

800681

**IMPERIAL METALS CORPORATION**

**QUESNEL TROUGH  
PROPERTY PORTFOLIO**

**March 1990**

## LING PROPERTY

In 1986, Cathedral Gold staked the Ling property based on the results of a regional reconnaissance stream sediment and soil survey program. The 40 claims are located in the northern portion of the Quesnel Trough, along Duckling Creek, immediately north of the Omineca River. Lysander Gold/B.P. Resources Cat and Bet claims lie 25 kms to the northeast.

In the 1960's and 70's the Duckling Creek area was actively explored for low grade mineral deposits. The most widely known prospect is the Lorraine, an alkalic copper porphyry deposit with total indicated reserves of 10 million tons averaging 0.7% copper and from 0.10 to 0.34 ppm gold.

Geologically, the Ling property straddles the contact of the Triassic Takla Group andesitic volcanics and various hybrid syenitic phases of the Jurassic Hogem batholith.

In restricted areas within the hybrid rocks or in the intrusions themselves, potassic alteration is intense. In the volcanics potassic alteration, in the form of pink feldspar, is minor but widespread, commonly as fracture fillings. Epidote is abundant in the Takla Group occurring as veinlets, stringers, pods and as patchy replacements. Zones of intense silicification were observed in the Takla volcanics, distal to the contact with the Hogem intrusive.

Sulphide mineralization is most extensive in the hybrid rocks at the contact between the two main units. Chalcopyrite, pyrite, magnetite and pyrrhotite are the main sulphides. Chalcopyrite is commonly associated with concentrations of magnetite. Mineralization appears to be structurally controlled, concentrating in breccias, fractures or shear zones. The volcanics host trace amounts of pyrite except for the zones of silicification which are intensely pyritized and contain occasional blebs of chalcopyrite.

Previous exploration on the Ling property includes exploration by Donna Mines Ltd. who, in the early 1970's, tested the ground for high grade vein type and copper porphyry type mineralization.

Their work included detailed soil geochemistry, trenching, ground magnetometer surveying and over 1000' of diamond drilling. It succeeded in defining two areas of anomalous copper mineralization, one of which had associated silver and gold values. The best sample yielded 2.70% Cu, 0.70 oz/t Ag with 0.01 oz/t Au over 8 feet.

This zone was trenched which proved it to lack in continuity horizontally or in depth. Trenching in the other zone revealed the presence of low grade copper mineralization.

