weathering of the mineralized veins, particularly if carbonate and sulphide minerals are present, occurs at these shallow depths, thus rendering the veins more susceptible to core loss. Presumably core recovery would improve if the mineralized sections are intersected at greater depth. Hence, only a limited amount of shallow drilling is suggested, mainly to gain geological information where trenching and stripping is not feasible.

8.3 Phase III

This phase would consist of exploring a number of selected targets by deeper drilling, intersecting the mineralized structures and anomalous zones at depth, say, at 60 - 100 metres or more. The aim here is to outline any possible ore bodies.

The amount of trenching and drilling needed should be estimated after the completions of Phases I and II, respectively.

A proposed budget to carry out the above Phase I and II programs is outlined below:

9. PROPOSED BUDGET

Field Personnel (geologist plus two assistants):

Linecutting (30 man/days)	\$ 6,000	
Soil Sampling (25 man/days)	5,000	
Geophysical Survey (30 man/days)	6,000	
Mapping/Prospecting (20 man/days)	6,000	
Consulting/Supervision (20 m/d)	<u>6,000</u>	<u>\$ 29,000</u>

Contractors:

Geochemical analysis (1,000)	\$ 14,000	
Backhoe trenching (100 hours)	8,000	
Shallow Drilling (500m @ \$70/m)	<u>35,000</u>	<u>\$ 57,000</u>

Field Support:

4 x 4 Vehicle Rental	\$ 6,000	
Accommodations, meals (3 x 2 mos)	9,000	
Instrument Rentals	3,000	
Misc. Supplies	<u>2,000</u>	<u>\$ 20,000</u>

Office and Administration:

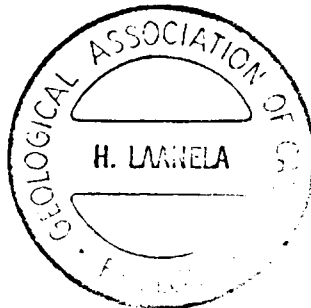
Report compilation	\$ 3,000	
Drafting, typing etc.	<u>3,000</u>	<u>\$ 6,000</u>

(Subtotal \$112,000)

Miscellaneous & Contingency
(15% of above) \$ 17,000

TOTAL Phases I & II \$129,000

SAY \$130,000



Submitted by

A handwritten signature in cursive script that reads "H. Laanela".

Hugo Laanela, F.G.A.C.
Consulting Geologist

Dated: March 21, 1986
3657 Ross Road
Nanaimo, B.C.

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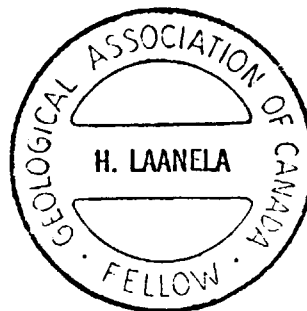
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CERTIFICATE

I, HUGO LAANELA, of 3657 Ross Road, Nanaimo, British Columbia, do hereby declare that:

1. I am a geologist, graduate of the University of British Columbia, Vancouver, B.C., in 1961 with a B.A. degree in Geology.
2. I am a Fellow of The Geological Association of Canada, and a full member of The Association of Exploration Geochemists, The Canadian Institute of Mining and Metallurgy, and The Australasian Institute of Mining and Metallurgy.
3. I have practiced my profession as a mining exploration geologist from 1961 to 1966 and 1973 to present across Canada and Western U.S.A. During 1966 to 1972 I was employed as a senior/regional geologist in Australia.
4. The information, opinions and recommendations presented in this report are based on my study of reports covering the previous work being done on the property, as well as on my own geological experience in the area.
5. I have no interest in the subject property of this report, nor in the company.

Dated at NANAIMO, BRITISH COLUMBIA, this twenty-first day of March, 1986.



A handwritten signature in cursive script, appearing to read "H. Laanela", written over a horizontal line.

Hugo LAANELA