

LOG NO: 0927	RD.
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REPORT ON ASSESSMENT WORK
and
REVIEW OF PREVIOUS WORK
on

BLUE GROUP - ARK, BLUE, RED,
ELM, ROO, PAL, AIM CLAIMS

Liard Mining Division, B.C.
57°57'N Lat. 124°05'W Long.
NTS 94F/16E

for
Atlas Management Canada Inc.
T. Gregory Hawkins, PGeol.
July 25, 1989

LOG NO: 0118	RD.
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GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,124



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SUMMARY

The Blue property, located in the Liard Mining Division of northeastern British Columbia, was registered in 1988 for Atlas Management Canada Inc. to cover previously known copper mineralization in dolomitic limestone.

The mineralization is structurally controlled and is concentrated along the limbs and hinge areas of anticlines. The copper occurrences are found primarily within the dolomite by replacement, but also occur in thin, high grade carbonate veins and within a brecciated quartzite layer. Copper mineralization is primarily chalcopyrite, with varying amounts of bornite, azurite and malachite. McIntyre Mines Ltd. drilled the upper zone in particular in 1971 and obtained grades of up to 33' of 2.57% Cu. No analyses of precious metals or other base metals were made at that time.

Silver values demonstrated in 1984 work and newly discovered high grade cobalt and nickel values correlate directly with anomalous copper values, up to 11.52% Cu, 0.50% Ni, 0.56% Co, and 27.8 g/tonne Ag. The potential economics of this mineralized horizon is greatly enhanced by the addition of those elements.

The newly interpreted structural control on mineralization as supported by the McIntyre I.P. anomaly would also dictate further testing for economic mineralization along the structure, a direction that was not vigorously pursued by McIntyre in 1971.

There is evidence to suggest that an untested lower Unit 1 dolomite might also contain copper and related mineralization. Therefore, it is recommended that a Phase I VLF-EM and IP survey be done with emphasis placed on depth penetration, and secondly, that six 150 metre vertical BQ diamond drill holes be completed, contingent on the results of Phase I. Phase I and Phase II are estimated to cost \$125,400 and \$219,500 respectively.



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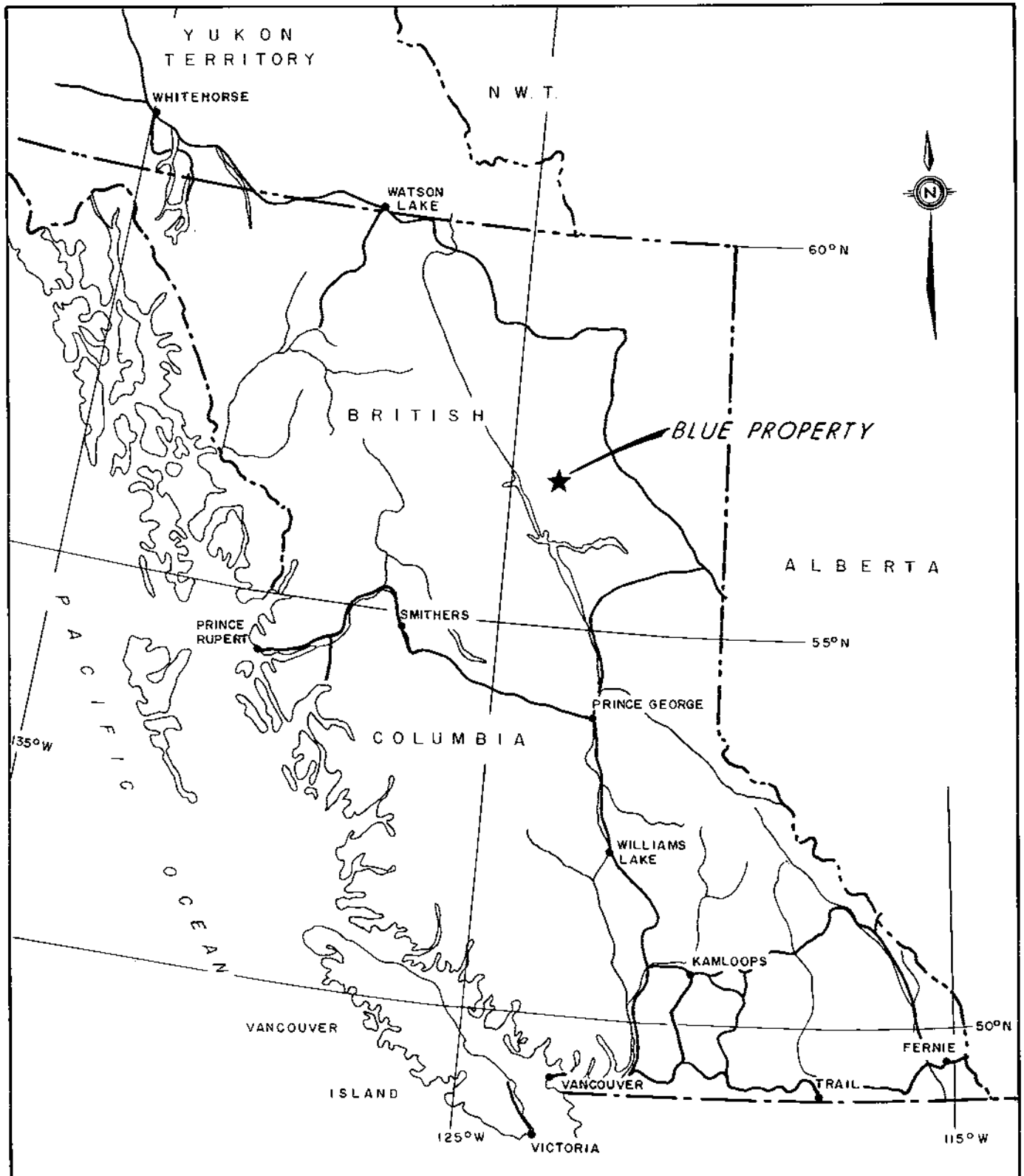
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ATLAS MANAGEMENT CANADA INC.

GENERAL LOCATION MAP
BLUE PROPERTY

LIARD MINING DIVISION

Project No:	V 306	By:	T.G.H.
Scale:	1 : 8 000 000	Drawn:	J. S.
Drawing No:	1	Date:	JULY 1989.

 MPH Consulting Limited



1.0 INTRODUCTION

This report is prepared at the request of Atlas Management Canada Inc. It is prepared for the purpose of providing an updated evaluation of the prospect and for the purpose of filing assessment.

A property examination was conducted on the Blue property by T.G. Hawkins of MPH Consulting Limited from June 20-22, 1989, at the request of, and in the company of, Atlas Management Canada Inc. representatives. The results of that visit are summarized herein.



2.0 PROPERTY LOCATION, ACCESS, TITLE

The Blue property is located in the Liard Mining Division of British Columbia, approximately 120 km southwest of Fort Nelson, at a latitude of 57°57'N and longitude 124°05'W on NTS map sheet 94F/16E (Figure 1).