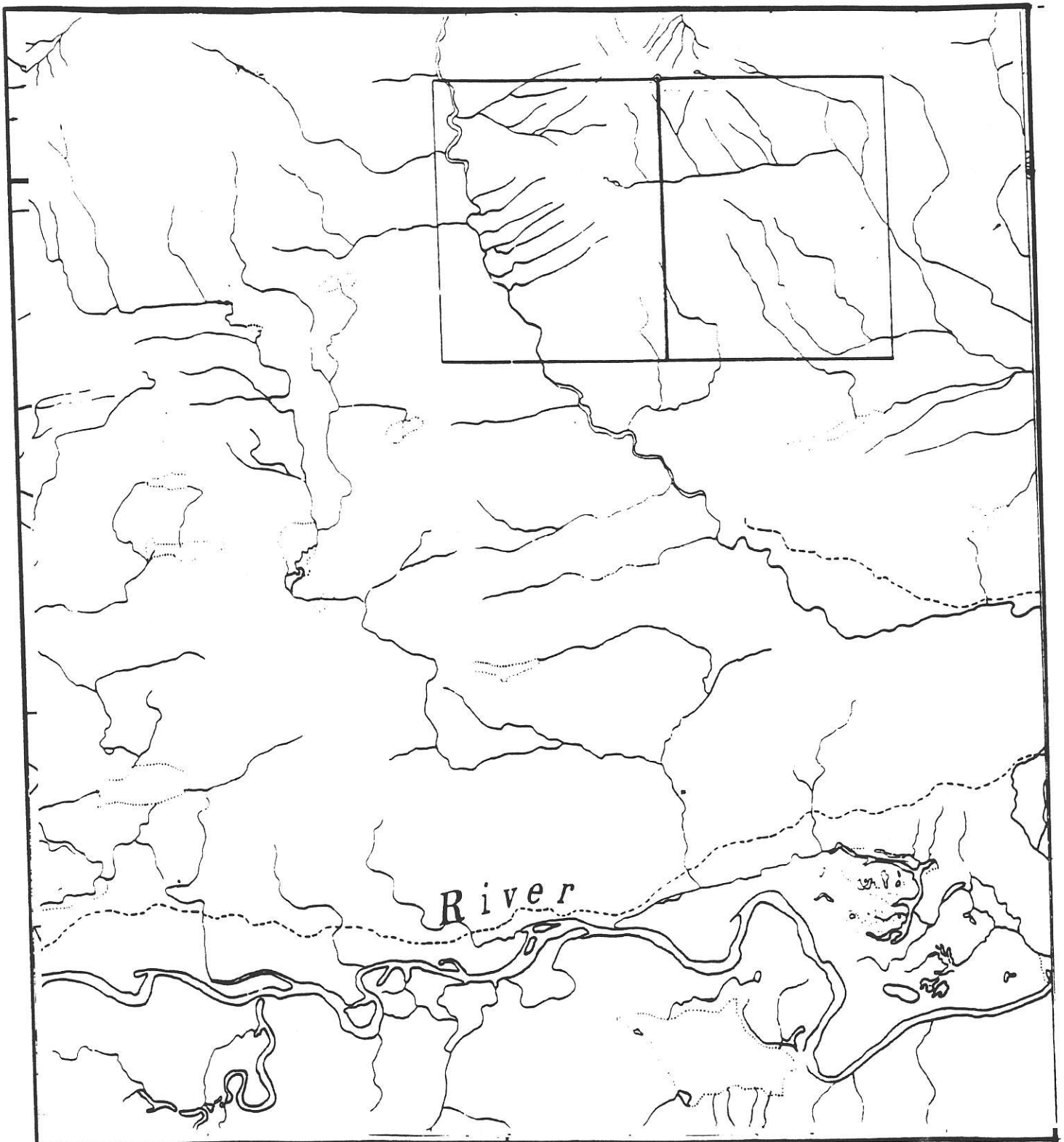
In 1981 Dimac Resource Corporation staked the Duckling Claims with the intention of re-evaluating the property as a gold prospect. They concluded the zones of mineralization (copper, silver, with negligible gold) were too limited in size or continuity to justify further work.

Recent exploration work by Cathedral includes geological mapping, rock and soil sampling. The 1987 program focused on the areas of the two main copper showings whereas 1989's work tested for gold mineralization in the southern portion of the property, where there is no evidence of previous exploration. Results from these two exploration programs have, in both cases, returned only spotty gold anomalies. These values are associated mainly with what appear to be small massive sulphide pods or lenses or are in the zones of silicification in the Takla andesites. Copper anomalies (>100 ppm), from both rock and soil sampling, are more common and widespread than gold anomalies, however it should be noted that sampling concentrated on areas of most intense mineralization.

The Ling property has shown some potential for hosting an alkalic copper-gold porphyry deposit. Geologically the claims are in a favourable environment, hosting appropriate rock types and spotty magnetic anomalies. Copper mineralization does exist on the property, but work to date has shown it to be of limited proportions. Most of the mineralization discovered to date appears to concentrate in small high grade lenses or pods.

A detailed compilative study of all the past work done on the Ling property and surrounding area would aid in determining further exploration requirements of the Ling property to fairly assess its copper porphyry potential.

SB:mes  
March 1, 1990  
D#1/SB/RPTS(rb)



**IMPERIAL METALS CORPORATION**

N.T.S. 93N/7E

LING



SCALE: 1 : 50 000  
DATE: MARCH 1990

GEOLOGIST:  
DRAWN BY: S. HAWORTH

## ATO PROPERTY

The Ato claims, located 10 km north of the Ling claims, were also staked based on the results of 1986's regional reconnaissance stream sediment survey.

Geologically, the property is similar to that at Ling. It is located in the Quesnel Trough and spans the contact between the Jurassic Hogem batholith and andesites of the Triassic Takla Group volcanics. At Ato, the contact between the two units is sharper than at Ling, and without the same degree of hybrid phases. Here, the Hogem is predominantly dioritic in composition.

This part of the Quesnel Trough has seen numerous surges of exploration for porphyry copper style mineralization. The most comprehensive exploration work in the immediate Ato property area was completed in 1970/71 by Cominco Ltd./Marubeni-iida (Canada) Ltd., as the Ato III claim block overlies a portion of their old Rondah claim group. Their work included induced polarization, percussion drilling and over 1,000 meters of diamond drilling. The results of these exploration programs are not available in assessment files.

