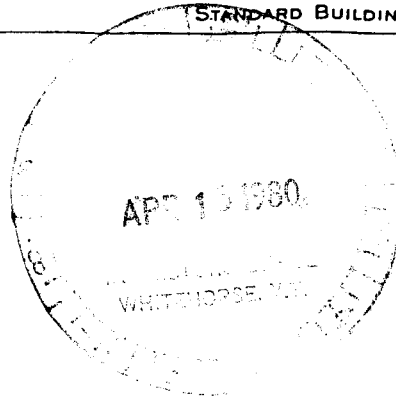


# ARCHER, CATIRO AND ASSOCIATES LTD.

CONSULTING GEOLOGICAL ENGINEERS

Box 4127, WHITEHORSE, Y.T. VIA 359 667-4415

STANDARD BUILDING, VANCOUVER, B.C. 688-2568



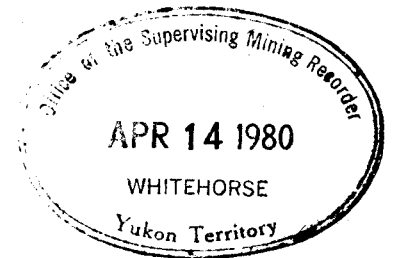
1016 STANDARD BUILDING  
510 WEST HASTINGS STREET  
VANCOUVER, B.C.  
V6B 1L8



REPORT ON

GEOLOGICAL AND GEOCHEMICAL SURVEYS

CONDUCTED AUGUST 24 - 29, 1979



CHARLIE 1-40 CLAIMS - YA36596-YA36635

WATSON LAKE MINING DISTRICT

CLAIM SHEET 95E 5/12

Latitude 61°31'N

Longitude 127°35'W

J.G. ABBOTT, P.Eng.

090541

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representing work in the amount of

\$ 4,000.00

J. A. Morin

Geological Geologist or  
Mining Engineer

Considered as representation work under  
Section 53 (4), Yukon Quartz Mining Act.

B. R. Baxter  
Supervising Mining Recorder

h. G. Commissioner of Yukon Territory

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## SUMMARY AND RECOMMENDATIONS

The Charlie claim group is located within the Logan Mountains of eastern Yukon. It was staked by CUB Joint Venture to cover tungsten mineralization developed along the contact between Cambro-Ordovician limestone and a Cretaceous pluton. The intrusive contact is well exposed over most of the property but only two scheelite-bearing skarn occurrences were found. Both are small, erratic and low grade. Covered portions of the intrusive contact were grid soil sampled but no significant tungsten anomalies were obtained. The tungsten potential of the property appears to be low and no further work is recommended.

## INTRODUCTION

The Charlie claim group was staked in May, 1979 by CUB Joint Venture (Cassiar Asbestos Corporation Ltd., Highland Crow Resources Ltd. and Union Carbide Canada Ltd.). The program was managed by J.G. Abbott of Archer, Cathro and Associates Ltd.

The property covers a small scheelite-bearing skarn zone developed along the contact between Cambro-Ordovician limestone and a Cretaceous pluton. This showing had originally been discovered by Union Carbide in 1971 but was never staked or examined in detail.

Geological mapping and grid geochemical sampling were conducted by the writer and two assistants between August 24 and 29.

PROPERTY, LOCATION AND ACCESS

The property consists of 40 contiguous claims recorded in the name of Archer, Cathro and Associates Ltd. at the Watson Lake Mining Recorder's office as follows:

<u>Claim Name</u>	<u>Grant Numbers</u>	<u>Expiry Date</u>
Charlie 1-40	YA36596-YA36635	22 May, 1980

The Charlie property is situated near the headwaters of the Coal River at 61°31'N, 127°35'W; 60 km SSE of Tungsten and 30 km east of the Nahanni Range Road. Access in 1979 was by helicopter from a base camp at Dolly Varden Creek on the Cantung Road.

FIELD AND ANALYTICAL PROCEDURES

Both base lines and sampling lines were located by using compass and topofil without slope corrections. Stations were marked with 1/2 m lath pickets, above timberline, and flagging below timberline.

