ARCHIE

GEOLOGY AND GEOCHEMISTRY

ARCHIE #1 - 4 Mineral Claims

Skeena Mining Division

Moresby Island, Queen Charlotte Islands, B.C.

Latitude 52°18'N Longitude 121°11'W

NTS 103 B/6E

Dates of Work:	May 15 - June 10, 1980
By:	James S. Christie, Ph.D. Gordon G. Richards, P.Eng.
Owner:	Gordon G. Richards
Operator:	Placer Development Limited
Contractor:	JMT Services Corp.
Submitted:	August, 1980

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LIST OF ILLUSTRATIONS

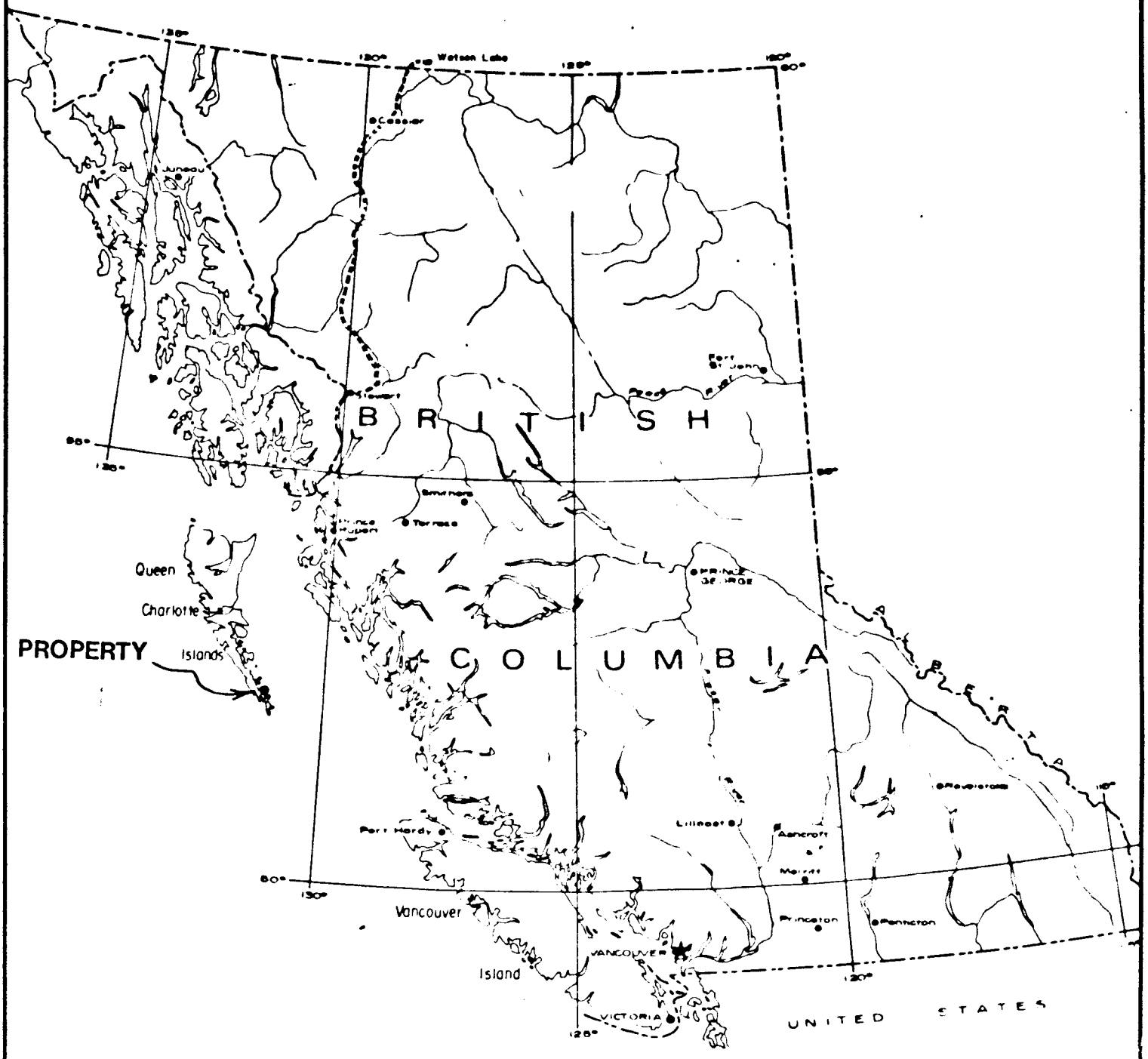


FIGURE 1

ARCHIE #1-#4

PROPERTY LOCATION MAP

SCALE

Mile 1:136 — 136 Mile

Prepared by Drawn by	Date Revised	NTS MAP AREA	DRAWING No

INTRODUCTION

Stream sediments collected in April 1979 were highly anomalous for gold and arsenic. The ARCHIE #1 - 4 mineral claims were staked in May 1979. Preliminary soil sample lines spaced 250 m apart with sample intervals of 50 m were run in August 1979. Pronounced gold-arsenic soil anomalies were found to exist primarily over calcareous argillites intruded by acid to intermediate dykes. Results of this survey are described in a previous assessment report on the ARCHIE #1 - 4 claims by the same writers.