Cathedral Gold's recent exploration work includes mainly rock, soil and silt sampling over the three claim blocks. Results of this work indicate that no further work is warranted on the Ato I and II claim groups. Only two significantly anomalous results were returned from this portion of the property, one of which (0.93 oz/t gold) was float rock that was not relocated. A 0.67 oz/t gold value was returned from a narrow (5 cm) shear zone that couldn't be traced in surface exposures. Only spotty anomalous copper values were returned from this part of the property.

The Ato III group, which covers part of the old Rondah workings, has the most potential of hosting significant mineralization. Unfortunately, the majority of this claim block is covered in a thin veneer of till. Outcrop sampling suggests a poddy, high grade nature to the copper ± gold mineralization. A number of anomalous values were returned from sampling in this area, including values of up to 7% copper with over 6,000 ppb gold, but more commonly ranging from 0.1%-1% copper with 50-500 ppb gold. A strong copper-gold relationship exists, with over 1 gram of gold per tonne associated with copper values exceeding 1%. Rock sampling was biased in that the obviously high grade zones of mineralization were sampled.

A reconnaissance level soil geochemical survey over the Ato III claims defined a strong copper anomaly (300-3000 ppm Cu), but all samples returned only background gold values. The copper anomaly is coincident with some outcrops of intense mineralization and with some of the 1971 drill pads.

The drill core from 1970's exploration was located, however the racks and boxes had decayed and collapsed, scattering the core. Visual examination showed either potassic alteration or sulphide mineralization in only a small fraction (<10%) of the total amount of rock recovered.

Copper-gold mineralization does exist in the southern portion of the Ato property but it appears to be limited to small, high grade pockets. Based on the information at hand, the potential for a more extensively mineralized copper-gold porphyry system is minimal. My recommendation at this point is to acquire all the available information from the work done in the 60's and early 70's and to do a compilation and evaluation of the copper porphyry potential of the south portion of the Ato claims.

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D#1/SB/RPTS(rb)



93N/14E

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FIGURE N.T.S. 93N/14

ATO



SCALE: 1:50 000	GEOLOGIST:
DATE: MARCH 1990	DRAWN BY: S. HAWORTH

## JEAN PROPERTY

The Jean property, staked in July of 1989, covers a copper / molybdenum prospect in the central Quesnel Trough area. The property consists of 207 units overlying the contact between the Jean Marie Stock, a Cretaceous granodiorite-quartz diorite intrusive, with Jurassic-Triassic Takla Group andesites and pyroxene porphyries. The contact is pyritized with localized garnet / epidote skarn development. Numerous dykes, ranging in composition from plagioclase syenite porphyry through aplite syenite to red granite, cut the main intrusive rocks.