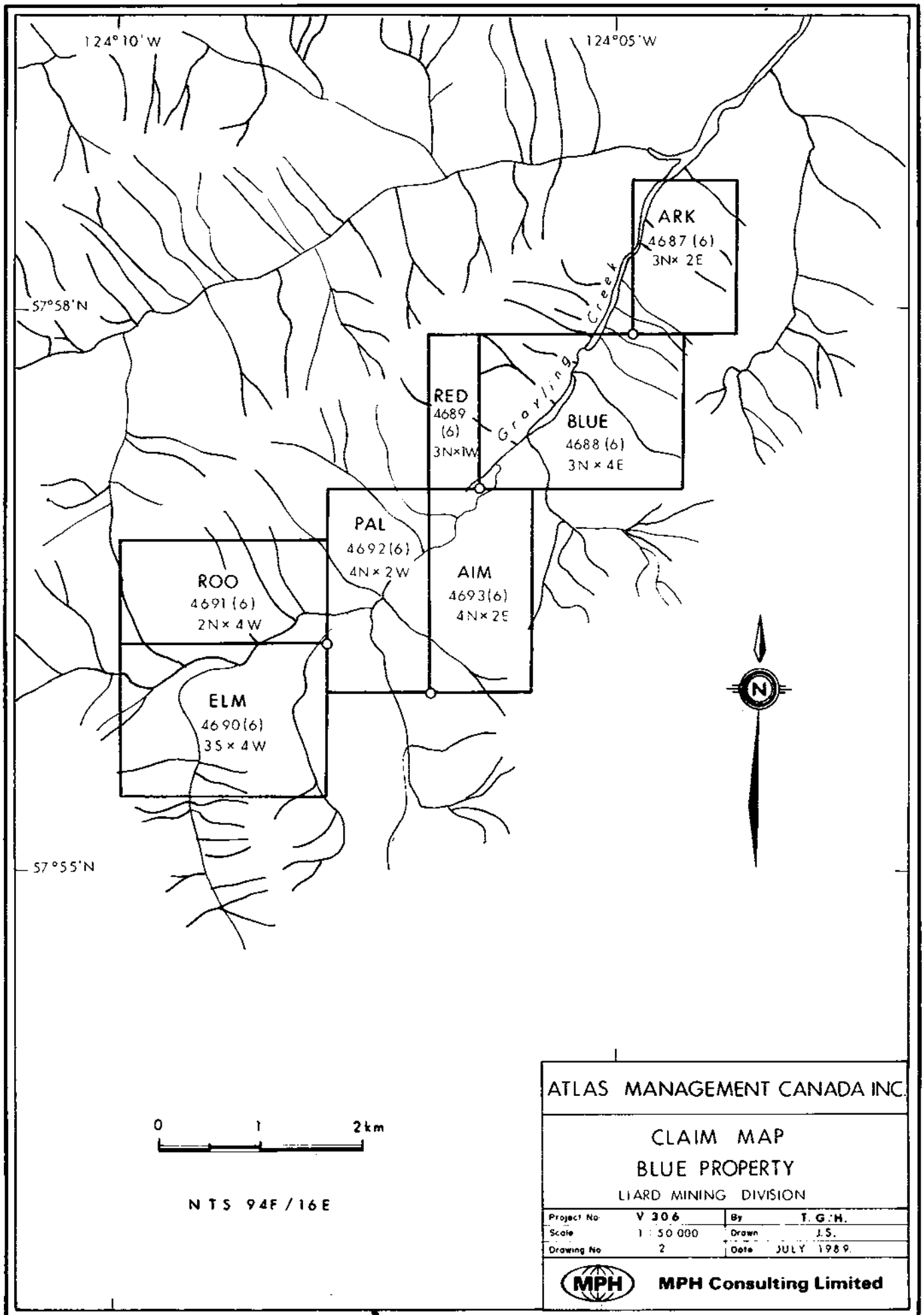
The claims are accessible by float plane to Kluachesi Lake followed by a 7-8 km helicopter flight from Kluachesi Lake to the property. The town of Trutch is situated 80 km east of the property on the Alaskan highway, and winter access by (cat) train from the town is feasible.

The Blue property consists of 7 mineral claims owned by Atlas Management Canada Inc., as summarized below:

<u>Claim</u>	<u>Record No.</u>	<u>Units</u>	<u>Anniversary Date</u>	<u>Year Registered</u>
Ark	4687(6)	6	June 27, 1990	1988
Blue	4688(6)	12	↓	↓
Red	4689(6)	3		
Elm	4690(6)	12		
Roo	4691(6)	8		
Pal	4692(6)	8		
Aim	4693(6)	<u>8</u>		
	Total Units	57		

The anniversary dates shown have been updated to include the work that is recorded in this report.

The claims are grouped as the Blue Group (Notice to Group No. 136).



3.0 HISTORY

During the 1970's, there was a great deal of interest in the Kluachesi-Tuchodi Lakes region. Windermere Explorations, McIntyre Porcupine Mines, Canadian Superior, and others staked claims around the Blue Group of McIntyre. The McIntyre property had been optioned from a prospecting group from Fort Nelson in late 1970.

Windermere Explorations discovered and explored numerous copper showings in the Gatho Creek area through extensive soil geochemistry and prospecting, however nothing of further interest resulted following this 1971 program.

McIntyre Porcupine acquired a total of 356 claims including the Blue Group in 1970 and 1971. Geochemistry, geophysics, geological mapping, trenching, sampling and over 1650 m (5400 ft) of diamond drilling in 36 holes were completed. Ten miles of IP outlined a 'Y' shaped anomaly (figures 4 and 5). Two drill holes (2B, 3B) within this anomalous zone intersected 7.6 vertical metres (25 feet) of 2.5-3% copper (BCDM, 1971). The remaining holes failed to indicate any appreciable values.

Reconnaissance geological mapping and rock sampling were carried out in 1984 by MPH Consulting Limited at the request of E5 Resource Corporation. Thirty grab samples were collected from trenches and copper showings, seventeen of which yielded values of 126 ppm to >40,000 ppm Cu, with associated silver values to 80 ppm.

In 1986, the area was appraised for New Holland Mining N.L. by Dr. C.J. Westerman. He concluded that Cu-Ag mineralization occurs in an area covering "4.5 km x 0.75 km."

In April 1989, an assessment and valuation of the property was carried out by Al Maynard & Associates for Atlas Management Canada Inc.

4.0 GEOLOGY

4.1 Regional Geology (Figure 3)

The rocks in the vicinity of the property range in age from Precambrian to Cretaceous, and consist dominantly of shales, dolomites/limestones and sandstones. The area is bounded by north-south trending thrust faults. To the east, Cretaceous sediments consisting of siltstones and sandstones are thrust over older Paleozoic sediments of similar composition. This Cretaceous sedimentary package contains numerous anticlinal/synclinal folds which parallel the thrust faults. To the west, the Paleozoic sediments are thrust over the Lower Ordovician limestones. There are no known conformities.

Immediately west of the property, there is a north-south trending fault which extends over 15 kilometres in length.

4.2 Local Geology

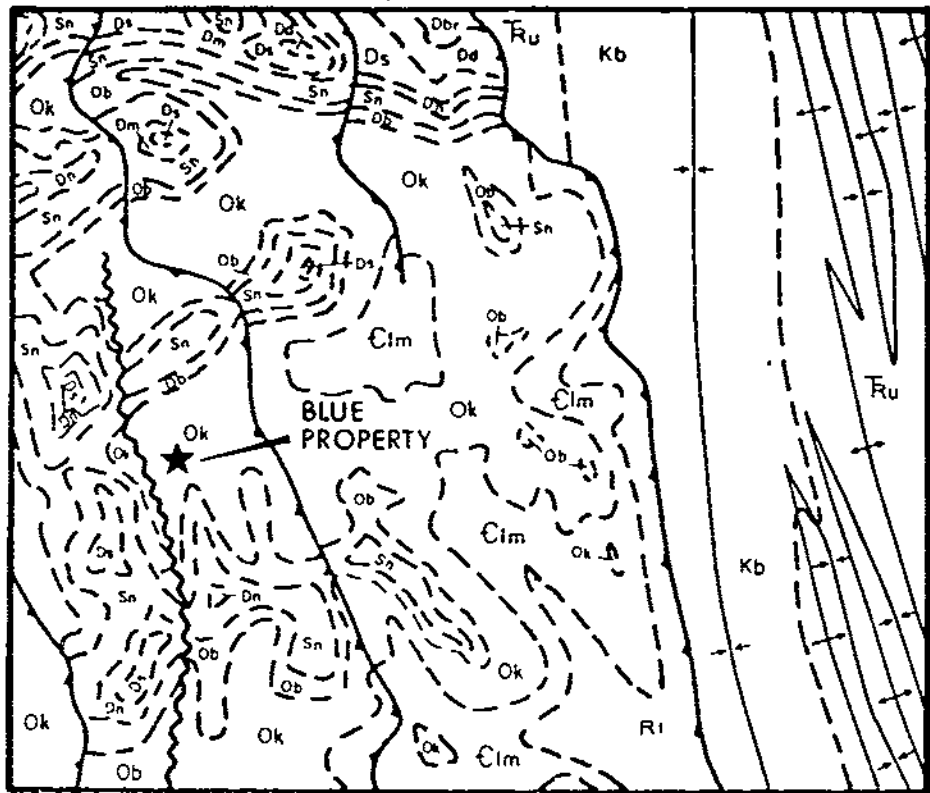
4.2.1 Lithologies

Brown (1971) proposed the following subdivisions on the Blue property, from youngest to oldest: Unit 5 dolomite/limestone, Unit 4 quartzite/dolomite, Unit 3 dolomite/quartzite, Unit 2 quartzite, and Unit 1 dolomite.

