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FILE NO:

**GEOLOGICAL AND GEOCHEMICAL
REPORT ON**

1987 ASSESSMENT WORK

**POLY GROUP
(POLY AND POLY 2 CLAIMS)**

Victoria, Mining Division, B.C.
48°51'N Lat., 123°54'W Long.

for

CANAMIN RESOURCES LTD.

October 23, 1987

B.Y. Thomae, B.Sc. T.G. Hawkins, P.Geol.

92313W

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

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VANCOUVER, B.C.

ARIS SUMMARY SHEET

District Geologist, Victoria

Off Confidential: 89.01.22

ASSESSMENT REPORT 16906

MINING DIVISION: Victoria

PROPERTY: Poly Group
 LOCATION: LAT 48 51 00 LONG 123 54 00
 UTM 10 5410952 433972
 NTS 092B13W

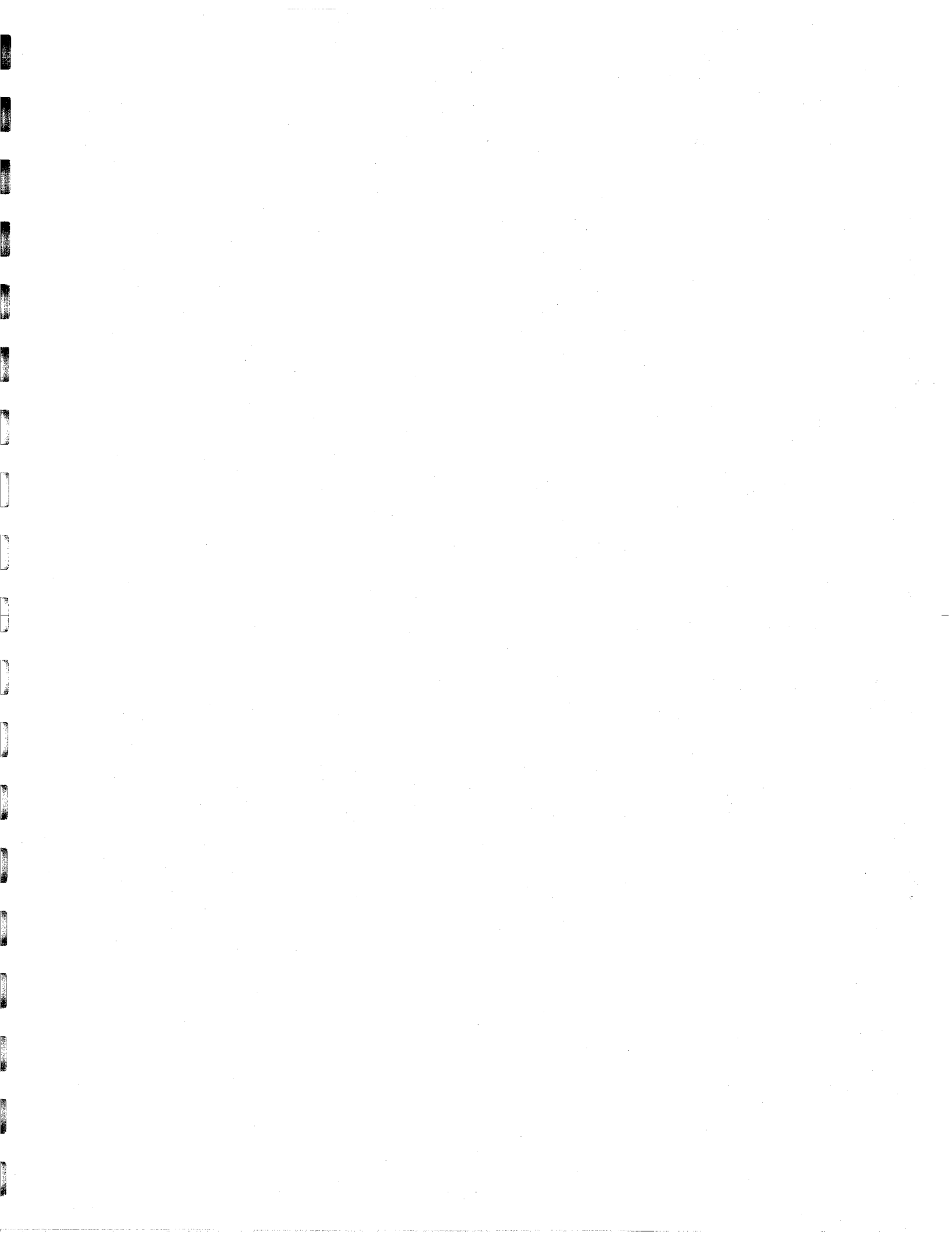
CLAIM(S): Poly, Poly 2
 OPERATOR(S): Canamin Res.
 AUTHOR(S): Hawkins, T.G.; Thomae, B.
 REPORT YEAR: 1987, 103 Pages

COMMODITIES
 SEARCHED FOR: Gold, Silver, Copper, Lead, Zinc, Barium/Barite, Manganese

GEOLOGICAL
 SUMMARY: The Poly property is underlain by the west-northwest striking, north to northeast dipping Sediment-Sill Unit of the Paleozoic Sicker Group. The succession of interbedded chert, cherty tuff, siltstone argillite and slaty argillite interbedded with tuffwacke is intruded by locally 'flower porphyritic' diabasic sills compositionally similar to Karmutsen Formation basalts. These rocks are unconformably overlain by conglomerates and shales of the Upper Cretaceous Nanaimo Group. A manganese-oxide showing occurs in bedded cherts and a crosscutting quartz vein. At this location very light pink and green rhodonite lenses occur.

WORK
 DONE: Geological, Geochemical
 GEOL 450.0 ha
 Map(s) - 1; Scale(s) - 1:5000
 ROCK 40 sample(s) ;ME
 SILT 9 sample(s) ;ME
 SOIL 88 sample(s) ;ME
 Map(s) - 4; Scale(s) - 1:5000

RELATED
 REPORTS: 14919, 15823





(i)

SUMMARY

The Poly property is underlain by the Sediment-Sill Unit of the Paleozoic Sicker Group. The succession of interbedded chert tuff, siltstone, argillite and tuffwacke strikes west to northwest with a moderate northeast dip. A large locally flower porphyritic sill, compositionally similar to that of the Karmutsen Formation intrudes these sediments. Upper Cretaceous Nanaimo Group conglomerate and shale unconformably overlie the Sicker Group in the southwest portion of the property.

Sulphide mineralization comprises disseminated and fracture pyrite and pyrrhotite associated with trace chalcopyrite in tuffwacke and argillite. Anomalous precious metal concentrations are not associated with the sulphides in the rocks sampled to date.

A manganese-oxide showing occurs within a bedded chert interval cut by a 0.7 m wide quartz vein. According to the proposed hot spring model, manganese-rich hydrothermal solutions emanated through the cherty sequence along a joint or fracture later filled by this "bull" quartz vein. Manganese oxides would have been deposited prior to, and manganese staining of the quartz vein, during its emplacement.

Chip samples across the manganese-rich cherty sequence assayed from 6.44% to 9.24% Mn with elevated silver concentrations between 1.3 ppm to 1.8 ppm from ICP. The quartz vein assayed 1.82% Mn with no associated anomalous base or precious metal concentrations. Non gem quality, very faint pink, rhodonite lenses? were observed within this banded green chert interval.



(ii)

This manganese showing suggests that hydrothermal activity has taken place in this area, increasing the potential for hydrothermal gold in crosscutting structures.

Although results from work conducted on the property in this and previous years did not outline significant anomalous precious or base metal concentrations, the close proximity to the Lara property is sufficient reason for maintaining the ground.

Recommendations for further work include further prospecting for rhodonite and manganese oxides in the cherty interval, and sampling of crosscutting structures which may contain hydrothermal gold mineralization. Geophysics including VLF-EM, magnetometer, and IP will help to outline possible structures.



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CANAMIN RESOURCES LTD.

GENERAL LOCATION MAP

POLY GROUP

VICTORIA MINING DIVISION

Project No: V 2 6 8

By: B. T.

Scale: 1 : 8 0 0 0 0 0

Drawn: J. S.

Drawing No: 1

Date: SEPTEMBER, 1987



MPH Consulting Limited



1.0 INTRODUCTION

This report is based on field work and research conducted by the author, an assistant and a geological technician of MPH Consulting Limited, between July 15 and July 22, 1987. The work was commissioned by Mr. Stephen Quin of Canamin Resources Ltd.

Work included 1:5000 scale geological mapping, prospecting and rock sampling. Soil sampling in the north central portion of the Poly claim along 4.2 line-km of flagged grid and minor silt sampling along Hosking Creek in the south-central section of the property were also carried out.



2.0 LOCATION, ACCESS, TITLE

The Poly Group is located north of the Chemainus River between Chipman and Solly Creeks, 17 air-km northwest of Duncan, on NTS mapsheet 92B/13W centred at 48°51'N Latitude, 123°54'W Longitude in the Victoria Mining Division of B.C.

The property is accessible via the MacMillan Bloedel Chemainus River logging road from Chemainus for 17.4 km, 3.75 along the powerline road, then, by short logging roads branching from the powerline 'right-of-way'.

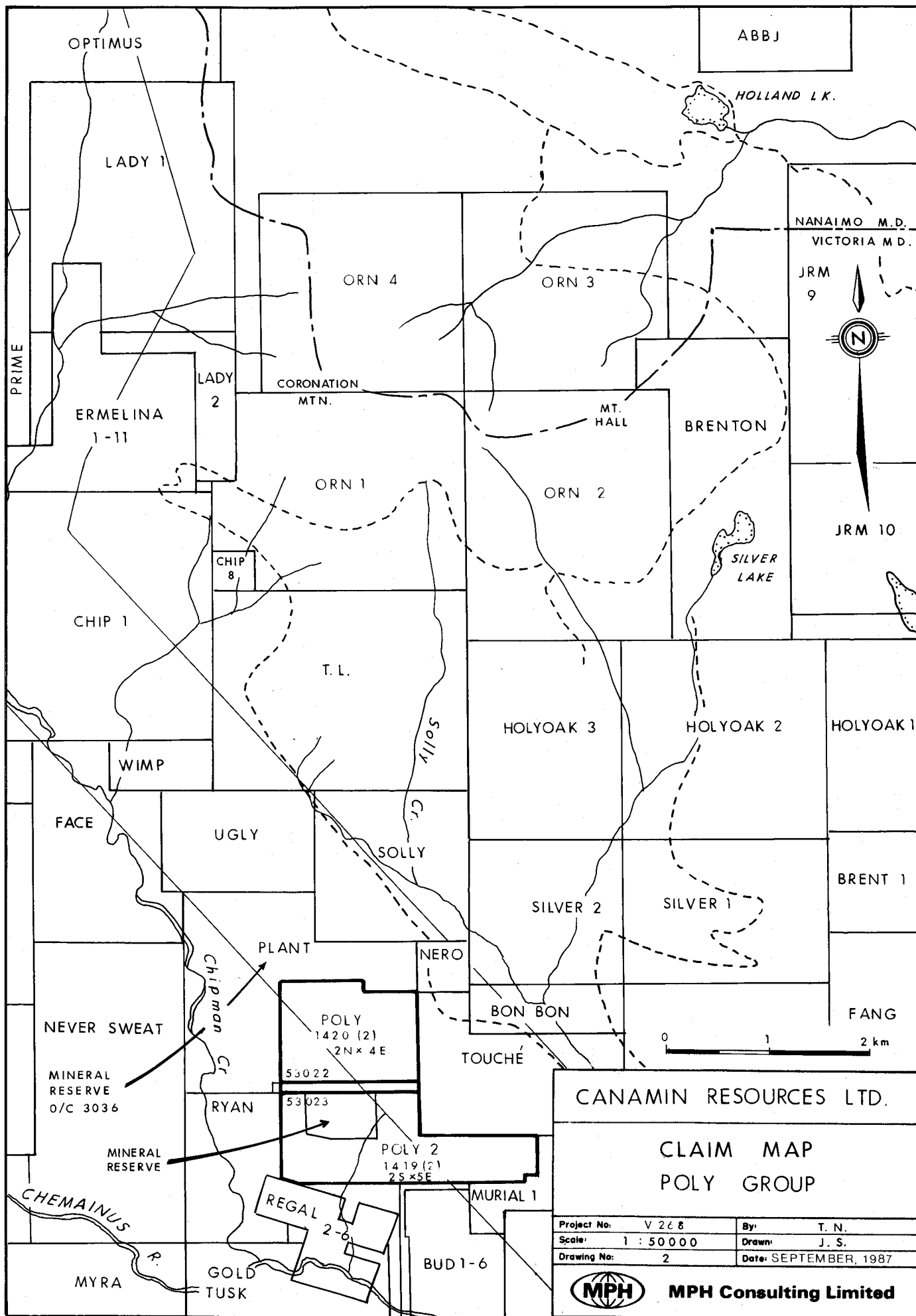
The Poly Group comprises two claims (Figure 2) totalling 18 units as summarized below:

Claim	Record No.	Units	Anniversary Date	Year Registered
Poly	1420(2)	8	Feb. 11, 1992*	1985
Poly 2	1419(2)	10	Feb. 11, 1992*	1985

*(This is providing that the 4 years worth of work done is filed before February 11, 1988).

The Poly Group is significantly reduced in size because the claims were overstaked on the Touche claims which lie to the east. A mineral and placer reserve (Timber Reserve) is located in the northwest Poly 2 claim, also reducing the size of the property somewhat.

Both claims are owned and operated by Canamin Resources Ltd. of North Vancouver. They were grouped as the Poly Group by Notice to Group dated February 11, 1986.



CANAMIN RESOURCES LTD.

CLAIM MAP
POLY GROUP

Project No:	V 268	By:	T. N.
Scale:	1 : 50000	Drawn:	J. S.
Drawing No:	2	Date:	SEPTEMBER, 1987

MPH MPH Consulting Limited



3.0 PREVIOUS WORK

The Poly and Poly 2 claims were staked in January of 1985 and recorded in February of that year, by E. Specogna for Canamin Resources Ltd.

In 1985, prospecting, chip sampling (30 samples) and two cuts in the manganese showing area were completed on the property. Eight samples collected from the showing area contained up to 0.27 g/t (0.008 oz/ton) Au, and 2.74 g/t (0.08 oz/ton) Ag.

In 1986, diamond drilling (winky) of four short holes totalling 20.7 m with core of 'XRPS' size was completed. They were drilled mainly to check the extent of a quartz vein and for 'geological study'. Near the '86-P-1' hole (DH-1) a 1m x 1m x 3m trench was dug. Drill logs were not available to the writer. However, a brief observation of the core stored at the Specogna family home, contained mainly argillite interbedded with tuff and did not appear to contain significant sulphide mineralization. The limonitic quartz vein (lens) which was drilled from the DH-1 location, resulted in powdery cuttings from the core which were sent in for analysis this year (17860).



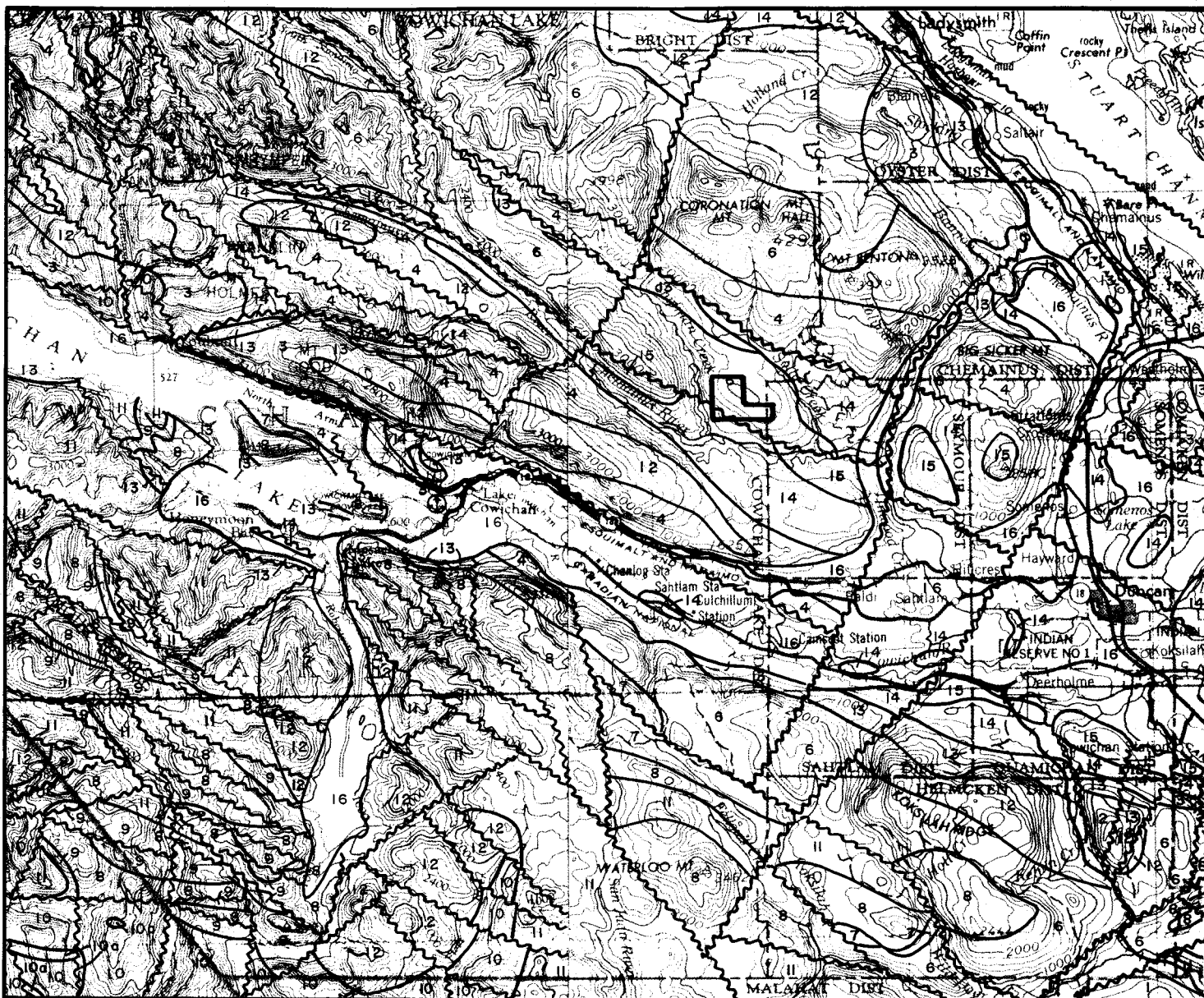
4.0 REGIONAL GEOLOGY

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 basaltic rocks and Cretaceous Nanaimo Group sediments (Figure 3). Recent government geological mapping has been carried out over the Cowichan Lake area, by a number of geologists and compiled with previous work by J.T. Fyles, A. Sutherland Brown and P. Cowley (N.W.D. Massey, 1987).

4.1 Wark-Colquitz Gneiss Complex

Wark Gneiss (Unit 1) consists of irregularly foliated to massive biotite-hornblende diorite and quartz diorite, while Colquitz Gneiss (Unit 2) 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 volcanoclastics. 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 (Muller, 1981).

The Wark-Colquitz Gneiss Complex is exposed in the vicinity of Victoria, where it 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.

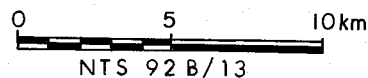
3 Nitinat Fm.: pillow lava and breccia of augite (uralite) porphyry, basic tuff; minor chlorite-actinolite schist.

LOWER PALEOZOIC (OR YOUNGER ?)

2 Colquitz gneiss: quartz-feldspar gneiss

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

After Muller (1982)



CANAMIN RESOURCES LTD.

REGIONAL GEOLOGY MAP

POLY GROUP

VICTORIA MINING DIVISION

Project No: V 268

By: T. N.

