86-644-15219

05137

PRELIMINARY ASSESSMENT
AND
RECOMMENDED WORK PROGRAM

KELVIN GROUP (SIL 1, 2, 5 CLAIMS)

48° ~~42~~ 41' N Lat., 123° ~~64~~ 43.5' W Long.
Victoria Mining Division
British Columbia
for
Owner: **ALLEN WEBB**
November 6, 1986

J.S. Getsinger, Ph.D.

N.T.S. 92B/12E

Operator: Nexus Resource Corporation

SUMMARY

The Kelvin Group (Sil 1, 2, 5 claims) is underlain by Paleozoic Sicker Group sedimentary and volcaniclastic rocks, including parts mapped as Sediment-Sill Unit and possibly Buttle Lake Formation limestone, overlain by Triassic Karmutsen Formation volcanics, all of which are intruded by Jurassic granodiorite to quartz diorite of the Koksilah Stock, and overlain unconformably by nearshore clastic sedimentary rocks of the Cretaceous Nanaimo Group.

The rocks on the southern part of the Sil 2 claim are a direct extension of the sequence on the adjacent King Solomon property, where several zones of Cu-Ag-bearing skarn mineralization are located.

Best lithogeochemical results from eighteen samples collected on (or near) the Sil 1, 2, and 5 claims are: 10 ppb Au, 274 ppm Cu, 160 ppm As, 138 ppm Mo, 94 ppm Pb, and 1110 ppm Ba.

It is recommended that the sequence of Sicker Group sedimentary and volcaniclastic rocks on the southern part of the Sil 2 claim be extensively prospected and geologically mapped, including tracing any Buttle Lake Formation limestone present.

A Phase I exploration program consisting of geological mapping, rock sampling, preliminary soil sampling, and prospecting covering the entire remaining property is recommended at an estimated cost of $25,000.

Contingent upon favourable Phase I results, a Phase II exploration program consisting of detailed geological mapping and sampling, soil sampling, and magnetometer and VLF-EM surveys on grids over target areas outlined by Phase I is recommended at an estimated cost of $50,000.

Phase III IP surveys and diamond drilling may be recommended at an estimated cost of approximately $150,000, contingent on encouraging results from Phases I and II.

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ALLEN WEBB

GENERAL LOCATION MAP
KELVIN GROUP
SIL 1,2,5 CLAIMS

VICTORIA MINING DIVISION

Project No:	V 225	By:	J. S. G.
Scale:	1 : 8 000 000	Drawn:	J. S.
Drawing No:	1	Date:	NOV. 1986.

MPH Consulting Limited

1.0 INTRODUCTION

This report on the Kelvin Group (Sil 1, 2, 5 claims) has been prepared by MPH Consulting Limited at the request of Mr. Allen Webb. The report has been prepared for the purpose of filling with regulatory authorities as a third party assessment. It provides a summary of regional geology and mining exploration activity in the area, a description of property and mining exploration activity in the area, a description of property geology, and a discussion of the economic setting of the property. A recommended exploration program designed to explor the economic potential of the property is included.

2.0 PROPERTY LOCATION, ACCESS, TITLE

The Kelvin Group (Sil 1, 2 , 5 claims) on the Kelvin Creek drainage, is located west of the Koksilah River about 10 km south of Duncan, on NTS mapsheet 92B/12 centred at about 48°42'N latitude, 123°44'W longitude in the Victoria Mining Division of British Columbia (Figures 1 and 2).

Access to the property is via paved and all-weather gravel roads from Duncan and from the Shawnigan Lake area. Numerous old logging roads provide access to most portions of the property. A recently abandoned Canadian National railway grade is located in Kelvin Creek Valley (also known as Kasill Valley).

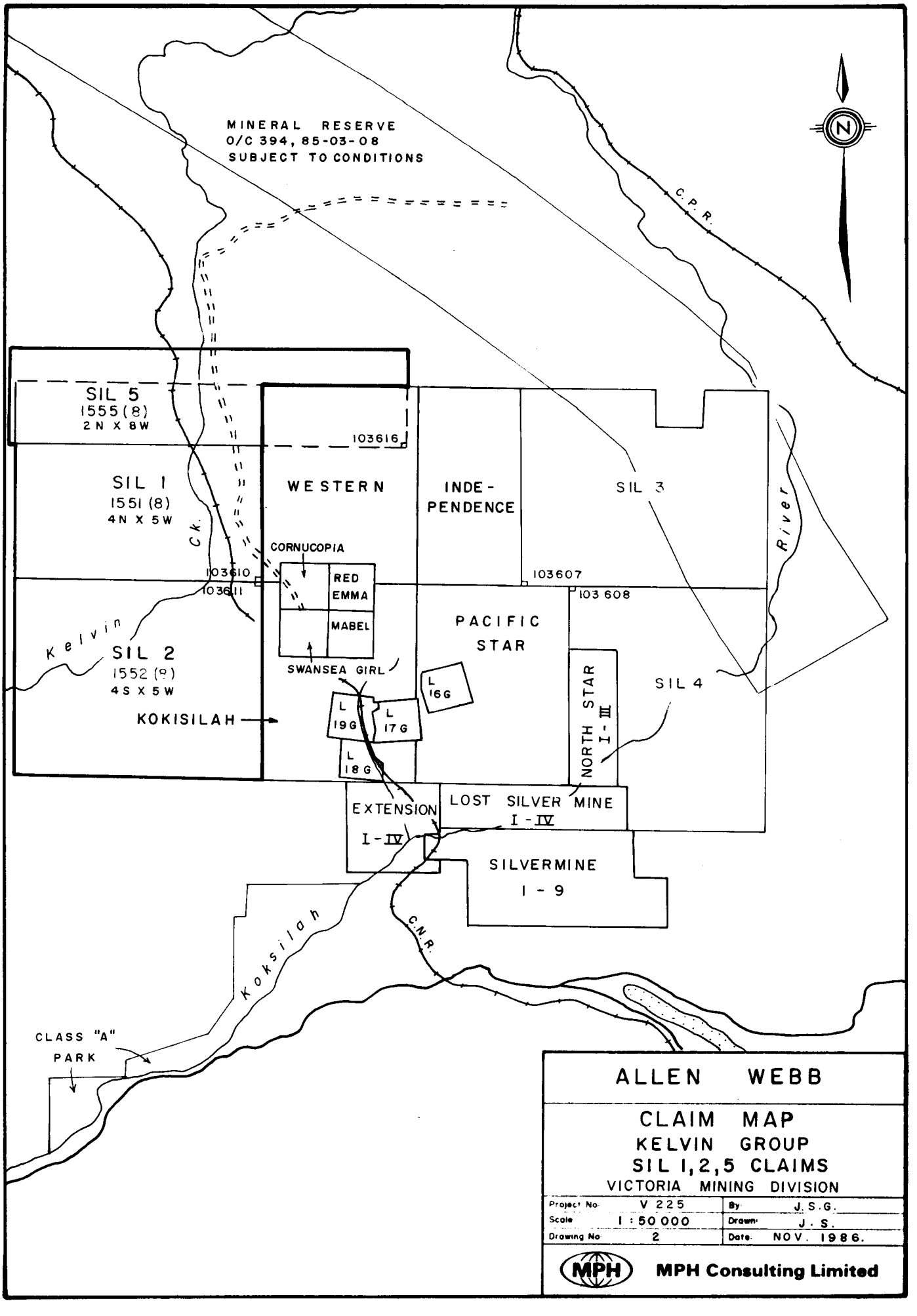
Claim information is summarized below:

Claim	Record No.	Units	Anniversary Date	Year Registered
Sil 1	1551(8)	20	August 8, 1987	1985
Sil 2	1552(8)	20	August 8, 1987	1985
Sil 5	1555(8)	16	August 8, 1887	1985
	Total	**56**		

All three claims owned by Allen Webb.

Sil 1 and 2 claims are located as shown on the claim map.

The Legal Corner Post of the Sil 5 claim was found to be located over 500 m south of the position shown on the government claim map, thus overstaking the northern end of the Western claim and overlapping with Sil 1 Claim by over 1 unit. The actual location of the Sil 5 LCP is at UTM grid location DJ 448610 E, 5394565N; elevation approximately 435 ± 10 m; about 100 m south of a 1986 clearcut (in BK 227); 5800 m at an azimuth of 338° from the western tip of the West Arm of Shawnigan Lake.


MINERAL RESERVE
O/C 394, 85-03-08
SUBJECT TO CONDITIONS
C.P.R.
N
SIL 5
1555 (8)
2N X 8W
103616
SIL 1
1551 (8)
4N X 5W
WESTERN
INDE-
PENDENCE
SIL 3
River
Ck.
CORNUCOPIA
RED
EMMA
MABEL
103610
103611
103607
103 608
Kelvin
SIL 2
1552 (8)
4S X 5W
KOKISILAH
SWANSEA GIRL
PACIFIC
STAR
L
16G
L
19G
L
17G
L
18G
NORTH STAR
I - III
SIL 4
EXTENSION
I - IV
LOST SILVER MINE
I - IV
SILVERMINE
1 - 9
Koksilah
C.N.R.
CLASS "A"
PARK
ALLEN WEBB
CLAIM MAP
KELVIN GROUP
SIL 1,2,5 CLAIMS
VICTORIA MINING DIVISION
Project No. V 225
Scale 1 : 50 000
Drawing No. 2
By J.S.G.
Drawn J.S.
Date NOV. 1986.
MPH
MPH Consulting Limited

3.0 HISTORY AND ECONOMIC SETTING

Government geological work in the area of the Kelvin Group (Sil 1, 2, 5 claims) includes mapping by C.H. Clapp (1912 and 1914) and J.E. Muller (1977, 1980a, and 1980b).

No previous exploration work on the ground covered by the Kelvin Group (Sil 1, 2, 5 Claims) is recorded, although some geological mapping was done on the Sil 2 claim by Westmin in 1981(?). The nearby deposits on the King Solomon property 1 to 2 km to the east of Sil 1 and 2, have been explored since 1886 and have produced minor amounts of ore. The King Solomon Mine, Blue Bell Mine, and Viva Mine produced a recorded total of 901 tonnes (993 tons) of ore yielding 46,498.5 kg (102,510 lb) Cu (5.16%), and 10,948 g Ag at 17.49 g/t (352 oz Ag at 0.51 oz/ton) between 1903 and 1916. In the late 1950's, at least 1524 m (5,000 feet) of diamond drilling was carried out on the King Solomon Mine, intersecting numerous mineralized zones including 3.6 m (11.9 feet) of 7.83% Cu, 16.8 g/t Ag (0.49 oz/ton Ag); 11.3 m (37 feet) of 1.44% Cu; 15.7 m (51.5 feet) of 0.97% Cu; and 3.7 m (12 feet) of 4.1% Zn, 10.29 g/t Ag (0.3 oz/ton Ag) and 0.25% Cu.

Recent work on the King Solomon property has included geological mapping, geophysical IP surveys, and diamond drilling commencing in 1985. Over $500,000 has been spent in 1986 on further detailed exploration and diamond drilling of the King Solomon property by Nexus Resources Corporation.

Mineralization on the King Solomon property is contained in apparent skarn deposits consisting of fracture and fault controlled, massive to semi-massive pyrrhotite, magnetite, pyrite, chalcopyrite, and

minor sphalerite in widely varying proportions. At least 8 showings/deposits occur over a strike length of about 3 km. The deposits appear to occur at, or near, the top and base of the Buttle Lake Formation, localized within areas of the formation that contain limestone interbeds and are cut by dykes and bodies of feldspar porphyritic dacite and pyritic rhyolite. It has been suggested that the deposits represent skarnified ± remobilized equivalents of pre-existing volcanogenic massive sulphide deposits.

The property is partly underlain by rocks of the Sicker Group. Since the announcement in 1979 of the discovery of Westmin Resources Ltd.'s new H-W deposit at Buttle Lake, the Sicker Group has become an extremely active exploration target.

Westmin Resources Ltd.'s Buttle Lake mines contain total reserves of 14.75 million tonnes grading 5.43% Zn, 2.12% Cu, 2.40 g/t Au, 41.1 g/t Ag, and 0.34% Pb (Walker 1983). A past-producing mine hosted by the Sicker Group in the Duncan area is the Twin J Mine, a volcanogenic massive sulphide deposit presently being explored by Corporation Falconbridge Copper, 20 km NNW of the property. Recorded production totalled 277,395 tonnes grading 7.5% Zn, 3.4% Cu, 5.14 g/t Au, 105 g/t Ag, and minor Pb. Reserves are reported as 317,520 tonnes grading 1.6% Cu, 0.65% Pb, 6.6% Zn, 4.11 g/t Au, and 140.6 g/t Ag as of 1971.

A significant recent development in the Sicker Group is the delineation of a large polymetallic massive sulphide zone on the Lara property, 25 km NW of the property. On the Lara property, Abermin Corporation has completed at least 80 diamond drill holes, tracing the Coronation Zone and Coronation Extension over a strike length of 1500 m, to depths averaging 150 m, and over widths averaging 6.2 m. The average grade of 17 of the drillholes is 4.54% Zn, 4.11 g/t Au, 92.6 g/t Ag, 0.79% Cu, and 0.83% Pb. Surface trenching of the Coronation Zone

has yielded results of up to 24.58 g/t Au, 513.6 g/t Ag, 43.01% Zn, 8.30% Pb and 3.04% Cu over 3.5 m. The Coronation Zone is open along strike on both ends.

Further to the northwest, Westmin Resources Ltd. is exploring Nexus Resources Corporation's Thistle property, 20 km southeast of Port Alberni. A total of 16 significant Cu and/or Au mineralization occurrences have been located on the property, 15 of which are located within a 225 m thick unit of mainly basaltic flows which are believed to be correlative with Muller's Sediment-Sill Unit and/or Myra Formation. Surface assays reported range from 7.75 to 41.83 g/t Au (0.226 to 1.22 oz/ton) 5.14 to 45.60 g/t Ag (0.15 to 1.33 oz/ton) and 2.71 to 10.2% Cu over apparent true thicknesses of 15 cm to 4 m. The best assay from 1984 diamond drilling was 17.62 g/t Au (0.514 oz/ton) over 20 cm. Westmin has spent approximately $406,000 on the property to 1984. A further $400,000 was spent in 1985. The Thistle Mine produced 6276 t (6920 tons) of ore yielding 85,844 g (2760 oz) Au, 65,938 g (2120 oz) Ag, and (275,773 kg) (681,425 lb) Cu in the period from 1938 to 1942. A news release in October 1985 states that the exploration target on the Thistle property is a volcanogenic deposit of at least 3 million tons grading 6.86 g/t Au and 2% Cu.