The upper unit (Unit 5) is massive, white to grey dolomite, interbedded with limestone layers, and estimated to be greater than 305 m (1000 ft) thick. The unit outcrops along the western and easternmost sides of the property.

Unit 4 is estimated to be 61 m (200 ft) thick and is comprised dominantly of quartzite interbedded with dolomite beds.

Unit 3, is a 122 m (400 ft) wide unit of grey to buff weathered, thick bedded dolomite with thin interbeds and lenses of cross-bedded, light-grey quartzite. This unit hosts the majority of



LOWER CRETACEOUS

Kb BUCKINGHORSE FORMATION: sideritic shale, siltstone, minor sandstone (marine)
TRIASSIC (Undivided)

Ru GRAYLING, TOAD, LIARD, CHARLIE LAKE, BALPONNEL, LUDDINGTON, & PARDONET FM: dolomitic siltstone, sandstone, shale, limestone (marine)

DEVONIAN AND CARBONIFEROUS

Obr BESA RIVER FM: black siliceous shale, minor siltstone (marine)

DEVONIAN

Dd DUNEDIN FORMATION: limestone, rare dolostone (marine)

MIDDLE AND LOWER DEVONIAN

Ds STONE FORMATION: dolostone, locally arenaceous (marine)

LOWER DEVONIAN

Dm MUNCHO - McCONNELL FM: dolostone, rare sandstone shale (marine, may include Upper Silurian bed near base)

SILURIAN

Sn NONDA FORMATION: dolostone, sandstone, minor limestone (marine)

ORDOVICIAN

Ob UPPER ORDOVICIAN: Sandstone, dolostone, minor siltstone and shale (marine) BROWN-UNIT 4

Ok LOWER ORDOVICIAN: KECHIKA FM: limestone, argillaceous limestone (marine) BROWN-UNIT 3

Clm LOWER CAMBRIAN: dolostones, sandstones, minor shale; thick basal sandstones, conglomerate (marine, may include middle Cambrian in upper part of carbonate unit) BROWN-UNIT 1,2

BROWN-UNIT 5

ATLAS MANAGEMENT CANADA INC.

REGIONAL GEOLOGY
BLUE PROPERTY
LIARD MINING DIVISION

Project No:	V 306	By:	T.G.H.
Scale:	1:125,000	Drawn:	
Drawing No:	3	Date:	JULY, 1989.

REFERENCE: TAYLOR, 1979.



MPH Consulting Limited

the copper occurrences on the property. The dolomite is commonly completely recrystallized, near the copper mineralization, and contains irregular bodies of quartzite breccia. Brecciation may have been "caused by solution of the carbonate, collapse of the quartzite interbeds, and subsequent cementation by recrystallized dolomite and some sulphides" (BCDM, 1971), as a result of folding and faulting.

A massive white, well-sorted quartzite layer, estimated to be 61 m (200 ft) thick, makes up Unit 2. This unit is recognized by the abundance of asymmetrical ripples and occasional cross-bedding which are well exposed on both sides of Grayling Creek.

The lowermost layer, Unit 1, comprises dolomite of unknown thickness.

4.2.2 Structure

The Blue property and surrounding areas contain numerous folds and faults.

There are three distinct anticlines in the map area. These are: i) a north to south trending open fold which contains most of the copper mineralization (Pal claim); ii) a centrally located, north to south trending fold (Blue claim), and iii) a northerly plunging anticline (Ark claim).

Faulting appears to trend northwest to southeast and displacement along the faults may range from 12.2 to 30.5 metres.

4.2.3 Mineralization

The emplacement of sulphide minerals is structurally controlled, with concentrations along the hinge and limbs of anticlines and within faults and shear zones. During folding and faulting, the

competent quartzite beds were fractured and the surrounding dolomite beds were fractured and sheared, thereby allowing the introduction of copper bearing hydrothermal solutions (Unit 3). Copper mineralization is predominantly chalcopyrite, with varying amounts of bornite, malachite and azurite, and is commonly associated with non-magnetic pyrrhotite and minor pyrite. More massive colloidal concentrations of very fine-grained pyrite produce high grade values in nickel and cobalt from as yet unidentified minerals.

Copper concentrations are generally restricted to the anticlinal hinge area within the dolomites and brecciated quartz layer of Unit 3. Occurrences also are present further to the north in Unit 1. Copper sulphide mineralization also occurs in thin, 8 to 10 cm wide, calcareous veins and as small pods within the dolomite.

The **upper showing**, on the Pal claim, consists of three zones occurring along the limbs of an open anticline, the axis of which trends at approximately 345° and plunges gently north.

Zone 3 consists of recrystallized dolomite with minor interbedded lenses of cross-bedded quartzite (exposed thickness is \pm 4.5 m), with semi-massive lenses of bornite, chalcopyrite and pyrite. Diamond drilling by McIntyre Porcupine Mines Ltd. in 1971 intersected a mineralized zone with an indicated thickness of approximately 10 m, grading 2.57% Cu (weighted average) in hole 2-B.

Sample 108, collected during the June property examination of a coarsely crystalline chalcopyrite with malachite/azurite vein, yielded 4.65% Cu, 3.5 ppm Ag, 1350 ppm As, and 358 ppm Sb.

Zone 1 consists of irregular, massive pods of bornite, chalcopyrite and pyrite, exposed for 35 m and to 40 cm thick. The mineralized zone is overlain by dolomite and underlain by quartzite. Sample #107, a massive, very fine-grained pyrite with interstitial bornite, yielded: 17.40% Cu, 24.2 ppm Ag, 660 ppm



Zn, 690 ppm Ni, 344 ppm Co, 2503 ppm As, 46 ppm Hg, 437 ppm Sb and 23.53% Fe.

A grab sample collected from Zone 1 in 1986 by Westerman assayed 23.1% Cu and 13.5 g/t Ag, and a chip sample (1 m x 20 cm) yielded 6.0% Cu and 12.6 g/t Ag.

The **lower** showing (Zone 4) consists of irregular pods and veins (to 40 cm thick and up to 4 m along bedding planes) of massive pyrite, bornite, chalcopyrite and pyrrhotite, with minor marcasite and tetrahedrite. The mineralization is hosted by Unit 3 dolomite, occurs as open-space filling and replacement parallel to and cross-cutting bedding, and is exposed over a total area of 5 m x 16 m in Grayling Creek. The showing is open along strike in both directions. Grab samples collected at this showing yielded values to: 1.70% Cu, 6.1 ppm Ag, 1585 ppm Pb, 0.50% Ni, 0.56% Co, 23.75% Fe, 14 ppm Hg and 30 ppb Pt. A grab sample collected by Westerman in 1986 from a massive pyrite boulder yielded 172 ppm Cu and 2.9 ppm Ag.

The **waterfall** showing (Zone 6) located on the Blue claim, consists of relatively evenly distributed 5% disseminated pyrite with irregular pods of massive pyrite hosted by rust-weathered, medium-grained quartzites. Samples collected at this location and the nearby medium-grained mafic "trap dyke" were at background levels (samples 102, 103).

Mineralization at Zone 7 occurs at the top of the Unit 1 dolomite which is significant in terms of the potential for mineralization below the Unit 2 quartzite in the upper showing area. Sample 109 of a coarse-crystalline, chalcopyrite and malachite/azurite vein yielded: 11.52% Cu, 27.8 ppm Ag, 740 ppm Ni, 908 ppm As, 31 ppm Hg and 375 ppm Sb.

Zones 5 and 8 were not sampled during this program.



Of the nine samples analyzed, six are anomalous in nickel (values range from 690 ppm (0.07%) to 0.51% Ni and five are anomalous in cobalt (344 ppm Co to 0.56% Co). Traces of Pt and Rh were also noted in samples 101 (30 ppb Pt) and 104 (60 ppb Pt, 30 ppb Rh). Further work is recommended to explore for an economic deposit of copper, silver, cobalt and nickel with potential for platinum group credits.