Scale: 1 : 250 000

Drawn: J. S.

Drawing No: 3

Date: SEPTEMBER, 1987



MPH Consulting Limited



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** (Unit 3) 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** (Unit 4) 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 volcanoclastic 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 argillite 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 "Tye 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. Tye 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. Volcaniclastic 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** (Unit 5) are fine to medium-grained, light coloured metamorphosed granite or granodiorite which lacks the speckled appearance of most other intrusive rocks on Vancouver Island. Indistinct gneissic foliation and agmatitic structures occur pervasively. The Saltspring Intrusions have



gradational contacts with the Tye 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 mainly on Saltspring Island, and do not extend westward into the regional geology map area.

The **Sediment-Sill Unit** (Unit 6) 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** (Unit 7) 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, possibly 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 indicate 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 (Unit 8) volcanic rocks 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, 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** (Unit 9) overlies Quatsino limestone, or locally, Karmutsen volcanics. It is composed of interbedded calcareous black argillite, calcareous greywacke and sandy to shaly limestone. 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** (Unit 10) 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 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** (Unit 11) stratigraphy varies considerably, 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** (Unit 12) 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 Volcanics 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 Intrusions 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** (Unit 13) 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** (Unit 14) 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 Carson, 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 monoclinial 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.

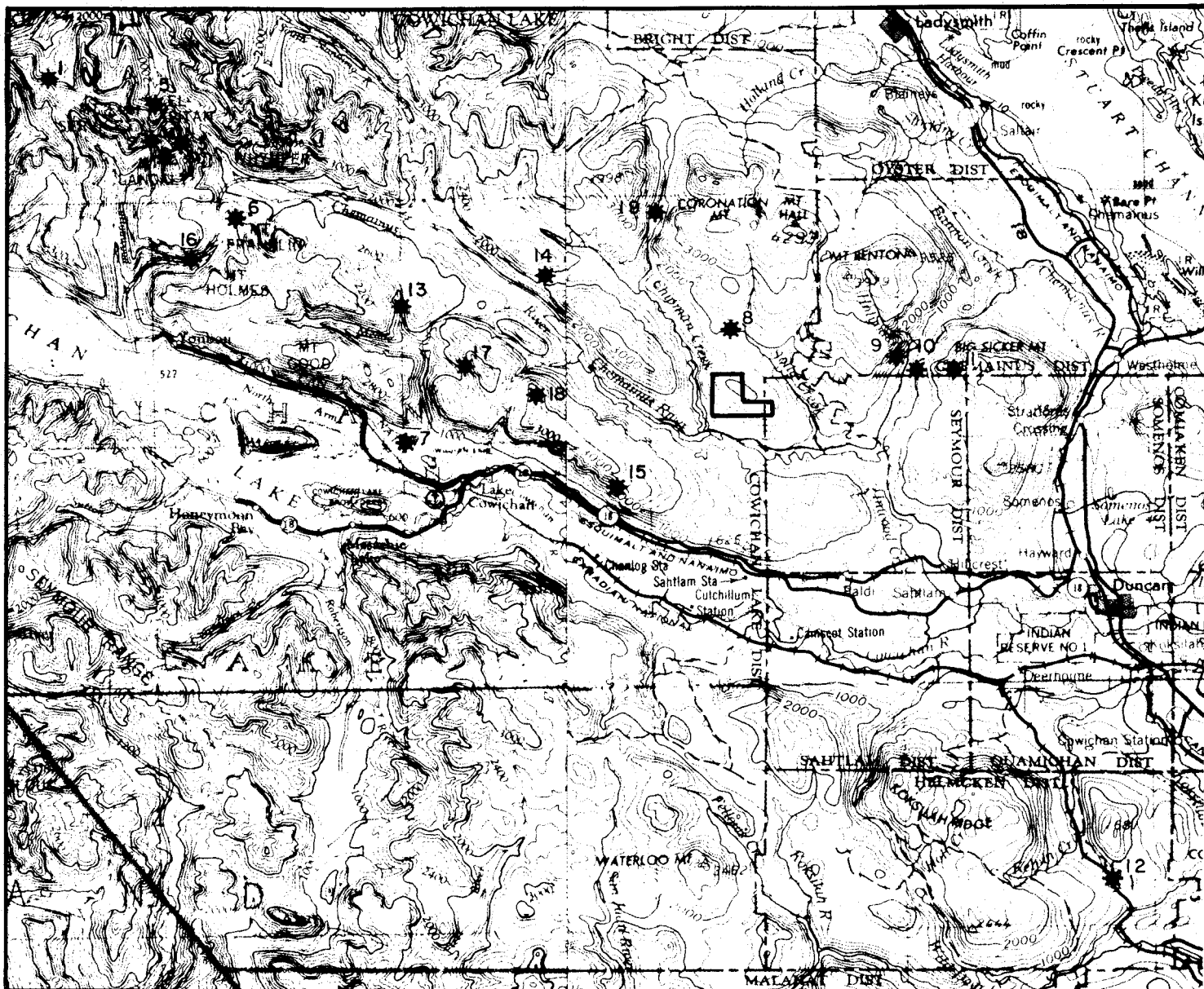
4.9 Economic Setting

The Sicker Group, and to a lesser extent, the Vancouver Group of volcanics, have been explored intermittently since the 1890's for precious and base metal mineralization.

Until recently, deposits of copper and gold-silver in quartz veins and shear zones hosted by mafic to intermediate volcanic rocks and base and precious metal skarn deposits were the most widely recognized economic and subeconomic metal concentrations in the area.

At Buttle Lake, approximately 145 km northwest of the Poly property, the Myra Formation hosts Westmin Resources' volcanogenic massive sulphide deposit. Initially discovered in 1917, it was not recognized as a volcanogenic deposit until the late 1960's. Ore minerals including sphalerite, chalcopyrite, galena, tetrahedrite-tennantite, minor bornite and covellite are hosted by pyritic, rhyolitic to rhyodacitic volcanic and pyroclastic rocks of the Myra Formation.

Published reserves of the H-W mine are 13,901,000 tonnes averaging 2.2% Cu, 5.3% Zn, 0.3% Pb, 2.40 g/t (0.07 oz/ton) Au



GOLD OCCURRENCES

- 1. Amore
- 2. Cottonwood
- 3. El Capitan
- 4. Paint Pot
- 5. Silver Leaf
- 6. Comego
- 7. Meade Ck.

BASE METAL OCCURRENCES, DEPOSITS

- 8. Lara
- 9. Pauper
- 10. Copper Canyon
- 11. Twin J
- 12. King Solomon
- 13. Candy
- 14. Pogo

OTHER OCCURRENCES

- 15. Hill 60
- 16. Rocky
- 17. Meade
- 18. Stanley Creek
- 19. Lady



CANAMIN RESOURCES LTD.

MINERAL OCCURRENCES
LOCATION MAP

VICTORIA MINING DIVISION

Project No:	V 268	By:	T. N.
Scale:	1 : 250 000	Drawn:	J. S.
Drawing No:	4	Date:	SEPTEMBER 1987.



MPH Consulting Limited



and 37.7 g/t (1.1 oz/ton) Ag (Walker, 1983). In the 3 years 1980 to 1982, 811,987 tonnes of ore were milled, producing 7,306,880 kg Cu, 43,706,118 kg Zn, 6,455,040 kg Pb, 1,740,000 g (56,000 oz) Au, 78,630,000 g (2,528,000 oz) Ag, and 58,500 kg Cd.

Another volcanogenic massive sulphide deposit in the Sicker Group is the Twin J Mine near Duncan on Mount Sicker, approximately 9 km east of the Poly property. Two parallel orebodies, 46 km apart, each containing pyrite, chalcopyrite, sphalerite and minor galena in a barite quartz-calcite gangue and chalcopyrite in quartz, occur in schists believed to have been derived from acidic volcanics (Myra Formation).

Total production from 1898 to 1964 was 277,400 tonnes producing 1,383,803 g (44,491 oz) Au, 29,066,440 g (934,522 oz) Ag, 9,549,590 kg Cu and 20,803,750 kg Zn with at least 164,590 kg Pb and 4.5 kg Cd.

On the Lara property, approximately 2 km north of the Poly property, Abermin Corp. has traced the polymetallic volcanogenic massive sulphide Coronation and Coronation Extension zones over a strike length of over 1500 m and to depths of 245 m. Average grades are 5.1 g/t Au, 111.4 g/t Ag, 0.81% Cu, 1.32% Pb, and 5.79% Zn over an average thickness of 3.9 m. A 162 m long high-grade zone within the Coronation zone averages 8.2 g/t (0.24 oz/ton) Au, 229.7 g/t (6.69 oz/ton) Ag, 1.5% Cu, 3.1% Pb, and 14.9% Zn over an average thickness of 3.4 m. Recent exploration has located other similar horizon(s) up to 2.4 km long parallel to the Coronation zone in the northern part of the property. The mineralized zones are hosted by felsic volcanics of the Myra Formation.



In a news release dated October 19, 1987, Abermin reported that work has commenced on a decline which will explore the Coronation zone, providing access to the ore zone on three levels. Future mining methods will be determined from testing of ground conditions. The mill design will be finalized following metallurgical testing of bulk samples.

This decline is expected to confirm the underground continuity and extent of the high-grade massive sulphide which has been traced by 8 diamond drill holes for a strike length of 160 m and an average thickness of 3.4 m. Weighted averages for the ore are: 8.16 g/t (0.238 oz/ton) Au, 230 g/t (6.71 oz/ton) Ag, 14.91% Zn, 3.07% Pb and 1.48% Cu.

Several precious and base metal mineral occurrences have been located in the vicinity of the Poly property in the area north of Cowichan Lake. Approximate locations are shown in Figure 4 and details of the geology, history and mineralization of these occurrences are included in the following section under 'Mineral Occurrences'.

Manganese deposits in the area north of Cowichan Lake, may mark the same stratigraphic horizon of cherty tuffs in the Sicker Group, (Cowley, 1979). Deposits are thought to have resulted from individual hot spring activity. The Hill 60 deposit contains gem quality rhodonite and manganese ore which has been mined.



4.10 Mineral Occurrences and Deposits

1. Amore Au Ag Zn Pb Mo

Geology:

The property is underlain by volcanoclastic and sedimentary rocks of the Myra Formation, overlain by Karmutsen Formation basalts which are both intruded by Island Intrusions diorite. The mineralization occurs in shears and quartz veins within silicified felsic Sicker Group rocks in the northern portion of the Amore property.

Mineralization Features:

In the northern section of the property a sulphide-rich quartz vein 3 to 30 cm wide lies in a shear zone in silicified and carbonatized Sicker Group rocks. The main sulphides found in this vein are sphalerite, pyrite, pyrrotite and galena. Assays for gold from this vein range from 10 to 680 g/t (0.3 to 20 oz/ton) Au. It should be noted that the 20 oz/ton is an approximate figure calculated from the Au returned from an approximate 2 ton shipment of ore. Further to the south on the east side of McKay Creek soil anomalies of up to 71,000 ppb Hg have been reported.

History:

1908: BCDM reports initial discoveries of molybdenite.
1918 & 1922: BCDM reports more work uncovered rosettes and seams of molybdenite in host granodiorite and some adit and trenching work.
1964: Gunnex Ltd.; carried out limited stream and soil sampling with geological mapping.
1968: Cominco conducted regional work.



- 1978: E. Specogna staked Amore claims.
1979: Aquarius Resources Ltd.; trenched and drilled gold bearing quartz vein at north end of property. Best assay 18 g/t (0.52 oz/ton) Au over 31 cm.
1981: Aquarius Resources Ltd.; completed soil and silt geochem survey along logging road at the western boundary of the Amore claim.
1984: Restaked by M. Specogna.
1985: Soil and silt geochemical program run by M. Specogna revealed Hg anomaly on east side of McKay Creek.
1986: Canamin Resources Ltd.; prospecting and soil sampling reported.
1987: MPH Consulting Limited for Canamin Resources Ltd.; assessment work consisting of soil and stream sampling, litho-geochemistry and geological mapping at 1:500 scale.

References:

BCDM 1908, 1918, and 1922
AR 7187, 7908
Minfile 92C117

2. Cottonwood Au Co Cu Ag**Geology:**

A shear zone in Karmutsen Formation(?) basalt contains lenses of quartz and patches or lenses of massive pyrite, pyrrhotite, arsenopyrite, chalcopyrite with some coatings of erythrite. Most often the sulphides are very heavily oxidized. Smaltite has also been reported.

Mineralization Features:

A 0.6 m sample assayed 6.8 g/t (0.2 oz/ton) Au, 20.6 g/t (0.60 oz/ton) Ag. A erythrite-coated sample assayed 2.64 g/t (0.077 oz/ton) Au, 1.37 g/t (0.04 oz/ton) Ag, 4.7% Co, nil Ni; while a



sample of pyrite believed to have the appearance of niccolite assayed trace Au, trace Ag, 2.5% Cu, 1.1% Co, nil Ni. The shear zone has been traced for at least 150 m and is up to 9 m wide, of which up to 1.8 m is mineralized.

History:

1927-29: Douglas, Lomas, Miller; drove upper and lower adits, 2 smaller adits, 2 open cuts.
1985: Dayton Developments Corp.; (Capitan claim) no work recorded.

References:

MMAR 1927-338, 1928-365, 1929-370
BCDM Bull. 37, p. 63
Carson 1968, p. 133
Minfile 92C020

3. El Capitan Au Cu Ag**Geology:**

A shear zone which follows the south wall of a 3 m wide hornblende porphyry dyke cutting massive porphyritic basalt or andesite of the Karmutsen Formation contains heavily oxidized pyrite, chalcopyrite in quartz stringers. Locally, shearing and mineralization is also present on the north side of the dyke. Heavy oxidation is reported to extend at least 30 m below the surface.

**Mineralization Features:**

Surface showings assay up to 148.8 g/t (4.34 oz/ton) Au, with 104 ppm Ag and 2.38% Cu. The best assay from Adit 1 in 1955 was 14.4 g/t (0.42 oz/ton) Au, 10.3 g/t (0.3 oz/ton) Ag, over 0.6 m. Sampling in 1979 in Adit 1 averaged 141.3 g/t (4.12 oz/ton) Au, 44.2 g/t (1.29 oz/ton) Ag, 2.16% Cu over an average width of 0.62 m (6 samples). Assays of up to 140.6 g/t (4.1 oz/ton) Au over 0.15 m, 120 g/t (3.5 oz/ton) Ag over 0.1 m, and 13.1% Cu over 0.15 m are reported from Adit 2. At the face of Adit 2 the vein has split into 3 smaller branches. A weighted average over 2.6 m is 16.5 g/t (0.48 oz/ton) Au. A quartz-chalcopyrite vein found southwest of the main zone in 1979 averaged 0.86 g/t (0.025 oz/ton) Au, 20.9 g/t (0.61 oz/ton) Ag, 5.37% Cu over an average of 0.3 m (2 samples). VLF-EM did not locate any anomalies, even over the known mineralized zones.

History:

1925: First staked.
1927-30: El Capitan Syndicate; stripping, drove Adits 1, 2 and a 1.8 m tunnel.
1932-35: Lomas and Powell; drove Adit 3
1979: Trans Pacific Ventures Ltd.; (Cap claim) VLF-EM, sampling old workings.
1985: Dayton Developments Corp.; rock sampling, soil sampling, trenching, geological mapping, silt sampling.
1986: MPH Consulting Limited for Dayton Developments Corp.; rock sampling, soil sampling, geological mapping (1:5000).

References:

MAR 1927-337, 1928-364, 1929-370, 1930-289, 1932-202, 1933-249, 1934-F1, 1935-F52
EBC 1979-126
AR 7832
BCDM Bull. 1, p. 131, Bull. 37, p. 61, Special Report #39, 1937
Carson 1968, p. 133
Minfile 92C019
McIntyre, J.F.; Engineering Report, El Capitan Gold Property, ..., for Strongbow Resources Corp., May 30, 1983
Private File Information



4. Paint Pot Au Cu Ag

Geology

A 0.61 m wide vein of oxidized pyrite, chalcopryrite occurs in a shear in Karmutsen Formation(?) andesite.

Mineralization Features:

An assay of 4.63 g/t (0.135 oz/ton) Au, 51.4 g/t (1.5 oz/ton) Ag, 6.1% Cu over 0.61 m is reported. The vein can be seen extending up a cliff for at least 30 m.

History:

1930-31: Martin Smith; a short tunnel driven on the vein.
1932: J.E. Fletcher & Assoc.; no work recorded.
1985: Dayton Developments Corp.; no work reported.

References:

MMAR 1930-289
BCDM Bull. 1, p. 132
Minfile 92C043



5. Silver Leaf Au Ag Cu

(Located within Nanaimo Watershed)

Geology:

Four northeasterly trending, steeply dipping, quartz-filled shear zones in Karmutsen Formation(?) massive basalt or andesite host the mineralization for the showing. The mineralization consists of lenses of massive fine-grained pyrite, chalcopyrite, pyrrhotite, minor arsenopyrite up to 1.5 m wide in a gangue of quartz, calcite and sheared basalt.

Mineralization Features:

Assays from the southern workings range from nil to 39.1 g/t (1.14 oz/ton) Au, trace to 171 g/t (5.0 oz/ton) Ag, 2.3% to 17.5% Cu over widths of up to 1.4 m. Assays from the northern workings range from trace to 41.83 g/t (1.22 oz/ton) Au, trace to 6.86 g/t (0.2 oz/ton) Ag, 2.5% to 7.2% Cu over widths of up to 1.2 m. A "vein" 15.2 m north of the southern workings assayed 21.6 g/t (0.63 oz/ton) Au, 16% Cu. A mineralized zone is also reported to occur about 305 m south of the south end of the workings. Two or more shears may intersect downhill from the workings.

History:

1911: Silver Leaf claims staked.
1923: No. 1 adit driven.
1945: Nos. 2 and 3 adits driven.
1963-64: Gunnex Ltd.; rock sampling undertaken, highest assay 42 g/t (1.22 oz/ton) Au, 7 g/t (0.2 oz/ton) Ag.

References:

MMAR 1919-224, 1921-215, 1922-243, 1926-323, 1927-348,
1928-371, 1930-302, 1937-F33
Bull. 1, 1932, p. 136
Bull. 37, 1955, pp. 63-65 (Fyles, J.T.)
Minfile 92C021

**6. 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 (0.4 oz/ton) Au over 1 m, 27.4 g/t (0.8 oz/ton) 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 (0.02 oz/ton) Au, 10.3 g/t (0.3 oz/ton) Ag, 0.5% Cu over 7.3 m. Assays from the quartz-carbonate zones are all very low. The quartz-molybdenite vein(s) are 1.5 m wide, 15 m long. Samples over 1.5 m averaged 1.3% Cu, 4.6% Mo, whereas a 2 m sample assayed 1.2 g/t (0.03 oz/ton) Au, 21.25 g/t (0.6 oz/ton) Ag, 2.2% Cu, 0.28% Mo, 0.32% WO_3 .

**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.
1985: DRC Resources Corp.; no work reported.

References:

- MMAR 1906-211, 1919-239, 1931-163, 1948-158-161
GEM 1969-223, 1970-290, 1971-230
AR 641, 1949, 2167, 2849, 8283, 10102
BCDM Bull. 37, p57
Carson 1968, pp. 128-130
Minfile 92C018
TML 1985 #056

7. Meade Creek Au**Geology:**

Placer gold deposit. Fine gold was found from bedrock to 6 m above high water level.

Mineralization Features:

It is reported that results of up to 40 colours from one pan occurred. Total production is not recorded.

**History:**

1950: J.S. Ford, R.S. Nilson and Associates; unspecified work.