Soil samples were collected in kraft envelopes at each panning site and were shipped to Chemex Labs Ltd., North Vancouver, B.C. for routine geochemical analysis. Soil samples were pulverized like rock samples to ensure that coarse scheelite grains would be included in the assay, since tungsten disperses in soil mainly as clastic grains of scheelite.

All samples were analyzed for tungsten with a colorometric determination after fusing with potassium bisulfate, leaching with concentrated HCl, extracting into an amyl acetate solution containing dithiotoluene, and reducing interfering elements with stannous fluoride in a hot water bath. Samples were also analyzed for copper using atomic absorption spectrometry of a nitric-perchloric digestion.

### GEOMORPHOLOGY

The property lies within the core of the extremely rugged Logan Mountains. Peaks commonly reach elevations of 2100 m and locally exceed 2400 m while local relief exceeds 750 m. The claims straddle a jagged north-trending ridge on which abundant outcrop occurs above treeline except at the southern end, where the ridge is terminated by the Coal River valley.

### GEOLOGY

Both geology and geochemistry are plotted at a scale of 1:10,000 on Figure 1 and the various map units are summarized in the Table of Formations on the following page.

Sedimentary rocks underlying the property and surrounding areas range in age from upper Proterozoic through middle Ordovician. The oldest belong to the lower Cambrian(?) and older "Phyllite Unit" and comprise a sequence of homogeneous non-calcareous grey green phyllite more than 1000 m thick. Unknown thicknesses of brown-weathering phyllite and nodular limestone of unit 1G<sub>p</sub> and less than 20 m of interbedded massive grey limestone of unit 1G<sub>l</sub> overlie unit 6H along the western margin of the property. These rocks are similar to lower Cambrian strata mapped in nearby areas.

Grey limestone, dolomite, brown shale and minor volcanics of unknown thickness, located northwest of the property, were mapped as unit 1G<sub>d</sub> because they resemble parts of the lower Cambrian Sekwi Formation located to the east in Mackenzie Mountains. These rocks might also be younger and belong to the upper Cambrian and Ordovician Rabbitkettle Formation but they are not typical of that unit.

Recessive grey, graphitic limestone and argillite of unit 6a is exposed across the Coal River south of the property. Similar rocks were mapped north of the property by the GSC. They are probably Cambrian in age but have uncertain stratigraphic correlations with other units.

TABLE OF FORMATIONS

CRETACEOUS

$K_g$

Porphyritic quartz monzonite or granodiorite; may also include narrow dark grey aphanitic dikes located near intrusive margin

UPPER CAMBRIAN and ORDOVICIAN

$u\epsilon O_r$

Rabbitkettle Fm  
Resistant, brownish, grey weathering thin bedded, "wavy banded" silty limestone

CAMBRIAN

$\epsilon_a$

Recessive grey, graphitic limestone and argillite

LOWER CAMBRIAN (?)

$\epsilon_d$

Recessive grey limestone, dolomite, brown shale, minor volcanics

$\epsilon_l$

Massive grey limestone

$\epsilon_p$

Brown weathering, grey phyllite, nodular grey limestone; includes rusty weathering hornfels

LOWER CAMBIAN (?) and OLDER

$\epsilon_H$

Moderately resistant, grey weathering dark grey non-calcareous phyllite; locally includes rusty weathering hornfels

Most of the property is underlain by the upper Cambrian and Ordovician Rabbitkettle Formation (unit u60r). Within the area mapped, the unit is at least 500 m thick and probably much greater and is comprised entirely of resistant grey weathering thin bedded silty limestone. Weathered surfaces characteristically display a rough, nodular wavy banded texture. Large scale structures are difficult to map within the unit because of its thickness and lack of prominent markers. The Rabbitkettle Formation unconformably overlies older rocks and apparently overlies different units in different places.

Cretaceous porphyritic quartz monzonite or granodiorite forms a steeply dipping, dyke-like body between 600 and 1400 m wide along the eastern margin of the property. Contacts are sharp but irregular. Hornfelsing is minimal within the Rabbitkettle limestone but is more widespread within phyllite, particularly along the western margin of the property.