Results for samples collected by McIntyre (1971) from nine trenches in the upper showing area are summarized below (Figure 5):

Location	Width m	Cu %
Zone 1 - Trench 3	6.10	1.14
Zone 1 - Trench 4	6.10	0.59
Zone 1 - Trench 5	9.14	0.17
Zone 2 - Trench 6	12.19	2.45
Zone 3 - Trench 8	9.14	3.66



5.0 PROPOSED WORK PROGRAM

The two main areas of interest are the upper showing, on the Pal claim, and the lower showing, on the Ark claim. The upper showing lies along a north-northwest trending anticlinal fold axis, coincident with an IP anomaly outlined by McIntyre in 1971. The lower showing lies along the southwest limb of a northwest trending anticline. A two-phase program is recommended to investigate the potential of these showings.

Phase I consists of the establishment of a 15 line-km and a 10 line-km grid over the upper and lower showings, respectively. Reconnaissance geophysics, consisting of VLF-EM and IP surveys, and geological mapping will be carried out. Since the copper mineralization is primarily concentrated within the dolomites by replacement, the dipole-spacings of the IP survey must be wide enough to obtain depth penetration into the lowermost dolomitic Unit 1 layer of 90 to 120 metres. Extremely high resistivities were also encountered during the McIntyre survey due to the Unit 2 quartzite layer. Wide dipoles and high energy will be required to overcome this impedance of signal.

Phase II will involve a 900 metre drilling program contingent upon Phase I results, consisting of six 150 metre holes. Drilling through the quartzite layer is very difficult. A Longyear Super 38 or equivalent and BQ core is required for the completion of the job.

Cost estimates are summarized below, and a schedule for Phase I work is presented.



5.1 Proposed Phase I Budget

Fieldwork:

Mob/Demob	\$10,730	
Personnel	46,200	
Field Accommodation	12,870	
Equipment Rental	17,000	
Analyses	2,163	
Communications, Supplies, Shipping	1,200	
Administration @ 15%	<u>2,115</u>	
		\$ 92,278

Contingency @ 15% 13,842

Consulting	5,500
Report	<u>13,783</u>

Estimated Phase I cost, say \$125,400

5.2 Proposed Phase I Schedule

Week	1	2	3	4	5	6	7	8
Mobilization/ Demobilization	—				—			
Grids	(8 days)							
VLF-EM	(15 days)							
IP Survey					(29 days)			
Geology			(19 days)					
Consulting/ Supervision		(6 days)						
Reporting					(14 days)			



5.3 Phase II Proposal

A Phase II diamond drilling program to consist of six, 150 m BQ wire-line holes is recommended contingent upon the success of Phase I, at an estimated cost of \$219,500. The program will take approximately 7 weeks to complete, and could conceivably begin at week 4 of the Phase I program, should initial results at the surface surveys prove conclusive.

6.0 CONCLUSIONS

1. The discovery of high grade nickel and cobalt values in the Kluachesi copper mineralization adds substantially to the potential for an economic discovery. Mineralization is structurally controlled proximal to anticlinal axes and faults.
2. The copper mineralization is primarily chalcopyrite with varying amounts of bornite, malachite and azurite. No silver minerals were identified in hand specimens.
3. High values for cobalt and nickel are coincident with anomalous copper in both the lower and upper showings.
4. The sulphides are found predominantly in the dolomite/limestone layers in carbonate veins, in pods or lenses, and in a brecciated quartzite layer.
5. The surface exposure offering the highest Cu and Ag grades appears to be along the northwest-southeast trending anticlinal axis near an IP anomaly outlined by McIntyre, 1971.
6. Previous work by McIntyre failed to test for precious metals, platinum group elements or other base metals but McIntyre drilling records indicate two drill holes intersecting 7.6 vertical metres (25 feet) having 2.5-3.00% Cu. The holes were short, and did not penetrate the lowermost dolomite layer (Unit 1).
7. Further exploration including the emplacement of a 15 line-km grid on the upper showing and a 10 line-km grid on the lower showing, geophysical surveys consisting of VLF-EM and IP, and diamond drilling is recommended to evaluate the economic potential of the property.

7.0 RECOMMENDATIONS

1. In view of the previously undetected nickel and cobalt values in the mineralization of the Blue property, further work is recommended to explore for a potentially economic deposit of copper, silver, nickel and cobalt.
2. Previous efforts have failed to penetrate the overlying quartzite horizon and therefore a high energy Induced Polarization survey is required to test for deep drilling targets.
3. Phase I work is recommended at an estimated cost of \$125,400, to be spent over a period of 33 field days.
4. A Phase II deep test drilling program is recommended, contingent upon the success of Phase I, at an estimated cost of \$219,500.

Respectfully submitted,

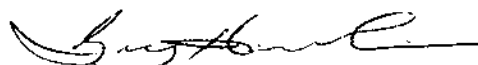
A handwritten signature in cursive script, appearing to read "F. Gregory Hawkins".
F. Gregory Hawkins, PGeol.

July 25, 1989

CERTIFICATE

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

1. That I am a Consulting Geologist with business offices at 2406-555 West Hastings St., Vancouver, B.C. V6B 4N5.
2. That I am a graduate in geology of The University of Alberta, Edmonton (BSc. 1973), and of McGill University, Montreal (MSc. 1979).
3. That I have practised within the geological profession for the past seventeen 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 information contained herein is based on field work in 1971, 1984 and 1989 and on a review of information supplied by Atlas Management Canada Inc.
6. That I own no direct, indirect, or contingent interests in the subject property or shares or securities of Atlas Management Canada Inc. or associated companies.


T.E. Gregory Hawkins, PGeol.

Vancouver, B.C.
July 25, 1989

REFERENCES

- B.C. Department of Mines, 1970. Blue property in Geology, Exploration and Mining in British Columbia, p.72-75
- Hawkins, T.G., 1981. Preliminary Assessment and Recommended Work Program, Cup Claims; for Jemo Resources Inc., December 18, 1981
- Hawkins, T.G., 1984. Report on Reconnaissance Geological Mapping and Rock Sampling, Cup Claims; for E5 Resource Corporation, August 22, 1984 (Assessment Report No. 12594)
- Maynard, A., 1989. Summary Geological Report and Valuation of Kluachesi Lake Prospect; for Atlas Management (Canada) Inc., April 1989



APPENDIX I

List of Personnel and Statement of Expenditures



LIST OF PERSONNEL AND
STATEMENT OF EXPENDITURES

Personnel:

T.G. Hawkins, PGeol.		
5 days @ \$650	\$3,250.00	
G.M. Lorenzetti, BSc.		
3.65 days @ 350	1,277.50	
K. Shotton, BSc.		
6.5 hrs @ 25	<u>162.50</u>	
		\$ 4,690.00

Field Support Costs:

Food and Accommodation	188.86	
Transportation (helicopter & airfare)	4,763.86	
*Disbursements (misc. supplies, communications, etc.)	<u>62.28</u>	
		5,015.00

*Laboratory Analyses:

9 rocks @ \$15.25	137.25	
3 Cu,Ni,Co assay @ 18.00	54.00	
3 Au,Pt,Pd,Rh geochem @ 15.00	45.00	
4 Cu assay @ 6.00	<u>24.00</u>	
		260.25

*Report Costs:

Drafting	312.50	
Map Reproduction	20.02	
Typing	133.00	
Addtl. report costs	<u>70.40</u>	
		535.92