References:

MMAR 1950-204
Minfile 92C057

8. 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 (0.1 oz/ton) Au, 92.6 g/t (2.7 oz/ton) 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 m of 7.30 g/t (0.2 oz/ton) Au, 275 g/t (8.0 oz/ton) Ag, 9.22% Zn, 1.16% Cu, 2.53% Pb; 2.99 m of 4.53 g/t (0.1 oz/ton) Au, 108.7 g/t (3.2 oz/ton) 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 (0.7 oz/ton) Au, 513.6 g/t (14.9 oz/ton) Ag, 43.01% Zn, 8.30% Pb, 3.04% Cu over 3.51 m.

Eight diamond drill holes have traced massive sulphides in the Coronation Zone over a strike length of 162 m. Average values from an interval of 3.4 m width were 8.23 g/t (0.24 oz/ton) Au; 229.72 g/t (6.7 oz/ton) Ag; 14.9% Zn; 3.1% Pb; 1.5% Cu.

Also, late last year, an area located 2134 m north of the Coronation Zone, tested by four diamond drill holes, shows anomalous horizons of 4.66% Zn; 0.31% Cu; 0.50% Pb with anomalous Au and Ag over narrower widths. The rock sequence containing the horizons has a strike length greater than 2438 m. \$1 million has been budgeted for the 1987 exploration program.

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.
- 1987: Feasibility study planned.

**References:**

EBCR 1978-E124
AR 7384, 10116, 11123
MER 1983, p30
NM Feb 7, Aug 8, 1985; June 2, Aug 18, 1986; Jan. 19, 1987.
Abermin Corporation - Information Booklet; Dec 30, 1985
VS 1986: Jan 24, Jan 28, May 26, Aug 5, Aug 13.
VMR February, 1987.

9. Pauper Cu Au Ag Zn**Geology:**

The area is underlain by steeply dipping sericite and quartz augen-sericite schist of the Sicker Group cut by Sicker diorite and gabbro sills and dykes. The mineralization consists of semi-massive to coarsely disseminated pyrite-chalcopyrite and is apparently stratabound, as it is concentrated in two 10 m wide horizons. Whole rock and trace element geochemistry indicates that the host rocks are intermediate, calc-alkaline, volcanic arc type (i.e. Kuroko-style setting).

Mineralization Features:

The pyritic zone is 18.3 m wide. Assays include 2% Cu over 18.3 m; trace Au, 34 g/t (1 oz/ton) Ag, 7.5% Cu from ore from the adit; and trace Au, 6.9 g/t (0.2 oz/ton) Ag, 8% Cu from a showing 91 m south of the adit. A DDH drilled about 800 m west of the adit in 1978 cut 3 m of 0.192% Cu, 0.08% Zn, 3.77 g/t (0.11 oz/ton) Ag, 0.14 g/t (0.004 oz/ton) Au.

**History:**

1890's: Originally staked.
1903: Henry Fry; Pauper (L.31G) Crown Granted.
1919: E.J. Palmer, L. Levensaler; open cut, 15.2 m adit with 15.2 m crosscut at end.
1924: J.P. Tomlinson; Pauper (L.31G) re-Crown Granted.
1927: E.F. Miller & Associates; no work reported early 1960's: Sharron Copper Co.; IP Survey, 6 DDH.
1975-79: Imperial Oil Ltd./Esso Minerals Canada Ltd.; (Mons l/Brent l) airborne EM survey; EM, mag, SP, soil sampling, mapping, 1 DDH for 93 m.
1985: Esso Resources Canada Ltd.; no work reported.

References:

MMAR 1903-250, 1923-274, 1924-368, 1927-339
EBC 1978-E121
AR 6548, 7323
Carson 1968, p. 159
Minfile 92B040
P. Holbek B.Sc. Thesis, UBC, May 1980

Comments:

The Pauper was included in a much larger property worked on by Esso from 1977-79. See Oak (P14). Carson (1968) stated that this occurrence is very similar to pyritic zones formed near massive sulphide deposits and that it is found in quartz-sericite chlorite schist similar to those of Twin J and Western Mines (Westmin Resources Ltd.).

10. Copper Canyon Au Ag Au (Zn Pb)**Geology:**

The area is underlain by schistose Sicker Group volcanics including quartz-sericite schist, chlorite schist, and rhyolite porphyry, intruded by diorite (of the Island Intrusions?). A



band 120 m to 180 m wide contains five mineralized zones; two on its southern side and three on its northern side. Disseminated to massive pyrite and minor chalcopyrite occur in a quartz vein; in a quartz vein in a shear zone; and in schist with no associated quartz vein. The schists are reported to be more siliceous and less foliated than at the Twin J mine. Unlike the Twin J, there is no barite associated with the mineralization.

Mineralization Features:

Assays reported include 10.2% Cu from a grab sample from a minor showing south of the Copper Canyon adit; trace Au, 17.1 g/t (0.5 oz/ton) Ag, trace Cu over 3 m in the Victoria adit; and 1.71 g/t (0.05 oz/ton) Au, 54.9 g/t (1.6 oz/ton) Ag, 6.77% Cu, 0.01% Pb, 0.06% Zn (location unreported). The mineralized lenses have a maximum width of 1.8 to 2.1 m. One 1.8 m zone is composed of 0.3 to 0.6 m of massive mineralization and 1.2 to 1.5 m of disseminated and veinlet mineralization. The Copper Canyon adit followed a lens for 41 m before losing it due to faulting or folding. An EM conductor 3 to 4.5 m wide by 335 m long with coincident Cu-Pb-Zn soil geochemical anomalies has been outlined on the Copper Canyon claim.

Production in 1904, 1905 and 1907 came from the Victoria claim and totalled 109 tonnes yielding 93 g (3 oz) Au, 3421 g (110 oz) Ag, and 4346 kg Cu.

History:

1897: P.J. Pearson (Copper Canyon) 30 m tunnel.
1901-02: Mounts Sicker and Brenton Mines Ltd.; tunnel on Copper Canyon lengthened to 94 m, various crosscuts and a raise/shaft added; 46 m tunnel drive on Victoria; various test pits on all claims, short adits on Klondyke, Susan claims.



- 1971-73: Viva Ventures Ltd.; VLF-EM, LF-EM, shootback EM, mag, seismic, IP, resistivity, SP, gravity, soils, mapping.
- 1977: J.R. Deighton; mapping, soil and silt sampling.
- 1978: Kinneard, Loring, Whittles; VLF-EM, mapping.
- 1979: UMAX Inc.; mapping, EM, mag, soil sampling, 1 DDH for 145 m on Klondyke.
- 1985: Canamera Explorations Ltd.; soil sampling, IP, trenching, 3 DDH for 306 m.

References:

- MMAR 1897-567, 1898-1148, 1901-1118, 1902-239, 252, 1905-216, 250, 1907-154, 221, 1920-222, 1928-365
- GEM 1971-225, 1973-224
- EBC 1977-E104 (Margie-Susan), 178-E102, 1979-122
- AR 3099, 4626, 6599, 6600, 6972, 7183, 7435
- Minfile 92B086, 004
- NM Aug. 22, 1985

11. 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 of 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 (0.12 oz/ton) Au, and 140.6 g/t (4.1 oz/ton) 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.; diamond drilling, 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,
p.48
CMH 1972/73
TML 1984, #042, 064, 136, 192, 195
Minfile 92B001, 002, 003

**12. 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 of the main orebody away from the dyke is richer, averaging 4% to 5% Cu, while the outer 4.6 m to 6.1 m of the deposit is lower grade, averaging about 2% Cu. The main orebody is 91.4 m long by 6.1 m to 21.3 m wide. A 29.0 m crosscut intersected ore averaging 5% Cu for the first 12.2 m while the last 16.8 m contained heavy Fe, Cu mineralization. A 7.6 m shaft connected to a 21.3 m drift and a 6.1 m 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 and Ag contents averaged \$1.50 ton in both deposits (1938 prices).

The main crosscut tunnel was driven 45.7 m below and subparallel to the main orebody, never intersecting ore; a zone from 45.7 m to 207.3 m runs 0.5% to 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

13. Candy Cu**Geology**

Fractured and sheared Sicker Group andesite and basalt host quartz veins containing chalcopyrite and pyrrhotite.

Mineralization Features:

Results not reported.

History:

- 1969: Four Square Exploration Ltd.; silt sampling, trenching.
- 1985: Utah Mines Ltd.; (Thriller property), no work reported.

References:

- GEM 1969-223
- Minfile 92C076

**14. Pogo Zn Pb Cu (Ag)****Geology:**

Pyrrhotite, pyrite, chalcopyrite, sphalerite, and galena occur disseminated and on fracture planes in a fractured, fine-grained diabase sill which intrudes black cherty argillite of the Sicker Group (Sediment-Sill Unit). The mineralization occurs at a synclinal fold axis where the sill is "pinched" as it crosses from the west limb to the east limb. A second showing 1370 m southeast of the main showing contains Zn-Pb-Cu mineralization in a rusty shear zone in a diabase sill.

Mineralization Features:

The best assays from the main showing are 0.42% Zn over 3 m and 0.48% Pb, 0.09% Cu, trace Ag, each from different 1.5 m samples. A grab showing from the second showing assayed 0.72% Zn, 0.17% Pb, 0.13% Cu.

History:

1964: E.M. Wilson; mapping, rock sampling.
1985: JBC Resources Ltd.; mapping, rock sampling
1986: International Cherokee Development/Angle Resources;
geological mapping, trenching, soil sampling, VLF-EM.

References:

AR 566
Minfile 92C074

**15. Hill 60 (L.12G, L.13G) Mn****Geology:**

Thinly banded green, cream, and red cherty Sicker Group chert and cherty tuff with local lenses of red jasper host lenses of rhodonite. A few thin mafic dykes cut the cherty tuff near the main workings. The rhodonite was heavily oxidized to a depth of about 4.6 m in the main workings. A type of yellow manganese garnet occurs locally in chert. Chalcopyrite and bornite are reported to occur disseminated in rhodonite and jasper.

Mineralization Features:

The main open pit is about 18.3 m long, 6 m to 9 m wide and 4.6 m to 6 m deep. A 539 tonne shipment averaged 50% Mn, 19% SiO₂. Assays range from 15.88% to 57.15% Mn with the average of 25 samples being 43.09% Mn over 1.19 m. The average Al₂O₃ content of 17 samples was 1.02%. Other thinner, smaller, less oxidized lenses of rhodonite (presumably including the Striker occurrence reported by Cowley (1979) occur in an area about 335 m long by 105 m wide. This is the only Mn deposit in the Sicker Group known to have been significantly oxidized, a condition which is necessary to make rhodonite into Mn ore. Total production in 1919 and 1920 was 1135 tonnes; Mn content was not reported.

History:

- 1918: Dickie, Wood, Service, Douglas; discovered showing, stripping and cuts.
- 1919-24: British Columbia Manganese Co. Ltd. (NPL); mining in 1919 and 1920. Constructed an aerial tramway, but no work performed since 1920.
- 1939: Dominion-Provincial Mining Training Project; cleaned out and extended trenches, trenching and stripping on new occurrences.

**References:**

- MMAR 1918-296, 1919-237, 1924-368
BCDM Bull. 37, p. 67
GSC P72-53; P64-37, p. 19; EGS 12
Canadian Rockhound February 1966, p. 7
Canadian Munition Res. Comm. Final Report, 1920, pp. 91, 95
Minfile 92B027
Cowley, P. Correlation of Rhodonite Deposits on Vancouver Island and Saltspring Island, British Columbia; UBC B.Sc. Thesis, 1979

16. Rocky (Widow Creek, Cottonwood) Mn**Geology:**

Lenses of rhodonite and brown manganese carbonate (rhodocrosite) thinly coated with oxides, lie parallel to bedding in tightly folded cherty tuff and jasper of the Sicker Group. Locally, rhodocrosite forms up to 50% of the Mn mineralization.

Mineralization Features:

Manganese occurs in an area less than 30 m by 15 m. Two other minor occurrences are reported within 790 m of Rocky. The deposit is reserved for the use of rockhounds on a non-commercial basis. No assays are reported.

History:

Known at least as early as 1920. A few shallow open cuts on the main occurrence are the only work reported.

References:

- GSC EGS12, p. 117
BCDM Bull. 37, p. 68
Canadian Munition Res. Comm. Final Report, 1920, p. 92
Minfile 92C113

**17. Meade Mn****Geology:**

Lenses containing rhodonite and manganese garnet occur in red and white Sicker Group cherty tuff. The lenses are very thinly coated with oxides.

Mineralization Features:

The lenses are up to 0.9 m thick and are believed to be more or less continuous between the two exposures in open cuts 61 m apart.

History:

Known at least as early as 1939. The only work reported consists of two shallow open cuts.

References:

BCDM Bull. 37, p. 68
Manganese Deposits of Cowichan Lake, H. Sargent, 1939
Manganese Occurrences in B.C., H., Sargent, 1956
Minfile 92C115

18. Stanley Creek (Lookout Locality, Chem A) Mn**Geology:**

Two irregular lenticular masses of rhodonite lie parallel to bedding in Sicker Group cherty tuff.

Mineralization Features:

The lenses are a several centimetres to 0.3 m wide and about 6 m long. A microprobe analysis by Cowley (1979) revealed 42.25% MnO content.

History:

Known at least as early as 1939. No physical work on the occurrence is reported.

References:

- GSC P72-53, p. 56
BCDM Bull. 37, p. 68
Manganese Deposits of Cowichan Lake, H. Sargent, 1939
Minfile 92C116
Cowley, P. Correlation of Rhodonite Deposits on Vancouver Island and Saltspring Island, British Columbia; B.Sc. Thesis, UBC, 1979

19. Lady A, Lady C Fe**Geology:**

The Lady A deposit consists of 2 lenses of taconite in cherty Sicker Group sediments while the Lady C consists of a single lens of taconite. The taconite is composed of bands of extremely fine-grained magnetite and minor specularite and hematite in grey chert and red jasper. Jasper is more common at Lady C.

Mineralization Features:

The A deposit outcrops over a strike length of 107 m and is up to 18.3 m wide. Drilling revealed an average thickness of less than 9.1 m.

The C deposit is exposed for 53.3 m along strike and has an apparent thickness of approximately 15 m. Limited drilling revealed a thickness of 45.7 m or more (holes were stopped before reaching the hanging wall) locally and down dip extent of at least 61 m. Average grades of the 4 holes ranged from 9.5% to 30.5% Fe.



The fineness of the magnetite could prove a problem in the magnetic separation process.

Reserves of the Lady A deposit are roughly estimated at 326,600 t grading 25% Fe, based on diamond drilling results. The Lady C deposit is believed to be larger than the Lady A but insufficient drilling has been done to draw definite conclusions.

History:

1953: Ladysmith Development Ltd.; 12 DDH for 390 m on Lady A and 4 DDH for 204 m on Lady C.
1985: Anna Maria Joyce (Ermelina claim); no work reported.
1986: Rafael Resources optioned the 12 Ermelina claims.

References:

MMAR 1956-135
BCDM Bull. 37, p. 13
Carson 1968, pp. 101-102
Minfile 92B029, 033

20. Sognidoro Au Ag Cu Pb

Geology:

The Rheinhart Lake area is underlain by the Sediment-Sill Unit of the Sicker Group. Mineralization occurs in two main zones on the property both within chlorite schists. The first zone consists of Au, Ag and Cu bearing jasper lenses(?) around the 840 m elevation on the east side of the property. The second zone is a Au, Ag, Cu bearing quartz vein up to 1.2 m wide which can be traced for 265 m along strike, (McDougall Vein) at the 670 m elevation. Another quartz vein exposed over 2 m at 730 m elevation contains pyrite and chalcopyrite.

**Mineralization Features:**

The jasper contains magnetite, pyrite and minor chalcopyrite. Assays from the jasper horizon returned 0.27 g/t (0.008 z/ton) Au, 3.4 g/t (0.1 oz/ton) Ag, 0.939% Cu and 0.72 g/t (0.021 oz/ton) Au (1987 samples), 1.49 g/t (0.043 oz/ton) Ag, 0.04% Cu. The McDougall quartz vein samples have returned values ranging from 0.03 to 37.51 g/t (0.0009 to 1.09 oz/ton) Au and 0.3 to 31.5 g/t (0.009 to 0.918 oz/ton) Ag, 0.8% Cu and 0.46% Pb.

History:

1917: Department of Mines survey of Anita (Sognidoro) claims.
1983-84: Canamin Resources Ltd.; soil sampling, rock sampling.
1984: E. Specogna; trenching.
1985-87: Canamin Resources Ltd.; prospecting, rock sampling.
1987: MPH Consulting for Canamin Resources Ltd.; geological mapping, silt and soil sampling, rock sampling.

References:

MMAR 1918-227
TML 1984, #066, 140
VS Apr. 24, 1985
MER 1984 p. 30
Canamin Resources Ltd.; report to shareholders, July 1, 1983.
EBC 1985-C129
AR 11401, 13568
Lisle Apr. 24, 1987



5.0 1987 ASSESSMENT WORK

Assessment work was conducted on the Poly Group from July 15 to July 22, 1987 by the author an assistant and a geological technician/pro prospector. Included were geological mapping at a scale of 1:5000, prospecting, rock, soil and silt sampling. Rock samples (40) soil samples (88) and silt samples (9) were collected and analyzed for Au by AA and by 30 element ICP at Rossbacher and Acme Laboratories, respectively.

A soil sampling grid was established in the north-central section of the Poly Group. The grid consists of 5 lines bearing 050° , spaced 200m apart when measured along the east-west baseline (claim-line) and 125 m measured perpendicular to each other. There were 88 samples collected at 50m intervals along each line.

Nine silt samples were collected at 100m intervals along Hosking Creek in the south-central portion of the Poly Group.

5.1 Property Geology (Figure 5)

The Poly Group is predominantly underlain by rocks of the Sediment-Sill Unit of the Paleozoic Sicker Group which are unconformably overlain by Upper Cretaceous Nanaimo Group sediments. The Sediment-Sill Unit is intruded by rhyodacitic dykes possibly of Tertiary age. Bedding strikes northwesterly with a moderate to steep northeasterly dip.

Foliated argillite strikes west northwesterly with a very steep northerly dip. The Sediment-Sill Unit (Unit 1a) comprises



interbedded laminated chert, argillite and siltstone with beds of fine to coarse-grained tuff, termed 'tuffwackes' due to their poorly sorted nature and the apparently volcanoclastic composition. Chert beds are commonly banded, pale green and grey to medium green with a local very light pinkish cast. The argillite is dark grey to black with local limonite staining on fracture surfaces. It is commonly slaty and fractured. Interbedded argillites and tuffwackes are locally schistose. The Sediment Sill Unit, particularly the cherty intervals, are locally cut by quartz veins and veinlets, likely due to their brittle nature.

Sills of the Sediment-Sill Unit (Unit lb) form small knolls above the relatively flat terrain. One sill appears to form a relatively narrow body (50 m wide) in the northwest and central claim group, widening to the southeast where it is exposed over several hundred meters, in the area of the powerline. The contact between the sediments and this sill strikes 335° and dips 30° northwest and parallels the regional lithologic strike.

The sill(s) is feldspar porphyritic diabasic to basaltic, medium grey to dark green to black, and locally chlorite-sericite altered with fine grained mafic crystals defining a weak foliation. Feldspar phenocrysts (up to 25%) are mainly white, coarse-grained, (up to 1 cm in diameter) glomerophyric, (flower porphyritic) and are contained in a dark coloured finer grained matrix. The sample analyzed for whole rock composition (17889) plotted as an iron-rich basalt on the Jensen Ternary Diagram. This supports the theory that diabasic sills of the Sediment-Sill Unit are possibly feeder dykes for the Karmutsen Formation basalts which have a similar chemical composition.