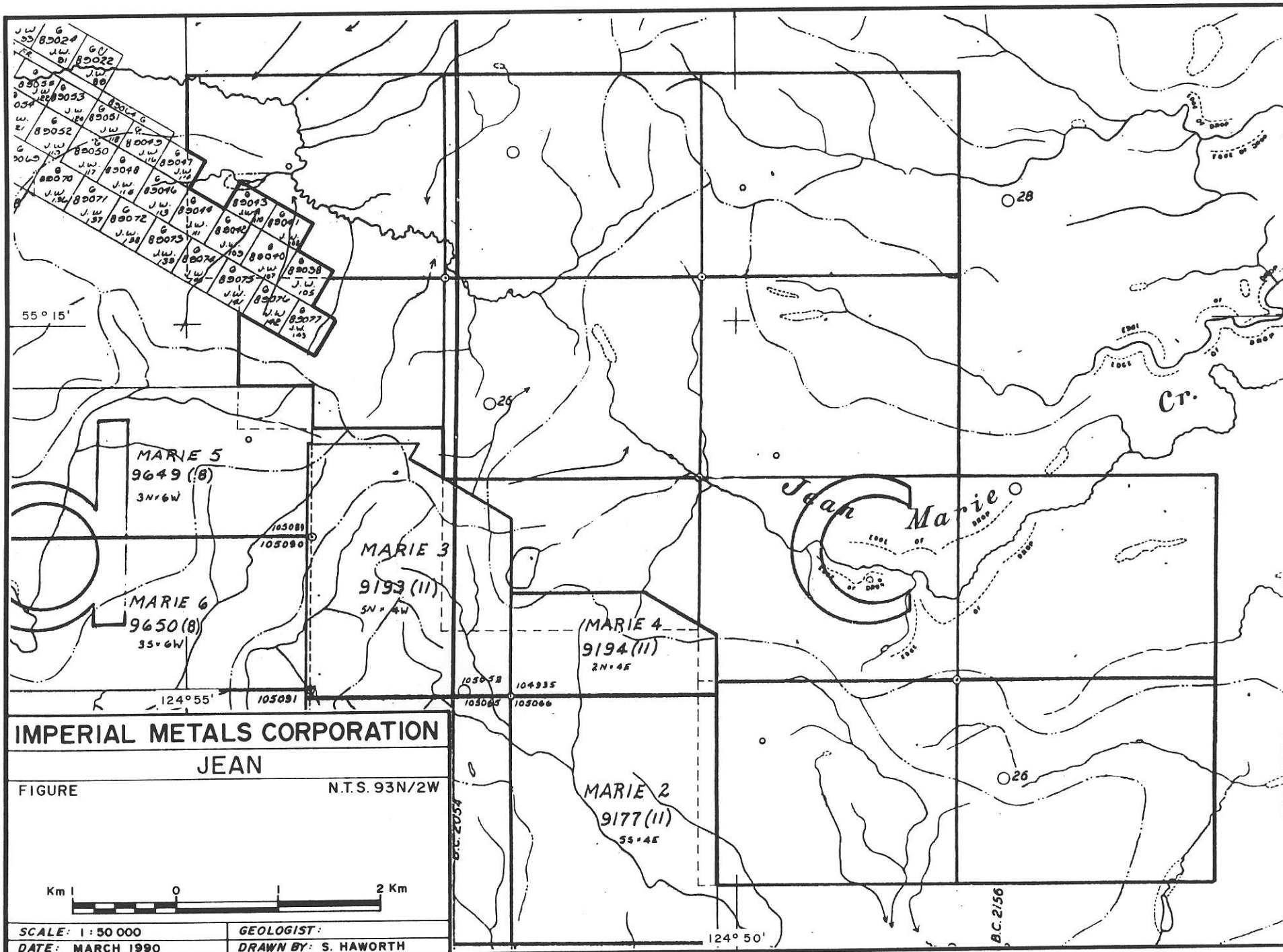
Chalcopyrite, molybdenite and hematite occur on potash feldspathized fractures in the intrusive rocks. Chalcopyrite also occurs with pyrite in quartz veins or along fractures in the volcanic or intrusive rocks.

The area has been subject to numerous exploration programs since the late 1960's when the N.B.C. syndicate first staked a block of claims in the area. Some of these original claims now underlie Imperial Metals ground. Past exploration work has included geological mapping, geochemical and geophysical surveys (ground IP, airborne mag, VLF-EM), as well as diamond and percussion drilling.

Imperial Metals Corporation has not yet conducted exploration work on this property. A review of the available information from previous exploration would aid in determining an appropriate exploration strategy for 1990.

SB:mes  
March 1, 1990  
D#1/SB/RTS90(rb)





IMPERIAL METALS CORPORATION

JEAN

FIGURE

N.T.S. 93N/2W



SCALE: 1:50 000  
DATE: MARCH 1990

GEOLOGIST:  
DRAWN BY: S. HAWORTH

124° 50'

B.C. 2156

## AWL PROPERTY

The Awl property was staked in June, 1989 based on geological modelling in the Quesnel Trough. The claims lie 40 kilometers northwest of Continental Gold/B.P. Resource's Mt. Milligan copper-gold porphyry deposit.

The property, comprised of 80 units, straddles the contact between the Omineca Intrusives and the Takla Group volcanics. It overlies a prominent magnetic high depicted on the 1961 Government of Canada aeromagnetic survey map. Intrusive rocks on the Awl property can be divided into two distinct units, a coarse grained monzonite and a medium grained diorite. Zones of magnetite rich, mafic segregations occur in the diorite which are believed to be responsible for the property's magnetic signature. The Takla volcanics are thought to be of andesitic composition.