Administration @ 15% on \$858.45 (*) 128.77

Total Cost \$10,629.94



APPENDIX II

**Rock Sample Descriptions and
Selected Lithochemical Results**



Blue Group; Kiuachesi (Cup) Claims - Rock Sample Descriptions

Sample	Description	Cu %	Ag ppm	Pb ppm	Mo ppm	Zn ppm	Ni %	Co %	Fe %	As ppm	Hg ppm	Sb ppm	Pt ppb	Rh ppb	
100	Lower showing - coarse recrystallized carbonate in limestone + pyrite, pyrrhotite, ± chalcocopyrite, to 40%, grabs	1.70*	6.1*	1585		692	0.50*	0.56*	22.46		14				
101	Lower showing - massive fine-grained pyrite, trace chalcocopyrite in dolomitized limestone	0.25*	4.0	344	310		0.04*	0.08*	23.75	3508				30*	
102	Waterfall showing - medium-grained quartzite; highly rust weathering; 10% pyrite disseminated	134 ppm	0.3												
103	Waterfall "trap dyke" - medium-grained crystalline mafic with pure carbonate veinlets and stringers to 1 cm with selvage; pyrite, chalco(?), grabs of local float	20 ppm	0.1												
104	Lower discovery showing - massive veined pyrite to 3 cm, in brecciated carbonate	0.82*	3.3	828		114	0.51*	0.45*		347	10		60*	30*	
105	Upper zone - split drill core samples of fine-grained crystalline limestone and finely bedded calcareous mudstone, with fracture controlled chalcocopyrite ± bornite to 1%	- not analyzed -													
106	Lower showing - massive very fine-grained pyrite/marcasite with minor wispy chalcocopyrite to 0.1%	3.16*	15.1*	392*	38	940*	960*	650*	28.38	2622	50	1278			
			(14.0)	(400)		(1110)	(1034)	(700)							
							ppm	ppm							
107	Upper showing, Zone 1 - massive very fine-grained pyrite and interstitial bornite to 10%	17.40*	24.2*	162*	15	660*	690*	344*	23.53	2503	46	437			
			(28.9)	(160)		(736)	(791)	(388)							
							ppm	ppm							
108	Upper showing, Zone 3 - veined, coarse crystalline chalcocopyrite with malachite/azurite in coarse crystalline remobilized carbonate	4.64*	3.5*			170*	292*			1350		358			
			(4.7)			(243)	(271)								
							ppm								
109	Central showing trench, Zone 7 - as above	11.52*	27.8*	100*	15	200*	740*			908	31	375			
			(33.4)	(110)		(264)	(725)								
							ppm								

* check assays



APPENDIX III

Laboratory Methods

ANALYTICAL METHODS CURRENTLY IN USE AT
ROSSBACHER LABORATORY LTD.

A. SAMPLE PREPARATION:

1. Geochem Soil and Silt: Samples are dried, and sifted to minus 80 mesh, through stainless steel or nylon screens.
2. Geochem Rock : Samples are dried, crushed to minus 1/4 inch, split, and pulverized to minus 100 mesh.

B. METHODS OF ANALYSIS:

1. Multi-element (Mo, Cu, Ni, Co, Mn, Fe, Ag, Zn, Pb, As, Cd, Cr): 0.50 g sample is digested for four hours with a 15:85 mixture of Nitric-Perchloric acids.
The resulting extract is analyzed by Atomic Absorption Spectroscopy, using Background Correction where appropriate.
2. Tungsten: 0.50 g sample is sintered with a carbonate flux, and dissolved. The resulting extract is analyzed colorimetrically, after reduction with Stannous Chloride, by use of Potassium Thiocyanate,
3. Tin: 0.50 g sample is sublimated by fusion with Ammonium Iodide, and dissolved.
The resulting solution is extracted by a Trioctylphosphine-Methyl Isobutyl Ketone solution and analyzed by Atomic Absorption Spectroscopy.
4. Fluorine: 0.50 g sample is fused with a carbonate flux and then dissolved.
The resulting solution is analyzed by use of an Ion Selective Electrode.
5. Gold: 10.0 g sample is digested with aqua regia.
The resulting solution is subjected to a Methyl Isobutyl Ketone extraction, which extract is analyzed for gold using Atomic Absorption Spectroscopy.
6. pH: An aqueous suspension of soil, or silt is prepared, and its pH is measured by use of a pH meter.
7. Antimony: 0.50 g sample is fused with Ammonium Chloride and dissolved. The resulting solution is extracted with a Trioctylphosphine-Methyl Isobutyl Ketone solution and analyzed by Atomic Absorption Spectroscopy.
8. Barium: 0.50 g sample is repeatedly digested with HClO₄-HNO₃ and HF. The solution is analyzed by Atomic Absorption Spectroscopy.

9. Mercury: 0.50 g sample is digested with $\text{HNO}_3\text{-H}_2\text{SO}_4$.
The solution is analyzed by Atomic Absorption Spectroscopy using a cold vapor generation technique.
10. Rapid Silicate Analysis: 0.100 g sample is fused with Lithium Metaborate and dissolved in HNO_3 .
The solution is analyzed by Atomic Absorption for SiO_2 , Al_2O_3 , Fe_2O_3 , MgO , CaO , Na_2O , K_2O , TiO_2 and MnO .
11. Partial extraction and Fe/Mn oxides: 0.50 g sample is extracted using one of the following:
Hot or cold 0.5 N HCl, 2.5% E.D.T.A., Ammonium Citrate, or other selected organic acids.
The solution is analyzed by use of Atomic Absorption Spectroscopy.
12. Biogeochemical: Samples are dried, and ashed at 500°C and the resulting ash analyzed as in No. 1 multi-elemental analysis.
13. ICP analysis: 0.50 g sample is digested with aqua regia.
The resulting solution is diluted and analyzed using an ICP instrument manufactured by Jobin Yvon (Model JY 32, 1987).
The following elements are included in the 30-element analysis:
Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Si, Sr, Ti, U, V, W, Zn.



APPENDIX IV

Certificates of Analysis

ROSSBACHER LABORATORY LTD.

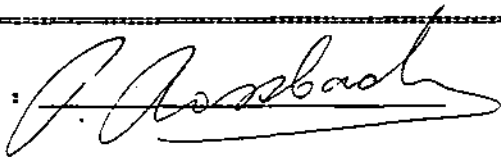
2225 S. Springer Ave., Burnaby,
British Columbia, Can. V5B 3R1
Ph: (604)299-6910 Fax: 299-6252

CERTIFICATE OF ANALYSIS

TO : MPH CONSULTING LTD.
#2406-555 W. HASTINGS ST.
VANCOUVER, B.C.
PROJECT : V306
TYPE OF ANALYSIS : ICP

CERTIFICATE # : 89175
INVOICE # : 90352
DATE ENTERED : 89-06-30
FILE NAME : MPHS9175.I
PAGE # : 1

PRE FIX	SAMPLE NAME	PPM NO	PPM CU	PPM PB	PPM ZN	PPM AS	PPM NI	PPM CO	PPM Mn	Z FE	PPM AS	PPM U	PPM AU	PPM HG	PPM SR	PPM CD	PPM SB	PPM BI	PPM V	Z CA	Z P	PPM LA	PPM CR	Z MG	PPM BA	Z TI	PPM B	Z AL	Z NA	Z SI	PPM W	PPM DE	PPM Am	PPM K	
A	100	8	15328	1585	692	6.1	4606	5493	167	22.46	182	5	ND	14	11	8	78	31	3	2.55	0.42	1	127	1.74	29	0.01	2968	0.03	0.02	0.01	1	1	5		
A	101	310	2479	344	87	4.0	461	759	1	23.75	3508	5	ND	8	2	2	63	30	32	0.01	0.20	1	145	0.02	24	0.01	2996	0.03	0.01	0.01	1	1	5		
A	102	4	134	9	14	0.3	32	29	1	4.93	44	5	ND	ND	2	1	2	2	1	0.05	0.04	4	137	0.03	89	0.01	415	0.12	0.01	0.02	1	1	5		
A	103	2	20	3	12	0.1	31	38	591	6.03	21	5	ND	ND	31	1	2	2	123	5.37	0.36	4	72	2.42	200	0.03	54	0.36	0.01	0.03	1	3	5		
A	104	6	7966	828	114	3.3	3976	4902	346	16.06	347	5	ND	10	13	2	61	6	3	4.26	0.46	1	103	3.58	30	0.01	1808	0.03	0.02	0.01	1	1	5		

CERTIFIED BY : 

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ROSSBACHER LABORATORY LTD.

2225 S. Springer Ave., Burnaby,
British Columbia, Can. V5B 3N1
Ph: (604)299-6910 Fax:299-6252

CERTIFICATE OF ANALYSIS

TO : MPH CONSULTING LTD.
#2406-555 W. HASTINGS ST.
VANCOUVER, B.C.