In the southwest portion of the Poly property, the Nanaimo Group (Unit 2) sediments unconformably overlie the Sediment-Sill Unit. Topographically the Nanaimo Group occurs below the Sediment-Sill Unit. The contact between the Nanaimo Group and the Sediment-Sill unit is interpreted as trending northwesterly parallel to regional strike. In the northwestern Poly 2 claim, a large resistant outcrop of conglomerate contains well-rounded clasts up to 10 cm in diameter. This unit is clast-supported with chert, quartz (vein), intrusive and volcanic fragments in a sandy matrix. Just west of the claim boundary a very crumbly dull grey to brown shale occurs.

5.2 MINERALIZATION

Mineralization on the property comprises manganese oxides in quartz veins and chert with manganese-rich chert? or greenish grey to pink rhodonite, in close proximity. Finely disseminated pyrrhotite? and pyrite is found locally in a tuffwacke occurring in an argillite interval. Lenses of fine grained pyrite occur within the argillite. Fracture-pyrite, particularly in argillite, is common. Chert is commonly limonite-stained but visible sulphides are rare. Local manganese-oxide staining of chert occurs. Limonitic zones are common in the argillites (especially where fractured). Only background (5 ppb) concentrations of gold were contained in the rock samples of various lithologies, collected this year.

The manganese occurrence is located in the southeast Poly 2 claim, just south of the Touche claim boundary. Banded, medium grey-green, (very light pink locally) with dark green-grey layered chert forms a flat-lying knoll with steep sides. Bedding strikes at 310° and dips 55° northeast.



Two trenches 3 m apart, cross the quartz vein cutting the chert unit. The western trench trends 230° and is 3.2 m in length. The quartz vein is approximately 0.7 m in width, and is clear to whitish with a 'greasy' lustre. Up to 10% manganese-oxide minerals including pyrolucite and psilomelane and associated limonite staining occur within the quartz. Three chip samples were collected along the trench. The 0.7 m vein assayed 1.82% Mn (17855) and the adjacent manganiferous chert with local quartz veinlets, chip sampled on either side of the vein, assayed 9.24% and 7.16% Mn (17854, 17856). Silver concentrations of 1.8 ppm and 1.3 ppm and gold all at 5 ppb were contained in these samples.

The eastern trench is 2.2 m in length and trends at 220° , cutting manganese-rich chert. A chip sample along its entire length (17857) assayed 6.44% Mn with 1.8 ppm Ag, 45 ppm Sb from ICP and 5 ppb Au by AA. A Mn concentration of 4191 ppm from ICP was contained in a 2m chip sample of banded chert about 10m from the trenches along strike.

Although the quartz vein contains, manganese oxides, the higher Mn assays are from the banded chert sequence within which manganese oxides occur with associated high Ag concentrations. The model for manganese deposits within the cherty tuffs of the Sicker Group, suggested by Cowley (1979) is that manganese-rich hydrothermal solutions were derived from submarine hot springs. These reached the surface through fractures, precipitating proximal to these openings. It does not appear that quartz veining is commonly associated with manganese. In the case of the Poly manganese oxide occurrence, however, the quartz vein may have filled the fracture through which the hydrothermal fluids emanated, incorporating some of the already present manganese oxide in chert.



In the northwest Poly claim, argillite interbedded with a foliated 'tuffwacke' strikes west-northwesterly with a moderate northerly dip. Foliation has the same strike but a very steep northerly dip. This unit was extensively chip sampled across strike at several locations along its trend, due to the presence of finely disseminated pyrrhotite and minor chalcopyrite. Limonite staining occurs locally in the zone. Samples from this zone contained up to 1.0 ppm Ag (17869, 17870), 564 ppm Zn and 15 ppm Cd (17871) with no other significant base or precious metal concentrations.

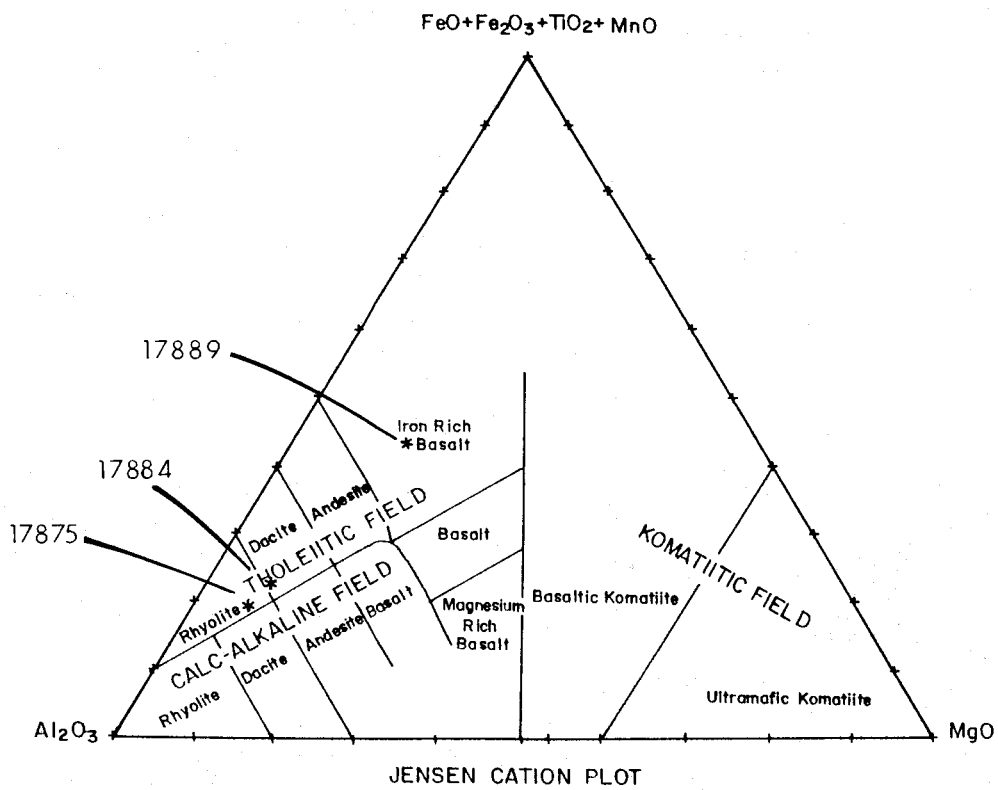
In the eastern Poly claim area, near the southern extent of the property, samples of chlorite-altered feldspar porphyritic diabase (17859) contained 105 ppm W and 469 ppm As. Sample 17860 of a limonitic? powdered quartz vein from drill core cuttings contained 0.9 ppm Ag.

The fact that hydrothermal activity has taken place, as suggested by the manganese showing is important, as gold is commonly associated with hydrothermal fluids. Cherts in this area should be explored closely for crosscutting structures which may contain gold, and for pink rhodonite lenses.

5.3 WHOLE ROCK EVALUATION

Three samples of siliceous and intrusive? rock were analyzed for their chemical composition (Appendix III). The Jensen Cation Plot (ternary diagram) was used to aid in determining the original volcanic composition of the samples.

Plot of Dry Weight Percent from Whole Rock Analyses





The loss on ignition was subtracted from the wet weight percentage, resulting in the calculated dry weight percentage of the major element oxides.

Sample	%SiO ₂	Al ₂ O ₃	MgO	Fe ₂ O ₃	CaO	K ₂ O	Na ₂ O	TiO ₂	MnO	Total
17875	68.3	16.8	1.5	3.9	3.4	1.5	4.1	0.4	0.1	100%
17884	65.9	17.0	2.0	5.0	4.6	0.7	4.2	0.5	0.1	100%
17889	53.0	14.6	5.4	12.8	8.5	0.8	2.5	2.3	0.1	100%

The ternary diagram plot data is as follows:

	% Al ₂ O ₃	MgO	Fe ₂ O ₃ +TiO ₂ +MnO	Lithogeochemical Category
17875	74.1	6.6	19.3	Rhyolite
17884	69.2	8.1	22.7	Dacite/Rhyolite
17889	41.5	15.3	43.2	Iron-rich Basalt

These dry weight percentages were plotted on the Jensen ternary diagram. All three samples plot in the tholeiitic field though two of them plot near the calc-alkaline boundary.

Sample 17875 appears to be a feldspar, quartz porphyritic rhyodacitic intrusive dyke. Feldspar with minor quartz phenocrysts are rounded in a very fine-grained schistose, siliceous matrix. Whole rock analysis confirms the high silica content. It plots as a relatively low potassium, high sodium rhyolite.



Sample 17884 is a feldspar porphyritic rhyodacitic sill or dyke, with a siliceous matrix and minor chlorite-altered mafic phenocrysts. It plots as a dacite, however, it is very near the boundary of the rhyolite, with relatively low potassium and high sodium.

It appears that these intrusions are compositionally and texturally similar and therefore are probably related to the same intrusive event.

Sample 17889, of a feldspar porphyritic diabasic sill, was collected to determine if the intrusive is indeed compositionally similar to the basalts of the Karmutsen Formation. It plots as an 'iron rich basalt' which is typical of the Karmutsen Formation.

This composition is also typical of the diabasic sills within the Sediment Sill Unit.

5.4 SOIL AND SILT GEOCHEMISTRY

Soil samples taken from "B" horizon, 20-30 cm deep, using a hoe) *TEK*

A flagged grid was established in the central area of the Poly Group this year. It was designed to delineate potentially mineralized areas underlain by the Sicker Group Sediment-Sill Unit in the less accessible areas of the claims.

Concentrations of Au, Cu, Pb, Zn, Ba and Mn have been plotted and contoured on Figures 6 through 9.

A general geostatistical evaluation of this small data set, (88 samples) formed the basis for separating anomalous from

background concentrations. In most cases this value is defined as the calculated mean plus 2 times the standard deviation.

Gold, Copper (Figure 6)

Gold concentrations are at background levels (5 ppb) with the exception of a 20 ppb concentration at the southeastern extent of the grid. Although it is isolated and very 'weakly anomalous' it may extend to the south and east.

Copper concentrations range from 10 to 133 ppm. Small isolated areas of higher background levels (more than 80 ppm) occur throughout the grid possibly reflecting the relatively higher copper content of the diabasic sills. The highest concentration (133 ppm) occurs at L4E-4+00N, the easterly extent of the grid. Again this is an open-ended, very weak, anomaly.

Lead, Zinc (Figure 7)

Lead concentrations range from 1 to 145 ppm. Concentrations of 145 ppm at L2W-4+50N and 45 ppm at L0-3+00N, define a northwest-trending isolated anomaly in the central grid area. It does not appear to be coincident with other soil anomalies.

Zinc concentrations range from 20 to 237 ppm. A narrow, east-westerly trending anomaly is defined by concentrations of 237 ppm and 210 ppm at L2E-4+50N and L4E-4+00N respectively. This is coincident with the isolated copper 'anomaly' (133 ppm).

**Barium (Figure 8)**

Barium concentrations range from 23 to 219 ppm. They are considered qualitative when analysed by the ICP method. Three relatively high concentrations of 219, 202 and 154 ppm define an east-west, open-ended anomalous zone at the eastern extent of the grid. This is coincident with the 'anomalous' Cu and Zn as well as highly anomalous manganese concentrations. Ba concentrations appear to be generally higher toward the southwest portion of the grid.

Manganese (Figure 9)

Manganese concentrations range from 68 to 5147 ppm. Concentrations of 5157 ppm at L4E-4+00N, 2669 ppm at L4E-3+50N and 2552 ppm at L2E-4+50N define a relatively broad, open-ended anomalous zone at the eastern extent of the grid. The main manganese showing occurs about 875 m to the southeast of this soil anomaly along the approximate strike projection of the unit of bedded chert which contains low grade rhodonite and manganese-oxides.

Areas that require prospecting and more detailed sampling, are the eastern extent of the grid which contains relatively high concentrations of Cu, Zn, Ba and anomalous Mn, and the central grid area around the Pb anomaly. Extensions to the grid should be made toward the south and east to determine the extent of some of the open-ended soil anomalies in the eastern grid area.



Silt Samples (from active & dry channels, using a hoe) *TEK*
single pits

Silt samples (9) were collected from stream sediments in the southwestern property at 100 m intervals along Hosking Creek. No anomalous base or precious metal concentrations were contained in these samples although two significant Ag concentrations from 0.6 ppm to 0.7 ppm were yielded from silt samples #100, #600 and #500. All of the samples contained high Cr concentrations, ranging from 270 ppm to 455 ppm.



6.0 CONCLUSIONS

1. The Poly property is underlain by the Sediment Sill Unit of the Paleozoic Sicker Group. The west-northwest striking, northeast dipping succession comprises bedded chert, cherty tuff, siltstone and argillite, interbedded with 'tuffwacke'. They are intruded by a large sill(s)? of locally flower porphyritic, diabase which is compositionally similar to iron-rich basalt of the Karmutsen Formation. Upper Cretaceous Nanaimo Group conglomerate and crumbly shale unconformably overlie the Sicker Group in the southwest portion of the Poly Group.
2. Sulphide mineralization on the property comprises fracture and disseminated pyrite in argillite, and disseminated pyrrhotite in tuffwacke, associated with traces of chalcopyrite. Precious metal concentrations are not associated with the sulphides in rocks sampled to date.
3. A manganese-oxide showing occurs in the southeast Poly 2 claim, where a 0.7 m quartz vein cuts a bedded chert sequence. According to the proposed hot spring model, manganese-rich hydrothermal solutions emanated through the cherty sequence along a fracture or joint later filled by the 'bull' quartz vein. Deposition of manganese-oxide would have occurred prior to the quartz vein emplacement, and manganese staining during its emplacement.
4. A chip sample across the quartz vein assayed 1.82% Mn, and three chip samples of the adjacent cherty sequence assayed from 6.44% to 9.24% Mn. These samples also contained elevated silver between 1.3 to 1.8 ppm from ICP.



5. In the manganese showing area, very light green and dark green, banded cherts with local very faint pinkish cast lenses? may contain rhodonite of non gem quality.

6. Hydrothermal activity on the Poly property, as suggested by the presence of the manganese showing, increases the potential for hydrothermal gold mineralization. This may be found in structures cutting the chert.



7.0 RECOMMENDATIONS

1. It is recommended that the claims be held due to their proximity to the Lara property, and the possibility of Abermin commencing mining operations within the next few years.
2. Prospecting and mapping of the cherty intervals in the vicinity of the manganese showing for hydrothermal gold in crosscutting structures.
3. It is recommended that further prospecting for rhodonite and manganese oxide occurrences be continued, as demand for gem quality rhodonite is increasing with the depletion of reserves at the Hill 60 deposit.
4. VLF-EM and magnetometer surveys may outline structures which may be associated with mineralization. An IP survey following this, may outline disseminated sulphide mineralization along conductive trends.
5. Soil and silt sampling surveys are apparently of limited use on this property due to the locally thick glacial till overburden and therefore are not recommended.

Respectfully submitted,
MPH Consulting Limited

B. Y. Thomaë

B. Y. Thomaë, B.Sc.

October 25, 1987

T. G. Hawkins
T. G. Hawkins, P.Geol.



CERTIFICATE

I, Barbara Y. Thomae do hereby certify that:

1. I am a graduate in geology of the University of British Columbia (B.Sc. 1983).
2. I have practised as a geologist since 1980 for several major exploration companies.
3. The opinions, conclusions, and recommendations contained herein are based on field work and research conducted this year by myself and MPH Consulting Limited staff members.
4. I own no direct, indirect, or contingent interest in the area, the subject property, or shares or securities of Canamin Resources Ltd. or associated companies.

B. Y. Thomae

B.Y. Thomae, B.Sc.

Vancouver, B.C.

October 23, 1987



CERTIFICATE

I, T.E. Gregory Hawkins, do hereby certify:

1. That I am a Consulting Geologist with business offices at 2406 - 555 West Hastings Street, Vancouver, B.C. V6B 4N5.
2. That I am a graduate in geology of The University of Alberta, Edmonton (B.Sc. 1973), and of McGill University, Montreal, (M.Sc. 1979).
3. That I have practised within the geological profession for the past sixteen years.
4. That I am a Fellow of the Geological Association of Canada and a Professional Geologist registered in the Province of Alberta.
5. That the opinions, conclusions and recommendations contained herein are based on field work carried out on the Poly Group by MPH personnel under my supervision.
6. That I own no direct, indirect, or contingent interests in the area, the subject property, or shares or securities of Canamin Resources Ltd. or associated companies.


T.E. Gregory Hawkins, P.Geol.

Vancouver, B.C.

October 23, 1987

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Appendix I

LIST OF PERSONNEL

and

STATEMENT OF EXPENDITURES



LIST OF PERSONNEL AND STATEMENT OF EXPENDITURES

The following is a list of expenses incurred for the purposes of geological exploration on the Poly Group of claims.

FIELD COSTS:

Personnel:

B.Y. Thomae, B.Sc.			
Project Geologist	8 days @ \$350	\$2,800.00	
G.A. Picken, B.Sc.			
Assistant Geologist	8 days @ \$250	2,000.00	
B. Soles			
Geological Technician	4 days @ \$175	<u>700.00</u>	
			\$ 5,500.00

Equipment Rental:

4 WD Truck	8 1/2 days @ \$90	765.00	
Rock Saw	40 samples @ \$1	<u>40.00</u>	
			805.00

Disbursements:

Food and Accommodation		962.44	
Fuel Cost		75.33	
Transportation (Ferry etc.)		91.67	
Field Supplies		85.00	
Shipping, Communications		15.00	
Laboratory Costs:			
40 rocks (Au, ICP) @ \$14.00		560.00	
9 silts (Au, ICP) @ \$13.30		119.70	
88 soils (Au, ICP) @ \$11.85		1,042.80	
4 assays Mn @ \$ 7.00		28.00	
3 reruns for Au @ \$ 4.75		14.25	
3 whole rock analyses @ \$20.00		<u>60.00</u>	
			3,054.19

REPORT COSTS:

Personnel:

B.Y. Thomae	8 days @ \$350	2,800.00	
G.A. Picken	6 1/2 days @ \$150	975.00	
J.S. Getsinger	3/4 hrs @ \$ 35	26.25	
T.G. Hawkins	1/4 days @ \$500	<u>125.00</u>	
			3,926.25

Typing		418.50	
Drafting		560.00	
Copying Maps		60.22	
Report Copying	6 copies @ \$5.20	31.20	
Report Covers, Map Pockets, Binding etc.			
	6 copies @ \$12.00	<u>72.00</u>	

Administration @ 15% on disbursements of (\$5,001.11)			<u>1,141.92</u>
			750.17

Total			<u><u>\$15,177.53</u></u>
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Appendix II

ROCK SAMPLE DESCRIPTIONS

and

SELECTED RESULTS

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17854	Location: Trench 418 m from main road. Sample Type: Chip over 1.2 m. Rock Type: Chert with manganese-oxide stain and local intervals of rhodonite	5	1.8	186	7	152	357 Ba 46948 Mn (Assay 9.24%)

Greyish chert with dark brown and black manganese (up to 15%) stain, pinkish to reddish locally. Microcrystalline, fractured, slightly banded. Appears chalcedonic in places. Trace sulphides mainly on fractures.

17855	Location: 418 m from main road in trench. Sample Type: Chip over 0.7 m. Rock Type: Quartz vein with manganese-oxide	5	0.1	10	5	6	278 Cr 13844 Mn (Assay 1.82%)
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Clear to whitish 'greasy' coarsely crystalline quartz, with up to 10% manganese-oxide minerals including psilomelane (botryoidal) and pyrolusite. Limonite staining associated with manganese-oxide. Trace pyrite.

17856	Location: Trench. Sample Type: Chip over 1.3 m. Rock Type: Chert/chalcedony banded with rhodonite and pyrolusite	5	1.3	13	5	72	194 Ni 70914 Mn (Assay 7.16%)
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Pearly with a light tan colour to pale whitish blue and black manganese (pyrolusite). Minor quartz veinlets <0.5 mm. Limonite stain locally associated with weathered out pyrite (trace amount). Microfractures abundant, show offset. Blocky fracture with black stain. Local chalcopyrite. Possible pink rhodonite, very minor.