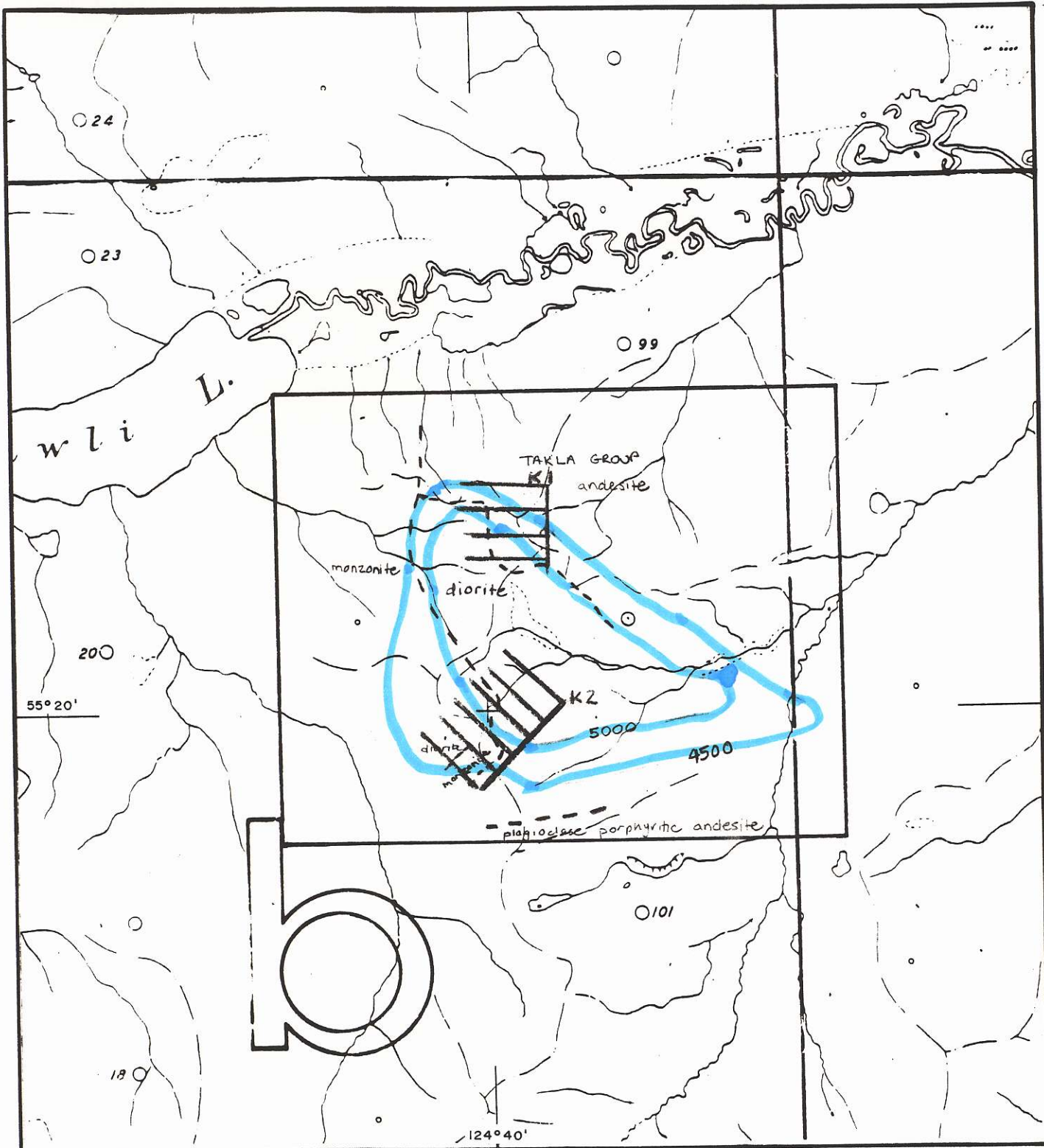
The only known previous exploration work on the Awl claims was done by Great Plains Development Company who staked the ground in 1970. They conducted a property wide soil geochemical survey which identified two areas of elevated copper values. Detailed soil sampling was completed over these two areas. The results of this exploration program were not encouraging and the claims were allowed to lapse.

Imperial Metals conducted a reconnaissance exploration program on the Awl property in 1989, which consisted of prospecting, geological mapping and some soil geochemistry. Outcrop on the property is scarce. No alteration was observed in the intrusive rocks and only weak propylitic alteration was noted in the Takla Group. Minor disseminated pyrite was observed locally in the andesite. No other sulphides were encountered.

