

Vancouver, B.C. 17 November 1977

MEMORANDUM FOR: Mr. R.E. GaleBritish Columbia
Houston Area
Omineca M.D. 93L/7
Bob Creek ProspectINTRODUCTION

During the 1977 field season, Mid Mountain Mining Limited, who have an option on the Bob Creek Prospect, engaged Nevin Sadlier-Brown and Goodbrand Limited of Vancouver to do geologic mapping and geochemical soil sampling on the property. The results of this work, plus an induced polarization survey conducted by M. Berretta on behalf of C.A. Ager and Associates, were made available to Asarco in October. I have reviewed this data and compiled a summary map of the results of this work. As shown on the map, the area covered by the surveys lies southwest of the Au-Zn-Pb-Cu showings drilled by Asarco in 1968. The following is a summary of the results of the geochemical and geophysical surveys:

- (1) A coincident Zn-Cu-Ag-Pb soil anomaly trending north-south and over 1100 m (3600') long and 700 m (2300') wide, has been defined to the west of Bob Creek.
- (2) A strong IP anomaly, 2000 x 2400' in size and with frequency effects in excess of 20%, is centered 360 m (1200') SW of Bob Creek. This is coincident with the area of highest geochemical response. Profiles of the IP suggest F.E. increases and resistivity decreases at depth.

- (3) Soil samples from the main area of interest at Bob Creek were analyzed for Au by Asarco. Several of the samples had positive gold concentrations and two samples were strongly anomalous, containing 620 and 200 ppb Au, respectively. These samples are in part coincident with anomalous Ag concentrations in the soil. (See attached Ag/Au geochem map.)
- (4) The IP and geochemical anomalies are in part centered on the inferred contact between rhyolitic and andesitic volcanic rocks. Nevin, et. al., have suggested that this area be tested for its massive sulfide potential.
- (5) The IP response over the showings in Bob Creek was 3 to 4 times weaker than the main IP anomaly to the SW.

DISCUSSION OF RESULTS

The results of the 1977 field work on the Bob Creek property have significantly enhanced the exploration potential of this prospect. The work suggests that previous exploration was on the periphery of the main zone of interest. If the area of positive IP response is underlain by rocks containing mineralization comparable to, or better in grade than that intersected in the 1968 drilling, then the tonnage potential of the prospect is considerably greater than previously recognized. Furthermore the linearity and intensity of the geochemical anomalies could reflect the presence of polymetallic veins or massive sulfide beds within the volcanic succession. The positive Au concentrations in soils is also

encouraging since the main potential of the prospect is still its precious metal content.

The mineralogy, base and precious metal content, and geologic setting of the zone of pervasive argillic alteration at Bob Creek, is similar to that of the Broadlands (Ewers and Keays, 1977), and other geothermal fields, and a similar origin is proposed. Preservation of these rocks at Bob Creek was probably enhanced by deposition of a thick pile of Eocene volcanics over the area before significant erosion could take place. Although the prospect has strong porphyry copper affinities, massive sulfide veins or strata may also be present in the upper parts of the system where cooling and fumarolic discharge were taking place. At Bob Creek this area may be located in the upper parts of the rhyolitic volcanic pile. Andesitic rocks at Bob Creek may represent a later volcanic cycle.

If the Bob Creek prospect represents an Upper Cretaceous geothermal system similar to Broadlands in New Zealand, the following points are of particular exploration interest:

- (1) The highest Au and As concentrations at Broadlands occur near the surface, in an intensely altered rock containing up to 8% disseminated pyrite. Pb, Zn, Ag and Cu values are generally low in this part of the system.
- (2) At around 600 m below surface, the pyrite content decreases and Pb, Zn, Ag and Cu concentrations increase with a corresponding decrease in Au values.

- (3) The permeability of the host rocks greatly influences the nature and distribution of sulfide minerals. In this sense, the geothermal deposits are in part stratabound.

Since the known Au mineralization at Bob Creek occurs with Pb-Zn, and to some extent Cu mineralization, it can be argued that better grades will be found where pyrite content increases and base metal concentrations decrease, i.e., in the upper part of the hydrothermal system. At Bob Creek this could be represented by the zone of greatest IP response.