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17857	<p>Location: Small trench/pit, 421 m from main road. Sample Type: Chip over 2.2 m. Rock Type: Manganese-rich chert</p> <p>Greyish to pearly, very translucent chalcedony with bands of less translucent whitish tan. Minor pinkish patches. Pyrolusite and psilomelane up to 20% throughout including fractures. Local limonite stain. Pyrite and/or chalcopyrite some weathered out, in blebs up to 1%.</p>	5	1.8	23	2	64	60 As 167 Ni 45 Sb 71362 Mn (Assay 6.44%)
17858	<p>Location: 428-480 m from main road. Sample Type: Grab sample over 2 m. Rock Type: Chert</p> <p>Grey to green banded cherty unit with \approx1% pyrolusite and limonite. Hematitic stain. Trace pyrite and possible chalcopyrite.</p>	5	0.2	35	11	37	227 Ba 4191 Mn
17859	<p>Location: Small trench near DDH-1. Sample Type: Grab sample over \approx0.3 m. Rock Type: Heavy Fe-oxide stained crystalline quartz zone.</p> <p>Light greyish-white with approximately 40% limonite rusty-yellow-brown. Vuggy quartz with nicely formed crystals up to 1/2 cm growing towards centre. Sulphide lens (0.5 cm). Local psilomelane up to 1%.</p>	5	0.1	30	8	24	469 As 283 Cr
17860	<p>Location: DDH-1 near diabase. Sample Type: <0.3 m(?) from drill core cuttings. Rock Type: Limonitic, gossanous material in crystalline quartz</p> <p>Did not see sample before it was ground to a powder.</p>	5	0.9	99	4	95	105 W

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17861	<p>Location: 512 m elevation, 829 m. Sample Type: Chip over 2 m. Rock Type: Bedded chert sequence</p> <p>Medium green, cherty, Fe-oxide stained on fractures and weathered surface. Some pyrolusite. Three sets of quartz veinlets (i) oldest - grey stockwork to 0.1 mm (ii) Fe-stained fracture filled with quartz to 0.1 mm (iii) youngest is milky to translucent quartz to 1 mm width. No visible sulphides.</p>	5	0.1	48	15	32	
17862	<p>Location: 98-145 m from N claim line (E-W). Sample Type: Grabs from outcrop. Rock Type: Interbedded argillite/siltstone</p> <p>Black argillite with local very fine sandy material which appears to host blebby pyrrhotite, pentlandite(?) and pyrite and chalcopyrite. Very finely disseminated pyrite trace amount in argillite. Slatey argillite in places, with abundant Fe-oxide stain on fracture surfaces.</p>	5	0.3	33	3	82	
17863	<p>Location: 145 m from E-W claim line, along road. Sample Type: Grabs over 0.2 m. Rock Type: Felsic intrusive (cherty tuff?)</p> <p>Grey, (glassy), fine-grained, siliceous, sericite-altered and somewhat foliated. Contains fine pyrite in blebs slightly magnetic due to pyrrhotite. Pitted surface due to pre-existing sulphides limonitic rimmed. Total sulphides 2-3%.</p>	5	0.3	47	2	103	1127 Mn

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17864	<p>Location: 135 m from claim line. Sample Type: Grab sample over 4 m. Rock Type: Argillite (slatey)</p> <p>Black argillite, Fe-oxide stain on fracture surfaces. Foliated in places. Minor sandy interbeds. 2-3% pyrite locally. Non-magnetic.</p>	5	0.4	32	2	89	
17865	<p>Location: 525 m from power line road at station 9. Sample Type: Grabs over 6 m discontinuously. Rock Type: Banded argillite with interbedded siltstone/sandstone</p> <p>Argillite has near slaty cleavage, very fractured with Fe-oxide stain. Black with tiny light spots. Very fine banding with lighter coloured coarser material. Sulphides are concentrated in the coarser silty/sandy portion. Pyrrhotite up to 1-2% finely disseminated throughout, pyrite(?).</p>	5	0.2	43	8	129	
17866	<p>Location: 530 m from intersection at station 9. Sample Type: Grab sample over 0.2 m. Rock Type: Schistose felsic to intermediate intrusive sill. (Dacite-andesite)</p> <p>Medium grey with lighter and darker greenish spots. Minor boxwork texture locally with limonitic stain, medium-grained, chlorite, sericite and possible clay-alteration. Very hard, siliceous. Minor manganese stain.</p>	5	0.5	61	2	122	135 Sr

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17867	<p>Location: 843 m from power line road on main road. Sample Type: Chip over 2 m. Rock Type: Foliated-schistose quartz porphyritic andesite(?) sill</p> <p>Dark grey with medium-grained to coarse-grained light grey and dark black rounded crystals and quartz 'eyes' in finer-grained matrix. Locally strongly magnetic due to blebby pyrrhotite, uniformly distributed throughout. Appears to have argillaceous lenses within.</p>	5	0.4	48	4	124	
17868	<p>Location: E side of road at station 14. Sample Type: Chip over 0.4 m. Rock Type: Greywacke and/or gabbroic sills intruding argillite</p> <p>Black argillite with dark grey greywacke interbedded and/or small sills of fine-grained gabbroic material (similar to sample 17867). Locally gossanous on weathered surface. Contains local sulphide, pod irregularly shaped. Sulphides uniformly distributed occur in blebs and finely disseminated includes pyrrhotite, pyrite, possible chalcopyrite.</p>	5	0.4	34	6	119	
17869	<p>Location: W side of road at station 14. Sample Type: Chip over 0.5 m. Rock Type: Schistose mafic sill(?)</p> <p>Similar to sample 17868, dark grey to black, Fe-oxide staining, fine-grained. Contains sulphides in pods, greyish locally. High specific gravity (relatively). Swirly texture. Possible arsenopyrite. Strongly magnetic locally. Veinlets of greyish material run through pyrrhotite, appears to be associated with the graphitic(?) black material. Sulphides total up to 10%.</p>	5	1.0	45	8	69	75 As

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17870	<p>Location: W side of road at station 14. Sample Type: Grab sample from outcrop. Rock Type: Greywacke or mafic sill(?)</p> <p>Dark grey to black, fine-grained greywacke or mafic sill(?). Foliated. Similar to previous sample. Fracture pyrite with minor chalcopyrite. Uniformly disseminated and blebby pyrrhotite. Strongly magnetic. Total sulphides 4-5%.</p>	5	1.0	74	16	89	
17871	<p>Location: 55 m at 290° from station 14. Sample Type: Grab sample from outcrop. Rock Type: Graded greywacke</p> <p>Medium grey to blackish locally. Shows distinctive grading ranging from extremely fine-grained to medium-grained. Contains black lenses swirly which contain pyrrhotite in places. Possibly graphite and/or argillite. Cut by quartz veinlets. Rusty fracture surfaces. Up to 5% sulphides, mainly pyrrhotite.</p>	5	0.1	63	3	564	15 Cd
17872	<p>Location: 290° for 85 m at station 14. Sample Type: Chip over 3 m. Rock Type: Greywacke with minor argillite</p> <p>Dark grey to black, slight green tinge, medium- to fine-grained. Foliated with veinlets. Pyrrhotite finely disseminated throughout. Minor sericite alteration. Magnetic locally. Hematite stained. Total sulphides 3-4%.</p>	5	0.2	42	8	78	

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
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17873	Location: 4 m from road. E side of road at station 14. Sample Type: Grab sample from outcrop. Rock Type: Banded greywacke/argillite	5	0.2	72	3	111	
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Black (argillite) with lighter grey, very fine greywacke interlaminated. Foliated. Contains band of sulphides about 0.3 cm wide in addition to the uniformly distributed fine pyrrhotite, pyrite(?). Pyrite also occurs in fracture fillings in argillite. Total sulphides up to 3%.

17874	Location: E side of road 80 m along strike at station 14. Sample Type: Chip over 2 m. Rock Type: Argillite (greywacke) banded	5	0.1	31	4	101	
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Similar to sample 17873. Dark grey with black argillite interbeds. Fine-grained. Sulphides uniformly distributed. Sericite alteration. Total sulphides to 2%. Reddish-orange gossan.

17875*	Location: Station 15. Sample Type: Chip over 0.75 m. Rock Type: Feldspar, quartz porphyritic rhyodacite intrusive dyke	5	0.1	9	10	57	
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Medium green with feldspar and minor quartz phenocrysts rounded in a very fine-grained siliceous schistose matrix. Subtranslucent and moderately schistose. Feldspar to 3 mm phenocrysts (35%), chlorite completely altered mafic mineral up to 20%. Possibly 5% quartz eyes. Very minor pyrite blebs locally.

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17876	<p>Location: Just S of 17875 at station 15.</p> <p>Sample Type: Chip over 0.75 m.</p> <p>Rock Type: Greywacke/argillite interlaminated</p> <p>Dark grey to black, fine-grained gossanous with local pyrite stringers and grey massive sulphide patches. Contains pyrrhotite, pyrite, locally in quartz veinlets and on fracture surface and finely disseminated throughout to approximately 3% total.</p>	5	0.6	103	11	97	
17877	<p>Location: S of sample 17876, station 15.</p> <p>Sample Type: Chip over 0.6 m.</p> <p>Rock Type: Intensely gossanous greywacke/argillite</p> <p>Black argillite with medium grey, greywacke laminations very fine-grained. Pyrite/chalcopyrite in stretched out blebs and in quartz veinlets <2mm.</p>	5	0.4	50	7	74	
17878	<p>Location: S and adjacent to sample 17879.</p> <p>Sample Type: Chip over 1.5 m.</p> <p>Rock Type: Argillite/greywacke - gossanous</p> <p>Dark grey to black, fine-grained, greywacke with black argillite interlaminated, fracture chalcopyrite in <0.5 mm veinlet of drusy quartz. 1% pyrrhotite and pyrite in blebs and disseminations. Total sulphides up to 2-3%.</p>	5	0.5	87	10	111	

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17879	Location: 361 m along road from station 14. Sample Type: Chip over 1.6 m. Rock Type: Greywacke/argillite microfractured	5	0.2	72	7	107	267 As 155 Ni 14 Sb

Dark grey to black, fine-grained with black argillite laminations. Two sets of microfractures, one subparallel to bedding appears to carry more of the sulphides (pyrite and chalcopyrite?). Total sulphides (including finely disseminated) 2-3%. Appears phyllitic in places.

17880	Location: Hosking Creek. Sample Type: Grab sample from float. Rock Type: Foliated tuff(?)	5	0.5	13	35	83	10.49% Fe
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Light green to grey, sericite-altered, fine-grained clastic rock. Disseminated pyrite and some arsenopyrite(?) up to 10% with pyrite in fracture fillings. Manganese and dark brown stain on fractures. Phyllitic locally.

17881	Location: 42.5 m from 2nd branch intersection of main road. Sample Type: Chip over 1.35 m. Rock Type: Argillite with interlaminated greywacke	5	0.4	74	11	89	
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Black with dark grey, fine-grained, greywacke. Strongly foliated. Swirly texture locally with dark argillaceous lenses carrying pyrite, pyrrhotite (1.5%) and chalcopyrite (local to 1%). Gossanous on weathered surface.

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17882	<p>Location: 68-70 m from 2nd branch intersection. Sample Type: Chip over 2 m. Rock Type: Argillite/greywacke</p> <p>Dark grey to black, fine-grained, banded in places. Foliated. Trace blebs of chalcopyrite, pyrrhotite/pyrite in blebs and finely disseminated to 2%. Minor Fe-oxide stain on weathered surface.</p>	5	0.3	109	3	129	
17883	<p>Location: 488 m from 2nd branch intersection. Sample Type: Grab sample from outcrop. Rock Type: Argillite interbedded with greywacke</p> <p>Phyllitic, dark grey to black, fine-grained, with up to 3% finely disseminated and blebby sulphides, weakly magnetic. Minor Fe-oxide stain. Trace chalcopyrite and bornite. Muscovite on fractures.</p>	5	0.3	68	10	106	
17884*	<p>Location: Top of knoll at 556 m from main road. Sample Type: Grab sample from outcrop. Rock Type: Feldspar, porphyritic, rhyodacite sill or dyke</p> <p>Light green-grey, translucent siliceous matrix with 30% white angular feldspar phenocrysts to 6 mm. Weakly schistose. Chlorite-altered mafic phenocrysts ~5%. Pitted surface where feldspars are weathered out.</p>	5	0.1	16	2	63	

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17885	<p>Location: 154 m from 1st road intersection with main road.</p> <p>Sample Type: Chip over 0.5 m.</p> <p>Rock Type: Argillite/greywacke below mafic sill contact</p> <p>Black to dark grey, foliated, very fine-grained to medium-grained with sulphide blebs stretched out parallel to foliation. Limonite stain on fractures. Minor sericite/clay alteration. Brittle, up to 1% pyrite pyrrhotite(?).</p>	5	0.2	36	17	114	
17886	<p>Location: 154 m from 1st road intersection.</p> <p>Sample Type: Chip over 0.5 m.</p> <p>Rock Type: Argillite with minor greywacke interbeds</p> <p>Dark grey to black, fine-grained greywacke, sericite alteration. Near slaty cleavage. Minor pyrite on fractures and traces disseminated throughout.</p>	5	0.3	6	4	127	1230 Mn
17887	<p>Location: 842 m from 1st road intersection.</p> <p>Sample Type: Grab sample from outcrop.</p> <p>Rock Type: Tuffwacke - greywacke</p> <p>Coarser-grained version of greywacke in a bed within the argillite. Fragments are subangular and subrounded 20% quartz, 30% feldspar, mafic rock fragments up to 1 mm within siliceous matrix, minor chlorite and sericite alteration. Disseminated pyrite and/or pyrrhotite up to 1%. Weakly magnetic.</p>	5	0.5	28	2	125	2034 Mn

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17888	Location: 842 m from 1st road intersection. Sample Type: Grab sample over 3 m. Rock Type: Cherty unit Massive grey-green, cherty, intruded by small chlorite-altered felsic (2-3 mm) intervals. Trace disseminated and blebby pyrite.	5	0.2	13	7	89	
17889*	Location: 990 m from 1st intersection. Sample Type: Grab from outcrop. Rock Type: Feldspar porphyritic diabasic intrusive sill(?) Dark grey to green with lighter grey-green feldspar phenocrysts to 3 mm, partly epidote and chlorite-altered. Tiny quartz veinlets. Minor manganese(?) stain on fractures.	5	0.5	253	12	80	
17890	Location: 470 m from station 14. Sample Type: Grab sample from outcrop. Rock Type: Limonitic chert Grey-green, light subtranslucent chert. Cut by microfractures lined with limonite up to 10% of rock sample. Pyrite blebs uniformly to locally distributed 1-2%. Pyrolusite associated with limonite up to 1%, especially on weathered surface.	5	0.1	142	6	34	280 Sr

Sample Number	Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Other ppm
17851	<p>Location: Elev. 565 m, 650 m along lower road from main road intersection.</p> <p>Sample Type: Chip over 5 m.</p> <p>Rock Type: Chert with interbedded cherty siltstone-sandstone</p> <p>Chert - banded green-grey with medium green bands, microcrystalline to aphanitic, tiny fractures with pyrite (<1%). Weathers rusty-brown in places. Appears to be cut by quartz veinlets locally.</p>	5	0.4	56	13	79	107 Ba
17852	<p>Location: 650 m along road from intersection.</p> <p>Sample Type: Chip over 6 m.</p> <p>Rock Type: Chert with minor interbedded cherty sandstone/siltstone</p> <p>Dark to medium green cherty chlorite altered(?) intervals within grey to white microcrystalline chert. Microfractures throughout, locally with hematite staining. Trace pyrite appears to be associated with fractures. Local manganese-oxide stain.</p>	5	0.3	44	7	48	195 Cr
17853	<p>Location: 680 m down lower road.</p> <p>Sample Type: Grab sample from outcrop.</p> <p>Rock Type: Sandstone-siltstone(?)</p> <p>Pyrite occurs within a small nodule approximately 2 cm wide. Siliceous, medium green-grey, slightly foliated, fractured with minor Fe-oxide and manganese-oxide stain. Appears to be chlorite and epidote altered to slight extent.</p>	5	0.6	125	13	76	

* Whole Rock Analysis



Appendix III

CERTIFICATES OF ANALYSIS

ROSSBACHER LABORATORY LTD.

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

CERTIFICATE OF ANALYSIS

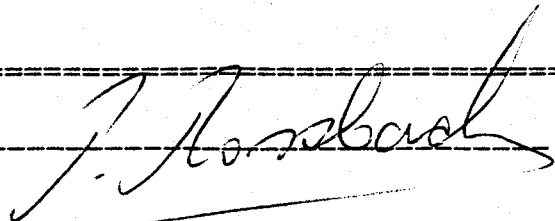
TO : MPH CONSULTING LTD.
#2406-555 W.HASTINGS ST. (BOX 12092)
VANCOUVER B.C.

CERTIFICATE#: 87389.A
INVOICE#: 7878
DATE ENTERED: 87-08-18
FILE NAME: MPH87389.A
PAGE # : 1

PROJECT: V 268
TYPE OF ANALYSIS: ASSAY

PRE FIX	SAMPLE NAME	% Mn
A	17854	9.24
A	17855	1.82
A	17856	7.16
A	17857	6.44

CERTIFIED BY :



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ROSSBACHER LABORATORY LTD.

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

CERTIFICATE OF ANALYSIS

TO : MPH CONSULTING LTD.
#2406-555 W. HASTINGS ST. (BOX 12092)
VANCOUVER B.C.

CERTIFICATE#: 87389.B
INVOICE#: 7971
DATE ENTERED: 87-09-01
FILE NAME: MPH87389.B
PAGE # : 1

PROJECT: V 268
TYPE OF ANALYSIS: GEOCHEMICAL

PRE FIX	SAMPLE NAME	ORIG. PPB Au	RERUN PPB Au
A	17854	5	5
A	17856	5	5
A	17857	5	5

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CERTIFIED BY : _____

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

CERTIFICATE OF ANALYSIS

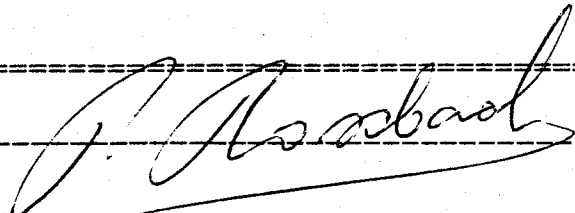
TO : MPH CONSULTING LTD.
#2406-555 W.HASTINGS ST. (BOX 12092)
VANCOUVER B.C.

