REPORT ON THE JULIET CREEK PROPERTY (J.M. CLAIMS) IN THE COQUIHALLA AREA NICOLA MINING DIVISION BRITISH COLUMBIA

FOR THE

BRITCO SYNDICATE

BY

P. E. HIRST & ASSOCIATES LTD.

P. E. HIRST, P. ENG.

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SUMMARY

The Juliet Creek property is a foci of complex igneous activity and related extensive breccia developments with associated silica - K feldspar metasomatism and hydrothermal alteration accompanied by spotty and irregular developments of pyrite, molybdenite, and chalcopyrite mineralization.

Further work is recommended to evaluate the economic potential of this area both in relation to surface possibilities and to depth possibilities related to changing conditions within the breccia column.

A phased programme consisting initially of a $12,000 first phase is recommended. Subject to favourable results being obtained in the initial phase, a second stage costing $30,000 is recommended to physically test any significant target area.

INTRODUCTION:

The Britco Syndicate own 40 full-sized claims and four fractional claims on Juliet Creek in the Coquihalla area of the Nicola Mining Division, British Columbia. These claims were staked by Messrs. J.S. Christie and K.W. Livingstone for the Britco Syndicate during a 1969 prospecting programme after the discovery of geochemically anomalous molybdenum in stream sediments. Subsequently, Christie and Livingstone collected additional stream sediment and soil samples and conducted some reconnaissance geological mapping of the area.

The writer examined this property on October 4, 1969 with Messrs. Christie and Livingstone. Most of the examination was devoted to the geochemically anomalous area within which outcrops and known showings were examined.

These observations, plus a study of the Britco soil and stream sediment geochemical data, and brief literature studies, form the basis of this report.

LOCATION, ACCESS, PHYSIOGRAPHY:

The property is situated on Juliet Creek, about seven miles north of Coquihalla Lake and thirty miles southwest of Merritt. Specific coordinates are latitude 49° 44' North, longitude 121° 04' West. Elevations range from 3,600 feet to 6,400 feet above sea level over the entire property, and between 3,600 feet and 4,500 feet within the geochemically anomalous area.

Easy access is provided by a good gravel and dirt road along the Coldwater River some two miles east of the property. An old, disused, and partially overgrown forestry jeep road provides access to the claims along the north side of Juliet Creek.

The area of principal interest is situated on a steep timbered slope on the north side of July Mountain.

PROPERTY:

The property consists of 40 full-sized claims and four fractional claims within an area of about two miles square. The claims were staked by Messrs. Christie and Livingstone and recorded on August 8, 1969.