Significant gold, base metal, and other occurrences and deposits of the Sicker Group in the Duncan-Cowichan Lake area and summarized in the Mineral Occurrences section.

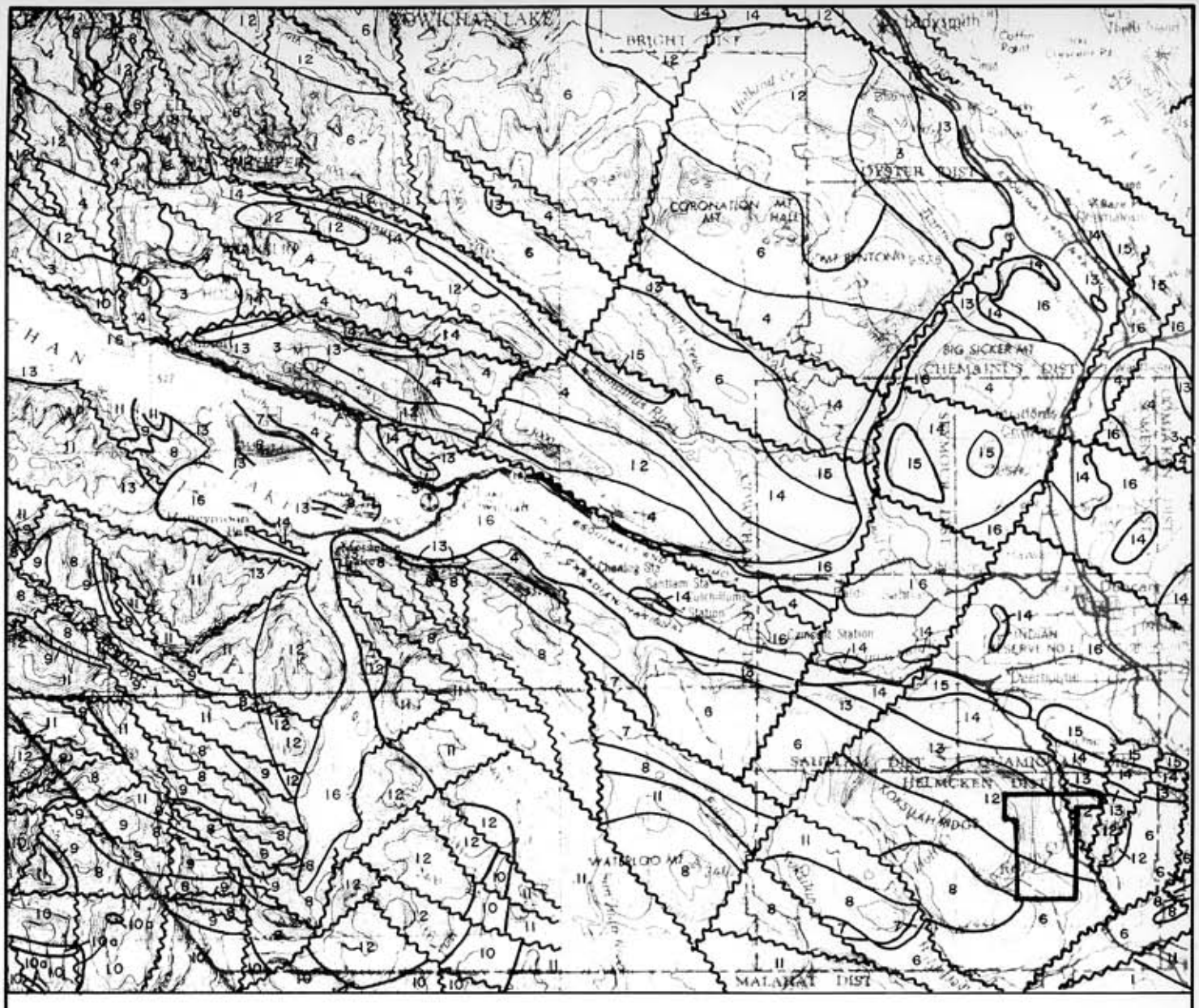
4.0 REGIONAL GEOLOGY

The Duncan to Cowichan Lake area is underlain by a west-northwest trending belt of Paleozoic Sicker Group rocks intruded by various bodies of Jurassic Island Intrusions and overlain by Triassic Karmutsen Formation basalts and Cretaceous Nanaimo Group sediments. South of Cowichan Lake extensive exposures of Bonanza Group volcanics are found, along with Karmutsen Formation, Quatsino Formation, and Island Intrusions rocks (Figure 3).

4.1 Wark-Colquitz Gneiss Complex

Wark Gneiss consists of irregularly foliated to massive biotite-hornblende diorite and quartz diorite, while Colquitz Gneiss consists of well foliated biotite-hornblende quartz diorite to granodiorite. The dark, mafic Wark and light, felsic Colquitz gneisses may be intimately interlayered locally. The Colquitz Gneiss was originally thought to intrude the Wark Gneiss, but is now considered to be a paragneiss derived from volcaniclastics. Migmatization of the gneisses, as interpreted from K-Ar dating, occurred during Early Jurassic plutonism that produced the Island Intrusions. It may be that the Paleozoic Sicker Group is the protolith of the Wark and Colquitz Gneisses, but zircon dating appears to indicate older Paleozoic or even Precambrian material (Miller, 1981).

The Wark-Colquitz Gneiss Complex is exposed in the vicinity of Victoria, where is forms the basement of the Insular Belt.



QUATERNARY

16 Glacial and alluvial deposits.

UPPER CRETACEOUS

Nanaimo Group

15 Extension - Protection Fm.: sandstone, conglomerate; minor siltstone, shale, coal.

14 Haslam Fm.: shale, siltstone, minor sandstone.

13 Comox Fm.: sandstone, conglomerate, minor siltstone, shale, coal.

JURASSIC

Lower to Middle Jurassic

12 Island Intrusions: granodiorite, quartz diorite

Lower Jurassic

11 Bonanza Group: basaltic to rhyolitic tuff, breccia, flows, sills, and dykes; minor argillite, greywacke.

UPPER PALEOZOIC AND ? OR TRIASSIC AND JURASSIC

10 Westcoast Complex: quartz diorite, diorite, tonalite, amphibolite, agmatite, minor metavolcanic and metasedimentary rocks. 10a: recrystallized limestone, skarn.

TRIASSIC

Middle ? and Upper Triassic

Vancouver Group

9 Quatsino Fm.: limestone

8 Karmutsen Fm.: pillow basalt, breccia, tuff; minor flows.

PALEOZOIC

Sicker Group

PENNSYLVANIAN AND PERMIAN

7 Buttle Lake Fm.: limestone, chert, greywacke, argillite.

PENNSYLVANIAN AND MISSISSIPPIAN

6 Sediment – Sill Unit: argillite, greywacke, chert, diabase sills.

LOWER DEVONIAN AND OLDER

5 Saltspring Intrusions: meta-granodiorite, meta-quartz porphyry, quartz-sericite schist.

4 Myra Fm.: well bedded felsic tuff and breccia, argillite, rhyodacite in flows and sills, minor basic tuff, quartz-sericite schist, phyllite, massive sulphides.

3 Nitinat Fm.: pillow lava and breccia of augite (uralite) porphyry, basic tuff; minor chlorite-actinolite schist.

LOWER PALEOZOIC (OR YOUNGER ?)

2 Colquitz gneiss: quartz-feldspar gneiss

1 Wark gneiss: massive and gneissic metadiorite, metagabbro, amphibolite.

0 5 10km

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ALLEN WEBB

REGIONAL GEOLOGY MAP
KELVIN GROUP
SIL 1, 2, 5 CLAIMS
VICTORIA MINING DIVISION

Project No:	V 225	By:	J. S. G.
Scale:	1 : 250000	Drawn:	J. S.
Drawing No:	3	Date:	NOV. 1986.

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4.2 Sicker Group

Muller (1980a) proposed the following subdivision of the Sicker Group, from oldest to youngest: Nitinat Formation, Myra Formation, Sediment-Sill Unit, and Buttle Lake Formation.

The **Nitinat Formation** consists predominantly of mafic volcanic rocks, most commonly flow-breccias or agglomerates including some massive flows, and rare pillow basalts. Locally, medium-grained, generally massive basaltic tuff is interbedded with the flows. The flow-breccia is composed of fragments of basalt up to 30 cm in length containing phenocrysts of uralitized pyroxene as well as amygdules, both from 1 mm to more than 1 cm in size, in a matrix of finer grained, similar basalt(?). Thin sections show pale green amphibole (uralite) is replacing clinopyroxene. Uralitized gabbroic to dioritic rocks underlie and intrude the volcanics and are believed to represent feeder dykes, sills, and magma chambers to the volcanics. The Nitinat Formation may be distinguished from the similar Karmutsen Formation by the abundance of uralite phenocrysts, a usual lack of pillow basalts, lack of dallasite alteration between pillows (characteristic of the Karmutsen) locally pervasive foliation, and lower greenschist or higher metamorphic grade. However, in some areas the distinction is still difficult, in which case whole rock analyses may be useful.

The **Myra Formation** overlies the Nitinat Formation, possibly with minor unconformity. In the Nitinat-Cameron River area the Myra Formation is made up of a lower massive to widely banded basaltic tuff and breccia unit, a middle thinly banded albite-trachyte tuff and argillite unit, and an upper thick bedded, medium- grained albite-trachyte tuff and breccia unit. In the lower unit, crudely layered

mottled maroon and green volcaniclastic greywacke, grit and breccia are succeeded by beds of massive, medium-grained dark tuff up to 20 m thick interlayered with thin bands of alternating light and dark, fine- grained tuff with local fine to coarse breccias containing fragments of Nitinat Formation volcanics. The middle unit comprises a sequence of thinly interbedded, light feldspathic tuff (albite trachyte or keratophyre composition) and dark marine argillite which has the appearance of a graded greywacke argillite turbidite sequence. In the upper part of the middle unit, sections of thickly bedded to massive black argillite occur. The upper unit contains fine and coarse crystal tuffs in layers up to 10 m thick with local rip-up clasts and slabs of argillite up to 1 m in length as well as synsedimentary breccias of light coloured volcanic and chert fragments in a matrix of black argillite.

Mapping by Fyles (1955) in the area north of Cowichan Lake located a thick sequence of mainly massive green volcanics (Nitinat Formation), overlain by a "marker" unit consisting of a sequence of thin bedded, cherty tuffs with several metres of coarse breccia containing fragments of amygdaloidal volcanics between it and the Nitinat Formation. Overlying the marker unit are grey to black feldspathic tuffs and argillaceous sediments and minor breccias. Muller (1980a) considers the marker unit to correspond to the lower unit of the Myra Formation, while the overlying unit of tuffs and sediments is correlated with the middle unit "and probably contains the upper ... unit as well."

In the Sicker Mountain area, the Myra Formation is more pervasively deformed and consists of well bedded, mainly felsic tuff and breccia interbedded with black agrillite and some greywacke. The rocks have been converted to quartz-chlorite-sericite schist in steep and

overturned isoclinal folds. Breccia fragments are commonly epidotized. The "Tyee Quartz Porphyry" is a porphyritic rhyolite containing quartz eyes to 5 mm that occurs partly as cross cutting sills and partly as flows(?) within the Myra Formation. Tyee Quartz Porphyry is related to the Saltspring Intrusions.

The type locality of the Myra Formation is Myra Creek, at the south end of Buttle Lake, about 160 km northwest of Duncan. Volcaniclasitc rocks consisting dominantly of rhyodacitic or rhyolitic tuff, lapilli tuff, breccia, and some quartz porphyry and minor mafic flows and argillite (Upper Myra Formation) are host to Westmin Resources Ltd.'s Myra, Lynx, Price, and H-W massive sulphide (Cu-Zn-Pb-Au-Ag-Cd) deposits.

Muller (1980a) estimated the thickness of the Nitinat Formation at about 2000 m and that of the Myra Formation at 750 to 1000 m. Fyles' (1955) work indicates a thickness of at least 1500 m for the Nitinat Formation, and at least 1000 m for the Myra Formation in the Cowichan Lake area. Both the Nitinat and Myra Formations were dated as Devonian and/or older by Muller (1980a).

The **Saltspring Intrusions** are fine to medium grained, light coloured metamorphosed granite or granodiorite which lacks the speckled appearances of most other intrusive rocks on Vancouver Island. Indistinct gneissic foliation and agmatitic structures occur pervasively. The Saltspring Intrusions have gradational contacts with the Tyee Quartz Porphyry of the Myra Formation and are considered to be comagmatic with it. Dating of the Saltspring Intrusions reveals an initial age of latest Silurian.

The Saltspring Intrusions are exposed maily on Saltspring Island, and do not extend westward into the regional geology map area.

The **Sediment-Sill Unit** is transitional between the Myra and Buttle Lake Formations. The upper and lower contacts are poorly defined. Thin bedded, turbidite-like, much silicified or cherty massive argillite and siltstone are interlayered with diabasic sills. The sediments show conspicuous dark and light banding on joint surfaces. The sills consists of a fine-grained, greenish black matrix containing feldspar phenocrysts up to more than 1 cm, commonly clustered in rosettes up to few centimetres in diameter, producing a very distinctive "flower porphyry" appearance. Subophitic texture may also be visible in hand specimen. The sediments are dated as Mississippian in age whereas the sills are believed to represent feeders to Triassic Karmutsen volcanics.

The **Buttle Lake Formation** consists of a basal green and maroon tuff and/or breccia overlain by coarse-grained crinoidal and calcarenitic limestone, fine-grained limestone with chert nodules and some dolomitic limestone. Lesser amounts of argillite, siltstone, greywacke, or chert may also be present.

In the area southeast of Cowichan Lake, the Buttle Lake Formation consists of laminated, calcareous grey siltstone and black argillite containing lenses of coarse-grained calcarenite, minor massive beds or crinoidal limestone about 1 m thick, and lenses and nodules of chert. The section was described by an earlier worker as mainly interbedded chert and limestone (Yole in Muller, 1980a).

The Buttle Lake Formation is up to 466 m thick (approximately 300 m thick southeast of Cowichan Lake). The age of the formation, on the basis of fossil dating, appears to be Middle Pennsylvanian, but could possibly be as young as Early Permian (Muller, 1980a) This has been confirmed by recent dating work by Brandon and others (1986),

including isotopic as well as conodont ages, which indicates that rocks of the Buttle Lake Formation are early Middle Pennsylvanian (Atokan) through Early Permian (probably Sakmarian) in age.