CERTIFICATE # : 89175.A
INVOICE # : 90376
DATE ENTERED : 89-07-14
FILE NAME : MPH89175
PAGE # : 1

PROJECT : V 306
TYPE OF ANALYSIS : ASSAY

LINE NO	SAMPLE NAME	% Cu	% Ni	% Co	PPB Au	PPB Pt	PPB Pd	PPB Rh
100		1.70	0.50	0.56	5	<30	<30	<30
101		0.25	0.04	0.08	5	30	<30	<30
104		0.82	0.51	0.45	5	60	<30	30

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2225 S. Springer Ave., Burnaby,
British Columbia, Can. V5B 3N1
Ph: (604)299-6910 Fax:299-6252

CERTIFICATE OF ANALYSIS

TO : MPH CONSULTING LTD.
#2406-555 W. HASTINGS ST.
VANCOUVER, B.C.

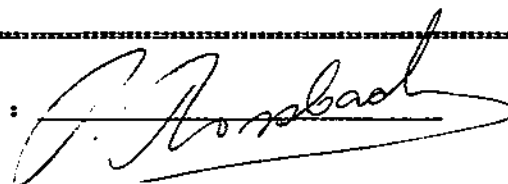
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INVOICE # : 90374
DATE ENTERED : 89-07-14
FILE NAME : MPH89199.I
PAGE # : 1

PROJECT : V 306
TYPE OF ANALYSIS : ICP

PRE FIX	SAMPLE NAME	PPM NO	PPM CU	PPM PB	PPM ZN	PPM AG	PPM NI	PPM CO	PPM Mn	Z FE	PPM AS	PPM U	PPM AU	PPM HG	PPM SR	PPM CD	PPM SB	PPM BI	V CA	Z P	PPM LA	PPM CR	Z MG	PPM BA	Z TI	PPM B	Z AL	Z NA	Z SI	PPM W	PPM BE	PPM Ag	PPM S	
A	106	38	29272	400	1110	14.0	1034	700	23	28.38	2622	5	ND	50	3	9	1278	71	9	0.02	0.06	1	316	0.03	21	0.01	5541	0.08	0.02	0.01	9	1	5	
A	107	15	15.4Z	160	736	28.9	791	388	26	23.53	2503	5	ND	46	3	6	437	56	16	0.05	0.07	1	328	0.05	17	0.01	4676	0.18	0.01	0.01	12	1	5	
A	108	7	37544	54	243	4.7	271	68	679	7.86	1350	5	ND	8	43	3	358	2	2	10.13	0.07	1	87	6.60	18	0.01	953	0.06	0.01	0.01	3	1	5	
A	109	15	11.4Z	110	264	33.4	725	71	520	10.72	908	5	ND	31	30	2	375	16	4	7.23	0.08	1	114	5.45	25	0.01	1324	0.05	0.02	0.01	14	1	5	

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2225 S. Springer Ave., Burnaby,
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Ph: (604)299-6910 Fax: 299-6252

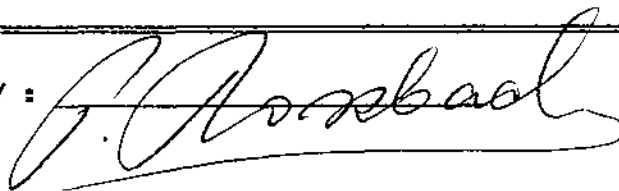
CERTIFICATE OF ANALYSIS

TO : MPH CONSULTING LTD.
#2406-555 W. HASTINGS ST.
VANCOUVER, B.C.
PROJECT : V 306
TYPE OF ANALYSIS : GEOCHEMICAL

CERTIFICATE # : 89199
INVOICE # : 90374
DATE ENTERED : 89-07-14
FILE NAME : MPH89199
PAGE # : 1

IX	SAMPLE NAME	% Cu
1	106	3.16
2	107	17.40
3	108	4.64
4	109	11.52

CERTIFIED BY :



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APPENDIX V

Conversion Factors for Metric Units

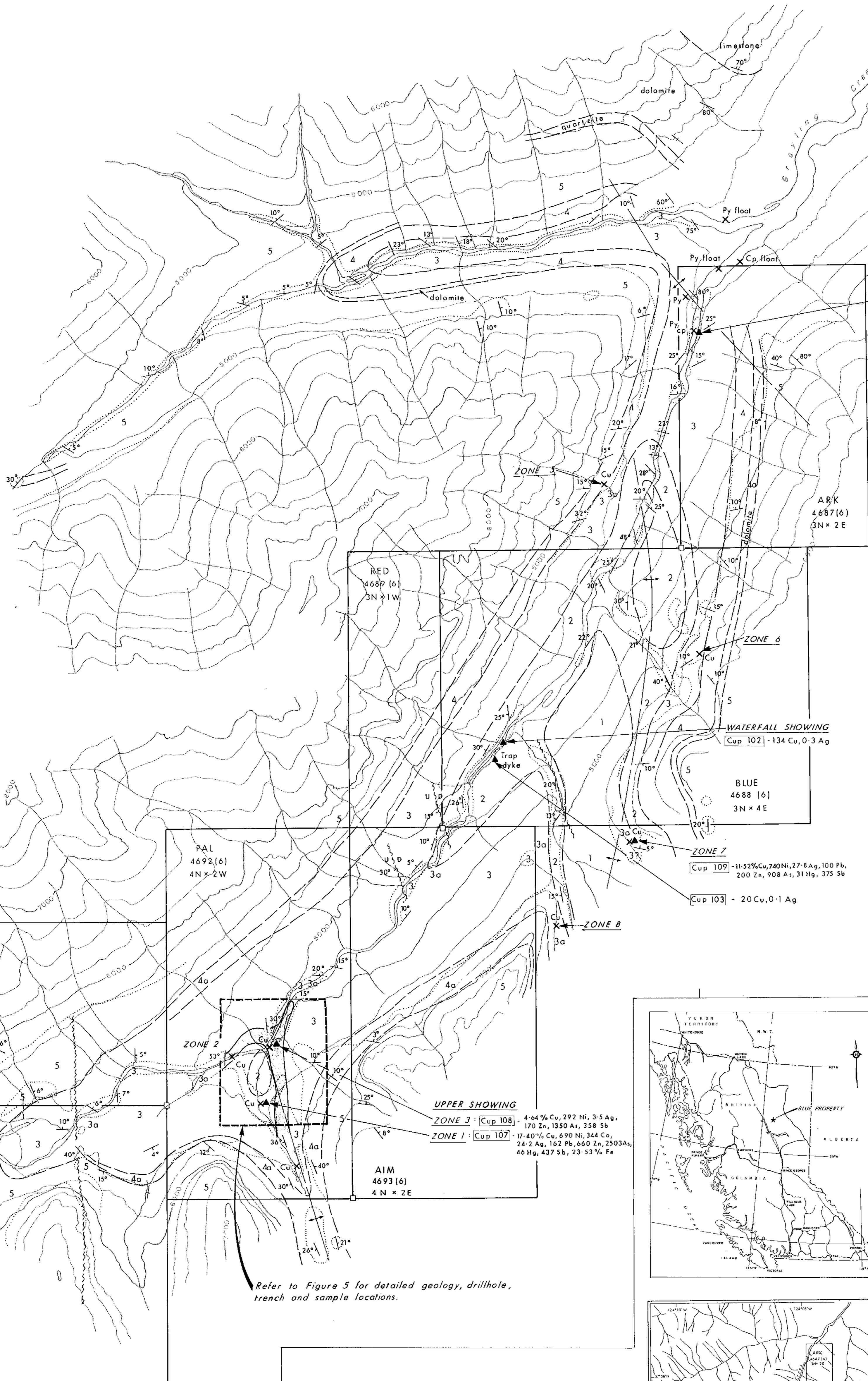
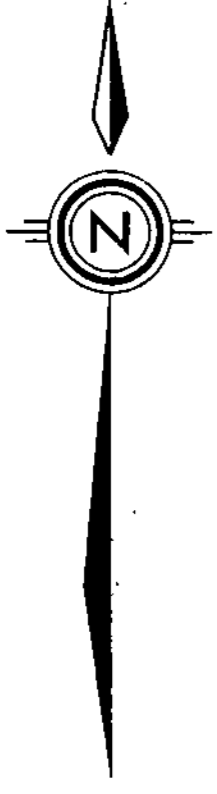