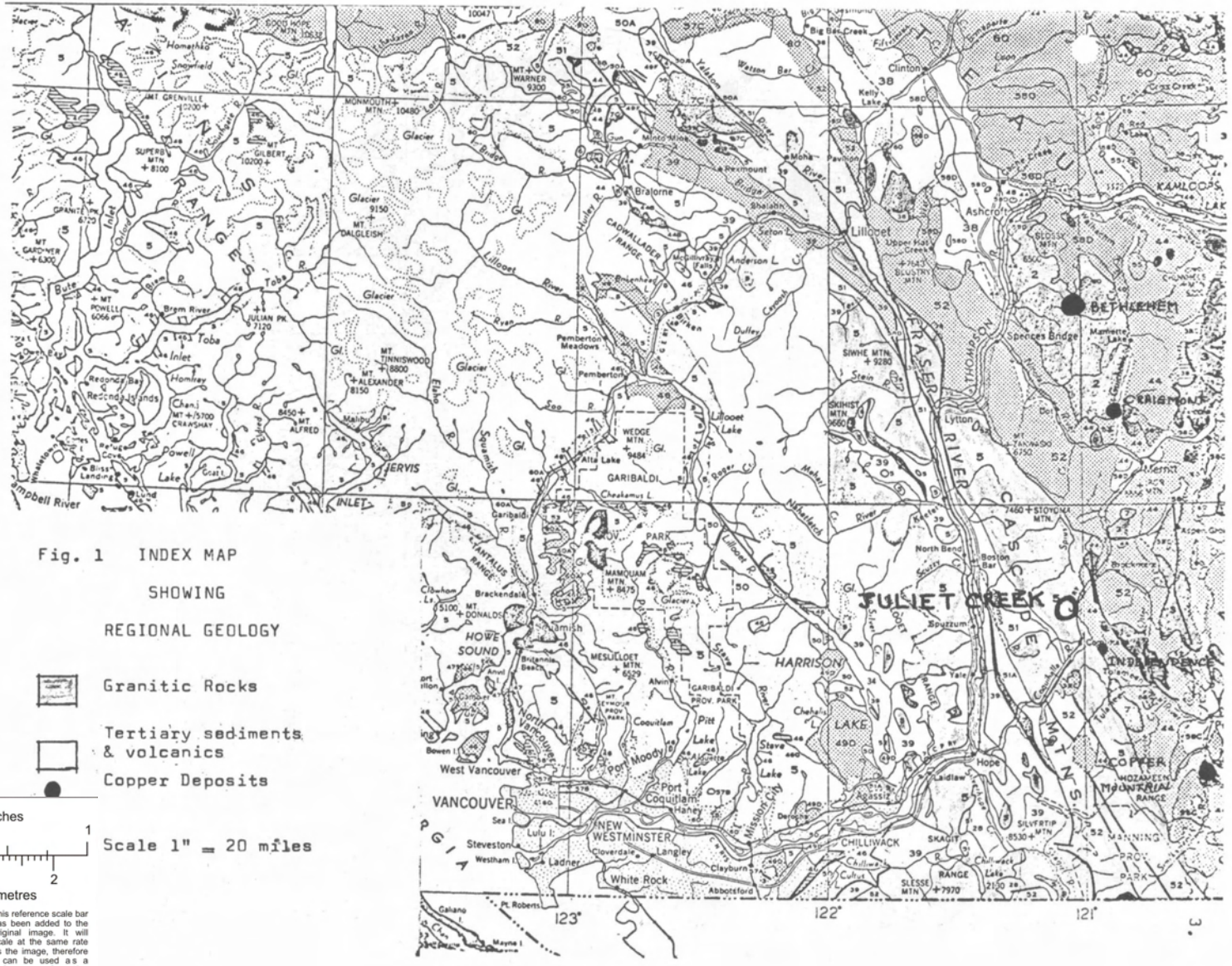


Fig. 1 INDEX MAP

SHOWING

REGIONAL GEOLOGY

Granitic Rocks

Tertiary sediments & volcanics

Copper Deposits

Scale 1" = 20 miles

inches
0 1
0 1 2
centimetres

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

BRITISH COLUMBIA GEOLOGICAL SURVEY

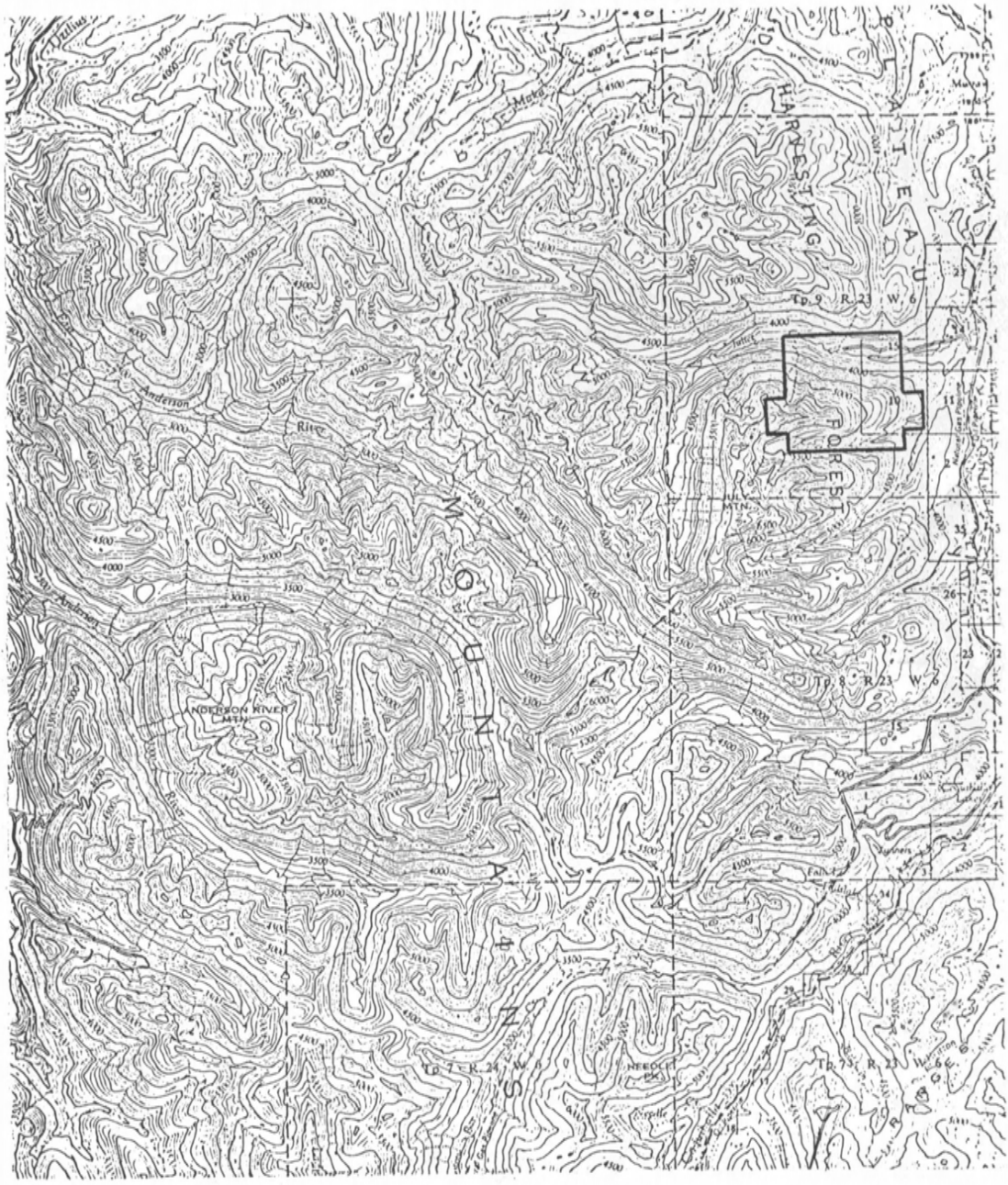
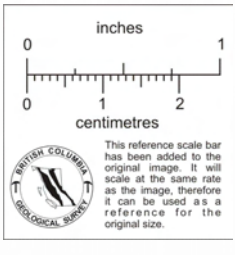


Fig. 2 LOCATION MAP

Scale 1" = 2 miles



Following is a complete list of the mineral claims:

Claim	Locator	Record Number
JM 1 - 12	J. S. Christie	41843 - 41854
JM 13 - 38	K. W. Livingstone	41855 - 41880
JM 39 - 40	J. S. Christie	41881 - 41882
JM 42 & 43 Frs.	K. W. Livingstone	41883 - 41884
JM 44 & 45 Frs.	J. S. Christie	41885 - 41886

The writer examined several of the claim posts and claim lines and found them to be staked in accordance with the requirements of the B. C. Mineral Act. As far as could be ascertained, the claims are located as shown on the accompanying claim map.

HISTORY:

Although there are no known references to previous work on this property, some old witness claim posts located for the Mining Corporation of Canada Ltd. and dated August 21, 1966 were observed in a creek about 300 feet WNW of the initial posts of JM 17 and 18. Coincidentally, these old claims were also called the JM claims. There is no evidence of any physical work done on the property other than a trail cut from Juliet Creek uphill to a molybdenum showing in a small creek. This trail was presumably cut by the original 1966 stakers.