4.3 Vancouver Group

The **Karmutsen Formation** volcanic rocks unconformably to paraconformably overlie the Buttle Lake Formation limestone to form the base of the Vancouver Group. They are the thickest and most widespread rocks on Vancouver Island. The formation, which is well exposed in the area of El Capitan Mountain, consists mainly of dark grey to black, or dark green, tholeiitic pillow basalt, massive basalt, and pillow breccia. Flows are commonly aphanitic, feldspar porphyritic, and amygdaloidal. Pillow lavas generally occur toward the base of the section.

Conglomerate containing clasts of Sicker Group rocks and jasperoid tuff forms basal sections in the Nitinat-Horne Lake area to the northwest.

Karmutsen Formation rocks are generally relatively undeformed compared to Sicker Group rocks and are dated Upper Triassic and older.

Massive to thick bedded limestone of the **Quatsino Formation** is widespread in the area south of Cowichan Lake. The limestone is black to dark grey and fine-grained to microcrystalline. Coarse-grained marble occurs in the vicinity of intrusive rocks. Most of the economic skarn deposits on Vancouver Island are hosted by Quatsino limestone. Thin bedded limestone also occurs in the formation. Fossils indicate an age of Upper Triassic (Muller and Carson, 1969).

The **Parsons Bay Formation** overlies Quatsino limestone, or locally, Karmutsen volcanics. It is composed of interbedded calcareous black argillite, calcareous greywacke and sandy to shaly limestone. It is included within the Quatsino Formation within the report map area. The Quatsino and Parsons Bay Formations are considered to represent near and offshore basin facies, respectively, in the quiescent Karmutsen rift archipelago (Muller, 1981).

4.4 Westcoast Complex

The **Westcoast Complex** comprises a variety of plutonic and metamorphic mafic crystalline rocks, including amphibolite, diorite, and quartz diorite with homogeneous, agmatitic or gneissic textures. Dioritic or agmatitic bodies underlying or intruding the Nitinat Formation are included. Metamorphosed Karmutsen Formation and/or Sicker Group rocks grade locally into the complex and are believed to be its protolith, having been migmatized in Early Jurassic time. The mobilized granitoid portion of the complex is believed to be the source of the Island intrusions and, indirectly, the Bonanza Group volcanics (Muller, 1981, 1982). Small bodies of recrystallized limestone found within the complex are believed to be derived mainly from the Quatsino Formation, and to a lesser extent from the Buttle Lake Formation.

4.5 Bonanza Group

The **Bonanza Group** stratigraphy varies considerably from place to place, as it represents parts of several different eruptive centres of a volcanic arc. Basaltic, rhyolitic, and lesser andesitic and

dacitic lava, tuff, and breccia with intercalated beds and sequences of marine argillite and greywacke make up the Bonanza Group. In the area south of Cowichan Lake, the volcanics are described as dark brown, maroon, and yellow grey massive tuff, volcanic breccia, and massive or plagiophyric flows (Muller, 1982). The Bonanza volcanics are considered to be extrusive equivalents of the Island intrusions and to be of Early Jurassic age.

4.6 Island Intrusions

Exposures of **Island Intrusions** consisting mainly of quartz diorite and lesser biotite-hornblende granodiorite occur throughout the area and are assigned an age of Middle to Upper Jurassic. Intrusive contacts with Sicker and Bonanza Group volcanic rocks are characterized by transitional zones of gneissic rocks and migmatite although contacts with Karmutsen Formation volcanic rocks are sharp and well defined. Skarn zones are reported at the contact of Island Intrusion rocks with Quatsino Formation limestone and less abundantly with Buttle Lake Formation limestone.

4.7 Nanaimo Group

Upper Cretaceous Nanaimo Group sedimentary rocks occurring throughout the area overlie Paleozoic Sicker Group rocks with profound unconformity. Extensive exposures occur in the Chemainus and Cowichan River valleys. The formations present comprise the basal portions of the Nanaimo Group.

The **Comox Formation** consists mainly of quartzofeldspathic, cross-bedded beach facies sandstone and lesser conglomerate. Numerous

intercalations of carbonaceous and fossiliferous shale and coal are characteristic.

The **Haslam Formation** is a nearshore littoral depositional facies unit characterized by massive bedded fossiliferous sandy shale, siltstone and shaly sandstone.

Interbedded coarse clastic conglomerate, pebbly sandstone and arkosic sandstone of the **Extension-Protection Formation** are beach and deltaic sands. Minor shale and coal are reported.

4.8 Structure

The Buttle Lake Arch, Cowichan-Horne Lake Arch and Nanoose Uplift are north-northwesterly trending axial uplifts and are believed to be among the oldest structural elements in south central Vancouver Island. Folding and uplift occurred before the late Cretaceous, and possibly before the Mesozoic (Muller and Carons, 1969), and more tilting, folding, and uplift occurred after the late Cretaceous. Sicker Group volcanic and sedimentary rocks occur at the cores of these uplifts.

Asymmetric southwest-verging, northwest-trending antiformal fold structures characterized by subvertical southwest limbs and moderately dipping northeast limbs are reported at Buttle Lake, in the Cameron-Nitinat River area, and north of Cowichan Lake. Well-developed foliation developed during metamorphism to chlorite-actinolite and chlorite-sericite schist in steep and overturned limbs of folds. Folding may have occurred prior to intrusion of Triassic(?) mafic sills along axial planar surfaces in folded

Sediment-Sill unit rocks. Evidence from K-Ar dating also suggests Jurassic folding. Buttle Lake Formation limestones are relatively undeformed in some places, although in others, as in the Chemainus River Canyon, they are highly deformed, along with other Sicker Group rocks (Brandon and others, 1986). Vancouver Group units are not as intensely folded; gentle monoclinal and domal structures have been mapped. However, Karmutsen Formation volcanic rocks locally conform to the attitude of underlying Myra and Buttle Lake Formations (Muller, 1980a).

Some early Mesozoic faulting occurred in the area prior to emplacement of Island Intrusions. Middle to Upper Jurassic intrusive activity (Island Intrusions) occurred along northwesterly trends.

Extensive west-northwest trending faulting occurred during the Tertiary and is best illustrated by large displacements of Nanaimo Group sediments in some areas, such as the north side of the Chemainus River valley, placing Sicker Group rocks above Nanaimo Group rocks. These faults have been traced for up to 100 km. Such structures may represent large scale underthrusting from the southwest, in a regime of long-term semi-continual northeast-southwest compression. Nanaimo Group sediments are tilted up to at least 60° from paleohorizontal where they are overlying folded Sicker Group rocks with angular unconformity such as on the south side of the Chemainus River Valley. Minor late northeasterly trending tear-faults and block faults offset northwest-trending faults in the Cowichan Valley and Saltspring Island areas.

4.9 Mineral Occurrences and Deposits

4.9.1 Gold Occurrences

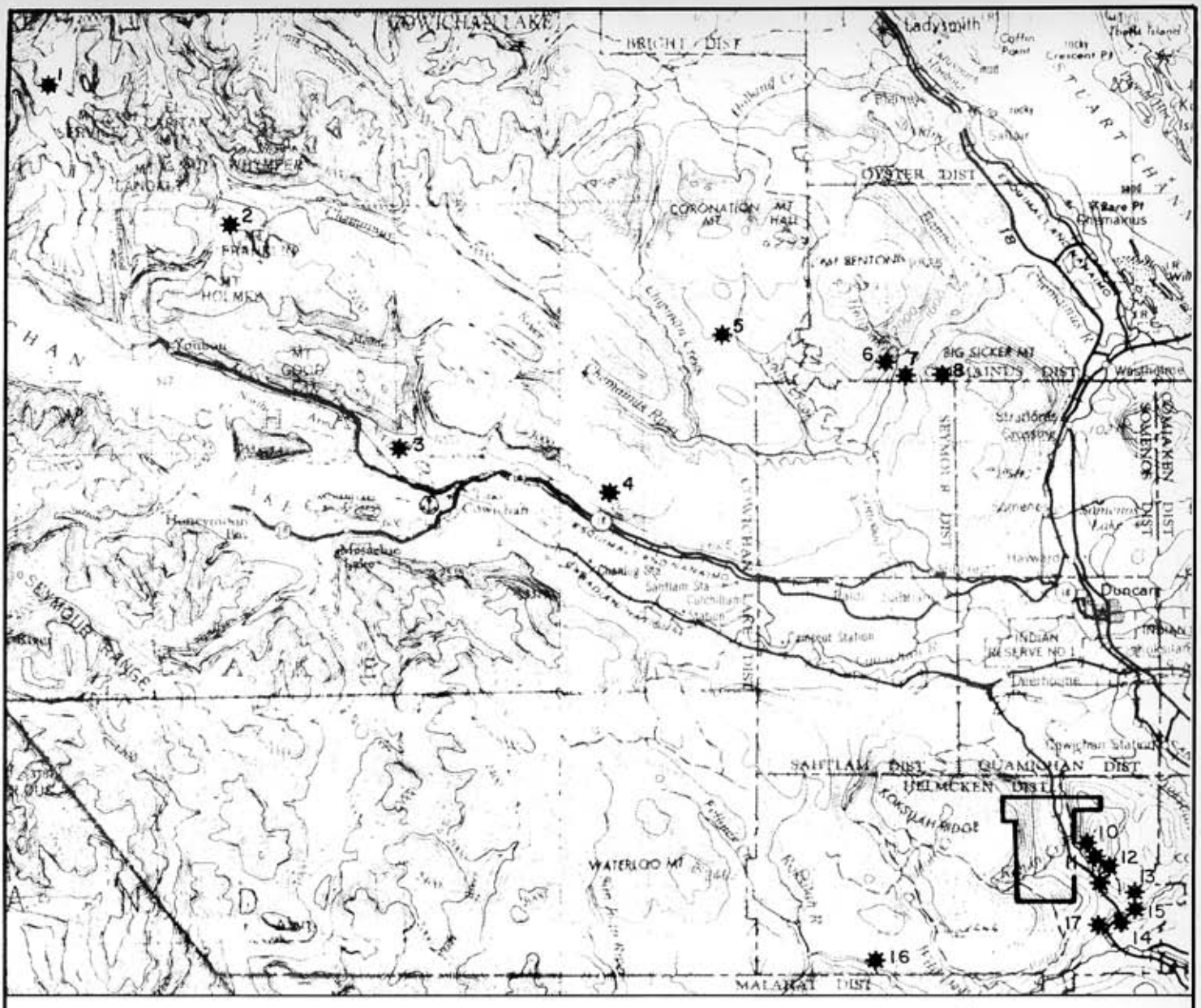
2. Comego (Cascade, Kitchener, Widow Group, Anne)
Au Cu Mo W Ag Zn Fe

Geology:

The area is underlain by Sicker Group bedded cherts, cherty tuffs, agglomerates, and andesites intruded by a gabbro-diorite sill, a quartz diorite stock, and feldspar porphyry dykes. Three types of mineralization are found in the Sicker rocks: 1) garnet-actinolite-quartz-calcite-epidote-chlorite skarn often containing magnetite, chalcopyrite, pyrite, pyrrhotite, local molybdenite, scheelite, sphalerite, tetrahedrite, rare bornite and arsenopyrite occurring in cherty tuff near the contact of the gabbro-diorite sill; 2) rusty weathering quartz-carbonate stringers in a shear zone containing finely disseminated molybdenite, pyrite, chalcopyrite, tennantite, local bornite and magnetite; and 3) quartz veins associated with the skarn zones containing masses of chalcopyrite, pyrite, and molybdenite.

Mineralization Features:

The main skarn zone is 30 m wide by 90 m high by possibly 500 m long. Best assays are 14.1 g/t Au over 1 m, 27.4 g/t Ag over 4.6 m, 8.3% Cu over 6 m, 1.3% Mo over 4.6 m, 0.32% WO_3 over 1 m. The best DDH intersection was 0.69 g/t Au, 10.3 g/t Ag, 0.5% Cu over 7.3 m. Assays from the quartz-carbonate zones are all very low. The quartz-



GOLD OCCURRENCES

1. Amore *
2. Comego
3. Meade Ck.*

OTHER OCCURRENCES

4. Hill 60 *
17. Humes Arsenic

BASE METAL OCCURRENCES, DEPOSITS

5. Lara
6. Pauper *
7. Copper Canyon *
8. Twin J
9. King Solomon
10. Dora - Mabel
11. Blue Bell
12. Viva
13. Finlay
14. W.A.E.
15. Fallside
16. Robertson

N

* not described in Mineral Occurrences Section.

ALLEN WEBB

MINERAL OCCURRENCES LOCATION MAP
KELVIN GROUP
SIL 1, 2, 5 CLAIMS

Project No:	V 225	By:	J. S. G.
Scale:	1 : 250 000	Drawn:	J. S.
Drawing No:	4	Date:	NOV. 1986.

MPH **MPH Consulting Limited**

molybdenite vein(s) are 1.5 m wide, 15 m long. Samples over 1.5 m averaged 1.3% Cu, 4.6% Mo, while a 2 m sample assayed 1.20 g/t Au, 21.3 g/t Ag, 2.2% Cu, 0.28% Mo, 0.32% WO3.

History

1902-06:	G. Lawrence; (Cascade) open cut, stripping, 2 pits
1919:	L.A. Sherk; (Kitchener Group) several open cuts and 4 short adits existed on the property
1920's:	The consolidated Mining and Smelting Co. of Canada Ltd.; test work, drove a short adit
1948-55:	Duncan Powell and others; unspecified work
1964:	O.G. MacDonald; blasted 5 pits, soil sampling, mag survey
1969-70:	Hibernia Mining Co. Ltd.; (Anne) soil sampling, mapping, JEM survey
1971:	Tagus Syndicate; mapping 7 DDH for 500 m
1980-81:	DRC Resources Corp.; mapping, soil, and rock sampling

References:

MMAR	1906-211, 1919-239, 1931-163, 1948-158-161
GEM	1969-223, 1970-290, 1971-230
AR	641, 1949, 2167, 2869, 8283,-10102
BCDM	Bull 37, p57
Carson	1968, pp128-130
Minfile	92C018

5. Lara Au Zn Ag Cu Pb

Geology:

The property is underlain mainly by Myra Formation intermediate to felsic volcanics and pyroclastics on the south limb of a gently westerly plunging anticline. Argillite units, locally graphitic, are associated with felsic tuffs. Three tuffaceous-sedimentary intervals containing pyrite and lesser amounts of sphalerite, chalcopyrite, and galena have been traced for up to 6.3 km along strike. The two northern horizons contain only minor base metals, but the southern horizon contains the Coronation Zone, Coronation Extension, and Road Showing. The Coronation Zone as outlined by drilling is stratiform and dips 60-65° to the north. The Coronation Extension is believed to occur at a higher stratigraphic level than the Coronation Zone.