The style of deformation in the area is probably determined by large scale, northwest-trending folds and high-angle faults. These structures are best observed northwest of the property where an anticline and overturned syncline are cut by one, and possibly two, faults. On the property, however, there is no evidence of large scale folds. A fault that parallels the western margins of the property juxtaposes the "Phyllite Unit" on the west against the Rabbitkettle Formation on the east.

Over most of the property, bedding consistently dips moderately westward and is cut by a more steeply-dipping, northwest-trending cleavage. Local variations in bedding attitudes reflect small scale folds with axes that plunge southwesterly, downdip to cleavage. The intrusion has apparently had little effect on structure either on a large or small scale.

### MINERALIZATION

Two fairly well exposed zones of massive, dark brown, garnet-diopside skarn containing disseminated scheelite and molybdenite occur about 50 m apart at the intrusive contact along the crest of the ridge at the eastern margin of the property. Both zones are about 50 m long and up to 10 m wide. The granite contact is extremely irregular and the skarn appears to be discontinuous. A representative chip sample from the upper zone assayed 0.1%  $WO_3$  across a 7 m width, while two 5 m chip samples from the lower zone assayed 0.10% and 0.14%  $WO_3$ . All samples gave low unimportant values in Cu, Mo, Ag and Au.

### GEOCHEMISTRY

Soil samples were collected at 50 m intervals along lines spaced 100 m apart within a covered area 1500 m by 500 m in size along the projected dyke contact at the southern end of the claims. Pan samples could not be collected due to time constraints. Samples were analyzed for tungsten and copper and the results are plotted on Figure 1.

Tungsten values are generally low, with background less than about 10 ppm on the southern half of the grid and 20 ppm on the northern half. This probably indicates that the southern half contains more drift cover towards the valley floor. The one anomalous value of 150 ppm and several ranging between 50 to 85 ppm W on the upper part of the grid may be indicators of small, low grade skarns similar to those exposed. Copper assays are uniformly low, less than 25 ppm.

CONCLUSIONS

Preliminary mapping and geochemistry suggests that the tungsten potential of the Charlie property is low. The known showings are small, erratic and low grade. The granite contact is well exposed over most of the property. Skarn is locally developed and tungsten grades are uniformly low. Geochemical covered portions of the granite contact failed to give significant anomalies. No further work is recommended at this time.