Metric Conversion Factors

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 miles	
1 acre	= 0.4047 hectares	(ha)
1 ha	= 2.471 acres	
1 ha	= 100 m x 100 m = 10,000 m ²	
1 km ²	= 100 ha	
1 troy ounce	= 31.103 grams	(g)
1 g	= 0.032 troy oz	
1 pound (lb)	= 0.4536 kilogram	(kg)
1 kg	= 2.2046 lb	
1 ton (2000 lb)	= 0.90718474 tonne (0.9072)	(t)
1 tonne	= 1.1023 ton = 2205 lb	
1 troy ounce/ton (oz/t)	= 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%	

124° 10' W

124° 05' W



LOWER SHOWING (ZONE 4)

- Cup 100 - 1.70% Cu, 0.50% Ni, 0.56% Co, 6.1 Ag, 1585 Pb, 692 Zn, 14 Hg, 22.46% Fe.
- Cup 101 - 0.25% Cu, 0.04% Ni, 0.08% Co, 4.0 Ag, 310 Mo, 344 Pb, 23.75% Fe, 3508 As
- Cup 104 - 0.82% Cu, 0.51% Ni, 0.45% Co, 3.3 Ag, 828 Pb, 347 As, 60 Pt, 30 Rh
- Cup 106 - 3.16% Cu, 960 Ni, 650 Co, 15.1 Ag, 392 Pb, 2622 As, 940 Zn, 50 Hg, 1278 Sb, 28.38% Fe

LEGEND

GEOLOGY

- 5 Dolomite / Limestone : 305m + (±1000 ft) thick
- 4 Quartzite : cross-bedded, approximately 61m (200 ft) thick 4a with interbedded dolomite
- 3 Dolomite : with minor quartzite, 122m (400 ft) thick 3a recrystallized dolomite
- 2 Quartzite : cross-bedded and ripple-marked, 61m (200 ft) thick
- 1 Dolomite : unknown thickness

SYMBOLS

- Geological contact (approximate)
- Outcrop boundary
- Bedding attitude
- X Cu Copper mineralization
- Fault
- Anticlinal axis
- I.P. anomalous area (Mc Intyre)
- Claim line and legal corner post
- ▲ Sample location with selected results (Au, Pt, Rh in ppb; all others in ppm unless otherwise stated)

ABBREVIATIONS

- py pyrite
- cp chalcopyrite
- Cu copper

GEOLOGICAL BRANCH ASSESSMENT REPORT

19,124

0 0.5 1.0 km

NTS 94F / 16W

After Brown 1971, Kraft 1984.

ATLAS MANAGEMENT CANADA INC.

PROPERTY PLAN, GEOLOGY AND SAMPLE LOCATIONS

BLUE PROPERTY

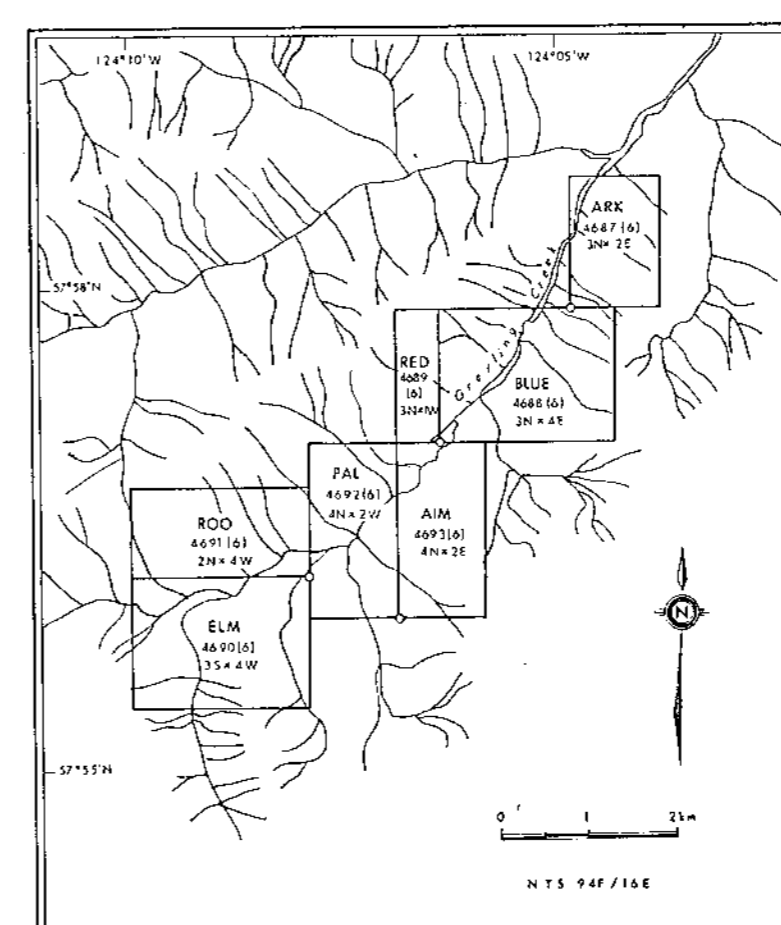
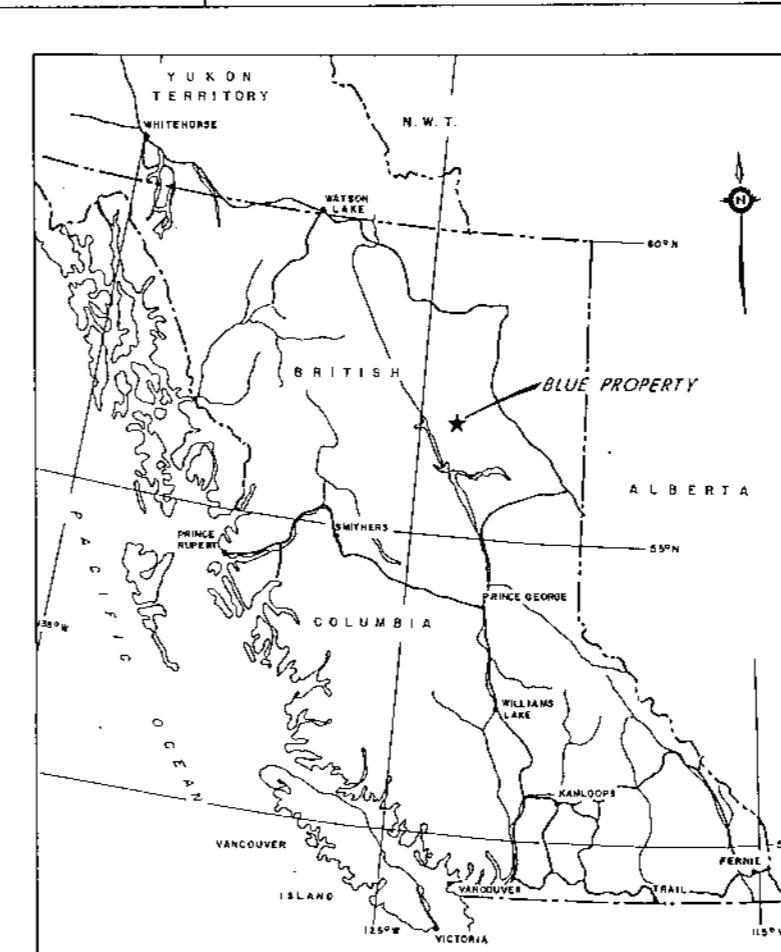
LIARD MINING DIVISION

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Scale: 1 : 12 000	Drawn: J. S.
Drawing No: 4	Date: JULY 1989.