The present survey, described below, was designed to detail map and sample three specific areas and complete the reconnaissance sampling at the east and west ends of the property.

The typical section of Karmutsen greenstones overlain by Kunga massive grey limestone - black limestone - calcareous argillites - argillites is exposed in the area of mapping on the south facing hill north of Ikeda Cove. A felsic weakly porphyritic sill occurs partway up this hill. Later andesitic to microdioritic sills occur near the top of the hill. Gold-arsenic geochemical anomalies appear to be either caused by or controlled by the sills, particularly the main felsic sill. Diamond drilling is proposed to test projections of anomalous gold values obtained from bedrock and soils.

LOCATION AND ACCESS

The property lies towards the southern end of Moresby Island on the south side of Skincuttle Inlet and is bounded to the west by Harriet Harbour and to the east by Ikeda Cove. It is accessible by float plan or helicopter from Sandspit, some 120 km north. Local roads from an old mining operation, Jedway 1961 - 1965, exist on the extreme south west corner of the property. The property is also accessible by boat

TOPOGRAPHY AND VEGETATION

Elevations on the property range from sea level to 1800 ft. A prominent ENE trending ridge transects the property with steep slopes falling away to the south and more moderate slopes to the north. Slopes are covered in hemlock-spruce forests with a few small areas of cedar-hemlock-spruce forest.

MINERAL CLAIMS

Claim Name	Units	Record No.	Record Date
ARCHIE 1	20	1322	June 14,1979
ARCHIE 2	20	1323	June 14,1979
ARCHIE 3	10	1324	June 14,1979
ARCHIE 4	6	1325	June 14,1979

Owner: Gordon G. Richards

GEOLOGY

General

The general geology is very much as described by Athol Sutherland-Brown in the B.C. Dept. of Mines and Petroleum Resources Bulletin #54. However,the present mapping has provided more detail than was previously known.

Karmutsen greenstones have been mapped over the lower most slopes of the southwest half of Ikeda Cove. The basal massive grey limestone of the Kunga Formation conformably overlies the Karmutsen Formation. The limestone thickness is variable but is roughly 20 metres. Black and flaggy black limestone above the massive grey limestone are less than 30 m thick in total and grade into calcareous argillites and argillites which make up about 80% of the exposed Kunga section. Intrusive into the Kunga argillaceous rocks are a felsic sill and an adesitic to dioritic sill. Both sills have associated dykes. Other types of dykes also occur but are not numerous nor volumetrically significant.