Mineralization Features

The pyritic horizons range from 25 cm to 10 m in thickness and are traceable by IP, VLF-EM, and soil geochemistry. The Coronation Zone and Coronation Extension together have been outlined for a total of about 1500 m along strike and to depths averaging about 150 m. The width varies from about 1.5 to 8.2 m, averaging about 6.2 m. The Coronation Zone is open along strike on both ends. Average grades of 4.54% Zn, 4.11 g/t Au, 92.6 g/t Ag, 0.79% Cu, and 0.83% Pb have been announced from 17 of the 80 or more drill holes on the property. Individual intersections include: 3.6% of 7.30 g/t Au, 275 g/t Ag, 9.22% Zn, 1.16% Cu, 2.53% Pb; 2.99 m of 4.53 g/t Au, 108.7 g/t Ag, 5.87% Zn, 1.26% Cu, 2.48% Pb. A trench on the Coronation Zone above the discovery

drill hole exposed massive sulphides grading 24.58 g/t Au, 513.6 g/t Au, 43.01% Zn, 8.30% Pb, 3.04% Cu over 3.51 m. A feasibility study on the establishment of a 300- 500 ton-per-day milling operation is planned for early 1987. Little information is available on the Road Showing area. Six 1984 diamond drill holes intersected "weak" polymetallic mineralization in the area.

History:

1966-67: Cominco Ltd.; (Tot/Rum property) IP, resistivity, soil sampling

1978: UMEX Inc.; (Elk, Mouse groups) soil sampling, mapping, mag, EM16, shootback EM

1981-82: Laramide Resources Ltd.; (Silver 2 claim) soil sampling, IP, VLF-EM

1983-86: Aberford Resources Ltd.; (Lara) extensive geophysics, geological mapping geochemical surveys, trenching, EM survey, at least 80 DDH, prospecting.

References:

EBCR 1978-E124

AR 7384, 10116, 11123

MER 1983, p30

NM Feb 7, Aug 8, 1985; June 2, Aug 18, 1986.

Abermin Corporation - Information Booklet; Dec 30, 1985

VS 1986: Jan 24, Jan 28, May 26, Aug 5, Aug 13.

8. Twin J (Lenora, Tyee, Richard III)
Zn Cu Au Ag Pb Cd Ba

Geology:

The area is underlain by Sicker Group andesitic flows and cherty tuffs with minor sediments, metamorphosed to quartz-sericite, quartz-chlorite, and chlorite schists which are intruded by sills, dykes, and irregular masses of gabbro-diorite. The two main orebodies occur 46 m apart in strongly dragfolded parts of a schist "panel", often close to the contact of a band of graphitic schist and bounded by an intrusive sodic rhyolite porphyry. Within the orebodies, two types of ore are found. Barite ore is a fine-grained mixture of pyrite, chalcopyrite, sphalerite, and minor galena in a barite-quartz-calcite gangue. It is frequently banded, with chalcopyrite-pyrite and sphalerite layers. Quartz ore consists mainly of quartz and chalcopyrite and occurs in long lenticular masses within barite ore and the host schists.

Mineralization Features:

The North orebody is 520 m long by 0.3 to 3 m wide by 37 m downdip. The South orebody is 640 m long by 6 m or more wide by 46 m downdip. Total recorded production from 1898 to 1964 amounts to 276,831 tonnes ore containing 1,244,555 g Au, 26,141,200 g Ag, 9,681,576 kg Cu, 20,803,748 kg Zn, 189,925 kg Pb, and 1179 kg Cd. Reserves are reported as 317,520 tonnes grading 1.6% Pb, 6.6% Zn, 4.11 g/t Au, and 140.6 g/t Ag as of 1971.

History:

1897-1927	Operated as three separate mines: **Lenora**, (Lenora - Mt. Sicker Mining Co.), **Tyee** (Tyee Copper Mining Co.) and **Richard III** (Richard III Development Co. Ltd.). Most of the production came in the period from 1900 to 1907.
1928-29:	Pacific Tidewater Mines Ltd.; joined the three mines underground (**Lenora, Tyee, Richard III**)
1939-40:	Sheep Creek Gold Mines Ltd.; DD'g, trenching, underground development
1942-47:	Twin J Mines Ltd.; 125 tpd concentrator, mining from 1943 to May 1944 and mid-1946 to September 1947 (mainly from Lenora)
1949-52:	Vancouver Island Base Metals Ltd.; mining 1951 to January 1952 (mainly from Lenora)
1964:	W. Howden; mined 151.5 tonnes from **Lenora**, grade not reported
1967-70:	Mt. Sicker Mines Ltd.; 7 DDH for 123 m, mapping, trenching
1972:	Ducanex Resources Ltd.; 5 DDH for 914 m, mapping, shootback EM
1973-74:	Dresser Industries Inc.; 8 DDH for 1676 m, IP, soils
1978-80:	SEREM Ltd.; 7 DDH for 1236 m, mapping, soils, mag, EM
1983-86:	Corporation Falconbridge Copper/Peppa Resources Ltd.; geological mapping, DDH's, sampling, mag, EM 37, IP

References:

MMAR	1928-365, 1931-164, 1935-G46, 1936-F63, 1939-90, 1940-74, 1942-70, 1943-69, 1944-67, 1946-191, 1947-183, 1949-224, 1950-180, 1951-199, 1952-214, 1964-168, 1967-79, 1968-107
GEM	1969-224, 1970-291, 1972-240, 1974-163
EBC	1978-E119
AR	1104, 1714, 3741, 3950, 3951, 4904, 5164, 6996, 7714, 7814, 7875, 8168, 8264
CIMM	Structural Geology of Canadian Ore Deposits, 1948, p48
CMH	1972/73
TML	1984, #042, 064, 136, 192, 195
Minfile	92B001, 002, 003

4.9.2 Base Metal and Other Occurrences

9. King Solomon (L.17G, L. 152, L. 157; Kokisilah)
Cu Ag Zn Pb Fe (Au)

Geology:

The main deposit consists of a 6.1 m thick body of massive pyrrhotite-pyrite(-chalcopyrite), oriented 030/35° southeast and hosted by intensely shattered, highly epidote-altered cherty tuff to basaltic chert at or near the base of the Buttle Lake Formation. The tuff contains pyrrhotite disseminated, in fracture fillings, and in massive pods or lenses to at least 12 cm by 20 cm. A strongly altered rhyolite dyke(?) intrudes the tuff about 7 m from the massive orebody. An adit was driven approximately along the dyke contact. A second orebody occurs above the main one (King Solomon upper workings; Limestone orebody). It consists of complexly interlayered chert and epidote skarn with 15% pyrite and chalcopyrite disseminations and fracture fillings, in complex contact with a porphyritic dacite intrusive and trends about 135/45-50° northeast.

Mineralization Features

The first 6.1 m to 9.1 m (20' to 30') of the main orebody away from the dyke is richer, averaging 4% to 5% Cu, while the outer 4.6 to 6.1 m (15' to 20') of the deposit is lower grade, averaging about 2% Cu. The main orebody is 91.4 m long by 6.1 to 21.3 wide (300' long by 20' to 70' wide). A 29.0 m (95') crosscut intersected ore averaging 5% Cu for the first 12.2 m (40') while the last 16.8 m (55') contained heavy Fe, Cu mineralization. A 7.6 m (25')

shaft connected to a 21.3 m (70') drift and a 6.1 m (20') open cut on the "limestone orebody" were all in ore, averaging 5% Cu in the shaft and 4% Cu elsewhere. The limestone orebody is generally lower grade than the main orebody. Au + Ag contents averaged $1.50 ton in both deposits (1938) prices.

The main crosscut tunnel was driven 45.7 m (150') below and subparallel to the main orebody, never interesecting ore; a zone from 45.7 m to 207.3 m (150' to 680') runs 0.5-2.5% Cu, trace Au (stringer zone below massive sulphides?). Geophysical surveys located weak, short coincident magnetic and VLF-EM anomalies over the old workings. Reserves were estimated at 226,750 t (250,000 tons) of 1.4% Cu or 286,612 t (316,000 tons) of 0.83% Cu in the late 1950's and early 1960's.

Production

1904-05,07: 245 t (270 T) ore; 6376 g (205 oz) Ag, 17,974 kg (39,626 lb) Cu (25.71 g/t (0.75 oz/T) Ag, 7.34% Cu).

1912: 274.8 t (303 T) picked ore averaged over 5% Cu.

History:

1903-07: Maclay, Ryan; Mining

1909: James Humes; granted Crown Grant L. 17G

1913-14: King Solomon Copper Mining Co.; drove lower adit 167.6 m (550')

1956-60: Cellardor Mines Ltd.; (King Solomon, Blue Bell-#11, and other claims), surface work, SP, dewatered old workings, 13 DDH for 640 m (2100'), enlarged lower adit for more than 121.9 m (400').

1983-85: Reward Resources Ltd.; geological mapping (1:2000, 1:5000), magnetometer surveys, rock sampling, VLF-EM soil sampling.

1986: Reward Resources Ltd; geological mapping (1:2500), IP surveys, diamond drilling.

References:

MMAR 1903-210, 1904-253, 1905-216, 1907-155, 1908-164, 1909-278, 1913-290, 1914-386, 1916-312, 1923-272, 1928-363, 1959-140, 1960-116

GEM Mem. 96, pp371-377

Minfile 92B015

10. Dora-Mabel (L.35G, "4-Adits" Showing) Cu Fe

Geology:

Very strongly fractured gossanous intrusive rocks, including rhyolite and dacite dykes (Jurassic?) and Jurassic granodiorite, contain shear-bounded inclusions 2-7 m wide of chert, skarn, and marble. Both the skarn and intrusives contain abundant fracture pyrite. The rhyolite commonly contains 3-5% disseminated pyrite and local zones, to 40 cm wide, of strong epidote alteration with 5-15% pyrite. A lens of massive magnetite containing about 1-2% chalcopyrite is exposed in a road cut. The showing occurs near the top of the Buttle Lake Formation.

Mineralization Features

Assays of up to 12.32% Cu are reported from 1903-07. The magnetite lens is 50 cm wide; a chip sample across 50 cm returned 9700 ppm Cu and 4.0 ppm Ag. A grab sample from an outcrop of epidote-altered rhyolite yielded 40,000 ppm Cu and 3.4 ppm Ag in 1985.

History

1903: A small open cut existed on Mabel.
1907: Koksilah Mining Co. Ltd. (NPL); granted Crown Grants L. 35G (Dora) and L. 36G (Mabel).
1985: W.J.H. Fleetwood.

11. Blue Bell Cu Ag Fe

Geology:

Massive magnetite-pyrrhotite-pyrite-chalcopyrite occurs as fault-bounded wedges within a stratabound unit of garnetite, at and near the basal contact of garnetite with underlying bedded, graded, pyritic chert and cherty argillite. The garnetite is overlain by bedded pyritic chert and occurs near the top(?) of the Buttle Lake Formation. In the south wall of the pit, pyritic quartz-rich rock (rhyolite?) intrudes the garnetite. All rock types are gossanous to deeply weathered and intensely shattered.

A 1984 report mentions rhyolitic to dacitic flows (± bedded cherts?) with associated massive sulphide and pyrite-quartz pods in the area.

Mineralization Features

Assays of up to 29% Cu are reported. Ore was proved to 18.3 m (60') below surface by prospect shafts and was apparently indicated to over 30.5 m (100') deep by diamond drilling. The mineralized zone is up to 15.2 m (50') wide by over 61.0 m (200') long. Diamond drill hole intersections of 6.1 m (20') of ore averaging 9.75% Cu at 39.0 m (128'), and 5.8 m (19') of ore averaging 4.5% Cu at 51.2 m (168') are reported (1938) from two of four holes. Samples from massive sulphide pods ran up to 646 ppm Cu, 1.4 ppm Ag, 25 ppb Au over 1 m (1984). 1985 sampling yielded results of up to 3.66% Cu, (0.74 oz/ton Ag 280 ppm Zn, 303 ppm Co, 10 ppb Au over 2.0 m. A strong magnetic anomaly and coincident VLF-Em conductor occur over the old workings, extending 120 m northwest and 200 m southeast to **Viva** (12). A strong west-northwest trending Cu soil anomaly occurs 50 m to 100 m north of the workings.

Production

1907: 172.3 t (190 T) ore; 360 g (116 oz) Ag, 18,407 kg (20,294 lb) Cu 20.9 g/t (0.61 oz/T) Ag 5.35% Cu.

History

1903: Maclay, Ryan 18.3 m (60') tunnel.

1905-07: Vancouver Island Mining & Development Co. Ltd.; shipped ore, sunk several prospect shafts, a series of DDH's to about 45.7 m (150') each 33.5 m (110') incline shaft. Abandoned due to high transportation costs.

1957-60: Cellardor Mines Ltd.; (**King Solomon** property-#9) self-potential, dewatering old workings, 13 DDH for 640 m (2100') on **King Solomon** and **Blue Bell**.

1983-85: Reward Resources Ltd.; included in King Solomon property geological mapping (1:2000, 1:5000), rock sampling, map surveys, VLF-EM, soil sampling.

References

MMAR 1903-210, 1905-216, 1906-207, 1907-155, 1908-164, 1916-312, 1923-272, 1928-363, 1959-140, 1960-116
GSC Mem 96 p377
Minfile 92B080

12. Viva (Eva, Elsie, Comet) Cu Ag Fe

Geology:

Pyrrhotite, occurring in pods up to at least 60 cm by 70 cm by 80 cm in size, is irregularly distributed within fractures in chert. The chert is rusty weathering, intensely shattered, variably basaltic(?), and is cut by abundant epidote-filled fractures to 1 mm.

Mineralization Features

A 2.3 m chip sample of chert with 5-10% pyrrhotite returned 0.34% 2.1 g/t Cu, (0.06) oz/t) Ag, 0.01% Zn. A strong magnetic anomaly and coincident VLF-EM conductor occur over the old workings, extending 330 m to the northwest beyond **Blue Bell** (11).