CERTIFICATE#: 87389
INVOICE#: 7848
DATE ENTERED: 87-08-10
FILE NAME: MPH87389
PAGE # : 1

PROJECT: V 268
TYPE OF ANALYSIS: GEOCHEMICAL

PRE FIX	SAMPLE NAME	PPB Au
A	17851	5
A	17852	5
A	17853	5
A	17854	5
A	17855	5
A	17856	5
A	17857	5
A	17858	5
A	17859	5
A	17860	5
A	17861	5
A	17862	5
A	17863	5
A	17864	5
A	17865	5
A	17866	5
A	17867	5
A	17868	5
A	17869	5
A	17870	5
A	17871	5
A	17872	5
A	17873	5
A	17874	5
A	17875	5
A	17876	5
A	17877	5
A	17878	5
A	17879	5
A	17880	5
A	17881	5
A	17882	5
A	17883	5
A	17884	5
A	17885	5
A	17886	5
A	17887	5
A	17888	5
A	17889	5

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

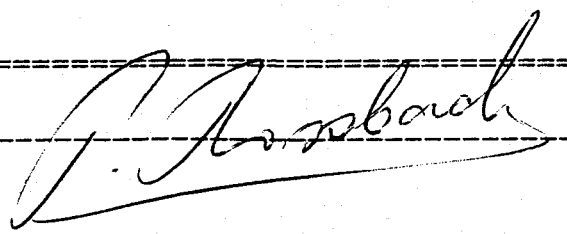
CERTIFICATE OF ANALYSIS

TO : MPH CONSULTING LTD.
#2406-555 W. HASTINGS ST. (BOX 12092)
VANCOUVER B.C.
PROJECT: V 268
TYPE OF ANALYSIS: GEOCHEMICAL

CERTIFICATE#: 87389
INVOICE#: 7848
DATE ENTERED: 87-08-10
FILE NAME: MPH87389
PAGE # : 2

PRE FIX	SAMPLE NAME	PPB Au
A	17890	5
L	SILT # 100	5
L	# 200	5
L	# 300	5
L	# 400	5
L	# 500	5
L	# 600	5
L	# 700	5
L	# 800	5
L	# 900	5

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

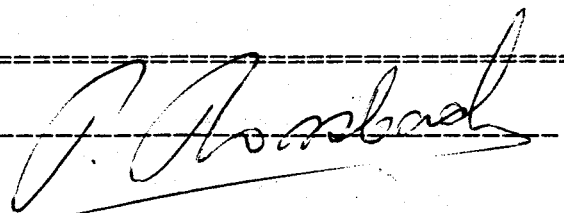
CERTIFICATE OF ANALYSIS

TO : MPH CONSULTING LTD.
 #2406-555 W.HASTINGS ST. (BOX 12092)
 VANCOUVER B.C.
 PROJECT: V 268
 TYPE OF ANALYSIS: GEOCHEMICAL

CERTIFICATE#: 87388
 INVOICE#: 7840
 DATE ENTERED: 87-08-07
 FILE NAME: MPH87388
 PAGE # : 1

PRE FIX	SAMPLE NAME	PPB Au
S	L 0 000N	0
S	050N	0
S	100N	0
S	150N	0
S	200N	0
S	250N	0
S	300N	0
S	350N	0
S	400N	0
S	450N	0
S	500N	0
S	550N	0
S	600N	0
S	650N	0
S	700N	0
S	750N	0
S	800N	0
S	850N	0
S	900N	0
S	950N	0
S	L 0 1000N	0
S	L 2W 000N	0
S	050N	0
S	100N	0
S	150N	0
S	200N	0
S	250N	0
S	300N	0
S	350N	0
S	400N	0
S	450N	0
S	500N	0
S	550N	0
S	600N	0
S	650N	0
S	700N	0
S	750N	0
S	800N	0
S	L 2W 850N	0

CERTIFIED BY :



RECEIVED AUG 11 1987

ROSSBACHER LABORATORY LTD.

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

CERTIFICATE OF ANALYSIS

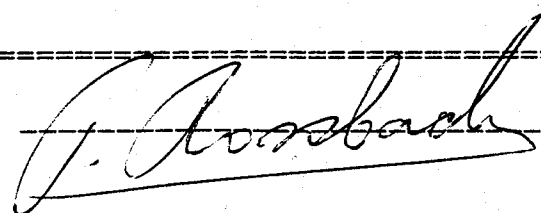
TO : MPH CONSULTING LTD.
 #2406-555 W. HASTINGS ST. (BOX 12092)
 VANCOUVER B.C.

CERTIFICATE#: 87388
 INVOICE#: 7840
 DATE ENTERED: 87-08-07
 FILE NAME: MPH87388
 PAGE # : 2

PROJECT: V 268
 TYPE OF ANALYSIS: GEOCHEMICAL

PRE FIX	SAMPLE NAME	PPB Au
S	L 2W 900N	5
S	950N	5
S	L 2W 1000N	MISSING
S	L 4W 000N	5
S	050N	5
S	100N	5
S	150N	5
S	200N	5
S	250N	5
S	300N	5
S	350N	5
S	400N	5
S	450N	5
S	500N	5
S	550N	5
S	600N	5
S	650N	5
S	700N	5
S	750N	5
S	800N	5
S	850N	5
S	900N	5
S	950N	5
S	1000N	5
S	L 4W 1050N	5
S	L 2E 000N	5
S	050N	5
S	100N	5
S	150N	5
S	200N	5
S	250N	5
S	300N	5
S	350N	5
S	400N	5
S	450N	5
S	500N	5
S	550N	5
S	600N	5
S	L 2E 650N	5

CERTIFIED BY :



RECEIVED AUG 11 1987

ROSSBACHER LABORATORY LTD.

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

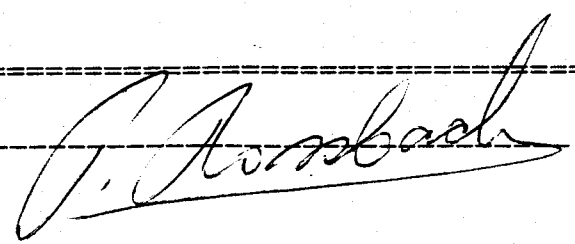
CERTIFICATE OF ANALYSIS

TO : MPH CONSULTING LTD.
#2406-555 W. HASTINGS ST. (BOX 12092)
VANCOUVER B.C.
PROJECT: V 268
TYPE OF ANALYSIS: GEOCHEMICAL

CERTIFICATE#: 87388
INVOICE#: 7840
DATE ENTERED: 87-08-07
FILE NAME: MFH87388
PAGE # : 3

PRE FIX	SAMPLE NAME	FPB Au
S	L 2E 700N	5
S	L 2E 750N	5
S	L 4E 000N	20
S	050N	5
S	100N	5
S	150N	5
S	200N	5
S	250N	5
S	300N	5
S	350N	5
S	L 4E 400N	5

CERTIFIED BY :



GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG.C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR MN FE CA P LA CR MG BA TI B W AND LIMITED FOR NA AND K. AU DETECTION LIMIT BY ICP IS 3 PPM. - SAMPLE TYPE: SOLUTION

DATE RECEIVED: AUG 08 1987

DATE REPORT MAILED: Aug 28/87

ASSAYER: DEAN TOYE, CERTIFIED B.C. ASSAYER

ROSSBACHER LABORATORY PROJECT-CERT #87389 File # 87-3103 Page 1

V268

Table with columns: SAMPLE#, MO, CU, PB, ZN, AG, NI, CO, MN, FE, AS, U, AU, TH, SR, CD, SB, BI, V, CA, P, LA, CR, MG, BA, TI, B, AL, NA, K, W. Rows include samples A 17851 through STD C.

RECEIVED SEP 01 1987

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	MN PPM	FE %	AS PPM	U PPM	AU PPM	TH PPM	SR PPM	CD PPM	SB PPM	BI PPM	V PPM	CA %	P %	LA PPM	CR PPM	MG %	BA PPM	TI %	B PPM	AL %	NA %	K %	M PPM
A 17890	2	142	6	34	.1	7	4	416	1.97	32	5	ND	2	280	1	2	2	10	3.85	.046	9	90	.32	24	.01	4	.53	.03	.05	2
L SILT#100	1	70	40	91	.7	42	17	1088	3.44	15	5	ND	3	42	1	2	2	69	.75	.061	18	275	.66	224	.12	5	3.54	.01	.09	1
L SILT#200	1	53	35	84	.5	35	15	1062	3.36	6	5	ND	2	41	1	2	2	69	.70	.050	16	279	.61	187	.14	3	2.91	.01	.07	1
L SILT#300	1	53	24	99	.5	42	18	922	3.72	8	5	ND	3	34	1	2	2	77	.52	.035	11	381	.70	199	.16	4	3.35	.02	.08	1
L SILT#400	1	60	19	85	.5	40	18	934	3.95	13	5	ND	2	34	1	2	2	76	.51	.049	12	270	.68	193	.14	3	3.49	.02	.08	1
L SILT#500	1	59	50	99	.6	41	18	1124	3.84	18	5	ND	2	35	1	2	2	75	.54	.054	13	303	.72	199	.14	4	3.41	.02	.08	1
L SILT#600	1	56	45	117	.7	42	29	858	4.09	16	5	ND	2	30	1	2	2	94	.45	.040	11	455	.70	128	.15	5	2.72	.02	.11	1
L SILT#700	1	57	32	109	.5	51	23	1032	4.62	7	5	ND	2	35	1	2	3	102	.52	.042	10	313	.82	182	.19	5	3.69	.03	.11	1
L SILT#800	1	57	16	83	.3	44	20	905	3.94	4	5	ND	3	37	1	2	2	90	.59	.035	10	406	.83	155	.18	3	3.01	.03	.10	1
L SILT#900	1	62	13	87	.4	47	18	726	4.16	7	5	ND	3	36	1	2	2	92	.54	.036	9	284	.87	184	.19	4	3.40	.03	.11	1
STD C	19	59	38	130	7.3	70	28	939	3.96	41	22	8	37	49	19	17	22	58	.49	.090	38	61	.88	177	.08	38	1.85	.06	.14	12

RECEIVED SEP 01 1987

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG.C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE CA P LA CR MG BA TI B W AND LIMITED FOR NA AND K. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: SOLUTION

PROJECT # *V268*
V267

DATE RECEIVED: AUG 8 1987

DATE REPORT MAILED: *Aug 11/87*

ASSAYER: *D.C. Joye* .. DEAN TOYE, CERTIFIED B.C. ASSAYER

ROSSBACHER LABORATORY PROJECT-CERT #87388 File # 87-3101 Page 1

SAMPLE#	MO	CU	ZN	AG	NI	CO	MN	FE	AS	U	AU	TH	SR	CD	SB	BT	V	CA	P	LA	CR	MG	BA	TI	B	AL	NA	K	W	
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	%	PPM	PPM	%	PPM	%	PPM	%	%	%	PPM		
S LO 000N	1	83	10	107	.2	32	15	593	4.20	19	5	ND	3	25	1	2	2	74	.27	.041	17	29	.75	172	.13	5	3.91	.02	.09	1
S LO 050N	1	85	9	104	.3	35	16	427	4.18	22	5	ND	3	23	1	2	2	71	.23	.040	16	34	.75	165	.13	4	3.90	.02	.08	1
S LO 100NA	1	77	10	97	.4	31	15	417	3.96	20	5	ND	4	22	1	2	2	67	.24	.036	17	32	.72	153	.12	4	3.58	.01	.08	1
S LO 150N	1	89	6	116	.4	37	17	559	4.85	19	5	ND	3	25	1	2	2	80	.29	.045	16	40	.87	180	.15	3	4.20	.02	.09	1
S LO 200N	1	32	8	66	.1	18	8	394	3.93	14	5	ND	2	23	1	2	2	83	.29	.015	8	28	.62	118	.13	2	2.41	.01	.04	1
S LO 250N	1	32	7	65	.1	18	8	303	3.93	15	5	ND	2	19	1	2	2	80	.24	.013	7	25	.64	112	.12	2	2.38	.01	.03	1
S LO 300N	1	45	45	125	.2	24	14	382	3.73	14	5	ND	3	18	1	2	2	61	.25	.032	8	26	.54	112	.14	2	2.85	.01	.06	1
S LO 350N	1	37	9	116	.1	23	15	1910	3.38	13	5	ND	2	18	1	2	2	55	.26	.053	5	28	.49	202	.12	2	2.81	.01	.04	1
S LO 400N	1	33	6	110	.1	24	13	627	3.43	11	5	ND	2	19	1	2	2	61	.22	.048	6	29	.55	110	.14	2	3.23	.01	.04	1
S LO 450N	1	36	10	128	.1	28	14	831	4.08	13	5	ND	2	28	1	2	2	75	.35	.054	7	39	.73	122	.15	3	3.86	.01	.07	1
S LO 500N	1	70	2	80	.1	22	10	334	4.31	12	5	ND	2	25	1	2	2	81	.30	.042	7	37	.58	74	.14	2	3.29	.01	.04	1
S LO 550N	1	52	4	100	.1	23	11	380	5.00	15	5	ND	2	25	1	2	4	87	.29	.053	6	45	.74	57	.19	2	3.94	.02	.04	1
S LO 600N	1	56	6	102	.2	25	11	369	5.21	14	5	ND	2	23	1	2	2	89	.25	.056	6	47	.75	59	.20	2	4.21	.02	.05	1
S LO 650N	2	22	6	121	.1	18	8	371	4.09	42	5	ND	2	23	1	2	2	74	.30	.034	7	32	.62	82	.10	2	2.68	.01	.04	1
S LO 700N	1	24	4	114	.3	19	9	363	3.91	48	5	ND	3	23	1	2	2	71	.30	.028	8	29	.70	74	.12	2	2.64	.01	.03	1
S LO 750N	2	67	8	86	.3	25	10	405	4.60	25	5	ND	3	15	1	2	2	71	.23	.093	10	36	.78	47	.19	2	3.72	.02	.05	1
S LO 800N	2	50	11	105	.1	26	11	334	4.92	13	5	ND	2	14	1	2	2	76	.17	.068	5	34	.70	64	.15	2	3.53	.02	.03	1
S LO 850N	1	11	5	46	.1	5	3	420	2.57	5	5	ND	2	12	1	2	2	48	.18	.019	6	15	.25	47	.09	2	1.60	.01	.02	3
S LO 900N	1	44	9	67	.2	15	7	366	4.21	11	5	ND	2	11	1	2	2	73	.16	.027	5	21	.61	41	.22	2	2.57	.01	.03	1
S LO 950N	1	65	11	88	.1	26	10	341	5.53	12	5	ND	3	17	1	2	2	94	.15	.080	7	52	.74	66	.11	2	4.86	.02	.06	1
S LO 1000N	1	33	13	90	.3	18	13	865	3.77	7	5	ND	2	17	1	2	2	64	.24	.047	8	29	.62	70	.15	2	2.71	.01	.04	1
S L2N 000N	1	65	2	64	.1	27	13	421	3.93	13	5	ND	3	33	1	2	2	75	.46	.021	9	35	.99	102	.22	3	3.26	.02	.06	1
S L2N 050N	1	36	4	107	.2	23	13	666	3.50	12	5	ND	3	29	1	2	2	67	.36	.067	8	31	.63	146	.17	3	3.30	.01	.07	1
S L2N 100N	2	89	6	104	.2	22	13	600	5.00	36	5	ND	2	12	1	2	2	66	.14	.035	10	21	.75	161	.01	3	3.39	.02	.07	1
S L2N 150N	2	48	2	116	.1	24	12	721	3.91	7	5	ND	2	21	1	2	2	67	.26	.068	6	32	.63	150	.13	2	3.91	.01	.06	1
S L2N 200N	2	64	2	112	.4	34	14	828	3.95	14	5	ND	3	20	1	2	2	71	.25	.048	8	40	.78	175	.14	2	3.68	.02	.08	1
S L2N 250N	1	63	2	107	.2	33	14	810	3.88	16	5	ND	2	20	1	2	2	69	.23	.047	8	35	.76	179	.14	2	3.59	.02	.07	1
S L2N 300N	2	74	8	128	.3	39	17	944	4.64	19	5	ND	3	22	1	2	2	81	.28	.053	9	42	.91	198	.17	2	4.21	.02	.07	1
S L2N 350N	1	34	8	48	.1	17	9	225	3.91	11	5	ND	2	17	1	2	2	80	.20	.014	7	31	.49	74	.15	2	3.41	.01	.03	1
S L2N 400N	1	68	2	89	.3	26	10	479	3.62	16	5	ND	2	22	1	2	2	59	.22	.047	6	29	.58	96	.10	2	4.32	.02	.05	1
S L2N 450N	1	32	145	82	.1	19	9	662	3.04	19	5	ND	2	21	1	2	2	58	.24	.049	6	23	.37	90	.09	2	3.06	.02	.05	1
S L2N 500N	1	64	4	133	.1	31	14	899	3.96	21	5	ND	2	28	1	2	2	75	.28	.035	7	40	.77	106	.13	2	4.21	.02	.06	1
S L2N 550N	1	70	6	133	.3	32	15	812	4.06	13	5	ND	2	27	1	2	2	77	.27	.035	7	44	.82	106	.14	2	4.23	.02	.06	1
S L2N 600N	1	75	9	153	.2	37	17	974	4.72	23	5	ND	3	34	1	2	2	89	.35	.037	8	51	.95	119	.15	2	4.81	.02	.07	1
S L2N 650N	1	48	4	97	.1	71	19	467	4.95	8	5	ND	2	31	1	2	2	83	.47	.024	8	91	1.79	117	.17	3	3.71	.02	.07	1
S L2N 700N	1	38	13	131	.2	23	11	565	6.04	22	5	ND	3	24	1	2	3	104	.29	.079	7	47	.59	66	.16	2	3.70	.02	.06	1
S L2N 750N	1	45	6	128	.2	24	10	367	5.67	18	5	ND	2	23	1	2	2	99	.27	.067	7	46	.60	67	.18	3	3.88	.01	.06	1
S L2N 800N	1	38	18	118	.1	28	7	416	6.14	23	5	ND	2	14	1	2	2	114	.27	.105	7	42	.68	54	.25	2	3.87	.02	.03	1
STD C	19	59	40	132	7.5	71	28	954	3.97	42	24	8	39	51	19	18	22	59	.48	.089	39	61	.88	181	.08	38	1.84	.06	.13	13