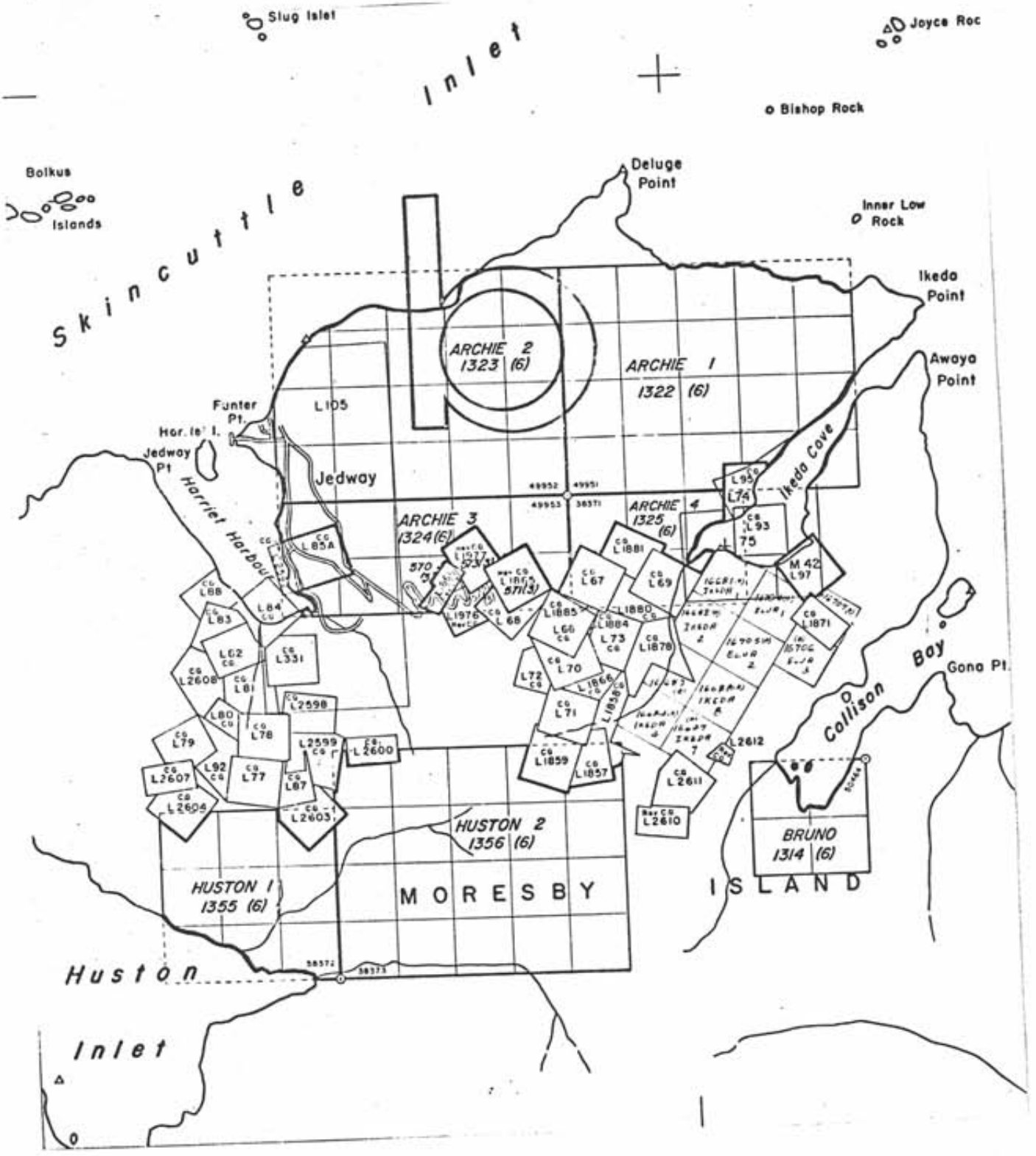


FIGURE 2 - CLAIM MAP

The felsic sill has a weakly feldspar porphyritic texture that is often obliterated by alteration or is not present. About 1 - 2% small hornblende needles are present and are often chloritized. The felsic nature of the rock is accentuated by alteration - a pervasive bleaching that has introduced 1 - 3% pyrite - pyrrhotite as disseminations and more rarely fracture films. The sill is 50 to 100 metres thick.

Both upper and lower contacts are locally very brecciated up to widths of 10 metres. Fragments are usually subangular but mill breccias with rounded to subrounded fragments are also present. The fragments are almost completely sill material although some fragments of Kunga do occur. The best exposures of breccias occur along the dip-slope dyke at R582, R584 and the large outcrop 50 metres northeast. Similar breccias but more intense and pyrite mineralized and silicified occur near H442 and H472. At these locations Kunga fragments are more abundant. The basal contact has been observed in six creeks over a surface trace of 2000 metres. In all but one exposure the contact was within 5 or 10^{o} of being flat lying. The exposure at R621 was somewhat difficult to measure but appeared to dip 20 - 30^{o} into the hill. The upper contact was exposed in two of the more northeasterly creeks and here near flat lying attitudes were also observed. Exposures of similar rocks higher on the hill probably form dykes that bleed off the top of the sill. The dyke near R603 was clearly a dip-slope dyke some 10 metres thick. This dyke projects into the hill along its uphill contact. No dykes of similar composition were seen below the lower contact of the sill.

The andesitic-dioiritic sill is actually a series of sills that occur high on the hill. Individual sills have been traced along contours over a surface trace of as much as 1000 metres and probably are more extensive. Horizontal compositional layering of variable textures including andesite, weakly amygdoloidal andesite, micro-diorite, fine and medium grained diorite occurs in layers from 10 cm to 10 metres in thickness in individual outcrops. Dykes of similar composition cut all rock types described above. A particularly

abundant dyke swarm occurs along and east of Camp Creek. These dykes may represent a feeder system for the sills. The sills and dykes are fresh except for local portions of the base of sills less than 1 metre thick.

A few aphanitic felsic dykes and quartz porphyry dykes also occur in the map area.

Structure

Several prominent northerly trending faults have been mapped east and west of Camp Creek. They parallel andesitic dykes and may be an important control of mineralization. They form fault gouge sections up to 2 or 3 metres wide and displace geologic contacts as can be seen in figure 3.

The greenstones and sediments do not appear to be highly deformed. Attitudes in the Kunga section strike 070 ± 10^{o} and in general dip $25 - 50^{o}$ north.

Mineralization

Karmutsen greenstones are relatively unaltered with local zones of bleaching and 2% disseminated pyrite.

Massive grey limestone contains podiform masses of skarn mineralization. The skarn in Adit Creek (figure 3) is nearly pure magnetite with local areas of massive pyrite-pyrrhotite with epidote, chalcopyrite and other calc-silicates. The Skarns near the base of Camp Creek and 350 metres west are epidote-pyrite-pyrrhotite skarns with other calc-silicates and minor chalcopyrite. None contain even moderately anomalous values of gold and arsenic.

The argillaceous part of the Kunga section is variably silicified and hornfelsed. Very locally the usually black argillites are so intensely altered they are cream coloured and at one location R571 coarse sericite is abundant. Pyrite and pyrrhotite occur as disseminations and more rarely fracture fillings throughout the argillites forming 2 - 5% of rock volume and locally as much as 15%. The outcrops around H477, which have some of the higher gold anomalies, contain many sulphide veinlets within pyrite mineralized and silicified argillite. The style of alteration described above is shown on figure 3. Elsewhere the argillites form typical unaltered black crumbly outcrops.