Production

1916: 209 t (230 T); 964 g (31 oz) Ag, 5575 kg (12.290 lb) Cu (4.46 g/t (0.13 oz/T) Ag, 2.67% Cu).

History

1916: Joe Gallo, shipped ore but transporation costs too high.
1925: James Boal; a 10.7 m (35') shaft with a 14.6 m (48') incline drift at the bottom existed from the 1916 work.

References

MMAR 1916-312,366, 1925-303, 1928-363
Minfile 92B035

Comments:

A 1916 report states that about 227 t (250 T) of Cu ore was shipped grading about 4% (9072 kg) 20,000 lb) Cu). Another 1916 report states that 217 t (239 T) of ore was shipped averaging about 2.5% Cu 5420.5 kg (11,950 lb) Cu). A 1925 report states that about 453.5 (500 T) of ore was shipped.

13. Finlay Cu Ag (Au)

Geology

The shafts were driven through epidote-diopside (-chlorite-actinolite-garnet) skarn which contains 2-10% magnetite, 2-10% pyrrhotite, and 1% chalcopyrite. The mineralized zone is thought to occur near the base of the Buttle Lake Formations; however, no bedrock is exposed near the shafts.

Mineralization Features

A 0.9 m (3') sample assayed at trace Au, 6.9 g/t (0.2 oz/ton) Ag, 2% Cu. 1985 grab sampling returned values of up to 0.56% Cu, 0.01% Zn, 6.9 g/t (0.02 oz/T) Ag (different samples). A Cu soil anomaly located over the **Finlay** shafts is likely caused by contamination from the dump. A Zn soil anomaly occurs to the east of the workings and may reflect underlying mineralization. No mag or VLF-Em anomalies were recorded near the workings.

History

1919: Three shafts existed on the property, one of which was 4.9 m (16') deep.

1985: Reward Resources Ltd.; included in King Solomon property, geological mapping, rock sampling, soil sampling, mag and VLF-EM surveys.

References

MMAR 1919-240, 1928-363

Minfile 92B034

14. W.A.E. Cu Au Zn

Geology

The #1 cut exposes a quartz vein carrying Zn and Cu along the contact of chert and limestone. The #2 cut, about 182.9 m (600') away, exposes a weathered volcanic dyke parallel and close to a body of garnet-actinolite-epidote skarn containing Cu. Occurs in an area mapped as the Sediment-Sill unit of the Sicker Group.

Mineralization Features

An assay of the skarn mineralization returned values of 26% Cu and $1 Au/T (about 1.65 g/t (0.048 oz/T) Au) in 1903. A 1985 sample from a showing which could be the W.A.E. returned 15,000 ppm Cu, 2.0 ppm Ag, 7157 ppm Zn, 89 ppm Cd.

History

1903: Two large open cuts existed on the property.
1985: C.A. Latter (Silver 1-9 property).

References

MMAR 1903-209
Minfile 92B082

15. Fallside Zn Cu

Geology

The western part of the property is underlain by Sicker Group greenstone. Marble underlies most of the rest of the property. Both rock types are cut by "Saanich" granodiorite and by bodies of feldspar-hornblende porphyry. The greenstone has been irregulary and variably converted to garnet-epidote-diopside skarn containing pyrite and pyrrhotite, while the marble is veined with skarn minerals and contains skarn masses believed to be altered interbedded volcanics. The skarn areas contain northeast trending zones weakly mineralized with sphalerite and chalcopyrite along which quartz with

manganese stain has been introduced. Magnetite associated with garnet is common in the grandiorite, generally in minor amounts but locally in streaks up to several centimetres thick.

Mineralization Features

One of the sphalerite/chalcopyrite-bearing zones is 2 m (6.5') wide; the others are narrower. Six samples taken across widths of up to "several" feet assayed nil Au, nil Ag, and "small amounts" of Zn, Cu, except one with 1.9% Zn. No scheelite was detected with an ultraviolet lamp.

History

1946-52: P.R. Horton; an old adit caved at the mouth and several recent bulldozer open cuts exist on the property.

References

MMAR 1952-215
Minfile 92B048

Comments

The **Fallside** may cover the old **W.A.E.** (14) and/or **Finlay** (13) properties.

16. Robertson (L. 48G; Stirling, Sterling, Metal Group)
Pb Ag Zn Au Cu

Geology

Sicker Group andesitic volcanics north of the Koksilah River are in fault contact with Bonanza Group (Karmutsen?) andesitic volcanics south of the river. A shear and breccia zone in Sicker Group volcanics has been partly replaced by garnet and veined with quartz, calcite, and dolomite which in turn contain seams of galena, pyrite, sphalerite, molybdenite, and chalcopyrite.

Mineralization Features

The mineralized zone is 2 m (9') wide and at least 9.1 m (30') long. Quartz veins up to 1.2 m (4') wide occur. An assay from 1880 is $6.20 Au/T, $69.43 Ag/T, 28.3% Pb (about 10.3 g/t (0.30 oz/T) Au, 3990.9 (116.4 oz) Ag). A sample of best ore from the dump in 1928 ran 13.7 g/t (0.4 oz/T) Ag, 2.6% Pb, 7% Zn, while an earlier grab sample from the dump assayed at 0.69 g/t (0.02 oz/T) Au, 206 g/t (6 oz/T) Ag, trace Cu. Soil sampling by UMEX located seven anomalies. Anomaly E (Zn-Pb) is 1500 m long and occurs about 1 km west of **Robertson**.

History

1865-1917: W.A. Robertson; Ag-bearing float discovered 1865, mineralization in place in 1880. Working in 1917 consisted of 38.1 m (125') adit; 38.1 m (125') adit with 9.1 m (30') open cut and a 6.1 m (20') winze; a large open cut.

1928: Robertson Mining Property Ltd.; driving a third adit.

1978-79 UMEX Inc.; (Metal Group) 3500 samples (Cu Pb Zn), mag, EM, shootback EM, IP, 9 DDH for 770 m.

References

MMAR	1880-431, 1915-451, 1917-269, 1928-363
EBC	1978-E119, 1979-120
AR	6810
GSC	Mem 96, pp371-377
Minfile	92B036

Comments

Muller (1980) has mapped the rocks north of Koksilah river as Karmutsen Formation volcanics in fault contact with the Sicker Group Sediment-Sill unit. UMEX's work was done mainly to the west of the **Robertson** showing.

17. Humes Arsenic As

Geology

Arsenopyrite and native arsenic are reported to occur in a small deposit "presumably not of the contact (skarn) type". Located in an area mapped as Sicker Group Sediment-Sill unit.

Mineralization Features

No results reported.

History

Mentioned in a 1917 GSC report.

References

GSC	Mem 96, p372
Minfile	92B081

5.0 1986 ASSESSMENT WORK

Geological assessment work carried out by MPH Consulting Limited in 1986 on the Kelvin Group (Sil 1, 2, 5 claims) included reconnaissance geological mapping, prospecting, and rock sampling. Legal Corner Posts for the Sil 1, 2, 5 claims were accurately located on a new topographic base map (at a scale of 1:5000 with 10 m contours) which covers part of the property.

A total of 18 rock samples was collected and analyzed for Au and by 30-element ICP; whole rock analysis was completed on 3 rock samples.

5.1 Property Geology

The Kelvin Group (Sil 1, 2, 5 claims) is underlain mainly by Jurassic quartz diorite and lesser granodiorite of the Koksilah stock. The southern half of the Sil 2 claim is underlain by interlayered chert, clastic sedimentary volcaniclastic and possibly volcanic rocks of the Paleozoic Sicker Group. These rocks are assigned to the Sediment-Sill Unit on the basis of previous mapping by others (Muller 1980). Large blocks of limestone breccia float were also observed, suggesting possible affinities with the Buttle Lake Formation. Volcanic rock in the far southwest corner of Sil 2 claim have previously been mapped as Triassic Karmutsen Formation, which overlies the Sicker Group.

The northernmost part of the Sil 5 claim, as well as the bulk of the rocks underlying the area originally intended to be covered by the Sil 5 claim, is underlain by Cretaceous nearshore and deltaic sedimentary

rocks of the Nanaimo Group. Outcrops of cobble conglomerate (sample 1291) and sandstone with monocotyledonous leaf fossils (sample 1278) were sampled and analyzed; the latter yielded a value to 160 ppm As, but otherwise this unit is barren of economically interesting elements. Locally, thin-bedded sandstone to shaly members of the Nanaimo Group have been quarried for flagstones (W.J.H. Fleetwood, personal communication, 1986). The Nanaimo Group is also the target of exploration drilling for natural gas north of Duncan.

The Koksilah Stock is relatively barren of mineral deposits; where abundantly exposed, it is a homogenous and typical quartz diorite. However, where the intrusive body comes in contact with limestone of the Buttle Lake Formation, as on the adjacent King Solomon property, there is some potential for skarn mineralization in the form of Cu-Ag-bearing massive sulphide $\pm$ magnetite pods. No outcrops of limestone were observed on the Kelvin Group property, although float of limestone breccia was noted in the southern part of the Sil 2 claim.

One cherty rock from near the southeast corner of the Sil 2 claim showed malachite staining and yielded the highest Cu value (274 ppm) among rocks collected during this program.

The southern part of the Sil 2 claim provides the most promise for future geologial exploration. Sicker Group rocks there are similar to those on newly explored property on strike to the northwest which are showing encouraging results from a program of extensive prospecting and reconnaissance mapping.

Further geological exploration may be warranted on the southern part of the Sil 2 claim.

5.2 Lithogeochemistry and Mineralization

Eighteen (18) samples from the Sil 1, 2, and 5 claims were run for Au and ICP, of which 3 were sent for whole rock analysis.

One sample of quartz diorite, from the Koksilah Stock (sample 1292) on the Sil 5 claim, ran 10 ppb Au, whereas the rest all came in below the detection limit of 5 ppb Au.

The highest arsenic value, of 160 ppm As, came from a sample of Cretaceous Nanaimo sandstone near a contact with quartz diorite of the Koksilah Stock near Sil 5 claim).

A pyritic vein (sample 1280) in the Koksilah stock, also on the Sil 5 claim) gave the second highest As level of 30 ppm, and the highest Mo value of 138 ppm.

The highest Cu value, of 274 ppm, is from malachite-stained chert in the area of the Sil 2 claim (sample 1294). Nearby, an altered and veined sample from near a contact between an intrusive and volcaniclastic gave a value of 1110 ppm Ba.

A pyritic cherty argillite (sample 1298) from near an intrusive body of feldspar hornblende porphyry (sample 1297), showed elevated levels of Mo (8 ppm) and Pb (94 ppm).

A mafic greenstone (sample 4801) also from the Sil 2 area, has the highest values for Cr (179 ppm), Ni (44 ppm), and Zn (154 ppm).

In conclusion, highest values for elements of interest tend to be associated with contact areas between volcanic/sedimentary rocks of

Sicker Group and feldspar hornblende porphyry dykes or quartz diorite of the Koksilah stock. Obvious evidence for massive sulphide mineralization on the Sil 1, 2, 5 (Kelvin Group) property is lacking.

5.3 Whole Rock Geochemistry

Three rock samples form the Kelvin Group (Sil 1, 2, 5 claims) were selected for whole rock analysis in order to aid in lithologic indentifiction. These analyses strongly support hand specimen identification. The whole rock analysis of sample 1282, identified on outcrop as feldspar-hornblende porphyry, possibly of dacitic composition (chemically equivalent to granodiorite), compares favourably with typical granodioritic composition (sample "JG-1", p. 62 in Abbey 1983). The whole rock analysis of sample 1293, clearly a fresh hornblende quartz diorite on outcrop, is also typical.

The whole rock analyses reported here are consistent with previous interpretations that the composition of the Koksilah Stock is granodioritic to quartz dioritic. Field evidence indicates that the bulk of the stock is classic quartz diorite, with lesser amounts of slightly younger crosscutting dyke-like bodies of granodioritic porphyry.

Sample 4801, generally identified as a mafic volcanic greenstone, is shown by whole rock analysis to be of basaltic composition with relatively high levels of iron, magnesium, and titanium.

This analysis could support an interpretation correlating the more mafic layers (possibly sills?) in this volcanic/sedimentary sequence - mappped as Sediment-Sill Unit of the Paleozoic Sicker Group - with mafic units related to the Triassic Karmutsen Formation.

6.0 RECOMMENDED WORK PROGRAM

6.1 Plan

The Kelvin Group (Sil 1, 2, 5 claims) is partly underlain by rocks of the Sicker Group, a well-known host for both volcanogenic massive sulphide and precious/base metal-bearing quartz vein deposits and occurrences. Furthermore, in the immediate vicinity of the property the Sicker Group rocks host several Cu-Ag "skarn" deposits/showings on the adjacent King Solomon property. Little previous mineral exploration work has been recorded on the ground covered by Sil 1, 2, 5 claims. There is some potential for locating mineralized zones such as those on the King Solomon property.

The Phase I exploration program will consist of geological mapping, rock sampling, preliminary soil sampling, and prospecting, covering the property. Geological mapping and prospecting will serve to define and delineate stragtigraphy and any surface showings. The main exploration targets will be mineralized horizons similar to others in the Sicker Group to the northwest as well as the those hosting the nearby King Solomon property deposits/showings. Rock samples will be used for lithogeochemical and whole rock analysis. Whole rock analyses of volcanics will be used to aid in naming rock types and to detect alteration haloes surrounding volcanogenic massive suphide mineralization.

Phase II is to be a follow-up program to Phase I, consisting of detailed geological mapping and sampling, soil sampling, and VLF-EM and magnetometer surveys on grids over target areas located during Phase I.

Magnetometer surveys should detect buried "skarn" deposits easily, as they may contain a high proportion of magnetite. VLF-EM is useful in locating and tracing structural features such as faults, which may be mineralized, or may control mineralization.

Phase II is to be contingent upon favourable results from Phase I.

Phase III work, if warranted by the results of Phase II, will consist of detailed IP and/or EM surveys and trenching, rock sampling, and geological mapping over anomalous areas defined by Phase II, followed by diamond drilling.

The following cost estimates are the Phase I and Phase II geological, geochemical, and geophysical work on the Kelvin Group (Sil 1, 2, 5 claims). A general cost estimate for Phase III is also provided; the detailed Phase III budget and schedule will be contingent upon Phases I and II.