Soil sampling was completed in the areas considered to have the most potential as determined by Great Plains work in 1971. Results from the soil sampling returned only spotty anomalous copper values with the exception of the most southerly line on the K2 grid, which contained a number of copper values ranging from 100-600 ppb. All gold values were background level. Rock sampling did not return any anomalous metal values.

Results from exploration work on the Awl claims indicates that the potential for a widespread copper-gold porphyry system is minimal. The most encouraging facts to date remains the alkalic porphyry model type. The property contains the appropriate rock types to host such a deposit. Further exploration work should focus in the south-west portion of the claim blocks and consist of soil sampling and, if warranted, a follow up IP survey. Reconnaissance level prospecting and sampling should extend south of the claim block to follow the monzonite / andesite contact.

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D#1/SB/RTS90(rb)



- inferred geologic contact
- - - isomagnetic lines (gammas)
- ▭ 1989 geochemical survey area

**IMPERIAL METALS CORPORATION**  
**AWL**

FIGURE N.T.S. 93N/7E



SCALE: 1 : 50 000	GEOLOGIST:
DATE: MARCH 1990	DRAWN BY: S. HAWORTH

## PITT PROPERTY

The Pitt property was staked in June 1989 as a result of alkalic copper-gold porphyry modelling in the Quesnel Trough area. The property's 75 claim units overlie a strong aeromagnetic anomaly, which is coincident with the contact between a Jurassic-Triassic granitic stock and metamorphic rocks of the Lower Cambrian Cariboo Group.

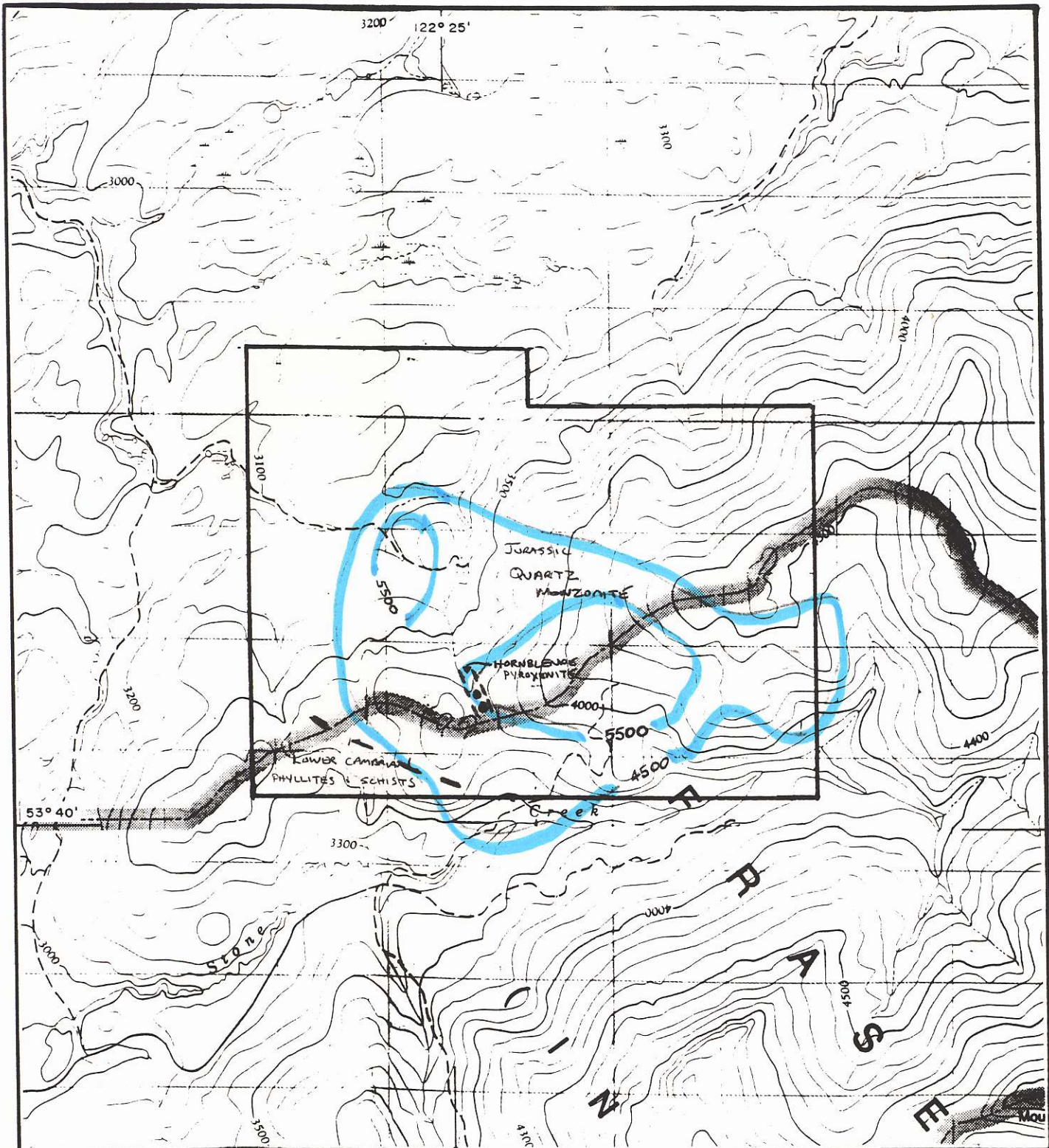
Most of the area's exploration history concentrated in the mid-1960's, after the results were released of the provincial government's aeromagnetic survey. Asbestos Corporation (Explorations) Limited staked a portion of the ground underlain by the Pitt property. They conducted an exploration program that included prospecting, geological mapping and magnetometer surveying. They concluded that the property's pronounced magnetic high results from significant concentrations of magnetite within a basic phase (hornblende pyroxenite) of the main intrusive body (syenite porphyry to quartz monzonite). They did not locate any mineralization within the claim group, however they emphasized that they had not encountered any highly magnetic rock which might possibly host sulphide mineralization.