The felsic sill and dykes are all bleached and contain 1 - 3% pyrite-pyrrhotite as disseminations and more rarely fracture fillings.

Of the andesitic sills and dykes only the sills are altered and these only locally along their basal contacts for a width up to 1 or 2 metres. Here the sills are silicified and contain 1 - 4% disseminated sulphides and rare quartz veinlets.

GEOCHEMISTRY

General

The work described in this report was designed to provide a detailed geologic map in areas of anomalous reconnaissance soil sample lines, to fill in the soil sample grid and obtain as many rock chips as possible. In total, 814 soil, rock-chip and stream sediment samples were collected and analysed for gold and arsenic.

Rock chip samples were made from three to ten rock chips, small enough to fit into standard kraft sample bags. Soil samples were collected from the B horizon where possibly from a depth of 1 cm to 1/2 cm. Silt samples were collected with a spoon from active silt in creeks.

Gold and arsenic geochemical analyses were done on -80 mesh fraction by Bondar-Clegg and Company Ltd., 1500 Pemberton Ave. North Vancouver, using the following standard procedures:-

Arsenic: Perchloric-Nitric acid extraction and Colormetric determination.

Gold: Fire assay and hot aqua regia with atomic absorption spectrophotometer determination.

Gold

The most consistent pattern of anomalous gold occurs beneath the felsic sill and extends from Camp Creek 450 metres west. This pattern of anomalous gold likely extends further west and may encompass samples H536 (275 ppb Au) and P228 (130 ppb Au). The zone includes highly anomalous rock chips of Kunga H456 (355 ppb Au) and H476 to H479 (215, 450, 5000, 130 ppb Au). H478 is a sample of sulphide veinlets cutting silicified and pyrite mineralized Kunga immediately below the felsic sill. Samples H471 to H474 to the west are probably part of the brecciated footwall of the felsic sill as they include much sill material. These samples which are not anomalous for gold should not be considered as limiting the size of the mineralized zone sampled by H476 to H479. This zone may extend beneath the footwall of the sill along and into the hill or it may project into the hill along the approximate 40° dip of the Kunga argillites. In either case this area of anomalous gold should be considered as a drill target. More detailed sampling is required to the west to complete the alteration - geochemical patterns.

Another pattern of anomalous gold geochemistry is the general association of anomalous gold with the distribution of the felsic sill and dykes. Although spotty, this relationship is obvious on figure 4. The pattern described previously beneath the sill west of Camp Creek is considered to be a "hot-spot" within this general pattern that is controlled by an unknown source.

Spotty gold geochemistry beneath the andesite sills is strongly associated with the occurrence of altered footwall sill and silicified and pyrite mineralized Kunga rubble (R718, R709, R692, R540). This gold geochemistry-alteration could be due to containment of hydrothermal fluids beneath the andesite sill "cap" causing the development of silicification immediately below in Kunga argillite and within the lowermost 1 m of the sill. Known occurrences are so thin (5 metres), spotty, and low-grade so as not to be of further interest.

Arsenic

Anomalous arsenic geochemistry is closely related to anomalous gold geochemistry except, as is usual, arsenic forms a larger anomalous pattern. One exception to the above statement occurs on the north side of the main hill at the northeast end of the map area. Here from sample site E364 to E370 and from 79R1360 to 79R1367, highly anomalous arsenic geochemistry (46 to 540 ppm) does not have any associated gold geochemistry. Some float of Kunga argillite is silicified and pyrite mineralized and float of quartz eye porphyry is also present. Perhaps the arsenic is a lead to gold higher on the hill or "blind" beneath surface. A coincident gold-arsenic geochem pattern is present on the other side of the hill and may be part of this high arsenic geochem pattern.

CONCLUSIONS AND RECOMMENDATIONS

The strong gold-arsenic geochm pattern below the felsic sill and west at Camp Creek is the most anomaous geochem pattern within the large anomalous zone below and above the felsic sill. Other more intense zones may also exist within the large zone but the zone west of Camp Creek is the best known and should be explored further. Diamond drilling is recommended. Sampling and mapping up to 500 metres west of Hl470 should be completed prior to drilling to select the best drill target. Two proposed drill set ups are shown on figure 3. They are spotted to test the projection of the anomalous gold-alteration system found at H476 to H479 within the larger Camp Creek west anomalous zone.

Detailed sampling and mapping is recommended on the ridge and upper slopes at the northeast end of the map between soil sample line E363 to E372 and R651.

Respectfully submitted,

James S. Christie, Ph.D.

Gordon G. Richards, P.Eng.