6.2 Budget

Phase I: Further geological mapping, prospecting, preliminary soil sampling

Fieldwork

Mobilization/Demobilization				$ 500
Personnel:				
Geologist	7 days @ $350		$2,450	
Field Technicians (2)	7 days @ 250		3,500	
				5,950
Equipment Rental:				
4WD Truck	7 days @	90	630	
Rocksaw	1 day @	20	20	
				650
Disbursements:				
Accom./Food	21 person days @	45	945	
Topographic Base Map and aerial photographs			2,000	
Transportation (gas, oil, repairs)	7 days @	20	140	
Miscellaneous			250	
Analyses-				
100 rocks (Au, ICP)	@	12.20	1,220	
10 rocks (Whole Rock)	@	32.00	320	
200 soils (Au, ICP)	@	10.60	2,120	
5 rocks (Thin Sections)	@	50.00	250	
				7,245
				14,345
Administration @ 15% (on $7,245)				1,087
				15,432
Contingency @ 15%				2,315
Fieldwork Subtotal				$17,747

Consulting

Personnel	3 days @ $475		$ 1,425
4WD Truck	3 days @ 90		270
Disbursements-			
Accommodation/Food	3 days @ 50	150	
Gas, Oil, Repairs	3 days @ 20	60	
Miscellaneous		150	
		360	
Administration @ 15%		54	
			414
			2,109
Contingency @ 15%			316
	Consulting Subtotal		$ 2,425

Report

Geologist	7 days @ 350		2,450
Drafting	35 hrs @ 20	700	
Copying/repro		245	
Typing		315	
Report Charges		175	
Miscellaneous		70	
		1,505	
Administration @ 15%		226	
			1,731
			4,181
Contingency @ 15%			627
	Report Subtotal		$ 4,808
	PHASE I TOTAL	say	$25,000

Phase II: Geological mapping, soil sampling, magnetometer, VLF-EM surveys

Mobilization/Demobilization			$ 750
Personnel:			
Geologist	15 days @ $350	$ 5,250	
Field Technicians (3)	15 days @ 250	11,250	
			16,500
Equipment Rental:			
4WD Truck (2)	15 days @ 90	2,700	
Magnetometer	15 days @ 75	1,125	
VLF-EM Receiver	15 days @ 25	375	
Rocksaw	2 days @ 20	40	
			4,240

Disbursements:				
Accom./Food	60 person days @ $ 45		$ 2,700	
Gas, Oils, Repairs	30 days @ 20		600	
Miscellaneous			500	
Analyses (related)-				
100 rocks (Au, ICP)	@	12.20	1,220	
10 rocks (Whole Rock)	@	32.00	320	
10 rocks (Thin Section)	@	50.00	500	
450 soils (Au, ICP)	@	10.60	4,770	
			10,610	
Administration @ 15% (on $10,610)			1,592	
				12,202
				33,692
Contingency @ 15%				5,054
	Fieldwork Subtotal			$38,746
Consulting				
Geologist	4 days @ $475			$ 1,900
4WD Truck	4 days @ 90			360
Disbursements				
Accom./Food	4 days @ 50		200	
Gas, Oil, Repairs	4 days @ 20		80	
Miscellaneous			200	
			480	
Administration @ 15%			72	
				552
				2,812
Contingency @ 15%				422
	Consulting Subtotal			$ 3,234
Report				
Geologist	10 days @ $350		$ 3,500	
Geophysicist	4 days @ 450		1,800	
				$ 5,300
Disbursements-				
Drafting	35 hrs @ 20		700	
Copying, repro			250	
Typing			500	
Report charges			200	
Miscellaneous			150	
			1,800	
Administration @ 15%			270	
				2,070
Contingency @ 15%				7,370
				1,106
	Report Subtotal			8,476
	PHASE II TOTAL			$50,000

6.3 Schedule

The following tables are summaries of the projected time requirements and work sequences for Phases I and II. Phase III is estimated to take six weeks to complete.

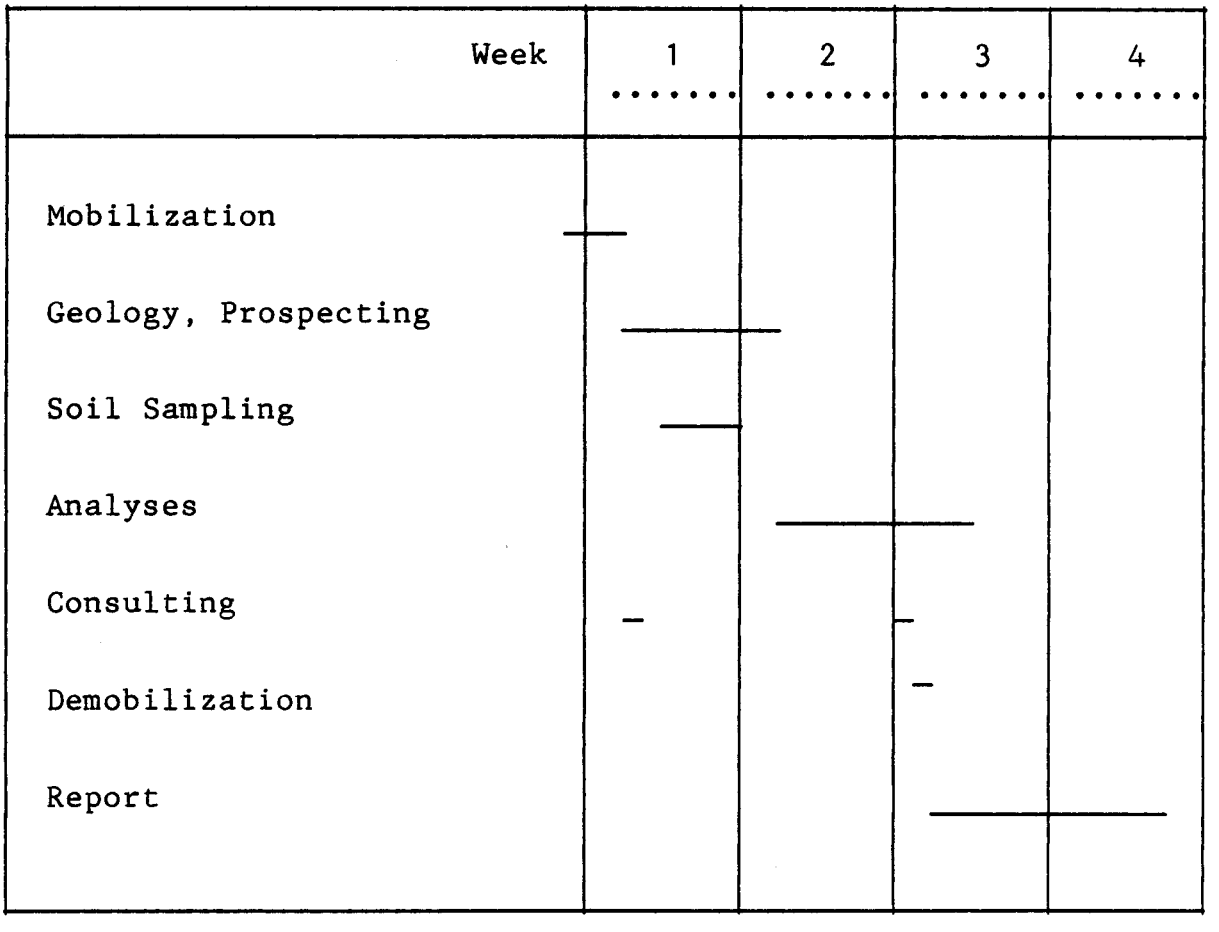


TABLE 1

PHASE I PROJECT SCHEDULE

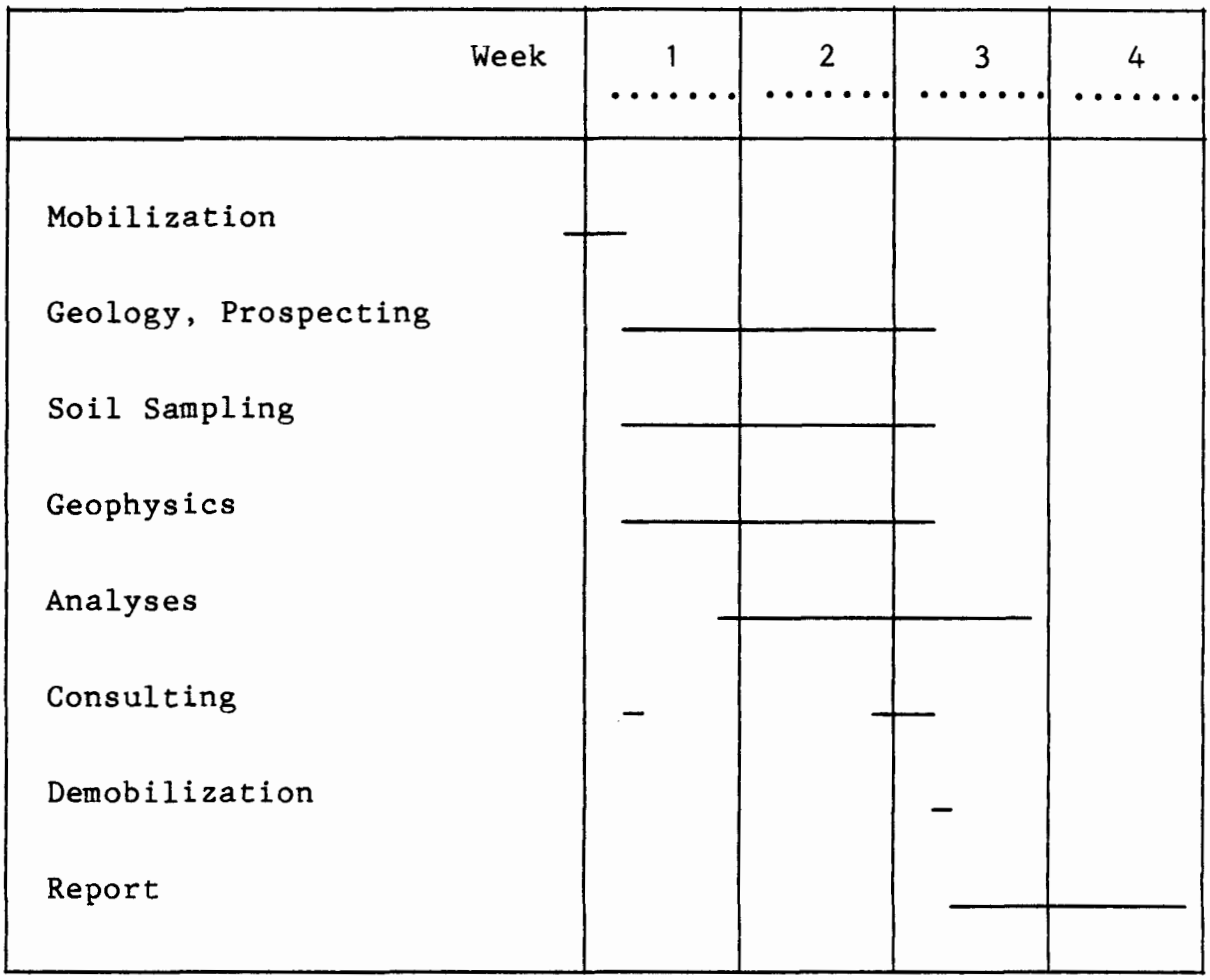


TABLE II

PHASE II PROJECT SCHEDULE

Phase III, including IP surveys, linecutting, trenching, and diamond drilling, is estimated to cost approximately $150,000 and take six weeks to complete.

7.0 CONCLUSIONS

1. The Kelvin Group (Sil 1, 2, 5 claims) is underlain by Paleozoic Sicker Group sedimentary and volcaniclastic rocks, including parts mapped as Sediment-Sill Unit and possibly Buttle Lake Formation limestone, overlain by Triassic Karmutsen Formation(?) volcanics, all of which are intruded by Jurassic granodiorite to quartz diorite of the Koksilah Stock, and overlain unconformably by nearshore clastic sedimentary rocks of the Cretaceous Nanaimo Group.

2. The rocks in the southern part of the Sil 2 claim are a direct extension of the sequence on the adjacent King Solomon property, where several zones of Cu-Ag-bearing skarn mineralization, possibly overprinting minor earlier-formed stratiform massive sulphides, are located near the contacts of the Buttle Lake Formation limestone with granitoid intrusive rocks.

3. Best lithogeochemical results from eighteen samples collected on (or near) the Sil 1, 2, and 5 claims are 10 ppb Au (sample 1292: quartz diorite), 274 ppm Cu (sample 1294: malachite-stained chert), 160 ppm As (sample 1278: leaf fossiliferous sandstone), 138 ppm Mo (sample 1280: quartz diorite), 94 ppm Pb (sample 1298: pyritic argillite), and 1110 ppm Ba (sample 1296: weathered intrusive or volcaniclastic).

4. Further geological exploration work may be warranted on the southern part of the Sil 2 claim due to similarity of rocktypes to Sicker Group rocks hosting mineralization elsewhere.

8.0 RECOMMENDATIONS

1. A Phase I exploration program consisting of geological mapping, rock sampling, and prospecting covering the entire remaining property is recommended at an estimated cost of $25,000.

2. It is recommended that skarn deposits similar to those on the adjacent King Solomon property be considered as exploration target on the Cobble Group (particularly on Sil 1 and 2 claims). To this end, it is recommended that any Buttle Lake Formation layers present on the property be traced, mapped and prospected in detail.

3. It is recommended that the sequence of Sicker Group sedimentary and volcaniclasitc rocks on the southern part of the Sil 2 claim be extensively prospected and geologically mapped and sampled.

4. Whole rock geochemistry is recommended on volcanic rock samples as an aid in classifying rock types and to locate alteration haloes surrounding mineralized zones.

5. It is recommended that a new and more accurate topographic base map be made before any further work is carried out on the Kelvin Group.

6. Contingent upon favourable Phase I results, a Phase II exploration program consisting of detailed geological mapping and sampling, soil sampling, and magnetometer and VLF-EM surveys on grids over target areas outlined by Phase I is recommended at an estimated cost of $50,000.

7. Phase III geological and geophysical exploration including diamond drilling may be recommended following Phase I and II programs, at an estimated cost of approximately $150,000.

Respectfully submitted,

MPH Consulting Limited

J. S. Getsinger

J.S. Getsinger, Ph.D.