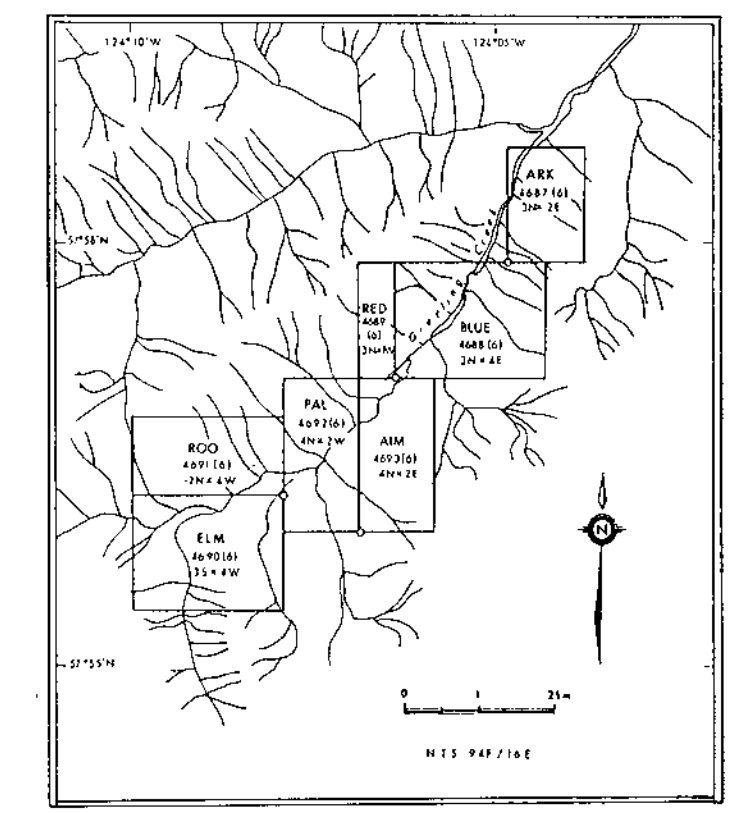
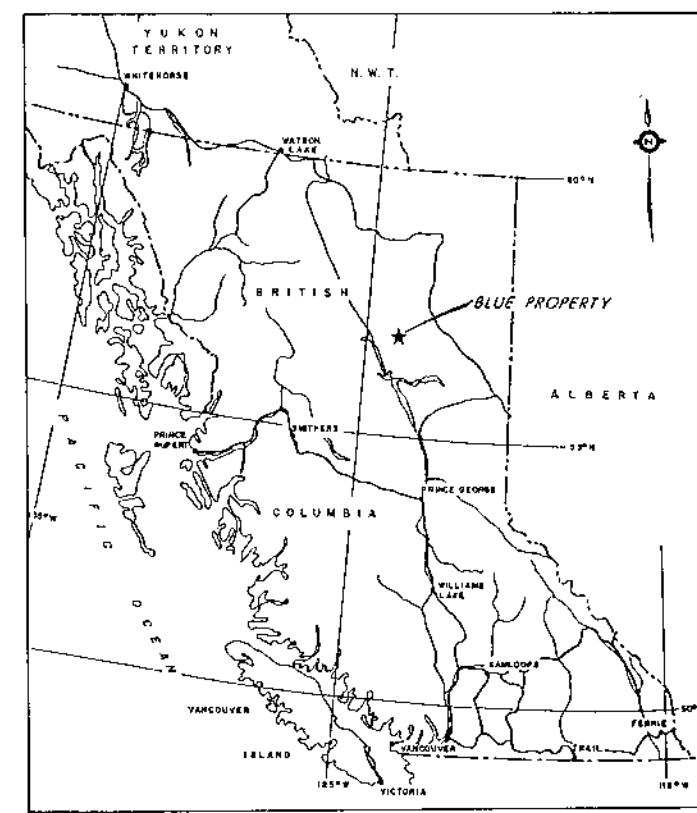
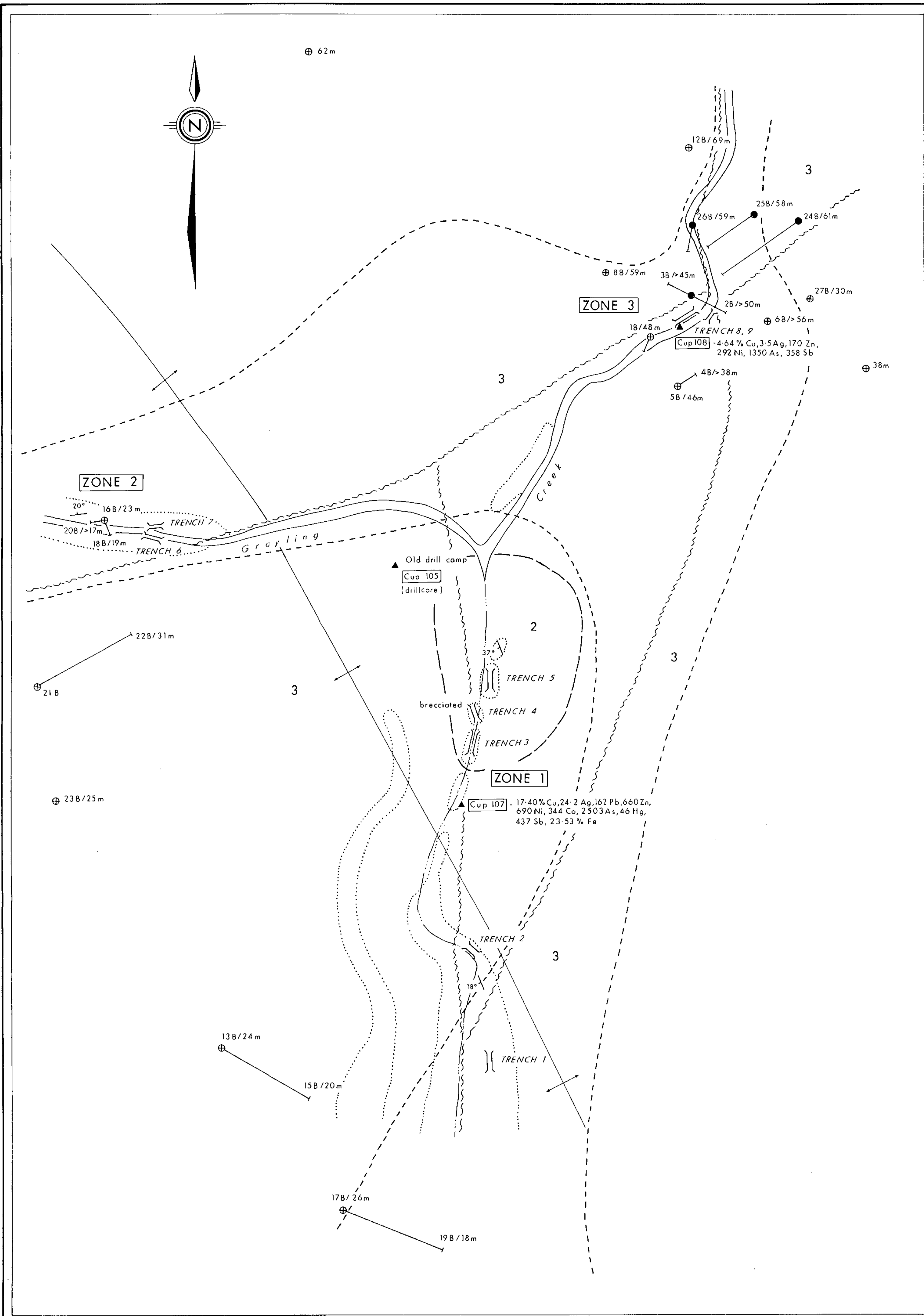
MPH Consulting Limited

Refer to Figure 5 for detailed geology, drillhole, trench and sample locations.



57° 58' N

57° 55' N



- Legend**
- 3 Dolomite/limestone: minor interbedded quartzite
 - 2 Quartzite: abundant ripple marks, cross-bedding
 - Trench
 - Fault
 - Anticlinal Axis
 - Outcrop Outline
 - Sample Location with selected results (Au, Pt, Rh in ppb; all others in ppm, unless otherwise stated)
 - Assumed geological contact
 - I.P. Outline
 - Diamond drillhole location (1971 program)
 - hole number, depth to top of unit 2 from 5100' datum
 - vertical drillhole

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

19,124



NTS 94 F/16 W

After Kraft 1984, Hawkins 1981.

ATLAS MANAGEMENT CANADA INC.

DETAILED GEOLOGICAL PLAN

BLUE PROPERTY
LIARD MINING DIVISION

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Scale:	1 : 1 200	Drawn:	J. S.
Drawing No:	5	Date:	JULY 1989.

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