STATEMENT OF COSTS

Wages:			
J.S. Christie	May 14-21	8 days @ $175	$ 1,400.00
G.G. Richards	May 14-20,23	8 days @ $175	1,400.00
C. Harivel	May 14-21,23,26	10 days @ $175	1,750.00
B. Price	May 14-20,24	8 days @ $175	1,400.00
J. Webe	May 14-20,23,26	9 days @ $ 94	846.00
Meals: 43 man days @ $22/day			946.00
Boat rental	May 15 - 18	4 days @ $ 50	200.00
Camp Rental			50.00
Truck Rental			171.45
Airfares: 5 men Vcr-Sandspit one way		5 @ $ 87.50	437.50
T.P.A. Otter Charter			692.00
Helicopter			1,514.60
Expediting			293.75
Van Cal Reproducting			453.14
Drafting			270.00
Typing			50.00
Report writing			1,000.00
Supplies			1,030.17
Telephone			62.20
Geochem			6,665.59
Freight			186.67
		Total	$20,819.07

STATEMENT OF QUALIFICATIONS

I, James S. Christie of Vancouver, British Columbia do hereby certify that,

1. I am a Professional Geologist residing at 3921 W. 31st Ave., Vancouver, B.C. V6S 1Y4.

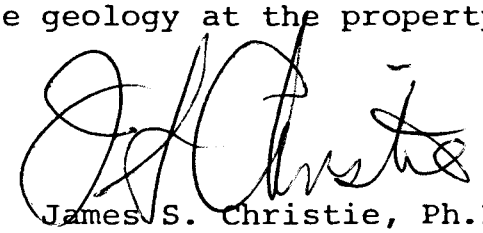
2. I am a graduate of the University of British Columbia B.Sc. Honours Geology - 1965, Ph.D. Geology - 1973.

3. I have practiced my profession as a mining exploration geologist, continuously since 1965.

4. I am a Fellow of the Geological Association of Canada.

5. I am a Member of the Geological Society of America.

6. This report is based on my personal knowledge of the district, and mapping of the geology at the property.



James S. Christie, Ph.D.

STATEMENT OF QUALIFICATIONS

I, Gordon G. Richards of Vancouver, British Columbia do hereby certify that,

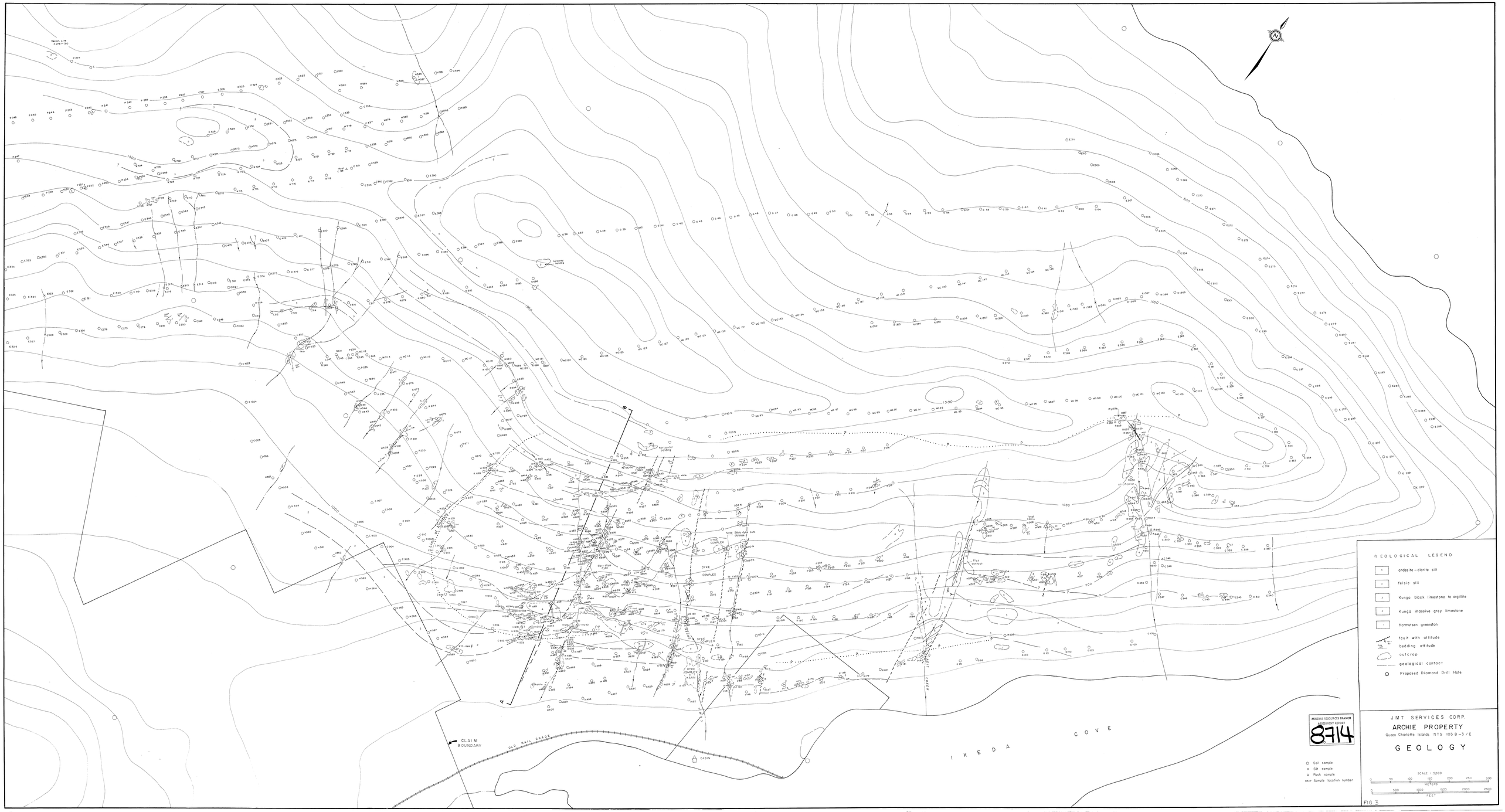
1. I am a Professional Engineer of the Province of British Columbia, residing at 818 West 68th Ave., Vancouver, B.C., V6P 2V2.