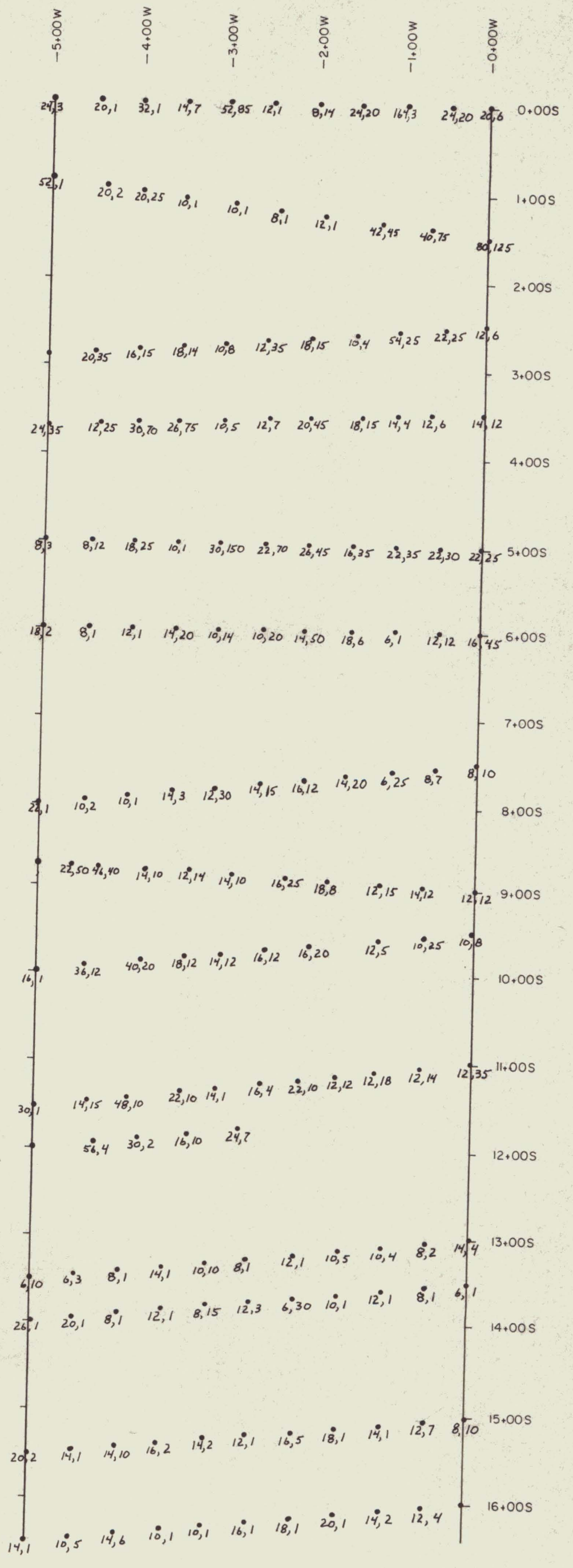
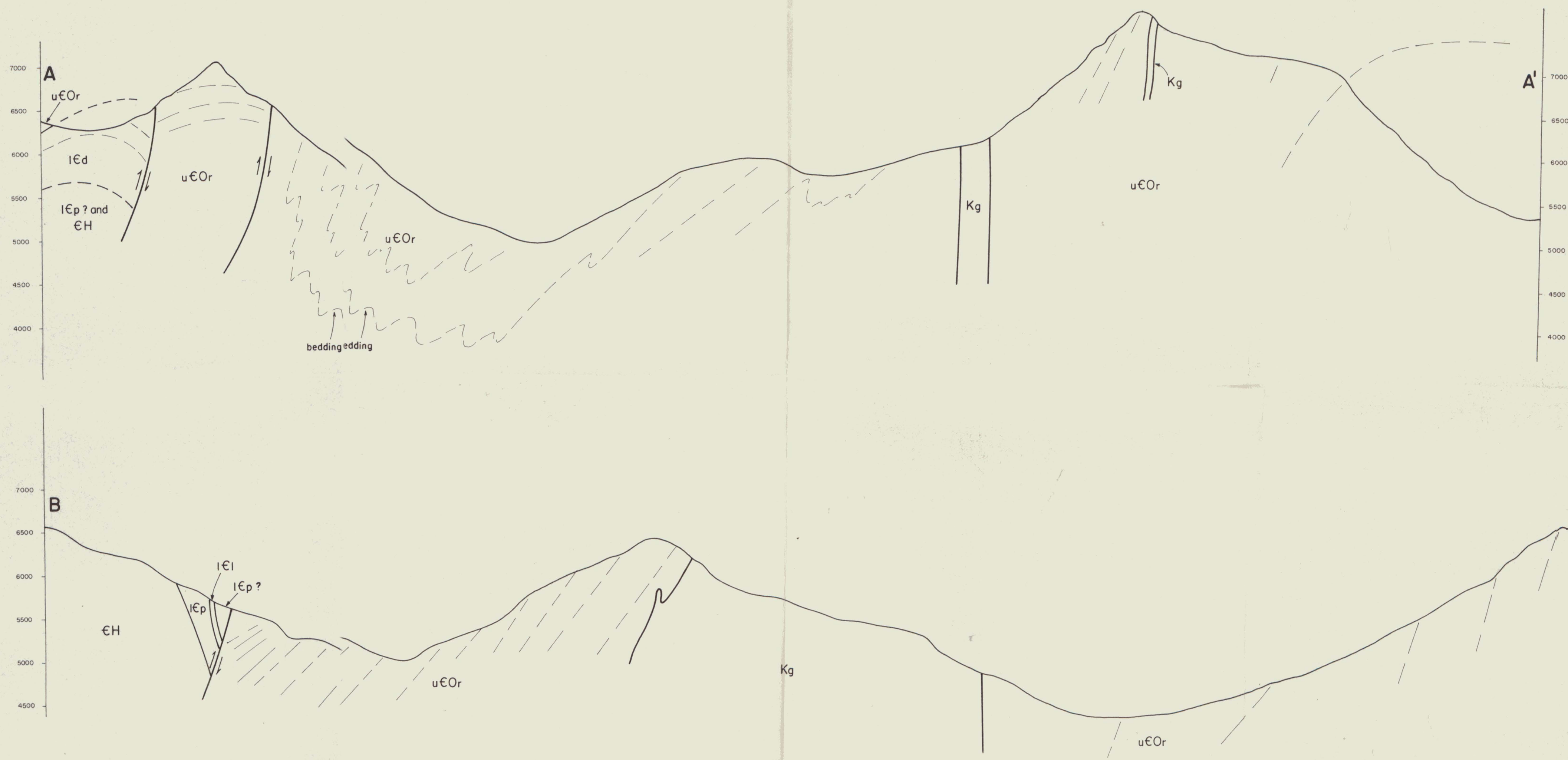
Respectfully submitted,