RECEIVED AUG 12 1987

SAMPLE#	MO	CU	PB	ZN	AG	NI	CO	MN	FE	AS	U	AU	TH	SR	CD	SB	BI	V	CA	P	LA	CR	MG	BA	TI	B	AL	NA	K	M
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
S L2W 850N	1	37	16	124	.4	15	8	578	5.29	8	5	ND	2	8	1	2	2	87	.25	.042	7	22	.74	43	.17	2	3.86	.02	.04	1
S L2W 900N	1	24	21	89	.3	11	6	458	4.17	9	5	ND	1	7	1	2	2	80	.22	.039	7	14	.54	36	.21	2	3.13	.01	.02	1
S L2W 950N	1	38	16	97	.2	18	14	800	4.24	10	5	ND	2	18	1	2	2	69	.26	.047	8	30	.70	74	.15	2	2.97	.02	.03	1
S L4W 000N	2	57	7	145	.1	20	13	875	3.93	16	5	ND	1	20	1	2	2	63	.23	.085	6	28	.52	182	.09	2	4.08	.02	.04	1
S L4W 050N	1	47	6	169	.3	24	14	716	3.36	16	5	ND	1	27	1	2	3	66	.35	.040	8	25	.65	154	.14	2	3.13	.02	.06	1
S L4W 100N	1	17	4	93	.1	15	9	620	2.38	6	5	ND	1	27	1	2	2	52	.38	.025	6	19	.47	117	.17	2	2.12	.01	.03	1
S L4W 150N	2	59	12	74	.2	24	13	597	3.77	15	5	ND	2	22	1	2	2	64	.28	.029	7	26	.79	109	.14	2	2.94	.02	.03	2
S L4W 200N	1	67	12	96	.1	25	11	1298	3.52	10	5	ND	1	18	1	2	2	61	.26	.066	5	22	.66	113	.14	2	2.77	.01	.03	1
S L4W 250N	1	37	7	108	.1	21	10	764	3.24	11	5	ND	1	15	1	2	2	49	.20	.068	6	29	.53	89	.11	2	2.75	.01	.03	2
S L4W 300N	1	31	8	148	.2	15	9	801	3.53	9	5	ND	2	23	1	2	2	63	.28	.025	8	19	.51	161	.08	2	3.22	.01	.06	1
S L4W 350N	1	23	9	111	.1	11	7	965	2.66	7	5	ND	1	16	1	2	2	47	.19	.030	6	12	.37	142	.05	2	2.27	.01	.03	1
S L4W 400N	1	59	4	84	.1	31	13	492	4.07	18	5	ND	1	22	1	2	2	74	.25	.033	6	34	.91	85	.11	2	3.07	.02	.03	1
S L4W 450N	1	95	6	78	.3	41	17	483	4.58	28	5	ND	4	23	1	2	2	90	.27	.040	12	44	.97	110	.20	3	4.57	.02	.07	1
S L4W 500N	1	90	2	66	.1	29	10	348	3.53	18	5	ND	1	18	1	2	3	72	.19	.033	5	30	.66	138	.18	2	4.67	.02	.03	1
S L4W 550N	1	82	11	63	.1	26	9	363	3.60	18	5	ND	1	17	1	2	2	73	.19	.033	4	31	.64	121	.18	2	4.21	.02	.02	1
S L4W 600N	1	77	8	60	.2	25	8	364	3.42	14	5	ND	2	16	1	2	2	70	.18	.032	4	25	.61	104	.17	2	3.99	.01	.02	1
S L4W 650N	1	30	10	117	.1	18	9	514	4.37	27	5	ND	2	17	1	2	2	75	.18	.082	5	32	.48	84	.14	2	2.85	.02	.02	1
S L4W 700N	1	29	12	113	.1	17	8	649	4.18	26	5	ND	2	15	1	2	2	72	.17	.086	5	25	.46	83	.14	2	2.61	.02	.02	1
S L4W 750N	1	26	7	108	.1	16	7	856	4.14	26	5	ND	1	14	1	2	2	69	.15	.077	5	27	.45	91	.13	2	2.36	.02	.01	1
S L4W 800N	1	48	11	120	.3	29	13	1005	4.60	14	5	ND	3	26	1	2	2	85	.32	.058	7	46	.65	108	.20	2	3.80	.02	.05	1
S L4W 850N	1	22	11	76	.1	16	7	291	4.28	15	5	ND	2	21	1	2	2	78	.27	.029	7	33	.47	93	.19	2	2.52	.01	.04	1
S L4W 900N	1	93	13	136	.2	35	17	1079	5.35	27	5	ND	3	19	1	2	2	82	.22	.089	7	38	.95	82	.16	2	4.05	.02	.04	1
S L4W 950N	1	103	16	150	.2	39	18	1081	5.60	24	5	ND	3	20	1	2	2	87	.23	.086	8	42	1.04	87	.18	2	4.27	.02	.04	1
S L4W 1000N	1	40	5	90	.2	26	11	330	4.56	10	5	ND	2	19	1	2	2	76	.22	.037	6	39	.56	104	.11	2	3.04	.02	.03	1
S L4W 1050N	1	39	6	91	.1	25	11	341	4.65	9	5	ND	2	19	1	2	2	78	.22	.038	6	39	.57	106	.12	2	3.03	.01	.04	1
S L2E 000N	1	36	2	85	.1	23	10	939	3.30	2	5	ND	2	20	1	2	2	57	.23	.026	7	32	.77	104	.11	2	2.80	.02	.04	1
S L2E 050N	1	86	10	90	.2	34	13	600	4.31	15	5	ND	2	14	1	2	2	72	.15	.059	6	38	.96	114	.15	2	3.64	.02	.05	1
S L2E 100N	1	35	7	53	.3	14	7	268	3.56	8	5	ND	2	12	1	2	2	66	.14	.020	5	23	.43	61	.11	2	2.13	.01	.02	1
S L2E 150N	1	36	5	88	.1	19	10	373	4.19	13	5	ND	2	13	1	2	2	69	.19	.034	5	25	.50	102	.12	2	2.51	.02	.02	2
S L2E 200N	1	94	8	130	.3	40	20	992	5.75	106	5	ND	2	20	1	2	2	105	.26	.036	12	34	.69	155	.08	3	3.35	.01	.04	1
S L2E 250N	1	77	5	113	.3	38	16	499	4.65	17	5	ND	2	19	1	4	2	89	.22	.055	7	48	.89	110	.18	2	3.71	.02	.05	1
S L2E 300N	1	61	4	110	.2	27	11	393	4.25	15	5	ND	1	18	1	2	2	80	.24	.079	6	35	.71	64	.15	2	2.82	.02	.03	1
S L2E 350N	1	60	8	116	.3	26	11	422	4.36	18	5	ND	2	19	1	2	2	83	.26	.088	6	38	.69	67	.17	2	2.91	.02	.02	1
S L2E 400N	1	52	2	115	.2	24	11	432	4.32	19	5	ND	2	18	1	2	2	83	.25	.084	6	32	.61	68	.16	2	2.79	.02	.03	1
S L2E 450N	2	28	5	237	.4	20	16	2552	2.43	13	5	ND	2	19	1	2	2	43	.29	.027	12	18	.40	154	.10	2	2.16	.01	.03	3
S L2E 500N	1	32	6	73	.1	14	6	217	3.86	32	5	ND	2	15	1	2	2	65	.19	.031	5	24	.43	70	.14	2	2.23	.01	.02	1
S L2E 550N	1	10	2	20	.1	2	1	68	1.90	7	5	ND	1	8	1	2	2	42	.07	.009	4	13	.10	23	.05	2	1.90	.01	.01	1
S L2E 600N	1	26	9	76	.8	10	7	272	3.00	10	5	ND	1	11	1	2	2	46	.15	.041	5	17	.25	51	.08	2	2.33	.01	.01	1
STD C	20	60	42	133	7.6	73	29	1020	3.99	38	20	7	39	52	19	17	20	60	.48	.091	39	61	.89	180	.08	37	1.84	.06	.15	15

SAMPLE#	NO	CU	PB	ZN	AG	NI	CO	MN	FE	AS	U	AU	TH	SR	CD	SB	BI	V	CA	P	LA	CR	HG	BA	TI	B	AL	NA	K	W
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	%	PPM	PPM	%	PPM	%	PPM	%	%	%	PPM
S L2E 650N	1	69	9	118	.4	29	14	616	4.34	85	5	ND	3	6	1	2	2	54	.11	.086	4	24	.85	47	.09	2	2.82	.01	.02	1
S L2E 700N	1	15	18	63	.1	9	4	176	3.52	15	5	ND	2	8	1	2	2	55	.11	.031	2	13	.36	51	.08	2	1.58	.01	.01	1
S L2E 750N	1	18	10	83	.2	13	23	1609	2.78	25	5	ND	1	11	1	2	2	42	.26	.030	8	18	.50	77	.07	2	1.83	.01	.02	1
S L4E 000N	1	41	8	72	.2	25	11	386	3.45	22	5	ND	2	13	1	2	2	59	.24	.017	5	28	.80	95	.13	2	2.49	.01	.02	1
S L4E 050N	1	58	8	71	.1	24	11	464	3.55	16	5	ND	2	7	1	2	2	53	.11	.030	4	25	.71	91	.11	2	2.95	.01	.02	1
S L4E 100N	1	45	8	76	.1	24	11	461	3.45	15	5	ND	2	9	1	2	2	57	.12	.039	4	30	.69	89	.11	2	2.57	.01	.01	1
S L4E 150N	1	95	8	94	.2	43	19	470	4.65	14	5	ND	3	9	1	2	2	82	.12	.041	4	45	.84	113	.10	2	4.56	.02	.05	1
S L4E 200N	1	56	10	89	.3	20	10	509	4.28	11	5	ND	2	8	1	2	2	70	.08	.094	3	41	.53	59	.10	2	4.46	.02	.02	1
S L4E 250N	1	16	4	35	.1	8	3	205	2.51	8	5	ND	1	8	1	2	2	49	.11	.030	3	17	.21	38	.07	2	1.31	.01	.02	1
S L4E 300N	1	26	9	49	.1	8	4	274	2.76	11	5	ND	1	8	1	2	2	50	.10	.045	3	19	.20	45	.08	2	1.87	.01	.01	1
S L4E 350N	1	46	14	75	.2	28	22	2669	2.95	20	5	ND	3	16	1	2	2	55	.37	.035	10	24	.57	202	.10	3	2.46	.01	.03	1
S L4E 400N	2	133	15	210	.7	46	90	5157	5.03	159	5	ND	5	17	1	2	2	75	.49	.084	19	26	.56	219	.10	3	3.18	.01	.02	1
STD C	19	60	41	132	7.7	71	29	1019	3.97	39	22	8	39	52	19	16	20	60	.48	.094	39	60	.88	180	.08	36	1.84	.06	.13	13

ROSSBACHER LABORATORY LTD.

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

CERTIFICATE OF ANALYSIS

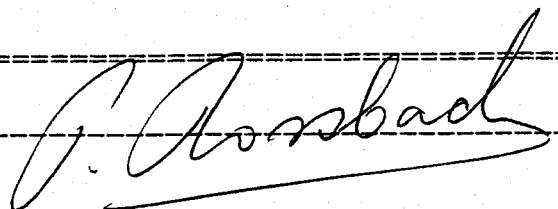
TO : MPH CONSULTING LTD.
#2406-555 W.HASTINGS ST. (BOX 12092)
VANCOUVER B.C.

CERTIFICATE#: 87389.B
INVOICE#: 7978
DATE ENTERED: 87-09-01
FILE NAME: MPH87389.C
PAGE # : 1 A

PROJECT: ~~87-09-01~~ V268
TYPE OF ANALYSIS: GEOCHEMICAL

PRE FIX	SAMPLE NAME	% SiO2	% Al2O3	% MgO	% Fe2O3	% CaO	% K2O	% Na2O	% TiO2	% MnO
A	17875	68.5	16.9	1.5	3.9	3.4	1.5	4.1	0.4	0.1
A	17884	66.0	17.1	2.0	5.0	4.6	0.7	4.2	0.5	0.1
A	17889	52.0	14.3	5.3	12.6	8.3	0.8	2.4	2.3	0.1

CERTIFIED BY :



RECEIVED SEP 02 1987.

ROSSBACHER LABORATORY LTD.

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

CERTIFICATE OF ANALYSIS

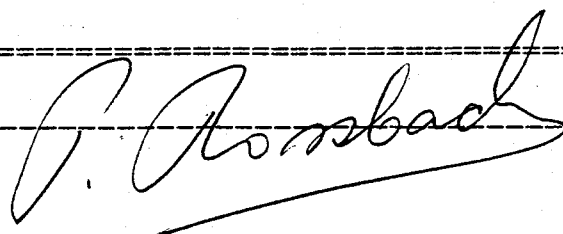
TO : MPH CONSULTING LTD.
#2406-555 W. HASTINGS ST. (BOX 12092)
VANCOUVER B.C.

CERTIFICATE#: 87389.B
INVOICE#: 7978
DATE ENTERED: 87-09-01
FILE NAME: MPH87389.C
PAGE # : 1 B

PROJECT: ~~87-09-01~~ V268
TYPE OF ANALYSIS: GEOCHEMICAL

PRE FIX	SAMPLE NAME	% LOI	% TOTAL
A	17875	1.70	102.0
A	17884	2.70	102.9
A	17889	1.40	99.5

RECEIVED SEP 02 1987
CERTIFIED BY :





Appendix IV

ABBREVIATIONS USED IN

MINERAL OCCURRENCES REFERENCES



ABBREVIATIONS USED IN MINERAL OCCURRENCES REFERENCES

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.
CMH	Canadian Mines Handbook
EBC	Exploration in British Columbia; B.C. Ministry of Energy, Mines and Petroleum Resources
EGS	Economic Geology Series
GEM	Geology, Exploration and Mining in British Columbia; B.C. Department of Mines and Petroleum Resources
GSC	Geological Survey of Canada
Mem	Member
MER	British Columbia 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
P	Paper
TML	Today's Market Line
MEDR	Mining Exploration and Development Review



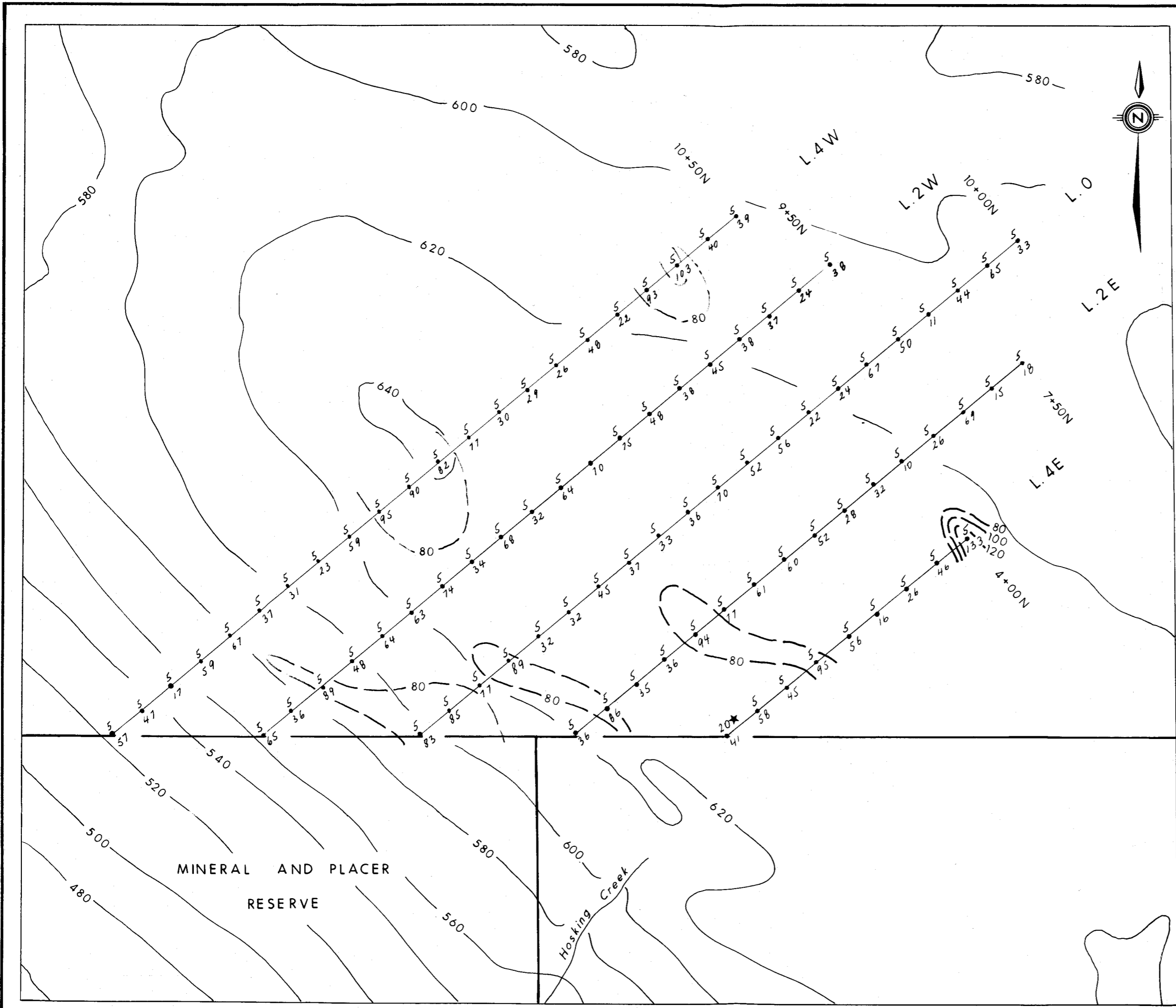
Appendix V

CONVERSION FACTORS FOR METRIC UNITS



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	= 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 (oz/ton)	= 34.286 grams/tonne	(g/t)
1 g/t	= 0.0292 oz/ton	
1 g/t	= 1 part per million	(ppm)
1 ppm	= 1000 parts per billion	(ppb)
10,000 g/t	= 1%	



Cu ppm
 Range 10 -133
 Mean (\bar{x}) 51.3
 Standard deviation (σ) 24.5
 Contours : 80, 100, 120


★ ≥ 20 ppb Au

**GEOLOGICAL BRANCH
 ASSESSMENT REPORT**

16,906

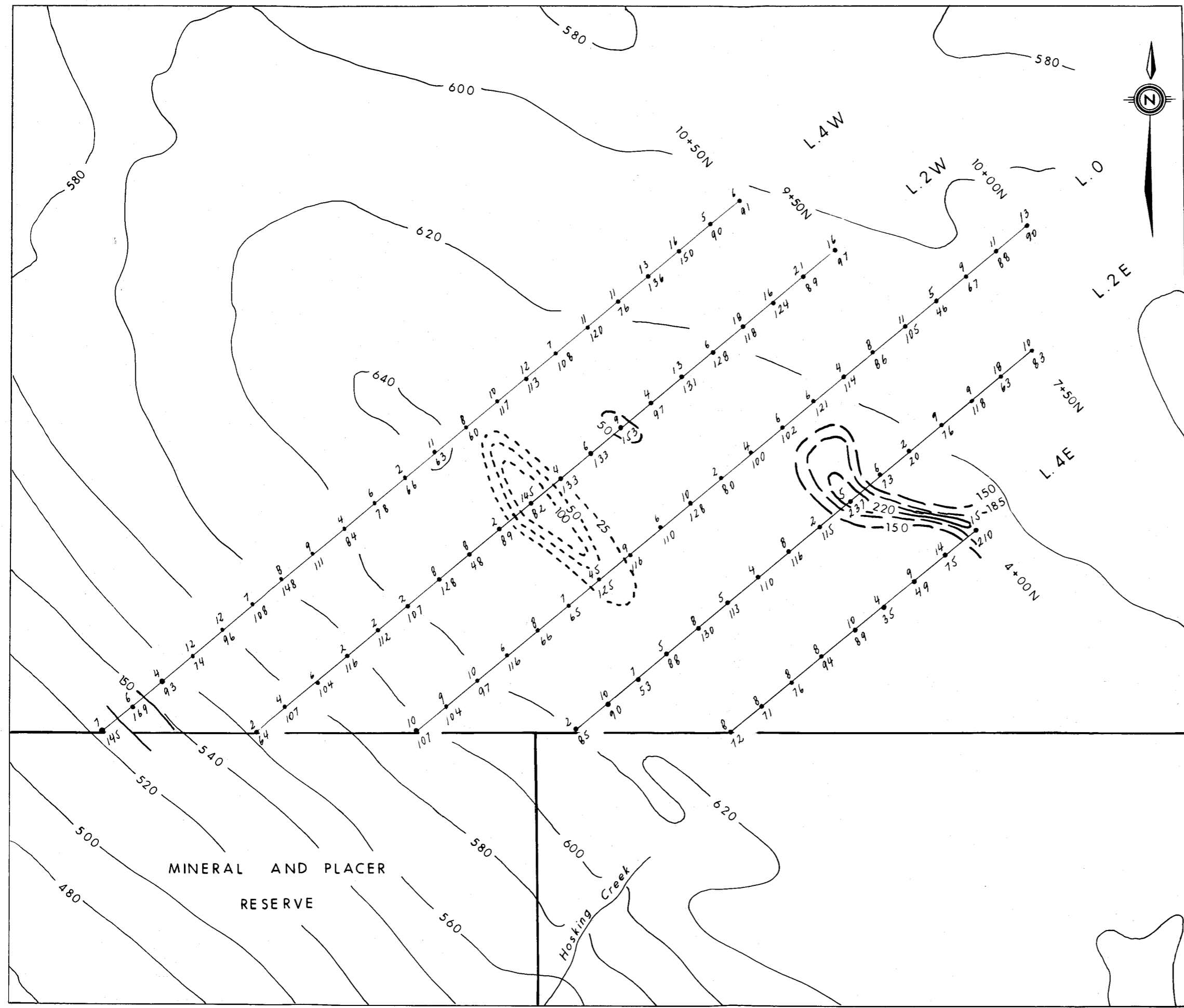
0 100 200 m
 NTS 92 B/13

MINERAL AND PLACER
 RESERVE

CANAMIN RESOURCES LTD.	
SOIL GEOCHEMISTRY Au, Cu CONCENTRATIONS POLY GROUP VICTORIA MINING DIVISION	
Project No: V 268	By: B. T., G. P.
Scale: 1 : 5000	Drawn: J. S.
Drawing No: 6	Date: SEPTEMBER, 1987
 MPH Consulting Limited	

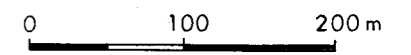
**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