Fairly extensive exploration work has been conducted in the period 1965-67 on disseminated and vein-type chalcopyrite-galena-sphalerite mineralization in areas of igneous breccias and altered porphyries about 3 to 4½ miles southeast of the Juliet Creek property. An old lead-zinc-silver mine known as the Keystone property is situated about three miles southeast of Juliet Creek. References to these showings and former work are contained in the 1936, 1954, 1965-67 B. C. Minister of Mines Reports.

GEOLOGY:

(a) Regional Geology:

The property is shown to be situated within and near the east flank of a large northwest trending batholith that is generally referred to as the Eagle granodiorite of

probable Upper Jurassic age. This batholith is predominantly composed of biotite-rich gneissic rocks of quartz dioritic or granodioritic composition and is otherwise undistinguished in its economic aspect. Of perhaps greater significance is a structural belt of various porphyry intrusions, diatremes, and associated copper-molybdenum and lead-zinc-silver mineralization that extends in a northwesterly direction from Law's Camp in the southeast for a distance of at least fifteen miles to Juliet Creek, following the east contact of the Eagle batholith to the Coldwater River and then presumably extending into the Eagle batholith where it widens to the east in the vicinity of Juliet Creek.

Significant copper-molybdenum deposits occur at the old Independence property some eight miles southeast of Juliet Creek along the above described mineralized zone, and recently, several new copper-molybdenum showings have been discovered along the same trend, about five miles southeast of the Independence property. To the northwest of the Independence property, a lead-zinc-silver fissure vein occurs on the old Keystone property, and extensive development of weakly chalcopyrite-galena-sphalerite mineralized intrusive breccias and porphyries occur in the area immediately south of the Keystone property.

(b) Local Geology and Mineralization:

Most of the property is believed to be underlain by variably foliated quartz dioritic and granodioritic rocks of the Eagle batholith. Fresh, unaltered, and essentially unbrecciated Eagle rocks were only seen in one small outcrop in Juliet Creek and in a few localities at about the 4,250 foot elevation in the vicinity of Anomaly Creek, but are reported to form extensive outcrops at the higher elevations. These rocks are seen to have a variable texture and grain size and to contain a fairly high percentage of mafic minerals, principally biotite. They are locally weakly magnetic.

Within the area of molybdenum (and copper) geochemical anomalies, most of the rocks observed were breccias containing vari-sized fragments of Eagle granodiorite, together with a small percentage of rhyolite porphyry and feldspar porphyry. This area of breccia was first observed on the east fork of Anomaly Creek where an 800 foot section of the breccia is exposed. Upstream, the rocks appear to be fresh, non-brecciated, and un-mineralized Eagle granodiorite. The upper contact of the breccia appears to be somewhat gradational and roughly may follow the 4,250 feet contour. The approximate dimensions of the breccia area are about 2,500 feet in an east-west direction at this elevation, but the

northern extent in a downhill direction is unknown due to masking overburden. No outcrops have been found below the 3,800 feet contour. Outcrops possibly constitute 5 - 8 percent of the geochemically anomalous area.

Some difficulty was experienced in trying to decide what was breccia and what was normal Eagle granodiorite. This is believed to be partly due to the large size of some of the fragments and a general similar appearance of fragments and matrix. Some float of a rather distinctive light grey quartz porphyry of probable rhyolitic composition was observed in Anomaly Creek and this ultimately led to the finding of a similar rhyolite porphyry embedded as fragments within the breccia in a number of places. In one place, the rhyolite porphyry had the appearance of being a minor intrusive cutting the Eagle granodiorite and subsequently disrupted by brecciation of essentially unknown vertical magnitude. In other places discrete angular fragments of rhyolite porphyry occur within the breccia. A rough estimate of the amount of rhyolite porphyry observed would probably not exceed 1/2 percent of the total breccia.

Other distinctive porphyries were observed on the East fork of Anomaly Creek within the breccia. These porphyries resemble similar porphyry dykes and intrusions that occur in the vicinity of the Independence copper property and other areas to the south, and possibly in the vicinity of the old Keystone lead-zinc-silver property. They are distinctive feldspar porphyries containing subhedral white feldspar phenocrysts and biotite flakes embedded in an aphanitic grey matrix. A related rock type contains more phenocrysts embedded in a somewhat coarser-grained and lighter coloured matrix. Their total relationship to the breccia as a whole and the rhyolite porphyry are presently unknown, although they are probably minor dyke-like intrusions that have subsequently been incorporated into the breccia.