ARCHER, CATHRO AND ASSOCIATES LTD.

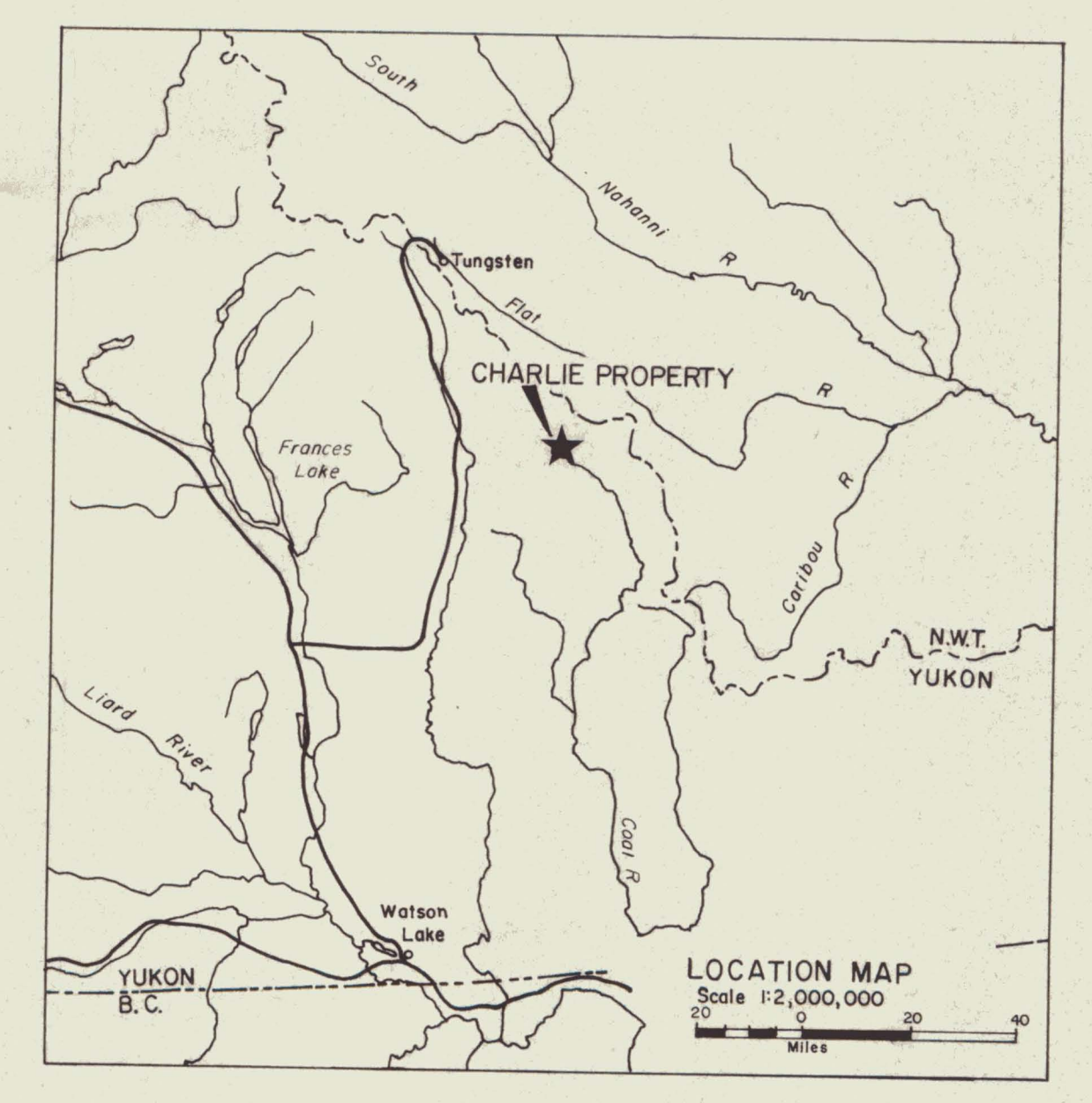
A handwritten signature in cursive script, appearing to read "Grant Abbott".