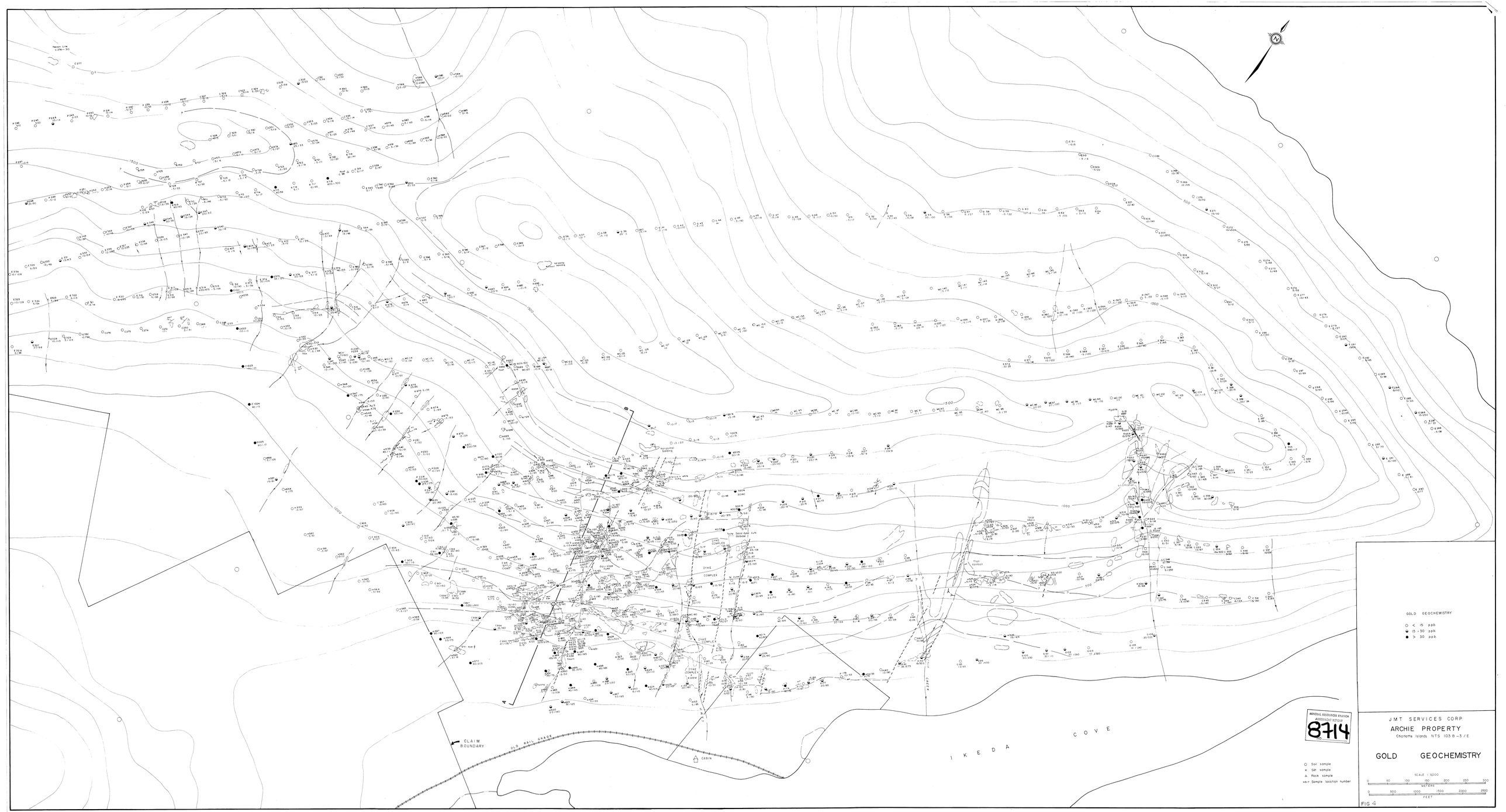
2. I am a graduate of the University of British Columbia B.A.Sc. 1968, M.A.Sc. 1974.