RECOMMENDATIONS

It is recommended that Asarco re-option the Bob Creek prospect and engage in a modest program of percussion drilling during the 1978 field season. The coincident IP and geochemical anomalies could be satisfactorily evaluated by five - 300 foot percussion holes. This could be done with a truck-mounted drill at a project cost of \$ 4.00/foot, all inclusive. Detailed sampling of the trenches in the area of interest should be done prior to the drilling program. Projected cost of this work is calculated as follows:

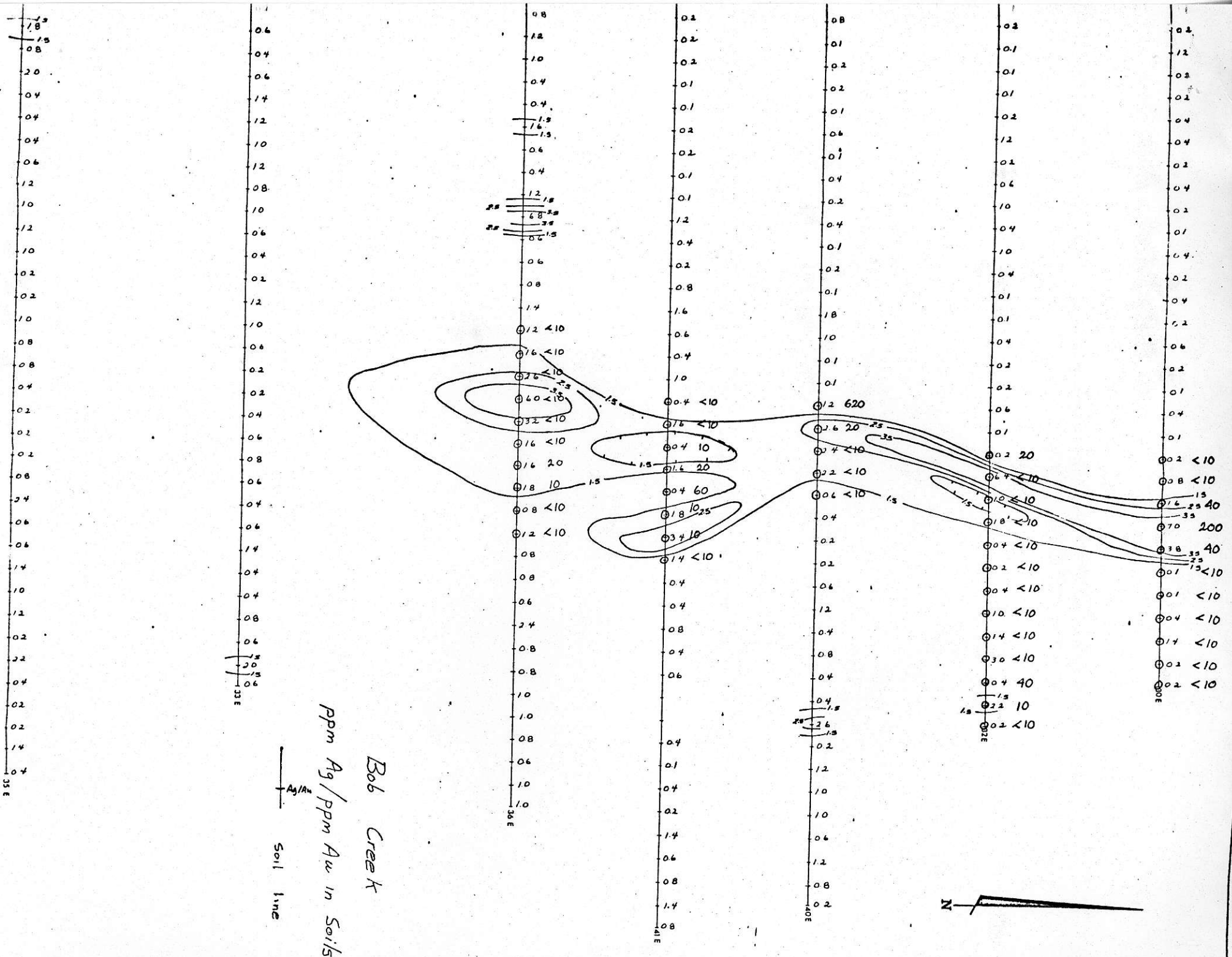
Accommodation/Meals, etc. (2 men - 14 days)	\$ 500.00
Truck Rental	250.00
Fuel	50.00
Analytical	2,000.00
Drilling (450 m (1500'))	6,000.00
Wages (Geologist & helper)	1,300.00
Miscellaneous	500.00
	<hr/>
TOTAL - Canadian	<u><u>\$ 10,600.00</u></u>