J.G. Abbott, M.Sc., P.Eng.

/mc



SOIL SAMPLE GRID  
ppm Cu, W  
Scale 1:5,000  
0 10 20 30 40 50 60 70 80 90 100



LEGEND

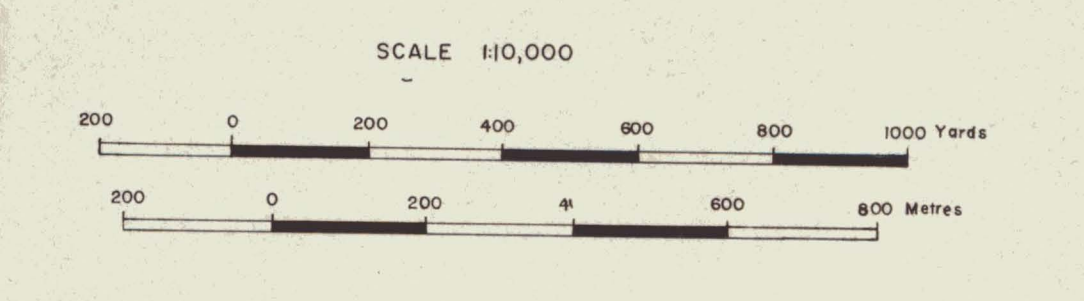
- CRETACEOUS**
- Kg** Porphyritic quartz monzonite or gneiss; may also include hornblende grey schist; locally includes mafic dykes
- UPPER CAMBRIAN and ORDOVICIAN**
- uEOr** Roubidoux fm. Includes hornblende grey weathering thin bedded, "wave bedded" silty limestone
- CAMBRIAN**
- Ca** Recessive grey, graphitic limestone and argillite
- LOWER CAMBRIAN (?)**
- IEa** Recessive grey limestone, dolomite, brown shale, minor volcanics
- IEi** Massive grey limestone
- IEp** Brown weathering, grey phyllite, nodular grey limestone; includes rusty weathering horizons
- LOWER CAMBRIAN (?) and OLDER**
- EH** Moderately resistant, grey weathering dark grey non-chloraceous phyllite; locally includes rusty weathering horizons

- Geological contact; defined, approximate, assumed
- + + + Bedding; inclined, horizontal, vertical, overturned
- - - Foliation; inclined, vertical
- ~ ~ ~ Fault; defined, approximate, assumed
- x x x Anticline, syncline
- o o o Syncline; overturned
- ||| Tectonics



FIGURE 1  
ARCHER, CATRO & ASSOCIATES LTD.  
**GEOLOGY & GEOCHEMISTRY**

CHARLIE PROPERTY  
CUB JOINT VENTURE



MAP # 95-E-5/2  
Doc # 090541