Cathedral Gold did not conduct an exploration program on the Pitt property in the 1989 season but a short visit was made to the property to locate a gossan that had been spotted from the air. The gossan proved to be an outcrop of highly magnetic hornblende pyroxenite hosted in a larger mass of quartz monzonite. The mafic unit was traced sporadically for a length of 30 meters and appeared to be more altered than the host rock. Within this unit only isolated mineralization was observed which consisted of minor disseminated fine grained pyrite with trace chalcopyrite. Two samples were collected and analyzed for 30 elements by ICP. One sample returned 2730 ppb Au, the other, 123 ppb Au. No other significantly anomalous values were returned from the analysis. No alteration or mineralization was observed in the monzonite, nor in the metamorphic schists located in the southeast portion of the property.

Till obscures most of the bedrock underlying the property. Rock outcrops are isolated to a few areas and the majority of rocks encountered on the claims are unaltered. The potential of a widespread mineralizing system in this area is minimal, but the anomalous gold values returned from the highly magnetic hornblende pyroxenite should be followed up.

Detailed prospecting with rock sampling in the vicinity of the sample that hosted anomalous gold mineralization would be an effective way of assessing the exploration requirements of the property. If warranted, further exploration programs including extensive soil geochemistry and ground geophysical surveys would be required to evaluate the Pitt property's economic potential.

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- - - estimated geologic contact
- isomagnetic lines (gammas)
- approximate 1989 sample location site

**IMPERIAL METALS CORPORATION**  
**PITT**

FIGURE N.T.S. 93G/9W



SCALE: 1 : 50 000 GEOLOGIST:  
DATE: MARCH 1990 DRAWN BY: S. HAWORTH

## VALLEY GIRL PROPERTY

Imperial Metals Corporation staked the Valley Girl property in 1985 based on anomalous gold values returned from a reconnaissance stream sediment and soil survey. Additional ground was staked in 1986, adjoining the original claims, to bring Imperial's holdings to a total of 80 units.