D.G. MacIntyre
D.G. MacIntyre.

DGMacI:sm

REFERENCE

EWERS, G.R. and Reid R. Keays, 1977; Volatile and Precious Metal Zoning in the Broadlands Geothermal Field, New Zealand, Econ. Geol., V. 72, pp. 1337-1354.





CHEMEX LABS LTD.

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• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Nevin Sadlier-Brown Goodbrand Ltd.,
 5th flr. 134 Abbott St.,
 Vancouver, B.C.

CERTIFICATE NO. 42480
 INVOICE NO. 22588
 RECEIVED Nov. 1/77
 ANALYSED Nov. 9/77

ATTN: cc: Don G. MacIntyre, Asarco

SAMPLE NO. :	PPB Gold	<i>Bob Greck</i>	Prev. Cert. 39604-10
2N 15E	< 10		
16	< 10		
17	< 10		
18	< 10		
19	< 10		
20	< 10		
21	20		
22	10		
23	< 10		
2N 24E	< 10		
8.5N 18E	< 10		
19	< 10		
20	10		
21	20		
22	60		
23	10		
24	10		
8.5N 25E	< 10		
15N 18E	620		
19	20		
20	< 10		
21	< 10		
15N 22E	< 10		
22.5N 20E	20		
21	< 10		
22	< 10		
23	< 10		
24	< 10		
25	< 10		
26	< 10		
27	< 10		
28	< 10		
29	< 10		
30	40		
31	10		
22.5N 32E	< 10		
30N 20E	< 10		
21	< 10		
22	40		
30N 23E	200		



MEMBER
 CANADIAN TESTING
 ASSOCIATION

CERTIFIED BY: *Hart Budge*



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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 42481

TO: Nevin Saklier-Brown Goodbrand Ltd.,
5th flr. 134 Abbott St.,
Vancouver, B.C.

INVOICE NO. 20546

RECEIVED November 1, 1977

ATTN: V6B 2K4

ANALYSED November 4, 1977

SAMPLE NO. :	PPB	
	Gold	<i>Bob Creek</i>
30N 24E	40	
25E	<10	
26E	<10	
27E	<10	
28E	<10	
29E	<10	
30N 30E	<10	