November 6, 1986

CERTIFICATE

I, J.S. Getsinger, do hereby certify:

1. That I have studied geology at Harvard University (B.A. 1974), and have graduate degrees in geology from the University of Washington, Seattle (M.S. 1978), and from the University of British Columbia, Vancouver (Ph.D. 1985).

2. That I have practised within the geological profession for the past twelve years.

3. That the opinions, conclusions, and recommendations contained herein are based on geological research and my own observations in the field.

4. That I own no direct, indirect, or contingent interest in the subject property.

J. S. Getsinger

J.S. Getsinger, Ph.D.

November 6, 1986
Vancouver, B.C,

REFERENCES

Abbey, Sydney 1983. Studies in 'standard samples' of silicate rocks and minerals, 1969-1982, geological Survey of Canada Paper 83-25.

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Neale, T. and Hawkins, T.G. 1986. Report on Phase III geophysics and diamond drilling on the King Solomon property, for Nexus Resource Corporation, March 27, 1986.

LIST OF PERSONNEL AND EXPENDITURES

The following expenses have been incurred on the Kelvin Group (Sil 1, 2, 5 claims) for the purposes of mineral exploration carried out between the dates of July 9 to August 6, 1986.

Professional Services:			
T.G. Hawkins, P.Geol.			
1 day @ $475		$ 475.00	
J.S. Getsinger, PhD.			
9 days @ 350		3,150.00	
			$3,625.00
Equipment Rental:			555.00
Disbursements:			
Food and Accommodation		240.00	
Analyses-			
18 rocks (Au,ICP)	@ 11.95 215.10		
3 rocks (Whole Rock)	@ 20.00 60.00		
		275.10	
Transportation		42.00	
Miscellaneous		38.07	
Report Costs (typing, copying, drafting)		750.00	
		1,345.17	
Administration @ 15%		201.78	
			1,546.95
			$5,726.95

Appendix I

ROCK SAMPLE DESCRIPTIONS

and

LITHOGEOCHEMICAL RESULTS

SAMPLE DESCRIPTIONS

Sample No		Description	Cu ppm	Zn ppm	Other ppm
1278	Location:	Near Sil 5 Claim boundary(?), on Mountain Road.	24	52	160 As
	Collected:	July 30, 1986			
	Rock Type:	Fossiliferous lithic feldspathic arenite.			
	From outcrop of massive sandstone with beds more than 2-3 m thick, and thin interbeds containing carbonaceous monocotyledonous leaf fossils up to 3 x 10 cm. Layers with leaf fossils are also rusty. Sandstone is evenly medium-grained with subrounded grains of dark, fine-grained lithic fragments (30-40%), feldspar (40-50%), and quartz (10-20%) with white mica (less than 5%) and rare pyrite.			
1279	Location:	Sil 5 or Sil 1 claim, Mountain Road, 2.7 km N of intersection with Kinsol Road, or 1.1 km N of Kasill Valley Farm.	8	34	170 Ba
	Collected:	July 30, 1986			
	Rock Type:	Quartz diorite			
	Coarse-grained intrusive rock with 25-30% hornblonde, 15-20% quartz, 35-40% plagioclase, and lesser biotite, small xenoliths and/or altered pyroxene, minor magnetite(?)				
1280	Location:	Sil 5 or Sil 1 claim, Mountain Road, 2.7 km N. of intersection with Kinsol Road, or 1.1 km N of Kasill Valley Farm.	29	48	30 As 138 Mo 22 Pb
	Collected:	July 30, 1986			
	Rock Type:	Pyritic altered rock in quartz diorite			
	From same outcrop as 1279, in 10 cm wide rusty zone trending 065/44S. Sample is rusty-weathering and contains pyrite (2-3%) and magnetite(?) Rock is fine-grained, green, possibly contains diopside, epidote, chlorite.				

Sample No		Description	Cu ppm	Zn ppm	Other ppm
1281	Location:	Sil 2 claim, knob 800 m from end of Colpman Road, 1.3 km from Mountain Road.	7	46	
	Collected:	July 30, 1986			
	Rock Type:	Epidote vein in intrusive granodiorite to quartz diorite.			
	From large outcrop of quartz dioritic intrusive. Epidote-quartz vein is 2.3 cm wide with vuggy open spaces lined with tiny quartz crystals. There is some sericitic alteration, minor magnetite(?)				
1282	Location:	Sil 2 claim, 20 m above steep part of Kelvin Creek canyon on overgrown road.	12	20	see Whole Rock Analysis
	Collected:	July 30, 1986			
	Rock Type:	Feldspar hornblende porphyritic granodiorite.			
	Small to large (0.5 to 5 mm) hornblende phenocrysts (25-30%) and feldspar phenocrysts (2-4 mm) (10%) in finer crystalline groundmass. Thin (1-5 mm) veinlets of chlorite + epidote are locally vuggy with quartz crystals. Some feldspar is pinkish-white, suggesting potassic component.				
1283	Location:	Sil 2 claim approx. 1.5 km from intersection of Colpman Road and Mountain Road	16	40	
	Collected:	July 30, 1986			
	Rock Type:	Quartz diorite with aplitic dykelet			
	From outcrop on overgrown road above Kelvin Creek. Relatively unaltered hornblende-biotite (30%) quartz diorite with leucocratic, pinkish aplitic dykelet 2 cm wide.				

Sample No		Description	Cu ppm	Zn ppm	Other ppm
1291	Location:	Sil 5 Claim, on road where it crosses Neel Creek gully, 2 km from Mines Road.	102	80	
	Collected:	August 1, 1986			
	Rock Type:	Cobble Conglomerate (Cretaceous Nanaimo Group)			
	From outcrop along road at Neel Creek gully. Well-rounded to subrounded clasts of mainly volcaniclastic rocks vary in grain size from medium and course sand in the matrix to mainly pebbles and cobbles, with some boulders. Cherty and tuffaceous clasts are representative of older regional rock types.				
1292	Location:	Sil 5 Claim, on same road as 1291 1.35 km W of Neel Creek gully.	140	34	10 Au
	Collected:	August 1, 1986			
	Rock Type:	Hornblende granodiorite or quartz diorite.			
	From outcrop on hill above Mountain Road, on old road. Somewhat weathered granitic textured rock with about 30-35% hornblende (long, thin grains) altered to green biotite or chlorite, and less than 60-65% felsic components, quartz and white feldspar, with grain size about 2.5 mm.				
1293	Location:	Sil 1 Claim, on Mountain Road near Wolf Creek Ranch	51 see Whole	54 Rock	180 Ba Analysis
	Collected:	August 1, 1986			
	Rock Type:	Quartz diorite			
	From outcrop of massive quartz dioritic pluton. Fresh, granular textured intrusive rock with euhedral to subhedral hornblende laths (1.5 x 8 mm; 30-35%); translucent grey quartz (20-25%); white plagioclase (40-50%); biotite (5-10%); rare pyrite and/or magnetite. Contains xenoliths of finer-grained, similar material.				

Sample No		Description	Cu ppm	Zn ppm	Other ppm
1294	Location:	Near Sil 2 claim, near SE corner 1.5 km on road from end of Mountain Road.	274	76	100 Ba
	Collected:	August 3, 1986			
	Rock Type:	Chert and/or cherty tuff with malachite stain			
	From outcrop of grey, thin-bedded (2-15 cm) chert(?) and/or cherty argillite and tuff(?). Finer laminations are white to grey to dark grey. Some rusty layers are pyritic. Thin quartz-lined fractures are dominantly perpendicular to bedding; some have open, vuggy spaces. Malachite stain is common on one 3 cm layer; only sparse tiny disseminated and fracture-controlled sulphides are visible.				
1295	Location:	Sil 2 claim, at triangle intersection about 2.1 km on road from end of Mountain Road.	61	120	
	Collected:	August 3, 1986			
	Rock Type:	Laminated cherty tuff.			
	From outcrop of bedded cherty tuff, grey to pale green; all is highly fractured, with dominant fractures and microfaults at a high angle to bedding; there are abundant angular, open, rusty, quartz lined vuggy spaces. Tiny, rare pyrite grains are associated with fractures.				
1296	Location:	Sil 2 claim at triangle intersection 2.1 km on road from end of Mountain Road	9	82	1110 Ba
	Collected:	August 3, 1986			
	Rock Type:	Weathered intrusive or volcaniclastic.			
	From outcrop within triangle of intersection, of fine to medium-grained, greenish grey volcaniclastic(?) or altered intrusive rock with rusty-brown fracture surfaces, adjacent to intrusive porphyry. Thin vuggy quartz veinlets and fractures crosscut the sample.				

Sample No		Description	Cu ppm	Zn ppm	Other ppm
1297	Location:	Sil 2 claim, about 100 m NE of triangle intersection 2.2 km on road from end of Mountain Road.	10	58	270 Ba
	Collected:	August 3, 1986			
	Rock Type:	Feldspar - hornblende porphyry intrusive			
	From outcrop. Fractured, weathered feldspar hornblende porphyry intrusive has brown vuggy fractures and very fine grained pyrite finely disseminated and on fractures (less than 1%).				
1298	Location:	Sil 2 claim, 100 m NE of triangle intersection, 2.2 km on road from end of Mountain Road	32	74	8 Mo 94 Pb
	Collected:	August 3, 1986			
	Rock Type:	Pyritic black chert/cherty argillite.			
	From outcrop adjacent to intrusive (5 m W of sample 1297). Rusty-weathering and fractured black chert and/or cherty argillite contains finely disseminated pyrite (less than 0.1 mm, less than 1%), concentrated near layer boundaries.				
1299	Location:	Sil 2 claim, 1.5 km on road west and south from triangle intersection 3.6 km on road from end of Mountain Road.	36	96	130 Ba
	Collected:	August 3, 1986			
	Rock Type:	Cherty volcaniclastic(?)			
	From outcrop of fine-grained intermediate volcaniclastic and/or chert with rusty fractures. Sample is hard, very fine-grained resembles hornfelsed siltstone.				

Sample No		Description	Cu ppm	Zn ppm	Other ppm
1300	Location:	Near S boundary of Sil 2 claim, below hill, about 3 km on road from end of Mountain Road.	15	24	4 Bi 24.64%Ca 30 Ga 18 Pb 10 Sb
	Collected:	August 3, 1986			
	Rock Type:	Recrystallized fossiliferous limestone			

Float from boulders near road, of brownish-grey weathering, silicified(?) limestone breccia. Sample contains round and/or oval fossils up to 1 cm long with near-parallel, radiating ribs, and some with network pattern, visible only on weathered surface. Small round grains may be recrystallized crinoid columnals. Rock is composed of larger fragments of grey limestone in darker limy matrix.

4801	Location:	Sil 2 claim, on road 2.8 km from end of Mountain Road, 700 m NE of triangle intersection, and 1.2 km from Colpman Road.	85	154	170 Ba 179 Cr 44 Ni
	Collected:	August 3, 1986			
	Rock Type:	Mafic greenstone			

From outcrop of chloritized mafic volcanic or volcaniclastic with rusty, vuggy quartz veinlets. Somewhat foliated metavolcanic(?) with chlorite and epidote alteration. Former feldspar phenocrysts(?) are visible as white spots on cut surface, but may be replaced by epidote.

4802	Location:	Near eastern boundary of Sil 2 claim, on road 3.4 km from end of Mountain Road, 1.3 km on road NE of triangle intersection, and 600 m from Colpman Road at Lake Shaw Road.	123	98	162 V
	Collected:	August 3, 1986			
	Rock Type:	Chloritic mafic volcaniclastic			

From outcrop of green, layered volcaniclastics. Sample has rounded lithic clasts (cherty argillite?) up to 2 mm in sheeved chloritic matrix, thus may be volcanic greywacke. Quartz veinlets occur on rusty fractures. Very minor pyrite noted.

MPH

Appendix II

CERTIFICATES OF ANALYSIS

ROSSBACHER LABORATORY LTD.

2225 S. SPRINGER AVENU
BURNABY, B.C. V5B 3H
TEL : (604) 299 - 691

CERTIFICATE OF ANALYSIS

TO : MPH CONSULTING LTD.
301-409 GRANVILLE STREET
VANCOUVER B.C.

PROJECT: V 225
TYPE OF ANALYSIS: GEOCHEMICAL

CERTIFICATE#: 86346.A
INVOICE#: 6625
DATE ENTERED: 86-08-21
FILE NAME: MPH86346.A
PAGE # : 1

PRE FIX	SAMPLE NAME	PPB Au
A	1278	5
A	1279	5
A	1280	5
A	1281	5
A	1282	5
A	1283	5
A	1291	5
A	1292	10
A	1293	5
A	1294	5
A	1295	5
A	1296	5
A	1297	5
A	1298	5
A	1299	5
A	1300	5
A	4801	5
A	4802	5

RECEIVED AUG 2 2 1986

CERTIFIED BY : F. Rossbacher

Chemex Labs Ltd.

·Analytical Chemists ·Geochemists ·Registered Assayers

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1
Phone: (604) 984-0221
Telex: 043-52597

CERTIFICATE OF ANALYSIS

TO : BONDACHER LABORATORY LIMITED

2225 SOUTH SPRINGER AVENUE
BURNABY, B.C.
V5B 3N1

CERT. # : A8616846-001-A
INVOICE # : I8616846
DATE : 3-SEP-86
P.O. # : NONE
V-225

Semi quantitative multi element ICP analysis

Nitric-Aqua-Regia digestion of 0.5 gm of material followed by ICP analysis. Since this digestion is incomplete for many minerals, values reported for Al, Sb, Ba, Be, Ca, Cr, Ga, La, Mg, K, Na, Sr, Tl, Ti, W and V can only be considered as semi-quantitative.