Several small andesite dykes emplaced along N 20°W to N 30° W trends were observed cutting the breccia along the East fork and another parallel creek to the east. These rocks are greyish coloured and contain abundant small green mafic phenocrysts. They appear to be essentially post-breccia, but as they frequently exhibit faulted contacts, and to some extent are irregular and discontinuous, they may have been involved in some minor late phase brecciation.

It is believed that formation of breccia probably involved several stages of brecciation that included extensive explosive phases of unknown magnitude. At least some of the breccia development may have been related to igneous

intrusion, possibly associated with the intrusion of viscous rhyolites. Subsequent developments have probably been more of a local widespread shattering that has produced innumerable strongly jointed or fractured areas and crackled zones. Some directional features of a probably late-stage development are seen in the presence of several narrow quartz and quartz-orthoclase veins containing abundant pyrite and some molybdenite that follows N 20° W to N 30° W trends along the east fork and elsewhere, and as such parallel the structural trend of the andesite dykes.

Along the East fork, in the vicinity of these quartz veins, the rock has been K-feldspar metasomatised, variably sericitized with partial destruction of biotite, and shows a general chalky appearance of the plagioclase. More extensive alteration has locally produced a greisen-like rock in a few areas. Fairly extensive outcrops of crackled breccia in the vicinity of the initial posts of JM 19 and 20 show extensive milky white quartz cement and irregular veining and silica metasomatism. Here the breccia contains a fair percentage of voids and carries minor amounts of chalcopyrite and pyrite. Elsewhere there is a fair percentage of voids and quartz-lined cavities within the breccia.

Pyrite is the most abundant sulphide observed and is largely confined to the breccia area. It is probably most abundant in the western half of the breccia area and is locally accompanied by minor amounts of molybdenite and chalcopyrite, particularly where associated with quartz veining. Surface oxidation is widespread, but does not appear to extend for more than a few inches deep in most places. As a generalization, the writer would characterize the sulphide mineralization as spotty or irregular where observed and not to approach an economic grade over more than a few feet. One 7 foot chip sample of K-feldspar metasomatised and weakly sericite altered breccia (?) adjacent to a 2" quartz-molybdenite vein on the east fork assayed 0.015% MoS_2. The estimated total sulphides within the breccia would nowhere exceed more than 1 - 2 percent over any substantial widths where observed.

GEOCHEMISTRY:

Stream sediment and soil sample locations are shown on Figs. 3 and 4. These samples were collected by the Britco Syndicate and analysed for total copper and molybdenum, plus zinc in a number of samples. A well defined area of moderate to strong molybdenum anomalies with associated weak to moderate

copper anomalies has approximate dimensions of 2,800 feet by 2,000 feet. The general picture is compatible with observed mineralization within the breccia area.

Figure 4 shows the outline of a broader molybdenum anomaly containing values in excess of 6 ppm Mo within which there is a smaller area containing values in excess of 30 ppm Mo, and in a few places showing values in excess of 100 ppm Mo. The lack of outcrops and a probable greater thickness of till in a downhill direction does make it difficult to adequately appraise the prospecting possibilities of this till-covered area at the present time.

CONCLUSIONS:

The Juliet Creek property is a foci of varied igneous activity and probably related multi-stage breccia development that may be structurally part of an extensive northwest trending mineral zone extending southeasterly to the Independence camp and beyond. Here, the brecciation and igneous activity is accompanied by extensive quartz veining, quartz cement, and silica metasomatism with associated sulphide mineralization in the form of pyrite, molybdenite and chalcopyrite within an area of significant dimensions at least 2,600 feet by 1,000 feet and probably larger. Although the mineralization appears to be somewhat spotty and irregular and not to be visually of economic grade, some aspects of the preliminary geochemistry remain unanswered and there is considerable till-covered ground that has not yet been evaluated.