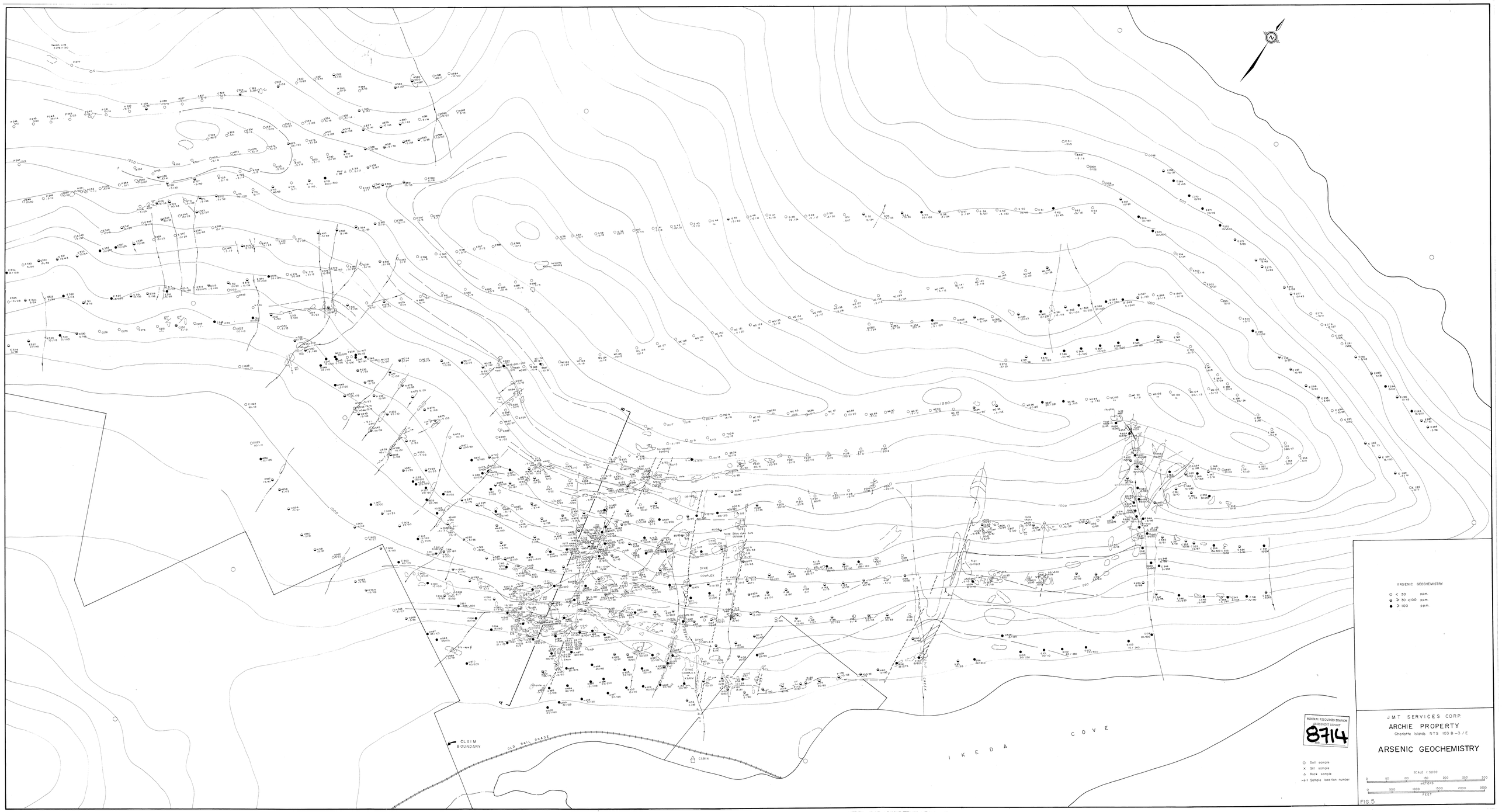
3. I have practised my profession as a mining exploration geologist, continuously since 1968.

4. This report is based on my personal knowledge of the district, and mapping of the geology at the property.

Gordon G. Richards, P.Eng.