COMMENTS :

Sample description	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	K %	La ppm
[illegible]	2.07	0.2	160	40	<0.5	<2	0.87	<0.5	8	52	24	5.01	10	0.36	<10
[illegible]	1.22	0.2	10	170	<0.5	<2	1.37	<0.5	7	36	8	2.58	10	0.07	10
[illegible]	1.70	0.2	32	70	<0.5	<2	0.12	<0.5	11	29	29	2.53	10	0.03	10
1281	1.08	0.2	10	10	<0.5	<2	1.16	<0.5	12	68	7	2.17	10	0.01	<10
[illegible]	1.56	0.2	10	40	<0.5	<2	0.65	<0.5	10	72	12	2.45	<10	0.01	<10
1283	1.35	0.2	10	90	<0.5	<2	1.06	<0.5	8	49	16	2.57	10	0.08	10
[illegible]	3.06	0.2	20	75	<0.5	<2	0.77	<0.5	22	100	102	5.04	10	0.95	10
[illegible]	1.17	0.2	10	20	<0.5	<2	0.09	<0.5	11	25	140	2.67	10	0.09	10
[illegible]	2.31	0.2	10	180	<0.5	<2	1.75	<0.5	11	67	51	3.00	10	0.15	10
[illegible]	0.77	0.2	10	100	<0.5	<2	0.13	<0.5	4	123	274	1.84	<10	0.02	<10
[illegible]	2.17	0.2	20	70	<0.5	<2	0.30	<0.5	13	65	61	5.10	10	0.07	<10
[illegible]	1.52	0.2	10	1110	<0.5	<2	0.49	<0.5	9	27	9	2.18	<10	0.17	10
[illegible]	1.11	0.2	10	270	<0.5	<2	0.50	<0.5	6	29	19	2.44	10	0.21	10
[illegible]	0.51	0.2	20	40	<0.5	<2	0.09	<0.5	3	140	32	2.01	<10	0.01	<10
[illegible]	2.27	0.2	10	130	<0.5	<2	0.12	<0.5	8	20	20	4.74	<10	0.12	10
[illegible]	5.11	0.2	10	10	<0.5	4	24.64	<0.5	2	45	15	0.37	20	0.01	10
[illegible]	4.12	0.2	10	170	<0.5	2	2.68	<0.5	30	173	85	6.22	10	0.03	<10
[illegible]	3.84	0.2	10	80	<0.5	<2	1.21	<0.5	27	56	123	6.30	10	0.07	10

Sample description	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm		
[illegible]	0.74	416	3	0.02	21	430	12	<10	98	0.12	<10	<10	31	10	52	--	--
[illegible]	0.44	270	1	0.09	5	1770	6	<10	205	0.05	<10	<10	67	10	24	--	--
[illegible]	1.20	21[illegible]	<1	0.01	7	860	22	<10	157	0.04	10	<10	73	10	18	--	-
1281	1.20	577	1	0.01	12	1220	6	<10	199	0.27	<10	<10	41	10	44	--	-
[illegible]	0.72	218	2	0.29	4	630	4	<10	50	0.04	<10	10	25	10	22	--	--
1283	0.56	422	<1	0.07	7	1250	4	<10	38	0.12	<10	<10	72	10	45	--	--
[illegible]	1.81	709	<1	0.02	34	590	6	<10	109	0.24	10	<10	157	10	30	--	--
[illegible]	2.07	472	<1	0.04	7	1410	4	<10	26	0.29	<10	<10	65	10	34	--	--
[illegible]	1.74	258	1	0.34	3	700	8	<10	97	0.14	<10	10	22	10	54	--	--
[illegible]	0.47	575	<1	0.01	10	120	12	<10	7	<0.01	<10	<10	17	10	70	--	--
[illegible]	1.71	1701	<1	0.02	26	570	12	<10	6	0.12	10	<10	74	10	122	--	--
[illegible]	0.77	552	<1	0.03	5	1670	8	<10	26	<0.01	<10	<10	27	10	52	--	--
[illegible]	0.50	350	<1	0.03	4	1070	6	<10	20	0.01	<10	<10	22	10	59	--	--
[illegible]	0.20	214	8	0.01	17	250	94	<10	5	<0.01	<10	10	25	10	74	--	--
[illegible]	1.30	764	<1	0.02	14	350	5	<10	12	0.21	10	10	52	10	76	--	--
[illegible]	1.20	100	1	<0.01	5	260	18	10	232	<0.01	10	10	2	10	24	--	--
[illegible]	4.17	1540	1	0.01	44	260	10	<10	27	0.02	10	10	162	10	154	--	--
[illegible]	3.59	1974	<1	0.07	19	500	4	<10	42	0.14	<10	<10	102	10	99	--	-

ROSSBACHER LABORATORY LTD.

2225 S. SPRINGER AVENUE
BURNABY, B.C. V5B 3N1
TEL : (604) 299 - 6910

CERTIFICATE OF ANALYSIS

TO : MPH CONSULTING LTD.
301-409 GRANVILLE STREET
VANCOUVER B.C.

PROJECT: V 225
TYPE OF ANALYSIS: GEOCHEMICAL

CERTIFICATE#: 86346.C
INVOICE#: 6667
DATE ENTERED: 86-08-27
FILE NAME: MPH86346.C
PAGE # : 1 A

PREFIX	SAMPLE NAME	% SiO2	% Al2O3	% MgO	% Fe2O3	% CaO	% K2O	% Na2O	% TiO2	% MnO
T	1282	71.0	14.5	1.8	4.4	3.3	0.6	4.4	0.4	0.1
T	1293	61.0	17.2	3.2	7.2	6.9	1.5	3.3	0.7	0.2
T	4801	49.5	16.4	8.2	10.1	4.3	0.6	3.4	1.3	0.2

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CERTIFIED BY : F. Rossbacher

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TYPE OF ANALYSIS: GEOCHEMICAL

CERTIFICATE#: 86346.C
INVOICE#: 6667
DATE ENTERED: 86-08-27
FILE NAME: MPHS6346.C
PAGE # : 1 B

PRE FIX	SAMPLE NAME	% LOI	% TOTAL
T	1282	2.1	102.5
T	1293	1.2	102.4
T	4801	7.3	101.3

RECEIVED AUG 2 8 1986

CERTIFIED BY : J. Rossbach

Appendix III

ABBREVIATIONS USED IN MINERAL OCCURRENCES REFERENCES

ABBREVIATIONS USED IN MINERAL OCCURRENCES SECTION

AR	B.C. Ministry of Energy, Mines, and Petroleum Resources Assessment Report
BCDM	British Columbia Department of Mines
Bull	Bulletin
Carson	Metallogenic Study of Vancouver Island with Emphasis on the Relationships of Mineral Deposits to Plutonic Rocks; D.J.T. Carson, Carleton University Ph.D. Thesis, May, 1968
CIMM	Canadian Institute of Mining and Metallurgy
CMH	Canadian Mines Handbook
EBC	Exploration in British Columbia; B.C. Ministry of Energy, Mines and Petroleum Resources
GEM	Geology, Exploration and Mining in British Columbia; B.C. Department of Mines and Petroleum Resources
GSC	Geological Survey of Canada
Gunnex	Mineral Occurrences, E&N Land Grant, Vancouver Island, B.C.; Gunnex Ltd., 1966
MER	B.C. Mineral Exploration Review; B.C. Ministry of Energy, Mines and Petroleum Resources
Minfile	B.C. Ministry of Energy, Mines and Petroleum Resources Minfile, Feb. 2, 1984
MMAR	B.C. Ministry of Mines Annual Report
NM	Northern Miner
P	Paper
TML	Today's Market Line
VSW	Vancouver Stockwatch

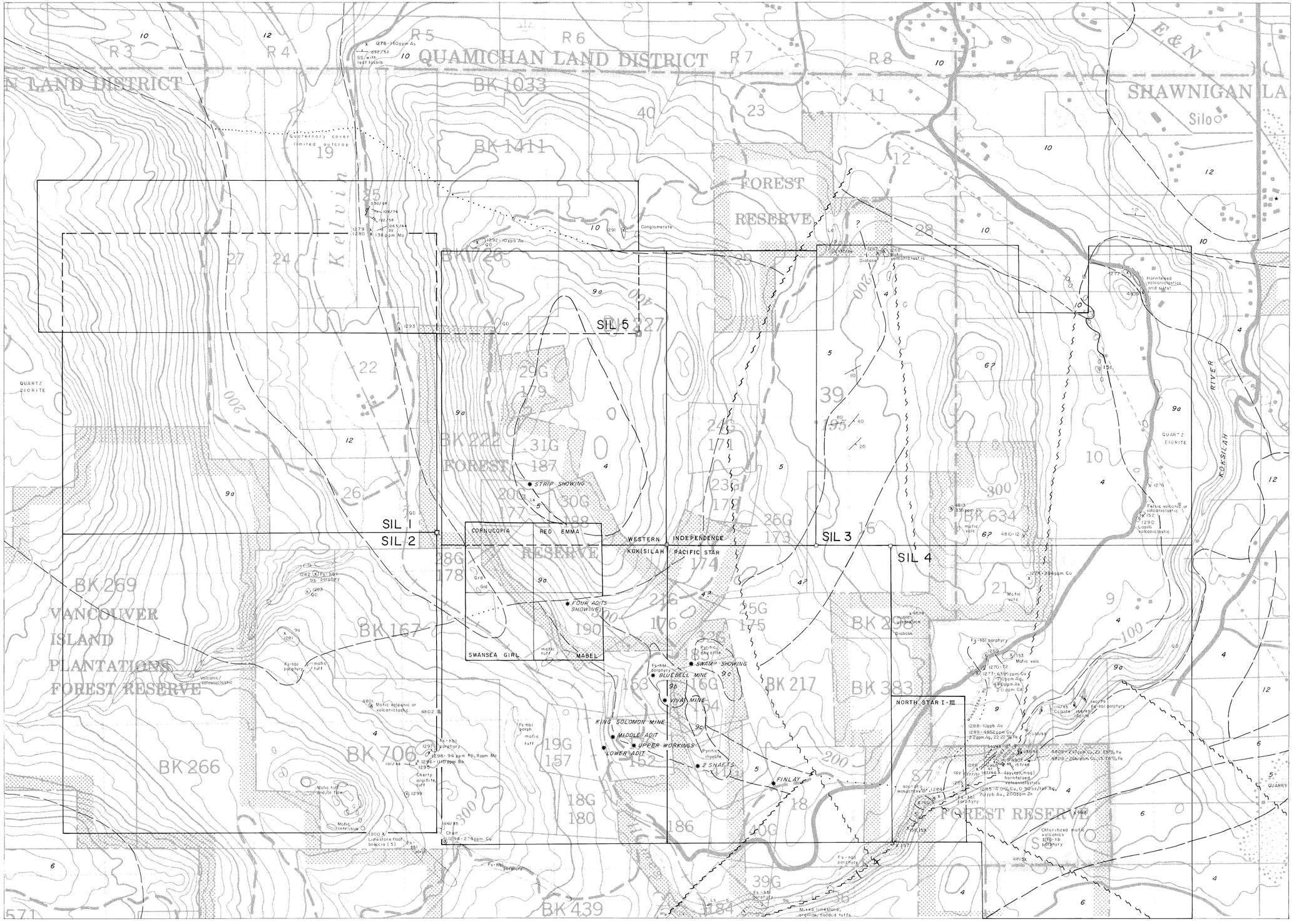
Appendix IV

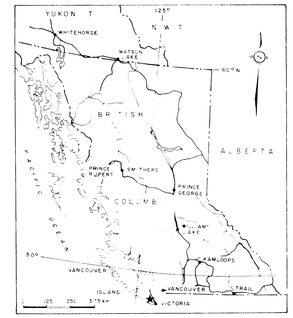
CONVERSION FACTORS FOR METRIC UNITS

MPH

Conversion Factors for Metric Units

1 inch	=	25.4 millimetres	(mm)
		or 2.54 centimetres	(cm)
1 cm	=	0.394 inch	
1 foot	=	0.3048 metre	(m)
1 m	=	3.281 feet	
1 mile	=	1.609 kilometres	(km)
1 km	=	0.621 mile	
1 acre	=	0.4047 hectares	(ha)
1 ha	=	2.471 acres	
1 ha	=	100 m x 100 m = 10,000 m^2	
1 km^2	=	100 ha	
1 troy ounce	=	31.103 grams	(g)
1 g	=	0.032 troy oz	
1 pound (lb)	=	0.454 kilogram	(kg)
1 kg	=	2.20 lb	
1 ton (2000 lb)	=	0.907 tonne	(t)
1 tonne	=	1.102 ton = 2205 lb	
1 troy ounce/ton	=	34.286 g/t	
1 g/tonne	=	0.0292 troy oz/ton	
1 g/t	=	1 part per million	(ppm)
1 ppm	=	1000 parts per billion	(ppb)
10,000 g/t	=	1%	





LOCATION MAP

LEGEND

GEOLOGY

(References: Muller 1980, Neale and Hawkins 1985)

CENOZOIC - QUATERNARY

12 Unconsolidated sediments : glacial and alluvial deposits

MESOZOIC

UPPER CRETACEOUS

10 NANAIMO GROUP : deltaic sandstone, conglomerate, siltstone, shale, and coal, undifferentiated.

LOWER TO MIDDLE JURASSIC

9 ISLAND INTRUSIONS : granodiorite, quartz diorite.

9c Pyritic Rhyolitic Intrusive : possible altered silicic phase of feldspar-hornblende porphyry.

9b Feldspar - Hornblende Porphyry (Dacite) Intrusive : sills and/or dykes <1m to >200 m wide

9a Quartz Diorite ± Granodiorite of the Koksilah Stock : Hornblende - bearing granitoid intrusive.

MIDDLE AND UPPER TRIASSIC

6 Karmutsen Formation : pillow basalt (tholeiitic ?), breccia, tuff; minor flows, interpillow breccia with quartz - epidote alteration.

PALEOZOIC - DEVONIAN TO PERMIAN

SICKER GROUP

5 Buttle Lake Formation : fossiliferous (crinoidal) limestone and marble, silicified limestone breccia, chert, argillite, and greywacke, with intervals of cherty tuff.

4 Sediment - Sill Unit : argillite, greywacke, chert, interbedded volcaniclastic and tuffaceous rocks, and diabase sills.

2 Myra Formation(?) well-bedded felsic tuff and breccia, argillite, chert, rhyodacite, minor basic tuff.

SYMBOLS

- Geological contact - approximate, assumed
- Fault - approximate
- Outcrop
- x 1292 10ppb Au — Rock sample location Geochemical results
- Bedding
- Foliation
- Dyke
- Joint
- Vein or mineralized zone
- Showing / deposit
- Approximate claim boundary
- Legal corner post - from previous maps; as located

GEOLOGICAL BRANCH
ASSESSMENT REPORT

15,219

J. S. Stevenson

0 500 1000 metres

Topography: contour interval 20 metres NTS 92B/12E

ALLEN WEBB

PROPERTY PLAN, GEOLOGY AND ROCK SAMPLING

KELVIN GROUP: SIL 1, 2, 5

VICTORIA MINING DIVISION

Project No:	V 225	By:	J.S.G
Scale:	1:10 000	Drawn:	J.S.
Drawing No:	5	Date:	NOVEMBER 1986

MPH MPH Consulting Limited