The geological complexity is such as to generally suggest favourable prospecting conditions which may occur at any depth within the breccia and also in the till-covered areas. In particular, the writer would suggest that there may be possibilities that a more major intrusive, possibly the rhyolite, with which the molybdenum mineralization may be genetically related, could underlie the area at an unknown depth.

RECOMMENDATIONS:

A phased exploration programme is recommended to determine the economic potential of the molybdenum-copper mineralized breccia plus limited prospecting and further evaluation of the remaining claim area.

Phase 1:

1. Establish a grid over the geochemically anomalous area with a series of 400 foot-spaced lines paralleling the existing grid between 10W and 20E and extending from 28N to Juliet Creek.

2. Collect soil samples at 100 foot intervals from the B horizon on all lines and analyse for total copper and molybdenum.

3. Conduct some deep soil sampling via auger in areas of interest, particularly line 36N from 0W to 4E and other areas as they are defined or are suggested by other work.

4. Complete a ground magnetometer survey of all claim lines and grid lines.

5. I.P. surveys of grid lines 28N, 36N, 44N, and 52N with 200 feet, 400 feet, and 800 foot search depths.

6. Complete geological mapping of anomalous area and collect representative rock samples for geochemical analysis.

7. Photogeologic study and limited prospecting of remaining claim area with some further reconnaissance geochemistry if warranted.

8. Improve the present access road and construct a ford across Juliet Creek.

Phase 2:

If the results obtained in Phase 1 are favourable further work would entail physical investigation via bull-dozing, diamond drilling and possibly more detailed I. P. surveys. This would be designed as a preliminary test of any significant targets defined by the work in Phase 1.

P. E. Hirst & Associates Ltd.
CONSULTING GEOLOGISTS
522 - 470 GRANVILLE STREET
VANCOUVER 2, BRITISH COLUMBIA

TELEPHONE 688-4022

C E R T I F I C A T E

I, Peter E. Hirst, of 522 - 470 Granville Street, Vancouver 2, B. C., do hereby certify that:

1) I am a graduate of the University of Leeds, England, where I obtained my B.Sc. in Honours Geology in 1948.

2) I am a Consulting Geologist and a registered Professional Engineer of the Province of British Columbia.

3) I have practiced my profession in mining and exploration geology continuously since 1948.

4) My report is based on a visit to the property on October 4, 1969 and a study of available data and government reports.

5) I have no interest directly or indirectly in the property, nor in the Britco Syndicate, nor do I expect to receive any.

P. E. Hirst

P. E. Hirst, P. Eng.

October 28, 1969

COST ESTIMATES:

Phase 1:

1.	Camp costs and maintenance	$ 2,000
2.	Linecutting - 5 miles @ $150/mile	750
3.	Geochemical sampling and analysis	1,200
4.	I.P. Surveys - 5 miles @ $500/mile	2,500
5.	Magnetometer Survey	500
6.	Geological mapping and reconnaissance mapping	1,000
7.	Transportation, includes vehicle and maintenance	1,000
8.	Miscellaneous fees, permits, indirect costs	1,500
9.	Road access	500
		$10,950
	Plus contingency	1,050
	Total (Phase 1)	$12,000

Phase 2 - Conditional on Phase 1:

1.	Bulldozing	$ 2,000
2.	Diamond drilling - 2,000 ft. @ $10/foot	20,000
3.	Assaying	1,500
4.	Engineering and Supervision	3,500
5.	Miscellaneous	3,000
	Total (Phase 2)	$32,000

Respectfully submitted,

P. E. Hirst, P. Eng.,
P. E. HIRST & ASSOCIATES LTD.

SELECTED REFERENCES

British Columbia Minister of Mines Reports

1936: p.p. 30 - 32
1954: p. 113
1965: p. 160
1966: p.p. 171 - 172

Camsell, C.

1913: Geology, and Mineral Deposits of the Tulameen District, B. C., Geological Survey of Canada, Memoir 26, p.p. 76 - 82, 166-168, 170.

Rice, H.M.A.

1947: Geology and Mineral Deposits of the Princeton Map-Area, British Columbia, Geological Survey of Canada, Memoir 243, p.p. 36, 111 - 112.