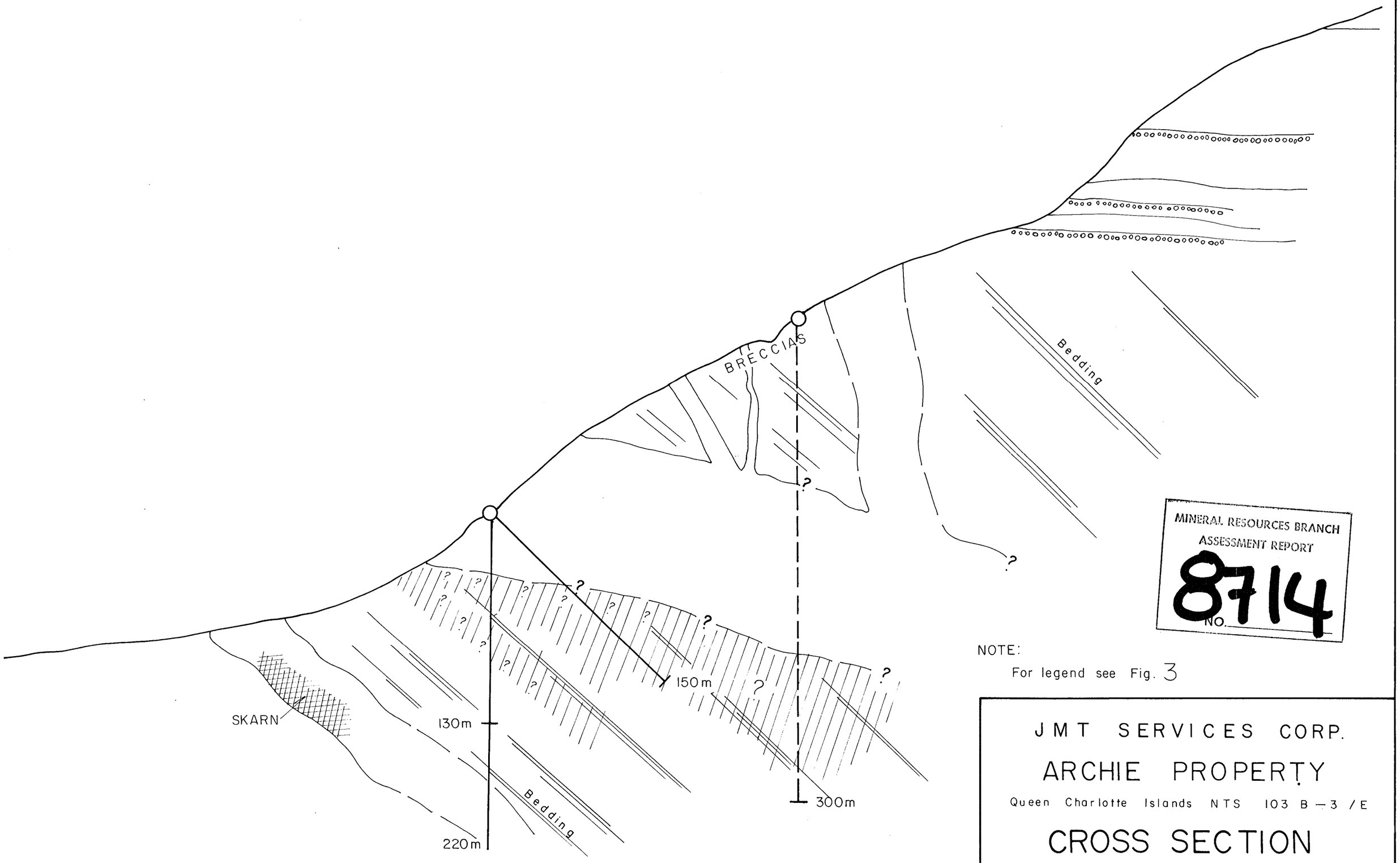

CLAIM BOUNDARY
OLD RAIL GRADE
CABIN
I K E D A C O V E
DYKE COMPLEX
GEOLOGICAL LEGEND
andesite - diorite sill
felsic sill
Kunga black limestone to argillite
Kunga massive grey limestone
Kormutsen greenston
fault with attitude
bedding attitude
outcrop
geological contact
Proposed Diamond Drill Hole
Soil sample
Silt sample
Rock sample
Sample location number
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8714
JMT SERVICES CORP.
ARCHIE PROPERTY
Queen Charlotte Islands NTS 103 B-3/E
GEOLOGY
SCALE 1:5000
METRES
FEET
FIG 3


GOLD GEOCHEMISTRY
< 15 p.p.b.
15 - 30 p.p.b.
> 30 p.p.b.
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8714
JMT SERVICES CORP.
ARCHIE PROPERTY
Charlotte Islands, NTS 103 B - 3 / E
GOLD GEOCHEMISTRY
SCALE 1:5000
METERS
FEET
Soil sample
Silt sample
Rock sample
Sample location number
CLAIM BOUNDARY
OLD RAILROAD GRADE
CABIN
IKEDA COVE
DYKE COMPLEX
FIG 4


ARSENIC GEOCHEMISTRY
○ < 30 ppm.
● ≥ 30 <100 ppm.
● ≥ 100 ppm.
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8714
○ Soil sample
× Silt sample
△ Rock sample
m5/F Sample location number
JMT SERVICES CORP.
ARCHIE PROPERTY
Charlotte Islands NTS 103 B-3/E
ARSENIC GEOCHEMISTRY
SCALE 1:5000
METRES
FEET
CLAIM BOUNDARY
OLD HAIDA GRADE
CABIN
IKEDA COVE
DYKE COMPLEX
FIG 5

A

B



NOTE:
For legend see Fig. 3

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ARCHIE PROPERTY

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CROSS SECTION

0 50 100 150 200
Metres
0 500 1000 1500
Feet

FIG . 6