16,906



	Pb ppm	Zn ppm
Range	1 - 145	20 - 237
Mean (\bar{x})	9.89	100.34
Standard deviation (σ)	15.46	33.46
Contours :	25, 50, 100	150, 185, 220

----- Pb
 ————— Zn



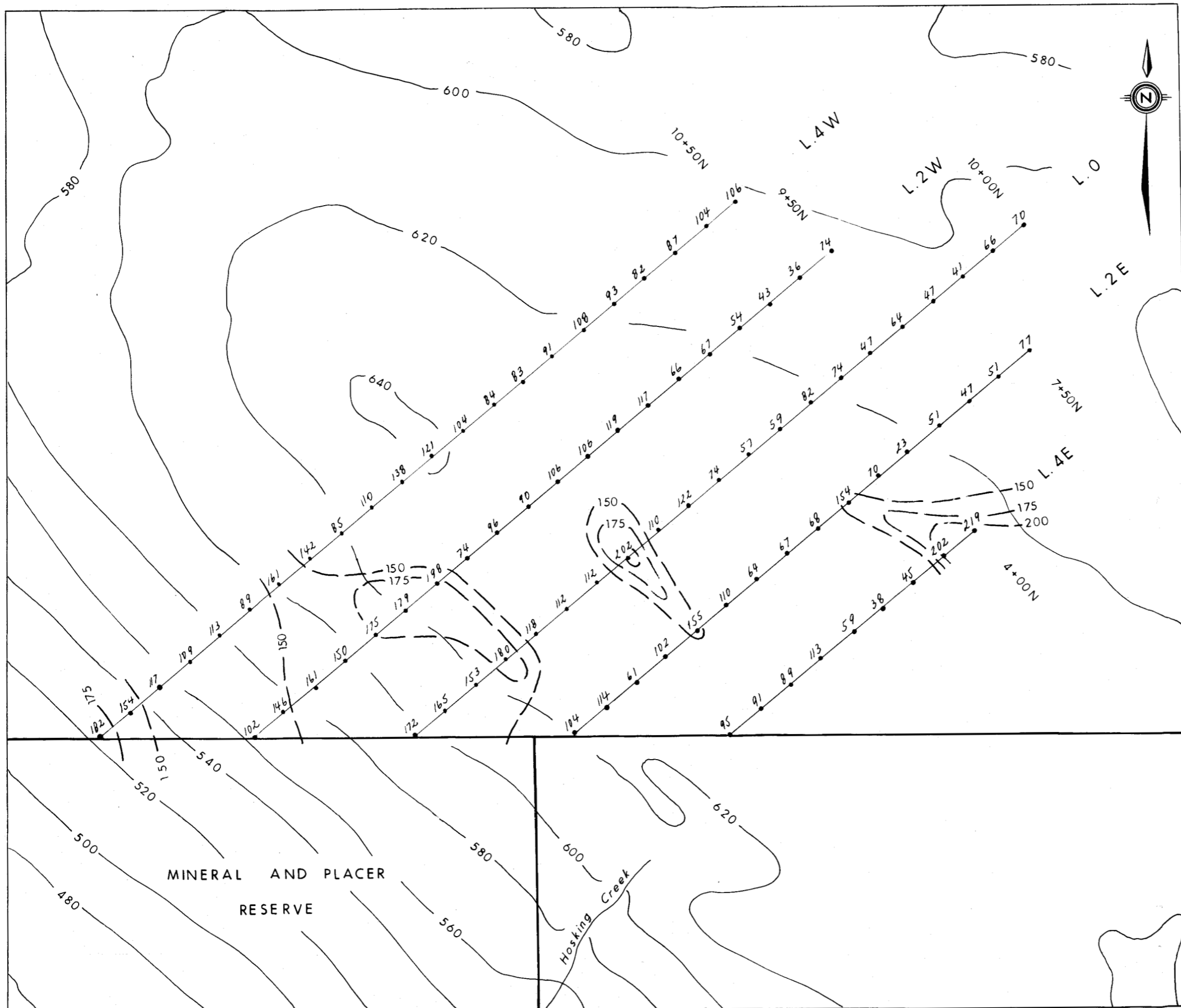
NTS 92 B/13

CANAMIN RESOURCES LTD.

SOIL GEOCHEMISTRY
Pb, Zn CONCENTRATIONS
POLY GROUP
 VICTORIA MINING DIVISION

Project No: V 268	By: B. T., G.P.
Scale: 1 : 5000	Drawn: J. S.
Drawing No: 7	Date: SEPTEMBER, 1987

MPH MPH Consulting Limited

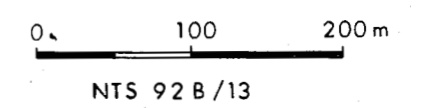



Ba ppm

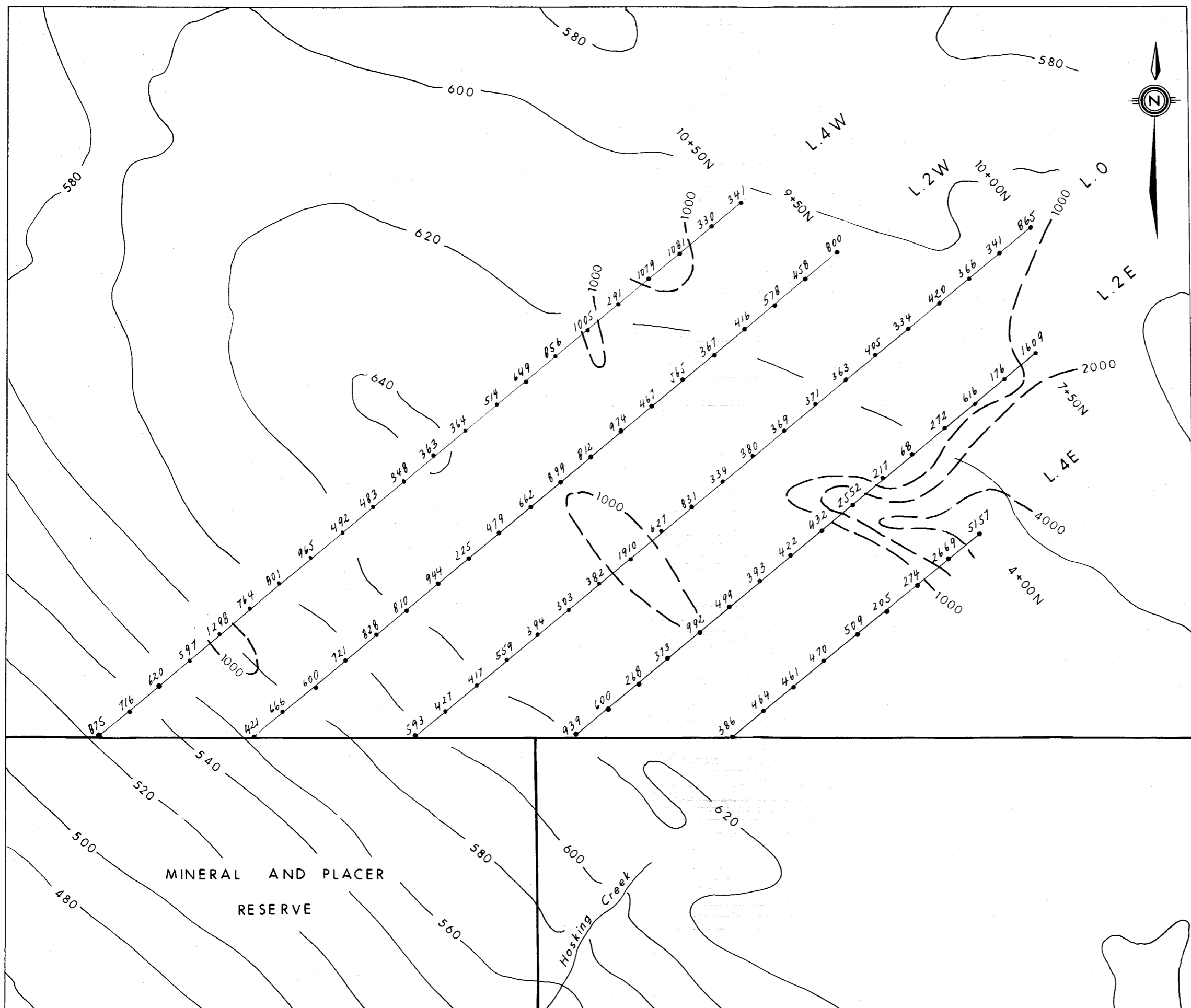
Range 23 - 219
 Mean (\bar{x}) 101.76
 Standard deviation (s) 44.98
 Contours: 150, 175, 200

**GEOLOGICAL BRANCH
 ASSESSMENT REPORT**

16,906



CANAMIN RESOURCES LTD.	
SOIL GEOCHEMISTRY Ba CONCENTRATIONS POLY GROUP VICTORIA MINING DIVISION	
Project No. V 268	By B. T., G. P.
Scale: 1 : 5000	Drawn: J. S.
Drawing No. 8	Date: SEPTEMBER, 1987
 MPH Consulting Limited	



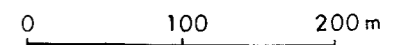
**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

16,906


Mn ppm

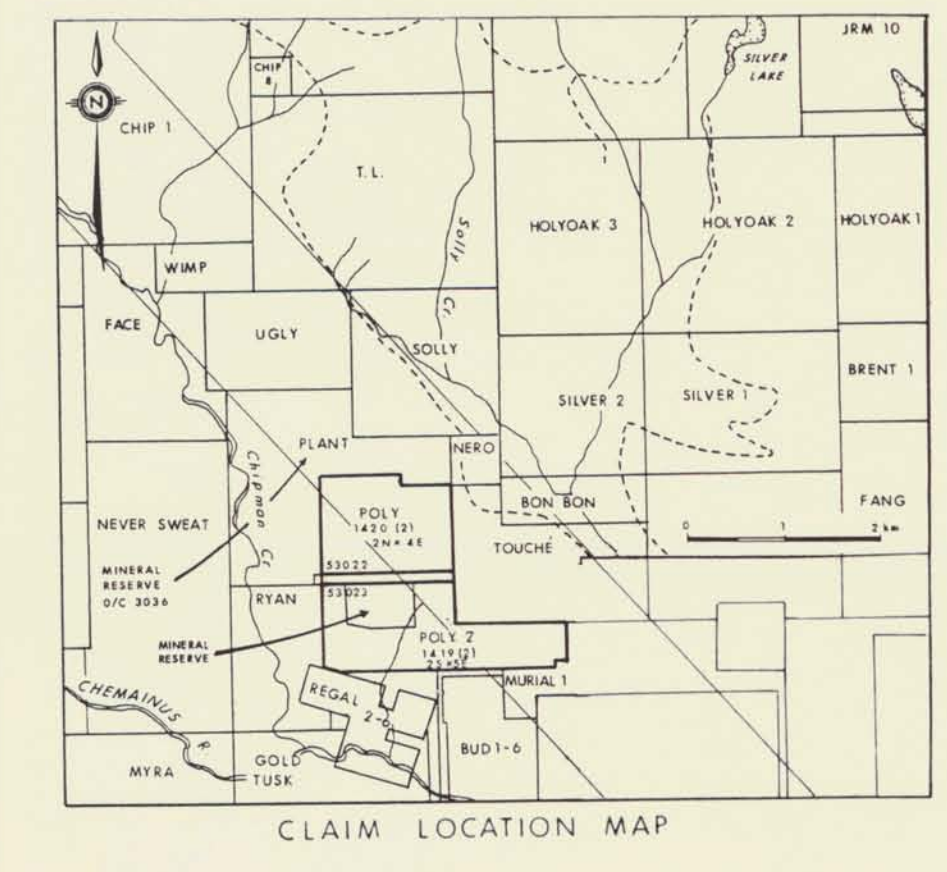
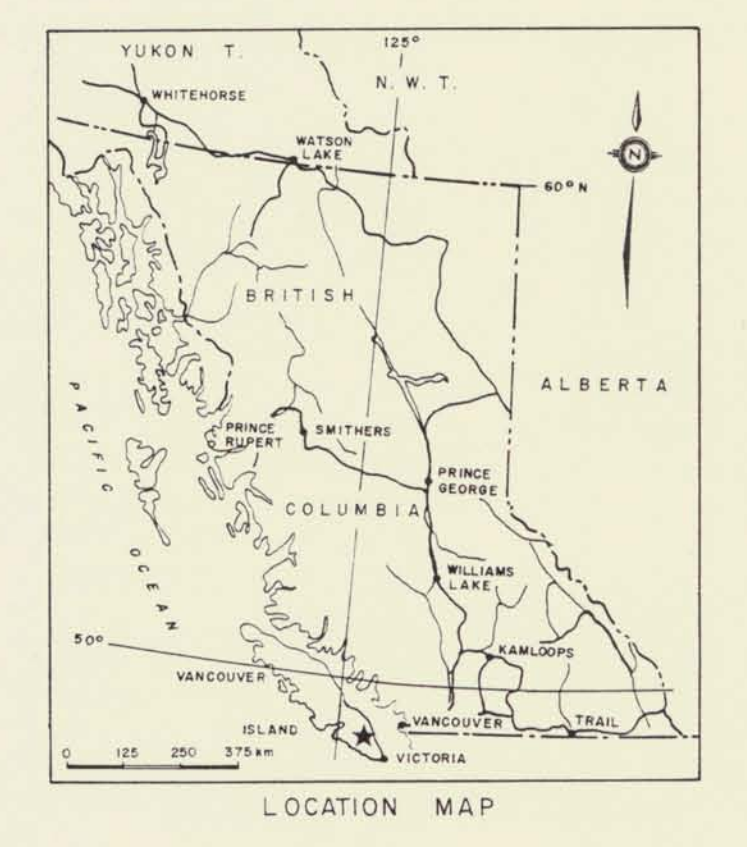
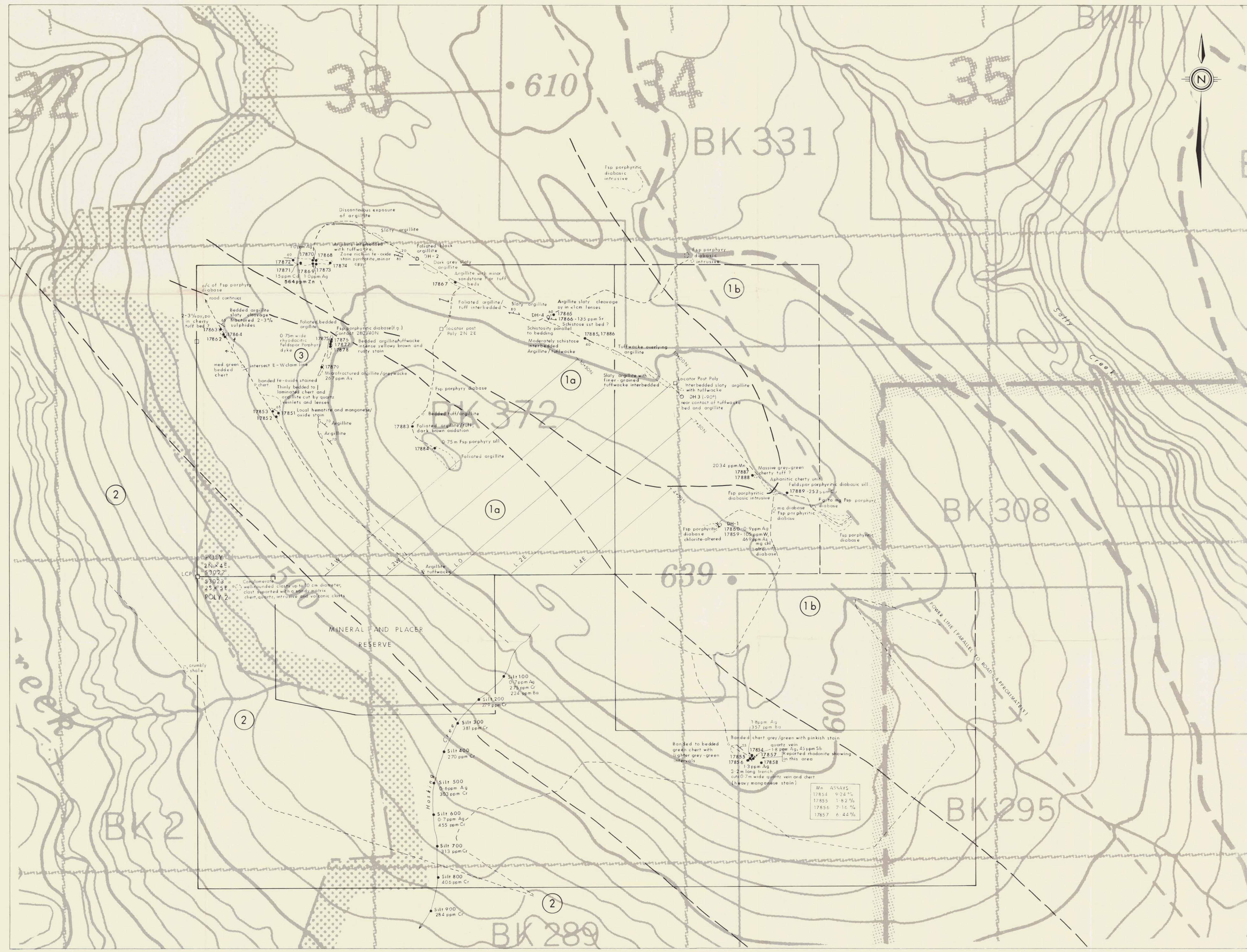
Range	68 - 5157
Mean (\bar{x})	563.54
Standard deviation (σ)	258.71
Contours	1000, 2000, 4000

68-1500 (range)



NTS 92 B/13

CANAMIN RESOURCES LTD.	
SOIL GEOCHEMISTRY Mn CONCENTRATIONS POLY GROUP VICTORIA MINING DIVISION	
Project No: V 268	By: B. T., G.P.
Scale: 1 : 50.00	Drawn: J. S.
Drawing No: 9	Date: SEPTEMBER, 1987
 MPH Consulting Limited	



- LEGEND**
GEOLOGY
- TERTIARY ? [3] Dykes
Rhyodacite (Feldspar Porphyritic)
 - MESOZOIC [2] Nanaimo Group
Upper undifferentiated
Cretaceous conglomerate, shale and minor sandstone
 - PALEOZOIC [1] SICKER GROUP
Sediment - Silt Unit
1a - Bedded argillite (slaty locally) interbedded with fine to coarse-grained tuffwacke, greywacke and siltstone - sandstone, chert, medium grey to light green, thinly-banded;
1b - Diabase, fine to coarse-grained chlorite altered, feldspar porphyritic.
- ABBREVIATIONS**
- | | | | |
|-----|----------------|-----|--------------|
| fg | fine grained | med | medium |
| mg | medium grained | sst | sandstone |
| c g | coarse grained | Mn | manganese |
| Fsp | feldspar | py | pyrite |
| ald | altered | po | pyrrhotite |
| chl | chlorite | cpy | chalcopyrite |
| o/c | outcrop | | |

- SYMBOLS**
- Roads (surveyed by chain and compass)
 - 17881 • Rock sample location
 - Silt 100 • Silt sample location
 - Legal Corner Post
 - Geological Contact
 - Bedding (strike / dip)
 - Schistosity (strike / dip)
 - Drill hole location
 - Grid
 - Claim line
- GEOLOGICAL BRANCH ASSESSMENT REPORT**
- # 16,906
- 0 100 200 300 400 500 metres

NTS 92 B/13

CANAMIN RESOURCES LTD.

GEOLOGY, ROCK SAMPLE, SILT SAMPLE LOCATIONS

POLY GROUP
VICTORIA MINING DIVISION

Project No: V 268	By: B. Y. T., G. A. P.
Scale: 1 : 5 000	Drawn: J. S.
Drawing No: 5	Date: SEPTEMBER, 1987

MPH **MPH Consulting Limited**