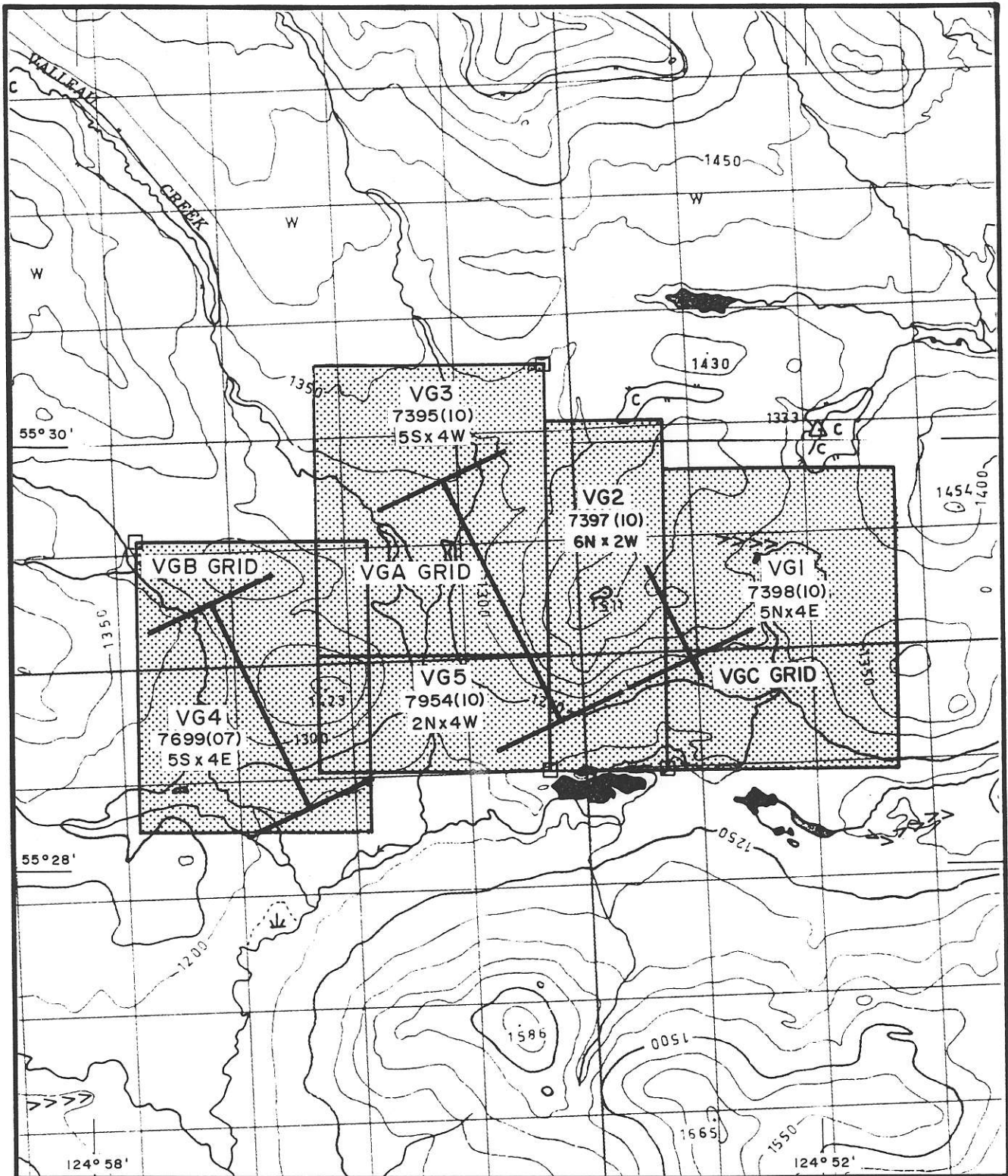
The property is located in the Quesnel Trough and is underlain by Takla Group volcanics. It lies 3 kilometers from the southern border of the granodioritic Germansen Batholith.

An abandoned camp and old test pits with sluice boxes attest to the placer gold history of the Valley Girl claims. Free gold in quartz veins were noted in a 1945 government report.

Most of the property is covered with till and bedrock exposures are limited.

Exploration to date by Imperial Metals has consisted primarily of soil geochemical surveys with supplementary prospecting and geologic mapping. Results from the geochemistry defined one area, approximately 500 m x 300 m in size, of anomalous gold values ranging from 50-2,540 ppb Au. Additional soil geochemistry, trenching and a geophysical survey would be required to evaluate the potential of this zone, however, I feel that the property does not host sufficient potential to warrant any further exploration work.

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March 1, 1990  
D#1/SB/RTS90(rb)



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VALLEY GIRL

FIGURE 2

N.T.S. 93N/7 & 10

# CLAIM MAP



SCALE: 1:50 000

GEOLOGIST: S. B., D. J.

DATE: SEPT., 1989

DRAWN BY: S. HAWORTH