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY: *[Signature]*

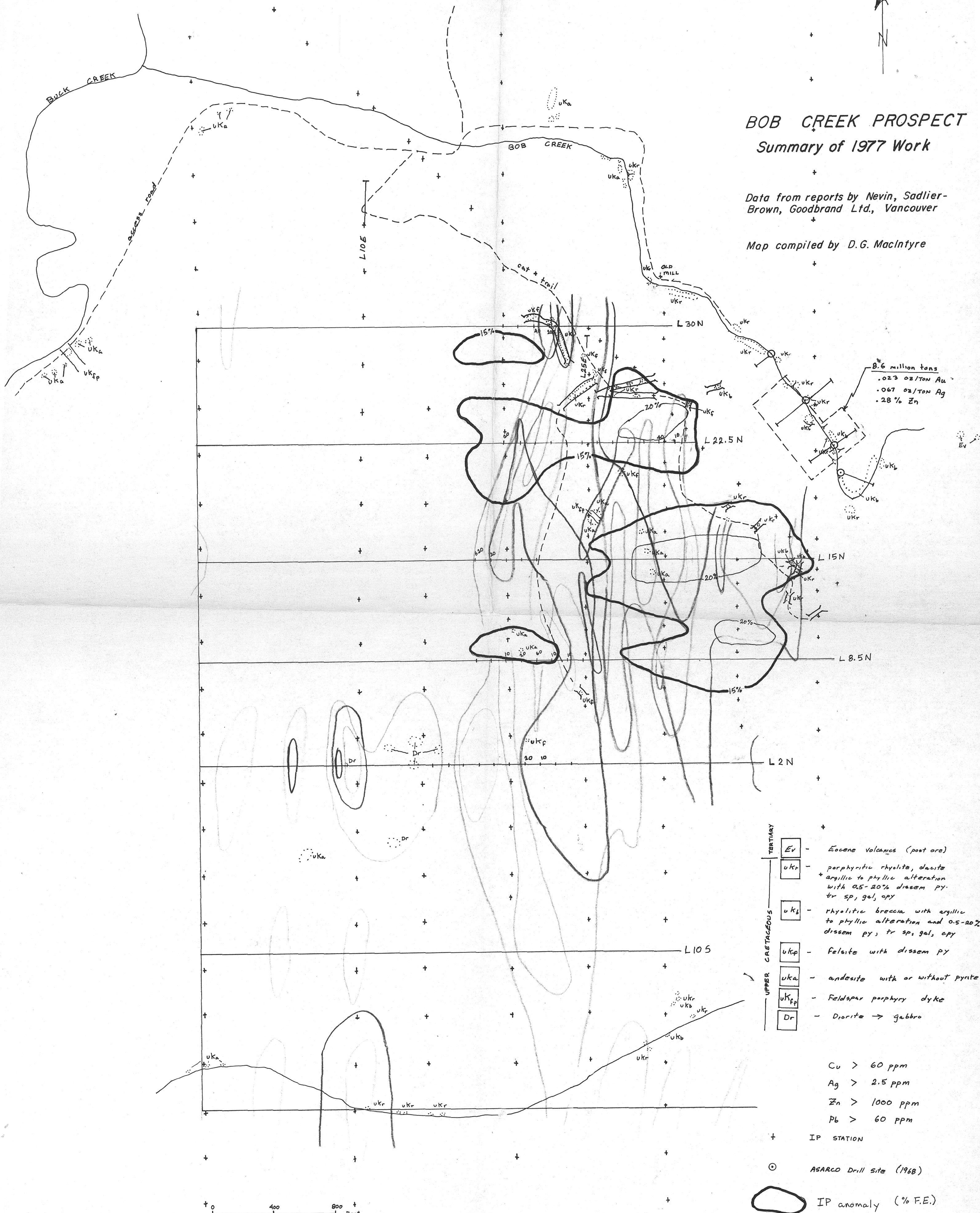


BOB CREEK PROSPECT

Summary of 1977 Work

Data from reports by Nevin, Sadler-Brown, Goodbrand Ltd., Vancouver

Map compiled by D.G. MacIntyre



8.6 million tons
 .023 oz/ton Au
 .067 oz/ton Ag
 .28% Zn

- | | | |
|------------------|------|--|
| TERTIARY | Ev | - Eocene volcanics (post ore) |
| | Ukr | - porphyritic rhyolite, dacite + argillic to phyllic alteration with 0.5-20% dissemin. py. tr sp, gal, opy |
| UPPER CRETACEOUS | Ukb | - rhyolitic breccia with argillic to phyllic alteration and 0.5-20% dissemin. py, tr sp, gal, opy |
| | Ukp | - felsite with dissemin. py |
| UPPER CRETACEOUS | Uka | - andesite with or without pyrite |
| | Ukfp | - Feldspar porphyry dyke |
| | Dr | - Diorite → gabbro |

- Cu > 60 ppm
- Ag > 2.5 ppm
- Zn > 1000 ppm
- Pb > 60 ppm

- + IP STATION
- ASARCO Drill site (1968)
- IP anomaly (% F.E.)

soil sample analyzed for Au by ASARCO
 Values are ppb Au
 (No value = < 10 ppb)
 (soil line samples) @ 100' intervals
 Trench old adit

